
Engineering Appendix Five

As-Builts

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1. AS-BUILT DOCUMENTATION

1.1 Introduction

As-built documentation is required:

- To provide accurate and detailed plans of what services and facilities have been provided, how they have been designed and constructed, and where they are located.
- To enable accurate and complete data to be entered into Council's GIS and asset management systems.

This documentation is used to provide information to the public, contractors, consultants, and other service providers (e.g. power and gas reticulation companies and roading contractors) working in the vicinity of Council services. It is also used in Council's own planning processes when managing asset replacements, new developments and service upgrades. The information provided at the time of development has long term use for the community and therefore must be accurate, complete and appropriately certified.

As-built documentation must be provided by:

- The developer in the case of any subdivision or private development.
- The Contractor in the case of any work undertaken by Council's Maintenance Contractors or Council's Capital Works Programme.

1.2 Requirements

As-built drawings for any new or replacement infrastructure, subdivision or development containing assets that will ultimately be owned, operated or managed by the Council shall:

- Be submitted by the developer or contractor with the required certification by an appropriately qualified professional person when applying for subdivision compliance, maintenance claim or semi-final certificate of completion.
- Be submitted to Council in a format acceptable to Horowhenua District Council, with all features and assets recorded by surveyed co-ordinates.
- Be to the standards required by this section and contain (as a minimum) the information referred to in the "Minimum As- Built Requirements Checklist", "Quality Assurance Details" and the Asset and Water Meter Schedules appended to this section.

The as-builts shall include, but not be limited to, the following:

- *Earthworks* - The as-builts shall record the depth and location of fill, and the type of material, the position, type and size of any subsoil drains, finished contours, retention dams or ponds, low lying drainage areas, the extent and location of cut batters, or structures including retaining walls.
- *Stormwater and Sanitary Sewer* - The as-builts shall detail (but not be limited to) the location of all property boundaries, pipes, culverts and drains (including mains, laterals and sump leads together with details of diameters and materials, depths and date of completion); pumps, valves and control equipment (including manufacturer's details, pump capacity and date of manufacture); structures, including manholes, pump chambers, catch and soakage pits (giving volume, and levels of invert and lid), kerbs and sumps, together with discharge points plus direction of flow. The locations of service connections to property boundaries are to include a measurement from both the left and right hand boundary. The location of service connections on the main are to be shown by measurement between the feature and the two nearest manholes. As-built plans of any private stormwater or sanitary sewer system and operating

instructions shall be lodged with the Horowhenua District Council, which in this respect will act as document custodian.

- *Water Supply*- The as-builts shall detail (but not be limited to) the location of all property boundaries, pipes (including mains and laterals together with pipe diameters and materials, depth and details of completion); valves, hydrants, tobies and meters and other (including sizes, manufacturer's details, discrete meter numbering system identified against each property and date of manufacture). The locations of service connections to property boundaries are to include a measurement from both the left and right hand boundary. The location of service connections on the main are to be shown by measurement between the feature and the two nearest hydrants or valves. As-built plans of any private water supply system and operating instructions shall be lodged with the Horowhenua District Council, who in this respect will act as custodian.
- *Roading* - The as-builts shall detail (but not be limited to) the co-ordinates and location of all property boundaries, the location and level of footpaths, kerbs, road centreline and structures including sumps. As-builts will also provide the details of the pavement layers and sealing. Traffic engineering detail including the co-ordinates and location of traffic islands, and signs, together with road marking shall also be provided. Additional features shall include street furniture, gardens, plantings, etc.
- *Road lighting* - As-builts shall detail (but not be limited to) co-ordinates, lamp type, pole type, manufacturer, wattage, date of installation as well as the placement cabling.
- *Amended or changed infrastructure* – Details of all upgrades, replacements or newly identified infrastructure shall be provided in accordance with the "Check List".
- *Non-Council Utility Services - Location of (alignment and depth)*

Photographic evidence of installation details should be provided where appropriate.

As-builts will be based on co-ordinate data in Geodetic 2000 from permanent control points or measurement from co-ordinates of property boundaries. The road centreline will be co-ordinated from permanent control points at no greater than 20m spacing's. All locations will be dimensioned and shown on the plans. The tolerances shall be:

- a) Horizontal $\pm 100\text{mm}$
- b) Vertical $\pm 20\text{mm}$

For all of the above, each drawing shall be clearly stamped or marked with as-built' and signed by the person so certifying the same.

