Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

(1) Overall goals and Project Objectives

The overall goals of this project are to enhance the inspection capability of the Vietnam Customs, and modernize the Customs of the Socialist Republic of Vietnam. In more specific terms, the objectives of this project are to improve the customs inspection capability for handling both import and export container cargoes by reducing times for cargo inspection through the introduction of X-ray Inspection Equipment. Furthermore objectives are to reinforce security and anti-terrorism measures.

(2) Project Outline

The volume of container cargo handled in the Socialist Republic of Vietnam (hereafter simply called "Vietnam") is increasing at a pace that even surpasses its rate of economic growth. Since the 9.11 Terrorist Attack, measures to cope with terrorism have been intensified globally, and the security of international cargo is the focus of attention in all nations.

In Vietnam, the necessity to introduce anti-terrorism measures and safety inspections is growing responding to anti-terrorism moves in the United States such as the Container Security Initiative (CSI) during and after 2002, and the Safe Port Act, which came into effect in October 2006, and responding to the framework for securing the safety of international trade built by the World Customs Organization.

There is a pressing need to introduce the ASEAN Single Window, and achieve the target of standardized customs clearance procedures determined at WTO and ASEAN by introducing X-ray inspection equipment to enhance the efficiency of customs inspection. With the above-mentioned situation serving as the background, it is expected that this project would improve the efficiency of customs inspection and customs inspection capability. To achieve the above targets, it is anticipated that customs inspection efficiency and customs inspection capabilities at Tan Cang Cat Lai Port in Ho Chi Minh (hereinafter referred to as “Tan Cang Cat Lai”) and Hai Phong Port (hereinafter called as “Hai Phong”) can be enhanced by introducing large scale X-ray inspection systems.

The following equipment and facilities will be procured under the project, which are necessary to reinforce the customs functions at Tan Cang Cat Lai and Hai Phong, the two major ports in Vietnam:

① Large scale X-ray inspection equipment and Facilities for Ho Chi Minh Customs
② Large scale X-ray inspection equipment and Facilities for Hai Phong Custom

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

(1) Basic Principles

The basic principles are to introduce the large scale X-ray systems in order to compensate for the increase of target containers for customs inspection by reducing the number of containers to be inspected by manual inspection, and by reducing the time necessary for the customs inspection. For this purpose, procurement of the large scale X-ray equipment and construction of the X-ray inspection building shall be conducted at Tan Cang Cat Lai Port and Hai Phong Port. Based on the request of the Government of Vietnam and the results of the site investigation, the project will be conducted based on following principles.

① Principles for the X-ray equipment

Followings are the principles for the X-ray equipment specification

a. X-ray energy

The 6 MeV of X-ray penetration power is employed as the main targets of the inspection cargo are the smuggled machines such as machines, cars, weapons, and narcotics.

b. Penetration strength

330 mm of iron penetration power is employed to meet the variety of inspection cargo

c. Process speed

20 trailers per hour is employed so that one large scale X-ray equipment in each port can take over all the manual container inspection in Tan Cang Cat Lai Port and Hai Phong Port.

d. Penetration direction

One direction system is employed as it can detect variety of cargo efficiently and economically.

For the concrete specification of the large scale X-ray Inspection Equipment, it is assumed that one set of the equipment for each port is sufficient to cover the present inspection of all containers for customs clearance, taking into account the anticipated reduction of inspection rate because of the promotion of risk-management in the future. Table 2-1 and 2-2 show the future prospects of container inspection in Tan Cang Cat Lai and Hai Phong ports.

Table 2-1 Demands Forecast of Container Throughput and Number of X-ray Inspection (Tan Cang Cat Lai)

Year	2006(result)	2007(result)	2008(forecast)	2009(forecast)
Container Throughput(TEU)	1,185,220	1,519,558	1,800,000	2,050,000
No. of container for Customs procedures (TEU)	331,862	425,476	504,000	574,000
Inspection Ratio	39%	37%	37%	37%
No. of Container to be inspected (TEU)	129,426	157,426	186,480	212,380
No. of Container to be inspected (FEU)	97,070	118,070	139,860	159,285
X-ray system capabilities	168,000FEU/Year (20trailers/hour *24hour*350days/Year)			

The total container throughput in Tan Cang Cat Lai Port is 151 million TEU in 2007, among which around 28% are in charge of Ho Chi Minh Customs Office. The mean inspection rate is 37% (55% for import inspection and 20% for export inspection), all of which are inspected by hands (manual inspection). The container throughputs are expected to increase to 1.8 million TEU in 2008 (18% increase by year to year comparison), and 2.05 million TEU in 2009 (14% increase by year to year comparison). The number of container inspection are estimated to be 139 thousands FEU (40 feet container conversion) in 2008, and 159 thousands FEU in 2009, provided that the inspection rate remain unchanged as 37% in 2007. The capability of X-ray System is 20 FEU/hour or 168 thousands FEU/year, thus one system is judged to suffice the 2009 demands in Tan Cang Cat Lai.

Table 2-2 Demands Forecast of Container Throughput and Number of X-ray Inspection (Hai Phong)

Year	2006(result)	2007(result)	2008(forecast)	2009(forecast)
Container Throughput(TEU)	569,000	780,000	820,000	940,000
No. of container for Customs procedures (TEU)	369,850	522,600	549,400	629,800
Inspection Ratio	53%	49%	49%	49%
No. of Container to be inspected (TEU)	196,020	256,074	269,206	308,602
No. of Container to be inspected (FEU)	147,015	192,056	201,905	231,452
X-ray system capabilities	168,000FEU/Year (20trailers/hour *24hour*350days/Year)			

The total container throughput in Hai Phong is 780 thousand TEU in 2007, among which around 49 % (mean value for export and import) are inspected in Hai Phong Customs Office. The container throughputs are expected to increase to 820 thousands TEU in 2008 (5% increase by year to year comparison), and 940 thousands TEU in 2009 (15% increase by year to year comparison). The number of container inspection are estimated to be 200 thousands FEU (40 feet container conversion) in 2008, and 230 thousands FEU in 2009, provided that the inspection rate remain unchanged as 49% in 2007. According to the calculation, around 20% of containers in 2008 and 38% of containers in2009 seems to be inspected manually because of over capacities of X-ray system.

GDVC have plans to lower the inspection rate by promoting the risk management system, and the inspection rate will be lowered from 2008. The target containers will be decreased in number and divided into two criteria, red line and yellow line. The red line criteria containers will be prioritized to the X-ray inspection and the yellow line containers will be the secondary targets for the X-ray inspection. Based on this premise, one system is judged to suffice the 2009 demands in Hai Phong.

② In designing X-ray building, an integrated system plant incorporating X-ray inspection space, image analyzing office, and other system components is to be planned. The Office building will be composed of a remote control room, an image analysis room, a meeting room, an electric control room, a machine shop, and a sleep break room for X-ray operation staffs. Suitable protection against radiation leakage will be arranged by wall sickness, structure of protection doors, air outlet arrangements and etc. Facility arrangement will be made by taking care for the traffic line from inspection building and manual inspection site and also the traffic of inspection trailers and other cars. In Tan Cang Cat Lai site, intersection of traffic lines of inspection trailers and other cars will be avoided as practical as possible.

The field survey in Hai Phong site revealed the possibilities of over flooding of the site. There exist no reliable data of flooding available, but experiences show a few cases of over flooding per year near the site due to the insufficient discharge arrangements. Although the X-ray system is moisture proof, the repair of X-ray system for over flooding takes long time. Long time interruption of X-ray inspection will hinder the convenience of applicants. The grand floor level of Hai Phong inspection building will be raised 1,200 mm above the ground line to avoid the flooding. The value 1,200 mm is adopted for 20 years of maximum rainfall probability in Hai Phong adding the margin stipulated in Japanese urban planning regulation. The X-ray building is arranged to keep safe slope for the raised entrance and exit for the trailers.

③ The boring survey in Hai Phong site revealed the necessity of soil improvement. Vietnamese side will conduct additional geological survey in order to formulate the soil improvement plan, and conduct the soil improvement works. Vietnamese side will monitor the sinking level of the site after the soil improvement works and inform to Japanese side when the sinking is stabilized. The Hai Phong project will be started after confirming the sinking stabilization.

(2) Policy for natural conditions

Hai Phong and Tan Cang Cat Lai, where large scale X-ray inspection equipment is installed, are areas notorious for high temperatures and humidity, so the large scale X-ray inspection equipment must be sufficiently capable of demonstrating satisfactory performance under such adverse natural environmental conditions. Furthermore, the large scale X-ray inspection equipment should be installed indoors so that it is free from the adverse effects of natural conditions such as wind, rain, and flooding. The walls of the installation should be of an steel-reinforced concrete structure partly laid with 25 mm thick mortar, with the roof structured of polyester resin-coated 0.6 mm thick galvanized corrugated steel sheets so that they are resistant to salt damages.

(3) Policy for socio-economic conditions

It must be considered that Vietnam takes the promotion of export industries as an important force to drive its economic development, and requests trading partners to comply with the WTO-related Code to secure the safety of cargoes related to WTO, and reflect the efforts to enhance the efficiency of customs inspection and secure the safety of export/import cargoes in design. Introduction of the large scale X-ray inspection equipment will also contribute to reduce damages to the inspection cargo by reducing the number of manual inspection.

(4) Procurement policy

None of the large scale X-ray inspection equipment is manufactured in Vietnam currently, so it is necessary to procure those in Japan or a third party nation. Cement and aggregate, which serve as the materials of buildings to accommodate these systems, are to be procured at the construction site.

Installation, adjustments, and trial of large scale X-ray inspection equipment are to be undertaken by specialist engineers dispatched from the manufacturers or their agents. These engineers are to provide guidance related to starting up these system components and normal operations.

(5) Policy for utilizing regional sub-contractors

The facility for the large scale X-ray inspection equipment is designed carefully based on the specifications of the X-ray system, installation standards, and security measures for X-ray shielding. The construction of the facility will require good experiences in respect of secure process control, quality control, and management capability for X-ray safety. Regional sub-contractors directed by well experienced Japanese construction companies are to be employed in this regards.

(6) Policy related to the operation and maintenance capabilities of the implementing organization

Large scale X-ray inspection equipment is to be introduced to the Customs of Vietnam for the first time; hence sufficient consideration should be given to post-introduction training for operating staff

members and establishing a management system. Both offices intend to establish the “X-ray Inspection Center” at their district branch level organizations based on the 2 shifts operation composed of 18 staffs for one shift (9 staffs for X-ray inspection and analysis and another 9 staffs for manual inspection outside the building). A 24 hour/3 sifts operation will be employed in the future with the increase of target containers. GDVC also intend to employ specialized company for maintenance management of the X-ray inspection center consulting to the X-ray equipment manufacturer. Both offices intend to train staffs divided into a few groups (one group: around 20 staffs) utilizing the manufacturers training system. Above circumstances should be respected to promote the project.

(7) Policy for setting the grade of large scale X-ray inspection equipment

When determining the grade for large scale X-ray inspection equipment, consideration must be given to its compliance with service objectives and demands for maintenance. It should be noted that the 6 MeV of X-ray penetration power is employed as the main targets of the inspection cargo are the smuggled machines such as machines, cars, weapons, and narcotics.

(8) Policy related to work method, procurement method, and work period

1) Competitive bidding

A competitive bidding is to be employed for procurement equipment and facilities for the project. The large scale X-ray inspection equipment is a set of sophisticated non-destructive testing equipment, free from technical difficulties, and capable of undisturbed operation without failures. Because it is crucial in bidding to give sufficient consideration for capability of safety management to prevent radiation leakages, a pre-bidding qualification assessment should be considered.

