6. SCOPE OF WORKS

6.1 SCOPE OF WORKS

(1) Lot III shall cover all dismantling of machineries, foundations steel structures of the "A" "B" "BX" stations, and these accessories such as outdoor equipment, repair room, store room etc.

(2) The dismantling works shall comparise not only works mentioned the above item 1.1 but also temporary works for replacement of lighting cable crossing from "B" "BX" station to "A" station area before starting of dismantling work of "A" station area.

(3) The Contractor shall provide under there specification the following main items but the item shall not be limited to those below.

(a) A station area

(b) Dismantling works for "A" station area the items to be dismantled are listed below.

Name

- o Hall (disused) ("A" Station Building)
- o Instrumentation & Control Equipment Room
- o Blacksmith Shop
- o Store Shed
- o Store Shed
- o Canteen
- o Drawing Office

Name

- o Shift Engineers Flats
- o Officers Flats
- o Engineers Flats
- o Labor quarters
- o Garage
- o Grrage
- o Motor Room
- o Office
- o Under Ground Welded Fuel Oil Tank
- o CV Intake Chamber
- o Pump House No. 1
- o 50,000 Gallons Ground Reservoir
- o Discharge Sump
- o Fuel Oil Storage Tank No. 1, No. 2 and No. 3
- o Oil Dike for Fuel Oil Storage Tank
- o C.W. RCC Pipe
- o No. 12, No. 13 and No. 14 Boiler and their Structures together with Accessaries
- o Stack and their Accessary
- o No. 6 and No. 7 Turbine Generator and their Accessaries
- o Transformers and their Accessaries
- o Auxiliary Equipment for Power Facilities and their Accessaries
- o Electrical Cables and Instrument Cable
- o Piping

Name

- o Pressure Tank
- o Dispensary
- o Machine Shop & Store
- o Main Plant (B & BX)
- o Sewer Sump & Pumping Station
- o Electric Shop, Raw Water Service Pump etc.
- o Switch Room
- o Sanitary Block
- o Pipings
- o Foundations
- o Existing Piles
- o etc.

(c) The contractor shall carry out the following temporary works as site preparation before starting the dismantling works, but items shall not be limited.

- o Isolation work of natural gas piping
- o Replacement of lighting cable etc. (If required)
- o etc.

(d) "B" station

Dismantling of mechanical parts as boiler and their accessaries, stack, turbine generator, condenser and their relative piping and main power powerhouse including removal of foundations and draw out of existing piles shall be carried out but the items shall not be limited these blow.

(e) "BX" station

The contractor shall carryout the "BX" dismantling works after decommission of BX station, the dismantled equipment and listed below but items shall not be limited these belows.

- o No. 15 and No. 16 Boiler and their structure together with accessories
- o Stack and their accessories
- o No. 8 and No. 9 turbine generator and their accessories
- o Transformers and their accessories
- o Circulating water pumps and their accessories
- o Pipings
- o Foundations
- o Existing piles
- o Over head crean
- o etc.

(4) All necessary materials and facilities to be used for the above mentioned works shall be included in the Scope of works for the Contractor of Lot III.

6.2 TERMINAL POINTS AMONG OF EACH LOT

The Owner will request the following items of works and services under separate contracts. However, the Contractor of Lot I shall coordinate his works with the works and services executed by other separate contractors.

(1) 220/132 kV Substation and Extension of Bardia Grid Station
(Contractor of Lot IIA)

- o 220/132 kV substation inside the power station, including civil and architectural works
- o 220 kV extension bays in the Baldia Grid Station, including civil and architectural works
- o Underground cable tunnel between West Wharf Thermal Power Station to No. 1 transmission tower

(2) 220 kV Transmission Line Facilities
(Contractor of Lot IIB)

- o 220 kV transmission line facilities from West Wharf Thermal Power Station to Baldia Grid Station, including transmission towers and related facilities

(3) Dismantling Work of Existing Equipment and Facilities
(Contractor of Lot III)

- o Dismantling of the existing equipment, buildings, foundations, etc., unless otherwise specified
- o Site preparation work, cleaning and leveling work of the site area

Detailed terminal points among each Lot are described below, but shall not be limited to.

6.2.1 TERMINAL POINTS BETWEEN CONTRACTORS OF LOT I AND LOT IIA

(1) Cable and wire

The material supply, laying and termination work of cable and test for the following circuits shall be provided and carried out by the Contractor of Lot I.

(a) Remote control circuit of 220 kV, generator circuit breaker and associated 220 kV isolator.

(b) Remote control circuit of 132 kV starting transformer circuit breaker and associated 132 kV isolator.

(c) Remote indication circuit of substation monitoring panel between substation control panel and substation monitoring panel.

(d) 400 V emergency power circuit between 1-3, 400 V control center and substation battery charger.

(e) 400 V power circuit between common-1 control center and substation 400 V control center.

(f) Communication circuit between transducer panel of power station and RTU in the substation control room.

(g) Telephone circuit between central control room and substation control room.

(h) Paging system circuit between amplifier panel in the electrical and control equipment room and terminal box in the substation.

(i) Clock system circuit between master clock in the power station and slave clock in the substation.

(j) The material supply and connection work for the interconnection points of grounding wire between main

power house area and substation area shall be provided and carried out by the Contractor of Lot I.

(2) Paging

The material supply, installation of paging handsets, speakers and terminal boxes for the substation shall be provided and carried out by the Contractor of Lot I, and material supply, piping, cabling work shall be provided and carried out by the Contractor of Lot I.

(3) Clock system

The material supply, installation of the slave clock of the substation control room and wiring work shall be provided and carried out by the Contractor of Lot I.

(4) 132 kV CV cable

The material supply, connection work of 220 kV CV (XLPE) cable and 132 kV CV (XLPE) cable with 220 kV and 132 kV GIS respectively, shall be provided and carried out by the Contractor of Lot I.

(5) Fire protection system for new substation

Fire protection system for new substation shall consist of transformer spraying system and manual fire alarm service as described below.

(a) Transformer water spraying system to be installed by the Contractor of Lot IIA shall be supplied from temporary city water receiving piping using a temporary booster pump set.

This pipeline shall have terminal valve on connection end of spray piping to be connected by the Contractor of Lot I.

After the completion of fire water system, the connection work for the said piping shall be carried by the Contractor of Lot I including installation of solenoid valves which are operated by operation switch on the fire protection panel in the central control room.

(b) Manual fire alarm service by means of a fire alarm push button for new substation shall be provided by the Contractor of Lot I in order to systematize the fire protection system.

Fire alarm push button shall be mounted on the outside wall near the entrance, and be transmitted to the fire protection panel.

(6) City water receiving piping

The Contractor of Lot IIA shall carry out dismantling work of the existing "B" Station discharge way and existing city water receiving piping located along the discharge way in order to construct the 132 kV and 220 kV substation.

However, the existing city water piping shall undergo no changes prior to the "BX" Station being dismantled.

Therefore, temporary city water receiving piping, to be constructed by the Contractor of Lot IIA will be necessary from the boundary point to city water receiving tank. The portion of temporary piping located via the yard in back of the new substation construction area shall be installed as a

permanent pipeline. This pipeline shall have terminal valves on both connection ends of the piping to be connected by the Contractor of Lot I.

Moreover, the Contractor of Lot II-A shall connect the spray nozzle line of all substation transformers from the temporary city water receiving pipeline, including temporary booster pump installation. This piping will also be used for sanitation purposes. After the completion of water supply system of power plant the connection works of necessary piping for the new substation instead of temporary piping shall be carried out by the Contractor of Lot I.

(7) Drainage and sanitary waste water discharge system

Permeation system of discharge and sanitary waste water of new substation shall be provided by the Contractor of Lot II-A before completion of Unit 2 site drainage system.

The Contractor of Lot I shall carry out the connection works of the said pipe terminals to the site drainage system after completion of site drainage system.

(8) Dismantling of existing discharge pipe

i) At the existing discharge pipes from "B" Station to the sea, a boundary point between the dismantling work due to Lot II-A and that due to Lot I.

ii) A boundary point between the construction area of Cable Tunnel to Lot II-A and that due to Lot I.

iii) The boundary line between the dismantling area due to Lot I and that due to Lot II-A at "B" Station.

6.2.2 TERMINAL POINTS BETWEEN CONTRACTORS OF LOT I AND LOT III

(1) Site particulars

(a) The Contractor of Lot III shall completely dismantle the existing buried foundations, cables, conduits, pipes, etc., down to 3 meters below the ground level (EL + 4,800 mm) on the conditions of scope of works which is shown on the Owner's Tender Drawing "INTERFACE BETWEEN EXISTING AND PLANNED SITE LAYOUT".

(b) Transfering condition of the ground level of the site is EL + 3,800 m except the site boundary walls and those adjacent area (strip).

(c) After the transfering the site on the basis of above condition, existing burried foundations, cables, conduits, pipes, etc. which exist (if any) below the specified level (EL + 1,800 mm) shall be dismantled by the Contractor of Lot-I for the executing of his works.

(d) Site preparation work such as soil improvement, access roads, dewatering, etc. for the smooth execution of the Contractor of Lot-I shall be done by the Contractor of Lot-I.

(e) Temporary boundary wall and gates between Unit-1 area and Unit-2 area shall be provided by the Contractor of Lot-III.

(2) Dismantling works

(a) UNIT-1 Area

All existing facilities, pipings, buildings, structures,

foundations, cables, trees, etc. in the Unit-1 area except C.W. pump house for A station, Discharge sump for A station, a part of dike for PSO tanks and site boundary wall and gates, shall be dismantled by the Contractor of Lot-III.

C.W. pump house for A station, Discharge sump for A station, A part of Dike for PSO tanks and Site boundary wall and gates of the above shall be dismantled by the Contractor of Lot-I.

However, insolation work of discharge sump for A station shall be done by the Contractor of Lot-III.

(b) UNIT-2 Area

All existing facilities, pipings, buildings, structures, foundations, cables, trees, etc. in the Unit 2 area except C.W. pump house and screen for B, BX station, Sewer sump and pumping station, Site boundary wall and gates, Below the ground floor level including existing RCC pile of B, BX station buildings, stacks and transformer yard foundations, Existing outdoor switchyard Area and station service pump shall be dismantled by the Contractor of Lot-III.

C.W. pump house and screen for B, BX station, Sewer sump and pumping station, Site boundary wall and gates, Below the ground floor level including existing RCC pile of B, BX station buildings, stacks, transformer yard and station service pump foundations of the above shall be dismantled by the Contractor of Lot-I.

Existing outdoor switchyard Area shall be dismantled by the Contractor of Lot-IIA.

During dismantling work of B station, temporary wall for BX station shall be provided by the Contractor of Lot-III.

(3) Isolation work of natural gas piping

Natural gas piping for the "A" Station shall be isolated before the "A" Station is dismantled by the Contractor of Lot III.

The above work shall be carried out by the Contractor of Lot III from the shut off-valve located at the existing SUI Gas Station to the shut-off valve located at the nearby "A" Station powerhouse.

Both isolation points shall be blind flanged so as to ensure gearter safety for the dismantling work and Unit 1 construction.

However, as the shut-off valve on the "A" Station side is located nearby, this valve must be blind flanged to the location out of the above dismantling work area of the "A" Station.

6.2.3 TERMINAL POINTS BETWEEN CONTRACTORS OF LOT-IIA AND LOT-IIB

The respective terminal points of the facilities provided under Lot II-A and Lot II-B shall be as follows.

(1) 220 kV line

(a) The tension insulator string sets and the tension clamps for the ground wires at the gantry structures at the place

of tower No. 1 and the Baldia G/S shall be provided. under the contract for Lot II-B.

(b) The plates on the gantry structures for tension sets of conductors and ground wires shall be provided under the contract for Lot II-A.

(c) Parallel groove clamps and lead conductors for the lightning arresters shall be provided under the contract for Lot II-B.

(d) The terminals of the lead conductors for the lightning arresters shall be provided under the contract for Lot II-A.

(e) The lead down OPGW, fixing clamps, rack and terminal box for OPGW to be mounted on the gantry structures shall be provided under the contract for Lot II-B.

(f) The connection work of optical fiber cable with OPGW shall be carried out under the contractor for Lot II-B.

(2) 132 kV line

(a) The down conductors and insulator strings for then shall be provided under the Contract for Lot II-B.

(b) Parallel groove clamps and lead conductors for the lightning arresters shall be provided under other contract.

6.2.4 TERMINAL POINTS BETWEEN CONTRACTORS OF LOT IIA AND LOT III

(1) Dismantling works

(a) The works of the existing intake water pipes from the

C.W. pump house end of the "B" and "BX" stations upto infront of the existing 66 kV indoor substation shall be carried out by the Contractor of Lot III.

(b) The remaining pipes from infront of the existing 66 kV indoor substation to the "B" station shall be dismantled by the Contractor of Lot IIA before commencement of civil works for the new 220/132 kV substation.

6.2.5 TERMINAL POINTS BETWEEN OWNER AND CONTRACTOR OF LOT IIA

(1) Existing 11 kV grid station

(a) The take off work of the existing 11 kV incoming cables shall be carried out by the Contractor of Lot IIA.

(b) The material supply, connection work of the new 11 kV CV (XLPE) cables with existing 11 kV switchgear shall be provided and carried out by the Contractor of Lot IIA, under supervision by the Owner.

(c) The operation of existing switchgear with necessary information for respective stations and/or consumers will be carried out by the Owner.

(d) The material supply, installation work of the 11 kV current transformer (CTs) for transformers differential relay and material supply, laying, termination and test of control cable shall be provided and carried out by the Contractor Lot IIA.

(2) Existing 66 kV substation

(a) The shifting work of the existing 66 kV outdoor

equipments including associated cables will be carried out by the Owner.

6.2.6 COMPATIBILITY WORKS AND PROTECTION WORKS FOR EXISTING EQUIPMENT AND FACILITIES

The Contractor of Lot I shall carry out all necessary re-adjustment works compatible with existing units and the protecting works for existing "BX" station equipment and facilities related with the works of this Project.

Though detailed information for the above works is specified in the related section of the Tender Documents, the outline of compatibility works and protecting works for existing "BX" station equipment should be as following.

(1) General description

(a) Piping

- o Supply and installation of valves
- o Supply and installation of flanges
- o Supply and installation of insulation
- o Cutting and jointing from/to the existing pipes
- o Supply and installation of pipe supports and their foundations
- o Re-adjust and re-routing of existing pipes
- o Execution of all necessary protection works for the existing equipment and facilities

(b) Panel

- o Supply and installation of instruments, switches,

lamps, etc.

