

# OPERATIONS SHEET

Location: Punggol Field PC near Blk 201A

Int. No: 15507

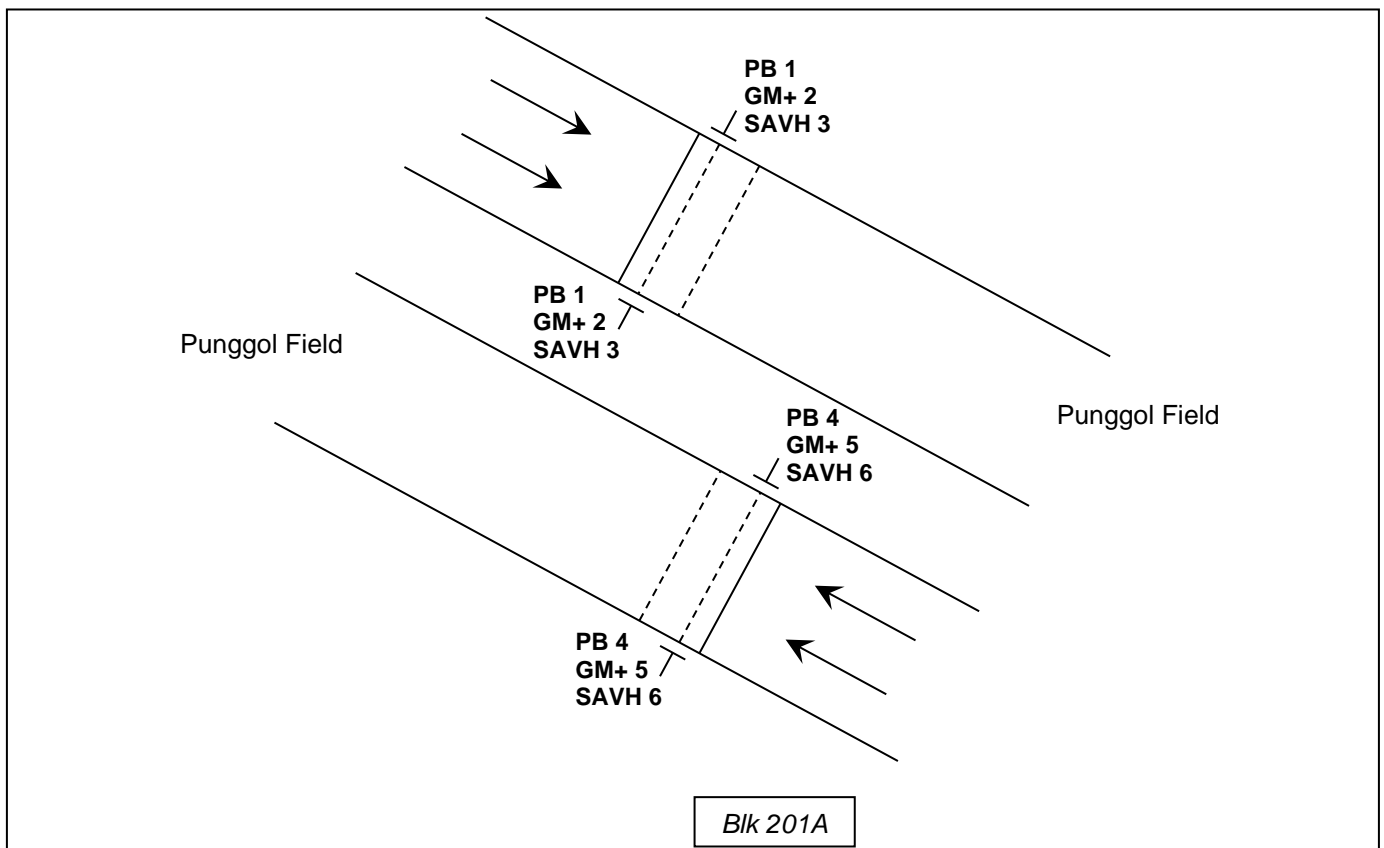
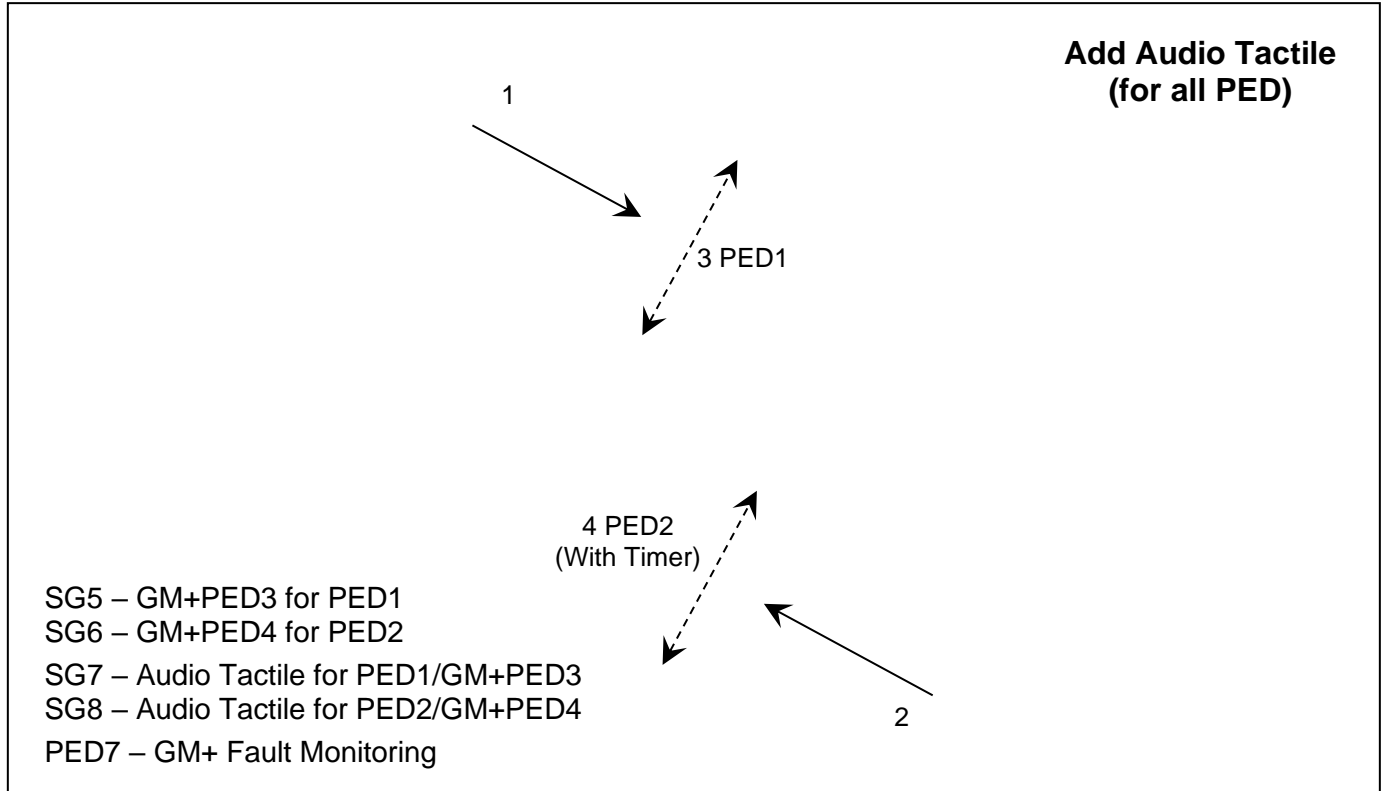
Prepared by: Chen Eng Heng

