

Table of Contents

Executive Summary	E-1
1 Introduction	1-1
1.1 Project Overview	1-1
1.2 Project Proponent	1-6
1.3 Environment Effects Statement	1-6
1.4 Subject matter of the EES	1-9
1.5 Matters not addressed in the EES	1-19
1.6 Project Delivery	1-20
1.7 Project Approvals	1-22
1.8 Structure of the EES	1-23
2 Project Rationale and Benefits	2-1
2.1 Introduction	2-1
2.2 Previous Studies	2-2
2.3 Policy Context	2-3
2.4 Project Rationale	2-8
2.5 Project Benefits	2-18
2.6 Satisfying the Project Objectives	2-25
3 Legislative Framework and Approval Requirements	3-1
3.1 Introduction	3-1
3.2 Environment Effects Act 1978	3-2
3.3 Principal approvals	3-4
3.4 Secondary Approvals and Compliance	3-7
3.5 Major Transport Projects Facilitation Act 2009	3-10
4 EES Assessment Framework and Approach	4-1
4.1 Introduction	4-1
4.2 Draft EES Evaluation Objectives and Assessment Framework	4-1
4.3 Relevant Legislation and Policies	4-4
4.4 Approach to EES Specialist Studies	4-15
4.5 Environmental Risk Assessment	4-16
4.6 Scope of Specialist Studies	4-19
5 Project Development	5-1
5.1 Introduction	5-1
5.2 Project Options	5-5
5.3 Design Refinements	5-28

6	Project Description	6-1
6.1	Introduction	6-1
6.2	Design Requirements	6-5
6.3	Project Schedule and Delivery	6-5
6.4	Proposed Project Boundary	6-6
6.5	Project Precincts and Components	6-7
6.6	Construction Methodology	6-40
6.7	Operation and Maintenance	6-66
6.8	Waste, Spoil and Groundwater Management	6-66
6.9	Property Acquisition	6-68
6.10	Sustainability Principles and Approach	6-70
6.11	Urban Design Strategy	6-73
7	Community and Stakeholder Engagement	7-1
7.1	Introduction	7-1
7.2	EES Scoping Requirements	7-1
7.3	Engagement Principles and Goals	7-2
7.4	Consultation Approach	7-3
7.5	Stakeholders	7-5
7.6	Overview of Engagement	7-12
7.7	Response to Feedback	7-18
7.8	Ongoing Community and Stakeholder Engagement	7-35
8	Transport	8-1
8.1	Overview	8-1
8.2	EES Objectives	8-5
8.3	Legislation and Policy	8-5
8.4	Methodology	8-7
8.5	Existing Conditions	8-9
8.6	Risk Assessment	8-12
8.7	Impact Assessment	8-13
8.8	Precinct 1: Tunnels	8-19
8.9	Precinct 2: Western Portal (Kensington)	8-22
8.10	Precinct 3: Arden Station	8-28
8.11	Precinct 4: Parkville Station	8-32
8.12	Precinct 5: CBD North Station	8-39
8.13	Precinct 6: CBD South Station	8-44
8.14	Precinct 7: Domain Station	8-48
8.15	Precinct 8: Eastern Portal (South Yarra)	8-57
8.16	Precinct 9: Western Turnback (West Footscray)	8-61
8.17	Environmental Performance Requirements	8-61
8.18	Conclusion	8-68

9	Land Use and Planning	9–1
9.1	Overview	9–1
9.2	EES Objectives	9–2
9.3	Legislation and Policy	9–3
9.4	Methodology	9–8
9.5	Existing Conditions	9–9
9.6	Planning Approval Mechanism	9–12
9.7	Risk Assessment	9–13
9.8	Impact Assessment	9–14
9.9	Precinct 1: Tunnels	9–17
9.10	Precinct 2: Western Portal (Kensington)	9–21
9.11	Precinct 3: Arden Station	9–23
9.12	Precinct 4: Parkville Station	9–27
9.13	Precinct 5: CBD North Station	9–30
9.14	Precinct 6: CBD South Station	9–34
9.15	Precinct 7: Domain Station	9–37
9.16	Precinct 8: Eastern Portal (South Yarra)	9–41
9.17	Precinct 9: Western Turnback (West Footscray)	9–43
9.18	Early Works	9–44
9.19	Environmental Performance Requirements	9–46
9.20	Conclusion	9–50
10	Social and Community	10–1
10.1	Overview	10–1
10.2	EES Objectives	10–2
10.3	Legislation	10–3
10.4	Methodology	10–3
10.5	Existing Conditions	10–6
10.6	Risk Assessment	10–9
10.7	Impact Assessment	10–13
10.8	Precinct 1: Tunnels	10–16
10.9	Precinct 2: Western Portal (Kensington)	10–19
10.10	Precinct 3: Arden Station	10–21
10.11	Precinct 4: Parkville Station	10–23
10.12	Precinct 5: CBD North Station	10–25
10.13	Precinct 6: CBD South Station	10–27
10.14	Precinct 7: Domain Station	10–29
10.15	Precinct 8: Eastern Portal (South Yarra)	10–32
10.16	Precinct 9: Western Turnback (West Footscray)	10–34
10.17	Early Works	10–35
10.18	Environmental Performance Requirements	10–35
10.19	Conclusion	10–42