2) Bidders

Large scale X-ray inspection equipment is to be procured from manufacturers in Japan or a third-party nation (DAC). To complete a building with a complete radioactive ray leak preventing performance, it is necessary to select a good experienced construction company with a high technical capacity. In this specific connection, a special competitive bidding procedure in which a joint venture system covering Japanese firms and/or manufacturers of large scale X-ray inspection equipment affiliated by Japanese construction companies who undertake construction work for large scale X-ray inspection equipment are considered to be allowed to participate in a bidding.

3) Implementation period

The work period is assumed to be approximately 12.5 months from contract signing until taking over of the equipment for Tan Cang Cat Lai Port as well as Hai Phong Port.

2-2-2 Basic Plan (Construction Plan/Equipment Plan)

Table 2-3 Specifications of the large scale X-ray inspection equipment

Equipment No.	Equipment : Large scale X-ray inspection equipment	Quantity:1 set for Tan Cang Cat Lai and 1 set for Hai Phong
Component: Equipment 1 set		
Specifications : 1.Equipment Electrons energy: 6 MeV Penetration: no less than 330 mm steel Scanning rate: no less than 20 cars/hour Irradiation: one way 2. Resolution IQI: less than 4% or less CI : 2% or less In air : 1 mm or less 3. Operability: 365 days/year (including 15 days for maintenance service) 4. X-Ray operator annual working hours: 2190 hours/year 5. Safety of Facility Applicable Standards: Recommendation of International Commission on Radiological Protection ICRP-60 Radiation protection method: Concrete structure Safety measure: External walls of radiation protection 9μSV/hour		

Table 2-4 Specifications of the large scale X-ray inspection facility

Facility	Purpose	Numbers
Facility for X-ray Inspection Equipment	1. Container cargo inspection station for X-ray equipment installation and operation ・ Include shield doors and ventilation equipment 2. Office building ・ Remote control room of X-ray system ・ Image analysys room ・ Meeting room ・ Electric control room ・ Machine shop ・ Sleep break room for X-ray operation staffs Reinforced concrete with pile foundation Roof: Steel beam structure Roof material: Polyester processed Galvanized steel plate Thickness: 0.6 mm Eaves height: 6,500 mm One storied building Floor area: 1,065.17 square meter	One building for both Tan Cang Cat Lai Port and Hai Phong Port

2-2-2-1 Facility Plan at Tan Cang Cat Lai Port

(1) Basic plan

Large scale X-ray inspection equipment are installed indoors from the view point of the operating environment and the dust-prevention. The facility shall be designed to integrate the X-ray inspection zones and work places for image analyzing and monitoring together with administration of the facility as necessary.

1) Floor plan

To accommodate a trailer which is loading a 40 feet container in the X-ray inspection zone, the length and width of the inspection zone is necessary as much of approximately 37 m x 20 m. The length is determined considering some marginal length, and width is determined also considering movable areas of the X-ray equipment and spaces for maintenance other than the dimensions of trailer and container.

To make easily accessible for heavy loaded trailers to the inspection zone, entrance and exit slopes for the trailer is to be provided. To avoid the danger of radioactive leakage, the wall thickness in the direction of irradiation is to be 400 mm, and no opening is provided whatsoever. The wall thickness at the side receiving the reflected X-ray is to be 300 mm, taking into account the attenuation of the X-ray energy.

The office space for controlling the large scale X-ray inspection equipment and image analysis is to have the same length of the X-ray inspection zone under the structural consideration, and provision of inspection room, store room for spare parts and tools, sleeping space for operators, taking into account their service on an around-the-clock basis. Shower room, and electrical service room are also planned. Summing the necessary floor areas for these rooms, the width is to be approximately 9 m. The X-ray inspection staffs are composed of 7 persons in one team including operators, image analysts, and responsible chief staff. The table arrangement of the drawing is just for reference. 1~2 persons in the reception desk and trailer guides outside the building will be arranged. The X-ray system will be operated 24 hours per day by three shifts. A napping room is arranged for staff to rest. Two kinds of simple kitchen rooms and shower rooms are also arranged for men and women. Women account for around 30% in GDVC. Sloped entrance/exit and a toilet for handicapped people are arranged in universal design style in compliance with future enforcement.

2) Sectional plan

Assuming the height of the container top to be 4,100 mm, and allowing the space for X-ray

inspection equipment to move above the container, the total height is to be FL + 6,000 mm. A maintenance space is to be provided above the equipment, and the height of the inspection space is to be determined.

3) Structural planning

The structure of the building is mainly made by a reinforced concrete Rahmen type atructure, which is generally employed in Vietnam and is economic. The wall structures around the space for the X-ray cargo security inspection system are to be of an iron-reinforced concrete construction, and the wall thicknesses are to be 300 mm (inner walls), and 400 mm (outer walls), considering the effects of X-rays. The roofing is to be of a steel-framed roof construction. The X-ray inspection space is to be provided with pillars and part of the beam is to be constructed with a reinforced concrete structure to provide a generous space for inspection. Roof supporting beams are to be provided with heavy steel frames. All four faces of the walls for the inspection space are to be of an iron-reinforced concrete construction, taking into account the need for radiological protection. The adjacent office structure is to be of a concrete block construction finished with mortar to ensure a light-weight structural body. Although this is a project planned amidst existing port and harbor facilities, the bearing stratus is GL-21,000 mm, hence piling work is considered to be necessary. Piles are often used in port and harbor construction works, and locally produced trustworthy PC piles are to be used in the design.

(Design Standard, Construction Standard)

Basically, the design and construction are carried out in compliance with the requirements of the Construction Standard Law of Vietnam, however, reference is to be made to the Construction Design Standards of the Japanese Society of Construction for methods of analysis and design procedures. Material standards are considered to correspond to the requirements of JIS, which are generally in conformity with ASTM, and BS standards.

(2) Planning for local natural conditions

Taking into account the high temperature and humid natural conditions at the planned local site, a mechanical forced ventilation system is to be employed with roof fans and ventilation openings, to maintain the environmental conditions required for the X-ray cargo security inspection system. The ventilation openings are to be provided in the proximity of the space not normally occupied by operators and others, and X-ray energy level is to be low.

(3) Planning auxiliary facilities and equipment

The Government of Vietnam shall provide electric cable-laying work for the planned plant and equipment, and internal wiring within the electrical service room up to the distribution boxes in the plan. In the design, cables have to be adaptable to planned power supply capacity. The power supply should

be 380V, three phase, and the power to the X-ray cargo security inspection system should be supplied through a distribution box provided in the electrical service room at the supply voltage without adjustment, and the power supply for the office room and lighting shall be reduced to 220V AC.

A fresh water supply pipeline up to the valve provided at the office side is to be arranged by the Government of Vietnam, and the pipeline beyond the valve up to the inspection system should be laid underground. The drainage pipeline is separated into rainwater drainage and miscellaneous drainage. The drainage works up to the end of service outside the plant is to be arranged by the Japanese side, and the drainage line beyond that point up to the drainage main is to be arranged by the Government of Vietnam.

2-2-2-2 Facility Plan at Hai Phong

(1) Basic plan

The design of the large scale X-ray inspection equipment permits installation outdoors, but it is desirable to install it indoors if the stability of operating environment and the necessary dust prevention measures are taken into account. In this specific connection, an integrated system incorporating X-ray inspection space, image analyzing office, and other system components is to be planned.

As a countermeasure to cope with flooding in the vicinity of the Hai Phong project site, the floor level of the inspection space and office is to be set at GL+1,200 mm.

1) Floor Plan

The main plan of the plant is to be the same as in the plant of the Tan Cang Cat Lai project. Because of the floor level is set at an elevation of GL+1,200 mm, the dimensions of the approach to the inspection site for trailers and the entrance for operating members are made larger.

2) Sectional planning

The sectional planning for the plant interior is to be the same as in the Tan Cang Cat Lai project with the exception of setting the floor level at an elevation of GL+1,200 mm.

3) Structural planning

The outline of the plan covering the basic structure proper should be the same as in the case of the Tan Cang Cat Lai project. Based on the results of boring, the construction site conditions at Hai Phong should be such that the length of piles is set at L = 37,000 mm because the bearing stratum is GL - 39,000 mm.

(2) Planning for local natural conditions

The results of an on-site assessment revealed that there is a danger of submergence at the Hai Phong project site. Although there are no data on flooding in the vicinity of the project site, as far as the

results of a rainfall survey are concerned, several incidents of submergence per year due to defective drainage arrangements have occurred. Although the X-ray cargo security inspection system has a damp-proof construction, it is expected to require a long period before resuming operation if the system undergoes submergence even once. The extended period of out-of-service condition of the system might induce confusion or disorder on the part of the system operators. To avoid such a state of disorder, measures to prevent submergence are to be considered, thus the elevation of the inspection space is set at GL + 1,200 mm.

The final elevation of the floor was determined by assuming that the plant building is to be used for 20 years, and by applying the standard allowance in accordance with the Japanese City Planning Regulations to the depth of submergence due to the amount of rainfall locally established over 20 years. In an earthquake-resistant design, the base shear coefficient is taken to be Co = 0.05 in accordance with the national standard of Vietnam. In the wind-resistant design, the reference speed velocity is taken to be 30 m/sec in accordance mutatis mutandis with the national standard of Vietnam.

(3) Auxiliary equipment

Under the granted item of the Government of Vietnam, it is planned to provide a power feeder within the site of the project, and electric cable is laid there to the distribution box in the electrical service room. The size of the cable should be adaptable to the necessary electric power supply for the planned plant.

The fresh water supply and drainage lines should be designed in the same manner as in the case of the Tan Cang Cat Lai site.

2-2-2-3 Layout Plan

(1) Selection of the installation site of the large scale X-ray inspection equipment at Tan Cang Cat Lai

The Tan Cang Cat Lai site is located within the container yard, and to prevent an undue decrease of the service area of the container yard due to the provision of the X-ray cargo security inspection system, special design consideration was required for the related arrangements of the container warehouse and X-ray inspection plant to minimize the frequency of crossing traffic lines of general containers and container trailers for inspection. As a result of consultations with Vietnamese sides, the location was determined at the remotest location from the wharf, having fewer traffic line crossings with general vehicles, and further, the trunk line can be used as a space for pooling trailers for inspection.

(2) Selection of installation site of large scale X-ray inspection equipment at Hai Phong

First, the location of the plant of the Hai Phong project was planned at the remotest area from the front road as viewed from the admission side. During the analytical assessment of the site after

completing an on-site survey, it was revealed that the site is vulnerable to submergence due to flooding; and, to counter such a disadvantage, the installation site was removed to near the entrance and the floor elevation of the plant was increased by 1,200 mm above the ground level as a measure to cope with such submergence as well as to secure sufficient access slopes for chassis. The inclination of the approach for trailers was determined on the drawing by checking two critical points: one is that the tail end of the chassis of a trailer does not come into contact with the ground surface when the trailer starts climbing the lead approach, and the other is that the bottom face of the chassis does not rub against the ground shortly before completing the climb of the slope. As a result, the inclination was set at 1/16 considering the necessary safety factor. Because a safe angle of inclination cannot be secured at the original site, consultations were arranged with the Government of Vietnam and the location was determined at the site shown in Fig. 2-1.

At the Hai Phong project site, arrangement of admission and exit was given special consideration so that smooth traffic is available between the various container yards of the city and the inspection site where traffic is congested. Furthermore, it was also necessary to provide a space to pool waiting trailers before and after receiving X-ray cargo security inspection. For this reason, special spaces to pool trailers were arranged at the admission side as well as at the exit side between the entrance at the load side and the exit and the large scale X-ray Inspection Equipment. The Government of Vietnam determined the area of 3,000 m2 for common service of open inspection of luggage and warehouse at the location indicated in the drawing.