Council will retain a copy of all as-built drawings and certification statements.

1.2.1 RAMM

The as-built records for the tabulated asset types, using pocket RAMM, shall be loaded into Council's RAMM database. Details of approved contractors, currently able to carry out this work, can be obtained from Council.

Before compiling any as-built RAMM data, the following information must be obtained from Council:

- Road ID
- Road name
- Start displacement.

The as-built information for all roads to be vested in Horowhenua District Council must be provided in accordance with the Council's RAMM Specification Manual for New Road Assets. As-built information shall be certified by a registered surveyor.

- Road feature information including the location, specification and details of footpaths, bridges, culverts, retaining walls, sight rails/guardrails, road markings, signals, street lighting, signs, sumps and other storm water facilities, vehicle crossings, road traffic features (such as islands, roundabouts, traffic calming measures etc.), landscape features, seating and any other amenities and features.
- Road construction information including thickness of pavement layers and the results of any strength testing or grading certificates.
- Road surfacing information for sealed roads including binder type and application rate, cutter type and quantity, adhesion agent type and quantity, type and quantity of other additives, the width, length and area of each road sealed, chip size, the design basis for the binder application rate and a discussion on any reason for differences between the design and applied rate.

1.2.2 Lighting

- A Lighting Design Review Form – This has a series of relevant questions relating to the design and compliance.
- Declaration of Conformity – This is for the cabling and wiring to show the design conforms with the Electricity Regulations and Codes of Practice.
- A RAMM Form to identify the installed equipment and add the asset to RAMM and issue a unique asset number.

New subdivision roads will not be accepted by Horowhenua District Council as publicly maintained assets until the as-built information has been approved.

1.2.3 Pump Stations

The information to be shown on the As-Built Pump Chamber Drawings shall include:

- Mechanical as constructed plans.
- Electrical as constructed plans.
- details of pipes, ducts, conduits, cables and other items that form part of the pumping station;
- Pressure main, pipe material (including class), diameter.
- Pressure main location, level and grade.
- Location of nearby utility services and stormwater drains.
- Major features (e.g., creeks, railway lines, power transmission lines).
- Details of structures, e.g. MH number/description, location, surface level, size, cover type.
- valve details — location, type, size.
- Lengths of pipeline between valves.
- Geotechnical data, special foundation conditions, dewatering requirements; and other relevant information.
- Pump and switch activation levels and settings.
- Power supply, ICP numbers for each switchboard.
- Full calculations, clearly set out, complete with assumptions and references shall be supplied.
- Operations and maintenance manuals shall be supplied.

1.2.4 Electronic Media for As-builts

As-built information is to be supplied with one printed copy and electronically with the following applying:

- If not otherwise stated, and agreed to in writing, all as-builts shall be submitted electronically.
- The as-builts provided shall be supplied in both dwg. and pdf. format.
- Information relating to the original scale and paper size must be included.
- The electronic files shall also contain spatial data files compatible with the Council's GIS system, and contain attribute data as required by Council's Asset Management System.
- No subdivision compliances, or "semi final" certifications, will be released until such time as all information has been successfully uploaded and stored in Council's databases. This will normally happen within 21 working days of receipt.

1.2.5 Coordinates

The developer/consent holder/contractor shall note that:

- Co-ordinates in Geodetic 2000 (Wanganui circuit) shall be supplied to Council for all new and existing individual connections to individual properties (relating to the consent or project) involving all services at property boundaries within road reserve.
- Co-ordinates for domestic connections to the network mains for individual Lots will only be necessary if the connection is not at right angles to the main.
- All co-ordinates are to be supplied in Geodetic 2000. Any assumed datum will **not** be accepted.

1.2.6 Spatial Data Requirements

Council uses Intergraph's Geomedia as its GIS platform and projects its data in NZTM.