11	Business	11-1
11.1	Overview	11-1
11.2	EES Objective	11-5
11.3	Legislation and Policy	11-6
11.4	Methodology	11-9
11.5	Existing Conditions	11-11
11.6	Risk Assessment	11-13
11.7	Impact Assessment - Summary	11-14
11.8	Metropolitan Impact	11-18
11.9	Early Works Impact	11-18
11.10	Precinct 1: Tunnels	11-19
11.11	Precinct 2: Western Portal (Kensington)	11-20
11.12	Precinct 3: Arden Station	11-22
11.13	Precinct 4: Parkville Station	11-24
11.14	Precinct 5: CBD North Station	11-28
11.15	Precinct 6: CBD South Station	11-30
11.16	Precinct 7: Domain Station	11-35
11.17	Precinct 8: Eastern Portal (South Yarra)	11-37
11.18	Precinct 9: Western Turnback (West Footscray)	11-38
11.19	Environmental Performance Requirements	11-39
11.20	Conclusion	11-43
12	Air Quality	12-1
12.1	Overview	12-1
12.2	EES Objective	12-2
12.3	Legislation and Policy	12-3
12.4	Methodology	12-4
12.5	Existing Conditions	12-6
12.6	Risk Assessment	12-8
12.7	Impact Assessment	12-9
12.8	Precinct 1: Tunnels	12-14
12.9	Precinct 2: Western Portal (Kensington)	12-16
12.10	Precinct 3: Arden Station	12-18
12.11	Precinct 4: Parkville Station	12-23
12.12	Precincts 5 and 6: CBD North Station and CBD South Station	12-25
12.13	Precinct 7: Domain Station	12-27
12.14	Precinct 8: Eastern Portal (South Yarra)	12-37
12.15	Precinct 9: Western Turnback (West Footscray)	12-38
12.16	Environmental Performance Requirements	12-38
12.17	Conclusion	12-41

13	Noise and Vibration	13–1
13.1	Overview	13–1
13.2	EES Objective	13–4
13.3	Legislation and Policy	13–4
13.4	Methodology	13–6
13.5	Noise and Vibration Levels and Criteria	13–11
13.6	Existing Conditions	13–21
13.7	Risk Assessment	13–24
13.8	Impact Assessment	13–26
13.9	Precinct 1: Tunnels	13–34
13.10	Precinct 2: Western Portal (Kensington)	13–40
13.11	Precinct 3: Arden Station	13–44
13.12	Precinct 4: Parkville Station	13–46
13.13	Precinct 5: CBD North Station	13–52
13.14	Precinct 6: CBD South Station	13–56
13.15	Precinct 7: Domain Station	13–60
13.16	Precinct 8: Eastern Portal (South Yarra)	13–63
13.17	Precinct 9: Western Turnback (West Footscray)	13–67
13.18	Environmental Performance Requirements	13–68
13.19	Conclusion	13–83
14	Historical Cultural Heritage	14–1
14.1	Overview	14–1
14.2	EES Objectives	14–3
14.3	Legislation and Policy	14–4
14.4	Methodology	14–5
14.5	Existing Conditions	14–8
14.6	Risk Assessment	14–8
14.7	Impact Assessment	14–13
14.8	Precinct 1: Tunnels	14–15
14.9	Precinct 2: Western Portal (Kensington)	14–27
14.10	Precinct 3: Arden Station	14–29
14.11	Precinct 4: Parkville Station	14–32
14.12	Precinct 5: CBD North Station	14–37
14.13	Precinct 6: CBD South Station	14–41
14.14	Precinct 7: Domain Station	14–49
14.15	Precinct 8: Eastern Portal (South Yarra)	14–56
14.16	Precinct 9: Western Turnback (West Footscray)	14–58
14.17	Early Works	14–60
14.18	Environmental Performance Requirements	14–61
14.19	Conclusion	14–73

