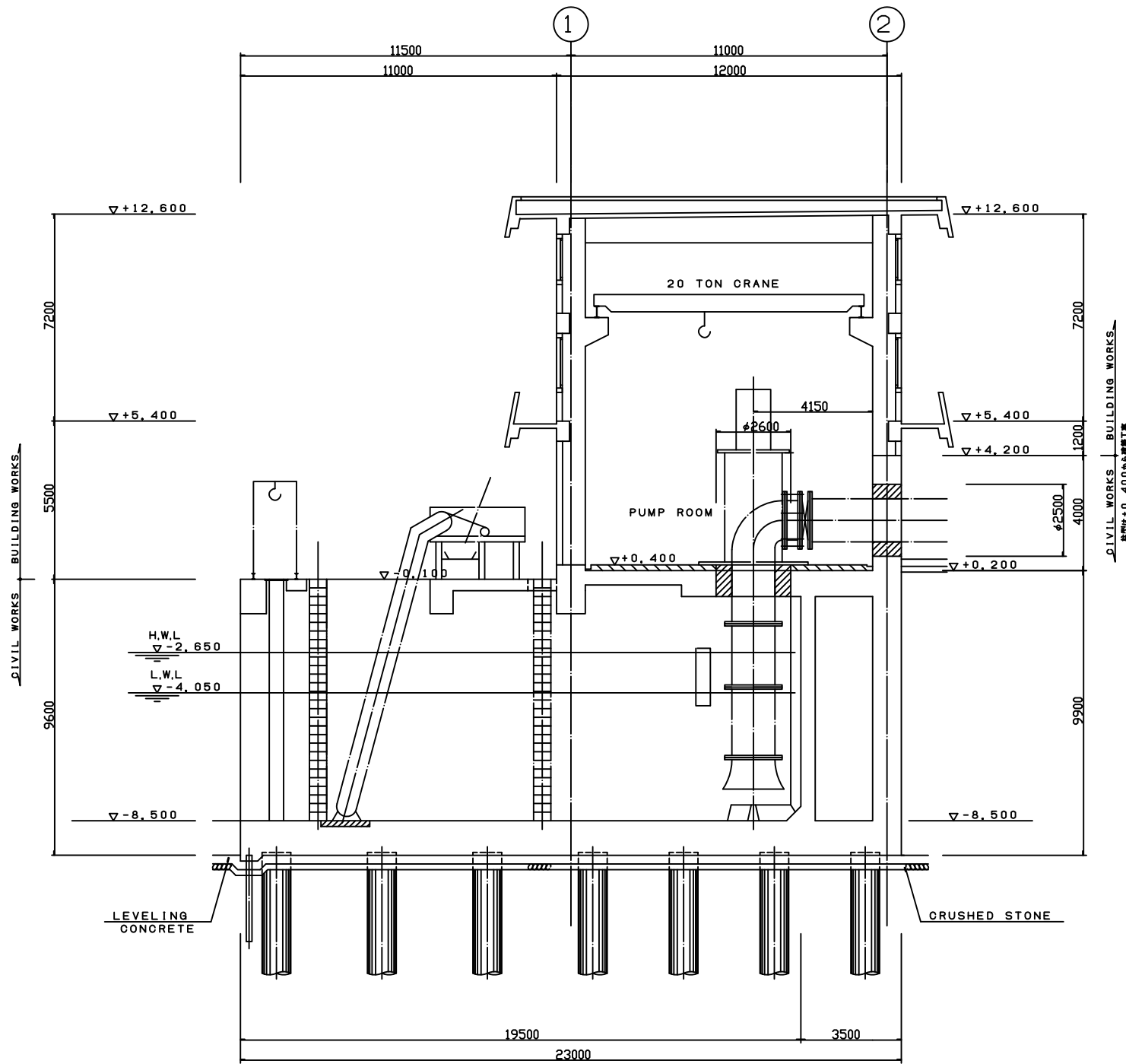


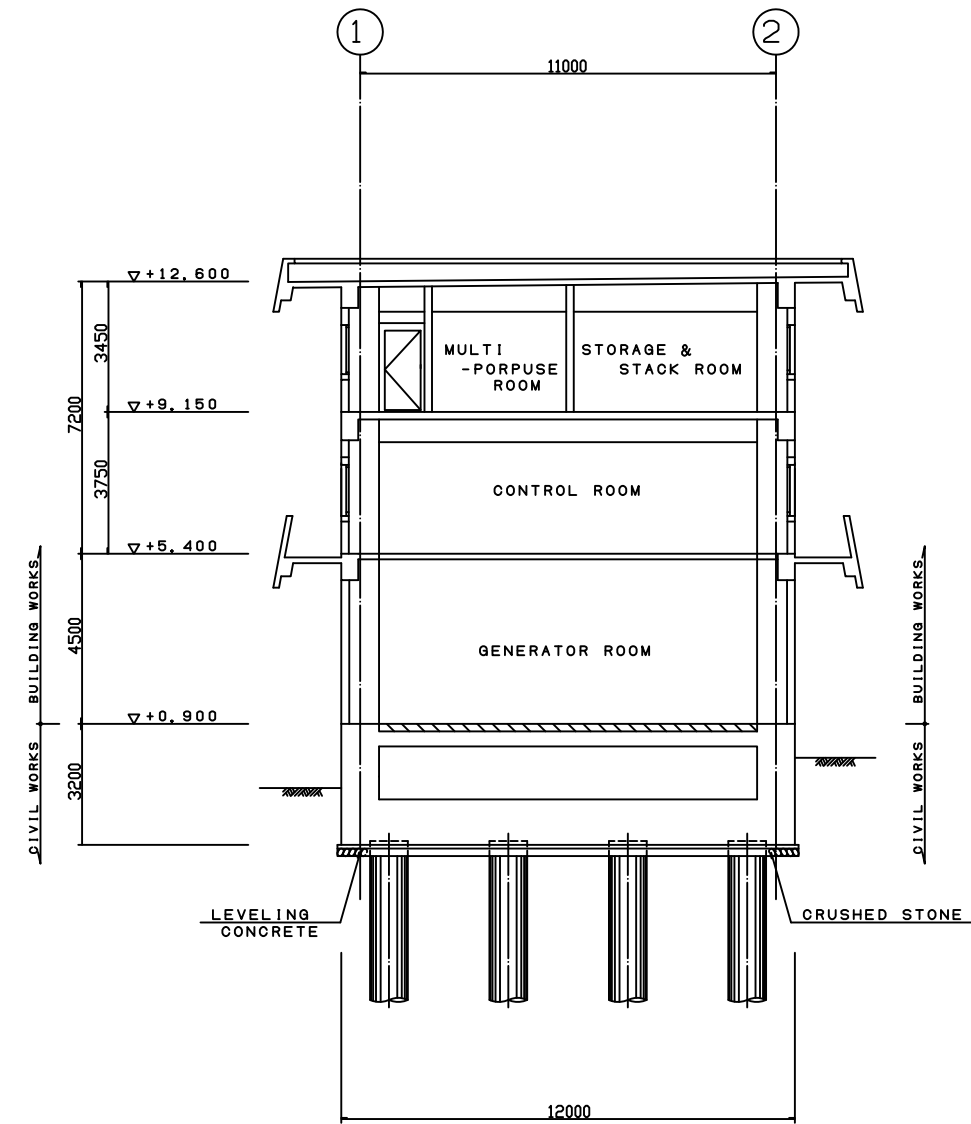
PUMP STATION STRUCTURAL DRAWING (3/4)

S=1/200

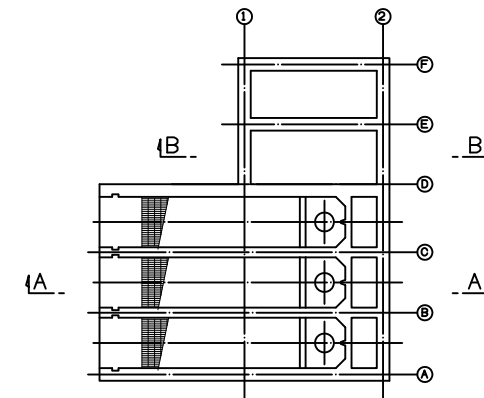
SECTION A - A



SECTION B - B



LOCATION

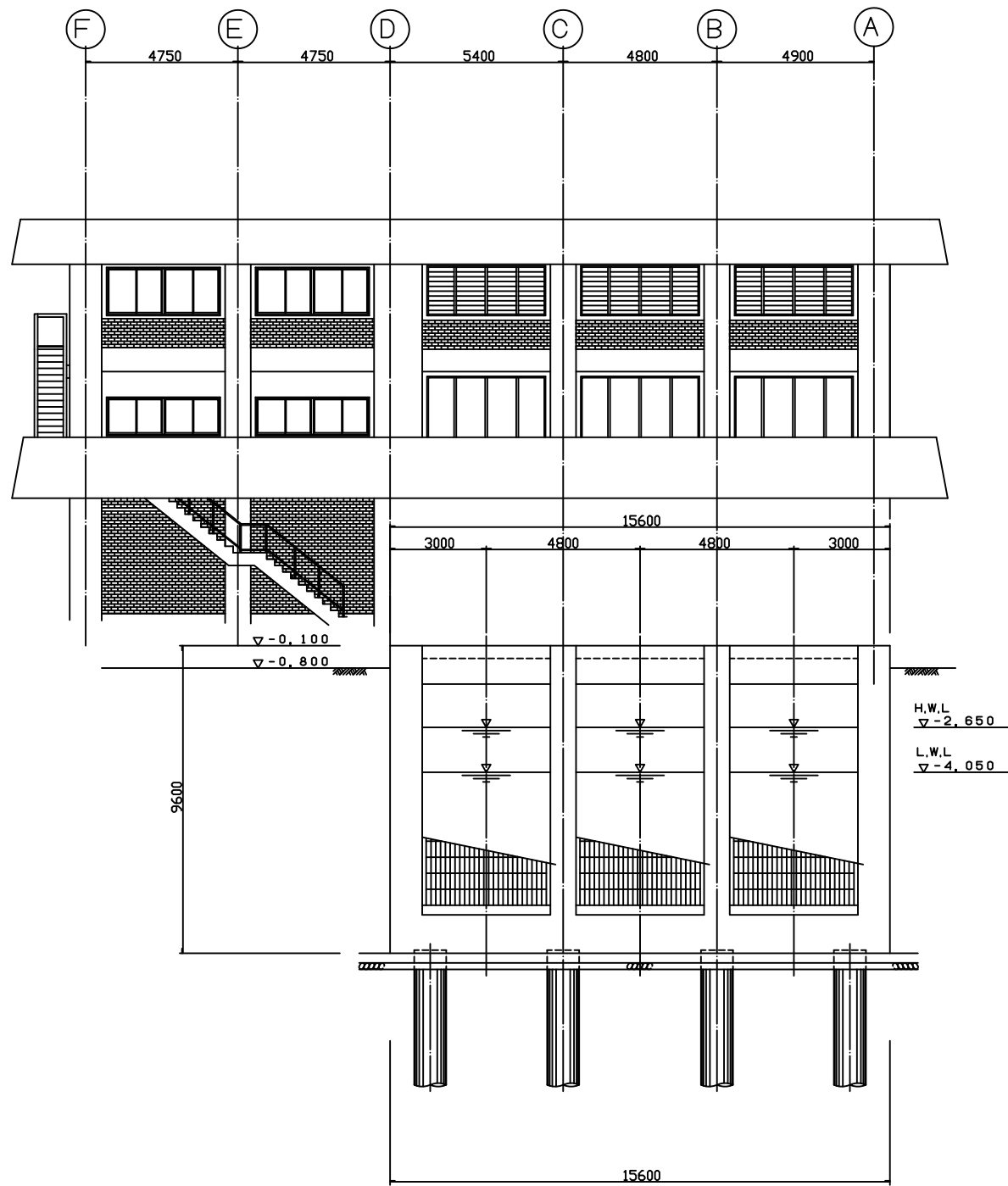


DRAWING No-7 PUMP STATION STRUCTURAL DRAWING (3/4)

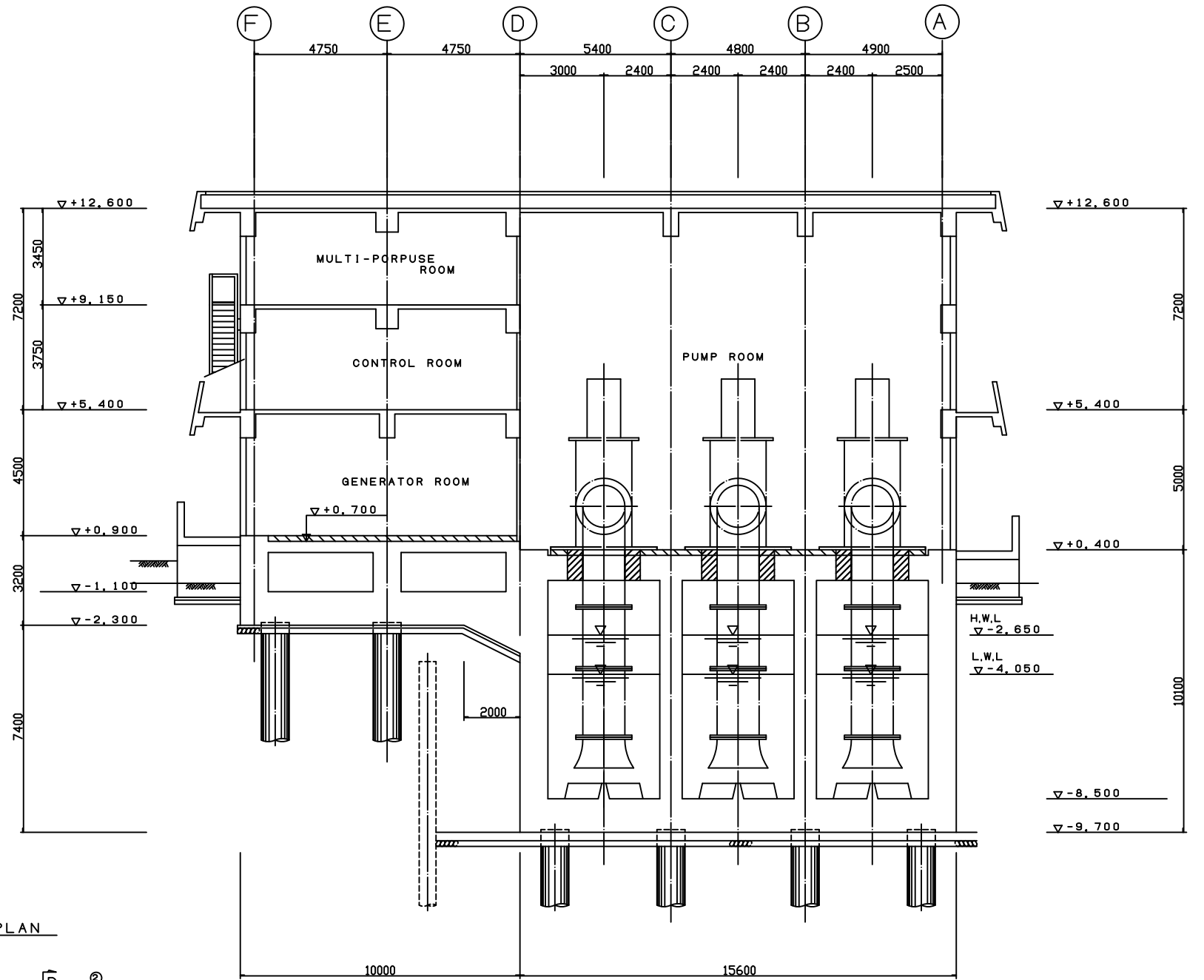
PUMP STATION STRUCTURAL DRAWING (4/4)

S=1/200

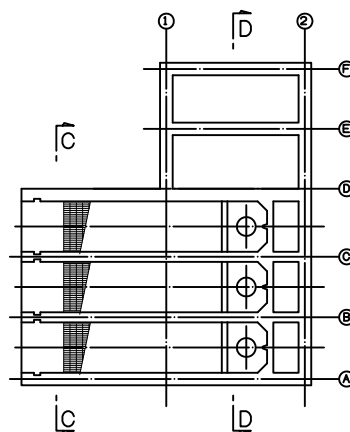
SECTION C - C



SECTION D - D



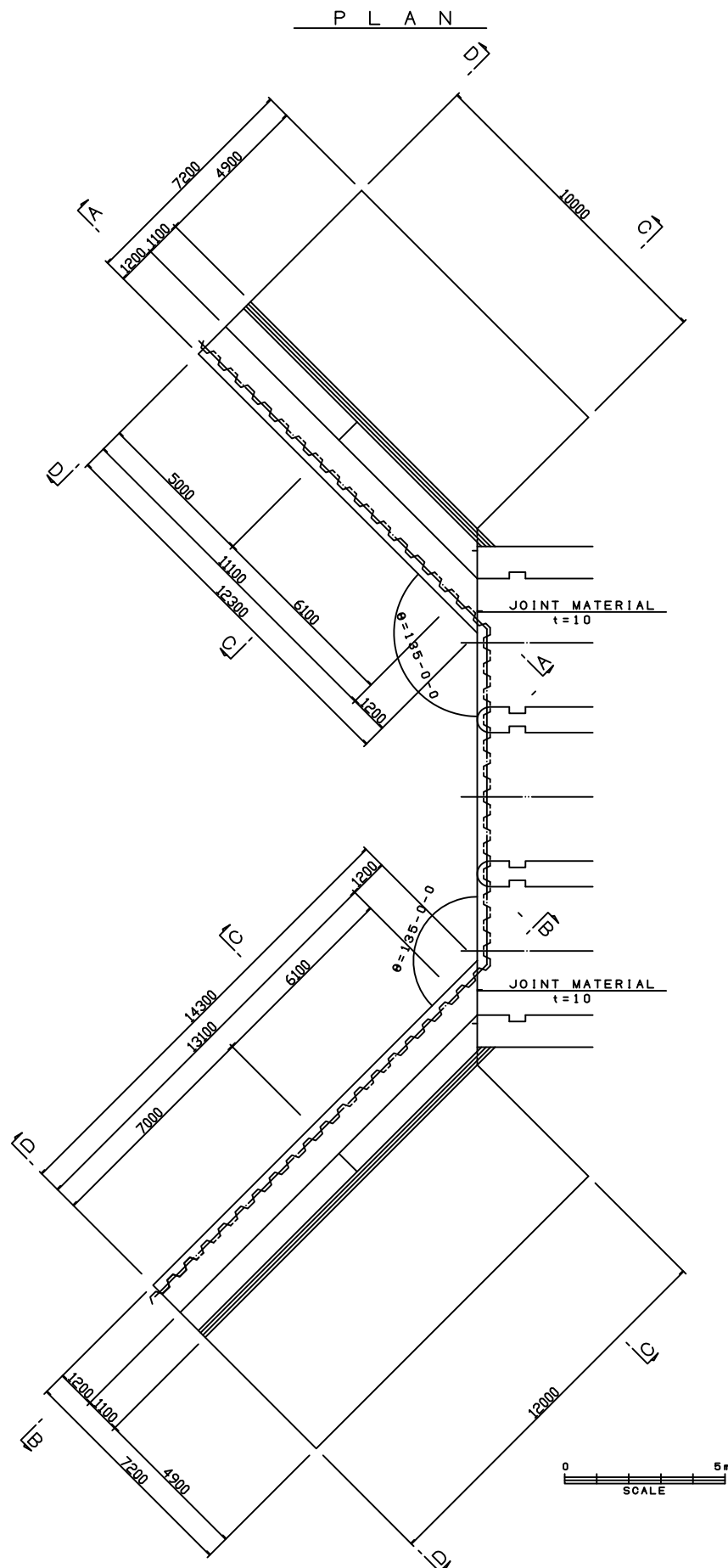
KEY PLAN



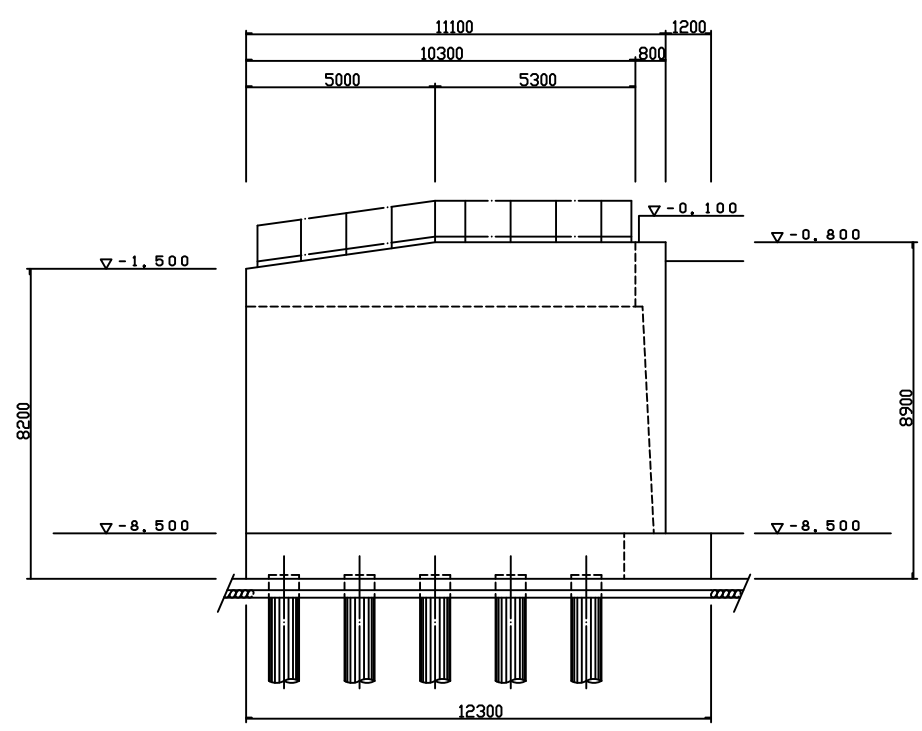
DRAWING No-8 PUMP STATION STRUCTURAL DRAWING (4/4)

WING WALL STRUCTURAL DRAWING

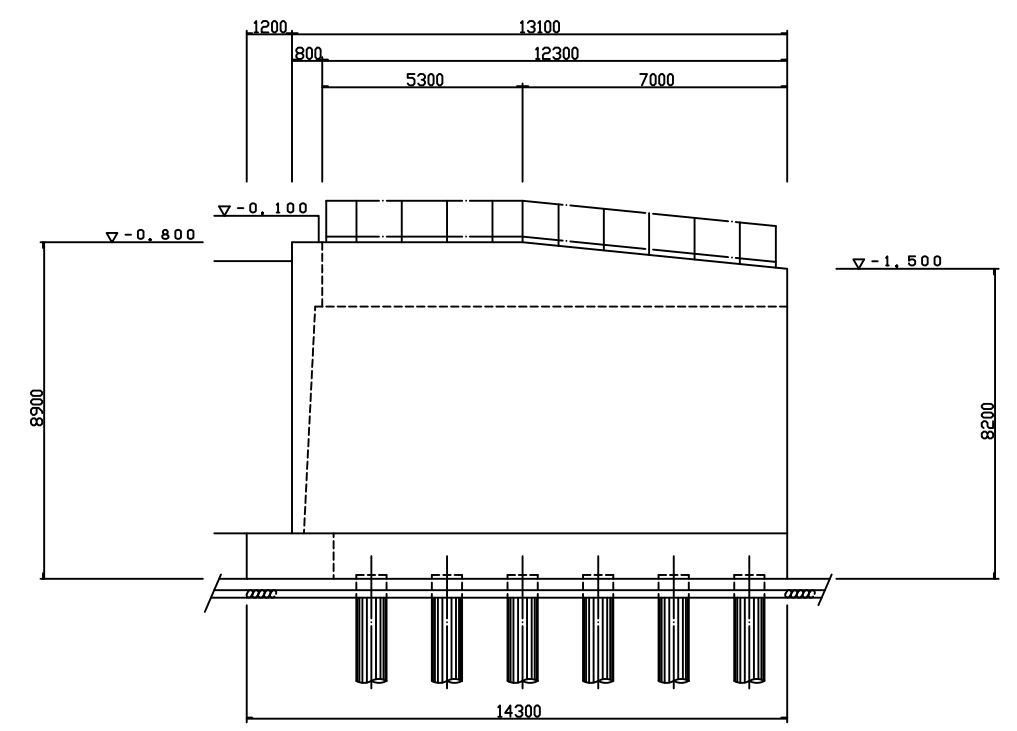
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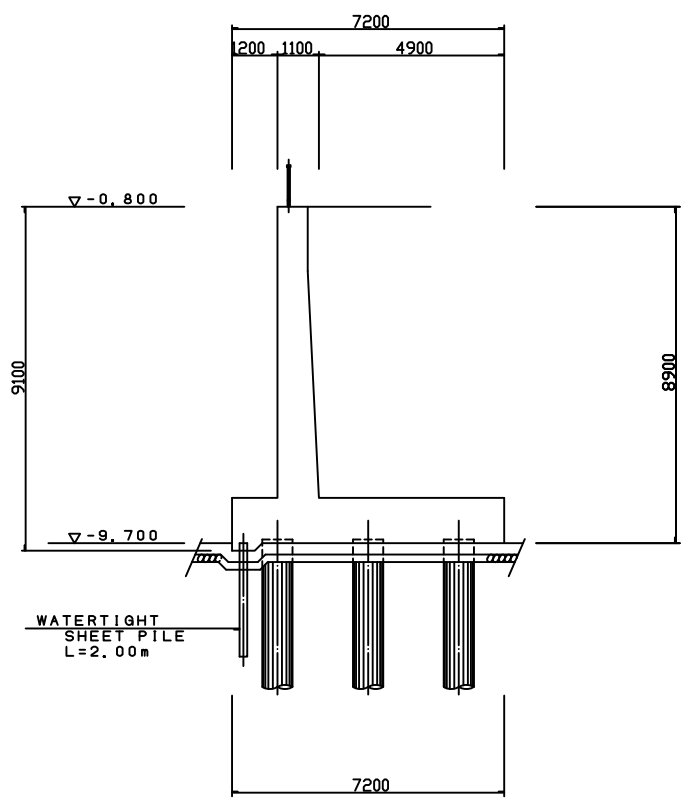
SECTION A - A



