

15005/LTR/0005/AC

16 May 2019

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Dear Gary

Aldi, Bridge Street, Brigg
Discharge of Conditions for PA/2016/995

Please find below our clarifications further to review of the memo from Environmental Health Officer for North Lincolnshire Council, enclosed for reference

We have addressed our points of clarification as per the numbers provided in their summary;

- 1 The store structure and floor slab will be piled in order to prevent differential settlement. The ground gas precaution will be designed by other.
- 2 To be addressed by the specialist remediation contractor.
- 3 As the soils and groundwater will be remediated and validated prior to the construction of the piled foundations, the risk of creating preferential pathways is considered negligible as the source and associated 'plume' will be removed/remediated.

In addition, the site does not lie in a source protection zone, the underlying natural superficial soils are soft cohesive in nature and confined by the overlying fill, the pile annuli will be self sealing and the piles will only be socketed into the low permeability shallow siltstone bedrock

With respect to ground gas, the store will include appropriate precautions for Characteristic Situation 2 with respect to elevate carbon dioxide concentrations recorded during site monitoring and a hydrocarbon vapour barrier as recommend in the DQRA. These will be specified by others.

- 4 The cover system installation and validation is set out in Section 10.20 onward in the DQRA and Remediation Statement, which is based on YALPAG guidance.
- 5 During the remediation works surface water will be controlled by the specialist contractor, details of which they will provide under separate cover. In the permanent situation it is proposed that surface water will be formally drained via an attenuation tank (and oil separator for the car park), prior to discharge to the adjacent watercourse, as per the hierarchy for surface water disposed set out Building Regs and drainage authority requirements, drawing attached for detail.
- 6 To be addressed others, but it should be noted that it is intended to raised levels on site across the majority of the site, therefore, services runs will generally lie within imported fill, see attached Earthworks Analysis Drawing for information.

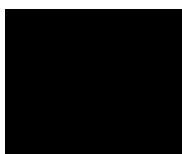
Page 1 of 2



- 7 To be addressed others, but similar comment applies as per No. 6.
- 8 To be addressed by others.
- 9 To be addressed by specialist remediation contractor.

We hope you concur with the above and allays any remaining concerns regarding the proposed remediation of the site. However, if you have any queries with the above please do not hesitate to contact me.

Yours Sincerely




Adam Cooper
Director

cc. M Stringer, Aldi
L Shaw, CTM
C Lilley, Vertase FLI
P Wilson, Wilson Gray
L Williams, Edge
R Wood, Walker Wood

Encl.

Environmental Health Officer for North Lincolnshire Council Memo
Proposed Drainage Layout Drawing ref:15005-3E-00-XX-DR-C-1000-P1
Earthworks Analysis Drawing ref: 15005-3E-00-XX-DR-C-3000-C1

I N T E R	<h1>MEMO</h1>	
O F F I C E		

To: Development Management

From: Environmental Health (Commercial)

Your Ref: DISCO/2017/1946

Our Ref: PLU 003535

Subject: Discharge of Conditions for PA/2016/995

Location: Aldi Stores Ltd Bridge Street Brigg

Date: 17 April 2018

This department has reviewed the following information submitted in support of discharge of contaminated land conditions:

- Phase II Geo-Environmental Assessment for Aldi Stores Ltd Bridge Street Brigg for Aldi Stores Ltd by 3 E Consulting Engineers Ltd Ref 15005/SI Issue 3 dated August 2017
- Detailed Quantitative Risk Assessment and Remediation Statement Bridge Street Brigg for Aldi Stores Ltd by 3E Consulting Engineers Ltd Ref 15005/DQRA Issue 1 dated 3/11/2017

More recently the applicants consultant submitted a revised Remedial Targets Worksheets to support the assessment of risk posed to controlled waters. The Environment Agency have responded to this information in their letter dated 3 April 2018 which was received by this department on the 12 April 2018.

A revised DQRA 23 March 2018 Issue 2 and e.mail dated 21 March 2018 referred to in the EA letter dated 3 April 2018 have not yet been presented to this department.

This department has reviewed the Site Investigation report and DQRA (the Phase 1 report had been reviewed previously) in order to provide the comments with respect to human health as set out below:

Overview of site investigation findings:

The site investigation included 18 Mini Percussion Boreholes, 3 Cable Percussion Boreholes, 5 Rotary open hole Boreholes, 3 Trail Pits, 2 Hand dug pit, the installation of ground gas and ground water monitoring wells including 6 monitoring visits. Soil Testing for a range of heavy metals hydrocarbons & PAH. (11 made ground 20 natural soils)

Ground Conditions Identified: Made Ground (0.25-1m) overlying Alluvial soils containing sand and gravel lenses (0.5-4.7m) underlain by a Siltstone Bedrock (4.3 m) which is thought to form part of the underlying principal sandstone aquifer.

Ground water levels varied across the site with the levels being circa 0.7- 2.2 m bgl with groundwater flow anticipated to be towards the River Ancholme west of the site.

Olfactory evidence of hydrocarbon contamination was identified during the investigation with soil chemical testing identifying elevated levels Poly Aromatic Hydrocarbons (PAH) above the specified soil screening value for a commercial end use. Asbestos was identified within made ground at WS02.

