



Policy:

**Building in the Vicinity of
Underground Infrastructure**

2020

INFORMATION ABOUT THIS DOCUMENT

Date Adopted by Council	TBC	Resolution No.	TBC
Document Owner	<i>Director, Infrastructure Services</i>		
Document Development Officer	<i>Anjila Finan, Systems Planning Officer</i>		
Review Timeframe	<i>As required</i>		
Last Review Date:	July 2009	Next Scheduled Review Date	

Document History

Doc No.	Date Amended	Details/Comments eg Resolution No.
#633505	23/3/99	
#824509	2/7/09	Amended draft reported to Council Res 09-537
#906135	8/10/09	Adopted Res No. 09-798
E2017/78497	29/05/2020	Draft Report

Further Document Information and Relationships

List here the related strategies, procedures, references, policy or other documents that have a bearing on this Policy and that may be useful reference material for users of this Policy.

Related Legislation*	Building Code of Australia Local Government Act, 1993 Protection of the Environment – Operations Act, 1997 Public Health Act, 2010 Surveying and Spatial Information Act 2002 Conveyancing Act 1919 Water Services Association of Australia - Water Supply Code of Australia (WSA 03-2011) Water Services Association of Australia - Gravity Sewerage Code of Australia (WSA 02-2014) Water Services Association of Australia - Sewerage Pumping Code of Australia (WSA 04-2005) Water Services Association of Australia - Pressure Sewerage Code of Australia (WSA 07-2007) Water Services Association of Australia - Vacuum Sewerage Code of Australia (WSA 06-2008).
Related Policies	BSC Policy – Enforcement Policy 2016 BSC Policy 4:24- Inspection, evaluation and maintenance of public infrastructure
Related Procedures/ Protocols, Statements, documents	

Note: Any reference to Legislation will be updated in the Policy as required. See website <http://www.legislation.nsw.gov.au/> for current Acts, Regulations and Environmental Planning Instruments.



TABLE OF CONTENTS

1	OBJECTIVES	1
2	SCOPE	1
3	DEFINITIONS	1
4	APPLICATION OF POLICY	2
	4.1 When this Policy applies.....	2
	4.2 Policy definitions & requirements	2
5	EASEMENTS	3
6	CONSIDERATION FOR SUBMISSIONS TO BUILD IN THE VICINITY OF UNDERGROUND INFRASTRUCTURE	4
	6.1 Submission requirements	4
	6.2 Policy approach	4
7	RESTRICTIONS ON APPROVAL TO BUILD IN THE VICINITY OF UNDERGROUND INFRASTRUCTURE	6
	7.1 Approval restrictions for relocation of underground infrastructure (Preference 2)	6
	7.2 Approval restrictions for provision of protection measures (Preference 3)	7
	7.3 Approval restriction for lightweight structures	9
8	OTHER CONSIDERATIONS	10
	8.1 Existing encumbrances	10
	8.2 Piering of foundations	11
	8.3 Planting of trees	11
	8.4 Filling over pipelines.....	11
	8.5 Excavations in the vicinity of pipelines.....	11
9	DISCIPLINARY ACTIONS	12
	Appendix A – Determination of the Zone of Influence	i
	Appendix B – Specimen S88B Instrument for a property when a structure is to be constructed in the vicinity of a Council pipeline	iii
	Appendix C – Plants to Avoid Near Sewer Mains	vi



1 OBJECTIVES

The objective of Byron Shire Council's building in the vicinity of pipelines and other underground infrastructure policy is:

1. To set out the conditions under which easements are created for underground pipelines and structure including sewer lines.
2. To set out the conditions under which excavations, cutting or filling of land or the erection of any structure over or near easements, pipelines and other underground structures may be permitted.
3. To protect buildings and the public.
4. To protect and facilitate maintenance of Council's underground infrastructure.
5. To indemnify Council against damages caused by the failure of underground structures.

2 SCOPE

This policy shall provide clear guidelines to developers, consultants, designers and the general public as to what Council deems acceptable with regard to building over or in the vicinity of underground infrastructure such as sewer and water mains, stormwater drainage lines, utilities and access structures such as manholes.