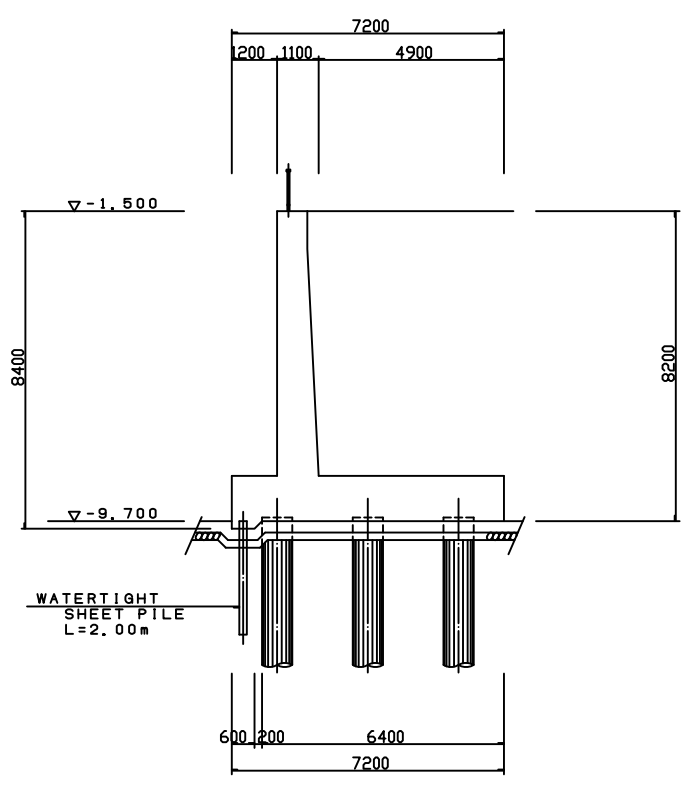
SECTION B - B



SECTION C - C



SECTION D - D

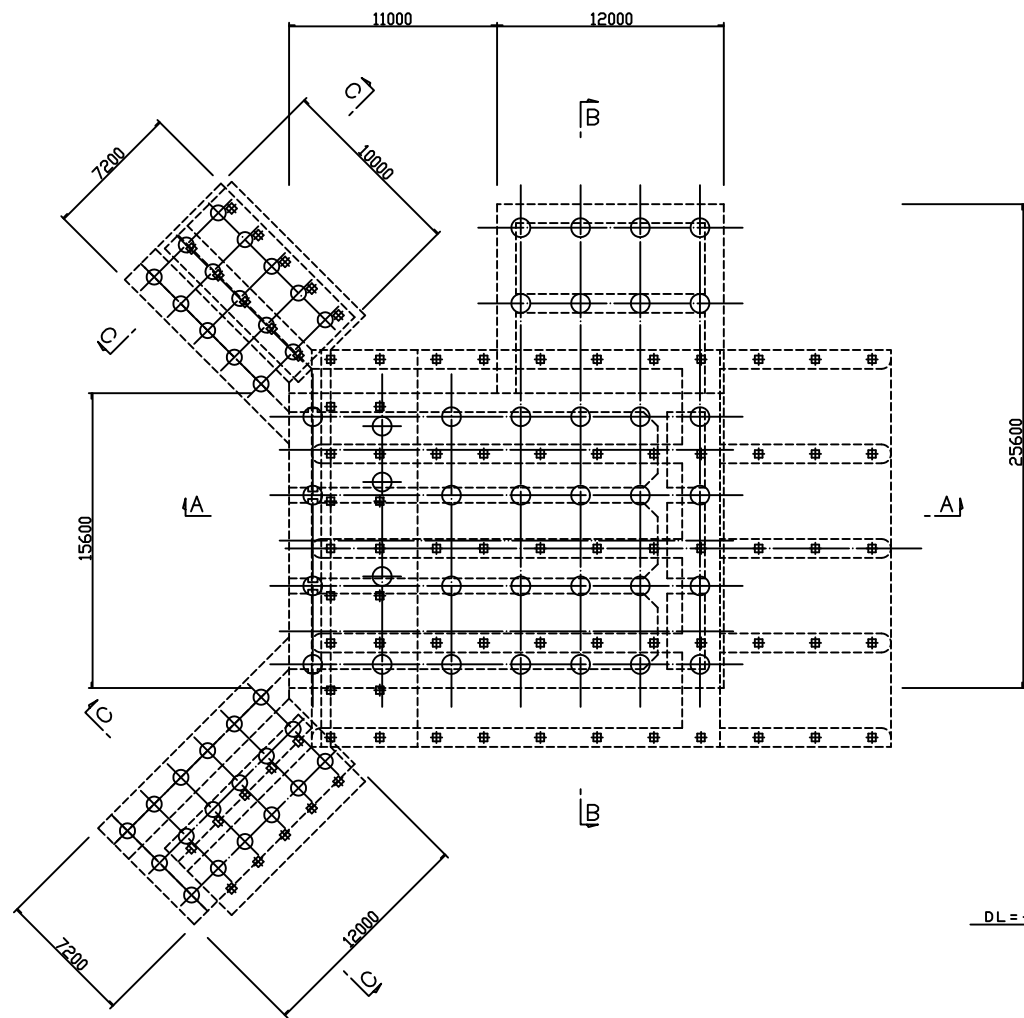


DRAWING No-9 WING WALL STRUCTURAL DRAWING

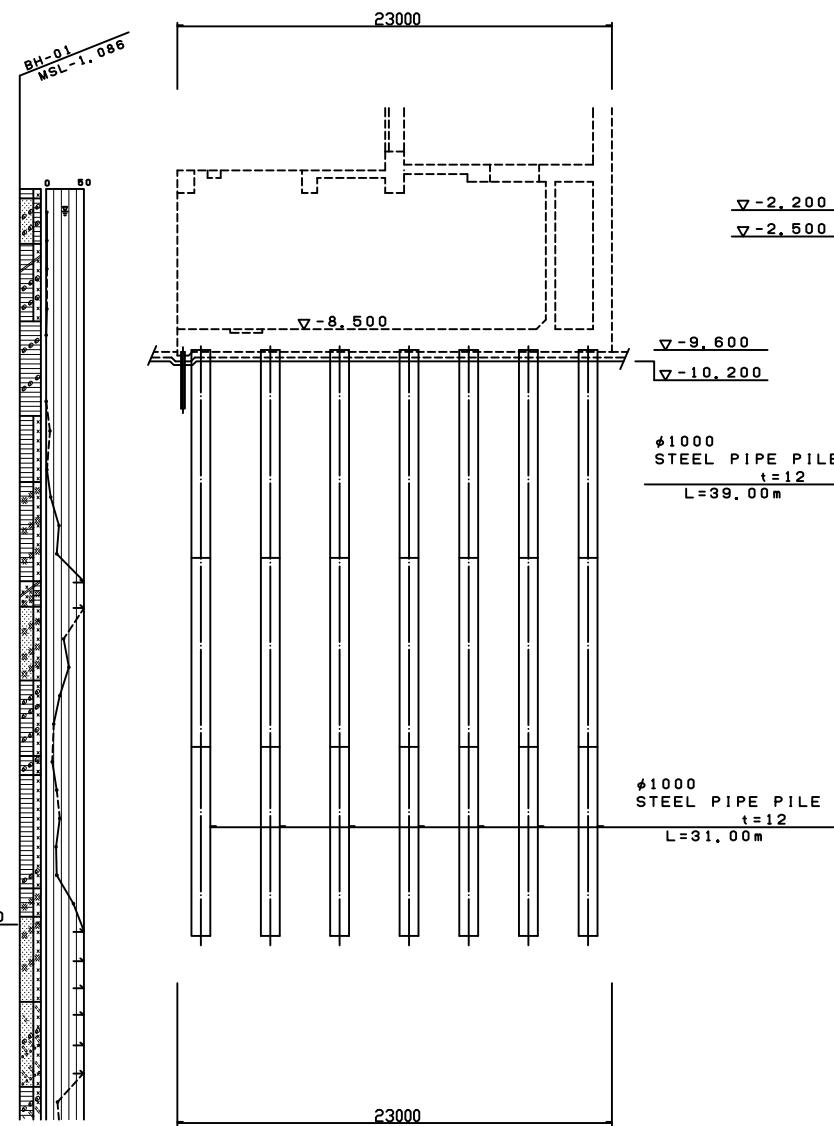
PILING ARRANGEMENT

S=1/400

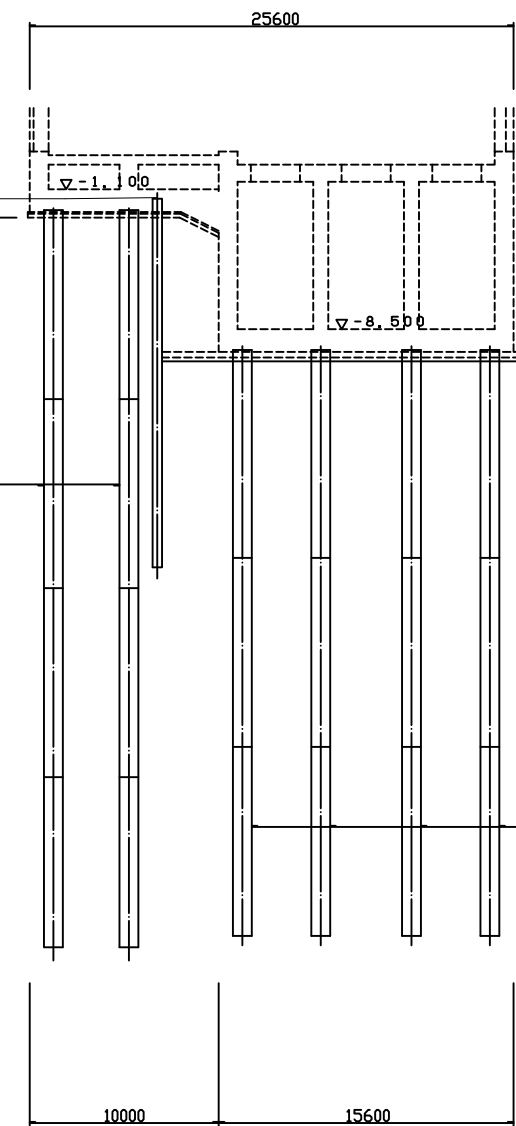
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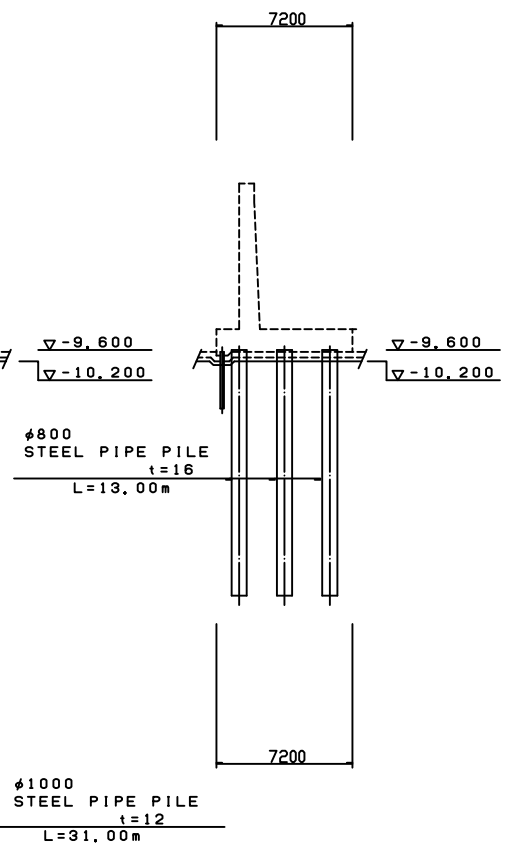
SECTION A - A



SECTION B - B



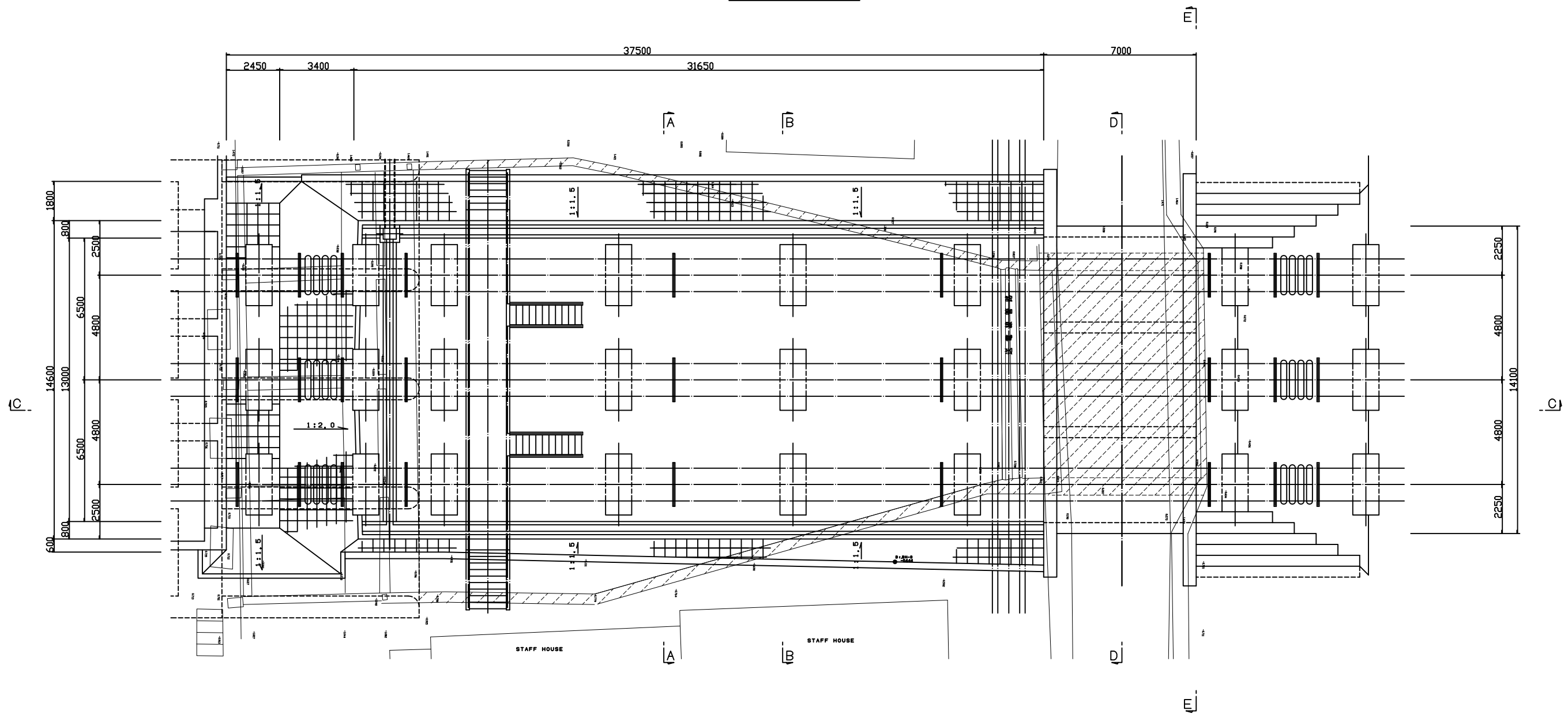
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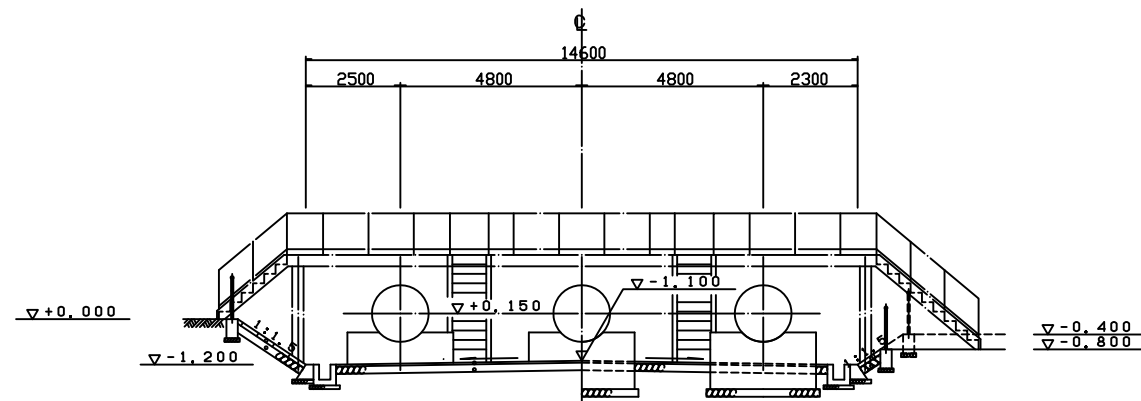
DISCHARGE PIPE PIT STRUCTURAL DRAWING (1/2)

S=1/200

P L A N



SECTION A - A SECTION B - B

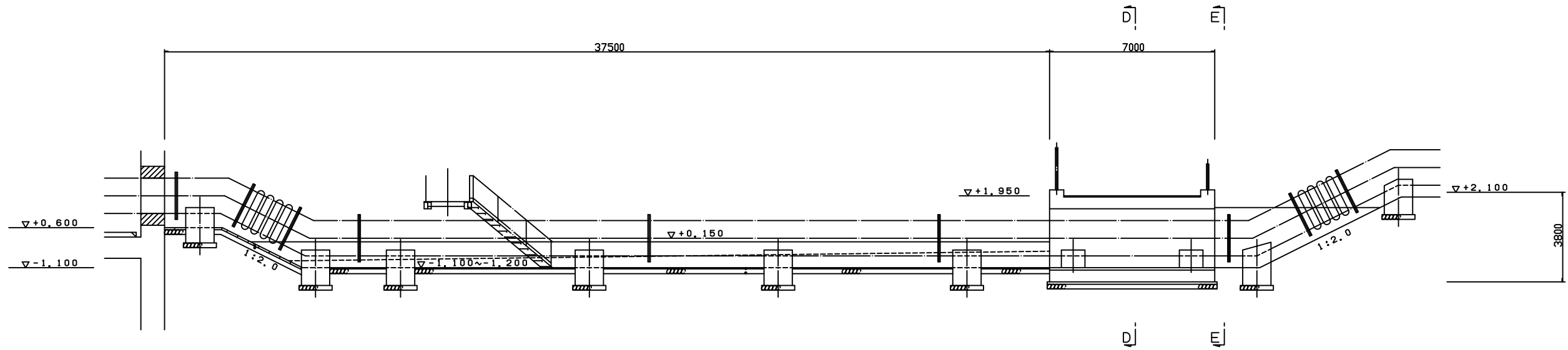


DRAWING No-11 DISCHARGE PIPE PIT STRUCTURAL DRAWING (1/2)

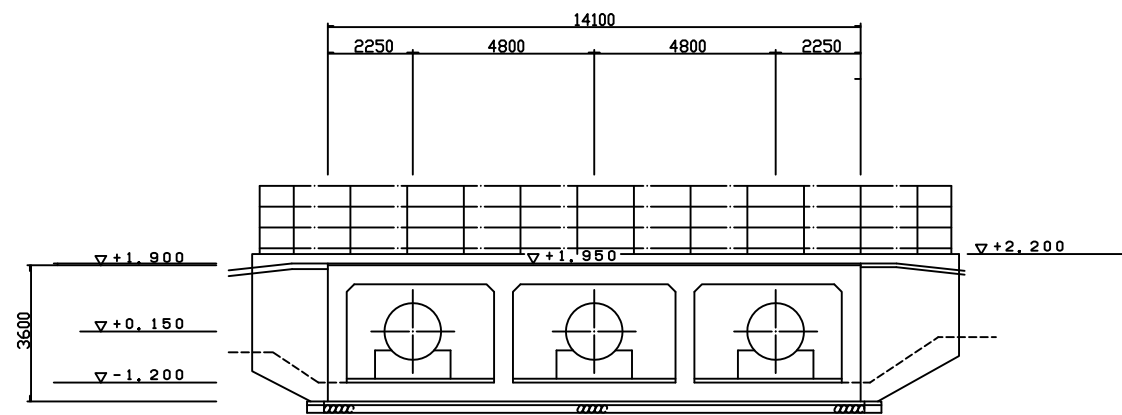
DISCHARGE PIPE PIT STRUCTURAL DRAWING (2/2)