Ground water had elevated levels of PAH, Petroleum Hydrocarbons, Benzene and MTBE identified above the assessment criteria.

Ground Gas monitoring identified a maximum methane concentration of 6.3% v/v, and CO2 4.6% v/v. The site has been identified as Characteristic Situation 2.

Risk Assessment

A Detailed Quantitative Risk Assessment (DQRA) has been carried out for Controlled Waters (surface water of the River Ancholme) and this department is aware that the Environment Agency have commented in detail on this aspect of the submission.

In order to assess the vapour intrusion pathway for human health the report has compared soil concentrations to Generic Screening Values and groundwater concentrations have been assessed using the SoBRA Generic Assessment Criteria for hydrocarbons in groundwater.

In both instances the Generic Screening Criteria values have not been exceeded for soil and groundwater.

It is the case however that further characterisation of the site is required which will involve further excavation of soils, potential additional groundwater sampling and subsequent chemical analysis. It is therefore possible that the overall outcome may change following this further work. This department will therefore require that this section of the report is revisited following the additional site investigation work.

Proposed Remediation

1. Finished site levels are required to be 1m above current ground levels and therefore a cover system is proposed for the development, outline remedial proposals have been put forward to support this proposed approach.
2. Basic gas protection measures (including the provision of a suspended floor slab) have been proposed along with the possible upgrading of this system to incorporate a vapour resistant barrier in order to address the potential risks associated with the ongoing degradation of petroleum products within the groundwater plume/soils.
3. Remediation of the contaminated groundwater plume has been recommended.
4. Provision of protective water supply pipes within clean service corridors

5. Provision of piled foundations
6. The use of soakaways is not advised due to the site conditions/contamination
7. At this stage it has been advised that excess materials from the site will be disposed of to landfill following Waste Acceptance Criteria Testing.

Comments:

The site investigation appears to have adequately characterised the site with the exception of the points set out below:

1. It is unclear whether or not the site investigation has complied with the advice contained in the following document:
 - BS EN ISO 11504:2017 Soil quality - Assessment of impact from soil contaminated with petroleum hydrocarbons (ISO 11504:2017)
2. A hotspot of hydrocarbon contamination at WS8 located on the northern boundary of the site has been identified as requiring further investigation.
3. It is unclear to what extent the future demolition and removal of existing buildings on the site will influence further exploratory investigations of the underlying ground in order to further assess potential contamination associated with fuel spillages. At present this does not appear to have been considered.
4. The exact location of the underground fuel storage tank which is thought to be the source of soil and groundwater contamination has not been identified and it is thought that it might be located either below existing buildings or in areas of the site restricted due to the presence of services. The reports identify that the tank requires locating, excavating and removing along with impacted soils. This process should be verified by an Environmental Engineer and submitted for approval. This additional assessment work will influence the final remedial design for the site.
5. The assessment and design of a suitable remediation scheme which will address the groundwater plume which has been impacted by fuel storage on the site has yet to be completed. This needs to be submitted for approval.
6. The assessment of asbestos risks associated with the demolition of existing building structures has not yet taken place. Where Asbestos Containing Materials (ACM's) are present within the building structures verification that ACM's have been removed and disposed of in a manner that does not present unacceptable risks to the proposed development will need to take place. The reports submitted have not addressed these risks.
7. The assessment of asbestos risks associated with the movement of made ground has not yet taken place as part of the remedial scheme.
8. The design of surface water disposal taking into account the fact that a soakaway has been identified as unsuitable for the site has yet to be designed and submitted for approval.

9. There are a number of uncertainties associated with the gas monitoring and the conclusions being drawn about the site. It is unclear whether or not the ground gas concentrations measured on the site are as a result of the organic underlying natural ground or the on site degradation of hydrocarbon contamination. In addition the report appears not to consider the potential impact of barometric pressure and other climatic conditions. It is noted that the site would require to be characterised as CS3 if the flow rate increased to around 1l/hr. At present the GSV's have been calculated using no flow rather than the Limit of Detection of the instrument. A detailed design scheme to accommodate gas protection measures including the suspended floor slab has yet to be submitted for approval.

The DQRA includes a section on human health where the impact of vapours on human health has been considered using generic screening values as tier 1 screening. Tier 2 screening appears to be presented which reflect the leach values obtained from the groundwater risk assessment. It is unclear why this has been included within the human health risk assessment. The text of the report advises that sample results have been compared to SoBRA screening values for groundwater and are presented in Appendix B. It has not been possible to locate this supporting information.

Robust justification for the chosen scheme will need to be presented which addresses the uncertainties in the site conceptual model for ground gases.

10. The design of the piled foundations including an appropriate piling risk assessment to ensure protection of groundwater resources should be submitted for approval. The scheme should ensure that preferential migration of ground gases via the piles is mitigated.
11. An appropriate water supply pipe risk assessment is yet to be completed
12. Whilst the reports advise that any materials will be sent to landfill this has yet to be finalised in an approved remediation scheme. It is therefore possible that a Materials Management Plan may be needed subject to the final design of the remedial scheme.

