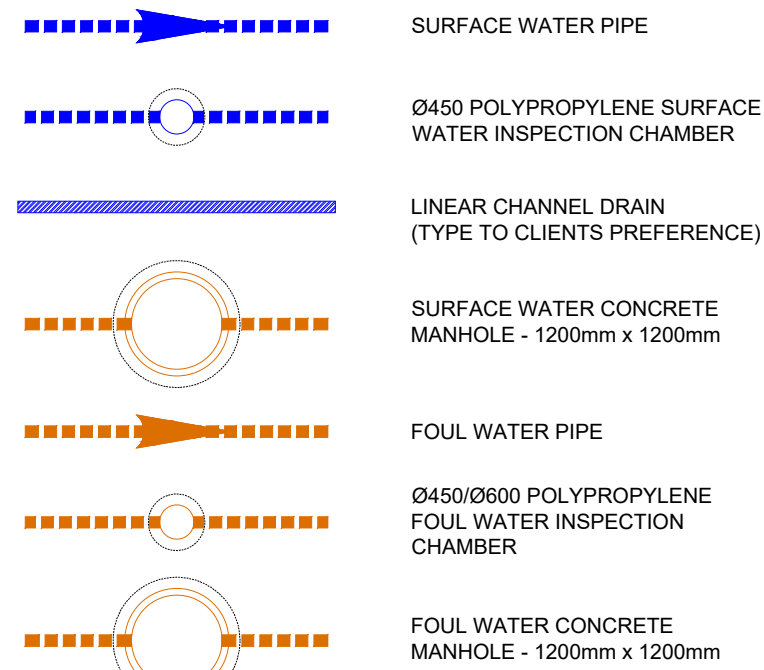


DRAINAGE KEY:



DRAWING DESIGN NOTES

- THIS IS A PRELIMINARY DRAINAGE STRATEGY FOR THE PURPOSES OF PLANNING ONLY TO ILLUSTRATE HOW SURFACE WATER IS PROPOSED TO BE MANAGED. FURTHER CO-ORDINATION AT DETAIL DESIGN WILL BE REQUIRED.
- POSSIBLE DIVERSIONS MAY BE REQUIRED AND SHOULD BE EXPLORED AT DETAIL DESIGN STAGES. A CCTV SURVEY OF EXISTING DRAINS SHOULD BE CARRIED OUT POST PLANNING.
- A THAMES WATER PRE-DEVELOPMENT APPLICATION IS RECOMMENDED TO BE SUBMITTED UPON PLANNING CONSENT TO CONFIRM CAPACITY FOR ADDITIONAL FOUL WATER UNITS.
- THE DRAINAGE SYSTEM HAS BEEN DESIGNED ON THE BASIS OF NON-ADOPTABLE STANDARDS. THE DRAINAGE SYSTEM AND ALL COMPONENTS UP TO THE DEMARCATION CHAMBER WILL REMAIN IN PRIVATE OWNERSHIP AND REQUIRE MAINTENANCE BY A NOMINATED BODY. THE DRAINAGE SYSTEM DOWNSTREAM OF THE DEMARCATION CHAMBER WILL BE TO ADOPTABLE STANDARDS AND DESIGN TO THAMES WATER REQUIREMENTS.
- A STRICT MAINTENANCE STRATEGY SHOULD BE IN PLACE BY A SPECIALIST MANAGEMENT ORGANISATION TO ENSURE THE DRAINAGE REMAINS OPERABLE. FULL RECORDS SHOULD BE KEPT ON SITE BY THE CLIENT AND MANAGEMENT COMPANY.
- ALL INSTALLATIONS SHOULD BE MAINTAINED TO THE MANUFACTURERS SPECIFICATION AND GUIDANCE.
- PLEASE CONTACT SPILLWAYS SHOULD A FORMAL MAINTENANCE SCHEDULE BE REQUIRED BY THE CLIENT OR CONTRACTOR OR THIRD PARTY.

EXISTING CATCHMENT AREA ANALYSIS

TYPE	CATCHMENT AREA (m²)
IMPERMEABLE AREA	212 m²
PERMEABLE AREA	2331 m²
TOTAL = 2543 m²	

PRE-DEVELOPMENT RUN-OFF RATES (MODIFIED RATIONAL METHOD)

RETURN PERIOD (Years)	DISCHARGE RATE - Q (l/s)
1 Year	3.5 l/s
30 Year	8.3 l/s
100 Year	10.4 l/s

