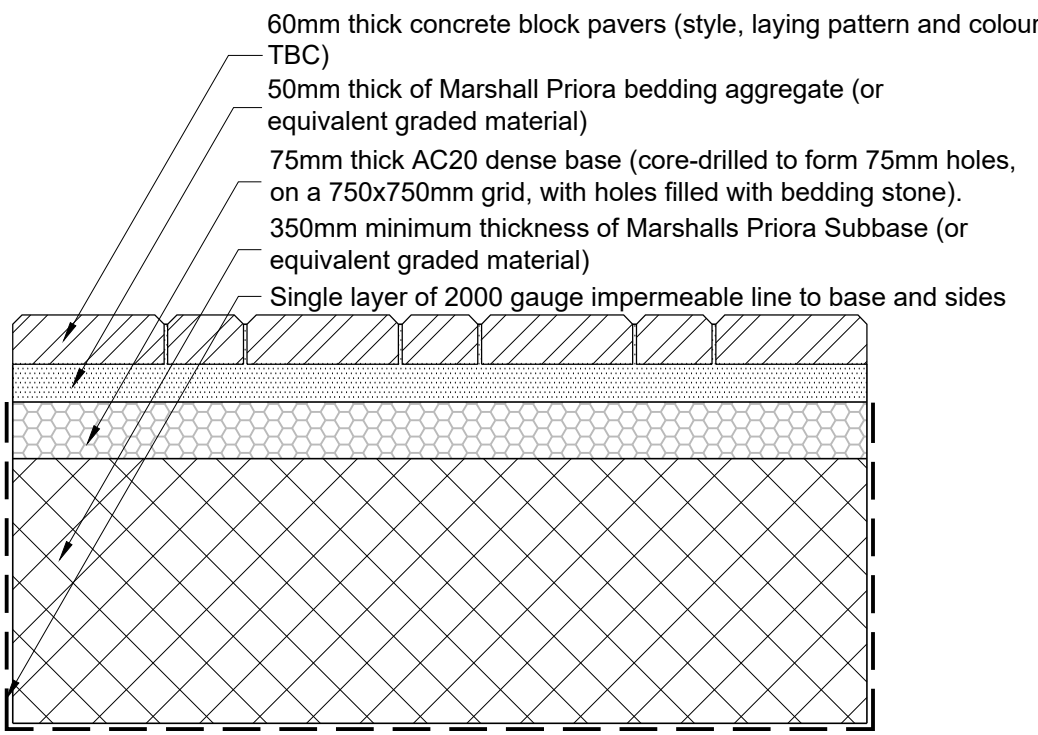
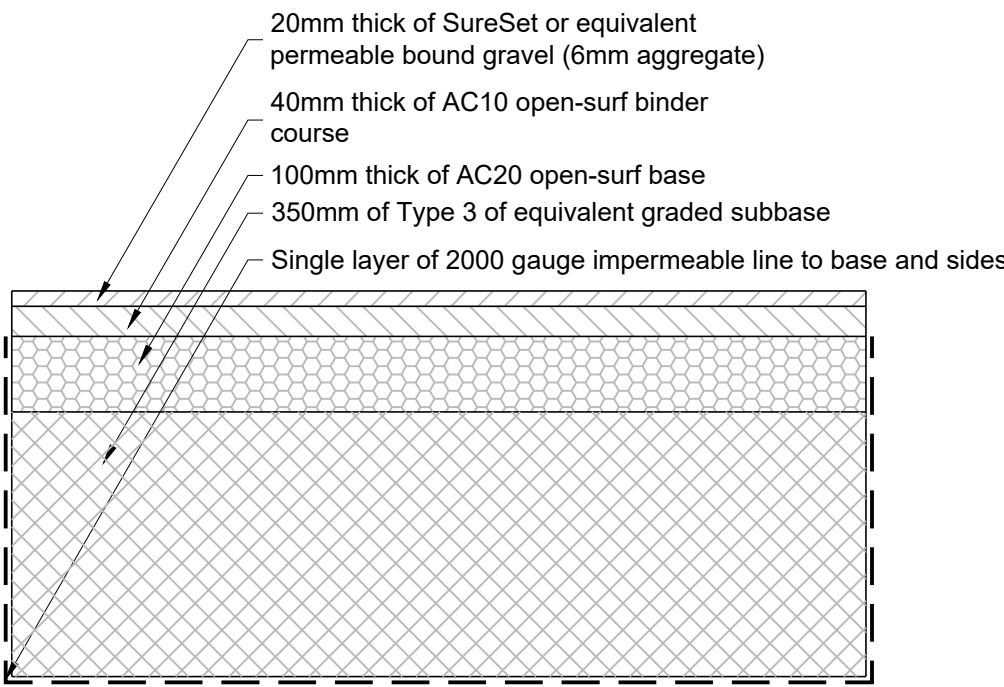


