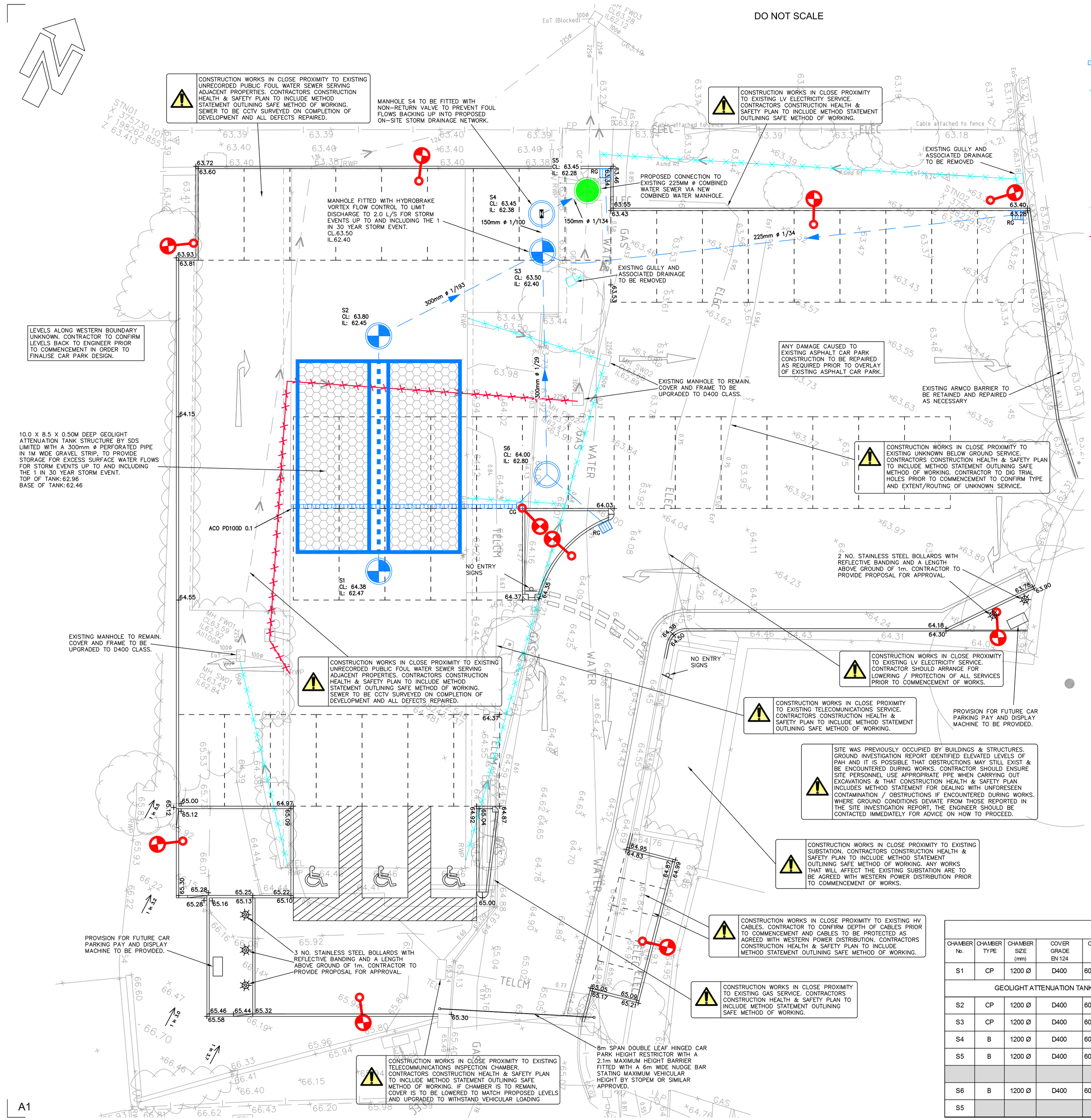
DO NOT SCALE



DRAINAGE LEGEND

- RG — Trapped road gully
- CG — Channel drain and trapped outfall unit
- 150mm 1/100 — Surface water drain
- Surface water catchpit manhole
- Surface water manhole
- Combined water manhole
- SW Drain to be removed
- FW Drain to be removed

LEVELS LEGEND

- 9.15 + — Proposed level
- 1 in 24.5 — Proposed gradient
- Denotes position of proposed stainless steel bollard
- Denotes position of proposed street lighting column

DESIGNERS RESIDUAL RISK SCHEDULE

CONSTRUCTION

1. EXISTING SEWERS / DRAINAGE / SERVICES:

a. REFER TO EXISTING SERVICES LAYOUT (REF: P18-135 – EXISTING SERVICES LAYOUT) / TOPOGRAPHICAL SURVEY (REF: DRAWING No 4366/10/001) / STATUTORY UNDERTAKERS RECORDS FOR LOCATION OF EXISTING SEWERS / DRAINAGE / SERVICES.

b. WORKS IN CLOSE PROXIMITY TO EXISTING SEWERS / DRAINAGE / SERVICES. CONTRACTORS CONSTRUCTION HEALTH & SAFETY PLAN SHOULD INCLUDE METHOD STATEMENT OUTLINING SAFE METHOD OF WORKING AGREED WITH RELEVANT STATUTORY UNDERTAKER WHERE NECESSARY.

c. WORKS AFFECTED BY EXISTING SEWERS / DRAINAGE / SERVICES. CONTRACTOR SHOULD ARRANGE FOR DIVERSION / LOWERING / PROTECTION BY STATUTORY UNDERTAKER WHERE NECESSARY PRIOR TO COMMENCEMENT OF WORKS.

