

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	SODDING AREA	Pay Item No. (BOQ)	26-08
Quantity Item		Unit	m ²

Calculation Procedure Applied

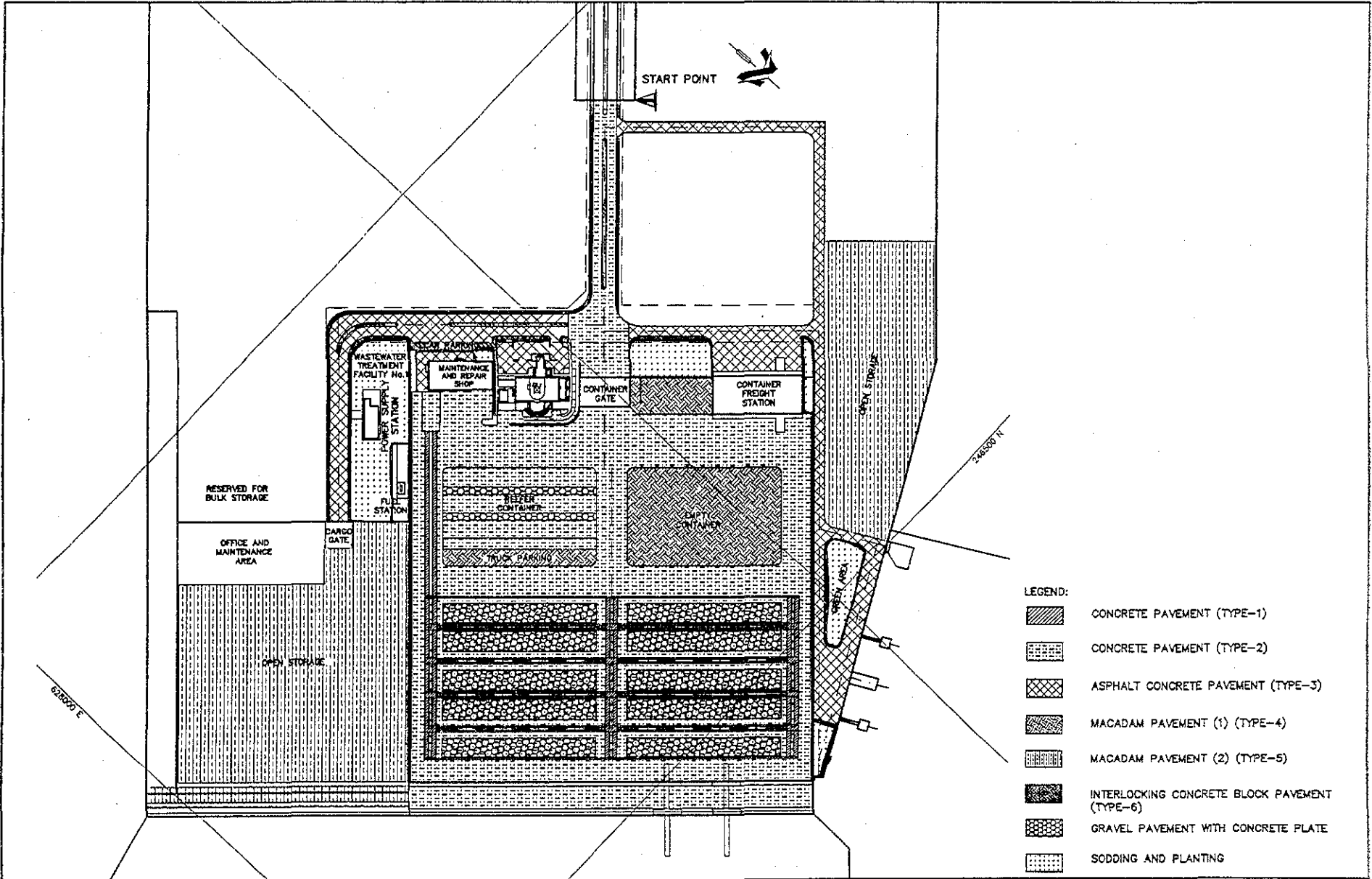
Pavement area was computed sectioning the total sodding area into small section areas and using geometric formulas.

The area was computed with two decimal for section area and zero decimal for total.

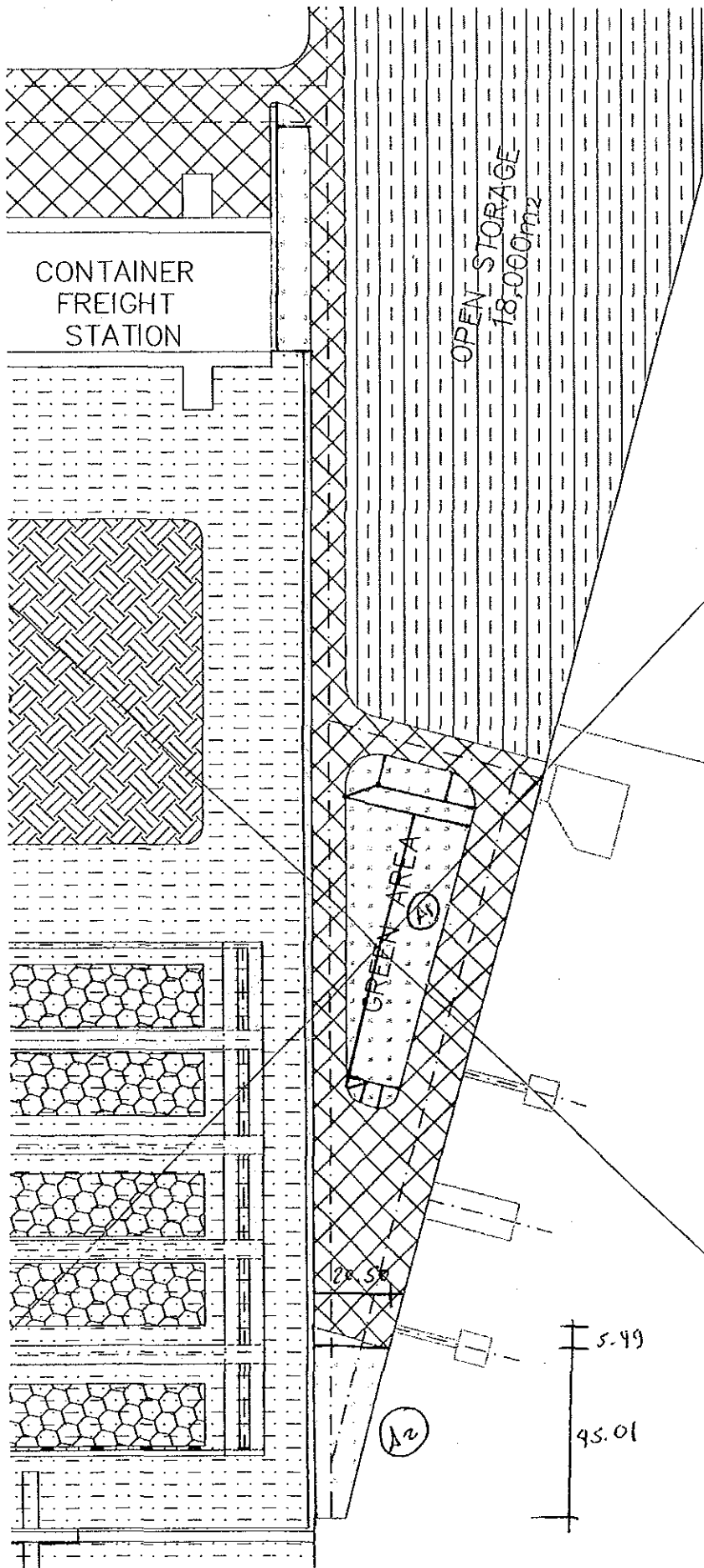
References, Calculation Base and Revisions

References = Tender Drawings =
 DW - PV - 00 - 001 General Plan of Pavement Area

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.	26 JUNE 2002		Mr. Inuma		Mr. Ando		
1	KA							
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		JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR		DESIGNED BY : CHECKED BY : APPROVED BY :		SECTION : ROAD AND PAVEMENT SUB-SECTION : GENERAL TITLE :		DATE : JULY/2002 SCALE : 1 : 3000 DRAWING NO. : DW-PV-00-001	
		COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)				NIPPON KOEI CO., LTD.		GENERAL PLAN OF PAVEMENT AREA			



