

 Lendlease	
Document Review	
Lendlease document received on:	
1. 	Accepted
2.	Accepted with comments
3.	Rejected
Lendlease Checked by Steve Bloxham	
Date: 24/12/2019	
Accepted documents are considered to conform to the design intent, but does not mean acceptance of dimensions, details, size or weights; nor does it relieve the designer from responsibilities for errors, omissions and/or compliance with obligations and/or responsibilities of the contract.	

ALBERT SQUARE AND ENVIRONS

PUBLIC REALM MANAGEMENT AND MAINTENANCE STRATEGY

PLANIT IE
NOVEMBER 2019



OUR
TOWN
HALL
PROJECT



DOCUMENT CONTROL

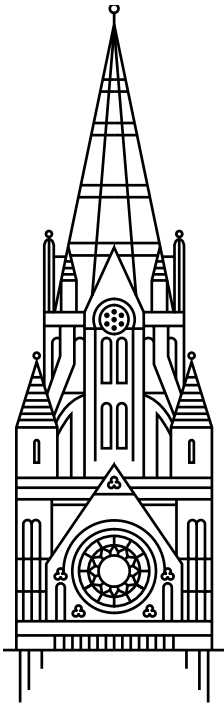
FILE NAME
OTH-PLA-EE-XX-RPT-L-0012
ALBERT SQUARE AND ENVIRONS
PUBLIC REALM MANAGEMENT AND MAINTENANCE STRATEGY

REVISION **02**
DATE **18.11.19**
STATUS **S3**

PREPARED BY Kevin Redhead - Project Lead
CHECKED BY Kevin Redhead - Project Lead Lindsay Humblet - Project Director



MANCHESTER STUDIO
2 Back Grafton Street
Altrincham, WA14 1DY
+44 (0)161 928 9281
info@planit-ie.com



OUR
TOWN
HALL
PROJECT



Developed in Conjunction with Manchester City Council and:



Contents

Contents	3
MANAGEMENT AND MAINTENANCE OBJECTIVES	4
1.1 Management objectives and principles	5
1.2 General Maintenance	6
1.3 General Maintenance	8
1.4 Maintenance of specific materials	9
1.5 Maintenance of specific materials	10
1.6 Maintenance of specific materials	11
1.7 Maintenance of specific materials	12
SOFTWORKS MAINTENANCE	14
2.1 Planting Proposals	15
2.2 Planting schedules	16
2.3 Planting Proposals	17
2.4 Planting Proposals	18
2.5 Planting maintenance	19
2.6 Planting maintenance - Ornamental Shrubs	20
2.7 Planting maintenance - Herbaceous Shrubs	21
2.8 Planting maintenance - Moisture tolerant planting	23
2.9 Planting maintenance - Formal hedges and clipped shrubs	24
2.10 Planting maintenance - Trees	25
2.11 Planting maintenance - Trees	26
MAINTENANCE OF STREET FURNITURE, DRAINAGE AND LIGHTING	28
3.1 Softworks Drawings	29
Current Levels and Drainage Strategy	30
APPENDIX - DRAWINGS	32
4.1 Softworks Drawings	33
4.2 Softworks Drawings	34
4.3 Softworks Drawings	35
4.4 Softworks Drawings	36
4.5 Softworks Drawings	37
4.6 Softworks Drawings	38
4.7 Hardworks Drawings	39
4.8 Hardworks Drawings	40
4.9 Hardworks Drawings	41
4.10 Hardworks Drawings	42
4.11 Street Furniture Drawings	43
4.12 Street Furniture Drawings	44
4.13 Street Furniture Drawings	45

1

MANAGEMENT AND
MAINTENANCE OBJECTIVES



OUR
TOWN
HALL
PROJECT

1.1 Management objectives and principles

There should be a commitment to the ongoing high quality management and maintenance of the public realm. The long-term success of any landscape is reliant upon a detailed understanding of the parts and how they go together but this is just the start of the journey and perhaps the most important aspect, invariably overlooked, is to ensure that there is a defined and committed programme of maintenance.

BRIEF

The brief below describes the framework:

- The management plan will cover a time period of 15 years. After this time a full review of the site should be undertaken and a new management and maintenance plan produced.
- The Management Plan must give consideration to environmentally sensitive design and management
- The Management Plan will seek to provide a net increase in the nature conservation value of the site

MONITORING

The Management Plan's life span has been divided into key stages of 5 yearly intervals. These will be used as the basis for developing the plan and setting reviewing targets.

Monitoring is of fundamental importance, since this is the means by which the success of the plan will be measured. It is therefore important to establish standardised survey and monitoring methods, which enable valid year on year comparisons to be made. There will be a need for flexibility during its implementation. The Management Plan must be an evolving one, able to adapt to the specific needs of the site.

- At the outset of the plan Manchester City Council's public realm maintenance team will need to work alongside the initial landscape and maintenance sub-contractor to monitor and provide guidance on ongoing wider management and maintenance issues. This maintenance provider should undertake an annual review of the site, providing written documentation as to the ongoing establishment of the planting. This report should include a condition review of all new and existing plant material, success rates of newly planted material, and recommendations

for future management regimes and immediate management requirements. The brief below describes the framework:

- The management plan will cover a time period of 5 years
- The Management Plan must give consideration to environmentally sensitive design and management
- The conservation of existing features will be a prime consideration
- The Management Plan will seek to provide a net increase in the nature conservation value of the site
- Ensure that trees and other vegetation are maintained to retain clear lines of sight lines for security cameras and other surveillance.

MANAGEMENT PRINCIPLES

SOFTWORKS MANAGEMENT OBJECTIVES

To prescribe all necessary management and maintenance principles and management tasks to enable successful establishment and ensure the continued maturing of all landscape elements.

- To ensure the continuing health of existing vegetation
- To ensure the successful integration of existing and proposed vegetation
- To ensure that the management and maintenance regime is appropriate to the site

To provide a mechanism for the ongoing monitoring and reviewing of the management plan and the specific maintenance operations contained therein.

Proposed individual trees:

- To ensure satisfactory establishment and continuing health.
- To maintain the plants in a healthy condition and develop the site tree structure.
- To ensure the successful establishment and continuity of the overall design concept.
- To establish a valued and appropriate amenity.

Ornamental, herbaceous planting:

- To ensure satisfactory establishment and continuing health
- To maintain plants in a healthy and attractive condition
- To ensure the successful establishment and continuity of the overall design concept.
- To establish a mechanism for the replacement of any failing plant or one which has reached maturity
- To ensure planting within public areas is maintained below a maximum height of 1m to meet the guidance set within Secure by Design with the exception of wall mounted climbers.

HARDWORKS MANAGEMENT OBJECTIVES

- To put in place procedures for regular inspections of all paved areas.
- To outline specification and requirements for work by Public Utilities and general surface reinstatement
- To outline specification and sources of materials for repair/reinstatement (NBS Spec Public Realm)
- To establish winter maintenance procedures
- To put in place procedures for street cleaning
- To outline procedures for the maintenance of Street Furniture

1.2 General Maintenance

GENERAL MAINTENANCE OPERATIONS

Lifting, repair and relaying

Relaying elements of flexible construction should be carried out in the same way as new construction (Refer to NBS specification). Additional guidance for flags is given in BS 7533-7:2010. Removing a damaged single element prior to relaying can be difficult, particularly if it is small element, as breaking it out may disturb adjacent modules. It may be necessary to consider relaying all elements, which abut the damaged area, or to relay a full line of elements back to an edge restraint. If the surface has poor profile, elements will need to be lifted over the whole of the affected area. In all cases a complete renewal of the bedding material should always take place. An experienced paver is required to execute a good reinstatement.

Joint repairs

Where elements are part of a rigid construction and degradation of the cement mortar joint has occurred, it will be necessary to refill the joint. If necessary the joint should be raked out, which is time-consuming and costly. It may be more appropriate to use a small hand-held grinder with an attachment to remove the dust and debris, in a controlled manner, into some form of hopper. Once the joints have been cleaned out they can be refilled with a mortar appropriate to the trafficking category. Care is required to confine the mixture to the joint and prevent staining of the surface. Trafficking should only be allowed once the mortar has gained the appropriate strength.

Sealing

Proprietary sealing agents are commonly used on paved surfaces, to reduce moisture penetration of the laying course material, and minimise staining from spillages. The paving surface must be completely dry and clean before any sealer is applied with the manufacturer instructions adhered to at all times. Whilst such products may offer certain advantages, careful consideration must be given to the suitability of the sealant and any subsequent effect on the colour appearance and slip/skid resistance of the paving.

CLEANING

Generally

The following recommendations deal with vehicles and associated equipment for use on paved footways/ footpaths/pedestrian areas and roads:

- The equipment should be purpose designed to sweep the particular area and surfacing product. If there is any doubt, the vehicle manufacturer should be consulted.
- Where possible, low ground pressure tyres should be fitted to reduce the risk of breaking or cracking of flags.
- Tyres should be inflated according to the manufacturer's recommendations, again to ensure minimum weight distribution per square mm.
- Polypropylene, not wire, brushes should be used.
- Sweeping brush pressures should be set to the minimum required to suit the particular task, i.e. surfaces swept regularly will require a lower setting than those swept infrequently or those covered with heavy deposits.
- When sweeping, engine revolutions should be set at the minimum required to maintain vacuum (suction) pressure.
- Operators, including reliefs, should be trained to manufacturers' recommendations and tyre and brush pressures should be regularly checked.
- Advice should be given to operators that, when equipment is stationary or left unattended, suction, brush rotation and water jetting equipment should be switched off to avoid the risk of damage to the area below the stationary equipment.
- In new or re-laid areas, agreement should be reached on a period of manual cleaning (at least four weeks) to allow the paving to settle and the joints to seal. This period may be reduced by using either a water-based bonding agent or elastomeric prepolymer sealant and by agreement with the cleansing authority on an appropriate sweeping regime.
- Following the use of mechanical cleaning operations, re-sanding of the joints in flexibly laid areas may be necessary.

From new

Hardscape advise that newly laid granite is deep cleaned using low pressure steam and impregnated using Pavesaver or Pavesaver Ultra.

This will protect the surface from contamination and prevent staining, where areas are susceptible to heavy staining such as outside eateries it is advised that 2 applications of Pavesaver Ultra is specified.

The process of reapplication should always be carried out within a 5 years.

Granite that is protected with Pavesaver can be maintained on a daily or weekly basis using Grimelifter, this can be applied through nebular spray bottles, scrubber driers and street washing machines using soft bristle brushes, preferably cylindrical brush head as this will maintain a good surface finish.

Dirt removal

The removal of deep seated stains can be removed using Grimelifter Ultra applied neat to the area and left for 20 minutes and then washed off using a pressure washer or a mop system continually using clean water.

Chewing gum removal should be carried out using low pressure steam using either a hot water pressure washer or steam generator for the best results.

Hardscape advises that a good housekeeping policy is in place that ensures regular / weekly cleaning rather than a singular annual clean.

The Use of Power Washing Equipment on Paved Areas

To aid in the removal of surface staining power washing equipment is often considered. Whilst such techniques offer certain benefits, particularly for larger areas, it is important that care is taken in their use to avoid damage to the structural integrity of the paving.

When using any form of Power Washer the following guidelines should be strictly adhered to:

- The power washer should be used on a setting, which is sufficient to remove the dirt without causing any further distress. A low-pressure setting is

recommended.

- Do not direct the power lance directly down on to the paving, as this can result in loss of jointing material.
- Ideally a spraying movement should be adopted holding the power lance at a shallow angle, not greater than 300 across the diagonal (i.e. not parallel to joints).
- Certain high-pressure jetting machines have been known to mark / damage the surface of certain types of paving material. It is therefore prudent to carry out a small test area before commencing on a larger area.
- The area should be inspected after cleaning to ensure that joints are full.

General Dirt and Detritus

To remove general dirt and detritus, regular brushing is recommended. If detritus reduces the intensity of the colour of the material then this can be re-established by scrubbing with a mild detergent e.g. washing up liquid, and hot water.

Ensure all the detergent has been thoroughly washed from the surface on completion of the cleaning and the resulting run-off is carefully channelled to either drainage points or containers where it can be safely disposed of.

Moss, lichens and algae

Moss, lichen and algae can be prevalent on hard surfacing where the area is heavily shaded, is under trees or is not laid to an adequate fall. If such growths do occur and are considered undesirable then the area should be treated with a proprietary weed or moss killer used in accordance with the manufacturers' instructions. Such products take some days to be effective and are most effective when applied during a spell of dry weather. The washes work best if any thick growths are scraped off first and the wash is well brushed in. Some treatments leave a residue to discourage the re-growth of the moss and algae but this will only be of limited value if the surrounding conditions leave the paving damp and in shade.

Rust Stains

Initially action must be taken to eliminate the sources

of staining. To remove the rust stain, the surface should first be wetted with clean water and then the affected area treated with a 7 to 10% dilution of Hydrochloric acid solution.

Guidance on the safe use of chemical treatments (Acid Washing) is given later in this document.

Oil Stains

Oil can penetrate readily into hard surfacing materials, but it should not stain if any spillages are removed promptly with an absorbent material e.g. paper towels, cloth or absorbing granules. Do not attempt to wipe the stain as this will drive the oil into the surface of the units and spread it over a wider area.

If the stain persists then an emulsifying degreaser should be employed. Brush the cleaner onto the

affected area, leave for a period of time according to the manufacturers instructions and then wash the emulsified oil away with plenty of clean water.

Alternatively the surface can be scrubbed with a detergent and hot water taking care to ensure that the strength of the detergent is not detrimental to the appearance of the paving. However, for persistent oil staining, steam cleaning may have to be considered.

Bitumen Stains

Fresh bitumen should be allowed to cool down before removing it with a paint scraper or similar. If it is particularly resistant, the use of ice to make the bitumen brittle may be required prior to scraping it from the paving. Any residue should be removed with an abrasive powder and finally the whole area rinsed with clean water. Certain proprietary cleaning agents are available

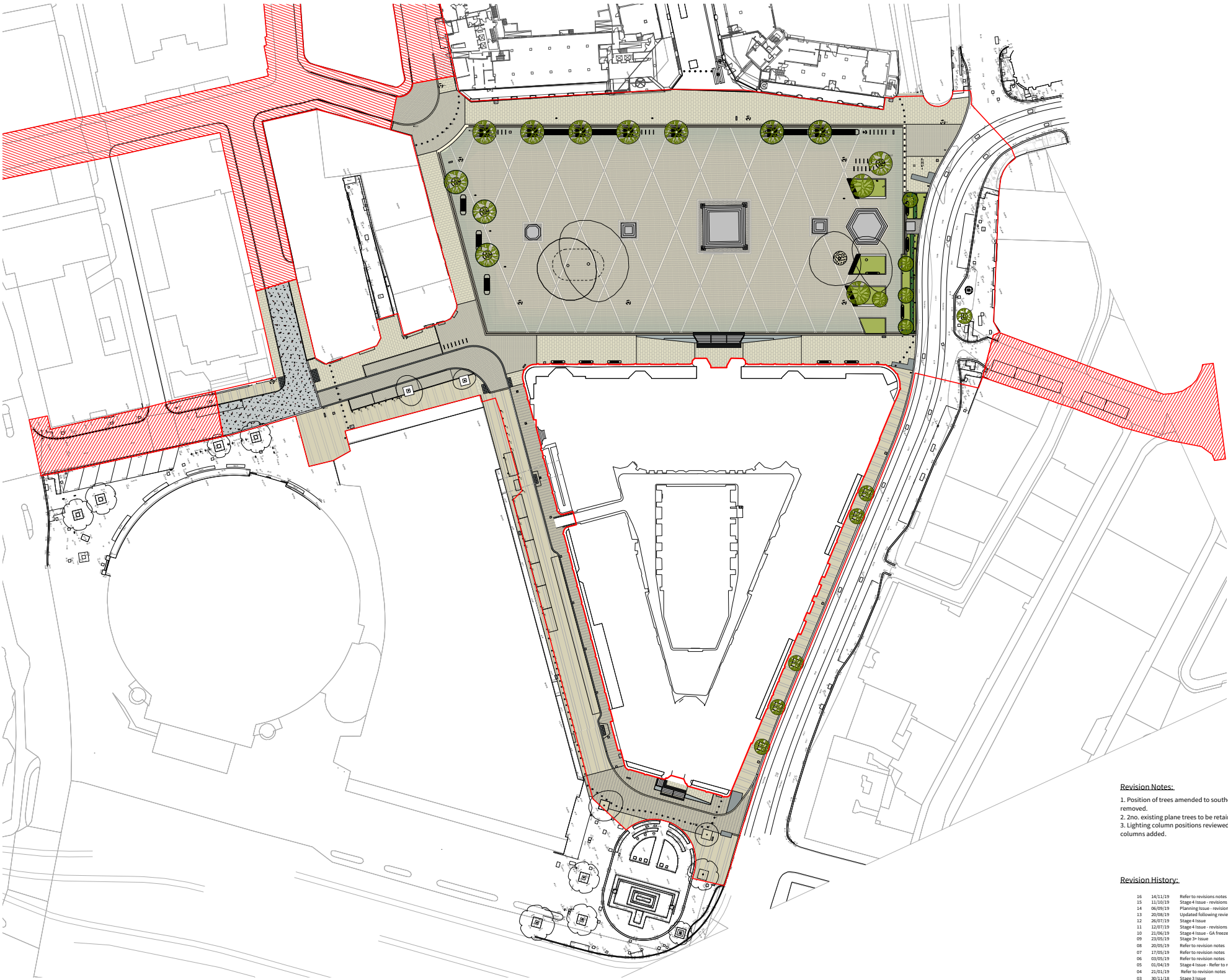
to remove bitumen but these should be tested on an inconspicuous area of paving first.

Defect	Problem	Treatments	
Rigid		Temporary	Long-term
Expansion and contraction joint cracks	Cracking	Monitor/method statements from bedding and jointing material supplier required	Deep water ingress can lead to structural faults.
Debonding of jointing material	Initiation of failure mechanism	Monitor / investigate	Replace jointing or reconstruct if poor design
Broken or damaged elements	-	-	Replace or reconstruct
Missing elements	Trip, water ingress	Fill holes	Replace element
Rocking elements	Hazard to users	Relay	-
Spalling of arises or surfaces	Unightly trips	-	Replace
-	Loss of stability, water ingress	Fill wide gaps if hazard	Relay elements and strengthen edge restraint if necessary
Depressions and bumps (macadam)	Hazard for users	Fill or ramp. Contact undertaker if cause is failed reinstatement	Relay
Rutting (meacadam)	Hazard for users	Monitor, warn users	Relay
Slippery surface	Hazard for users	Warn users or restore texture	Clean, restore texture or renew surfacing
Surface contamination	Hazard for users and unsightly	Clean or neutralize	Replace surfacing if necessary
Vegetation	Surface slippery	Warn users, clean	Consider increasing frequency of maintenance
Water	Surface water	Salt if freezing	Relay surfacing to correct gradients and crossfall
-	Blocked drain	Clear blockage	-

Guidance: To ensure the chosen treatment is cost effective, consideration should be given to the maintenance history of the paved surfacing, its future use and the likely failure mechanism.