3 DEFINITIONS

BCA	Abbreviation of Building Code Australia
Clay	A fine grained soil with elastic properties when wet. Includes gravely, sandy or silty clays.
Construction	The excavation, cutting or filling of land or the erection of any structures which includes concrete slabs or paving. A Rainwater Collection Tank is considered to be a construction with regard/respect to this policy.
Easement	A right that enables Council to have the use of land for a specific non-exclusive purpose.
Footing	The construction that transfers the load from the building to the foundation.
Invert	In this instance means the outside edge of the lowest part of the cross section of a pipe.
Rock	A solid material including shaly material and strongly cemented sand or gravel that does not soften in water or collapse under a combination of loading and wetting. Material that cannot be readily excavated with a backhoe may be taken as rock.
Sand	A granular soil that may contain a small proportion of fines including silt or clay. The amount of fines may be assessed as small by visual inspection or it the amount that passes at 75 micron sieve is 15% or less, material with a higher proportion of finds shall be treated as silt or clay.
Silt	A fine grained soil that is non-cohesive and non-plastic when wet and can include some sand and clay.
Statutory terms	In order to simplify the creation of easements, statutory terms are provided in Schedule 4A (easements in gross) and Schedule 8



	(easements having a dominant tenement) of the Conveyancing Act 1919.
Structure	For the purposes of this Policy, the term 'structure' corresponds to all building classes as set out in the Building Code of Australia (Classes 1 to 10).
Underground Infrastructure	Any element of the water supply, sewerage or stormwater network that is owned and maintained by Council and is below ground or partially below ground. For example; sewer and water mains, stormwater drainage lines, utilities and access structures such as manholes.
WSAA	Abbreviation of Water Services Association of Australia, Code of Practice, which covers both Water Supply and Sewerage.
Zone of Influence	The zone of influence is an area extending both horizontally and longitudinally along the alignment of an underground pipeline within which settlement of disturbance of the ground may cause damage to structures within this zone or load from structures on the surface may have an impact on the pipeline.

4 APPLICATION OF POLICY

4.1 When this Policy applies

- 4.1.1 The Policy applies to construction of all buildings/structures which fall under building Classes 1 to 10, as set out in the Building Code of Australia.
- 4.1.2 This Policy applies where Council determines that a building/structure's proposed location is 'in the vicinity of' Council owned underground infrastructure, that is;
- **within, or likely to be within the zone of influence of a Council pipeline (see 4.2.1 below);**
 - **within, or likely to be within the minimum clearance requirements for Council maintenance / repair (see 4.2.2 below);**
 - **limiting site access for maintenance purposes (see 4.2.3 below); or**
 - **encroaching, or likely to encroach upon a Council easement (see Section 5);**
- 4.1.3 In addition, the Policy applies where the development contains Council underground infrastructure not currently covered by an easement (see Section 5).

Policy exceptions

- 4.1.4 This Policy does not apply to the following:
- Drainage easements where encroachment of buildings and structure may affect overland stormwater flows.
 - Developments located on Crown Lands, National Parks, State Rail, State and Commonwealth Authorities.

4.2 Policy definitions and requirements

4.2.1 Zone of influence

The Zone of Influence refers to the area either side of the buried asset where any structure may transmit a load to the asset. The zone of influence shall be determined as detailed in Appendix A.



4.2.2 Minimum Clearance

Any proposed structure shall have sufficient clearance to enable future access to Council owned underground infrastructure for maintenance purposes.

- Pipelines – in addition to any Zone of Influence requirements a **minimum horizontal clearance of 1.5m** from the outside of the pipeline (See Appendix A) and a minimum **vertical clearance of 3m** from finished ground level upwards is required for maintenance purposes.
- Access structures (e.g. manholes and maintenance shafts) - A minimum **horizontal clearance of 1.5m** from the centre is required around existing access structures as well as minimum **vertical clearance of 3m** from finished ground level is required.

4.2.3 Site access

Council requires that all Council access structures (e.g. manholes and maintenance shafts) be accessible at all times, in case of maintenance or emergency situations.

- Development on properties with these structures must provide at least **0.9m wide clear site access** to the structure i.e. along the boundary between fence and building. This is necessary to allow Council staff to access with their “tools of the trade” such as cleaning rods and lid lifting equipment.
- Development which locates structures such as manholes and maintenance shafts in secure areas must make suitable arrangements for access by Council operations staff for maintenance or emergency work.

5 EASEMENTS

- 5.1 In all new subdivisions easements shall be provided for all Council pipelines (including but not limited to sewer mains, stormwater mains, water mains).
- 5.2 In all other developments, easements shall also be provided where there is a nexus between the work being undertaken and the pipeline. This includes new, relocated or existing Council pipelines which are not currently covered by an easement.
- 5.3 The determination of a nexus between the development and the pipeline is at the discretion of Council, however it shall, in general, be determined to be as follows:
- a. Where the closest extent of the development works is within 5 metres of the pipeline; or
 - b. the development works is within the zone of influence of the pipeline, whichever is greatest.

And/or

- c. where the location of the development has the potential to limit access to the infrastructure for maintenance purposes.

- 5.4 In cases where the pipeline is in an easement, or an easement is a requirement as part of a development application, building works will not be permitted in that easement (limited exceptions for lightweight removable structures may be allowed under the conditions described in Section 7.3).



