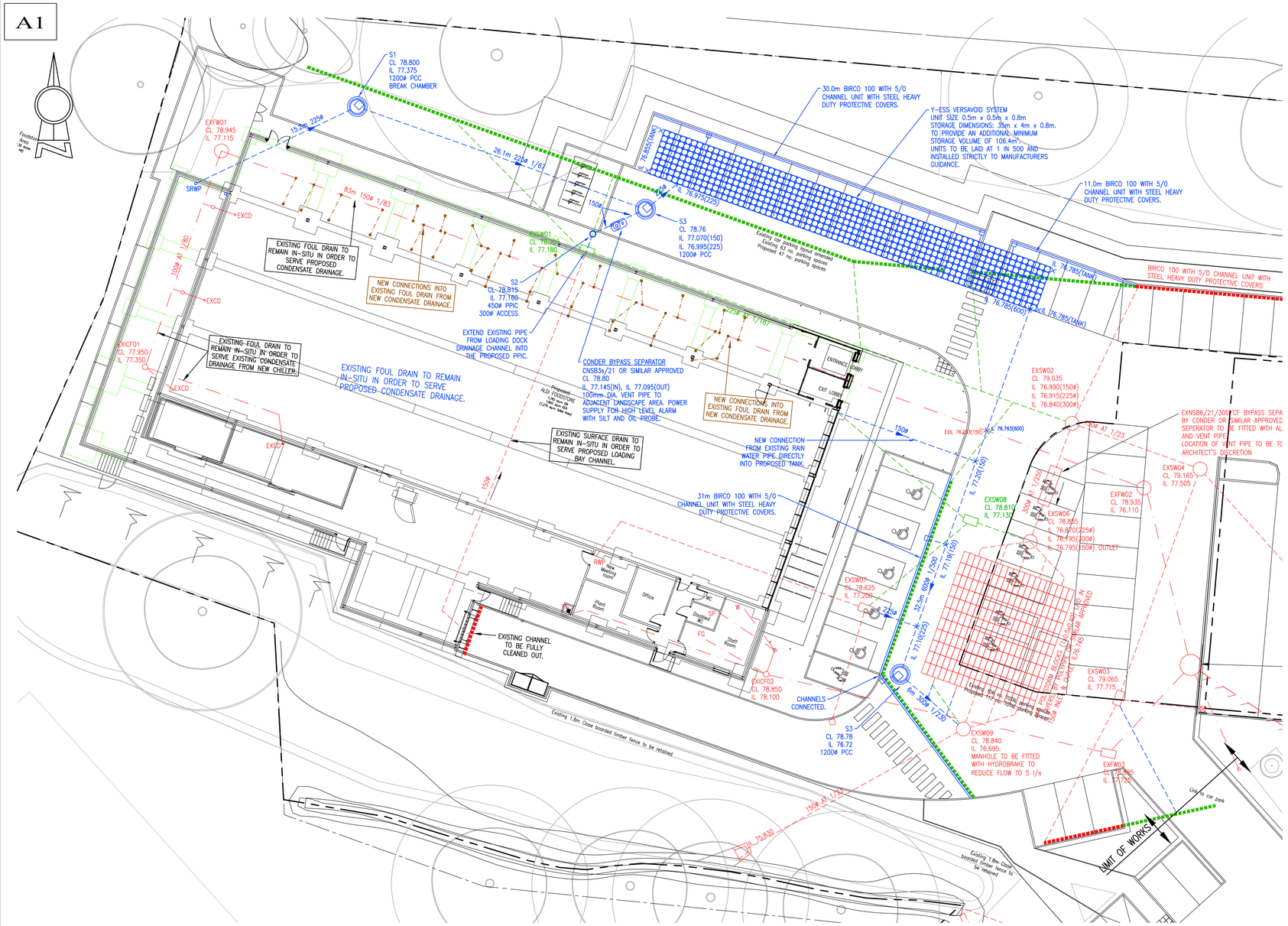
A1




## KEY

- EXISTING SURFACE WATER DRAIN
- EXISTING DRAINAGE CHANNELS
- EXISTING GULLIES
- EXISTING FOUL WATER DRAIN
- DRAINS TO BE ABANDONED
- MANHOLES TO BE ABANDONED
- DRAINAGE CHANNELS TO BE ABANDONED
- PROPOSED FOUL WATER DRAINAGE
- PROPOSED SURFACE WATER DRAINAGE
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED SURFACE WATER POLYPROPYLENE INSPECTION CHAMBER
- 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.
- SRWP — PROPOSED SYPHONIC RAIN WATER PIPE POSITION TAKEN FROM CURRENT ARCHITECT DRAWING.

DO NOT SCALE.

## NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT 3E, ARCHITECT'S AND M&E CONSULTANTS DRAWINGS AND PROJECT SPECIFICATIONS.
2. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT PARTS OF BS EN 752 'DRAINS AND SEWER SYSTEMS OUTSIDE BUILDINGS', THE CURRENT BUILDING REGULATIONS AND THE LOCAL AUTHORITY BUILDING CONTROL SPECIFICATIONS AND REQUIREMENTS.
3. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. ALL PIPES UP TO AND INCLUDING 300ø TO BE VITRIFIED CLAY OR U-PVC. PIPES 375ø AND GREATER TO BE CONCRETE CLASS 120.
5. ALL EXTERNAL RIGID PIPEWORK SHALL BE LAID WITH A CLASS S PIPE BEDDING DETAIL WITH 1.2M MINIMUM COVER TO THE PIPE BARREL UNDER VEHICULAR TRAFFICKED AREAS, 0.9M COVER UNDER FIELDS AND 0.6M COVER UNDER FOOTWAYS/GARDENS. WHERE COVER IS LESS THAN THAT STATED, A CLASS A PIPE BEDDING DETAIL SHALL BE USED ON PIPES 225ø AND LARGER, FOR PIPES LESS THAN 225ø USE A CLASS Z PIPE BEDDING DETAIL. UNDER BUILDINGS A CLASS S PIPE BEDDING DETAIL SHALL BE USED. WHERE THERE IS LESS THAN 300MM BETWEEN THE BARREL OF THE PIPE AND THE UNDERSIDE OF THE STRUCTURAL FLOOR SLAB, THE PIPE SHALL BE CAST INTEGRAL WITH THE FLOOR SLAB WITH 150MM MINIMUM CONCRETE SURROUND WITH VERTICAL REINFORCEMENT TIED INTO THE SLAB.
6. ALL U-PVC PIPEWORK SHALL BE LAID WITH A CLASS T PIPE BEDDING DETAIL WITH 1.2M MINIMUM COVER TO THE PIPE BARREL UNDER VEHICULAR TRAFFICKED AREAS, 0.9M COVER UNDER FIELDS AND 0.6M COVER UNDER FOOTWAYS/GARDENS. WHERE COVER IS LESS THAN THAT STATED A CLASS Q PIPE BEDDING DETAIL SHALL BE USED.
7. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.
8. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN-OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE-WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
9. ALL LEVELS AND DIMENSIONS SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN/NEAR CONFINED SPACES, DEEP EXCAVATIONS, LIVE SEWERS AND MACHINERY.
11. THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.
12. ALL PIPES SHALL BE LAID WITH SOFFITS LEVEL AND ALL MANHOLE/INSPECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUTLET PIPE (UNLESS OTHERWISE SHOWN).
13. ALL PIPE RUNS SHALL BE LAID TO THE LEVELS INDICATED, ALL PIPE GRADIENTS INDICATED ARE APPROXIMATE.
14. ALL RAINWATER PIPES/INTERNAL FOUL DRAIN CONNECTIONS ARE SHOWN INDICATIVELY OR TO THE LATEST ARCHITECTS DRAWINGS, ADAPTORS AT FINISHED FLOOR LEVEL TO SUIT CONNECTION DETAILS BY OTHERS. POSITION OF RAIN WATER PIPES AND OUTLETS MUST BE CONFIRMED FROM ARCHITECT'S DRAWING BEFORE LAYING UNDERGROUND PIPEWORK.
15. ALL INTERNAL BELOW GROUND FOUL DRAINAGE CONNECTIONS ARE TO BE LAID IN ACCORDANCE WITH THE BUILDING REGULATIONS H1 SECTION 2 'CLAUSE 2.34/TABLE 6.
