NIPPON KOEI CO.,LTD.

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	Coping Concrete of Caisson	**Pay Item No. (BOQ)**	2B-0904
Quantity Item	Form	**Unit**	m^2

Calculation Procedure Applied

Form of Coping Concrete was computed for container berth.

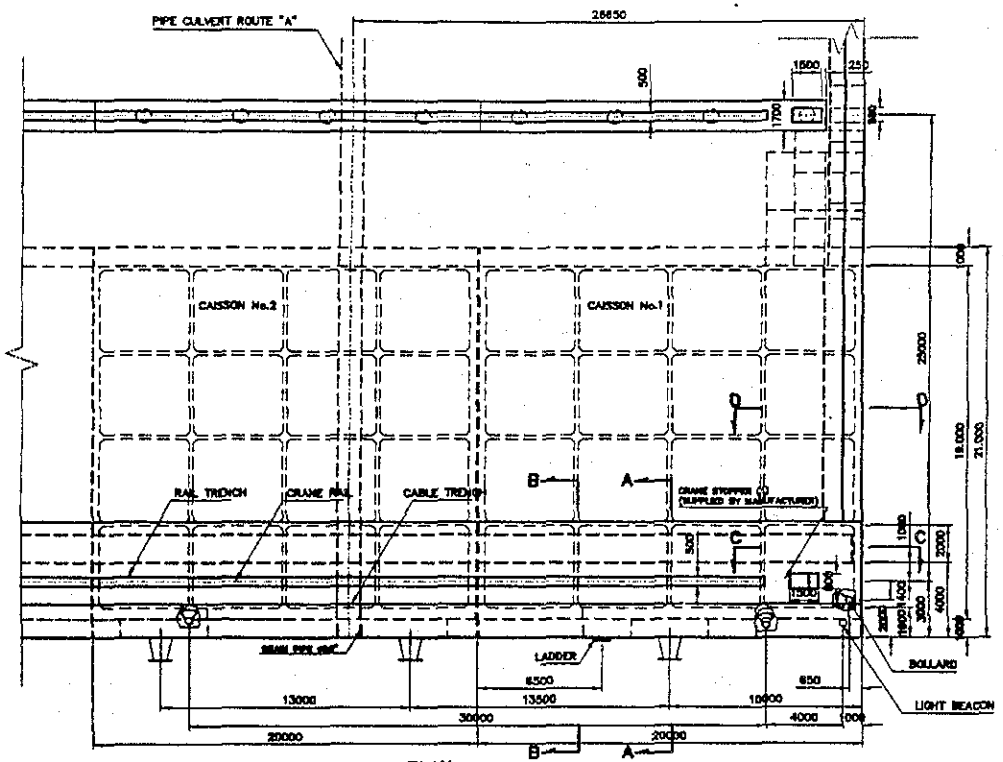
References, Calculation Base and Revisions

References : Tender Drawings :

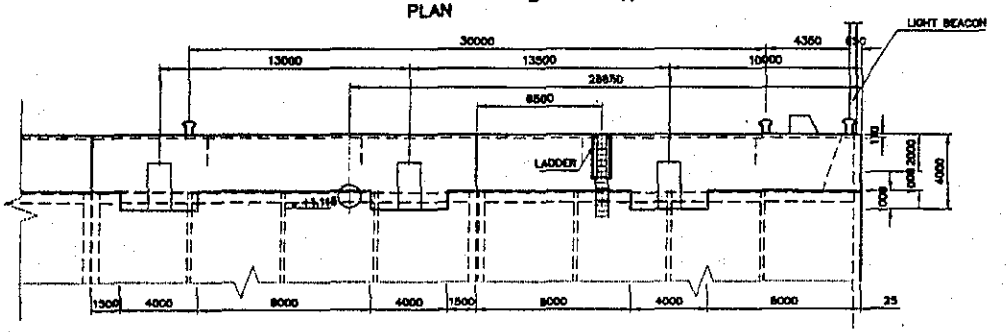
DW-QW-01-042 Detail of Coping (1)
DW-QW-01-045 Detail of Coping (4)
DW-QW-01-053 Detail of Anchor-Tockup Plate
DW-QW-01-060 Detail of Crane End Stopper

Rev	Prepared		No. of	Checked		Reviewed		Superseded
	by	Date	Pages	by	Date	by	Date	by Calc No.
0	Karla G.			Ms. Inuma		Ms. Ando		
1								
2								
3								

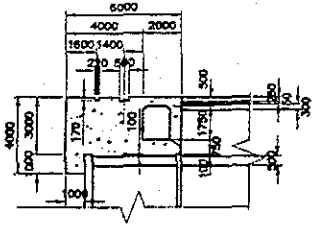
FN : Calculation_Cover_Sheet_020504_seg cover



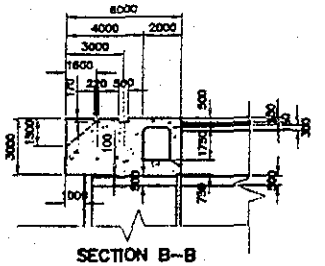
PLAN



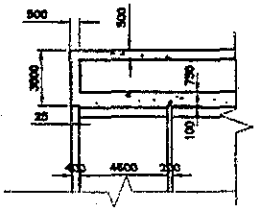
FRONT VIEW



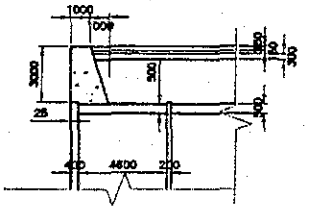
SECTION A–A



SECTION B–B



SECTION C–C



SECTION D–D

NOTES: ALL DIMENSIONS ARE IN MILLIMETER

REV. NO.	DATE	REMARKS	BY	APPROVED	DATE		

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)

DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR

NIPPON KOEI CO., LTD.

DESIGNED BY :

CHECKED BY :

APPROVED BY :

SECTION : QUAYWALL WORK

SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH

TITLE :

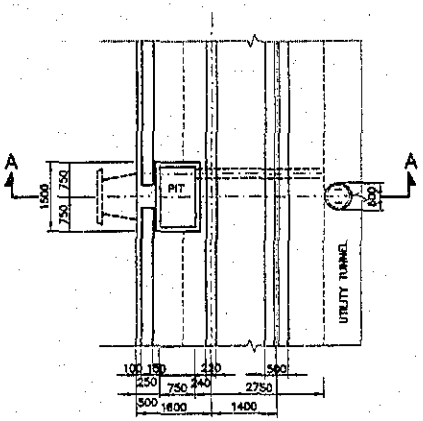
DETAIL OF COPING (1)

DATE : JULY/2002

SCALE : 1 : 250

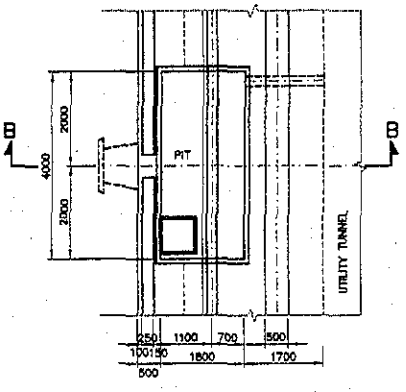
DRAWING NO. DW-GW-01-042

WATER HAIDLANT & FIRE FITING PIT CAISSON
No.3 No.7 No.11 No.15 No.19 No.23 No.27



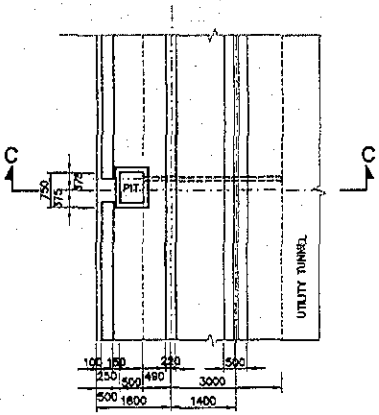
PLAN

ELECTRIC CABLE/JUNCTION PIT
CAISSON No.12 No.20



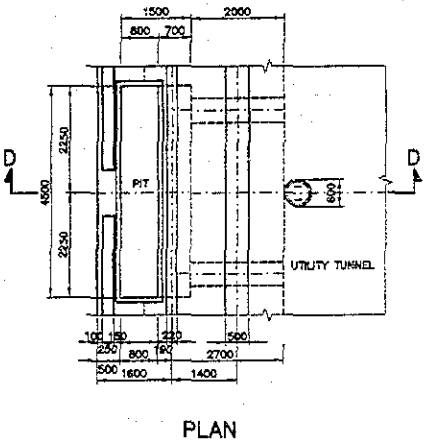
PLAN

ELECTRIC SERVICE PIT CAISSON
No.2 No.14 No.16 No.26 No.28

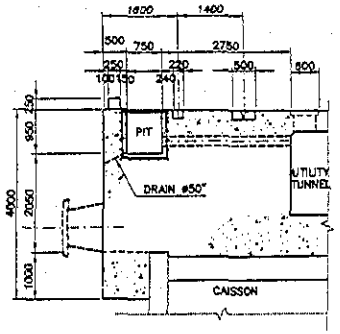


PLAN

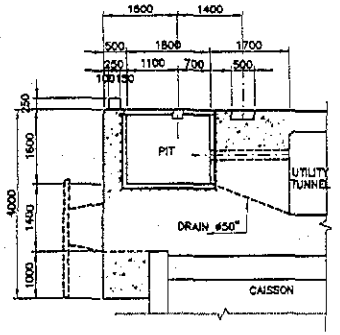
LOADING PIT (MULTI-PURPOSE BERTH)
CAISSON No.21 No.22 No.23 No.24 No.25



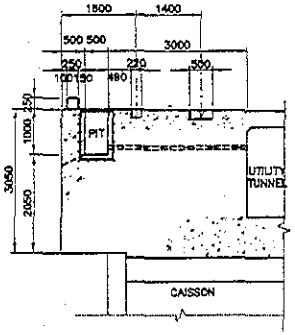
PLAN



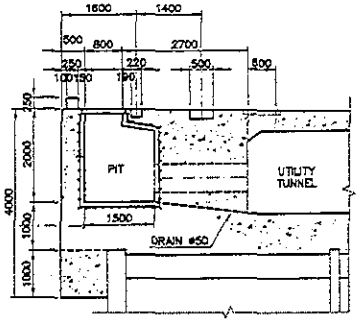
SECTION A–A



SECTION B–B



SECTION C–C



SECTION D–D

NOTE:
-DETAIL OF ELECTRIC SERVICE PIT IS SHOWN IN DW-??
-DETAIL OF ELECTRIC CABLE JUNCTION IS SHOWN IN DW-??
-DETAIL OF WATER HYDRANT FIREFIGHTING IS SHOWN IN DW-??

REV. NO.	DATE	COORDINATE	BY	APPROVED	DATE

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)

DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR

NIPPON KOEI CO., LTD.

