

# Helios, St.Thomas Waterfront long life, low energy village

Draft Visioning Document – March 2014



Presented to City & County of Swansea by:  
Community Development Partnerships Ltd – a Joint Venture Community Interest  
Company, comprising:

Warm Wales~Cymru Gynnes CBC, as Development Planners, in association with  
The Building Research Establishment Energy Division and  
Context Housing Finance.

Concept Designs by:  
Design Research Unit, Welsh School of Architecture and  
Scott Brownrigg, Architects



# St Thomas

Creative

Contents	
The initial brief	2
The Site in context	3
The Site - Character Zones	9
St Thomas - Site Strategy	10
Massing	11
Creating local distinctiveness	13
Initial character studies	14
Sustainability	15
Place	17
Layout and indicative dwelling types	20

Introduction.

This visioning document has been prepared to illustrate the potential for the development of the site known as Tawe East.

In it ideas related to the form, character and capacity of the site are explored. As such these are presented for discussion and wider analysis and emphatically should not be seen as a final solution but more of a starting point.

These original briefing notes prepared by Craig Anderson of Warm Wales form the basis of this initial 'visioning' study. A subsequent briefing was held with Huw Mowbray and Steve Smith from Swansea CC in November followed by a consultation in January and the outcomes of these initial discussions have been factored into this stage of design development.

The intention is to provide a conceptual framework, ideas and characteristics of place for the 6 acre site based on these consultations during which 3 principal aims emerged -:

- **Sustainable community with a palpable relationship to St Thomas**
- **Distinctive Place**
- **Green Healthy Neighbourhood**

Reference has been made to Local Authority planning policy and Supplementary Planning Guidance.

LA Housing Strategy initial thoughts are flats/higher density near road/South side, then Key river frontage – up to say 3/4 storeys which may be a mixture of apartments and town houses for sale

Social housing mix to predominantly 2/3 bed houses

Creation of 'intimate quiet internal landscaped courtyards, with Woonerf treatment , like South side marina

East side has high traffic volumes, so if space allows create verge tree belt, then public foot-path, then further tree belt/bushes, then site/building boundary

Code 5/6 overall desire, using solar integrated roofs,

Sustrans route currently divides the site but will be rerouted slightly to track along riverfront approx 3m wide and c 1.5 m below mean level of remaining site which is relatively flat

Single road access on East of site approx 2/3 up site

Site lends itself to possible phasing of development -

Phase 1 South 3-6 st ( incl some flats) . Possible live work / live frontage

Phase 2 Middle Courtyard

Phase 3 Northern ( narrower ) part with blending into treebelt

Site will likely need traffic light control as very busy road

Main road climbs upward, therefore NE corner design/overlooking from road will require holding back or 1/2 storey underbuild. Former railway sidings, with made up ground 1-3m of alternating fill, some contaminated slag – a significant financial allowance for sealing /capping will therefore need to be apportioned.

# THE SITE

## In context

Reference is made here to the Supplementary Planning Guidance originally prepared by the City for this site. It is felt that substantive parts of the guidance remain relevant.

1.1 This Supplementary Planning Guidance (SPG) relates to the site adjoining the east bank of the River Tawe immediately to the north of the new Road Bridge. The eastern boundary is formed by Pentreguinea Road (A4217). To the north of the site, the belt of land between the A4217 and the river narrows. This area forms part of the Tawe Riverside Park and the old railway line has recently been transformed into an attractive joint use path for pedestrians and cyclists. The river forms the western boundary.

1.2 The site represents one of the key development locations which have benefited from the construction of the River Tawe barrage. The impounded water area forms an attractive context and any development proposal should maximise the advantages of a waterfront location.

1.3 This SPG complements the separate SPG for Port Tawe and Swansea Docks. Together they provide a comprehensive package for directing the development of the eastbank waterfront. It is envisaged that the development of the site will contribute to establishment of Swansea's identity as a "major Waterfront City".





# THE SITE

The site forms the East Bank of the Tawe as it leaves the Dock and threads north. It is approximately 420m long and has an average width of about 70m.

To the west the Victorian neighbourhood of St Thomas rises on the lower slopes of the hill.

Prospects down-river are toward the Marina Area and West across to the City Centre and the Railway Station.





## THE SITE 1 (History)

The site has always been a 'terminus' for either river traffic and through the 19th and 20th centuries the Railway. See images below