Developers, contractors, or their nominated and approved representative shall submit all spatial as-built information as follows:

- Information is to be submitted in either AutoCAD file format (.dwg) or Arcview Shapefile format (.dbf, .shp, .shx, and .prj files).
- Co-ordinates are to be in terms of Wanganui Circuit Geodetic Datum 2000.
- Any assumed datum will **NOT** be accepted.
- All levels are to be in terms of Wellington Mean Sea Level (WMSL) 1953.
- Data is to be captured when the trenches "are open" and features are visible.
- Each feature must be shown as a separate layer which can be switched on or off.
- Like features (water features, sanitary sewer features etc) may be grouped into separate files however, features within groups must be separate and be able to be switched on or off.
- Where like features are grouped, each group must be shown in a contrasting colour to enable easy identification of the groups (Blue – Water, Red – Sanitary Sewer, Green – Stormwater, Orange – Roading etc)
- Data blocks must be associated with each individual feature and be aligned to the requirements set out in the As-built Requirements Check List for that item.
- The layout and what is required for each of the individual layers (while not exhaustive) is stated in Table 1.1 below.
- Any further questions on spatial data requirements are to be directed to Council's GIS Officer.

Table 1.1

LAYER	FEATURE	SUGGESTED GROUP	STYLE
Boundary	Parcel Boundary Lines	Cadastre	Area
Boundary-Txt	All Boundary Text	Cadastre	Text
Easement	Easement Boundary Lines	Cadastre	Area
Road - Seal Edge	Edges of sealed areas	Road	Line
Road - Kerb	Kerblines	Road	Line
Road - Footpath	Footpaths	Road	Line
Road - Crossing	Vehicle and Pram Crossings	Road	Line
Road - Sign	Street and Regulatory/Advisory signage, including speed limits	Road	Point
Road - Marking	Road marking	Road	Line
Road - Electrical	Sundry electrical items such as pump station control boxes, transformers etc	Road	Point
Road - Ducting	Sundry ducting used for Telecom, gas or spare	Road	Line
Road - Light	Streetlights	Road	Point
Road - Misc	Miscellaneous furniture	Road	Line/Pt
Road – Text	All Roding and Furniture related text	Road	Text
Sewer-Pipe	Sewer Main Pipes	Sewer	Line
Sewer-Lat	Sewer Lateral Pipes	Sewer	Line
Sewer-MH	Sewer Manholes	Sewer	Point
Sewer-Eye	Sewer Main Cleaning Eyes/Lampholes	Sewer	Point
Sewer-Lat-Eye	Sewer Lateral Cleaning Eyes	Sewer	Point
Sewer-PS	Sewer Pump Stations	Sewer	Point
Sewer-Valve	All valves on sewer mains	Sewer	Point
Sewer-BFP	Sewer Back Flow Preventer	Sewer	Point
Sewer – Misc	Miscellaneous sewer items (e.g. Air valve, End caps, Junctions)	Sewer	Point
Sewer-Txt	All Sewer Text	Sewer	Text
Water-Pipe	Water Main Pipes	Water	Line
Water-Lat	Water Service Lateral Pipes	Water	Line
Water-Serv	Water Meters and/or Toby Boxes	Water	Point
Water-Valve	All Water Valves	Water	Point
Water-Hyd	Fire Hydrants	Water	Point
Water-Store	Water Storage Tanks for fire fighting purposes	Water	Point
Water-Well	Water Wells/Bores	Water	Point
Water – Res	Water Reservoirs	Water	Area
Water – Red	Water Pipe Reducers	Water	Point
Water - RPZ	Backflow preventers	Water	Point
Water-Misc	Miscellaneous Water Features(e.g. air valve, end cap, tee, talbot)	Water	Point
Water-Txt	All Water Text	Water	Text
Storm-Pipe	All Stormwater Pipes (mains, culverts & Sump leads)	Storm	Line
Storm-Chan	Stormwater Open Drains and Channels	Storm	Line
Storm-IO	Stormwater Inlets and Outlets	Storm	Point
Storm-MH	Stormwater Manholes	Storm	Point
Storm-Sump	Stormwater Sumps or Catch pits	Storm	Point
Storm-Soak	Stormwater Soak holes Lined or Unlined	Storm	Point

