Mā tō tātou takiwā

For our District

General Guidelines and Documents Required for s224(c) applications

Western Bay of Plenty District Council

Checklist:

☐ Asset Completion Report

☐ Certification Statement – Cert 1a
☐ Schedule of Asset Values – Cert 1c
☐ Checklist QA – Earthworks – Cert 1d
☐ Checklist QA –Transportation – Cert 1e
☐ Checklist QA – Water Services – Cert 1f

As Built Plan(s)

- ☐ Water Services (see AB1 – As Built Specification – Water Services)
- ☐ Transportation (see AB2 As Built Specification – Transportation)
- ☐ Roading Layout with Streetlights and Benchmarks (if applicable)
- ☐ Reserves (see AB3 – As Built Specification - Reserves)
- ☐ Final Contour
- ☐ Benchmarks (Cert 1h)

☐ Cert 4a – Transportation Construction Certification
☐ Cert 5a – Stormwater Construction Certification
☐ Cert 6a – Wastewater Construction Certification
☐ Cert 7a – Water Supply Construction Certification

☐ Geotechnical Completion Report
☐ Suitability of Land for Building – Cert 10c

Quality Assurance – Tranportation

- ☐ Post-construction Safety Audit
- ☐ Subgrade: Stringlines (-30mm, +0mm) and CBRs etc
- ☐ Pavement Layers:
  - Nuclear Densometer results
  - Benkelman Beam results
  - Grading/ Weathering/ Crushing/ Sand Equivalent
  - Stringlines

  Documents Supplied from Quarry (note: must be less than 3 months old)
  - Sealing Records: Chip (weather and crushing resistance)/Membrane/Asphalt (mix solution)

Quality Assurance – Stormwater

- ☐ CCTV – Report and Video Files (AVI Format)
- ☐ Inspection Sheet: Stormwater Manhole and Pipeline – IS 5.1
- ☐ Inspection Sheet: Sump – IS 5.2

Quality Assurance - Wastewater

☐ CCTV – Report and Video Files (AVI Format)
☐ Low Pressure Test (TCC's TS 6.1)
☐ Inspection Sheet: Wastewater Manhole and Pipeline – IS 6.1

Quality Assurance - Water Supply:

☐ Producer Statement – Appendix A1
☐ Disinfection Mixture – (TCC's TS 7.2)
☐ E-coli Lab Sheet

☐ PE Pressure Test – Option 1:
Constant Pressure Test Method for Visco-Elastic Pipes (TS 7.1b)

☐ PE Pressure Test Option 2:
Pressure Rebound Test Method for Visco-Elastic Pipes (TS 7.1c)

☐ Live Water Connection Applications Confirmation
☐ Inspection Sheet – Hydrant (IS 7.1)
☐ Inspection Sheet – Valve (IS 7.2)
☐ Inspection Sheet – Water Connection (IS 7.3)

☐ Streetlighting – Electrical Certificate(s)
☐ Streetlighting – 10 Year Warranty from Supplier
☐ Streetlighting – As Built (PowerCo etc.)

☐ Power – Subdivision Completion Certificate
☐ Telephone – Subdivision Completion Certificate(s)

☐ Street/ROW Names Approved – Email Confirmation
☐ Signs have been erected

s224(c) Certification Statement

Cert 1a – Section 224(c)
CERTIFICATION STATEMENT

Western Bay of Plenty District Council

"I hereby certify that the following works comply with the District Plan and the Development Code:

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Signed:.....

Dated:.....

OR

"As an independent professional I, or other personnel under my control, have carried out periodic reviews of the subdivision work appropriate as to the nature of the work. Based upon these reviews, on information supplied by independent professionals engaged in the work and by the contractor during the subdivisional works (optional: and the contractor's certification upon completion of the subdivisional works – copy attached), I hereby certify based on reasonable and appropriate enquiry, that the following subdivision works

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Comply with the conditions of this consent and that the development work required by the conditions of consent has been undertaken in accordance with the sound engineering design and construction practice and complies with the District Plan and the Development Code."

Signed:.....

Dated:.....

Schedule of Asset Value – Cert 1c

Please provide to Council filled out and as an excel file.

At the bottom of the spreadsheet, we have included areas which are to be vested in Council: roads, esplanade reserves, ponds etc. Please ensure you fill out this section and assign the lot number to the area.

Quality Assurance Checksheets

- Earthworks
- Transportation
- Water Services

Cert 1d – Quality Assurance Checksheet
EARTHWORKS

Western Bay of Plenty District Council

Date: .....

Consent Holder: .....

Resource Consent Number: .....

Development Name and Stage: .....

Site Address: .....

Design Engineer and Qualification(s): .....

Earth Filling (Compliance with NZS 4431 to be achieved)

Measures of compaction shall be achieved by one of the following:

No	Test Required	Undertaken by	Quantity	Requirements	Checked
1	**Earth Filling**				
(a)	Compacting Curve to determine maximum dry density & optimum moisture content	IANZ	1 curve/soil type	During earthworks	
	Soils shall be tested with a nuclear densometer	IANZ	Max 10% air voids for 10 tests compliance required but for more than 10 tests the average of 10 consecutive tests shall exceed the minimum 1 test/1000m^3	Min 95% MDD Average 10 tests	
(b)	For cohesive soils testing can be as per (a) above, or as follows: Undrained Shear Strength (Shear vane)	IANZ	<10,000m^3 1/750mm lift 1/800m^3 fill or <50,000 1/1.5m lift 1/4000m^3 Deep Fill	Av. 10 tests = 150 KPa min Min valve of 140 KPa Min 2 tests	
(c)	Maximum Air Voids	IANZ	Max 10% air voids for 10 tests compliance required but for more than 10 tests the average of 10 consecutive tests shall exceed the minimum 1 test/1000m^3		
(d)	Existing Ground	IANZ	1 test/lot	750 KPa	
(e)	Cut Area	IANZ	1 test/lot	100 KPa	
(f)	Certification of Geotech Report	IANZ			
No	**Test Required**	**Undertaken by**	**Quantity**	**Requirements**	**Checked**
2	**Subgrade**				
(a)	Design CBR	IANZ			
	- large projects, including heavy commercial,	IANZ	Design by CIRCLY	In situ CBR	

	Principles, Collector Arterial Roads				
	- medium projects - Road Lengths >100m	IANZ	CBR Method	Soaked CBR with calibrated Penetrometer	
	- small projects - Road Lengths <100m	IANZ	CBR Method	Scala Penetrometer	
(b)	CBR Testing Width				
	<4.0m	IANZ	15 metre centres	Wheel tracks	
	4.1 – 8.5m	IANZ	15 metre centres	Wheel tracks	
	>8.5m	IANZ	20-30 staggered for each line	Centreline and Wheel Tracks	
(c)	Tolerance	Contractor/ Surveyor string results	Every 20m	-30mm + 0mm at edge of formation and centreline 20mm for 3m straight edge, perpendicular or parallel to centreline	

Cert 1e – Quality Assurance Checksheet
TRANSPORTATION

Western Bay of Plenty District Council

Date: .....

Consent Holder: .....

Resource Consent Number: .....

Development Name and Stage: .....

Site Address: .....

Design Engineer and Qualification(s): .....

