

Unitywater Connection Application/OPW No:		SP Plan:		
Development Name / Street Name:			Total Number of Lots:	Stage:
Construction Certifier Name:		Phone No:		
Pre-Start Meeting Date:	Construction Commencement Date:			

### Water Supply Construction Inspection:

Inspe	ected	Valves		
Yes	No Date			
		Valve spindles are fixed to valves, by tugging on the spindles.		
		Valve spindles are at the correct height of 75mm to 225mm from valve box lid and centrally located in box.		
		Valve box lids are to trafficable or non-trafficable and have been painted white and with the correct paint.		
		Valve box is level with the Finished Surface Level (FSL) preventing trip hazards.		
		Valve boxes are aligned with the Water mains.		
		Valve (V) Brass kerb markers have been installed on the kerb with a white arrow.		
		Thrust blocks have been installed.		
		Stainless steel strapping of the valve to the thrust block.		
		Water Reticulation - (valves) Compliant: Yes	No	
		Rectified Ye	es	No
1	Identified Defe	ct [		
	Action/Respons	se		
2	Identified Defe	ct		
	Response			
3	Identified Defe	ct [		
	Response			
Inspe		<u>Hydrants</u>		
Yes	No Date			
	<u> </u>	Hydrants are at the correct height of 75mm to 225mm from hydrant box lid and centrally located to box opening.		
		Hydrants have been cleaned out properly and the blue marker tape is visible.		
		Hydrant box lid is painted yellow with the specified paint.		
		Hydrant box is level with the Finished Surface Level (FSL) preventing trip hazards.		
	□	Hydrant boxes are aligned with the Water mains.		
		Hydrant (HP) Brass kerb markers have been installed on the kerb in the centre of the yellow painted square.		
		Blue reflector road markers have been installed correctly, just off the centre of the road and in line with the hydrant and br marker.	rass ke	rb
		Hydrant risers are DN 100 risers.		
		Hydrants are positioned $\leq$ 80m apart from each other.		
		All end of the water lines or connection points are installed with a Ducks Foot hydrant.		
		Thrust blocks have been installed.		
		Stainless steel stranning of the hydrant to the thrust block		

Stainless steel strapping	of the	hydrant to	the	thrust	block.

Water Reticulation - (Hydrants) Compliant:

	1	Identified Defect		
ļ		Action/Response	 	
	2	Identified Defect		
ļ		Response	 	
	3	Identified Defect		
		Response		

Yes

No



Inspe	octed		1	Nater Meters					
			7	water weters					
Yes	No Date								
	L	-	ater meter boxes have been installed 300mm and 500mmm of property boundary.						
	<u> </u>	Wat	er meter boxes are level with the Finished	Surface Level (FSL) prevention	ng trip hazards.				
	<u> </u>	Wat	er meter box lids are trafficable or non-tra	fficable and they are attache	ed to the box with either a c	chain or	cable.		
		Geo	fab material has been placed below the w	ater meter box.					
		Wat	er meters are Unitywater meters, date of	manufacture and size of the	meter and positioned horiz	ontally	in the bo	х.	
		Wat	er meters have been fitted with a lockable	e brass ball valve.					
		Prop	perty connections are at least 600mm into	the property.					
		Each	n water meter valve (when opened) allows	water to pass through to en	sure that the connection is	success	sful.		
				Water Reticulation - (Wa	ater Meters) Compliant:	Yes			No 🗌
1	Identified Defect						Rectified	Yes	No
1									
	Action/Response								
2	Identified Defect								
	Response								
3	Identified Defect								
	Response								
Pipe	Туре:		Wate	er Main Construction					
Mini	num Depths:		Location	Pipe <=150NB (mm)	Pipe >=200NB (mm	~			
				,		''			
			Non-roadways /Sealed Roads	600	1000				
Inspe	ected		Major Roads/embankment	750	1000				
Yes	No Date		Highway	1200	1200				
		All w	vater mains have been laid to the depths s	tated in the SEQ Code.					
		All w	vater mains are fusion powder coated.						
		All b	eddings have been inspected and are com	ipliant.					
		All b	ackfill and associated compaction have be	en inspected and are compli	ant.				
		Wat	er main alignments.						
		Dete	ectable blue marker tape.						
		- Thru	ist blocks.						
		No b	ends or curves of oPVC pipes.						
		-	thene sleeving of DICL pipes and fittings as	s per manufactures specificat	ions.				
Defle	ctions:	,		·					
		Max	imum 1° deflection out of a RRJ oPVC spig	ot joint or 105mm over 6 me	etre,				
		max	imum 5° deflection out of DICL fittings or 5	502mm over 6 metre,					
		Unit	ywater prefer the use of DICL RRJ Connect	tors when there is a requirem	nent to deflect pipes within	joints,			
	□	Defl	ection out of RRJ oPVC spigot joints requir	es an approved certified des	ign, detailing lengths and of	ffset,			
		Dista	ance Pipes deflected without this approve	ed certified design will be req	uired to be removed from t	the tren	ich,		
		- Wat	er mains (future extensions) are construct	ed and terminated in accord	ance of SEQ-WAT-1303-1.				
		-			nstruction Compliant:	Yes		١	۰ ۵
1	Identified Defect						Rectified	Yes	No
1	Action/Response								
2	Identified Defect								
2	Response								
3	Identified Defect								
	Response								