1.3 General Maintenance

PUBLIC REALM MASTERPLAN



Revision Notes:

1. Position of trees amended to southern edge & 1no. tree removed.

2. 2no. existing plane trees to be retained in permeable paving

3. Lighting column positions reviewed - two additional columns added.

Revision History:

16	14/11/19	Refer to revision notes	SR	MS/KR
15	12/10/19	Stage 4 issue - revisions as described in notes	SR	MS/KR
14	06/09/19	Planning issue - revisions as described in notes	SR	MS/KR
13	20/08/19	Updated following review, refer to notes	SR	MS/KR
12	26/07/19	Stage 4 issue	SR	MS/KR
11	12/07/19	Stage 4 issue - revisions as described in notes	SR	MS/KR
10	23/06/19	Stage 4 issue - GA freeze	SR	MS/KR
09	23/05/19	Stage 3 issue	SR	MS/KR
08	20/05/19	Refer to revision notes	SR	MS/KR
07	17/05/19	Refer to revision notes	SR	MS/KR
06	09/05/19	Refer to revision notes	SR	MS/KR
05	02/04/19	Stage 4 issue - Refer to revision notes	SR	MS/KR
04	21/01/19	Refer to revision notes	SR	MS/KR
03	30/11/18	Stage 2 issue	SR	MS/KR
02	20/11/18	Refer to revision notes	SR	MS/KR
01	02/11/18	Refer to revision notes	AD	MS/KR
00	26/09/18	First issue for review	SR	MS/KR

Revision	Date	Description	Drawn	Apprvd.
----------	------	-------------	-------	---------

KEY

BOUNDARIES

Red Line Boundary

Section 278 Works

PROPOSED - NATURAL STONE SURFACES

Refer to OTH-PLA-EE-ES-DWG-L-5000 series for hardworks details

Natural Stone Slab Paving - to streets and perimeter of Albert Square.
Material: Yorkstone with percentage mix of Burlington (Cumbrian) Stone.
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-5000

Q25/112A

Natural Stone Sett Paving - to vehicular access points at corners of Albert Square.
Material: Yorkstone with percentage mix of Burlington (Cumbrian) Stone.
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-5000

Q25/112B

Natural Stone Slab Paving - to Albert Square and Cooper St entrances.
Material: Yorkstone with laser etched surface pattern and percentage mix of Burlington Stone. Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-5000

Q25/112C

Natural Stone Setts Paving Mix - to main area of Albert Square.
Material: Portuguese Granite, Scottish Schist, Burlington (Cumbrian) Stone.
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-5000

Q25/142A

Natural Stone Diamond Band - to Albert Square and edge of Monuments.
To have special units at intersections and corners, and inlaid features.
Material: Portuguese Granite
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-5000 and 5002

Q25/142B

Natural Stone Perimeter Channel - to edge of setts paving to Albert Square.
Double stone channel with central drainage channel incorporated.
Material: Portuguese Granite / Burlington Stone (where no drainage channel)
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-5000 and 5002

Q25/142C

Natural Stone Setts - to perimeter of monuments
Material: Portuguese Granite
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-5000 and 5002

Q25/142D

PROPOSED - RESIN BOUND SURFACES

Resin Bound Surfacing - to new and existing trees in Albert Square.
Refer to detailed drawings: OTH-PLA-EE-ES-DWG-L-5000, 6002 and 6005

Q23/225A

PROPOSED - BITUMINOUS SURFACES

Proposed Asphalt Surfacing:
New surfacing to Mount Street and Central Street and tie in areas
Refer to Ramboll Pavement Handstanding Details drawings
OTH-RAM-EE-ES-DWG-N-0100 and 0101

EXISTING - NATURAL STONE SURFACES

TO BE RETAINED - any damaged material to be replaced with reclaimed paving material from site or new paving to match existing. Replacement material to **Q25/115A**

Natural Stone Slab Paving: Yorkstone to Mount Street, Lloyd Street, Cooper Street and Princess Street.

TO BE LIFTED & RELAID - any damaged material to be replaced with reclaimed paving material from site or new paving to match existing.

Natural Stone Setts: Reclaimed Granite Setts from Albert Square to Mount Street & Southmill Street carriageway. **Q25/115B**

Natural Stone Slab Paving: Yorkstone to Cooper Street and Lloyd Street. **Q25/115A**

COURTYARD

Refer to the following Courtyard drawings for details of proposals:
OTH-PLA-EE-ES-DWG-L-8005 - 8020, OTH-PLA-EE-ES-DWG-L-1012 and OTH-PLA-EE-ES-DWG-L-5005

NATURAL STONE PLINTHS & STEPS

Natural Stone Steps & Plinths - to Albert Square and Cooper Street entrances.
Material: Scottish Green Schist
Step: Refer to drawing OTH-PLA-EE-ES-DWG-L-5008
Plinths: Refer to drawings OTH-PLA-EE-ES-DWG-L-5004, 5006 & 5007

F21/119A

BOLLARDS AND VEHICLE SECURITY FEATURES

Static Bollard - To IWA 14-1 and 2

Active (Telescopic) Bollard - To IWA 14-1 and 2

STREET FURNITURE & FEATURES

Refer to OTH-PLA-EE-ES-DWG-L-4000 series for Furniture General Arrangement & OTH-PLA-EE-ES-DWG-L-7000 series for details

Seating Elements
Seating plinths, freestanding benches and seating edges to planting areas.
Refer to detailed drawings: OTH-PLA-EE-ES-DWG-L-7000-7002 and 7010-7012

Informal Stone Seating Plinth/Edge to Planting Areas
Material: Scottish Green Schist, solid stone units.
Refer to detailed drawing: OTH-PLA-EE-ES-DWG-L-7013

Bespoke Tree Grilles
Refer to detailed drawings: OTH-PLA-EE-ES-DWG-L-6000 and 7007

Tree Grilles with resin bound gravel tree pit
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-6005

Cycle Stands
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-7004

Litter bin
Refer to detailed drawing OTH-PLA-EE-ES-DWG-L-7005

Wayfinding totems

Bollard control panel

Traffic control totem

For details of security bollards, bollard control panels, traffic control totems and other associated elements refer to Arup Public Realm Security Layout: OTH-ARU-EE-ES-DWG-G-17401 and Specification: OTH-ARU-EX-ES-SPE-Y-0001

1.4 Maintenance of specific materials

GRANITE PAVINGS, EDINGS AND OTHER FEATURES



Scoutmoor yorkstone
cobble



Scoutmoor yorkstone
paviors



Scoutmoor yorkstone
paviors

INITIAL MAINTENANCE

Maintenance requirements are minimal under normal service conditions. If necessary, surfaces may be washed with brush and water or using high pressure hoses. If the latter, care should be taken not to blast away sand in joints.

Note: Do NOT use high pressure jets or suction cleaners for at least 3 months to allow normal detritus build up (considerably longer for paved areas under cover). Alternatively, joint sealants may be considered.

During fixing, or just afterwards, Yorkstone and Sandstone Flooring is generally more hardy than limestone, marble or granite. Its natural constitution lends itself to easy cleaning with a proprietary solution, so any building dirt or leftover reclamation staining may be removed quite satisfactorily with a proprietary chemical

solution, if necessary. If you use it before grouting, make sure the surface is well rinsed and bone dry before applying the appropriate impregnator.

Hardscape can supply on request:

- Advice on stain-removal techniques.
- Suitable products.

- Referrals to specialist cleaning companies as appropriate.

Note: Advice and recommendations are subject to the circumstances of specific problems. Removal of stains cannot therefore be guaranteed. Certain cleaning products may be subject to statutory regulations for safe handling and usage (including COSHH and CDM regulations).

CLEANING OF PAVING

Natural stone paving is very low maintenance once laid. The pointing is the weakest element and may need to be replaced after a number of years. Sweep regularly with a stiff brush to remove dust and detritus. There is a tendency for algae, lichens and mosses to colonise stone paving that is permanently shaded and/or damp. This can be safely removed by a pressure washer. Freshly sawn rough Yorkstone and Sandstone flooring will generally require a little more

maintenance than reclaimed Yorkstone or Sandstone flags. The surfaces of reclaimed flags will be very smooth due to 100 years or more of wear and maintenance before reclamation. There's a number of proprietary solutions that can be used to clean, seal and maintain the appearance of Yorkstone/Sandstone paving units

for which Hardscape can advise on.

WINTER MAINTENANCE

During Winter conditions, despite their effective ability to dissolve and loosen ice or snow from cold surfaces, salts and de-icing agents can have detrimental affects to the appearance of sandstone paving. Spalling, scalling or pitting is a common problem that often occurs after the application of de-icing salts over sandstone surfaces. The only products recommended for de-icing purposes is salt-free grit/sand or urea prills (see separate not in this document).

HEALTH + SAFETY

Some of the cleaning methods described above involve the use of chemicals, which may be damaging or dangerous if not used in the correct manner. It is important that safety warnings issued by the manufacturers of the chemicals should be read carefully and strictly adhered to.

In general, the following precautions should be taken:

- When using chemicals, protective clothing such as gloves, goggles, boots and overalls should be worn.
- Ensure there is adequate ventilation in confined spaces.
- When using flammable materials, ban the use of cigarettes, naked flames and other sources of ignition in the immediate vicinity.

SUPPLIER:

Hardscape or Marshalls

DESCRIPTION:

Yorkstone cobbles, planks and paviors

COLOUR RANGE CONSIDERED:

Grey/buff

LOCATION:

Throughout public realm typically walways along building facades. As shown in hardworks appendices

- When diluting acids, always add acid to water and not water to acid.
- Dispose of safely any clothing which is contaminated with chemicals.
- Ensure care is taken not to damage, contaminate or stain any adjoining material.
- Protect personnel operating near the area to be cleaned from any injury or hazard created by the cleaning.
- Whenever possible care should be taken to ensure that the disposal of 'run-off' materials containing chemicals does not harm personnel, animals or any part of the environment.
- Trials should be carried out on a small, preferably inconspicuous, area of paving to determine the effect of the chemicals before treating a larger area.

1.5 Maintenance of specific materials

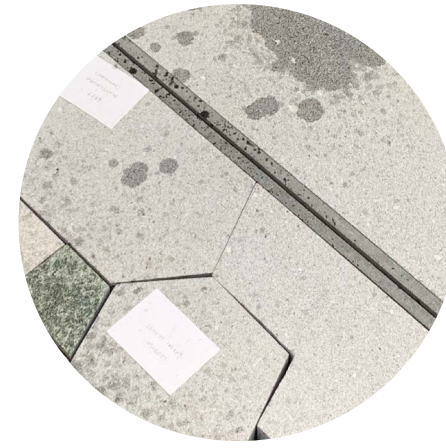
GRANITE PAVINGS, EDGINGS AND OTHER FEATURES



Scottish
schist



Granite setts



Granite paving bands

MATERIALS

Small format rectangular granite setts in random stretcher bond, blend of buff and grey colour granites. To have a small percentage of green grey colour granite within the mix.

Detail paving bands / channels. Granite with smooth finish (colour to be selected from setts colour mix).

Bespoke cast iron drainage channel grating. To sit within granite channels, to match paving bands.

Granite plinth to Albert Square entrance. Green grey colour granite with carved detailing and various finishes.

Yorkstone large format slab paving to building perimeter. To have small percentage of Cumbrian stone within the mix (as St Peter's Square paving).



SUPPLIER:

Hardscape or Marshalls

DESCRIPTION:

Portuguese or Scottish granites

COLOUR RANGE CONSIDERED:

Grey, green and beige

LOCATION:

Granite to podium step treads and nosing, and throughout the central part of Albert Square. As shown in hardworks appendices

FROM NEW

Hardscape advise that newly laid granite is deep cleaned using low pressure steam and impregnated using Pavesaver or Pavesaver Ultra.

This will protect the surface from contamination and prevent staining, where areas are susceptible to heavy staining such as outside eateries it is advised that 2 applications of Pavesaver Ultra is specified.

The process of reapplication should always be carried out within a 5 years.

Granite that is protected with Pavesaver can be maintained on a daily or weekly basis using Grimelifter, this can be applied through nebular spray bottles, scrubber driers and street washing machines using soft bristle brushes, preferably cylindrical brush head as this will maintain a good surface finish.

DIRT REMOVAL

The removal of deep seated stains can be removed using Grimelifter Ultra applied neat to the area and left for 20 minutes and then washed off using a pressure washer or a mop system continually using clean water.

Chewing gum removal should be carried out using low pressure steam using either a hot water pressure washer or steam generator for the best results.

Hardscape advises that a good housekeeping policy is in place that ensures regular / weekly cleaning rather than a singular annual clean.

1.6 Maintenance of specific materials

RESIN BOUND GRAVEL- TREE PITS



Golden buff/grey buff
(Colours to be confirmed)

SUPPLIER:

Sudstech or equal approved
T: 0161 212 1617
E: info@sudstech.co.uk

DESCRIPTION:

SudsTech resin bound gravel
Colour” golden buff/grey buff

LOCATION:

Circular tree pits in Albert Square

NORMAL USE

Sudstech surfaces are intended to be used by the normal pedestrian or vehicular traffic for which they have been designed. Protection should be provided wherever possible against abnormal usage.

ABNORMAL USE

Heavy objects, such as waste skips, should not be dragged across the surface and in the event of heavy vehicle traffic please ensure that the vehicle refrains from dry steering as it may cause superficial damage. Sudstech is resistant to most contaminants, such as oil and grease, however, in the event that hazardous materials come in into contact with the surface please contact your supplier for advice on removal.

In some very rare cases Sudstech surfaces may be marked due to the removal of individual pieces of rubber or aggregate by exceptional point loading.c.

ROUTINE MAINTENANCE

Avoid excessive amounts of soil or detritus being left on the surface as this can cause weed growth and effect porosity. If this occurs, sweep the surface clean with a stiff broom and hose down with clean water.

ICE OR FROST ON THE SURFACE

Sudstech is freeze thaw tested and is unlikely to present any significant frost or ice. However, if for any reason this situation occurs, the removal of ice or frost from the surface can be achieved with the application of salt.

CLEANING - CHEWING GUM REMOVAL

Individual pieces of chewing gum can be removed with a freezing aerosol on the gum followed by scraping off the hardened gum with a wall/paint scraper. For more extensive removal of gum, we would recommend seeking the advice of a specialist cleaning contractor.

WASHING

Washing can be carried out using a portable pressure washer (up to 150bar rating) to remove dirt, grime etc. providing care is taken not to damage the surface with

excessive pressure. Please ensure the water lance is kept at least 200mm from the surface and a fan type jet used.

will prevent the sub base being washed away underneath. The surface can also be vacuumed in dry weather if desired.

For more extensive washing we would recommend contacting a specialist cleaning contractor.

CEMENT OR CONCRETE MARKS

Cement or concrete marks can be removed with careful use of dilute hydrochloric acid or a proprietary cement remover immediately followed by thorough rinsing with clean water.

(Please note that if a lime based aggregate has been used, the acid will tend to dissolve this as well).

REPAIRS AND DAMAGE

Small areas of damage can be repaired using the same blend as the surrounding surface. Dependent on the age of the original material, the patch repaired may take some time to tone in.

1.7 Maintenance of specific materials

MAINTENANCE OPERATIONS – DRAINAGE

In addition to the recommendations below, also refer to the maintenance and operational instructions from the individual drainage suppliers. Advice from the suppliers can also be sought regarding the maintenance of their products using the contact details supplied.

Drainage Channels and Slot Drains

Inspections should be carried out regularly particularly after large prolonged event like Christmas Markets on Albert Square. Drainage channels should be inspected for damage from high stress. Broken channels / gratings should be replaced.

Particularly following storms, the efficiency of the gullies should be checked. The bucket should be removed periodically and checked for blockages. Occasionally water should be poured into the gully and checked that it disperses freely.

Levels of paved areas should be checked and compared with the installation drawings. Paving should be regularly checked for signs of lateral movement (opening or closing of joints) possibly induced by vehicle braking or manoeuvring.

The channels should be cleaned out carefully ensuring the surface finish is not damaged. A shaped shovel (e.g. a trowel) may be used within channels with removable gratings. On slot drains, pressure water jetting is the usual method of cleaning, with a vacuum tanker collecting the water and debris at a convenient point, usually the outfall.

On completion of cleaning operations, the channel bore should be flushed through with water. Where required, joint sealant should be repaired in accordance with the relevant manufacturer's instructions.

The buckets of sumps or gullies should be removed, emptied, cleaned and their drain holes cleared. On no account should boiling water or cleaning agents be brought into contact with polyester channels.

Drainage Channel Gratings

The locking system for the channel grating should be

inspected and checked for tightness.

To remove the gratings, insert the Grating Locking Tool hook under the grating bar and pull grating up sharply to snap grating free. Avoid lifting the grating from one end, which can distort the grating.

Security locks should be fitted to gratings where possible to prevent unauthorised removal.

Contact the supplier - ACO for further advice. Contact: +44 (0) 1462 816666.

MAINTENANCE OPERATIONS – STREET FURNITURE

In addition to the recommendations below, also refer to the maintenance and operational instructions from the individual street furniture suppliers. Advice from the suppliers can also be sought regarding the maintenance of their products using the contact details supplied.

Timber to Benches / Seating

The timber should be treated with Osmo or Owatrol Rubbing Oil. Every 2 years the wood should be cleaned down using the a pre treatment solution which

de-oxidises the wood before re-coating with the Oil. As long as this is done, the wood will keep its colour and will have a much greater lifespan than if left untreated. Osmo/Owatrol Oil are commercially available products and will be available through any good wholesaler or exterior furniture supplier.

Steel Furniture: Litter Bins

The stainless / powder coated steel should be washed down with proprietary cleaner and washed down with clean water. All hinges on bins to be checked and oiled regularly being careful not to leave oil satins on surrounding paving.

Contact the supplier - Wybone for further advice. Contact: +44 (0)1226 352333 / kerryllaw@wybone.co.uk

Steel Furniture: Bollards & Cycle Stands

The steel should be washed down with soap or mild

detergent and warm water followed by a clear water rinse.

For folding bollards, ensure the post is kept clean and free of debris. Clean and lubricate the lock using a lubricant similar to WD40. Always ensure the cover plate is closed when the bollard is not in use. Clear any debris around the cover plate and hinge. Contact the supplier for further advice. Contact: +44 (0) 0330 311 4237

Powder coated Steel Edging

Powder coatings can be treated like most other paints and will benefit from regular washing. If the powder coating is chipped or the steel is exposed in anyway, it is recommended that this should be 'touched up' using external grade paint. Cleaning should take place every 6 months. A mild detergent applied by cloth, sponge or soft brush should be used. The aesthetic life will be prolonged by waxing or polishing with good quality car shampoos and waxes.

GRITTING AND DE-ICING

De-icing materials on hard surfaces to be urea prills, to be 'Ice Melt Original' or equivalent, without stone grit or other corrosive components.

This is important to prevent damage to all plants where gritting material can be expected to run off surfaces into vegetation.

No rock-salt based products are to be used.

Ice Melt Original prills (as well as equivalent no-name urea prills) are known to be completely non-toxic to humans, animals and vegetation.

The supplier of the paving materials Hardscape confirmed that urea prills will not damage the granite, sandstone or concrete paving used on the scheme. The supplier of Ice Melt confirmed the prills are not a trip hazard as they start to dissolve immediately on ice.