No	Test Required	Undertaken by	Quantity	Requirements	Checked
1	**Sub-base**				
(a)	Grading	IANZ	1/1000m^3	>100% passing 70mm sieve Stone size <60% Pavement depth >40% passing 19mm sieve >10% passing 725um	
(b)	Sand Equivalent	IANZ	1/1000m^3	>25	
(c)	Crushing Resistance	IANZ	1/1000m^3	Max 10% fines	
(d)	CBR	IANZ	1/1000m^3	80% min	
(e)	Compaction Curve	IANZ	1 test	Prior to pavement construction	
(f)	Compaction	IANZ	20m alternate lanes	>95 mean, >92 min of MDD	
(g)	Tolerances (string results)	Surveyor/ Contractor	Centreline and edge of seal at 20m intervals	-25mm + 5mm	
2	**Basecourse**				
(a)	Grading, TNZ or GAP40	IANZ	1/1000m^3 or road	Standard grading curves	
(b)	Compaction curve (OMC and MDD)	IANZ	1 test	Prior to pavement construction	
(c)	Compaction (nuclear densometer)	IANZ	20m alternate lanes	>98 mean, >95 min	
(d)	Crushing Resistance	IANZ	1/1000m^3 or road	<10%	
(e)	Sand Equivalent	IANZ	1/1000m^3 or road	Not less than 40 Not less than 25 (Minor roads)	
(f)	Tolerances				
	- straight edge	CPEng	Entire Road and Edge of Seal	10mm over 3m	
	- level (string)	CPEng		-5m + 15mm no K&C 5m + 5mm K&C, Asphalt -0mm + 10mm K&C, 2 coat	
(g)	Metal Tapers	Surveyor	All Roads	1:5 gradient and compaction	

(h)	Benkelman Beam Test (asphaltic concrete)	Operator	Centre of lane every 20m	As per Code	
3	**Edge Marker Posts**	CPEng	Entire Road	MOTSAM	
4	**Streetlights**	CPEng	All	Completed as per design and working	
5	**Street Planting**	CPEng	All	As per approved documents, root shrouds in	
6	**Concrete Work**	CPEng	All	General check for workmanship and as per design	
	Concrete Strength Dockets	xxx	xxx	xxx	xxx
7	**2 Coat (refer)**				
(a)	Bitumen (M1 & M3)	Operator	2 x 4L/Truck	M1 & M13	
(b)	Chip (M6)	IANZ	1 per 500m^3	85-89	
	- Cleanliness	IANZ	1 per 800m^3	M/6	
	- ALD/ALG	IANZ	Quarry every 6 months	10% fines	
	- Crushing - Weathering	IANZ	Quarry once every 2 years	AA or BA	
	- Polished Stone	IANZ	Quarry once very 2 years		
(c)	Tolerances	As per base course			
(d)	Spray Rate Design and Compliance	CPEng	Each Run	M/6	
8	**Asphaltic Concrete (compliance with TNZ M10)**				
(a)	Materials (TNZ M10)	IANZ		M/6	
(i)	Grading Envelope	IANZ		Curve Compliance	
(ii)	Effective Binder Content	IANZ		Refer to Spec	
(ii)	Minimum VMA %	IANZ		Refer to Spec	
(iv)	Stability	IANZ		Refer to Spec	
(v)	Air Voids	IANZ		Refer to Spec	
(vi)	Flow	IANZ		Refer to Spec	
(vii)	Coarse Aggregates	IANZ		Refer to Spec	
	- Weathering	IANZ		AA or BA	
	- Single Broken Faces	IANZ		98% min	
	- Two Broken Faces	IANZ		60% min	
	- Crushing Resistance	IANZ		200kN min 10%	
	- Polished Stone Value	IANZ		85% min by mass	
(viii)	Fine Aggregates	IANZ			
	- Crushing Resistance	IANZ		200kN	
	- Sand Equivalent	IANZ		35 minimum	
	- Clay Index (0/0075mm)	IANZ		3 maximum	
(b)	Laying	CPEng	Entire Road	P9	
	- Joints	CPEng	Entire Road	P9	

Cert 1f – Quality Assurance Checksheet
WATER SERVICES

Western Bay of Plenty District Council

Date: .....

Consent Holder: .....

Resource Consent Number: .....

Development Name and Stage: .....

Site Address: .....

Design Engineer and Qualification(s): .....

No	Test Required	Undertaken by	Quantity	Requirements	Checked
1	**Water Supply**				
(a)	Pressure Test	Consent Holder Representative	1 per new main	1400 KPa or 3 times working pressure for 15 minutes - leak maximum is 1 litre per 10mm or pipe dia/km of main	
(b)(i)	Marker Posts	Consent Holder Representative		Fire Hydrant & Valve Marker painted yellow & white respectively	
(b)(ii)	Fire Hydrant Pavement Marking	Consent Holder Representative		Triangle & Cats Eye	
(c)	General Check of Valve Bases	Consent Holder Representative		As per Spec	
(d)	Main Connection & Main as Live	Consent Holder Representative		Make sure line is live	
2	**Stormwater**				
(a)	Signed Consents	Subdivider/ Landowner		Consents required for each outlet	
(b)	Discharge Consents	BOPRC		Sign off in respect of Resource Consents	
(c)	Culverts	Consent Holder	All Pipes	Straight, correct cover	
(d)	General Inspection	Consent Holder	All Pipes	Launching, plasting	
(e)	As built	Consent Holder	Connections	Check As-builts against design & location of connections are pegged	

No	Test Required	Undertaken by	Quantity	Requirements	Checked
3	**Wastewater**				
(a)	General Inspection	Consent Holder	All pipes and manholes	Haunching in place, stepping irons, MH sealed	
(b)	As built	Consent Holder	Connections	Haunching in place, stepping irons, MH sealed	

As Built Plans

- Water Services
- Transportation
- Reserves
- Benchmark(s)

Cert 1h
BENCHMARK RECORD

Western Bay of Plenty District Council

Street Name: ..... Contact No: .....

Notes: 1. If benchmark is disturbed, please contact Western Bay of Plenty District Council
2. All coordinates to be in terms of NZGD 2000

Benchmark No	Easting	Northing	R.L.	Datum	Date	By

Construction Certifications

- Transportation
- Stormwater
- Wastewater
- Water Supply

Cert 4a – Transportation
CONSTRUCTION CERTIFICATE

Western Bay of Plenty District Council

Date: .....

Consent Holder: .....

Resource Consent Number: .....

Development Name and Stage: .....

Site Address: .....

Supervising Engineer and Qualification(s): .....

Contractor: .....

