



PUNJAB INDUSTRIAL ESTATES

DEVELOPMENT AND MANAGEMENT COMPANY

A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



PIE/QABP/NEPRA- 2523
October 24, 2022

To,

The Registrar, NEPRA
NEPRA Tower,
Attaturk Avenue (East), Sector G-5/1, Islamabad.

Subject:

APPLICATION FOR POWER DISTRIBUTION LICENSE FOR PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY (PIEDMC) OWNED BY GOVT.OF PUNJAB AT QUAID-E-AZAM BUSINESS PARK SHEIKHUPURA.

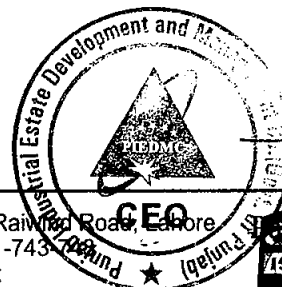
Reference: NEPRA letter no. NEPRA/DG(Lic)/LAD-11/1583 Dated January 27, 2022, copy attached as annexure- A.

Dear Sir,

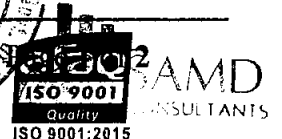
The Chief Executive Officer being duly authorized representative of Punjab Industrial Estates Development and Management Company (PIEDMC) by virtue of power of Attorney / Board Resolution as stipulated in its 104th BOD Meeting dated 21st July 2016, to apply to National Electric Power Regulatory Authority, Islamabad, for the grant of Distribution License to the Punjab Industrial Estates Development and Management Company (PIEDMC) Govt. of Punjab at its Quaid-e-Azam Business Park, Sheikhupura.

In continuation to the aforementioned NEPRA letter. please find the attached application as per NEPRA Licensing Procedures Regulations, 2021 (AMECPR-2021) as notified vide SRO No. 760(I)/2021, on December 21, 2021, for obtaining the Electricity Power Distribution License for the Punjab Industrial Estates Development and Management Company (PIEDMC), at its industrial estate located in Sheikhupura, Punjab.

A Pay Order in the sum of Rs.3,196,089/- being the 'Non-refundable License Applicant Fee calculated in accordance with schedule II and PART I as per NEPRA SRO No. 760(I)/2021 are also attached here with this application.



Head Office: Commercial Area (North) Sundar Industrial Estate, Sundar Rai Road, Lahore
Tel: 042-35297203-6, Fax: 042-35297207, UAN: +92-42-111-743
Website: www.pie.com.pk E.Mail: info@pie.com.pk
An Approved Non Profit Organisation U/S 2(36) of Income Tax Ordinance 2001


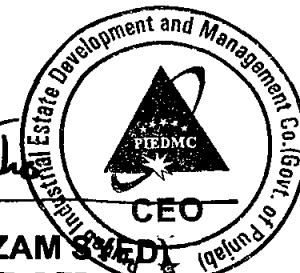


Moreover, PIEDMC (hereinafter the Applicant), vide this application hereby makes, constitutes, ordains, nominates and appoints M/s SAMD Consultants and all its employees, agents and relevant persons (hereinafter referred to as the "Authorized Representatives/ Authorized Agents"), to act under our authority and on our behalf, and to do or execute or to represent, institute, or file applications, documents, attend hearings, remove objections, make statements, give evidence, affidavits on behalf of the Applicant, or to act in any legal capacity to pursue the attached application;

The application may please be processed at your end for the early issuance of Power Distribution License for PIEDMC at its Quaid-e-Azam Business Park, Sheikhpura.

Thanking you and best regards.

DA/As above:



(ALI MUAZZAM SYED)
CHIEF EXECUTIVE OFFICER

Copy to:-

1. The Chairman, PIEDMC.
2. The Chairman, NEPRA.
3. The Director General Licensing, NEPRA.
4. The Director General CAD, NEPRA.
5. The General Manager Technical, PIEDMC.
6. The General Manager Coordination, PIEDMC.
7. The General Manager Business & Development, PIEDMC.
8. The Chief Financial Officer, PIEDMC.
9. The Chief Engineer Electrical, PIEDMC.
10. The Company Secretary (Acting), PIEDMC.
11. The Project Director, QABP.
12. The Director, M/s SAMD Consultants.

**MEMORANDUM & ARTICLE OF
ASSOCIATION
&
CERTIFICATE OF INCORPORATION**



(THE COMPANIES ORDINANCE, 1984)

A COMPANY LIMITED BY GUARANTEE
HAVING A SHARE CAPITAL

Memorandum

and

Articles of Association

of

**PUNJAB INDUSTRIAL ESTATE DEVELOPMENT
AND MANAGEMENT COMPANY**

100-100000
2010



CERTIFICATE OF INCORPORATION

No. AP/379 of 200 - 200

I hereby certify that "PUNJAB INDUSTRIAL ESTATE
DEVELOPMENT AND MANAGEMENT COMPANY, "13-PAN E ROAD, LAHORE."

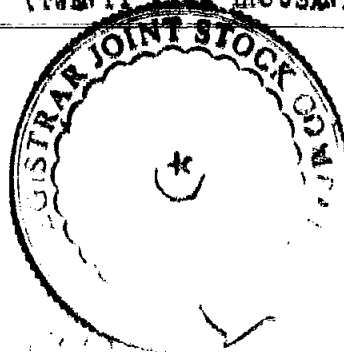
is this day incorporated under the Companies Ordinance of
1984, and that the company is limited by Guarantee without addition
of the word "Limited" to its name.

Given under my hand at LAHORE

this 18TH day of SEPTEMBER, 2003.

Two Thousand THREE

Fee: Rs. 25,000/- (TWENTY FIVE THOUSAND ONLY).



(Signature)
(ATIO-UR REHMAN)

District Officer
For Registrar
Joint Stock Companies
CITY District Government.
Lahore.

No. RP/1251/L/E/2003/587
Dated. 18.09.2003

Certificate for Commencement of Business

(Pursuant to section 146 of the Companies Ordinance, 1984)

Certified that the PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND
MANAGEMENT COMPANY, 13- FATE ROAD, LAHORE.

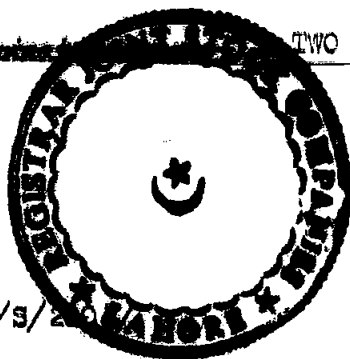
Which was incorporated under the Companies Ordinance, 1984, on the 18th
day of SEPTEMBER, 2003

and which has this day filed a duly verified declaration in the Prescribed form that the conditions of section 69 and 146 of the said Act, been complied with, is entitled to commence business.

Given under my hand at LAHORE

This 31st day of JAN 2004

~~Twenty thousand four hundred and~~ TWO THOUSAND FOUR.



NO.RP/1251/L/S/2004

Dated:- 3. 1. 2004.

(ATTIQ-UR-REHMAN)

DISTRICT OFFICER

ENTERPRISE & INVESTMENT PROMOTION
LAHORE

FOR JOINT STOCK COMPANIES
LAHORE REGION.

THE COMPANIES ORDINANCE, 1984

(A COMPANY LIMITED BY GUARANTEE HAVING A SHARE CAPITAL)

**ESTABLISHED UNDER SECTION 42
OF THE COMPANIES ORDINANCE, 1984**

MEMORANDUM OF ASSOCIATION

OF

PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY

1. The name of "The Company" is Punjab Industrial Estate Development and Management Company, having a share capital, (hereinafter referred to as "The Company").
2. The registered office of "The Company" shall be situated in the Province of the Punjab, city of Lahore.
3. "The share capital of "The Company" will be as follows:

- (i) Authorized Capital Rs.150.00 Million (Rupees One Hundred and Fifty Million).
- (ii) Paid-up Capital Rs.50.00 Million (Rupees Fifty Million).

The Capital is divided Into Five (05) Million Ordinary Shares of Rupees Ten (10) each.

4. The objects for which "The Company" is established are as follows:
 - i. "The Company" is an association of non-profit organization, within the meaning of section 42 of the Companies Ordinance, 1984 and is being formed as a public company;
 - ii. organized and established for orderly, planned and rapid industrialization of Punjab, headed by a Chairman from private sector, a Board of Directors and a General Body as per Articles of Association, all to be nominated by Government of the Punjab, (hereinafter referred to as Government);
 - iii. to establish new Industrial Estate(s) as defined in Articles of Association of "The Company" and to upgrade those existing Industrial Estate(s) as may be assigned to "The Company" by Government, in financially sustainable

manner and to undertake such related functions as may be entrusted by Government to "The Company" from time to time;

- iv. to select/acquire/lease/purchase appropriate site(s) for the development of new Industrial Estate(s) and to make ancillary arrangements related thereto for establishing such Estate(s) including but not limited to creation of charge, lien, mortgages, encumbrances etc.;
- v. to develop infrastructure within the Industrial Estate(s). However, "The Company" shall not engage in real estate business;
- vi. to appoint Board of Management (BOM) for each of the Industrial Estate;
- vii. to identify support services required by each Industrial Estate(s) and to establish a linking mechanism with all the industries to increase productivity;
- viii. to form/incorporate/manage/administer/dispose of corporate entity(ies) as subsidiary(ies) with prior approval of the Government including but not limited to power generation/distribution/transmission/purchase/sale and/or any other purpose deemed expedient for the fulfillment of the objects of the Company, and/or to operate with any other company or association having similar objects;
- ix. to facilitate the provisions of utilities like electricity, gas, telephone and medical facilities and ancillary services for the units established or to be established within the Industrial estate(s);
- x. To generate eclectic power through any means of generation developed or to be developed in future and to deal in transmission, transforming, conversion, switching, gridding, sale, purchase, distribution of electric power and other utilities in all its forms and perspectives and to undertake all such activities as are connected, linked or associated therewith and seek necessary approvals/registrations/licences from relevant authorities and to do all such acts, deeds or things as would be required for effective discharge of these objects;
- xi. to provide common facilities for the Industrial Estate(s) and to enter into financial transactions in furtherance thereof;
- xii. to identify the environment preservation requirements for the benefits of the Industrial Units;
- xiii. to create zoning restrictions within the Industrial Estate(s);

- xiv. to promote creation of jobs by capitalization on strengths of each region by prioritizing the type(s) of industry, already prevalent in that particular area;
- xv. to collect statistical data from within the Industrial Estate(s) for undertaking future improvements;
- xvi. to promote interaction between the industrialists and Government to create an over all conducive industrial environment in the Industrial Estate(s);
- xvii. to arrange workshops and meeting points for creating interaction with international investors, government regulators, non government organizations (NGOs) and various similar services organizations and bodies for creating a highly conducive local/international investment environment;
- xviii. to arrange interaction between academia and industry for creating platform to initiate research projects for the benefits of all concerned;
- xix. to provide the platform for the financial institutions to meet the stake holders and create specific products and services to solve the financial requirements of SMEs and the fiscal requirements of the financial institution(s) to create healthy loaning environment with a reduced risk of failure and to arrange systematic recovery/closure of such units;
- xx. to take necessary steps to attract industrialists to set up units in the Industrial Estate(s);
- xxi. to borrow or raise money by all legal means/instruments, with the specific permission of Government;
- xxii. to open and operate banking account(s) and to draw, make, accept, endorse, discount, execute and issue promissory notes, bills of exchange, bills of lading, warrants, drafts, cheques, bonds, debentures and other negotiable or transferable instruments subject to compliance of relevant prudential regulations;
- xxiii. to undertake and execute such agency agreement(s) which may promote directly the objects of "The Company";
- xxiv. to print and publish any periodicals, books or leaflets in furtherance of "The Company's" objectives;
- xxv. to invest the monies of "The Company" not immediately required in short term secured investment;
- xxvi. to enter, with permission of Government into any arrangements with any government(s) and authority(ies), municipal, local or otherwise or any

person or company that may seem conducive to all or any of the objects of "The Company" and to obtain from any such government(s), authority(ies), person or company any rights, privilege, contracts, license and concessions which "The Company" may think is desirable to obtain and to carry out exercise and comply therewith;

- xxvii. to accept from any government(s) or agencies or authorities, public/private/civic bodies, corporations, companies, persons or any other source in Pakistan and abroad for use in work and to raise funds, accept any grants or money, moveable or immovable property, donations, gifts, subscriptions, devices, bequests and other assistance with a view to promoting the objects of "The Company" and in receiving any gift or property to take the same either conditionally or unconditionally or subject to any special conditions which may be prescribed by the donor in writing and accepted by the BOD subject to such procedure prescribed by Government from time to time;
- xxviii. acquire, take-over, accept by way of gift, the assets of any other organization, body or society with similar objects or undertake and accept the management of any endowment or trust fund set up with similar objects as that of "The Company", subject to such procedure as may be prescribed by Government from time to time;
- xxix. to take such steps by ~~personal or written~~ appeals or otherwise as may from time to time be deemed expedient for the purpose of procuring contributions to the funds of "The Company" in the shape of donations or annual subscriptions;
- xxx. to cooperate with any company or association having objects similar to the objects of "The Company" and any company or association the objects of which are calculated either directly or indirectly to benefit "The Company" in attainment of any of its objects;
- xxxi. to propose to Government amendments in statutes, rules, orders for enabling "The Company" to carry any of its objects into effect; and
- xxxii. to do all such other lawful and charitable things as are incidental or conducive to the attainment of the above described objects;

- 5. The liability of the members is limited.
- 6. The income of "The Company" when-so-ever derived shall be applied solely towards the promotion of the objects of "The Company" as set forth in the Memorandum of Association and no portion thereof shall be paid or transferred directly or indirectly, by way of dividend, bonus, remuneration or grant in the

shape of other benefits, by way of profit, or otherwise howsoever, to the members of "The Company"; provided that nothing therein contained shall prevent the payment in good faith of remuneration to any officers or servants of "The Company" or any other person including Legal Advisor, except a Member in return for any services actually rendered to "The Company", nor prevent the payment of interest on money borrowed or rent out any property leased or hired from any person other than a Member of "The Company". No member of BOD of "The Company" shall be appointed to any salaried office of "The Company", or any office of "The Company" generating fee and that no remuneration shall be given by "The Company" to its members of BOD, but the Chairman/BOD shall be provided with the facilities for boarding, lodging and/or travel domestic or abroad undertaken for furtherance of the objects of "The Company".

7. No addition, alteration or amendment shall be made to or in the provisions or regulations contained in the Memorandum and/or Articles of Association, for the time being in force, except in accordance with the Companies Ordinance, 1984 and with the prior approval of the Government and thereafter the same shall be submitted to and approved by the Registrar of Companies, Lahore Region.
8. Patronage of any government or authority, express or implied, shall not be claimed unless such government or authority has signified its consent thereto in writing.
9. Each member of "The Company" undertakes to contribute to the assets of "The Company" in the event of its being wound up, while he is a member, or within one year afterwards for payment of the debts and liabilities of "The Company" contracted before he ceases to be member and of the costs, charges and expenses of winding up. The sum to be contributed by the Members shall be as follows.

All Members of "The Company" shall individually contribute a sum not exceeding Rs.1000.00 (Rupees one thousand only).

If the total sum required on winding up for payment of the debts and liabilities of "The Company" and of the said costs and expenses shall be less than Rs.1000.00 then the Member shall contribute thereto in proportion to their maximum specified liability.

10. Notwithstanding what is stated herein, if upon the winding up or dissolution of "The Company" there remains, after the satisfaction of all its debts and liabilities, any property whatsoever, the same shall be given or transferred to Government.

We, the several persons, whose names and addresses are hereunder subscribed, are desirous of being formed into a Company in pursuance of the Memorandum of Articles of Association.

Name and surname (present and former) full and complete	Father's full name in full	Nationality	Occupation	Residential address in full	Signature
Moniem M. Syed	Syed M. Musa	Pakistan	Engineer	71-S, Dabuloo Phase II, Lahore Cantt.	
Mr Fayaz Rastur	Basim Ahmad	Pakistan	Secretary Industries Commerce & Investment Industrialist	7-Akram Road, GDA, Lahore	
Mr Qasim Muhammad Qureshi	Khatir Shahid Bakht	Pakistan	Chairman TEVA	House No. 2, Nisar Colony, Gadhara District, Lahore	
Mr Sibtan Mustafa Khan	Basim A. Khan	Pakistan	Engineer	House No. 20-F, Sarwar Road, Lahore Cantt., Lahore	
Mr Babar Chohan	Dr. M. A. Chohan	Pakistan	Businessman	House No. 16, St. No. 53, Sector 773, Islamabad	
Mr Abbas Khan	Dr. S. M. Nadeem	Pakistan	Chief Executive, Transmole	House No. 1-41, Gulberg II, Lahore	
Mr Syed Azeem Hassan	Syed Azeem Ali Shah	Pakistan	Chief Executive, Transmole	House No. 533, Block G Sector C, Faisalabad, Lahore	
Mr M. I. Khan	M. I. Khan	Pakistan	Chief Executive, Comfort Liners	45-E, Gulberg II, Lahore	
Mr Sibtan Mustafa Khan	S. M. Nadeem	Pakistan	Secretary, Secor and Human Resources	House No. 93, Block III, Shalimar, Lahore	
Mr Kamal Lashari	Sardar Abdul Majid Khan Lashari	Pakistan	Secretary, Environment Protection	House No. 224 F-100, Islamabad	
Mr Zahid Ahmad Khan	Nasir Ahmad Khan	Pakistan	Engineer	House No. 16, Faisal Sher Road, Wazirpur, Lahore	
Dr. Faraz Khan	Abdul Faraz	Pakistan	Economist	22-A, Phase II, Lahore	
				House No. 29, Ghazi Road, Karachi, Municipal Sector Bazar, Lahore	

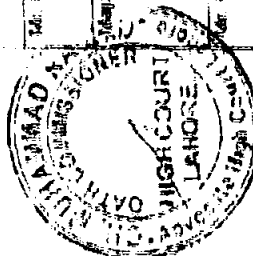
ATTESTED

Witness the day of

WITNESS TO ABOVE SIGNATURES

Full Name
Father's Name
Full Address
Nationality

Signatures of WITNESSES
COMPANION
Sole Proprietor
Associate High Court Lahore



THE COMPANIES ORDINANCE, 1984

ARTICLES OF ASSOCIATION

OF

PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY
(A COMPANY LIMITED BY GUARANTEE HAVING A SHARE CAPITAL)

PRELIMINARY

1. WHEREAS IT HAS BEEN agreed by several persons whose names are hereunto subscribed to establish and incorporate a Company Limited by Guarantee having a Share Capital under the provisions of the Companies Ordinance, 1984 in the name of Punjab Industrial Estate Development and Management Company (hereinafter referred to as "The Company") in accordance with the provisions of the Memorandum of Association hereto annexed and subject to several regulations hereinafter contained which shall be the regulations for management of "The Company" and for the observance of Members thereof and their representatives and the same shall subject to exercise powers of "The Company", in reference to the repeal or alteration of or addition to, its regulations by Special Resolution as prescribed by the "Ordinance", be such as are contained in "These Presents".

INTERPRETATION

2. The marginal notes hereto shall not affect the construction hereof, and in "These Presents" unless there be something in the subject or context inconsistent therewith:
 - I. "Attorney" includes an attorney duly constituted or appointed under power of attorney or any other authority in writing.
 - II. "Board of Directors" means the Board of Directors (BOD) of "The Company" as constituted under provisions of "These Presents".
 - III. "Board of Management" mean representatives of occupiers of each Industrial Estate, nominated and appointed as such by BOD subject to Article 22 hereof. For the purposes of this clause an "occupier" means an owner in possession of an industrial unit in Industrial estate(s).
 - IV. "Chairman" means Chairman of "The Company" duly nominated from time to time by "Government" under the provisions of "These Presents".
 - IV-a "Chief Executive Officer" means the contractual employee, selected through an open competitive selection process by BOD to perform functions within the meaning of section 2(6) of the Companies Ordinance, 1984 and appointed as such in accordance with the terms and conditions to be determined by BOD.
 - V. "Federal Government" means Government of Pakistan.

- VI. "Fund" means initial amount to be provided by "Government" on loan basis on mutually agreed terms and conditions including mark-up rate with repayment period.
- VII. "General Body" means General Body of "The Company" as constituted under the provisions of "These Presents".
- VIII. "Government" means Government of the Punjab through Industries Department.
- IX. "Industrial Estate" means an Industrial Estate managed or to be established by "The Company" anywhere in the Province of Punjab.
- X. "Independent Director" means a director who is nominated by "Government" and shall have the same meanings as ascribed thereto respectively by the "Rules".
- XI. "Legal Advisor" means an Advocate entitled to appear before any of the High Court of Pakistan or Supreme Court of Pakistan and shall be appointed by the Chief Executive Officer and approved by BOD on retainer basis.
- XII. "Local Government" means a Local Government as defined in the Punjab Local Government Ordinance, 2001 (XIII of 2001).
- XIII. "Member" means member of "The Company" whose name appears and/or is borne on the Register, as envisaged by Section 2(21) of the "Ordinance".
- XIV. "Month" means English calendar month.
- XV. "Office" means the registered office of "The Company".
- XVI. "Ordinance" means the Companies Ordinance, 1984 and every statutory modification thereof for the time being in force.
- XVII. "Prescribed" means as prescribed by BOD from time to time.
- XVIII. "Rules" means the Public Sector Companies (Corporate Governance) Rules, 2013 and every statutory modification thereof for the time being in force.
- XIX. "Register" means the Register of Members to be kept pursuant to the "Ordinance".
- XX. "Seal" means the common Seal of "The Company".
- XXI. "Secretary" means any individual appointed to perform the secretarial, administrative or other duties ordinarily performed by the secretary of a company.
- XXII. "Special Resolution" and "Ordinary Resolution" have the same meanings as assigned thereto respectively by the "Ordinance".
- XXIII. "These Presents" means and include Articles of Association and any modification or alteration thereof for the time being in force.
- XXIV. Words importing singular number only include the plural number.
- XXV. Words importing plural number only include the singular number.

- XXVI. Words importing masculine gender only include the feminine gender.
- XXVII. Words importing feminine gender only include the masculine gender.
- XXVIII. Words importing persons include bodies corporate and otherwise, firms, registered or un-registered associations, and non-government, semi-government and government organizations.
- XXIX. Words of expressions in "These Presents" shall, except where it is repugnant to the subject or context, bear the same meanings as in a Standard English Dictionary.
- XXX. "Written" and "In Writing" includes printing, lithography, type-writing, telex, tele-facsimile (fax) and other modes of representing or reproducing words in a visible form.

BUSINESS OF "THE COMPANY"

3. The business of "The Company", its affairs and/or functions shall comprise of achieving the objects given in the Memorandum and include undertaking of all or any of the several objects, and any act, deed or thing done in pursuance thereof, ancillary and/or incidental thereto as expressed in, and authorized by the Memorandum of Association hereto annexed, and can be commenced immediately after Incorporation of "The Company" as BOD may think fit.

SHARE CAPITAL OF "THE COMPANY"

4. The Equity of "The Company" which shall be provided by the "Government" as follows:

- Authorized Capital Rs. 150.00 Million (Rupees One Hundred and Fifty Million)
- Paid up Capital Rs. 90.00 Million (Rupees Fifty Million)

The Capital shall be divided into 150 Million Ordinary Shares of Rupees Ten (10) each. "The Company" may from time to time, by Special Resolution, increase, consolidate, subdivide, reduce or otherwise reorganize the Share Capital, subject to the "Ordinance" and with prior approval of the "Government".

TRANSFER AND TRANSMISSION OF SHARES

5. The "Government" shall have the exclusive right to transfer any share.

No shares can be mortgaged, pledged, sold, hypothecated, transferred or disposed of by any Member without previous sanction of Government.

In case of death of any Member, his share shall automatically stand transferred to Government, which shall have the exclusive right to allot the same to any other person/institution/entity.

MEMBERSHIP

6. The subscribers to "These Presents" and to the Memorandum of Association hereunto annexed shall be admitted to the Membership of "The Company" from time to time and shall be deemed to have agreed to become a "Member" of "The Company" in

accordance with and in pursuance to "These Presents" and whose names appear in the Register, shall be the "Member" of "The Company".

7. The total number of members of BOD of "The Company" shall be fifteen (15), who shall be nominated by "Government". Nine (09) members including the Chairman shall be the Independent Directors nominated by "Government". Six (06) members of the BOD shall be the Secretaries to the "Government" for Industries Department, Finance Department, Labor & Human Resource Department Chairman TEVTA., Chief Executive Officer of "The Company" and Chief Executive Officer of Punjab Board of Investment & Trade (PBIT) shall be appointed *ex-officio*.

Subsequent vacancies arising thereafter of members of BOD shall be filled in accordance with "These Presents". Due regard shall be given to skills and discipline in the composition of "General Body". Any person, who is a loan defaulter, or is a sponsor of a company which is in loan default, or otherwise ineligible to hold any such post under or by any law cannot be a member of BOD.

8. Any person/industrial estate/organization interested in the promotion of good governance and engaged in any voluntary activity with a proven record of industrial experience is eligible to become a "Member" of "General Body" on invitation by BOD and approval of "Government", except a person/ industrial estate/organization who is a loan defaulter, or is a sponsor of company which is a loan defaulter, or otherwise ineligible to hold any such post under or by any law. Such person/industrial estate/organization may be associated with a voluntary organization or a private individual having record of community service but his/its Membership of "The Company" will be in his/its individual capacity.

9. "The Company" shall maintain a Roll of "Members", clearly indicating their full names, addresses and occupations and every "Member" shall sign the same. If a "Member" of "The Company" changes his address, he shall forthwith notify his new address to "Secretary" of "The Company", who shall thereupon cause the new address to be put on the Rolls of "Members". Where, however, a "Member" does not notify any change of address to the "Secretary", the address appearing on the Rolls of the "Members" shall be deemed to be correct address of the "Member". The said Roll of "Members" also called "Register" shall be maintained at the Office of "The Company".

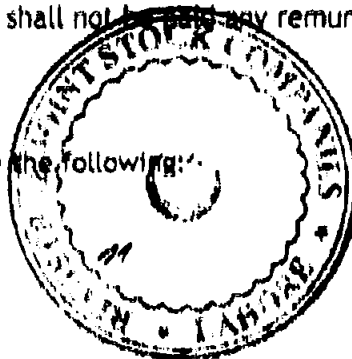
10. Membership of "The Company" may be terminated on the happening of any of the following events:

- I. On the "Member's" death, resignation, insolvency, lunacy or conviction for an offense involving moral turpitude.
- II. When a "Member" does not attend three consecutive General Meetings of "The Company" without prior leave of absence granted by BOD.
- III. When "The Company" in General Meeting, by a simple majority, decides to terminate the Membership of any person who acts in a manner prejudicial to the interests of "The Company", fails to fulfill any obligation required by "The Company" or acts in a manner as is not conducive to the objects of "The Company".

11. Subject to the foregoing and/or other provisions, Membership of "The Company" shall be open to all Pakistani citizens.
12. If a vacancy occurs, among the "Members", such vacancy shall be filled in as provided in Article (08) supra.
13. When a "Member" desires to resign from his Membership of "The Company", he shall forward his letter of resignation to the Chairman and such resignation shall take effect only from the date of its acceptance by BOD.
14. "The Company" shall function notwithstanding any vacancy in any of its bodies and no act, direction or proceeding of "The Company" shall be rendered invalid merely by reason of such vacancy or because of any defect in the appointment of any of the officers of "The Company".
15. The Chairman and the members of BOD will not be paid any remuneration but will be provided traveling, boarding, lodging traveling and transportation facilities on such terms as decided by BOD.
16. "Members" of "The Company" shall not be paid any remuneration or dividend.

OFFICERS OF "THE COMPANY"

17. "The Company" shall comprise the following:
 - I. General Body
 - II. BOD
 - III. Chairman
 - IV. Chief Executive Officer
 - V. Secretary
 - VI. Board of Management for specific Industrial Estates, exercising such powers as may be specifically "Prescribed" by BOD.



GENERAL BODY

18. There shall be a "General Body" of "The Company", which shall comprise of all the shareholders.
19. The Chairman shall preside over all meetings of "General Body".
20. The Chairman may invite any person other than a Member to attend a meeting of "General Body". Such invitee to be known as special invitee, shall not, however, be entitled to vote at the meeting.
21. "General Body" shall have the following powers and functions, namely:
 - a. to give overall policy guidance and direction for the efficient functioning of "The Company";
 - b. to approve the annual budget;
 - c. to consider the balance sheet and audited accounts for the previous year;

- d. to consider the annual report prepared by BOD;
- e. to amend "These Presents", if deemed necessary, by way of addition, alteration, modification or substitutions, in accordance with the "Ordinance" and with prior approval of the "Government" only after which the same shall be submitted to and approved by the Registrar Companies, Lahore Region.
- f. to appoint auditors except the First Auditors to be appointed by BOD.

POWER OF NOMINATION AND/OR TERMINATION

- 22. The power to nominate and/or terminate the Chairman, any Director or the "Member" of "General Body" shall vest with the "Government". The "Government" may also supersede BOM of industrial estates or appoint or remove member(s) thereof.

GENERAL MEETINGS

- 23. The First Annual General Meeting of "The Company" shall be held at such time not more than eighteen (18) months after the incorporation of "The Company", and at such time and place as BOD may determine.
- 24. Subsequent Annual General Meetings of "The Company" shall be held at least once every year at such time and place as may be determined by BOD, within fifteen calendar months after the ~~beginning~~ ^{closure} of the last preceding General Meeting and within four months from the ~~beginning~~ ^{closure} of the annual accounts.
- 25. The above named General Meetings shall be called Annual General Meetings. All other meetings of "The Company" shall be called Extraordinary General Meetings.
- 26. BOD may at any time call for an Extraordinary General Meeting and shall, on the requisition of the Members representing not less than one-third of the voting power on the date of deposit of requisition, proceed to call an Extraordinary General Meeting.
- 27. Any such requisition shall specify the objects of the Meeting and shall be signed by the makers, and shall be deposited at the Office. The meeting must be convened for purposes specified in the requisition only.
- 28. If BOD does not proceed to cause a meeting to be held within twenty one days from the date of requisition being deposited, the makers or a majority of them may themselves convene a meeting to be held not more than three months, from the date of deposit of the requisition.
- 29. Any meeting convened through requisition shall be convened in the same manner, as nearly as possible, as that in which meeting is convened by BOD.
- 30. Subject to the provisions of the "Ordinance", relating to Special Resolutions, twenty one days notice, at least (exclusive of the day on which the notice is served or deemed to be served, but inclusive of the day on which the notice is given), specifying the place, the day and the hour of the meeting, and in case of special business, the general nature of such business, shall be given of every General Meeting whether Annual or Extraordinary to the "Members" in the manner in which notices

are required to be served in accordance with the provisions contained herein below. Notwithstanding anything contained herein before, a meeting may be convened by such shorter notice and in such manner as those "Members" may think fit with the consent of all the "Members" entitled to receive notice thereof and the permission of the Registrar Companies, Lahore Region.

31. The accidental omission to give any such notice to or the non-receipt of notice by any of the "Member" shall not invalidate the proceedings of any such meeting.

PROCEEDING AT GENERAL MEETINGS

32. The business of an Annual General Meeting shall be to receive and consider the Income and expenditure account and balance sheet, the Annual Report of BOD and of the Auditors, if required or found necessary, and the appointment of the Auditors and fixation of their remuneration and to transact any other business which may be transacted at an Annual General Meeting. All other business transacted at Annual General Meeting and all business transacted at an Extraordinary General Meeting shall be deemed special.
33. Two third (2/3) of the voting power of "Members of The Company" present personally, shall be a quorum for a General Meeting for all purposes. No business shall be transacted at any General Meeting unless the quorum is present at the commencement of business.
34. If within an hour of the time appointed for the meeting a quorum is not present, the meeting if called on the requisition of "Members", shall be dissolved. In any other case, it shall stand adjourned to the same day in the next week at the same time and place, and if at the adjourned meeting, a quorum is not present within half an hour from the time appointed for the meeting, "Members" being not less than one fourth (1/4) of the total voting power of "Members" of "The Company", shall be a quorum.
35. The Chairman shall be entitled to take the chair at every General Meeting of "The Company". If the Chairman is unable due to sickness or some other unavoidable reasons, BOD may elect one of the Director's to preside.
36. The Chairman may, with the consent of any meeting at which a quorum is present (and shall if so directed by the meeting), adjourn the meeting from time to time and from place to place, but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for ten days or more, notice of the adjourned meeting shall be given as in the case of an original meeting. Save as aforesaid, it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
37. At any General Meeting a resolution put to the vote of the meeting shall be decided on a show of hands, unless a poll (before or on the declaration of the result of the show of hands) demanded in accordance with the provisions of the "Ordinance" and unless a poll is so demanded, a declaration by the Chairman that a resolution has, on a show of hands, been carried or carried unanimously or by a particular majority

and an entry to that effect in the book of the proceedings of "The Company" shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favor of, or against, that resolution.

38. If a poll is duly demanded, it shall be taken in such manner as the Chairman shall direct, and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded.
39. In the case of an equality of votes, whether on a show of hands or on a poll, the Chairman of the meeting at which the show of hands takes place, or at which the poll is demanded, as the case may be, shall be entitled to a casting vote.
40. The demand of a poll shall not prevent the continuance of a meeting for the transaction of any business other than the question on which a poll has been demanded.

VOTES OF MEMBERS

41. On a show of hands and on a poll, every Member present in person shall have vote(s) according to the shareholding. Voting by proxy is allowed as envisaged by the "Ordinance".
42. Any corporation or body corporate which is a Member of "The Company" may by resolution of its directors or other governing body, authorize such person as it thinks fit, to act as its representative at any meeting of "The Company". The persons so authorized shall be entitled to exercise the same powers on behalf of the corporation which he represents as that corporation could exercise if it were an individual Member of "The Company" present in person. A corporation or body corporate, as the case may be, attending a meeting through such representative shall be deemed to be present at the meeting in person.

BOARD OF DIRECTORS (BOD)

43. The BOD shall comprise of fifteen (15) members of which nine (09) members including the Chairman shall be the Independent Directors. The remaining six (06) members shall be the following

Secretary Industries
Secretary Finance
Secretary Labor and Human Resource Development
Chairman TEVTA
Chief Executive Officer of "The Company"
Chief Executive Officer PBIT

44. The affairs of "The Company" shall be managed by BOD, which shall have the responsibility to determine the direction and scope of the activities of "The Company" in accordance with the objectives specified in Memorandum of Association. It shall also have the responsibility to approve projects and assignments as well as providing technical assistance as may be mutually agreed upon, to the "Local Governments" and to approve and administer the annual and supplementary budgets.

45. The term of office of a member of BOD shall be three years, unless he resigns earlier or becomes disqualified from being a Director or otherwise ceases to hold office.
46. No member of BOD shall serve for more than three (03) consecutive terms of three (03) years each except *ex officio* members.
47. Members of BOD shall function in their individual capacity exercising individual judgment under the Chairman, and shall not be subjected to or be bound by instructions or orders of the office, organization or agencies with which they may be associated, except *ex officio* members.
48. No action or decision by BOD shall be rendered invalid or inoperative on account of any vacancy or vacancies in the composition of BOD.
49. The meetings of BOD shall be held in the following manner:
 - a. The BOD shall hold at least six regular meetings every year and shall be called by notice under the signature of "Secretary".
 - b. All meetings of BOD shall be presided over by the Chairman or in his absence, by a Director to be elected by BOD.
 - c. Minutes of the meetings of BOD shall be recorded by "Secretary" or in his absence by a member of BOD, appointed by the Chairman. The minutes shall be duly approved or corrected at the following regular meeting and filed in the permanent records of "The Company".
 - d. Members of BOD shall not receive any compensation for their services to "The Company" and/or any profit out of the business of "The Company".
50. Every notice calling for a meeting of BOD shall state "In Writing" the date, time and place of the meeting and shall be sent to every member of BOD ordinarily seven clear days before the day appointed for the meeting.
51. Any inadvertent omission to give notice or the non-receipt or late receipt of a notice by any member shall not invalidate the proceedings of the meetings.
52. At least 1/4th of the members of the BOD shall constitute a quorum provided at least one Director shall be the representative of the "Government".
53. Each member of BOD shall have one vote. All questions at meetings of BOD shall be determined by a vote of members present, provided that in case of equality of votes, the Chairman shall have a casting vote.
54. Subject to the "Ordinance" any business which BOD may consider necessary to perform, except such as may be required to be placed before "General Body" in general meeting, may be performed by a resolution in Writing circulated among all members of BOD, and any such resolution so circulated and approved by a majority of the members signing, shall be as effectual and binding as if a resolution had been passed at a meeting of BOD.
55. The proceedings of the meeting of BOD and resolution passed by the circulation shall be recorded in a book which shall be maintained by "The Company" for this purpose.

56. BOD shall exercise all executive and financial powers of "The Company", subject to such direction as may be issued by "General Body" from time to time.
57. The BOD shall be responsible for developing the policy guide lines for over-all management and administration of "The Company" and in particular and without prejudice to the generality of the foregoing provisions, BOD shall have the powers, subject to the provisions hereof, *inter alia*:
- I. establish byelaws and service rules of "The Company";
 - II. to constitute or to reconstitute Board of Management(s) for the industrial estates established, developed or managed by "The Company" and appoint members, fill casual vacancy(ies) and to remove any or all member(s) thereof;
 - III. to devise eligibility criteria and to establish operational policies including those relating to finance(s) for "BOM" of the Industrial Estate(s) established, developed or managed by "The Company";
 - IV. prepare and execute detailed plans and programs for the furtherance of the objects of "The Company";
 - V. consider the annual and supplementary budgets placed before it and pass them with such modification as may be deemed necessary for being submitted to "General Body";
 - VI. prepare annual report and cause the preparation of accounts of "The Company" for consideration of "General Body";
 - VII. create posts and appoint such contractual staff as may be required for efficient management of affairs of the "The Company" and regulate the recruitment and terms and conditions of their services;
 - VIII. receive and to have custody of Funds and resources of "The Company", operate "The Company" and manage the properties of "The Company";
 - IX. incur expenditures subject to the provisions of the approved budget;
 - X. enter, for and on behalf of "The Company", into agreements including those containing arbitration clauses;
 - XI. establish, maintain, amalgamate and/or close down 'the company' offices etc. as may be deemed appropriate;
 - XII. to propose investment scenarios relating to Industrial Estate(s) development to Government;
 - XIII. to promote the establishment of common technical facility centers for up gradation of technologies used by the occupier(s) of Industrial Estate(s);
 - XIV. appoint boards, committees, sub-committees and panels, consisting of persons who may or may not be Members of "The Company" or employees of "The Company" to deal with any specific task as may be determined from time to time and to confirm the appointment of Legal Advisor appointed by the Chairman;

- XV. to impose and recover fees and charges for the services rendered by "The Company"; and
 - XVI. to contract out operational and management functions as and when required, to reputable firms or companies;
58. BOD may by resolution delegate such administrative, financial and other powers to the Chairman, Chief Executive, committees, sub-committees, panels and boards or any other officer of "The Company" as it may consider necessary and proper, subject to the condition that action taken by them under the powers so delegated, shall have to be confirmed and/or ratified in the next meeting of BOD.

CHAIRMAN

59. A. The Chairman shall be nominated by the "Government".
- B. The Chairman shall not be paid any remuneration for his services, but shall be provided all secretarial/material/ technical support in order to facilitate the efficient handling of "The Company". He will also be provided boarding, lodging, traveling and transportation facilities and shall be reimbursed for out of pocket expenses.
60. The Chairman shall be responsible *inter alia* for:
- I. coordinating and exercising general supervision over all activities of "The Company"; and
 - II. any other task as may be delegated by BOD.

CHIEF EXECUTIVE OFFICER (CEO):

- 60 A. a. The CEO shall be a contractual employee to be hired for a period of three years renewable term. He shall be duly selected through an open competitive selection process by the BOD from private sector having engineering/management qualification and experience of at least 10 years managing industrial projects, and appointed as such in accordance with terms and conditions of his appointment to be determined by BOD.
- b. The CEO shall work under the directions of the BOD through Chairman and he shall be responsible for day-to-day management and administration of "The Company". Without prejudice to the generality of the foregoing, he shall be responsible:
- I. to determine powers, duties and fix salaries or emoluments of the managers, secretaries, officers, clerks and employees, either permanent or temporary and to require security in such instances and to such amount as deemed appropriate;
 - II. to prescribe duties of all employees and staff of "The Company";
 - III. to make, draw, endorse, sign, accept, negotiate and give cheques, bills of lading, drafts, orders, bills of exchange, promissory notes and other negotiable instruments in the amount(s) and manner as allowed/approved by BOD;

- IV. to institute, conduct, defend or abandon any legal proceedings by or against "The Company" in consultation with Legal Advisor or otherwise concerning the affairs of "The Company" and also to compound and allow time for payment or satisfaction of any debt due and of any claim or demand by or against "The Company";
- V. proper administration of the affairs, "Funds" and resources of "The Company";
- VI. to secure fulfillment of any contract, agreement or engagement entered into by "The Company" by mortgage or charge of all or any of the properties of "The Company" from time to time or in such manner as he may think fit in the interest of "The Company";
- VII. to appoint and to remove or suspend managers, secretaries, officers, clerks and employees, either permanent or temporary, and to determine their powers, duties and fix their salaries or emoluments and to require security in such instances and to such amount as deemed appropriate;
- VIII. to refer any claims or demands by or against "The Company" to arbitration and observe and perform the awards, in consultation with Legal Advisor;
- IX. to exercise supervision and disciplinary control over the work and conduct of all employees of the Company in accordance with Human Resource and Administration Policy/Rules/Regulations approved by the BOD;
- X. to delegate any of his function(s) to any officer of "The Company" with permission of the BOD;
- XI. any other task assigned by BOD.

POWERS AND DUTIES OF BOD

61. The business of "The Company" shall be managed by BOD, who may exercise all such powers of "The Company" as are required by the "Ordinance".

RESOURCES OF "THE COMPANY"

62. The resources of "The Company" shall consist of the following:
 - I. grants made by "Government";
 - II. fee and charges imposed by "The Company" for services rendered by it; and
 - III. income and receipt from other sources;
63. "The Company" may in furtherance of its objectives;
 - I. invest and deal with "Funds" and monies of "The Company" according to "These Presents";
 - II. borrow and raise resources for "The Company" according to "These Presents";

- III. draw, accept, make, endorse, sign, negotiate, deposit, promissory notes, bills of exchange, cheques or any other negotiable instruments; and
- IV. create, with the permission of "Government", a reserve company, sinking company, insurance company or any other special company whether for depreciation, repair, improvement, extension or maintenance of any of the properties or rights of "The Company" and/or for recouping wasting assets and for any other purposes for which "The Company" deems it expedient or proper to create or maintain any such company or companies.
64. All properties of "The Company", moveable or immovable, shall vest in "The Company" and shall be administered by Chief Executive Officer, on behalf of "The Company" within the parameters set by "The Company" in its General Meeting or otherwise as directed by BOD.
65. "The Company" may purchase, hire, lease, exchange or otherwise acquire property, moveable or immovable, tangible or intangible (including copyrights, patents and intellectual properties) which may be necessary or convenient for the purpose of "The Company" and construct, alter and/or maintain such buildings and works as may be necessary for carrying out the objects of "The Company", provided that for acquisition or disposal of immovable property through any mode, prior permission of "Government" shall be mandatory.
66. The income and the property of "The Company", however derived, shall be applied towards the promotion and furtherance of the objectives of "The Company" as set forth in the Memorandum of Association hereto annexed. Save as otherwise provided elsewhere, no portion of the income and property of "The Company" shall be paid or transferred directly or indirectly by way of dividend or by way of profit to persons who at any time are or have been "Members" of "The Company" or to any of them or to any person claiming through them provided that nothing herein shall prevent the payment in good faith any remuneration to any employee or other person in return for services rendered to "The Company" or for traveling allowance, and other similar out of pocket expenses.
67. A. All funds should be paid into "The Company's" account(s) with the bank(ers) of "The Company" and shall not be withdrawn except by cheque signed by authorized representatives in accordance with the procedure to be "Prescribed";
- B. Unless otherwise authorized by BOD, no new account in the name of "The Company" shall be opened.

THE SEAL

68. The "Seal" shall not be affixed to any instrument except by the authority of a resolution of the BOD and in the presence of at least two members of BOD or such other persons as BOD may appoint for the purpose and they shall sign every instrument to which the "Seal" is affixed in their presence.

ACCOUNTS

69. The BOD shall cause to be kept proper books of accounts as required under section 230 of the "Ordinance".
70. The books of account shall be kept at the "Office" or at such other place as BOD shall think fit and shall be open to inspection by the members of BOD during business hours.
71. BOD shall from time to time determine whether and to what extent and at what time and places and under what conditions or regulations, the accounts and books or papers of "The Company" or any of them shall be open to the inspection of Members not being members of BOD and no Member (not being a member of BOD) shall have any right of inspecting any account and book or papers of "The Company" except as conferred by law or authorized by BOD or by "The Company" in General Meeting.
72. BOD shall cause to be prepared and to be laid before "The Company" in General Meeting such profit and loss accounts or income and expenditure accounts and balance-sheets duly audited and reports as are required by sections 233 and 236 of the "Ordinance".
73. A balance-sheet, profit and loss account, income and expenditure account and other reports referred to in Article 69 ~~supra~~ shall be made out in every year and laid before "The Company" in the Annual General Meeting and made up to a date not more than four (04) months before such meeting. The balance-sheet and profit and loss account or income and expenditure account shall be accompanied by a report of the Auditors of "The Company" and the report of BOD.
74. A copy of the balance-sheet and profit and loss account or income and expenditure account and reports of BOD and Auditors shall, at least twenty one days preceding the meeting be sent to the persons entitled to receive notices of General Meetings in the manner in which notices are to be given hereunder.
75. BOD shall in all respects comply with the provisions of sections 230 to 236 of the "Ordinance".

AUDIT

76. The appointment and duties of the auditor(s) shall be regulated in accordance with the "Ordinance".
77. A. "The Company" at each Annual General Meeting shall appoint an auditor(s) being chartered accountant(s) to hold office until the next Annual General Meeting and the following provisions shall have effect, that is to say:

If an appointment of an auditor(s) is not made at an Annual General Meeting, the Securities and Exchange Commission may appoint an auditor(s) as per provisions of the "Ordinance".

1. A member of BOD or an officer of "The Company", or a partner of or person in the employment of such member of BOD or officer or any person, indebted to "The Company" shall not be appointed auditor of "The Company".

- II. If any person after being appointed auditor becomes indebted to "The Company", his appointment shall thereupon be terminated.
 - III. The First Auditor(s) of "The Company" may be appointed by BOD within 60 days of the date of incorporation and auditor(s), if so appointed, shall hold office until the first Annual General Meeting, unless previously removed by a resolution of "The Company" in General Meeting in which "Member" of "The Company" may appoint auditor(s) at such a meeting.
 - IV. Retiring auditor(s) shall be eligible for re-appointment.
 - V. No person other than a retiring auditor(s) shall be capable of being appointed to the office of the auditor at the Annual General Meeting unless notice of an intention to nominate him be given to "The Company" not less than fourteen days before the day fixed for the holding of such Annual General Meeting and upon receipt of such notice, the provisions of the "Ordinance" shall be complied with.
- B. Any other audit of "The Company" shall be conducted as provided in the "Ordinance".
- 78. The remuneration of the auditor(s) shall be fixed by "The Company" in the General Meeting except that the remuneration of any auditor(s) appointed before the first Annual General Meeting or to fill any casual vacancy may be fixed by BOD.
 - 79. Every auditor of "The Company" shall have a right of access at all times to the books, assets and accounts and vouchers of "The Company" and shall be entitled to require from the members of BOD and officers of "The Company" such information and explanation as may be necessary for the performance of duties of the auditor(s) and auditor(s) shall make a report to Members of "The Company" on the accounts examined by them, and on every balance-sheet, income and expenditure account laid before "The Company" in the General Meeting, during their tenure of office and the report shall state whether or not they have obtained all information and explanations they have required and whether or not in their opinion the balance-sheet, is in conformity with the law and whether or not such balance-sheet, and income and expenditure account, exhibit true and correct view of the state of "The Company's" affairs according to the best of their information and explanations given to them as shown by the books of "The Company" and whether or not in their opinion the books of accounts have been kept by "The Company" as required by the "Ordinance"; where any of the matters referred to herein above and answered in the negative or with a qualification, the report shall state the reasons for such answers and the report shall be attached to the balance-sheet, income and expenditure account and such report shall be read before "The Company" in a General Meeting and shall be open to inspection by any "Member".
 - 80. The auditor(s) shall be entitled to receive notice of and to attend all General Meetings of "The Company".
 - 81. Every account when audited and approved by the General Meeting shall be conclusive except as regards any error discovered therein within three months after the

approval thereof. Whenever any such error is discovered within that period, the account shall forthwith be corrected and henceforth shall be conclusive.

NOTICE

82. A notice may be given by "Secretary" to any "Member" either personally or by sending it by post to him to his registered address.
83. Where a notice is sent by post, service of the notice shall be effected by properly addressing, pre-paying and posting a letter containing the notice and unless the contrary is proved, notice shall be deemed to have been effected at the time at which the letter would be delivered in the ordinary course of post.
84. Notice of every General Meeting shall be given in a manner described supra to every "Member".

INDEMNITY

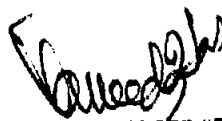
85. Every "Member" of "The Company" and BOD, the Chairman, Chief Executive Officer or any other officer or employee of "The Company" shall be indemnified by "The Company" against all costs, losses which they may incur or become liable to pay by reason of any contract entered into or act or deed done by them in discharge of their duties in good faith and any loss occasioned by any error of judgment, damage or misfortune which may happen in the execution of their duties in connection with affairs of "The Company".

POWER OF GOVERNMENT

86. Power to authorize the development, and up-gradation of existing or new "Industrial Estate(s)" shall vest in the "Government".

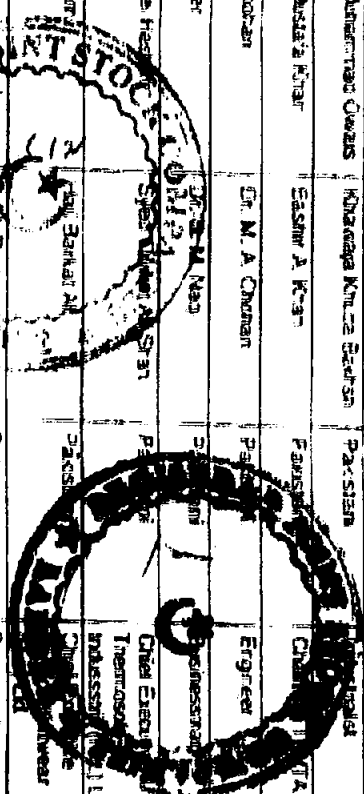
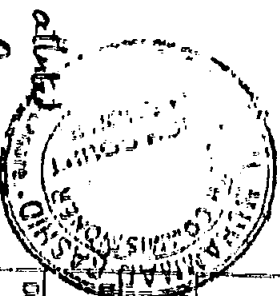
AMENDMENT

87. "These Presents" may, subject to clause 7 of the Memorandum of Association, be amended, modified, substituted, altered or repealed by a three fourth majority of the voting strength of the "Members" present and voting on a Special Resolution for the purpose in an Extraordinary General Meeting of the "Members", provided that a notice "In Writing" specifying the intention to propose the resolution as a Special Resolution shall have been served on "Members" of "The Company" at least twenty-one days prior to the meeting.


DISTRICT OFFICER (IPWM)
For Registrar Joint Stock Companies
Lahore

2. If several persons use names and addresses are hereafter subscribed, are conscious of being joined in a Company in pursuance of these notices of association.

Name and Surname (present and former) and any other names	Father's Surname (name in full)	Nationality	Occupation	Residential address in full	Signature
Mahmud M. Syed	Syed M. Muneer	Pakistani	Engineer	71-S, Defence Phase II, Lahore Cantt	[Signature]
Mr. Sayyad Hassan	Sayyid Ahmad	Pakistani	Secretary railways, Commerce & Investment	7-Ahmad Road SDR, Lahore	[Signature]
Mr. Khawaja Muhammad Qureshi	Khawaja Khuda Bakhsh	Pakistani	Businessman	House No. 2, Near Court, Khatwa Dastur Lahore	[Signature]
Mr. Sikandar Mustafa Khan	Sikandar A. Khan	Pakistani	Chairman, P.T.A.	House No. 30-F, Sargodha Road, Lahore Cantt, Lahore	[Signature]
Mr. Sahib P. Chohan	Dr. M. A. Chohan	Pakistani	Engineer	House No. 15, St. No. 63, Sector 57A, Islamabad	[Signature]
Mr. Abbas Hyder	Abbas M. Nadeem	Pakistani	Businessman	House No. 1-11, Subergal, Lahore	[Signature]
Mr. Syed Nadeem Hassan	Syed Nadeem A. Syed	Pakistani	Chief Executive, Thermax Industries (Pvt) Ltd.	House No. 63B Block-3 Sector C, Township, Lahore	[Signature]
Mr. M. I. Khan	M. I. Khan	Pakistani	Chief Executive, Chaudhry Brothers (Pvt) Ltd.	45-61 Subergal, Lahore	[Signature]
Major (R) Shah Nawaz Khan	S. M. Bader	Pakistani	Secretary Labour and Human Resources	House No. 33 GCR II, Shadran, Lahore	[Signature]
Mr. Kamran Khan	Kamran Khan	Pakistani	Secretary, Environment Protection	House No. 22-F-102, Shadran	[Signature]
Mr. Zahid Ahmed Khan	Zahid Ahmed Khan	Pakistani	Engineer	122-2 Phase I, Lahore	[Signature]
Dr. Farid Bari	Farid Bari	Pakistani	Economist	House No. 29 GCR Road, Karachi, Mortimer Road, Sector B, Lahore	[Signature]



DATE: 10/10/2019

WITNESSES TO ABOVE SIGNATURES

ATTESTED

Signature of [Name]

SAHIB

Signature of [Name]

ANNUAL REPORT

Independent Auditor's Report

To the members of Punjab Industrial Estate Development and Management Company

Report on the Audit of the Financial Statements

Opinion

We have audited the annexed financial statements of Punjab Industrial Estate Development and Management Company (the Company), which comprise the statement of financial position as at June 30, 2018, and the statement of income and expenditure and other comprehensive income, the statement of changes in equity, the statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies and other explanatory information, and we state that we have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of the audit.

In our opinion and to the best of our information and according to the explanations given to us, the statement of financial position, statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes forming part thereof conform with the accounting and reporting standards as applicable in Pakistan and give the information required by the Companies Act, 2017 (XIX of 2017), in the manner so required and respectively give a true and fair view of the state of the Company's affairs as at June 30, 2018 and of the surplus and other comprehensive income, the changes in equity and its cash flows for the year then ended.

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants as adopted by the Institute of Chartered Accountants of Pakistan (the Code) and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter

As disclosed in note 13 to the financial statements, the Company has received various lands for estates development in the form of loan from Government of Punjab. These loans have been classified as current liabilities due to the fact that terms of these loans have not been formalized with the Finance Department of Government of Punjab through agreements.

GTR

Information Other than the Financial Statements and Auditor's Report Thereon

Management is responsible for the other information. The other information comprises directors' report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and Board of Directors for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the accounting and reporting standards as applicable in Pakistan and the requirements of Companies Act, 2017(XIX of 2017) and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Board of directors are responsible for overseeing the Company's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs as applicable in Pakistan, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

GPPL

ATTESTED TO BE TRUE COPY

**PUNJAB INDUSTRIAL ESTATES
DEVELOPMENT AND MANAGEMENT COMPANY
OWNED BY: GOVT. OF PUNJAB**

Company Secretary

**SAMD
CONSULTANTS**

SAMD

Review Report to the Members

On the Statement of Compliance with the Public Sector Companies (Corporate Governance) Rules, 2013

We have reviewed the enclosed Statement of Compliance with the best practices contained in the Public Sector Companies (Corporate Governance) Rules, 2013 (the Rules) prepared by the Board of Directors of *Punjab Industrial Estate Development and Management Company* (the Company) for the year ended June 30, 2018.

The responsibility for compliance with the Rules is that of the Board of Directors of the Company. Our responsibility is to review, to the extent where such compliance can be objectively verified, whether the Statement of Compliance reflects the status of the Company's compliance with the provisions of the Rules and report if it does not and to highlight any non-compliance with the requirements of the Rules. A review is limited primarily to inquiries of the Company's personnel and review of various documents prepared by the Company to comply with the Rules.

As a part of our audit of the financial statements we are required to obtain an understanding of the accounting and internal control systems sufficient to plan the audit and develop an effective audit approach. We are not required to consider whether the Board of Directors' statement on internal control covers all risks and controls or to form an opinion on the effectiveness of such internal controls, the Company's corporate governance procedures and risks.

The Rules requires the Company to place before the Audit Committee, and upon recommendation of the Audit Committee, place before the Board of Directors for their review and approval its related party transactions distinguishing between transactions carried out on terms equivalent to those that prevail in arm's length transactions and transactions which are not executed at arm's length price and recording proper justification for using such alternate pricing mechanism. We are only required and have ensured compliance of this requirement to the extent of the approval of the related party transactions by the Board of Directors upon recommendation of the Audit Committee. We have not carried out any procedures to determine whether the related party transactions were undertaken at arm's length price or not.

WPK

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the board of directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Report on Other Legal and Regulatory Requirements

Based on our audit, we further report that in our opinion:

- a) proper books of account have been kept by the Company as required by the Companies Act, 2017 (XIX of 2017);
- b) the statement of financial position, the statement of income and expenditure and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes thereon have been drawn up in conformity with the Companies Act, 2017 (XIX of 2017) and are in agreement with the books of account and returns;
- c) investments made, expenditure incurred and guarantees extended during the year were for the purpose of the Company's business; and
- d) no zakat was deductible at source under the Zakat and Ushr Ordinance, 1980 (XVIII of 1980).

Other Matter:


The financial statements of the Company for the year ended June, 2017 were audited by another auditor who expressed an unmodified opinion on those statements on November 25, 2019.

The engagement partner on the audit resulting in this independent auditor's report is Imran Afzal.


GRANT THORNTON
Lahore

Dated: July 5, 2021

ATTESTED TO BE TRUE COPY



PUNJAB INDUSTRIAL ESTATES
DEVELOPMENT AND MANAGEMENT COMPANY
OWNED BY: GOVT. OF PUNJAB

Company Secretary

 **SAMD**
CONSULTANTS

SAMD

Based on our review, nothing has come to our attention which causes us to believe that the Statement of Compliance does not appropriately reflect the Company's compliance, in all material respects, with the best practices contained in the Rules as applicable to the Company for the year ended June 30, 2018.


Grant Thornton Anjum Rahman
Chartered Accountants
City: Lahore
Dated: July 5, 2021

ATTESTED TO BE TRUE COPY

PUNJAB INDUSTRIAL ESTATES
DEVELOPMENT AND MANAGEMENT COMPANY
OWNED BY: GOVT. OF PUNJAB

Company Secretary

 **SAMD**
CONSULTANTS

SAMD

LAST ANNUAL RETURN

THE COMPANIES ACT, 2017
THE COMPANIES (GENERAL PROVISIONS AND FORMS) REGULATIONS, 2018
[Section 130(1) and Regulations 4]

ANNUAL RETURN OF COMPANY HAVING SHARE CAPITAL

PART-I

(Please complete in typescript or in bold block capitals.)

1.1 CUIN (Registration Number)

R	P	-	3	7	9
---	---	---	---	---	---

1.2 Name of the Company

Punjab Industrial Estate Development & Management Company

1.3 Fee Payment Details 1.3.1 Challan No. 1.3.2

--

Amount

500/-

dd

mm

yyyy

1.4 Form A made up to

0	6
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0	8
---	---

2	0	2	1
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2.4 Date of AGM

0	6
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0	8
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2	0	2	1 *
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* The AGM was required to be held on or before 28-10-2018, however the same was held on 06-08-2021 under directions of the Registrar of Companies u/s 147 of the Companies Act, 2017.

PART-II

2. Section-A

2.1 Registered office address:

Commercial Area (North), Sundar Industrial Estate, Sundar Raiwind Road, Lahore.

2.2 Email Address:

corporate@pie.com.pk

2.3 Office Tel. No:

042-35297203-06

2.4 Office Fax No.:

042-35297207

2.5 Principal line of business:

To establish new industrial estates and to upgrade those existing industrial estates as assigned by the Government.

2.6 Mobile No. of Authorized officer (Chief Executive/ Director/Company Secretary/ Chief Financial Officer)

0320-0840648

785

Authorized Share Capital			
Class and kinds of Shares	No. of Shares	Amount	Face Value
Ordinary Shares	15,000,000	Rs. 150,000,000/-	Rs. 10/-

2.8

Paid up Share Capital			
Class and kinds of Shares	No. of Shares	Amount	Face Value
Subject to payment wholly in cash	5,000,000	Rs. 50,000,000/-	Rs. 10/-

2.9

Particulars of the holding/subsidiary company, if any		
Name of company	Holding/Subsidiary	% of share held
NIL	NIL	NIL

2.10 Chief Executive Officer:

Name	Ali Muazzam Syed														
Address	North Commercial Area, Sundar Industrial Estate, Lahore.														
NIC #	3	5	2	0	2	7	8	2	7	9	6	8	6	-	3

2.11 Chief Financial Officer:

Name	Hamood -ur-Rahman														
Address	North Commercial Area, Sundar Industrial Estate, Lahore.														
NIC #	3	7	4	0	5	-	9	8	3	5	7	4	3	-	5

2.12 Secretary:

Name	M. Shafiq ur Rehman														
Address	North Commercial Area, Sundar Industrial Estate, Lahore.														
NIC #	3	5	2	0	2	-	9	7	2	7	1	4	5	-	1

2.13 Legal Advisor:

Name	M/s Ahmed and Pansota
Address	20 - Ganga Ram Manslons, The Mall, Lahore, Pakistan.

2.14 Particulars of Auditor(s)

[illegible]

5

2.16 Particulars of Share Registrar (if applicable)

Name	N.A
Address	N.A
e-mail	N.A

Section-B:

2.16 List of Directors as on the date annual return is made:

Sr. #	Name	Residential Address	Nationality	NIC No. (Passport No. if foreigner)													Date of Appointment or election		
1	Syed Nabeel Hashmi	Thermosole Industries (Pvt.) Ltd. 140 Main Industrial Area, Kot-Lakhat, Lahore.	Pakistani	3	5	2	0	2	-	2	6	9	8	5	7	4	-	5	Govt. of Punjab constituted Board of Directors vide Notification # AEA-1-15-22/2002(P-V) of ICI & SD Department dated 4-9-2019
2	Ahsan Mahmood Butt	M/s FAS Tube Mills & Engineering, Plot # 457-460, Sundar Industrial Estate, Lahore	Pakistani	3	5	2	0	1	-	1	6	0	6	2	5	8	-	9	-do-
3	Muhammad Anees Khawaja	Mehr Manzil, O/S Lohari Gate, Multan.	Pakistani	3	6	3	0	2	-	4	6	4	8	2	8	5	-	3	-do-
4	Syed Tariq Siraj Jafri	68-Block-B, Model Town, Lahore	Pakistani	3	5	2	0	2	-	2	5	9	5	1	7	4	-	1	-do-
5	Shahid Hussain Tarer	House # 12/13, A/2, WAPDA Town, Gujranwala.	Pakistani	3	4	1	0	1	-	9	5	3	4	6	8	9	-	9	-do-
6	Khawaja Arif Qasim	125-A, Quaid-e-Azam Industrial Estate, Kot-Lakhat, Lahore.	Pakistani	3	5	2	0	2	-	4	6	0	1	9	2	8	-	1	-do-

Use separate sheet, if necessary

2.18 Transfer of shares (debentures) since last Form A was made:

Sr. #	Name of Transferor	Name of Transferee	Number of shares transferred	Date of registration of transfer
	NIL	NIL	NIL	NIL

Use separate sheet, if necessary

PART-III

3.1

Declaration:

I do hereby solemnly; and sincerely declare that the information provided in the form is:

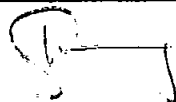
- true and correct to the best of my knowledge, in consonance with the record as maintained by the Company and nothing has been concealed; and
- hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable.

3.2 Name of Authorized Officer with designation /Authorized Intermediary

M. Shafiq ur Rehman

Acting Company Secretary

3.3 Signatures



3.4 Registration No of Authorized Intermediary, if applicable

3.5

Date

Day

Month

Year

1	2
---	---

0	8
---	---

2	0	2	1
---	---	---	---



**PUNJAB INDUSTRIAL ESTATES
DEVELOPMENT AND MANAGEMENT COMPANY**
A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



October 24, 2022

**Undertaking
Pattern of Shareholding**

We hereby undertake that Punjab Industrial Estate Development and Management Company (PIEDMC) is 100% owned by the Government of Punjab and that this information holds true to the best of our knowledge.

Chief Executive Officer



SAMD

CASH & BANK BALANCE CERTIFICATES

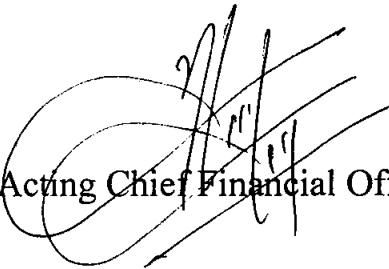


PUNJAB INDUSTRIAL ESTATES
DEVELOPMENT AND MANAGEMENT COMPANY
A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



TO WHOM IT MAY CONCERN

It is certified that Cash in Hand at Punjab Industrial Estates Development and Management Company – Head Office as at June 30, 2022 is Rs. 194,000 (One Hundred Ninety Four Thousand only).


Acting Chief Financial Officer



PUNJAB INDUSTRIAL ESTATES

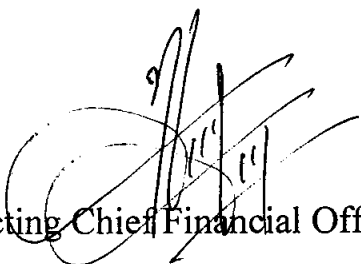
DEVELOPMENT AND MANAGEMENT COMPANY

A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



TO WHOM IT MAY CONCERN

It is certified that Cash in Hand at Punjab Industrial Estates Development and Management Company – Head Office as at June 30, 2018 is Rs. 170,000 (One Hundred Seventy Thousand only).


Acting Chief Financial Officer

Head Office: Commercial Area (North) Sundar Industrial Estate, Sundar Raiwind Road, Lahore.

Tel: 042-35297203-6, Fax: 042-35297207, UAN: +92-42-111-743-743

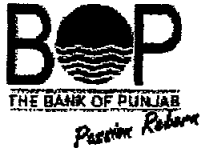
Website: www.pie.com.pk E-Mail: info@pie.com.pk

An Approved Non Profit Organisation U/S 2(36) of Income Tax Ordinance 2001



AMD
PLANTS

SAMD



Balance Confirmation Letter
002 Egerton Road Branch - Lahore

Date: 20-Jul-22

Name: PUNJAB INDUSTRIAL ESTATE DEVELOPMEN

Father/Husband:

Address: COMMERCIAL AREA (NORTH) SUNDAR INDUSTRIAL ESTATE RAIWIND RD LHR
COMMERCIAL AREA (NORTH) SUNDAR INDUSTRIAL ESTATERAIWIND RD LAHORE

Ph:

A/C Number: 6580003156000013

Currency: PKR

Dear Customer,

Your Corporate Premium Account No. 6580003156000013 with us shows a balance of PKR 2,492,643,721.59 (Rupees Two billion Four Hundred Ninety-Two million Six Hundred Forty-Three thousand Seven Hundred Twenty-One and fifty-nine paisas only) as on 30-JUN-2022.

Please confirm the correctness of the balance on the sub-joined confirmation slip and return the same to us duly signed by you at earliest on the mentioned address. It may please be noted that if your confirmation is not received back by us within seven days from the date of this intimation letter, the balance in your account shall be deemed correct and confirmed by you.

This is a system generated letter and does not require any signatures

-----CUT HERE

Confirmation of Balance

The Manager,
The Bank of Punjab,
002 Egerton Road Branch - Lahore.

Ref : Confirmation of Balance
A/c No.6580003156000013
Corporate Premium Account

Dear Sir,

I/We confirm, on examination, the correctness of balance of PKR 2,492,643,721.59 (Rupees Two billion Four Hundred Ninety-Two million Six Hundred Forty-Three thousand Seven Hundred Twenty-One and fifty-nine paisas only) in my/our above account with you as on 30-JUN-2022.

Authorized Signature
(of account holder)



SAMD
SULTANIS
SAMD



THE BANK OF PUNJAB

Passion Reborn

**Main Branch,
7 Egerton Road, Lahore.
Tel: +92-42-36374811-14
Fax: +92-42-36374816
Email: bop0002@bop.com.pk**

July 20, 2022
MB/LHR/012/

TO WHOM IT MAY CONCERN

This is to certify that PUNJAB INDUSTRIAL ESTATE DEVELOPMEN is maintaining account # PK65BPUN6580003156000013 with us since 2004-08-23. The overall conduct of the Accounts is satisfactory.

This certificate is being issued at the specific request of the customer without any risk and responsibility on part of the bank or any of its officer.

AIMON MAJEED BUTT
Customer Service Officer

MUHAMMAD USMAN GHANI
Branch Operations Manager
THE BANK OF PUNJAB
Main Branch Lahore-0002

MUHAMMAD USMAN GHANI
Manager Operations



PUNJAB INDUSTRIAL ESTATES

DEVELOPMENT AND MANAGEMENT COMPANY

A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



October 24, 2022

Undertaking

Details of Charges and Encumbrances

We hereby undertake that there are no charges and encumbrances on the assets of Punjab Industrial Estate Development & Management Company (PIEDMC).

Chief Executive Officer



SAMD


I

AUDITED FINANCIAL STATEMENTS


October 24, 2022

Undertaking
Use of Sub-Contractors

We hereby undertake that Punjab Industrial Estate Development and Management Company (PIEDMC) does not use the services of any sub-contractors and that this information holds true to the best of our knowledge.



Chief Executive Officer



The seal is circular with the text "Punjab Industrial Estate Development and Management Co. (Govt. of Punjab)" around the perimeter. In the center is the PIEDMC logo (a triangle with a star) and the text "PIEDMC" and "CEO".

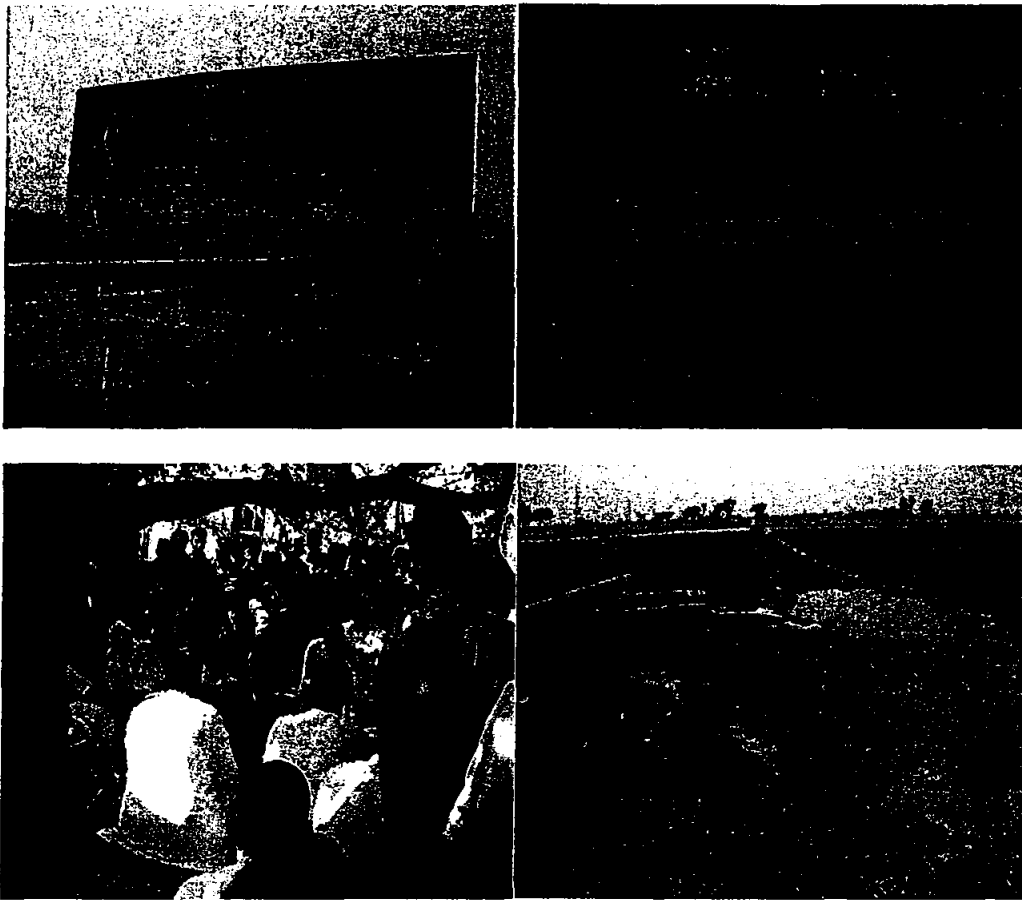
**TECHNICAL AND FINANCIAL PROPOSAL
IN REASONABLE DETAIL FOR THE
OPERATION, MAINTENANCE, PLANNING
& DEVELOPMENT OF THE FACILITY AT
RIE**



Punjab Industrial Estates

Development and Management Company
Owned by the Government of The Punjab

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA)
OF QUAID-E-AZAM APPAREL PARK (QAAP), PUNJAB
AT M-2 DISTRICT SHEIKHUPURA**



EIA REPORT

MAY 2014



**NATIONAL ENGINEERING SERVICES PAKISTAN (PVT.) LIMITED
ENVIRONMENTAL AND PUBLIC HEALTH ENGINEERING DIVISION
1-C, BLOCK-N, MODEL TOWN EXTENSION LAHORE, PAKISTAN**

**SAMD
CONSULTANTS**

SAMD

Executive Summary

The Government of Punjab has established Punjab Industrial Estates Development and Management Company (PIEDMC) to achieve orderly, planned and rapid industrialization in Punjab by developing new industrial estates and managing the existing industrial estates in a dynamic and innovative manner with a view to provide turnkey solutions to the prospective entrepreneurs thereby generating economic activity and creating mass employment opportunities. The PIEDMC intends to establish "Quaid-e-Azam Apparel Park" (QAAP) on 1,565 acres area in District Sheikhupura at 38 Km of Lahore-Islamabad Motorway (M-2). The main objective of the proposed project is to develop an integrated industrial Apparel Park with the objective to create a platform for apparel industries, create mass employment opportunities, skill development of local population and to best utilize the resources to boost the country's economy.

This Environmental Impact Assessment (EIA) Study has been conducted for Quaid-e-Azam Apparel Park, Sheikhupura, as a mandatory requirement of Punjab Environmental Protection Act (PEPA), 2012 as an amendment of Pakistan Environmental Protection Act, 1997. Section 12 (1) of this Act states that:

"No proponent of a Project shall commence construction or operation unless he has filed with the Provincial Agency an initial environmental examination or, where the Project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Provincial Agency approval in respect thereof."

National Engineering Services Pakistan (Pvt.) Ltd. (NESPAK) is providing services to carry out detailed Environmental Assessment (EIA) of the propose Apparel Park.

The establishment of QAAP would not only provide a collective platform for the segregated garment industry but would also become a training and development hub for the local population. The proper zoning in the Garment Industry would lead to best utilization of resources where similar units can be collectively located to increase output. Automation in garment units such as cutting, sewing/stitching and packaging

will not only enhance production but also minimize rejection due to non-compliance with the approved standards. Implementation of the project is envisaged having the following objectives:

- To make available structured platform to set up apparel park.
- To provide state-of-the-art infrastructure facilities including roads, electrical networks, water supply system, wastewater collection and drainage system including Combined Effluent Treatment Plant.
- To ensure availability of skilled manpower.
- To capitalize strength of each region.
- To secure comparative environment by providing green areas, parks.
- To provide Social compliance facilities including schools/ hospitals and residential facilities.
- To comply with health safety and environmental regulations.

The scope of the EIA Study includes environmental assessment of the project including collection and securitization of data related to physical, biological and socio-economic environment, assessment of impacts which may be caused by the project activities and mitigation measures for the abatement of potential environmental impacts along with the estimated budgeted cost of mitigation.

The study has been conducted in accordance with Environmental Protection Agency (EPA), Government of Pakistan (GOP) Guidelines. The study is based on both primary and secondary data and information. Discussions were held with stakeholders including community representatives.

The methodology adopted to conduct this study was as follows:

- Meetings and discussions were held among the members of the EIA consulting team, design engineers and proponent. This activity was aimed at achieving a common ground of understanding of various issues of the study.
- Planning was carried out to assess data requirements and their sources; time schedules and responsibilities for their collection; logistics and facilitation needs for the execution of the data acquisition plan.
- Primary and secondary data were gathered through observations during the field survey, environmental monitoring in the field, concerned departments

and published materials to establish baseline profile for physical, biological and socio-economic environmental conditions.

- The impacts of the project on the physical, biological and socio-economic environment prevalent in the project area were visualized at the design, construction and operational phases.
- The adequate mitigation measures and implementation mechanisms were proposed so that the proponent could incorporate them beforehand in the design phase.

The Government of Pakistan (GOP) has promulgated laws/acts, regulations and standards for the protection, conservation, rehabilitation and improvement of the environment. PEPA-2012 is the apex law for mandatory EIA before project construction. Other relevant laws have also been discussed briefly in the report. In addition, National Environmental Quality Standards (NEQS) are provided for the noise, ambient air, municipal/industrial wastewater discharges and drinking water quality.

