TWEED SHIRE COUNCIL

DEVELOPMENT DESIGN SPECIFICATION

D15

WORK IN PROXIMITY

VERSION 1.1

SPECIFICATION D15 - WORK IN PROXIMITY

CITATION

This document is named “Tweed Shire Council, Development Design Specification D15 – Work in Proximity”.

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This document was based on the Tweed Shire Council Policy “Sewer - Works in Proximity”

VERSIONS - TWEED SHIRE COUNCIL DEVELOPMENT SPECIFICATION D15 WORK IN PROXIMITY

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1.1	Original Version		12 February 2018	

DEVELOPMENT DESIGN SPECIFICATION D15

WORK IN PROXIMITY

GENERAL

D15.01 SCOPE

1. This Specification is for Working in Proximity to Council Utilities for subdivisions and other development projects including (but not limited to) residential, rural, commercial and government development. ***Design***

D15.02 OBJECTIVE

1. This specification is designed to outline Tweed Shire Council's requirements for Working in Proximity to Council Utilities including sewerage, water supply and stormwater.

2. This specification details the requirements for performing construction activities in proximity to Council Utility assets in various circumstances.

3. This specification covers all works in proximity to Council Utility assets whether they are undertaken by private developers, other Business Units of TSC or other utilities.

4. This specification outlines possible consequences of non-compliance where structures are built without consent over or within the Zone of Influence of Council Utilities.

D15.03 DEFINITIONS

1. Council Utilities – publically owned sewerage, water supply, stormwater pipelines and any associated overflow provisions and appurtenances. ***Council Utilities***

2. TSC means Tweed Shire Council, being the organisation responsible for the administration of Council affairs and operations and the implementation of Council policy and strategies. ***TSC***

3. Applicant means the party who is proposing to undertake development activities that involve working in proximity to Council Utilities. This includes private developers, all internal Units of TSC and other utilities. ***Applicant***

4. Structure means enclosed buildings and part thereof, retaining or structural walls, footings, pools, services or other permanent assets as identified by Council. This includes (but is not limited to) roofs, awnings or eaves, gutters and any part of the building, masonry fences/ retaining walls and other services. ***Structures***

5. Zone of Influence is the zone surrounding a Council Utility that is deemed to be influenced if built within (See Figure 1). ***Zone of Influence***

D15.04 SPECIFICATION BACKGROUND

The specification objectives are as follows:

1. To allow access to Council Utilities by various means for repairs, upgrade or inspection.

2. To protect Council Utilities from loads imposed by other structures.

3. To ensure the stability and protection of structures over or near Council Utilities.

4. To not unreasonably impede or restrict development.

5. To outline the possible consequences of building near Council Utilities without consent.

D15.05 SPECIFICATION STATEMENTS

1. TSC has the power to enter private property to inspect and maintain Council Utilities, including reconstruction or improvement as may be necessary, irrespective of protective easements being placed on titles.

2. Parties working on public and private property have an obligation to protect Council Utilities from accidental damage and TSC may recover costs of repair. Deliberate damage or unauthorised interference with Council Utilities is an offence under the Local Government Act and penalties may apply.

3. It is the personal responsibility of TSC employees and agents thereof to have knowledge of, and to ensure compliance with this specification.

4. It is the applicant's responsibility to confirm the exact location of Council Utilities, and associated easements including engagement of a land surveyor if required in order to show location of Council Utilities on design details of any proposals for TSC assessment and acceptance.

5. All works in proximity to Council Utilities require Council approval prior to construction.

6. It is an offence under the Local Government Act for agents or parties to fail to apply for construction works / structures over or adjacent to Council Utilities. Penalties may apply.

7. Where Council finds structures built over or within vicinity of Council Utilities without approval, Council may request removal of the structure. Where the owner refuses, one or more of the following may occur:
   (a) Penalties may apply;
   (b) Council may remove the structure and recover costs;
   (c) Should Council's utilities become damaged due to an unapproved structure, Council may recover cost for the repair of the utility and item ii) is also a likely outcome.
   (d) A note may be put against the property for a non-compliance.

