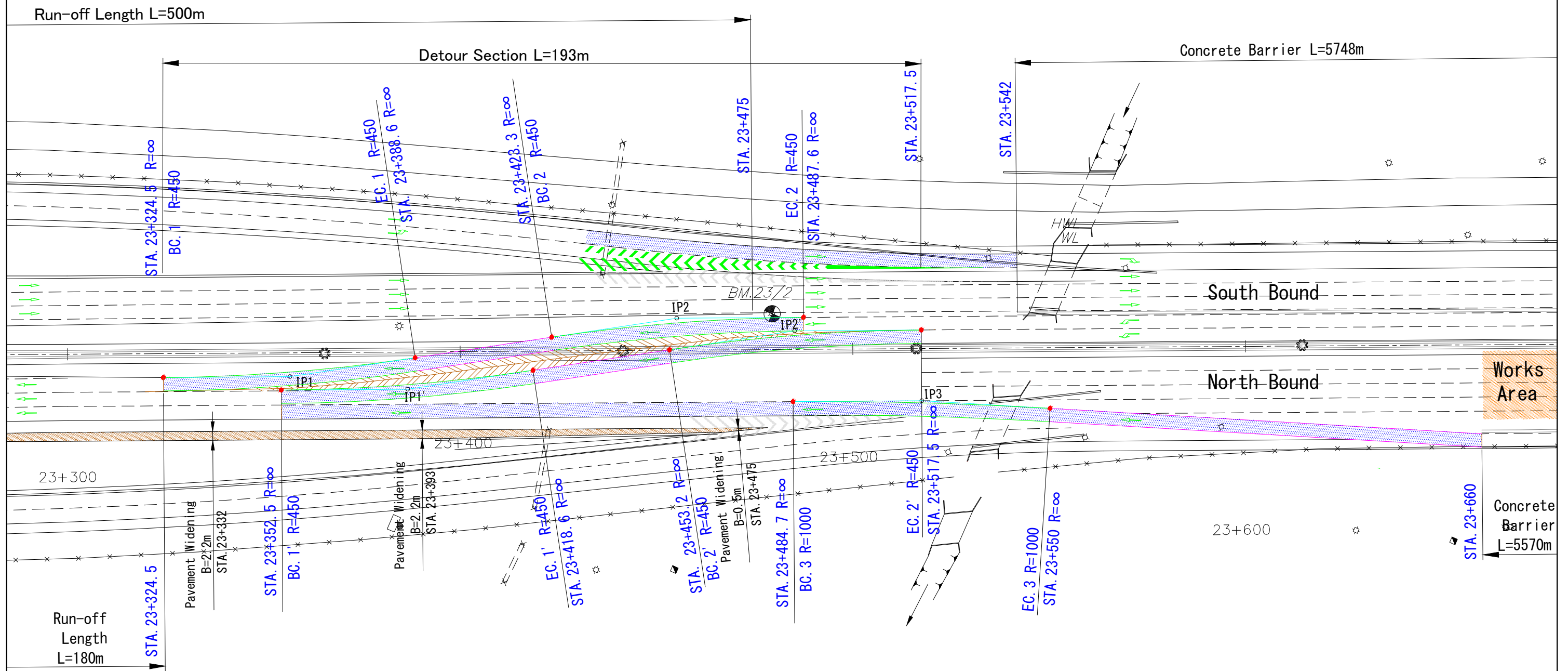


# Median Crossover

South Bound To North Bound  
Around STA. 23+500 Stage1



IP No.	STA.	Curve Length (m)	IA (dd-mm-ss)	Radius (m)
IP 1	23+398.893	64.373	8-11-46.410	450
IP 2	23+497.553	64.373	8-11-46.410	450
IP 3	23+517.481	65.486	3-45-6.820	1000

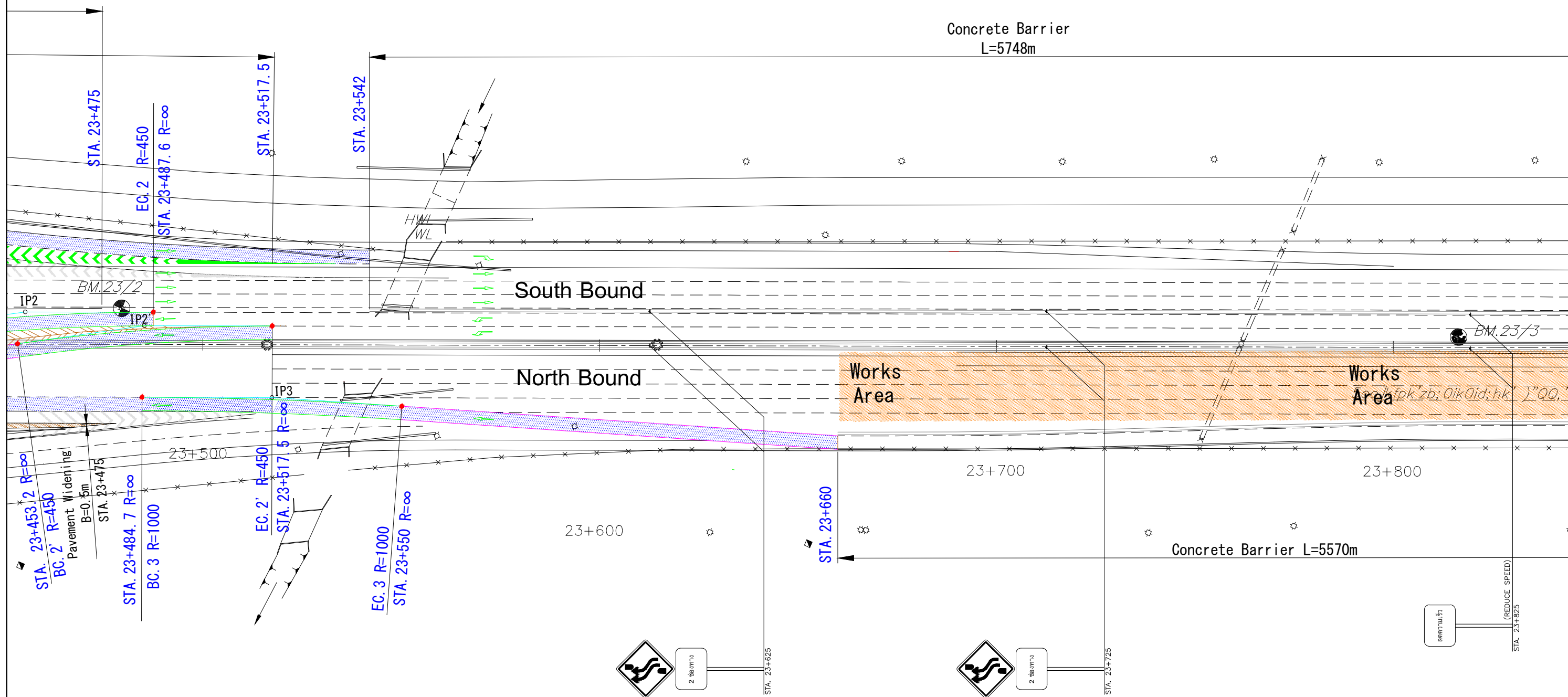
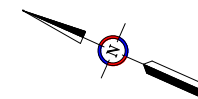
IP No.	STA.	Curve Length (m)	IA (dd-mm-ss)	Radius (m)
IP 1'	23+429.401	64.373	8-11-46.410	450
IP 2'	23+527.546	64.373	8-11-46.410	450

**Note :**

1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for standard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.

# Signboard-4

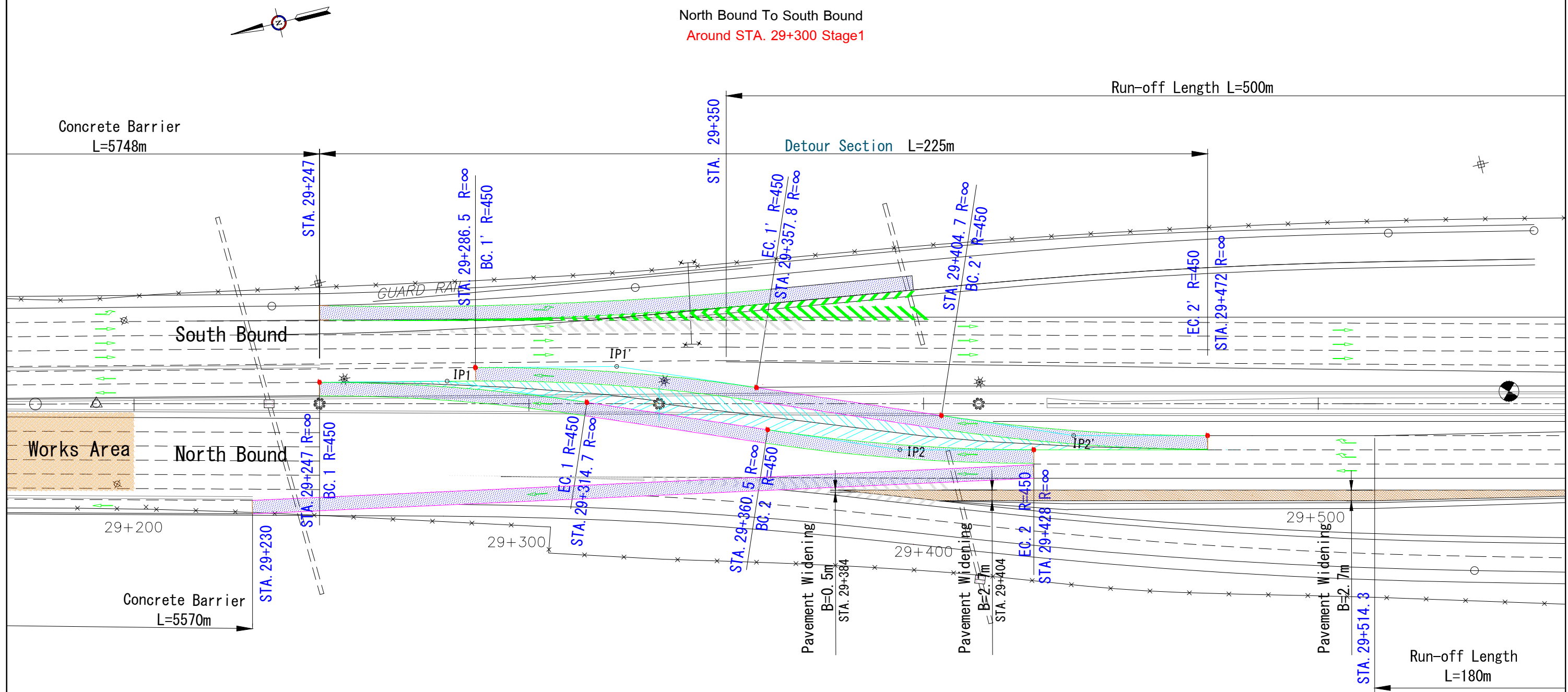
South Bound To North Bound  
Around STA. 23+700 Stage1



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
														DWG. NO. TS1-11	SHEET NO. 185

# Median Crossover

North Bound To South Bound  
Around STA. 29+300 Stage1



**Note :**

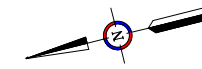
1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for standard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.

IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP 1	29+279.300	67.961	9-5-50.820	450
IP 2	29+394.049	67.680	8-37-2.060	450

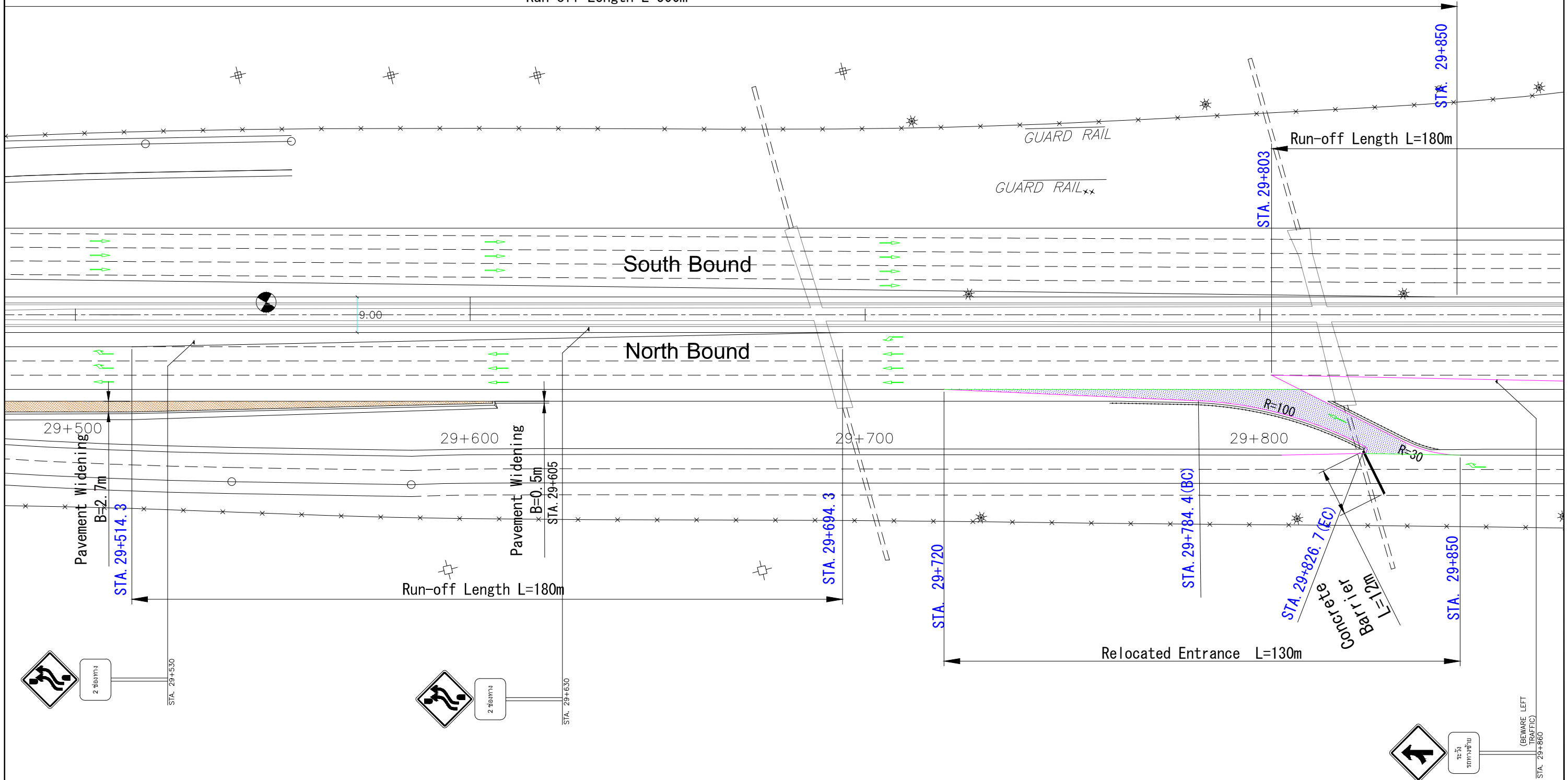
IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP 1'	29+322.276	67.961	9-5-50.820	450
IP 2'	29+438.086	67.680	8-37-2.060	450