Storm-PS	Stormwater Pump stations	Storm	Point
Storm – Trench	Soakage trenches	Storm	Area
Storm - Lake	Stormwater retention areas – e.g. all created lakes	Storm	Area
Storm – Misc	Miscellaneous Stormwater features (e.g. Air valve, junction)	Storm	Point
Storm-Txt	All Stormwater Text	Storm	Text
Land-Tree	Street Trees	Land	Point
Land – Berm	Berms and Gardens	Land	Area
Land – Misc	Miscellaneous Landscaping features	Land	Line/Pt
Land - Text	All Landscaping Text	Land	Text
Notes:			
1	Sewer and Stormwater pipes shall be contiguous from point feature to point feature e.g. manhole to manhole.		
2	Water pipes shall be contiguous from Tee to Valve, Valve to Valve and Valve to Tee.		
3	Kerblines shall be in contiguous sections.		

1.3 Developers Responsibility

The developer accepts and agrees unconditionally that by carrying out any development or construction works within the Horowhenua District they accept in addition to any conditions of resource consent the following:

- a) The responsibility that all works and/or workmanship carried out on any subdivision development shall be in compliance with the approved design and conditions as stated on the resource consent.
- b) Any theft or damages caused through the course of construction to infrastructure, underground services, property, equipment and personal injury shall be the full responsibility of the developer or contractor. Any cost relating to damages, injury and theft shall be met in full by the developer or contractor.
- c) The responsibility to either hold or ensure that any contractors or parties engaged on their behalf, to undertake any of the works involved within the development or subdivision to hold Public Liability insurance to a minimum value of one million dollars. All consultants and design professionals shall hold Professional Indemnity insurance to a minimum value of one million dollars.
- d) The responsibility for a defects liability period of 24 months after section 244 (c) certificate or approved certification from Council and over this period the full responsibility for all works and workmanship.
- e) The payment of a bond of up to 10% of the total cost of the vested works shall be made by the developer to Council prior to certification for the defects liability period. The actual amount will be determined by the Council Engineer.
- f) The responsibility that if defects are found and the developer does not, or is unable to carry out any works required by Council within 30 days of being notified in writing, then the developer will be in breach of their responsibilities. Monies held in bond will be available to Council to carry out such works.
- g) Monies deducted from the Bond to complete uncompleted work or defects will be the actual cost to complete such work and the cost of time for Council officers' to manage such works.
- h) The responsibility that if the monies held in bond by Council do not fully cover the cost of any works necessary to attain the required standards, then it is the Developer's responsibility to pay the outstanding cost of the works within 30 days of invoicing by Council.
- i) The responsibility that once all works have been accepted in writing by Council at the end of the 24 month maintenance period, all of the bond monies after any deductions, if any, will be refunded to the Developer or Bond Payer within a period of 30 days after an official written request has been received from the Developer for its release.

1.3.1 Miscellaneous

- (a) **Connections to Existing Supplies:**
All connections into or from the Council's underground service network shall be carried out by Council, or its approved Maintenance Contractor.
- (b) **CCTV:**
Council will require final As-built CCTV inspection on completion of all new sewer and stormwater pipe work constructed. These shall be produced at no cost to Council after any initial faults have been repaired, showing a fully compliant and serviced pipe line.

Note:

If reference to what you are seeking is not specifically identified or cannot be found within the Council's Engineering Standards, then the next point of reference will be NZS 4404:2010.

1.3.2 Certification

"As-builts" and all other related documentation (e.g. Quality Assurance records, test records and NZS 4404:2010 Schedules 1B and 1C) shall be submitted to Council a minimum of 21 working days prior to expected certification. The Asset and Water Meter Schedules shall also be completed.

1.4 Quality Assurance Records

All "Quality Assurance Records" obtained throughout the works shall be submitted as one complete document when applying for subdivision compliance and "semi final" claims. Reports shall be prepared by an appropriately qualified professional summarising the Quality Assurance Records and standards achieved on all aspects of the project.

If a Council inspection is required, the notification to Council shall not be less than 48 hours notice.

Prior to any certificate of compliance or practical completion, Council or Council's representative shall undertake inspections and will advise whether it is prepared to take responsibility for the works on behalf of the ratepayers of the Horowhenua District.

If Council is not satisfied with the standard of information provided in the As-built or Quality Assurance documentation from the developer or believes that the quality of workmanship does not meet the intended standard then it reserves the right to ask for additional information to be supplied or additional work to be carried out.

