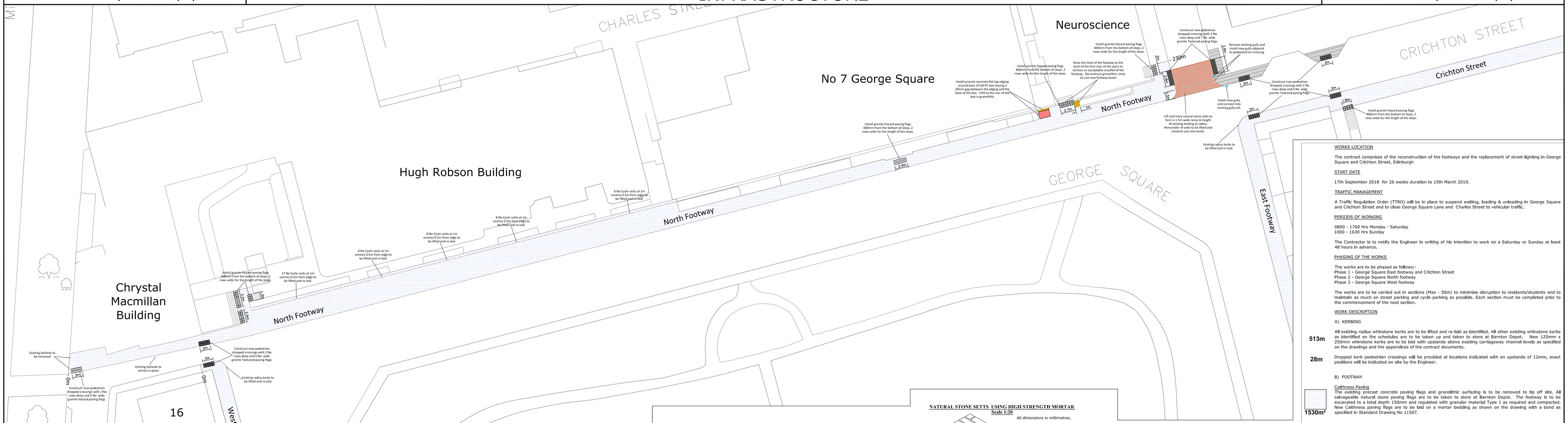
DRG. NO. TDD/636972/2/1100

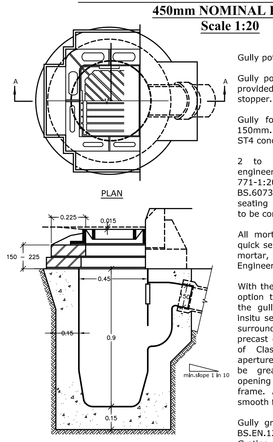
INFRASTRUCTURE

DRG. NO. TDD/636972/2/1100



INSITU TRAPPED CONCRETE STREET GULLY 450mm NOMINAL BORE

Scale 1:20



PLAN

SECTIONAL ELEVATION AA

Gully pot liner form to be plastic.

Gully pot shall be trapped and be provided with a rodding eye stopper.

Gully form to be surrounded by 150mm. minimum thickness of mix ST4 concrete.

2 to 3 courses of Class B engineering brick to BS EN 771-1:2001 or concrete bricks to BS.6073:2008 to be provided as a seating for gully frame. Brickwork to be corbelled as necessary.

All mortar shall be a proprietary quick setting mortar or epoxy resin mortar, as approved by the Engineer.

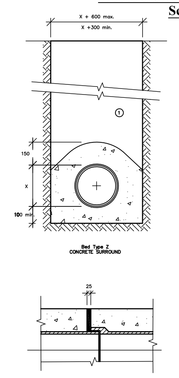
With the Engineers approval, as an option to a brickwork seating for the gully frame, a concrete cast insitu seating integral with the pot surround may be used, or a precast concrete gully seating slab of Class 30/20 concrete. The aperture in these seatings shall not be greater than the minimum opening dimension of the gully frame. All concrete shall have a smooth finish to Class F2 or U3.

Gully grating and frame to be to BS.EN.124:1994 Class D400. Grating to be either double triangular or hinged with a captive system to prevent unauthorised removal.

Gully grating to be set with top edge 15mm. below nominal level of road surface and sloping with the carriageway crossfall.

PIPE CONSTRUCTION IN TRENCH WITH CONCRETE SURROUND

Scale 1:20



Material ① to be well compacted acceptable material.

