付録 9

2016 年, 2020 年, 2030 年における
ラオス電力系統図

Laos Transmission System in 2016

as of August 25, 2009

Laos Transmission System in 2020

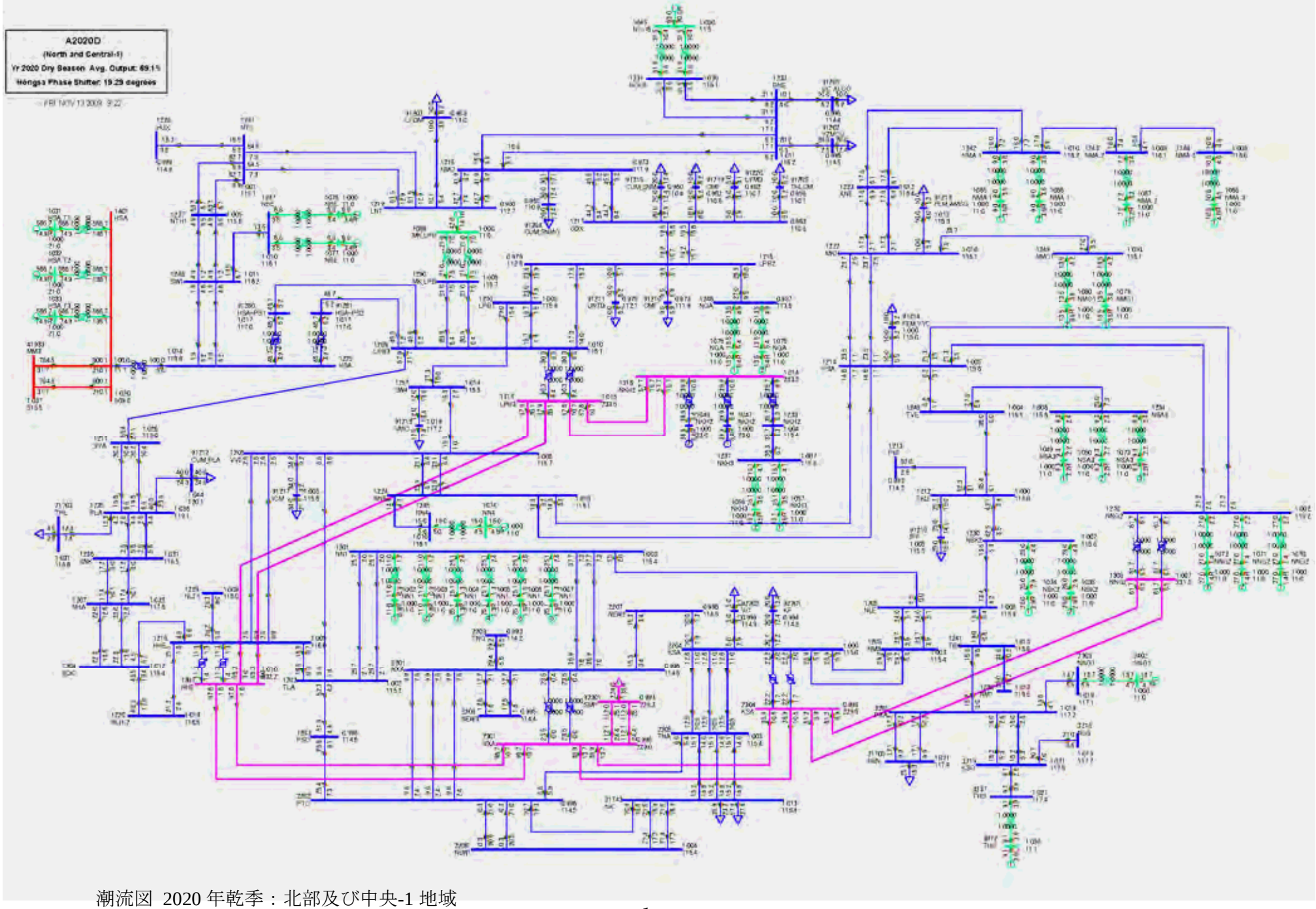
as of August 25, 2009

Laos Transmission System in 2030

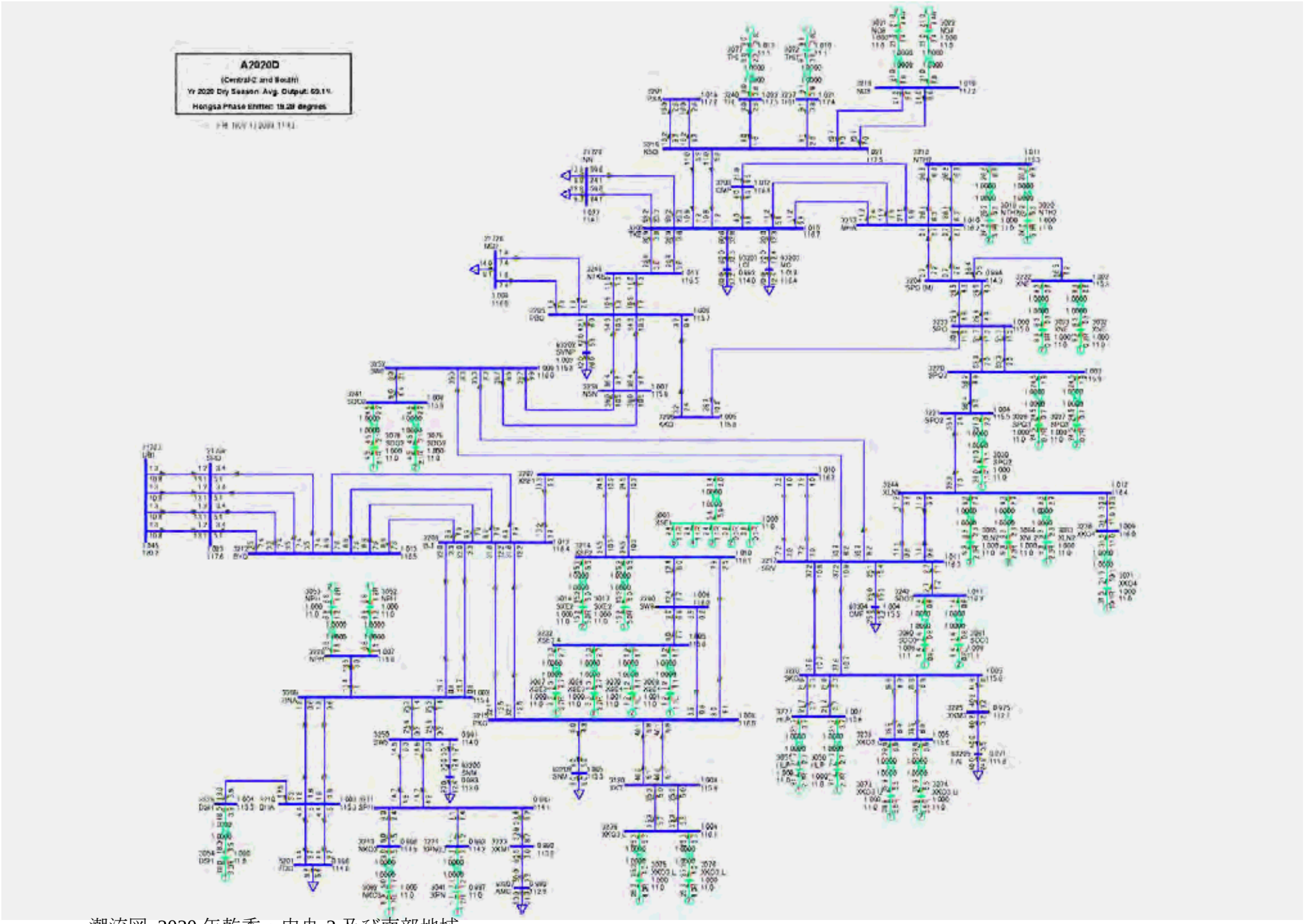
as of August 25, 2009

付録 9.6-1

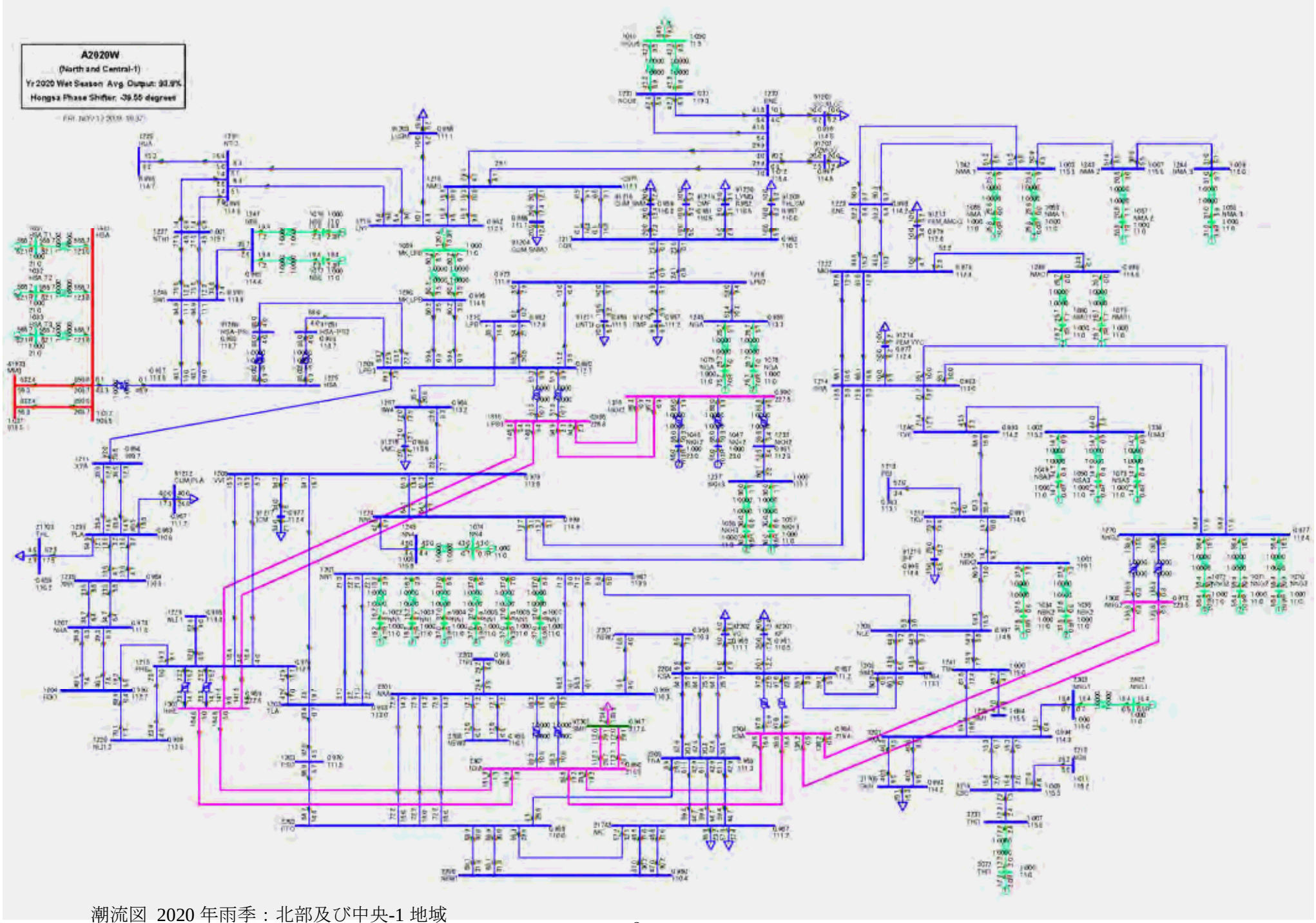
潮流図(2020 年)