2. GROUND CONDITIONS / SOIL CONTAMINATION / REMEDIATION

a. SITE WAS PREVIOUSLY OCCUPIED BY BUILDINGS & STRUCTURES. IT IS POSSIBLE THAT OBSTRUCTIONS MAY STILL EXIST & BE ENCOUNTERED DURING WORKS. CONTRACTOR SHOULD ENSURE SITE PERSONNEL USE APPROPRIATE PPE WHEN CARRYING OUT EXCAVATIONS & THAT CONSTRUCTION HEALTH & SAFETY PLAN INCLUDES METHOD STATEMENT FOR DEALING WITH UNFORESEEN CONTAMINATION / OBSTRUCTIONS IF ENCOUNTERED DURING WORKS. WHERE GROUND CONDITIONS DEVIATE FROM THOSE REPORTED IN THE SITE INVESTIGATION REPORT, THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY FOR ADVICE ON HOW TO PROCEED.

b. THE GROUND INVESTIGATION REPORT (REF: CRM.1542.001.GE.R.001.A) IDENTIFIED ELEVATED LEVELS OF PAH IN MADE GROUND ASSOCIATED WITH TARMAC FRAGMENTS. SITE PERSONNEL SHOULD USE APPROPRIATE PPE WHEN CARRYING OUT EXCAVATIONS & CONTRACTORS CONSTRUCTION HEALTH & SAFETY PLAN SHOULD INCLUDE METHOD STATEMENT THAT ADOPTS BEST PRACTICE HEALTH AND SAFETY POLICIES FOR ALL SITE PERSONNEL THROUGHOUT THE DURATION OF THE CONSTRUCTION WORKS.

3. EXCAVATIONS & EARTHWORKS

a. REFER TO GROUND INVESTIGATION REPORT (REF: CRM.1542.001.GE.R.001.A) FOR DETAILS OF UNDERLYING SOILS. WHERE GROUND CONDITIONS ARE FOUND TO DEVIATE FROM THOSE REPORTED IN THE SITE INVESTIGATION REPORT, THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY FOR ADVICE ON HOW TO PROCEED.

b. EXCAVATIONS WHERE ACCESS IS REQUIRED SHOULD BE TEMPORARY SUPPORTED WITH SLOPES BATTERED WELL BACK AND MAINTAINED AT A SAFE ANGLE.

c. CONTRACTORS CONSTRUCTION HEALTH & SAFETY PLAN SHOULD INCLUDE METHOD STATEMENT OUTLINING SAFE METHOD OF WORKING IN OR ADJACENT TO DEEP EXCAVATIONS ADJACENT TO BOUNDARIES / STRUCTURES / EMBANKMENTS.

d. GROUNDWATER MAY BE ENCOUNTERED IN EXCAVATIONS. CONTRACTORS CONSTRUCTION HEALTH & SAFETY PLAN SHOULD INCLUDE METHOD STATEMENT OUTLINING SAFE METHOD FOR DEWATERING EXCAVATIONS DURING GROUNDWORKS.

4. WORKS ON OR ADJACENT TO HIGHWAY

a. CONTRACTOR SHOULD ENSURE SITE PERSONNEL HAVE APPROPRIATE TRAINING & USE APPROPRIATE PPE WHEN CARRYING OUT WORKS IN THE HIGHWAY AND THE CONSTRUCTION HEALTH & SAFETY PLAN SHOULD INCLUDE METHOD STATEMENT THAT ADOPTS BEST PRACTICE HEALTH AND SAFETY POLICIES FOR ALL SITE PERSONNEL THROUGHOUT THE DURATION OF THE WORKS ON / ADJACENT TO HIGHWAY.

5. CONNECTING TO EXISTING MANHOLES / SEWERS

a. CONTRACTORS CONSTRUCTION HEALTH & SAFETY PLAN SHOULD INCLUDE METHOD STATEMENT THAT ADOPTS BEST PRACTICE HEALTH AND SAFETY POLICIES FOR ALL SITE PERSONNEL THROUGHOUT THE DURATION OF SUCH WORKS.

b. CONTRACTOR SHOULD ENSURE SITE PERSONNEL HAVE APPROPRIATE TRAINING & USE APPROPRIATE PPE WHEN MAKING SEWER CONNECTIONS TO EXISTING MANHOLES / SEWERS.

