



III. Case Study on Development of Bojonegara Port

1. Review of Existing Plan

1.1. The Study for Development of the Greater Jakarta Metropolitan Ports in the Republic of Indonesia

467. As explained in Chapter II, JICA dispatched a full-scale study team in May 2002 to carry out the Study for Development of the Greater Jakarta Metropolitan Ports in the Republic of Indonesia. In order to maintain and enhance the competitiveness of Indonesian industry in the region by providing an attractive business/investment environment, the JICA Study Team 2003 proposed that the Jakarta Metropolitan ports shall function as regional hub ports not only attracting international trunk lines but also linking them to domestic/inter-island lines.

468. The JICA Study 2003 recommended the Indonesian counterpart to increase the port capacity of Tg. Priok port by its urgent rehabilitation works up to 2008 with maximum use of the existing port facilities, which will increase the international container handling capacity of the port up to 3.6~3.8 million TEUs against the current capacity of around 3 million TEUs.

469. However, Tg. Priok port has a limited capacity even after implementation of the urgent rehabilitation works, and it is generally conceived that Tg. Priok port alone cannot fulfill the stated development targets, both “Logistic Center in ASEAN regions” and “Regional Hub Port”.

470. Consequently, the JICA Study 2003 proposed to develop a new container handling port in Bojonegara by 2010 as a twin port of Tg. Priok, considering the following points:

- Spatial constraints for new development in the existing Tg. Priok port and huge cost for new development outside Tg. Priok port
- Avoiding intensive concentration of cargo traffic especially large container trailers on the roads of the metropolitan area.

471. Basic functions of the Bojonegara new port are set as follows, based on the development target and their potentials: complementary gate-way port of Tanjung Priok and basic and strategic logistic infrastructure for regional development of Banten Province.

472. In order to fulfill the basic functions of Bojonegara port stated above, following project components are recommended to be implemented toward 2025:

- Development of new container terminal with related port facilities
- To provide good access to/from the port
- To enhance regional port-related industrial development
- To minimize the impact of port development on the surrounding environment

473. Among the projects in the master plan and the short-term development plan, the following projects are proposed to be implemented urgently:

- Container Terminal Development (should be completed by 2010)
- Multi Purpose Terminal Development (should be completed by 2008)
- Breakwater, Channel and Basin Development (coordinated with terminal)



- Port Access Road Development (implemented by Kimpraswil)