Date: 19 / 08 / 2022

Signal ID: 2217

Checked by: Mohd Farhan

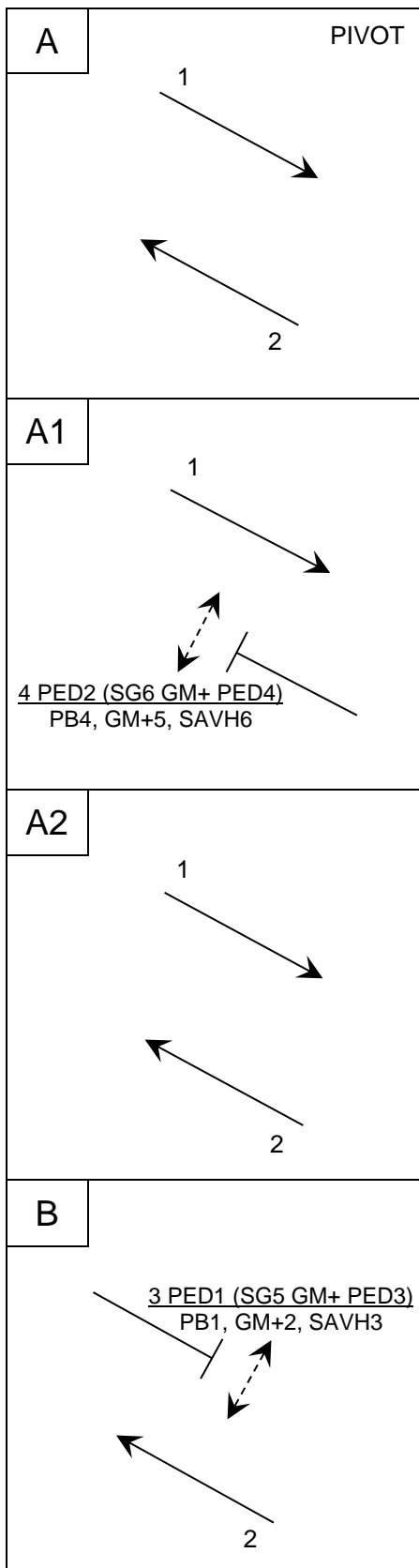
Approved by: Simon Ho



# PHASING DIAGRAM

Location: Punggol Field PC near Blk 201A

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## NOTES:-

- IF PHASE CHANGE SWITCH IS EQUAL OR MORE THAN TSM15, CONTROLLER IS TO SEND OUT MSS15 FLAG
- A AND B PHASES ARE PLACED ON PERMANENT DEMAND IN ALL MODES.
- IN ISOLATED MODE, A PHASE HAS PERMANENT EXTENSION.

## PED 1 CONTROL

- PED 1 IS INTRODUCED ON DEMAND AT THE START OF B PHASE.
- SG 1 WILL CLOSE DURING A PHASE INTERGREEN ONLY IF PED 1 IS DEMANDED.
- IN MASTERLINK, PED IS TERMINATED BY P-

## PED 2 CONTROL

- INTRODUCTION OF PED 2 IS CONTROLLED BY SPECIAL TIMER.
- TIMER T1 (TSM 11) STARTS AT A PHASE AMBER.
- WHEN TIMER T1 (TSM 11) EXPIRES, SG 2 WILL CLOSE IF PED 2 IS DEMANDED.
- AFTER SG 2 CLOSES, PED 2 WILL BE INTRODUCED. PED 2 IS ALWAYS RELEASE.
- AFTER PED 2 TERMINATES, THERE IS A 3 SECONDS ALL RED (TSM1) BEFORE SG 2 GOES GREEN.

## AUDIO TACTILE

- SG 7 AUDIO TACTILE IS CONTROLLED BY Z- FLAG
- SG 8 AUDIO TACTILE IS CONTROLLED BY Z+ FLAG

## POLICE CONTROL

- PEDS 1 AND 2 ARE PLACED ON PERMANENT DEMAND.
- BOTH PEDS ARE INTRODUCED AT START OF B PHASE.

## GM+ Control

- SG5 GM+ PED3 & SG6 GM+ PED4 WILL BE HIDDEN.
- ANY GM+ FAULT => PED 7 PB WILL BE FAULTY.