Construction of the proposed Apparel Park will help to utilize the potential of physical and manpower resources for the local apparel industry and gain maximum benefits. In addition to increase in Pakistani exports, a regional uplift in the economy, livelihood and lifestyles is anticipated due to creation of a large number of direct and indirect job opportunities. There will be control over environmental performance of the individual industrial units through an independent administration and byelaws and policies may be enforced to support motives such as treatment of industrial effluents, waste minimization and reuse, safe disposal of hazardous wastes, control over gaseous emissions and workplace safety.

The project components include development of the basic infrastructure for the Apparel Park including roads, electrical works, water supply system, sewerage system, natural gas supply etc. As large workforce will be needed, therefore, separate residential area/hostels will also be provided. Project will also include export processing zones (EPZs), truck parking areas, commercial and public buildings etc.

The existing environment in and around the project area has been studied with respect to the physical, biological and socio-economic conditions.

The baseline conditions were studied with respect to physical, biological and socio-economic environment. The physical environment includes topography, geology and soils, climate, hydrology and drainage, land use, surface water quality, ground water quality, ambient air quality, noise levels, and seismicity.

The climate of the project area is hot in summer and moderate in winter. The coldest month is December and the hottest is June. According to the Seismic Zoning Map (prepared by Pakistan Meteorological Department), the proposed Project falls in Zone-2 A which corresponds to peak horizontal ground acceleration of 0.08 to 0.16g (where 'g' is the acceleration due to gravity).

Preliminary findings of air quality revealed that the conventional pollutants like CO, SO_x and NO_x are well within the prescribe limits of NEQS and WHO guidelines. Similarly, the noise levels and groundwater quality in the ambient air also well within the permissible limits of relevant NEQS. The wastewater analysis of the surface water bodies indicates a low to moderate level pollution.

The biological environment of the Project Area includes flora and fauna. The floral species found in the Project Area include trees, bushes, shrubs, herbs, forbs, agricultural crops, vegetables, fruit orchards, ornamental plants, and other rank growths. The faunal species noticed/reported in the Project Area include mammals (dogs, cats etc.), mongoose, squirrel, amphibians (frog, toad, turtle etc.), reptiles (small and medium sized lizards, snakes etc.), house sparrows, house crow, etc. However, no endangered species, agriculture and horticulture are found in the Project Area.

The aspects covered under socio-economic environment of the Project Area include population and communities, population size, growth and distribution, mother tongue, occupations, health care facilities, educational facilities, physical and cultural heritage (shrine, mosque, graveyard), recreational sites, respondent's age group, marital status, family system etc.

The proposed project will have both positive and negative impacts during the construction and operational phases, for which proper mitigation measures are necessary. During the field survey, significant efforts were made to identify the main social, cultural and environmental issues related to the project. Various government departments and agencies were also contacted for obtaining salient information along with area resident/ stakeholders. Most of the perceived impacts are during construction phase. Following is the list of main concerns identified in the study:

- Land Acquisition and Resettlement
- Disturbance to the public movement during construction;
- Excavation and Vibrations due to construction machinery may affect the nearby structures during construction.
- Air and noise pollution due to the operating of construction machinery during construction phase of the project;
- Solid waste generation during construction and operational phase;
- Accidental leaks/spills of hazardous chemicals from construction activities and machinery;
- Health and safety issues of the workers;
- Contamination of water body by construction activities; and
- Relocation of public utilities.

On the positive side, the proposed project is expected to improve economic condition of the country. The project will generate new opportunities for skilled/unskilled manpower. Recommended mitigation measures to contain potential adverse impacts are described in the Environmental Management and Monitoring Plan (EMMP) shall be strictly enforced during the implementation of the proposed Project.



12

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SECTION - 1 INTRODUCTION

1.1 GENERAL

The Government of Punjab has established Punjab Industrial Estates Development and Management Company (PIEDMC) to achieve orderly, planned and rapid industrialization in Punjab by developing new industrial estates and managing the existing industrial estates in a dynamic and innovative manner with a view to provide turnkey solutions to the prospective entrepreneurs thereby generating economic activity and creating mass employment opportunities. The PIEDMC intends to establish "Quaid-e-Azam Apparel Park" on 1,565 acres area in District Sheikhupura at 38 Km of Lahore-Islamabad Motorway (M-2). The main objective of the proposed project is to develop an integrated industrial Apparel Park with the objective to create a platform for apparel industries, create mass employment opportunities, skill development of local population and to best utilize the resources to boost the country's economy.

National Engineering Services Pakistan (Pvt.) Ltd. (NESPAK) provide services to carry out detailed Environmental Assessment (EIA) of the propose Apparel Park.

1.2 BACKGROUND AND NEED OF PROJECT

1.2.1 History of Garment Sector in Pakistan

The readymade garment industry started in 1970's in Pakistan. With the passage of time and industrialization, this industry expanded very rapidly. The majority of the units making cotton fashion garments are medium and small-size in terms of machines, workers and output, with a few notable exceptions scattered throughout Pakistan.

The Pakistani manufacturers, struggling with energy shortages and law and order situation, could only uphold their existing market share. Besides adverse business conditions, Pakistan's concentration in cotton apparel market was another factor that hindered in increasing the market share. Due to sharp increase in cotton prices, buyers were more attracted towards non-cotton apparel (including man-made fiber, wool, etc.). However, Pakistan's exports of non-cotton apparel are almost minimal due to a protected synthetic fiber market over the years and inability of textile manufacturers to equip for synthetic textile processing.

The home textile market in world remained under pressure in general due to weaker than expected recovery in USA and European Union (EU) economies and surge in prices, the

impact on Pakistan's export was more pronounced. Production of garments by units depends on export orders directly or indirectly. These orders have somewhat risen in terms of value, but they have fluctuated widely in terms of quantity. Generally export earnings from garments have increased tremendously. Exports increased from 28 million dozens of various types of readymade garments worth US \$ 1.30 billion in 2009-10 to 36 million dozens worth US\$ 1.77 billion in 2010-11, thus showing an increase of 38% in terms of value.

Pakistan exports garments to a number of countries. Major buyers of readymade garments during 2010-11 were USA, Germany, UK, Spain, France, Italy and Netherlands.

1.2.2 Need of the Project

Pakistan on December 12, 2013 succeeded to secure the long awaited duty-free access to the European markets for four years, by winning Generalized Schemes of Preferences (GSP) Plus status with an impressive count of votes. The GSP Plus status will allow almost 20 percent of Pakistani exports to enter the European Market at zero tariff and 70 percent at preferential rates for four years till 2017. Under the scheme, Pakistan can export most of its Textile and Garment products to 27 European nations at concessionary duty rates or absolutely duty free, making Pakistani products cheaper for European importers.

As a result of the GSP plus status, the Textile and Garment Industry alone is expected to earn profits up to one trillion rupees per year. Garment exports have been declining in Pakistan, as manufacturers and exporters were finding it hard to compete with Sri Lanka and Bangladesh who already had duty-free access to European markets. This special status will provide to Pakistan duty free or preferential duty rate access on 3,500 products to European markets where currently Pakistani Garment exports to the European draw an 11% duty. Pakistan can now export textile goods to European member countries till 2017 without having to pay duties, adding that it would increase exports worth \$1 billion, and employment opportunities to about one million people of the country.

An apparel park is an area appropriated and planned estate for the purpose of industrial development. An apparel park would be a specialty industrial area wherein different garment units such as cutting, bleaching, swing/stitching and packaging involved in garment industry would work collectively to minimize wastages and increase production.

The establishment of such an apparel park would not only provide a collective platform for the segregated garment industry but would also become a training and development hub for the local population. The proper zoning in the Garment Industry would lead to best utilization of resources where similar units can be collectively located to increase output. Automation in garment units such as cutting, sewing/stitching and packaging will not only enhance production but also minimize rejection due to noncompliance with the approved standards. The export potential can be enhanced due to higher quality and enhanced production.

1.3 PROJECT OBJECTIVES

The main objectives of this project are:

- To make available structured platform to set up apparel park.
- To provide state-of-the-art infrastructure facilities including roads, electrical networks, water supply system, wastewater collection and drainage system including Combined Effluent Treatment Plant.
- To ensure availability of skilled manpower.
- To capitalize strength of each region.
- To secure comparative environment by providing green areas, parks.
- To provide Social compliance facilities including schools/ hospitals and residential facilities.
- To comply with health safety and environmental regulations.

1.4 SCOPE OF STUDY

The scope of the EIA Study aims at collecting and scrutinizing of data related to physical, biological and socio-economic environment of the project area and to prepare the baseline environmental profile. It also aims at the identification, prediction and evaluation of the possible environmental impacts of the proposed project on its immediate surroundings on both short and long-term basis. Based on the nature and levels of those impacts, appropriate mitigation measures have been incorporated in this EIA Report.

1.5 STUDY OBJECTIVES

The overall objective of EIA is to assess the environmental impacts arising from the project. The specific objectives of the EIA Study for construction of Quaid-e-Azam Apparel Park, Sheikhpura include the following:

- Collection and scrutinization of data related to physical, biological and socio-

economic environments of the project area and to prepare baseline environmental profile;

- Identification, prediction and evaluation of environmental impacts of the proposed Project;
- Implementation plan of mitigation measures to minimize the adverse impacts; and
- Preparation of an Environmental Management and Monitoring Plan.

1.6 NEED FOR EIA STUDY OF THE PROPOSED PROJECT

EIA is mandatory according to the Punjab Environmental Protection Act (PEPA-2012) amended. Section 12 (1) of the PEPA-2012 (see **Annexure-I**) which states that:

“No proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an initial environmental examination or, where the project is likely to cause an adverse environmental effect, an environmental impact assessment, and has obtained from the Provincial Agency approval in respect thereof.”

According to the Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations 2000, the proposed project falls under category J (other projects) of Schedule II, which states that any other project likely to cause an adverse environmental impact, require EIA before commencement of construction.

1.7 THE PROPONENT AND CONSULTANT

The proponent of the project is Punjab Industrial Estates Development and Management Company (PIEDMC) while the Consultant is NESPAK; the details are given as under:

a) Proponent Contact Address

Punjab Industrial Estates Development and Management Company (PIEDMC)
Head Office PIEDMC, Commercial Area (North) Sundar Industrial Estate,
Sundar-Raiwind Road, Lahore
Tel: 042-35297203-6

b) Consultant Contact Address

National Engineering Services Pakistan Private Limited (NESPAK)
EPHE Division, NESPAK House
1-C, Block – N, Model Town Extension, Lahore
Tel: 042-99090000

1.8 STUDY TEAM

A multidisciplinary team was formulated to conduct the study. The team comprises the following professionals.

Muhammad Zubair	:	Project Advisor/ Quality Expert
Kashif Bashir	:	Group Leader
Makhdum Ali	:	Ecologist
Saeed Hussain	:	Senior Sociologist
Syeda Mudassara Gillani	:	Senior Environmentalist
Zahida Manzoor	:	Sociologist
Shehnila Hanif	:	Environmentalist
Komal Hanif Goraya	:	Environmentalist
Ali Mehtab	:	Environmentalist
Shahid Anwar Bajwa	:	Social Surveyor

1.9 STUDY APPROACH & METHODOLOGY

1.9.1 Study Approach

The study has been conducted in accordance with Environmental Protection Agency (EPA), Government of Pakistan (GOP) Guidelines, 2000. The study is based on both primary and secondary data and information. Discussions were held with stakeholders including government officials, community representatives and general public. The main purpose of this approach was to obtain a fair impression on the people's perceptions of the project and its environmental impacts.

1.9.2 Methodology

The following methodology was adopted for carrying out the EIA study of the proposed Project:

a) Orientation

Meetings and discussions were held among the members of the EIA Consulting Team. This activity was aimed at achieving a common ground of understanding of various issues of the study.

b) Planning for Data Collection

Subsequent to the concept clarification and understanding obtained in the preceding step, a detailed data acquisition plan was developed for the internal use of the EIA Consulting Team. The plan included identification of specific data requirements and their sources; determined time schedules and responsibilities for their collection; and indicated the logistics and other supporting needs for the execution of the data acquisition plan.

c) Data Collection

In this step, primary and secondary data were collected through field observations, environmental monitoring in the field, concerned departments and published materials to establish baseline profile for physical, biological and socio-economic environmental conditions.

- Site Reconnaissance
- Analysis of Maps and Plans
- Literature Review
- Desk Research
- Public Consultations
- Field Observations & Studies
- Laboratory Analyses

Physical Environment

Information was gathered on the existing physical environment, particularly as related to geology, topography, soils, hydrology and drainage, water quality, air quality and noise.

Geology, Topography, Soils

A review was conducted of relevant literature on the geology, topography and soils in the Project Area.

Hydrology and Drainage

A literature review was conducted to identify the components of the hydrological cycle that are likely to impact on the project and the possible impacts that the project could have on the hydrologic regime. Field assessments included a determination and verification of all the existing water bodies, assessment of drainage issues, interviews with local community members, and round-table discussions with stakeholders.

Air Quality

Ambient air quality measurements are essential to provide a description of the existing conditions, to provide a baseline against which changes can be measured and to assist in the determination of potential impacts of the proposed construction on air quality conditions. Ambient air quality was continuously monitored for Carbon Monoxide (CO), Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Particulate Matter (PM₁₀), for 24 hours. CO was analyzed by Test 317-3 CO Analyzer, While SO₂ and NO₂ were analyzed

according to Standard Operating Procedures (SOP) based on recognized method ISO 6767 and method ISO 6768 of USEPA respectively.

Noise

Noise level readings were monitored at three sampling points for 24 hours with the interval of one second and hourly average data was reported. Sound level measurements were taken with the help of Digital sound meter (TES 1350A), a calibrated instrument.

Water Quality

The objective of the water quality monitoring was to determine water quality situation before construction. It has been observed that the surface water and air quality are the most important environmental variables to be affected in the construction project. The extent of surface water and groundwater contamination in the project area was assessed based on the test results of chemical and microbiological parameters for surface and groundwater. Laboratory analyses were performed in SUPARCO laboratory according to SOP based on recognized methods of ASTM, USEPA, or APHA methods. **Table 1.1** shows the standard analytical methods and instrument used for analysis of water quality parameters.

Table 1.1: Standard Analytical Methods for Analysis of Water Quality Parameters

Sr. No.	Parameter	Standard Method	Instrument Used
1	Temperature	APHA 2550 B	Digital Thermometer, USA
2	pH	APHA D1293-95	Hach pH meter, USA
3	Color	APHA 8025	Hach Spectrometer DR/2000, USA
4	COD	APHA 5220 C (1992)	Hach COD Reactor, USA
5	TSS	APHA 2540 D	Hach Conductivity meter, USA
6	Oil & Grease	APHA 5520 (1995)	Hach Conductivity meter, USA
7	Chloride	USEPA 1665	Hach Spectrometer DR/2000
8	Fluoride	USEPA 346.1	Hach Spectrometer DR/2000
9	Sulphate	APHA 4500 SO ₄ ²⁻ E (1995)	Hach Spectrometer DR/2000
10	Sulfide	USEPA 376.2	Hach Spectrometer DR/2000
11	Ammonia	Hach Method 8038	Hach Spectrometer DR/2000
12	Cadmium	USEPA 3500 cd-D	Hach Spectrometer DR/2000
13	Chromium	USEPA 3500 cR-D	Hach Spectrometer DR/2000

Sr. No.	Parameter	Standard Method	Instrument Used
14	Copper	USEPA 3390 e	Hach Spectrometer DR/2000
15	Lead	Atomic Absorption	GBC-Atomic Absorption, Australia
16	Nickel	USEPA 3500 Ni-D	Hach Spectrometer DR/2000
17	Silver	USEPA 3500 Ni-D	Hach Spectrometer DR/2000
18	Zinc	-----	GBC-Atomic Absorption, Australia
19	Arsenic	USEPA 3500 As	Hach Spectrometer DR/2000
20	Barium	-----	Hach Spectrometer DR/2000
21	Iron	APHA 3500 Fe	Hach Spectrometer DR/2000, USA
22	Manganese	USEPA 34193	Hach Spectrometer DR/2000, USA
23	Potassium	-----	Microprocessor Flame photometer 1381, ESICO
24	Sodium	-----	Microprocessor Flame photometer 1381
25	Calcium	USEPA 130.2	Microprocessor Flame photometer 1381
26	Magnesium	USEPA 130.2	Hach Spectrometer DR/2000
27	Turbidity	USEPA 275	Hach Spectrometer DR/2000

Biological Environment

The status of the flora and fauna of the study area were determined by ecological survey, a review of literature relevant to the area, and an assessment of terrestrial environments.

Flora

The vegetative communities were identified and classified into community types. Identification was carried out of dominant tree species, assessment of stage of growth (mature or sapling) and assessment of canopy cover.

Fauna

Information on fauna was gathered from existing literature on reported species as well as observations in the field.

Socio-Cultural Environment

The consultants utilized a combination of desk research, field investigations, census data, structured interviews, maps, reports to generate the data required for description of the existing social environment and assessment of the potential impact of the construction of the proposed project. Data was gathered on the following aspects of the social environment:

- Land use and Municipal Status
- Traffic, Transportation and Access Roads
- Demographics
- Livelihoods
- Poverty
- Education
- Health
- Social Setup
- Community Facilities
- Solid Waste Management
- Proposed Developments
- Recreational Activities
- Archaeological and Cultural Heritage

d) Identification and Evaluation of Environmental Impacts

The impacts of the project on the physical, biological and socio-economic environment prevalent in the Project Area were visualized at the design, construction and operational phases.

e) Mitigation Measures and Implementation Arrangements

The adequate mitigation measures and implementation mechanisms were proposed so that the Proponent could incorporate them beforehand in the design phase.

1.7 STRUCTURE OF THE REPORT

Section 1 “Introduction” briefly presents the project background, objectives, methodology and need of the EIA study.

Section 2 “Policy, Legal and Administrative Framework” comprises policy guidelines, statutory obligations and roles of institutions concerning EIA study of the proposed Project.

Section 3 “Description of the Project” furnishes information about the location of the proposed Project, cost and size of the project, its major components and alternatives considered for the proposed project to select at the preferred alternative for detailed environmental assessment.

Section 4 “Environmental Baseline Profile” establishes baseline conditions for physical, biological and socio-economic conditions prevalent in the project area.

Section 5 “Public Consultation” identifies the main stakeholders and their concerns raised through scoping sessions, and deals with the measures to mitigate the social impacts.

Section 6 “Anticipated Environmental Impacts and Mitigation Measures” identifies, predicts and evaluates impacts of the project activities during the construction and operation stages and deals with the measures (including mitigation cost) proposed to mitigate potential environmental impacts of the proposed project.

Section 7 “Environmental Management and Monitoring Plan” outlines institutional arrangements for the implementation of the proposed mitigation measures, training needs of the staff for implementation of the mitigation measures, monitoring requirements, monitoring cost etc.

SECTION – 2

POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.0 General

This section deals with the relevant policies, legal and administrative frameworks instituted by the Government of Pakistan for the protection of environment. All the relevant provisions of these policies and legal frameworks have been duly considered in this EIA study. In addition to this, the roles and responsibilities of the proponent and other key players such as EPA, Punjab has also been discussed in this section.

2.1 Policy Framework

The Ministry of Environment is the responsible authority for policy making on environmental protection in Pakistan.

2.1.1 National Environment Policy, 2005

In March 2005, Government of Pakistan (GOP) launched its National Environmental Policy, which provides an overarching framework for addressing the environmental issues. Section 5 of the policy commits for integration of environment into development planning as instrument for achieving the objectives of National Environmental Policy. It further states in clause (b) of subsection 5.1 that EIA related provisions of Environmental Protection Act, 1997, will be diligently enforced for all development projects. It also provides broad guidelines to the federal government, provincial governments, federally administered territories and local governments to address their environmental concerns and to ensure effective management of their environmental resources.

2.2 Legal Framework

The Government of Pakistan (GOP) has promulgated laws/acts, regulations and standards for the protection, conservation, rehabilitation and improvement of the environment. In addition to this, they have also developed environmental assessment procedures governing development projects. Following are the excerpts of these laws and procedures relevant to the proposed project.

2.2.1 Punjab Environmental Protection Act, 2012 (Amended)

The Act was originally enacted on December 06, 1997 by the name Pakistan Environmental Protection Act (PEPA). It provides the framework for implementation of the Pakistan National Conservation Strategy (PNCS), 1992 establishment of provincial sustainable development funds, protection and conservation of species, conservation of

renewable resources, and establishment of Environmental Tribunals, appointment of Environmental Magistrates, Initial Environmental Examination (IEE), and Environmental Impact Assessment (EIA). In year 2012 by formulation of Punjab Environmental Protection Agency, this law was amended by the name of Punjab Environmental Protection Act. Section 12 of the Act stresses the need to carry out EIA/IEE study prior to construction or operation of a project. A copy of the PEPA, 2012 (Amended) is attached as Annexure-I.

Pakistan Environmental Protection Agency (Review of IEE/EIA) Regulations, 2000

These regulations provide criteria for projects requiring IEE and EIA. They also briefly describe the preparation and review of environmental reports. A copy of these regulations can be found in Annexure-II.

2.2.2 Pakistan Environmental Assessment Procedures, 1997

Pakistan Environmental Assessment Procedures (1997) is, in fact, a package, which contains the following, sets of information relevant to the proposed project:

a) Policy and Procedures for Filing, Review and Approval of Environmental Assessment Reports

It describes environmental policy and administrative procedures to be followed for filing of environmental examination/assessment reports by the proponents and their review and approval by the concerned environmental protection agencies.

b) Guidelines for the Preparation and Review of Environmental Reports

These guidelines are developed to facilitate both the proponents and decision makers to prepare reports (inclusive of all the information contained therein) and carry out their review so as to take informed decisions.

c) National Environmental Quality Standards (NEQS), 2000

Pakistan Environmental Protection Council (PEPC) first approved these standards in 1993. They were later revised in year 1995, 2000 and 2010. They furnish information on the permissible limits for discharges of municipal and industrial effluent parameters and industrial gaseous emissions in order to control environmental pollution. Copies of the final version of the standards are attached as Annexure-III.

d) Other Relevant Laws**i) Punjab Local Government Ordinance, 2001**

Environmental protection is devolved under Punjab Local Government Ordinance (LGO), 2001. Despite any specific provisions, every local government may perform functions conferred by or under the Punjab LGO, 2001 and in performance of such functions may exercise such powers, which are necessary and appropriate. Until different provisions, rules, regulations or byelaws are made, the local governments may exercise such powers as are specified in the Sixth Schedule of Punjab LGO, 2001. Environmental protection is at serial 48 of the Sixth Schedule.

ii) Canal and Drainage Act, 1873

This Act entails provisions for the prevention of pollution of natural or man-made water bodies.

iii) Pakistan Penal Code, 1860

This defines the penalties for violations concerning pollution of air, water bodies and land.

iv) Factories Act, 1934

The clauses relevant to the proposed project are those that concern the health, safety and welfare of workers, disposal of solid waste and effluent and damage to public and private property. The Act also provides regulations for handling and disposing of toxic and hazardous materials. Given that the construction activity is classified as 'industry', these regulations will be applicable to the project contractors. In addition to this, the following will also be consulted:

- Employees' Cost of Living Relief and Allowances
- Workers' Children (Education Law)
- Companies Profit (Workers' Participation) Law
- Law of Essential Services
- Industrial Relations Law
- Workers' Welfare Law
- Employees' Old Age Benefit Law
- The Shop Act
- The Law of Social Security
- The Law of Payment of Wages and Minimum Wages

- The Law of Industrial and Commercial Establishments

v) The Land Acquisition Act, 1894 (including later amendments)

Although quite old, this Act laid out the legal basis for any property affected by a Project and for compensating the affected owners of the land.

vi) Antiquities Act, 1975

The Act administered by the Provincial Government(s), is aimed at the protection of Pakistan's cultural heritage. The Act defines 'antiquities' as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments etc. The Act was formulated to protect those antiquities from destruction, theft, negligence, unlawful excavation, trade and export. It prohibits new construction in the proximity of a protected antiquity and excavation in any area that may contain articles of archeological significance. Under the Act, the Project proponents must ensure that no activity is undertaken within 61meters (200 ft) of a protected antiquity, and report to the Department of Archeology, Government of Pakistan, if any archeological discovery is made during the course of the Project.

vii) Protection of Trees and Bushwood Act, 1949

This Act prohibits cutting or chopping of trees and bushwood without permission of the Forest Department.

viii) The Punjab Plantation and Maintenance of Trees Act, 1974

This Act defines rules and regulations for plantation and maintenance of trees in the Province of the Punjab.

ix) Pakistan Penal Code, 1960

This defines the penalties for violations concerning pollution of air, water bodies and land.

2.2.4 Air Quality Standards

In pursuance of the statutory requirement under clause (e) of sub-section (1) of section (6) of the Pakistan Environmental Protection Act, 1997 the Pakistan Environmental Protection Agency, Ministry of Environment has published the Air quality standards. USEPA standards along with National Environmental Quality Standards for Ambient Air may be used for bench marking purpose (Table 2.1).

Table 2.1: Air Quality Standards

#	Pollutant	NEQS		USEPA	
		Time-Weighted average	Concentration standard	Time weighted average	Concentration standard
1	SO ₂	Annual average	80 µg/m ³	Annual arithmetic mean	80 µg/m ³ , (0.030 ppm)
		24 hours	120 µg/m ³	24-hours average	365 µg/m ³ , 0.50 ppm
2	NO	Annual average	40 µg/m ³	-	-
		24 hours	40 µg/m ³	-	-
3	NO ₂	Annual average	40 µg/m ³	Annual arithmetic mean	100 µg/m ³ , (0.053 ppm)
		24 hours	80 µg/m ³		
4	O ₃	1 hour	130 µg/m ³		235 µg/m ³ , (0.12 ppm)
		-	-	8-hours average	157 µg/m ³ , (0.08 ppm)
5	Suspended Particulate Matters (SPM)	Annual average	360 µg/m ³	-	-
		24 hours	500 µg/m ³	-	-
6	PM ₁₀	Annual average	120 µg/m ³	Annual arithmetic mean	50 µg/m ³
		24 hours	150 µg/m ³	24-hours average	150 µg/m ³
7	PM _{2.5}	Annual average	15 µg/m ³	Annual arithmetic mean	15 µg/m ³
		24 hours	35 µg/m ³	24-hours average	65 µg/m ³
		1 hour	15 µg/m ³	-	-
8	Lead	Annual	1 µg/m ³	Quarterly	1.5 µg/m ³

#	Pollutant	NEQS		USEPA	
		Time-Weighted average	Concentration standard	Time weighted average	Concentration standard
		average		average	
		24 hours	1.5 $\mu\text{g}/\text{m}^3$		
9	CO	8 hours	5 mg/m^3	8-hours Average	10 mg/m^3 , (9 ppm)
		1 hour	10 mg/m^3	1-hour average	40 mg/m^3 , (35 ppm)

2.2.5 Noise Standards

NEQS, USEPA and World Bank Guidelines are being used as benchmark of Noise level of the project area (Table 2.2).

Table 2.2: Noise Standards

#	Category of Area	NEQS		WB Standard		USEPA Standards	
		Day Time	Night Time	Day Time	Night Time	Indoor	Outdoor
1	Residential Area	55	45	55	45	45	55
2	Commercial Area	65	55	70	70	70	70
3	Industrial Area	75	65	70	70	70	70
4	Silence Zone	50	45	-	-	-	-

2.2.6 Drinking Water Quality Standards

In pursuance of the statutory requirement under clause (e) of sub-section (1) of section (6) of the PEPA, 1997 the Pakistan Environmental Protection Agency, Ministry of Environment has published National Standards for Drinking Water Quality (NSDWQ). NSDWQ, WHO Drinking water quality guidelines and USEPA standards may be used for bench marking purpose and given in Table 2.3.

Table 2.3: Drinking Water Quality Standards

#	Parameters	Concentration Standards		
		NSDWQ (mg/l)	WHO (mg/l)	USEPA (mg/l)
Chemical Parameters				
1	Aluminium (Al)	≤ 0.2	0.2	0.05-0.02
2	Ammonium (NH3)	-	1.5	NS
3	Antimony (Sb)	≤ 0.005	0.005	0.006
4	Arsenic (As)	≤ 0.05	0.01	0.05
5	Barium (Ba)	0.7	0.7	2.0
6	Boron (B)	0.3	0.3	NS
7	Cadmium (Cd)	0.01	0.003	0.005
8	Chloride (Cl)	< 250	250	250
9	Chromium (Cr)	≤ 0.05	0.05	0.1
10	Copper (Cu)	2	1-2	1.0
11	Cyanide (CN)	≤ 0.05	0.07	0.2
12	Fluoride (F)	≤ 1.5	1.5	2.0-4.0
13	Iron (Fe)	-	0.3	0.3
14	Lead (Pb)	≤ 0.05	0.01	0.015
15	Manganese (Mn)	≤ 0.5	0.1-0.5	0.05
16	Mercury (Hg)	≤0.001	0.001	0.002
17	Molybdenum (Mo)	-	0.07	NS
18	Nickel (Ni)	≤ 0.02	0.02	0.1
19	Nitrate (NO3)	≤ 50	NS	10.0 as N
20	Nitrite (NO2)	≤ 3	NS	10.0 as N
21	Selenium (Se)	0.01	0.01	0.05
22	Silver (Ag)	-	NS	0.1
23	Sodium (Na)	-	200	20
24	Sulphate (So3)	-	250	250
25	Residual Chlorine	0.2-0.5	-	-
26	Zinc (Zn)	5.0	3.0	5.0
Physical Parameters				

#	Parameters	Concentration Standards		
		NSDWQ (mg/l)	WHO (mg/l)	USEPA (mg/l)
27	Color	≤ 15 TCU	15 cu	15 cu
28	Taste	Non Objectionable/ Acceptable	-	-
29	Odour	Non Objectionable/ Acceptable	N S	3 TON
30	Turbidity	< 5 NTU	5 NTU	0.5-5.0 NTU
31	Total hardness	< 500 mg/l	-	-
32	TDS	< 1000	1000	500
33	pH	6.5-8.5	6.5-8.5	6.5-8.5
Biological Parameters				
34	E-Coli	Must not be detectable in any 100 ml sample	0	0
35	Total Coliform	Must not be detectable in any 100 ml sample	0	0

2.2.7 Occupational Health

Construction and operational activities could affect the occupational health of the workers. Quantitative national standards with respect to the above aspect are yet to be developed in Pakistan. However, guidance in qualitative terms can be obtained from the Pakistan Factories Rules, 1962 (based on the Factories Act, 1934) and the Labor Laws (Amended) Ordinance, 1972.

2.2.8 Toxic or Hazardous Waste

Protection of the environment with regards to toxic and hazardous waste is covered by the Pakistan Penal Code (PPC), 1860. Environment Protection Agency (EPA), Punjab, is mandated to monitor the transportation of hazardous materials within the provincial limits.

2.2.9 Preservation of Cultural Heritage

The Antiquities Act, 1975, administered by the Provincial Government, is aimed at safeguarding the preservation of cultural heritage, destruction, damage or defacement of antiquities is an offence under the Act.

2.3 Administrative Framework**2.3.1 Punjab Industrial Estates Development & Management Company (PIEDMC)**

The implementing agency of the proposed project is PIEDMC who will execute the proposed project at M-2 district Sheikhpura. The management of PIEDMC will ensure that all the proposed measures are effectively implemented at the operational stages.

2.3.2 Environmental Protection Agency, Punjab

Pakistan Environmental Protection Council is the apex inter-ministerial and multi-stakeholders decision-making body, which is headed by Prime Minister. While Pakistan Environmental Protection Agency is meant for the enforcement of environmental laws in Pakistan. They have delegated powers to provincial environmental protection agencies for review, approval and monitoring of environmental examination/assessment of projects. As regards the proposed Project, EPA Punjab will be responsible for reviewing the report, issuing No Objection Certificate (NOC) and overall/broad based monitoring of the proposed Project activities.

SECTION 3

PROJECT DESCRIPTION

3.0 GENERAL

This section briefly describes alternatives, scope and components of the proposed Apparel Park. Town planning and infrastructure facilities proposed for the Apparel Park has been mainly described along with discussion on the requirement of manpower and physical resources for the project.

3.1 Project Alternatives

3.1.1 Alternative-1: No Project Option

In case the proposed project will not be executed, the perceived economic and social benefits may not be achieved in the region. The opportunity to get due market value of Pakistani exports will be lost and agriculture and manpower resources will be wasted. Furthermore, the concept of development of industrial estates will be discouraged and individual industrial units will prevail causing more environmental and social concerns.

3.1.3 Alternative-2: Construction of Quaid-e-Azam Apparel Park

Construction of the proposed Apparel Park will help to utilize the potential of physical and manpower resources for the local apparel industry and gain maximum benefits. In addition to increase in Pakistani exports, a regional uplift in the economy, livelihood and lifestyles is anticipated due to creation of a large number of direct and indirect job opportunities. There will be control over environmental performance of the individual industrial units through an independent administration and byelaws and policies may be enforced to support motives such as treatment of industrial effluents, waste minimization and reuse, safe disposal of hazardous wastes, control over gaseous emissions and workplace safety etc.

3.2 Scope of the Project

The scope of this project encompasses development of the basic infrastructure for the Apparel Park including roads, electrical works, water supply system, sewerage system, sui gas supply etc. As large workforce will be needed, therefore, a separate residential area/hostels will also be provided. Project will also include export processing zones (EPZs), truck parking areas, commercial and public buildings etc.

3.3 Location of the Project area

The project area is located in on M-2 (Lahore-Islamabad Motorway) at a distance of about 2 Km from Sheikhpura Interchange. The project site extends along M-2 upto 3.5 Km from Mauza Qaimpur to Bamban Kalan with extension of approximately 1.75

Km on East side of the motorway. The project area comprises of 1565 acres. At present most of the area is being used for the purpose of agriculture. **Figure-3.1** is showing location of the proposed project.

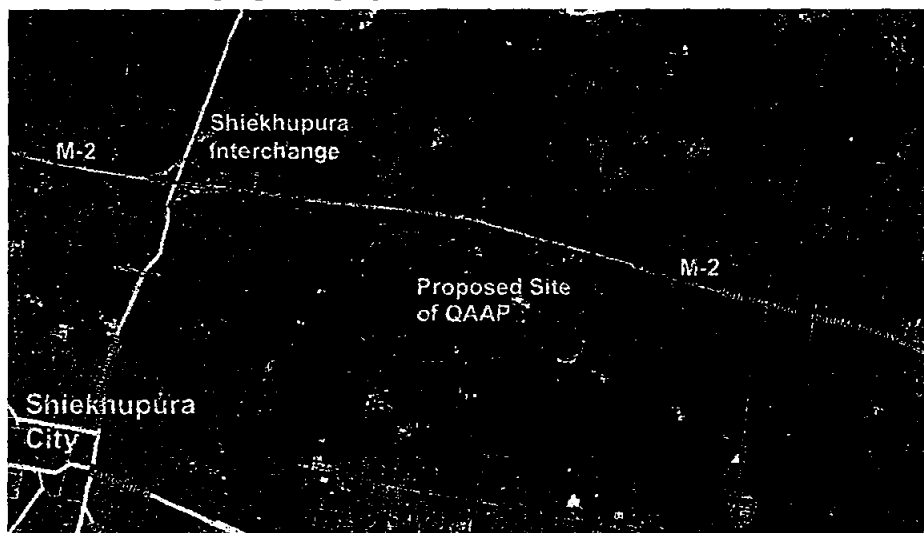


Figure-3.1 Location of the Proposed Project

3.4 Population Estimation

In many instances the industrial population reflects the scale and, in turn, need of the infrastructural facilities for a particular industrial sector like apparel and textile. **Table 3.1** is presenting the summary of population estimated for QAAP.

Table 3.1 Estimated Population of QAAP

	Description	Area (Acre)	Population Density	Population (Person)
1	Industrial Area	936.7	200	187,340
2	Administrative & Public Buildings area	172.8	10	1,728
3	Apartments (Double Storey)	8.0	1,742	27,872
4	Hospital (Visitors & Staff)	71.0	200 Bed	3,000
5	Parks (Visitors & gardeners)	121	500	500
Total Population				220,447

3.5 Land Use Planning

As discussed earlier, 1565 acre of land will be developed for the proposed Apparel Park. During the landuse planning, different planning parameters have been

considered which includes topography, environment, town planning, urban design, transportation network and site condition etc. The land has been divided broadly into three main areas based on their function namely industrial area, hospital area and centralized public amenities. Details of these three areas are provided in Table 3.2. Figure 3.2 gives the conceptual Master Plan of the proposed QAAP.

Table 3.2 Summary of Land use Classification and types of Amenities

Industrial Area	Hospital Area	Centralized Public Amenities
Small, Medium Apparel Industries Export Processing Zone Godowns, warehouses, Public Transportation, Bus Terminals Truck Parking Areas	Sizeable Hospital Units Residential Apartments Technical Training Institutes Mosques etc.	Commercial centers Exhibition Centers Community Center Grid Station Fire Brigade Recreational Parks Police station and Security system Mosques Post office Cargo and Administration Offices Banks, Accounting Firms, Law Firms etc.

The industrial plots of Apparel Park have also been divided in different categories, which were based on type and size. Table 3.3 shows the distribution of industrial plots.

Table 3.3: Proposed Size of Industrial Plots

Sr. No.	Category of Industrial Plot	Area (acres)	No. of Plots
1	A Category	20-25	11
2	B Category	2	209
3	C Category	1	182
4	D Category	0.5	150

Furthermore, area of 79 acres has been allotted for hospital, residential apartments, schools and vocational training institute on the North-Eastern corner of site area. Out of this total pocket, 50 acres are allocated to hospital, which will not only serve the

industrial population of QAAP but will also cater for surrounding population of project area with modernized and cheap health facilities.

Beside the industrial and residential area there is a specific amount of area which have been allocated for the amenities that are essential for comfortable living. These facilities include commercial area, medical centres, schools, rescue 1122, sports area, mosques, banks restaurants/hotels etc. These buildings have been located more or less in the center of the industrial area in Neighborhood center. Wherever possible these have been provided in Sub-neighborhood independently; to be easily accessible from other parts of the QAAP. Table 3.4 shows the area estimated for these amenities.

Table 3.4 Public Buildings and Amenities

Sr. No.	Facility	Area (acres)
1	Administration building	1.8
2	Exhibition center	2.3
3	Community center	4.28
4	Computerized Weigh stations	7.12
5	Petrol Pumps/CNG stations	5.5
6	Grid station& Power Plant	28
7	Combined Effluent Treatment Plant	24
8	Land fill site	5.5

3.6 Roads

The proposed road network of Quaid-e-Azam Apparel Park is rectilinear form, with hierarchy of main and local streets. All the circulation arteries have been planned as dual carriageways with adequate tree plantation, landscaping, street lightening, and foot path facilities to properly facilitate vehicular and pedestrian traffic. The designed right-of-way of the Roads for the Quaid-e-Azam Apparel Park is given in Table 3.5.

Table 3.5 Right Of Way of Different Types of Road

Sr. No.	Road Type	Right of Way (m)
1	Approach Roads/Main Roads	61
2	Secondary Road	36
3	Local Distributors	25

3.7 Electrical Works

It is estimated that about 261 MW of electricity will be required for the proposed project. Major electrical works proposed for the Apparel Park are following:

- 3 Separate Grid Stations of 132/11kV
- 132 KV Transmission line
- Overhead Distribution system
- 11/0.415kV Distribution transformers
- Area lighting through LED lights

3.8 Water Supply System

Water supply system of QAAP Park has been designed to cater the peak demand of water. For this purpose, the water demand has been calculated for each purpose separately i.e. for industrial purposes (dry and wet process), domestic purpose, for hospital, parks and firefighting. It is estimated that about 40 cusecs of water will be required for the operational phase after full development of QAAP. Table 3.6 shows the water demand adopted for different purposes.

Pumping with balancing reservoir have been proposed for the water supply. Figure 3.3 shows the layout of water supply system

Table 3.6 Summary of Estimated Total Water Demand of QAAP

Sr. No.	Description	Average Water Demand (Gal/d)		
		Industrial	Domestic	Total
1	Dry/ Apparel Industry	2,529,090	2,810,100	5,339,190
2	Wet/ Textile Industry	10,537,875	936,700	11,474,575
3	Administration & Public Buildings	34,564	-	34,564
4	Apartments	278,784	1,115,136	1,393,920
5	Hospitals	20,000	56,000	76,000
6	Parks	2,178,581	10,000	2,188,581
7	Fire Demand	-	-	1,425,400
Total average water requirement			Gal/day	21,932,230
			Cusec	40.75

As the quality of groundwater in this vicinity is fairly good, therefore, the source of water will be the groundwater which will be extracted through tubewells. Total fifteen (15) tubewells of 4 cusecs capacity will be used to abstract and meet the water requirements of the QAAP. Furthermore, total fourteen (14) overhead tanks will be required to provide balancing storage. High Density Polyethylene (HDPE) pipe lines have been proposed for the water supply.

3.9 Wastewater and Stormwater Collection System and Disposal

Conceptual diagram of wastewater collection system is presented in **Figure 3.4**. Partially combined system is being proposed mainly for both industrial/domestic wastewater and stormwater collection on tertiary roads. In this system, industrial wastewater as well as stormwater coming in the industrial/institutional premises will be collected in the roadside sewers/conduits. Lateral sewers will also receive the stormwater of the lateral roads. All this contaminated wastewater will be collected and pumped through wastewater disposal station near Combined Effluent Treatment Plant (CETP). Treated effluent will be preferably disposed of into seepage drain. Excess effluent will either be disposed of in UCC or re-used for irrigation in nearby agriculture land.

Separate stormwater drainage system is also provided in the central medians of the main roads to cater for runoff generated from rainfall on the main roads. This rainwater will be discharged into the proposed artificial lake located at South-West corner of the Apparel Park. The overflow of the lake will be collected in a Stormwater Disposal Station to pump water into seepage drain/UCC. Both Wastewater and Stormwater Disposal Stations will be interconnected to economize the operation of disposal stations.

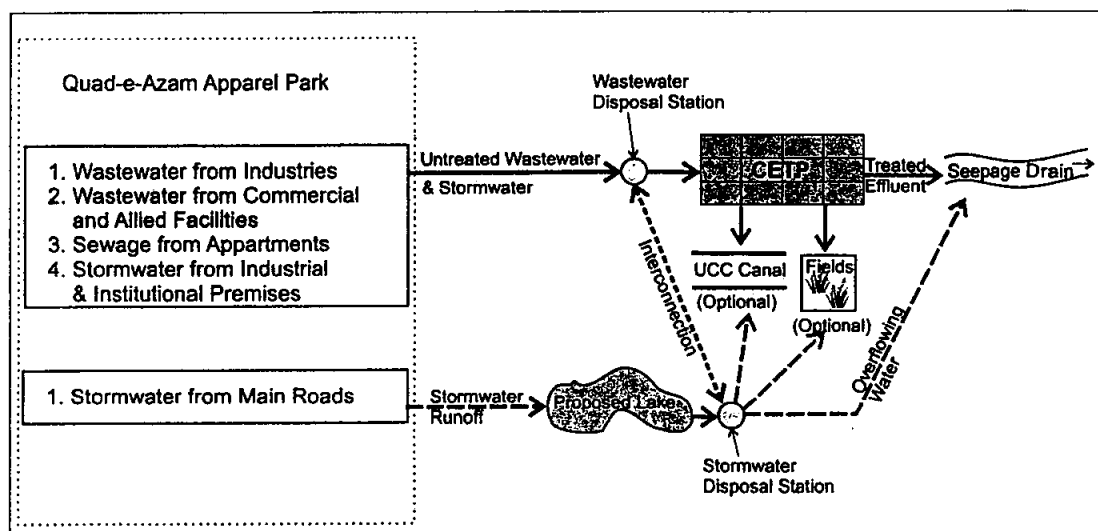


Figure 3.4 Conceptual Diagram of Proposed Wastewater and Stormwater Collection system in the QAAP

Figure 3.5&3.6 are showing the layout of the sewerage and stormwater drainage system respectively. Sewers/conduits will be provided on both sides of each road. Overall direction of wastewater flow will be from South-East towards North-West corner where both wastewater disposal station and CETP are located. Trunk conduit will convey wastewater to the wastewater disposal stations which will take it to the Combined Effluent Treatment Plant (CETP). The ultimate sizes of the sewer/conduit and design flows are given in Table 3.7. About 220 cusec flow will be generated from the QAAP.

Table 3.7 Summary of the Sizes of Trunk Sewers/Conduits

Sr. No	Description		Length (m)	Design Flow (cusec)	Dia. (mm)/ Size (mm x mm)
1	Trunk Line - A	Sewer	3300	-	610 – 1520
		Conduit	1765	220	3000 x 4000
2	Trunk Line - B	Sewer	2465	46	610 - 1370
3	Trunk Line - C	Sewer	2125	33	460 - 1220
4	Trunk Line - D	Sewer	2270	51	530 - 1520
5	Trunk Line - E	Sewer	1260	17	530 - 910

Stormwater drains have been proposed in the middle of major roads (61 m ROW) to collect and convey the stormwater of roads only. Trunk stormwater drains will convey the stormwater to artificial lake proposed on North-West corner of the QAAP for recreational purposes. Overflow of the lake will be collected and pumped through a stormwater disposal station. The overall sizes and length of these drains have been provided in Table 3.8.

Table 3.8: Summary of the Sizes of Trunk Stormwater Drains

Sl. No.	Description	Length (m)	Width (m)
1	Stormwater Drain - A	4560	1.0 – 3.0
2	Stormwater Drain - B	1060	1.0 – 2.0
3	Stormwater Drain - C	1290	1.0 – 1.75

A Combined Effluent Treatment plant has been proposed for keeping the effluent discharging into the water bodies within the permissible limits of National Environmental Quality Standards (NEQS).

3.10 Miscellaneous Works

3.10.1 Natural Gas

Natural gas will be required for domestic, commercial and industrial processing use. A main gas pipe line of Sui Northern Gas Pipe Line (SNGPL) Limited is passing through the project site. However, the requirement of natural gas and its delivery network should be designed by SNGPL at detailed design stage.

3.10.2 Telephone Lines

The requirement of telephone lines and exchange and its delivery network will be designed by Pakistan Telecommunication Corporation Limited (PTCL).

3.10.4 Sanitary Landfill

About 53 tons/d of domestic solid waste will be generated during operational phase. Area for landfill has been allocated for the disposal of municipal solid waste. Location of landfill site is away from the residential area. Leachate collection and nuisance shall be major considerations while designing landfill site. Disposal/management of industrial/hazardous waste will be the responsibility of industries.

3.10.5 Landscaping

Landscaping shall be carried out in the parks and buffer zones provided within the Apparel Park. Selection of plants will be based on the climate and soil conditions the area keeping in view their ecological fitness.

3.10.6 Boundary Wall

Boundary wall of about 8 ft high shall be provided around the Industrial City and razer-wire shall be installed at the top of wall for security purposes.

3.10.7 Approach Roads

Two approach roads have been proposed to provide access to the apparel park. The one is proposed from existing bridge after 500 m from UCC canal to Sheikhpura Interchange. While the other one is proposed from Joyanwala More (Lahore-sheikh road) to the apparel park site.

3.11 Construction Materials

The materials used in civil works will include coarse aggregates (crush), fine aggregates (sand), soil, water, asphalt, steel reinforcement, cement etc. Reinforced cement concrete (RCC) Precast slabs and conventional bricks will be used in the buildings. RCC sewer will be used. High Density Polyethylene (HDPE) pipes will be used for the water supply and Mild Steel (MS) pipes will be used for the natural gas supply. PVC coated copper wired will be used for internal wiring.

3.12 Construction Equipment

The list of the machinery and the equipment required for the proposed Project is provided in Table 3.9.

Table 3.9 Machinery and Equipment Requirement for the Construction Phase of Proposed Project

Sr. No.	Type of Machinery and Equipment	Sr. No.	Type of Machinery and Equipment
1	Dump Truck	12	Self-propelled Pneumatic Roller
2	Front End Loader	13	Asphalt Distributor
3	Dozer	14	Batching Plant
4	Grader	15	Concrete Transit Truck
5	Vibratory Roller	16	Concrete Pump
6	Water Tankers	17	Excavator
7	Aggregate Spreader	18	Water Pumps
8	Three Wheel Rollers	19	Cranes
9	Tandem Roller	20	Vibrators
10	Asphalt Plant	21	Generators
11	Paver		

3.13 Construction Cost

Total cost of the project estimated to be Rs. 22,524 million.

3.14 Project Duration and Phasing

It is estimated that the infrastructural work of the proposed Apparel Park will be completed within 1.5 to 2.0 years. Land acquisition, site clearance, laying of underground ground utilities, construction of boundary walls and internal and

approach roads will be completed on priority bases. Construction of overhead tanks, disposal station, tube- wells will be carried out as per the development trends of the industrial units.

3.15 Standards and Guidelines

Following standards and guidelines will be followed for design of different components of the project:

- i. American Standards for Testing Materials (ASTM)
- ii. American Standards For Highways And Transportation Officials (ASHTO)
- iii. Technical and Service Delivery Standards for Water Supply and Sanitation Sectors, PDSSP, 2008
- iv. Design Criteria, Water and Sanitation Authority (WASA)
- v. National Environmental Quality Standards (NEQS), 2000& 2012

SECTION-4

BASELINE ENVIRONMENTAL PROFILE

4.0 General

An environmental baseline study is intended to establish a database against which potential project impacts can be predicted and managed later. The EIA of the proposed Project covers a comprehensive description of the project area, including regional resources which are expected to be affected by the project, as well as, those which are not expected to be directly affected by the construction and operation of the project. The existing environmental conditions around the proposed project have been considered with respect to physical, biological and socio-economic aspects. Numerous site visits were conducted to survey the field area and to collect environmental data on physical, biological and socio-economic parameters. Further, consultations were held with the general public and stakeholders of the project area in order to seek the public opinion on the implementation of the proposed project.

4.1 Physical Environment

The physical environment includes topography, drainage, climate, landuse, seismology, surface water, groundwater, and ambient air quality.

4.1.1 Topography and Drainage

The area of the District is flat. The district is a part of Rachna Doab. By topography, the District falls into three main divisions: i) upland or Sandal bar in north-west; ii) the lowland along the River Ravi; iii) The Degh valley in between them. The River Ravi forms southern boundary of the District. There is well-established irrigation system in the District. Upper Chenab Canal (UCC) and its distributaries form an irrigation network in the District. The groundwater resources are in abundance. Soil is fertile for agriculture. The drainage system of the District consists of natural drains. Bhed Nullah, Lila Nullah, Degh Nullah, Niki Degh and Chicho Ki Malian Drain form the natural drainage system of the area. Degh Nullah is the main and the biggest drain in the District. Saim Nullah (seepage drain) and Uppar Chenab Canal (UCC) are the nearest surface water bodies in the project area presented in Plate 4.1.



Plate 4.1 Nearest surface water body (Seim Nullah)

4.1.2 Climate

The District has extremes of climate. The summer season starts from the month of April and continues till October. Table 4.1 presents month-wise mean temperature, precipitation and relative humidity. Figure 4.1 shows the graphical presentation of humidity of the project area.

Table 4.1: Month-wise Mean Temperature, Precipitation and Relative Humidity

Month	Mean Temperature (°C)		Precipitation (mm)	Relative Humidity %
	Maximum	Minimum		
January	19.8	5.9	23.0	64.6
February	22.0	8.9	28.6	57.6
March	27.1	14.0	41.2	51.1
April	33.9	19.6	19.7	37.9
May	38.6	23.7	22.4	31.9
June	40.4	27.3	36.3	39.8

Month	Mean Temperature (°C)		Precipitation (mm)	Relative Humidity %
	Maximum	Minimum		
July	36.1	26.8	202.1	63.3
August	35.0	26.4	163.9	68.8
September	35.0	24.4	61.1	59.6
October	32.9	18.2	12.4	53.2
November	27.4	11.6	4.2	61.4
December	21.6	6.8	13.9	67.8
Annual	30.8	17.8	628.7	54.7
Source: Sheikhupura District Census Report, 1998				

The above table depicts that May and June are the hottest months with mean temperature usually ranging from 39 to 41 degree centigrade. The winter season begins from the month of November and continues till March. January is the coldest month with a mean minimum temperature of 6 degree centigrade. Most of the rain falls in July, August and September during summer months and in January, February and March during the winter months.

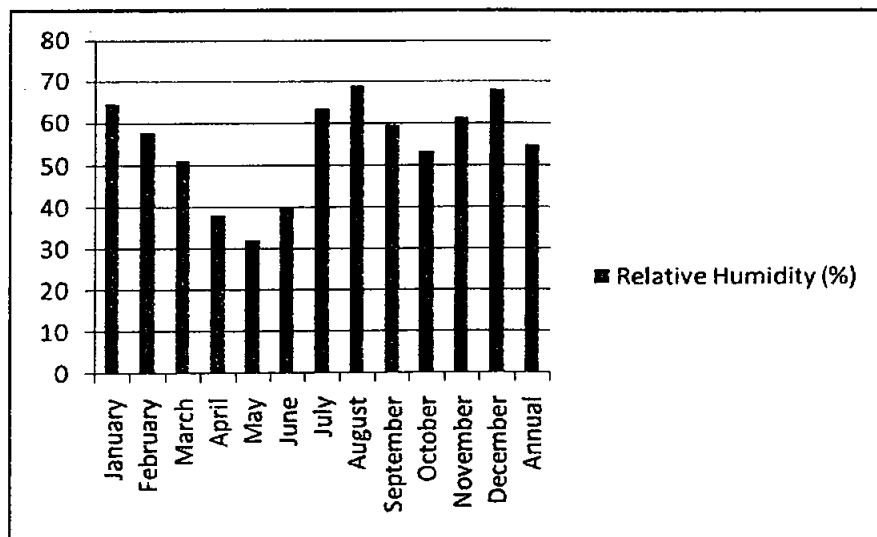


Figure 4.1: Relative Humidity in the Study Area

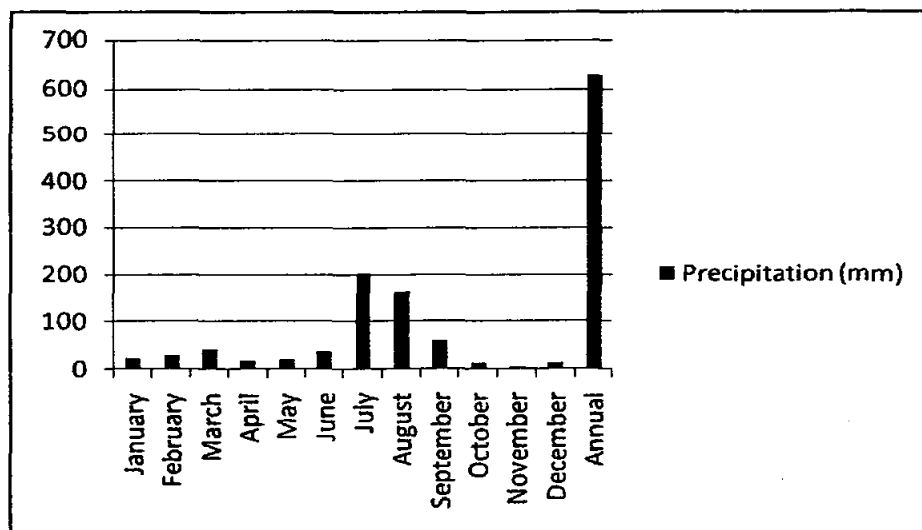


Figure 4.2: Average Rainfall in the Project Area

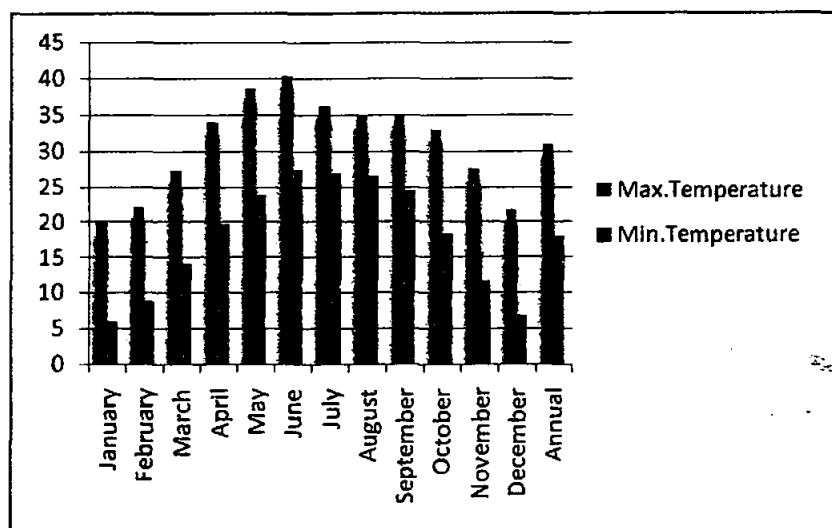


Figure 4.3: Mean Temperature in the project area

4.1.3 Regional Geology and Soil

Sheikhpura District is a part of Rachna Doab and consists of some recent sediment brought from Chenab River. There are some old channel levee remnants and old basins filled up with clay materials. The only mineral products of the District are Kankar and Kallar.

4.1.4 Land Use

The land use in the project area comprises of agricultural fields and few human settlements. The proposed site is inhabited at few locations with scattered houses. No

prominent commercial facilities or public buildings are present at site. However, a major settlement Bamban Kalan is situated within the project boundary.

4.1.5 Seismology

Sheikhupura is situated in *Seismic Zone-2 A* which corresponds to peak horizontal ground acceleration of 0.08 to 0.16g (where 'g' is the acceleration due to gravity). The impacts associated with this zone are low-moderate. **Figure 4.2** shows seismic zoning map of Punjab indicating location of the proposed project.

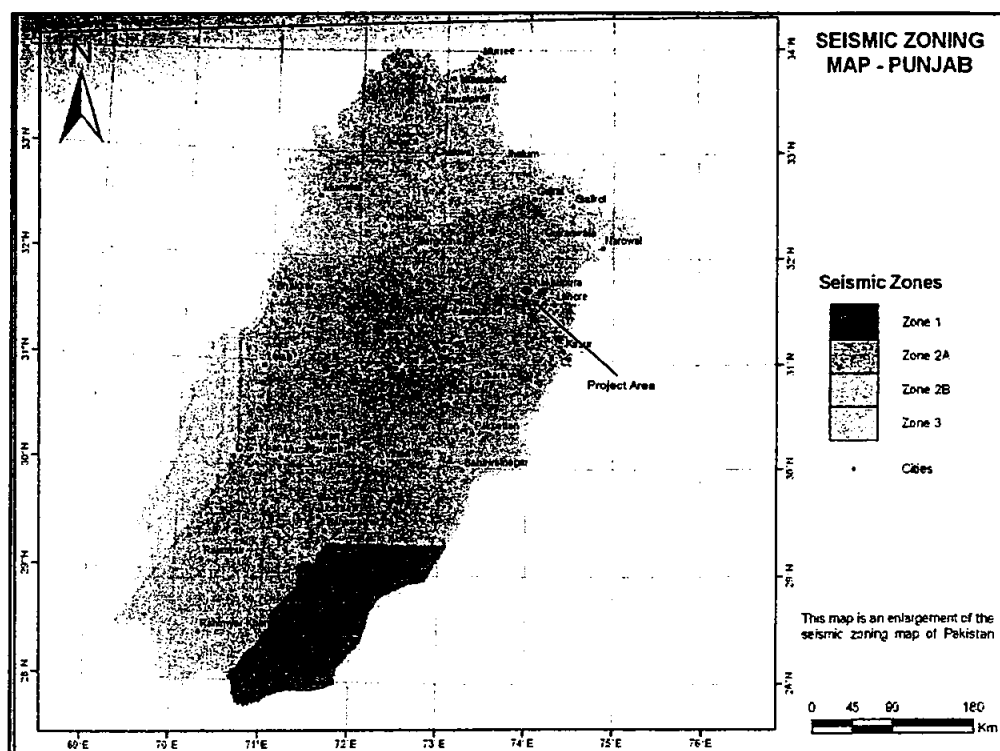


Figure 4.4: Seismic Zoning Map of Punjab

4.1.6 Ambient Air Quality

Atmospheric pollution, particularly in urban areas like Sheikhupura, has a strong impact on daily life. Motor vehicles are a major source of air pollution. However, factories and cottage industry inside the Sheikhupura City are also contributing to the air pollution. Sulphur dioxide (SO₂), Nitrogen dioxide (NO₂), Carbon dioxide (CO₂), Carbon monoxide (CO), Ozone (O₃) and particulate matter (PM₁₀) are considered pollution indicators. The ambient air quality was monitored at three different sites of the project area (Plate 4.2) during the month of May 2014 by SUPARCO Laboratory. The ambient air quality was monitored for priority pollutants such as CO, NO₂, SO₂

and PM₁₀. The monitoring period was 24 hours at each sampling point. The results obtained are tabulated under Table 4.2.

Table 4.2: Ambient Air Quality Result

Parameter Carbon	Average Time		NEQS	Unit	Average Concentration (Quaid-e-Azam Apparel Park, Sheikhpura)		
					Chichu Ki Malian	Bamban Kala	Motorway Camp site
Carbon Monoxide (CO)	1 st Third	8 h	5	mg/m ³	4.08	3.88	3.73
	2 nd Third	8 h			4.44	3.76	3.7
	3 rd Third	8 h			3.46	4.28	4.22
Sulphur Dioxide (SO ₂)	24 h		120	µmg/m ³	25	21.8	35.6
Nitrogen Dioxide (NO ₂)	24 h		80	µmg/m ³	40.4	28	48.4
Particulate Matter (PM ₁₀)	24 h		150	µmg/m ³	139.6	123.6	121.2

The results indicate that the concentration NO₂, SO₂, CO and PM₁₀ were within permissible limits of Pak EPA NEQS.

4.1.7 Noise

Noise pollution (or environmental noise) is displeasing to human or machine-created sound that disrupts the activity or balance of human or animal life. A common form of noise pollution is from transportation, principally motor vehicles. The source of most noise worldwide is transportation systems, motor vehicle noise, along with aircraft noise and rail noise. Poor urban planning may give rise to noise pollution, since side-by-side industrial and residential buildings can result in noise pollution in the residential area. Noise levels were monitored with the help of a portable digital sound meter at three locations for twenty four (24) hours with an interval of one second. The hourly average data was monitored by SUPARCO Laboratory. The minimum and maximum noise levels observed at the given locations are tabulated under Table 4.3.

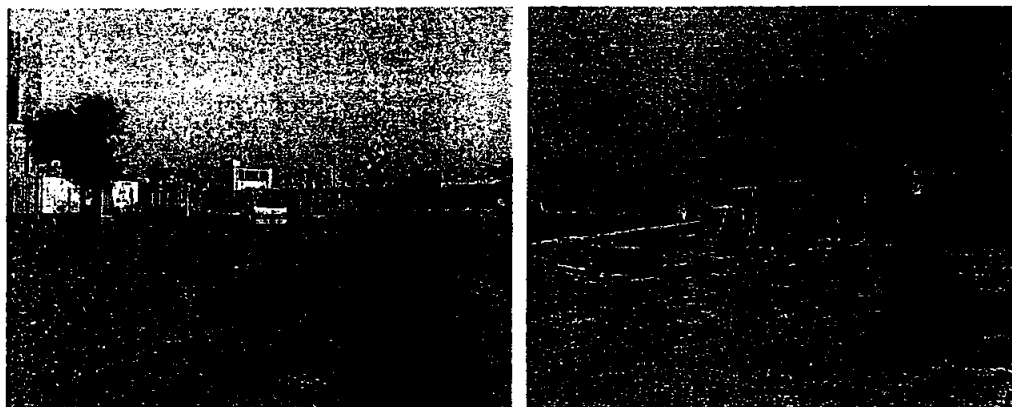


Plate 4.2: Ambient Air Monitoring in the Project Area

Table 4.3: Noise Level Results

Parameter Carbon	Average Time		NEQS	Unit	Average Concentration (Quaid-e-Azam Apparel Park, Sheikhupura)		
					Chichu Ki Mallan	Bamban Kala	Motorway Camp site
Noise	Day-time (0600 to 2200)	16h	65	Db(A)	63.47	59.73	61.08
	Night-time (2200 to 0600)	8h	55		61.93	58.82	58.88

Above Table depicts that noise levels at day time are well within the permissible limits of NEQS, while the noise levels were slightly high at night time due to harvesting/growing activities in the project area.

4.1.8 Ground Water Quality

The major source of drinking water supplied to Sheikhupura is through ground water. Thus, quality of groundwater is very important in terms of public health and shall be monitored regularly. Ground Water Quality was monitored in May, 2014 at four different locations in the Project area. The results are given in Table 4.4. The monitoring of Ground Water Quality is shown in Plate 4.3.

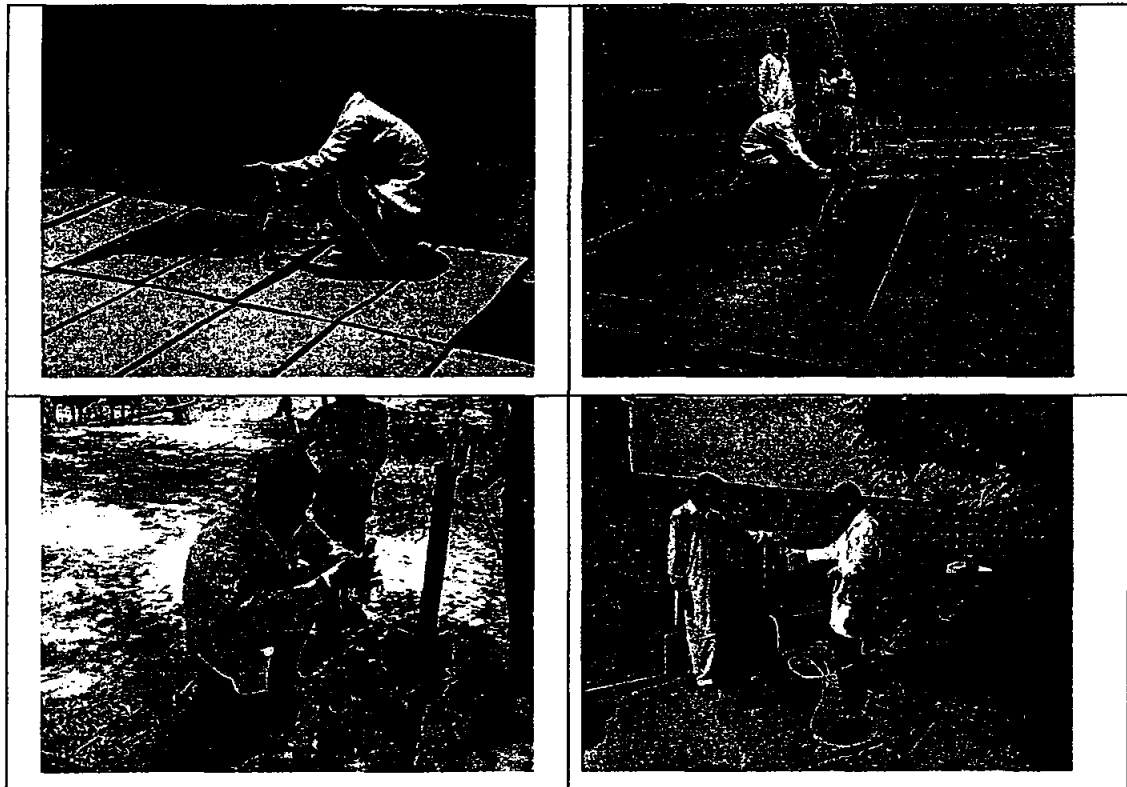


Plate 4.3 Sample Collection for Ground Water Quality Monitoring

Table 4.4 Ground Water Quality Results

Sr. No.	PARAMETER	GROUND WATER QUALITY RESULTS, SHEIKHPURA				NEQS
		Dairy Farm Tube well (Rao Naeem)	Motor (Rao Naeem)	Pir Shams Shah, Hand Pump Bamban Kalan	Dera Arayan Tube well	
1	Colour	Acceptable	Acceptable	Acceptable	Acceptable	≤ 15 TCU
2	Taste	Acceptable	Acceptable	Acceptable	Acceptable	Non objectionable/ Acceptable
3	Odour	Acceptable	Acceptable	Acceptable	Acceptable	Non objectionable/ Acceptable
4	pH	7.59	7.34	7.25	7.92	6.5 - 8.5
5	Turbidity (NTU)	0.6	0.4	0.7	0.4	<5
6	Total Hardness as CaCO ₃ (mg/l)	210	240	396	105	<500
7	Total Dissolved Solids (mg/l)	295	633	474	259	<1000
8	Aluminium (mg/l)	BDL	BDL	BDL	BDL	≤0.2
9	Antimony (mg/l)	BDL	BDL	BDL	BDL	≤0.005
10	Arsenic (mg/l)	BDL	BDL	BDL	BDL	≤0.05
11	Barium (mg/l)	0.028	0.031	0.020	0.022	0.7
12	Cadmium (mg/l)	0.002	0.001	BDL	0.002	0.01
13	Chloride (mg/l)	11.55	11.9	23.45	11.2	<250
14	Chromium (mg/l)	ND	0.004	ND	0.0012	≤0.05
15	Copper (mg/l)	BDL	BDL	BDL	BDL	2
16	Cyanide (mg/l)	BDL	BDL	BDL	BDL	≤0.05
17	Fluoride (mg/l)	0.31	0.28	0.34	0.38	≤1.5
18	Lead (mg/l)	BDL	BDL	BDL	0.001	≤0.05
19	Manganese (mg/l)	0.025	0.025	0.015	0.030	≤0.5
20	Mercury (mg/l)	ND	ND	ND	ND	≤0.001

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Sr. No.	PARAMETER	GROUND WATER QUALITY RESULTS, SHEIKHUPURA				NEQS
		Dairy Farm Tube well (Rao Naeem)	Motor (Rao Naeem)	Pir Shams Shah, Hand Pump Bamban Kalan	Dera Arayan Tube well	
21	Nickel (mg/l)	0.007	0.008	0.006	0.007	≤0.02
22	Nitrate (mg/l)	BDL	0.004	BDL	0.006	≤50
23	Nitrite (mg/l)	BDL	0.003	BDL	0.005	≤3
24	Selenium (mg/l)	BDL	BDL	BDL	BDL	0.01
25	Residual Chlorine (mg/l)	<0.02	<0.02	<0.02	<0.02	0.2-0.5 at consumer end, 0.5-1.5 at source
26	Zinc (mg/l)	0.02	0.02	0.01	0.04	5.0
27	Phenolic Compounds as Phenols (mg/l)	BDL	BDL	BDL	BDL	-
28	E. coli or Thermotolerant (MPN/100ml)	0	0	0	0	Must not be detectable in any 100 ml sample
29	Fecal Coliform (MPN/100ml)	0	0	0	0	Must not be detectable in any 100 ml sample
30	Total Coliform Bacteria (MPN/100ml)	0	0	0	0	Must not be detectable in any 100 ml sample

*BDL: Below Detection Limit

The results (Table 4.5) indicate that all the parameters are within the limits specified by NEQS.

4.1.9 Surface Water Quality

Surface Water Quality was monitored in May, 2014 at three different points (Saim Nallah, a pond of Bamban Kalan and Khanpur canal) in the project area. The results are given in Table 4.6. The monitoring of Surface Water Quality is shown in Plate 4.3.



Plate 4.3 Sample Collection for Surface Water Quality Monitoring

Table 4.5 Surface Water Quality Results

Sr. No.	PARAMETER	SURFACE WATER QUALITY RESULTS, SHEIKHPURA		
		Saim Nallah	Pond, Bamban Kalan	Khanpur Canal
1	Color			
2	Temperature (°C)	29.2	33.4	31.7
3	pH	7.7	7.98	8.04
4	BOD ₅ (mg/l)	9.5	17	5.7
5	COD (mg/l)	15	28	12
6	TDS(mg/l)	604	988	125
7	TSS (mg/l)	80	281	16
8	Grease & Oil (mg/l)	5	8	3
9	Phenolic compounds (mg/l)	0.2	0.45	<0.02
10	Chloride (mg/l)	16.6	12.2	2.7
11	Fluoride (mg/l)	0.4	0.6	0.1
12	Cyanide (mg/l)	0.11	0.19	ND
13	Anionic Detergent (mg/l)	0.1	1.8	0.1
14	Sulphate (mg/l)	820	280	53
15	Sulphide (mg/l)	<0.04	0.18	<0.04
16	Ammonia (mg/l)	0.58	1.56	0.11
17	Calcium (mg/l)	12	19	16
18	Cadmium (mg/l)	0.004	0.005	0.001
19	Chromium (mg/l)	BDL	BDL	0.006
20	Copper (mg/l)	0.012	BDL	0.003
21	Lead (mg/l)	BDL	BDL	BDL
22	Mercury (mg/l)	BDL	BDL	BDL
23	Selenium (mg/l)	BDL	BDL	BDL
24	Nickel (mg/l)	0.003	0.002	0.007
25	Silver (mg/l)	BDL	BDL	BDL
26	Zinc (mg/l)	0.012	0.014	0.021
27	Arsenic (mg/l)	ND	ND	0.003
28	Barium (mg/l)	0.09	0.07	0.009
29	Iron (mg/l)	BDL	BDL	0.04
30	Manganese (mg/l)	BDL	BDL	BDL
31	Boron (mg/l)	BDL	BDL	0.04
32	Chlorine (mg/l)	<0.02	<0.02	<0.02
33	E. coli or Thermo tolerant (MPN/100ml)	>38×10 ³	>38×10 ³	>38×10 ³
34	Fecal Coliform (MPN/100ml)	>38×10 ³	>38×10 ³	>38×10 ³
35	Total Coliform Bacteria (MPN/100ml)	>38×10 ³	>38×10 ³	>38×10 ³

4.1.10 Solid Waste

District Sheikhupura is experiencing urban sprawl and industrialization leading to a generation of enormous amount of solid waste from many sources, like household waste, commercial activities, industries, hospitals, animal waste, all of which are contributing in creating environmental and health hazards for citizens. Tehsil Municipal Administration (TMA) Sheikhupura is facing severe problem in collection and dumping of Solid Waste due to rapid increase in the population of the city.

Sheikhupura currently generates about 205.12 tons of municipal solid waste daily (Situation Analysis Report for Integrated Solid Waste Management (ISWM) in Sheikhupura, 2013) and is estimated to have a yearly generation of 74869 tons. The existing solid waste collection is divided into primary and secondary collection system. The primary collection is accomplished by sanitary workers those carry out through sweeping of streets & roads and collect the solid waste from small heaps with the help of brooms, wheel barrows etc. and store at permanent and temporary collection points. The secondary collection is accomplished through Tractors & trolleys. TMA also has to collect wastes from debris-demolition of building structures; Hospital wastes; Slaughter Houses wastes; Vegetable Market; Dead animals etc. and those are mixed with municipal waste. In Sheikhupura the disposal of solid waste is mainly done in the form of open dumping at Raitly Road near Chahg, Lakhi Wal Road, Farooqa Road and Jhang Road.

4.2 Ecological Resources

Project site is spread over an area of 1565 Acres and is located, along the Motorway at 38 Kilometer of Lahore-Islamabad Motorway M 2.

4.2.1 Flora

Original vegetation of the tract falls under scrub, dry, tropical thorn forest type as per phyto-geographical classification of the area. These forests consisted of the trees like Karir (capparisaphylla), Wan (Salvadoraoleoides) and Jand (Prosopisspicigera). With the increase in population and advent of irrigation system, the area was converted into agricultural lands. Farmers have raised a mixture of tree species, along the water channels and boundaries of their agricultural fields. At present, flora consists of a

wide range of trees, bushes, shrubs, herbs, forbs, agricultural crops, vegetables, fruit orchards, ornamental plants, and other rank growths. There are no forests in the Project Area, however, tree species, existing in the Project Area include, Kikar, Shisham, Sirris, Ber, Jaman, Mango, Bakain, Semal, Mulberry, and a number of Ficus species i.e. Berh, Borhi, Pipal etc. There is generally a mixture of species found in the tract. Common trees found in the area are as follows:

Common Name	Botanical Name
Kikar	<i>Acacia nilotica</i>
Shisham	<i>Dalbergiasissoo</i>
Ber	<i>Zyzyphusjijuba</i>
Sufaida	<i>Eucalyptus camaldulensis</i>
Toot	<i>Morus alba</i>
Neem	<i>Azadirachtaindica</i>
Sirris	<i>Albizzialebbek</i>
Jand	<i>Prosopisjuliflora</i>
Sohanjna	<i>Morinaga pterygosperma</i>
Lasura	<i>Tecomaundulata</i>
Bakain	<i>Meliaazadirachta</i>
Bohr,Rubber Plant, Peelak	<i>Ficus species</i>

Existing Trees in the Project Area

Trees existing in the project area are mostly of medium size and with ages between 5 to 15 years. These trees consist of species, such as Kikar, Shisham, Sirris, Jaman, Mulberry, Poplar, Eucalyptus and Ficus species. Boundary of the project area has been marked on ground by erecting pillars, but on a site visit dated 06.05.2014, it was observed that most of the pillars were uprooted and the boundary area could not be clearly ascertained. However, by a rough estimation and partial sample counting in 3 different representative areas of 1 acre each, the number of trees per acre comes to 2.75, and as the total project area is 1565 acres, the estimated number of trees in the entire project area comes to nearly 4000.

Shrubs and Herbs

Common shrubs and weeds are Mesquite (*Prosopis* species), Ak (*Calatropis*), MallahBer (*Zizyphusnummularia*). Other common shrubs and herbs found in the project area are Jawan (*Alhajimaaurorum*), Bhakra (*Tribulusterrestis*), Lana (*Suedafruticosa*), Phog (*Calligonumpolygonides*) Jantar (*Sesbaniaaculeata*) and Tumba (*Citrulluscolocynthbus*). Jantar, Tumba and Bathu are found mostly grown in left over agricultural fields, while Arind is present mostly along the water channels. The remaining shrubs and herbs grow in open places.