D15.06 REFERENCE AND SOURCE DOCUMENTS

Council has two existing Policies that must be referred to when using this Specification:

1. Where easements in favour of TSC are provided through private property no structures or part thereof may encroach into the easement. **There are no exceptions to this rule**. Where an unapproved structure is found within an easement, TSC will take action.

Easements Policy

2. Development in Proximity to Council Utilities must provide sufficient access for possible ground excavation to enable maintenance, repair and/or possible replacement in perpetuity. Caution must be exercised when working nearby or altering the cover to existing Council Utilities to ensure protection of the Utility.

Council Utilities – Works in Proximity Policy

In cases of conflict or contradiction within this or other Council Specifications, the Manager or Director is defined as "the Director responsible for Council Utilities or appointed delegate at Tweed Shire Council".

The Director

In cases of conflict or contradiction, unless otherwise specified, the provisions of this Specification will prevail over all reference documents and prevail over all Tweed Shire Council (TSC) Standard Drawings. TSC Standard Drawings shall prevail over any other standard drawings.

(a) Standard Drawings that specifically apply to this section:

Drawings

The following Tweed Shire Council standard drawings shall be used:

S.D.279	Works in Proximity to Sewer – Retaining Wall
S.D.280	Works in Proximity to Sewer – Rock Wall
S.D.281	Works in Proximity to Sewer – Bridging Wall
S.D.282	Works in Proximity to Sewer – Car Ports and Decks Masonry Fence

DESIGN CRITERIA

D15.07 SUMMARY

1. TSC is responsible for the maintenance and operation of Council Utilities within its operating area. TSC requires reasonable access to Council Utilities (pipelines, manholes and other appurtenances) for possible ground excavation to enable maintenance, repair and/or possible replacement in perpetuity. ***Summary***

2. There are multiple occasions where development may occur in proximity to Council Utilities. The specification applies to any proposal to erect, construct or place any building, wall, fence, fill or obstruction within proximity to any Council Utilities.

3. Except where permitted by this specification, TSC does not allow the construction directly over Council Utilities: ***Building Over Assets***
   (a) enclosed buildings (ie: houses, factories, garages and workshops, etc)
   (b) inground swimming pools, or permanent above ground pools and
   (c) major retaining walls.
   (d) other significant structures that are not readily movable, impose load on underground services or prevent above or below ground access to Council Utilities.

4. TSC's strategy for managing proposals that involve building over Council Utilities is as follows:
   (a) Relocate proposed structure;
   (b) Relocate the Council Utility;
   (c) Provide protection measures for Council Utilities where a. or b. above cannot be achieved.

5. The Applicant shall consider an integrated approach and demonstrate that all associated risks can be managed with marginal costs to TSC if building over or adjacent to a Council Utilities is to be considered and accepted by TSC.

6. Minor variations may be permitted under the following circumstances, with the permission of the Director of Engineering: ***Minor Variations***
   (a) Construction in areas zoned commercial core (B3) in the 2014 LEP.
   (b) Sterilisation of an approved building lot from development because of the presence of Council Utilities within the building envelope which cannot be economically relocated, and which leave insufficient residual land for erection of an appropriate building consistent with the zoning and character of the area.
   (c) Non habitable structures meeting requirements as outlined in D15.08.5.
   (d) Applications for construction within these minor variations will only be considered if it can be clearly demonstrated that the applicant has investigated all other options for development. TSC will treat each application on its merits, but applicants should not assume that consent for construction over or near Council Utilities will be automatically granted. The Director may also impose special development conditions which may include special rights of access, special indemnity to TSC and restrictions or covenants (via Section 88B instruments) added to the land title.

D15.08 WORKS IN PROXIMITY

1. Council Utilities in new subdivisions are generally located outside the building envelope or within easements. Easements will usually be parallel to property boundaries but not always. New subdivision policies require water mains, trunk sewers and deep stormwater mains to be placed in the street.