		Y	N/A	N	Date of Test/Insp/Comment
A	**Kerbing & Channelling**				
	Kerb & channel complete & free of defects				Concrete Strength:
	Kerb type as per engineering drawings approved by the Council.				
	Carriageway position as shown on approved engineering drawings.				
	Carriageway width checked & found to be as per approved engineering drawings				
	Kerb levels checked and found to be as per approved engineering drawings				
B	**Subgrade**				
	Subgrade inspected by Council prior to metalling				
	Subgrade compaction, strength stiffness and uniformity found to be as per documents approved by Council and as necessary for pavement design				
	Subgrade level and smoothness tolerances found to be as per documents approved by Council				
C	**Basecourse**				
	Basecourse supplied complies with documents approved by Council				
	Basecourse compacted to the standard given in the documents approved by Council				
	Basecourse depth checked @ 20m CRS max and found to be not less than that shown on the engineering drawings.				
D	**Sealing Surface**				
	Sealing surface inspected & approved by supervising engineer prior to sealing				
	Sealing surface true to line and free of bumps. Variation from a 5m straight edge is less than 10mm				
	Water will not pond on the sealing surface				
	Sealing surface swept clean of loose aggregate, dust and dirt prior to sealing				
	Sealing surface smooth & tightly bonded and presenting a clean stone mosaic free of a skin of fines				
	Sealing surface reasonably dry at time of sealing				
E	**Sealing/Asphaltic Concreting**				
	Sealing chips supplied comply with documents approved by Council				
	Sealing chips adherence to binder achieved				
	Bitumen cut back approved by supervising engineer				

	Application rate approved by supervising engineer				
	Chip rolled with pneumatic tyred rollers as per documents approved by Council				
	Second coat chip seal applied				
	Surplus chip removed				
	Asphaltic concrete applied in accordance with the documents approved by Council				
	Depth of Asphaltic concrete checked and found correct				
F	**Miscellaneous**				
	All shared accesses in accordance with Council's COP				
	Streetlight design approved by Council				
	Streetlighting completed as per approved design				
	Streetlights activated				
	All landscaping within road reserve as per plans approved by Council				
	Materials tested as required by approved specification				
	Footpaths completed				
	All pedestrian accessways constructed in accordance with Council's COP				
	Pedestrian accessways fenced				
	Berms topsoiled, grass established and mown once				
	Road marking completed as per documents approved by Council				
	Benchmarks placed in kerb @ 200m CRS max. from nearest benchmark				
	Traffic signs erected as per docs. approved by Council				
	Keep left arrows at each end of all islands				
	Street name signs erected as per documents approved by Council				

Comments:

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I confirm that the above works have been carried out under my control and that the information provided above is complete and correct.

Signed:..... (Certifying Engineer)

Name:..... Date:.....

CPEng Number:.....

Cert 5a – Stormwater
CONSTRUCTION CERTIFICATE

Western Bay of Plenty District Council

Date: .....

Consent Holder: .....

Resource Consent Number: .....

Development Name and Stage: .....

Site Address: .....

Supervising Engineer and Qualification(s): .....

Contractor: .....

		Y	N/A	N	Date of Test/Insp/Comment
A	**Lines & Laterals**				
	All pipe diameters and classes as per approved engineering drawings.				
	Lines laid in the position shown on approved engineering drawings.				
	All lines laid in accordance with manufacturer's instructions and relevant NZ Standards.				
	All pipe bedding as per drawings/ specific manufacturers' instructions. Design approved by Council				
	All lines and laterals true to line and grade				
	All lines free of faults, debris and obstructions				
	Each lot provided with a stormwater disposal option				
	End of all connections pegged				
	C.C.T.V. investigation complete, report provided to Council				
B	**Manholes**				
	All joints sealed as per manufacturers instructions				
	All manholes benched and haunched.				
	All safety steps installed				
	All lids painted blue				
C	**Sumps & Structures**				
	All sumps cleaned out at completion of roading				
	All inlet and outlet structures as per approved engineering drawings				

Comments:

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I confirm that the above works have been carried out under my control and that the information provided above is complete and correct.

Signed:..... (Certifying Engineer)

Name: ..... Date: .....

CPEng Number: .....

Cert 6a – Wastewater
CONSTRUCTION CERTIFICATE

Western Bay of Plenty District Council

Date: .....

Consent Holder: .....

Resource Consent Number: .....

Development Name and Stage: .....

Site Address: .....

Supervising Engineer and Qualification(s): .....

Contractor: .....

		Y	N/A	N	Date of Test/Insp/Comment
A	**Lines & Laterals**				
	All pipe diameter and classes as per approved engineering drawings				
	Lines laid in the position shown on approved engineering drawings				
	All lines laid in accordance with manufacturers' instructions and relevant NZ Standards				
	All pipe bedding as per drawings/ specific manufacturer's instructions. Design approved by Council				
	All trench backfill compacted to specified standard				
	All lines lamped in the presence of Council after backfilling and found to be satisfactory				
	All lines and laterals true to line and grade				
	All lines free of faults, debris and obstructions				
	All lines and laterals satisfactorily Low-Pressure Air Tested as per NZS 4452 – in the presence of the Council				
	No infiltration of water into lines visible				
	A sewer connection has been provided for each lot				
	Ends of all connections pegged				
	New subdivision reticulation system connected into Council's mains				
	C.C.T.V. investigation complete, report provided to Council				
B	**Manholes**				
	All joints sealed as per manufacturers instructions				
	No infiltration of water into lines visible				
	All haunching level with pipe soffits				
	Benching above soffit at a grade of 3:1 to make MH self cleansing				
	All safety steps installed				
	Manhole covers painted white				
C	**Rodding Eyes**				
	Rodding eyes identified at surface with approved box with letters RE on lid				

Comments:

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I confirm that the above works have been carried out under my control and that the information provided above is complete and correct.

Signed:..... (Certifying Engineer)

Name: ..... Date: .....

CPEng Number: .....

Cert 7a - Water Supply
CONSTRUCTION CERTIFICATE

Western Bay of Plenty District Council

Date: .....

Consent Holder: .....

Resource Consent Number: .....

Development Name and Stage: .....

Site Address: .....

Supervising Engineer and Qualification(s): .....

Contractor: .....

		Y	N/A	N	Date of Test/Insp/Comment
	Mains laid in the position shown on engineering drawings approved by Council				
	All pipework, valves and fittings inspected by Consent Holder Representative prior to backfill and found to be satisfactory				
	All pipe diameters and classes as per approved engineering drawings.				
	All pipe jointing and connecting systems as per council's Code and documents approved by Council				
	All pipes and fittings laid on a uniform fine bedding				
	All anchor blocks required are installed				
	500mm separation distance between watermains and other services has been achieved				
	Min cover to mains is 900mm in carriageway, 600mm in berms and footpaths and 350mm @ tobies				
	All trench backfill compacted to required standard				
	Fire hydrants provided as per approved engineering drawings.				
	All hydrant and valve boxes installed				
	All hydrant and valve boxes painted				
	After backfilling all mains and connections have been satisfactorily pressure tested to 1400kPa in the presence of the Council				
	Each lot provided with a water connection				
	Connections terminate with a backflow manifold and box, 300mm inside road reserve				
	Position of lines, connections, hydrants and valves recorded in as-built plan(s)				
	The new subdivision reticulation system connected to Council's mains.				

Comments:

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I confirm that the above works have been carried out under my control and that the information provided above is complete and correct.

Signed:..... (Certifying Engineer)

Name: ..... Date: .....

CPEng Number: .....

Geotechnical Completion Report

Cert 10c - Certification
SUITABILITY OF LAND FOR BUILDING

Western Bay of Plenty District Council

To: Western Bay of Plenty District Council

STATEMENT OF PROFESSIONAL OPINION AS TO THE GEOTECHNICAL SUITABILITY OF LAND FOR BUILDING

Development:.....

Owner:.....

Location:.....

I..... ..... of.....

(full name)

....

(name and address of firm)

Hereby confirm that:

1. I am a professional person, appropriately qualified and experienced in geotechnical engineering to ascertain the suitability of the land for building development.

