MEMO

To: Development Plans, Planning Service

From: Roads

If calling please ask for
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Direct Dial: 4867

Medium: email

Date: 18 January 2018

Our Ref: CJG/SMG/R/G2/LB
Your Ref:

Staneyhill Masterplan Consultation

The efforts of the team producing the masterplan should be commended as it is clear that most of the varied inputs gathered throughout the consultation phase have been taken on-board and applied to what is undoubtedly a difficult site.

Following through on the work produced to date should help to deliver a collection of high quality developments with an obvious synergy between them and the relevant surrounding areas.

However, there a couple of areas where I think the masterplan falls a little short, and has failed to carry through at the final stage considerations that were highlighted from the outset. These are the need to minimise/ negate the need for cul-de-sacs, and the strategic travel and connectivity benefits of tying the new road network into the Voderview road end.

Sheet #1 attached to this response highlights at 'A' two of the proposed cul-de-sacs that could be connected with a minimal standard vehicular link to aid movement and servicing. This approach was used in similar circumstances at the Grodian's scheme at Quoys, Lerwick. The link location is also highlighted on sheets #8 and #9.

Highlighted at 'B' on sheet #1 is the missing vehicular link into the Voderview road. While it has been identified as a pedestrian link in the final notes (sheet #7) it was always advised that this link should form a higher function (sheets #2 – #4). The standard for this link does not need to be high as it will primarily be for local access. The location and routing shown on sheets #5 and # 6 would not preclude a nominal route for vehicles with sufficient passing and meeting provision, while also providing a good quality route for pedestrians and cyclists.

Providing the link described above would also benefit access between the new development area and the existing Staneyhill shop (shown on sheet #10 but omitted from destinations on #11) and the local Staneyhill Hall resource (also omitted from sheet #11).

Another area of comment is identified on sheet #1 at 'C' and relates to the proposed car-free development areas in the valleys above the terrace area.

While the Heddle's Park and Water Lane developments (see sheets #12 and #13 as attached) are highlighted as being car free and with quality pubic space, they both suffer from a severe lack of parking anywhere on their periphery. It is important to recognise that adequate parking

needs to be provided for these developments in appropriate locations within the terrace development area below the ‘car free’ areas. There is a general note to this effect within Section 8 of the Masterplan Framework (sheet #14) but we need to be sure that the parking issues as seen at Voderview and Norstane (sheet #15) are not replicated in this development.

I would therefore recommend a fuller explanation of parking provision for the ‘car free’ areas in Section 8 of the Masterplan Framework as identified on the attached sheet #16.

Further considering the terrace area, I think that it would be prudent to highlight that no link has been proposed or identified from the innermost end towards the Staneyhill Hill Road and Westerloch areas. While I do not under-estimate the difficulties currently related to such a link I would advise that a suitable gap be left in the development pattern to permit this in the future. I have highlighted this on sheets #17 to #19. Like the Voderview Road link this need not be to a high standard.

Within Section 8 there are also a couple of points that could do with more comment from us. You may wish to see these incorporated into the Masterplan as they will be relevant at the design stage due to Road Construction Consent and Traffic Order considerations.

At the southern entrance to the Escarpment area there is likely to be change in speed limit from 30mph to 20mph. This is because while 20mph will be the default for the development the road link between the Terrace and Escarpment areas has no development frontage and is relatively straight due to the topography constraints. As such it will likely be a section of 30mph road. I have noted this on the sheet attached as #20.

The spine road through the Bowl area is also relatively straight and a narrowing/ chicane traffic calming feature is proposed and a sketch provided by the masterplan (sheet #21 as attached). It must be noted that the selection of traffic calming features is based on a number of factors such as prevalent or expected speeds, target speeds, and traffic flows and composition. As such any traffic calming feature used within the development will require proper consideration at the detailed design stage. It may be that the identified narrowing/ chicane detail is not appropriate.

Section 11 of the Masterplan Framework deals with guidance for roads and drainage. A couple of points contained within that section need some additional explanation or information provided by the applicant. Sheet #22 highlights the note regarding retaining structures along lower embankment slope. This note requires to explain that the provision of such structures may then lead to a requirement for vehicle restraint barriers to protect against the resulting vertical drop.

Sheet #23 highlights that the SuDs drainage strategy for roads within the development will use road edge discharge to filter drains. More information on how this very specific detail is to be employed should be provided as it is not one normally associated with dense urban/ hard landscaped developments such as planned for the majority of this developement area.

If you require additional feedback for clarification please get in touch.

Executive Manager, Roads
[HM01181801]

ENC.

#1

CLIENT	Hjaltland Housing Association
PROJECT	North Staneyhill Masterplan
DRAWING SCALE(S) @ A1	1:1500 @ A1
DRAWN BY	
DRAWING NUMBER / REV	416/MP/001
DATE	Nov 2017
LAYOUT	MASTERPLAN LAYOUT

iglu

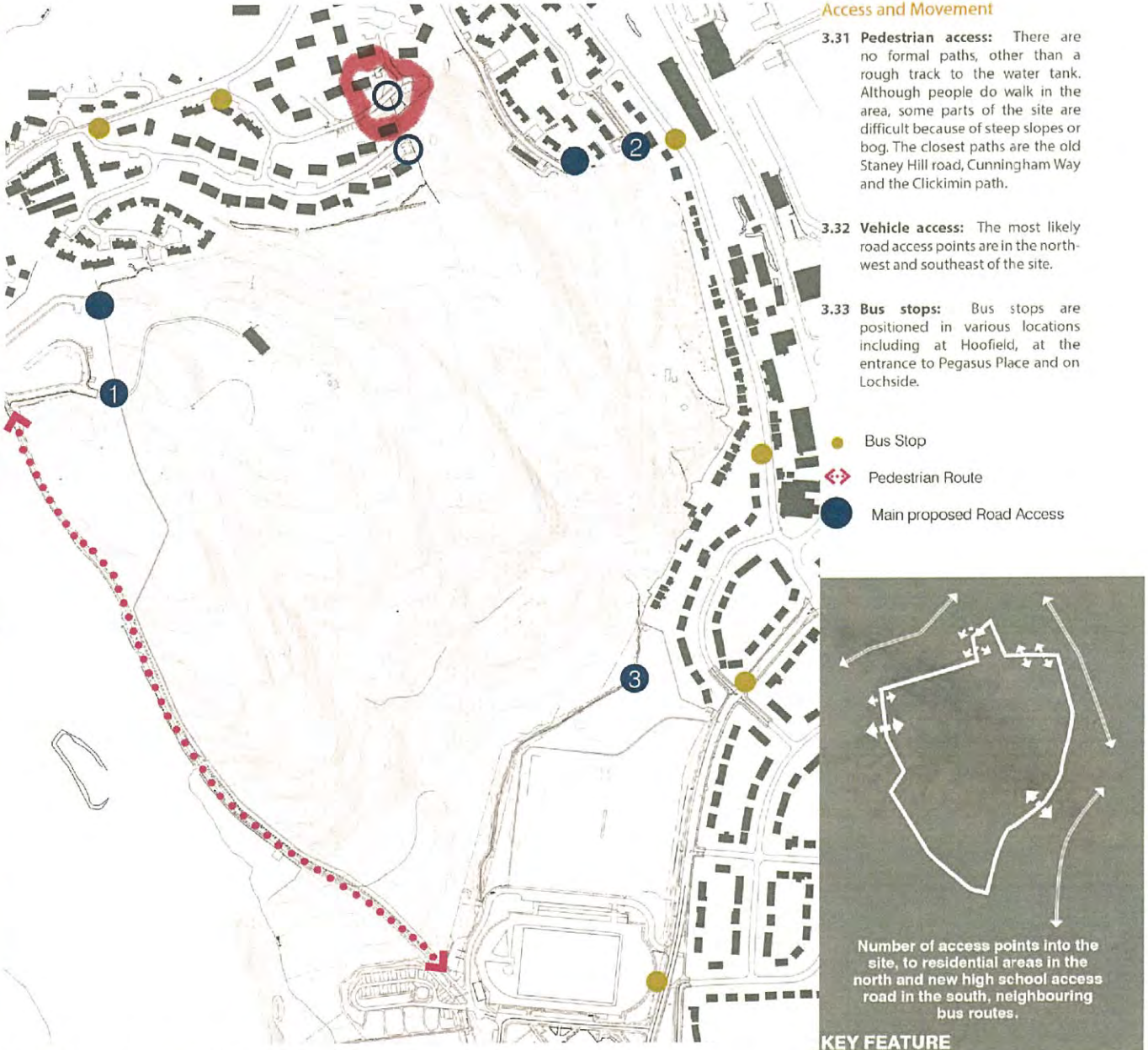
ABA

MOTT MACDONALD

Hjaltland Housing Association

Malcolmson architects

Figure 25: Road Network



Access and Movement

3.31 Pedestrian access: There are no formal paths, other than a rough track to the water tank. Although people do walk in the area, some parts of the site are difficult because of steep slopes or bog. The closest paths are the old Staney Hill road, Cunningham Way and the Clickimin path.

3.32 Vehicle access: The most likely road access points are in the north-west and southeast of the site.

3.33 Bus stops: Bus stops are positioned in various locations including at Hoofield, at the entrance to Pegasus Place and on Lochside.

Bus Stop

Pedestrian Route

Main proposed Road Access

Number of access points into the site, to residential areas in the north and new high school access road in the south, neighbouring bus routes.

KEY FEATURE

Figure 26: Plan showing access points into site

PLATFORMS

6.38 As the road, landform and primary requirements such as public open space, and SUDs were developed so the development of the platforms began to evolve and tighten. The layout changes were tested using modelling to ensure the Broch / skyline views were maintained and the housing fitted in to the landscape and steep contours. These massing models were translated in to block models as opposite.

