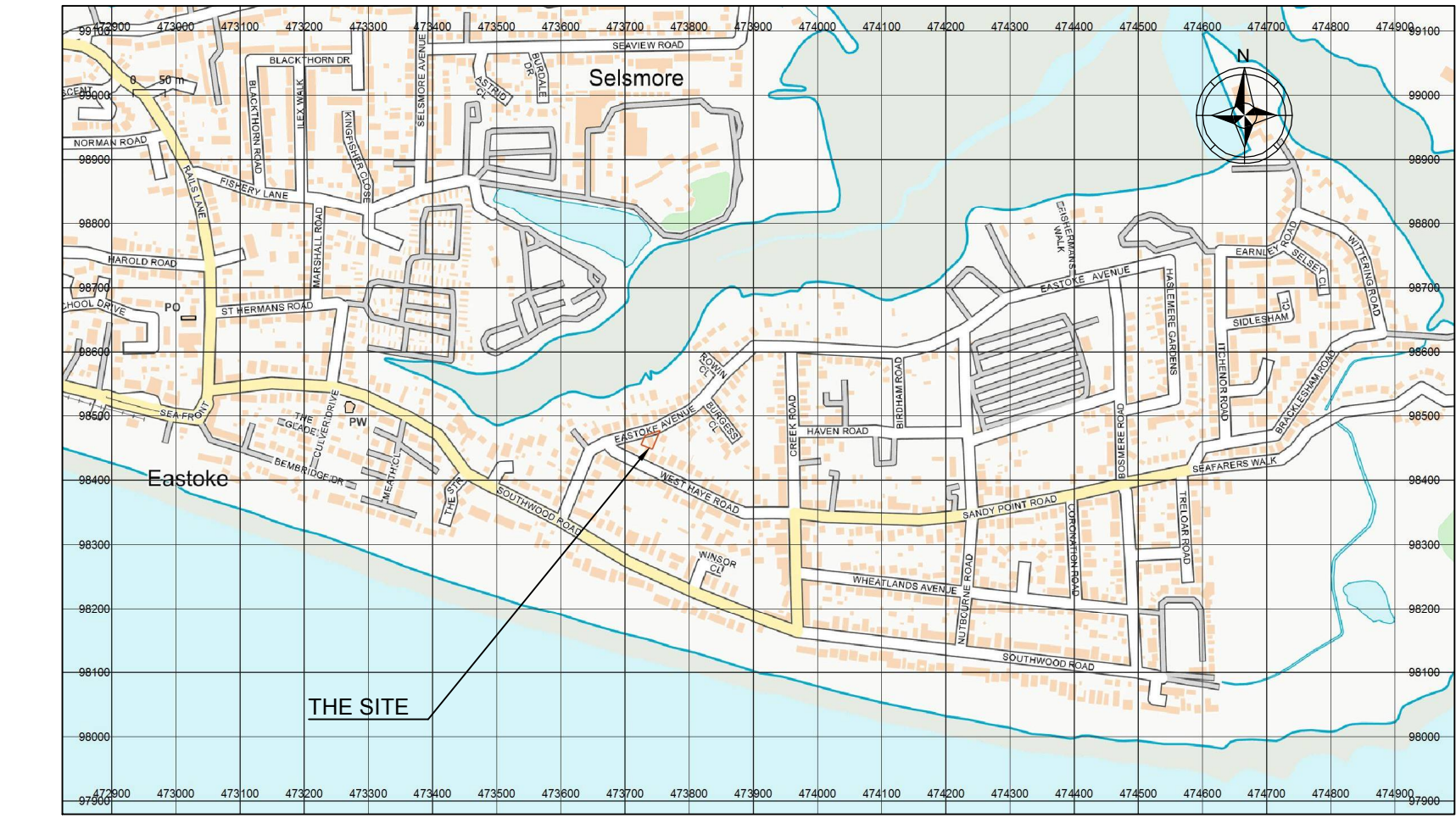
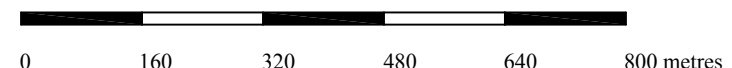