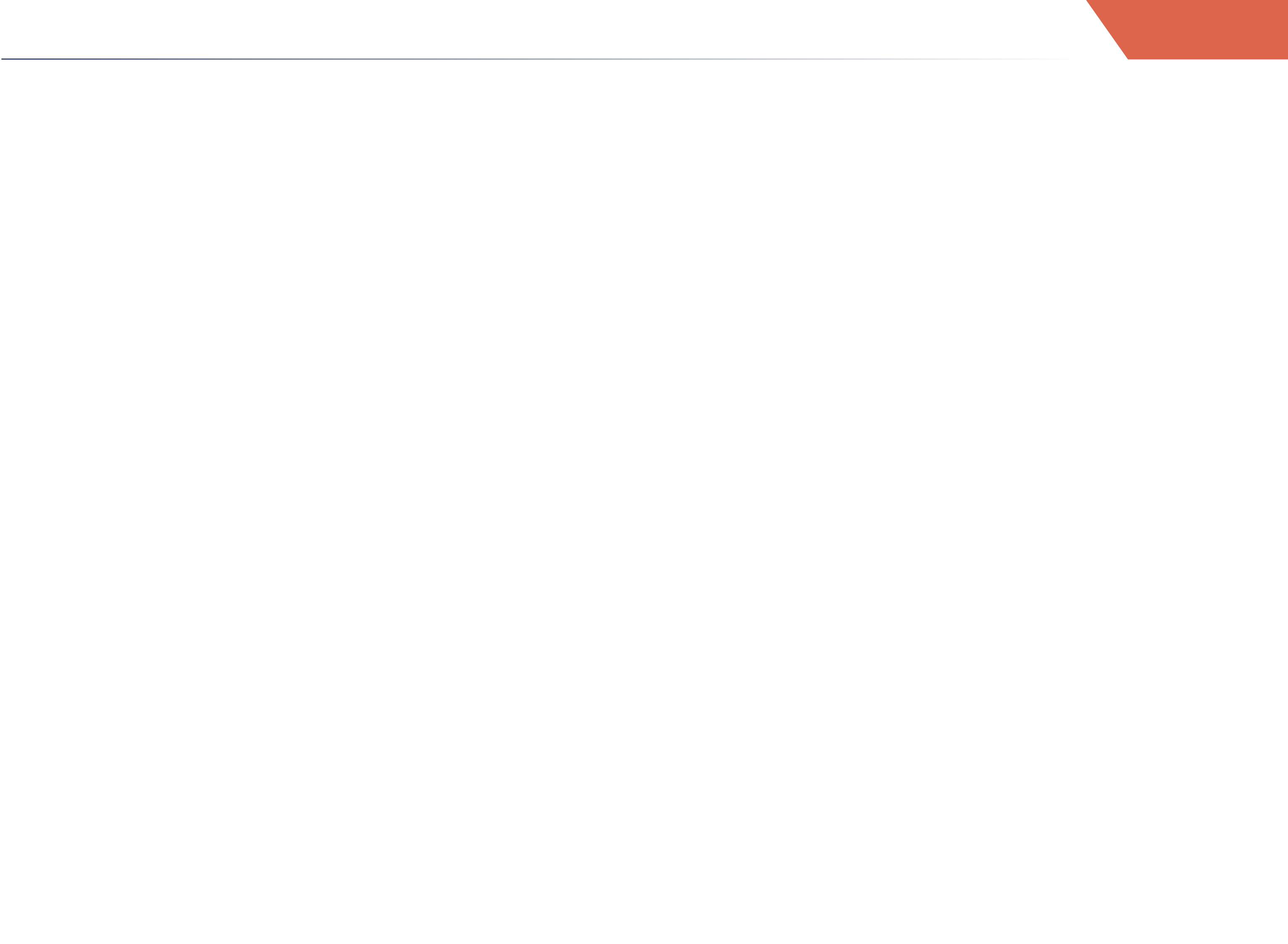
Usage: to manufacturer's recommendation, about 1/6 as much as rocksalt required.

The price per kg for urea prills is higher than that for rock salt, but it's about 6 times more efficient when used correctly.



No rock salt to be used





2

SOFTWARES
MAINTENANCE



OUR
TOWN
HALL
PROJECT

2.1 Planting Proposals

GENERAL

Planit IE have prepared this report in relation to the proposed development of Albert Square and public realm around Manchester's historic Town Hall.

The Maintenance Manual will be adopted, controlled and enforced by MCC's management team committed to excellence in maintaining their area. The following maintenance schedules should be read in conjunction with the landscape design proposals and wider masterplan objectives.

The Manual must be a living document and be constantly reviewed and updated. The maintenance manual addresses specific maintenance of softworks to assure that the public realm maintains a high quality appearance and setting for the Town Hall Complex. Once the construction defects and maintenance period is complete all of the general activities, highlighted below will need to be addressed by the maintenance teams as part of the standard maintenance procedures.

There are 4 existing plane trees currently on site so maintenance of existing tree cover is relevant to this report.

The landscape design proposals can be separated into a number of character types illustrated on the concept plan below and include;

- Ornamental and herbaceous shrub planting
- Hedges
- Bulbs
- Proposed Trees
- Existing Trees

TREE PIT DESIGN

All new trees within hard landscape areas are to be planted in engineered cellular tree pits that will have irrigation and aeration through surface mounted inlets that can be easily accessed for increased demand. This will significantly increasing the growth potential,

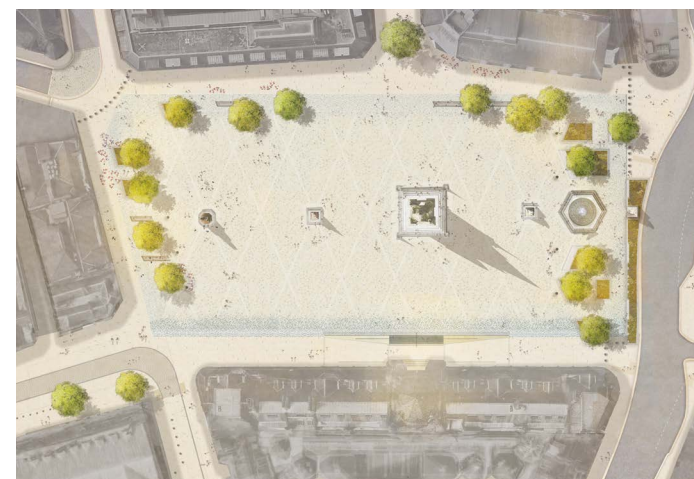
overall health and species palette available. The recently completed St Peter's Square scheme is an exemplar case study that demonstrates the benefits of planting trees in engineered cellular tree pits that provide optimum growing conditions.

The tree pits will also form part of the attenuation strategy through the utilisation of a number of the tree pits in Albert Square. For full details of the drainage and attenuation proposals refer to the Below Ground Surface Water Drainage Strategy produced by Ramboll (reference: OTH-RAM-XX-XX-RPT-C-0017).

TREE SPECIES

In line with the strategy set out in section 5.3 of the Design and Access Statement report it is proposed to remove all trees from Albert Square, with the exception of four high value existing mature plane trees, and plant replacement trees in perimeter locations to enhance the historic sense of openness and key views.

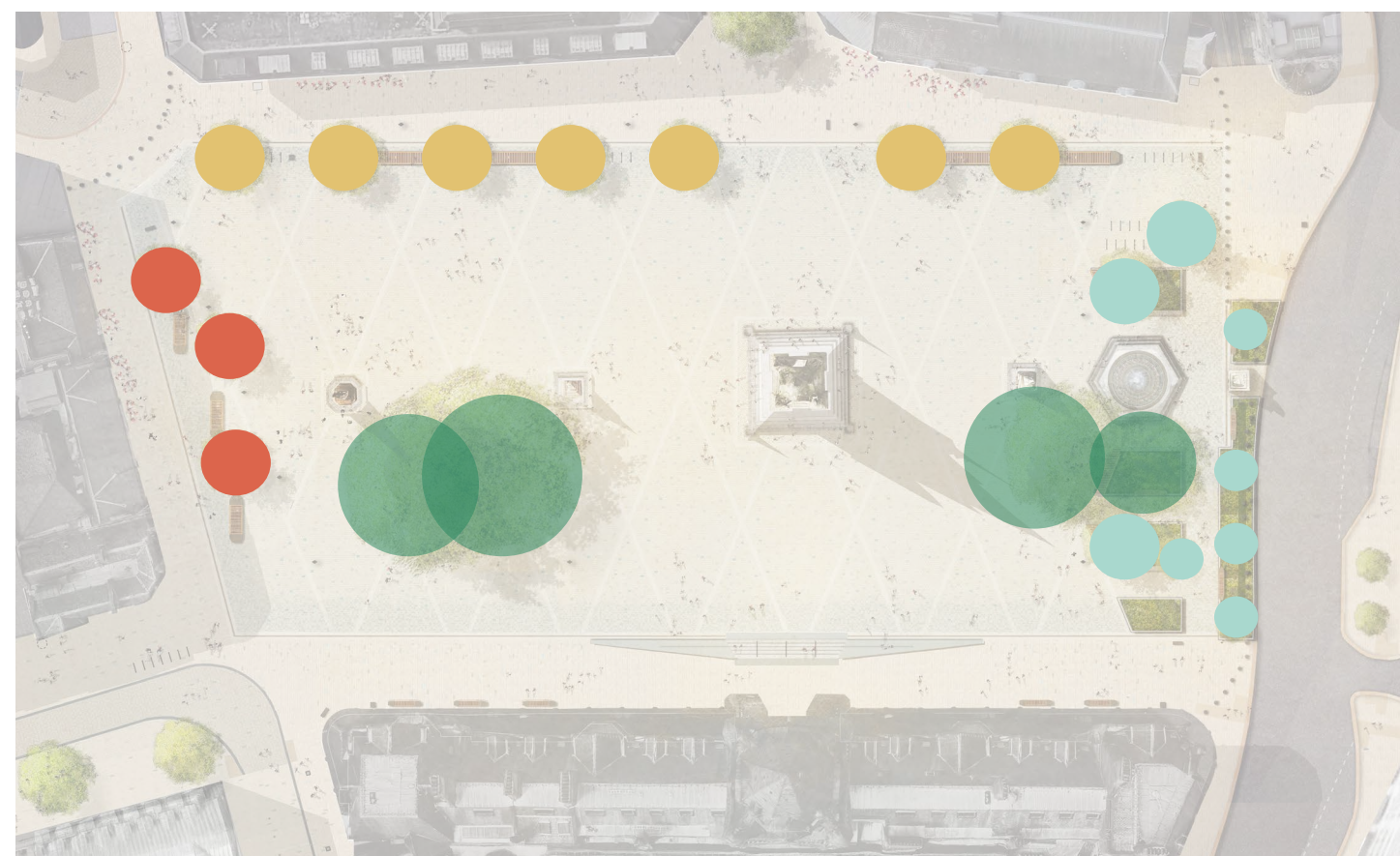
Alongside those retained there will be a total of 18 new trees planted in the square as part of the proposals. A variety of tree species are proposed to provide seasonal interest and amenity value. A number of the species have also been selected due to their climate resilience rating in order to protect the future of these trees against the anticipated affects of global warming and changes to future weather patterns.



Stage 2 Arrangement



Stage 3 Arrangement



Plan showing tree character groups

KEY

- Avenue Trees
- Specimen Trees
- Trees in Green Space

2.2 Planting schedules

All Samples to be approved by Landscape Architect prior to planting. Allow for trees to be tagged in Nursery.

Tree Codes		Tree Planting:					
Code	Species - Latin	Common Name	Specification	Size: girth (cm)	Size: height (cm)	Rootball	Total No.
Al	Amelanchier arborea 'Robin Hill'	Snowy Mespilus	Specimen multi stemmed, min. 5x tr. Multistem Umbrella form.		500-600	RB	3
Cb	Catalpa bignonioides	Indian Bean Tree	Specimen, 6x tr. Extra wide spacing, 3m clear stem.	50-60	700-900	RB	1
Di	Davidia involucrata	Handkerchief Tree	Specimen, 6x tr. Extra wide spacing, 3m clear stem.	40-45	600-700	RB	1
Li	Liriodendron tulipifera	Tulip Tree	Specimen, 6x tr. Extra wide spacing, 4m clear stem.	70-80	700-900	RB	7
Lt 'F'	Liriodendron tulipifera 'fastigiata'	Fastigate Tulip Tree	Specimen, 5x tr. 3m clear stem.	35-40	400-500	RB	5
Ns	Nyssa sylvatica	Tupelo	Specimen, 6x tr. Extra wide spacing, 3m clear stem.	50-60	700-900	RB	1
Pt	Paulownia tomentosa	Foxglove tree	Specimen, 6x tr. Extra wide spacing, 4m clear stem.	70-80	700-900	RB	1
Py	Prunus yedoensis	Yoshino Cherry	Specimen multi stemmed, min. 5x tr. Multistem form.		500-600	RB	2
Op	Quercus palustris	Pin Oak	Specimen, 6x tr. Extra wide spacing, 4m clear stem.	70-80	700-900	RB	1
Rp	Robinia pseudoacacia	Black Locust	Specimen, 6x tr. Extra wide spacing, 4m clear stem.	70-80	700-900	RB	1
Tc	Tilia cordata	Lime	Specimen, 6x tr. Extra wide spacing, 3m clear stem.	50-60	700-900	RB	1

Proposed Hedging						
Code	Species - Latin	Common Name	Specification	Root Zone	Size: height (cm)	Linear m
Tb (L)	Taxus baccata	Yew	To be planted in a double row. Readyhedge instant hedging; 35cm wide x 100cm long; pre-formed with continuous root-strip, dense, straight-sided, furnished to base, neatly clipped. To be cut down to height of 70cm	76L	80-100	31.9
Tb (H)	Taxus baccata	Yew	To be planted in a double row. Readyhedge instant hedging; 40cm wide x 100cm long; pre-formed with continuous root-strip, dense, straight-sided, furnished to base, neatly clipped. To be cut down to height of 1000mm.	76L	120-140	26.9

Proposed Edging						
Code	Species - Latin	Common Name	Specification	Size: Pot (Ltr)	Size: height (cm)	Linear m
Sa.R	Sarcococca confusa	Sweet Box	Bushy; 8 breaks	10L	40-60	19.2

Evergreen Groundcover Species						
Code	Species - Latin	Common Name	Specification	Size: Pot (Ltr)	No/m2	Total Area/m2
As.S	Asplenium scolopendrium	Hart's Tongue Fern	Full Pot	5-7.5L	4	4.1
Epi.P	Epimedium pubigerum	Hairy Barrenwort	Full Pot	5L	8	13.2
Epi.S	Epimedium x versicolor 'Sulphureum'	Barrenwort 'Sulphureum'	Full Pot	5L	8	8.9
Eup.R	Euphorbia amygdaloides robbiae	Mrs Robb's Bonnet	Full Pot	5L	6	25.4
G.Iv	Geranium macrorrhizum 'Ingwersen's Variety'	French Cranesbill 'Wargrave Pink'	Full Pot	5L	6	9
G.Wp	Geranium x oxonianum 'Wargrave Pink'	Balkan Cranesbill 'Ingwersen's Variety'	Full Pot	5L	6	22.4
H.Gf	Heuchera cylindrica 'Greenfinch'	Lava Alumroot 'Greenfinch'	Full Pot	5L	6	14.3
Pa.T	Pachysandra terminalis 'Green Carpet'	Japanese Spurge 'Green Carpet'	Several shoots; 11 breaks	5L	6	30
Per.A	Persicaria affinis	Lesser Knotweed	Full Pot	5L	6	24.7
Po.M	Polystichum setiferum	Soft Shield Fern	Full Pot	5-7.5L	4	4.1

Specimen Species					
Code	Species - Latin	Common Name	Specification	Size: Pot (Ltr)	Total No.
Aca.M	Acanthus mollis	Bear's Breeches	Full Pot	10L	36
Act.S	Actaea simplex 'Atropurpurea'	Bugbane 'Atropurpurea'	Full Pot	10L	25
An.HJ	Anemone x hybrida 'Honorine Jobert'	Japanese Anemone 'Honourine Jobert'	Full Pot	5L	48
Aq.B	Aquilegia vulgaris 'Black Barlow'	Granny's Bonnet 'Black Barlow'	Full Pot	5L	33
Aq.W	Aquilegia vulgaris 'White Barlow'	Granny's Bonnet 'White Barlow'	Full Pot	5L	18
As.A	Astrantia major 'Alba'	Greater Masterwort 'Alba'	Full Pot	5L	37
As.R	Astrantia major 'Ruby Wedding'	Greater Masterwort 'Ruby Wedding'	Full Pot	5L	38
Gi.T	Gillenia trifoliata	Bowman's Root	Full Pot	5L	20
He.Hy	Helleborus x hybridus 'Harvington Shades of the Night'	Lenten Rose	Full Pot	5L	19
He.N	Helleborus niger	Christmas Rose	Full Pot	5L	30
He.Sa	Helleborus x sahinii 'winterbells'	Lenten Rose 'Winter Bell's	Full Pot	5L	18
Lu.N	Luzula nivea	Snowy Woodrush	Full Pot	5L	94
Lr	Lunaria rediviva	Perennial Honesty	Full Pot	5L	15
Ro.P	Rodgersia podophylla	Rodgerss Bronze-leaf	Full Pot	10L	7
Sa.N	Salvia nemorosa 'Ostfriesland'	Balkan Clary 'Ostfriesland'	Full Pot	10L	16

Bulb planting to be throughout planting beds - 48.8m2

BULB PLANTING:		Density	Flowering
Allium atropurpureum	March-April	30/m2	May-June
Allium nigrum	Bluebells	30/m2	June
Camassia leichtlinii alba	Californian white-flowered quamash	30/m2	April-May
Narcissus 'Thalia'	Daffodil 'Thalia'	30/m2	March-April
Tulipa 'Spring Green'	Tulipa 'Spring Green'	30/m2	April-May
Tulipa 'Queen of Night'	Tulipa 'Queen of Night'	30/m2	April-May
Tulipa 'White Triumphator'	Tulipa 'White Triumphator'	30/m2	April-May

2.3 Planting Proposals

The species proposed to the southern edge of the square form a continuation of the palette used within St Peter's Square, as an extension of the civic quarter. These include the Foxglove tree (*Paulownia tomentosa*), Pin Oak (*Quercus palustris*) and the Black Locust (*Robinia pseudoacacia*).

An avenue of Tulip trees (*Liriodendron tulipifera*) are proposed to the western edge of the square, providing formal structure and vibrant autumn colour.

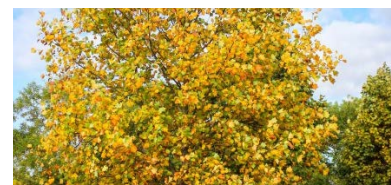
Within the proposed green space to the eastern edge of the square, a variety of tree species have been proposed in addition to the two mature London Plane trees that are to be retained. These species have been chosen for their flowering interest and / or their striking autumn colour, providing seasonal interest in the square.

On Princess Street it is proposed to replace the existing trees that have been heavily pruned as a result of the Metrolink Second City Crossing works with a fastigate species better suited to the constraints of this location. The fastigate tulip tree, *Liriodendron tulipifera* 'Fastigiatum' is proposed as a replacement for the five existing trees in this location.

Avenue Species



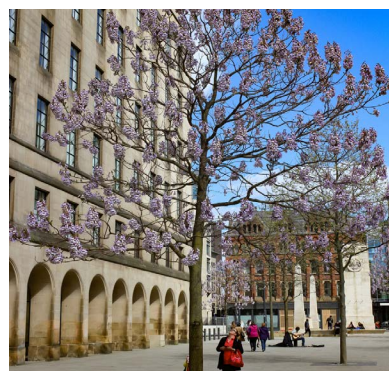
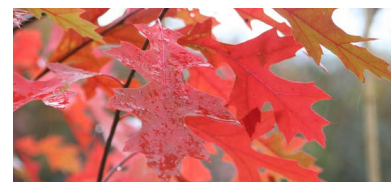
Liriodendron tulipifera



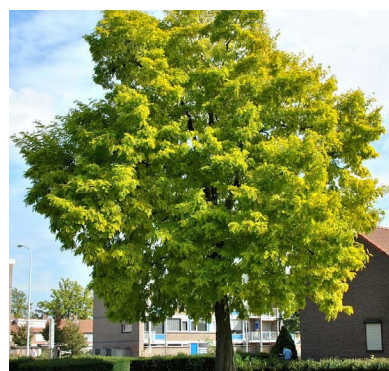
Specimen Species



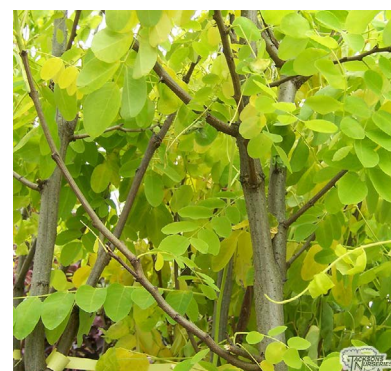
Quercus palustris



Paulownia tomentosa



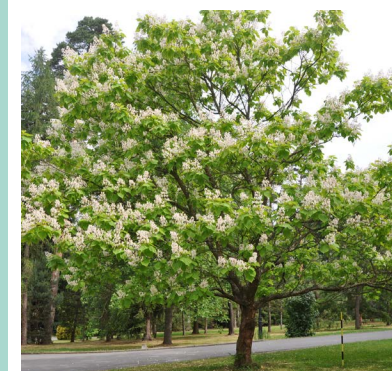
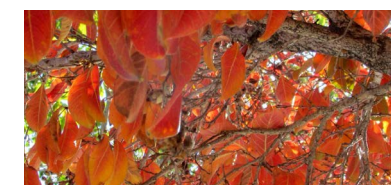
Robinia pseudoacacia



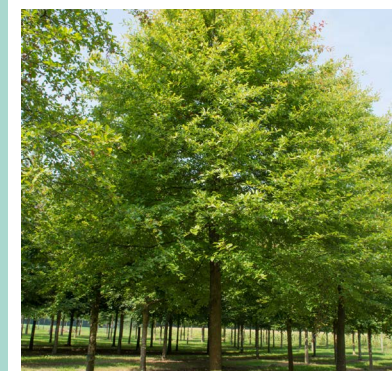
Garden Species



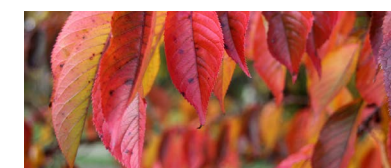
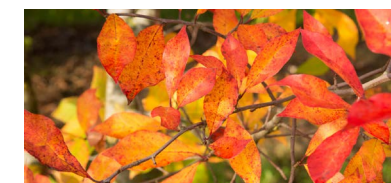
Davidia involucrata



Catalpa bignonioides



Nyssa sylvatica



2.4 Planting Proposals

Some of the most successful public squares and spaces use tree planting and green space to complement the hard landscape features. Trees and planting can provide structure to a space as well as being an ever changing feature that animates the different seasons. St Peter's square is an example of how the tree planting and green infrastructure can define a space as successfully as any other aspect.