2. However many existing areas have Council Utilities which intrude into the possible building envelope. The potential for buildings to load or damage pipelines, to be undermined by erosion of backfill, or to prevent safe trenching for repair purposes requires some restriction on proximity..

3. At all times the minimum distance horizontally from an above ground or buried structural element shall be 1.0 metres from the pipeline face and/ or collar of the Council Utility. ***Minimum Distance***

4. Buildings and other structures should be founded so that the 45° decline from the extreme lower edge of any part of the footing passes below the pipeline, i.e. the invert of the pipe. This is termed as the Zone of Influence as shown in Figure 1. In water charged or non-cohesive soils, the Zone of Influence shall be taken a minimum of 1 meter from the pipeline. (Refer to SD 279-282 for further examples) ***Building Within Proximity of Council Utilities***

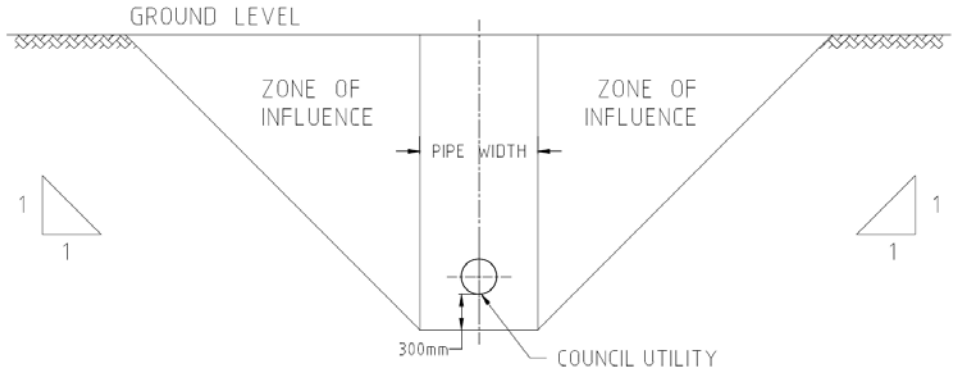

FIGURE 1: ZONE OF INFLUENCE

6. In the case of unenclosed buildings and other civil construction, certain forms of building over Council Utilities may be permitted, such as side boundary fences under control conditions. For sewer infrastructure, if the pipe depth is less than 3 metres and the nominal pipe diameter is not greater than 225mm, non-habitable structures may be constructed over that utility. For pipe depths greater than 3 metres or where the Council Utility is 300mm diameter and greater, non-habitable buildings and structures are not permitted over the Council Utility. Less flexibility is applicable for stormwater infrastructure, however each case will be treated on its own merits. ***Ancillary Structures and Non-Habitable Buildings***

7. Carports, cantilevered verandas or decks, open workbays, breezeways and similar structures may be constructed over a pipeline as long as the following is satisfied: ***Carports, Decks and similar structures***

   (a) Pipelines are to be located to ensure that adequate and clear access is provided all around the utility for all maintenance and replacement activities.

   (b) A minimum of 2.4 metres vertical clearance and 3.0 metre width in proximity to the pipeline is required to enable clear access and adequate clearance to work in the space for maintenance or repairs.

(c) Any flooring or paving shall be designed so it can be removed and reinstated without destruction, and the scale of removal is reasonably limited.

(d) Twenty-four hour access is required to repair, maintain and reconstruct the pipeline.

(e) Any stormwater related overland flowpath provisions are not hindered or impacted.

(f) The requirements of Works in Proximity Specification are otherwise met.

8. Driveways, small retaining walls, and portable garden sheds may be permitted to be constructed over the pipeline as long as the following is satisfied:

Driveways, Retaining Walls and Portable Sheds

(a) For driveways over easements, acceptable surfaces include removable paving or plain concrete slabs, for which construction joints must be located along the alignment of the easement or if no easement exists, 1.0 metre horizontal clearance from the pipeline face and/or collar or outer edge of pit or manhole.