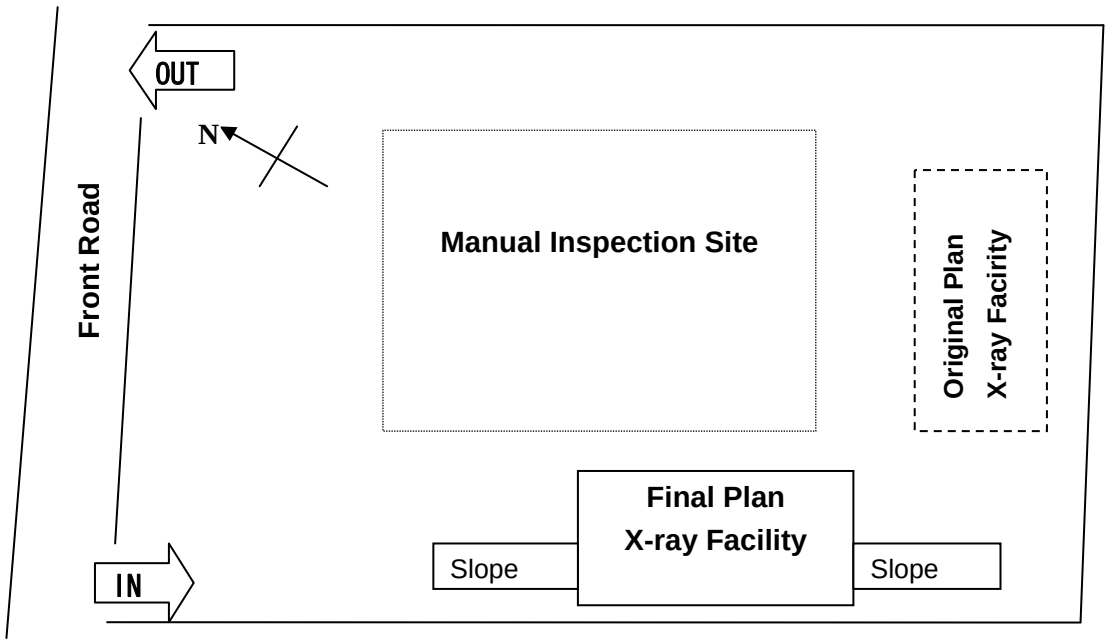


Fig 2-1 Layout plan of Hai Phong site

2-2-2-4 Local Conditions of Hai Phong Project Site

The project site at Hai Phong is reclaimed swamp land, and the results of boring examination carried out at the projected site have shown that there is a layer of soft soil beneath the surface soil layer. Without the treatment for soil structure, the heavy local traffic may cause the possible consolidation settlement. On top of that, it may cause the difficulties and develop into problems with X-ray cargo security inspection in the end. The results of the boring survey were reported to the government of Vietnam to propose the soil improvement of the project site. A delay in the project implementation would be inevitable if the project might launch only after confirmation of a soil improving method and its implementation. Accordingly, a sequential starting method has been proposed to the Government of Vietnam so that implementation of the Tan Cang Cat Lai project, where site preparation has already been completed, can be advanced, while the Hai Phong project will be started after verifying the stability of the soil condition of project site upon making the soil-improving arrangements. The Government of Vietnam has agreed to the proposed sequential starting method and taking actions immediately regarding soil-improvement to complete it within the year of 2008.

Fig. 2-2 Layout Plan of large scale X-ray inspection equipment and facility at Tan Cang Cat Lai

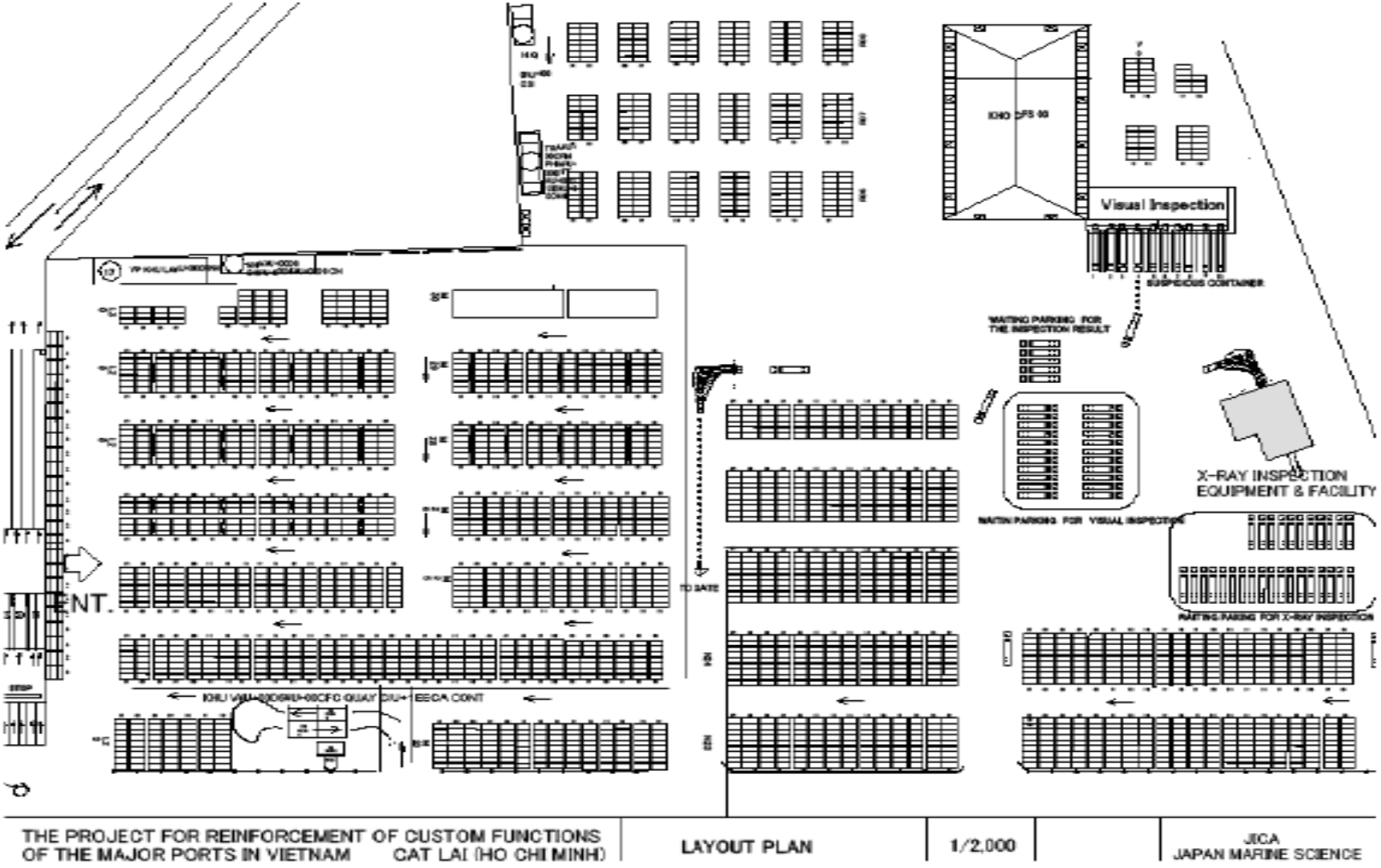
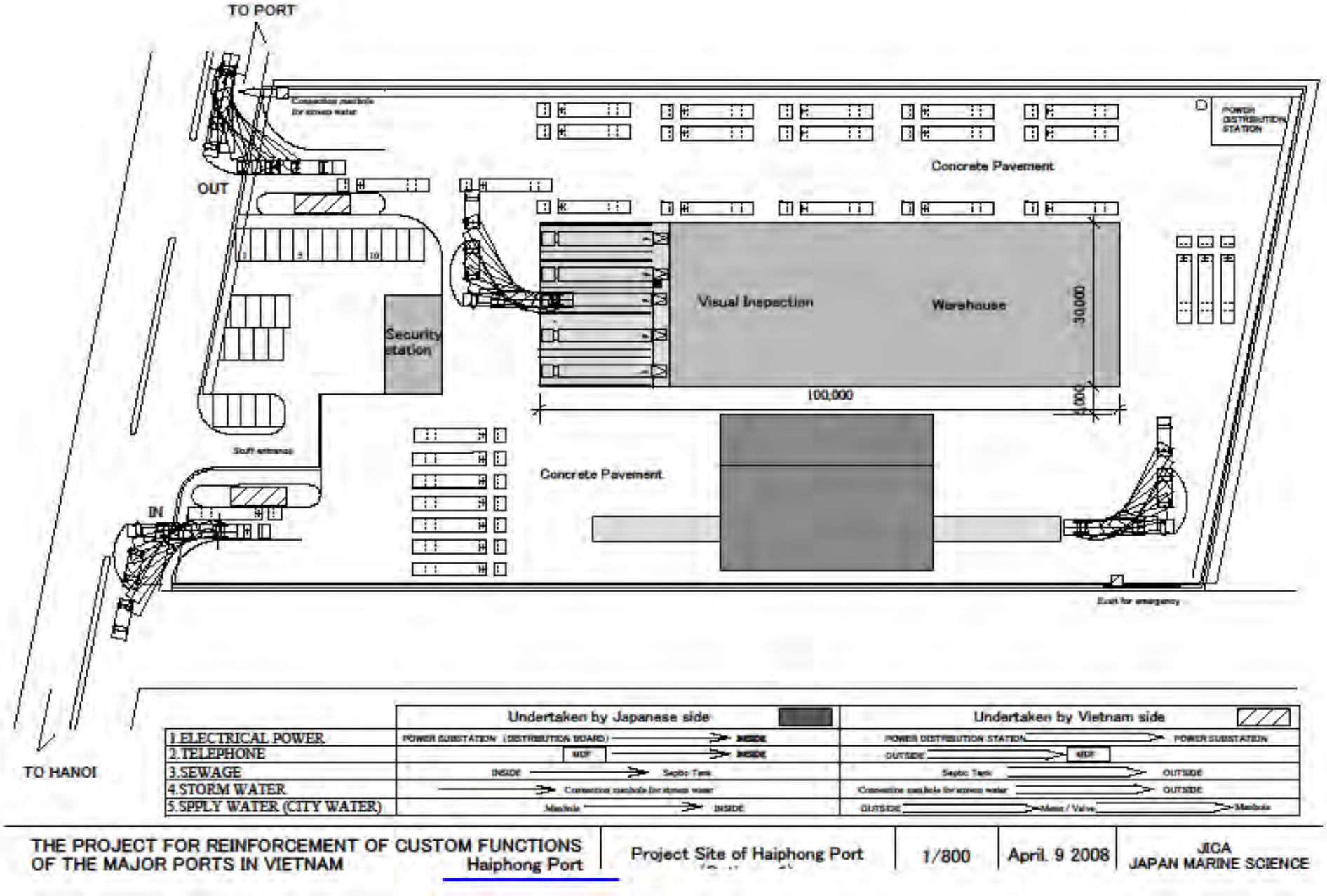


Fig. 2-3 Layout plan of large scale X-ray inspection equipment and Facility at Hai Phong