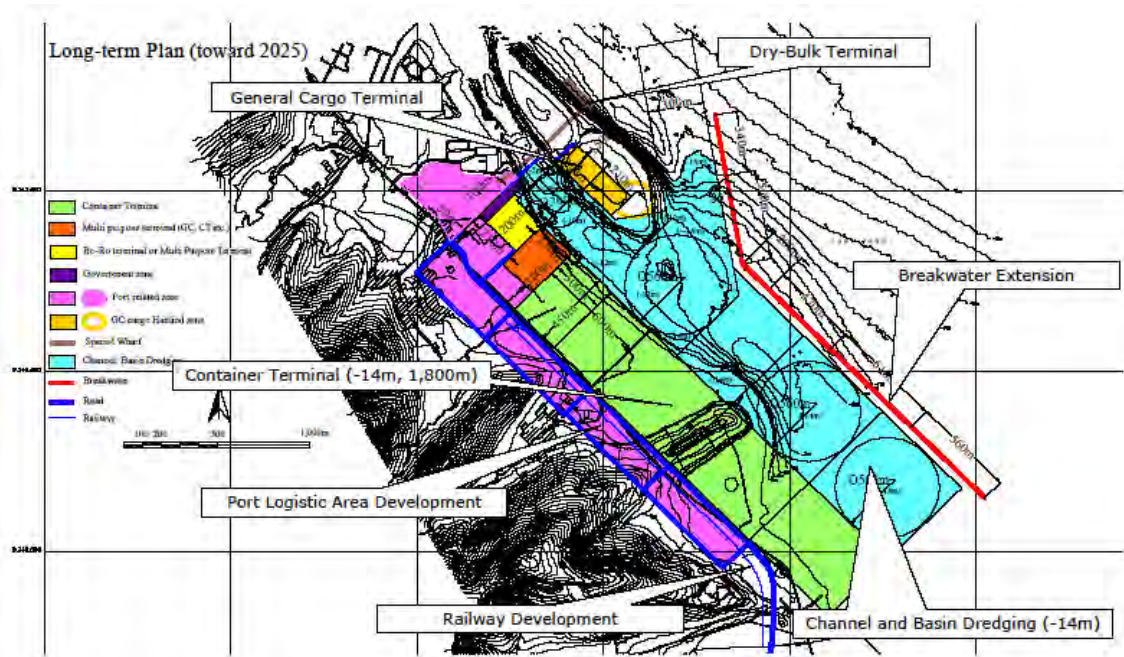


Figure 1.1-1 Long-term Plan of Bojonegara Port toward 2025

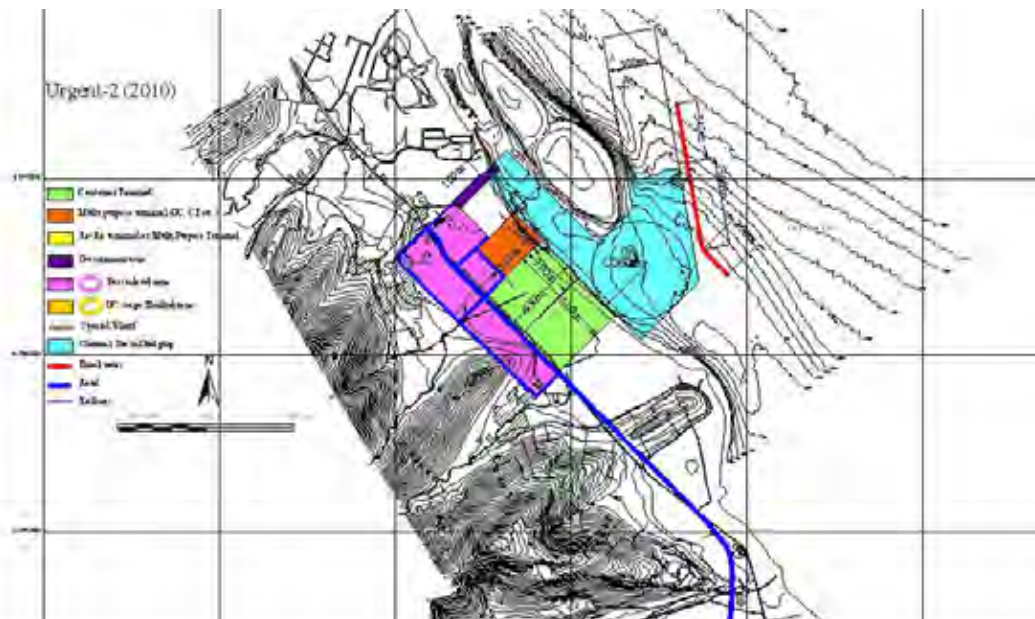


Figure 1.1-2 Urgent Plan of Bojonegara Port toward 2010

1.2. Master Plan and Current Condition of Bojonegara Port

A. Port

474. Minister of Transportation issued Regulation regarding Bojonegara Port Master Plan of Banten Province on 03 October 2005, which was in line with the outcome of The Study for



Development of the Greater Jakarta Metropolitan Ports in the Republic of Indonesia shown in Figure 1.1-1.

475. Above mentioned master plan was, however, changed to the plan shown in Figure 1.2-1 by IPC2, partly due to the bed rock layer at the proposed terminal face line which made the local contractor unable to construct quay wall on it and partly due to the newly arisen oil refinery project behind the proposed terminal area.

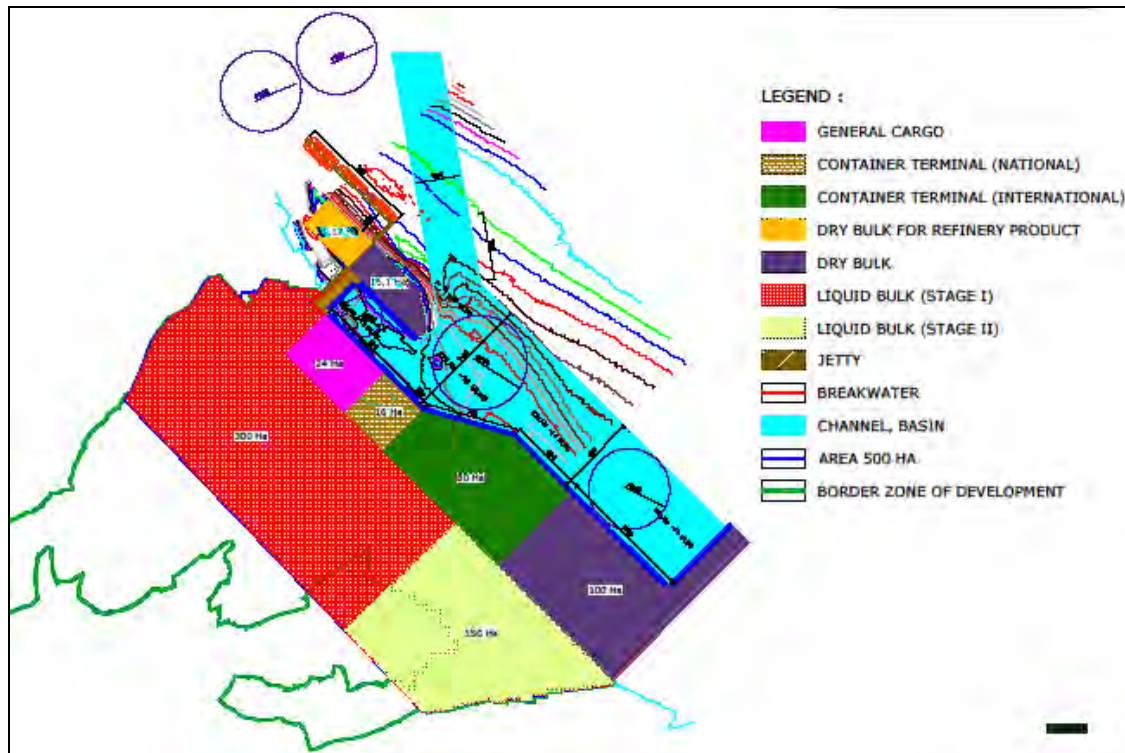


Figure 1.2-1 New Master Plan proposed by IPCII

476. Based on this new master plan, IPC2 has already constructed 120m quay wall which is composed of a part multi-purpose terminal on the site originally proposed for container terminal as shown in Figure 1.2-2.

477. First Stage Section I Berth development 102 m x 40.48 m alongside water depth of 12 m including access road 388 m x 20 m was finished on May 8, 2006. Within 2009 this section will be extended to both sides by 102 m and form a multi-purpose berth with a total length of 306 m.

478. Oil refinery development project at Bojonegara port is under negotiation among Iran, Malaysia and PERTAMINA. This refinery is schedule to be operational in 2014, and IPC2 promised to sell 300 ha of land to PERTAMINA for the refinery project.

479. Development of a coal terminal at Bojonegara port is also proposed by the power and gas industries because the Indonesian government recently disclosed a new energy policy which calls for change from oil to coal as energy source. IPC2 is requested to provide space and facilities in the port area to accommodate as many as seven million tons per year of coal.

480. Development of Special Economic Zone (SEZ) has been proposed in Serang Regency, and Bojonegara port zone is one of the candidates. Currently, the foreign share is restricted to less than 49 % of the equity by the Indonesian regulation. It is believed that it is necessary to relax restrictions



on foreign share to attract foreign investors to port projects such as Bojonegara Port. The designation of SEZ around Bojonegara port would be helpful in this regard.