# Relocated Entrance

North Bound  
Around STA. 29+800 Stage1

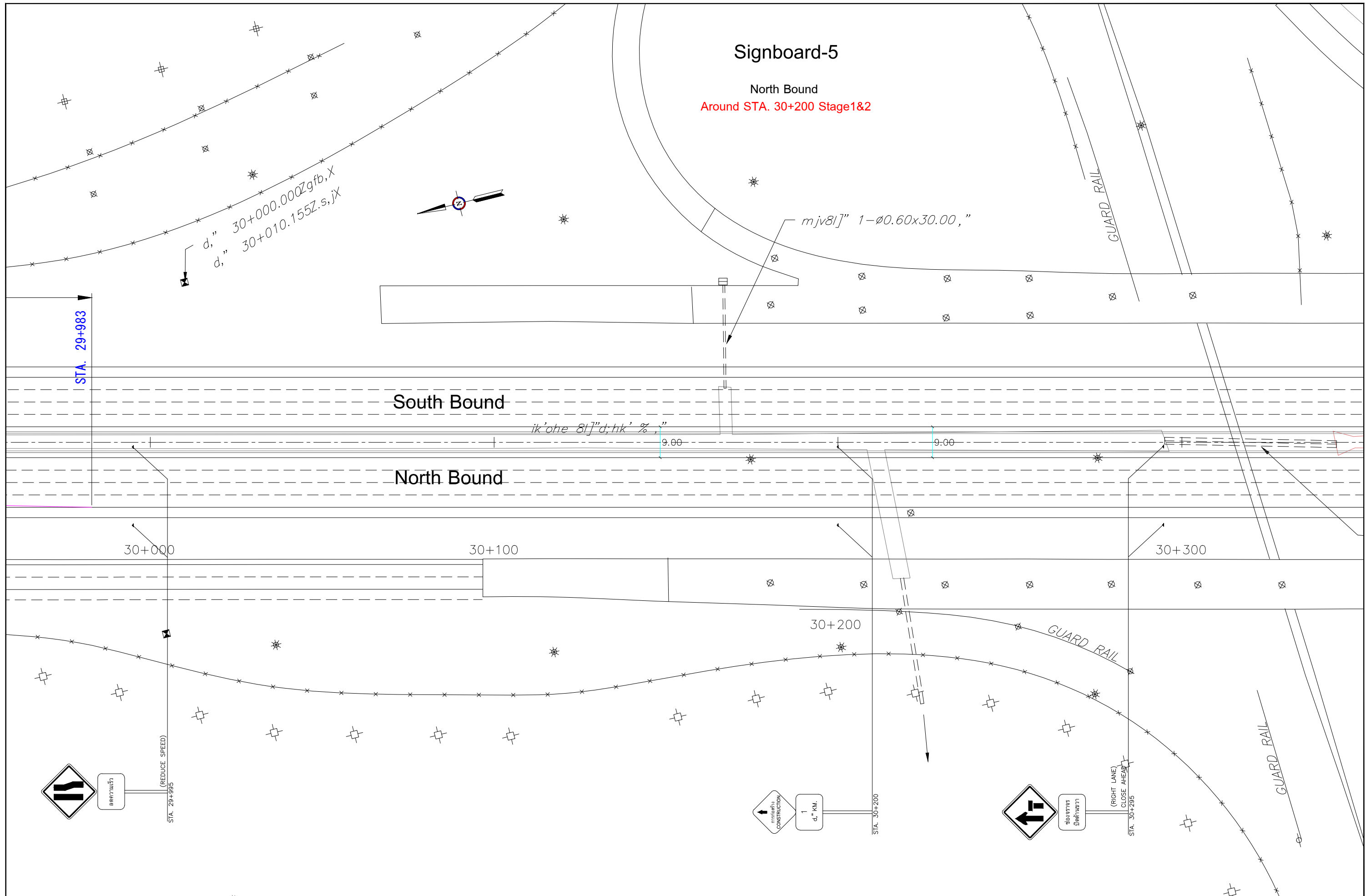


Run-off Length L=500m



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
														DWG. NO. TS1-13	SHEET NO. 187





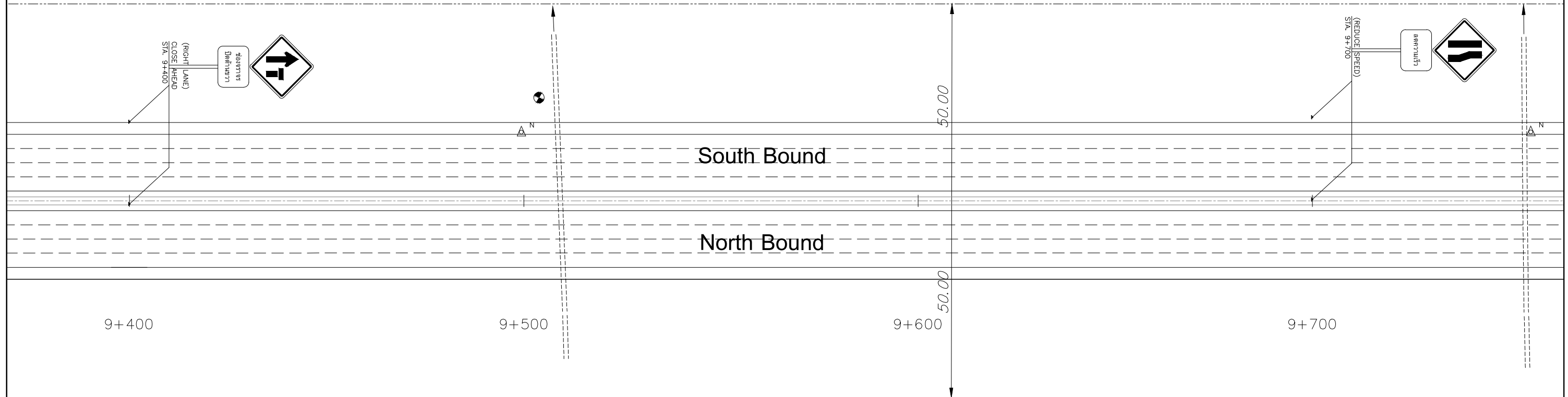
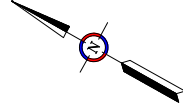
REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	 <b>KINGDOM OF THAILAND</b> MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	 CTI ENGINEERING INTERNATIONAL CO., LTD.  ORIENTAL CONSULTANTS CO., LTD.  NIPPON KOEI CO., LTD.  CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
									SIGNBOARD-5	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
												DWG. NO.	TS1-14		SHEET NO.	188

# **3. TRANSITION SECTION**

**( STAGE 2)**



**Signboard-1**  
 South Bound  
 Around STA. 9+600 Stage1&2



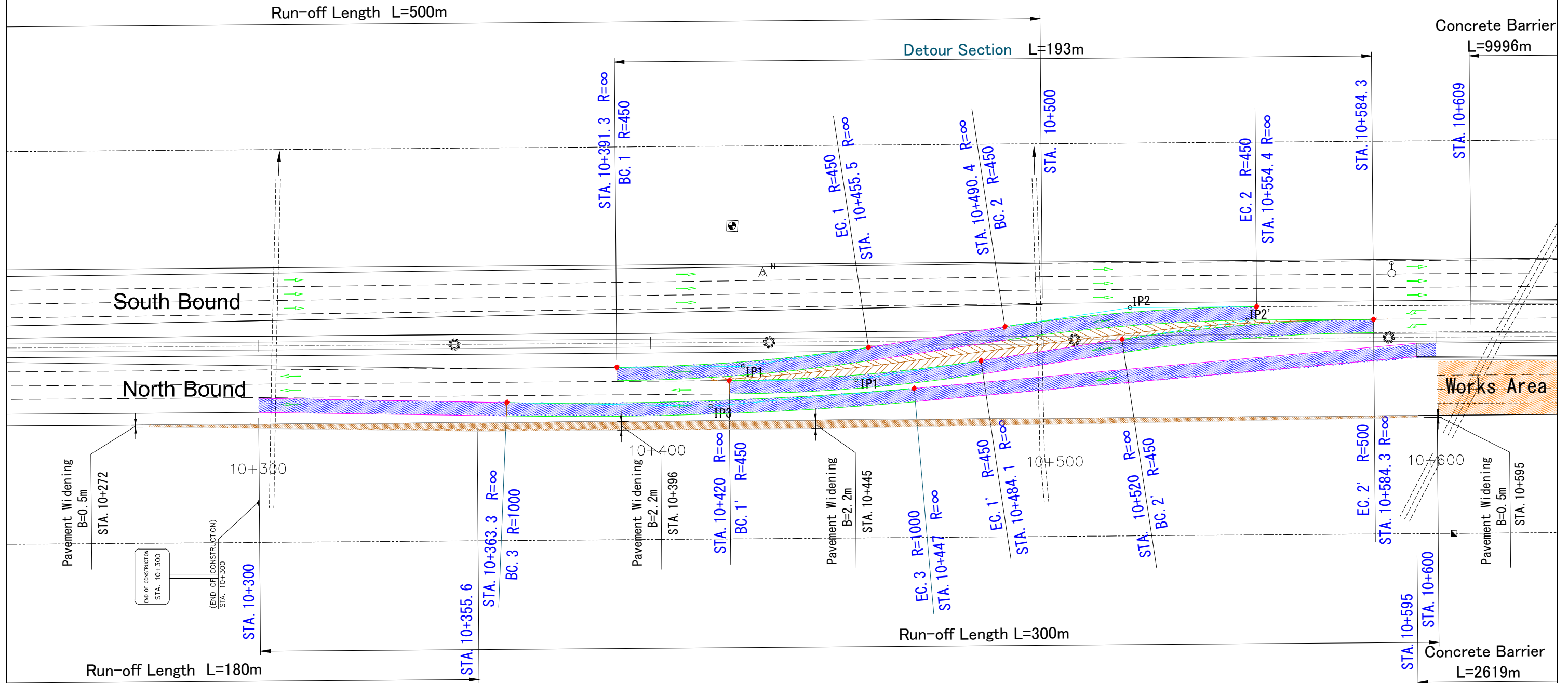
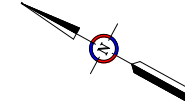
REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE				SIGNBOARD-1	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
														DWG. NO.	SHEET NO.	
														TS2-1	189	



# Median Crossover

South Bound To North Bound

Around STA. 10+500 Stage2



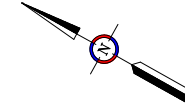
IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP 1	10+423.567	64.358	8-11-39.350	450
IP 2	10+522.179	64.358	8-11-39.350	450
IP 3	10+415.220	103.852	7-16-20.30	1000

IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP 1'	10+452.184	64.358	8-11-39.350	450
IP 2'	10+551.943	64.358	8-11-39.350	450

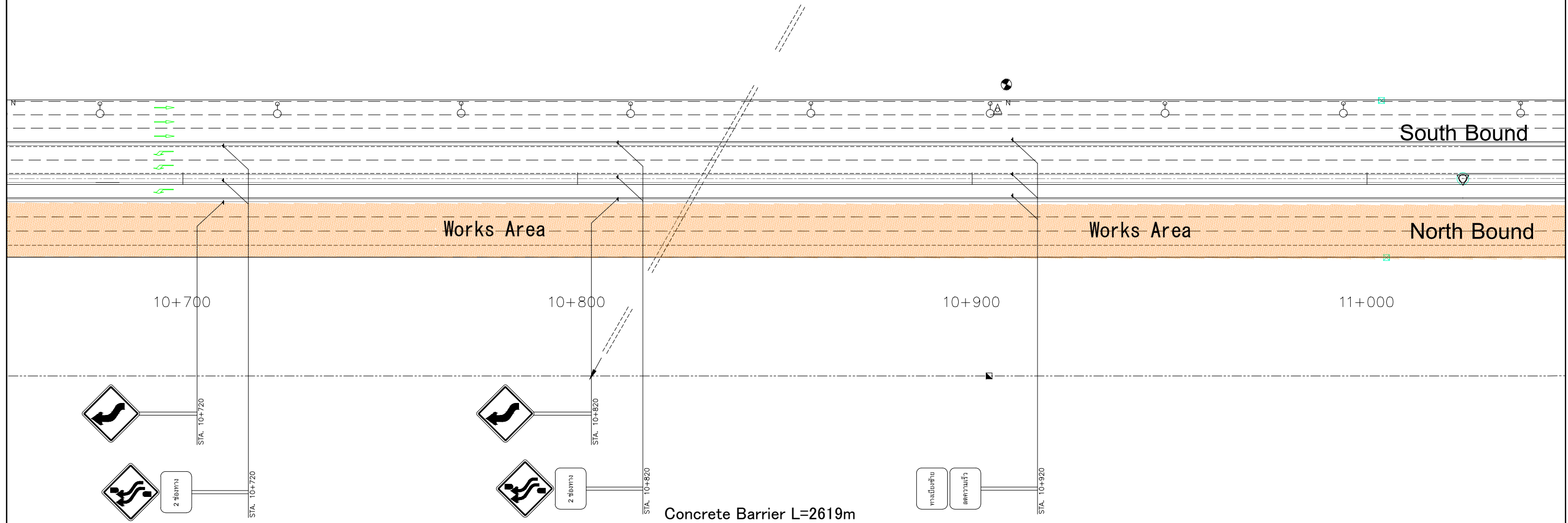
**Note :**

1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for standard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.