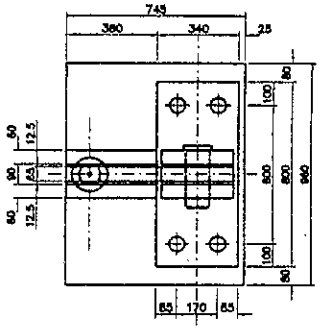
DESIGNED BY :
CHECKED BY :
APPROVED BY :

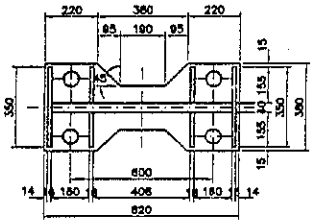
SECTION : QUAYWALL WORK
SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH
TITLE :

DETAIL OF COPING (4)

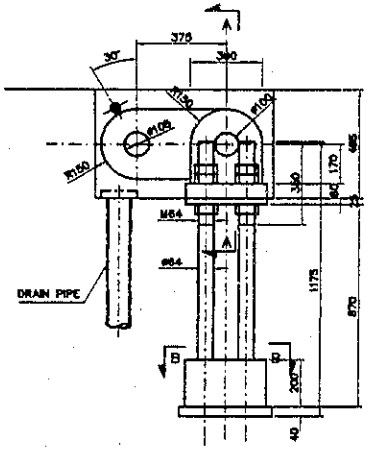
DATE : JULY/2002
SCALE : 1 : 100
DRAWING NO. : DW-QW-01-045

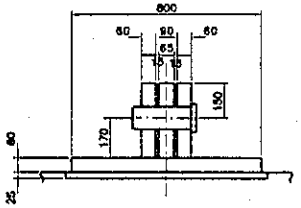
DETAIL OF ANCHORING FRAME
SCALE 1:20





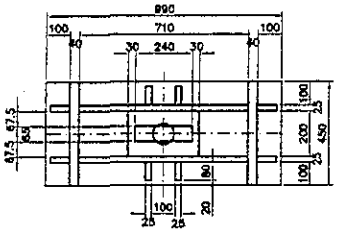
SECTION B–B



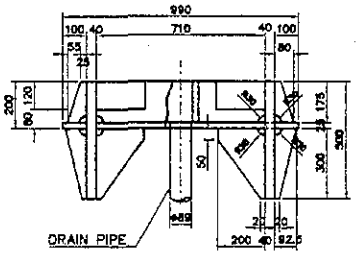


SECTION A–A

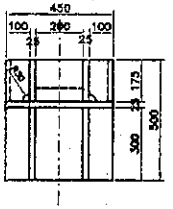
DETAIL OF SOCKET BLOCK
SCALE 1:20



PLAN

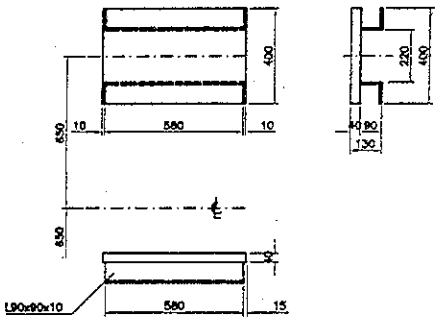


FRONT VIEW

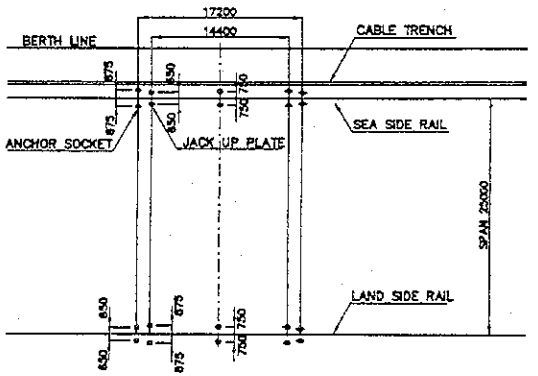


LATERAL VIEW

DETAIL OF JACK UP PLATE
SCALE 1:20



PLAN OF ANCHOR AND JACK UP PLATE
SCALE 1:500



REV. NO.	DATE	COORDINATE		BY	APPROVED	DATE			

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)

DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR

NIPPON KOEI CO., LTD.

DESIGNED BY :
CHECKED BY :
APPROVED BY :

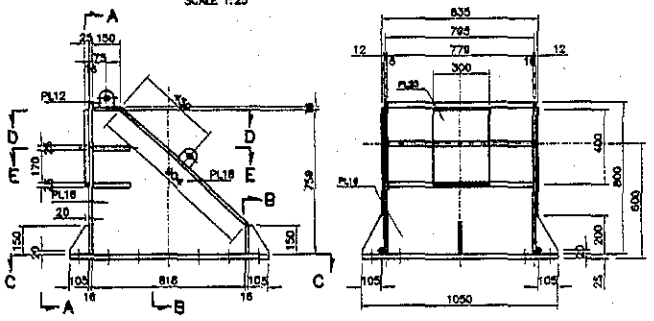
SECTION : QUAYWALL WORK
SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH
TITLE :

DETAIL OF ANCHOR-JACK UP PLATE & SOCKET BLOCK

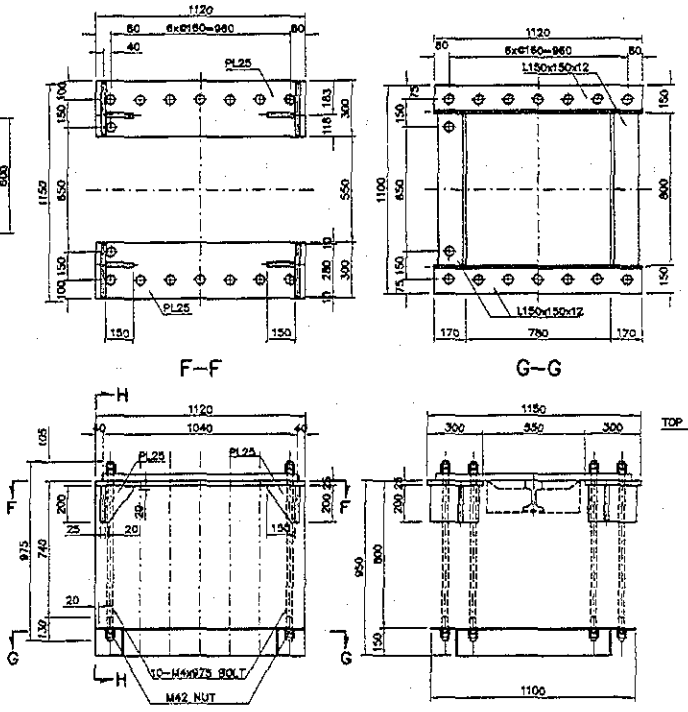
DATE : JULY/2002
SCALE : INDICATED
DRAWING NO. DW-QW-01-C59

DETAIL OF CRANE STOPPER EAST SIDE (CONTAINER)

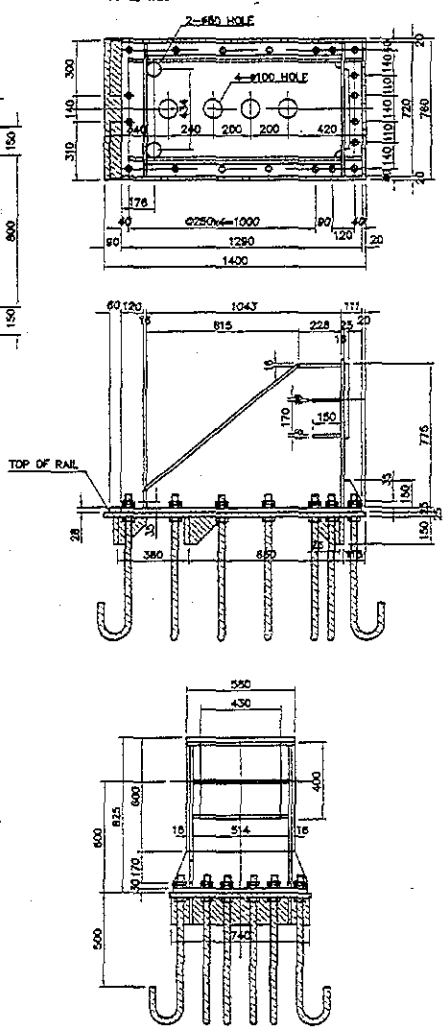
CRANE STOPPER
SCALE 1:25



STOPPER BASE
SCALE 1:25



DETAILS OF CRANE STOPPER WEST SIDE (CONTAINER)
SCALE 1:25

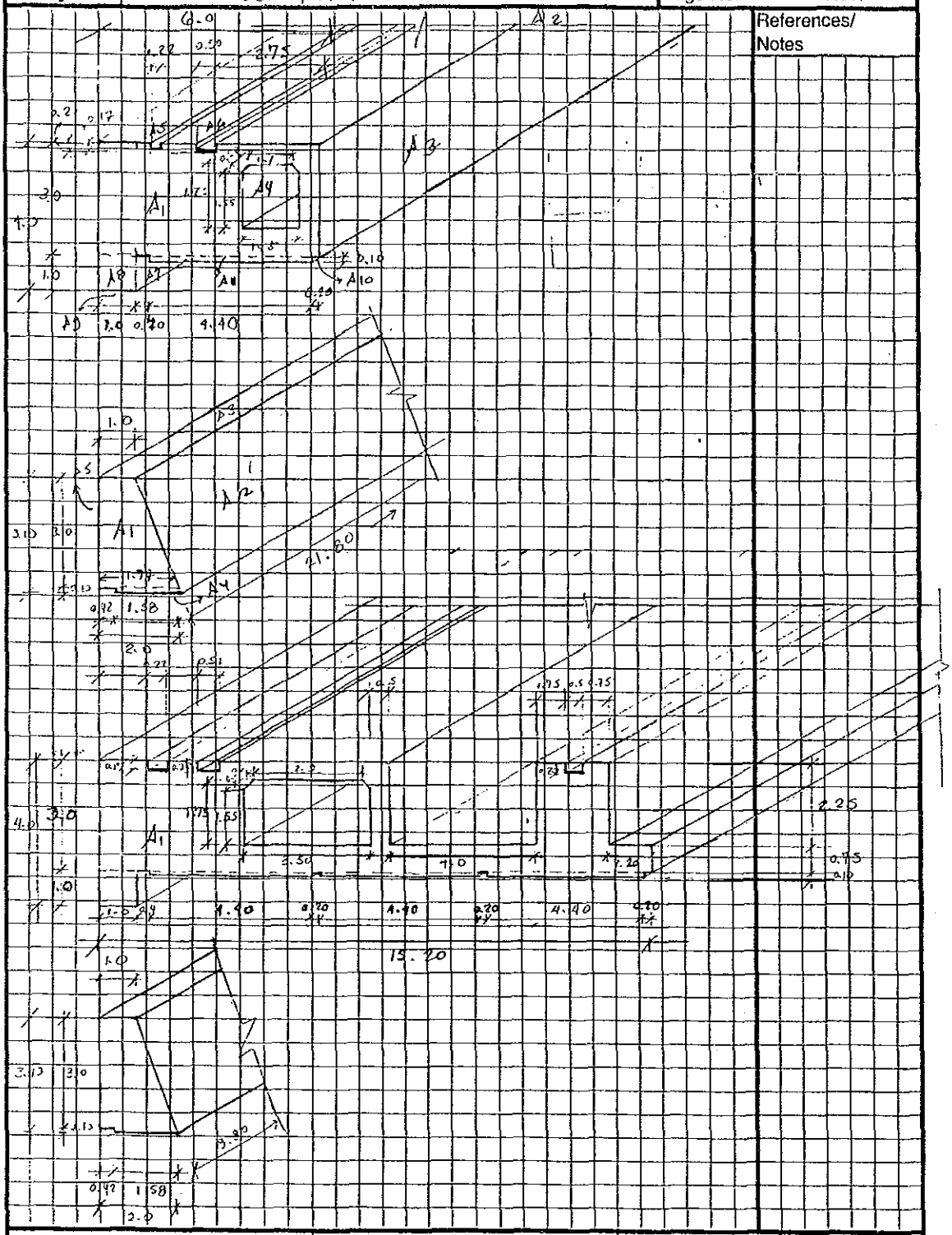


REV. NO. / DATE / COORDINATE / BY / APPROVED / DATE	JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR	DESIGNED BY :	SECTION : QUAYWALL WORK	DATE : JULY/2002
	CEPA COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)	NK NIPPON KOEI CO., LTD.	CHECKED BY :	SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH	SCALE : INDICATED
			APPROVED BY :	TITLE : DETAILS OF CRANE STOPPER	DRAWING NO. DW-CW-01-060

NIPPON KOEI CO.,LTD.

Project	Detailed Design on Port Reactivation Preject in La Union	Calc. File No.	
Section	COPING CONCRETE OF CAISSON	Calc. Index No.	
Subject	COPPING FORM	Page No.	Rev.

References/ Notes



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Form of Coping of Caisson

			Crane	Stopper	Other	sqm
Container Berth	No.1	270.65		2.9		274
	No.2	262				262
	No.3	256				256
	No.4	262				262
	No.5	256				256
	No.6	262				262
	No.7	256				256
	No.8	262				262
	No.9	256				256
	No.10	262				262
	No.11	256				256
	No.12	262				262
	No.13	256				256
	No.14	262	9.6			271.6
	No.15	256	9.6			265.6
	No.16	262	9.6			271.6
	No.17	256	9.6	2.9		268.5
	End Block	87.7				87.7
	Total					4,550 m3
Multi-purpose Berth	No.18	396				396
	No.19	390				390
	No.20	396				396
	No.21	390				390
	No.22	396			26.2	422.2
	No.23	390			26.2	416.2
	No.24	396			26.2	422.2
	No.25	390				390
	No.26	396				396
	No.27	390	9.6			399.6
	No.28	423.6	9.6	2.9		436.1
	End Block	68.9				68.9
	Total					4,530 m3

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Coping Concrete of caisson	Calc. Index No.	
Subject	Form	Page No.	Rev.