- 5.5 Pipelines should in general be located centrally in proposed easements. A limited offset may be considered by Council if a centrally located easement significantly impacts the development potential of a lot. Note that zone of influence and minimum clearance requirements detailed in Section 4.2 and Appendix A still apply.

Easements shall be provided as follows:

Depth to pipe invert	Minimum Width of Easement
Up to 1.5m	3m plus outside dimensions of pipe
1.5m to 2.5m	4m plus outside dimensions of pipe
Greater than 2.5m	To be determined by Director
Low Pressure Sewer Systems	1.0m Minimum or twice the depth to invert which ever is the greater/or determined by Director

- 5.6 Easements in gross (Conveyancing Act) are to be created using the statutory terms, generally utilising Schedule 4A Part 6 Easement for drainage of sewage; Part 7 Easement for drainage of water or Part 10 Easement for water supply.
- 5.7 Easements are to be registered on the title of the land, prior to issue of the Construction Certificate or Occupation Certificate for building works (whichever is stipulated in the Development Consent), or as part of the plan of subdivision for subdivisions.

6 CONSIDERATION FOR SUBMISSIONS TO BUILD IN THE VICINITY OF UNDERGROUND INFRASTRUCTURE

6.1 Submission requirements

- 6.1.1 Where this Policy is applicable; the applicant shall furnish a survey accurate plan of the proposal showing the relative location of the proposed building and the Council asset. Survey accurate plans must be prepared by a Registered Surveyor pursuant to the Surveying and Spatial Information Act 2002.

It is the responsibility of the owner to determine the exact location of Council's underground infrastructure which is / or may be affected by the proposed building/structure.

- 6.1.2 In considering any application to build in the vicinity of underground infrastructure, the Director, Infrastructure Services shall take into account condition of the infrastructure, soil characteristics, influence of loads, proximity of existing structures and access for maintenance and replacement.

The Director, Infrastructure Services may delegate his responsibilities with respect to implementing this policy to other staff members.

6.2 Policy approach



6.2.1 Council's approach to Building in the Vicinity of Underground Infrastructure requests is as follows, in strict order of preference:

- **Preference 1** - Relocate proposed building/structure,
- **Preference 2** - Relocate Council's affected infrastructure,
- **Preference 3** - Provide protection measures and build in the vicinity of Council underground infrastructure (in exceptional circumstances only).

It is the developer's responsibility to investigate and document the above approaches, in consultation with Council. Some guidance regarding this is provided below.

6.2.2 Preference 1 - Relocation of proposed building/structure

In all instances the first approach considered should be the relocation of the proposed building away from the existing infrastructure.

If this is not feasible due to the location of the infrastructure substantially restricting the use of the land, relocation of the Council infrastructure may be considered.

6.2.3 Preference 2 - Relocation of Council's affected infrastructure

Council will only consider relocation of any existing underground infrastructure if the applicant can demonstrate that building away from the structure substantially restricts the use of the land. Any relocation works need to ensure all required design standards (cover, grade, position) are still met and that the capacity or functionality of the infrastructure is not reduced. All costs associated with the relocation are to be funded by the developer/applicant.

The developer/applicant will be required to make provision for an easement for a relocated pipeline in accordance with Council's Policy (see Section 5).

Applications to build in the vicinity of underground infrastructure will not be considered in the following circumstances:

- Rising mains or pipelines considered to be critical to the system (generally mains of 200mm diameter or greater)
- Pipelines deemed to be excessively deep as determined by Council. (generally greater than 2.5m deep)

The restrictions specified in Section 7.1 shall generally apply if this solution is pursued.

6.2.4 Preference 3 - Provision of protection measures

Council will only consider building in close proximity/over the underground infrastructure in exceptional circumstances and then only if the applicant can demonstrate that relocating the building/structure and/or relocation of the Council infrastructure is not feasible.

The developer/applicant shall consider an integrated approach and demonstrate that all associated risks can be managed with marginal costs if building over underground infrastructure is to be considered and accepted by Council. All cost associated with the works are to be funded by the developer/applicant.

6.2.5 Multi-storey development can present numerous challenges for the ongoing operation and maintenance of pipelines. The developer must consider the following items in addition to those detailed above, as a minimum:



- The location of mains of 300mm dia. or greater (in basement) will not be approved by Council. Where such conflicts occur, the developer will be required to fund and arrange relocation of the affected main to avoid such conflicts.
- For mains of less than 300 mm dia. (in basement), Council will examine each proposal on a case by case basis and reserved the right to decline approval requiring the developer to relocate the affected main.

The restrictions specified in Section 7.2 shall generally apply if this option is pursued.