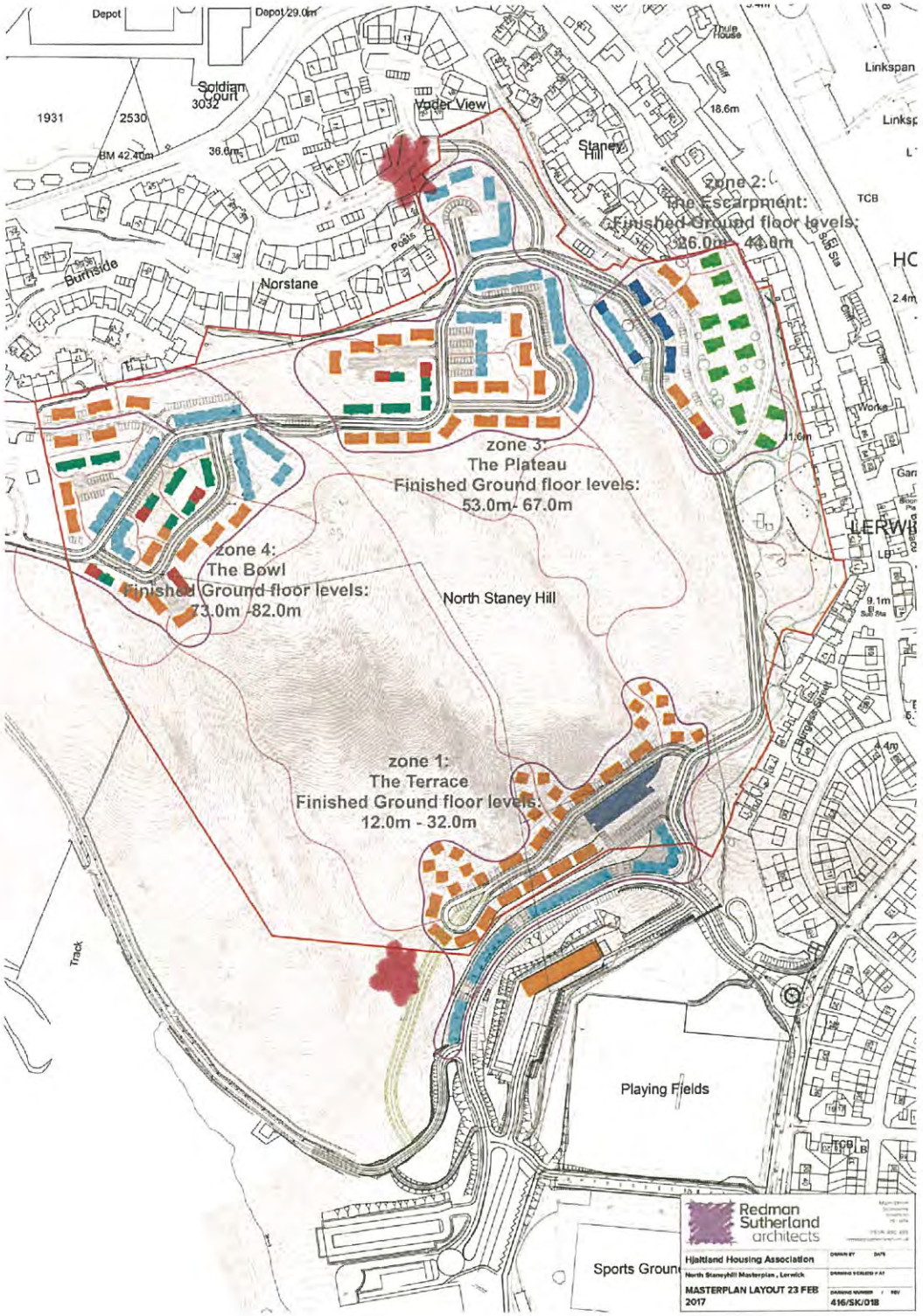
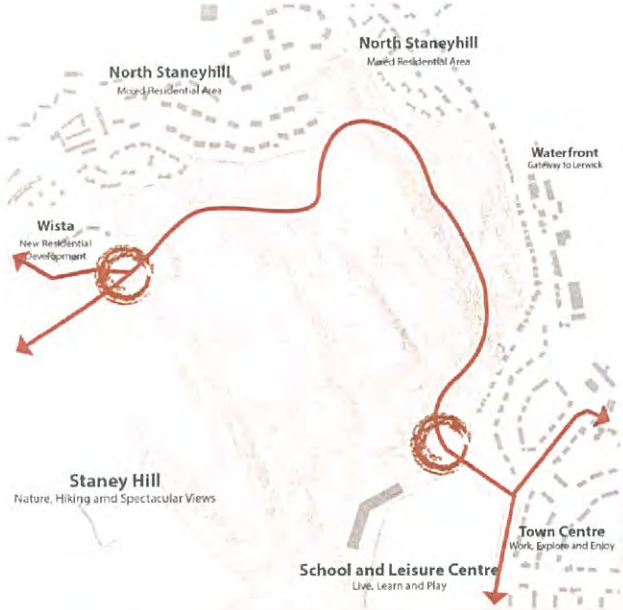
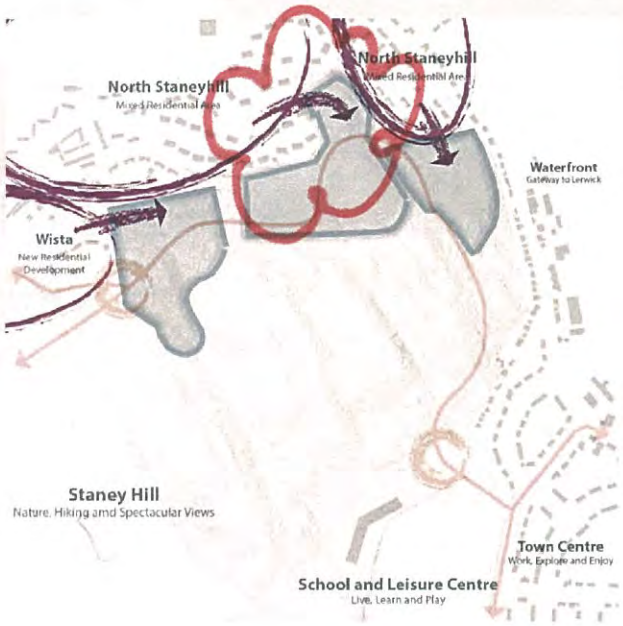


Figure 54: Plan showing platforms for development areas in site

A. New Primary Street / Public Transport Corridor and clear Gateways into the site

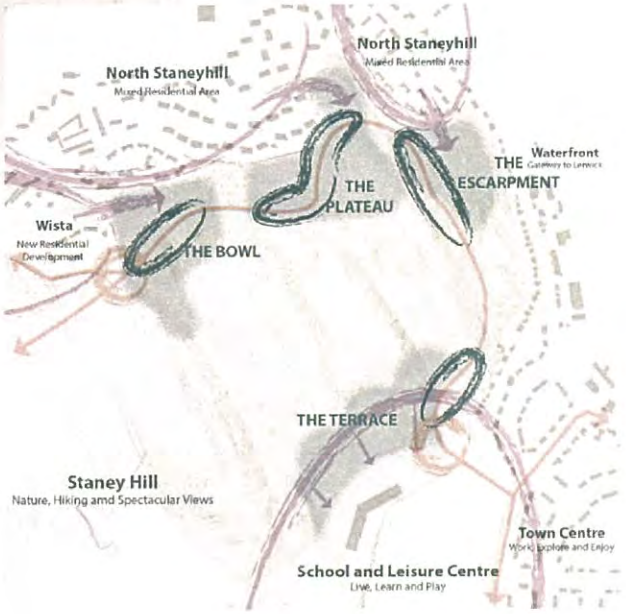


B. Housing Areas extending into the site from the north, the extent of which determined by visibility from the Broch



C. Complete hard urban edge of the town around Clickimin.

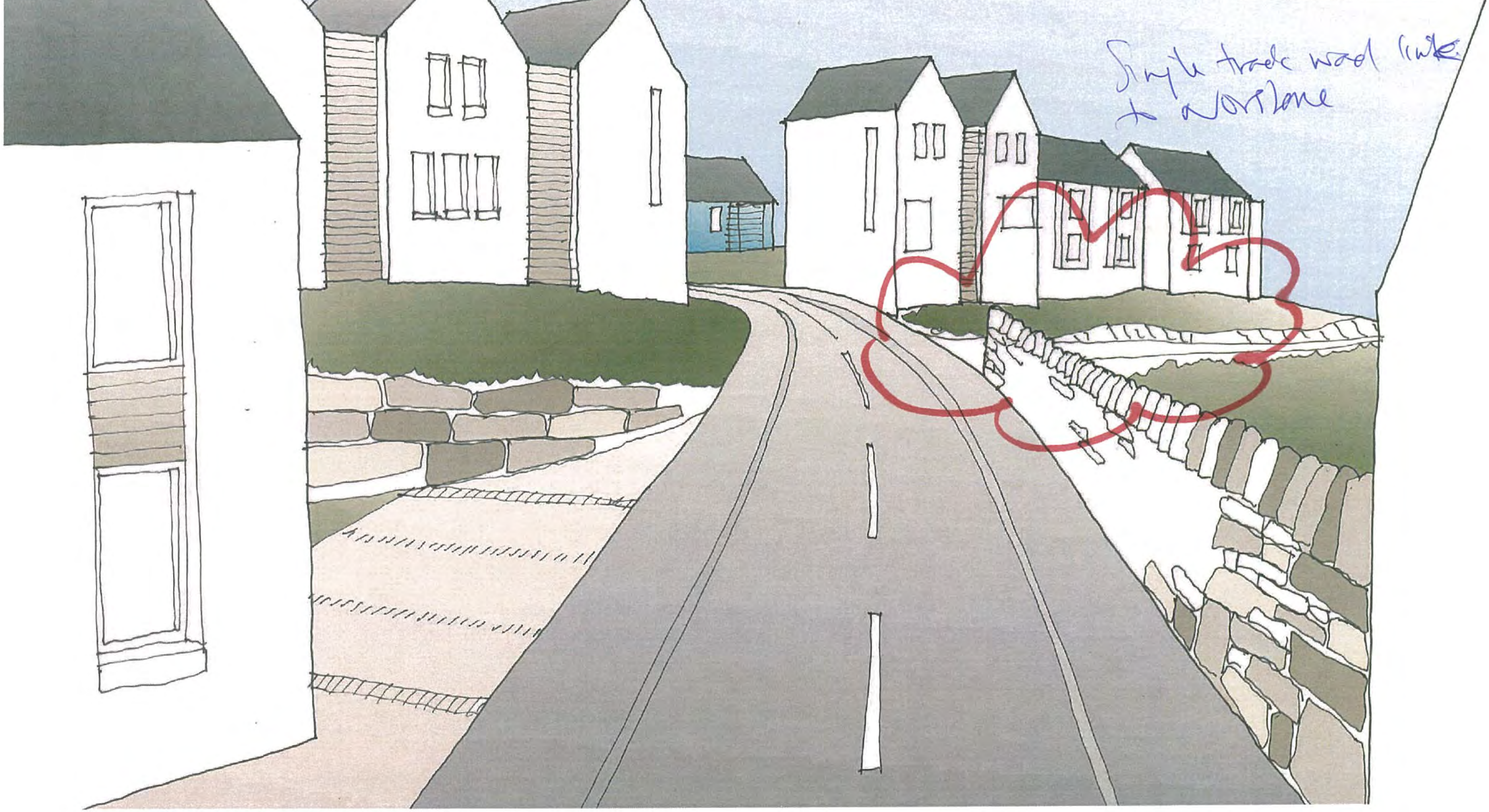
D. Creation of four new neighbourhoods.