## \*SG2 CONTROL

**\*Substitute TSM13 (20 sec) to SG2 Min GRN.**

## DETECTOR FUNCTION

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DETECTOR NO	CALL PHASE	LOCKING	NON LOCKING	SET VIG ON PHASE	EXTEND PHASE	SPECIAL		DETECTOR ALARMS			PLAN REFERENCE
								FAULT SIMULATION			
								CALL & EXTEND	CALL ONLY	DISABLE	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12	A					VS for PB, GM+ & SAVH				✓	
13	A					VS for GM+				✓	
14	A					VS for SAVH				✓	
15						PHASE CHANGE SWITCH				✓	
16						POLICE CONTROL SWITCH				✓	
PB1	B	✓				PUSH BUTTON PED1			✓		
PB2	B	✓				GM+ PED3 for PED1			✓		
PB3	B	✓				SAVH PED3 for PED1			✓		
PB4	A, B	✓				PUSH BUTTON PED2			✓		
PB5	A, B	✓				GM+ PED4 for PED2			✓		
PB6	A, B	✓				SAVH PED4 for PED2			✓		
PB7	A	✓				GM+ Fault Monitoring (PED7)					
PB8											

Tick if detector failure causes  
an alarm on det. 16

## INTERGREEN, PEDESTRIAN TIMES AND SPECIAL FUNCTIONS

Location: Punggol Field PC near Blk 201A Int. No: 15507

PHASE	CLEARANCE MOVEMENT	CLEARANCE DISTANCE	INTERGREEN			PED NO.	PHASE	WALK		CLEARANCE TIME	
			AMBER	RED	TOTAL			DISTANCE (m)	GREEN TIME	1	2
A			3	3	6	1	B	7.2	6	8	
B			3		3	2	A, B	7.3	6	8	
C						3 (GM+)	B	7.2	6	11	
D						4 (GM+)	A, B	7.3	6	11	
E						5					
F						6					
G						7					

Pedestrian Walking Speed: 1.0 m/s  
(Near to School)

GM+ Walking Speed: 0.8 m/s  
(GM+ Minimum +3 Sec)

### SPECIAL FACILITIES

SIGNAL GROUP	HOUR	MINUTE	SECOND	FUNCTION	REMARKS
SG 7	21	00	00	Audio Tactile "OFF"	Control by Z- (program only)
	07	00	00	Audio Tactile "ON"	
SG 8	21	00	00	Audio Tactile "OFF"	Control by Z+
	07	00	00	Audio Tactile "ON"	

### PRE-EMPTION

SIGNAL GROUP	PHASE	FUNCTION	REMARKS

## CONTROLLER TIMESETTING

Location: Punggol Field PC near Blk 201A Int. No: 15507

### SPECIAL MOVEMENT (S. M.) TIME

('B' ENTER)

	S. M.	1	2	3	4	5	6	7	8
	INTERVAL								
MINIMUM GREEN	1								
AMBER	2								
RED	3								
GAP	4								
HEADWAY	5								
WASTE	6								
MAXIMUM	7								
SIGNAL GROUP									
DETECTORS									

### PRESENCE (RANGE 0 –5)

('D' ENTER)

### ALTERNATE TIME SETTING (RANGE 0-200)

('B' ENTER)

DET. NO	PRESENCE TIME	DET. NO	PRESENCE TIME	ALT. NO	TIME	ALT. NO	TIME
1	Sec	13	Sec	1	3 Sec (SG 2 All Red)	17 GM+ PED3	11 Sec
2	Sec	14	Sec	2	3 Sec (PED 2 All Red)	18 GM+ PED4	11 Sec
3	Sec	15	Sec	3	3 Sec (PED 1 All Red)	19	
4	Sec	16	Sec	4		20	*5 Sec
5	Sec	17	Sec	5		21	
6	Sec	18	Sec	6		22	
7	Sec	19	Sec	7		23	
8	Sec	20	Sec	8		24	
9	Sec	21	Sec	9		25	
10	Sec	22	Sec	10		26	
11	Sec	23	Sec	11	30 Sec (Timer 1)	27	
12	Sec	24	Sec	12		28	
				13	20 Sec (SG2 Min GRN)	29	
				14		30	
				15	50 Sec	31	
				16		32	