2. An appropriate level of site investigation has been carried out under my direction and is described in my report dated: ....

3. In my professional opinion, not to be construed as a guarantee, I consider that:
   a. The areas shown in my report dated..... of each new allotment or on the development site are suitable for the erection thereon of the building types appropriate to the zoning of the land, provided that:

      ....

      ....
   b. The completed works give due regard to all land slope and foundation stability considerations.
   c. The earth fills shown on the attached Plan No..... have been placed in accordance with the Subdivision and the Council's Development Code.
   d. The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604: 2011 and related documents provided that:

      ....

      ....
   e. The original ground not affected by filling is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604: 2011 and related documents provided that:

      ....

      ....

4. This professional opinion is furnished to the Council and the owner for their purpose alone, on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection for any dwelling.

Signed:..... ..... Date:.....

Quality Assurance - Transportation

- Subgrade, Pavement Layers and Sealing *(Refer to Confirmation of Construction - Cert 4a and provide documents to show compliance)*
- Post Construction Safety Audit

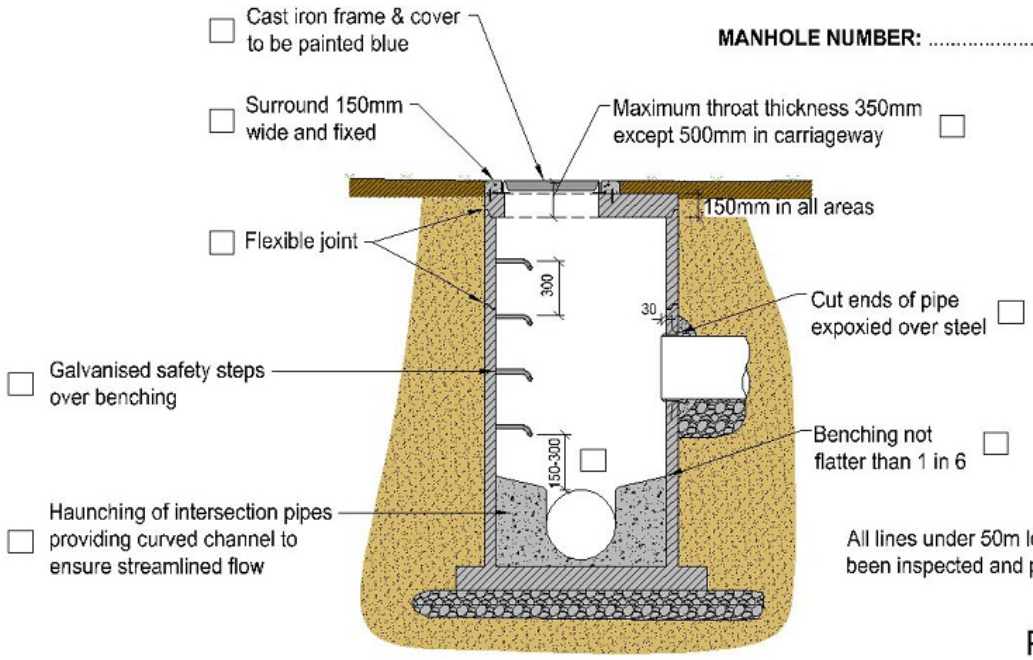
Quality Assurance - Stormwater

- CCTV Report
- Inspection Sheets IS 5.1 and 5.2

DATE: ..... RC NUMBER: .....

DEVELOPMENT NAME & STAGE: .....

MANHOLE NUMBER: .....



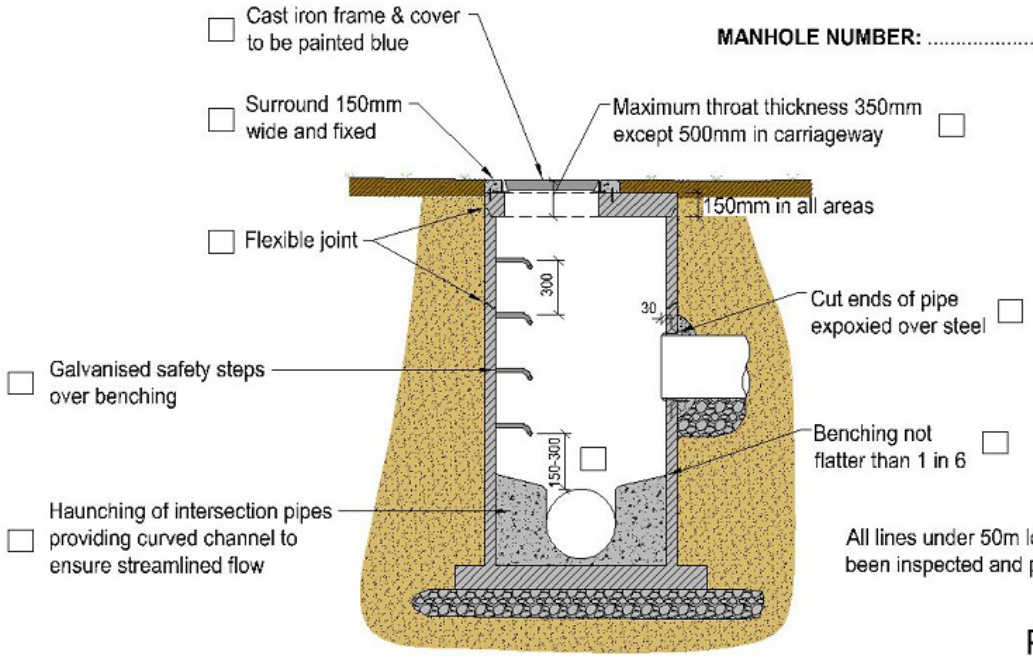
All lines under 50m long have been inspected and passed ☐

PASS ☐

COMMENTS: .....

.....

MANHOLE NUMBER: .....



All lines under 50m long have been inspected and passed ☐

PASS ☐

COMMENTS: .....

.....

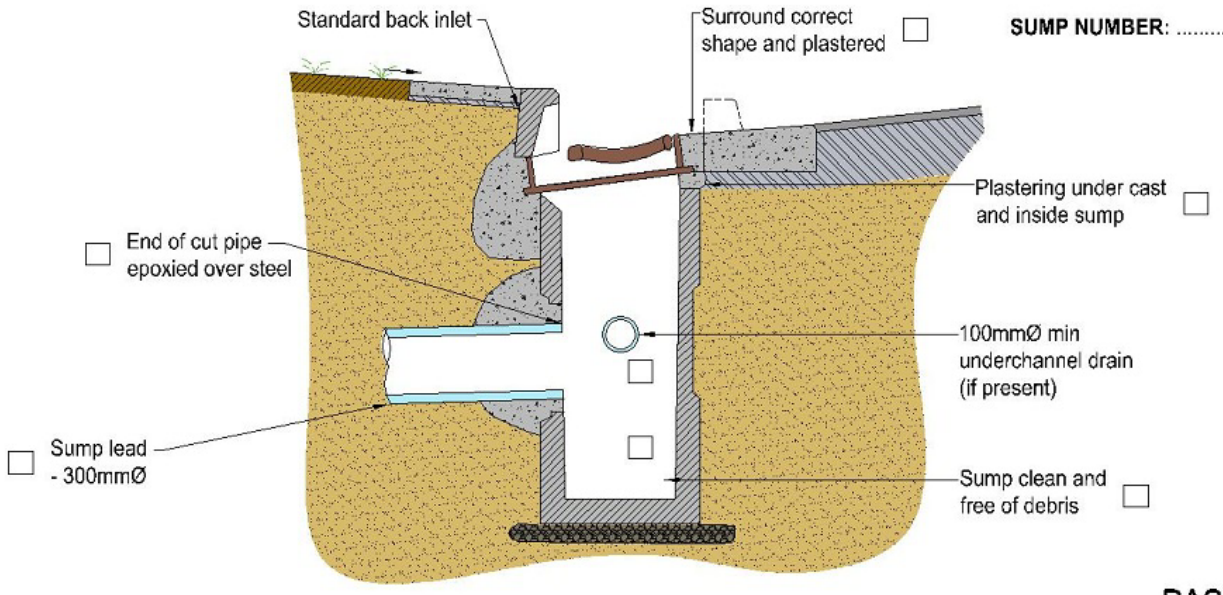
..... (CONTRACTOR) ..... (CERTIFYING ENGINEER)