#5

AREA 3 PLATEAU - ENTRANCE THROUGH PROTECTIVE WALL

The Plateau area is characterised by a defensive sheltering wall of accommodation which sits on the edge of a steep change in level between the Plateau and the Escarpment. Again, we see this wall as being expressed as strong white masonry gables with silver grey larch weatherboarding between. The simple forms combine to form a simply-articulated, strong form which reduces in height to the southern end, where it may be seen breaking the skyline from the broch if care is not exercised. The road punctures this wall from the Escarpment area below. Again this 'gateway' should be simply articulated without detracting from the strong form of the gable.



9. DETAILED DESIGN GUIDANCE

MATERIALS

- The Plateau area reads and sits within the landscape as a separate entity, and should be treated in a different manner to the Bowl. Key is the establishment of the perimeter wall to the east which shelters and encloses the core of the development. Colour is seen as key to realise the character of this area.
- The buildings that sit within the gardens should be coloured in a similar fashion to the fashion to the Grodians, brightly and individually coloured and contrasting with neighbouring properties.
- The 'Garden Wall' should be masonry to the base of the coastal side with brightly coloured timber above. Wall building should not appear austere, therefore careful articulation, expression and detailing of materials is important.
- Appropriate materials for this area will include:
  - Timber as primary material – including coloured finishes
  - Natural stone
  - Slate
  - Glass
- Possible use of smooth render to ground floor?

BOUNDARY TREATMENTS

- Use of natural outcroppings of stone or stone walling from excavation process to form primary basis for external boundary.
- Planticrubs to be incorporated and used to realise divisions within public areas.
- Timber as low level divisions between plots and buildings.
- Rylock stock proof fencing to heather moorland edge

KEY FEATURES

- 'Garden Wall' is transition element that establishes visual marker between development areas whilst providing shelter to Plateau.
- Distance between buildings should be less than 18m
- Parking / Communal open space, intimate courtyard character, within central sector of area - Planticrubs.

KEY BUILDINGS

- 'Garden Wall' building, emphasised by treatment of ends of the terrace. Important to consider treatment of building where primary road punctures building – 'Gateway'.

LEGIBILITY / CONNECTION

- Important to consider treatment of primary road as it moves through the core garden sector to realise a pedestrian priority within heart of the development.
- Opportunities to be provided for pedestrian access to and through the moorland, creating informal routes south connecting to Anderson High School and Clickimin.

HEIGHT / DENSITY

- 'Garden Wall' 2 – 3 storeys. Individual residential units 1 – 2 storeys

PARKING

- All parking to SIC guidance / regulations. Off-road or in courtyard or in-curtilage.

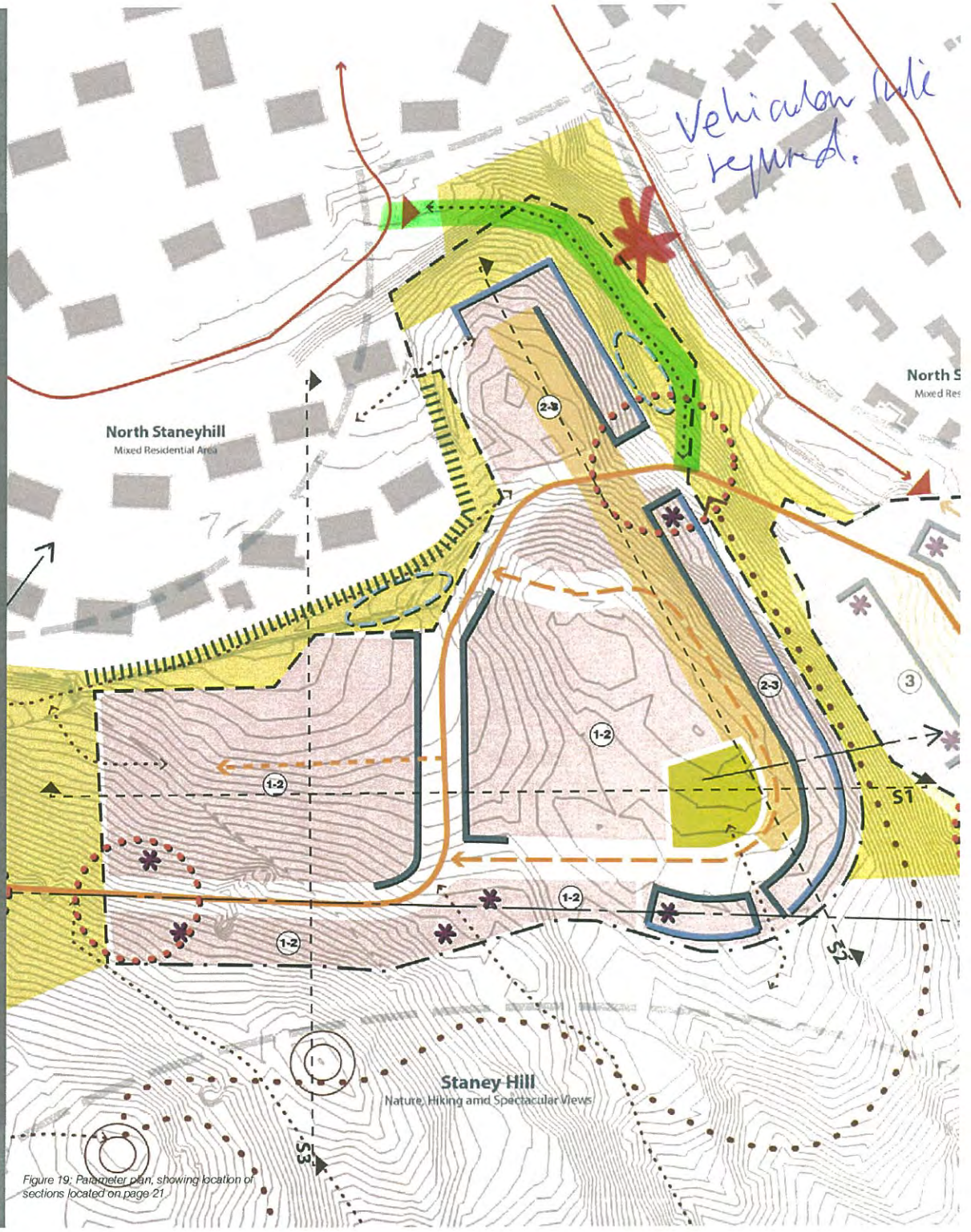


Figure 19: Parameter plan, showing location of sections located on page 21

8. MASTERPLAN FRAMEWORK

Movement Network and Hierarchy

8.11 The site will link into the existing road and footpath network of the area. The primary route for both vehicles and pedestrians will be a primary street that connects Wista, a residential road to the north west of the site with the new access road for the High School, at the south eastern corner of the site. This central spine street for the site, as it skirts around the hill, cuts through the heart of a series of new development areas with secondary streets providing access and connection to existing roads and footpaths neighbouring the site. For a full description of the site's road network please refer to appendix A.

8.12 These additional connections, clockwise from the site's connection to Wista, include:

- Vehicular and footpath link to a new road that connects up to Wista.
- Footpath link onto Burnside across a small area of green space adjoining the northern edge of the site.
- Footpath link onto Norstane.
- Vehicular and footpath link onto Voderview.
- Vehicular and footpath link onto Upper Staneyhill Road.
- Vehicular and footpath link onto Lower Staneyhill Road.
- Series of footpath links onto access road to High School.

8.13 The site's street network responds to the challenging topography of the site to establish a clear and legible movement hierarchy, providing the most convenient access for the four development areas to both internal facilities, such as open space and bus stops and external facilities and areas, including the high school, leisure centre and town centre.

JOURNEY ALONG PRIMARY STREET / PUBLIC TRANSPORT CORRIDOR

8.14 The primary street forms the key spine to the development, providing access to the four separate development areas and enhancing connectivity between existing areas south and north of the site. The primary street has been routed to minimise traffic speeds with stretches of straight road kept to a minimum. Changes in direction along the street will avoid long curved stretches of road that offer the driver the sort of forward visibility encouraging high traffic speed. This combined with identified gateways, frontage and feature buildings will create a safe, legible and attractive primary street through the site.

8.15 The primary street is routed to skirt around the eastern end of the ridgeline that cuts into the site from the south west. Setting off from the High School access road to the south the street rises to a junction / node connecting up to a local access into an area of development that bounds the southern edge of the site.

8.16 The primary street continues in a northerly direction, following the contours of the site's landform as it slopes from the ridgeline to the eastern edge of the site. Along this trajectory the street passes through the second development area on the eastern escarpment face of the site. On approach to this area a secondary street provides access into this housing area, routed north east to follow the contours of this eastern slope of the site, the street forks to then join two existing residential streets along the north eastern edge of the site.