Grasses

The most common grass of the tract is Khabbal (*Cynodondactylon*). It is a useful fodder grass. Other grasses found in the area are Khawi (*Cymbopoganjawarnica*), Sinn (*Elionorushirsutus*) and Gam, mali (*Panicumantidotale*). Kana (*Saccharummunja*) and Dib (*Typhaangustata*) are found along the fish ponds or in moist places.

Reserve or Protected Forest

No reserve or protected forest exists in the vicinity of the project area.

Agriculture

Agricultural cropping is the main land use. The entire area is a recent terrace with deep alluvial, fertile soils. Almost all the project area is under agriculture except areas under houses, existing in different "Deras" or village Bumban Kalan, Dairy Farms or Fish Ponds. Dominant mode of irrigation is the groundwater, which is being withdrawn at a depth of 60 to 70 feet. However tube wells are installed at a depth of 200 to 250 feet depth. A canal called Maujo ki Minor also partially irrigates the project area. The canal is a perenniel one with insufficient water supply. However shortage of water is amply compensated by irrigation through tube wells and peter engines. Modern standards of farming are practiced, such as use of tractors, fertilizers and insecticides.

Cropping Pattern

The crop pattern in the project area is the same as followed throughout the plains of Punjab. Major crops of the area are Wheat during Rabi and Rice during Kharif. Rabi crop is sown during November to December and harvested during May to June. Kharif crop is sown during June, July and harvested in the month of October to November.

Fruit Orchards

Fruit crops are grown on a smaller scale in the area. There are 3 fruit orchards in the project area. One is of Lemon, consisting of nearly 3 Acres and the other two are of Guava, consisting of 2 Acres each.

Endangered Species

There are no endangered species of flora in the Project Area.

4.2.2 Fauna

The project area was once rich in wildlife, but due to onslaught of civilization and conversion of forests into agricultural lands, proper habitat for the fauna and especially the mammals has degraded. Fauna of the tract consist of mammals, reptiles and birds. The details are given as under.

Mammals

Common mammals found in the project area are dogs, cats, house rats and bats, Gots, Cows. Small Indian Mongoose and Indian Palm Squirrel have also been reported. These are mostly seen in Derajats or villages.

Reptiles

Snakes such as cobra, kraits etc. were once common in the tract, but now cases of snake bites are very rare, as these reptiles have been either killed by expanding urbanization or they have moved away. Lizards such as Spiny tailed lizard (*Uromastixhardwickii*) and fringed toed lizard (*Acanthodactylus cantoris*) are also reported by the residents of the area.

Amphibians

Amphibians frequently seen in and around the project area, especially during rainy season, include common Frog (*Ranatigrina*) and Indus valley toad.

Birds

House sparrow (*Passer domesticus*), House crow (*Corvus splendens*) and Mynah (*Acridothera tristis*) are the most common sight in the area. In addition, following birds have also been observed or reported in the area.

1. Nightingale (*Pycnonotus cafer*)
2. Parrot (*Psittacula krameri*)
3. Pigeon (*Columba livia*)
4. Asian Koel (*Eudynamis scolopacea*)
5. Red-vented bulbul (*Pycnonotus cafer*)
6. Black Partridge (*Francolinus francolinus*)
7. Grey Partridge (*Francolinus pondicerianus*)
8. Quail (*Coturnix coturnix*)

Above birds are generally found in the open areas and in the fields, whereas little egret (*Egretta garzetta*) is found along the marshy areas or in the fish ponds.

Fishery

Fishing is common in the tract. A number of fish ponds have been built in the project area and its vicinity by the landowners of the tract. The ponds are usually of 4 to 5 acres size. However smaller and even larger ponds are reported in the area. As reported by local landowners, fish ponds exist on about 27 acres in the project area. Varieties usually introduced in the fish farms are Rahu (*Labeo rohita*), Thela (*Catla catla*), Gulfam (*Hypophthalmichthys molitrix*) and Grass carp (*Ctenopharyngodon idella*).

Livestock

Besides agriculture raising of a large number of livestock is the other main source of income. Dominant among livestock are buffaloes followed by cows, goats and sheep. Buffaloes of both Ravi and Nili Breeds which are high milk yielders are raised. Most

feeding is done by stalls, open grazing is very limited due to agricultural crops, orchards and due to restriction on free grazing. Sheep are found in large number at Project Site. Many Australian and foreign breed Cows are present in the two modern poultry farms which exist within the project area. Milk is supplied from these farms to a multinational company, who are well equipped to preserve and supply this milk to nearby Sheikhupura or Lahore city using modern technology. Government as well as private veterenies and vaccinators attend to the diseases of livestock.

Other livestock includes Donkeys, Horses and few Mules. No Camel are found in the area. Dogs of diverse breeds are very common for watch and looking after livestock

4.3 Socio-economic Environment

The baseline socio-economic conditions of the area are briefed below:

4.3.1 Administrative Setup

The project area falls in the administrative jurisdiction of District Sheikhupura, which is under general charge of the DCO, followed by Additional Deputy Commissioner and three Assistant Commissioners and ten Illaqa Magistrates responsible for the coordination of function of all the nation building departments in the district. The judicial administration of the district is under the charge of district and session judge along with three additional session judges and civil judges.

4.3.2 Demographic Profile

According to 1998 census, the total population of Tehsil Sheikhupura is 1,049,264 which is 31 percent of the district population (3321029). The total area of Tehsil Sheikhupura is 1267 sq.km, which gives population density of 783.6 persons per sq. km. The average annual growth rate in the Tehsil was 3.12 percent and average household size is 7.5 persons.

4.3.3 Rural and Urban Distributions

The urban population is 870,616 or 26.2 percent of the total population of the district which grew at an average rate of 4.8 percent during 1981-98. There are five municipal committees and 1,073 mouzas (a smallest revenue unit) in 1998 of which 112 had

population over five thousand, 261 had 2 to 5 thousand, 243 had 1 to 2 thousand, 402 had under one thousand persons while 55 were un-inhabited.

4.3.4 Religion

The population of the Sheikhupura District of which the Project Area is an integral part is predominantly Muslim i.e. 95.1 percent. The next higher proportion is that of Christians with 4.5 percent. While other minorities like Ahmadis, Hindus, etc. also live in very small numbers. The population of the project area is also predominantly Muslim.

4.3.5 Ethnic Structure

The population generally is divided by, Jats, Khokhar, Pathan, Dogar, Gujjar, Quershi, Rajputs, Syed, arian, Wahga Maan and Kharal. These have been further sub-divided in various sub- caste and sub-tribes.

4.3.6 Mother Tongue

The mother tongue refers to the language used for communication between parents and their children in any household. Punjabi is the predominant language being spoken by majority (98.7%) of the population of the district Sheikhupura followed by Urdu, Pashto, Siraki, Sindhi, Balochi, Bravi and Dari.

4.3.7 Sex Ratio

Sex ratio, i.e. number of males for every 100 females, was 109 per cent recorded in 1998 Census .The ratio was 109 per cent in rural areas and 109 in urban areas. The higher sex ratio observed in the latter areas as compared to the former areas could be sex selective migration to the latter areas.

4.3.8 Migration

The total number of life time in migrants in Sheikhupura district were 330,053 or 9.9 percent of the total population of the district. Of the total life time in migrants

121,314 persons are settled in the towns. Of total district migrants 72.7 percent came from Punjab, 3.9 per cent were from Sindh, KPK and Balochistan, 0.3 percent from Azad Kashmir and Northern Areas while remaining 23.1 percent were Pakistanis who repatriated from other countries.

4.3.9 Economically Active Population

The economically active population is defined here as the persons working, most of the time during the year preceding the census date March 1998 looking for work, laid off and unpaid families helper assisting their family. The economically active population as enumerated in the last census was 22.2 percent of the total population or 31.6 percent of the population 10 years and over i.e. the population exposed to the risk of entering the economically active life at any time. Of the total male population 40.6 percent were economically active, while 59.4 percent not economically active 29.4 percent children under ten years, 12.7 percent students, 2.5 percent domestic workers while 14.8 percent were land lords, property owners, retired persons, disabled, etc.

4.3.10 Unemployment

Unemployment rate is measured as ratio of looking for work and laid off in total economically active population comprising employed, looking for work, laid off and un paid family helpers, generally representing in percentage. The unemployment rate in the district was 17.7 percent which was mainly due to unemployment amongst both the sexes representing 17.8 percent for male and 16.2 percent for female. The unemployment rate was three-eighths times lower in rural areas as compared to urban areas representing 15.3 and 25.1 percent respectively.

4.3.11 Occupations

Of the employed persons in 1998 about 45.3 percent had elementary occupations followed by skilled agriculture and fishery workers representing 29.7 percent, service, shops and market sales workers 7.6 percent while craft and related trade worker representing 5.7 percent.

4.3.12 Education

Education has significant impact on the life of an individual, which enhances the quality of life and productivity. It also serves as a key indicator of any socio-economic development. The educational facilities are not adequate, and people have to send their children to the nearest village(s) and town(s) for higher education, which becomes a hardship for the parents, especially to educate their daughters. Perhaps the lack of education facility is the main cause of low literacy rate in the Project Area, especially among the women.

According to 1998 census, the literacy ratio in Sheikhpura district is 43.8 percent. The literacy ratio for males is 53.3 percent as against 33.3 percent for female.

4.3.13 Health

Health conditions are one of the major determinants of a society's social development and quality of life. Healthy manpower is imperative for advancement and economic growth. The major health facilities available in the district are District Headquarter Hospital, Tehsil head quarters Hospital at each Tehsil along with M.C. Health Centre, Primary Rural Health Centers, Primary Dispensaries, Basic Health Units, TB Centers and 72 Dispensaries. The Zila Council is also running dispensaries, MC Centers and Veterinary Hospitals.

4.3.14 Communication and Roads

Communication network is a fundamental prerequisite for boosting economic activities. The villages of the Project Area are normally connected with main road(s) and district headquarters through metalled roads and with nearby Railway station. A motorway section M-2 is passing through the district, the total length of motor way in the district is 67 km that passes through 31 villages of Tehsil Sheikhpura and Ferozewala. The telephonic facility by Pakistan Telecommunication Company Limited (PTCL) is limited, however a growing trend of utilization of cell phones, whose connections are easily available, is also facilitating the local population with communication network.

4.3.15 Industry

Sheikhupura district has undergone rapid industrialization. However presently there is no industrial estate in the district. There are approximately 650 cottage and small/medium/large scale industrial units operating in the district. The prominent industries in the district are of rayon and polyester fiber, woolen textile, rice husking flour mills, cotton textile spinning and weaving, tanneries, heavy engineering, pharmaceutical, fertilizers, paper and board, assembling of motor cycles and cycles, sugar and ghee mills, ice and cold storage, foundries, steel re-rolling, jute products, steel pipes, glass products, poultry farms, agricultural implements, ceramics, petroleum products, extraction of rich brand oil, etc.

4.3.16 Archeological and Cultural Property/ Places of Interest

District Sheikhupura has many places of interests that attract the tourist from within and outside country which includes Hiran Minar, Sheikhupura Fort and Shrine of Warris Shah.

4.4 Impact Assessment Survey of the Project Area

The Impact Assessment Survey of project area was conducted in order to derive primary data / information and also to identify the impacts and their magnitudes on the affected population. A sample of 150 respondents was taken on the basis of random sampling technique, which included farmers, residents, drivers and students and other notable persons like number dars, ex-councilors, teachers etc. During the survey, both males and females were contacted for information. The purpose of survey was to get responses about the perceived impacts and preferences towards the project implementation.

4.4.1 Survey Findings

Detailed findings of the survey comprising of different parameters are discussed in the following section.

i) Gender Ratio of the Respondent

Total 150 respondents were contacted for information collection, comprising of 70% males and 30% females. Table 4.7 shows Gender ratio of the respondents interviewed during the survey

Table 4.7: Gender Ratio of the Respondents

Sr. No.	Gender Ratio	Number of Respondents	Percentage %
1	Male	105	70
2	Female	45	30
Total		150	100

ii) Age Composition

The demographic characteristics of the sample survey show (Table 4.8) that 8% of the respondents were up to 25 years of age. 43% of the respondents were aged 26 – 35 years, 28% were 36 – 45 years and 20% were more than 45 years of age. These figures show that by and large respondents were mature enough to express their opinion/concerns about the implementation of Quaid-e-Azam Apparel Park, Sheikhupura.

Table 4.8: Age Composition of the Respondents

Sr. No.	Frequency Distribution	Number	Percentage
1	15 – 25	13	8
2	26 – 35	65	43
3	36 – 45	43	28
4	46 and above	30	20
Total		150	100

The pie chart given below, (Figure 4.3) reflects the age composition of the respondents.

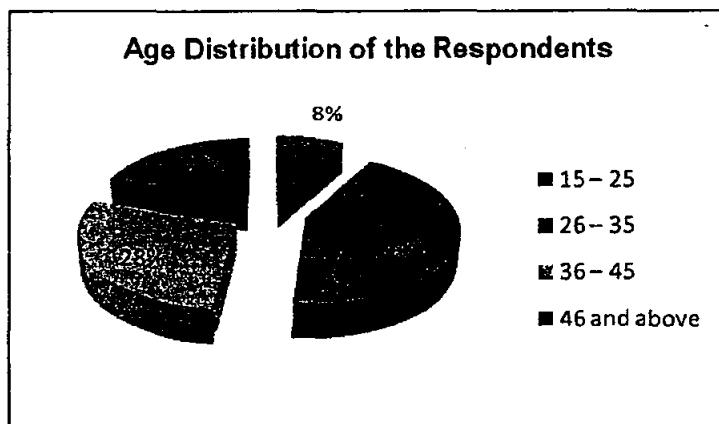


Figure 4.5: Age Composition of the Respondents

iii) Education Level

Educational distribution of the respondents is shown in Table 4.9. The data in the table represents that 13% of the respondents were illiterate, 10% were educated up to primary level, 40% were with middle schooling, and 22% were educated up to matric and 8% intermediate. A very few number i.e., 2% and 5% respondents were graduates and masters respectively.

Table 4.9: Educational Level of the Respondents

Sr. No.	Educational Level	Number	Percentage
1	Illiterate	20	13
2	Primary	15	10
3	Middle	60	40
4	Matric	33	22
5	Intermediate	13	8
6	Graduation	3	2
7	Masters & Above	8	5
Total		150	100

The pie chart given below shows the educational level of the respondents. (Figure 4.4).

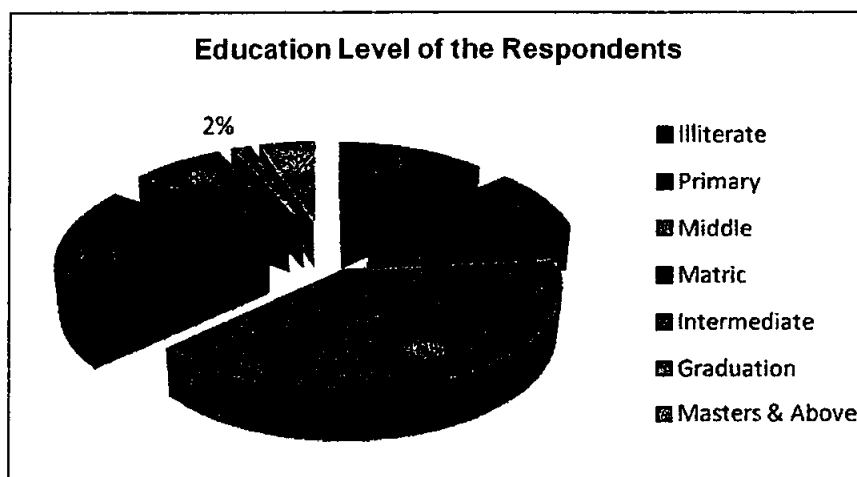


Figure 4.6: Educational Level of the Respondents

iv) **Marital Status**

According to survey findings 56% of the respondents were married and 44% were living as single member of the society (Table 4.10).

Table 4.10: Marital Status of the Respondents

Sr. No.	Marital Status	Number	Percentage
1	Married	145	97
2	Un-married	5	3
Total		150	100

v) **Occupation**

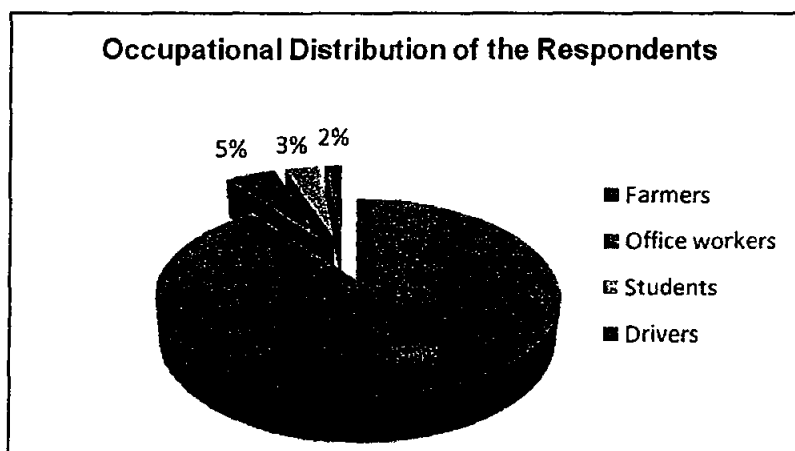
The respondents were inquired about their professions in the project area. Majority of the respondents i.e. 90% were belonging to agriculture / farming on their lands, while 5% were doing jobs in different sectors. Only 3 % were students and 2% respondents were linked with driving profession.

During survey, efforts were made to interact with project stakeholders representing all walks of life. The detailed statistics based on sample survey, regarding occupational status of the respondents are presented in Table 4.11.

Table 4.11: Occupations of the Respondents

Sr. No.	Profession	Number	Percentage
1	Farmers	135	90
2	Office workers	8	5
3	Students	5	3
4	Drivers	3	2
Total		150	100

The occupational distribution of the respondents is given below in the form of pie chart (Figure 4.5).

**Figure 4.7: Occupational Distribution of the Respondents**

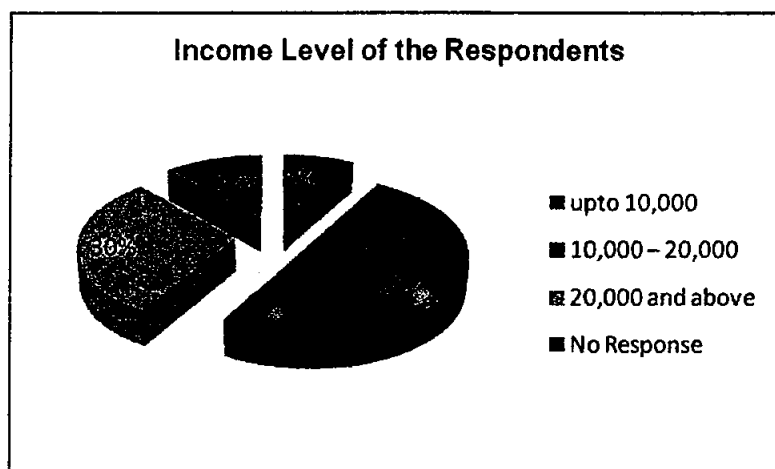
vi) Income Level of the Respondents

From the Table 4.12, it is clear that majority of the respondents (50%) belong to income group of 10,000 to 20,000 and 30% fall in the income group of Rs. 20,000 and above. Whereas 8% of the respondents were earning their monthly income up to Rs. 10,000 and 12% respondents did not give any response about their incomes.

Table 4.12: Income Level of the Respondents

Sr. No.	Frequency Distribution	Number	Percentage
1	Below 10,000	13	8
2	10,000 – 20,000	75	50
3	20,000 and above	45	30
4	No Response	18	12
Total		150	100

In the pie chart (Figure 4.6), the income groups of various respondents are shown below.

**Figure 4.8: Average Monthly Income of Various Respondents**

Vii) Sources of Water for Domestic Use

An easy access to potable / safe drinking water is one of the basic human rights and needs. Table 4.13 indicates that the residents of the entire project area are deprived of tapped water supply system. All the population of project area (100%) was using hand pumps for domestic usage.

Table 4.13: Sources of Domestic Water Supply

Sr. No.	sources of domestic water supply	Number	Percentage
1	Public Water Supply	0	0
2	Hand Pump	150	100
Total		150	100

viii) Water Quality

Table 4.33 shows the current situation of the water quality in the project area. Significant numbers of the respondent i.e. 100% were satisfied with the quality of water available in the project area. The quantitative figures regarding the water quality were shown below Table 4.14.

Table 4.14: Satisfaction level about Quality of Water

Sr. No.	level satisfaction with water quality	Number of Respondents	Percentage (%)
1	Yes	150	100
2	No	0	0
Total		150	100

ix) Land Holding

During the survey, the respondents were asked about their landholding size in the project area. It is clear from survey findings that a large number of respondents (65%) were holding small piece of lands i.e. up to 0-10 acres. The farmers who fall between 10-50 acres land holding were 18%, while 10% of the respondents were holding land up to 50-100 acres. Remaining of the respondents 7% were reported their land holding up to 100 & above acres.

Table 4.15: Land Holding Size of the Respondents

Sr. No.	Average Landholding Size (Acres)	Number of Respondents	Percentage %
	0-10	98	65
	10-50	28	18
	50-100	15	10
	100 & above	10	7
	Total	150	100

In the pie chart (Figure 4.7), the landholding size of respondents is shown below.

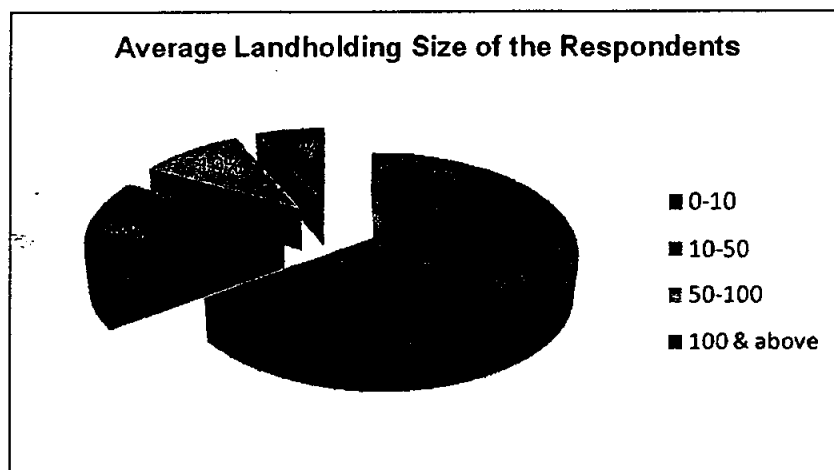


Figure 4.9: Land Holding Size of Respondents

x) Irrigation Water

Study revealed (Table 4.16) that 56% respondents; out of total sampled population depends upon tube well (ground water) for irrigation purpose and 44% respondents use canal water for their agriculture lands. Multiple responses were recorded in each village due to availability of more than one option. Figure 3.18 shows irrigation system within the Project Area.

Table 4.16: Sources of Irrigation Water

Sr. No	Irrigation Channels	Number of Respondents	Percentage %
1	Canal	72	44
2	Tube well	93	56
	Total	165	100

* Multiple responses recorded that shows, the respondents were using more than single source of water for irrigation purpose at the same time.

xi) Cropping Pattern in the Project Area

The major crops grown in project area are rice and wheat. A few numbers of farmers sow vegetables (Potato, Onion, Carrot, Radish, Peas, Pumpkin, Bringle etc.) and Orchards of Illaichi & Guava were also observed in project area. The average yield of major crops in project area is 35 to 40 (maunds) per acre for each crop. Table 4.17 indicates the cropping pattern in the project

area. The data contains multiple response because every village produce number of crops.

Table 4.17: Cropping Pattern in the Project Area

Sr. No.	Cropping Pattern	Number of Respondents	Percentage %
1	Rice & Wheat	120	77
2	Vegetables	35	23
	Total	155	100

*Multiple responses

xii) Acceptability of the Project

Table 4.18 shows the willingness of the respondents about the implementation of the Project. A large number of respondents i.e. 80% did not favor the implementation of Quaid-e-Azam Apparel Park due to various concerns, while 20% show their willingness about the implementation of the project.

Table 4.18: Frequency of Project Acceptability

Sr. No.	Frequency Distribution	Number of Respondents	Percentage %
1	Yes	30	20
2	No	120	80
	Total	150	100

xiii) Perceived Impacts

Table 4.19 provides us the various impacts perceived by the respondents about the construction of Apparel Park. The big apprehension of the respondents (47%) was about the acquisition of their agriculture lands by the implementation of this project. This way, they will lose not only lands but also unable to meet the requisite standard of their socio-economic well being.

The second most important concern raised by the 33% of the total respondents was the availability of local jobs during the operation phase of propose

project. While 11% were those, who feared about the usage of local material during construction stage. About 9% considered that it will lead to ultimately development of project area in future.

Table 4.19: Perceived Impacts

Sr. No.	Perceived Impacts	Number of Respondents	Percentage %
1	Local building material will be used	19	11
2	Job opportunities during operation	55	33
3	Beneficial for the development of area	15	09
4	Private Land Acquisition	78	47
Total		167*	100

*Multiple Responses

The perceived impacts of the respondents about the operation of Apparel Park are shown below in graphical form (Figure 4.8).

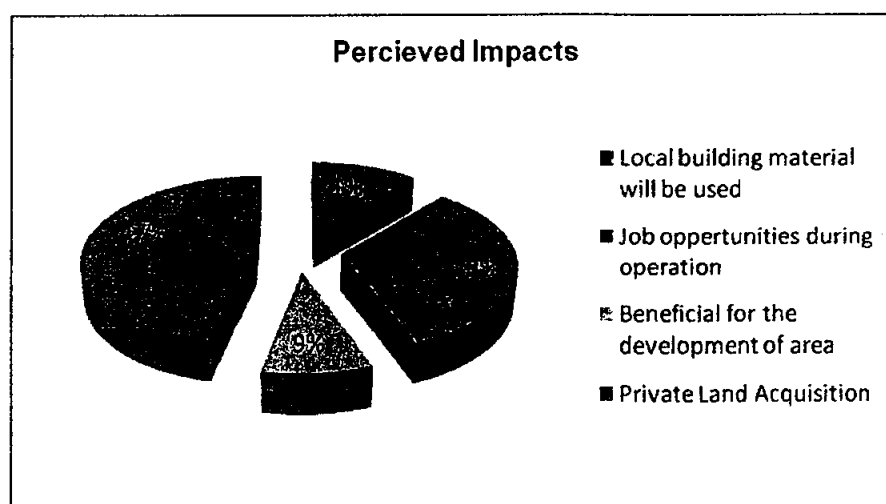


Figure 4.10: Perceived impacts of the respondents

SECTION - 5

PUBLIC CONSULTATION

5.0 General

This section describes the outcome of the public consultation sessions held with different stakeholder groups that may be affected by the project. The consultation process was carried out in accordance with the requirements of Pakistan Environmental Procedures. The objectives of this process were to:

- a) Share information with stakeholders on the construction of the proposed project and expected impacts on the physical, biological and socio-economic environment of the project area;
- b) Understand the perceptions, assessment of social impacts and concerns of the affected people / communities in the near vicinity of the proposed Apparel Park for the project;
- c) Provide an opportunity to the public to provide valuable suggestions for the project design in a positive manner; and
- d) Reduce the chances of conflict through the identification of controversial issues, and consult them to find acceptable solutions;

5.1 Identification of Main Stakeholders

During the field survey, significant efforts were made to identify the possible categories of stakeholders and their stakes. Different stakeholders identified during survey were the shopkeepers, local residents, office workers, drivers, schools, transport users and representatives from different Government Departments etc. All the stakeholders had different types of stakes according to their professions.

a) Consultation and Participation Process

For ascertaining the perceptions of different stakeholders about the project (during construction/operation), meetings were held with them. These meetings were conducted in an open atmosphere, in which participants expressed their views freely.

Informal group discussions were also held as an additional tool for the assessment of the perceptions of the stakeholders.

b) Categories of Stakeholders Contacted

The stakeholders contacted belonged to different categories as shown in the Table 5.1.

Table 5.1: Stakeholders Contacted in the Project Area

Sr. No.	Stakeholder Category
1.	Residents
2.	Business/ shop owners
3.	Office workers
4.	Customers/ clients
5.	Schools
6.	Ex-Council Members
7.	Drivers



Plate 5.1 Interviews with Major Stakeholders

5.2 Consultation Meetings and Informal Group Discussions

Consultation meetings and informal focus group discussions regarding project impacts and its mitigation measures were held with the villagers, number dars, ex-councillors members and representatives from Government Departments like DCO & Tehsil dar etc. These meetings were held at various locations of villages namely, Qayam Pur, Khokhar ki Malian, Saho ki Malian, Bomb kalan.

Generally, people were found to be aware of the need of the proposed Apparel Park project and also showed their support for the project after the again and again meetings with affectees. The people demanded that they must be compensated properly in case of loss of their properties.

5.3 Commonly Raised Stakes / Concerns of the Stakeholders

The most commonly raised concerns during the meetings are listed below:

- Proper compensation should be paid to the affectees for the loss of their properties;
- Criteria of payments to the affectees should be transparent and fair and must be based on current market rate
- Affected people must given some other additional allowances other than compensation for lost assets
- Displaced villages should be compensated properly like provision of hamlets must be there by government ;
- Minimize the effects of noise, dust, vibration, traffic and lightening associated with construction activities on the communities living near the project area that can cause disturbances and emotional stress,
- Adopt measures to control the spillages from construction machinery in order to avoid accidents;
- Avoid dumping construction material openly;
- Solid waste produced during the construction should be disposed of properly;
- Construction site should be fenced with the corrugated iron sheets to control the noise and dust emissions;
- Scheduled sprinkling of water during the construction phase;

- Utilities disturbed at the site should be restored as early as possible;
- Cutting of trees should be avoided at the maximum level;
- Efforts should be made to transplant the trees according to the available facilities;

5.4 Proposed Measures and Mitigation Measures for Addressing the Stakeholders' Concerns

The contractors and design consultants will include the following environmental and safety provisions in the project design and to protect surrounding communities from the expected impact of construction:

- About 1767 people are being affected by the project. An independent Resettlement Plan should be prepared for fair compensation to the project affectees in order to give them fair replacement cost.
- A tree plantation programme to compensate for the anticipated loss of vegetation during the construction activities, and to help abate pollution caused by emissions, dust, and noise during the operation;
- Project site will be fenced with corrugated iron sheets to minimize the level of noise and dust on the surrounding areas during the construction phase;
- Construction machinery will be placed in an adequate locations away from the sensitive areas to minimize the impacts related to the noise;
- Utilize spray mist to reduce fugitive dust particles from impacting surrounding environment;
- Project facilities will be located outside the existing residential and commercial areas. In order to avoid restricting the mobility of the local stakeholders, construction vehicles will remain confined within their designated areas of movement;
- The utilities to be shifted due to the construction of Apparel Park will be rehabilitated on priority basis to minimize the impact on the stakeholders;
- Punjab Industrial Estates Department and Management Company (PIEDMC) is bound to comply with the prevailing national/provincial regulations concerning pollution and waste disposal;
- PIEDMC will make sure the payment for the acquisition of properties;

- Compensation rates will be finalized after the consultation of the affectees;
- Solid waste generated during construction and at camp sites will be disposed of safely at the waste disposal sites approved by the City District Government Sheikhpura; and
- All necessary measures will be taken to ensure the safety of traffic during construction, including barricades (including signs, pavement markings, flags, and lights). All such barricades will be set up to facilitate the local traffic.

5.5 Major Concerns in the Project Area

In addition to the above discussed commonly raised concerns, there were certain issues at site, which needs special attention during the construction stage. The detailed schedule of meetings at site with the stakeholders and the issues raised is given below in Table 5.3.

Table 5.3: Schedule of Meetings with Stakeholders and their Concerns

Sr. No.	Date	Time	Venue	No. Of Participants	Major Concerns Raised
1.	16-04-2014	02:30 PM	Dera of Rao Naeem, Rao Waseem, Village Qayam Pur	22	<ul style="list-style-type: none"> • Loss of fertile agriculture land. • Compensation should be paid at current market rate. • Dust & noise problem during the construction period. • Water should be sprinkled regularly to control the dust emission. • Government should be shifted proposed project in some other area where barren land available.
2	17-04-2014	11:50 AM	Dera of Akber Ali, Malik Ashraf, Village Khokhar ki Malian	36	<ul style="list-style-type: none"> • Land acquisition should be avoided. • Market rates should be adopted for compensation of land/assets. • The main source of income from farm lands will be disturbed due to land acquisition. • Criteria of payments to the affectees should be transparent • Rate of un-employment will be increased. • Project should be shifted some where else where minimum land acquisition involved.
3	17-04-2014	01:15 PM	Haji Naseer Ahmed, Atif Momin Goraya, Malik Abdul Sattar, Sajid Pindher, Faiz Ahmad Cheema Local Villagers) Village Saho ki Malian	41	<ul style="list-style-type: none"> • Loss of fertile agriculture land. • Loss of employment. • Fair compensation should be provided to the affectees. • Criteria of payments to the affectees should be transparent • Efforts should be made for minimum land acquisition. • Government should use alternative site for proposed project.

4	18-04-2014	12:30 PM	Haji Annaytullah (owner) Dairy Farm	07	<ul style="list-style-type: none"> • Loss of agriculture land. • Loss of employment sources. • Dairy Farm sales will be affected during the construction work due to inconvenience for the customers. • Social disturbance will occur due to land acquisition. • Arrangement should be made to minimize the disruption of public utilities. • Alternative site should be utilized for proposed Apparel Park.
5	18-04-2014	2:30 PM	Dera of Aslam Number Dar, Village Bamban Kalan	25	<ul style="list-style-type: none"> • Criteria of payments to the affectees should be transparent • Government should be shifted proposed project in some other area where barren land available. • Compensation should be paid at current market rate. • Arrangement should be made to minimize the disruption of public utilities. • Alternative site should be utilized for proposed Apparel Park.



6



SECTION - 6

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section describes the preliminary analysis of potential environmental impacts of the proposed project during planning, construction and operational phase on the physical environment and social setup in the project area. Furthermore, mitigations measures of the perceived environmental impacts are also briefly discussed so that the negative impact of the project can be minimized.

6.1 Environmental Impact Matrices

Methodology adopted for the identification and evaluation of environmental impacts by the proposed project is “Matrix Method”. The environmental impacts matrices have been developed to evaluate magnitude of the impacts of various project activities on different environmental settings for both construction and operational phases. These matrices are given in **Tables 6.1 and 6.2**. The following scale has been used for the evaluation of impacts:

LA =	Low Adverse (low/short-term damage to the environment)
MA =	Medium Adverse (moderate damage to the environment)
HA =	High Adverse (severe damage to the environment)
B =	Beneficial (beneficial to the environment)
N/A =	Not Applicable
O =	Insignificant / No Impact

6.2 Environmental Sensitivity Map

A comprehensive map showing sensitive receptors of the project area such as, educational institutes, mosques, health facilities etc is given in **Figure 6.1**. Tentative locations of these Sensitive Receptors (SR) are indicated on the map and list of these SRs is attached as an **Annexure-IV**.

6.3 Anticipated Impacts during Pre-Construction/Design Phase

Following is the description of impacts envisaged and the recommended mitigation measures during Pre-construction/Design Phase:

6.3.1 Design & Layout Planning

Incompatible layout plan and engineering design of the project's structures can undermine the overall aesthetic beauty and ambience of the project area as the project

area is planned to be constructed on agriculture land. The prospective and futuristic needs can result in structures with low social acceptability and functionality. This impact will be temporary and moderate negative in nature.

Mitigation:

All structural, layout and engineering designing of Apperal Park should be in strict accordance with the applicable by-laws and engineering parameters.

6.3.2 Topography

The Project area lies in the flat terrain and consists of natural drains. Furthermore, development of the area will increase the impervious part of the project area. Most of the existing landuse is agriculture and will be lost due to development of the proposed project. Also excavation/borings would be done for infrastructural development. However, this impact will be insignificant in nature and no change in topography is expected.

6.3.3 Land Acquisition and Resettlement

Due to the construction of the Apperal Park, land acquisition will occur. The land acquisition involved is approximately 1565 Acre. This will result in loss of highly agricultural area, disturbance to people and people if losing their farms will have to start their business from scratch if relocated. Although most of the area is agriculture, but area of the residential communities is coming in the proposed project site.

Mitigation measures will involve careful alignment and route selection by the designer to minimize the impacts by avoiding the residences of these families. Proper access should be provided to the farmers to cultivate the divided land.

6.3.4 Changes in Land Value

The proposed Project is expected to increase the land values, Land owners will have an opportunity to sell their land on increased prices and start new businesses. This impact will be major positive in nature.

6.3.5 Social Issues

Due to the proposed Project, bifurcation of settlements, loss of agricultural land/fields may occur serious problem for the residents. This will result in causing inconvenience to the residents/farmers and affect their daily activities. This impact is permanent and moderate negative in nature. As the project area is high agricultural area with scattered houses educational institutes and Mosques. There are about 242 HHs will be relocated from the affected villages

Mitigation measures will include provisions in the design such as: During construction phase, job opportunities will be created for the local people. Furthermore, indirect positive impacts on the local markets of Sheikhpura are anticipated. However, people losing their land may get livelihood problems if land is their only mean of earning. As the site is away from any major town, the changes in the local culture and lifestyle will be minor during construction phase of the project.

Physical Cultural Resources

Some Physical Cultural Resource is falling within the Project area, so there is need for relocation of such resource. Cultural resources such as graveyards, mosques and shrine are situated in nearby communities and are visited by local people. This impact will be permanent and major negative in nature.

Mitigation measures will include compensation to the communities which have important Physical Cultural Resource.

Biodiversity Conservation and Natural Resource Management

Due to the proposed Project, numbers of trees of various species will be affected. Like fruit trees mainly Guava, Orange, lemon and the some trees include Phulai, Sheesham, Kikar, Eucalyptus, Bakain, Taman, Kau etc. This may have an adverse affect on the ecological habitat of the project area. Many trees and plants will be cut off during construction phase for site clearance. Trees are vital ecosystem, which perform variety of functions for the improvement of environment such as reduction in air pollution, noise abatement, cooling effect on earth, supply of oxygen etc. Furthermore, native terrestrial fauna and avifauna species will have to migrate during construction phase. These impacts will adversely impact the natural ecosystem of the area. This impact will be permanent and moderate negative in nature.

The proposed mitigation measures will include:

- Incorporate technical design measures to minimize removal of these trees, if possible such as change in design;
- Plan for compensatory planting for each trees against each fallen tree of similar floral function;
- Provision of compensation in the Project Budget for the loss of trees to the affected people;
- Disallow introduction of invasive/ exotic species and native species should be recommended for plantation ;
- Only necessary cutting of trees shall be allowed and all trees beyond project site shall remain un-harmed

- The contractor's staff and labour should be strictly directed not to damage any vegetation. They shall use the paths and tracks for movement and should not be allowed to trespass through farmland.
- Construction vehicles, equipment and machinery will remain confined within their designated areas of movement
- Comprehensive plantation plan shall be implemented during construction phase of the project
- Borrow pits should be fenced if located near grazing fields so that no animal can face hazard of injury
- The camps should be properly fenced and gated to check the entry of grazing animals in search of eatable goods. Similarly waste of the camps should be properly disposed off to prevent the chances of eating by wild animals, which may prove hazardous to them.
- Contractor should ensure that the no hunting, trapping of animal should be carried out during construction
- Special measures should be adopted to minimize impacts on wild birds such as avoiding noise generating activities during the critical period of breeding.

6.3.6 Air Quality

Activities during construction of the infrastructure such as earthwork, Concrete plant, operation and movement of vehicles on the unpaved roads may be the potential sources of dust, PM and other gaseous pollutants. Due to the construction of the proposed project, noise and air pollution and associated health risks may increase. Air pollution related mitigation should be adopted for the health of labor, working staff and specific villages. Following are the general mitigation measures to minimize potential impacts on air quality:

- Concrete hot mix and batching plants shall not be located near residential areas
- NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works
- Where needed Air Pollution Control (APC) equipment shall be installed with concrete plants, Batching Plants and generators
- Preventive measures against dust should be adopted for on-site mixing and unloading operations. Regular sprinkling of the Site by water should be carried out to suppress excessive dust emissions
- Open burning of solid waste should be strictly banned
- All vehicles, machinery, equipment and generators used during construction activities should be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions

6.3.7 Noise

Existing background noise levels in the project area are well within the acceptable range. However, occupational noise is likely in the construction phase. Main sources of noise will be heavy machinery such as bulldozers, excavators, stabilizers, concrete mixing plant, pneumatic drills and other equipment. The above machinery is expected to generate noise levels that would be severe in the areas. Noise generated by construction machinery is likely to affect sensitive receptors located within 50 meters of the project area. Following are the general mitigation measures to minimize the impacts of noise:

- Provide construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use
- Preferably, restrict construction vehicles movement during night time near the residential areas and camp sites
- Locate the concrete mixing, and materials shipment yards at least 2km from residential areas, particularly schools and health centers
- Selection of up-to-date and well maintained plant or equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices.

Heavy machinery like percussion hammers and pneumatic drills should not be used during the night

6.3.8 Solid Waste Management

Proper solid waste management system is required for the efficient handling of waste and reduction of waste related impacts during construction. Impacts due to solid waste are expected to be temporary and minor negative in nature.

Mitigation measures will include:

- Planning for disposal sites with reasonable distance from the human settlements;
- Disallow siting for work camps, including waste dump sites, in a distance closer than one (1) kilometer to any inhabited areas;
- Incorporate technical design features for refuse collection containers at sites that would minimize burning impacts;
- Devise plan(s) for safe handling, storage and disposal of harmful materials; and
- Burning of waste will not be allowed in any case.

6.3.9 Excavation of Earth

The excavation of earth from borrow areas and for clearance of project area may result in change of edaphic characteristics of soil. Loss of fertile top soil may affect adversely on the agriculture of the project area. For the construction of the proposed

project, about 1565 Acre of land will be acquired which is highly agricultural in nature. This impact is permanent but major negative in nature.

Mitigation measures will include:

- Borrow pits will not be located on agricultural land unless completely unavoidable; and
- Contractor needs to obtain approval for excavation and submit the plan of rehabilitation of the site after excavation;
- The top 1 ft soil will be stored for future use in rehabilitation of the site; and
- Plan for Rehabilitation of Borrow Pits will be implemented.

6.3.10 Public Utilities

Due to the proposed project, public utilities affected may create disruption of public services and economics including telephone lines, open drainage, electric facilities etc. This impact is however temporary and moderate negative in nature.

Mitigation measures will include:

- Incorporate technical design features to minimize affect on public utilities; and
- All public utilities likely to be affected by the proposed project need to be relocated/rehabilitated well ahead of the commencement of construction work. Incorporate technical design features to minimize affect on public utilities; and
- All public utilities likely to be affected by the proposed project need to be relocated well ahead of the commencement of construction work.

6.3.11 Change in Hydrologic Regime

The project has network of drainage channels/ nullah falling in to the Qadarabad Baloki Canal and Rivers Ravi. Groundwater table is observed high during monsoon season. Tube Wells and hand pumps are the main source for drinking water in the project area.

Mitigation measure would involve:

- Provision of sufficient sizes of drains to take design flows.

6.3.12 Loss of Agricultural Land

Due to the proposed project, mainly agricultural land will be lost and crop yield will be disturbed. But in the long run, due to the construction of the Apparel Park, better Infrastructure facilities and job opportunities will be available to the farmers to enhance their economy. This impact is insignificant in nature. No Mitigation measures are required.

6.3.13 Surface and Ground Water

Sem Nullah is the significant water body present in the project area and construction activities may increase the pollution load. Also, there is a possibility that various materials like fuel, lubricant oil and other oily products, which are used during the construction phase may contaminate groundwater, if they are not handled properly. This contamination will not only endanger the aquatic life but may also result in jeopardizing the health of population/ communities. Surface water gets contaminated by the discharge of wastewater on the surface which may percolate.

These impacts are temporary and negative in nature.

Mitigation measures will include;

- Protection of groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality;
- Planning of location of construction camps must be at an appropriate distance from the surface water bodies;
- Septic tanks and soakage pits should be designed to cater the wastewater from the construction camps.

6.4 Construction Phase

Following is the brief description of impacts and their mitigation envisaged during the Construction Phase.

6.4.1 Topography

The project area has plane/flat topography and all land is highly cultivated. Extensive work is involved for preparation and clearing of the land. This may involve many activities; cutting and clearing of the land in the project area and borrow pits and may lead to erosion of top soil cover. This impact is permanent and minor negative in nature.

Mitigation measures will include:

- Where the use of agricultural land, the top 1 ft of the plough layer will be stripped off and stockpiled for redressing the land after the required borrow material has been removed;
- Where deep ditching is to be carried out, the top 1m layer of the ditching area will be stripped and stockpiled. The ditch will initially be filled up with scrap material from construction and then levelled with the stockpiled topsoil;
- Ditches or borrow pits that cannot be fully rehabilitated will be landscaped to minimize erosion and to avoid creating hazards for people and livestock; and

- Landowners will be compensated according to the terms of lease agreements negotiated with them and the restoration actions agreed upon by the Contractor will be duly carried out.

6.4.2 Soil

Earth work operation for construction of Apparel park may cause damage to fertile layer, erosion of the loose soil through drainage. Furthermore, excavation may contribute to increase soil erosion. This will lead to increase silt load and turbidity in the Qadarabad Baloki Canal and subsequently to River Ravi. Contamination of soil may be caused by oil and chemical spills at batching plant sites, workshop areas and equipment washing yards. Also due to unplanned use of borrow areas, soil erosion may cause degradation of landscape. These impacts may limit the future use of land. The project area is a plain terrain. Soil erosion and contamination may occur at contractors' camps due to the following likely impacts:

- Excavation of earth/cutting operations, clearing of vegetation and land levelling activities can destabilize the surrounding land surface;
- The unspent materials and debris produced from consumed up materials, if left as such and allowed to mix with soil underneath, can degrade the quality of receiving soils and may render them unfit for plantation later on;
- Leakages of oils, lubricants, chemicals, and other similar substances from their storage sites and from engines of the generators, machines, equipments and vehicles can spoil the receiving soils and may undermine ability of the spoiled soils to support growth of vegetation and plants;
- Non-provision of septic tanks with the temporary worksite toilets, constructed for the labour and others, can contaminate the effluent receiving soils because of raw nature of the effluents;
- Also washing of the gadgets, machinery and equipment without proper drainage of the washout water can adversely affect the soil quality.
- Onsite storage of the construction materials such as sand, aggregate, crushed stone, cement, bricks, lubricants, fuels and iron bars on the land without an intervening barrier, can degrade soil quality and may smear them with fine particulates of the dumped materials;
- Improper onsite storage of equipment and machinery such as wheel barrows, mixers and compactors and disorderly parking of machinery and equipment may cause soil contamination from trickling or accidental leakages of oils and lubricants there from.

Mitigation measures will include:

- All spoils will be disposed off as desired and the site will be restored back to its original conditions;

- Non-bituminous wastes from construction activities will be dumped in approved sites, in line with the legal prescriptions for dump sites, and covered;
- As applicable and needed, plantation of grasses and shrubs will be done at appropriate place where required;
- Excavations would be kept confined to the specified foundation spots as per the approved engineering drawings. Unnecessary excavations should be avoided;
- Site camps for the resident labour should not be setup on the land earmarked for developing green belts and lawns;
- Oils, lubricants, chemicals, and other listed hazardous materials should be stored safely at their designated spots, enclosures or store rooms, which should be safe from rainfall and away from any potential source of fire;
- Septic tanks of adequate capacities should be constructed for receiving and treating wastewater from all temporary worksite toilets and at the temporary container offices, if any. The toilet wastewater should not be discharged untreated onto the adjacent lands;
- All machineries and materials should be stored at the designated areas and compounds;
- All the unspent and left over materials be completely removed offsite upon completion of construction and the site be restored to original or near to original condition; and Washout from washing of equipment and gadgets should be drained into either a septic tank or a sand-gravel bed for removal of the grit and contaminants.

6.4.3 Land Acquisition, Resettlement and Compensation

Due to the construction of the Apperal Park land acquisition will occur. The land acquisition involved is approximately 1565 Acre. This will result in loss of highly agricultural area, disturbance to people and people if losing their farms will have to start their business from scratch if relocated. Although most of the area is agriculture, but area of the residential communities is coming in the proposed project site. The project will require total 1,565 acres of land. Out of those 1484 acres is cultivated land and 27 acres in the form of built up areas. The landuse pattern of the total land area to be acquired is given below in Table 6.1.

Table 6.1: Landuse Pattern

Sr. No.	Land Use Pattern	Area (in Acres)
1	Cultivated Land	1484
2	Fish Farm	27
3	Built Up Area	27
4	Orchards	5
5	Dairy Farm	2

6	Seepage drain	7.5
7	Roads/Tracks	13
Total		1565

Estimation of the Affected Households (HHs) and Population

Total 242 HHs will be relocated from the 04 affected villages with total population of 1767 persons. The built-up area of these HHs is 27 acres. Population has been estimated by taking average HH size of 7.3 persons (DCR1998, District Sheikhpura),

Mitigation measures will involve land management and providing judicious compensation to the affectees by providing sufficient budget in the project cost. The process of land acquisition and compensation will be followed in a transparent manner to minimize the impacts.

According to Land Acquisition Act 1894, the following points are to be considered while determining compensation to the Project affectees:

The market value of land at the date of publication of notification under section 4 sub section (1);

- The damage sustained by the person interested, by reason of the taking of any standing crops, or trees which may be on the land at the time of the collector's taking possession thereof;
- The damage if any sustained by the person interested at the time of the collector's taking possession of the land by reason of acquisition injuriously affecting his other property, moveable, or immovable, in any other manner, or his earning;
- As a consequence of the acquisition of the land by the collector, the person affected is compelled to change his residence or place of business, the reasonable expenses incidental to such change; and

Proper compensation should be paid to the affectees for the loss of their properties before taking the possession of the land. The Criteria of payments to the affectees should be transparent and fair.

6.4.4 Construction Camps/Camp Sites

Due to the proposed camp sites, loss of vegetation and assets on the selected land and dissatisfaction of rehabilitation measures during and after completion of construction phase may occur. However, it will be a temporary and minor negative impact. For these impacts, mitigation measures have been developed to minimize the likelihood, extent or duration of their occurrence, and any associated adverse effects. **Table 6.3**

summarizes potential impacts and proposed avoidance and mitigation measures associated with construction camps.

Table 6.2: Summary of Impacts of Worker Camp & Mitigation Measures

Potential Impact	Proposed Avoidance and Mitigation Measures
Environmental	
<ul style="list-style-type: none"> • Temporary habitat loss or disturbance • Temporary visual intrusion • Noise emissions • Waste generation • Discharge of sanitary effluent and rainwater run-off to water courses 	<ul style="list-style-type: none"> • Individual trees and shrubs of high conservation value to be marked and preserved wherever possible or transplanted if the root conditions are suitable for such an operation. • Reinstate any temporary facilities to pre-existing conditions in ecologically sensitive areas. • Implement landscaping plan for all facilities in areas where high landscape value and visual vulnerability to the proposed activities warrants site-specific landscape restoration measures. • Limit the working hours of noisy activities when near identified sensitive receptors to normal day time working hours. • Operate equipment in a manner sympathetic to the ambient noise environment. Do not leave equipment idling unnecessary. • Eliminate tonal, impulsive or low frequency noise through noise control engineering techniques where practicable (fitting of mufflers, damping, etc.), and substitute for a different method if necessary (e.g., instead of hammering actions, use hydraulics). • Provide adequate warnings of impending works to all potential receptors within a 1 km corridor surrounding the right-of-way

Potential Impact	Proposed Avoidance and Mitigation Measures
	<p>via public notices and local news.</p> <ul style="list-style-type: none"> • Implement Waste Management Plan to include procedures for the classification, storage and disposal of all construction wastes and the training of employees who handle hazardous materials. • Ensure that discharge of sewage from temporary construction facilities to surface courses does not impact surface water ecology. This will be achieved through the provision of treatment facilities and by enforcing the discharge standards.
Social	
<ul style="list-style-type: none"> • Worker camp sitting: consultation surrounding potential construction camp sites revealed concerns regarding the location of proposed sites for Worker Camps. • Tension between Communities and Workers: cultural differences, behavior of construction workers, potential disregard for local cultural norms, potential for prostitution and the attraction of “hangers on” at camp sites could lead to increased tension between local communities and the workers and camps. The scale of this impact will depend on successful implementation of mitigation measures and in part on the origin of the workforce staying in construction camps. Some communities have expressed particular concerns in this regard. 	<ul style="list-style-type: none"> • In order to minimize social disturbances as a result of construction workers, existing camps from previous projects will be identified as a first preference. State land will be a second preference for worker camp locations, followed by land where there is a willing lessee. • The project will seek to avoid sitting camps where their presence might contribute to any conflicts between residents. • Employment policies which aim to maximize job opportunities for local people will help to minimize tensions caused by different socio-cultural values. • Training will be provided to all staff on camp management rules and overall discipline and cultural awareness. This will include, in appropriate languages: <ol style="list-style-type: none"> 1. A briefing on Camp Rules 2. A community relations orientation to increase awareness about the local

Potential Impact	Proposed Avoidance and Mitigation Measures
	<p>area, cultural sensitivities and the project Code of Conduct</p> <p>3. Awareness-raising on health considerations, including STDs.</p> <ul style="list-style-type: none"> The construction contractor is required to develop a Construction Camp Management Plan to address: <ol style="list-style-type: none"> Discipline Community liaison Ethnic tensions Market distortion (see employment and local sourcing mitigation) and Communicable diseases. A Code of Conduct and Camp Rules will be required within the Construction Camp Management Plan, which provides policies and a disciplinary framework with respect to worker behavior.
Camp Location	
The final location will be determined by the construction contractors and agreed with the PIEDMC.	The construction contractor will be required to assess the environmental/social sensitivity of any additional or alternative sites prior to their approval for adoption.

Some additional mitigation measures will include:

- All efforts during the construction stage should be made to minimize the removal of existing macro-plants at camp sites;
- The contractor(s) will provide plan for removal & rehabilitation of site upon completion;
- Photographical and botanical inventory of vegetation before clearing the site; and
- Compensatory plantation to be scheduled when construction works near end.

6.4.5 Health and Safety

a) Occupational Health and Safety

Health risks and workers safety problems may result at the workplace if the working conditions provide unsafe and/or unfavorable working environment due to storage, handling and transport of hazardous construction material. Workers will be provided with safe and healthy working environment taking into account risks inherent to the particular sector and specific classes of hazards in Project area.

Mitigation measures will include;

- Obligatory insurance against accidents for labourers/workers;
- Providing basic medical training to specified work staff and basic medical service and supplies to workers;
- Layout plan for camp site, indicating safety measures taken by the contractor, e.g. fire fighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents;
- Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for labourers;
- Protection devices (ear muffs) will be provided to the workers doing job in the vicinity of high noise generating machines;
- Provision of adequate sanitation, washing, cooking and dormitory facilities including light up to satisfaction;
- Proper maintenance of facilities for workers will be monitored;
- Provision of protective clothing for labourers handling hazardous materials, e.g. helmet, adequate footwear for bituminous pavement works, protective goggles, gloves etc;
- Ensure strict use of wearing these protective clothing during work activities;
- Elaboration of a contingency planning in case of major accidents;
- Instruct foremen to strictly enforce the keeping out of non-working persons, particularly children, off work sites;
- Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads.

b) Health and Safety

The construction activities and vehicular movement at construction sites and access service roads may result in road side accidents particularly inflicting local communities who are not familiar with presence of heavy equipment. This is a temporary and minor negative impact. Quality of groundwater and surface water resources available in the nearby local communities may be affected due to the

construction activities, oil spillage and leakage, roadside accidents etc. The labour works with different transmittable diseases may cause spread out of those diseases in the local residents. The borrow pit areas located near the residential, settlements, may cause accident for the people moving near to those areas.

Mitigation measures will include:

- There should be proper control on construction activities and Oil spillage leakage of vehicles;
- The Borrow areas should be fenced properly and banned for the movement of the residents;
- The labour works with different transmittable diseases should be restricted within the construction site;
- Efforts will be made to create awareness about road safety among the drivers operating construction vehicles;
- Timely public notification on planned construction works;
- Close consultation with local communities to identify optimal solutions for diversions to maintain community integrity & social links;
- Seeking cooperation with local educational facilities (school teachers) for road safety campaigns;
- Provision of proper safety and diversion signage, particularly at urban areas and at sensitive/accident-prone spots;
- Setting up speed limits in close consultation with the local stakeholders; and
- If identified, consider additional guard rails at accident-prone stretches and sensitive locations (schools);
- The communicable disease of most concern during construction phase, like sexually-transmitted disease (STDs) such as HIV/AIDS, should be prevented by successful initiative typically involving health awareness; education initiatives; training health workers in disease treatment; immunization program and providing health service;
- Reducing the impacts of vector borne diseases on long-term health effect of workers should be accomplished through implementation of diverse interventions aimed at eliminating the factors that lead to disease, which includes;
- Prevention of larval and adult propagation of vectors through sanitary improvements and elimination of breeding habitat close to human settlements;
- Eliminate any unusable impounding of water;
- During construction work, pedestrian and vehicular passages should be provided for crossing near settlement;

- Bridges and other structures have to be structurally stable enough to bear maximum ground acceleration recorded for the area in past;
- Fencing should be strong enough so that it can not be broken easily by local people for making passages;
- Discharge of any wastewater at upstream of the point of public supply should be restricted;
- Batching plants should be installed away from settlements;

Use of water should not disturb public water availability. Source of water should be selected carefully.

6.4.6 Borrow/ Open Pits

Borrow/ open pits and its excavation activities may result in land disputes, soil erosion, loss of potential cropland, loss of vegetation, landscape degradation, and damage to road embankments.

Borrow/ Open pits may also result in potential sources of mosquito breeding may prove hazardous to human beings, livestock and wildlife. This will also degrade hygienic condition of the project area. Plan for closure and rehabilitation of the borrow pit sites will be prepared and implemented. This impact is permanent and minor negative in nature.

Mitigation measures will include:

- Conversion of borrow pits into fish farms and care in selection of borrow areas;
- Necessary permits must be obtained for any borrow pits from the competent authorities;
- No excavations are allowed within distance of 500 m of ROW;
- In borrow pits, the depth of the pit will be regulated so that the sides of the excavation will have a slope not steeper than 1:4;
- Soil erosion along the borrow pit shall be regularly checked to prevent / mitigate impacts on adjacent lands; and
- In case borrow pits fill with water, measures have to be taken to prevent the creation of mosquito-breeding sites.

6.4.7 Pollution Prevention and Abatement

Pollution Prevention technologies and practices will be applied in construction phase according to the International good practices and national and international recognized standards. National Environmental Quality standards (NEQS) will be adopted as performance indicators.

Different types of waste, especially construction waste, are expected to be generated in large quantities from different activities of the proposed project. Small quantities of hazardous waste may also be generated. During the construction phase, gaseous emission may occur from a wide variety of activities. The impacts of different project activities and their appropriate preventive and abatement techniques and mitigation measures are discussed below:

a) Air Quality

Air quality will be affected by fugitive dust emissions from construction machinery; dust from the unpaved surface and construction vehicles. Emissions may be carried over longer distances depending upon the wind speed, direction, temperature of surrounding air and atmospheric stability. Besides, multifarious construction activities and increased vehicular traffic (construction vehicles) would also contribute to the localized airborne dust. Once in the air, the larger sized particles, under influence of gravity, tend to settle down in the immediate vicinity of the source. The suspended particulate matter (SPM) of the size smaller than 10 micrometer (PM_{10}) tends to remain suspended in the environment for much longer and persistent time and is an environmental hazard. The objectionable impacts of settling of the suspended dust would be its dry deposition on vegetation, glass windows, motor vehicles, buildings, and other exposed surfaces. Exhausts from fossil fuel burning in the construction machinery will also deteriorate local air quality. Similarly, exhausts from generators can also have impacts on air quality in the vicinity.

The critical sources of dust pollution during the construction phase will be:

- Unpaved road surface;
- Transportation of materials and other construction activities that create dust emissions.

The overall impact on the quality of air during the construction phase will, however, be temporary and limited to the project's implementation phase only.

Mitigation measures will include:

- All vehicles, machinery, equipment and generators used during construction activities should be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions;
- Blowing of dust from potential sources at the worksite should be avoided by shielding them from the exterior, for example using polythene curtains or raising a fence of corrugated sheets around areas of active constructions;

- Blowing of dust and particulate matter from stockpiled loose materials (e.g. sand, soil) should be avoided either by sheeting them with tarpaulin or plastic sheets or by sprinkling them with light shower of water;
- Open burning of solid waste from the contractor's camps should be strictly banned;
- Preventive measures against dust should be adopted for on-site mixing and unloading operations. Regular water sprinkling of the site should be carried out to suppress excessive dust emission(s);
- Only good quality oils, petroleum products, additives and spares should be used in the machinery, generators, and the construction vehicles. Usage of used oil should be strictly prohibited;
- Emissions from power generators and construction machinery are important point sources at the construction sites. Proper maintenance and repair is needed to minimize the hazardous emissions; and
- NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works.

Some of dust problems caused during the construction phase of the Project could be effectively mitigated by the implementation of simple procedures by the Contractor including:

- Service roads (used for earthmoving equipment and general transport) should be regularly sprayed with water during dry weather;
- All excavation work should be sprinkled with water;
- Construction workers should be provided with masks for protection against the inhalation of dust;
- Vehicle speed in the project area should be prescribed not more than 20 km/ hr and controlled accordingly; and
- Vehicles used for construction should be tuned properly and regularly to control emission of exhaust gases.

b) Noise and Vibrations

Noise is a by-product of human activity, and area of exposure increases as function of mobility and construction activities. Sources of noise during construction are heavy machinery such as bulldozers, excavators, stabilizers, concrete mixing plant, pneumatic drills, stone crushers and other equipments. The above machinery is expected to generate noise levels that would be severe in the areas whereas previously no roadside construction is done as in the case of the proposed project. Noise generated by construction machinery is likely to affect sensitive receptors located within 50 meter of the proposed project. This impact is temporary and moderate negative in nature. Table 6.3 illustrates maximum permissible noise levels for different situations and is given below:

Table 6.3: Maximum Limits of Noise Levels

Noise Level dB (A)	Situation
194	Lung damage
180	Ear drum rupture
150	Absolute limit with ears protected
150	Maximum of instantaneous noise
135	Absolute maximum with ears unprotected
100	Prolonged noise causing permanent damage
90	Factory work for an 8-hour day, 5 days a week
*85	Ear protection should be worn
80	Noise on building or construction sites
70	Normal road traffic near residential areas

Source: "Environmental Degradation" by Engr. Col. Mumtaz Hussain

*Above 85 dB (A) ear protection devices should be worn.

According to Table 6.4 given below, which presents the damage risk criteria for hearing loss, noise level above 110 dB(A) can be tolerated for half an hour only.

Table 6.4: Damage Risk Criteria for Hearing Loss

Sr. No.	Maximum Allowable Duration per day (Hours)	Noise-Level in dB (A)
1	8	90
2	6	92
3	4	95
4	3	97
5	2	100
6	1 ½	102
7	1	105
8	½	110
9	¼ or less	115 (Max.)

Source: Occupational Safety and Health Administration, OSHA, USA

The expected noise levels of heavy machineries during construction phase of the Apparel Park will be estimated.

The likely impacts due to noise are:

- Persistently higher noise levels can produce psychological effects of distraction of attention, irritation and short temperedness in the exposed persons;
- Noisy settings and higher background levels can cause temporary threshold shift and the consequent habit of speaking loud, which may cause damage to vocal cords in the persons exposed;
- Noise produced from moving construction vehicles and blowing of pressure horns, at times, could be intolerable particularly during quiet hours of night; and
- Vibrations from machinery and equipment such as hand held compactors and concrete vibrators can produce easy fatigability and generalized aches in the persons operating these machines.

All mitigation measures mentioned below should be taken in order to minimize the impacts of noise in the project area. These measures include, but are not limited to the following:

- Selection of up-to-date and well maintained plant or equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices;
- Confining excessively noisy work to normal working hours in the day, as far as possible;
- Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use;
- Preferably, restricting construction vehicles movement during night time;
- Heavy machinery like percussion hammers and pneumatic drills should not be used during the night without prior approval of the client;
- Vehicles and equipment used should be fitted, as applicable, with silencers and properly maintained;
- Use of low noise machinery, or machinery with noise shielding and absorption;
- Contractors should comply with submitted work schedule, keeping noisy operations away from sensitive points; implement regular maintenance and repairs; and employ strict implementation of operation procedures;
- Noise barriers in sensitive areas in the form of high boundary walls (concrete or wood), earth berms, etc. in front of schools, hospitals and mosques.

c) Noise Sensitive Receivers

Representative noise sensitive receivers (NSRs) were identified during the site visit of the project area. As some of the part of the project area is highly agricultural with the scattered structures along the roads on both sides of the proposed project therefore, the

first layer of these noise sensitive receivers provides acoustic shielding to those receivers behind them. The noise sensitive receivers include the following:

Residential Uses	:	All domestic premises including temporary housing
Institutional Uses	:	Schools
Worship Places	:	Mosques
Others	:	Dispensary, Health centers

d) Solid Waste (Construction Waste and Hazardous Waste)

Due to construction activities waste will be generated at construction and contractors camp site. The construction waste will include waste water, oil spillage from machinery, domestic waste, and solid waste etc. The handling and storage of oil, bitumen may be a source of environmental pollution as a hazardous waste. This will result in unhygienic conditions, health risk to work force and public at the camp site.

The likely impacts of solid waste are:

- Insecure and unhygienic disposal of the solid wastes generated at the worksite, particularly garbage and trash may cause degradation of soil and land;
- Insecurely disposed off heaps of wastes containing kitchen garbage and food waste can serve as breeding grounds for the disease spreading vectors and rodents;
- Throwing away of solid wastes into water channels and the wastewater network can result into choking of the latter.
- However, small amounts of solid waste may be generated due to different construction activities and it will mainly include surplus excavated and construction material, construction and demolition (C&D) waste, chemical waste, packaging waste, abandoned drums and equipment etc. and general refuse.
- The indiscriminate disposal of solid waste may cause dust emissions due to wind blowing thereby affecting the health of the workers working or passing in the immediate vicinity of solid waste heaps.
- Working in the project area will also generate some municipal solid waste and can cause nuisance to the workers themselves.

These impacts are temporary and minor negative in nature.

Mitigation measures will include:

- Wastewater effluent from contractor's workshop and equipment washing yards would be passed through gravel/ sand beds to remove oil/ grease contaminants before discharging it into natural streams;

- An efficient and responsive solid waste management system should be devised for the entire duration of the construction phase. Such a system should provide for separate collection of different categories of constructional wastes. The wastes which will be reusable/recyclable (iron bars, aluminum) should be sold to waste vendors and those which cannot be sold out (brick pieces) may be used as a filling material for leveling the depressions, subject to technical feasibility;
- Training of working force in the storage and handling of materials and chemicals that can potentially cause soil contamination;
- Solid waste generated during construction and camp sites will be safely disposed in demarcated waste disposal sites and the contractor will provide a proper waste management plan;
- Proper labelling of containers, including the identification and quantity of the contents, hazard contact information etc.;
- Training of employees involved in the transportation of hazardous material regarding emergency procedures;
- Providing the necessary means for emergency response on call 24 hours/day;
- The sewage system for camps will be properly designed (pit latrines or, as required, septic tanks) to receive all sanitary wastewaters;
- Lined wash areas will be constructed within the camp site or at site, for the receipt of wash waters from construction machinery;
- Use of pesticides in nurseries will be done and deemed necessary as suggested by the experts;
- Insecticides that are less toxic to human health should be used;
- Construction workers and supervisory staff should be encouraged and educated to practice waste minimization, reuse and recycling to reduce quantity of the waste for disposal; and
- Prohibit open burning of solid waste. C&D waste shall be dumped in the approved depression sites
- Recyclable packaging waste shall be sorted out and sold after separations
- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary waste generation.
- Provide sufficient waste disposal points and regular collection for disposal
- Any unused chemical bin with remaining functional capacity shall be recycled

e) Green House Gas (GHG) Abatement

The main sources of green house gases (CO₂, CH₄, NO_x etc) during the construction activities of the proposed Apparel Park will include both mobile and stationary sources. The mobile source will be the construction and transportation vehicles while the stationary source will be the batching and concrete plants. Emission of green

house gases cause global warming and other climatic changes on regional and global scale.

Mitigation measures will include:

- Regular motioning of the vehicles for engine efficiency;
- Avoid any unnecessary work and transportation;
- Alternative energy resources should be considered where possible;
- NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works.

f) Resource Conservation

Almost all the materials to be used in the construction of Apparel Park are non-renewable and therefore their sustainable use is necessary for the future use. Large quantities of water are used in the construction of concrete structures and in watering the unfinished surfaces. Use of water is of major concern while developing resource conservation strategy. Other construction material like aggregate and sand are locally available and there is no concern of scarcity in future use

Mitigation measures will include:

- Wastage of water should be reduced by training the workers involved in water use;
- Wastage of water should be controlled through providing proper valves and through controlling pressure of the water;
- Water jets and sprays should be used for watering surfaces rather than using overflow system;
- Source of water should be carefully selected. Water use should not disturb the existing community water supplies;
- Unnecessary equipment washings should be avoided;
- Use minimum amount of bitumen for road surfacing.

g) Energy Efficiency

Use of electricity will be insignificant. Diesel and residual fuel oils will be used to operate construction machinery and concrete and batching plants. Sustainable use of energy resources is very important not to continue future use but it will also help to reduce air emissions. For conservation of energy, efficiency of the engines and burning processes is very important. Electricity shortage is not expected but the sustainable use of diesel and residual fuel is necessary.

Mitigation measures will include:

- Ensure adequate insulation to reduce heat loss through batching/concrete plants;

- Regularly monitor CO and CO₂ content of the flue gases to verify that combustion systems are using practical excess air volumes;
- Maintain clean heat transfer surfaces in batching/concrete plant;
- Regular service of the vehicles and bathing plants will reduce the mechanical losses of energy.

6.4.8 Surface and Groundwater

Sem Nullah is the significant water body present in the project area and construction activities may increase the pollution load. Also, there is a possibility that various materials like fuel, lubricant oil and other oily products, which are used during the construction phase may contaminate groundwater, if they are not handled properly. During the construction phase, the sanitary wastewater will be generated at the workers' camp(s). If this wastewater is allowed to stagnate in water ponds on the site, it can percolate into the soil, thereby, contaminating groundwater. Therefore, runoff from the construction area may contain increased loads of sediments, other suspended solids and contaminants. Moreover, runoff may carry hazardous materials like cement, fuel, lubricant oils etc. Discharge of sewage from construction camps may discharge bacteriological contaminants into the water bodies. This contamination will not only endanger the aquatic life but may also result in jeopardizing the health of population/communities. Surface water gets contaminated by the discharge of wastewater on the surface which may percolate.

These impacts are temporary and minor negative in nature.

Mitigation measures will include;

- Protection of groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality;
- Regular water quality monitoring according to determined sampling schedule;
- Prohibit washing of machinery and vehicles in surface waters, provide sealed washing basins and collect wastewater in sedimentation/retention pond;
- Continuous withdrawal and over pumping of groundwater should be avoided. Instead, intermittent pumping be carried out to conserve the groundwater resources;
- Take precautions construct temporary or permanent devices to prevent water pollution due to increased siltation;
- Wastes must be collected, stored and taken to approved disposal site. Construction camps shall not be located near surface water bodies and groundwater bodies to avoid bacterial contamination of sub surface water;
- Storage yards, Batching plants and bitumen plants shall not be located near water bodies to avoid non-point pollution;

- Construction material such as concrete and oil etc. should be properly stored to avoid any chance of contamination of subsurface or surface water;
- Temporary cut-off drains shall be constructed around large stockpiles to regulate the sediment laden runoff;
- Temporary Best management Practices (BMPs) like vegetated strips etc. shall be adopted near water bodies to partially treat the runoff during construction.

6.4.9 Biodiversity Conservation and Natural Resources

Flora

Trees are vital ecosystem, which perform variety of functions for the improvement of environment such as reduction in air pollution, noise abatement, cooling effect on earth, supply of oxygen etc. It is obvious that the implementation of project activities will cause cutting of ornamental plant, existing on the median and within the proposed ROW. These ornamental plants of different species will be affected by the execution of the project. The cutting of these plants will cause a negative impact on the flora of the tract. Following impacts are expected on the flora of the project area:

- During the entire construction period dust laden polluted air will form a dust film on leaves thus blocking sunshine and stomata consequently hindering photosynthesis processes causing detrimental effect on the plant health;
- Exhaust of noxious gases from movement of heavy machinery will further pollute air which will adversely affect health and vigor of plants;
- Establishment of Contractors camps and warehouses for storage of equipment, material etc. shall involve clearing of vegetation from the area, causing a negative impact; and
- During construction activities the Contractor's workers may damage the vegetation and trees (for use as fire-wood to fulfill the camps requirements).

To minimize the impacts on flora, following measures will be adopted during construction stages:

- Camp sites will be established on waste/barren land rather than social and agricultural land. However, if such type of land is not available, it will be ensured that minimum clearing of the vegetation is carried out and minimum damage is caused to trees and undergrowth;
- Construction vehicles, machinery and equipment will remain confined within their designated areas of movement;
- The Contractor's staff and labour will be strictly directed not to damage any vegetation such as trees or bushes;
- Contractor will provide gas cylinders at the camps for cooking purposes and cutting of trees/bushes for fuel will not be allowed; and

- A tree plantation program will be formulated in consultation with the PIEDMC at available sites.

Fauna

As the project area is highly cultivated area so there are some significant faunal species present in the project area. However, mammals, such as dogs, cats, etc will avoid these areas for fear of being persecuted. Same will be the case with reptiles. Some reptiles might be killed during clearing of land. Similarly, birds will try to find shelter and food somewhere else and will tend to move away from the project area to the activities mentioned above for fear of being hunted or caught. Overall, the impact on fauna of the area is insignificant in nature.

6.4.10 Disruption of Existing Public Utilities/ Infrastructure

There may be some disruption to the already existing utilities like electricity poles, underground telephone lines, in the project area during the construction phase. These impacts are, however, temporary and minor negative in nature.

6.4.11 Public Inconvenience

Due to the proposed construction activities, traffic problems may arise in the Project area. This may result in traffic jams and cause inconvenience to the people especially on the Sheikhpura Road and Motorway (M-2). Furthermore, disruption of utilities like electrical lines, water supply pipes etc. will be problematic for the consumers. Following are the general mitigation measures to minimize these impacts:

- Provide proper diversions to the traffic and their maintenance have to be assured near the sites of construction.
- Provision of proper sign boards, especially before diversion, for smooth flow of traffic.
- Construction vehicles, machinery and equipment shall move or be stationed in the designated ROW to avoid un-necessary compaction of nearby soil.

Measures of disruption of public utilities shall be adopted

6.4.12 Traffic Management

Due to the proposed construction activities, proper traffic management may pose a challenge in the project area, particularly, where the construction of Apparel park. This may result in traffic jams and cause inconvenience to the people passing through the project area due to movement of vehicles carrying construction materials on Motorway M-2. It will also increase the traffic load on the existing road network. Also, the movement of vehicles along the haulage routes may cause soil compaction and alteration of percolation, vegetation pattern. This impact is temporary and minor negative in nature.

Mitigation measures will include:

- Proper traffic management plan will be needed to avoid traffic jams/ public inconvenience;
- Movement of vehicles carrying construction materials should be restricted during the daytime to reduce traffic load and inconvenience to the local residents;
- Coordinated planning of traffic diversions by the traffic police and the Transport Department in accordance with the construction programme with advance warnings to the affected residents and road users;
- Construction vehicles, machinery and equipment will move or be stationed in the designated ROW to avoid un-necessary compaction of soil.
- Availability of continuous services of the police in the diversion and control of traffic; and
- The executing agency is required to maintain liaison between the Motorway/Traffic Police, local residents/ travelers and the contractor to facilitate traffic movement during construction stage.

6.4.13 Waste Disposal

Due to construction activities, waste will be generated at construction and contractors camp site. This may result in health risk to work force and public, if disposal site is improperly selected and operated. This impact is temporary and minor negative in nature.

Mitigation measures will include:

- The waste generated from the camp site will be disposed of through Municipal Committee;
- Burning of waste will be prohibited; and
- Solid Waste will be safely disposed in demarcated waste disposal sites and the contractor will provide a proper waste management plan.

6.4.14 Economic Activity

Due to the construction of the proposed Project, economic activity will be generated in the project area as the labourers and semi-skilled staff will have an opportunity to work for the construction of the proposed project. This will help in developing their skills and capacities. This is a moderate positive impact.

6.4.15 Lifestyle and Culture

There are chances of arising of issues related to cultural differences/conflict between the Contractor's workforce and the local inhabitants, conflicts arising due to the mix

of local and migratory job seekers as the use of local resources and products will be increased. In this situation, local residents may resist contractor's workforce attitudes, cultural clashes particularly when local/international contractors are engaged, social disturbance and dissatisfaction with employing outsiders may arise. This impact is temporary and minor negative in nature.

This impact can be mitigated by adopting the following mitigation measures:

- Timely and full public consultation and announcement of mobilizing equipment;
- Establishment of formal links with affected communities;
- Plan for social grievance redress mechanisms including the Nazims of Union Councils and community leaders;
- Seek assistance from and cooperation with local NGOs;
- Familiarize outside labourers on local etiquettes;
- Local labour should be employed for construction works; and
- Water supply and sanitation facilities, Contractor's workforces should exacerbate the existing shortages and environmental hazards; contractor should primarily seek their own sources of water in due distance (min. 1 km) from local user's wells.