Engraving (19thc) aerial view of city and docks from South West



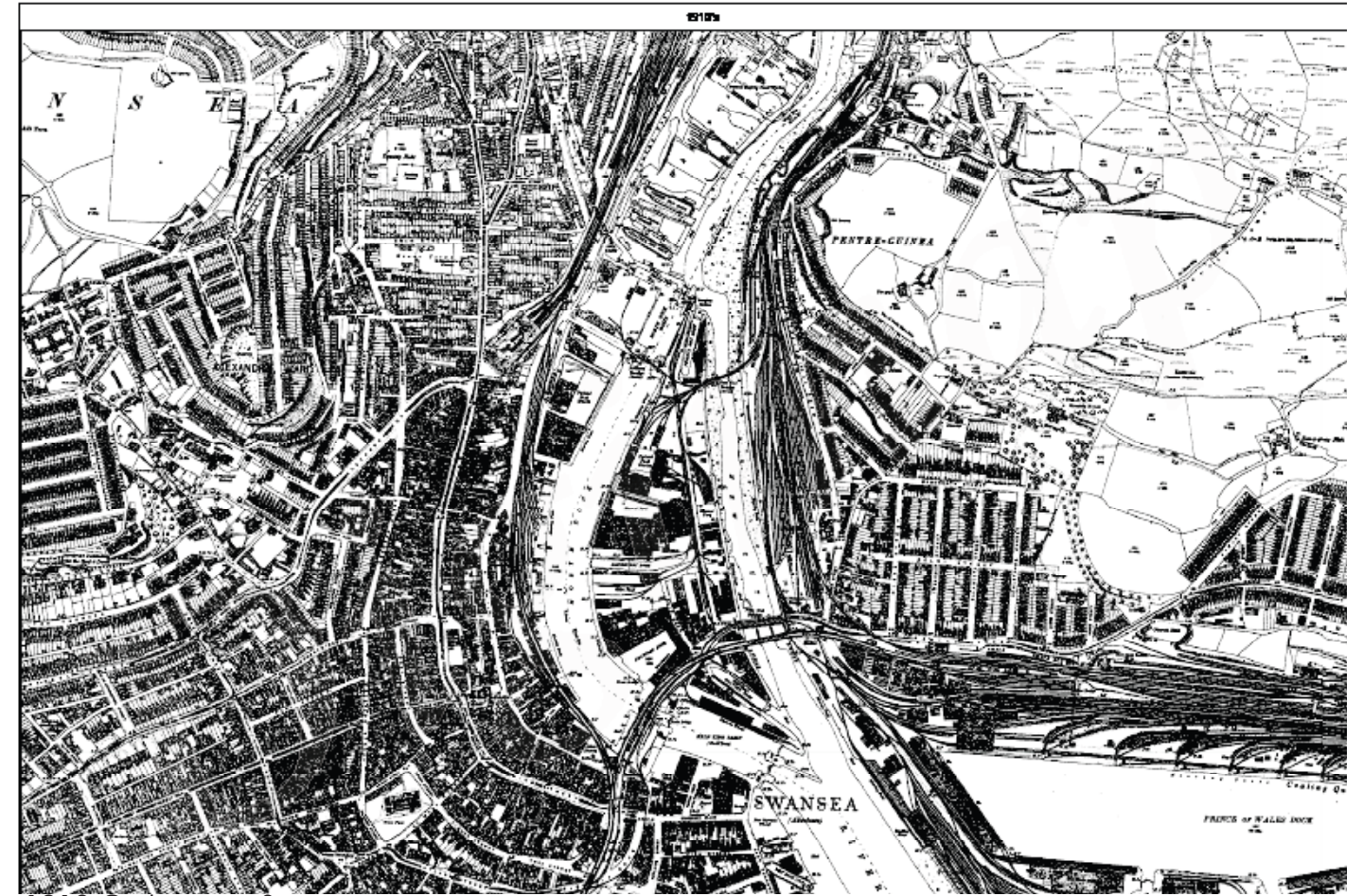
Aerial photographs around 1945



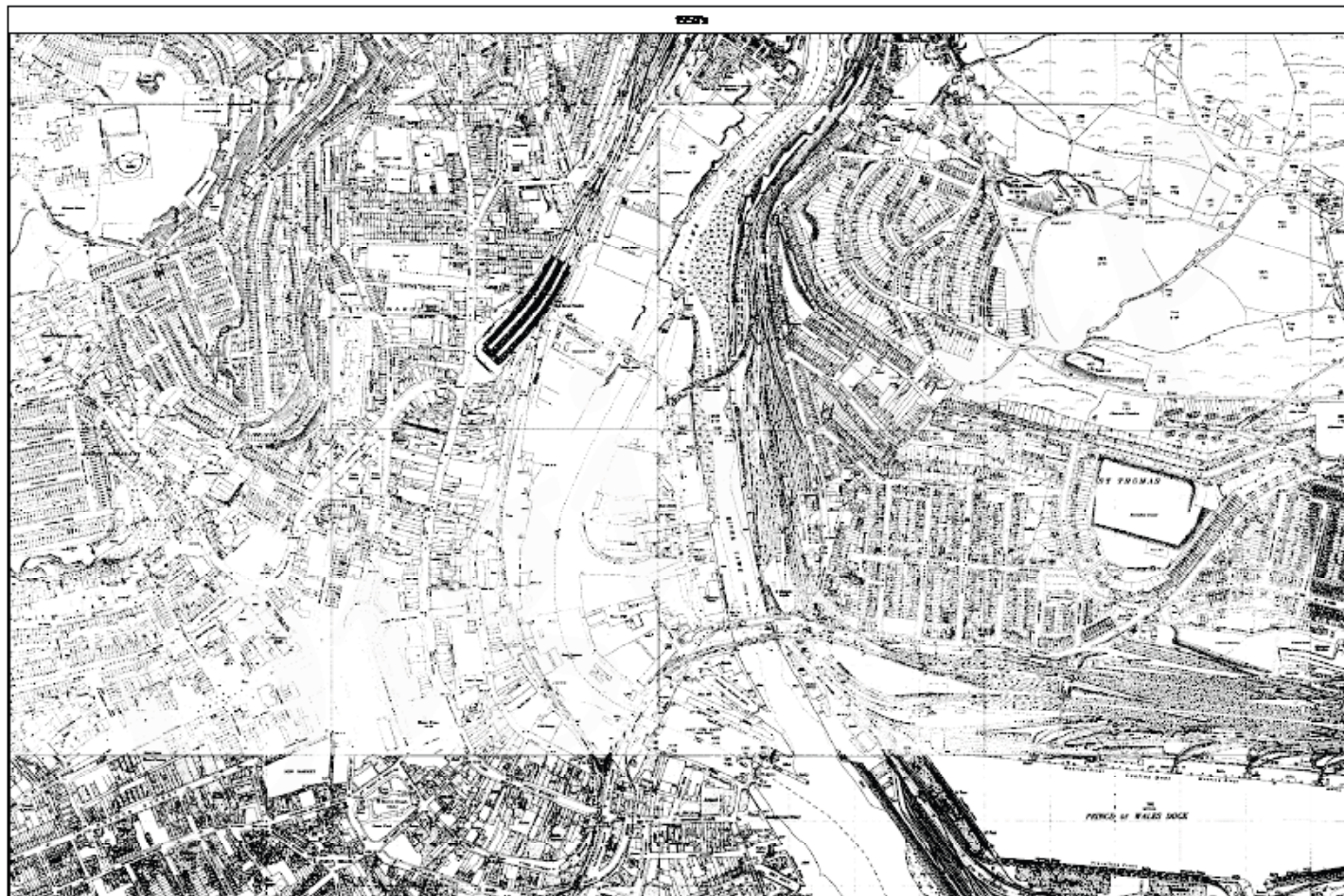




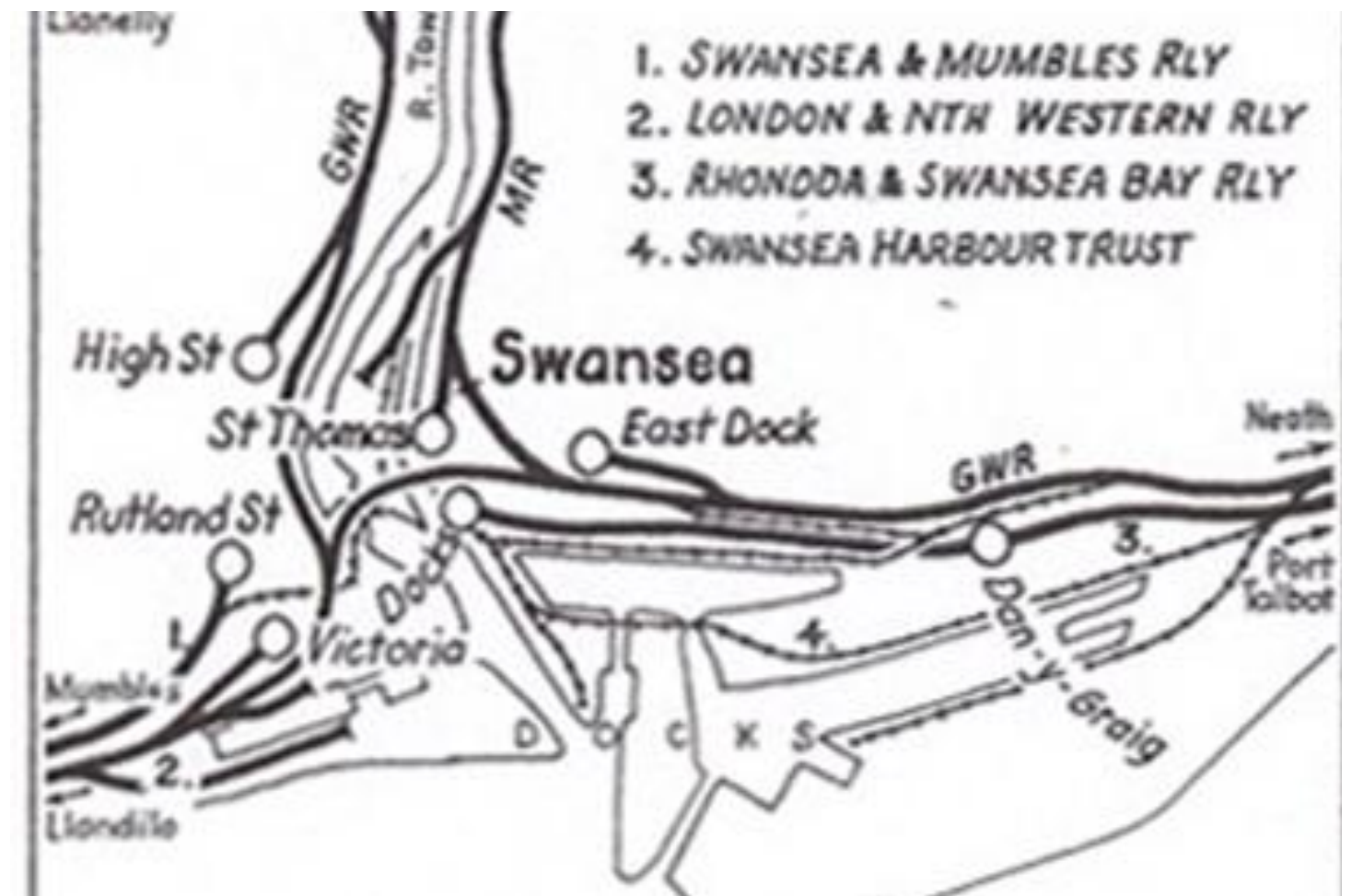
1870 Ordnance Survey



1910 Ordnance Survey



1950 Ordnance Survey

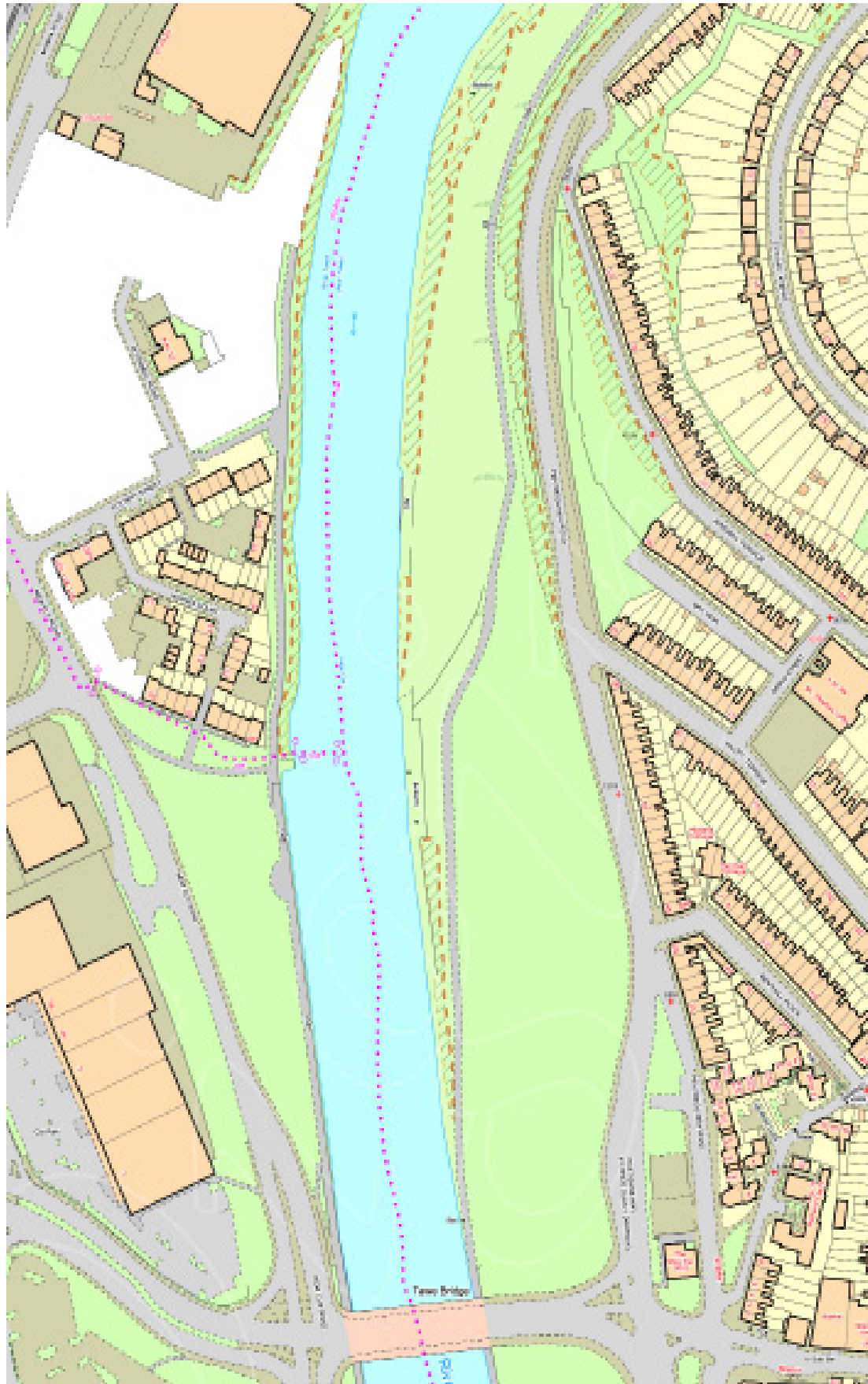


The analysis of historical maps and views reveals the site to have been at the triangular centre of a network of railways - with the St Thomas Station just off the site



# THE SITE

Plan showing the 'grain of the terraced housing of St Thomas to the East and the larger footprints of the commercial buildings of the City to the West



Aerial view from North-East showing relationships with St Thomas, the River and City



Aerial view from South -West. The site has the potential to bind various parts of the city.



## THE SITE (Planning policy)

Based on initial briefings with the City and reference to the original SPG it is considered that an appropriate development scheme will :-

- Contribute to the development of Swansea's image as a waterfront City.
- Continue the approach set out in the Port Tawe Supplementary Planning Guidance to the development of the Tawe river corridor.
- Provide positive benefits for St Thomas .
- Contribute to a modern, innovative high quality Image of the city
- Achieve a high standard of design with an Integrated identity and a sense of place, which takes maximum advantage of the riverside setting.
- Secure a comprehensive development which treats the site as a whole. ( A phased implementation programme leading to the completion of a comprehensive scheme will be acceptable).
- Complement and not compete with the city centre.

Vehicular access to the site will be from one point off Pentreguinea Road, to the north of Bethnal Place as indicated diagrammatically on Plan 2. Prospective developers will need to satisfy the requirements of the Director of Technical Services on the details of an all directional junction and the associated land take. There is the potential for this access route into the site to accommodate the line of a pedestrian /cycle route across the site, linking St Thomas to the riverside path . A safe and attractive pedestrian/cycle connection to serve the St. Thomas community is an essential requirement and must be seen as an integral part of the comprehensive scheme. A riverside path must also be provided so as to provide a direct and attractive link for pedestrians and cyclists between the existing sections of the path to the north and south of the development area.

The developer will be required to undertake any necessary works along the river's frontage to provide the Riverside Park link and quayside features. ( See Appendix 1 of the original SPG for further information). The material and treatment details for the works on both these and other public areas within the site shall be included In any submission or planning application. Public realm areas should be attractive and imaginative and should have regard to the Port Tawe initiative further down river.

The design of the landscape area should provide for the introduction of indigenous species and enhance the biodiversity of the area. The scheme should be of a standard suitable for Council adoption on completion. Any landscaping in the vicinity of the riverside path should be kept fairly low so as to enable users to retain good surveillance of the area. It should be noted that the written consent of the Environment Agency is required for any proposed works or structures within 7 meters of the top of the river bank.

An informal landscape scheme will be required along the northern Boundary in order to ensure an attractive transition with the land to the north which forms part of the Riverside Park. The scheme should be of a standard suitable for Council adoption on completion.

Where areas of public realm (both hard and soft ) are to be adopted by the council, commuted sums for their ongoing maintenance will be required . These will be agreed with the Culture and Recreation Department as schemes are progressed . If such areas are not to be adopted then suitable measures for their ongoing satisfactory maintenance will need to be agreed.