Council also reserves the right to withhold the release of all certifications or payments until it is completely satisfied these requests have been met.

Table 1.2

Quality Assurance Details			
These minimum requirements shall be collected throughout the job and shall be submitted to the Horowhenua District Council in a bound folder in conjunction with the "As-builts" - Prior to Council acceptance.			
		Test or Specification required.	Council to be present
2.1	Stormwater		
	Manholes	Meet NZS, Manufacturer type and size, Confirmation top riser 300mm	
	Sump	Meet NZS, Manufacturer type and size	
	Pipe materials	Manufacturer type and size	
	Trench Detail/Compaction	In accordance with NZS 4402 , 2002 & MES	
	Pipe Sizes	Confirmation	
	Pump Stations	Full operational Testing and Manuals, Power supply ICP numbers	Yes
	Site Concrete	Certified 20Mpa - certificate	
	CCTV	Records	
2.2	Sanitary Sewerage		
	Manholes Precast	Meet NZS, Manufacturer type and size, Confirmation top riser 300mm	
	Manhole – Pressure Test	Pressure test.	Yes
	Pipe materials	Manufacturer type and size	
	Trench Detail/Compaction	In accordance with NZS 4402 & 2002 & Engineering Appendix 4	
	Pipe Pressure Test , Main & Laterals	Pressure test	Yes
	Pipe Sizes	Manufacturer type and size	
	Pump Stations	Full operational Testing and Manuals, Power supply ICP numbers	Yes
	Grouting Records	As per HDC requirements	
	CCTV	Records	
2.3	Water Supply		
	Pipe materials	Meet NZS, Manufacturer type and size	
	Trench Detail/Compaction	In accordance with NZS 4402 , 2002 & Engineering Appendix 4	
	Pipe Pressure Test – Main & Laterals	Pressure test in accordance with MES - See Test Form	Yes
	Pipe Sizes	Manufacturer type and size	
	Site Concrete	Certified 20Mpa	
	Fittings	Certified that were constructed in accordance with approved products	
	Water Meters	Type, Flow capacity, Manufacturer and serial numbers relating to each individual Lot	
2.4	Roading		
	Earthworks/Subgrade	CBR tests and inspection confirmation	Yes
		Stringing (Shape & Depth)	
	Pre-Stabilising	Moisture Check	
		Stringing (Shape & Depth)	
	Stabilising	Spread Rate	
		Depth Checks, i.e. depth to be stabilised	
	Post Stabilising	Stringing (Shape & Depth)	
	Subbase	Material grading properties / with test results -Conforms to TNZ M/3 (see note 1)	
		Compaction test/ Records as per NZS 4402 and 2002	
		Stringing (Shape & Depth)	

	Basecourse	Material grading properties/ with test results - Conforms to TNZ M/4 1995	
		Compaction test/ Records as per NZS 4402 and 2002	
		Stringing (Shape & Depth)	
	Test	Benkelman beam test and results as per TNZ T/01	Yes
		Record of Engineers inspection prior to sealing	
		Confirmation of asphaltic bitumen application rate	
	Footpath/Paving	Certified 20Mpa	
		Base Material Properties - Conforms to TNZ spec (see note 1)	
		Pavers conform to HDC	
	Sealing	Prior to sealing approved, ground sterilizing weed killer, rate of application and manufacturer's Spec.	Yes
		Chip Test - Results to meet TNZ M/6 (see note 1)	
		Spray Rate - Design/Results	
		Spay rig - Evidence of current E/2 Certificate	
	Asphalt	Mix Design/Compaction (see note 1)	
	Garden/Berms	Confirmation of Grass Seed Mix	
		Topsoil Depth Checks, (e.g. 400mm Gardens, 100mm berms)	
2.5	Roading Markings		
	Signs	Certification to TNZ Standards and Manual of "Traffic Signs and Marking" Part 1 & 2	
		Location Report	
		Marking as per NZ Fire Fighting COP 2008	
		Toby locations	
2.6	Street Lighting		
		Certification to TNZ Standards and Manual of "Traffic Signs and Marking" Part 1 & 2	
		Record of Design	
		Visual Inspection Report	
2.7	As-builts		
		Comply with HDC requirements	
2.8	Earthworks		
		Geotechnical Design Report -	
		General compliance with NZS 4431	
	Note (1)	Testing of all products shall be carried out by a certified Lab technician or Lab employee by way of the technician collecting a sample from the production site, or work site, and testing it in a certified Lab to ensure all specifications and requirements have been met to the relevant standards.	
	Abbreviations		
	COP	Code of Practice	
	TNZ	Transit NZ, New Zealand Transport Agency	
	NZS	New Zealand Standards	