56-12

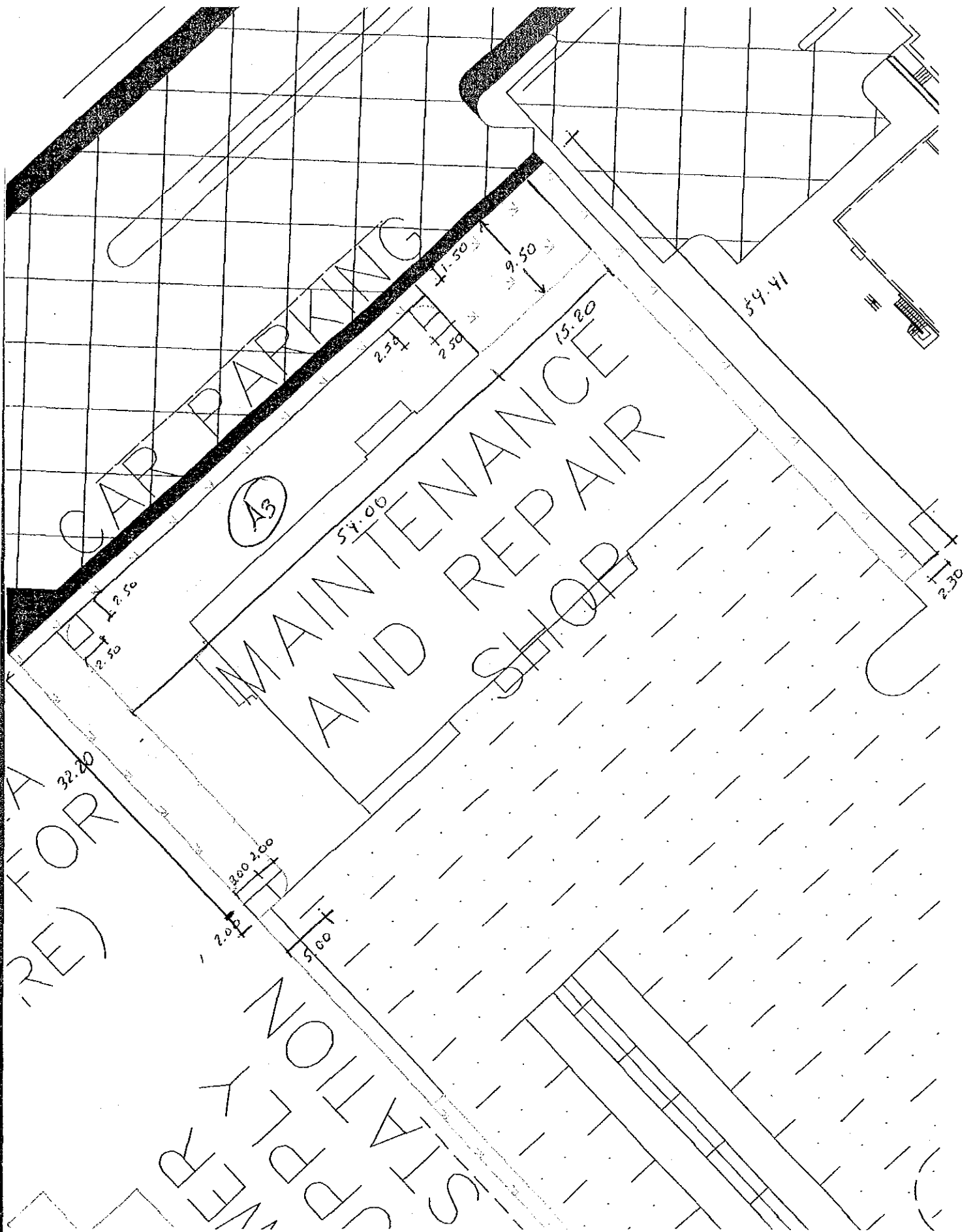
246500 N

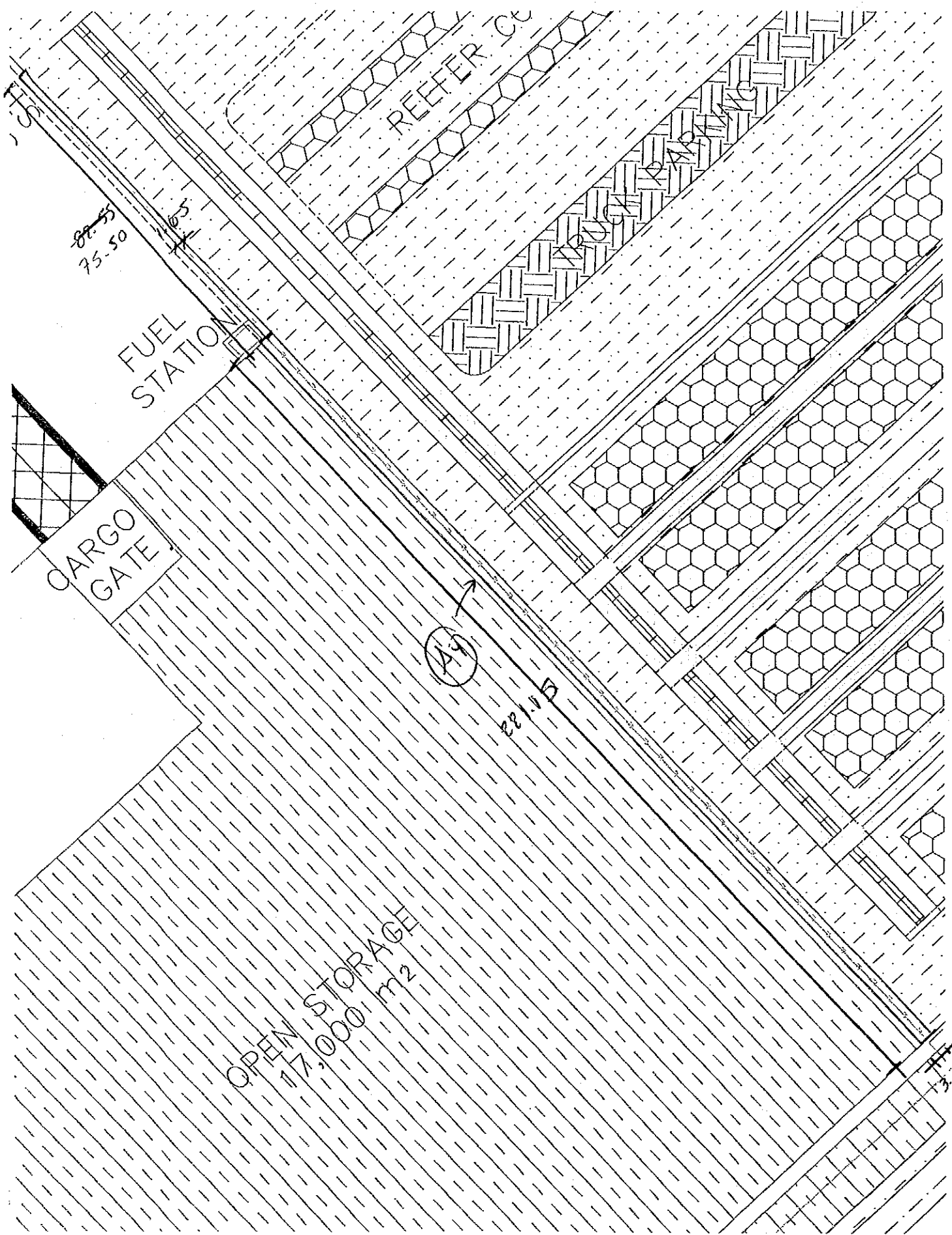
311.03

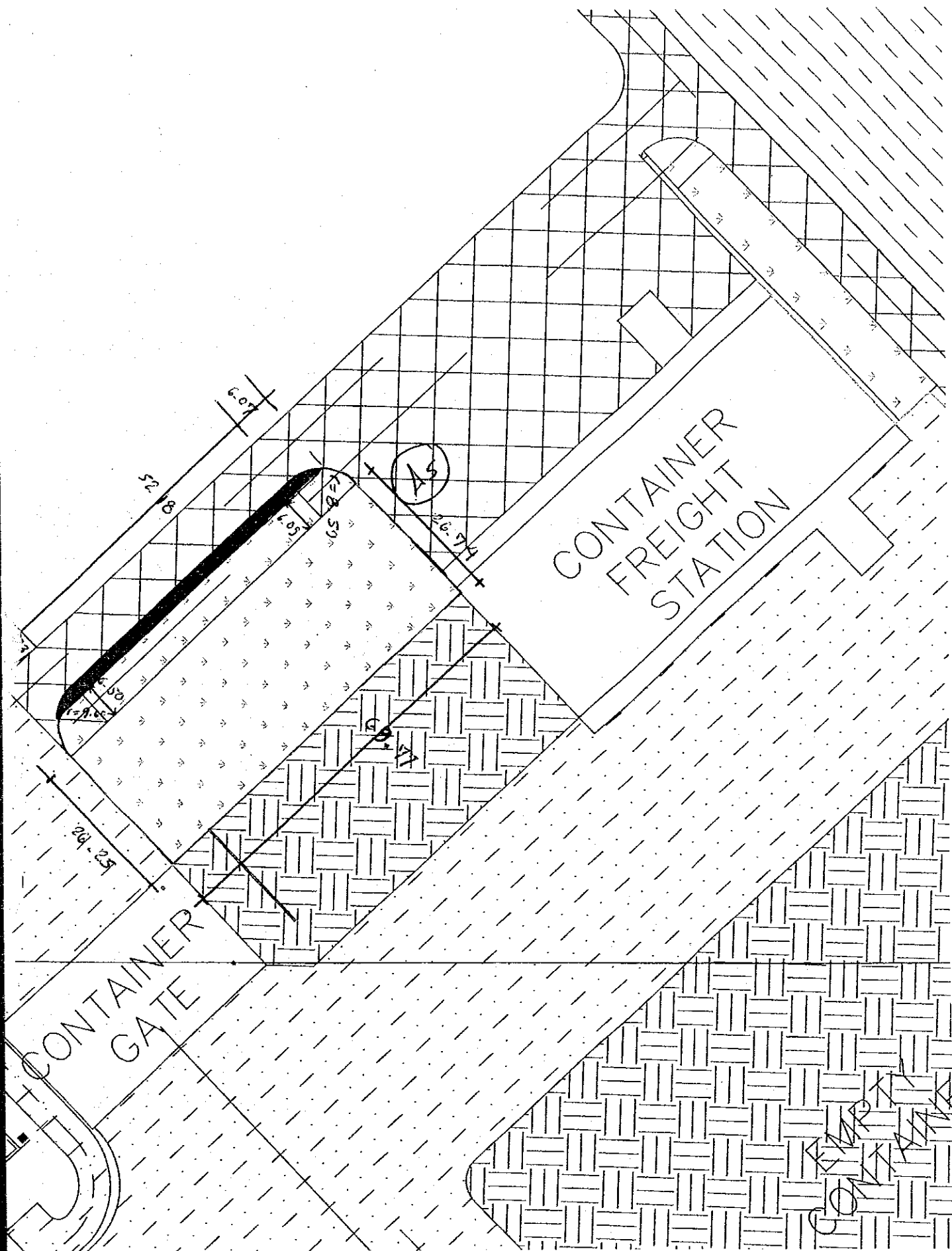
5.99

95.01

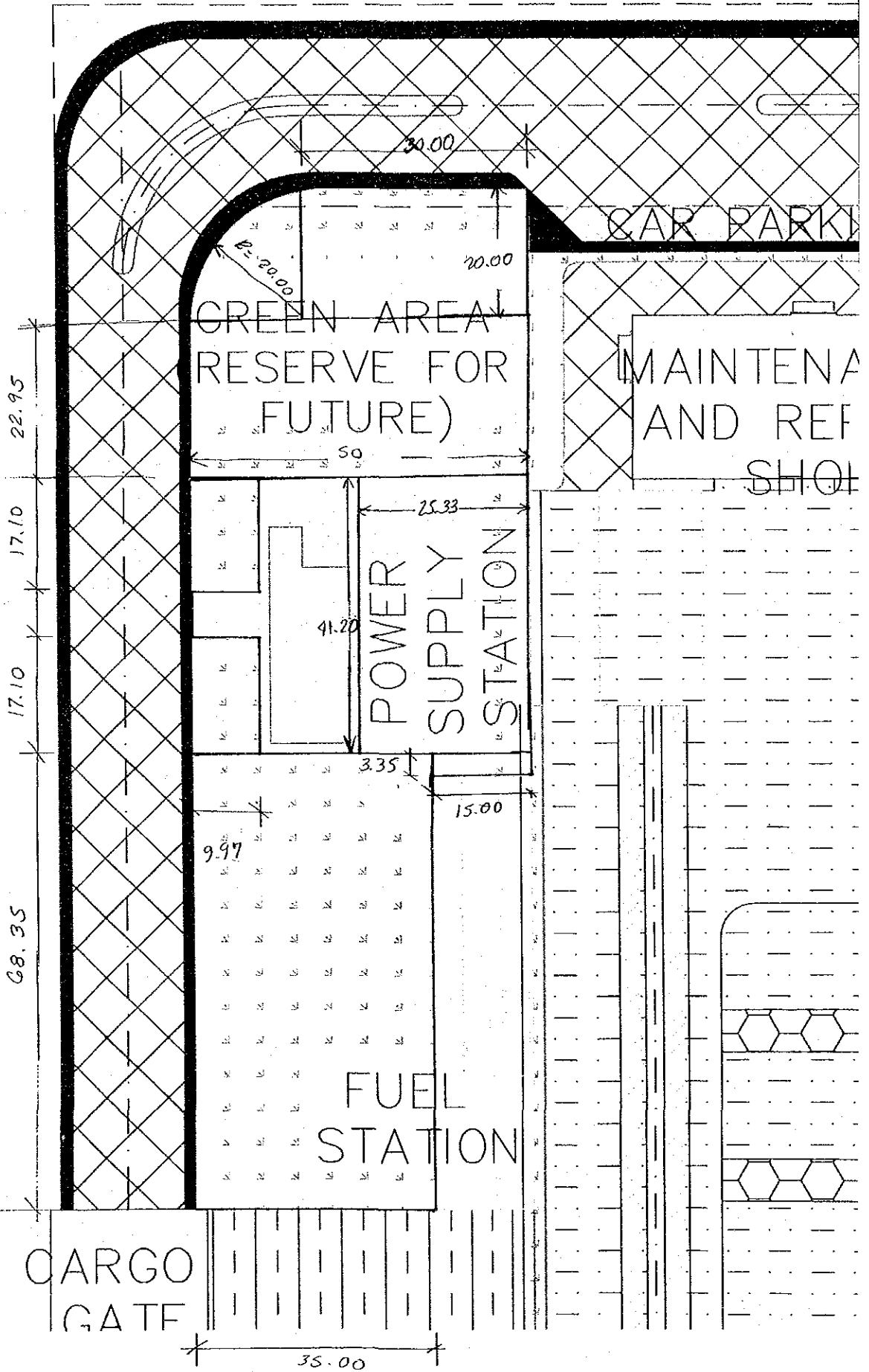
1.65 8.44







A6



Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	SOODING AREA	Calc. Index No.	
Subject		Page No.	Rev.
$A_1 = (14.19\text{ m})(74.67\text{ m}) + \frac{(34.54\text{ m} + 25.85\text{ m})}{2}(2.33\text{ m}) +$ $(20.35\text{ m})(75.96\text{ m}) + \frac{\pi(5\text{ m})^2}{2} + (4.36\text{ m})(5\text{ m}) + (4.83\text{ m})(1.29\text{ m}) +$ $\frac{\pi(5\text{ m})^2}{360^\circ} + \frac{\pi(9\text{ m})^2}{4} + (9\text{ m})(16.85\text{ m}) + \frac{\pi(9\text{ m})^2}{360^\circ}$ $= 2,253.22\text{ m}^2$		References/ Notes	
$A_2 = (9.44\text{ m} + 20.50\text{ m})(45.01\text{ m}) + (20.50\text{ m})(5.49\text{ m}) + (1.65\text{ m})(311.03\text{ m}) +$ $(9\text{ m})(56.12\text{ m}) + \frac{\pi(9\text{ m})^2}{4} + \frac{\pi(1\text{ m})^2}{4} + (1\text{ m})(64.12\text{ m})$ $= 1854.37\text{ m}^2$			
$A_3 = (2.30\text{ m})(24.41\text{ m}) + (4.50\text{ m})(15.20\text{ m}) + \left[\frac{(2.50\text{ m})(2.50\text{ m}) - \pi(2.50\text{ m})^2}{4} \right] +$ $(54\text{ m})(1.50\text{ m}) + \left[\frac{(2.50\text{ m})(2.50\text{ m}) - \pi(2.50\text{ m})^2}{4} \right] + \frac{\pi(2\text{ m})^2}{4} +$ $(5\text{ m})(32.20\text{ m}) + (2\text{ m})(3\text{ m})$ $= 523.36\text{ m}^2$			