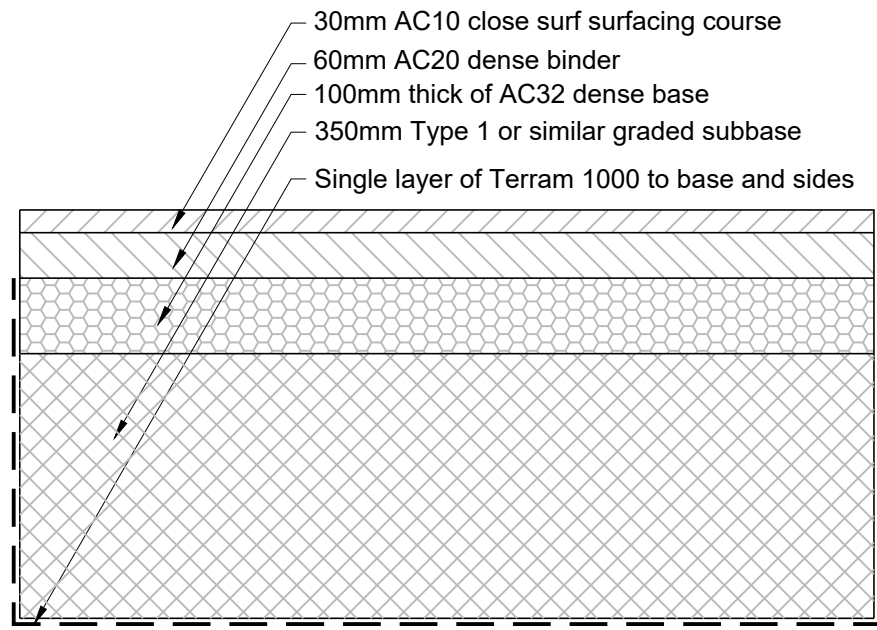
Permeable Block Paved Access Road



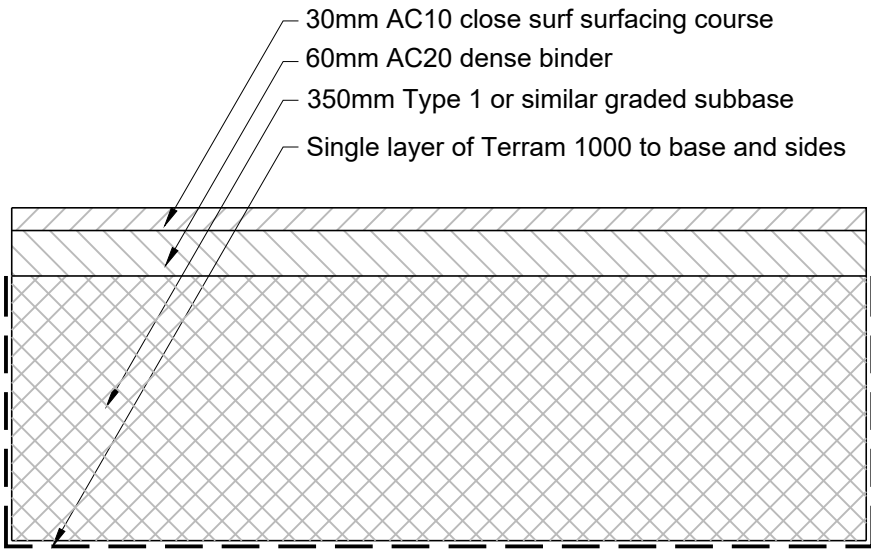
Permeable Block Paved Parking Bays



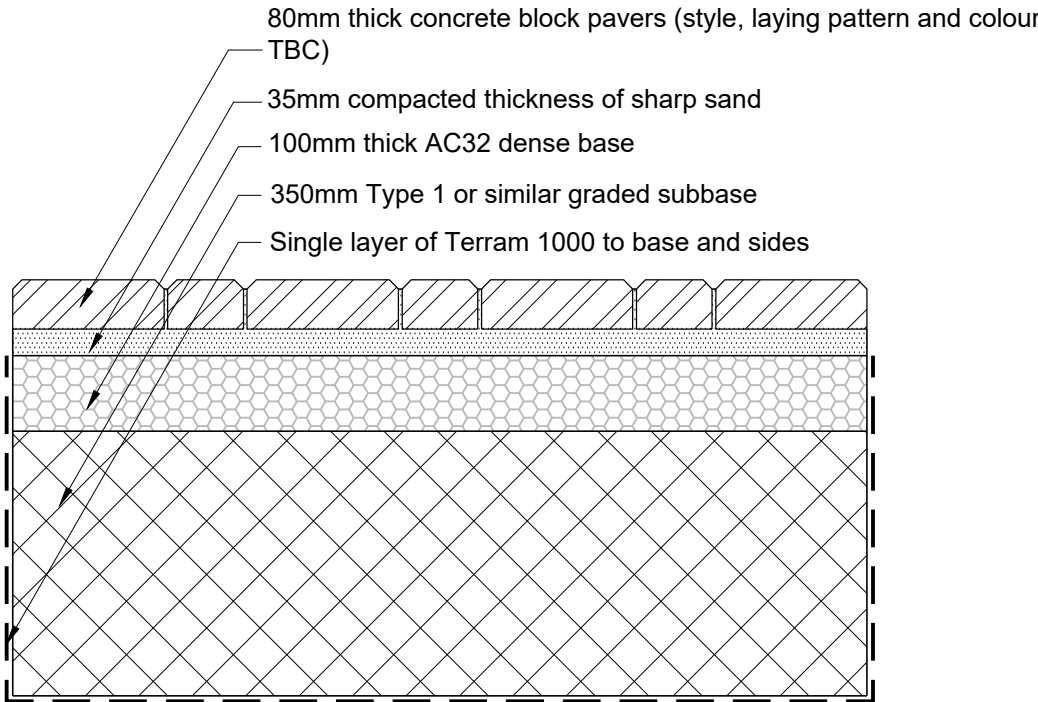
Permeable Resin Bound Gravel Parking Bays (or other lightly trafficked areas)