Concrete surround shall be mix ST2 concrete 150mm. thick, formed to radius, batter or horizontal surface.

The concrete surround may extend to the sides of the trench, or be of minimum width. Acceptable material is to be used to fill any voids so formed.

On pipelines with flexible joints a joint filler board shall be placed in contact with the end of the socket at a pipe joint. Joints shall be at intervals not exceeding 5 metres. The ingress of cement to the joint shall be prevented by wrapping with polythene or adhesive tape.

When non rigid pipelines have a section with concrete surround, a flexible joint or coupler must be provided to allow angular deflection between the non rigid and rigid components.

The minimum or maximum width of trench applies on and below a line 300mm. above the outside top of the pipe. If trench widths in excess of those specified are used, consideration will have to be given to greater pipe strengths due to increased backfill loadings.

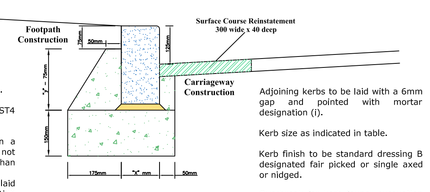
Pipes to be centred in trench.

All joints shall be watertight.

DRESSED NATURAL STONE KERB IN EXISTING CARRIAGEWAYS

Scale 1:10

X	125	150	150	150	200
Y	250	200	250	300	300



All dimensions in millimetres.

Kerb details to comply with BS.435.

Kerb found and haunch to be Mix ST4 concrete.

Kerbs to be laid and bedded on a layer of mortar designation (i) not less than 10mm and not more than 40mm thick.
Alternatively, kerbs may be laid directly on the concrete foundation while it is still plastic.

Adjoining kerbs to be laid with a 6mm gap and pointed with mortar designation (i).

Kerb size as indicated in table.

Kerb finish to be standard dressing B designated fair picked or single axed or nidged.

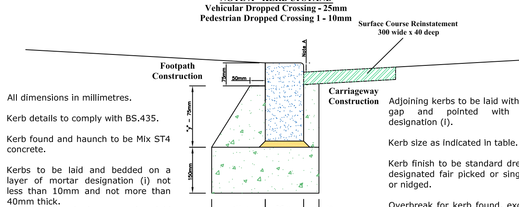
Overbreak for kerb found, excavation and fillet in front of kerb to be made good with mix ST4 concrete up to basecourse level.

NOTE A - KERB UPSTAND
Vehicular Dropped Crossing - 25mm
Pedestrian Dropped Crossing 1 - 10mm

DRESSED NATURAL STONE KERB IN EXISTING CARRIAGEWAYS

Scale 1:10

X	125	150	150	150	200
Y	250	200	250	300	300



All dimensions in millimetres.

Kerb details to comply with BS.435.

Kerb found and haunch to be Mix ST4 concrete.

Kerbs to be laid and bedded on a layer of mortar designation (i) not less than 10mm and not more than 40mm thick.
Alternatively, kerbs may be laid directly on the concrete foundation while it is still plastic.

Adjoining kerbs to be laid with a 6mm gap and pointed with mortar designation (i).

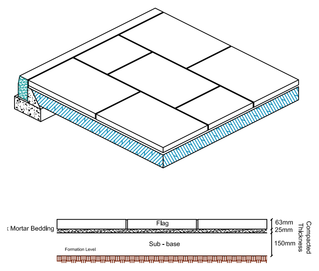
Kerb size as indicated in table.

Kerb finish to be standard dressing B designated fair picked or single axed or nidged.

Overbreak for kerb found, excavation and fillet in front of kerb to be made good with mix ST4 concrete up to basecourse level.

PRECAST CONCRETE FLAGS - 900mm x 600mm x 63mm

Scale 1:20



All dimensions in millimeteres.

Precast concrete flags to comply with BS EN 1339:2003.

Flags shall be 63mm thick and except where cutting is necessary with uniform width of 600mm, a minimum length of 450mm and a maximum length of 900mm.

Item coverage to include for supply and laying 25mm compacted thickness of mortar designation (iii) dry mix bedding course.

Flags shall be laid with a bond of 300mm. This may be varied where economical use of flags dictate, but shall not be less than 150mm.

All joints shall not be less than 5mm nor more than 10mm width.

Joints shall be filled with mortar design (i) and key pointed. With coloured flags, a similarly coloured mortar shall be used.

