CONSULTANTS
General Profile-Experience

ZAHEERUDDIN CONSULTANTS (PVT.) LTD.

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Registration No. of Pakistan Engineering Council:

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BACKGROUND:

Zaheeruddin Consultants (Pvt.) Limited (ZCL) a consulting engineering firm is headquartered at Karachi with Regional Offices at Islamabad, Hyderabad, Quetta and Sukkur with a diversified staff, such as planners, engineers, surveyors, economists, and architects. The organization was established in 1949-50 and is one of the leading Consulting Engineering Firm in Pakistan with a standing of seven decades in planning, project management, design and construction supervision. It has accumulated a wide range of experience in Roads, Highways Bridges, Ports and Harbours, Fish Harbour and Fish Handling Jetties, Irrigation, Drainage, Flood control, Architectural and engineering. The activities of the firm cover all phases of development projects, project identification, pre-investment studies and feasibility studies, detailed engineering, design, preparation of tender documents, evaluation of bids and supervision of construction. The organization has served the national interests and achieved successful completion of projects of national and international importance.

The Organization is now widely experienced and is one of the seniors most Consulting Engineering Firms in the Country. The firm has produced high-quality architectural designs, planning and technical performance on large and small-scale projects in diversified field of activities. While working closely with each client, Zaheeruddin Consultants (Pvt.) Limited integrates all in-house disciplines in varying combinations to produce the appropriate design and engineering services of highest professional standards. The firm has specialists in Port Planning and Engineering, Navigation, Dredging, Coastal Engineering, Transport Planning, Port Planning, Architecture, Structural, Civil, Electrical, Mechanical, Air-conditioning and Public Health Engineering under one roof.

Management:

Zaheeruddin Consultants (Pvt.) Limited is an independent Private Limited Company registered under Joint Stock Companies Act of Pakistan. ZCL is registered with Pakistan Engineering Council. The overall business of the company is looked after by a Board of Directors.

Zaheeruddin Consultants (Pvt.) Limited is independent of any manufacturing or contracting company or government department and provide clients with unbiased advise and services.

Sites of Operation:

Head Office:	Karachi
Regional Offices:	Islamabad, Lahore, Hyderabad, Peshawar & Quetta.

Field of Activities:

Zaheeruddin Consultants (Pvt) Limited's fields of activities broadly fall in the following disciplines:

- Ports and Harbour Engineering.
- Transportation Engineering.
- Environmental and Public Health Engineering.
- Architecture and Town Planning.
- Land/Water Resources Development Engineering.
- Agriculture and Rural Development.
- Industries.

The activities of the firm cover all phases of development projects, project identification, pre-investment studies and feasibility studies, detailed engineering design, preparation of tender documents, evaluation of bids and supervision and management of construction. The organization has served the national interests and achieved successful completion of projects of national and international importance. The firm has produced high-quality architectural designs, planning and technical performance on large and small-scale projects in diversified field of activities. While working closely with each client, Zaheeruddin Consultants (Pvt.) Limited integrate all in-house disciplines in varying combinations to produce the appropriate design and engineering services of highest professional standards through specialists in Engineering, Planning, Architecture and Town Planning, Structural, Public Health Engineering, Water Resources and Agriculture and Rural Development under one roof.

Project Operations:

Zaheeruddin Consultants (Pvt.) Limited is operating projects from its Head Office at Karachi. For back-up support to its projects, ZCL is maintaining specialized divisions in their head office at Karachi. The divisions are:

- Ports and Harbour Engineering Division.
- Highway/Transportation Division.
- Environment/Public Health Engineering Division.
- Electrical and Mechanical Division.

- Geo-technical Division.
- Architecture and Town Planning Division.
- Agriculture and Rural Development Division.
- Water Resources Development/Irrigation & Drainage Division.
- Mechanical & System Analysis Division.
- Computer and System Analysis Division.

Clientele:

Zaheeruddin Consultants (Pvt.) Limited has had an extensive clientele such as World Bank, Asian Development Bank, United States Agency for International Development [USAID], Federal Government of Pakistan, Provincial Governments of Sindh, NWFP and Balochistan, Water And Power Development Authority [WAPDA], Sui Gas Transmission Company Limited, Sui Southern Gas Company Limited, Mari Gas Company Limited, Fauji Foundation Limited, Ministry of Defence Production Government of Pakistan, Pakistan Air Force, Pakistan Navy, Pakistan Railways, Pakistan Steel, Pakistan Industrial Development Corporation (PIDC), Pakistan Mineral Development Corporation, Pakistan Atomic Energy Commission, Pakistan Space and Upper Atmosphere Research Commission [SUPARCO], Pakistan Tourism Development Corporation, Pakistan Marine Academy, Pakistan Services Limited, Pakistan Machine Tools Factory Karachi, Overseas Pakistanis Foundation, Heavy Mechanical Complex Taxila, Port Muhammad Bin Qasim Authority, National Highways Authority, Karachi Port Trust (KPT), Karachi Fisheries Authority, Karachi Development Authority [KDA], Karachi Metropolitan Corporation [KMC], Hyderabad Municipal Corporation (HMC), Quetta Development Authority (QDA), University of Sindh, Jamshoro, Mehran University of Engineering and Technology, Jamshoro / Nawabshah, University of Karachi, Sindh Agriculture University Tando Jam, Gomal University D.I. Khan, Quaid-e-Azam University Islamabad, University Grants Commission Islamabad, HEJ Research Institute of Chemistry, COMSATS – COMSTECH, Jamia Millia Malir Karachi, Board of Intermediate and Secondary Education Hyderabad, Board of Intermediate and Secondary Education Peshawar, Board of Intermediate and Secondary Education Quetta, Sindhi Adabi Board Jamshoro, Sindh Text Book Board Jamshoro, Sindh Workers Welfare Fund Islamabad, Sindh Workers Welfare Board, Punjab Workers Welfare Board, NWFP Workers Welfare Board, State Bank of Pakistan, National Bank of Pakistan, Allied Bank of Pakistan Limited, Muslim Commercial Bank Limited, Pearl Continental Hotel Karachi/Lahore/Peshawar and Rawalpindi, Malam Jabba Resorts Limited, PIA Hotels/Motels Limited, Sindh Katchi Abadis Authority, Sindh Arid Zone Development Authority (SAZDA), Cotton Export Corporation Limited, Karachi Properties Investment Limited, Besides these ZCL has the vast clientele in private sector also.

Strength:

To cater for various aspects of consultancy services in the disciplines described ante, Zaheeruddin Consultants (Pvt.) Limited maintain a large professional team of engineers, architects, town planners, agriculture specialists, soil and water scientists, hydrologists, geologist, economists, agronomist, sociologist, financial analysts, statisticians, computer programmers, surveyors and technicians etc.

Facilities:

Zaheeruddin Consultants (Pvt.) Limited has in-house computer facilities in head office. In addition to data processing and documentation, the computer facilities are also utilized in solving the complex engineering problems through adopting various programmes, and progress monitoring of project. ZCL has also the facility of an affiliated Soil Laboratory in Karachi.

Experience:

The firm has experience of over 72 years and is the oldest consulting firms in the country having completed works of over 100.0 billion rupees. During this extensive operation, work in all the fields has been carried out from preliminary surveys, feasibility, soil investigation, design criteria, designing, construction standards and the entire aspect of construction supervision and management.

Relevant Experience:

Though a multi-disciplinary consulting firm, ZCL has a special emphasis on Master Planning/Town Planning Projects and having handled diversified projects such as Schemes for Up-gradation and Regularization of Katchi Abadis in Sindh, University Campuses, Research Institute of Engineering and Technology Nawabshah, Sindh Agriculture University Tandojam, Pakistan Marine Academy Karachi, National Agriculture Research Centre Islamabad, Rice Research Institute Dokri, Town Planning Police Training Centres Karachi & Shahdadpur, PAF Aeronautical College at Korangi Creek. This included planning of all facilities like roads, water supply, sewerage, storm water drainage, external electrifications including of low tension and high tension lines.