References/ Notes

No.1

Side : $3 \times 20 + 3 \times 6 + 4 \times 1 + 1 \times 1 \times 2$

$= 144 \text{ m}^2$

Bottom : $1 \times 20 = 20 \text{ m}^2$

Star Cable Pit :

$0.17 \times 15 \times 2 + 0.17 \times 0.22 = 5.14 \text{ m}^2$

Utility Tunnel

$(1.55 \times 2 + 0.8 \times 2 + 1.1) \times 19.5$

$+ 1.55 \times 1.5 + (1.1 - 1.5) \times 0.2 = 2$

$= 96.41 \text{ m}^2$

Channel Pit

$0.2 \times 15 \times 2 + 0.2 \times 0.5 = 6.1 \text{ m}^2$

End Stopper

$(0.8 \times 2 + 1.4 \times 2) \times 3.65 = 2.06 \text{ m}^2$

Total : 273.51

$= \boxed{274} \text{ m}^2$

	Prepared by		Checked by	
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FN: Calculation_Sheet

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Coping Concrete of Caisson	Calc. Index No.	
Subject	Form	Page No.	Rev.

References/ Notes

No. 2, 4, 6, 8, 10, 12, 14, 16 (8 caissons)

Side $3 \times 20 + 3 \times 20 + 4 \times 1 \times 2 + 1 \times 1 \times 4$

$= 132 \text{ m}^2$

Bottom $1 \times 20 = 20 \text{ m}^2$

Crane Cable Pit

$0.17 \times 20 \times 2 = 6.8 \text{ m}^2$

Crane rail Pit

$0.2 \times 20 \times 2 = 8 \text{ m}^2$

Utility Tunne

$(1.55 \times 2 + 0.28 \times 2 + 1.1) \times 20$

$= 95.2 \text{ m}^2$

total $\boxed{262 \text{ m}^2}$

	Prepared by		Checked by	
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FN: Calculation_Sheet

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Coping Concrete of Caisson	Calc. Index No.	
Subject	Form.	Page No.	Rev.

References/ Notes

No. 3, 5, 7, 9, 11, 13, 15, 17 (End stopper)

Side $3\times20+3\times20+4\times1+1\times1\times2$

$= 126\ m^2$

Bottom $1\times20 = 20\ m^2$

Crane cable pit

$0.17\times20\times2 = 6.8\ m^2$

Crane rail Pit

$0.2\times20\times2 = 8\ m^2$

Utility Tunne

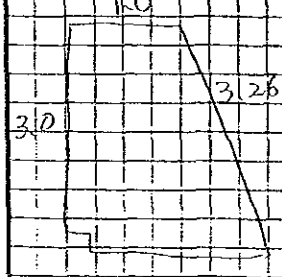
$(1.55\times2+0.28\times2+1.1)\times20$

$= 95.2$

total $\boxed{256\ m^2}$

End Block (No. 1)

$L = 14\ m$



$3.0\times14+3.26\times14$

$= \boxed{87.7\ m^2}$

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FN: Calculation_Sheet

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Coping Concrete of Caisson	Calc. Index No.	
Subject	Form	Page No.	Rev.

References/ Notes

Crane accessories

Socket block

$(0.45 \times 2 + 1.0 \times 2) \times 0.8 = 3.92\ m^2$

Crane anchoring frame

$(0.8 \times 2 + 0.75 \times 2) \times 1.4 \times 2$

$= 8.68\ m^2$

total $9.55 \fallingdotseq 9.6\ m^2$

	Prepared by		Checked by	
		/ /200		/ /200

FN: Calculation_Sheet

NIPPON KOEI CO.,LTD.

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	Coping Concrete of Caisson	**Pay Item No. (BOQ)**	2B-0905
Quantity Item	Corner Protection	**Unit**	m

Calculation Procedure Applied

Corner Protection will be set in the corner of coping concrete.

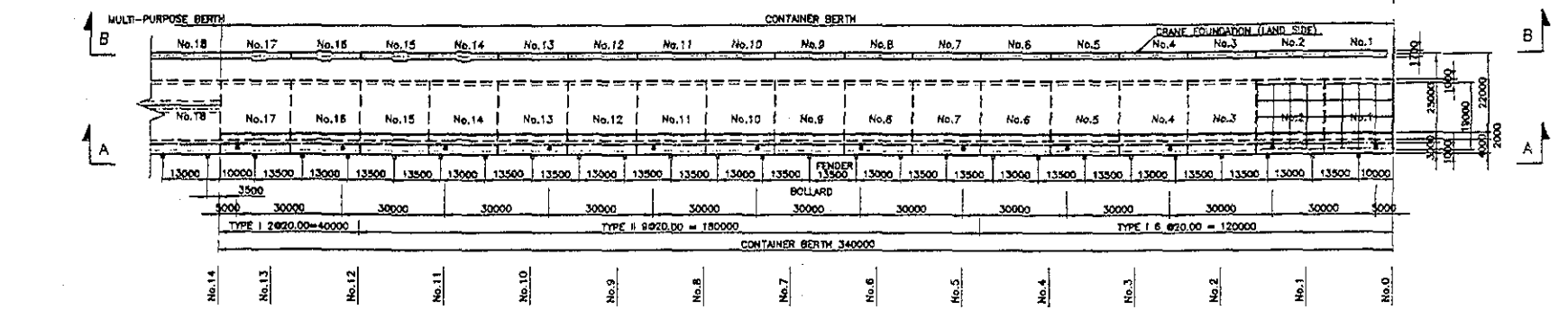
References, Calculation Base and Revisions

References: Tender Drawings:

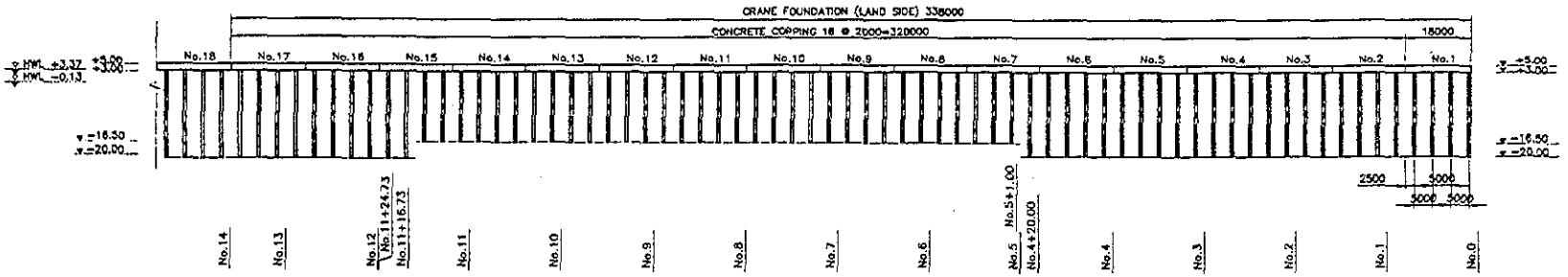
DW-QW-01-001 Plan and Profile Container Berth

Rev	Prepared by	Prepared Date	No. of Pages	Checked by	Checked Date	Reviewed by	Reviewed Date	Superseded by Calc No.
0	Karla G.			Mr. Inuma		Mr. Ando		
1								
2								
3								

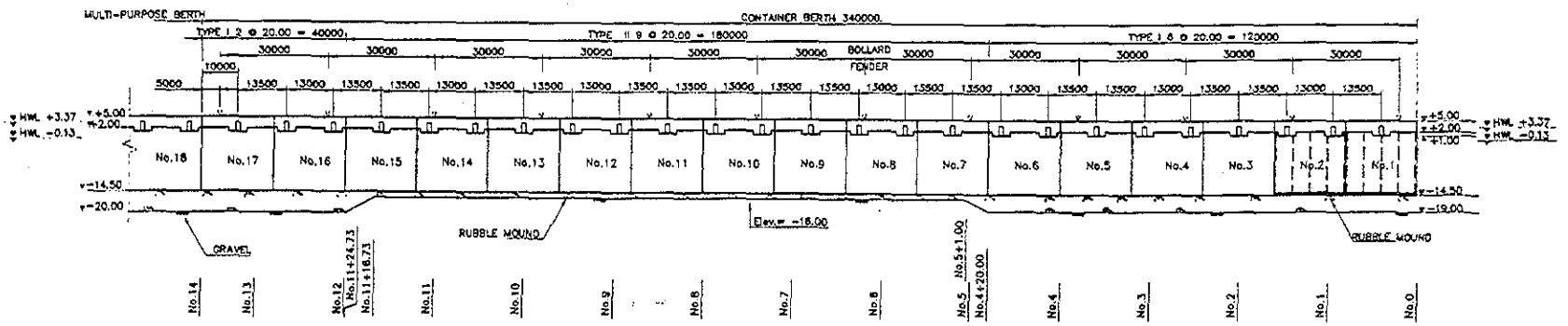
FN : Calculation_Cover_Sheet_020504_seg cover



PLAN



PROFILE B–B



PROFILE A–A

SCALE 1:1250

0 50 100

JICA / CEPA	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)	DETAILED DESIGN ON PORT REVITALIZATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR NIPPON KOEI CO., LTD.	DESIGNED BY : CHECKED BY : APPROVED BY :	SECTION : QUAYWALL WORK SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH TITLE : PLAN AND PROFILE CONTAINER BERTH	DATE : JULY/2002 SCALE : 1 : 1250 DRAWING NO. :

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Sanding Concrete & Grease	Calc. Index No.	
Subject	Corner Protection	Page No.	Rev.

References/ Notes

Container berth

340 m

	Prepared by		Checked by	
		/ /200		/ /200

FN: Calculation_Sheet

NIPPON KOEI CO.,LTD.

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	COPING CONCRETE OF CAISSON	**Pay Item No. (BOQ)**	2B-0906
Quantity Item	Concrete for Curb	**Unit**	m^3

Calculation Procedure Applied

Lengths of curb are 4 types (3.5m, 3.0m, 2.5m, 2.0m).
Regarding the arrangement, see the attached drawing.
Calculation was computed by using Excel.

References, Calculation Base and Revisions

References: Tender Drawings:
DW-QW-01-061 Detail of Curb & Corner Protection

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.			H. Inuma		Mr. Ando		
1								
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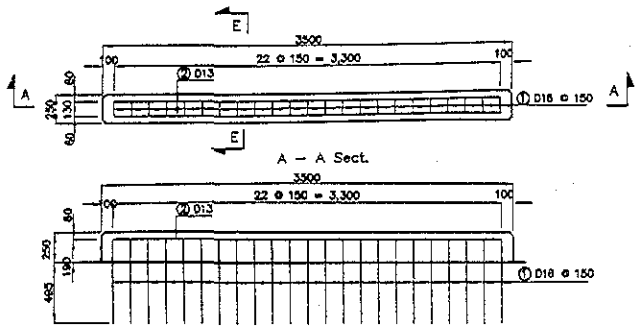
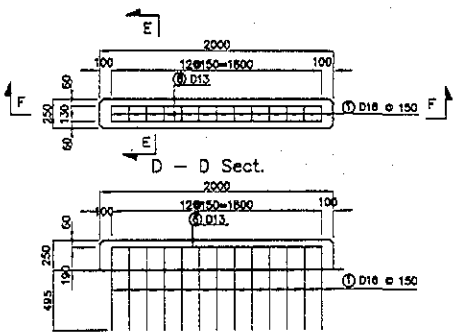
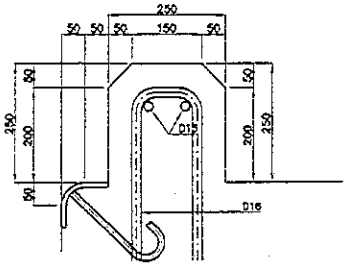
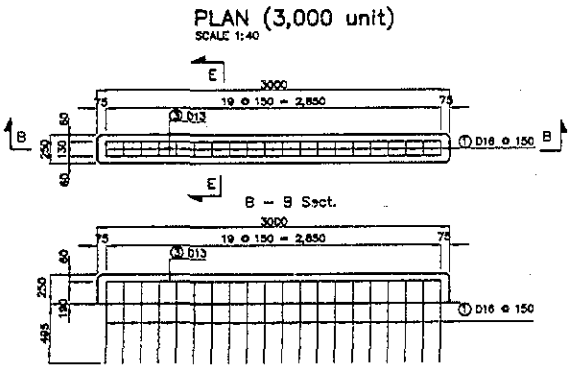
3								

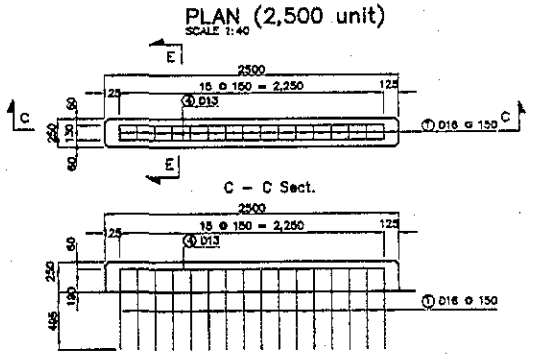
FN : Calculation_Cover_Sheet_020504_seg cover