TEXTURED PAVING FLAGS - 400mm x 400mm x 65mm

Scale 1:20

All dimensions in millimetres.

Granite textured flags to comply with BS.7533. Part 4 :2006.

Flags shall be 400mm x 400mm x 65mm. thick, coloured grey.

Flags shall only be cut "on the square", and equidistant between rows of surface texturing, except where against a building or fence line.

Crossing widths should be chosen, where possible, to avoid the necessity of cut flags.

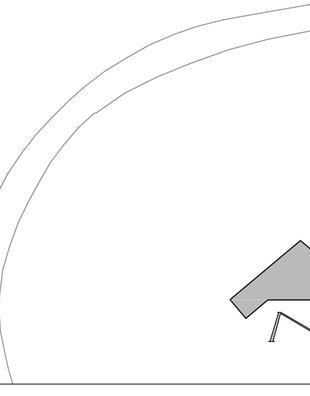
Item coverage to include for supply and laying 25mm. compacted thickness of Class (iii) dry mix mortar bedding course.

All joints shall not be less than 5mm., nor more than 10mm, width.

Joints shall be filled with Class (i) mortar of a similar colour to the flags and key pointed.

Flags shall be protected during joint filling so that mortar staining of the flags adjacent to the joint is prevented.

Concrete infill around obstructions should not exceed 25mm in width and should be the full depth of the flag and similarly coloured.

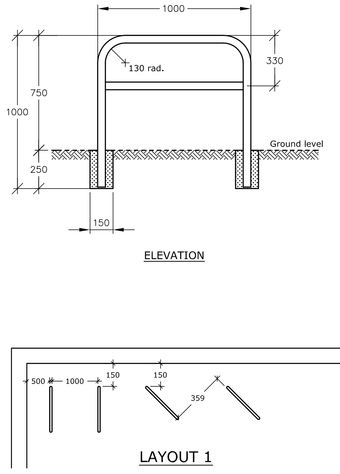


Flags shall be protected during joint filling so that mortar staining of the flags adjacent to the joint is prevented.

Concrete infill around obstructions should not exceed 25mm in width and should be the full depth of the flag and similarly coloured.

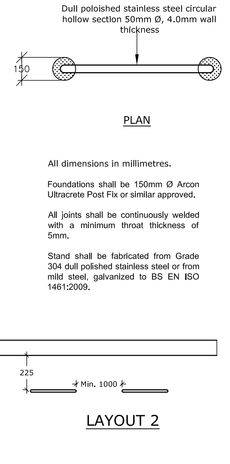
'SHEFFIELD' BICYCLE PARKING STAND - 1.000m LENGTH

Scale 1:20



ELEVATION

Dull polished stainless steel circular hollow section 50mm Ø, 4.0mm wall thickness



PLAN

All dimensions in millimetres.

Foundations shall be 150mm Ø Arcon Ultracrete Post Fix or similar approved.

All joints shall be continuously welded with a minimum throat thickness of 5mm.

Stand shall be fabricated from Grade 304 dull polished stainless steel or from mild steel, galvanized to BS EN ISO 1461:2009.

LAYOUT 1

LAYOUT 2

HAZARD PAVING FLAGS - 400mm x 400mm x 65mm

Not to Scale

Precast concrete flags to comply with BS.EN.1339:2003.

Natural stone flags to comply with BS.7533.Part 4:2006.

Flags shall be 400 x 400 x 50mm or 70mm thick, coloured grey.

The shade of grey used shall provide a contrast with the surrounding footway. This may require the use of dark grey textured flags in areas of precast concrete flags.

Flag widths shall only be cut "on the square", and equidistant between rows of surface texturing, except where against a building or fence line.

Flags shall be laid for pedestrians so that the bar pattern is runs transversely across the direction of travel, For cyclists, the bar pattern shall run in alignment with the direction of travel.

Flags shall be laid to the continuously welded for the appropriate layout.

Item coverage to include for supply and laying 25mm compacted thickness of designation (iii) dry mix mortar bedding course.

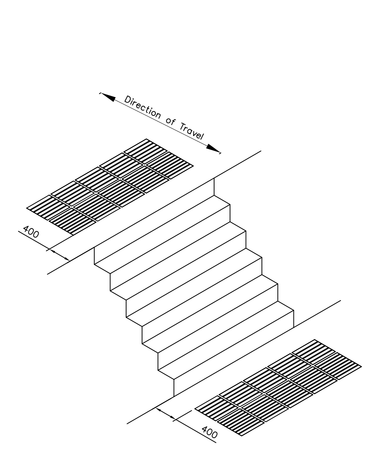
All joints shall not be less than 5mm nor more than 10mm width.