To highlight the relevancy of these and other similar projects, a bring description is submitted hereunder:

Completed Projects:

Reconstruction of Jetty at Boat Basin Keamari

The Boat Basin Jetties were constructed in 1915 with screw piles and timber decking. The timber jetty was subsequently replaced with RCC deck and slab. During routine inspection in 1995 it was noted that the screw piles have corroded away undermining the overall integrity, stability and safety of the structure. Karachi Port Trust immediately started the design and tender were called with work awarded for construction. M/s. Zaheeruddin Consultants (Pvt.) Ltd; were awarded the works of design vetting and detailed construction supervision.

The scope included but not limited to get soil investigation, pile load testing, construction of over 250m long fixed jetty, parking shed, waiting area and other small ancillary buildings. The works also included providing and constructing floating jetty, refurbishment of material pier, relocation of product pipe lines, 9 in no between 16" and 9" dia, electrical works etc. The overall completed cost of project is Rs. 678.0 million.

Berth Backup Area Expansion Project - QICT.

Qasim International Container Terminal / DP World have been given additional land by Port Qasim Authority for their Berth Backup Area Expansion Project.

The area of about 30 Ac had to be reclaimed from sea for which soil investigation were carried out, including detailed design of land fill including revetment walls. The total works were carried out in 4 months in tidal conditions. The value of works carried out are in excess of Rs.460.0 million.

Pavement and External Electrification with Allied Works for New Truck Parking at QICT.

The works involve setting up as Truck Parking Area for QICT spread over 35 acers where in all modern day facilities had to be provided. Our scope included topographic survey, planning, detailed design of civil, electrical and mechanical works and supervision and contract management.

The works have been recently completed with a total cost of Rs.350 million.

Rehabilitation of Marine Railway trolley (cradle) Rail track & Portal Crane wheels / Rail track at PN Dockyard. Karachi.

Marine Railway was constructed in 1955-60 at PN Dockyard as a dedicated facility to repair vessels upto 450 ton capacity.

The structure over the years has been rehabilitated by PN but its operation have been on hold since mid 1990's due to many operational problems. In 2014 PN decided to refurbish and rehabilitate the Marine Railway Project and works were awarded to M/s. RMG in 2014. During the course of works ZCL were appointed as Owners Engineer / Third Party Consultants by PN to review and certify the design of Contractor and to Supervise the Works. The total cost of the project is over Rs.703.0 million.

Mediterranean Jetty at Younisabad – Pakistan Navy

Zaheeruddin Consultants (Pvt.) Ltd; were assigned the works for planning, design and construction supervision of Jetty for the use of Pakistan Navy at Younisabad. The Jetty is piled structure with fixed deck on top, capable of handling load of over 70 tons.

The Jetty has an approach trestle over marshy area at 'T-Head', Jetty located some 80 meters in water to provide approach to passenger vessels for residents of Younisabad and operational Naval Vessels Scope of works planning, detailed design, bills of quantities, tender documents, Construction Documents and detailed Construction Supervision.

Berth 5-10, Karachi Port Trust

The quay wall and quay apron area of Berths 5-10 constructed under the first project of Karachi Port Trust during the fifties and early sixties had developed defects and quay apron area started serious settlement due to inherent design defects. Despite various remedial measure the problem of settlement continued and in January 1993, quay wall of Berth 5 finally collapsed.

After the collapse, the Work of re design of Berth 5-10 was awarded to the joint venture of M/s Scott Wilson Kirkpatrick and Co. Ltd. of United Kingdom. The works involved design of 805 meter long quay wall capable of handling Modern Container ships with a design draft of 13.0 meters. The berths have been designed as "Multi-purpose" berths capable of carrying loads of dry cargo, container loads and bulk cargo.

The brief scope of the work was:

- Review of all existing data, reports and drawings.
- Carry out site investigations including hydrographical and sea bed surveys
- Develop the most suited and economical structure for the construction of the berths
- Preparation of Feasibility study and the PC-1
- Preparation of all detailed designs of the berths
- Perpetration of the specifications, tenders and the tender drawings
- Pre-Qualification of the Contractors.
- Preparation of final/construction drawings

The Works have all been completed to the entire satisfaction of the Client. Just recently the berths have been commissioned and formally inducted in Karachi Port.

Setting Up of Container Terminal at Berth 6-9, Karachi Port:

The joint venture of Zaheeruddin Consultants and M/s. Scott Wilson Kirkpatrick and Co. Ltd. M/s. Scott Wilson Kirkpatrick and Co. Ltd. are working on "Setting-up of KPT Container Terminal at Berth 6 - 9 at East Wharves, for Karachi Port Trust.

The Port of Karachi is the premier port of Pakistan and handles about 90%, of the whole dry general and liquid cargo of the country. The port handled about 23.0 million tons cargo during 1995 including 530,000 TEUs of containerized cargo. With the present rate of increase in the container traffic, it is expected that about 1 million TEUs container will have to he handled at Karachi Port by the year 2000.

The proposed terminal has to be set-up on under-reconstruction berths No. 6 - 9 of East Wharves with a capacity to handle 350,000 TEUs per annum. The container terminal should be equipped with modern container gantry cranes, shore handling and transfer equipment, adequate transit area with container parks and yard, container handling cranes, freight and consolidation stations, provision for storage of empties and specials, interchange areas and workshops, all required services, etc. The consulting services covering feasibility study on B.O.T. basis. The consultants shall with the assistance of Financial Sub-Consultants carry out economic and financial analysis and prepare and propose mode of participation of private sector in the setting-up of container terminal on B.O.T. basis clearly specifying the responsibility of private sectors KPT. Prepare terms and conditions for B.O.T. specifying minimum lease period and expected financial return to KPT. The detail of economic and financial return for the proposed development of modern integrated container terminal for handling upto 350,000 TEUs per annum. To examine the existing structural drawings of the new quay wall and plinth area which is presently under-construction and prepare a capability and long-term requirement consideration vis-a-vis type of container handling system. Requirements and capacity of gantry cranes, shore handling and transfer equipment. Planning for transit areas, container yards, detailed planning for freight and consolidation stations and all other required facilities. Preparation of Bidding documentation and details if any, and supervision of Terminal Construction.

The Consulting services provided are layout planning, direction of site investigations, advising on hydraulic modelling, feasibility studies, preparation of PC-1, detailed design, tender documentation, pre-qualification of contractors, evaluation of tenders and subsequent supervision of works.

Berths 1, 2, 3 Rehabilitation and Reconstruction, Karachi Port

Zaheeruddin Consultants were appointed by Karachi Port. Berth 1-3 most southerly of Karachi Port Trust General Cargo Berths, were construction in 1969-72 as an open piled structure with reinforced concrete deck supported on raking on vertical Rendex No.4 mild steel piles with. Design level of the quay wall is 11.6 m below Karachi Port Trust Chart Datum and presently maintained at a dredged depth of 10.4m.

During the routine cargo operations by the Liebherr Mobile crane it was observed by the Karachi Port Trust that cracks have developed on the pavement of Berth 1,2 and 3. In order to enhance the life of the berth, which have completed their design life, extensive survey of structure both above and below the deck were carried out.

Based on the finding upper deck has been redesigned to carry the load of the crane and enhance the life of the structure by 10 years. Scope of services include structural survey, checking of structure for various load condition, remedial works, preparation of tender documents, specification, construction drawings and resident supervision of works.

- ## Berths 10-17A and SRB's, Karachi Port

Zaheeruddin Consultants were appointed by Karachi Port with Scott Wilson as the lead consultant for the reconstruction of nearly 1.35 km length of deep water quay wall designed to a depth of 16m and remodelling and upgrading the existing facilities to allow larger vessels, heavier cargo loading and gantry container cranes to be accommodated.

The end product was two 600m long container terminal berth plus a 350m multi-purpose general cargo and Ro/Ro berth built to a new alignment avoiding the operating constraints imposed by the previous layout. In addition to a new piled quay wall designed for a declared depth of -16.0m, the project included dredging and reclamation, removal of the collapsed structure, demolition of two transits sheds removal of railway track, paving and quayside ship-shore services.