2-2-3 Basic Design Drawings

Fig. 2-3 Plan View of Tan Cang Cat Lai Project Site

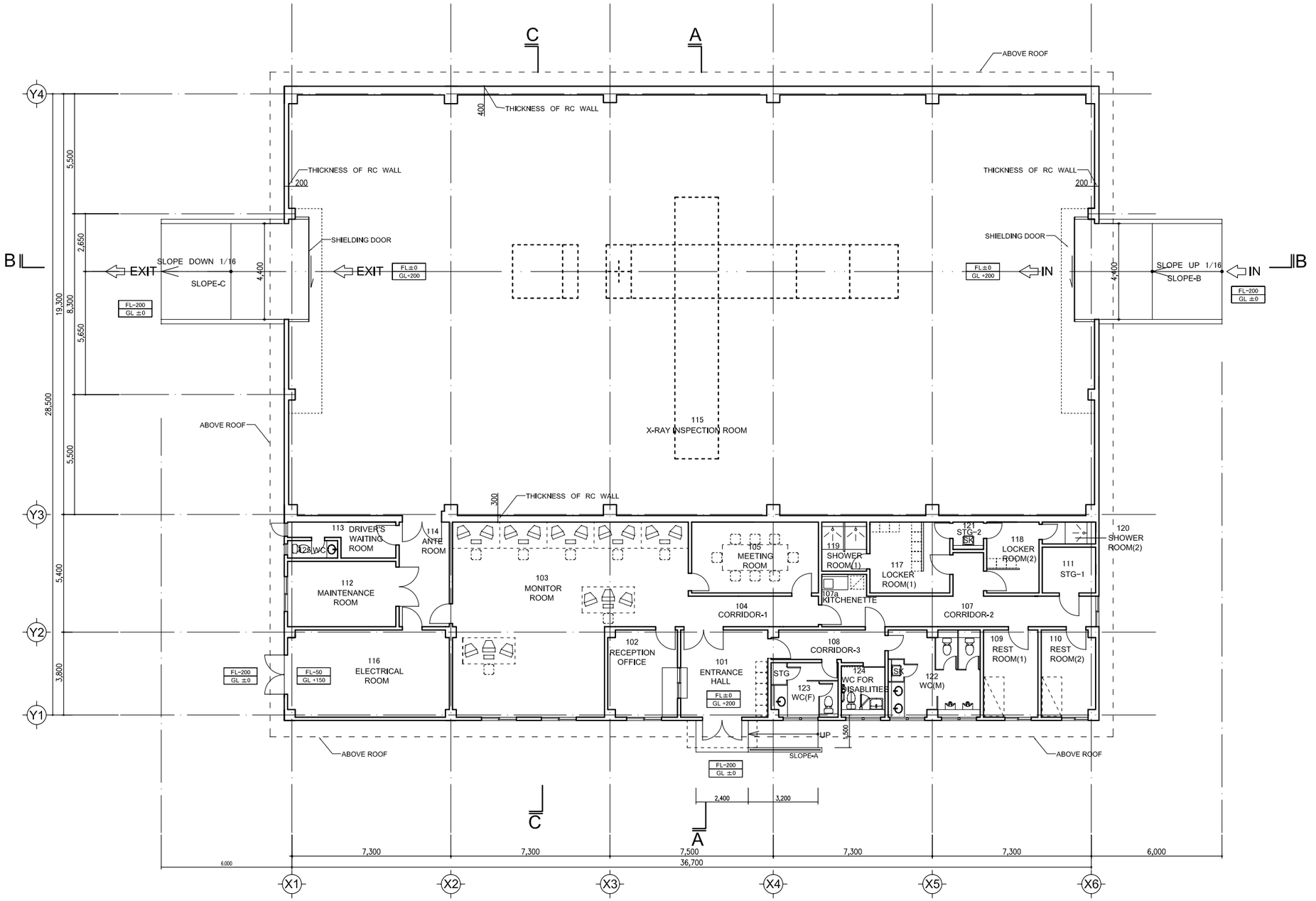
Fig. 2-4 Elevation of Tan Cang Cat Lai Project Site

Fig. 2-5 Sectional View of Tan Cang Cat Lai Project Site

Fig. 2-6 Plan View of Hai Phong Project Site

Fig. 2-7 Elevation of Hai Phong Project Site

Fig. 2-8 Sectional View of Hai Phong Project Site



1 1st FLOOR PLAN
1/100

PROJECT TITLE	THE PROJECT FOR REINFORCEMENT OF CUSTOM FUNCTIONS OF THE MAJOR PORTS IN VIETNAM Ho Chi Minh Port
GENERAL NOTE	
REVISIONS	NO / DATE / DESCRIPTIONS / BY / APP'D
SCALE	1/100
DATE	APR 2008
DRAWING BY	
CHECKED BY	
DWG TITLE	1st FLOOR PLAN
DWG NO	A-03
DESIGNED BY	International Development System Inc. JAPAN MARINE SCIENCE INC.

NO.	MATERIAL / FINISH
①	FOLDED POLYESTER RESIN COATED GALVANIZED STEEL SHEET
②	ACRYLIC TEXTURE COAT
③	SCREEN BLOCK w/ACRYRIC RESIN PAINT
④	FALSE JOINT
⑤	RAIN GUTTER:POLYESTER RESIN COATED GALVANIZED STEEL
⑥	RAIN LEADER:POLYESTER RESIN COATED GALVANIZED STEEL
⑦	HANDRAIL:STL w/SOP
⑧	FOLDED POLYESTER RESIN COATED GALVANIZED STEEL SHEET
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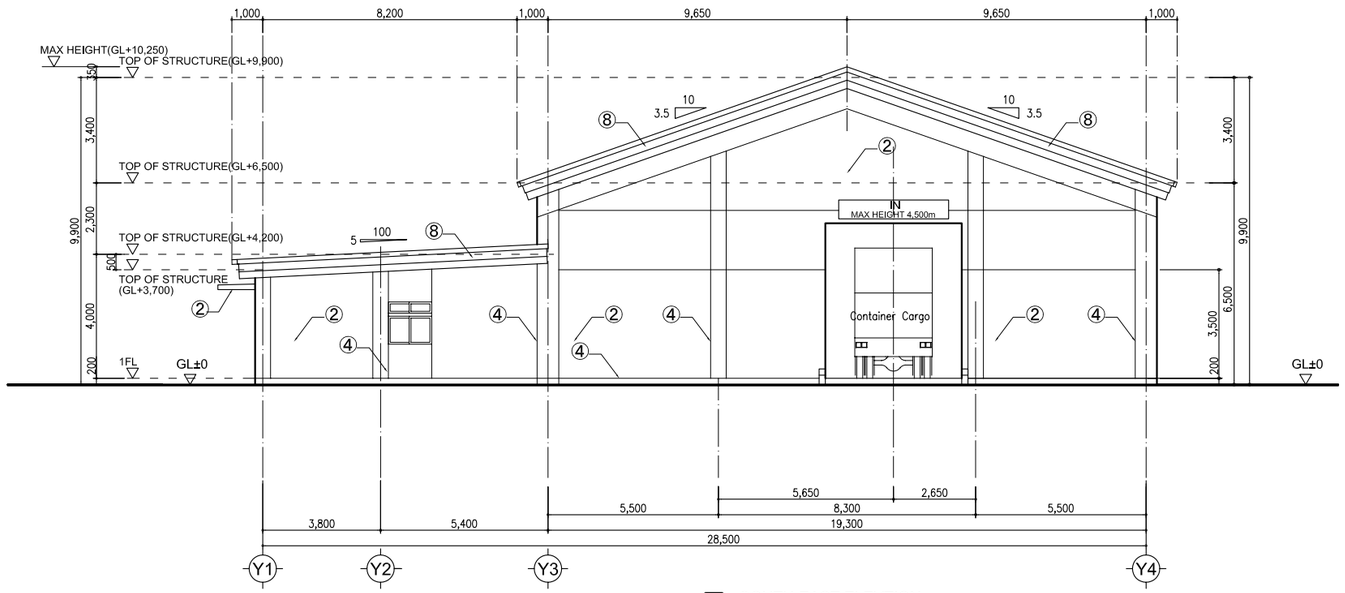
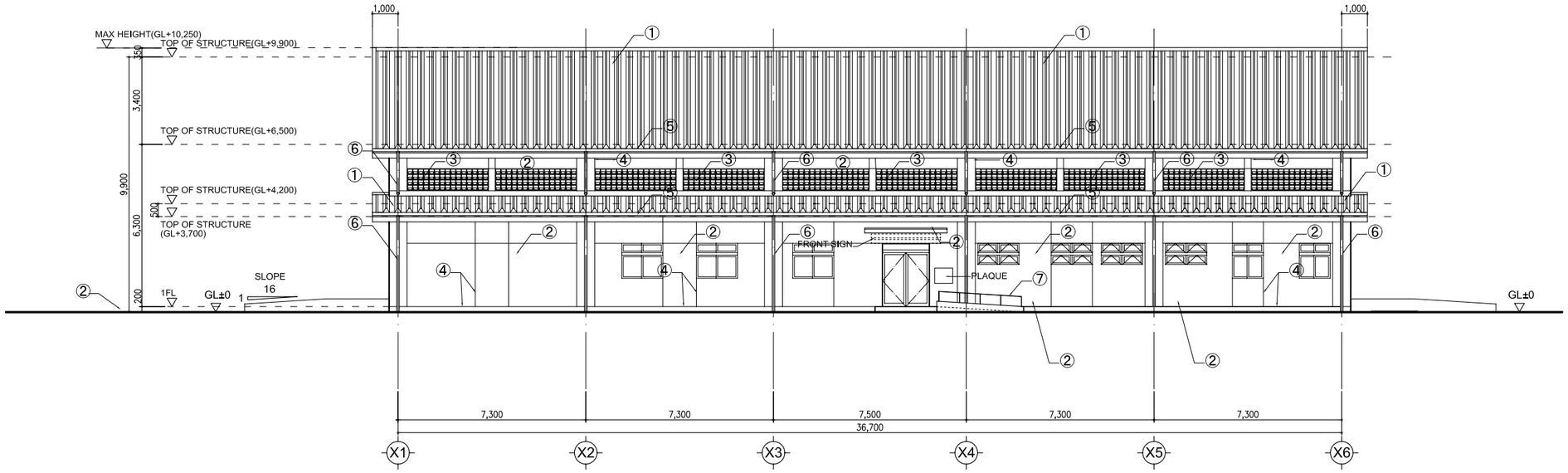
⑩	