Whilst it is acknowledged that trees and planting in Albert Square will have a level of detrimental impact on heritage as outlined in section X, these considerations must be balanced against the wider public benefits and also take into account Manchester City Council planning policy and long term strategies regarding trees and green space in the city.

The approach to trees and planting is in line with the Manchester Tree Action Plan 2016-20, and Manchester's Green and Blue Infrastructure Strategy, and the wider public benefits can be summarised as follows;

- Helping to deliver drainage and SUDs requirements for the project, reducing surface water run-off across the square and directly into public sewers during heavy rainfall and storm events through use of tree pits as part of the surface water attenuation strategy.
- Providing proven health and wellbeing benefits through access to green space that is relatively limited in this part of the city centre.
- Creating a protective edge to the public realm and a sense of enclosure within a larger open hard space, encouraging people to dwell and spend time. Also ensuring there is an area that is always accessible to the public and cannot be encroached upon by events in the square.
- Providing shelter from the sun and cooling effects that are especially important with predicted affects of climate change.
- Contribution to reducing the urban heat island effect through canopy cover and provision of green space instead of hard paving materials.
- Ecological benefits and increase to inner city biodiversity through networks of smaller scale urban green space that provides corridors to wildlife.



Gillenia trifoliata



Acanthus mollis



Rodgersia podophylla



Aquilegia vulgaris 'White Barlow'



Actaea simplex 'Atropurpurea'



Astrantia major 'Alba'



Salvia nemorosa 'Ostfriesland'



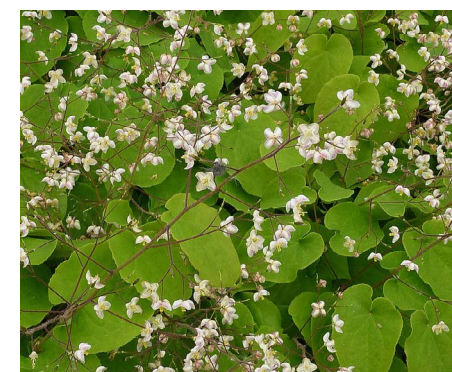
Anemone x hybrida 'Honorine Jobert'



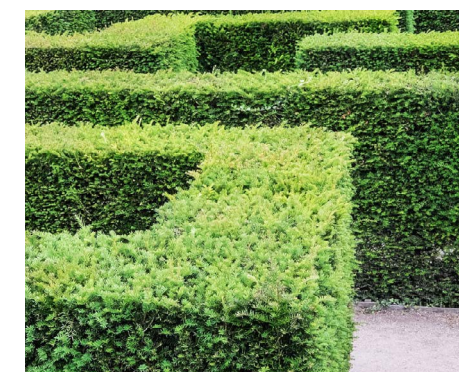
Aquilegia vulgaris 'Black Barlow'



Helleborus x hybridus 'Harvington Shades of the Night'



Epimedium pubescens



Taxus baccata - hedging

2.5 Planting maintenance

BRIEF

The brief below describes the framework:

- The management plan will cover a time period of 15 years. After this time a full review of the site should be undertaken and a new management and maintenance plan produced.
- The Management Plan must give consideration to environmentally sensitive design and management
- The Management Plan will seek to provide a net increase in the nature conservation value of the site
- The Management Plan should consider other needs of the site including ensuring sight lines for security are maintained.

MONITORING

The Management Plan’s life span has been divided into key stages of 5 yearly intervals. These will be used as the basis for developing the plan and setting reviewing targets.

Monitoring is of fundamental importance, since this is the means by which the success of the plan will be measured. It is therefore important to establish standardised survey and monitoring methods, which enable valid year on year comparisons to be made. There will be a need for flexibility during its implementation. The Management Plan must be an evolving one, able to adapt to the specific needs of the site.

At the outset of the plan Manchester City Council’s public realm maintenance team will need to work alongside the initial landscape and maintenance sub-contractor to monitor and provide guidance on ongoing wider management and maintenance issues. This maintenance provider should undertake an annual review of the site, providing written documentation as to the ongoing establishment of the planting. This report should include a condition review of all new and existing plant material, success rates of newly planted material, and recommendations for future management regimes and immediate management requirements.

MAINTENANCE OPERATION

A Health and Safety plan is an important consideration for any area of public realm. The landscape maintenance team will be expected to produce a risk assessment and method statement for the maintenance of the planting areas.

Highways

Maintenance works associated with works adjacent to highways will need to be considered as part of the general management and maintenance procedures

Chemicals

Chemicals generally should be restricted in use. All chemicals, herbicides, pesticides and fertilisers, should be approved by English Nature and should be used, stored and disposed of in accordance with EN guidelines and COSHH Regulations 2002.

Watering points

A number of watering points have been incorporated within the podium designs. Where possible the spacing between the water points has been coordinated to allow a 50m hose to reach all planting areas.

MAINTENANCE OPERATIONS

Set out in the tables overleaf are the maintenance operations that should be carried out over the next 15 years in order to achieve the design objectives. They have been set out in a format that can be easily followed by all parties, ensuring

that the Management Plan exists and a working document and not an archived report. The management prescriptions are flexible such that each section can be changed and updated on an annual basis, allowing targets to be set, progress monitored and accurate reporting made.

PROJECTED MAINTENANCE

The tree species have been carefully chosen for their suitability to the location. Formative pruning has already been carried out on the nursery and this will produce suitable growth and canopy shape for the space provided.

In the event of any structural damage to the trees by unknown circumstances such as an extreme weather event the following guidelines should be observed:

Ensure that trees and other vegetation are regularly monitored, maintained and pruned to retain clear lines of sight lines for security cameras and other surveillance.

Where possible, pruning should be carried out in the dormant season to avoid excessive sap loss. The onset of sap pressure varies with species so the following timetable should be observed ;

Trees:

Amelanchier arborea ;	Prune Spring
Catalpa bignonioides ;	Prune January
Davidia involucrata	Prune Spring/Autumn
Liriodendron tulipifera	Prune Spring/Autumn
Liriodendron tulipifera 'Fastigiata'	Prune Spring/Autumn
Nyssa sylvatica ;	Prune Spring/Autumn
Paulownia tomentosa	Prune Spring/Autumn
Quercus palustris	Prune Spring
Prunus yedoensis;	Prune October/November
Robinia pseudocacia ‘Doorenbos’;	Prune April/May

Hedging:

Buxus sempervirens	Prune Spring/Autumn
Taxus baccata	Prune Spring/Autumn

IRRIGATION

Irrigation of the trees and shrub areas particularly during the first growing season will be fundamental to their long term successful establishment.

NUTRITION

The tree pits have been backfilled with a suitable growing medium containing nutrition sufficient for the initial period of establishment.

After three years it would be advisable to apply an application of fertiliser in the Spring as a top dressing. A broad spectrum fertiliser such as HortiTop Complete (available from Hortifeeds) would be suitable. A routine soil test carried out every 2 years would establish the need for any supplementary fertiliser.

Trees with hard standing should have a liquid fertiliser applied annually during spring.

2.6 Planting maintenance - Ornamental Shrubs

MAINTENANCE OPERATION

- **Weed control:** Keep planting beds clear of weeds by a combination of hand operations and herbicide applications
- **Watering:** As necessary to ensure establishment of planting
- **Soil condition:** Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.

Maintenance	Prescription	Year (s)	Season	Frequency
	ORNAMENTAL SHRUB PLANTING			
	Maintenance during defects liability period or 5 years after planting, whichever is the greater			
	Maintain weed free area to the surface of all planting areas	1 – 5	March - October	9
	Fertiliser application	1 – 5	Spring	1
	Re-firm all shrubs as necessary	1 – 5	Spring - Autumn	9
	Prune as necessary to encourage healthy growth and to maintain any clipped forms as illustrated on the drawings	1 – 5	Spring - Autumn	2
	Control all pests and diseases as necessary	1 – 5	As required	As required
	Remove all dead or damaged material	1 – 5	March - October	9
	Watering – Regular checks using a moisture probe testing during the first year after planting on a monthly cycle during the summer months of May-September.	1	May - Sept	5
	Water as necessary to ensure healthy growth	1 -2	Spring -	As required
	Replace dead or damaged material to original specification	1 - 5	Autumn	1
	Top up mulching annually to a minimum depth of 50mm	1-5	Spring	1
		6 - 15		1
	Post 1-5 years. Maintenance for 6-15 years	6 - 15	As required	As required
	Replace any dead/under performing shrubs. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause	5	Autumn	1
	Control pests and diseases as necessary and remove any non-native self seeded material		Autumn	

2.7 Planting maintenance - Herbaceous Shrubs

MAINTENANCE OPERATION

- **Weed control:** Keep planting beds clear by a combination of hand operations and herbicide applications
- **Watering:** As necessary to ensure establishment of planting
- **Soil condition:** Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.

Maintenance Operation Number	Prescription	Year (s)	Season	Frequency (per year)
	HERBACEOUS PLANTING			
	Maintenance during defects liability period or 5 years after planting whichever is the greater			
	• Maintain weed free area to the surface of all planting areas	1 – 5	March / October	9
	• Application of granular fertilizer (15:15:15)	1 – 5	Spring	1
	• Ensure plants remain firmly bedded after disturbance and re-firm as necessary	1 – 5	As required	Each maintenance visit
	• Re-firm plant supports and replace as needed	1 – 5	As required	Each maintenance visit
	• Prune as necessary to encourage healthy growth as illustrated on the drawings: Prune herbaceous perennials as required to maintain form and supply supports as needed during the growing season.	1 – 5	Spring/Summer	1
	• Prune hardy herbaceous perennials in autumn retaining feature flower heads or seed heads to provide interest through the winter months	1 – 5	Autumn	1
	• Prune tender perennials and borderline hardy perennials in spring once the risk of frost has passed (April / May). This is to protect the growing crown during winter.	1 – 5	April/May	1
	• Cut back early flowering perennials near to ground level after flowering to encourage fresh foliage and later summer flowering. Cut back again in spring.	1 – 5	Summer & spring	1
	• Control all pests and diseases as necessary	1 – 5	As required	2
	• Replace any dead/ under performing plants. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause.	1 – 5	March/October	As required
	• Watering – Regular checks using a moisture probe testing during the first year after planting on a monthly cycle during the summer months of May-September.	1	May/September	As required
	• Water as necessary to ensure healthy growth. Water as necessary to ensure healthy growth. If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.	1 – 5	As required	5
	• Top up mulch planting to original specification at the start of each year after the cutting back of tender perennials.	1 – 5	Spring	As required
	• Divide large groups of perennials every 3 years:	3	Spring/Autumn	1
	• Divide summer flowering plants in spring or autumn providing that the ground is dry enough to work.	3	Summer	1
	• Divide spring flowering plants in summer after flowering.	6 - 15	As required	1
		6 - 15	Autumn	As required

continued..

Maintenance Operation Number	Prescription	Year (s)	Season	Frequency (per year)
	HERBACEOUS PLANTING Maintenance during defects liability period or 5 years after planting whichever is the greater Post 1-5 years. Maintenance for 6-15 years - Post 5 years maintain as above - Replace any dead/under performing plants. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause. - Control all pests and diseases as necessary			As required

2.8 Planting maintenance - Moisture tolerant planting

MAINTENANCE OPERATION

- **Weed control:** Keep planting beds clear by a combination of hand operations and herbicide applications
- **Watering:** As necessary to ensure establishment of planting

Maintenance Operation Number	Prescription	Year (s)	Season	Frequency (per year)
	RAIN GARDEN Maintenance during defects liability period or 5 years after planting whichever is the greater • Watering - For the first three weeks after planting, water the rain garden once per week. It is not necessary to water during a given week if 25mm of rain accumulates. Water the rain garden during drought periods in mid-summer, if needed. • Mulch - Until the rain garden plants are established, mulching the edge/slope of the rain garden interior will discourage weed growth and soil erosion. Maintain 250mm of non-dyed hardwood mulch on the rain garden, as it will reduce hardpan formation and help absorb runoff. Add mulch annually as needed. Take care not to bury the root flares of the plants • Inspect rain garden for weeds and remove by hand • Remove rubbish/animal waste • Remove and replace diseased or dead plants as needed to the original specification • Check for sedimentation - occasionally use a flat shovel to remove any excess Post 1-5 years. Maintenance for 6-15 years • Post 5 years maintain as above	1 - 5 1 - 5 1 - 5 1 - 5 1 - 5 1 - 5 6 - 15	As required Annually Monthly Monthly Monthly Annually As required	As required 1 Each maintenance visit Each maintenance visit Monthly 1 As required

2.9 Planting maintenance - Formal hedges and clipped shrubs

MAINTENANCE OPERATION

- **Weed control:** Keep all hedgeliners clear of weeds by a combination of herbicide applications and hand weeding.
- **Watering:** As necessary to ensure establishment of planting

Maintenance Operation Number	Prescription	Year (s)	Season	Frequency (per year)
	FORMAL HEDGES			
	Maintenance during defects liability period or 5 years after planting whichever is the greater		March to October	9
	• Maintain a 1m wide weed free strip to the line of new hedge planting by a combination of hand weeding and herbicide operations	1 - 5	Spring	1
	• Application of granular fertilizer (15:15:15)	1 - 5	As required	Each maintenance visit
	• Ensure plants remain firmly bedded after disturbance and re-firm as necessary	1 - 5	As required	Each maintenance visit
	• Check any support fencing for defects and replace repair where required	1 - 5	May/September	Each maintenance visit
	• Watering – Regular checks using a moisture probe testing during the first year after planting on a monthly cycle during the summer months of May-September.	1	As required	5
	• Water as necessary to ensure healthy growth. If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.	1 – 5	As required	As required
	• Control all pests and diseases as necessary	1 - 5	March/October	As required
	• Replace any dead/ under performing plants. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause.	1 - 5	Spring and Autumn	As required
	• Trim hedging to agreed final heights. Trim to a gentle ‘A’ form to allow light to reach lower areas. Do not prune out leaders until final height has been reached	1 - 5	Spring	2
	• Top up mulch planting to original specification at the start of each year	1 - 5	Early autumn	1
	Post 1-5 years. Maintenance for 6-15 years	6 - 15	Autumn	1
	• Maintain the hedge at a final height of 1.5m. Trimming to a gentle ‘A’ form as above.	6 - 15	As required	1
	• Replace any dead/ under performing plants. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause	6 - 15		As required
	• Control all pests and diseases as necessary			

2.10 Planting maintenance - Trees

MAINTENANCE OPERATION

- **Identification:** Before starting work agree which trees are to be removed or pruned
- **Protection:** Avoid damage to neighbouring trees, plants and buildings
- **Standards:** To BS 3998 and Health & Safety Executive (HSE) ‘Forestry and arboriculture safety leaflets’
- **Removing branches:** Cut as shown in Arboricultural Association Leaflet No 8 ‘Mature tree maintenance’. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater
- **Appearance:** Leave trees with a well balanced natural appearance
- **Chain saw work:** Operatives must hold a Certificate of Competence
- **Tree work:** To be carried out by an approved member of the Arboricultural Association

ADDITIONAL WORK

- Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

PREVENTION OF WOUND BLEEDING

- **Standard:** To BS 3998, clause 8.

PREVENTION OF DISEASE TRANSMISSION

- **Standard:** To BS 3998, clause 9 and Appendix B.

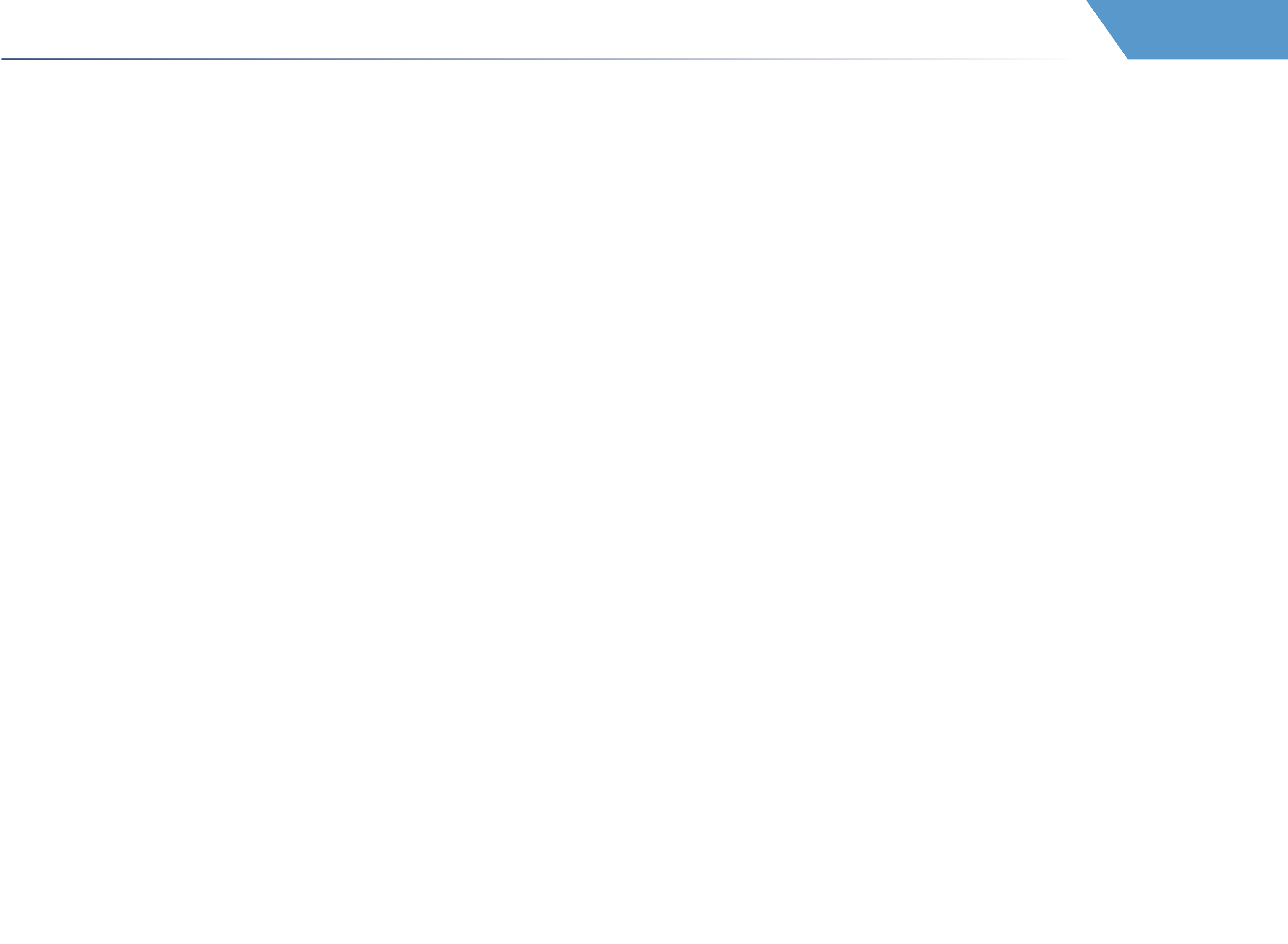
WATER RESTRICTIONS

- **General:** If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

Maintenance Operation Number	Prescription	Year (s)	Season	Frequency (per year)
3.2.3	TREE PLANTING			
	Maintenance during defects liability period of 5 years after planting whichever is the greater	1 – 5	As required	2 March - September
	To establish new planting, maintain a 1m diameter weed free area around all trees within grass. Trees within self bound gravel should be maintained totally	1 – 5	Spring -	1
	UNDERGROUND TREE GUY WIRES			
	Inspection / maintenance times: Quarterly and after strong winds	1 – 5	Throughout year	2
	Operations: Replace or re-secure loose or missing guy wires			
	Apply granular fertiliser according to manufacturer’s recommendations	1 – 5	Spring -	Bi-annual
	Ensure trees remain firmly bedded after disturbance and re-firm as necessary	1 – 5	As required	1
	Control all pests and diseases as necessary	1 – 5	As required	To be determined
	Prune in accordance with good horticultural practice, thin, trim and shape as appropriate. Eg. Removing branches: Do not damage or tear the stem. Wounds: Keep as small as possible and cut cleanly back to sound wood. Cutting: Make cuts above and sloping away from an outward facing healthy, angled so that water will not collect on cut area. Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide. Tools: Use clean sharp secateurs, handsaws or other approved tools. Disease of infection: Give notice if detected. Growth retardants, fungicide or pruning sealant: Do not use unless instructed			
	Watering – Regular checks using a moisture probe testing during the first two years after planting on a monthly cycle during the summer months of May-	1 – 2	Monthly	24
	Water as necessary to ensure healthy growth	3	As required	As required
	Replace dead or damaged trees to original specification. Remove within 1 month or as soon as possible and replace within the next available planting season	1 - 5	Autumn	1
	Top up mulching to original specification annually	1 - 5	Spring	1