$A_4 = (1.65\text{ m})(22.55\text{ m}) + (3.30\text{ m})(221.15\text{ m}) = 354.37\text{ m}^2$			
$A_5 = \frac{(26.74\text{ m} + 26.25\text{ m})}{2}(69.47\text{ m}) + \frac{\pi(9\text{ m})^2}{360^\circ} + \frac{(6.50\text{ m})(6.23\text{ m})}{2} +$ $\frac{(5.09\text{ m} + 6.50\text{ m})}{2}(52.18\text{ m}) + \frac{(6.09\text{ m})(6.97\text{ m})}{2} + \frac{\pi(8.59\text{ m})^2}{360^\circ}$ $= 2,277.16\text{ m}^2$			
$A_6 = (35\text{ m})(68.35\text{ m}) + (15\text{ m})(33.35\text{ m}) + (17.10\text{ m})(9.97\text{ m}) + (9.97\text{ m})$ $(17.10\text{ m}) + (50\text{ m})(22.95\text{ m}) + (30\text{ m})(20\text{ m}) + \frac{\pi(20\text{ m})^2}{4} + (11.20\text{ m})(25.33\text{ m})$ $= 3,888.74\text{ m}^2$			
$A_T = 13,651.22\text{ m}^2 \approx 13,700\text{ m}^2$		$A = 13,700\text{ m}^2$	
Prepared by		Checked by	
Korda G.		1 / 200	

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE -1)	Pay Item No. (BOQ)	2G-090101
Quantity Item	CONCRETE FOR CURB	Unit	

Calculation Procedure Applied

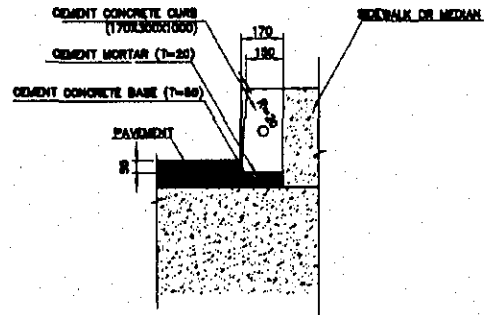
The concrete volume was computed using geometric formulas.
The volume was computed per 1 curb and then for
total.
Zero decimal was computed for total.