6.4.16 Wastage of Fertile Plough Layer

The fertile plough layer of project area will be wasted if the construction of the Apparel park is carried out on top of the fertile layer. For the construction of the proposed Project, about 1565 Acre of land will be acquired. This is permanent and minor negative impact.

This impact can be mitigated by utilizing the soil excavated to reclaim the nearby borrow pits/ excavated areas for landscaping along the proposed Expressway.

6.4.17 Impacts of Heavy Vehicles on the Existing Road Network

The plying of heavy vehicles on the existing road network may result in air pollution (if unpaved roads), noise pollution due to tire-road friction especially near sensitive receptors (residential areas, school, health facility etc.), and damage to roads and traffic congestion. However, the impacts would be temporary and moderate negative in nature for which the following mitigation measures are proposed:

- Any vehicle with an open load carrying area used for transport of potentially dust producing materials shall have properly fitted side and tailboards. Materials having potential to produce dust shall not be loaded to a level higher than the side and tail boards and shall be covered with clean tarpaulin in good condition. The tarpaulin shall be properly secured and extended to at least 300 mm over the edges of the sideboard and tailboard;

- Where dust emissions are high, diversion tracks, if required, shall be overlain with shingle or surface treated. Diversion roads in built-up areas shall be established and scheduled to minimize traffic congestion;
- The Contractor shall not use any vehicles either on or off road with grossly excessive noise pollution. In case of built-up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor;
- The Traffic Management Plan shall be prepared, which will comprise strengthening and widening of the existing minor and major roads or construction of new temporary roads; and
- The traffic on the existing roads shall be managed by NHA in cooperation with the local traffic police department in order to avoid traffic accidents and congestions causing unnecessary delays.

6.5 Anticipated Impacts during Operational Phase

The anticipated potential environmental impacts related to the proposed project have been studied for the operational stage of the Project and are discussed as under.

6.5.1 Ecology

a) Flora

During the operation stage, the trees and vegetation coming in the ROW of the proposed apparel park would already have been removed. However, raising of new plants/trees at available spaces will have a positive and permanent impact. No negative impacts are envisaged on the flora during the operational phase. A number of plants will be raised along the project area at available spaces. The presence of adequate flora, will absorb flue gases, emitted from a large number of cars, vehicles and public transport, which shall in turn improve air quality.

b) Fauna

In many ways, fauna of the project area is dependent upon flora for its resting, nesting and roosting activities. With the improved flora of the project area, due to raising of number of trees, the fauna and especially the avi-fauna shall be attracted to the area. The birds, which were scared away due to noise and degradation of their habitat, shall return to the area. Plantation shall not only reduce the noise and air pollution but will also be a source of attraction for the birds.

6.5.2 Surface and Groundwater

Wastewater from industrial, commercial and residential zone will contain high concentrations of Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS) and Pathogens etc. Wastewater from other

industrial and commercial sectors may contain hazardous metals and compounds. If all this wastewater is not treated properly, it will be a continuous hazard for the aquatic system and downstream uses of canal and river water will be affected. Such impacts should be minimized through following general mitigation measures:

- Combined Effluent Treatment plant (CETP) shall be operated as per Standard Operating Procedures (SOPs) to follow NEQS. Special concentrations shall be paid to sludge treatment and handling
- Implementation of bylaws of individual treatment plants at industrial level shall be ensured
- Industries shall be bound to submit monitoring reports of their effluents regularly
- Monitoring plans for water quality analysis of the CETP effluent, Sem Nullah and groundwater shall be prepared
- Best management Practices (BMPs) shall be maintained to ensure their effective function to treat nonpoint source water pollution

6.5.3 Air Quality

Combustion and other processes in the industries may emit primary and secondary air pollutants. Depending upon the direction and speed of the prevailing wind in the area, these pollutants may create hazard for the nearby population. Long term impacts on human health and plants growth may occur. Possibility of air pollution and related impacts envisaged in EIA report. Following are environmental mitigation measures for reduction of potential environmental impacts:

- Bylaws related installation of Air Pollution Control (APC) equipment shall be strictly implemented;
- Industries shall be bound to submit monitoring reports of their air pollution sources and occupational environment regularly;
- Regular monitoring of the ambient air shall be carried out;
- Regular road maintenance to ensure good surface condition;
- Regular vehicle check to control/ensure compliance with NEQS;
- More green areas and trees should be planted in that region which would suck up the polluted air;

6.5.4 Soil Contamination

Disposal of hazardous waste of industries, hospitals and commercial areas is one of the major concerns during operational phase of the project. No area has been allocated for disposal of hazardous waste within apparel park. Therefore, its improper handling and disposal will pose serious threat to the physical and biological environment. This will also adversely impact the future use of the land where hazardous waste will be

disposed of. Impacts of soil contamination can be minimized through following measures:

- Each industry shall be bound to submit the inventory of use of hazardous chemicals, their use and final disposal including measures to control special waste;
- Signage shall be carried out to regulate the routes of especial waste disposal to avoid the risks of spillages;

6.5.5 Solid Waste

Large quantities of municipal waste from the residential and commercial waste will be disposed of in the sanitary landfill site provided within the Apparel Park . However, without a proper solid waste management system and engineered land filling practices, many environmental risks remain problematic for the residents and visitors. Such impacts should be minimized through following general mitigation measures:

- Solid Waste management (SWM) system shall be operated as per SOPs and improved with time to time;
- Primary collection and storage of solid waste shall be performed in the closed containers;
- Secondary collection shall be done in the compactor trucks;
- Only unusable trash material shall be disposed of into the landfill site and all the reusable material shall be separated, processed and sold accordingly;
- People shall be educated to waste lesser and avoid use of disposable items;

6.5.6 Landscape

At present, the landscape of the project area is dominated by open agricultural fields. However, after the construction of Apparel park, the landscape of the project area will be changed in terms of road infrastructure, construction of Lakes, Petrol Pumps/Weigh stations, Grid Stations, CETP, Administration Area, Hospitals, Hostels, Amenities/Commercial Area, Export Processing Zone, Parks, Green Belts, Roads . This will permanently change the landscape of the project area due to loss of agricultural land but at the same time will have a positive impact in terms of socio-economic development of the project area.

6.5.7 Community Development

Improved communication infrastructure will promote new business opportunities. In addition such an activity will also increase the land value that will benefit the local residents. This impact will be permanent and major positive in nature.

6.5.8 Occupational Health and Safety of Labours

Industrial occupational safety of the workers will be of significant concern during operational phase of the Apperal Park. Industrial processes involve several hazards for minor to major injuries for the workers which need to be addressed during policy making for the operational phase.

Health risks and work safety problems may result at the workplace if the working conditions provide unsafe and/or unfavorable working environment and due to storage, handling and transport of hazardous construction material. Workers should be provided with safe and healthy working environment taking into account risks inherent to the particular sector and specific classes of hazards in project area.

Mitigation measures will include:

- Obligatory insurance against accidents for labourers/workers;
- Providing basic medical training to specified work staff and basic medical service and supplies to workers;
- Layout plan for camp site, indicating safety measures taken by the contractor, e.g. fire fighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents;
- Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for labourers;
- Protection devices (ear muffs) should be provided to the workers doing job in the vicinity of high noise generating machines;
- Provision of adequate sanitation, washing, cooking and dormitory facilities including light up to satisfaction;
- Proper maintenance of facilities for workers will be monitored;
- Provision of protective clothing for labourers handling hazardous materials, e.g. helmet, adequate footwear for bituminous pavement works, protective goggles, gloves etc;
- Ensure strict use of wearing these protective clothing during work activities;
- Elaboration of a contingency planning in case of major accidents;
- Instruct foremen to strictly enforce the keeping out of non-working persons, particularly children, off work sites; and
- Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads.

6.5.9 Emergency Response

Disasters such as earthquakes, flooding and other disasters such as fires may occur, and that must be considered for minimizing their impacts.

Mitigation measures will include:

An Emergency Response Plan for earthquakes and manmade disasters will be developed. Emergency Response Plan will be implemented in close consultation with the Rescue 1122 Service, Fire Fighting Department, bomb disposal squad and paramedics. Also evacuation plan will be developed in order to tackle with any emergency. In addition, training of the staff/employees regarding the emergency procedures/plans will be regularly conducted.

6.5.10 Socio-economic Condition

It is estimated that project will provide job opportunities to about 50,000 persons during operational phase. The increase of traffic load on M-2 deteriorate the condition of the road but it also have positive impact i.e, revenue generate. Proposed project will help to alleviate the economic condition of the area. Local people will get enhanced chances of dependable livelihood. Furthermore, communication system of the area will improve and new corridors for growth of local markets will open. Project will tend to attract more urban development with improve living facilities.



SECTION - 7**ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN****7.1 Environmental Management**

Proper Environmental Management includes allocation of resources for mitigation of any potential environmental impact that may be caused due to the implementation of the project. For effective management of the environmental impacts identified in Section – 6 of this EIA Report, a comprehensive Environmental Management Plan (EMP) is prepared and would be followed during design, construction and operation phases of project.

The objective of the EMP is to provide framework for the implementation of the proposed mitigation measures during all three phases of the proposed project. The proper implementation of the EMP will ensure that all adverse environmental impacts identified in the EIA are adequately mitigated, either totally prevented or minimized to an acceptable level and required actions to achieve those objectives are successfully taken by the concerned institutions or regulatory agencies. The implementation of EMP should be carefully coordinated with the design and construction program of the project to ensure that relevant mitigation measures are implemented at the appropriate stage and adequate resources are properly allocated to achieve the desired results.

For effective environmental management, the client should assign the necessary responsibilities to an Environmental Committee (EC) through Project Director PIEDMC, which should be responsible for implementation of the EMP and Environmental Monitoring of the proposed project. The Project Director will be assisted by an Environmental Expert and a Social Expert in implementing the mitigation measures proposed in EMP.

The Contractor will be responsible for the implementation of the proposed project under the supervision of PIEDMC. The Contractor should be bound to follow the provisions of the contract documents especially about environmental protection and apply good construction techniques and methodology without damaging the environment. Obligation of the contractor, to safeguard, mitigate adverse impacts and rehabilitate the environment should be addressed through environmental provisions in the contract document as already highlighted in Section-6 and through adequate implementation at site.

7.2 Staff and Training

7.2.1 Environmental Committee and its Responsibilities

Punjab Industrial Estates Development And Management Company (PIEDMC) will form up an Environmental Committee (EC), which will be responsible for the environmental management and supervisory affairs during the construction phase of the proposed project.

The responsibilities of the Environmental Committee (EC) are as follows:

- To ensure implementation of all the proposed mitigation measures proposed in EMP during the construction of the project;
- To organize routine monitoring of motor vehicle emissions, air quality, traffic, noise and vibration; etc. In case, the noise and emission levels exceed the acceptable levels; a penalty or ban must be enforced;
- To develop operational guidelines and implementation schedule;
- Receiving complaints from residents and institutions and assisting the local environmental authority including liaison with PEPA; and
- To ensure that the proposed project is implemented in an environment friendly manner, causing least harm to the existing environment including flora and fauna, sites of religious and cultural significance etc.

7.2.2 Equipment and Instruments

Environmental monitoring during different stages of project will be carried out by a private laboratory hired by NESPAK during construction and operational stages of the proposed project.

7.3 Environmental Management Plan

The Environmental Management Plan (EMP) provides the framework for the implementation of the mitigating measures and environmental management and monitoring during the construction and operation phases of the proposed project. Tables 7.1 portray impacts, targets, mitigations and the responsible organizations for the implementation of the mitigation measures during the construction and the operation phases respectively.

Table 7.1: Environmental Management Plan

Sr. No.	Parameters	Target	Mitigation	Responsibility
Design Phase				
1	Topography	To minimize the negative impacts on Topography.	<ul style="list-style-type: none"> Impact will be insignificant in nature and no change in topography is expected. 	
2	Design & Layout Planning	To minimize the negative impacts of Design and layout Planning.	<ul style="list-style-type: none"> All structural, layout and engineering designing of Apperal Park should be in strict accordance with the applicable by-laws and engineering parameters. 	DC and PIEDMC
3	Land Acquisition and Resettlement	To avoid/minimize land acquisition and resettlement.	<ul style="list-style-type: none"> Adequate budget will be provided in the project cost for the compensation to the affected people as per Land Acquisition Act, 1894 and framing of a judicious and fair compensation package for provision of compensation on at least the prevailing market rates. 	DC and PIEDMC
4	Biodiversity Conservation and Natural Resource management	To minimize cutting of trees and negative impacts on fauna.	<ul style="list-style-type: none"> Incorporate technical design measures to minimize removal of these trees, if possible such as change in design; Plan for compensatory planting for each trees 	DC and PIEDMC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>against each fallen tree of similar floral function;</p> <ul style="list-style-type: none"> • Provision of compensation in the Project Budget for the loss of trees to the affected people; • Disallow introduction of invasive/ exotic species and native species should be recommended for plantation ; • Only necessary cutting of trees shall be allowed and all trees beyond project site shall remain un-harmed; • The contractor's staff and labour should be strictly directed not to damage any vegetation. They shall use the paths and tracks for movement and should not be allowed to trespass through farmland; • Construction vehicles, equipment and machinery will remain confined within their designated areas of movement; • Comprehensive plantation plan shall be 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>implemented during construction phase of the project;</p> <ul style="list-style-type: none"> • Borrow pits should be fenced if located near grazing fields so that no animal can face hazard of injury; • The camps should be properly fenced and gated to check the entry of grazing animals in search of eatable goods. Similarly waste of the camps should be properly disposed off to prevent the chances of eating by wild animals, which may prove hazardous to them; • Contractor should ensure that the no hunting, trapping of animal should be carried out during construction; • Special measures should be adopted to minimize impacts on wild birds such as avoiding noise generating activities during the critical period of breeding. 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
5	Public Utilities	To avoid disturbance to the public utilities and infrastructure	<ul style="list-style-type: none"> • Incorporate technical design features to minimize affect on public utilities; and • All public utilities likely to be affected by the proposed project need to be relocated/rehabilitated well ahead of the commencement of construction work. 	DC and PIEDMC
6	Air Quality	To minimize the air pollution	<ul style="list-style-type: none"> • Concrete hot mix and batching plants shall not be located near residential areas; • NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works; • Where needed APC equipment shall be installed with concrete plants, Batching Plants and generators; • Preventive measures against dust should be adopted for on-site mixing and unloading operations. Regular sprinkling of the Site by 	DC and PIEDMC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>water should be carried out to suppress excessive dust emissions;</p> <ul style="list-style-type: none"> • Open burning of solid waste should be strictly banned; • All vehicles, machinery, equipment and generators used during construction activities should be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions. 	
7	Noise	To minimize the noise pollution	<ul style="list-style-type: none"> • Provide construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use; • Preferably, restrict construction vehicles movement during night time near the residential areas and camp sites; • Locate the concrete mixing, and materials shipment yards at least 2km from residential 	DC and PIEDMC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>areas, particularly schools and health centers;</p> <ul style="list-style-type: none"> • Selection of up-to-date and well maintained plant or equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices; • Heavy machinery like percussion hammers and pneumatic drills should not be used during the night. 	
8	Excavation of Land	To save the top fertile land.	<ul style="list-style-type: none"> • Borrow pits will not be located on agricultural land unless completely unavoidable; • Contractor needs to obtain approval for excavation and submit the plan of rehabilitation of the site after excavation; • The top 1 ft soil will be stored for future use in rehabilitation of the site; • Plan for Rehabilitation of Borrow Pits will be implemented. 	DC and PIEDMC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
9	Surface and Ground Water	To minimize the contamination of the surface and ground water.	<ul style="list-style-type: none"> • Protection of groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality; • Planning of location of construction camps must be at an appropriate distance from the surface water bodies; • Septic tanks and soakage pits should be designed to cater the wastewater from the construction camps. 	DC and PIEDMC
Construction Phase				
1	Topography	To minimize the negative impacts on Topography.	<ul style="list-style-type: none"> • Where the use of agricultural land, the top 1 ft of the plough layer will be stripped of and stockpiled for redressing the land after the required borrow material has been removed; • Where deep ditching is to be carried out, the top 1m layer of the ditching area will be stripped and stockpiled. The ditch will initially be filled 	

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<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>up with scrap material from construction and then levelled with the stockpiled topsoil;</p> <ul style="list-style-type: none"> • Ditches or borrow pits that cannot be fully rehabilitated will be landscaped to minimize erosion and to avoid creating hazards for people and livestock; and • Landowners will be compensated according to the terms of lease agreements negotiated with them and the restoration actions agreed upon by the Contractor will be duly carried out. 	
2	Soil	To minimize the soil erosion	<ul style="list-style-type: none"> • All soil will be disposed off as desired and the site will be restored back to its original conditions; • Non-bituminous wastes from construction activities will be dumped in approved sites, in line with the legal prescriptions for dump sites, and covered; • As applicable and needed, plantation of grasses 	CC , SC and EC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>and shrubs will be done at appropriate place where required;</p> <ul style="list-style-type: none"> • Excavations would be kept confined to the specified foundation spots as per the approved engineering drawings. Unnecessary excavations should be avoided; • Site camps for the resident labour should not be setup on the land earmarked for developing green belts and lawns; • Oils, lubricants, chemicals, and other listed hazardous materials should be stored safely at their designated spots, enclosures or store rooms, which should be safe from rainfall and away from any potential source of fire; • Septic tanks of adequate capacities should be constructed for receiving and treating wastewater from all temporary worksite toilets and at the temporary container offices, if any. The toilet wastewater should not be discharged 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>untreated onto the adjacent lands;</p> <ul style="list-style-type: none"> • All machineries and materials should be stored at the designated areas and compounds; • All the unspent and left over materials be completely removed offsite upon completion of construction and the site be restored to original or near to original condition; and • Washout from washing of equipment and gadgets should be drained into either a septic tank or a sand-gravel bed for removal of the grit and contaminants. 	
3	Land Acquisition, Resettlement and Compensation	To avoid/minimize land acquisition.	<ul style="list-style-type: none"> • Land management and providing judicious compensation to the affectees by providing sufficient budget in the project cost; • The process of land acquisition and compensation will be followed in a transparent manner. 	CC, SC and EC
4	Construction Camps/Camp Sites	To minimize loss of assets and vegetation due to labor	<ul style="list-style-type: none"> • All efforts during the construction stage should be made to minimize the removal of existing 	CC, SC, PIEDMC and

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
		movement.	<p>macro-plants at camp sites;</p> <ul style="list-style-type: none"> • The contractor(s) will provide plan for removal & rehabilitation of site upon completion; • Photographical and botanical inventory of vegetation before clearing the site; and • Compensatory plantation to be scheduled when construction works near end 	EC
5	Health and Safety	To minimize health risks.	<ul style="list-style-type: none"> • Obligatory insurance against accidents for labourers/workers; • Providing basic medical training to specified work staff and basic medical service and supplies to workers; • Layout plan for camp site, indicating safety measures taken by the contractor, e.g. fire fighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents; • Work safety measures and good workmanship practices are to be followed by the contractor to 	CC, SC and EC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>ensure no health risks for labourers;</p> <ul style="list-style-type: none"> • Protection devices (ear muffs) will be provided to the workers doing job in the vicinity of high noise generating machines; • Provision of adequate sanitation, washing, cooking and dormitory facilities including light up to satisfaction; • Proper maintenance of facilities for workers will be monitored; • Provision of protective clothing for labourers handling hazardous materials, e.g. helmet, adequate footwear for bituminous pavement works, protective goggles, gloves etc; • Ensure strict use of wearing these protective clothing during work activities; • Elaboration of a contingency planning in case of major accidents; • Instruct foremen to strictly enforce the keeping out of non-working persons, particularly 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>children, off work sites;</p> <ul style="list-style-type: none"> • Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads. 	
6	Borrow/ Open Pits		<ul style="list-style-type: none"> • Conversion of borrow pits into fish farms and care in selection of borrow areas; <ul style="list-style-type: none"> ▪ Necessary permits must be obtained for any borrow pits from the competent authorities; ▪ No excavations are allowed within distance of 500 m to ROW; ▪ In borrow pits, the depth of the pit will be regulated so that the sides of the excavation will have a slope not steeper than 1:4; ▪ Soil erosion along the borrow pit shall be regularly checked to prevent / mitigate impacts on adjacent lands; and ▪ In case borrow pits fill with water, measures have to be taken to prevent the creation of 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			mosquito-breeding sites.	
7	Air Quality	To minimize the air pollution.	<ul style="list-style-type: none"> • All vehicles, machinery, equipment and generators used during construction activities should be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions; • Blowing of dust from potential sources at the worksite should be avoided by shielding them from the exterior, for example using polythene curtains or raising a fence of corrugated sheets around areas of active constructions; • Blowing of dust and particulate matter from stockpiled loose materials (e.g. sand, soil) should be avoided either by sheeting them with tarpaulin or plastic sheets or by sprinkling them with light shower of water; • Open burning of solid waste from the contractor's camps should be strictly banned; • Preventive measures against dust should be 	PIEDMC & CC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>adopted for on-site mixing and unloading operations. Regular water sprinkling of the site should be carried out to suppress excessive dust emission(s);</p> <ul style="list-style-type: none"> • Only good quality oils, petroleum products, additives and spares should be used in the machinery, generators, and the construction vehicles. Usage of used oil should be strictly prohibited; • Emissions from power generators and construction machinery are important point sources at the construction sites. Proper maintenance and repair is needed to minimize the hazardous emissions; and • NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works. 	
8	Noise and	To minimize the negative	<ul style="list-style-type: none"> • Selection of up-to-date and well maintained plant 	PIEDMC &

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
	Vibrations	impacts of noise and vibration.	<p>or equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices;</p> <ul style="list-style-type: none"> • Confining excessively noisy work to normal working hours in the day, as far as possible; • Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use; • Preferably, restricting construction vehicles movement during night time; • Heavy machinery like percussion hammers and pneumatic drills should not be used during the night without prior approval of the client; • Vehicles and equipment used should be fitted, as applicable, with silencers and properly maintained; • Use of low noise machinery, or machinery with noise shielding and absorption; • Contractors should comply with submitted work 	CC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>schedule, keeping noisy operations away from sensitive points; implement regular maintenance and repairs; and employ strict implementation of operation procedures;</p> <ul style="list-style-type: none"> Noise barriers in sensitive areas in the form of high boundary walls (concrete or wood), earth berms, etc. in front of schools, hospitals and mosques. 	
9	Solid Waste (Construction Waste and Hazardous Waste)	To minimize the Solid Waste.	<ul style="list-style-type: none"> Wastewater effluent from contractor's workshop and equipment washing yards would be passed through gravel/ sand beds to remove oil/ grease contaminants before discharging it into natural streams; An efficient and responsive solid waste management system should be devised for the entire duration of the construction phase. Such a system should provide for separate collection of different categories of constructional wastes. The wastes which will be reusable/recyclable 	CC, SC and EC

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<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>(iron bars, aluminum) should be sold to waste vendors and those which cannot be sold out (brick pieces) may be used as a filling material for leveling the depressions, subject to technical feasibility;</p> <ul style="list-style-type: none"> • Training of working force in the storage and handling of materials and chemicals that can potentially cause soil contamination; • Solid waste generated during construction and camp sites will be safely disposed in demarcated waste disposal sites and the contractor will provide a proper waste management plan; • Proper labelling of containers, including the identification and quantity of the contents, hazard contact information etc.; • Training of employees involved in the transportation of hazardous material regarding emergency procedures; 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<ul style="list-style-type: none"> • Providing the necessary means for emergency response on call 24 hours/day; • The sewage system for camps will be properly designed (pit latrines or, as required, septic tanks) to receive all sanitary wastewaters; • Lined wash areas will be constructed within the camp site or at site, for the receipt of wash waters from construction machinery; • Use of pesticides in nurseries will be done deemed necessary and suggested by the experts; • Insecticides that are less toxic to human health should be used; • Construction workers and supervisory staff should be encouraged and educated to practice waste minimization, reuse and recycling to reduce quantity of the waste for disposal; • Prohibit open burning of solid waste. C&D waste shall be dumped in the approved depression sites; 	

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<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<ul style="list-style-type: none"> • Recyclable packaging waste shall be sorted out and sold after separations; • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary waste generation; • Provide sufficient waste disposal points and regular collection for disposal; • Any unused chemical bin with remaining functional capacity shall be recycled. 	
10	Green house gas	To minimize the negative impacts of green house gases.	<ul style="list-style-type: none"> • Regular motioning of the vehicles for engine efficiency; • Avoid any unnecessary work and transportation; • Alternative energy resources should be considered where possible; • NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works. 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
11	Surface and Ground Water	To minimize surface and ground water contamination	<ul style="list-style-type: none"> • Protection of groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality; • Regular water quality monitoring according to determined sampling schedule; • Prohibit washing of machinery and vehicles in surface waters, provide sealed washing basins and collect wastewater in sedimentation/retention pond; • Continuous withdrawal and over pumping of groundwater should be avoided. Instead, intermittent pumping be carried out to conserve the groundwater resources; • Take precautions construct temporary or permanent devices to prevent water pollution due to increased siltation; and • Wastes must be collected, stored and taken to approve disposal site. Construction camps shall 	CC, EC and SC

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<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>not be located near surface water bodies and groundwater bodies to avoid bacterial contamination of sub surface water</p> <ul style="list-style-type: none"> • Storage yards, Batching plants and bitumen plants shall not be located near water bodies to avoid non-point pollution • Construction material such as concrete and oil etc. should be properly stored to avoid any chance of contamination of subsurface or surface water. • Temporary cut-off drains shall be constructed around large stockpiles to regulate the sediment laden runoff • Temporary Best management Practices (BMPs) like vegetated strips etc. shall be adopted near water bodies to partially treat the runoff during construction 	
12	Flora	To minimize the cutting of trees	<ul style="list-style-type: none"> • Camp sites should be established on waste/barren land rather than social and 	CC, SC and EC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>agricultural land. However, if such type of land is not available, it will be ensured that minimum clearing of the vegetation is carried out and minimum damage is caused to trees and undergrowth;</p> <ul style="list-style-type: none"> • Construction vehicles, machinery and equipment will remain confined within their designated areas of movement; • The Contractor's staff and labour will be strictly directed not to damage any vegetation such as trees or bushes; • Contractor will provide gas cylinders at the camps for cooking purposes and cutting of trees/bushes for fuel will not be allowed; and • A tree plantation program will be formulated in consultation with the PIEDMC at available sites. 	
13	Fauna	To minimize the negative impacts on fauna species	<ul style="list-style-type: none"> • Overall, the impact on fauna of the area is insignificant in nature 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
14	Resource Conservation	To minimize the use of natural resources	<ul style="list-style-type: none"> • Wastage of water should be reduced by training the workers involved in water use; • Wastage of water should be controlled through providing proper valves and through controlling pressure of the water; • Water jets and sprays should be used for watering surfaces rather than using overflow system; • Source of water should be carefully selected. Water use should not disturb the existing community water supplies; • Unnecessary equipment washings should be avoided; • Use minimum amount of bitumen for road surfacing. 	
15	Energy efficiency		<ul style="list-style-type: none"> • Ensure adequate insulation to reduce heat loss through batching/concrete plants; • Regularly monitor CO and CO2 content of the 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>flue gases to verify that combustion systems are using practical excess air volumes;</p> <ul style="list-style-type: none"> • Maintain clean heat transfer surfaces in batching/concrete plant; • Regular service of the vehicles and bathing plants will reduce the mechanical losses of energy. 	
16	Public Inconvenience	To minimize public inconvenience	<ul style="list-style-type: none"> • Provide proper diversions to the traffic and their maintenance have to be assured near the sites of construction . • Provision of proper sign boards, especially before diversion, for smooth flow of traffic • Construction vehicles, machinery and equipment shall move or be stationed in the designated ROW to avoid un-necessary compaction of nearby soil • Measures of disruption of public utilities shall be adopted 	

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Sr. No.	Parameters	Target	Mitigation	Responsibility
17	Lifestyle and Culture	To minimize cultural conflicts	<ul style="list-style-type: none"> • Timely public notification and announcement of mobilizing equipment; • Local labour should be employed for construction works; and • Water supply and sanitation facilities, Contractor's workforces should exacerbate the existing shortages and environmental hazards; contractor should primarily seek their own sources of water in due distance (min. 1 km) from local user's wells. 	PIEDMC
18	Heavy Vehicles on the Existing Road Network & Sensitive Receptors	To minimize negative impacts on existing road and surroundings.	<ul style="list-style-type: none"> • Any vehicle with an open load carrying area used for transport of potentially dust producing materials shall have properly fitted side and tailboards. Materials having potential to produce dust shall not be loaded to a level higher than the side and tail boards and shall be covered with clean tarpaulin in good condition. The tarpaulin shall be properly secured and extended 	CC, SC, Traffic Police Department, and EC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>to at least 300 mm over the edges of the sideboard and tailboard;</p> <ul style="list-style-type: none"> • The Contractor shall not use any vehicles either on or off road with grossly excessive noise pollution. Noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the contractor; • Timely maintenance of affected roads to avoid any inconvenience to the road commuters. 	
19	Traffic management	To minimize traffic problems in the project area	<ul style="list-style-type: none"> • Proper traffic management plan will be needed to avoid traffic jams/public inconvenience; • Movement of vehicles carrying construction materials should be restricted during the daytime to reduce traffic load and inconvenience to the local residents; • Coordinated planning of traffic diversions by the traffic police and the Transport Department in accordance with the construction programme with advance warnings to the affected residents 	CC, SC, Traffic Police Department, and EC

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<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>and road users;</p> <ul style="list-style-type: none"> • Construction vehicles, machinery and equipment will move or be stationed in the designated ROW to avoid un-necessary compaction of soil. • Availability of continuous services of the police in the diversion and control of traffic; and • The executing agency is required to maintain liaison between the Motorway/ Traffic Police, local residents/ travelers and the contractor to facilitate traffic movement during construction stage. 	
20	Wastage of fertile plough layer	To minimize the wastage of fertile plough layer	<ul style="list-style-type: none"> • The waste generated from the camp site will be disposed off through Municipal Committee; • Burning of waste will be prohibited; and • Solid Waste will be safely disposed in demarcated waste disposal sites and the contractor will provide a proper waste management plan. 	PIEDMC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
Operational Phase				
1	Flora	To minimize the cutting of trees	<ul style="list-style-type: none"> No negative impacts are envisaged on the flora during the operational phase 	PIEDMC
2	Surface and Groundwater	To minimize surface and ground water contamination	<ul style="list-style-type: none"> CETP shall be operated as per standard operating procedures (SOPs) to follow NEQS. Especial concentrations shall be paid to sludge treatment and handling; Implementation of bylaws of individual treatment plants at industrial level shall be ensured Industries shall be bound to submit monitoring reports of their effluents regularly; Monitoring plans for water quality analysis of the CETP effluent, Sem Nullah and groundwater shall be prepared; Best Management Practices (BMPs) shall be maintained to ensure their effective function to treat nonpoint source water pollution. 	PIEDMC

SAMD

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
3	Air Quality	To minimize the air pollution	<ul style="list-style-type: none"> • Bylaws related installation of Air Pollution Control (APC) equipment shall be strictly implemented; • Industries shall be bound to submit monitoring reports of their air pollution sources and occupational environment regularly; • Regular monitoring of the ambient air shall be carried out; • Regular road maintenance to ensure good surface condition; • Regular vehicle check to control/ensure compliance with NEQS; • More green areas and trees should be planted in that region which would suck up the polluted air. 	PEPA and PIEDMC
4	Soil Contamination	To minimize the soil contamination	<ul style="list-style-type: none"> • Each industry shall be bound to submit the inventory of use of hazardous chemicals, their 	PIEDMC

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<p>use and final disposal including measures to control special waste;</p> <ul style="list-style-type: none"> • Signage shall be carried out to regulate the routes of especial waste disposal to avoid the risks of spillages. 	
5	Solid Waste	To minimize the solid waste	<ul style="list-style-type: none"> • SWM system shall be operated as per SOPs and improved with time to time; • Primary collection and storage of solid waste shall be performed in the closed containers; • Secondary collection shall be done in the compactor trucks; • Only unusable trash material shall be disposed of into the landfill site and all the reusable material shall be separated, processed and sold accordingly; • People shall be educated to waste lesser and avoid use of disposable items. 	
6	Occupational Health and Safety	To minimize health risks	<ul style="list-style-type: none"> • Obligatory insurance against accidents for labourers/workers; 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<ul style="list-style-type: none"> • Providing basic medical training to specified work staff and basic medical service and supplies to workers; • Layout plan for camp site, indicating safety measures taken by the contractor, e.g. fire fighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents; • Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for labourers; • Protection devices (ear muffs) should be provided to the workers doing job in the vicinity of high noise generating machines; • Provision of adequate sanitation, washing, cooking and dormitory facilities including light up to satisfaction; • Proper maintenance of facilities for workers will be monitored; 	

<i>Sr. No.</i>	<i>Parameters</i>	<i>Target</i>	<i>Mitigation</i>	<i>Responsibility</i>
			<ul style="list-style-type: none"> • Provision of protective clothing for labourers handling hazardous materials, e.g. helmet, adequate footwear for bituminous pavement works, protective goggles, gloves etc; • Ensure strict use of wearing these protective clothing during work activities; • Elaboration of a contingency planning in case of major accidents; • Instruct foremen to strictly enforce the keeping out of non-working persons, particularly children, off work sites; and • Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads. 	

KEY

DC Consultant

PIEDMC Punjab Industrial Estates Development And Management Company

SC Supervision Consultant

PEPA Environment Protection Agency

CC Construction Contractor

EC Environmental Committee

7.4 Environmental Monitoring

Environmental Monitoring is undertaken during both the construction and operational phases to ensure the effectiveness of the proposed mitigation measures. Certain environmental parameters are selected and quantitative analysis is carried out. The results of analysis are compared with the guidelines; standards and pre-project conditions to investigate whether the Environmental Management Plan (EMP) and its implementation are effective for the mitigation of impacts or not. Parameters to be analyzed during construction and operation of the project and responsibilities for monitoring and reporting have been discussed below. A cost estimate for this measurement of parameters is given in Table 7.2.

7.4.1 Construction Phase

a) Air Quality

Air quality monitoring will be carried out as per monitoring plan during the construction phase at the representative locations.

The following parameters will be monitored:

- CO
- NO_x
- SO_x
- PM₁₀

b) Ground Water Quality

Ground water quality monitoring will be done during the construction phase at the representative locations. The following parameters will be monitored:

- Total Coliforms
- Fecal E.Coli
- Total Colonial Count
- Fecal Enterococci
- pH Value
- Total Dissolved Solids (TDS)
- Total Hardness
- Nitrate
- Chloride
- Sodium

c) Wastewater Quality

Wastewater quality monitoring will be done during the construction phase at the representative locations. The following parameters will be monitored:

- pH
- Dissolved Oxygen
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- Alkalinity
- BOD₅
- COD
- Turbidity

d) Noise Levels

The noise level monitoring will be carried out as per monitoring plan at representative locations in the project area.

7.4.2 Operational Phase

a) Air Quality

Air quality monitoring will be done biannually during the operational phase at the representative locations. The following parameters will be monitored:

- CO
- NO_x
- SO₂
- PM₁₀

b) Ground Water Quality

Ground water quality monitoring will be done biannually during the operational phase at the representative locations. The following parameters will be monitored:

- Total Coliforms
- Fecal E.Coli
- Total Colonial Count

- Fecal Enterococci
- pH
- Total Dissolved Solids (TDS)
- Total Hardness
- Nitrate
- Chloride
- Sodium

c) Wastewater Quality

Wastewater quality monitoring will be carried out biannually during the operational phase at the representative locations and the following parameters will be monitored:

- pH
- Dissolved Oxygen
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- Alkalinity
- BOD₅
- COD
- Turbidity

d) Noise Levels

The noise level monitoring will be carried out biannually at representative locations in the project area.

7.4.3 Responsibilities for Monitoring and Reporting

The EC will be responsible for environmental monitoring and reporting throughout the construction and operation phases. A monitoring report will be prepared on monthly basis and one comprehensive report will be prepared annually. Contents of the report will include results of environmental monitoring in comparison to the standards for the various parameters, location and sampling time along with recommendations. One report will be submitted during the construction phase to each of the following authorities and institutions: (i) PIEDMC and (ii) PEPA whereas, one report will be submitted to PEPA during the operational phase.

Table 7.2: Budget Estimate for Environmental Monitoring During the Construction and Operation Phases

Components	Parameters	No. of Samples (No. of Samples x Frequency x Year)	Frequency	Responsibility	Duration	Cost (Rs.)
Construction Phase (1 year)						
Air Quality	CO, NO _x , SO _x , PM ₁₀	1x4x1 = 4	After every 03 months	Contractor/ EC	24 hours	1,22,000/-
Ground Water Quality	Total Coliforms, Fecal E. Coli, Total Colonial Count, Fecal Enterococci, pH, TDS, Total Hardness, Nitrate, Chloride, Sodium	1x4x1 = 4	After every 03 months	Contractor/ EC	-	78,000/-
Surface Water Quality	pH, Dissolved Oxygen, TSS, TDS, Alkalinity, BOD ₅ , COD, Turbidity	1x4x1 = 4	After every 03 months	Contractor/EC	-	66,000/-
Noise Level	-	1x4x1 = 4	After every 03 months	Contractor/EC	24 hours	20,000/-
TOTAL						286,000/-
Operation Phase (1 year)						
Air Quality	CO, NO _x , SO _x , PM ₁₀	1x2x1 = 2	Biannually	PIEDMC	24 hours	61,000/-

Ground Water Quality	Total Coliforms, Fecal E. Coli, Total Colonial Count, Fecal Enterococci, pH, TDS, Total Hardness, Nitrate, Chloride, Sodium	1x2x1 =2	Biannually	PIEDMC	-	39,000/-
Surface Water Quality	pH, Dissolved Oxygen, TSS, Alkalinity, BOD ₅ , COD, Turbidity	1x2x1 = 2	Biannually	PIEDMC	-	33,000/-
Noise Level	-	1x2x1 = 2	Biannually	PIEDMC	24 hours	10,000/-
TOTAL						143,000/-
GRAND TOTAL						429,000/-

KEY

EC – Environmental Committee

PIEDMC–Punjab Industrial Estates Development And Management Company

7.6 Environmental Technical Assistance and Training Plan

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. The EC should play a key role in this respect and arrange the trainings.

An environmental and social training and Technical Assistance (TA) program is to be carried out before the implementation of the project. Contractor's environmental awareness and appropriate knowledge of environmental protection is critical to the successful implementation of the EMP because without appropriate environmental awareness, knowledge and skills required for the implementation of the mitigation measures, it would be difficult for the Contractor(s) workforce to implement effective environmental protection measures. A suitable training program is proposed to train the Contractor(s) staff who will be involved in the Construction Phase and the professional staff from the client involved at the operational stage of the project.

The PIEDMC will engage TA consultant to manage the environmental training program. The objective of the TA will be, to help in establishment of appropriate systems, and to train senior PIEDMC staff and EC responsible for managing environment, operations, and planning, who can then impart training at a broader level within and outside the PIEDMC (i.e., the training of trainers). The TA consultant will organize training courses for PIEDMC and contractor staff to train them in specialized areas such as air and noise pollution monitoring; develop environment operation manuals in consultation with the PEPA. The details of this training program are presented in Table 7.7

Table 7.7: Personnel Training Program/ TA Services

Provided by	Contents	Trainees/Events	Duration
TA consultants/ organizations specializing in environmental	Short seminars and courses on: Environmental laws and regulations, daily	Three seminars for Contractor project staff and PIEDMC	2 days

Provided by	Contents	Trainees/Events	Duration
management and monitoring	monitoring and supervision		
TA consultants/ organizations specializing in social management and monitoring	Short seminars and courses on: Social awareness	Three seminars for project staff dealing in Social/lands matters	2 days
TA consultants/ organizations specializing in Occupational, health and safety issues	Short lectures relating to Occupational Safety and Health	Two seminars for contractor's staff	2 days

7.7 Environmental Monitoring, Mitigation and Training Cost

The cost required to effectively implement the mitigation measures is important for the sustainability of the Project both in the construction and operation stages of the Project.

These costs are summarized as below:

Environmental Monitoring Cost	=	429,000/-
Environmental Training Cost	=	100,000/- (lump sum)
Total	=	529,000/-

LIST OF ABBREVIATIONS

PIEDMC	Punjab Industrial Estates Development and Management Company
NESPAK	National Engineering Services Pakistan (Pvt.) Ltd.
M-2	Lahore-Islamabad Motorway
PEPA	Punjab Environmental Protection Act
EPA	Environmental Protection Agency
EA	Environmental Approval
EIA	Environmental Impact Assessment
GoP	Government of Pakistan
NEQS	National Environmental Quality Standards
LGO	Local Government Ordinance
EPZ	Export Processing Zones
QAAP	Quaid-e-Azam Apparel Park
WAPDA	Water And Power Development Authority
MGD	Million Gallon per Day
CETP	Combined Effluent Treatment Plant
m	Meter
KVA	Kilo Volt Ampere
SNGPL	Sui Northern Gas Pipe Lines Limited
MS	Mild Steel
PTCL	Pakistan Telecommunication Corporation Limited
DI	Ductile Iron
HDPE	High Density Polyethylene

MI	Mild Steel
PVC	Polyvinyl Chloride
BHU	Basic Health Units
HH	Household
SUPARCO	Pakistan Space & Upper Atmosphere Research Commission

Table 6.1
EIA of Quaid-e-Azam Apparel Park, Sheikhpura

Construction Phase

Sr. No.	Environmental Component Project Activities	Physical Environment					Biological Environment		Socioeconomic Environment						
		Topography	Soil	Air Quality	Noise & Vibration	Groundwater Quality/Surface Water Quality	Flora	Fauna	Health & Safety for Public and Worker	Disruption of Public Utilities	Employment	Public Inconvenience	Cultural/Religious Values	Benefits to Community	Traffic Management
1	Site Clearance	LA	O	LA	MA	LA	HA	MA	MA	LA	B	LA	HA	NA	LA
2	Construction camps	O	LA	O	O	O	LA	LA	LA	NA	O	LA	O	NA	O
3	Movement of construction machinery/vehicles	O	LA	MA	MA	O	MA	MA	LA	O	B	MA	LA	NA	MA
4	Relocation of the Utilities	O	LA	LA	LA	O	O	MA	LA	MA	B	MA	LA	HA	LA
5	Excavation	LA	MA	MA	MA	LA	HA	HA	MA	LA	B	MA	LA	O	LA
6	Earthwork/concretework operations	LA	LA	MA	MA	O	MA	MA	MA	NA	B	LA	LA	NA	LA
7	Operation of batching plants	O	LA	MA	MA	LA	LA	LA	LA	NA	B	LA	O	NA	LA
8	Solid Waste Management	O	LA	LA	O	LA	O	LA	LA	NA	B	LA	NA	MA	O
9	Disposal of Non Reuseable C&D Waste	O	O	LA	O	LA	O	LA	LA	NA	B	LA	NA	MA	O
10	Handling/Storage of fuels/chemicals	O	LA	LA	O	LA	LA	LA	LA	NA	B	NA	NA	NA	O
11	Landscaping and Horticulture	B	B	B	B	NA	B	B	O	NA	B	NA	NA	B	NA

Legend

LA - Low Adverse

MA - Medium Adverse

HA - High Adverse

B - Beneficial

O - Insignificant / no impact

NA - Not Applicable

Table 6.2
EIA of Quaid-e-Azam Apparel Park, Sheikhupura

Operation Phase

Sr. No.	Environmental Components Project Activities	Physical Environment				Biological Environment				
		Soil	Air Quality	Noise	Groundwater Quality	Flora	Fauna	Employment	Community Development	HES Issues
1	Construction of industries	LA	MA	MA	LA	MA	MA	B	B	LA
2	Operation of industries	LA	MA	MA	LA	MA	MA	B	B	LA
3	Solid Waste Management	LA	LA	LA	LA	MA	LA	B	B	LA
4	Storage/Use of chemicals	LA	LA	O	LA	O	O	B	NA	LA
5	Maintenance of Landscaping	B	B	LA	O	B	B	B	B	B

Legend

LA - Low Adverse
B - Beneficial

MA - Medium Adverse
O - Insignificant / no impact

HA - High Adverse
NA - Not Applicable








Quaid-e-Azam Apparel Park, Sheikhpura

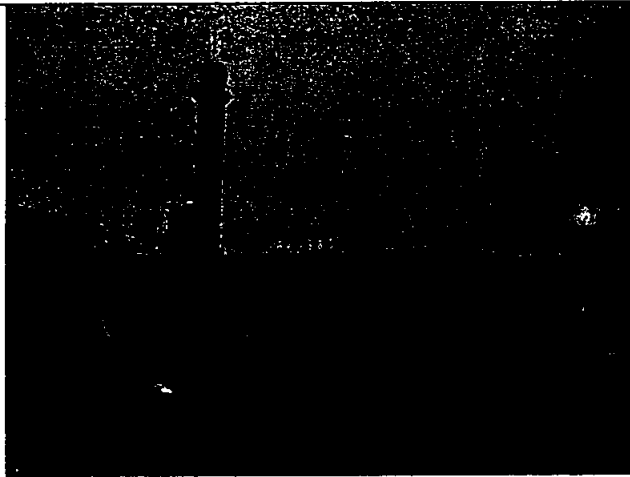
LIST OF SENSITIVE RECEPTORS

Sr. No.	Name of Settlement	Educational Facility	Health Facility	Archeological Site/Recreational	Shrine	Mosque
1	Qayam Pur	Government Girls Elementary School			Baba Shamas Shah Wali	Jamia Ghosia
		Government Primary School				Jamia Masjid Gillani
2	Ladhe Ki Mallian	Government Boys Primary School			Baba Lakhon Da Dada	Jamia Masjid Ahle hadees
					Peer Enayat Shah Wali	
					Baba Roray Shah	
3	Bomb Mallian	Government Primary School				Jamia Masjid
4	Saho Ki Mallian	Government Girls Middle School	Basic Health Unit			
		Government High School				
5	Khokar Ki Mallian	Government Primary School				Jamia Masjid Ahle Sunnat
6	Mandiyala Virkan	Government Primary School				Jamia Majid Saddique-e-Akbar

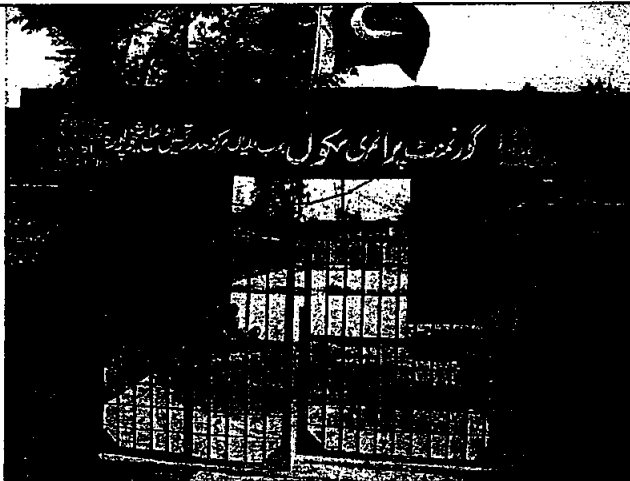
Photo log of Sensitive Receptors

Sensitive Receptor	Description
	<p>Government Girls Elementary School Qayam Pur</p>
	<p>Jamia Masjid in the vicinity of the Project Area</p>

	<p>Darbar Baba Peer Shamas Shah Wali located in village Qayam Pur</p>
	<p>Jamia Masjid Gillani located in village Qayam Pur</p>
	<p>A view of Urooj Public Model Elementary School located in Village Bomb Mallian</p>



**Jamia Mosque in village
Bomb Mallian**



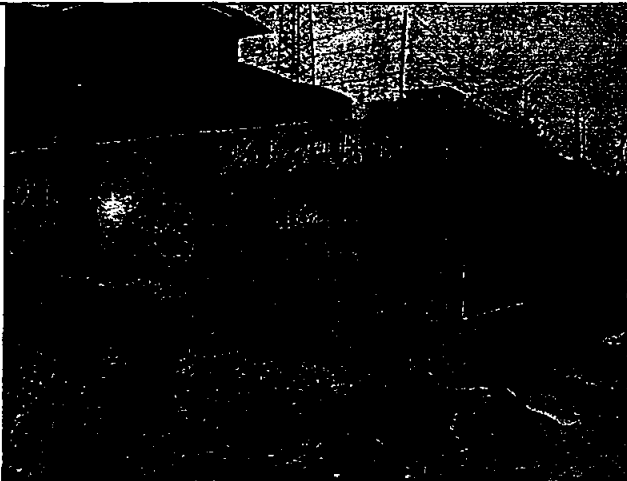
**Government Primary School
Bomb Mallian**



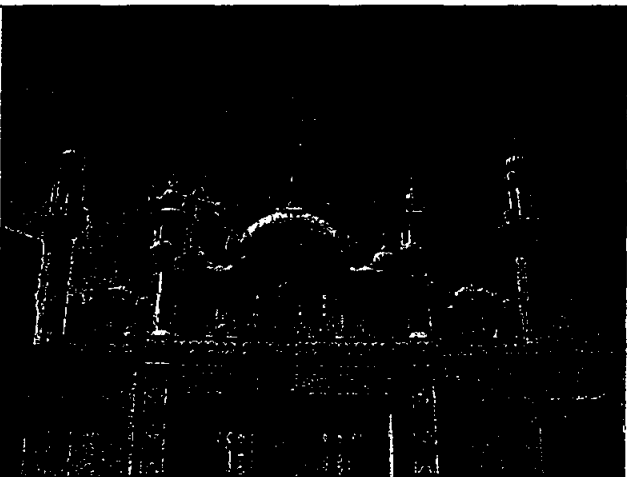
**Government High School
Saho ki Mallian**



**Government Girls Middle
School Saho Ki Mallian**



**Raman Model Elementary
School For Girls located in
Village Saho ki Mallian**



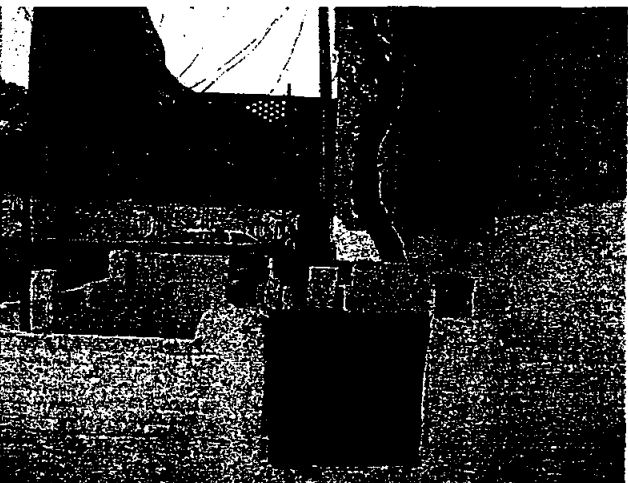
**Jamia Masjid Ghosia Located
in Village Saho Ki Mallian**



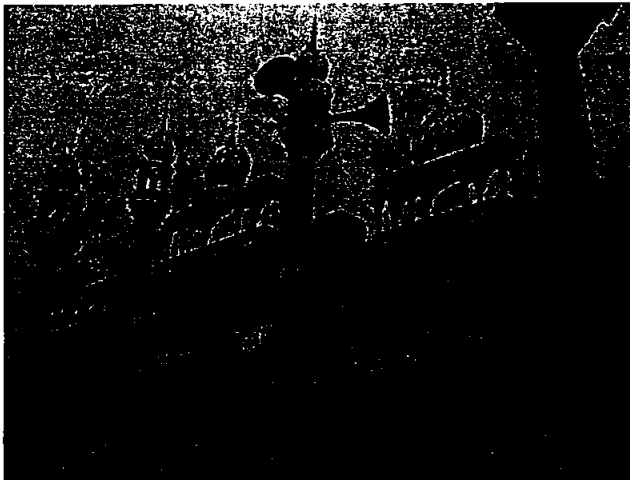


Government Boys Primary
School located in Village
Ladhe Ki Mallian

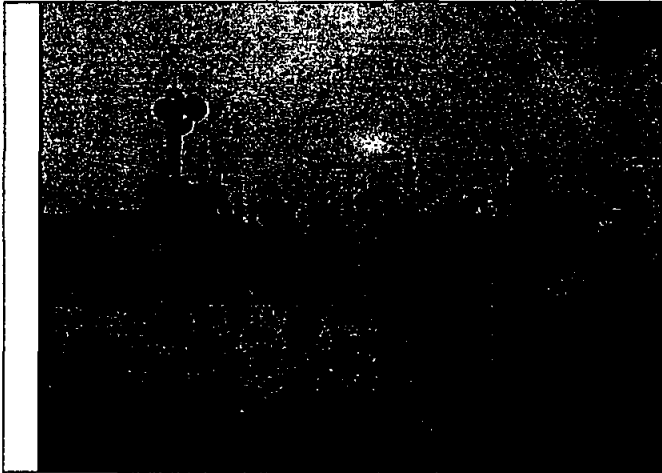


Darbar Baba Lakhan Da Dada
Located in Village Ladhe Ki
Mallian



Darbar Enayat Shah Wali
Located in Village Ladhe Ki
Mallian

	<p>Jamia Masjid Located in Village Ladhe Ki Mallian</p>
	<p>Shrine of Baba Peer Roray Shah Located in Village Ladhe ki Mallian</p>
	<p>Church Located in Village Khokhar Ki Mallian</p>



Jamia Masjid Located in
Village khokhar Ki Mallian



Government Primary School
Located In Village Khokhar Ki
Mallian



AIR QUALITY RESULTS (QUAID-E-AZAM APPAREL PARK)

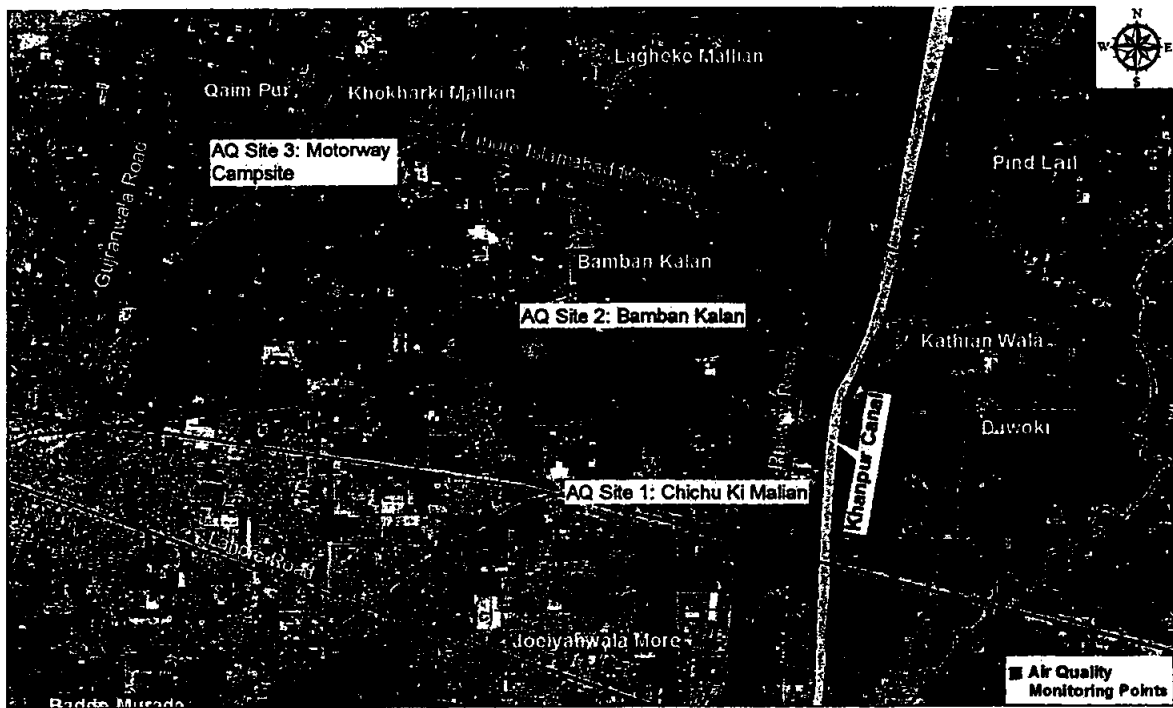


Figure 1: Air Quality Sampling Locations Map in Sheikhupura

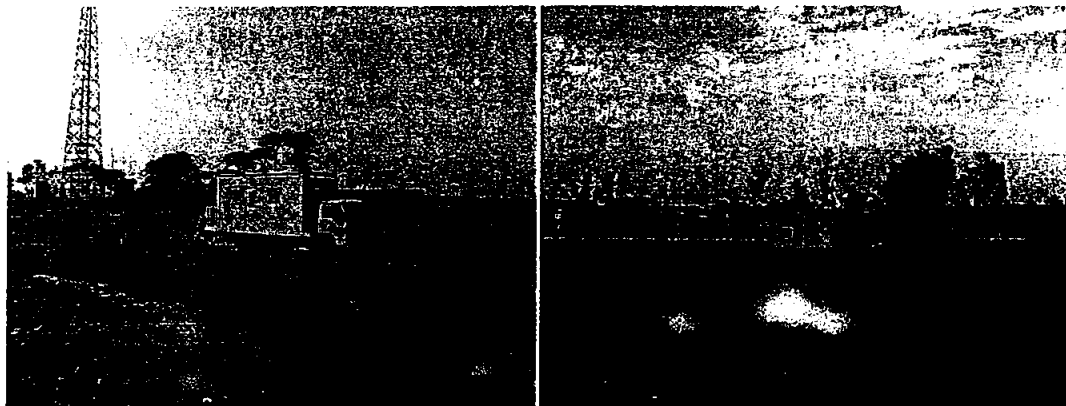


Figure 2: Environmental Monitoring at Chichu Ki Malian, Sheikhupura

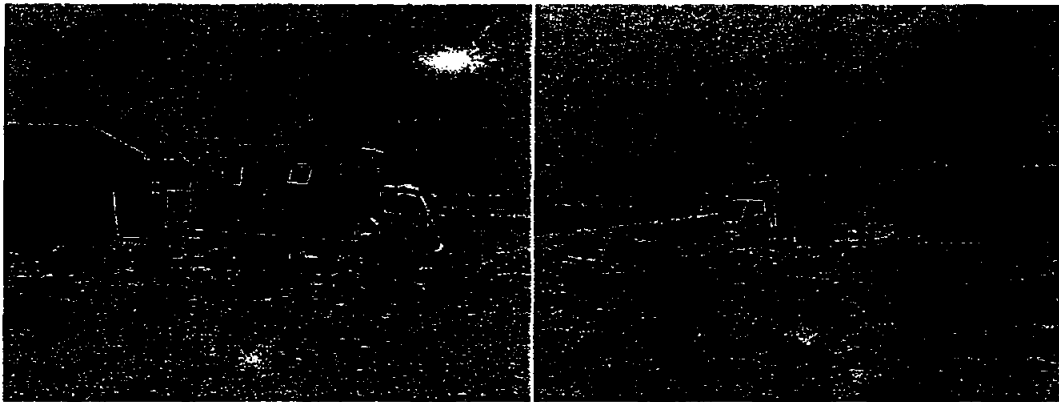


Figure 3: Environmental Monitoring at Bamban Kalan, Sheikhupura

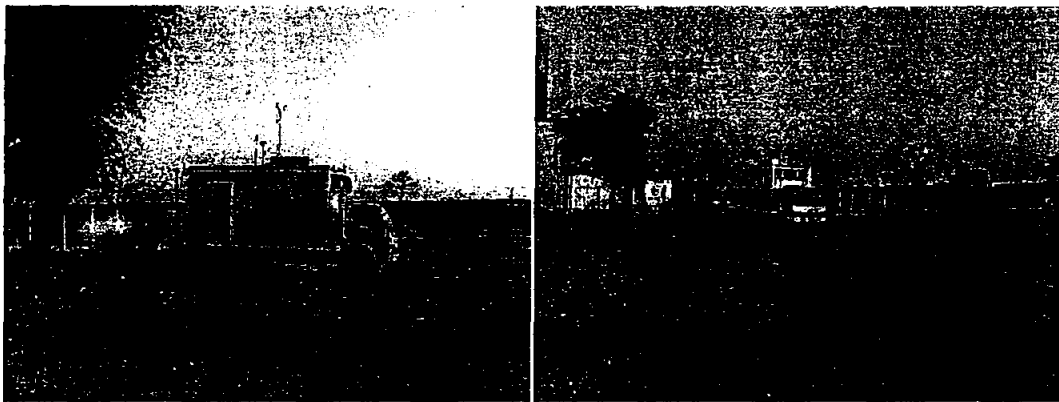


Figure 4: Environmental Monitoring at Motorway Campsite, Sheikhupura

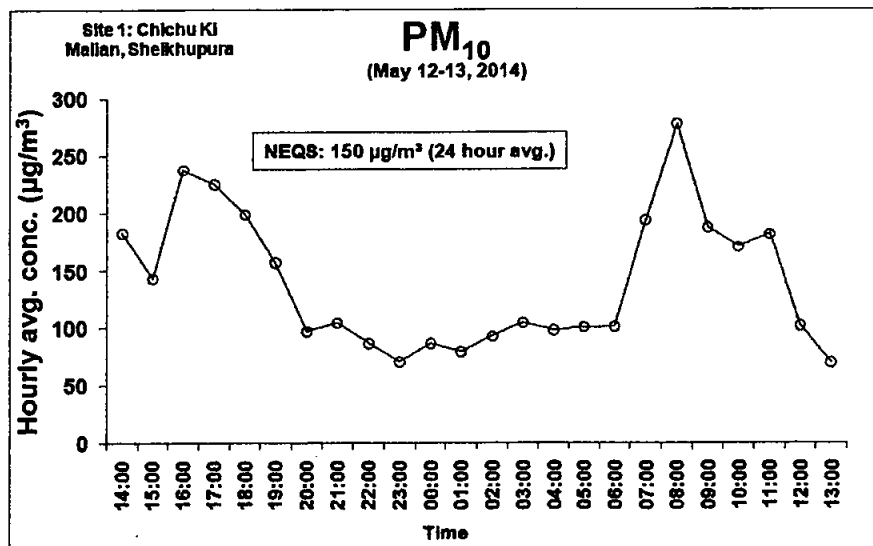


Figure 5: Hourly variation of Particulate Matter (PM10) at Chichu Ki Malian, Sheikhpura

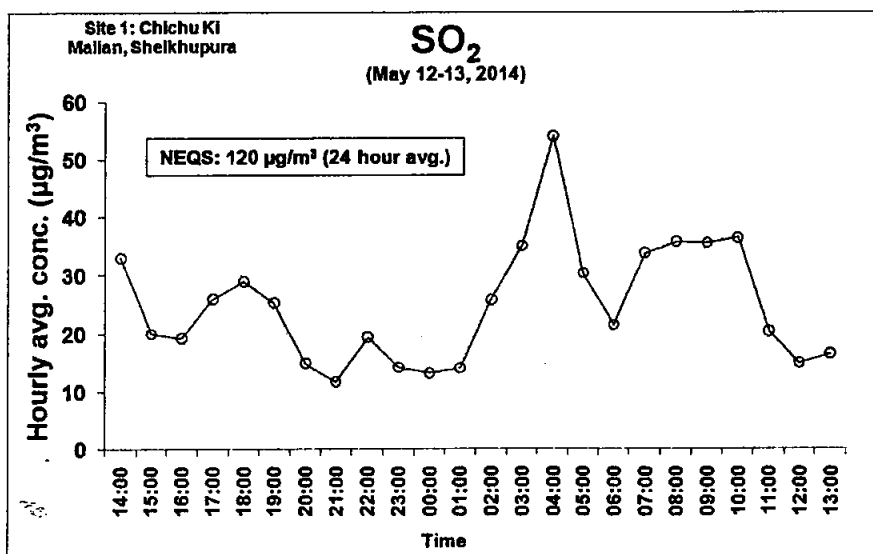


Figure 6: Hourly variation of Sulphur dioxide (SO2) at Chichu Ki Malian, Sheikhpura

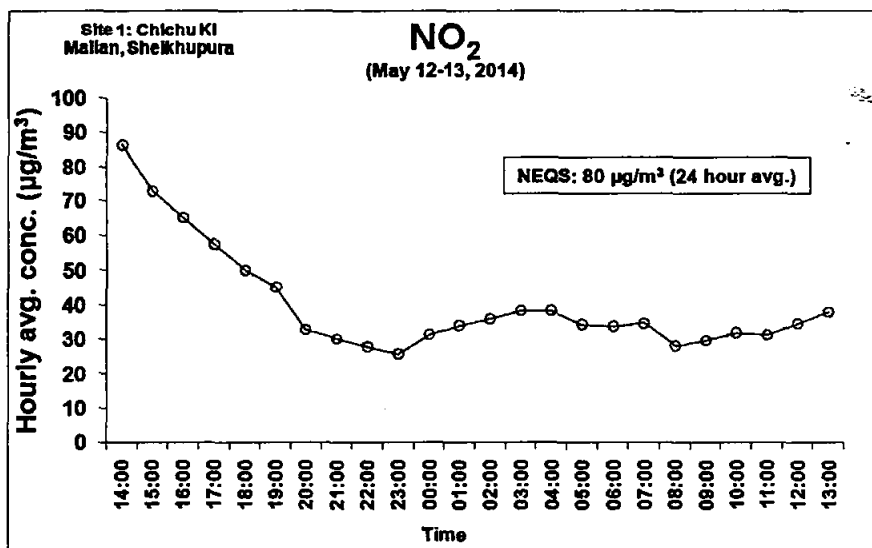


Figure 7: Hourly variation of Nitrogen dioxide (NO₂) at Chichu Ki Mallan, Sheikhupura

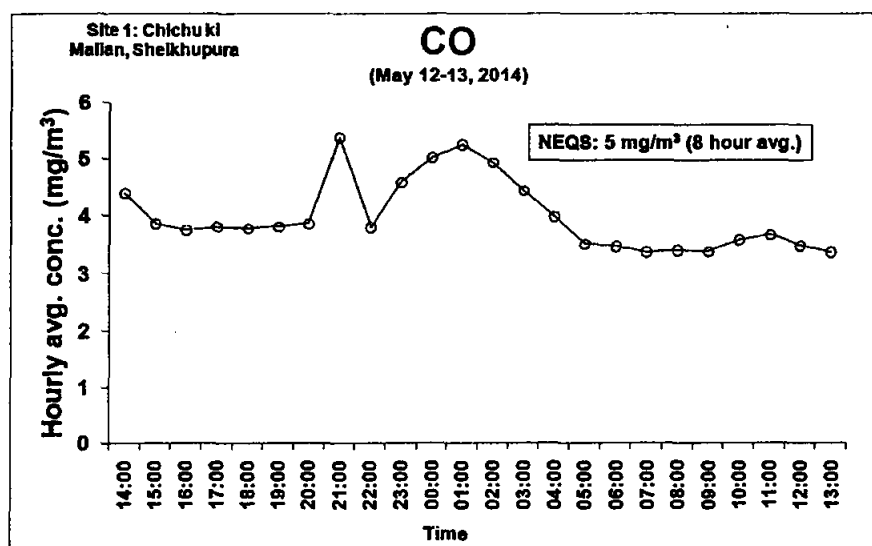


Figure 8: Hourly variation of Carbon Monoxide (CO) at Chichu Ki Mallan, Sheikhupura

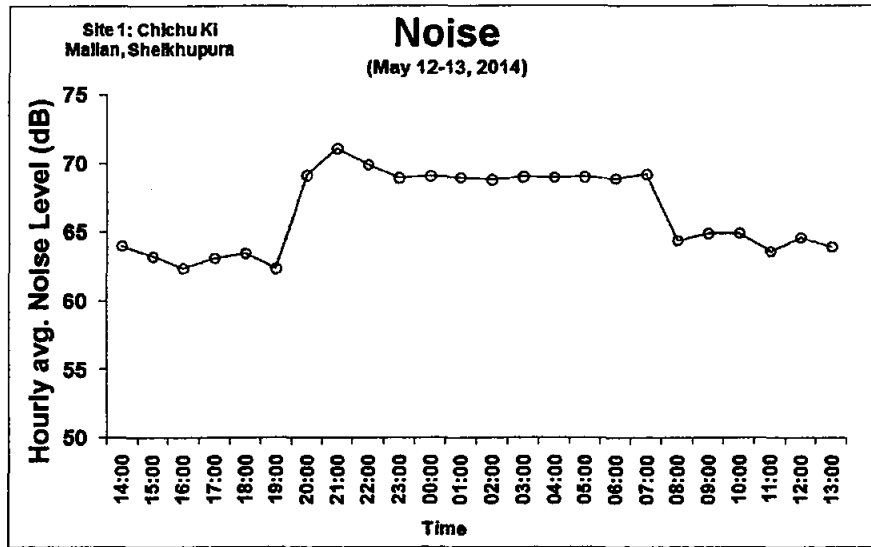


Figure 9: Hourly variation of Noise at Chichu Ki Malian, Sheikhpura

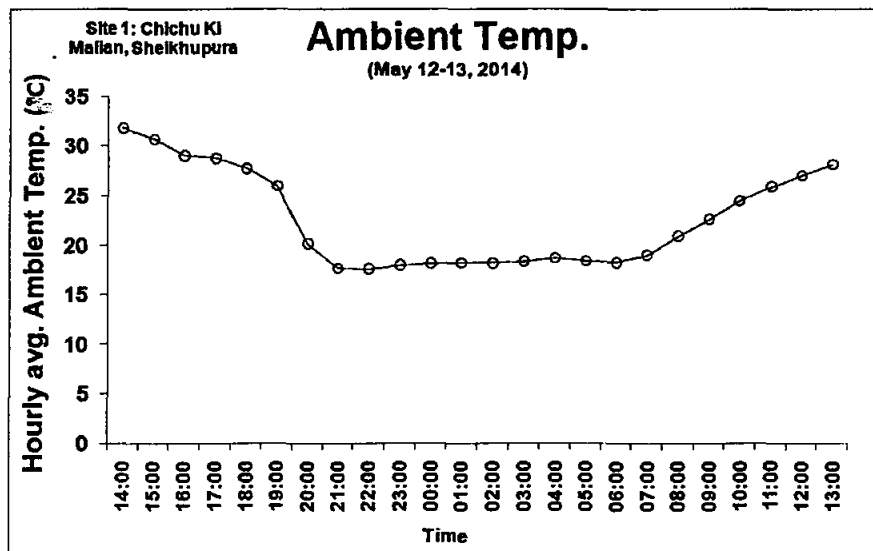


Figure 10: Hourly variation of Ambient Temperature at Chichu Ki Malian, Sheikhpura

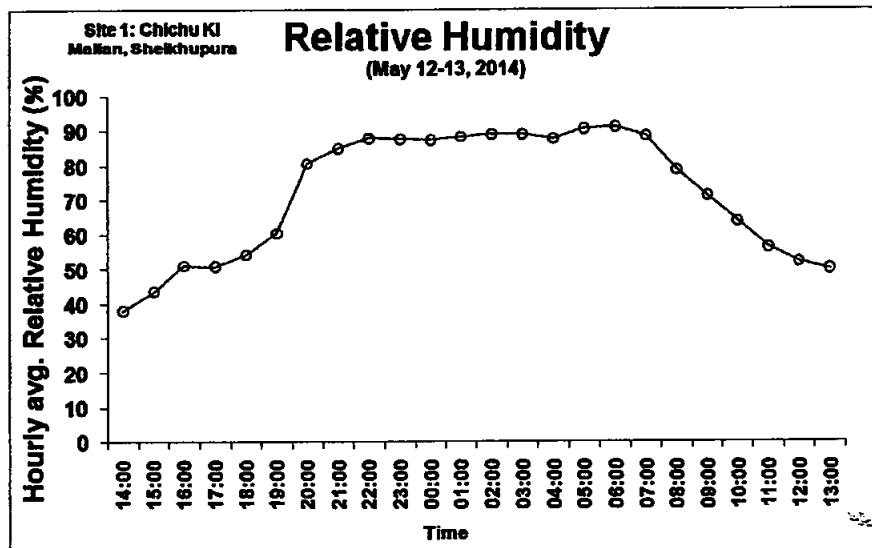


Figure 11: Hourly variation of Relative Humidity at Chichu Ki Malian, Sheikhupura

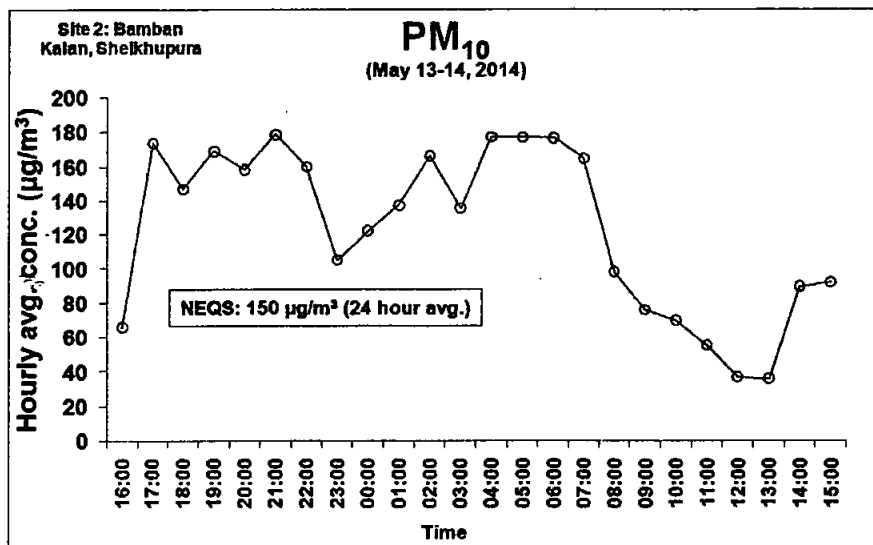


Figure 12: Hourly variation of Particulate Matter (PM10) at Bamban Kalan, Sheikhpura

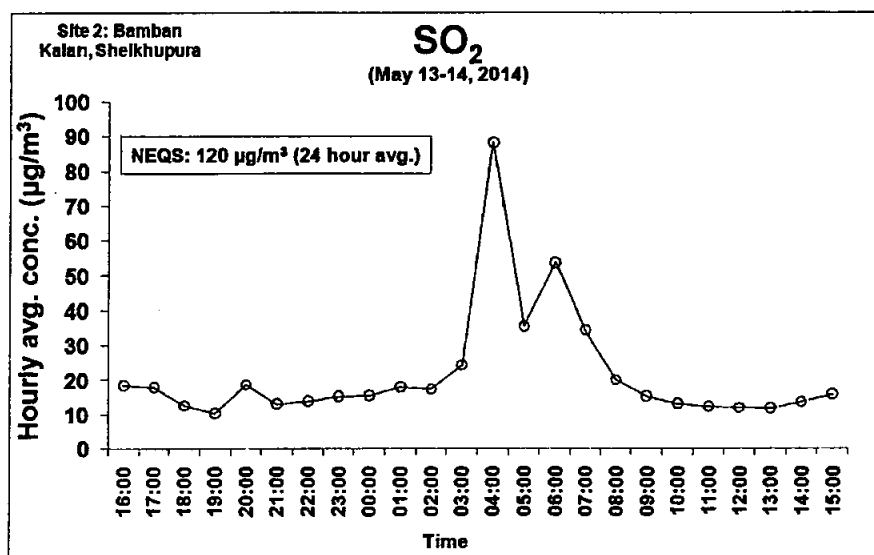


Figure 13: Hourly variation of Sulphur dioxide (SO2) at Bamban Kalan, Sheikhpura

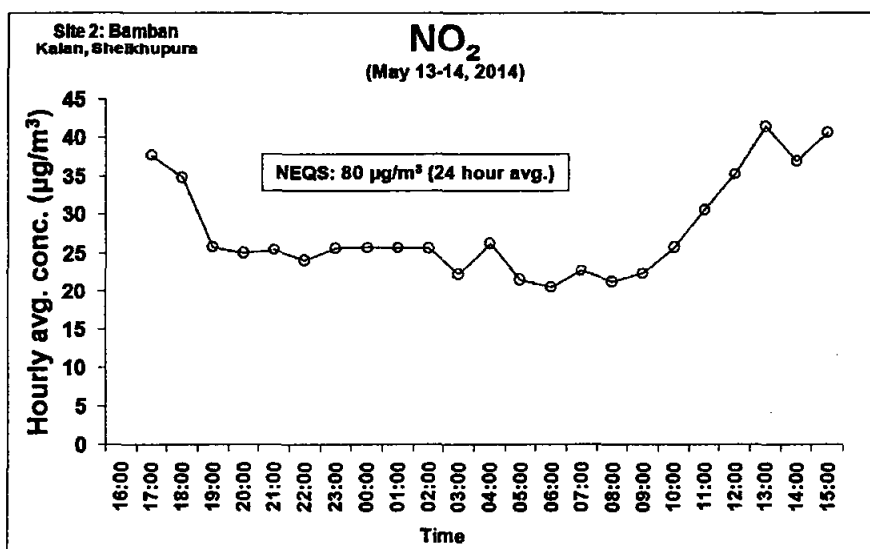


Figure 14: Hourly variation of Nitrogen dioxide (NO₂) at Bamban Kalan, Sheikhupura