..... (COUNCIL REPRESENTATIVE - WITNESS)

DATE: ..... **RC NUMBER:** .....

DEVELOPMENT NAME & STAGE: .....

SUMP NUMBER: .....



PASS ☐

COMMENTS: .....

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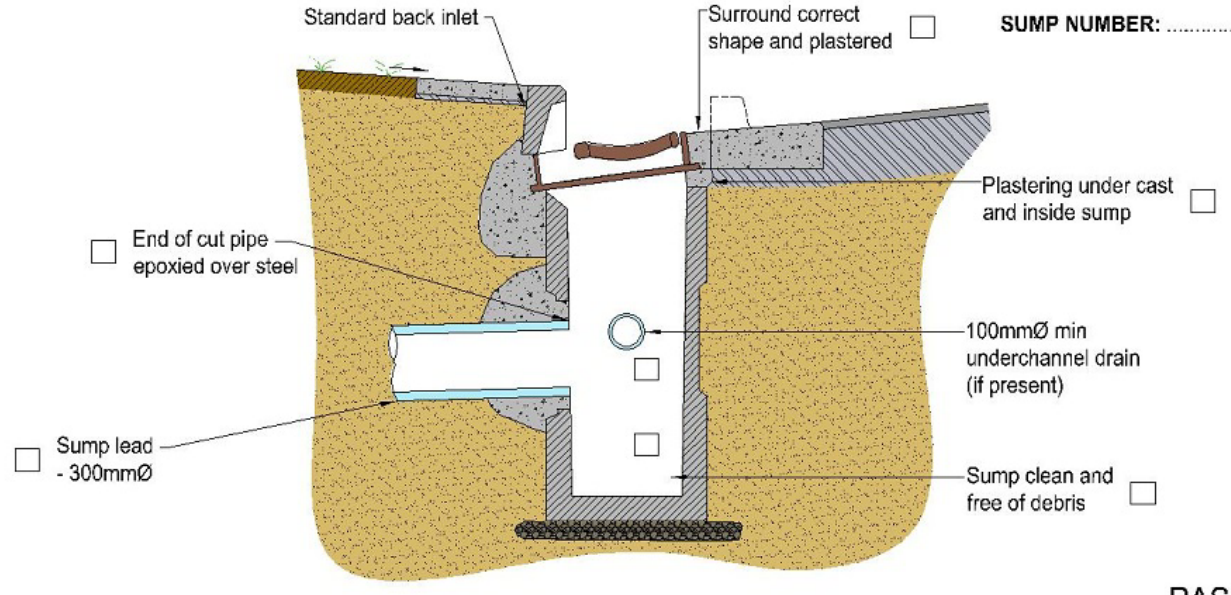

PASS ☐

COMMENTS: .....

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..... **(CONTRACTOR)**

..... **(CERTIFYING ENGINEER)**

..... **(COUNCIL REPRESENTATIVE - WITNESS)**

Quality Assurance - Wastewater

- CCTV Report
- Low Pressure Test (TS 6.1)
- Inspection Sheet (IS 6.1)
- Wastewater Rising Main Pressure Test (TS 6.3)
- Manhole Infiltration Test (TS 6.4)

Date:…….. RC Number:……

Development Name and Stage:……

Line ID	(P)ass/(F)ail after 15mins	Comments

……....(contractor) …….(certifying engineer)

……..……..(council representative – witness)

Waste water low pressure air test procedure

Testing Apparatus:

- Enough blank plugs for all non capped laterals and the open end of pipe to be tested.
- A test plug with sufficient length of clear hose to reach 1 meter above the manhole lid.
- A clear vessel containing 300mm depth of clean water.
- Spray bottle of soapy water.

Procedure:

1. Install blank plugs into all open ends of pipes to be tested.
2. Install test plug into the end of the main pipe and bring the hose to the top of the manhole.
3. Blow into the test pipe until there is sufficient pressure then put the end of the pipe into the bottom of the vessel.
4. Once the pressure has stabilised a bubble will sit at the base of the pipe.
5. If this bubble moves up the pipe there is a leak in the system, spray soapy water around the plugs to make sure there are no leaks.
6. If after fifteen minutes the bubble has not risen in the pipe then the test has passed.

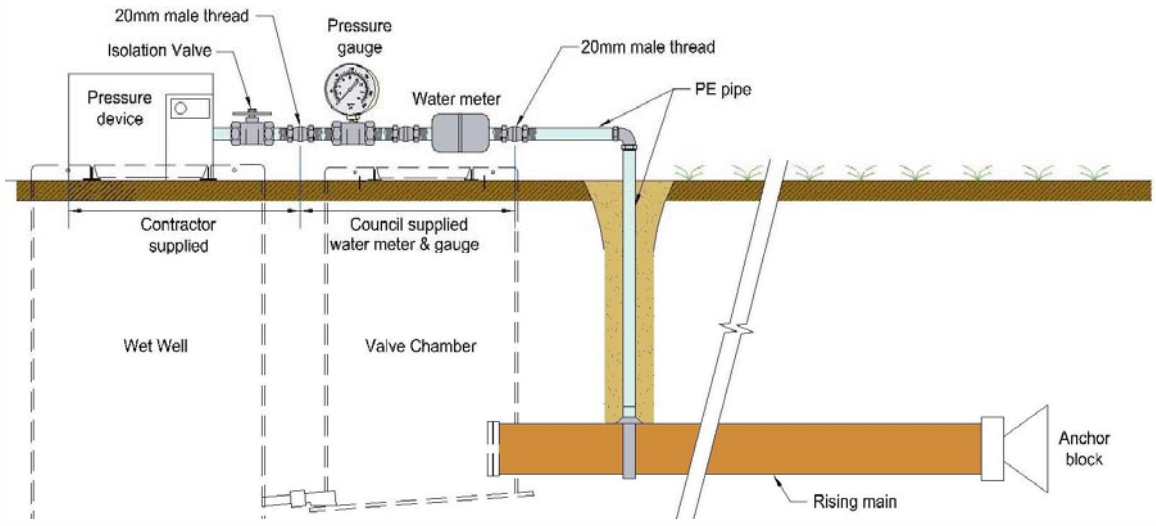
Date:…….. RC Number:…….

Development Name and Stage:…….