Summary

This department cannot recommend discharge of any aspect of the condition as it is clear that further site investigation works are required before a final remedial scheme for the site can be designed and submitted for approval. The points raised in this memo and the advice of the Environment Agency should be taken into account when carrying out further investigation and assessment of the risks posed to controlled waters and human health. A detailed remedial scheme will need to address the following:

1. Ground gas risks including a foundation strategy to prevent differential settlement which takes into account the advice contained in the councils YALPAG guidance document on the Verification Requirements for Gas Protection Systems which can be found on the councils web site at: <http://www.northlincs.gov.uk/planning-and-environment/environmental-health/pollution-air-land-and-water/contaminated-land>
2. Clean up of groundwater contamination

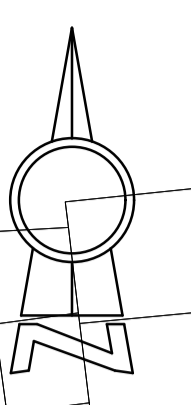
3. A scheme for the prevention of preferential pathways taking into account the proposed piling of the foundations (migration of contamination into the underlying aquifer and migration of ground gases)
4. The proposed cover system taking into account the advice contained in the YALPAG document on Verification of Cover Systems which can be found on the councils web site at <http://www.northlincs.gov.uk/planning-and-environment/environmental-health/pollution-air-land-and-water/contaminated-land/>
5. A proposal for dealing with surface water
6. A scheme for service runs
7. A scheme for water supply pipes
8. A scheme for dealing with Asbestos Containing Materials on the site (including existing buildings).
9. A proposal for Materials Management on the site.

A1

SURFACE WATER SOAKAWAY TANK SHOWN AS TUBOSIDER TWINSTORE SYSTEM WITH 6no LEGS OF 1.8m DIAMETER PIPE.

INSPECTION CHAMBERS TO BE PROVIDED AS SHOWN.

TO BE INSTALLED IN STRICT ACCORDANCE WITH ALL MANUFACTURERS INSTRUCTIONS AND DETAILS.



DRAINAGE CHANNELS TO HAVE TRAPPED OUTLETS, WITH 150Ø PIPES. ALLOW FOR TWO RODDING POINTS PER RUN.

ALL MANHOLE LESS THAN 1.5m DEEP ARE CONSIDERED AS NONE MAN ENTRY & SHALL BE MAINTAINED FROM GROUND LEVEL

NO DEEP ROOTING TREES / VEGETATION SHOULD BE PLANTED WITHIN 5m OF ANY DRAINAGE WORKS

INVERT LEVELS OF THE PUBLIC SEWERS TO BE CHECKED ON SITE PRIOR TO COMMENCING DRAINAGE WORKS AND REPORTED TO THE ENGINEER.

THE NEED FOR ANY TEMPORARY LAND DRAINAGE SHALL BE ASSESSED BY THE CONTRACTOR PRIOR TO ANY WORKS COMMENCING.

THESE TEMPORARY WORKS SHALL TAKE INTO ACCOUNT THE PHASING OF THE WORKS AND THE CONTRACTORS METHOD OF WORKING.

NO LAND DRAINAGE, TEMPORARY OR OTHERWISE, SHALL BE PERMITTED TO DISCHARGE INTO THE PERMANENT DRAINAGE SYSTEM OR DIRECTLY ONTO THE PUBLIC HIGHWAY.

Only PDF/DWF Issues of this drawing are controlled. All other formats (eg. DWG AutoCAD FILES) are UN-controlled and are used at your own risk.

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Note for Contractors

This 3E drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which 3E have identified which may arise from constructing the designs shown on this drawing. A competent Contractor should be aware of the typical risks associated with doing this work.

Note for Workers

DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK and EQUIPMENT).



Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

NOTES

1. ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH "SEWERS FOR ADOPTION" - 6TH EDITION AND ADOPTING WATER AUTHORITY/SEWERAGE AGENCY REQUIREMENTS AND SPECIFICATIONS.
2. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2002 EDITION.
3. CONTRACTOR TO ESTABLISH POSITION SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
4. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
5. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.
6. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND Dewatering AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
7. PIPES UP TO AND INCLUDING 300mmØ TO BE UNPLASTICISED PVC. PIPES 375mmØ AND GREATER TO BE CONCRETE CLASS H.
8. ALL PIPEWORK TO BE 100mm DIAMETER UNLESS NOTED OTHERWISE.
9. IN-SITU AND PRECAST CONCRETE UNITS SHALL HAVE SULPHATE RESISTING PORTLAND CEMENT TO BS 457, UNLESS AGREED OTHERWISE WITH THE ADOPTING AUTHORITY.
10. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE ITEMARKED. CONCRETE PIPES TO BE CLASS H UNLESS NOTED OTHERWISE.
11. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124, HAVE MINIMUM 675 x 675 CLEAR OPENINGS WITH 150 DEEP FRAMES UNLESS OTHERWISE SPECIFIED. MANHOLE COVERS AND FRAMES TO BE OF A NON-ROCKING DESIGN WITHOUT GUSHION INSERTS AND BE ITEMARKED. LOAD CLASS D400 IN VEHICULAR TRAFFICED AREAS AND LOAD CLASS B125 IN FOOTWAYS AND PEDESTRIAN AREAS.
12. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE WING ACCESS AND BE ITEMARKED. LOAD CLASS D400 FOR ROADS REGULARLY CARRYING FAST MOVING HEAVY VEHICLES, CLASS C250 TO BE USED IN LESSER TRAFFICED AREAS eg. ESTATE ROADS, CUL-DE-SACS, RESIDENTIAL CAR PARKING AREAS ETC.
13. CLASS Z BEDDING DETAIL SHALL BE PROVIDED WHERE COVER TO THE PIPE BARREL IS LESS THAN 1.2m IN VEHICULAR TRAFFICED AREAS AND 0.9m ELSEWHERE, TO ALL ROAD GULLY CONNECTIONS AND WITHIN AREAS OF DEEP ROOTING VEGETATION.
14. WHERE CLASS Z BEDDING DETAIL IS USED, THE CONCRETE BED AND SURROUND SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION BY MEANS OF A SHARP COMPRESSIBLE FILLER.
15. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM MATERIAL FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS, ORGANIC MATTER AND FROZEN SOIL. SELECTED BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 225mm, EACH LAYER COMPACTED TO FORM A STABLE TRENCH BACKFILL.
16. GENERAL BACKFILL MATERIAL TO BE FREE FROM STONES LARGER THAN 40mm. GENERAL BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS AND EACH LAYER COMPACTED BY HAND. NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300mm ABOVE THE CROWN/BARREL OF THE PIPE.
17. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY, OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE REQUIREMENTS OF THE STREET WORKS REGULATIONS 1992 AND RELEVANT PROVISIONS OF H.A.U.C. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" JUNE 1992, BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.
18. BACKFILL TO DRAINAGE TRENCHES IN HARD PAVED AREAS SHALL BE G.S.B. TYPE 1.
19. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
20. ALL GULLY LEADS TO BE 150mm DIAMETER.
21. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUDED, ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
22. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
23. ANY EXISTING DRAINAGE WHICH BECOMES UNDER TRAFFICED AREAS IN THE NEW SCHEME SHOULD BE SUBJECT TO THE FOLLOWING REMEDIALS/REVISIONS. WHERE DEPTH OF COVER IS LESS THAN 1200mm, THE EXISTING PIPEWORK SHALL BE EXPOSED & SURROUNDED WITH 150mm CONCRETE AS CLASS "Z" BEDDING, WHERE THE EXISTING MANHOLE COVER & FRAME IS NOT AS MANHOLE DETAIL A OR B, OR TO BS497 GRADE A, OR EN124 CLASS D, THEN IT SHOULD BE CHANGED FOR SUCH.
24. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.
25. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.
26. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES, PRIOR TO COMMENCING WORKS.

- HEALTH & SAFETY**
1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.
 2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE.
 3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
 4. CONNECTIONS TO EXISTING SEWERS TO ONLY BE MADE BY THE RELEVANT WATER AUTHORITY APPROVED CONTRACTOR.
 5. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WELLS DISEASE) AND RECOMMENDED PRECAUTIONS. ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
 6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.
 7. ALL EXISTING SERVICE RECORDS TO BE OBTAINED FROM THE M&E CONSULTANT.
 8. THE CONTRACTOR SHOULD BE AWARE OF AND REFER TO ALL THE RELEVANT SERVICE RECORDS PRIOR TO ANY WORK COMMENCING. ALL NECESSARY PERMISSIONS AND PROTECTION MEASURES TO BE IN PLACE PRIOR TO ANY EXCAVATION WORKS. FOR THE AVOIDANCE OF DOUBT ANY DISCREPANCIES SHOULD BE REPORTED TO THE M&E AND CIVIL CONSULTANTS IMMEDIATELY. THE CONTRACTOR SHOULD PROCEED WITH CAUTION AND LOCATE ALL SERVICES BY HAND DIG ONLY.
 9. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
 10. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
 11. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.
 12. ALL FILL MATERIAL, COMPACTION METHOD AND TESTING REGIME TO BE IN ACCORDANCE WITH THE CURRENT 3E CONSULTING ENGINEERS EARTHWORKS SPECIFICATION.

KEY

- SITE BOUNDARY
- PROPOSED FOUL WATER DRAIN
- PROPOSED SURFACE WATER DRAIN
- PROPOSED LINEAR DRAINAGE CHANNEL WITH OUTLET LOCATION. ALL UNDERGROUND CONNECTIONS TO BE 150Ø UNLESS SHOWN OTHERWISE.
- GU PROPOSED TRAPPED/RODDABLE PPC ROAD GULLY WITH 150Ø OUTLET PIPE. COVER & FRAME AS SPECIFIED THE ARCHITECT.
- YG PROPOSED TRAPPED/RODDABLE YARD GULLY WITH 100Ø OUTLET PIPE. COVER & FRAME AS SPECIFIED BY THE ARCHITECT.
- PROPOSED RAIN WATER PIPE POSITION TAKEN FROM CURRENT ARCHITECT DRAWING. ALL UNDERGROUND RWP CONNECTIONS TO BE 150Ø UNLESS

SUBJECT TO THE APPROVAL OF ALL RELEVANT AUTHORITIES

Date	Revisions	VS	P1
03.05.19	TENDER ISSUE		

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1 0191 230 2993
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Client
Aldi Stores Ltd (Goldthorpe North)

