M2 and M20 Merge and Diverge Assessment

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Medway Council

Medway Local Plan
27 June 2025

M2 and M20 Merge and Diverge Assessment

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Appendices

Figures

1. Introduction

This document was prepared following Medway Council's request to examine the impacts of the Local Plan upon the slip road merges and diverges for the eight following junctions:

- M2 Junction 1;
- M2 Junction 2;
- M2 Junction 3;
- M2 Junction 4;
- M2 Junction 5;
- M20 Junction 4;
- M20 Junction 5;
- M20 Junction 6.

Figure 1 shows the five junctions on the M2 and three junctions on the M20.

Figure 1 - Junctions' location

The merge and diverge assessments present in this document were carried out in accordance with the diagrams in Design Manual for Road and Bridges – CD 122 Geometric design of grade separated junctions. The assessments compare the peak hour flows for the AM and PM merges/diverges with M2 and M20 mainline flows. For the merge assessment, the upstream mainline flows were used and for the diverge assessment, the downstream mainline flows were used. An increase in provision may be required when forecast traffic volumes exceed the capacity of the current or proposed layout, potentially leading to

congestion or safety concerns. However, the focus of this merge and diverge assessment would only consider mitigation if there was a layout change between the Reference Case and the Do Something (DS) provision.

Figure 2 to Figure 9 show the location of each junction's merge/diverge.

Figure 2 – M2 Junction 1

Figure 3 - M2 Junction 2

Figure 4 - M2 Junction 3

Figure 5 - M2 Junction 4

Figure 6 - M2 Junction 5

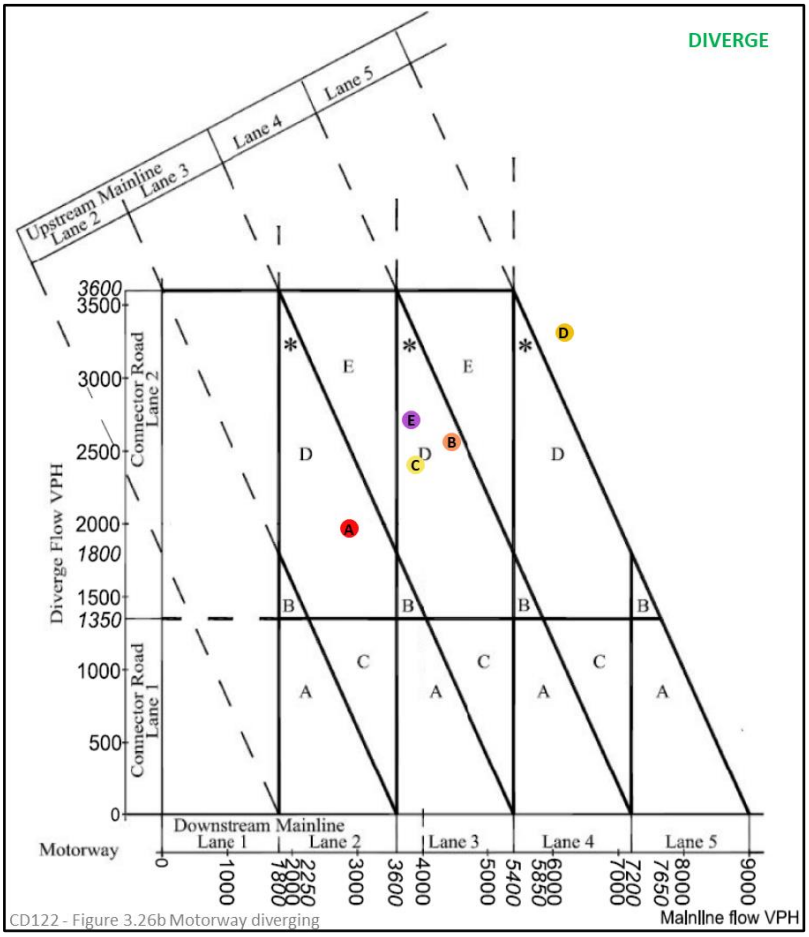
Figure 7 - M20 Junction 4

Figure 8 - M20 Junction 5

Figure 9 - M20 Junction 6

2. M2 Junction 1

(1) M2 EASTBOUND: DIVERGE

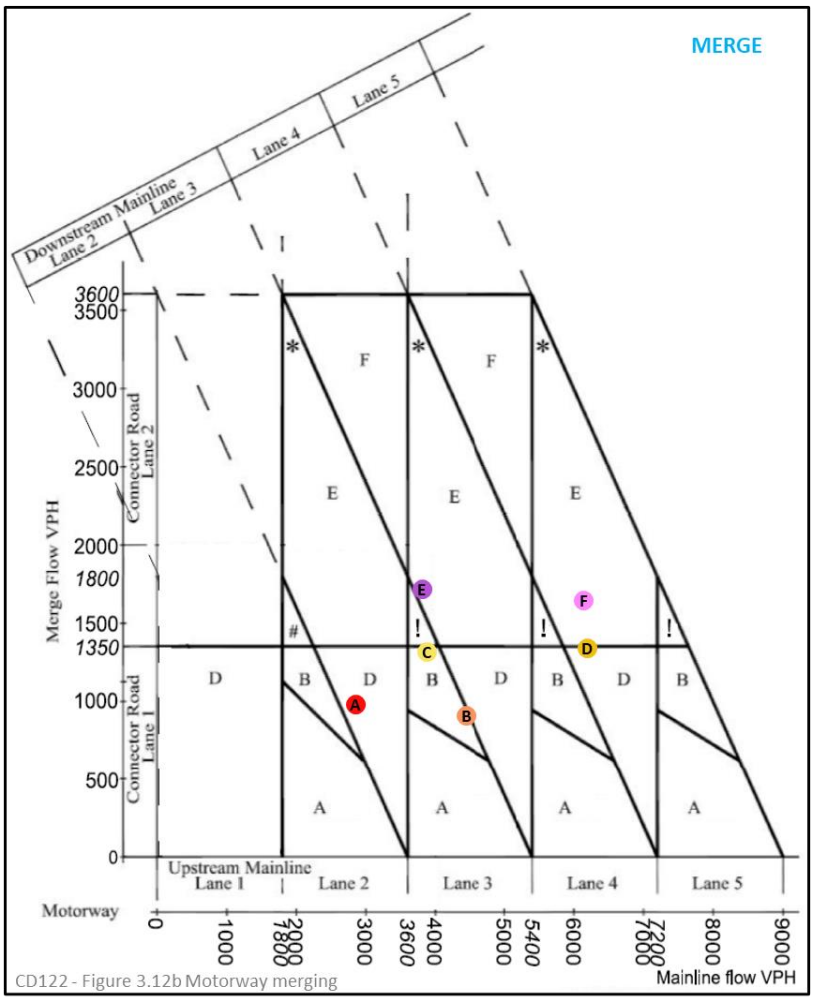


Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	2853	1970
B	Base_PM	4433	2568
C	Ref Case LTC_AM	3872	2407
D	Ref Case LTC_PM	6158	3313
E	DS LTC_AM	3798	2716
F	DS LTC_PM	6110	3811

Scenario	Diverge Layouts	
	AM	PM
Current Layout	D2	
Base	D	D
Ref Case LTC	D	n/a
Do Something LTC	D	n/a

Notes:
- The M2J1 EB diverge (off-slip) is currently type D2 layout.
- All scenarios modelled show no increase required to level of provision.

(2) M2 EASTBOUND: MERGE



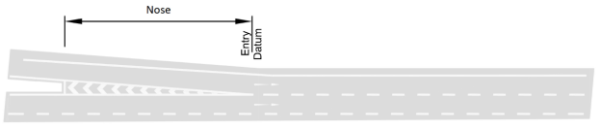
CD122 - Figure 3.12b Motorway merging

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	2853	960
B	Base_PM	4433	888
C	Ref Case LTC_AM	3872	1292
D	Ref Case LTC_PM	6158	1316
E	DS LTC_AM	3798	1691
F	DS LTC_PM	6110	1616

Scenario	Merge Layouts	
	AM	PM
Current Layout	D	
Base	D	B
Ref Case LTC	B	D
Do Something LTC	E	E

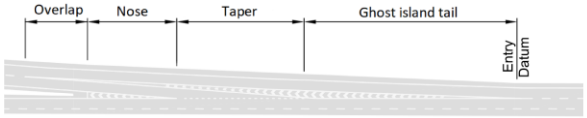
Notes:
- The M2J1 EB merge (on-slip) is currently type D layout.
- By the Do Something, an increase is required from type D to a type E*.

Current scenario:



CD122 - Figure 3.14e Layout D - lane

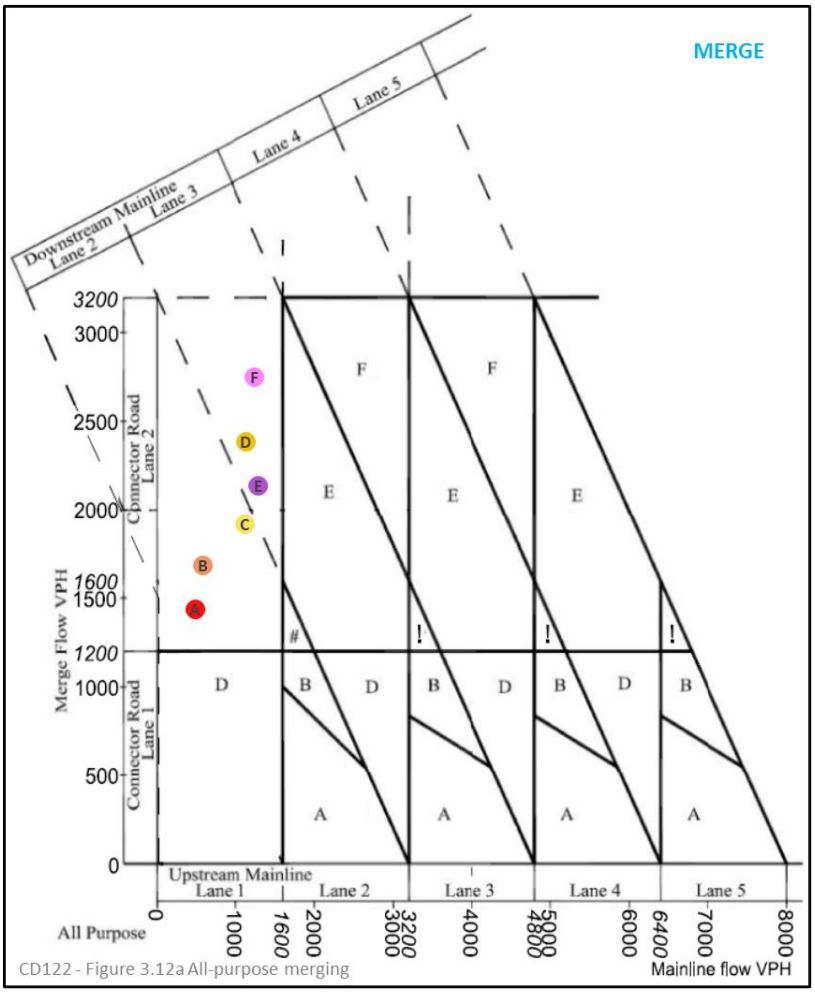
Reference Case and DS (with LTC)

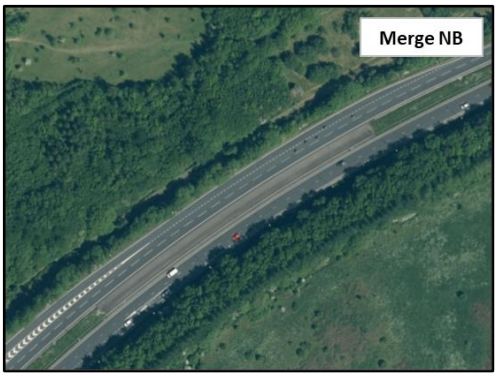


CD122 - Figure 3.14g Layout E Option 1 - lane gain with ghost island offside merge

*The proposed mitigation can be found in Section 0.

(3) A289 NORTHBOUND: MERGE





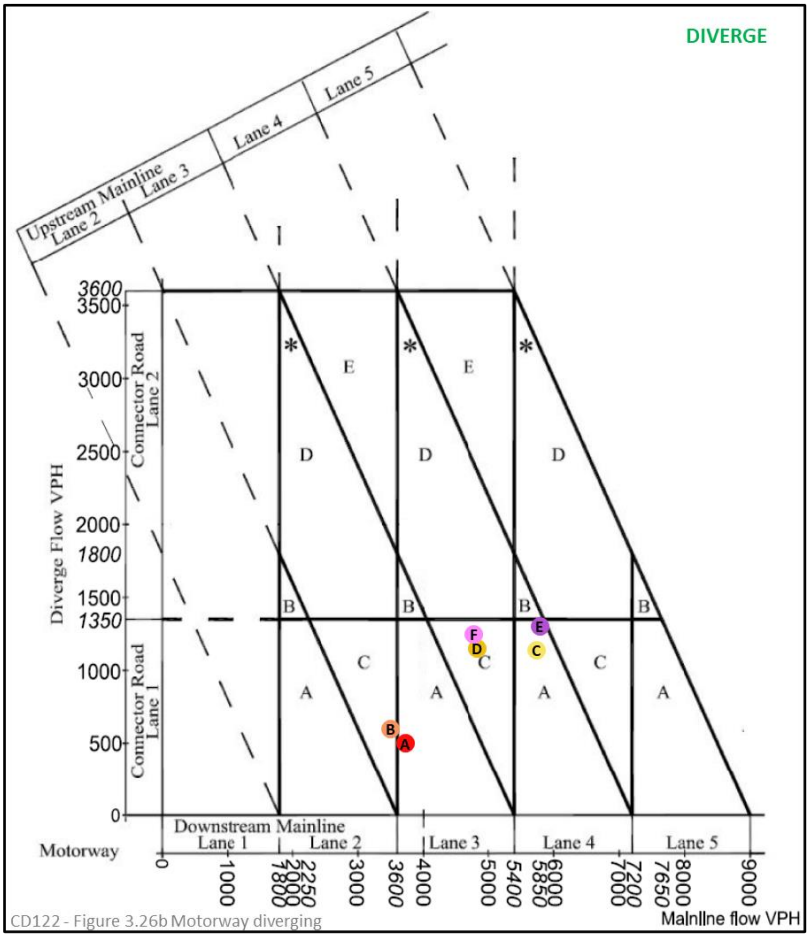
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	462	1417
B	Base_PM	564	1661
C	Ref Case LTC_AM	1104	1896
D	Ref Case LTC_PM	1115	2355
E	DS LTC_AM	1268	2108
F	DS LTC_PM	1215	2720

Scenario	Merge Layouts	
	AM	PM
Current Layout	B	
Base	n/a	n/a
Ref Case LTC	n/a	n/a
Do Something LTC	n/a	n/a

Notes:

- The A289 NB merge (on-slip) is currently type B layout.
- This is a complex merging situation where merging flow is higher than mainline flow. It is recommended that an E type layout would be more suitable here, but this is not due to the local plan scenarios as there is no change in provision likely to be required from the reference case.

(4) M2 WESTBOUND: DIVERGE

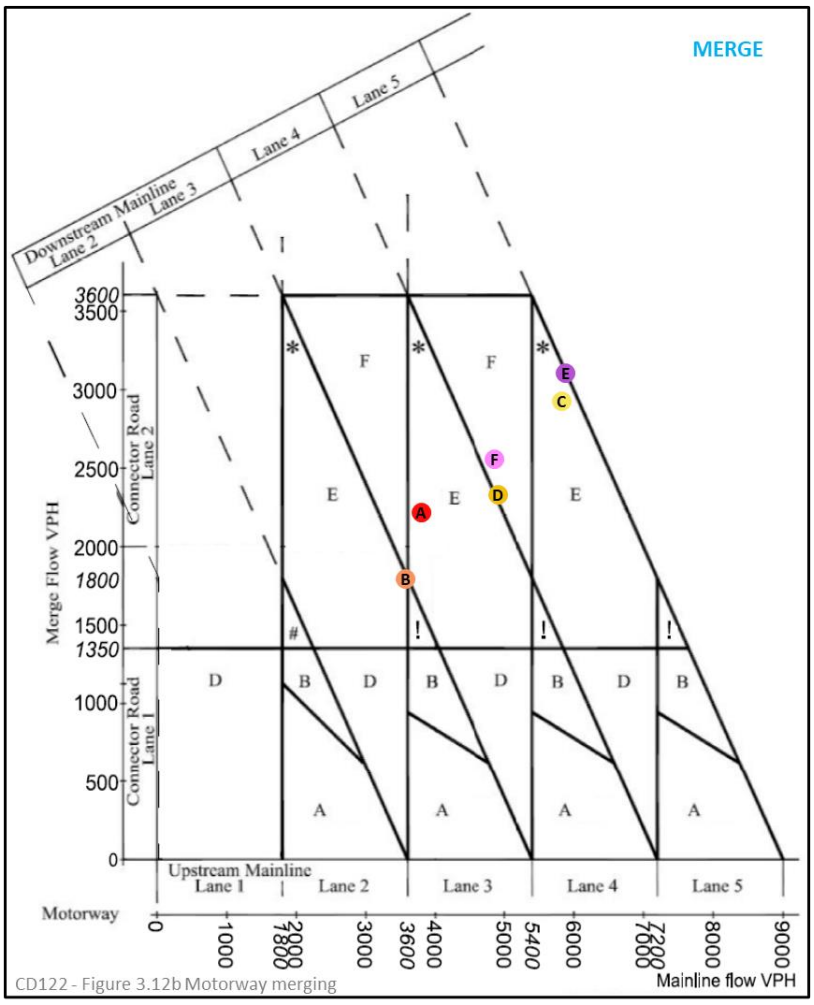


Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	3768	462
B	Base_PM	3538	564
C	Ref Case LTC_AM	5769	1104
D	Ref Case LTC_PM	4865	1115
E	DS LTC_AM	5820	1268
F	DS LTC_PM	4809	1215

Scenario	Diverge Layouts	
	AM	PM
Current Layout	C	
Base	A	C
Ref Case LTC	A	C
Do Something LTC	A	C

Notes:
- The M2J1 WB diverge (off-slip) is currently type C layout.
- All scenarios modelled show no increase required to level of provision.