2.11 Planting maintenance - Trees

Maintenance Operation Number	Prescription	Year (s)	Season	Frequency (per year)
3.2.3	Autumn LEAF REMOVAL			
	Collect accumulations of drifted leaves from the vicinity and from paved lawn area	1 - 5	Autumn/Winter	As required
	Arisings: Remove			
	Post 1-5 years. Maintenance for 6-15 years	6 - 15	Autumn	1
	Replace any dead/ underperforming trees planted. Where planting continually fails to establish, undertake investigations to ascertain any underlying cause.	6 - 15	Autumn	1



3



MAINTENANCE OF STREET
FURNITURE, DRAINAGE
AND LIGHTING



OUR
TOWN
HALL
PROJECT

3.1 Softworks Drawings

MAINTENANCE OPERATIONS – STREET FURNITURE

In addition to the recommendations below, also refer to the maintenance and operational instructions from the individual street furniture suppliers. Advice from the suppliers can also be sought regarding the maintenance of their products using the contact details supplied.

Timber to Benches / Seating

The timber should be treated with Osmo or Owatrol Rubbing Oil. Every 2 years the wood should be cleaned down using the a pre treatment solution which

de-oxidises the wood before re-coating with the Oil. As long as this is done, the wood will keep its colour and will have a much greater lifespan than if left untreated. Osmo/Owatrol Oil are commercially available products and will be available through any good wholesaler or exterior furniture supplier.

Steel Furniture: Litter Bins

The stainless / powder coated steel should be washed down with proprietary cleaner and washed down with clean water. All hinges on bins to be checked and oiled regularly being careful not to leave oil satins on surrounding paving.

Contact the supplier - Wybone for further advice.
Contact: +44 (0)1226 352333 / kerryllaw@wybone.co.uk

Steel Furniture: Bollards & Cycle Stands

The steel should be washed down with soap or mild detergent and warm water followed by a clear water rinse.

For folding bollards, ensure the post is kept clean and free of debris. Clean and lubricate the lock using a lubricant similar to WD40. Always ensure the cover plate is closed when the bollard is not in use. Clear any debris around the cover plate and hinge. Contact the supplier for further advice. Contact: +44 (0) 0330 311 4237

Powder coated Steel Edging

Powder coatings can be treated like most other paints and will benefit from regular washing. If the powder coating is chipped or the steel is exposed in anyway, it is recommended that this should be 'touched up' using external grade paint. Cleaning should take place every 6 months. A mild detergent applied by cloth, sponge or soft brush should be used. The aesthetic life will be prolonged by waxing or polishing with good quality car shampoos and waxes.

MAINTENANCE OPERATIONS – LIGHTING

In addition to the recommendations below, also refer to the maintenance and operational instructions from the individual lighting suppliers. Advice from the suppliers

can also be sought regarding the maintenance of their products using the contact details supplied.

Lighting Columns

Check side panels and light fittings periodically and tighten if required. Clean as required in accordance with supplier/manufacturer's recommendations and periodically inspect LED light fittings and control boxes.

MAINTENANCE OPERATIONS – DRAINAGE

In addition to the recommendations below, also refer to the maintenance and operational instructions from the individual drainage suppliers. Advice from the suppliers can also be sought regarding the maintenance of their products using the contact details supplied.

Drainage Channels and Slot Drains

The design team have undertaken cost analysis of the three different systems based upon capital, and life cycle costing (LCC). Life cycle costing is based upon replacement and maintenance costs over a 50 year period as defined in the project brief. The following key assumptions have been made:

- Replacement cost of channel drain covers - gradual replacement of covers as and when damaged but assumed all will be replaced over a 20 year cycle.

- Slot drain covers only replaced with full system replacement at 40 years i.e. no ad-hoc reactive replacement allowed for.
- Maintenance - all systems have a minimum of 2 visits per year.

Maintenance - assumed done robustly with combi unit of jet wash/gully sucker. Engagement with the market undertaken who advised that cleaning of linear drains slightly quicker, hence the annual maintenance cost for linear drainage is lower. Inspections should be carried out regularly particularly after large prolonged event like Christmas Markets on Albert Square. Drainage channels should be inspected for damage from high stress. Broken channels / gratings should be replaced.

Particularly following storms, the efficiency of the gullies should be checked. The bucket should be removed periodically and checked for blockages. Occasionally water should be poured into the gully and checked that it disperses freely.

Levels of paved areas should be checked and compared with the installation drawings. Paving should be regularly checked for signs of lateral movement (opening or closing of joints) possibly induced by vehicle braking or manoeuvring.

The channels should be cleaned out carefully ensuring the surface finish is not damaged. A shaped shovel (e.g. a trowel) may be used within channels with removable gratings. On slot drains, pressure water jetting is the usual method of cleaning, with a vacuum tanker

collecting the water and debris at a convenient point, usually the outfall.

On completion of cleaning operations, the channel bore should be flushed through with water. Where required, joint sealant should be repaired in accordance with the relevant manufacturer's instructions.

The buckets of sumps or gullies should be removed, emptied, cleaned and their drain holes cleared. On no account should boiling water or cleaning agents be

brought into contact with polyester channels.

Drainage Channel Gratings

The locking system for the channel grating should be inspected and checked for tightness.

To remove the gratings, insert the Grating Locking Tool hook under the grating bar and pull grating up sharply to snap grating free. Avoid lifting the grating from one end, which can distort the grating.

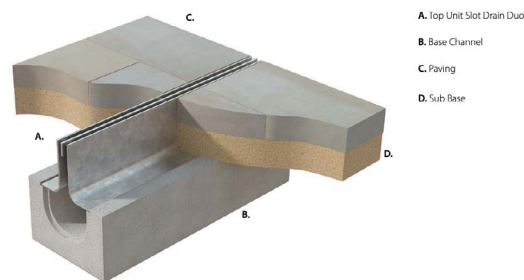
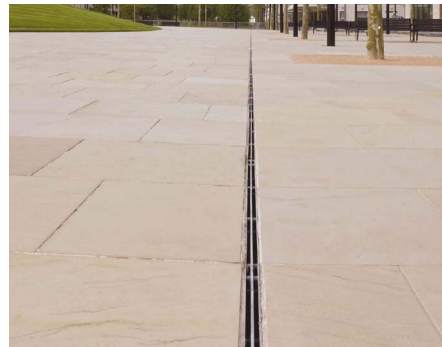
Security locks should be fitted to gratings where possible to prevent unauthorised removal.

Contact the supplier - ACO for further advice. Contact: +44 (0) 1462 816666.

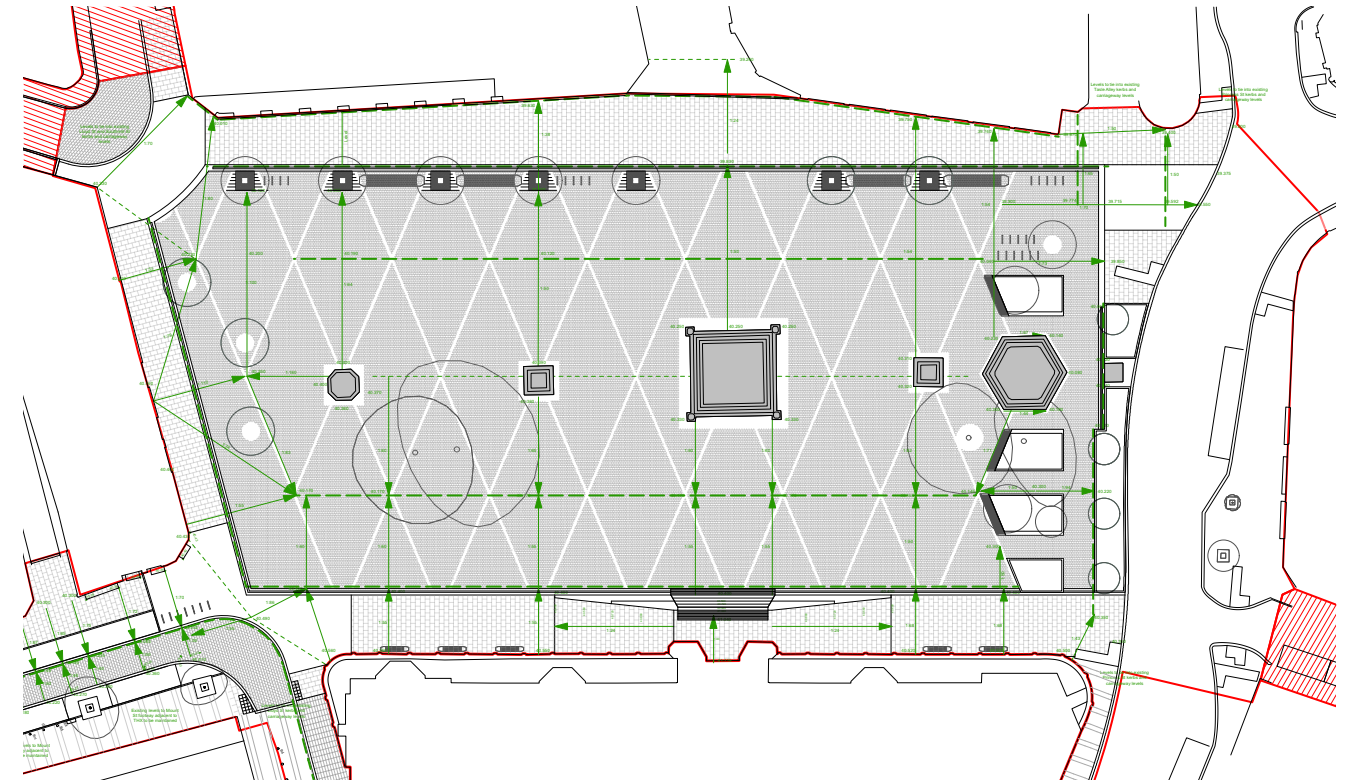
Slot Drain

Linear Drainage Strategy

Marshall's Duo Slot Drain



Current Levels and Drainage Strategy



Illustrative diagram of linear drainage system (slot / channel drains)