S=1/200

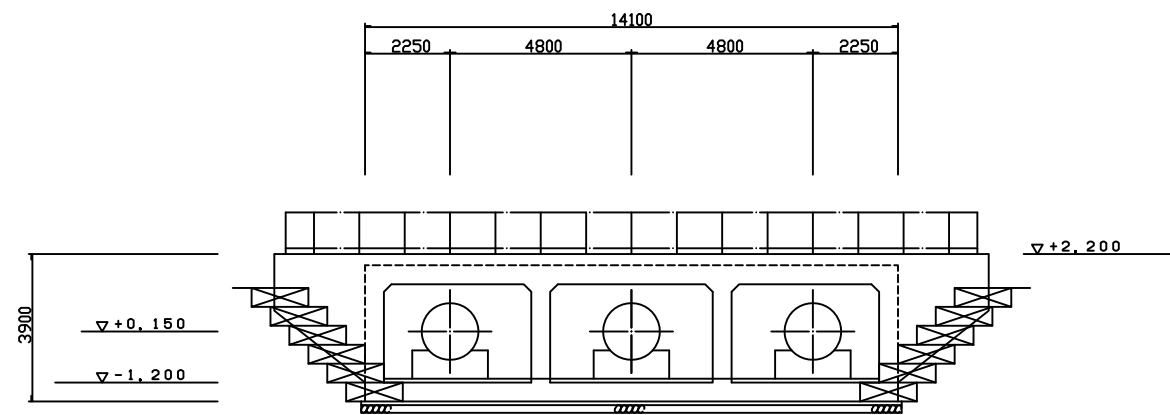
SECTION C - C



SECTION D - D



SECTION E - E

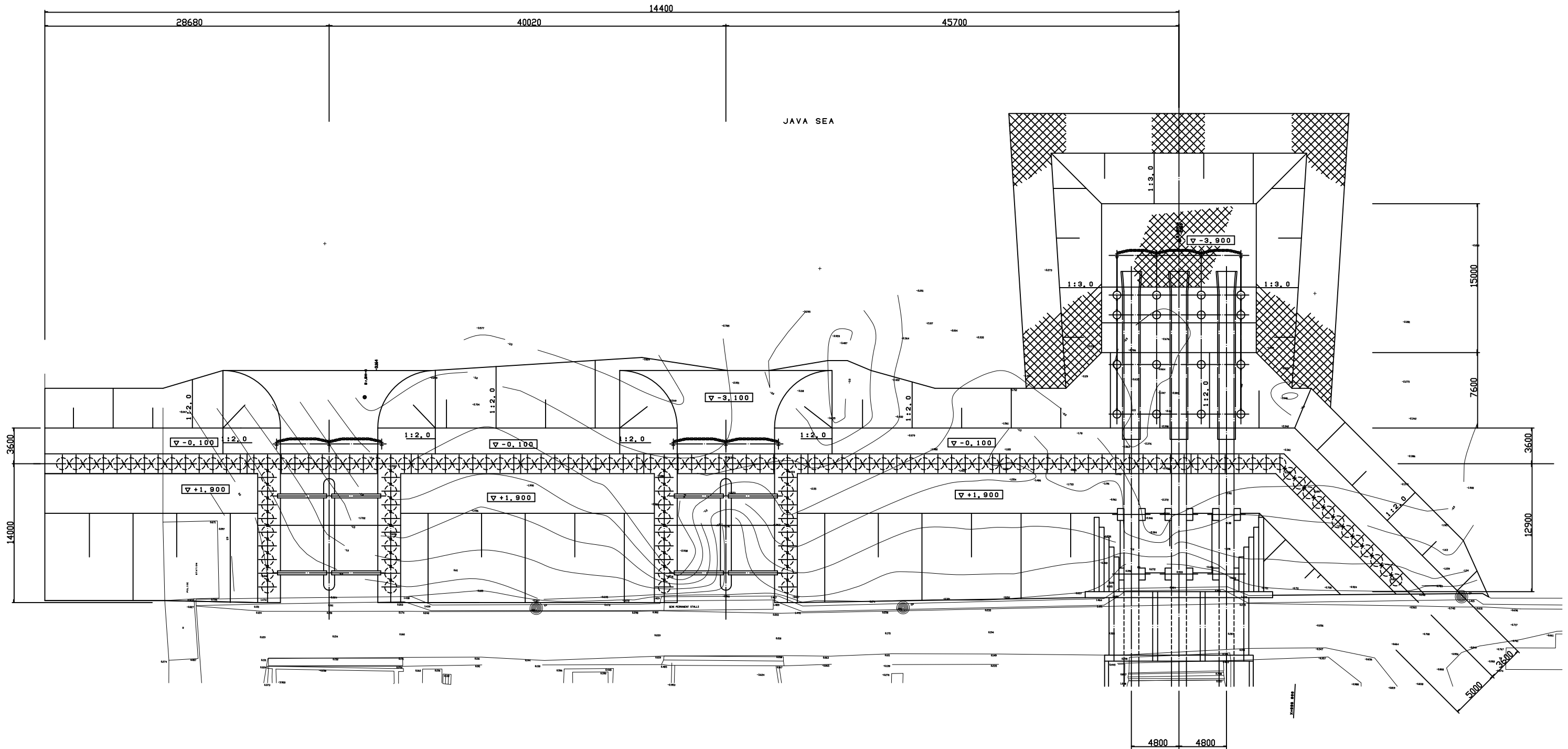




SEA TIDE WALL (1/2)

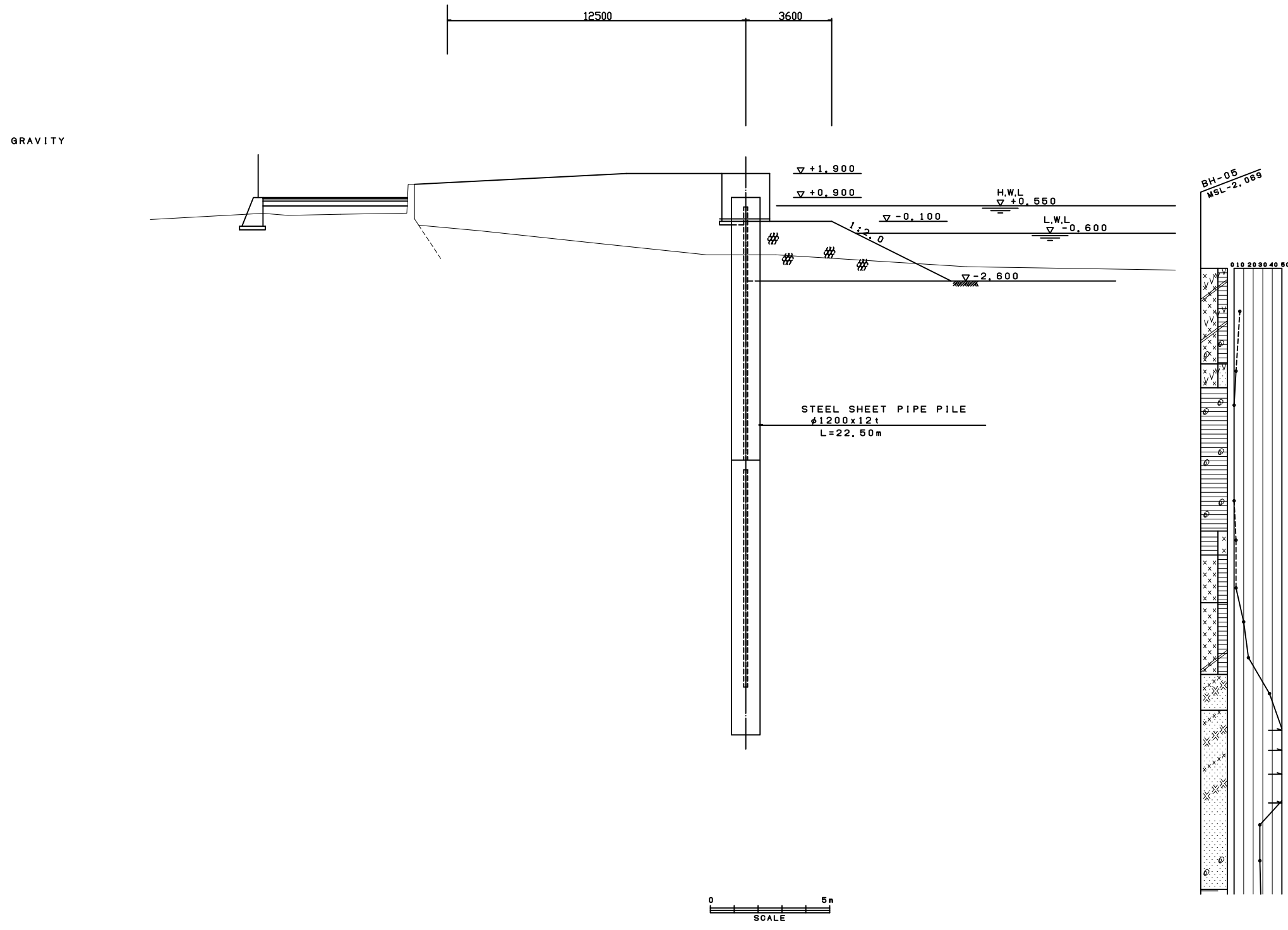
S=1/400

P L A N



SEA TIDE WALL (2/2)
S=1/200

TYPICAL SECTION



DRAWING No-14 SEA TIDE WALL (2/2)

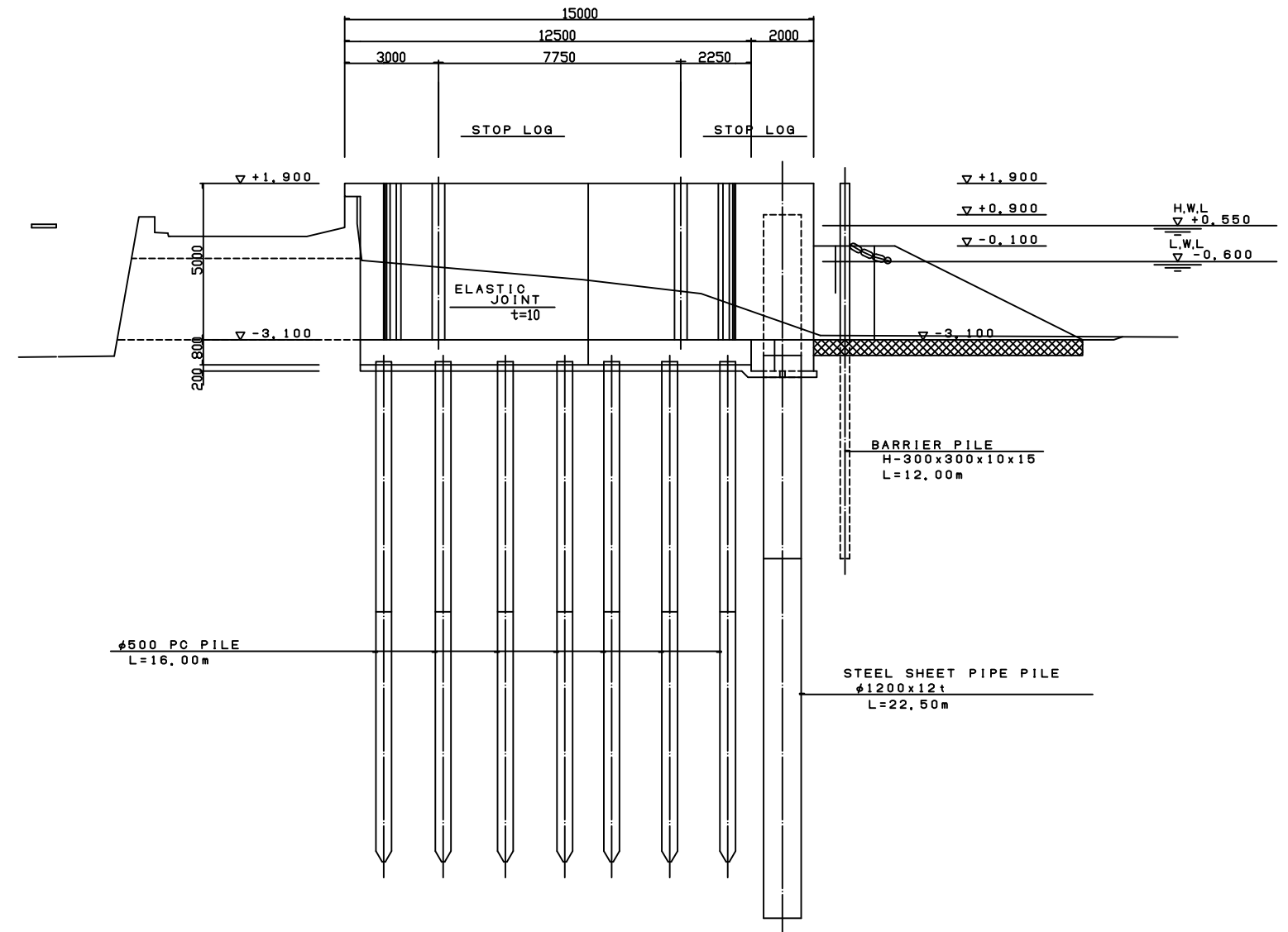
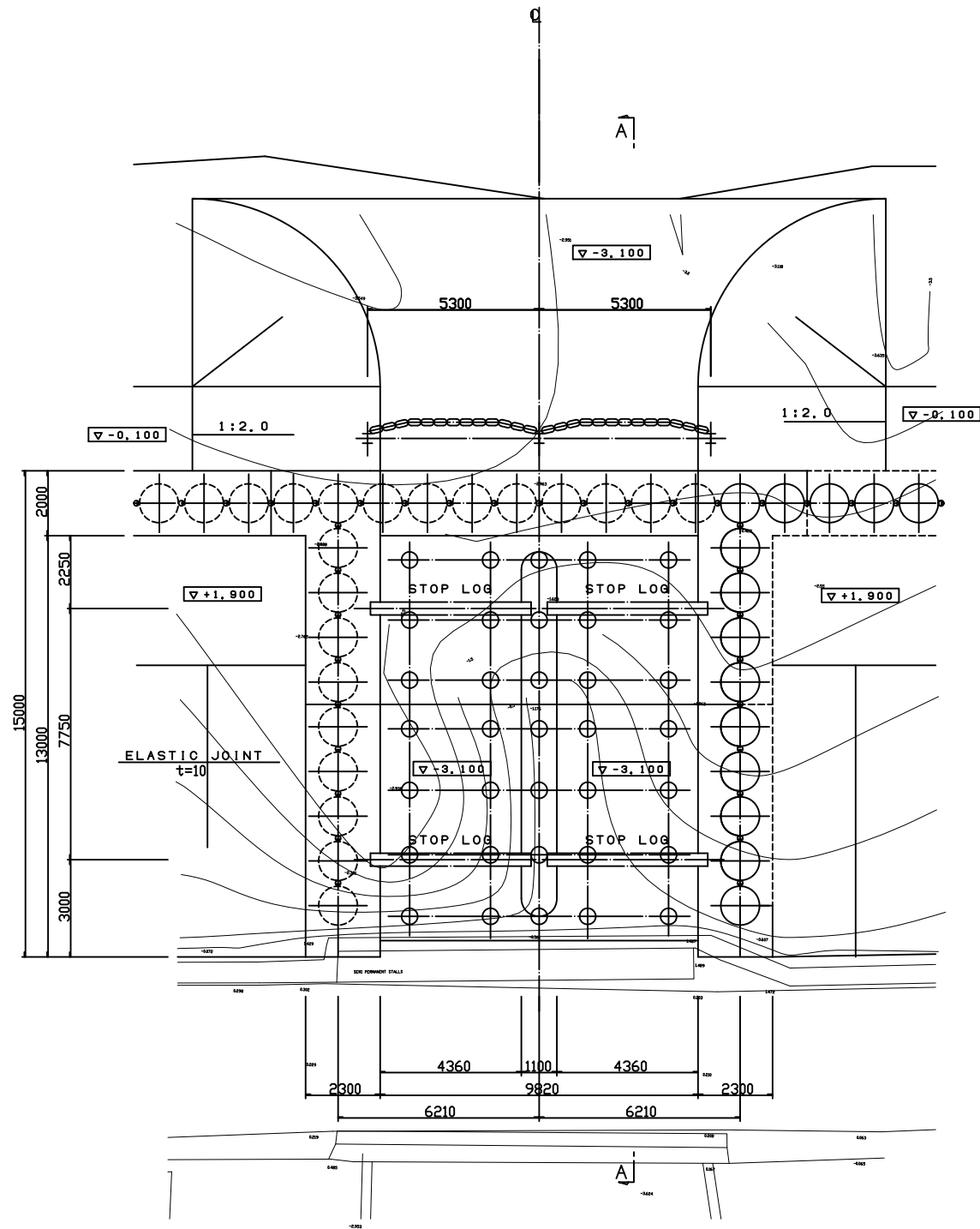
CENTRAL AND WEST DISCHARGE OUTLET STRUCTURE

S=1/200

P L A N

HORIZONTAL SECTION

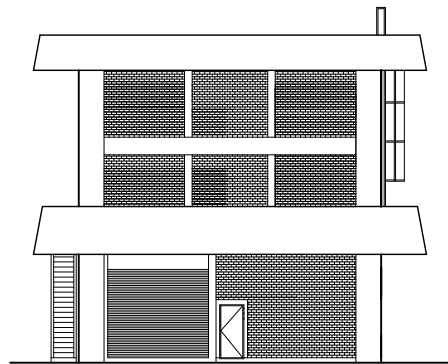
SECTION A - A



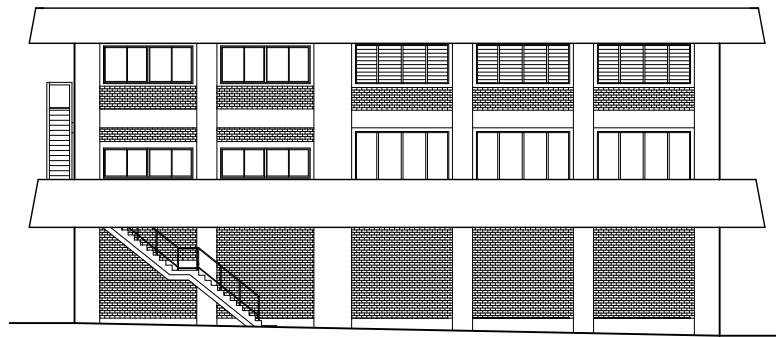
DRAWING No-15 CENTRAL AND WEST DISCHARGE OUTLET

BUILDING WORK OF EAST PUMP HOUSE (SECTION AND ELEVATION)

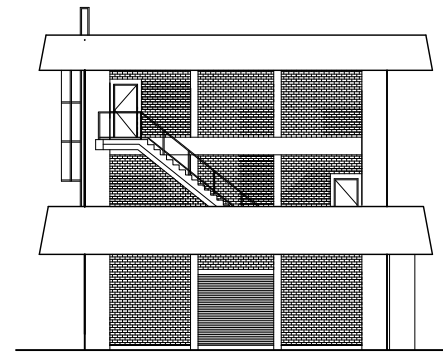
S=1/300



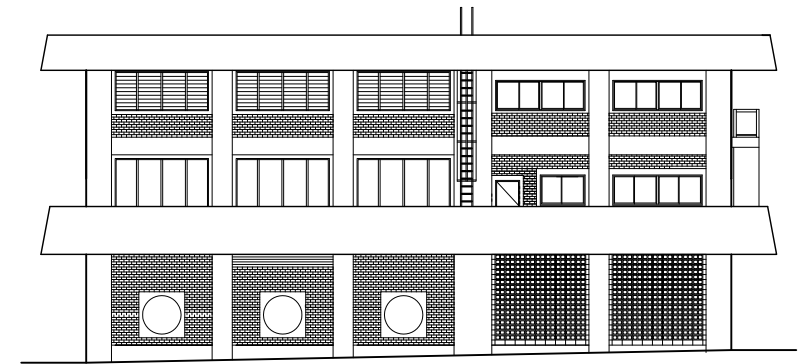
EAST ELEVATION



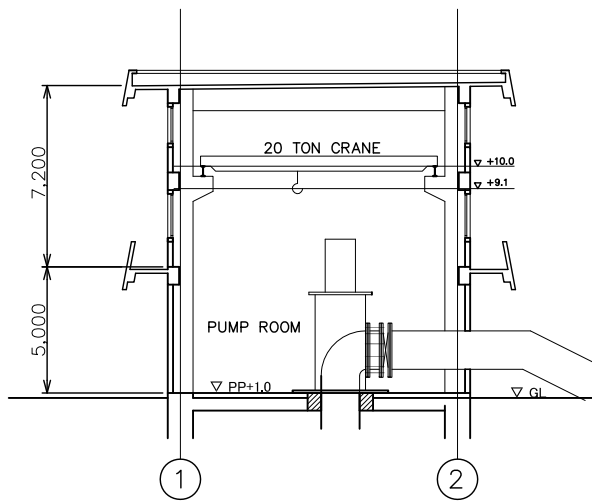
SOUTH ELEVATION



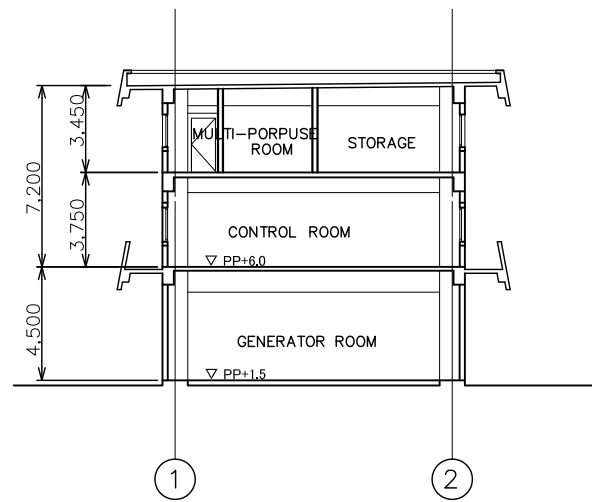
WEST ELEVATION



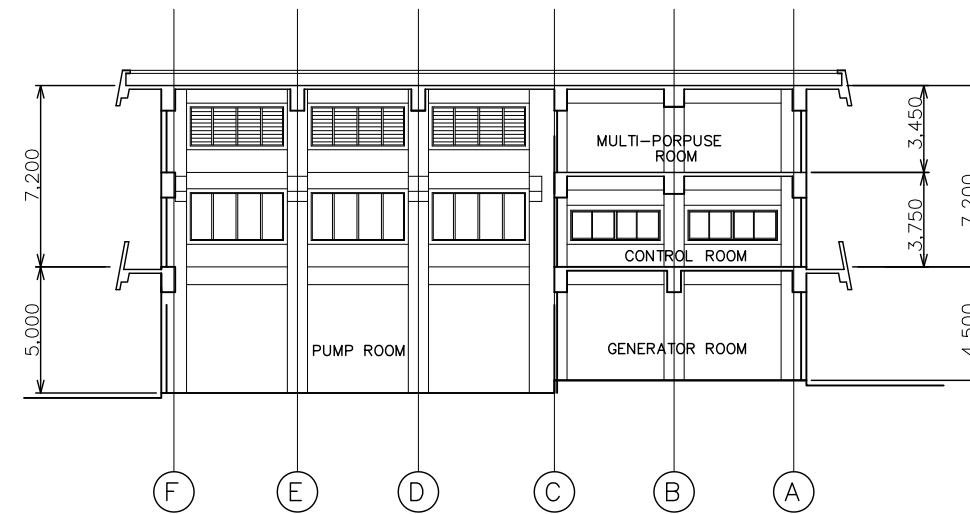
NORTH ELEVATION



A-A SECTION



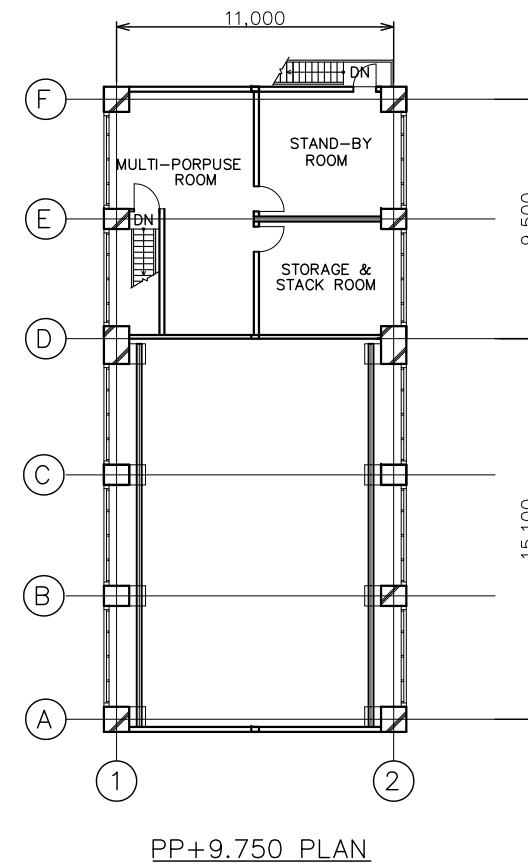
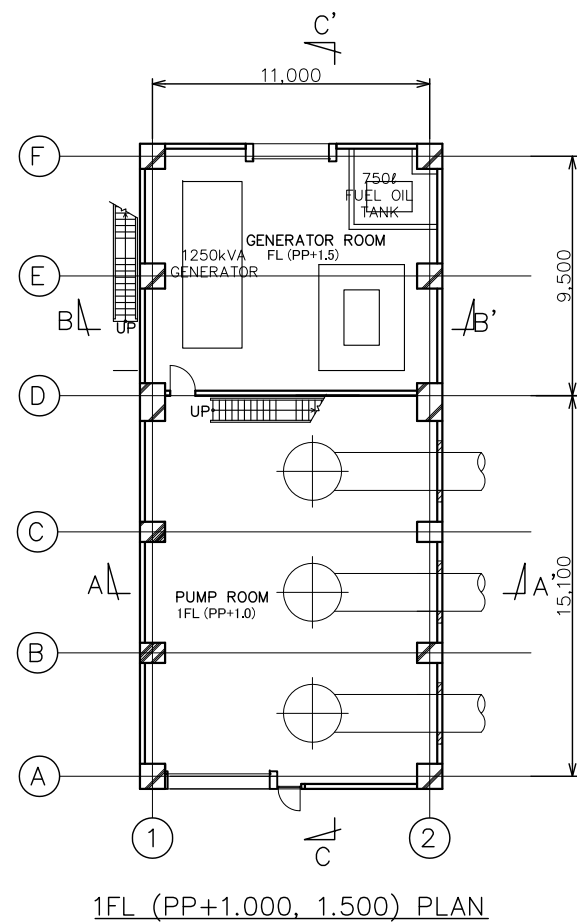
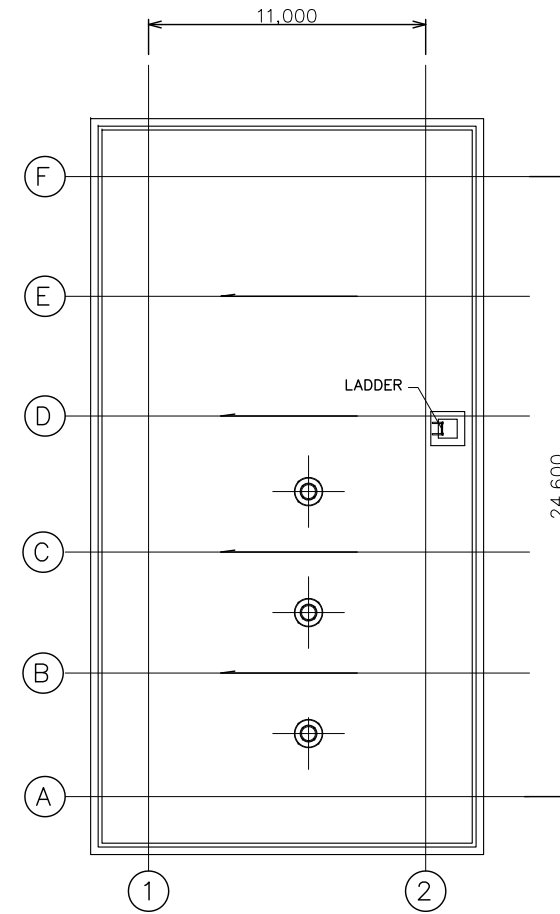
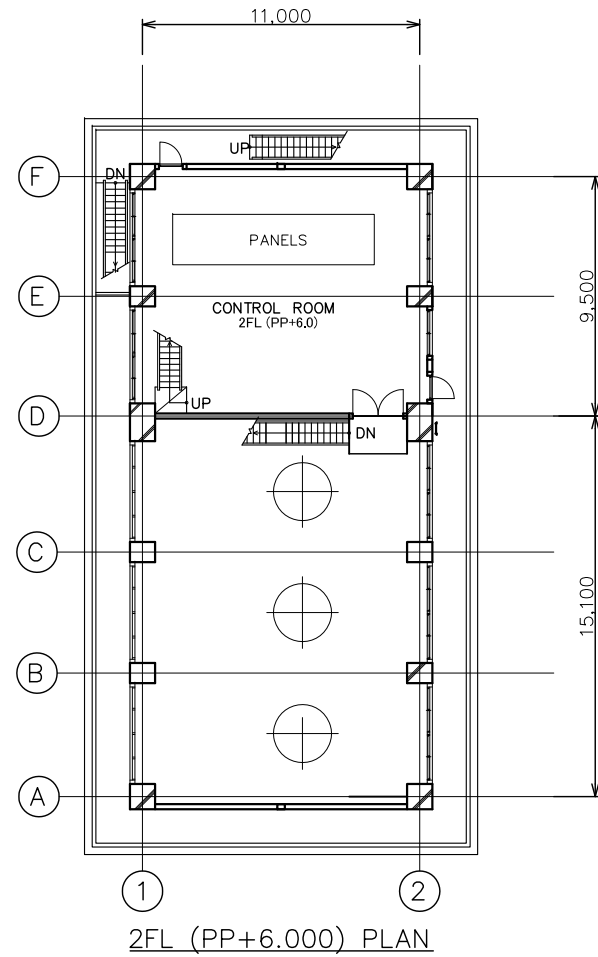
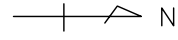
B-B' SECTION