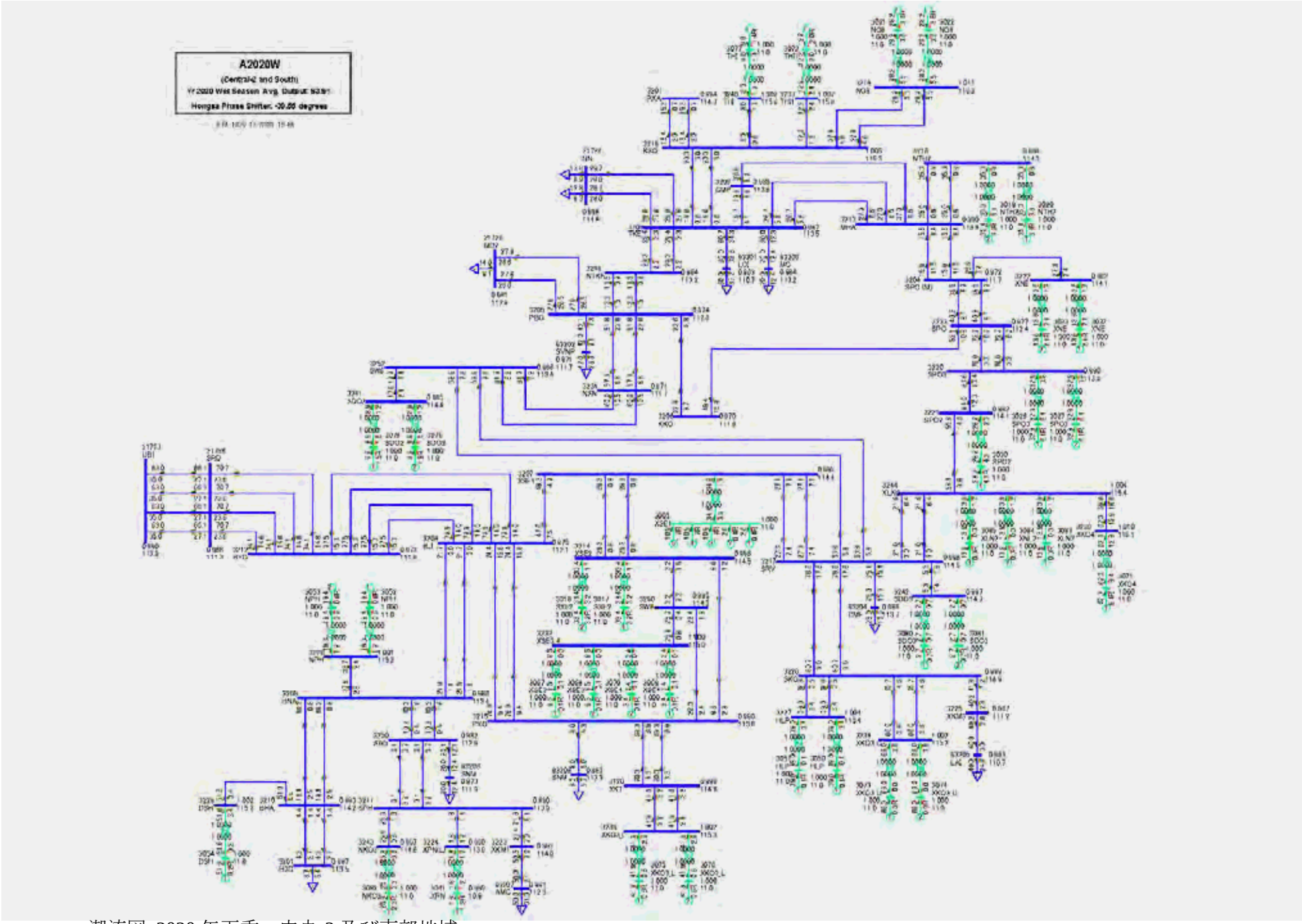
潮流図 2020 年乾季：北部及び中央-1 地域



潮流図 2020 年乾季：中央-2 及び南部地域



潮流図 2020 年雨季：北部及び中央-1 地域



潮流図 2020 年雨季：中央-2 及び南部地域

付録 9.6-2

安定度解析波形
(2020 年及び 2030 年)