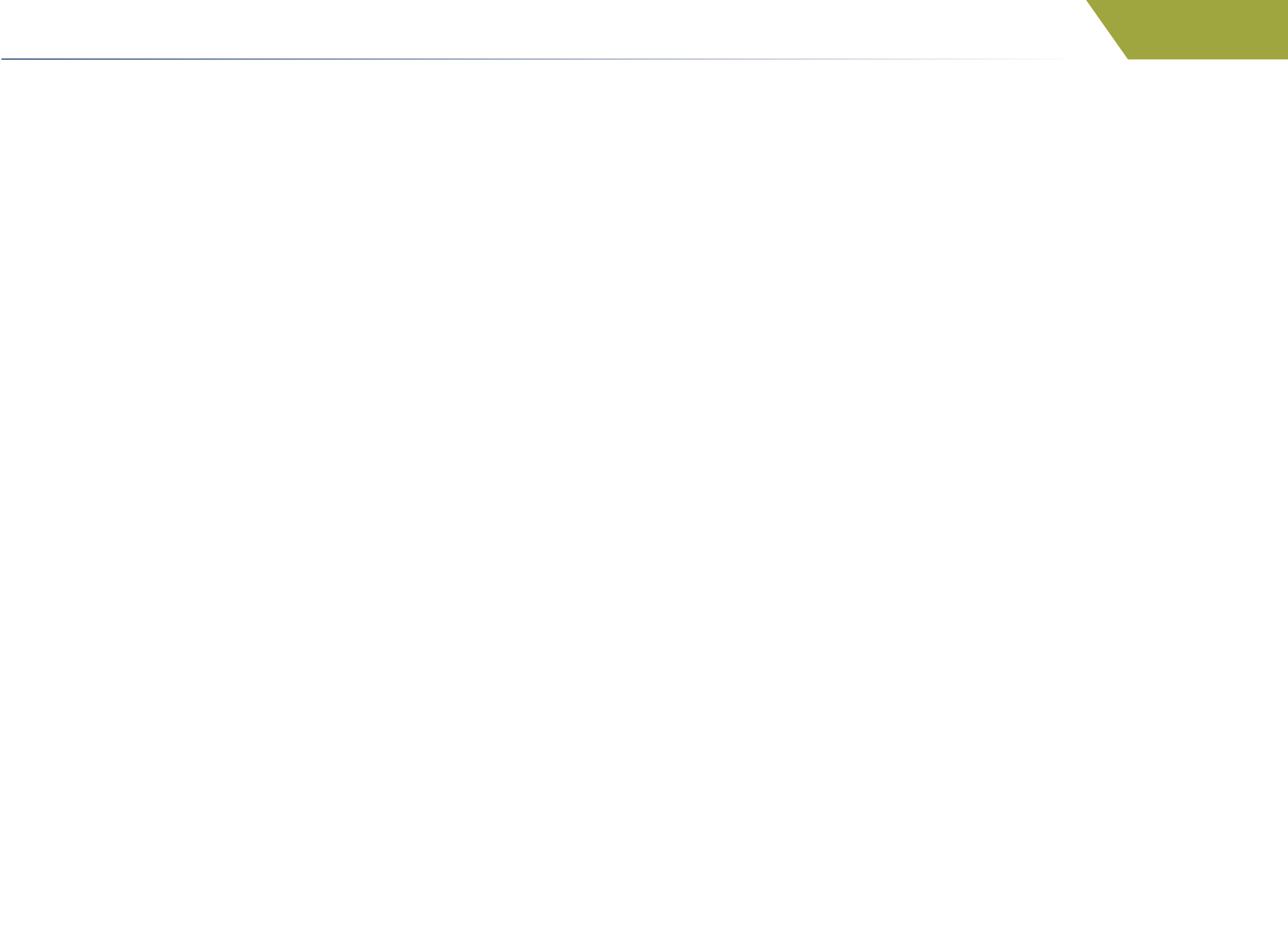


Channel Drain

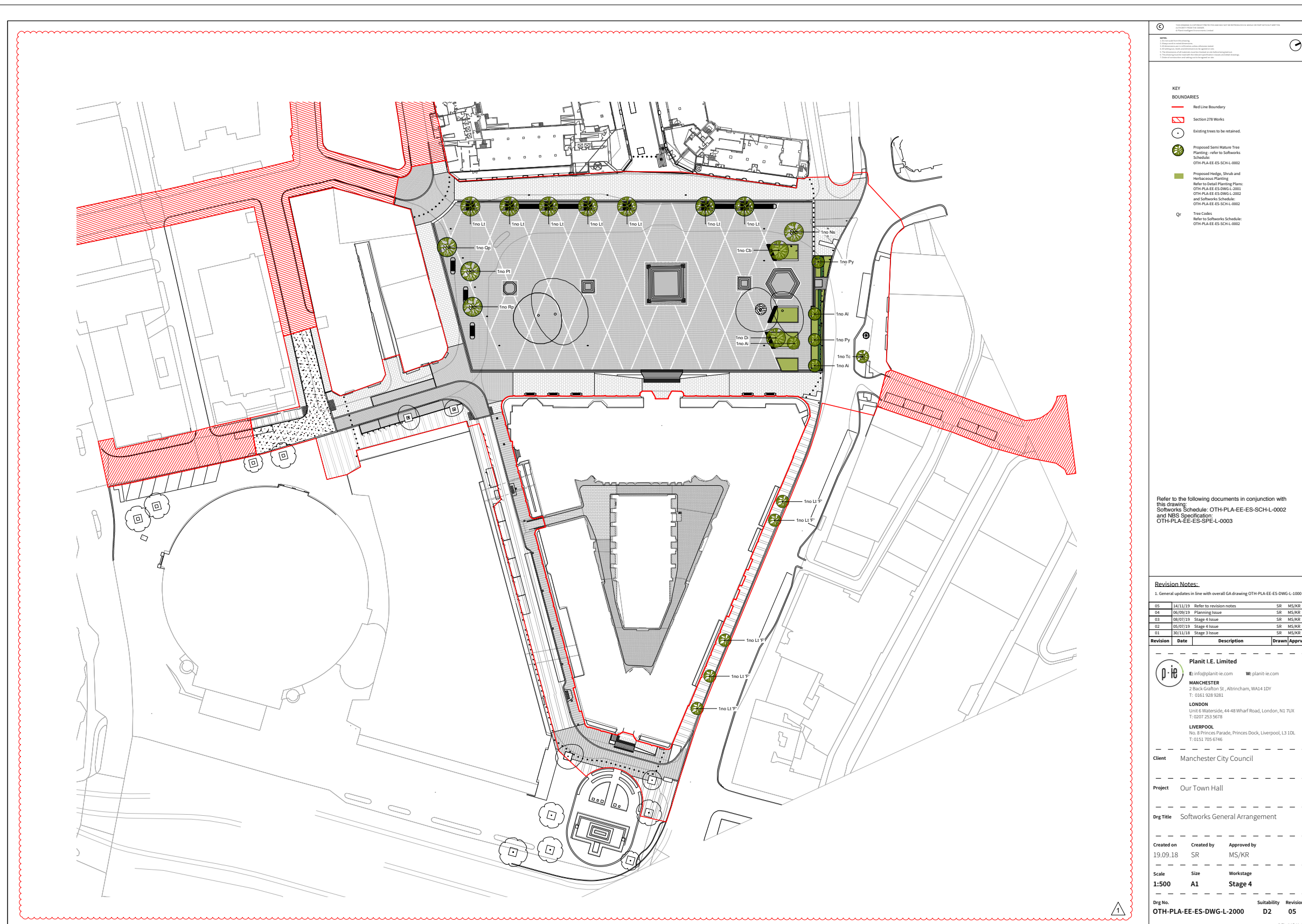
Linear Drainage Strategy

Aco Freestyle Channel Drain

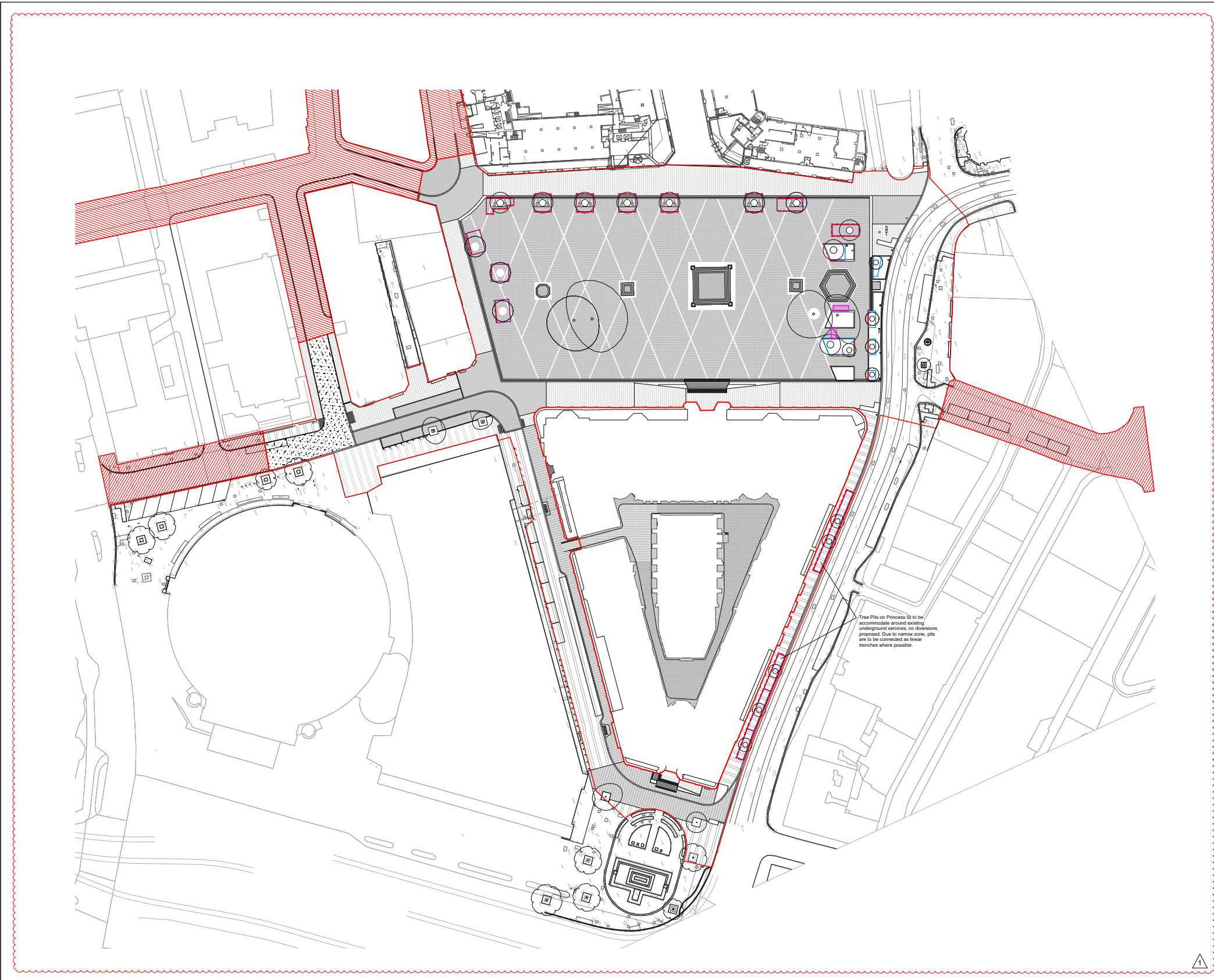




4.1 Softworks Drawings



4.2 Softworks Drawings



KEY

BOUNDARIES

- Red Line Boundary
- Section 218 Works
- Tree Pit within Soft Landscape (improved tree pit with urban water system) Refer to tree pit detail at drawing OTH-PLA-EE-ES-DWG-L-1005
- Tree Pit within Soft Landscape Refer to tree pit detail at drawing OTH-PLA-EE-ES-DWG-L-1005 (existing) (revised only)
- Artificial water system connecting tree pits providing improved drainage and increased flood resilience Refer to tree pit detail at drawing OTH-PLA-EE-ES-DWG-L-1005 and OTH-PLA-EE-ES-DWG-L-1006
- Linear Water Barrier installed to sides of tree pits where adjacent to underground utilities Refer to tree pit detail at drawing OTH-PLA-EE-ES-DWG-L-1005 OTH-PLA-EE-ES-DWG-L-1006

Revision Notes:

1. General updates in line with overall GA drawing OTH-PLA-EE-ES-DWG-L-1005.
Position of trees & tree pits to southern edge amended. Existing plane trees retained.

Rev	Date	Author	Description
08	14/11/19	SR MS/KR	Refer to revision notes
07	10/10/19	SR MS/KR	Stage 4 Issue
06	06/09/19	SR MS/KR	Planning Issue
05	23/07/19	SR MS/KR	Stage 4 Issue, minor amendments as noted
04	05/07/19	SR MS/KR	Stage 4 Issue, minor amendments as noted
03	07/06/19	SR MS/KR	Stage 3 Issue, minor amendments as noted
02	29/05/19	SR MS/KR	Stage 3 Issue
01	17/05/19	SR MS/KR	First Issue for Comment

Revision	Date	Description	Drawn	Apprvd.
08	14/11/19	Refer to revision notes	SR	MS/KR
07	10/10/19	Stage 4 Issue	SR	MS/KR
06	06/09/19	Planning Issue	SR	MS/KR
05	23/07/19	Stage 4 Issue, minor amendments as noted	SR	MS/KR
04	05/07/19	Stage 4 Issue, minor amendments as noted	SR	MS/KR
03	07/06/19	Stage 3 Issue, minor amendments as noted	SR	MS/KR
02	29/05/19	Stage 3 Issue	SR	MS/KR
01	17/05/19	First Issue for Comment	SR	MS/KR

Planit I.E. Limited

MANCHESTER
2 Back Grafton St, Altrincham, WA14 1DY
T: 0161 928 9281

LONDON
Unit 6 Waterside, 44-48 Wharf Road, London, N1 7UX
T: 0207 253 3678

LIVERPOOL
No. 8 Princes Parade, Princes Dock, Liverpool, L3 1DL
T: 0151 705 6746

Client: Manchester City Council

Project: Our Town Hall

Drg Title: Tree Pit Location Plan

Created on: 17.05.19

Created by: SR

Approved by: MS/KR

Scale: 1:500

Size: A1

Workstage: Stage 4

Drg No.: OTH-PLA-EE-ES-DWG-L-1015

Suitability: D2

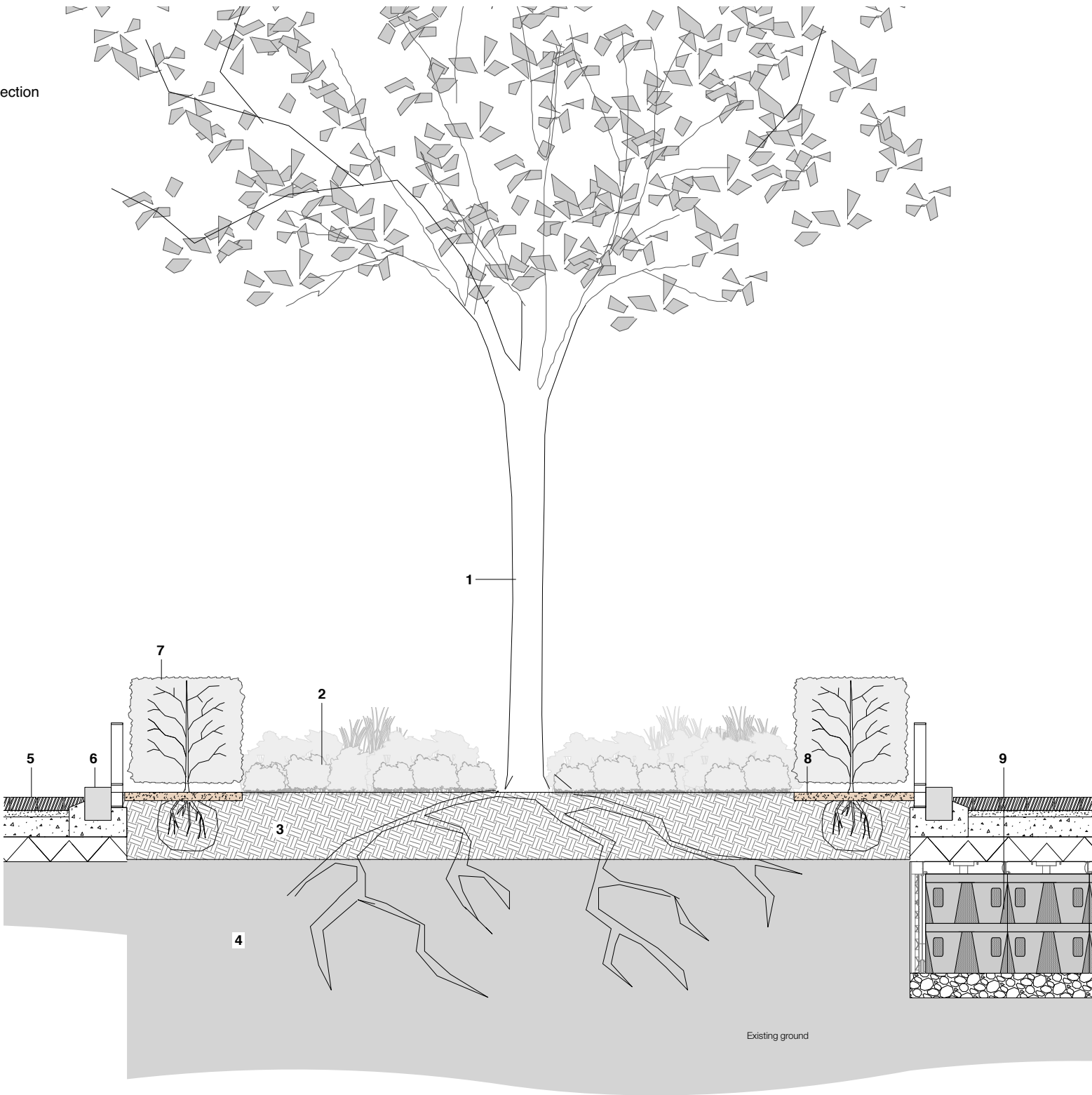
Revision: 08

4.3 Softworks Drawings

Existing Tree Pit in Soft Landscape Detail: Section
scale 1:25

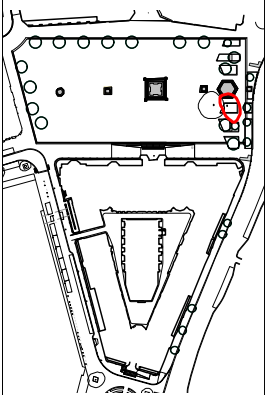
NOTE: Refer to External Works Specification:
Soft Landscape (OTH-PLA-EE-ES-SPE-L-0003)
in conjunction with this drawing

1. **Existing Mature Tree**
Existing ground level to base of trunk to match existing unless otherwise noted on proposed levels drawing OTH-PLA-EE-ES-DWG-L-1016. Refer to Softworks Plan OTH-PLA-EE-ES-DWG-L-2000 and Tree Retention and Removal Plan OTH-PLA-EE-ES-DWG-L-1006 for location and further details.
2. **Ornamental Shrub and Herbaceous Planting**
Refer to Softworks Detail Planting Plans OTH-PLA-EE-ES-DWG-L-6006 & 6007 and Softworks Schedule OTH-PLA-EX-ES-SCH-L-0002 for details.
3. **Imported Topsoil**
Top of planting area around existing tree to be filled with imported topsoil to 400mm minimum depth. To BS3852:2015. Existing paving and subbase to be carefully removed using pneumatic excavation (compressed air) and hand tools only unless agreed with Landscape Architect and MCC Tree Officer. Method Statement for removal of existing surfacing and installation of new soil to be provided for approval by Landscape Architect and MCC Tree Officer prior to the commencement of any works on site.
4. **Existing Subsoil**
To be retained around existing mature tree.
5. **Natural Stone Paving and Build-up**
Refer to drawing OTH-PLA-EE-ES-DWG-L-5000
6. **Proposed Natural Stone Edge and Railing**
To perimeter of planting areas. Refer to drawings OTH-PLA-EE-ES-DWG-L-1007
OTH-PLA-EE-ES-DWG-L-5001
7. **Instant Hedge Planting**
Refer to Softworks Detail Planting Plans OTH-PLA-EE-ES-DWG-L-6006 & 6007 and Softworks Schedule OTH-PLA-EX-ES-SCH-L-0002 for details.
8. **75mm Bark Mulch Layer**
Bark mulch to base of hedges. 800mm diameter circle from base in all directions.
9. **Root Cell Modules**
Stratacell 60 modules - trench 2 modules deep to connect planting areas as shown on OTH-PLA-EE-ES-DWG-L-1015. Stratacell 60 modules to be back-filled with soil in carefully compacted layers. Subsoil to BS8601:2013. General installation and load bearing requirements to be in accordance with manufacturer's recommendations. Final layout to be adjusted as necessary on site to coordinate with underground services. Supplier: GreenBlue Urban. Installed to suppliers instructions, submit proposals.



- NOTES:
1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

Location Plan
NTS



NOTE: PERCOLATION TEST
To be performed on all tree pits and any planting areas where insufficient permeability might be an issue.
Instructions for performing a percolation test:
1. With a spade or soil auger, dig a hole 45-60 cm deep at the bottom of the proposed tree pit. The hole diameter should be a minimum of 10 cm. The diameter of the hole should be uniform from top to bottom with the bottom being flat.
2. Pre-wetting: Fill hole with water to the top and allow to stand for at least an hour to pre-wet the soil.
3. Refill hole to within a 5 cm of the top. Don't overflow the hole.
4. To aid in measurement, place a stick across the top of the hole and use a ruler or measuring tape to mark periodic drops in water level.
5. Allow the hole to drain for at least one hour. A longer period of time (2 to 3 hours) will give a more accurate reading of average percolation rates.
6. Determine the average drop in water level per hour and refer to the table below to interpret results.
7. Water level in hole drops:
• Less than 1.25 cm per hour: Poorly drained and suited to wet-site species
• 1.25-2.50 cm per hour: Moderately well drained and acceptable for many species including wet site species
• More than 2.5 cm per hour: Well drained and suitable for all species including sensitive species.
The site manager or the main contractor must be informed of the tests and must be involved in the decision of the timing prior to undertaking the tests. The main contractor must report the results to the landscape architect and the site manager prior to filling the tree pit.

01	05/07/19	Stage 4 Issue	SR	MS/KR
Revision	Date	Description	Drawn	Apprvd.
 Planit I.E. Limited E: info@planit-ie.com W: planit-ie.com MANCHESTER 2 Back Grafton St, Altrincham, WA14 1DY T: 0161 938 9281 LONDON Unit 6 Waterside, 44-48 Wharf Road, London, N1 7UX T: 0207 293 5678 LIVERPOOL No. 8 Princes Parade, Princes Dock, Liverpool, L3 1DL T: 0151 705 6746				
Client	Manchester City Council			
Project	Our Town Hall			
Dwg Title	Softworks Detail Existing Tree in Soft Landscape			
Created on	05-07-19	Created by	SR	Approved by MS / KR
Scale	As Shown	Size	A3	Workstage Stage 4
Dwg No.	OTH-PLA-EE-ES-DWG-L-6004	Suitability	D1	Revision 01

4.4 Softworks Drawings

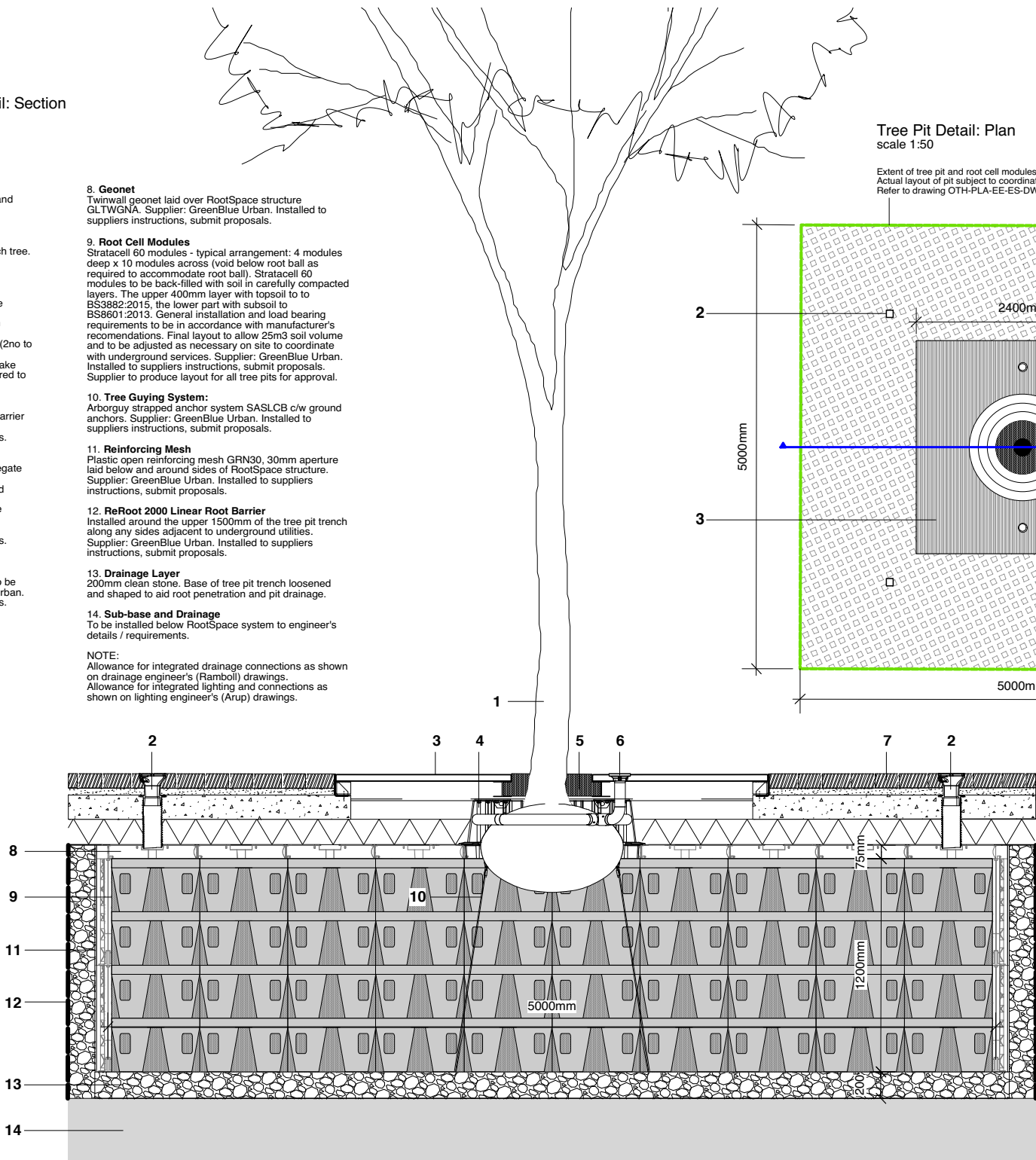
Tree Pit in Hard Landscape Detail: Section
scale 1:25

NOTE: Refer to External Works Specification:
Soft Landscape (OTH-PLA-EE-ES-SPE-L-0003)
in conjunction with this drawing