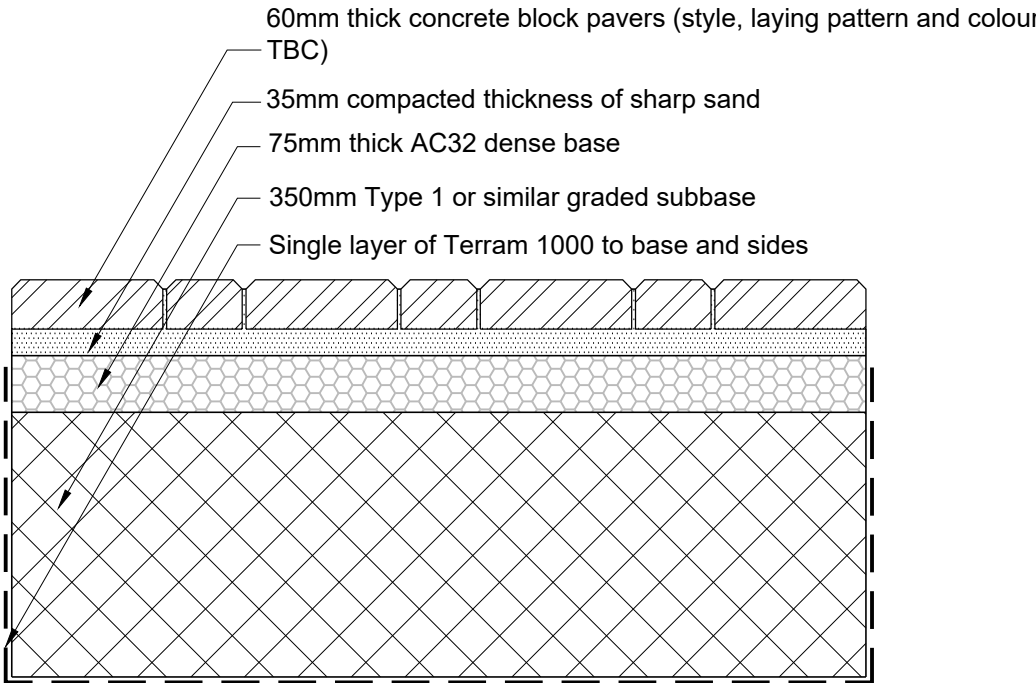
Non-Permeable Tarmac Access Road



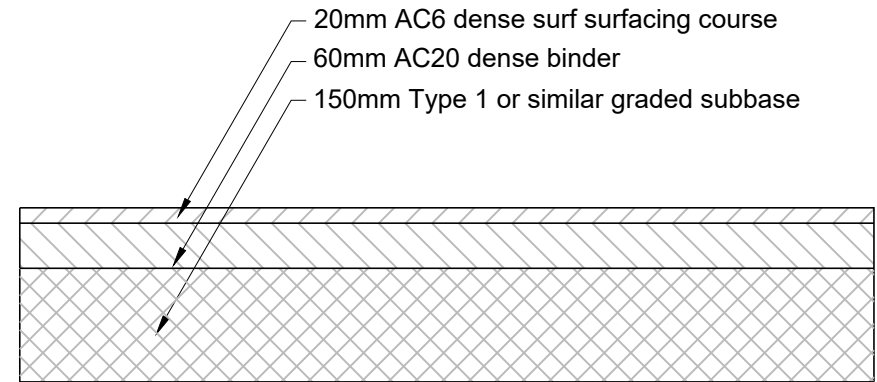
Non-Permeable Tarmac Parking Bays



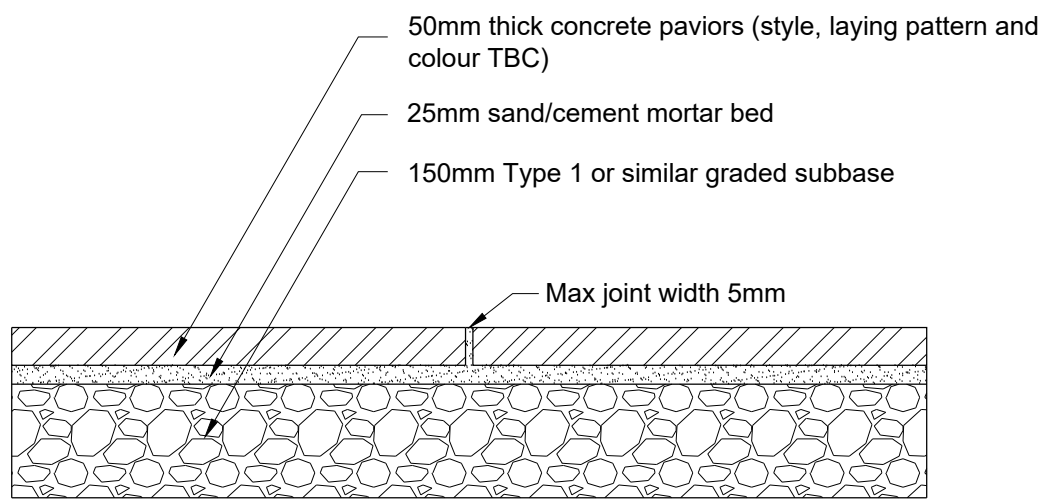
Non-Permeable Block Paved Access Road



Non-Permeable Block Paved Parking Bays



Tarmac Footway



PCC slab Paths and Patios

- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) ALL LEVELS ARE IN METERS (m).
 2. DO NOT SCALE FROM DRAWINGS, WORK TO FIGURED DIMENSIONS ONLY.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS, THE SPECIFICATION AND THE CONTRACT DOCUMENTS.
 4. ALL WORK IS TO COMPLY WITH THE RELEVANT EUROCODES, CODES OF PRACTICE AND THE BUILDING REGULATIONS.
 5. ANY DISCREPANCIES BETWEEN THE ARCHITECTS AND THE ENGINEERS DRAWINGS TO BE BROUGHT TO THE ATTENTION OF THE DESIGN TEAM.
 6. ALL SETTING OUT TO BE VERIFIED WITH THE ARCHITECT PRIOR TO COMMENCEMENT OF SITE CONSTRUCTION.
 7. WORKS TO ENSURE THE STRUCTURAL STABILITY OF ALL ELEMENTS IN THEIR TEMPORARY STATE DURING CONSTRUCTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
 8. ALL FOUNDATION WORKS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH PARTY WALL AWARDS.
 9. FOR FULL DESIGN NOTES REFER TO IESIS DRAWING: XXX-ISS-XX-XX-DR-S-7000.