C-C' SECTION

BUIDLING WORK OF EAST PUMP HOUSE(PLAN)

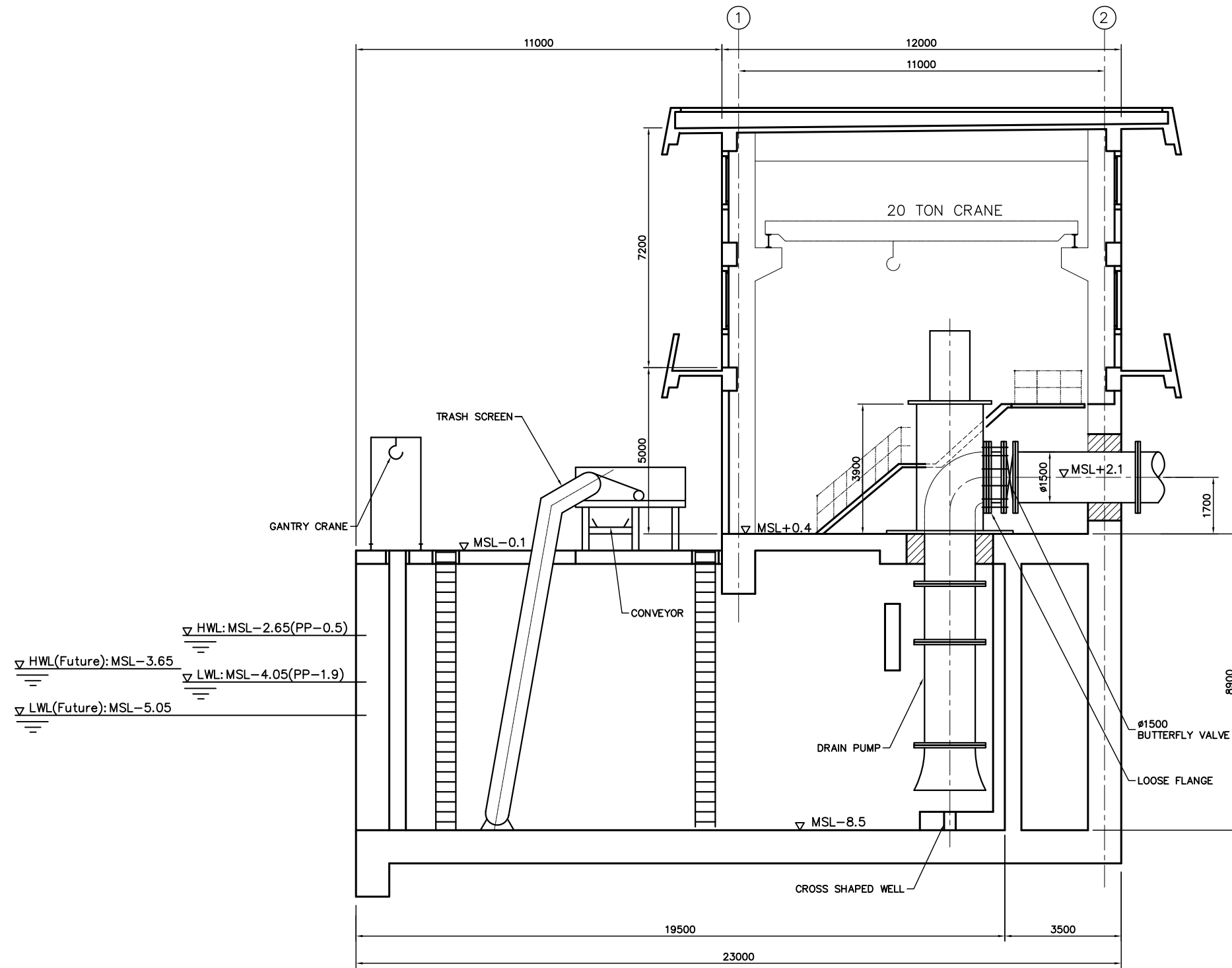
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DRAWING No-17 BUIDLING WORK OF EAST PUMP HOUSE(PLAN)

MECHANICAL AND ELECTORICAL FACILITY LAYOUT(ELEVATION)

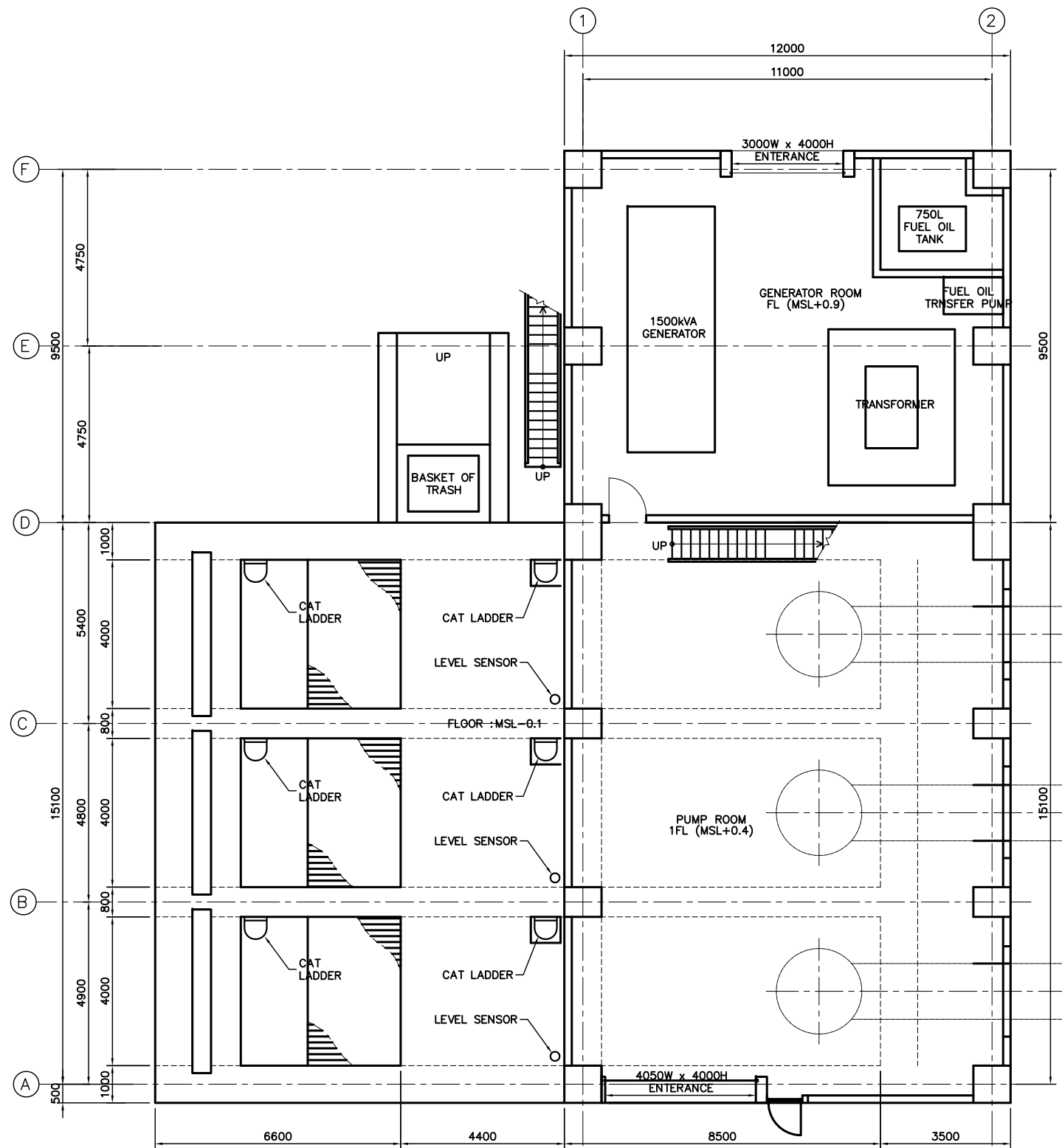
S=1/150



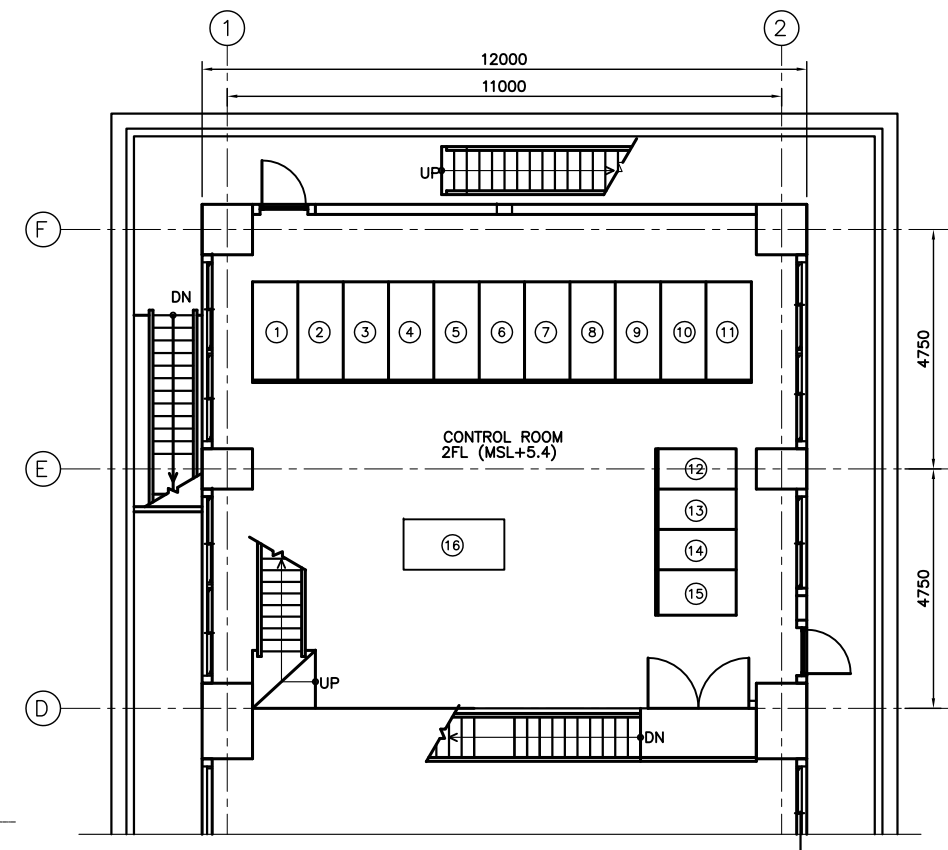
ELEVATION VIEW
SCALE 1:60

MECHANICAL AND ELECTORICAL FACILITY LAYOUT(PLAN)

S=1/150



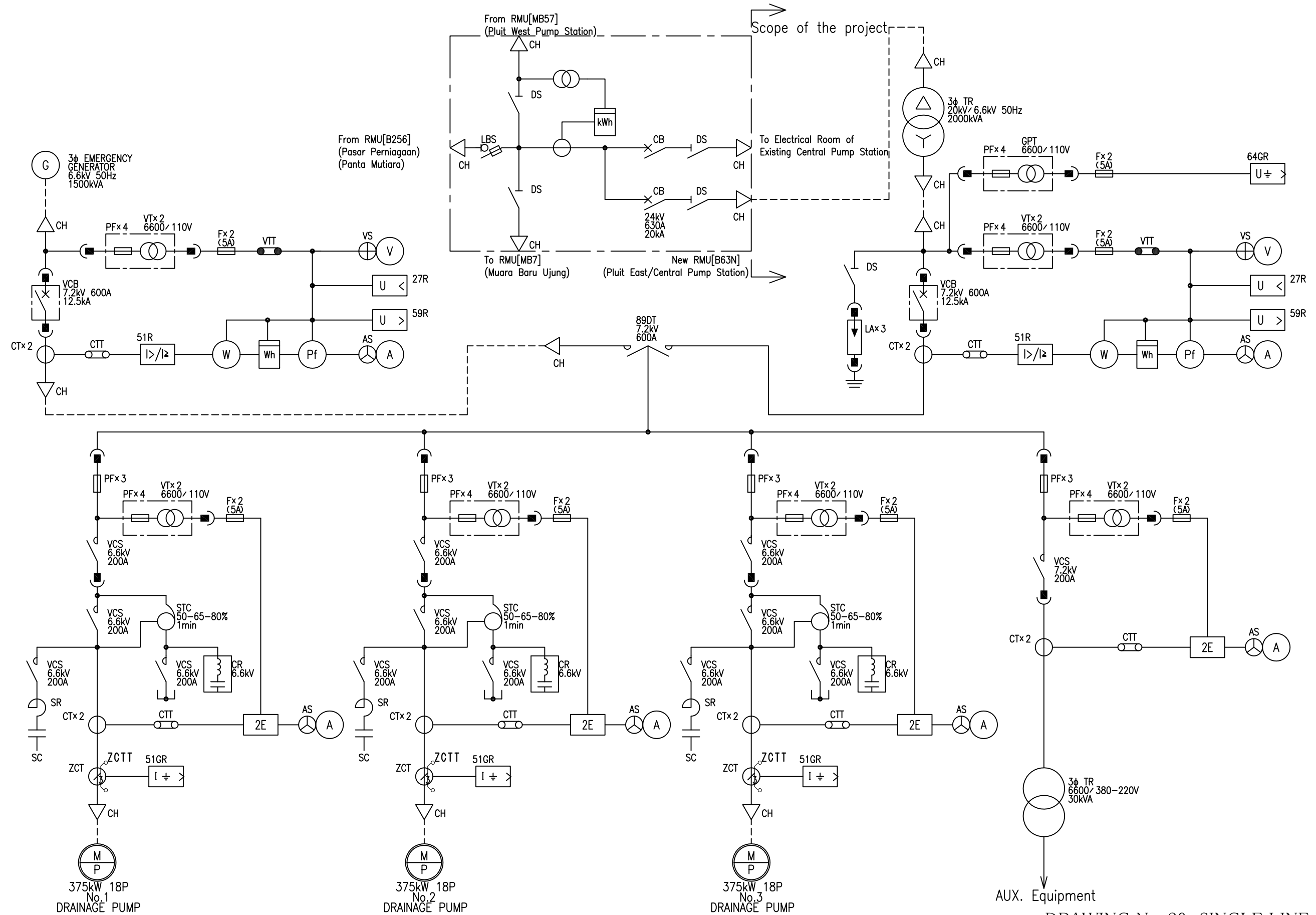
PUMP ROOM FLOOR (MSL+0.4 AND +0.9)
SCALE 1:60



CONTROL ROOM FLOOR (MSL+5.4)
SCALE 1:60

①	INCOMING PANEL FOR PLN(1)
②	INCOMING PANEL FOR PLN(2)
③	INCOMING PANEL FOR GEN SET
④	BUS-PIE PANEL
⑤	No.1 MAIN PUMP STARTER PANEL(1)
⑥	No.1 MAIN PUMP STARTER PANEL(2)
⑦	No.2 MAIN PUMP STARTER PANEL(1)
⑧	No.2 MAIN PUMP STARTER PANEL(2)
⑨	No.3 MAIN PUMP STARTER PANEL(1)
⑩	No.3 MAIN PUMP STARTER PANEL(2)
⑪	AUX TRANSFORMER PANEL
⑫	No.1 CAPACITOR PANEL
⑬	No.2 CAPACITOR PANEL
⑭	No.3 CAPACITOR PANEL
⑮	AUX FEEDER PANEL
⑯	CONTROL DESK

SINGLE LINE DIAGRAM



DRAWING No-20 SINGLE LINE DIAGRAM

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The Project will be implemented under Japan's Grant Aid scheme. Therefore, after the conclusion of the Exchange of Notes and the Grant Aid Agreement between both the Governments, the Indonesian side and Japanese companies will execute contracts and conduct design, construction and procurement.

In consideration of the Japan's Grant Aid scheme, facility construction and equipment procurement, the following basic design policy is drawn up for construction and procurement planning in the Project.

(1) Implementation Body

The executing agency for the Project is Directorate General of Water Resources, Ministry of Public Works (DGWR PU). The implementing agencies are DGWR PU and Public Works Department, City of Jakarta (DINAS PU DKI Jakarta). Each role is listed below. DGWR PU is the contract party with the Japanese company when the Project is implemented.

1) DGWR PU

- a. Verification, coordination and arrangement of the scope and content of services rendered by and between Japanese and Indonesian governments.
- b. Preparation and supply of the technical information required for designing

2) DINAS PU DKI Jakarta

- a. Supply of the technical information concerning the management and O & M of the Pump Station
- b. Management and O & M of the facilities constructed in the Project.
- c. Design and construction of the facilities, for which the Indonesian side shall be responsible

(2) Consultant

The Project is implemented under Japan's Grant Aid. Therefore, it is necessary to select contractors in an open tender and to prepare tender document for the selection of the contractors. Additionally, it is required to conduct an appropriate and competitive tender and to carry out construction and procurement supervision with appropriate use of the Grant Aid Budget.

Therefore, the Indonesian executing and implementing agency DGWR PU shall make a contract with the consulting firm for design and supervision works of the Project including preparation of the design and the tender documents, assistance for opening the tender, supervision of the contract works and procurement management. The selected consulting firm shall be required to be well-acquainted with the scheme of the Japan's Grant Aid and the component and concept concerning the design of the Project.

(3) Contractors for Construction

The contractors shall be selected in the open tender under the Japan's Grant Aid Scheme. Following the Japan's Grant Aid Scheme, the selected contractors shall be Japanese juridical persons, procure the equipment and materials and carry out construction works.

The Indonesian side will be required to open a righteous tender with assistance from the entrusted

consultant and select contractors. The contractors are required to satisfy the followings:

The construction works shall be carried out in the different place in the social environment and backgrounds from those in Japan. Therefore, the contractor shall have enough experiences and capabilities to construct and complete the similar works outside Japan.

The contract is made for construction of the Pump Station and Sea Tide Dike. Thus, the contractor shall have the ability to construct similar Pump Station and Sea Tide Dike. It is necessary to establish a consortium in cooperation of a pump equipment manufacturers and construction contractor in order to select and install appropriate pump equipments for the Project.

In addition to the above, after completion of the Project, the contractor shall be required to render the after-sales service such as procurement of spare parts and response to the breakdown of equipment, which orders shall be requested by the Indonesian implementing agency. Hence the contractor shall be required to keep good contact with the Indonesian side after handing over the facilities, equipment and materials to the Indonesian side.

(4) Necessity for Dispatching Engineers

Basic labor forces can be procured in Indonesia. However, engineers who have specialty in the area of sheet piling, formwork, steel bars, water proofing, etc. are required to be executed under the control of some skilled experts from the reasons as mentioned below. Some experts specified for civil engineering and building construction shall be dispatched from Japan.

1) Because fast and smooth construction shall be required, the experts shall be requested to understand other construction works in parallel with their works and to arrange the preparatory works and supervise the local workers at the construction site. Especially since reinforced concrete, which will be the main work because the concrete volume will amount to approximately 4,600m³, will be the key portion of the Project and will have much effect on the Project schedule, special experts who have enough skills in formwork and reinforced concrete works shall be required.

2) Excavation depth reaches approximately GL -11m. Therefore, it is necessary to maintain the safety and the quality control of braced cofferdam works with proper sheetpiling and dewatering.

(5) Important Matters on Construction Works

Important matters on construction works are as follows:

1) Since the soft ground layer at the construction site is very thick, the braced cofferdam/ sheetpiling works shall be planned in consideration of the adverse effect of ground displacement to the surrounding facilities.

2) Arrangement, placement and removal of Braced cofferdam/ sheetpiling works shall be planned so as not to cause piping phenomenon from the discharge channel of Central Pump Station.

3) Low vibration and low noise construction method shall be adopted in sheet pile and pile installation in

order to avoid and minimize adverse effect to the adjacent private houses and existing pump houses.

4) Due to the space limitation in the Pluit Pump Station and its surrounding area, it is very difficult to acquire the additional land area for storage of construction equipment and materials. Therefore, the utilization of space on the existing reservoir shall also be studied.

2-2-4-2 Implementation Conditions

(1) Capacity of Local Contractors

The local contractors in Indonesia, in particular Jakarta, have a lot of experience and capability in large scale construction such as high rise buildings. However, they still do not own high construction technology to complete the construction works under the very difficult and complicated situations where they should tackle with very soft ground, avoidance of adverse effect to surrounding facilities, countermeasures against land subsidence, treatment of existing piles, small work space in braced cofferdams and so forth within the limited construction period and with specified quality. Also there is no construction record of watertight steel pipe sheetpiling with welded joints in Sea Tide Dike construction works by local contractors. Therefore, it is indispensable to carry out the related construction works under supervision of Japanese experienced engineers in such specialty.

(2) Completion Time

The estimated construction period for this Project is 24 months and the construction of EPH and installation of discharge pipelines shall be executed in parallel with the construction of Sea Tide Dike. The first stage of Sea Tide Dike construction in front of East Pump Station shall be done in parallel with the construction of East Pump Station followed by the construction of Sea Tide Dike in front of Central Pump Station during the dry season in the year 2012 as 2nd stage and that in front of West Pump Station during the dry season in the year 2013 as 3rd stage construction. Furthermore, since the installation of steel pipe sheet piles shall be carried out by marine construction, the construction period shall be influenced by rain and marine conditions. Therefore, the appropriate construction planning and schedule control shall be necessary in order to complete the required work components under such restricted conditions.