1. **Semi-Mature Tree Rootball & Wrapped**
Refer to drawing OTH-PLA-EE-ES-DWG-L-2000 and
planting schedules for details.
2. **Arborvent Aeration / Irrigation System**
150 double inlet system with cast inlets fitted to
RootSpace Airflow inlet RRARBV150A. 4no to each tree.
Supplier: GreenBlue Urban. Installed to suppliers
instructions, submit proposals.
3. **Tree Grille**
Bespoke Tree Grille, to sit on structural steel frame
Size: As shown on plan detail.
- To have integrated aperture for irrigation/aeration
system.
- To have integrated aperture for inground lighting (2no to
each tree).
Structural steel (stainless) frame to tree grille - to take
vehicular loading (BS EN 124 Class D400), anchored to
concrete strip foundation.
4. **RootDirector System**
RootSpace, RootDirector, medium, modular root barrier
system. RD1000-RS. Supplier: GreenBlue Urban.
Installed to suppliers instructions, submit proposals.
5. **Gravel Mulch**
Aperture in tree grille to base of tree to have aggregate
fill, to be built up in graduated layers as follows:
bottom layer - lightly hand-compacted open graded
aggregate 8-20mm gage
middle layer - lightly hand-compacted intermediate
dense graded stone aggregate 2-8mm gage
upper layer - 10mm gravel mulch. Supplier: CED.
Installed to suppliers instructions, submit proposals.
Colour subject to final detailed design.
6. **Aeration / Irrigation System**
RootRain Hydrogrille with cast inlet RRHYDR1A to be
integrated within tree grille. Supplier: GreenBlue Urban.
Installed to suppliers instructions, submit proposals.
7. **Natural Stone Paving and Build-up**
Refer to drawing OTH-PLA-EE-ES-DWG-L-5000

8. **Geonet**
Twinwall geonet laid over RootSpace structure
GLTWGNA. Supplier: GreenBlue Urban. Installed to
suppliers instructions, submit proposals.
9. **Root Cell Modules**
Stratacell 60 modules - typical arrangement: 4 modules
deep x 10 modules across (void below root ball as
required to accommodate root ball). Stratacell 60
modules to be back-filled with soil in carefully compacted
layers. The upper 400mm layer with topsoil to to
BS3882:2015, the lower part with subsoil to to
BS8601:2013. General installation and load bearing
requirements to be in accordance with manufacturer's
recommendations. Final layout to allow 25m3 soil volume
and to be adjusted as necessary on site to coordinate
with underground services. Supplier: GreenBlue Urban.
Installed to suppliers instructions, submit proposals.
Supplier to produce layout for all tree pits for approval.
10. **Tree Guying System:**
Arboguy strapped anchor system SASLCB c/w ground
anchors. Supplier: GreenBlue Urban. Installed to
suppliers instructions, submit proposals.
11. **Reinforcing Mesh**
Plastic open reinforcing mesh GRN30, 30mm aperture
laid below and around sides of RootSpace structure.
Supplier: GreenBlue Urban. Installed to suppliers
instructions, submit proposals.
12. **ReRoot 2000 Linear Root Barrier**
Installed around the upper 1500mm of the tree pit trench
along any sides adjacent to underground utilities.
Supplier: GreenBlue Urban. Installed to suppliers
instructions, submit proposals.
13. **Drainage Layer**
200mm clean stone. Base of tree pit trench loosened
and shaped to aid root penetration and pit drainage.
14. **Sub-base and Drainage**
To be installed below RootSpace system to engineer's
details / requirements.

NOTE:
Allowance for integrated drainage connections as shown
on drainage engineer's (Ramboll) drawings.
Allowance for integrated lighting and connections as
shown on lighting engineer's (Arup) drawings.

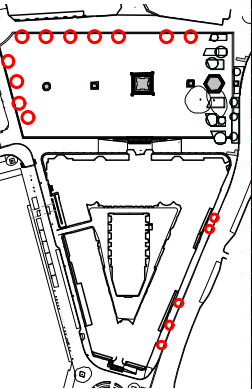


Tree Pit Detail: Plan
scale 1:50

Extent of tree pit and root cell modules below ground (indicative).
Actual layout of pit subject to coordination with underground utilities.
Refer to drawing OTH-PLA-EE-ES-DWG-L-1015 showing locations.

- NOTES:
1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

Location Plan
NTS



NOTE: PERCOLATION TEST
To be performed on all tree pits and any planting areas where
insufficient permeability might be an issue.
Instructions for performing a percolation test:
1. With a spade or soil auger, dig a hole 45-60 cm deep at the
bottom of the proposed tree pit. The hole diameter should be a
minimum of 10 cm. The diameter of the hole should be uniform
from top to bottom with the bottom being flat.
2. Pre-wetting: Fill hole with water to the top and allow to stand for
at least an hour to pre-wet the soil.
3. Refill hole to within a 5 cm of the top. Don't overflow the hole.
4. To aid in measurement, place a stick across the top of the hole
and use a ruler or measuring tape to mark periodic drops in water
level.
5. Allow the hole to drain for at least one hour. A longer period of
time (2 to 3 hours) will give a more accurate reading of average
percolation rates.
6. Determine the average drop in water level per hour and refer to
the table below to interpret results.
If water level to hole drops:
- Less than 1.25 cm per hour: Poorly drained and suited to
wet-site species
- 1.25-2.50 cm per hour: Moderately well drained and acceptable
for many species including wet site species
- More than 2.5 cm per hour: Well drained and suitable for all
species, including sensitive species.
The site manager or maintenance contractor must be informed
of the results and must be involved in the decision of the timing
prior to undertaking the tests. Please report the results to the
landscape architect and the site manager prior to filling the tree
pit.

Revision Notes:
1. General updates to detail.
2. General note, location plan, and percolation test note added.

03	05/07/19	Stage 4 Issue	SR	MS/NR
02	29/05/19	Stage 3 Issue	SR	MS/NR
01	30/11/18	Stage 3 Issue	TF	MS/NR

Revision	Date	Description	Drawn	Approved
----------	------	-------------	-------	----------

Planit I.E. Limited
E: info@planit-ie.com W: planit-ie.com
MANCHESTER
2 Back Grafton St, Altrincham, WA14 1DQ
T: 0161 528 9281
LONDON
Unit 6 Waterside, 44-48 Wharf Road, London, N1 7JX
T: 0207 253 6678
LIVERPOOL
No. 8 Princes Parade, Princes Dock, Liverpool, L3 1DL
T: 0151 705 6746

Client Manchester City Council

Project Our Town Hall

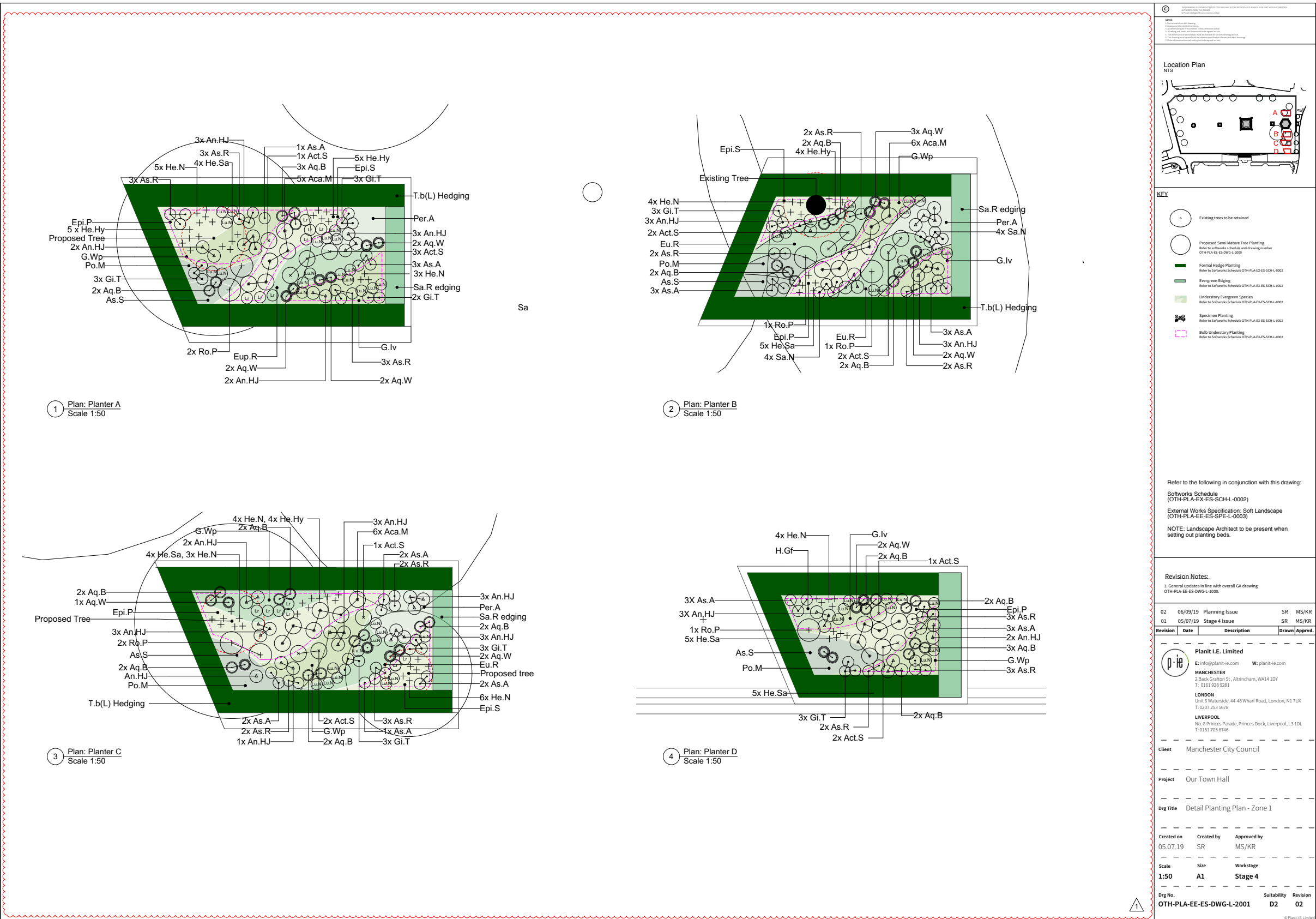
Draw Title Softworks Detail
Tree Pit In Hard Landscape

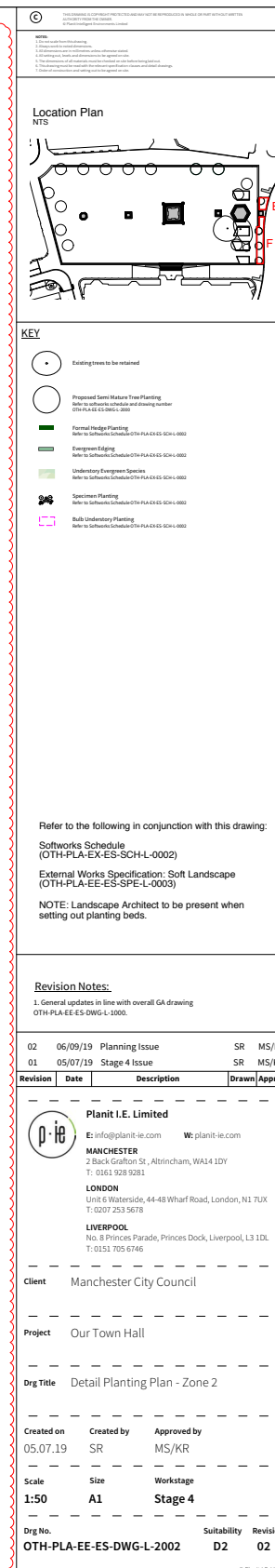
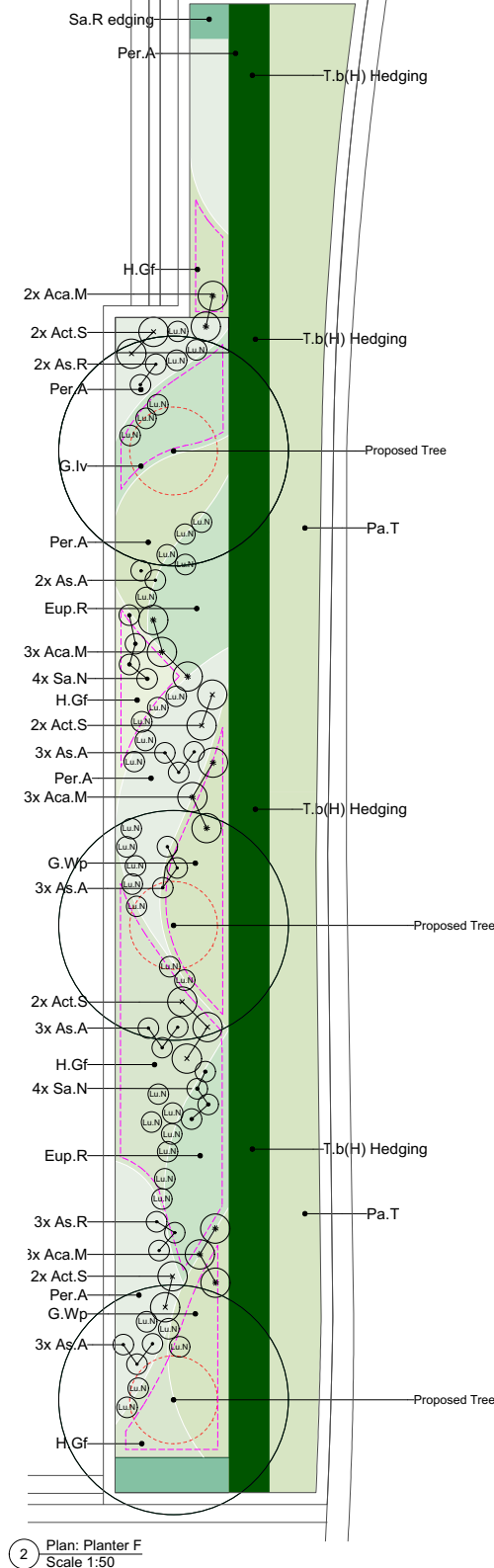
Created on 29-11-19 Created by TF Approved by MS

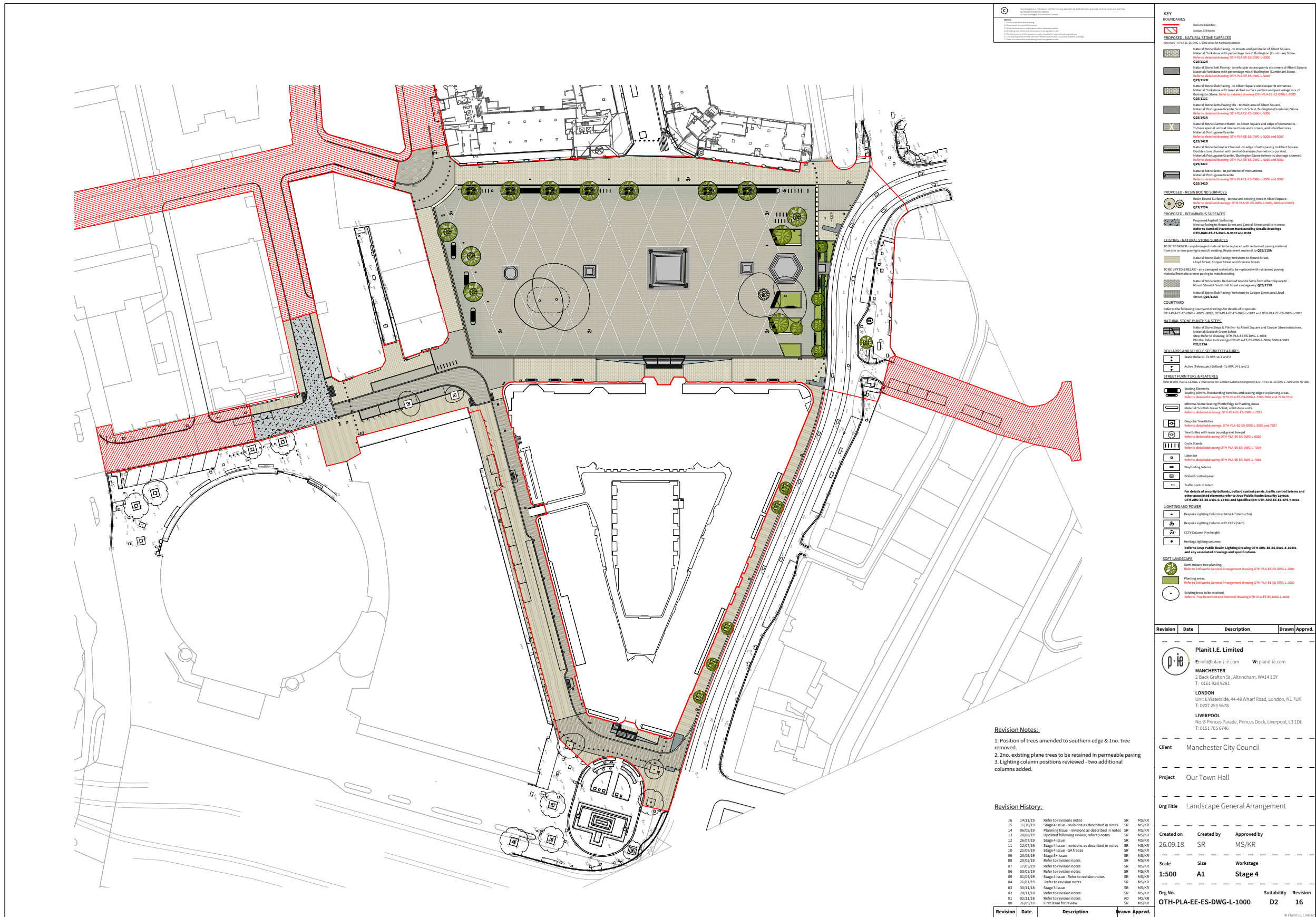
Scale As Shown Size A3 Workstage Stage 4