**Signboard-2**  
 South Bound To North Bound  
 Around STA. 10+800 Stage2



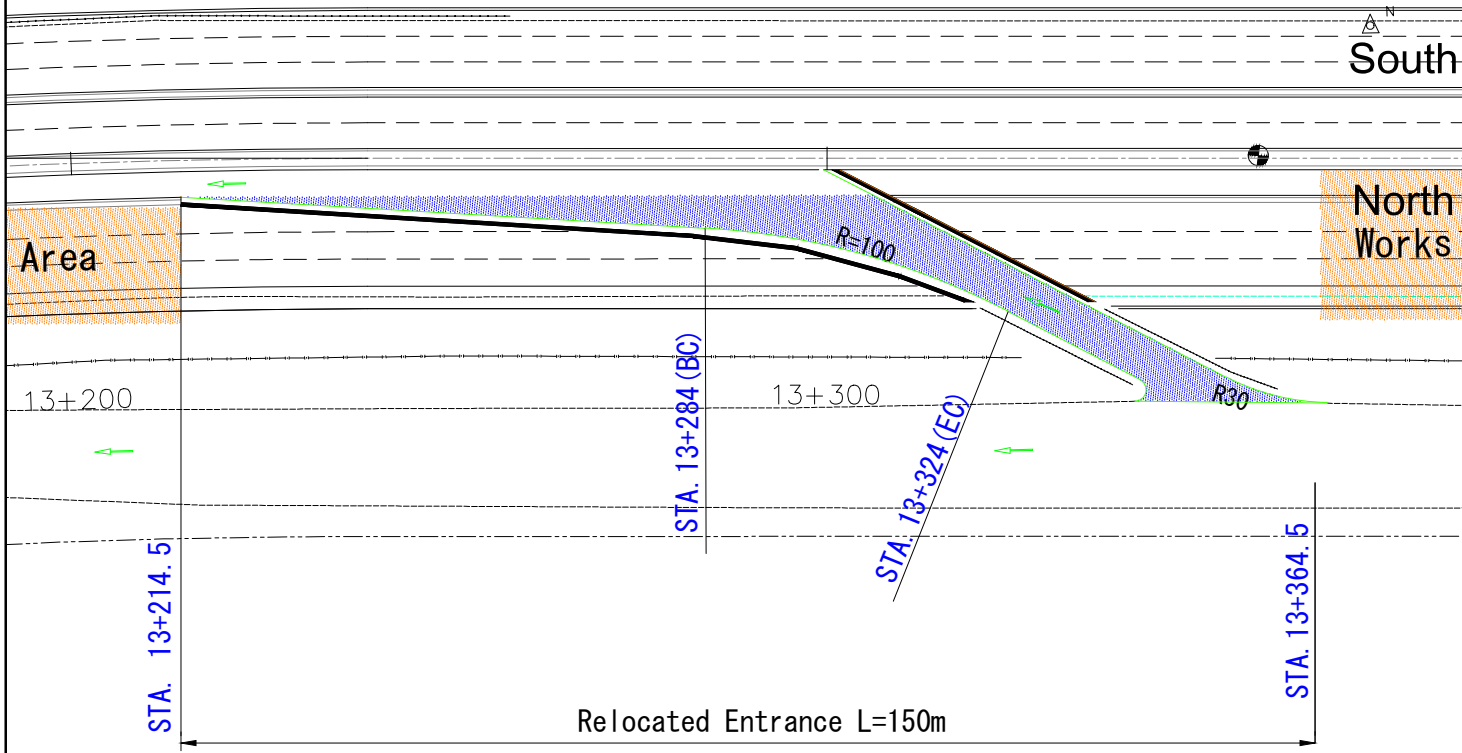
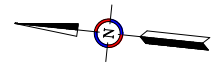
Concrete Barrier L=9996m



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE				SIGNBOARD-2	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
														DWG. NO.	SHEET NO.	
														TS2-3	191	

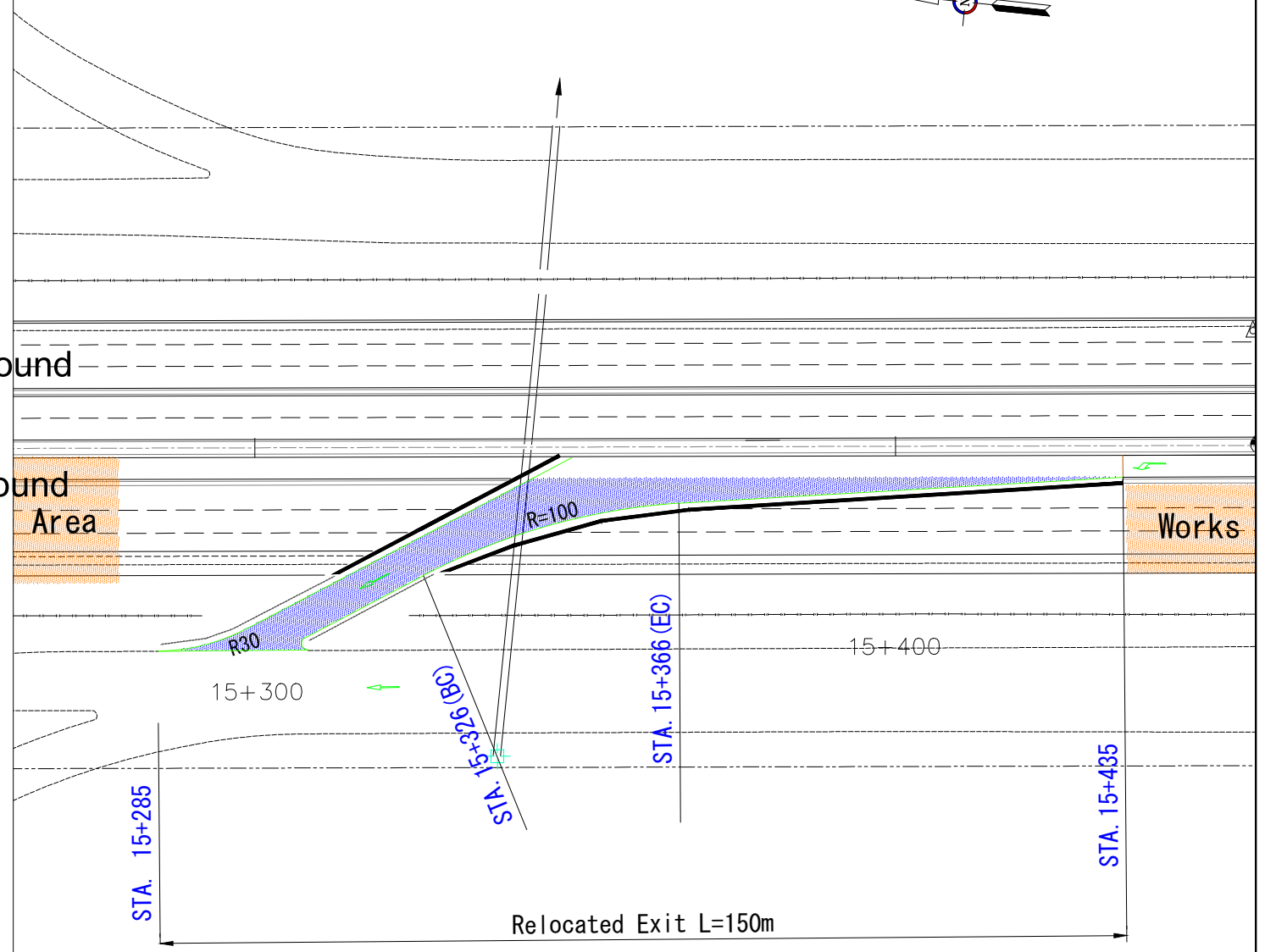
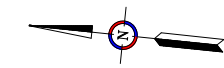
### Relocated Entrance

North Bound  
Around STA.13+300 Stage2



### Relocated Exit

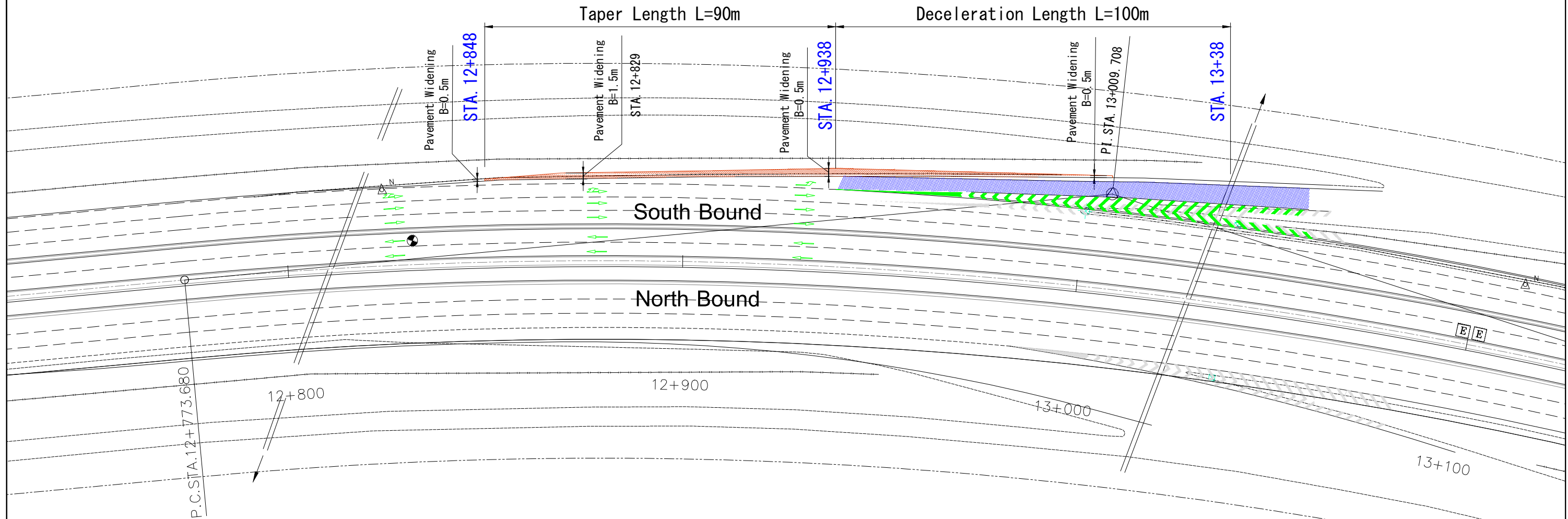
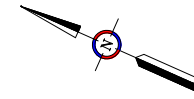
North Bound  
Around STA.15+350 Stage2



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE								SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
									The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road			DWG. NO.	SHEET NO.		
													TS2-4	192		

# Relocated Exit

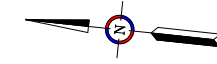
South Bound  
Around STA. 12+900 Stage1&2



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
														DWG. NO. TS2-5	SHEET NO. 193

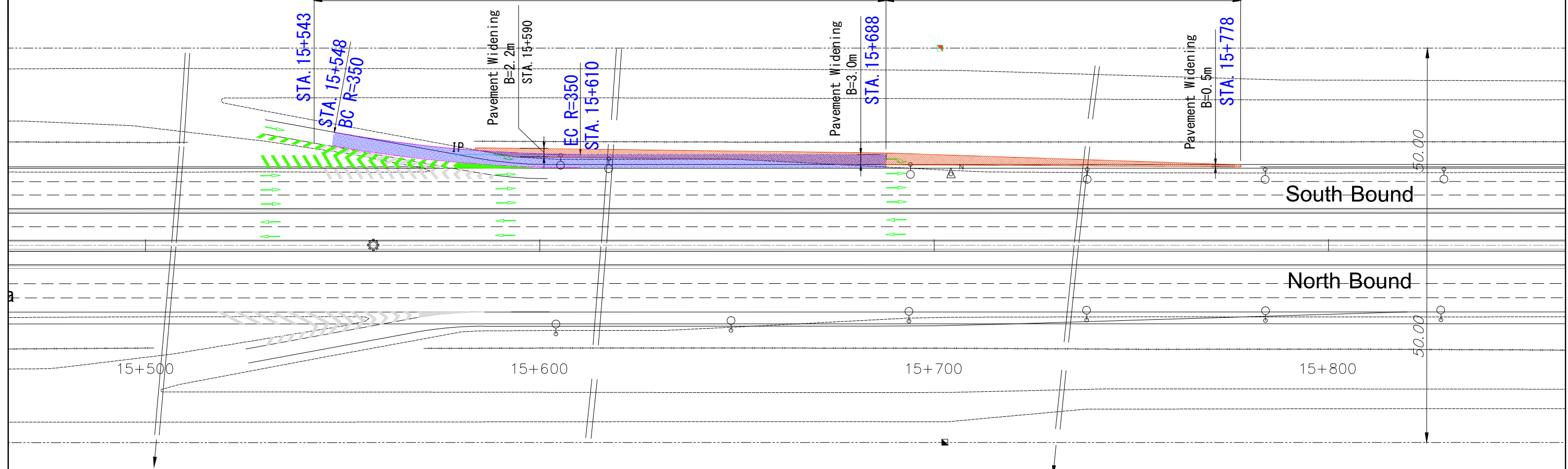
# Relocated Entrance

South Bound  
Around STA. 15+600 Stage1&2



Acceleration Length L=145m

Taper L=90m



IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP	15+578.822	62.758	10-16-25.100	350

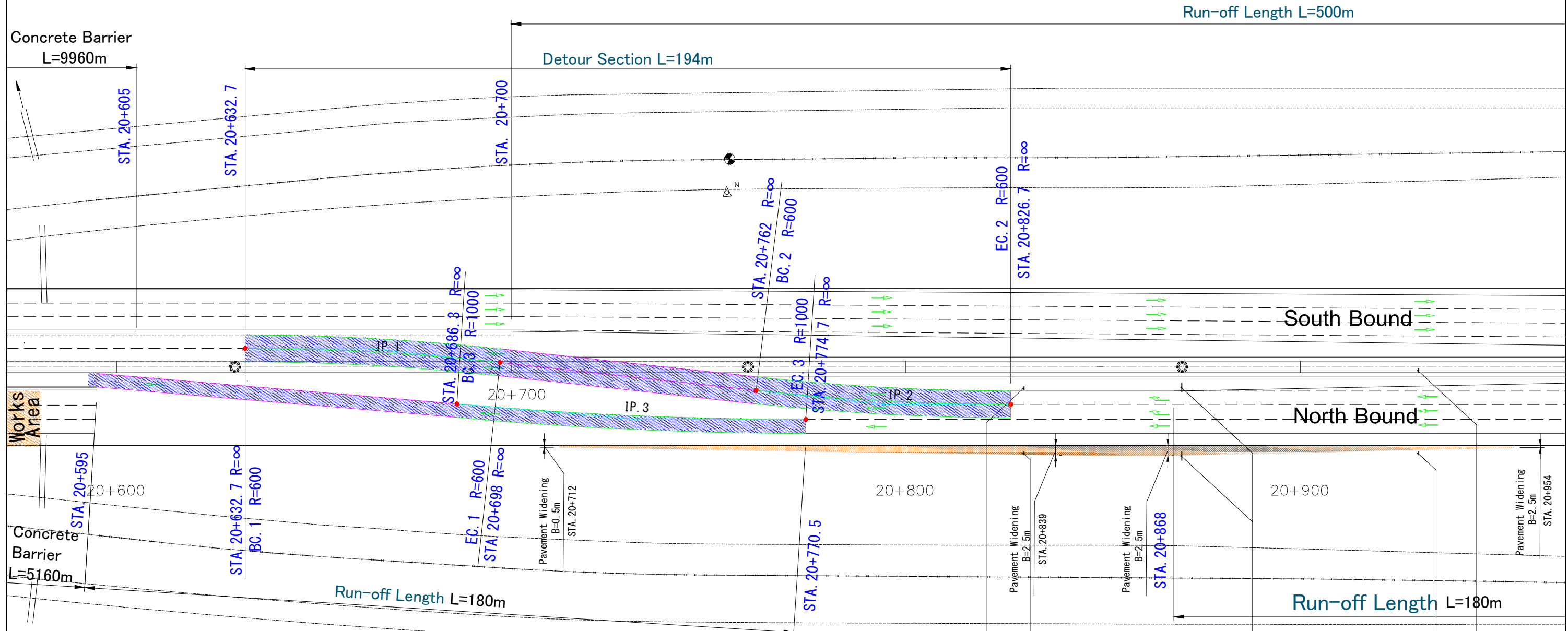
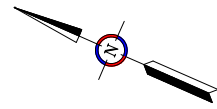
REV. NO.	DESCRIPTION	ENGINEER CHECKED DATE	DOH CHECKED DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE : AUGUST 2012	SCALE : SCALE 1:500
							RELOCATED ENTRANCE(SOUTH BOUND)						DWG. NO. TS2-6	SHEET NO. 194