6.2.6 Lightweight structures

Special consideration may be given to lightweight structures which do not normally require protection of underground infrastructure.

If Council deems it is reasonable to easily remove/dismantle and re-instate the structure to access Council assets by excavation, permission may be granted without the provision of protection measures.

Any special conditions applied to lightweight structures would be on a case-by-case basis and would include in part a stipulation that any removal and reinstatement of the structures, as a result of Council accessing underground infrastructure, would be made at the cost of the owner.

The restrictions specified in Section 7.3 shall generally apply if this option is pursued.

In general the designation of lightweight structures is limited to:

- Retaining walls (see Section 7.3.2)
- Fences (see Section 7.3.3)
- Carports / pergolas etc. (see Section 7.3.4)

7 RESTRICTIONS ON APPROVAL TO BUILD IN THE VICINITY OF UNDERGROUND INFRASTRUCTURE

7.1 Approval restrictions for relocation of underground infrastructure (Preference 2)

7.1.1 The following restrictions shall generally apply when approval to relocate Council infrastructure is granted:

- i. The Developer/Applicant will be required to submit survey accurate plans in accordance with Council's design guidelines and this Policy.
- ii. Relocation of Council's underground infrastructure, following approval, is required *before* construction of the proposed building/structure can commence. The applicant will need to liaise with Council with regard to bypassing of live flows during construction work.
- iii. A bond, the value of which will be determined by the Director Infrastructure Services, may need to be furnished by the applicant. It shall be retained by Council until all works are completed and conditions complied with to the satisfaction of the Director Infrastructure Services.



- iv. A restriction (easement) shall be placed on the title of the land pursuant to Section 88 of the Conveyancing Act.

Inspections

- v. Pipelines shall be inspected using CCTV cameras or other suitable method as determined by the Director, Infrastructure Services before and after the construction work is carried out. Close liaison must be maintained with Council during this period of inspection process to allow witness by a Council inspector.

Council staff require adequate notice to arrange an on-site inspection. All costs associated with these inspections, including the cost of Council's inspector, shall be borne by the owner.

Abandoned Mains

- vi. Mains which have been abandoned due to relocation may remain in the ground providing the abandoned mains are capped.
- vii. Council may require certain abandoned mains to be backfilled with grout depending on size, material type and proximity to other structures.

7.2 Approval restrictions for provision of protection measures (Preference 3)

7.2.1 The following restrictions shall generally apply when approval to build in the vicinity of Council underground infrastructure is granted.

- i. The foundations of any structures are to be constructed in such a manner that no loads due to the structure are transferred onto the Council asset or its foundations.
- ii. The building shall be constructed in such a manner that the floor and the structure can be removed in sections to provide access for repairs or replacement of the Council infrastructure.
- iii. Any damage caused to pipelines as a result of the construction work must be repaired at the owner's expense, and under Council supervision. (Note: if a main is found to be defective before construction work commences Council shall make every effort to repair the main before issuing the construction approval).
- iv. Plans and specifications for any construction work proposed on, above or near Council infrastructure and plans of the proposed building are to be submitted to the Director, Infrastructure Services for approval and endorsement of any additional conditions. These additional conditions must also be adhered to during construction.
- v. A bond, the value of which will be determined by the Director Infrastructure Services, may need to be furnished by the applicant. It shall be retained by Council until all works are completed and conditions complied with to the satisfaction of the Director Infrastructure Services.
- vi. The owners of the land shall indemnify Council against damage caused to Council infrastructure by the application of dead loads, live loads and the effects of any settlement due to the construction of the structure/building.



- vii. The owners of the land shall indemnify Council against damage to the building caused by the action of building in the vicinity of Council underground infrastructure.
- viii. The owners of the land shall indemnify Council against damage caused to others as a result of damages to Council's underground infrastructure caused by the action of building over or in the vicinity of the infrastructure.
- ix. The above restrictions will continue regardless of changes of ownership and provision must be made for this on the indemnity agreement.
- x. A restriction (easement) shall be placed on the title of the land pursuant to Section 88 of the Conveyancing Act and Council requirements. A Specimen Agreement for this purpose is contained at Appendix B.
- xi. All plans must be submitted for approval and indemnities signed *before* construction commences.
- xii. Council may require that pipelines be inspected using CCTV cameras or other suitable method before and after the construction work is carried out. Any damage to Council's infrastructure must be rectified, following the necessary approvals, at the cost of the developer/owner

7.2.2 Additional restrictions for multi-storey buildings with underground basements / parking

The following *additional* restrictions shall generally apply when approval to build multi-storey buildings in the vicinity of Council underground infrastructure is granted.