2-2-4-3 Scope of Works

(1) Facility construction

Necessary works before completion of the facility construction and works demarcation between Japan and Indonesia are shown in Table 2-21.

Table 2-22 Work Demarcation for Facility Construction

Work Items	Japanese Side	Indonesian Side		Note
		DGWR PU	DINAS PU DKI Jakarta	
1. Facility Construction				
(1) Securing the construction site			○	Completed
(2) Leveling of the land and removal/relocation of the existing facilities/materials	○			
(3) Facility construction of Pump Station and Sea Tide Dike including: - EPH - Pump Facilities - Generator room including emergency generator sets - Discharge pipelines including discharge outlet - Sea Tide Dike	○			Including civil and building works, procurement of equipment, installation and commissioning, and initial operation guidance
(4) Relocating 20kV power cable			○	Before the commencement of Japanese work
(5) Connecting 20kV power cable			○	Before commissioning by the Japanese side
(6) Pavement of internal road in the station			○	
(7) Outdoor lightning			○	
(8) General surface drainage facility (up to catchment pit)	○			
(9) General surface drainage facility (after catchment pit)			○	After completion of surface drainage facility by Japanese side
(10) Planting in the station			○	After the completion of Japanese work
(11) Installation of fence and gate			○	After the completion of Japanese work
(12) Construction of guard house			○	After the completion of Japanese work
(13) Laying telephone line and supply and installation of receiver			○	
(14) Fire extinguisher			○	
(15) Office furniture (desk, chair, etc.)			○	
(16) Electricity supply for commissioning and water necessary for construction			○	During construction and commissioning by the Japanese side
2. Import and transportation of construction materials and pump facilities				
(1) Procurement of equipment and materials	○			
(2) Marine Transportation	○			
(3) Unloading at Indonesian port	○			
(4) Custom clearance, tax exemption, storing in bonded ware house		○		When materials arrive at Indonesia
(5) Inland transportation in Indonesia	○			

Note: ○ indicates responsible works

2-2-4-4 Construction Supervision

(1) Construction and Procurement Management Scheme by the contractors

1) Facility Construction

a. Execution Scheme of Contractors

It is necessary to establish tied-up work execution scheme by the contractors with construction company and pump facility manufacturers to properly manage the parallel works of construction and procurement/installation works. Additionally, since the construction site is in Indonesia, which is far from Japan, the contractor's organization shall be as shown in Figure 2-43.

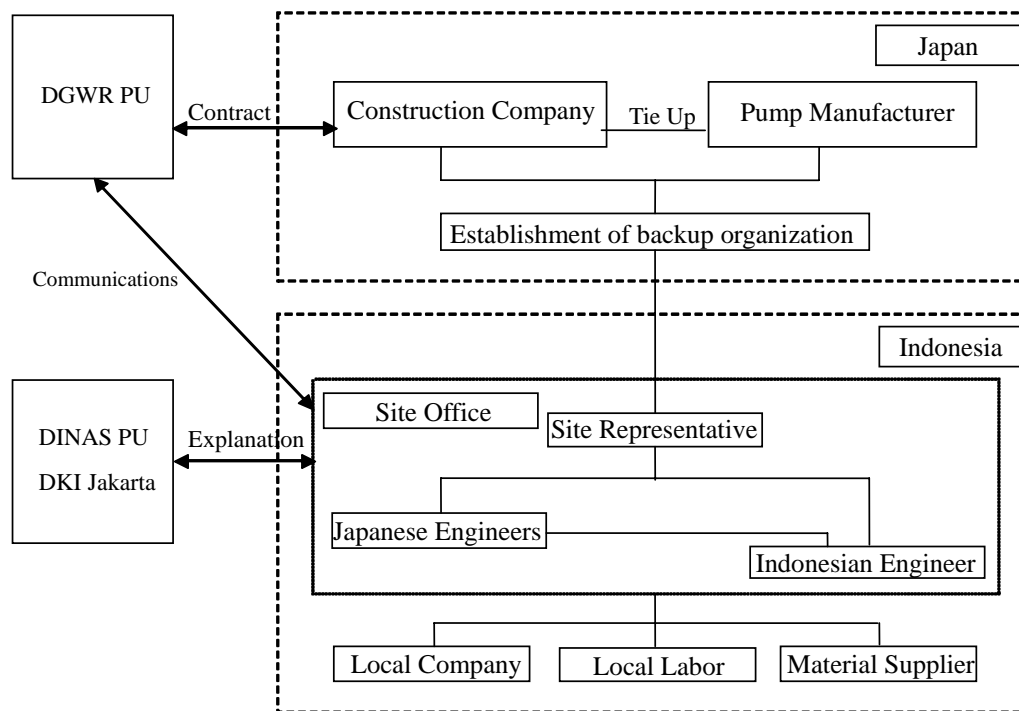


Figure 2-45 Organization Chart of Facility Construction Contractors

b. Back-Up System in Japan

It is necessary for the contractors to establish a back-up system in Japan with which they can properly operate and manage the overall works technically and financially to cover the total facility construction works such as civil and building construction, manufacturing and installation of mechanical and electrical pump facilities, etc. and technical and financial support.

c. Site Office for Execution

The contractors are required to establish a site office for execution of works in order to implement civil and building works, and installation of the pump facilities. Thus, the contractors shall institute an execution management structure. This site office will have responsibility for contracts with local companies, workers and material suppliers, and accomplish the facility construction.

Although basic labor force and construction materials can be procured in Indonesia, the followings are the reason to apply Japanese engineers, who have extensive experience of similar facility construction in

Japan's Grant Aid project, for management and control of schedule, quality and safety.

- All the work shall be executed within Japanese accounting system and Japan's Grant Aid Scheme. Therefore, schedule management shall be done with engineers who sufficiently understand these systems.
- The contractors shall demolish the existing East Pump Station and construct the new one under the difficult construction situation where the site is facing with the existing Central Pump Station in the west, the adjacent private houses in the east, the narrow access road, the small site area, the thick soft ground layer and the small work space in the braced cofferdam. The contractors shall also carry out the installation of steel pipe sheet piles with joints and secure high water tightness in Sea Tide Dike construction. Therefore, the contractors shall provide the well experienced engineers who are able to undertake such works. The contractors shall engage the engineers capable in controlling the construction schedule in order to execute the construction of the Sea Tide Dike including water discharge outlets in front of the existing Central and West Pump Stations only during dry seasons.

Because it is necessary to complete such complicated construction simultaneously and safely in the limited period of time, facility construction shall be implemented with the Japanese management structure for execution of works as shown in Table 2-22.

Table 2-23 Japanese Execution Management Structure

Type	Status	Persons	Tasks and Duration to Stay
Resident Representative	Whole Period	1	Discussion with the related Indonesian authorities and the consultant, confirmation and arrangement of construction scope and schedule, procedures such as construction permission, execution management: Permanent residing from commencement to completion of the site work.
Chief Engineer	Whole Period	Civil (inland and marine) / Building and Mechanical / Electrical 1 each (2 in total)	Assist the Resident Representative in the field of engineering and management: Permanent residing for period of civil / building works and mechanical / electrical works, respectively
Administration Manager	Whole Period	1	Field labour management, fund management, material procurement and transportation management, visa management: Permanent residing from preparation of site works to completion of construction works
Building Construction Engineer	Short Period	1	Schedule and quality control, and safety management for building construction: Staying during building material procurement and construction works

In addition, the contractors shall employ local engineers for the works below. The local engineers shall carry on the execution of works in cooperation with the above mentioned Japanese engineers.

- Superintendence and management of local workers at each field under the supervision of the Japanese

engineers.

- Detail discussions with authorities concerned, companies and subcontractors under the supervision of the Japanese engineers.

(2) Consultant’s Construction and Procurement Management Scheme

The consultant is required to supervise the contractors’ achievement of “completion of the contract for the construction and equipment procurement within the specified construction period”, “securing quality of construction and equipment in accordance with the contract documents” and “safe execution of work”.

The consultant has a role to monitor, verify and supervise the contractor’s proper execution of construction and equipment procurement works under the Japan’s Grant Aid Scheme on neutral ground.

Figure 2-44 shows the consultant’s position for supervising the whole Project.

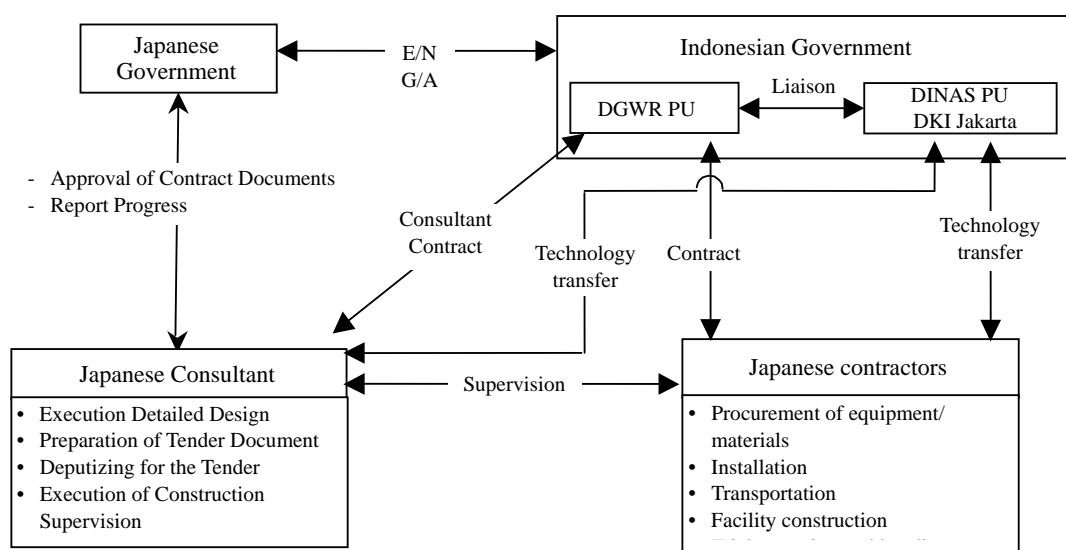


Figure 2-46 Consultant’s Positioning for Supervision

1) Main Contents of Consultant’s Supervisory Services

This section shows the main contents of consultant supervisory services.

The consultant shall be required to periodically prepare and submit a report concerning the progress of contract to DGWR PU, DINAS PU DKI Jakarta and the Government of Japan and to discuss with them in terms of the progress when necessary. DINAS PU DKI Jakarta is not the party involved in the contract, however, since DINAS PU DKI Jakarta is the end user of procured facilities and equipments, it is important for the consultant to have a continuous contact and coordination with DINAS PU DKI Jakarta throughout the contract period.

a. Schedule Control

The consultant shall examine and approve schedule submitted by the contractors, compare the actual

progress of the construction and equipment procurement, and give a notice to the contractor if a delay may be anticipated. When a delay occurs, the consultant shall examine and study the cause and its solution in collaboration with the contractor and give a suggestion or advice to the contractor who shall take necessary measures. The supervision of schedule consists of the followings:

- Certification of payments
- Records of installation and procurement of main equipments and construction materials
- Records of mobilization of engineers and workers in the Project

b. Quality Control

The consultant shall check that the contractors secure the quality of facilities, construction work, equipments, etc. as required in the contract documents. If the quality is not anticipated to satisfy the requirements, the consultant shall give a notice to the contractors and request to take necessary modification, recuperative measures, etc. The followings measures shall be taken for quality control by the consultant:

- Examination of equipment catalogue, specifications and shop drawings
- Examination of the results of factory's test and inspection
- Witness of factory test inspection
- Inspection of the quantity of equipments before shipping
- Examination of shop drawings, equipment installation manual
- Field inspection for compaction, bar arrangement, concrete strength, etc. during construction works
- Field confirmation and instruction on execution work conditions and construction methods, etc.
- Witness of commissioning of facilities and equipments, and performance inspection

c. Safety Control

The consultant shall check the appropriateness of the contractors' safety management plan and its practical procedures, and supervise the work to prevent any accident, calamity and accident to the third parties during the works. The following measures shall be taken for safety control:

- Confirmation of selection of manager in charge of safety control and preparation of safety control plan by the contractors
- Approval of the prepared safety control plan and selected person who shall be responsible for safety control
- Confirmation of the actual procedures on safety control
- Confirmation of appropriateness on planned route of construction vehicles and safety precautions, and checking the actual observation of the precautions by the contractors
- Confirmation of welfare system and holidays and resting place for the workers

2) Execution of supervisory services on construction and procurement on the site

The consultant shall establish a necessary structure for execution of supervisory services of construction works and procurement by the contractors in terms of schedule, quality control and safety managements. This leads to smooth implementation of the Project.

Since supervision of construction works and procurement is based on this Outline Design, it is necessary to build up a consistent structure throughout a series of the works of outline design, detail design and supervision for construction works and procurement.

a. Supervision of construction works and procurement in Indonesia

It is important that the facility construction and equipment procurement is suitably carried out within the scheme of Japan’s Grant Aid. Therefore, Japanese engineers who sufficiently understand the Japan’s Grant Aid Scheme shall conduct supervision of construction works and procurement. The expected structure of the Japanese engineers is shown in Table 2-23. The project manager, who is responsible for overall management of the Project including domestic works in Japan and the design engineers, shall occasionally verify the quality and direct the matters in attentions to the supervisors.

Table 2-24 Japanese Supervisors for Construction works Execution and Procurement

Type	Status	Person	Tasks and Duration of Stay
Resident Supervising Engineer	Whole Period	1	Discussion with the Indonesian side and contractors, verification and arrangement of construction scope and schedule, total management of supervision of construction works and procurement. Staying from commencement to completion of the construction work.
Supervising Engineer for Civil and Building Works, and Sea Tide Dike Construction	Short Period	1 each	Supervision on approval of shop drawings, schedule, quality and safety of civil and building works. Staying during civil and building works and sea tide dike construction when the Resident Supervising Engineer alone can not handle all required supervising works due to high work load.
Supervising Engineer for Mechanical and Electrical Works	Short Period	Mechanical and Electrical 1 each	Supervision on approval of shop drawings, schedule, quality and safety of mechanical and electrical works. Staying during mechanical and electrical works respectively.

For the following works, the consultant shall employ local engineers and shall conduct supervision for execution of work and procurement.

- Supervision of construction works and procurement on site under supervision of the Japanese engineers
- Discussion of the details with relating authorities, testing institutions and agencies responsible for design, etc. under supervision of the Japanese engineers.

b. Supervision of construction works and procurement in Japan

The Consultant is required to establish necessary organization and to deal with the following supervising works in Japan:

- Confirmation of the contents of Contract, progress of the works and quality of construction works / procurement.

- Examination and/or instruction to solve the problem and/or to take countermeasures against problems, which happens in the site.
- Support of the Consultant's site office / staff in technical and financial aspects.

Especially, the following works require formulation of an appropriate organization:

- Quality Confirmation of the equipment to be manufactured in Japan.
- Execution of pre-shipment inspection for the equipment to be exported from Japan.

2-2-4-5 Quality Control Plan

(1) Facility Construction

The followings are the important items for quality control and management of the main materials and equipment for construction and installation of the facilities in the Project:

- Reinforced concrete for civil and building works
- Steel pipe sheet pile for Sea Tide Dike
- Mechanical and electrical equipments for pump facility

1) Reinforced concrete

Concrete is procured from the ready-mixed concrete suppliers in the surrounding area and placed at the site. Thus, quality control shall be done at the site. It is required to inspect at each stage of a) the raw material for mixing, b) fresh concrete after mixing, c) reinforcing bars used, etc. The standard to be used for supervision is the following Japan Industrial Standard (JIS) or equivalent Indonesian standard:

- Concrete (including material) : JIS A5308
- Reinforcing bar : JIS G0303 / G0404

i) Materials

Table 2-24 shows the main quality control items for material.

Table 2-25 Quality Control Items

Material	Frequency of Inspection and Time	Means for Inspection	Specification
Cement	- Before use - Every 3,000m ³ of concrete placement - Each factory and manufacturer	Confirmation of the result of inspection at laboratory	- Physical characteristics e.g. compressive strength - Chemical composition
Aggregate	- Before use - Every 3,000m ³ of concrete placement - Each factory and supplier	Confirmation of the result of inspection at laboratory	- Analysis of grain size distribution - Organic and chemical analysis e.g. chlorides
Water	(if tap water is not used) - Before use - Every 3,000m ³ of concrete placement - Each water resource	Confirmation of the result of inspection at laboratory	- Turbidity - TDS - Chloride iron - Cement hardning time - Mortar compressive strength
Reinforcing Bar	- Before use - Every 5 months or every 500 t (if achieved earlier) - Each factory	Confirmation of the result of inspection at laboratory	- Mechanical characteristics e.g. tensile strength, etc. - Chemical composition

b. Concrete

In addition to the above material inspection, it is compulsory to continuously inspect the strength of concrete after mixing etc. and control the quality of concrete throughout the construction works. The followings are the essential main quality control standards relating to concrete and the fundamental rules:

- Each compression test result of 3 cylinders after 28 days of concrete placement shall show more than 85% of design standard strength and the average compression strength of the 3 cylinders is more than the design standard strength.
- The probability that the result of compression tests lowers the design standard strength shall be less than 15% throughout the construction period.
- Concrete slump before placement shall be within the following tolerable limit:
 - When the regulated slump is less than 5 cm, allowance $\pm 1.0\text{cm}$
 - When the regulated slump is more than 5 cm, allowance $\pm 1.5\text{cm}$ less than 8 cm
 - When the regulated slump is more than 8 cm, allowance $\pm 2.5\text{cm}$
- Chloride ion content in concrete before placement shall be less than 0.30 kg/m^3

The frequency of quality inspection and sampling of concrete is in the same day of placement or in every 150 m^3 of placement (if achieved earlier) as a standard. The test results shall be kept recorded in the control chart. The quality of concrete shall be grasped from the control chart and re-inspection and adjustment of proportion and materials of concrete shall be conducted if necessary.

b. Formwork and Arrangement of Reinforcing Bars

It is required to inspect formwork and arrangement of reinforcing bars before every concrete placement. The inspection shall contain the followings in order that the placed concrete shall comply with the specification:

- Size of formwork, diameter of reinforcing bars, spacing of arranged reinforcing bars, concrete cover, etc.
- Condition of formwork support
- Condition of tiding of reinforcing bars
- Condition of cleaning including removal of foreign substances

2) Steel pipe sheet pile

The quality control of steel pipe sheet pile shall be performed by using required quantity of sheet piles with required quality and specifications during the site works without variations in installation. The configuration and names of parts are shown in Figure 2-45.

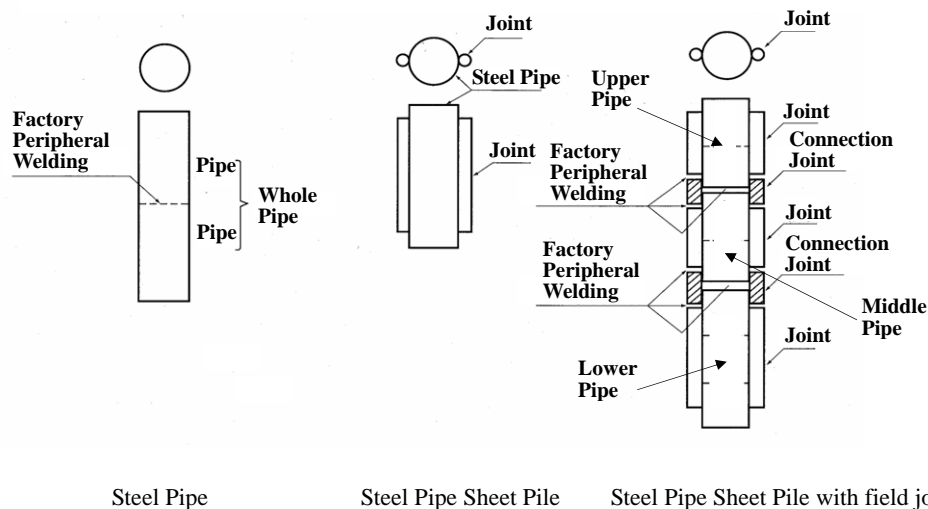


Figure 2-45 Configuration and Parts Names of Steel Pipe Sheet Pile

a. Quality inspection

Quality inspection shall be done at the factory or the site depending on the place of inspection. Major items of quality inspection at the factory are shown in Table 2-25. Quality inspection at the site shall be conducted in accordance with JIS A 5525 to check material, appearance, form, dimensions, quantity, etc.

Table2-26 Details of Factory Inspection

Item	Steel pipe sheet pile (JIS A 5530)
Material	(1) Specifications and dimensions of steel pipe (2) Chemical composition of steel pipe (3) Mechanical properties
Appearance	Visual inspection on existence of harmful defects in service
Form and Size	Allowances in JIS
Others	(1) Non Destructive Inspection of peripheral welds at the factory (2) Confirmation of Mill Sheet

b. Transportation and storage

Care shall be taken so as not to damage steel pipe sheet piles during loading, transportation, unloading and storage at the construction site.

c. Materials for Joints

Materials for joints shall be equivalent or superior than the requirement on STK400 of JIS G 3444 and SS400 of JIS G 3101

d. Welding materials

Welding materials for steel pipe fabrication, steel pipe connection, joint and other accessories shall have the tensile strength higher than those of the materials to be welded.

e. Inspection of Field Weld

Visual inspection of peripheral field welding of steel pipe sheet pile shall be conducted in terms of crack in weld, pit, size, undercut, overlap, etc.

3) Mechanical and Electrical Equipment for Pump Facility

Mechanical and electrical equipment for the pump facility are factory products. Thus, the quality of the products is verified with the contractors' contract document and industrial standards applied for production. The industrial standards for equipment shall be international standards such as JIS, which are applied for the production. Equipment inspection shall be conducted at the production factory before transporting from the factory.

Moreover, commissioning of the whole plant system shall be done after the completion of installation of the facility. It is ultimately crucial to conduct quality inspection as a system through the whole facility's capacity and capability.

(2) Procurement of Equipment and Materials

The equipment and materials to be procured in the Project are factory products. Thus, the above-mentioned methods for quality inspection of mechanical and electrical equipment for pump facility shall be applied.

2-2-4-6 Procurement Plan

(1) Materials and Equipment Procured for Facility Construction

1) Country for Procurement

The materials for facility construction shall be procured in the local market if specification, quality, quantity for supply, date of delivery, etc. are satisfied.

Those materials not meeting with specification, quality, quantity for supply, date of delivery, etc. are procured in Japan in accordance to the Japan's Grant Aid Scheme. However, if it is preferable to procure in respect of the price, etc., it is necessary to consider procurement in other countries.

Indonesia has produced fundamental materials required for civil and building construction works. Therefore, it is anticipated that the quality and supply quantity of Indonesian products are sufficient enough for the Project execution. On the other hand, local procurement of some of the mechanical and electrical equipment for pump facility are difficult to satisfy the specification, quality and date for delivery of the Project. Therefore, import of these goods is necessary. Main materials and equipment for facility construction shall be procured in accordance to Table 2-26.

Table 2-27 Country for Procurement of Main Construction Materials

Item	Procurement		Note
	Indonesia	Japan or Other Country	
Cement	○		
Sand and gravel including concrete aggregate	○		
Reinforcement bar	○		
Veneer board for formwork	○		
Bricks and concrete block	○		
Asphalt concrete	○		
Steel pipe sheet pile with joint	○		
Discharge pipe (steel and stainless steel)	○		
Valves		○	
Mechanical and electrical equipment for Pump facility	○	○	

Note: ○ indicates responsible works

2) Transportation of Materials and Equipment

a. Materials and Equipment Procured in Indonesia

It is possible to procure the materials and equipment reassuring the specification, quality, quantity for supply, date of delivery, etc., for the Project near the Project site for construction since the Project site is in the urban area of Jakarta. However, several goods, which are produced in special plants and procured out of the urban area of Jakarta such as steel pipe sheet pile shall be transported by sea.

No issue for land transportation has been found as the main roads between the Project site and special plants regarding the pavement condition and the width of the roads for transportation by large size trucks.

b. Materials and Equipment Imported from Other Countries

Materials and equipment procured in Japan or other countries shall be transported by sea to the Indonesian port. These goods shall be land transported to the Project site after landing and customs clearance. The representative landing port in Indonesia is Tanjung Priok Port. Regular service ship from Japan or other countries enter into this port. This port sufficiently equips with unloading facility and can be used in the Project. Moreover, the main road conditions such as pavement and width indicate adequate for transporting the goods after unloading to the Project site by large size trucks.