Line ID	Mins for pressure drop.	(P)ass/(F)ail	Comments

……....(contractor) ……(certifying engineer)

……..……..(council representative – witness)



Wastewater rising main pressure test

Testing Apparatus:

- A pipe, that can be connected to the main, with a pressure gauge capable of reading 1400KPa and a water meter. This should contain a valve to isolate the system and the pressure gauge from the water blaster (see example below).
- A water blaster capable of attaining 900 KPa.

Procedure:

1. The testing apparatus shall be connected to the lowest point of the reticulation system to be tested.
2. Open all valves and turn the water blaster on until the pressure on the gauge reaches 900KPa then shut the isolation valve and disconnect the water blaster.
3. Take a reading on the meter and write this down on the sheet with the time.
4. After period of 15 minutes turn the water blaster back on and open the isolation valve until the pressure reaches 900KPa again then shut the isolation valve.
5. Take another reading on the meter and write this down on the sheet with the time.
6. If the volume of water added after 15minutes is less than the calculated allowable loss, shown on the test sheet, then the test has passed. If the volume is more then there is a leak in the system.

The maximum allowable loss is defined as:

$$Loss_{(allowable)} \leq 1\ litre * \frac{pipe\ diameter\ [mm]}{10} * length\ [km] * duration\ [hr]$$

Example:

- Pipe diameter: 40.3 mm
- Pipe length: 680 m
- Test duration: 15 minutes

$$Loss_{(allowable)} \leq 1\ litre * \frac{40.3\ [mm]}{10} * 0.68\ [km] * 0.25\ [hr]\ = \mathbf{0.68}\ \frac{mm}{10}\ km\ hr$$

Date:…….. RC Number:…….

Development Name and Stage:…….

Manhole ID	Volume of makeup water	(P)ass/(F)ail	Comments

Comments:

…….....(contractor) ……(certifying engineer)

……..……..(council representative – witness)

Manhole Infiltration test procedure

Testing Apparatus:

- Enough high pressure blank plugs for all pipes into and out of the manhole to be tested.
- A means of inflating the test plugs, such as a compressor.
- Measuring vessel.

Procedure:

1. Install blank plugs into all pipes coming into the man hole.
2. Fill the manhole with water and mark the water level in the throat.
3. After 30mins measure how much water it takes to fill the manhole back up to the mark.
4. The allowable loss shall not exceed 1 litre per meter depth in a 1050mm manhole.

Quality Assurance – Water Supply

- Water Supply Producer Statement
- E-coli Testing (IANZ Accredited Lab Form)
- Disinfection Mixture (TS 7.2)

- Pressure Testing
  TS7.1b Constant Pressure Test Method for Visco-Elastic Pipes
  OR
  TS7.1c Pressure Rebound Test Method for Visco-Elastic Pipes

- Applications for each water meter where LIVE water connections are required.
- TCC's Inspection Sheets IS 7.1 – IS 7.3

Appendix A1
PRODUCER STATEMENT

Western Bay of Plenty District Council

WATER SERVICES

Items	Descriptions
RC / Contract No.	
Location of Work Street Address:	
Town / Area:	
Total length & size of Pipe / volume of Reservoir disinfected:	
Type of Pipe / Reservoir:	
Chlorine dose applied (FAC mg/l):	
Chlorine FAC mg/l (after Contact time):	
Date time start / finish & Contact Period (hrs):	
Chlorine Residual in main / reservoir after final flush (FAC mg/l):	
Chlorine Residual after de-chlorination (mg/l) discharged water:	
Date of De-chlorination / discharge:	
Bacteriological results:	Attached Results (must be original from IANZ Laboratory):
Principle /Client name:	
Address:	
Contact person:	
Contact phone:	
Contractor/ Company Name:	
Address:	
Engineer (CPEng) involved:	
Council Representative involved	
Contact phone:	
Comments:	

Name: .....

Signature: ..... **Date**: .....

Principal/Contractor Representative: .....

TS7.2 Disinfection Mixture

Date of Test:		Resource Consent / TCC Contract No.	
Development Name and Stage / TCC Contract Name			
Project/ Pipe Location			
Contractors Reps Name		Contractors Company	
Certifying Engineers Name		Engineers Company	
Council Witness Name		Council	

Guideline Tables

Chlorine Table to achieve 15mg/l

Pipe Diameter (mm)	Volume of water per 1m length of pipe (l)	Volume of 5% Sodium Hypochlorite (ml)	Volume of 12% Sodium Hypochlorite (ml)	Volume of 15% Sodium Hypochlorite (ml)
50	1.96	0.59	0.25	0.20
100	7.85	2.36	0.98	0.79
150	17.67	5.30	2.21	1.77
200	31.42	9.42	3.93	3.14
250	49.09	14.73	6.14	4.91
300	70.69	21.21	8.84	7.07
375	110.45	33.13	13.81	11.04
400	125.66	37.70	15.71	12.57

Chlorine Table to achieve 25mg/l

Pipe Diameter (mm)	Volume of water per 1m length of pipe (l)	Volume of 5% Sodium Hypochlorite (ml)	Volume of 12% Sodium Hypochlorite (ml)	Volume of 15% Sodium Hypochlorite (ml)
50	1.96	0.98	0.41	0.33
100	7.85	3.93	1.64	1.31
150	17.67	8.84	3.68	2.95
200	31.42	15.71	6.54	5.24
250	49.09	24.54	10.23	8.18
300	70.69	35.34	14.73	11.78
375	110.45	55.22	23.01	18.41
400	125.66	62.83	26.18	20.94

Pipe Disinfection - Inputs

Required Hypochlorite Dose Rate (mg/l) (ppm)		mg/l
% Hypochlorite (NaOCl) solution to be used		%
Pipe Size (Internal Diameter)		mm
Pipe Length		m

Pipe Disinfection - Calculations

Pipe Volume π x (Pipe Size (mm) / 2000)^2 x Length (m)		m^3
Amount of Hypochlorite needed - kg Pipe Volume (m3) x Dose Rate (mg/l) / (Hypo solution		kg
Amount of Hypochlorite needed - litres Hypochlorite (kg) / 1.2		**l**
Water per litre Hypochlorite needed Pipe Volume (m^3) / Hypochlorite (litres) x 1000		l

Test Certification

I certify that this test was undertaken to the requirements of the Infrastructure Development Code

..... *(Contractor's Representative)* ..... *(Certifying Engineer)*

I certify that I was in attendance during the testing procedure acting as a witness for Tauranga City Council

..... *(Council's Representative)*

TS7.1b Constant Pressure Test Method for Visco-Elastic Pipes

Date of Test		Resource Consent/ TCC Contract No		
Development Name and Stage/TCC Contract Name				
Project/ Pipe Location				
Contractor Rep's Name		Contractor's Company		
Certifying Engineer's Name		Engineer's Company		
Council Witness Name		Council		

Test Establishment Information				
Pipe Material/Type		Pressure Rating = PN (bar)		*Note: 1bar = 10m = 100 kPa*
Length of Pipe Tested = L (km)		Max. Test Pressure = 1.25xPNx100 = P (kPa)		
Pipe Nominal Diameter = D (m)		Ave. Test Pressure = H (m)		*Estimate or measure (to be supplied by the Engineer prior to test)*