- o Supply and installation of cables and wires
- o Supply and installation of necessary panels
- o Execution of all necessary protection works for the existing equipment and facilities

(c) Pits and ponds

- o Chipping work, installation of equipment, conduits, etc.
- o Grouting and mortar finishing for the above
- o Execution of all necessary protection works for the existing equipment and facilities

(d) Trays and conduits

- o Supply and installation of trays and conduits
- o Re-adjust and re-routing of existing trays and conduits
- o Execution of all necessary protection works for the existing equipment and facilities

(e) Equipment and facilities

- o Supply and installation of equipment and facilities
- o Execution of all necessary protection works for the existing equipment and facilities

(2) As a partition fence shall be installed between "BX" Station and construction area of new power plant by the Contractor, all works to be carried out within the premises of existing power station shall be carried out after obtaining approval from the Owner and the Engineer.

(3) All re-adjustment work which cannot be executed unless the

existing units are shut down shall be carried out as concentrately as possible after obtaining approval from the Owner and the Engineer. All such works shall be completed within the specified work period.

In all cases, the period of shutting down of existing power station shall be made as short as possible.

(4) All appropriate protective and safety measures shall be taken regarding construction of the discharge cooling waterway so as not to cause any harmful effect on existing equipment of KSY (Karachi Ship Yard) or any obstacle against operation of the existing equipment.

(5) All appropriate protective and safety measures shall be taken regarding construction of the intake water open channel so as not to cause any harmful effect on the existing equipment of KPY (Karachi Port Trust) or any obstacle against operation of the existing equipment.

(6) All appropriate protective and safety measures shall be taken regarding construction of the waste water treatment system so as not to cause any harmful effect on the existing oil tank equipment and any obstacle against operation of the existing equipment.

(7) The Contractor shall be responsible for damage to the existing property of the Owner, such as plant equipment, facilities, wharf, road, jetty, etc., during the execution of his works.

7. GENERAL INFORMATIONS

7.1 BASIC CONDITIONS

(1) This dismantling work is applicable to all the boiler, turbine, electrical equipment, outdoor mechanical equipment, foundations, structures, buildings, roads, pavements, trees and so on. For further detail, refer to the Schedule of Price of Dismantling Work attached hereto.

(2) Prior to starting the dismantling work, the position of the opening for transporting dismantled equipment and materials shall be specified clearly.

(3) The shape and weight of dismantled/disassembled equipment and materials to be transported to outside the plant site shall be as follows:

a. The dismantled equipment and materials shall be disassembled in accordance with the weight and dimensions applicable to the Road Traffic Law, (If any).

b. The motors, pumps and other similar equipment shall be kept as dismantled without disassembling further into pieces, except in the case where the equipment is required to be disassembled for the dismantling work or in case the shape, weight and dimensions exceed those specified in the law.

(4) The architectural/civil materials for building, foundation, etc. as well as those for accessory equipment shall be included in the scope of this dismantling work.

(5) The lighting equipment for all the equipment shall be dismantled.

Moreover, the outdoor lighting equipment shall be included in the scope of this work.

(6) All gratings shall be dismantled.

(7) The accessory connecting walkways, floors, handrails, etc. shall be included in the scope of the dismantling work.

(8) Dismantling of the covers for trenches, pits, etc. shall be included in this work.

(9) Prior to starting dismantling of equipment, the following preparatory work shall be carried out promptly.

a. The temporary stockyard for the materials specified to be dismantled, waste stockyard and equipment disassembly yard shall be arranged/prepared by the Contractor (if required). Countermeasures shall be taken as required to prevent dispersion of dismantled materials and wastes.
Meanwhile, appropriate countermeasures shall be taken to prevent leak of mercury prior to starting transportation of any equipment using mercury.

b. Any industrial wastes including but not limited to lubricating oil/lubricants, residual ash and fuel oil shall be treated appropriately as specified.

c. Any contents in the raw water tank, cooling water tank and any other water tank for mechanical equipment shall be drained perfectly before dismantling.

(10) Any winch, crane and other heavy-duty machine to be used for the dismantling work shall be handled or operated by the person having a specified qualification.

Moreover, the proceeding for application required to receive permission of installation shall be undertaken by the Contractor.

(11) Dismantling of all the hoists, chain blocks, beams, etc. installed for maintenance and inspection shall be including in the dismantling work.

(12) The lighting equipment/fixtures required for the dismantling work shall be arranged/prepared by the Contractor.

In this case, the lighting fixtures shall be protected from any damage due to the dismantling work.

(13) Any portion to be opened in connection with dismantling of equipment shall be protected by means of ____ wire, net, handrail, cover (with stopper), etc. as appropriate and effective for safety. Meanwhile, such protective materials shall be removed immediately after the corresponding work.

(14) In order to acquire a transfer route inside a building, any foundation, pedestal and other small work which would cause an obstacle to smooth transfer of dismantled equipment or materials shall be disposed of under the dismantling work.

(15) Any foundation metal material shall all be dismantled. Moreover, the common bed, etc. which are partly buried shall

be cut off and dismantled.

(16) In case any ceiling girder/beam is used for lifting auxiliary or other equipment, the strength of such girder/beam shall be confirmed in advance (and the said girder/beam shall be reinforced as required).

(17) Whenever any worker enters any tightly closed portion of boiler, storage tank, etc., by all means shall sufficient ventilation be provided during the work, and oxygen deficiency check be executed in advance.

(18) The strength of the floor and ceiling floor inside the boiler and turbine room shall be confirmed, and such floors be protected appropriately against temporary storage, pulling-out and transfer of dismantled materials.

(19) In the case where any connected piping is separated prior to disassembly of equipment, the support point shall be confirmed, and appropriate protective measures shall be provided to ensure the safety of the work.

(20) Prior to starting the work, the work area shall be designated and an "off limit" sign shall be established.

(21) During the dismantling work, utmost efforts shall be directed for efficient use of the equipment within the working range of heavy-duty machine regardless of the category of turbine or boiler.

(22) Any heavy-duty machine shall be operated taking into account

ensure greater safety.

(23) Around the place where welding is carried out, a countermeasure for preventing dispersion of sparks, and a portable fire extinguisher (powder or foam fire extinguisher) shall be placed and kept ready for use at all times.

(24) The place for preserving the containers for oxygen, acetylene, etc. shall be specified and the person in charge of handling such gases shall be appointed to ensure safe management of the gases.

(25) Any vehicle or car shall be operated in strict compliance with the speed limit within the plant site (20 km/hr.).

(26) The special provisions pertaining to safety shall be in strict compliance with "the Safety Specifications" attached hereto.

(27) Since the equipment and facilities, building, floor level, etc. have been deteriorated, appropriate countermeasures shall be taken as required to ensure the safety of the work.

7.2 DISPOSAL OF WASTES

(1) This work shall include any work and services as required until final disposal of industrial wastes to be brought about in connection with the dismantling work, and disposal of wastes shall be carried out in strict compliance with the law pertaining to disposal and clearing of wastes, and other relevant laws and regulations as outlined below.

a. Subcontracting for execution of industrial waste disposal work

(a) Appointment of and entering into a contract with a subcontractor for industrial waste disposal

(b) Supervision and instruction of the subcontractor in Item (a) above

(c) Preparation of legally required documents and reports pertaining to Item (a) above

(d) Disposal of waste

b. Transportation of wastes

(2) Kinds of industrial wastes

a. Scraps of materials (scraps of thermal insulation materials, fire bricks, etc.)

b. Plastics scraps

c. Rubber scrap

d. Waste mercury and fluorescent lamps

e. Glass and ceramic scraps

f. Other similar scraps

(3) Execution procedures

a. Subcontracting

(a) Appointment of and entering into a contract with a subcontractor for industrial waste disposal

i. For selecting a subcontractor for industrial waste disposal, the qualification and contents thereof shall be examined strictly in detail, and the results of appointment shall be reported to the owner.

ii. Entering into contract with the subcontractor shall be executed promptly.

(b) Disposal of wastes

i. Disposal of wastes shall be carried out in accordance with this/these specification/s the waste disposal execution plan to be submitted to and approved by the Owner/Engineer. After completion of disposal, an industrial waste disposal certificate to be issued by the subcontractor for waste disposal shall be submitted to the Owner/Engineer.

(c) Precautions

i. The permission, approval, license and other qualification of the subcontractor for waste disposal shall be examined precisely in detail based upon the law pertaining to disposal and clearing of waste as well as the regulations pertaining to disposal and clearing of wastes of

local authority. As a result, there shall be no discrepancy between the contents of description and actual status. Moreover, it shall particularly be confirmed that the treatment and disposal equipment are provided with all accessory equipment required pursuant to the relevant law and/or regulation.

ii. Disposal of any waste shall be carried out while paying sufficient attention so as not to cause any adverse effect upon the human body and living environment. Contractor shall sufficiently supervise instruct the subcontractor in order to prevent occurrence of any secondary environmental pollution particularly due to disposal of waste.

iii. In addition, the Contractor shall let the subcontractor for waste disposal fully recognize the social responsibility of the Owner, and sufficiently supervise and instruct the subcontractor through close communication at all times so that the Owner will not be socially criticized either directly or indirectly due to the conduct of the waste disposal subcontractor.

b. Transportation of wastes

(a) Any waste brought about due to the dismantling work shall be treated by putting into bags according to the category of the waste at the dismantling.

(b) Such waste shall be transported to and taken over at

the waste treatment/disposal facility.

(c) Prior to transporting waste, it shall be confirmed that the weight of that mounted on a transportation vehicle is in compliance with the road traffic law.

(d) Transportation of waste shall be carried out in accordance with road traffic law. During transportation, countermeasures shall be taken to prevent dispersion and leakage of wastes and sufficient care be exercised for environment and safety.

(e) On the occasion of transporting wastes, "the Waste Collection and Transportation Acceptance Sheet" shall be issued, and when waste is taken over to the Subcontractor for Waste Disposal, "the Waste Acceptance Sheet" to be issued by the subcontractor shall be submitted to the Owner/Engineer.

(f) Any work related to disposal of wastes shall be carried out while taking into account the safety of the work since various works will be carried out simulataneously in parallel.

(4) Documents to be submitted

a. Place and location map of waste disposal site

b. Certificate for waste disposal

c. Analysis and weighing sheet/report

d. Other documents as requested by the Owner/Engineer

285

7.3 SAFETY

This clause is intended to supplement the specifications for the dismantling work, common specifications and specifications for safety countermeasures to ensure through execution of safety control for the purpose of eliminate any disaster and accident during the mechanical and electrical equipment dismantling work.

7.3.1 Laws, Regulations and Other Requirements to be in Strict Compliance

(1) Laws and Regulations

(a) Labor standard law

(b) Labor safety and health law

(c) Other relevant laws and regulations

(2) Instructions

(a) Precautions for the work

(b) Instructions on safety and health and miscellaneous rules of the power station

(c) Ten rules for work and safety

(d) Rules of other enterprises

7.3.2 Countermeasures for Safety

(1) General Description

(a) Concrete countermeasures shall be described in the procedures for execution of the work after sufficiently clarifying the contents of the work.

(b) By organizing a safety and health committee, the

committee meeting shall regularly be held participated by the Contractor to prevent disaster and accident. Especially, the transfer and transportation plans of dismantled items shall be coordinated comprehensively to eliminate any trouble pertaining to traffic.

(c) A special watchman having sufficient knowledge on the corresponding work shall be appointed.

(d) A safety control system shall be established and an instructor be appointed for the respective work.

(e) Prior to starting the work, dainger prediction training shall be provided to enhance the sense of the workers for safety and let them fully recognize the contents of the work and safety instructions.

(f) Safety training shall be given to the workers as appropriate and every possible effort be directed for eliminate disaster and accident.

(g) In the case where any beam or girder is used for lifting of auxiliary, etc., the safety of such beam or girder shall be confirmed by executing strength calculation.

(h) The size of the item to be dismantled shall be determined after clarifying the strength of the floor, ceiling, etc. Morever, such floor, ceiling, etc. shall also be protected appropriately from the loads due to transfer of dismantled items by rolling.

(i) Any work above and under the work site shall not be performed simulataneously, except in the case of the

work under concrete floor, provided that such floor is specially protected.

(j) Any portion of opening formed after dismantling shall be protected by handrails, etc.

(k) In case any item is placed on a grating or in case any work is performed thereon, plywood, steel plate, sheet, etc. shall be laid on the grating to prevent drop of any item.

(l) The work area shall be specified clearly by providing a safety walkway.

(m) Whenever any deteriorated item is hoisted or lifted, sufficient attention shall be paid for the strength of such item.

(n) Work at high place and handling of heavy item

Any work implied herein shall be suspended under the following conditions:

(i) During strong wind, intensive rainfall and snowfall, etc.

(ii) In case the supervisor of the Owner or Engineer has instructed to suspend the work

Meanwhile, inspection of the temporary equipment, etc. shall be performed sufficiently prior to restarting the work.

7.3.3 Work at High Place

(1) Prior to assembling a scaffold from the existing work floor, the strength of the floor shall be confirmed.

(2) Movable handrails shall be installed/set up around the opening through the side wall for lifting and lowering the dismantled items.

(3) During material handling using an opening section, a safety belt shall be used by providing safety belt fixtures around the opening.

(4) While taking countermeasures for safety by using safety net, etc. for prevention from falldown, any tool and small items to be carried with as well as dismantled small items shall be put into backets, etc. for prevention from falldown thereof.

(5) After dismantling the lower part of the boiler body, the surrounding area shall be protected to prohibit access of any person other than those concerned.

(6) Any scrap shoot is used, an "off limit" area shall be provided around the lower dropping area.

7.3.4 Work Inside Closed Place

(1) Any work inside a closed place shall not be performed by two or more persons (workers), not by one person only.

(2) Before starting the work, the working environment shall be inspected and measured, and should any change in the environment be predicted, an appropriate countermeasure shall be taken.

(3) The closed work place shall be ventilated at all times during the work.

(4) Prior to starting any work inside the condenser water box,

closed conduit and other places where generation of hazardous gases is expected, the safety of such place shall be confirmed by measuring the concentration of oxygen and hydrogen sulfide by a qualified person. Then, the said work shall be started.