KEY:

LEGEND:

P01 07.08.19 RM/PT PRELIMINARY ISSUE.
REV DATE DRAWN/CHK REVISION INFO
STATUS:

INFORMATION

CLIENT:

ENGIE

PROJECT:

Crown Trading Centre
Hayes

DRAWING TITLE:

Example of
External Surfacing
Construction Details

JOB NUMBER: SCALE AT A1: REV. STATUS:

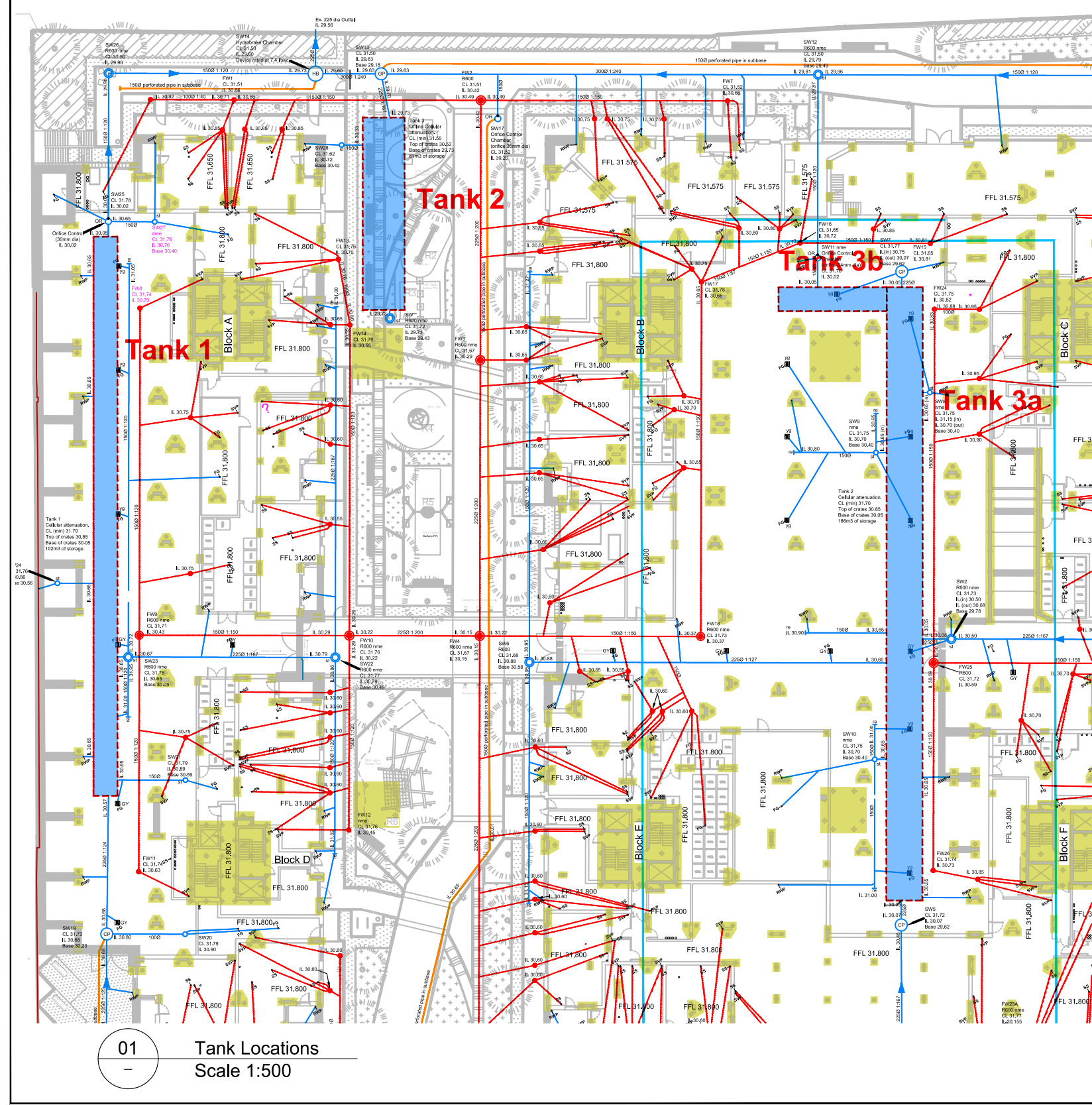
SE1560 NTS -

DRAWING NUMBER: REVISION:

SE1560-155-XX-XX-DR-C-3005 -

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MANCHESTER, M15 4PZ | UK
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IESIS STRUCTURES



Construction Sequence

Installation procedures should be carried out in accordance with the Health and Safety at Work Etc. Act (1974) and any other relevant legislation. Special attention should be paid to temporary work requirements in excavations.

Excavate to the required plan dimensions and level, ensuring that the excavation orientation will allow easy installation of connecting pipework. Consideration should be given to maintaining construction plant access for reinstating around the installed Variobox units. A minimum 300mm working space is required around the structure but 500mm is recommended for safe working practice.

Ensure that the ground bearing capacity at the formation level is sufficient for the proposed operational loads. The base of the excavation should be smooth and level, free of large stones and soft spots. Any soft spots should be excavated and replaced with suitable compacted granular material.

a) Attenuation Application

Place and compact a 100mm thick bedding layer of coarse sand. The base should be level and free of any undulations. Line the base and sides of the excavation with a 300g needle punched non-woven protective geotextile before placement of the impermeable geomembrane.