Pipelines in basement areas

- i. If pipelines are to be located in underground basement areas, adequate and safe clearances are to be provided for maintenance staff from the normal operation of the access to and from the basement. This may require the widening of accesses and ramps or the provision of additional sight distance within access areas. Car spaces may be required to be orientated or located such that unimpeded access is available to the pipeline at all times.
- ii. Should Council pipelines be located within secured/locked complexes or basement car park, access by Council staff must be available at all times. Details are to be provided that satisfy Council's access requirements and are to be identified in Strata Management Statements or similar.
- iii. Should there be the likelihood of vehicle impact to a Council pipeline, the pipeline is to have adequate protection against such impact.

The proposed protection type, treatment, strength, etc. shall be subject to approval by Council. Should Council consider that the proposed sewer location presents a high likelihood of being impacted; the sewer main may be required to be relocated elsewhere at full cost to the developer.

- iv. All design and construction of Council water and sewer infrastructure are to be in accordance with Council Policy and the relevant WSAA code as detailed above.



- v. All mains are to be clearly and frequently labelled for easy identification.

7.3 Approval restriction for lightweight structures

The following restrictions shall generally apply when approval to build lightweight/removable structures in the vicinity of Council underground infrastructure is granted.

7.3.1 Exemptions

Driveways, pathways and landscaping are exempt from compliance with this policy. Any changes to ground level must maintain minimum cover over pipelines as per WSAA Codes (as detailed at the head of this document).

7.3.2 Retaining walls

The construction of retaining walls are subject to the following requirements:

- i. Generally, footings for walls over 600 mm in height would not be permitted within 1.5m of a pipeline or any access point (e.g. manhole).
- ii. Minimum cover over a pipeline is to be maintained as per WSAA requirement or an Engineer's assessment is required for protection of the pipeline
- iii. Any retaining wall crossing a pipeline must be supported over the pipeline in accordance with Section 8.2 to ensure loads from the wall are not transferred to the pipeline.

7.3.3 All Fences crossing pipelines

The construction of fences crossing Council pipelines are subject to the following requirements:

- i. Piering of the foundations of any fences crossing Council pipelines may be requested to transfer loads outside a pipeline's zone of influence.
- ii. Any fence crossing a pipeline must be supported over the pipeline in accordance with Section 8.2 to ensure loads from the fence are not transferred to the pipeline.
- iii. A certified design for a masonry type fence prepared by a suitably qualified and experienced Engineer will be required to accompany foundation designs. The plan shall show the design of all footings, beams and piers and clearly note required clearances, ground levels and nominated soil classifications as shown in Appendix A.

7.3.4 Pergolas / Carports / Removable Access Steps

Pergolas / carports (or similar) are characterised as lightweight structures that can easily be removed and are subject to the following requirements:

- i. No footings shall be constructed within an existing or proposed easement.
- ii. The foundations of any structures are to be constructed in such a manner that no loads due to the structure are transferred onto the Council asset or its foundations.



- iii. Where any footings are considered to be within the vicinity of underground infrastructure; a certified design prepared by a suitably qualified and experienced Engineer will be required to accompany foundation designs. The plan shall show the design of all footings, beams and piers and clearly note required clearances, ground levels and nominated soil classifications as shown in Appendix A.
- iv. The structure shall be constructed in such a manner that any flooring and the structure can be removed in sections to provide access for repairs or replacement of Council's underground infrastructure. No permanent structure, such as a concrete slab will be allowed.
- v. Once removable sections are removed, minimum clearance and site access requirements should be complied with as detailed in Section 4.2 of this Policy.
- vi. Any damage caused to Council underground infrastructure as a result of the construction work must be repaired at the owner's expense, and under Council supervision. (Note: if the pipe is found to be defective before construction work commences Council shall make every effort to repair the line before issuing the construction approval).
- vii. Plans and specifications for any construction work proposed on, above or near Council's underground infrastructure and plans of the proposed building are to be submitted to the Director, Infrastructure Services for approval and endorsement of any additional conditions. These additional conditions must also be adhered to during construction.
- viii. All plans must be submitted for approval and indemnities signed before construction commences. See specimen agreement at Appendix B.

7.3.5 Other Structures

Other structures such as Garden/Storage Sheds and Garden Ponds will not be approved.

8 OTHER CONSIDERATIONS

Generally, building works including but not limited to earthworks, structures, etc. will not be permitted inside easements.

8.1 Existing encumbrances

- 8.1.1 Where structures have been built in the vicinity of underground infrastructure without Council approval, then Council may require that the structure be demolished, moved or substantially modified so that it complies with this Policy.