7.3.5 Work Adjacent to Emergized/Charged Parts

(1) Should there be any dismantling item adjacent thereto, appropriate protective means shall be provided after confirming the voltage, etc.

(2) The dismantling work of electrical equipment (motor, metering instruments, cable, etc.) shall be performed after turning off the power source.

(3) The lighting fittings to be used shall be equipped with a guard.

(4) The power source board to be used for the work shall be equipped with an elbow.

(5) Any motor driven tool and device shall be grounded exactly.

7.3.6 Dangerous Matter Handling Work

(1) At any place where an inflammable material is handled, two or more sets of portable powder or foam (air-form) fire extinguishers shall be provided and made ready for use at any time.

(2) Use of fire around the equipment containing oil, grease and other inflammables shall be performed after confirming that there is no leak of oil, etc.

(3) In case there is any pulverized coal inside the pulverized coal pipe and pulverizer as well as on a duct, the work shall be started after removing any such coal.

(4) Prior to cutting of fuel pipe and fuel oil tank, confirm that there is not any danger of ignition after checking the internals thereof.

7.3.7 Acid and Alkali Chemical Handling Work

(1) Dismantling of any storage tank, piping, equipment, etc. containing sulfuric acid and caustic soda shall be performed after duly confirming that there is no such chemical therein.

(2) During removal (draining) of such chemicals and dismantling of the above equipment, the face shield, chemical-resistant gloves, protective wears and other protective devices shall be used.

(3) The place for preserving any hazardous substance shall be designated and the designation thereof be indicated. Thus, access of any person other than those involved shall be prohibited.

(4) The dismantling work of any piping, equipment, etc. shall be performed after confirming that any oil is not left over therein.

(5) Whenever sulfuric acid is diluted, the chemical shall be injected/poured gradually into water (Any water shall not be injected into sulfuric acid).

(6) By no means shall any sulfuric acid and caustic soda be

mixed.

(7) The container for sulfuric acid shall be made of plastics resistant to chemicals with a sufficient strength.

(8) Prior to starting the work, confirm that fresh water for facial cleaning and dilution is readily available adjacent to the work place.

7.3.8 Heavy Item Handling Work

(1) For travelling of a mobile crane, the road bed shall be protected as required to prevent collapse of the drane.

(2) The slinging work shall be so performed as to prevent collapse and drop of the load, and other troubles while paying attention to the gravity center.

(3) Visual measurement of weight shall be carried out by the person qualified for slinging work.

(4) Around the working range of a crane truck, a means for prohibiting access of any person other than those involved shall be provided.

(5) Parallel lifting shall be performed after sufficiently studying the lifting capacity, burden of mutual loads, etc. Moreover, by no means shall one point lifting be carried out.

(6) In case wire rope of winch, etc. is strung, a cover or shelf shall be provided around the wire.

(7) Signalling for operation of crane, winch, etc. shall by all means be performed by one person according to an exact method by using wireless telephone, etc. as required where

the view is not favorable.

7.3.9 Welding and Pusion-Cutting Work

(1) The oxygen and acetylene contrainers shall be preserved at a placce which shall be determined in advance, and a person responsible for handling such substances shall also be appointed in advance.

(2) The oxygen and acetylene containers shall be separated by 1 m or more, or a shield plate shall be provided between the containers.

(3) Whenever a large quantity of dissolved acetylene (40 kg or more) is stored at a place, the said effect shall be notified to the relevant fire service station.

(4) Any fusion cutting shall be performed according to the predetermined procedures.

(5) In case any item is hanged down after fusion cutting, an "off limit" area and countermeasure for preventing dispersion of (fire) shall be provided around the work site, and a watchman shall be stationed at the site.

(6) The coaffold for fusion-cutting work shall be of a rigid construction, and any worker shall use protective wears.

(7) During the fusion cutting work, a receptacle shall be placed. Moreover, countermeasures shall be taken for preventing dispersion of sparks including protection with sheet, etc.

(8) Since hazardous gases may sometimes be generated depending on the fusion-cut materials, the protective wears,

ventilation and cutting method should be studied sufficiently in advance.

(9) Subsequent to completion of the work, close the master valve and dismount the hose.

7.3.10 Dangerous Work Susceptible to Oxygen Deficiency

(1) Prior to entering the boiler, tank and other closed equipment, sufficient ventilation shall be provided, if shall be confirmed by a qualified person that the concentration of oxygen is normal and the closed space is free from any inflammable gas.

(2) Prior to and during the work inside the tank and other closed equipment, sufficient ventilation shall be provided inside the closed space.

(3) In case the engine welder, compressor and other equipment discharging exhaust gases are used, such equipment shall be installed at a place with sufficient (natural) ventilation.

7.4 SELING OF WASTE

(1) The amount paid for sold items shall be offset with the amount contracted for this dismantling work.

(2) The details of the sold items shall be as indicated in "the Schedule of Prices of Sold Items."

(3) Transfer and transportation of sold items

(a) Transfer and transportation of any sold item shall be carried out in strict accordance with the road traffic law after confirmation upon discussions regarding the transfer and transportation plan, etc. to be submitted to the Owner.

(b) The transportation route shall be selected by sufficient investigation in order to cause any traffic congestion, excess of load weight and other troubles.

(c) Since the disassembly and dismantling work will be carried out at various locations within the _____ Station site, and the temporary stock is narrow, the items to be sold shall be transported immediately from the specified place along with the progress of the dismantling/disassembly work.

(4) Safety and environmental sanitation control

(a) In consideration that any item to be sold is generally heavy in weight and other dismantling work is carried out within the power station site, such item shall be transported along the specified route while paying

sufficient attention for safety at the same time.

(b) During transfer and transportation of sold items, sufficient attention shall be paid for preventing collapse, dispersion and leak of the sold items being transported as well as any other environmental pollution.

SECTION VI

TECHNICAL SPECIFICATION FOR MECHANICAL AND ELECTRICAL PART

SECTION VI. TECHNICAL SPECIFICATION
MECHANICAL AND ELECTRICAL PART

CONTENTS

1. BOILER EQUIPMENT

1.1 Common Conditions

(1) The boiler steel structures and operation floor (including grating) shall be included in the scope of this work.

(2) The priority order of disassembly shall be determined by the Contractor, and sufficient safety measures be taken to ensure acquisition of the transportation routes of dismantled materials and equipment as well as access roads for the work.

(3) Any waste to be put into a bag shall be so managed that the content can readily be identified.

1.2 Outline of Major Boiler Equipment to be Dismantled

(1) Boiler body (Superheater, economizer, air preheater and soot blower)

(2) The disassembly order of boiler shall be carried out after sufficiently recognizing its construction in advance.

(3) In the case where dust is expected to be dispersed due to removal of bricks and dismantling of thermal insulation materials in the boiler room, appropriate countermeasures shall be taken by means of local ventilation, water sprinkling, etc. as required, and any worker shall wear protective wears.

(4) To continue the work at high places, an appropriate cover shall be provided around the furnace (ground floor), and entry of any other person than those in charge thereto shall be

prohibited.

(5) The steam drum shall be transported to a specified place after disassembling the drums at the dismantling site.

(6) Since the cold spring will be removed before cutting the main steam pipes, the sufficient care shall be given for selection of the pipe cutting place and safety of the work. Moreover, cutting of other miscellaneous pipes shall also be carried out sufficiently carefully.

1.3 Fuel Oil Tank

(1) The dismantling work of the tank body shall be carried out after dismantling of the surrounding oil dike.

(2) During disassembly of the tank, it shall be reinforced as required in view of the dismantling work method.

(3) Although the work shall not, in principle be carried out during strong wind, appropriate countermeasures shall be taken to ensure the safety of workers at the time of sudden gusts of wind, etc.

(4) Precautions for dismantling of fuel oil service tank

(a) Since the surrounding work site faces the facilities of other enterprises and public roads, an appropriate cover shall be provided around the tank to prevent dispersion of dust to the outside area.

1.4 Fuel Oil Piping

(1) Although purging of all fuel pipelines will be completed by air blowing, the dismantling work of such pipelines shall be

carried out on the assumption that there oil remains in the pocket section of the piping system.

(2) Since the oil remaining in delivery lines will be solidified, such lines shall be handled sufficiently carefully during the dismantling work. Moreover, the dismantling work shall be carried out carefully on the assumption that the solidified contents of fuel oil remain in the pump, heater and piping around the boiler unit (The oil treatment/disposal method shall be described clearly in the execution plan).

(3) Any pipe shall not be cut by fusion until the safety has duly been confirmed.

(4) The piping and steam pipe around the oil tanks, pumping equipment, compressors (in building), etc. shall be dismantled immediately after commencement of the work so as not to cause any obstable to the oil dike dismantling work.

1.5 Fan (Forced draft fan and induced draft fan)

(1) Dismantling of ventilation fans shall be started after removing the smoke duct.

(2) Next, thermal insulation materials (without any FDF) shall be removed.

(3) The coupling shall be separated from motor at the dismantling site, and such dismantled components shall be transported to a specified stockyard in the form of component units.

(4) The buried concrete portion of a base shall be removed by

chipping.

(5) Dismantling of the motor house for induced ventilation fans shall also be included in this dismantling work.

1.6 Air and Flue Gas Duct

(1) Dismantling of the thermal insulation materials and metal plate of any duct shall be carried out after setting up scaffolding.

(2) The cutting positions and dimensions of any duct shall be determined after confirming the hanging point and rack supporting point.

(3) Since the ducts and so forth have been deteriorated, sufficient care shall be exercised for handling during the dismantling work.

1.7 Other Boiler Equipment (Boiler Auxiliaries)

(1) The equipment implied herein shall include, chemical injection equipment, air compressor, sampling devices, and so forth.

(2) The air compressor shall be disassembled into the compressor body and motor at the dismantling site and transported to a specified place.

303

2. TURBINE EQUIPMENT

2.1 General Description

(1) The dismantling work of turbine equipment shall be suspended during the opening work of building.

(2) The major heavy-duty machines used for dismantling of turbine equipment will be overhead travelling cranes, and the availability of such cranes is expected to be extremely high. Therefore, efforts shall be directed for efficient operation of cranes through close coordination with the electrical equipment dismantling work.

(3) Pay utmost attention to the lifting weight limit of the overhead travelling crane.

(4) The dismantling work related to the circulating water piping, and other water intake and discharge facilities shall be carried out after sufficiently confirming the schedules for coffering and discharge of the intake and discharge facilities.

(5) During dismantling of tank equipment, piping, etc. using lining materials, pay sufficient attention to hazardous gases.

(6) In case the height of handrail around the opening space on the operation floor of the turbine building is insufficient, the said portion shall be reinforced by heaping up.

2.2 Outline of Major Turbine Equipment to be Dismantled

(1) Steam turbine

(a) The turbine body shall be dismantled by using an overhead traveling crane.

(b) When large equipment such as the upper and lower half low pressure turbine casings among the turbine body are disassembled, the shape suitable for transportation shall be determined taking into account the outlet conditions, road expansion and other miscellaneous conditions.

(c) After dismantling of turbine body, protective shelves shall be provided around the portion of opening.

(d) The dismantled equipment and materials shall be immediately transported from dismanted side to out side in order to dismantling work. In this case, a large amount of dismantled equipment and materials shall not be placed temporary on the operating floor.

2.3 Lubricating Oil Equipment

(1) The dismantling work of any lubricating oil equipment shall be started after confirming that any oil does not remain in the equipment.

(2) The auxiliary oil tank shall be disassembled after being transported to a specified place. By no means shall such an oil tank be disassembled at the dismantling site.

2.4 Condenser

(1) The condenser shall be disassembled to a size suitable for transportation at the dismantling site, and transported by using an overhead traveling crane, etc.

(2) Dismantling of circulating water pipe (sea water) shall be dismantled after setting up a scaffold.

(3) The cooling (water) pipe shall be machine-cut by using a cutter, etc.

(4) During disassembly of the internal parts of condenser, protective wears shall be used as a countermeasure for protecting from dust, and ventilation be provided as required.

2.5 Major Auxiliaries

(1) The connecting piping of feedwater pump shall be cut by gas cutting while supporting it with a chain block, etc. from the ceiling beam.

(2) The feedwater pump and motor shall be transfered horizontally up to a service range of the overhead travelling crane and transorted to the large equipment inlet with the crane.

(3) The rotary equipment (pump, compressor, blower, etc.) and motors shall be separated from the couplings and transported in the form of the respective units.

(4) Any lubricating oil and lubricants shall be drained perfectly prior to dismantling.

2.6 Feedwater Heater

(1) The feedwater heater shall be transported by combinedly using lifting equipment and overhead travelling crane.

(2) The thermal insulation materials shall be dismantled by setting up a scaffold and transported in bags.

2.7 Deaerator

(1) The deaerator shall be dismantled after setting up scaffolds deaeration floor.

(2) The thermal insulation materials shall be dismantled and filled in bags for transportation.

(3) After drilling holes on the operating floor, set the chain block therefrom.

(4) The deaerator shall be moved on the operating floor by combinedly using lifting equipment and overhead travelling crane, and tentatively placed there.

2.8 Feedwater and Steam Pipes

(1) When the main steam pipe is cut, the cutting position of the main steam pipe shall be selected carefully and the pipe be sufficiently protected since the cold spring will be removed.

(2) When the feedwater, steam and other pipes are separated from mechanical equipment, such pipes shall be protected sufficiently to prevent movement and coming-off of the pipes.

(3) When the steam pipe, feedwater pipe, etc. are cut, scaffolding shall be set up as required, and such pipes shall be protected sufficiently to prevent movement and coming-off of the pipes.

(4) Any dismantled pipes and fittings shall immediately be transported to the disassembly site.

2.9 Bearing Cooling Water Equipment

(1) Any pump, compressor, motor, etc. shall be dismantled.

2.10 Crane (Overhead Travelling Crane in Turbine Room)

(1) The overhead travelling crane shall be transported with a large crane after providing an opening through the ceiling of the turbine room.

(2) A handrail shall be provided around the opening of the ceiling to enable safe sending of signal, etc.

(3) After disassembly of the travelling equipment, move the girder up to the opening of the ceiling using a winch.

(4) Transportation of the overhead travelling crane shall include that of the travelling rail and its supports (In addition to the overhead travelling crane, its travelling rails and supports shall also be dismantled and transported to the specified place).

(5) For dismantling the travelling rail, set up scaffolding plates between the rail and building.