北部及び中央-1 エリアの主な発電機と、南部エリアの Nam Kong 3 発電所の発電機との発電機回転子相差角振動の様子

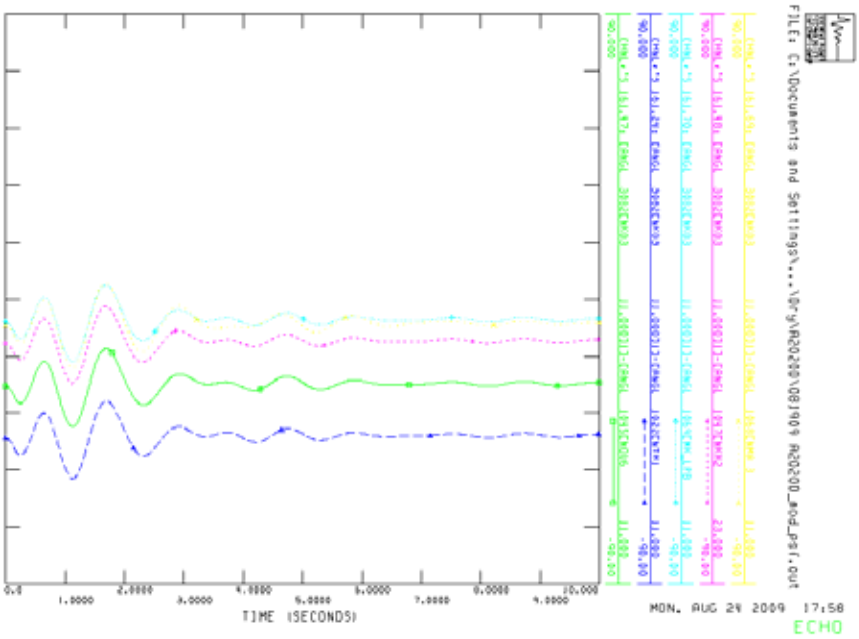
緑：Nam Ou 6

紺：Nam Tha 1

水色：Mekong Luangprabang

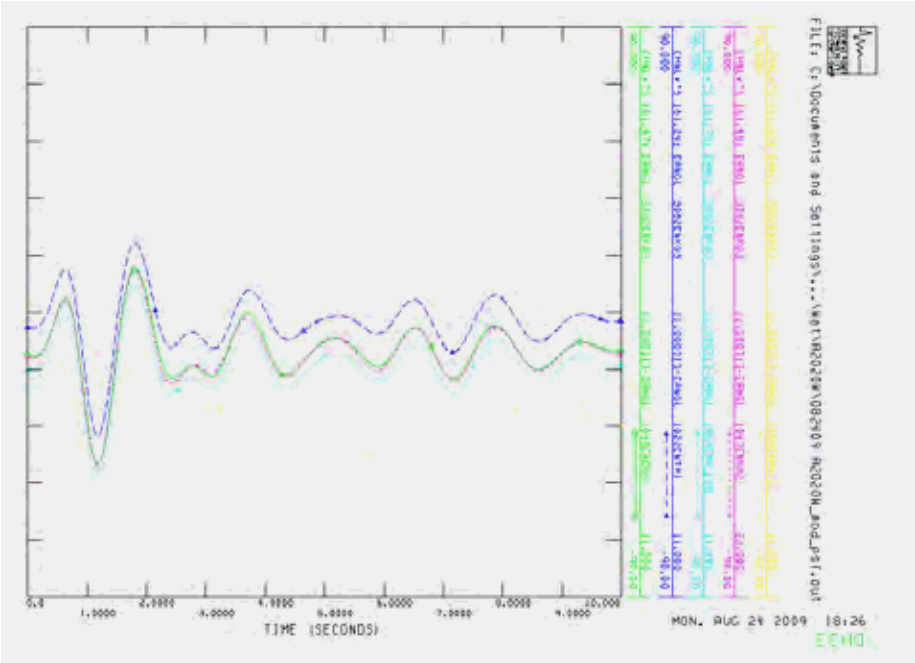
桃色：Nam Khan 2

黄色：Nam Ma 3



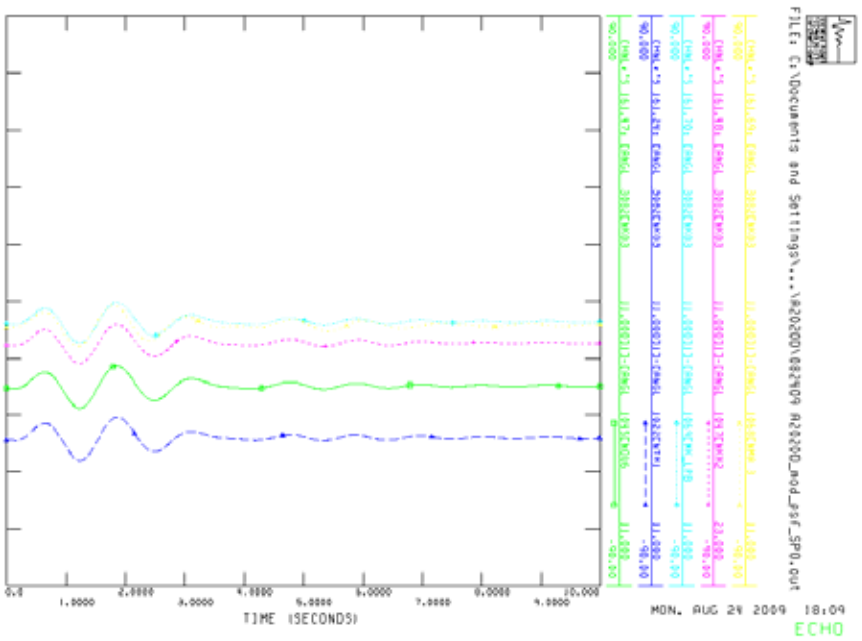
ST-D1　2020 年乾季

事故区間：Saravan – Nongsano　115kV 1cct



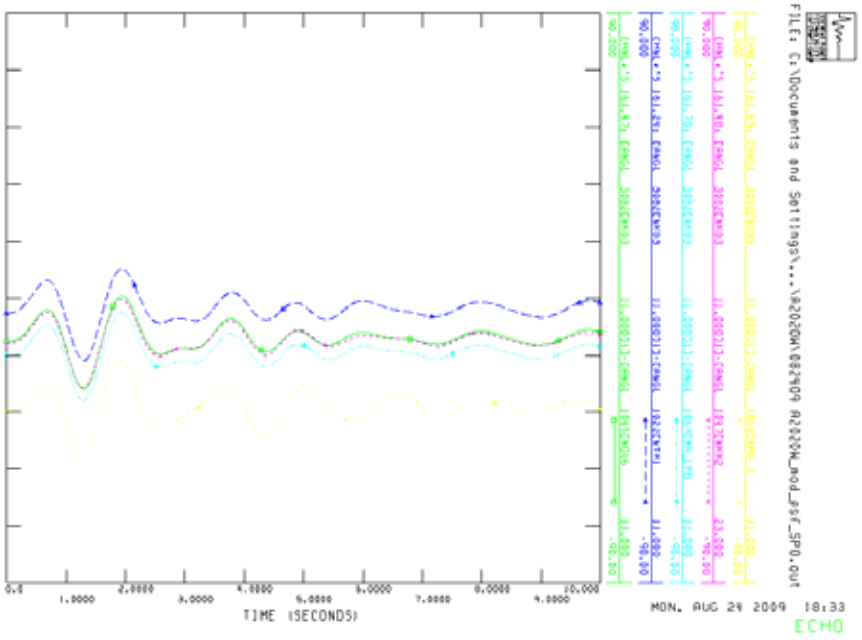
ST-W1　2020 年雨季

事故区間：Saravan – Nongsano　115kV 1cct



ST-D2　2020 年乾季

事故区間：Sepon – Sepon 3　115kV 1cct



ST-W2　2020 年雨季

事故区間：Sepon – Sepon 3　115kV 1cct

北部地域の Nam Ou 6 発電所の発電機と、南部エリアの主な発電所の発電機との発電機回転子相差角振動の様子

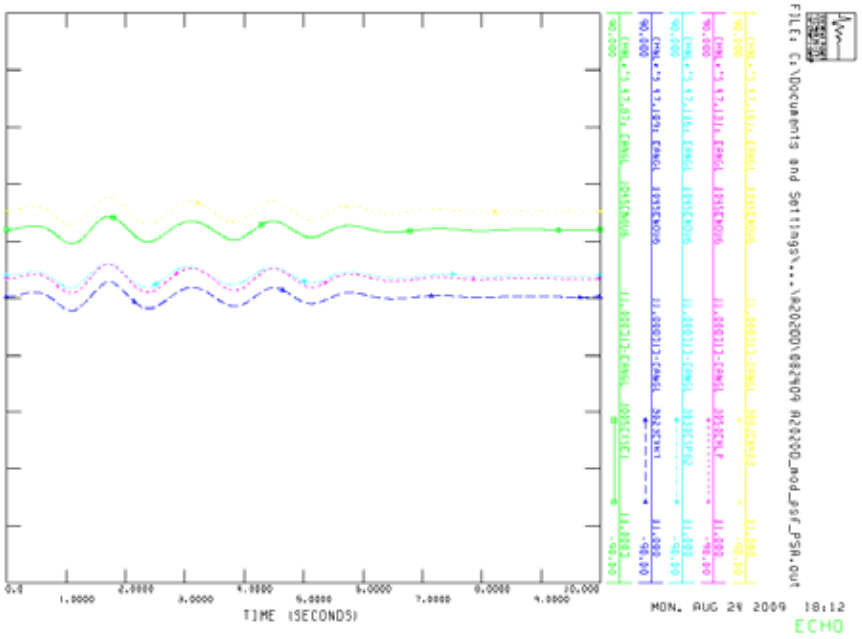
緑：Xeset 1

紺：Xekatam

水色：Xepon 2

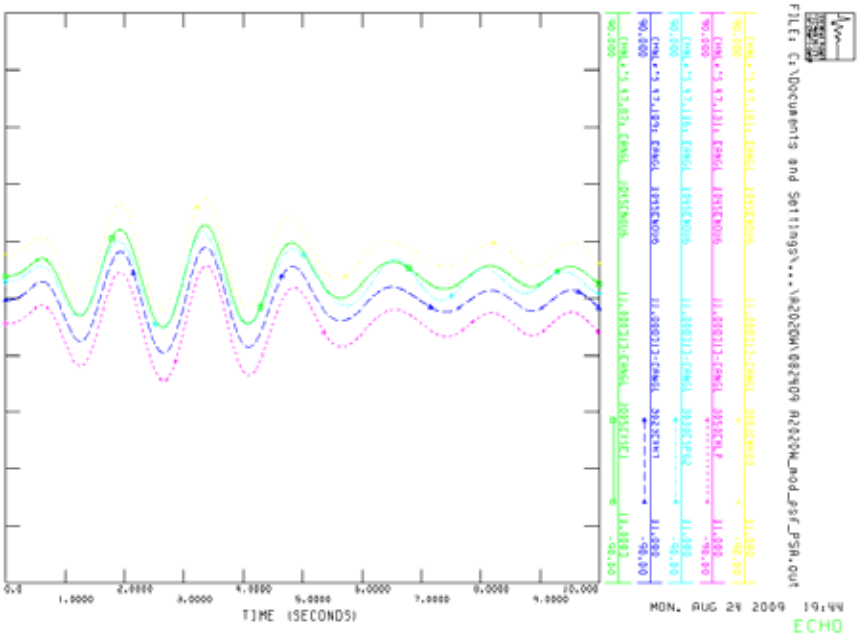
桃色：Houaylamphan

黄色：Nam Kong 3



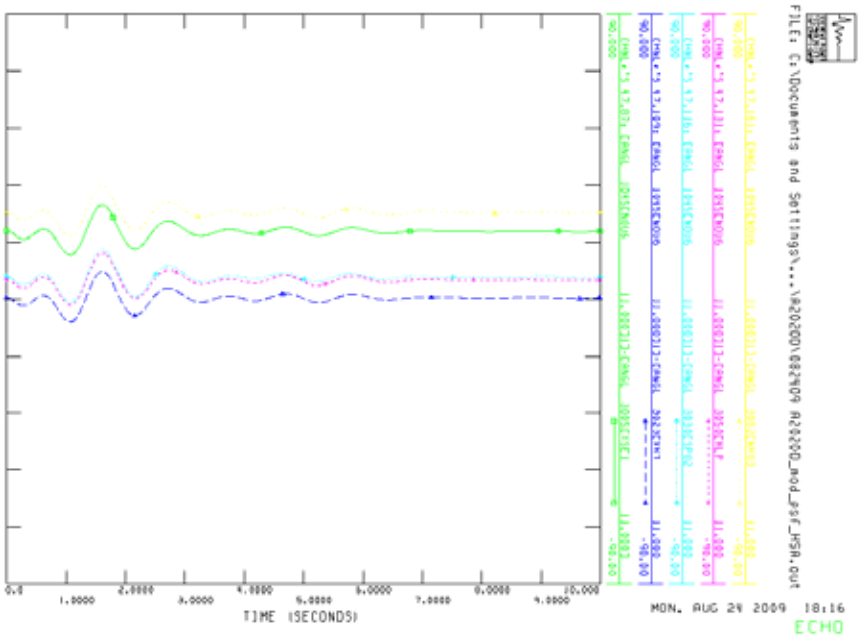
ST-D3　2020 年乾季

事故区間：Phonsavan – Nam Ngiep 2　115kV 1cct



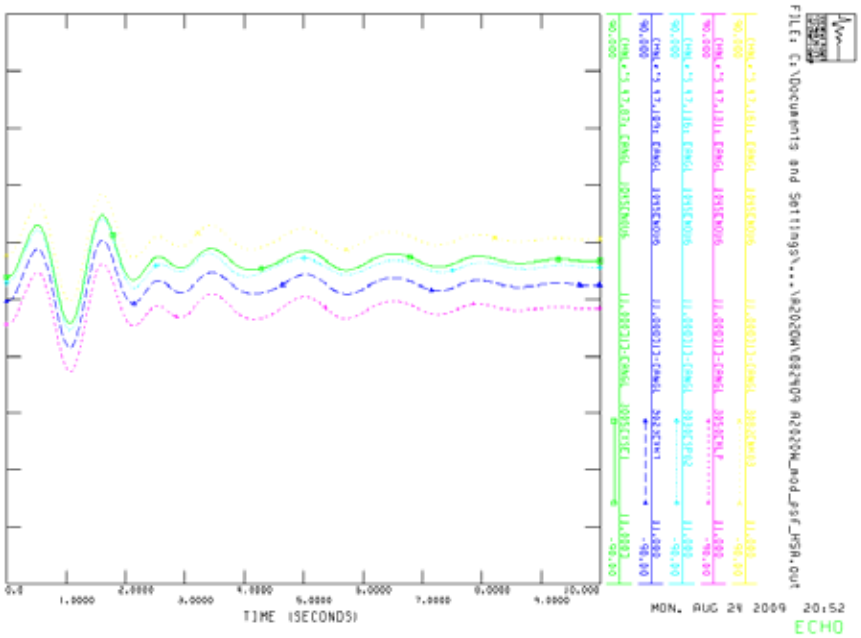
ST-W3　2020 年雨季

事故区間：Phonsavan – Nam Ngiep 2　115kV 1cct



ST-D4　2020 年乾季

事故区間：Hongsa – Switching Station – Nam Tha 1　115kV 1cct



ST-W4　2020 年雨季

事故区間：Hongsa – Switching Station – Nam Tha 1　115kV 1cct

北部及び中央-1 エリアの主な発電機と、南部エリアの Xekong 3 Upper 発電所の発電機との発電機回転子相差角振動の様子