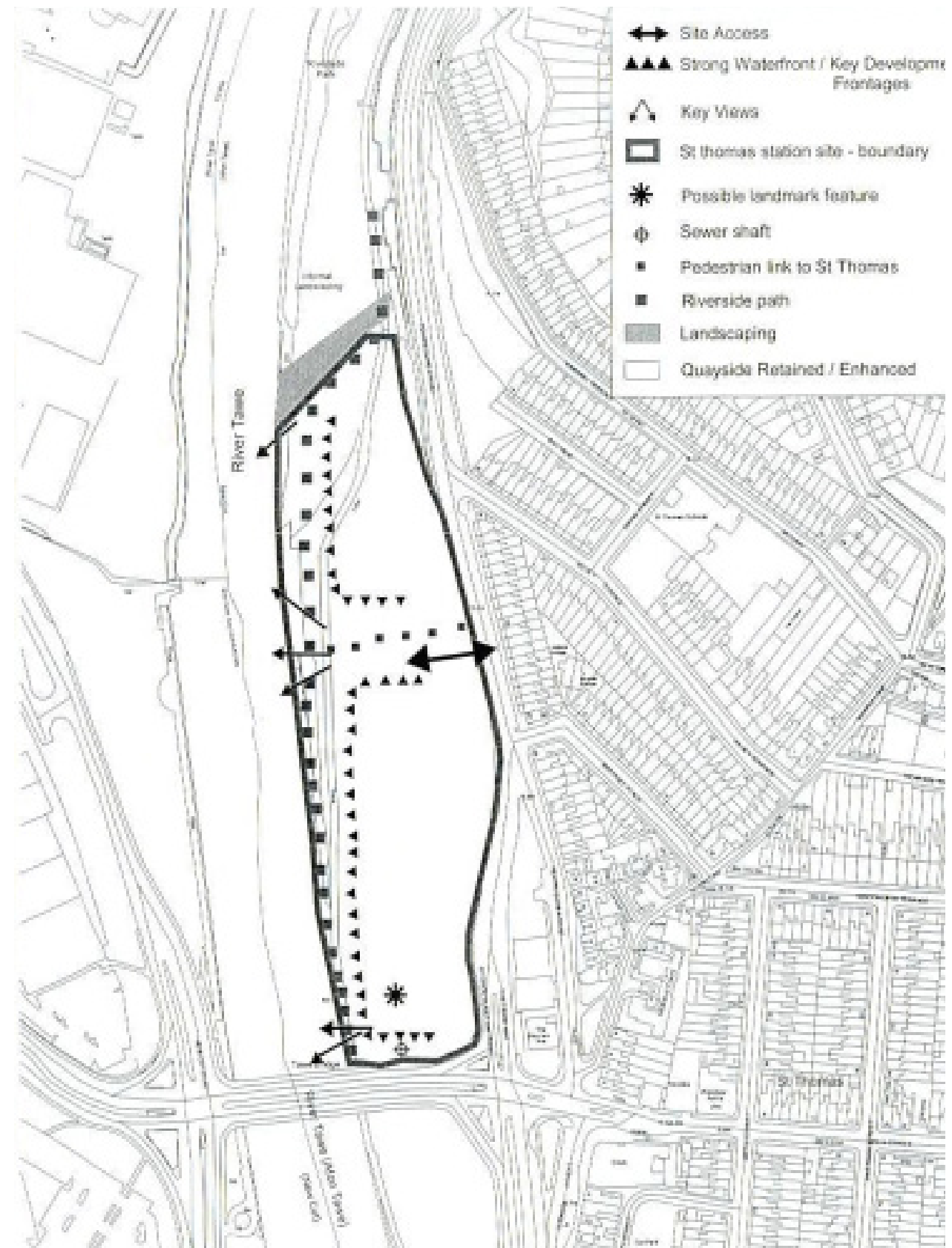
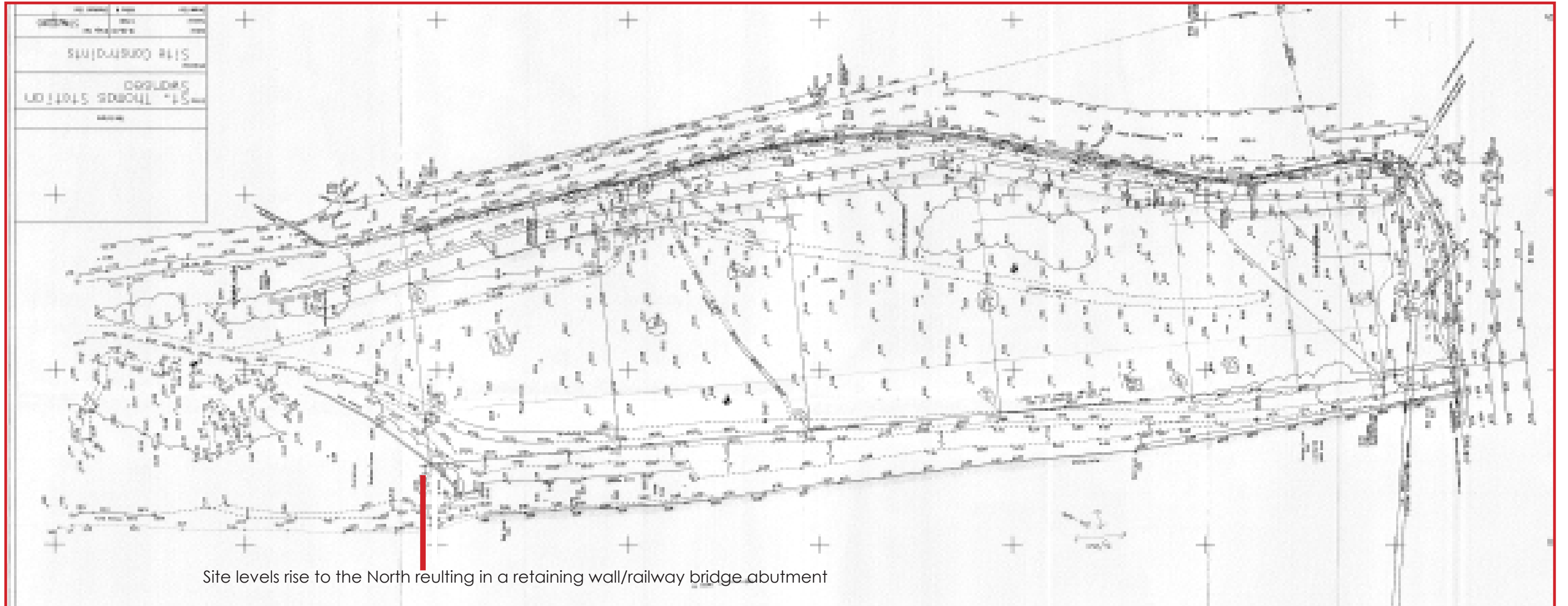


Diagram prepared by Swansea CC as part of the original SPG for the site

# ST THOMAS - Topographical survey



Panorama of the site (with St Thomas above in the mist) looking from the opposite bank of the River showing the mainly original river wall at which ships moored - note piled repairs to South



Looking North along existing cycle path



View from West Bank



From West Bank with retaining wall /bridge abutment in foreground



South East corner of the site where the pedestrian is subjugated by highway engineering





View from West Bank looking South



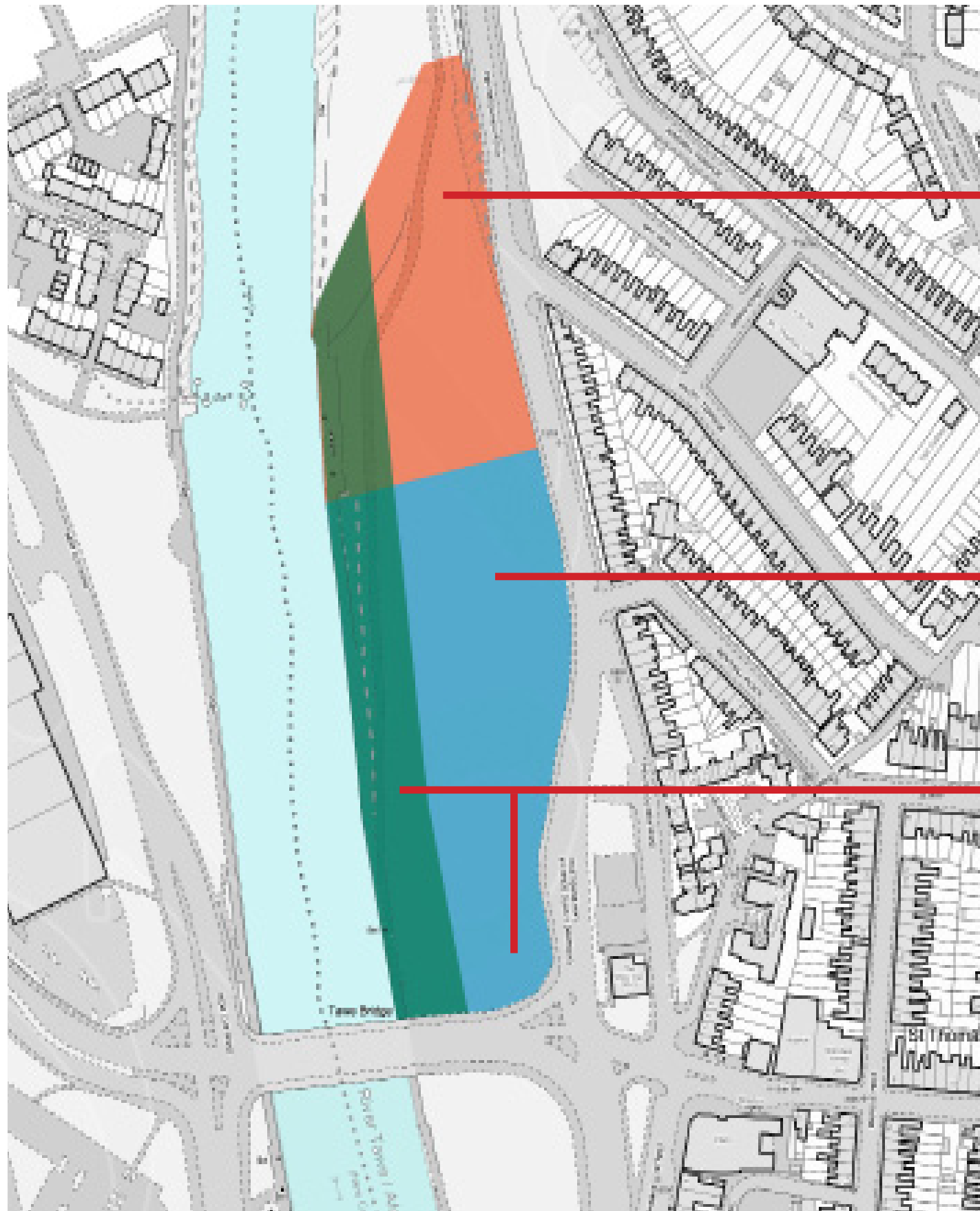
View from West Bank looking North



Anonymous new housing on the West Bank turns away and negates the presence of the River

# ST THOMAS - Character Zones

As the site runs lineally to the North along the River but also bounds St Thomas there is an opportunity to create distinctive development characteristics in response to the condition

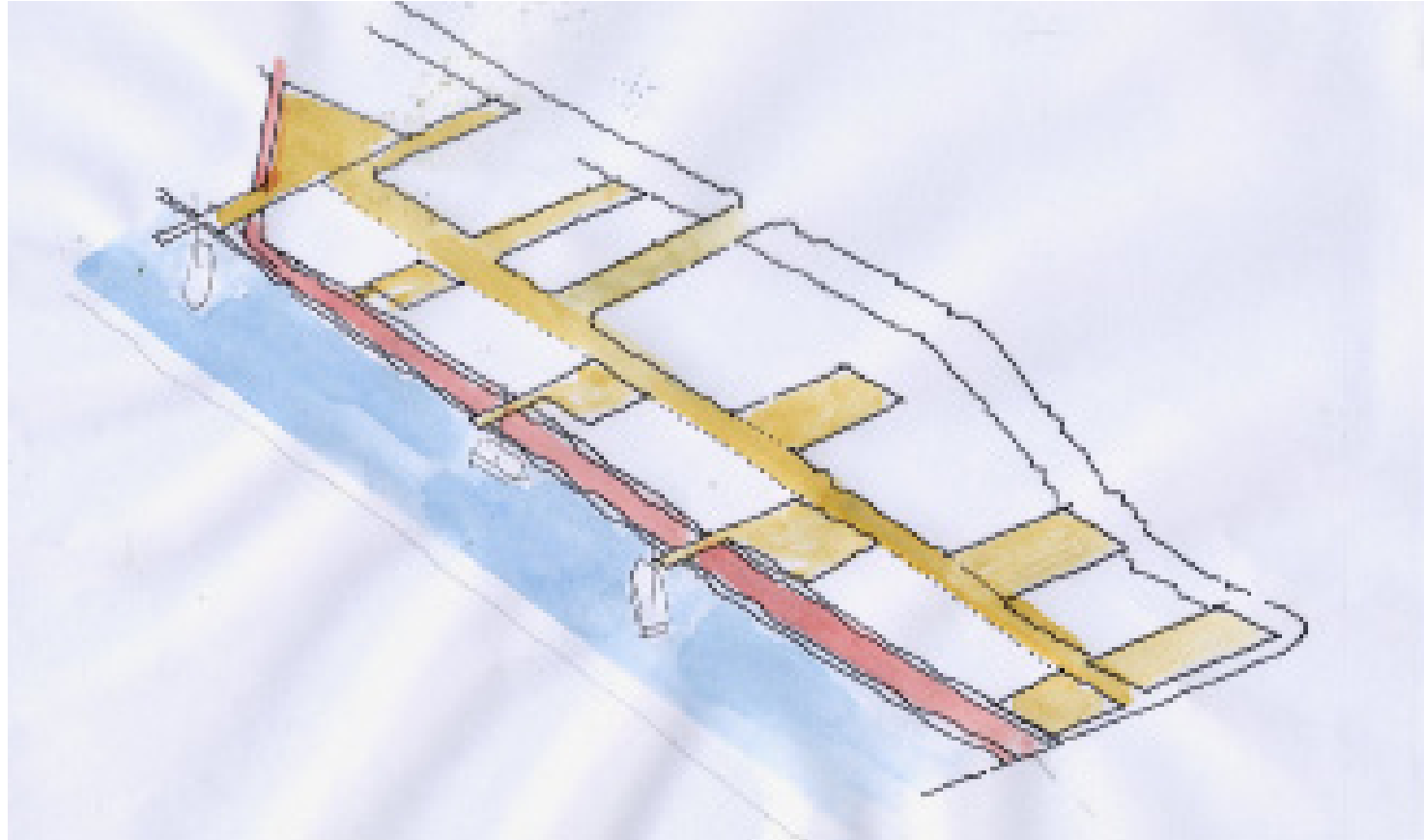


Site Terminus - continuation of Sustrans. At the extreme North the site narrows and is adjacent to the main road as it rises out of the city. Here the Sustrans is threaded through a shared triangular court (Triangle - Swindon) and which gives this part of the site a particular character