3) Area for Storage of Construction Equipment and Materials

Due to the space limitation in the Pluit Pump Station and its surrounding area, it is very difficult to acquire the additional land area for storage of construction equipment and materials. Therefore, the utilization of space on the existing reservoir shall be studied by means of construction of temporary steel platform.

2-2-4-7 Initial O & M Guidance Plan

The O & M system of Pluit Pump Station is a 24-hr system with a two-shift (7:00a.m. – 7:00p.m.). It has 12 staff in two teams in total. All staff are the employee of DINAS PU DKI Jakarta. The team leader is also operator and mechanical and electrical technician. Each team operates whole facilities of the station and has basic skills for O & M. This system has not been changed for recent 5 years and DINAS PU DKI Jakarta plans to maintain it after the completion of the reconstruction of East Pump Station.

In addition, judging from the information and knowledge obtained through the execution of the JICA TCP, the O & M system of Pluit Pump Station has the basic skills for O & M of the station and can conduct the daily O & M. However, the new equipment shall be installed in the Project and systematic operation shall be necessary. Therefore, Japanese engineers shall implement the primary O & M guidance and training for the new facility, and prepare spare parts, maintenance tools and O & M manuals during the construction in order to operate the new and existing facilities effectively and efficiently.

2-2-4-8 Soft Component

Since organization of DINAS PU DKI Jakarta has already been established, it is possible to maintain continuous exhibition of Project effect only by provision of advice on the operation scheme in future. Also as already mentioned in 2-2-4-7, the O & M system of Pluit Pump Station has the basic skills for O & M of the station.

Therefore, there is no need of execution of soft component in the Project.

2-2-4-9 Implementation Schedule

Construction and procurement of equipment for the Project will start after the approval by the Japanese government, followed by the conclusion of Exchange of Notes (E/N) and Grant Aid Agreement (G/A) between Japan and Indonesia. The expected period for completion of the Project is 34 months from the first approval of the Project by the Japanese government. The Project is the construction of the Pump Station and Sea Tide Dike, therefore, it is difficult to draw a term division plan corresponding to Japanese Financial Year. Hence, a multi - year national bond system shall be applied for the Project.

It is necessary to conduct a Detailed Design Study (DD) with the precision to execute the preparation of specifications for the competitive tender. The DD is composed of two field studies (study and discussion and verification of the contents) and design works in Japan. The expected DD period is approximately 5 months.

The construction and procurement for materials and equipment will be started after the DD and the selection of contractor through tendering exercise. Approximately 24 months are required from the conclusion of the contract to the completion of the contract including preparation, construction, inspection and commissioning. Table 2-27 shows the implementation schedule for the Project.

Table 2-28 Implementation Schedule

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28																	
Detailed Design	■																																												
	(Works in Indonesia)					■					(Work in Japan)					■					(Works in Indonesia)					(Total 5 months)																			
Facility Construction	■					(Pre-qualification, Tender and Concluding Contract)					■					(Preparation Work)					■					(Pump House Construction)					■					(Commissioning, Inspection and Hand over)					■				
	■					(Stage 1 and 2 Sea Tide Dike Construction)					■					(Stage 1 Sea Tide Dike Construction)					■					(Total 27.5 months)																			

2-3 OBLIGATION OF THE RECIPIENT COUNTRY

2-3-1 Obligation of the Recipient Country

The obligations of the recipient country, i.e. Indonesia, under the Project are outlined in this chapter. As the fulfillment of these obligations is essential for the smooth implementation of the Project, the Indonesian side must meet each obligation without fail.

2-3-1-1 Special Items

The obligations of the Indonesian side which are specially noted in the Minutes of Discussions (M/D) for the Preparatory Survey and for the Draft Report Explanation and are identified to be required during study in Japan are listed below.

(1) Access Road for Construction

The road at the east side of Pluit Pump Station, which is under jurisdiction of DINAS PU DKI Jakarta, is used for the access road for construction. Therefore, it is not necessary to borrow private lands for this purpose.

The road at the west side of Pluit Pump Station was also candidate for an access road, however, the road at the east side is used for the access road for construction as a result of the discussion with DINAS PU DKI Jakarta based on the field investigation by the Team.

The access road route is shown in Figure 2-46. DINAS PU DKI Jakarta will secure this access road by January 2011. DINAS PU DKI Jakarta is also responsible to carry out leveling of existing road surface at least 320 m from the start point of the access road shown in Figure 2-46.



Figure 2-48 Access Road

(2) Clearance of Existing Facilities and Waste Transportation and Disposal after Demolition

In principle in the Grant Aid Project, clearance of existing facility in the Project Site is to be undertaken by the recipient country prior to implementation of the Project by Japanese side, however, Japanese side will carry out the demolition of existing facilities and transportation of construction waste generated

during demolition works in the Project to the following designated disposal sites in consideration of the following issues:

- 1) Difficulty in clear demarcation of responsibility in demolition works to be undertaken by Indonesian Side and foundation works for the reconstructed East Pump Station by Japanese side, and
- 2) Difficulty in securing smooth sequence of works for successful completion of works within the limited construction period.

DINAS PU DKI Jakarta shall be responsible for management and disposal of these generated wastes. DINAS PU DKI Jakarta shall prepare the disposal sites by January 2011 as following;

- 1) Surplus soil: “Anchol Timur” and/or “Daan Mongot km 14” under jurisdiction of DINAS PU DKI Jakarta
- 2) Concrete wastes: “Anchol Timur” and/or “Taman BMW” under jurisdiction of DINAS PU DKI Jakarta
- 3) Waste woods and equipment: stock yard in Pluit Pump Station under jurisdiction of DINAS PU DKI Jakarta

(3) Relocation of Power Receiving Facility

Pluit Pump Station has receiving the electrical power supply from Muara Karang substation. There are 5 feeders (Sotong, Kendang, Tambur, Dedug and Cakalang) from Muara Karang substation, and Cakalang Line and Dedug Line are supplying power to Pluit Pump Station. Since power supply cables for Central and East Pump Stations first come into PLN power receiving panel in the existing East Pump Station, this PLN panel should be relocated before the demolition of EPH by Japanese side in order to secure power supply to Central Pump Station. As a result of discussion between PLN and DINAS PU DKI Jakarta, it is confirmed that this relocation work shall be carried out by Indonesian side by January 2011.

(4) Alternate Drainage Facility during Reconstruction of East Pump Station

The construction period for reconstruction of East Pump Station is 24 months and apparently Pluit Pump Station loses its partial drainage capacity which has been undertaken by the existing East Pump Station. However, to cope with the incidental occurrence of potential flooding as a result of the above capacity loss, the minimum reservation of drainage capacity shall be secured even during the construction period. For this purpose, as verified in 2-2-2-8(4) in this report, since operation of two pumps in the existing East Pump Station can manage the flood in 2008, it is proposed to install temporary pump units ($3.2\text{m}^3/\text{sec} \times 2$ units) during construction. Also, as reported in 2-2-2-8(6) in this report, when the installation of Duri pumps with drainage capacity of $6\text{m}^3/\text{sec}$ will be completed, full operation of Central and West Pump Stations in Pluit and joint operation of Duri pumps will be capable of management of flood in 2008 without installation of temporary pump units during construction.

Therefore, alternate drainage facility during reconstruction of Pluit East Pump Station can be Duri pumps and it shall be the obligation of Indonesian side by January 2011. In case that Indonesian side can not complete the installation of Duri pumps before commencement of construction work by Japanese side, Indonesian side shall provide temporary pump units ($3.2\text{m}^3/\text{sec} \times 2$ units) instead as the alternate obligation of Indonesian side.

(5) Marine Police Station

Marine Police Station and related facilities at the west end of the existing Sea Tide Dike shall be relocated by Indonesian side in order to avoid any interference with the construction works by Japanese side. DINAS PU DKI Jakarta shall complete this relocation by January 2011.

(6) Matters related to Environmental and Social Consideration

1) Unauthorized Anchored Ships

The Indonesian side (DINAS PU DKI Jakarta) will be responsible to relocate anchored ships in front of Sea Tide Dike of Pluit Pump Station. They will announce and explain to residents and ship owners in cooperation with community leaders. They plan to start from September 2009 and finish by January 2011. DINAS PU DKI Jakarta will complete this relocation of anchored ships before commencement of the construction work by Japanese side as confirmed in the M/D.

- Subject: Individuals and party expected to be affected by the relocation (ship owners, surrounding residents, etc.)
- Method for explanation: Announcement and explanation to them with cooperation with community leaders
- Contents of explanation: Objectives of rehabilitation works, construction method and period, proposed alternate anchorage and duration, etc.
- Time for explanation: Start from September 2011 and to be completed by December 2011

2) Clearance of EIA Requirements

DINAS PU DKI Jakarta started the preparation of UKL and UPL after selection of environmental consultant in February 2010 and submitted UKL and UPL to Jakarta Environmental Management Agency (hereinafter referred to as "BPLHD") in April 2010. BPLHD has approved UKL and UPL on April 16, 2010. DINAS PU DKI Jakarta submitted a copy of the approval letter by BPLHD to the Team during Draft Report Explanation in June 2010 in accordance with the M/D signed on November 18, 2009. There is no special condition imposed in the approval letter.

3) Explanation to Surrounding Residents on Construction Plan

DINAS PU DKI Jakarta has confirmed that there is no need to hold prior explanation meeting to the surrounding residents on construction details and plan of any public works. Also, since there is no need to prepare AMDAL, explanation to the residents such as stakeholder meeting is not required. However, in view of the smooth implementation of the Project, DINAS PU DKI Jakarta has agreed to hold the following explanation to the residents by January 2011:

- Subject: Individuals and party expected to be affected by the relocation (surrounding residents, religious institutions, etc.)
- Contents of explanation: Objectives of rehabilitation works, construction method and period, anticipated environmental and social impacts and its mitigation measures and monitoring plan, etc.
- Time of explanation: Prior to commencement of construction works

4) Others

For other items on environment and social considerations, the Indonesian side (DGWR PU and DINAS PU DKI Jakarta) are responsible, such as:

- i) To check and approve the facility design which is in consideration with environmental and social impacts,
- ii) To check and approve the countermeasures for the mitigation of environmental and social impacts to the public, and to supervise the execution of the approved countermeasures appropriately,
- iii) To confirm the report relating environmental monitoring results submitted by the successful contractor,
- iv) To plan and implement the activities for the improvement and development of public awareness for social considerations, such as flood prevention, and
- v) To monitor, measure and record ground level subsidence at several points in and around the site during O & M of East Pump Station.

2-3-1-2 Others

The following items are confirmed as a general obligation of the recipient country in Minutes of Discussion at the Preparatory Survey.

- 1) To take necessary procedures for issue of A/P (Authorization to pay) required for payments to the Japanese Consultant and/or Contractor(s) and to bear the following commissions to a bank in Japan for the banking services based upon the Banking Arrangement. (by DGWR PU)
 - Advising commission of A/P
 - Payment commission
- 2) To ensure prompt unloading and customs clearance of the goods for the Project at the port of disembarkation in Indonesia (by DGWR PU)
 - Tax exemption and custom clearance of the Products at the port of disembarkation
- 3) To accord Japanese nationals whose services may be required in connection with the supply of products and services under the verified contract(s) such facilities as may be necessary for their entry into Indonesia and stay therein for the performance of their works (by DGWR PU)
- 4) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies this may be imposed on Indonesia with respect to the supply for the products and services under the verified contract(s), and to take necessary measures for such tax exemption (by DGWR PU)
- 5) To use and maintain properly and effectively all the facilities constructed, and equipment and materials provided under the Japan's Grand Aid (by DINAS PU DKI Jakarta)
- 6) To bear all the expenses, other than to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment including installation of fence, gates, outdoor lighting, guard house, etc.(by DGWR PU)

2-4 PROJECT OPERATION PLAN

2-4-1 Basic Policy

Pluit Pump Station is one of the fundamental drainage stations, and is a crucial facility to secure the drainage capacity of the capital region of Jakarta. It is quite important to operate and maintain the new Pump Station constructed in the Project appropriately, and to preserve the facility environment for the establishment of reliability, and long and stable operation of the new pump station.

It is also important to maintain not only the mechanical and electrical facilities, but also the civil and building facilities because Pluit Pump Station is facing with the Java sea, thus in the corrosive environment.

In order to maintain the function of Pluit Pump Station and to secure stable drainage, the Indonesian side shall implement an appropriate preventive maintenance and management for the improvement of reliability, safety and efficiency of each facility and equipment.

Pluit East Pump Station has been subsidized by 2 m in the past 45 years and the land subsidence shall be continued in future. The land subsidence causes the sea water level rise relatively to the Pump Station. Consequently the risk of sea water intrusion shall become higher and higher. It is critical to monitor the land subsidence and to implement the countermeasures, such as raising the height of the Sea Tide Dike.

Figure 2-47 shows the basic management flow of the facility.

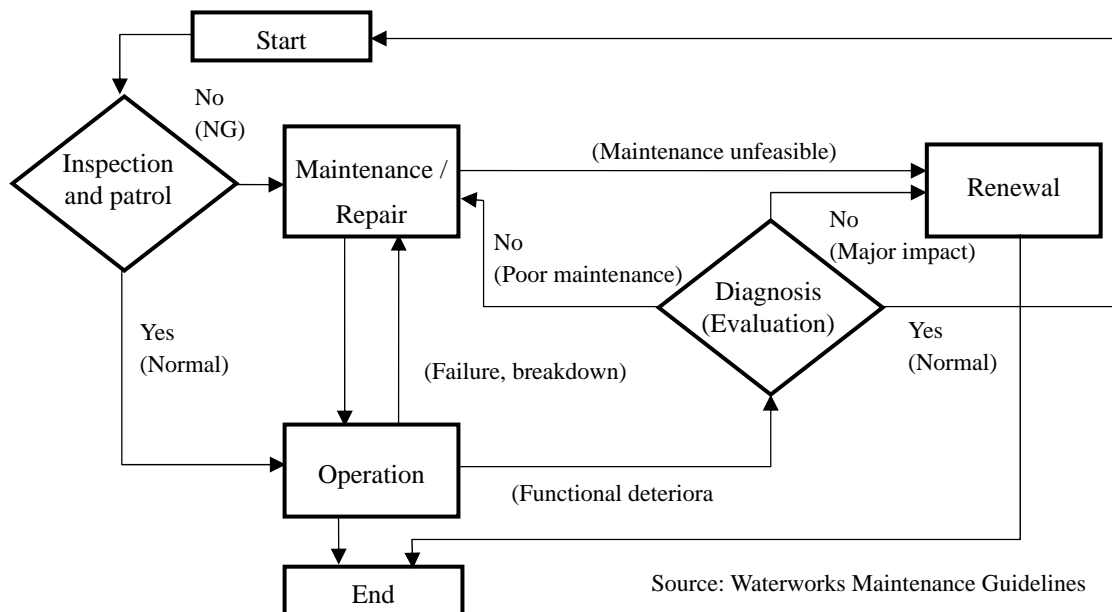


Figure 2-49 Facility Management Flow

Before the commissioning of the pump facilities, the contractor shall conduct the initial guidance to DINAS PU DKI Jakarta on the O & M method of the new East Pump Station. Moreover, the consultant and the contractor shall implement the technical guidance of systematic operation method for the whole Pump Station to DINAS PU DKI Jakarta. At that time, “O & M (O&M) Manual for Pump Station” to be prepared by the contractors under supervision by the consultant and the “Operation rules of three Pump Stations in Pluit” to be prepared by the consultant based on the knowledge gained in the JICA TCP shall be utilized.

2-4-2 Items for Regular Inspection

2-4-2-1 Sea Tide Dike

Regular inspection of Sea Tide Dike shall focus on “Impact on the structure by the land subsidence” and “Structure deterioration by sea water”. The items and methods of regular inspection are as follows:

Table 2-29 Regular Inspection of Sea Tide Dike

Focus	Structure	Item	Method
Impact on the structure by the land subsidence	Sea tide wall	Crown subsidence	Periodical measurement
	Back fill	Relative subsidence with sea tide wall	Periodical visual observation
	Maintenance road	Undulation Cracking Drainage	Periodical visual observation Periodical visual observation Periodical visual observation in case of rain
Structure deterioration by sea water	Raising concrete	Cracking Striping Horizontal alignment	Periodical visual observation Periodical visual observation Periodical measurement
	Steel pipe sheet pile	Rusting Joint deformation	Periodical visual observation Periodical visual observation

Regarding structure deterioration, it is possible to secure the durability at the design stage by applying durable materials, appropriate concrete cover, etc.

It is possible to raise the crown elevation of the raising concrete by placing additional reinforced concrete in accordance with the land subsidence.

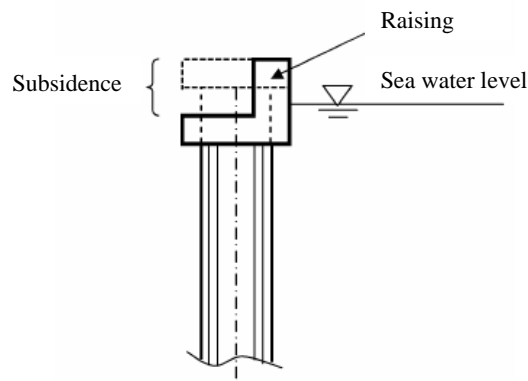


Figure 2-50 Raising the Crown of Sea Tide Dike

2-4-2-2 Discharge Pipe

- a) Rusting: appropriate painting after removal of existing paint (proper repair painting is necessary because Pluit Pump Station sites along the coast.)
- b) Flange and connection part of flexible pipe: periodical observation of leakage, looseness, damage, etc.
- c) Differential settlement:
 - Discharge pipes in Pump Station: periodical visual observation in terms of deformation of pipes, etc.
 - Discharge pipes overpassing the Sea Tide Dike: When the raising crown of Sea Tide Dike is necessary, the discharge pipes shall be removed and installed over the Sea Tide Dike according to the new height of the raised crown
- d) Automatic air valve: periodical visual observation on the motion of air valves at the times of pump start up and shut down

2-4-2-3 Civil Facilities

Inspection and repair of the structures shall be implemented according to the maintenance plan in order to maintain the normal function of the Pump Station.

As a daily inspection, periodical visual observation from the established inspection route shall be made and shall keep record of the inspection result. Measures will have to be taken when any abnormality be identified.

Ad hoc inspection shall be made when the civil facilities suffer severe earthquakes, flooding or heavy rains, or whenever the operators feel necessary in terms of maintenance of the proper function of the Pump Station. Table 2-29 shows the regular inspection items for civil facilities.

Table 2-30 Inspection Items for Civil Facilities

Facility	Part	Inspection item			
Suction pit	Concrete structure	Exterior Surface	Subsidence	Differential settlement, etc.	
			Deformation, distortion	Damage and deterioration: Cracking, striping, loss, etc.	
		Inside of Pit	Leakage	Ditto	
		Joint with adjoining structures	Split	Split, gap	
	Surrounding Ground	Surface	Subsidence, sinking	Deformation and movement of ground	
	Metallic parts	Grating, ramp way	Deformation, breakage	Deterioration due to Rusting, damage, etc.	
Wing wall	Concrete structure	Crown surface	Deformation, distortion	Damage and deterioration: Cracking, striping, loss, etc.	
		Vertical wall surface	ditto	Ditto	
	Surrounding Ground	Behind vertical wall	Subsidence, sinking	Deformation and movement of ground	
	Reservoir bed	Inflow channel and bed protection	Gap, moving	Leakage, moving, unusual scouring	
			Inflow obstruction	Sedimentation of soil, sand, trash	
		Metalic parts	Guard fence, ramp way	Deformation, breakage	Deterioration due to Rusting, damage, etc.
Discharge pipe system	Concrete structure	Foundation block	Subsidence	Inclination and bending of pipe	
			Deformation, movement	Damage and deterioration: Cracking, striping, loss, etc.	
		Road crossing culvert	Subsidence	Inclination or gap due to differential settlement, etc.	
			Deformation, distortion	Damage and deterioration: Cracking, striping, loss, etc.	
	Drain ditch and connection channel	Inner part	Deformation, breakage	Gap and braking by subsidence	
			Inflow obstruction	Sedimentation of soil, sand, trash	
		Slope and pavement	Surface	Deformation, distortion	Collapse, striping, loss
		Barrier fence	Surroundings	Deformation, breakage	Deterioration due to Rusting, damage, etc.
		Steel walkway and stairway	Surface	ditto	ditto
	Walkway and exterior facilities	Pavement	Internal road	Deformation, breakage	Damage and deterioration: Cracking, striping, loss, etc.
Rainwater drainage facility		Channel and drainage pipe	Deformation, breakage	Gap and braking by subsidence	
			Inflow obstruction	Sedimentation of soil, sand, garbage	
		Gate and fence	Exterior of Pump Station	Deformation, breakage	Deterioration due to rusting, damage, etc.

2-4-2-4 Building Facilities

Regular inspection for building works needs the following items:

Exterior inspection: Visual observation of damage and deterioration of ground, walkway, wall, exterior, waterproof condition of roof and balcony, water discharge, handrail, stairway, window and entrance.

Interior inspection: Visual observation of floor, wall, ceiling, column, beam, interior, structure, leakage of rainwater and other water.

Regarding damage by sea water, urgent repair is necessary to prevent salt intrusion in case of cracking found in the concrete. For preventive measures, aluminum for fittings, hot-dip zinc galvanized for interior stairway and stainless steel for ramp way shall be applied.

2-4-2-5 Mechanical and Electrical Facilities

Based on the above mentioned basic policy on O & M, DINAS PU DKI Jakarta shall implement the following fundamental works in relation to O & M for mechanical and electrical facilities.

Operation: appropriate operation and control of facilities under the specified conditions

Maintenance: appropriate maintenance, repair and preparation for the maximum performance of facilities

Table 2-30 shows the basic items for O & M of mechanical and electrical facilities.

Table 2-31 Basic Items for O & M for Mechanical and Electrical Facilities

	Basic items
Operation	1) water discharge volume: to operate and control facilities in accordance with the necessary water discharge volume
Maintenance	1) field inspection: to carry out observation from visual inspection and meter indication and to repair if necessary 2) prevention: to maintain periodically for securing reliability and safety in operation of facilities

DINAS PU DKI Jakarta shall implement appropriate O & M of the facilities based on the manuals of each facility which plant manufacturers shall prepare. Standard inspection items for mechanical and electrical facilities are shown in Table 2-31 and Table 2-32 respectively. Moreover, it is necessary to analyze the operation record by utilizing "O&M Manual for Pump Station" to be prepared by the consultant for the systematic and effective operation.

Table 2-32 Typical Regular Inspection Items for Mechanical Facility

Pump	Daily inspection (during operation)	To keep a daily operation record (water discharge volume, visual observation of each facility, abnormal noise, shaft temperature increase, water leakage, pressure at inlet and outlet)
	Monthly inspection	To check oil and grease for shaft bearing To check grand packing
	6 months' inspection	To replace and supply oil and grease for shaft bearing To measure accuracy of shaft axis To measure noise and vibration To tighten screws for each part
	Annual inspection	To implement overhaul inspection (wearing of rotating portion, gap of sliding portion, interior rusting, clogging of foreign materials, paint stripping and repair) To check spare parts and auxiliary equipment
Motor	Daily inspection (during operation)	To keep a daily operation record (electric current value, visual observation of each facility, abnormal noise and shaft temperature increase)
	6 months' inspection	To supply grease for shaft bearing To measure noise and vibration To measure shaft temperature
	Annual inspection	To check shaft bearing To measure insulation resistance value

Table 2-33 Typical Regular Inspection Check Items for Electrical Facility

Inspection items	Inspection works	Site inspection	Regular check	Detail check
Appearance	Indicator light and display for switching	o	o	
	Abnormal sound and odor	o	o	
	Color change by heat in terminals	o	o	
	Cracking, damage and dirtiness of bushing	o	o	
	Rusting on case and supports	o	o	
	Abnormal Temperature	o	o	
	Mechanical check of bushing terminal	o	o	
Control panel	Display of each instrument	o	o	o
	Indication of counting meter		o	o
	Moisture, damage, rusting, etc. inside of box / panel		o	o
	Oil supply and cleaning		o	o
	Tightness of terminal screws	o	o	o
	Display for switching		o	o
	Leakage of air and oil		o	o
	Pressure before and after operation		o	o
	Operation of movement indicator		o	o
	Deformation, damage and rusting of springs	o	o	o
	Tightness of pins		o	o
Auxiliary switch and relay		o	o	
Measurement and/or test	Insulation resistance		o	o
	Earth resistance			o
	Heater burnout		o	o
	Relay movement		o	o

2-4-3 Spare Parts Purchase Plan

Spare parts are divided into (a) consumable parts which may be replaced periodically and (b) replacement parts or emergent spare parts, which are necessary by accidents, etc. for replacement. Thus, it is necessary that the Indonesian side shall purchase those main goods in accordance with the periodical inspection cycle as described in Section 2-4-2.