8.17 The primary street continues north before beginning to turn west around the ridgeline. To the north of the ridgeline the street enters the site's third development area, marked by strong development frontage either side.

Figure 9: Wider context - movement network

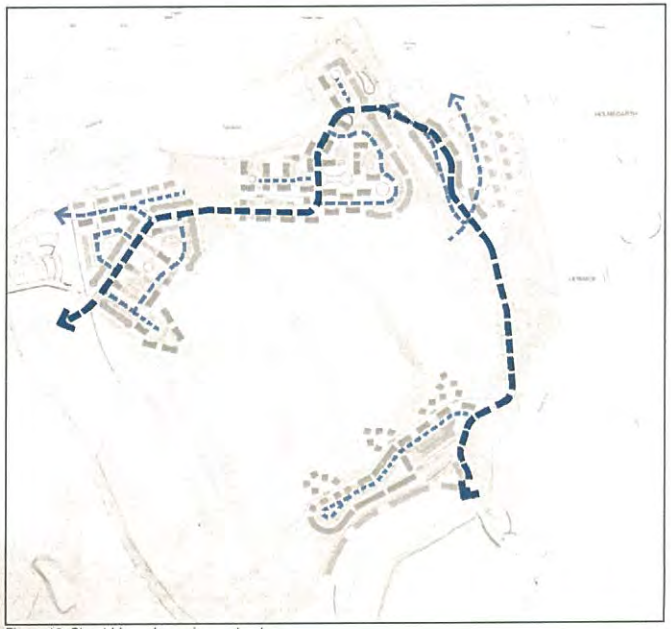


Figure 10: Street hierarchy - primary street

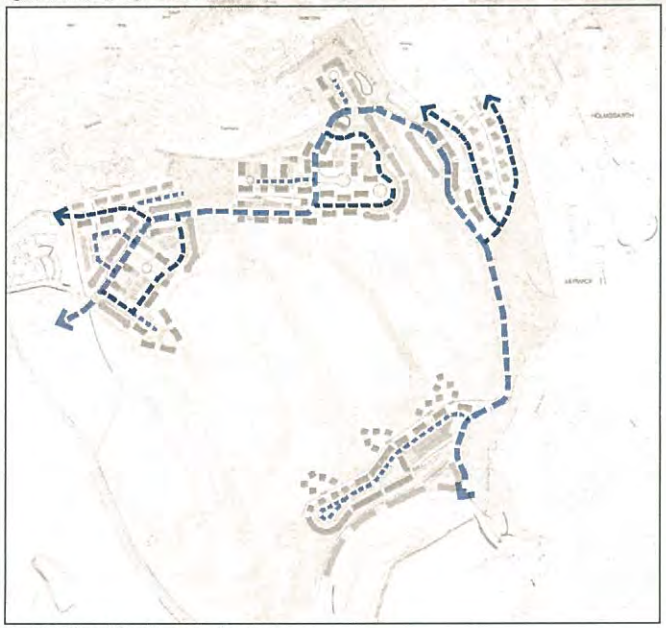


Figure 11: Street hierarchy - secondary street

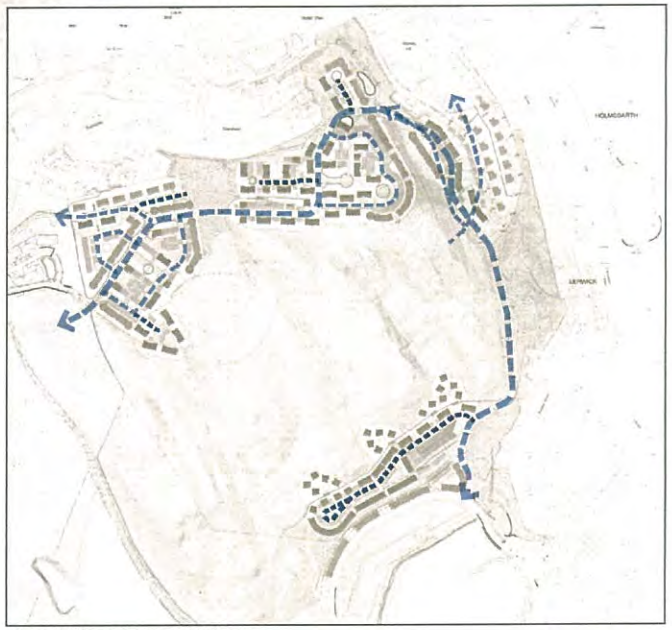


Figure 12: Street hierarchy - local access

AREA 4 THE BOWL - AERIAL EAST WEST

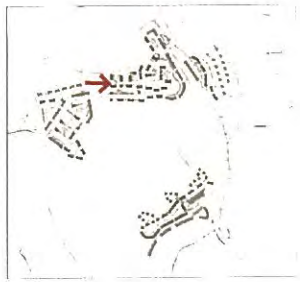
The Bowl and Plateau areas are similar in character. However, the main visual difference is the incorporation of the only man-made physical feature to be retained on the site: the drystane boundary wall. We propose that this is retained and enhanced by continuing the wall into the development along the main road containing garden areas. Similarly, the houses in the centre of the development will be painted timber with white render, also used on the housing on the periphery of the site. This will also tie in with the existing neighbouring Hjaltland Housing Association at Wista.

The garden boundaries to the south will again be post and wire stock proof fence which blurs the natural and manmade landscaping. To the rear there will be a simple crushed stone chip path over the new SUDS catch drainage, which should follow the natural curves of the existing contours.

#9

AREA 3 PLATEAU - AERIAL WEST TO EAST COLOUR

The individual houses on the periphery of the development will have a combination of timber cladding and white render. This will define the 'boundary' of the character area. The actual boundary of the houses on the outside of the area will defined with a stock proof post and wire fence which allows the edge of the garden space and the natural hillside to be blurred.



Vehicular link to be between two cul-de-sacs (Style track).

Figure 27: Service and Recreation

- Services
- Recreation

Figure 28: Cultural Connections

1. Mareel - Music, Cinema and Education Venue
2. Shetland Museum and Archives
3. Wildlife Tours
4. Vaila Fine Art
5. Broch of Clickimin

Figure 29: Landuse

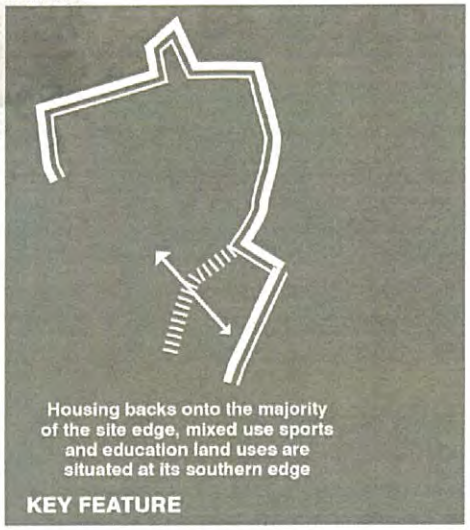
- Recreation and Leisure
- Educational Facilities
- Commercial and Health Institutions
- Tourism
- Residential

Existing Facilities and Land uses

3.34 There are residential areas to the north-west at Hoofield, north along Burnside, Voderview, Norstane and Staneyhill and east at North Road and Burgess Street. Industrial activities can be found at Staney Hill and Gremista industrial estates and quarrying activities just off Ladies Drive in the Northwest of the site.

3.35 Sports and leisure activities are situated at the Clickimin Leisure Centre and the associated outdoor facilities which include a running track, rugby grounds and other playing fields. Walkers and joggers use the paths near the Leisure Centre, round the Loch of Clickimin, the track following Staney Hill Road, Cunningham Way and the quays by the harbour.

Figure 30: Photo showing new hostel development to the immediate south of the High Street Access road



Destination Links

8.29 The adjacent diagrams show key destinations in close proximity to Staneyhill along with walking and cycling distances.

A. Education
1. *Anderson High School*
2. *Bells Brae Primary School*

B. Healthcare
1. *Lerwick Health Centre / Gilbert Bain Hospital*

C. Leisure / Recreation
1. *Clickimin Leisure Centre*
2. *Shetland Museum*

D. Employment Centre
1. *South Gremista Industrial Park*
2. *Port Business Park*
3. *Lower Blackhill Industrial Estate*
4. *Marina Business Park*
5. *Garthspool*

E. Retail
1. *Co-op on Holmsgarth Road*
2. *Tesco on South Road*
3. *Town Centre*
4. *Toll Clock Shopping Centre*

F. Public Transport
1. *Closest bus stop for bus services along A970 / A969*
2. *Lerwick Ferry Terminal*

		Distance		Time to Walk*		Time to Cycle**	
Typeww	Key Destination	Closest Area (in kilometres)	Furthest Area (in kilometres)	Closest Area (in minutes)	Furthest Area (in minutes)	Closest Area (in minutes)	Furthest Area (in minutes)
A. Education	1. Anderson High School	0.25	1	3.75	15	1.25	5
	2. Bells Brae Primary School	0.8	1.4	12	21	4	7
B. Healthcare	1. Gilbert Bain Hospital	0.9	1.5	13.5	22.5	4.5	7.5
C. Leisure / Recreation	1. Clickimin Leisure Centre	0.45	1.2	6.75	18	2.25	6
	2. Shetland Museum	0.8	1.4	12	21	4	7
D. Employment Centres	1. South Gremista Industrial Park	0.45	1.1	6.75	16.5	2.25	5.5
	2. Port Business Park	0.65	1.3	9.75	19.5	3.25	6.5
	3. Lower Blackhill Industrial Estate	1.1	1.6	16.5	24	5.5	8
	4. Marina Business Park	0.9	1.4	13.5	21	4.5	7
	5. Garthspool	0.5	1.1	7.5	16.5	2.5	5.5
E. Retail	1. Co-op on Holmsgarth Road	1	1.8	15	27	5	9
	2. Tesco on South Road	1.1	1.8	16.5	27	5.5	9
	3. Town Centre	1.5	2	22.5	30	7.5	10
	4. Toll Clock Shopping Centre	0.55	1.1	8.25	16.5	2.75	5.5
F. Public Transport	1. Closest bus stop for bus services along A970 / A969	0.4	1.1	6	16.5	2	5.5
	2. Lerwick Ferry Terminal	0.4	1.1	6	16.5	2	5.5

*Time taken is based on a pace of 4 kilometres per hour, this calculation uses an average walking speed of 5 kilometres per hour and reduces it by 1 kilometre per hour to account for the gradient of the site.
**Time taken is based on a pace of 12 kilometres per hour, this calculation uses an average cycling speed of 18 kilometres per hour and reduces it by 6 kilometre per hour to account for the gradient of the site.