# Median Crossover

North Bound To South Bound

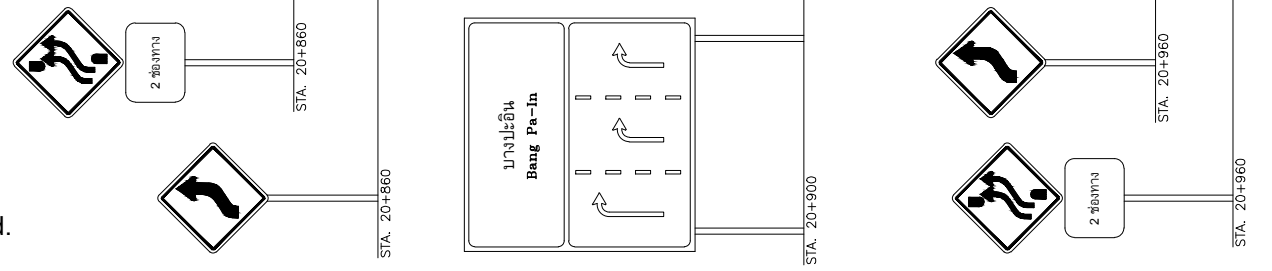
Around STA.20+700 Stage2



IP No.	STA.	Curve Length		IA (dd-mm-ss)	Radius (m)
		(m)	(m)		
IP 1	20+664.987	64.680	64.680	6-10-35.400	600
IP 2	20+794.233	64.680	64.680	6-10-35.400	600
IP 3	20+732.034	88.503	88.503	4-46-39.800	1000

**Note :**

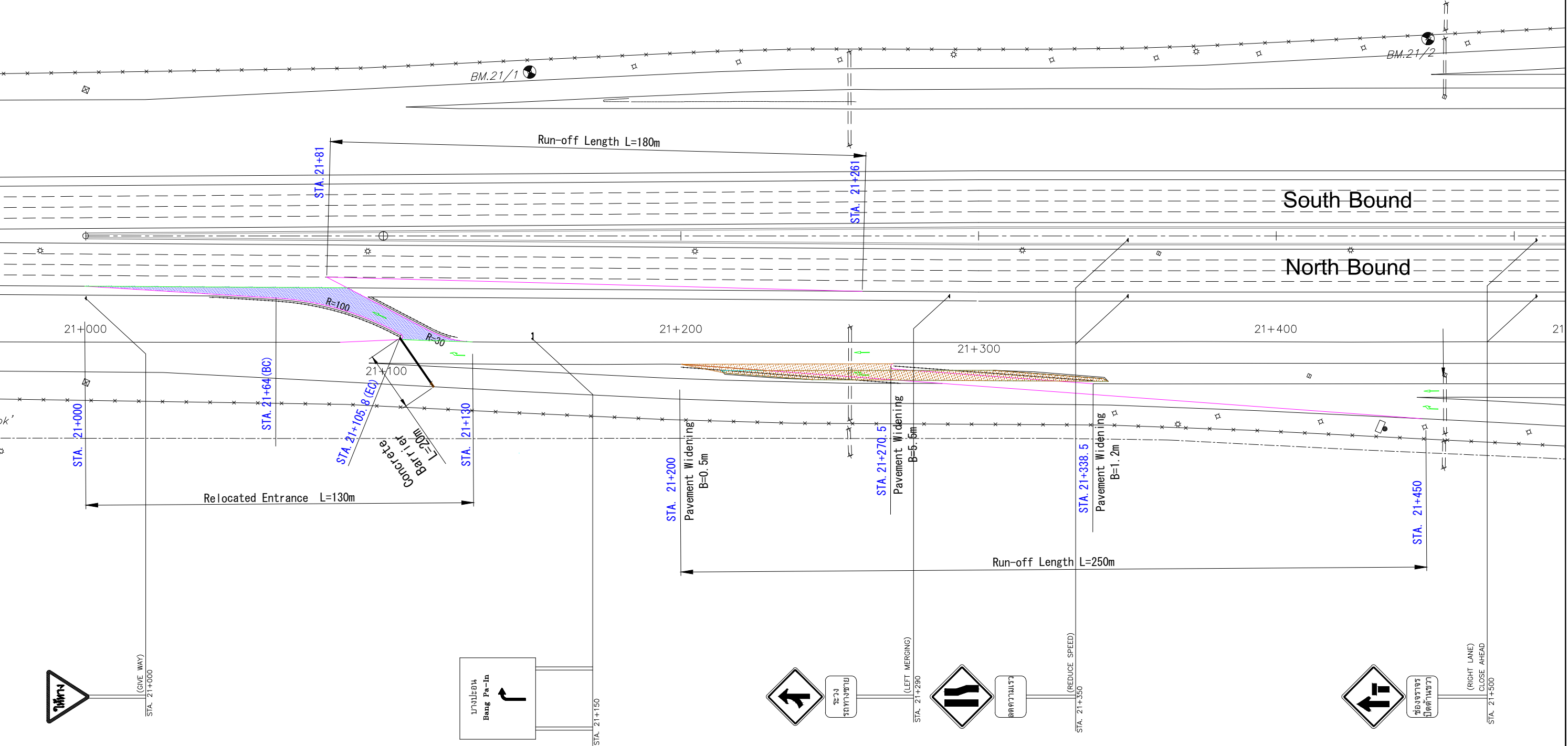
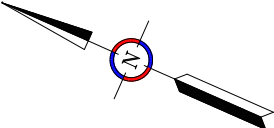
1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for stadard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.



REV. NO.	DESCRIPTION	ENGINEER CHECKED DATE	DOH CHECKED DATE	REV. NO.	APPROVED BY	<p>KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS</p>	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motonways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE : AUGUST 2012	SCALE : SCALE 1:500
							MEDIAN CROSSOVER (AROUND STA.20+700)							DWG. NO. TS2-7

# Relocated Entrance

North Bound  
Around STA.21+200 Stage1&2



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY
		CHECKED	DATE	CHECKED	DATE		

**KINGDOM OF THAILAND**  
 MINISTRY OF TRANSPORT  
 DEPARTMENT OF HIGHWAYS

HIGHWAY ROUTE NO. 9  
**RELOCATED ENTRANCE(NORTH BOUND)**

OWNER  
 The Inter-City Motorways Division  
 Department of Highways  
 Ministry of Transport

PROJECT TITLE  
 The Preparatory Survey on  
 the Rehabilitation Project of  
 the Outer Bangkok Ring Road

CTI ENGINEERING INTERNATIONAL CO., LTD.  
 ORIENTAL CONSULTANTS CO., LTD.  
 NIPPON KOEI CO., LTD.  
 CTI ENGINEERING CO., LTD.

DESIGNED BY  
 SAGARA Hidetaka  
 ROAD ENGINEER

CHECKED BY  
 WATANABE Ryohei  
 CHIEF ENGINEER

DATE :  
 AUGUST 2012

DWG. NO.  
**TS2-8**

SCALE :  
 SCALE 1:750

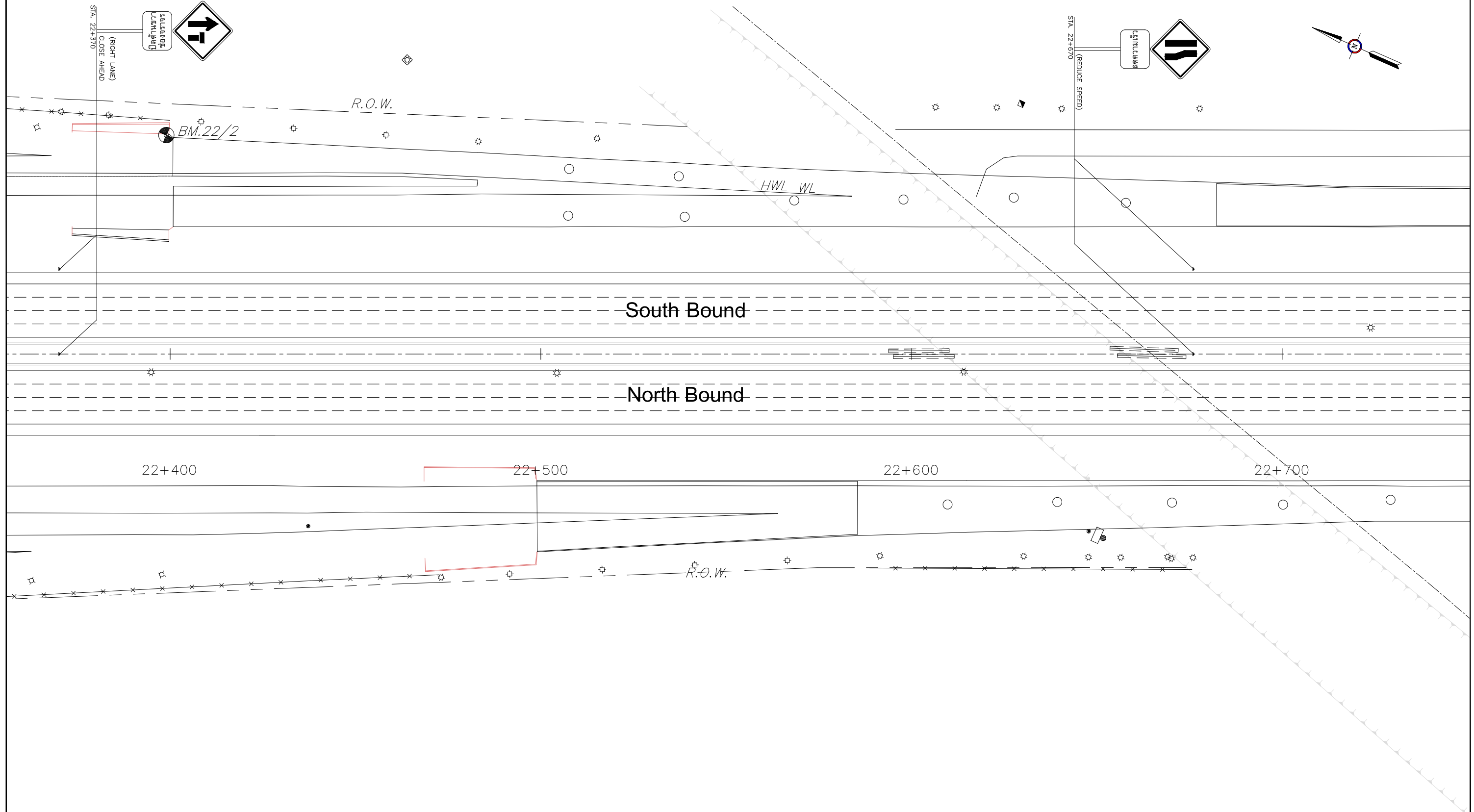
SHEET NO.  
**196**



# Signboard-3

South Bound

Around STA. 22+500 Stage1&2



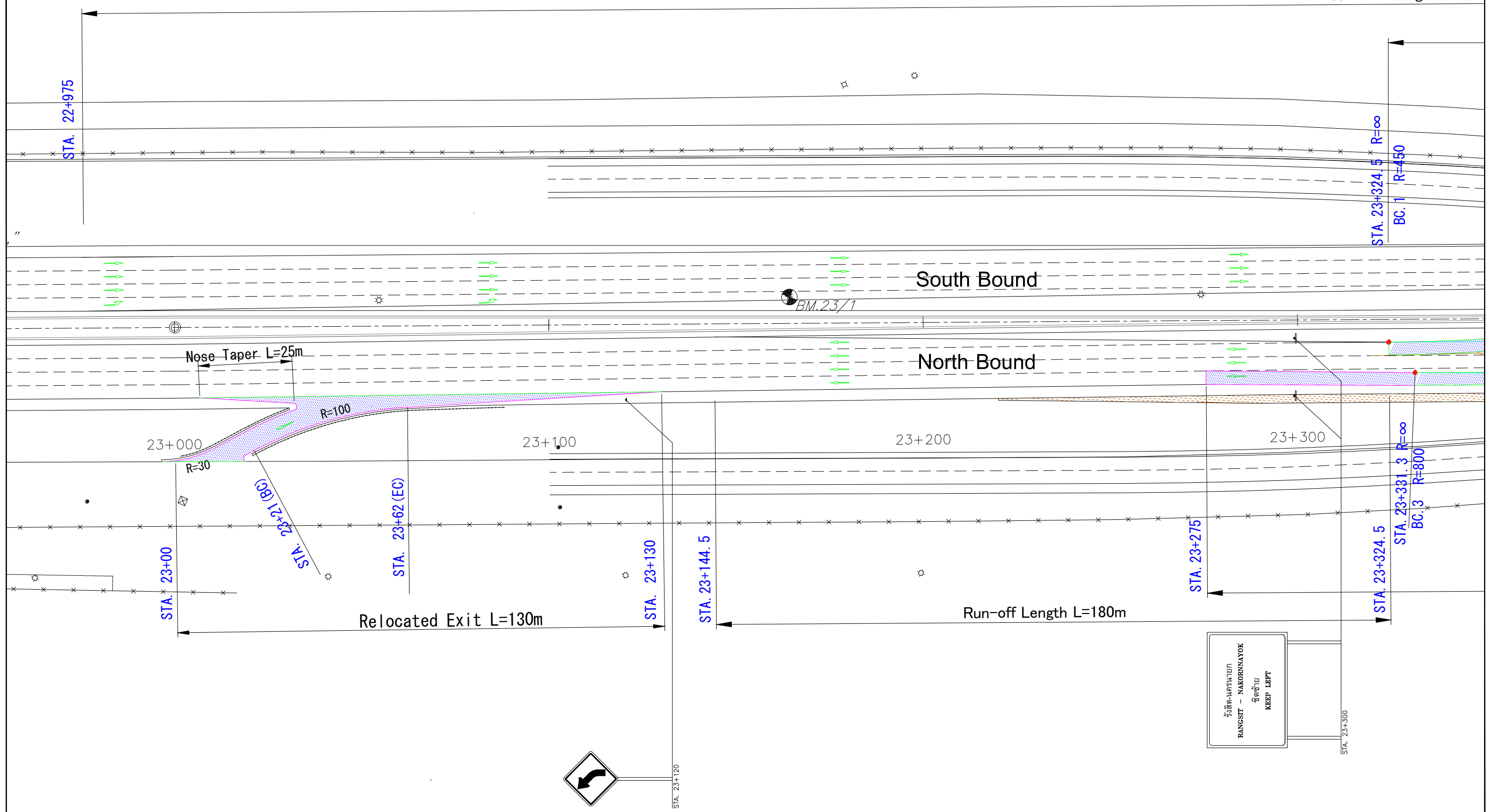
REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
									SIGNBOARD-3					DWG. NO. TS2-9	SHEET NO. 197