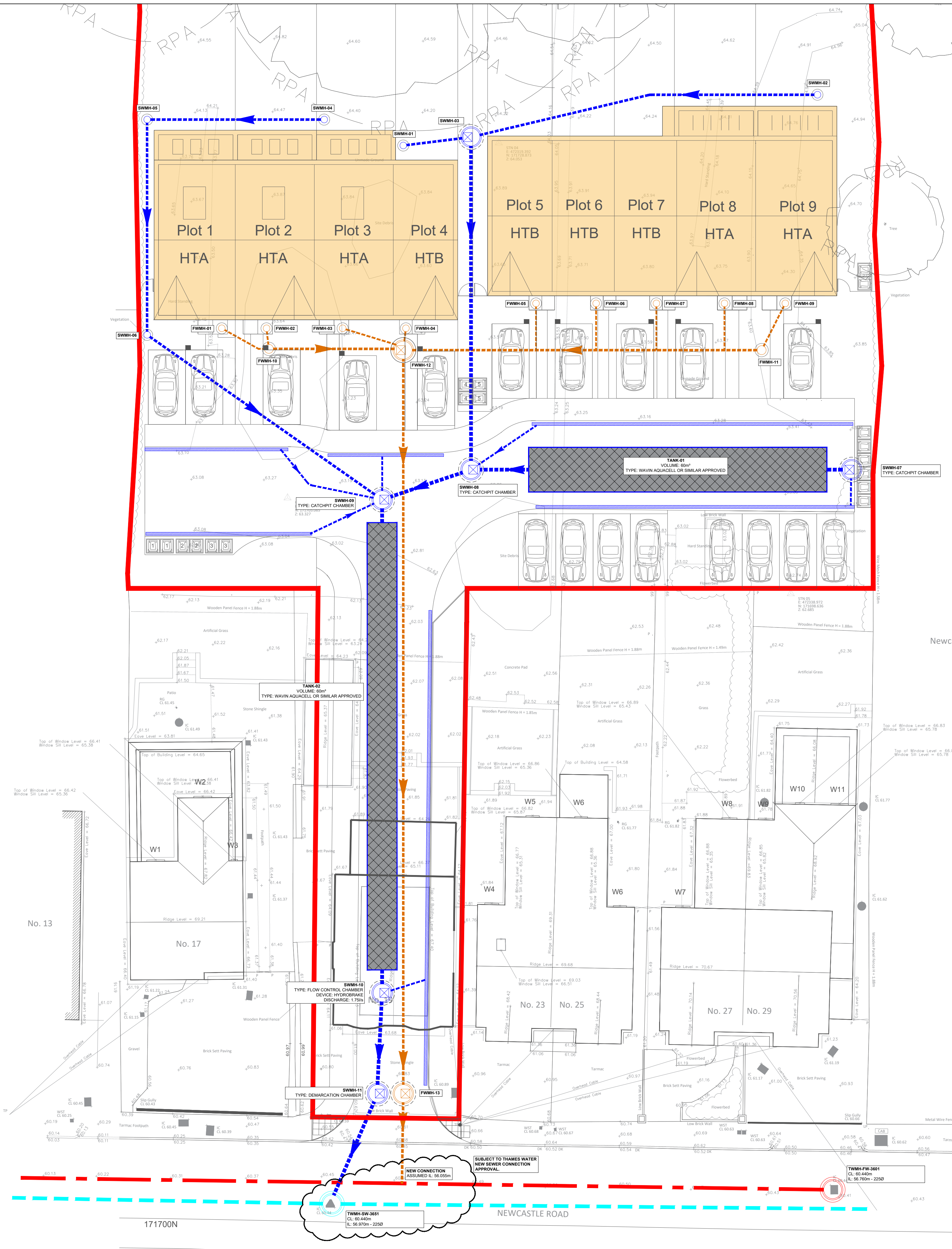
DEVELOPMENT SURFACE WATER MANAGEMENT STRATEGY

RAINWATER CAPTURED ON THE PROPOSED IMPERMEABLE CATCHMENT AREA SUCH AS ROADS, FOOTWAY, DRIVEWAYS AND ROOFS WILL BE CONVEYED INTO THE BELOW GROUND DRAINAGE NETWORK VIA COLLECTOR UNITS. THE SURFACE WATER IS PROPOSED TO BE CONTROLLED USING A HYDRO-BRAKE OR SIMILAR FLOW CONTROL DEVICE WHICH IS SET TO 50% BETTERMENT OF THE PRE-DEVELOPMENT RUN-OFF RATE (1.75%). THIS PROPOSAL INTRODUCES A POSITIVE AND SUSTAINABLE SOLUTION BOTH ON-SITE AND OFF-SITE. EQUALLY; THIS ALSO REDUCES THE RISK OF FLOODING FOR BOTH ON-SITE AND OFF-SITE RESULTING IN AN OVERALL POSITIVE HYDROLOGICAL IMPACT.