Draw No. OTH-PLA-EE-ES-DWG-L-6000 Suitability D1 Revision 03

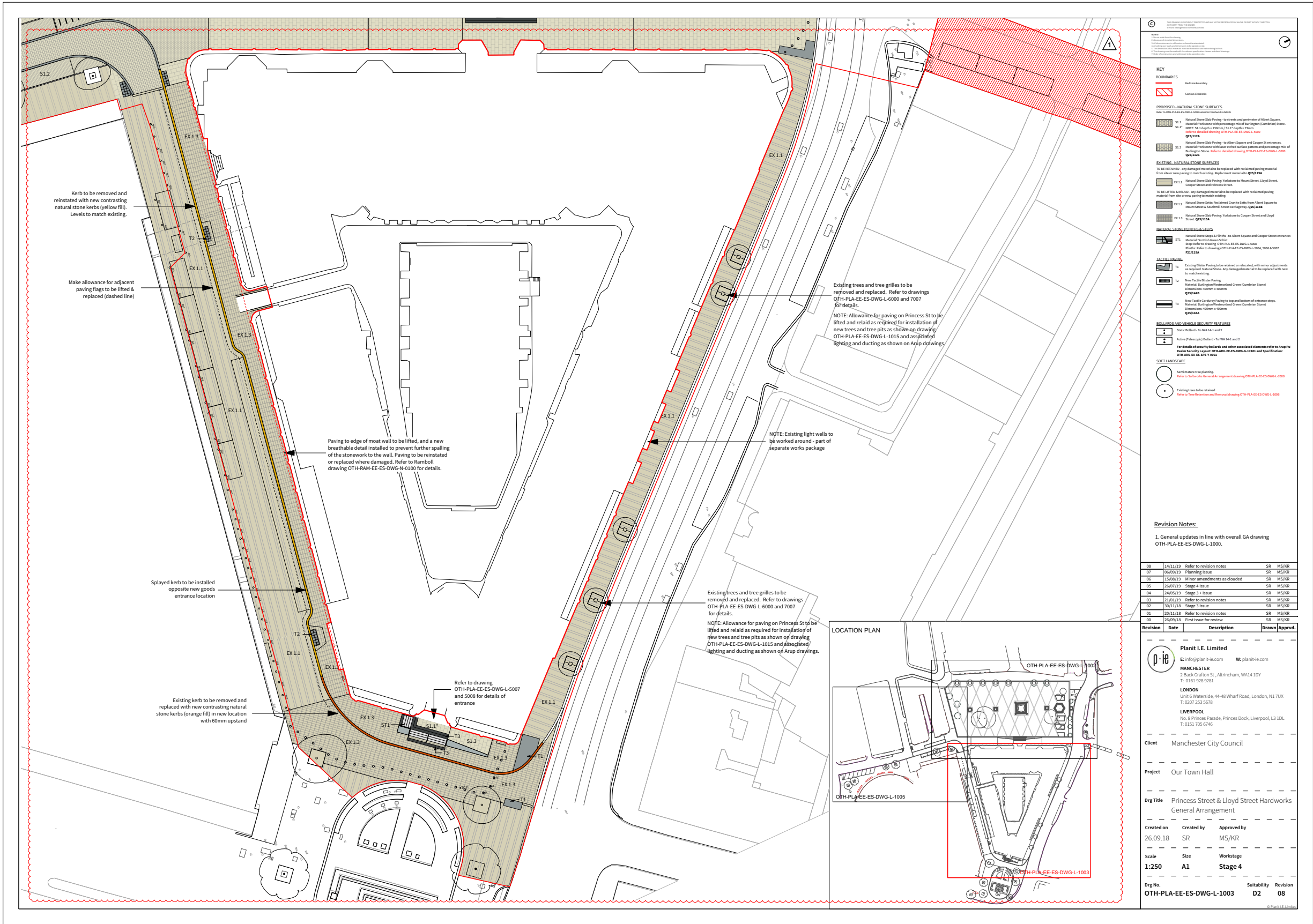
4.5 Softworks Drawings

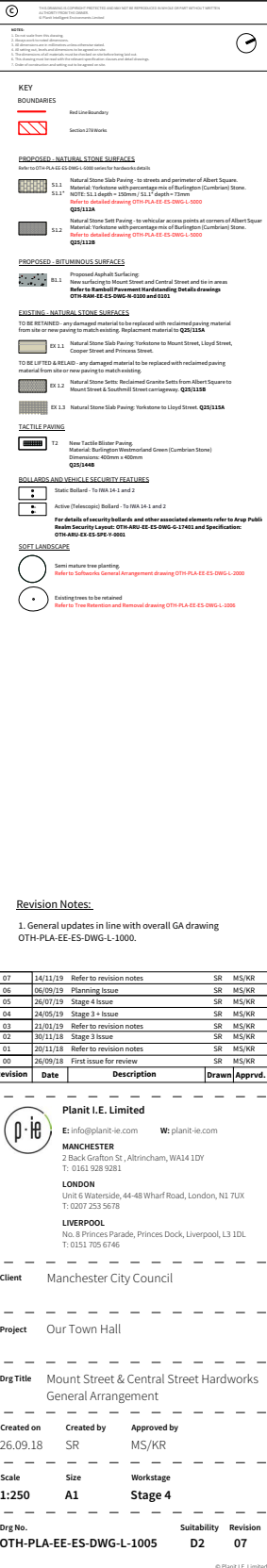




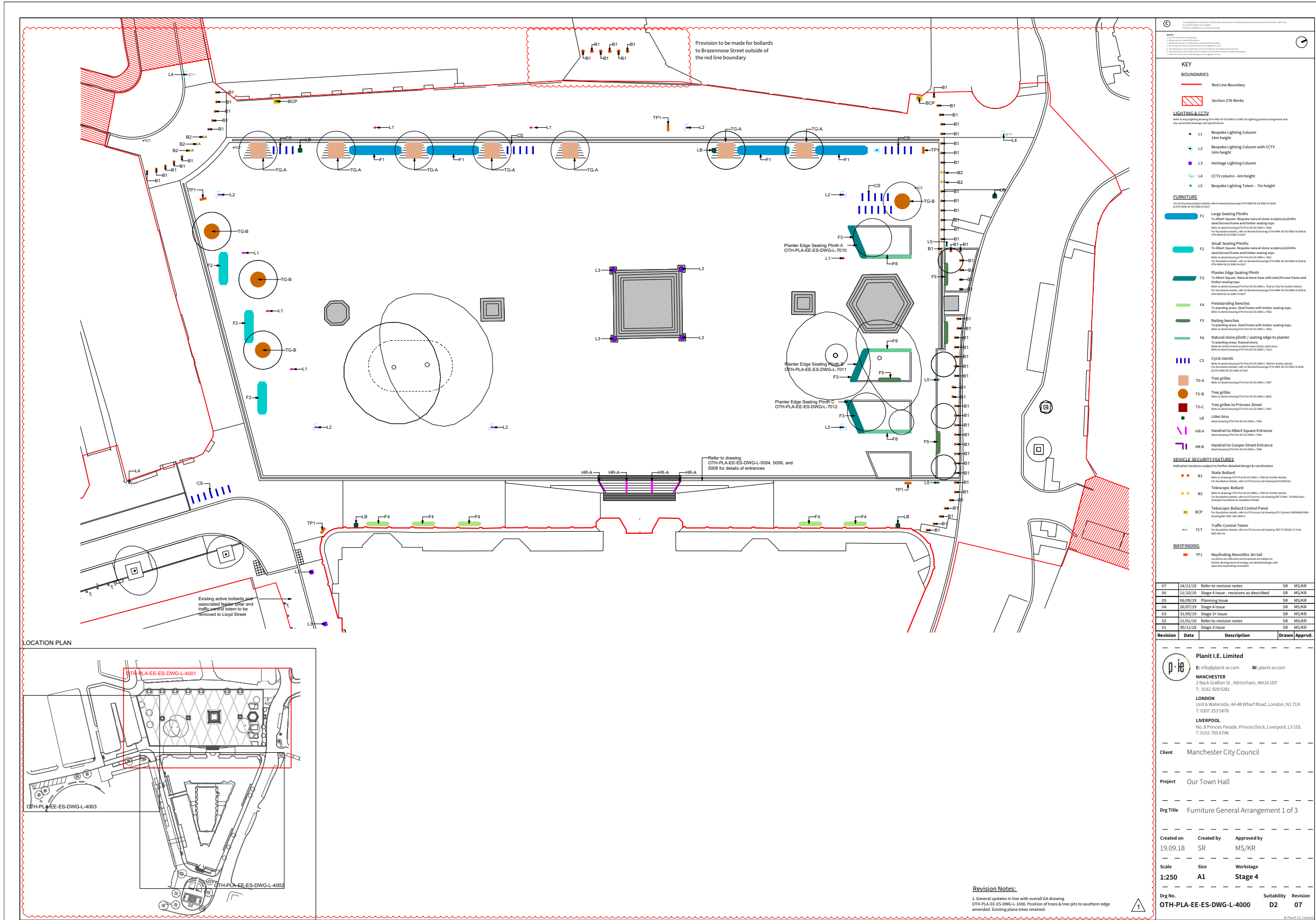


4.9 Hardworks Drawings

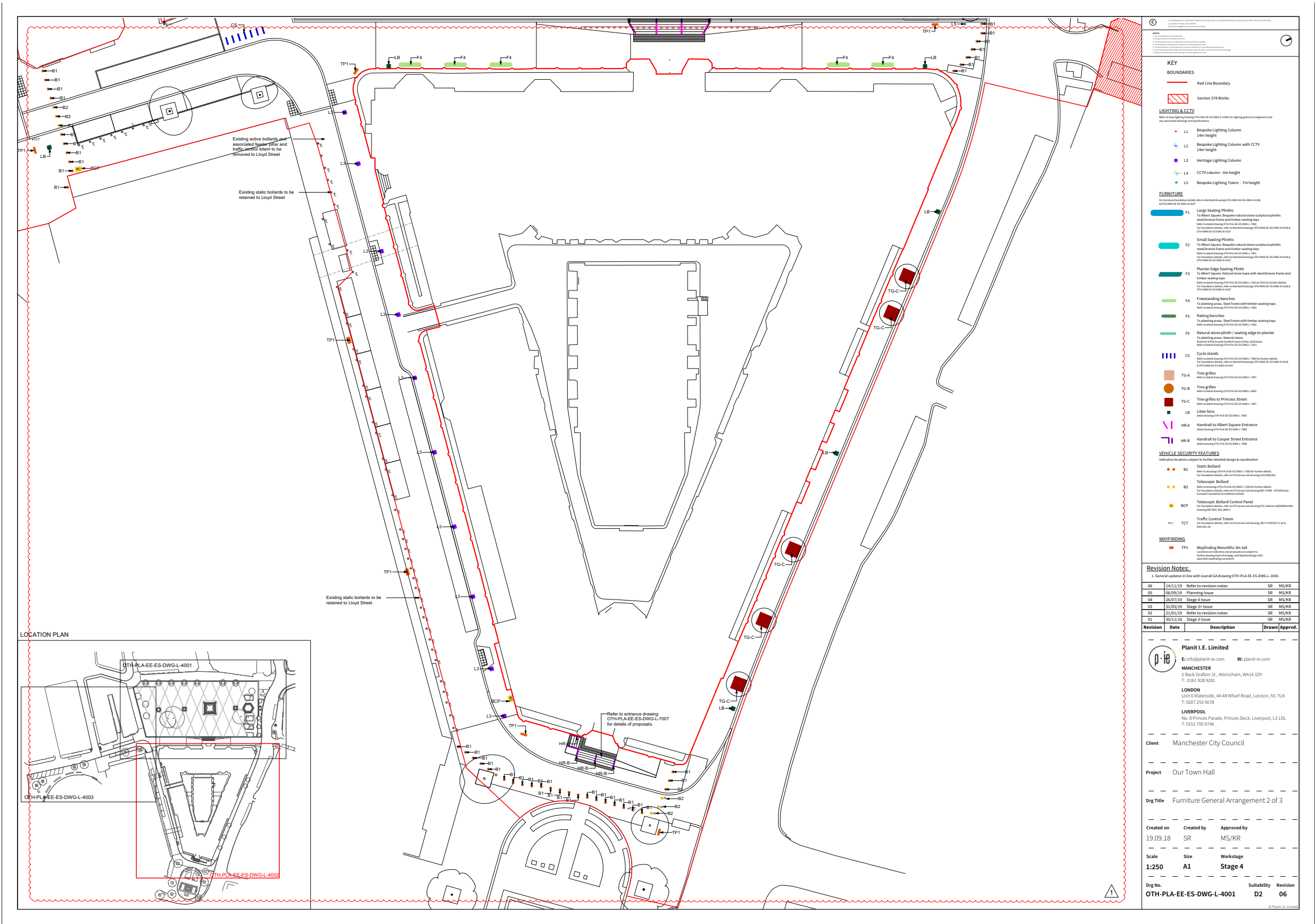




4.11 Street Furniture Drawings



4.12 Street Furniture Drawings



KEY

BOUNDARIES

- Red Line Boundary

Section 278 Works

LIGHTING & CCTV

Refer to lighting drawing OTH-PLA-EE-ES-DWG-L-1004 for lighting general arrangement and any associated drawings and specifications.

- L1 Bespoke Lighting Column - 14m height
- L2 Bespoke Lighting Column with CCTV - 14m height
- L3 Heritage Lighting Column
- L4 CCTV column - 4m height
- L5 Bespoke Lighting Totem - 7m height

FURNITURE

For further information please refer to detailed drawings OTH-PLA-EE-ES-DWG-L-1001 to OTH-PLA-EE-ES-DWG-L-1007.

- F1 Large Seating Plinths
To Albert Square. Bespoke natural stone sculptural plinths with bronze frame and timber seating tops.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1001 for further details.
For fabrication details, refer to detailed drawing OTH-PLA-EE-ES-DWG-L-1002 & OTH-PLA-EE-ES-DWG-L-1003.
- F2 Small Seating Plinths
To Albert Square. Bespoke natural stone sculptural plinths with bronze frame and timber seating tops.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1001 for further details.
For fabrication details, refer to detailed drawing OTH-PLA-EE-ES-DWG-L-1002 & OTH-PLA-EE-ES-DWG-L-1003.
- F3 Planter Edge Seating Plinth
To Albert Square. Natural stone base with steel/bronze frame and timber seating tops.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1001 for further details.
For fabrication details, refer to detailed drawing OTH-PLA-EE-ES-DWG-L-1002 & OTH-PLA-EE-ES-DWG-L-1003.
- F4 Free-standing benches
To planting areas. Steel frame with timber seating tops.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1004 for further details.
- F5 Rolling benches
To planting areas. Steel frame with timber seating tops.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1004 for further details.
- F6 Natural stone plinths / seating edge to planter
To planting areas. Natural stone.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1004 for further details.
- C5 Cycle stands
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1005 for further details.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1005 for further details.
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1005 for further details.
- TG-A Tree grilles
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1006 for further details.
- TG-B Tree grilles
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1006 for further details.
- TG-C Tree grilles to Princess Street
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1006 for further details.
- LB Litter bins
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1007 for further details.
- HR-A Handrail to Albert Square Entrance
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1008 for further details.
- HR-B Handrail to Cooper Street Entrance
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1008 for further details.

VEHICLE SECURITY FEATURES

Refer to drawing OTH-PLA-EE-ES-DWG-L-1009 for further details.

- B1 Static Bollard
Refer to drawing OTH-PLA-EE-ES-DWG-L-1009 for further details.
For fabrication details, refer to detail drawing OTH-PLA-EE-ES-DWG-L-1010.
- B2 Telescopic Bollard
Refer to drawing OTH-PLA-EE-ES-DWG-L-1009 for further details.
For fabrication details, refer to detail drawing OTH-PLA-EE-ES-DWG-L-1010.
- BCP Telescopic Bollard Control Panel
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1011 for further details.
- TCT Traffic Control Totem
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1012 for further details.

WAYFINDING

- TP1 Wayfinding Monoliths 3m tall
Refer to detail drawing OTH-PLA-EE-ES-DWG-L-1013 for further details.

Revision Notes:

1. General updates in line with overall GA drawing OTH-PLA-EE-ES-DWG-L-1000.

Rev	Date	Description	Drawn	Appr'd
06	14/11/19	Refer to revision notes	SR	MS/KR
05	06/09/19	Planning Issue	SR	MS/KR
04	26/07/19	Stage 4 Issue	SR	MS/KR
03	14/05/19	Stage 3 Issue	SR	MS/KR
02	21/03/19	Refer to revision notes	SR	MS/KR
01	30/11/18	Stage 3 Issue	SR	MS/KR

Planit I.E. Limited

E: info@planit-ie.com W: planit-ie.com

MANCHESTER
2 Back Grafton St., Altrincham, WA14 1DY
T: 0161 928 9281

LONDON
Unit 6 Waterside, 44-48 Wharf Road, London, N1 7LX
T: 0207 253 5678

LIVERPOOL
No. 8 Princes Parade, Princes Dock, Liverpool, L3 1DL
T: 0151 705 6746

Client Manchester City Council

Project Our Town Hall

Drg Title Furniture General Arrangement 2 of 3

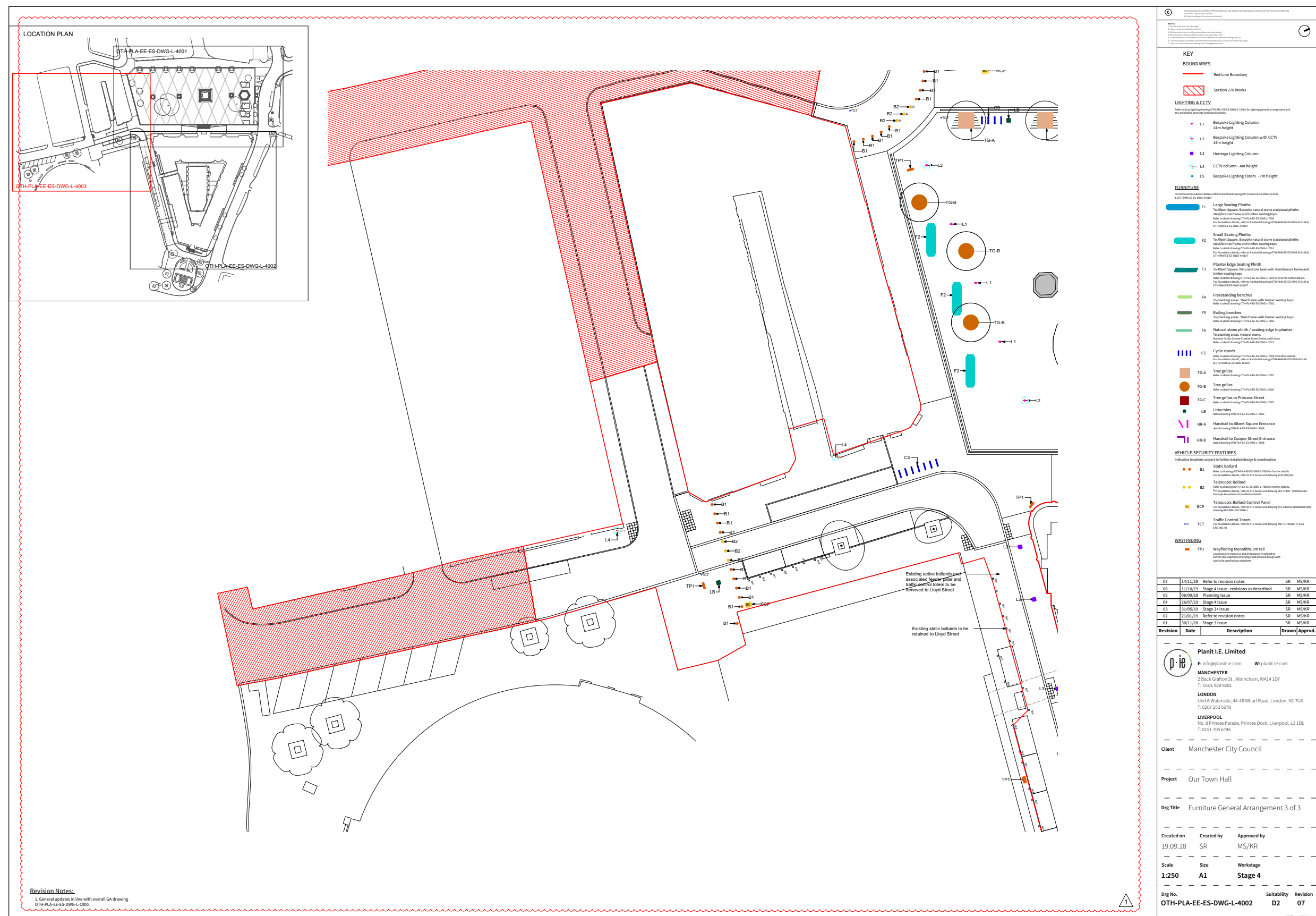
Created on 19.09.18 **Created by** SR **Approved by** MS/KR

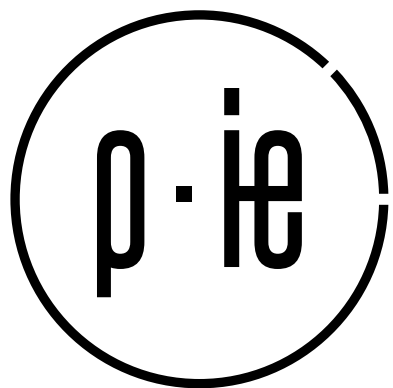
Scale 1:250 **Size** A1 **Workstage** Stage 4

Drg No. OTH-PLA-EE-ES-DWG-L-4001 **Suitability** D2 **Revision** 06

© Planit I.E. Limited

4.13 Street Furniture Drawings





MANCHESTER

2 Back Grafton Street
Altrincham,
WA14 1DY
+44 (0)161 928 9281

LONDON

Waterside, 44-48 Wharf Road
London,
N1 7UX
+44 (0)207 253 5678

LIVERPOOL

Tempest 5.3, 12 Tithebarn Street,
Liverpool,
L2 2DT
+44 (0)151 363 1230