Pre-Test Checks	**Yes / N/A (If N/A comment why)**	**Comment**
Ensure pre-test preparation acceptable and air purged from line		
Ensure test section isolated and adequately supported against thrust		
Apply test pressure , shut off, allow to settle over 12hrs		

Measured Volume of Make Up Water to Retain Test Pressure				
	Time	**Meter Reading (L)**	**Volume of Makeup Water (L)**	
Start				
Reading at Hour 2				
Reading at Hour 3				***(V1)*** *= Makeup volume hour 2-3 (L)*
Reading at Hour 4				
Reading at Hour 5				***(V2)*** *= Makeup volume hour 4-5 (L)*

Test Calculations				
Calculate Q (L/hr) Q=0.14*L*D*H		**Allowable Make Up Volume** (L/hr) 0.55*V1 + Q		***(d)***

Test Results			
Is V2 < Allowable makeup volume ***(d)*** ?		***(a) Y*** *= Yes /* ***N*** *= No*	To Pass (a) = Y
The thrust blocks are acceptably intact after test?		***(b)Y*** *= Thrust Blocks OK /* ***N*** *= Unacceptable*	To Pass (b) = Y
There are no visible leaks?		***(c) Y =*** *No Leaks /* ***N*** *= Leaks were detected*	To Pass (c) = Y
		Overall Test Result:	

Test Certification

I certify that this test was undertaken to the requirements of the Infrastructure Development Code

…….. *(Contractor's Representative)* …….. *(Certifying Engineer)*

I certify that I was in attendance during the testing procedure acting as a witness for Tauranga City Council

…….. *(Council's Representative)*

Notes

1. Before starting the test, all pre-test procedures outlined in IS-7.5 Pressure Testing checklist and NZS4404:2010 (Section C3.3) shall be completed.
2. Following the test measurement completion, all post test procedures outlined in IT-7.3.5 Post Test Procedure and NZS4404:2010 (Section C3.4) shall be completed.
3. Pressure logs shall be supplied to Council before full passing of test is recognised

TS7.1c Pressure Rebound Test Method for Visco-Elastic Pipes

Date of Test		Resource Consent/ TCC Contract No.	
Development Name and Stage/ TCC Contract Name			
Project/Pipe Location			
Contractor Rep's Name		Contractor's Company	
Certifying Engineer's Name		Engineer's Company	
Council Witness Name		Council	

Test Establishment Information

Pipe No.	Pipe Material/ Type	PN rating *Note: 1 bar = 10m = 100kPa*	Length of Pipe Tested = L (m)	Pipe Nominal Diameter = DN (m)	Pipe Internal Diameter = D (m)	Pipe Wall Thickness = e (m)	Min Pressure Rating for all Pipes = PN (bar)	Max. Test Pressure = 1.25xPNx100 = P (kPa)
1								
2								
3								
4								

Pre-Test Checks	**Yes / N/A (If N/A comment why)**	**Comment**
Ensure pre-test preparation acceptable and air purged from line		
Ensure test section isolated & adequately supported against thrust		

Preliminary Phase Information

Raise pressure to test pressure **(P)** in less than 10 minutes - confirm test pressure	Hold pressure at **(P)** for 30 minutes then cease pumping and allow to decay for 60 minutes	Reading of remaining pressure after 60 mins **(A)**	Calculate 70% of test pressure **(P)** **(B)**	**If value (A) > (B), continue. If value (A) < (B), test failed.**

Air Volume Assessment

Quickly (less than 5mins) reduce pressure by 10-15% of the standard test pressure (P), measure volume of water bled out.	Initial Meter Reading	Final Meter Reading	Volume of Water Bled (litres) **(ΔV)** **(Y)**	Target Pressure Drop (ΔP)(kPa)	Recorded Pressure drop (kPa) (ΔP)	Temperature	Bulk Modulus of Water E_w

Air Volume Assessment

Pipe No.	Pipe material modulus E_r	Calculate volume of water in pipe V=πx(D÷2)²xLx1 000 (litres)	ΔV (Max Allowable Bled) = 1.2 x V x ΔP x ((1÷ E_w) + ((D ÷ e) ÷ E_r)) (litres)	Sum ΔV (Max Allowable Bled) **(X)** (litres)	Decision If value **(X)** > **(Y)**, continue. If value **(X)** < **(Y)**, test failed.
1					
2					
3					
4					

MainTest phase

Pressure readings	Time	Pressure (kPa)
Pressure Rebound Start		
Pressure at peak		
Pressure after 30mins		
Pressure after 90 mins		

Test Results

				Overall Test Result:
Is "Main Test Phase" pressure rise acceptable i.e. gradual, levelling after about 30 minutes?		***(a) Y** = if the main test phase it a pass*	To Pass (a) = Y	
The thrust blocks are acceptably intact after test?		***(b)Y** = Thrust Blocks OK / **N** = Unacceptable*	To Pass (b) = Y	
There are no visible leaks?		***(c) Y** = No Leaks / **N** = Leaks were detected*	To Pass (c) = Y	

Test Certification

I certify that this test was undertaken to the requirements of the Infrastructure Development Code

…… *(Contractor's Representative)* …… *(Certifying Engineer)*

I certify that I was in attendance during the testing procedure acting as a witness for Tauranga City Council

…… *(Council's Representative)*

Notes

1. Before starting the test, all pre-test procedures outlined in IS-7.5 Pressure Testing checklist and NZS4404:2010 (Section C3.3) shall be completed.
2. Following the test measurement completion, all post test procedures outlined in IT-7.3.5 Post Test Procedure and NZS4404:2010 (Section C3.4) shall be completed.
3. Pressure logs shall be supplied to Council before full passing of test is recognised

1. Before starting the test, all pre-test procedures outlined in IS-7.5 Pressure Testing checklist and NZS4404:2010 (Section C3.3) shall be completed.
2. Following the test measurement completion, all post test procedures outlined in IT-7.3.5 Post Test Procedure and NZS4404:2010 (Section C3.4) shall be completed.
3. Pressure logs shall be supplied to Council before full passing of test is recognised.

Western Bay of Plenty District Council

WATER Connection Application and Acceptance

Site/Location Details:

Address:	Town:
Legal Description:	Lot Size (ha):
Val Ref:	Parcel No.:

Details of Owner:		Details of Applicant (if different from owner):	
Name:		Name:	
Postal Address:		Postal Address:	
Email:	Phone:	Email:	Phone:

New Metered ☐ Disconnection ☐ Relocation ☐

Proposed Use:

Domestic Building: Urban Zones ☐ Horticulture-Agriculture ☐ Commercial/Industrial-New Building ☐

Domestic Building: Rural, Lifestyle and Rural-Residential zones (NOTE: Restricted supply—tank system be in installed) ☐

Other: ☐ .....

Conditions:

Condition 1—Approved Contractor:
You must nominate one of the Approved Contractors listed below and make your own arrangements for them to carry out the "Installation Requirement". These contractors know the methods and materials required by Western Bay of Plenty District Council and it is a condition of this consent that they do the work to Council's specified standards. Upon completion of the work, the nominated contractor is required to sign the declaration and return this along with the As-Built information required overleaf. **Payment to the contractor of choice is in addition to the fees noted below.**

☐	1.	Downer	58 Taurikura Drive, Tauriko, Tauranga, 3110	028 7643 7109
☐	2.	Chappy Te Moni	218 Manoeka Road, RD3, Te Puke 3183	027 355 5137
☐	3.	Bay Ground Control Ltd	60A Enterprise Drive, Papamoa 3118	07 572 2242
☐	4.	Loveridge Ltd	PO Box 14433, Tauranga 3143	07 577 6348

Other Conditions: .....