Project
**Aldi Store
Bridge Street
Brigg**

Title
Proposed Drainage Layout

Scale
1:250

Author
VMS

Checked
JM

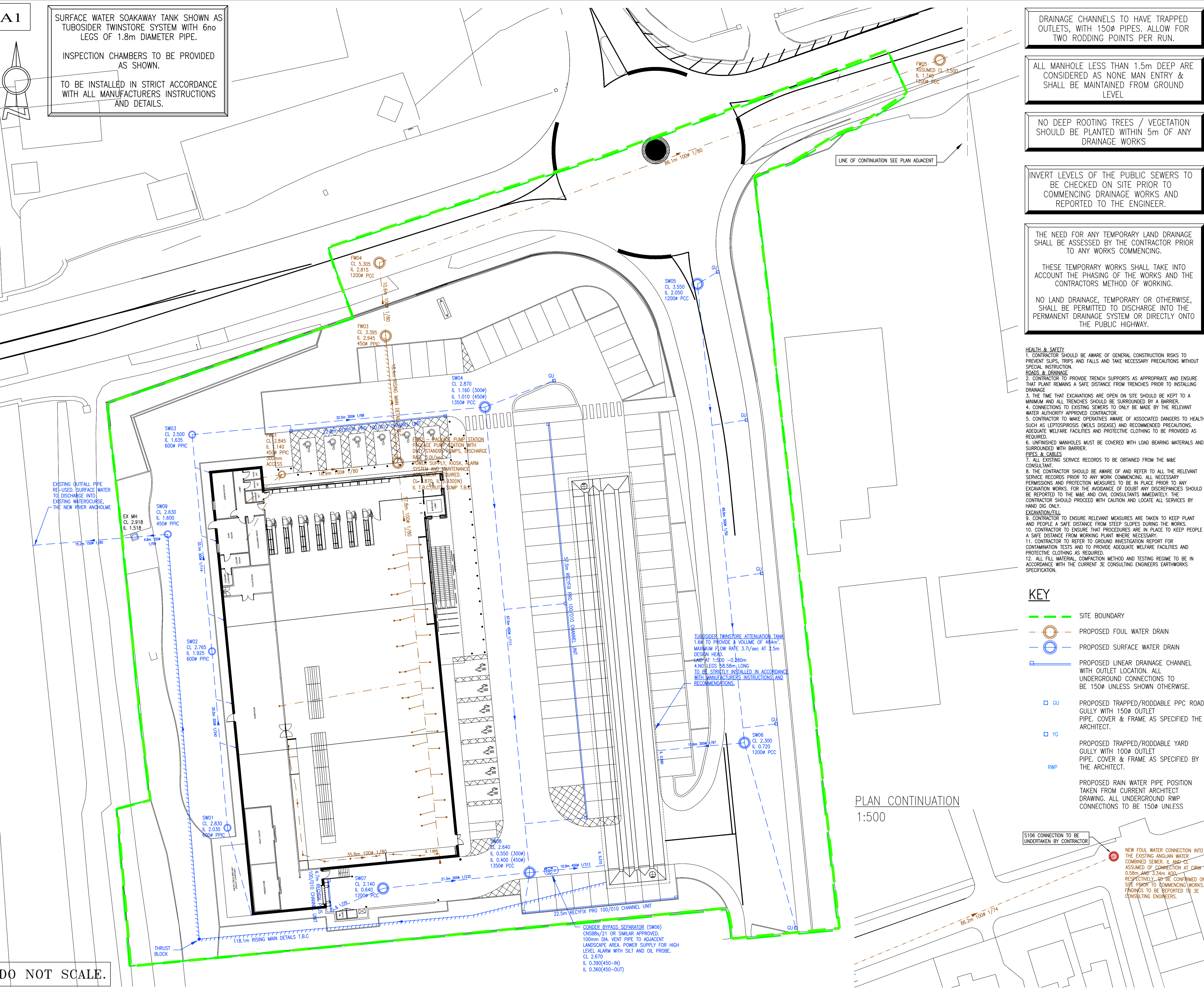
Date
May '19

Drawing Status
Preliminary

Job Number Originator Zone Level Type Role Drawing No. Rev
15005 - 3E - 00 - XX - DR - C - 1000 - P1

DO NOT SCALE.