Joints for precast concrete flags shall be filled with designation (i) mortar of a similar colour to the flags and hollow key pointed.

Joints for natural stone flags shall be filled with a gun injected, water resistant, high strength, proprietory mortar to designation (i) of a similar colour to the flags and hollow key pointed.

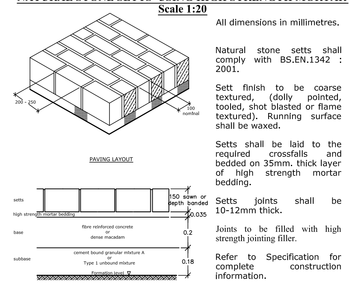
Flags shall be protected during joint filling so that mortar staining of the flags adjacent to the joint is prevented.

Concrete infill around obstructions should not exceed 25mm in width and should be the full depth of the flag and similarly coloured.



NATURAL STONE SETTS USING HIGH STRENGTH MORTAR

Scale 1:20



PAVING LAYOUT

All dimensions in millimetres.

Natural stone setts shall comply with BS.EN.1342 : 2001.

Sett finish to be coarse textured, (dolly pointed, tooled, shot blasted or flame textured). Running surface shall be waxed.

Setts shall be laid to the required crossfalls and bedded on 35mm. thick layer of high strength mortar bedding.

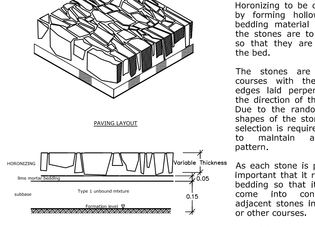
Setts joints shall be 10-12mm thick.

Joints to be filled with high strength jointing fillur.

Refer to Specification for complete construction information.

NATURAL STONE HORNIZING USING LIME MORTAR

Scale 1:20



PAVING LAYOUT

All dimensions in millimetres.

Horonizing to be constructed by forming hollows in the bedding material into which the stones are to be placed so that they are resting in the bed.

The stones are paved in courses with their longest edges laid perpendicular to the direction of the footway. Due to the random size an shapes of the stones careful selection is required in order to maintain a random pattern.

As each stone is placed it is important that it rests in the bedding so that it does not come into contact with adjacent stones in the same or other courses.

Horonizing shall be laid to the required crossfalls and bedded on a 50mm thick layer of a lime mortar bedding.

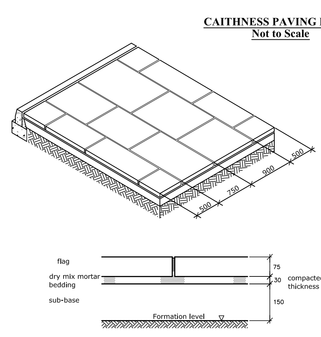
Joints shall be 10-30mm thick.

The horonizing is to be laid on a lime mix mortar bedding with a nominal thickness of 50mm.

Lime mortar bedding to consist of Eminently Hydraulic Lime (NHL 5) : Non Hydraulic Lime : Sand - to a ratio of 1:1:5

CAITHNESS PAVING FLAGS

Not to Scale



All dimensions in millimetres.

Caithness paving flags to comply with BS.7533. Part 4 :2006.

Flags shall be 75mm thick except where cutting is necessary. All edges shall be sawn.

Flags shall be of uniform widths of 300mm, 450mm and 600mm, a minimum length of 400mm, and a maximum length of 1000mm.

Item coverage to include for supply and laying 30mm, compacted thickness of Class (iii) dry mix mortar bedding course.

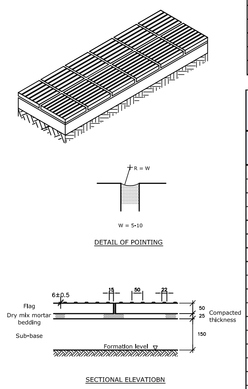
Flags shall be laid with a random bond with a minimum 200mm overlap.

All joints shall not be less than 5mm, nor more than 10mm, width.

Joints shall be filled with Class (i) mortar and key pointed. Mortar shall be coloured to suit flags.