SUDS DEVICES HAVE BEEN ASSESSED USING THE SUDS HIERARCHY TABLE (ENVIRONMENT AGENCY THAMES REGION 2006 SUDS A PRACTICAL GUIDE). A COPY OF THE TABLE HAS BEEN PRESENTED BELOW. INFILTRATION IS NOT FEASIBLE DUE TO THE GROUND TYPE EXPECTED IN THIS REGION. UPON FURTHER SITE INVESTIGATION; SHOULD INFILTRATION OF WATER BE VIABLE THEN SOAKAWAY DEVICES SHOULD BE EXPLORED USING BRE 365. FOR THE PURPOSES OF PLANNING; PERMEABLE SURFACES HAVE BEEN PROPOSED AS THE FIRST LAYER OF SUDS. PERMEABLE PAVING PROVIDES AN INITIAL CLEANSING OF SURFACE WATER. THE SECOND FORM OF SUDS WILL BE BELOW GROUND TANKED SYSTEM IN THE FORM OF STORM CELLS. STORM CELLS WILL ATTENUATE WATER DURING HIGH RETURN PERIOD STORM EVENTS.

THE PROPOSED BELOW GROUND DRAINAGE SYSTEM HAS BEEN DESIGN TO STORE WATER UP TO THE 1 IN 100 YEAR STORM EVENT + 40% CLIMATE CHANGE WITHOUT THE DRAINAGE SYSTEM FLOODING. A QUICK STORAGE ESTIMATE TECHNIQUE MODELING CALCULATIONS HAVE BEEN PREPARED TO SUPPORT AND COMPLIMENT THIS PRELIMINARY DRAINAGE STRATEGY. PLEASE REFER TO DOCUMENT 1529-HYDM-220808-P1 FOR FURTHER INFORMATION.

Most Sustainable	SUDS technique	Flood Reduction	Pollution Reduction	Landscape & Wildlife Benefit
↑	Living roofs	✓	✓	✓
	Basins and ponds	✓	✓	✓
	- Constructed wetlands	✓	✓	✓
	- Balancing ponds	✓	✓	✓
↓	Detention basins	✓	✓	✓
	Retention ponds	✓	✓	✓
	Filter strips and swales	✓	✓	✓
	Infiltration devices	✓	✓	✓
↓	- soakaways	✓	✓	✓
	- infiltration trenches	✓	✓	✓
	and basins	✓	✓	✓
	Permeable surfaces	✓	✓	✓
Least Sustainable	and filter drains	✓	✓	✓
	- gravelled areas	✓	✓	✓
	- solid paving blocks	✓	✓	✓
	- porous paviers	✓	✓	✓
↓	Tanked systems	✓	✓	✓
	- over-sized pipes/tanks	✓	✓	✓
	- storms cells	✓	✓	✓



NOTES

NOTES

ALL DRAINAGE SHALL COMPLY WITH THE TYPICAL DRAINAGE CONSTRUCTION DETAILS AND THE REQUIREMENTS OF BS EN 752.

ACCESS COVERS AND FRAMES SHALL COMPLY WITH THE LOADINGS SPECIFIED AND TO BS EN 124 AND KITEMARKED OR IF RECESSED COVERS ARE SPECIFIED THEN IN ACCORDANCE WITH FACTA ASSOCIATION EQUIVALENT.

THE PROPOSED BUILDING OUTLINES SHOWN ON THIS DRAWING ARE FOR INFORMATION ONLY. REFER TO ARCHITECTS PLANS FOR PRECISE LOCATION SETTING OUT INFORMATION AND DETAILS.

ALL DRAINAGE PIPEWORK SHOWN SHALL BE 150mm DIAMETER UNLESS NOTED OTHERWISE.

ALL UNDERSLAB DRAINAGE SHALL BE LAID AT GRADIENTS OF 1:40 MIN. FOR FOUL PIPEWORK AND 1:80 MIN. FOR SURFACE WATER UNLESS NOTED OTHERWISE.

ALL UNDERSLAB DRAINAGE SHALL BE CLEAR OF FOUNDATIONS UNLESS SHOWN OTHERWISE WITH LONG RADIUS BENDS KEPT TO A MINIMUM AND USED WHERE UNAVOIDABLE.

AT LEAST ONE SOIL PIPE AT THE HEAD OF EACH FOUL RUN SHALL BE VENTED TO THE ATMOSPHERE.

ALL GUTTERS SHALL BE FITTED WITH A LEAF FILTER AT EACH OUTLET TO REDUCE THE RISK OF BLOCKAGE.

ALL RAINWATER DOWNPIPES SHALL BE ACCESSIBLE ABOVE GROUND FOR RODDING PURPOSES.

ANY PART OF THE EXISTING DRAINAGE SYSTEM TO BE RETAINED AS PART OF THE NEW SCHEME SHALL BE CLEANED AND INSPECTED BY CCTV SURVEY. ANY STRUCTURAL DEFECTS SHALL BE REPAIRED OR REPLACED AS MAY BE REQUIRED USING APPROPRIATE AND APPROVED METHODS.