緑色：Nam Ou 6

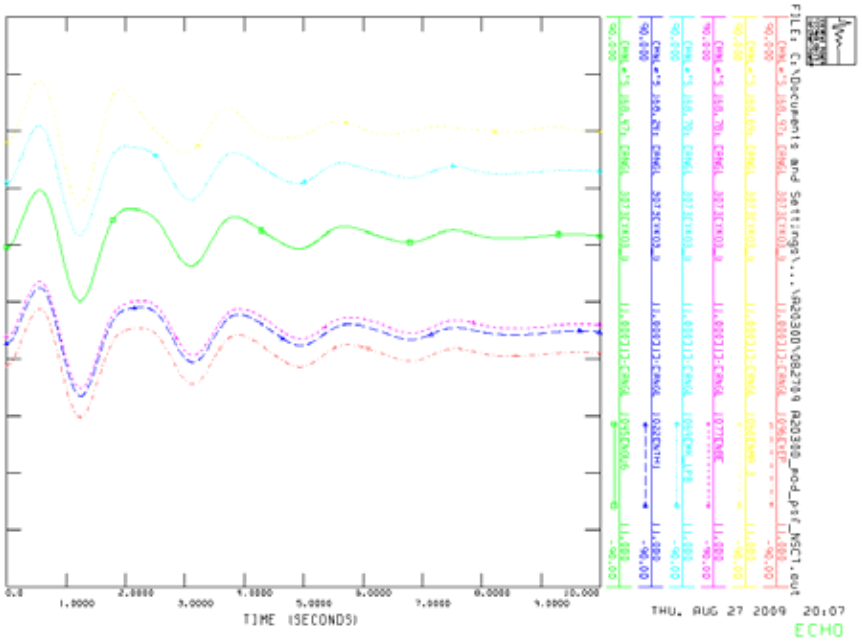
紺色：Nam Tha 1

水色：Mekong Luangprabang

桃色：Nam Beng

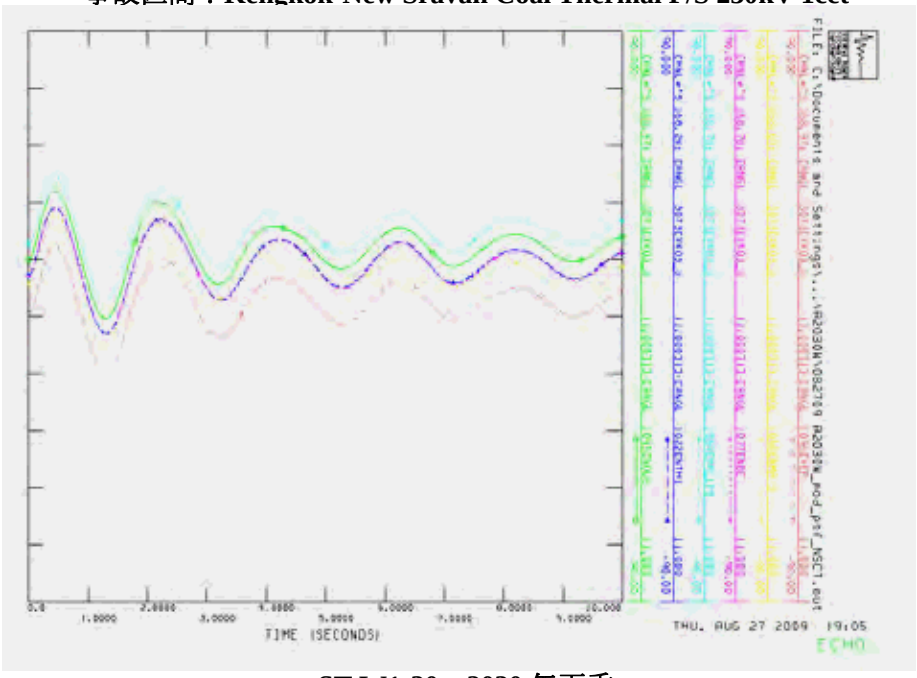
黄色：Nam Ma 3

赤色：Viengphokha



ST-D1-30　2030 年乾季

事故区間：Kengkok-New Sravan Coal Thermal P/S 230kV 1cct



ST-W1-30　2030 年雨季

事故区間：Kengkok-New Sravan Coal Thermal P/S 230kV 1cct

北部地域の Nam Mo 発電所の発電機と、南部エリアの主な発電所の発電機との発電機回転子相差角振動の様子

緑色：Xeset 1

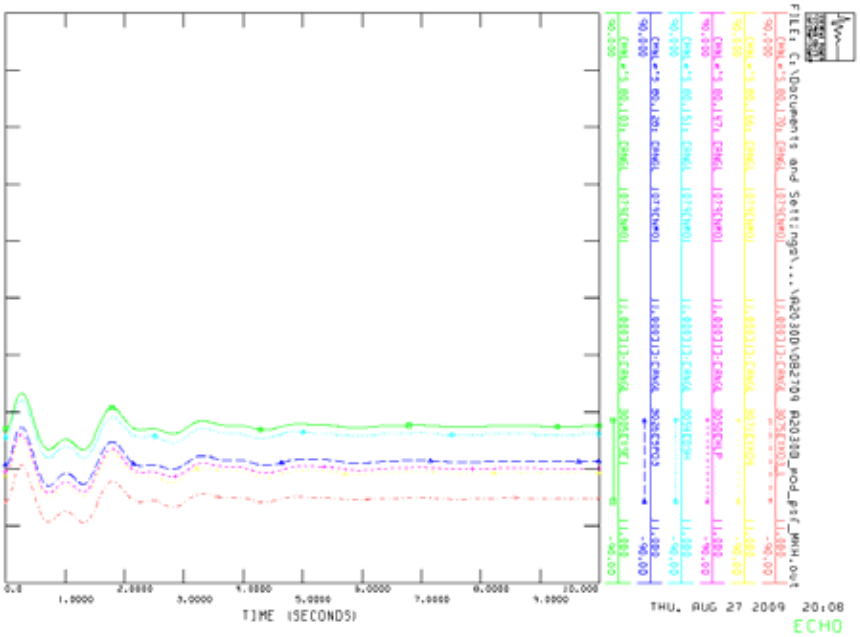
紺色：Xepon 3

水色：Donsahong

桃色：Houaylamphan

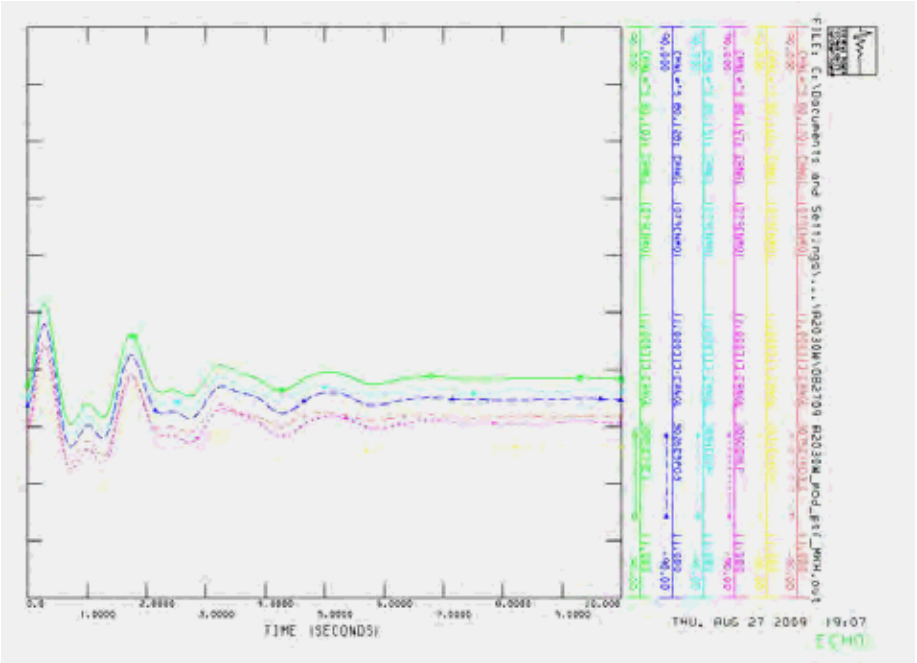
黄色：Xekong 4

赤色：Xekong 3 Lower



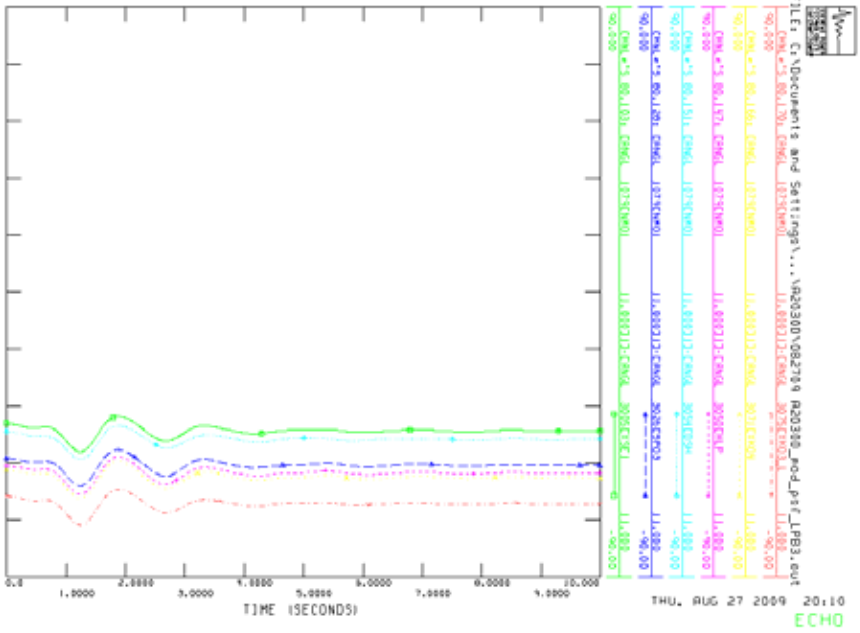
ST-D2-30　2030 年乾季

事故区間：Muong Kham-Nam Ngiep 2 230kV 1cct



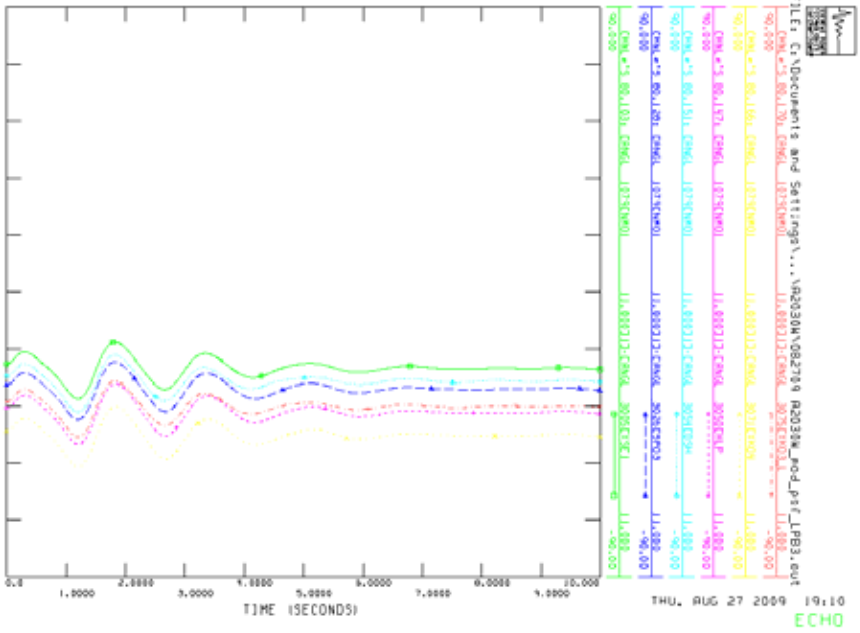
ST-W2-30　2030 年雨季

事故区間：Muong Kham-Nam Ngiep 2 230kV 1cct



ST-D3-30　2030 年乾季

事故区間：Luangprabang 3-Hin Heup 230kV 1cct



ST-W3-30　2030 年雨季

事故区間：Luangprabang 3-Hin Heup 230kV 1cct

付録 12

計画ルート沿いの写真集

Pakbo 変電所～Thaotan 変電所

計画ルート沿いの写真集：Pakbo SS – Thaotan SS

写真-01: Pakbo SS

写真-02: Planned Special Economic Zone 1

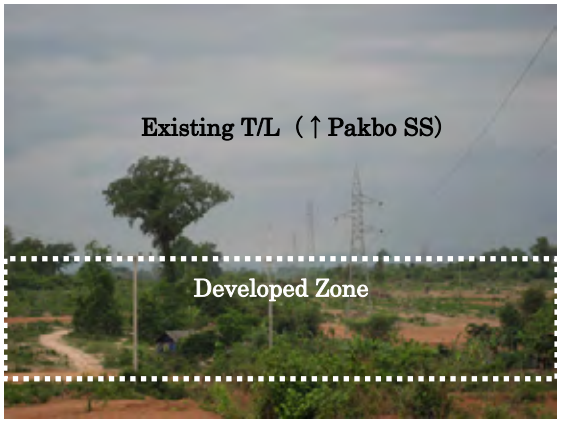


写真-03: Planned Special Economic Zone 2

写真-04: New T/L Crossing Point (No.14-15)