Flags shall be protected during joint filling so that mortar staining of the flags adjacent to the joint is prevented.

Concrete infill around obstructions should not exceed 25mm in width and should be the full depth of the flag and similarly coloured.



DETAIL OF POINTING

SECTIONAL ELEVATIONS

George Square - North Footway
FURNITURE SCHEDULE

CHAINAGE (m)	OFFSET (m) Distance	Direction	TYPE	SIZE	ACTION
0.20	0.60	Left	Bollard	<0.25 Sq m	None
0.20	2.00	Left	Bollard	<0.25 Sq m	None
3.40	0.10	Right	Bollard	<0.25 Sq m	None
4.40	2.50	Left	Earth Rod	<0.25 Sq m	Raise
6.40	0.10	Right	Bollard	<0.25 Sq m	None
9.40	0.10	Right	Bollard	<0.25 Sq m	None
7.40	2.40	Left	University Sign	<0.50 Sq m	None
12.50	0.10	Right	Bollard	<0.25 Sq m	None
14.30	0.80	Left	Earth Rod	<0.25 Sq m	Raise
15.50	0.10	Right	Bollard	<0.25 Sq m	None
18.60	0.10	Right	Bollard	<0.25 Sq m	None
20.90	0.10	Right	Bollard	<0.25 Sq m	None
25.80	1.80	Left	Earth Rod	<0.25 Sq m	Raise
26.20	0.10	Right	Bollard	<0.25 Sq m	None
29.20	1.10	Left	Private	<1.00 Sq m	Raise
33.00	5.00	Left	Private	<0.25 Sq m	Raise
56.80	1.00	Left	CATV	<1.00 Sq m	Raise
58.80	4.10	Left	Earth Rod	<0.25 Sq m	Raise
69.80	4.10	Left	Earth Rod	<0.25 Sq m	Raise
71.90	2.30	Left	Private	<1.00 Sq m	Raise
83.80	4.10	Left	Earth Rod	<0.25 Sq m	Raise
91.20	4.10	Left	Earth Rod	<0.25 Sq m	Raise
92.00	3.70	Left	Private	<1.00 Sq m	Raise
92.70	3.30	Left	Private	<1.00 Sq m	Raise
93.80	1.45	Left	Gas	<0.25 Sq m	Raise
94.90	Rear	Left	Litter Bin	<0.50 Sq m	Lift & Relay
101.90	Rear	Left	Litter Bin	<0.50 Sq m	Lift & Relay
105.90	4.10	Left	Earth Rod	<0.25 Sq m	Raise
110.20	1.05	Left	CATV	<0.50 Sq m	Raise
111.50	0.35	Left	Private	<0.50 Sq m	Raise
132.90	Rear	Left	Skylight	<1.00 Sq m	None
134.50	0.40	Left	Private	<0.50 Sq m	Raise
163.20	Rear	Left	Litter Bin	<0.50 Sq m	Lift & Relay
170.40	0.60	Left	S.Power	<0.50 Sq m	Raise
167.70	2.10	Left	Gas	<0.25 Sq m	Raise
191.40	Rear	Left	Earth Rod	<0.25 Sq m	Raise
196.30	2.00	Left	Water	<0.50 Sq m	Raise
209.70	Rear	Left	Earth Rod	<0.25 Sq m	Raise
211.80	3.20	Left	CATV	<1.50 Sq m	None
212.10	1.85	Left	S.Power	<1.00 Sq m	Raise