References, Calculation Base and Revisions

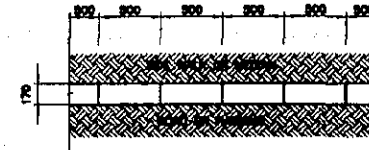
References: Tender Drawings:
DW-PV-03-005 Detail of Curb Stone

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Kala G.	23 June 2002		Mr. Jauma		Mr. Ando		
1	Kala G.							
2								
3								

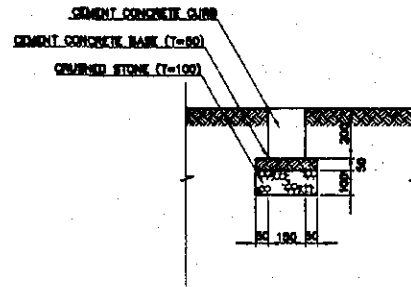
TYPICAL CROSS SECTION OF CURB STONE TYPE-1
SCALE 1:20



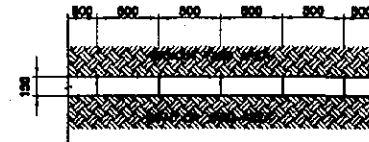
DETAILS OF CURB STONE
PLAN OF CURB STONE TYPE-1
SCALE 1:40



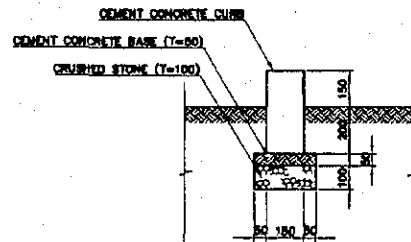
TYPICAL CROSS SECTION OF CURB STONE TYPE-2
SCALE 1:20



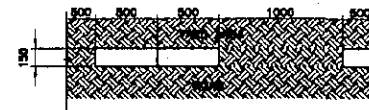
PLAN OF CURB STONE TYPE-2
SCALE 1:40



TYPICAL CROSS SECTION OF CURB STONE TYPE-3
SCALE 1:20



PLAN OF CURB STONE TYPE-3
SCALE 1:40



NO.	DATE	REVISION	BY	APPROVED	DATE

JICA
JAPAN INTERNATIONAL
COOPERATION AGENCY
(JICA)

CEPA
COMISION EJECUTIVA
PORTUARIA AUTONOMA
(CEPA)

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

NIPPON KORI CO., LTD.

CHECKED BY:
DESIGNED BY:
APPROVED BY:

SECTION: ROAD AND PAVEMENT
SUB-SECTION: INCIDENTAL WORK
TITLE: **DETAIL OF CURB STONE**

DATE: JULY/2002
SCALE: INDICATED
DRAWING NO: DW-PV-03-005

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE - I)	Calc. Index No.	
Subject	CONCRETE FOR CURB	Page No.	Rev.
<p>Per 1. curb : $L = 50 \text{ cm}$</p> $V = \left(\frac{0.15 \text{ m} + 0.17 \text{ m}}{2} \right) (0.30 \text{ m}) (0.50 \text{ m})$ $V = 0.024 \text{ m}^3$ <p>Total :</p> $L = 3,000 \text{ m}$ $\Rightarrow No = \frac{3,000 \text{ m}}{0.50 \text{ m}} = 7,200$ $\Rightarrow V = (0.024 \text{ m}^3) (7,200)$ $V = 172.8 \text{ m}^3 \approx 173 \text{ m}^3$		<p>References/ Notes</p>	
Prepared by		Checked by	
Karla G.		26 June 2002 / 1 / 200	

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -1)			Pay Item No. (BOQ)	2G-090102			
Quantity Item	FORM (SIDE) FOR CURB			Unit	m ²			
Calculation Procedure Applied								
<p>Form area was computed using geometric formulas and per 1 curb, and then for total. Area was computed with zero decimal for total.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings: DW-PV-03-005 Details of Curb Stone (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.	23 June 2002		Mr. Inuma		Mr. Ando		
1	Karla G.							
2								
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Project	Detailed Design on Port Reactivation Project In La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -1)	Calc. Index No.	
Subject	FORM (SIDE) FOR CURB	Page No.	Rev.
<p> $P_{\text{curb}} \perp \text{curb} : l = 50 \text{ cm}$ $A = (0.30 \text{ m}) (0.50 \text{ m}) (2) + \left(\frac{2.15 \text{ m} + 2.17 \text{ m}}{2} \right) (0.30 \text{ m}) (2)$ $A = 0.30 \text{ m}^2 + 0.996 \text{ m}^2$ $A = 0.396 \text{ m}^2 \approx 0.40 \text{ m}^2$ Total : $L_T = 3,400 \text{ m}$ $\Rightarrow N_0 = \frac{3,400 \text{ m}}{2.50 \text{ m}} = 7,200$ $\Rightarrow A = (0.40 \text{ m}^2) (7,200)$ $A = 2,880 \text{ m}^2$ </p>			<p>References/Notes</p>
Prepared by		Checked by	
	Kaia G.	29 June/2002	/ /200

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -1)			Pay Item No. (BOQ)	29-090103			
Quantity Item	FORM (BOTTOM) FOR CURB			Unit	m ²			
Calculation Procedure Applied								
<p>Form area was measured using geometric formulas and area of curb, and then for total.</p> <p>Area was measured with zero decimal for total.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings</p> <p>DM-P-03-05 Details of Curb Stone</p> <p>(Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Kala G. SA	29 June 2002		Mr. Inuma		Mr. Ando		
1								
2								
3								

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -1)	Calc. Index No.	
Subject	FORM (BOTTOM) FOR CURB	Page No.	Rev.
		References/ Notes	
Per 1 curb :			
$A = (0.17m)(0.50m)$			
$A = 0.085 m^2 \approx 0.09 m^2$			
Total :			
$L_T = 3,600 m$			
$N_b = \frac{3,600 m}{0.50 m} = 7,200$			
$\Rightarrow A = (0.09 m^2)(7,200) = 648 m^2$		$A = 648 m^2$	
Prepared by		Checked by	
Kaila G.		1 / 200	
29 June/2002			

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE 1)	Pay Item No. (BOQ)	2G-090201
Quantity Item	CEMENT CONCRETE BASE	Unit	m ³

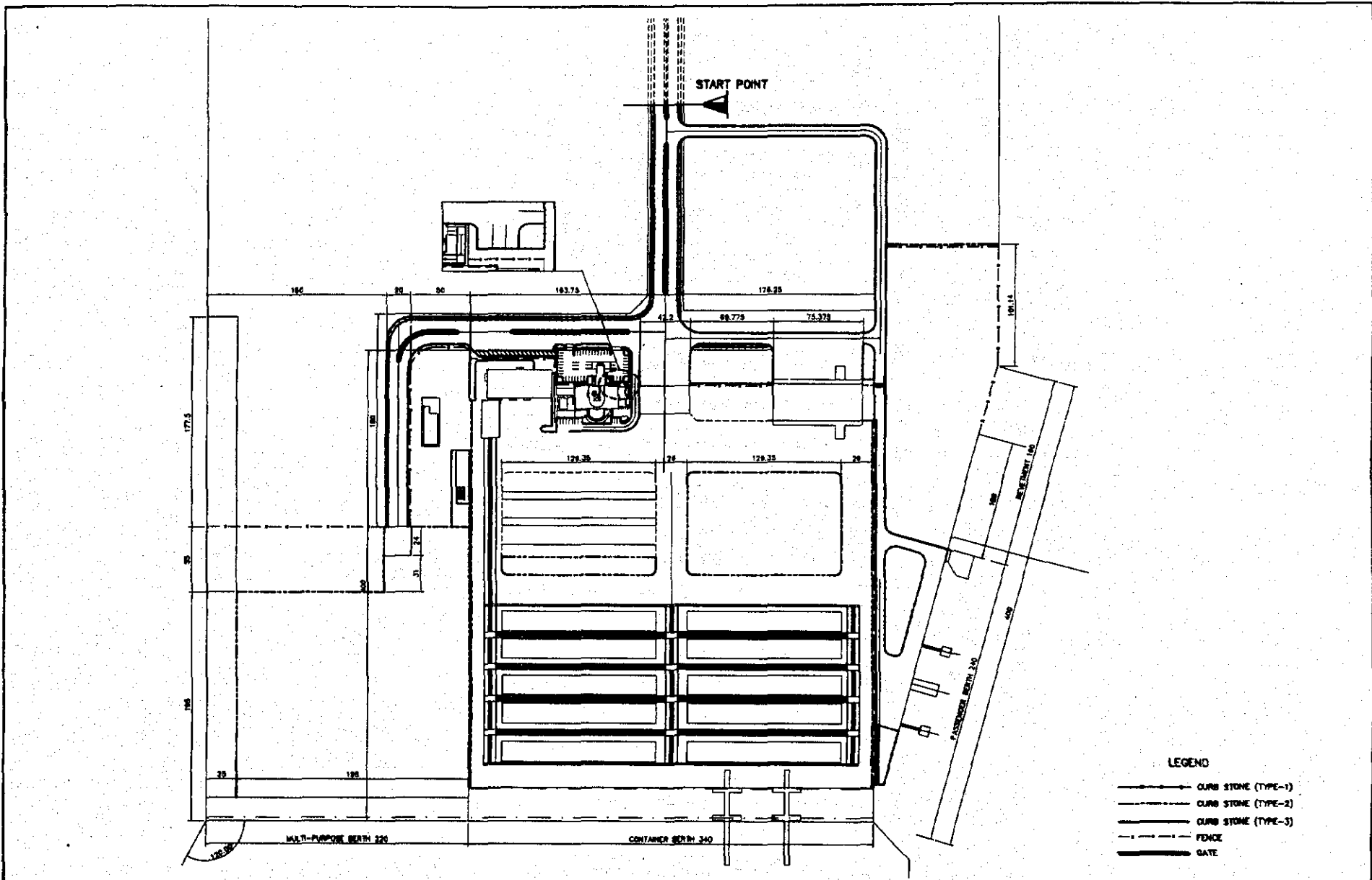
Calculation Procedure Applied

Concrete curb length was computed summarizing all distances of curb.
 To obtain correct concrete volume, the length was multiplied to the thickness and width of the curb.
 length was computed with zero decimal for total.