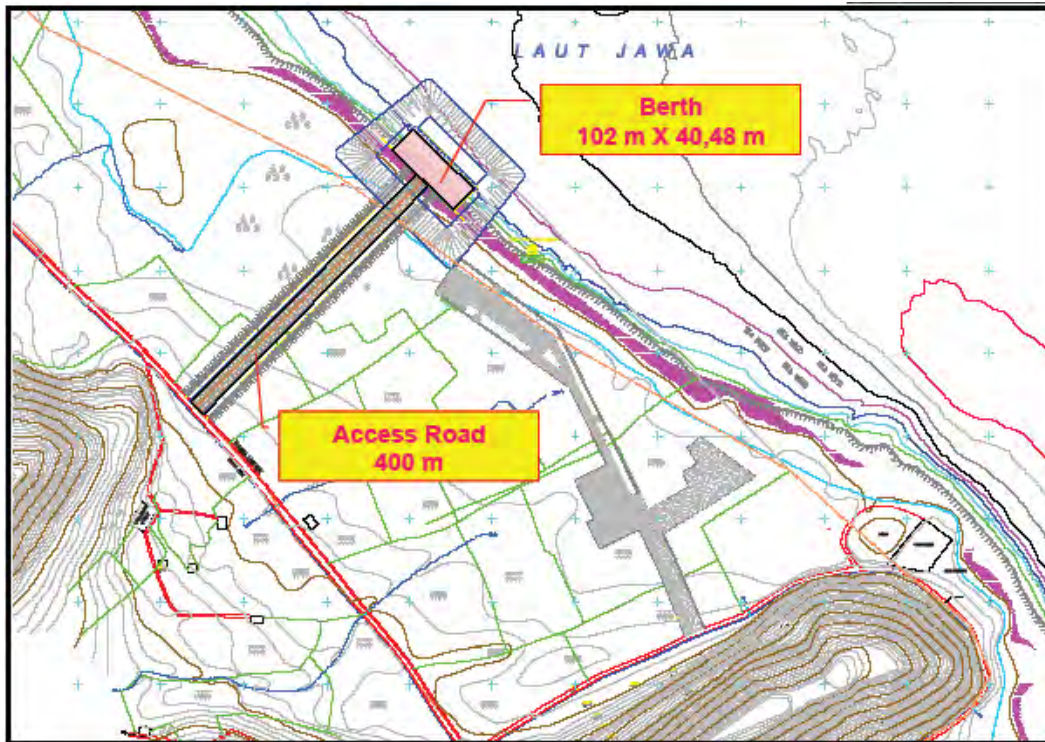


Figure 1.2-2 First Stage Section I Berth Development

481. Except for these newly arisen projects, the situation in the hinterlands of both Bojonegara and Tg. Priok have not greatly changed since the time of the 2003 study and hence, basic idea on allocation of roles and function between Bojonegara and Tg. Priok will be the same as in the JICA Study 2003.

B. Access Transport

482. The existing access road to the Bojonegara site from the Cilegon Timur junction of the Jakarta-Merak toll way is 15.4 km in length and 2-lane lightweight load asphalt paved. There is a bridge with steel member trusses whose slab and concrete foundation are heavily damaged. It seems that the bridge requires rehabilitation and reinforcement works.

483. The coastal area along the access road is owned by private investors for their factories and industrial complex development. The access road passes through a nearby small residential area on the hilly land. The alignment of the access road may be further studied in detail based on the actual topographic data.

484. Some parts of the damaged asphalt pavement and steel trussed bridge have been rehabilitated and reinforced by concrete pavement at the original width of the road by the budget of the Ministry of the Public Works. It is proposed to be widened to 4 lanes with concrete pavement for container transport. The road through the residential area shall be detoured to an alternative route outside the resident area.

485. There is a plan to develop a railway along the access road for transporting containers between the port area and Bandung/Jakarta dry ports.



486. Traffic count survey was conducted by the JICA Study Team at three (3) cross sections on the existing access road to Bojonegara Port. The survey was commenced in the morning of March 3, 2009 and finished in the morning of March 6, 2009, a total of 72 consecutive hours with 8 hour periods per shift.

487. The traffic count survey at Bojonegara port was carried out at three points of cross section; namely, Serdang (CS-1), Cikubang (CS-2), and Salira (CS-3). Those locations are shown in Figure 1.2-3. The survey locations were selected because of the following reasons:

- Serdang (CS – 1); Boundary of Cilegon City and Serang Regency. Vehicle movement from Cilegon city or toll road of Jakarta–Merak to go to Bojonegara port or Industrial complexes in Bojonegara area can be observed.
- Cikubang (CS – 2); Adjacent to Bojonegara port and convenient to observe the vehicle movement between Cilegon/Serang Regency (South) and Bojonegara port.
- Salira (CS – 3); Boundary between Pulo Merak and Bojonegara District, and selected as a survey location to observe vehicle movements from Cilegon, Merak and Suralaya (North) to Bojonegara Port.



Figure 1.2-3 Location of Traffic Count Survey in March 2009

488. In traffic count, all vehicles passing through the observation point were counted to represent the traffic volume in a unit of hour or vehicles per hour. The number of vehicles was used in calibrating the traffic movement. Data on traffic volume for each location were presented in Table 1.2-1 Analysis was also made for the vehicle composition, peak ratio and so on.

489. At CS-1 point (Desa Serdang), the number of vehicles passing the point of observation was 20,341 vehicle/24 hour (Tuesday), 20,601 vehicle/24 hour (Wednesday), and 19,177 vehicle/24 hour (Thursday), respectively. The highest number occurred on Wednesday, March 4, 2009.

490. Whilst at CS-2 point (Desa Cikubang), the number of vehicles passing the point of observation was 10,464 vehicle/24 hour (Tuesday), 10,668 vehicle/24 hour (Wednesday), and 9,302 vehicle/24 hour (Thursday), respectively. Similar to observation result at CS-1, the highest number of traffic occurred on Wednesday, March 4, 2009.



491. Unlike the other points of observation, the largest volume of traffic passing CS-3 point occurred on Tuesday, March 3, 2009 with 5,720 vehicle/24 hour. The volume of traffic on Wednesday was 5,301 vehicle/24 hour and on Thursday was 5,010 vehicle/24 hour.

492. Based on the result of the survey, the number of vehicles passing the location for traffic count in a certain time could describe the volume in peak hours, either the peak hour in the morning or in the afternoon. Average peak hour was almost the same at each location, i.e. in the morning at 07.00 – 10.00 and in the afternoon at 15.00-18.00.