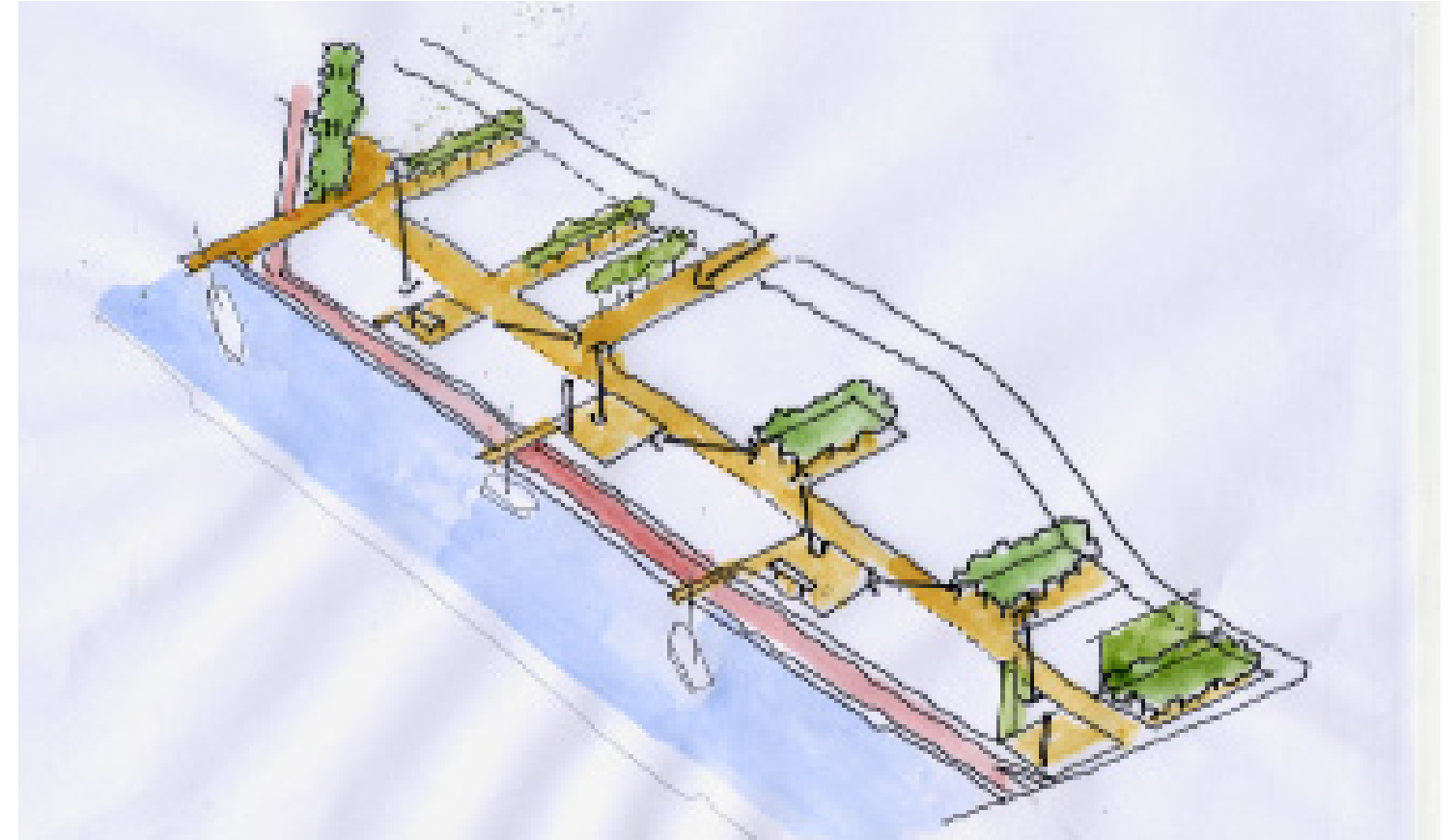
Site hinterland - here the scale and grain of the scheme is more akin to St Thomas but the emphasis is on green private and public spaces. Affordability and well-being. The precedent here is the Clarke's development in Street in Somerset where a combination of 2 and 3 bed Mews houses are carefully integrated with blue/green space.

River Edge and Southern (Marina) boundary. Here the emphasis is on a scale related to the feel of a vibrant River Edge and a formal connection with the earlier development to the South. Public realm contains the Sustrans route along the River Edge studded with pocket squares with some mixed use.

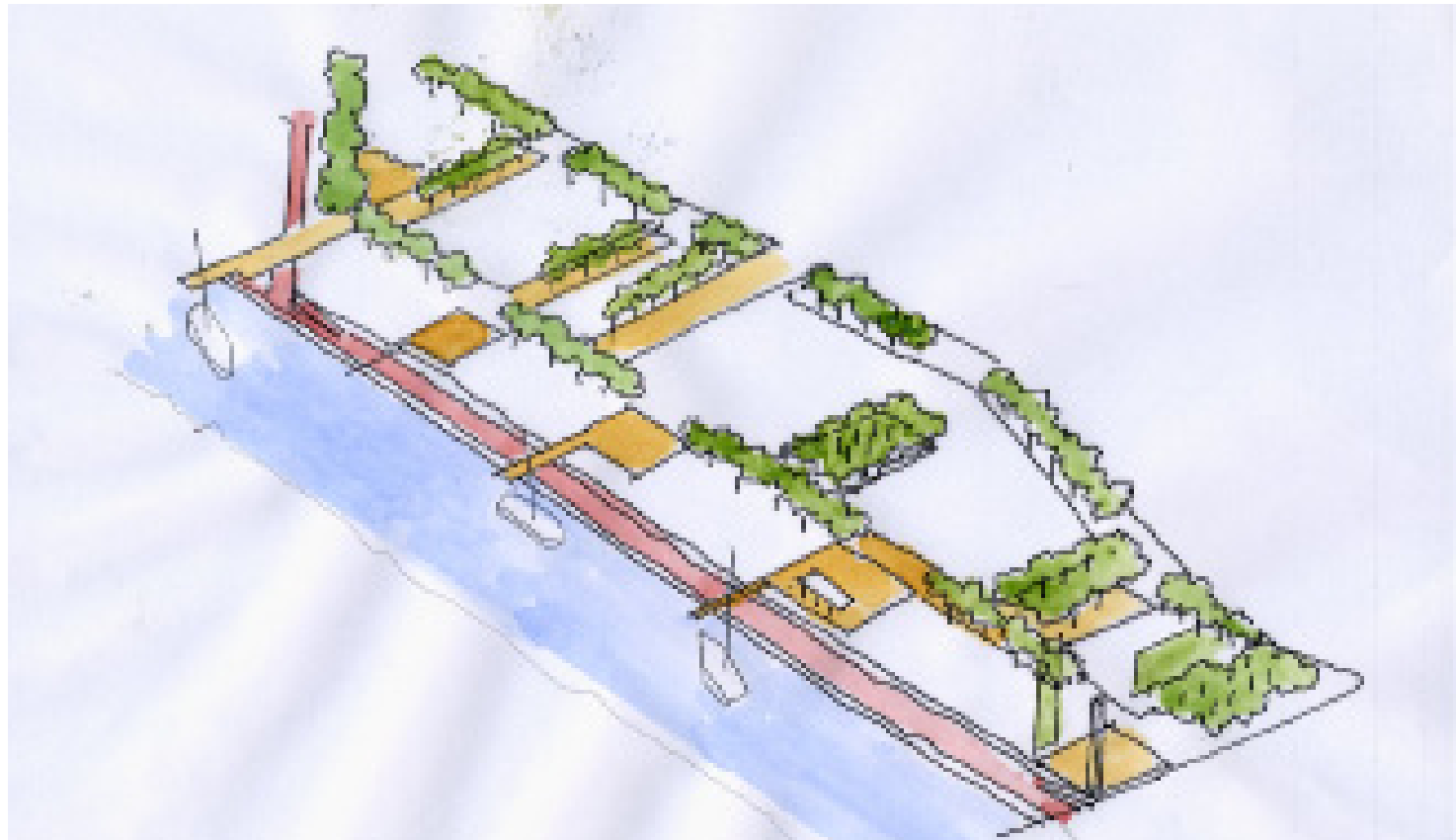
# ST THOMAS – Site spatial strategy



1. A series of linked public spaces are located to run from the South (City end) of the site to the North



2. Inner-courtyards are planted with trees and these 'green' courts are linked visually to the riverside Piazzas. These are sites for views to the river and contain public art.



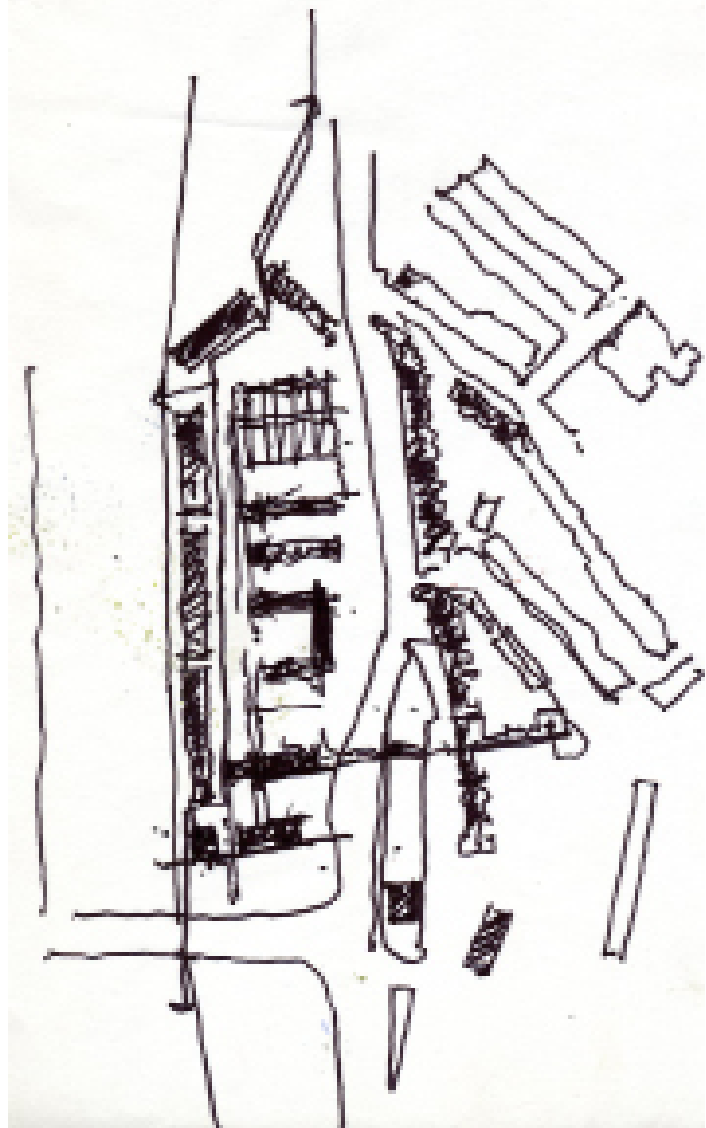
3. The River is then linked by these public spaces to the blue/green corridor running North - South on the Eastern boundary of the site.



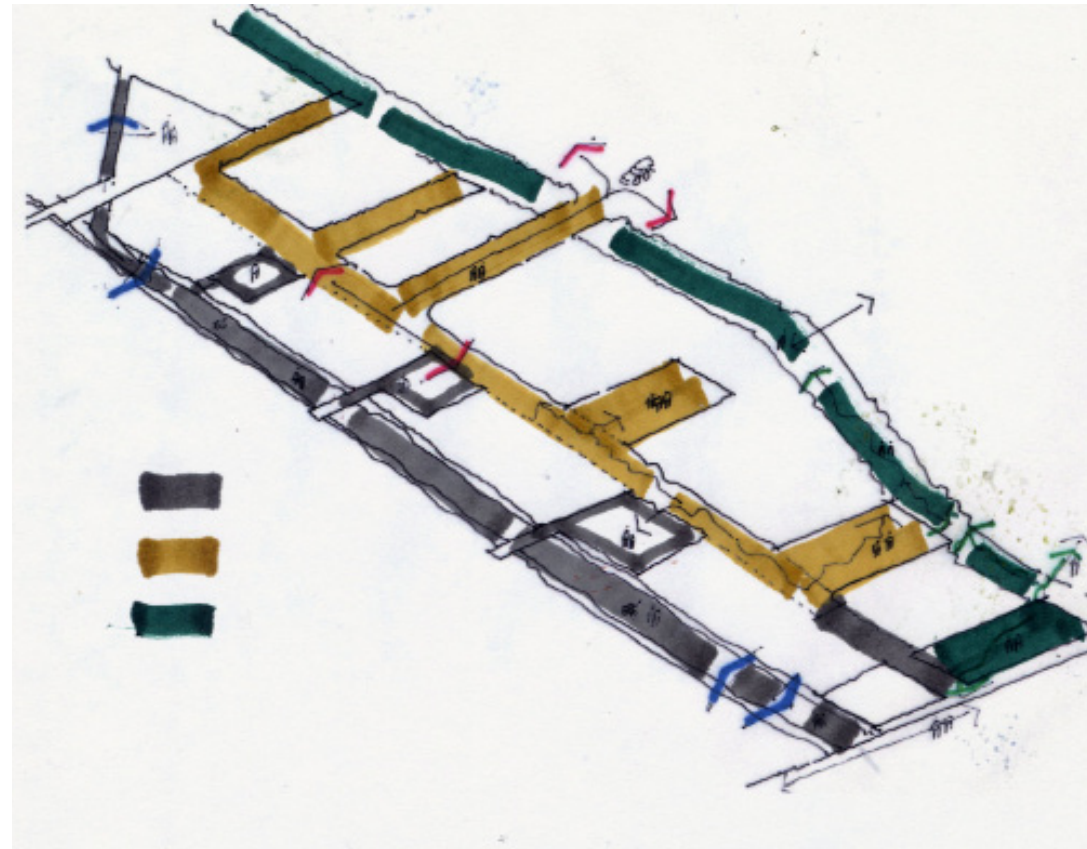
4. Dwellings are distributed within this framework with higher buildings fronting the River and the Marina and lower town houses and mews houses 'inside' the site