(5) M2 WESTBOUND: MERGE



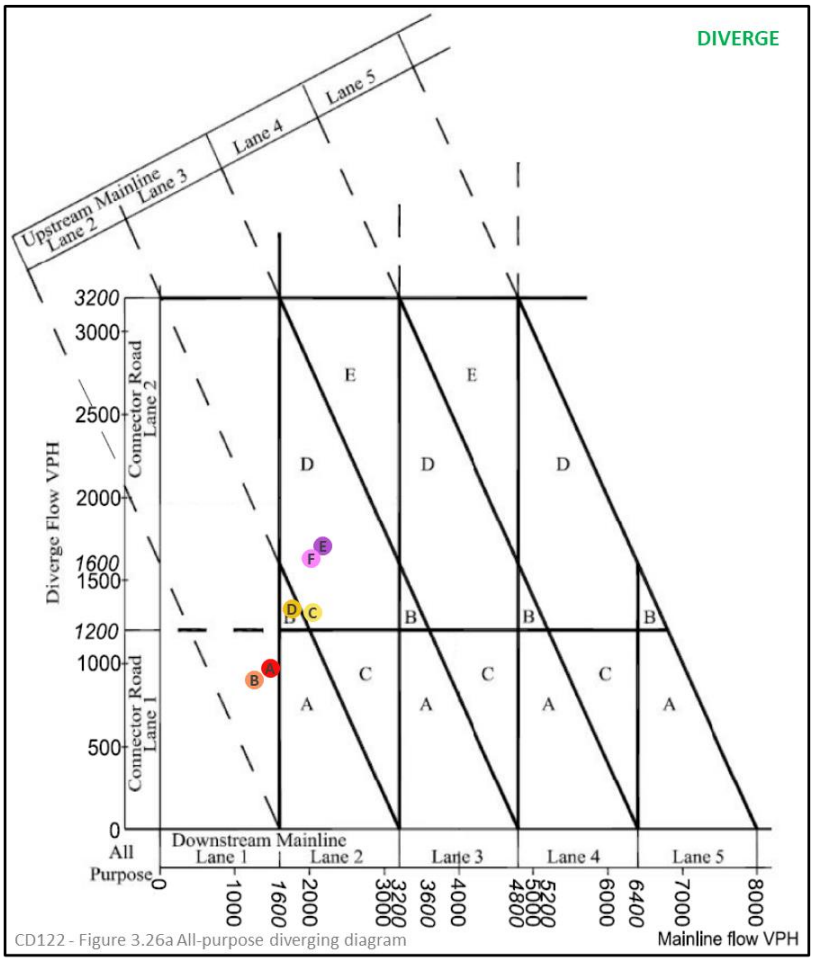
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	3768	2190
B	Base_PM	3538	1771
C	Ref Case LTC_AM	5769	2897
D	Ref Case LTC_PM	4865	2303
E	DS LTC_AM	5820	3075
F	DS LTC_PM	4809	2528

Scenario	Merge Layouts	
	AM	PM
Current Layout	F	
Base	E	E
Ref Case LTC	E	F
Do Something LTC	E	F

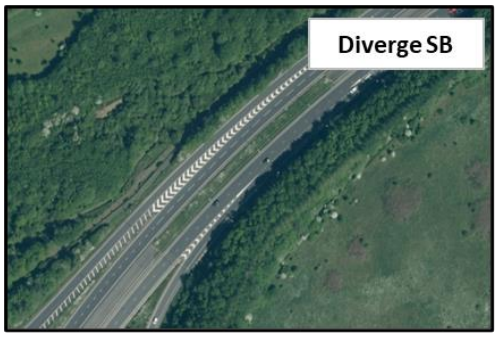
Notes:

- The M2J1 WB merge (on-slip) is currently type F layout.
- All scenarios modelled show no increase required to level of provision.

(6) A289 SOUTHBOUND: DIVERGE



CD122 - Figure 3.26a All-purpose diverging diagram



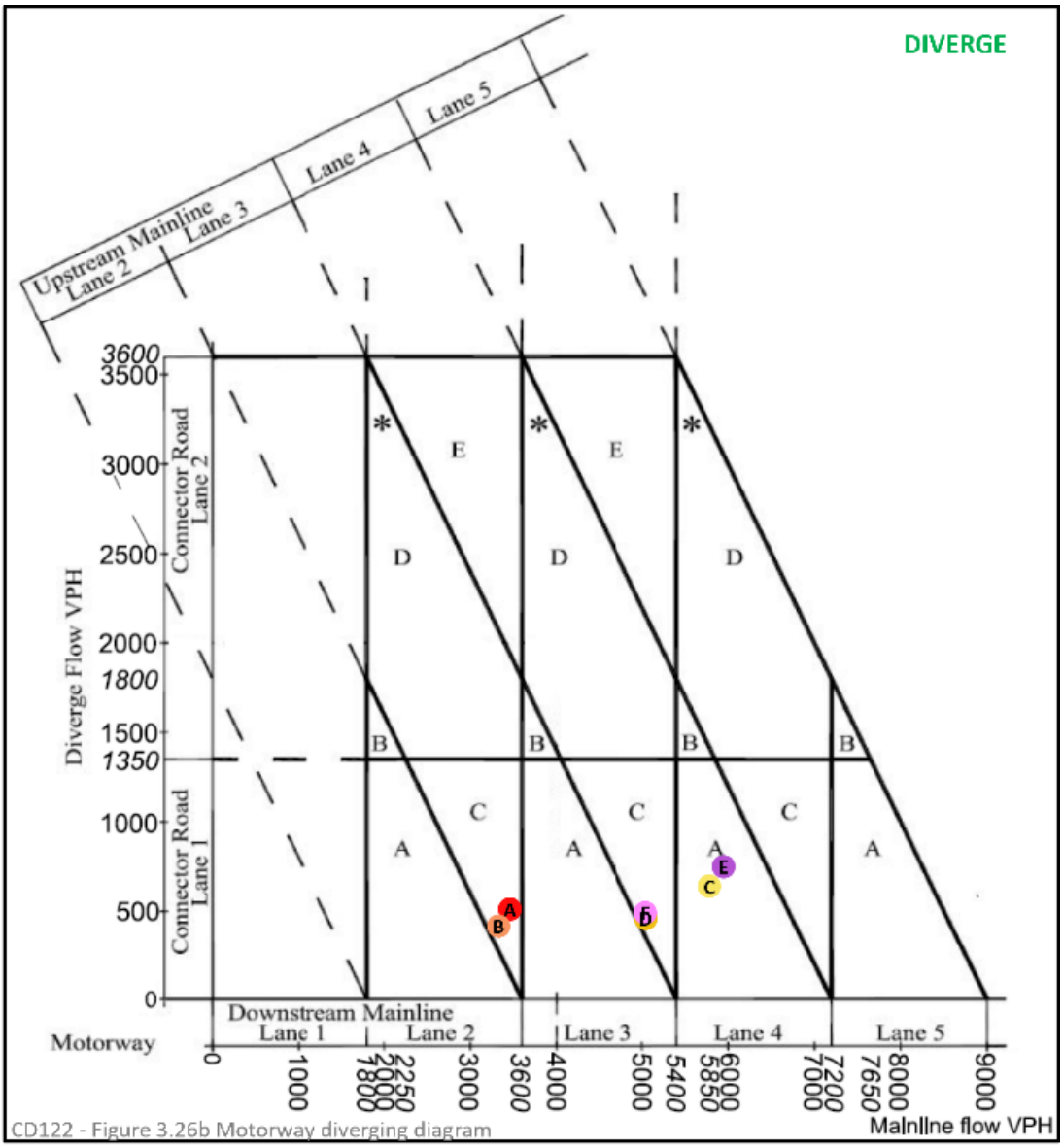
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	1443	960
B	Base_PM	1226	888
C	Ref Case LTC_AM	2011	1292
D	Ref Case LTC_PM	1733	1316
E	DS LTC_AM	2148	1691
F	DS LTC_PM	1985	1616

Scenario	Diverge Layouts	
	AM	PM
Current Layout	A1	
Base	n/a	n/a
Ref Case LTC	D	B
Do Something LTC	D	D

Notes:
- The A289 SB diverge (off-slip) is currently type A1 layout.
- As an increase in provision is required in the Reference Case LTC for the PM peak, the maximum required provision (type D) does not change between Reference Case and Do Something.

3. M2 Junction 2

(1) M2 NORTHBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

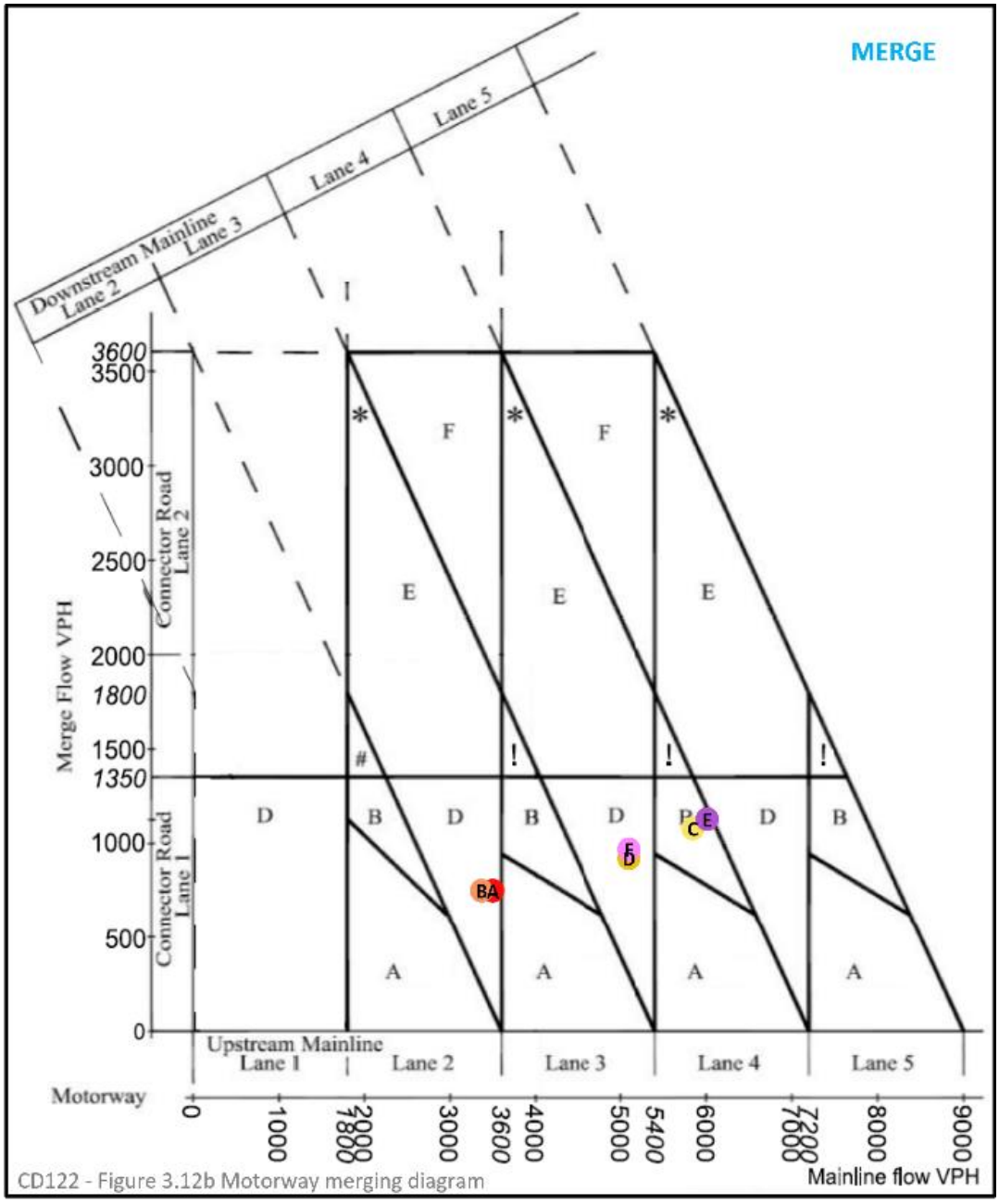
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	3503	467
B	Base_PM	3372	374
C	Ref Case LTC_AM	5819	597
D	Ref Case LTC_PM	5081	416
E	DS LTC_AM	5986	707
F	DS LTC_PM	5078	449

Scenario	Diverge Layouts	
	AM	PM
Current Layout	C	
Base	C	C
Ref Case LTC	A	C
Do Something LTC	A	C

Notes:

- The M2 J2 NB diverge (off-slip) is currently type C layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this diverge.

(2) M2 NORTHBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

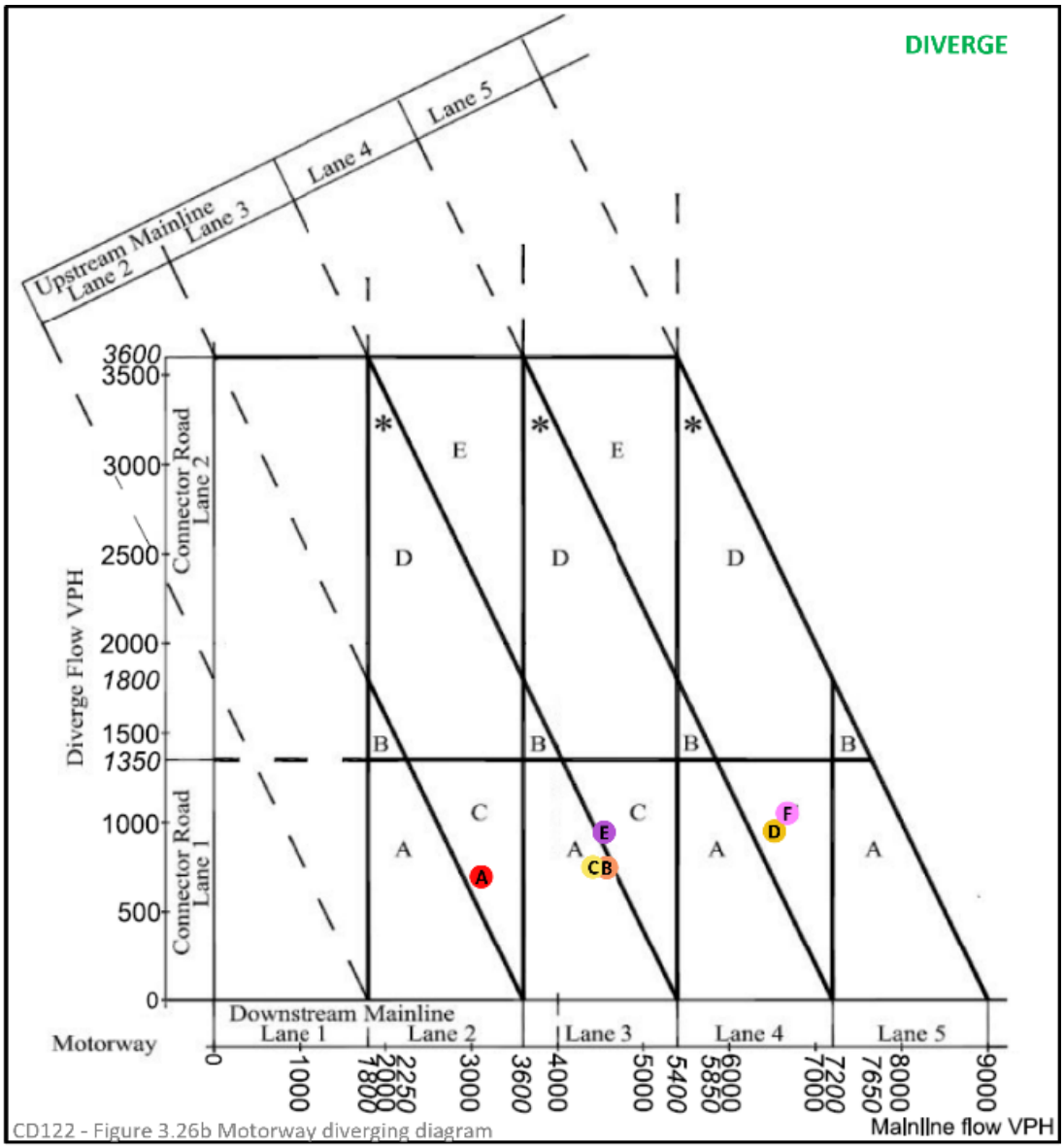
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	3503	727
B	Base_PM	3372	729
C	Ref Case LTC_AM	5819	1055
D	Ref Case LTC_PM	5081	899
E	DS LTC_AM	5986	1103
F	DS LTC_PM	5078	946

Scenario	Merge Layouts	
	AM	PM
Current Layout	D	
Base	D	D
Ref Case LTC	B	D
Do Something LTC	B	D

Notes:

- The M2 J2 NB merge (on-slip) is currently type D layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this merge.

(3) M2 SOUTHBOUND: DIVERGE



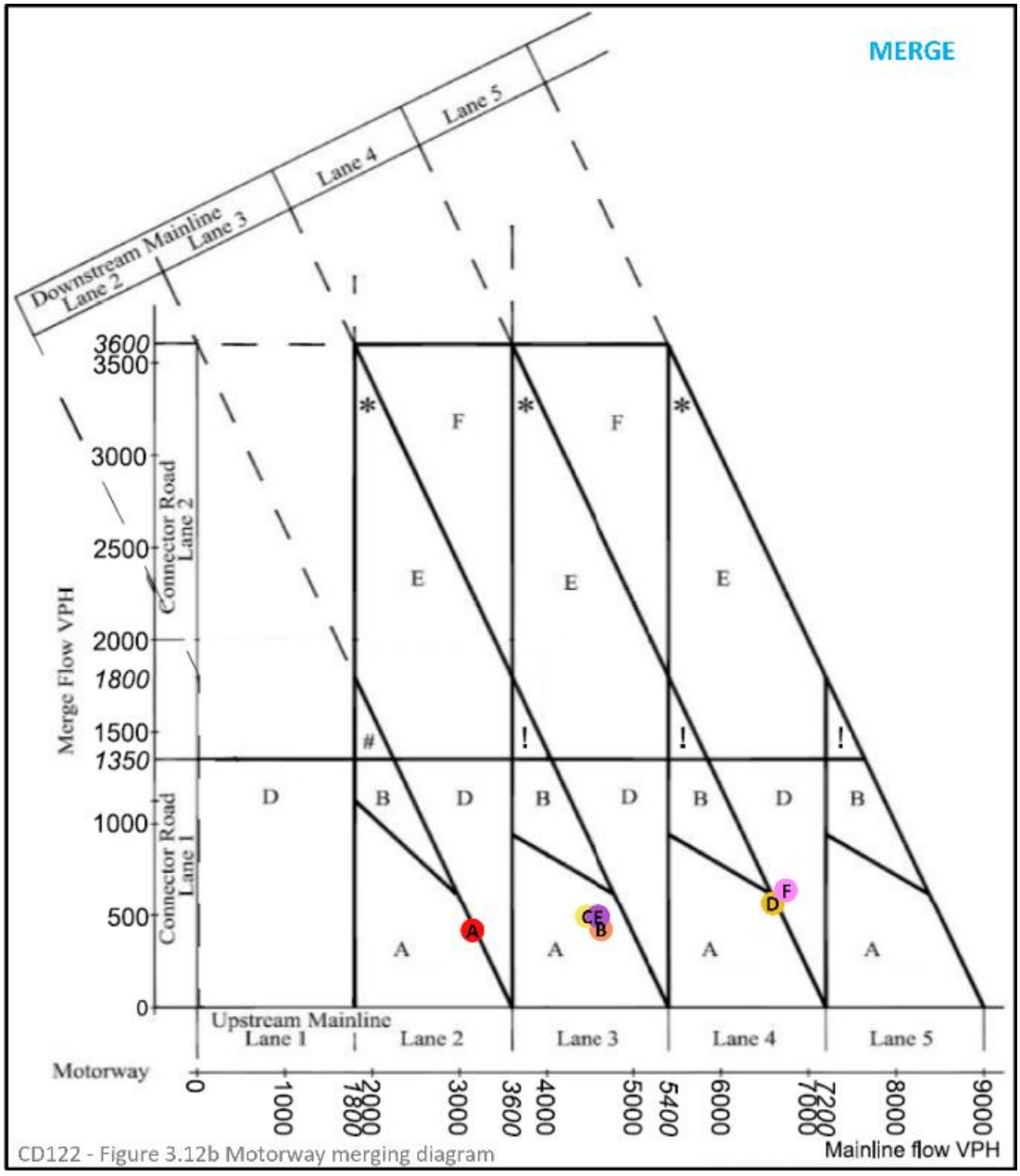
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	3157	656
B	Base_PM	4613	708
C	Ref Case LTC_AM	4453	711
D	Ref Case LTC_PM	6562	912
E	DS LTC_AM	4582	907
F	DS LTC_PM	6713	1013

Scenario	Diverge Layouts	
	AM	PM
Current Layout	C	
Base	C	A
Ref Case LTC	A	C
Do Something LTC	C	C

Notes:

- The M2 J2 SB diverge (off-slip) is currently type C layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this diverge.