Install the geomembrane. Hewitech or the contractor seal the joints by wedge welding in accordance *Ciria 698 Site Handbook For The Construction of SUDS*, making an allowance for the connecting pipework or adapters. To ensure that the integrity of the geomembrane has been maintained, it is recommended that an inspection of the material is carried out, and welded joints are air tested in accordance with *Ciria 698 Site Handbook for the Construction of SUDS*.

If water is present, we recommend that the excavation depth is over dug by 200mm, with a base layer of 'TERRAM', overlaid by 150mm of compacted 'Type 1 road stone', topped off with a 50mm layer of pipe bedding. A sump should be excavated below the base layer of stone to allow the extraction of water via a drainage pump.

Variobox shear connectors (Detail C) are placed between all layers of Variobox units to give structural support to the tank. Sufficient Variobox clips (Detail D) are placed connecting Variobox units to maintain rigidity of the tank prior to backfilling the sides, the adjacent units being connected with two Variobox clips.

Place the Variobox shear connector into the recess at the edge of the unit, two number per unit as indicated Detail 05. Install the next layer of Variobox units, positioning the units in the upper layer so that they exactly mirror the position of the units in the lower layer. Repeat the above procedure until the necessary depth of Variobox structure has been achieved.

Pipe connections to the tank are made via flange adaptors which are attached to the Variobox units with tie wraps. A Variobox attenuation structure requires ventilation to ensure proper hydraulic performance. Consideration should be given as to how this ventilation is to be installed, generally utilising a vent pipe to the downstream manhole (Detail 01), or alternatively a vertical vent pipe (Detail 02). One 110mm vent pipe per 7500m² of drained area is recommended within *CIRIA C680 Structural Design of Modular Geocellular Drainage Tanks*.

Complete the geomembrane encapsulation of the entire Variobox structure, forming and testing joints where appropriate. Complete the geotextile protective fleece encapsulation of the Variobox structure, re-examining the geotextile for damage and joint integrity.

Contractor

Backfill around the sides of the encapsulated units, forming a thick layer of coarse sand or Class 6H selected granular material immediately adjacent to the units. Where required, remaining excavated areas around the units should be backfilled with Class 6N or 6P selected granular material, in accordance with *MCHW, Volume 1, Series 600* or similarly approved specification.

Above the wrapped Variobox units, place and lightly compact a minimum 100mm thick layer of either coarse sand or Class 6H selected granular material (with 100% passing the 5mm sieve), in accordance with *MCHW, Volume 1, Series 600*.

Final backfilling of the installation is dependent on the expected operational loads. (NB. Compaction plant over and immediately adjacent to the Variobox units shall not exceed 2300 kg/m width).

Field conditions (e.g. landscaped areas)

The backfill material that lies within 300mm above the Variobox units should be free from particles exceeding 40mm in diameter, in accordance with Class 6 material to *MCHW, Volume 1, Series 600*. Final backfilling up to finished ground level may be achieved using selected as-dug material. Backfill material should be placed and compacted in layers no greater than 300mm, or in compliance with the approved specification.

Lightly trafficked (eg restricted access car park)

Backfill with Class 1 or 2 material in accordance with *MCHW, Volume 1, Series 600*. Backfill material should be placed and compacted in layers not greater than 150mm. Where the Variobox units are installed beneath a paved area, the pavement sub-base may form part of the backfill material provided that minimum cover depths are maintained.

