Consultant's Certification Check List

EXAMPLE FOR CONSULTANT'S INTERNAL USE - NOT REQUIRED TO BE SENT TO MELBOURNE WATER.

Job description: _____

Municipality: _____

Developer: _____

Consultant: _____

Nominated Rep.: _____

Consultant Ref.: _____

Melbourne Water Ref.: _____

1.0		**Scope and general information**	**Initials**
1.1		General	
	1.1.1	Copies of relevant specifications and drawings were kept on site	_____
	1.1.2	Melbourne Water was notified of any design changes	_____
1.2		Service of notices	
	1.2.1	Appropriate notification was given to Melbourne Water, property owners, municipal councils and other authorities	_____
	1.2.2	Copies of all notices are available	_____
1.3		Protection of people, property, environment and interference with traffic	
	1.3.1	Safety of personnel on or adjacent to the site conformed to the *Victorian Occupational Health and Safety Act* and Clause 15 of AS 2124-1992	_____
	1.3.2	Works on live drainage assets was carried out in accordance with Clause 3.10	_____
	1.3.3	Notification was given to Melbourne Water to arrange connections to live assets	_____
	1.3.4	Special precautions were taken for excavations near major services in accordance with Clause 3.13	_____

	1.3.5	Drains, channels or gutters were kept clear	_____
	1.3.6	Operations in private and public areas were confined to easements, reserves or approved areas	_____
	1.3.7	Permits for the removal of vegetation were gained from the relevant authority	_____
	1.3.8	Damage to vegetation and trees was minimised	_____
	1.3.9	All services, drains, fences, structures and surfaces affected by the works in private and public property were restored within 7 days of backfilling	_____
1.4		Alteration of services	
	1.4.1	Alteration of services was carried out in accordance with the requirements of the responsible authority	_____
1.5		Established survey marks	
	1.5.1	Survey marks have been maintained in their correct position	_____
2.0		**Materials**	
2.1		General	
	2.1.1	The materials used have been in accordance with Section 6.5 of the Land Development Manual	_____
	2.1.2	Melbourne Water has given written permission for the use of non-approved products	_____
2.2		Storage and handling	
	2.2.1	All materials were handled and stored in accordance with the manufacturer's instructions	_____
	2.2.2	Pipes were stacked correctly using timber bearers on level ground	_____
	2.2.3	Plastic pipes were stored away from chemicals or contaminated ground	_____
	2.2.4	Care was taken to prevent scoring and scratching of flexible pipes	_____
	2.2.5	Rubber rings were stored in a cool area, away from direct sunlight and away from petroleum products	_____
	2.2.6	Styrene butadiene rubber rings were stored away from sources of ozone	_____

2.3		Concrete plain and reinforced	
	2.3.1	Delivery dockets are available	_____
	2.3.2	Grade of concrete used was as ordered and specified	_____
	2.3.3	All concrete was placed within 90 minutes from despatching	_____
	2.3.4	Slump was within tolerance	_____
	2.3.5	Compressive strength tests were carried out by a NATA registered tester and the test results with clear traceability are available	_____
	2.3.6	Concrete test results indicate that concrete strengths were adequate	_____
	2.3.7	No water was added to the concrete on site	_____
	2.3.8	Reinforcing bars conformed to the Design Drawings and AS 1302-1991	_____
	2.3.9	Reinforcing fabric conformed to the Design Drawings and AS 1303-1991	_____
	2.3.10	Bending and splicing of reinforcement was completed in accordance with Section 6.5.5	_____
	2.3.11	Welding of reinforcement was carried out in accordance with AS 1554.3-1983	_____
	2.3.12	Reinforcement was kept clean and any coating protected from damage	_____
	2.3.13	Appropriate reinforcement support was used	_____
	2.3.14	Reinforcement was fixed within the specified tolerances	_____
	2.3.15	Construction joints comply with Section 2.3 C*oncrete, Plain and Reinforced*	_____
	2.3.16	Water stops were installed correctly and where appropriate	_____
	2.3.17	Reinforcement was fixed in accordance with the requirements of AS 3600-1988	_____
2.4		Metal work	
	2.4.1	Metal work conformed with relevant Australian Standards	_____
	2.4.2	Metal work was galvanised in accordance with AS 1650-1989	_____
	2.4.3	All stainless steel was Grade 316 or 316L	_____