493. Traffic count at observation point was conducted for all types of vehicles. Vehicles were divided into 10 separate types. Percentages of types of vehicles at each location are shown in Table 1.2-2.

494. At CS-2, which is the nearest survey point to Bojonegara port, about two thirds of the total passing traffic was Motor Cycle, and the second largest group was Sedan, Jeep, Wagon, Kijang group, accounting for 13~14% of the total. Trucks account for about 10 per cent of the total at present.

495. It is found that another traffic count survey was conducted on October 1, 2001 on the three (3) survey points near Bojonegara, and two out of three points coincide with survey points of 2009 JICA Study: CS-1 Serdang and CS-2 Cikubang. The traffic count survey in 2002 was conducted only one day for 16 hours

496. Comparison of traffic volume between Year 2002 and Year 2009 was made and the results are shown in Table 1.2-3. At CS-2, 19,021 units of vehicles were counted during 16 hours in 2009 while that in 2002 was 6,877 units. In other words, the traffic volume increased three times over that observed in 2002. Traffic growth rate during 2002-2009 at CS-1 is larger than at CS-2.

497. According to the JICA Study 2003, the capacity per lane of the existing access road to Bojonegara port is estimated at 2,680 pcu/hr. Present daily traffic volume is still small, and the present access road has capacity for accommodating the present regional traffic volume. However, for accommodating the future traffic volume, the present road conditions will not be sufficient, and additional lanes on both sides of the road will be required.



**The Study on the New Public Private Partnership Strategy
for the Port Development and Management in the Republic of Indonesia**

Table 1.2-1 Result of Traffic Count Survey at Bojongegara (Veh/Day)

Tuesday, March 4, 2009

No	Location Code	Location Name	Periode	Destination		TOTAL	
				From	To	Without Motor Cycle	With Motor Cycle
1	CS - 1	SERDANG	24 hours	Cilegon City	Bojongegara / Tol	6,655	10,296
				Bojongegara / Tol	Cilegon city	6,503	10,045
						13,158	20,341
						64.69%	100.00%
2	CS - 2	CIKUBANG	24 hours	Bojonggara	Salira	1,783	5,120
				Salira	Bojongegara	1,769	5,344
						3,552	10,464
						33.94%	100.00%
3	CS - 3	SALIRA	24 hours	Salira	Suralaya	1,234	2,994
				Suralaya	Salira	1,134	2,726
						2,368	5,720
						41.40%	100.00%

Wednesday, March, 4 , 2009

No	Location Code	Location Name	Periode	Destination		TOTAL	
				From	To	Without Motor Cycle	With Motor Cycle
1	CS - 1	SERDANG	24 hours	Cilegon City	Bojongegara / Tol	6,929	10,622
				Bojongegara / Tol	Cilegon city	6,511	9,979
						13,440	20,601
						65.24%	100.00%
2	CS - 2	CIKUBANG	24 hours	Bojonggara	Salira	1,805	5,326
				Salira	Bojongegara	1,793	5,342
						3,598	10,668
						33.73%	100.00%
3	CS - 3	SALIRA	24 hours	Salira	Suralaya	1,188	2,760
				Suralaya	Salira	1,088	2,541
						2,276	5,301
						42.94%	100.00%

Thursday, March, 5 , 2009

No	Location Code	Location Name	Periode	Destination		TOTAL	
				From	To	Without Motor Cycle	With Motor Cycle
1	CS - 1	SERDANG	24 hours	Cilegon City	Bojongegara / Tol	6,416	9,707
				Bojongegara / Tol	Cilegon city	6,194	9,470
						12,610	19,177
						65.76%	100.00%
2	CS - 2	CIKUBANG	24 hours	Bojonggara	Salira	1,601	4,479
				Salira	Bojongegara	1,750	4,823
						3,351	9,302
						36.02%	100.00%
3	CS - 3	SALIRA	24 hours	Salira	Suralaya	1,084	2,626
				Suralaya	Salira	1,052	2,384
						2,136	5,010
						42.63%	100.00%



Table 1.2-2 Percentage (%) of Types of Vehicles at Bojonegara

No	Location Code	Location Name	1	2	3	4	5	6	7	8	9	10
			Motor Cycle	Sedan, Jeep, Wagon, Kijang	Minibus (Angkot, Mikrolet)	Medium Bus	Large Bus	Pick-Up, Truk 3/4 Single	Truck 3/4 ton (Colt Diesel) Truck 2	Truck 3 Axle	Truk 4 Axle	Truk 5 Axle or More
1	CS - 1	3 March 2009	35.31%	39.27%	0.97%	1.33%	6.47%	7.66%	5.33%	2.95%	0.46%	0.24%
	CS - 1	4 March 2009	34.76%	39.17%	0.89%	1.66%	6.78%	7.58%	5.77%	2.81%	0.35%	0.24%
	CS - 1	5 March 2009	57.37%	10.64%	12.97%	0.82%	0.38%	6.59%	3.41%	5.17%	0.18%	2.48%
2	CS - 2	3 March 2009	66.06%	12.71%	8.17%	1.04%	0.50%	3.33%	3.10%	3.63%	0.98%	0.49%
	CS - 2	4 March 2009	66.27%	13.79%	7.66%	0.84%	0.56%	2.91%	3.10%	3.14%	1.06%	0.67%
	CS - 2	5 March 2009	63.98%	14.18%	8.26%	1.01%	0.63%	3.82%	3.40%	3.10%	1.16%	0.47%
3	CS - 3	3 March 2009	58.60%	10.31%	13.71%	0.77%	0.52%	6.07%	2.57%	5.09%	0.30%	2.06%
	CS - 3	4 March 2009	57.06%	11.02%	14.20%	0.81%	0.45%	6.23%	3.04%	4.66%	0.26%	2.26%
	CS - 3	5 March 2009	57.37%	10.64%	12.97%	0.82%	0.38%	6.59%	3.41%	5.17%	0.18%	2.48%

**Table 1.2-3 Comparison of Survey Results between Year 2002 and Year 2009
CS-2**

OD		2009		2002	
		Without Motor	With Motor	Without Motor	With Motor
Cilegon City	Bojonegara/Toll	6,172	9,632	1,592	3,266
Bojonegara/Toll	Cilegon City	6,015	9,389	1,778	3,611
16Hour		12,187	19,021	3,370	6,877

CS-1

OD		2009		2002	
		Without Motor	With Motor	Without Motor	With Motor
Bojonegara	Salira	1,644	4,798	322	719
Salira	Bojonegara	1,673	5,119	313	715
16Hour		3,317	9,917	635	1,434

498. The Banten provincial government established the Project Unit for Bojonegara Access Road Development at Cilegon office to develop the access road based on the JICA Study 2003.