# Relocated Exit

North Bound

Around STA. 23+100 Stage1&2

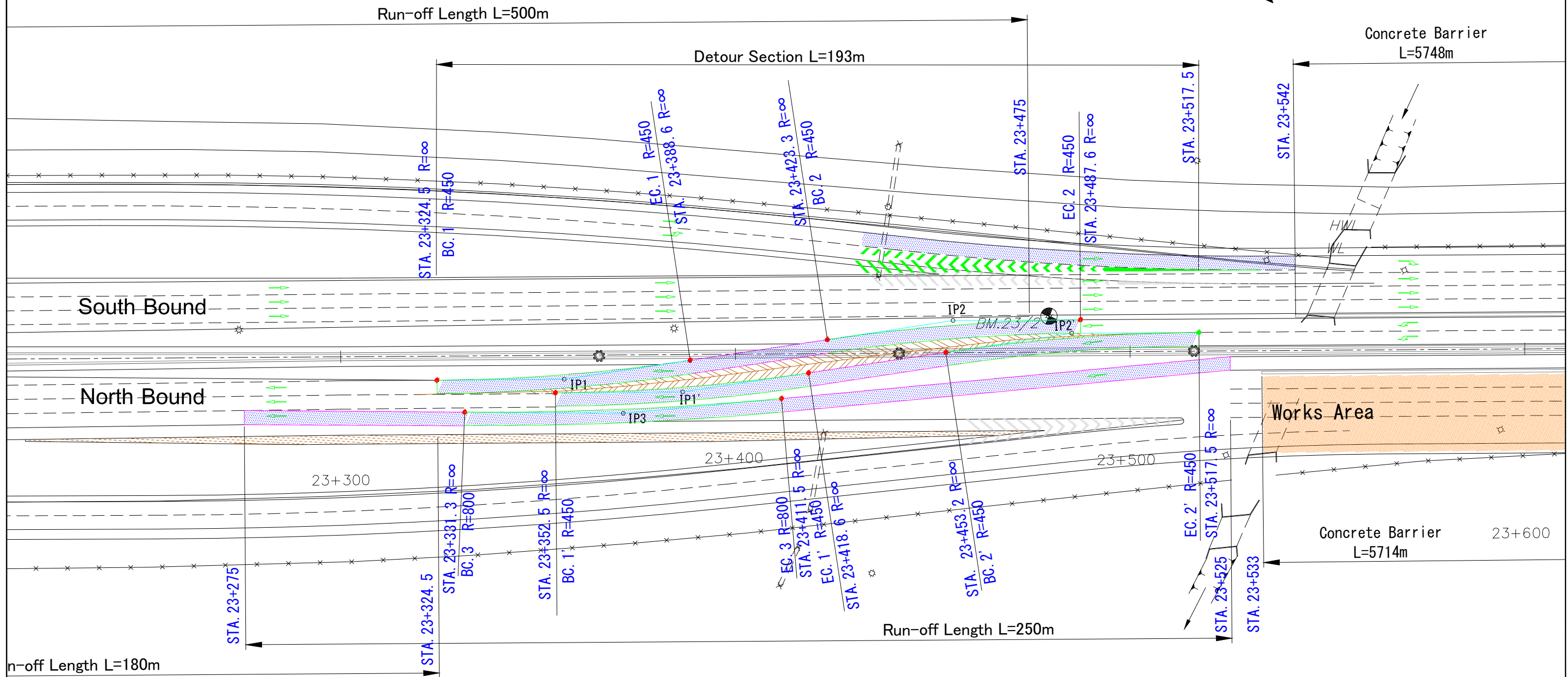
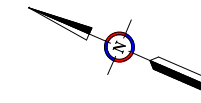
Run-off Length L=500



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
														DWG. NO. TS2-10	SHEET NO. 198

# Median Crossover

South Bound To North Bound  
Around STA. 23+500 Stage2



IP No.	STA.	Curve Length (m)	IA (dd-mm-ss)	Radius (m)
IP 1	23+398.893	64.373	8-11-46.410	450
IP 2	23+497.553	64.373	8-11-46.410	450
IP 3	23+371.589	80.356	5-45-45.070	800

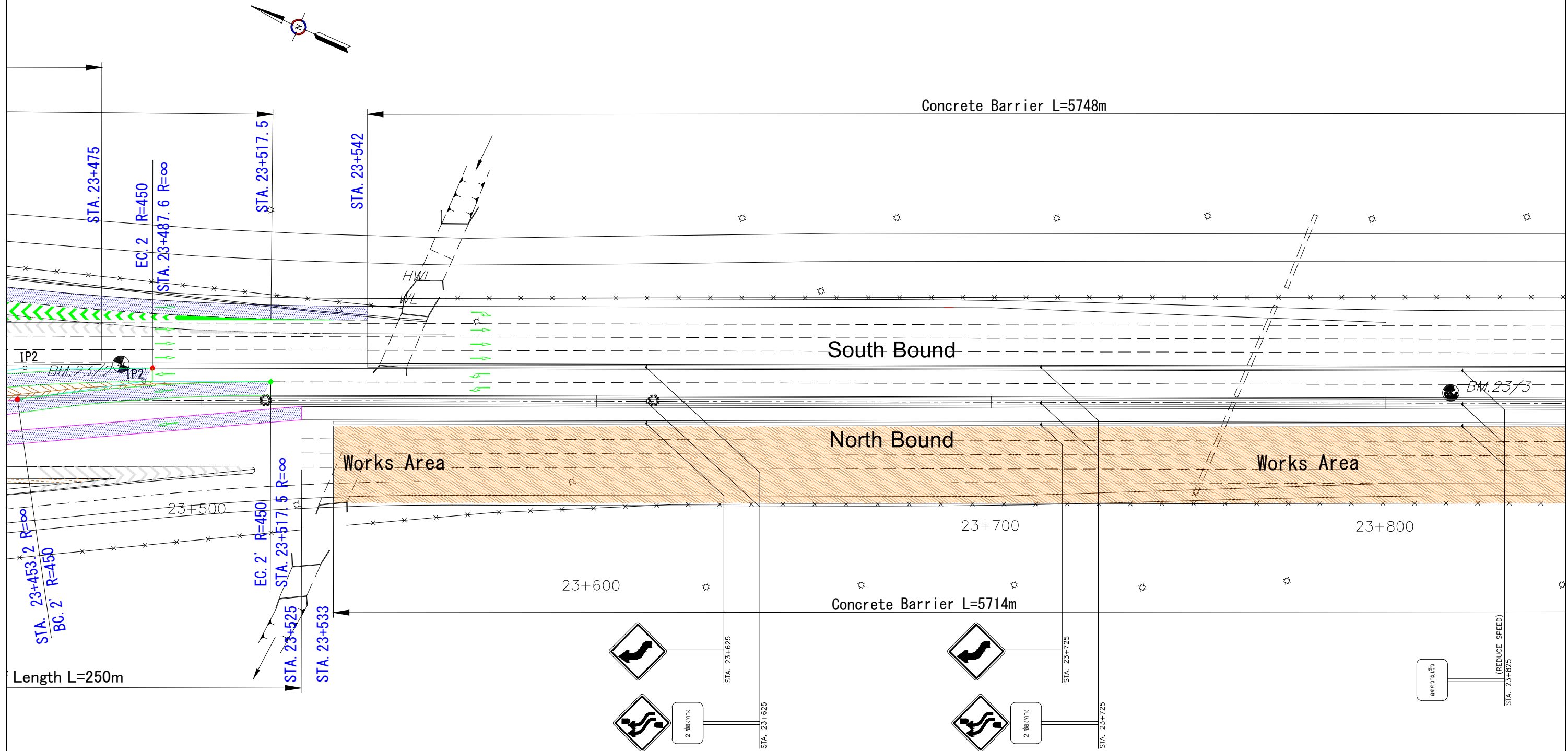
IP No.	STA.	Curve Length (m)	IA (dd-mm-ss)	Radius (m)
IP 1'	23+429.401	64.373	8-11-46.410	450
IP 2'	23+527.546	64.373	8-11-46.410	450

**Note :**

1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for standard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.

# Signboard-4

South Bound To North Bound  
Around STA. 23+700 Stage2



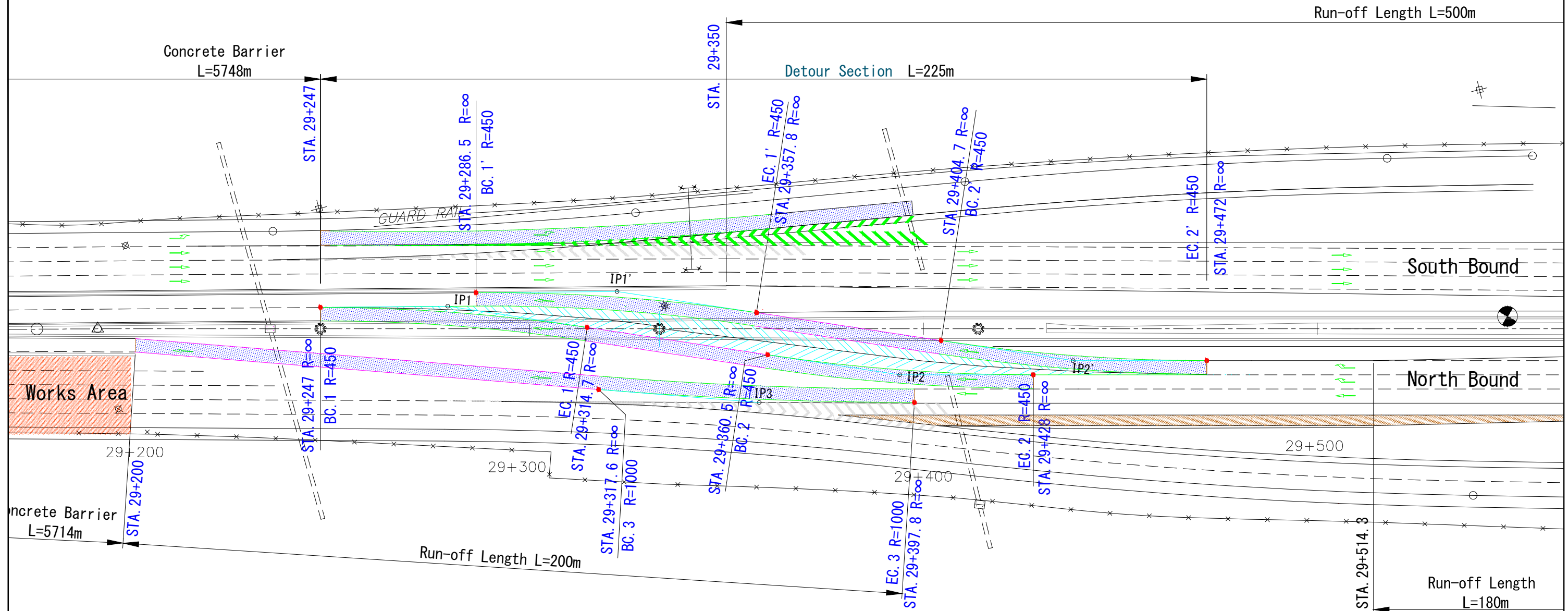
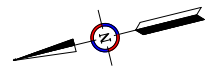
REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
														DWG. NO. TS2-12	SHEET NO. 200

CTI ENGINEERING INTERNATIONAL CO., LTD.  
ORIENTAL CONSULTANTS CO., LTD.  
NIPPON KOEI CO., LTD.  
CTI ENGINEERING CO., LTD.



# Median Crossover

North Bound To South Bound  
Around STA. 29+300 Stage2



**Note :**

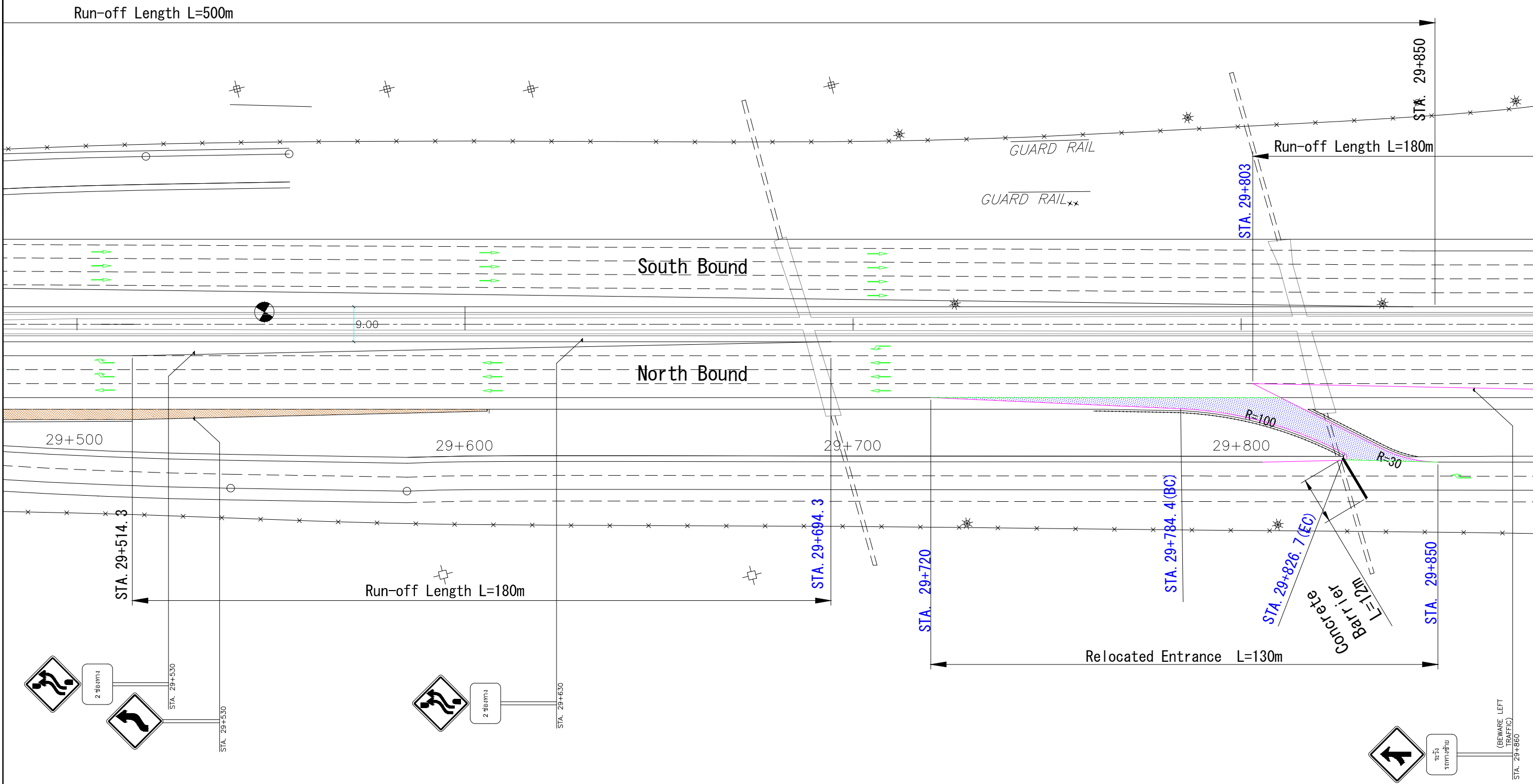
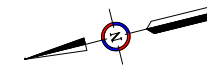
1. Set 40km/h as maximum speed limit for transition road.
2. Set 60km/h as maximum speed limit for standard road.
3. Install traffic control signs in accordance with the Road Work Guide published by DoH.