Where it is necessary to access underground infrastructure for maintenance or repair, Council will not be held liable for the cost of restoring any illegal structures and the property owner may be charged for the extra work required due to the illegal structure. The provisions of Council's Enforcement Policy (2016) will be utilised where a non-compliance is not resolved to Council's satisfaction (see Section 9).



8.1.2 Where a structure has previously been given permission by Council to be built in the vicinity of underground infrastructure, then no further extensions, additions or reconstructions will be allowed without further assessment. Council recognises that the existing structure presents a risk to both the building and Council's liability. Therefore, Council will assess each structure on its own merit and give permission for additions if applicable.

8.2 Piering of foundations

8.2.1 Piering of the proposed structure's foundation may be requested to transfer loads outside a pipeline's zone of influence. A certified design prepared by a suitably qualified and experienced Engineer will be required to accompany foundation designs. The plan shall show the design of all footings, beams and piers and clearly note required clearances, ground levels and nominated soil classifications.

8.2.2 The following requirements apply to foundation piering:

- The building/structure and foundation are to be designed in such a way that no building loads are transmitted to Council's underground infrastructure and the infrastructure can be repaired or replaced at any time without affecting the stability of the structure.
- Foundations within a pipeline's zone of influence will require piering to below the zone of influence of the affected pipeline.
- A minimum horizontal clearance of 1.5 m is required between any piers and the face of the asset.
- The use of displacement and screw pile construction methods will require approval by Council and may require additional clearances to existing infrastructure as directed.

8.3 Planting of trees

8.3.1 Tree roots can penetrate into sewerage/stormwater pipes and more generally underground infrastructure through joints of damaged sections of pipeline/pits, causing blockages and subsequent overflows. As a result, certain species are not to be planted near sewer mains. A list of the highest risk species is provided in Appendix C.

8.4 Filling over pipelines

8.4.1 The allowable depth of fill that can be placed over a main depends on the material type and stiffness class of the existing pipe. Site filling that increases the depth to the main above 2.5m will require an application to Council and subsequent approval. Any application must include certification from a suitably experienced qualified civil, structural or geotechnical engineer that:

- the loading imposed will not adversely affect the underlying pipeline, or
- The remediation work proposed will prevent any adverse loading on the underlying pipeline.

8.4.2 The placing of fill to excessive depths over Council's main is not permitted (5m is a maximum depth for practical access) regardless of the structural capacity of the pipe. No fill is to be placed over manholes and manholes are to be raised in conjunction with any site filling. Finished lid levels of maintenance structures, relative to ground level, will be advised by Council based on the land use and prevalence of flooding.

8.5 Excavations in the vicinity of pipelines

8.5.1 Excavations



Generally excavations over or adjacent to pipelines are not to reduce the earth cover over the pipeline to less than the minimum limits as detailed in Council's Design Standards (Northern Rivers Local Government Development Design and Construction Manuals).

Any proposal to reduce cover over a pipeline to less than the minimum limits will require an application to Council and a subsequent approval. Any application must include certification by a suitably experienced qualified civil, structural or geotechnical engineer that:

- the loading imposed will not adversely affect the underlying pipeline; or
- the remediation work proposed will prevent any adverse loading on the underlying pipeline.

8.5.2 Earth embankments

On sloping sites there is potential that earthworks down-slope of existing underground infrastructure could present a risk of landslip or erosion of soil providing cover and/or side support to an existing main.

Any proposed regrading of land immediately down slope of an existing pipelines should be designed with a slope no steeper than 3 (horizontal) to 1 (vertical) to ensure that future erosion and/or landslip does not reduce cover and/or support to the existing main. Steeper embankments may be permitted where the embankment is certified by a suitably experienced qualified civil, structural or geotechnical engineer and approved by Council.

Retaining walls may be required to provide support down-slope of existing mains if substantial regrading is proposed.

9 DISCIPLINARY ACTIONS

- 9.1** The provisions of Council's Enforcement Policy (2016) can be utilised where a non-compliance is not resolved to Council's satisfaction. This may result, where justified, in the issuing of an Order under the relevant legislation. Notice of any Order must provide the receiver with an option to comply with Council's requirements in order to avoid commencement of criminal prosecution proceedings.



Appendix A – Determination of the Zone of Influence

The Zone of Influence (Zol) for a pipeline shall be determined as illustrated in FIGURE 1 overleaf.

