



**ENGINEERING DESIGN STATEMENT
FOR
NEW FOOD STORE
AT
CARNSEW ROAD
HAYLE, CORNWALL**

Date: 26TH MARCH 2010

**Ref: 10011.03
SM.MW**

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NEW FOOD STORE, CARNSEW ROAD, HAYLE, CORNWALL

1.0 INTRODUCTION

The following design statement has been prepared on behalf of Actoris Limited as a supporting document for a planning application for a new food store off Carnsew Road, Hayle, Cornwall.

The food store is to be located on the current Jewson builder's merchant's site as indicated on the Chris Waterworth Architects plans submitted with this application.

This design statement is intended to provide commentary on the engineering documents and drawings submitted for the application and cover the following aspects:-

- Highways
- Drainage

2.0 HIGHWAYS

As part of the application a Traffic Impact Assessment has been prepared by ADL Traffic Engineering Ltd a series of general arrangements and tracking drawings have been produced by Shear Design Limited and a Stage 1 Safety Audit has been carried out by MB Projects Ltd. All of these documents have been submitted with the application.

EXISTING

From a site inspection the following comments have been made regarding the existing highway arrangement as also noted on our drawing 10011-SK200 Revision A (see Appendix SD-A):

- There is a long length of Carnsew Road from Foundry Square leading to the 30mph to 60mph speed change. This section of road has no form of traffic calming and very little urban build-up adjacent the road beyond the viaduct. This creates potential for premature acceleration/ late deceleration due to perception of surrounding safety (see photograph 01 in Appendix SD-B).
- There is a crossroad warning sign along Carnsew Road; however there is no visible indication of any junctions at the Jewson and Foundry Lane access as you approach from both directions due to road side features such as hedges and buildings (see photograph 02 in Appendix SD-B).
- There is no visibility for vehicles exiting Foundry Lane to the west and poor visibility to the south east (see photographs 03 and 04 in Appendix SD-B).
- There is poor visibility for vehicles turning left from Carnsew Road into Foundry Lane due to an approximately 2.4m high stone wall. This affects visibility of pedestrian/ cyclist road entry point from the tracks to the south of Carnsew Road as well as ability to see any vehicle coming up the narrow Foundry Lane (see photographs 05, 06 and 07 in Appendix SD-B).
- As well as poor visibility the Foundry Lane junction has poor geometry for left out manoeuvres with tracking for Transit vans indicating the need to slew onto the opposing lane (see photographs 05, 06 and 07 in Appendix SD-B).

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- Cyclists observed during the inspection fell under two categories of road use. Adult commuters travelled in the main carriageway not using the wide footpath as a shared surface. Children used the tracks south of Carnsew Road, then crossed Foundry Lane passing across open unlit land (empty pay and display car park) reaching the footpath adjacent the viaduct (see photographs 08 and 09 in Appendix SD-B).
- Despite the narrowing of the existing footpath at Foundry Square there is very good forward visibility for pedestrians and approaching vehicles (see photograph 10 in Appendix SD-B).
- A number of reported serious accidents are noted with the TIA that are local to Carnsew Road since 2005. These accidents include a fatality on the existing toucan pedestrian crossing. These incidents appear to relate to speed and visibility

PROPOSED

Giving consideration to the above observations the introduction of the proposed 24m diameter roundabout for the food store access will provide a traffic calming measure mid way between Foundry Square and the 30mph to 60mph speed limit change as indicated on Shear Design drawing 10011-SK201 Revision A (see Appendix SD-C)

The roundabout will be visible from beyond the 30mph to 60mph speed limit change and therefore clearly define the access points and will ensure reduced approach speeds that the existing arrangement does not offer.

The egress manoeuvres of customers and staff from the store will be prioritised over the vehicles travelling east to west on Carnsew Road thus ensuring a cautionary approach to the roundabout from Hayle town centre. There will also be a shorter approach distance to the existing toucan pedestrian crossing thus lower speeds.