写真-05: Route 5 Crossing Point 1

写真-06: Route 5 Crossing Point 2

写真-07: Route 9 Crossing Point 1

写真-08: Route 9 Crossing Point 2

写真-09: B. Donpho Road Crossing Point 1

写真-10: Xe Banghieng River Crossing Point 1

写真-11: West Side of Route 13

写真-12: Xe Nouan Crossing Point 1

写真-13: West Side of Route 13

写真-14: Route 13 Crossing Point 1

写真-15: Route 13 Crossing Point 2

写真-16: Site of Thaotan SS

計画ルート沿いの写真集：Thaotan SS – Saravan SS

写真-17: Angle Tower Point Beside Route 15

写真-18: South Side of Route 15

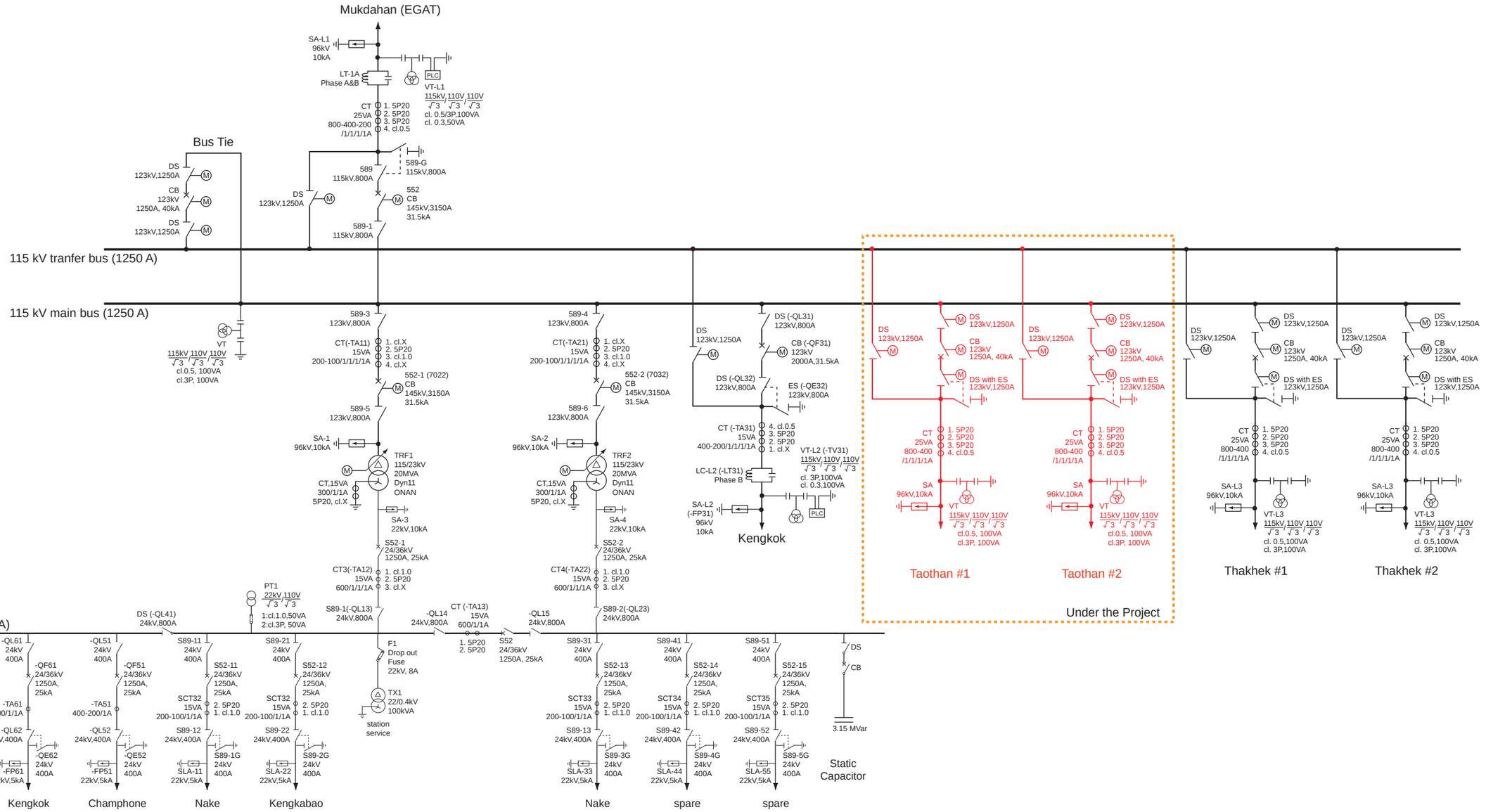
写真-19: Route Beside Xedon River

写真-20: Xedon River Crossing Point (Span; 600 m)

写真-22: Saravan SS Site

付録 13

最優先プロジェクトの
変電所関連図面



Note:
Pakbo Substation is under reinforcement by Greater Mekong Power Network Development Project funded by JICA as of October 2009.

REFERENCE ONLY

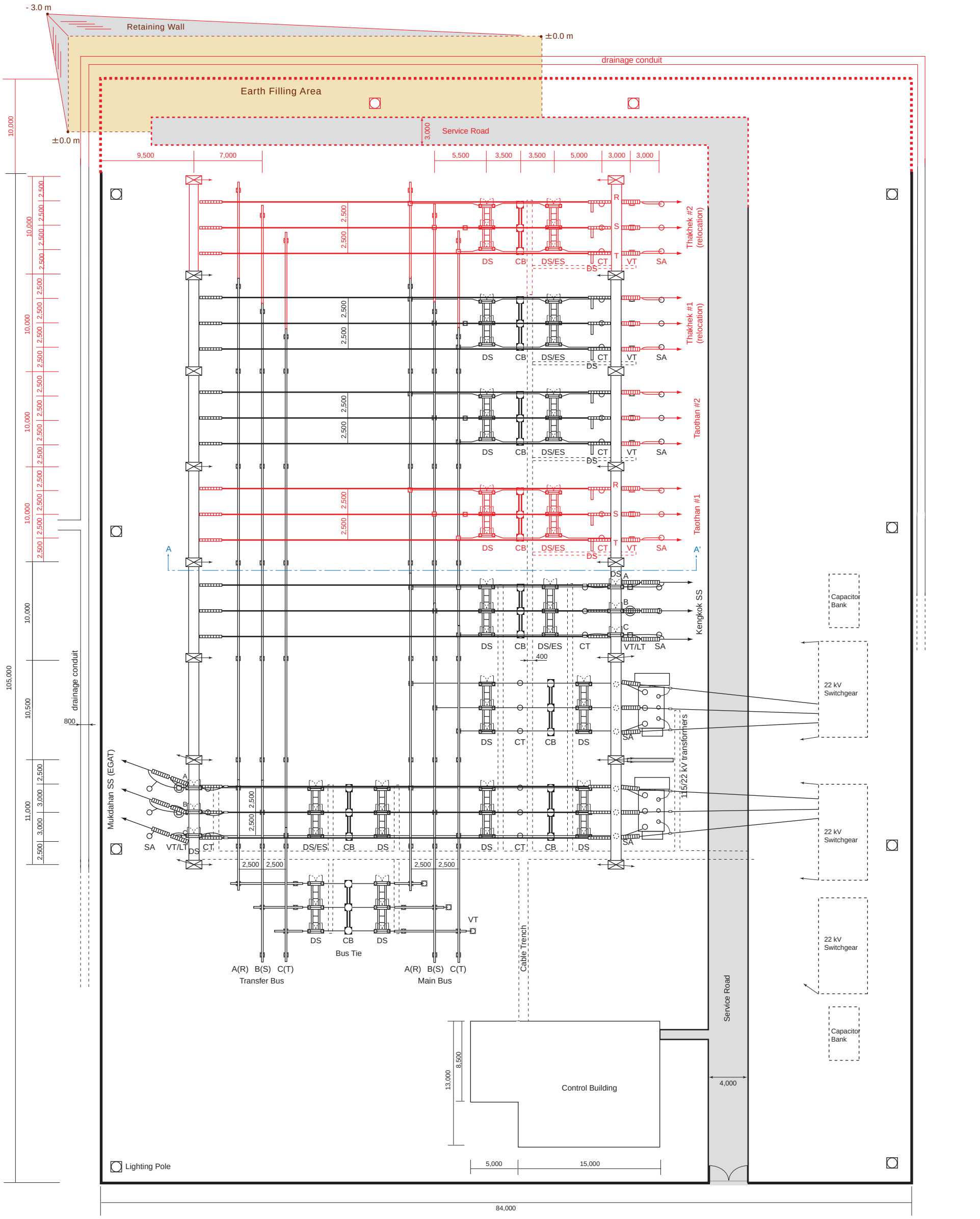
Electricite du Laos

Japan International Cooperation Agency

The Study on Power Network System Plan in Lao PDR

Tokyo Electric Power Company, Inc.
in assosiation with
Nippon Koei Co., Ltd.

Drawing No. SS_PKB_01	Scale	not to scale
Title: Pakbo Substation: Single Lina Diagram	Approved by	M. Yogo
	Checked by	J. Fukunaga
	Drew by	J. Fukunaga



Note

CB :	Circuit Breakers
DS :	Disconnectors
ES :	Eathing Switches
CT :	Current Transformers
LT :	Line Traps
SA :	Sarge Arresters
VT:	Voltage Tranformers
SP:	Station Post Insulators

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Note:

1. Equipment in red shall be supplied and installed under the Project.

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Tokyo Electric Power Company, Inc.

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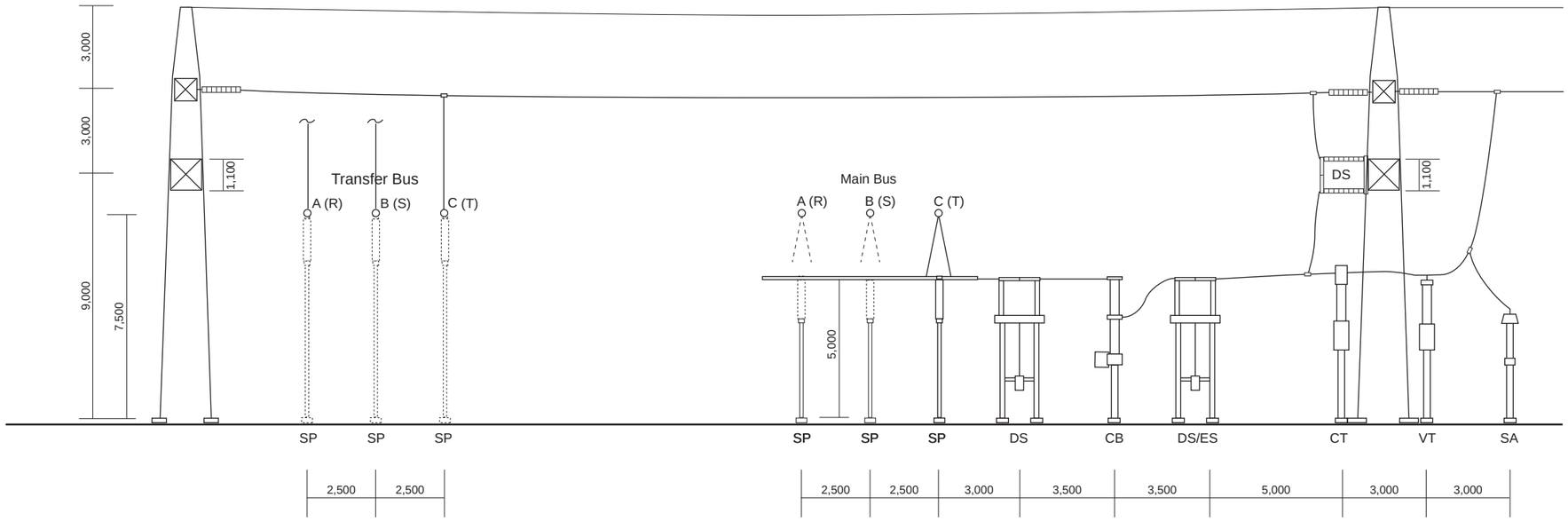
Nippon Koei Co., Ltd.