PLAN CONTINUATION
1:500

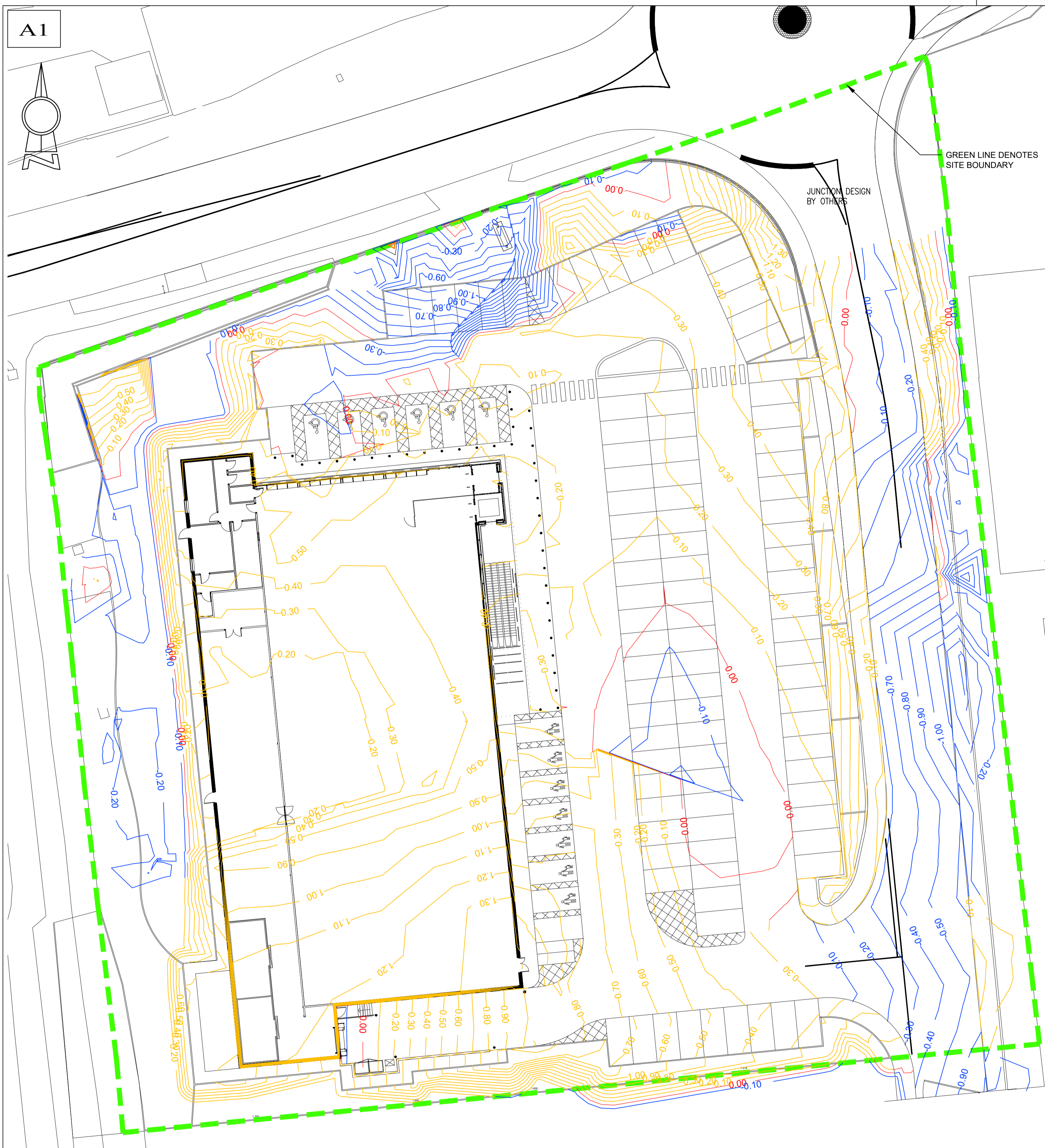


S108 CONNECTION TO BE UNDERTAKEN BY CONTRACTOR

NEW FOUL WATER CONNECTION INTO THE EXISTING ANGLIAN WATER COMBINED SEWER. IL AND CL ASSUMED OF CONNECTION AT CIRCA 0.55m AHP/3.34m AOD. RESPECTIVELY. TO BE CONFIRMED ON SITE PRIOR TO COMMENCING WORKS. FINDINGS TO BE REPORTED TO 3E CONSULTING ENGINEERS.

TUBOSIDER TWINSTORE ATTENUATION TANK
1.64m TO PROVIDE A VOLUME OF 484m³.
MAXIMUM FLOW RATE 3.77/sec AT 2.5m DESIGN HEAD.
SUMP AT 1:500 -0.280m
4.0m LENGTH 58.50m LONG
TO BE STRICTLY INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.

CONDENSATE BYPASS SEPARATOR (SW06)
CLASS B/21 OR SIMILAR APPROVED.
100mm DIA. VENT PIPE TO ADJACENT LANDSCAPE AREA. POWER SUPPLY FOR HIGH LEVEL ALARM WITH SILT AND OIL PROBE.
CL 2.670
IL 0.390(450-IN)
IL 0.360(450-OUT)



ALDI STORE, BRIDGE STREET, BRIGG EARTHWORKS ANALYSIS - 08.05.19

EXISTING SITE STRIP
ALLOW 300mm DEEP SITE STRIP OF EXISTING GRASS / TOPSOIL IN THE AREA SHOWN ON SITE STRIP PLAN.
TOTAL AREA = 2287m²
TOTAL VOLUME = 686m³
MATERIAL DEEMED UNSUITABLE FOR RE-USE AS ENGINEERING FILL AND TO BE DISPOSED OFF SITE. SELECTED STRIP MATERIAL MAY BE SUITABLE FOR USE IN THE PROPOSED LANDSCAPE AREAS.