16. ALL INSITU AND PRECAST CONCRETE PRODUCTS SHALL BE DESIGNED TO SUIT ACEC (AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE) CLASS AC-1 CONDITIONS, IN ACCORDANCE WITH BRE SPECIAL DIGEST 1, CONCRETE IN AGGRESSIVE GROUND (2001) PART 1: TABLE 2.
17. ALL PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. ALL PRECAST CONCRETE PIPES SHALL BE CLASS 120 AND COMPLY WITH THE REQUIREMENTS OF NOTE 19 ABOVE.
18. ALL VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN 295 PIPE CRUSHING STRENGTH AND BE OF A SLEEVED SYSTEM.
19. ALL U-PVC PIPES AND FITTINGS SHALL COMPLY WITH WIS 4-35-01 AND SHALL BE KITEMARKED.
20. WHERE CONCRETE PROTECTION IS REQUIRED TO PIPEWORK, THE CONCRETE SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION OF THE CONCRETE BY MEANS OF A SHAPED COMPRESSIBLE FILLER.
21. WHERE TWO PIPELINES CROSS WITH LESS THAN 300MM COVER, SURROUND EACH PIPE WITH A FULL CONCRETE BED AND SURROUND (CLASS Z DETAIL) FOR NOT LESS THAN 1M CENTERED ON THE CROSSING AND EXTENDED AS REQUIRED TO WITHIN 150MM OF THE NEAREST FLEXIBLE JOINT.
22. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM SOIL, FREE FROM STONES LARGER THAN 40MM, CLAY LUMPS LARGER THAN 75MM, TREE ROOTS, CONTAMINATED MATERIAL. SELECTED BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150MM THICKNESS. SHOULD THE EXCAVATED MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A SUITABLE HARD GRANULAR MATERIAL SHALL BE USED.
23. NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300MM ABOVE THE BARREL/CROWN OF THE PIPE.
24. GENERAL BACKFILL TO DRAINAGE TRENCHES IN VEHICULAR TRAFFICKED AREAS ABOVE THE PIPE BEDDING DETAIL, SHALL BE SUITABLY SELECTED MATERIAL (IN ACCORDANCE WITH BS 8301 CLAUSE 5.7.6.1.) AND BE PLACED IN LAYERS NOT EXCEEDING 225MM, EACH LAYER COMPACTED TO FORM A STABLE TRENCH BACKFILL, SHOULD THE MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A HARD GRANULAR MATERIAL SHALL BE USED UP TO FORMATION LEVEL.
25. ALL EXISTING DRAINAGE/STRUCTURES TO BE ABANDONED SHALL BE BROKEN OUT AND REMOVED FROM SITE, THE EXCAVATION SHALL BE BACKFILLED WITH A SUITABLE GRANULAR MATERIAL TO THE REQUIRED LEVEL. ALTERNATIVELY, DEEP DRAINS MY BE CLEANED AND GROUTED WITH A 1:10 CEMENTITIOUS GROUT, WITH STRUCTURES BROKEN DOWN 1M BELOW FINISHED GROUND LEVEL AND BACKFILLED WITH A SUITABLE GRANULAR MATERIAL.
26. UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE EXISTING DRAINAGE SYSTEM.
27. THE CONTRACTOR SHALL CARRY OUT A COLOUR CCTV SURVEY OF ALL THE DRAINAGE SYSTEMS WITHIN THE AREA OF THE WORKS AND PROVIDE THE ENGINEER WITH TWO COPIES OF THE CCTV ON CD (MPEG-1 FORMAT) AND REPORT TO WRC STANDARD.