499. The existing damaged access road which is categorized as a national road has been gradually upgraded to concrete pavement at the existing width of the road by the Banten Province Government with the limited national budget allocated annually from the Ministry of Public Works. The progress of the rehabilitation works of the access road has been as follows.

- The project is to rehabilitate the existing national road as a national road for a stretch of 12.4 km between Cilegon and Bojonegara by the national development budget from the Departemen Pekerjaan Umum, Directorate Bina Program of the central government.
- Reinforcement works of the existing national road have been carried out every year since 2002 using the limited national budget from the central government. So far, 70~80% of the rehabilitation works of the road between Cilegon and Bojonegara have been completed. However, the 10 bridges still requires rehabilitation and reinforcement, and the design of rehabilitation works has been drafted in 2009 and construction works will begin in 2010 by annual budget basis.
- At present, a small bridge crossing the narrow river is under rehabilitation works. Asphalt pavement area was replaced by concrete pavement. Large bridge for crossing the main river has been repaved with concrete.
- Out of the 10 bridges requiring rehabilitation, 5-6 bridges require structural reinforcement and concrete pavement to withstand the load of heavy trucks.



- In 2009 they plan to implement rehabilitation works of the existing national road across a stretch of 2.3 km out of the 22 km from Bojonegara to Merak direction by placement of rigid pavement (Placement of reinforced concrete pavement on the existing ground). They plan to call a tender of the construction works in the middle of March 2009 and to complete such works by the end of fiscal year 2009.
- The land acquisition along the national road area for obtaining the original design width by the Provincial government is not completed yet, in which the rehabilitation of such parts of the road could not been done. The width of the existing national road is not sufficient for two way traffic.

500. Access road as toll way to the port is planned by the Directorate General of Highway, Directorate of Expressway & Urban road (DGH).

501. Ministry decree was issued in August 2005 to develop the Toll road to Bojonegara to support the international port development. Providing accessibility to the national port/air port is the basic policy of the national road development of Directorate General of Highways, Ministry of Public Works (Bina Marga).

502. Subsequently the Directorate General of Highways (DGH) carried out the feasibility study of developing a new toll road development from Cilegon to Bojonegara by the toll way system in 2005. The Feasibility Study report [Laporan Final Pekerjaan Penyusunan Studi Kelayakan dan Pra Desain Tender Investasi Jalan Tol, Ruas Cilegon – Bojonegara, January 2006] was submitted in January 2006. The basic alignment of the proposed toll way is based on the studied route by the JICA Study 2003.

503. It was planned to develop the access road as the toll way by widening the existing national road. The alignment of the toll way which was selected is the same alignment as studied under the JICA Study 2003, in which the alignment of the resident area is planned to be detoured along the coastal area and near the alignment of the existing national access road from Cilegon to Bojonegara.

504. DGH considered that the development of the toll way would be feasible if the daily traffic volume would increase and the soft loan from Japan could be available, so that the expected FIRR would secure to lure the private investors.

505. DGH invited the tender for development of the access road by the toll way from private investors in 2005. The tender was to conduct the following works; Land acquisition, design and construction works and EIA approval from MOE for the concession period of 35 years. However no investors submitted the tender proposal because the time of opening the port is not fixed, and distance by the toll way is short.

506. The central office of DGH requested the DINAS BINA MARGA of the Banten province for land acquisition for development of the proposed toll way.

507. DGH suggested to include the access road construction works by the toll way system as parts of the port project components. The construction works of the road and port would be implemented by the respective department of the Ministries.

508. While the Feasibility Study of the development of the toll way for the access road was carried out, DGH received the proposal of railway development. The rail way line is planned to be extended for the transport of containers from the existing railway line at the Cilegon to the Bojonegara. DGH suggested developing the corridor of co-existence of the road and rail way line within the same land area acquired /provided by Banten Province. It will be technically difficult to select the rail way alignment within the access road development area due to the different slopes of the road and the railway line. The rail way alignment should be planned by the specified slope.



2. Proposed Development Plan for Case Study

2.1. Estimated Throughput

509. In the former study for the development of greater Jakarta metropolitan ports in 2003, throughput of both Tg. Priok port and Bojonegara port was estimated as in Table 2.1-1 and revised estimate is shown in Table 2.1-2.

510. Estimated figure in Table 2.1-2 is based on the assumption that Bojonegara port will be opened at year 2012, the same year assumed in the study in 2003.

Table 2.1-1 Estimated Throughput of Tg. Priok & Bojonegara in 2003 Study

Tanjung Priok

	Container ('000TEU)										
	Total			International					Domestic		
	Total	Laden	Empty	Sub Total	Laden			Empty	Sub Total	Laden	Empty
					Sub Total	Ex	Im				
2012	4,346	3,445	900	3,631	2,983	1,706	1,276	648	715	462	252
2025	5,321	4,487	834	3,776	3,499	1,775	1,724	277	1,545	989	557

	GC ('000 ton)	Bag ('000 ton)	Dry-B ('000ton)			Liquid-B ('000ton)		
			Total	Public	Special	Total	Public	Special
2012	11,971	4,274	11,004	6,563	4,441	2,386	9,258	11,644
2025	15,025	5,365	20,129	10,720	9,409	3,480	10,566	14,046

Bojonegara

	Container ('000TEU)										
	Total			International					Domestic		
	Total	Laden	Empty	Sub Total	Laden			Empty	Sub Total	Laden	Empty
					Sub Total	Ex	Im				
2012	563	456	107	525	431	247	184	94	39	25	14
2025	2,745	2,497	249	2,581	2,392	1,213	1,179	189	164	105	59