The roundabout geometry is dictated by the existing listed building, Foundry Lane and future outline planning approved junctions along Carnsew Road. This has been achieved; however the exit manoeuvre from Foundry Lane will have to be a left turn only, enforced by deflection of the new traffic islands. Based on the comments on the existing this will improve current manoeuvres as vehicles will not be swinging out into opposing traffic.

It is our considered opinion that although there will be an increased traffic flow as noted in the ADL Traffic Assessment the roundabout will provide a safer highway environment for all road users.

ARCHAEOLOGY (RELATIVE TO HIGHWAYS)

A section of stone edging is noted in the entrance to the Jewson store which is recorded within the historic environment records.

This edging has become heavily rutted and worn due to trafficking and is at a lower level than the proposed roundabout access. In order to achieve the levels necessary for a safe functioning roundabout to facilitate a new entrance to the site levels must be raised.

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Based on the above it is advised that to retain this feature it should either be protected and buried or to be relocated to a hardscape/landscape area. It cannot be retained within any adoptable highway works surface as it has potential to become a safety hazard and would deteriorate further.

3.0 DRAINAGE**FOUL**

From the South West Water Sewer Maps it is evident that there is both a foul water and combined public sewer within Carnsew Road (see Appendix SD-D).

The existing Jewson facilities are set approximately 1.5m below the Carnsew Road levels. From a basic assessment of the site drainage the existing foul water discharges to a septic tank.

The proposed foul water drainage shown on Shear Design drawing number 10011 – SK220 (see Appendix SD-D) discharges to the public foul sewer in Carnsew Road. Due to the proposed site levels being similar to the existing Jewson site a private package pump station is to be provided. This will discharge to a new section of gravity drainage across Carnsew Road prior to its connection to the Public Sewer.

SURFACE WATER

From discussions with the current occupier the surface water originally discharged directly to the tidal estuary of the River Hayle at its Northern boundary. This outfall is understood to have been damaged during post revetment works and its condition and location are currently under investigation. It is anticipated that the existing historical surface water drainage discharge from building roofs will still be discharging via this outfall.

Subsequent areas of storage yard for the builders merchants appear to discharge to an adhoc soak away within the yard. Jewson have advised that this regularly ponds and is not satisfactory. During our site inspection there was significant ponding in the area of the soak away which was several hours after light rainfall.

We do not believe that soak ways will be viable for the future development due to likely tidal ground water table issues and ground conditions therefore the proposed surface water drainage system will discharge directly to the Hayle Estuary.

The proposed drainage will give consideration to SUDS systems by utilising a tanked Formpave Aquaflow for the main customer car park to the parking bays with macadam aisles laid to falls towards the porous paving. The rear service yard is also to be formed in tanked Formpave porous paving system using the Aquaflow ML block due to the heavy duty usage.

Both the service yard and car park areas will be collected by a filter drain carrier system leading to a new outfall formed to the Hayle Estuary. Due to the high velocities and areas for the road drainage the rain water pipes will discharge direct to a gravity carrier drain. This carrier drain will also collect the tanked porous paving.

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Through use of the Formpave Aquaflow membranes and filtration within the sub-strata an excellent method of pollution control is provided as well as reduced outflow rates due to increased time of concentration for surface run-off to reach the outfall.

The flood level during a 1 in 200 year event plus allowance for Global warming is 4.64m AOD as stated in the Flood Risk Assessment.

As the Storage for the drainage is within the actual Formpave which is above this level there will be no requirement for additional storage during tide lock events. The hydraulic head will allow continued discharge during such a flood event.

ARCHAEOLOGY (RELATIVE TO DRAINAGE)

From the archaeological report the location of the former Lime Kiln bases has been considered.

Due to the shallow drainage system by use of the car park construction with Formpave Construction and the proposed carrier drainage alignment the area in proximity of the Lime Kiln bases will not be disturbed by the ground works.