(b) Any flooring, paving or fencing can be removed and reinstated without destruction, and the scale of removal is reasonably limited;

(c) Retaining walls must be self-supporting should excavation be required next to or beneath it.

(d) Any stormwater related overland flowpath provisions are not hindered or impacted.

(e) Manhole lids in sloping driveways shall be incorporated into the slope to Council's satisfaction to ensure no overland flow can leak into the manhole,

(f) Access to the pipeline and any manholes is not restricted, and

(g) The requirements of Works in Proximity Specification above are otherwise met.

9. As outlined within the TSC Driveway Access to Property - Design Specification, as driveways within public road reserve are on TSC land, they are under the control of TSC. Nevertheless access driveways within the road reserve are the property owners' responsibility to initially construct and then maintain. Damage caused by TSC or other public authorities undertaking works will be reinstated by the Authority causing the damage, however, whilst reasonable attempts will be made to match coloured or stencilled concrete finishes – an exact match is not guaranteed. This also applies to driveways within easements

Driveways

10. Kerb and gutters shall not be located over the pipeline. Carparks shall be made of asphalt where multiple vehicles shall be located over the Council Utilities.

Car Parks

11. Caution must be exercised when altering the cover to Council Utilities. The allowable depth of fill that can be placed over pipelines depends on the material type and stiffness class of the existing pipe. Site filling that increases the depth to the utility above 2.0 m will require specific Council approval.

Earthworks Near Council Utilities

12. Excavations over or adjacent to a pipeline are not to reduce the earth cover over the pipeline to less than the minimum limits for permissible depth of cover:

(a) For Stormwater infrastructure – refer to Council's Design and Construction specifications and the relevant manufacturer's specifications for the type and class of pipe involved.

(b) For Sewerage Infrastructure – refer to Table 1 for the permissible depth of

cover for gravity sewers and pressure pipelines from the top of the pipe to finished surface.

Table 1: Minimum Depth of Pipeline Cover for Sewerage Infrastructure

Location of Pipe	**Gravity Pipelines**	**Pressure Pipelines**
Type	**Sewer**	**(Water & Sewer)**
1. Areas not subject to vehicular loading		
a) footways in local road reserves:	600mm	500mm
b) footways in industrial/ commercial areas:	600mm	600mm
2. Areas subject to vehicular loading:		
a) not in roadway:	750mm	600mm
b) in sealed roadway:	900mm	600mm
c) in unsealed roadway or major road carriageway	1200mm	750mm

13. Cover shall be locally increased where necessary to accommodate Water Infrastructure such as stop valves, hydrants and other appurtenances or where additional protection is required.

Stop Valve and Hydrant Cover

14. TSC will not allow construction within the zone of influence (see Figure 1) of existing Asbestos Cement (AC), Vitreous Clay (VC), Hobas or Glass Reinforced Pipe (GRP) sewer and water pipes. Pipelines shall be relocated and replaced with a Polymerizing Vinyl Chloride (PVC), Ductile Iron Cement Lined (DICL) or equivalent pipe material and the installation of relevant protection measures. This requirement is due to these pipe materials having a higher chance of disruptive failure modes eg collapse/ cracking. This includes where the construction of earth embankments or fill over 1 metre depth is proposed. Relining may be allowed on a case by case assessment, subject to approval by TSC.

Zone of Influence

15. The Consequences of Earthworks Near Council Utilities are:

Consequences of Earthworks Near Council Utilities

(a) Increased cover may cause the Council Utility to fail under increased bearing forces or local increases (such as mass retaining walls) may cause failure due to differential settlement. Manholes might be buried by landscaping. Toes of fill batters may be unstable near pipeline trenches, or become unstable when trenches are excavated. Proposals to increase cover should be checked for pipe crushing capacity and local effects.

(b) Pressure mains should not be deeply buried but rather regraded by the proponent, as potential failures are usually more frequent and more severe and trenchless repair is not economically viable.