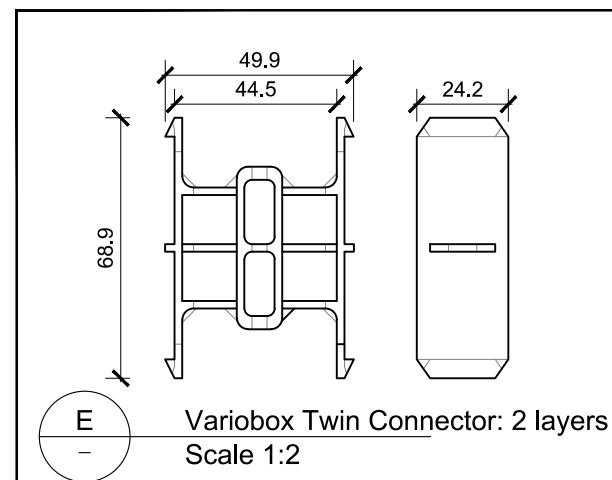
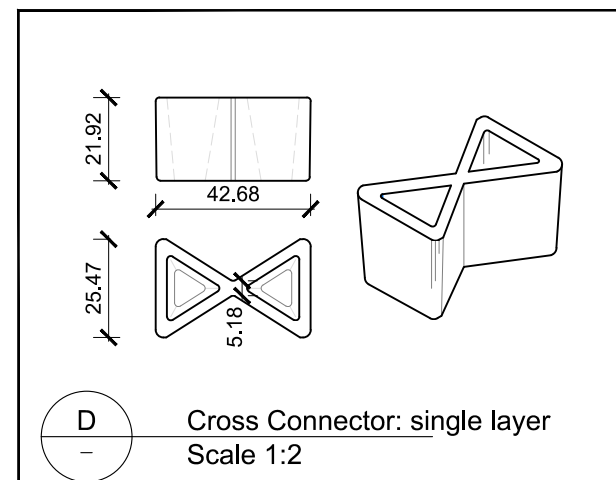
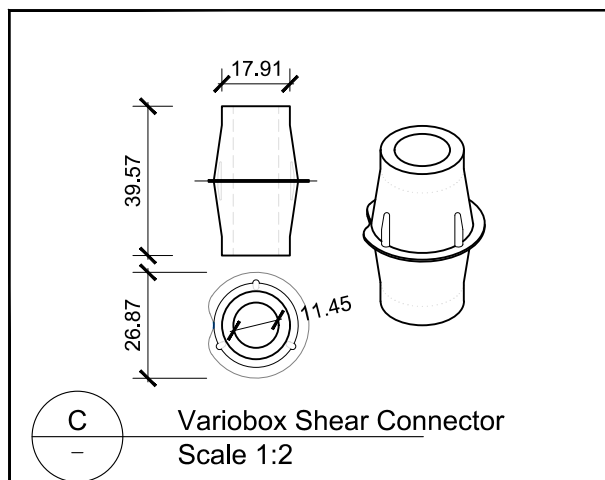
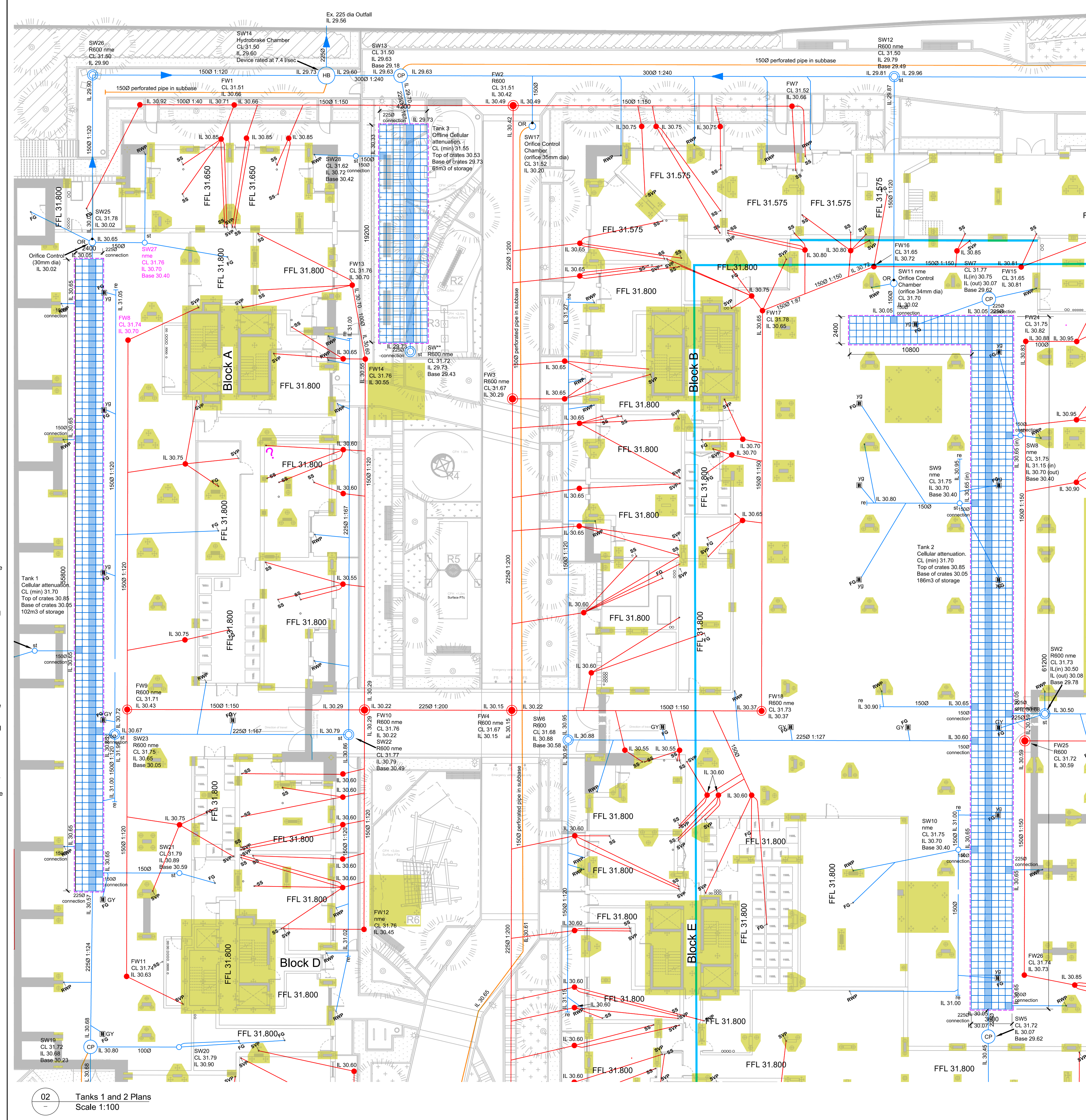
Heavily trafficked (e.g. service areas or roads)

Contact Hewitech for further information and guidance.

Complete pavement construction or landscaping over the Variobox system.

It should be noted that infiltration systems are not generally installed under roads due to the reduction in load bearing capacity of saturated soils. Specialist advice should be sought where this type of installation is proposed.

