

TREE PIT REVIEW

Ancoats Gardens – S278 Works

Tree Pit Review

SCP/220429/TN02 Rev B – 13 March 2023

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1.0 EXECUTIVE SUMMARY

The existing footway along Rochdale Road is sufficiently wide enough to allow for the provision of tree pits. However, the existence of utilities in this footway including the following: traffic signal cables, BT and Electricity Northwest, restrict the ability for trees to be installed, as there is no space meeting the required standard to fit these in. Finally, Manchester City Council's proposed cycle improvement scheme will affect the installation of trees.

The existing footway along Thompson Street is sufficiently wide enough to allow for the provision of tree pits. However, the existence of utilities in this footway including the following Electricity Northwest, BT, United Utilities mains water and an unidentified trace, restrict the ability for trees to be installed, as there is no space meeting the required standard to fit these in. Finally, Manchester City Council's proposed cycle improvement scheme will further impact the ability to install trees.

The existing footways along Mason Street and Bendix Street are not wide enough to allow for the provision of tree pits. Additionally, the existence of utilities in this footway including Electricity Northwest and an unidentified trace, restrict the ability for trees to be installed, as there is no space meeting the required standard to fit these in.

Based on the summary above, Thompson Road, Rochdale Road, Mason Street and Bendix Street are not suitable for the installation of Trees and Tree Pits.

2.0 INTRODUCTION

This technical note has been prepared for Beech Design & Build to give information regarding tree pits and provide a brief breakdown of the implications Manchester City Council's (MCC) VNEG phase 2 works has on the proposed location of the tree pits.

Additionally, the surrounding footways of the proposed development site have been reviewed to see if they are suitable for the installation of tree pits.

3.0 GENERAL DESIGN CONSIDERATIONS FOR TREE PITS

Trees require sufficient space, appropriate soil, sufficient gas exchange, adequate drainage and a supply of water. Soil properties and soil volume are vital for growing trees in urban landscapes and using them successfully as a means of managing runoff.

The principles of good tree pit design include:

- Irrigation and aeration system
- Geonet laid over stratacells; and
- Underground guying

MCC have provided tree pit details which include:

- Tree pits are to be 1200 x 1200 x 1200mm.
- Proposed trees are to be 20-25cm girth.
- The surface to the tree pit should be formed through a 1200 x 1200 aluminium recessed tree grill, paved with concrete modular paving (200 x 100 x 60mm).

As per MCC Public Realm Strategy, the following indicative tree species are to be used where the footpath width is generous and there is a desire to accommodate a larger tree species:

- *Acer campestre* 'Elsrijk' (Field Maple 'Elsrijk')
- *Tilia platyphyllos* 'Rubra' (Large Leaved Lime, Red Twigged Lime)

Root Volume Availability

Any tree pit should provide adequate rootable soil volume and appropriate levels of water and air availability to the roots so as not to inhibit tree growth.

It is generally accepted that a minimum of 1,060cu ft (30 cu meters) of potential rooting volume is required to give most tree species any viable chance of establishing successfully.

The deployment of soil structure modules will help to prevent soil compaction and ensure that the available rooting volume is fully utilized. This is particularly important if the tree is to be located next to a road or another engineered structure, as the soil structure requirements for hard surfaces capable of sustaining large weights are diametrically opposed to those of a healthy tree root network.

The required soil volume/root growing environment for trees will be provided through the use of underground load bearing root zone technology such as crate systems/cell systems (Stratacells).

Root Management

Tree roots must also be appropriately directed to ensure that they do not damage surrounding surfaces or underground structures.

It is recommended to not plant trees over or within 2 metres of statutory undertaker's equipment. Intelligent design and advanced planning should allow for highway trees to be positioned in the optimum locations, whilst also minimising future disruption for utilities contractors and allowing any future maintenance works to be undertaken in accordance with BS 5837 and National Joint Utilities Group guidelines.

Support

An appropriate form of support is required to help trees through the establishment phase. Underground guying is widely favoured for urban tree pits as it is unobtrusive.

Outlets

Tree pits need to be well drained. This can be achieved by infiltration to the ground if soil conditions are suitable. If infiltration is not possible then an outfall to the surface water drainage system will be required. The outlet should be set at a level to maintain the required maximum water level in the base of the tree pit.

4.0 GENERAL INSTALLATION GUIDANCE OF TREE PITS

- Excavation dimensions: there should be enough space to work around the installed tree pit system.
- Sub-base: The sub-base should be stable enough to carry the tree pit system
- Levelling: The sub-base should be levelled in one plane

Installation steps:

- Excavate the trench at the installation site accordingly to the necessary dimensions, in order to accommodate the tree pit. Over-excavate beyond the perimeter of the tree pit to allow for working room and easy and fast installation.
- Make sure excavation is deep enough to accommodate sub-base aggregate. Don't dig deeper than is necessary and always stay above average highest groundwater level. If the subsoil is not stable due to groundwater, drainage must be carried out.
- Determine soil cell volume / soil volume calculations.