Flood Risk Assessment 50 B	2
Southern Water sewerage records	3



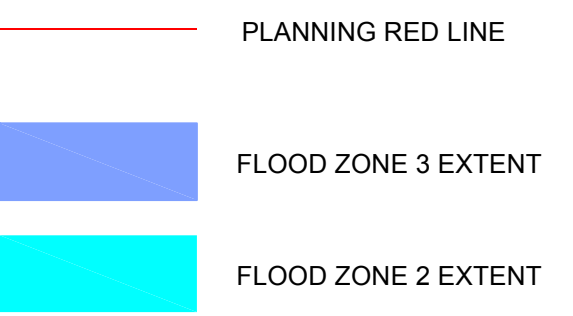
LOCATION PLAN
SCALE 1:10,000



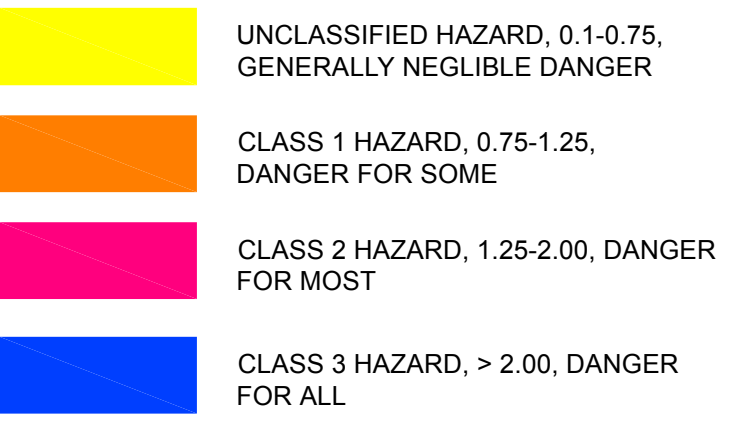
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KEY

TIDAL FLOOD ZONES



SURFACE WATER HAZARD



Flood Hazard
The Flood Hazard rating is calculated using the following equation:
$$HR = d \times (v + 0.5) + DF$$

where,
 HR = (flood) hazard rating;
 d = depth of flooding (m);
 v = velocity of floodwaters (m/sec); and
 DF = debris factor calculated using Table 3.1

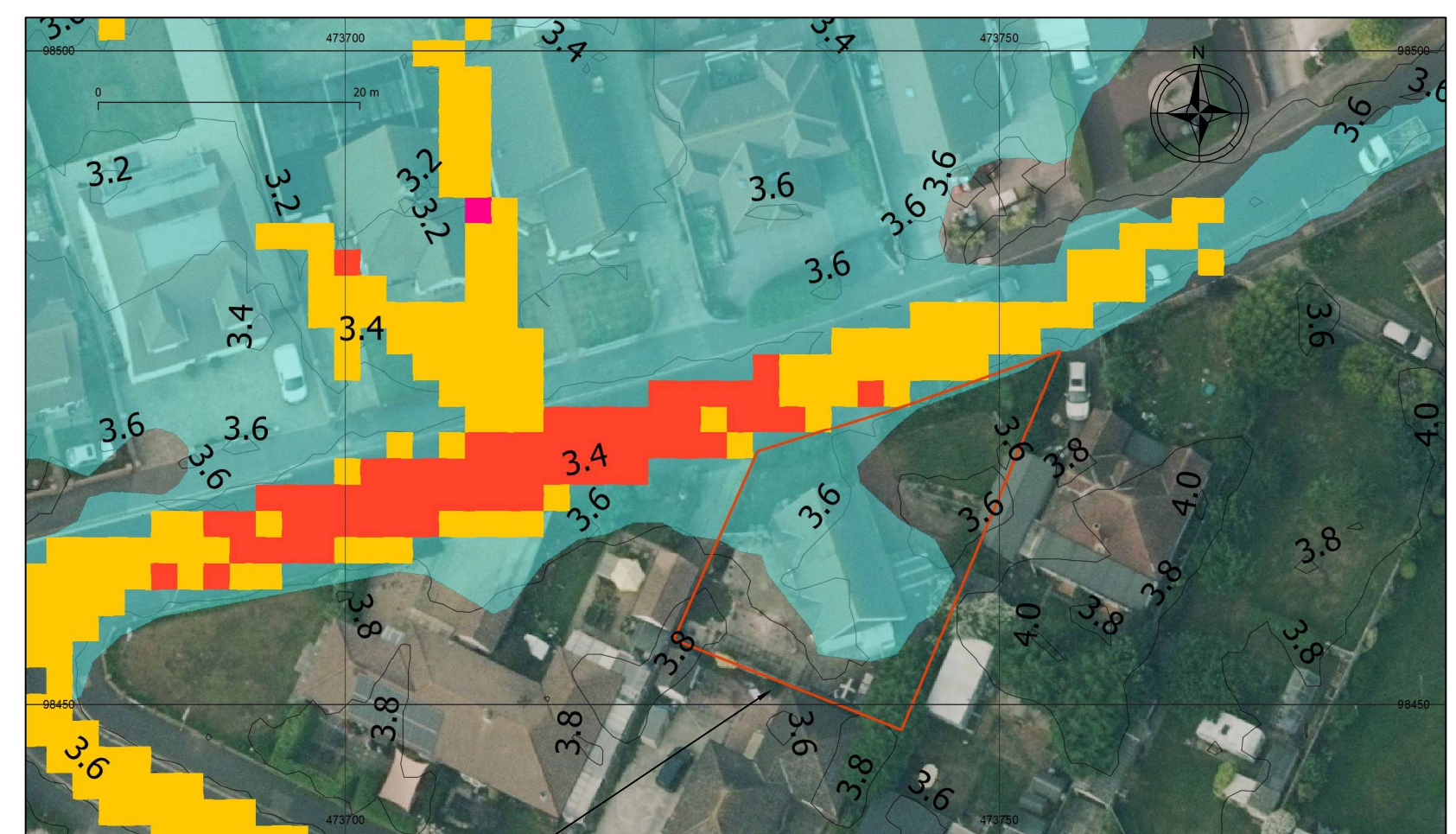
Table 3.1 Guidance on debris factors for different flood depths, velocities and dominant land uses