IP No.	STA.	Curve Length (m)	IA (dd-mm-ss)	Radius (m)
IP 3	29+358.372	79.997	4-23-35.210	1000

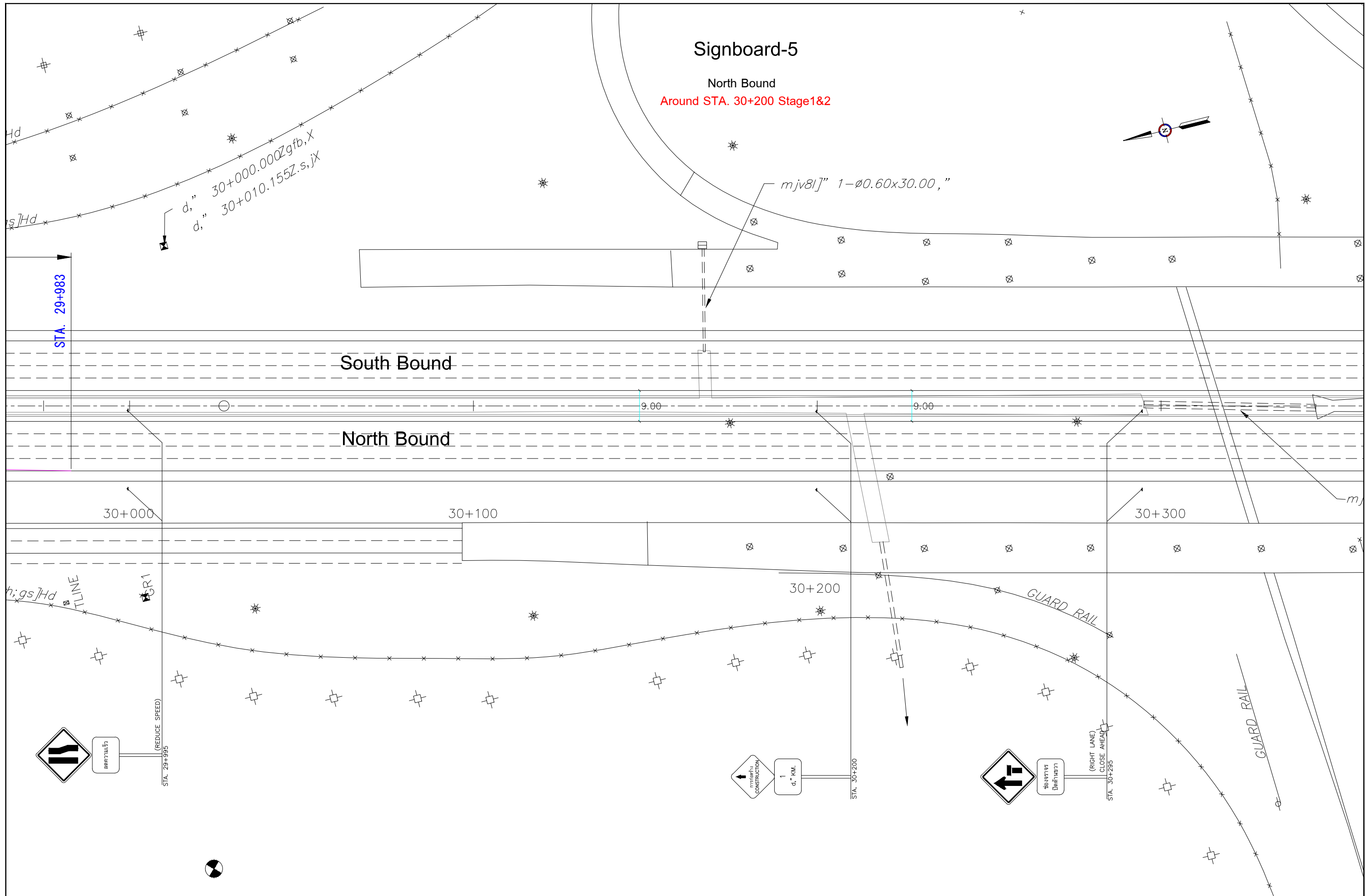
IP No.	STA.	Curve Length	IA	Radius
		(m)	(dd-mm-ss)	(m)
IP 1	29+279.300	67.961	9-5-50.820	450
IP 2	29+394.049	67.680	8-37-2.060	450
IP 1'	29+322.276	67.961	9-5-50.820	450
IP 2'	29+438.086	67.680	8-37-2.060	450

# Relocated Entrance

North Bound  
Around STA. 29+800 Stage2



REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE		DESIGNED BY	CHECKED BY	DATE:	SCALE:
									RELOCATED ENTRANCE(NORTH BOUND)	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012  DWG. NO. <b>TS2-14</b>	SCALE 1:500  SHEET NO. <b>202</b>



REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE:	SCALE:
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	SCALE 1:500
														DWG. NO. TS2-15	SHEET NO. 203





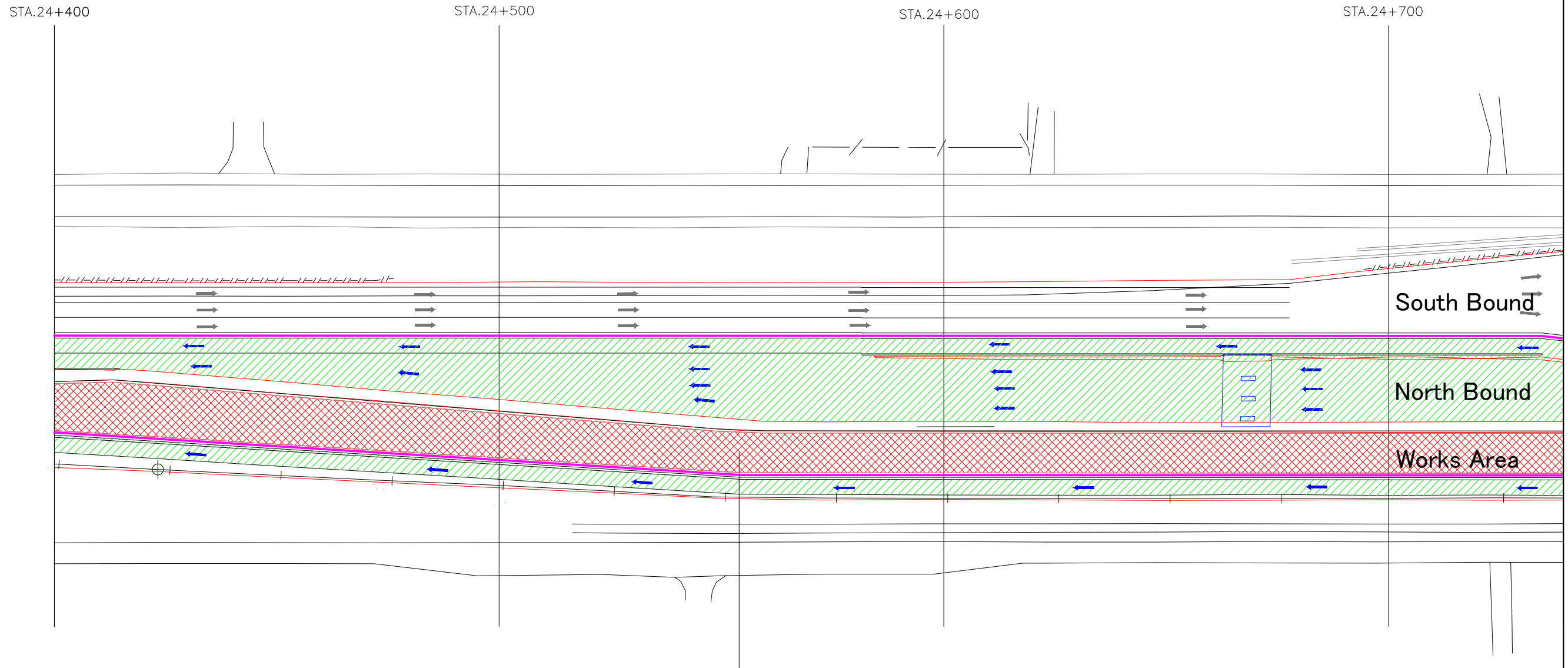
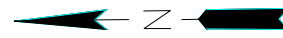
# **4. TOLL GATE TRAFFIC CONTROL**



# Toll Gate Traffic Control (STAGE I -1/4 )

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**

**General**

1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 1 & 2, in the north bound as shown in the drawing.
2. Demolish eight lanes, No.3 to 10, and reinstall seven new gates, No.3 to 7, 9 & 10 as well as temporary gate, No. 8, as shown in the drawing.

**Legend :**

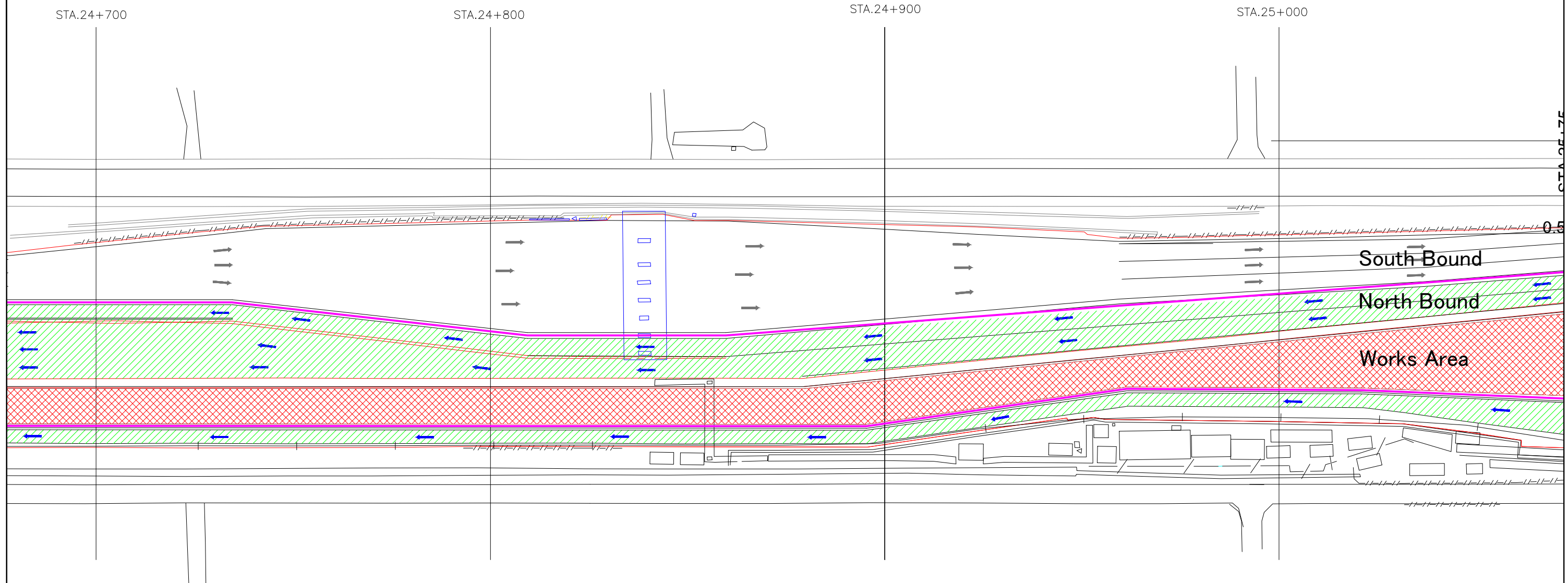
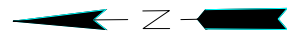
- Service Lanes for North Bound
- Works Area
- Concrete Barriere

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE				STAGE 1	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
															DWG. NO.	SHEET NO.
															TT-1	204

# Toll Gate Traffic Control (STAGE I -2/4 )

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**

**General**

1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 1 & 2, in the north bound as shown in the drawing.
2. Demolish eight lanes, No.3 to 10, and reinstall seven new gates, No.3 to 7, 9 & 10 as well as temporary gate, No. 8, as shown in the drawing.