1. The cross-section of the Zol is determined by extending a line from a point a **minimum of 300 mm** from the outside of the pipeline at pipe invert level to the ground surface at a gradient determined by the soil type.
2. The gradient of the Zone of Influence shall be determined as follows (See FIGURE 1):

X (Horizontal): 1(Vertical)

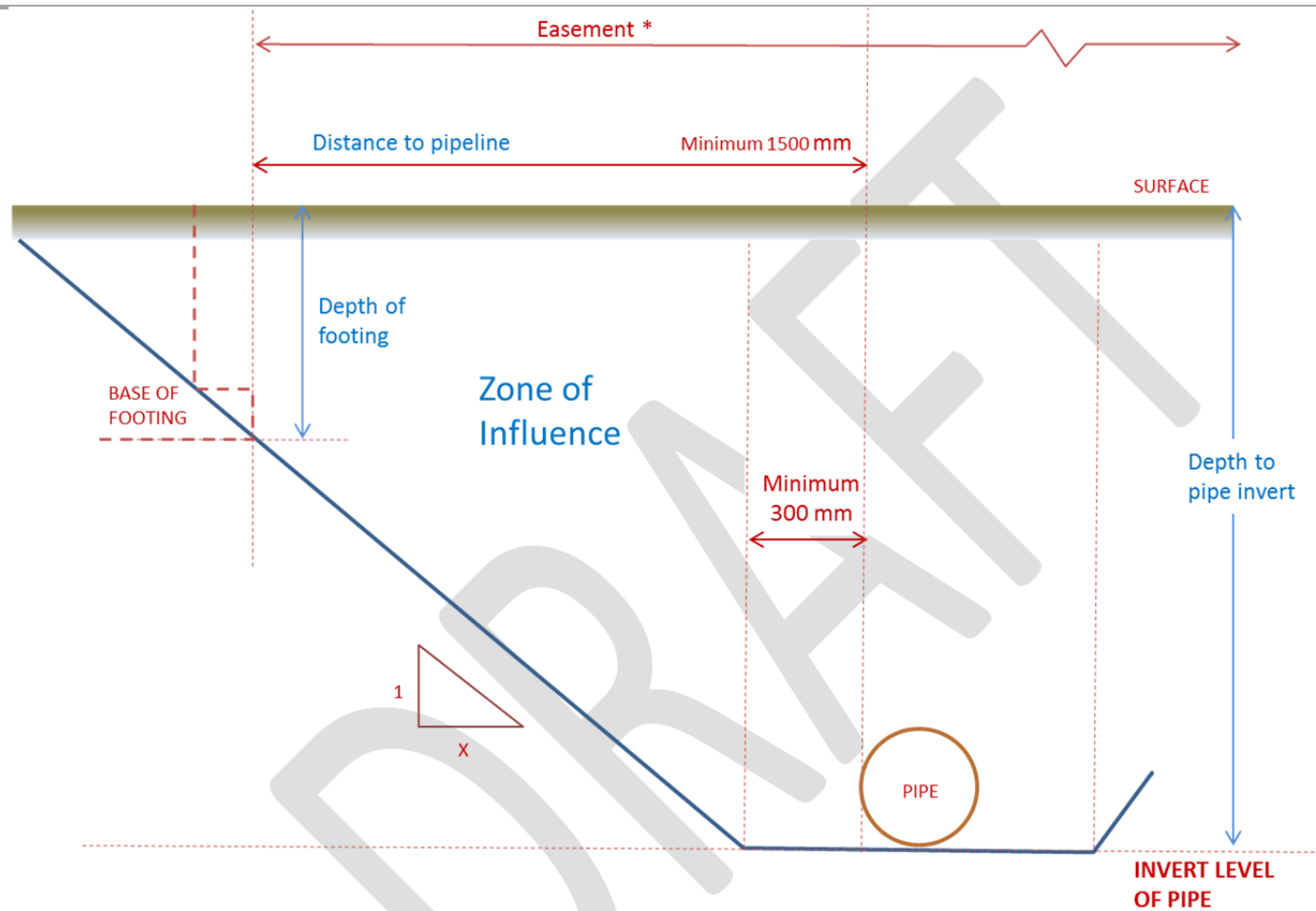
Where:

- | | |
|--------------|---|
| X = 2 | For most soil types e.g. sand, select fill, loam |
| X = 1 | For stiff soils (clays etc.). Geotechnical investigations and a report from a suitably qualified and experienced Geotechnical Engineer will need to be provided by the developer / applicant to support use of this steeper gradient. |

3. For pipelines up to 1.5m deep (to invert) a minimum clearance of **1500mm** is required.



Policy: Building in the Vicinity of Underground Infrastructure 2020



*** Existing Easement OR Easement to be created, compliant with Section 5 of this Policy**

FIGURE 1: ZONE OF INFLUENCE ASSESSMENT



Appendix B – Specimen Instrument for a property when a structure is constructed in the vicinity of a Council pipeline

A restriction (easement) shall be placed on the title of the land pursuant to Section 88 of the Conveyancing Act and Council requirements.

For the purpose of this instrument:

“**cause**” shall include a partial cause or an indirect cause as if that were the sole and direct cause.

