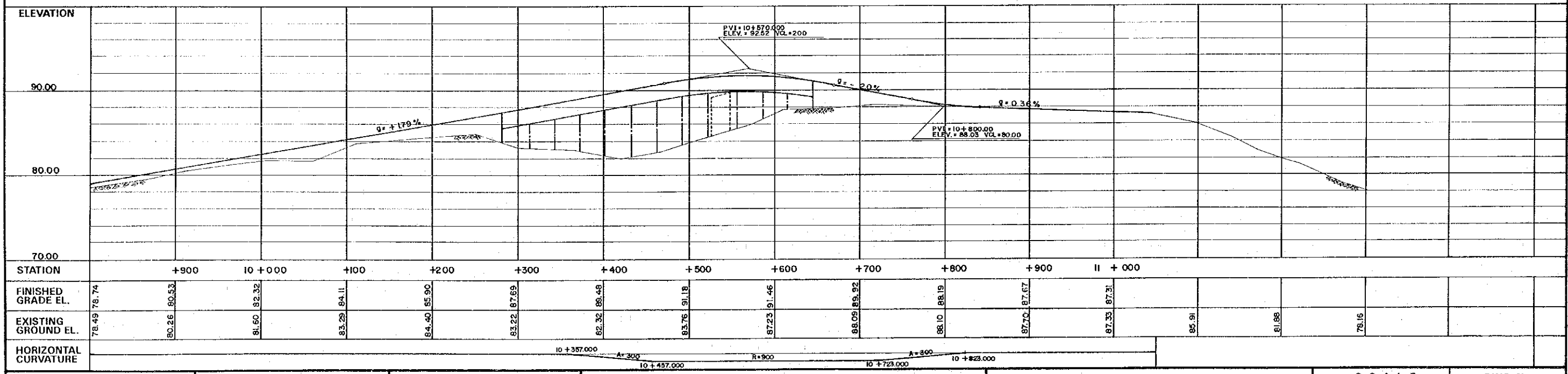
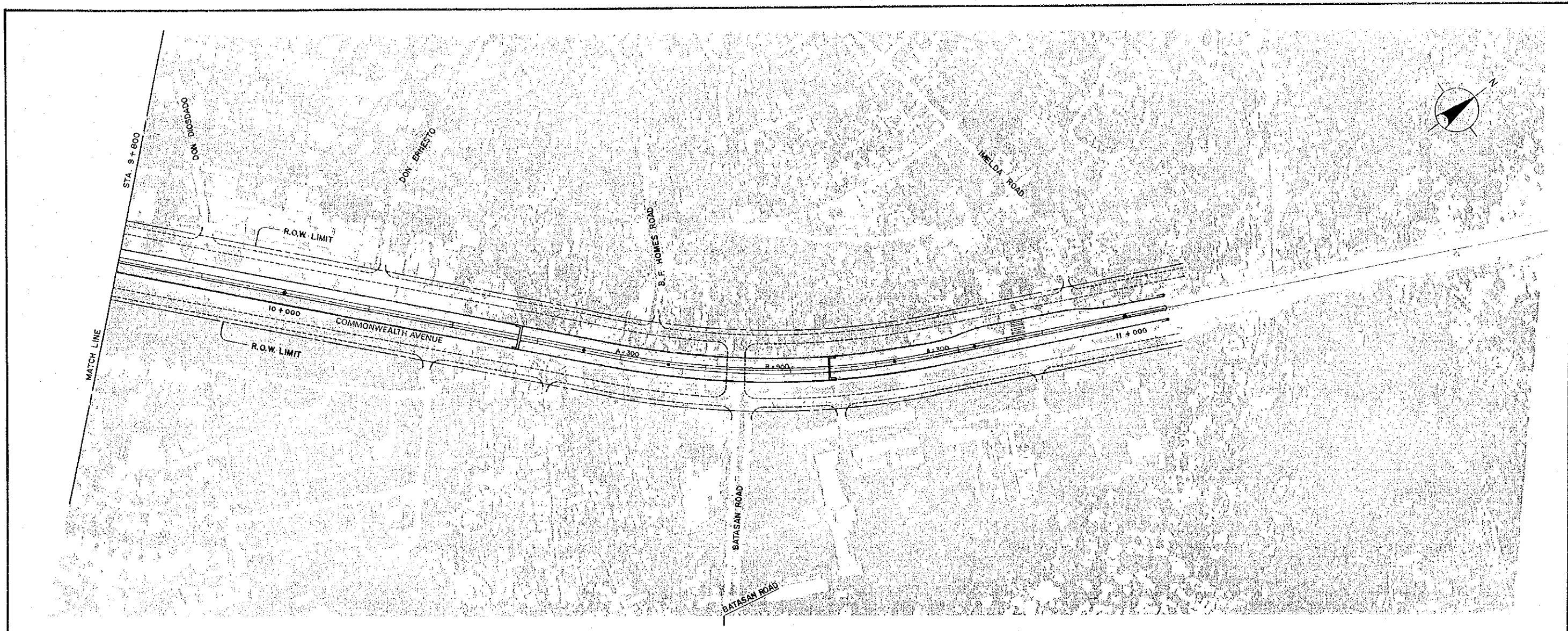


 KATAHIRA & ENGINEERS INTERNATIONAL	 JAPAN INTERNATIONAL COOPERATION AGENCY	 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Republic of the Philippines	FEASIBILITY STUDY ON METRO MANILA URBAN EXPRESSWAY SYSTEM	PLAN AND PROFILE ROUTE NAME STA. 8+100 - STA. 9+800 R - 7	SCALE	DWG. No.
					HORIZONTAL : 1 : 2,500 VERTICAL : 1 : 250	4-9



ELEVATION														
90.00														
80.00														
70.00														
STATION	+900	10+000	+100	+200	+300	+400	+500	+600	+700	+800	+900	11+000		
FINISHED GRADE EL.	78.49	80.53	82.32	84.11	85.90	87.69	89.48	91.18	92.97	94.76	96.55	98.34	100.13	101.92
EXISTING GROUND EL.	78.49	80.26	81.60	82.32	83.29	84.40	85.48	86.48	87.23	88.05	88.92	89.81	90.71	91.61
HORIZONTAL CURVATURE	<p>10+357.000 A=300 R=900 10+457.000 A=300 10+723.000 A=300 10+823.000</p>													

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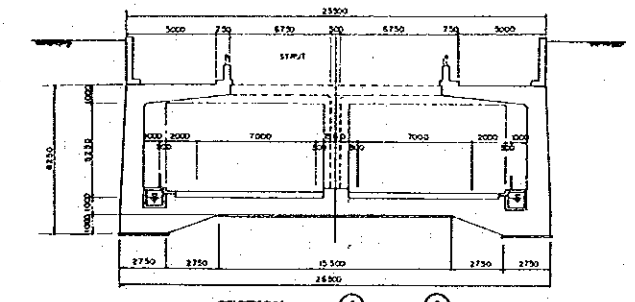
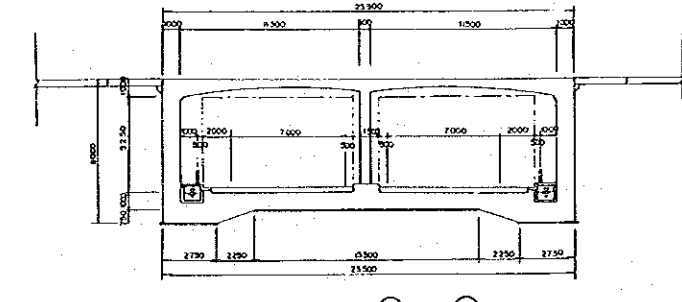
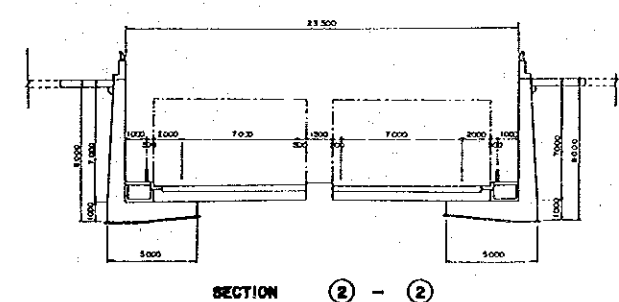
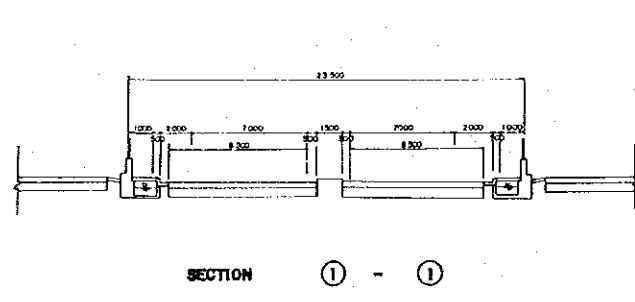
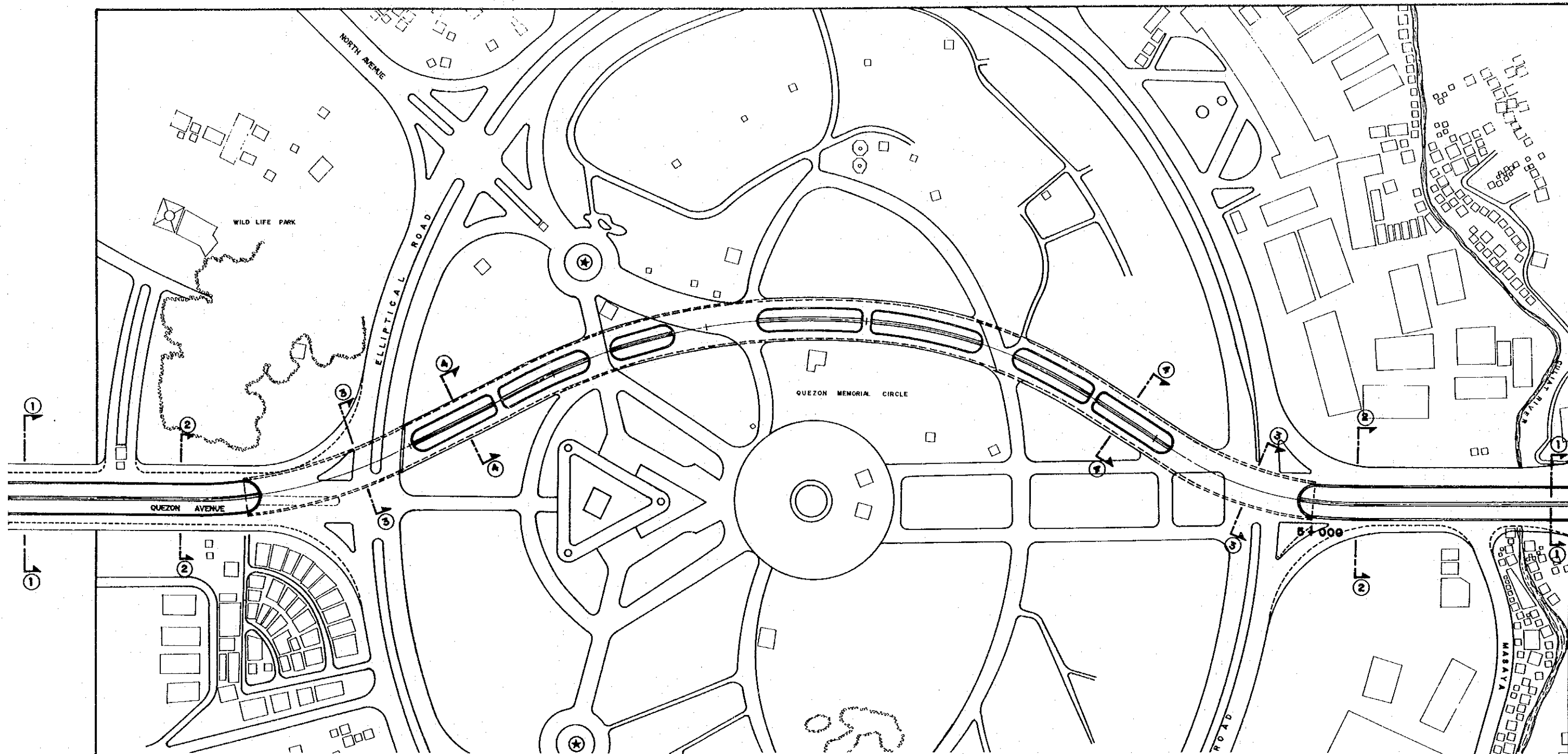
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**FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM**

PLAN AND PROFILE
ROUTE NAME STA. 9+800 - STA. 11+050
R - 7

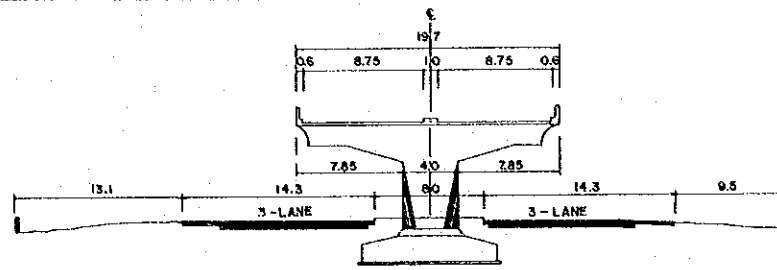
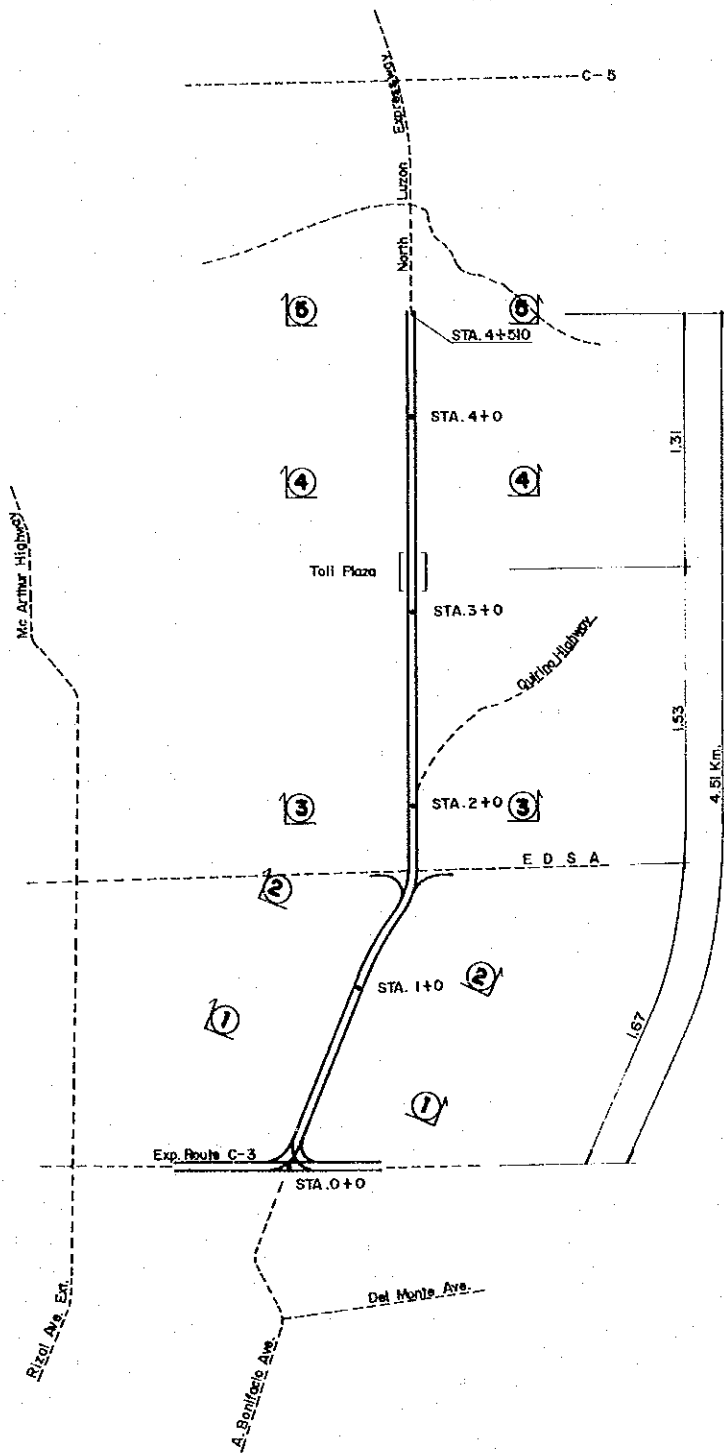
SCALE
HORIZONTAL : 1 : 2,500
VERTICAL : 1 : 250

DWG. No.
4-10

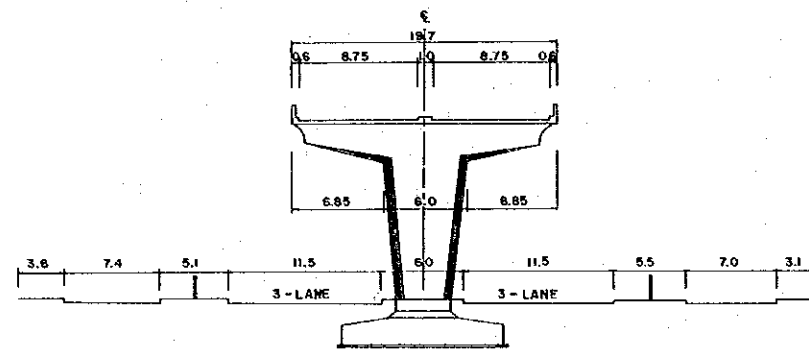
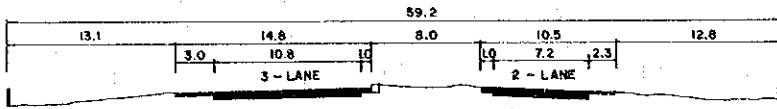


 KATAHIRA & ENGINEERS INTERNATIONAL	 JAPAN INTERNATIONAL COOPERATION AGENCY	 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Republic of the Philippines	FEASIBILITY STUDY ON METRO MANILA URBAN EXPRESSWAY SYSTEM	R-7 QUEZON MEMORIAL CIRCLE	SCALE 1 : 1,250	DWG. No. 4-11
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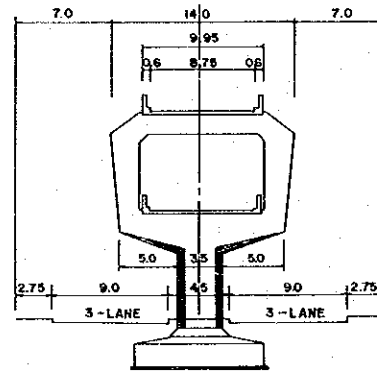
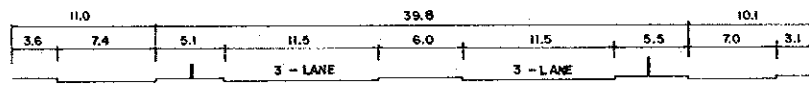
VICINITY MAP
SCALE 1 : 20,000



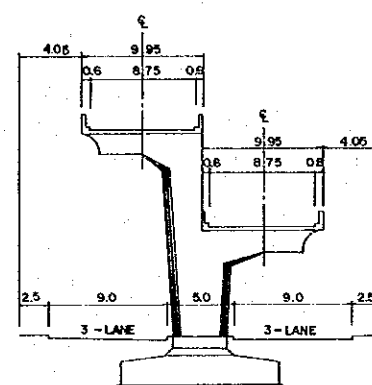
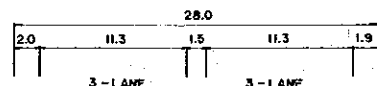
④ - ④ SECTION



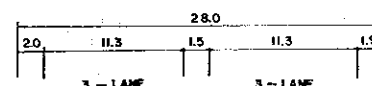
③ - ③ SECTION



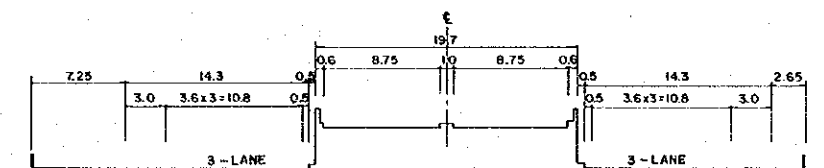
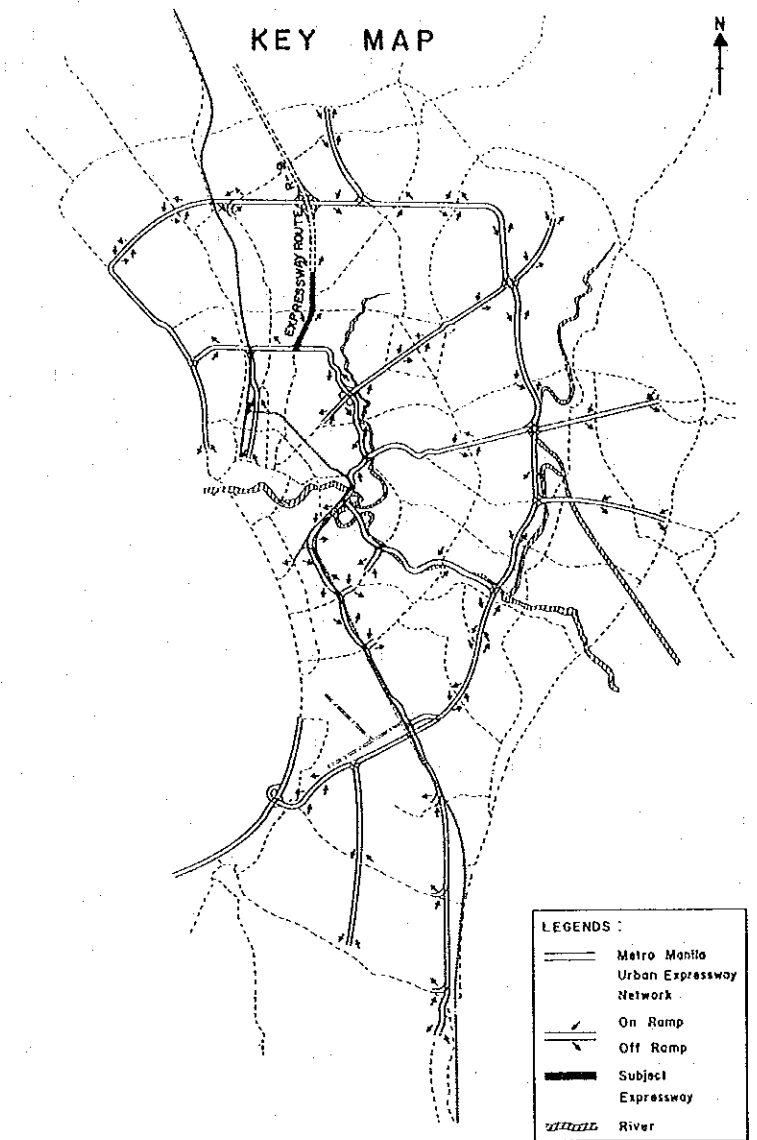
① - ① SECTION



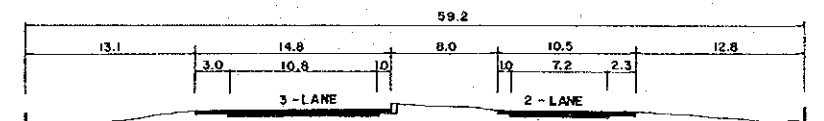
② - ② SECTION

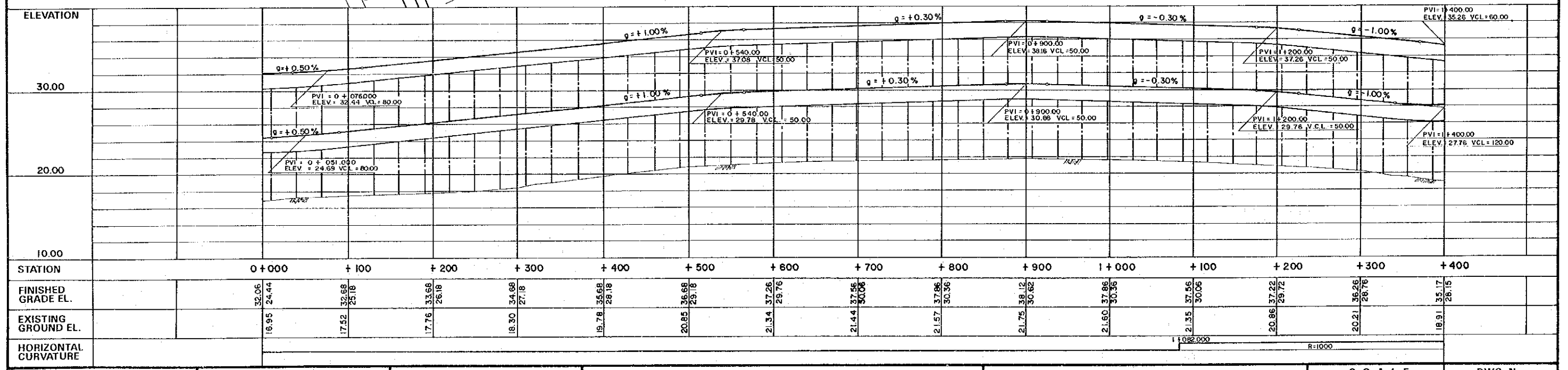
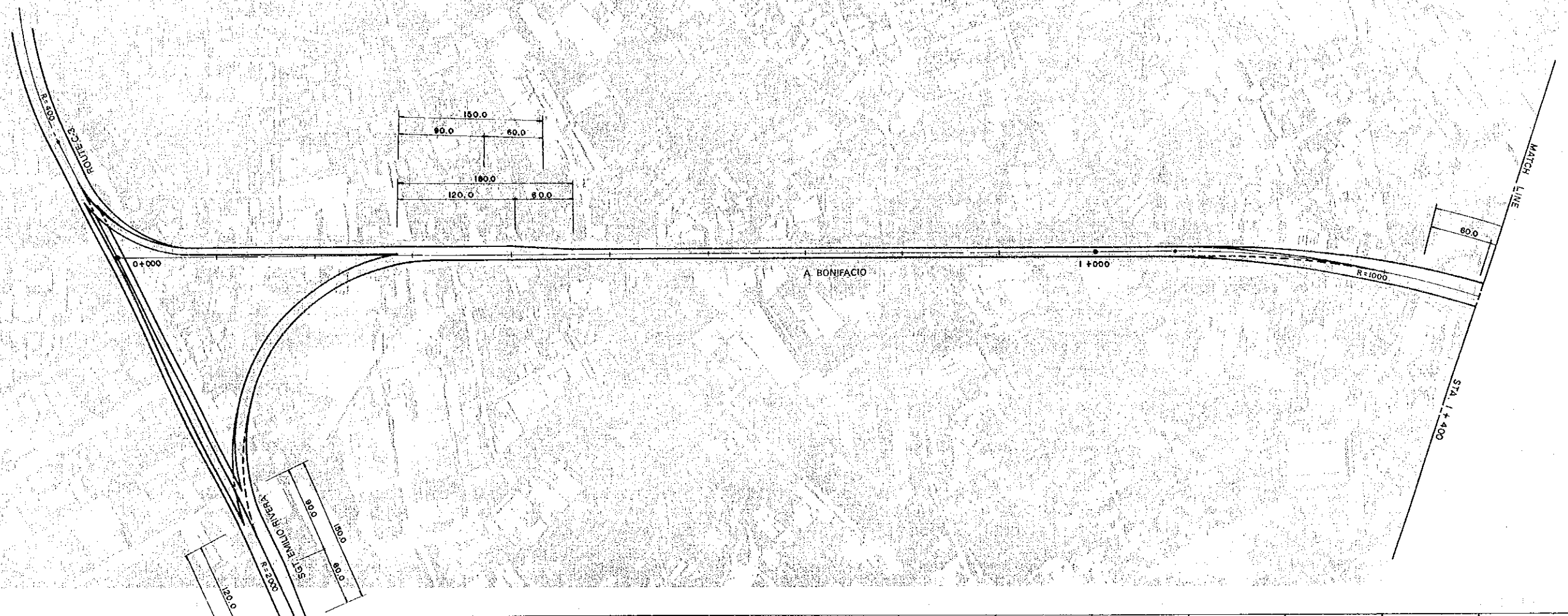