**\*Note:** During start-up of controller, there will be a 5 seconds All Red (TSM20)

## CONTROLLER TIMESETTING

Location: Punggol Field PC near Blk 201A

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	PHASE	A	B	C	D	E	F	G	H	
	INTERVAL	1	2	3	4	5	6	7	8	<u>Range</u>
RED/YELLOW	1									0 – 5
LATE START	2									0 – 20
MINIMUM GREEN	3	20	6							5 – 20
INCREMENT	4									0 – 5
MAX. V. I. G.	5									0 – 40
MAX. EXT. GREEN	6	30	0							0 – 150
EARLY CUT-OFF	7									0 – 20
AMBER	8	3	3							3 – 7
ALL RED	9	3								0 – 15
SPECIAL ALL RED	10									0 – 15
GAP 1	11									0 – 10
GAP 2	12									0 – 10
GAP 3	13									0 – 10
GAP 4	14									0 – 10
HEADWAY 1	15									0 – 5
HEADWAY 2	16									0 – 5
HEADWAY 3	17									0 – 5
HEADWAY 4	18									0 – 5
WASTE 1	19									0 – 50
WASTE 2	20									0 – 50
WASTE 3	21									0 – 50
WASTE 4	22									0 – 50
MAXIMUM 1	23									0 – 150
MAXIMUM 2	24									0 – 150
MAXIMUM 3	25									0 – 150
MAXIMUM 4	26									0 – 150

Maximum V. A. Cycle Time: \_\_\_\_\_



In Flexilink Operation, If Z- flag = C (255), A phase = TSM 11



In Isolated Operation, A phase = Max. Ext. Green

	Pedestrian NO.	1	2	3	4	5	6	7	8	
	Interval	17	18	19 GM+	20 GM+	21	22	23	24	<u>Range</u>
Delay	1									0 - 20
Walk	2	6	6	6	6					0 - 40
Clearance 1	3	8	8	11	11					0 - 40
Clearance 2	4									0 - 10
PAC		7	7	7	7			7		

## CO-ORDINATION DATA

Location: Punggol Field PC near Blk 201A Int. No: 15507

### SPECIAL FUNCTIONS

SIGNAL	FUNCTION
Y- FLEXI	Continuous
Y- MASTER	Auto call Push Button PED1, 2
Y+ FLEXI	
Z- FLEXI	SET SG7 AUDIO TACTILE "ON" (for PED1 / GM+PED3)
Z- MASTER	
Z+ FLEXI	SET SG8 AUDIO TACTILE "ON" (for PED2 / GM+PED4)
Z+ MASTER	
R- FLEXI	
R+ FLEXI	
Q- FLEXI	
Q+ FLEXI	
Z1 MASTER	
Z MASTER	
Z MASTER	
Z MASTER	

### LOOK AHEADS AND RELEASES

Phase Sequence 1			Phase Sequence 2		
PHASE	LOOK AHEAD	RELEASE	PHASE	LOOK AHEAD	RELEASE
A	NO		A		
B	NO	Auto	B		
C			C		
D			D		
E			E		
F			F		
G			G		

The following phases can be inhibited in Flexilink by omitting the call pulses in the plan data \_\_\_\_\_

NO	PHASE SEQUENCE
1 (No )	A B
2 ( )	

## GLIDE INTERSECTION DATA

Location: Punggol Field PC near Blk 201A Int. No: 15507

**Note:** The data shown on this page should be entered when the intersection is first placed on line. This data is not necessarily used for Master Link operation.

**SLOT 111 (RC15)** = 2, 1, 4

Slot \_\_\_\_=x, y, z: x=No of Phases; y=No of Split Plans; z=No of PEDs.

INT = 15507
VC = 5
CS =
COM = Port 15 / 7
PK =
S# = 37
LM = <b>MF</b>
RMN =
DCL = 80
VOLS = <b>1 - 14</b>
VP# =
AT = 6
BT = 3
CT =
DT =
ET =
FT =
GT =

Date:	Date:
PP1 = 19, 19 ^A	PP1 =
PP2 = 19, 19 ^A	PP2 =
PP3 = 19, 19 ^A	PP3 =
PP4 = -19, -19 ^A	PP4 =

### Variation Parameter (VP)

VP1 =	VP8 =	VP15 =	VP22 =	VP29 =
VP2 =	VP9 =	VP16 =	VP23 =	VP30 =
VP3 =	VP10 =	VP17 =	VP24 =	VP31 =
VP4 =	VP11 =	VP18 =	VP25 =	VP32 =
VP5 =	VP12 =	VP19 =	VP26 =	VP33 =
VP6 =	VP13 =	VP20 =	VP27 =	VP34 =
VP7 =	VP14 =	VP21 =	VP28 =	VP35 =