(6) Prior to lowering the travelling rail using the ceiling beam, confirm the strength of the beam.

3. ELECTRICAL EQUIPMENT

3.1 General Description

(1) The following electrical equipment shall be disassembled at the dismantling site. Meanwhile, the disassembly work at the dismantling site shall be carried out by taking countermeasures for preventing dispersion of insulation oil, etc. as well as for preventing fire accident.

(a) Generator (main generator and station service generator)

(b) Main transformer

(c) Starting transformer

(d) Station service (house) transformer

(2) Disassembly and transportation of the generator and transformer including panels and boards in the main building shall be performed in close coordination with the turbine dismantling work to use the overhead travelling crane.

(3) The operation board, relay board, etc. shall be dismantled together with the attached instruments and internal parts.

(4) The equipment with insulators shall be dismantled together with such insulators.

(5) The terminal point between the transmission line and other equipment shall be according to "the Transmission Line and Equipment Terminal Point Diagram."

3.2 Outline of Major Electrical Equipment to be Dismantled

(1) Generator (Main generator, station service generator, excitation and cooling equipment)

Disassembly of the generator shall be performed as follows: Namely, after dismounting accessories around the generator, draw out the rotor and dismount the stator coil, and after cutting both the rotor and stator (if required).

Moreover, the exciter shall be dismantled and transported altogether.

(2) Major transformers (Major/main transformers and cooling equipment)

Disassembly of the major transformers shall be carried out as follows: Namely, after draining insulation oil (if required), dismount the bus/cable, etc.

(Since the existing rails and carts are considered to have been deteriorated with elapse of time after installation, sufficient maintenance and inspection of these rails and carts shall be carried out).

(3) Metal clad switchgear and other components (Metal clad switchgear, compartment, etc.)

For disassembly of the metal clad switchgear, draw out the circuit breakers, etc. from inside the respective panels/boards, and separate crossover bus, wiring and cables.

Then, one or two panel portion of these disassembled components shall be transported to the specified place.

For disassembly of the compartment, dismount the oil-filled circuit breaker together with its base, and remove the

disconnecting switch and bus.

(4) Low voltage power equipment (Low voltage power source board, control center, etc.)

For disassembly of the lower voltage power source equipment, separate the primary and secondary wiring to the transformer and feeder cable, and transport the low voltage power source board to the specified place.

The control center shall be dismantled by disassembling one or two row portion of the center.

(5) Supervision and control panel (main distribution board and BTG board)

For dismantling the supervision/monitor board, dismount the power cable, control cable, etc. separate then to an extent suitable for transportation.

(6) Automatic control panel (boiler control panel, etc.)

Refer to Item (5) above.

(7) Low voltage power source equipment (Starting transformer, low voltage motor transformer, etc.)

For dismantling the starting transformer, drain the insulation oil and draw out the cores and windings altogether and separate these to a extent suitable for transportation.

The other low voltage transformers shall be transported to the specified place altogether.

4. AUXILIARY EQUIPMENT

4.1 Water Treatment

Any pump and motor shall be separated from each other and transported to the specified place.

4.2 Outdoor Illumination/Lighting Lamp

The outdoor lighting lamp shall be dismantled by gas cutting of the foot of the lamp pole after-temporarily lifting it using a truck crane.

4.3 Cable Dismantling Work

(1) General Description

a. The cable dismantling work shall be carried out in close coordination with the other relevant works to be carried out in parallel at the same time.

b. By all means shall any cable dismantling work be carried out after confirming that the said cable is not in service nor energized.

(2) Outline of cable dismantling work

a. The OF cable including the portion of the cable buried underground shall all be dismantled.

b. In principle, the power, control and communication cables shall all be dismantled.

c. For cable dismantling, any cable shall be cut to a length allowing easy dismantling work.

SECTION VII

TECHNICAL SPECIFICATION

FOR

CIVIL AND ARCHITECTURE

SECTION VII. TECHNICAL SPECIFICATION FOR CIVIL AND ARCHITECTURE

CONTENTS

1. OUTLINE OF WORKS

Dismantling works of civil and architectural section

1.1 DISMANTLING WORKS INSIDE UNIT 1 CONSTRUCTION AREA AND SUBSTATION AREA

(1) Staff Quarters No. 1

Main structure	:	Reinforced concrete and block wall
Stories	:	2 stories
Dimensions (m)	:	32.0 x 10.0
Height (m)	:	4.0

(2) Staff Quarters No. 2

Main structure	:	Reinforced concrete and block wall
Stories	:	2 stories
Dimensions (m)	:	40.0 x 7.0
Height (m)	:	10.0

(3) Officer's Flats

Main structure	:	Reinforced concrete and block wall
Stories	:	2 stories
Dimensions (m)	:	55.0 x 11.2
Height (m)	:	10.0

(4) Shift Engineers' Flat

Main structure	:	Reinforced concrete and block wall
Stories	:	3 stories
Dimensions (m)	:	45.0 x 14.0

Height (m) : 15.0

(5) Store Shed No. 1

Main structure : Steel structure and concrete foundation

Stories : 1 story

Dimensions (m) : 34.1 x 15.8

Height (m) : 11.2

(6) Store Shed No. 2

Same as above

(7) Canteen

Main structure : Reinforced concrete and block wall

Stories : 2 stories

Dimensions (m) : 8.5 x 17.7

Height (m) : 8.0

(8) Underground Tank

Main structure : Reinforced concrete and block wall

Dimensions (m) : 4.1 x 8.0

Height (m) : GL-2.0

(9) Ground Reservoir

Main structure : Reinforced concrete and block wall

Dimensions (m) : 13.9 x 13.9

Height (m) : GL-2.0

(10) Wall

Main structure : Brick wall

Dimensions (m) : 13.0 x 6.5

3/4

Height (m) : 1.0

(11) Oil Tank No. 1 Foundation

Main structure : Reinforced concrete & oil sand with concrete dike (1.0 m height)

Dimensions (m) : Dia. 8.5

(12) Oil Tank No. 2 Foundation

Same as above

(13) Oil Tank No. 3 Foundation

Same as above

(14) Instrument and Control Room

Main structure : Reinforced concrete and block wall

Stories : 1 story

Dimensions (m) : 10.4 x 33.0

Height (m) : 4.0

(15) "A" Station Boiler and Turbine Room

Boiler Room

Main structure : Steel structure and 0.9 m thick concrete raft foundation

Stories : 1 story

Dimensions (m) : 25.0 x 39.0

Height (m) : 15.0

Turbine Room

Main structure : Steel structure and 0.9 m thick concrete raft foundation

5 T/G concrete pedestals

Stories : 2 stories

Dimensions (m) : 33.0 x 88.2

Height (m) : 15.0

(16) Sanitary Block and Sewage Pump Room

Main structure : Reinforced concrete and block wall

Stories : 1 story

Dimensions (m) : 4.3 x 8.5 and 3.8 x 2.9

Height (m) : 4.0

(17) 66 kV Switchyard (Outdoor) Foundation

Out of Scope

(18) Pressure Tank

Out of Scope

(19) City Water Receiving Pit

Out of Scope

(20) Dispensary

Out of Scope

(21) Discharge Water Pipe for "B" Station (partial)

Out of Scope

(22) Intake Water Pipe for "B" Station (partial)

Out of Scope

(23) Guard house

Main structure : Reinforced concrete and block wall

Stories : 1 story

3/9

Dimensions (m) : 3.0 x 3.0

Height (m) : 3.0

(24) Car Park

Main structure : Steel structure with shed and grade slab

Dimensions (m) : 7.0 x 14.0

Height (m) : 4.0

o Also, roads, trees, drainage facilities, cables, etc., inside of Unit 1.

1.2 DISMANTLING WORKS INSIDE OF UNIT 2 CONSTRUCTION AREA

Category "B" Station

(25) Boiler Room "B" Station (Above ground floor)

Main structure : Steel structure and reinforced concrete foundations with reinforced concrete piles

Dimensions (m) : 46.0 x 22.0

Height (m) : 22.0

(26) Turbine Room "B" Station (Above ground floor)

Main structure : Steel and reinforced concrete structures
Reinforced concrete foundations with reinforced concrete piles
2 T/G concrete pedestals

Stories : 2 stories

Dimensions (m) : 46.0 x 22.0

3/8

Height (m) : 22.0

(27) Stack "B" Station (Above ground floor)

Main structure : Reinforced concrete superstructure and foundation with reinforced concrete piles

Dimensions (m) : Dia. 3.4

Height (m) : 38.6

(28) Misc. Foundations and Wall (Above ground floor)

Main structure : Reinforced concrete

Dimensions (m) : Area 49.0 x 9.0

Category "BX" Station

(29) Switch Room

Main structure : Reinforced concrete and block wall

Stories : 1 story

Dimensions (m) : 7.8 x 35.7

Height (m) : 5.0

(30) Intake Water Pipe for "BX" Station No. 1

Main material : Cast iron pipe ϕ 1.3 m

Depth (m) : GL-2.2 (C/P) Length: 40.0

(31) Intake Water Pipe for "BX" Station No. 2

Main material : Cast iron pipe ϕ 1.3 m

Depth (m) : GL-2.2 (C/P) Length: 40.0

(32) Intake Water Pipe for "B" Station

Main material : Cast iron pipe ϕ 1.3 m

Depth (m) : GL-2.2 (C/P) Length: 170.0

(33) Stack "BX" Station (Above ground floor)

Main structure : Steel flue and reinforced concrete foundation with reinforced concrete piles

Dimensions (m) : Dia. 3.4

Height (m) : 40.0

(34) Boiler structures "BX" Station (No. 15 and 16 boiler) (Above ground floor)

Main structure : Steel structures

Dimensions (m) : 13.6 x 7.2 x 2 structures

Height (m) : 22.0

(35) Turbine Room "BX" Station (Above ground floor)

Main structure : Steel and reinforced concrete structures
Reinforced concrete foundations with reinforced concrete piles
2 T/G concrete pedestals

Stories : 2 stories

Dimensions (m) : 31.0 x 56.0

Height (m) : 22.0

(36) Transformer Foundations for "BX" Station (Above ground floor)

Main structure : Reinforced concrete foundations with reinforced concrete piles

Dimensions (m) : Area 41.0 x 9.0

Height (m) : Unknown below ground

(37) Electric Shop, Raw Water Service Pump, etc.

Main structure	:	Steel structure & reinforced concrete foundation
Stories	:	1 story
Dimensions (m)	:	9.0 x 28.0
Height (m)	:	6.0

(38) Machine Shop and Store

Main structure	:	Reinforced concrete and block wall
Stories	:	1 story
Dimensions (m)	:	11.9 x 22.5 and 10.5 x 9.6
Height (m)	:	6.0

(39) C.W. Tank

Main structure	:	Reinforced concrete
Dimensions (m)	:	Dia. 9.5
Height (m)	:	5.0

(40) Discharge Water Pipe for "BX" Station

Main material	:	Cast iron pipe ϕ 1.5 m
Depth (m)	:	GL-2.2 (C/P) Length: 25.0

o Also, Roads, threes, drainage facilities, cables, etc., inside of Unit 2 area

Category Administration Building

(41) Administration Building

Main structure	:	Reinforced concrete and block wall
Stories	:	3 stories

Dimensions (m) : 10.0 x 35.0

Height (m) : 15.0

(42) Cable Trench

Main structure : Reinforced concrete

Dimensions (m) : 2.0 x 40.0

1.3 DISMANTLING WORKS TO BE CARRIED OUT BY LOT-1 CONTRACTOR

(43) C.W. Pump House for "A" Station

(44) C.W. Pump House and Screen for "B", "BX" Stations

(45) Discharge Sump for "A" Station

(46) Sewer Sump and Pumping Station

(47) C.W. Discharge Pipe for "BX" Station (partial)

(48) C.W. Discharge Pipe for "B" Station (partial)

1.4 DISMANTLING WORKS TO BE CARRIED OUT BY LOT-IIA CONTRACTOR

(17) 66 kV Switchyard (Outdoor) Foundations

(18) Pressure Tank

(19) City Water Receiving Pit

(20) Dispensary

(21) Discharge Water Pipe for "B" Station (Partial)

(22) Intake Water Pipe for "B" Station (Partial)

1.5 STRUCTURES AND BUILDINGS NOT TO BE DISMANTLED IN THIS PROJECT

(49) Fuel Oil Storage Tanks

(50) 11 kV Switchgear Building

(51) Sui Gas Compound

(52) 66 kV Switch Station Building

Remarks: Note that the figures and classes of structures in the above are the approximate and estimated ones.

2. TOPOGRAPHIC SURVEY AND INVESTIGATION

The topographic survey and investigation of the buried items shall be carried out under the responsibility and at the expense of the Contractor.

3. METHOD AND SCHEDULE OF THE DISMANTLING WORKS

Prior to starting the dismantling works, the Contractor shall submit to the Engineer a detailed dismantling work plan clearly describing the method and schedule of the works, including temporary facilities and equipment, and shall obtain the approval of the Engineer.

However, note that the main schedule shall be as indicated in the schedule chart attached hereto, but the dismantling works in the respective areas shall be completed within the specified periods.

4. COUNTERMEASURES FOR PRESERVATION OF ENVIRONMENT

The Contractor shall carry out the dismantling works in strict compliance with relevant laws and regulations, and shall take extreme care regarding preservation of the environment as described below.

(1) Any machinery or equipment to be selected and used for the dismantling works shall be of a type with low noise and vibration.

(2) In order to prevent dispersion of crushed/broken concrete fragments during the dismantling works, appropriate countermeasures shall be taken for preventing dispersion of dust such as by water sprinkling and/or other means.

(3) In the case where the dismantling works is carried out near the border of an adjacent facility of a third party, appropriate measures shall be taken to prevent dispersion of broken concrete, generation of noise and other hazards.

(4) Maintenance and repair of roads

During traffic on any road inside or outside the dismantling work site, utmost care shall be exercised at all times to prevent contamination and damage of the road surface. Should any road be damaged due to failure or improper action on the part of the Contractor, the Contractor shall repair the road at his own expense according to the instructions of the Engineer.

With regard to the road(s) to be provided by the Contractor for

the dismantling works, the Contractor shall undertake its their maintenance and repair under full responsibility and at his own expense during the work period.

Moreover, the retention or demolition of the said road after completion of the dismantling works shall be determined according to the instructions of the Engineer.