KEY MAP



⑤ - ⑤ SECTION





ELEVATION																				
30.00																				
20.00																				
10.00																				
STATION	0+000	+100	+200	+300	+400	+500	+600	+700	+800	+900	1+000	+100	+200	+300	+400					
FINISHED GRADE EL.	32.06	24.44	32.68	26.18	34.68	27.18	35.68	28.18	36.68	29.18	37.26	29.76	37.56	30.06	37.22	29.72	36.25	26.76	35.17	28.15
EXISTING GROUND EL.	16.95	17.52	17.76	18.30	19.78	20.85	21.34	21.44	21.57	21.75	21.60	21.35	20.86	20.21	18.91					
HORIZONTAL CURVATURE	R=1000																			

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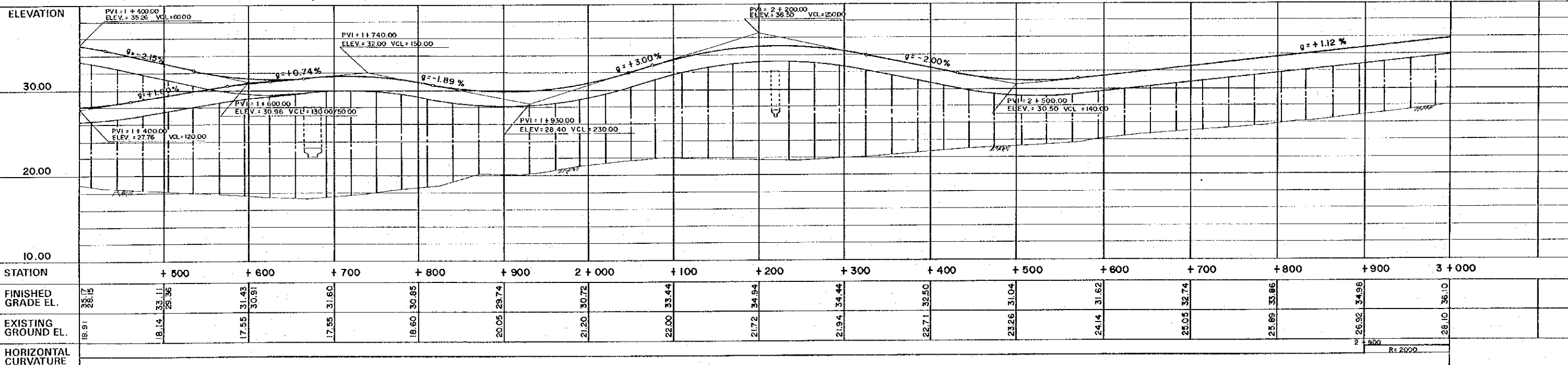
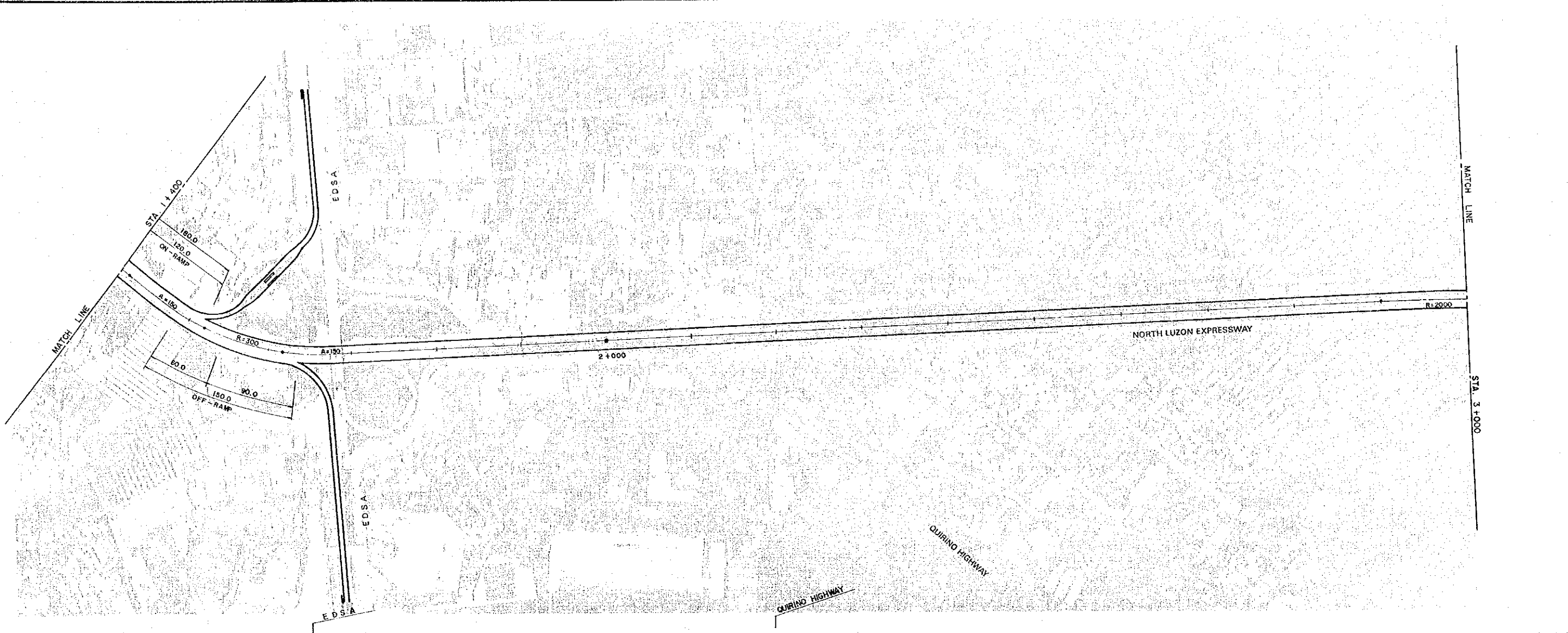
DEPARTMENT OF PUBLIC
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Republic of the Philippines

**FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM**

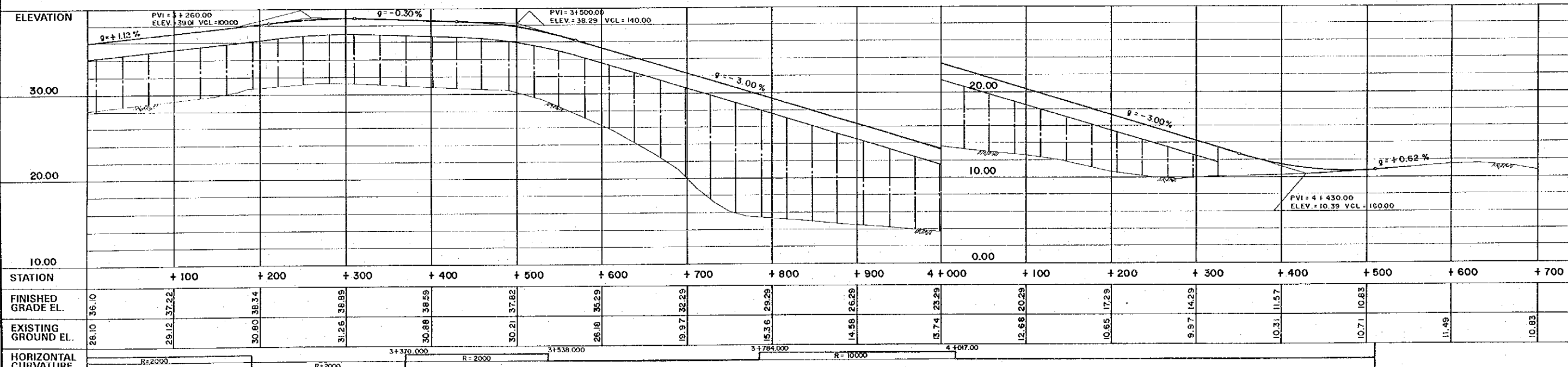
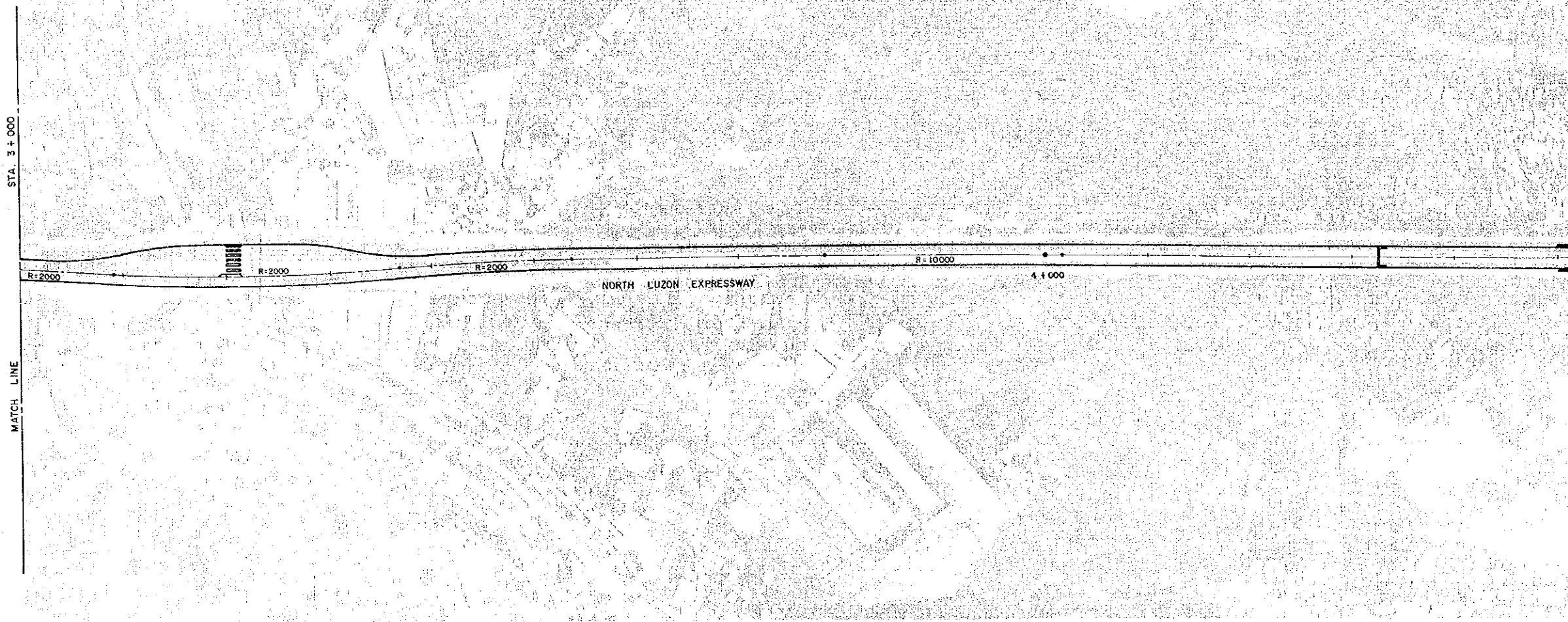
PLAN AND PROFILE
ROUTE NAME STA. 0+000 - STA. 1+400
R-9

SCALE
HORIZONTAL : 1 : 2,500
VERTICAL : 1 : 250

DWG. No.
5 - 2

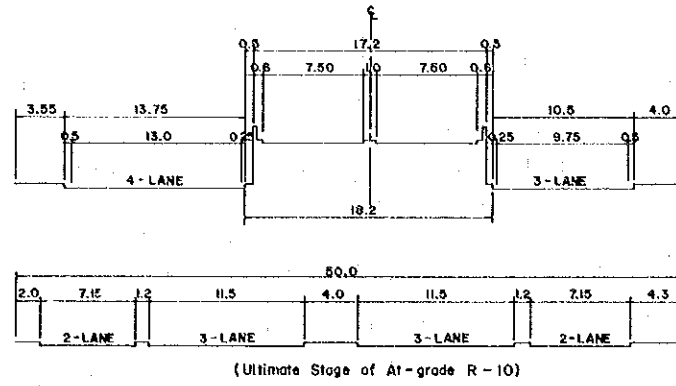
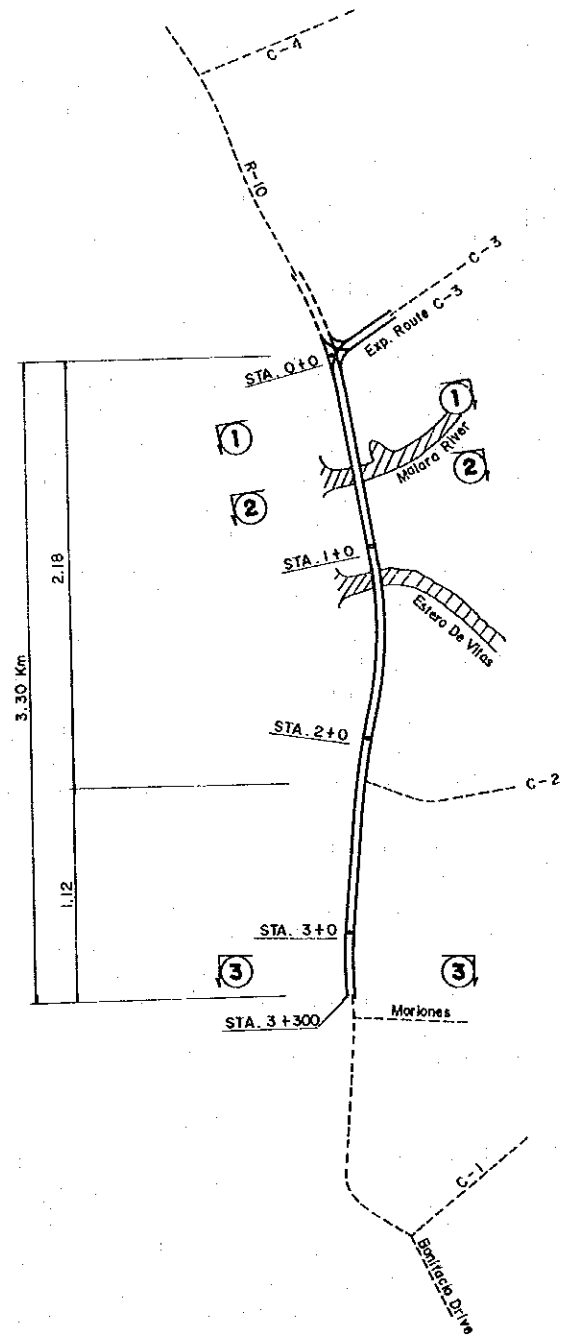


 KATAHIRA & ENGINEERS INTERNATIONAL	 JAPAN INTERNATIONAL COOPERATION AGENCY	 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Republic of the Philippines	FEASIBILITY STUDY ON METRO MANILA URBAN EXPRESSWAY SYSTEM	PLAN AND PROFILE ROUTE NAME STA. 1+400 - 3+000 R - 9	SCALE	DWG. No. 5 - 3
					HORIZONTAL : 1 : 2,500 VERTICAL : 1 : 250	

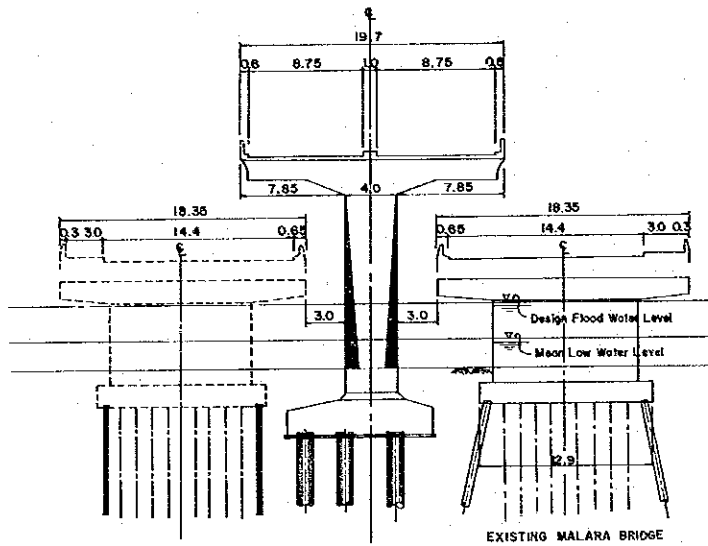


 KATAHIRA & ENGINEERS INTERNATIONAL	 JAPAN INTERNATIONAL COOPERATION AGENCY	 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Republic of the Philippines	FEASIBILITY STUDY ON METRO MANILA URBAN EXPRESSWAY SYSTEM	PLAN AND PROFILE ROUTE NAME STA. 3+000 - 4+510 R-9	SCALE	DWG. No.
					HORIZONTAL : 1 : 2,500 VERTICAL : 1 : 250	5 - 4

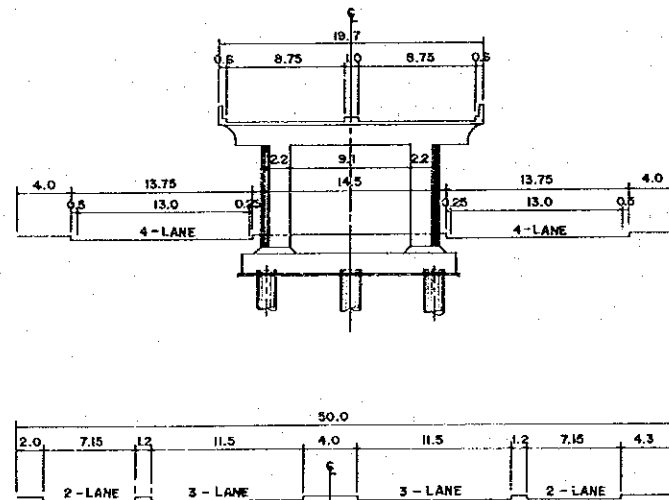
VICINITY MAP
SCALE 1 : 20,000



③ - ③ SECTION

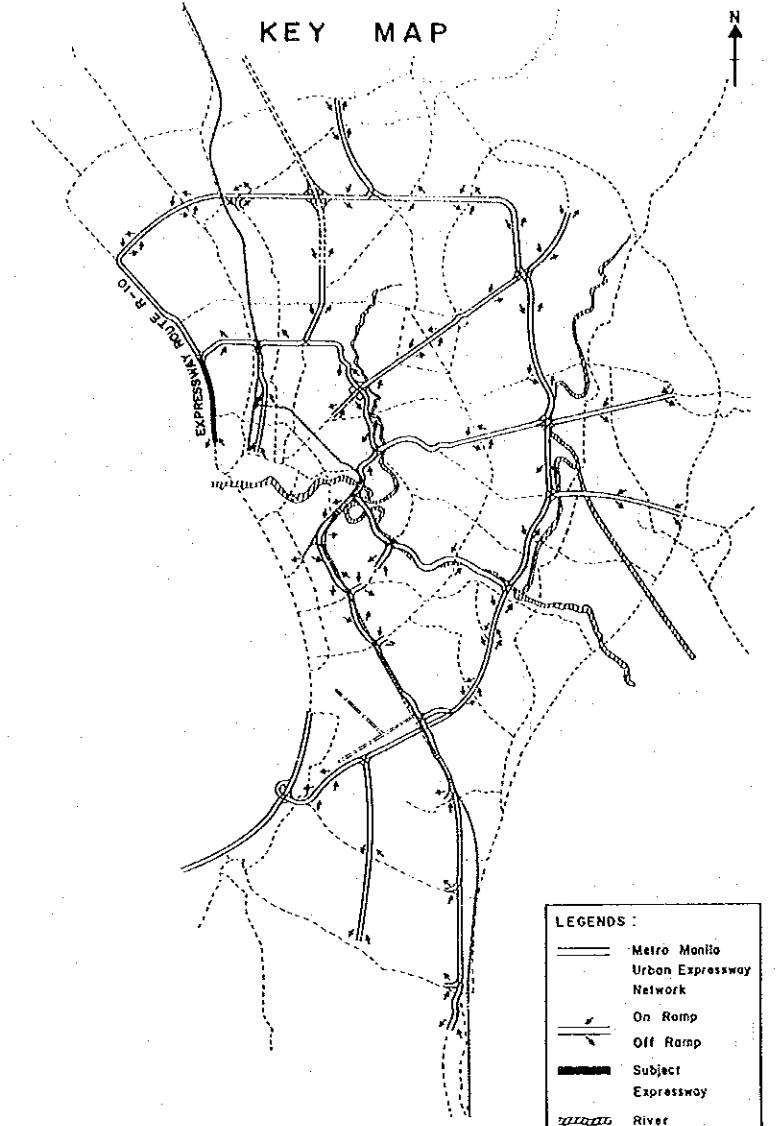


② - ② SECTION



① - ① SECTION

KEY MAP



- LEGENDS:
- Metro Manila Urban Expressway Network
 - On Ramp
 - Off Ramp
 - Subject Expressway
 - River



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FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM

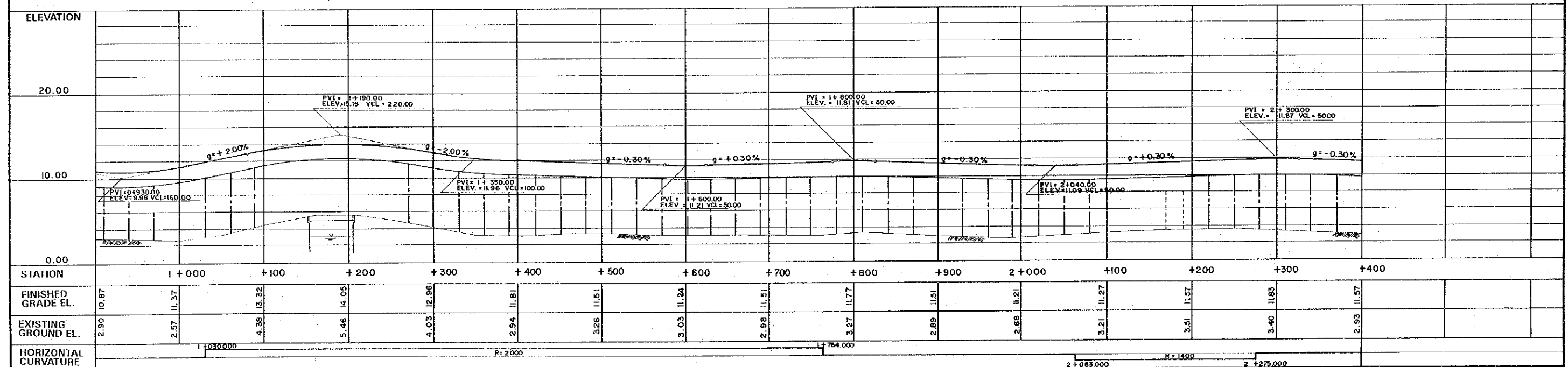
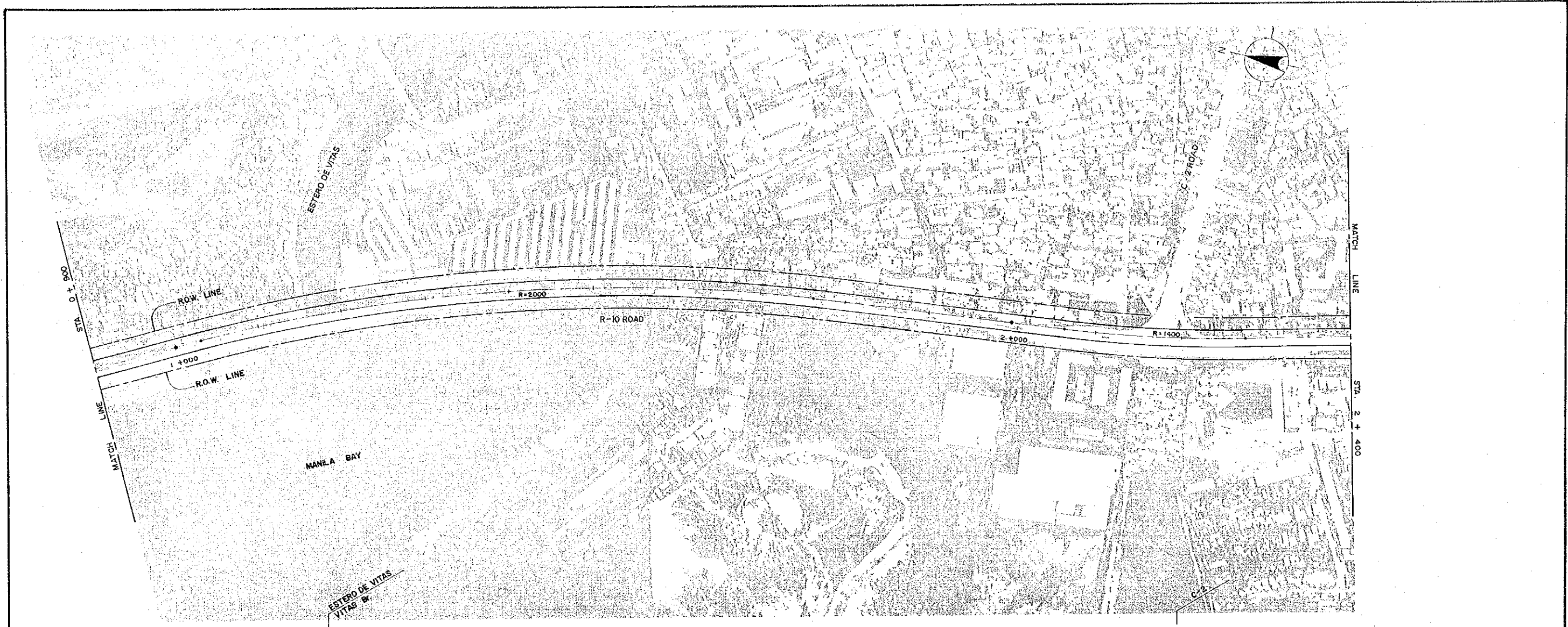
EXPRESSWAY ROUTE R-10
TYPICAL CROSS SECTION