**Legend :**

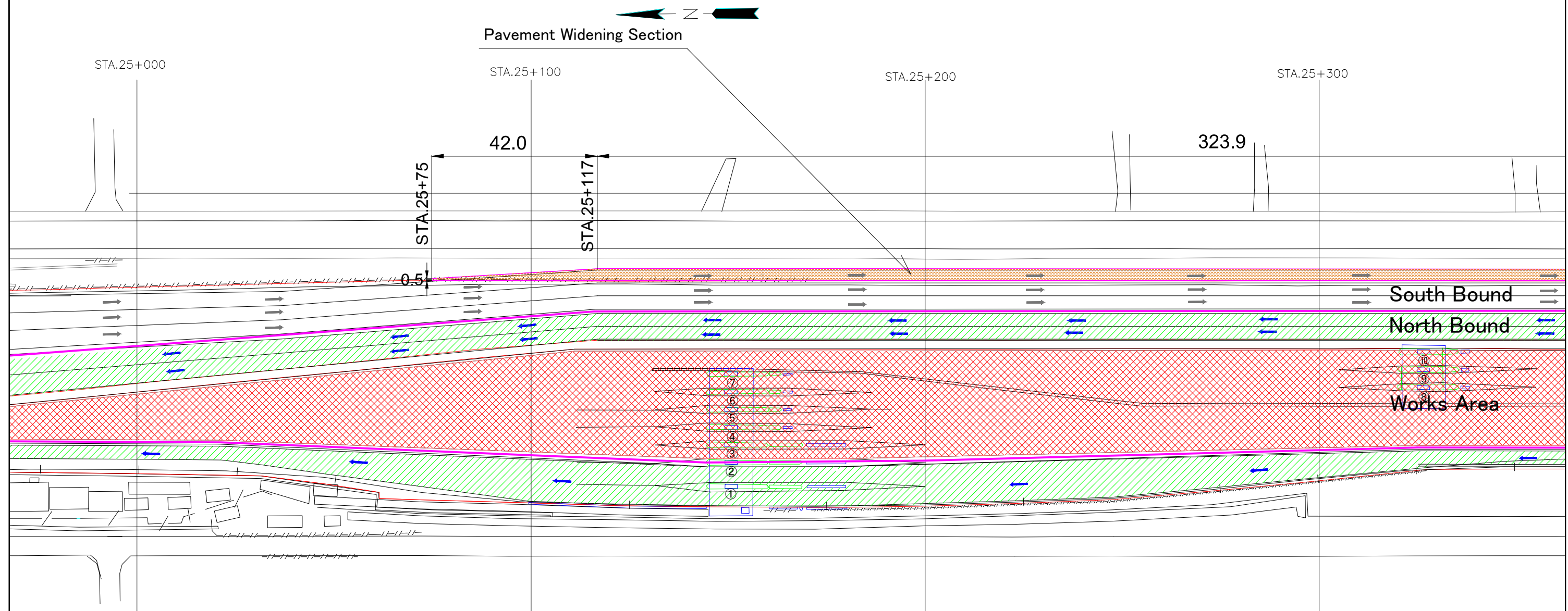
- Service Lanes for North Bound
- Works Area
- Concrete Barriere

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE				STAGE 1	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
															DWG. NO.	SHEET NO.
															TT-2	205

# Toll Gate Traffic Control (STAGE I -3/4 )

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**

**General**

1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 1 & 2, in the north bound as shown in the drawing.
2. Demolish eight lanes, No.3 to 10, and reinstall seven new gates, No.3 to 7, 9 & 10 as well as temporary gate, No. 8, as shown in the drawing.

**Legend :**

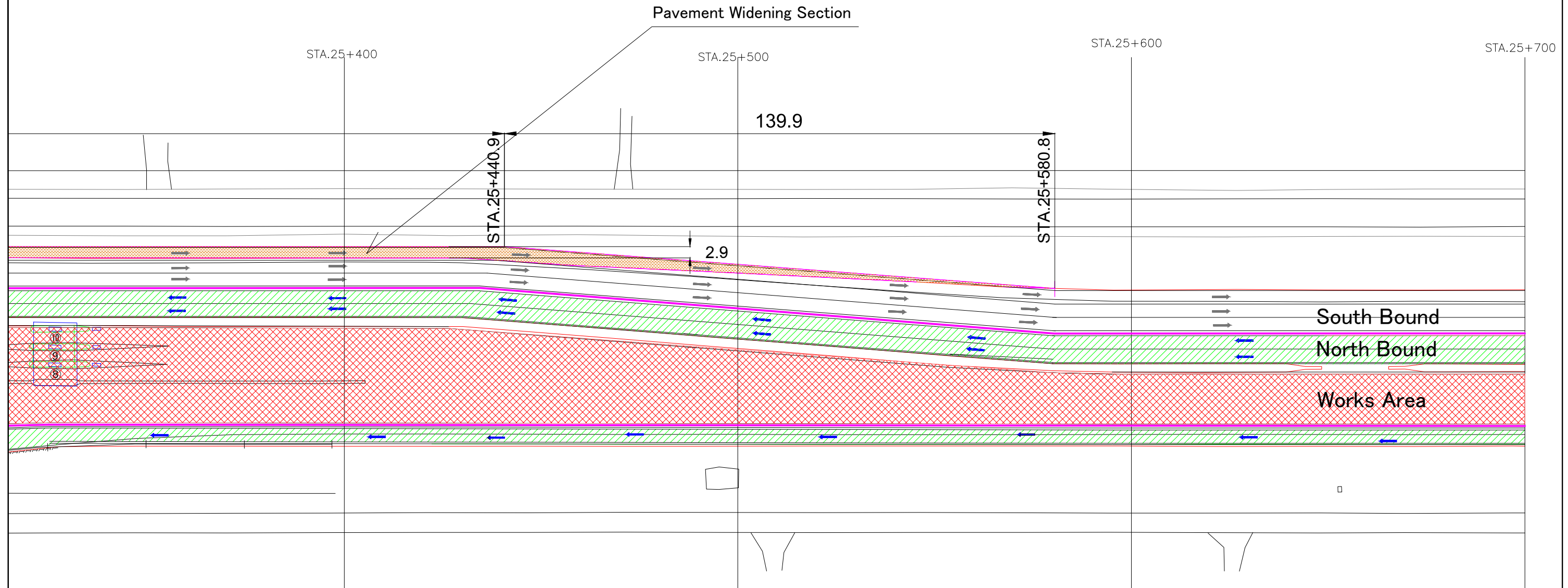
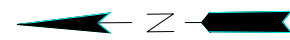
- Service Lanes for North Bound
- Works Area
- Concrete Barriere

REV. NO.	DESCRIPTION	ENGINEER	DOH	REV. NO.	APPROVED BY	<b>KINGDOM OF THAILAND</b> MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE		STAGE 1	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
												TT-3	SHEET NO. 206	

# Toll Gate Traffic Control (STAGE I -4/4 )

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**

**General**

1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 1 & 2, in the north bound as shown in the drawing.
2. Demolish eight lanes, No.3 to 10, and reinstall seven new gates, No.3 to 7, 9 & 10 as well as temporary gate, No. 8, as shown in the drawing.

**Legend :**

- Service Lanes for North Bound
- Works Area
- Concrete Barriere

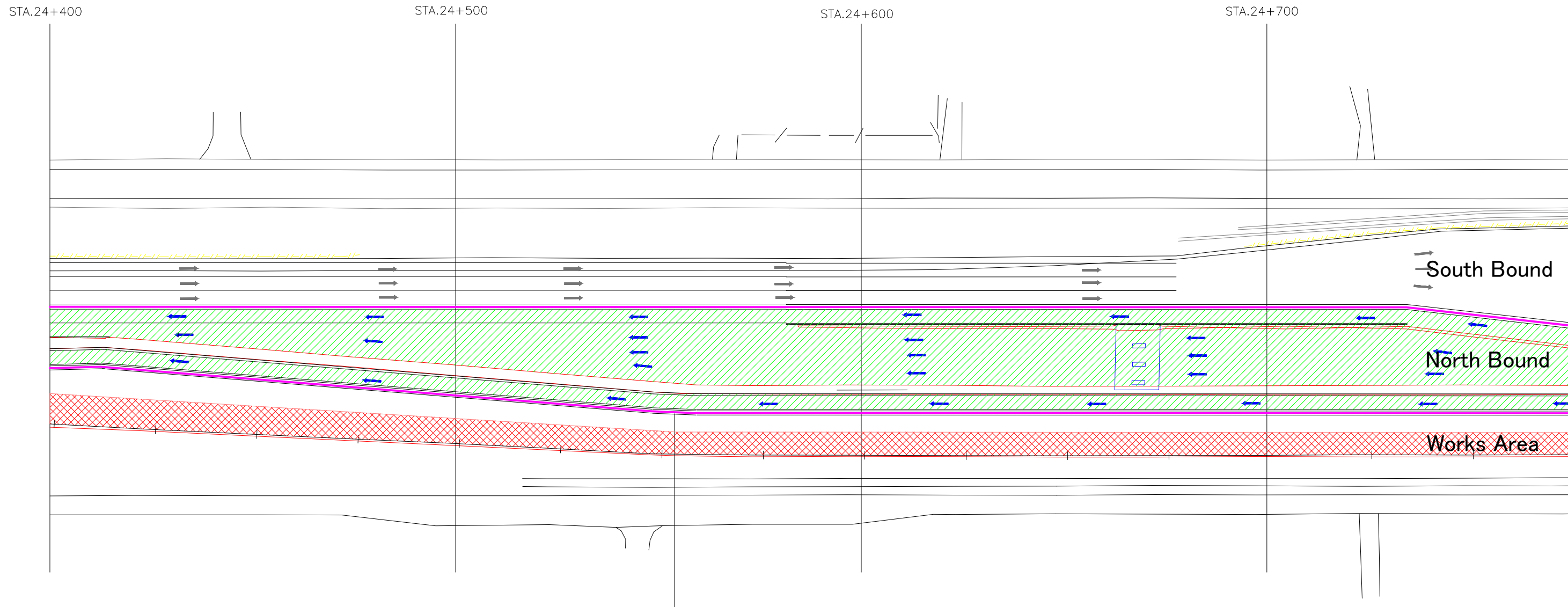
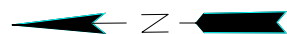
REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE				STAGE 1	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
															DWG. NO.	SHEET NO.
															TT-4	207



# Toll Gate Traffic Control (STAGE II - 1/4)

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**

**General**

1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 9 & 10, in the north bound as shown in the drawing.
2. Demolish and reinstall two lanes, No.1 to 2, used during stage I
3. After Stage II, open seven gates, No.1 to 7.
4. Install new gates, No.8.

**Legend :**

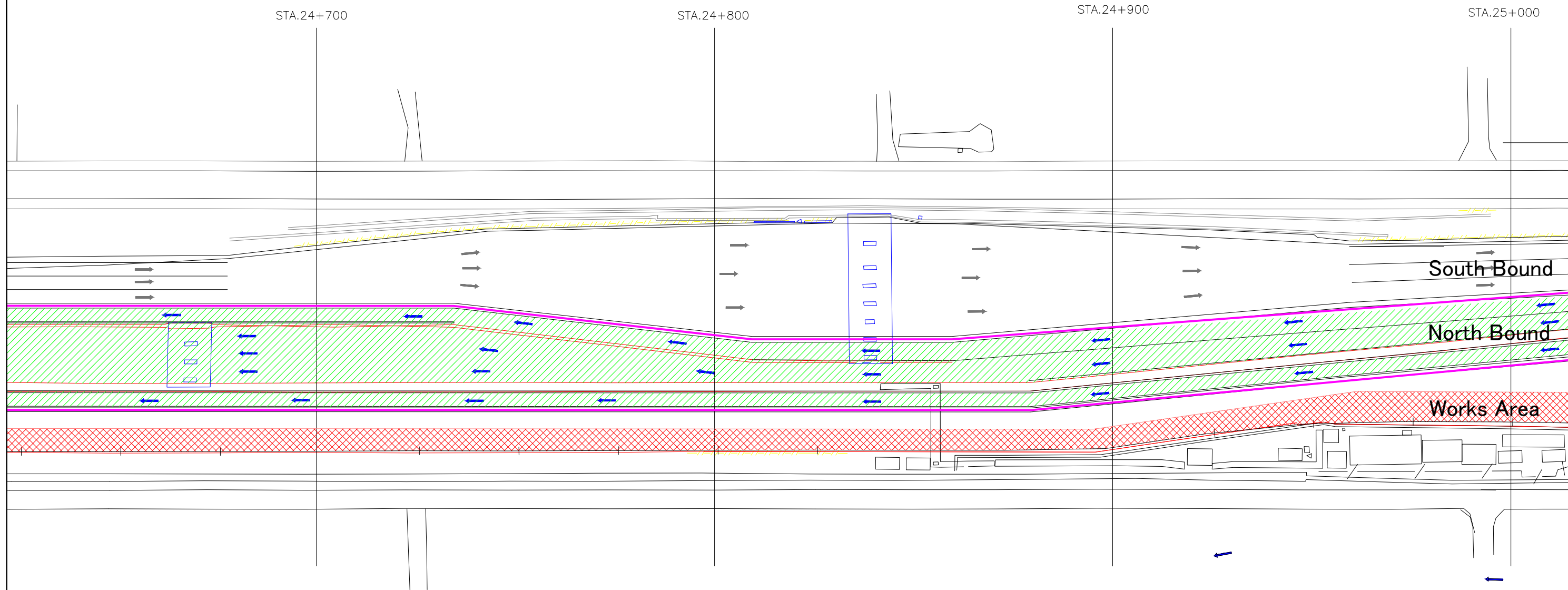
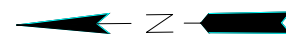
- Service Lanes for North Bound
- Works Area
- Concrete Barriere

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE											
									STAGE 2	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
															TT-5	SHEET NO. 208

# Toll Gate Traffic Control (STAGE II -2/4 )

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**

**General**

1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 9 & 10, in the north bound as shown in the drawing.
2. Demolish and reinstall two lanes, No.1 to 2, used during stage I
3. After Stage II, open seven gates, No.1 to 7.
4. Install new gates, No.8.

**Legend :**

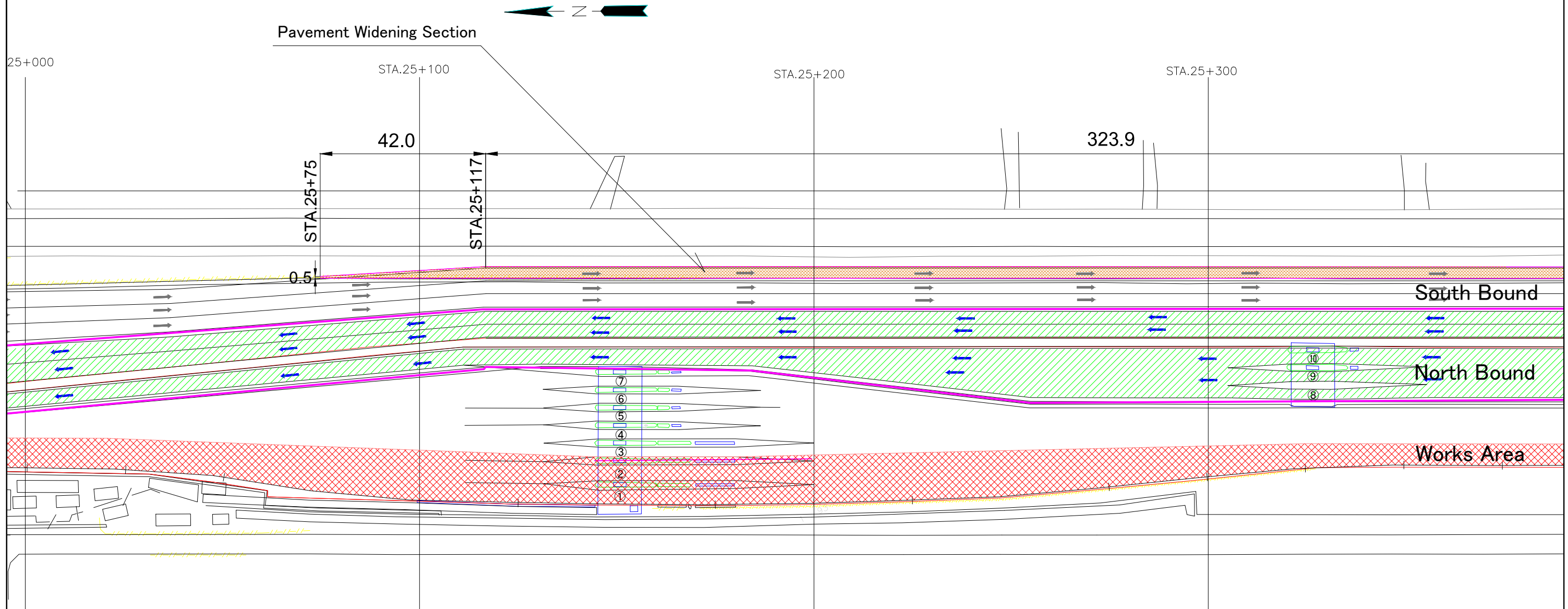
- Service Lanes for North Bound
- Works Area
- Concrete Barriere

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE											
									STAGE 2	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
															TT-6	SHEET NO. 209

# Toll Gate Traffic Control (STAGE II - 3/4 )

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**

**General**

1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 9 & 10, in the north bound as shown in the drawing.
2. Demolish and reinstall two lanes, No.1 to 2, used during stage I
3. After Stage II, open seven gates, No.1 to 7.
4. Install new gates, No.8.