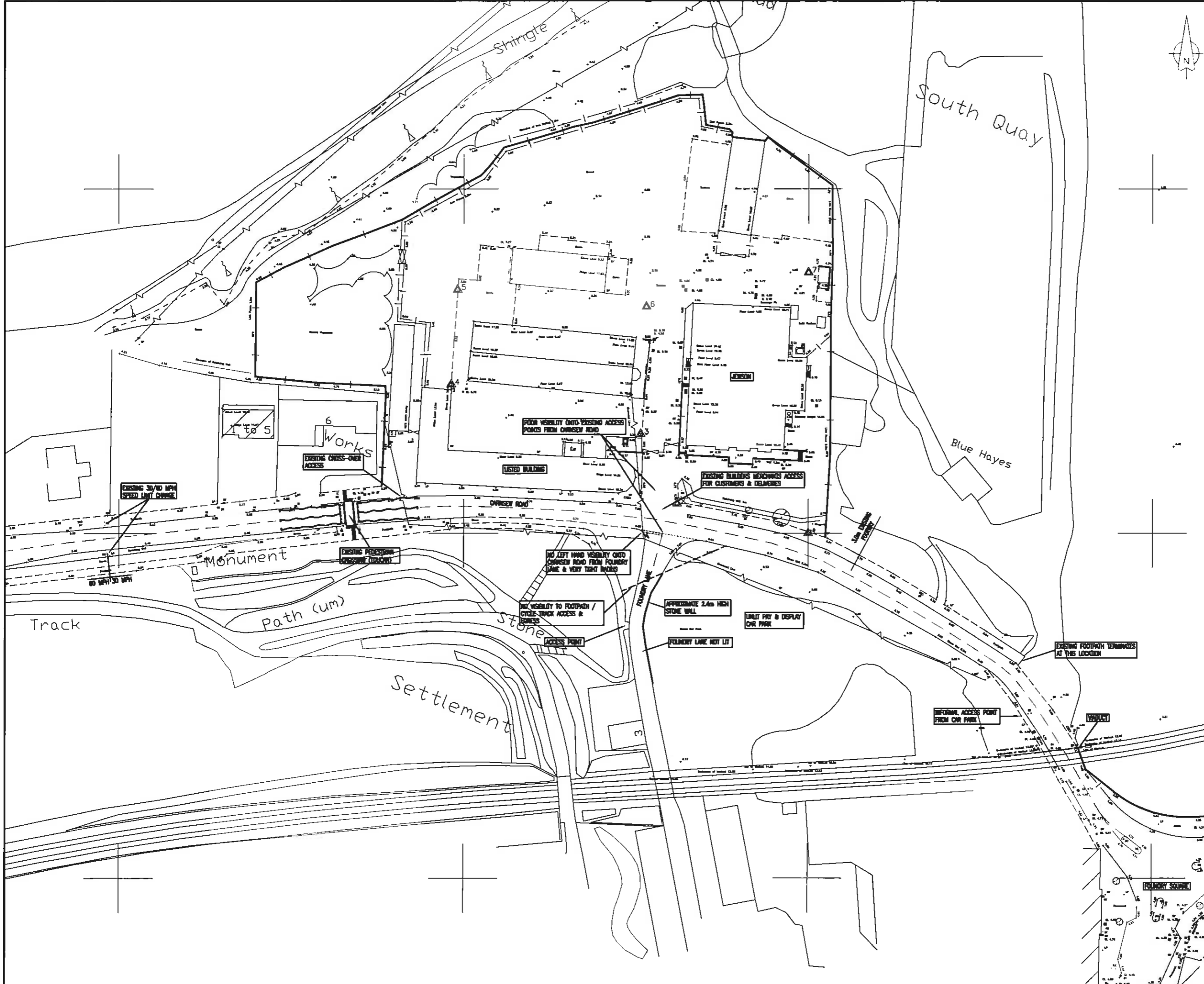
**SIMON MASON
SHEAR DESIGN**

APPENDIX SD-A

Shear Design Drawing No. 10011-SK200

NOTES

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|----------|----------------------------|
| CLIENT: | ACTORIS |
| PROJECT: | PROPOSED FOOD STORE, HAYLE |
| DATE: | EXISTING LAYOUT PLAN |