(c) Manhole alterations required by building or development applications or necessitating reduction or increase in height are permitted with TSC consent, at the applicants cost.

(d) Decreased vertical cover may expose the Council Utilities to accidental breakage by transient loading from vehicles. Decreased lateral cover (caused by cut faces of earthworks in proximity to trenches) may result in slumping out of the backfill and/or pipe, or washing out of sand bedding carrying groundwater.

16. Protection Near Council Utilities include:

Protection of Council Utilities

(a) Should there be the likelihood of vehicle or other loading impact to a Council Utility, the pipeline is to have adequate protection against such an impact. The proposed protection type, treatment, strength, etc shall be subject to approval by TSC.

(b) Insufficient vertical cover may be permitted where concrete protection is provided, but rigid encasement of jointed pipe is generally to be avoided. The preferred technique is to provide bridging over the Council Utility by packing no less than 50mm of loose fill around the sides and top of the pipe and pouring a minimum 150mm thick concrete shield outside this material; with the legs of the bridging shield bearing on compacted bedding or sound undisturbed material below pipe invert level. A layer of trench mesh should be provided in the bottom of the shield. (Details must be provided and approved by Council before commencement.) Figure 2 below shows an example of the concrete shield and legs.

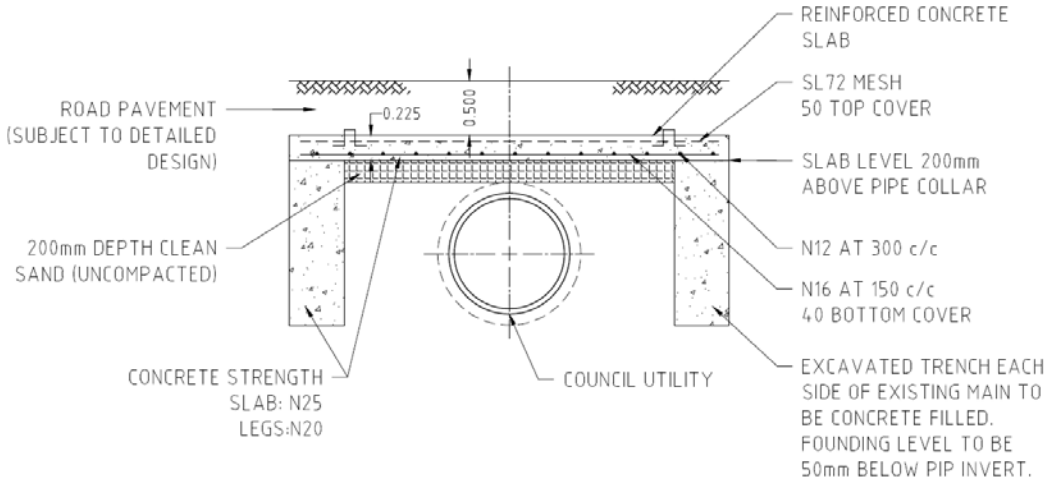

FIGURE 2: BRIDGING OVER UTILITY

(c) Should TSC consider that the proposed Council Utility location presents a high likelihood of being impacted; the utility may be required to be relocated elsewhere at the full cost to the Applicant.

(d) As long as minimum depth requirements for Council Utility have been met, no special protection measures for the Council Utility should be required. However, if uncertainty exists in cases of anticipated high loadings or where the Council Utilities are less than minimum depth advice shall be sought from TSC.