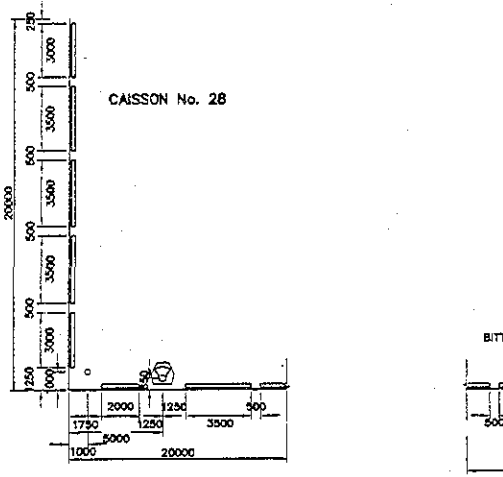


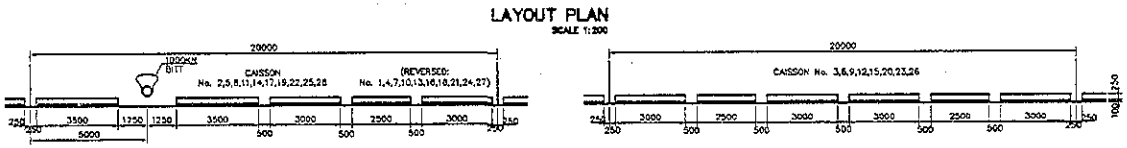












JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)	DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR NIPPON KOEI CO., LTD	DESIGNED BY : CHECKED BY : APPROVED BY :	SECTION : QUAYWALL WORK SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH TITLE : DETAIL OF CURB & CORNER PROTECTION	DATE : JULY/2002 SCALE : INDICATED DRAWING NO. DW-QW-01-061

Curb on the Caisson

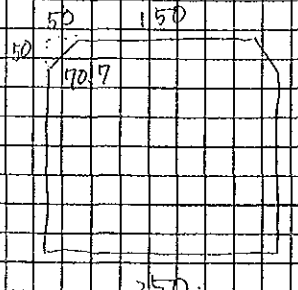
		3.5m	3.0m	2.5m	2.0m	Concrete (m3)	Form (m2)	Re-Bar (kg)
No	1	4	6	1	1	2.19	20.92	633.1
	2	2	2	1		0.93	8.87	268
	3		3	2		0.84	7.96	241.5
	4	2	2	1		0.93	8.87	268
	5	2	2	1		0.93	8.87	268
	6		3	2		0.84	7.96	241.5
	7	2	2	1		0.93	8.87	268
	8	2	2	1		0.93	8.87	268
	9		3	2		0.84	7.96	241.5
	10	2	2	1		0.93	8.87	268
	11	2	2	1		0.93	8.87	268
	12		3	2		0.84	7.96	241.5
	13	2	2	1		0.93	8.87	268
	14	2	2	1		0.93	8.87	268
	15		3	2		0.84	7.96	241.5
	16	2	2	1		0.93	8.87	268
	17	2	2	1		0.93	8.87	268
	Total					16.7	159.0	4790.0
	18	2	2	1		0.93	8.87	268
	19	2	2	1		0.93	8.87	268
	20		3	2		0.84	7.96	241.5
	21	2	2	1		0.93	8.87	268
	22	2	2	1		0.93	8.87	268
	23		3	2		0.84	7.96	241.5
	24	2	2	1		0.93	8.87	268
	25	2	2	1		0.93	8.87	268
	26		3	2		0.84	7.96	241.5
	27	2	2	1		0.93	8.87	268
	28	4	4	1	1	1.83	17.52	528.1
	Total					10.9	104.0	3130.0

	Concrete	Form	Re-Bar
	m3	m2	kg
L=3.5m	0.21	2.02	60.5
L=3.0m	0.18	1.7	52.5
L=2.5m	0.15	1.43	42.0
L=2.0m	0.12	1.21	34.1

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	COPING CONCRETE OF CAISSON	Calc. Index No.	
Subject	CONCRETE FOR WRB	Page No.	Rev.

References/ Notes

3.5 m type



$A = 0.25 \times 0.25 - 0.05 \times 0.05 \times 0.5$

$= 0.06\ m^2$

$V = 0.06 \times 3.5 = 0.21\ m^3$

3.0 m Type

$A = 0.06\ m^2$

$V = 0.06 \times 3.0 = 0.18\ m^3$

2.5 m type

$A = 0.06\ m^2$

$V = 0.06 \times 2.5 = 0.15\ m^3$

3.0 m type

$A = 0.06\ m^2$

$V = 0.06 \times 2.0 = 0.12\ m^3$

total 16.9 m^3

	Prepared by		Checked by	
		/ /200		/ /200

FN: Calculation_Sheet

NIPPON KOEI CO.,LTD.

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	COPING CONCRETE OF CAISSON	**Pay Item No. (BOQ)**	2B-0907
Quantity Item	Form for Curb	**Unit**	m^2

Calculation Procedure Applied

Lengths of curb are 4 types (3.5m, 3.0m, 2.5m, 2.0m).
Calculation was computed by using Excel.
Regarding numbers of each type, see the attached summary.

References, Calculation Base and Revisions

References: Tender Drawings:
DWG-QW-01-061 Detail of Curb & Corner Protection
(Same as Concrete for curb)

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.			Mr. Inuma		Mr. Ando		
1								
2								
3								

FN : Calculation_Cover_Sheet_020504_seg cover

Curb on the Caisson

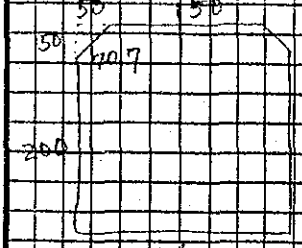
		3.5m	3.0m	2.5m	2.0m	Concrete (m3)	Form (m2)	Re-Bar (kg)
No	1	4	6	1	1	2.19	20.92	633.1
	2	2	2	1		0.93	8.87	268
	3		3	2		0.84	7.96	241.5
	4	2	2	1		0.93	8.87	268
	5	2	2	1		0.93	8.87	268
	6		3	2		0.84	7.96	241.5
	7	2	2	1		0.93	8.87	268
	8	2	2	1		0.93	8.87	268
	9		3	2		0.84	7.96	241.5
	10	2	2	1		0.93	8.87	268
	11	2	2	1		0.93	8.87	268
	12		3	2		0.84	7.96	241.5
	13	2	2	1		0.93	8.87	268
	14	2	2	1		0.93	8.87	268
	15		3	2		0.84	7.96	241.5
	16	2	2	1		0.93	8.87	268
	17	2	2	1		0.93	8.87	268
	Total					16.7	159.0	4790.0
	18	2	2	1		0.93	8.87	268
	19	2	2	1		0.93	8.87	268
	20		3	2		0.84	7.96	241.5
	21	2	2	1		0.93	8.87	268
	22	2	2	1		0.93	8.87	268
	23		3	2		0.84	7.96	241.5
	24	2	2	1		0.93	8.87	268
	25	2	2	1		0.93	8.87	268
	26		3	2		0.84	7.96	241.5
	27	2	2	1		0.93	8.87	268
	28	4	4	1	1	1.83	17.52	528.1
	Total					10.9	104.0	3130.0

	Concrete m3	Form m2	Re-Bar kg
L=3.5m	0.21	2.02	60.5
L=3.0m	0.18	1.7	52.5
L=2.5m	0.15	1.43	42.0
L=2.0m	0.12	1.21	34.1

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	COPING CONCRETE OF CAISSON	Calc. Index No.	
Subject	Form for Curb	Page No. /	Rev.

References/ Notes

3.5 m type



$A = 0.25 \times 0.25 - 0.05 \times 0.05$

$= 0.06\ m^2$

$A_T = (0.2 \times 2 + 0.097 \times 2) \times 3.5$

$+ 0.06 \times 2$

$= 2.017$

$\simeq 2.02\ m^2$

3.0 m type

$A = 0.06\ m^2$

$A_T = (0.2 \times 2 + 0.097 \times 2) \times 3.0$

$+ 0.06 \times 2$

$= 1.70\ m^2$

2.5 m type

$A = 0.06\ m^2$

$A_T = (0.2 \times 2 + 0.097 \times 2) \times 2.5$

$+ 0.06 \times 2$

$= 1.43\ m^2$

		Prepared by		Checked by	
			/ /200		/ /200

FN: Calculation_Sheet

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	COPING CONCRETE OF CAISSON	Calc. Index No.	
Subject	Form for Curb	Page No. 2	Rev.

References/ Notes

2.0 m type

$A = 0.96\ m^2$

$A_T = (0.2 \times 2 + 3.02) \times 2.0 + 0.06 \times 2$

$= 4.21\ m^2$

total 159.0 m^2

Prepared by		Checked by	
	/ /200		/ /200

FN: Calculation_Sheet

NIPPON KOEI CO.,LTD.

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	COPING CONCRETE OF CAISSON	**Pay Item No. (BOQ)**	2B-0908
Quantity Item	Reinforcement for Curb	**Unit**	kg

Calculation Procedure Applied

Lengths of curb are 4 types (3.5m, 3.0m, 2.5m, 2.0m).
Calculation was computed by using Excel.
Regarding numbers of each type, see attached summary.

References, Calculation Base and Revisions

References : Tender Drawings :
DW-CW-01-001 Detail of curb & corner Protection
(Same as Concrete for Curb)

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Kiko Garcia			Mr. Inuma		Mr. Ando		
1								
2								
3								

FN : Calculation_Cover_Sheet_020504_seg cover

Curb on the Caisson

		3.5m	3.0m	2.5m	2.0m	Concrete (m3)	Form (m2)	Re-Bar (kg)
No	1	4	6	1	1	2.19	20.92	633.1
	2	2	2	1		0.93	8.87	268
	3		3	2		0.84	7.96	241.5
	4	2	2	1		0.93	8.87	268
	5	2	2	1		0.93	8.87	268
	6		3	2		0.84	7.96	241.5
	7	2	2	1		0.93	8.87	268
	8	2	2	1		0.93	8.87	268
	9		3	2		0.84	7.96	241.5
	10	2	2	1		0.93	8.87	268
	11	2	2	1		0.93	8.87	268
	12		3	2		0.84	7.96	241.5
	13	2	2	1		0.93	8.87	268
	14	2	2	1		0.93	8.87	268
	15		3	2		0.84	7.96	241.5
	16	2	2	1		0.93	8.87	268
	17	2	2	1		0.93	8.87	268
	Total					16.7	159.0	4790.0
	18	2	2	1		0.93	8.87	268
	19	2	2	1		0.93	8.87	268
	20		3	2		0.84	7.96	241.5
	21	2	2	1		0.93	8.87	268
	22	2	2	1		0.93	8.87	268
	23		3	2		0.84	7.96	241.5
	24	2	2	1		0.93	8.87	268
	25	2	2	1		0.93	8.87	268
	26		3	2		0.84	7.96	241.5
	27	2	2	1		0.93	8.87	268
	28	4	4	1	1	1.83	17.52	528.1
	Total					10.9	104.0	3130.0

	Concrete m3	Form m2	Re-Bar kg
L=3.5m	0.21	2.02	60.5
L=3.0m	0.18	1.7	52.5
L=2.5m	0.15	1.43	42.0
L=2.0m	0.12	1.21	34.1

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	COPING CONCRETE OF CAISSON	Calc. Index No.	
Subject	Reinforcement for Curb	Page No.	Rev.

References/ Notes

3.5 m type

D16 × 23 = 1.56 kg/m × 1.5 m × 23

= 53.9 kg

D13 × 2 = 0.995 kg/m × 3.3 m × 2

= 6.6 kg

W_1 = 60.5 kg

3.0 m type

D16 × 20 = 1.56 × 1.5 × 20 = 46.8 kg

D13 × 2 = 0.995 × 2.85 × 2 = 5.7

W_2 = 52.5 kg

2.5 m type

D16 × 16 = 1.56 × 1.5 × 16 = 37.5 kg

D13 × 2 = 0.995 × 2.25 × 2 = 4.5

W_3 = 42.0 kg

2.0 m type

D16 × 13 = 1.56 × 1.5 × 13 = 30.5 kg

D13 × 2 = 0.995 × 1.8 × 2 = 3.6

W_4 = 34.1 kg

total 47.90 kg

Prepared by		Checked by	
	/ /200		/ /200

FN: Calculation_Sheet

NIPPON KOEI CO.,LTD.

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	COPING CONCRETE OF CAISSON	**Pay Item No. (BOQ)**	2B-0909
Quantity Item	DRAIN PIPE	**Unit**	M

Calculation Procedure Applied

Coping drain pipe was computed multiplying the lenght of cope by the number of pipe contained in one caisson and multiplied by the total of caissons in Container Berth, including water haid-lant, electric cable junction and reading pit.