SCALE

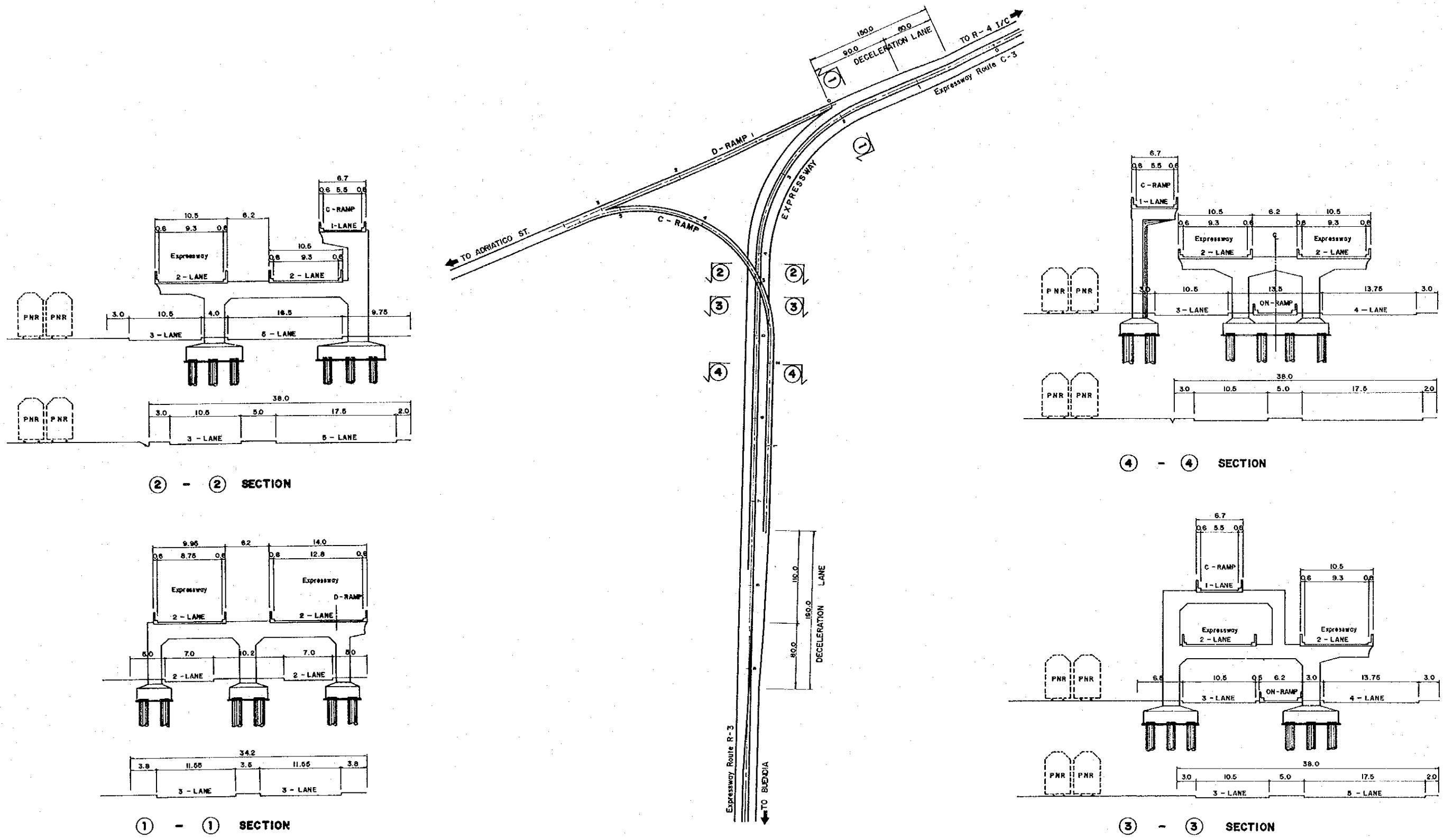
1 : 300

DWG. No.

6 - 1




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					HORIZONTAL : 1 : 2,500 VERTICAL : 1 : 250	6 - 3



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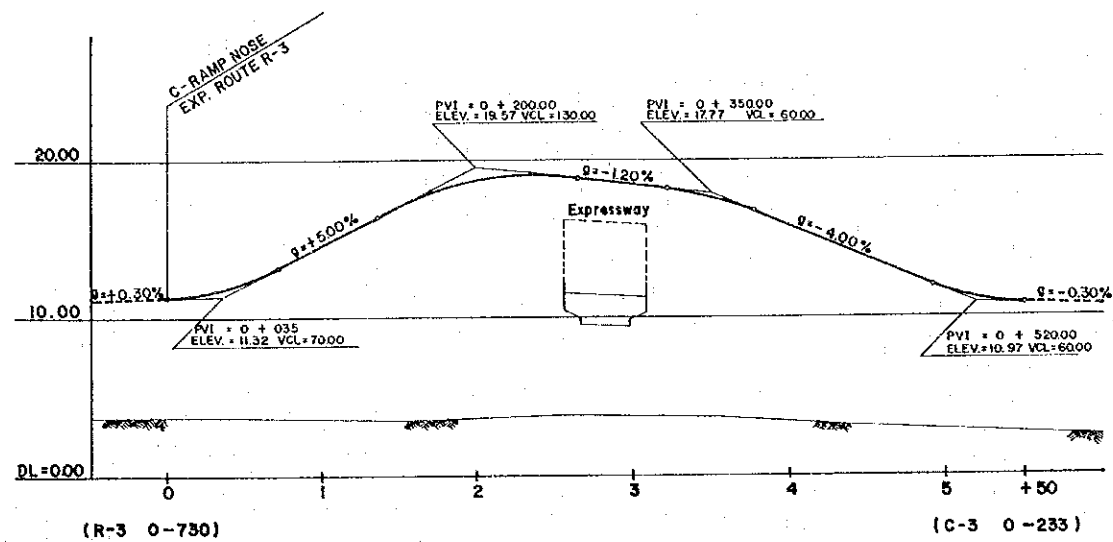

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**FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM**

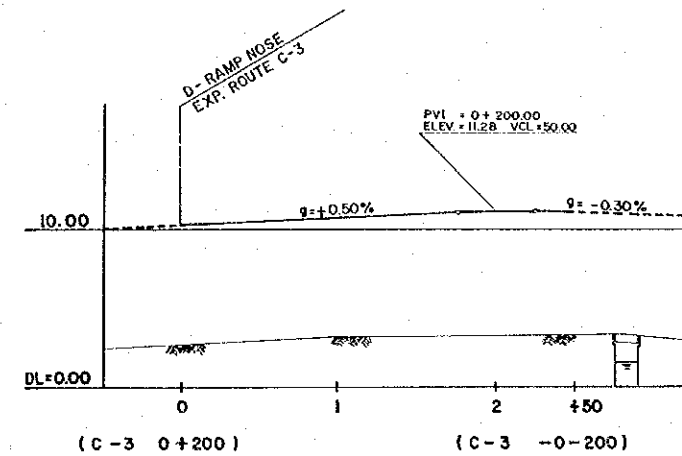
**C-3/R-3 INTERCHANGE
PLAN AND CROSS SECTION**

SCALE
1: 2,500
1: 300

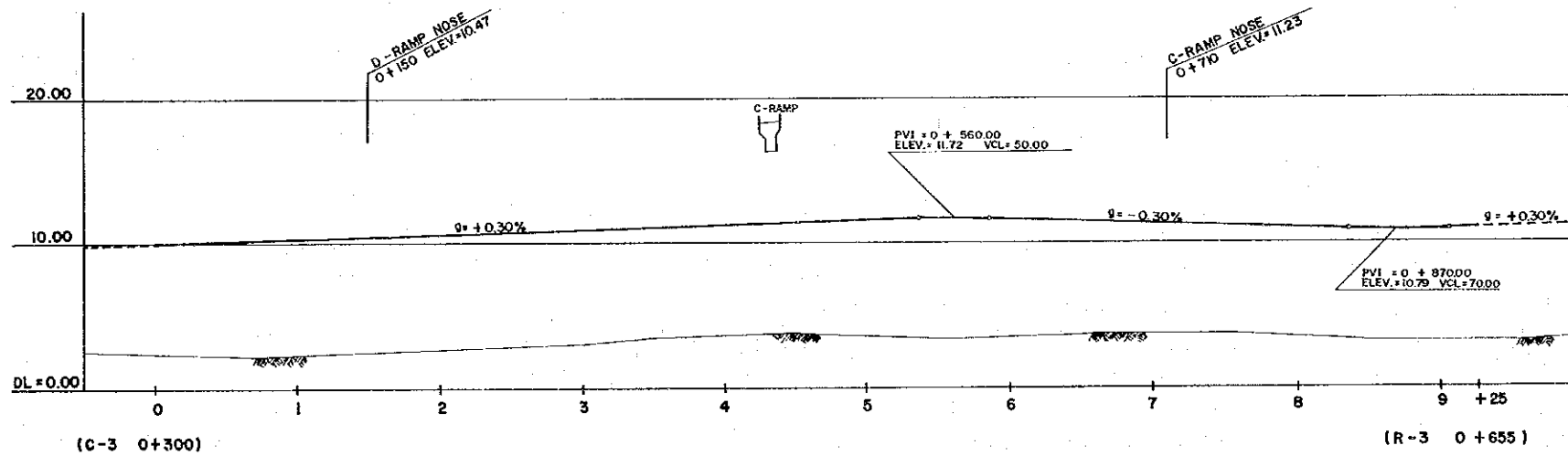
DWG. No.
7 - 1



C - RAMP



D - RAMP



EXPRESSWAY



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FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM

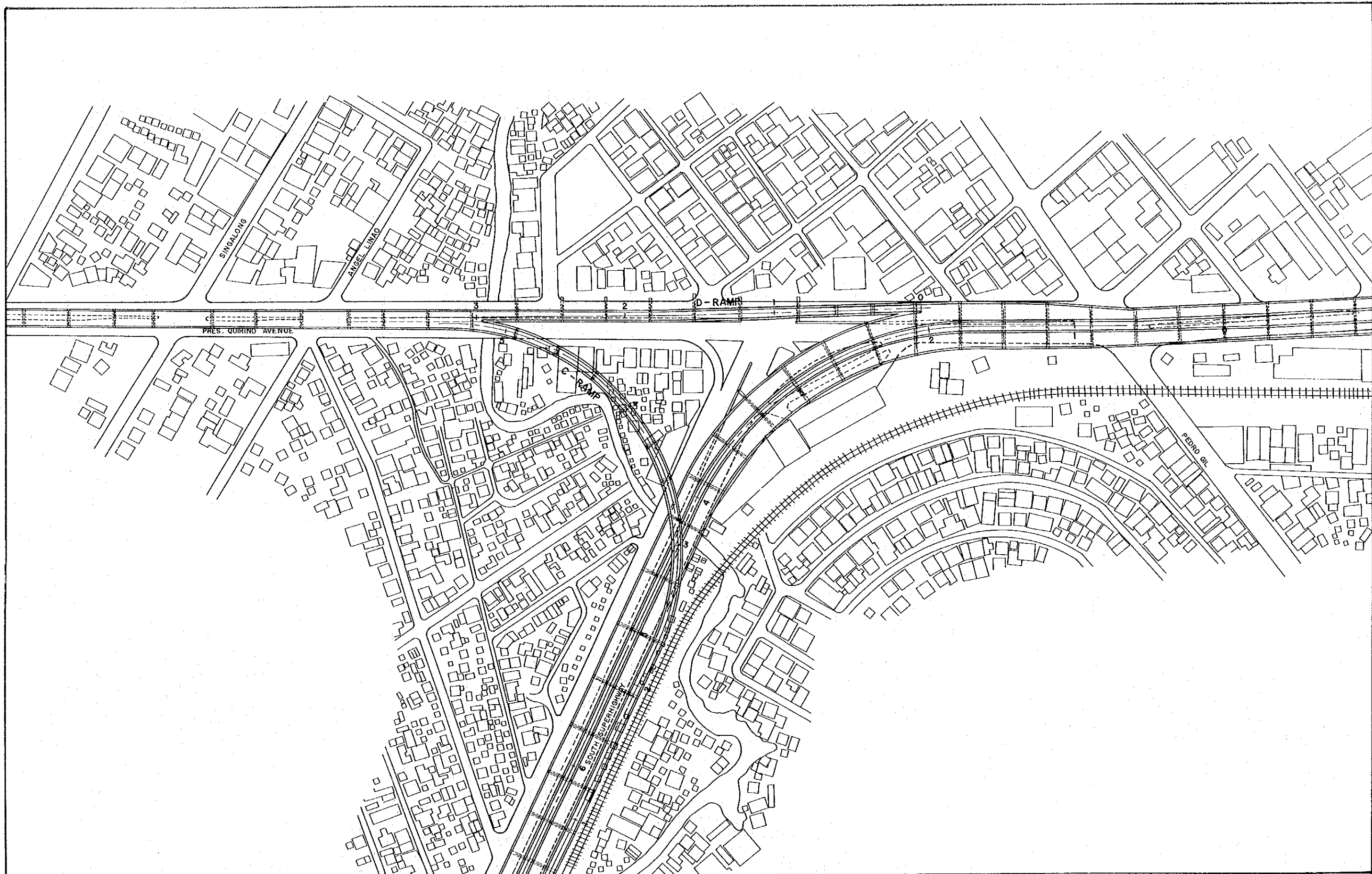
C-3/R-3 INTERCHANGE
PROFILE

SCALE

HORIZONTAL : 1 : 2,500
VERTICAL : 1 : 500

DWG. No.

7 - 2



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FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM

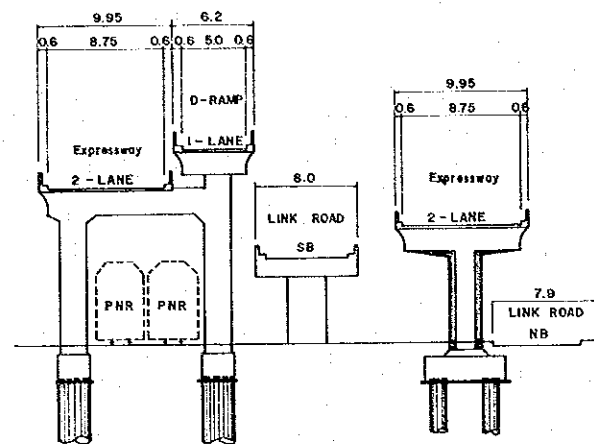
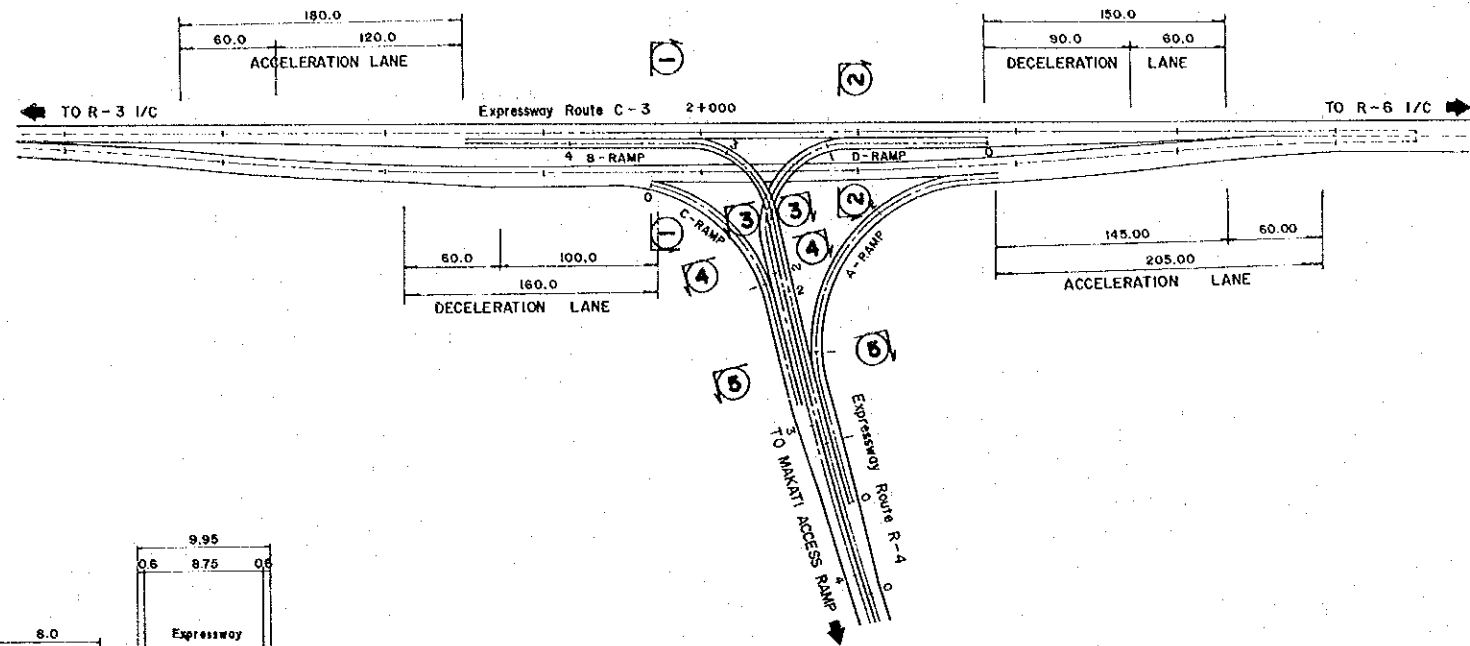
C-3 / R-3 INTERCHANGE

SCALE

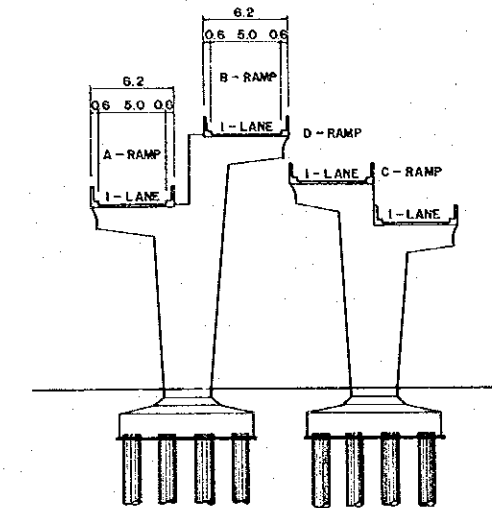
1 : 1,250

DWG. No.

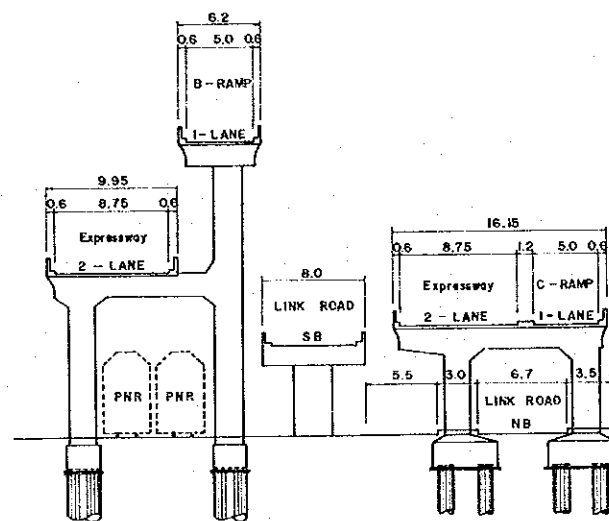
7 - 3



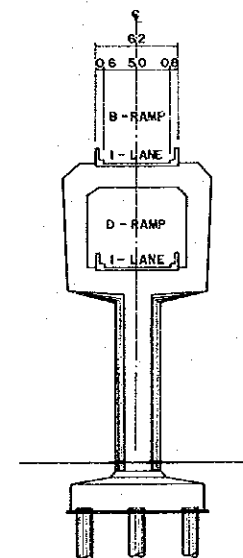
② - ② SECTION



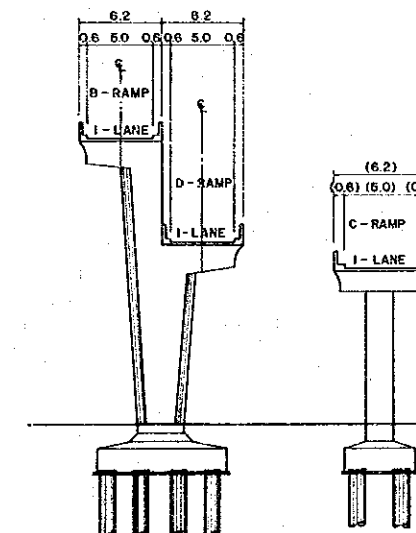
⑤ - ⑤ SECTION



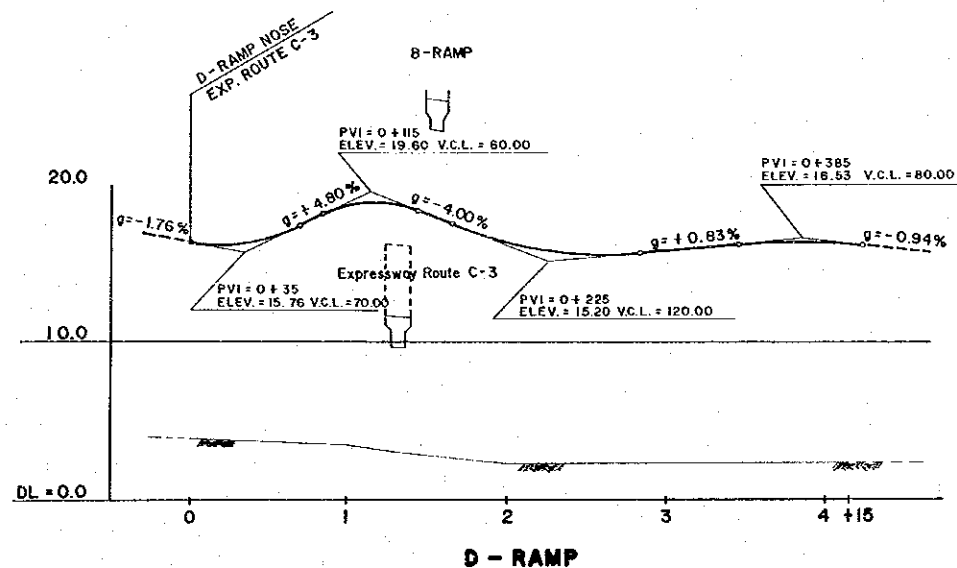
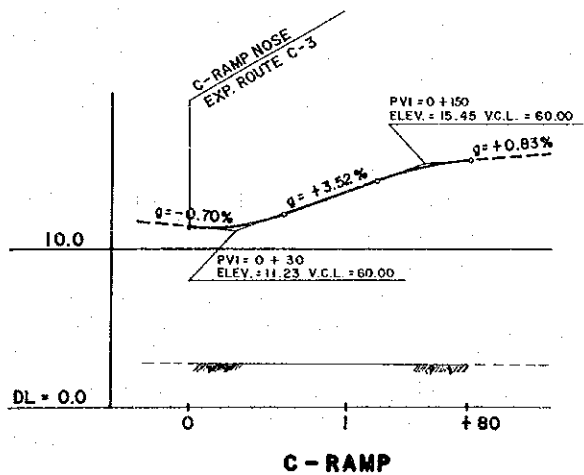
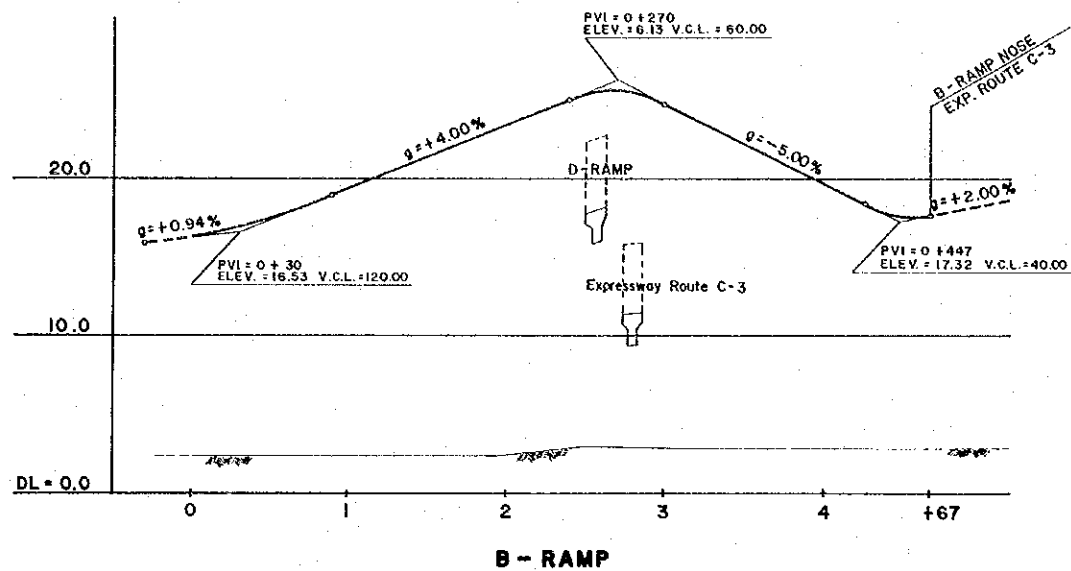
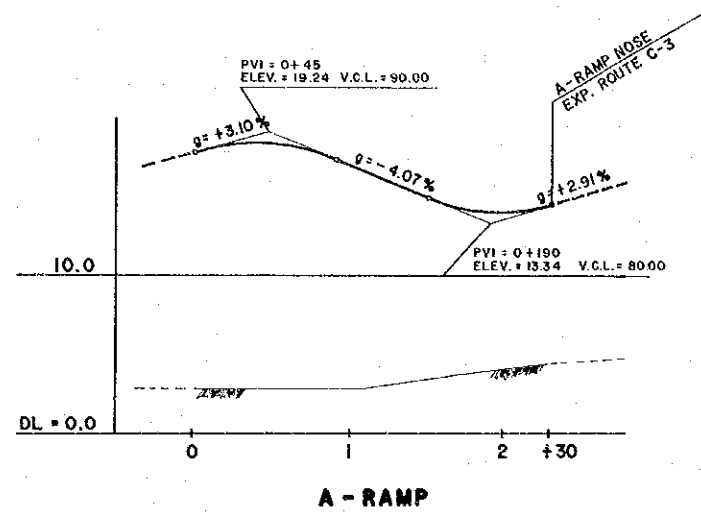
① - ① SECTION