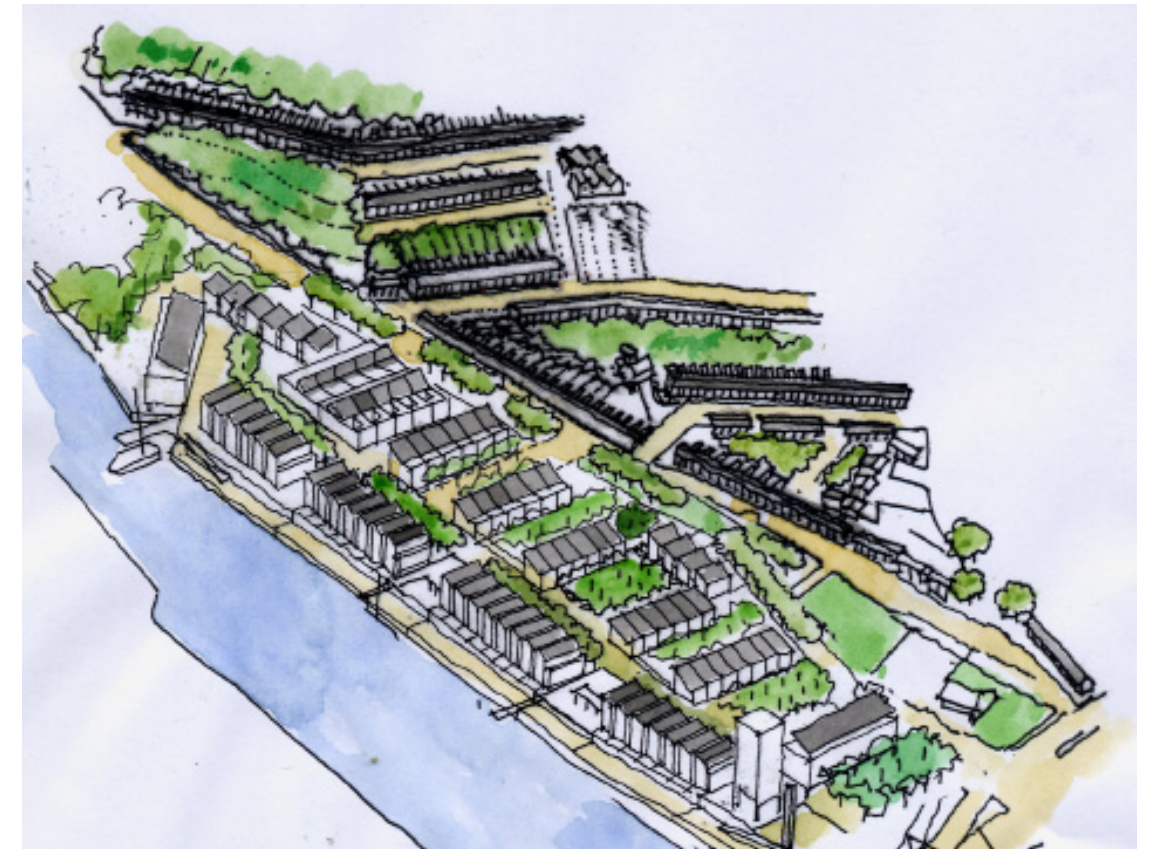
# ST THOMAS – relating to St Thomas



Nolli studies undertaken to test response to grain and scale of St Thomas



Movement studies  
Pedestrian and cycle  
Car and pedestrian in Woonert streets  
Pedestrian only through green square and promenade



Drawn studies testing grain and massing with St Thomas



# ST THOMAS – creating local distinctiveness



Linking the Marina and St Thomas - potential to 'learn' form formal ideas of punctuation, scale, facade layering and colour - the character of Swansea and its relationship with water



This is in the tradition of other Northern Cities with particular qualities of light and water and sustainability - Copenhagen and Malmo

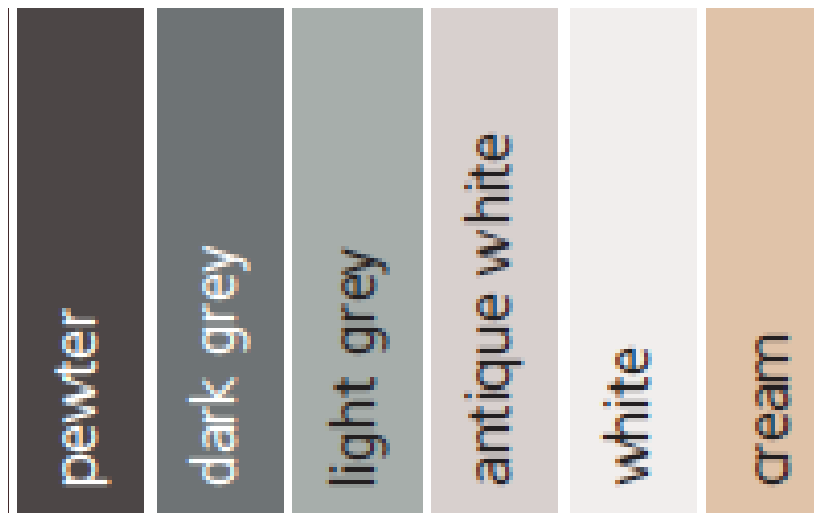
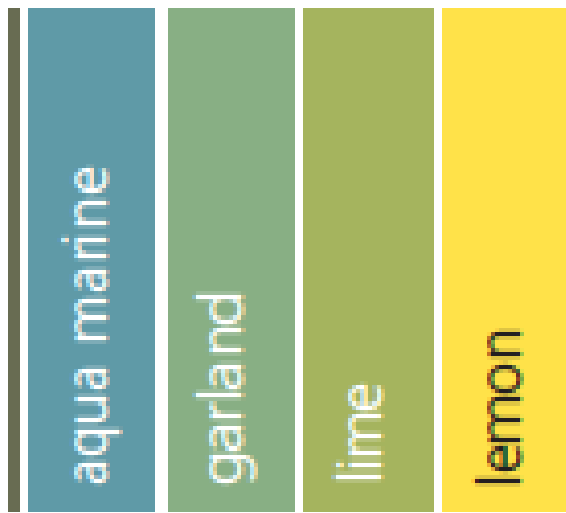


ST THOMAS – precedent - Feilden Clegg at Bristol Waterside





# ST THOMAS – registering specifics of light and colour in Swansea Bay



# ST THOMAS – Initial character studies based on mapping and registration



1. View looking North from the 'entrance piazza' with landmark tower and mixed use block in foreground



2. View East over the River Tawe showing massing and character of riverside dwellings. The Sustrans route is established along the River Edge.



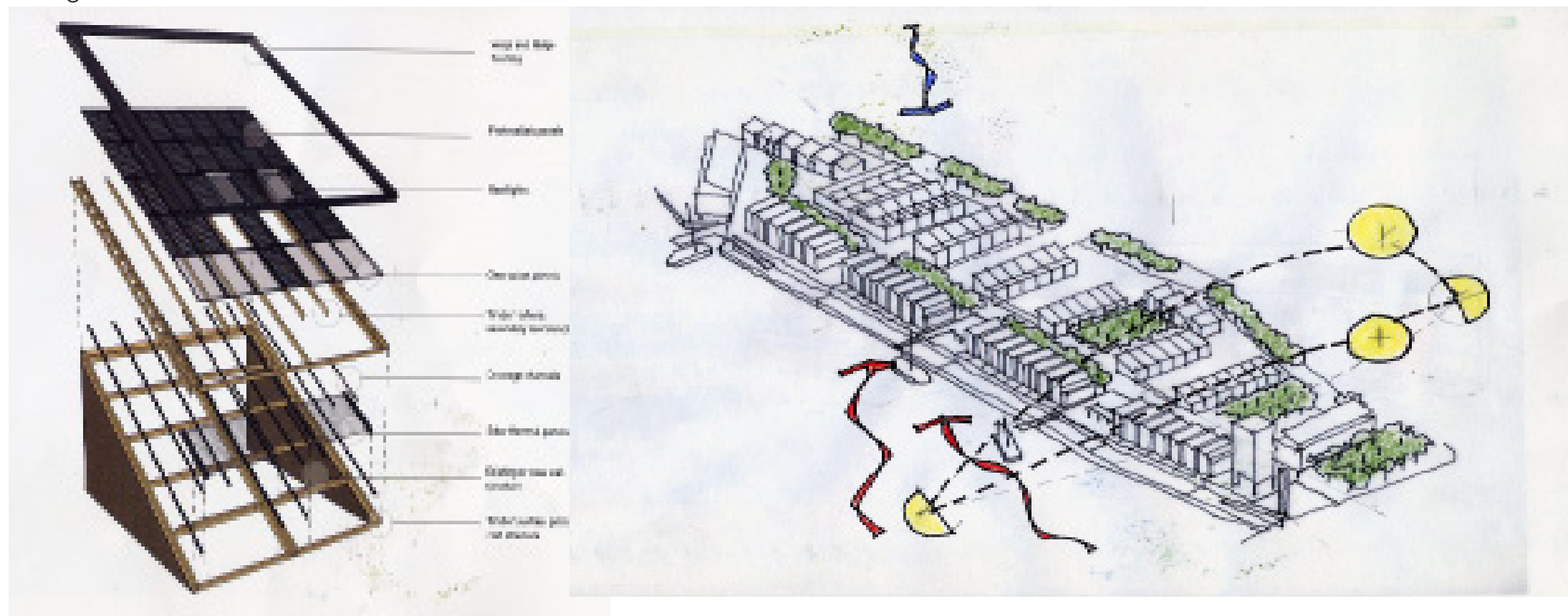
3. View looking South to road bridge and Marina beyond showing vitality at River Edge



4. View from North 'Triangle' indicating the transition in scale from Riverside to St Thomas.

# ST THOMAS – Sustainability - Community and buildings

The project is founded on the use of renewable energy generation - particularly the use of photovoltaic panels at roof level. This provides the opportunity for the development of a new and unique urban/suburban housing solution in which the roof and associated amenity space is a form generator and contributes to the ambition for the scheme to be a first of its kind in Wales.