2 SOUTH-EAST ELEVTION
1/100



1 SOUTH-WEST ELEVTION
1/100

PROJECT TITLE

THE PROJECT FOR REINFORCEMENT OF CUSTOM FUNCTIONS OF THE MAJOR PORTS IN VIETNAM Ho Chi Minh Port

GENERAL NOTE

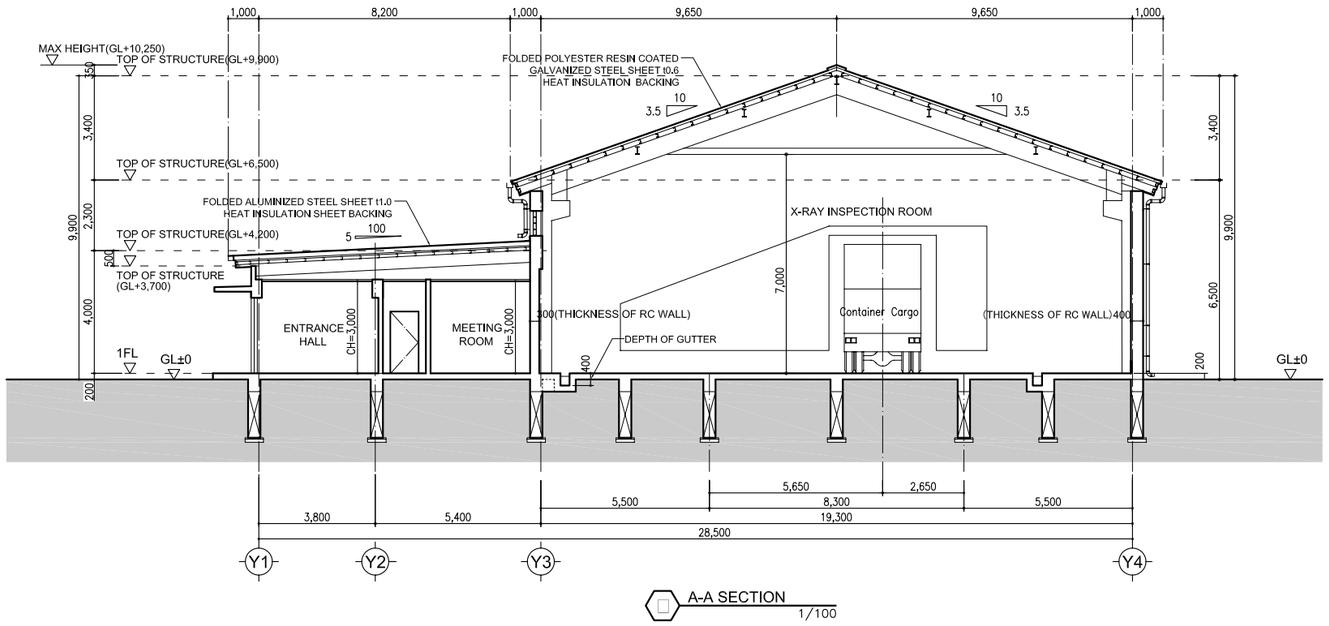
NO	DATE	DESCRIPTIONS	BY	APP'D
REVISIONS				

SCALE 1/100
DATE APR 2008
DRAWING BY
CHECKED BY

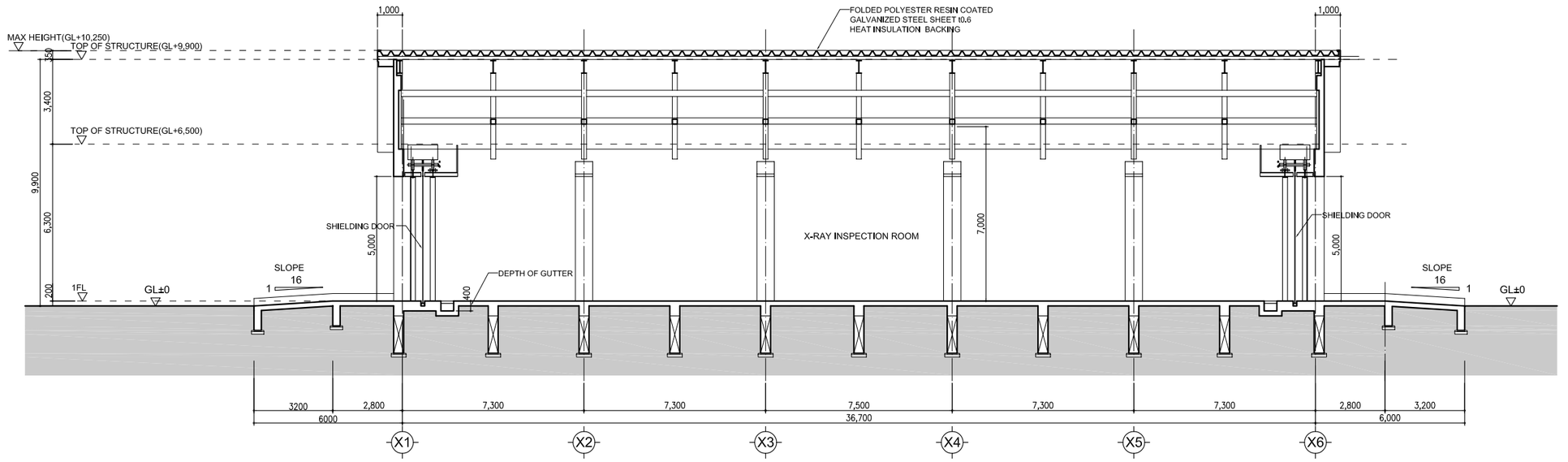
DWG TITLE ELEVATION-1

DWG NO A-05

DESIGNED BY International Development System Inc. JAPAN MARINE SCIENCE INC.



A-A SECTION
1/100



2 B-B SECTION
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PROJECT TITLE	THE PROJECT FOR REINFORCEMENT OF CUSTOM FUNCTIONS OF THE MAJOR PORTS IN VIETNAM Ho Chi Minh Port
GENERAL NOTE	
REVISIONS (NO / DATE / DESCRIPTIONS / BY / APP'D)	
SCALE	1/100
DATE	APR 2008
DRAWING BY	
CHECKED BY	
DWG TITLE	SECTION
DWG NO	A-07
DESIGNED BY	International Development System Inc. JAPAN MARINE SCIENCE INC.

N

C

A

ABOVE ROOF

Y4

400 THICKNESS OF RC WALL

THICKNESS OF RC WALL 200

THICKNESS OF RC WALL 200

5,500

2,650

10,300

8,300

5,650

28,500

5,500

5,400

3,800

SHIELDING DOOR

SHIELDING DOOR

EXIT

SLOPE DOWN 1/16

SLOPE-C

B

4,400

EXIT

FL±0
GL+200

FL±0
GL +200

IN

4,400

B

SLOPE UP 1/16

SLOPE-B

IN

FL-1,200
GL ±0

FL-200
GL ±0

115
X-RAY INSPECTION ROOM

ABOVE ROOF

300 THICKNESS OF RC WALL

Y3

Y2

Y1

800

STAIR-C

DN

113 DRIVER'S WAITING ROOM

114 ANTE ROOM

128 WC

112 MAINTENANCE ROOM

103 MONITOR ROOM

105 MEETING ROOM

119 SHOWER ROOM(1)

117 LOCKER ROOM(1)

121 STG-2

118 LOCKER ROOM(2)

111 STG-1

120 SHOWER ROOM(2)

107a KITCHENETTE

104 CORRIDOR-1

107 CORRIDOR-2

FL-1,200
GL ±0

UP

2,100

STAIR-B

1,500

FL-50
GL +150

116 ELECTRICAL ROOM

102 RECEPTION OFFICE

101 ENTRANCE HALL

FL±0
GL +200

108 CORRIDOR-3

STG

123 WC(F)

124 WC FOR DISABILITIES

122 WC(M)

109 REST ROOM(1)

110 REST ROOM(2)

SLOPE

UP

1,000

200

ABOVE ROOF

ABOVE ROOF

1,800

STAIR-A

UP

SLOPE

SLOPE-A

200 2,400 200 1,500 7,800 1,500 200

FL-1,200
GL ±0

C

A

22,000 7,300 7,300 7,500 7,300 7,300 22,000

36,700

X1 X2 X3 X4 X5 X6

1 1st FLOOR PLAN
1/100

PROJECT TITLE

THE PROJECT FOR REINFORCEMENT OF CUSTOM FUNCTIONS
OF THE MAJOR PORTS IN VIETNAM Hai Phong Port

GENERAL NOTE

NO	DATE	DESCRIPTIONS	BY	APP'D

REVISIONS

SCALE 1/100

DATE MAR 2008

DRAWING BY

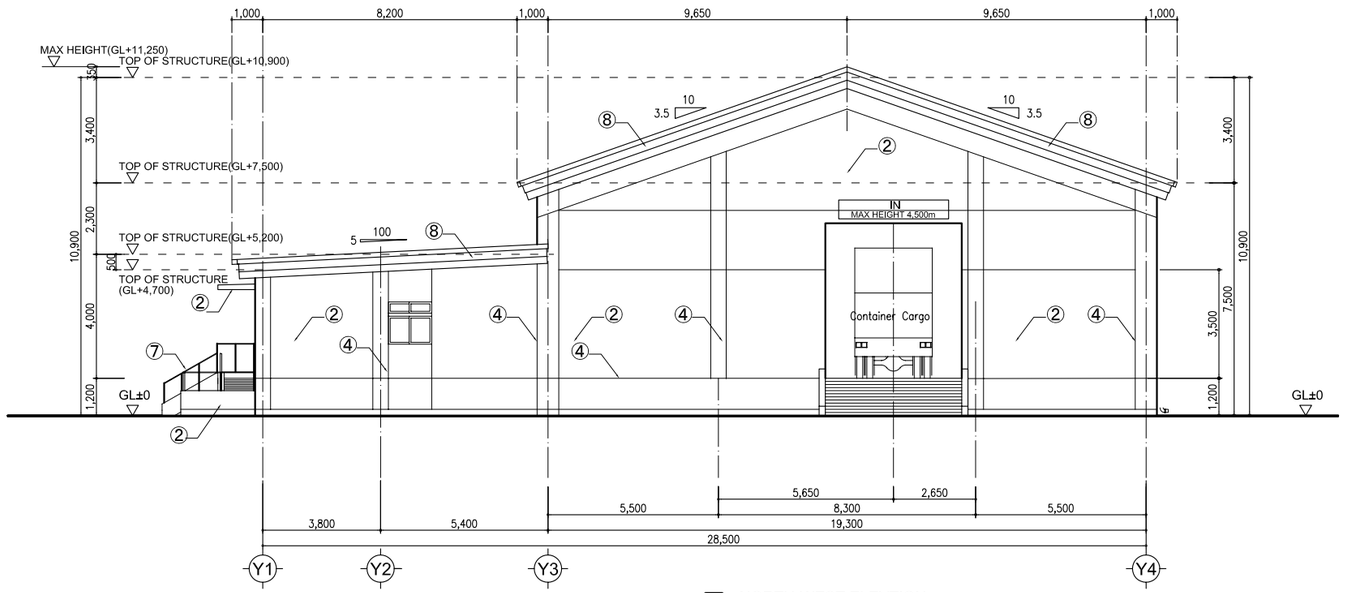
CHECKED BY

DWG TITLE 1st FLOOR PLAN

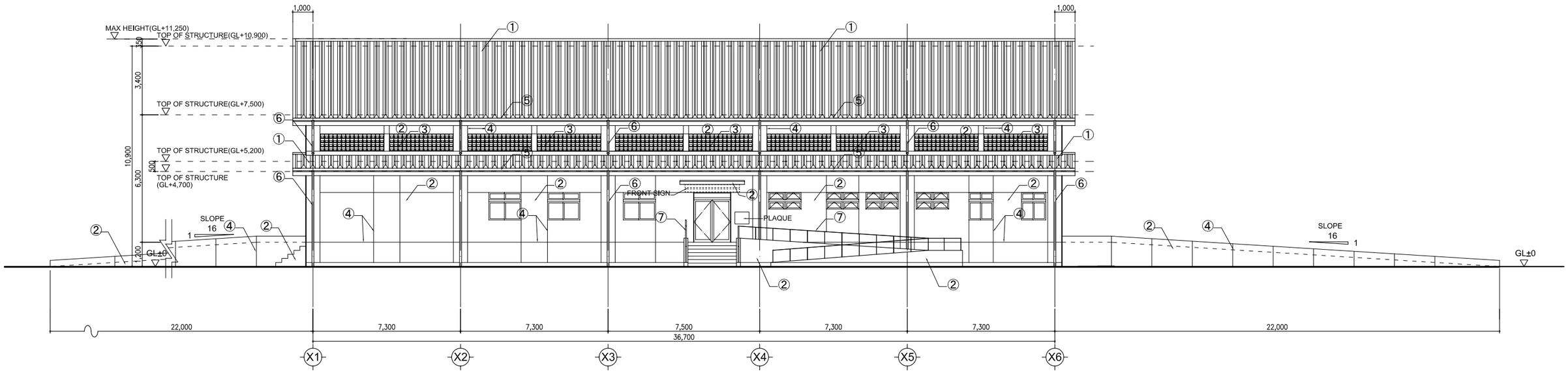
DWG NO A-03

DESIGNED BY International Development System Inc. JAPAN MARINE SCIENCE INC.