Asset Schedule (4 sheets)

(To be completed for all Subdivision and Construction work prior to final certification)

Consent/Contract**Number** _____**Location** _____**Date** _____**Main Contractor** _____

	Asset Type	Unit	Quantity		Volume/ Size	Material/Make/Comments
	Stormwater					
	Manholes	Nos.			1050mm	
	Sump	Nos.				
	Soakpits	Nos.				
	Soakpits	Nos.				
	Rain gardens	Nos.				
	Pipes	m				
	Pipes	m				
	Culvert	Nos.				
	Culvert	Nos.				
	Open drains/swales	m				
	Retention Ponds/Reserves	Nos.				
	Sanitary Sewerage					Include items in ROW's
	Manholes	Nos.			1050mm	
	Manhole – Pressure Test	item				Results attached
	Manholes	Nos.				
	Pipes	m			150mm	
	Pipes	m				
	Pipes	m				
	Laterals	m			100mm	
	Laterals	m				
	Cleaning Eyes	Nos.			Std.	
	Lateral Access Chambers	Nos.				
	CCTV	item				Attached
	Water Supply					Private or Public
	Pipes	m				
	Pipes	m				
	Pipes	m				
	Laterals	m			20mm	
	Laterals	m				
	Pressure Test – Main &	item				Results attached

	Laterals					
	Disinfection Test	item				Laboratory certificate attached
	Water Meters	Nos.				Schedule of meter numbers attached
	Painted marks for meter readers	Nos.				
	Tobies	Nos.				
	Valves	Nos.				
	Valves	Nos.				
	Valves	Nos.				
	Hydrants	Nos.				
	Hydrants Markings/Reflectors	Nos.				
	Fire Fighting Water Tanks	Nos.				
	Roading					
	Stabilising	m2				
	Subsoil drainage	m				
	Subbase depth	mm				
	Basecourse depth	mm				Grading test attached
	Top course depth	mm				Grading test attached
	Sterilising Weed Killer	m2				
	Benkelman Beam Test	item				Approved results attached
	Sealing	m2				
	Spray rate	m2				Certification attached
	Chip size	item				
	Asphalt	m2				"Mix" details attached
	Kerb and Channel Standard	m				
	Kerb and Channel Mountable	m				
	Concrete nib edging	m				
	Footpath Right-hand side	m			100mm	
	Footpath Left-hand side	m			100mm	
	Pedestrian ramps	Nos.				
	Sealed Entranceways	Nos.				
	Concreted Entranceways	Nos.				
	Traffic control humps	Nos.				
	Traffic Islands	Nos.				
	Safety Signage	Nos.				
	Information Signage	Nos.				
	Street Names	Nos.				
	Road Markings	item				
	Street Lighting					
	Light Poles	Nos.				

	Other	Nos.				
	Approved Electrical plans	item				Attached
	Controls/Power Pedestal	Nos.				
	ICP Numbers	item				
	Power Account Reference	item				
	Pump Stations					
	Pump	Nos.				
	Pump	Nos.				
	Cabinet Type	Nos.				
	Cabinet Type	Nos.				
	Capacity of Storage	m3				
	Emergency Power Supply	item				
	ICP Numbers	item				
	Serial Numbers	item				
	Landscaping					
	Reserve Areas	m2				
	Berms	m2				
	Garden	Nos.				
	Trees	Nos.				
	Shrubs	Nos.				
	Treatments - bark tailings					
	Treatments					
	Fencing					
	Management Plans	item				Attached
	As-builts					
	Electronic dwg and pdf file	item				Sent via.
	Printed copy	item				Attached
	Origin of Level Datum used					
	Engineering Sign Off	item				Attached

This form (4 sheets) has been created to assist with assessing As-built and Quality Assurance documentation supplied to Council and must be completed for all work on Council or vested assets.