Depths	Pasture/Arable	Woodland	Urban
0 to 0.25 m	0	0	0
0.25 to 0.75 m	0	0.5	1
0.75 to 1.25 m and/or $v > 2$	0.5	1	1

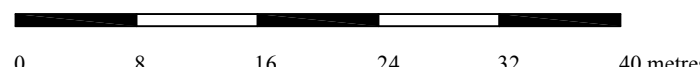
Ref: FD321/TR1 Table 3.1

R&D OUTPUTS: FLOOD RISKS TO PEOPLE: PHASE 2 FD321/TR2

METHOD BY WHICH
ENVIRONMENT AGENCY
CALCULATES SW FLOOD
HAZARD RATING



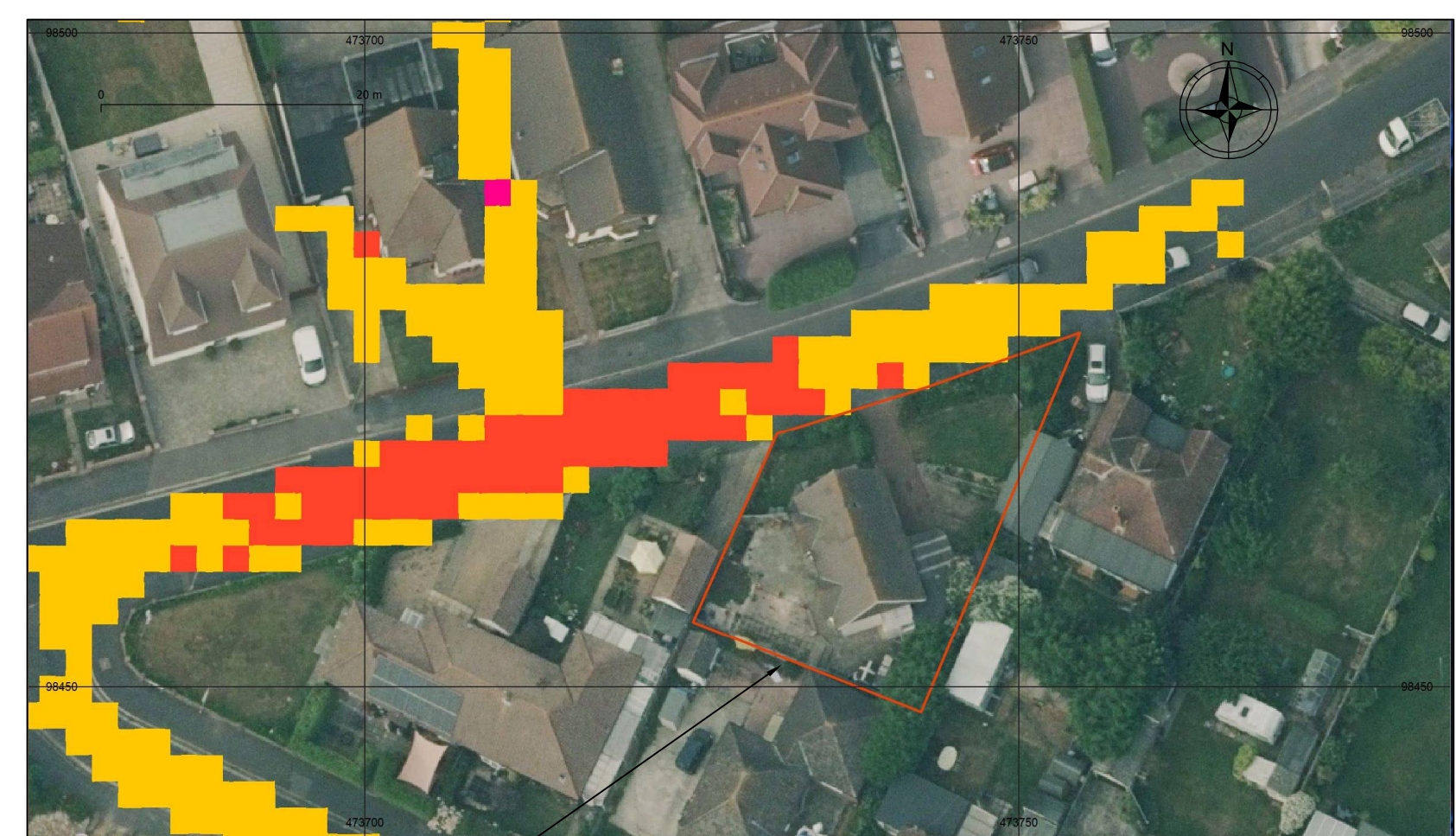
PUBLISHED
TIDAL FLOOD ZONES AS SHOWN
ON "FLOOD MAP FOR
PLANNING"
SCALE 1:500



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AERIAL PHOTOGRAPH DATED AUGUST 2016
SUPPLIED BY CHANNEL COAST OBSERVATORY



PUBLISHED UPDATED MAP FOR
SURFACE WATER FLOODING
0.1% AEP (1,000 YEAR) HAZARD
CLASSIFICATIONS AND FLOOD
EXTENTS
SCALE 1:500



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AERIAL PHOTOGRAPH DATED AUGUST 2016
SUPPLIED BY CHANNEL COAST OBSERVATORY

DRAWING NOTES

1. CONTOURS SHOWN ARE FOR ORIGINAL GROUND LEVELS. THEY ARE TO ORDNANCE SURVEY DATUM, DERIVED FROM LIDAR DTM, SHOWN AT 0.2 METRE VERTICAL INTERVALS AND LABELLED WITH RELEVANT LEVELS.
2. THE 50 METRE (100 METRE FOR THE LOCATION PLAN) GRID SHOWN IS TO NATIONAL ORDNANCE SURVEY CO-ORDINATE SYSTEM AND IS LABELLED ACCORDINGLY.
3. DETAILS OF FLOOD RISK RELATE TO THE DEVELOPMENT SHOWN ON JON DALE ARCHITECTS DRAWINGS SSP/495/1 & 2 DATED MAY 2019.
4. THE LOWEST FINISHED GROUND FLOOR LEVEL PROPOSED IS 4.2 METRES ABOVE ORDNANCE SURVEY DATUM (M AOD)
5. FLOOD DAMAGE RESILIENCE IS PROPOSED TO THE DWELLINGS BELOW A LEVEL OF 5.2 M AOD

SITE DESCRIPTION

1. THE SITE COMPRISES A BUNGALOW, ITS GARAGE AND GARDEN. THE SITE AREA IS ABOUT 0.043 HECTARES.
2. BASED ON LIDAR DTM, GROUND LEVELS ON SITE VARY FROM 3.45 M AOD TO 3.85 M AOD. THE MAJORITY OF THE SITE IS ABOVE THE 3.60 M AOD LEVEL.

FREQUENCY OF TIDAL FLOODING TO THE SITE TODAY