NO.	MATERIAL / FINISH
①	FOLDED POLYESTER RESIN COATED GALVANIZED STEEL SHEET
②	ACRYLIC TEXTURE COAT
③	SCREEN BLOCK w/ACRYRIC RESIN PAINT
④	FALSE JOINT
⑤	RAIN GUTTER:POLYESTER RESIN COATED GALVANIZED STEEL
⑥	RAIN LEADER:POLYESTER RESIN COATED GALVANIZED STEEL
⑦	HANDRAIL:STL w/SOP
⑧	FOLDED POLYESTER RESIN COATED GALVANIZED STEEL SHEET
⑨	
⑩	



2 NORTH-WEST ELEVTION
1/100



1 NORTH-EAST ELEVTION
1/100

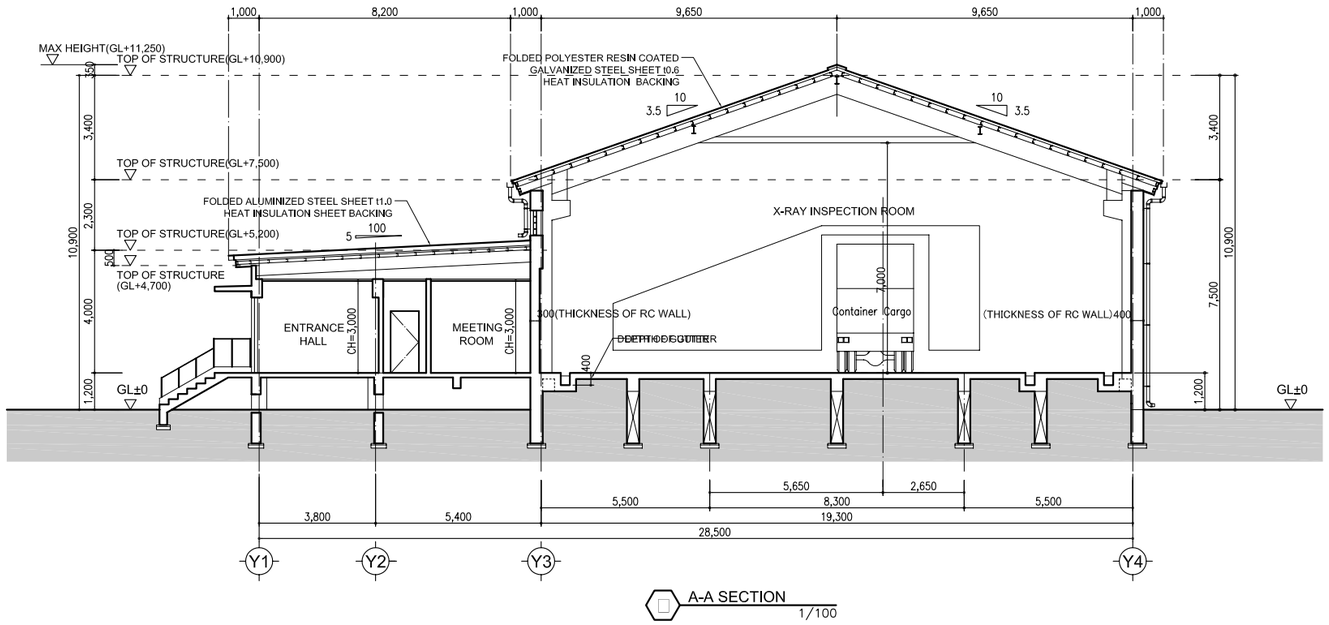
PROJECT TITLE
THE PROJECT FOR REINFORCEMENT OF CUSTOM FUNCTIONS OF THE MAJOR PORTS IN VIETNAM Hai Phong Port

GENERAL NOTE

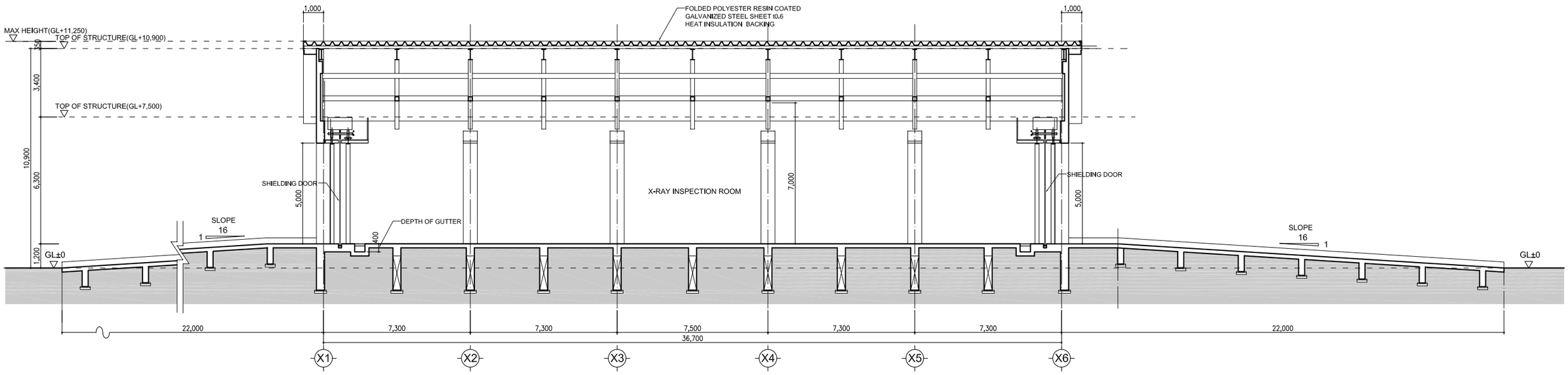
NO	DATE	DESCRIPTIONS	BY	APP'D
REVISIONS				

SCALE 1/100
DATE MAR 2008
DRAWING BY
CHECKED BY

DWG TITLE ELEVATION-1
DWG NO A-05
DESIGNED BY International Development System Inc. JAPAN MARINE SCIENCE INC.



A-A SECTION
1/100



2 B-B SECTION
1/100

PROJECT TITLE	GENERAL NOTE	SCALE 1/100
THE PROJECT FOR REINFORCEMENT OF CUSTOM FUNCTIONS OF THE MAJOR PORTS IN VIETNAM Hai Phong Port		DATE MAR 2008
		DRAWING BY
	NO DATE DESCRIPTIONS BY APP'D REVISIONS	CHECKED BY
		DWG TITLE SECTION
		DWG NO A-07
		DESIGNED BY International Development System Inc. JAPAN MARINE SCIENCE INC.

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

(1) The basic conditions related to engineering and procurement

Need for the proposed procurement: large scale X-ray Inspection Equipment is not manufactured in Vietnam. In this procurement, large scale X-ray Inspection Equipment will be procured from Japan or a third-party country (DAC). With respect to engineering, there are a large number of construction contractors, large or small, in Vietnam, and they are engaged in construction of buildings in Vietnam. From the observation of existing buildings, their technical levels raise some problems relating to detailed finishing techniques when compared to counterparts in Japan, but it may reasonably be considered that they have sufficient capacity to construct medium- or low-rise buildings. General construction materials such as cement, aggregate, and steel fittings used for constructing plants are readily obtainable within the country. However, procurement of steel frames in shapes compatible with those available in Japan might involve some difficulty. Procurement of construction equipment within the country is sufficient and no particular difficulties are considered.

(2) The basic policies when selecting contractors for procurement and product selection

- Specifications prescribed in the bidding document should be met.
- Maintenance management should be easy.
- The support system for solving difficulties and after-delivery service system must have been established.
- Agents are available within Vietnam or neighboring countries and the technical service system has been established.

2-2-4-2 Construction/Procurement Conditions

Improvement of Customs inspection capability can be secured only when the large scale X-ray inspection equipment, its operating system, and technical skills of operators are well balanced. It is important to provide guidance for personnel responsible for procurement of equipment, organization, and initial and normal operation. It is a particularly important task to adjust the work process between the Government of Vietnam and procurement contractors. Timing of placing and installing equipment implemented under the granted cooperation, and timing for providing technical guidance for initial and normal operations of Equipment should be adjusted well to ensure coordinated timing of all phases of these matters.

The current construction boom in Vietnam might cause a permanent labor shortage, and it is anticipated that securing sufficient labor might involve difficulties. In addition, inflation has been significant in recent years, and quality deterioration due to a shortage of materials as affected by rises of consumer prices is feared. Precautions must therefore be taken for quality control. The results of interview surveys with construction companies in Vietnam suggest that there exist possibilities they could not correspond to sufficient quality control and work process control. Well examined quality control and work process control plans should be adopted and observation of the plan should be confirmed, when local construction companies are sub-contracted. In addition, engineering work for positioning and installing large scale X-ray Inspection Equipment requires extreme precautions, and it

is necessary to have detailed advanced meetings and control of site work.

2-2-4-3 Scope of Works

The large scale X-ray inspection equipment plant is designed and planned on the basis of the requirements of equipment specifications, installation standard, and security of X-ray radiological protection, and positioning, installation, and trial runs of the large-scale X-ray Inspection Equipment are carried out under the supervision of equipment procurement supervisors by highly skilled technical staff members of the manufacturer. Demarcation of procurement work should be such that materials basically belonging to Equipment should be furnished by the Equipment supplier, and the construction contractors should assemble them. With respect to electrical equipment, the primary side cable work up to the switchboard should be undertaken by the construction contractor side, while cable work up to the Equipment should be undertaken by the Equipment supplier. The large scale X-ray Inspection Equipment is a set of high-grade non-destructive inspection equipment, and long manufacturing period and high-precision installation work are required, hence fine adjustments and coordination between procurement contractors, equipment manufacturers, and construction contractor are necessary. It is also important to have sufficient consultations and meetings for quality control in advance and strict observance of the work schedule.

2-2-4-4 Consultant Supervision

This project covers a single-year contract for the Tan Cang Cat Lai Port and another single-year contract for the Hai Phong Port Port, and assuming that the first-term contractor agreement for the Tan Cang Cat Lai Port is concluded within ten months from now, and the on-the-site associated work of the large scale X-ray Inspection Equipment is planned with the work schedule described below.

Approval of the design and manufacturing drawings of the large scale X-ray Inspection Equipment is obtained within one month from conclusion of the agreement and manufacture within seven months; they are then subjected to pre-shipping factory inspection and shipped by sea to the Tan Cang Cat Lai Port and the Hai Phong Port Port, respectively.

In the case of manufacture of the equipment in Europe/United States of America, shipment by sea is assumed to take 25 to 30 days, while with manufacture in Japan, 25 days are assumed. Installation of the system at the site is assumed to take two months, and adjustments and trial runs, one month, during which period guidance on initial and normal operation are provided for the operating personnel of the responsible organization before the acceptance inspection. At the acceptance inspection, checks and collation, performance inspection, and measurement of leakage radiation dose are carried out by a third-party inspection organization under the responsibility of the procurement contractor, and after confirming compliance with the recommendations of the International Commission on Radiological Protection (ICRP-60), a certificate is issued from a third party organization for official completion of delivery.

What is most important in this Project is the interface between the construction work of the plant and the installation work of the large scale X-ray Inspection Equipment. Before such time when the X-ray cargo security inspection system is delivered to the site for the necessary site work, there should be consultations with the construction side so that consent is reached on the scope of work and detailed work specifications.

2-2-4-5 Quality Control Plan

For the large scale X-ray inspection equipment, design drawings and specifications should be confirmed with the procurement contractor and manufacturer, and the manufacturing drawings should be checked and collated.

At the manufacture of large scale X-ray inspection equipment, inspection of major system components common to pre-shipment inspection at the factory are witnessed, and performance inspection are confirmed by us. Inspection before shipment are entrusted to a third-party organization, whereby various parts of the system are checked and collated. The permanent local procurement supervisors undertake control of equipment, installations, adjustments, trial runs, initial operation guide and normal operation guide, taking delivery, acceptance inspection, and delivery services from the time of delivery of equipment to the installation site, thereby maintaining product quality.