(e) Designers should be aware of the possible reductions in bearing capacity of strip footings closely parallel to back fill in Council Utility trenches. Designers should also recognise the need for protective attachment of piped utilities buried beneath floor slabs which span between piered footings, as loss of support may occur after nearby Council Utility maintenance excavations

D15.09 RELOCATING COUNCIL UTILITIES

1. In all instances the first option considered should be the relocation of the proposed building or other structure away from the existing Council Utilities. Where the applicant desires to construct on a site near or over a Council Utility and does not satisfy the minor variation conditions in D15.07.6, they may elect to relocate the Council Utility. Any relocation works need to ensure all required design standards (cover, grade, position) are still met and that the capacity/functionality of the asset is not reduced. All costs associated with the relocation of assets are to be funded by the Applicant

Relocating Council Utilities

2. Where approval to relocate a gravity sewer is granted, the Applicant will be required to submit design drawings prepared in accordance with TSC's Development Design Specification - D12 for the design and construction of gravity sewers. Relocating the sewer following design approval is required before construction of the proposed building/structure can commence. The applicant will need to liaise with TSC regarding the bypassing of live sewage flows.

Gravity Sewer Relocation

3. Where approval to relocate a stormwater utility is granted, the Applicant will be required to submit design drawings prepared in accordance with TSC's Development Design Specification – D5 for the design and construction of stormwater. Overland flowpath provisions, if applicable, must also be addressed. Relocating the stormwater following design approval is required before construction of the proposed building/structure can commence.

Stormwater Main Relocation

4. Where approval to relocate a sewer rising main is granted, the Applicant will be required to submit plans in accordance with TSC's Development Design Specification - D12 for the design and construction of pressure mains. Following approval the applicant is required to relocate and ensure proper function of the rising main before construction of the building/structure can commence. The applicant will need to liaise with TSC regarding the bypassing of live sewage flows.

Sewer Rising Main Relocation

5. Where approval to relocate a water utility is granted, the Applicant will be required to submit plans in accordance with TSC's Development Design Specification - D11 for the design and construction of water mains. Following approval the applicant is required to relocate and ensure proper function of the rising main before construction of the building/structure can commence. The applicant will need to liaise with TSC regarding the notification of interruption to water supply to nearby residents and shutdown of water main.

Water Main Relocation

6. Relocation of gravity sewer through basement levels of multi-dwelling housing or retail/commercial developments may be considered if the sewer pipeline is 225mm diameter or less and there are no junctions to, or required for, other land. Where the pipeline is 300mm diameter and greater, or junctions are required to other lots, relocation within a basement may not be approved. Should relocation within a building be approved, a range of conditions including, but not limited to, the following shall be applied

Relocation of Sewer pipeline within Habitable Building

   (a) Twenty-four hour access is required to repair, maintain and reconstruct the pipeline. Should the pipeline be located within to secured/locked complexes or basement car parks, a legal arrangement which will burden current and future owners of the property to permit TSC to maintain, and re-construct these works as and when required.

   (b) A minimum 3.0 metres easement will be required and the owner shall indemnify TSC for any future damages to the sewer.

(c) Where pipelines are located in basement car parks, they are to be located to ensure that adequate and clear access is provided all around the pipeline for all maintenance and replacement activities. Car spaces may be required to be orientated or located such that unimpeded access is available to the pipeline at all times.

(d) Sewer must be in open area (no enclosed rooms, goods, waste bins, materials, fixed plant or machinery, structures or anything that may inhibit Council staff or equipment access to the sewer) and fastened and protected from risk of damage from persons or vehicles

(e) A minimum of 2.4 metres vertical clearance in proximity to the pipeline is required to enable clear access and adequate clearance to work in the space for sewer maintenance or repairs. Adequate and safe clearances are to be provided for maintenance staff via the utility access to and from basement car parks. This may require the widening of accesses and ramps or the provision of additional sight distance within access areas.

(f) The relocated portion of the utility shall be replaced with ductile iron epoxy lined pipe (or other pipe material subject to approval of the Director.)

(g) The existing sewer pipe shall be joined to the new pipe by a 600mm long adaptor using flexible couplings at each end. This adaptor shall be a specially fabricated eccentric taper to match the internal and external diameters of the new and existing pipes, while maintaining a straight grade along the pipe invert level, without lips or gaps. Alternately, new manholes may be provided externally near each end of the basement relocation. A minimum 600mm pipe with flexible joints is required between the external wall and the manhole.