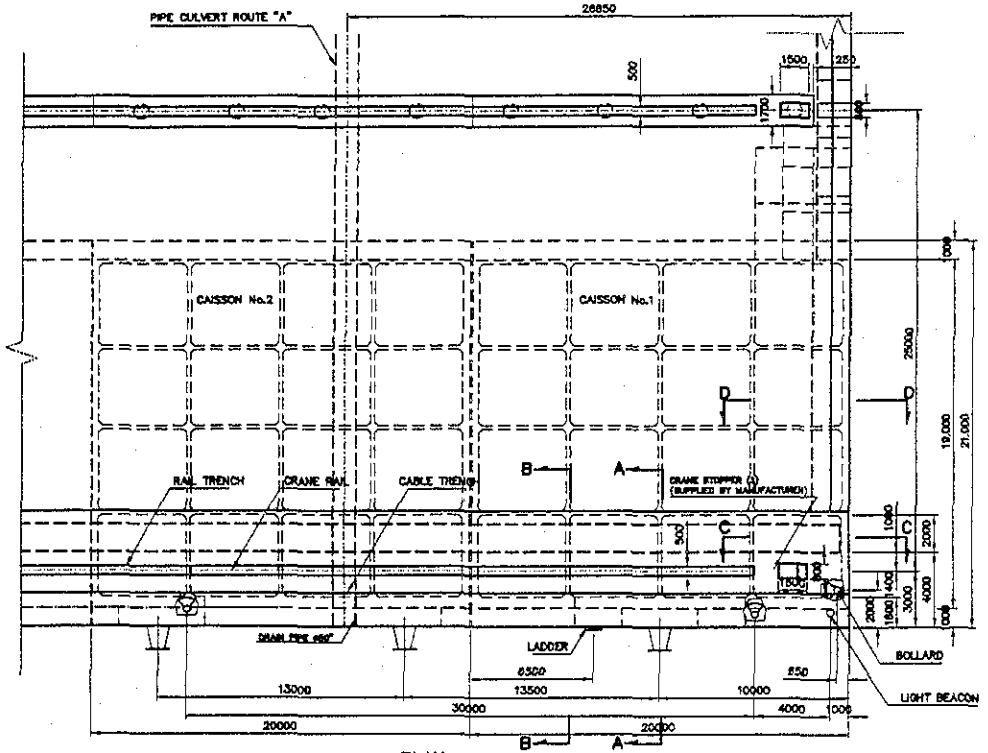
References, Calculation Base and Revisions

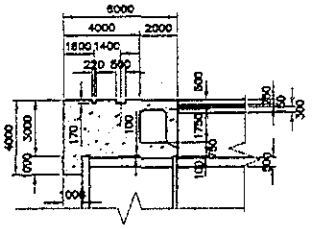
Reference : Tender Drawings :

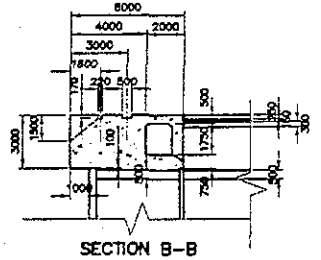
DW-QW-01-042 Detail of coping (1)
DW-QW-01-043 Detail of coping (2)
DW-QW-01-095 Detail of coping (4)

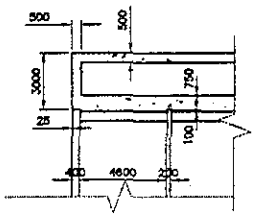
Rev	Prepared by	Prepared Date	No. of Pages	Checked by	Checked Date	Reviewed by	Reviewed Date	Superseded by Calc No.
0	Karla Garcia			Mr. Touma		Mr. Ando		
1								
2								
3								

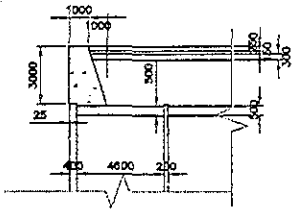
FN : Calculation_Cover_Sheet_020504_seg cover




SECTION A–A

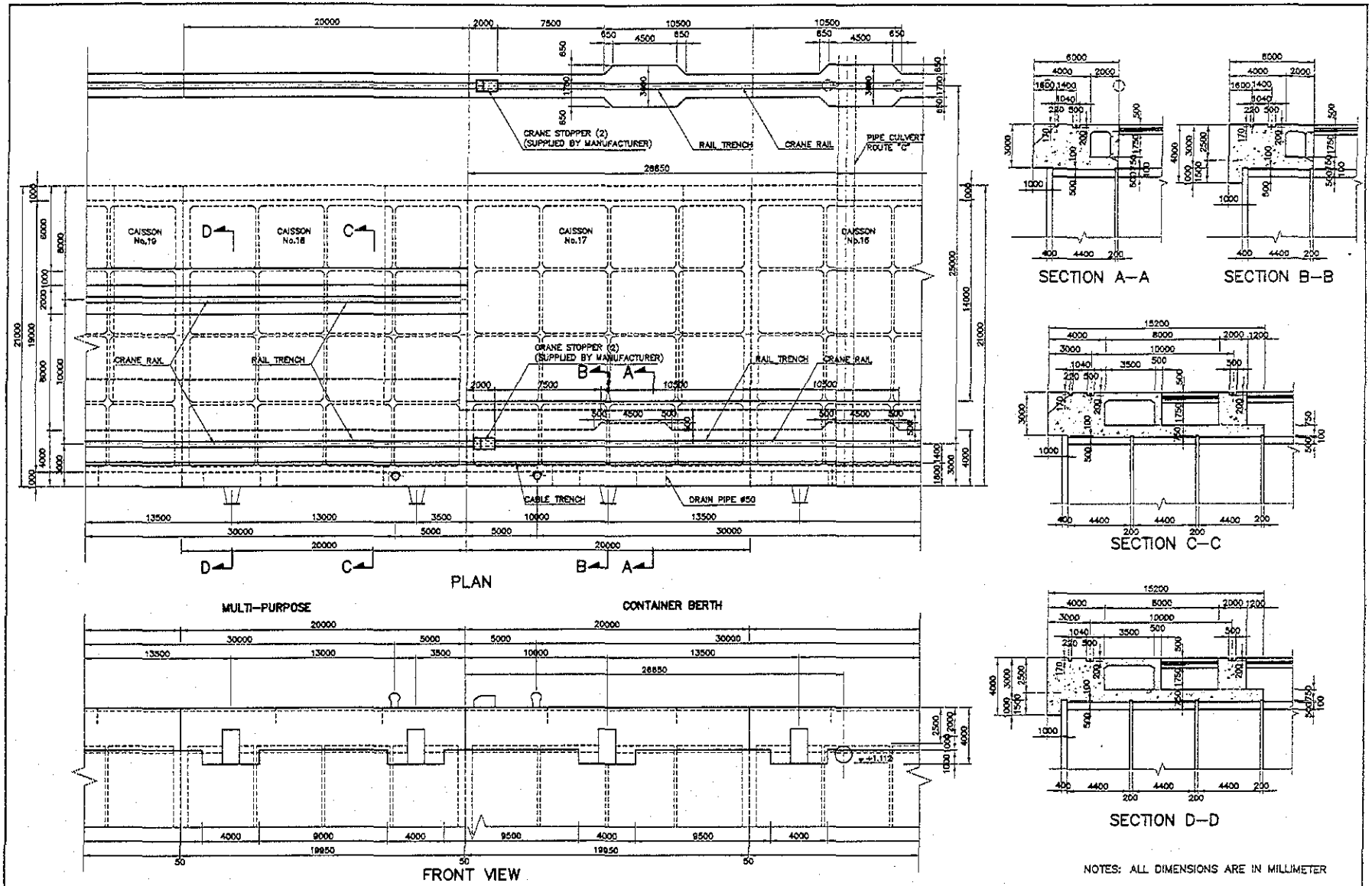

SECTION B–B


SECTION C–C


SECTION D–D

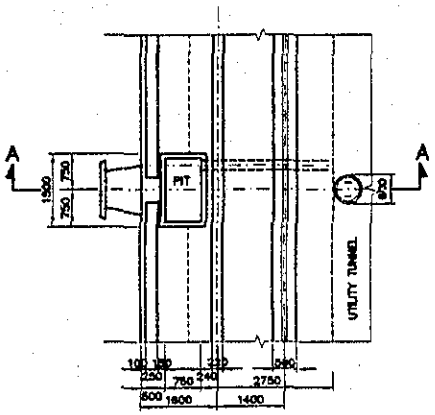
NOTES: ALL DIMENSIONS ARE IN MILLIMETER

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)	DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR NIPPON KOEI CO., LTD.	DESIGNED BY : CHECKED BY : APPROVED BY :	SECTION : QUAYWALL WORK SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH TITLE : DETAIL OF COPING (1)	DATE : JULY/2002 SCALE : 1 : 250 DRAWING NO. DW-QW-01-042



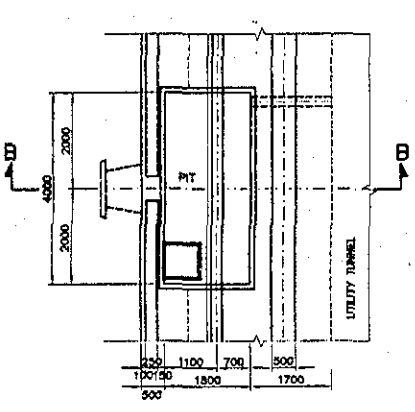
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)	DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR NIPPON KOEI CO., LTD.	DESIGNED BY : CHECKED BY : APPROVED BY :	SECTION : QUAYWALL WORK SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH TITLE : DETAIL OF COPING (2)	DATE : JULY/2002 SCALE : 1 : 250 DRAWING NO. DW-QW-01-043

WATER HAIDLANT & FIRE FITING PIT CAISSON
No.3 No.7 No.11 No.15 No.19 No.23 No.27



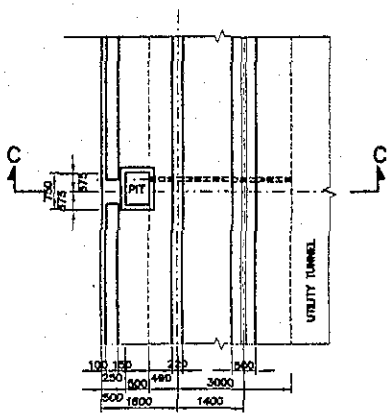
PLAN

ELECTRIC CABLEJUNCTION PIT
CAISSON No.12 No.20



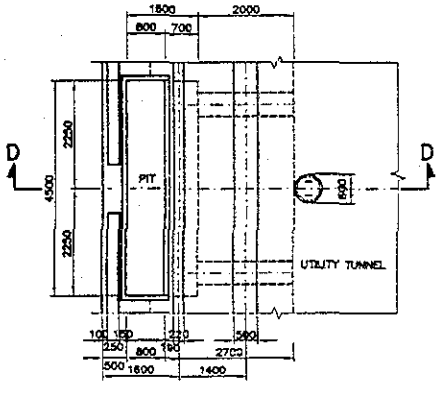
PLAN

ELECTRIC SERVICE PIT CAISSON
No.2 No.14 No.16 No.26 No.28

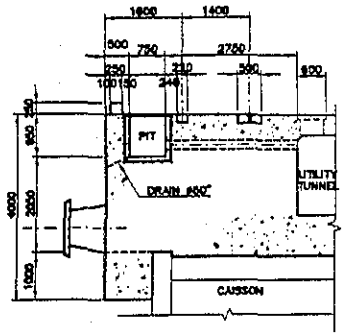


PLAN

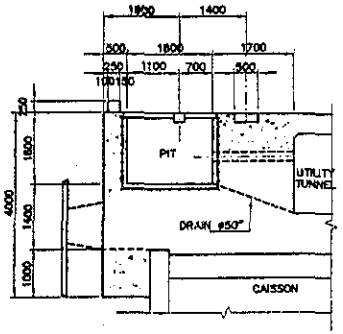
LOADING PIT (MULTI-PURPOSE BERTH)
CAISSON No.21 No.22 No.23 No.24 No.25



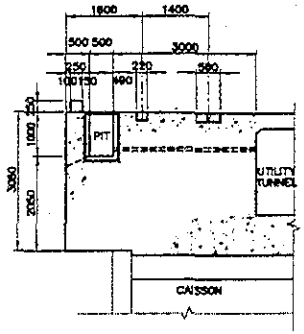
PLAN



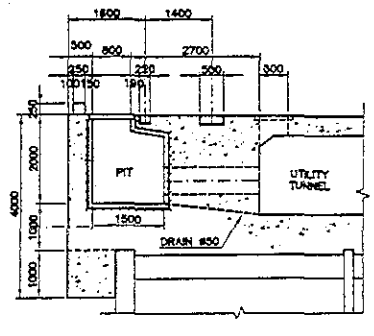
SECTION A–A



SECTION B–B



SECTION C–C



SECTION D–D

NOTE:
–DETAIL OF ELECTRIC SERVICE PIT IS SHOWN IN DW–??
–DETAIL OF ELECTRIC CABLE JUNCTION IS SHOWN IN DW–??
–DETAIL OF WATER HYDRANT FIREFIGHTING IS SHOWN IN DW–??