Consulting services provided include layout-planning, direction of site investigations, advising on hydraulic modelling, feasibility studies, detailed design, tender documentation, prequalification of contractors and evaluation of tenders for both berths 10-124 and 15-17A and SRB's.

- ***Iron Ore and Coal Berth at Port Qasim***

Iron Ore and Coal Berth at Port Qasim was constructed in early 80's. Through the years of operation the berth had deteorated and was Rehabilitated in early 90's. Although the structure has been brought back to the original designed standard, Zaheeruddin Consultants as associates to Scott Wilson were appointed by M/s. Tuwairqi Steel Mills Limited to undertake a physical and technical review of the existing berth to review the physical condition of structure and to access if the structure is able to take the original design loads plus additional crane loads.

The scope of works was;

- Undertake a brief site visit to access the condition of the jetty and crane rail tracks.
- Review all available quay design data to assess the existing and possible future crane loading that will form the design parameters for the analysis.

Access information and prepare report with recommendations to Tuwairqi Steel Mills Limited.

Project SRC, Ministry of Defence Production:

Zaheeruddin Consultants in association with M/s Scott Wilson Kirkpatrick and Co. Ltd; were awarded a major multi-billion rupees rebuild facility for the Ministry of Defence Production , Government of Pakistan at Ormara. The scope of works included detailed Master Planning of the whole of the facility spreading over an area of over 50 hectors, detailed design of all off shore and on shore facilities, preparation of all tender documents, prequalification of contractors, bidding and tender evaluation including construction management and site supervision of all the works. Works on the projects has started and reclamation works have been carried out and completed.

The works included design of a 200m long quay wall with a draft of 8m below CD, ship lift with a capacity of 3500 tons to 18m below CD. Twin ship hanger to handle vessels upto 90m long with associated hand standing of area for washing and stripping of the mast and other equipment's of the ships. On shore works included various workshops, administration buildings, services area, water treatment plant, power plant of over 10MW. All power utilities including A/C and DC currents, utilities like fresh water, firefighting, compressed air, black and while oil fuel lines, and Roads and security. The works were designed for very difficult soil conditions existing in Ormara area.

Scope including preparation of feasibilities study, preliminary designs, detailed drawings and design, tender documents, specifications, detailed bills of quantities and preparation of construction drawings. The cost of the works of Rs.20.0 billion.

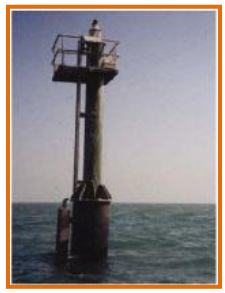
Land Reclamation of Additional Area of Project SRC,

Ministry of Defence Production had commissioned ZCL to under the detailed design and Construction Supervision of filling addition land, over 70 ha at Project SRC.

The scope of the work included carrying out soil investigation, design of land fill, sand drawings, containment bunds, break waters. Detailed Designs were carried out, construction Drawings issue with Detailed Supervision works carried out. The cost of the works was in excess of Rs.1.0 billion.

Qasim International Container Terminal: (QICT)

Qasim International Container Terminal hired Scott Wilson & Co. Limited/ Zaheeruddin Consultants to carry out a feasibility to access the Conditions of Port Qasim Navigational Channel and up-grade it to provide Night Navigation facilities. After acceptance of the feasibility by Port Qasim Authority, Tender Documents were prepared and works awarded.



The scope of works Involves, driving of tubular steel pile for the Navigational Lights in the 25 nautical miles PQA Channel in difficult open sea environment etc. to provide full night navigation facilities to the Port Qasim Approach Channel at all times.

Qasim International Container Terminal: (QICT)

Preparation of project documents for the Qasim International Container Terminal. The scope of works involved construction of pavement for the new container stacking yard along with construction of run ways for the RTG's. The scope beside overall direction and management of the design and the construction supervision team was to prepare the tender documents for the works based on the FIDIC format. The overall cost of the project is Rs.75 million.

Coded Project, Pakistan Navy:

Another project, which demonstrates their capability in Ports and Harbour Engineering, is the Coded Project for Pakistan Navy. The work involved surveys, soil investigations and designing of hardened facilities including shelters, and building; buildings with nuclear, biological and chemical warfare protection; munitions storage buildings. This work was performed under very difficult site and logistic conditions.

ONH Utility, Pakistan Navy:

The joint venture of M/s Scott Wilson Kirkpatrick and Co. Ltd. and Zaheeruddin Consultants have completed the work of design of Modern Fuel handling and storage system of 20,000 tons and Utility Services on the hard standing area including power house with a capacity of 5 Mega watts for the Pakistan Navy at their Jinnah Naval Base at Ormara.

The scope included design and supervision of the utility services for all ship to shore connection of the various electrical requirements for the vessels.

ONH South Wharf Rehabilitation, Pakistan Navy:

The joint venture of M/S Zaheeruddin Consultants (Pvt.) Ltd and M/S Scott Wilson Kirkpatrick & Co Ltd; have recently completed the work required to stabilize the sheet piled quay wall at Ormara Naval Harbour. The scope of services included preparation of drawings, technical specification, bill of quantities and contract administrative services including full time day to day supervision.

Khulna Port, Inland Water Authority:

Zaheeruddin Consultants (Pvt.) Limited, was also involved with the planning including site survey, soil investigations, hydro-graphical survey, surveys study and planning of a new port at Khulna in the former East Pakistan. The project was abandoned due to separation of East Pakistan in 1970.

Napier Mole Boat Wharf:

Zaheeruddin Consultants (Pvt.) Limited have completed the work of designing of the Napier Mole Bridge Boat Wharf Berth 79-110 for the Karachi Port Trust, engineering department. The scope of services included checking of old designs, suggesting remedial and rehabilitation works, preparation of drawings, technical specifications, bills of quantities and Tenders.

Based on the finding and the residual strength of the 100 years old structure, new structure with draft of 6m was designed. The detail drawings, tender documents, construction drawings technical specification and bills of quantities was prepared.

Mini Fish Harbour and Jetty with Break Water at Gaddani

This project was assigned to Zaheeruddin Consultants (Pvt.) Limited by Balochistan Coastal Development Authority. The Consultants were required to prepare Revised PC-I plus Design and Supervision of the Remaining Construction Works of the project including the checking/verification of Contractors bills for the works already carried out by them.

The Consultants were also required to submit a report on the total Expenditure incurred on the project so far particularly the payments released to the Contractor as Mobilization advance as well as against his Running bills, in the light of the objections raised in the Audit Inspection Report.

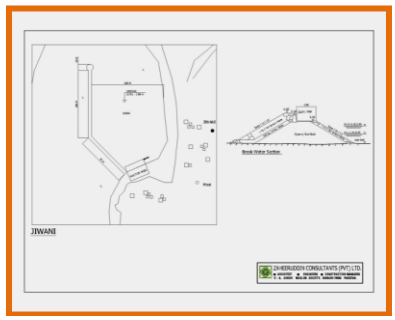
The Consultants have re-designed a Fish Handling Jetty and also a Breakwater (which was not provided in the original scheme) to provide berthing facilities to 3500 fishing vessels of the area in order to provide a relief to the local fishermen from the stone age like, Conditions for beaching and launching of fishing vessels. The revised estimated cost of the project is Rs.80.00 Million.

Landing Jetties and Onshore Facilities at Jiwani, Kund Malir, Gunz and Damb (Balochistan).

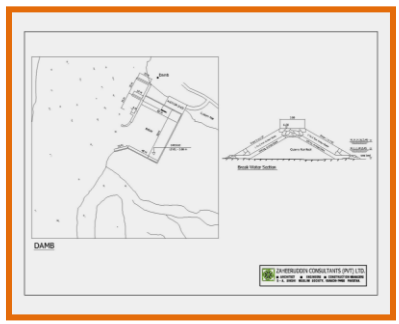
The Projects of Planning Designing and Construction Supervision of Landing Jetties Break water and other related On-Shore Facilities at the locations of Gwadar Coastal District on Balochistan Coast envisaging Towns / Tehsils of Jiwani, Kund Malir, Gunz and Damb (Balochistan) were assigned by Balochistan Coastal Development Authority to Zaheeruddin Consultants (Pvt.) Ltd.