#12

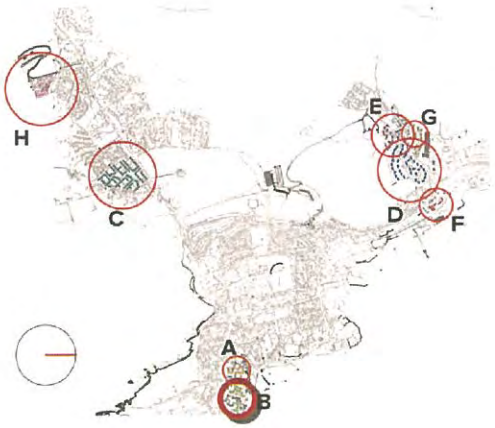
- Saltire Award winning
- Fits well into the existing townscape
- Mixture of housing types in close proximity
- Variation in levels and massing provides interest
- Car free public space between houses
- A well-kept and respected for 60 years

A: HEDDLE'S PARK C 1959

4.1 This scheme won a Saltire Award in 1959 and it is easy to see why.The architecture is simple and of its time but it is the quality of the open space that really makes the scheme. Care has been taken to think about the spaces between the buildings providing public space that is actually used by the residents. The simple use of good materials and the fact that it is knitted into the existing fabric of the old town makes it a good place to live. It is sheltered but allows daylight and there are no cars next to the houses.

* and there is limited overlooking in the area

#13



B: WATER LANE AND STOUTS COURT C. 1960

4.2 Built in the heart of the old town, this scheme was controversial in its day. The problem for Architects Moira and Moira was to provide a high-density housing development within the historic lanes area of Lerwick. The lanes are a conservation area concentrated around the town's Commercial Street which runs along the former seafront. It is characterised mainly by buildings which sit at right angles to the main street which runs along the contours. Running between the housing blocks are narrow lanes which step down the contours.

4.3 One might question the look of the blocks of flats and the materials, which are typical of the period, but the urban design is still quite good. It is knitted into the existing fabric, following the existing settlement pattern by building against the contours and creating lanes which join up with Commercial Street. The scale of the buildings is broken down by varying the heights and building types, mixing blocks of flats with pitched roof and flat roofed terraced housing.

4.4 The blocks themselves are of their time but building against the contour was a cheap way of accommodating tenants in relatively spacious flats. It also allowed the mass of the block to step down the hill and accommodate non-residential usage at low level (shops and offices). Car parking is remote but accessible. In between the blocks and terraced housing, they have designed small sheltered cottages along the contours with simple but effective public space in front (below).

* Limited availability

- Well integrated into the townscape
- Interesting interpretation of the historic lanes network
- Mixture of housing types in close proximity works well
- Good use of topography
- Sheltered public spaces between buildings

that a range of parking solutions will be required, in combination, to address the physical and environmental constraints of the site including on-street, in-curtilage, courtyard, under-croft and in-structure parking. If parking is introduced within the streetscene it should seek to provide additional traffic calming to the street network by restricting driver visibility within residential areas. Car parking should be organised to deter cluttered streets and so should be designed in from the outset, such as by the use of subtle widening within a street or by using end-on or angled parking within a node. There should also be sufficient provision, including the provision of disabled parking spaces, which must be allocated across the four areas to ensure that parking is distributed evenly and clearly.

8.23 There is the potential to accommodate parking within off-street parking courtyards across the site. These courtyard spaces are to be well defined by built form, providing additional shelter between car and home. In the design of these courtyards, consideration should be given to ensuring good natural surveillance is provided by neighbouring properties. Discreet and attractive vehicular accesses to any off-street parking areas will need to be taken into account within the overall street design.

8.24 The provision of cycle parking should be considered across the site but particularly within the Terrace housing area. Due to its closer proximity to the town centre and flatter terrain, offering greater convenience for cycling. Its potential for mixed use development is likely to encourage increased journeys throughout the day.

Footpath Links

8.25 Threaded throughout the Framework Masterplan is a network of footpaths to realise maximum connectivity across Staneyhill and the proposed development areas. This network is connected beyond the site, integrated with the site's immediate neighbourhood and the wider setting of Lerwick town centre.

8.26 The core network is provided by footpaths along the primary and secondary streets with other shared surface treatments and footpaths located along local access streets. Outwith the development areas is a series of additional, more informal footpaths which provide connections between the development areas. They also offer access into existing housing areas along the northern edge of the site and the public open space.

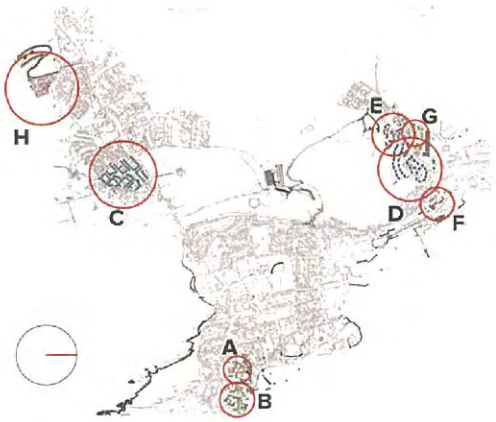
8.27 The masterplan framework seeks to promote and prioritise active forms of travel by providing clear, direct and convenient foot and cycle connections to key destinations within the surrounding area. Provision of a shared use route is proposed (see plan right) connecting the site north and south. Due to the particular topographical constraints of the site the route will vary in width but should achieve a minimum of 2.5m width and 3m maximum width. The table over-page shows some of the key destinations within the surrounding area and the distance / typical time it would take to walk or cycle to these with the footpath network proposed by the masterplan framework.

8.28 In addition to the main pedestrian routes it is proposed that informal pedestrian routes across the moorland, along the ridgeline and down the valleys are to be realised. This was an aspect of the masterplan that was identified during the community consultation. Whilst the installation of these routes presents difficulties in terms of topography and accessibility, as Staneyhill develops it is anticipated that desire lines will naturally arise along the routes (illustrated on the plan far right) and if so then a decision on developing these routes further can be made.

Figure 17: Innovative and integrated parking solutions, on-street, in-curtilage, courtyard and under-croft parking.

Figure 18: Footpath Network outwith development areas

Figure 19: Key Footpath Typology



- Little or no consideration for good quality public space
- The road layout makes the car king
- On street parking is a problem
- Detached housing that residents care for
- Residents feel remote from town and forgotten
- Little or no public soft landscaping
- Poor design consideration of levels

D: VODERVIEW AND NORSTANE C LATE 1970S EARLY 1980S

4.8 The housing to the north of the site was built in the late 70s and 80s when Shetland had a housing shortage due to the oil boom. Shetland Islands Council needed to provide housing quickly and therefore the development was dictated by readily available house kits which were placed along a poorly designed road network. There has been no attention to the spaces between the buildings, nor any consideration of barrierfree access. The central road with steep parking and with no wheelchair access would not be acceptable to the local authority today. There is at least a storey in height difference between parking and house access on sites below the road.

4.9 The area has also always felt outside the town and a bit forgotten. The north facing slope means the houses do not benefit from direct sunlight and although they have elevated views, these are over the industrial area of Lerwick.

#14

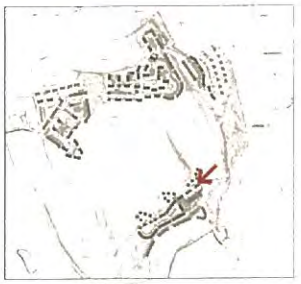
8. MASTERPLAN FRAMEWORK

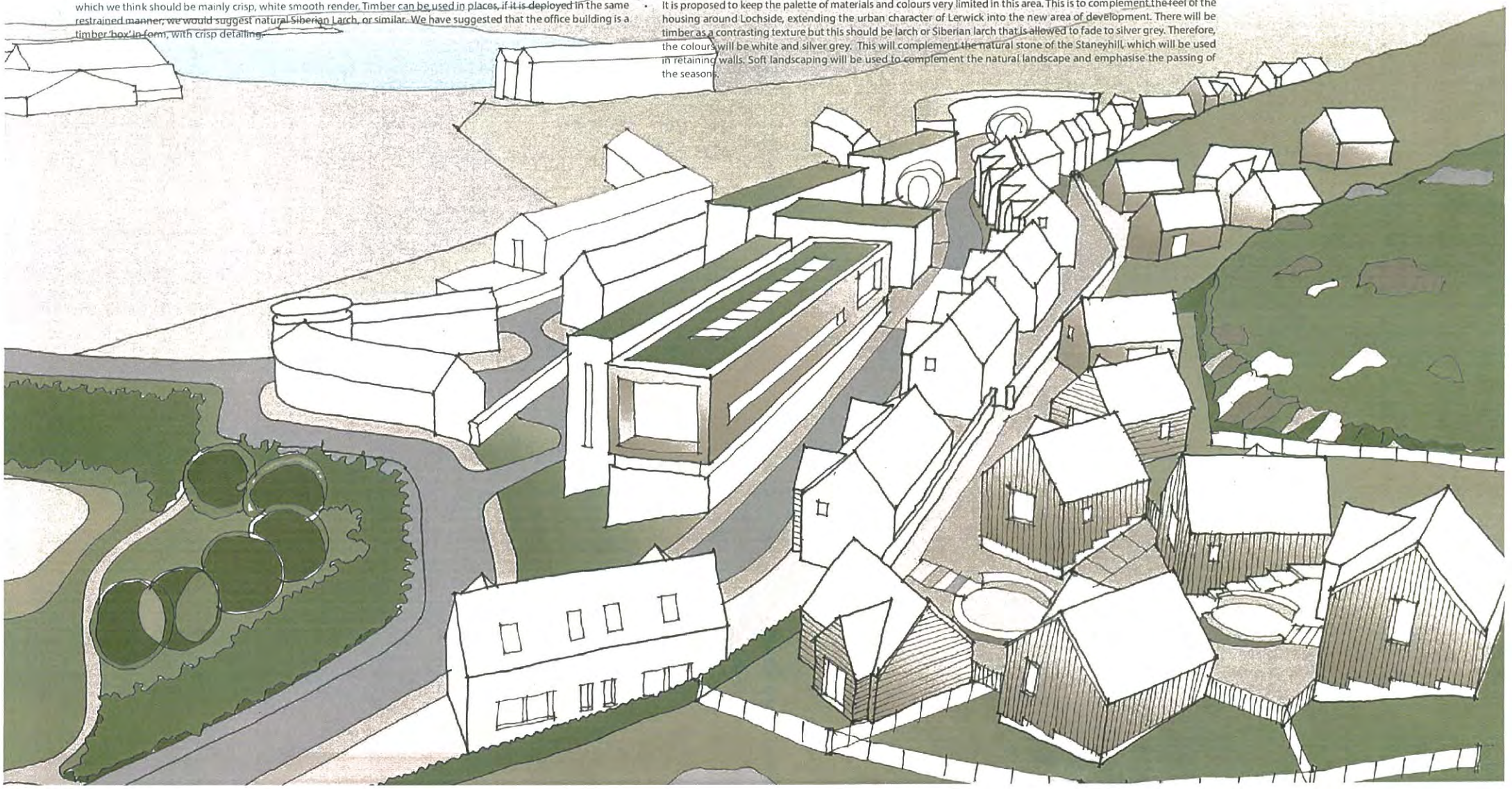
car parking for development provided at level 3.