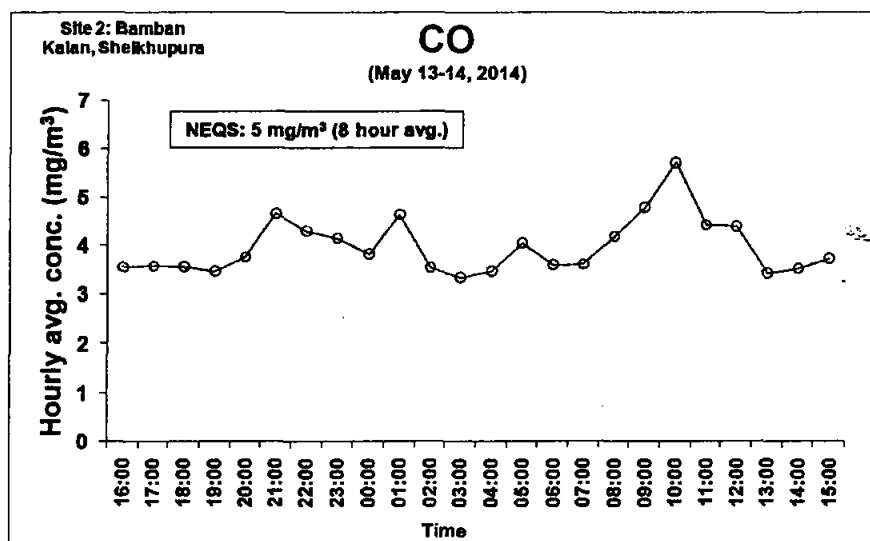


Figure 15: Hourly variation of Carbon Monoxide (CO) at Bamban Kalan, Sheikhupura

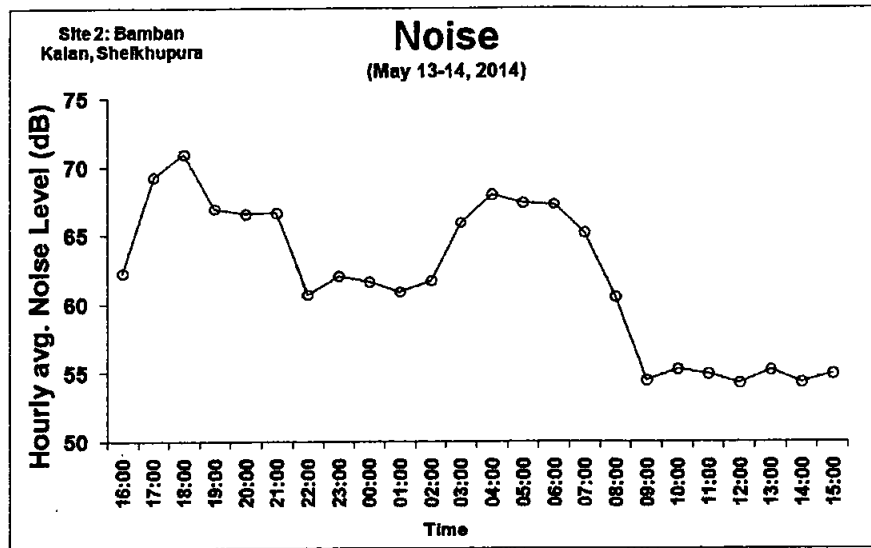


Figure 16: Hourly variation of Noise at Bamban Kalan, Sheikhpura

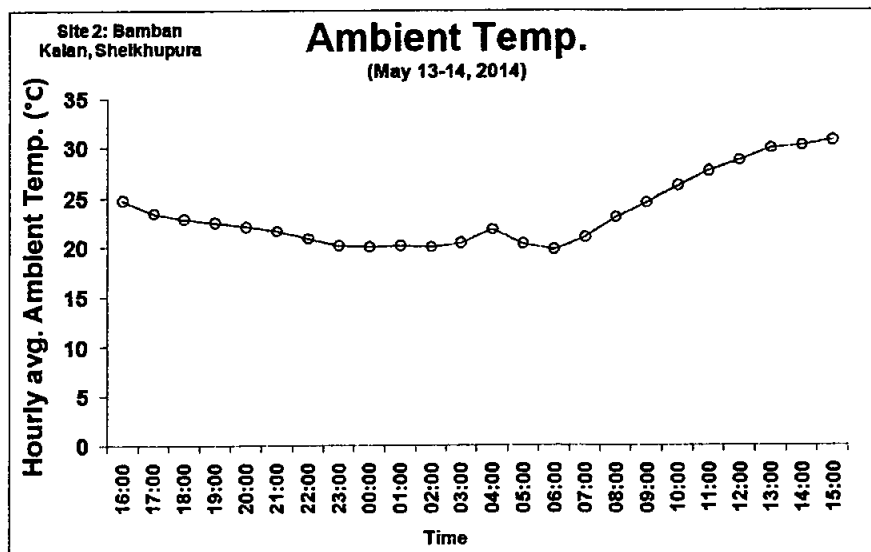


Figure 17: Hourly variation of Ambient Temperature at Bamban Kalan, Sheikhpura

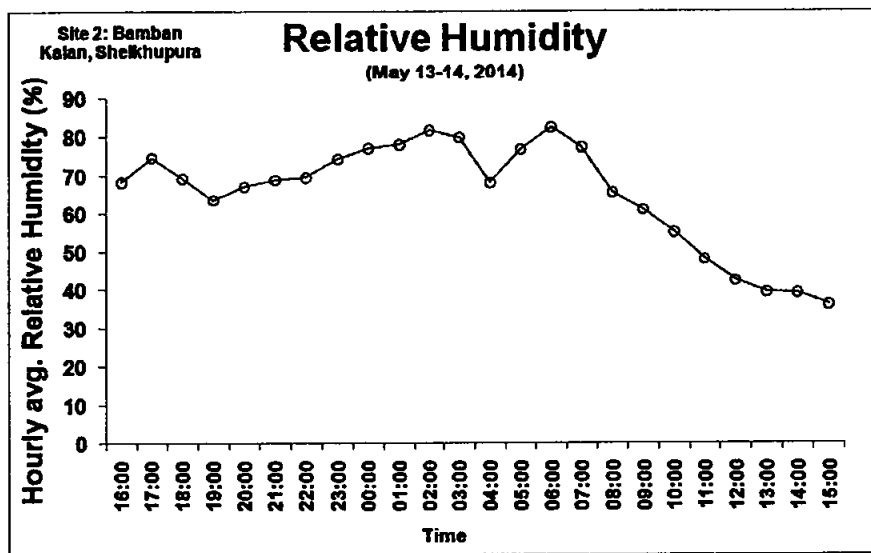


Figure 18: Hourly variation of Relative Humidity at Bamban Kalan, Sheikhupura

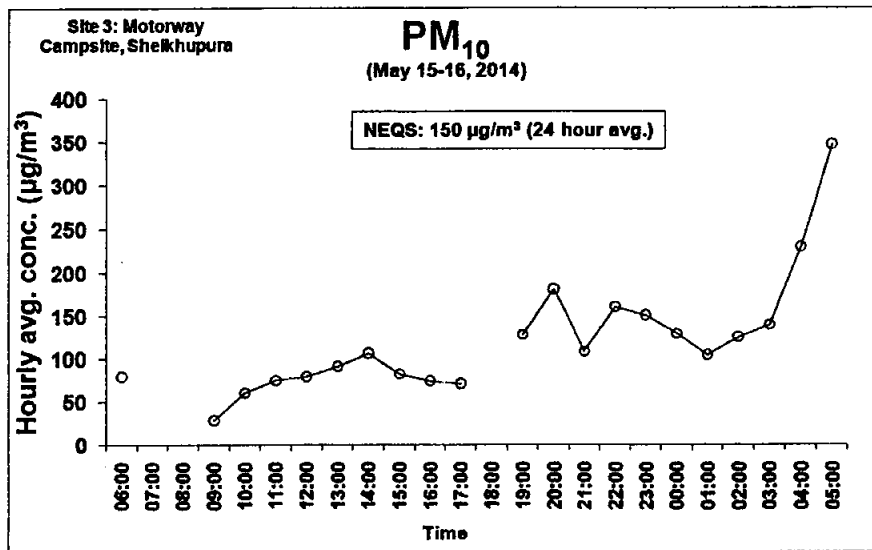


Figure 19: Hourly variation of Particulate Matter (PM10) at Motorway Campsite, Sheikhpura

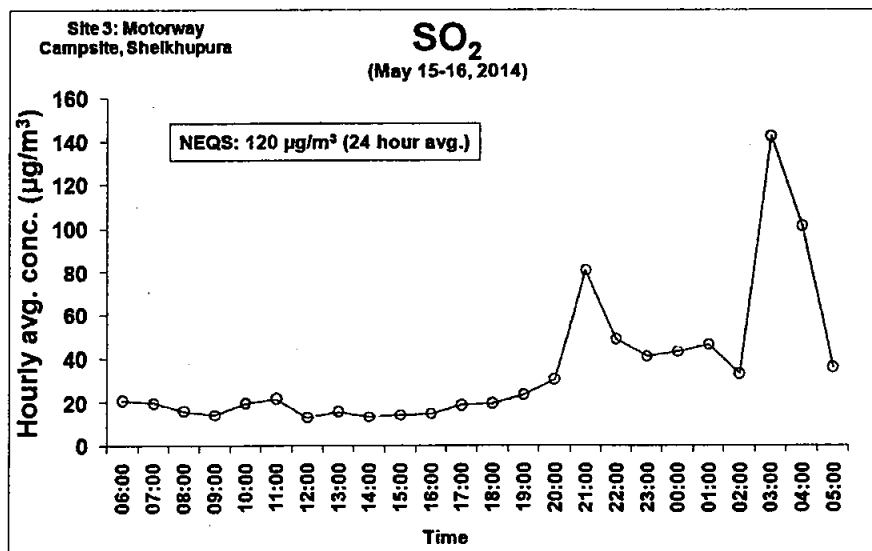


Figure 20: Hourly variation of Sulphur dioxide (SO2) at Motorway Campsite, Sheikhpura

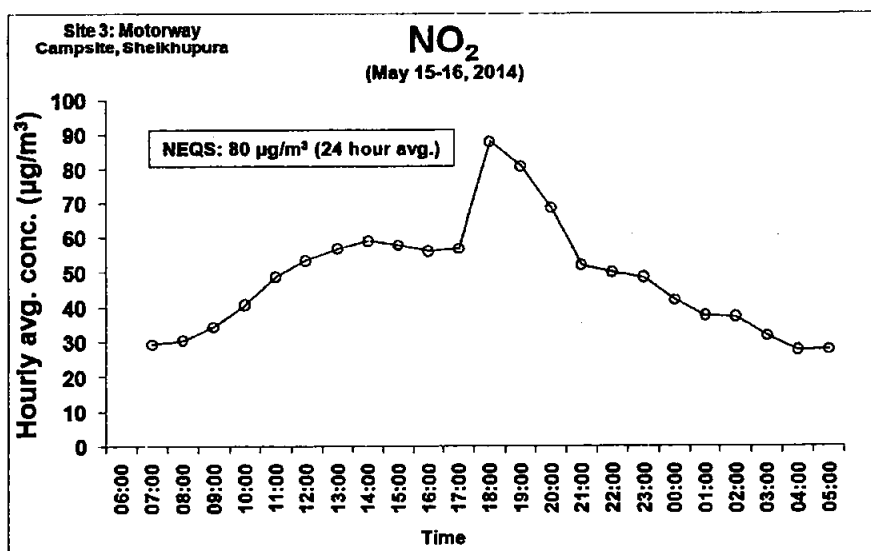


Figure 21: Hourly variation of Nitrogen dioxide (NO₂) at Motorway Campsite, Sheikhupura

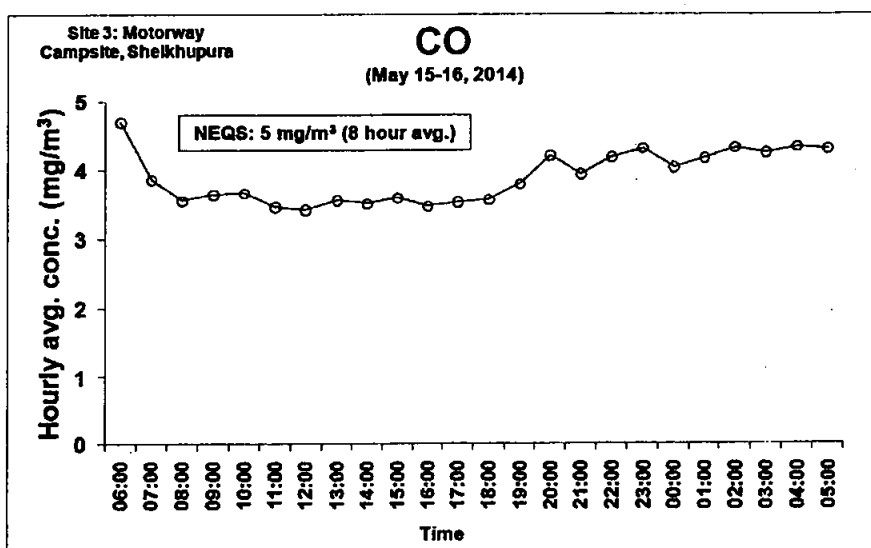


Figure 22: Hourly variation of Carbon Monoxide (CO) at Motorway Campsite, Sheikhupura

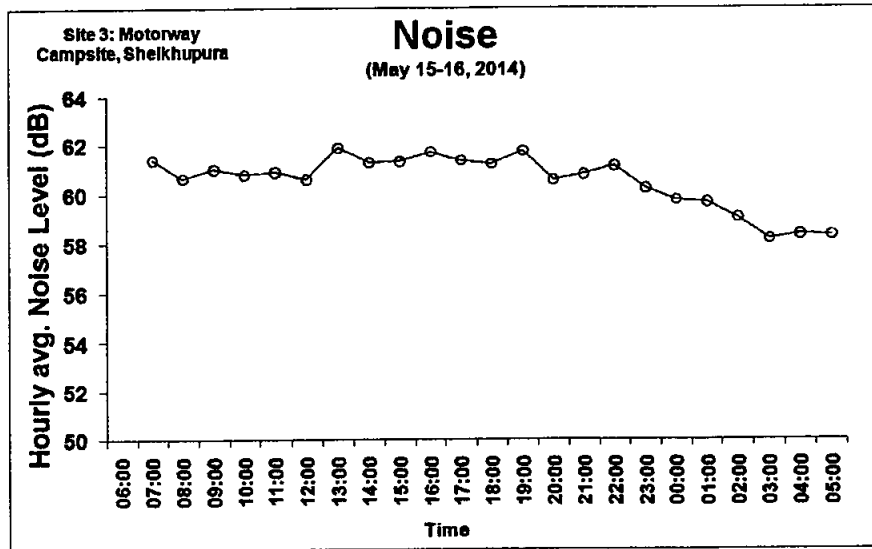


Figure 23: Hourly variation of Noise at Motorway Campsite, Sheikhpura

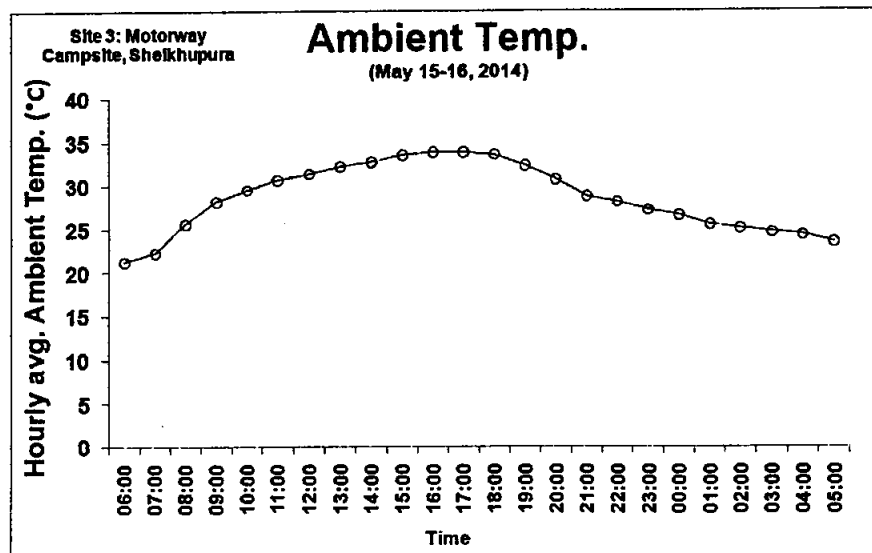


Figure 24: Hourly variation of Ambient Temperature at Motorway Campsite, Sheikhpura

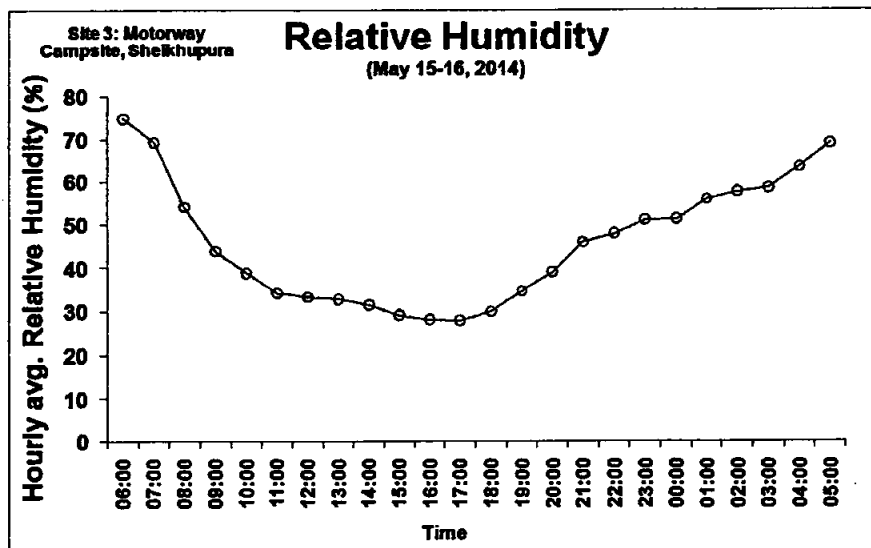


Figure 25: Hourly variation of Relative Humidity at Motorway Campsite, Sheikhpura

AMBIENT AIR QUALITY RESULTS

Parameter	Averaging Time		NEQS	Unit	AVERAGE CONCENTRATION (Quaid-e-Azam Apparel Park, Sheikhpura)		
					Chichu Ki Mallan	Bamban Kalan	Motorway Campsite
Carbon Monoxide (CO)	1st Third	8 h	5	mg/m ³	4.08	3.88	3.73
	2nd Third	8 h			4.44	3.76	3.7
	3rd Third	8 h			3.46	4.28	4.22
Sulphur Dioxide (SO ₂)	24 h		120	µg/m ³	25	21.8	35.6
Nitrogen Dioxide (NO ₂)	24 h		80	µg/m ³	40.4	28	48.4
Particulate Matter (PM ₁₀)	24 h		150	µg/m ³	139.6	123.6	121.2
Noise	Day-time (0600 to 2200)	16 h	70	db(A)	65.26	60.78	61.08
	Night-time (2200 to 0600)	8 h	60		68.93	64.36	58.88

GROUND WATER QUALITY RESULTS (Sheikhupura Project)

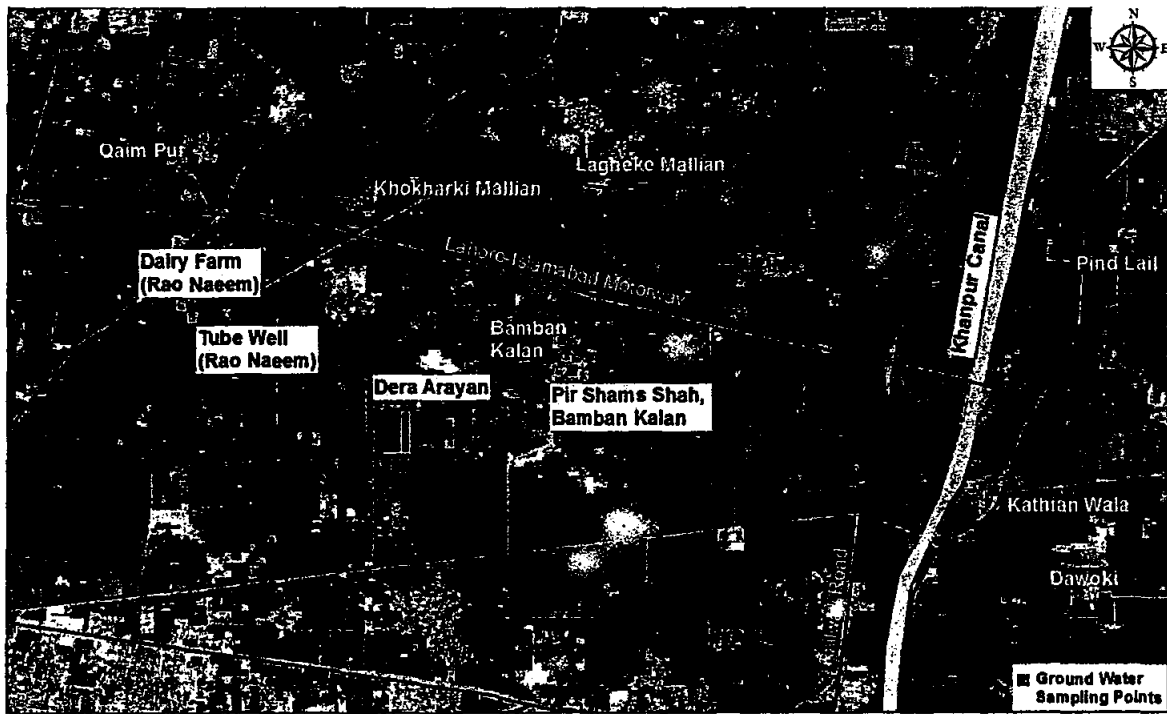
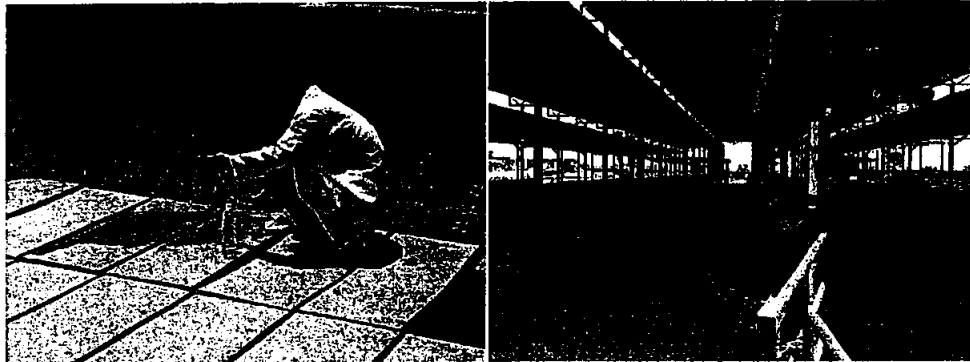
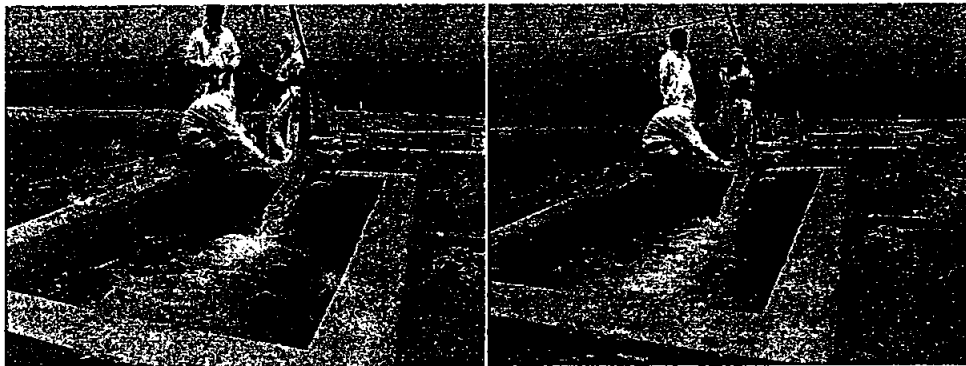


Figure 26: Ground Water Sampling Locations Map in Sheikhupura

The depth of bore for all ground water sampling was approx. 150-250 ft except the Dera Arayan site. The water sampling sites were selected in the rural areas of Sheikhupura across the Lahore-Islamabad Motorway. The sampling includes the various sources of drinking water i.e. tap water, tube-well and hand-pump. The Khanpur canal pass flows in the east of sampling sites used for the irrigation purposes for the fields of villages situated along the sides of canal. Chichokimalian, sahokimalian, bamban kalan and monoo pur are the villages in the sampling area in south of motorway while ladheki mallian and qiampur are the villages situated on its north side.



**Figure 27: Ground Water sampling and on-site analysis at Dairy Farm (Rao Naeem),
Sheikhupura**



**Figure 28: Ground Water sampling and on-site analysis at Tube-well (Rao Naeem),
Sheikhupura**



**Figure 29: Ground Water sampling and on-site analysis at Pir Shams Shah, Bamban
Kalan, Sheikhupura**

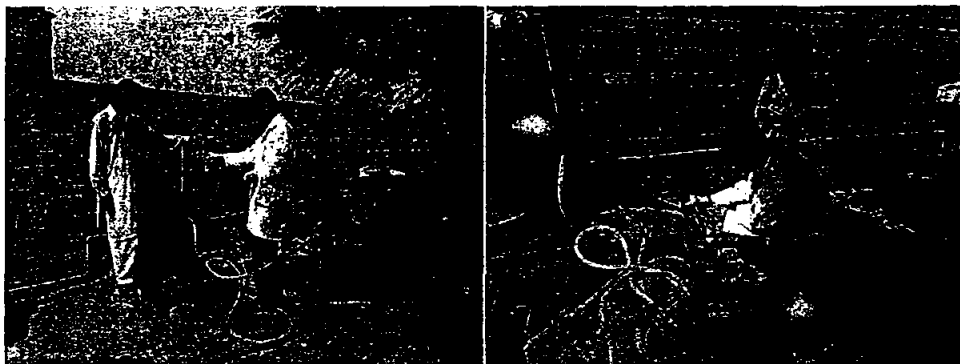


Figure 30: Ground Water sampling and on-site analysis at Dera Arayan, Sheikhupura

Ground Water Quality Results

Sr. No.	PARAMETER	GROUND WATER QUALITY RESULTS, SHEIKHUPURA				*NEQS
		Dairy Farm (Rao Naeem)	Tube-well (Rao Naeem)	Pir Shams Shah, Bamban Kalan	Dera Arayan	
1	Colour	Acceptable	Acceptable	Acceptable	Acceptable	≤ 15 TCU
2	Taste	Acceptable	Acceptable	Acceptable	Acceptable	Non objectionable/ Acceptable
3	Odour	Acceptable	Acceptable	Acceptable	Acceptable	Non objectionable/ Acceptable
4	pH	7.59	7.34	7.25	7.92	6.5 - 8.5
5	Turbidity (NTU)	10	8	11	7	<5
6	Total Hardness as CaCO ₃ (mg/l)	210	240	396	105	<500
7	Total Dissolved Solids (mg/l)	295	633	474	259	<1000
8	Aluminium (mg/l)	BDL	BDL	BDL	BDL	≤0.2
9	Antimony (mg/l)	BDL	BDL	BDL	BDL	≤0.005
10	Arsenic (mg/l)	BDL	BDL	BDL	BDL	≤0.05
11	Barium (mg/l)	0.028	0.031	0.020	0.022	0.7
12	Cadmium (mg/l)	0.002	0.001	BDL	0.002	0.01
13	Chloride (mg/l)	11.55	11.9	23.45	11.2	<250
14	Chromium (mg/l)	ND	0.004	ND	0.0012	≤0.05
15	Copper (mg/l)	BDL	BDL	BDL	BDL	2
16	Cyanide (mg/l)	BDL	BDL	BDL	BDL	≤0.05
17	Fluoride (mg/l)	0.31	0.28	0.34	0.38	≤1.5
18	Lead (mg/l)	BDL	BDL	BDL	0.001	≤0.05
19	Manganese (mg/l)	0.025	0.025	0.015	0.030	≤0.5
20	Mercury (mg/l)	ND	ND	ND	ND	≤0.001
21	Nickel (mg/l)	0.007	0.008	0.006	0.007	≤0.02
22	Nitrate (mg/l)	BDL	0.004	BDL	0.006	≤50
23	Nitrite (mg/l)	BDL	0.003	BDL	0.005	≤3

Sr. No.	PARAMETER	GROUND WATER QUALITY RESULTS, SHEIKHUPURA				*NEQS
		Dairy Farm (Rao Naeem)	Tube-well (Rao Naeem)	Pir Shams Shah, Bamban Kalan	Dera Arayan	
24	Selenium (mg/l)	BDL	BDL	BDL	BDL	0.01
25	Residual Chlorine (mg/l)	<0.02	<0.02	<0.02	<0.02	0.2-0.5 at consumer end, 0.5-1.5 at source
26	Zinc (mg/l)	0.02	0.02	0.01	0.04	5.0
27	Phenolic Compounds as Phenols (mg/l)	BDL	BDL	BDL	BDL	-
28	E. coli or Thermotolerant (MPN/100ml)	0	0	0	0	Must not be detectable in any 100 ml sample
29	Fecal Coliform (MPN/100ml)	0	0	0	0	Must not be detectable in any 100 ml sample
30	Total Coliform Bacteria (MPN/100ml)	0	0	0	0	Must not be detectable in any 100 ml sample

BDL: Below Detection Limit

*National Standards for Drinking Water Quality, 2010.

SURFACE WATER QUALITY RESULTS (Sheikhupura Project)



Figure 31: Surface Water Sampling Locations Map in Sheikhupura

In the surface water sampling, three sites were selected i.e. Saim Nallah, a pond of Bamban Kalan and Khanpur canal in Sheikhupura. The water of the sampling sites was used for the irrigation surrounding of areas.



Figure 32: Surface Water sampling and on-site analysis at Saim Nallah, Sheikhupura

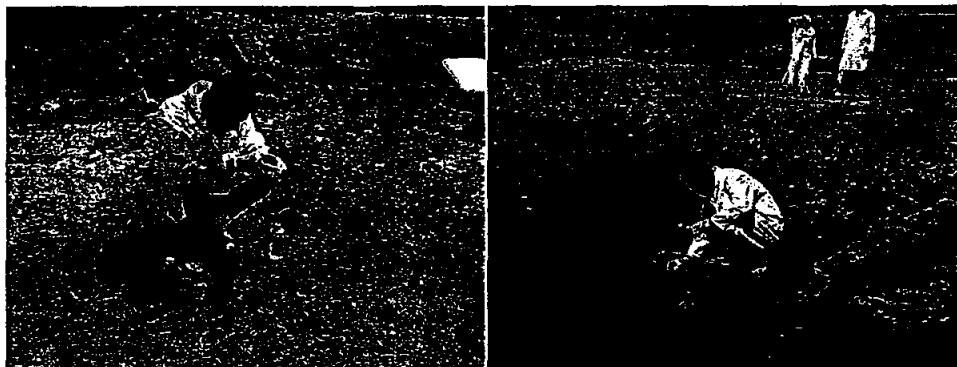


Figure 33: Surface Water sampling and on-site analysis at Pond, Bamban Kalan, Sheikhupura

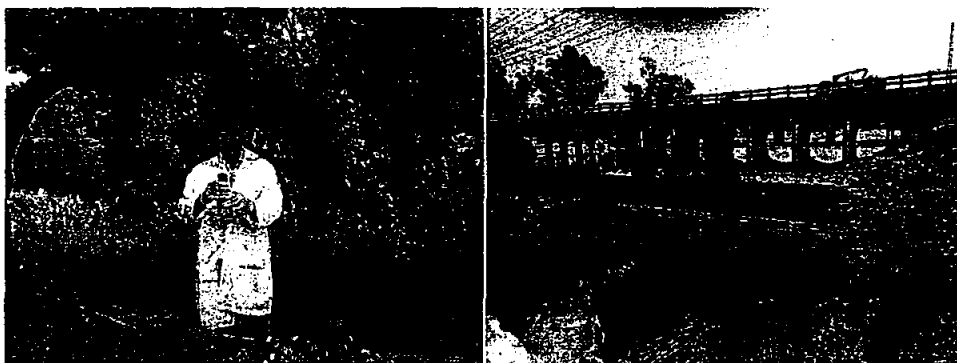


Figure 34: Surface Water sampling and on-site analysis at Khanpur Canal, Sheikhupura

Surface Water Quality Results

Sr. No.	PARAMETER	SURFACE WATER QUALITY RESULTS, SHEIKHUPURA			*Surface Water Criteria	
		Saim Nallah	Pond, Bamban Kalan	Khanpur Canal	**Class C	***Class D
1	Color				-	-
2	Temperature (°C)	29.2	33.4	31.7	-	-
3	pH	7.7	7.98	8.04	6.5 - 8.5	6.5 - 8.4
4	BOD ₅ (mg/l)	9.5	17	5.7	8.0	8.0
5	COD (mg/l)	15	28	12	-	-
6	TDS(mg/l)	604	988	125	1000	1000
7	TSS (mg/l)	80	281	16	-	-
8	Grease & Oil (mg/l)	5	8	3	-	-
9	Phenolic compounds (mg/l)	0.2	0.45	<0.02	0.01	-
10	Chloride (mg/l)	16.6	12.2	2.7	-	100
11	Fluoride (mg/l)	0.4	0.6	0.1	1.5	1.0
12	Cyanide (mg/l)	0.11	0.19	ND	0.005	1.0
13	Anionic Detergent (mg/l)	0.1	1.8	0.1	0.5	-
14	Sulphate (mg/l)	820	280	53	-	-
15	Sulphide (mg/l)	<0.04	0.18	<0.04	-	-
16	Ammonia (mg/l)	0.58	1.56	0.11	1.0	-
17	Calcium (mg/l)	12	19	16	-	-
18	Cadmium (mg/l)	0.004	0.005	0.001	0.002	0.01
19	Chromium (mg/l)	BDL	BDL	0.006	0.05	0.01
20	Copper (mg/l)	0.012	BDL	0.003	0.007	0.20
21	Lead (mg/l)	BDL	BDL	BDL	0.01	0.1
22	Mercury (mg/l)	BDL	BDL	BDL	0.000012	0.01
23	Selenium (mg/l)	BDL	BDL	BDL	0.005	0.02
24	Nickel (mg/l)	0.003	0.002	0.007	0.05	0.20
25	Silver (mg/l)	BDL	BDL	BDL	-	-

Sr. No.	PARAMETER	SURFACE WATER QUALITY RESULTS, SHEIKHUPURA			*Surface Water Criteria	
		Saim Nallah	Pond, Bamban Kalan	Khanpur Canal	**Class C	***Class D
26	Zinc (mg/l)	0.012	0.014	0.021	0.086	2.0
27	Arsenic (mg/l)	ND	ND	0.003	0.05	0.10
28	Barium (mg/l)	0.09	0.07	0.009	-	-
29	Iron (mg/l)	BDL	BDL	0.04	0.3	5.0
30	Manganese (mg/l)	BDL	BDL	BDL	0.10	0.20
31	Boron (mg/l)	BDL	BDL	0.04	1.0	-
32	Chlorine (mg/l)	<0.02	<0.02	<0.02	-	-
33	E. coli or Thermotolerant (MPN/100ml)	>38×10 ³	>38×10 ³	>38×10 ³	-	-
34	Fecal Coliform (MPN/100ml)	>38×10 ³	>38×10 ³	>38×10 ³	1000	-
35	Total Coliform Bacteria (MPN/100ml)	>38×10 ³	>38×10 ³	>38×10 ³	5000	-

BDL: Below Detection Limit, ND: Not Detected

*<http://www.environment.gov.pk/act-rules/surfacewaterstds-feb2007.pdf>

ANNEXURE

ANNEXURE-I

Punjab Environmental Protection Act, (Amended)2012

Annexure-II
Pakistan Environmental Protection
Agency (Review of IEE/EIA)
Regulations, 2000

Annexure-III
National Environmental Quality
Standards (NEQS)

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LESCO Tariff for 2022 | Electricity Unit Rates in Pakistan

LAST UPDATED ON JUNE 23, 2022 BY JOHN THOMAS

Not everybody knows about the LESCO Tariff and the difference between 2019 and 2020 electricity rates. What is the price of 1 unit of electricity? These are the facts and figures everybody wants to know about.

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It's no surprise that the schedule of electricity rates fluctuates and goes up and down with the passage of time. And it is happening a lot these days due to the renewal of agreements with IPPs (Individual power producers) so it put an immense effect on electricity prices. Well, this is a separate discussion and we will also write about the recent electricity agreement changes.

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Let's move to the point that is, what is the LESCO/Wapda unit rate and what is the electricity rate in Pakistan, etc?

Are you getting it?

Moreover, it is also a fact that the tariff amount or electricity pricing depends upon various factors. Perhaps, those factors are brought into a highlight by the electricity supply companies themselves.

First of all, let's shed some light on Peak and Off-Peak hours, and then we will talk about MEPCO Tariff and details for IESCO Tariff

Contents [hide]

LESCO Peak and Off-Peak Hours

Rates For 1 Unit of Electricity

SCHEDULE OF ELECTRICITY TARIFF W.E.F 05-11-2021

Here is the detailed breakdown of the LESCO Electricity Tariff.

A1 General Supply Tariff-Residential

SCHEDULE OF ELECTRICITY TARIFF W.E.F 12-02-2021

SCHEDULE OF ELECTRICITY TARIFF W.E.F 2019

SCHEDULE OF ELECTRICITY TARIFF W.E.F JULY 2019

SCHEDULE OF ELECTRICITY TARIFF W.E.F OCTOBER 2019

SCHEDULE OF ELECTRICITY TARIFF W.E.F DECEMBER 2019

Frequently Asked Questions

1. What is LESCO Tariff?
2. What are Peak and Off-Peak Hours?
3. What is the price of 1 unit of electricity?
4. What are LESCO Tariff Slabs?
5. How is the tariff hike controlled?
6. What are the types of tariffs?

✓ IESCO Peak and Off-Peak Hours

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Below are the Peak and Off-Peak Hours details along with months and timings.

PEAK / OFF-PEAK TIMINGS

Season	Peak Timing	Off-Peak Timing
Dec to Feb	5 PM to 9 PM	Remaining 20 hours
Mar to May	6 PM to 10 PM	-do-
Jun to Aug	7 PM to 11 PM	-do-
Sep to Nov	6 PM to 10 PM	-do-

Rates For 1 Unit of Electricity

LESCO has a different unit price for domestic and commercial users. As inflation is rising, LESCO also has revised the Electricity per unit rate and has increased the prices.

As domestic users are more curious about unit prices so we will share unit prices for domestic or residential consumers here.

- For the 1-100 Units: 9.42 Rs. per unit
- For the 100-200 Units: 11.74 Rs. per unit
- For the Next 201-300 Units: 13.83 Rs. per unit
- For 301-400 Units: 21.23 Rs. per unit
- For 401-700 Units: 21.23 Rs. per unit
- Above 700 Units: 24.33 Rs. per unit

Please note As per the Authority's decision residential consumers will be given the benefits of only one previous slab. That means you can not take the benefit of all slabs. Only 2 slabs will be applicable to your number of units consumed'.

Here are the complete details with the unit price and technical features.

SCHEDULE OF ELECTRICITY TARIFF W.E.F 05-11-2021

Here is the detailed breakdown of the LESCO Electricity Tariff.

A1 General Supply Tariff-Residential

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
a)	For sanctioned load less than 5 kW				

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iv	a.101-200 Units	16.41	10.06
	Un-Protected		
v	001-100 Units	14.59	9.42
vi	100-200Units	16.41	11.74
vii	201-300 Units	17.53	13.83
viii	301-400 Units	19.07	21.23
ix	401-500 Units	19.07	21.23
x	501-600 Units	19.07	21.23
xi	601-700 Units	19.07	21.23
xii	Above 700 Units	20.61	24.33
b)	For Sanctioned load 5 kW & above		

		Peak	Off-Peak	Peak	Off-Peak
Time of Use	-	20.27	13.1	24.33	18.01

As per Authority's decision residential consumers will be given the benefits of only one previous slab

Under Tariff A-1, there shall be a minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single Phase connections: Rs. 75/- per consumer per month

b) Three-phase connection: Rs.150/- per consumer per month

A2 General Supply Tariff-Commercial

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges	
a)	For Sanctioned load less than 5 kW	440		19.56	21.34	
b)	For Sanctioned load 5 kW & above			19.22	23.04	
			Peak	Off-Peak	Peak	Off-Peak
c)	Time of Use	440	21.02	13.49	24.94	18.97

Under Tariff A-2, there shall be a minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single-phase connections: Rs. 175/- per consumer per month

b) Three-phase connections: Rs. 350/- per consumer per month

A3 General Services

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
a)	General Services			17.05	20.9

Under Tariff A-3, there shall be a minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single-phase connections: Rs. 175/- per consumer per month

✓b) Three-phase connections: Rs. 350/- per consumer per month

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B1 (a)	Up to 25 kw (at 400/230 volts)	-	18.31	-	18.62
B2(a)	exceeding 25-500 Kw (at 400 Volts)	440	17.87	-	18.12
	Time of Use		Peak	Off-Peak	Peak Off-Peak
B1 (b)	Up to 25 kw	-	21.19	13.41	22.18 16.62
B2 (b)	exceeding 25-500 Kw (at 400 Volts)	440	20.98	13.5	22.12 16.41
B3	For All Loads up to 5000 KW(at 11,33 KV)	420	21.11	12.63	22.12 16.32
B4	For All Loads (at 66,132 KV & above)	400	20.93	12.97	22.12 16.22

For B1 consumers there shall be a fixed minimum charge of Rs. 350 per month.

For B2 consumers there shall be a fixed minimum charge of Rs. 2,000 per month.

For B3 consumers there shall be a fixed minimum charge of Rs. 50,000 per month.

For B4 consumers there shall be a fixed minimum charge of Rs. 500,000 per month.

C-SINGLE POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD CONSUMERS NOT FALLEN IN ANY OTHER CONSUMER CLASS

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
C-1	For supply at 400/230 Volts				
a)	Sanctioned load less than 5 kW	-		24.36	22.02
b)	Sanctioned load 5 kW & up to 500 kW	440		21.31	21.52
C-2(a)	For supply at 11,33 kV up to and including 5000 kW	420		17.03	21.32
C-3(a)	For supply at 66 kV & above and sanctioned load above 5000 kW	400		15.11	21.22
	Time Of Use		Peak	Off-Peak	Peak Off-Peak
C-1(c)	For supply at 400/230 Volts 5 kW & up to 500 kW	440	22.43	15	24.94 18.34
C-2(b)	For supply at 11,33 kV up to and including 5000 kW	420	20.4	12.89	24.94 18.14
C-3(b)	For supply at 66 kV & above and sanctioned load above 5000 kW	400	19.51	11.68	24.94 18.04

D-AGRICULTURE TARIFF

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
D-1(a)	SCARP less than 5 KW	-		22.92	19.02
D-2(a)	Agricultural Tube Well	200		17.63	8.69
			Peak	Off-Peak	Peak Off-Peak

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Note: The consumers having sanctioned loads less than 5 kW can opt for TOU metering.

E-TEMPORARY SUPPLY TARIFF

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
E-1(i)	Residential Supply	-		21.73	24.47
E-1(ii)	Commercial Supply	-		19.23	21.73
E-2	Industrial Supply	-		18.38	19.7

Note: For the categories of E-1(i&ii) above, the minimum bill of the consumers shall be Rs. 50/- per day subject to a minimum of Rs. 500/- for the entire period of supply, even if no energy is consumed.

F - Seasonal Industrial Supply TARIFF

125% of relevant Industrial Tariff

Note: Tariff F consumers will have the option to convert to regular tariff and vice versa. This option can be exercised at the time of a new connection or at the beginning of the season. Once

G-PUBLIC LIGHTING

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
	Street Lighting	-		19.02	22.02

Under Tariff-G, there shall be a minimum monthly charge of Rs. 500/- per month per kW of lamp capacity installed.

H- RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
	Residential Colonies attached to industrial premises	-		21.02	22.02

I - RAILWAY TRACTION

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
	Railway Traction	-		19.17	22.02

K-SPECIAL CONTRACTS

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff	Variable Charges (Rs/KWh)	Applicable Variable Charges
1	Azad Jammu & Kashmir (AJK)	400		14.23	19.24
	Time of Use	400	Peak	Off-Peak	Peak Off-Peak
			18.63	11.95	24.94 18.04
2	Rawat Lab	-		17.07	22.02

SCHEDULE OF ELECTRICITY TARIFF W.E.F 12-02-2021

A1 General Supply Tariff-Residential

Sr.	Tariff Category/Particulars	Fixed Charges	Uniform Tariff	Variable	Applicable Variable
✓					

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For Consumption exceeding 50 Units

ii	For first 100 Units	-	14.89	7.74
iii	a.101-200 Units	-	16.41	10.06
iii	b.201-300 Units	-	17.53	12.15
iv	301-700 Units	-	19.07	19.55
v	Above 700 Units	-	20.61	22.65
b)	For Sanctioned load 5 kW & above			
		Peak	Off-Peak	Peak Off-Peak
	Time of Use	-	20.27 13.1	22.65 16.33

As per Authority's decision residential consumers will be given the benefits of only one previous slab

Under Tariff A-1, there shall be a minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single Phase connections: Rs. 75/- per consumer per month

b) Three-phase connection: Rs.150/- per consumer per month

A2 General Supply Tariff-Commercial

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Applicable Variable Charges
a)	For Sanctioned load less than 5 kW	440	19.56	19.95
b)	For Sanctioned load 5 kW & above		19.22	21.63
			Peak Off-Peak	Peak Off-Peak
c)	Time of Use	440	21.02 13.49	23.55 17.58

Under Tariff A-2, there shall be a minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single-phase connections: Rs. 175/- per consumer per month

b) Three-phase connections: Rs. 350/- per consumer per month

A3 General Services

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Applicable Variable Charges
a)	General Services		17.05	19.51

Under Tariff A-3, there shall be a minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single-phase connections: Rs. 175/- per consumer per month

b) Three-phase connections: Rs. 350/- per consumer per month

B Industrial Supply Tariff

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Applicable Variable Charges
B1	(a Up to 25 kw (at 400/230 volts)	-	18.31	- 17.23
B2(a)	exceeding 25-500 Kw (at 400 Volts)	440	17.87	- 16.73
	Time of Use		Peak Off-Peak	Peak Off-Peak

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B3	For All Loads up to 5000 KW(at 11,33 KV)	420	21.11	12.63	20.73	14.93
B4	For All Loads (at 66,132 KV & above)	400	20.93	12.97	20.73	14.83

For B1 consumers there shall be a fixed minimum charge of Rs. 350 per month.

For B2 consumers there shall be a fixed minimum charge of Rs. 2,000 per month.

For B3 consumers there shall be a fixed minimum charge of Rs. 50,000 per month.

For B4 consumers there shall be a fixed minimum charge of Rs. 500,000 per month.

C-SINGLE POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD CONSUMERS NOT FALLEN IN ANY OTHER CONSUMER CLASS

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)		Applicable Variable Charges	
C-1	For supply at 400/230 Volts					
a)	Sanctioned load less than 5 kW	-		24.36		20.63
b)	Sanctioned load 5 kW & up to 500 kW	440		21.31		20.13
C-2(a)	For supply at 11,33 kV up to and including 5000 kW	420		17.03		19.93
C-3(a)	For supply at 66 kV & above and sanctioned load above 5000 kW	400		15.11		19.83
	Time Of Use		Peak	Off-Peak	Peak	Off-Peak
C-1(c)	For supply at 400/230 Volts 5 kW & up to 500 kW	440	22.43	15	23.55	16.95
C-2(b)	For supply at 11,33 kV up to and including 5000 kW	420	20.4	12.89	23.55	16.75
C-3(b)	For supply at 66 kV & above and sanctioned load above 5000 kW	400	19.51	11.68	23.55	16.65

D-AGRICULTURE TARIFF

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)		Applicable Variable Charges	
D-1(a)	SCARP less than 5 KW	-		22.92		17.63
D-2(a)	Agricultural Tube Well	200		17.63		7.3
			Peak	Off-Peak	Peak	Off-Peak
D-1(b)	SCARP 5 KW & above	200	23.76	14.25	20.55	13.3
D-2(b)	Agricultural 5 KW & above	200	21.44	13.04	7.3	7.3

Under this tariff, there shall be minimum monthly charges Rs. 2000/- per consumer per month, even if no energy is consumed.

Note: The consumers having sanctioned load less than 5 kW can opt for TOU metering.

E-TEMPORARY SUPPLY TARIFF

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)		Applicable Variable Charges	

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1(ii)

E-2 Industrial Supply

18.38

18.31

Note : For the categories of E-1(i&ii) above, the minimum bill of the consumers shall be Rs. 50/- per day subject to a minimum of Rs. 500/- for the entire period of supply, even if no energy is consumed.

F – Seasonal Industrial Supply TARIFF

125% of relevant Industrial Tariff

Note: Tariff F consumers will have the option to convert to regular tariff and vice versa. This option can be exercised at the time of a new connection or at the beginning of the season. Once exercised, the option remains in force for at least one year.

G-PUBLIC LIGHTING

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Applicable Variable Charges
	Street Lighting	-	21.02	20.63

Under Tariff-G, there shall be a minimum monthly charge of Rs. 500/- per month per kW of lamp capacity installed.

H- RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Applicable Variable Charges
	Residential Colonies attached to industrial premises	-	21.02	20.63

I – RAILWAY TRACTION

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Applicable Variable Charges
	Railway Traction	-	19.17	20.63

K-SPECIAL CONTRACTS

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Applicable Variable Charges
1	Azad Jammu & Kashmir (AJK)	400	14.23	17.55
	Time of Use	400	Peak 18.63 Off-Peak 11.95	Peak 23.55 Off-Peak 16.65
2	Rawat Lab	-	17.07	20.63

SCHEDULE OF ELECTRICITY TARIFF W.E.F 2019

A1 General Supply Tariff-Residential

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Neptra Variable Charges Rs/kwh	Applicable Variable Charges	Government Subsidy Fixed Charges Rs/Kw/M	Government Subsidy Variable Charges Rs/Kw/M
a)	For Sanctioned load less than 5 kW						
i	Up to 50 Units	-	4.00	4.0	2.0		2.0

✓ For Consumption exceeding 50

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iii	b.201-300 Units	-	16.83	15.27	10.20	5.07
iv	301-700 Units	-	18.54	16.91	17.60	-0.69
v	Above 700 Units	-	20.94	19.24	20.70	-1.46

b) For Sanctioned load 5 kW & above

		Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
Time of Use	-	19.33	12.80	18.81	12.5	20.70	14.38	-	-1.89 -1.88

As per Authority's decision residential consumer will be given the benefits of only one previous slab

Under Tariff A-1, there shall be minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single Phase connections: Rs. 75/- per consumer per month

b) Three phase connection: Rs. 150/- per consumer per month

A2 General Supply Tariff-Commercial

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Nepra Variable Applicable Charges				Government Subsidy	
				Charges Rs/kwh	Variable Charges	Peak	Off-Peak	Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
a)	For Sanctioned load less than 5 kW		19.26	19.08	- 18	-			1.08
b)	For Sanctioned load 5 kW & above 400.00		18.01	16.81	- 19.68	-			-2.87
				Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak
c)	Time of Use	400.00	20.09 13.48	19.18 12.26	21.6 15.63	-			-2.42 -3.37

Under Tariff A-2, there shall be minimum monthly customer charge at the following rates even if no energy is consumed.

a) single phase connections: Rs. 175/- per consumer per month

b) Three phase connections: Rs. 350/- per consumer per month

A3 General Services

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Nepra Variable Applicable Charges				Government Subsidy	
				Charges Rs/kwh	Variable Charges	Peak	Off-Peak	Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
a)	General Services		17.56	17.6	- 17.56	-			0.04

Under Tariff A-3, there shall be minimum monthly customer charge at the following rates even if no energy is consumed.

a) single phase connections: Rs. 175/- per consumer per month

b) Three phase connections: Rs. 350/- per consumer per month

B Industrial Supply Tariff

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Nepra Variable Applicable Charges				Government Subsidy	
				Charges Rs/kwh	Variable Charges	Peak	Off-Peak	Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
B1 (a)	Up to 25 kw (at 400/230 volts)	-	18.32	17.59	- 15.28	-			2.31
B2(a)	exceeding 25-500 Kw (at 400 Volts) 400.00		15.79	14.95	- 14.78	-			0.17
	Time of Use			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak

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B3

For All Loads up to 5000 KW(at 11,33 KV) 380.00 20.39 12.61 20.58 11.61 18.78 12.98 - 1.8 -1.37

B4 For All Loads (at 66,132 KV & above) 360.00 20.27 13.25 20.25 12 18.78 12.88 - 1.47 -0.88

For B1 consumers there shall be fixed minimum charge of Rs. 350 per month.

For B2 consumers there shall be fixed minimum charge of Rs. 2,000 per month.

For B3 consumers there shall be fixed minimum charge of Rs. 50,000 per month.

For B4 consumers there shall be fixed minimum charge of Rs. 500,000 per month.

C-SINGLE POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD CONSUMERS NOT FALLEN IN ANY OTHER CONSUMER CLASS

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)		Nepa Variable Charges Rs/kwh		Applicable Variable Charges		Government Subsidy	
									Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
C-1	For supply at 400/230 Volts									
a)	Sanctioned load less than 5 kW	-	21.32		16.2		18.68	-		-2.48
b)	Sanctioned load 5 kW & up to 500 kW	400	20.13		15.7		18.18	-		-2.48
C-	For supply at 11,33 kV up to and 2(a) including 5000 kW	380	15.61		15.21		17.98	-		-2.77
C-	For supply at 66 kV & above and 3(a) sanctioned load above 5000 kW	360	14.42		13.97		17.88	-		-3.91
	Time Of Use		Peak	Off Peak	Peak	Off Peak	Peak	Off Peak		Peak Off-Peak
C-1	For supply at 400/230 Volts 5 kW & up to 500 kW	400	21.52	14.99	19	12.5	21.6	15	-	-2.6 -2.5
C-	For supply at 11,33 kV up to and 2(b) including 5000 kW	380	19.73	12.57	19	12.1	21.6	14.8	-	-2.6 -2.7
C-	For supply at 66 kV & above and 3(b) sanctioned load above 5000 kW	360	18.49	11.59	19	12	21.6	14.7	-	-2.6 -2.7

D-AGRICULTURE TARIFF

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)		Nepa Variable Charges Rs/kwh		Applicable Variable Charges		Government Subsidy	
									Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
D-1(a)	SCARP less than 5 KW	-	23.17		23.17		15.68	-		7.49
D-2	Agricultural Tube Well	200	14.56		14.56	-	5.35	-		9.21
			Peak	Off Peak	Peak	Off Peak	Peak	Off-Peak		Peak Off-Peak
D-1(b)	SCARP 5 KW & above	200	20.87	14.03	22	12.02	18.6	11.35	-	3.4 0.67

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Note: The consumers having sanctioned load less than 5 kW can opt for TOU metering.

E-TEMPORARY SUPPLY TARIFF

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Nepa Variable Charges Rs/kwh	Applicable Variable Charges	Government Subsidy	
						Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
E-1(i)	Residential Supply	-	20.84	18.15	20.84	-	-2.69
E-1(ii)	Commercial Supply	-	18.39	18.47	18.39	-	0.08
E-2	Industrial Supply	-	16.36	14.70	16.36	-	-1.66

Note: For the categories of E-1(i&ii) above, the minimum bill of the consumers shall be Rs. 50/- per day subject to a minimum of Rs. 500/- for the entire period of supply, even if no energy is consumed.

F – Seasonal Industrial Supply TARIFF

125% of relevant Industrial Tariff

Note: Tariff F consumers will have the option to convert to regular tariff and vice versa. This option can be exercised at the time of a new connection or at the beginning of the season. Once exercised, the option remains in force for at least one year.

G-PUBLIC LIGHTING

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Nepa Variable Charges Rs/kwh	Applicable Variable Charges	Government Subsidy	
						Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
	Street Lighting	-	18.78	19.78	18.68		1.1

Under Tariff-G, there shall be a minimum monthly charge of Rs. 500/- per month per kW of lamp capacity installed.

H- RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Nepa Variable Charges Rs/kwh	Applicable Variable Charges	Government Subsidy	
						Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
	Residential Colonies attached to industrial premises	-	18.42	20.39	- 18.68		1.71

I – RAILWAY TRACTION

Sr. No.	Tariff Category/Particulars	Fixed Charges Rs/KW/M	Uniform Tariff Variable Charges (Rs/KWh)	Nepa Variable Charges Rs/kwh	Applicable Variable Charges	Government Subsidy	
						Fixed Charges Rs/Kw/M	Variable Charges Rs/Kw/M
	Railway Traction	-	17.9	17.9	18.68		-0.78

J- SPECIAL CONTRACTS UNDER NEPRA (SUPPLY OF POWER)

Government Subsidy

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J-1	For supply of 66 kv & above and having sanctioned load of 20MW & above	360.00	16.14		11.77	17.88			-6.11
J-2(a)	For supply at 11,33 kv	380.00	16.46		14.1	17.98			-3.88
J-2(b)	For supply at 66 kv & above	360.00	16.36		14	-	17.88		-3.88
J-3(a)	For supply at 11,33 kv	380.00	16.46		14.1	-	17.98		-3.88
J-3(b)	For supply at 66 kv & above	360.00	16.36		14	-	17.88		-3.88
Time of Use			Peak	Off-Peak	Peak	Off-Peak	Peak	Off-Peak	Peak Off-Peak
J-1 (b)	For supply of 66 kv & above and having sanctioned load of 20MW & above	360	20.66	14.33	18.60	11.62	21.60	14.70	-3.0 -3.08
J-2 (c)	For supply at 11,33 kv	380.00	20.66	14.44	18.60	11.72	21.60	14.80	-3.0 -3.08
J-2(d)	For supply at 66 kv & above	360.00	20.66	14.33	18.60	11.62	21.60	14.70	-3.0 -3.08
J-3(c)	For supply at 11,33 kv	380.00	20.66	14.44	18.60	11.72	21.60	14.80	-3.0 -3.08
J-3(d)	For supply at 66 kv & above	360.00	20.66	14.33	18.60	11.62	21.60	14.70	-3.0 -3.08

Note:

1:- Neelum Jhelum Surcharge at rate of Rs. 0.10 per KWh on all electricity consumers except lifeline domestic consumers of the category 'Residential-A' for Electricity Sold.

2:- Financial Cost Surcharge at the rate of Rs. 0.43 per KWh applicable to all the categories of Electricity Consumers except lifeline domestic consumers of the Category 'Residential-A' for Electricity sold.

SCHEDULE OF ELECTRICITY TARIFF W.E.F JULY 2019

A1 General Supply Tariff-Residential

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
a)	For Sanctioned load less than 5 kW		
i	Up to 50 Units		
	For Consumption exceeding 50 Units		-
ii	For first 100 Units	1.49	-
iii	a.101-200 Units	1.49	
iii	b.201-300 Units	1.49	
iv	301-700 Units	1.49	0.75
v	Above 700 Units	1.49	0.75
b)	For Sanctioned load 5 kW & above		
	Time of Use	Peak Off-Peak 1.49 1.49	Peak Off-Peak 0.75 0.75

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	1st & 2nd Qtr		1st & 2nd Qtr	
	FY 2018-19 (Rs/KWh)		FY 2018-19 (Rs/KWh)	
a) For Sanctioned load less than 5 kW	1.49			
b) For Sanctioned load 5 kW & above	1.49		1.80	
	Peak	Off-Peak	Peak	Off-Peak
c) Time of Use	1.49	1.49	1.80	1.80

A3 General Services

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
a)	General Services	1.49	1.80

B Industrial Supply Tariff

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
B1 (a)	Up to 25 kw (at 400/230 volts)	1.49	1.80
B2(a)	exceeding 25-500 Kw (at 400 Volts)	1.49	1.80
	Time of Use	Peak Off-Peak	Peak Off-Peak
B1 (b)	Up to 25 kw	1.49 1.49	1.80 1.80
B2 (b)	exceeding 25-500 Kw (at 400 Volts)	1.49 1.49	1.80 1.80
B3	For All Loads up to 5000 KW(at 11,33 KV)	1.49 1.49	1.80 1.80
B4	For All Loads (at 66,132 KV & above)	1.49 1.49	1.80 1.80

C-SINGLE POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD CONSUMERS NOT FALLEN IN ANY OTHER CONSUMER CLASS

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
C-1	For supply at 400/230 Volts		
a)	Sanctioned load less than 5 kW	1.49	1.80
b)	Sanctioned load 5 kW & up to 500 kW	1.49	1.80
C-2(a)	For supply at 11,33 kV up to and including 5000 kW	1.49	1.80
C-3(a)	For supply at 66 kV & above and sanctioned load above 5000 kW	1.49	1.80
	Time Of Use	Peak Off-Peak	Peak Off-Peak
C-1(c)	For supply at 400/230 Volts 5 kW & up to 500 kW	1.49 1.49	1.80 1.80
C-2(b)	For supply at 11,33 kV up to and including 5000 kW	1.49 1.49	1.80 1.80

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	1st & 2nd Qtr FY 2018-19 (Rs/KWh)		1st & 2nd Qtr FY 2018-19 (Rs/KWh)	
D-1(a) SCARP less than 5 KW	1.49		1.80	
D-2(a) Agricultural Tube Well	1.49		1.49	
	Peak	Off-Peak	Peak	Off-Peak
D-1(b) SCARP 5 KW & above	1.49	1.49	1.80	1.80
D-2(b) Agricultural 5 KW & above	1.49	1.49	1.49	1.49

E-TEMPORARY SUPPLY TARIFF

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
E-1(i)	Residential Supply	1.49	1.80
E-1(ii)	Commercial Supply	1.49	1.80
E-2	Industrial Supply	1.49	1.80

F – Seasonal Industrial Supply TARIFF

125% of relevant Industrial Tariff

G-PUBLIC LIGHTING

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
	Street Lighting	1.49	1.80

H- RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
	Residential Colonies attached to industrial premises	1.49	1.80

I – RAILWAY TRACTION

Sr. No.	Tariff Category/Particulars	Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st & 2nd Qtr FY 2018-19 (Rs/KWh)
	Railway Traction	1.49	1.80

J- SPECIAL CONTRACTS UNDER NEPRA (SUPPLY OF POWER)

Uniform Qtrly Adjustment	Applicable Uniform Qtrly Adjustment
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J-2(a) For supply at 11,33 kv	1.49	1.80
J-2(b) For supply at 66 kv & above	1.49	1.80
J-3(a) For supply at 11,33 kv	1.49	1.80
J-3(b) For supply at 66 kv & above	1.49	1.80
Time of Use	Peak	Off-Peak
J-1 (b) For supply of 66 kv & above and having sanctioned load of 20MW & above	1.49	1.80
J-2 (c) For supply at 11,33 kv	1.49	1.80
J-2(d) For supply at 66 kv & above	1.49	1.80
J-3(c) For supply at 11,33 kv	1.49	1.80
J-3(d) For supply at 66 kv & above	1.49	1.80

SCHEDULE OF ELECTRICITY TARIFF W.E.F OCTOBER 2019

A1 General Supply Tariff-Residential

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)	Applicable Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)
a)	For Sanctioned load less than 5 kW		
i	Up to 50 Units		
	For Consumption exceeding 50 Units	-	-
ii	For first 100 Units	0.53	-
iii	a.101-200 Units	0.53	
iii	b.201-300 Units	0.53	
iv	301-700 Units	0.53	0.53
v	Above 700 Units	0.53	0.53
b)	For Sanctioned load 5 kW & above		
	Time of Use	Peak	Off-Peak
		0.53	0.53

A2 General Supply Tariff-Commercial

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)	Annual D.M and Qtrly Adjustment (Rs/KWh)
a)	For Sanctioned load less than 5 kW	0.53	0.53
b)	For Sanctioned load 5 kW & above	0.53	0.53
	Time of Use	Peak	Off-Peak
		0.53	0.53

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a) General Services	0.53	0.53
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B Industrial Supply Tariff

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)		Annual D.M and Qtrly Adjustment (Rs/KWh)	
B1	(a) Up to 25 kw (at 400/230 volts)	0.53		0.53	
B2	(a) exceeding 25-500 Kw (at 400 Volts)	0.53		0.53	
	Time of Use	Peak	Off-Peak	Peak	Off-Peak
B1 (b)	Up to 25 kw	0.53	0.53	0.53	0.53
B2 (b)	exceeding 25-500 Kw (at 400 Volts)	0.53	0.53	0.53	0.53
B3	For All Loads up to 5000 KW(at 11,33 KV)	0.53	0.53	0.53	0.53
B4	For All Loads (at 66,132 KV & above)	0.53	0.53	0.53	0.53

C-SINGLE POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD CONSUMERS NOT FALLEN IN ANY OTHER CONSUMER CLASS

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)		Annual D.M and Qtrly Adjustment (Rs/KWh)	
C-1	For supply at 400/230 Volts				
a)	Sanctioned load less than 5 kW	0.53		0.53	
b)	Sanctioned load 5 kW & up to 500 kW	0.53		0.53	
C-	For supply at 11,33 kV up to and including 5000 2(a) kW	0.53		0.53	
C-	For supply at 66 kV & above and sanctioned load 3(a) above 5000 kW	0.53		0.53	
	Time Of Use	Peak	Off-Peak	Peak	Off-Peak
C-1(c)	For supply at 400/230 Volts 5 kW & up to 500 kW	0.53	0.53	0.53	0.53
C-	For supply at 11,33 kV up to and including 5000 2(b) kW	0.53	0.53	0.53	0.53
C-	For supply at 66 kV & above and sanctioned load 3(b) above 5000 kW	0.53	0.53	0.53	0.53

D-AGRICULTURE TARIFF

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)		Annual D.M and Qtrly Adjustment (Rs/KWh)	
D-1(a)	SCARP less than 5 KW	0.53		0.53	
✓D-	Agricultural Tube Well	0.53		0.53	

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D- 2(b)	Agricultural 5 KW & above	0.53	0.53	0.53	0.53
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E-TEMPORARY SUPPLY TARIFF

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)	Annual D.M and Qtrly Adjustment (Rs/KWh)
E-1(i)	Residential Supply	0.53	0.53
E-1(ii)	Commercial Supply	0.53	0.53
E-2	Industrial Supply	0.53	0.53

F – Seasonal Industrial Supply TARIFF

125% of relevant Industrial Tariff

G-PUBLIC LIGHTING

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)	Annual D.M and Qtrly Adjustment (Rs/KWh)
	Street Lighting	0.53	0.53

H- RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)	Annual D.M and Qtrly Adjustment (Rs/KWh)
	Residential Colonies attached to industrial premises	0.53	0.53

I – RAILWAY TRACTION

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)	Annual D.M and Qtrly Adjustment (Rs/KWh)
	Railway Traction	0.53	0.53

J- SPECIAL CONTRACTS UNDER NEPRA (SUPPLY OF POWER)

Sr. No.	Tariff Category/Particulars	Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)	Applicable Uniform Annual D.M and Qtrly Adjustment (Rs/KWh)
J-1	For supply of 66 kv & above and having sanctioned load of 20MW & above	0.53	0.53
J-2(a)	For supply at 11,33 kv	0.53	0.53
J-2(b)	For supply at 66 kv & above	0.53	0.53
J-3(a)	For supply at 11,33 kv	0.53	0.53
J-3(b)	For supply at 66 kv & above	0.53	0.53

✓ ←	Time of Use	Peak	Off-Peak	Peak	Off-Peak
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(c)

J-2(d) For supply at 66 kv & above	0.53	0.53	0.53	0.53
J-3(c) For supply at 11,33 kv	0.53	0.53	0.53	0.53
J-3(d) For supply at 66 kv & above	0.53	0.53	0.53	0.53

S.R.O 1168(I)2019. Pursuant to section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the Federal Government notifies the adjustment in the approved tariff, on account of periodic adjustment for 3rd and 4th Quarters of FY 2018-19 and annual indexation/adjustment of distribution margin with the immediate application as determined and recommended by National Electric Power Regulatory Authority (NEPRA) vide decisions both dated September 27, 2019, in respect of Lahore Electric Supply Company Limited (LESCO), as Schedule I, IIA & IIB by way of amendment in its notification no. SRO. 05(1) 2019 dated January 1, 2019

The above adjustments are being notified along with tariff differential subsidy for lifeline, domestic consumers consuming up to 300 units, and the additional charge of Rs. 0.30 per unit for maintaining a uniform tariff on all categories of consumers (except for lifeline and domestic consumers consuming up to 300 units) so that the consolidated revenue requirement approved and determined by NEPRA on September 27, 2019 is maintained. The said adjustment shall be shown separately in the consumers' bill by the XWDISCOs and applicable for next twelve-monthly billing cycles effective from October 1st, 2019.

SCHEDULE OF ELECTRICITY TARIFF W.E.F DECEMBER 2019

A1 General Supply Tariff-Residential

Sr. No. Tariff Category/Particulars	Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)		Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	
	Peak	Off-Peak	Peak	Off-Peak
a) For Sanctioned load less than 5 kW				
i Up to 50 Units				
For Consumption exceeding 50 Units			-	-
ii For first 100 Units	0.15		-	
iii a.101-200 Units	0.15			
iii b.201-300 Units	0.15			
iv 301-700 Units	0.15		0.07	
v Above 700 Units	0.15		0.07	
b) For Sanctioned load 5 kW & above				
Time of Use	0.15	0.15	0.07	0.07

A2 General Supply Tariff-Commercial

Sr. No. Tariff Category/Particulars	Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)		Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	
	Peak	Off-Peak	Peak	Off-Peak
a) For Sanctioned load less than 5 kW	0.15		0.15	

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A3 General Services

Sr. No.Tariff Category/Particulars	Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
a) General Services	0.15	0.15

B Industrial Supply Tariff

Sr. No.Tariff Category/Particulars	Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
B1 (a) Up to 25 kw (at 400/230 volts)	0.15	0.15
B2(a) exceeding 25-500 Kw (at 400 Volts)	0.15	0.15
Time of Use	Peak Off-Peak	Peak Off-Peak
B1 (b) Up to 25 kw	0.15 0.15	0.15 0.15
B2 (b) exceeding 25-500 Kw (at 400 Volts)	0.15 0.15	0.15 0.15
B3 For All Loads up to 5000 KW(at 11,33 KV)	0.15 0.15	0.15 0.15
B4 For All Loads (at 66,132 KV & above)	0.15 0.15	0.15 0.15

C-SINGLE POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD CONSUMERS NOT FALLEN IN ANY OTHER CONSUMER CLASS

Sr. No.Tariff Category/Particulars	Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
C-1 For supply at 400/230 Volts		
a) Sanctioned load less than 5 kW	0.15	0.15
b) Sanctioned load 5 kW & up to 500 kW	0.15	0.15
C-2(a) For supply at 11,33 kV up to and including 5000 kW	0.15	0.15
C-3(a) For supply at 66 kV & above and sanctioned load above 5000 kW	0.15	0.15
Time Of Use	Peak Off-Peak	Peak Off-Peak
C-1(c) For supply at 400/230 Volts 5 kW & up to 500 kW	0.15 0.15	0.15 0.15
C-2(b) For supply at 11,33 kV up to and including 5000 kW	0.15 0.15	0.15 0.15
C-3(b) For supply at 66 kV & above and sanctioned load above 5000 kW	0.15 0.15	0.15 0.15

D-AGRICULTURE TARIFF

Sr. No.Tariff Category/Particulars	Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
✓ D-1(a) SCARP less than 5 KW	0.15	0.15

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D-2(b) Agricultural 5 KW & above

0.15 0.15 0.15 0.15

E-TEMPORARY SUPPLY TARIFF

Sr. No. Tariff Category/Particulars

Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
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E-1(i) Residential Supply

0.15 0.15

E-1(ii) Commercial Supply

0.15 0.15

E-2 Industrial Supply

0.15 0.15

F – Seasonal Industrial Supply TARIFF

125% of relevant Industrial Tariff

G-PUBLIC LIGHTING

Sr. No. Tariff Category/Particulars

Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
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Street Lighting

0.15 0.15

H- RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES

Sr. No. Tariff Category/Particulars

Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
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Residential Colonies attached to industrial premises

0.15 0.15

I – RAILWAY TRACTION

Sr. No. Tariff Category/Particulars

Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
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Railway Traction

0.15 0.15

J- SPECIAL CONTRACTS UNDER NEPRA (SUPPLY OF POWER)

Sr. No. Tariff Category/Particulars

Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)	Applicable Uniform Qtrly Adjustment 1st Qtr. 2019-20 (Rs/KWh)
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J-1 For supply of 66 kv & above and having sactioned load of 20MW & above

0.15 0.15

J-2(a) For supply at 11,33 kv

0.15 0.15

J-2(b) For supply at 66 kv & above

0.15 0.15

J-3(a) For supply at 11,33 kv

0.15 0.15

J-3(b) For supply at 66 kv & above

0.15 0.15

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J-2(d) For supply at 66 kv & above	0.53	0.15	0.15	0.15
J-3(c) For supply at 11,33 kv	0.53	0.15	0.15	0.15
J-3(d) For supply at 66 kv & above	0.53	0.15	0.15	0.15

S.R.O 1471(I)2019. -Pursuant to section 31(7) of the Regulation of Generation, Transmission, and Distribution of Electric Power Act, 1997, the Federal Government notifies the adjustment in the approved tariff. on account of periodic adjustment for 1st Quarter of FY 2019-20 as determined and recommended by National Electric Power Regulatory Authority (NEPRA) vide decisions of November 26, 2019, in respect of Lahore Electric Supply Company Limited (LESCO), as Schedule I, II.

The above adjustments are being notified along with tariff differential subsidy for lifeline, domestic consumer, and the additional charge of Rs. 0.11 per unit for maintaining a uniform tariff on all categories of consumers (domestic consumers) so that the consolidated revenue requirement approved and determined by NEPRA on November 26, 2019, is maintained. The said adjustment shall be shown separately in the consumers' bill by the XWDISCOs and applicable for the next twelve-monthly billing cycles effective from Decemberber 1st 2019.

Frequently Asked Questions

1. What is LESCO Tariff?

LESCO Tariff is the pricing plan for their consumers that what they are charging for each unit per month. However, the total amount of tariff includes the tax amount, electricity usage, and the cost of the produced and supplied electrical energy.

2. What are Peak and Off-Peak Hours?

The principal difference between Peak and Off-Peak hours is the price per unit. Due to the demand and consumption curve, peak hours' units get pricier. So try to reduce your electricity usage in between peak hours.

Peak hours are usually 5 PM to 11 PM but these timings fluctuate in the summer and winter seasons.

- Dec to Feb – 5 to 9 PM
- Mar to May – 6 to 10 PM
- Jun to Aug – 7 to 11 PM
- Sep to Nov – 6 to 10 PM

Rest are off-peak hours that are 20 hours.

3. What is the price of 1 unit of electricity?

Electricity price changes with each consumer type. If you are a domestic consumer, charges would be a little bit low for you. For industrial connections, prices go a little bit higher due to the heavy usage of electricity.

For 1 unit of electricity, the unit price for domestic consumers is Rs-9.42 per unit for 1st 100 units and after 1st 100 units, it will go up towards Rs-11.74 per unit according to NEPRA (Variable Charges) and so on.

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Read More: You can also [check your LESCO Bill](#) Here.

4. What are LESCO Tariff Slabs?

LESCO Tariff Slab is a correlation between units consumed and the price for each unit. LESCO has a fixed rate for each slab and number of units so it facilitates the consumer according to their usage and needs.

5. How is the tariff hike controlled?

When the tariff is likely to go on an increasing level, there are various methods through which it can be controlled. Besides controlling the tariff some measures are used by the government and the authorities to limit the price hike.

Learn more!

Tariff can be controlled through:

- Introducing well-formed flexible policies
- Finalize annual tariff or rates after renewing agreements
- Enhance efficiency transmission of Electricity
- Prevent Electricity Theft
- Consulting stakeholders

6. What are the types of tariffs?

Meanwhile, here we will discuss some of the key types of tariffs that are related to electricity and power supply.

Furthermore, this includes a Two-part tariff, Three-part tariff, Straight-line meter, and Seasonal or peak meter tariff. Thus, these are some of the most important tariff types.

However, there are many other tariffs also. Thus, if you want to know more about tariff-related details, then read more! If you also want to learn about [LESCO Customer Services](#) you may click on this link to read more about it.

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Annexure-IV

List of Sensitive Receptors

Annexure-VI

**Surface Water, Ground Water, Noise
and Ambient Air Quality Analysis**



LAHORE ELECTRIC SUPPLY COMPANY LIMITED

TECHNICAL DIRECTORATE

22-A, Queens Road, Lahore

Ph: 6308360, Fax: 6304436, PBX: 6314616-20 (Ext.200)

Subject: PERMISSION FOR CONSTRUCTION OF 1 X 132 / 11KV GRID STATION AGAINST NEW INDUSTRIAL SERVICE CONNECTION FOR LOAD OF 120-MW UNDER TARIFF B-IV AT QUAID-E-AZAM APPRAEL PARK-2 (QAAP-2) SHEIKHUPURA

Ref. Your application No.101/NEW/B-4 dated 19-02-2016.

Permission and technical clearance for construction of 132/11-KV Grid Station by QAAP-2 at your own cost through WAPDA/NTDC/PEPCO/LESCO approved contractor along with the sanction of 120-MW load under tariff B-IV (Being Industrial Zone) in line with the recommendations of NTDC as mentioned in the report of load flow study, subject to condition that the Grid Station will be energized after the completion / energization of proposed 220/132-KV QAAP-1 Grid Station. is hereby approved by the competent authority along with the following terms & conditions.

If management of QAAP accepts the terms and conditions then QAAP may be allowed to construct the 132/11-KV grid station through WAPDA/NTDC/PEPCO/LESCO approved contractor under the supervision of the office of CE (Development) LESCO.