(4) M2 SOUTHBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	3157	403
B	Base_PM	4613	409
C	Ref Case LTC_AM	4453	479
D	Ref Case LTC_PM	6562	548
E	DS LTC_AM	4582	477
F	DS LTC_PM	6713	618

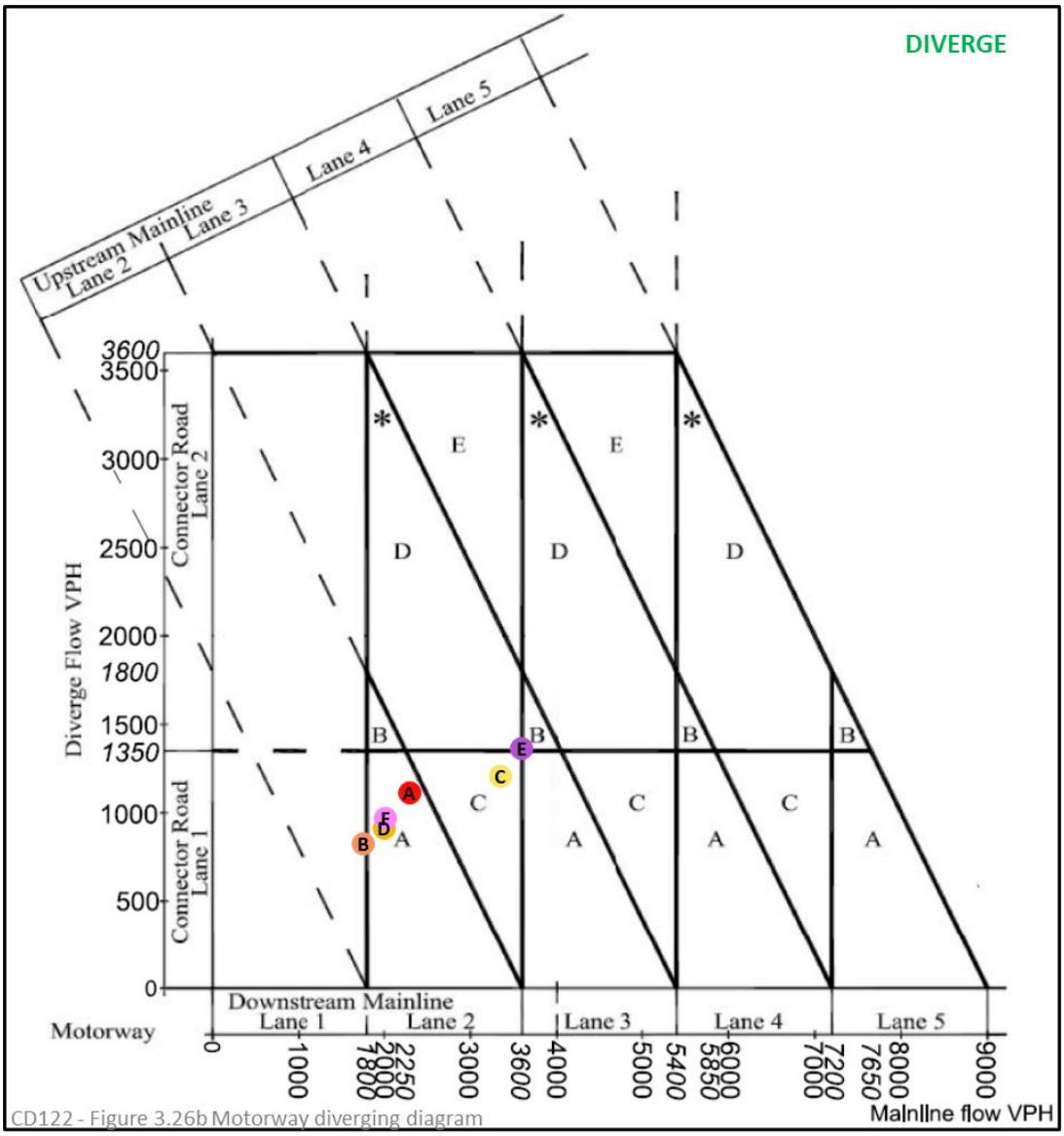
Scenario	Merge Layouts	
	AM	PM
Current Layout	D	
Base	A	A
Ref Case LTC	A	A
Do Something LTC	A	D

Notes:

- The M2 J2 SB merge (on-slip) is currently type D layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this merge.

4. M2 Junction 3

(1) M2 NORTHBOUND: DIVERGE



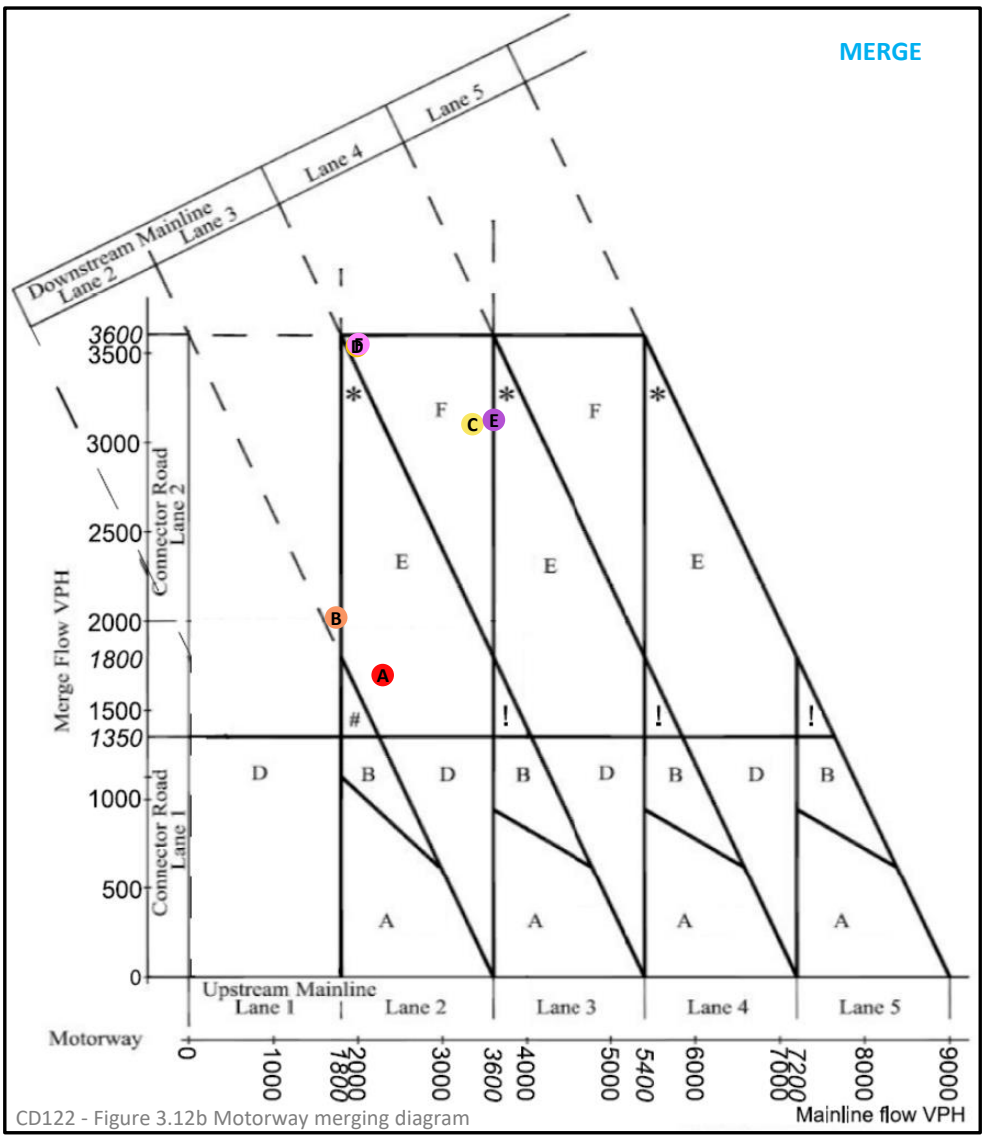
CD122 - Figure 3.26b Motorway diverging diagram

Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	2303	1105
B	Base_PM	1758	817
C	Ref Case LTC_AM	3355	1199
D	Ref Case LTC_PM	2001	902
E	DS LTC_AM	3607	1358
F	DS LTC_PM	2021	962

Scenario	Diverge Layouts	
	AM	PM
Current Layout	B2	
Base	A	N/A
Ref Case LTC	C	A
Do Something LTC	B	A

Notes:
- The M2 J3 NB diverge (off-slip) is currently type B2 layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type C) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this diverge.

(2) M2 NORTHBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

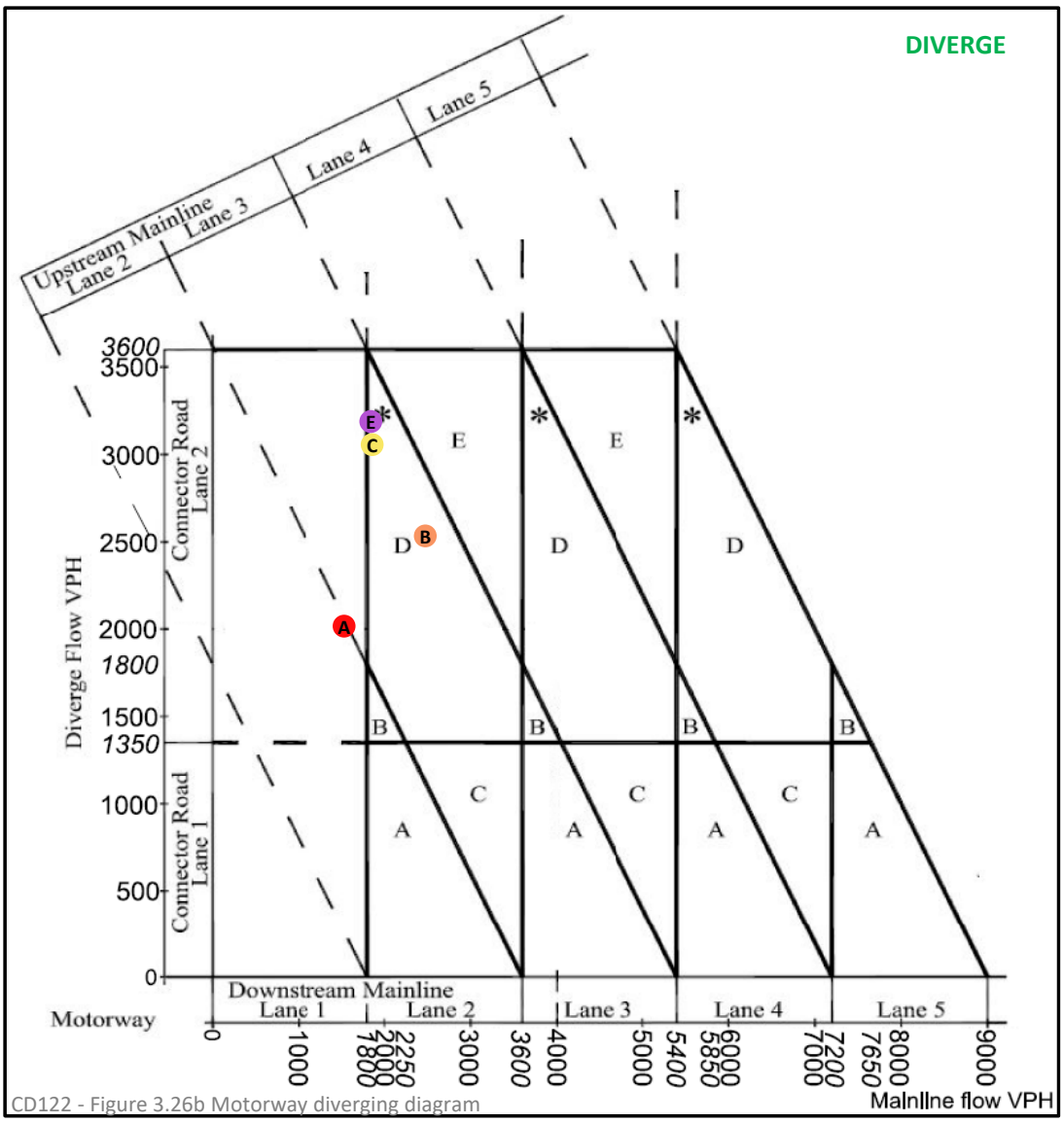
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	2303	1667
B	Base_PM	1758	1987
C	Ref Case LTC_AM	3355	3061
D	Ref Case LTC_PM	2001	3496
E	DS LTC_AM	3607	3086
F	DS LTC_PM	2021	3506

Scenario	Merge Layouts	
	AM	PM
Current Layout	E2	
Base	E	N/A
Ref Case LTC	F	F
Do Something LTC	E	F

Notes:

- The M2 J3 NB merge (on-slip) is currently type E2 layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type F) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this merge.

(3) M2 SOUTHBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

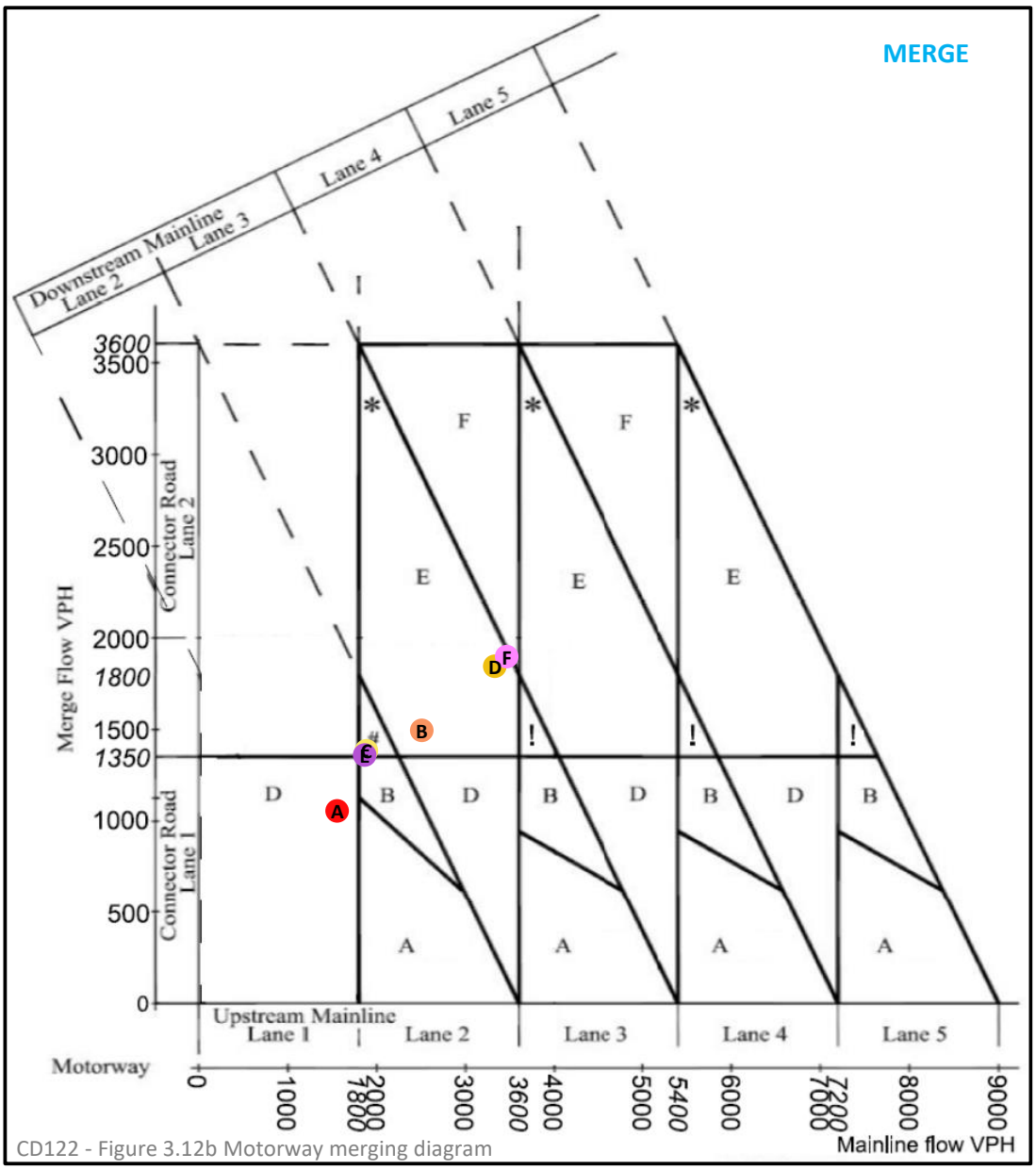
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	1576	1983
B	Base_PM	2519	2503
C	Ref Case LTC_AM	1902	3030
D	Ref Case LTC_PM	3333	3671
E	DS LTC_AM	1885	3163
F	DS LTC_PM	3467	3691

Scenario	Diverge Layouts	
	AM	PM
Current Layout	D2	
Base	N/A	D
Ref Case LTC	D	N/A
Do Something LTC	D	N/A

Notes:

- The M2 J3 SB diverge (off-slip) is currently type D2 layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this diverge.

(4) M2 SOUTHBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	1576	1030
B	Base_PM	2519	1467
C	Ref Case LTC_AM	1902	1356
D	Ref Case LTC_PM	3333	1814
E	DS LTC_AM	1885	1332
F	DS LTC_PM	3467	1865

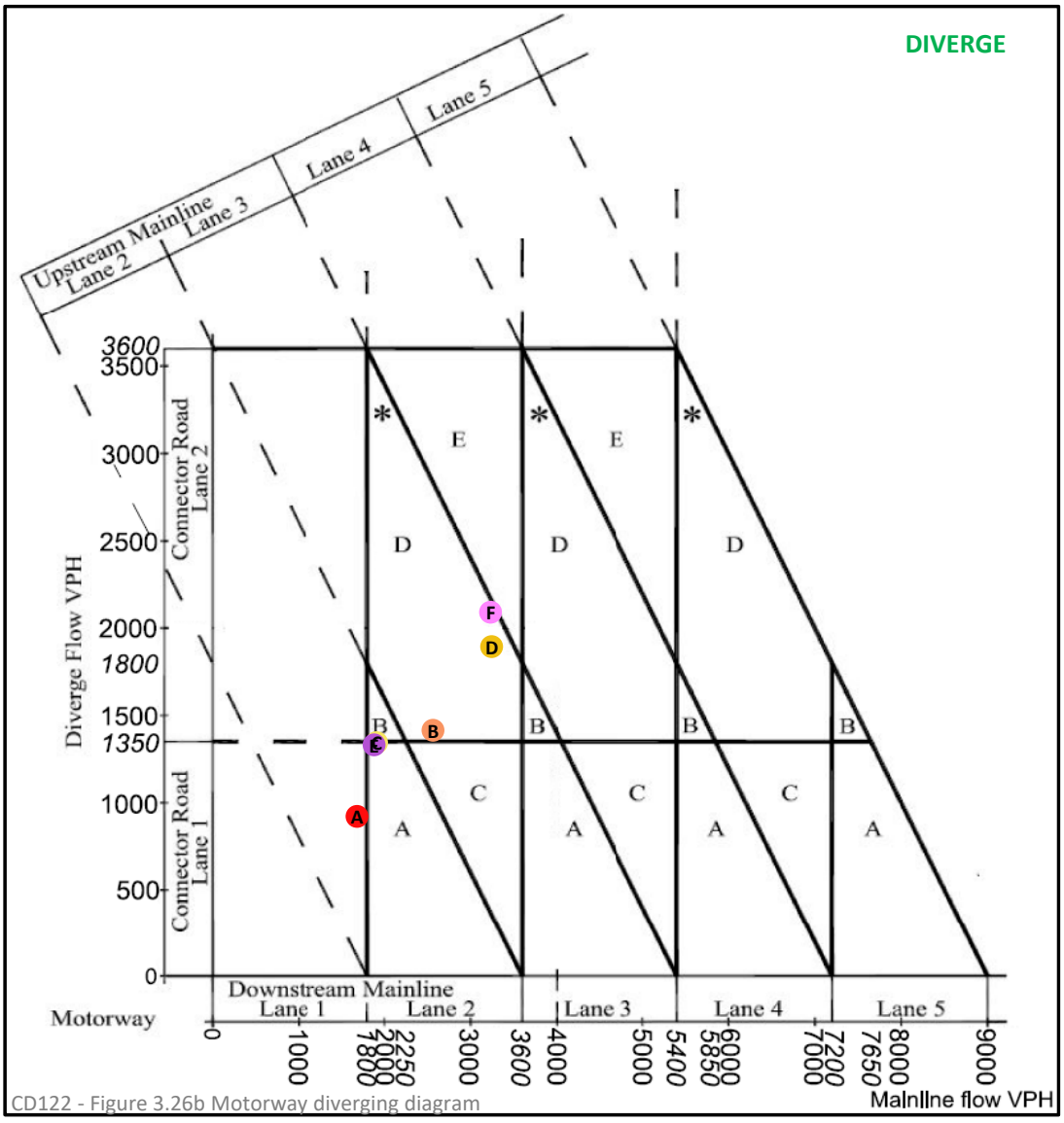
Scenario	Merge Layouts	
	AM	PM
Current Layout	E2	
Base	D	E
Ref Case LTC	B	E
Do Something LTC	B	E

Notes:

- The M2 J3 SB merge (on-slip) is currently type E2 layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this merge.