Inspected			Water Services
Yes	No	Date	
			Water services pipes have been installed in accordance with SEQ-WAT-1108-1 to 3.
			Water services pipework's are PE100 PN16 polyethylene pipe with blue stripe in accordance with AS/NZS 4130.
			Water services ≤ 20 m long are DN25 pe 100 pn 16 pipe with blue stripe.
			Water services .20 n long are DN25 pe 100 pn 16 pipe with blue stripe.
			_ Any pipework showing signs of kinking or strain from over bending will be rejected.
			All connections to polyethylene pipe to be approved brass or plastic mechanical fittings.
			PE100 pipe shall be laid with 100 mm minimum surround of sand or approved granular material.
			PE100 pipe must be continuous without joints. No joints permitted between the ready tap/tapping saddles and water meters.
Com	ments:		
			Water Reticulation - (Water Meters)   Compliant:   Yes   No
			Rectified Yes No

1	Identified Defect		
	Action/Response		
2	Identified Defect		
	Response		
3	Identified Defect		
	Response		

Inspe	ected		Water Pressure Release Valve					
Yes	No	Date						
			Check that the pressure release valve pit is installed level with the FSL preventing a trip	hazard.				
			Check that the pressure release valve is centrally located in pit.					
			Check that the lid has been fitted to the pit, are they to be trafficable or non-trafficable					
			Check that the height of the pressure release valve is between 75mm and 225mm from	the lid.				
Com	ments:							
			Water Reticulation – (Water Pressure Release Valve)	Compliant:	Yes		N	⊃ □
						Rectified	Yes	No
1	Identifi	ied Defect						
	Action	/Response						
2	Identifi	ied Defect						

3

Response



Rectified Yes

No

## **Sewerage Construction Inspection:**

Inspected			Poo Pits / Maintenance Shafts				
Yes	No	Date					
			Poo pit lids are 600mm Ductile iron class (D) LID.				
			Poo pit lids are installed level with the Finished Surface Level (FSL) preventing trip hazards.				
			Poo pits have been flushed out and free of any silt material and rubbish.				
			Gravel surrounding the riser shaft is of compacted water resistant material and is not lower that 80mm from the lid.				
			Poo pit riser shaft heights are between 100mm and 250mm of the Finished Surface Level (FSL) lid.				
			Bung rubbers have been fitted to the riser shaft lids.				
			Pink marker tapes are visible.				
			Maintenance shaft risers are minimum Ø300mm.				
			All maintenance shaft connection pipes, couplings, flat top taper etc, shall be Plain Wall uPVC, rubber ringed and fibreglass reinforced.				
Com	ments	:					
			Sewer Reticulation - (Poo Pits / Maintenance Shafts) Compliant: Yes No				

1	Identified Defect		
	Action/Response		
2	Identified Defect		
	Response		
3	Identified Defect		
	Response	 	

Inspe	ected		Sewer Mains
Yes	No	Date	
			Minimum cover of sewer mains $\geq$ 600mm.
			All beddings have been inspected and are compliant.
			All backfill and associated compaction have been inspected and are compliant.
			The invert of all ends of all sewer lines and house connection are to be marked by single length, 2m long, Ø40mm, orange, PVC conduit in accordance with SEQ-SEW-1106-2 to 5.
			All SEQW Service Providers accept only Plain Wall uPVC for non-pressure sewerage system. Other type of uPVC such as foam core sandwich and solid core sandwich are not accepted.
			Bung rubbers have been fitted to the riser shaft lids.
			Ensure all fittings such as long radius bends, moulded oblique junctions, bends, inspection I.O junctions, shorts, sanded shorts, and maintenance shaft connections have been constructed from Plain Wall uPVC.
			Detectable cream marker tape "SEWER" shall be provided either above the embedment zone of the sewer main or 1m below the F.S.L., whichever is closer to the F.S.L.
Com	ments:		
			Sewer Reticulation – (Sewer Mains) Compliant: Yes 🗌 No 🗌
			Rectified Yes No
1	Iden	tified Defect	