1. From this sanction / approval of 120-MW load and grant of permission for the construction of 132/11-KV Grid station by QAAP (at his own cost) the QAAP will not be eligible for Distribution License at any stage.
2. The remaining 120-MW load will be sanctioned by the competent authority after the receipt of permission to QAAP-1 for construction of 220/132-KV Grid station by NTDC.
3. The management of QAAP is allowed to construct the 132/11-KV grid station through WAPDA/NTDC/PEPCO/LESCO approved contractor. However, 132-KV Double Circuit, Transmission line will be constructed by LESCO for which estimate will be prepared by the office of C.E (DEV) PMU LESCO and the Demand Notice will be issued accordingly for payment by Sponsor QAAP.
4. The Demand Notice for Security charges for load of 120-MW under tariff: B-IV (Being Industrial Zone) will be issued at prevalent rates as per policy in vogue at that time after receiving completion certificate for construction of Grid station from concerned department.
5. In case of Change of Tariff, variation in prices of security amount, due to escalation or additional liabilities implemented by the authority, the consumer will remain liable to deposit and full fill the same.
6. QAAP is liable to submit Drawing and Design of 132-KV Grid Station to C.E (Dev) LESCO for approval.

7. The equipment of 132-KV Grid station will be strictly as per WAPAD /LESCO standards. And QAAP is liable to get inspect / vet the material procured for 132/11-KV QAAP-2 Grid Station by the concerned LESCO department at QAAP expense within and outside the country.
8. The 132-KV Grid Station will be constructed under the supervision of C.E (DEV) LESCO through WAPDA/NTDC/PEPCO/LESCO approved contractor.
9. The WAPDA/NTDC/PEPCO/LESCO approved contractor should be directed to follow the approved design / drawings issued by the C.E. Design (NTDC) PEPCO, WAPDA house Lahore for execution of work of Grid Station
10. All the installed temporary connections will be disconnected / removed from site by LESCO and the cost of 11-KV Feeders (for temporary connections) will not be returned
11. MAINTENANCE AND OPERATION OF GRID STATION

Grid station will be maintained by consumer and operated by the LESCO staff according to Clause 7.1.2 of "Policy for connecting a consumer grid station to the NTDC / LESCO net work and its Operation and Maintenance".

QAAP will provide an undertaking on a non-judicial paper that they will obey the conditions mentioned below from "a to j" or any other conditions laterally issued regarding the maintenance and operation of their private grid station.

- a) The LESCO shall have the right of free access at all times to 132 kV Grid Station for inspection and monitoring of the maintenance of the Grid Station so as to ensure that 132-KV Grid Station does not in any way, directly or consequentially, endanger the stability, reliability or safe operation of their network in any respect.
- b) The proper Maintenance of 132 kV Grid Station shall be the responsibility of consumer who shall ensure the necessary regular periodic maintenance of the equipment as per LESCO approved maintenance schedule for the reliable healthy operation and complete record of the maintenance shall be maintained in this regard by him for inspection of LESCO. In this connection, the consumer could also seek technical assistance and support from CE (TSG) NTDC who renders consulting services in this regard on payment.
- c) MOU will be signed by the Management of QAAP with LESCO(SE GSO) regarding the responsibility for payment of salaries wages, benefits and allowances as per present and future LESCO's rules and regulations of deputed LESCO staff for maintenance and operation of 132 KV grid station.

I. The following minimum staff shall be stationed at 132-KV Grid Station for its smooth operation:-

i)	Assistant Foreman	01
ii)	SSO-I & SSO-II	1 + 4

II. The Management of QAAP shall provide residential accommodation with facilities of electricity, sewerage, telephone and sweet water supply to the Operation Staff as under:-

i)	3-Room Quarters including one bath and kitchen built over minimum covered area of 1000 Sq. ft.	2-Nos.
ii)	2-Room Quarters including one bath and kitchen built over minimum covered area of 600 Sq. ft.	4-Nos.
iii)	a) PTCL Telephone, b) Mobile Set, c) Fax Facility.	

- d) The relay settings shall be done by NTDC/LESCO concerned and QAAP, or its staff shall not interfere with the same. QAAP will also arrange, entirely at its own cost and expenses, for necessary periodic relay testing/calibration (at least annually) in the presence of representatives of C.E. (System Protection) NTDC and the concerned LESCO if applicable. The relay setting calculations shall be arranged and submitted by QAAP to CE (System Protection) NTDC for approval. These relay settings shall be supplied on prescribed Performa of respective relay (along with detail of calculations).
- e) The operation & maintenance of the 132 KV feeding / interconnecting transmission line will invariably be done by LESCO. The O&M expenses will, however, be to the account of the QAAP including the expenses to be incurred for attending to a break down along with the cost of rehabilitation, if any.
- f) QAAP will be liable to pay a penalty in case they do not maintain / operate the equipment properly resulting into undue outages of the transmission line or any other system interruption in the network of NTDC/LESCO. The penalty shall be at the rate of Rs.150,000/- & 75,000/- per hour of the outage time in the case of NTDC and LESCO respectively.
- g) QAAP will provide with appropriate, reliable and fast means for direct / express communication with the relevant Control Centers besides SCADA system to be essentially made available by QAAP, as per the requirements of respective Control Centers. The necessary equipments for the SCADA System at the source grid station shall also be arranged by QAAP, this cost when required.
- h) 132KV QAAP Grid Station will also be provided with necessary telemetering facility. The energy meters used for this purpose shall conform to NTDC specification P-202. The on-line metering data from revenue meters as well as meters on the distribution lines/feeders emanating from 132 KV Grid Station for service area will be transmitted to the Control Center of the LESCO. In case of QAAP Grid Stations connected to the NTDC network, the information will also be transmitted to NPCC Islamabad.
- i) QAAP Ltd will be bound to follow the load management instructions issued by PEPCO / LESCO. In case of failure to follow the said instructions, the Control Centers will have the right to disconnect the supply to 132 KV Grid Station forthwith besides taking other appropriate measures and punitive actions in this regard. The load profile data of the

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energy meters on the circuits emanating from 132 KV QAAP Grid Station will be considered as sufficient evidence for compliance / non-compliance of the load management instructions.

j) QAAP, will be responsible to abide by all terms and conditions, which are not only limited up to above mentioned conditions as some other conditions and provisions necessitated according to any particular operating situations, shall essentially be made a part of the connection/commercial agreement from LESCO to be executed will be abided by the QAAP Sheikhpura.

12. The required undertaking will be submitted by the QAAP, to the office of C.E. (P&D) LESCO copy to P.D.GSC LESCO, before energizing of the grid station. This will be ensured by P.D.GSC, LESCO.

13. QAAP is liable to abide by all the instructions of policy for construction of grid station issued by GM (C&M) PEPCO vide his office letter No.3226-40 /GM (O) PEPCO / RA dated 30-07-2010. An undertaking on a non-judicial paper will be provided by QAAP the PD GSC will ensure before construction of grid station.

14. QAAP will submit an undertaking before energizing of his connection that they will not extend their load beyond sanctioned limit and will not make any alteration in the grid equipment including the power transformer without prior approval of LESCO. In case of violation LESCO reserves the right to disconnect the supply.

15. The Contract for Consumer Connection and Supply of Electric Power will be signed between the LESCO (SE GSO) and QAAP, in accordance with the stipulations in grid code for the distribution code of LESCO under which the connection is being applied by QAAP for tapping the 120-MW load of QAAP, 132 KV grid station with 132 KV LESCO Networking.

16. QAAP will install power factor correction equipments at his own cost to ensure that the power factor at his premises should not fall below 90%. This shall be ensured by the Standing Technical Committee before energizing of connection at B-IV tariff.

17. Installation shall be inspected and certified by the Electric inspector Govt of Punjab for issuance of necessary Test Report & NOC before energizing of connection at B-IV tariff and same may be submitted to this office after completion of grid station for further process.

18. Provision of clear Right-of-Way and NOC from LAFCO / TEPA /PHA /NHA/MOTORWAY/ City District Govt etc will be the sole responsibility of QAAP, in case of any dispute with Govt. agencies or private owners will be settled by QAAP, on cost deposit basis where the installations of 132 KV Towers / poles foundations with stringing work is required. QAAP will also deposit the difference of amount due to any change of route or requirement of excess material etc. The PD GSC may ensure the deposit of difference amount if any before energizing of the Transmission line / grid station.

19. The Separate Metering Room as per Drawing No. CEDD/3-C for housing the 132 KV Metering Panel shall be constructed at the proposed grid station with the excess near main gate proposed by C.E Design NTDC PEPCO. The Manager (Op) SKP Circle will keep the keys with his safe custody.

20. As the QAAP has opted to construct the 132/11-KV QAAP-2 Grid station at its own instead of from LESCO, therefore a committee comprising of the following officers will carry out final inspection and pre-commissioning necessary tests and energization of Grid Station.

- 1- Manager GSO LESCO
- 2- Manager GSC LESCO
- 3- Deputy Manager SS&T
- 4- Deputy Manager P&I
- 5- Deputy Manager T&I

21. The work shall only be taken in hand by The Standing Technical Committee comprising the following officers after receiving go-ahead signal from CE (P&D) as soon as realization of capital cost and security amount is confirmed by Finance Director LESCO and AM (CS) concerned, LESCO respectively.

1)	Manager GSO LESCO.	Convener
2)	Manager (Operation) SKP Circle LESCO.	Member
3)	Manager M&T (West) Circle LESCO.	Member
4)	Dy. Manager (Op) City SKP Division LESCO	Member

22. The Dy. Manager (P&I) WAPDA / LESCO, Dy. Manager (SS&T) LESCO, Dy. Manager (T&I) LESCO will associate The Standing Technical Committee for testing and securing the 132KV CTs, PTs, metering Panels conduit pipes etc.

23. The two No. Static (TOU) 132 KV Energy Meters of accuracy clause 0.2 for billing and back up metering may be provided by the consumer. The necessary demand notice for installation and testing fees of M&T etc or any other charges will be issued by the Manager (O) SKP Circle and got deposited by QAAP.

24. The Standing Technical Committee for grid station will adjust the relay setting to avoid any discriminate tripping of the system with the recommendation issued by the C.E. Development, LESCO.

25. The Standing Technical Committee shall observe the followings before energizing of B-IV Connection:-

- i. Metering system will be 3-Phase / 4-wire.
- ii. Control cables from P.Ts will be laid in separate steel conduit pipes. Size of control cables will be 4-core 2.5mm sq copper.
- iii. Secondary connection boxes of all the 132 KV C.TS & P.Ts will be secured properly by pasting postal orders to be signed by all the Committee members.

26. The 132-KV energy meters will be installed in proper panels/ steel cubical. This panel


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will have hinged door with locking / sealing arrangements Glass windows will be provided in the door for viewing the readings of all the meters. Proper fixing arrangements will be provided in the panel for easy installation of energy meters. Terminal blocks for each C.T / P.T circuit as mentioned above will also be provided in the panel. In addition to above, proper arrangements for Earthing of all meters etc. will also be provided in the panel. The Standing Technical Committee is directed to ensure the following:-

- a. To check the clearance of dues against the existing connection.
 - b. To check that no other connection is running at the same premises.
 - c. To check any other observations.
 - d. To dismantle any Material lying at site and returned to Store through MRN.
27. The Standing Committee shall ensure that after affection / energization of instant NEW CONNECTION, any other connection temporary or permanent existing in the same premises shall be disconnected permanently.
28. In case of variation in prices of material due to escalation or additional material is required to be used or any other charges detected at any later stage, QAAP will remain liable to deposit the same, for which you will submit the undertaking to the CE (Dev)LESCO.
29. All other usual formalities shall be fully observed by The Standing Technical Committee before taking the work in hand before energizing of the connection at n B-IV Tariff.
30. Dy. Manager (Op) City SKP Division may be directed to get return all the dismantled material if any through MRN to concerned field store after energizing of B-IV connection by observing all departmental formalities.
31. Manager (Op) SKP Circle may be directed to watch the MDI to restrict with in sanctioned load besides follow the implementation of load management schedule issued by PEPCO/LESCO.
32. Regional Manager M&T West may be directed to circulate the Test Check Performa to all concerned after duly signed by all committee members along with representative of the consumer also copy to CE (P&D) Office LESCO for record.
33. The Automatic /Manual change over switch will be provided by QAAP Ltd, in case of his own source of supply /self-generation. The proper installing / testing of the same should be ensured by Manager M&T West.
34. Manager (Op) SKP Circle may be directed to submit the SCO issued by C.E. (P&D), LESCO after completion by observing all departmental formalities to this office for record and he may also be directed to submit all required documents to the office of AM (CS) for proper billing from MIS Directorate in time.

35. The QAAP may be directed to hand over said 132-KV grid station to the PD GSC LESCO and Manager / S. E GSO Circle LESCO with the complete set of drawings and records after getting necessary checking / testing from all concerned like P&I, T&I and SS&T divisions LESCO etc by observing all departmental formalities.
36. QAAP shall follow the NEPRA Act 1997 clause 22(2) and electricity act 1910.
37. All the work shall be executed according to the WAPDA / PEPCO/LESCO Standard Design & Specifications issued by NTDC / PEPCO / LESCO.
38. All other terms and conditions of tariff B-IV of 132 kV independent grid station with independent feeding transmission arrangement shall be applicable.

This is being issued with the approval of Competent Authority.


Chief Engineer (P&D)
Engr. Mohsin Raza Khan

To:

Mr. Naveed Mushtaq Gill
CEO Punjab Industrial estates
Development and Management Company (PIEDMC)
PIEDMC Head Office, North Commercial Area
Sunder Industrial Estate, Raiwind Road Lahore
QAAP at Motorway M-2 Sheikhupura.

Info:

- 1 GM Technical LESCO for information please.
- 2 CE (Development) PMU LESCO for information please.
- 3 Chief Engineer (Power) Energy department Govt of Punjab, irrigation secretariat Lahore for information please.
- ✓ 4 Chief Engineer Electrical (PIEDMC) for information please.
- 5 SE (GSO) LESCO
- 6 Manager (Operation) SKP Circle LESCO
- 7 Deputy Manager (Op.) City SKP Division LESCO
- 8 Master file

No: 22368-75/SKP/DRW/631

Dated: 04 /05/2017.



LAHORE ELECTRIC SUPPLY CO. LIMITED

Chief Engineer (P&D) LESCO

22-A, Queens Road, Lahore

Ph: 99204818, Fax: 99204819, PBX: 99204820-30 (Ext.200)

Subject: NEW INDUSTRIAL CONNECTION FOR 120 MW LOAD THROUGH PROPOSED 220/132/11 KV GRID STATION AT QUAID-E-AZAM APPAREL PARK SHEIKHUPURA

- Reference: 1.** Your request on the above noted subject.
- 2.** This office letter No. 22368-75 dated 4-5-2017 vide which permission for construction of 132 kV G/S & new connection for 120MW load has been sanctioned.
- 3.** GM Power System Planning, NTDC letter No. GM / PSP / CEMP / MTRP / 376/3870-76 dated 3-7-2017 vide which permission for construction of 220/132 kV grid station for instant connection has been issued.

Sanction and technical clearance for new industrial connection for 120 MW load through proposed 220/132/11 kV grid station in the name of CEO Punjab Industrial Estates Development & Management Company at Quaid-e-Azam Apparel Park, Sheikhupura on cost deposit basis, under Tariff 'J', is hereby accorded with the following terms and conditions:

1. Since permission / NOC for construction of proposed 220/132/11 kV grid station, as mentioned at clause-2 of this office letter given at Reference-1 has been issued by GM Power System Planning, NTDC; therefore sanction/approval of remaining 120 MW load of Quaid-e-Azam Apparel Park, Sheikhupura in line with the recommendations of NTDC as mentioned in the report of load flow study, under Tariff 'J' (According to SRO 1134(I)/2015 NEPRA Regulations, 2015 Part-II) through proposed 220/132/11 kV grid station has been accorded by the competent authority.
2. M/s QAAP, Sheikhupura will deposit the security for 120 MW under tariff 'J' (Being Industrial Estate). The Demand Notice in this regard will be issued at prevalent rates as per policy in vogue at that time after receiving completion certificate for construction of grid station from the concerned formation.
3. M/s QAAP is liable to provide License from NEPRA / submit O&M Agreement as per provision of Tariff 'J' (as determined by NEPRA).
4. In case of change in applicable tariff, the Management of QAAP is liable to abide by the decision of NEPRA / LESCO.
5. In case of change of Tariff, variation in prices of security amount, due to escalation or additional liabilities implemented by the authority, the applicant/consumer will remain liable to deposit and fulfill the same.
6. As proposed 220/132/11 kV grid station for which NOC for construction of grid station has been issued by GM Power System Planning, NTDC vide letter given at Reference-2, falls under the jurisdiction of NTDC, therefore all the pre-requisites including regulatory issues, modality for drawing power from the network, construction / operation & maintenance of grid station and supply of power to the

consumer etc. including posting of staff at the grid station and their salaries/allowances as well as construction of their residences/quarters etc. will be finalized by CE (GSO) / CE (GSC) NTDC and MOU in this regard is to be signed prior to implementation of the subject project as already mentioned in GM Power System Planning NTDC letter No. GM / PSP / CEMP / MTRP / 376/3870-76 dated 3-7-2017.

7. M/s QAAP is liable to abide by all the instructions of policy for construction of grid station issued by GM (C&M) PEPCO vide his office letter No.3226-40 /GM (O) PEPCO / RA dated 30-07-2010 or any other office(s). An undertaking on a non-judicial paper will be provided by M/s QAAP before construction of grid station.
8. M/s QAAP will submit an undertaking before energization of connection that they will not extend their load beyond sanctioned limit and will not make any alteration in the grid equipment including the power transformer without prior approval of NTDC/LESCO. In case of violation NTDC/LESCO reserves the right to disconnect the supply.
9. The Contract (MOU) for consumer connection and Supply of Electric Power will be signed between NTDC and M/s QAAP in accordance with the stipulations in relevant code under which the connection is being applied by M/s QAAP i.e. the grid code of the distribution code (LESCO) by tapping 120 MW load of M/s QAAP grid station with LESCO Network. CE (GSO) / CE (GSC) NTDC shall get the needful done as per policy and signed the MOU on behalf of NTDC. Copy thereof should also be circulated to all concerned. The Standing Technical Committee will ensure execution of this agreement before energization of connection / grid station.
10. M/s QAAP will install power factor correction equipments at his own cost to ensure that the power factor at his premises should not fall below 90%. This shall be ensured by the Standing Technical Committee before energization of connection.
11. Installation shall be inspected and certified by the Electric inspector Government of Punjab for issuance of necessary Test Report & NOC before energization of connection and same may be submitted to this office after completion of grid station for further process.
12. Provision of clear Right-of-Way and NOC from NHA / TEPA /PHA / City District Govt. etc. will be the sole responsibility of M/s QAAP in case of any dispute with Govt. agencies or private owners will be settled by M/s QAAP on cost deposit basis where the installations of 220/132 KV Towers / poles foundations with stringing work is required. He will also deposit the difference of amount due to any change of route or requirement of excess material etc. The PD (GSC)/SE (GSO may ensure the deposit of difference amount, if any, before energization of the grid station.
13. The Separate metering room for housing the metering system/panel shall be constructed at the proposed grid station with the access preferably near main gate proposed and designed by C.E Design and as per scheme of system protection / NTDC PEPCO. Dy. Manager (Op) concerned Division LESCO will keep the keys with his safe custody and one spare key should remain with Manager (Op) Sheikhpura.
14. The work shall only be taken in hand by the Standing Technical Committee

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comprising the following officers after issuance of SCO by CE (P&D) LESCO after realization of capital cost, if any, and security amount is confirmed by CFO/AM (CS) concerned LESCO respectively:

- | | | |
|----|--|----------|
| 1) | Manager GSO LESCO. | Convenor |
| 2) | Manager (Operation) Sheikhpura Circle LESCO. | Member |
| 3) | Manager M&T (West) Circle LESCO. | Member |
| 4) | Dy. Manager (Op) concerned Division LESCO | Member |

Dy. Manager (P&I) WAPDA / LESCO, Dy. Manager (SS&T) LESCO, Dy. Manager (T&I) LESCO will associate the Standing Technical Committee for testing and securing the metering CTs, PTs, metering Panels, conduit pipes etc.

15. Energy meters of accuracy class 0.2 for billing and back up metering may be provided by the consumer. The necessary Demand Notice for installation and testing fees of M&T etc or any other charges will be issued by the DM (O) concerned Division, which will be deposited by M/s QAAP.
16. The Standing Technical Committee shall observe the followings before energization of Connection:-
 - i. Metering system will be designed and approved by NTDC.
 - ii. Control cables from C.Ts & P.Ts will be laid in separate steel conduit pipes. Size of control cables will be as per scheme issued by NTDC.
 - iii. Secondary connection boxes of all the C.TS & P.Ts will be secured properly by pasting postal orders to be signed by all the Committee members.
 - iv. Energy meters will be installed in proper panels/ steel cubical. This panel will have hinged door with locking / sealing arrangements Glass windows will be provided in the door for viewing the readings of all the meters. Proper fixing arrangements will be provided in the panel for easy installation of energy meters. Terminal blocks for each C.T / P.T circuit as mentioned above will also be provided in the panel. In addition to above, proper arrangements for earthing of all meters etc. will also be provided in the panel.
17. All other usual formalities shall be fully observed by the Standing Technical Committee before taking the work in hand before energization of connection.
18. The Dy. Manager (Op) concerned Divn. will watch the MDI to restrict with in sanctioned load besides follow the implementation of load management schedule issued by PEPCO / LESCO.
19. The Manager M&T (West) is directed to circulate the test check Performa to all concerned duly signed by Committee members along with representative of the consumer and copy to CE (P&D) Office LESCO for record.
20. The Automatic / Manual change over switch will be provided by M/s QAAP, in case of his own source of supply /self-generation. The proper installing / testing of the same should be ensured by Manager M&T West.

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21. SE (GSO) LESCO shall submit the SJO issued by C.E.(P&D), LESCO after completing and observing all departmental formalities to this office for record and he may also be directed to submit all required documents to the office of AM (CS) concerned for proper and timely billing by MIS Directorate.
22. M/s QAAP shall follow NEPRA Act 1997 clause 22(2) and Elec: Act 1910.
23. The Management of QAAP will remain liable to deposit the cost of work to be executed by NTDC / LESCO.
24. All the work shall be executed according to the WAPDA / PEPCO/LESCO Standard Design & Specifications issued by NTDC / PEPCO/LESCO.
25. All other conditions of tariff 'J', Industrial Estates and independent grid station will remain applicable.

This is being issued with the approval of Chief Executive Officer LESCO.

Chief Engineer (P&D)
(Ch. Muhammad Amin)

To: CEO Punjab Industrial Estates Development & Management Company, Quaid-e-Azam Apparel Park, Sheikhupura

- Info:**
1. Registrar NEPRA, Islamabad.
 2. GM Power System Planning, NTDC 4th Floor PLA Tower, Lahore.
 3. GM (GSO) NTDC, Wapda House, Lahore.
 4. GM (GSC) NTDC, Wapda House, Lahore.
 5. Chief Engineer (Development) LESCO.
 6. Chief Engineer O&M (T&G) LESCO.
 7. Chief Engineer Design NTDC WAPDA, WAPDA House Lahore.
 8. Chief Engineer (TS) LESCO.
 9. CSD, LESCO Lahore.
 10. Director Design (Grid) O/O CE Design NTDC Wapda House, Lahore.
 11. Chief Financial Officer LESCO.
 12. PD (GSC) LESCO.
 13. Manager (GSO) LESCO.
 14. Manager (Op) Sheikhupura Circle LESCO.
 15. Manager Technical M&T (West).
 16. DM (O) City Division, Sheikhupura.
 17. DM (SS&T) Division (North) LESCO.
 18. DM P&I Division LESCO.
 19. DM T&I (GSC) Division LESCO.
 20. Electric Inspector, Government of Punjab, Lahore.
 21. AM (CS) City Division, Sheikhupura.
 22. Master File.

Memo No. 19309-32/DRW- 632/Skp.

Dated: 19 /04/2019

Hamid/TC-Sapphir

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LAHORE ELECTRIC SUPPLY COMPANY LIMITED
GRID SYSTEM CONSTRUCTION DIRECTORATE
34 - INDUSTRIAL AREA GULBERG - III LAHORE
Phone No. 042 - 99263256, Fax No. 042 - 99263255

No-PD/GSC/LESCO/1774-78

Dated 16-02-2022

✓ Chief Engineer (Electrical) PIEDMC
Commercial Area (North) Sundar Industrial
Estate, Sundar Raiwind Road, Lahore

Subject:- Revised Tentative Demand Notice (Capital Cost) For The Construction Of 132 KV Grid Station Quaid-e-Azam Business Park -1, Sheikhpura Alongwith Feed Transmission Line For 132 KV Grid Station Quaid-e-Azam Business Park-1 as Interim Arrangement.

Ref: C.E (P&D) LESCO letter No. 10339-46 Dated 27-01-2020, addressed to your office & copy to this office as well.

Kindly be informed that vide above referred letter, demand notice amounting to Rs. 177,479,511/- was issued for the payment. After adjustment vide above referred letter PIEDMC had to pay Rs. 106,772,370.2/- [(177,479,511) - (70,707,140.8 already available with LESCO)]. PIEDMC paid Rs. 106,772,370.2/- as a capital cost after adjustment.

Now, it is apprised that due to change of site, scope of work and inflation rates, the capital cost has been revised and tentative estimate has been prepared amounting to Rs. 317,119,215/-. So, the Total recoverable tentative capital cost after adjustment of amounts comes out to be Rs. 139,639,704/- (Rupees thirteen crore ninty six lac thirty nine thousand seven hundred and four only). [Rs. 317,119,215/- (-) Rs. 177,479,511/- (Already available with LESCO)]

Therefore, it is requested that difference of above mentioned amount may please be deposited in favour of Chief Financial Officer, LESCO for further necessary action, under intimation to this office to complete the project on agreed time lines.

Kindly feel free to contact if any query is required regarding above estimate.

DA (Original Demand Notice)

PROJECT DIRECTOR
GSC LESCO LAHORE

Copy to:

1. G.M (Tech) LESCO, Lahore
2. Chief Financial Officer LESCO, Lahore
3. Chief Engineer Development (PMU) LESCO, Lahore
4. Chief Engineer P&D LESCO, Lahore
5. XEN GC Division GSC LESCO, Lahore

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LAHORE ELECTRIC SUPPLY COMPANY LIMITED
Chief Engineer (P&D)
22/A-Queens Road, Lahore
Ph: 99204818, Fax: 99204819, PBX: 99204820-30 (Ext.200)

Subject: INTERIM CONNECTION FOR LOAD OF 32-MW UNDER TARIFF B-IV, IN THE NAME OF PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY THROUGH MUHAMMAD JAVAID ILYAS CEO PIEDMC AT QUAID-E-AZAM APPAREL PARK, AGAINST INDUSTRIAL SERVICE CONNECTION REGISTRATION NO:139/B-IV/NEW DATED: 15-10-2019.

The Competent Authority is pleased to accord approval the instant interim case for load of 32-MW under tariff B-IV in the name of Punjab Industrial Estates Development And Management Company (Govt Of Punjab) through Muhammad Javaid Ilyas CEO PIEDMC and registered in this office vide No:139/B-IV/NEW dated: 15-10-2019 through proposed construction of 132 KV Grid Station-1 at QAAP, PIEDMC with IN / OUT FEED Transmission Line Arrangement made from 132-KV Transmission Line Between Ayesha Grid Station and Sapphire Power House on cost deposit basis. The interim 32-MW load shall be disconnected upon energization of 120-MW as already approved from 220/132/11-KV Grid station (Grid-1) under tariff-J shall be utilized by LESCO according to LESCO requirements and PIEDMC shall not claim anything at any stage after energization of 120-MW as already approved from 220/132/11-KV Grid station (Grid-1) under tariff-J. Further PIEDMC and NTDC shall not debar LESCO for utilization of Spare Capacity at 220/132/11-KV Grid Station-1 at any stage.. Following terms and conditions shall also be applied.

TERMS AND CONDITIONS:

1. The consumer shall make the payment of Demand Notice of capital cost, if he agreed with the following terms and conditions.
2. The total tentative estimated cost of the project calculated and furnished by Project Director (GSC), Total Recoverable Tentative Capital Cost comes out to be Rs: 177,479,511/- Including M&T charges, the detail is as under:-

(A)	Tentative cost of 132 kV Grid Station	Rs. 165,879,313/-
(B)	Tentative cost of Transmission Line.	Rs. 11,575,198/-
(C)	M&T Charges	Rs. 25,000/-

The above cost is tentative and subject to the revision on actual basis after the approval of profile / design from Chief Engineer Design NTDC and allocation of material. Demand Notice of capital cost is issued along with the Technical Clearance for payment within one month from the issuance of this letter otherwise the case shall automatically stand cancelled. The payment shall be made through Pay order / Bank draft in favor of Chief Financial Officer LESCO. However applicant will remain liable to deposit difference of amount as per actual expenditure as finalized by the concerned formation.

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3. The request vide no: PIE/CEE/QAAP-5761 dated: 27-09-2019 for the adjustments of already paid amount of Rs.117 Million against the construction of 132-KV Double Circuit Line for Sindar Industrial Estate Grid station cannot be processed at this stage being separate project / case to avoid complications later.
4. The 7.2 MVAR Capacitor Bank at 11 KV Bus Bar of 132-KV Power Transformer of 132-KV Grid station at Quaid-e-Azam Apparel Park is also proposed to improve voltage profile and to reduce the flow of reactive power from LESCO's transmission network
5. The proposed 132-KV IN/OUT arrangement of 32-MW under tariff-B-IV shall be utilized by LESCO according to LESCO requirements and PIEDMC shall not claim anything at any stage after energization of 120-MW as already approved from 220/132/11-KV Grid station (Grid-1) under tariff-J.
6. PIEDMC and NTDC shall not debar LESCO for utilization of Spare Capacity at 220-KV Grid Station at any stage.
7. M/s QAAP, PIEDMC is liable to deposit the security amount for total load of 32-MW under tariff B-IV @ Rs.3560/- per kW. However the Demand Notice for the amount of security will be issued as per prevalent rates after completion of work by P.D GSC LESCO. The security amount shall be deposited in security account head of AM (CS), concerned Division LESCO through Pay Order / Bank Draft with in stipulated period from the date of issue of the D.N.
8. M/s QAAP, PIEDMC will be liable to abide by all the decisions of NTDC / LESCO and will make the payment of additional amount demanded by LESCO/NTDC formation at any stage, if any. M/s QAAP, PIEDMC shall submit undertaking in this regard on stamp paper of Rs.1200/- to this office.
9. In case of Change of Tariff, variation in prices of security amount, due to escalation or additional liabilities implemented by the authority, the consumer will remain liable to deposit and full fill the same.
10. All the installed temporary connections will be disconnected / removed from site by LESCO and the cost of 11-KV Feeders (for temporary connections) will not be returned.
11. The office of C.E (P&D) LESCO shall issue Go-Ahead Signal to concerned formations for execution of work on receipt of GLO of 220/132/11-KV Grid Station (Grid-1) for QAAP,PIEDMC duly approved / issued by NTDC.
12. The CE (Development) / PD (GSC) and PD (Const.) LESCO will get the work start after issuance of go-ahead signal from this office according to the approved drawings issued by C.E Design NTDC/PEPCO by following all other departmental formalities.
13. M/s QAAP, PIEDMC will submit an undertaking to Manger (Op.) SKP Circle LESCO before energization / commissioning of grid station to the effect that they will not involve itself in resale of electricity. If any time the applicant is found to be involved in resale, LESCO will immediately take action against M/s QAAP, PIEDMC besides disconnection of their connection.
14. MAINTENANCE AND OPERATION OF GRID STATION

Grid station will be maintained by consumer and operated by the LESCO staff according to Clause 7.1.2 of "Policy for connecting a consumer grid station to the NTDC / LESCO network and its Operation and Maintenance".

QAAP will provide an undertaking on a non-judicial paper that they will obey the conditions mentioned below from "a to j" or any other conditions laterally issued regarding the maintenance and operation of their private grid station.

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- a) The LESCO shall have the right of free access at all times to 132 kV Grid Station for inspection and monitoring of the maintenance of the Grid Station so as to ensure that 132-KV Grid Station does not in any way, directly or consequentially, endanger the stability, reliability or safe operation of their network in any respect.
- b) The proper Maintenance of 132 kV Grid Station shall be the responsibility of consumer who shall ensure the necessary regular periodic maintenance of the equipment as per LESCO approved maintenance schedule for the reliable healthy operation and complete record of the maintenance shall be maintained in this regard by him for inspection of LESCO. In this connection, the consumer could also seek technical assistance and support from CE (TSG) NTDC who renders consulting services in this regard on payment.
- c) MOU will be signed by the Management of QAAP with LESCO (SE GSO) regarding the responsibility for payment of salaries wages, benefits and allowances as per present and future LESCO's rules and regulations of deputed LESCO staff for maintenance and operation of 132 KV grid station.

- I. The following minimum staff shall be stationed at 132-KV Grid Station for its smooth operation:-

i)	Assistant Foreman	01
ii)	SSO-I & SSO-II	1 + 4

- II. The Management of QAAP shall provide residential accommodation with facilities of electricity, sewerage, telephone and sweet water supply to the Operation Staff as under:-

i)	3-Room Quarters including one bath and kitchen built over minimum covered area of 1000 Sq. ft.	2-Nos.
ii)	2-Room Quarters including one bath and kitchen built over minimum covered area of 600 Sq. ft.	4-Nos.
iii)	a) PTCL Telephone, b) Mobile Set, c) Fax Facility.	

- d) The relay settings shall be done by NTDC/LESCO concerned and QAAP, or its staff shall not interfere with the same. M/s QAAP, PIEDMC will also arrange, entirely at its own cost and expenses, for necessary periodic relay testing/calibration (at least annually) in the presence of representatives of C.E. (System Protection) NTDC and the concerned LESCO if applicable. The relay setting calculations shall be arranged and submitted by M/s QAAP, PIEDMC to CE (System Protection) NTDC for approval. These relay settings shall be supplied on prescribed Performa of respective relay (along with detail of calculations).
- e) The operation & maintenance of the 132 KV feeding / interconnecting transmission line will invariably be done by LESCO. The O&M expenses will, however, be to the account of the M/s QAAP, PIEDMC including the expenses to be incurred for attending to a break down along with the cost of rehabilitation, if any.
- f) M/s QAAP, PIEDMC will be liable to pay a penalty in case they do not maintain / operate the equipment properly resulting into undue outages of the transmission line or any other system interruption in the network of NTDC/LESCO. The penalty shall be at the rate of Rs.150,000/- & 75,000/- per hour of the outage time in the case of NTDC and LESCO respectively.
- g) M/s QAAP, PIEDMC will provide with appropriate, reliable and fast means for direct / express communication with the relevant Control Centers besides SCADA system to be essentially made available by QAAP, as per the requirements of respective Control Centers. The necessary equipment's for the SCADA System at the source grid station shall also be arranged by QAAP, this cost when required.

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h) 132 KV QAAP Grid Station will also be provided with necessary telemetering facility. The system used for this purpose shall conform to NTDC specification P-202. The on-line metering data from revenue meters as well as meters on the distribution lines/feeders emanating from 132 KV Grid Station for service area will be transmitted to the Control Center of the LESCO. In case of QAAP Grid Stations connected to the NTDC network, the information will also be transmitted to NPCC Islamabad.

i) M/s QAAP, PIEDMC will be bound to follow the load management instructions issued by PEPCO / LESCO. In case of failure to follow the said instructions, the Control Centers will have the right to disconnect the supply to 132 KV Grid Station forthwith besides taking other appropriate measures and punitive actions in this regard. The load profile data of the energy meters on the circuits emanating from 132 KV QAAP Grid Station will be considered as sufficient evidence for compliance / non-compliance of the load management instructions.

j) M/s QAAP, PIEDMC, will be responsible to abide by all terms and conditions, which are not only limited up to above mentioned conditions as some other conditions and provisions necessitated according to any particular operating situations, shall essentially be made a part of the connection/commercial agreement from LESCO to be executed will be abided by the QAAP Sheikhpura.

15. The required undertaking will be submitted by the M/s QAAP, PIEDMC, to the office of C.E. (P&D) LESCO copy to P.D.GSC LESCO, before energizing of the grid station. This will be ensured by P.D.GSC, LESCO.

16. M/s QAAP, PIEDMC is liable to abide by all the instructions of policy for construction of grid station issued by GM (C&M) PEPCO vide his office letter No.3226-40 /GM (O) PEPCO / RA dated 30-07-2010. An undertaking on a non-judicial paper will be provided by QAAP the PD GSC will ensure before construction of grid station.

17. M/s QAAP, PIEDMC will submit an undertaking before energizing of his connection that they will not extend their load beyond sanctioned limit and will not make any alteration in the grid equipment including the power transformer without prior approval of LESCO. In case of violation LESCO reserves the right to disconnect the supply.

18. The Contract for Consumer Connection and Supply of Electric Power will be signed between the LESCO (SE-GSO) and M/s QAAP, PIEDMC, in accordance with the stipulations in grid code for the distribution code of LESCO under which the connection is being applied by QAAP for tapping the 32-MW load of QAAP, 132 KV grid station with 132 KV LESCO Networking.

19. M/s QAAP, PIEDMC will install power factor correction equipments at his own cost to ensure that the power factor at his premises should not fall below 90%. This shall be ensured by the Standing Technical Committee before energizing of connection at B-IV tariff.

20. Installation shall be inspected and certified by the Electric inspector Govt of Punjab for issuance of necessary Test Report & NOC before energizing of connection at B-IV tariff and same may be submitted to this office after completion of grid station for further process.

21. Provision of clear Right-of-Way and NOC from TEPA /PHA /NHA/MOTORWAY/ City District Govt etc will be the sole responsibility of M/s QAAP, PIEDMC, in case of any dispute with Govt. agencies or private owners will be settled by QAAP, on cost deposit basis where the installations of 132 KV Towers / poles foundations with stringing work is required. M/s QAAP, PIEDMC will also deposit the difference of amount due to any change of route or requirement of excess material etc. The PD GSC may ensure the deposit of difference amount if any before energizing of the Transmission line / grid station.
22. The Separate Metering Room as per Drawing No. CEDD/3-C for housing the 132 KV Metering Panel shall be constructed at the proposed grid station with the excess near main gate proposed by C.E Design NTDC PEPCO. The Manager (Op) SKP Circle will keep the keys with his safe custody.
23. The work shall only be taken in hand by The Standing Technical Committee comprising the following officers after receiving go-ahead signal from CE (P&D) as soon as realization of capital cost and security amount is confirmed by Finance Director LESCO and AM (CS) concerned, LESCO respectively.

1)	Manager GSO LESCO.	Convener.
2)	Manager (Operation) SKP Circle LESCO.	Member
3)	Manager M&T (West) Circle LESCO.	Member
4)	Dy. Manager (Op) City SKP Division LESCO	Member

24. The Dy. Manager (P&I) WAPDA / LESCO, Dy. Manager (SS&T) LESCO, Dy. Manager (T&I) LESCO will associate The Standing Technical Committee for testing and securing the 132KV CTs, PTs, metering Panels conduit pipes etc.
25. The two No. Static (TOU) 132 KV Energy Meters of accuracy clause 0.2 for billing and back up metering may be provided by the consumer. The necessary demand notice for installation and testing fees of M&T etc or any other charges will be issued by the Manager (O) SKP Circle and got deposited by QAAP.
26. The Standing Technical Committee for grid station will adjust the relay setting to avoid any discriminate tripping of the system with the recommendation issued by the C.E. Development, LESCO.
27. The Standing Technical Committee shall observe the followings before energizing of B-IV Connection:-
- Metering system will be 3-Phase / 4-wire.
 - Control cables from P.Ts will be laid in separate steel conduit pipes. Size of control cables will be 4-core 2.5mm sq copper.
 - Secondary connection boxes of all the 132 KV C.TS & P.Ts will be secured properly by pasting postal orders to be signed by all the Committee members.
 - The 11KV energy meters will be installed in proper panels/ steel cubical. This panel will have hinged door with locking / sealing arrangements Glass windows will be provided in

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the door for viewing the readings of all the meters. Proper fixing arrangements will be provided in the panel for easy installation of energy meters. Terminal blocks for each C.T / P.T circuit as mentioned above will also be provided in the panel. In addition to above, proper arrangements for earthing of all meters etc. will also be provided in the panel.

28. The Standing Technical Committee is directed to ensure the following:-
 - a. To check the clearance of dues against the existing connection (if any).
 - b. To check that no other connection is running at the same premises.
 - c. To check any other observations.
 - d. To dismantle any Material lying at site and returned to Store through MRN.
29. The Standing Committee shall ensure that after affection / energization of instant NEW CONNECTION, any other connection temporary or permanent existing in the same premises shall be disconnected permanently.
30. In case of variation in prices of material due to escalation or additional material is required to be used or any other charges detected at any later stage, QAAP will remain liable to deposit the same, for which you will submit the undertaking to the CE (Dev)LESCO.
31. All other usual formalities shall be fully observed by The Standing Technical Committee before taking the work in hand before energizing of the connection at B-IV Tariff.
32. Dy. Manager (Op) concerned Division may be directed to get return all the dismantled material (if any) through MRN to concerned field store after energizing of B-IV connection by observing all departmental formalities.
33. Manager (Op) SKP Circle may be directed to watch the MDI to restrict with in sanctioned load besides follow the implementation of load management schedule issued by PEPSCO/LESCO.
34. Regional Manager M&T West may be directed to circulate the Test Check Performa to all concerned after duly signed by all committee members along with representative of the consumer also copy to CE (P&D) Office LESKO for record.
35. The Automatic /Manual change over switch will be provided by QAAP Ltd, in case of his own source of supply /self-generation. The proper installing / testing of the same should be ensured by Manager M&T West.
36. Manager (Op) SKP Circle may be directed to submit the SCO issued by C.E. (P&D), LESKO after completion by observing all departmental formalities to this office for record and he may also be directed to submit all required documents to the office of AM (CS) for proper billing from MIS Directorate in time.
37. PD (GSC), LESKO shall hand over said grid station to the Management of SE (GSO) with the complete set of drawings and records after getting necessary checking / testing from all concerned like P&I, T&I and SS&T divisions LESKO etc by observing all departmental formalities.
38. QAAP shall follow the NEPRA Act 1997 clause 22(2) and electricity act 1910.

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39. All the work shall be executed according to the WAPDA / PEPCO/LESCO Standard Design & Specifications issued by NTDC / PEPCO / LESCO.
40. All other terms and conditions of tariff B-IV of 132 kV independent grid station with independent feeding transmission arrangement shall be applicable.

DA/ DN of Capital Cost:


CHIEF ENGINEER (P&D)
LESCO H/Q, LAHORE

✓ To,

Muhammad Javed Ilyas,
CEO Punjab Industrial Estate,
Raiwind Road Lahore,
At Quaid-e-Azam Apparel Park, At M-2, MotorWay,
Sheikhupura

Info:

1. Chief Financial Officer LESCO, 22-A, Queen's Road, Lahore. As soon as the above mentioned amounts are realized, it may be transferred to relevant accounts as per following distribution under intimation to this office.

Accounts of:	Description	Total Amount
PD (GSC)	Capital Cost of 132-KV Grid station and 132-KV Transmission Line	Rs.177,454,511/-
Manager M&T	M&T Charges	Rs.25,000/-
TOTAL AMOUNT		Rs.177,479,511/-

2. PD (GSC) LESCO.
3. Manager (Operation) Sheikhupura Circle, LESCO.
4. Manager (GSO) LESCO.
5. Manager (M&T) West LESCO.
6. Dy. Manager (Op) City SKP Division, LESCO.
7. Assistant Manager (CS) City SKP Division LESCO.
8. Master File.

Letter No. 6894-6901 /SKP/DRW-704

Dated: 22/11/2019

SAWD



LAHORE ELECTRIC SUPPLY COMPANY LIMITED
GRID SYSTEM CONSTRUCTION DIRECTORATE
34 -INDUSTRIAL AREA GULBERG-III LAHORE
Phone NO 042-99263256, Fax No 042 -99263255

No-PD/GSC /LESCO /-1169-73

Dated 01-02-22

Project Director

Quaid - e - Azam Business Park

Commercial area (North), Sundar Industrial Estate

Sundar Raiwind road, Lahore

Subject: - TENTATIVE DEMAND NOTICE FOR 132 KV T/LINE (IN & OUT)
INCLUDING 04-NOS. LINE BAYS FOR 132 KV G/S QUAID - E -
AZAM BUSINESS PARK.

Enclosed please find herewith the tentative demand notice for subjected work amounting to Rs. 344,801,438/- (Rupees thirty four crore forty eight lac one thousand four hundred and thirty eight only) which may be deposited in favour of Chief Financial Officer, LESCO for further necessary action, under intimation to this office.

DA / As above

1- Demand Notice


PROJECT DIRECTOR
GSC LESCO LAHORE

Copy to:

1. G.M (Tech) LESCO, Lahore
2. Chief Financial Officer LESCO, Lahore
3. Chief Engineer Development (PMU) LESCO, Lahore
4. Chief Engineer P&D LESCO, Lahore
5. XEN GC Division GSC LESCO, Lahore


S.A.M.D.
CONSULTANTS

S.A.M.D.



NATIONAL TRANSMISSION & DESPATCH CO. LTD (NTDC)

General Manager Planning Power, NTDC

No. GMPP/CEMP/TRP-300/1842-15

Dated: 11-04-2017

Chief Engineer Electrical (PIEDMC)

Commercial Area (North) Sundar Industrial Estate,
Sundar-Raiwind Road. Lahore.

Fax #: +92-42-35297207

Sub: Submission of Draft Study Report of Power Supply Scheme for 2x120 MW Load Demand for Quaid-e-Azam Apparel Park (QAAP) Sheikhpura under M/s Punjab Industrial Estates Development & Management Company (PIEDMC)

Ref: (i) M/s PIEDMC letter No. PIE/ELECT/QAAP/NTDC-3265 dated 07-03-2017.
(ii) Energy Department letter No. CE(P)/240/DS dated 10-02-2017

Enclosed please find herewith two copies of the system study report of the proposed power supply scheme to feed 2x120 MW load demand for Quaid-e-Azam Apparel Park (QAAP) Sheikhpura under M/s Punjab Industrial Estates Development & Management Company (PIEDMC). The report contains the proposed power supply scheme for QAAP and the results of load flow and short circuit studies.

DA/As Above

(Imtiaz Ahmad Shad)
Chief Engineer Master Planning

cc:

- General Manager (Service Division) NTDC, Wapda House, Lahore. (Fax: 042-99204185)
- Chief Engineer (Power), Energy Department, 1st Floor Central Design Building, Irrigation Secretariat, Old Anarkali Lahore. (Fax: 042-99212796)
- Master File (MP)

SAAD

**National Transmission and Despatch Company
Limited (NTDC)**



**System Study Report for Power Supply Scheme
to Feed Load Demand of
Quaid-e-Azam Apparel Park (QAAP) Sheikhupura**

(Draft Report)

**Planning (Power) Department
4th Floor, PIA Tower, Egerton Road, Lahore.**

April 2017

Executive Summary

1. Punjab Industrial Estates Development and Management Company (PIEDMC) is planning to establish Industrial Zone named Quaid-e-Azam Apparel Park (QAAP) Sheikhupura. The location of QAAP is near M-2 motorway in District Sheikhupura. PIEDMC has already planned two 132 kV substations to meet load demand of QAAP which would be 2x8 MW in the first year and increase to 2x120 MW in year 2023.
2. PIEDMC has requested Planning Power department of NTDC to carry out system studies to propose the power supply scheme to meet the load demand of QAAP.
3. This is draft system study report prepared by Planning Power department of NTDC in which the results of load flow and short circuit studies have been presented for the proposed power supply scheme to QAAP. The scope of services for proposed power supply scheme to QAAP in this study report is limited to 220 kV and 132 kV voltage levels only.
4. In order to prepare this study report, the basic information has been provided by PIEDMC to NTDC which include; location of 132 kV substations of QAAP and their distances from existing substations and the transmission lines QAAP and the yearly load demand of QAAP. A joint site visit of QAAP was also carried out by the officers of NTDC and PIEDMC during the course of this study.
5. The following phase-wise power supply scheme to feed QAAP has been proposed in view of its location & load development plan, the existing & planned transmission network in its vicinity, the availability of right of way and the time lines to construct the interconnection lines and substations:

Phase-1 (2018-19):

- A 220/132/11 kV substation at QAAP-1 with 2x250 MVA, 220/132 kV transformers and one 132/11 kV substation at QAAP-2.
- The 132/11 kV transformers at QAAP-1 and QAAP-2 with 40 MVA rating and the number of transformers be added as per load development plan of QAAP.
- A 220 kV Double Circuit (D/C) transmission line, approx. 3 km long on Rail conductor, for looping in-out of one circuit of the existing 220 kV Bandala New – K.S. Kaku D/C line at QAAP-1 220/132/11 kV substation.
- A 132 kV D/C transmission line, approx. 5.8 km long on Rail conductor, from QAAP-1 to QAAP-2.

Phase-2 (2020-21):

- Another 220 kV D/C transmission line, approx. 3 km long on Rail conductor, for looping in-out of 2nd circuit of the existing 220 kV Bandala – K.S. Kaku D/C line at QAAP-1 220/132/11 kV substation.

Phase-3 (2022-23):

- 36 MVAR, 132 kV shunt capacitors at QAAP-2 132 kV substation.
6. Load flow studies have been carried out for the selected system scenarios of summer 2019, 2021 and 2023 in order to evaluate the adequacy of the above proposed power supply scheme in the light of NEPRA Grid Code.
 7. Short circuit studies have also been carried out to compute short circuit levels at the 220 kV and 132 kV substations of QAAP. As per study results, short circuit rating of 40 kA for the switchgear equipment at the 220 & 132 kV substations of QAAP have been proposed.
 8. On the basis of the studies, the proposed power supply scheme to meet load demand of QAAP through a 220/132/11 kV substation (QAAP-1) and one 132 kV substation (QAAP-2) has been found adequate and reliable to meet ultimate load demand of $2 \times 120 = 240$ MW under normal and N-1 contingency conditions.
 9. The comments of PIEDMC and PPDB on this report are welcome and would be incorporated in the final report where found necessary.

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Figure 1: Geographical Diagram

Appendices

- Appendix-1: Data Provided by PIEDMC
- Appendix-2: Load Flow Study Exhibits
- Appendix-3: Short Circuit Study Exhibits

1. Introduction

Punjab Industrial Estates Development and Management Company (PIEDMC) is planning to establish Industrial Zone named Quaid-e-Azam Apparel Park (QAAP) Sheikhupura. The location of QAAP is near M-2 motorway in District Sheikhupura. PIEDMC has already planned two 132 kV substations to meet load demand of QAAP which would be 2x8 MW in the first year and increase to 2x120 MW in year 2023.

PIEDMC has requested Planning Power department of NTDC to carry out system studies to propose the power supply scheme to meet the load demand of QAAP.

In order to prepare this study report, the basic information has been provided by PIEDMC to NTDC which include; location of 132 kV substations of QAAP and their distances from existing substations and the transmission lines QAAP and the yearly load demand of QAAP. A joint site visit of QAAP was also carried out by the officers of NTDC and PIEDMC during the course of this study

This is a draft system study report in which the results of load flow and short circuit studies have been presented for the proposed power supply scheme to QAAP. The load flow analysis has been carried out for the peak load scenarios of summer 2019, 2021 and 2023 in order to evaluate the adequacy of the proposed power supply scheme in the light of NEPRA Grid Code. Short circuit studies have also been carried out to compute short circuit levels at the 220 kV and 132 kV substations of QAAP and to propose the short circuit rating for the switchgear equipment at the 220 & 132 kV substations of QAAP.

2. Proposed Power Supply Scheme for QAAP

The following phase-wise power supply scheme to feed QAAP has been proposed in view of its location & load development plan, the existing & planned transmission network in its vicinity, the availability of right of way and the time lines to construct the interconnection lines and substations:

Phase-1 (2018-19):

- A 220/132/11 kV substation at QAAP-1 with 2x250 MVA, 220/132 kV transformers and one 132/11 kV substation QAAP-2.
- The 132/11 kV transformers at QAAP-1 and QAAP-2 with 40 MVA rating and the number of transformers be added as per load development plan of QAAP.
- A 220 kV Double Circuit (D/C) transmission line, approx. 3 km long on Rail conductor, for looping in-out of one circuit of the existing 220 kV Bandala New – K.S. Kaku D/C line at QAAP-1 220/132/11 kV substation.
- A 132 kV D/C transmission line, approx. 5.8 km long on Rail conductor, from QAAP-1 to QAAP-2.

Phase-2 in 2020-21:

- Another 220 kV D/C transmission line, approx. 3 km long on Rail conductor, for looping in-out of 2nd circuit of the existing 220 kV Bandala – K.S. Kaku D/C line at QAAP-1 220/132/11 kV substation.

Phase-3 in 2022-23:

- 36 MVAR, 132 kV shunt capacitors at QAAP-2 132 kV substation.

The geographical diagram showing the above proposed power supply scheme for QAAP is shown in Figure # 1.

3. Study Assumptions and Criteria

3.1. Study Assumption

The assumptions for the load flow studies are as under:

- Latest load forecast.
- Latest generation expansion plan.
- Latest transmission expansion plans of NTDC and DISCOs, especially, the expansion plans of LESCO. NTDC is upgrading its network to meet the load demand of northern part of LESCO in the vicinity of QAAP through the addition of 220/132 kV transformer at K.S.Kaku & augmentation of 3x160 MVA, 220/132 kV transformer at Lahore 500 kV substation with 3x250 MVA in year 2017 and a new 500/220/132 kV substation (Lahore North) in 2019.
- The system has been assumed to be operating in an interconnected manner, however split bus arrangement and necessary line openings have been assumed in some parts of the network as per requirements i.e., the split 132 kV bus bar arrangements at Bund Road, Lahore and K.S.K 220/132kV substations.
- The power factor at 132kV substations of QAAP is assumed as 0.9 lagging.
- Load forecast on both 132 kV substations (QAAP-1 & QAAP-2) as provided by PIEDMC has been assumed in the study and is attached in Appendix-1.
- Load power factor of 0.9 lagging at each of 132 kV substations of QAAP-1 and QAAP-2.
- The scope of services is limited to 220 kV and 132 kV voltage levels only at QAAP.

3.2. Study Criteria

The load flow studies have been carried out keeping in view of the following system operating criteria/limits in accordance with Grid Code:

Voltage Limits: $\pm 5\%$ under normal and $\pm 10\%$ under contingency conditions. However, voltages at some generating stations and/or substations at 500 kV & 220 kV may be kept up to $+8\%$ under normal operating conditions as per network configuration and/or system requirements.

Transmission Line Loading Limits: 100% of rating under normal and N-1 contingency conditions.

Transformer Loading Limits: 100% of rating under normal and 110% under N-1 contingency conditions.

4. Load Flow Studies

Load flow studies have been carried out for the peak load scenarios of summer seasons from July to September in years 2019, 2021 and 2023 to assess the adequacy of the proposed power supply scheme to feed Quaid-e-Azam Apparel Park (QAAP) and to analyze its impact on the system networks of LESCO and NTDC.

The results of the load flow studies with proposed power supply scheme for QAAP are described as under:

4.1. Peak Load Summer 2019 Scenario

Load flow studies for peak load scenario of summer 2019 have been carried out with its proposed power supply scheme (Phase-1) and 30 MW load at each of 132 kV substations of QAAP-1 and QAAP-2. The study results of normal operating condition for summer 2019 is attached as Exhibit #1.

As per load flow study, the power flows on the 220 kV & 132 kV transmission lines and 220/132 kV transformers feeding QAAP are given as under:

Transmission Line/Transformer	Power Flow
K.S.Kaku - QAAP-1 220 kV Single Circuit (S/C)	50.6 MW
Bandala - QAAP-1 New 220 kV S/C	9.6 MW
2x250 MVA, 220/132 kV Transformers QAAP-1	60 MW
QAAP-1 – QAAP-2 132 kV D/C line	2x15 MW

As per load flow study, the power flows on the proposed transmission lines and transformers at QAAP as well as the voltage profile at 220 kV & 132 kV substations of QAAP under normal conditions are within prescribed criteria of NEPRA. In general, the study depicts that the system would be operating well within limits, i.e., the line & transformer loadings and voltage profile at the surrounding network are also well within limits and there would be no transmission system constraints in feeding a load of 2x30MW of QAAP through the proposed power supply scheme.

N-1 Contingency Analysis:

The load flow studies have also been carried out for the single line contingency (N-1) analysis on the proposed power supply scheme of QAAP and are attached as Exhibit #2-6. The results of contingency studies have been summarized as under:

Exhibit #	Transmission Line / Transformer Outage	Remarks
2	K.S.Kaku - QAAP-1 220 kV Single Circuit (S/C) out	Power flows on the other transmission lines and transformers as well as the voltage profile of the system remain within limits.
3	Bandala New - QAAP-1 220kV S/C out	-do-
4	Bandala New - K.S.Kaku 220kV S/C out	-do-
5	QAAP-1 – QAAP-2 132 kV S/C out	-do-
6	1x250 MVA, 220/132 kV transformer out at QAAP-1	-do-

4.2. Peak Load Summer 2021 Scenario

Load flow studies for peak load scenario of summer 2021 have been carried out with its proposed power supply scheme (Phase-2) and 74 MW load at each of 132 kV substations of QAAP-1 and QAAP-2. The study results of normal operating condition for summer 2021 is attached as Exhibit #7.

As per load flow study, the power flows on the 220 kV & 132 kV transmission lines and 220/132 kV transformers feeding QAAP are given as under:

Transmission Line/Transformer	Power Flow (MW)
K.S.Kaku - QAAP-1 220 kV D/C line	2x63.2 MW
Bandala New - QAAP-1 220 kV D/C line	2x11 MW
<u>2x250 MVA</u> , 220/132 kV Transformers QAAP-1	148.1 MW
QAAP-1 – QAAP-2 132 kV D/C line	2x7 MW

As per load flow study, the power flows on the proposed transmission lines and transformers at QAAP as well as the voltage profile at 220 kV & 132 kV substations of QAAP under normal conditions are within prescribed criteria of NEPRA. In general, the study depicts that the system would be operating well within limits, i.e., the line & transformer loadings and voltage profile at the surrounding network are also well within limits and there would be no transmission system constraints in feeding a load of 2x74 MW of QAAP through the proposed power supply scheme.

N-1 Contingency Analysis:

The load flow studies have also been carried out for the single line contingency (N-1) analysis on the proposed power supply scheme of QAAP and are attached as Exhibit #8-11. The results of contingency studies have been summarized as under:

Exhibit #	Transmission Line / Transformer Outage	Remarks
8	K.S.Kaku - QAAP-1 220 kV S/C out	Power flows on the other transmission lines and transformers as well as the voltage profile of the system remain within limits.
9	Bandala New - QAAP-1 220kV S/C out	-do-
10	QAAP-1 – QAAP-2 132 kV S/C out	-do-
11	1x250 MVA, 220/132 kV transformer out at QAAP-1	-do-

4.3. Peak Load Summer 2023 Scenario

Load flow studies for peak load scenario of summer 2023 have been carried out with its proposed power supply scheme (Phase-3) and ultimate load of 120 MW load at each of 132 kV substations of QAAP-1 and QAAP-2. The study results of normal operating condition for summer 2023 is attached as Exhibit #12.

As per load flow study, the power flows on the 220 kV & 132 kV transmission lines and 220/132 kV transformers feeding QAAP are given as under:

Transmission Line/Transformer	Power Flow (MW)
K.S.Kaku - QAAP-1 220 kV D/C line	2x114.6 MW
Bandala New - QAAP-1 220 kV D/C line	2x6 MW
2x250 MVA, 220/132 kV Transformers QAAP-1	240.2 MW
QAAP-1 – QAAP-2 132 kV D/C line	2x60.1 MW

As per load flow study, the power flows on the above transmission lines and transformers at QAAP as well as the voltage profile at 220 kV & 132 kV substations of QAAP under normal conditions are within prescribed criteria of NEPRA. In general, the study depicts that the system would be operating well within limits, i.e., the line & transformer loadings and voltage profile at the surrounding network are also well within limits and there would be no transmission system constraints in feeding the ultimate load of 2x120 MW of QAAP through the proposed power supply scheme.

N-1 Contingency Analysis:

The load flow studies have also been carried out for the single line contingency (N-1) analysis on the proposed power supply scheme of QAAP and are attached as Exhibit #13-16. The results of contingency studies have been summarized as under

Exhibit #	Transmission Line / Transformer Outage	Remarks
13	K.S.Kaku - QAAP-1 220 kV S/C out	Power flows on the other transmission lines and transformers as well as the voltage profile of the system remain within limits.
14	Bandala New - QAAP-1 220kV S/C out	-do-
15	QAAP-1 - QAAP-2 132 kV S/C out	-do-
16	1x250 MVA, 220/132 kV transformer out at QAAP-1	-do-

4.4. Conclusions of Load Flow Analysis

In all the study scenarios, it is found that the power flows on the proposed transmission lines and transformers at QAAP as well as the voltage profile at 220 kV & 132 kV substations of QAAP under normal conditions are within prescribed criteria of NEPRA. Moreover, the studies also reveal that the system would be operating well within limits. i.e., the line & transformer loadings and voltage profile at the surrounding network are also well within limits and there would be no transmission system constraints in feeding the ultimate load of 2x120 MW of QAAP through the proposed power supply scheme for QAAP.

It is important to mention that the load demand at QAAP needs to be developed in line with the COD of the planned 500/220/132 kV substation of Lahore North. In case of delay of Lahore North 500/220/132 kV substation, some load adjustment in the northern part of LESCO may have to be carried out to meet the load demand of QAAP.

5. Short Circuit Studies

Short circuit studies have been carried out to compute three phase and single phase fault levels at 220 kV & 132 kV substations of QAAP which is being fed through the proposed power supply scheme.

5.1. Methodology and Assumptions

The methodology of IEC 909 has been applied in the short circuit analysis in this report for which provision is available in the PSS/E software which is used for these studies.

The maximum fault currents have been calculated with the following assumptions under IEC 909:

- Set tap ratios to unity
- Set line charging to Zero
- Set shunt to zero in positive sequence
- Desired voltage magnitude at bus bars set equal to 1.10 P.U. to compute maximum the short circuit levels.

5.2. Short Circuit Study Results

The short circuit studies have been carried out with proposed power supply scheme for future scenario of 2023 to compute the maximum three phase and single phase short circuit levels at the 220 kV and 132 kV substations of QAAP. The studies have been carried out with all the existing and planned generation in operation and with interconnected transmission system. The analysis of the short circuit studies has been attached as Exhibit #17 and the results are summarized as under:

Name of Faulted Bus Bars	Voltage Level (kV)	Maximum Short Circuit Levels (kA)	
		Three Phase	Single Phase
QAAP-1 (220)	220	23.16	15.02
QAAP-1	132	11.98	10.27
QAAP-2	132	10.43	8.45

Although, the short circuit levels are below 24 kA at 220 kV and 12 kA at 132 kV substations of QAAP in year 2023, however, the short circuit levels of QAAP may rise in future in view of future developments in NTDC and LESCO networks. Therefore, the

short circuit rating of 40 kA for the switchgear equipment at the 220 & 132 kV substations of QAAP have been proposed.

6. Conclusions and Recommendations

- (a) The following phase-wise power supply scheme to feed QAAP has been proposed in view of its location & load development plan, the existing & planned transmission network in its vicinity, the availability of right of way and the time lines to construct the interconnection lines and substations:

Phase-1 (2018-19):

- A 220/132/11 kV substation at QAAP-1 with 2x250 MVA, 220/132 kV transformers and one 132/11 kV substation at QAAP-2.
- The 132/11 kV transformers at QAAP-1 and QAAP-2 with 40 MVA rating and the number of transformers be added as per load development plan of QAAP.
- A 220 kV Double Circuit (D/C) transmission line, approx. 3 km long on Rail conductor, for looping in-out of one circuit of the existing 220 kV Bandala New – K.S. Kaku D/C line at QAAP-1 220/132/11 kV substation.
- A 132 kV D/C transmission line, approx. 5.8 km long on Rail conductor, from QAAP-1 to QAAP-2.

Phase-2 (2020-21):

- Another 220 kV D/C transmission line, approx. 3 km long on Rail conductor, for looping in-out of 2nd circuit of the existing 220 kV Bandala – K.S. Kaku D/C line at QAAP-1 220/132/11 kV substation.

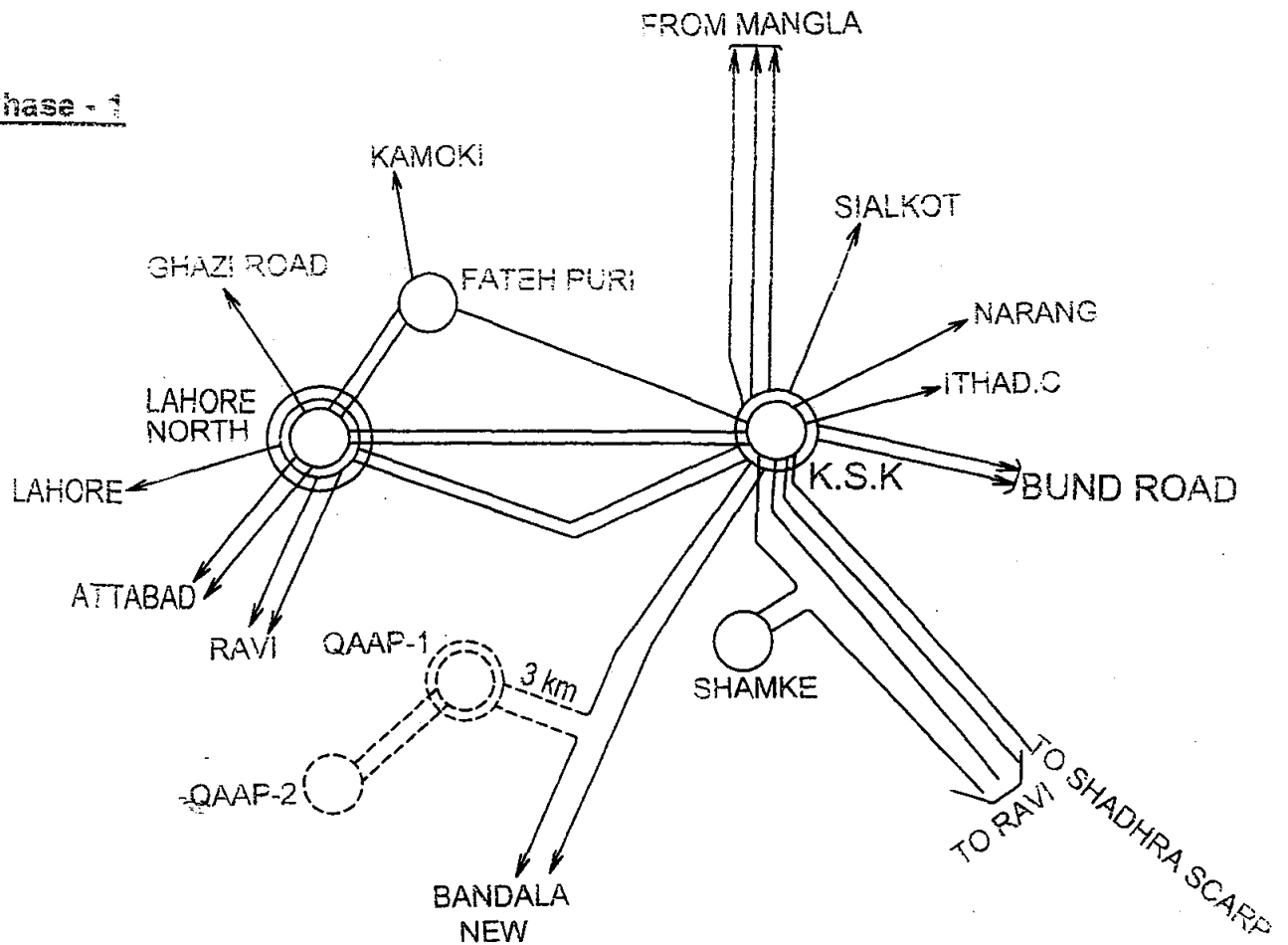
Phase-3 (2022-23):

- 132 kV, 36 MVAR, shunt capacitor at QAAP-2 132 kV substation.

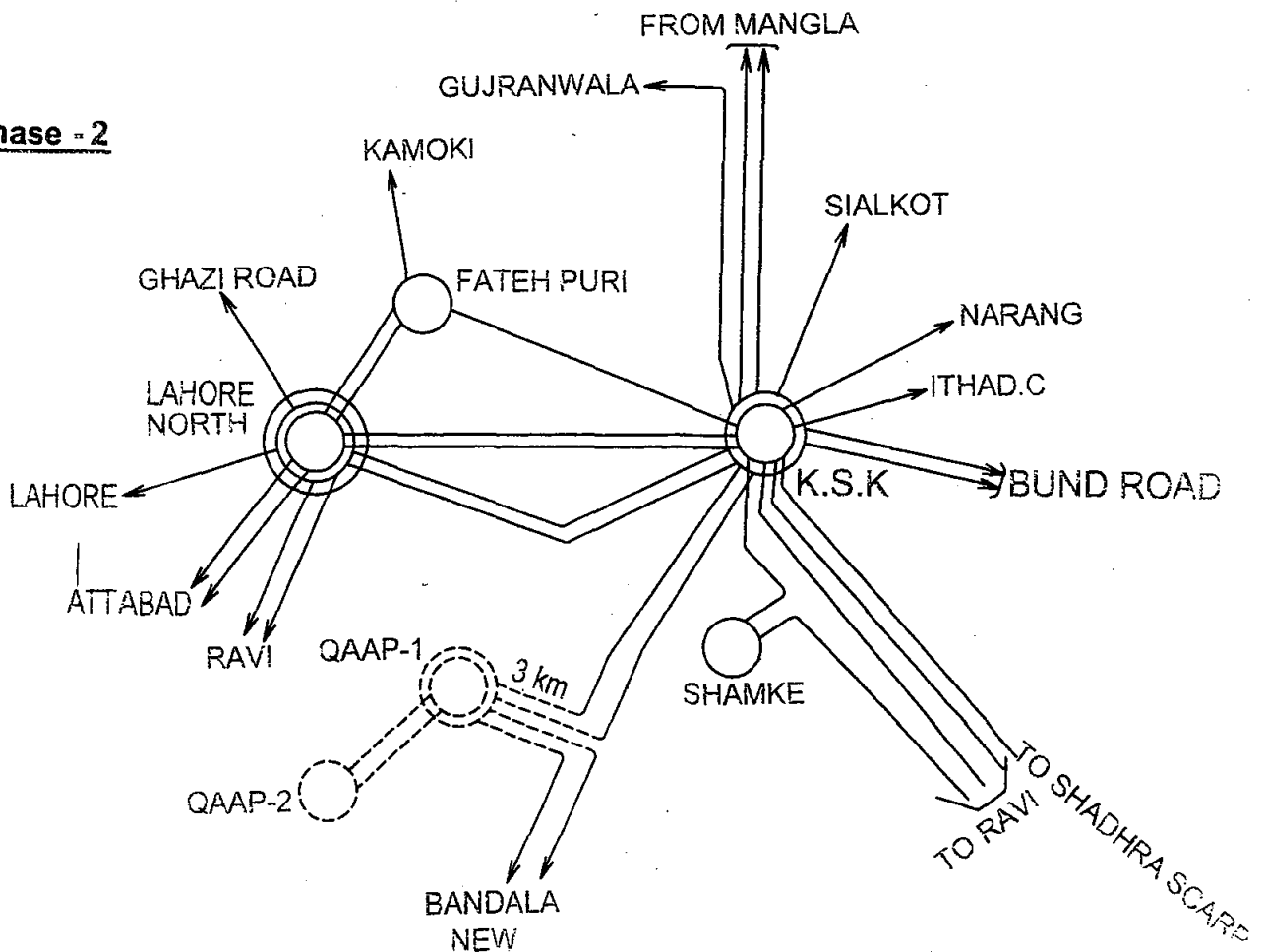
- (b) The above proposed power supply scheme has been found reliable to supply power to meet load demand of QAAP and there will be no overloading and/or any network constraints at/around QAAP under normal and N-1 contingency conditions.
- (c) As per short circuit study results, the short circuit levels are below 24 kA at 220 kV and 12 kA at 132 kV substations of QAAP in year 2023, however, in consideration of future developments in NTDC and LESCO networks in the surrounding of QAAP in long term perspective, the short circuit levels of QAAP are expected to rise. Therefore, the short circuit rating of 40 kA for the switchgear equipment at the 220kV & 132 kV substations of QAAP have been proposed.

Figure# 1: POWER SUPPLY SCHEME FOR QUAID-E-AZAM APPAREL PARK (QAAP)

Phase - 1



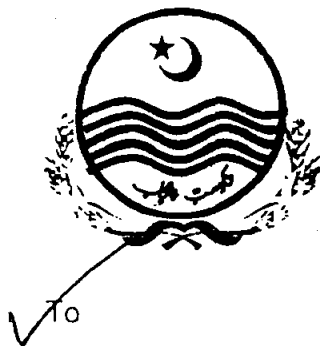
Phase - 2



SAID
CONSULTANTS
Said

Appendices

Appendix-1



No. CE (P)/ 239 /DS

OFFICE OF
THE CHIEF ENGINEER (POWER)
ENERGY DEPARTMENT
GOVERNMENT OF THE PUNJAB
1st Floor, Central Design Building,
Irrigation Secretariat, Old Anarkali, Lahore.
(Ph: 042-99212794) (Fax: 042-99212796)

Dated: 10-02- /2017

General Manager (Planning Power) NTDCL
4th Floor, PIA Tower Egerton Road, Lahore.

Subject: **LOAD FLOW STUDY OF 2X120 MW LOAD FOR QUAID-E-AZAM APPAREL PARK (QAAP) SHEIKHUPURA UNDER M/S PUNJAB INDUSTRIAL ESTATE DEVELOPMENT & MANAGEMENT COMPANY (PIEDMC).**

Kindly refer to your letter No. GMPP/CEMP/PRP-376/758-60 dated 09/02/2017 on the subject noted above.

In this regard, it is informed that the requisite information has already been submitted to your good office by Chief Engineer (Dev.) PMU, LESCO vide its letter No. 5645-49/C.E(Dev)/M/(P&S)/532 dated 23/11/2016 (copy enclosed). However the detail of coordinates of the project, and year-wise expected load growth provided by PIEDMC is attached herewith as ready reference. It is added that the charges for Load Flow Study amounting to Rs. 400,000/- (Four Hundred Thousand Only) will be paid by PIEDMC shortly.

It is therefore requested to kindly proceed further to carry out Load Flow Study of the proposed 220KV Grid Station at QAAP Sheikhpura.

DA/as above

Chief Engineer (Power)

C.C:

1. Managing Director, NTDCL, WAPDA House, Lahore.
2. General Manager (Services Division), NTDCL, WAPDA House, Lahore.
3. Chief Engineer (Electrical), PIEDMC Sundar Industrial Estate, Raiwand.

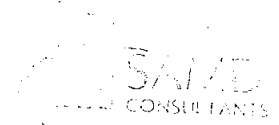
**Load Forecast of Grid Station -1
at QAAP**

COD: July-2018

Sr. No	Year	Projected Load In MW
1	2018	8
2	2019	30
3	2020	52
4	2021	74
5	2022	96
6	2023	120



Chief Engineer Electrical PIEDMC

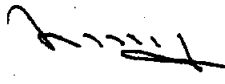

SAVED
CONSULTANTS

SAND

**Load Forecast of Grid Station -2
at QAAP**

COD: July -2018

Sr. No	Year	Projected Load In MW
1	2018	8
2	2019	30
3	2020	52
4	2021	74
5	2022	96
6	2023	120


Chief Engineer Electrical PIEDMC

Attention

YASIN Sb.

**LAHORE ELECTRIC SUPPLY COMPANY**

Office of Chief Engineer (Development) LESCO

Qartaba Grid Station Bahawalpur Road Lahore.

Ph:042-99214410 FAX 042-99214412

No. 5645-49 /C.E (Dev)/M(P&S) /532.

Dated: 23 /11/2016

To

General Manager (Planning Power) NTDC
4th Floor, PIA Tower Egerton Road, Lahore.

Sub: Load Flow Study of 2x120MW Load for Quaid-e-Azam Apparel Park (QAAP) Sheikhupura under M/s Punjab Industrial Estate Development & Management Company (PIEDMC).

Ref: [1] Chief Engineer (PIEDMC) Letter No. 2092 dated 11-11-2016 (copy attached).
[2] This Office Letter No. 4783-87 dated 04-11-2016.

It is submitted that PIEDMC is establishing an Industrial Estate named as Quaid-e-Azam Apparel Park (QAAP) in Sheikhupura District at Motorway M-2. To cater the load demand of this Industrial Estate, 02x132/11.5kV Grid Stations were planned with the load of 120MW each. The load flow study was carried out by this office with feeding arrangements from 220/132kV Kala Shah Kaku & 500/220/132kV Sheikhupura Grid Stations. However in a meeting held in LESCO H/Q on 19-10-2016, it was unanimously decided by all stake holders that PIEDMC should construct its own 220/132kV Grid Station, for stable/smooth supply of power & to avoid overloading of NTDC Grid Stations.

As 220kV system falls under the purview of NTDC, it is requested to carry out the load flow study for construction of 220/132kV Grid Station for QAAP. The following documents received from PIEDMC, are attached for ready reference:

1. Topographical Map of Site.
2. Location Map Showing space for Grid Stations..
3. Expected COD & Load Forecast.

DA: As Above (06 Pages)

[Signature]
Chief Engineer (Dev.)
PMU LESCO

Info:

1. CEO LESCO, Lahore.
2. Technical Director LESCO, Lahore.
3. Chief Engineer (Electrical) PIEDMC, Commercial Area (North) Sundar Industrial Estate, Raiwind Road Sundar, Lahore.
4. Chief Engineer (Power), Energy Dept, 1st Floor Central Design Building, Irrigation Secretariat, Old Anarkali, Lahore.
- ✓ 5. Master File.