SHEAR design
 Consulting Civil and Structural Engineers

7 Ashbee Court, Wexley, Essex, Chelmsford, Essex, CM3 9BW
 Tel: 0202 661 7000 Fax: 0202 664 7001 www.shear-design.com

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| DATE: | 02/02/2010 | SCALE: | 1:250 @ A1 |
| PROJECT: | 10011-SK200 | DATE: | FEB 2010 |
| SCALE: | 1 - INFORMATION 2 - PRELIMINARY 3 - APPROVAL 40 - CONTRACT | DATE: | |
| SCALE: | T - TENDER C - CONSTRUCTION 20 - AS-BUILT | DATE: | |

APPENDIX SD-B

Photographs 1 to 10

NEW FOOD STORE, CARNSEW ROAD, HAYLE, CORNWALL



Photograph 1



Photograph 2



Photograph 3



Photograph 4

NEW FOOD STORE, CARNSEW ROAD, HAYLE, CORNWALL



Photograph 5



Photograph 6



Photograph 7



Photograph 8

NEW FOOD STORE, CARNSEW ROAD, HAYLE, CORNWALL



Photograph 9



Photograph 10

APPENDIX SD-C

Shear Design Drawing No. 10011-SK201 Rev A

APPENDIX SD-D

**South West Water Sewer Map
Shear Design Drawing No. 10011-SK220**



DRAINAGE

Location:
FOOD STORE CARNSEW ROAD, HAYLE

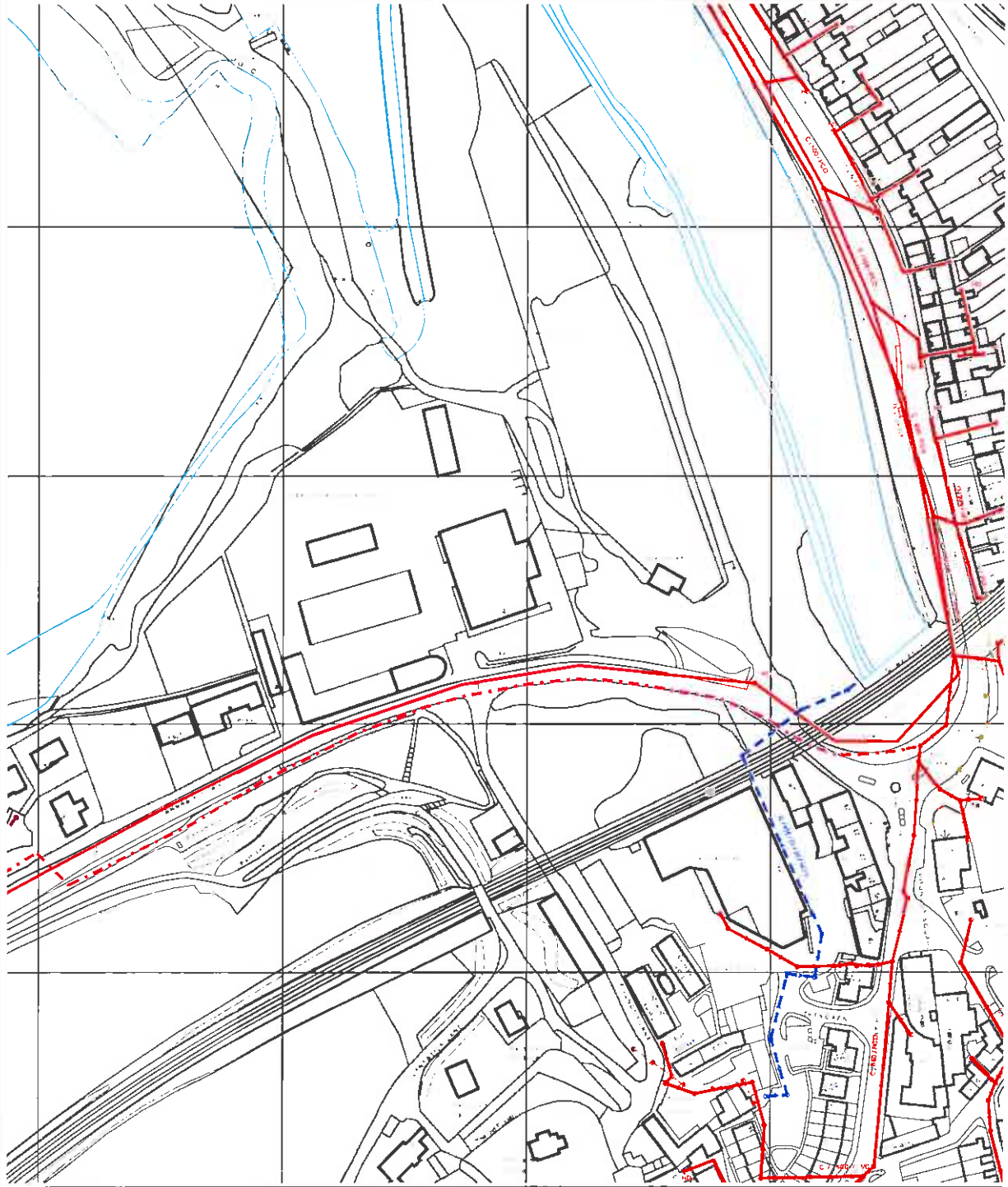
Scale: 1:2415

The information indicated on this plan is provided only as a guide and no assurance as to its accuracy is given or implied. The Company accepts no liability whatsoever for any error or omission in the information.