2.5		Supply of water to the works	
	2.5.1	Permission was gained from owner of the service for the use of water	_____
3.0		**Excavation**	
3.1		General requirements	
	3.1.1	Excavations conformed to all safety regulations	_____
	3.1.2	Occupational Health and Safety Authority was notified of any changes to the original notification	_____
3.2		Tolerances	
	3.2.1	Excavations were in accordance with the tolerances of section 5.0 of the Land Development Manual - Drainage Design and Construction Guidelines and Requirements and section 8.0 of the Land Development Manual – *Drawings*	_____
3.3		Methods of excavation	
	3.3.1	Methods of excavation were in accordance with Clause 6.6.3	_____
3.4		Securing the excavation	
	3.4.1	All excavations were supported and all support was removed in accordance with Clauses 6.6.4 and 6.6.7	_____
	3.4.2	Sufficient ground support materials were available on site at all times	_____
3.5		Nature of ground	
	3.5.1	Refill required as a result of slippage was carried out in accordance with Clause 6.6.5	_____
3.6		Excessive excavation	
	3.6.1	Excessive excavation was refilled with approved materials	_____
3.7		Excavated material	
	3.7.1	Excess excavated material was progressively removed from privately owned property	_____
3.8		Drainage and dewatering	
	3.8.1	Excavation was kept free from water	_____
	3.8.2	Illegal discharges were prevented from entering existing sewers, drains or watercourses	_____

	3.8.3	Melbourne Water gave permission for discharging into drains or watercourses	_____
	3.8.4	Drainage diversion works have been reinstated	_____
	3.8.5	Safety precautions were taken when dewatering excavations or lowering the water table	_____
	3.8.6	All equipment was operated in accordance with EPA requirements	_____
3.9		Blasting	
	3.9.1	Blasting conformed to the appropriate statutory regulations and Australian standards	_____
	3.9.2	Blasting conformed to the conditions of the blasting permit and restrictions specified on the Design Drawings	_____
4		**Foundations**	
4.1		General	
	4.1.1	The foundation had a minimum dry density ratio of 95% or a minimum density index of 70%	_____
	4.1.2	Appropriate special bases have been used where necessary and recorded on the as constructed details	_____
4.2		Low stiffness nature in soil in embedment zone	
	4.2.1	Widening of the excavation and embedment zone was carried out for areas with insufficient side support	_____
	4.2.2	Alternative treatment was completed in accordance with the Consultant's instructions	_____
4.3		Inspection of pipeline components	
	4.3.1	All pipeline components were checked for damage and flaws	_____
4.4		Laying of pipes	
	4.4.1	Pipes were laid to align within tolerances	_____
	4.4.2	Pipes were laid to level within tolerances	_____
	4.4.3	Pipes were laid to grade within tolerances	_____
	4.4.4	Pipes were continuously supported over the length of the barrel	_____
4.5		Jointing of pipes	
	4.5.1	Pipes and fittings were jointed in accordance with	_____