5. M2 Junction 4

(1) M2 EASTBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

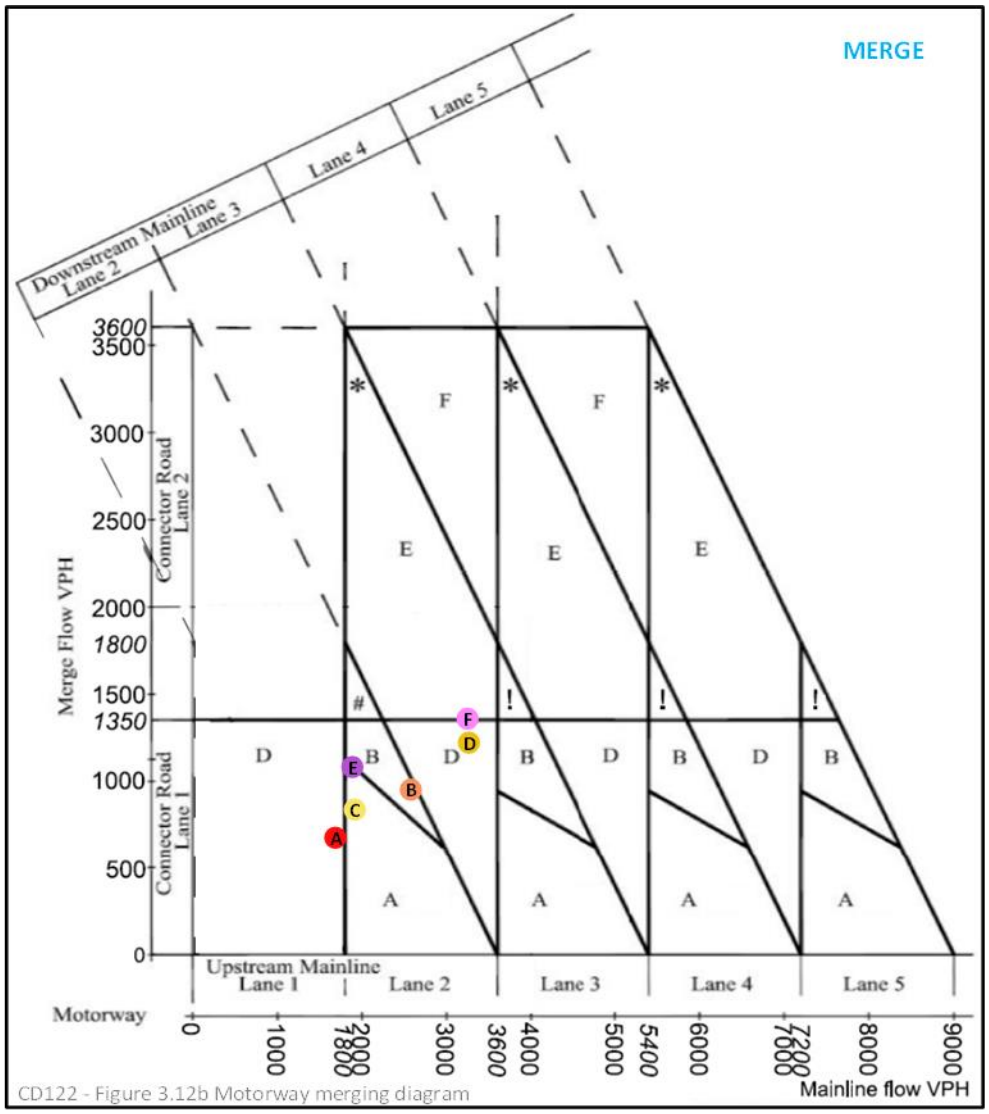
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	1726	881
B	Base_PM	2609	1377
C	Ref Case LTC_AM	1954	1305
D	Ref Case LTC_PM	3289	1858
E	DS LTC_AM	1924	1293
F	DS LTC_PM	3275	2057

Scenario	Diverge Layouts	
	AM	PM
Current Layout	D2	
Base	N/A	D
Ref Case LTC	A	D
Do Something LTC	A	D

Notes:

- The M2 J4 EB diverge (off-slip) is currently type D2 layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this diverge.

(2) M2 EASTHBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

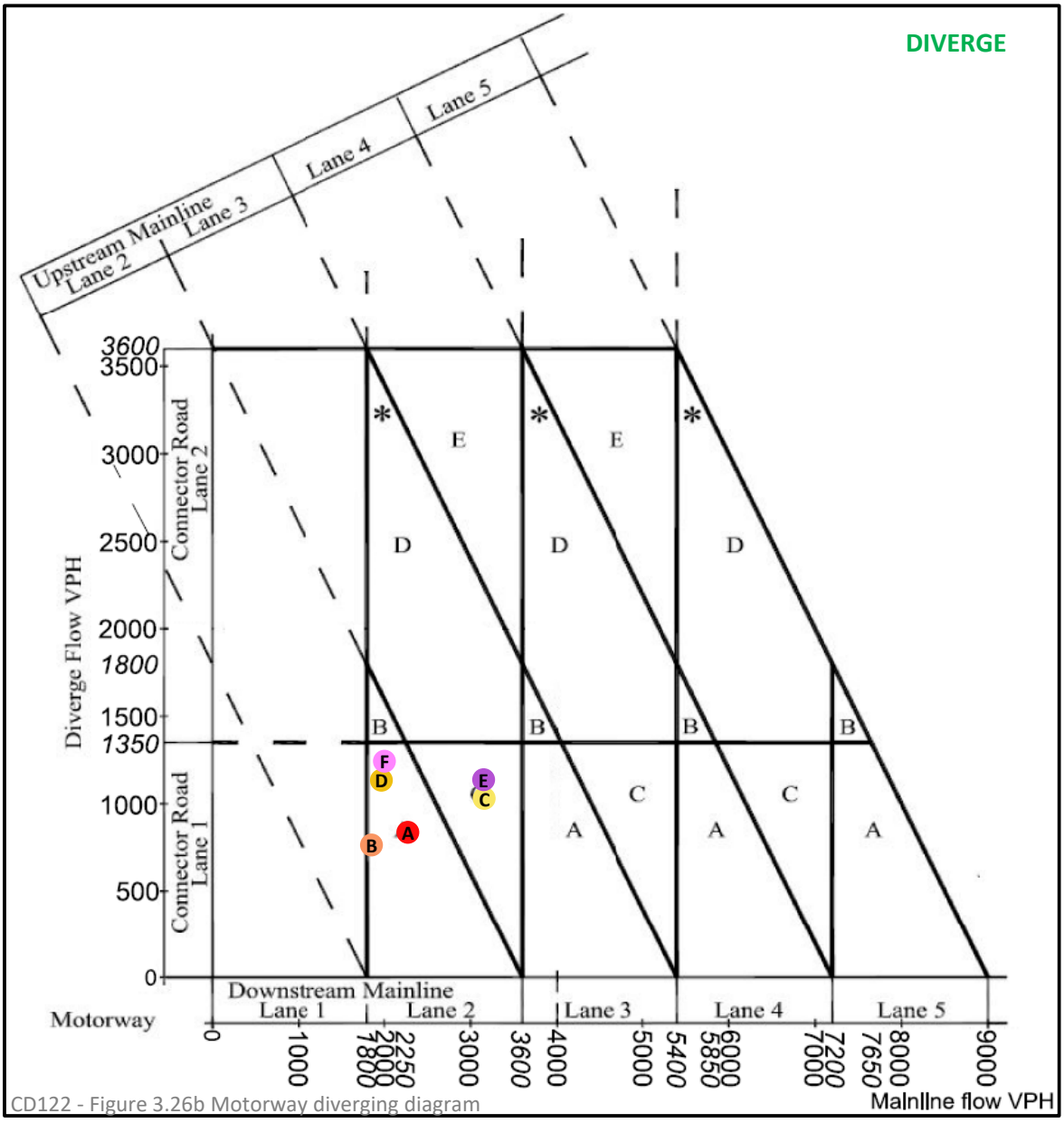
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	1726	654
B	Base_PM	2609	928
C	Ref Case LTC_AM	1954	813
D	Ref Case LTC_PM	3289	1195
E	DS LTC_AM	1924	1057
F	DS LTC_PM	3275	1331

Scenario	Merge Layouts	
	AM	PM
Current Layout	A1	
Base	D	B
Ref Case LTC	A	D
Do Something LTC	B	D

Notes:

- The M2 J4 EB merge (on-slip) is currently type A1 layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type D) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this merge.

(3) M2 WESTBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

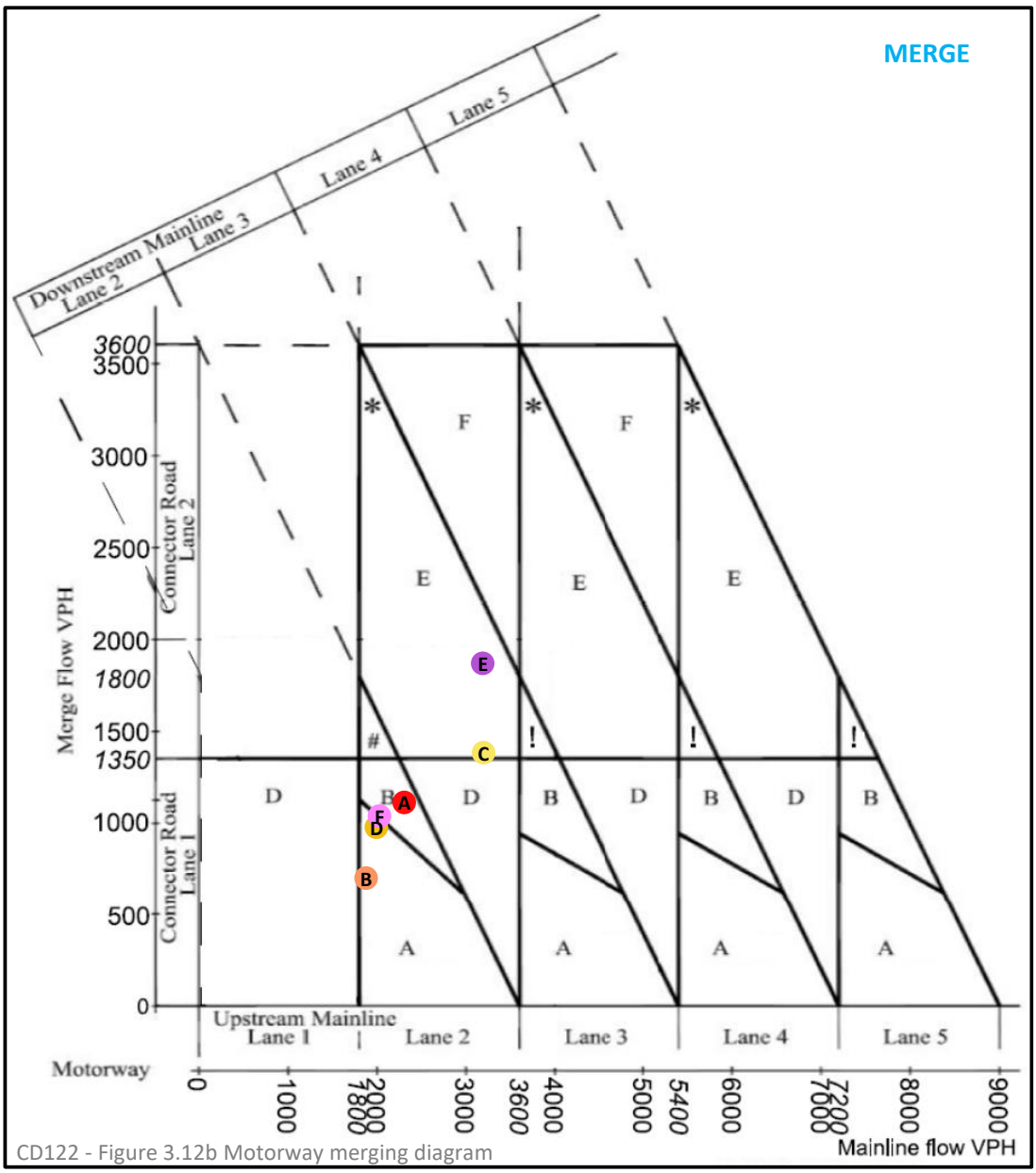
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	2319	791
B	Base_PM	1895	719
C	Ref Case LTC_AM	3203	986
D	Ref Case LTC_PM	2011	1092
E	DS LTC_AM	3195	1094
F	DS LTC_PM	2045	1200

Scenario	Diverge Layouts	
	AM	PM
Current Layout	A1	
Base	A	A
Ref Case LTC	C	A
Do Something LTC	C	A

Notes:

- The M2 J4 EB diverge (off-slip) is currently type A1 layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type C) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this diverge.

(4) M2 WESTBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	2319	1089
B	Base_PM	1895	680
C	Ref Case LTC_AM	3203	1357
D	Ref Case LTC_PM	2011	955
E	DS LTC_AM	3195	1839
F	DS LTC_PM	2045	1015

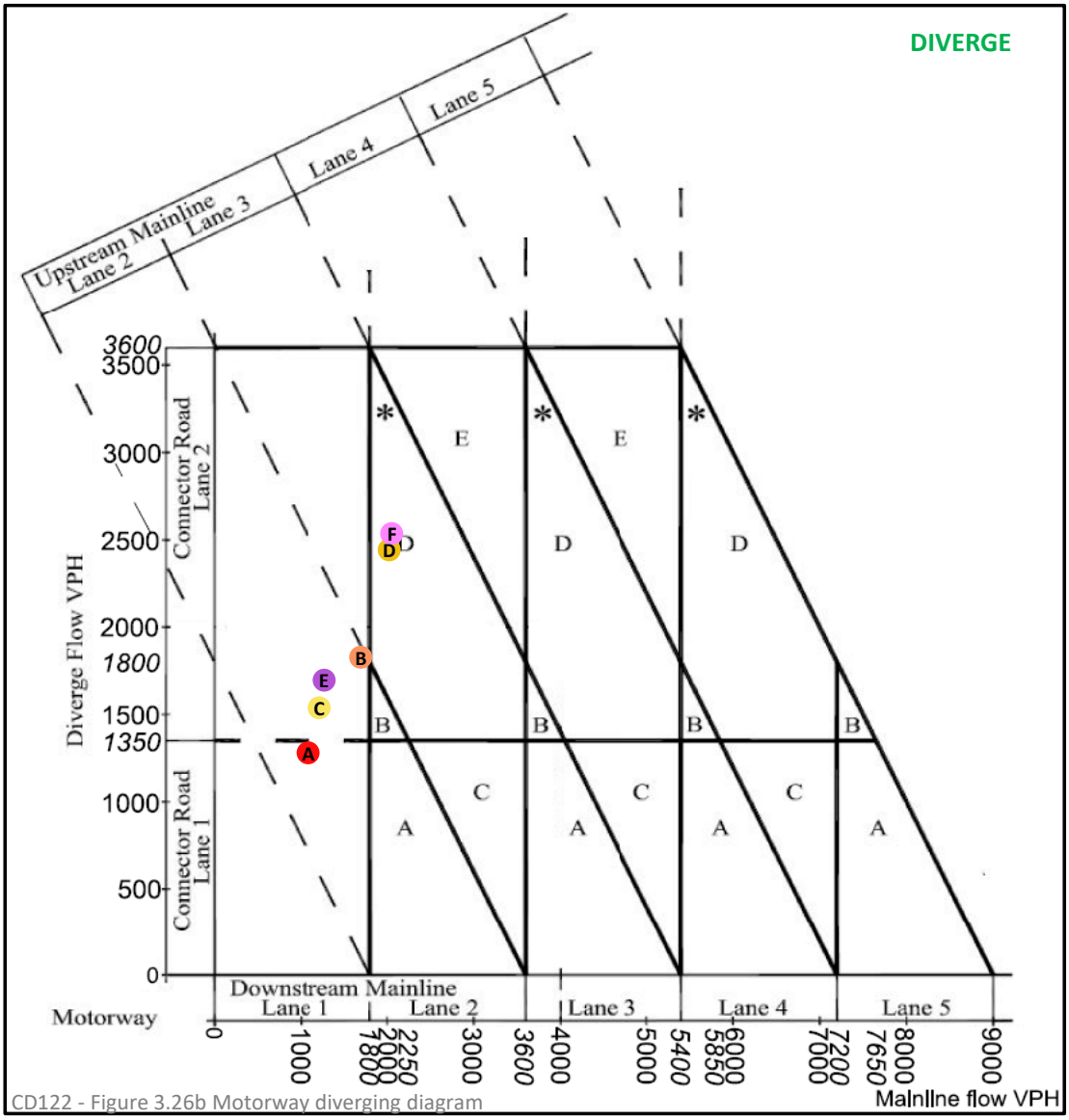
Scenario	Merge Layouts	
	AM	PM
Current Layout	E2	
Base	B	A
Ref Case LTC	E	A
Do Something LTC	E	B

Notes:

- The M2 J4 WB merge (on-slip) is currently type E2 layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this merge.