It should be noted that not all mains, service pipes and other apparatus of the Company in the area of the plan are shown.



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Sewer Pipe Details

| | |
|-------------------|--|
| Public - Foul | |
| Public - Surface | |
| Public - Combined | |
| Public - Treated | |
| Pumping Main | |
| Elevated | |
| Unverified | |
| Abandoned | |
| Highway | |

Common Shapes

| | | | | | |
|-------------|---|-------------|---|-----------|----|
| Circular | C | Barrel | B | U Shaped | US |
| Rectangular | R | Trapezoidal | T | Horseshoe | H |
| Unknown | U | Egg Shape | E | Oval | OV |

Common Materials

| | | | | | |
|-------------------|-----|-------------------|-----|----------------------------------|------|
| Vitrified Clay | VC | Alkathene | AK | Medium Density Polyvinylchloride | MDPE |
| Pre Cast Concrete | PCO | Asbestos Cement | AC | Unplasticised Polyvinylchloride | UPVC |
| Concrete | CO | Polyvinylchloride | PVC | Unknown | U |

Sewerage Structures

| | | | |
|------------------|----|------------------|----|
| Manhole Foul | | Manhole Surface | |
| Manhole Combined | | Manhole Private | |
| Soakaway | SK | Catchpit | CP |
| Washout | WO | Hatchbox | HB |
| Buried | BU | Unable to Locate | UL |