WHERE EXISTING ACCESS LOCATIONS ARE TO BE RETAINED THE COVER AND FRAMES SHALL BE CHECKED TO ENSURE THEY ARE OF A SUITABLE DUTY FOR REUSE AND LEVELS ADJUSTED TO SUIT PROPOSED FINISHED GROUND LEVELS.

ALL INTERNAL AND EXTERNAL ACCESS COVERS SHALL BE RECESSED, DOUBLE SEALED AND LOCKABLE.

COVER LEVELS SHOWN ON THIS DRAWING ARE APPROXIMATE AND SHALL BE ADJUSTED TO SUIT FINISHED PAVEMENT LEVELS ON SITE BY CONTRACTOR. COVERS SHALL BE ORIENTATED TO SUIT PAVEMENT FINISHES WHERE APPROPRIATE.

ALL PRIVATE DRAINAGE PIPEWORK FOR FOUL AND SURFACE WATER SYSTEMS HAVE BEEN DESIGNED ON THE BASIS OF CAST IRON.

ALL ADOPTABLE DRAINAGE PIPEWORK FOR FOUL AND SURFACE WATER SYSTEMS HAVE BEEN DESIGNED ON THE BASIS OF CLAYWARE TO COMPLY WITH SEWERAGE SECTOR GUIDANCE APPROVED VERSION 1.0, INCLUDING APPENDIX C 'THE CODE' APPROVED VERSION 2.0.

CONCRETE ENCASEMENT OF THE PIPEWORK SHALL BE REQUIRED WHERE THE VERTICAL CLEARANCE BETWEEN TWO PIPES CROSSING IS LESS THAN 300MM

ALL EXISTING DRAINAGE SHALL BE ASSUMED TO BE 'LIVE' AND SHALL BE MAINTAINED AT ALL TIMES DURING THE WORKS. EXISTING DRAINAGE SHALL BE RECONNECTED TO THE NEW DRAINAGE SYSTEM UNLESS PROVEN TO BE REDUNDANT FOR 'ABANDONMENT'. ALL EXISTING DRAINAGE TO BE ABANDONED SHALL BE SEALED BY APPROPRIATE MEANS.

ALL DRAINAGE CONNECTING TO THE PUBLIC SEWER NETWORK SHALL NOT COMMENCE UNTIL RECEIPT OF THE APPROVAL. FROM THE DRAINAGE AUTHORITY AND SHALL COMPLY WITH REQUIREMENTS USING VITRIFIED CLAY PIPEWORK TO BS EN 295 WITH PLAIN SLEEVED OR SOCKETED FLEXIBLE JOINTS SUBJECT TO THEIR APPROVAL.

WHERE DRAINAGE WORKS ARE CARRIED OUT IN THE PUBLIC HIGHWAY THE RELEVANT NECESSARY APPROVALS AND ROAD OPENING NOTICES SHALL BE OBTAINED FROM THE HIGHWAY AUTHORITY AND UTILITY COMPANIES.

UPON COMPLETION ALL NEW DRAINAGE INSTALLATION TOGETHER WITH ANY EXISTING DRAINAGE RETAINED SHALL BE JETTED AND CCTV SURVEYED UPON COMPLETION. CONTRACTOR TO ENSURE THAT THE DRAINAGE SYSTEM IS FULLY OPERATIONAL, FREE OF EXCESS DEBRIS/SILT AND ALL IDENTIFIED FAULTS RECTIFIED.

AN AIR TIGHTNESS TEST MUST BE PERFORMED FOR THE PIPEWORK THAT SITS WITHIN THE BUILDING TO ENSURE NO LEAKS ARE PRESENT. THE CONTRACTOR IS EXPECTED TO PROVIDE ADDITIONAL WATER TIGHTNESS MEASURES TO PIPEWORK BELOW GROUND.

HEALTH & SAFETY: FUTURE WORKS SHALL BE CARRIED OUT BY SPECIALIST COMPETENT AND EXPERIENCED CONTRACTORS. ALL OPERATIVES SHALL HAVE RECEIVED FULL AND APPROPRIATE TRAINING WITH APPROPRIATE QUALIFICATIONS FOR THE OPERATIONS THEY ARE REQUIRED TO UNDERTAKE. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT HEALTH & SAFETY REGULATIONS.

NOT FOR CONSTRUCTION

P6	ISSUED FOR INFORMATION	23.06.23	SK
Rev.	Description	Date	By

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Job Title	LAND REAR OF NEWCASTLE ROAD
Client	PSD ARCHITECTURE

1529-SPW-Z0-00-DR-C-6000
BELOW GROUND DRAINAGE

Drawn	Date	Scale	Checked	CAD Filename
SK	15.07.22	1:150 @ A1	SK	C-6000

Job No.	1529	Drawing No.	C-6000	Revision	P6
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