	GC ('000 ton)	Bag ('000 ton)	Dry-B ('000ton)			Liquid-B ('000ton)		
			Total	Public	Special	Total	Public	Special
2012	679	74	---	---	---	---	---	---
2025	1,444	157	---	---	---	---	---	---



Table 2.1-2 Revised Estimated Throughput

	Total	Tg. Priok			Bojonegara
		Sub-total	Internationa	Domestic	International
1991	736,370	736,370	717,563	18,807	
1992	866,717	866,717	841,640	25,077	
1993	1,054,152	1,054,152	1,012,690	41,462	
1994	1,270,094	1,270,094	1,193,115	76,979	
1995	1,630,320	1,630,320	1,479,721	150,599	
1996	1,606,797	1,606,797	1,466,356	140,441	
1997	1,908,716	1,908,716	1,721,876	186,840	
1998	1,897,961	1,897,961	1,754,636	143,325	
1999	2,118,224	2,118,224	1,909,267	208,957	
2000	2,313,272	2,313,272	2,076,181	237,091	
2001	2,248,802	2,248,802	2,049,884	198,918	
2002	2,568,926	2,568,926	2,212,017	356,909	
2003	2,758,809	2,758,809	2,310,017	448,792	
2004	3,187,055	3,187,055	2,621,087	565,968	
2005	3,330,395	3,330,395	2,706,776	623,619	
2006	3,370,729	3,370,729	2,735,774	634,955	
2007	3,691,918	3,691,918	2,925,990	765,928	
2008	3,984,290	3,984,290	3,146,732	837,558	
2009	4,303,470	4,303,470	3,373,038	930,432	
2010	4,658,438	4,658,438	3,612,490	1,045,948	
2011	5,034,702	5,034,702	3,866,308	1,168,394	
2012	5,433,542	5,387,187	4,089,000	1,298,187	46,355
2013	5,785,852	5,501,838	4,089,000	1,412,838	284,014
2014	6,155,777	5,622,221	4,089,000	1,533,221	533,556
2015	6,544,198	5,748,624	4,089,000	1,659,624	795,574
2016	6,952,040	5,881,346	4,089,000	1,792,346	1,070,694
2017	7,380,274	6,020,705	4,089,000	1,931,705	1,359,569
2018	7,829,920	6,167,032	4,089,000	2,078,032	1,662,889
2019	8,302,048	6,320,675	4,089,000	2,231,675	1,981,374
2020	8,797,783	6,482,000	4,089,000	2,393,000	2,315,783

511. In the JICA Study 2003, maximum capacity of international container in Tg. Priok port was assumed to be around 3.8 million TEU based on the presumption that without expansion of KOJA terminal, maximum capacity is around 3 million TEU. Total throughput has, however, surpassed this capacity already in 2008 handling 3.15 million TEU.

512. Considering the rehabilitation plan of Pier III where the north end part will be used for international container and the situation that Bojonegara port will be difficult to open in year 2012, Tg. Priok port has to manage to handle about 5.43 million TEU with the facilities after expansion of KOJA and rehabilitated Pier III under possible condition that many of the vessels shall be forced to wait for berthing.

513. General & bagged cargo was estimated as about 1.5 million tons (revised volume is around 1.2 million tons) in 2025 with planned berths of total length of 830m including RORO terminal in the former study for Bojonegara port. As is stated in paragraph 479, some million tons of coal, construction materials for and liquid bulk including products from oil refinery are expected to be handled additionally in Bojonegara port.



2.2. Case Study Facilities for Bojonegara Container Terminal

514. Assuming four to five years will be required to prepare the investment and construct the container terminal in Bojonegara port, container terminal will possibly be opened at around 2015 and estimated demand for terminal will be around 0.8 to 0.9 million TEU according to the new estimate shown in Table 2.1-2.

515. Multipurpose terminal under construction will also be expanded continuously to meet the requirement of oil refinery development under negotiation.

516. In order to cope with this situation, 2 berths of container terminals and 204m of the multipurpose terminal to be used for handling construction materials for oil refinery and necessary length of breakwater, channels and basins for these terminals as well as access road to the port is necessary to be constructed by around year 2015.

517. Bojonegara Port container terminal is planned to be used for the gateway terminal for Indonesia. Considering the recent trend of vessel type in this area, planned vessel is considered to be around 50,000DWT with LOE, 270m and full draft 12.7m.

518. Planned terminal of 2 berths (300mx600m each) with necessary equipment will be able to handle 0.7~0.9 million TEU according to the frequency of terminal calls by different vessel type and mixture rate of each box type of container.

519. Related facilities and equipment are planned as follows:

➤	Operation, security & amenity block	3,500m ³
➤	CFS	6,400 m ³ (outside terminal)
➤	M&R shop	2,300 m ³
➤	Container Gate	2,700 m ³
➤	Sub/Fuel station	420 m ³
➤	Container M&R shop	450 m ³
➤	Other building	440 m ³
➤	RTG	15
➤	Side Picker (Empt. Cont)	7
➤	Tractor & Yard Chasis	25 sets