George Square (North Footway)
KERBING DETAILS

LOCATION	CHAINAGE (m) Start	End	(m) LENGTH	EXISTING	ACTION	PROPOSED	UPSTAND
George Square (North Footway)	0	10	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	100mm
George Square (North Footway)	10	20	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	100mm
George Square (North Footway)	20	30	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	100mm
George Square (North Footway)	30	40	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	40	50	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	50	60	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	60	70	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	70	80	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	80	90	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	90	100	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	100	110	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	110	115.8	5.8	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	125mm
George Square (North Footway)	115.8	120	4.2	Kerb Formed with Granolithic Concrete	New	125mm x 250mm Natural Stone Kerb	110mm
George Square (North Footway)	120	130	10	Kerb Formed with Granolithic Concrete	New	125mm x 250mm Natural Stone Kerb	110mm
George Square (North Footway)	140	150	10	Kerb Formed with Granolithic Concrete	New	125mm x 250mm Natural Stone Kerb	100mm
George Square (North Footway)	150	160	10	Kerb Formed with Granolithic Concrete	New	125mm x 250mm Natural Stone Kerb	100mm
George Square (North Footway)	160	170	10	Kerb Formed with Granolithic Concrete	New	125mm x 250mm Natural Stone Kerb	100mm
George Square (North Footway)	170	180	10	Kerb Formed with Granolithic Concrete	New	125mm x 250mm Natural Stone Kerb	90mm
George Square (North Footway)	180	187.8	7.8	Kerb Formed with Granolithic Concrete	New	125mm x 250mm Natural Stone Kerb	70mm
George Square (North Footway)	187.8	190	2.2	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	70mm
George Square (North Footway)	190	200	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	70mm
George Square (North Footway)	200	210	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	70mm
George Square (North Footway)	210	220	10	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	70mm
George Square (North Footway)	220	223	3	125mm x 250mm Natural Stone Kerb	New	125mm x 250mm Natural Stone Kerb	0mm

George Square - North Footway
ACCOMODATION WORKS SCHEDULE

LOCATION	CHAINAGE (m) Start	End	(m) LENGTH	EXISTING	ACTION	PROPOSED	ADDITIONAL WIDTH	AREA	MATERIAL
Start of Footway 1	0.00		2.80	Whinstone Kerb	Replace	Whinstone Kerb	0.3	0.78	Topsoil to Rear
Steps to Chrystal Macmillan Building	32.70		6.20	Step	None	Tie Into			
Path adjacent to Chrystal Macmillan Building	35.80	37.20	1.40	Grano Sill	None	Tie Into			
Steps to Hugh Robson Building	37.60		1.30	Step	None	Tie Into			
Steps to Hugh Robson Building	55.50	58.60	3.10	Step	None	Tie Into			
Path between columns of Hugh Robson Building	62.70	65.90	3.20	PCC Flags	None	Tie Into			
Path between columns of Hugh Robson Building	66.40	69.50	3.10	PCC Flags	None	Tie Into			
Path between columns of Hugh Robson Building	77.30	80.20	2.90	PCC Flags	None	Tie Into			
Path between columns of Hugh Robson Building	80.80	83.90	3.10	PCC Flags	None	Tie Into			
Entrance between columns to Hugh Robson Building	91.80	94.70	2.90	PCC Flags	None	Tie Into			
Entrance between columns to Hugh Robson Building	95.60	98.20	2.60	Linear Drainage	None	Tie Into			
Entrance between columns to Hugh Robson Building	99.20	101.80	2.60	Linear Drainage	None	Tie Into			
Path adjacent to Hugh Robson Building	102.80	105.70	2.90	PCC Flags	None	Tie Into			
Entrance to stairs to basement of No 7 George Square	118.10	119.60	1.50	Step	None	Tie Into			
Entrance to stairs to No 7 George Square	137.60	138.70	1.10	Step	None	Tie Into			
Entrance to stairs to basement of No 7 George Square	150.20	151.60	1.40	Natural Stone Sill	None	Tie Into			
Main entrance to No 7 George Square	159.40	162.00	2.60	Step	None	Tie Into			
Entrance to stairs to basement of No 7 George Square	169.80	171.10	1.30	Natural Stone Sill	None	Tie Into			
Side stairs to Neuroscience Building	191.60	194.30	2.70	Whinstone Setts	Replace	Tie Into			
Ramp to Neuroscience Building	194.10		1.15	Grano Sill	Saw Cut	Tie Into	0.5	0.575	Grano Fillet

WORKS LOCATION

The contract comprises of the reconstruction of the footways and the replacement of street lighting in George Square and Crichton Street, Edinburgh

START DATE

17th September 2018 for 26 weeks duration to 15th March 2019.

TRAFFIC MANAGEMENT

A Traffic Regulation Order (TTRO) will be in place to suspend waiting, loading & unloading in George Square and Crichton Street and to close George Square Lane and Charles Street to vehicular traffic.

PERIODS OF WORKING

0800 - 1700 Hrs Monday - Saturday
1000 - 1630 Hrs Sunday

The Contractor is to notify the Engineer in writing of his intention to work on a Saturday or Sunday at least 48 hours in advance.