		the manufacturer's instructions and appropriate Australian Standards	
	4.5.2	Jointing cavities of interlocking joint concrete pipes were filled with mortar	_____
	4.5.3	Gaps of 15 mm or greater around more than half the circumference of concrete drainage pipes were bandaged in accordance with the Drawings	_____
	4.5.4	Make up sections on drains were constructed in accordance with the Drawings	_____
4.6		Embedment zone	
	4.6.1	Embedment materials used were in accordance with Melbourne Water specification 21.A.038, *Sands and Crushed Rock* (located in the Document Library in the Land Development Manual) and conformed to gradings shown in Table 1	_____
	4.6.2	Use of A Grade sand for drainage was approved	_____
	4.6.3	Selected material did not contain rock fragments greater than 20 mm or clay fragments greater than 40 mm in diameter	_____
	4.6.4	Embedment material was tamped to a minimum dry density ratio of 90% or density index of 70% in layers not exceeding 150 mm thick	_____
	4.6.5	Pipe embedment types used were in accordance with the Drawings	_____
	4.6.6	Changes to the designed embedment have been included on the as constructed details	_____
5.0		**Backfilling the excavations**	
5.1		Drain - backfilling the excavations	
	5.1.1	Backfilling was carried out in accordance with the relevant Drawings	_____
	5.1.2	Impact loading was avoided during backfilling	_____
	5.1.3	No displacement of the manhole occurred during backfilling	_____
	5.1.4	All voids behind the timber ground support were filled	_____
	5.1.5	Backfill was placed at least 24 hours after the concrete support for the pipeline was placed	_____
	5.1.6	Backfill materials and placement method were in accordance with the Design Drawings, Clause 6.8.2 and Table 1	_____

	5.1.7	Backfill materials within road reserves were selected with regard to local municipalities' requirements	_____
	5.1.8	Backfilling over drainage pipelines in embankment conditions was carried out in accordance with the Drawings	_____
	5.1.9	Compaction testing was carried out in accordance with AS 1289.1-1991 and/or ASTM D2922 by a NATA registered tester	_____
	5.1.10	Backfill achieved the dry density ratios shown on the Drawings or Table 1 in Clause 6.8.2	_____
6.0		**Water services, property branch sewers and earthworks**	
6.1		Drainage - earthworks	
	6.1.1	Tolerances of all excavations were in accordance with Clause 6.6.2 and the Standard Drawings	_____
	6.1.2	Trees indicated on the Design Drawings have been protected	_____
	6.1.3	All matter removed in clearing operations was disposed of in accordance with the MFB, CFA, the responsible authority and the local municipal regulations	_____
	6.1.4	Topsoil was stored away from hazard areas	_____
	6.1.5	All open cut excavation conformed to the requirements of Clause 6.8,	_____
	6.1.6	Drains were constructed to protect the Works from the flow or collection of water	_____
	6.1.7	Only approved material from the excavation was used in the permanent construction	_____
	6.1.8	All organic matter was stripped from the bed and banks of waterways and removed prior to any backfilling	_____
	6.1.9	Over excavation was refilled as directed by the Consultant’s	_____
	6.1.10	Appropriate settling ponds were constructed and maintained to avoid polluted discharge	_____
	6.1.11	Earth fill was obtained only from borrow areas shown on the Drawings	_____
	6.1.12	All fill materials were placed and compacted to a minimum dry density ratio of 90%	_____
	6.1.13	All fill for structural foundations and in the base	_____

of waterways, floodways and storage areas was placed and compacted to a minimum dry density ratio of 95%

6.1.14 Fill disposed of in borrow pits or permanent stockpiles was compacted to a minimum dry density ratio of 90% _____

6.1.15 Action has been taken to ensure all material spread on the embankment had a uniform moisture content throughout the layer and was within the specified moisture content limits _____

6.1.16 A satisfactory bonding surface was formed before the next layer of material was placed on the embankment _____

6.1.17 Fill material was placed in continuous horizontal layers parallel to the embankment axis and compacted to produce a uniform density throughout the embankment _____