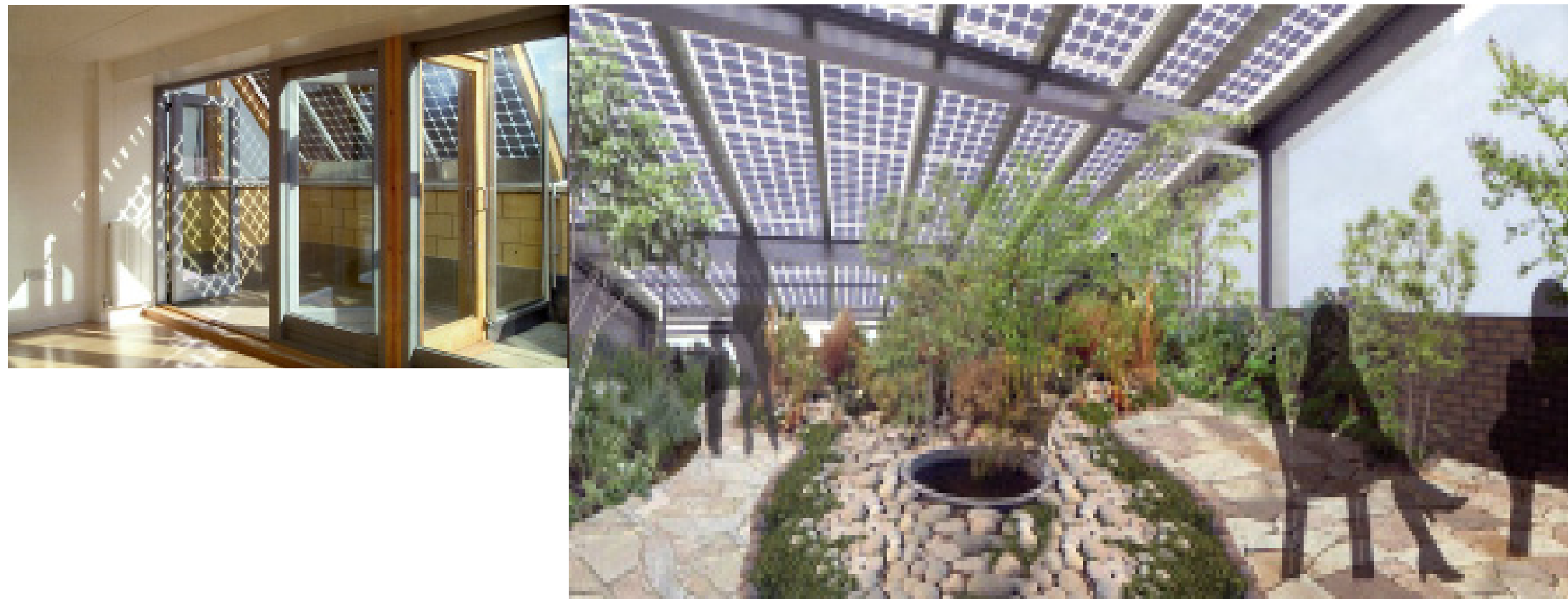


## Achieving code 5

The energy concept is supplemented by the creative use of photovoltaic panels on all south facing roof slopes designed to maximise solar access (see over). The panels provide an integrated roof solution produced by ZEDroof and are not 'applied' to an orthodox roof material. These panels will be integrated within a community electrical generation strategy, run from a central energy centre. In excess of 2000m<sup>2</sup> photovoltaic panels offset carbon associated with gas supply and contributes to electricity demand for lighting, fans and pumps.

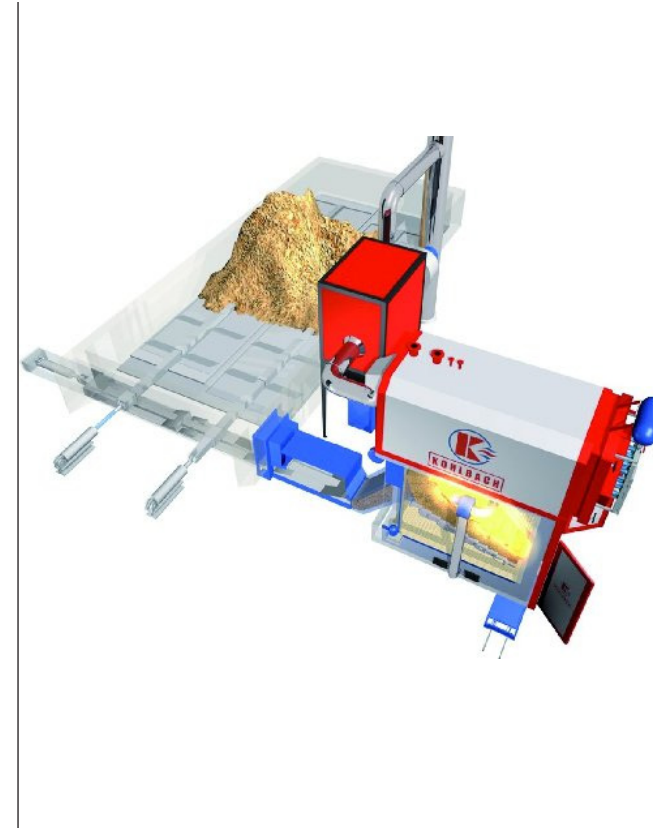
Heating load to the development is supplied by different systems depending on season. A woodchip biomass boiler is used only during the peak winter heating season to prevent stopping and starting the system. A thermal store captures excess heat, used once the boiler is deactivated. During intermediate periods gas back-up can be activated on demand to provide heating as required. Heat is pumped around the site on a highly insulated hot water loop, with heat exchangers transferring heat to each house or flat. Long term reliability of supply is a significant issue and requires extensive investigation before the final system is agreed. It is estimated that the system requires 23 tonnes of woodchip per year, equating to four deliveries per annum.

Hot water is provided by a Combined Heat and Power (CHP) system. The CHP runs continuously, providing hot water and generating power. Hot water is pumped around the development in a highly insulated closed loop with heat exchangers to each dwelling.





# ST THOMAS – Sustainability - Code 5 PVs, biofuel and blue/green corridors



Water use is reduced to 80l/person to maximise credits under the Code. This is achieved by using small volume baths, low flow fittings and grey and rainwater recycling. Recycled rainwater is filtered to bathing standards and used in WC's and washing machines.

High levels of airtightness necessitate mechanical ventilation with heat recovery.

Highly insulated building envelopes face south with high glazing ratios. Each has a sun space, designed as an enclosable balcony and/or roof terraces with thermal mass floors to take advantage of solar gains and act as a buffer zone in winter.

Fabric performance	
Wall construction	0.15W/m2K
Floor construction	0.15W/m2K
Airtightness	3 m3/m2/hr@50pa.

The fabric will be designed to meet Energy Saving Trust enhanced construction detail U Values of 0.15 and an airtightness of 3 m3/m2/hr@50pa. The majority of the envelope was designed to be clad in insulated render panels with timber cladding on the light chimneys.

The houses to have triple glazed windows with a U Value of 0.8W/m²K.

The apartments will be designed as the houses using a timber frame system with composite floors. The frame will be faced with 150mm EPS insulation, finished with render to achieve the required U value of 0.15W/m2K.

Windows with a U Value of 1.2 W/m²K were chosen to allow bonding of vapour control layer to the window frame. This was considered essential for achieving the required airtightness.

### Systems

Hot Water: Combined Heat and Power system  
 Heating: Community biomass woodchip boiler, gas top up and inter-seasonal use, radiators fed by heat exchange

Electrical: Community Photovoltaic array, combined Heat and Power

Individual systems: Whole House Mechanical Ventilation and Heat Recovery





# ST THOMAS – Sustainability - Community level

BREEAM Communities is a way to improve, measure and certify the social, environmental and economic sustainability of large-scaled development plans by integrating sustainable design into the masterplanning process.

The scheme is for developers, masterplanning professionals, local authority planners, local politicians, communities and relevant statutory bodies.

When can it be used?

BREEAM Communities is suitable for developments which are likely to have significant impacts on existing communities, infrastructure or the provision of local services. The scheme can be used for new mixed-use communities, or single-use developments of a significant size.

This would be a first for Wales.

## BREEAM rating benchmarks (final certificates only)

The BREEAM rating benchmarks for the BREEAM Communities 2012 scheme are as follows:

Table - 4: BREEAM Communities rating benchmarks

BREEAM Rating	% score
OUTSTANDING	≥ 85
EXCELLENT	≥ 70
VERY GOOD	≥ 55
GOOD	≥ 45
PASS	≥ 30
UNCLASSIFIED	< 30

The BREEAM rating benchmark levels enable a client or other stakeholder to compare an individual developments performance with other BREEAM rated developments.

An unclassified BREEAM rating represents performance that is non-compliant with BREEAM. This may be through a failure to meet either the BREEAM mandatory standards of performance for key sustainability issues or the overall threshold score required for formal BREEAM certification. No certificate will be issued for unclassified assessments and they are not listed on Green Book Live.

Table - 1: BREEAM Communities 2012 steps, categories and assessment issues

Step 1	Step 2	Step 3
<b>Governance</b>		
GO 01 - Consultation plan	GO 02 - Consultation and engagement GO 03 - Design review	GO 04 - Community management of facilities
<b>Social and economic wellbeing</b>		
SE 01 - Economic impact SE 02 - Demographic needs and priorities SE 03 - Flood Risk Assessment SE 04 - Noise pollution	SE 05 - Housing provision SE 06 - Delivery of services, facilities and amenities SE 07 - Public realm SE 08 - Microclimate SE 09 - Utilities SE 10 - Adapting to climate change SE 11 - Green infrastructure SE 12 - Local parking SE 13 - Flood risk management	SE 14 - Local vernacular SE 15 - Inclusive Design SE 16 - Light pollution SE 17 - Training and skills
<b>Resources and energy</b>		
RE 01 - Energy strategy RE 02 - Existing buildings and infrastructure RE 03 - Water strategy		RE 04 - Sustainable buildings RE 05 - Low impact materials RE 06 - Resource efficiency RE 07 - Transport carbon emissions
<b>Land use and ecology</b>		
LE 01 - Ecology strategy LE 02 - Land use	LE 03 - Water pollution LE 04 - Enhancement of ecological value LE 05 - Landscape	LE 06 - Rainwater harvesting