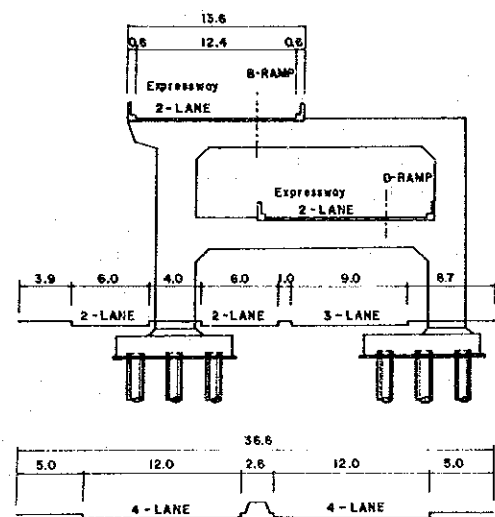
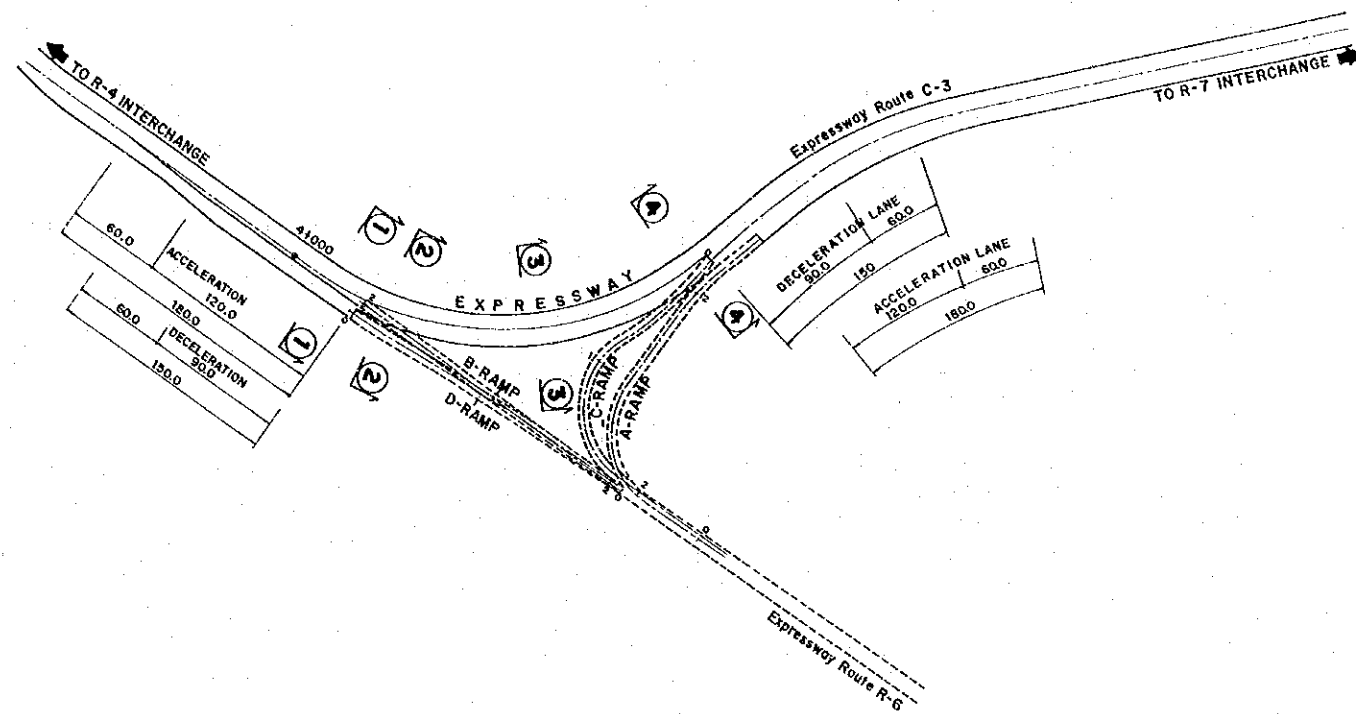


③ - ③ SECTION

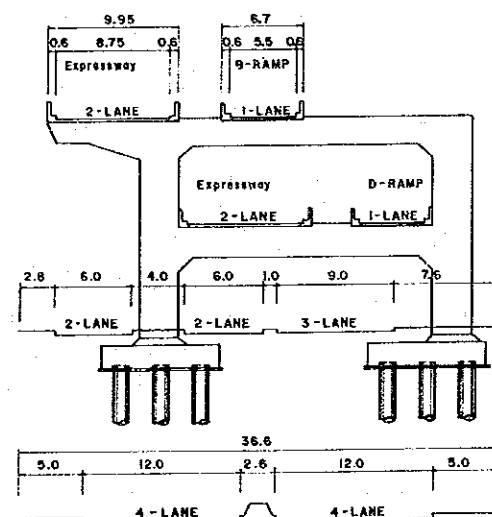


④ - ④ SECTION

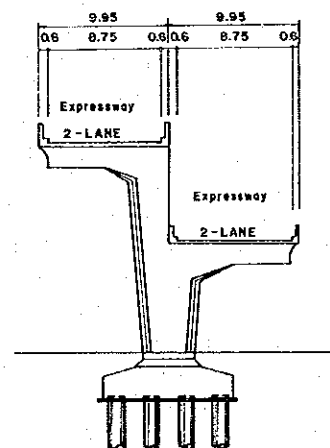




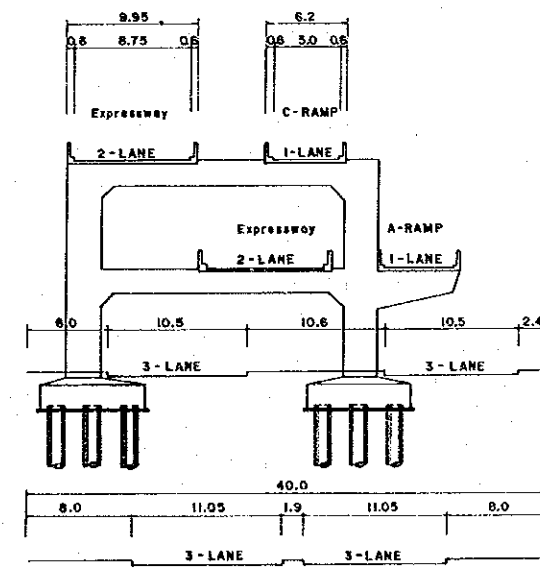
① - ① SECTION



② - ② SECTION



③ - ③ SECTION



④ - ④ SECTION



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FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM

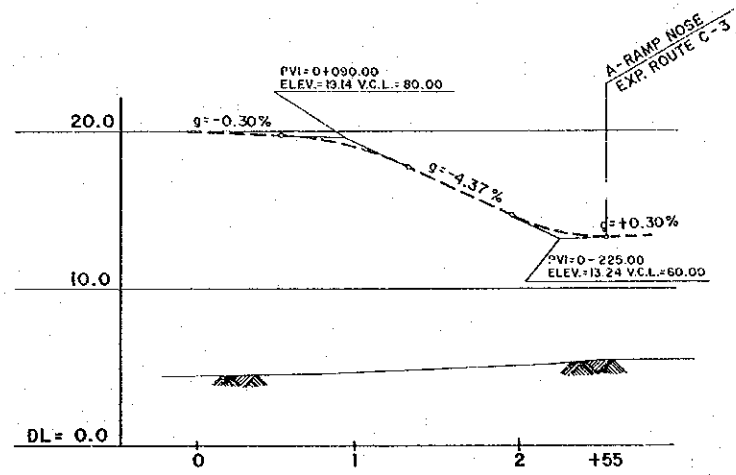
C-3/R-6 INTERCHANGE
PLAN AND CROSS SECTION

SCALE

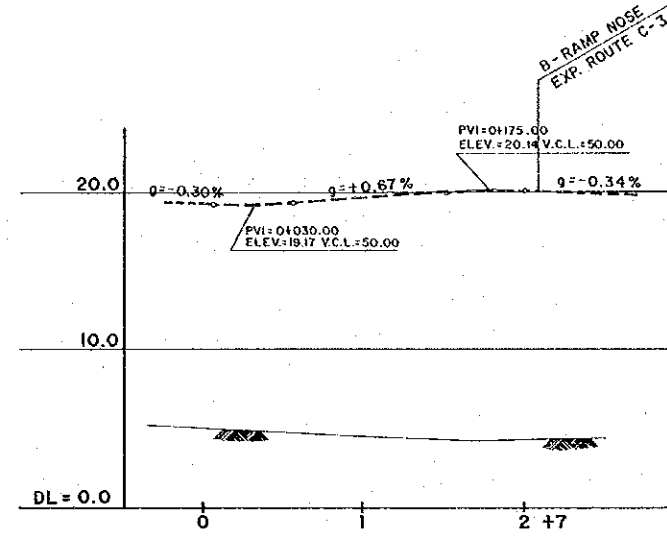
1: 2,500
1: 300

DWG. No.

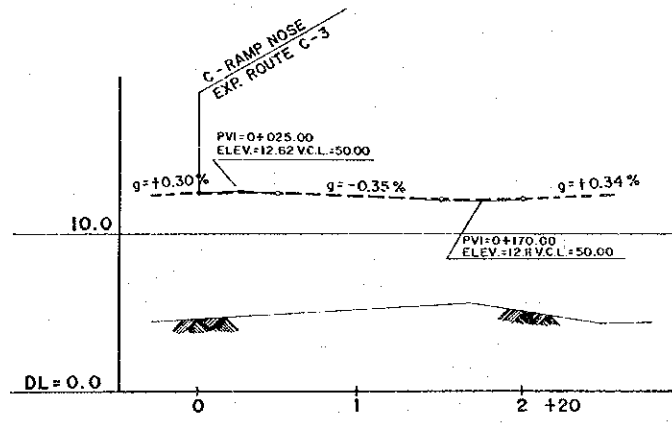
7-6



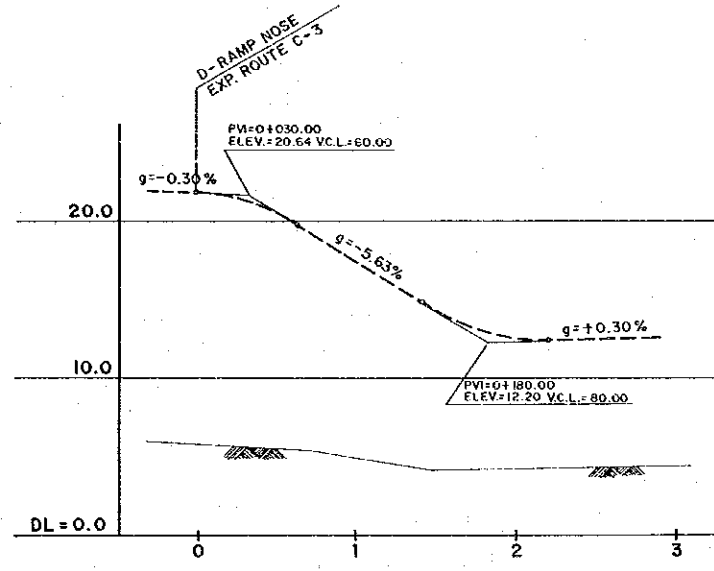
A - RAMP






B - RAMP

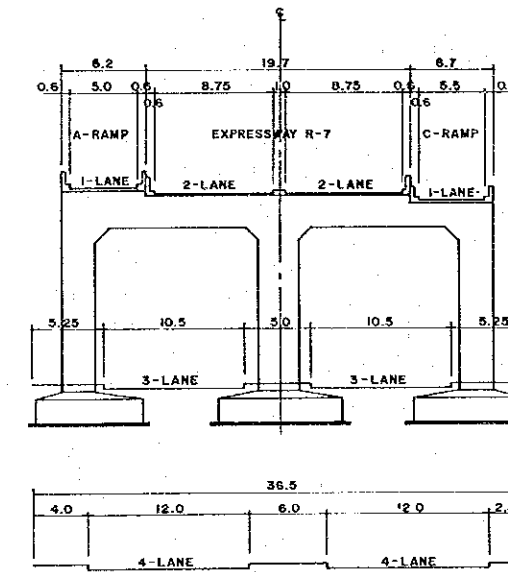
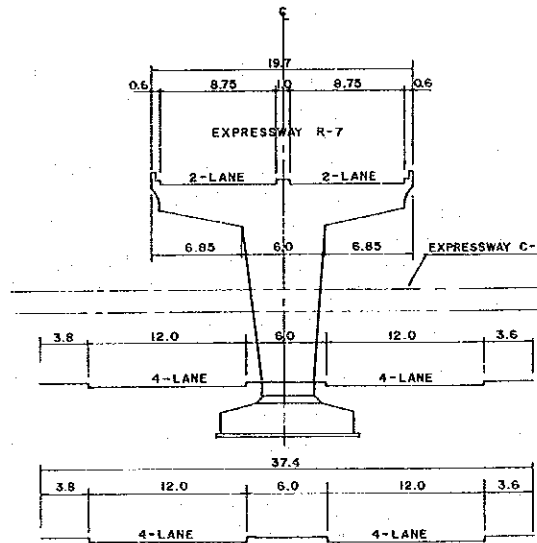
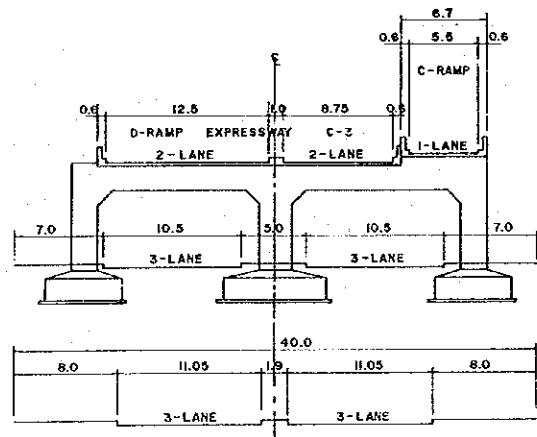
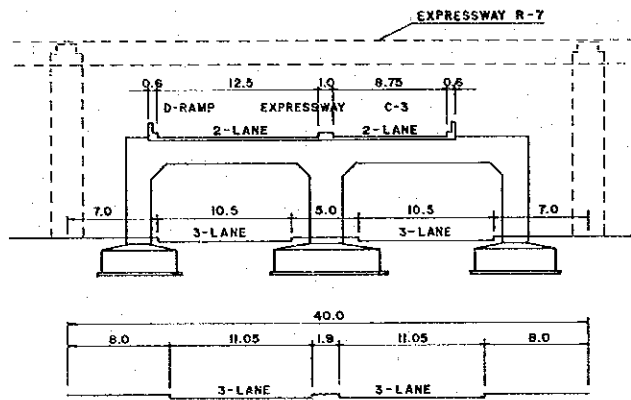
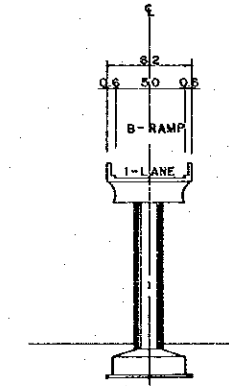
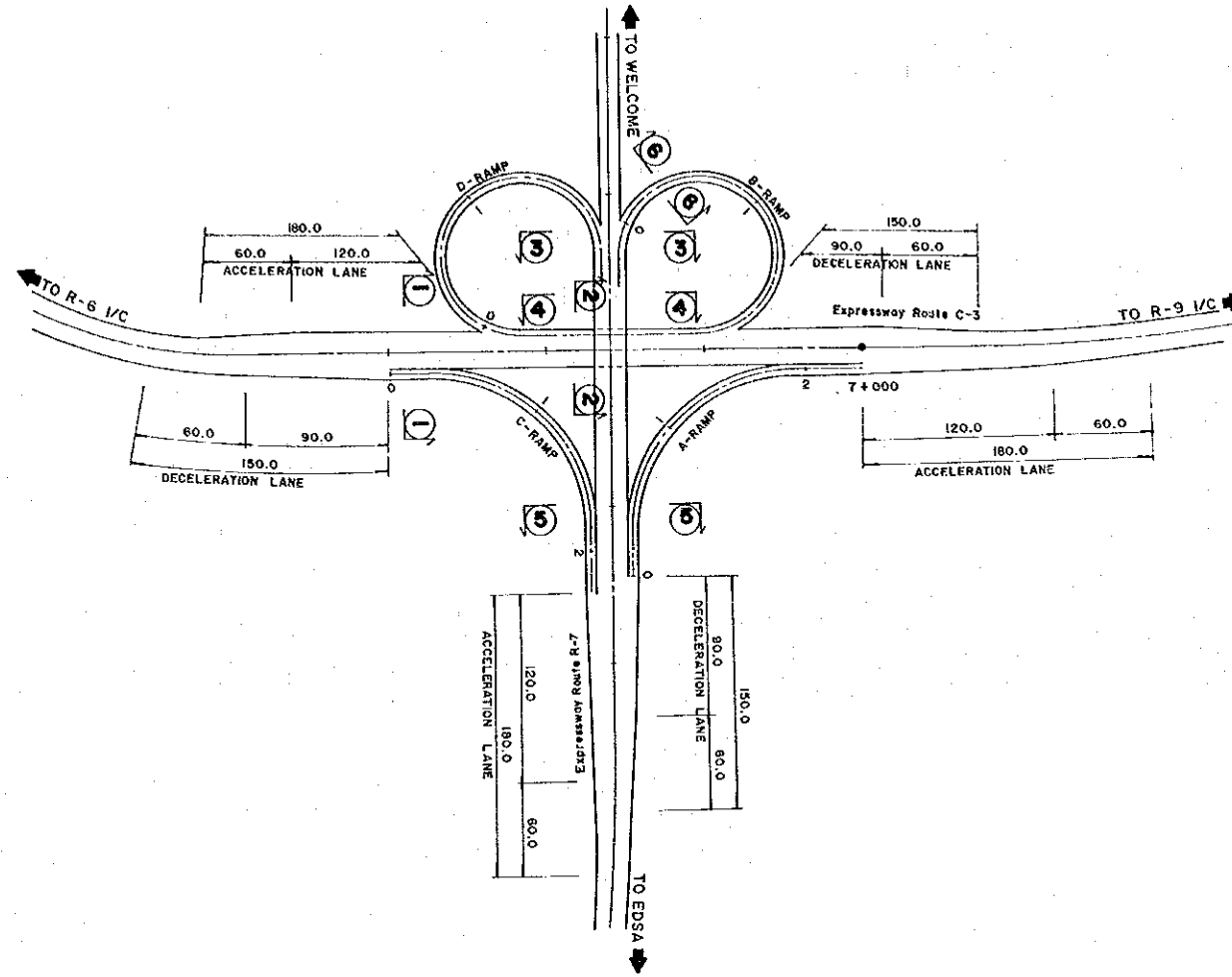
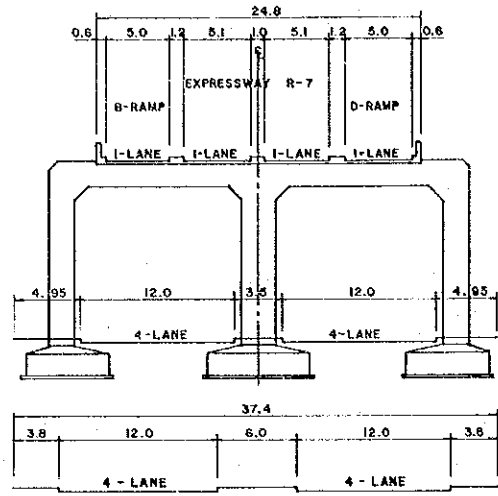


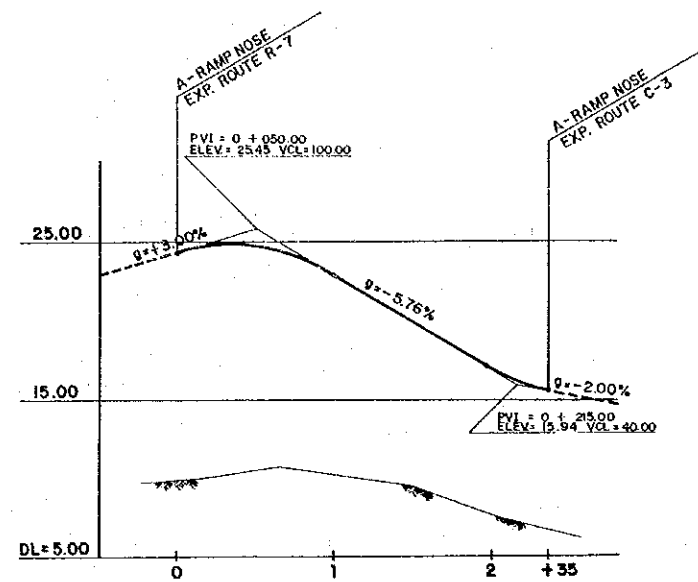
C - RAMP



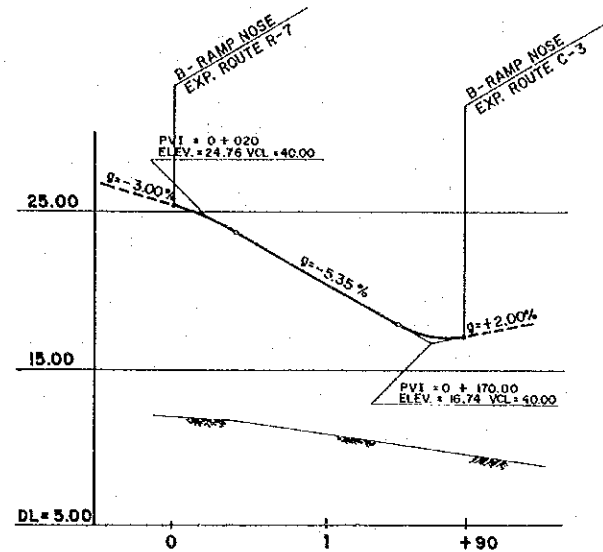
D - RAMP

 KATAHIRA & ENGINEERS INTERNATIONAL	 JAPAN INTERNATIONAL COOPERATION AGENCY	 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Republic of the Philippines	FEASIBILITY STUDY ON METRO MANILA URBAN EXPRESSWAY SYSTEM	C-3/R-6 INTERCHANGE PROFILE	S C A L E		DWG. No.
					HORIZONTAL : 1:2,500 VERTICAL : 1: 500	7-7	

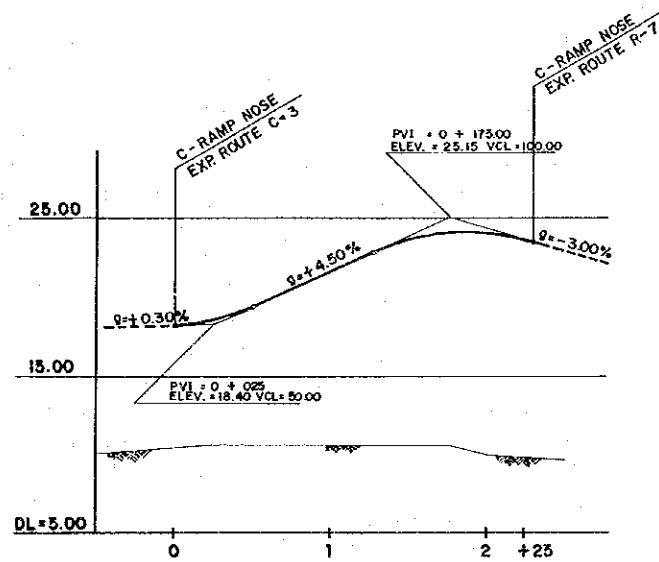




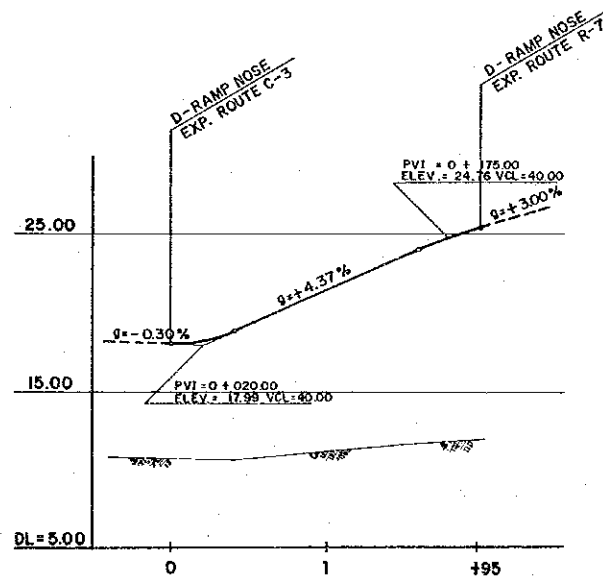
A - RAMP



B - RAMP



C - RAMP



D - RAMP



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DEPARTMENT OF PUBLIC
WORKS AND HIGHWAYS
Republic of the Philippines

FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM

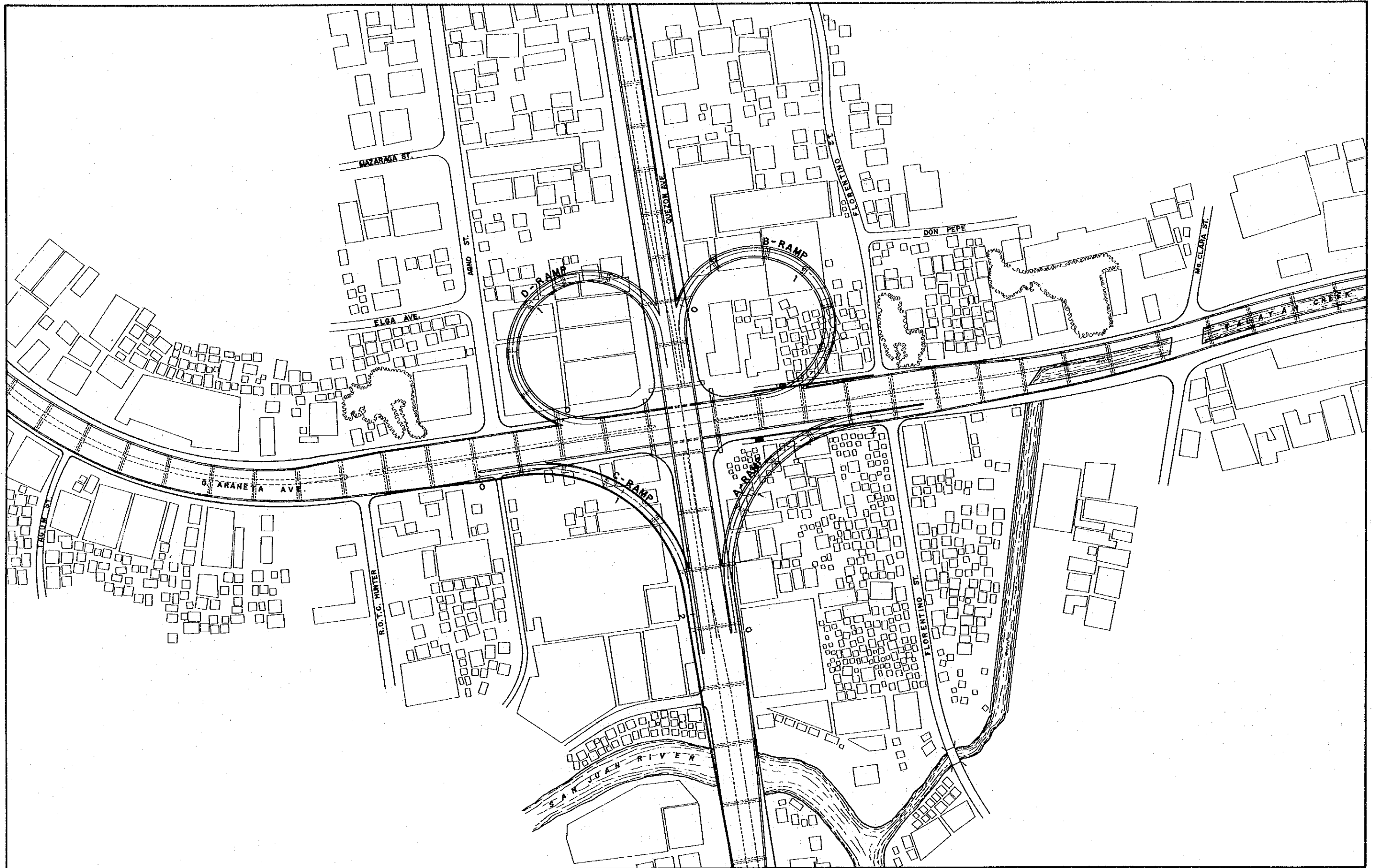
C-3/R-7 INTERCHANGE
PROFILE

SCALE

HORIZONTAL : 1 : 2,500
VERTICAL : 1 : 500


DWG. No.