CUT / FILL ANALYSIS BETWEEN EXISTING SITE STRIP AND PROPOSED FORMATION LEVELS

ASSUME THE FOLLOWING DEPTH TO FORMATION

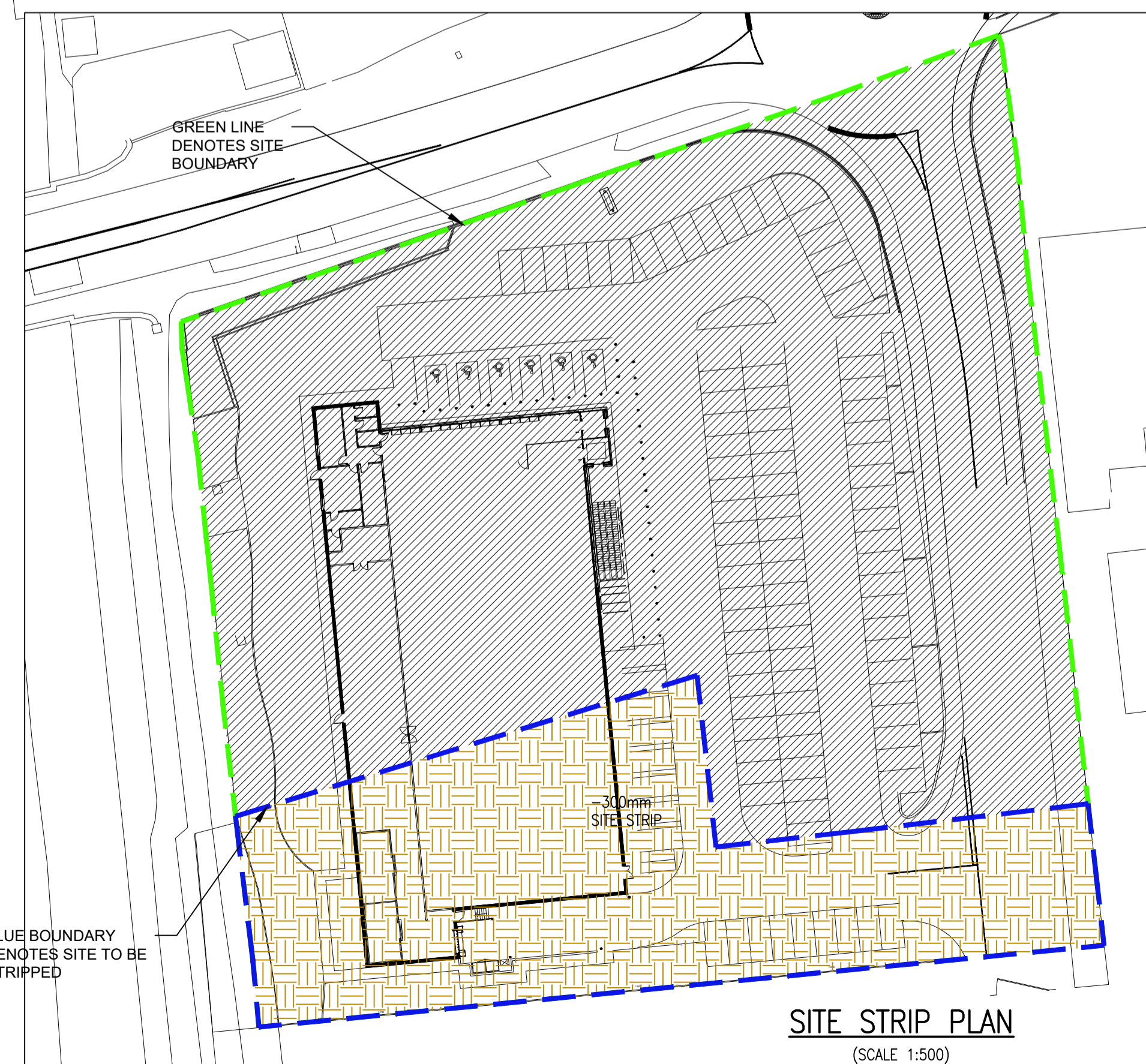
LANDSCAPING	=	150mm
ADAPTABLE FOOTWAY	=	230mm
FOOTWAYS	=	300mm
ENTRANCE	=	350mm
FOOD STORE	=	375mm
CONCRETE RAMP	=	450mm
CAR PARKING	=	570mm
HOV ACCESS	=	600mm
ACCESS ROAD	=	900mm

CUT/FILL RATIO
PROPOSED FORMATION LEVELS TO EXISTING SITE STRIP LEVELS

	CUT	FILL
ALDI FOOTSTORE	710	2680
	NETT:	1970

THE ABOVE CUT/FILL ANALYSIS SHOWS A NET DEFICIT OF 1970m³ OF FILL MATERIAL TO BE REMOVED FROM SITE.