Kindly ensure all relevant documentation is attached and is referred to in the *comments* column

Particular attention should be paid to ensuring that the different sizes and material types of the assets

are clearly recorded. If there is insufficient space in the columns please use a separate sheet.

If you have any questions on completion of this form please contact the Development Engineer.

Note this form is not a substitute for As-built plans

Signed as true and correct (for principal contractor or applicant)

_____ date _____

As-builts entered into GIS and verified as correct

_____ date _____

Schedule Circulated

_____ date _____

Records Management Reference

Water Meter Schedule

Street	House Number if known	Lot Number	Water Meter Number	Flow restriction	Shared Toby Box
		1			
		2			
		3			
		4			
		5			
		6			
		7			
		8			
		9			
		10			
		11			
		12			
		13			
		14			
		15			
		16			
		17			
		18			
		19			
		20			
		21			
		22			
		23			
		24			
		25			

Tapping Band Type _____

Meter Manufacturer _____

Tapping Band Manufacturer _____

Meter Model _____

Signed as true and correct (for principal contractor or applicant)

_____ date _____

As-builts entered into GIS and assessed to be correct

_____ date _____

Minimum As-Built Requirements Check List (Sheet 1)		Reduced level at centre	Reduced level at top of Kerb	Reduced invert level "in" (upstream)	Reduced invert level "out" (downstream)	X & Y Co-ordinates at centre	X & Y Co-ordinates at Kerb	X & Y Co-ordinates at Main if not 90 degrees	X & Y Co-ordinates, 20m intervals at Centre	X & Y Co-ordinates around perimeter	Distance offset from Front Boundary	Distance offset from side Boundary	Distance offset from Other Infrastructure	Depth at Boundary	Depth At Main	Depth	Diameter (Internals please)	Material Specification	Size/Volume/Capacity	Width	Type	Effluent/Water Type	Manufacturer	Serial Number	Direction of Flow	Lime/Cement Stabilisation
		Required																								
✓	WATER SPECIFIC																									
	Water Mains							X									X	X	X			C	X			
	Water Laterals						X							X	X		X	X	X			C	X			
	Fire Hydrant					X							X				X					X	X			
	Water Valves (Direction of Closure)	X				X							X				X	X	X			X	X		X	
	Water Toby/Manifold Box					X					X	X						X				X				
	Water Meter or if Manifold only					X					X	X						X	X			X	X	X		
	Water RPZ and certified					X					X	X					X	X	X			X	X	X		
	Water Storage Tanks					X												X	X			X	X			
	Water Supply Points (Wells/Bores)					X										X			X			X				
	SEWER SPECIFIC																									
	Sewer Pipes			X	X			X									X	X	X	X			C	X		X
	Sewer Laterals						X							X	X		X	X					C	X		X
	Sewer Pipe Cleaning Eye/Lampholes	X				X												X	X			X				
	Sewer Lateral Cleaning Eye	X				X					X	X						X	X							
	Sewer Pressure Non Return Valve	X				X		X			X	X						X	X	X			A	X		X
	Sewer Valves (Direction of Closure)	X				X							X					X	X	X			X	X		X
	Sewer Backflow Preventer	X				X					X	X		X				X	X			X	X	X		X
	Sewer Lateral Access Chamber	X		X	X	X					X	X						X	X							
	STORMWATER SPECIFIC																									
	Stormwater Pipe			X	X			X									X	X	X	X				X		X
	Stormwater Leads			X	X		X	X					M		X			X	X	X				X		X
	Stormwater Inlets & Outlets (Culverts)			X	X	X	X						X					X	X	X			X			
	Open Drains and Stormwater Channels			X	X				X											X	X					X
	Sumps/Catch pits (Front/Back/Yard)	X	X	X	X		X					X						X	X				A			
	Soak Pits (lined or Unlined)	X				X							X				X		X	X			X			
	Soak Trenches/Gardens	X							X									X		X			X			
	Ponds/Storage Lakes			X	X				X								X			X						
	NON-SPECIFIC RETICULATION																									
	Manhole Chamber (MH)	X		X	X													X	X	X			X			
	Manhole Lid	X				X							X					X	X				X			
	Pipe End caps					X							X				X	X	X	X						
	Pipe Reducers (Change in Diameter)					X							X				X	X	X	X					X	
	Pipe Junctions & changes in direction					X							X				X	X	X	X			B		X	
	Pipe Air valves (Direction of Closure)	X				X							X				X	X	X	X			X			
	Pump Station Chambers	X		X	X	X							X				X	X	X	X			X	X		
	Pumps					X												X	X			X	X	X	X	
	Pumps ALL operating levels	X																								X
	Electrical/Control Boxes					X							X									X	X			
	Underground Ducting								X								X	X	X			X				
	Utility Buildings/Amenities									X												X				