28. WHERE UTILITY/LAND DRAINAGE TRENCHES ETC CROSS OVER DRAINAGE TRENCHES, THE CONTRACTOR SHALL CONSTRUCT AN IMPERMEABLE BARRIER TO PREVENT GROUNDWATER INFILTRATING INTO THE DRAINAGE TRENCH.
29. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN 214, HAVE 600X600 CLEAR OPENINGS UNLESS OTHERWISE SPECIFIED AND BE OF NON-ROCKING DESIGN WITHOUT CUSHION INSERTS AND BE KITEMARKED. LOAD CLASS D400 IN TRAFFICKED AREAS AND LOAD CLASS B125 IN FOOTWAYS, LANDSCAPED AND PEDESTRIAN AREAS. WHERE REQUIRED, COVERS SHALL BE RECESSED TO RECEIVE THE ARCHITECTS SPECIFIED FINISH.
30. ALL WORKS ARE ASSUMED TO BE WITHIN PUBLIC HIGHWAY OR WITHIN LAND OWNERS LANDS & NO WORKS ARE REQUIRED ON THIRD PARTY LAND OWNERS PROPERTY.
31. ALL RWP & WPC TO BE 100MM DIA. (UNLESS NOTED OTHERWISE). GULLY CONNECTIONS TO BE 150MM DIA. BOTH ARE TO BE RODDABLE AT LOCATIONS ABOVE GROUND LEVEL.
32. ALL POLYPROPYLENE INSPECTION CHAMBERS (PPIC) TO BE 475ø & ALL PRECAST CONCRETE CHAMBERS ARE 1200ø. (UNLESS NOTED OTHERWISE).
33. BACKFILL TO ALL DRAINAGE TRENCHES TO BE 6F1.
34. THE CONTRACTOR MUST ALLOW FOR ANY FEES REQUIRED FOR ROAD AND SEWER OPENING PERMITS.
35. THE CONTRACTOR MUST MAKE PUBLIC SEWER CONNECTION APPLICATION TO RELEVANT WATER AUTHORITY PRIOR TO MAKING CONNECTION, WHEN/IF REQUIRED.
36. ALL KERB DRAINAGE & DRAINAGE CHANNELS TO BE DESIGNED BY SUB-CONTRACTOR.
37. ALL MANHOLES LESS THAN 1.5M DEEP ARE CONSIDERED AS NONE MAN ENTRY & SHALL BE MAINTAINED FROM GROUND LEVEL.
38. NO DEEP ROOTING TREES / VEGETATION SHOULD BE PLANTED WITHIN 5M OF ANY DRAINAGE WORKS.


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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
1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.
ROADS & DRAINAGE
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 (WEILS 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.
PIPES & CABLES
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.
EXCAVATION/FILL
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.

SUBJECT TO THE APPROVAL OF ALL RELEVANT AUTHORITIES

| Date | Revisions | Drawn | Rev. |
|---|---|---|---|
| 07.11.19 | TENDER ISSUE. | ST | T1 |
| 25.10.19 | PRELIMINARY ISSUE. | ST | P1 |


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Client
Aldi Stores Ltd (Goldthorpe North)

Project
Proposed Extension
Claycliffe Road
Barnsley

Title
Food Store
Proposed Drainage Layout

| Scale | Author | Checked | Date |
|---|---|---|---|
| 1:200 | ST | JM | OCT 19 |

Drawing Status
TENDER

| Job Number | Originator | Zone | Level | Type | Role | Drawing No. | Rev |
|---|---|---|---|---|---|---|---|
| P18-231 | 3E | 00 | XX | DR | C | 1000 | T1 |