Events and Experience

AREA 1 THE TERRACE - AERIAL VIEW NORTH TO SOUTH

- The Terrace is a steeply sloping area behind the new AHS hostel building. There are two access roads: one leading to the new school and the other a new, parallel access road at a higher level. The higher road straddles the three 'valleys' which run down the Staneyhill from north-west to south-east.
- The proposal is for a high-density terraced development which completes the hard urban edge around the playing fields of the Clickimin Leisure Centre.
- The development is arranged over three levels. The first four levels are considered 'walls' of buildings. They are essentially terraces and should be relatively restrained in how they are articulated with a limited palette of materials, which we think should be mainly crisp, white smooth render. Timber can be used in places, if it is deployed in the same restrained manner, we would suggest natural Siberian Larch, or similar. We have suggested that the office building is a timber 'box' in form, with crisp detailing.
- Access to level one is from the new school road.
- Access to level two is from the new upper road; we have made provision for a horizontal pedestrian route between levels one and two.
- Access to level three is also gained from the new upper access road. Level four is a car free housing development that extends into the 3 valley areas. This area is slightly different in character where individual houses are expressed within the landscape. Level four blurs the transition between the hard urban edge and the natural landscape of the hill, the latter being essentially left to nature. These houses will be timber-clad.
- It is proposed to keep the palette of materials and colours very limited in this area. This is to complement the feel of the housing around Lochside, extending the urban character of Lerwick into the new area of development. There will be timber as a contrasting texture but this should be larch or Siberian larch that is allowed to fade to silver grey. Therefore, the colours will be white and silver grey. This will complement the natural stone of the Staneyhill, which will be used in retaining walls. Soft landscaping will be used to complement the natural landscape and emphasise the passing of the seasons.



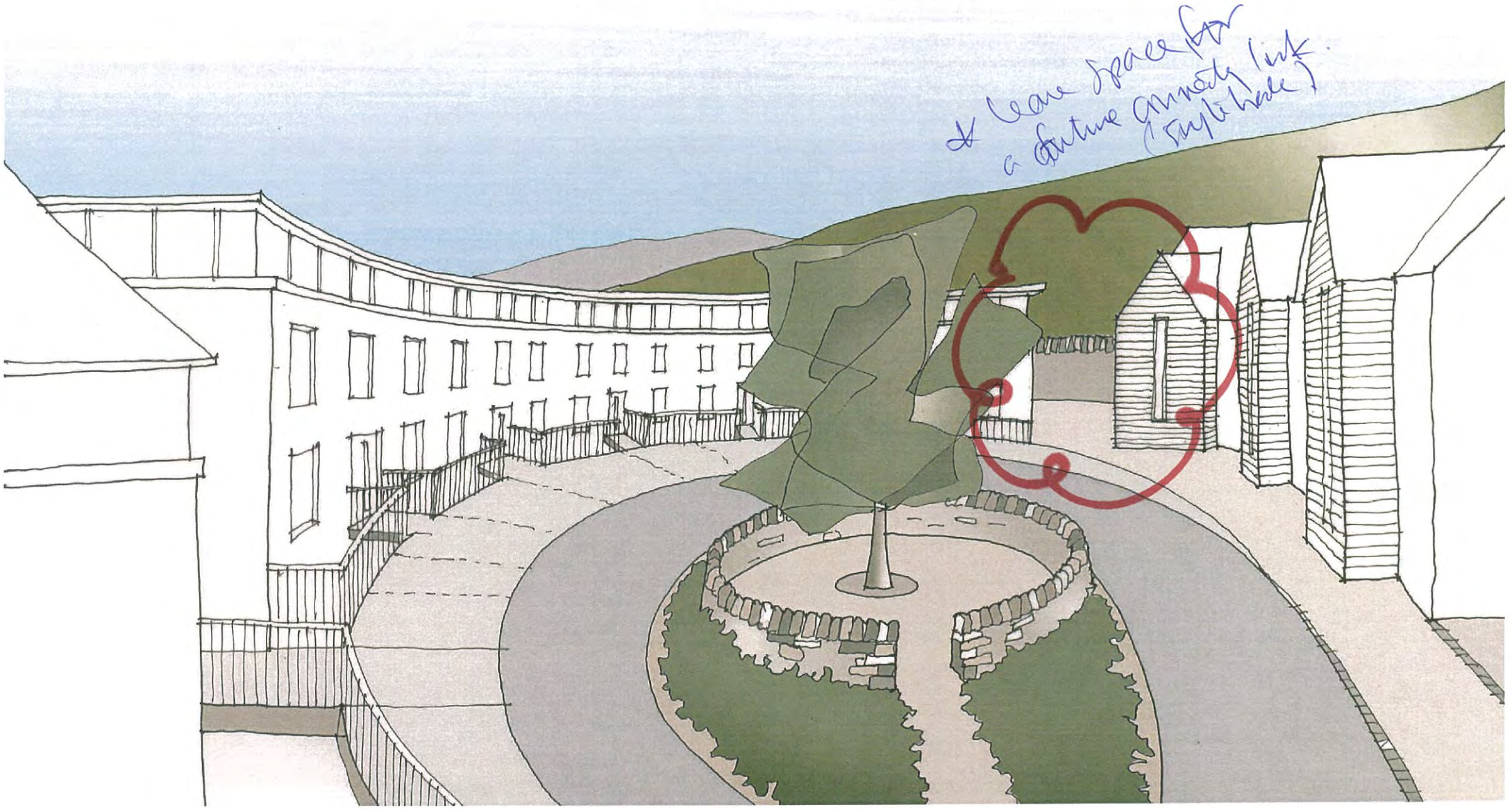


AREA 1 THE TERRACE - AERIAL VIEW SOUTH TO NORTH

Each of the levels is articulated slightly differently. Level two is really the main wall of accommodation which runs through the centre of the site. It straddles the change of level, offering a sheltered space along the length of the road. The buildings are positioned to allow the creation of a series of three public spaces along the route. It also contains the commercial office building at its head. We see these buildings also extending the green corridor into the development using soft landscaping and green roofs.

AREA 1 THE TERRACE - TURNING AREA

Vehicular access to the new school road is not possible from this level. The development therefore terminates at a landscaped turning area. This turning area gives the opportunity for the housing blocks of level two to create a formal crescent, offering a further sheltered external space. The retaining wall which is required at this point is pulled back from the housing, allowing light into the housing below and enabling access to the pedestrian walkway on the lower level.



9. DETAILED DESIGN GUIDANCE

MATERIALITY

- The materials within the Terrace will reflect the immediate surroundings of the new Anderson High School, Lochside. So each layer of terracing should have the same materials to give a strong 'wall' of buildings.

- Appropriate materials for this area will include:
  - Strong masonry construction (white smooth render or stone construction (White wet dash / textured render)
  - Off white wet dash / textured render
  - Natural stone
  - Slate
  - Concrete tile (Grey)
  - Glass walling
  - Larch cladding to reflect High School and Hostel Building
  - Cast stone could be used in less prominent locations.

BOUNDARY TREATMENTS

- The boundary treatments should also reflect its important location, back in to the hillside. As a consequence natural stone walling should use site-excavated stone (rock armouring) for retaining walls, parapets and low level divisions between plots and buildings.
- Division of housing plots stepping up the hillside will be by Rylock stock proof fence.

KEY FEATURES

- Simple forms; no roof over-hangs; strong architectural form to sit alongside and transition from the large-scale forms of the new Anderson High School and Hostel. Terraces should be considered as a single entity, one building, with expressed ends and simple articulation / fenestration. A sense of monumentality.
- Also identified is a key public piazza on the upper terrace enclosed by the office building immediately east.
- Continuation of green corridor realised through pedestrian terrace which sits between upper and lower terraces
- Car free residential development extending in to valley areas primarily defined by detached houses

KEY BUILDINGS

- Key buildings identified are firstly at the corner of the lower residential block and the junction with the start of the new primary access road; and secondly the office building on the upper access road

LEGIBILITY / CONNECTION

- Of key note is the importance of pedestrian connections, along and between terraces. Reference Lerwick Town Centre Lanes and Bergen (see photos)

HEIGHT / DENSITY

- Lower terrace to be 3 / 4 storeys. Upper terrace (front) 3 / 4 storeys. Upper terrace (rear) 2 storeys. Valley Housing 1 / 2 storeys.