SAUND
CONSULTANTS
SAND

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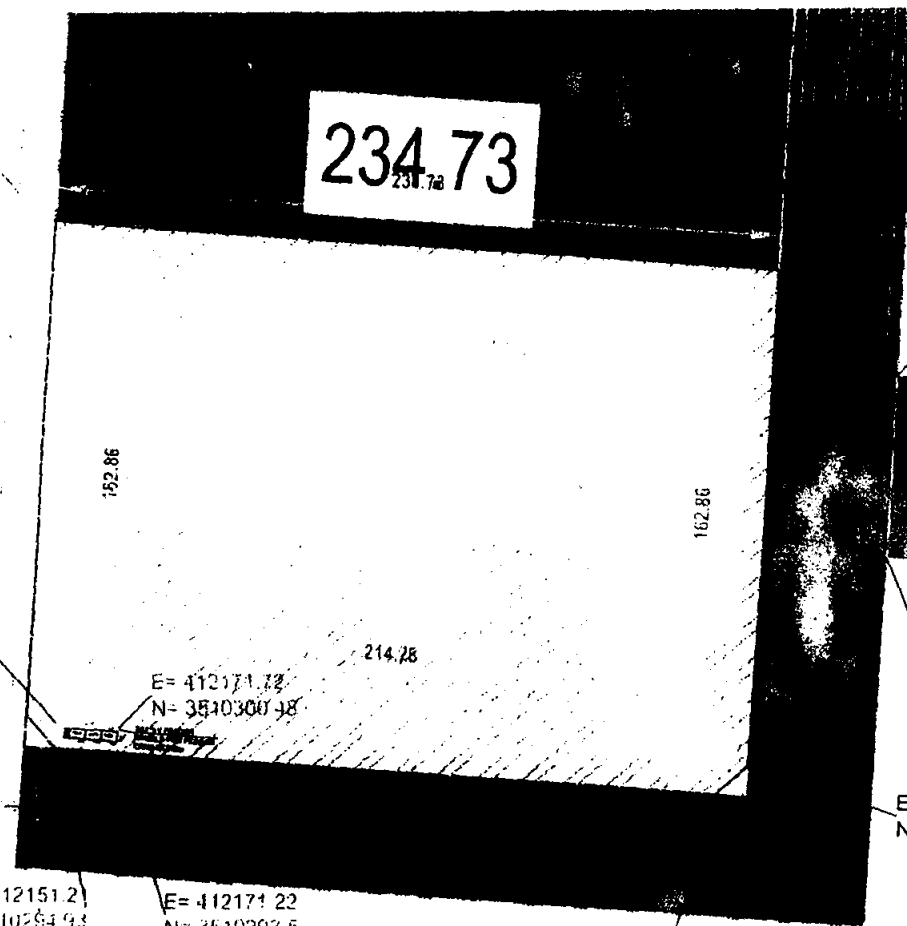
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Proposed site for
 220/132/11 KV Grid
 Station

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1.43

2.0

01C

02C

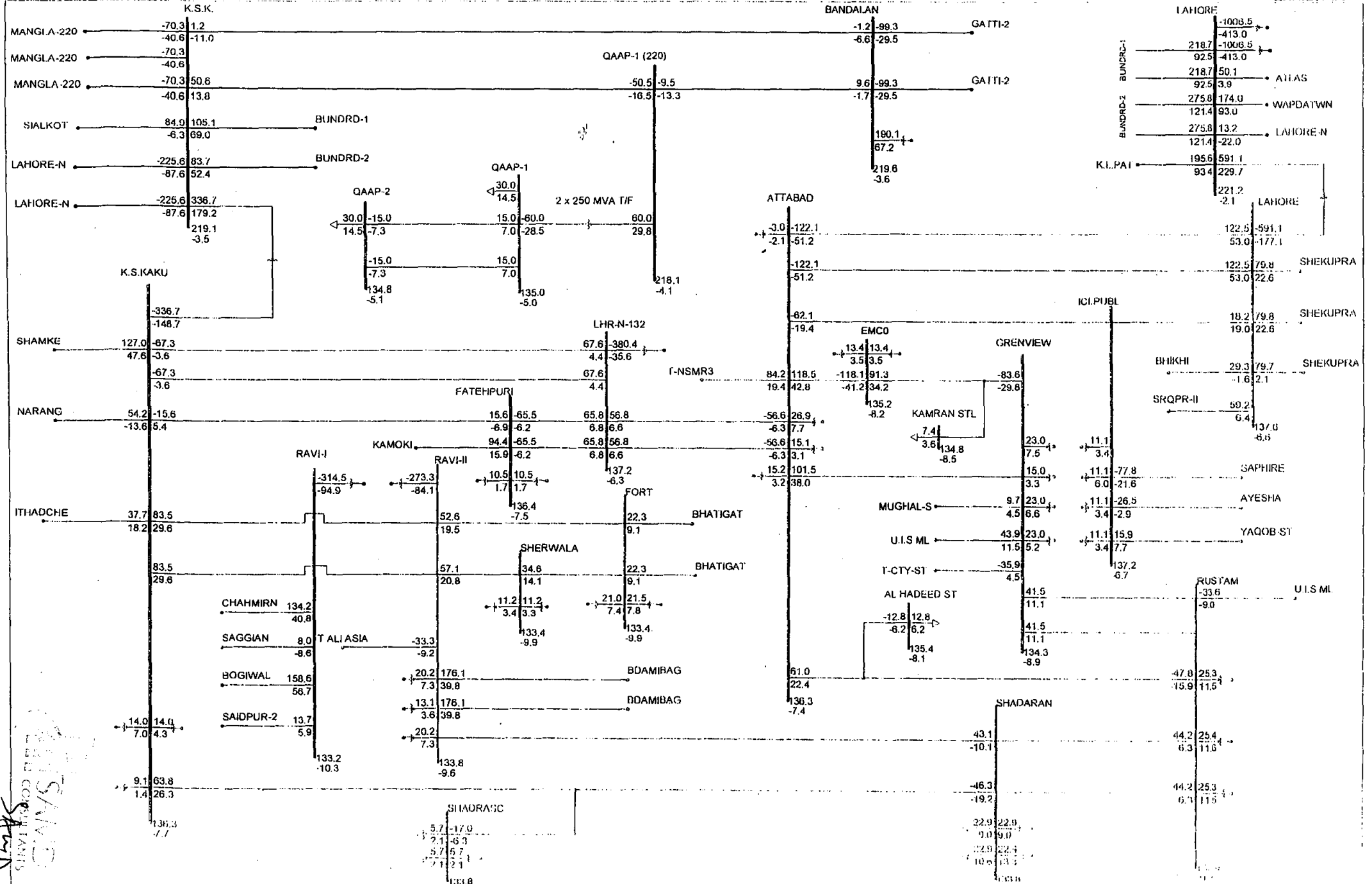
3/1/00
SAND

Appendix-2

POWER SUPPLY ARRANGEMENT FOR QUAID-E-AZAM APPAREL PARK (2 x 30 MVA) PEAK LOAD SCENARIO IN SUMMER 2019

NORMAL CONDITION

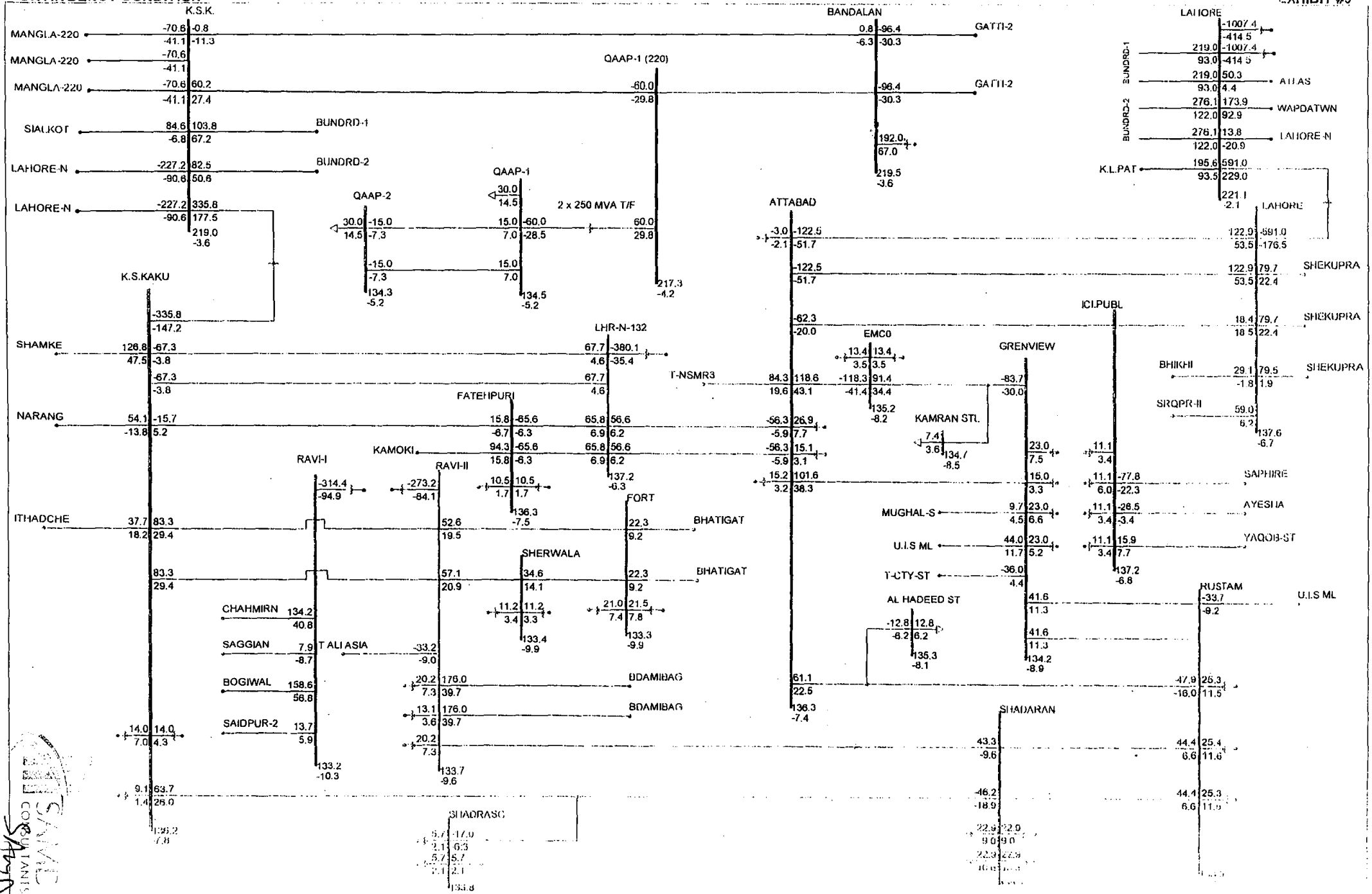
EXHIBIT #1



**POWER SUPPLY ARRANGEMENT FOR
QUAID-E-AZAM APPAREL PARK (2 x 30 M.,
PEAK LOAD SCENARIO IN SUMMER 2019)**

EXHIBIT #3

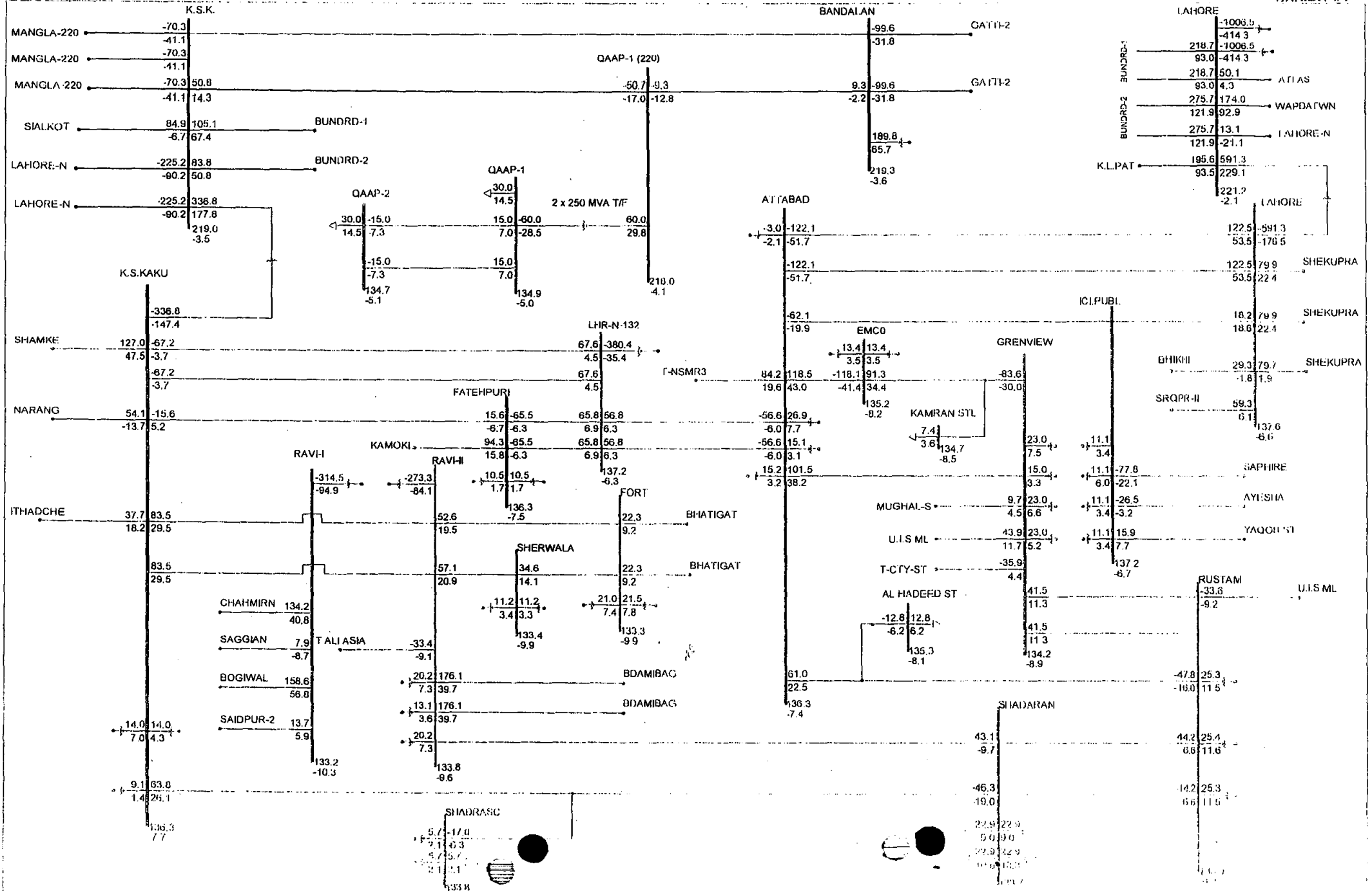
CONTINGENCY CONDITION



POWER SUPPLY ARRANGEMENT FOR QUAID-E-AZAM APPAREL PARK (2 x 30 MVA) PEAK LOAD SCENARIO IN SUMMER 2019

EXHIBIT #4

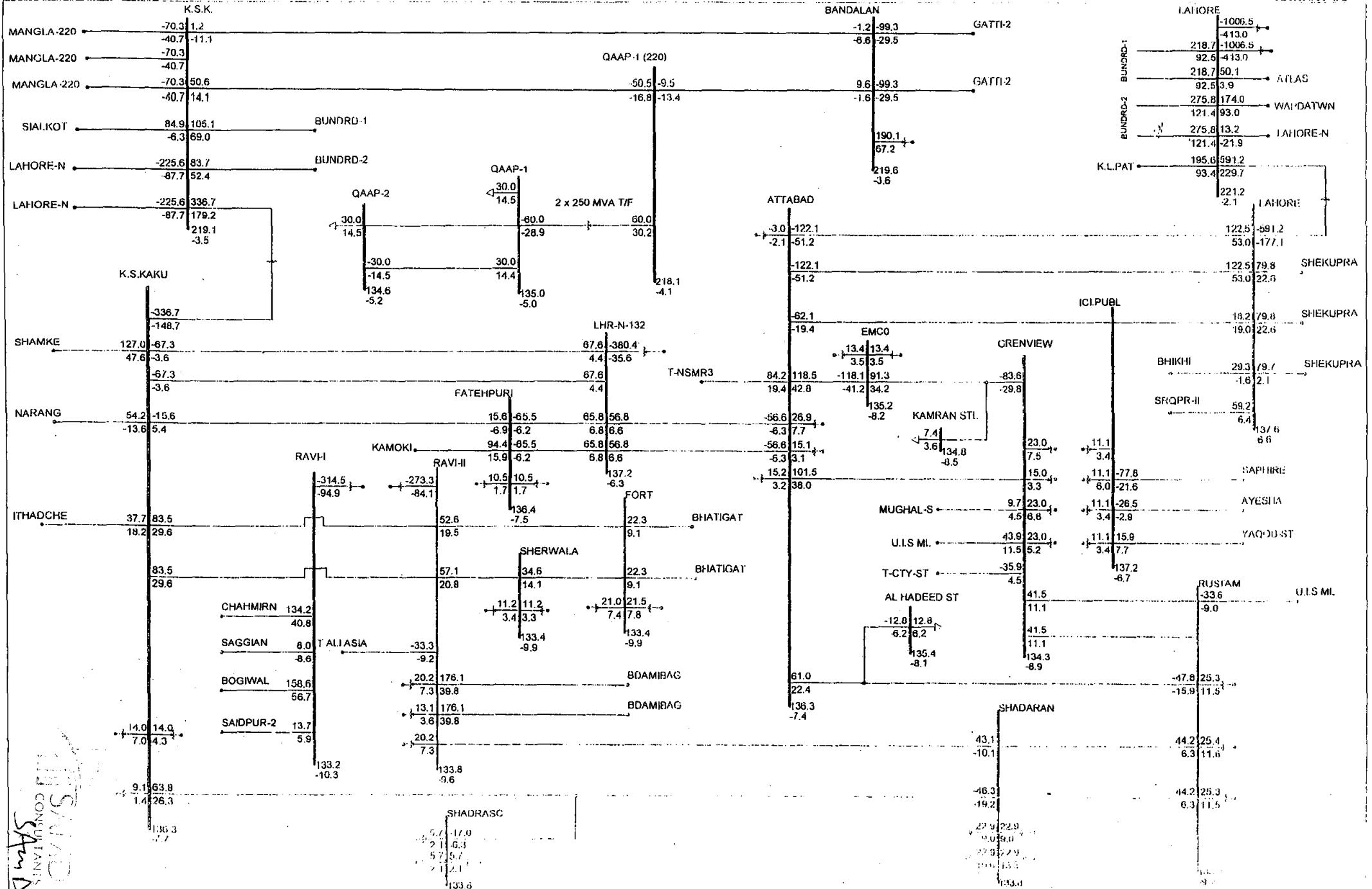
CONTINGENCY CONDITION



POWER SUPPLY ARRANGEMENT FOR QUAID-E-AZAM APPAREL PARK (2 x 30 M. PEAK LOAD SCENARIO IN SUMMER 2019

EXHIBIT #5

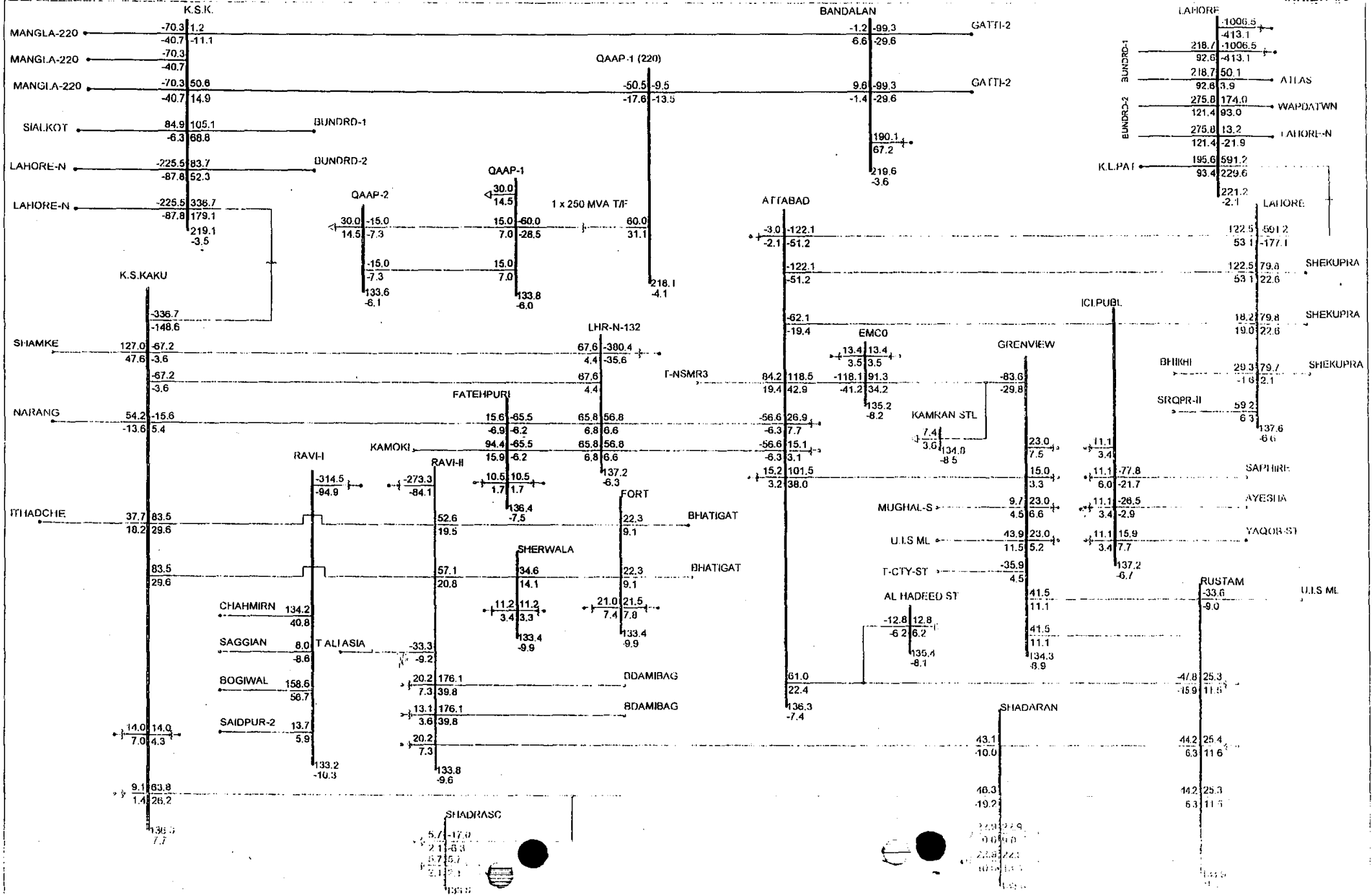
CONTINGENCY CONDITION



**POWER SUPPLY ARRANGEMENT FOR
QUAID-E-AZAM APPAREL PARK (2 x 30 MW)
PEAK LOAD SCENARIO IN SUMMER 2019**

EXHIBIT #6

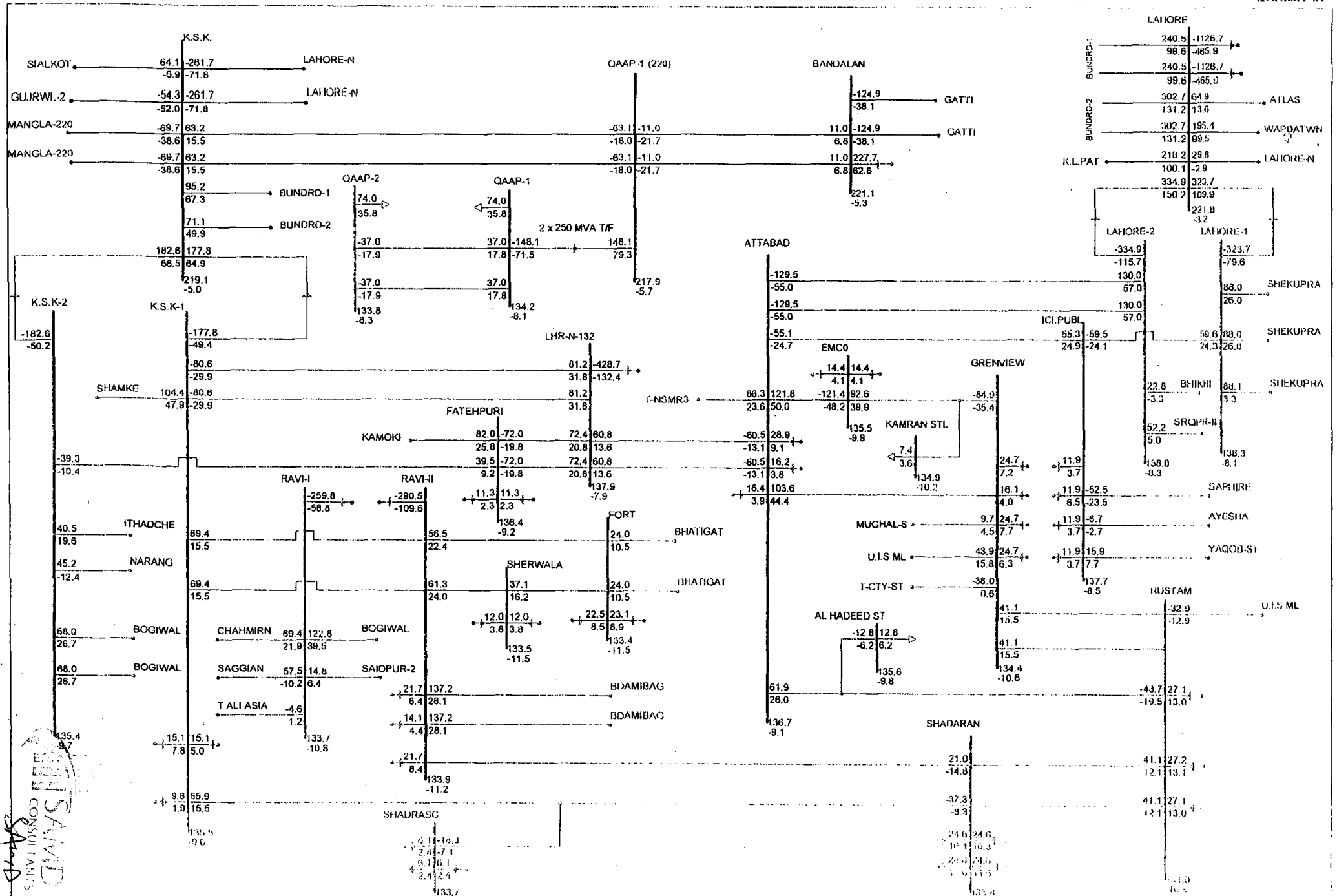
CONTINGENCY CONDITION



POWER SUPPLY ARRANGEMENT FOR QUAID-E-AZAM APPAREL PARK (2 x 74 MW) PEAK LOAD SCENARIO IN SUMMER 2021

NORMAL CONDITION

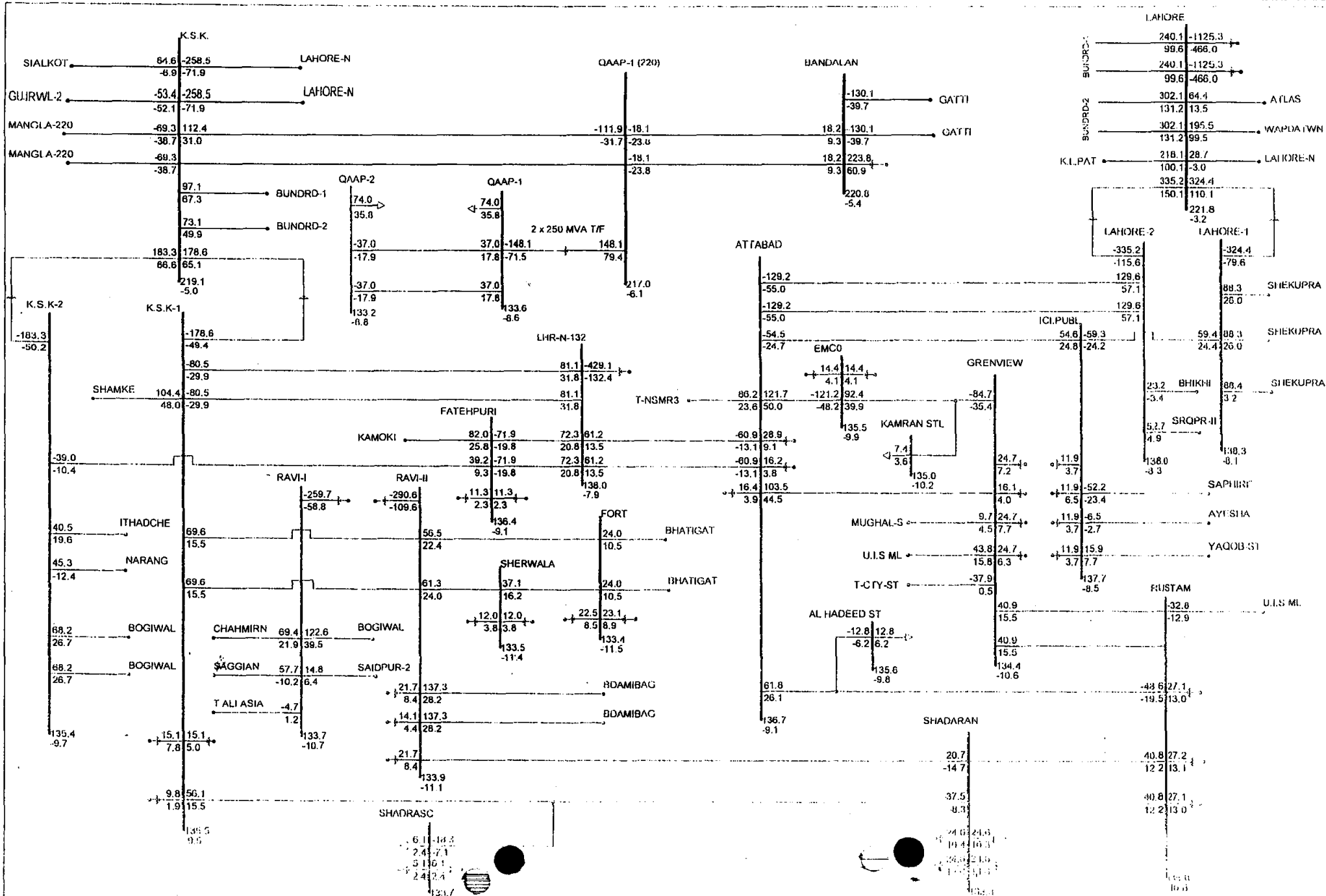
EXHIBIT #7



POWER SUPPLY ARRANGEMENT FOR QUAID-E-AZAM APPAREL PARK (2 x 74 MW) PEAK LOAD SCENARIO IN SUMMER 2021

CONTINGENCY CONDITION

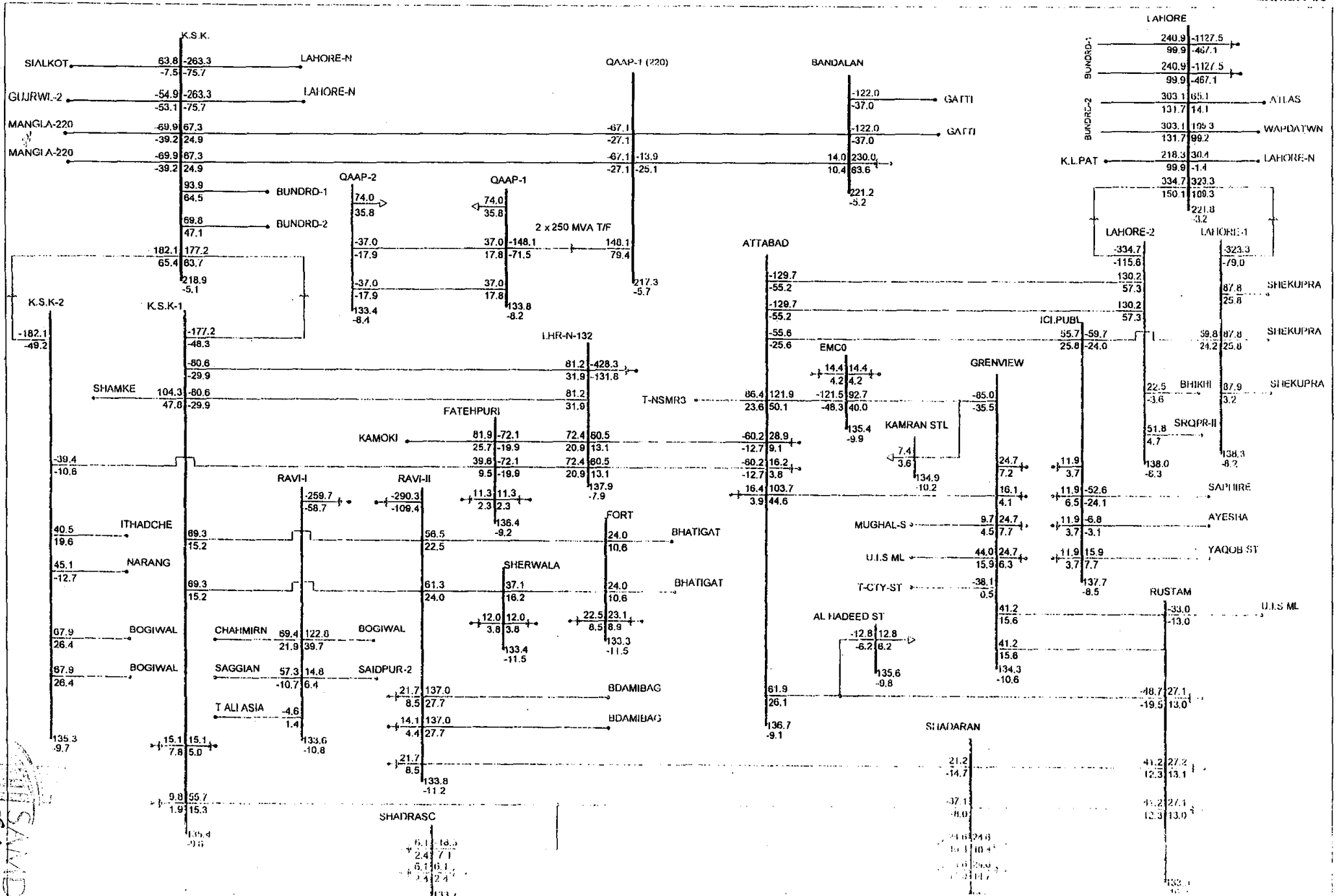
EXHIBIT #8



**POWER SUPPLY ARRANGEMENT FOR
QUAID-E-AZAM APPAREL PARK (2 x 74 MV)
PEAK LOAD SCENARIO IN SUMMER 2021**

CONTINGENCY CONDITION

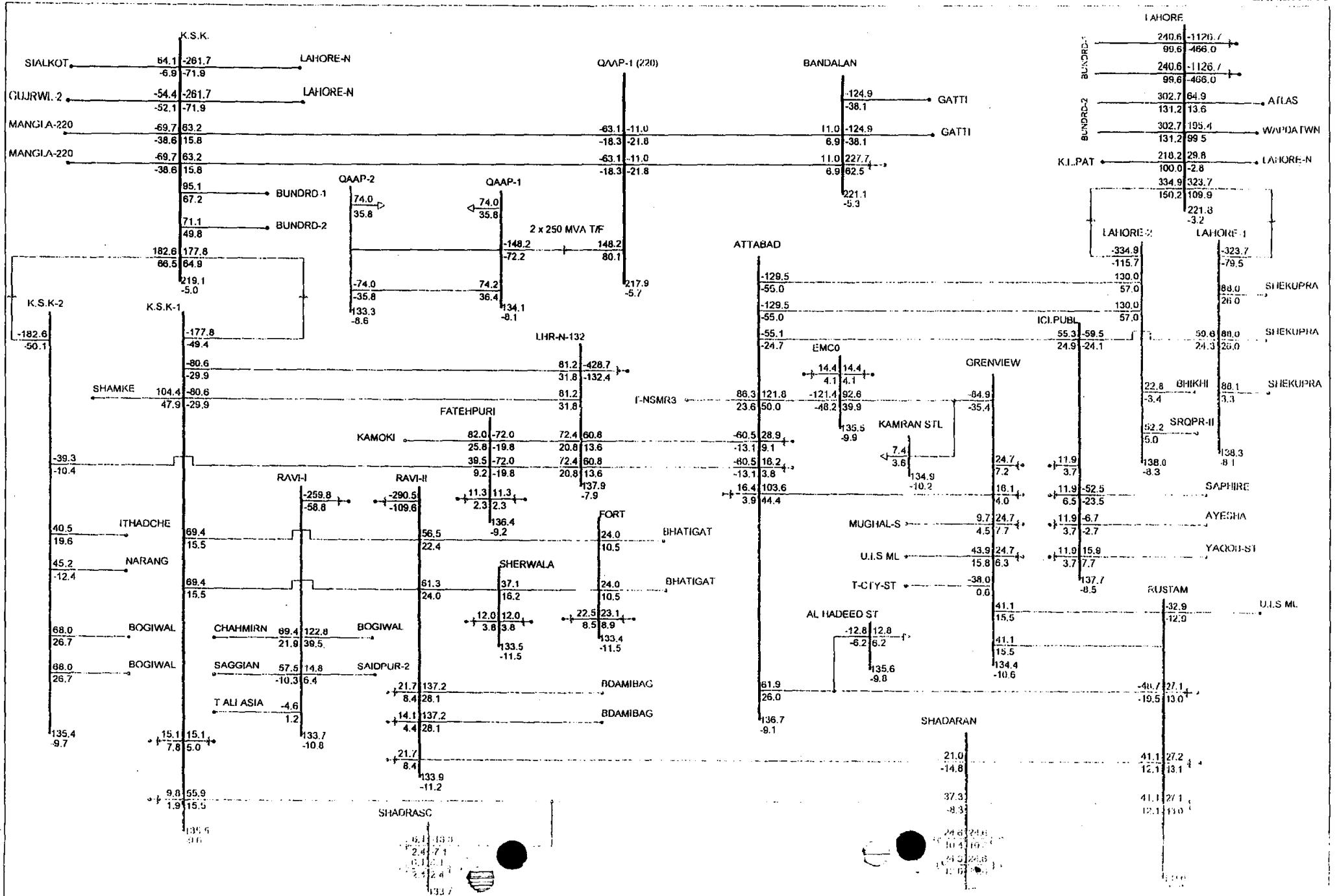
EXHIBIT #9



**POWER SUPPLY ARRANGEMENT FOR
QUAID-E-AZAM APPAREL PARK (2 x 74 MW),
PEAK LOAD SCENARIO IN SUMMER 2021**

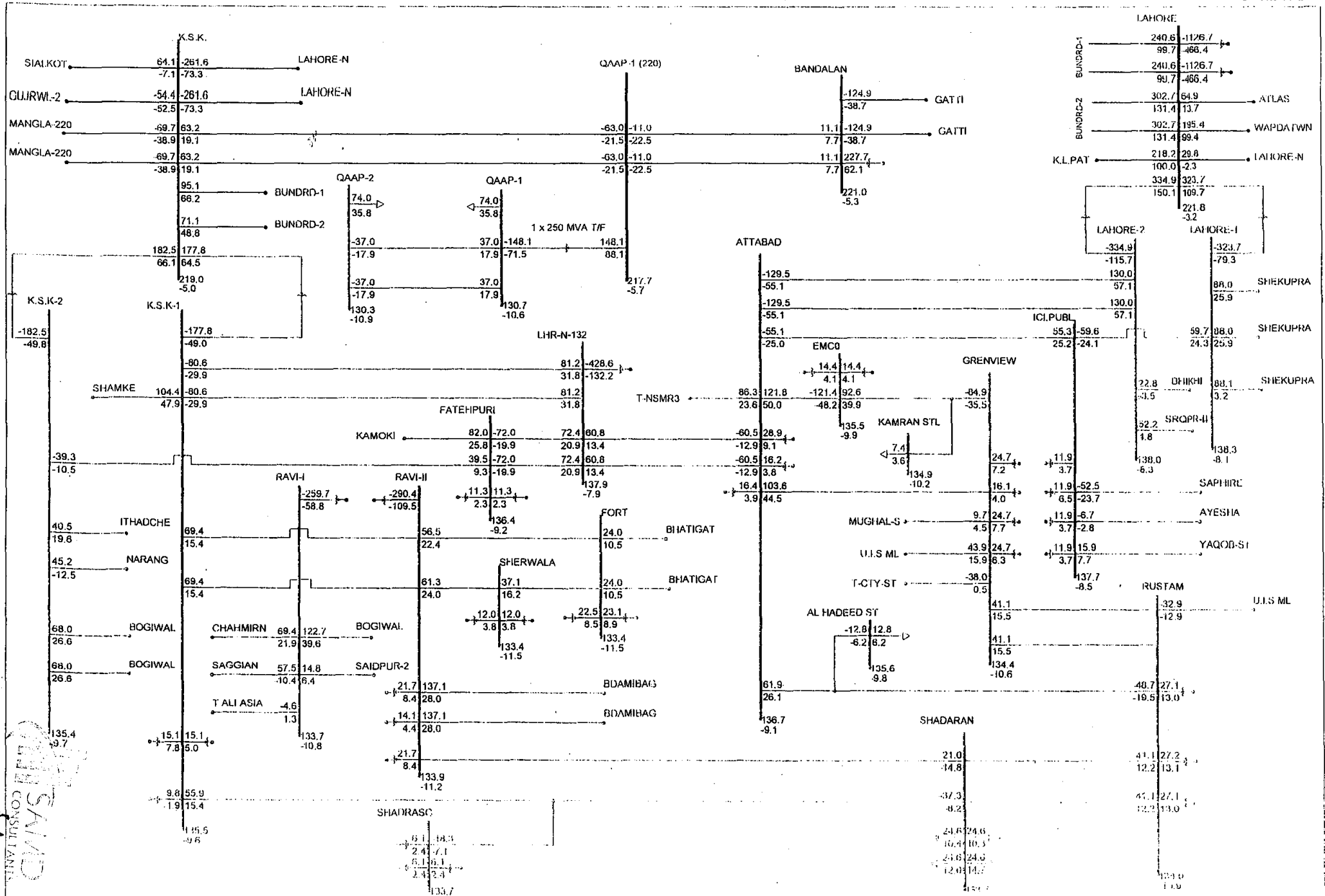
CONTINGENCY CONDITION

EXHIBIT #10



**POWER SUPPLY ARRANGEMENT FOR
QUAID-E-AZAM APPAREL PARK (2 x 74 MW)
PEAK LOAD SCENARIO IN SUMMER 2021**

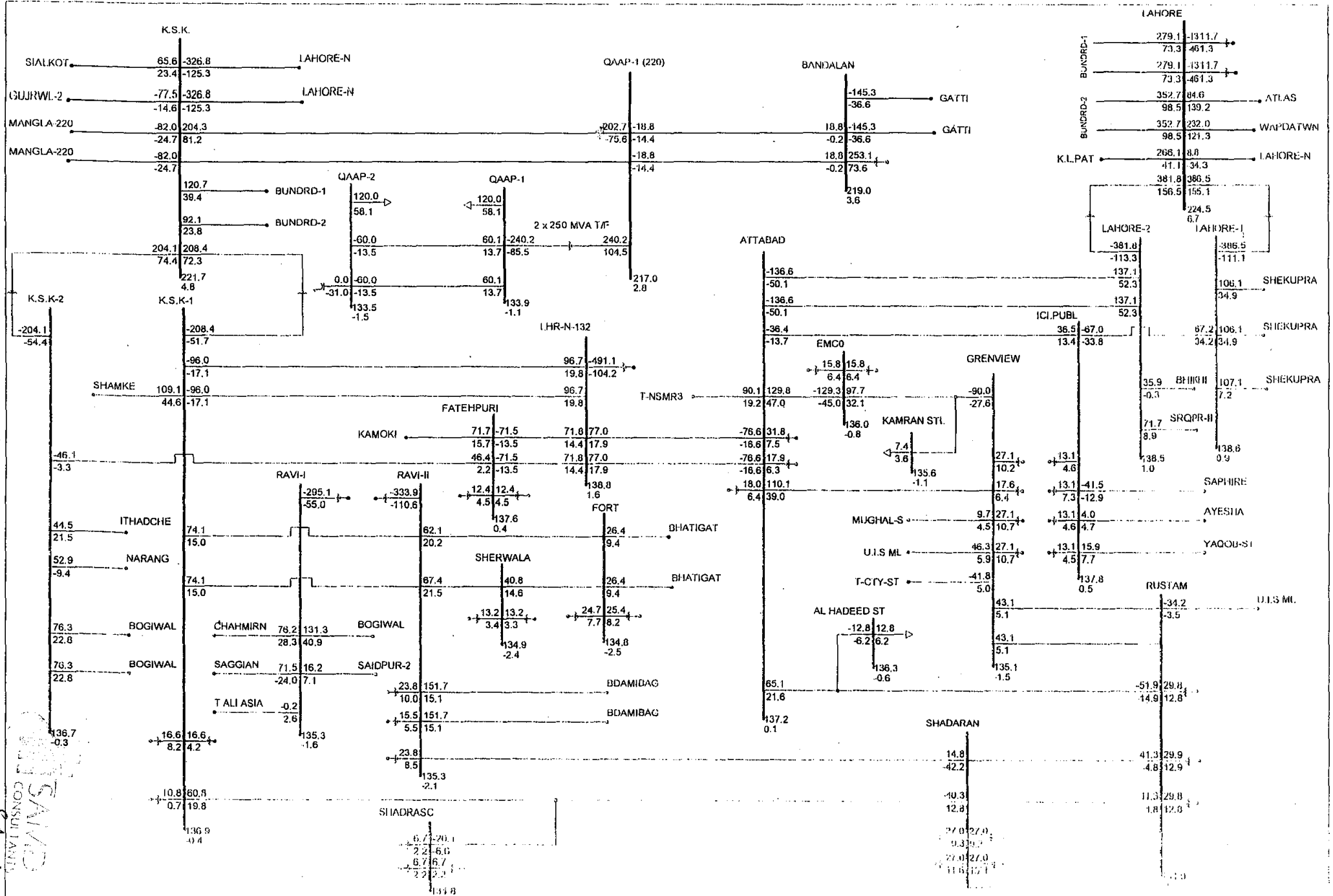
EXHIBIT #11



**POWER SUPPLY ARRANGEMENT FOR
QUAID-E-AZAM APPAREL PARK (2 x 120 MVA)
PEAK LOAD SCENARIO IN SUMMER 2023**

CONTINGENCY CONDITION

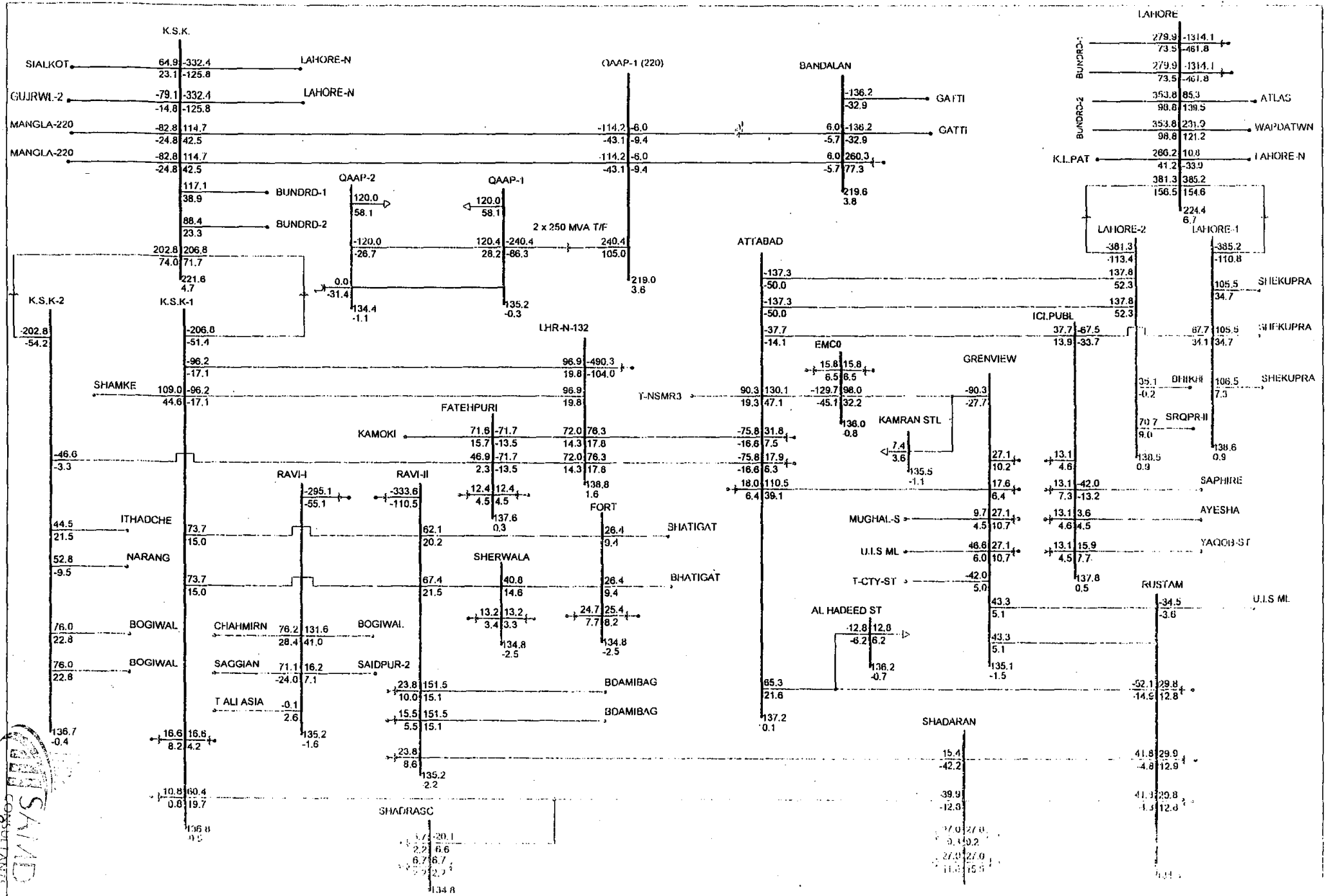
EXHIBIT #13



POWER SUPPLY ARRANGEMENT FOR QUAID-E-AZAM APPAREL PARK (2 x 120 MVA) PEAK LOAD SCENARIO IN SUMMER 2023

CONTINGENCY CONDITION

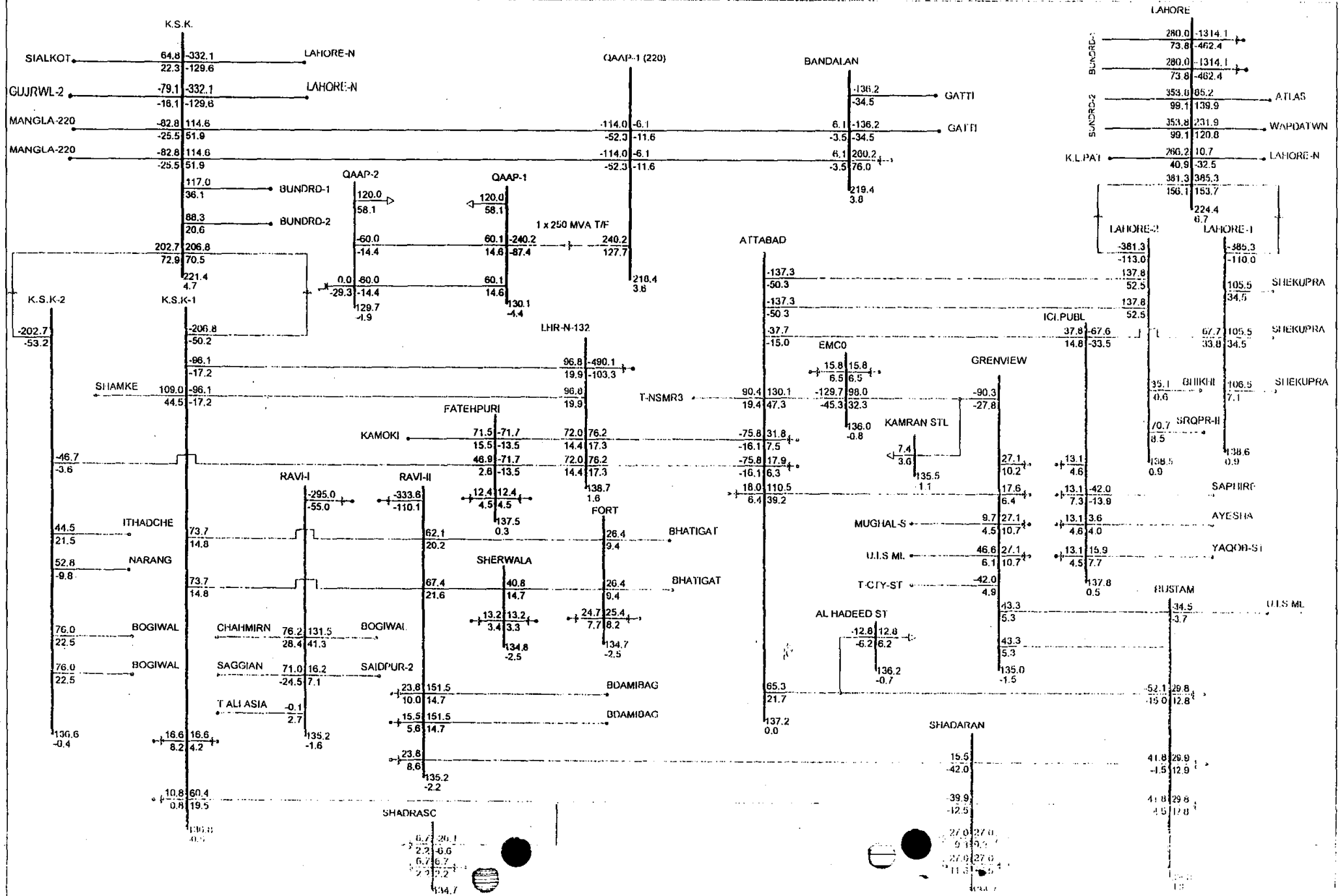
EXHIBIT #15



**POWER SUPPLY ARRANGEMENT FOR
QUAID-E-AZAM APPAREL PARK (2 x 120 MW)
PEAK LOAD SCENARIO IN SUMMER 2023**

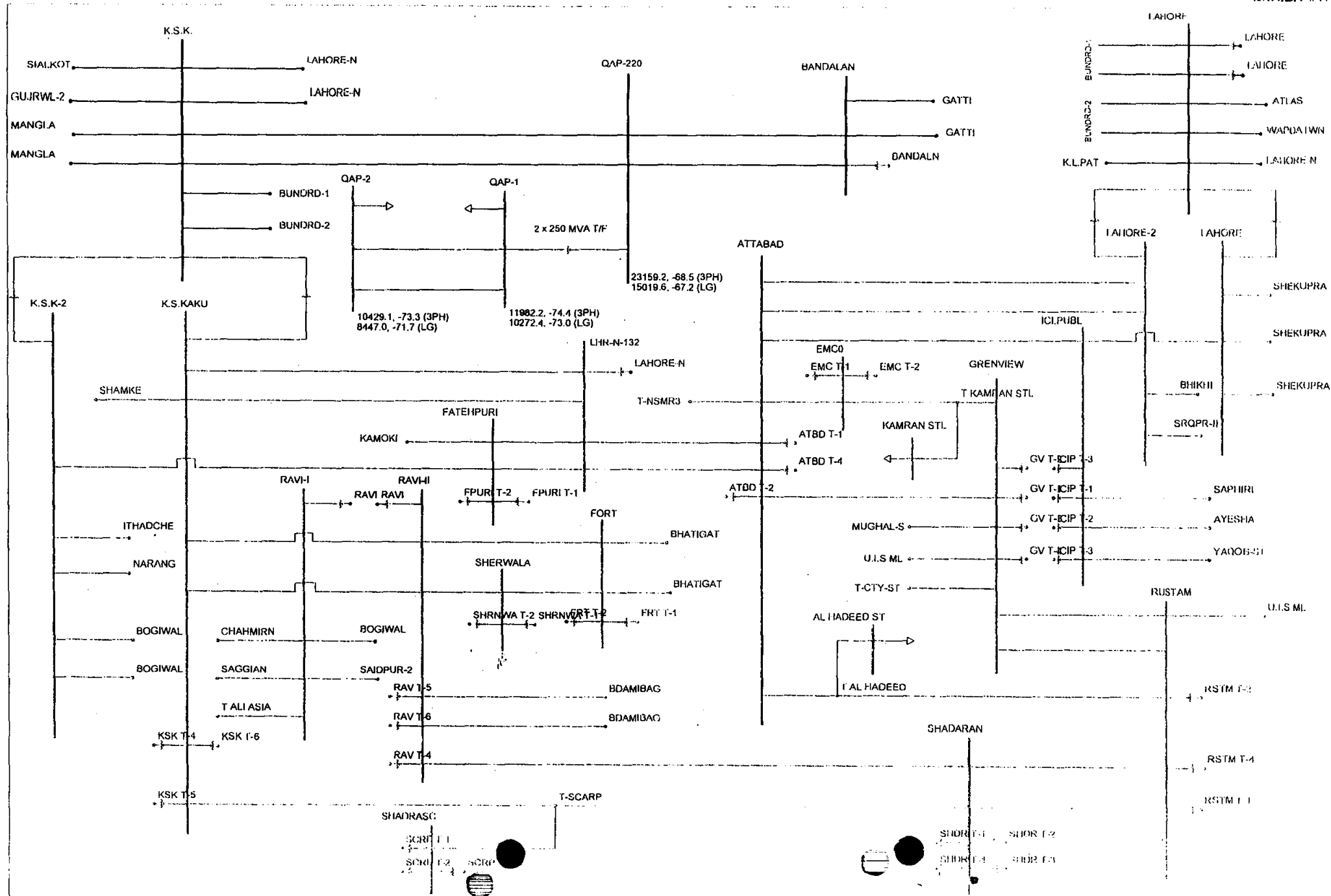
CONTINGENCY CONDITION

EXHIBIT #10



Appendix-3

EXHIBIT #17



PSS(R)E-32.2.1 ASSC SHORT CIRCUIT CURRENTS

MON, APR 10 2017 15:26

POWER SUPPLY SCHEME FOR QAAD-E-AZAM APPAREL PARK (QAAP)

SHORT CIRCUIT ANALYSIS FOR THE YEAR 2023

AT BUS 249 [QAAP-220 220.00] AREA 15 *** FAULTED BUS IS: 249 [QAAP-220 220.00] *** 0 LEVELS AWAY ***

(KV L-G) V+:/0.000/0.00 VA:/0.000/0.00 VB:/0.000/0.00 VC:/0.000/0.00

THEVENIN IMPEDANCE, X/R (PU) Z+:/0.013459/81.484, 6.67874

THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.514/81.484, 6.67874

X-----THREE PHASE FAULT-----X																
X-----	FROM	X	AREA	CKT	I/Z	/I+/-	AN(I+/-)	/IA/-	AN(IA)	/IB/-	AN(IB)	/IC/-	AN(IC)	/Z+/-	AN(Z+/-)	APP X/R
	250 [K.S.K.	220.00]	15	1	AMP/OHM	9240.6	-68.68	9240.6	-68.68	9240.6	171.32	9240.6	51.32	9.11	79.31	5.298
	250 [K.S.K.	220.00]	15	2	AMP/OHM	9240.6	-68.68	9240.6	-68.68	9240.6	171.32	9240.6	51.32	9.11	79.31	5.298
	365 [BANDALAN	220.00]	15	1	AMP/OHM	2339.2	-67.83	2339.2	-67.83	2339.2	172.17	2339.2	52.17	42.36	79.30	5.292
	365 [BANDALAN	220.00]	15	2	AMP/OHM	2339.2	-67.83	2339.2	-67.83	2339.2	172.17	2339.2	52.17	42.36	79.30	5.292
	4996 [QAAP-1	132.00]	4	1	AMP/OHM	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.000
INITIAL SYM. S.C. CURRENT(I''k)(RMS) AMP						23159.2	-68.51	23159.2	-68.51	23159.2	171.49	23159.2	51.49			

AT BUS 249 [QAAP-220 220.00] AREA 15 *** FAULTED BUS IS: 249 [QAAP-220 220.00] *** 0 LEVELS AWAY ***

(KV L-G) V+:/118.263/12.62 V-:/32.629/-165.71 V0:/85.653/-168.02 VA:/0.000/0.00 VB:/181.646/-122.03 VC:/184.840/147.00

THEVENIN IMPEDANCE, X/R (PU) Z+:/0.013459/81.484, 6.67874 Z-:/0.013466/81.489, 6.68215 Z0:/0.035348/79.179, 5.23168

THEVENIN IMPEDANCE, X/R (OHM) Z+:/6.514/81.484, 6.67874 Z-:/6.517/81.489, 6.68215 Z0:/17.108/79.179, 5.23168

X-----LINE TO GROUND (LG) FAULT-----X																
X-----	FROM	-----X	AREA	CKT	I/Z	/I+/	AN(I+)	/I-/	AN(I-)	/IO/	AN(IO)	/3IO/	AN(3IO)	/Z+/	AN(Z+)	APP X/R
	250 [K.S.K.	220.00]	15	1	AMP/OHM	2003.5	-67.26	1996.1	-67.40	2021.3	-67.25	6064.0	-67.25	14.55	-99.90	5.729
	250 [K.S.K.	220.00]	15	2	AMP/OHM	2003.5	-67.26	1996.1	-67.40	2021.3	-67.25	6064.0	-67.25	14.55	-99.90	5.729
	365 [BANDALAN	220.00]	15	1	AMP/OHM	499.8	-66.96	507.2	-66.41	481.9	-67.01	1445.8	-67.01	48.28	-100.31	5.498
	365 [BANDALAN	220.00]	15	2	AMP/OHM	499.8	-66.96	507.2	-66.41	481.9	-67.01	1445.8	-67.01	48.28	-100.31	5.498
	4996 [QAAP-1	132.00]	4	1	AMP/OHM	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.000
INITIAL SYM. S.C. CURRENT(I''k)(RMS) AMP						5006.5	-67.20	5006.5	-67.20	5006.5	-67.20	15019.6	-67.20			

FROM	AREA	CKT	I/Z	/IA/	AN(IA)	/IB/	AN(IB)	/IC/	AN(IC)	/ZA/	AN(ZA)	APP X/R
250 [K.S.K.	220.00]	15 1	AMP/OHM	6020.9	-67.30	26.0	-74.88	19.7	-38.70	15.39	79.00	5.147
250 [K.S.K.	220.00]	15 2	AMP/OHM	6020.9	-67.30	26.0	-74.88	19.7	-38.70	15.39	79.00	5.147
365 [BANDALAN	220.00]	15 1	AMP/OHM	1488.9	-66.79	26.0	105.12	19.7	141.30	70.55	78.87	5.083
365 [BANDALAN	220.00]	15 2	AMP/OHM	1488.9	-66.79	26.0	105.12	19.7	141.30	70.55	78.87	5.083
4996 [QAAP-1	132.00]	4 1	AMP/OHM	0.0	0.00	0.0	0.00	0.0	0.00	0.00	0.00	0.000
INITIAL SYM. S.C. CURRENT(I''k)(RMS) AMP				15019.6	-67.20	0.0	0.00	0.0	0.00			

AT BUS 4996 [QAAP-1 132.00] AREA 4 *** FAULTED BUS IS: 4996 [QAAP-1 132.00] *** 0 LEVELS AWAY ***

(kV L-G) V+:/0.000/0.00 VA:/0.000/0.00 VB:/0.000/0.00 VC:/0.000/0.00

THEVENIN IMPEDANCE, X/R (PU) Z+:/0.043357/87.365, 21.73127

THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.554/87.365, 21.73127

X-----THREE PHASE FAULT-----X

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/IA/ AN(IA)	/IB/ AN(IB)	/IC/ AN(IC)	/Z+/ AN(Z+)	APP X/R
249 [QAAP-220 220.00]	15 1	AMP/OHM	11982.2 -74.39	11982.2 -74.39	11982.2 165.61	11982.2 45.61	14.52	90.00 9999.999	
4997 [QAAP-2 132.00]	4 1	AMP/OHM	0.0 0.00	0.0 0.00	0.0 0.00	0.0 0.00	0.00	0.00 0.000	
4997 [QAAP-2 132.00]	4 2	AMP/OHM	0.0 0.00	0.0 0.00	0.0 0.00	0.0 0.00	0.00	0.00 0.000	
INITIAL SYM. S.C. CURRENT(I''k) (RMS) AMP			11982.2 -74.39	11982.2 -74.39	11982.2 165.61	11982.2 45.61			

AT BUS 4996 [QAAP-1 132.00] AREA 4 *** FAULTED BUS IS: 4996 [QAAP-1 132.00] *** 0 LEVELS AWAY ***

(kV L-G) V+:/64.662/12.43 V-:/25.871/-165.64 V0:/38.815/-168.86 VA:/0.000/0.00 VB:/96.138/-114.27 VC:/99.141/138.92

THEVENIN IMPEDANCE, X/R (PU) Z+:/0.043357/87.365, 21.73127 Z-:/0.043363/87.366, 21.73520 Z0:/0.065058/84.145, 9.75227

THEVENIN IMPEDANCE, X/R (OHM) Z+:/7.554/87.365, 21.73127 Z-:/7.556/87.366, 21.73520 Z0:/11.336/84.145, 9.75227

X-----LINE TO GROUND (LG) FAULT-----X

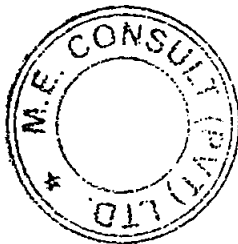
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/I-/ AN(I-)	/IO/ AN(IO)	/3IO/ AN(3IO)	/Z+/ AN(Z+)	APP X/R
249 [QAAP-220 220.00]	15 1	AMP/OHM	3424.1 -73.01	3424.1 -73.01	3424.1 -73.01	10272.4 -73.01	17.11	-100.82	5.232
4997 [QAAP-2 132.00]	4 1	AMP/OHM	0.0 0.00	0.0 0.00	0.0 0.00	0.0 0.00	0.00	0.00	0.000
4997 [QAAP-2 132.00]	4 2	AMP/OHM	0.0 0.00	0.0 0.00	0.0 0.00	0.0 0.00	0.00	0.00	0.000
INITIAL SYM. S.C. CURRENT(I''k) (RMS) AMP			3424.1 -73.01	3424.1 -73.01	3424.1 -73.01	10272.4 -73.01			

FROM	AREA	CKT	I/Z	/IA/ AN(IA)	/IB/ AN(IB)	/IC/ AN(IC)	/ZA/ AN(ZA)	APP X/R
249 [QAAP-220 220.00]	15 1	AMP/OHM	10272.4 -73.01	0.0 0.00	0.0 0.00	0.0 0.00	14.52	90.00 9999.999
4997 [QAAP-2 132.00]	4 1	AMP/OHM	0.0 0.00	0.0 0.00	0.0 0.00	0.0 0.00	0.00	0.00 0.000
4997 [QAAP-2 132.00]	4 2	AMP/OHM	0.0 0.00	0.0 0.00	0.0 0.00	0.0 0.00	0.00	0.00 0.000
INITIAL SYM. S.C. CURRENT(I''k) (RMS) AMP			10272.4 -73.01	0.0 0.00	0.0 0.00	0.0 0.00		

PUNJAB INDUSTRIAL ESTATES DEVELOPMENT
& MANAGEMENT COMPANY

RE-DESIGN
FOR
UNDERGROUND EXTERNAL
ELECTRIFICATION SYSTEM WITH
MERGED PLOTS
AT
QUAID-E-AZAM BUSINESS PARK
(QABP)
SHIEKHUPURA

(September, 2022)



Consultant.

M. E. CONSULT (PVT) LTD.
MANAGEMENT AND ENGINEERING CONSULTANTS
MB-314, SECTOR-B, PHASE VI, DHA LAHORE.
TEL # 042-3718 7411-7412 FAX # 042-3718 7413
Email : readltd@yahoo.com

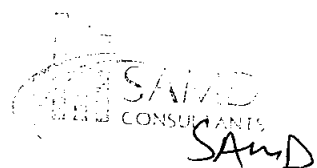
Client.

PIEDMC
PUNJAB INDUSTRIAL ESTATES DEVELOPMENT &
MANAGEMENT COMPANY
Head Office, Commercial Area (North) Sundar Industrial
Estate Sundar, Raiwind Road, Lahore, Pakistan
TEL # +92 42 35297203-6 FAX # +92 42 35297207

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PROJECT DESCRIPTION

INTRODUCTION:

PIE (Punjab Industrial Estate) is developing an Industrial Estate "Quaid-e-Azam Business Park (QABP)" at District Sheikhpura which is spread over 1500 acres of land. The Industrial Park comprises of Industrial Plots of various sizes i.e. ½ Acre, 1Acre, 2Acre, 3Acre, 4Acre, 5Acre, 6Acre & Commercial Plots, Mosque, Expo Center, Hospital, Parks Water Supply & Petrol pump.

The original design of QABP prepared by NESPAK had an Electrical Estimated Load of 123 MW with 29 # Outgoing 11KV Feeders for Grid 1 and Load of 121.2MW with 26 # Outgoing 11KV Feeders for Grid 2 other than Stand By and Express Feeders.

However, the Revised Design Incorporates a Load of 132.7 MW with 19 # Outgoing 11KV Feeders & 16 # Independent 11KV Feeders and 3 # Consumer Grids having a combined load of 56MW for Grid 1 and Grid 2 shall have a Load of 124.4MW with 20 # Outgoing 11KV Feeders and 12 # Independent 11KV Feeders. The Express and Stand By feeders are the same as per original design.

ELECTRICAL DESIGN FEATURES.

ME Consult was given the assignment of the revised design incorporating the merged plots in accordance with the loads provided by the individual consumers.

The redesign work has been carried out considering the basic design concept of NESPAK with the same load criteria except where, the merged plot owners provided the ultimate load of their industry.

However, for the few merged / sold plots where the owners did not provide their load, the design has been done on the basis of the load criteria of NESPAK.

All other parameters i.e. Express feeders and Stand By Feeders have been incorporated in the design.

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The load of the merged plots defined by the owners exceed the 11KV connection as per NEPRA Consumer service Manual (CSM) i.e. exceeding 10MW for 3# Consumers and hence have been considered as Electric Power connection on a 132KV System. As regards the 3# Consumer grids exceeding 10MW, a tentative ROW for lay of 132KV Cable has been marked as an open ring system as discussed with PIEDMC, to be fed from the 132KV Bus bar of Grid Station # 1 only as the design of the same is not the part of ME consult under scope of their work order.

The salient features of the design are as under:

- The design has been prepared for whole of the system as **Underground** except the major fixtures/equipment such as Pad Mounted Transformers (KIOSKS), H.T Ring main Switches, Street Light Poles and Switches.
- The H.T System consists of total 31 (Thirty One) Nos. 11 KV outgoing feeders proposed from the 132/11KV Grid Station 1 and 27 (Twenty Seven) Nos. 11 KV outgoing feeders proposed from the 132/11KV Grid Station 2 in QABP, Sheikhpura. Detail of feeders is as under:

Grid Station	Main 11KV Feeders	Independent 11KV Feeders	11 KV Stand By Feeders + Express Feeders
Grid 1	19 Nos.	16 Nos.	4+2 Nos.
Grid 2	20 Nos.	12 Nos.	4+2 Nos.
Total.	39 Nos.	28 Nos.	8+4 Nos.

- 39 (Thirty Nine) Nos. 11 KV Main feeders and 28 (Twenty Eight) Nos. Independent 11KV Feeders are proposed for feeding whole area and 8+4 (Eight + Four) Nos. 11 KV feeders are proposed as STAND BY and EXPRESS Feeders to ensure continuity of Power Supply in case of fault in main 11 KV feeders feeding the 11KV Loops.

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- Consumers with Load Greater than 1.5MW are considered as Independent 11KV Feeder Connection as per PIE Instructions.
- Independent Feeders will be laid by the consumers from the Grids (radial system) and they will not be the part of main system nor they will be feeding from Express and Stand By Feeders.
- The primary cables emanate from M.V. Switchgear Panels of 132/11.5kV grid-stations and connect with Ring Main Units. The primary M.V. cable shall be 8.7/15 kV (500mm²) single core aluminum stranded conductors XLPE insulated, PVC sheathed, aluminum armored cables.
- The M.V secondary cables emanate from Ring Main Units and connect with Pad Mounted transformers (PMT) and from PMT to PMT loop connections.
- The M.V secondary cable shall be 3 core 120 sq. mm. aluminum stranded conductor, XLPE insulated PVC Sheathed, steel armored cables. Both the M.V primary and secondary feeders shall be directly laid in the cable trenches of specified configuration and sizes.
- Main Feeders are proposed with 500 mm² single core(15 KV Class)XLPE/AWA/PVC cable to cater for the total ultimate load demand of the Project. The H.T Feeders have been designed to form open-end loop system to ensure continuity of supply in case of segment faults. The network has been proposed to achieve the **safe operation, technical feasibility and stability of supply** at the same time ensuring possible **economy**, as well as the **aesthetics** of the Scheme.
- 4 (four) Nos. Standby feeders are proposed from each grid to feed the other Grid with part load maximum of 20MW, in absence of any one grid station.
- 2 (Two) Nos. Express Feeders are proposed from each grid as back up supply in case of fault or maintenance of primary/trunk feeders.

- The standard practices of NEPRA CSM as well as design instructions from PIEDMC have been followed in preparing the Design.
- Only Actual Quantity of Transformer is considered in the BOQ and Estimates.

LOAD CRITERIA.

Load has been assumed with the following design criteria:

Industrial Plots	½ Acre	100 kVA	85 kW	per Plot
	1 Acre	200 kVA	170 kW	per Plot
	1.5 acre	300 kVA	255 kW	per Plot
	2 Acre	400 kVA	340 kW	per Plot
	4 Acre	800 kVA	680 kW	per Plot

Load for merged plots have been taken as provided by individual consumers. Meanwhile, for plots whose load is not provided by consumers, load is taken as per NESPAK design criteria.

For the loads greater than 500KW and area comprising of 4 Acres & above the load taken is 1250 KVA per plot and this falls in B-3 category of Tariff i.e. connection at 11 KV system so RMU with a Transformer foundation only is proposed for Plots(As per NESPAK Design). The foundation shall accommodate any Transformer up to 1250 KVA. However, a suitable size of Transformer shall be installed to provide any Temporary connection as and when required. Alternatively, if the load of any plot does not come under B-3 connection, appropriate capacity of transformer shall be installed to accommodate the same.

Transformer Sizes for the 4 Acre plots and merged plots consumers with load greater than 500KW are not proposed in the design as they will have a B-3 connection at 11 KV system.

PROPOSED MATERIALS

The material and equipment for Distribution System has been proposed with standard available sizes and ratings. WAPDA specifications have been adopted for the equipment and material.

- Spare quantities of material are also considered in BOQ for maintenance of system.
- Major Electrical material and other components with rating/sizes have been proposed keeping in view the ultimate load requirements and are given as below :-

Ring Main H.T Switches.

Operating Voltage 11 KV.630Amp.
3-Way and 4-Way

**H. T. XLPE Armored Cables
for Main 11KV Feeders**

500mm² AL/XLPE/AWA/PVC Cable 1-
core, Operating Voltage 11KV (15KV Class)

**H. T. XLPE Armored Cables
for Ring/Loop**

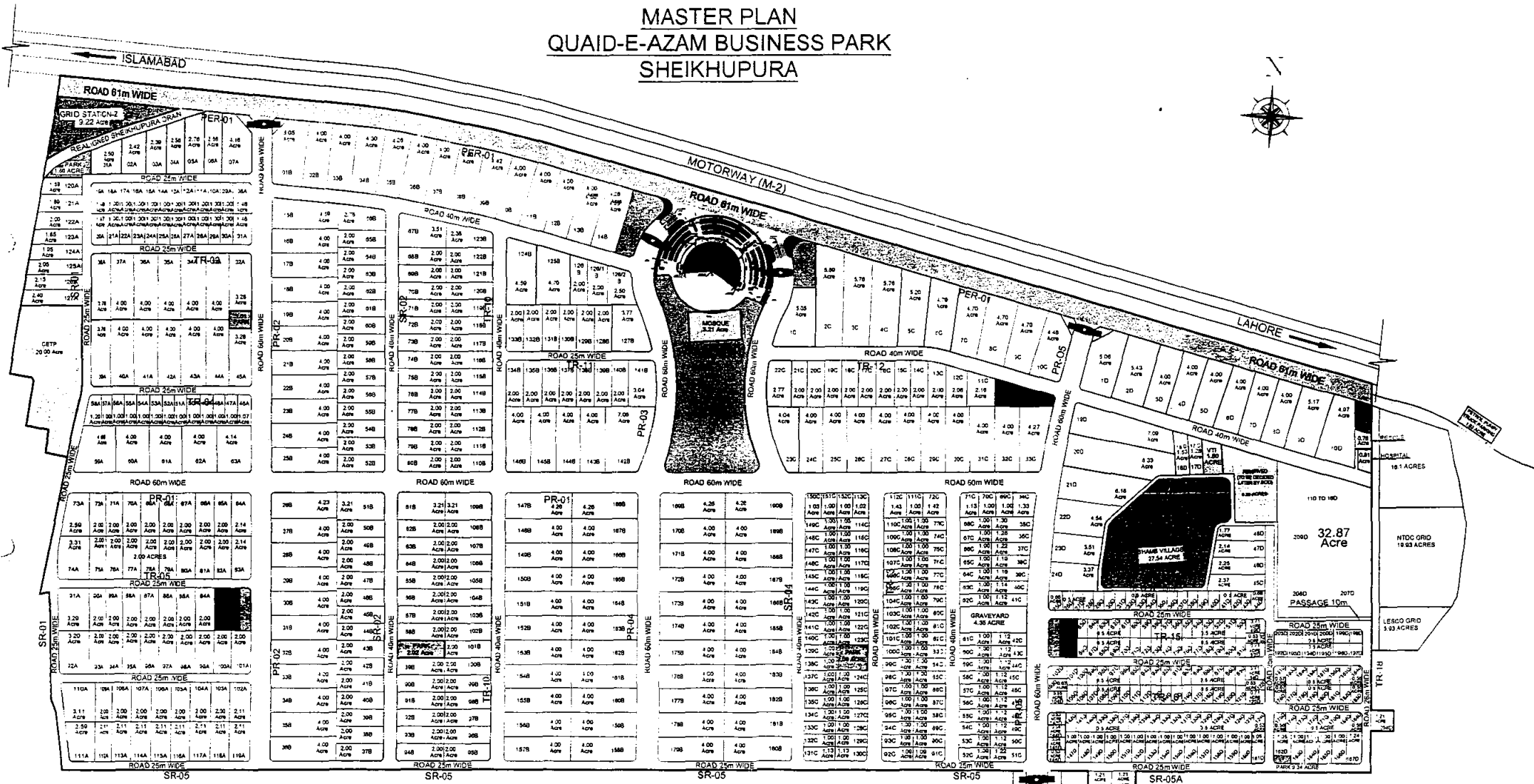
120 mm² 3-Core
AL/XLPE/PVC/SWA/PVC/Operating
Voltage 11 KV (15 KV Class)

**Pad Mounted Distribution
Transformers**

750, 1000 and 1250 KVA
Operating Voltage 11KV/0.415KV.