7 - 9




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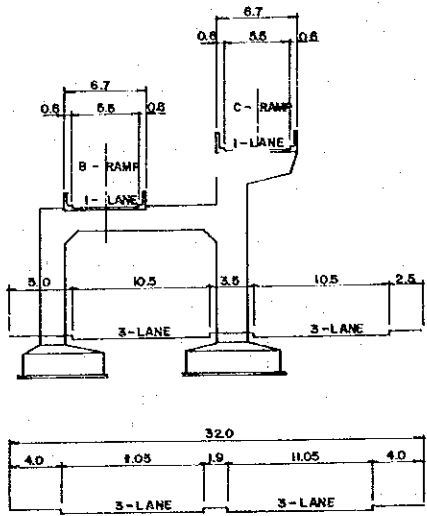
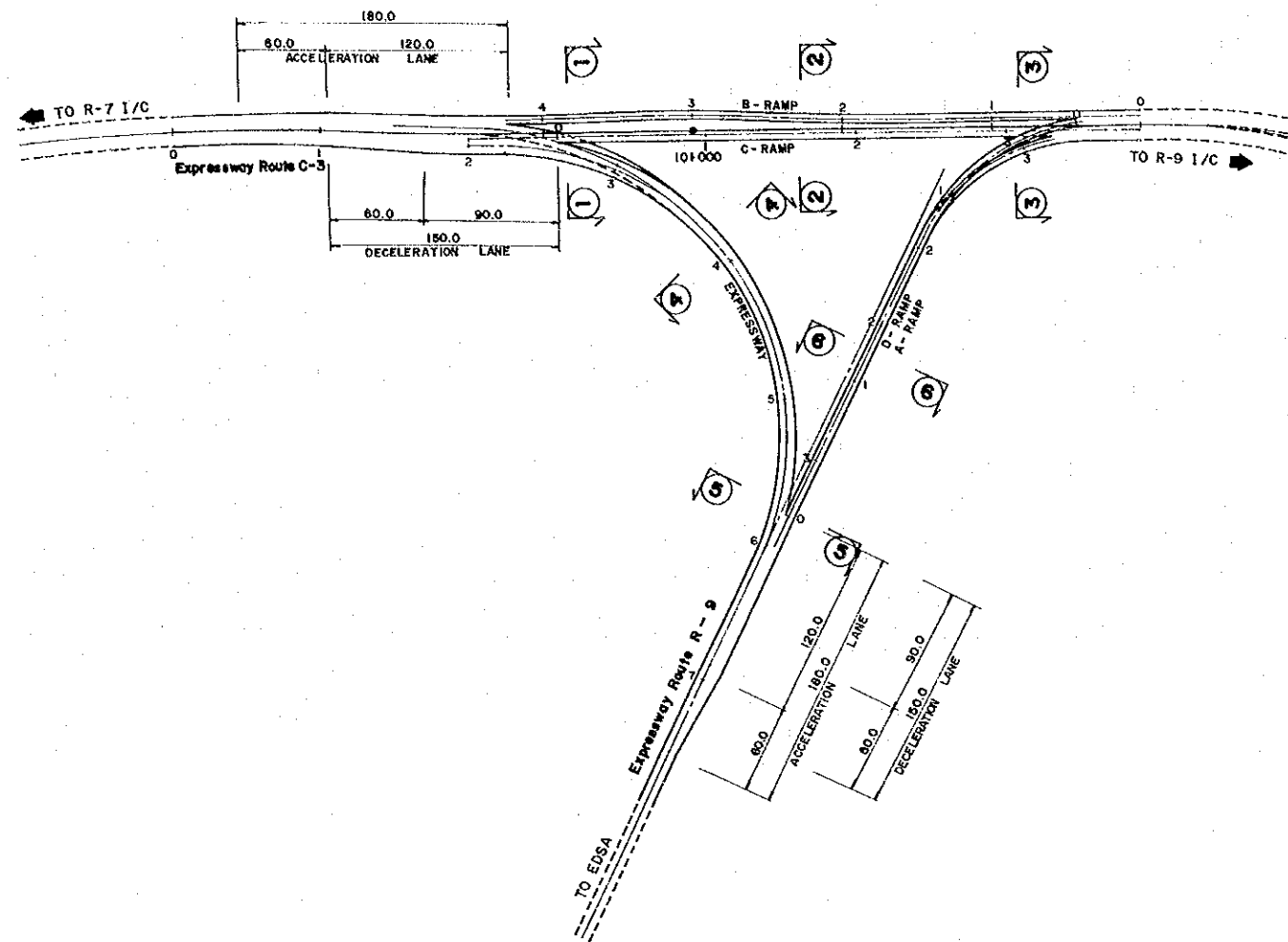

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**FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM**

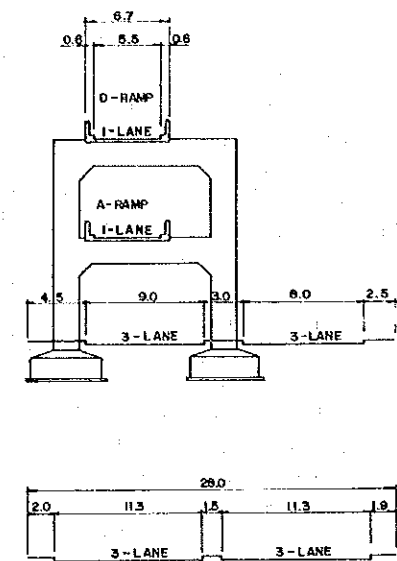
C-3 / R-7 INTERCHANGE

SCALE
 1 : 1,250

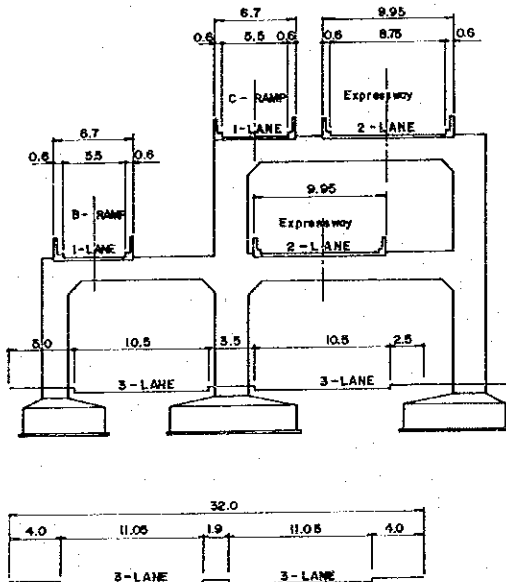
DWG. No.
 7 - 10



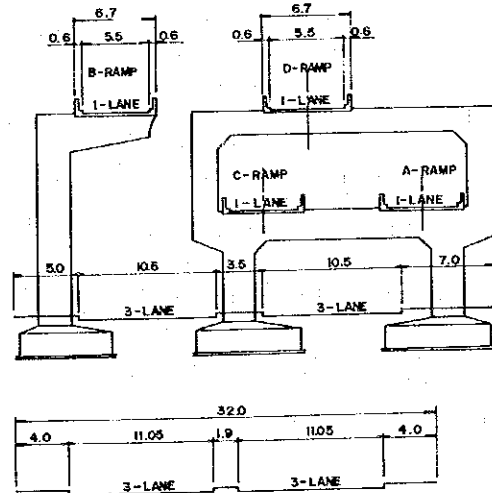
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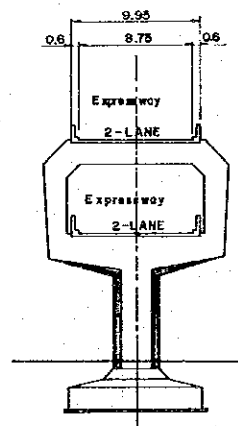
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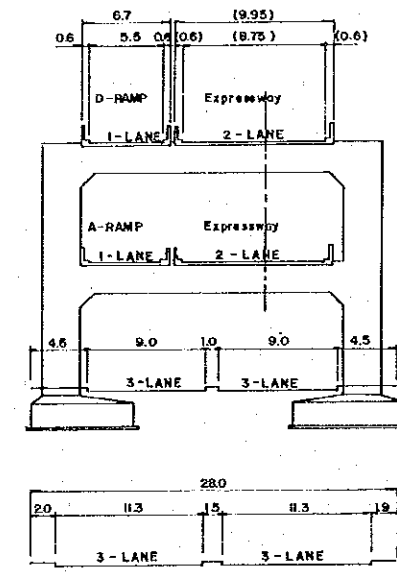
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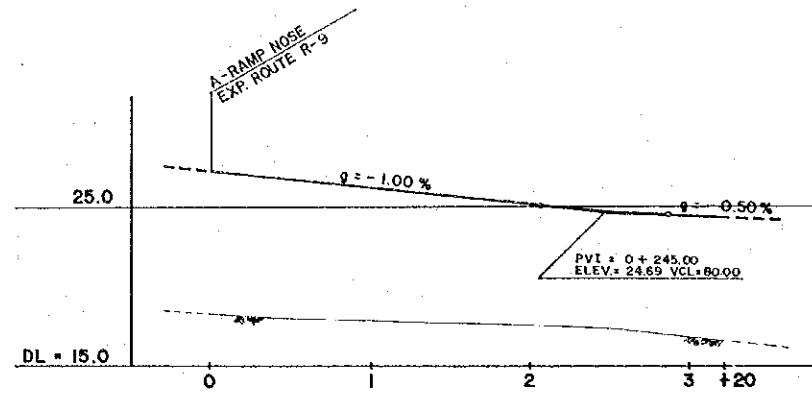
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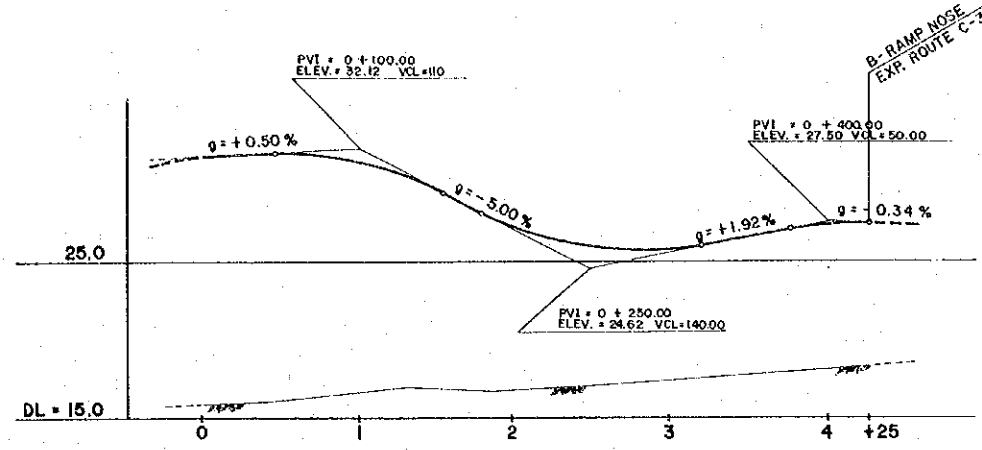
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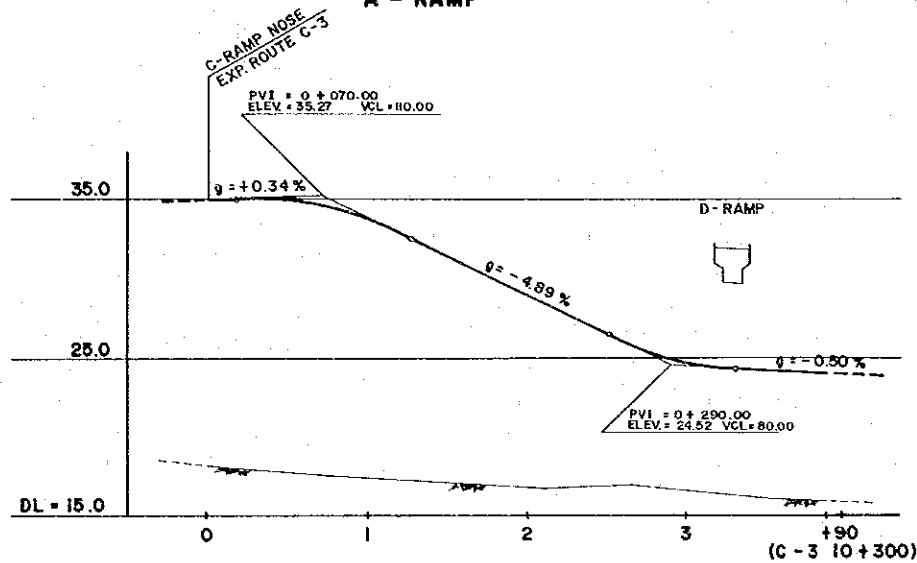
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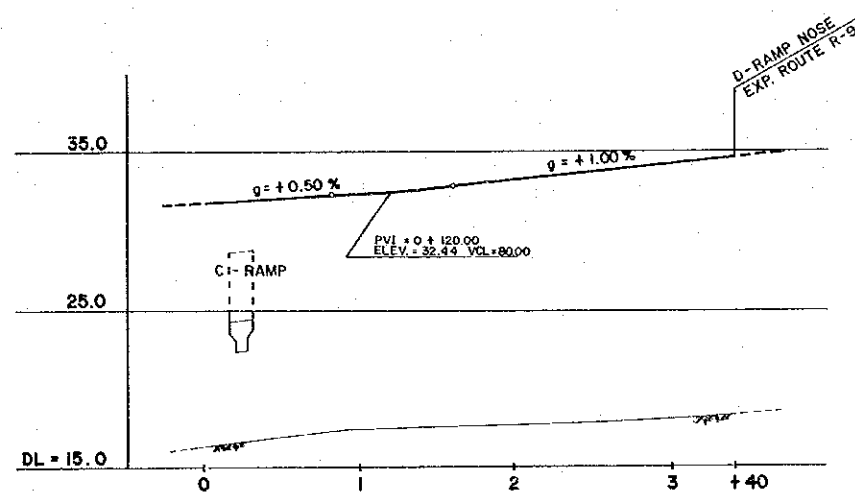
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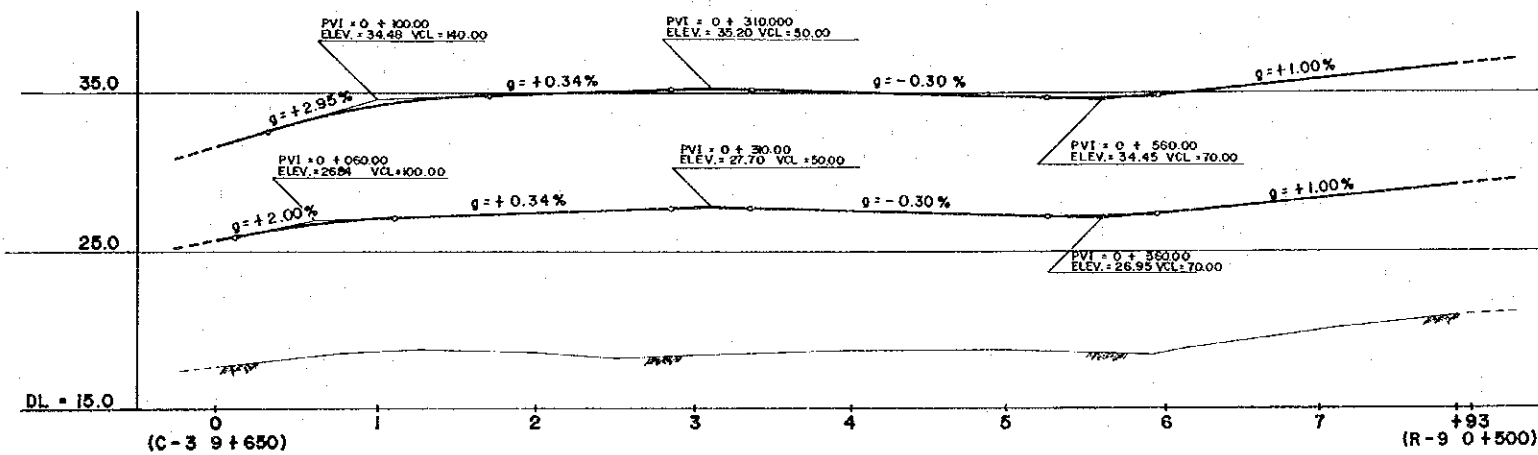
B - RAMP



C - RAMP




D - RAMP



EXPRESSWAY

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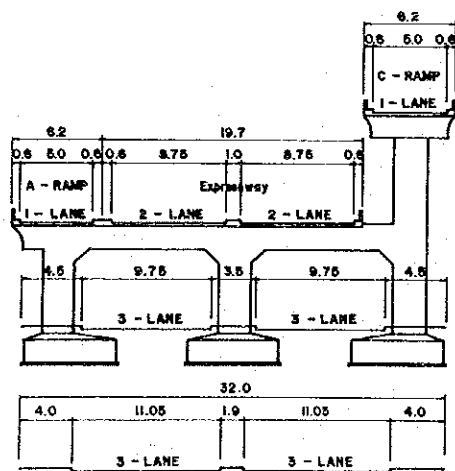
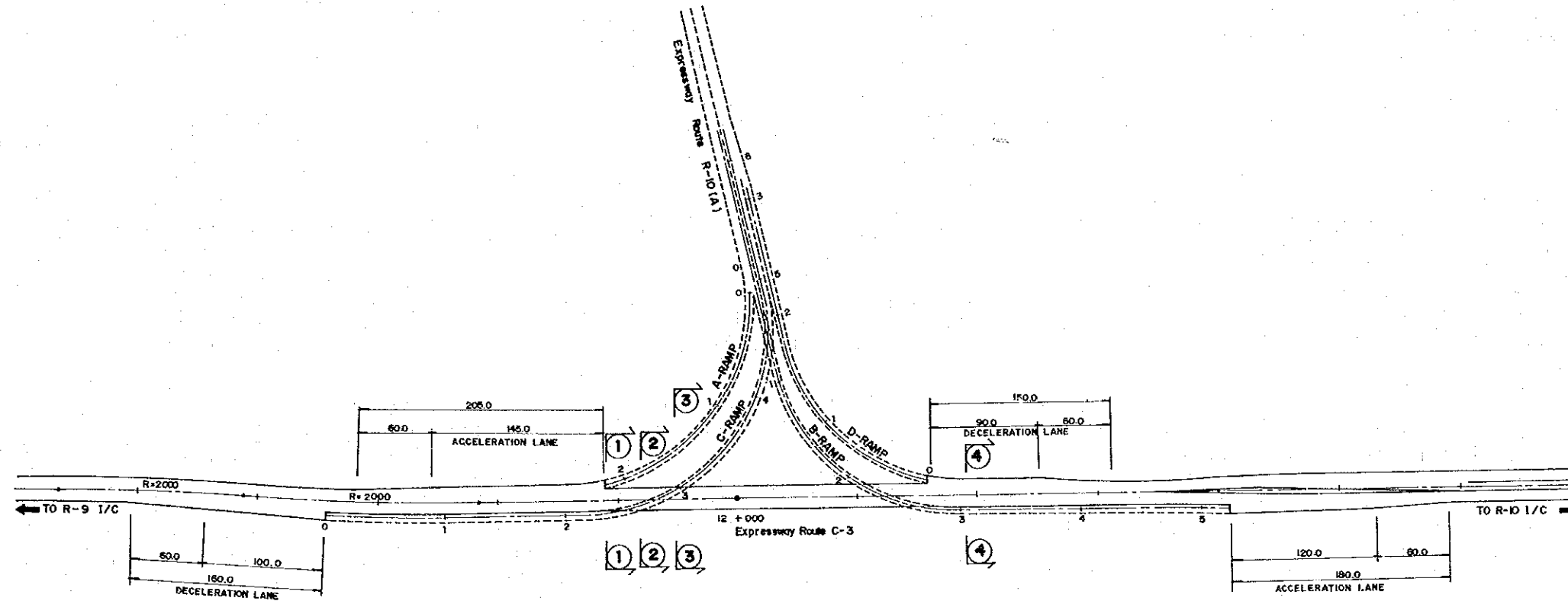

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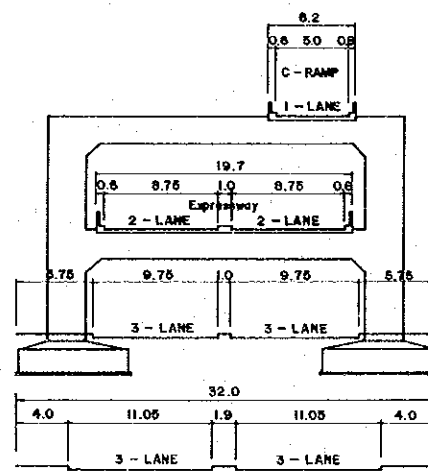
C-3/R-9 INTERCHANGE
PROFILE