PHASING OF THE WORKS

The works are to be phased as follows:-
Phase 1 - George Square East footway and Crichton Street
Phase 2 - George Square North footway
Phase 3 - George Square West footway

The works are to be carried out in sections (Max - 50m) to minimise disruption to residents/students and to maintain as much on street parking and cycle parking as possible. Each section must be completed prior to the commencement of the next section.

WORK DESCRIPTION

A) KERBING

513m All existing radius whinstone kerbs are to be lifted and re-laid as identified. All other existing whinstone kerbs as identified on the schedules are to be taken up and taken to store at Barnton Depot. New 125mm x 250mm whinstone kerbs are to be laid with upstands above existing carriageway channel levels as specified on the drawings and the appendices of the contract documents.

28m Dropped kerb pedestrian crossings will be provided at locations indicated with an upstands of 12mm, exact positions will be indicated on site by the Engineer.

B) FOOTWAY

1530m² Caithness Paving
The existing precast concrete paving flags are to be removed to tip off site. All salvageable natural stone paving flags are to be taken to store at Barnton Depot. The footway is to be excavated to a total depth 150mm and regulated with granular material Type 1 as required and compacted. New Caithness paving flags are to be laid on a mortar bedding as shown on the drawing with a bond as specified in Standard Drawing No 11507.

38m² Precast Concrete Paving
The existing precast concrete paving flags are to be removed and the footway is to be excavated a further 150mm and regulated with granular material Type 1 as required and compacted. New precast concrete paving flags are to be laid on a mortar bedding as shown on the drawing with a bond as specified in Standard Drawing No 11501.

15m² Tactile Paving
Granite tactile paving 400mm x 400mm x 65mm, grey coloured is to be installed at locations shown on the drawing and are to be a minimum of 5 flags wide (2m) and 2 rows deep. Flags are to be orientated to match pedestrian desire lines. Flags are to be laid as per Standard Drawing No 11506.

11m² Hazard Paving
Granite corduroy paving 400mm x 400mm x 65mm, grey coloured is to be installed at locations shown on the drawing. Where flags are at the bottom of stairs a 400mm gap is required from the bottom of the stair to the start of the paving and 2 rows deep. Flags are to be orientated that grooves are parallel to stairs. Flags are to be laid as per Standard Drawing No 11503.

C) CARRIAGEWAY WORKS

48m² Natural Stone Sett Paving - Charles Street
The natural stone sett paving at the junction of Charles Street is to be lifted and re-laid to form an entry ramp into Charles Street and to tie in flush with the level of the existing kerb upstand at the tangent of the radius (approx 110mm high). The setts beyond this point into Charles Street is to re-graded to suit new levels. The natural stone sett paving is to be laid as per Standard Drawing No 11804.

135m (provisional) Channels
The natural stone sett channel is to be lifted and re-laid as required and laid as per Standard Drawing 11286.

D) ACCOMMODATION WORKS

Details of accommodation works are listed on the drawing and at the back of the document.

The content of any item of scheduled accommodation works may vary due to the requirements of the property owners. The Engineer will instruct the Contractor to carry out these works accordingly.

E) GULLIES

3 No Existing gullies identified in the furniture schedule are to be replaced/relocated with new insitu concrete trapped street gullies with 450mm nominal bore as per Standard Drawing No 5601/3. Pots are to be cleaned out after the works are complete with the tail pipes to be rodded.

F) STREET FURNITURE

45 No All street furniture must be raised immediately after the bedding material is laid. All valves must be accessible to the appropriate utility and should therefore be cleaned when raising the frame and cover. An Inspection of the street furniture by the Engineer / Contractors staff shall be carried out before any wearing course can be laid.

G) BICYCLE RACKS
All bicycle racks are to be taken up, set aside and re-laid as part of the works. No more than 10 bicycle racks at a time are to be out of operation. Bicycle racks are located as shown on the drawing and are to be installed as per Standard Drawing 12967.

3 No H)BOLLARDS
Bollards as identified on the drawing are to be taken up to store or relocated.

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100023420 (2018)

REVISION	DETAILS	BY	DATE	CHECKED

THE CITY OF EDINBURGH COUNCIL

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PLACE MANAGEMENT
INFRASTRUCTURE
TRANSPORT DESIGN AND DELIVERY

George Square
Footway Reconstruction & Lighting Renewal

North Footway
General Layout

Date: June 2018
Scale: 1:250
Job. No. 636972
Drawn by: Hugh Maclean
Checked by: David Wilson

Draft

DRG. NO. TDD/636972/2/1100