Drawing No. SS_PKB_02		Scale	1 : 400
Title	Pakbo Substation: Layout	Approved by	M. Yogo
		Checked by	J. Fukunaga
		Drew by	J. Fukunaga



Section A - A'

Note

CB :	Circuit Breakers
DS :	Disconnectors
ES :	Eathing Switches
CT :	Current Transformers
LT :	Line Traps
SA :	Sarge Arresters
VT:	Voltage Tranformers
SP:	Station Post Insulators

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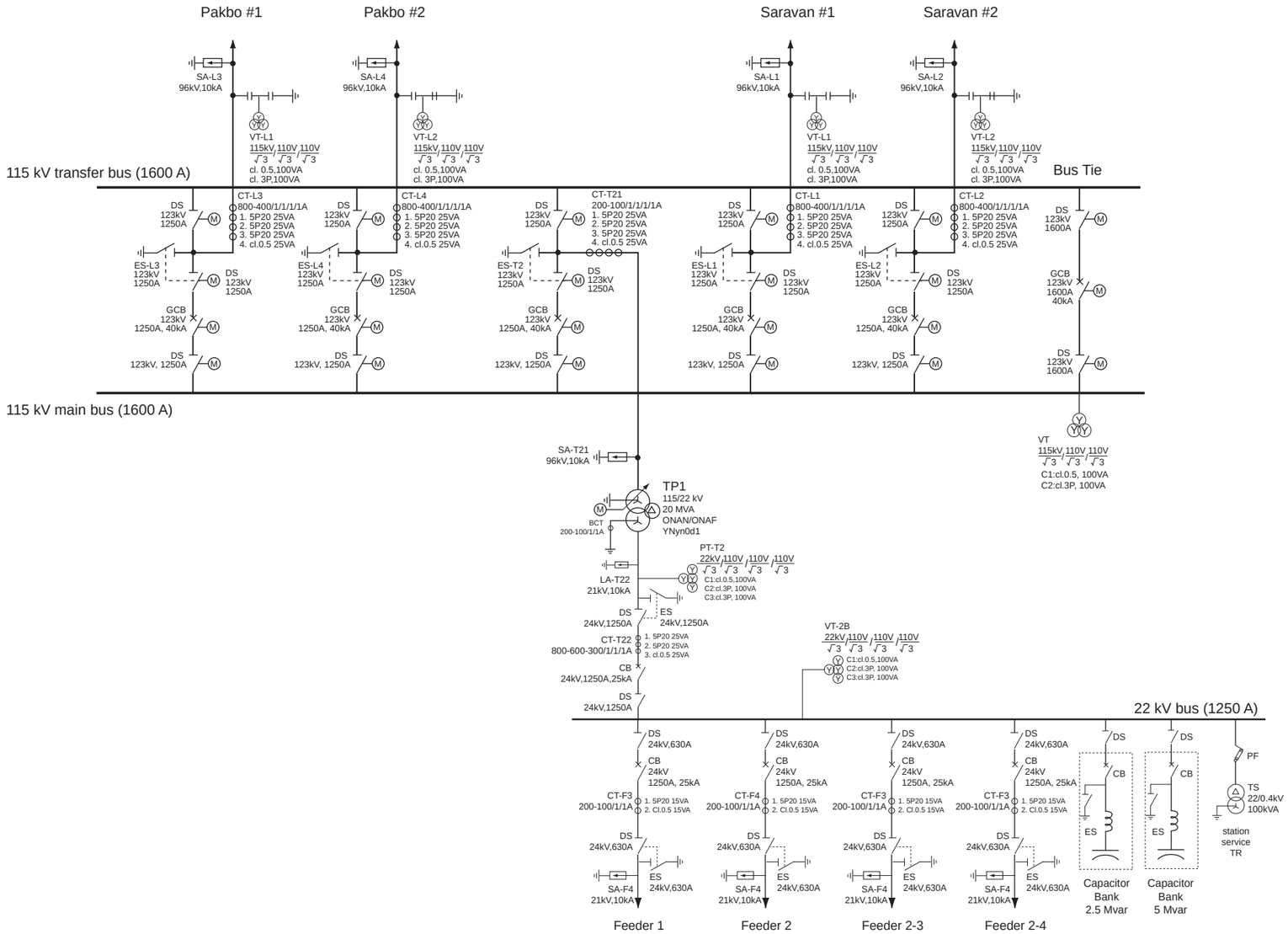
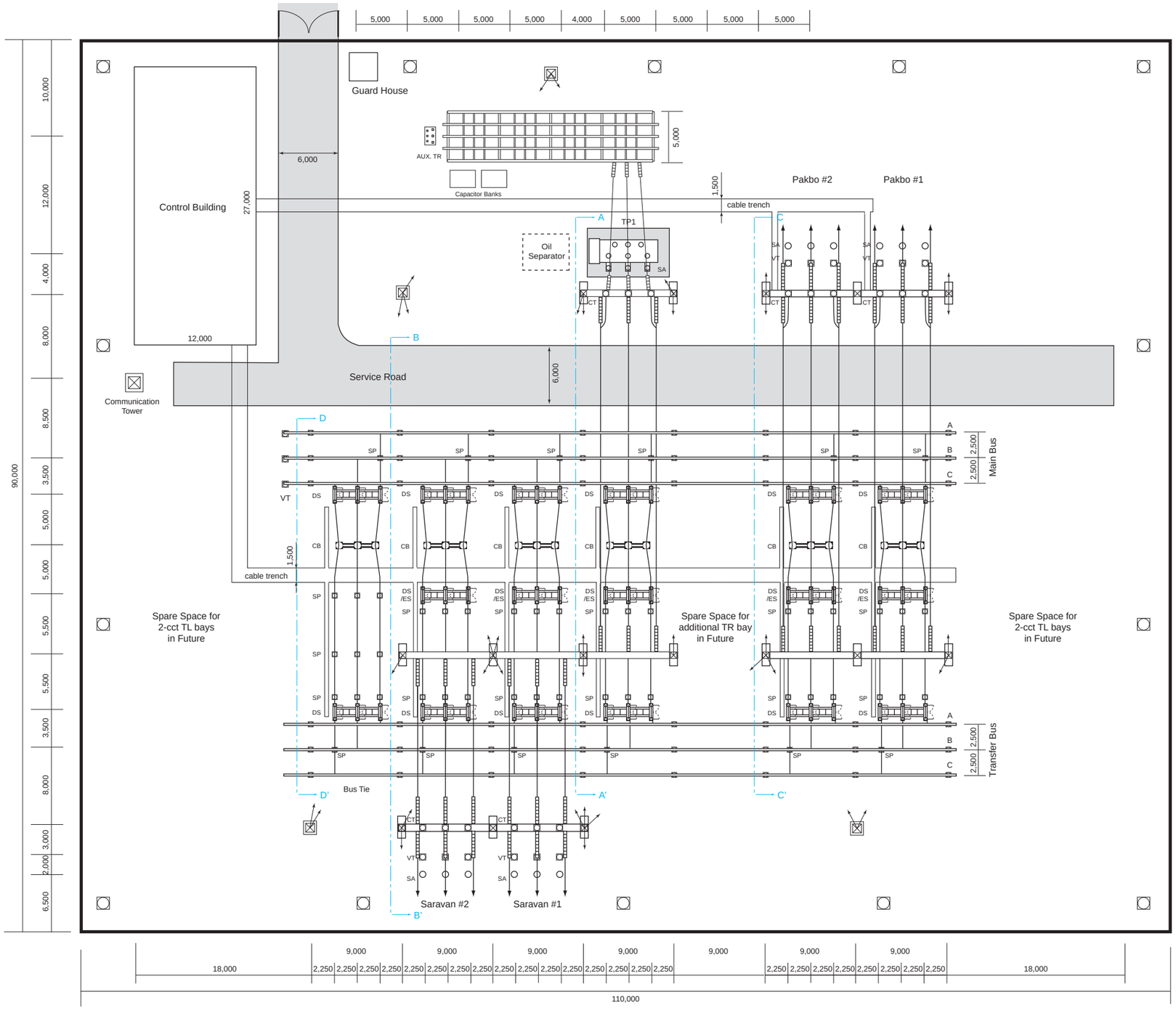
Tokyo Electric Power Company, Inc.
in assosiation with
Nippon Koei Co., Ltd.