1. PUBLISHED FLUVIAL TIDAL FLOOD EXTENTS IN THE VICINITY OF THE SITE, REPRODUCED ON THIS DRAWING, DEFINE TODAY'S 200 YEAR (FLOOD ZONE 3) AND 1,000 YEAR (FLOOD ZONE 2) TIDAL FLOOD PLAINS. DESIGNATION OF LAND AS FLOOD ZONE 2 OR 3 TRIGGERS PARTICULAR NATIONAL AND LOCAL PLANNING POLICIES/GUIDANCE THAT WILL APPLY TO DEVELOPMENT ON THAT LAND.
2. TIDAL FLOOD ZONES ARE BASED ON THE UNDEFENDED SITUATION AND REFLECT ENVIRONMENT AGENCY PREDICTED OPEN SEA TIDE LEVEL OF 3.34 M ABOVE ORDNANCE SURVEY DATUM (M AOD) FOR THE 200 YEAR EVENT (FLOOD ZONE 3) AND 3.52 M AOD FOR THE 1,000 YEAR EVENT IN 2008. SUCH EXTREME LEVELS ARE DERIVED FROM JOINT PROBABILITY ANALYSIS OF RARE ASTRONOMICAL INDUCED TIDE AND METEOROLOGICAL SURGE CONDITIONS OCCURRING SIMULTANEOUSLY.
3. THE NOVEMBER 2018 HAVANT BOROUGH COUNCIL STRATEGIC FLOOD RISK ASSESSMENT QUOTES THE TIDE LEVELS CORRESPONDING TO FLOOD ZONES 3 AND 2 AS 3.4 AND 3.6 M AOD RESPECTIVELY. THESE LEVELS REFLECT A 4 MM PER YEAR INCREASE IN TIDE LEVELS IN THE PERIOD 2008-2018 AS SET OUT IN NATIONAL PLANNING PRACTICE GUIDANCE ON CLIMATE CHANGE.
4. TIDAL FLOOD RISK AT THE SITE IS OVERLAND FROM CHICHESTER HARBOUR.
5. WAVE HEIGHTS WITHIN CHICHESTER HARBOUR ARE NEGLIGIBLE AND AS SUCH DO NOT INFLUENCE FLOOD LEVELS AT THE SITE.
6. FOR CHICHESTER HARBOUR, TIDE LEVELS FOR MAPPING FLOOD ZONES ARE TAKEN AS THOSE IN THE OPEN SEA OFF THE HARBOUR ENTRANCE. IN PRACTICE IN SOME TIDES PEAK WATER LEVELS IN CHICHESTER HARBOUR CAN BE SLIGHTLY HIGHER OR SLIGHTLY LOWER THAN IN THE OPEN SEA DUE TO MOMENTUM EFFECTS, BUT THE DIFFERENCES IN LEVELS ARE NEGLIGIBLE.
7. THERE ARE NO CONSTRUCTED DEFENCES BETWEEN THE SITE AND CHICHESTER HARBOUR. THEREFORE TODAY THE SITE DOES NOT BENEFIT FROM FLOOD DEFENCES; THE MAPPED FLOOD ZONES REFLECT THE ACTUAL EXTENTS OF FLOODING.
8. IT IS CONCLUDED THAT THE CURRENT FLOOD MAP FOR PLANNING DOES REFLECT THE FREQUENCY OF FLOODING OF THE SITE TODAY.