“**Council**” means the Byron Shire Council or its successor.

“**the property**” means the land burdened by this instrument.

“**the pipeline**” includes:

- I. drainage, water and sewerage pipelines or other structure; and
- II. any section of the same pipeline, whether on the property or on other property.

“**the owner**” means the Registered Proprietor of the property as may be the case from time to time.

THIS INDEMNITY, ACCESS AND BUILDING REMOVAL AGREEMENT is made on the day of.....

BETWEEN (“**the property owners**”)

AND Byron Shire Council (“**the Council**”)

RECITALS

1. The property owners are the registered proprietors of, NSW (“**the property**”), being title reference Lot in DP
2. The property is traversed by an underground sewer/stormwater/water pipeline (“**the pipeline**”).
3. Structures and/or buildings (“**structures**”) have been constructed on the property over or near to the pipeline and this agreement allows for the structures to be maintained subject to the conditions listed below.
4. Attached to this agreement and marked “Annexure A” is an aerial diagram demarking the pipeline and structures on the property.

CONDITIONS

1. The Council, Its servants, agents or contractors together with implements and machinery has full and free right and liberty to enter the property to lay, maintain, alter, enlarge or duplicate pipes manholes, junctions and sidelines.



2. The Council shall be responsible for the cost of any work in connection with the construction, maintenance, alteration, enlargement or duplication of any pipes, manholes, junctions or sidelines. Such responsibility shall not extend to any damage caused to the pipeline as a direct consequence of the structures existing over the pipeline.
3. The property owners covenant to indemnify the Council against any damage to the pipeline caused by the structures over or near the pipeline.
4. The property owners covenant to release the Council from any liability (whether in negligence or otherwise) for the damages or loss suffered by the property owners caused by the structures over or near the pipeline.
5. The property owners covenant to indemnify the Council against damages or loss suffered by others as a result of damage to the pipeline caused by the structures over or near the pipeline.
6. The Council shall at all times have power in its absolute discretion to access the property without any prior notification to the property owners. Excluding emergency situations, the Council agrees to make all reasonable efforts to notify the property owners prior to accessing the property.
7. The Council shall at all times have power in its absolute discretion to remove the structures existing over the sewer pipeline without any prior notification to the property owners. Excluding emergency situations, the Council agrees to make all reasonable efforts to notify the property owners prior to the removal of the structures.
8. The property owners covenant to indemnify the Council for any costs associated with the removal of the structures.
9. The property owners covenant to release the Council from any liability (whether in negligence or otherwise) for the damages or loss suffered by the property owners caused by the removal of the structures.
10. The Council shall take all reasonable precautions to ensure as little disturbance as possible occur to the property in removing the structures.
11. The property owners agree to disclose this Agreement to any prospective purchaser and shall use all reasonable endeavours to arrange their endorsement on settlement.
12. If any covenant, term or condition of this Agreement is or becomes invalid or unenforceable, the remaining terms and conditions shall be valid to the fullest extent permitted by law.
13. The Council is empowered to release, vary or modify the terms of this Agreement.



Signed by the property owners)

In the presence of:)

.....Signature/s

.....Name/s

..... Witness Signature

..... Name of witness

..... Address of witness

Signed for and on behalf of the)

Council by its authorised delegate)

In the presence of:)

.....Signature

.....Name

..... Witness Signature

..... Name of witness

..... Address of witness



Appendix C – Plants to Avoid Near Sewer/Stormwater Pipelines

Botanical name	Common Name
Cinnamomum camphora	Camphor Laurel
Ficus species	Fig Trees & Rubber Plants
Populus species	Poplars
Salix species	Willows
Erythrina species	Coral Trees
Eucalyptus species	Large Gum Trees
Jacaranda mimosifolia	Jacaranda
Liquidambar styraciflua	Liquidambar
Araucaria species	Norfolk Island & Bunya Pines
Brachychiton acerifolium	Illawarra Flame Tree
Casuarina species	Casuarinas
Melia azedarach	Australian White Cedar
Pinus species	Pine Trees
Platanus acerifolia	Plane Tree
Schinus molle	Pepper Tree
Ulmus species	Elms
Bougainvillea species	Bougainvilleas
Cortaderia selloana	Pampas Grass
Grevillea robusta	Silky Oak
Ilex species	Hollies
Lagunaria patersonii	Norfolk Island Hibiscus
Ligustrum species	Privets
Magnolia species	Magnolias
Nerium oleander	Oleander
Phoenix canariensis	Canary Island Date Palm
Phyllostachus species	Bamboos
Toxicodendron species	Rhus Trees
Lophostemon confetus	Brush Box, Tristania
Wisteria species	Wisteria