Signed by or on behalf of the owner:

☐ I request connection to Council's water mains at the above address and agree to the above conditions.

☐ I agree to the Terms and Conditions of Supply and terms of Western Bay of Plenty District Council's Water Supply System Bylaw 2020

Signed: ..... Date: .....

Name: .....

Note: Please place a tick in both boxes in order for your application to be processed

Connection details—To be completed by Council and Contractor

New Installation Requirements:

Connection: Yes ☐ Diameter:

Meter: Yes ✓ Description:

Manifold Backflow: Yes ✓ Description:

Tank System: Yes ☐ (Required for new connections in Rural, Lifestyle and Rural-Residential zones)

Other Backflow Device: Yes ☐ No ☐ Description/Class:

Contractor: ..... Date connected: .....

Receipted by: (WBOPDC office Use Only)

Administration Fee **$1**82 **PLUS** part year UAC TOTAL FEE Receipt No.

CSR Name: ..... Signature: ..... Date sent to Rates Div.: .....

Utilities Operations: (please date as completed)

Approved Signature: ..... Advise Customer (if not approved) / / Send form to nominated Contractor / /

As-Built Information—To be completed by Contractor

Meter: **Meter serial No.:** **Meter size:**

Meter type & unit: Domestic (M) Domestic (I) Commercial (M) Commercial (I) Other

Date installed: / / Meter reading:

Backflow Type:	Air Gap		RPZ		Double check		Detector check	
Backflow Serial Number:		Watts		RMC		Acuflow		

Location Description: (i.e. 30m from southern boundary, inside orchard shelter, 1m LHS driveway)

Sketch of location (show road and property boundaries and connection location with dimensions)

Installation (approved contractor)

I, ... of ..... (company)

Certify that the above connection was made to the standards required by WBOPDC (Code of Practice for Development) and that the As-Built information supplied is complete.

Signed: ..... IQP No. ..... Date: .....

Return Form to: Rates Team, Western Bay of Plenty District Council, Private Bag 12803, Tauranga Mail Centre, Tauranga 3143
Or email to: water@westernbay.govt.nz

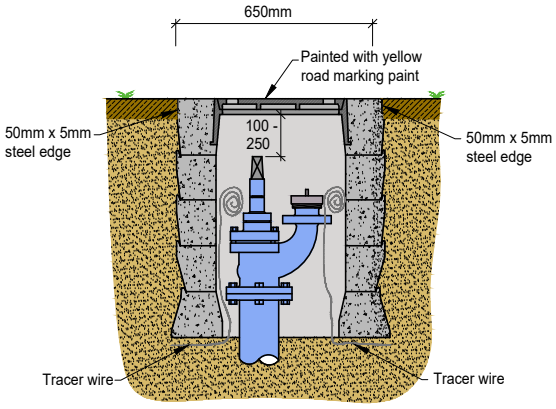
WBOPDC OFFICE USE ONLY:		Date:	Signature:
1. Finance Department	Rates, Billing and Meter Data Recorded		
2. GIS Department	As-Built Data		
3. Information Services	Property File		

The personal information on this form will be used by Council specifically for the purpose of processing and identifying the application. This form will then be laced within the property file, which is accessible to the public.

DATE: ..... **RC NUMBER:** .....

DEVELOPMENT NAME & STAGE: .....

Hydrant Number	(P)ass / (F)ail	Comments if Fail



Check for:

- Spindle height
- Alignment
- Accessibility
- Cap
- Orientation
- Risers
- Paint marking
- Kerb marking
- Cats eyes
- Flush with ground level

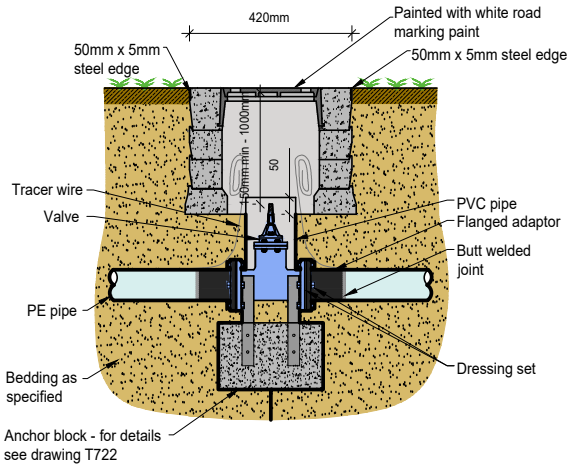
..... **(CONTRACTOR)** ..... **(CERTIFYING ENGINEER)**

..... **(COUNCIL REPRESENTATIVE - WITNESS)**

DATE: ..... **RC NUMBER:** .....

DEVELOPMENT NAME & STAGE: .....

Valve Number	(P)ass / (F)ail	Comments if Fail



Check for:

- Valve box orientated correctly
- Tracer wire accessible and not tangled on spindle (if required)
- Baseblock not sitting on riser pipe
- Lid and surround painted white
- Spindle is accessible (free from debris and not against riser pipe)
- Kerb marking
- Flush with ground level

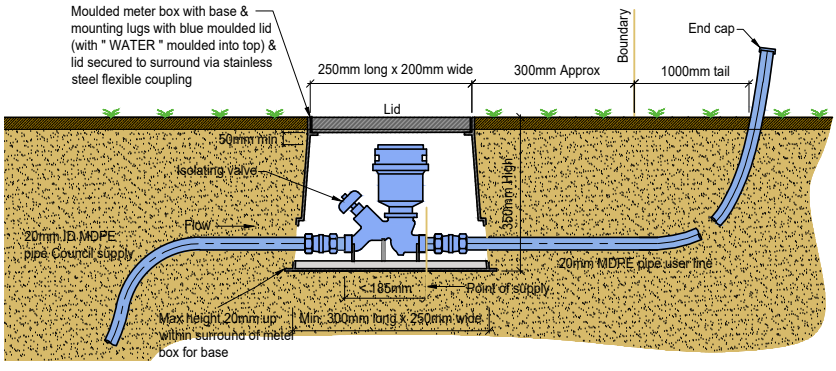
..... **(CONTRACTOR)** ..... **(CERTIFYING ENGINEER)**

..... **(COUNCIL REPRESENTATIVE - WITNESS)**

DATE: ..... **RC NUMBER:** .....

DEVELOPMENT NAME & STAGE: .....

Lot Number	(P)ass / (F)ail	Comments if Fail



Check for:

- Lid is flush with the surrounding ground
- Not in a depression
- Manifold is clipped into the base
- The inside of the box is free from dirt and debris
- Meter number is correct and services the correct lot

..... **(CONTRACTOR)** ..... **(CERTIFYING ENGINEER)**

..... **(COUNCIL REPRESENTATIVE - WITNESS)**

Streetlighting

- Electrical Certificate from Supplier (one for each light)
- 10-Year Supplier Warranty
- As Built (PowerCo etc.)

Power/ Telecom

- PowerCo Completion Certificate
- Telecom Completion Certificate

Street/ RoW Names

- Written Approval of Street and/or RoW names.