- Install Tree pit components; StrataCells, Geotextile membrane, Twin Wall Geonet, irrigation and aeration systems, rootball fixing system.

5.0 EXISTING UTILITIES

Desktop Utility Records Search and GPR survey had been conducted for the proposed development area in 2018. These surveys showed numerous utilities present along Rochdale Road, Thompson Road, Mason Street and Bendix Street see Appendix A for the GPR survey plan.

Electricity Northwest and BT cables are present in the footway on Rochdale Road and Thompson Road. Additionally, an unidentified trace was also located along Thompson Road.

Furthermore, Electricity Northwest, a gas main and an unidentified trace are present on Mason Street and Bendix Street.

As per the 2018 surveys, a United Utilities stop tap water main is also situated through Thompson Road.

These surveys are historical and because of the new development, it is highly likely that additional utilities will have been added along the footways of Rochdale Road, Thompson Road, Mason Street and Bendix Street.

The location of the existing utilities on Rochdale Road, Thompson Road, Mason Street and Bendix Street restricts the ability for trees to be installed, as there is no space meeting the required standard to fit them in.

6.0 IMPACT OF MCC PROPOSAL ON THOMPSON ROAD AND ROCHDALE ROAD

To assess the impact of the MCC VNEG Phase 2 works, the layout has been overlaid onto SCP's design.

From the current information provided by MCC, the proposed works have been assessed against SCPs General Arrangement.

Thompson Road

MCC VNEG Phase 2 works for Thompson Road clash with the four proposed tree pit locations.

The existing footway along Thompson Road is to be realigned with new kerbing introduced to delineate a proposed cycle lane, this creates an impact on the location of the proposed tree pits, see drawing SCP-220429-0000-003 in Appendix B.

The realignment of the existing kerb will reduce the width of the footway on Thompson Road to 2.75m. Additionally, as the footway is to be edged with a 400mm wide paving trim, the remaining footway width will be 2.35m.

The proposed new footway width and location of the MCCs proposals means the tree pits cannot be constructed as shown.

Rochdale Road

As with Thompson Road, the existing footway on Rochdale Road is to be realigned with new kerbing introduced to delineate a proposed cycle lane. This creates an impact on the location of the proposed tree pits, see drawing SCP-220429-0000-003 in Appendix B.

The realignment of the existing kerb will reduce the width of the footway on Rochdale Road to 4.0m. Additionally, as the footway is to be edged with a 400mm wide paving trim, the remaining footway width will be 3.60m.

The proposed new footway width and location of the MCC VNEG Phase 2 works will prevent the tree pits from being constructed as shown.

7.0 REVIEW OF ALTERNATIVE TREE PIT LOCATIONS ON MASON STREET AND BENDIX STREET

As the MCC VNEG Phase 2 works impact the proposed locations of the tree pits along Thompson Road and Rochdale Road, Mason Street and Bendix Street have been reviewed to see if they have the potential to be utilised as alternative options.

Mason Street

The existing width of the footway along Mason Street is 2.5m, which reduces to 2.4m towards the southern end. Additionally, there is a vehicular dropped crossing and several utilities present on Mason Street.

As the footway is to be edged with a 400mm wide paving trim, the remaining footway width available for a tree pit will be 2.1m at the northern end and 2m towards the southern end of the footway.

As per MCCs tree pit detail, the pits are to be 1200 x 1200 x 1200mm. This means that the remaining footway space available after a tree pit installation along Mason Street would be 0.9m.

Therefore, the footway along Mason Street is unsuitable for tree pits due to insufficient space to maintain unobstructed pedestrian access.

Furthermore, Mason Street has been identified as unsuitable for tree planting in the 'New Cross Public Realm Strategy' due to the width of the footway.

Bendix Street

The existing width of the footway at the southern end of Bendix Street is 2.2m, which reduces to 2.1m towards the north. Additionally, there is several utilities present on Bendix Street, see Appendix A.

As the footway is to be edged with a 400mm wide paving trim, the remaining footway width available for a tree pit will be 1.8m at the southern end and 1.7m towards the northern end of the Bendix Street.

As per MCCs tree pit detail, the pits are to be 1200 x 1200 x 1200mm. This means that the remaining footway space available after a tree pit installation on Bendix Street would be 0.6m.

Therefore, the footway along Bendix Street is unsuitable for tree pits due to insufficient space to maintain unobstructed pedestrian access.

Furthermore, Bendix Street has been identified as unsuitable for tree planting in the 'New Cross Public Realm Strategy' due to the width of the footway.

Appendix A

Appendix B