6. M2 Junction 5

(1) M2 EASTBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

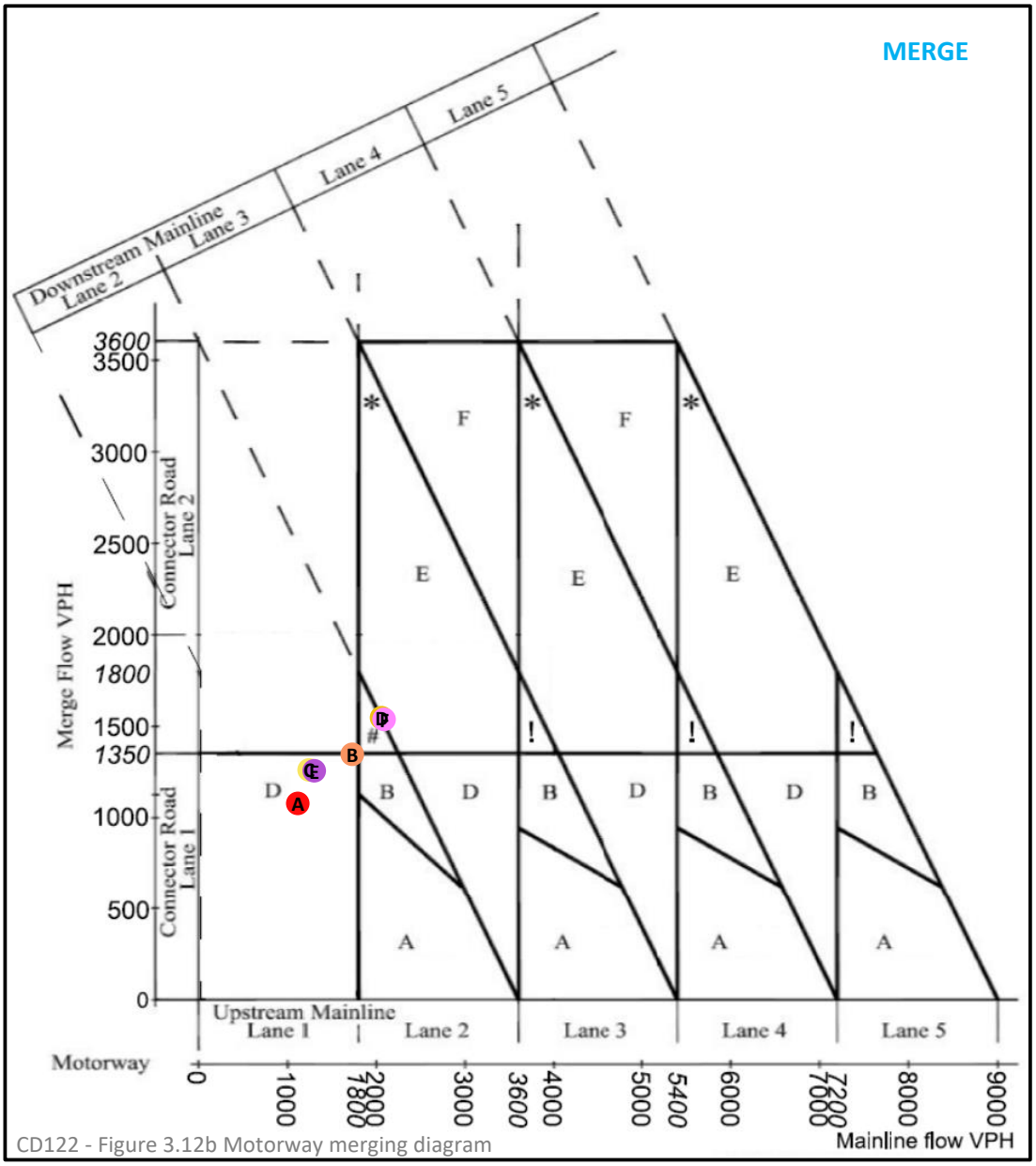
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	1140	1240
B	Base_PM	1747	1790
C	Ref Case LTC_AM	1267	1500
D	Ref Case LTC_PM	2075	2409
E	DS LTC_AM	1323	1658
F	DS LTC_PM	2103	2503

Scenario	Diverge Layouts	
	AM	PM
Current Layout	A2	
Base	N/A	N/A
Ref Case LTC	N/A	D
Do Something LTC	N/A	D

Notes:

- The M2 J5 EB diverge (off-slip) is currently type A2 layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type D) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this diverge.

(2) M2 EASTBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

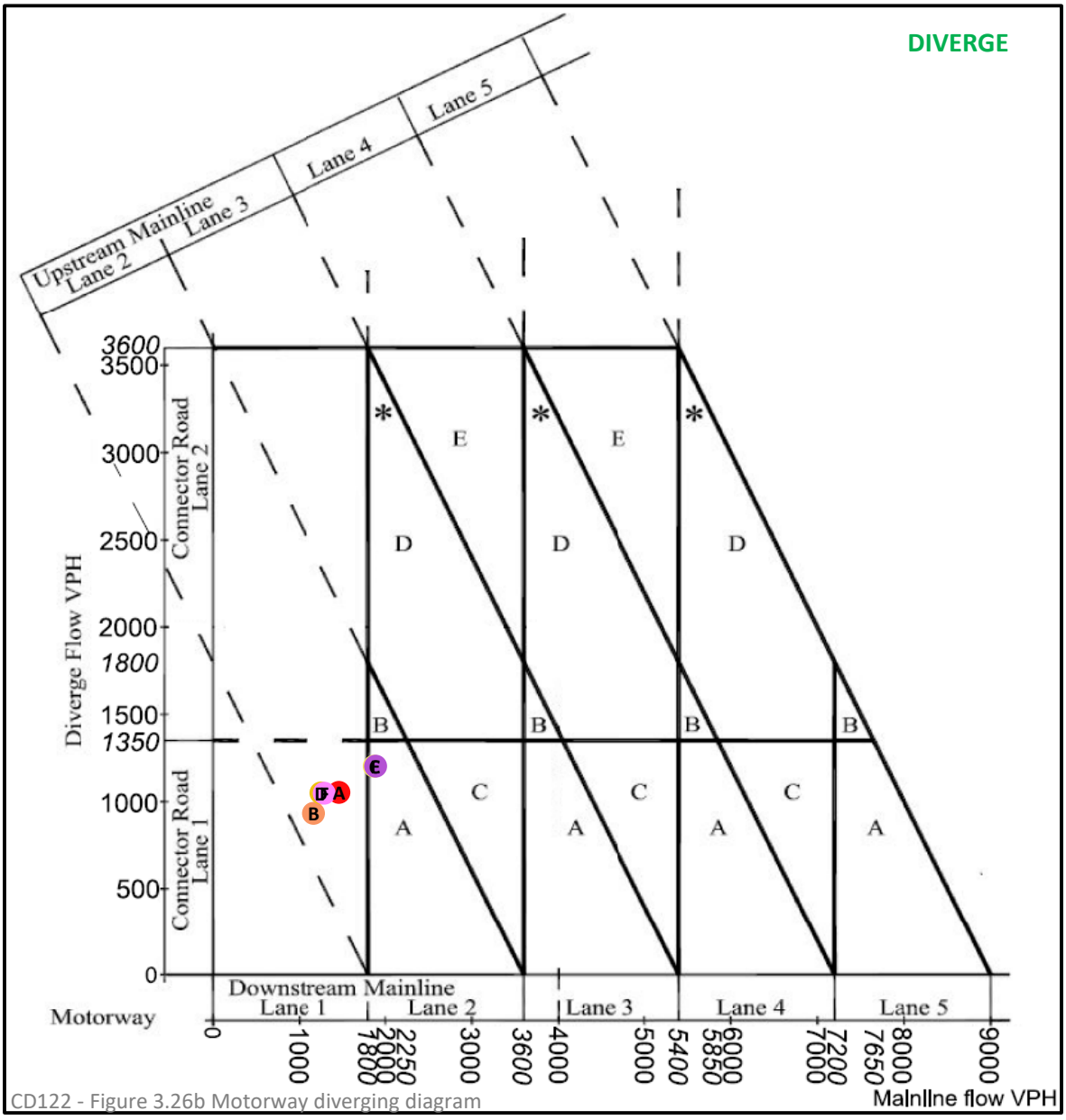
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	1140	1054
B	Base_PM	1747	1319
C	Ref Case LTC_AM	1267	1235
D	Ref Case LTC_PM	2075	1518
E	DS LTC_AM	1323	1230
F	DS LTC_PM	2103	1509

Scenario	Merge Layouts	
	AM	PM
Current Layout	B	
Base	D	D
Ref Case LTC	D	E
Do Something LTC	D	E

Notes:

- The M2 J5 EB merge (on-slip) is currently type B layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type E) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this merge.

(3) M2 WESTBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

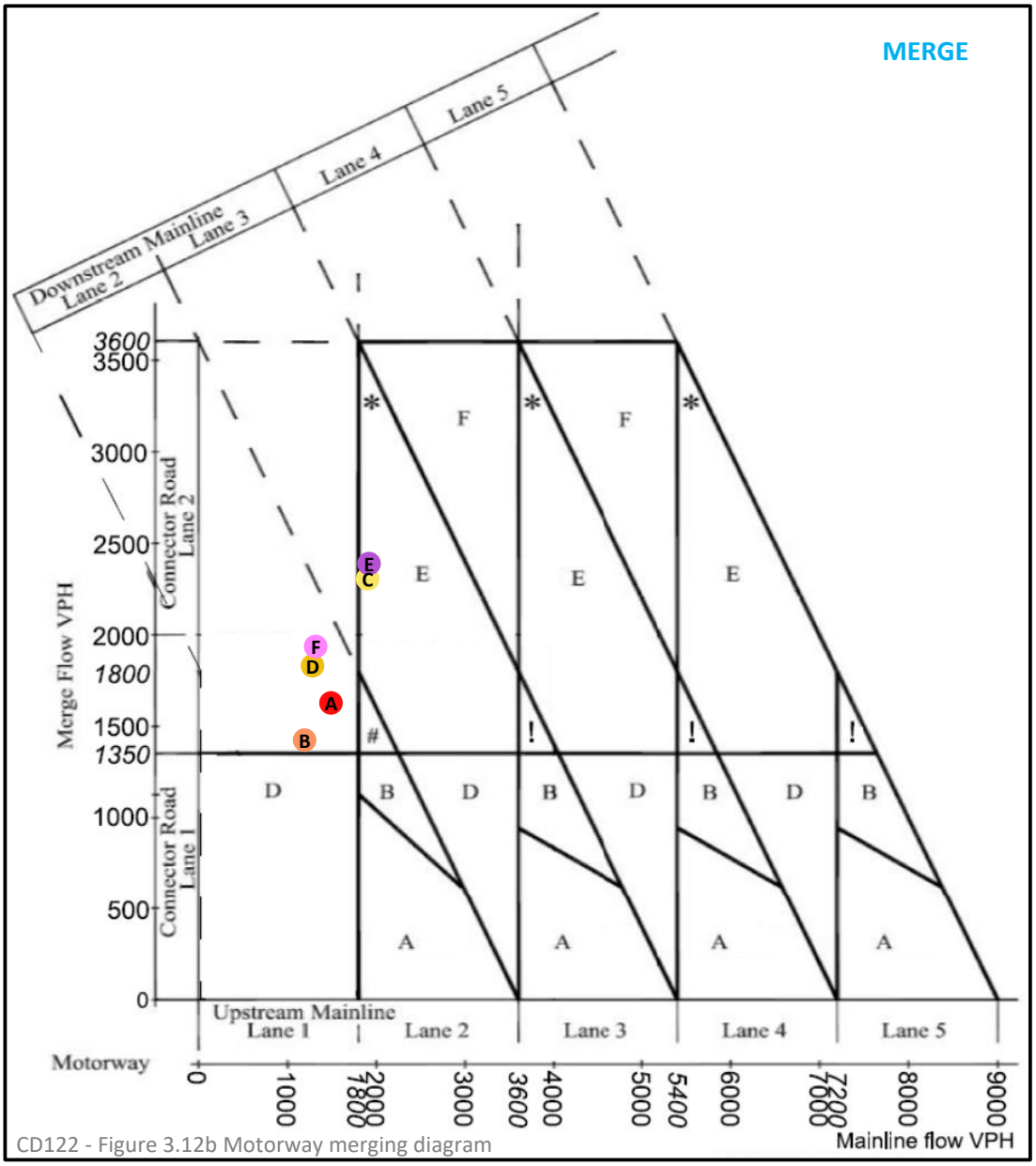
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	1511	1010
B	Base_PM	1217	889
C	Ref Case LTC_AM	1918	1160
D	Ref Case LTC_PM	1303	1006
E	DS LTC_AM	1934	1160
F	DS LTC_PM	1340	1004

Scenario	Diverge Layouts	
	AM	PM
Current Layout	A2	
Base	N/A	N/A
Ref Case LTC	A	N/A
Do Something LTC	A	N/A

Notes:

- The M2 J5 WB diverge (off-slip) is currently type A2 layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this diverge.

(4) M2 WESTBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	1511	1599
B	Base_PM	1217	1397
C	Ref Case LTC_AM	1918	2271
D	Ref Case LTC_PM	1303	1800
E	DS LTC_AM	1934	2355
F	DS LTC_PM	1340	1904

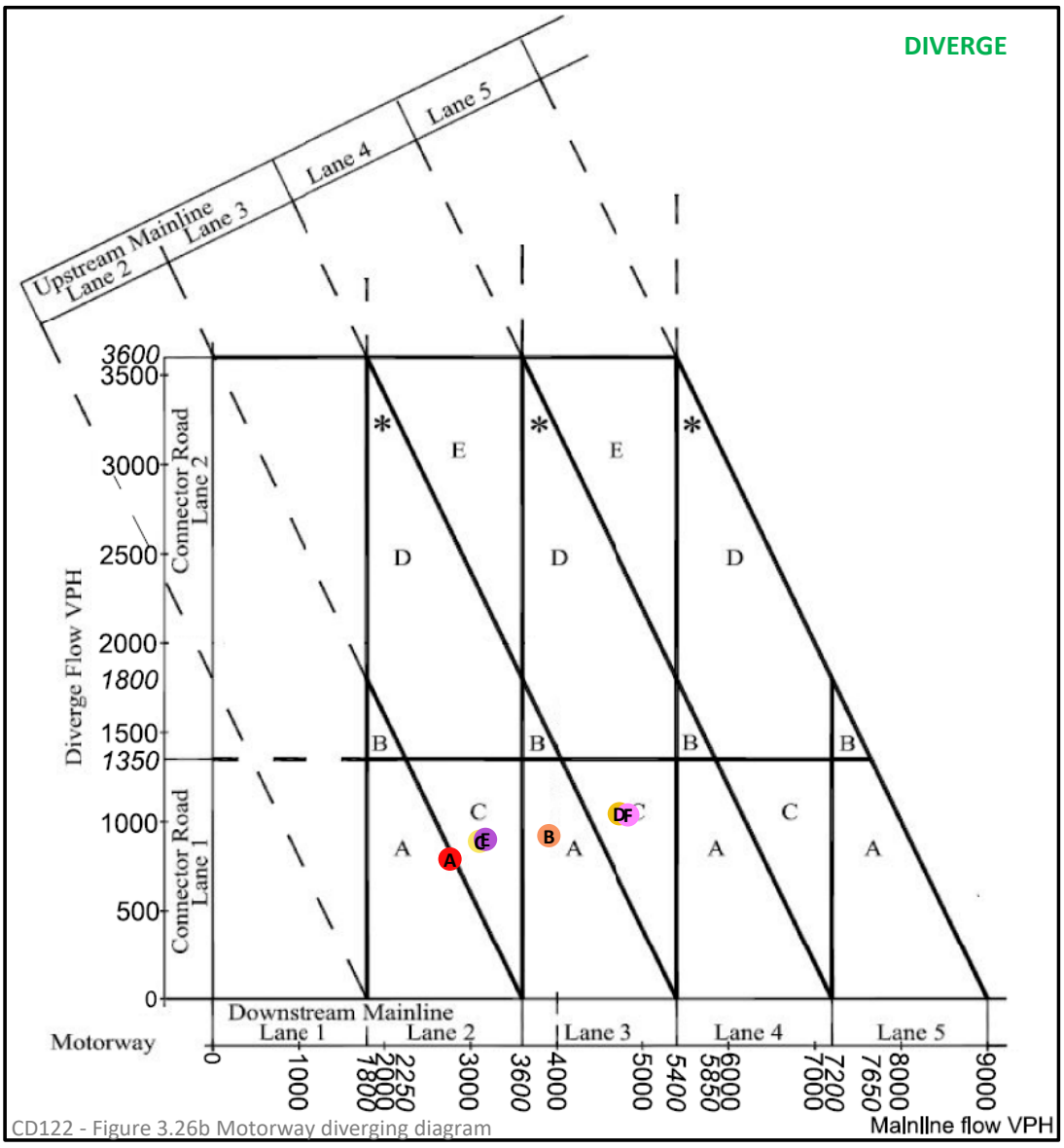
Scenario	Merge Layouts	
	AM	PM
Current Layout	B	
Base	N/A	N/A
Ref Case LTC	E	N/A
Do Something LTC	E	N/A

Notes:

- The M2 J5 WB merge (on-slip) is currently type B layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type E) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this merge.

7. M20 Junction 4

(1) M20 EASTBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

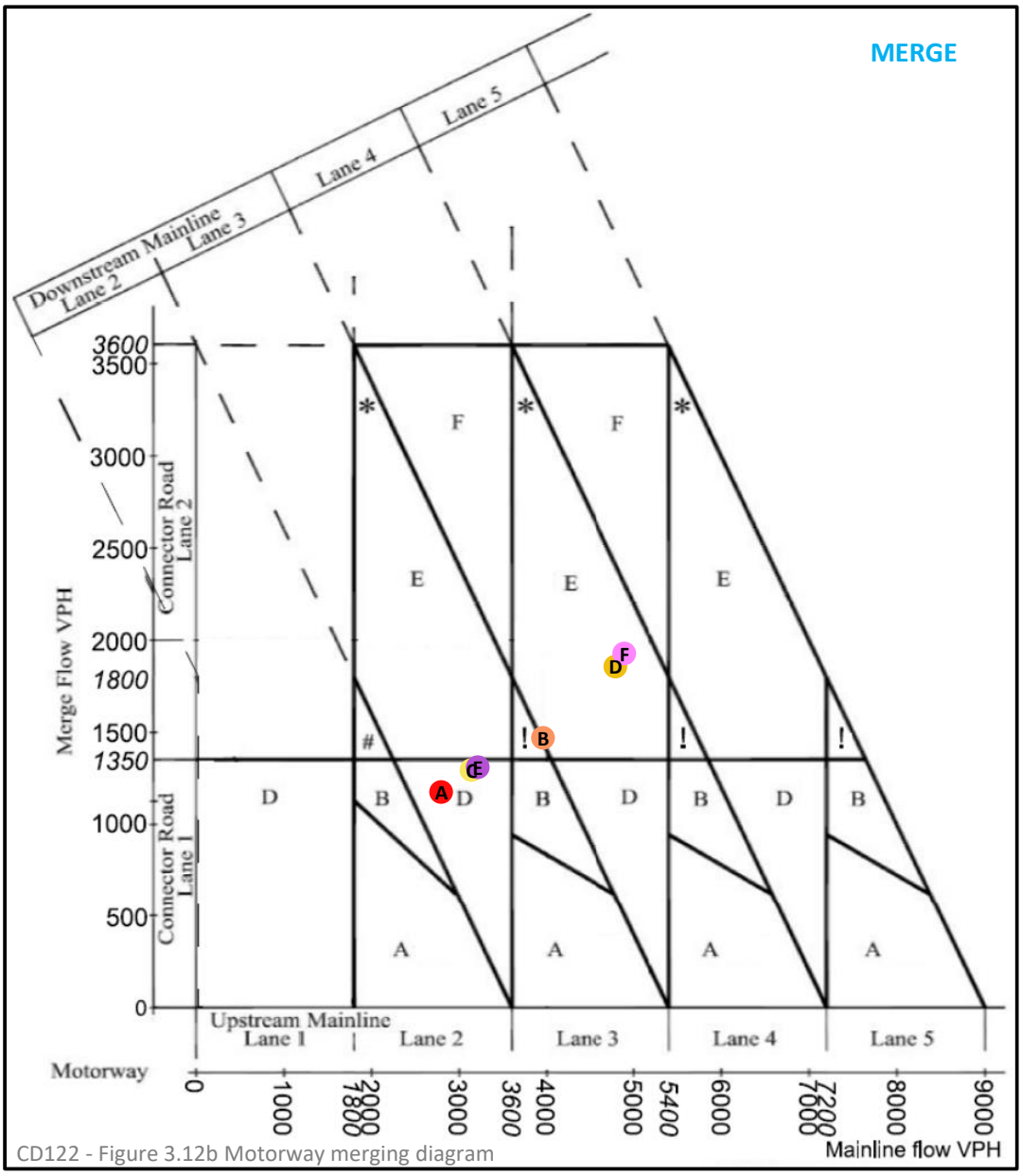
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	2801	745
B	Base_PM	3952	877
C	Ref Case LTC_AM	3145	845
D	Ref Case LTC_PM	4770	1001
E	DS LTC_AM	3214	857
F	DS LTC_PM	4870	994

Scenario	Diverge Layouts	
	AM	PM
Current Layout	F	
Base	A	A
Ref Case LTC	C	C
Do Something LTC	C	C

Notes:

- The M20 J4 EB diverge (off-slip) is currently type F layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this diverge.