15	Aboriginal Heritage	15–1
15.1	Overview	15–1
15.2	EES Objectives	15–2
15.3	Legislation and Policy	15–2
15.4	Methodology	15–3
15.5	Existing Conditions	15–5
15.6	Risk Assessment	15–9
15.7	Impact Assessment	15–9
15.8	Precinct 1: Tunnels	15–10
15.9	Precinct 2: Western Portal (Kensington)	15–12
15.10	Precinct 3: Arden Station	15–12
15.11	Precinct 4: Parkville Station	15–13
15.12	Precinct 5: CBD North Station	15–14
15.13	Precinct 6: CBD South Station	15–15
15.14	Precinct 7: Domain Station	15–15
15.15	Precinct 8: Eastern Portal (South Yarra)	15–16
15.16	Precinct 9: Western Turnback (West Footscray)	15–17
15.17	Early Works	15–17
15.18	Environmental Performance Requirements	15–17
15.19	Conclusion	15–19
16	Landscape and Visual	16–1
16.1	Overview	16–1
16.2	EES Objectives	16–3
16.3	Legislation and Policy	16–4
16.4	Methodology	16–6
16.5	Existing Conditions	16–7
16.6	Risk Assessment	16–11
16.7	Impact Assessment	16–14
16.8	Precinct 1: Tunnels	16–20
16.9	Precinct 2: Western Portal (Kensington)	16–23
16.10	Precinct 3: Arden Station	16–24
16.11	Precinct 4: Parkville Station	16–26
16.12	Precinct 5: CBD North Station	16–29
16.13	Precinct 6: CBD South Station	16–31
16.14	Precinct 7: Domain Station	16–34
16.15	Precinct 8: Eastern Portal (South Yarra)	16–37
16.16	Precinct 9: Western Turnback (West Footscray)	16–39
16.17	Environmental Performance Requirements	16–39
16.18	Conclusion	16–42

17	Surface Water	17-1
17.1	Overview	17-1
17.2	EES Objectives	17-3
17.3	Legislation and Policy	17-4
17.4	Methodology	17-5
17.5	Existing Conditions	17-8
17.6	Risk Assessment	17-13
17.7	Impact Assessment	17-14
17.8	Precinct 1: Tunnels	17-18
17.9	Precinct 2: Western Portal (Kensington)	17-19
17.10	Precinct 3: Arden Station	17-21
17.11	Precincts 4 and 5: Parkville Station and CBD North Station	17-24
17.12	Precinct 6: CBD South Station	17-25
17.13	Precinct 7: Domain Station	17-27
17.14	Precinct 8: Eastern Portal (South Yarra)	17-28
17.15	Precinct 9: Western Turnback (West Footscray)	17-30
17.16	Early Works	17-31
17.17	Environmental Performance Requirements	17-31
17.18	Conclusion	17-38
18	Groundwater	18-1
18.1	Overview	18-1
18.2	EES Objective	18-3
18.3	Legislation and Policy	18-4
18.4	Methodology	18-6
18.5	Existing Conditions	18-7
18.6	Risk Assessment	18-14
18.7	Impact Assessment	18-16
18.8	Precinct 1: Tunnels	18-19
18.9	Precinct 2: Western Portal (Kensington)	18-25
18.10	Precinct 3: Arden Station	18-26
18.11	Precinct 4: Parkville Station	18-27
18.12	Precinct 5: CBD North Station	18-29
18.13	Precinct 6: CBD South Station	18-30
18.14	Precinct 7: Domain Station	18-33
18.15	Precinct 8: Eastern Portal (South Yarra)	18-33
18.16	Precinct 9: Western Turnback (West Footscray)	18-34
18.17	Early Works	18-35
18.18	Environmental Performance Requirements	18-35
18.19	Conclusion	18-39