Minimum As- Built Requirements Check List (Sheet 2)		Reduced level at centre	Reduced level at top of Kerb	Reduced invert level "in" (upstream)	Reduced invert level "out" (downstream)	X & Y Co-ordinates at centre	X & Y Co-ordinates at Kerb	X & Y Co-ordinates at Main if not 90 degrees	X & Y Co-ordinates, 20m intervals at Centre	X & Y Co-ordinates around perimeter	Distance offset from Front Boundary	Distance offset from side Boundary	Distance offset from Other Infrastructure	Depth at Boundary	Depth At Main	Depth	Diameter (Internals please)	Material Specification	Size/Volume/Capacity	Width	Type	Effluent/Water Type	Manufacturer	Serial Number	Direction of Flow	Lime/Cement Stabilisation
		Reduced level at centre	Reduced level at top of Kerb	Reduced invert level "in" (upstream)	Reduced invert level "out" (downstream)	X & Y Co-ordinates at centre	X & Y Co-ordinates at Kerb	X & Y Co-ordinates at Main if not 90 degrees	X & Y Co-ordinates, 20m intervals at Centre	X & Y Co-ordinates around perimeter	Distance offset from Front Boundary	Distance offset from side Boundary	Distance offset from Other Infrastructure	Depth at Boundary	Depth At Main	Depth	Diameter (Internals please)	Material Specification	Size/Volume/Capacity	Width	Type	Effluent/Water Type	Manufacturer	Serial Number	Direction of Flow	Lime/Cement Stabilisation
✓	ROADING																									
	Kerb at High and Low Points		X			X																				
	Kerbs		X			X									X		X				X				X	
	Kerbs -Change in direction		X			X																				
	Sub Base															X	X								X	
	Base Course														X	X						X			X	
	Seal								X								X	X	X	X						
	Road and changes in alignment							X											X							
	Road reserve																		X							
	Asphaltic Concrete															X	X	X	X	X		X				
	Road Signs					X						X									X	X				
	Road Marking							X										X			X					
	Boundary pegs																	X								
	Survey standards	X																								
	Foot Paths							X	X								X	X	X	X						
	Traffic Island					X	X			X						X	X	X	X	X						
	Street Lighting					X						X						X	X		X		X	X		
	Excavations/Fill deeper than 1m								X							X										
	Street Trees/Planting					X						X						X			X					
	Gardens/Green Areas									X								X	X	X						
	AMENDED INFRASTRUCTURE																									
	Pipe - Abandoned in situ			X	X				X								X	X	X			X				
	Pipe - Removed								X								X	X	X			X				
	Pipe - Scrapped in Ground								X								X	X	X			X				
	Pipe - Rehabilitated in Ground			X	X				X								X	X	X			X				
	Pipe - Change in direction					X									X	X	X	X							X	
	Pipe - Change in material					X									X	X	X	X								
	Pipe -Change in Construction Date					X									X	X	X	X								
	Infrastructure - Removed					X					X	X	X					X								
	Infrastructure - Change in Material					X					X	X	X					X								
	Infrastructure - Change in Date					X					X	X	X					X								
	Change in Level	X				X								X												

All drawings shall have
Title including Client and Consent Number
Drawing date
Amendment number and date
Discrete number

Notes

- A** Indicate whether Soak Pit Lid is Grated or Solid
- B** Indicate whether Junction is a Tee or Tapping
- C** For Water - Indicate whether the network is Potable or Non-Potable.
For Sewer - Indicate whether the network is for Raw, Treated/Grey waste, Pressurised system.
- M** From nearest "mains" manhole