520. Planned Layout is shown in Figure 2.2-1.



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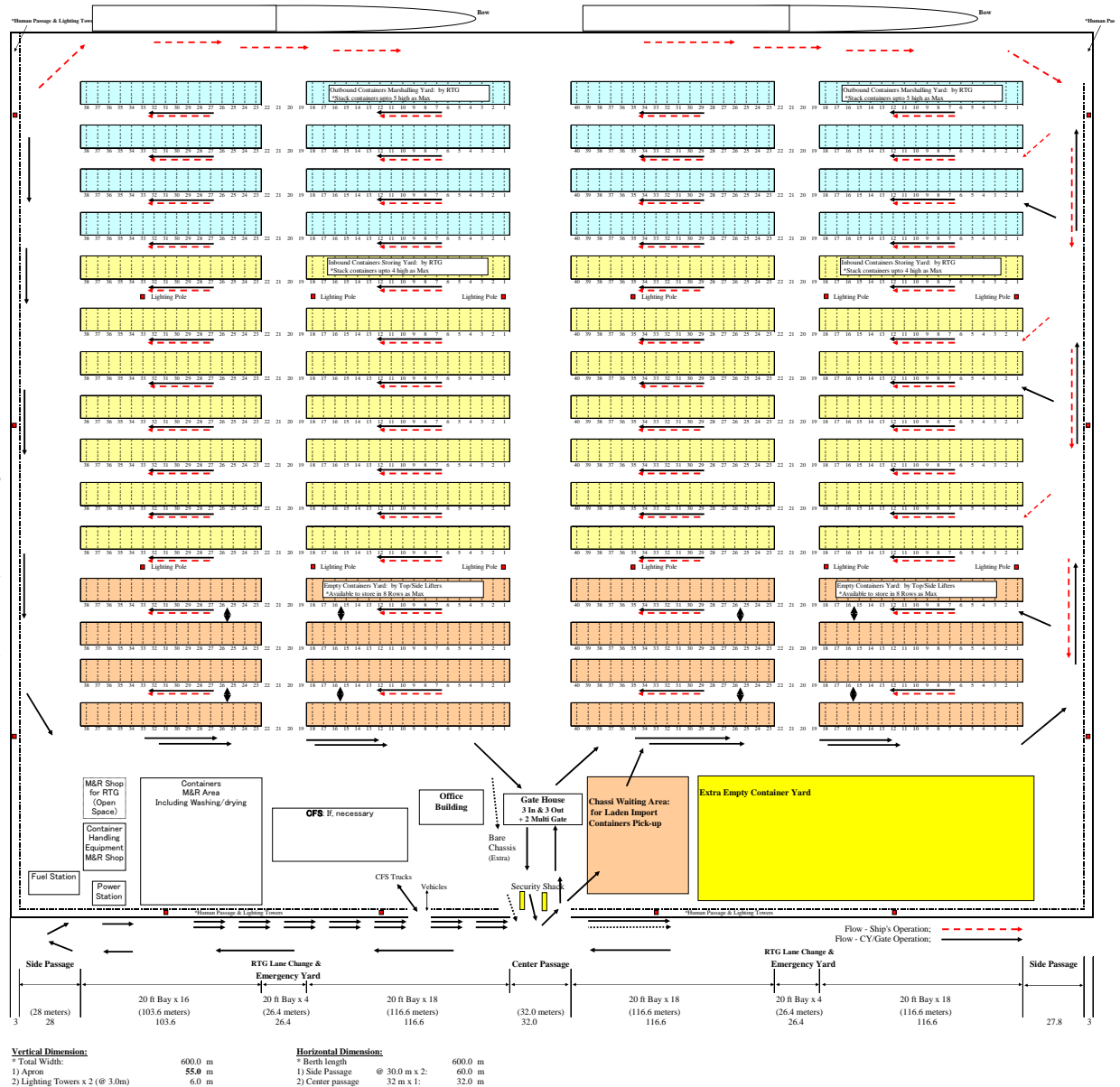


Figure 2.2-1 Layout of Bojonegara Container Terminal

2.3. Case Study Facility of Access Road

521. In order to secure effective and efficient operation of the new port in Bojonegara, access road to/from the existing toll road network should be developed by widening the existing road or developing a new toll road between the port and the nearest interchange.

522. The preliminary phased development plan of the existing access road is prepared by assumption of availability of Right of Way for further expansion to have 20 m width of 4-lane divided type of road along the existing road.

523. It is important to mention that the development of the access road to the Bojonegara site shall be implemented at the same time with the port development program, since the port service will require proper land transport service. Both infrastructures shall be developed in a synchronized manner for the benefit of regional development.



524. The tentative alignment of the access road plan is prepared based on the existing road routes by minimize the disturbance to neighboring residents and the existing facilities (see Figure 2.5-1 and Figure 2.5-2).

A. Development Plan Up to 2015

525. The width of the existing road lane shall be widened to 3.5 m with 1.0m shoulders on both sides and divided with 2- way road. The existing pavement and shoulder shall be reinforced with overlay of asphalt pavement and base coarse foundation on the existing asphalt pavement.

526. The heavily damaged and worn out 7 bridges of the existing access road shall be replaced with a new structure for heavy loaded trucks and their foundation and pavement shall be reinforced. The detailed inspection and check surveys thereof shall be conducted to identify the damaged conditions and plan the rehabilitation measures.

B. Development Plan Up to 2025

527. Additional lanes on both sides of the existing access road shall be constructed to form a 6-lane divided type of road. The interchange of the double trumpet type with the access road and toll way exit way may be planned for smooth access from the existing national road to the Bojonegara site.

528. In case there is not enough ROW along the existing access road, the flyover type toll way along the existing road alignment should be developed by using the shoulder of the road for foundation.

2.4. Case Study Facility of Breakwater, Channel and Basin

529. In the JICA Study 2003, breakwater of 1,040m was planned to protect container terminals of 600m in length and a multipurpose terminal of 220m in length.

530. The newly constructed berth at Bojonegara Port had, however, experienced hits by high waves from the North ~ Northeast direction in February 2008 and 2009 without a breakwater and IPC2 requested that the wave hindcast at Bojonegara Port should be reviewed. It showed that the wind data at Serang which indicated that waves were from the north and west directions are predominantly different from the data at Cengkareng applied in the JICA Study 2003.

531. The Study Team conducted the review work of wind data referring to various applicable data and information and concluded as follows:

- The wind direction distribution of Serang indicates that North and West directions are predominant in all wind roses of the four seasons. The West direction is specifically dominant throughout the year.
- The other wind directions, especially Northwest, Northeast or East, have a very low rate of occurrence.
- On the other hand, the wind direction of Cengkareng indicates the distribution to all directions in all wind roses of the four seasons showing different dominant directions by the season. The Southwest directions shows higher occurrence than that of other directions.
- According to the figures detained from Indonesia Pilot, Volume I, Second Edition 1996; the UK Hydrographic Office, it is understood that the winds in the range from Light Breeze to Moderate Wind are predominant in the Western Java Sea all through the year.
- Breeze from the West to Northwest directions is predominant from December to February, which corresponds to the rainy season of the Java region, while moderate winds from the



East to Southeast directions are predominant in the Monsoon Season from May to October.