(2) M20 EASTBOUND: MERGE



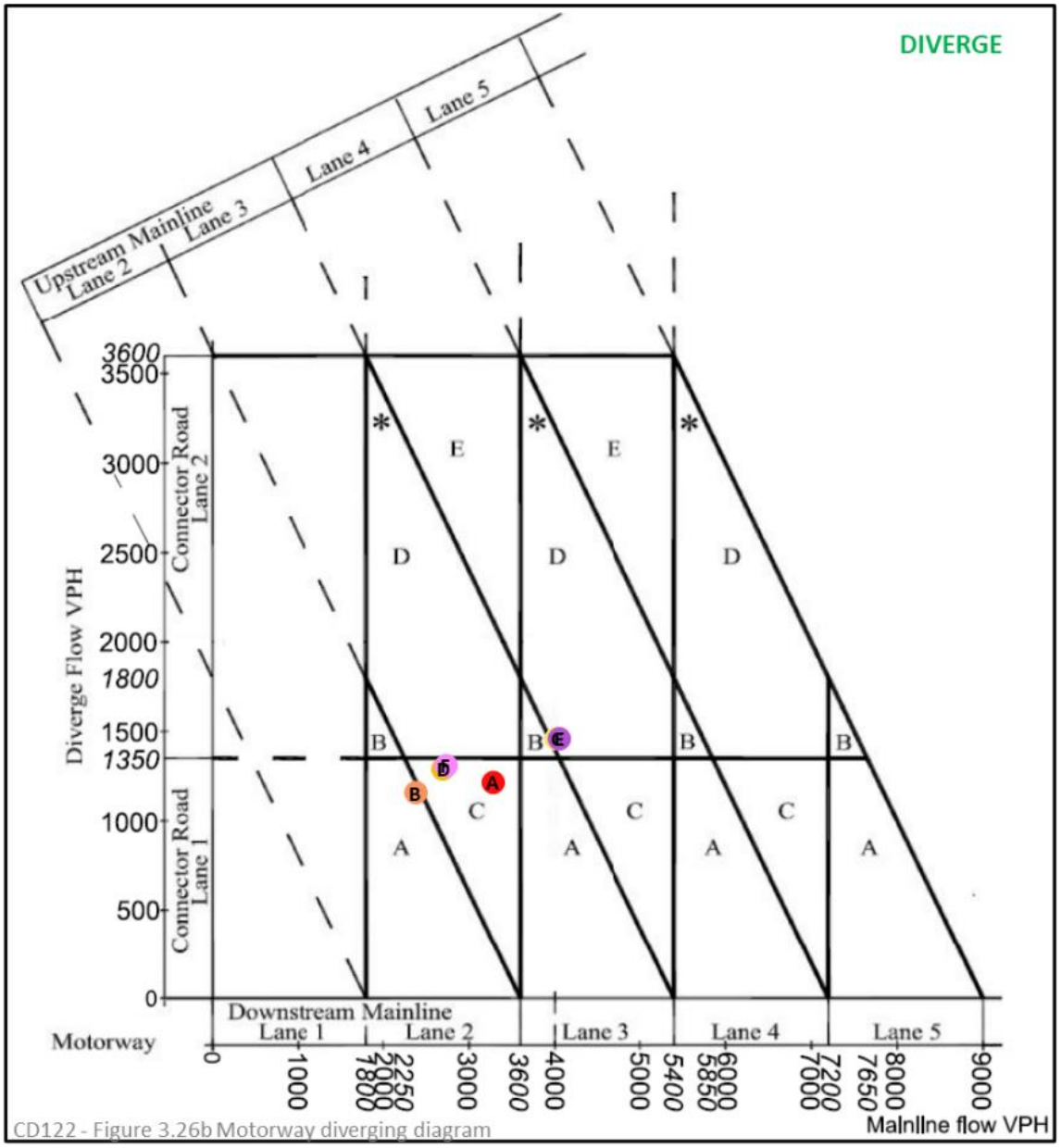
CD122 - Figure 3.12b Motorway merging diagram

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	2801	1150
B	Base_PM	3952	1442
C	Ref Case LTC_AM	3145	1268
D	Ref Case LTC_PM	4770	1826
E	DS LTC_AM	3214	1284
F	DS LTC_PM	4870	1897

Scenario	Merge Layouts	
	AM	PM
Current Layout	E1	
Base	D	E
Ref Case LTC	D	E
Do Something LTC	D	E

Notes:
- The M20 J4 EB merge (on-slip) is currently type E1 layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this diverge.

(3) M20 WESTBOUND: DIVERGE



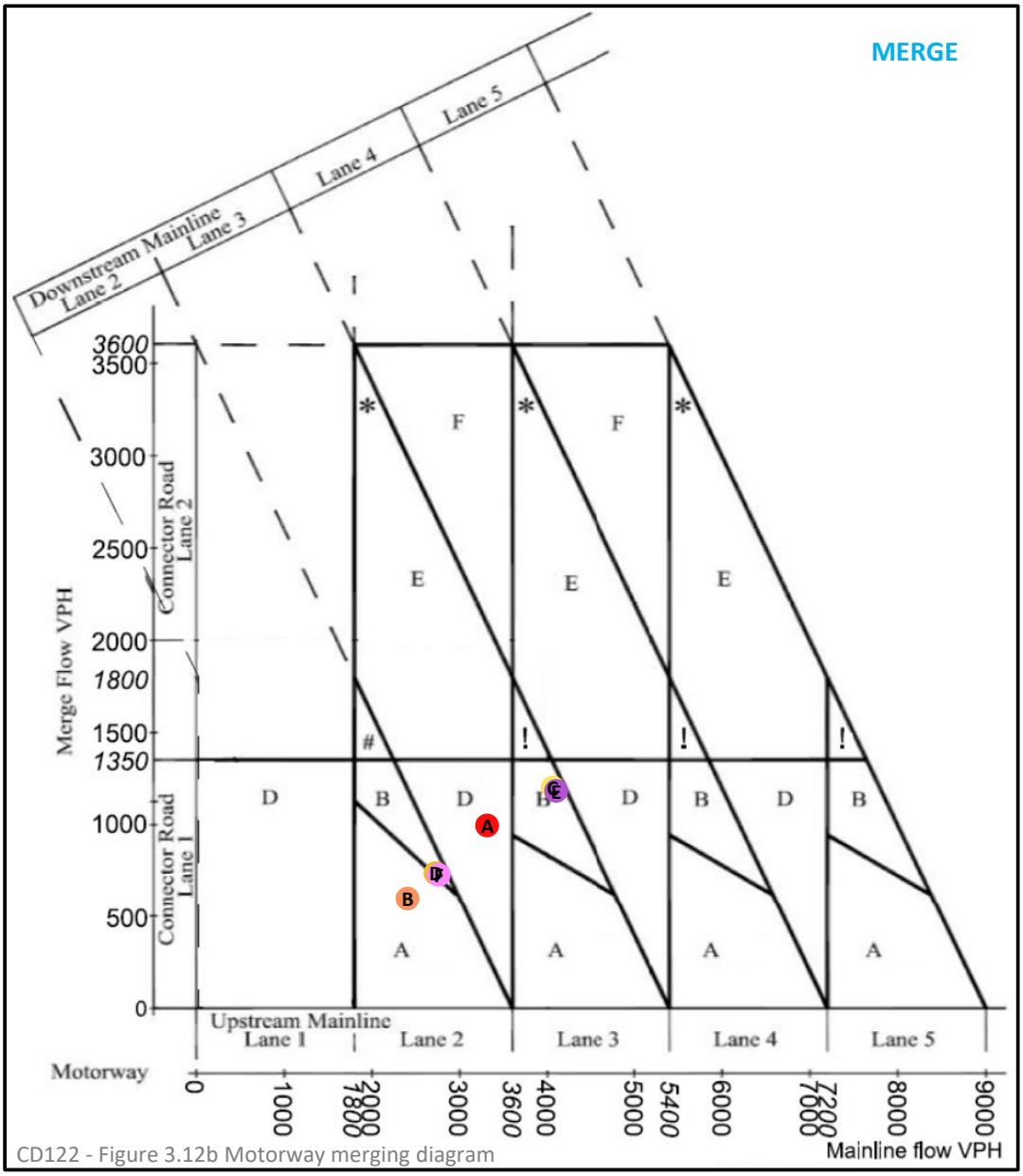
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	3315	1180
B	Base_PM	2416	1123
C	Ref Case LTC_AM	4056	1428
D	Ref Case LTC_PM	2732	1258
E	DS LTC_AM	4094	1429
F	DS LTC_PM	2768	1279

Scenario	Diverge Layouts	
	AM	PM
Current Layout	B2	
Base	C	A
Ref Case LTC	D	C
Do Something LTC	D	C

Notes:

- The M20 J4 WB diverge (off-slip) is currently type B2 layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type D) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this diverge.

(4) M20 WESTBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	3315	972
B	Base_PM	2416	579
C	Ref Case LTC_AM	4056	1176
D	Ref Case LTC_PM	2732	716
E	DS LTC_AM	4094	1158
F	DS LTC_PM	2768	707

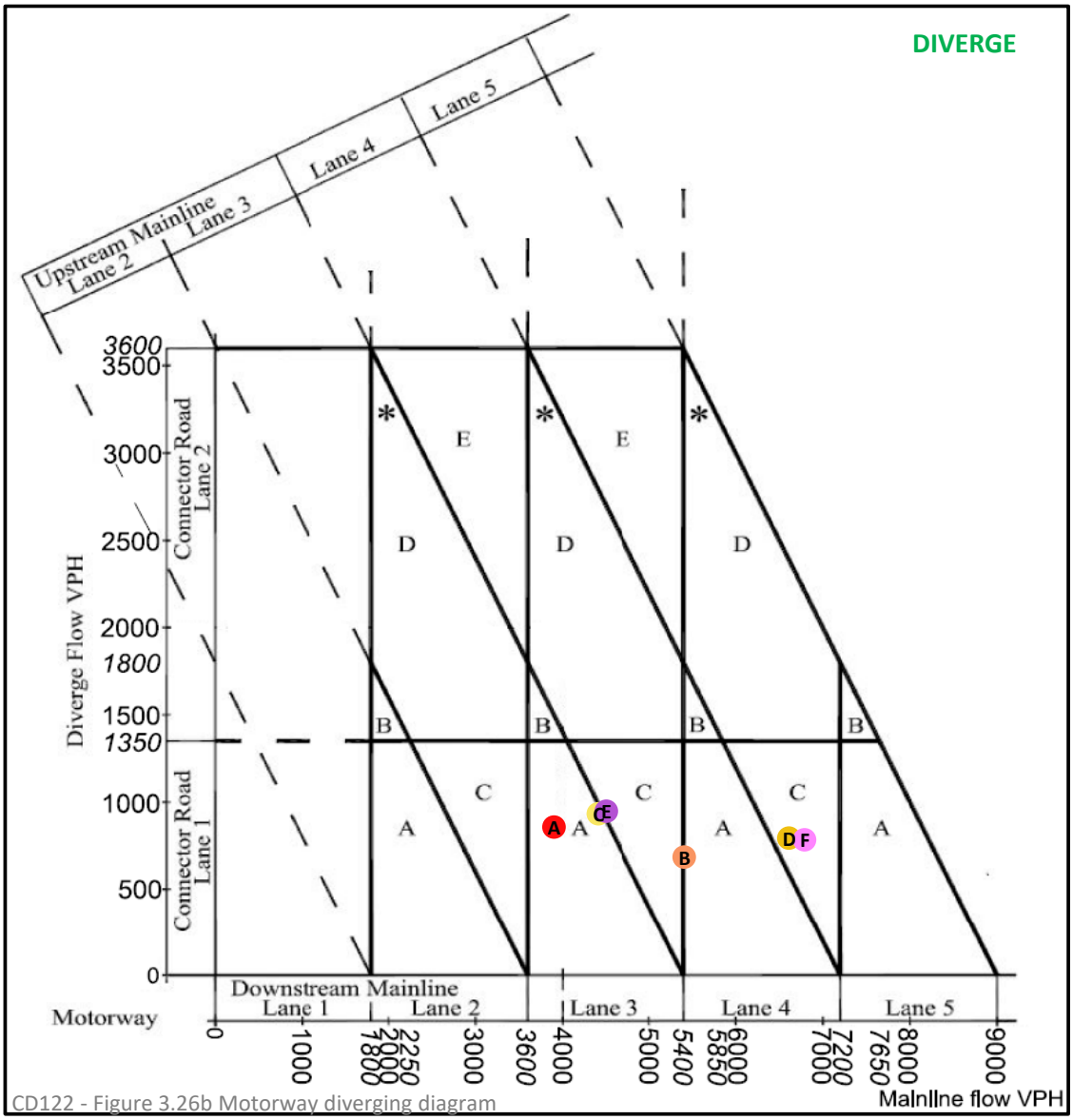
Scenario	Merge Layouts	
	AM	PM
Current Layout	B	
Base	D	A
Ref Case LTC	B	B
Do Something LTC	B	B

Notes:

- The M20 J4 WB merge (on-slip) is currently type B layout.
- All scenarios modelled show no increase required to level of provision.
- Therefore, the local plan would not require mitigation at this merge.

8. M20 Junction 5

(1) M20 EASTBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

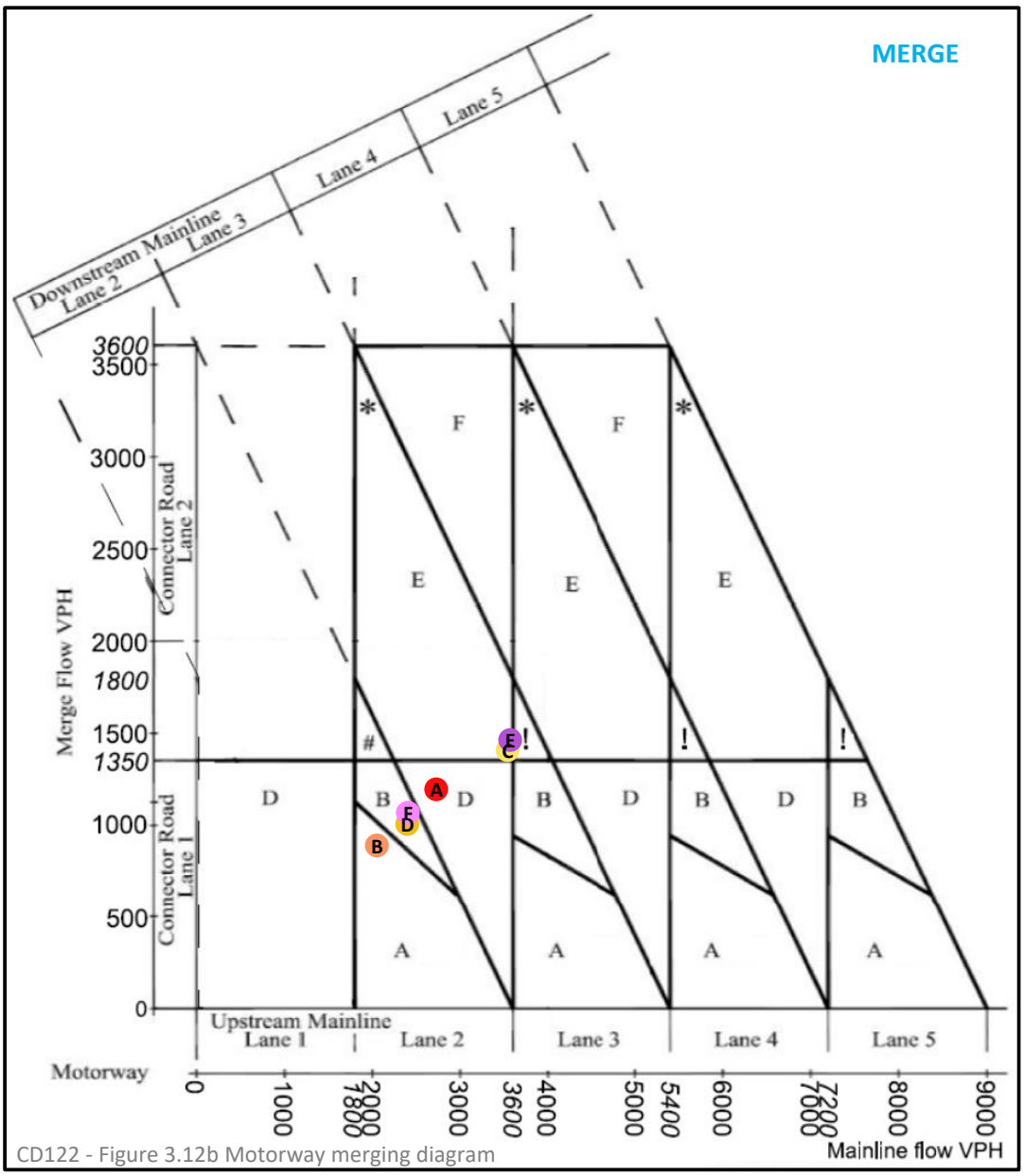
Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	3952	813
B	Base_PM	5453	640
C	Ref Case LTC_AM	4463	890
D	Ref Case LTC_PM	6659	749
E	DS LTC_AM	4555	905
F	DS LTC_PM	6837	739

Scenario	Diverge Layouts	
	AM	PM
Current Layout	A2	
Base	A	A
Ref Case LTC	C	A
Do Something LTC	C	A

Notes:

- The M20 J5 EB diverge (off-slip) is currently type A2 layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type C) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this diverge.