2-4-4 O & M Scheme

DINAS PU DKI Jakarta plans to maintain the present staffing structure for O & M of the Pluit Pump Station after completion of the Project. The staffing structure is shown in Table 2-33.

Table 2-34 Staffing Structure for Pluit Pump Station

Status	Person
Manager/operator	1
Deputy Manager/operator/mechanical and electrical technician	1
Operator/mechanical and electrical technician	1
Operator	9
Total	12

2-5 PROJECT COST ESTIMATION

2-5-1 Initial Cost Estimation

The Project cost to be borne by the recipient side is expected as 170 million JPY if the Project is implemented. Breakdowns of the total cost, based on the work demarcation are shown in (1) below. However, this cost estimation is provisional and would be further examined by the recipient side. The conditions applied for this estimation are shown in (2).

(1) Cost to Be Borne by the Recipient Side

Estimated Project Cost: approximately 170 million JPY

Organization	Item	Project Cost (million JPY)	
DINAS PU DKI Jakarta	Access Road for Construction	42	169
	Provision of Disposal Area of Demolished Construction Debris	N/A	
	Relocation of Power Receiving Facility	10	
	Alternate Drainage Facility during Reconstruction of East Pump Station	107	
	Relocation of Anchored ships	N/A	
	Relocation of Marine Police Station	3	
	Clearance of EIA Requirements	3	
	Explanation to Surrounding Residents on Construction Plan	N/A	
	Subsidiary Works (fence, gate, etc.)	4	
DGWR PU	Commissions to a bank	1	1

(2) Conditions

1) Estimation Point: December 2009

2) Exchange Rate:

1US\$ = 92.75 JPY (average in the last 6 months from the end of December 2009)

1Rp = 0.0107 JPY (average in the last 6 months from the end of December 2009)

2-5-2 O & M Cost Estimation

The O & M cost of the new East Pump Station constructed in the Project excludes expenses of the head office, etc. and is composed of wages for staff, cost for electricity and purchase of spare parts for mechanical and electrical facilities.

Each O & M cost shall be estimated based on the following:

Electricity for East Pump Station : Annual power consumption × average power rate

Spare parts for East Pump Station : 0.5% of the equipment purchase cost

Wages of all staff in Pluit Pump Station : Average wage of Electric technician based on the result of survey made by the Team in Indonesia

Annual O & M cost is estimated as 3,500 million Rp as shown in Table 3-35. The estimated cost is almost the same as the present annual O & M cost since the power output of drainage facility is the same as that of the existing one and there is no change in O & M staffing after completion of the Project.

Table 3-35 Estimated O & M cost after completion of the Project

Cost Item	Cost Estimation						
	Item	A	B	C (A × B × 24)	D (C × 365days/year)	E	F (D × E)
1. Electricity		East Pump Station Nos. of normal operating unit	Motor power (kW)	Daily power consumption (kWh/day)	Annual power consumption (kWh/year)	Power rate (Rp/kWh)	Annual cost
		1	375	9,000	3,285,000	900	2,956.5 mil. Rp
2. Wages	Item	A	B				C (A × B × 365)
		Nos. of staff	Ave. wage (Rp/day)				Annual cost
		12	84,000				367.9 mil. Rp
3. Spare Parts	Item	A	B				C (A × B)
		Equipment cost in East Pump Station (mil. Rp)	Annual rate (%/year)				Annual cost
		42,000	0.5				210 mil. Rp
							(3,534.4 1)
							↓
Total							3,500 mil. Rp

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

Chapter 3 PROJECT EVALUATION AND RECOMMENDATION

3-1 PROJECT EFFECT

Table 3-1 shows the effect of the Project for the present situation and problems.

Table 3-1 Effect of the Project

Present Situation and Problems	Countermeasure of the Project	Effect of the Project
<p>Piping phenomenon underneath the bottom slab of East Pump House happened and sea water flew into Pluit Pump Station and its control reservoir. Facility of East Pump Station is old, and operation suspension is frequently. And constant land subsidence makes the pumping head larger, therefore, the required drainage function does not fully work. Consequently East Pump Station lost two functions; to protect the inland drainage area from the intrusion of sea water, and to provide the appropriate drainage capability. Existing Sea Tide Dike in front of East Pump Station is not capable in managing prevention of piping phenomenon, sea level rise due to climate change and land subsidence in large area during service period of Sea Water Dike.</p>	<p>The following construction will be implemented.</p> <ul style="list-style-type: none"> - Demolishment of existing East Pump House - Construction of East Pump House - Installation of pump facility in East Pump Station - Installation of electrical facility in East Pump Station - Construction of sea tide dike in front of East Pump Station 	<p>(1) Direct Effect</p> <ol style="list-style-type: none"> 1) To recover the functions of East Pump Station to protect the inland drainage area from the intrusion of sea water, and to provide the appropriate drainage facility (Drainage Capacity in normal operation will be improved from 0m³/sec to 10m³/sec, and return period from 1/5 year to 1/10 year) 2) To facilitate the adaptation to future land subsidence and to mitigate the risk of breakdown of water discharge system due to future land subsidence by adopting the aboveground pipe line system 3) To mitigate the shortage of the required pumping head associated with land subsidence in a large area and sea level rise due to climate change 4) To be able to cope with sea level rise due to climate change by reconstruction of Sea Tide Dike in front of East Pump Station 5) To reduce the damage due to flooding for the important facilities, such as Jakarta Fishing Port, coastal industrial area, Jakarta Kota Station, thermal power plant, highway interchange, and related economical activities, etc. <p>(2) Indirect Effect</p> <ol style="list-style-type: none"> 1) To recover the drainage function of Jakarta urban area, to reduce the flooding damage and to improve the sanitation for the primary direct beneficiaries (180 thousand people) 2) To reduce the indirect damages to the economic activities of 24 million indirect beneficiaries in the Jakarta Metropolitan area as a result of reduction in flood damage in Pluit Area by the Project
<p>The possibility of piping phenomenon is quite high in Central and West Pump Stations because the water-tightness of sea tide dike in front of Center and West Pump Stations is poor and their structure and foundation type is the same as those of East Pump Station. Existing Sea Tide Dike in front of Central and West Pump Stations is not capable in managing prevention of piping phenomenon, sea level rise due to climate change and land subsidence in large area during service period of Sea Water Dike.</p>	<p>The following construction will be implemented.</p> <ul style="list-style-type: none"> - Construction of sea tide dike in front of Central and West Pump Stations 	<p>(1) Direct Effect</p> <ol style="list-style-type: none"> 1) To reduce the risk of piping phenomenon and other damages in Central and West Pump Stations because the stop logs can be installed and the inspection can make it possible to find damage and protect. 2) To minimize the damage of piping phenomenon by stop logs 3) To be able to cope with sea level rise due to climate change by reconstruction of Sea Tide Dike in front of Central and West Pump Stations 4) To make a future reconstruction easier and cheaper because of high water-tightness <p>(2) Indirect Effect</p> <ol style="list-style-type: none"> 1) To reduce the damage due to flooding as same as in the reconstruction of East Pump Station 2) To reduce the indirect damages to the economic activities of 24 million indirect beneficiaries in the Jakarta Metropolitan area as a result of reduction in flood damage in Pluit Area by the Project

3-2 RECOMMENDATIONS

Indonesian side shall implement the following works in order to progress of the Project as the schedule and to reduce much more damage due to flooding in Jakarta urban area.

1. To secure operators and trainings

DINAS PU DKI Jakarta has kept the same staffing structure for operation and maintenance of Pluit Pump Station for more than 5 years, and plans to keep this structure after the completion of the Project. There will not be any difficulties in near future, however, it is necessary to secure operators and to implement trainings if the staff changes.

2. To implement obligation items

- (1) To ensure prompt unloading and customs clearance of the goods for the Project at the port of disembarkation in Indonesia
- (2) To secure the access road
- (3) To secure the disposal site for construction wastes from demolishing existing facility
- (4) To relocate power receiving facility
- (5) To provide alternate drainage facility during reconstruction of East Pump Station
- (6) To relocate Unauthorized Anchored Ships
- (7) To relocate Marine Police Station and related facilities
- (8) To clear EIA Requirement
- (9) To install necessary appropriate furniture (desks, chairs, book shelves, lockers, etc.)
- (10) To implement other general obligation of Japanese Grant Aid

3. To learn the techniques for facility installation

Before the commissioning of the pump facilities, the contractor shall conduct the initial guidance to DINAS PU DKI Jakarta on the operation and maintenance method of the new East Pump Station. Moreover, the consultant and the contractor shall implement the technical guidance of systematic operation method for the whole Pump Station to DINAS PU DKI Jakarta. At that time, DINAS PU DKI Jakarta shall provide the necessary arrangement for the O & M staff to attend these trainings.

4. To manage operation and maintenance

Indonesian side shall procure the necessary spare parts for the facilities installed in the Project, and maintain them, including parts replacement.

5. To maintain the building

Indonesian side shall continue the present operation and maintenance system for maintenance of the building

6. To promote the flood control function of Jakarta

As mentioned above, Jakarta is quite prone to flooding because of its geographic characteristics. Moreover, the potential damage by flooding has been increased by high population density and properties and increasing

frequency of flood occurrence due to climate change in this flood hazard area.

Although the reduction of this damage due to flooding is one of the effects of the Project, it is necessary to improve flood control function of not only Ciliwung river, but also other rivers in Jakarta.

3-3 CONCLUDING REMARKS

This Project provides considerable benefit and effect mentioned above to Indonesia and contributes to the improvement of urban sanitary environment and living environment of the public in the Project Target Area. This proves the viability of execution of the Project through the grant aid scheme of the GOJ. It is confirmed that Indonesia can provide sufficient staff and fund for proper operation and maintenance of the Pluit Pump Station to be constructed under the Project.

It is hoped that the realization of the Project will contribute effectively further to Indonesia overall as well as to the Project Target Area through achievement of the following:

- (1) Maintenance of the proposed O & M organization and staff capability through appropriate training, and
- (2) Promotion of improvement of drainage function in Jakarta Metropolitan Area.

APPENDICES

APPENDIX-1

MEMBER LIST OF THE SURVEY TEAM

APPENDIX-1

Member List of the Survey Team

(1) Preparatory Survey Team

Name	Assignment	Current Position / Company
Mr. Kenichi TSUKAHARA	Team Leader	Japan International Cooperation Agency (JICA)
Mr. Chiaki KOBAYASHI	Planning Management Officer	Japan International Cooperation Agency (JICA)
Mr. Toshio YANO	Chief Consultant / Drainage Facility Planning	Yachiyo Engineering Co., Ltd.
Mr. Masatsugu KOMIYA	Deputy Chief Consultant / Operation and Maintenance Planning	Yachiyo Engineering Co., Ltd.
Mr. Tamotsu SHINGU	Drainage Planning / Hydraulics 1	Yachiyo Engineering Co., Ltd.
Mr. Tadafumi SATO	Hydraulics 2	Yachiyo Engineering Co., Ltd.
Mr. Masakazu YATOGE	Structures Design	Yachiyo Engineering Co., Ltd.
Mr. Seiichi OYAMADA	Drainage Facility Design	Yachiyo Engineering Co., Ltd.
Mr. Katsunobu ISHIZAWA	Sea Tide Dike Design	Yachiyo Engineering Co., Ltd.
Mr. Teruo KURUMADA	Building Design	Yachiyo Engineering Co., Ltd.
Ms. Hiromi MATSUBARA	Environmental and Social Considerations	Yachiyo Engineering Co., Ltd.
Mr. Kazuhiko UEHARA	Construction and Procurement Planning / Cost Estimation	Yachiyo Engineering Co., Ltd.
Mr. Hiroyuki FUNAOKA	Geographical Survey	Yachiyo Engineering Co., Ltd.
Mr. Daisuke AKATSUKA	Coordinator	Yachiyo Engineering Co., Ltd.

(2) Draft Report Explanation Team

Name	Assignment	Current Position / Company
Mr. Kenichi TSUKAHARA	Team Leader	Japan International Cooperation Agency (JICA)
Mr. Chiaki KOBAYASHI	Planning Management Officer	Japan International Cooperation Agency (JICA)
Mr. Toshio YANO	Chief Consultant / Drainage Facility Planning	Yachiyo Engineering Co., Ltd.
Mr. Tamotsu SHINGU	Drainage Planning / Hydraulics 1	Yachiyo Engineering Co., Ltd.
Mr. Masakazu YATOGE	Structures Design	Yachiyo Engineering Co., Ltd.
Mr. Seiichi OYAMADA	Drainage Facility Design	Yachiyo Engineering Co., Ltd.
Mr. Katsunobu ISHIZAWA	Sea Tide Dike Design	Yachiyo Engineering Co., Ltd.

APPENDIX-2

SURVEY SCHEDULE

APPENDIX-2

Survey Schedule

(1) Preparatory Survey Team

Date			Stay	Activities
1	21 Oct.	Wed	Jakarta	<ul style="list-style-type: none"> • Consultant Member (Komiya, Shigu, Funaoka and Akatsuka) • Departure from Tokyo and arrival at Jakarta
2	22 Oct.	Thu	Jakarta	<ul style="list-style-type: none"> • Courtecy calls on <ol style="list-style-type: none"> (1) JICA Indonesia Office (2) Mr. Osakabe, Advisor to JICA TCP Institutional Revitalization Project of Flood Management in JABODETABEK (3) Directorate General of Water Resources, Ministry of Public Works (DGWR PU) (4) Public Works, City of Jakarta (DINAS PU DKI Jakarta) • Preparation of Contract for Soil Investigation and Topographic Survey
3	23 Oct.	Fri	Jakarta	<ul style="list-style-type: none"> • Courtecy call on Dr. Baba, JICA Expert on Integrated Water Resources • Signing of Contract for Soil Investigation and Topographic Survey • Meeting with DINAS PU DKI Jakarta • Site Survey (Pluit Pump Station)
4	24 Oct.	Sat	Jakarta	<ul style="list-style-type: none"> • Site Survey (Manggarai Gate→Istiqlal Gate→Jembatan Merah Gate→Marina Gate→Cideng Pump Station)
5	25 Oct.	Sun	Jakarta	<ul style="list-style-type: none"> • Document prepration and analysis of collected data
6	26 Oct.	Mon	Jakarta (Komiya & Shingu: In-flight)	<ul style="list-style-type: none"> • Courtecy call on and meeting with JICA Indonesia Office • Meeting with DINAS PU DKI Jakarta • Meeting with DGWR PU • Consultant Member (Komiya and Shingu): Departure from Jakarta
7	27 Oct.	Tue	Jakarta	<ul style="list-style-type: none"> • Consultant Member (Komiya and Shingu): Arrival at Tokyo • Data collection at Institute Technology Bandung
8	28 Oct.	Wed	Jakarta	<ul style="list-style-type: none"> • Meeting with DINAS PU DKI Jakarta <ol style="list-style-type: none"> (1) Research on related drawings (2) Discussion on Questionnaire (3) Discussion on Relocation of ahcohred ships • Supervision of Soil Investigation and Topographic Survey
9	29 Oct.	Thu	Jakarta	<ul style="list-style-type: none"> • Supervision of Soil Investigation and Topographic Survey • Meeting with DINAS PU DKI Jakarta <ol style="list-style-type: none"> (1) Research on related drawings (2) Discussion on Questionnaire (3) Discussion on Relocation of ahcohred ships • Meeting with BPLHD on AMDAL (Environmental Impact Assessment)
10	30 Oct.	Fri	Jakarta	<ul style="list-style-type: none"> • Supervision of Soil Investigation and Topographic Survey • Meeting with BPLHD on AMDAL (Environmental Impact Assessment) • Follow-up on research on related drawings and reply to Questionnaire
11	31 Oct.	Sat	Jakarta	<ul style="list-style-type: none"> • Consultant Member (Yatoge): Departure from Tokyo and arrival at Jakarta • Document prepration and analysis of collected data • Team Meeting
12	1 Nov.	Sun	Jakarta	<ul style="list-style-type: none"> • Site Survey

Date			Stay	Activities
13	2 Nov.	Mon	Jakarta (Funaoka & Akatsuka: In-flight)	<ul style="list-style-type: none"> • Courtesy call on and reporting to JICA Indonesia Office • Meeting with DINAS PU DKI Jakarta <ul style="list-style-type: none"> (1) Research on related drawings (2) Working space for Survey Team (3) AMDAL • Supervision of Soil Investigation and Topographic Survey • Structural design • Consultant Member (Funaoka & Akatsuka): Departure from Jakarta
14	3 Nov.	Tue	Jakarta	<ul style="list-style-type: none"> • Consultant Member (Funaoka & Akatsuka): Arrival at Tokyo • Site Survey • Structural design
15	4 Nov.	Wed	Jakarta	<ul style="list-style-type: none"> • Structural design
16	5 Nov.	Thu	Jakarta	<ul style="list-style-type: none"> • Structural design
17	6 Nov.	Fri	Jakarta	<ul style="list-style-type: none"> • Structural design
18	7 Nov.	Sat	Jakarta	<ul style="list-style-type: none"> • Site Survey (Ancol sea wall)
19	8 Nov.	Sun	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data
20	9 Nov.	Mon	Jakarta	<ul style="list-style-type: none"> • Structural design
21	10 Nov.	Tue	Jakarta	<ul style="list-style-type: none"> • Structural design • JICA Member (Tsukahara & Kobayashi) and Consultant Member (Yano, Komiya, Sato, Oyamada, Matsubara and Akatsuka): Departure from Tokyo and arrival at Jakarta • Team meeting
22	11 Nov.	Wed	Jakarta	<ul style="list-style-type: none"> • Courtesy call on JICA Indonesia Office • Site Survey • Courtesy call on DINAS PU DKI Jakarta
23	12 Nov.	Thu	Jakarta	<ul style="list-style-type: none"> • Courtesy call on BAPPENAS
24	13 Nov.	Fri	Jakarta	<ul style="list-style-type: none"> • Joint Kick-off meeting with DGRW PU and DINAS PU DKI Jakarta
25	14 Nov.	Sat	Jakarta	<ul style="list-style-type: none"> • Site Survey (Manggarai Gate→Melati Pump Station→Sogo Gate→Sintar Gate→Cideng Pump Station→Pasar Ikan Gate→Marina Gate→Jembatan Merah Gate)
26	15 Nov.	Sun	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data
27	16 Nov.	Mon	Jakarta	<ul style="list-style-type: none"> • Joint Site Survey with DINAS PU DKI Jakarta • Data collection on relocation of anchored ships and land subsidence in Pluit area
28	17 Nov.	Tue	Jakarta	<ul style="list-style-type: none"> • Discussion on M/D
29	18 Nov.	Wed	Jakarta	<ul style="list-style-type: none"> • Discussion on and signing of M/D
30	19 Nov.	Thu	Jakarta	<ul style="list-style-type: none"> • Site Survey (Electrical facility in Pluit Pump Station) • Consultant Member (Ishizawa, Funaoka and Uehara): Departure from Tokyo and arrival at Jakarta
31	20 Nov.	Fri	Jakarta (Tsukahara & Kobayashi: In-flight)	<ul style="list-style-type: none"> • Report to Embassy of Japan in Indonesia • JICA Member (Tsukahara & Kobayashi): Departure from Jakarta
32	21 Nov.	Sat	Jakarta	<ul style="list-style-type: none"> • JICA Member (Tsukahara & Kobayashi): Arrival at Tokyo • Site Survey (Manggarai Gate→Melati Pump Station→Sogo Gate→Sintar Gate→Cideng Pump Station→Pasar Ikan Gate→Marina Gate)
33	22 Nov.	Sun	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data

Date			Stay	Activities
34	23 Nov.	Mon	Jakarta (Komiya: In-flight)	<ul style="list-style-type: none"> • Discussion and site survey with PLN • Attendance to Seminar organized by JICA TCP Institutional Revitalization Project of Flood Management in JABODETABEK • Discussion with Dr. Baba, JICA Expert on Integrated Water Resources • Study on Construction Planning • Consultant Member (Komiya): Departure from Jakarta
35	24 Nov.	Tue	Jakarta	<ul style="list-style-type: none"> • Consultant Member (Komiya): Arrival at Tokyo • Site Survey (Access Road) • Survey on Local Civil and Building Construction
36	25 Nov.	Wed	Jakarta (Yatoge: In-flight)	<ul style="list-style-type: none"> • Meeting on Topographic survey • Consultant Member (Yatoge): Departure from Jakarta
37	26 Nov.	Thu	Jakarta	<ul style="list-style-type: none"> • Meeting with DINAS PU DKI Jakarta on <ol style="list-style-type: none"> (1) Construction Planning (2) Environmental and Social Consideration • Joint site survey with JICA Environmental Officer • Meeting on Topographic Survey • Consultant Member (Yatoge): Departure from Tokyo
38	27 Nov.	Fri	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data • Team Meeting
39	28 Nov.	Sat	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data
40	29 Nov.	Sun	Jakarta (Sato: In-flight)	<ul style="list-style-type: none"> • Document preparation and analysis of collected data • Consultant Member (Sato): Departure from Jakarta
41	30 Nov.	Mon	Jakarta	<ul style="list-style-type: none"> • Consultant Member (Sato): Arrival at Tokyo • Price Quotation on M & E facilities • Meeting on Financial situation and budget (PU)
42	1 Dec.	Tue	Jakarta	<ul style="list-style-type: none"> • Price Quotation on Civil and Building works • Meeting on Financial situation and budget (DKI) • Meeting on Outline Design Policy (PU) • Meeting on Topographic Survey
43	2 Dec.	Wed	Jakarta	<ul style="list-style-type: none"> • Meeting on Financial situation and budget (PU) • Meeting on Design Drawings of Existing Pluit Pump Station (PU) • Meeting on Outline Design Policy (DKI) • Meeting on Design of Sea Tide Dike (DKI)
44	3 Dec.	Thu	Jakarta	<ul style="list-style-type: none"> • Joint site survey with DKI on Sea Tide Dike design • Meeting on Design Drawings of Existing Pluit Pump Station (PU)
45	4 Dec.	Fri	Jakarta	<ul style="list-style-type: none"> • Meeting on Outline Design Policy (PU and DKI) • Study on Construction Planning • Team Meeting
46	5 Dec.	Sat	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data • Consultant Member (Yatoge): Departure from Tokyo and arrival at Jakarta
47	6 Dec.	Sun	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data • Consultant Member (Kurumada): Departure from Tokyo and arrival at Jakarta
48	7 Dec.	Mon	Jakarta	<ul style="list-style-type: none"> • Team Meeting • Consolidation of design policy on Civil and Building facilities • Meeting on Topographic Survey • Consultant Member (Shingu): Departure from Tokyo and arrival at Jakarta

Date			Stay	Activities
49	8 Dec.	Tue	Jakarta	<ul style="list-style-type: none"> • Discussion with Dr. Baba, JICA Expert on Integrated Water Resources • Meeting with PLN • Meeting on Environmental and Social Consideration • Data collection on financial situation and budget • Meeting on Topographic survey • Site Survey (Pluit Pump Station: Building Design)
50	9 Dec.	Wed	Jakarta	<ul style="list-style-type: none"> • Meeting on Environmental and Social Consideration and Financial situation and budget • Consolidation of Overall Plan • Price Quotation on Mechanical and Electrical facilities
51	10 Dec.	Thu	Jakarta	<ul style="list-style-type: none"> • Meeting with BPLHD • Site Survey (Mechanical and Electrical facilities) • Preparation of Field Report
52	11 Dec.	Fri	Jakarta	<ul style="list-style-type: none"> • Price Quotation on Civil and Building works • Preparation of Field Report
53	12 Dec.	Sat	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data • Preparation of Field Report
54	13 Dec.	Sun	Jakarta	<ul style="list-style-type: none"> • Document preparation and analysis of collected data • Preparation of Field Report
55	14 Dec.	Mon	Jakarta	<ul style="list-style-type: none"> • Preparation of Field Report • Report to JICA Indonesia Office
56	15 Dec.	Tue	Jakarta	<ul style="list-style-type: none"> • Report to Embassy of Japan in Indonesia • Discussion on Field Report with PU and DINAS PU DKI Jakarta • Discussion with Dr. Baba, JICA Expert on Integrated Water Resources
57	16 Dec.	Wed	Jakarta	<ul style="list-style-type: none"> • Signing on Field Report
58	17 Dec.	Thu	In-flight	<ul style="list-style-type: none"> • Team Meeting • Consultant Member (Yano, Shigu, Oyamada, Kurumada, Ishizawa, Matsubara, Uehara, Funaoka and Akatsuka): Departure from Jakarta
59	18 Dec.	Fri	-	<ul style="list-style-type: none"> • Consultant Member (Yano, Shigu, Oyamada, Kurumada, Ishizawa, Matsubara, Uehara, Funaoka and Akatsuka): Arrival at Tokyo