6.1.18 Fill and disturbed areas were topsoiled to thicknesses specified on the Drawings _____

6.1.19 All topsoiled areas were grass seeded and fertilised _____

6.1.20 Filling and grading of the development protects lots from flooding _____

6.1.21 No filling has been carried out on land beyond the approved limits _____

6.1.22 An overland flow path was constructed through the development where specified _____

7.0 Connections, inspection shafts, manholes and concrete structures

7.1 Drainage - manholes, concrete inlet and outlet structures

7.1.1 Manholes

7.1.1.1 Manholes were excavated and constructed in accordance with the Drawings _____

7.1.1.2 Outside formwork was used where the excavation exceeded the specified tolerance _____

7.1.1.3 Outside formwork was used in the formation of the shaft of drainage manholes or the cone and neck of sewer manholes _____

7.1.1.4 No slip forming has been used _____

7.1.1.5 Tolerances were in accordance with _____

clause 6.10.2

7.1.1.6 Concrete surfaces were finished in accordance with AS 3610. _____

7.1.1.7 Step irons and ladders were located and fixed in accordance with the Drawings _____

7.1.1.8 Manhole covers were fixed flush with the pavement or finished surface level in accordance with Clause 6.10.4 _____

7.1.1.9 Cover levels of existing manholes have been adjusted by Melbourne Water to match finished surface levels _____

7.1.1.10 Heavy duty vented type BV or equivalent covers have been used for drains _____

7.1.1.11 Distorted covers or frames have been replaced _____

7.1.1.12 Cast iron covers were filled with 25 MPa concrete and the identification, cover locating marks and numbering pads left exposed _____

7.1.1.13 Manhole covers and frames were cleaned and greased after completion of the works _____

7.1.1.14 Joints for precast manhole components were made in accordance with the Drawings and manufacturer's requirements _____

7.1.1.15 All jointing surfaces of the precast manholes were thoroughly cleaned before jointing _____

7.1.2 Drainage concrete inlet and outlet structures

7.1.2.1 Weepholes were placed in accordance with the Drawings _____

7.1.2.2 Weephole formwork was positioned before the concrete was poured _____

7.1.2.3 All bolts required to be cast in were positioned in the formwork before the concrete was poured _____

7.1.2.4 Step irons required were cast in and correctly placed in accordance with the Drawings _____

7.1.2.5 Surface finish of bellmouths is F3 or better _____

7.1.2.6 Surface finish of other structures is in accordance with the Drawings _____

		7.1.2.7 Public warning signs have been installed on the structures	_____
8.0		**Commissioning and Testing**	
	8.1	Drainage - testing	
	8.1.1	All pipelines were examined for audible or visible faults	_____
	8.1.2	An internal visual inspection was carried out for pipelines larger than DN600 after compaction of backfill	_____
	8.1.3	Excessive ovality was determined by measuring internal diameters for flexible pipelines larger than DN600 after laying the minimum depth of support material	_____
	8.2.4	Excessive ovality was determined by measuring internal diameters for flexible pipelines larger than DN600 at least fourteen (14) days after compaction of the backfill	_____
	8.2.5	All faults resulting from testing have been remedied	_____
9.0		**Restoration**	
	9.1	Completion of restoration works	
	9.1.1	Permanent repairs have been made to unpaved off carriageway surfaces	_____
	9.1.2	Temporary repairs have been made to paved surfaces	_____
	9.1.3	All surfaces have been restored in accordance with the Drawings	_____
	9.1.4	Covers on all surface structures conform to the final surface level	_____
	9.1.5	All surplus material has been removed from the site in accordance with Clause 38 of AS 2124-1992 and the site left clean and tidy	_____
10.0		**Completion of works**	
	10.1	Completion date	
	10.1.1	All works were completed and operational prior to the Agreement lapsing	_____

11.0		**Non-conforming items**	
	11.1	Documentation of action taken	
		11.1.1 Action taken for non-conforming items has been documented and sent to the relevant authority for acceptance.	_____
12.0		**Works during defects liability period**	
	12.1	Prevention of access to live assets	
		12.1.1 Procedures are in place to prevent access into live assets by the contractors or Consultant's personnel	_____