**Legend :**

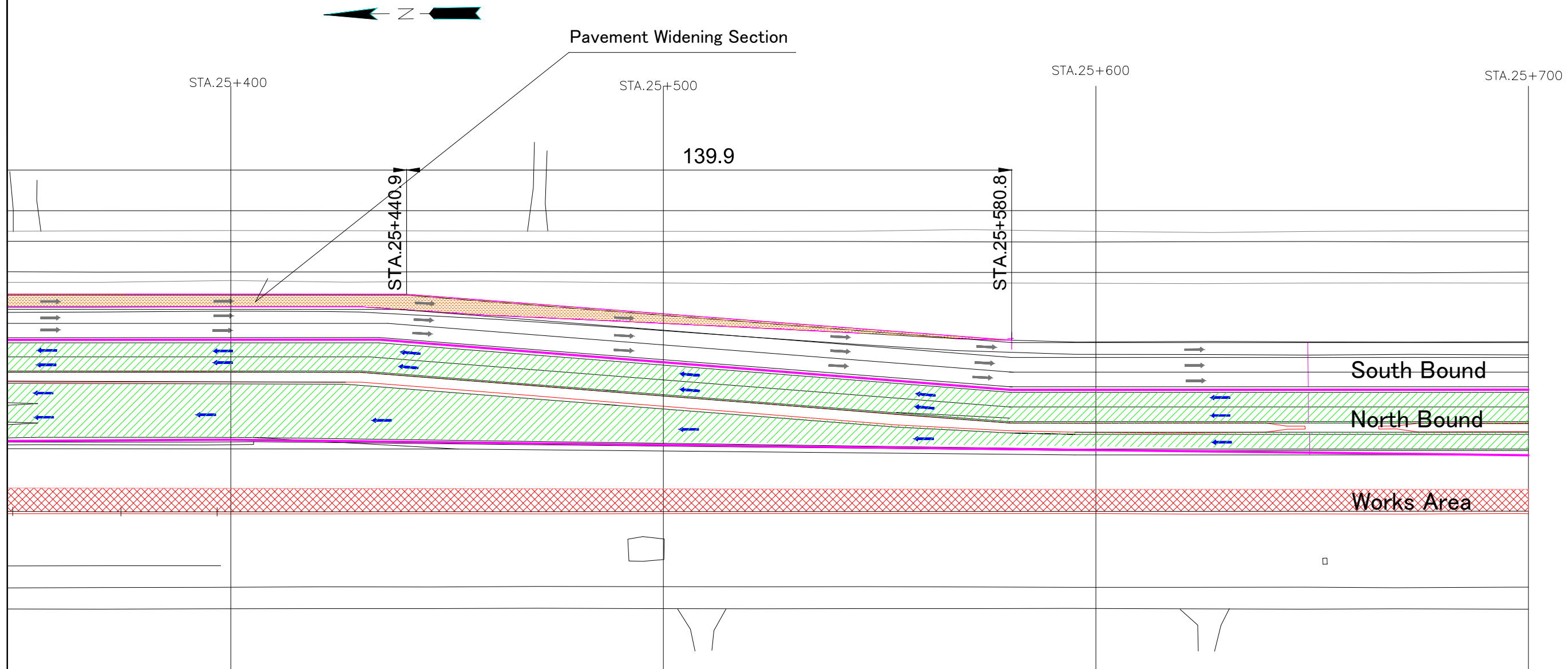
- Service Lanes for North Bound
- Works Area
- Concrete Barriere

REV. NO.	DESCRIPTION	ENGINEER	DOH	REV. NO.	APPROVED BY	<b>KINGDOM OF THAILAND</b> MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	CTI ENGINEERING INTERNATIONAL CO., LTD. ORIENTAL CONSULTANTS CO., LTD. NIPPON KOEI CO., LTD. CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE		STAGE 2	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
											TT-7	SHEET NO.	210	

# Toll Gate Traffic Control (STAGE II -4/4 )

North Bound and South Bound

STA. 24+400 - STA. 25+700



**Note :**




**General**






1. Keep six (6) gates for each bound, opening during construction
2. Open one gate as suitable to truck size
3. Install traffic control signs in accordance with the Road Work GUIDE published by DOH

**Construction Procedure :**

1. Open two gates, No. 9 & 10, in the north bound as shown in the drawing.
2. Demolish and reinstall two lanes, No.1 to 2, used during stage I
3. After Stage II, open seven gates, No.1 to 7.
4. Install new gates, No.8.

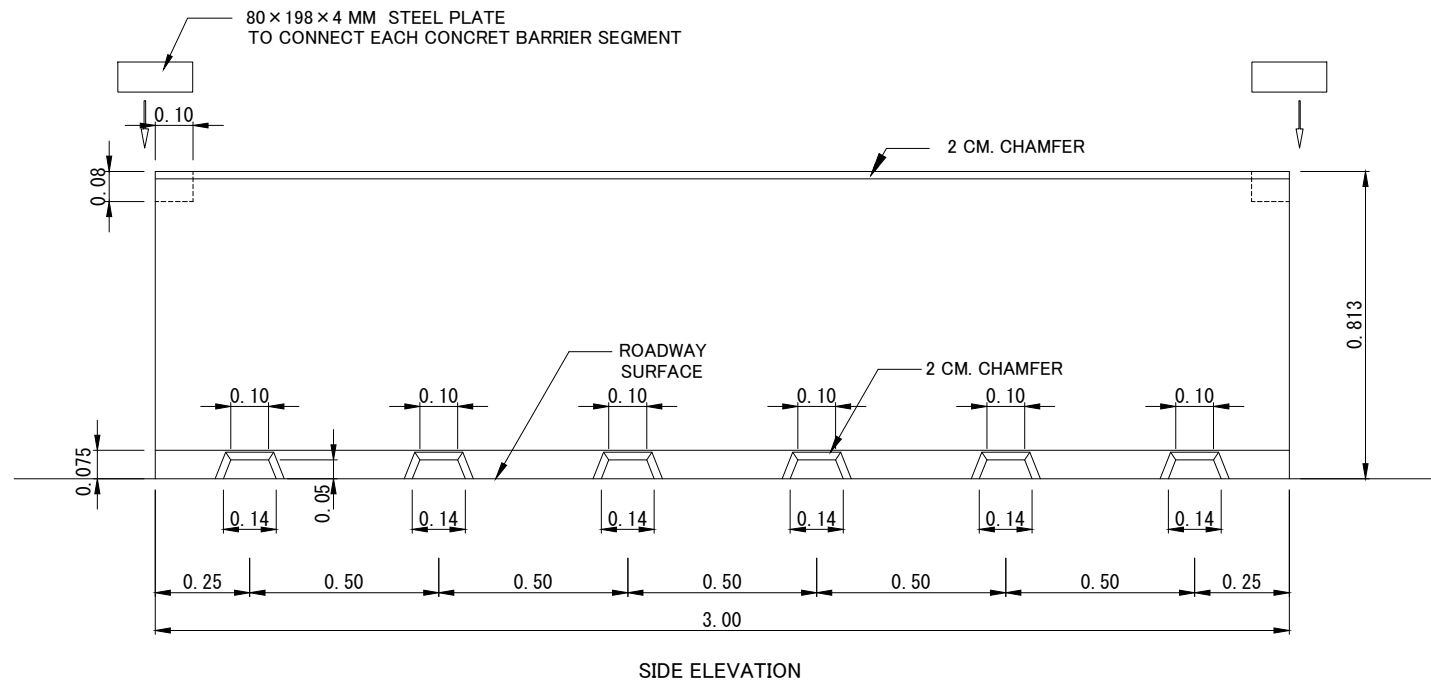
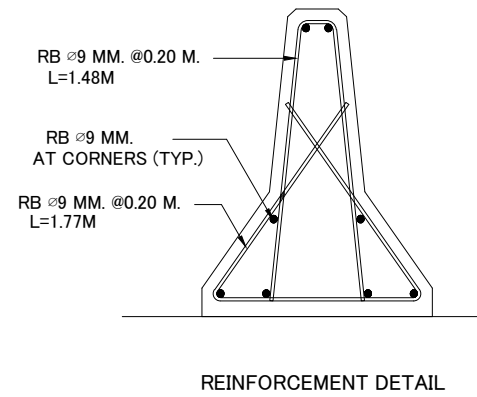
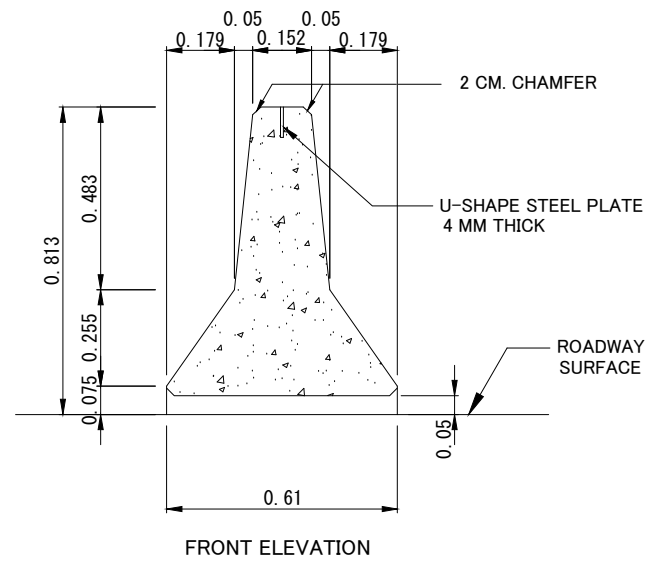
**Legend :**

-  Service Lanes for North Bound
-  Works Area
-  Concrete Barriere

REV. NO.	DESCRIPTION	ENGINEER CHECKED	ENGINEER DATE	DOH CHECKED	DOH DATE	REV. NO.	APPROVED BY	 <b>KINGDOM OF THAILAND</b> MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER	PROJECT TITLE	 CTI ENGINEERING INTERNATIONAL CO., LTD.  ORIENTAL CONSULTANTS CO., LTD.  NIPPON KOEI CO., LTD.  CTI ENGINEERING CO., LTD.	DESIGNED BY	CHECKED BY	DATE	SCALE
									STAGE 2	The Inter-City Motorways Division Department of Highways Ministry of Transport	The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road		SAGARA Hidetaka ROAD ENGINEER	WATANABE Ryohei CHIEF ENGINEER	AUGUST 2012	SCALE 1:500
												DWG. NO.	SHEET NO.			
												TT-8	211			

# **5. TEMPORARY CONCRETE BARRIER**





CONCRETE BARRIER (Type2-c)  
SCALE 1:10

NOTES :

- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
- CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 210 KSC. FOR 15x15x15 CM. CUBE AT 28 DAYS. AN APPROXIMATE MIX DESIGN PER CUBIC METER IS SUGGESTED AS FOLLOW :
 

PORTLAND CEMENT TYPE 1	350 KG. (MIN.)
SAND	0.43 M <sup>3</sup>
CRUSHED ROCK OR GRAVEL	0.86 M <sup>3</sup>
CONCRETE SLUMP	10 CM.
- CLEAR CONCRETE COVER SHALL BE 5 CM.
- REINFORCING STEEL SHALL CONFORM TO TIS.20 GRADE SR24 FOR ROUND BARS AND TIS.24 GRADE SD30 FOR DEFORMED BARS.
- REINFORCEMENT AND OTHER DETAILS OF APPROACH CONCRETE BARRIER SHALL BE THE SAME AS CONCRETE BARRIER.
- CONSTRUCTION JOINT SHALL BE PROVIDED AT 10.00 M. INTERVAL.
- EXPANSION JOINT WITH ONE-EXTRUDING JOINT FILLER SHALL BE PROVIDED AT 60.00 M. INTERVAL.
- APPROACH CONCRETE BARRIER SHALL BE PAINT IN BLACK AND WHITE STRIPE 0.50 M. WIDE. IN TWO COATS. THE PAINT SHALL CONFORM TO TIS.327
- PRE-CAST CONCRETE BARRIER TYPE 1 ACCORDING TO DRAWING NO. RS-504 SHALL BE USED INSTEAD OF CAST-IN-SITU CONCRETE BARRIER.

TABLE OF DIMENSIONS FOR APPROACH CONCRETE BARRIER TYPE (A)

TRANSITION DISTANCE (M.)	DIMENSIONS (M.)				
	a	b	c	d	e
0	0.200	0.150	0.000	0.000	0.300
3	0.302	0.150	0.082	0.013	0.250
6	0.404	0.150	0.161	0.025	0.200
9	0.507	0.151	0.242	0.038	0.150
12	0.609	0.151	0.322	0.050	0.100
15	0.711	0.152	0.403	0.063	0.050
18	0.813	0.152	0.483	0.075	0.000

REMARK :

THIS BARRIER IS SUITABLE ONLY IN SPECIFIC LOCATIONS AND CERTAIN CONDITIONS. IT SHOULD BE APPLIED WITH THE FIRM INFORMATIONS CONCERNED AND RECOMMENDED BY THE ENGINEER.

REV. NO.	DESCRIPTION	ENGINEER		DOH		REV. NO.	APPROVED BY	KINGDOM OF THAILAND MINISTRY OF TRANSPORT DEPARTMENT OF HIGHWAYS	HIGHWAY ROUTE NO. 9	OWNER The Inter-City Motorways Division Department of Highways Ministry of Transport	PROJECT TITLE The Preparatory Survey on the Rehabilitation Project of the Outer Bangkok Ring Road	DESIGNED BY SAGARA Hidetaka ROAD ENGINEER	CHECKED BY WATANABE Ryohei CHIEF ENGINEER	DATE :	SCALE :
		CHECKED	DATE	CHECKED	DATE									AUGUST 2012	AS SHOWN
														DWG. NO. TC-1	SHEET NO. 212