PARKING

- Option 1 – parking between or underneath buildings on lower terrace
- Option 2 - potential to accommodate parking on mid-level terrace
- Upper terrace – On-street parking. Possible consideration of parking below public piazza.
- Valley Housing – car free

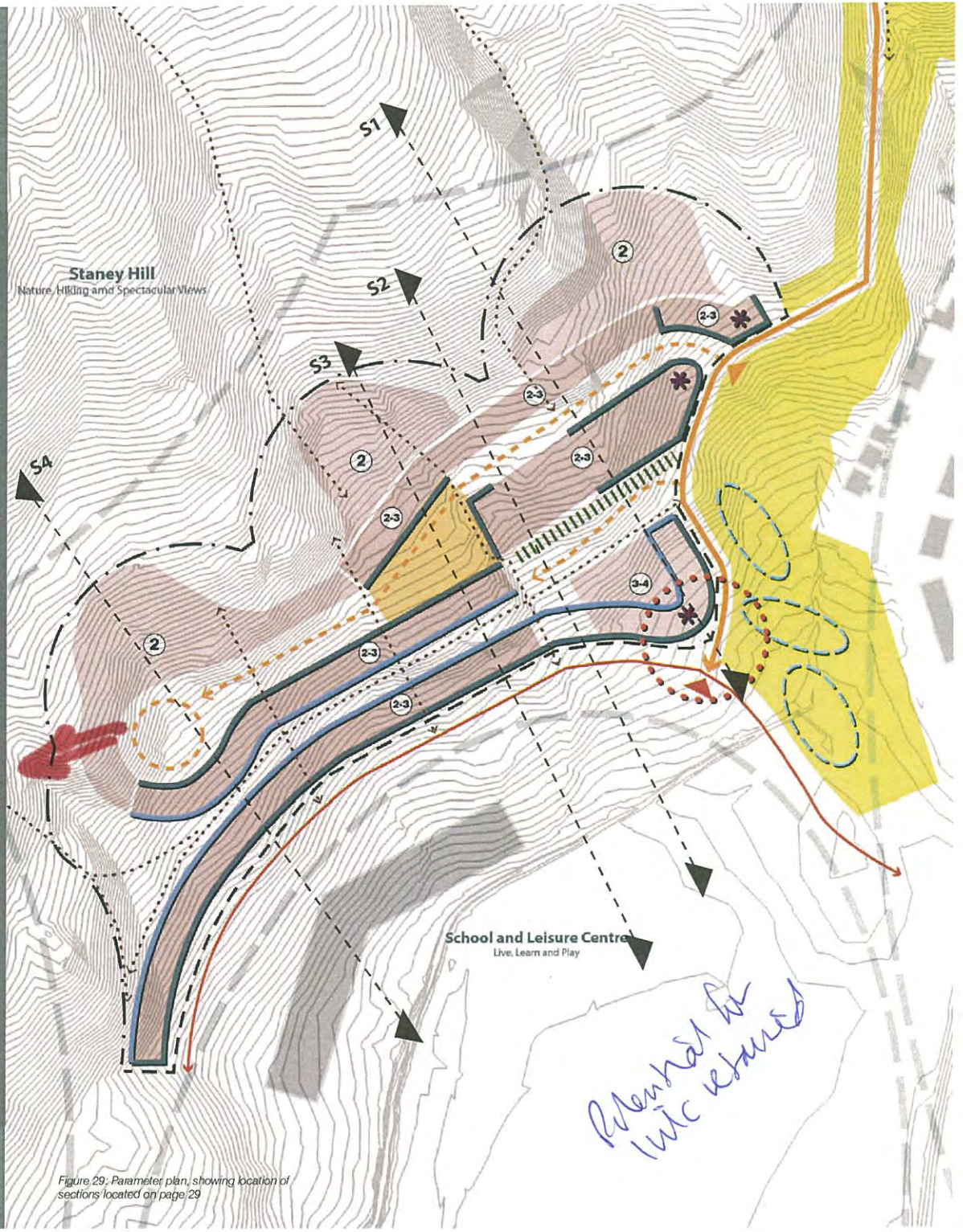
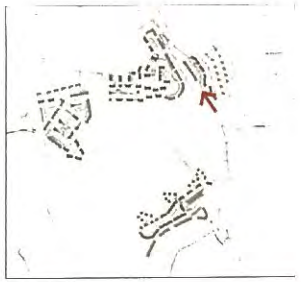


Figure 29: Parameter plan, showing location of sections located on page 29

#12

AREA 2 ESCARPMENT - ENTRANCE TO PUBLIC HOUSING

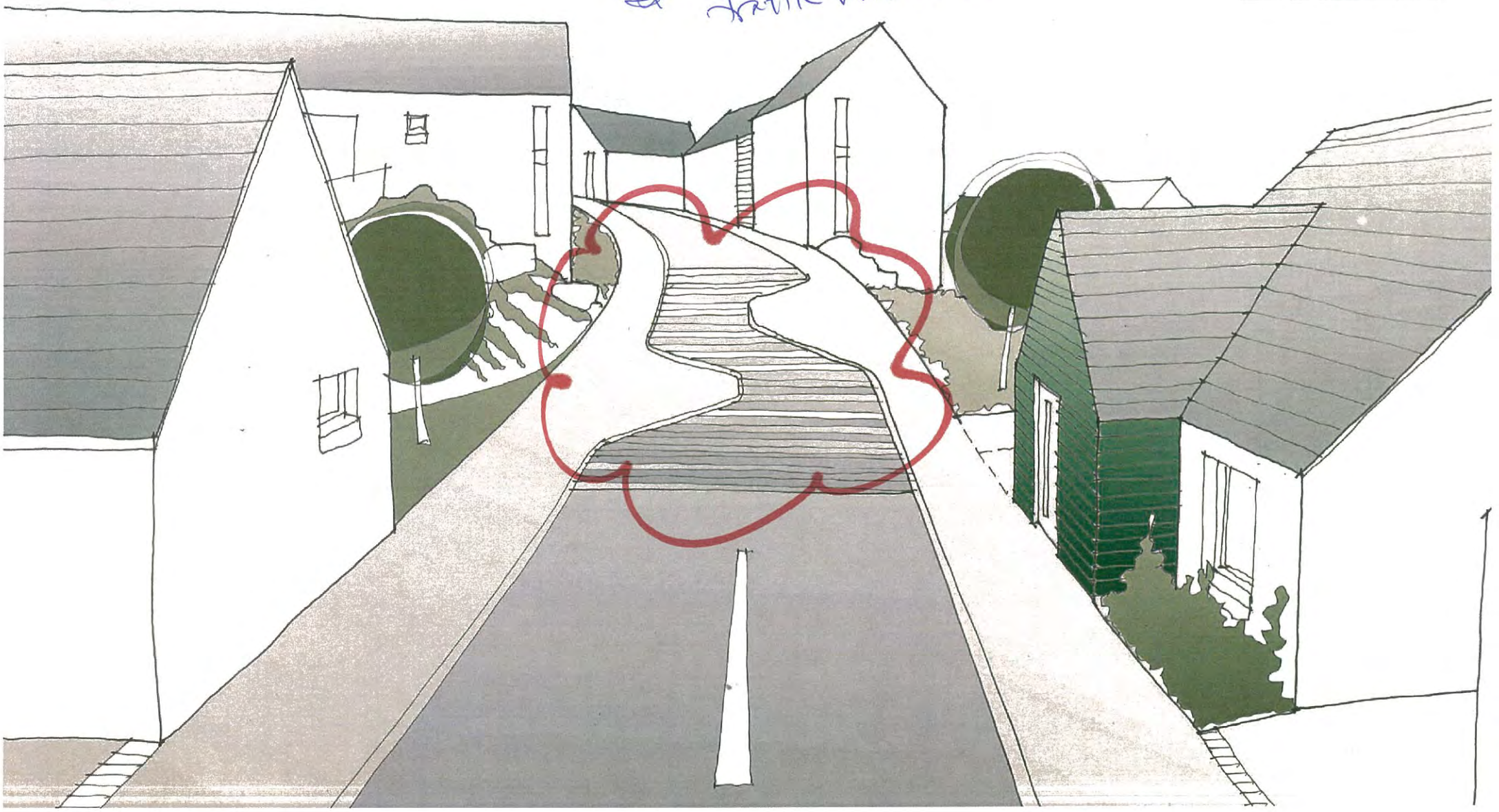
The entrance to the upper Escarpment area once more signals the change from the open natural landscape to the urban environment. The traffic is encouraged to slow down by a sharp bend in the road, flanked closely by housing on both sides. Drivers cannot see around the corner until they are quite close to the bend. The end of the upper terrace is an access to the road and should be articulated slightly differently to the rest of the housing block to acknowledge this fact. We see a simple, strong form as being the best way to do this. The design does not need to be flamboyant and we have indicated a simple slot window on a gable which we think is understated but strong enough.



Min. forward visibility on
this route will be 33 metres.
Gateway will probably also be entry
to 20mph zone / limit area

AREA 4 THE BOWL - LOOKING TOWARDS BOWL ENTRANCE EAST

Between the Plateau and the Bowl, the steep topography, combined with a continuation of the green corridor and the natural landscape of the hillside, provides a break between the two character areas. More detail is provided in the landscaping section. The road between the two areas is relatively straight; thus, we would like the traffic to be slowed here and the landscaping to be more prominent around the road. We propose a road narrowing, which will also provide a crossing point and access to the hilltops beyond.



11. DETAILED DESIGN FOR ROADS AND DRAINAGE

Staney Hill Masterplan - Roads

MOVEMENT AND CONDUCTIVITY

Due to the topography of the Staney Hill and the requirement to have a public transport route through the development, housing will concentrate on the eastern and northern areas of the site.

A principal bus route will transverse the site commencing from the junction off the access road to the new Anderson High School at North Lochside and passing along the eastern slopes of the site up to North Staney Hill area joining the existing road at either Wista or near Cunningham Way at Hill Grind.

The public transport route will be designed in accordance with the National Roads Development Guide and with reference to the Shetland Islands Council National Road Development Guide variations for the Shetland Islands Council Area, dated November 2015.