Balochistan being the main Maritime Province of the Country with a total Coastline of about 770 K.M. produces 60% to 70% of the total fish and shrimp resources of the country. The absence of Maritime and Onshore infra-structure has handicapped the fishing fleet of Balochistan to capture its own fish resources.

Moreover, in absence of physical infrastructure and onshore facilities, the fish is still handled in these areas on bare grounds and shabby curing yards where all sorts of filth and poor hygienic conditions quickly deteriorates the quality of fish. As a result of this, about 50% of the fish is converted into low quality produce of dry slated fish, wet salted fish and fish meal. Thus, in order to increase the production of fish, which shall raise the socio-economics of the fishermen of the area by added values of their incomes, an early provision of the proper landing and onshore facilities in these areas is the need of the hour.



The Consultants are required to conduct necessary site investigations, surveys, planning, designing and supervision of the Landing Jetties and Break waters and allied onshore facilities at the coastal sites of Jiwani, Kund Malir, Gunz and Damb. The cost of the works is over Rs. 250 million. During the preparation of PC-I, the Consultants had given due consideration to the comments / observations of the Fisheries and P&D departments of the Balochistan Government.



- ***Construction of Infrastructure Development Works (Phase-II) at Bin Qasim Industrial Park, Karachi.***

Detailed Design & Development (Architectural & Engineering Services), Preparation of Tender and Bid Documents and selection of Contractors for the area comprising 830 Acres

Prepare Detailed Design Development Engineering drawings for the infrastructure services keep in view already developed Approved Master Plan & Future Requirement including Firefighting, Water Supply system, Sewerage Supply System, Underground and overhead water reservoirs, Roads (Flexible and Rigid Pavement), Storm Water System, Street Lighting and Power Distribution, Telecommunication, fiber optic cable, Gas and/or LPG Distribution Network, Boundary wall, Land Scalping and horticulture for Green areas & Parks any other and any other infrastructure facility not specifically mentioned herein but which are normally required in an Industrial Park. And make necessary changes in Master Plan if required.

Consultant shall be responsible for all tendering process and consequently replying all audit paras/queries.

Scrutinize, evaluate and give recommendations on Bid(s) as per PPRA rules.

The Consultant shall be responsible for providing construction supervision services throughout the duration of the project.

Services during Construction Phase shall include but not be limited to:

1. Project Management,
2. Technical supervision.
3. Construction Contract Administration.
4. Field Inspection

Feasibility Study for Coal Port/ Terminal for Imported Coal in Pakistan.

Ministry of Intensity through Pakistan Industrial Development Corporation Commissioned Scott Wilson with ZCL as associates to conduct a feasibility to establish and screen site for the establishment of a dedicated marine terminal of 600m length for coal imports for 2 associated power plants of 1000 MW capacity. The brief further required to carry out a economic analysis for the establishment of the marine coal terminal and associated power plant and 5000 Ha industrial estate. As part of the work 8 potential site were identified and studied in detail with regards, to environmental, hydrological, wave and current, climates, proximity to main electrical power, availability of lands etc. Based on feasibility level design, cost estimates were for the selected site for the off shore and on shore works including power plants, coal yard equipment, hip to shore crane, marine terminal and break water. Detail Economic and financial analysis for each of the site was made. The feasibility was submitted and presented to Ministry of Industries and special incentive.

Feasibility Study of Wharf for Maritimes Security.

Maritime Security Agency had commissioned M/s. Zaheeruddin Consultants to prepare feasibility of establishment of Wharf/Jetties to provide berthing facilities to MSA vessels at their plot on West Wharf adjacent to PIDC Channel and Karachi Ship yard and Engineering Works. The scope of works included carrying out topographic and hydrographic surveys of the approach PIDC Channels, seek alternative layout in view of the functional and operational requirements of MSA, set up design criteria for construction and preparation of feasibility level design, detailed cost estimates financial and economic analysis of the preferred scheme. As part of assignment, PC-I was also prepared and submitted to the relevant authority for approval.

Hayatt Regency Hotel, Karachi.

The Project of Hyatt Regency Hotel has been designed by Zaheeruddin Consultants consisting of over sixteen stories with a covered area of over 410,000 Sft. The building consists of 200 guest rooms and 40 suites along with two large ball rooms, numerous restaurants and other allied amenities and facilities of a five star international hotel. Design criteria have been fixed for complicated structures like Hyatt Regency Hotel, Karachi, comprising 16 floors with three basements which envisaged calculations for simultaneous effect of earthquake, wind and temperature variation on computers, both in Karachi and UK.

Bahria Model School & College New Town Gwadar

The project undertaken at New Town area District Gwadar Baluchistan. Total covered area of the college building is 50,000 sq ft approx. The college will consist of 05xblocks. 03 x blocks (01xAdmin & 02xAcedemic) will be G+2 whereas two blocks will by single storied buildings. All blocks will be having capacity of G+2 foundation. Detailed Supervision provided during construction of project.

Inter Continental Hotels at Karachi, Dacca, Lahore, Peshawar and Rawalpindi.

Zaheeruddin Consultants were appointed as the general consultants to the Inter-Continental chain in Pakistan. The buildings consist of ground plus eight storied building at Karachi, ground plus four at Rawalpindi and Lahore and Ground plus three at Peshawar.

Latif Ebrahim Jamal, National Sciences Library, University of Karachi:

Building is designed as Latif Ebrahim Jamal, National Sciences Library at HEJ Research Institute of Chemistry / ICCB, University of Karachi. The scope of works including, concept planning, detailed architectural, structural, electrical, HVAC and services designs and drawings, preparation of specifications, bills of quantities, term and condition of contact, bid evaluation, award of works, design coordination and supervision of works at site.

Maritime Security Agency Head Quarter Building (Ground + 6th Storied):

This is a State-of-the-art facility with Head Quarter of MSA. The building has Ground + 6 Storied foundation and has been design to the latest codes to cater for seismic loading.

The scope of the works included ground investigation and surveys, preparation of all Architectural, Structural, Electrical, mechanical, HVAC and services designs and drawings, preparation of specification, bills of quantities, Terms and Condition of Contract, bid evaluation, award of works, design coordination and detailed supervision at Site.

GMMMC - Hospital:

The project aims at providing facilities in Sukkur to cater to the population of interior Sindh. The project is to provide a 1000 bed state of the art multi-disciplinary teaching hospital along with all ancillary facilities, Medical College with an annual intake of 200 students with all allied housing and recreational facilities.

The services rendered are initial land studies, topographic survey, geotechnical investigation, master planning of the facility, Hospital with all attached services design like internal water supply, sewerage, gases CCTV, internal electrification and net-working etc. The medical college comprise of Academics block, Administrative Block, Hostel of Student, Staff, nurses etc. Housing for Staff. All external development includes provisioning water supply, OHT / UGT, Sewerage and Sewerage disposal Systems, roads walkways, external electrification. The buildings have been designed for extremely difficult under laying soil conditions, where in a combination of ground improvement techniques were used in conjunction with pile foundations for larger buildings.

Preparation of all Architectural, Structural, Mechanical, HVAC, and Services design and drawings, preparation of specification, bills of quantities, Tender and Contract Documents, Bid evaluation, award of works, design including planning and preparation of specification and BOQ of all academic and hospital furniture and equipment coordination and supervision of works etc. The cost of project including equipment and furnishing is over Rs.5.0 billion.

Abbasi Shaheed (Ground + 11 Storied):

The Hospital aims at providing additional facilities and operation theatre at Abbasi Shaheed Hospital including establishment of nursing college.

The hospital facilities will cater for state-of-the-art emergency services, various surgical and medical wards and surgical operation theatres.

Services include Planning, preparation of concept designs, detailed architectural, structural, electrical, mechanical, HVAC and communication designs and drawing, specification, contract documents. The cost of the project is Rs.2.0 billion.

NED University of Engineering & Technology, Karachi.

The project consist of an University of Engineering and Technology for 2,000 students in the 1st phase and 5,000 in other phases leading upto courses in Masters in Engineering and Doctorate. The project is assisted by the International Bank for Reconstruction and Development (IBRD).