In the quality control of the large scale X-ray Inspection Equipment, compliance of the equipment with specifications and safety requirements, and appropriateness of materials and workmanship should be verified. Final confirmation of safety related to radiological protection of the equipment is verified by measuring leakage radioactive dose.

The most critical area of plant construction in terms of product quality is the inspection space having a reinforced concrete structure. Because each of the external walls plays a vital role in protecting human bodies from leakage of X-rays, concrete must be cast with extreme care so that no void or porous part in the concrete is created. Force-feeding of concrete by pumping is available in Vietnam; as a result, concrete pumping is more workable than by other methods of concrete casting, but sufficient consideration is required to determine the favorable casting height and filling concrete to corner portions by adequately using vibrators, etc.

2-2-4-6 Procurement Plan

Construction materials and equipment necessary for installing large scale X-ray Inspection Equipment (cable conduit pipes, concrete re-pavement, etc.) and multi-purpose materials and products are to be locally manufactured or procured.

Machinery necessary for constructing the plant of this project is either possessed by the local contractor or is available by leasing.

General materials and equipment used for the construction of the plant of this project are available in Vietnam; therefore, use of special materials and Equipment should be avoided in the design.

Table 2-5 Origin Countries for Equipment

Name of Equipment	Origin Country			Note (Countries to Procure)
	Vietnam	Japan	Third Countries	
Large scale X-ray inspection equipment		○	○	DAC
Percentage (%)	0	0~100	0~100	

Table 2-6 Origin Countries for Construction Materials

Name of Equipment	Origin Country			Note (Countries to Procure)
	Vietnam	Japan	Third Countries	
Materials	○			
Steel	○			
Cement	○			
Aggregate	○			
Construction Machine	○			
Percentage (%)	100	0	0	

2-2-4-7 Transport

The large scale X-ray inspection equipment shall be procured from Japan or the third countries. The equipment for Tan Cang Cat Lai Port will be transported from the port of origin country to Tan Cang Cat Lai Port in the form of sea container and will be delivered to the project site. The final custom clearance will be done in Tan Cang Cat Lai Port.

The equipment for Hai Phong Port will be transported from the port of origin country to Hai Phong Port in the form of sea container and will be delivered to the prepared site in the port. The transport from the prepared site in the port to the project site (500 m from the port) will be done by truck. The final custom clearance will be done in Hai Phong Port. The final custom clearance will be done in Hai Phong Port.

The transport cost for both ports will be shared by Japanese side.

2-2-4-8 Initial Operation Training and Maintenance Guidance Scheme

The manufacturer's engineers shall provide technical guidance to the Custom technical

personnel in relation with assembly, connection, operation, adjustments, control procedure, operating procedure, and adjustments of monitor screens of the large scale X-ray Inspection Equipment, and shall confirm that the equipment is capable of operating normally. Three weeks of training program on scanning procedure, inspection/analysis procedures, analytical inspection method on monitor screens, processing method of results, will be implemented.

2-2-4-9 Equipment installation and operation training

Assembling, installation and initial alignment of the large scale X-ray inspection equipment shall be guided by well experienced engineers and carried out in a team setting. The manufacturer's engineer team is supposed to be composed of 2 supervisors (equipment engineer and electric engineer), 3 engineers (machinery, electric, and system engineers), 3 local engineers (machinery, electric, and system engineers) from service stations in South East Asia.

The training program by the manufacturer will consist of followings;

① Assembly, connection, operation, adjustments, control procedure, operating procedure, and adjustments of monitor screens of the large scale X-ray Inspection Equipment and system
② Checking and maintenance procedures of the equipment
③ Scanning method, data analysis method on the screen, judgment criteria, result processing method, etc.
④ Utilization of the "Operation and Maintenance Manual"
⑤ Safety control method

2-2-4-10 Implementing Schedule

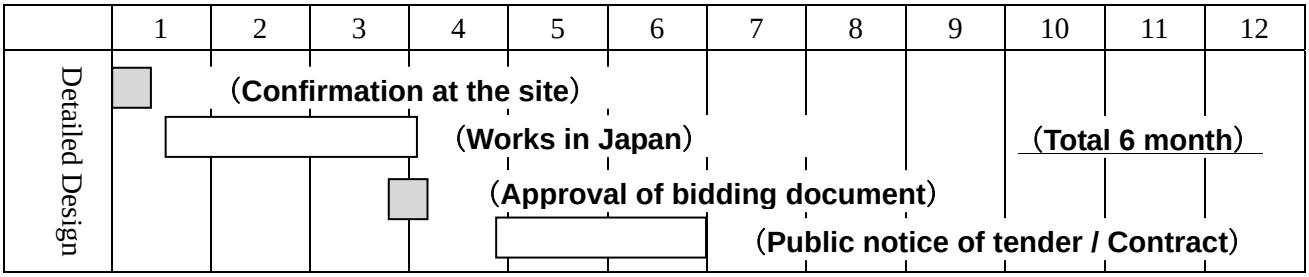
(1) Prerequisite for drafting Implementing Plan Process

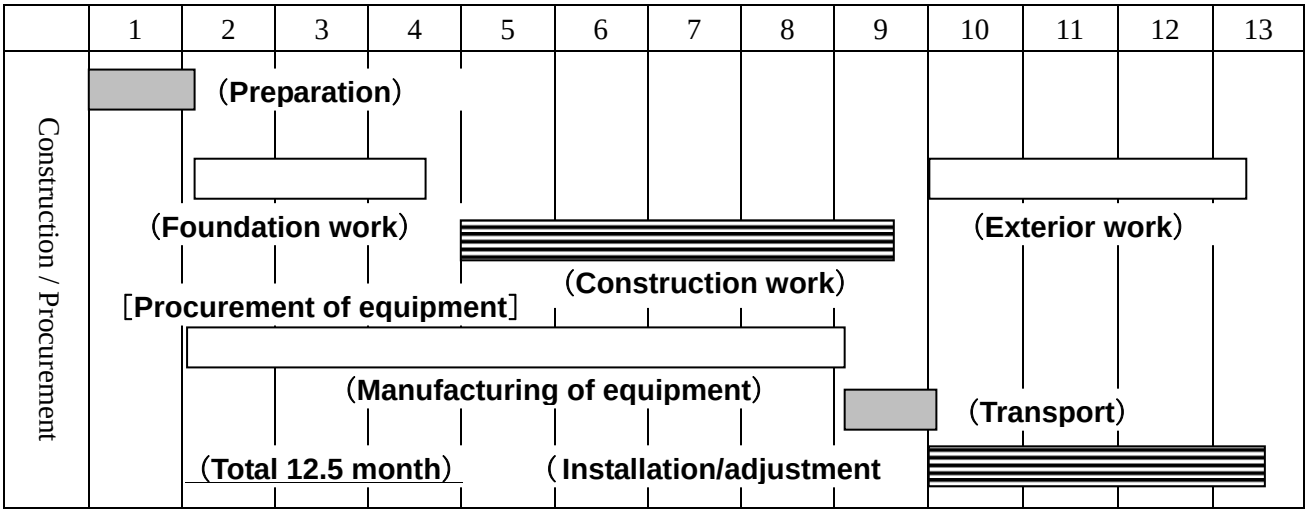
Assuming that preparations of implementing design of this project and bidding documents begin 19 months before the delivery time, bidding notice for contractors is announced five months later, and contractors are selected within two months thereafter. Work Schedule is prepared assuming that the work period is 12.5 months, within which period procurement of equipment, associated civil engineering work, and construction work can be completed.

(2) Implementation work schedule

The Implementation Work Schedule of the Tan Cang Cat Lai project is shown below. In the Work Schedule, in addition to consultant's implementation design; implementation processes including procurement process related to large scale X-ray cargo security inspection equipment, product manufacture by procurement contractors, inspection before shipment, shipping inspection, transportation by sea, installation, adjustments, trial runs, guidance of the initial operation, and guidance on normal operation, final inspection before delivery, and delivery are shown in the Table 2-7. The same implementation processes apply to both the Tan Cang Cat Lai project and the Hai Phong Project. The time for beginning the Hai Phong project will be determined at a Cabinet Meeting of the Government of Japan.

Table 2-7 Implementation Schedule





2-3 Obligations of Recipient Country

2-3-1 Obligations of the Government of Vietnam

Upon implementing this granted project, the following procedures and preparations shall be undertaken by the Government of Vietnam.

(1) Procedures

The Government of Vietnam should undertake the following procedures as applicable without delay.

① Exemption of tax and duties
② Facilitation of project activities
③ Provisions of banking agreement
④ Authorization of payments

(2) Preparations for work implementation

Work to be shared by the Government of Vietnam for implementation is shown in 3.2. With respect to this matter, the implementing organization should submit a document stating that the Government of Vietnam has carefully prepared and undertaken the duties assigned to Vietnam before E/N.

① Entry permit to the project area and execution permit for construction work
② Support for safe work
③ Provision of spaces for material storage yard and work office during the project work period (about 12.5 months)

2-3-2 Undertakings by the recipient country

Followings are the undertakings by the recipient country which is confirmed mutually.

Tan Cang Cat Lai Port

(1) Building Certification
(2) Security Equipment
Fence, Entrance/Exit, Security System
(3) Office, Warehouse, Visual inspection Facility
(4) Water Supply Facility
Works up to Main Valve to the X-ray Facility
(5) Electric Facility
Works up to Incoming Panel
(6) Telephone Facility
Works up to MDF
(7) Sewage Facility
Septic tank construction and works up to Manhole for X-ray Facility
(8) Storm Water Facility

Hai Phong Port

(1) Ground Consolidation Works・Pavement
(2) Building Certification
(3) Security Equipment
Fence, Entrance/Exit, Security System
(4) Office, Warehouse, Visual inspection Facility
(5) Water Supply Facility
Works up to Main Valve to the X-ray Facility
(6) Electric Facility
Works up to Incoming Panel
(7) Telephone Facility
Works up to MDF
(8) Sewage Facility
Septic tank construction and works up to Manhole for X-ray Facility
(9) Storm Water Facility

2-3-3 Cost to be borne by the Government of Vietnam

Budget performance of the General Department of Vietnam Customs from 2004 to 2008 and Ho Chi Minh and Hai Phong Customs from 2006 to 2008 is shown in Table 2-10. The budgets in 2008 are approximately 1,319.4 billion VND (about 9,500 million Yen) for General Department of Vietnam Customs, approximately 223.4 billion VND (about 1,600 million Yen) for Ho Chi Minh Customs, and approximately 110 billion VND (about 740 million Yen) for Hai Phong Customs, and they will tend to increase yearly. The mean yearly increase rates for the past 3 years are 33 % for Ho Chi Minh Customs and 26% for Haiphong Customs.

The initial project cost to be borne by the Government of Vietnam is estimated to be 7,900 million VND for Ho Chi Minh Customs, and 37,100 million VND for Haiphong Customs. GDVC intend to distribute 7,900 million VND for Ho Chi Minh Customs from 2008 to 2009, and 37,400 million VND for Haiphong Customs from 2008 to 2010 as shown in Table 2-11.

Table 2-8 Budgets of the General Department of Vietnam Customs and related Customs

(1) The General Department of Vietnam Customs

(Unit: million VND)

Year	2004	2005	2006	2007	2008
Personnel costs	269,225	333,790	455,936	601,152	659,700
Travel expenses and others	113,233	143,343	180,364	214,716	229,500
Facility operation and maintenance costs (engineering and facility)	133,373	222,893	107,872	136,500	230,000
Facility operation and maintenance costs (office)	110,000	90,000	170,000	90,000	200,200
Others	108,169	59,094	61,828	60,031	0
Total	734,000	849,120	976,000	1,102,400	1,319,400

(2) Ho Chi Minh Customs and Hai Phong Customs

(Unit: million VND)

	Ho Chi Minh Customs			Hai Phong Customs		
Year	2006	2007	2008	2006	2007	2008
Personnel costs	83,976	103,160	128,239	30,898	38,270	45,924
Travel expenses and others	16,143	41,796	40,000	7,050	14,000	16,442
Facility operation and maintenance costs (engineering and facility)	8,830	35,690	25,200	5,757	33,670	10,000
Facility operation and maintenance costs (office)	4,170	1,550	30,000	14,269	*321,632?*	30,000
Others	21,278	4,199	0	8,998	1,854	0
Total	134,398	186,496	223,439	66,972	110,023	102,366

Note: Budget use period starts January and closes December.