(2) M20 WESTBOUND: MERGE (E)



CD122 - Figure 3.12b Motorway merging diagram

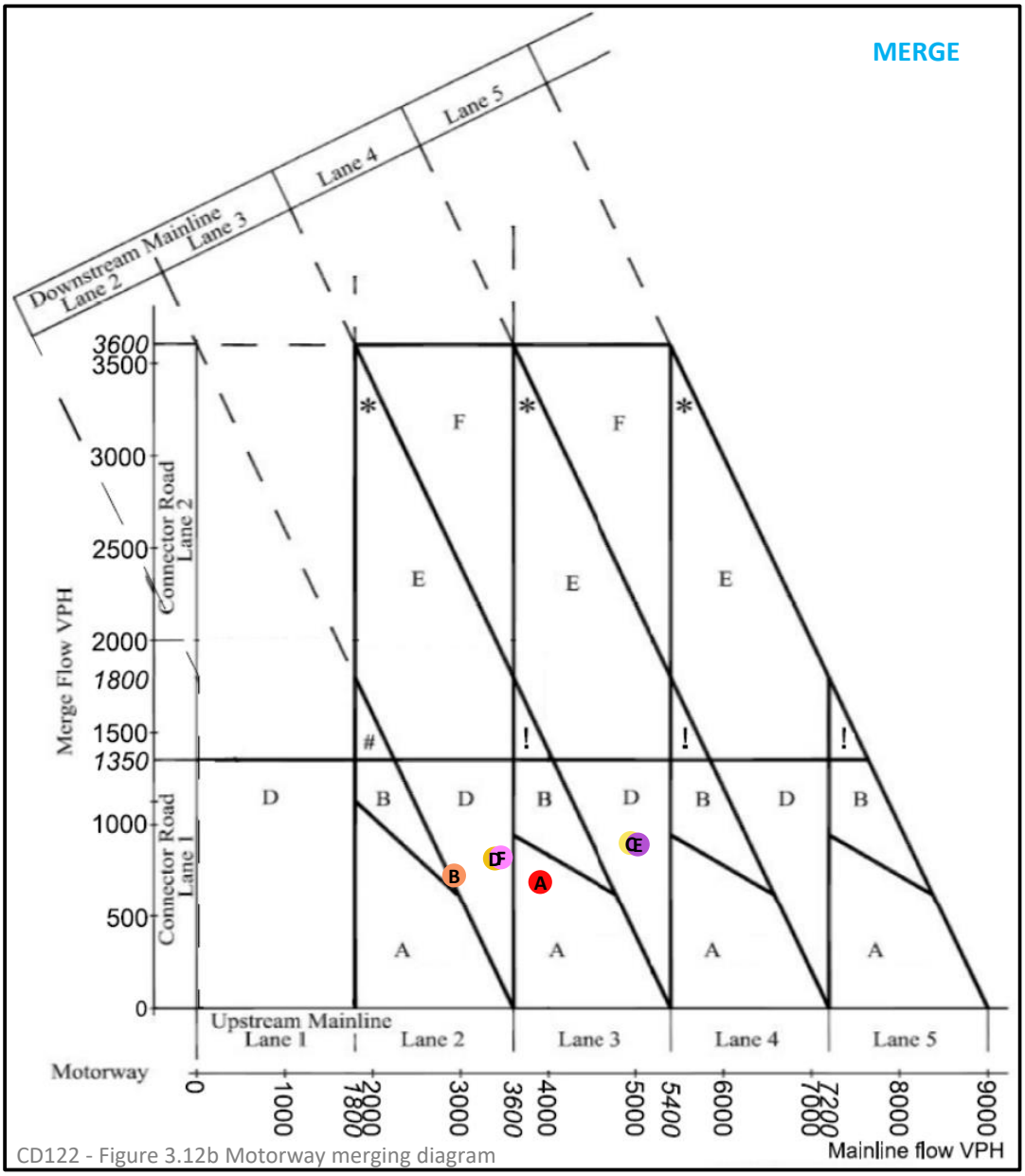
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	2736	1169
B	Base_PM	2067	866
C	Ref Case LTC_AM	3542	1380
D	Ref Case LTC_PM	2410	982
E	DS LTC_AM	3569	1434
F	DS LTC_PM	2417	1043

Scenario	Merge Layouts	
	AM	PM
Current Layout	B	
Base	D	A
Ref Case LTC	E	B
Do Something LTC	E	B

Notes:

- The M20 J5 WB (E) merge (on-slip) is currently type B layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type E) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this merge.

(3) M20 WESTBOUND: MERGE (W)



CD122 - Figure 3.12b Motorway merging diagram

Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	3905	667
B	Base_PM	2933	703
C	Ref Case LTC_AM	4922	877
D	Ref Case LTC_PM	3392	794
E	DS LTC_AM	5003	869
F	DS LTC_PM	3460	800

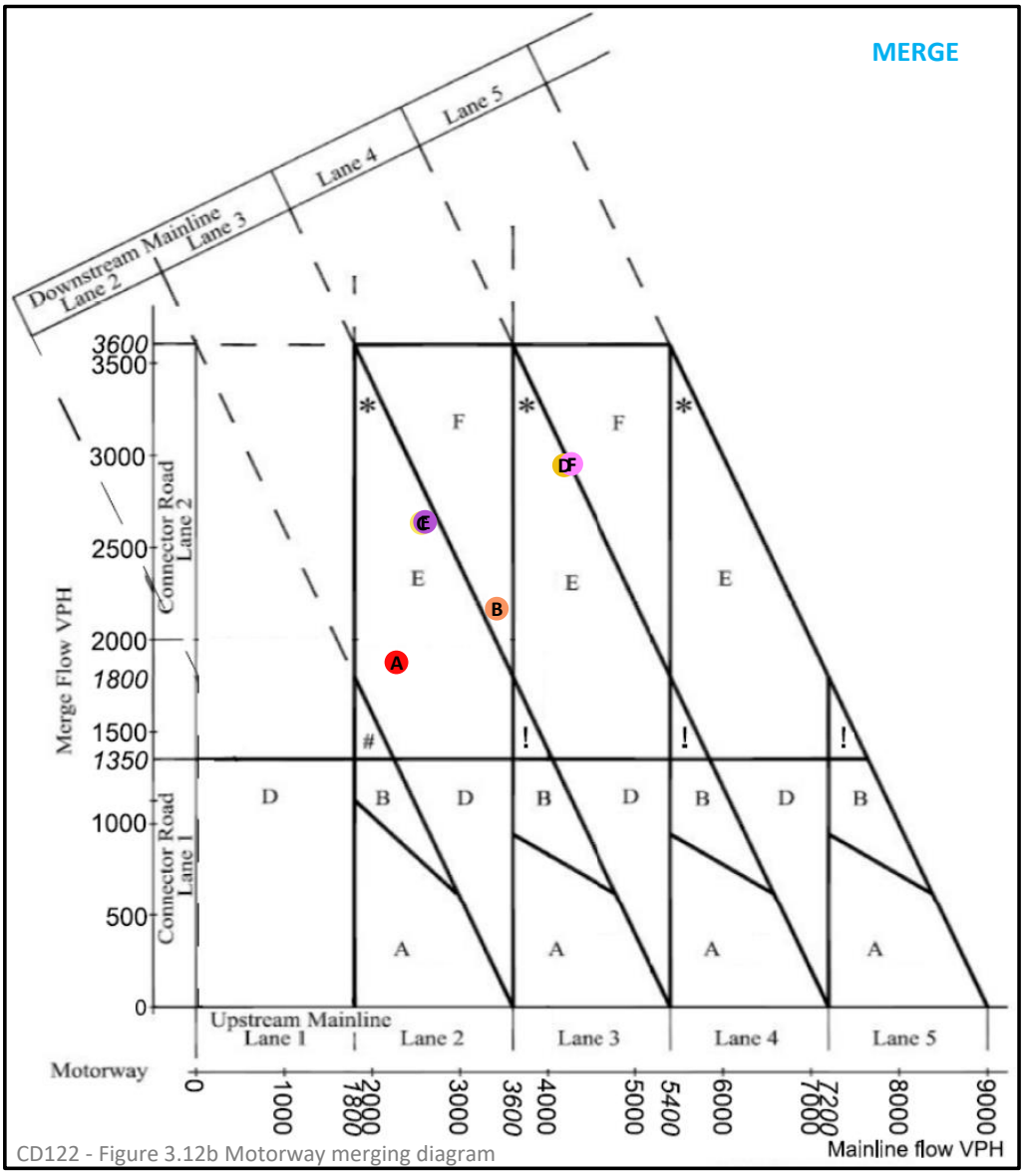
Scenario	Merge Layouts	
	AM	PM
Current Layout	B	
Base	A	D
Ref Case LTC	D	D
Do Something LTC	D	D

Notes:

- The M20 J5 WB (W) merge (on-slip) is currently type B layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type D) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this merge.

9. M20 Junction 6

(1) M20 EASTBOUND: MERGE



CD122 - Figure 3.12b Motorway merging diagram

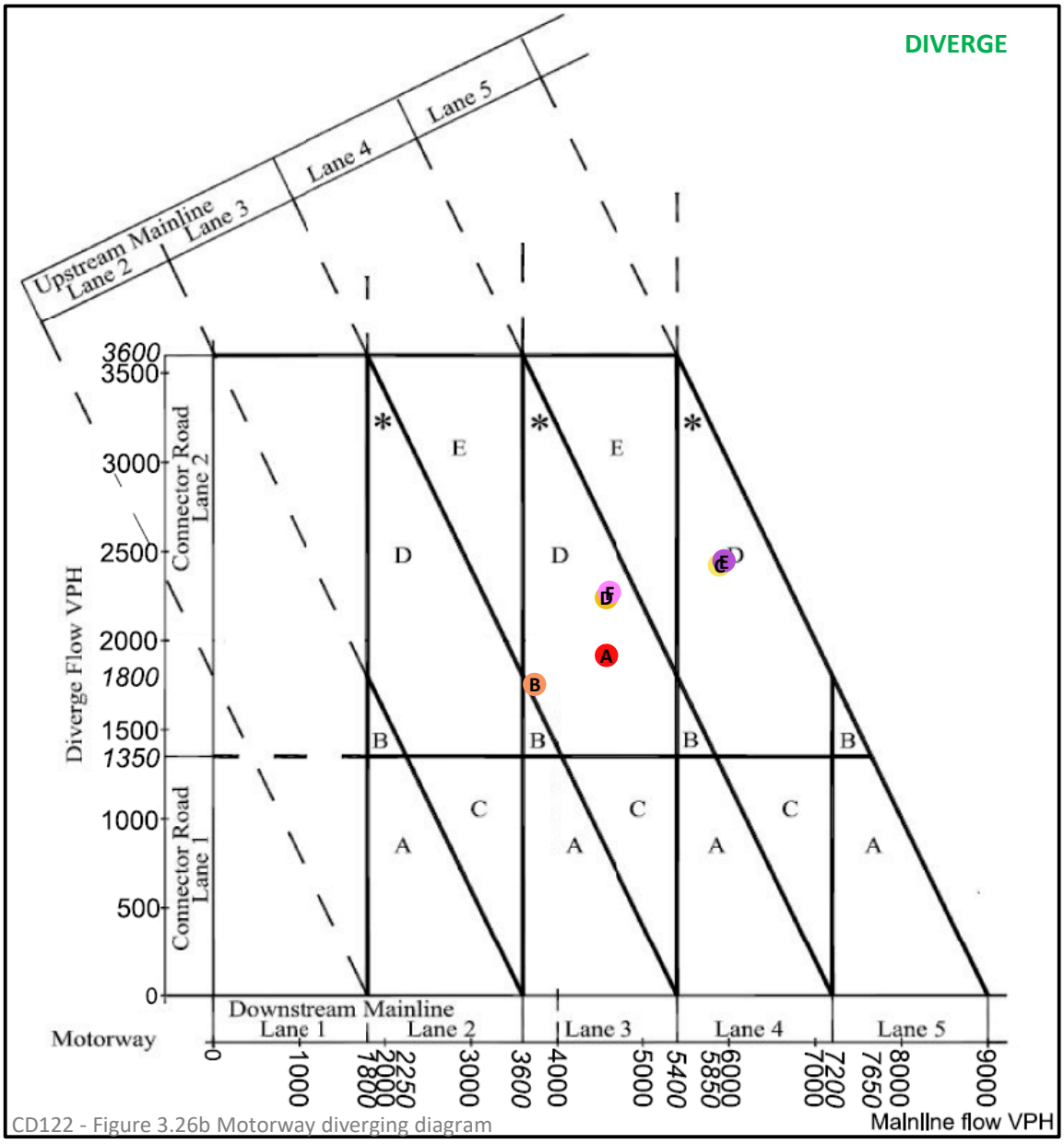
Scenario	Description	Upstream Mainline	Merge Flow
A	Base_AM	2286	1846
B	Base_PM	3419	2135
C	Ref Case LTC_AM	2571	2596
D	Ref Case LTC_PM	4178	2907
E	DS LTC_AM	2611	2602
F	DS LTC_PM	4261	2915

Scenario	Merge Layouts	
	AM	PM
Current Layout	D	
Base	E	F
Ref Case LTC	E	E
Do Something LTC	E	E

Notes:

- The M20 J6 EB merge (on-slip) is currently type D layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type E) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this merge.

(2) M20 WESTBOUND: DIVERGE



CD122 - Figure 3.26b Motorway diverging diagram

Scenario	Description	Downstream Mainline	Diverge Flow
A	Base_AM	4616	1879
B	Base_PM	3783	1716
C	Ref Case LTC_AM	5931	2389
D	Ref Case LTC_PM	4616	2206
E	DS LTC_AM	5982	2413
F	DS LTC_PM	4653	2235

Scenario	Diverge Layouts	
	AM	PM
Current Layout	C	
Base	D	D
Ref Case LTC	D	D
Do Something LTC	D	D

Notes:
- The M20 J6 WB diverge (off-slip) is currently type C layout.
- An increase in provision is required in the Reference Case LTC from the Current Layout. However, the maximum required provision (type D) does not change between Reference Case and Do Something.
- Therefore, the local plan would not require mitigation at this diverge.

10. Proposed Mitigation at M2 J1

(2) M2 EASTBOUND: MERGE

According to the Design Manual for Road and Bridges, the M2 Eastbound Merge requires an improvement to a Type E layout. Figure 10 below shows the proposed type E layout, provided by Stantec. Jacobs can confirm the layout provided by Stantec meets the requirements set out in the DMRB, but as this is a Stantec design, Jacobs cannot comment further. The proposed mitigation drawings can be found in Appendix A.

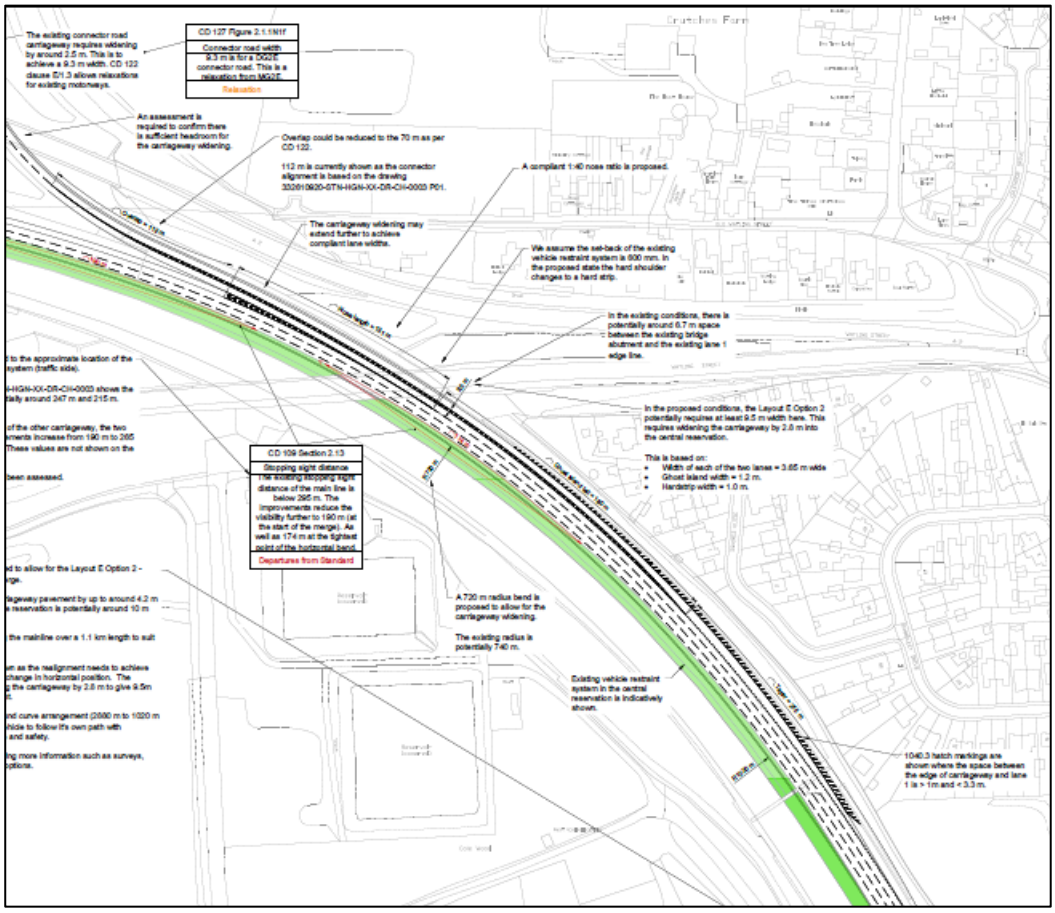


Figure 10 - M2 J1 Mitigation Snippet taken from Stantec Drawing

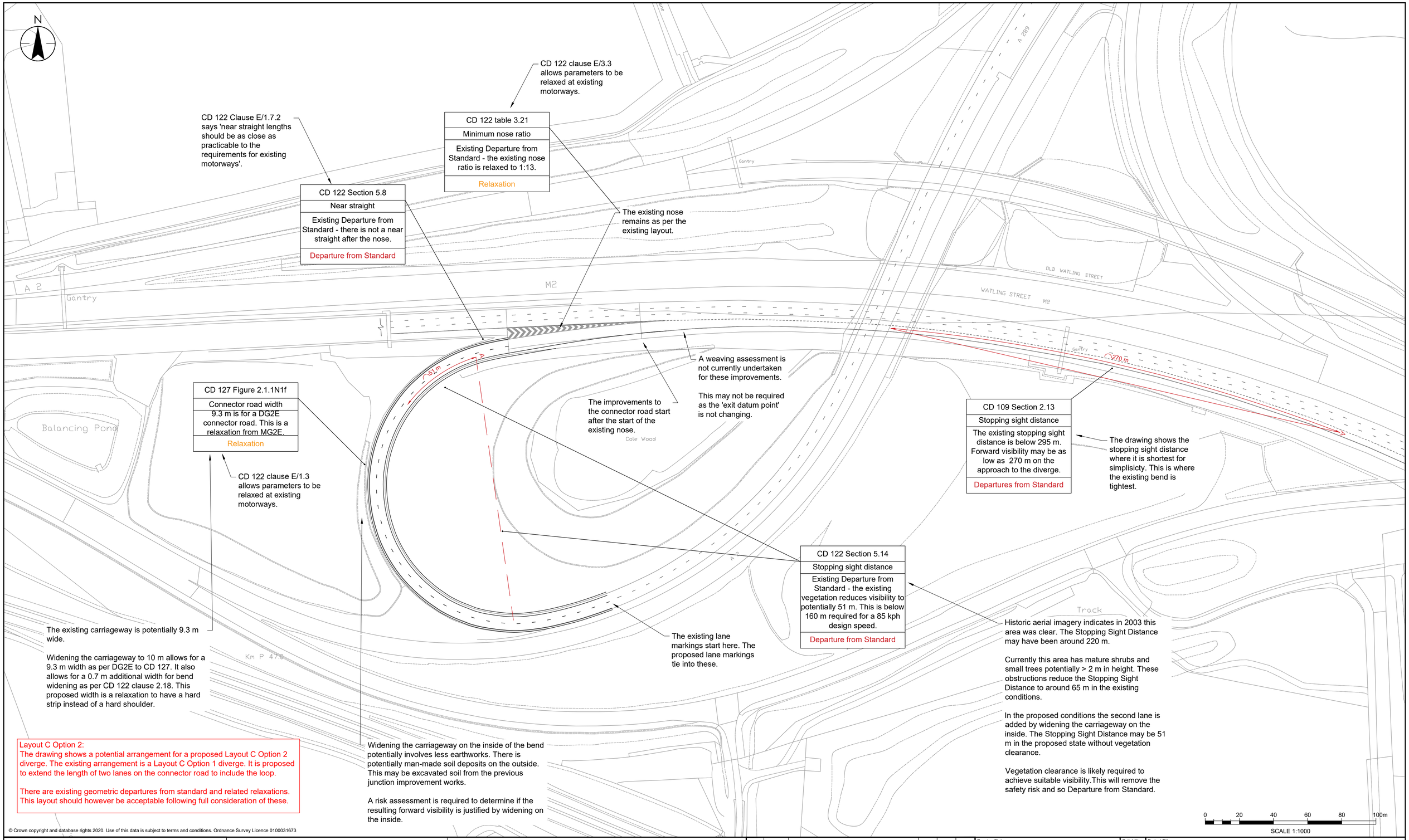
11. Summary

Most of the merges and diverges tested show no additional requirement as a result of the local plan Do Something Scenario. One diverge has been shown to require an increase in provision:

The M2 Eastbound Merge. The merge layout is type D for Reference Case and type E for Do Something LTC scenarios, an increase in provision is required (lane gain).