The 1st phase includes Laboratories, Workshops, housing and other facilities spread over an area of 150 acres. The project involves detail studies, topographical survey, master planning, land use studies, geotechnical survey/investigation, planning, designing, preparation of working drawings for all Academic Blocks, Administrative.

Block, Laboratories, Workshop, Computer Centre, Preparation of machinery layout plan, preparation of machinery foundation drawings, service drawings, specifications, bill of quantities, tender and contract documents, evaluation of bids, design coordination, construction management etc.

The structure comprises of RCC framed structure with North light shell roofs and flat roofs for Laboratories, workshop, large auditorium, multistoried Administration Block, Library Building, Heavy foundation for Hydraulic, Aerodynamic and Mechanical Laboratories, Multistoried Housing for staff and students, sports complex, amenities, site preparation and infrastructures, roads, landscaping, gas, compressed air lines, all internal services, water supply, underground and overhead water reservoirs, sewerage, drainage, external electrification etc. including Low Tension and High Tension lines.

***Mehran University of Engineering & Technology, Nawabshah*:**

The project consist of development of Sindh Engineering College at Jamshoro into a full University of Engineering and Technology in Sindh, comprising of faculties in the field of Architectural and Civil Engineering, Electrical, Electronics and System Engineering, Mechanical, Industrial, Production, Metallurgy, Mining, Computer Centre etc. including Administration Block, Auditorium, Laboratories and Workshop, Vehicle Maintenance and Garages. Scope of work also included establishing Hostels for the University including housing for faculty members with all the amenities, sports and other facilities and services. Services involved Topographical Survey, Master Planning, Soil Investigation, Site reconnaissance, Planning, Designing, Preparation of Architectural and Structural details and design, preparation of working drawings for all Academic Blocks, Library, Student Centre, Health Centre, Sports Complex, Hostels, Residential Buildings, Laboratories/ Workshop and Computer Centre, Preparation of services drawings, specifications, bill of quantities, tender and contract documents, evaluation of bids, design coordination, construction management etc.

***Pakistan Marine Academy for Pakistan Navy, Karachi*:**

The project of Pakistan Marine Academy Campus consist of improvement of Cadet Block, Instruction and Administration Block in its Architectural aspect & designing of Hospital, Jetty, Officer Club Block, Library Block, Boat House, Rock Mole, Swimming Pool, Tennis Courts, Slip way & external development etc.

The Project planning involves surveys, hydraulic survey for Jetty, Soil investigation, preliminary and detail design and workings drawings for Hospital, Jetty and approach pier, Boat House, Rock Mole including Road, Office Club, Library, Tennis Court, Swimming Pool, Slipway prepared technical specifications, schedule of quantities, tender and contract documents, evaluation of bids, etc. including improvement of enhancing the aesthetic values to the cadet, instructions and administration block, including all services, sewerage, drainage, water supply, electrification internal and external etc.

***National Agricultural Research Centre, Islamabad*:**

The project of National Agricultural Research Centre consist of Institutes, laboratories, research stations, experimental fields and other research performing units which represent the organizational skeleton of Agricultural Research System in Pakistan.

The project is assisted by the USAID and World Bank. The project includes housing and other facilities spread over an area of 1,534.53 Acres. Project comprising of Administration Block consist of Laboratories, Cafeteria, Training Centre, and Hostel. Plaza and Fountain, Crop Farm Centre comprise of Farm input storage, Crop Process Building, Crop Research Building, Maintenance Workshop. Housing for Deputy and Assistant Directors, Central Store, Mosque, Amphitheater, Roads, Drains, Canal, Lake, Outfall Drains, External Services such as Water Reservoir, Rain Water Drains, Septic Tanks, Leech Fields, Tube wells, Sprinklers, Land Development, Landscaping etc.

Consultancy services involves topographical survey, master planning, geotechnical survey/investigation, planning, designing, preparation of working drawings for all institutional and training blocks, library, laboratories, workshops, administration block, auditorium, crop farm centre, housing, amphitheater, infrastructure services etc; preparation of machinery layout plan, preparation of machinery foundation drawings, service drawings, specifications, bill of quantities, tender and contract documents, evaluation of bids, design coordination, construction management etc. Structure consist of RCC framed structure and flat roofs for Administration Block, Laboratories, Workshop, Training Centre, Housing for Staff and Trainees, Sports Complex, amenities, site preparation and infra-structures, roads, landscaping, gas, all internal and external services, water supply, underground and overhead water reservoirs, sewerage, drainage external electrification etc.

***Rice Research Institute, Dokri, District Larkana*:**

This project consist of Institution, Laboratories, Workshop, Implement Shed and Garages, Workshop Yard, Scientific Blocks, Green Houses, A.C. Plant Room, Administration Block, Dormitory including housing and other facilities such as external water supply, pipe lines, overhead and underground water reservoirs, sewerage, external and internal electrification, land development, roads, covered corridors, path ways and landscaping. Services involves topographical and geophysical survey of the project area, prepared master planning, planning, designing, preparation of working drawings for all institutional and training blocks, laboratories, workshop, administration block, scientific block, preparation of HVAC design and drawings for scientific block and certain other specific area of the project prepared workshop implementation details and drawings, specifications, tender and contract documents, evaluation of Bids Design Coordination etc.

Structure comprises of RCC framed structure and flat roofs for Administration Block, Scientific Block, Green Houses, Dormitory and other amenity buildings, landscaping, water supply, internal and external services, overhead and underground water reservoirs, heating, ventilation and air-conditioning of Scientific Blocks, Laboratories and certain specific areas, Sewerage, Drainage and external electrification, installation of telephone, intercom and P.A. system etc.

Sindh Agriculture University, Tandojam:

The Project consist of development of Sindh Agriculture College at Tandojam into a full University of Agriculture in Sindh, comprising of different faculties in the field of agriculture, Agriculture Engineering, Animal Husbandry and Vetenary Science, Animal Reproduction Department consist of Teaching and Research Block, Artificial Insemination Laboratory, Clinical Centre, Phantom Hall, Bull Sheds, Buffalo Sheds, Auditorium etc. Multistoried Administration Block, Auditorium, Workshop/Garages, Scope of work also included establishing Hostels for the University including housing for faculty members with all the amenities and other facilities and services.

Cadet College, Larkana

ZCL have recently finished the work of Cadet College Larkana. The project consist of establishment of Cadet College at Larkana comprising of different various institutional buildings in an area of 364 acres. Housing for 300 students in the first phase and expandable to 450 students.

The Cadet College consist of Administration Block, Military Training Block, Academic Block with Auditorium, Library, General Store, Civil Workshop / M.T. Garage, 8 Hostel Blocks, Main Dining Hall, Dining Hall for one house-2 blocks, Dispensary/Hospital, Canteen, Mosque, Dhobi Ghat, Shopping Centre, Staff Club, Principal's Residence, Housing Categories II-VI, Bachelor's Accommodation, Rest House, Parade Ground, Gymnasium, Swimming Pool, Squash Court, Cricket Ground, Running Track, Pavilion for Athletic, Basket Ball Court, Tennis Court, Volley Ball Court, Riding Club, Foot Ball Ground, Hockey Ground, Obstacle Course/Rifle Range, Boundary Wall, Plantation/Gardening and external development including construction of roads, external water supply, external sewerage, external electrification including L.T. and H.T. Lines and horticulture facilities etc.

The services involved Site reconnaissance, Master Planning, Land use Planning, designing, preparation of architectural and structural details and design, preparation of working drawings for all the buildings. Preparation of services drawings, specifications, bill of quantities, tender and contract documents, evaluation of bids, design coordination. Etc.

Sindh University Campus, Jamshoro (Sindh):

Project consist of University Campus comprising of various building namely: Institute of Physics and Technology, Faculty of Education, Department of Commerce, Sindh Development Studies Centre, Department of Pharmacy, Mathematics and Computer Science, 150 Boys Hostel, Higher Secondary Education Building etc.