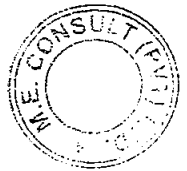
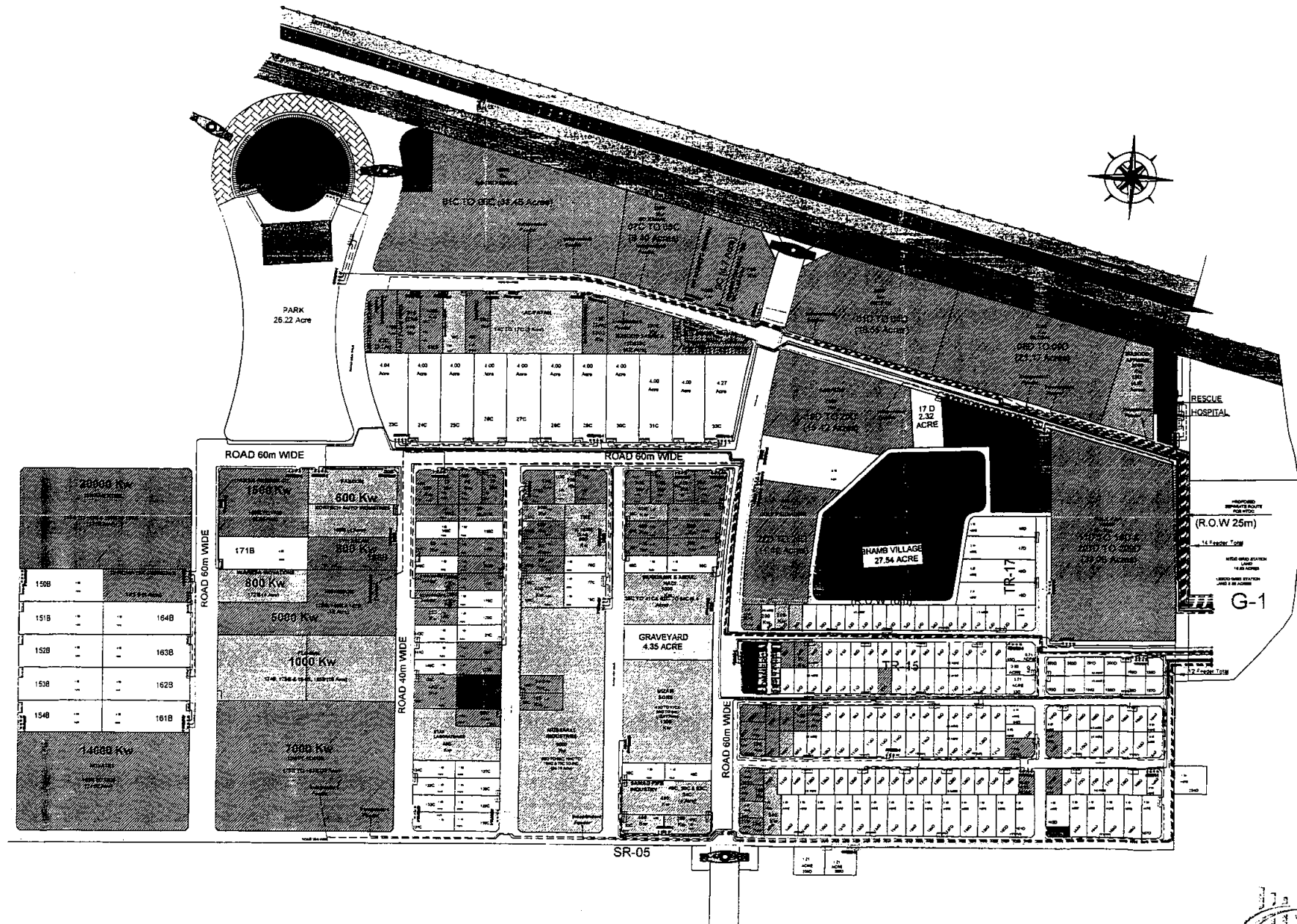
QUAID-E-AZAM BUSINESS PARK
FINANCIAL HIGHLIGHTS

MASTER PLAN QUAID-E-AZAM BUSINESS PARK SHEIKHUPURA



SAND

QUAID-E-AZAM BUSINESS PARK SHEIKHUPURA



LEGEND

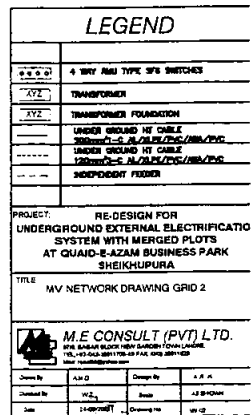
4 WAY	4 WAY JUNCTION TYPE WITH SWITCHES
TRANS	TRANSFORMER
TRF	TRANSFORMER FOUNDATION
UG	UNDER GROUND HT CABLE
OG	UNDER GROUND HT CABLE
OG	UNDER GROUND HT CABLE
OG	UNDER GROUND HT CABLE
OG	UNDER GROUND HT CABLE

PROJECT: RE-DESIGN FOR UNDERGROUND EXTERNAL ELECTRIFICATION SYSTEM WITH MERGED PLOTS AT QUAID-E-AZAM BUSINESS PARK SHEIKHUPURA

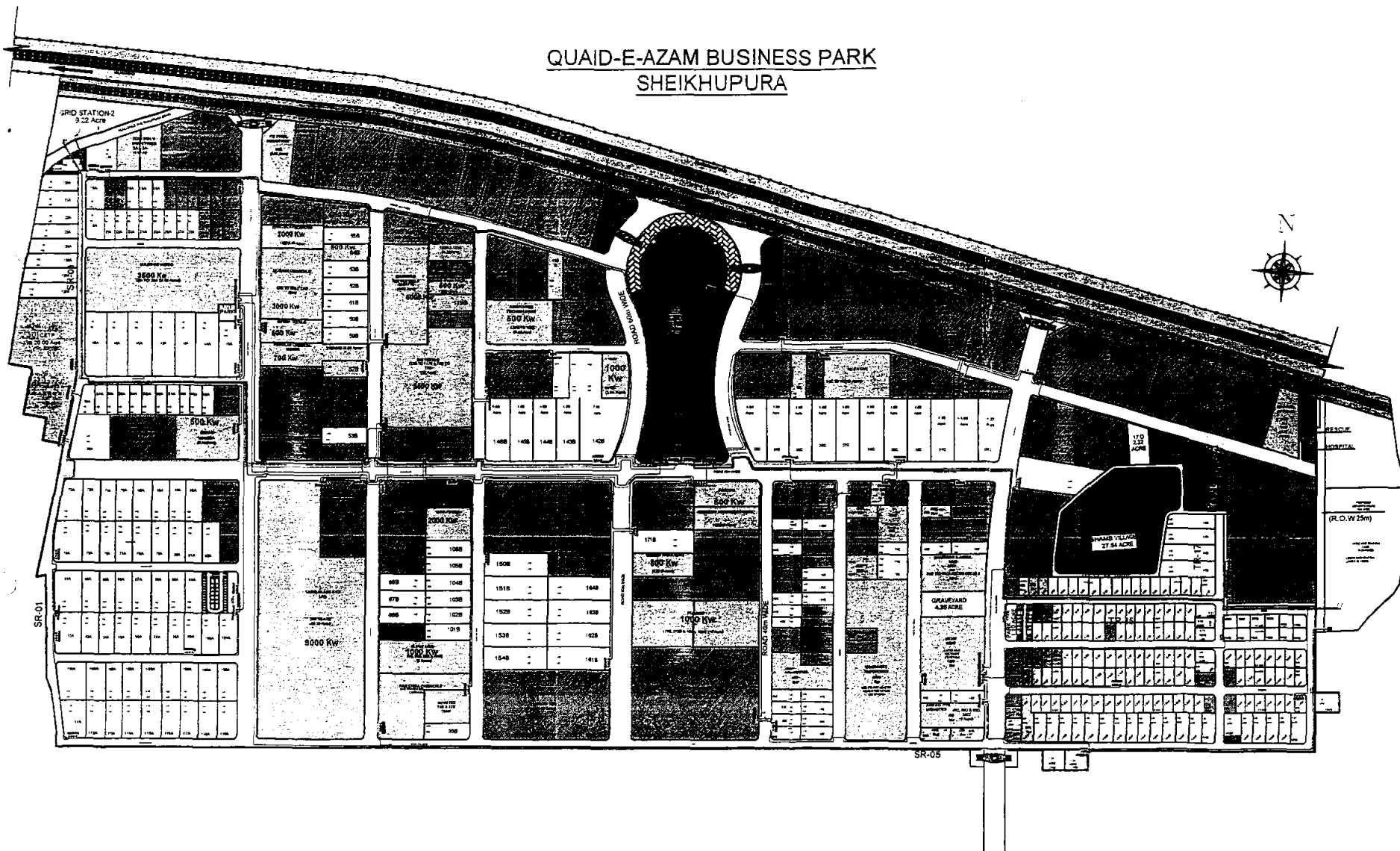
TITLE: WV NETWORK DRAWING GRID 1


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17/1, GROUND FLOOR, 1ST FLOOR, SHEIKHUPURA	
TEL: 0343-2611111 FAX: 0343-2611112	
WWW.MECONSULT.COM	
DATE	2023
BY	2023
CHECKED BY	2023
DATE	2023

S.A.M.A

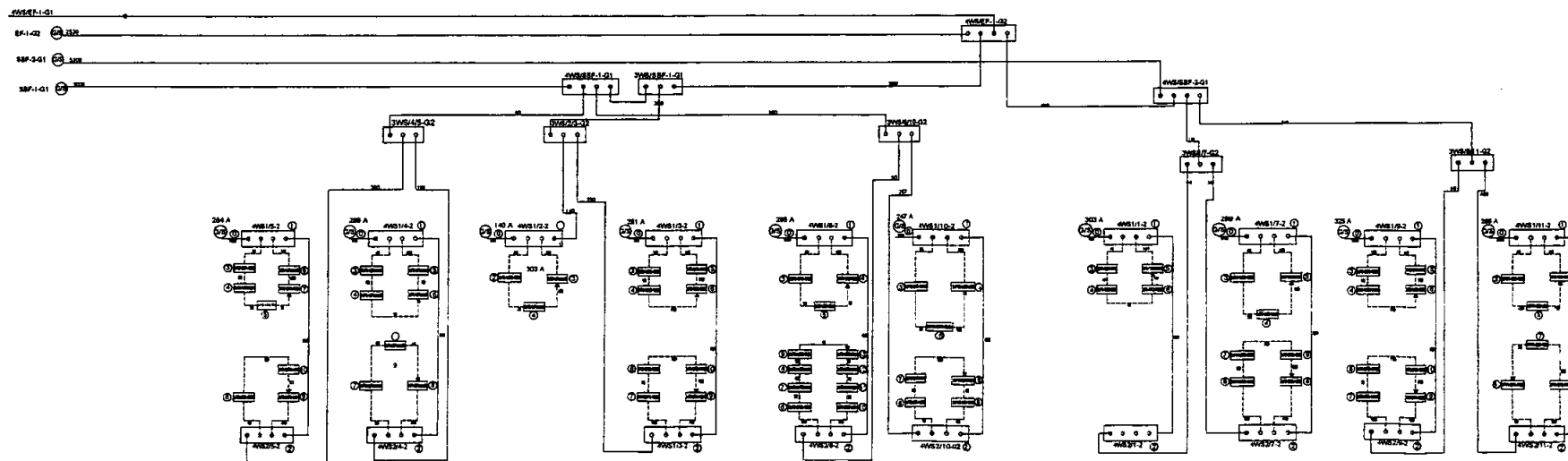
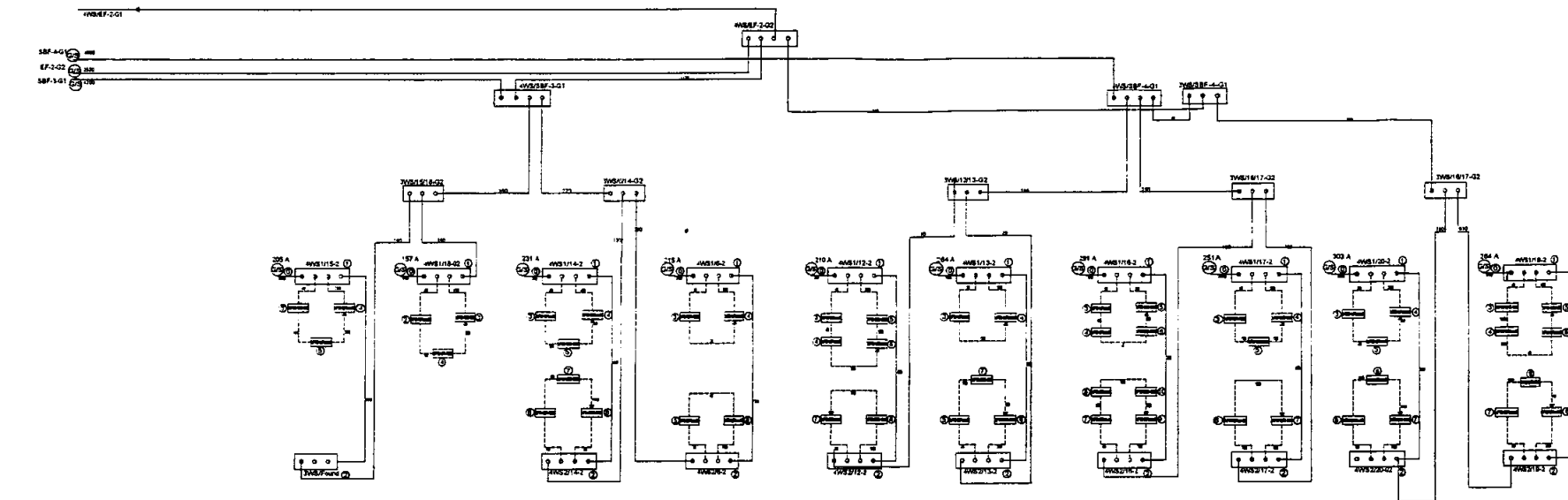
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QUAID-E-AZAM BUSINESS PARK SHEIKHUPURA



PROJECT		RE-DESIGN FOR UNDERGROUND EXTERNAL ELECTRIFICATION SYSTEM WITH MERGED PLOTS AT QUAID-E-AZAM BUSINESS PARK SHEIKHUPURA	
TITLE		Express & Stand By Feeders Grid 1 & Grid 2	
 M.E CONSULT (PVT) LTD. 17B, SHAWD ALI, SHEIKHUPURA, DIST. SHEIKHUPURA TEL: 0342-3811718-3811719, 3811720 FAX: 0342-3811721 E-MAIL: info@meconsult.com			
Drawn By	L.M.D	Design By	A. M. A.
Checked By	3/2/2	Scale	As Shown
Date	20/08/2022	Drawing No.	CD-001-21

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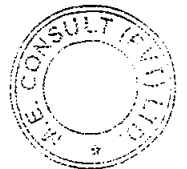
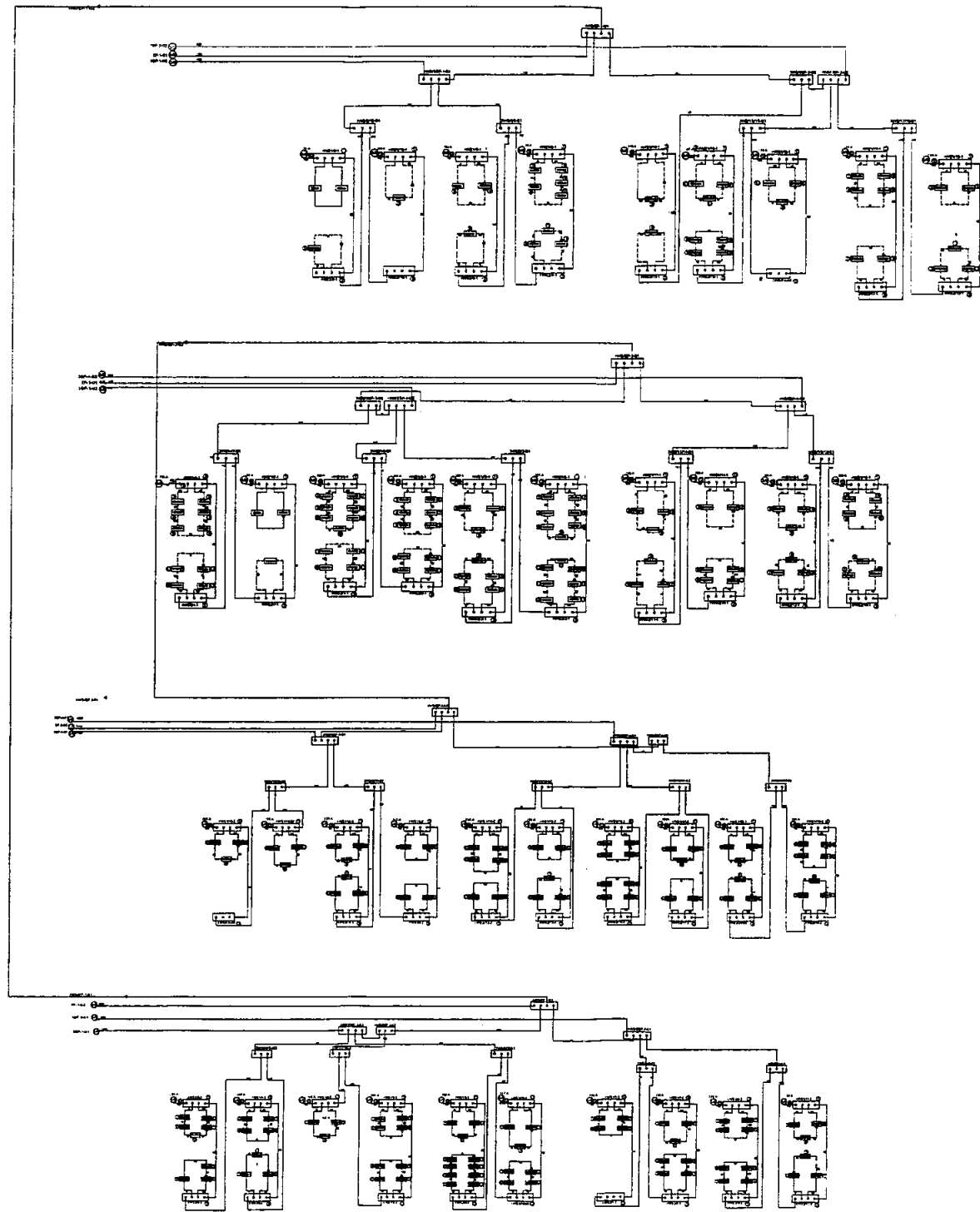
PROJECT: RE-DESIGN FOR UNDERGROUND EXTERNAL ELECTRIFICATION SYSTEM WITH MERGED PLOTS AT QUAID-E-AZAM BUSINESS PARK SHEIKHUPURA


TITLE: SINGLE LINE DIAGRAM GRID 2

M.E. CONSULT (PVT) LTD.
17th, Lohari Road, Sector 17, Gurgaon, Haryana
Tel: +91-122-5551111 Fax: +91-122-5551112
Email: info@meconsult.com

Drawn by	A.R.D.	Checked by	A.R.D.
Design No.	42	Date	15/08/2018
Rev.	1	By	AS

Signature of A.R.D.



PROJECT:		RE-DESIGN FOR UNDERGROUND EXTERNAL ELECTRIFICATION SYSTEM WITH MERGED PLOTS AT QAUID-E-AZAM BUSINESS PARK SHEIKHUPURA	
TITLE:		SINGLE LINE DIAGRAM GRID 1 & GRID 2	
 M.E. CONSULT (PVT) LTD. 5th FLOOR BLOCK 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(5) WhatsApp

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. ±0 LEVEL CORRESPONDS TO THE LEVEL OF 87.6 M WITH RESPECT TO AVERAGE NSL IN SWITCH YARD AREA WORKED OUT AS PER CONTOURS AND THE LEVEL OF MAIN ROAD TOP HAS BEEN TAKEN AS 100M ON CONTOUR DRAWING CONVEYED BY PD-GSC LESCO. HOWEVER ACTUAL ±0 LEVEL MAY BE FIXED BY PD-GSC LESCO KEEPING IN VIEW THE ACTUAL SITE CONDITION
3. BENCH MARK AS PER ±0 LEVEL BE FIXED IN THE SWITCH YARD. LEVEL IN RESPECT OF C.H.B. SWITCH YARD FOUNDATIONS, BOUNDARY WALL, ROAD AND OTHER ALLIED STRUCTURES ETC SHALL CORRESPOND TO IT.
4. EARTH RESISTIVITY TEST BE CARRIED OUT FOR THE PROPOSED SWITCH YARD AREA AND THE SAME BE SUBMITTED TO THIS OFFICE FOR ISSUANCE OF EARTHING PLAN.
5. ASSURANCE OF AVAILABILITY OF SPACE FOR INSTALLATION OF TERMINAL TOWER MUST BE ENSURED BEFORE CONSTRUCTION OF EQUIPMENT FOUNDATIONS OF THE RESPECTIVE LINE BAY.
6. IF THE DRAWING IS OBSERVED INCOMPATIBLE WITH THE SITE CONDITIONS THE MATTER SHOULD BE REFERRED TO DESIGN LESCO PRIOR TO START OF WORK FOR FURTHER ADVICE.
7. CIVIL WORKS BE CARRIED OUT AS PER ACTUAL ALLOWABLE BEARING CAPACITY OF THE GRID STATION AFTER WATER SUPPLY AND SEWERAGE SYSTEM TO BE CONNECTED WITH RESPECTIVE SYSTEMS OF QUAID-AZAM BUSINESS PARK.

REFERENCE DRAWINGS

1. TRANSFORMER WAY
2. APPROACH ROAD PCC (4500 mm WIDE)
3. MAIN GATE
4. CONTROL BUILDING
5. BOUNDARY WALL
6. SWITCH YARD FENCE
7. MAIN HOLE
8. SWITCH YARD GATE
9. PCC ROAD (3000mm WIDE)
10. SECURITY GUARD CABIN
11. METERING ROOM

LEGEND

SEWERAGE
WATER SUPPLY
FIRE HYDRANT
MAIN HOLE
EDGE BRICK FLOORING

EXISTING

PROPOSED

PROJECT DIRECTOR
GSC LESCO LAHORE

ADD. ENGINEER
GSC LESCO LAHORE

NOTE:

1ST REVISION
GSC LESCO LAHORE

LAHORE ELECTRIC SUPPLY COMPANY LIMITED

DRAWN		132KV GRID STATION
CHECKED		QUAID E AZAM BUSINESS
DESIGN		PARK SHEKHUPURA
MANAGER		GENERAL LAYOUT
DEPUTY		
MANAGER		
SCALE	1 : 100	DATE -
DWG. NO.	02	

220KV SWITCH YARD AREA

TO BE BUILT BY LESCO

BIFERCATION OF AREA AND AVAILABILITY OF PLOTS – UPTO JUNE, 2022

Quaid-e-Azam Industrial Park

Plots Detail (Industrial)			
Size	Total	Sold	Available
0.5 Acres	154	12	142
1 Acres	190	84	106
2 Acres	177	53	124
3 Acres	16	7	9
4 Acres	143	97	46
Total	680	253	427

Area Detail (Inclusive of Commercial Area)			
Total Area	Total Saleable Area	Area Sold	Available Area
1,860 Acres	1,316.95	662.68	654.27

INFORMATION RELATING TO SALE OF PLOTS – UPTO JUNE, 2022

Sr. No.	Rate per Acre	Acres Sold	Total Price	Payment Received	Balance Receivable	Refund Payable
With 100% Full Payment						
1	Rs. 13.3 million (10 % additional for Corner + Main boulevard and 5% for Front)	0.50	13,300,000	13,300,000	-	-
2	Rs. 26.6 million (10 % additional for Corner + Main boulevard and 5% for Front)	1.02	29,768,150	29,845,200	-	(77,050)
	TOTAL	1.52	43,068,150	43,145,200	-	(77,050)

FIVE (05) YEARS PROJECTED REVENUE PLAN – INDUSTRIAL

Acres to be sold	Rate per acre	Total Revenue	Terms of Payment	2022-23				2023-24			
				Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4
124.30	32	3978	30% advance and remaining in 6 installments of 4 months each	672.00	782.69	464.19	464.19	464.19	464.19	464.19	202.78
200	36	7200		-	277.56	1,403.97	1,198.55	840.24	840.24	840.24	840.24
200	40	8000		-	-	-	312.00	721.37	1,074.77	1,402.85	933.60
129.97	45	5849		-	-	-	-	-	-	-	823.50
654.27		25,026	Sub Total	672.00	1,060.25	1,868.16	1,974.74	2,025.79	2,379.19	2,707.27	2,800.12
				5,575.15				9,912.38			

2024-25				2025-26				2026-27				Total Inflow
Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	
-	-	-	-	-	-	-	-	-	-	-	-	3978.40
732.27	228.13	-	-	-	-	-	-	-	-	-	-	7201.44
933.60	933.60	812.23	578.83	298.75	-	-	-	-	-	-	-	8001.60
1,251.44	682.54	682.54	682.54	682.54	682.54	362.20	-	-	-	-	-	5849.82
2,917.31	1,844.26	1,494.77	1,261.37	981.29	682.54	362.20	-	-	-	-	-	25,031.26
7,517.71				2,026.02				-				

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FIVE (05) YEARS PROJECTED REVENUE PLAN – COMMERCIAL

Acres to be sold	Rate per acre	Total Revenue	Terms of Payment	2022-23				2023-24			
				Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4
4.07	400	1628	30% advance and remainig in 4 installments 3 months each	-	-	-	-	-	-	-	-

2024-25				2025-26				2026-27				Total Inflow	Total Inflow
Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4	Q-1	Q-2	Q-3	Q-4		
-	488.40	284.90	284.90	284.90	284.90	-	-	-	-	-	-	0.00	-

QUARTER WISE PROJECTED RECEIVABLE PLAN OF INSALLEMENTS

Project	Q1 2022-23	Q2 2022-23	Q3 2022-23	Q4 2022-23	Q1 2023-24	Q2 2023-24	Q3 2023-24	Q4 2023-24	Total Projected Inflow
Quaid-e-Azam Busniess Park	528.76	846.02	1,057.52	1,269.03	1,480.53	1,692.04	1,903.54	1,797.79	10,575.23

QUARTER WISE PROJECTED RECOVERY PLAN – OVERDUE RECEIVABLES

Project	Recovery - Q1 2022-23	Recovery - Q2 2022-23	Recovery - Q3 2022-23	Recovery - Q4 2022-23	TOTAL Inflow
Quaid-e-Azam Business Park	17.95	14.36	25.13	14.36	71.80

QUAID-E-AZAM BUSINESS PARK FINANCIAL PROJECT DETAIL

DEVELOPMENT COMPONENT	ESTIMATED COST OF COMPONENT (Rs. Million)	Proposed Financial Expenditure			
		Actual Incurred	2022-2023	2023-2024	2024-2025
ROAD NETWORK (INTERNAL)	6,094.00	1,452.40	2,800.00	1,500.00	342.00
WATER SUPPLY SYSTEM	1,043.00	207.00	500.00	336.00	Nil
WASTEWATER COLLECTION SYSTEM	1,154.00	3.00	600.00	400.00	151.00
DRAINAGE SYSTEM FOR ROAD NETWORK	1,658.00	50.00	650.00	550.00	408.00
MISCELLANEOUS WORKS	200.00	83.24	30.00	35.00	52.00
LANDSCAPE WORK	150.00	-	30.00	80.00	40.00
MULTI-PURPOSE COMPLEX	3,000.00	461.00	1,500.00	500.00	539.00
ENTRANCE GATES (04 NOS.)	425.00	-	250.00	100.00	75.00
EXTERNAL DEVELOPMENT	404.00	204.68	100.00	50.00	50.00
INTERCHANGE	2,500.00	176.97	1,554.00	400.00	370.00
AMENITIES, PRELIMINARY & MISC. DEV EXPENSES	550.00	9.09	100.00	250.00	191.00
GAS NETWORK (EXTERNAL)	938.00	929.50	Nil	Nil	Nil
GAS NETWORK (INTERNAL)	1,150.00	937.00	160.00	53.00	Nil
INTERNAL ELECTRIFICATION	8,863.00	-	4,000.00	2,500.00	2,363.00
EXTERNAL ELECTRIFICATION	1,115.00	844.02	200.00	61.00	Nil
GRID STATIONS (02 NOS.)	2,250.00	317.98	500.00	1,000.00	433.00
TEMPORARY ELECTRICITY	270.00	10.00	200.00	50.00	Nil
CONSULTANCY	450.00	151.00	200.00	80.00	19.00
FIBER OPTIC / PTCL	500.00	-	500.00	Nil	Nil
CETP	4,000.00	-	500.00	2,000.00	1,500.00
ADMINISTRATIVE / DEPARTMENTAL EXPENSE	805.00	377.61	160.00	150.00	118.00
MARKETING EXP	302.00	104.24	100.00	50.00	48.00
CONTIGENCIES / ESCALATION ETC.	2,000.00	-	1,000.00	600.00	400.00
TOTAL ESTIMATED DEVELOPMENT COST	39,821.00	6,318.72	15,634.00	10,745.00	7,099.00
RELOCATION OF BAMB VILLAGE	400.00	Nil	200.00	200.00	Nil
LAND COST	3,810.00	3,788.18	21.82	Nil	Nil
TOTAL COST	44,031.00	10,106.90	15,855.82	10,945.00	7,099.00

Availability, Sources, Rates and Evidence of Commitments with the Applications from the Sources of Electric Power

1. AVAILABILITY

PIEDMC is constructing its own 132/11KV Grid Station (QABP-1) on cost deposit basis from LESCO with ultimate load of 120MW. LESCO has already commenced work on the grid station at QABP (Grid Station-1), the work will be completed on November 30, 2022. PIEDMC has hired the consultant M/s Prosperity Consultant for the designing of 2nd 132/11KV Grid Station(QABP-2) with ultimate load of 120MW. Initially both grid stations will have one 40 MVA transformer each and additional transformers will be added as demand increases to meet ultimate load requirement i.e. 120MW each. To meet with the estate's ultimate power requirements on long-term basis, NTDC constructs 220/132 KV grid station in QABP as a source Grid. This NTDC grid station will have two 250 MVA 220/132 KV transformers which will be sufficient to meet with the ultimate requirements of QABP.

2. SOURCE

- For interim arrangement till development of 220KV source Grid Station NTDC, a 32 MW load is being catered through existing 132KV Transmission line between Sapphire Power Plant and 132 KV Ayesha Grid Station and 132 KV ICI Public Grid Station LESCO.
- To meet the ultimate load requirement i.e. 240MW, a 220/132KV source Grid Station NTDC is planned to be feeded from In/out arrangement of 220KV Transmission line between 220KV Grid Station KSK and 220KV Grid Station Bandala NTDC.

3. RATES

- a. The security deposits for all type of industrial connections are same as applicable in LESCO.
- b. All Tariff rates are the same as applicable in LESCO.
- c. The minimum charges required for connection are same as of LESCO.
- d. The equipment costs, however, vary because the two systems are entirely different in nature and design. The LESCO distribution system is overhead whereas, Underground distribution network is being laid down in Quaid-e-Azam Business Park, Sheikhpura to eliminate electricity outages/tripping and hence increase system stability. All 11kV feeders are configured in Ring Main System, controlled by RMUs. Each distribution transformer at Quaid-e-Azam Business Park, Sheikhpura is connected with minimum two (02) feeding sources for supply of electricity.

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3. Type of Distribution System

Underground ring main cable distribution system has been laid down providing electricity to all consumers in the premises of Quaid-e-Azam Business Park, Shiekhupura.

4. Line Equipment Characteristics

The State-of-The-Art Equipment for Power Supply' has been selected as designed, like Single Core 500 mm² Aluminium, Cross Linked Poly Ethylene (XLPE) aluminium wire armoured cables are used for main 11 KV feeders, three core 120 mm² Aluminium, Cross Linked Poly Ethylene (XLPE) aluminium wire armoured cables are used for Ring/Loop. The under-ground cable structure is good enough to cater the load of 120 MW.

5. Power Quality Control:-

PIEDMC is constructing its own 132/11KV Grid Station (QABP-1) on cost deposit basis from LESCO with ultimate load of 120MW. LESCO has already commenced work on the grid station at QABP (Grid Station-1), the work will be completed on November 30, 2022. PIEDMC has hired the consultant M/s Prosperity Consultant for the designing of 2nd 132/11KV Grid Station(QABP-2) with ultimate load of 120MW. Initially both grid stations will have one 40 MVA transformer each and additional transformers will be added as demand increases to meet ultimate load requirement i.e. 120MW each. To meet with the estate's ultimate power requirements on long-term basis, NTDC constructs 220/132 KV grid station in QABP as a source Grid. This NTDC grid station will have two 250 MVA 220/132 KV transformers which will be sufficient to meet with the ultimate requirements of QABP and ensure the quality power. Besides, all the installed equipment is placed in "Insets" along the boundary wall of the Industrial Units and underground power supply lines to ensure good quality control on the delivered power. PIEDMC shall manage the O&M for the Distribution System at Quaid-e-Azam Business Park Sheikhupura, duly supervised by qualified and experienced team. The complete O&M activities are being monitored through central operation room where all open positions of feeders and day to day changes in their positions are marked. No work on any equipment is allowed, for the distribution system without proper pre-arranged shut downs. All safety measures are ensured by providing proper earthing of the equipment and issuance of PTW (permit to work) that is coordinated by the Manager Electrical. Power quality shall be maintained as per the latest NEPRA/NTDC Standards as under:-

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- Voltage level at utilization end will be 415V/11kV with +/-5% permissible regulations limit of variation.
- Frequency 50Hz with +/-2 % limit of variation.
- Power factor shall be maintained above 0.9 through decentralize / centralize PFI's plants.

6. Backup / Express Feeder Provision:-

Four (04) 11kV feeders have been constructed to be used as backup / express feeders (see attached drawings) in case of main feeders' failure.

7. Accident protection / Prevention procedures:-

A well experienced and educated distribution staff has been hired by PIEDMC, who are working under well-qualified supervisors on three shifts per day basis. Proper use of protective gears by staff and hanging / displaying of warning signs are ensured at two tiers-one by SIE electric team second ensured by Project Director QABP & Chief Engineer Electrical PIEDMC. The task risk analysis and detailed procedure have been prepared and being adopted by PIEDMC field staff.

8. Maintenance Plan and Procedures:-

Maintenance plans are prepared by Electrical department in advance on monthly/quarterly basis. Maintenance charts for each equipment is updated on regular basis. Procedures have been developed by the qualified engineers of consultant and executions are carried out under qualified, trained and experienced supervisory staff by the help of line staff. Proper T&P (tools and plants) including cable fault locator, surge generator, safety belt, safety hat, bots, earthing sets, safety gloves, protective gloves, torches insulated pliers; screw drivers etc are provided to field staff and are checked regularly. Trouble shooting procedure is also made available to the field staff.

9. Fault Location / Trouble Shooting Procedure:-

Earth fault indicators are installed to help in quick identification and then isolation of faulty portion. 11KV high Voltage apparatus, Surge generator, cable fault locator / High Pot is used to locate the 11KV cable fault expeditiously. Sufficient hardware material like cables, straight through joints and termination kits are made available with Electric store to minimize power outage time. The troubleshooting procedures have been developed as per international standards.

10. Emergency Provisions:-

To cater for emergency express/ back up feeders have been provided, sufficient spares and Line Material is available with the QABP Store in inventory procured and provided by the PIEDMC. Alternate feeding from 11KV express feeders and alternate transformers make it easy to handle any abnormal/emergency situation.

11. Patrolling and Inspection Procedure:-

The Electric staff QABP patrols the area and carry out visual inspection of equipment for any physical damages or fault and reported to Central Operation Control Room. The same then is handed over to the required staff to attend the fault and restoration of supply under the supervision of qualified supervisor. For this purpose, proper procedure and SOP has been framed and being implemented.

12. Customer Services Data / Manuals:-

Dedicated Customer Services Section is taking care of all the requirements from the time of customer's complaint regarding electricity applications for power supply till the electric connection is provided. The idea of 'One Window Services' has been adopted in its true spirit.

13. Billing and Collection Procedure:-

Bills are being generated through Integrated Billing System developed by PITC in-line with NEPRA regulations/ notifications time to time. All bills are properly distributed on customer mailing address as well as online available at BOMSIE official website and collection is being ensured through designated banks before due date of LESCO billed to QABP. Following is detailed procedure for billing and collection:-

➤ Electricity Billing Procedure:-

1. Signed reading sheets received from Electrical Department by 05th of every month.
2. Preparation of Electricity (B-1, B-2, B-3 & Temporary) tariff-wise sheets for uploading on software.
3. Update the electricity billing sheet (new Connection / Extension of load) data given by Electrical Department.
4. Preparation & calculation of LPS of Electricity Billing.
5. Calculate the any new adjustment / relief passed by LESCO.
6. Billing to Customers as per NEPRA / Govt. notified tariffs and rates.
7. Compiling, printing and dispatching of Electricity Bills after receiving of SIE LESCO bill.

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8. Billing is being proceed at-par with NEPRA / Govt. notified tariffs and rates through Power Information Technology Company (PITC) on Integrated Billing System (IBS).

➤ **Collection Procedure:-**

1. Mode of Payment:

- i. Cheques
- ii. Pay order
- iii. IBFT
- iv. RTGS
- v. Online Transfer
- vi. Cash (No cash payment received at BOM Customer deposits cash directly into the Bank)

2. Customer approached One-Window for deposit of bill.

3. SIE representative enter bill number in software.

4. Confirm the title, enter instrument number / date.

5. System generated receiving provided to customers.

6. It is mandatory for customer who deposits bill through IBFT, RTGS to get system generated receiving.

14. **Protection Control and Measuring Instruments:-**

All protection control and allied instrumentations is being provided on each feeders of 132KV grid station as per WAPDA/NTDC/PEPCO standard to safe guard whole National system and all 11KV feeders. The protection and instrumentation equipment including KWh, KVARh, voltage and current meters, over current, earth fault and DC supervision relays are being installed at Incoming and Outgoing panels to protect system.

15. **Type of Metering System to be used:-**

WAPDA/NTDC approved Automated Meter Reading (AMR) Energy Meters are installed along with implementation of Advanced Metering Infrastructure (AMI) for directly transmission of data to PIEDMC / end users.

Following types of Energy Meters are installed:-

- Whole Current ; upto 25kW consumers
- LT TOU ; from 25kW upto 500kW
- HT TOU ; above 500Kw

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16. Metering and Testing Facility:-

To ensure proper billing to customers of Quaid-e-Azam Business Park, Shiekhupura, all energy meters are being purchased as per WAPDA/NTDC Standards and Specifications from the approved meter manufacturers of WAPDA/NTDC/LESCO who will ensure the accuracy of these meters. However, doubtful meters will be tested on site with standard testing equipment. The factory tested and calibrated standard energy meters are installed at each individual consumer premises that are tested as per manufacturer's recommendation for routine testing or on the complaint / dispute with the consumer/s.

17. Communication System:-

Communication between Central Control / Operation Room and the field staff has been established through cell phones and walki talkies.

18. Training and Development:-

PIEDMC has devised mechanism for capacity building and trainings to skilled technical staff through engagement of concerned firms / consultants.

Training and Development Procedures

Introduction

In order to keep PIEDMC Electrical Staff fully updated with the electrification in Industrial Estates, PIEDMC has established a Training and Development Manual.

Training is provided to employees of Customer Services and the Electrical department.

Training at regular interval is arranged by Chief Engineer for the Technical Staff where new and efficient maintenance and fault locating methods are being explained for implementation.

The Employees from customer relations are also updated at regular intervals of any change in customer policy and change of Tariff etc.

All the operations and maintenance (O&M) staff of Quaid-e-Azam Solar Park Sheikhpura are trained as per the training manuals of Lahore Electric Supply Company (LESCO). The staff is trained to provide high quality services and are trained in the following areas:

- Introduction to Training Programmed Organization and System
- Overview of role and Duties of Line Superintendent.
- Material of use in construction line
- Use and care of T&P.
- Service Installation(LT & HT)
- Patrolling of lines
- First aid skills and practices
- Basic electricity concept, testing/measure instruments and their uses
- Distribution system standards and specifications
- Distribution system planning
- Installation of Earth system
- Distribution system operation
- Distribution system maintenance
- Location of faults and consumer complaints
- Safety and Safety equipment
- Fire prevention and control
- Distribution system mapping
- Energy meters-Installation, checking and maintenance.

1. SAFETY, HEALTH, AND ENVIRONMENT (SHE) FOR ELECTRICAL O & M WORKS

Areas to be addressed while making Electricity O & M SHE Manual:

- Study the nature of complaint/Fault/Work to do the job safety analysis.
- Planning & Preparation for SHE according to the nature of complaint/Fault/Work.
- Selection of Tools & protective gears according to complaint/Fault/Work.
- Preparation of Skilled workers with selected Protective gears.
- Evaluate the environment of work place under complaint/Fault/Work.
- Comply the work place ethics.
- Firefighting procedure & Standards compliant shall assure before execution of any complaint/Fault/Work plan.
- Identify the area /equipment under complaint/Fault/Work.
- Comply the Procedure to get PTW (Permit to work).
- Cordon off the area under complaint/Fault/Work.
- Isolate the live part/Area from the effected or under work area /equipment as per nature of complaint/Fault/Work.
- Earth the equipment /system under fault with earth set on both sides of equipment in case of fault to avoid any electric shock.
- Use the calibrated Measuring Instruments to ensure the isolation of equipment under complaint/Fault/Work i.e. HT/LT Tester etc.
- Tag in /Tag Out the switching on Operational Board by the despatcher and on equipment by the Engineer /Supervisor to avoid any operational mishap.
- Maintenance /Installation/Repairing shall be done as per Equipment Manual.
- After execution of plan for complaint/Fault/Work, system shall be restored as per original design to avoid any operational hazards.
- Check the design parameters of system to ensure the quality of work executed for complaint/Fault/Work.
- Keep the work place clean after handling complaint/Fault/Work.
- Cancellation of PTW (Permit to work) as per procedure.
- Technical input after carrying the job shall be part of report, drawing, data and operational board if required to avoid electrical operational hazards.
- Ensure the availability of First Aid medicine, Gadgets & Gears kit as per site requirement.
- Emergency Management Services shall be on board 24/7/365.
- Work at height through Ladder and scaffoldings technical training and developments to ensure safety.
- SHE Compliance report Weekly /Fortnightly/Monthly.
- SHE audit.
- SHE compliance surprise visit by the SHE manager on work place to ensure the compliance.
- Calibration of safety gadgets with due course of time to ensure health of equipment.
- Ensuring the safety, fire prevention, Firefighting, fire management and accident



management drills.

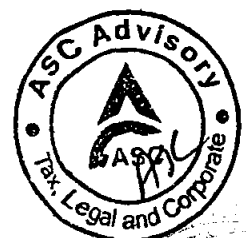
- T & D for learning about electrical hazards.
 - SHE Risks evaluation and mitigation through effective risk management.
 - Placement of SHE signs and precautions.
 - Providing Hygiene environment management system.
 - SHE compliance Award and Allowances.
 - SHE Awareness and orientation workshops.
 - Technological changes acceptance attitude development for effective compliance of SHE.
 - Ensure the usage and safe handling of personal protective equipment (PPEs) during electrical works.
 - Proper Implementation of Traffic management plan (e.g.; Give way to emergency vehicles, such as fire tenders, Rescue vehicles Ambulances etc.).
 - Comprehensive Emergency preparedness and response plan.
 - Waste disposable mechanism for combustible and non-combustible materials.
 - Accident /Emergency report format for record keeping.
 - Develop Key performance indicators (KPIs) for effective implementation of SHE manual.
 - Any other point to be incorporated for effective compliance of SHE.
-

2. SAFETY ADVISORY

SUMMER / MONSOON SAFETY ADVISORY

WORKING OUTDOORS:

- Make sure your safety gear is in a serviceable/usable condition, use PPE.
- Keep a small towel/ piece of cloth and wipe your tools dry before you use them.
- Use Gum boots and check that the soles have proper tread which avoids slipping.
- Ensure use of safety belt while working at heights.
- Keep away from trees, tall objects, metal objects and water during a thunderstorm.
- Look out for open manholes if you have to wade through standing water, use a stick to feel the ground in front.
- Move cautiously because rain causes slick surfaces, work more slowly particularly when climbing ladders
- Make sure you can be seen. Wear high-visibility clothing, especially in areas with vehicle traffic and heavy machinery.
- Stay clear of areas where there is a lot of debris or downed trees. It could conceal an energized power line.
- Stay clear of chain link fences that may be energized if touching a downed line.
- Stay away from any water that may have downed wires in or near the area.



TIPS FOR WORKING IN COLD WEATHER:

- Dress in layers so you can adjust for colder conditions but avoid sweating. Cover the head & wear gloves.
- Wear face protection to avoid skin exposure, depending on how cold it is, use sunglasses if it is sunny.
- Cover mouth & nose in extreme cold so that the air you breathe is not immediately cold to your lungs.
- Apply ointments/lotion/oil to keep the skin protected from dryness.

EARTHQUAKE ADVISORY

Actions required to be taken during an earthquake.

During the Earthquake:

- If you are indoors, stay there. Quickly move to a safe location in the room such as under a strong desk, a strong table, or along an interior wall. The goal is to protect yourself from falling objects and be located near the structural strong points of the room. Avoid taking cover near windows, large mirrors, hanging objects, heavy furniture, heavy appliances or fireplaces.
- If you are cooking, turn off the stove and take cover.
- If you are outdoors, move to an open area where falling objects are unlikely to strike you. Move away from buildings, power lines and trees.
- If you are driving, slow down smoothly and stop on the side of the road. Avoid stopping on or under bridges and overpasses, or under power lines, trees and large signs. Stay in your car.

After the Earthquake:

- Check for injuries, attend to injuries if needed, help ensure the safety of people around you.
- Check for damage. If your building is badly damaged you should leave it until it has been inspected by a qualified professional.
- If you smell or hear a gas leak, get everyone outside and open windows and doors. If you can do it safely, turn off the gas at the meter. Report the leak to the gas company and fire department. Do not use any electrical appliances because a tiny spark could ignite the gas.
- If the power is out, unplug major appliances to prevent possible damage when the power is turned back on. If you see sparks, frayed wires, or smell hot insulation turn off electricity at the main fuse box or breaker. If you will have to step in water to turn off the electricity you should call a professional to turn it off for you.



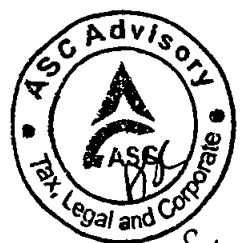
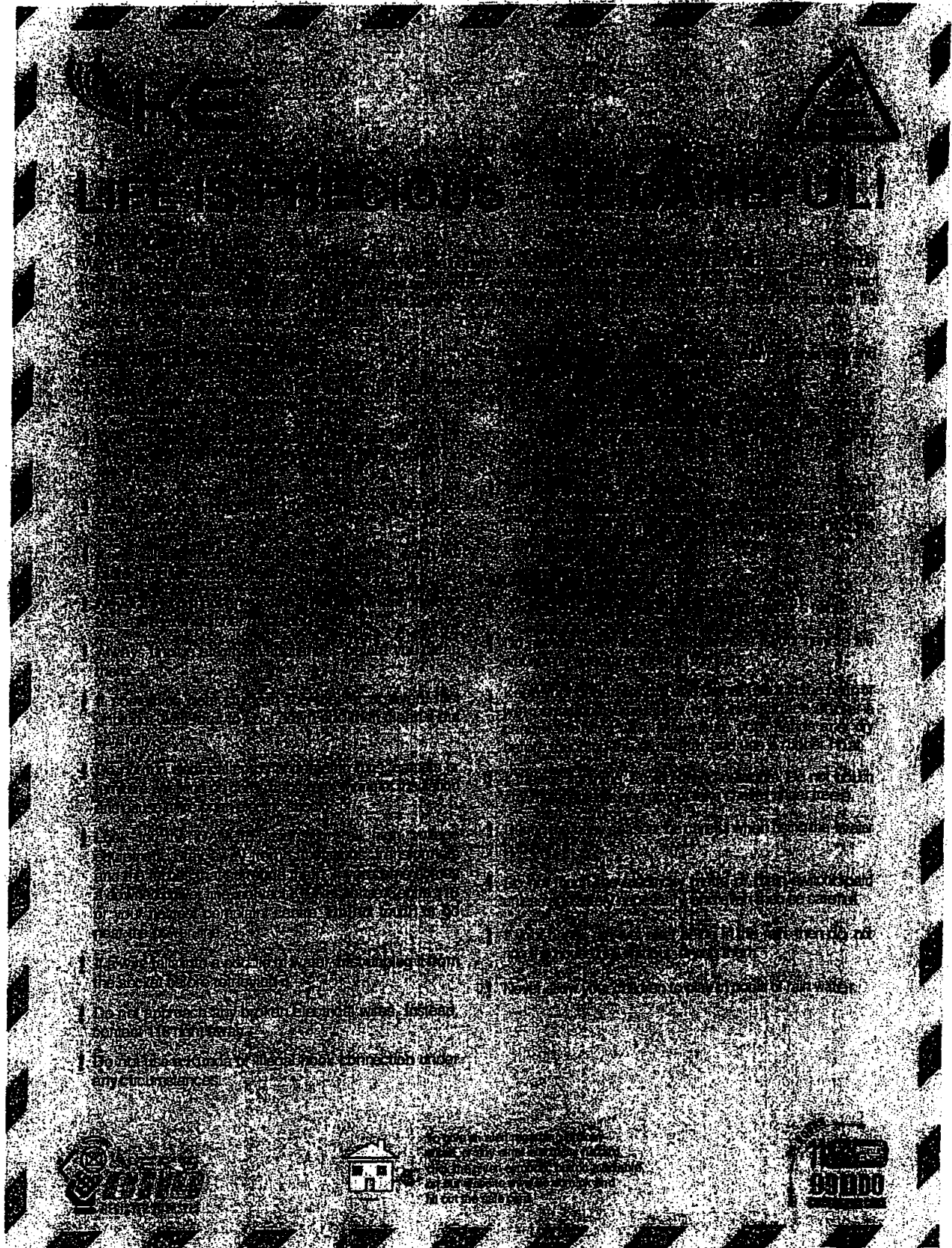
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What you need to do during and after the rains/storm:

- Stay abreast with the news and advisories
 - Avoid moving out on the streets until the storm passes
 - Park your vehicles in location to prevent from damage due to falling items (trees, billboards, etc.)
 - Stay away from accumulated water around electrical installations.
 - Don't attempt to repair electrical system or pull wet tree limbs off electric lines.
 - Don't touch wet electrical switches. Particularly outdoor switches must be touched using non-conductor material.
 - Do not lock motorcycles or bicycles with electric poles.
 - Do not touch or fiddle with any falling electric wires.
-



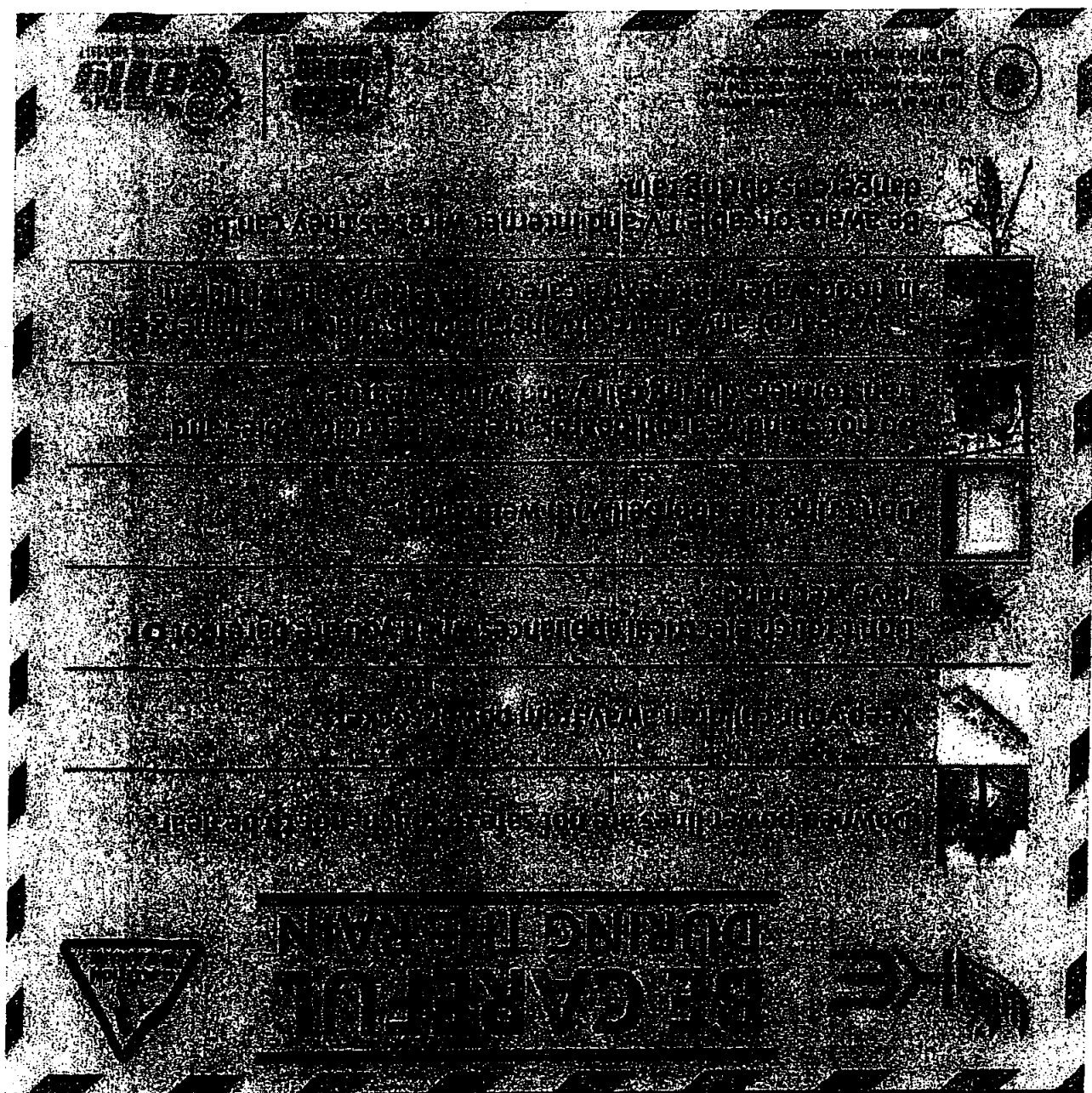
3. SAFETY LEAFLETS



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4. NEPRA GUIDELINES FOR POWER SAFETY CODE FOR
TRANSMISSION & DISTRIBUTION LICENSEES
(First Edition November, 2014)

PSC- 6 Detailed Instructions of Power Safety to be considered while preparing the Power Safety Manual

PSC-6.1 Purpose, Scope & Philosophy of Safety Policy

Each licensee shall elaborate the purpose & scope of overall safety policy, vision of the licensee about safety, fundamentals of the power safety and the issuance of power safety manual to all concerns.

Duties & responsibilities of safety team/safety directorate & others regarding training, record, implementation, auditing and preventive action shall be clearly defined by each Licensee. The Licensee shall provide such records to NEPRA as and when required.

PSC-6.2 Basic Safety Guidelines

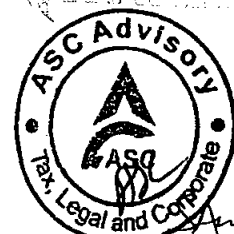
The licensee shall provide the basic safety guidelines primarily for persons who have not been appointed as competent persons under power safety code or persons who work beyond their scope of competence.

The basic safety guidelines shall comprise but not limited to the following:

- General Principals
- Operations
- Fire Precautions & work in confined space
- Work in Substations & Compounds

The general basic principles of safety shall also be observed i.e.:

- Identification of Hazards
- Elimination of Hazards
- Controlling of Hazards
- Protection against injuries
- Minimizing the severity of injury
- Avoiding for future occurrences



Unsafe conditions or unsafe acts shall be clearly defined, as the good operation is only the safe operation.

Examples of un-safe conditions be clarified i.e.:

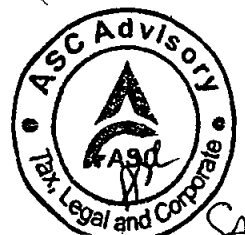
- Improper Guarding
- Defective material or equipment
- Hazardous arrangements/Insufficient lighting
- Improper ventilation
- Unsafe Clothing
- Unsafe Design & Construction

Examples of Un-Acts be clarified i.e.:-

- Operating without Authority or Warning
- Operating or Working at unsafe Speed
- Making safety devices In-operative
- Use of unsafe equipment or improper use of equipment
- Unsafe Loading
- Placing or Leaving Objects
- Mixing improper Packing
- Taking unsafe Position or Posture
- Working on equipment without taking proper precautions
- Distracting, Teasing or Startling
- Failure to use safe clothing or protective equipment

From operation point of view, other factors be also considered i.e.:

- Shift Duties
- Reporting of duty in unfit condition
- Assistance from employees not on duty



- **Inspection of Grid Station Equipment**
- **Weather information**
- **Interference of animals**
- **Visitors**
- **Working of employees of other organizations**
- **Identification of operating equipment**



PSC-6.3**General Provisions for Safety**

The general provisions of safety shall be provided by each licensee covering the followings:

- The provisions for workers /operators to object to doing work on safety grounds.
- The use & wearing of safety equipment & protective clothing.
- Physical fitness & personal conduct of the worker before and during on job
- Arrangement and procedure of job briefing before the work is started
- Requirements to safe guard the public and property when work in progress
- Requirements for housekeeping in a safe working in conditions
- Arrangements and requirements of Fire protection
- Requirements, arrangements and use of proper tools and plants for the proper and safe storage lifting and carrying of different types of material
- Procedure and reporting requirements of patrolling of lines
- Procedure for tree trimming
- List of common protective devices and equipment use for the safety purpose.

PSC-6.4**Safety Policy for Electrical Equipment & Materials from Design & Execution Point Of view**

Each Licensee shall establish the design section, which shall be responsible for complete detailed engineering design and execution of electrical equipment and materials from power safety point of view. All design aspects/design criteria shall be provided to NEPRA as & when required and complete record shall be maintained by each Licensee.

Detail regarding improvement in existing electrical protective equipment shall be clearly provided i.e.:

- Protective measures as per IEC or international engineering standards in 11KV Panels in order to diagnose the fault in case the live conductor falls on rocks or any dry surface and in result may cause damage to people or property.
- Protection of Transformers
- Protection of 11KV lines with protective devices
- Protection of cables against fires, as in some instances cable may become a carrier of fire.



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Safety Measures from Operation & Maintenance Point of View

Safety measures for operation & maintenance shall cover but not limited to the following:

- **General Safety Requirements**

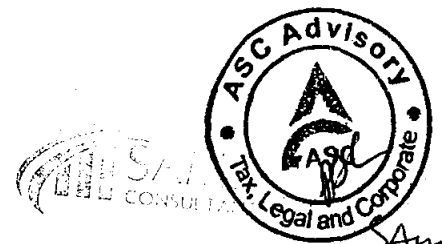
- Access to and work in operational premises, underground chambers & confined spaces
- Working with vessels that contain oil or flammable liquids.
- Access to & work in fire protected areas.
- Climbing of Poles, towers & structures
- Access to high voltage apparatus and structures
- Arrangements for high voltage switching operations
- The use of voltage testing devices
- The procedure to follow when excavating near live cables.
- The use of mobile plant and equipment near overhead lines.

- **Safety Precautions for work on or near High Voltage Systems**

- This section includes the all-precautionary measures and procedures to be followed while working on or near any high voltage system;
- The general safety principles to follow to ensure safe working.
- The arrangements for insuring safe isolation of apparatus and conductors
- The methods to be used to discharge and earth high voltage equipment
- The procedure to follow when approaching live high voltage conductor and insulators supporting them.
- The procedure to follow for work in substation and switching substations containing exposed live high voltage conductors
- Permits to Work
- Sanctions for Tests
- Limitations of Access

For Permit to work (PTW), specimen shall be provided by each DISCO/NTDC in the safety manual covering the following but not limited to the following:

- Application of PTW
- Issuance of PTW



- Receipt of PTW
- Clearance of PTW
- Cancellation of PTW

For sanction of test & the limited work certificate the following points must be considered:

- Preparation
- Issues and receipt
- Transfer
- Cleanness and cancellation

Requirement: Each Licensee shall provide the PTWs with the minimum details as mentioned above.

C: Procedures for work on particular items of plant, Apparatus or Conductors

Each licensee shall cover operations which require procedures to be followed which are additional to the general ones.

- General safety precautions to be taken for use of cleaning solvents, Handling of toxic or hazardous materials, Glass fiber thermal insulation, Explosives, radio actives and radiations, High voltage testing, leak checking, pressure vessels/cylinders, underground man-holes.
- Procedures for safe working of remotely and automatically control equipment shall be established by each DISCO/NTDC after consultation with NPCC or RCC which ever case is applicable & shall be provided in power safety manual.
- With-drawable apparatus
- Bus-bars, bus-bar spouts and bus-bar connections of multiple panel /switchboards
- High voltage apparatus and plant operated by or containing compressed air with other gases or operated by hydraulic power
- Transformers
- High voltage static capacitors
- High voltage cables



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The type & classification of cables along with voltage rating shall be clearly defined by each DISCO/NTDC

- High voltage overhead lines
- single or multiple circuit, high voltage overhead lines, with all conductors' dead
- Double circuit, high voltage overhead line, with one circuit live
- High voltage regulator
- Industrial panels/grid end panels as per prevailing voltage levels
- DC station batteries
- Disconnect switches/isolators
- Instrument transformer (CTs, PTs, and CVTs)
- Insulating oils, oil tanks, SF6 gas and gas cylinders,

D: Safety Precautions for High Voltage Live Line work on High Voltage Over Head lines

It shall include:

- The authorization requirements for staff carrying out the operations
- The live line tools and equipment to be used and the arrangements for keeping them in good condition must be clearly defined such that:
- Complete package of T & P (hand tools and machine tools), extension ladder fiber, adjustable strain pole, conductive shoes, conductive suit (Socks, gloves, trousers, shirt etc.), torsion, nut, torsion ratchet wrench, strain link stick, hot-end suspension yoke, cotter key pusher, strain pole carrier, moisture eater, abrasive cleaning pad, hot-stick tester, hit-test insulator tester, generator 5 KW, live-line rope etc.
- The general safety precaution to follow

E: Safety Precautions for the Testing of High Voltage Systems

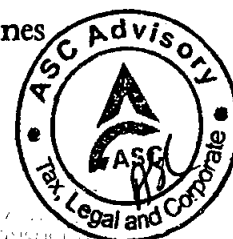
This shall consist of the followings:

- General precautions to take

- Work under a sanction for test
- The testing of high voltage apparatus

F: Safety Precautions and procedures applicable to Low Voltage Systems

- General requirements for work on dead low voltage apparatus and lines
- Additions precautions for work on dead low voltage cables



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- Additional precautions for work on dead low voltage overhead lines
- Precaution for work on live low voltage apparatus
- Precaution for work on live low voltage overhead lines
- Precaution for work on live low voltage cables
- Testing of low voltage apparatus
- Calibration of electrical testing equipment.

PSC-6.6

Safety for Power Plants

Each licensee shall cover the specific safety requirement for the power plant working environment and shall include but not limited to the followings;

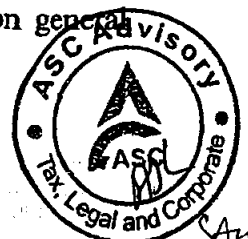
- Boiler operation
- Boiler maintenance
- Turbo generator operation & maintenance
- Import plant auxiliaries
- Water plant treatment
- Workshop of the power plant
- SOPs in case of spillage in the plant & in case of fire accident.
- Work permits electrical maintenance section
- Works permit for maintenance section
- Works permit for instrument/control section

PSC-6.7

Safety Policy for Transportation

Each licensee shall cover the all procedures related to

- General Instructions
- SOPs for checking/maintenance
- Driving
- Parking
- Operation of trucks, trailers & forklift trucks
- SOPs, to be followed in case of accident.
- Speed limits inside the premises of NTDC/DISCO works/sites & on general



- public roads/areas.
- Training of drivers
- Motivational methodologies for drivers.

PSC-6.8 First Aid Procedures

First aid procedures shall cover the procedures, guidelines, implementation strategies and complete data base & suggested measures for preventive action and shall include but not limited to the followings:

- General instructions
- Hemorrhage (bleeding) and including the measures for internal hemorrhage, nose bleeding
- Physical/electric shock
- And also the informative charts describing the effects with respect to current level, human body resistance and the other factors that affect the human body
- Sun stroke, head stroke
- Fainting
- Fractures (broken bones)
- Transportation/shifting of the victims
- Wounds
- Splinters or foreign substances in the body
- Animal/snake bites
- Burns (thermal, electrical & chemical)
- Eye injuries
- Sprains/strains,
- Bruises
- Frost bite
- Heimlich maneuvers



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Stamp: *CONSULTANT*

Signature: *Sam*

PSC-6.9 Resuscitation & Rescue Procedures

Resuscitation & rescue procedures shall include but not limited to the followings:

- General instructions
- Methods of pole top rescue
- Artificial respiration

Requirement: These shall be defined by each Licensee with detailed procedures and understandable diagrams/pictures and methodology for training of person to perform such activity.

PSC-6.10 Data Base of Power Safety and Operation and Maintenance Charts

Each licensee shall cover the complete information regarding operation and maintenance charts and these shall be readily accessible to all concerned. There shall be no confusion from tagging/marketing point of view for electrical equipment & materials.

In addition to this other charts i.e.

- Charts related to clearances form electrical equipment & material functioning point of view
- Safety signs/signals charts at required locations/places
- Exit signs
- Charts for safety instructions for visitors/contractors/others
- Charts for useful knots
- Charts for strengths & weight of material
- Charts for safe loads on different types of ropes
- Charts for safe working of cranes
- Operation and maintenance charts
- Fire extinguishers
- Road signs
- Warning signs
- Danger signs
- Charts for allowable factor of safety, clearances & other applicable data



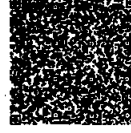
- Permit to works (PTWs)
- Charts for motivation of staff /persons
- Maintenance & inspection schedules
- Charts for conversion tables and
- others required as per standard engineering practices

These charts shall be understandable to workers/labor in Urdu also, in addition to English

E-STAMP



ID : PB-LHR-3D455E4F4CEB9012
Type : Low Denomination
Amount : Rs 100/-



Description : AFFIDAVIT - 4
Applicant : Quaid e Azam Business Park Sheikhpura through Ali Muazzam Syed[35202-8279686-3]
S/O : Aslam Bahar Syed
Address : Lahore
Issue Date : 24-Oct-2022 4:17:44 PM
Delisted On/Validity : 31-Oct-2022
Amount in Words : One Hundred Rupees Only
Reason : Affidavit
Vendor Information : Asad Hussain | PB-LHR-434 | Sundar Road Mall

SHAHZAD MIR
ADVOCATE
OATH COMMISSIONER
LAHORE
ATTESTED

نوٹ: یہ ٹرانزیکشن تاریخ اجرا سے سات دنوں تک کے لیے قابل استعمال ہے۔

AFFIDAVIT OF MR. ALI MUAZZAM SYED, CEO OF PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY (PIEDMC) UNDER REGULATION 3(4)(g) OF NATIONAL ELECTRIC POWER REGULATORY AUTHORITY LICENSING (APPLICATION, MODIFICATION, EXTENSION AND CANCELLATION) PROCEDURE REGULATIONS, 2021

I hereby undertake that Punjab Industrial Estate Development and Management Company (PIEDMC) applied to NEPRA for grant of distribution license and electric power supply license under NEPRA licensing regulation for the following industrial estates:

- Sundar Industrial Estate on September 29, 2022.
- Bhalwal Industrial Estate on June 30, 2022.
- Rahim Yar Khan Industrial Estate on July 29, 2022.
- Quaid-e-Azam Business Park on November 22, 2016.
- Vehari Industrial Estate on June 30, 2022.

I also undertake that the above mentioned Quaid-e-Azam Business Park application had been submitted to NEPRA but were returned by NEPRA in light of judgement dated July 8, 2021 of the Islamabad High Court due to which NEPRA had decided not to entertain applications for grant of distribution/supplier licenses till the expiry of the existing distribution licenses of DISCOs and notification of the rules and regulations as per NEPRA Amended Act, 2018.

The other abovementioned applications are still under review by NEPRA.

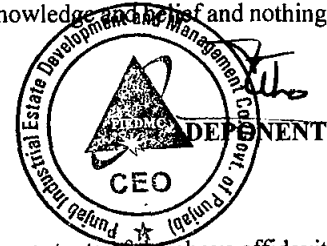
Therefore, I hereby undertake that PIEDMC has not been granted any other license under the act.

I, the above named deponent, do hereby solemnly affirm and declare on oath that the contents of this application and affidavit are true and correct to the best of the deponent's knowledge and belief and nothing has been concealed therein.

VERIFICATION:

Verified on oath at Lahore on this the 25 day of October, 2022 that the contents of the above affidavit are true and correct to the best of the deponent's knowledge and belief and nothing has been concealed therein.

(Company Seal)





October 24, 2022

**Undertaking
Refusal of Grant of License**

We hereby undertake that Punjab Industrial Estate Development and Management Company (PIEDMC) applied to NEPRA for grant of distribution license for Quaid-e-Azam Business Park, Sheikhpura, under relevant NEPRA Licensing Procedures Regulations prevalent on and before November 22, 2016.

On January 27, 2022, the application was returned by NEPRA in light of judgement dated July 8, 2021 of Islamabad High Court due to which NEPRA had decided not to entertain applications for grant of distribution/supplier licenses till the expiry of the existing distribution licenses of DISCOs and notification of the rules and regulations as per NEPRA Amended Act, 2018.

We also undertake that this information is true to the best of our knowledge.



Chief Executive Officer

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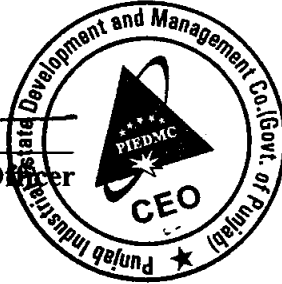
October 24, 2022

Undertaking

Board Resolution for Seeking of License

We hereby undertake that on the 104th meeting of the Board of Directors of Punjab Industrial Estate Development and Management Company (PIEDMC) dated July 21, 2016, permission was granted for submission of application to NEPRA for issuance of electricity distribution license for all industrial estates under the preview of PIEDMC. We also undertake that this information is true to the best of our knowledge.

Chief Executive Officer





PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY

16.3 Approval of the PIEDMC Board for obtaining electricity distribution license from NEPRA for all industrial estates of PIEDMC.

CEO presented the agenda. He informed the Board that PIEDMC intends to apply for getting distribution license from NEPRA for electricity distribution within all the Industrial Estates of PIEDMC. Therefore, permission is solicited to submit the application to NEPRA and also allow CEO, PIEDMC to sign and complete the formalities with NEPRA in this regard. This is the mandatory requirement for submission of application.

Recommendation

BOD is requested to grant permission for submission of application to NEPRA for issuance of electricity distribution license in all the industrial estates under PIEDMC and CEO, PIEDMC be allowed to sign the documents and complete the formalities with NEPRA.

After discussing the agenda at length and giving due deliberation following resolution was passed:

Decision:

Resolution (104-16-3)

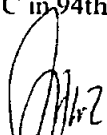
RESOLVED THAT, "permission be and is hereby granted for submission of application to NEPRA and issuance of electricity distribution license for all the industrial estates under preview of PIEDMC".

FURTHER RESOLVED THAT, "CEO-PIEDMC be and is hereby authorized and empowered to file and execute documents, contracts and to complete all related formalities on behalf of the Company".

Action by: General Manager (Technical)

16.4 To consider and approve the award of contract for General Consultancy for Power purchase from Private Power Producers (PPPs).

Chief Engineer Electrical presented the agenda. He informed the Board that in order to resolve the problem of energy crises in PIEDMC Projects, Power committee was constituted by the Chairman PIEDMC in 94th BOD meeting with the following members:


Company Secretary


Chairman

Sand

E-STAMP



ID : PB-LHR-BE57E79F35SD9B32
Type : Low Denomination
Amount : Rs 100/-



Description : AFFIDAVIT - 4
Applicant : Quaid e Azam Business Park Sheikhpura through Ali Muazzam Syed[35202-8279686-3]
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SHAHZAD MIR
ADVOCATE
OATH COMMISSIONER
LAHORE
ATTESTED

743

نوٹ: یہ ٹرانزیکشن تاریخ اجرا سے سات دنوں تک کے لیے قابل استعمال ہے۔

AFFIDAVIT OF MR. ALI MUAZZAM SYED, CEO, ON BEHALF OF PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY (PIEDMC) UNDER REGULATION 3(7) OF NATIONAL ELECTRIC POWER REGULATORY AUTHORITY LICENSING (APPLICATION, MODIFICATION, EXTENSION AND CANCELLATION) PROCEDURE REGULATIONS, 2021 SUPPORTING THE APPLICATION

I, Ali Muazzam Syed, CEO, being the duly authorized representative of Punjab Industrial Estate Development and Management Company (PIEDMC) by virtue of BOARD RESOLUTION dated July 21, 2016, hereby apply to the National Electric Power Regulatory Authority for the grant of a distribution license to Punjab Industrial Estate Development and Management Company (PIEDMC) pursuant to section 20 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

I hereby certify that the documents-in-support attached with this application are prepared and submitted in conformity with the provisions of the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, and undertake to abide by the terms and provisions of the above-said regulations. I further undertake and confirm that the information provided in the attached documents-in-support is true and correct to the best of my knowledge and no material omission has been made.

A Pay Order in the sum of Rupees 3,196,089/- being the license application fee calculated in accordance with Schedule II to the National Electric Power Regulatory Authority Licensing (Application, Modification, Extension and Cancellation) Procedure Regulations, 2021, is also attached herewith.

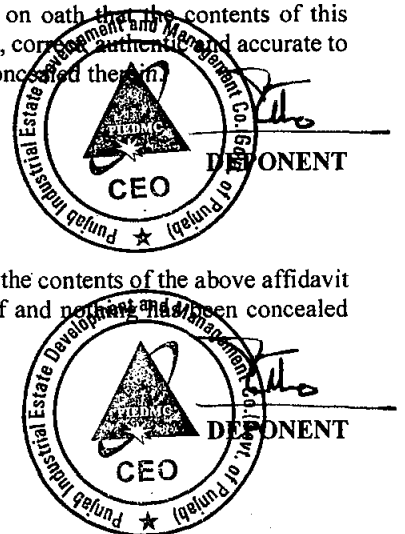
Date:

I, the above-named deponent, do hereby solemnly affirm and declare on oath that the contents of this application along with the documents and information submitted are true, correct, authentic and accurate to the best of the deponent's knowledge and belief and nothing has been concealed therein.

VERIFICATION:

Verified on oath at Lahore on this the 25 day of October, 2022 that the contents of the above affidavit are true and correct to the best of the deponent's knowledge and belief and nothing has been concealed therein.

(Company Seal)



PUNJAB INDUSTRIAL ESTATES

DEVELOPMENT AND MANAGEMENT COMPANY

A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



October 24, 2022

Undertaking

We hereby undertake that Punjab Industrial Estate Development & Management Company accepts NEPRA's power under all applicable NEPRA laws to amend or grant dispensation in relation to the distribution license.

Chief Executive Officer



Head Office: Commercial Area (North) Sundar Industrial Estate, Sundar Raiwind Road, Lahore.
Tel: 042-35297203-6, Fax: 042-35297207, UAN: +92-42-111-743-743
Website: www.pie.com.pk E-Mail: info@pie.com.pk
An Approved Non Profit Organisation U/S 2(36) of Income Tax Ordinance 2001




37/11
CONC
SAm


October 24, 2022

Undertaking

We hereby undertake that Punjab Industrial Estate Development & Management Company accepts NEPRA's power under all applicable NEPRA laws to amend or grant dispensation in relation to the distribution license.



Chief Executive Officer



CONFIDENTIAL
SAMD