W1 = 0
W1T = 11
W2 = 6
W2T = 6
W3 = 0
W3T = 14

W4 = 6
W4T = 6
W5 =
W5T =
W6 =
W6T =

### SPLIT PLANS

		1	2	3	4	5	6	7	8
	<b>SF</b>								
	<b>FEATURES</b>								
A	0 FG NG PD B	0 B							
B	A	17# A							
C									
D									
E									
F									
G									



## PLAN DATA

Location: Punggol Field PC near Blk 201A Int. No: 15507

### PLAN

('E' ENTER)

		1	2	3	4	5	6	7	8	9	10
0	<b>CL</b>	120	100		120	90	100	100			
1	<b>A</b>	37	41		37	31	41	41			
2	<b>B</b>	17	21		17	11	21	21			
3	<b>C</b>										
4	<b>D</b>										
5	<b>E</b>										
6	<b>F</b>										
7	<b>G</b>										
8	<b>R-</b>										
9	<b>R+</b>										
10	<b>Y-</b>	C	C		C	C	C	C			
11	<b>Y+</b>										
12	<b>Z-</b>	C	C		C	N	N	C			
13	<b>Z+</b>	C	C		C	N	N	C			
14	<b>Q-</b>										
15	<b>Q+</b>										
16	<b>XSF (9-16)*</b>										
17	<b>XSF (1-8)*</b>										

\* A digit hexadecimal number which signifies which XSF bits are used; e.g. AO signifies bits 14 & 16 are set.

**NOTE:** C = Continuous (255) N = Not Used (254)

### PLAN SCHEDULE

('F' ENTER)

CODE	HOUR	MINUTE	PLAN
8	0	0	5
<b>8</b>	<b>7</b>	<b>0</b>	<b>1</b>
8	9	0	7
8	12	0	2
8	17	0	4
<b>8</b>	<b>21</b>	<b>0</b>	<b>6</b>
8	23	0	5
7	0	0	5
<b>7</b>	<b>7</b>	<b>0</b>	<b>1</b>
7	9	0	7

CODE	HOUR	MINUTE	PLAN
7	12	0	4
7	15	0	2
<b>7</b>	<b>21</b>	<b>0</b>	<b>6</b>
7	23	0	5
1	0	0	5
<b>1</b>	<b>7</b>	<b>0</b>	<b>7</b>
1	9	0	7
1	14	0	2
<b>1</b>	<b>21</b>	<b>0</b>	<b>6</b>
1	23	0	5

## Pedestrian and Vehicle Signal Groups Interlock Table

Location: Punggol Field PC near Blk 201A Int. No: 15507

	Phase A	Phase B	Phase C	Phase D	Phase E	Phase F	Phase G
<b>SG 1</b>	GAR	RED					
<b>SG 2</b>	SGAR	SGAR					
<b>SG 3</b>	DON'T	WALK					
<b>SG 4</b>	PWALK	PWALK					
<b>SG 5 GM+</b>	DON'T	WALK					
<b>SG 6 GM+</b>	PWALK	PWALK					
<b>SG 7</b>	AUDIO TACTILE						
<b>SG 8</b>	AUDIO TACTILE						
<b>SG 9</b>							
<b>SG 10</b>							
<b>SG 11</b>							
<b>SG 12</b>							
<b>SG 13</b>							
<b>SG 14</b>							
<b>SG 15</b>							
<b>SG 16</b>							

### Legend:

GAR	Green, Amber, Red
GEAR	Green, Amber, Red (With ECO)
RED	Red
SGRN	Special Green
SOFF	Special Off
WALK	PED Walk, Clearance 1 and Clearance 2
SWALK	Special PED Walk, Clearance 1 and Clearance 2
DON'T	PED Red

**Signal Groups Conflict Matrix**Location: Punggol Field PC near Blk 201AInt. No: 15507

('C16' ENTER)

SG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1			X		X											
2				X		X										
3	X															
4		X														
5	X															
6		X														
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																