LOCAL FUTURE TIDE LEVELS

1. THE NOMINAL LIFEIME OF THE RESIDENTIAL DEVELOPMENT AS PROPOSED DEVELOPMENT IS 100 YEARS.
2. PLANNING PRACTICE GUIDANCE ADVISES THAT THE ALLOWANCE FOR INCREASED SEA LEVELS IN THE SOUTH EAST REGION FROM 1990 TO 2115 IS 1.21 METRES, AND THE SEA LEVEL RISE FROM 1990 TO 2025 IS 4 MM PER YEAR. FROM 2086 TO 2115 THE ANNUAL RISE IS 15 MM. ACCORDINGLY THE SEA LEVEL RISE FROM THE 2008 BASE YEAR TIDE LEVELS QUOTED ABOVE TO 2119, IE IN 100 YEARS TIME, IS ABOUT 1.20 METRES. THEREFORE THE PREDICTED 200 AND 1,000 YEAR TIDE LEVELS IN 2119 ARE 4.54 M AOD AND 4.72 M AOD RESPECTIVELY. THESE LEVELS ARE SIMILAR TO THOSE QUOTED IN THE SFRA.
3. IT SHOULD BE NOTED THAT THE GOVERNMENT PLANS TO UPDATE CLIMATE CHANGE ALLOWANCES IN LINE WITH UKCP18. SUCH CHANGES MIGHT AFFECT THE END OF LIFETIME EXTREME TIDE LEVELS AS DESCRIBED.

ACCESS TO THE SITE DURING TIDAL FLOODING

1. ROAD ACCESS TO THE SITE IS VIA A PART OF SOUTHWOOD ROAD WHERE THE GROUND LEVEL IS AS LOW AS 3.0 M AOD. LOW LYING LAND AND SURFACE WATER DRAINAGE LINK CHICHESTER HARBOUR TO THAT GROUND LEVEL, SUCH THAT IN A 200 YEAR EVENT TODAY IT IS ANTICIPATED THAT FLOODING OF THE CARRIAGEWAY UP TO 400 MM DEEP COULD OCCUR. SUCH FLOODING, ALTHOUGH OCCURRING FOR ONLY A SHORT TIME, WOULD RESRICT ACCESS TO THE SITE.

BENEFIT OF SHORELINE MANAGEMENT POLICIES

1. THE KEY POLICY OF THE 2010 NORTH SOLENT SHORELINE MANAGEMENT PLAN FOR THE CHICHESTER HARBOUR COAST FROM MENGHAM TO CHICHESTER HARBOUR ENTRANCE, POLICY UNIT SAH104, IS "HOLD THE LINE" FOR EPOCH 1 (PRESENT DAY TO 2025), EPOCH 2 (2025-2055) AND EPOCH 3 (2055 TO 2115). "HOLD THE LINE" MEANS MAINTAIN THE CURRENT LEVEL OF PROTECTION OF EXISTING DEFENCES/BUILD NEW ONES TO MAINTAIN SUCH STANDARD.
2. ACCORDINGLY ALTHOUGH BY 2119 EVEN A RELATIVELY COMMON 20 YEAR TIDE, 3.10 M AOD IN 2008, COULD AS A RESULT OF CLIMATE CHANGE ATTAIN A LEVEL OF 4.3 METRES, IE 700 MM ABOVE SITE LEVEL, IMPLEMENTATION OF THE SHORELINE MANAGEMENT PLAN AS PROPOSED SHOULD ENSURE THAT THE SITE IS NOT FLOODED BY TIDAL WATERS DURING ITS NOMINAL LIFETIME.
3. THE "HOLD THE LINE" POLICY ALSO SHOULD BENEFIT THE FLOODING OF ACCESSES SUCH THAT THE CURRENT DEPTH OF FLOODING IN EXTREME CONDITIONS DOES NOT INCREASE IN THE LIFETIME OF THE DEVELOPMENT.