5. BASIC CONCEPT OF DISMANTLING BURIED EQUIPMENT AND MATERIALS

The design ground level of the new power station shall be EL +4,800 mm. Therefore, all buried items designated to be dismantled in these specifications shall be dismantled regardless of the depth.

In addition, any soil or other materials up to EL +3,800 mm from the existing ground level shall be removed and transported immediately to a proper location outside the plant site.

The existence of any buried items shall be investigated from the ground at EL +3,800 and at least up to EL +1,800 by using a sounding rod, and all baried items which may be obstructive to new pile driving shall be removed.

Sounding rod work shall be carried out at intervals of every 50 cm.

However, in the area for Unit-2 construction, foundations and floors (below the ground floor level) of buildings, structures (T/G houses, Boiler houses, stacks, transformer yards of "B, BX stations") those substructures have RCC piles shall be dismantled by the Contractor of Lot-I who will carry out the piling work of the project.

Immediately after completion of dismantled buried objects, the ground shall be restored/backfilled with soil of an appropriate quality up to EL +3,800 mm.

Meanwhile, the temporary work, particularly drainage work, for dismantling of buried objects shall be carried out under the full responsibility of the Contractor.

6. TEMPORARY WORK

6.1 GENERAL

This clause covers the furnishing of all appliances, labor, materials, tools, transportation and services required to perform and complete all preliminary work and temporary construction.

6.2 LEVELING AND CENTERING

The Contractor shall confirm the conditions of the building site and shall mark the location of the buildings by staking out, and this shall be subject to approval by the Engineer.

6.3 TEMPORARY ENCLOSURES

The Contractor shall provide temporary enclosures for safety of work or for other reasons, if so directed by the Engineer.

6.4 SCAFFOLDINGS AND RUNWAYS

The Contractor shall furnish and maintain all required scaffolding, runways, guard rails, platforms, access stairs and other necessary pertinents. The plans for temporary facilities of each work shall be submitted to the Engineer for approval prior to commencement of the works.

The overall prefabricated scaffolding for the respective dismantling works shall be connected firmly to walls by an appropriate method (for example: by tight connection to steel

structures by means of welding, etc.), and shall be installed to ensure convenience and safety of the dismantling works as well as supervision. Moreover, the strength and deformation calculation sheet/s shall be submitted to and approved by the Engineer as required.

7. EARTH WORK

7.1 SCOPE

The specifications herein cover the performance of all works in connection with the required excavation for the dismantling of structures and equipment, gravels layers and sand mats and all other excavation that may be necessary during the progress of works, including the removal, use or disposal of all excavated materials.

7.2 EXCAVATION

(1) Excavation under this section shall consist of the removal, hauling, dumping and satisfactory disposal of all materials from areas of required excavation.

(2) Before starting excavation work, the Contractor shall submit for approval by the Engineer a program indicating the equipment, the work organization and the scheduled monthly progress. In the actual execution of the work, the Contractor shall conform to such programs as approved by the Engineer.

(3) The excavated slope surface shall be protected against any erosion due to heavy rains or ground water during the construction period.

(4) Excavation shall be carried out by adopting an excavation method suitable for the ground so as not to loosen the ground outside the excavation. If required, sheathing shall be

provided.

(5) During excavation, work shall be performed carefully so as not to cause any damage to adjacent structures and buried structures.

(6) Excavated materials shall be directly disposed of outside the site. If the excavated material is to be temporarily stockpiled, designated spaces shall be kept clear of the shoulders of roads while taking into account the earth pressure at the excavated surface and the working space. Temporary shoring or other such structures, if required, shall be provided so that stockpiles can be protected from damage or from being washed away.

7.3 DEWATERING

(1) If the Contractor carries out the excavation work, the Contractor shall set up the drain pit at the excavation area as soon as possible when the excavating depth attains to the required depth.

(2) After the receiving of the permission by the administrator of sewage and port, the Contractor shall dispose the drainage at the excavating area with the passage of the sedimentation basin and the filtration facilities in order to prohibit the discharge of the drainage into the roads or other existing facilities.

(3) If much spring water and leakage is occured at the excavating

area, the Contractor shall prevent the work area from the outflow of the soil and the relaxation of the ground by way of a suitable work approved by the Engineer.

(4) Adequate pumping facilities shall be provided, maintained and ready for immediate use at any time during the progress of the construction work up until backfilling. The dewatering facilities which are necessary for the execution of the construction shall be provided according to the construction drawings approved by the Engineer. The Contractor shall, in particular, set up the temporary drainage facilities (pipes, pits, hoses, etc.) to be available for other Lot (Lot I and II) Contractors and not to be obstructions for them.

7.4 SHORING

Shoring shall be of the type that is safe and suitable to the conditions of foundation and ground water. If sheet piles or retaining piles are to be driven, buried structures at piling locations and in their vicinity shall be investigated and confirmed as being safe by manual trench excavation, etc., prior to piling so as to protect these structures from damage.

When piles are to be pulled out, care shall be taken not to cause any damage to the buried structures.

7.5 BACKFILLING

(1) No work shall be covered up or put out of view without the approval of the Engineer or the Engineer's representative, and the Contractor shall afford full opportunity for the Engineer or the Engineer's representative to examine and investigate any work which is about to be covered up or put out of view, and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer's Representative whenever any such work or foundations is or are ready or about to be ready for examination, and the Engineer's representative shall, without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and investigating such work or of examining such foundations.

(2) Backfilling shall be executed as construction proceeds, along with the removal of shoring and other materials at the backfilling site.

(3) Backfilling shall be performed with suitable soil from excavation or other suitable soil as approved by the Engineer. Back fill material shall be well compacted by means of rammers or other equipment.

(4) If the inflow of water exists at the site of backfilling, it shall be appropriately treated.

(5) In backfilling, the layer of spreading shall be about 50 cm or

less per lift, and it shall be graded as horizontally as possible, and shall be sufficiently compacted by hydraulic filling or by use of an appropriate compactor, such as a rammer.

(6) Extent of consolidation shall be such that it will prevent future settlement and such that the designated bearing capacity can be obtained. If necessary, the extent of consolidation shall be measured by a cone-penetrometer, etc., and the record shall be submitted to the Engineer for approval.

(7) For backfilling adjacent to a structure, compaction and filling shall be carried out so as to prevent damage to the structure.

(8) Ground level after backfilling and compaction shall be kept at EL + 3,800 mm, unless otherwise specified or directed by the Engineer.
The allowable error of the grating level shall be within ±10 cm.

7.6 DISPOSAL OF EXCAVATED MATERIAL

(1) Excavated material shall be disposed of outside the site.

(2) In transporting the soil, care shall be taken so as to neither hamper traffic nor cause trouble to a third party.

(3) Suitable material obtained from required excavation as

determined by the Engineer may be used as backfill. However, the material excavated and required for further use shall not be stockpiled within the construction site.

7.8 SLOPE PROTECTION OF EXCAVATED SURFACE

So that all construction work progresses smoothly and safely, the Contractor shall maintain and protect slopes of excavated surfaces. In case slopes are damaged, the Contractor shall repair them immediately.

8. GENERAL SPECIFICATIONS FOR DISMANTLING

8.1 CONCRETE BREAKING (DISMANTLING OF CONCRETE STRUCTURES)

For dismantling the concrete structures, the structural concrete shall be crushed into pieces within a 30 cm diameter and immediately be transported to and disposed of at a proper place outside the plant site. This crushing shall be carried out by using appropriate machines having low noise and vibration.

The machines to be selected for use shall be sufficient in capacity and quantity to complete the dismantling works within the work period, and the type of the machines to be used shall be approved by the Engineer.

8.2 ASPHALT BREAKING (DISMANTLING OF ASPHALT STRUCTURES)

For dismantling of asphalt structures, including dismantling of road bed, the portion of the pavement of road within the plant site and that on the slope of the foundation of fuel oil storage tanks shall be broken, and such broken asphalt shall immediately be transported to and disposed of at a proper place outside the plant site.

8.3 DISMANTLING WORK OF MISCELLANEOUS STEEL MATERIALS

This dismantling work is intended to dismantle the grating, girdrail, corner angle and other steel materials attached to the structures to be dismantled. Any steel materials dismantled by the Contractor shall immediately be transported to and disposed of at a

proper location.

8.4 REMOVAL OF VEGETATION (A)

This removal of vegetation (A) covers the felling of trees and the complete removal of their roots within the site.

8.5 REMOVAL OF VEGETATION (B)

This removal of vegetation (B) covers the removal of sod, turf, etc., within the site.

9. DISMANTLING METHOD OF BUILDINGS/STRUCTURES

The dismantling works of various kinds of buildings/structures and stacks shall be carried out according to the following methods and sequences.

9.1 DISMANTLING OF BUILDING SERVICE FACILITIES

(1) Dismantling of interior materials

Prior to starting the dismantling works of structures, inflammable interior materials, wood and similar materials shall be dismantled.

(2) Dismantling of air conditioning equipment

Prior to starting the dismantling works of structures, air conditioning equipment, ducts, piping and fittings shall be dismantled. In this case, any heat insulation materials for the ducts or piping shall be disposed of according to the procedures for handling and disposal of industrial wastes.

(3) Dismantling of water supply equipment

Prior to starting the dismantling work of structures, the sanitary fixtures shall be dismantled, with the inside of septic tanks cleaned prior to dismantling. Water supply equipment shall be dismantled, with the opening created by the dismantling work backfilled.

(4) Dismantling of electrical equipment

Prior to starting the dismantling work of the electrical equipment, lighting fixtures, piping, wiring and similar

materials shall be dismantled.

9.2 DISMANTLING OF MAIN POWERHOUSE BUILDING

(1) Dismantling of walls, roof slabs, etc., to obtain the opening for transfer of dismantled equipment

To obtain openings for conveyance of dismantled equipment, walls, roof slabs, etc., shall be dismantled using jack hammers, and the dismantled materials be brought down with a crane.

(2) Dismantling of turbine pedestal and operating floor

This dismantling work shall be carried out mainly by using a pressure crusher and jack hammer as backup equipment. For dismantling of the portion of steel structure, the portion adjacent to the column and beam connections shall be removed by chipping. Such portion shall be fusion-cut and brought down with a crane.

(3) Dismantling of the operating floors of "B" and "BX" Stations

Dismantling of slabs shall be carried out mainly by using the heavy ball method while using a jack hammer as backup equipment. The lower part of slabs shall be dismantled mainly by using a pressure crusher used in combination with a jack hammer as backup equipment. Meanwhile, dismantling of the slabs shall be promoted successively toward the lower parts of the respective floors.

(4) Dismantling of boiler structure

The boiler structure shall be dismantled successively by fusion-cutting of the roof beams after being brought down by a crane, with final dismantling of the columns. This work shall be repeated from dismantling of the lower columns and beams. Moreover, the portion of SRC shall be dismantled successively toward the lower parts on the respective stories by combined use of pressure crusher and crane.

(5) Dismantling of slab and foundation on the first floor

The slab and foundation on the first floor shall be dismantled by combined use of the pressure crusher and crane, and openings formed by dismantling shall be backfilled with soil of appropriate quality.

Reinforced concrete piles provided under the turbine house/ boiler foundation and stack foundation of "B" and "BX" Stations shall be dismantled by carefully taking into account the subsequent pile dismantling work.

The locations of all existing piles shall be marked with temporary wood piles in order to confirm their locations after backfilling.

9.3 DISMANTLING OF STACKS

(1) Prior to starting the dismantling works, a dismantling plan shall be submitted to and approved by the Engineer.

(2) During the time of strong wind (when the wind velocity is more than 10 m/sec.), all dismantling work shall be suspended. For

this purpose, an anemometer shall be provided and made ready for measurement at all times.

(3) A temporary steel plate shoot for transfer of chipped pieces of lining shall be attached to the hopper section. To prevent dispersion of chipped lining material, dispersion preventive rubber, etc., shall be provided around the transfer outlet, and sufficient care shall be exercised to prevent dispersion of such materials.

(4) Outer peripeheral scaffolding shall be provided up to the top of the stack.

(5) Chipping of lining material shall be performed from a temporary gondola. Moreover, any acidic matter shall be disposed of outside the site after sufficient cleaning with water.

(6) Cutting of the tube body (concrete structure and steel plate) shall be carried out for each block, and these materials shall be brought down with a large crane and disposed of.

9.4 DISMANTLING OF WOODEN BUILDINGS

Wooden buildings shall be dismantled by using cranes, and the portions of the foundation shall be demolished by jack hammers.

9.5 DISMANTLING OF BUILDINGS OF REINFORCED CONCRETE, STEEL FRAME AND BRICK MASONRY CONSTRUCTION

In principle, these buildings shall be dismantled by using pressure crushers and jack hammers. However, buildings of a steel frame construction shall be demolished by using a pressure crusher, with the steel structure fusion-cut on the ground.

9.6 DISMANTLING OF DISCHARGE PIPES (CAST IRON PIPES)

The dismantling work of discharge pipes for "A" and "BX" station shall be executed by the Contractor as follows, and before the commencement of the dismantling work at each station, the Contractor shall submit the actual working plan and schedule table to the Engineer for approval.

(1) The dismantling work of the existing discharge pipes for "A" station

i) At first, it is necessary for the dismantling work to execute the sheathing works (the driving work of the steel sheet piles, the setting work of the steel members for the sheathing, etc.) before the commencement of the excavation work.

ii) After the sheathing work, the excavation work shall be executed at the surroundings of the existing discharge pipes for exposing the full view of pipes.

iii) After the completion of the excavation work, the closing work of the existing discharge pipes shall be executed at the appropriate place, for example, at the entrance

of the existing pipes to the sea in the existing discharge sump, in order to shut off the seawater from outlet, and after that, the dewatering for the internal water of the existing discharge pipes, which are located from the existing sump to the installing portion of "A" station, shall be executed before the commencement of the dismantling work of pipes.

iv) The dismantling work of the existing discharge pipes shall be executed at the piping route that is from the existing sump to the installing portion of "A" station after the completion of the dewatering work, and after the completion of the dismantling for the discharge pipes, the backfilling work and the removal work for the sheathing wall (consists of the steel sheet piles, the steel members, etc.) at the excavation area shall be executed in accordance with the provisions of Clause 7.4 and 7.5.