The services involved Topographical Survey, Master Planning, Soil Investigations, Planning, Designing, Preparation of Architectural, Structural, Electrical, Mechanical, details and working drawings for all buildings and

services including preparation of Technical Specifications, Schedule of Quantities, Preparation of Tender and Contract Documents, Evaluation of Bids, Award of Contract, Design Coordination etc. Structures comprises of RCC Framed Structures for all the building including housing for students and staff, site preparation and infrastructures, roads, landscaping, all internal and external services, water supply, drainage, sewerage, external electrification etc.

Sindh Madressah-tal-Islam, Karachi

The project consist of Planning and Designing of new buildings and renovation of the existing buildings in the Campus of Sindh Madressah-tul-Islam. The work consists of establishing housing for staff and renovation/alteration of Talpur House into primary school and renovation of main school buildings. It also includes renovation of Khairpur House and Hasan Ali House. Providing/Upgrading external services to the whole campus of Sindh Madressah-tul-Islam.

The services involved Site renaissance, planning, designing, preparation of architectural and structural details and design. Preparation of working drawings for all the new and old buildings in the campus. Renovation of the main School Building, Talpur House, Khairpur House and Hasan Ali House, Preparation of services drawings, specifications, bill of quantities, tender and contract documents, invitation to bid, evaluation of bids, design coordination, supervision, etc. Structure comprises of RCC framed structures for all the buildings including housing for students and staff, site preparation and infrastructures, landscaping, all internal and external services, water supply, drainage and sewerage etc.

After the announcement of upgradation of this prestigious Institute, ZCL has been given the additional task of Preparation of Master Plan for the Sindh Madressah – Quaid-e-Azam University.

Federal College of Arts & Design, Jamshoro (Sindh):

Project consist of Establishment of a College of Fine Arts in the Southern part of Pakistan. Federal College of Arts and Design consist of four (4) Faculties namely Faculty of Architecture/Urban Studies and Landscape, Faculty of Fine Arts, Faculty of Design and Faculty of Academics. In addition to above Staff Housing, Students Hostels, Administration Block and other amenities are also the part of the scheme.

The services involved Feasibility Study, Site Selection, Site reconnaissance, Master Planning, Designing, Preparation of Architectural, Structural, Electrical and Mechanical Designs, External Services and Design. Preparation of Working Drawings for all Buildings and Services, preparation of Specifications, Bill of Quantities, Tender and Contract Documents, Evaluation of Bids, Award of Contract, Design Coordination and Supervision of works at site etc. Structure comprises of RCC Framed structure for all the buildings including Housing for Students and Staff, Administration Block and other amenities including site preparation and infrastructures, Landscaping, all Internal and External services, Roads, Water Supply, Under ground and Over head water reservoir, sewerage, drainage, external electrification etc.

Z.A. Bhutto Agriculture College, Dokri (Sindh):

Sindh Agriculture University, Tandojam (Sindh), awarded the work of Planning, Designing and Supervision of Z.A. Bhutto Agriculture College at Dokri, District Larkana, Sindh, The Project consist of development of Agriculture College in Northern Sindh i.e. in Larkana Division. The project consist of development of five (5) Faculties, namely: Faculty of Crop Production, Faculty of Crop Protection, Faculty of Social Sciences, Faculty of Animal Husbandry and Faculty of Agricultural Engineering.

In addition to these faculties, Library, Museum, Central Photo Laboratory, Administration Building and Auditorium for 600 students. Residences for faculties members and hostels for students and bachelor teachers are also included in the project.

The Services involved Site Selection, Site reconnaissance, Master Planning, Land Use Planning, Designing, Preparation of Architectural, Structural, Electrical Mechanical Designs, External Services and Design. Preparation of Working Drawings for all buildings and services, preparation of Specifications, Bill of Quantities, Tender and Contract Documents, Evaluation of Bids, Award of Contract, Design Coordination and Supervision of works at site etc. Structure comprises RCC Framed Structure for all the buildings including Housing for Students and Staff on difficult soil conditions prevailing in the Rice growing area. Special care and efforts have been put in the designing of Auditorium.

Central Library Building for Sindh University at Jamshoro:

The Library Building for Sindh University was designed by Zaheeruddin Consultants. It is a ground plus six storied structure housing the latest state of the art library complex catering to the entire University. It has storage and archives for books, reading area, audio visual rooms, book stacking area etc. The total covered area of the library building is over 50,000.00 Sft.

Bahria College for Pakistan Navy at PNS Karsaz, Karachi:

Bahria College has been established at PN Karsaz. It is a ground plus two storied structure catering from class I to X including Cambridge sections. The total covered area of the complex is 0ver 80,000 Sft.

HEJ Research Institute of Chemistry, University of Karachi:

The project aims at the expansion of certain existing areas of scientific research as well as to establish certain related disciplines with particular reference to the future industrial development of the country. The centre would be open to scientists from all over the country and to other Third World Countries for education and training at doctoral level.

Project consist of Laboratories, Hostel, Auditorium including External Services etc. for International Centre for Science and Technology in Chemical Sciences at University of Karachi.

Services Rendered: Preparation of Architectural, Structural, Electrical and Mechanical Designs, External Services and Design. Preparation of Working Drawings for all Buildings and Services, preparation of Specifications, Bill of Quantities, Tender and Contract Documents, Evaluation of Bids, Award of Contract, Design Coordination and Supervision of works at site etc.

Structure: R.C.C. framed structure for all the buildings including. Amenities, Site Development and infrastructures, roads, landscaping, all internal services, water supply, external electrification etc.

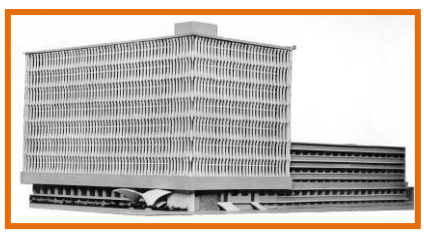
Sheikh Sultan Trust Office Building, Karachi:

The Sheikh Sultan Trust Building was designed and supervised by Zaheeruddin Consultants. The total covered area of this ground plus seven storied building is over 100,000 Sft. It was designed as a state of the art modern office building with express elevators, central air conditioning, fire alarm systems, and other modern day office amenities.

Karachi Autos Office Building, Karachi:

This building was designed by Zaheeruddin Consultants in the heart of the city consisting of ground and eight upper stories. It has a total covered area of over 200,000 St.

Pakistan Herald Office Building, Karachi:



This building has been designed for Pakistan Herald Publications. It houses the office, press and stores for the Dawn Group of Companies, publishing the daily dawn and other monthly and weekly magazines and books. It has been designed for Basement, Ground and seven upper stories.

Pakistan Marine Academy for Pakistan Navy, Karachi:

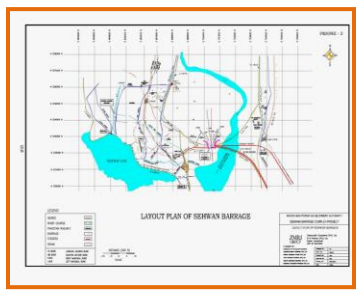
The project of Pakistan Marine Academy Campus consist of improvement to carry out to the Cadet Block, Instruction and Administration Block in its Architectural aspect and architectural designing of Hospital, Jetty, Officer Club Block, Library Block, Boat House, Rock Mole, Swimming Pool, Tennis Courts, Slip way and external development etc.

The Project planning involves surveys, hydraulic survey for Jetty, Soil investigation, preliminary and detail design and workings drawings for Hospital, Jetty and approach pier, Boat House, Rock Mole including Road, Office Club, Library, Tennis Court, Swimming Pool, Slipway prepared technical specifications, schedule of quantities, tender and contract documents, evaluation of bids, etc. including improvement of enhancing the aesthetic values to the cadet, instructions and administration block, including all services, sewerage, drainage, water supply, electrification internal and external etc.

Left Bank Out Fall Drain:

Another applicable experience is the work of Zaheeruddin Consultants (Pvt) Limited in LBOD Phase-I Project. Zaheeruddin Consultants (Pvt) Limited was involved with the LBOD Project in 1970's when the firm was assigned responsibility for planning and design of the Phase-I of the project. The work involved topographic and geo-technical surveys, hydraulic analysis and structural designs of bridge, aqueducts, siphons and other crossings on village, district and highways, and preparation of tender documents, engineer's cost estimates and construction supervision of the designed works. More than 2,500 drawings were prepared as a part of this contract.