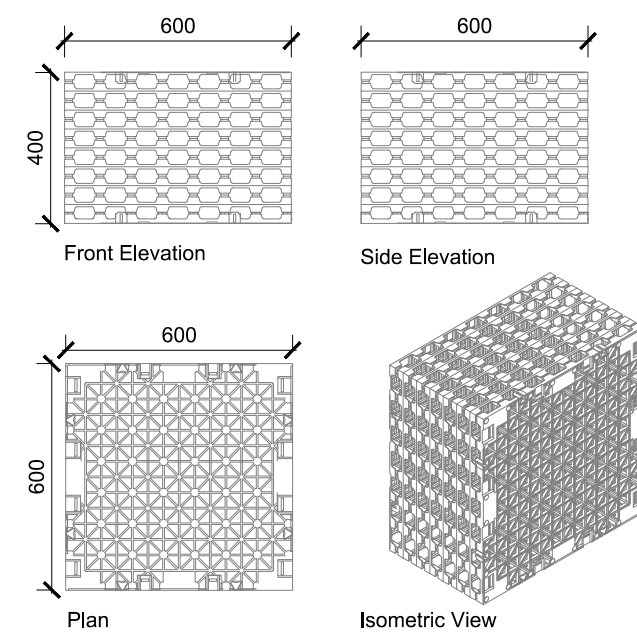
In attenuation systems, where groundwater may be present, a buoyancy check should be undertaken by a qualified engineer to ensure that the imposed overburden pressure exceeds any uplift forces generated.



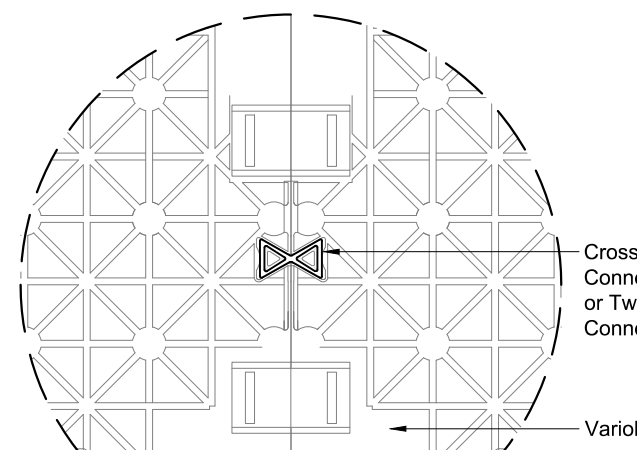
VARIOBOX TRAFFIC 400kN/m ² / 100kN/m ² CELLULAR STORAGE - ENGINEER TO CONFIRM FINAL VOLUMES										
Tank Ref	Length (m)	Width (m)	Depth (m)	Area (m ²)	Volume (m ³)	Eff. Storage (m ³)	No. Crates Long	No. Crates Wide	No. Crates High	Total No. Crates
1	55.8	2.4	0.8	133.92	107.14	101.78	93	4	2	744
3	19.2	4.2	0.8	80.64	64.51	61.29	32	7	2	448
2a	61.2	3.6	0.8	220.32	176.23	167.44	102	6	2	1224
2b	10.8	2.4	0.8	25.92	20.74	19.70	18	4	2	144
Total Size					368.62	350.21				2560

FOR CONSTRUCTION

NOTES
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400x600mm Variobox Plus Detail
Scale 1:20



Variobox Plus Connection Detail
Scale 1:5

REV	DATE	DRAWN	CHECK
D	31.11.23	ACS	
C	29.10.23	ACS	
B	18.10.23	ACS	
A	11.10.23	ACS	

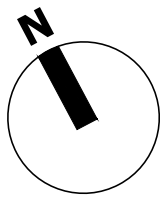
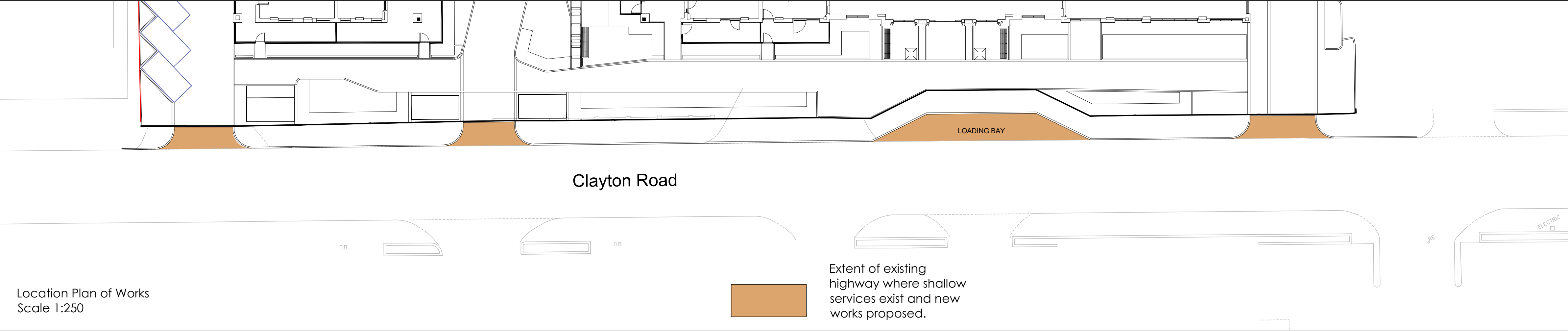
hewitech