(2) The dismantling work of the existing discharge pipes for "BX" station

The procedure items i) and ii) for the execution are all the same as those of "A" station.

iii) After the completion of the excavation work, the closing work of the existing discharge pipes shall be executed at the appropriate place, for example, the existing terminal pit under the Dockyard Road, in order to shut off the seawater from outlet, and after that, the

dewatering work for the internal water of the existing discharge pipes, which are located from the terminal pit to "BX" station, shall be executed before the commencement of the dismantling work.

iv) After the completion of the dewatering work, the dismantling work of the existing discharge pipes shall be executed at the inside of Plant, then the Contractor shall set up the temporary cut-off wall for the discharge pipes under the boundary line of Plant for the dismantling work of the discharge pipes (at the outside of Plant) due to the Lot I Contractor.

v) After the setting work of the cut-off wall for the existing discharge pipes, the backfilling work and the removal work for the sheathing wall (consists of the steel sheet piles, the steel members, etc.) at the excavation area shall be executed in accordance with the provisions of Clause 7.4 and 7.5.

9.7 DISMANTLING OF THE COMBUSTIBLE BURIED STRUCTURES (GAS PIPES, FUEL OIL PIPES, etc.)

Before the commencement of the dismantling work of the combustible brueid structures, the Contractor shall submit the actual working plan and schedule table to the Engineer for approval. The Contractor shall, if necessary, refer the work to the experts, however, the Contractor shall take full responsibility for this dismantling work, and shall not use welder and other instruments with fire at the vicinity of the combustible buried structures.

The Contractor shall carry out dismantling work of the above pipes in accordance with the provisions of clause 1.4 and 1.6 of "TECHNICAL SPECIFICATION FOR MECHANICAL AND ELECTRICAL PART".

SECTION VIII

DRAWINGS

FOR

TENDERING

The attached drawings were made by the KULJIAN CO. at the time of construction of the existing "B" and "BX" Station.

These drawings should be used as reference data for the dismantling works to be carried out by the Contractor of Lot III.

(1) Owner's drawings

Interface Between Existing and Planned site layout

(2) Reference drawings

a. Layout and Diagram

General Layout of "A, B & BX" STNS.

Karachi B P. St Rohrschema Pipework Diagram ("B" St.)

Single Line Flow Diagram Steam, Condensate, Turbine Oil, Air, Chem. Feed & Water ("BX" St.)

Combined Fuel Oil, Natural Gas and Steam Feeding System for "A, B & BX" Stations.

b. For "B" Station

Integral-Furnace-Boiler (Sht-1)

Integral-Furnace-Boiler (Sht-2)

Lubricating Oil System

Steelwork for Turbine House Plan at Tie Level of Turbine House

Steelwork for Turbine House Side Elevations (Sheet No.1)

c. For "BX" Station

Cross Section, Key Plan & Plo Plan

Machine Location Plan (Sheet 1 of 2)

Machine Location Plan (Sheet 2 of 2)

Main Steam, Extraction Steam, Auxiliary Steam and Vent Piping Plans and Sections

O.P. Suct. & Disch, Condensate, Cond. Air Piping Plans, Sections & Elevation

Circulating Water Piping Plans and Sections

Instrument Panels

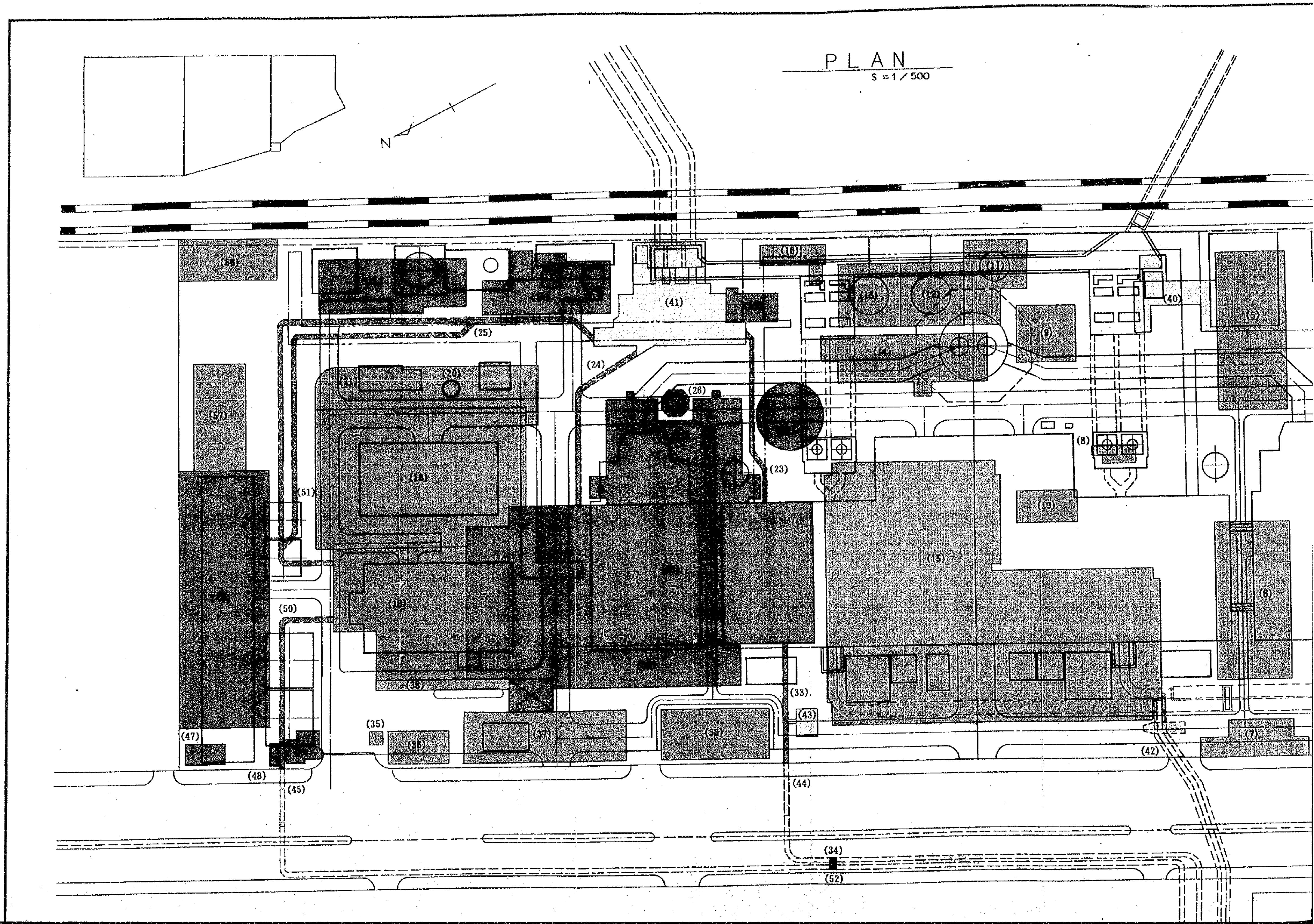
Giat Elevations and Bracing

Structural Cross Sections

Single Line Diagram

Conduit Plan Ground and Mezzanine Floors

Electrical Control Board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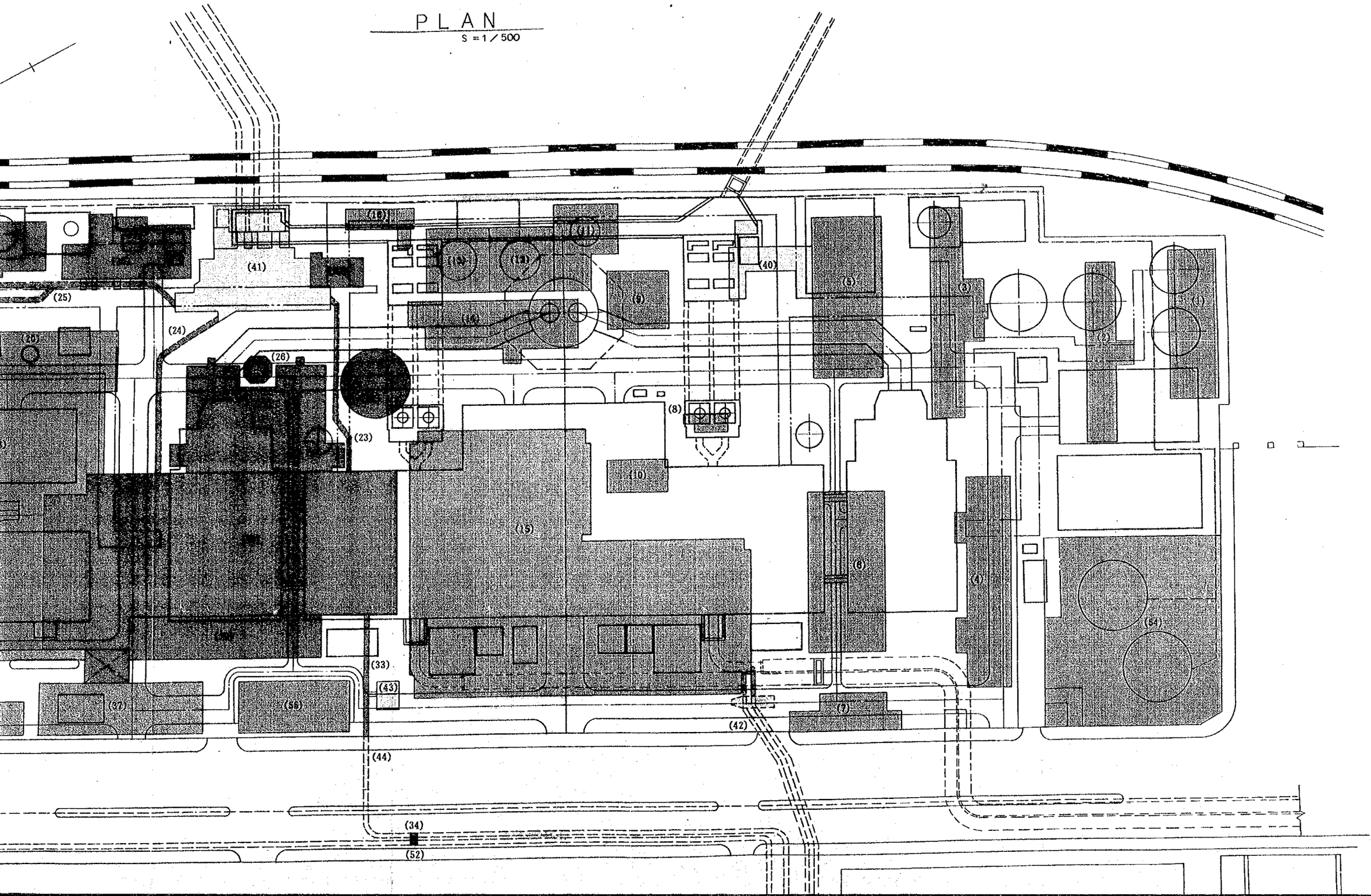
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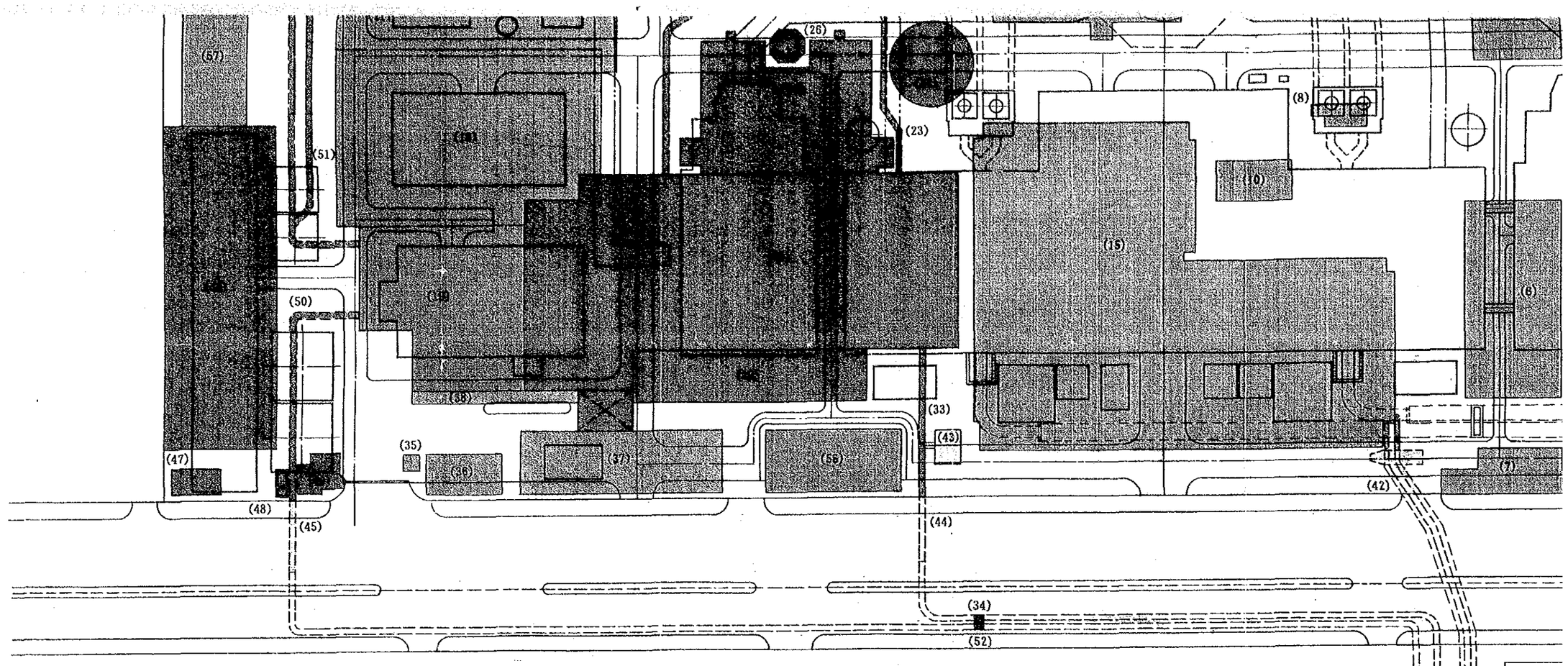


No. Name of facility and structure

1. Dismantling work inside Unit 1 construction area
   - (1) Staff Quaters No.1
   - (2) Staff Quaters No.2
   - (3) Officer's Flats
   - (4) Shift Engineer's Flat
   - (5) Store Shed No.1
   - (6) Store Shed No.2
   - (7) Canteen
   - (8) Underground Tank
   - (9) Ground Reservoir
   - (10) Wall
   - (11) Oil Tank No.1
   - (12) Oil Tank No.2
   - (13) Oil Tank No.3
   - (14) Instrument and Control Room
   - (15) A Station (Boiler and Turbine Room)
   - (16) Sanitary Block and Sewage Pump room
   - (17) Also, roads, trees, drainage facilities, cables and etc. inside of Unit 1 area