REV. NO. / DATE / COMMENTS / BY / APPROVED / DATE	JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR	DESIGNED BY :	SECTION : QUAYWALL WORK	DATE : JULY/2002
	COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)	NIPPON KOEI CO., LTD.	CHECKED BY :	SUB-SECTION : CONTAINER AND MULTI-PURPOSE BERTH	SCALE : 1 : 100
			APPROVED BY :	TITLE : DETAIL OF COPING (4)	DRAWING NO. DW–CW–01–045

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	COPING CONCRETE OF CAISSON (CONTAINER BERTH)	Calc. Index No.	
Subject	COPING DRAIN PIPE	Page No.	Rev.

References/ Notes

Container Berth :

Coping Drain Pipe :

Caisson 1 - 17 $L_1 = 2.03$ m $N_o = (2)(17) = 34$

$L = (2.03\text{ m})(2)(17) = 69.02$ m

Water Hydrant and Fire Fitting Pit.

Caisson No 3, 7, 11, 15

$L_1 = 0.55$ m $N_o = 4$

$L_2 = 0.55$ m $N_o = 4$

$L = (0.55\text{ m})(2)(4) = 4.40$ m

Electric Cable junction Pit.

Caisson No 18 :

$L_1 = 1.82$ m $N_o = 1$

$L_2 = 0.55$ m $N_o = 1$

$L = (1.82\text{ m} + 0.55\text{ m})(1) = 2.37$ m

$\therefore L = 75.70 \approx 76$ m+

$L = \boxed{76}$ m+

Multipurpose Berth :

Coping Drain Pipe :

Caisson 18 - 28

$L_1 = 2.03$ m $N_o = (2)(11) = 22$

$L_2 = 2.0$ m $N_o = 4$

$L_3 = 0.5$ m $N_o = 4$

$L = 2.03 \times 22 + 2.0 \times 4 + 0.5 \times 4$

$= 54.66$ m

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lunes 8/09/2002

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	Apron Concrete pavement	**Pay Item No. (BOQ)**	2B - 1001
Quantity Item	Concrete	**Unit**	m^2

Calculation Procedure Applied

Volume of concrete for apron concrete pavement was computed by multiplying apron concrete pavement area by thickness.

References, Calculation Base and Revisions

References: Tender Drawings :

DW-GW-01-003 Typical Cross Section Type I

DW-PV-01.006 Joint Arrangement of Concrete Pavement (2)

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Kato Garcia			Mr. Inuma		Mr. Ando		
1								
2								
3								

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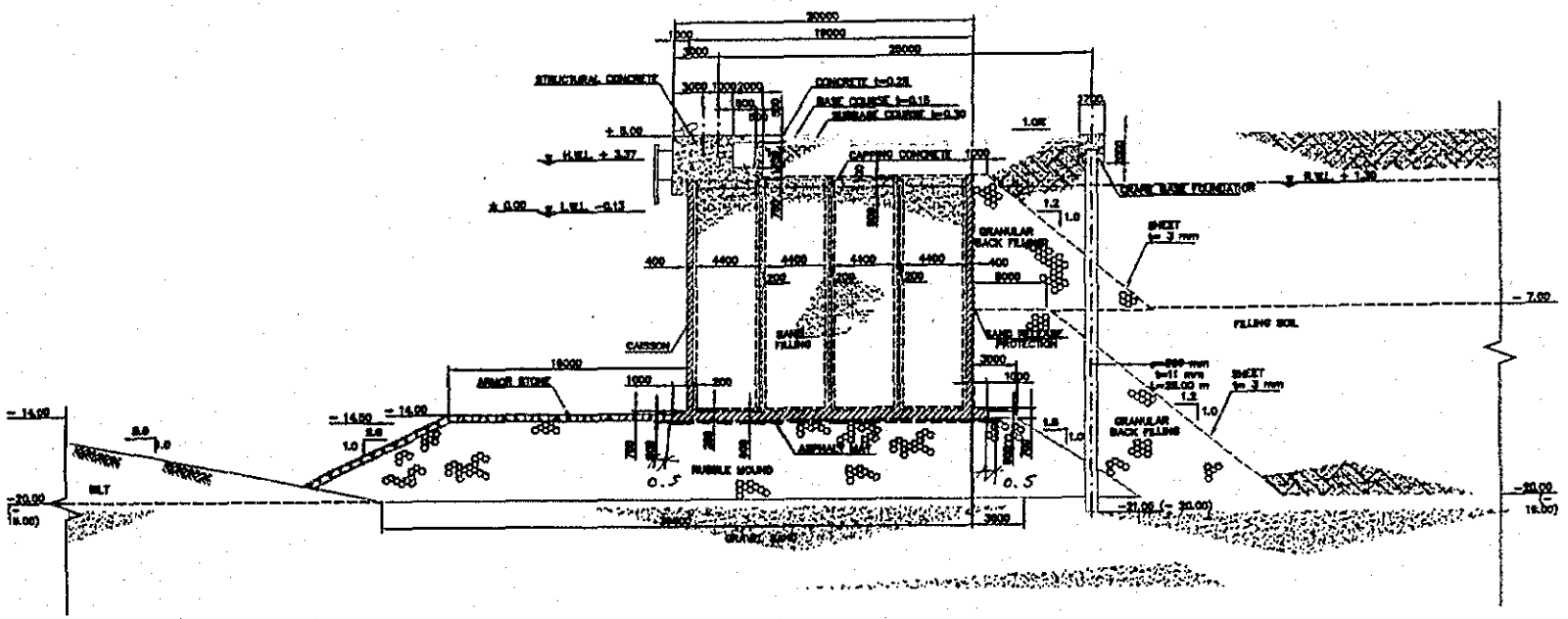

TYPICAL CROSS SECTION TYPE I
CONTAINER BERTH (−14.0 m)

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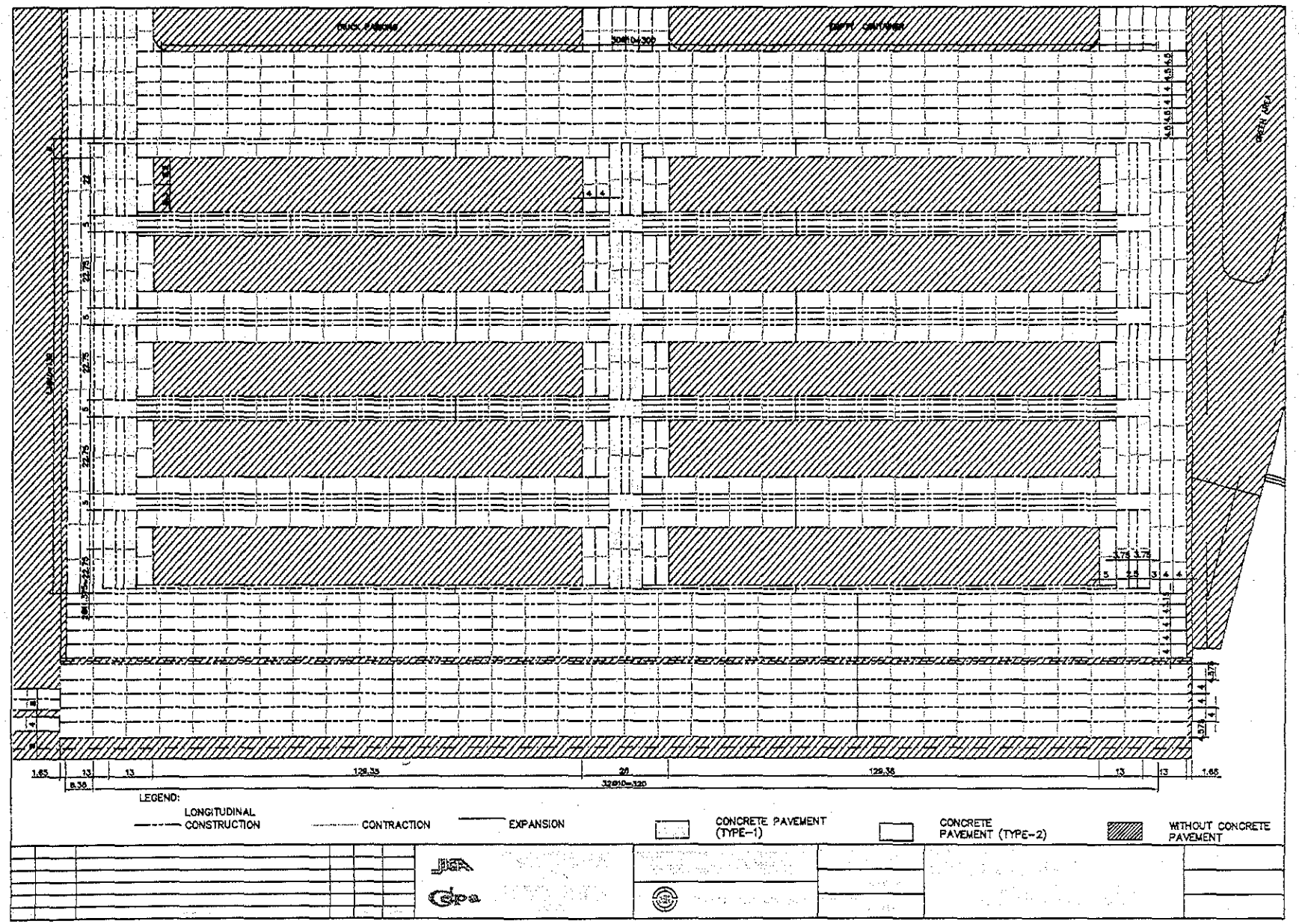
TRUCK PARKING
EMPTY CONTAINER
GREEN AREA
LEGEND:
LONGITUDINAL CONSTRUCTION
CONTRACTION
EXPANSION
CONCRETE PAVEMENT (TYPE-1)
CONCRETE PAVEMENT (TYPE-2)
WITHOUT CONCRETE PAVEMENT

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Apron Concrete Pavement (Conl. Bulk)	Calc. Index No.	
Subject	Concrete	Page No.	Rev.

References/ Notes

Apron concrete pavement area

$A = 21.15 \times 340 = 7191$

$= 7200\ m^2$

Concrete volume

$V = 7200 \times 0.30$

$= 2160\ m^3$

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QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	Apron Concrete Pavement	**Pay Item No. (BOQ)**	213 - 1002
Quantity Item	Base Concrete	**Unit**	m^3

Calculation Procedure Applied

Volume of base concrete was computed by multiplying apron concrete pavement by thickness.