SCALE
HORIZONTAL : 1 : 2,500
VERTICAL : 1 : 500

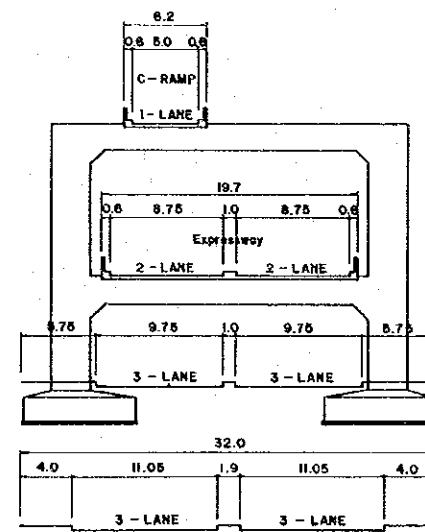
DWG. No.
7-12



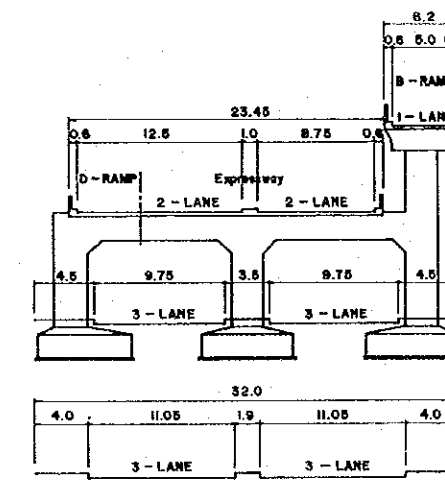
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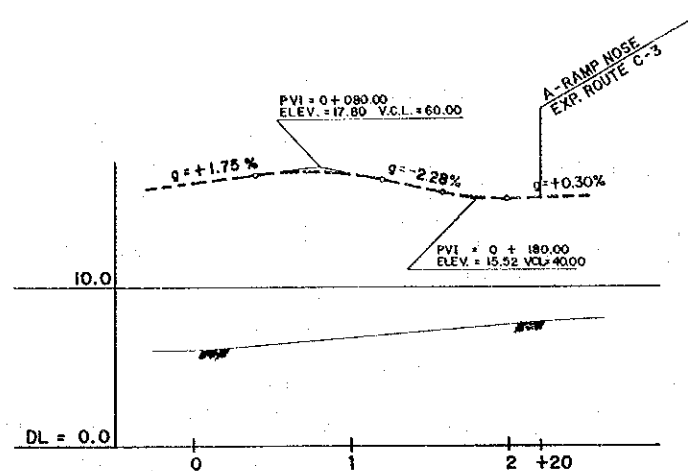
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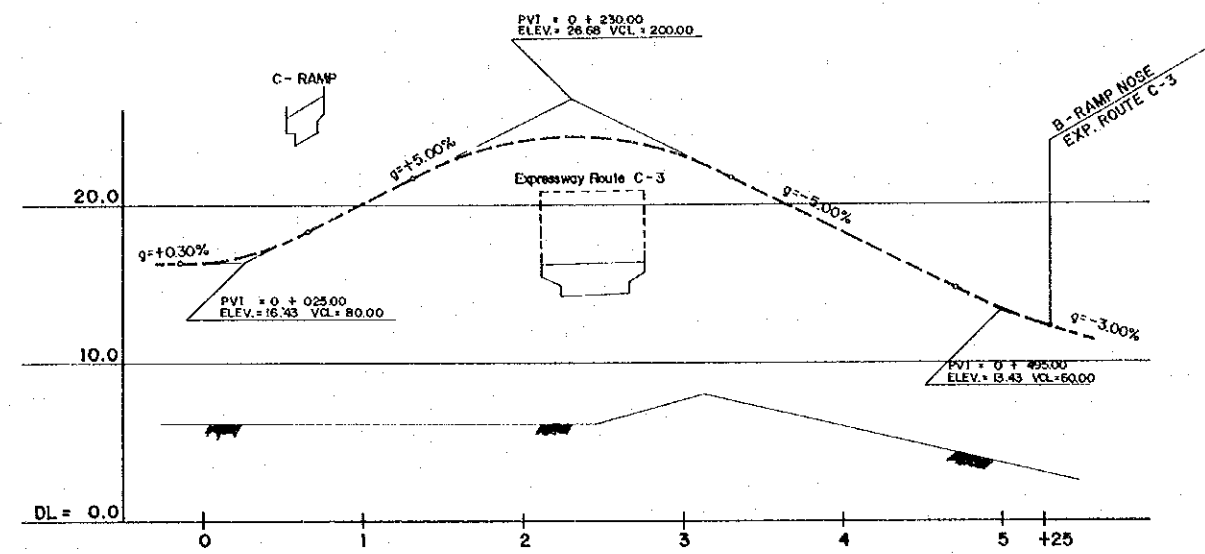
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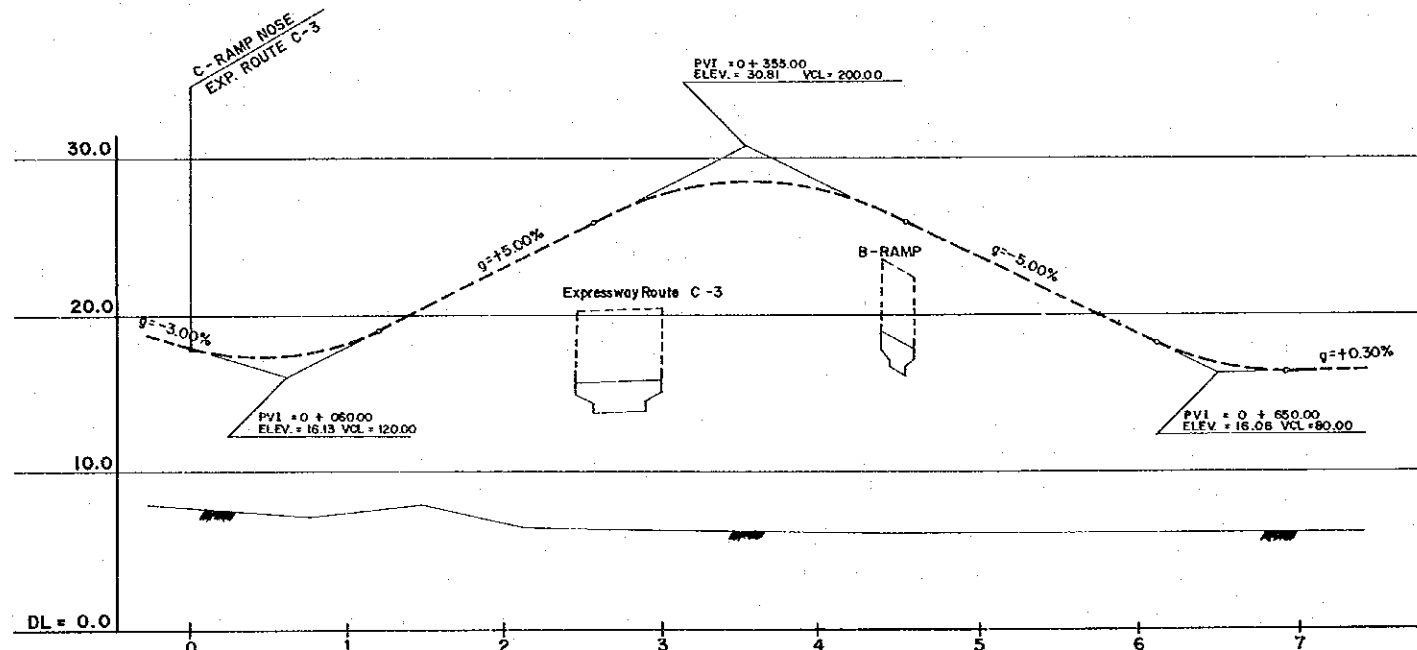
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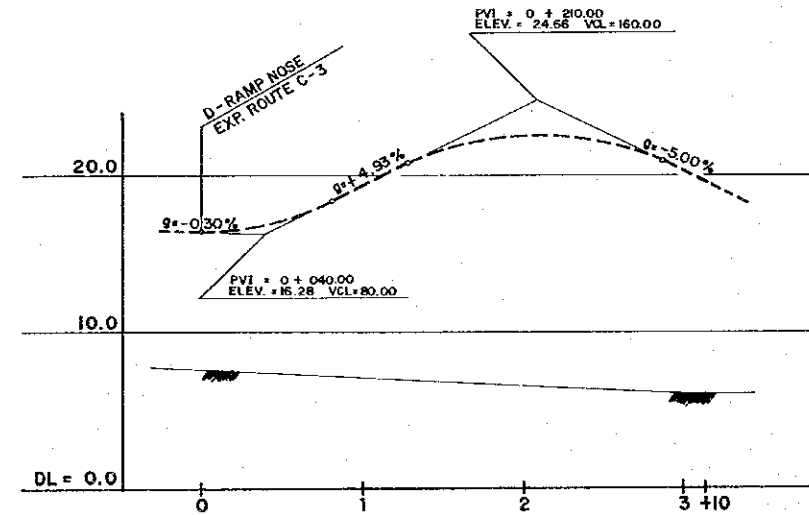
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B - RAMP

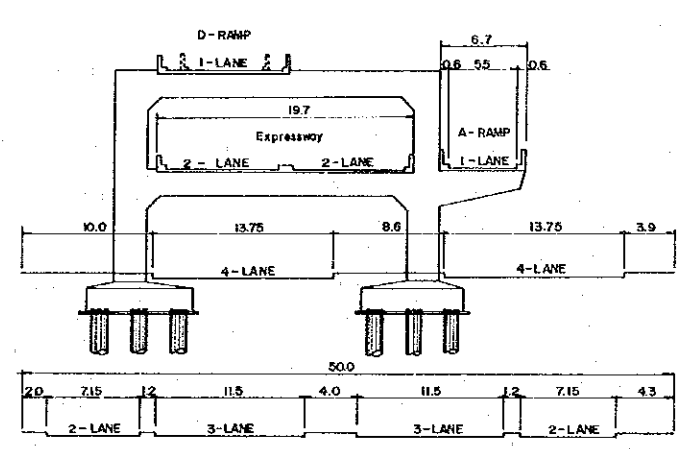
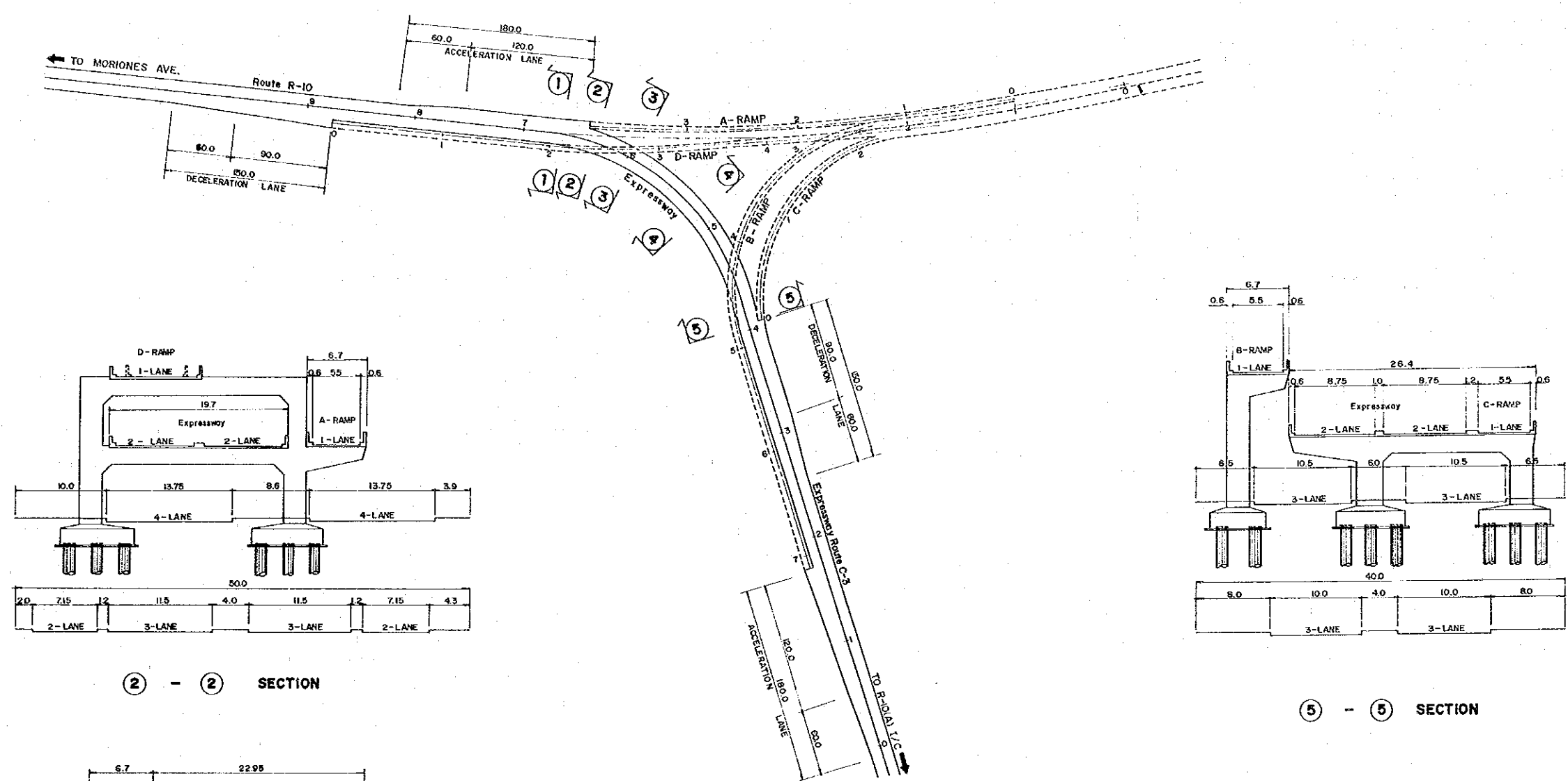


C - RAMP

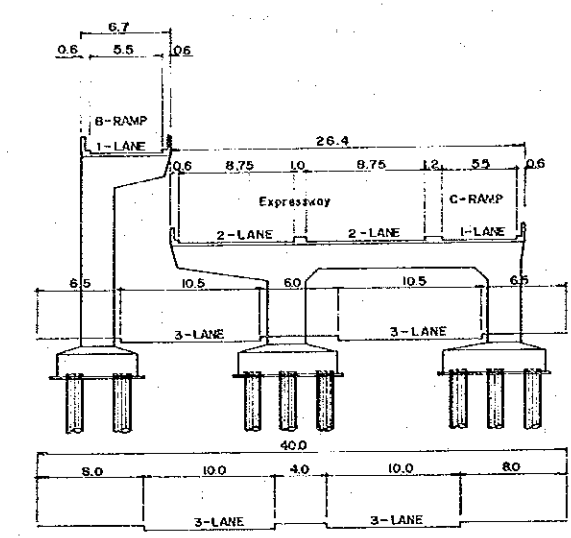


D - RAMP

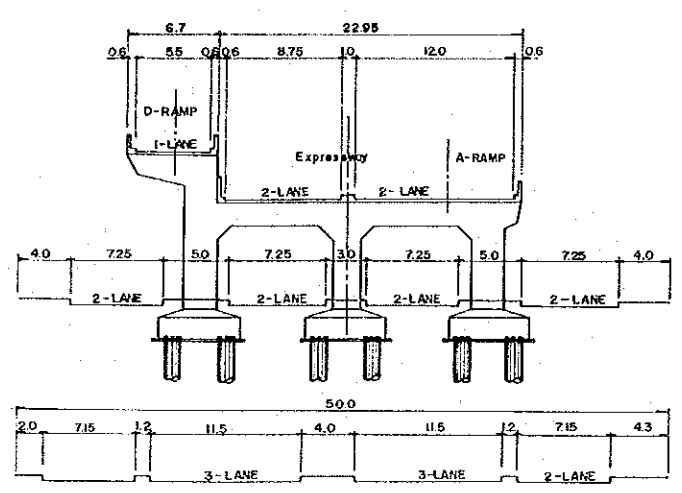
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					HORIZONTAL : 1 : 2,500 VERTICAL : 1 : 500	7-14



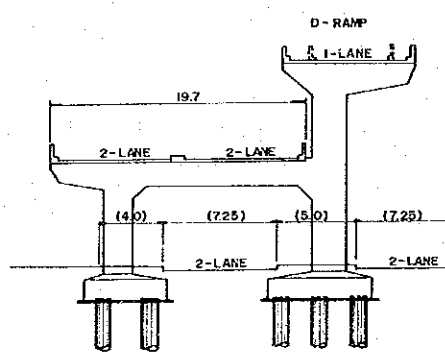
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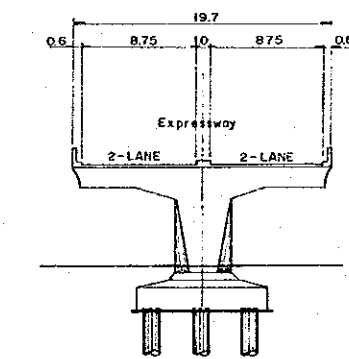
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① - ① SECTION

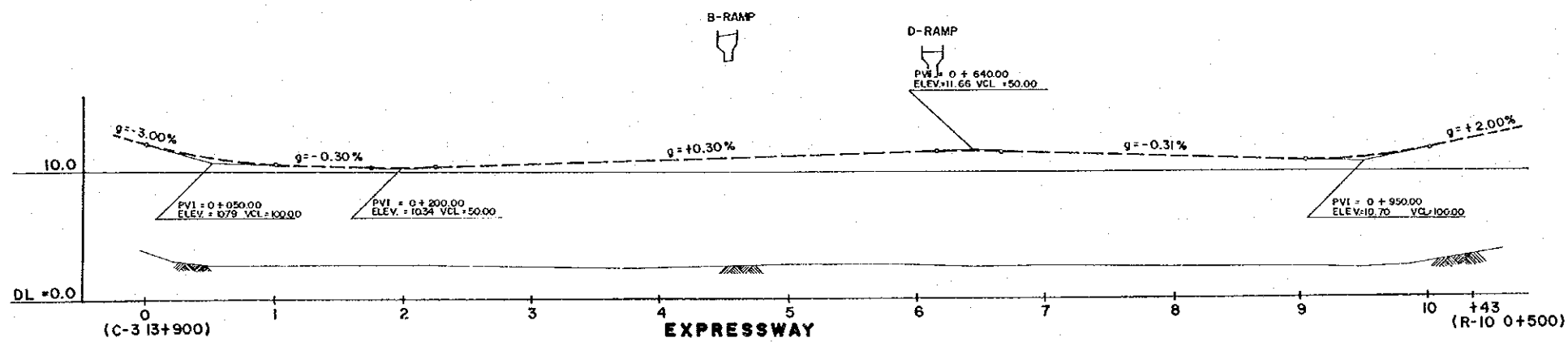
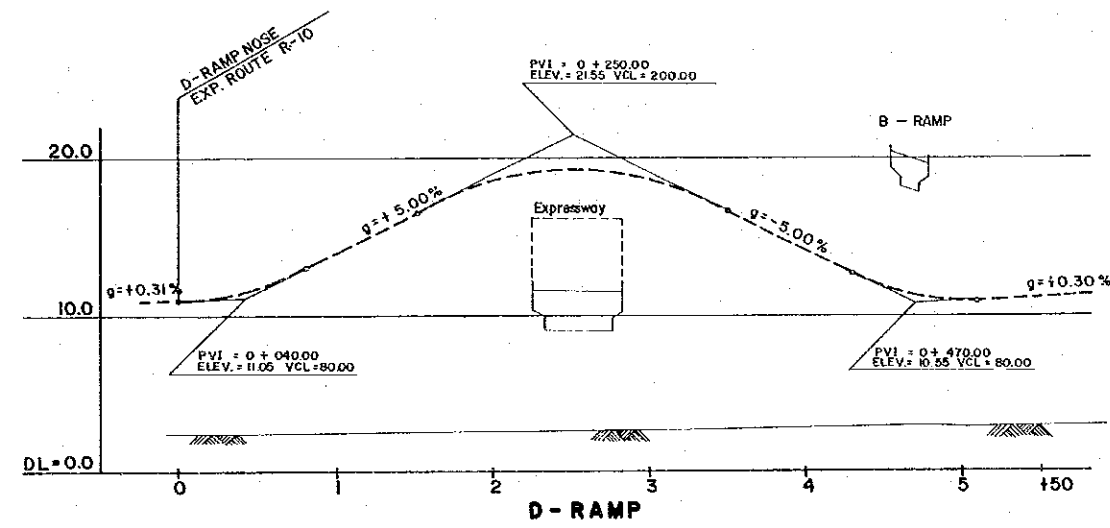
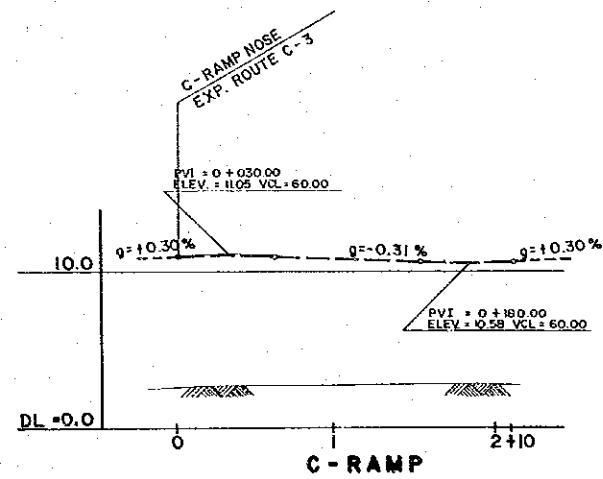
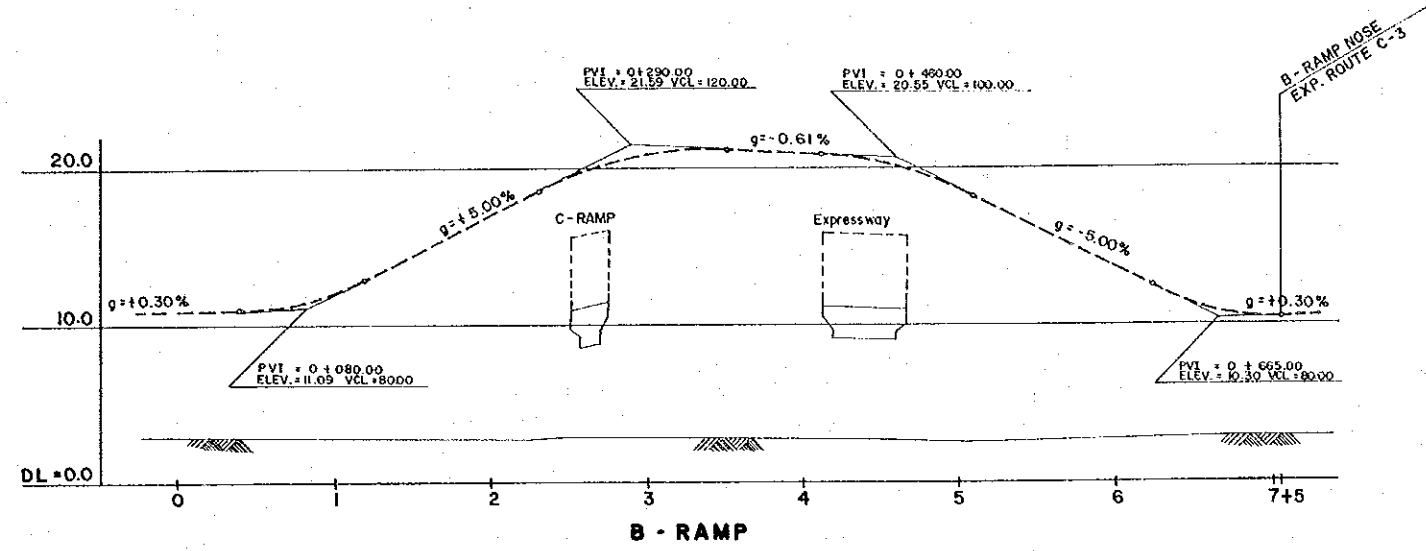
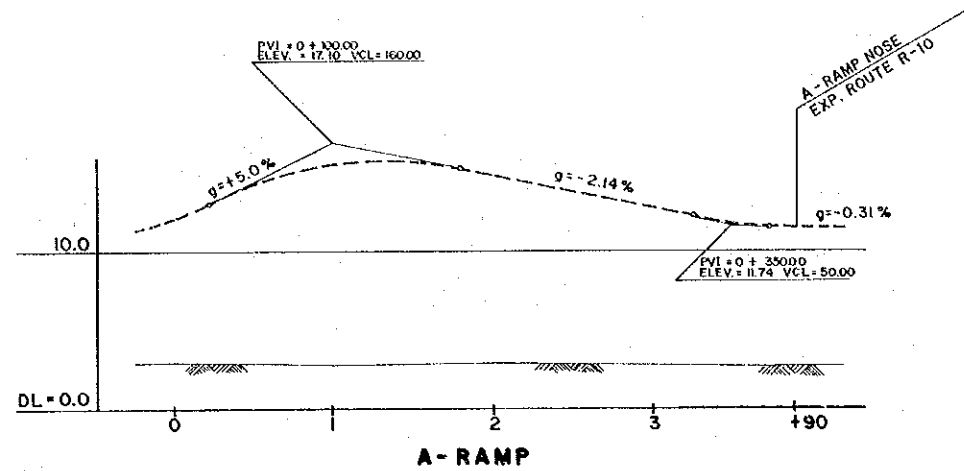


③ - ③ SECTION



④ - ④ SECTION

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					1: 2,500 1: 300	7-15



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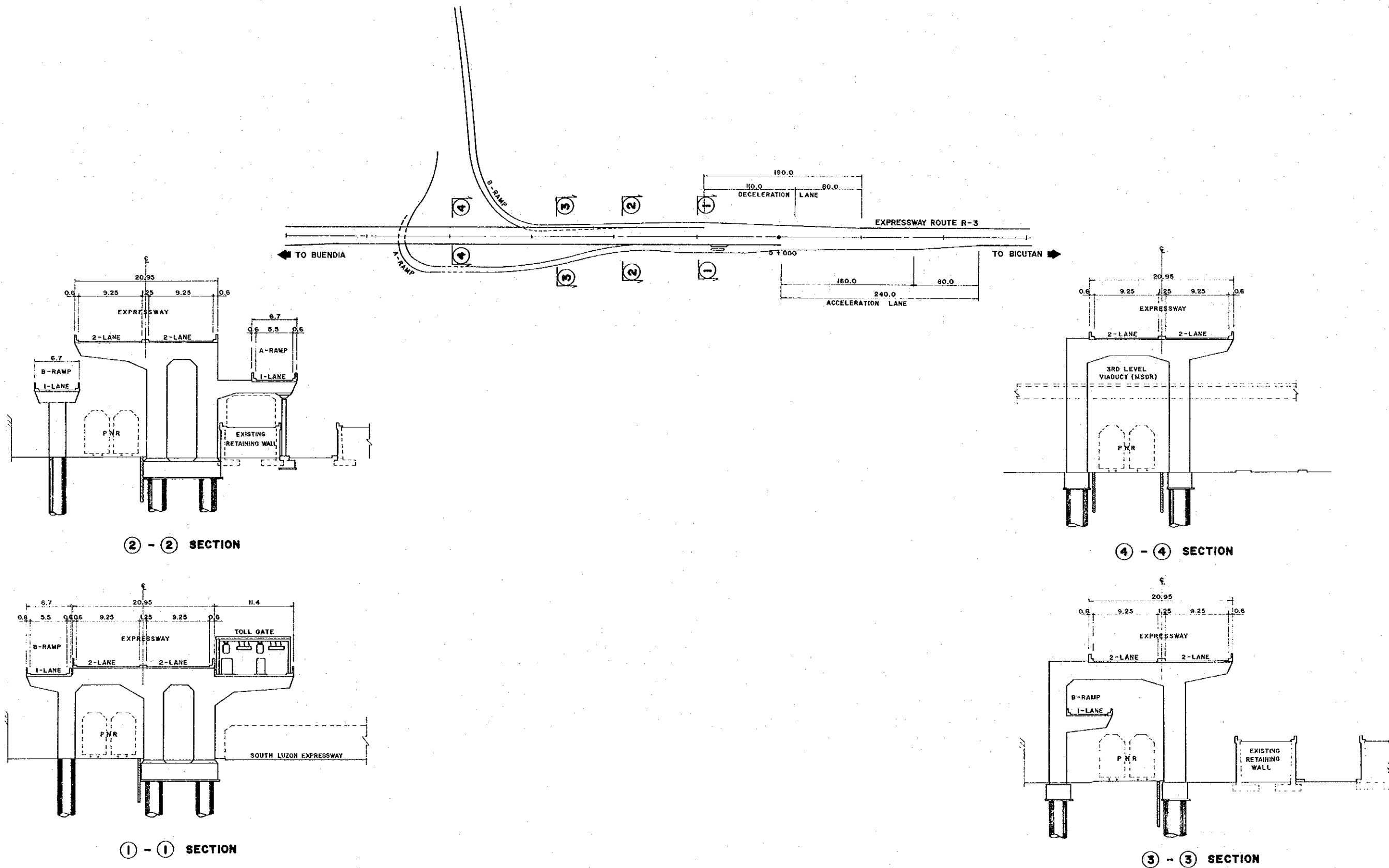
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Republic of the Philippines

**FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM**

**C-3/R-10 INTERCHANGE
PROFILE**


SCALE
HORIZONTAL : 1 : 2,500
VERTICAL : 1 : 500

DWG. No.
7-16



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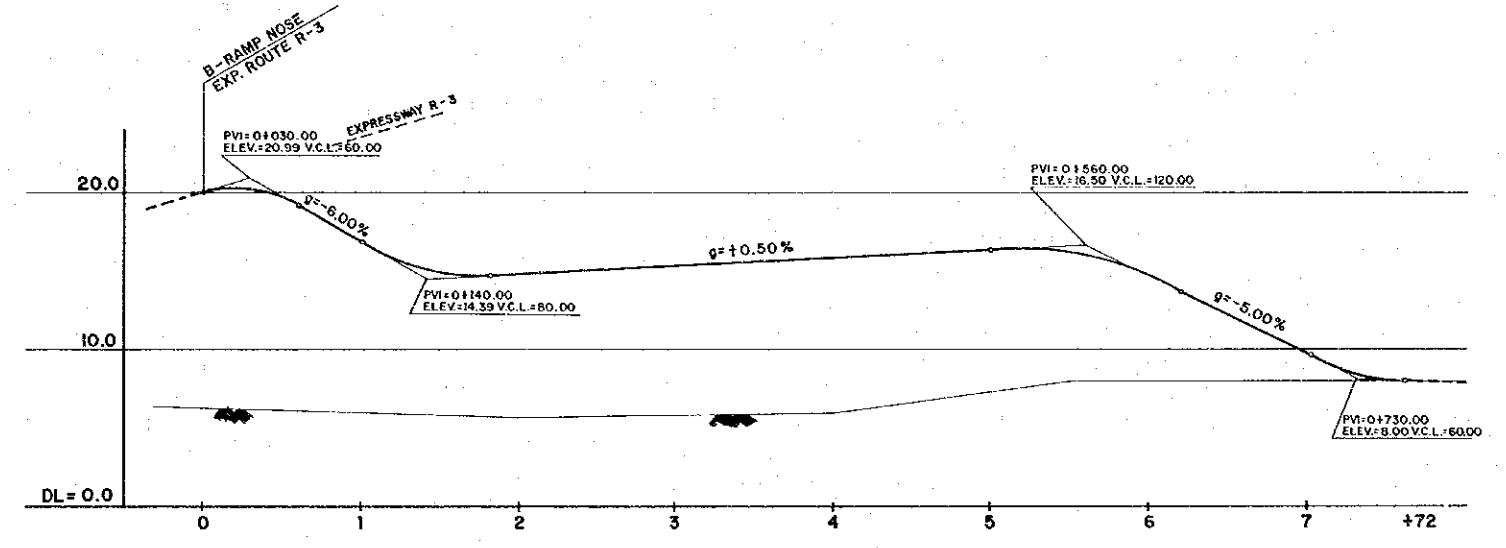
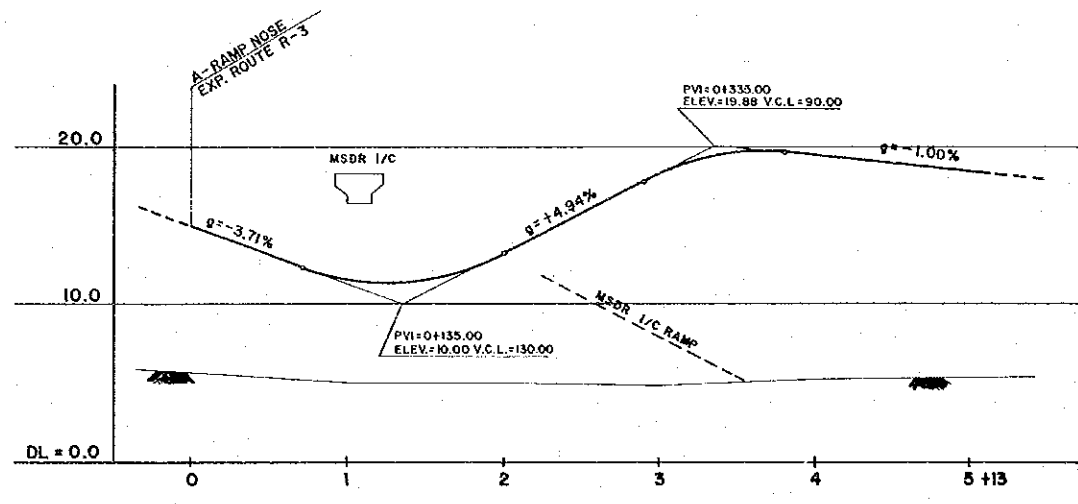

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**FEASIBILITY STUDY ON METRO MANILA
 URBAN EXPRESSWAY SYSTEM**

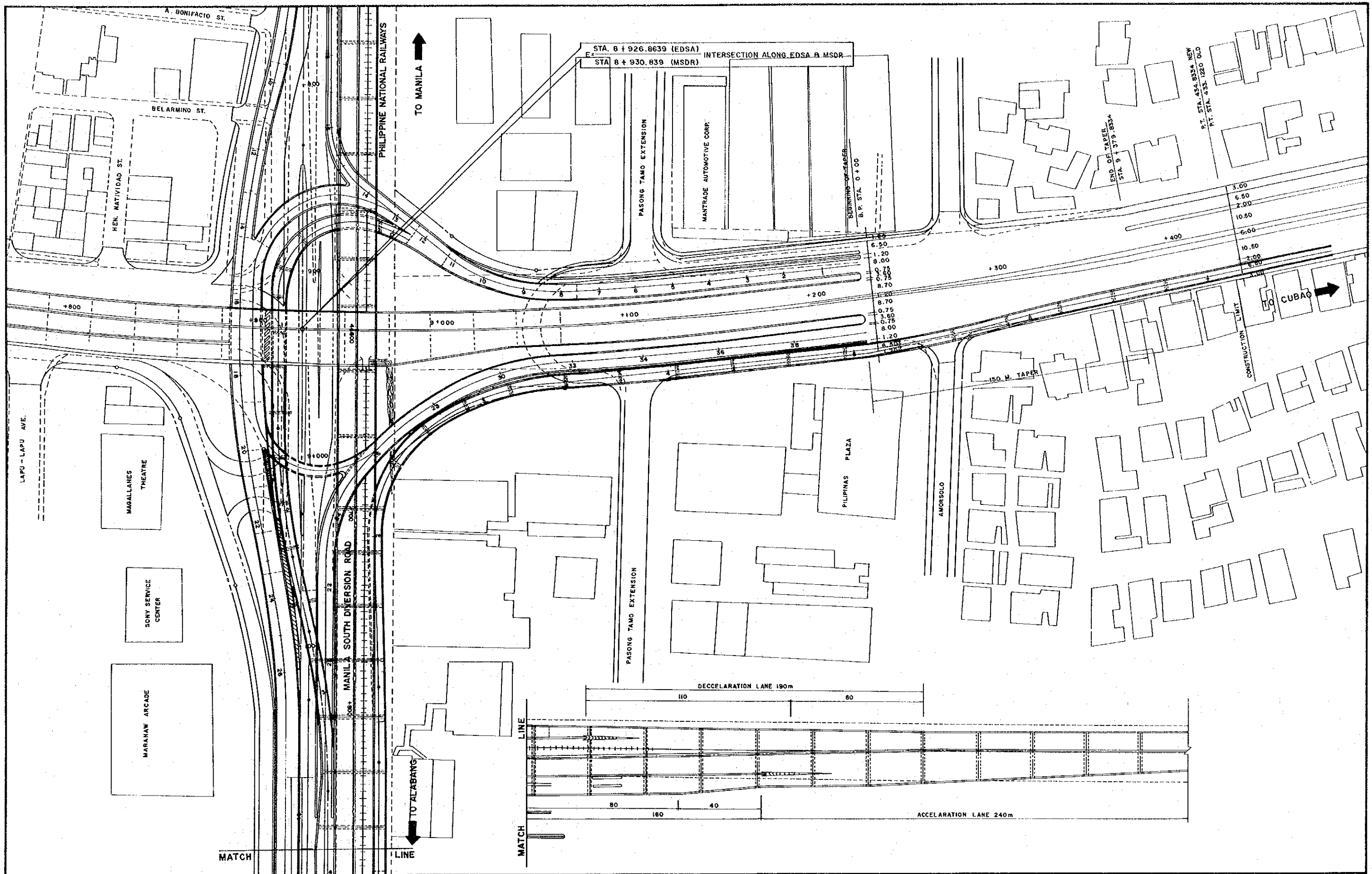
**R-3/C-4 INTERCHANGE
 PLAN AND CROSS SECTION**




SCALE
 1: 2,500
 1: 300

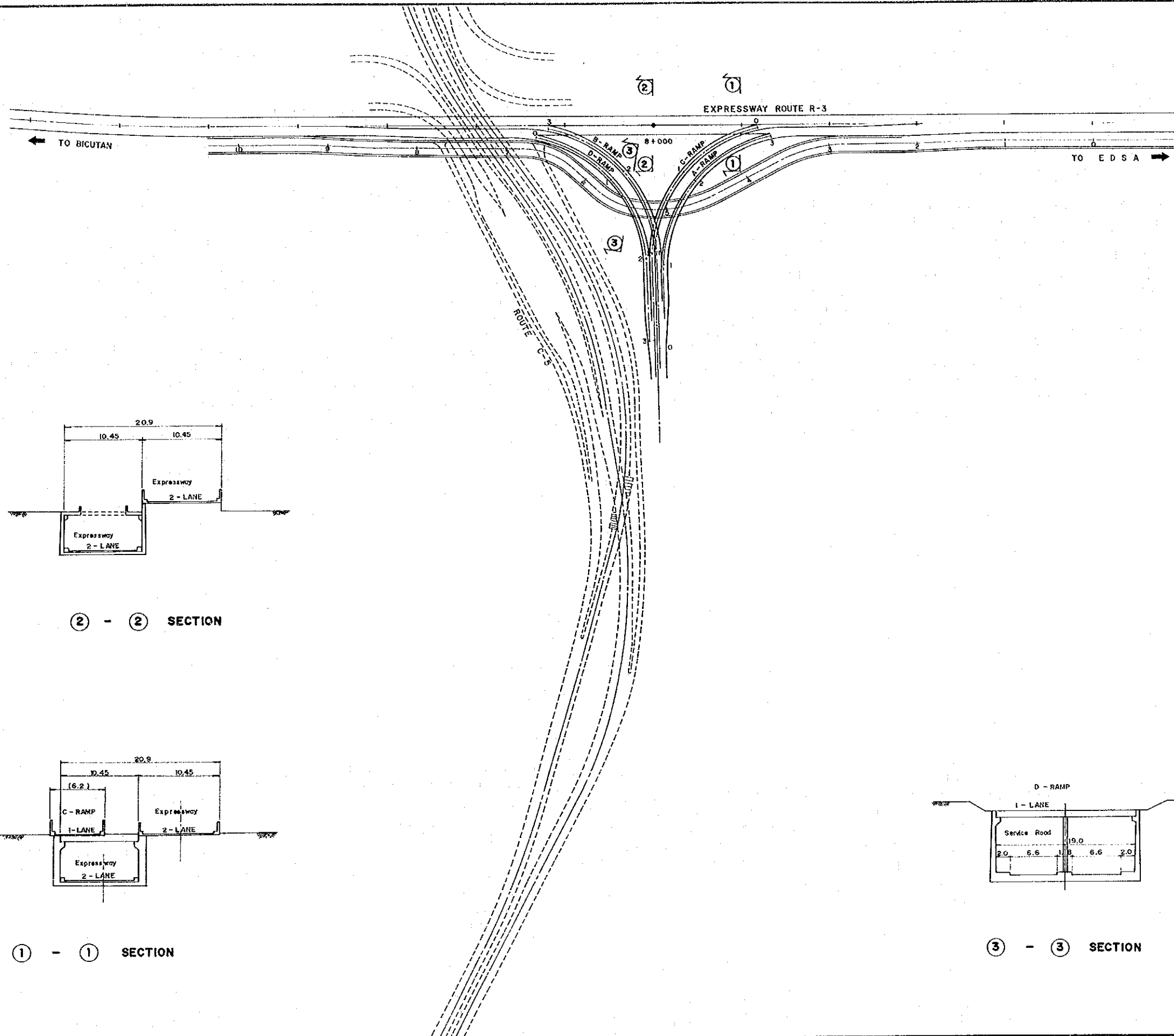
DWG. No.
 7-17



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					HORIZONTAL : 1 : 2,500 VERTICAL : 1 : 250	7-18






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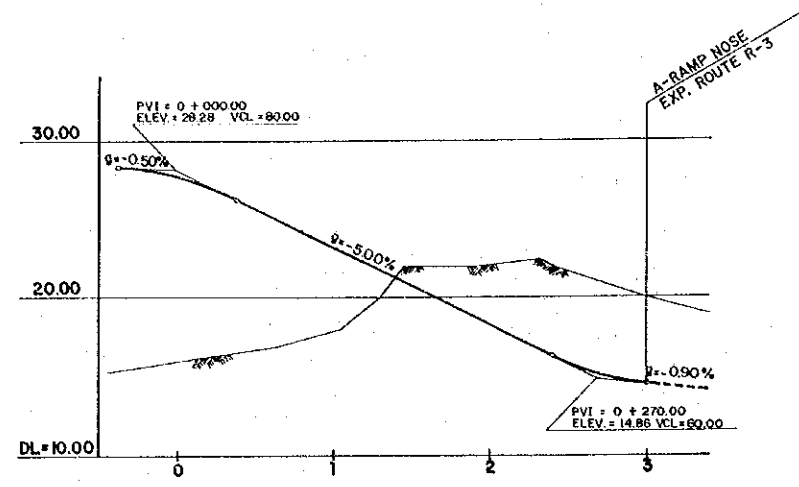


② - ② SECTION

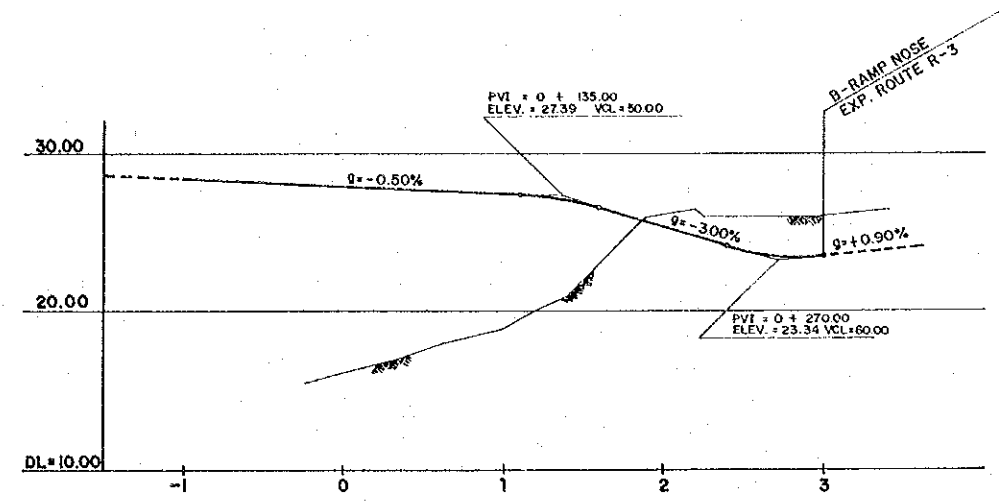
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③ - ③ SECTION

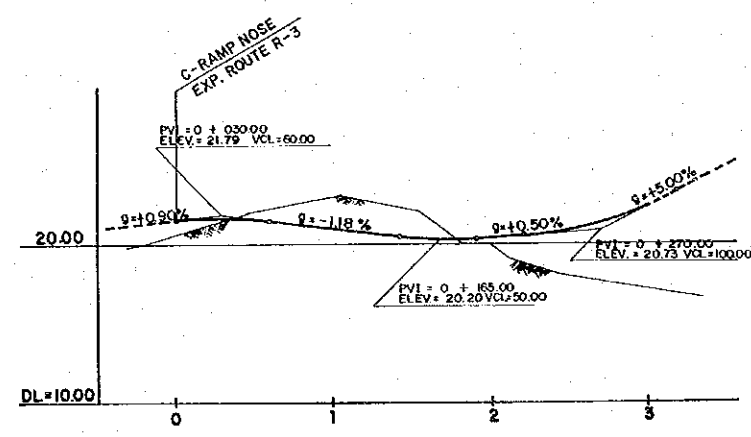
 KATAHIRA & ENGINEERS INTERNATIONAL	 JAPAN INTERNATIONAL COOPERATION AGENCY	 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS Republic of the Philippines	FEASIBILITY STUDY ON METRO MANILA URBAN EXPRESSWAY SYSTEM	R-3/C-5 INTERCHANGE PLAN AND CROSS SECTION	SCALE	DWG. No.
					1:2,500 1:300	7-20



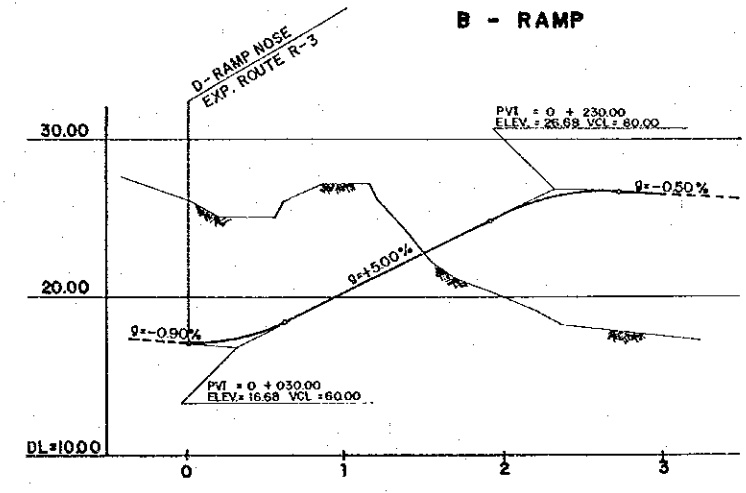
A - RAMP



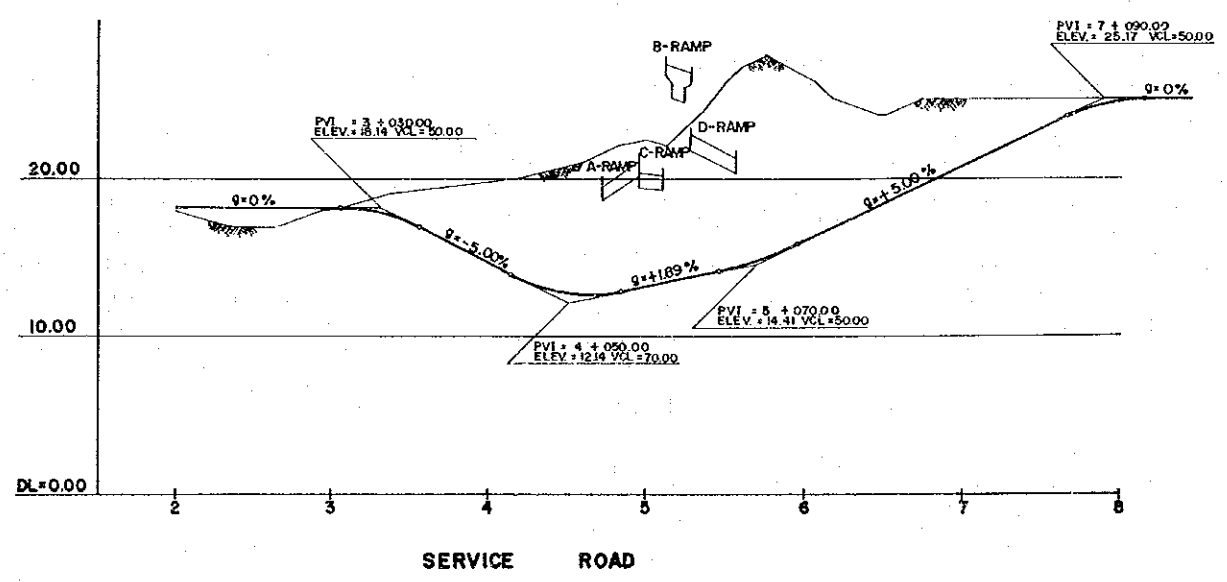
B - RAMP



C - RAMP



D - RAMP



SERVICE ROAD



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JAPAN INTERNATIONAL COOPERATION AGENCY



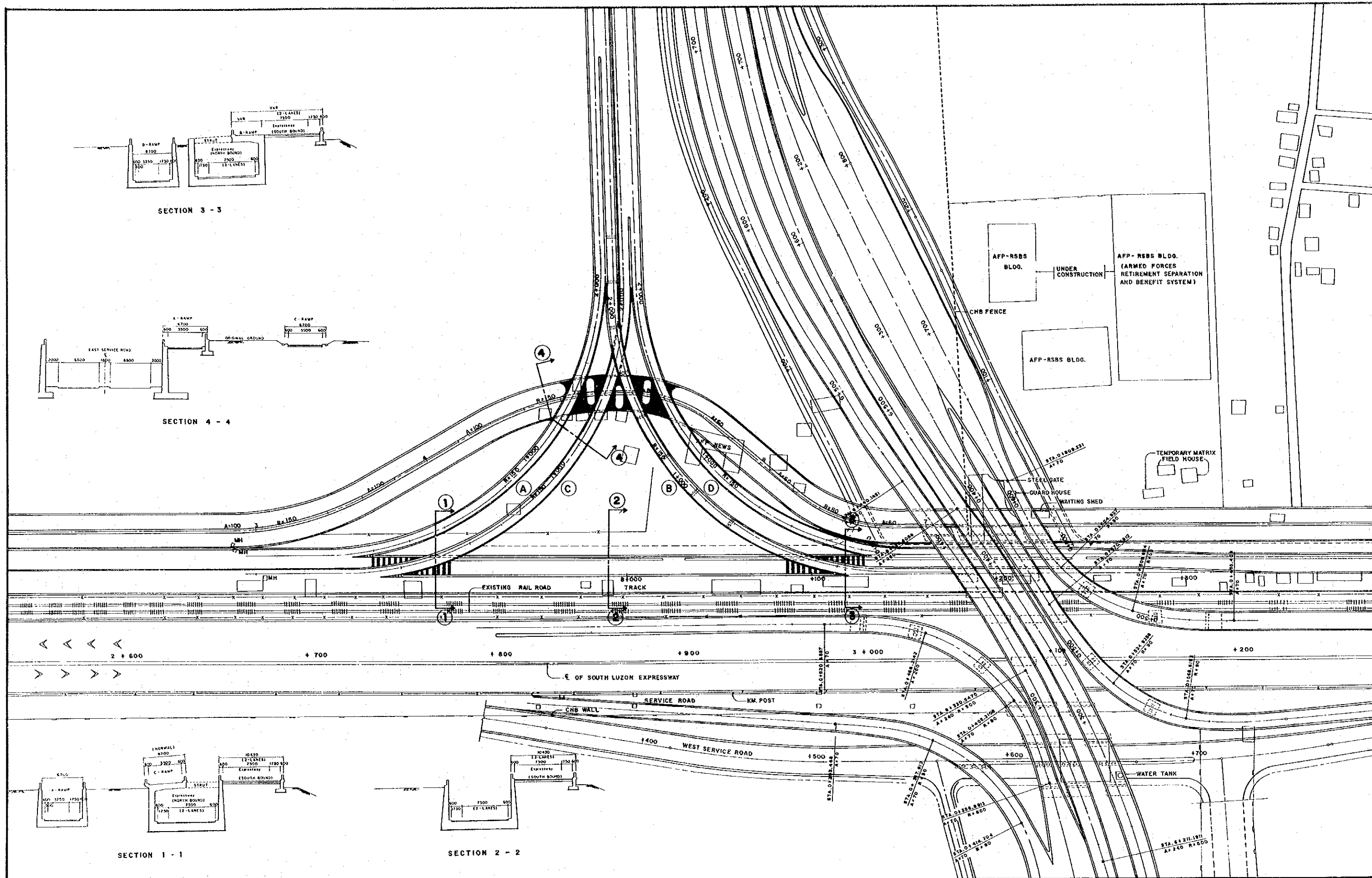
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FEASIBILITY STUDY ON METRO MANILA URBAN EXPRESSWAY SYSTEM

R-3 / C-5 INTERCHANGE PROFILE

SCALE
HORIZONTAL : 1:2,500
VERTICAL : 1: 500

DWG. No.
7-21



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FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM

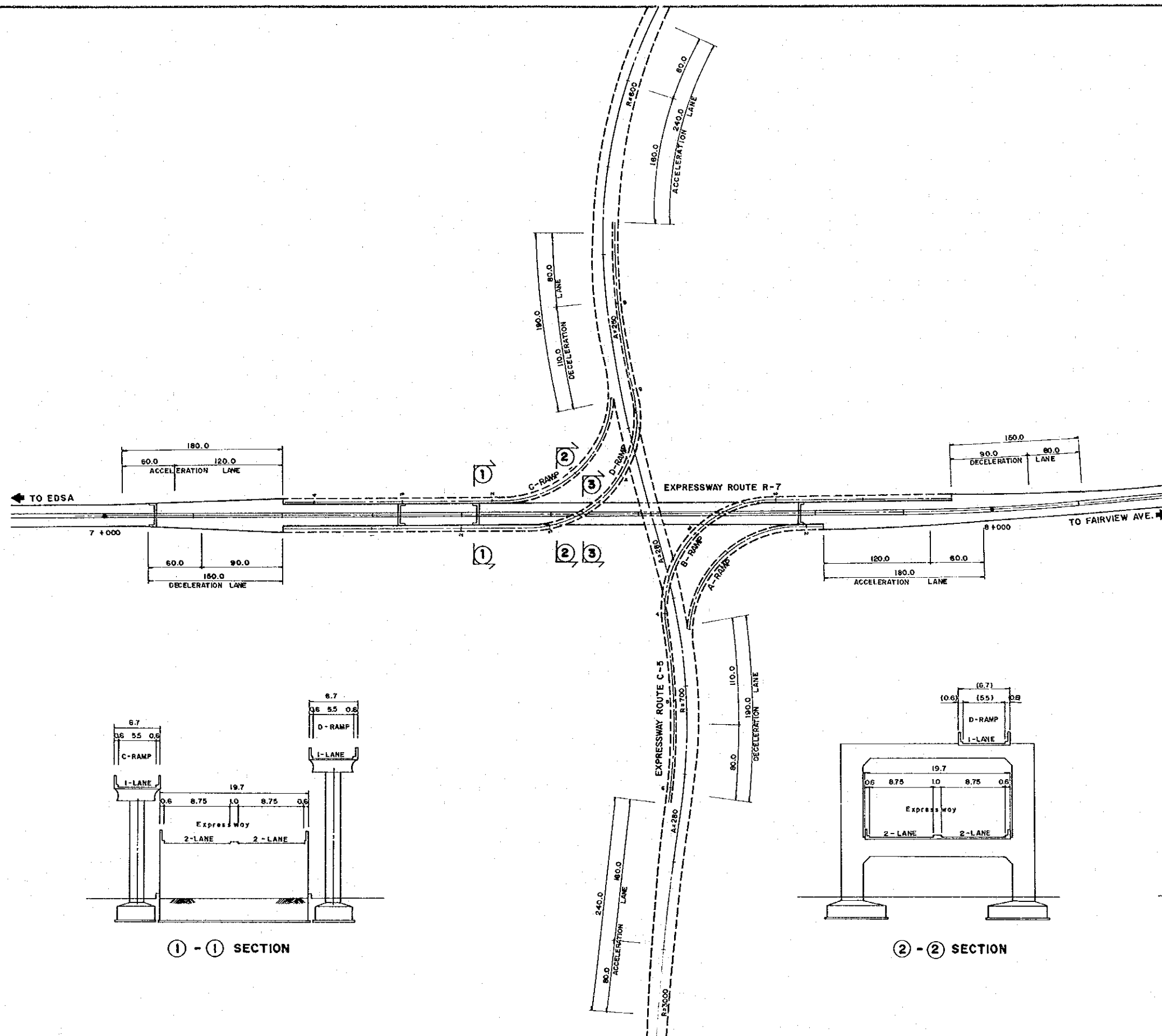
R-3 / C-5 INTERCHANGE

SCALE

1 : 1000

DWG. No.