Sehwan Barrage Complex Project



The works of the Sehwan Barrage were awarded to M/S ZMRJ Group led by M/S Zaheeruddin Consultants by Water Power Development Authority. The scope of works included all physical surveys including topographical, hydrological, agricultural, sociological, and environmental; review and up grading of previous studies and feasibility report, preparation of all detailed designs, drawings and tender documents.

The Barrage is to be constructed about five kilometres up stream of Sehwan town on the Indus River. The over all project included the re development of Manchar lake and planning and construction of four check and delay action dams to conserve the Lake.

The scope of works besides over all direction and coordination with the Client as the Project Director of the Project was also to direct the assist in the preparation Contract Documents for the multi billion rupees project. The overall cost of the project is Rs.120.0 billion.

Kandhkot-Thul-Shahdadkot Surface Drainage Project:

This is also an anti-Water logging and Salinity control drainage project on the Right Bank of Indus River involving three districts in the Province of Sindh. The project involves detailed studies, agriculture, agronomy, economy, engineering, existing structures crossings for existing roads, railways, canals, drains and the like. Project involved survey and investigation in very difficult rice crop areas.

Redesigning of SagyunMatiari [S.M.] Flood Protection Bund:

This project was assigned to Zaheeruddin Consultants (Pvt.) Limited by the Irrigation and Power Department, Government of Sindh. The Sagyun Matiari Bund, a flood protection embankment on the Left Bank of River Indus in District Nawabshah, was badly damaged in floods. As many as 11 breaches had occurred in a length of about 50 miles. This bund had to be restored in non-flood season of 1973-74, with the financial assistance of World Bank. The Bund was restored in a short period of 9 months. M/s. Tarbela Joint Venture (TJV) were awarded the contract who moved their equipment from Tarbela and accomplished the job within the schedule period.

M/s. Zaheeruddin Consultants (Pvt.) Limited were appointed Consultants for the planning, designing and supervision of construction work. Services included topographical and engineering surveys with drawings, structural, hydraulic and engineering designs, preparation of tender documents, specifications, cost estimates and supervision and submission of periodical reports and Completion Drawings.

Command Water Management Component of Irrigation System Management Project: [AID Component].

The Command Water Management Project (CWMP) was assigned to Zaheeruddin Consultants (Pvt) Ltd. in association with M/s. Associated Consulting Engineers ACE (Pvt) Ltd and M/s. Ayoob Abidi& Associates Ltd. by the Federal Ministry of Water & Power, Government of Pakistan, for all four provinces of Pakistan, ZCL being responsible only for Sindh and Balochistan. This project involves AID Component of Civil Engineering works for quality Control and Construction Monitoring.

Consultants responsibilities are: Review the Command Water Management Project, (AID Component) of Annual Work Plan for sub-projects and advise the respective sub-project mangers as to their suitability ensuring that the CWMP - AID Component's related works are integrated into the Civil Works on canal system and drainage in a coordinated manner and that they contribute to the project objectives.

Assist the sub-project managers in the conceptual review of scheme. Review CWMP - AID Component designs to ensure conformance to agreed standards and cost estimates and certify their acceptability. This will include field investigations to ensure that all CWMP - AID Component improvements needed, including farm drainage, realignment of water course, etc. are included in the scheme.

Inspect civil works at least twice during construction on a continuous or spot check basis as required to ensure conformance to approved designs and standards.
Inspect civil works upon completion and certify construction contractor's payment vouchers as to quantity and quality conformance to approved design, specifications and standards.

Assist CWMP - AID Component field teams with technical work when requested and the need for such assistance is identified and agreed by the respective CWMP Directorate, sub-project manager and USAID.

Assist sub-project managers in preparation of request for fixed amount of reimbursement for USAID financed civil works.

Verify statement of expenditure for procured materials.

Identify research needs and improvements needed in technical standards for civil works construction and advise the Federal Co-ordinator and USAID for such needs, if any, to be addressed by expatriate technical teams.

Perform other tasks related to Command Water Management Project - AID Component as required by the Federal Co-ordinator and USAID.
Assist the Federal Co-ordinator, Ministry of Water and Power, Government of Pakistan in:

- Monitoring Project progress and preparing consolidated quarterly and annual progress reports and Project Completion Report;
- Preparing consolidated accounts for the Project;
- Preparing and submitting reimbursement applications to USAID following verifications, and

Inspect all schemes upon completion of construction to determine the quality of work performed on USAID funded schemes, certify the extent to which work has been completed in accordance with plans and specifications and recommend the amount to be reimbursed.

Comply with other requirement of the Ministry of Water and Power/Federal Coordinator in connection with the Project as covered under the Scope of Work.

Additional Scope of Work:

To prepare CWMP - AID Component designs to ensure conformance to agreed standards and checks cost estimates of scheme and certify their acceptability. This will include field investigations to ensure that all CWMP - AID Component improvements needed, including farm drainage, realignment of water course, etc. are included in the scheme.

Prepare requests for scheme approval, obtain certification from the Sub-Project Managers, etc and submit to USAID through the Federal Co-ordinator for issuance of Project Implementation Letters.
Carry out necessary field checks as to the lining requirement of water courses in conformance with the agreed criteria between USAID and the provincial sub-project managers.

Train the On-Farm Water Management staff of the Command Water Management Project in survey, design and construction supervision and management.

Inspect civil works frequently or on continuous basis, which will include checks on construction materials, workmanship, quality control and survey checks to ensure that construction works conform to approved design specifications and standards.

Inspect civil works upon completion after receipt of completion reports from the sub-project managers and prepare final completion inspection reports after field checks, stating clearly standards and quality conformance to approved deign and specifications.

Prepare and certify quantity statement of materials used after physical checking of completed works.

Check longitudinal profile of the completed scheme, super-imposed on the designed profile and ensure that standard deviation is not more than permissible limits agreed under the Reimbursement Agreement.

Prepare Reimbursement Applications of completed works and obtain required certification from the concerned Sub-Project Management officials and submit these Applications to USAID through the Federal Co-ordinator.

Provide services for computer programming in the Federal Cell for monitoring the progress, reimbursement of USAID and comply with any other requirement of the Federal Coordinator concerning the Command Water Management Project.

Pat Feeder Canal Rehabilitation & Improvement Project:

This project was assigned to Zaheeruddin Consultants (Pvt) Ltd. in association with M/s. Halcrow - ULG, Ltd; of England and M/s. Engineering Consultants of Karachi, by Water and Power Development Authority. The Consultants responsible for the planning, designing and tender documentation prepared by an integrated team, under their technical control, formed from counterpart staff provided by WAPDA and the Consultants personnel and shall ensure that the services are completed to the required standards and programme.

Vide Addendum to the Agreement in view of the changed Project Implementation Strategy and the requirement for the application of Quality Assurance Procedures to Construction in the Project, the responsibilities of the Consultants have been enhanced for "Construction Supervision" .

In the supervision of the Construction Phase the Consultant were “The Engineer”. The Consultant monitored the Contractor's performance on each Contract, particularly in respect of compliance of materials and workmanship with the Specification and Drawings, including auditing the Contractor's Quality Assurance procedures, and performing independent tests and checks as necessary. The Consultant shall be responsible for measurement of the works and administration of the Contracts subject only to the limitations of letter of appointment attached.

Throughout the Construction Phase the Consultant shall cooperate fully with the Client to ensure the quality and timely completion of the project works.

Feasibility study for lining of Distributaries and Minors passing through the saline areas in Sukkur Barrage Region in Sindh Province under President's Accelerated Water Management Programme.

Irrigation & Power Department Government of Sindh, entrusted this work of preparation of feasibility study and detailed design. The percolation losses cause great damage as these contribute towards building up the sub-soil water level, which in turn give rise to water logging and salinity. This problem becomes more severe where the ground water is saline which is the case in almost the entire canal commanded area in Sindh Province.