(2) Draft Report Explanation

Date			Stay	Activities
0	24 May	Mon	Jakarta	<ul style="list-style-type: none"> JICA Member (Kobayashi) Departure from Tokyo and arrival at Jakarta
1	25 May	Tue	Jakarta	<ul style="list-style-type: none"> Meeting with JICA Indonesia Office Meeting with DGWR PU JICA Member (Tsukahara) and Consultant Member (Yano, Shigu, Yatoge, Oyamada and Ishizawa) Departure from Tokyo and arrival at Jakarta
2	26 May	Wed	Jakarta	<ul style="list-style-type: none"> Courtesy call on and discussion with DINAS PU DKI Jakarta (1) Draft Report Explanation (2) Discussion on M/D
3	27 May	Thu	Jakarta	<ul style="list-style-type: none"> Meeting with DINAS PU DKI Jakarta on (1) Draft Report Explanation and discussion (2) Cost Estimation and Implementation Schedule of Obligations by Indonesian side (3) Discussion on M/D Courtesy call on DGWR PU Draft Report Explanation and discussion with DGWR PU
4	28 May	Fri	Jakarta	<ul style="list-style-type: none"> Joint Site Survey with DINAS PU DKI Jakarta (Duri Pump Station Site→Duri Gate→Pluit Pump Station→Pasar Ikan Gate→East Banjir Canal)
5	29 May	Sat	Jakarta	<ul style="list-style-type: none"> Document preparation and analysis of collected data Team Meeting Consultant Member (Oyamada): Departure from Jakarta and arrival at Bangkok
6	30 May	Sun	Jakarta	<ul style="list-style-type: none"> Document preparation and analysis of collected data Team Meeting
7	31 May	Mon	Jakarta	<ul style="list-style-type: none"> Courtesy call on DG of DGWR PU and Draft Report Explanation and discussion Discussion on and signing of M/D Courtesy call on and Draft Report explanation to BAPPENAS Courtesy call on and discussion with Directorate of Funds, Directorate General of Debt Management, Ministry of Finance (1) Draft Report explanation (2) Discussion on Tax Exemption as Obligation of Indonesian side
8	1 Jun.	Tue	Jakarta (Tsukahara & Kobayashi: In-flight)	<ul style="list-style-type: none"> Report to and meeting with JICA Indonesia Office Report to Embassy of Japan in Indonesia JICA Member (Tsukahara and Kobayashi): Departure from Jakarta
9	2 Jun.	Wed	In-flight	<ul style="list-style-type: none"> JICA Member (Tsukahara and Kobayashi): Arrival at Tokyo Meeting with DINAS PU DKI Jakarta on Obligation of Indonesian side Consultant Member (Yano, Shigu, Yatoge and Ishizawa): Departure from Jakarta
10	3 Jun.	Thu		<ul style="list-style-type: none"> Consultant Member (Yano, Shigu, Yatoge and Ishizawa): Arrival at Tokyo

APPENDIX-3

LIST OF PARTIES CONCERNED

IN THE RECIPIENT COUNTRY

APPENDIX-3

List of Parties Concerned in Recipient Country

<u>Agency / Name</u>	<u>Position</u>
The State Ministry of National Development Planning / National Development Planning Agency (BAPPENAS)	

Dr. M. Donny Azdan	Director of Water Resources and Irrigation
Mr. Mohammad Zainal Fatah	Head, Sub-Directorate of Raw Water, Irrigation and Swamp

Ministry of Public Works / Directorate General of Water Resources (PU)

Mr. Iwan Nursyirwan Diar	Director General of Water Resources (Preparatory Survey)
Dr. Mochammad Amron	Director General of Water Resources (Draft Report Explanation)
Mr. Widagdo	Director of River, Lake and Reservoir, Directorate General of Water Resources,
Mr. Tri Bayu Aji	Sub Director of Management of West Region Implementer
Mr. Suhartono	Sub Director of O & M and Natural Disaster
Mr. S. Budi Santoso	Sub Director of Technical Planning
Mr. Pitoyo Subandrio	Director of Balai Besar Wilayah Sungai Ciliwung-Cisadane
Mr. Febri Iman Harta	Director of Sub Agency Planning, O&M BBWS Ciliwung-Cisadane
Mr. Sigit Dipuro	Section Head, Sub Directorate of Planning
Mr. Lufiandi	Staff of O & M and Disaster Rehabilitation
Mr. Djaya Sukarno	Section Head of Programming and Budgeting of East Region
Mr. Hitoshi Baba, Ph. D.	Expert on Integrated Water Resources

Public Works Department / City of Jakarta (DINAS PU DKI Jakarta)

Mr. Budi Widiantoro	Head of Agency
Mr. Tarjuki	Head of Maintenance of Water Resources Sector
Mr. Fakhurrozie	Head of Water Resources Management Sector
Mr. Wagiman	Head of Implementation & Controlling of Conservation & Utilization of Water Resources Section
Mr. Mustajab	Staff of Implementation & Controlling of Conservation & Utilization of Water Resources Section
Ms. Herning. M	Staff of Planning of Water Resources Management Section
Mr. Rifig Abduller	Head of Sub-Division of Program & Budget
Mr. Hadi Purwanto	Consultant of DKI Jakarta
Mr. Dudi Gardesi A.	Head of Planning of Water Resources Maintenance Section

Ms. Sarah Dewi Yani	Staff of Planning of Water Resources Maintenance Section
Mr. Budi Mulyanto	Head of Maintenance of Flood Controler Facility & Infrastructure Section
Mr. Eko B. Santoso	Staff of Maintenance of Flood Controler Facility & Infrastructure Section
Mr. Padi	Staff of Maintenance of Flood Controler Facility & Infrastructure Section
Mr. Irvan Amtha	Staff of Maintenance of Flood Controler Facility & Infrastructure Section
Mr. Joko	Chief Operator of Pluit Pump Station
Mr. Andri	Operator of Pluit Pump Station
Mr. Yose Rizal	Staff of Planning of Water Resources Maintenance Section
Mr. Chairul Anwar	Staff of Planning of Water Resources Maintenance Section
Mr. Ir. Zuhan	Staff of Planning of Water Resources Maintenance Section
Mr. Maksum	Staff of Planning of Water Resources Maintenance Section
Mr. Joko Budiyo	Staff of Planning of Water Resources Maintenance Section
Mr. Kusharyanto	Staff of Planning of Water Resources Maintenance Section
Mr. Julio Victorie	Staff of Maintenance of Flood Controler Facility & Infrastructure Section

Jakarta Environmental Management Agency (BPLHD)

Mr. Suwarno	Head of sub-section of permission Head of sub-section of AMDAL
Ms. Nita	Staff of sub-section of AMDAL

Embassy of Japan in Indonesia

Ms. Chikako Sado	Second Secretary
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JICA Indonesia Office

Mr. Kiichi Tomitami	Senior Representative
Ms. Kanako Hiraoka	Project Formulation Advisor

The Institutional Revitalization Project for Flood Management in JABODETABEK

Mr. Takaaki Kusakabe	Chief Advisor (JICA Longterm Expert)
Mr. Sarwono Sukardi, Dipl. HE.	Facilitator

Meteorological Climatological and Geophysical Agency (BMKG)

Mr. Paulus Agus Winiarso	Staff
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Faculty of Earth Science and Technology, Institut Teknologi Bandung

Mr. Lambok M. Hutasoit, Ph.D. Dean

Mr. Hasanuddin Z. Abidin Professor

PT. CITRA LAHAN UTAMA

Mr. Muhni Team Leader

Ms. Suzy Odang Team Member

Mr. Hadi Waluyo Team Member

PT. PLN

Mr. P. Wahono Vice Manager of Planning & Maintenance Section

Mr. M. Makmum Supervisor of Planning & Maintenance Section

Mr. Ngadino Opdistabusi Staff of Bandengan Branch Office

Mr. Andriyatno Staff of Bandengan Branch Office

APPENDIX-4

MINUTES OF DISCUSSIONS

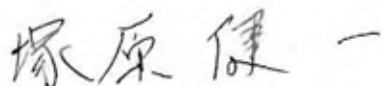
Minutes of Discussions
on
The Preparatory Survey on
The Project for Urgent Reconstruction of East Pump Station of Pluit
In Jakarta, the Republic of Indonesia

In response to a request from the Government of the Indonesia (hereinafter referred to as "the GOI"), the Government of Japan (hereinafter referred to as "the GOJ") decided to conduct a Preparatory Survey on the Project for Urgent Reconstruction of East Pump Station of Pluit in Jakarta, the Republic of Indonesia (hereinafter referred to as "the Project") in the Republic of the Indonesia (hereinafter referred to as "the Indonesia") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Indonesia the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Dr. Kenichi Tsukahara, Senior Adviser, JICA and is scheduled to stay in the country from 21th October to 17th December 2009.

The Team held discussions with the concerned GOI officials and conducted a field survey at the study area. In the course of discussions and field survey, both parties confirmed the main items described in the attached sheets.

Jakarta, 18th November, 2009



Mr. Kenichi Tsukahara
Leader,
Preparatory Survey Team,
Japan International Cooperation Agency



Mr. Widagdo, Dipl. HE
Director of River, Lake and Reservoir,
Directorate General of Water Resources,
Ministry of Public Works (PU)
Republic of Indonesia



Mr. Budi Widiatoro
Head of Public Works,
City of Jakarta
(DINAS PU DKI Jakarta)
Republic of Indonesia

ATTACHMENT

1. Name of the Project

Both sides agreed to name the title of the Project as "The Project for Urgent Reconstruction of East Pump Station of Pluit in Jakarta"

2. Objective of the Project

Both side agreed that the objective of the Project is to reconstruct the East Pump Station of Pluit for improvement of drainage to mitigate the risk of damage from the flood to protect lives and properties. The Project is divided into two phases, namely Preparatory Survey and Implementation. Implementation of the Project by Japan's Grant Aid Scheme has not been approved by the GOJ. Therefore, all arrangements regarding implementation of the Project is subject to approval of the Project by the GOJ.

3. Executing and Implementing Agency

Both sides agreed the following: The Executing agency for the Project is the Directorate General of Water Resources of Ministry of Public Works (PU). As for the implementation phase, the implementing agencies are PU and the Public Works, City of Jakarta(DINAS PU DKI Jakarta) until completion of the Project and DINAS PU DKI Jakarta is responsible for operation and maintenance of the facilities implemented by the Project after completion of the Project. The organization charts of executing and implementing units are shown in **Annex-1a and 1b**

4. Project Site

The Project site is located at the northern part of Jakarta. The Project site is marked in the map shown in **Annex-2**.

5. Items Requested by the Indonesia

In the course of the discussions, the Project components were confirmed as below.

The Team explained that the budget for the Project would be considered by the GOJ by evaluating result of the preparatory survey. Both sides agreed that the Project components as below would be prioritized and selected from the technical consideration as well as in accordance with the budget allocated for the Project.

- Reconstruction of East Pump Station

(1) East Pump House

(2) Pump Facility

(3) Sea Tide Dike

6. Japan's Grant Aid Scheme

Indonesia side understood the Japan's Grant Aid scheme and the necessary measures to be taken by the Indonesia side as shown in **Annex-3 and 4**.

7. Schedule of the Study

7-1 The Team will proceed for further studies in the Indonesia until 17th December, 2009.

7-2 The Team will prepare the draft report of the preparatory survey in English. JICA will dispatch a mission to explain its contents around May 2010.

7-3 In case that the contents of the report are accepted in principle by the GOI, JICA will finalize the report and submit it to the GOI around June 2010.

8. Other Relevant Issues

8-1 Temporary Rehabilitation of East Pump Station

Indonesian side (DINAS PU DKI Jakarta) confirmed that they will carry out the Temporary Rehabilitation works of East Pump Station under their responsibility in due time to cope with the risk of potential floods to be expected before implementation of the Project.

The Team advised to Indonesian side to provide the necessary precaution measures against the concerns on the design by Indonesian side (PU, DINAS PU DKI Jakarta) of the temporary East Pump Station in terms of the safe construction, operation and maintenance as shown in **Annex- 5**.

8-2 Access Road for Construction

Indonesian side (DINAS PU DKI Jakarta) agreed to secure the access road to the Project site during implementation of the Project before commencement of the construction work by Japanese side.

8-3 Provision of Disposal Area of Demolished Construction Debris

Both sides confirmed that the demolishing work of the existing East Pump Station and disposal of construction debris will be undertaken by Japanese side in case it is confirmed that such work will affect the construction work to be done by Japanese side, after evaluation of construction method and construction period.

Indonesian side (DINAS PU DKI Jakarta) agreed to provide the disposal area of demolished construction debris of the existing East Pump Station at own cost and take necessary measures according to the related law.

8-4 Relocation of Anchored ships

Indonesian (DINAS PU DKI Jakarta) side agreed to relocate anchored ships by Indonesian side before commencement of the construction work by Japanese side.

8-5 Operation and Maintenance

Indonesian side (PU, DINAS PU DKI Jakarta) agreed to allocate sufficient budget and qualified staff for proper and effective operation and maintenance of the Project.

8-6 Environmental and Social Consideration

Indonesian side (PU, DINAS PU DKI Jakarta) confirmed that Environmental Impact Assessment (AMDAL) for the Project is not necessary. The Indonesia side (DINAS PU DKI Jakarta) also confirmed that they shall prepare Environmental Management Plan (UKL) and Environmental Monitoring Plan (UPL) instead, obtain approval by the relevant authority by the end of June 2010 and shall implement them in accordance with guidelines provided by the relevant authority.

8-7 Arrangements for the Survey

As a response to the request by the Team, Indonesian side (PU, DINAS PU DKI Jakarta) agreed to arrange following items:

- (1) To provide the Team with available relevant data, information and materials necessary for the execution of the Survey,
- (2) To prepare the answers for the Questionnaires presented by the Team,
- (3) To assign full-time counterparts to the Team during their stay in Indonesia and to play the following roles as the coordinator to the Team:

- 1) To make the appointments and to set up the meetings with the authorities, departments and all other factories and firms whatever the Team intends to visit,
- 2) To attend the site survey and any other visiting places with the Team and to make any convenience on accommodation, working room, adequate transportation, getting the permissions if required, etc., and
- 3) To assist and to advise the Team for their collection of data and information as much as possible,
- (4) To secure the permission to photograph and enter into private properties and restricted areas for the Team for proper execution of the Survey, if necessary,
- (5) To take any necessary measures deemed necessary to secure the safety of the members of the Team, and
- (6) To make arrangements to allow the Team to bring back to Japan any necessary data, maps and materials related to the Survey, subject to approval by the GOI, in order to prepare the reports.

Annex- 1a : Organization chart of Directorate General of Water Resources, Ministry of Public Works (PU)

Annex- 1b; Organization chart of DINAS PU DKI Jakarta

Annex- 2 : Project Site

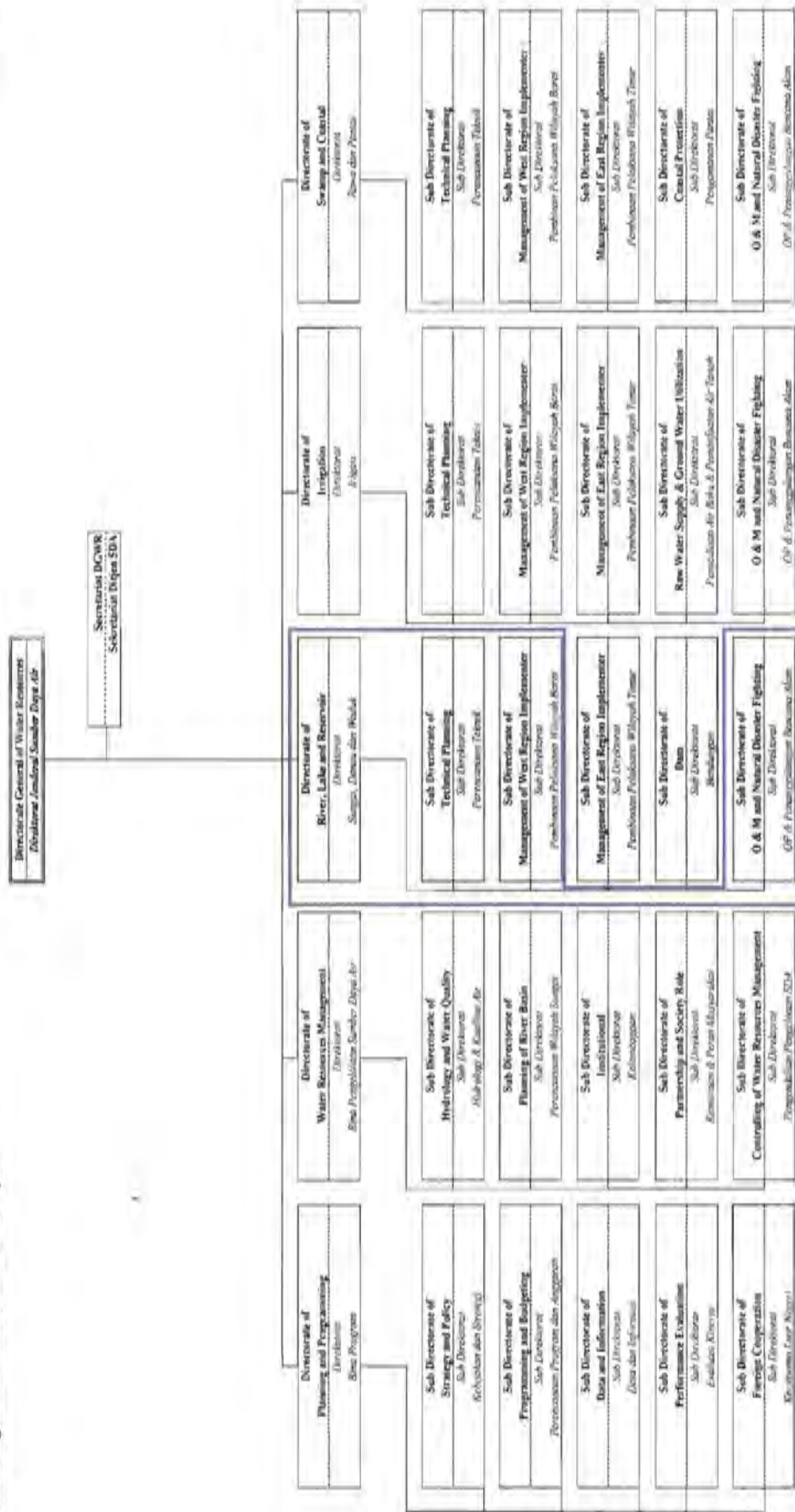
Annex- 3 : Japan's Grant Aid Scheme

Annex- 4 : Major Undertakings to be taken by Each Government

Annex- 5 : Concerns on the Design of Temporary East Pump Station

Organization Chart of Directorate General of Water Resources (DGWR)
 Struktur Organisasi Direktorat Jenderal Sumber Daya Air

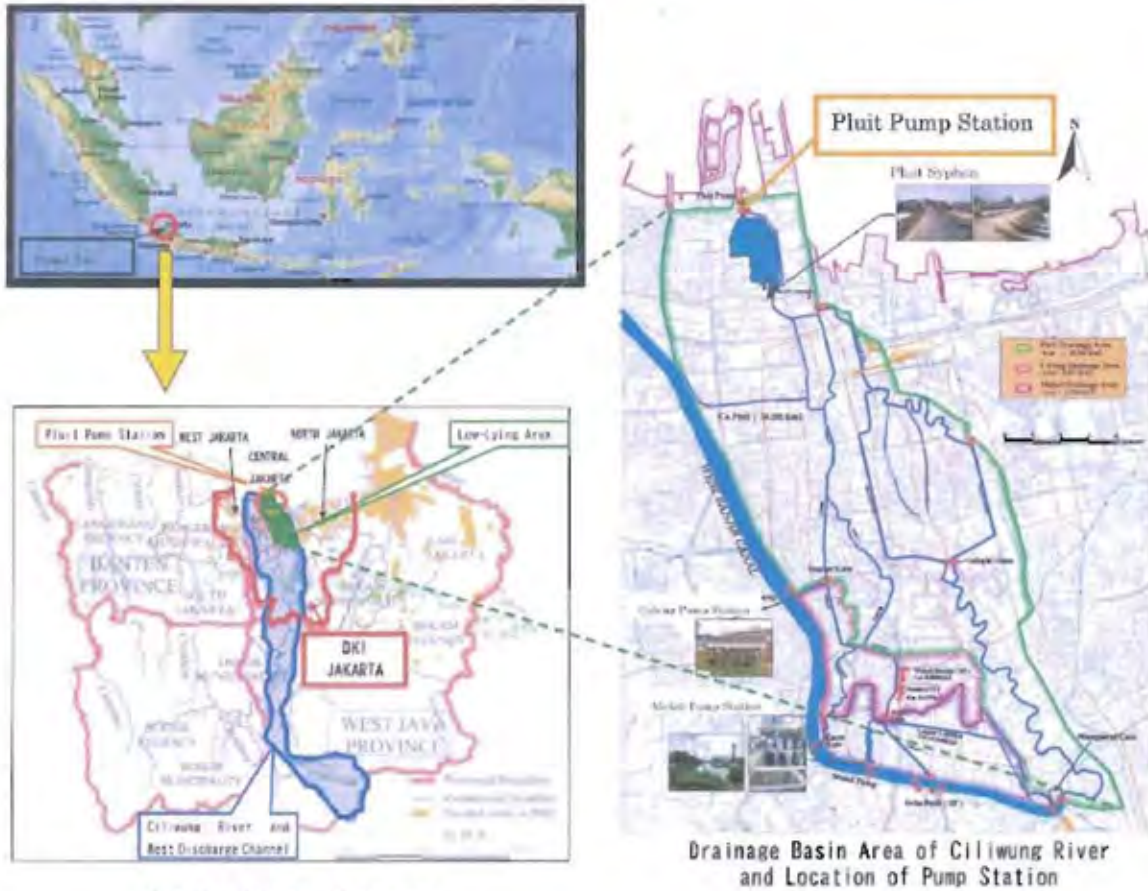
ANNEX-7A



Responsible section:
 Total staff No. 47 as of 17th November 2008

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Project Site



East Pump Station



Pluit Pump Station

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JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as “the GOJ”) is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as “the G/A”)
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of a outline design of the Project.

- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, constructing and procurement firms, and the

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prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as Annex.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant Aid, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant Aid.

(7) "Export and Re-export"

The products purchased under the Grant Aid should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

(End)

Major Understandings to be taken by Each Government

No	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure of land necessary for the implementation of the Project and to clear the site		•
2	To construct the following facilities		
	1) East Pump House, Pump Facility and Sea Tide Dike	•	
	2) The gates and fences in and around the site		•
	3) The road outside the site		•
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site		
	1) Electricity		
	a. The distributing power line to the site		•
	b. The drop wiring and internal wiring within the site	•	
	c. The main circuit breaker and transformer	•	
	2) Water Supply		
	a. The city water distribution main to the site		•
	b. The supply system within the site (receiving and elevated tanks)	•	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)		•
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	•	
	4) Gas Supply		
	a. The city gas main to the site		N/A
	b. The gas supply system within the site	N/A	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		•
	b. The MDF and the extension after the frame/panel	•	
	6) Furniture and Equipment		
	a. General furniture		•
	b. Project equipment	•	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	•	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		•
	3) Internal transportation from the port of disembarkation to the project site		•
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		•
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
7	To ensure that the Facilities and the products be maintained and used properly and effectively for the implementation of the Project		•
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		•
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A(*)		
	1) Advising commission of A/P		•
	2) Payment commission		•
10	To give due environmental and social consideration in the implementation of the Project.		•

(B/A : Banking Arrangement, A/P : Authorization to pay)

(*)Payment of Advising and Payment commission are agreed on Exchange of Notes between the GOI and the GOJ