Table 2-9 The X-ray system related budget for Ho Chi Minh Customs and Hai Phong Customs

(Unit: million VND)

	2008	2009	2010	2011	2012
Ho Chi Minh	4,500	3,400	3,400	3,800	4,200
Hai Phong	23,700	6,400	7,300	3,500	4,000
Total	28,200	9,800	10,700	7,300	8,200

2-3-4 Implementation Capabilities of the Government of Vietnam

2-3-4-1 General Evaluation

To achieve the project goal, Operation and Maintenance of the equipment must be carried out appropriately. This will be brought only by good coordination in terms of the organization structuring and the financial capability of the implementing body, and education and training programs where technical cooperation may be included.

2-3-4-2 Implementation structure of the Government of Vietnam

The responsible and implementing organization is General Department of Vietnam Customs (GDVC), Ministry of Finance. Banking Treasury and Finance Department in GDVC will be in charge of Agreement (B/A) and Approval for Payment. Ho Chi Minh Customs and Hai Phong Customs will be in charge of operation and maintenance of this project.

2-3-4-3 Status of Operation and Maintenance regime

The Operation and Maintenance system is now at the stage of an extensive examination by Vietnamese side. GDVC is planning to establish a new regulation for operating X-ray center including organizational structure, staff allocation and operation/maintenance. According to their plan, the X-ray center will be under the supervision of Custom sub-department of Saigon Port Area No.1 in the case of Tan Cang Cat Lai, and under the direct control of Hai Phong Customs Department in the case of Hai Phong. Both of the centers are ranked as sub-department in their organizational structure. Both centers

will be operated by 18 staffs (9 for operators inside the facility and 9 for outside staff for visual inspection) in one sift. The 2 shifts per day system will be employed as the starting stage of operation. They are prepared to move to 3 shifts per day system with the increase of inspection demands such as the increase of applications and the extension of port operation hours. Two security officers and 4 more officers (for custom duty, custom tax, legal, and technical purposes) will be assigned in the case of Hai Phong. The daily maintenance of the X-ray system will be covered by outsourcing agencies.

2-3-4-4 Operation and Maintenance cost for the project

The Ho Chi Minh Customs and Hai Phong Customs draw up budgets related to their operation and management and submit an application for budgets to GDVC (July). GDVC files an application for budgetary appropriation to the Ministry of Finance after examining the application (August). Notice on approved budget is given by GDVC to Ho Chi Minh Customs and Hai Phong Customs (November), and budgets are executed. As can be seen in the above, the administrative system of budgetary appropriation has been established.

The results of trial calculation of annual maintenance costs of the large scale X-ray inspection equipment that are to be borne by GDVC are given in Table.2-10. The annual maintenance management expenditure of the large scale X-ray Inspection Equipment to be shared by GDVC is estimated to be approximately 140,000 US$ (17 million yen). In view of the sound condition of budget preparation, it is judged that the financial burden of maintenance management expenditure can be sufficiently undertaken without any difficulty. It was confirmed that inspection fees arising from the service of the large scale X-ray Inspection Equipment are not levied.

Table 2-10 Estimated cost for Operation and Maintenance of large scale X-ray inspection equipment

Item	Description	Annual Cost in US Dollar
X-ray inspection system	(Averaged market price of Japanese and overseas manufacturers) Spare parts : 90,000 US Dollar Maintenance and inspection service fee: 30,000 US Dollar (Twice a year)	$120,000
Electricity	Demand of wattage: 46.6 kW/h (for X-ray system and facility)	$12,500
Water supply	Water consumption: 3.5 m3/day	$1,000
Others	Office stationery and etc.	$500
Total		$140,000

2-3-4-5 Technical levels for maintenance

It is difficult to evaluate the technical level of Vietnamese side as this is the first experience for GDVC to operate large scale X-ray inspection equipment. But, it should be noted that Vietnamese side is trying its best effort to meet the requirement by establishing new organizations at district branch office level with new expertise divisions and staff to implement the project, and planning to adopt a few group training programs hosted by maker (20 persons in one group) to bring up X-ray system operators after the initial operation and maintenance training programs of this project.

2-4 Project Operation Plan

Regarding the operation of the equipment and facilities, structure and staff shall be requested to meet the following.

2-4-1 Basic Principle for Management and Operation

GDVC undertakes Operation and Maintenance of the large scale X-ray inspection equipment to be provided at the Tan Cang Cat Lai and Hai Phong. GDVC plans to set up new sections in the Chi Minh Customs and Hai Phong Customs which take care of the provided equipment and facilities.

2-4-2 Features of Equipment and Plant

The large scale X-ray inspection equipment to be introduced through this project represents those newly introduced to major international ports and harbors, guidance of operations by manufacture for starting up is essential. It is necessary to gain experiences through on-the-job training to develop image-analyzing techniques. It was confirmed that manufacturers are ready to conclude a service agreement with the Customs for equipment maintenance including regular inspection. In accordance mutatis mutandis with recommendations of the International Commission on Radiological Protection (ICRP-60), precautions are necessary in design and engineering of shield structures to prevent leakage of X-rays. In addition, safety management for inspecting personnel is needed

2-5 Project Cost Estimation

2-5-1 Cost to be born by the Government of Vietnam

This grant aid project aims to introduce innovative equipment and plant, and there is a certain burden to be borne by the Government of Vietnam for implementing the project. It is necessary to obtain provisions of utilities including power supply and space for accommodating plant and equipment at Ho Chi Minh within the existing terminal in Tan Cang Cat Lai Port; and at Hai Phong, the property of the Customs.

The installation site at Hai Phong is flat land at present, but it is land reclaimed from swamps, so soil-improving work and pavement are considered to be necessary. As a result, soil-improving work and its confirmation are conditional for implementing this project.

The Initial project cost to be borne by the Government of Vietnam is estimated at 45,000 million VND according to the Government of Vietnam. Details are shown in Table 2-11. This cost estimate is provisional and would be further examined by the Government of Japan for the approval of the Grant.

Table 2-11 Cost to be born by the recipient country

(Unit：million VND)

Item	Cost	Hai Phong
Safety measures	450	3,150
Visual inspection facility / warehouse and others	4,600	9,500
Water supply arrangement	300	1,000
Electric power arrangement	1,700	1,700
Telephone arrangement	200	200
Sewage arrangement	200	200
Storm sewer arrangement	300	500
Soil improvement/Pavement	0	20,700
B/A and AP service charge	150	150
Total	7,900	37,100

2-5-2 Operation and Maintenance Cost

The large scale X-ray inspection equipment and facilities installed at the Tan Cang Cat Lai Port and the Hai Phong Port Port under this project represent the first project of the Customs of Vietnam; therefore, it is necessary to make preparations for Operation and Maintenance cost in association with implementation of this project as an addition of new working assets. The annual cost for maintenance and management of this large scale X-ray inspection equipment is estimated at approximately 12 million yen, and annual cost such as overheads, utilities, and telephone services are assumed to be approximately 5 million yen. Accordingly, annual cost for Operation and Maintenance of equipment and facility are estimated at approximately 17 million yen for each of the Tan Cang Cat Lai Port and the Hai Phong Port Port.

Both the Ho Chi Minh Customs and the Hai Phong Customs that will manage the equipment and facility have acquired budgets for introducing large scale X-ray inspection equipment in 2008, and

it is considered that there are no financial difficulties for implementing the project.

2-6 Point to consider on implementation of the project

The stabilization of soil sinking in Hai Phong project site is the prerequisite for the implementation of Hai Phong project. Followings are the schedule of the soil improvement proposed by Vietnamese side.

- June to July 2008: Soil survey and planning of the soil improvement works
- August to October 2008: Soil improvement works
- From endd of October: Monitoring on soil sinking

The soil sinking is calculated to stabilize within 4 months after the completion of soil improvement works. GDVC will periodically report to JICA the condition of soil sinking.

Chapter 3 Project Evaluation and Recommendations

3-1 Project Benefit

The following benefits are expected by implementing the project.

(1) Direct effects

1) The inspection time saving per container;- inspection time with X-ray will be reduced to 15~20 minutes from 60~120 minutes without X-ray or increment of productivity by 4~6 times.
2) Reduction of cargo damage due to weather condition by switching from the present outdoor manual container inspection to the non-destructive inspection.
3) Anti-terrorism efforts at Ho Chi Minh and Hai-Phong Customs will be reinforced by thorough inspection.
4) The present manual container inspection, which are performed at many locations in Tan Cang Cat Lai Port and at more than five locations in Hai Phong city, will be integrated at one location, thus preventing from blocking traffic in container yards by inspection and contributing to the safety of harbor traffic and container inspection.
5) Decrease of manual inspection number contribute to the protection of export/import cargos from damage.

(2) Indirect benefits

1) The container inspection will be carried out safely and speedily, and will be capable for handling the growing volume of import and export cargos in the future.
2) Speedy customs inspection will promote the direct investments from overseas.
3) By shifting from manual open-up container inspection to nondestructive inspection, the efficiency of the General Department of Vietnam Customs will be improved with decreases in the number of surveyors and their management work, as well as savings for open-up container inspection in Hai Phong due to the consolidation of inspection stations.
4) Cooperating with risk-management will contribute to the modernization of Vietnam’s Customs inspection.
5) Introduction of the X-ray Inspection Equipment will significantly promote the computerization of customs inspection, which will contribute to the early realization of “ASEAN Single Window” which embodies countermeasures of the General Customs Bureau of the World Customs Organization (WCO), the World Trade Organization (WTO), and ASEAN.

Followings are performance indexes expressed, as much as possible, in numerical value as the results of employing large scale X-ray Inspection Equipment.

Table 3-1 Performance Index for the Project

Index	Current status	Effects of introducing large scale X-ray inspection equipment	Target
Inspection site	Hai Phong：5 locations	Bunch up in one site	Risk reduction：1/5
	Tan Cang Cat Lai：Scattering in port	Bunch up in some sites	Risk reduction： 1/5 or less
Damage to cargo	There are cases of damage to cargo due to open-up inspection outdoors	No cargo damage due to non-destructive inspection	Safety：100％
Inspection speed	60～120 min/container	15～20 min/container	Efficiency improvement 4-6 times

3-2 Recommendations

1) Establishing operating system of X-ray Inspection Center

To review the management and operation system of X-ray Inspection Center and plan to establish the operation system of the center by performing organizational improvements of Ho Chi Minh Customs and Hai Phong Customs concurrently.

During the implementation of the project, Vietnamese side should invest some necessary equipment to deploy in the X-ray examination center for facilitation of customs inspection in order to utilize the X-ray inspection equipement provided by the project in a effectiveness and efficiency manner

2) Establishing training program

The Customs have to prepare an adequate system to receive the familiarization and training program of the manufacturer and to plan subsequent familiarization and training program responding to the operating system.

3) Computarization of customs system and risk management modernization program

To plan to incorporate computerized program of customs system and risk management modernization program as a future operating method for the large scale X-ray Inspection Equipment and use for improving the efficiency of customs inspection as a whole.

4) Responding to security measures and antiterrorism measures

By applying the X-ray inspection to customs inspection of import cargos, remedy the present customs inspection that place disproportionate emphasis on import cargos, and enhance security measures and antiterrorism measures.