Drawing No.	**SS_PKB_03**	Scale: 1 : 200
Title	**Pakbo Substation: Section**	Approved by: M. Yogo
		Checked by: J. Fukunaga
		Drew by: J. Fukunaga



REFERENCE ONLY

Electricite du Laos	Japan International Cooperation Agency The Study on Power Network System Plan in Lao PDR Tokyo Electric Power Company, Inc. in assosiation with Nippon Koei Co., Ltd.	**Drawing No.** SS_TOT_01 **Title** Taothan Substation: Single Lina Diagram	Scale: not to scale Approved by: M. Yogo Checked by: J. Fukunaga Drew by: J. Fukunaga



Note

CB :	Circuit Breakers
DS :	Disconnecting Switches
ES :	Eathing Switches
CT :	Current Transformers
SA :	Sarge Arresters
VT:	Voltage Tranformers
SP:	Station Post Insulators

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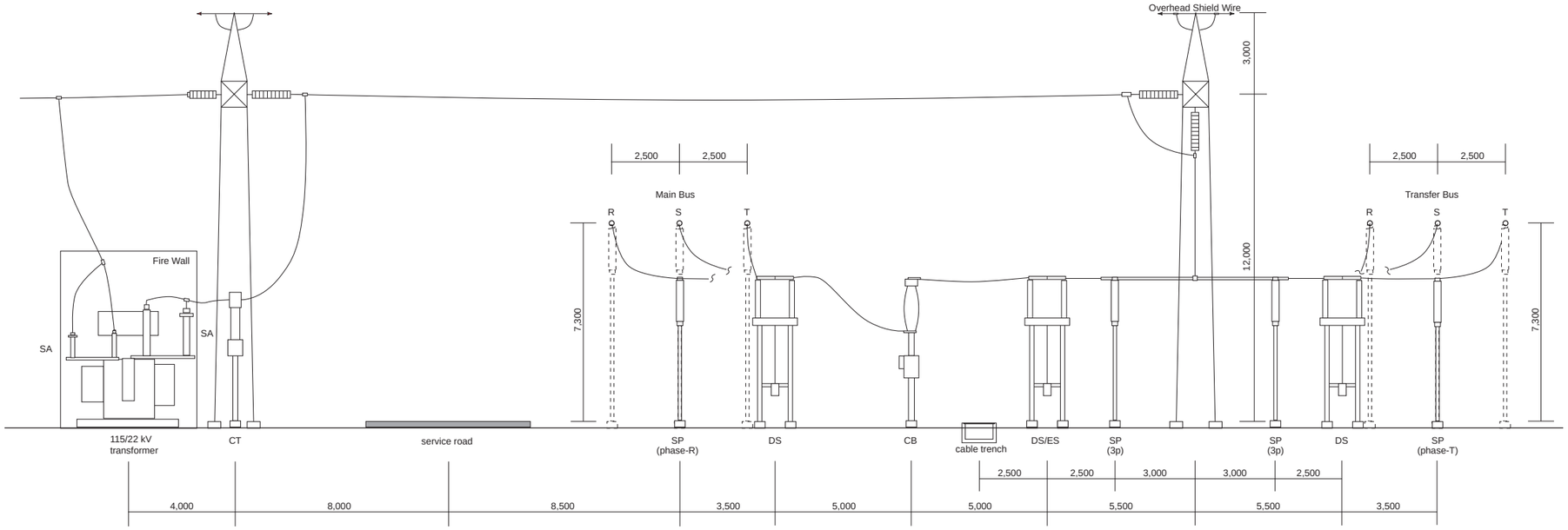
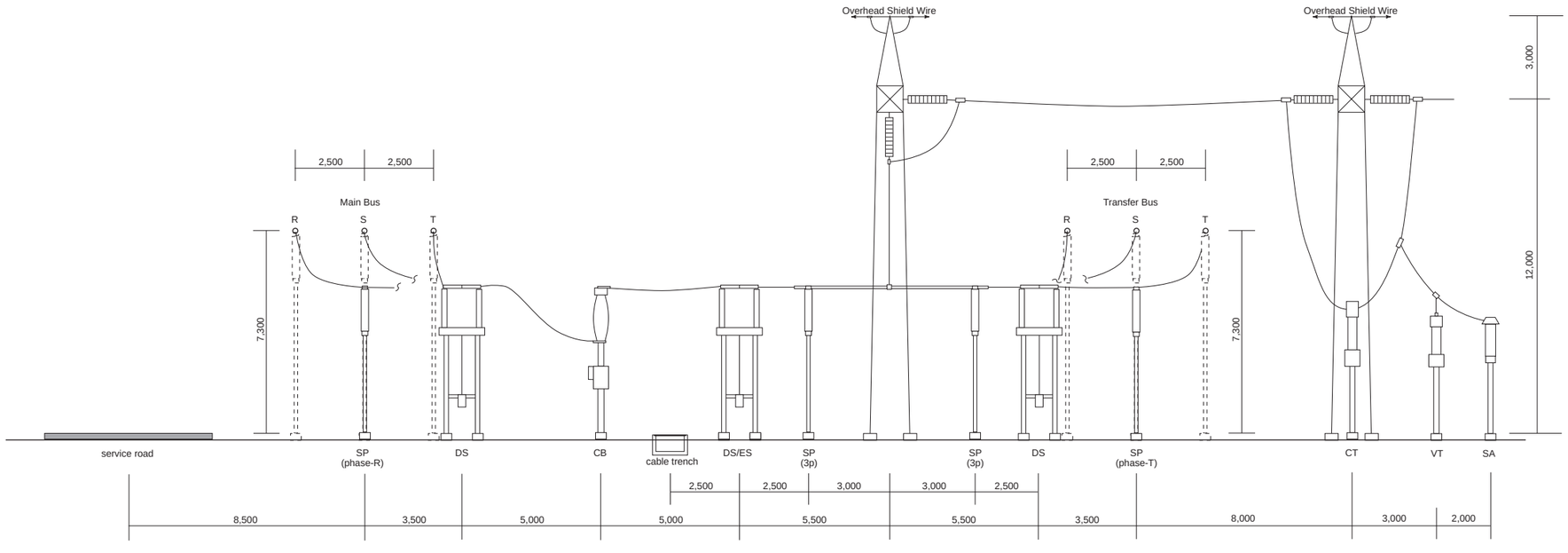
Tokyo Electric Power Company, Inc.
in assosiation with
Nippon Koei Co., Ltd.

Drawing No.	SS_TOT_02	Scale	1 : 450
Title	Taothan Substation: Layout	Approved by	M. Yogo
		Checked by	J. Fukunaga
		Drew by	J. Fukunaga



Section A - A'



Section B - B'

Note

CB :	Circuit Breakers
DS :	Disconnecting Switches
ES :	Eathing Switches
CT :	Current Transformers
SA :	Sarge Arresters
VT:	Voltage Tranformers
SP:	Station Post Insulators

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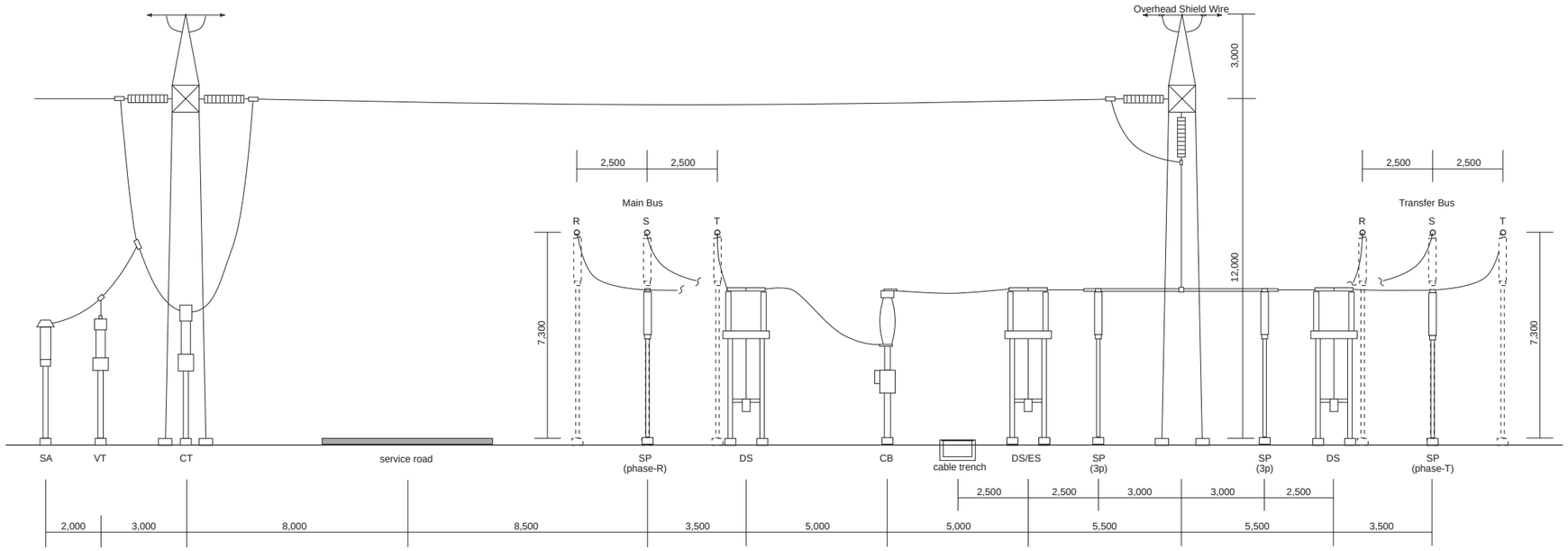
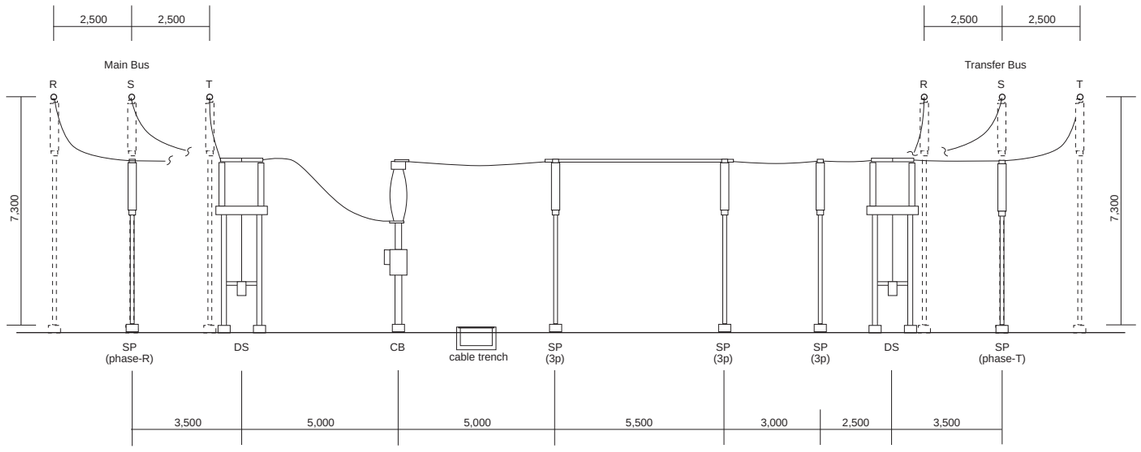
Tokyo Electric Power Company, Inc.
in assosiation with
Nippon Koei Co., Ltd.