References, Calculation Base and Revisions



2/1 - 30 - 00 - 001
 Layout - curb stone and fence
 DW - PU - 00 - 005 Layout of Curb stone and fence
 (Same as "Concrete for Curb")


Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla Garcia	27 June 2008		Mr. Inuma		Mr. Ando		
1	Karla Garcia							
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- LEGEND**
- Curb Stone (Type-1)
 - Curb Stone (Type-2)
 - Curb Stone (Type-3)
 - - - - Fence
 - +— Gate

NO.	DATE	REVISIONS	BY	APPROVED	DATE


JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)

DETAILED DESIGN OF PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF THE PHILIPPINES

NIFFON KOKI CO., LTD.

DESIGNED BY :
 DRAWN BY :
 CHECKED BY :

ROAD AND PAVEMENT GENERAL
LAYOUT OF CURB STONE AND FENCE

DATE : JULY/2002
 SCALE : 1 : 3000
 DRAWING NO. : DW-PY-00-005

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CULB (TYPE 1)	Calc. Index No.	
Subject	CEMENT CONCRETE BASE	Page No.	Rev.
		References/Notes	
$L_1 = (63.64 + 13.87 + 1.18 + 195.04) m + (5.5 + 3.98 + 4.9 + 3.93 + 27.70 + 3.14 + 3.00 + 37.50) m + (155.00 + 157.50 + (31.92)(2) + 182.00 + 183.75 + 31.42 + 37.49 + ((61.70)(2))) m + (51.71 + 33.50 + 2.27 + 2.15 + 43.04) m + 203.42 + ((129.99)(1) + (2.35)(2) + 4.72) m + ((10.21)(2) + 4.72) m + (8.70 + 19.92) m + (137.00 + 152.91 + 31.42) m + (69.74 + 26.25 + 14.14 + 51.79 + 64.98 + 13.83 + 26.74) m + (21.00 + 10.00 + 28.85 + 1.57 + 14.14) m + (14.14 + 77.00 + 7.85 + 4.36 + 6.55 + 78.44 + 10.49 + 16.85) m + (21.22 + 46.60 + 8.44) m$			
$L_1 = 2,967.35 \text{ m}$			
$L_2 = (1.16 + 3.29 + 5.24 + 8.06 + (1.92)(2) + 5.78 + 22.50 + 2.78 + 2.49 + 2.78 + 20.05 + 3.78 + 1.42 + 21.64 + 2.07 + 3.28 + 5.28 + 2.78 + 3.49 + 2.58 + 3.05 + 3.10 + 2.49 + 3.22 + 2.05 + 1.83 + 12.06 + 48.36 + 12.99 + 3.27 + 3.20 + 7.07 + 4.78 + 1.91 + 22.10 + 1.92 + 5.52 + 20.55 + 10.09 + 5.23 + 15 + (3.19)(2) + 12 + 2.78 + 13) m + (57.65 + 2.12) m + (15.55 + (5.00)(2) + (4.30)(2) + (2.19)(2) + 29.16) m + ((1.92)(2) + 20.00 + (3.50)(2) + (4.23)(2) + 19.55 + 2.27 + 2.27) m + ((4.06)(2) + (2.19)(2)) m$			
$L_2 = 594.06 \text{ m}$			
$L_T = L_1 + L_2 = 3,561.41 \text{ m} \approx 3,600 \text{ m} \quad U = 3,600 \text{ m}$			
Prepared by		Checked by	
Korla G.		1 / 2002	

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE WEB (TYPE 1)	Calc. Index No.	
Subject	CEMENT CONCRETE BASE	Page No.	Rev.
$t = 50 \text{ mm}$ $w = 170 \text{ mm}$ $L = 3,600 \text{ mm}$ $V = (0.05 \text{ m})(0.17 \text{ m})(3,600 \text{ m})$ $V = 30.60 \text{ m}^3$		References/Notes	
		$V = 30.60 \text{ m}^3$	
Prepared by		Checked by	
Kaia G.		27 July 2002	
		1 / 200	

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE-1)			Pay Item No. (BOQ)	29-090202			
Quantity Item	CEMENT MORTAR			Unit	m ³			
Calculation Procedure Applied								
<p>The cement mortar volume was computed multiplying the total length of curb to the thickness and width.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings: D.N - PV - 03 . 005 Details of Curb Stone (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla Garcia	28 June 2002		Mr. Inuma		Mr. Ando		
1								
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -1)	Calc. Index No.	
Subject	CEMENT MORTAR	Page No.	Rev.
		References/ Notes	
$t = 20 \text{ mm}$ $w = 170 \text{ mm}$ $L = 3,600 \text{ m}$ $V = (0.02 \text{ m})(0.17 \text{ m})(3,600 \text{ m})$ $V = 12.24 \text{ m}^3 \approx 12.30 \text{ m}^3$		$V = 12.30 \text{ m}^3$	
Prepared by		Checked by	
Kaio G.		25 June 2002	
		1 / 200	

QUANTITY CALCULATION COVER SHEET			
Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE - 2)	Pay Item No. (BOQ)	24-100101
Quantity Item	CONCRETE FOR CURB	Unit	m ³

Calculation Procedure Applied

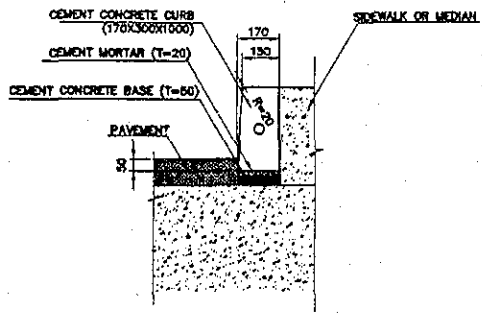
The concrete for curb was computed using geometric formulas and per 1 curb, then for total.
The volume was computed with zero decimal for total.

References, Calculation Base and Revisions

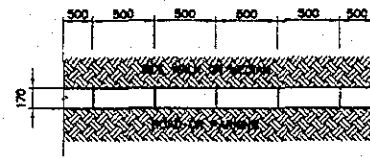
References : Tender Drawings:
DW - PV - 03 - 005 Details of Curb Stone

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.	29 June 2002		Mr. Inuma		Mr. Ando		
1	FA							
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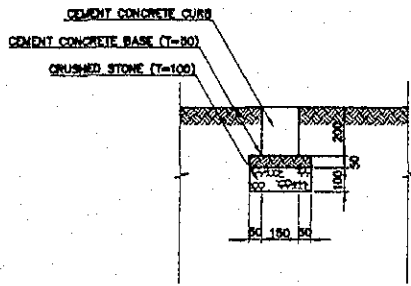
TYPICAL CROSS SECTION OF CURB STONE TYPE-1
SCALE 1:20



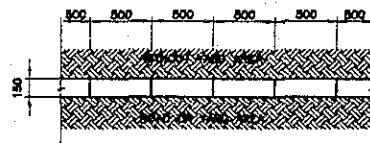
DETAILS OF CURB STONE
PLAN OF CURB STONE TYPE-1
SCALE 1:40



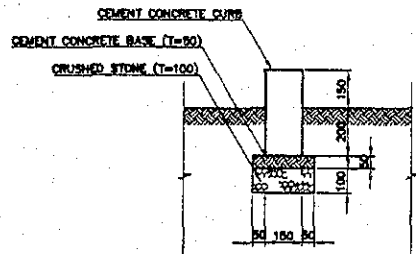
TYPICAL CROSS SECTION OF CURB STONE TYPE-2
SCALE 1:20



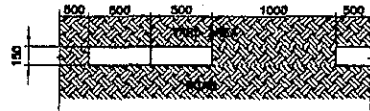
PLAN OF CURB STONE TYPE-2
SCALE 1:40



TYPICAL CROSS SECTION OF CURB STONE TYPE-3
SCALE 1:20



PLAN OF CURB STONE TYPE-3
SCALE 1:40



JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR		DESIGNED BY: CHECKED BY: APPROVED BY:	SECTION: ROAD AND PAVEMENT SUB-SECTION: INCIDENTAL WORK TITLE: DETAIL OF CURB STONE	DATE: JULY/2002 SCALE: INDICATED DRAWING NO.: DW-PV-03-005
COMISION EJECUTIVA PORTUARIA AUTONOMA (CEPA)		NIPPON KOKI CO., LTD.				
REV.	DATE	DESCRIPTION	BY	APPROVED	DATE	

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -2)	Calc. Index No.	
Subject	CONCRETE FOR CURB	Page No.	Rev.
<p>Per 1 Curb : L = 50 cm</p> $V = (0.20 \text{ m})(0.15 \text{ m})(0.50 \text{ m})$ $V = 0.015 \text{ m}^3$ <p>Total</p> $L_T = 2,000 \text{ m}$ $\Rightarrow No. = \frac{2,000 \text{ m}}{0.50 \text{ m}} = 4,000$ $\Rightarrow V = (0.015 \text{ m}^3)(4,000)$ $V = 60 \text{ m}^3$		<p>References/ Notes</p>	
			$V = 60 \text{ m}^3$
Prepared by		Checked by	
Koda G.		29 June 2002 / 1 / 200	

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -2)			Pay Item No. (BOQ)	24-100102			
Quantity Item	FORM (SIDE) FOR CURB			Unit	m ²			
Calculation Procedure Applied								
<p>Form area was computed using geometric formulas and per 1 curb, then for total.</p> <p>Area was rounded with zero decimal for total.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings:</p> <p style="margin-left: 40px;">DW - PV - 03 - 005 Details of Curb Stone</p> <p style="margin-left: 40px;">(Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G. [Signature]	29 June 2002		Mr. Truma		Mr. Ando		
1								
2								
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -2)	Calc. Index No.	
Subject	FORM (SIDE) FOR CURB	Page No.	Rev.
<p>Per 1 Curb : $L = 50 \text{ cm}$</p> $A = (0.20 \text{ m})(0.15 \text{ m})(2) + (0.20 \text{ m})(0.50 \text{ m})(2)$ $A = 0.06 \text{ m}^2 + 0.20 \text{ m}^2$ $A = 0.26 \text{ m}^2$ <p>Total :</p> $LT = 8,000 \text{ m}$ $\Rightarrow No = \frac{8,000 \text{ m}}{0.50 \text{ m}} = 4,000$ $\Rightarrow A = (0.26 \text{ m}^2)(4,000)$ $A = 1,040 \text{ m}^2$		<p>References/ Notes</p>	
<p>Prepared by Kaila G. 29 / June / 2002</p>			<p>Checked by / / 200</p>

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE -2)	Pay Item No. (BOQ)	24-100103
Quantity Item	FORM (BOTTOM) FOR CURB	Unit	m ²

Calculation Procedure Applied

Form area was obtained using geometric formulas
and per 2 curb, then for total.
Area was rounded with zero decimal for total.