- Wind roses indicate that winds are distributed in all directions, which is the very important similarity with the wind of Cengkareng. Since Sukarno-Hatta International Airport is located close to the coast line, and the surrounding topography is low and flat in general, it is considered that the wind of Cengkareng reflects the characteristics of the sea winds above Western Java Sea than those of Serang data.
- Hence, we adopted the wind data of Cengkareng which is more appropriate to the purpose of wave hindcasting.

532. Then the Study Team applied the same data as in the JICA Study 2003, but according to the layout change in the container terminal caused by the already constructed multipurpose terminal by IPC2, 1500m breakwater and channel with -14m depth are planned as shown in Figure 2.5-3.

2.5. Facilities Other than Objective Facilities of the Case Study

533. It is estimated that around 1.6million tons of general cargo and bagged cargo will be handled in new Bojnegara port by the year 2025 (around 0.75~0.9 million tons in 2015) and other than these estimated cargo, about 7 million tons of coal and other liquid bulk cargo for oil refinery is also expected to be handled.

534. The Study team proposes that a coal terminal be developed at the site of future multipurpose terminal planned in the JICA Study 2003 and liquid terminal for refinery is proposed to be constructed at the site of grain terminal in the JICA Study 2003 to cope with the possible new cargo.

535. These cargoes are considered to be inflammable and should be handled at the site separated from ordinary general cargo which will locate at the west end part of the port.

536. Cargo other than these dirty and flammable liquid cargoes will be handled at the multipurpose terminal which has a total length of around 1,000m.

537. It is difficult to estimate the exact type and amount of cargo for the coal and refinery at this moment when the concrete plan of refinery and usage of coal are not known. Before construction of these facilities other than case study facilities and multipurpose terminal under construction, it is necessary to review and revise the plan considering the concrete development plan within the dotted area shown in Figure 2.5-3.

538. For the convenience of planning, around 7 million tons of coal could be handled with a quay wall ranging from 600m~1000m which could be developed within the area for dangerous cargo shown in Figure 2.5-3.



Figure 2.5-1 Bojonegara Port Access Road Plan (1/2)

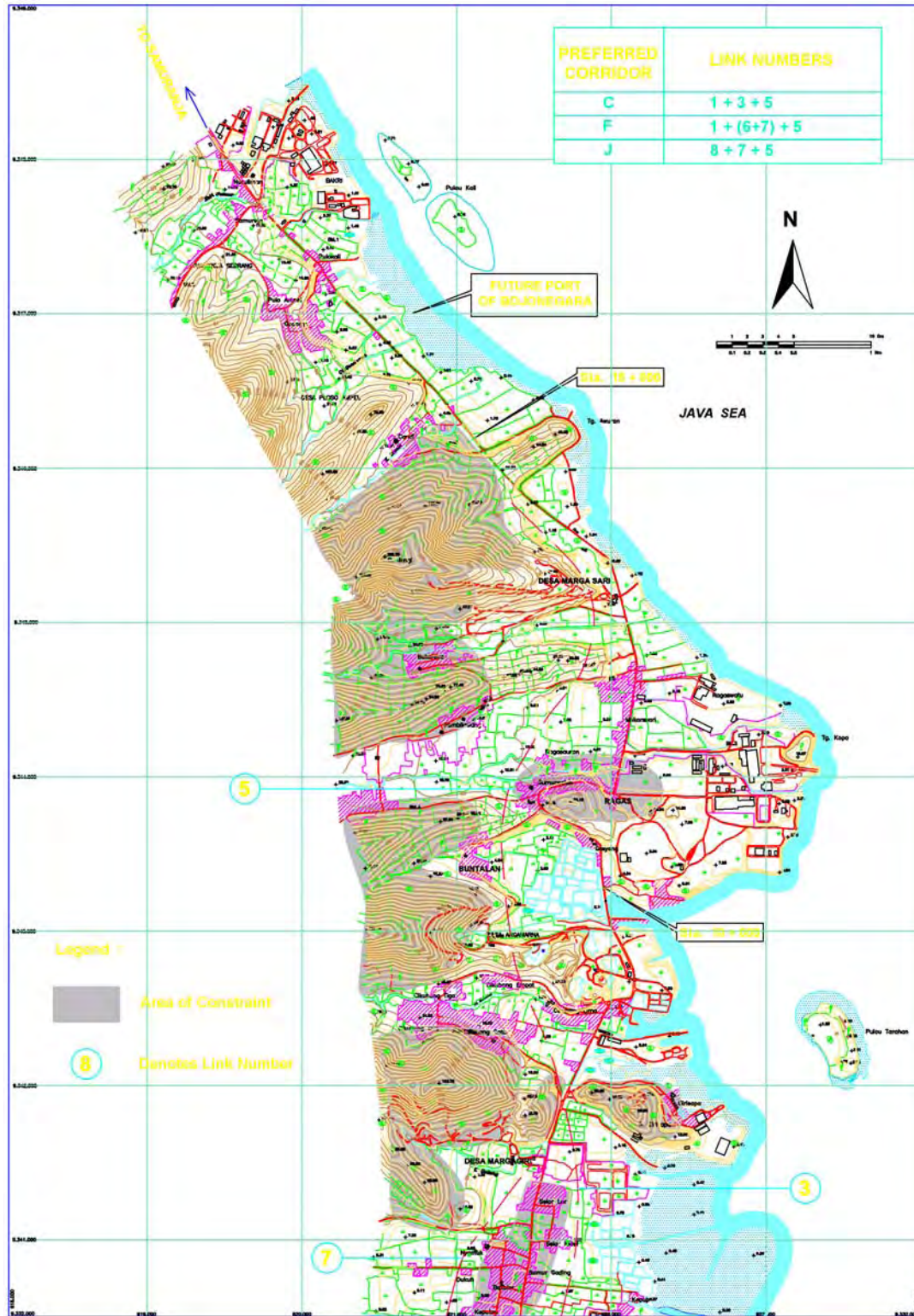


Figure 2.5-2 Bojonegara Port Access Road Plan (2/2)