GROUNDWATER FLOOD RISK

1. THE SITE IS NOT SUSCEPTIBLE TO GROUNDWATER FLOODING

SURFACE WATER FLOOD RISK

1. THE PUBLISHED SURFACE WATER FLOOD MAP SHOWS THAT THE SITE IS NOT LIABLE TO SURFACE WATER FLOODING. ACCORDINGLY SURFACE WATER FLOODING IS NOT DEEMED TO BE A RISK AFFECTING THE DEVELOPMENT AS PROPOSED.
2. CLIMATE CHANGE AND TIDE LOCKING BEHIND FUTURE DEFENCES IS LIKELY TO INCREASE THE DEPTH AND EXTENT OF SURFACE WATER FLOODING IN THE GENERAL AREA OF THE SITE DURING THE LIFETIME OF THE DEVELOPMENT. THE MINIMUM FLOOR LEVEL PROPOSED FULLY MITIGATES ALL FUTURE SURFACE WATER FLOOD RISK TO THE DEVELOPMENT.

PROPOSED FOUL AND RAINWATER DRAINAGE SERVING THE DEVELOPMENT

1. THE DEVELOPMENT WILL CONNECT ITS SEWAGE AND RAINWATER DRAINAGE SYSTEMS TO THE RESPECTIVE FOUL AND SURFACE WATER SEWERS SHOWN ON SOUTHERN WATERS'S SEWERAGE RECORDS, COPY APPENDED, PRESENT IN EASTOKE AVENUE ADJACENT TO THE SITE.
2. AS SHOWN ON THE RECORDS, THE SURFACE WATER SEWER DISCHARGES DIRECT TO TIDAL WATERS IN CHICHESTER HARBOUR. IN ACCORDANCE WITH THE "NON STATUTORY TECHNICAL STANDARDS FOR SUDS", THERE IS NO NEED FOR THE DEVELOPMENT TO ATTENUATE THE RATE OF FLOW DISCHARGED TO THE SURFACE WATER SEWER.

RESIDUAL FLOOD RISK

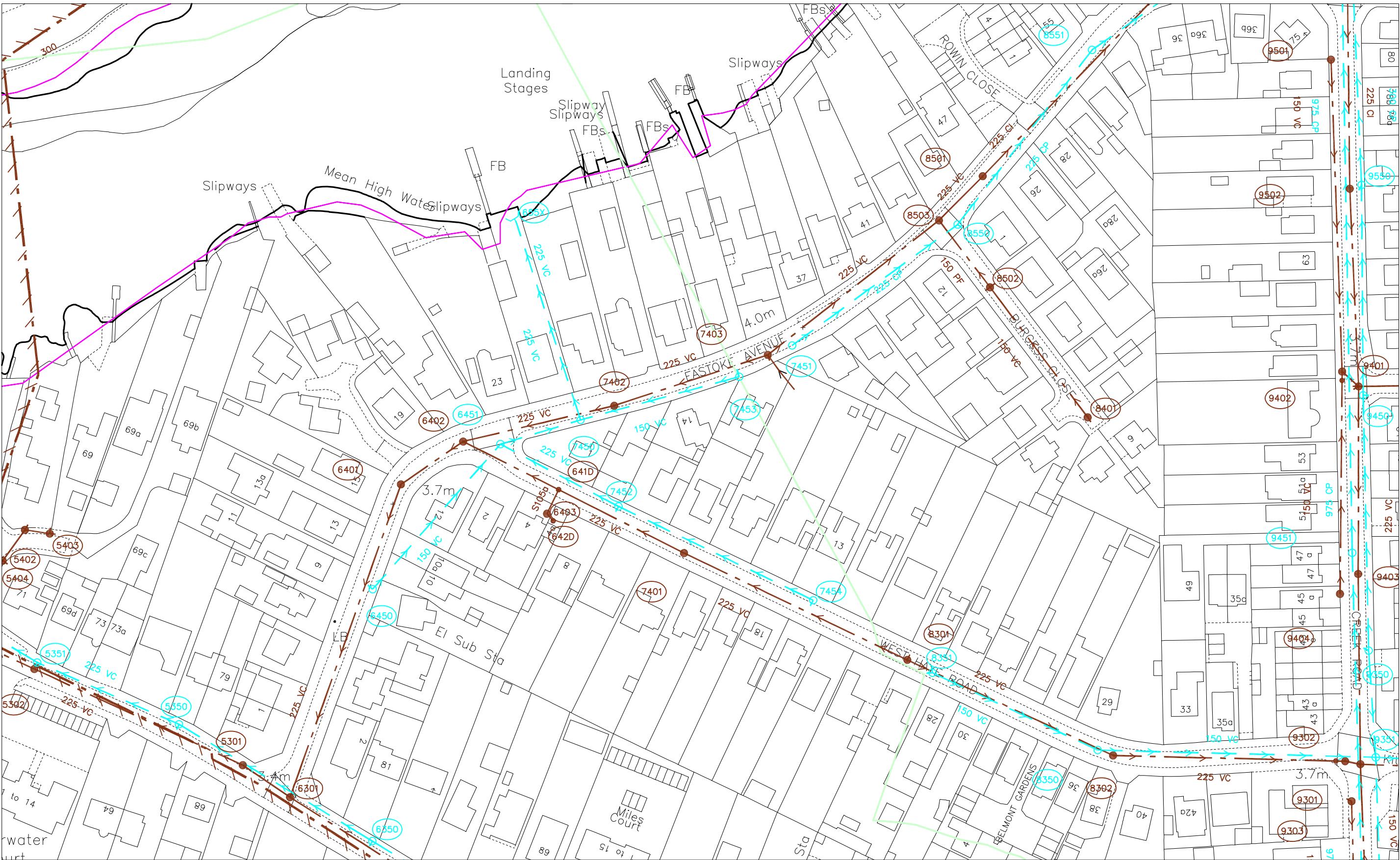
1. SETTING THE MINIMUM LEVEL AT 4.2 M AOD AND ENSURING THAT ALL CONSTRUCTION BELOW A LEVEL OF 5.2 M AOD IS FLOOD DAMAGE RESILIENT AS PROPOSED WILL MINIMISE FUTURE FLOOD RISK IF THE "HOLD THE LINE" POLICY IS NOT MAINTAINED FOR THE LIFETIME OF THE DEVELOPMENT, FOR INSTANCE BECAUSE FUNDING IS NOT ASSURED.