References, Calculation Base and Revisions

References : Tender Drawings:
PV1 - PV - 03 - 005 Details of Curb Stone
(Same as "Concrete for Curb")

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Koita G. S.	29 June 2002		H. Tsuna		Mr. Ando		
1								
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE - 2)	Calc. Index No.	
Subject	FORM (BOTTOM) FOR CURB	Page No.	Rev.
<p>Per 1 Orb : $L = 50 \text{ cm}$</p> <p>$A = (0.15 \text{ m})(0.50 \text{ m}) = 0.075 \text{ m}^2 \approx 0.08 \text{ m}^2$</p> <p>Total:</p> <p>$L_T = 2,000 \text{ m}$</p> <p>$\Rightarrow N_o = \frac{2,000 \text{ m}}{0.50 \text{ m}} = 4,000$</p> <p>$\Rightarrow A = (0.08 \text{ m}^2)(4,000) = 320 \text{ m}^2$</p>			References/ Notes
			<p>$A = 320 \text{ m}^2$</p>
Prepared by		Checked by	
Koila G.		29 June 2002 1 / 200	

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE -2)	Pay Item No. (BOQ)	2G-100201
Quantity Item	EXCAVATION	Unit	m ³

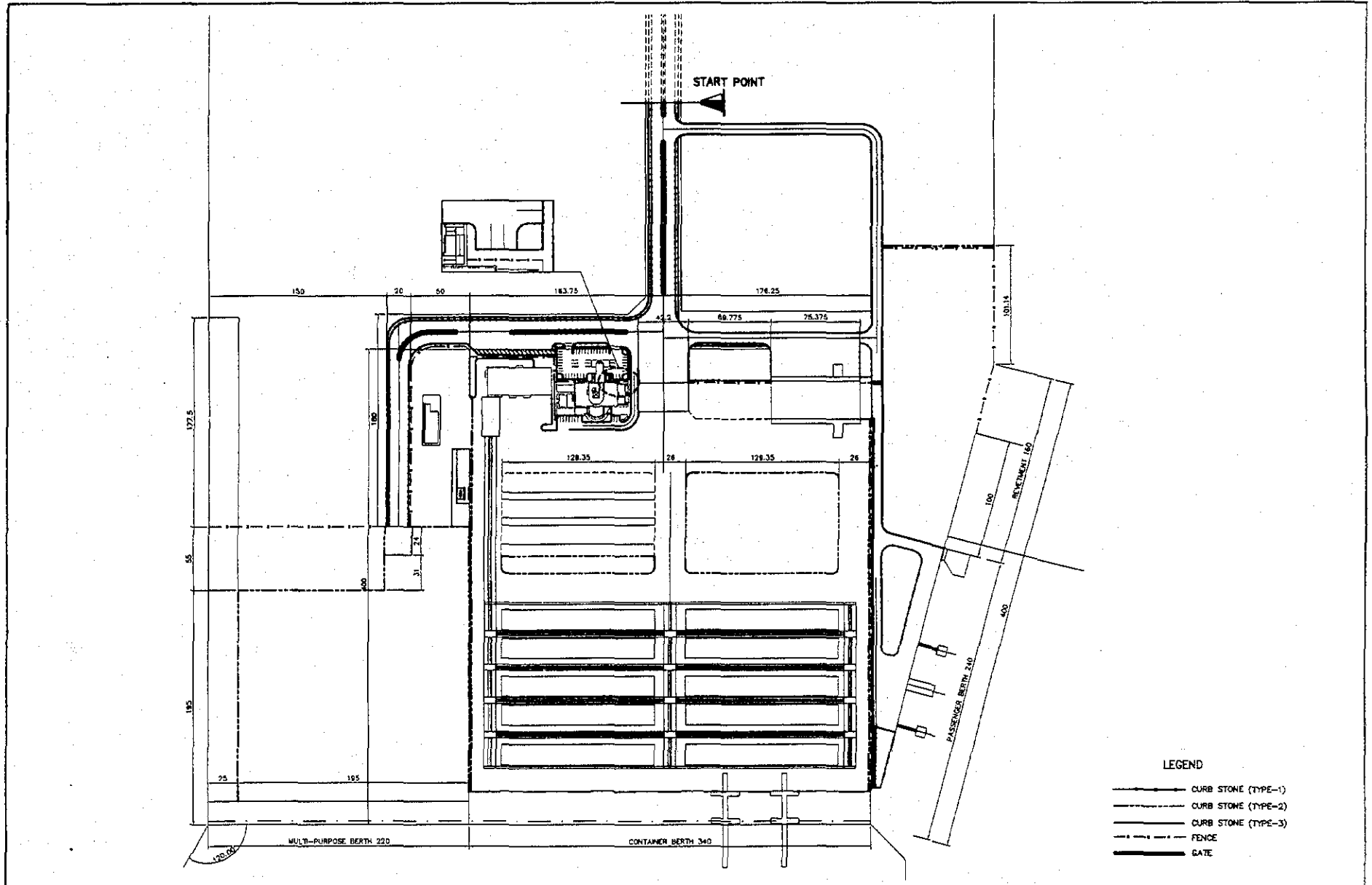
Calculation Procedure Applied

Concrete curb length was computed summarizing all distances of curb.
 The area was computed with geometric formulas.
 The volume was computed multiplying the area to the total length of curb.
 Volume was rounded with zero decimal for total.

References, Calculation Base and Revisions

DW - PV - 00 - 005
 Stone and Fence
 DW - PV - 03 - 005 Details of Curb Stone and Fence
 (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. [Signature]	29 June 2002		Mr. Tannya		Mr. Ando		
1								
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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 : ROAD AND PAVEMENT
 SUB-SECTION : GENERAL
 TITLE : **LAYOUT OF CURB STONE AND FENCE**

DATE : JULY/2002
 SCALE : 1 : 3000
 DRAWING NO. : DW-PV-00-005

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE 2)	Calc. Index No.	
Subject	EXCAVATION	Page No.	Rev.
$L = (175 + 123.40 + 55.00 + 33.00 + 22.15 + 328.70 + 129.35 + 10.00 + 7.35 + 119.35 + 7.85 + 10.00 + 421.62 + 311.03) \text{ m}$		References/Notes	
$L = 1,953.30 \text{ m} \approx 2,000 \text{ m}$		$L = 2,000 \text{ m}$	
$A = \left(\frac{(0.175 \text{ m})(0.35 \text{ m})}{2} \right) + (0.23 \text{ m})(0.35 \text{ m})$			
$A = 0.06125 \text{ m}^2 + 0.0805 \text{ m}^2$			
$A = 0.14175 \text{ m}^2 \approx 0.15 \text{ m}^2$			
$V = (0.15 \text{ m}^2)(2,000 \text{ m})$			
$V = 300 \text{ m}^3$		$V = 300 \text{ m}^3$	
Prepared by		Checked by	
Karlo G.		/ /2002	

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE-2)	Calc. Index No.	
Subject	CRUSHED STONE	Page No.	Rev.
			References/ Notes
$t = 100 \text{ mm}$			
$w = 250 \text{ mm}$			
$L = 2,000 \text{ m}$			
$V = (0.10 \text{ m})(0.25 \text{ m})(2000 \text{ m})$			
$V = 50 \text{ m}^3$			$V = 50 \text{ m}^3$
		Prepared by	Checked by
		Koila G. 29 June/2002	/ /200

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE - 2)	Calc. Index No.	
Subject	CEMENT CONCRETE BASE	Page No.	Rev.
$t = 50 \text{ mm}$ $w = 250 \text{ mm}$ $L = 2,000 \text{ m}$ $V = (0.05 \text{ m})(0.25 \text{ m})(2,000 \text{ m})$ $V = 25 \text{ m}^3$		References/Notes	
		$V = 25 \text{ m}^3$	
		Prepared by	Checked by
		Kaia G. 29 June 2002	/ /200