	Action/Response		
2	Identified Defect		
	Response		
3	Identified Defect		
	Response	 	



Inspected			House Connections					
Yes	No	Date						
			Offset: Minimum 0.5m into property and minimum 1m off sewer line.					
			Depths: Minimum 0.6m and maximum 1.5 deep unless approved.					
		All uPVC house connection branch fittings such as moulded oblique junctions, bends, inspection I.O. junctions, shorts, sanded shorts, maintenance shaft connections shall be Plain Wall uPVC, rubber ringed and fibreglass reinforced in accordance with SEQ-SEW-1 104-1						
Com	ments:							
			Sewer Reticulation – (House Connections) Compliant: Yes No					

		R	ectified	Yes	No
1	Identified Defect				
	Action/Response				
2	Identified Defect				
	Response				
3	Identified Defect				
	Response				

Inspe	cted	Sewer Man Holes								
Yes	No Date									
	□	Sewer M/H lids are installed level with the Finished Surface Level (FSL) preventing trip hazards in pathways and 80mm to 100mm above Finished Surface Level (FSL) within the lots								
		_ Sewer M/H's are clean and all benching have been constructed properly								
		_ Interior joints have NOT been bagged.								
		Check that there are no leaks at the joint sections inside the M/H.								
		- Sewer M/H's have been centrally positioned over the sewer main.								
		- The lids fitted to the sewer M/N's are sewerage lids.								
		The neck of the sewer M/H's are not deeper than 350mm with an extension, normally 100mm deep.								
		Every property has a 40mm orange conduit house connection installed starting at the invert level.								
	<u>Note:</u> P	<ul> <li>re cast manholes are not acceptable in the following cases;</li> <li>NUSEWERS (PE) systems</li> <li>Deeper sewer systems greater than 6m</li> <li>In areas subject to Q100 flooding</li> <li>In areas where there is a risk of surcharge</li> <li>In water charged ground</li> <li>In conjunction with bolt down lids</li> <li>In sulphide control sewer maintenance hole (e.g. rising main receiving manhole) in areas with unsuitable soil conditions</li> </ul>								
	□	Apply a 150mm wide external bitumastic seal tape (DENZO) over a coat of manufacturer's recommended prime seal to all external joints in accordance with SEQ-SEW-1300-1								
Comr	nents:									
		Sewer Reticulation – <b>(Sewer Man Holes)</b> Compliant: Yes No								
1	Identified Defect	Rectified Yes No								
	Action/Response									
2	Identified Defect									
	Response									

Identified Defect Response

3



#### Note:

The following additional items are not complaint and must be rectified.

Upon rectification of non-compliant items, please re-inspect and complete details of inspection and complaint date.

		Yes	Date
1	Identified Defect		
	Action/Response		
2	Identified Defect		
	Response		
3	Identified Defect		
	Response		
4	Identified Defect		
	Response		
5	Identified Defect		
	Response		
6	Identified Defect		
	Response		
7	Identified Defect		
	Response		
8	Identified Defect		
	Response		

#### **Testing:**

The Registered Construction Certifier must inspect all testing undertaken during and after the construction to ensure they comply with the SEQ Code requirement.

### Trench Backfill Compaction Testing:

(Water Supply (225mm and greater) and Sewerage)

		Com	pliant	
Item	Testing	Yes	No	Date
Trafficable Area (one test for each 300mm layer of fill above bedding layer)	<ol> <li>300 sq.m of trench backfill area or part thereof for water mains; and or</li> <li>50 lineal metres for sewer mains</li> </ol>			
Non-Trafficable Areas (one test for each 900mm layer of fill for each)	<ol> <li>1200 sq.m of trench backfill area or part thereof for water mains; and or</li> <li>100 lineal metres for sewer mains</li> </ol>			
Man Holes	Conduct one test within each 1m layer depth within 300 mm of each manhole			



## Vacuum Testing (Sewer):

## Manholes (Water drop testing is not acceptable) Apply –34 kPa and record time to drop to –30 kPa.

Depth	Time	Compliant		_
(mm)	(seconds)	Yes	<u>No</u>	Date
0 – 2.4m	17			
2.4 – 3.0m	21			
3.0 – 3.7m	25			
3.7 – 4.3m	30			
4.3 – 4.5m	34			
4.5 – 5.5m	38			
5.5 – 6.1m	42			

#### Sewer pipe (Pressure testing is not acceptable):

Apply -27 kPa for 3minutes and allow to stabilise. Once stabilised establish -23.6kpa and record time and drop (not greater than 7kpa).