(h) As a minimum, one directional rodding access point shall be provided internally on the downstream perimeter basement wall, pointing upstream. If the length of relocated utility exceeds 30m, a second directional rodding access point shall be provided internally on the upstream internal basement wall, pointing upstream. Intermediate rodding access points shall be provided each 30m between the perimeter rodding points, and at all changes in pipe direction. Perimeter rodding accesses shall extend to the surface podium level. Intermediate rodding accesses do not need to be directional or extended.

(i) Where sewer relocation works, including bypass pumping, require access to and works on private land, written consent of the affected landholder is required.

Relocation within the basement floor

(j) ***Where the sewer will be relocated into the basement floor:*** Interlocking and removable paving/ panels over the pipeline within 1 meter horizontal clearance from the pipe centreline for ease of access to the pipeline must be shown on the construction plans. Any flooring or paving shall be designed so it can be removed and reinstated without destruction, and the scale of removal is reasonably limited. Concrete cavities must be of water tight construction to prevent ground water ingress. Solid removable covers shall be installed over the cavity, sealed against stormwater ingress. The recess shall have a low point (sump) with a pump or other means as approved by TSC to remove any water from pooling. A minimum of 2.4 metres vertical clearance in proximity to the pipeline is required.

Relocation along basement wall

(k) ***Where the sewer will be relocated along the basement wall:*** The pipe piece penetrating the external basement wall is to extend 300mm from each wall face, be ductile iron epoxy lined, fitted with a centrally mounted puddle flange, and cast into the wall on line level and grade to match the existing sewer. A minimum of 2.4 metres vertical clearance in proximity to the pipeline is required.

7. The following is required before Council will allow relocation proceeding: ***Relocation Requirements***

   (a) Conceptual details of the proposed Council Utility relocation are required with the Development Application, to demonstrate compliance with the points above, and shall include plan, long section and cross sectional details of the realigned pipe and stormwater overflow provisions if applicable, for assessment by the relevant Council Engineers.

   (b) Prior to Construction, Detail Design by an NER registered Engineer shall be submitted to TSC with the relevant application under S68 of the Local Government Act (1993) or construction certificate under the EPA Act for TSC approval, as applicable.

   (c) Payment to TSC of necessary appropriate application fees and bond.

   (d) Evidence of public liability insurance (min $1 million) when engaged in the public area.

   (e) Evidence of WorkCover notification.

   (f) Lodgement of an approved program of work consistent with TSC inspection hours and a description of site safety provisions, and

   (g) Agreement to meet the conditions of approval as outlined in the TSC Section 68 conditions, where applicable.

8. TSC will not allow concrete encasement of Council Utilities unless all other options identified above are exhausted. ***Concrete Encasement***

D15.10 PLANTING TREES NEAR COUNCIL UTILITIES

1. Trees and other landscaping that will grow to over one meter in height at maturity are not permitted within one meter of Council Utilities to prevent the tree roots intruding into the pipes. Landscaping shall be of a minor nature designed to ensure they do not damage or interfere with any part of the pipeline. Before planting any trees, residents should consult the list of problem species below. Generally all the following groups of trees have been identified as problems to Council Utilities because of root infiltration and have been ranked in severity. Generally none of these trees should be planted within five metres of any Council Utility or within a dedicated easement ***Planting***

Table 2: Problem Species Trees

Risk	Tree Names		
High	Camphor Laurel Fig and Rubber Plants (Ficus species)	Large Gum Trees (Eucalyptus species) Poplars	Willows
Medium	Black Locust Bunya	Coral Trees Hoop Pine	Norfolk Island
Lower	Bamboos Bouganvilleas Camellia Date Palms Elms	Hibiscus Hollies Jacaranda Lilly Pilly Magnolias Pine Trees Pepper Tree	River She Oak Silky Oak Swamp Oak Wisteria White Cedar

2. Where Council finds a tree planted against consent or where the tree is damaging (or likely to damage) a Council Utility, Council may request the owner to have the tree removed at the owners cost.

DOCUMENTATION