References, Calculation Base and Revisions

References : Tender Drawings :

DW-QN-01-003 Typical Cross Section Type I
DW-PV-01-006 Joint Arrangement of Concrete Pavement (2)

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
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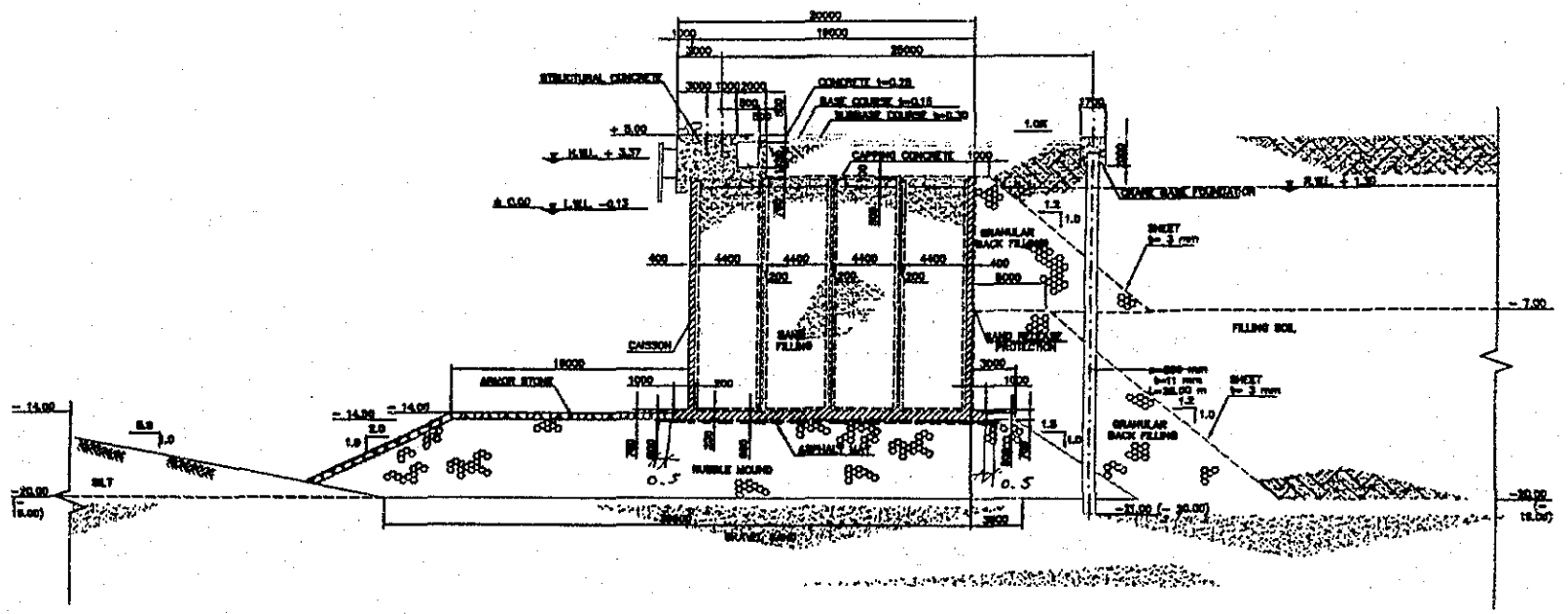

TYPICAL CROSS SECTION TYPE I
CONTAINER BERTH (−14.0 m)

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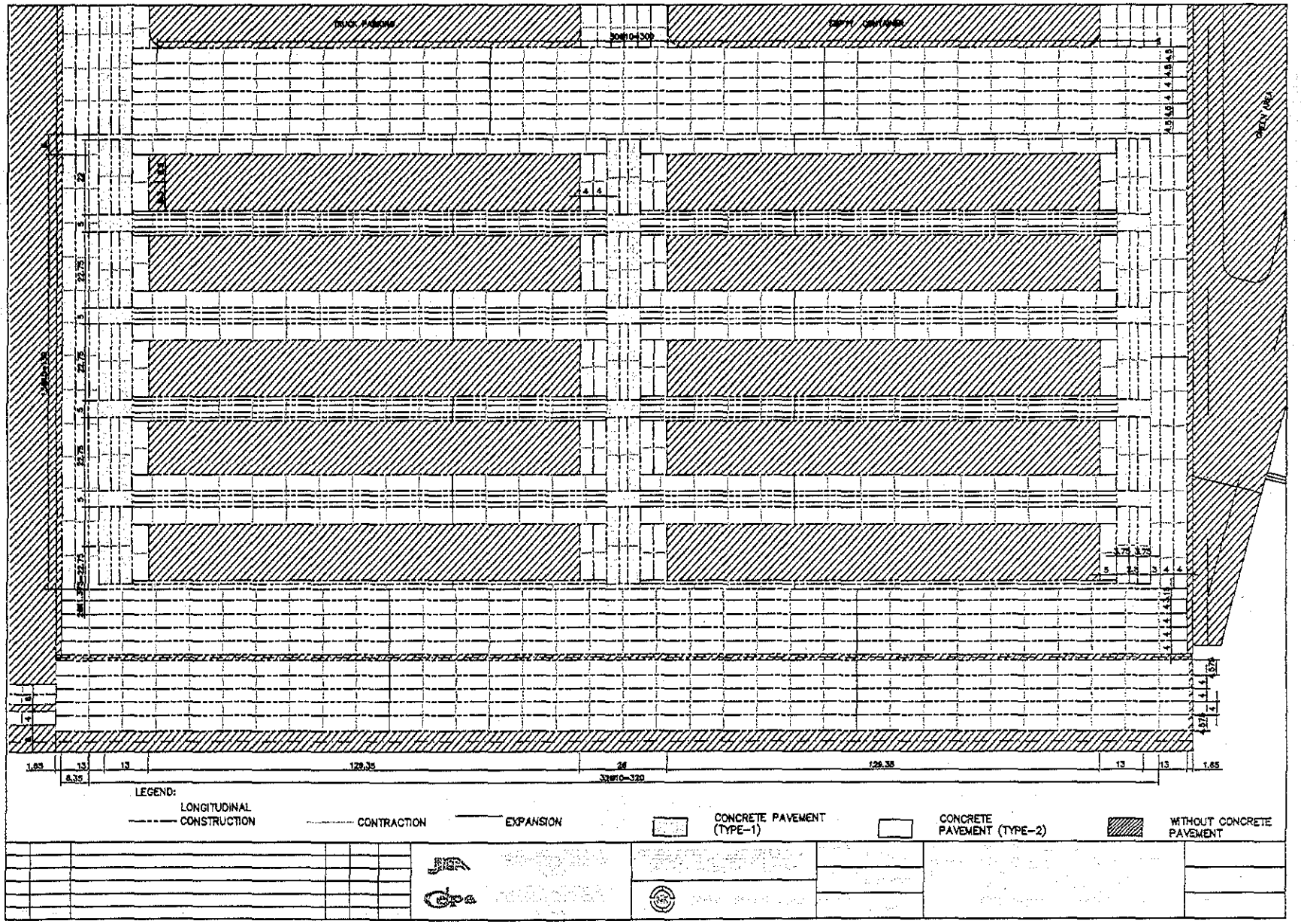
TRUCK PARKING
EMPTY CONTAINER
OPEN AREA
LEGEND:
LONGITUDINAL CONSTRUCTION
CONTRACTION
EXPANSION
CONCRETE PAVEMENT (TYPE-1)
CONCRETE PAVEMENT (TYPE-2)
WITHOUT CONCRETE PAVEMENT

NIPPON KOEI CO.,LTD.

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Apron Concrete Pavement (Conl. Bulk)	Calc. Index No.	
Subject	Base Concrete	Page No.	Rev.

References/ Notes

$A = 7200 \text{ m}^2$

$V = 7200 \times 0.15$

$= \boxed{1080} \text{ m}^3$

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QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	Apron Concrete Pavement	**Pay Item No. (BOQ)**	213-1003
Quantity Item	Sub-Base Concrete	**Unit**	m^3

Calculation Procedure Applied

Volume of sub-base concrete was computed by multiplying apron concrete pavement area by thickness.

References, Calculation Base and Revisions

References. Tender Drawings :

- DWG-AWG-01-003 Typical Cross Section Type I
- SW-PV-01-006 Joint Arrangement of Concrete Pavement (2)

Rev	Prepared		No. of	Checked		Reviewed		Superseded
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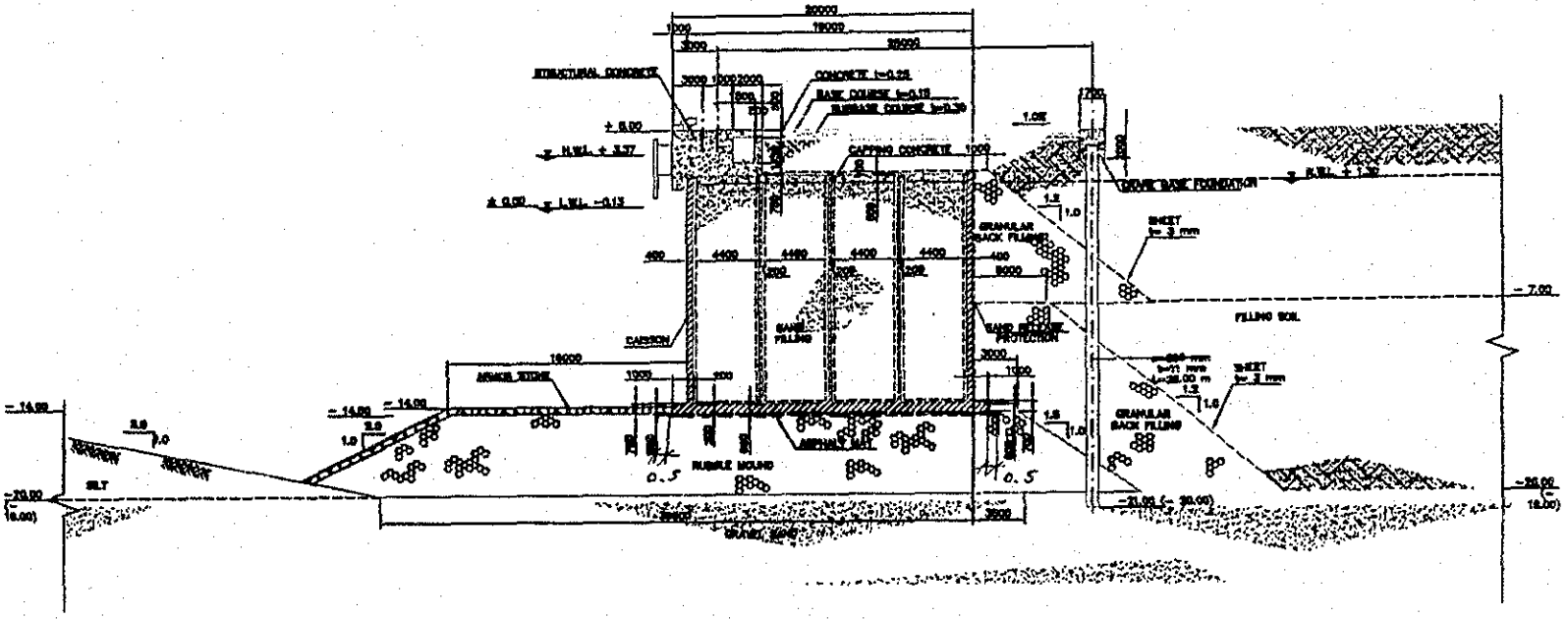

TYPICAL CROSS SECTION TYPE I
CONTAINER BERTH (−14.0 m)

SCALE 1:300 0 5.0 10.0 15.0 20.0 25.0 30.0

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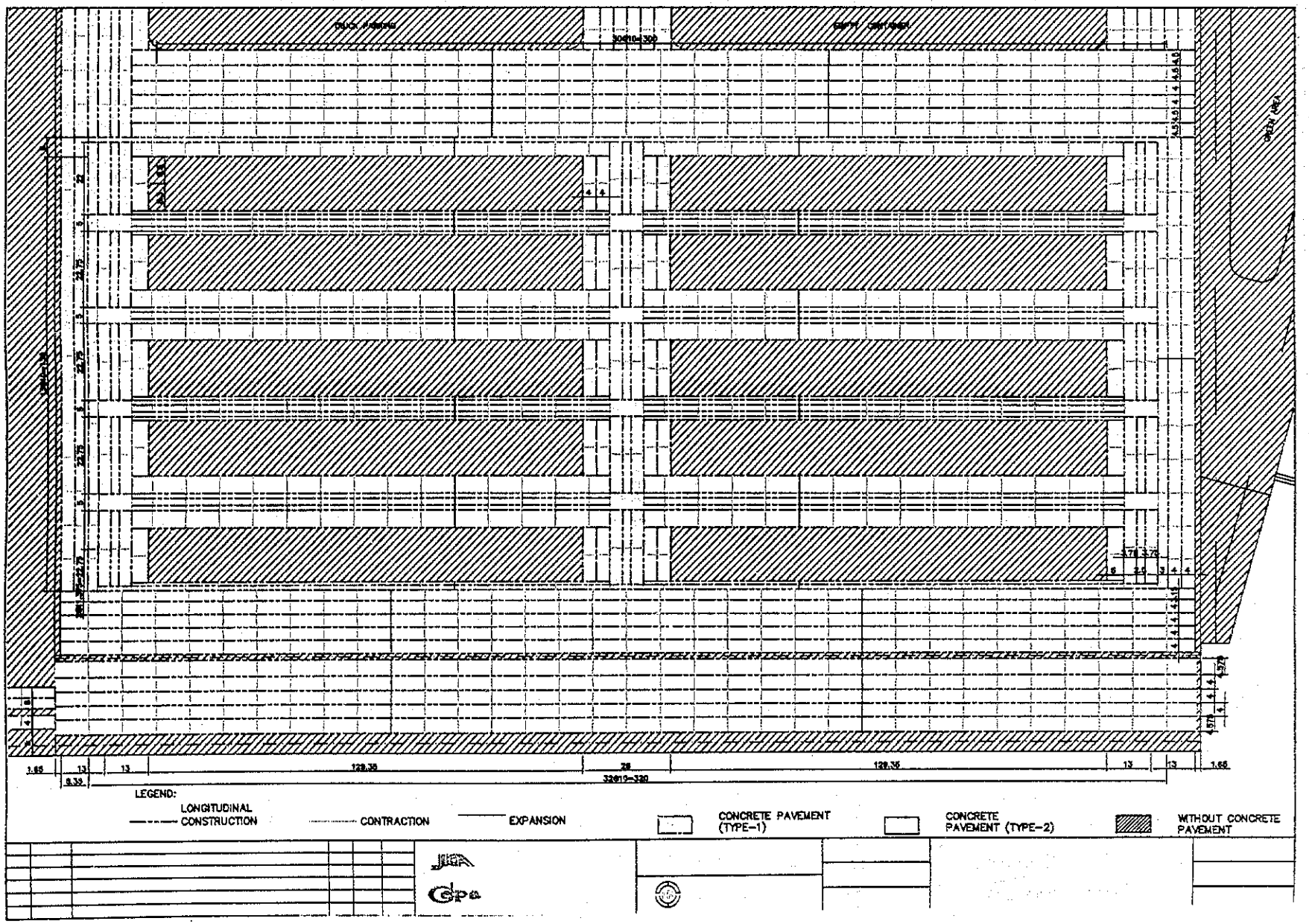
LEGEND:
LONGITUDINAL CONSTRUCTION
CONTRACTION
EXPANSION
CONCRETE PAVEMENT (TYPE-1)
CONCRETE PAVEMENT (TYPE-2)
WITHOUT CONCRETE PAVEMENT

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Apron Concrete Pavement (Conc. Bulk)	Calc. Index No.	
Subject	Sub-Base Concrete	Page No.	Rev.