Rev B 26/06/19 SW hazard map title corrected, draft removed, FFL confirmed, notes amended
Rev A 29/04/19 Typos in notes corrected.

Simon Jones-Parry BSc CEng MICE Swans Farm Winchfield Hook RG27 8DB Tel 01256 704940			
SOUTHERN PLANNING PRACTICE LTD		FLOOD RISK ASSESSMENT	
PROPOSED REDEVELOPMENT 14 EASTOKE AVENUE HAYLING ISLAND PO11 9QW		Scale AS SHOWN@A1	Date 23/04/19
		Drawing Nr 50 B	

SEWER RECORDS PAGE 1 OF 2

98603



98314

O.S. REF. SZ7398SE	Drawn by: kumaria	The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. WARNING: BAC pipes are constructed of Bonded Asbestos Cement WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement	 N	
	Scale: 1:1250			
Title: 340721_14 Eastoke Avenue, Hayl	Date: 11/06/2019	Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530.		

473978

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
5301X	3.48	1.44	225	VC	CIRC																		
5302X	3.1		225	VC	CIRC																		
5350X	3.41	2.73	225	VC	CIRC																		
5351X	3.64	2.56	225	VC	CIRC																		
5402X	3.83	2.2	150	VC	CIRC																		
5403X	3.9	2.24	150	VC	CIRC																		
5404X	3.57		150	VC	CIRC																		
6301X	3.41	1.47	225	VC	CIRC																		
6350X	3.75	2.97	225	VC	CIRC																		
6401X	3.79	1.84	225	VC	CIRC																		
6402X	3.66	1.91	225	VC	CIRC																		
6403X			UNK	UNK	CIRC																		
641DX			225	VC	CIRC																		
642DX			UNK	UNK	CIRC																		
6450X	3.95	2.69	150	VC	CIRC																		
6451X	3.63	2.42	225	VC	CIRC																		
7401X	3.69	2.14	225	VC	CIRC																		
7402X	3.35	2.07	225	VC	CIRC																		
7403X	3.59	2.19	225	VC	CIRC	*																	
7403Y	3.59	2.21	225	VC	CIRC	*																	
7450X	3.49	2.28	225	VC	CIRC																		
7451X	3.54	2.76	225	CP	CIRC																		
7452X	3.74	2.58	225	VC	CIRC																		
7453X	3.69	2.59	150	VC	CIRC																		
7454X	3.89	2.83	150	VC	CIRC																		
8301Y	3.92	2.43	225	VC	CIRC	*																	
8301X	3.92	2.42	225	VC	CIRC	*																	
8302X	3.88	2.25	225	VC	CIRC																		
8350X	3.87	2.94	150	VC	CIRC																		
8351X	3.95	3.1	150	VC	CIRC																		
8401X	3.94	2.81	150	VC	CIRC																		
8501X	3.63	1.78	225	CI	CIRC																		
8502X	3.83	2.41	150	PF	CIRC																		
8503Y			225	VC	CIRC																		
8550X	3.63	2.53	225	CP	CIRC																		
8551X	3.58	2.27	225	CP	CIRC																		
9301X	3.65		225	VC	CIRC																		
9302X	3.71		225	VC	CIRC																		
9303X	3.56	2.06	150	VC	CIRC																		
9350Y	3.69	2.68	225	CP	CIRC	*																	
9350X	3.69	2.66	225	CP	CIRC	*																	
9351X	3.71	1.91	300	CP	CIRC																		
9401X	3.71	0.61	225	VC	CIRC																		
9402X	3.85	1.32	150	VC	CIRC																		
9403X	3.61		225	VC	CIRC																		
9404X	3.75	2.45	150	VC	CIRC																		
9450X	3.68	2.41	300	CP	CIRC																		
9451X	3.6	1.68	975	CP	CIRC																		
9501X	3.64	1.92	150	VC	CIRC																		
9502X	3.62	0.81	225	CI	CIRC																		
9550X	3.61	2.1	300	CP	CIRC																		