2. Dismantling work inside of Unit 2 construction area

   Category B Station
   - (18) Boiler Room B Station Superstructure(Above ground floor level)
   - (19) Turbine Room B Station including Transformer Bay(Above ground floor level)
   - (20) Stack B Station(Above ground floor level)
   - (21) Misc. Foundations and Wall(Above ground floor level)

   Category BX Station
   - (22) Switch Room
   - (23) Intake Water Pipe for BX Station No.1
   - (24) Intake Water Pipe for BX Station No.2
   - (25) Intake Water Pipe for B Station
   - (26) Stack BX Station(Above ground floor level)
   - (27) Boiler structures BX Station(Above ground floor level)
   - (28) Turbine Room BX Station(Above ground floor level)
   - (29) Transformer foundations for BX Station (Above ground floor level)
   - (30) Electric Shop, Raw Water Service Pump etc.
   - (31) Machine Shop and Store
   - (32) C.W.Tank
   - (33) Discharge Water Pipe for BX Station
   - (34) Closing work of C.W.Discharge Line for BX Station at Terminal Chamber

   Category Administration Building
   - (35) Guard house
   - (36) Car Parking
   - (37) Administration Building
   - (38) Cable Trench
   - (39) Also, roads,trees, drainage facilities, cables and etc. inside of Unit 2 area

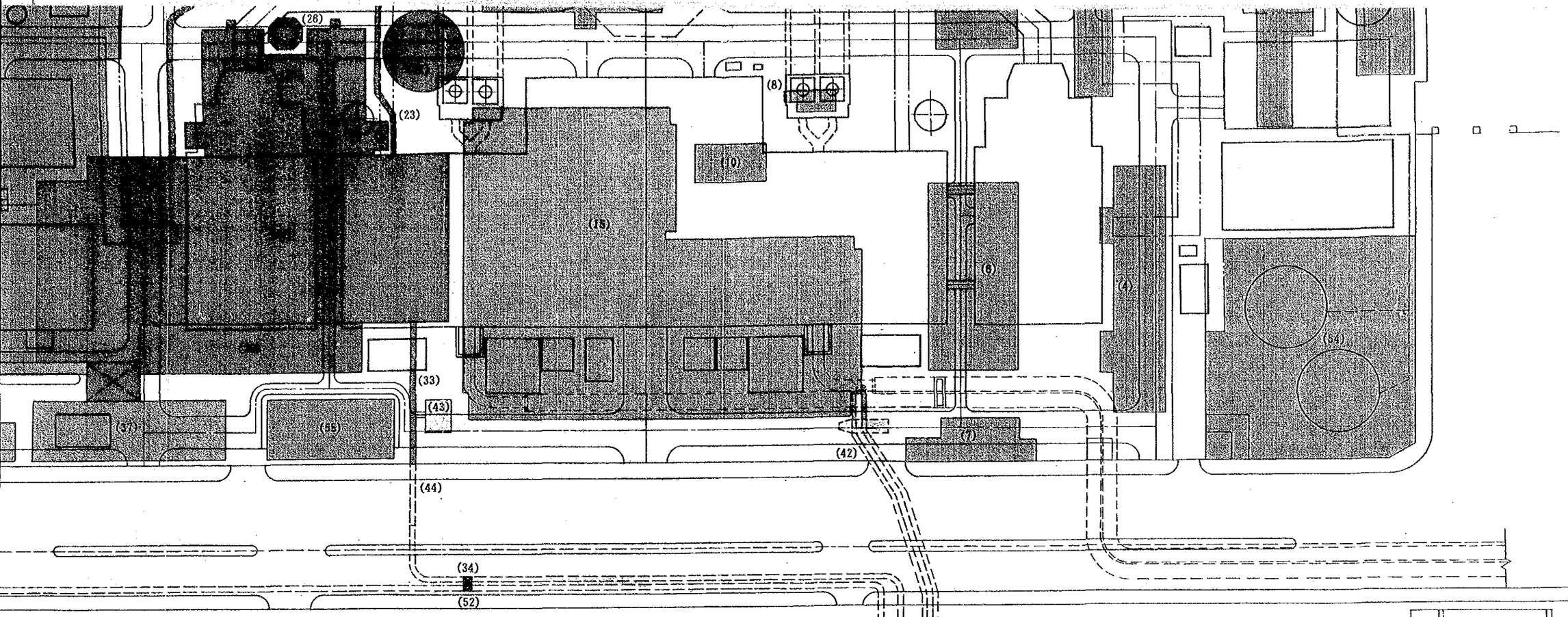
3. Dismantling works to be carried out by Lot-I Contractor
   - (18) Boiler Room B Station Substructure(Below ground floor level)
   - (19) Turbine Room B Station Substucture including Transformer Bay(Below ground floor level)
   - (20) Stack B Station Substructure(Below ground floor level)
   - (21) Misc. Foundations and Wall(Below ground floor level)
   - (26) Stack BX Station Substructure(Below ground floor level)
   - (27) Boiler structures BX Station Substructure (Below ground floor level)
   - (28) Turbine Room BX Station Substructure (Below ground floor level)
   - (29) Transformer foundations for BX Station (Below ground floor level)
   - (40) C.W.Pump House for A Station
   - (41) C.W.Pump House and Screen for B, BX Stations
   - (42) Discharge Sump for A Station
   - (43) Sewer Sump and Pumping Station
   - (44) C.W.Discharge Pipe for BX Station (partial)
   - (45) C.W.Discharge Pipe for B Station (partial)

4. Dismantling works to be carried out by Lot-II A Contractor
   - (46) 66kV Switchyard (outdoor)
   - (47) Pressure Tank
   - (48) City Water receiving Pit
   - (49) Dispensary
   - (50) Discharge Water Pipe for B Station (partial)
   - (51) Intake Water Pipe for B Station (partial)
   - (52) Closing work of C.W.Discharge Line for B Station at Terminal Chamber
   - (53) Also, roads,trees, drainage facilities, cables and etc. inside of Substation area and Transformer yard area

5. Structures not to be dismantled at this Project
   - (54) Fuel Oil Storage Tanks
   - (55) 11kV Switchgear Building
   - (56) Sui Gas Compound
   - (57) 66kV Switch Station Building

LEGEND :

Color	Structure No.	Area of Dismantle
	(1) - (17)	Category"A" & Flats
	(18) - (21)	Category"B"
	(18) - (21)	Category"B" Substructur
	(22) - (34)	Category"BX"
	(26) - (29)	Category"BX" Substructu
	(35) - (39)	Category Admi.
	(40) - (45)	
	(46) - (53)	Category Substation
	(54) - (57)	Not to be dismantled



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Water Pipe for BX Station
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be carried out by Lot-I Contractor
B Station Substructure(Below ground
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Bay(Below ground floor level)
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lations and Wall(Below ground floor

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uctures BX Station Substructure
und floor level)

(28) Turbine Room BX Station Substructure (Below ground floor level)
(29) Transformer foundations for BX Station (Below ground floor level)
(40) C.W.Pump House for A Station
(41) C.W.Pump House and Screen for B, BX Stations
(42) Discharge Sump for A Station
(43) Sewer Sump and Pumping Station
(44) C.W.Discharge Pipe for BX Station (partial)
(45) C.W.Discharge Pipe for B Station (partial)

4. Dismantling works to be carried out by Lot-II A Contractor
(46) 66kV Switchyard (outdoor)
(47) Pressure Tank
(48) City Water receiving Pit
(49) Dispensary
(50) Discharge Water Pipe for B Station (partial)
(51) Intake Water Pipe for B Station (partial)
(52) Closing work of C.W.Discharge Line for B Station at Terminal Chamber
(53) Also, roads,trees, drainage facilities, cables and etc. inside of Substation area and Transformer yard area

5. Structures not to be dismantled at this Project
(54) Fuel Oil Storage Tanks
(55) 11kV Switchgear Building
(56) Sui Gas Compound
(57) 66kV Switch Station Building

LEGEND :

Color	Structure No.	Area of Dismantle	Contractors
	(1) - (17)	Category"A" & Flats	Lot-III
	(18) - (21)	Category"B"	Lot-III
	(18) - (21)	Category"B" Substructure	Lot- I
	(22) - (34)	Category"BX"	Lot-III
	(26) - (29)	Category"BX" Substructure	Lot- I
	(35) - (39)	Category Admi.	Lot-III
	(40) - (45)		Lot- I
	(46) - (53)	Category Substation	Lot-II A
	(54) - (57)	Not to be dismantled	