INNOVATION IN PLASTIC

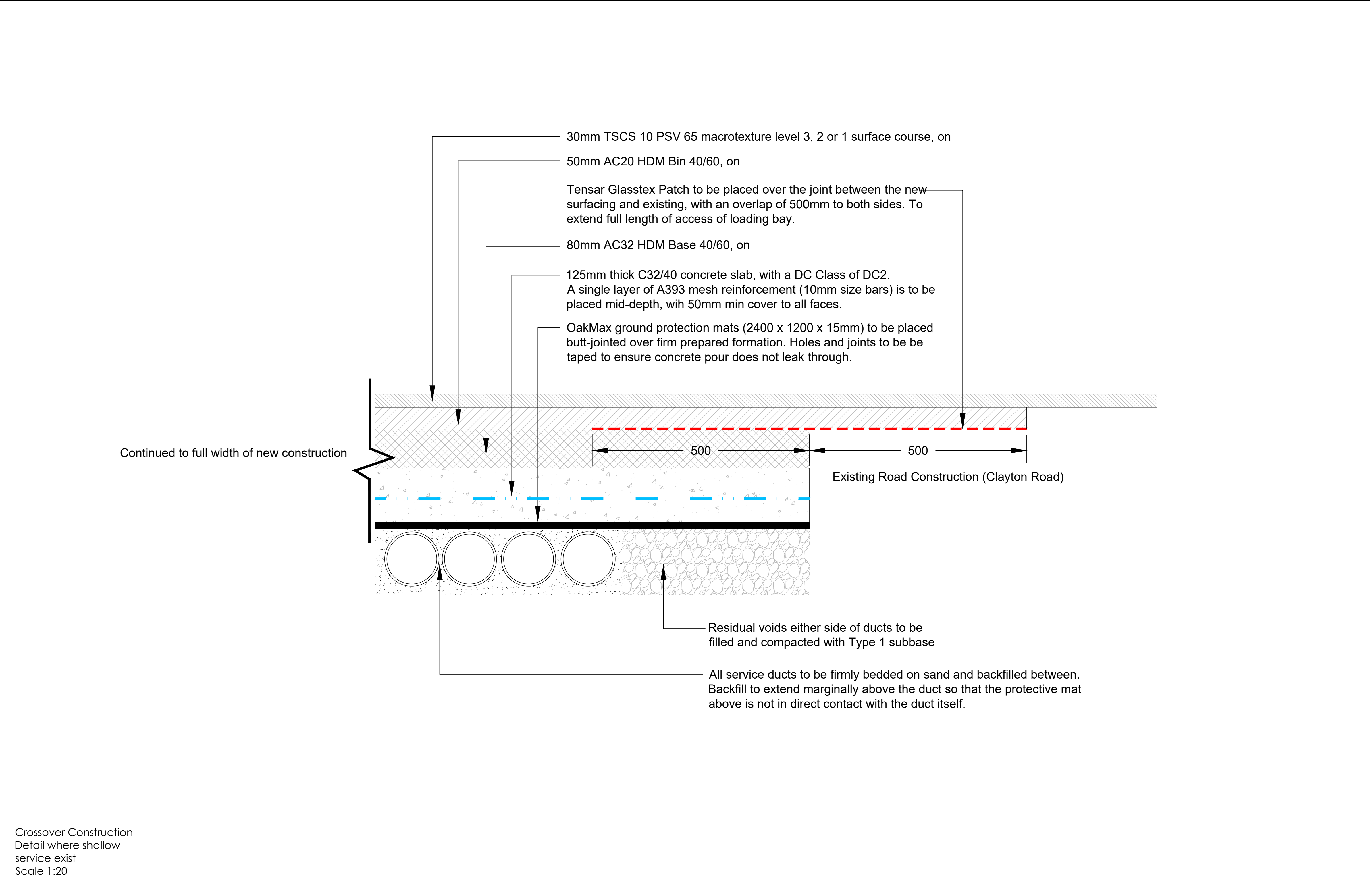
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Andoversford
Cheltenham,
Gloucestershire
GL54 4LB
Tel: +44 (0)1242 821678
email: sales@hewitech.co.uk
web: www.hewitech.co.uk

PROJECT DATA ADDRESS
sales@hewitech.co.uk
PROJECT
Crown Trading Centre
Hayes
TITLE
Attenuation Details
Tanks 1, 2 and 3
DRAWING NO
0001

SCALE (s) A1
As Shown
PROJECT NO
23-528
REV
D



- NOTES:
1. All works within the public highway to be carried out under the supervision of (and to the satisfaction of) Hillingdon Council's appointed Clerk of Works.
 2. All works subject to approval from affected utility companies.



iesis

STRUCTURES

C03	11.04.25	RM/PT	FINAL CONSTRUCTION ISSUE
C02	27.03.25	RM/PT	HIGHWAY COMMENTS ADDRESSED
C01	26.03.25	RM/PT	FOR APPROVAL
REV	DATE	DRAWN/CHK	REVISION INFO
STATUS:			
Stage 5			
CLIENT:			
JJ RHATIGAN			
PROJECT:			
Crown Trading Centre Hayes, UB3 1DU			
DRAWING TITLE:			
S278 Works Crossover Detail Where Shallow Services Exist			
JOB NUMBER:		SCALE AT A1:	REV. STATUS:
SE1560		As Shown @A1	S4
DRAWING NUMBER:		REVISION:	
CTC-ISS-XX-XX-DR-C-923025		C03	
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www.iesigroup.com			

APPENDIX B DELIVERY TICKETS FOR PAVING WORKS

5

7470

107028

ABG

Deliver To:
AN Construction Solution Ltd
Elvis 07939 589133
JJ Rhatigan Site
Crown Trading Centre, Clayton Rd
Hayes, UB3 1DU
Great Britain

Invoice To:
Axter Ltd
Ollie Mann
Harbour Landing, Fox's Marina
The Strand
Wherstead, Suffolk IP2 8NJ
Great Britain

ABG Ltd
E7, Meltham Mills Road
Meltham
Holmfirth, West Yorkshire HD9 4DS
Great Britain

Purchase Order Number
11626

Opportunity
Crown Trading Estate

Shipment Date
12 February 2025

ABG Sales Contact
Matt Gledhill -
07355 094352

Description

Quantity

Unit of Measure

Terrex NW20 - 1.05m x 100m - 11 rolls

1,155


Sqm

ABG Deckdrain 400SXD/NW8 - 1.1m x 50m - 31 rolls

1,650

Sqm

25 rolls.

Signed:	
Print Name:	PETRISOR Bogobila
Date:	

The above is subject to ABG's standard terms and conditions of sale, which can be found on our website.

Signed, dated