MAINTENANCE / CLEANING

ACCESS OF MANHOLES / CHAMBERS FOR MAINTENANCE OF DRAINAGE SYSTEM & HIGH PRESSURE JETTING

a. MAINTENANCE CONTRACTOR SHOULD PROVIDE RISK ASSESSMENT AND METHOD STATEMENT THAT ADOPTS BEST PRACTICE HEALTH AND SAFETY POLICIES FOR MAINTENANCE PERSONNEL THROUGHOUT THE DURATION OF SUCH WORKS.

b. MAINTENANCE PERSONNEL SHOULD HAVE APPROPRIATE TRAINING & USE APPROPRIATE PPE.

DEMOLITION

a. DEMOLITION CONTRACTOR SHOULD PROVIDE RISK ASSESSMENT AND METHOD STATEMENT THAT ADOPTS BEST PRACTICE HEALTH AND SAFETY POLICIES FOR ALL SITE PERSONNEL THROUGHOUT THE DURATION OF SUCH WORKS.

ENGINEERING NOTES

1. This drawing to be read in conjunction with all relevant Architects, Engineers and Subcontractors drawings and details.
2. This drawing is based on topographical survey by Clugston:

   Drawing Number 4366/10/001
   Dated 19.04.18
3. All levels relate to levels given on survey drawing.
4. All works to be carried out in accordance with Sewers for Adoption 7th Edition, BS EN 752 "Drain and sewer systems outside buildings" and the current edition of The Building Regulations "Approved document H".
5. New drainage connections are to be made with appropriate lengths of rocker pipes & couplings.
6. All manhole chamber covers to be installed parallel to final kerbs, edgings, paving joints or building lines as appropriate.
7. This drawing details all below ground drainage up to finished floor level. For details of drainage above finished floor level, refer to Architects drawings.
8.
9. All private surface water pipework up to 150mm in diameter to be solid PVC-U to BS EN 1401-1/BS4660. All private surface water pipework 225mm and above to be structured wall plastic sewer pipe complying with clause 518 of the specification for highway works.
10. All adoptable foul water and surface water pipework up to 225mm in diameter to be Kitemark certified Vitrified Clay (VC) with flexible spigot and socket joints and shall comply with the requirements of BS EN 295. All adoptable foul water and surface water pipework 300mm and above to be concrete sewer pipe with flexible spigot and socket joints and shall comply with the requirements of BS EN 1916 and BS 5911: Part 1.
11. On completion of development all drainage shall be jet cleaned and CCTV surveyed.
12. Sewers marked to be removed are to be dug out with manholes demolished & void filled with suitable engineering fill material.
13. All road gully connections to be minimum 150mm diameter solid PVC-U pipework to BS EN 1401-1/BS4660 and laid at a minimum gradient of 1 in 150.
14. All existing services shown are based on topographical survey by Clugston, drawing 4366/10/001. Location of all services in close proximity to works should be confirmed by means of trial pits under supervision of statutory undertaker & in accordance with HSE document "Avoiding Danger from Underground Services"

SURFACE WATER DRAINAGE SCHEDULE

CHAMBER No.	CHAMBER TYPE	CHAMBER SIZE (mm)	COVER GRADE EN 124	COVER SIZE (mm)	COVER LEVEL (m) AOD	INVERT LEVEL INCOMING (m) AOD	INVERT LEVEL OUTGOING (m) AOD	DEPTH TO INVERT (m)
S1	CP	1200 Ø	D400	600x600	64.38	62.47	62.47	1.91
GEOLIGHT ATTENUATION TANK						62.46	62.46	
S2	CP	1200 Ø	D400	600x600	63.80	62.45	62.45	1.35
S3	CP	1200 Ø	D400	600x600	63.50	62.40	62.40	1.10
S4	B	1200 Ø	D400	600x600	63.45	62.38	62.38	1.07
S5	B	1200 Ø	D400	600x600	63.45	62.36	62.28	1.17
S6	B	1200 Ø	D400	600x600	64.00	62.80	62.80	1.20
S5						62.40		

PIPE DIAMETER (mm)	LENGTH (m)	GRADIENT 1 in	BEDDING CLASS	PIPE MATERIAL
300	1.0	100	S	HDPE
300	1.3	132	S	HDPE
300	9.6	193	S	HDPE
150	2.0	100	S	HDPE
150	2.7	134	S	VC
150	11.7	29	S	HDPE

MK	REVISION	BY	DATE

DRAWING STATUS

TENDER

DRAWING TITLE

ENGINEERING LAYOUT

PROJECT — Project Number P18-135

RELIANCE HOUSE
LONG STREET, DURSLEY

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Unit B10
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London, Henley-on Thames and Gloucester

Drawn	Ch'kd	Scales	Date
EL	ADC	1:100 @ A1	MAY 2018

Purpose of Issue: TENDER

Drawing Number: P18-135 - 100 — Revision: -

A1