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

INTERFACE BETWEEN EXISTING AND PLANNED SITE LAYOUT

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY

DRAWING NO.	SCALE	DATE
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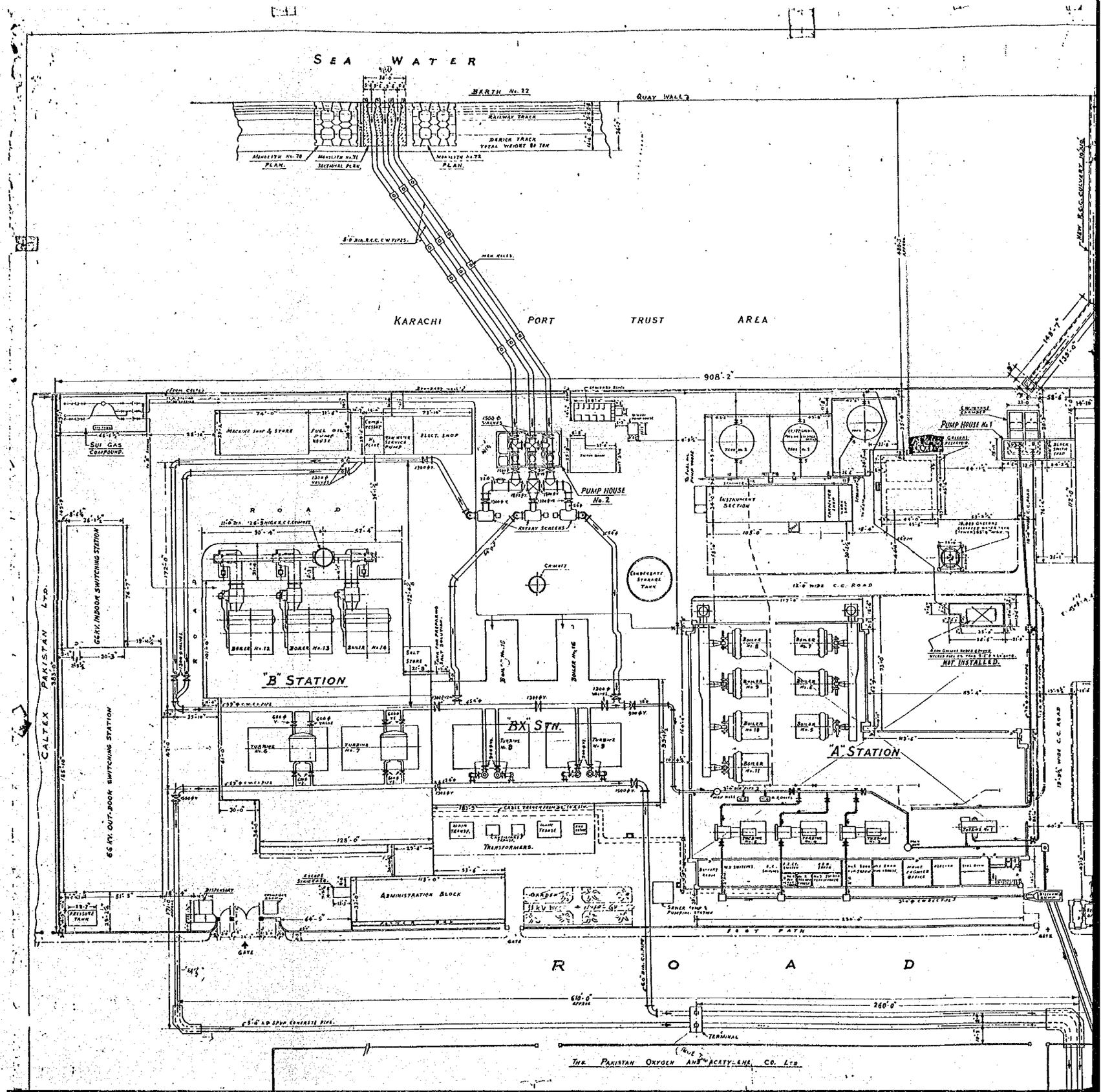
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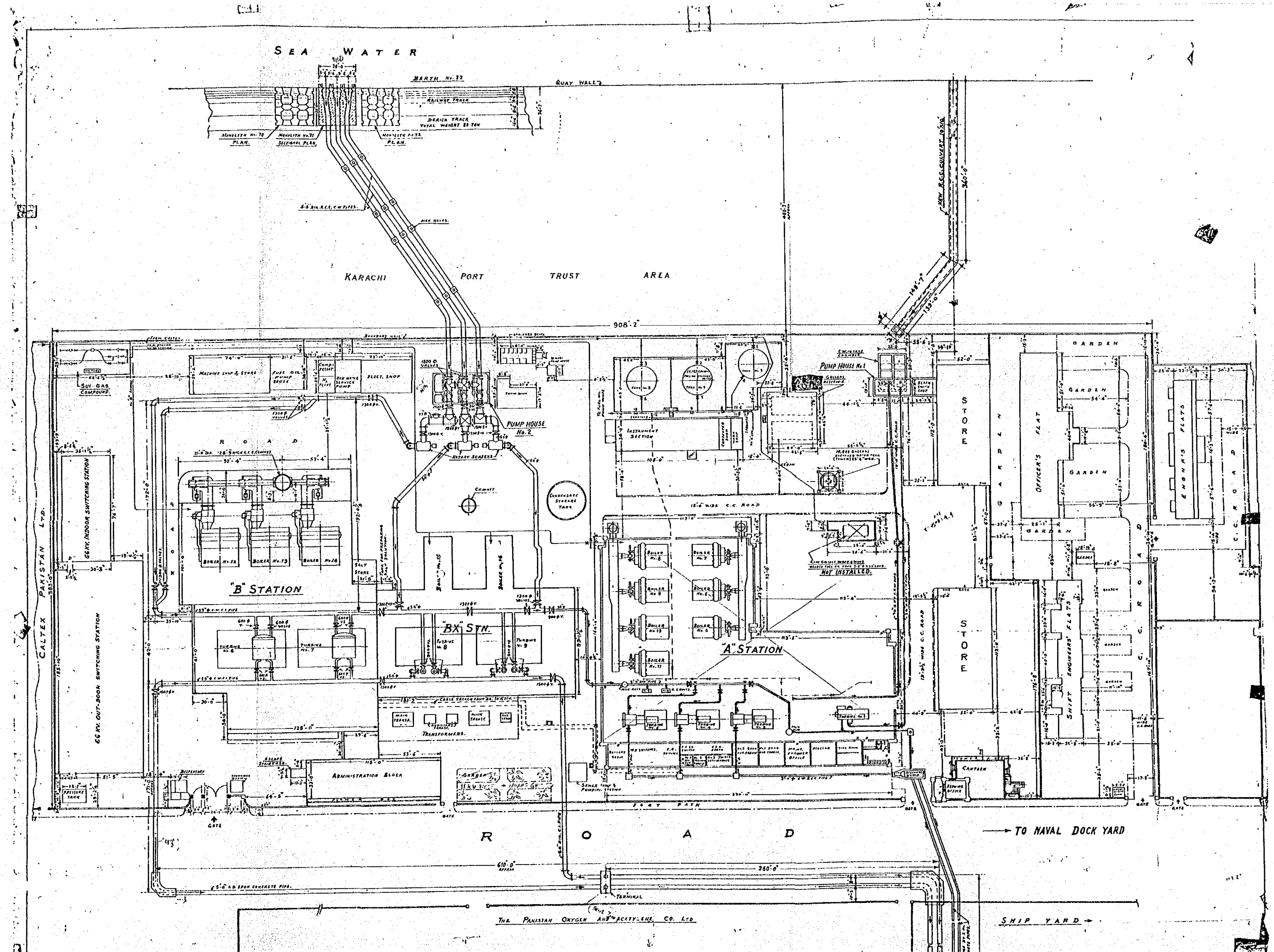
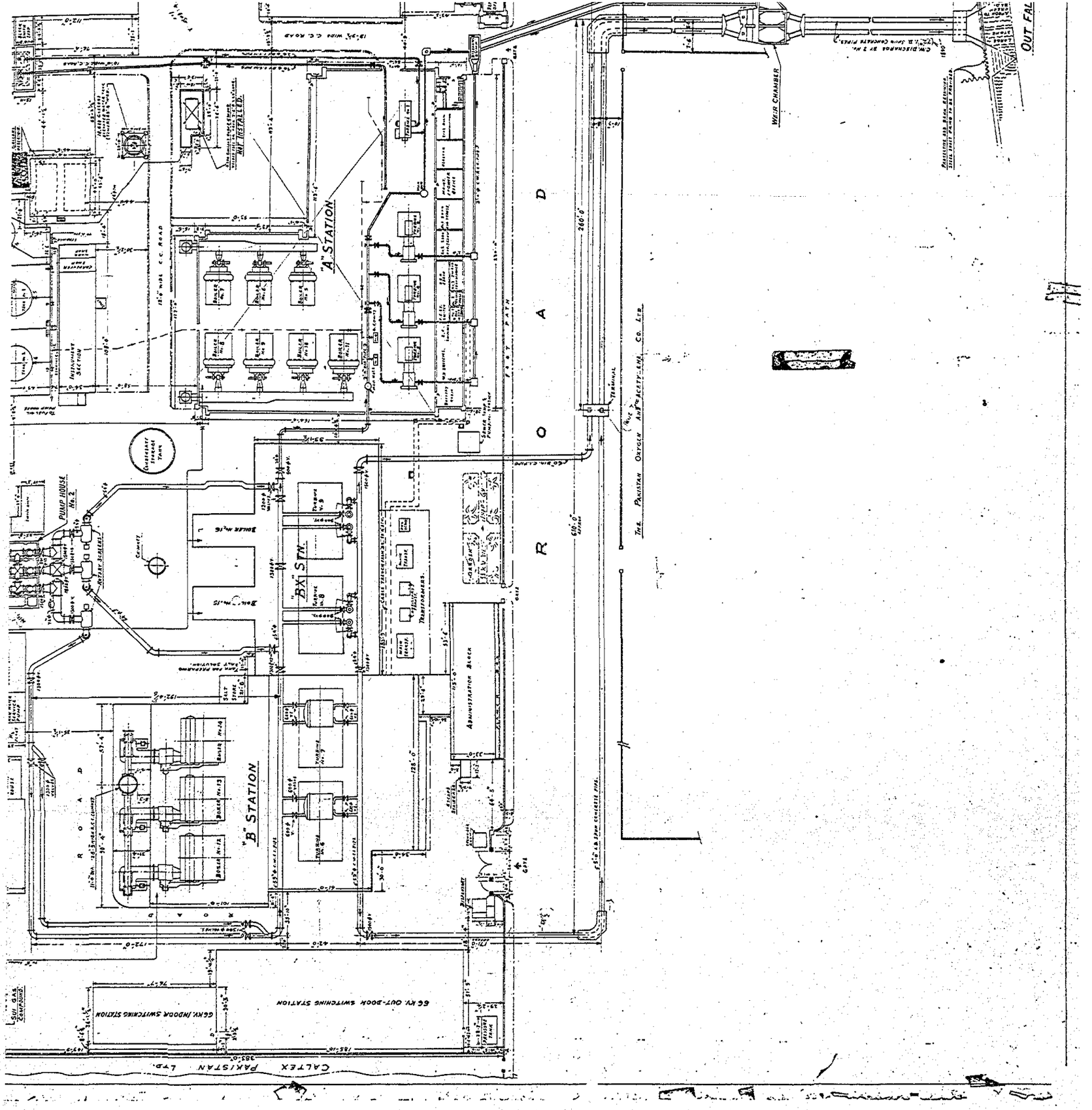
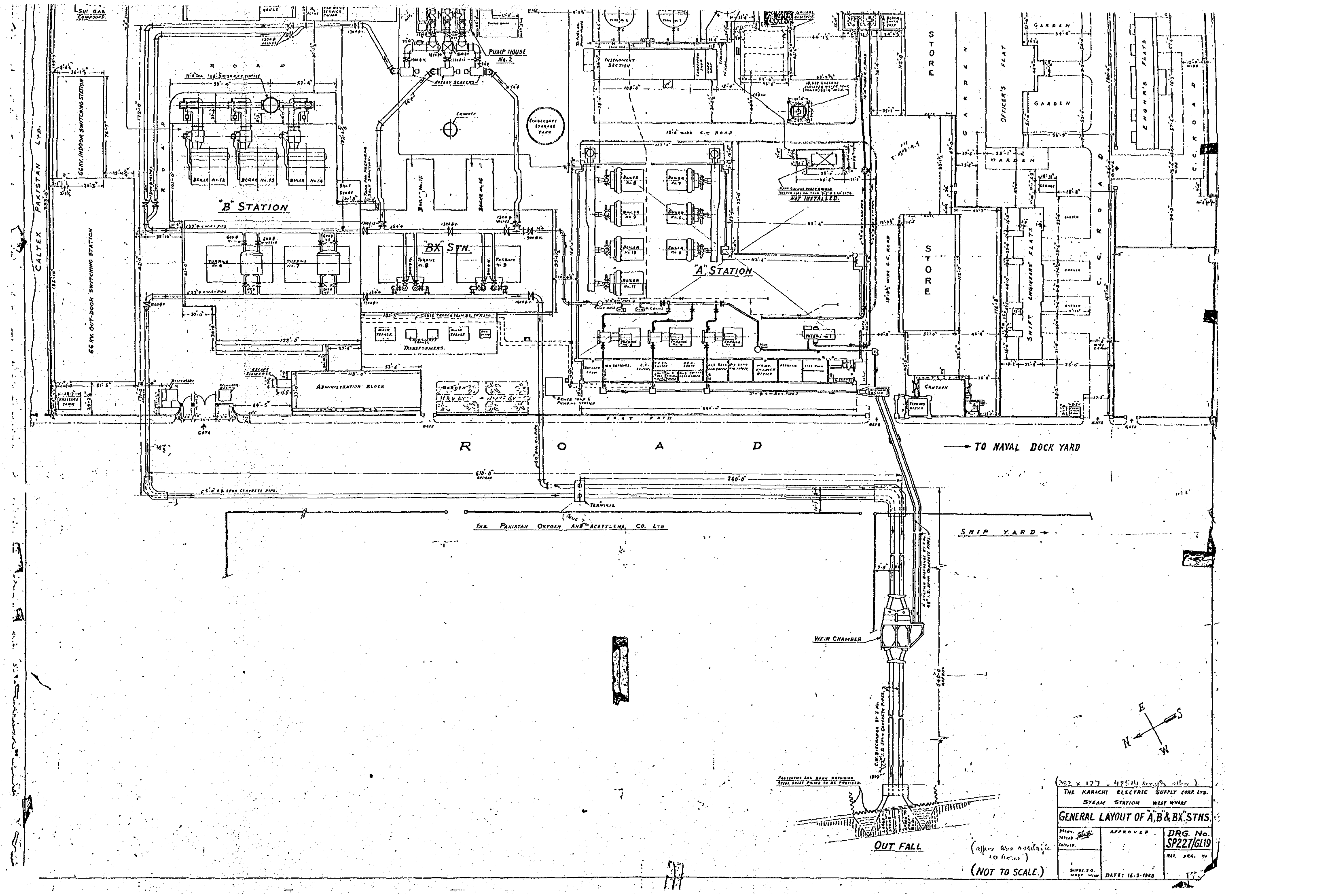
BERTH No. 32
QUAY WALL
RAILWAY TRACK
DERICK TRACK
TOTAL WEIGHT 88 TON
MONOLITH No. 70
PLAN.
MONOLITH No. 71
SECTIONAL PLAN.
MONOLITH No. 72
PLAN.
5'-0" DIA. R.C.C. C.W. PIPES.
MAN HOLES.
KARACHI PORT TRUST AREA
908'-2"
SUI GAS COMPOUND.
MACHINE SHOP & STORE
FUEL OIL PUMP HOUSE
ELECT. SHOP
1500 A VALVES
PUMP HOUSE No. 2
INTAKE SCREENS
CRANES
CONDENSATE STORAGE TANK
PUMP HOUSE No. 1
INSTRUMENT SECTION
12'-6" WIDE C.C. ROAD
66 KV. INDOOR SWITCHING STATION
66 KV. OUT-DOOR SWITCHING STATION
CALTEX PAKISTAN LTD.
"B" STATION
BOILER No. 12
BOILER No. 13
BOILER No. 14
SALT STORE
TURBINE No. 6
TURBINE No. 7
"BX" STN.
TURBINE No. 8
TURBINE No. 9
BOILER No. 15
BOILER No. 16
TRANSFORMERS.
"A" STATION
BOILER No. 6
BOILER No. 7
BOILER No. 8
BOILER No. 9
BOILER No. 10
BOILER No. 11
NOT INSTALLED.
ADMINISTRATION BLOCK
DISPENSARY
PRESSURE TANK
GATE
R O A D
610'-0" APPROX.
260'-0"
TERMINAL
FOOT PATH
THE PAKISTAN OXYGEN AND ACETYLENE CO. LTD.


SEA WATER
BERTH No. 22
QUAY WALL
KARACHI PORT TRUST AREA
908'-2"
PUMP HOUSE No. 1
PUMP HOUSE No. 2
ROTARY SCREENS
CONDENSATE STORAGE TANK
INSTRUMENT SECTION
ROAD
"B" STATION
"BX" STN.
"A" STATION
NOT INSTALLED
STORE
GARDEN
OFFICER'S FLAT
ENGINEERS FLATS
SHIFT ENGINEERS' FLATS
CANTEEN
SUI GAS COMPOUND
GEKV INDOOR SWITCHING STATION
66 KV. OUT-DOOR SWITCHING STATION
CALTEX PAKISTAN LTD.
ADMINISTRATION BLOCK
TRANSFORMERS
MACHINE SHOP & STORE
ELECT. SHOP
SALT STORE
GATE
R O A D
TO NAVAL DOCK YARD
SHIP YARD
TERMINAL
THE PAKISTAN OXYGEN AND ACETYLENE CO. LTD


"A" STATION
"B" STATION
"B" STN.
PUMP HOUSE No. 2
ROAD
WEIR CHAMBER
OUT FALL
ADMINISTRATION BLOCK
TRANSFORMERS
66 KV. OUT-DOOR SWITCHING STATION
66 KV. INDOOR SWITCHING STATION
CALTEX PAKISTAN LTD.



SUI GAS COMPOUND
PUMP HOUSE No. 2
ROTARY SCREENS
CHIMNEY
CONDENSATE STORAGE TANK
INSTRUMENT SECTION
"B" STATION
BOILER No. 12
BOILER No. 13
BOILER No. 14
BOILER No. 15
BOILER No. 16
SALT STORE
"BX" STN.
TURBINE No. 6
TURBINE No. 7
TURBINE No. 8
TURBINE No. 9
"A" STATION
NOT INSTALLED
TRANSFORMERS
ADMINISTRATION BLOCK
DISPENSARY
GATE
FOOT PATH
12'-6" WIDE C.C. ROAD
STORE
GARDEN
OFFICER'S FLAT
ENGINR'S FLATS
SHIFT ENGINEERS' FLATS
C.C. ROAD
CANTEEN
CALTEX PAKISTAN LTD.
66 KV. INDOOR SWITCHING STATION
66 KV. OUT-DOOR SWITCHING STATION
PRESSURE TANK
SEWER TANK & PUMPING STATION
R O A D
TO NAVAL DOCK YARD
610'-0" APPROX
260'-0"
TERMINAL
THE PAKISTAN OXYGEN AND ACETYLENE CO. LTD
SHIP YARD
WEIR CHAMBER
OUT FALL
(NOT TO SCALE.)
E
S
N
W
THE KARACHI ELECTRIC SUPPLY CORP. LTD.
STEAM STATION WEST WHARF
GENERAL LAYOUT OF "A", "B" & "BX" STNS.
APPROVED
DRG. No. SP227/GL19
DATE: 16-2-1968