References/ Notes

$A = 7200\ m^2$

$V = 7200 \times 0.15$

$= 1080\ m^3$

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QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	Apron Concrete Pavement	**Pay Item No. (BOQ)**	2B-1004
Quantity Item	Prime Coating	**Unit**	m^2

Calculation Procedure Applied

Area of prime coating was computed. This coating will cover all area of apron concrete pavement.

References, Calculation Base and Revisions

References: Tender Drawings:

DW-QW-01-003 Typical Cross Section Type I

DW-PV-01-006 Joint Arrangement of Concrete Pavement (2)

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
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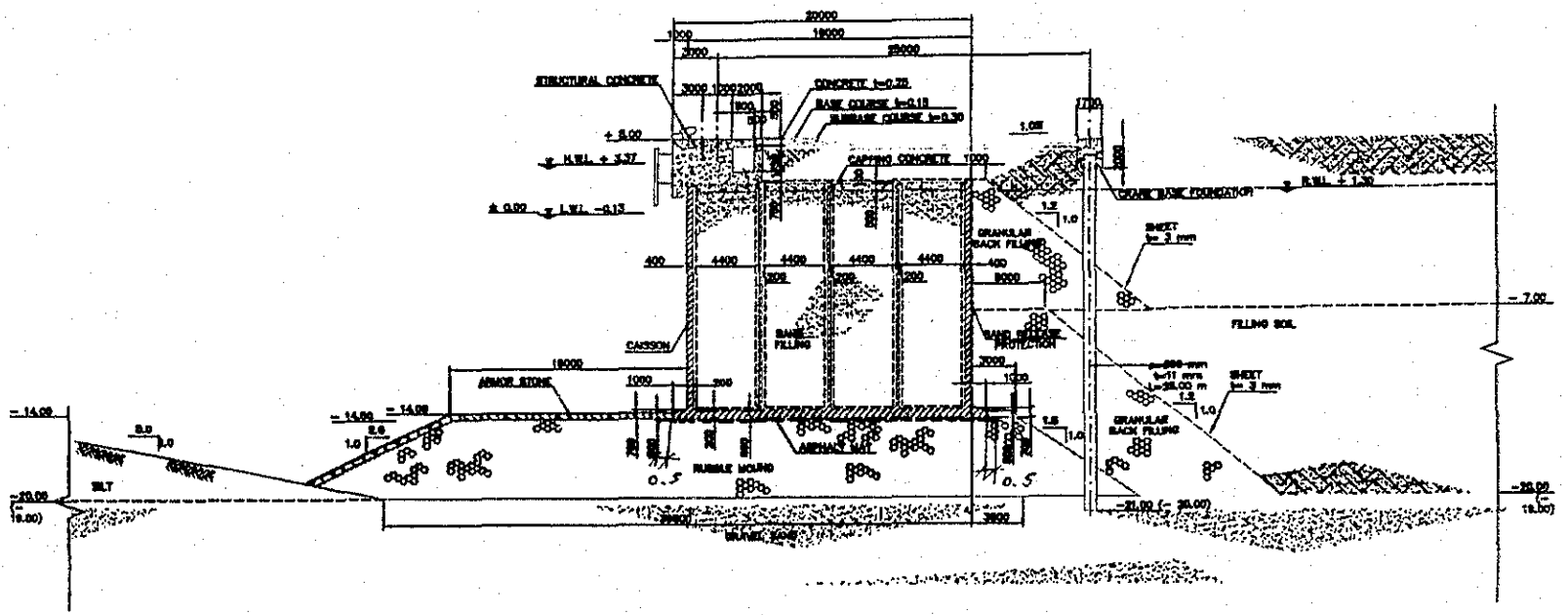

TYPICAL CROSS SECTION TYPE I
CONTAINER BERTH (−14.0 m)

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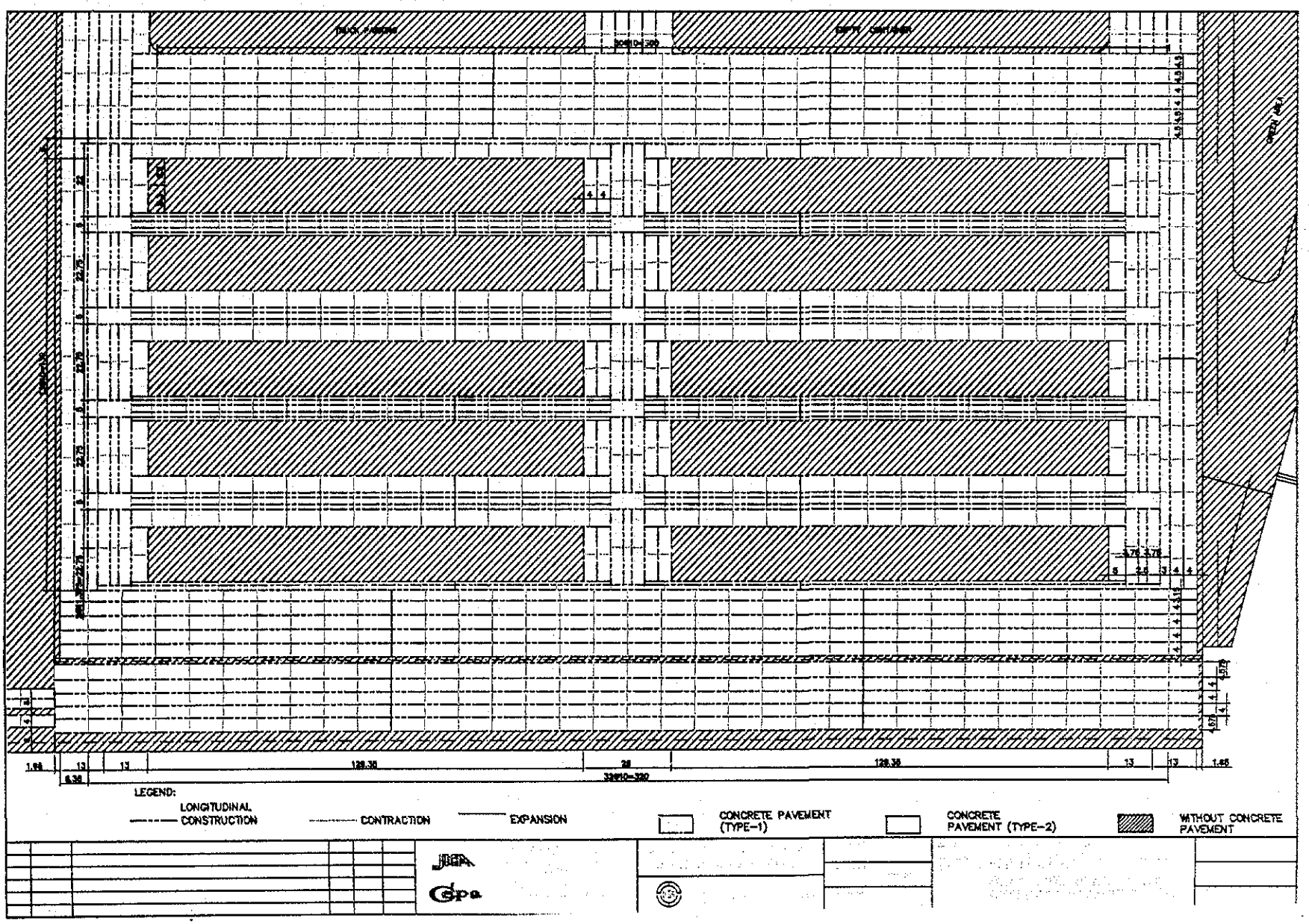
LEGEND:
LONGITUDINAL CONSTRUCTION
CONTRACTION
EXPANSION
CONCRETE PAVEMENT (TYPE-1)
CONCRETE PAVEMENT (TYPE-2)
WITHOUT CONCRETE PAVEMENT

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	Apron Concrete Pavement (Conf. Both)	Calc. Index No.	
Subject	Prime Coating	Page No.	Rev.

References/ Notes

Apron concrete pavement 7200 m²

A = [7200] m²

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QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	**Project Code**	JC1N004/2N001
Work Section Title	APRON CONCRETE PAVEMENT	**Pay Item No. (BOQ)**	20 - 1005
Quantity Item	REINFORCEMENT AND JOINT BAR	**Unit**	Kg

Calculation Procedure Applied

Reinforcement and joint bar was computed for container apron pavement.
Reinforcement lenght was computed summarizing all distances of the reinforcement.

References, Calculation Base and Revisions

References: Tender Drawings:

DW-PV-01-006 Joint Arrangement of Concrete Pavement (2)

Rev	Prepared by	Prepared Date	No. of Pages	Checked by	Checked Date	Reviewed by	Reviewed Date	Superseded by Calc No.
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LEGEND:
LONGITUDINAL CONSTRUCTION
CONTRACTION
EXPANSION
CONCRETE PAVEMENT (TYPE-1)
CONCRETE PAVEMENT (TYPE-2)
WITHOUT CONCRETE PAVEMENT

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	APRON CONCRETE PAVEMENT (CONT. BERTH)	Calc. Index No.	
Subject	REINFORCEMENT AND JOINT SIZE	Page No.	Rev.

References/ Notes

Apron (Container Berth):

1. Longitudinal Construction Joint:

1.1 Lenght (m):

L = (340.00 m)(4) = 1,360.0 m m

1.2 Total Rc-bar (Kg)

D32 ⇒ W = (6.23 Kg/m)(1 m) = 6.23 Kg

D13 ⇒ W = (0.995 Kg/m)(1.50 m)(2) = 2.99 Kg

W = 6.23 Kg + 2.99 Kg = 9.22 Kg

No Sets = 1,360

W_T = (9.22 Kg)(1,360) = 12,539.20 ≈ W_1 = 12,600 Kg

2. Contraction Joint:

2.1 Lenght (m):

L = (21.15 m)(3) + 11.15 m = 666.80 m ≈ 670 m

2.2 Total Rc-bar

W = 9.22 Kg

No Sets = 670

W_T = (9.22 Kg)(670) = 6,177.40 Kg ≈ W_2 = 6,200 Kg

3. Expansion Joint

3.1 Lenght (m):

L = (21.15 m)(2) + 10 m = 52.30 m ≈ 60 m

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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	APRON CONCRETE PAVEMENT (CONT. BERTH)	Calc. Index No.	
Subject	REINFORCEMENT AND JOINT BAR	Page No.	Rev.

References/ Notes

3.2 Total Re-bar (K_g)

D32 $\Rightarrow$ $W = (6.28\ K_g/m)(6.00\ m) = 37.74\ K_g$

D13 $\Rightarrow$ $W = (0.995\ K_g/m)(1.50\ m)(2) = 2.99\ K_g$

$W = 37.74\ K_g + 2.99\ K_g = 40.73\ K_g$

No. Sets = 60

$W_T = (40.73\ K_g)(60) = 2,403.80\ K_g \simeq 2,500\ K_g$ $W_3 = 2,500\ K_g$

4. Joint with existing concrete:

4.1 Lenght (m):

$L = (339.00\ m)(2) + 21.15\ m = 699.15\ m \simeq 700\ m$

$(W)_T = (12,600 + 16,200 + 2,500)\ K_g = 31,300\ K_g$ $W_T = 31,300\ K_g$

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		Karla G.	4 / July /200 2		/ /200

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