Drawing No. SS_TOT_03		Scale	1 : 200
Title	**Taothan Substation: Section 01**	Approved by	M. Yogo
		Checked by	J. Fukunaga
		Drew by	J. Fukunaga



Section C - C'



Section D - D'

Note

CB :	Circuit Breakers
DS :	Disconnecting Switches
ES :	Eathing Switches
CT :	Current Transformers
SA :	Sarge Arresters
VT:	Voltage Tranformers
SP:	Station Post Insulators

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Tokyo Electric Power Company, Inc.
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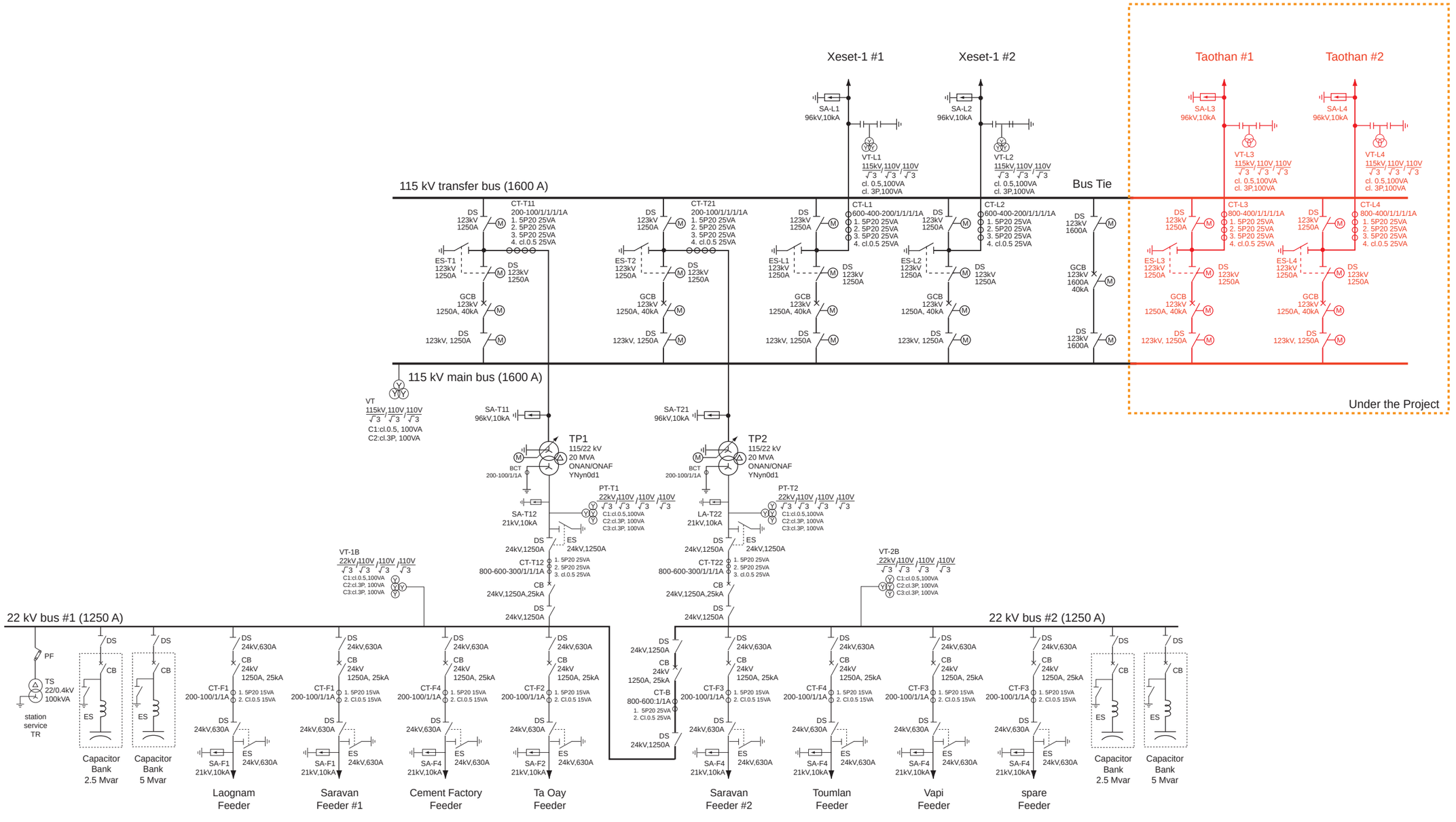
Nippon Koei Co., Ltd.

Drawing No. SS_NSN_04	Scale	1 : 200
Title: Taothan Substation: Section 02	Approved by	M. Yogo
	Checked by	J. Fukunaga
	Drew by	J. Fukunaga



Note:
Saravan Substation is under construction by GMS Power Trade Project funded by IDA as of October 2009.

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The Study on Power Network System Plan in Lao PDR

Tokyo Electric Power Company, Inc.
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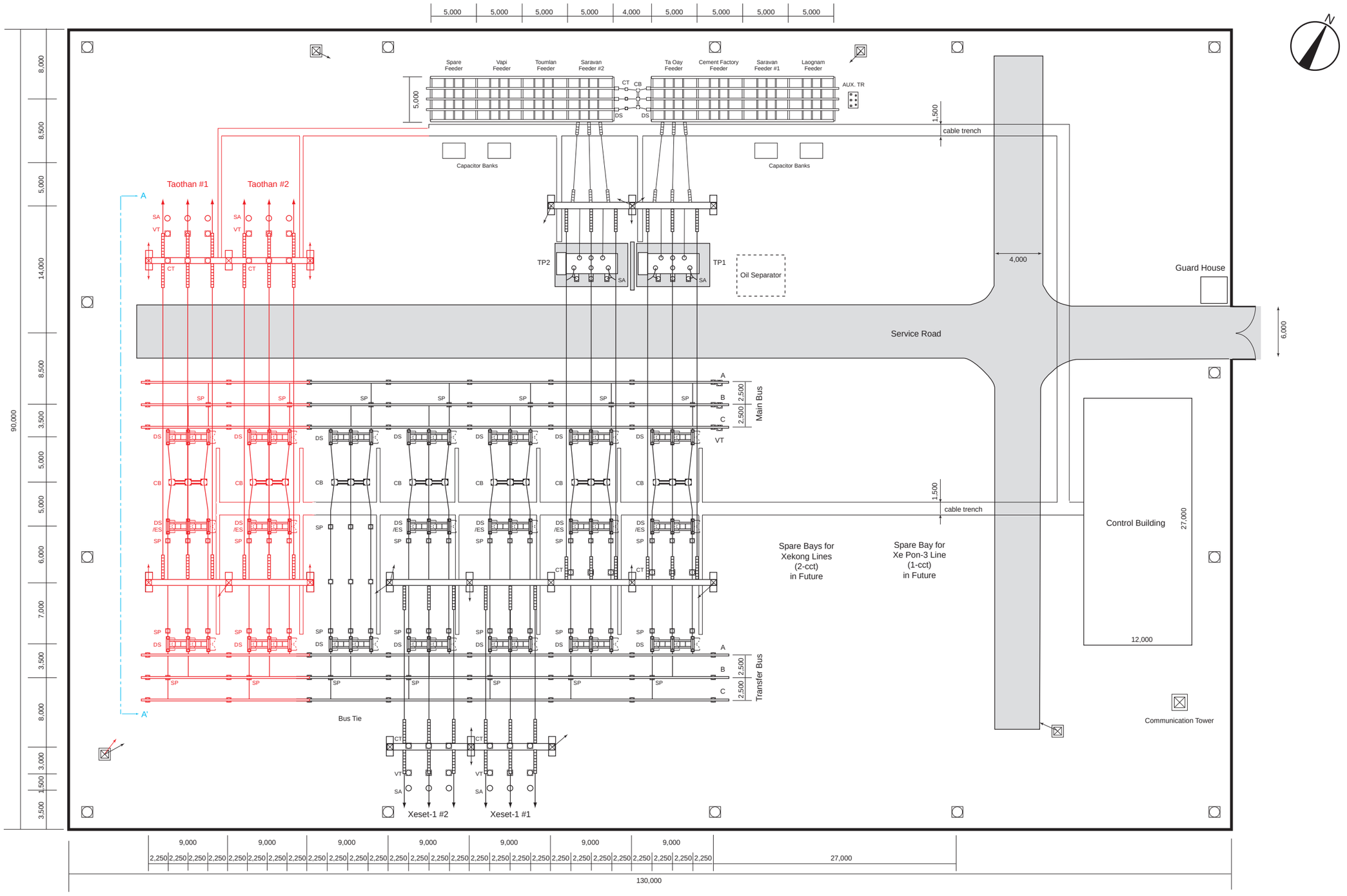
Nippon Koei Co., Ltd.

Drawing No. SS_SRV_01	Scale	not to scale
Title **Saravan Substation: Single Lina Diagram**	Approved by	M. Yogo
	Checked by	J. Fukunaga
	Drew by	J. Fukunaga



Note

CB :	Circuit Breakers
DS :	Disconnecting Switches
ES :	Eathing Switches
CT :	Current Transformers
SA :	Sarge Arresters
VT:	Voltage Tranformers
SP:	Station Post Insulators

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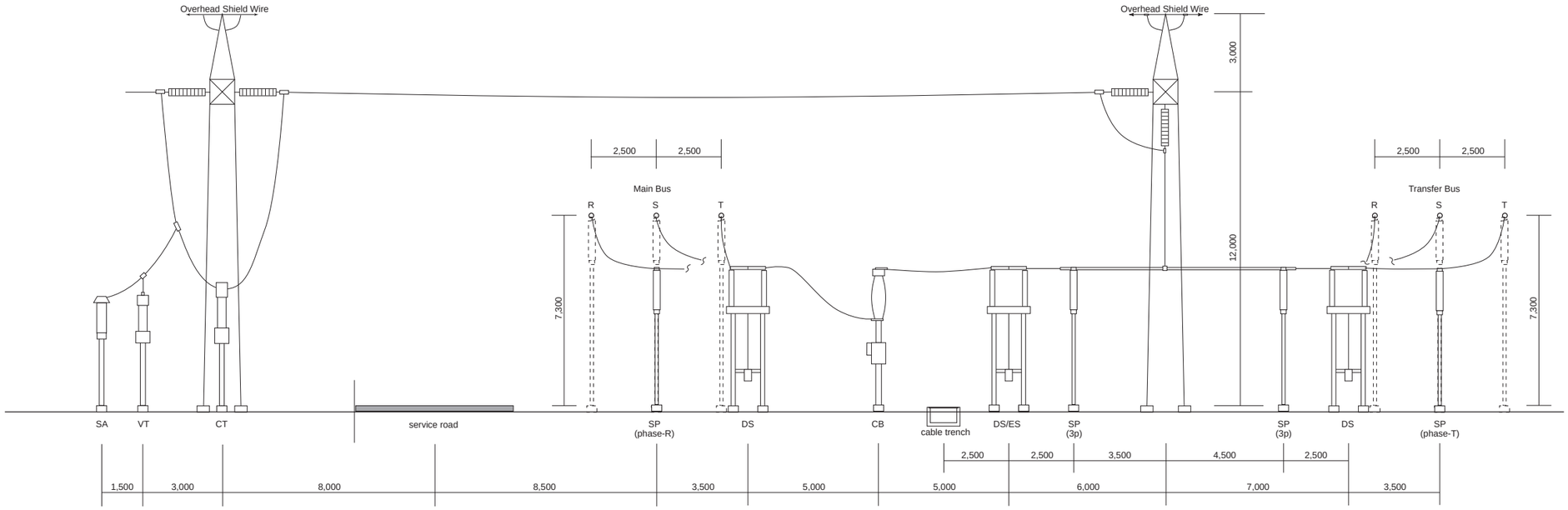
Nippon Koei Co., Ltd.

Drawing No.	**SS_SRV_02**	Scale	1 : 450
Title	**Saravan Substation: Layout**	Approved by	M. Yogo
		Checked by	J. Fukunaga
		Drew by	J. Fukunaga



Section A - A'

Note

CB :	Circuit Breakers
DS :	Disconnecting Switches
ES :	Eathing Switches
CT :	Current Transformers
SA :	Sarge Arresters
VT:	Voltage Tranformers
SP:	Station Post Insulators

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Japan International Cooperation Agency

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Tokyo Electric Power Company, Inc.
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Nippon Koei Co., Ltd.

Drawing No. SS_SRV_03	Scale	1 : 200
Title: Saravan Substation: Section	Approved by	M. Yogo
	Checked by	J. Fukunaga
	Drew by	J. Fukunaga