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project In La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -2)			Pay Item No. (BOQ)	2G-100202			
Quantity Item	CRUSHED STONE			Unit	m ³			
Calculation Procedure Applied								
<p>The crushed stone volume was computed using the area multiplied by the total length of curb to be installed and width.</p> <p>Volume was rounded off to two decimal places.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings:</p> <p>DW - PV - C3 - 005 Details of Curb Stone</p> <p>(Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G. A.	29 June 2002		Hi. Inuma		Mr. Ando		
1								
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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	CONCRETE CURB (TYPE-2)			Pay Item No. (BOQ)	2G-100203			
Quantity Item	CEMENT CONCRETE BASE			Unit	m ³			
Calculation Procedure Applied								
<p>Concrete curb volume was computed using geometric formulas.</p> <p>To obtain cement concrete volume, the length was multiplied to the thickness and width of the curb.</p> <p>Volume was computed with zero decimal for totals.</p>								
References, Calculation Base and Revisions								
<p>References : Tender Drawings:</p> <p>DW-PV-03-05 Details of Curb stone and fence</p> <p>(Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.	29 June 2002		Mr. Inuma		Mr. Ando		
1								
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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	CONCRETE CURB (TYPE - 2)			Pay Item No. (BOQ)	29-100204			
Quantity Item	BACKFILL			Unit	m			
Calculation Procedure Applied								
<p>Backfill was computed using geometric formulas.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings: DW - PV - 03 - 005 Details of Curb Stone and Fence (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karlo G.	29 June 2002		Mr. Inoma		Mr. Ando		
1	Karlo G.							
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE - 2)	Calc. Index No.	
Subject	BACK FILL	Page No.	Rev.
$V = V_{exc} - V_{COB} - V_{cm} - V_{ccc}$ $V = (300 - 50 - 25 - 90) m^3$ $V = 165 m^3$			References/ Notes
		Prepared by	Checked by
		Kor's G.	29 / June / 200 2
			1 / 200

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB			Pay Item No. (BOQ)	2G-1002.05			
Quantity Item	COMPACTION			Unit	m ²			
Calculation Procedure Applied								
<p>The compaction area was computed using geometric formulas and multiplying the total length to the thickness.</p> <p>Area was rounded with zero decimal for total.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings:</p> <p>EW - PV - 03 - 005 Details of Curb Stone and Fence</p> <p>(Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.	29 June 2002		Mr. Inuma		Mr. Ando		
1	Karla G.							
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE-2)	Calc. Index No.	
Subject	COMPACTION	Page No.	Rev.
$A = (2,000 \text{ m})(0.35 \text{ m})$ $A = 700 \text{ m}^2$		References/Notes	
		$A = 700 \text{ m}^2$	
Prepared by		Checked by	
Kaika G.		29 / June / 2002	1 / 200

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE -3)	Pay Item No. (BOQ)	2G-110101
Quantity Item	CONCRETE FOR CURB	Unit	m ³

Calculation Procedure Applied

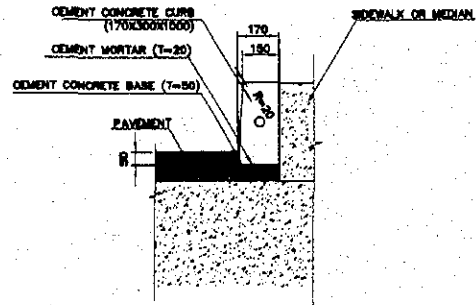
The concrete for curb was computed using geometric formulas and per 1 curb, then for total.

References, Calculation Base and Revisions

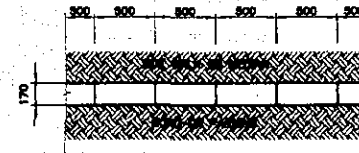
References: Tender Drawings:
bw-pv-03-005 Details of Curb Stone

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Kaila G.	10 July 2002		Mr. Jauma		Mr. Ando		
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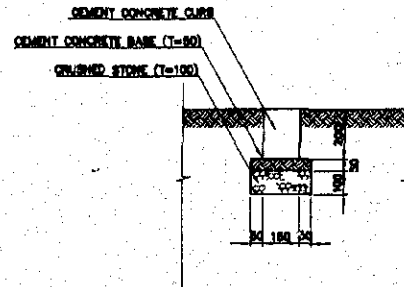
TYPICAL CROSS SECTION OF CURB STONE TYPE-1
SCALE 1:20



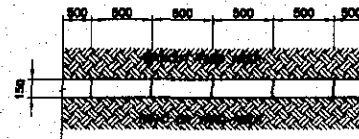
DETAILS OF CURB STONE
PLAN OF CURB STONE TYPE-1
SCALE 1:40



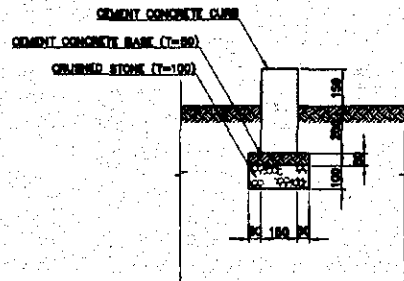
TYPICAL CROSS SECTION OF CURB STONE TYPE-2
SCALE 1:20



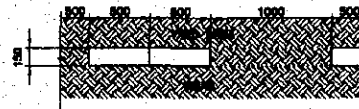
PLAN OF CURB STONE TYPE-2
SCALE 1:40



TYPICAL CROSS SECTION OF CURB STONE TYPE-3
SCALE 1:20



PLAN OF CURB STONE TYPE-3
SCALE 1:40



				 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	DETAILED DESIGN ON PORT REACTIVATION PROJECT IN LA UNION PROVINCE OF THE REPUBLIC OF EL SALVADOR	DESIGNED BY :	SECTION :	DATE :
						 COMISION EJECUTIVA PORTUARIA AUTONOMA (CERPA)	 NIPPON KOKI CO., LTD.	ROAD AND PAVEMENT
								INCIDENTAL WORK
						DETAIL OF CURB STONE	INDICATED	
							DRAWING NO.	
							DW-PV-03-005	

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -3)	Calc. Index No.	
Subject	CONCRETE FOR CURB	Page No.	Rev.
$P_{01} \text{ curb : } L = 50 \text{ cm}$		References/ Notes	
$V = (0.15 \text{ m})(0.35 \text{ m})(0.50 \text{ m})$			
$V = 0.024 \approx 0.027 \text{ m}^3$		$V = 0.027 \text{ m}^3$	
Total :			
$L = 1,100 \text{ m}$			
$\Rightarrow N_0 = \frac{1,100 \text{ m}}{0.5 \text{ m}} = 2,200$			
$\Rightarrow V = (0.027 \text{ m}^3)(2,200)$			
$V = 59.40 \text{ m}^3$		$V = 59.40 \text{ m}^3$	
Prepared by		Checked by	
Koia G.		/ / 200	

QUANTITY CALCULATION COVER SHEET

Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE -3)	Pay Item No. (BOQ)	2G-110102
Quantity Item	FORM (SIDE) FOR CURB	Unit	m ²

Calculation Procedure Applied

Form area was computed using geometric formulas and
per L curb, then for total.
Area was rounded with zero decimal for total.

References, Calculation Base and Revisions

References: Tender Drawings:
DW-PV-03-005 Details of Curb Stone
(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. [Signature]	10 July 2002		Mr. Inuma		Mr. Ando		
1								
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -3)	Calc. Index No.	
Subject	FORM (SIDE) FOR CURB	Page No.	Rev.
<p>Per 1 Curb :</p> $A = (0.35m)(0.59m)(2) + (0.15m)(0.35m)(2)$ $A = 0.35m + 0.105$ $A = 0.455 m^2 \approx 0.46 m^2$ <p>Total :</p> $L = 1,100 m$ $\Rightarrow No = \frac{1,100 m}{0.52 m} = 2,200$ $\Rightarrow A = (0.46 m^2)(2,200)$ $A = 1,012 m^2$			References/ Notes
			$A = 1,012 m^2$
Prepared by		Checked by	
Korla G.		1 ^o / July / 2002	
		/ / 200	

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -3)			Pay Item No. (BOQ)	2G-110103			
Quantity Item	FORM (BOTTOM) FOR CURB			Unit	m ²			
Calculation Procedure Applied								
<p>Form area was computed using geometric formulas and per 1 curb, then for total.</p> <p>Area was computed with zero decimal for total.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings: DW - PV - 03 - 005 Details of Curb Stone (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Koito G.	1 ^o July 2002		Mr. Inuma		Mr. Ando		
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -3)	Calc. Index No.	
Subject	FORM (BOTTOM) FOR CURB	Page No.	Rev.
<p>Per 1 Orb :</p> $A = (2.15 \text{ m}) (0.50 \text{ m}) = 0.075 \text{ m}^2 \approx 0.08 \text{ m}^2$		References/Notes	
<p>Total :</p> $L_r = 1,100 \text{ m}$ $\Rightarrow N_o = \frac{1,100 \text{ m}}{0.50 \text{ m}} = 2,200$			
$\Rightarrow A = (0.08 \text{ m}^2) (2,200) = 176 \text{ m}^2$		$A = 176 \text{ m}^2$	
Prepared by		Checked by	
Karla G.		1° July 2002	
		/ /200	

QUANTITY CALCULATION COVER SHEET


Project	Detailed Design on Port Reactivation Project in La Union Province	Project Code	JC1N004/2N001
Work Section Title	CONCRETE CURB (TYPE-3)	Pay Item No. (BOQ)	EG-1102.01
Quantity Item	EXCAVATION	Unit	m ³