NOTES

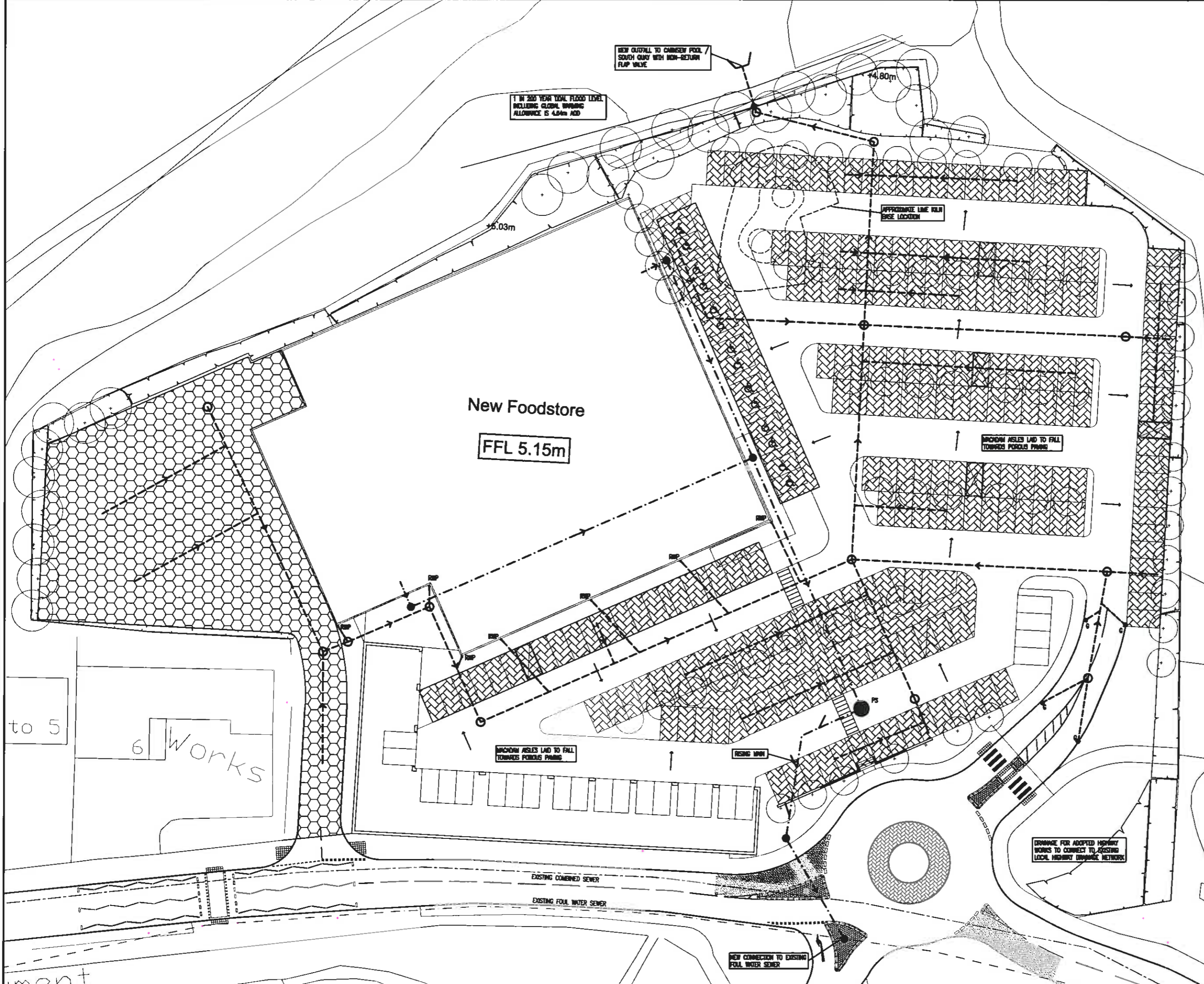
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DRAINAGE LAYOUT SHOWN IS INDICATIVE FOR PLANNING PURPOSES ONLY & SUBJECT TO DETAILED DESIGN.

KEY

- EXISTING COMBINED SEWER
- EXISTING FOUL WATER SEWER
- PROPOSED FOUL WATER SEWER
- PS PROPOSED FOUL WATER PUMPING STATION
- PROPOSED FOUL WATER RISING MAIN
- PROPOSED SURFACE WATER SEWER
- PROPOSED DRAINAGE PIPE
- PROPOSED ROAD GULLY
- PROPOSED TANKED FURFURINE AQUAFLOW M. FORDULS PRIND SYSTEM
- PROPOSED TANKED FURFURINE AQUAFLOW FORDULS PRIND SYSTEM

REFER TO ARCHITECTS DRAWINGS FOR LATEST SITE LAYOUT PLAN



to 5
6 Works
ment

| REV | DATE | DESCRIPTION | BY | CHK |
|-----|------|-------------|----|-----|
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CLIENT: **ACTORIS**

PROJECT: **PROPOSED FOOD STORE, HAYLE**

TITLE: **PROPOSED DRAINAGE LAYOUT**

SHEAR design
Consulting Civil and Structural Engineers

1 Ashpitel Court, Wexley Road, Cardiff Gate Business Park, Cardiff, CF23 8PW
Tel: 029 2044 7000 Fax: 029 2044 7001 www.shear-design.co.uk

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T - TENDER C - CONSTRUCTION AB - ABILITY

A 10011-SK220