ALL VOLUMES ARE APPROXIMATE



EARTHWORKS NOTES

- REFERENCE SHALL BE MADE TO THE 3E EARTHWORKS STRATEGY REPORT AND EARTHWORKS SPECIFICATION.
- ISOPACHYTE CONTOURS/VOLUMETRIC ANALYSIS REPRESENT APPROXIMATE CUT AND FILL VOLUMES BETWEEN THE PROPOSED FORMATION LEVELS AGAINST EXISTING GROUND LEVELS FOLLOWING SITE STRIP. REFER TO THE ADJACENT VOLUMETRIC ANALYSIS TABLES.
- EXISTING GROUND AS TOPOGRAPHICAL SURVEY UNDERTAKEN BY CT SURVEYS DATED NOVEMBER 2006.
- PLOT BOUNDARIES AND BUILDING AND EXTERNAL WORKS FOOTPRINTS SHOWN ON THIS DRAWING ARE INDICATIVE ONLY, BASED ON THE LATEST ARCHITECTS DRAWING.
- 3E CONSULTING PROPOSED EARTHWORKS ANALYSIS, INCLUDING SITE STRIP, IS INDICATIVE ONLY. IT IS BASED ON THIRD PARTY INFORMATION AND GENERAL ASSUMPTIONS AND SHOULD BE READ IN CONJUNCTION WITH THE RELEVANT EARTHWORKS SPECIFICATION.
- 3E CONSULTING DO NOT ACCEPT RESPONSIBILITY FOR VARIATIONS IN THE ACTUAL DEPTH OF SITE STRIP OR ANY OTHER ON SITE EARTHWORKS WHICH MAY EFFECT THE RESULTING VOLUMES. THE CONTRACTOR SHALL UNDERTAKE AN INDEPENDENT ANALYSIS OF PROPOSED EARTHWORKS TO SATISFY HIMSELF AS TO THE VALIDITY OF THE INFORMATION PROVIDED.
- THE SPECIFICATION FOR HIGHWAY WORKS (SHW) SERIES 600 (1998) PUBLISHED BY HMSO SHALL FORM THE BASE SPECIFICATION FOR ALL EARTHWORKS AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLASSIFICATION, TESTING, PLACING AND COMPACTION OF MATERIAL IN ACCORDANCE WITH CLAUSES 601, 602, 603, 608, 612 AND 613.
- APPROXIMATE EARTHWORK VOLUMES HAVE BEEN DETERMINED BASED ON THE FOLLOWING ASSUMPTIONS/CAVEATS:
 - SITE STRIP - REFER TO THE ADJACENT VOLUMETRIC ANALYSIS TABLES.
 - NO BULKING FACTORS HAVE BEEN CONSIDERED.
 - ARISINGS FROM DRAINAGE AND FOUNDATION EXCAVATIONS NOT CONSIDERED.
 - DEMOLITION MATERIAL FROM EXISTING BUILDINGS/STRUCTURES NOT CONSIDERED

Only PDF/DWF Issues of this drawing are controlled. All other formats (eg. DWG AutoCAD FILES) are UN-controlled and are used at your own risk.

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Note for Contractors

This 3E drawing should be considered along with the risk information contained in the CDM Pre Construction Information. This information will include details of the SIGNIFICANT risks which 3E have identified which may arise from constructing the designs shown on this drawing. A competent Contractor should be aware of the typical risks associated with doing this work.

Note for Workers

DO NOT START YOUR WORK unless you know the Risks and Controls relating to the work on this drawing (including SAFE SEQUENCES OF WORK AND EQUIPMENT).

STOP

Do not issue copies of parts of this drawing without the above Note for Workers (unless you are sure that the Workers can undertake the work safely).

HEALTH & SAFETY

- CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.

ROADS & DRAINAGE

- CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
- THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
- CONNECTIONS TO EXISTING SEWERS TO ONLY BE MADE BY THE RELEVANT WATER AUTHORITY APPROVED CONTRACTOR.
- CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WELLS DISEASE) AND RECOMMENDED PRECAUTIONS, ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
- UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES

- ALL EXISTING SERVICE RECORDS TO BE OBTAINED FROM THE M&E CONSULTANT.
- THE CONTRACTOR SHOULD BE AWARE OF AND REFER TO ALL THE RELEVANT SERVICE RECORDS PRIOR TO ANY WORK COMMENCING. ALL NECESSARY PERMISSIONS AND PROTECTION MEASURES TO BE IN PLACE PRIOR TO ANY EXCAVATION WORKS. FOR THE AVOIDANCE OF DOUBT ANY DISCREPANCIES SHOULD BE REPORTED TO THE M&E AND CIVIL CONSULTANTS IMMEDIATELY. THE CONTRACTOR SHOULD PROCEED WITH CAUTION AND LOCATE ALL SERVICES BY HAND DIG ONLY.

EXCAVATION/FILL

- CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
- CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
- CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.
- ALL IMPORTED FILL MATERIAL, COMPACTION METHOD AND TESTING REGIME TO BE IN ACCORDANCE WITH THE CURRENT 3E CONSULTING ENGINEERS EARTHWORKS SPECIFICATION.

08.05.19	CONSTRUCTION ISSUE (BUILDPUS CORRECTED/ADDED)	NA	C1
02.02.18	PRELIMINARY ISSUE	BLS	P1
Date	Revisions	Drawn	Rev.

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Project
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Brigg**

Title
Earthworks Analysis

Scale	Author	Checked	Date
1:250	BLS	JM	DEC 18

Drawing Status
Construction

Job Number	Originator	Zone	Level	Type	Role	Drawing No.	Rev
15005 - 3E - 00 - XX - DR - C - 3000 - C1							