The maintenance of water logging and salinity has resulted in the loss of thousands of acres of cultivable land. The damage are in fact such that the situation has become quite alarming and it is high time that efforts need to be made to reduce these percolation losses.

It has been observed that wastage/losses of water in main canal and branches are smaller than the losses in distributaries and minors. Keeping in view the object of effective surface and sub surface drainage and conjunction use of water it was proposed to improve the distributaries and minors by providing lined sections. It is a step towards achieving the Govt. Policy "To grow more food" in the shape of Economical use of Irrigation Water.

In order to achieve the above objects, all channels having discharge of the order of 150 cusecs need to be redesigned to save water being lost through seepage. However, keeping in view the high costs involved, it is propose that to begin with, only the canals passing through the saline areas and having maximum discharges of the order of 150 cusecs may be taken up.

Following objects are to be studied for bringing improvement at field by lining of channels:-

- Whether the improvement in command at head of outlets.
- Whether better Irrigation facilities to the farmers will be achieved.
- Conveyance losses and water logging will be decreased.
- Elimination of un-equal and non proportionate supplies to the farmers.
- Improvement intensity of Irrigation by utilizing the saved water.
- Whether O&M charges of channels will be reduced if lining is carried out.
- Economic benefit in general and to Government as specific.
- Fertility of land will be maintained if seepage losses are controlled.
- Water logging and salinity will be controlled by curbing the wastage of water.

Sukkur-Naudero Highway Project:

Directly applicable experience in the work of Zaheeruddin Consultants (Pvt.) Limited is Sukkur-Naudero Highway Project. Zaheeruddin Consultants (Pvt.) Limited was involved with this project when the firm was assigned responsibility for planning and designing of this highway project.

The work included Topographic Surveys, Soil Investigations, Design of Pavements, Economic and Financial Feasibility, preparation of engineer's estimates, tender documents for 55 miles of highway which includes three major bridges on Rice, Dadu and N.W. Canals.

N-55, Indus Highway Project:

Another project which demonstrates their capability in Highway Engineering is N-55, Indus Highway Project. Zaheeruddin Consultants (Pvt.) Limited was assigned a 35 Km length of road on Indus Highway in Larkana – Kashmore Section.

The work involved Topographic Surveys, Soil Investigations, evaluating existing pavement and design of pavements, Technical Specifications, Economic and Financial Feasibility, preparation of engineer's estimates, tender documents, preparation of PC-I Proforma etc; through difficult water logged soil condition of Rice growing areas.

Coal Mines Road and Bridges , Quetta.

Zaheeruddin Consultants (Pvt.) Limited have completed the design of Bridge on KM 35 in Quetta Soor Range Digari Coal Mine Road, Quetta, Baluchistan. The bridge is about 200 meter long with a skew alignment. The bridge members are post-tension, pre-stressed concrete structure and supervision of works.

Laboratories Investigation:

Project on which laboratory investigations have been carried out include study of soils, water table, drilling for soil investigation, sampling and field tests for soil, water and building materials, dewatering for hydraulic structures and basements in tall buildings, pile foundation, deep boring for hydraulic structures, concrete, bricks and stone testing for structural strength for multistoried buildings. Laboratory tests have also been carried out for spread footing, raft pile foundations. Finishing material tests like wood, bricks, concrete, stone, plaster, gypsum for high quality finishes have also been carried out.

The projects on which the above tests have been carried out include Left Bank Outfall Drain, Kandhkot-Thul-Shahdadkot Drain, covering irrigated areas of the Province of Sindh at a project cost of 4.2 billion rupees, chain of International Hotels, Larkana-Sukkur Highway and Bridges, Marine Jetty, Sindh House at Islamabad, Office Building for Pakistan Mineral Development Corporation, Islamabad, Shaikh Sultan Trust Building Karachi, Hyatt Regency Hotel Karachi, National Agricultural Research Centre Islamabad, various Chemical, Textile and Beverage Industries and other Heavy Mechanical Complexes.

Design Criteria:

Design criteria have been fixed for complicated structures like Hyatt Regency Hotel, Karachi, comprising 16 floors with three basements which envisaged calculations for simultaneous effect of earthquake, wind and temperature variation on computers, both in Karachi and London. Design criteria were prepared for Tourism Department's Master Plan and selected area studies. Detailed programming, planning, curricular and time table studies, laboratories and workshops equipment, research facilities and Master Planning of NED

University of Engineering & Technology Karachi, Mehran University of Engineering Nawabshah, National Agricultural Research Centre Islamabad were very well accomplished. Design Criteria for Chemical Industries like Congothene Chemical Industries Wah Cantt, Dawood Hydrogen Peroxide Plant Karachi, Haroon Cosmetics Karachi and various Textile and Beverage Industries were prepared.

Design criteria for Port Qasim Authority Administration and Housing Estates. Construction standards with indigenous materials and skills were studied for International Hostels, Sindh House Islamabad, Mehran University of Engineering Nawabshah, scores of Industries Structures, Low Cost Housing and others. Project management was studies for Sindh University at Jamshoro, Sindh House Islamabad, PIA Hotels Gilgit and Hunza, Intercontinental Hotels, Hyatt Regency Hotel Karachi, metallurgical Training Centre for Pakistan Steel, National Agricultural Research Centre at Islamabad and other.

Selection, Procurement and Installation of Equipment:

The firm has extensive experience of selection, procurement and installation of various Laboratories/Workshop Equipment for NED University of Engineering & Technology, Karachi and National Agricultural Research Centre Complex at Islamabad, by preparing list of equipment and instruments along with their specifications and installations in different Laboratories and Workshops as well as the design of related additional fixture and furniture in accordance with the syllabi prescribed by the University and Research Centre. Also collected the names of the various manufacturers and suppliers of the equipments, instruments, fixtures etc; along with all the catalogues, photographs, maps and other related literatures pertaining thereto.

Zaheeruddin Consultants (Pvt.) Limited have prepared detailed specifications for all such equipment, instruments, fixtures etc; and called international tenders from approved manufacturers and suppliers. There this special expertise has also been highly appreciated by the World Bank (IDA) and other departments.

Supervision:

Supervision has been carried out for may project extending from Karachi right uptoHunza including all stations in the country and in the then East Pakistan. This includes inspection services for USAID for flood rehabilitation in Pakistan, USAID and World Bank Projects of NED University of Engineering & Technology Karachi, National Agricultural Research Centre at Islamabad.

Project Management:

Our firm has built-up a well-knit, coordinated planning, economical designing, project management, specialized tendering system on American pattern, critical path method and PERT Diagram for designing and supervision. We also have experience of close working with USA, British, German, Chinese, Russian, Italian organizations which has given us vast experience of International system of working for design, supervision, project management and tendering. They

have also worked on project of World Bank like NED University of Engineering and Technology, Karachi, Moro – New Jatoi Indus River Embankment, National Agricultural Research Centre, Islamabad.

Site Supervision

Zaheeruddin Consultant's Engineers on site

Zaheeruddin Consultant's employees are critical to our reputation for excellence and our continuous innovation in the successful delivery of projects to our clients.

Our Resident Engineers have worked on projects based on internationally recognised forms of contract, with responsibility for both technical and financial aspects. We have an in-depth knowledge of current international and local standards.

We believe that the quality of our graduates, engineers and senior engineers is one of our key attributes. All hold Civil Engineering qualifications from reputed Pakistani and International higher education institutions and many are members of professional chartered institutions.

Details of relevant site supervision projects are enclosed in the Appendices to this document.

Following objects are to be studied for bringing improvement at field by lining of channels:-

- Whether the improvement in command at head of outlets.
- Whether better Irrigation facilities to the farmers will be achieved.
- Conveyance losses and water logging will be decreased.
- Elimination of un-equal and non proportionate supplies to the farmers.
- Improvement intensity of Irrigation by utilising the saved water.
- Whether O&M charges of channels will be reduced if lining is carried out.
- Economic benefit in general and to Government as specific.
- Fertility of land will be maintained if seepage losses are controlled.
- Water logging and salinity will be controlled by curbing the wastage of water.

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