# ST THOMAS – Studies of place



View looking North from Southern Piazza to the scheme



View looking South toward marina



# ST THOMAS

Place



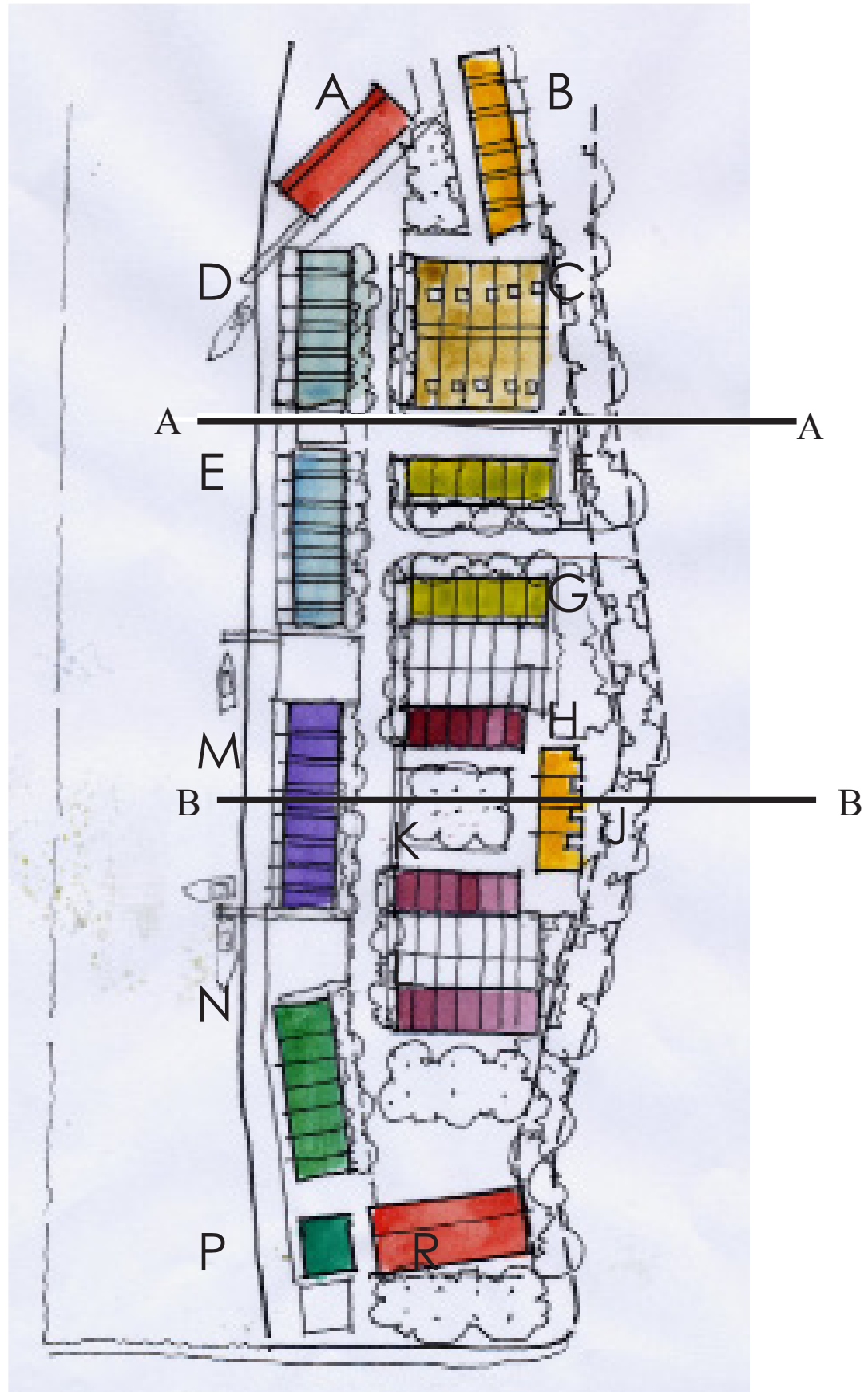
Aerial view from North West



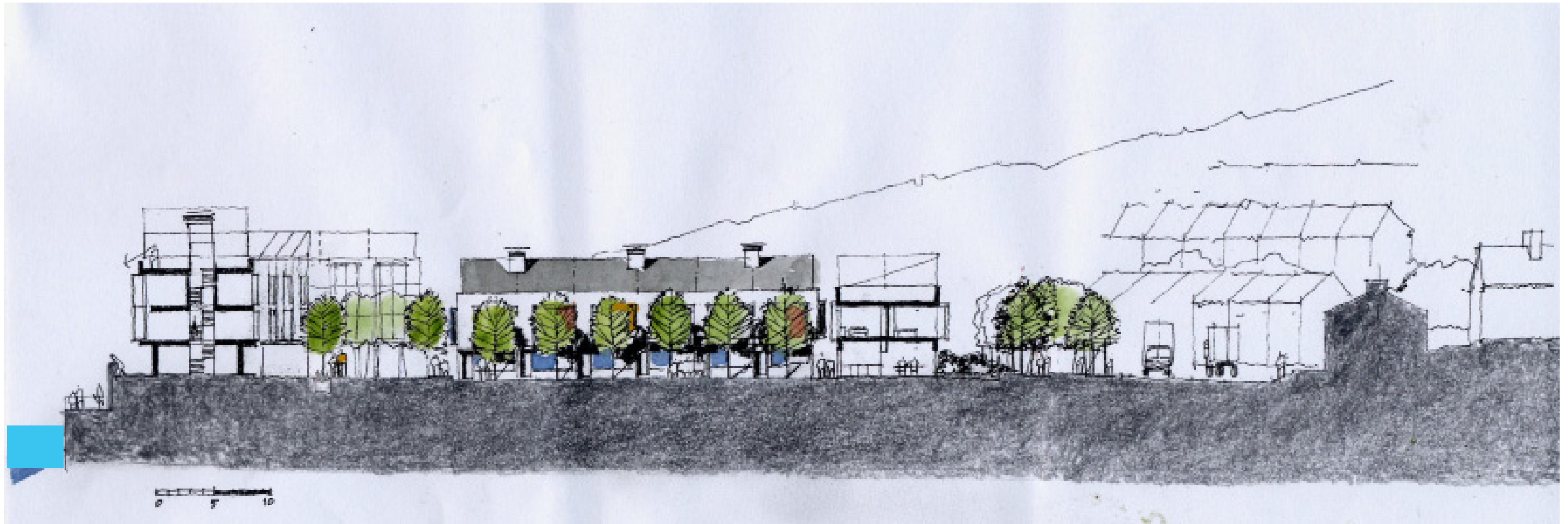
View along river edge and Sustrans route

# ST THOMAS - Layout, drawn and modelled studies

Indicative Dwelling types



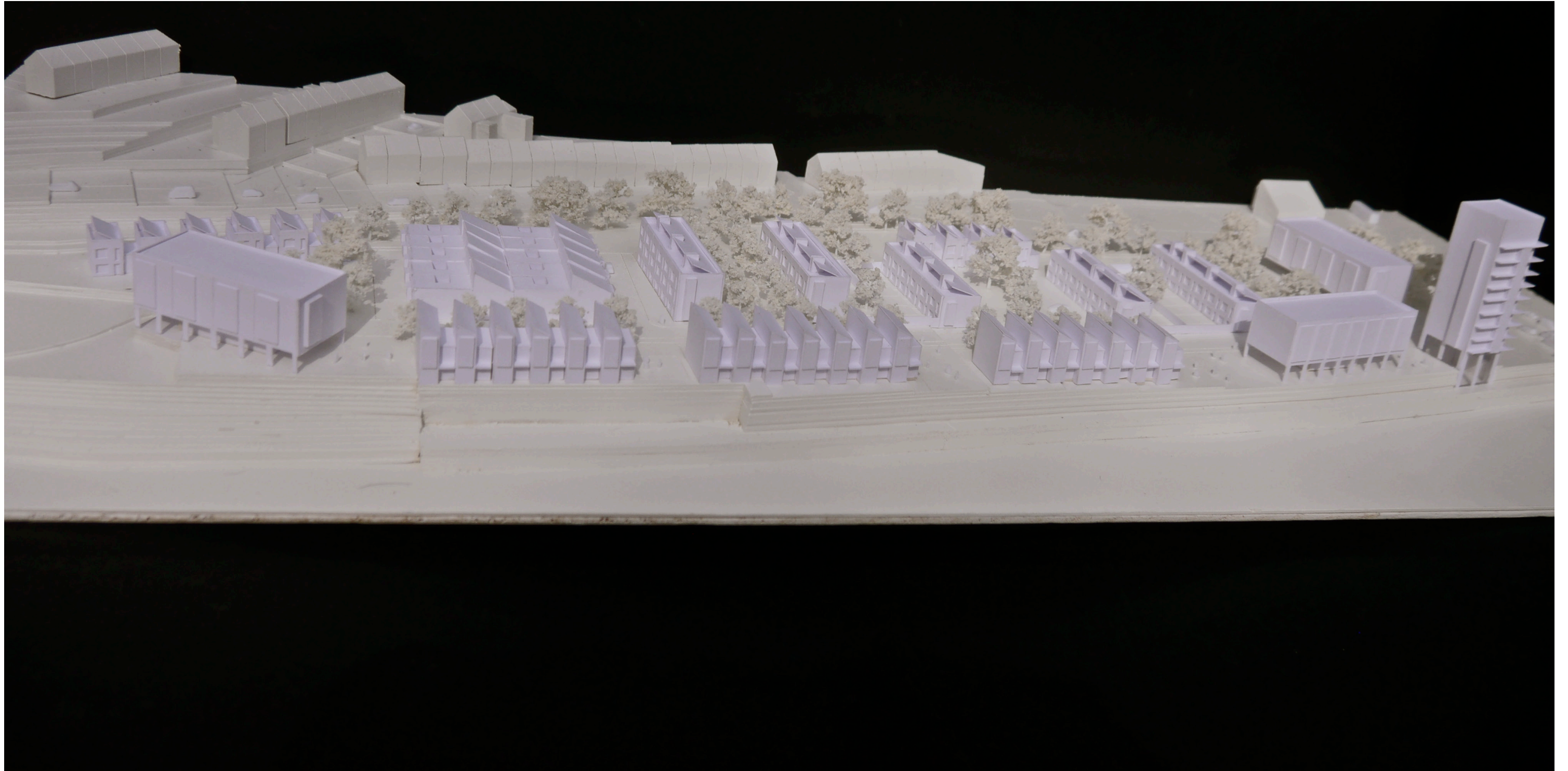




SECT AA



SECT BB

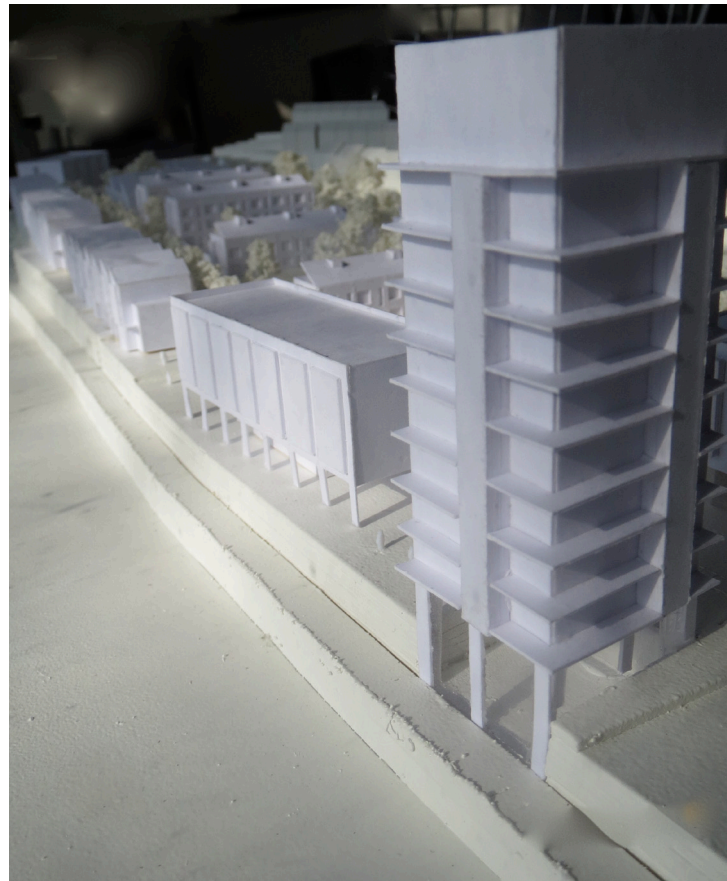


Physical model - view from West - Stthomas overlooking the scheme





Views from South -

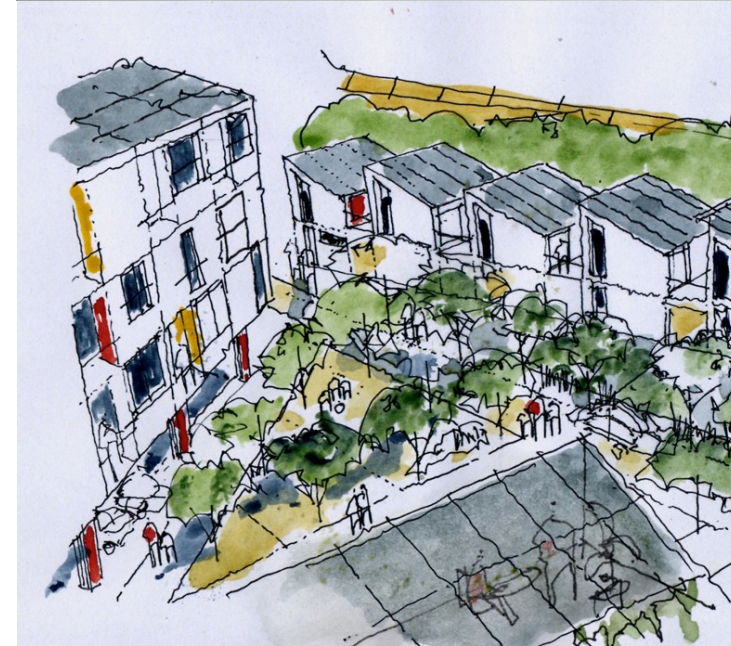


St Thomas





View looking North East over scheme toward St Thomas



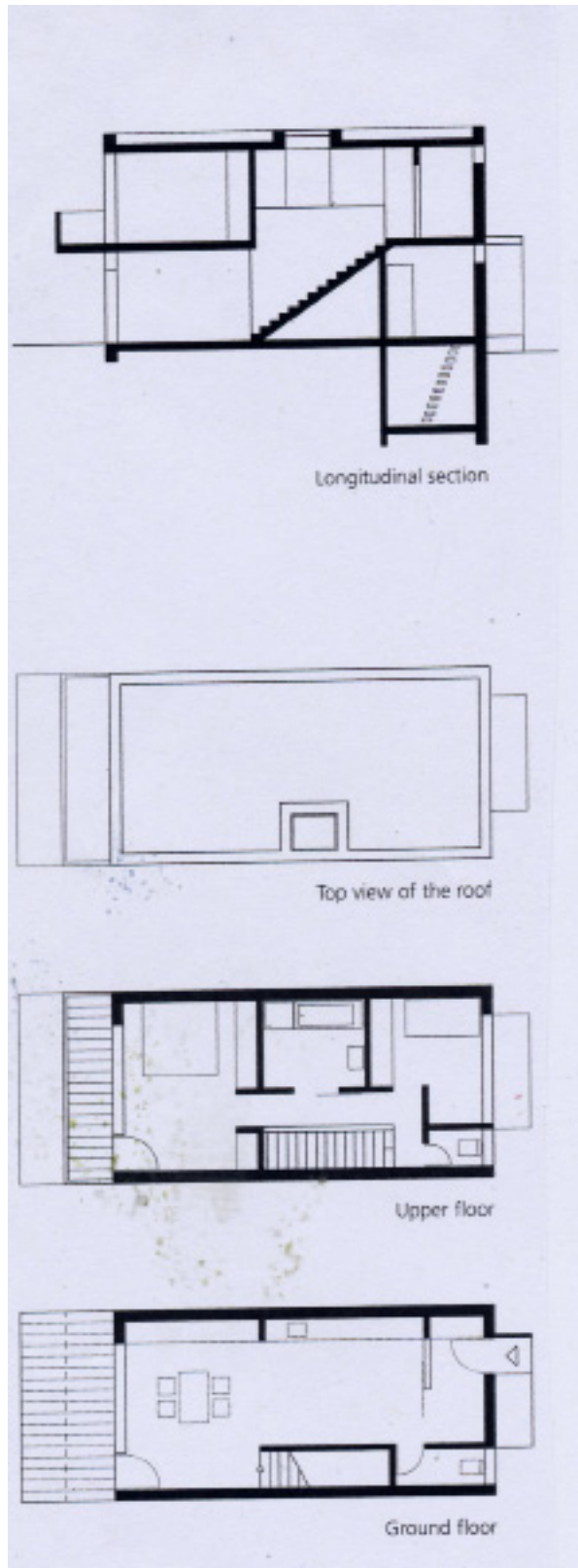
Aerial views over triangle looking South