The desired speed on the road is 20mph. This low speed is to be encouraged through design by introducing a combination of bends, reduced forward sight lines and surface textures to reduce the natural speed of vehicles going through the development.

The construction makeup of all roads will be designed in accordance with the Design Manual for Roads and Bridges, Vol. 7, Pavement Design and Maintenance. Footpaths makeup will be designed as per BS 7533-2:2001 requirements.

As per the design guidance, minimum carriageway width on the bus routes through the site shall be 6.0m, with a minimum bend radius of 20m and a maximum gradient of 8%.

Four spur access roads will be provided off the public transport spine route to provide links to several of the small local roads on the northern slopes of the Staney Hill. This shall provide connectivity between the existing housing schemes and the proposed new development and help to integrate the area into a single housing scheme. The link roads proposed are to connect into the existing upper and lower roads of the Staney Hill Housing scheme, the lower Norstane housing scheme road and the upper Pegasus Place private housing development road. As with spine roads, the maximum gradients on these spur link roads will be 8% and road widths will be a minimum of 5.5m.

7.5 MOVEMENT, CONNECTIONS AND INFRASTRUCTURE

Access to the four character areas will be provided primarily by the public transport route spine road which would link North Lochside to Cunningham way Lane.

The spine road starts at the junction of the new Anderson High School road at level +11.1m AOD and ends at the Wista housing access road at level +82.3m AOD. With the current preliminary design layout, the spine road has an overall length of 1,114m and will rise an overall height of 71.2m. This gives an average gradient of 6.4% (1 in 15.7). The overall flexibility in the vertical alignment from the maximum gradient along the entire length of road is therefore only 17.9m.

The road will generally follow the topography of the hillside going up the eastern face of the hill. This is done to minimise the overall quantity of earthworks and to balance the amount of cut and fill and therefore reduce the amount of material to be taken off or brought onto site.

The preliminary vertical geometry of the road highlights that this is achievable. The preliminary alignment shows the road centreline is at the maximum allowable gradient of 8% between chainages 170m and 400m, 570m and 650m, and ch770m to ch940m. This means that 43% of the spine road is at maximum gradient. The vertical gradient is slightly less than the allowable maximum at the start of the spine road, through the escarpment housing zone and at the end of the spine road going through the bowl housing zone before linking into the road at Wista housing estate. The road centreline has been positioned so that it is close to the existing ground level (allowing for the initial strip of peat and unsuitable material below the peat). This is also intended to have the effect of minimising the overall earthworks volumes and reducing the construction cost of the development.

An alternative option to terminate the new main spine road into the existing road network further to the west near the Hill Grind housing estate was investigated. This option is also suggested as it could provide a better route to integrate the new housing schemes into the existing housing schemes and also link better into the existing public service bus route. An outline design has been done and the vertical geometry indicates that this route option is possible. This option would add approximately 200m to the length of the spine road. The spine road could terminate at either point with the lower section of road between chainage 0 and 1,075 remaining unaltered.

The preliminary design highlights potential issues with large road cut and fill embankments at certain points along the spine road route. The potential large embankment issues occur between ch140 and ch260, ch 290 and 330 and between ch450 and ch580. These issues shall need to be addressed at the project detailed design stage and there are a few options available to optimise the design and therefore reduce the visual impact of any large road embankments. Potential solutions to resolve the embankment issues at detailed design could be to move the horizontal alignment slightly further to the west into the hillside or alternatively to construct retaining structures to reduce the size of the down slope embankment. A combination of both the above options could also be considered. The optimised detailed design solution should aim to reduce construction costs and visual impact.

Similar embankment issues occur on the link roads and this will require adjustment and finalisation at detailed design stage. Potential large embankments occur on the eastern slopes of the link roads along the following chainages:

- Link road 1 Lower Staney Hill ch 30-180
- Link road 2 Upper Staney Hill ch 10-140
- Link road 3 Lower Norstane ch 10-120
- Link road 4 Pegasus Place ch 40-110

Consideration should be given to installing retaining structures along the lower embankment slopes of the link roads. Detailed design considerations could reduce the extent of retaining structures indicated by the current outline design.

Staney Hill Masterplan - Drainage

SUDS PROVISION

Existing Drainage

The site of the proposed Staney Hill housing development is located on the Staney Hill north of Lerwick. The existing hill side is covered in a layer of peat with heather and rough grass vegetation and contains a network of shallow surface drainage ditches channelling surface runoff down the slopes to existing watercourses.

Surface Water Drainage

The proposed storm drainage strategy for the site is to provide on-site attenuation for a minimum 1 in 30 storm event with no flooding of adjacent properties as a result of a 1 in 200 storm event on the new development, in line with SEPA guidance. The attenuated discharge rate will be restricted to the equivalent greenfield release. Based on a site area of 10.3ha, annual rainfall data and soil characteristics the discharge rate shall be restricted to 197.59l/s.

Storm Attenuation

Storm attenuation for the development will be achieved using Sustainable Drainage Systems (SUDS). There are various types of SUDS that can be used to manage and control the runoff from developed areas, as detailed below.

1. Infiltration – the soaking of water into the ground. This is the most desirable solution to runoff management as it restores the natural hydrological processes. Infiltration rates will vary with soil type and condition.
2. Detention/attenuation – the slowing down of surface flows before discharge off-site. This is achieved by the use of storage systems such as basins or subsurface structures.
3. Conveyance – the transfer of surface runoff from one place to another. Uncontrolled conveyance is no longer considered sustainable, but controlled conveyance can provide links between various SUDS components.
4. Water Harvesting – the direct capture and use of runoff on site. Rainfall is extracted for domestic use such as flushing toilets or irrigation of urban landscapes.

As the rock profile is relatively close to ground levels, there is limited potential for the use of infiltration through soakaways. The outline proposal is to provide storm water attenuation utilising two SUDS detention ponds located on the east and south areas of the site. Storm flows from roofs, roads and hardstandings will be collected by filter drains designed to convey flows to the main attenuation ponds.

For onsite attenuation, approximately 850m³ of storage is required to accommodate the 1 in 30 storm event including allowance for climate change (+30%). The site drainage and SUDs systems shall also be designed to protect properties against flooding for 1:200 rainfall events.

The outline SUDs proposal is to divide the site into two zones. Zone one serves the Bowl, Plateau and Escarpment developments. Zone two serves the Terrace development. Zone one is 74% of the total developed area and Zone two is 26% of the total developed area. The storage volumes for each zone is currently estimated at around 630m³ for Zone 1 and 220m³ for Zone 2. The indicative sizes of the detention basin on the preliminary layout plans suggest that these storage volumes could be accommodated however further basin modelling will be required to confirm that it is possible within the topography of the selected site area.

The Greenfield runoff was calculated using the mean annual flood flow rate equation as per CIRIA C697 The SUDS Manual. The rainfall depths for 1:10, 1:30, and 1:200 return periods for various durations were calculated. From this the storage volumes required per m² was calculated and then multiplied by the total drainage area to find the total volume of storage for each return period. These figures are summarised in table below:

Return Period	Critical Storm Duration (mins)	Attenuation required (m³)
1:10	30	590
1:30	30	850
1:200	30	1,400

Drain Down Time of Proposed SUDS Arrangement

Based on the total design storage volume and post-development peak runoff flow rate, as identified above, the time to half empty was found to be approximately 2 to 3 hours.

Water Quality

To ensure appropriate treatment of run-off, the contamination risk for each surface type has been considered, and an appropriate level of SUDS treatment assigned.

Building roofs – the contamination risk of the roofs is considered to be low therefore one level of SUDS treatment would be sufficient. This is achieved at source via the downpipes discharging directly to filter drains providing temporary attenuation before conveying flows the main drainage.

The road network within the site-vehicles using the site roads will be mainly light duty (i.e. cars and vans) with occasional HGV's and local bus service. Roads will be used for access and not parking, loading or unloading. The contamination risk for roads, predominantly from silt and hydrocarbons, is considered to be moderate. We therefore propose two levels of SUDS treatment for the road network within the site. It is proposed to achieve the first level of treatment using filter strips along the road edge discharging to filter drains. While the filter drains may provide some treatment then it is intended to achieve the second level of treatment within the SUDS detention basin.

Detention basins are to be vegetated to enable interception of pollutants during small rainfall events. A forebay should also be included to contain accumulating sediments and Low flow discrete channels could be created through the basin. Final design of the detention basins are to be in accordance with The SuDS Manual 2015 chapter 22 to ensure adequate hydraulic and treatment performance.

Foul Drainage Strategy

A Foul drainage network will be provided throughout the site to serve the anticipated 300 new homes in the development. The sewer network shall discharge to the existing foul drainage network at north Lochside via the branch line laid along the first 135m of the newly constructed access road into the new Anderson High School.

For estimation for foul drainage flows the following mix of housing has been assumed: -

- 2 Person Flats 40%
- 3 Person Houses 35%
- 4 Person Houses 15%
- 5 Person Houses 7%
- > 5 Person Houses 3%

The development will therefore accommodate in the order of 900 persons. Allowing for 150l/head/day the average flow within the network is 1.56 l/s. This equates to a peak flow, or 6 times dry weather flow, of 9.36l/s.

Scottish Water, Sewers for Scotland technical specification for the design and construction of sewerage infrastructure 3rd edition recommends a peak design flow of 4,000 litres/unit dwelling. Using this method, the peak flow would be 13.89l/s.

At detailed design stage the peak flow value can be more accurately calculated in accordance with BS EN752 using the discharge unit method in BS EN 12056-2 system type III. For this stage of the development at preliminary outline design stage assume an average of the above rates i.e. 11.6 l/sec peak flow will be discharged to the existing foul sewer system in North Lochside.

The design of the foul drainage system will be in accordance with the requirements of the Sewers for Adoption Scotland and to the British Standards. Hydraulic calculations will be carried out using the Colebrook White Equation.

The trunk sewers for the development is anticipated to follow the main spine road. All drainage networks will be designed to gradients and invert levels to minimise the depth below ground of the sewers but also to achieve self-cleansing velocities. Keeping sewer lines to the minimum depth is anticipated to be particularly important for the Staney Hill site due to the likelihood of rock excavation in trenches for a large part of the sewer lengths.