7-22



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URBAN EXPRESSWAY SYSTEM

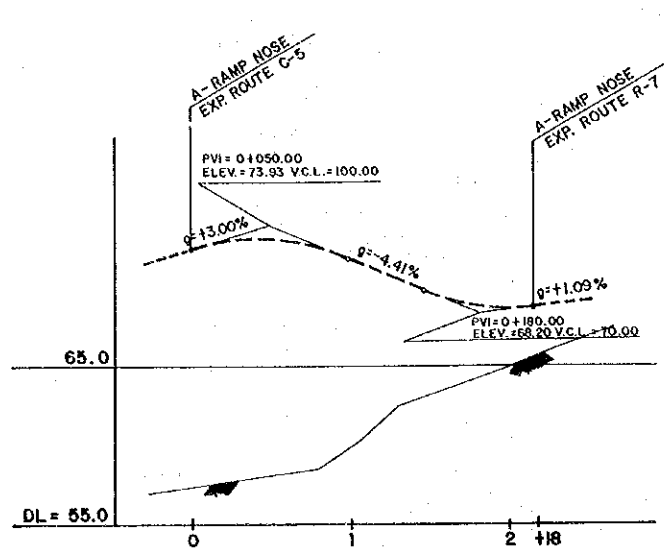
R-7/C-5 INTERCHANGE
PLAN AND CROSS SECTION

SCALE

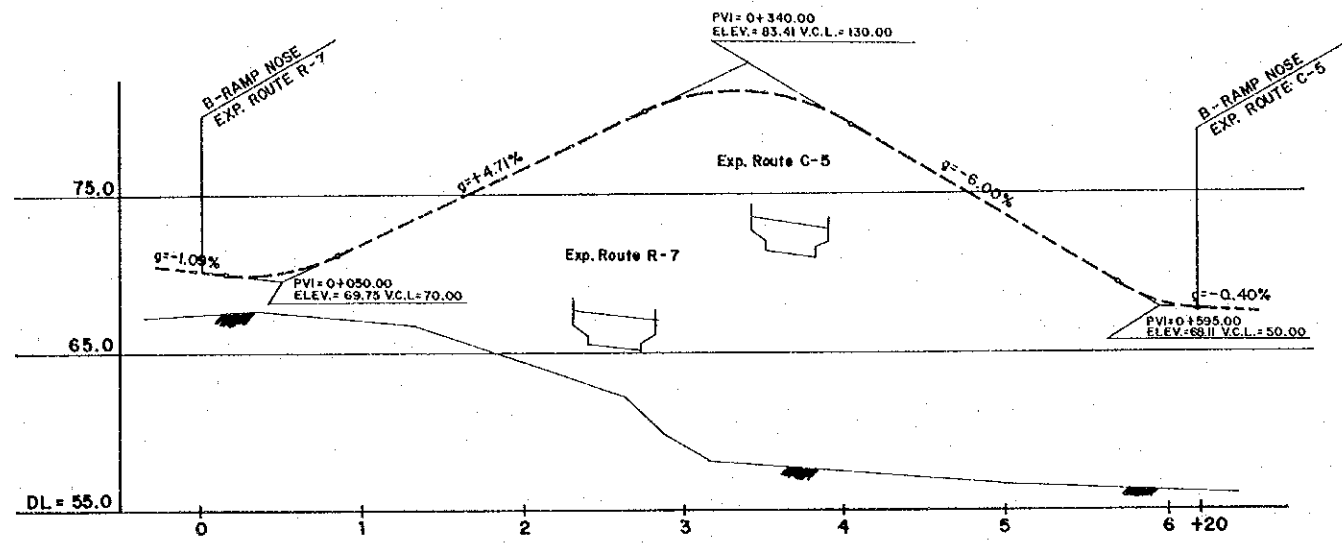
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1:300

DWG. No.

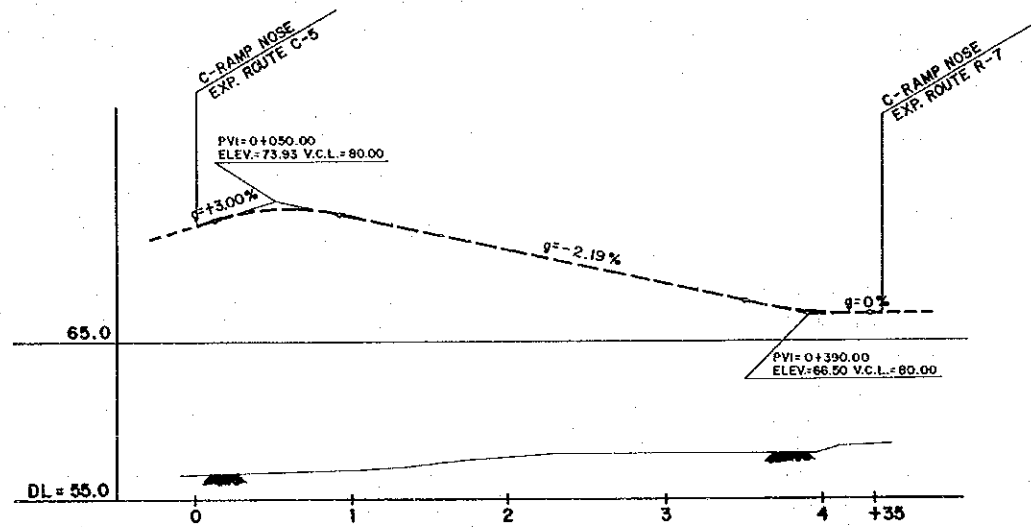
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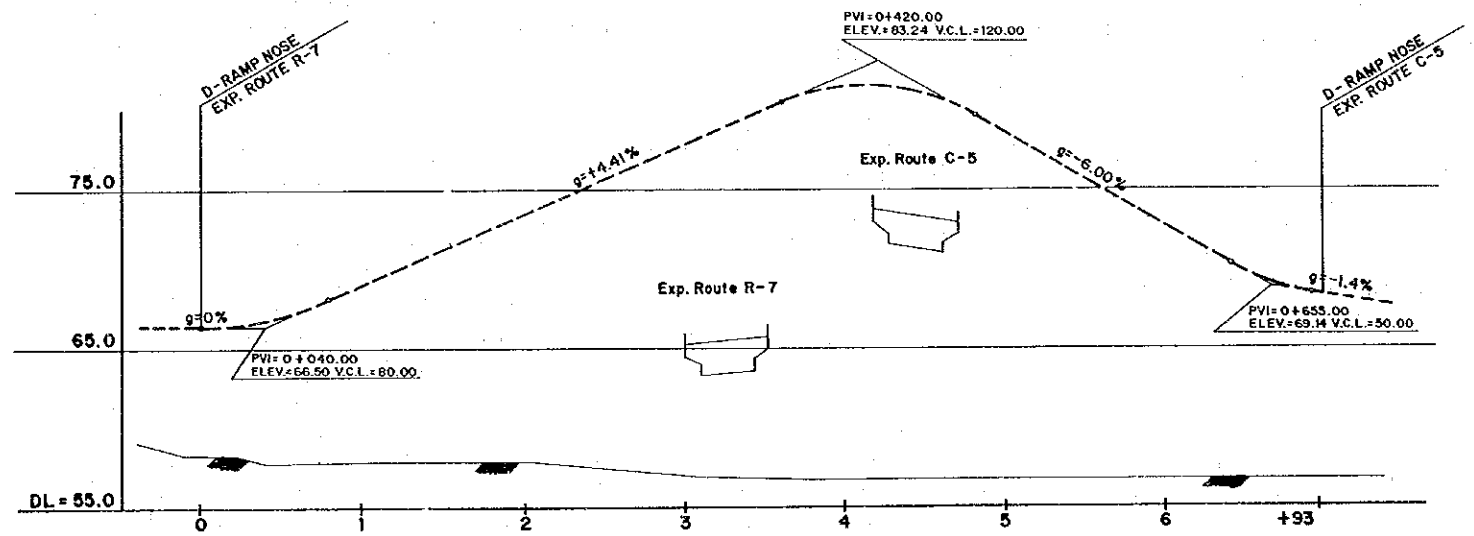
A - RAMP



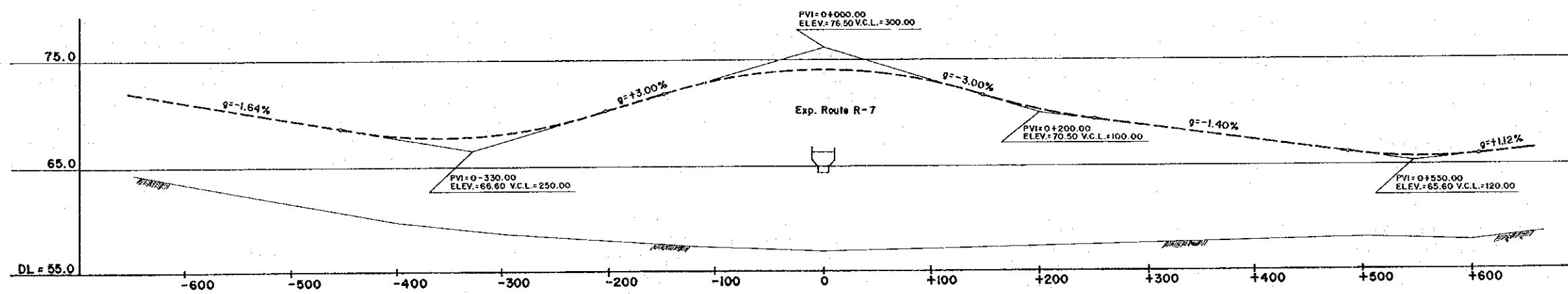
B - RAMP



C - RAMP



D - RAMP



EXPRESSWAY ROUTE C-5



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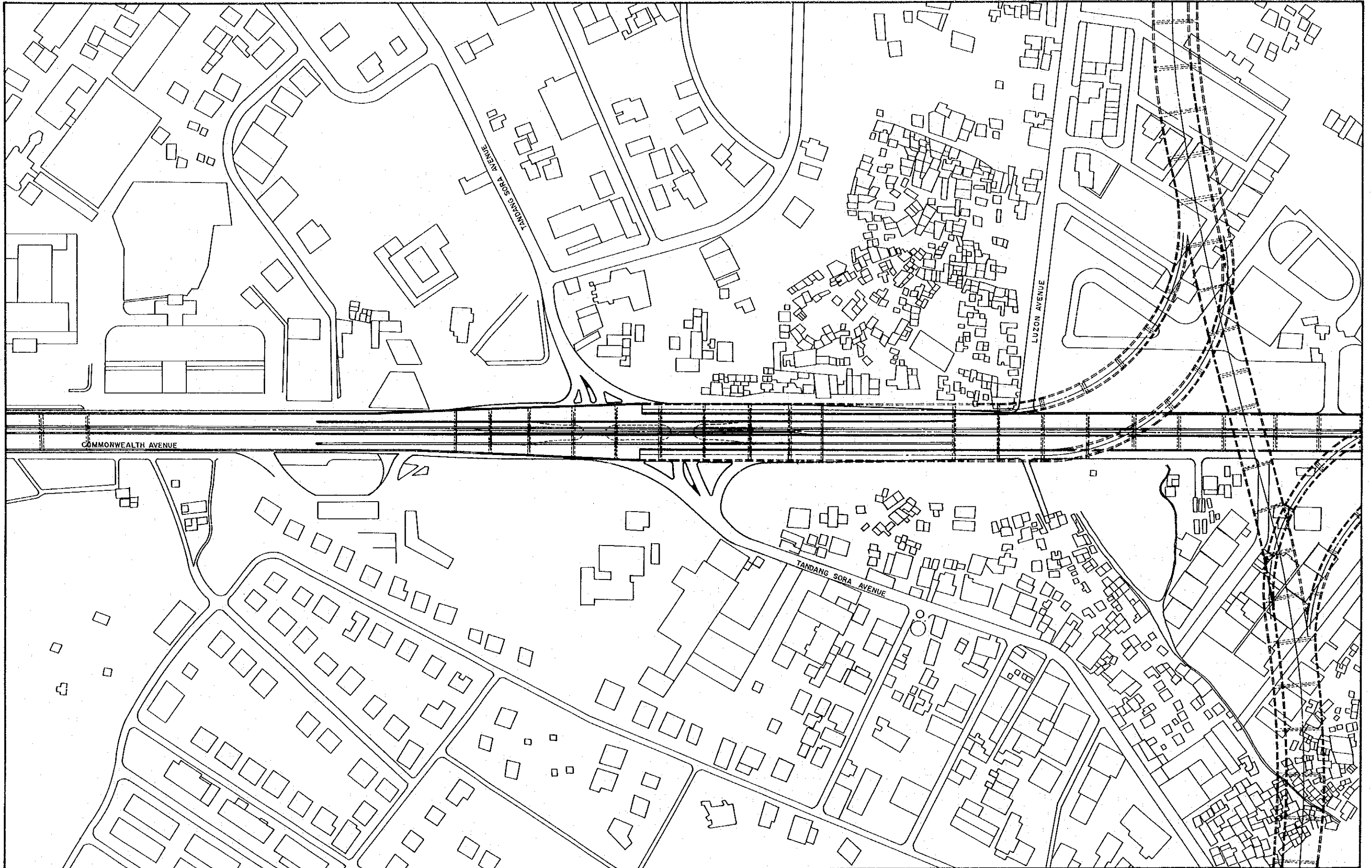
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FEASIBILITY STUDY ON METRO MANILA
URBAN EXPRESSWAY SYSTEM

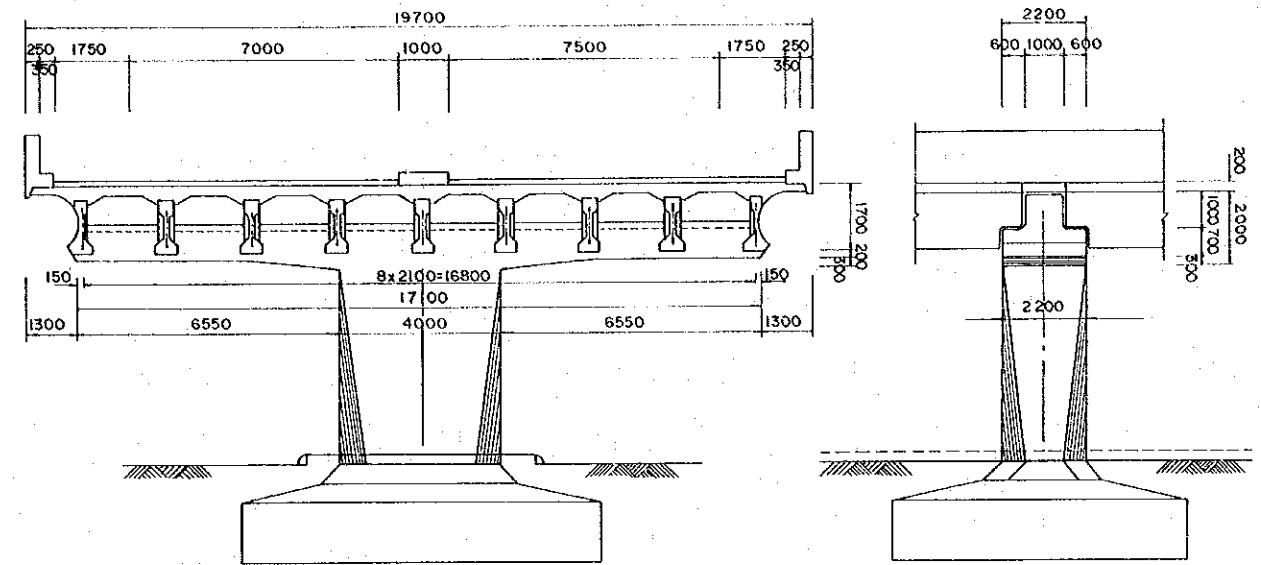
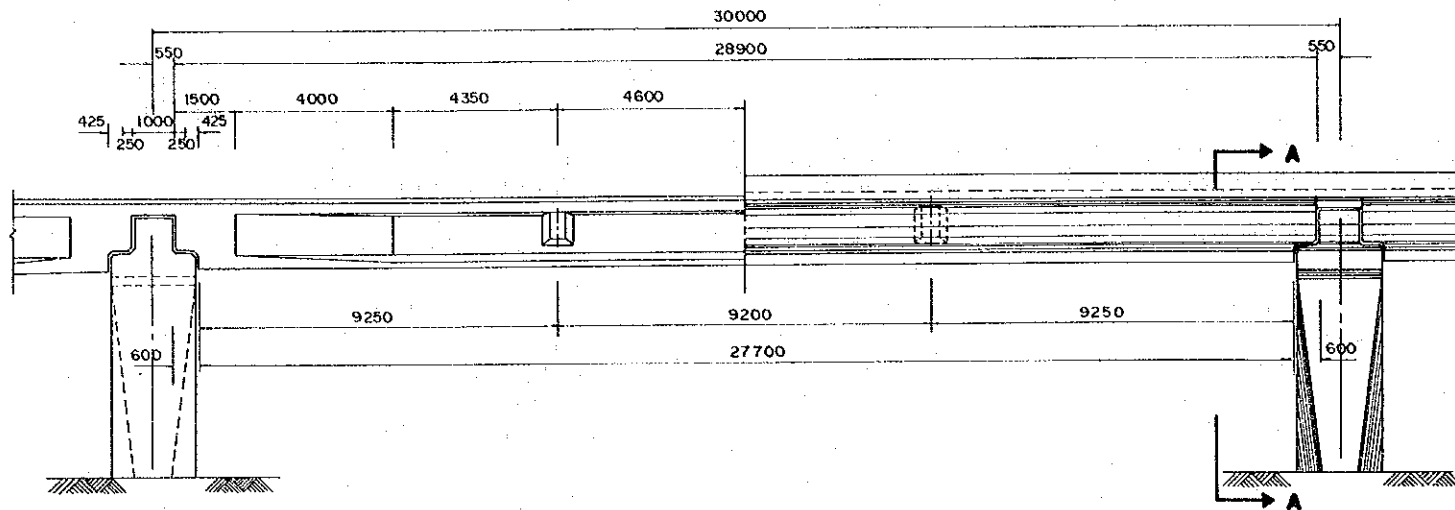
R-7 / C-5 INTERCHANGE
PROFILE

SCALE
HORIZONTAL : 1 : 2,500
VERTICAL : 1 : 500

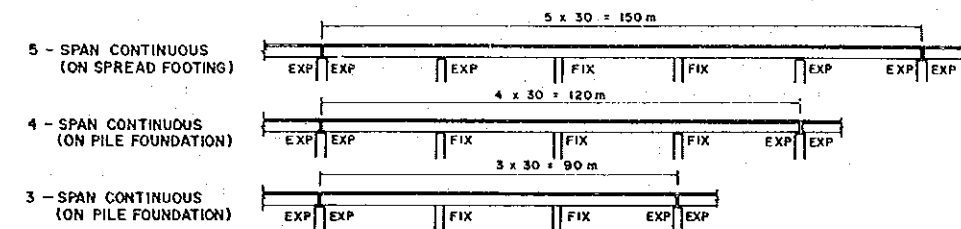
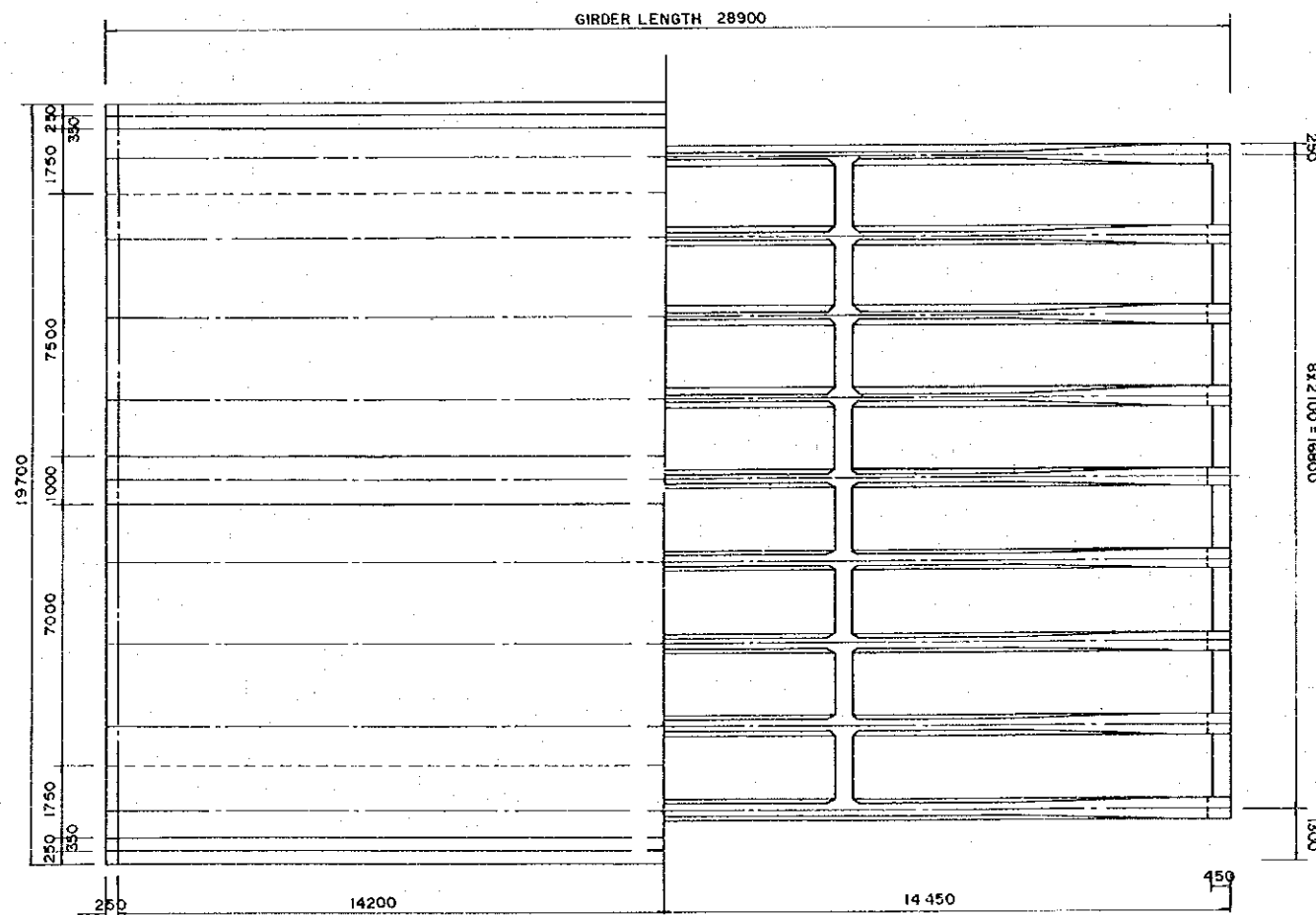
DWG. No.
7 - 24



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SECTION A - A



PROPOSED CONTINUOUS SPAN SYSTEM

- NOTE • LIVE LOAD : HS 20-44 AASHTO Standard Specification for Highway Bridges
- MATERIALS :
 - CONCRETE : Minimum strength of concrete in beams is $f_c = 35$ MPa
 - PRESTRESSING REINFORCEMENT : Materials for pre-stressing reinforcement shall be in accordance with the latest ASTM specification
 - TENSIONING : For beams with post-tensioning tendon, end blocks shall be used to distribute the concentrated pre-stressing forces of the anchorage
 - SEGMENTAL CONSTRUCTION : Beams may be built by segmental construction in lieu of full length construction
 - SPECIAL CONDITION FOR CONTINUOUS SLAB : To increase an earthquake resistance and to minimize an expansion joint, continuous slab has recommended with appropriate design method



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URBAN EXPRESSWAY SYSTEM

STANDARD VIADUCT - 1

SCALE

1 : 100

DWG. No.

8 - 1