	Minimum time to record vacuum drop:									
Diameter	Length							Compliant		
(mm)	50 m	100 m	150 m	200 m	250 m	300 m	Yes	No	Date	
100	2 min.	2 min.	2 min.	2 min.	3 min.	3 min				
150	3 min.	3 min.	3 min.	5 min.	6 min	6 min				
225	4 min.	5 min.	8 min.	10 min.	13 min.	15 min				
300	6 min.	9 min.	14 min.	18 min.	23 min.	29 min				

### Minimum time to record vecuum dreps

\* Timing in table above shall not commence until after initial 3min stabilising period is completed.

## **Deflection (Ovality) Testing (Sewer):**

Review ovality test report and confirm it complies with the SEQ Code requirements.

### **Pressure Testing (Water):**

Shall be done after water services are connected and electrical conduits installed.

- All dead ends lines are to be tested. This may require temporary hydrants or tapping bands. 1. Temporary tapping bands to be cut off when connection to live main occurs.
- Preliminary pressurise the mains to 75% of the test pressure for a minimum of twelve (12) hours. 2.
- Apply test pressure (1200kPa) at the highest point of the water main for four (4) hours. 3.
- Ideally there should be no pressure loss after four (4) hours or alternatively as per below 4.

volume of makeup water after a 5 nour test is to be not more than.									
Diameter			Length			Comp	oliant	Data	
(mm)	50 m.	100 m.	200 m.	300 m.	400 m.	Yes	No	Date	
100	0.27 L	0.55 L	1.09 L	1.64 L	2.18 L				
150	0.41 L	0.82 L	1.64 L	2.46 L	3.28 L				
200	0.55 L	1.09 L	2.18 L	3.28 L	4.37 L				
250	0.68 L	1.36 L	2.73 L	4.10 L	5.46 L				
300	0.82 L	1.64 L	3.28 L	4.91 L	6.55 L				
375	1.02 L	2.05 L	4.09 L	6.14 L	8.19 L				
450	1.23 L	2.46 L	4.91 L	7.37 L	9.83 L				

#### Volume of makeup water after a 3 hour test is to be not more than:



## **Chlorination/Disinfection and Bacteriological Testing:**

Chlorination/disinfection and bacteriological testing <u>must</u> be undertaken in accordance with Unitywater's "Procedure for Determination of Acceptance of New Water Mains".

Following test results are required								
Water Quality Peremotors	Unit	Acceptable range (new main)		Com	Data			
Water Quality Parameters	Unit			Yes	No	Date		
PH		>6.5 - <8	>6.5 - <8.5 +/- 0.5					
Apparent Colour	PCU	≤15	+5					
Turbidity	NTU	≤5	+5					
EC	uS/cm	≤1250	+50					
Free Chlorine Residual (Health)	Mg/L	<5	+/-0.2					
Free Chlorine Residual (Aesthetic)	Mg/L	<0.6	+/-0.2					
Total Chlorine Residual	Mg/L	<5	+/-0.2					
Faecal Coliform Count or E. Coli. Count	orgs/100mL	<1						
Total Coliform Count	Cfu/100ml	<1						
Heterotrophic Plate Count (HPC)	Cfu/100mL	<100						

#### Following test results are required

### **CCTV Review and Acceptance**

The Construction Certifier <u>must</u> review the CCTV (DVD) and ensure the associated report is accurate. Any faults or defects must be brought to the attention of the Major Connections Certifier to make a request to the developer's consulting engineer/contractor to rectify. This may require additional CCTV of the sewer line concerned and subsequent review and acceptance by the Construction Certifier.

Following successful review and acceptance, the Construction Certifier will include the item in the certification below:

	Certification								
	The <b>Registered Construction Certifier</b> will need to authenticate this Construction Inspection Report by certifying all inspection works undertaken as follows:								
	I, _	from		on	, certify that:				
		Name of Registered Certifier	Accredited Entity	Date	9				
Yes	N/A								
		All works have been constructed in accordate the SEQ Code;	nce with the approved plar	ns (or approved	amended plans) and				
		This Construction Inspection Report is a tru during construction;	e and accurate record of a	ll inspection und	lertaken by myself				
		This Construction Inspection Report is a tru	e and accurate record of al	l tests undertak	en during construction;				
		I have viewed the CCTV and confirm the as	sociated reports as true an	d accurate;					
		I have viewed the Ovality test report and co	nfirm it complies with the S	EQ Code requir	ements; and				
	Any variation works that have been completed have been carried out as directed in the Variation Direction Form;								
Regi	Registered Connections Certifier Number:								
Regi	Registered Connections Certifier Signature:								