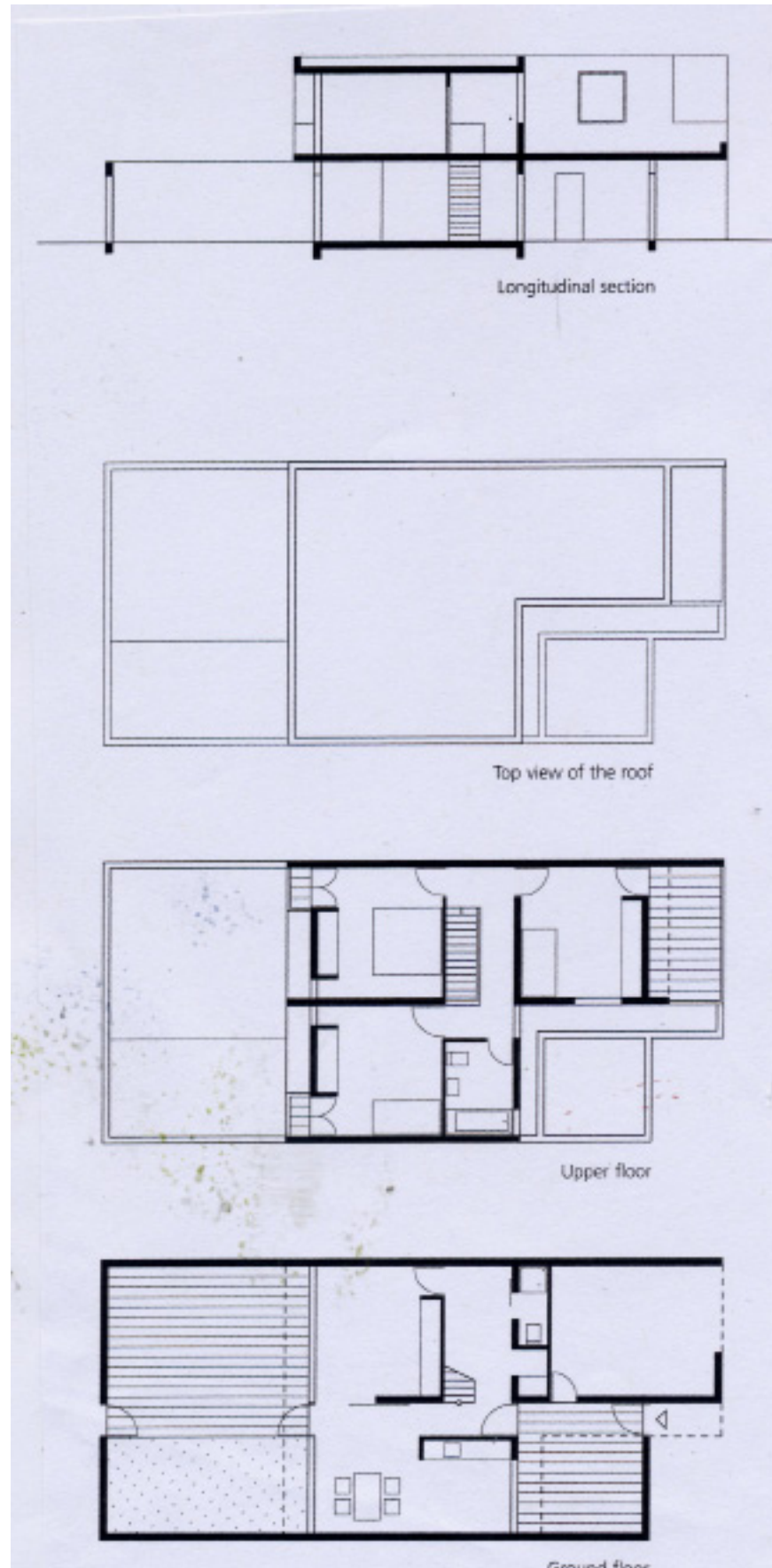




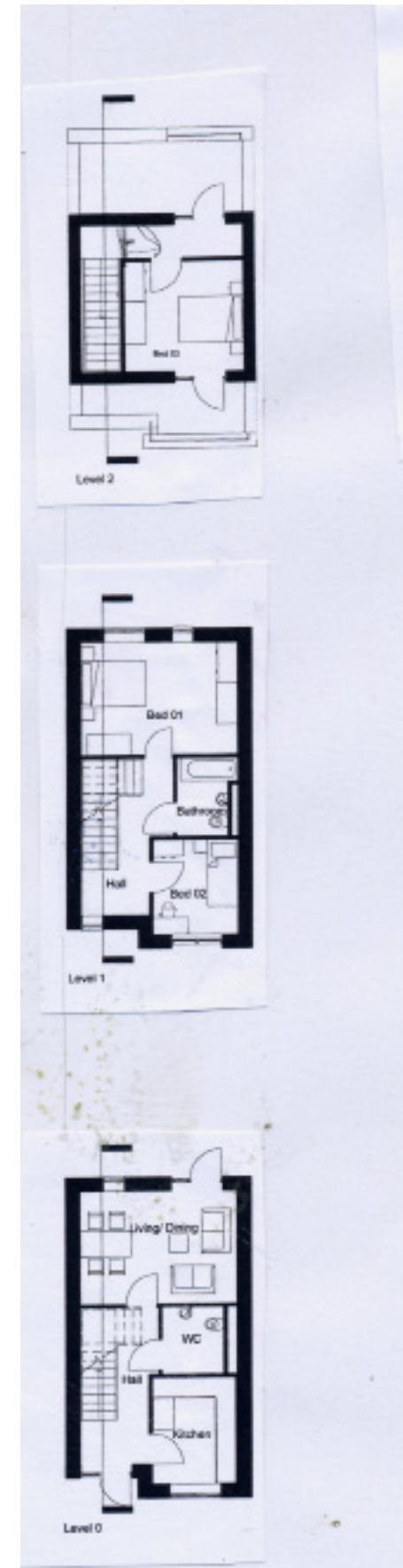
# ST THOMAS - Layout and Indicative Dwelling types



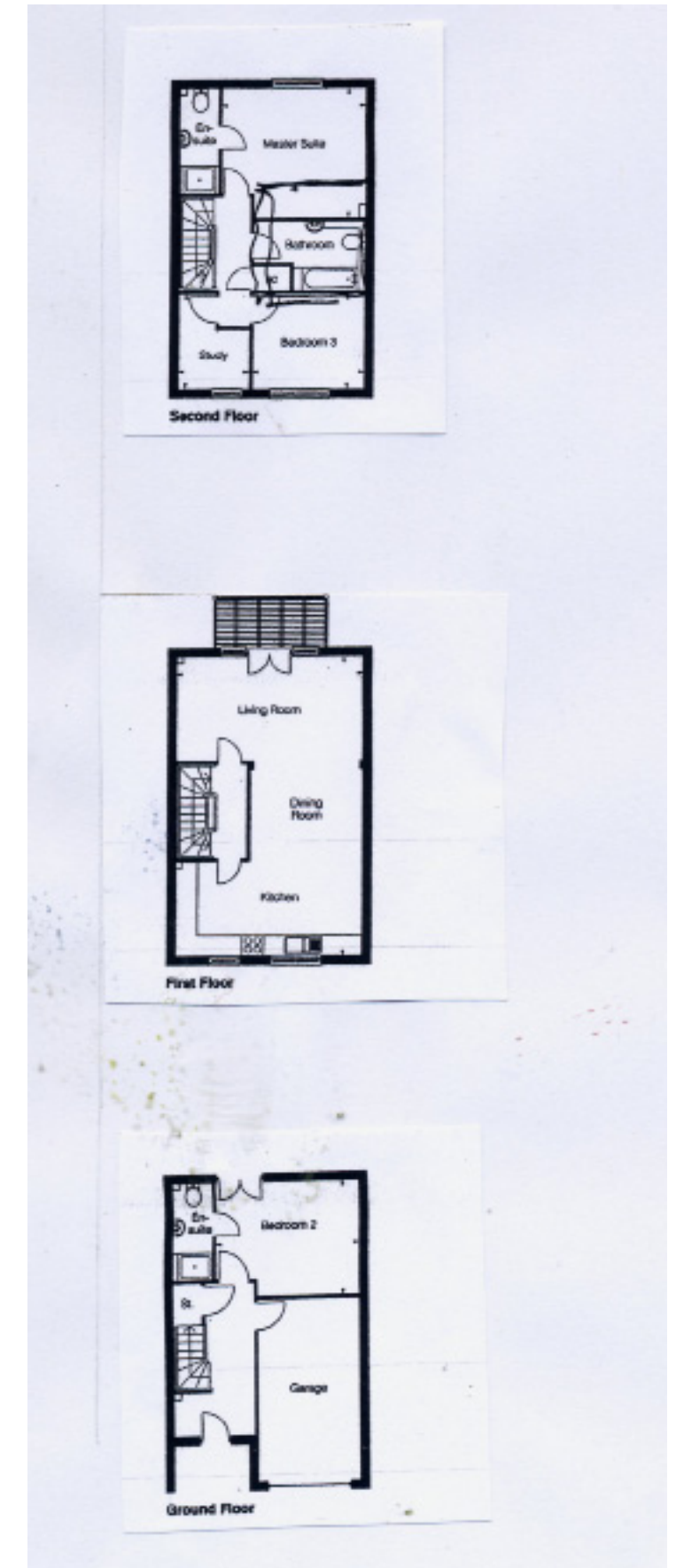
2B 4P House 2 Storey 91m2  
Blocks J-L



3B 5P Courtyard House 2 Storey 105m2  
Integral parking 20m2 Block C



3B 5P House 3 Storey 105m2  
Blocks F,G



3B 6P House 3 Storey 150m2  
Blocks D,E and M



# ST THOMAS - Layout and Indicative Dwelling types



Blocks A, N and R are a variety of apartments  
 1 B Flat 50m<sup>2</sup>  
 2B 4P Flat 65 m<sup>2</sup>  
 Balcony 12m<sup>2</sup>

2B 4P Maisonette 90m<sup>2</sup>  
 Balcony 12m<sup>2</sup>  
 Block M

Block	Apartment Type	Rent	Area
<b>Block A</b>	<b>Apartments to rent</b>	<b>4st</b>	
GF	Car Park		
FF	2b Flats		2 65m <sup>2</sup>
	1b Flats		1 50m <sup>2</sup>
2F	2b Flats		2 65m <sup>2</sup>
	1b Flats		1 50m <sup>2</sup>
3F	2b Flats		2 65m <sup>2</sup>
	1b Flats		1 50m <sup>2</sup>
<b>Block B</b>	<b>3B 5P House to rent</b>	<b>2st</b>	
			5 105m <sup>2</sup>
<b>Block C</b>	<b>3B5P Court Rent</b>	<b>2st</b>	
			10 125m <sup>2</sup>
<b>Block D/E</b>	<b>3B 6P Sale</b>	<b>3St</b>	
			13 150m <sup>2</sup>
<b>Block F/G</b>	<b>3B5P Houses Rent</b>	<b>3st</b>	
			12 135m <sup>2</sup>
<b>Block H/L</b>	<b>2B4P Mews   Rent</b>	<b>2St</b>	
			23 92m <sup>2</sup>
<b>Block M</b>	<b>3B 6P Sale</b>	<b>3St</b>	
			8 150
<b>Block N</b>	<b>Apartment Rent</b>		
	Car Park		
	2B 4PMais	7	90
	1B 2P IB	7	50
<b>Block P</b>	<b>Mixed Sale/Rent</b>		
	2B Blats Sale		7 80m <sup>2</sup>
	3b Penthouse		1 150m <sup>2</sup>
	Retail/Leisure		200m <sup>2</sup>
<b>Block R</b>	<b>Apartments Rent</b>		
GF	Car Park		220m <sup>2</sup>
FF	2b Flats		2 65m <sup>2</sup>
	1b Flats		1 50m <sup>2</sup>
2F	2b Flats		2 65m <sup>2</sup>
	1b Flats		1 50m <sup>2</sup>
3F	2b Flats		2 65m <sup>2</sup>
	1b Flats		1 50m <sup>2</sup>
<b>Common area</b>			
<b>Units</b>			<b>111</b>