LINE STYLES / COLOURS

Brown	---	FoH
	---	FoH Syphon Sewer
	---	FoH Vacuum Main
	---	FoH Rising Main
Red	---	Combined
	---	Combined Syphon Sewer
	---	Combined Rising Main
Orange	---	Lateral Drain
Dark Blue	---	Building Over Agreement Area
Purple	---	Treated Effluent
	---	Sludge
	---	Sewer Catchment
	---	Section 104 Area
Light Blue	---	Surface Water
	---	Surface Water Rising Main
Yellow	---	Private
Green	---	Access Shaft
	---	Decommissioned

MATERIALS

AK	Alkalathene
BAC	Bonded Asbestos Cement
BRC	Briks (Common)
BRE	Briks (Engineering)
CC	Concrete Box Culvert
CI	Cast Iron
CO	Concrete (In-Situ)
CP	Concrete (Pre-Cast)
CSB	Concrete Segments (bolted)
CSU	Concrete Segments (unbolted)
DJ	Ductile Iron
GRG	Glass Reinforced Concrete
GRP	Glass Reinforced Plastic
MAC	Masonry In regular Courses
MAR	Masonry In random Courses
PE	Polyethylene
PF	Pitch Fibre
PP	Polypropylene
PVC	Polyvinyl Chloride
RPM	Reinforced Plastic Manhole
SI	Spun Iron
ST	Steel
VC	Vitrified Clay
XXX	Other
ZZZ	Unknown

Manhole (SW)	
Manhole (F&C)	
Lamp hole (SW)	
Lamp hole (F&C)	
Pumping Station (SW)	
Pumping Station (F&C)	
Slide entry manhole (SW)	
Slide entry manhole (F&C)	
Blind shaft (SW)	
Blind shaft (F&C)	
Ejector station (SW)	
Ejector station (F&C)	
Watertight door (SW)	
Watertight door (F&C)	
Flushing ch. Min (SW)	
Flushing ch. Min (F&C)	
Flushing ch. Nose (SW)	
Flushing ch. Nose (F&C)	
Demarcation Chamber	

LEGEND - SEWERS

Washout (SW)	
Washout (F&C)	
Rodding Eye (SW)	
Rodding Eye (F&C)	
Gauging point (SW)	
Gauging point (F&C)	
Intercept chamber (SW)	
Intercept chamber (F&C)	
Storm Tank (SW)	
Storm Tank (F&C)	
Vortex chamber (SW)	
Vortex chamber (F&C)	
Label offset	
Dummy/S24 manhole	
Outfall	
Penstock chamber	
Damboards	
Storm Overflow	
Backdrop manhole	

Other (s)	
Other	
Change In sewer (s)	
Change In sewer	
Reflex valve	
Flap valve	
Cascade	
Anode	
Valve	
Closed Valve	
Air Valve	
Hatch box (SW)	
Hatch box (F&C)	
Direction arrow	
Emptying valve	
Catchpit	
Soakaway	
Islet	
Balancing Pond	

Wastewater treatment works	
Marine treatment works	
Outfall headworks	
Vent	
Vent column	
Tidal storage tank	
Blank end	
Head of Public Sewer	
Micro Pumping Station	

SHAPES (S)

A	Arched	R	Rectangular
B	Bored	S	Square
C	Circular	T	Trapezoidal
E	Egg	U	U Shape
H	Homeshoe	X	Other

NODE REFERENCING SYSTEM

1st digit	hundred metre easting	10m	10m
2nd digit	hundred metre northing	10m	10m
3rd digit	sewer type	10m	10m
4th digit	next sequential node	10m	10m

Drawn by: kumaria

Title: 340721_14 Eastoke Avenue, Hayl

Date: 11/06/2019