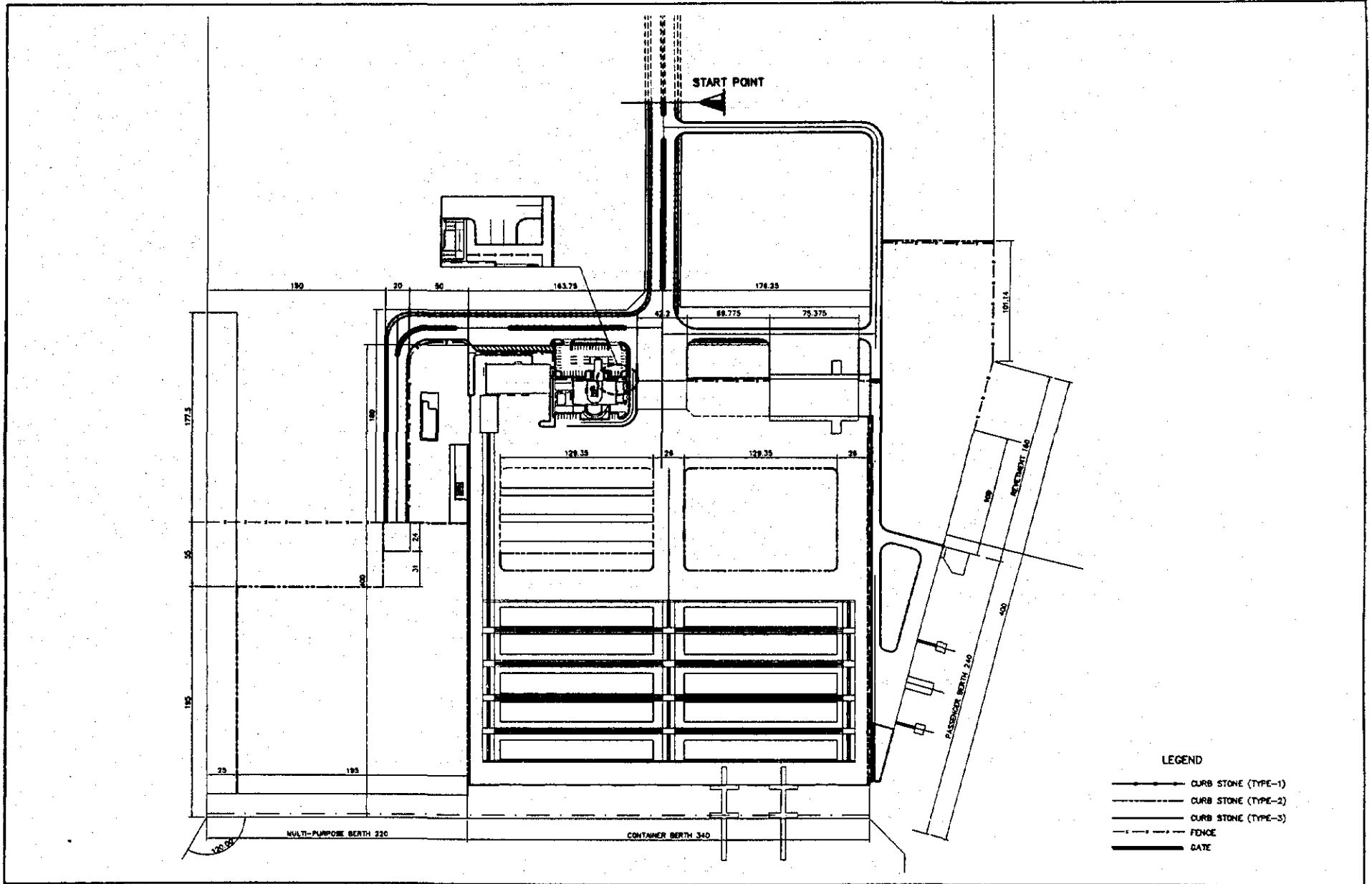
Calculation Procedure Applied

Concrete curb length was computed summarizing all
distances of curb.
The area was computed with geometric formulas.
The volume was computed multiplying the area to
the total length of curb.
Volume was rounded with zero decimal for form.

References, Calculation Base and Revisions

DW - PV - 00 - 005
layout of curb stone and fence
DW - PV - 03 - 005 Details of Curb Stone and Fence
(Same as "Concrete for Curb")

Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Koila G. 	10 July 2002		Mr. Inuma		Mr. Ando		
1								
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- LEGEND**
- Curb Stone (Type-1)
 - Curb Stone (Type-2)
 - Curb Stone (Type-3)
 - - - Fence
 - Gate

REV. NO.	DATE	DESCRIPTION	BY	APPROVED	DATE

JICA
 JAPAN INTERNATIONAL
 COOPERATION AGENCY
 (JICA)

CEPA
 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 : ROAD AND PAVEMENT
 SUB-SECTION : GENERAL
 TITLE : **LAYOUT OF CURB
 STONE AND FENCE**

DATE :	JULY/2002
SCALE :	1 : 3000
DRAWING NO. :	DW-PV-00-005

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -3)	Calc. Index No.	
Subject	EXCAVATION	Page No.	Rev.
$L = (308.38 + 137.25 + 14.38 + 148.00 + 14.14 + 148.25 + 14.14 + 14.14 + 166.25 + 101.49) \text{ m}$ $= 1065.42 \text{ m} \approx 1,100 \text{ m}$		References/Notes	
$A = \frac{(0.175 \text{ m})(0.35 \text{ m})(2)}{2} + (0.25 \text{ m})(0.35 \text{ m})$ $A = 0.06125 + 0.0875 \text{ m}^2$ $A = 0.14875 \text{ m}^2 \approx 0.15 \text{ m}^2$		$L = 1,100 \text{ m}$	
$V = (0.15 \text{ m}^2)(1,100 \text{ m})$ $V = 165 \text{ m}^3$		$V = 165 \text{ m}^3$	
Prepared by		Checked by	
Koda G.		10 July 2002	
		1 / 200	

QUANTITY CALCULATION COVER SHEET								
Project		Detailed Design on Port Reactivation Project in La Union Province			Project Code		JC1N004/2N001	
Work Section Title		CONCRETE CURB (TYPE -3)			Pay Item No. (BOQ)		2G-110202	
Quantity Item		CRUSHED STONE			Unit		m ³	
Calculation Procedure Applied								
<p>The crushed stone volume was computed using geometric formulas, multiplying the total length of curb to the thickness and width.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings: DW - PV - 03 - 005 Details of Curb Stone (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.	10 July 2002		Mr. Inuma		Mr. Ando		
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE -3)	Calc. Index No.	
Subject	CEMENT MORTAR	Page No.	Rev.
		References/ Notes	
$t = 100 \text{ mm}$			
$w = 250 \text{ mm}$			
$L = 1,100 \text{ m}$			
$V = (0.10 \text{ m})(0.25 \text{ m})(1,100 \text{ m})$			
$V = 27.50 \text{ m}^3$		$V = 27.50 \text{ m}^3$	
Prepared by		Checked by	
Kaila S.		10 July 2002	
		/ /200	

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -3)			Pay Item No. (BOQ)	2G-110203			
Quantity Item	CEMENT CONCRETE BASE			Unit	m ³			
Calculation Procedure Applied								
<p>Concrete curb volume was computed using geometric formulas. To obtain correct concrete volume, the height was multiplied to the thickness and width of the curb.</p>								
References, Calculation Base and Revisions								
<p>References Tender Drawings: DW - PV - 03 - 005 Details of Curb Stone (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G KLA	1 st July 2002		Mr. Inuma		Mr. Ando		
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Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE - 3)	Calc. Index No.	
Subject	CEMENT CONCRETE BASE	Page No.	
		Rev.	
		References/Notes	
$t = 80 \text{ mm}$			
$w = 250 \text{ mm}$			
$L = 1,100 \text{ m}$			
$V = (0.05 \text{ m})(0.25 \text{ m})(1,100 \text{ m})$			
$V = 13.75 \text{ m}^3 \approx 13.80 \text{ m}^3$			$V = 13.80 \text{ m}^3$
Prepared by		Checked by	
Katta G.		1° / July / 2002	
		/ / 200	

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -3)			Pay Item No. (BOQ)	2G-110204			
Quantity Item	BACKFILL			Unit	m			
Calculation Procedure Applied								
<p>Backfill was computed using geometric formulas. To obtain backfill volume, first the excavation volume was computed. Then, the volume of cement mortar, cement concrete base and concrete for curb were reduced.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings: DW-PV-03-005: Details of Curb Stone (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Karla G.	1 ^o July 2002		Mr. Tama		Mr. Ando		
1	Karla G.							
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3								

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE WEB	Calc. Index No.	
Subject	BACKFILL	Page No.	Rev.
$V = V_{cx} - V_{ocb} - V_{cm} - V_{ocd}$ $V = (165 - 27.50 - 13.75 - \frac{(59.40)(4)}{7}) m^3$ $V = 89.81 m^3 \approx 89.90 m^3$			References/ Notes
			$V = 89.90 m^3$
	Prepared by	Checked by	
	Koila G.	1 ^o / July / 2002	/ / 200

QUANTITY CALCULATION COVER SHEET								
Project	Detailed Design on Port Reactivation Project in La Union Province			Project Code	JC1N004/2N001			
Work Section Title	CONCRETE CURB (TYPE -3)			Pay Item No. (BOQ)	26-110205			
Quantity Item	COMPACTION			Unit	m ²			
Calculation Procedure Applied								
<p>The compaction area was computed using geometric formulas and multiplying the total length to the width.</p> <p>Area was rounded with two decimal in total.</p>								
References, Calculation Base and Revisions								
<p>References: Tender Drawings: 26-110205-05 Details of Curb Stone (Same as "Concrete for Curb")</p>								
Rev	Prepared		No. of Pages	Checked		Reviewed		Superseded by Calc No.
	by	Date		by	Date	by	Date	
0	Yonita G. A.	1 ^o July 2002		Mr. Inuma		Mr. Ando		
1								
2								
3								

Project	Detailed Design on Port Reactivation Project in La Union	Calc. File No.	
Section	CONCRETE CURB (TYPE - 3)	Calc. Index No.	
Subject	COMPACTION	Page No.	Rev.
$A = (1,100 \text{ m}) (0.35 \text{ m})$ $A = 385 \text{ m}^2$		References/Notes	
		$A = 385 \text{ m}^2$	
Prepared by		Checked by	
Kaika G.		10 July 2002	
		1 / 200	