19	Ground Movement and Land Stability	19–1
19.1	Overview	19–1
19.2	EES Objective	19–4
19.3	Legislation and Policy	19–5
19.4	Background	19–5
19.5	Methodology	19–8
19.6	Risk Assessment	19–16
19.7	Evaluation Criteria	19–18
19.8	Impact Assessment	19–20
19.9	Precinct 1: Tunnels	19–23
19.10	Precinct 2: Western Portal (Kensington)	19–30
19.11	Precinct 3: Arden Station	19–31
19.12	Precinct 4: Parkville Station	19–31
19.13	Precinct 5: CBD North Station	19–32
19.14	Precinct 6: CBD South Station	19–34
19.15	Precinct 7: Domain Station	19–35
19.16	Precinct 8: Eastern Portal (South Yarra)	19–36
19.17	Precinct 9: Western Turnback (West Footscray)	19–37
19.18	Environmental Performance Requirements	19–37
19.19	Conclusion	19–42
20	Contaminated Land and Spoil Management	20–1
20.1	Overview	20–1
20.2	EES Objective	20–2
20.3	Legislation and Policy	20–3
20.4	Methodology	20–5
20.5	Existing Conditions	20–6
20.6	Risk Assessment	20–9
20.7	Impact Assessment Overview	20–10
20.8	Precinct 1: Tunnels	20–18
20.9	Precinct 2: Western Portal (Kensington)	20–20
20.10	Precinct 3: Arden Station	20–23
20.11	Precinct 4: Parkville Station	20–25
20.12	Precinct 5: CBD North Station	20–27
20.13	Precincts 6 and 7: CBD South Station and Domain Station	20–28
20.14	Precinct 8: Eastern Portal (South Yarra)	20–30
20.15	Precinct 9: Western Turnback (West Footscray)	20–32
20.16	Early Works	20–32
20.17	Environmental Performance Requirements	20–33
20.18	Conclusion	20–38

21	Biodiversity	21-1
21.1	Overview	21-1
21.2	EES Objectives	21-2
21.3	Legislation and Policy	21-3
21.4	Methodology	21-5
21.5	Existing Conditions	21-6
21.6	Risk Assessment	21-13
21.7	Impact Assessment	21-14
21.8	Precinct 1: Tunnels	21-16
21.9	Precinct 2: Western Portal (Kensington)	21-20
21.10	Precinct 3: Arden Station	21-22
21.11	Precinct 4: Parkville Station	21-24
21.12	Precinct 5: CBD North Station	21-25
21.13	Precinct 6: CBD South Station	21-26
21.14	Precinct 7: Domain Station	21-27
21.15	Precinct 8: Eastern Portal (South Yarra)	21-28
21.16	Precinct 9: Western Turnback (West Footscray)	21-30
21.17	Early Works	21-31
21.18	Environmental Performance Requirements	21-31
21.19	Conclusion	21-37
22	Greenhouse Gas	22-1
22.1	Overview	22-1
22.2	EES Objective	22-4
22.3	Legislation and Policy	22-4
22.4	Sustainability Performance Targets	22-7
22.5	Methodology	22-7
22.6	Risk Assessment	22-13
22.7	Impact Assessment	22-14
22.8	Environmental Performance Requirements	22-22
22.9	Conclusion	22-24

23	Environmental Management Framework	23–1
23.1	Introduction	23–1
23.2	Scoping Requirements and EMF Structure	23–3
23.3	Governance Framework	23–4
23.4	Roles and Responsibilities	23–6
23.5	Risk and Impact Assessment	23–9
23.6	Environmental Performance Requirements	23–9
23.7	Environmental Management Documentation	23–54
23.8	Evaluating Environmental Performance Outcomes	23–60
23.9	Contingency Measures	23–62
24	Conclusion	24–1
24.1	Overview	24–1
24.2	Melbourne Metro Concept Design and Environmental Performance Requirements	24–1
24.3	Project Evaluation against the Scoping Requirements	24–2
24.4	<i>Transport Integration Act 2010</i>	24–12
24.5	Next Steps	24–20
24.6	Conclusion	24–21

Glossary and Abbreviations

Technical Appendices

Folder Number

Appendix A	Planning Scheme Amendment and Associated Documentation	1–14
Appendix B	Environmental Risk Assessment Report (Risk Register)	1–14
Appendix C	Community and Stakeholder Feedback Summary Report	1–14
Appendix D	Transport	2–14
Appendix E	Land Use and Planning	3–14
Appendix F	Social and Community	4–14
Appendix G	Business	4–14
Appendix H	Air Quality	4–14
Appendix I	Noise and Vibration	5 & 6–14
Appendix J	Historical Cultural Heritage	7–14
Appendix K	Aboriginal Heritage	8–14
Appendix L	Landscape and Visual	8–14
Appendix M	Urban Design Strategy	8–14
Appendix N	Surface Water	9–14
Appendix O	Groundwater	10–14
Appendix P	Ground Movement and Land Stability	11–14
Appendix Q	Contaminated Land and Spoil Management	12–14
Appendix R	Arboriculture: City of Melbourne, Port Phillip and Maribyrnong	13–14
Appendix S	Arboriculture: City of Stonnington	13–14
Appendix T	Terrestrial Flora and Fauna	13–14
Appendix U	Aquatic Ecology and River Health	13–14
Appendix V	Greenhouse Gas	14–14
Appendix W	Sustainability Principles and Approach	14–14

EES Map Book