Stantec have provided a design drawing to Medway which shows a layout which appears to satisfy DMRB and National Highways requirements. As this is a Stantec design, Jacobs cannot comment further on the design, and it is recommended that this design is reviewed with both Stantec and National Highways.

Appendix A. Stantec Mitigation at M2 J1



CD 122 clause E/3.3 allows parameters to be relaxed at existing motorways.

CD 122 Clause E/1.7.2 says 'near straight lengths should be as close as practicable to the requirements for existing motorways'.

CD 122 table 3.21
Minimum nose ratio
Existing Departure from Standard - the existing nose ratio is relaxed to 1:13.
Relaxation

CD 122 Section 5.8
Near straight
Existing Departure from Standard - there is not a near straight after the nose.
Departure from Standard

The existing nose remains as per the existing layout.

A weaving assessment is not currently undertaken for these improvements.

This may not be required as the 'exit datum point' is not changing.

The improvements to the connector road start after the start of the existing nose.

CD 127 Figure 2.1.1N1f
Connector road width
9.3 m is for a DG2E connector road. This is a relaxation from MG2E.
Relaxation

CD 122 clause E/1.3 allows parameters to be relaxed at existing motorways.

CD 109 Section 2.13
Stopping sight distance
The existing stopping sight distance is below 295 m. Forward visibility may be as low as 270 m on the approach to the diverge.
Departures from Standard

The drawing shows the stopping sight distance where it is shortest for simplisicty. This is where the existing bend is tightest.

CD 122 Section 5.14
Stopping sight distance
Existing Departure from Standard - the existing vegetation reduces visibility to potentially 51 m. This is below 160 m required for a 85 kph design speed.
Departure from Standard

The existing lane markings start here. The proposed lane markings tie into these.

Historic aerial imagery indicates in 2003 this area was clear. The Stopping Sight Distance may have been around 220 m.

Currently this area has mature shrubs and small trees potentially > 2 m in height. These obstructions reduce the Stopping Sight Distance to around 65 m in the existing conditions.

In the proposed conditions the second lane is added by widening the carriageway on the inside. The Stopping Sight Distance may be 51 m in the proposed state without vegetation clearance.

Vegetation clearance is likely required to achieve suitable visibility.This will remove the safety risk and so Departure from Standard.

The existing carriageway is potentially 9.3 m wide.

Widening the carriageway to 10 m allows for a 9.3 m width as per DG2E to CD 127. It also allows for a 0.7 m additional width for bend widening as per CD 122 clause 2.18. This proposed width is a relaxation to have a hard strip instead of a hard shoulder.

Layout C Option 2:
The drawing shows a potential arrangement for a proposed Layout C Option 2 diverge. The existing arrangement is a Layout C Option 1 diverge. It is proposed to extend the length of two lanes on the connector road to include the loop.

There are existing geometric departures from standard and related relaxations. This layout should however be acceptable following full consideration of these.

Widening the carriageway on the inside of the bend potentially involves less earthworks. There is potentially man-made soil deposits on the outside. This may be excavated soil from the previous junction improvement works.

A risk assessment is required to determine if the resulting forward visibility is justified by widening on the inside.

0 20 40 60 80 100m

SCALE 1:1000

General Notes

1. This drawing shall be read in conjunction with all other relevant documentation.
2. Do not scale from this drawing.
3. All dimensions are in metres unless specified otherwise.
4. The information on this drawing is based on limited OS information.
5. The dimensions shown are assumed and require verifying through surveys.
6. This drawing shows a potential option(s) from an initial feasibility design. The potential option(s) is indicatively shown for information only. These are subject to outline and detailed design. Further changes may be required.
7. The constraints and potential departures from standard shown/listed are not exhaustive. More may become apparent through further investigations, surveys and during the detailed design.

Notes

This document is suitable only for the purpose noted above.
Use of this document for any other purpose is not permitted.

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Rev.	Date	Description	Drawn	Chk'd	App'd
P01	14.03.24	FIRST ISSUE	RC	JA	JA

Drawing Status: FOR INFORMATION
Suitability: S2

Stantec
www.stantec.com/uk

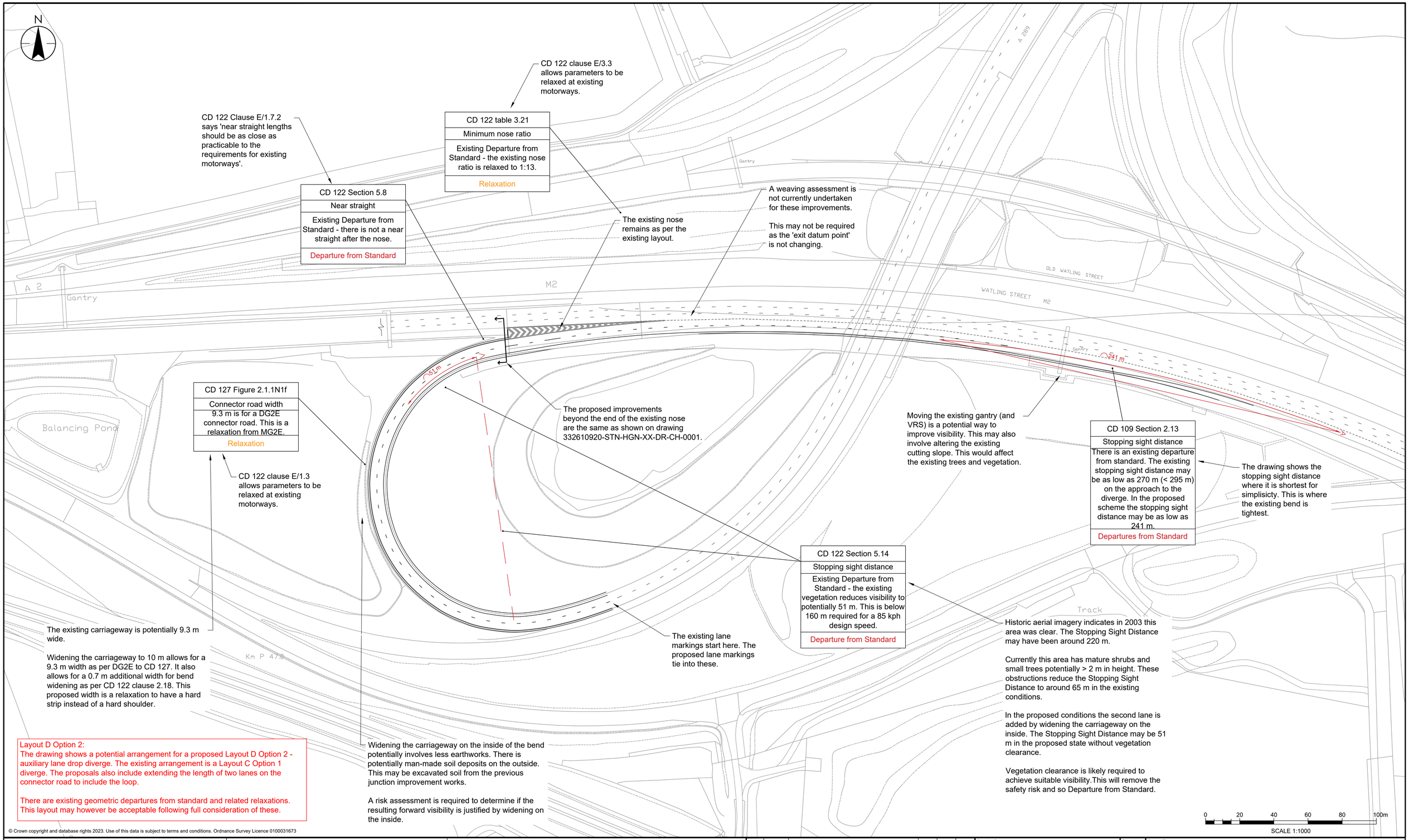
Client: Uniper SE

Project Title: MedwayOne M2J1

Drawing Title:
FEASIBILITY STUDY
M2 TO A289 DIVERGE (NB)
SCHEME A
IMPROVING THE CONNECTOR ROAD

Scale	Designed	Drawn	Checked	Approved
1:1000	-	RC	JA	JA
Original Size	**Date**	**Date**	**Date**	**Date**
A1	-	2024.03.14	2024.03.14	2024.03.14

Drawing Number: HE PIN 332610929 - Originator STN - Volume -HGN- Location XX - Type DR - Role CH - Number 0001
Project Ref. No.: 10569
Revision: P01



General Notes

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2. Do not scale from this drawing.
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4. The information on this drawing is based on limited OS information.
5. The dimensions shown are assumed and require verifying through surveys.
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7. The constraints and potential departures from standard shown/listed are not exhaustive. More may become apparent through further investigations, surveys and during the detailed design.

Notes

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Rev.	Date	Description	Drawn	Chk'd	App'd
P01	14.03.24	FIRST ISSUE	RC	JA	JA

Drawing Status: FOR INFORMATION
Suitability: S2

Stantec
www.stantec.com/uk

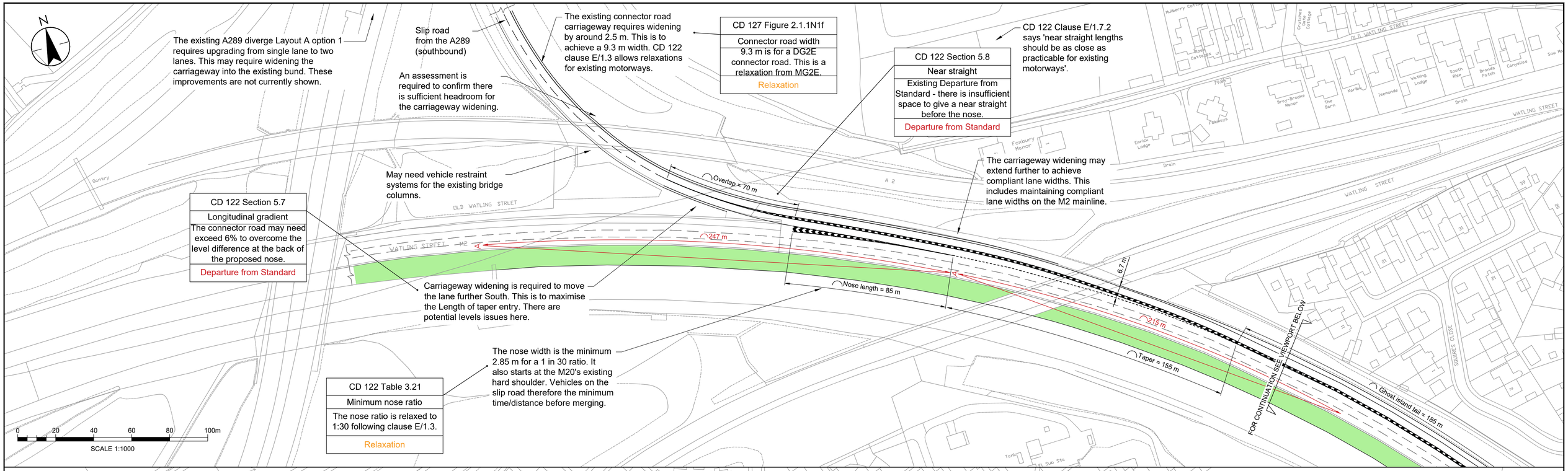
Client: Uniper SE

Project Title: MedwayOne M2J1

Drawing Title:
FEASIBILITY STUDY
M2 TO A289 DIVERGE (NB)
SCHEME B
IMPROVING THE CONNECTOR ROAD & DIVERGE

Scale	Designed	Drawn	Checked	Approved
1:1000	-	RC	JA	JA
Original Size	**Date**	**Date**	**Date**	**Date**
A1	-	2024.03.14	2024.03.14	2024.03.14

Drawing Number: HE PIN 332610929 - Originator STN - Volume -HGN- - Location XX - Type DR - Role CH - Number 0002
Project Ref. No.: 10569
Revision: P01



General Notes

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3. All dimensions are in metres unless specified otherwise.
4. The information on this drawing is based on limited OS information.
5. The dimensions shown are assumed and require verifying through surveys.
6. This drawing shows a potential option(s) from an initial feasibility design. The potential option(s) is indicatively shown for information only. These are subject to outline and detailed design. Further changes may be required.
7. The constraints and potential departures from standard shown/listed are not exhaustive. More may become apparent through further investigations, surveys and during the detailed design.

Notes

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Rev.	Date	Description	Drawn	Chk'd	App'd
P01	14.03.24	FIRST ISSUE	RC	JA	JA

Drawing Status: FOR INFORMATION
Suitability: S2

Stantec
www.stantec.com/uk

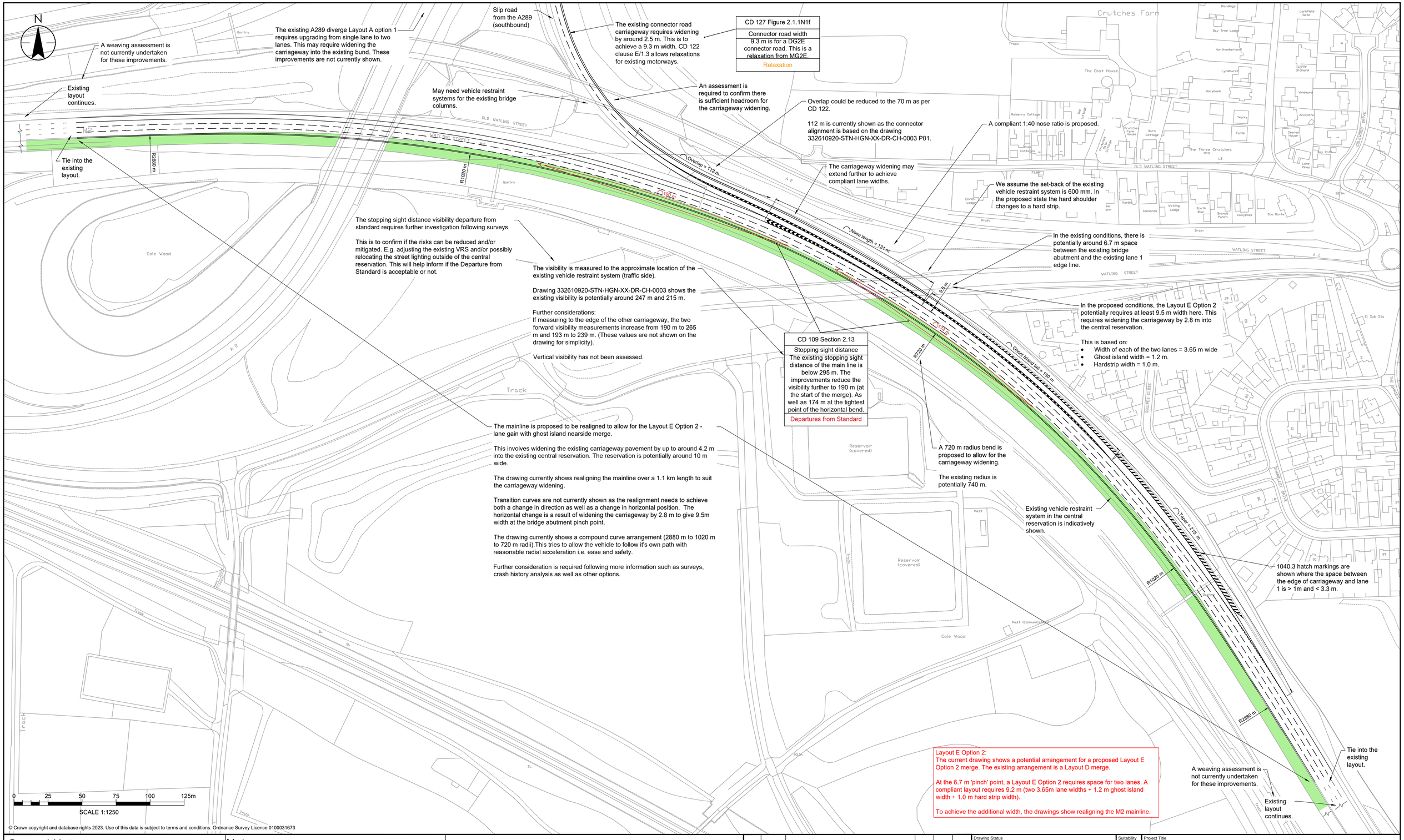
Client: Uniper SE

Project Title: MedwayOne M2J1

Drawing Title: FEASIBILITY STUDY
A289 TO M2 MERGE (SB)
SCHEME C
IMPROVING THE MERGE

Scale	Designed	Drawn	Checked	Approved
1:1000	-	RC	JA	JA
Original Size	**Date**	**Date**	**Date**	**Date**
A1	-	2024.03.14	2024.03.14	2024.03.14

Drawing Number: HE PIN 332610929 - Originator STN - Volume -HDG- Location XX - Type DR - Role CH - Number 0003
Project Ref. No.: 10569
Revision: P01



General Notes

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2. Do not scale from this drawing.
3. All dimensions are in metres unless specified otherwise.
4. The information on this drawing is based on limited OS information.
5. The dimensions shown are assumed and require verifying through surveys.
6. This drawing shows a potential option(s) from an initial feasibility design. The potential option(s) is indicatively shown for information only. These are subject to outline and detailed design. Further changes may be required.
7. The constraints and potential departures from standard shown/listed are not exhaustive. More may become apparent through further investigations, surveys and during the detailed design.

Notes

This document is suitable only for the purpose noted above.
Use of this document for any other purpose is not permitted.

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Rev.	Date	Description	Drawn	Chk'd	App'd
P01	14.03.24	FIRST ISSUE	RC	JA	JA

Drawing Status: FOR INFORMATION
Suitability: S2

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Client: Uniper SE

Project Title: MedwayOne M2J1

Drawing Title:
FEASIBILITY STUDY
A289 TO M2 MERGE (SB)
SCHEME D
IMPROVING THE MERGE & REALIGNING THE M2

Scale	Designed	Drawn	Checked	Approved
1:1250	-	RC	JA	JA
Original Size	**Date**	**Date**	**Date**	**Date**
A1	-	2024.03.14	2024.03.14	2024.03.14

Drawing Number: HE PIN 332610920 - Originator STN - Volume -HGN- Location XX - Type DR - Role CH - Number 0004
Project Ref. No.: 10569
Revision: P01