



Calton Hill City Observatory Project

City of Edinburgh Council and The Collective Gallery

Planning Statement

April 2015

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THE CALTON HILL CITY OBSERVATORY PROJECT

1. INTRODUCTION, PROJECT REQUIREMENTS & BRIEF

1.1 DEFINITION OF PROJECT

The client for the project is a partnership between the City of Edinburgh Council Museum & Galleries Department and The Collective. The City Observatory site is held as a 'common good' asset by the City of Edinburgh Council.

Following the relocation of contemporary arts group The Collective to temporary accommodation on Calton Hill and the opening of the City Dome as a gallery space as part of the Phase 1 works, the Phase 2 project is to restore, reopen and extend the use of the remainder of the site. The City Observatory Compound on Calton Hill includes several buildings of national historic interest, and the project will see these buildings repaired and brought back into public use, whilst also adding additional accommodation to the site to ensure an economically sustainable future for Collective at the Observatory.

A feasibility study was prepared by Malcolm Fraser Architects in March 2013 which considered two options for the site. Malcolm Fraser Architects were then appointed to take the project forward in August 2014. The core Design Team also includes Elliot & Co. Structural Engineers, Cundall Mechanical & Electrical Engineers, Harrison Stevens Landscape Architects and Faithful + Gould as Project Manager, QS and CDMC.

1.2 PROJECT AIMS/OBJECTIVES

The aims of the project are to restore, enhance and add to the landscape, buildings and features contained within the Observatory boundary walls to make the site fully accessible to the public for the first time in its two hundred year history.

The site will be operated by The Collective, an organisation established in 1984 to support new and emergent artists, providing space to exhibit work and therefore becoming fundamental to the cultural vitality of Scotland. The Collective define their vision for the Calton Hill Observatory project as:

Towards the City Observatory - looking, thinking and producing with people.

Observations and Ideas - the rationale for the vision of Collective at the City Observatory

Historically the Old City Observatory complex on Edinburgh's Calton Hill was a place to house telescopes and observe the stars, a place to advance scientific discovery and innovation and this was celebrated through its architecture. But City Observatories are also places to view, to reflect upon a city, to bring people together, laboratories to research and follow academic pursuits, to debate various subjects and geographical areas.

Collective's vision is to be a new kind of City Observatory for Edinburgh, encouraging engagement, bringing together ideas of research and development with science, heritage and contemporary art, connecting with the locality through the acts of looking, thinking and producing in synergy with the historic culture of the City Observatory site.

The approach to the development of the designs for the site, Collective's artistic programme and the engagement activities and plan delivered on the site will all contribute towards a City Observatory. The City Observatory will be a space in which practitioners, producers and publics can meet, think, debate, reflect upon the past and most importantly, take action.

Calton Hill's histories of stargazing and intellectual endeavour make it an inspiring location for the public to access the work of our most forward thinking contemporary practitioners. It will provide a space for reflection on the past, present and importantly the future through cultural exchange and dialogue. Collective and CEC believe that culture can bring people together – provide moments that change the way we look at our universe and understand ourselves within it. The City Observatory has a rich history, which played a central role in the development of ideas of the enlightenment. Collective and the Museums department are committed to working together to re-interpret these ideas through the prism of contemporary culture in order to open them up to Edinburgh residents and tourists alike.

The success of the year round programme will be measured against the following shared aims:

- **Excellence and Innovation:** Providing a high quality experience of the site and of contemporary culture. Delivering opportunities for learning, research and development through the sites unique history.
- **Participation and Interaction:** Artists and theorists will interpret the housed objects and the use of land in the common good. It will grow audiences through programmes such as artists re-presenting displays and making work with stakeholder and community groups.
- **Widening Access and Learning:** Collective are committed to providing opportunities for both formal and informal education. An expanded public programme will include seminars, discussions, events, exhibitions, trips and mentoring for 8 cultural producers per year.
- **National and International profile:** The iconic site will capture the imagination of artists and audiences alike; it will provide a programme focus that supports both international artists and home-grown talent and will link Scottish artists into International networks.
- **Sustainability:** It provides opportunity for the space to generate funds to support itself through an expanded programme with new partners, room hire and/or providing café facilities. This will increase the offer to visitors and if profit is generated it will be reinvested into the site and programme for public benefit.



Calton Hill: City Observatory Complex

1.3 SITE, CONTEXT & ACCESS

The Observatory Compound is located on top of Calton Hill at the East End of Princes Street, Edinburgh. Calton Hill is a prominent, significant landmark on the Edinburgh skyline along with The Castle and Arthurs Seat. The Compound is accessed by vehicle from Regent Road to the South and as a pedestrian by paths leading from Royal Terrace to the North and Regent Road to the South. From the main access points there are a network of pedestrian paths which extend across Calton Hill and connect the other significant landmarks; the Dugald Stewart Monument, The National Monument and The Nelson Monument. The Observatory Compound is Category A Listed, part of the Edinburgh World Heritage Site and the surrounding area is designated as a SSSI (Site of Special Scientific interest) due to its geological connections to the Arthurs seat complex.



Calton Hill: city context



Calton Hill: site context

The Observatory Complex includes the following elements:

1. Perimeter Compound Walls
2. The City Dome to the North East corner of the site
3. The City Observatory to the Centre of the Site
4. The Transit House to the West of the Site
5. Crawford Dome to the West of the site
6. Derelict Tweedie Dome to the North West of the site
7. Derelict Cox Dome to the North West of the site
8. Old Observatory House (outwith project)
9. Playfair Monument



City Observatory Complex: building elements

1.4 PROJECT BRIEF

The planned accommodation is spread throughout a number of buildings, all enclosed within the existing observatory compound walls. The central City Observatory will have a number of functions, acting flexibly as a meeting and education/workshop space, with the library restored and an area dedicated to art retail. The Transit and McEwan telescopes will be restored and remain in-situ, enabling the whole building to be a museum/interpretation space of its scientific past.

The City Dome was refurbished as part of the Phase 1 works to form an 'as-found' gallery space and the Phase 2 project will see external fabric repairs and landscape improvements around this building.

The Transit House has significant historic importance as the precursor to the City Observatory; therefore this will be fully repaired and restored and used as a gathering and education space.

The new aspects of the scheme will introduce an entrance kiosk at the East Gate, a new Collective office and gallery space built into the hill to the north of the observatory mound and a new restaurant/ Salon on the north west corner. In addition to this landscape works will allow the whole site to become accessible to all, whilst also clearing away much of the overgrown vegetation currently concealing the site's full splendour.

Monthly Project Team meetings along with specific user group meetings have been held to discuss the client requirements. The details of these discussions have been collated and recorded within the 'Schedule of Accommodation and Client Requirements,' included in the Architect's report (Section 2). The following design considerations form a preface to this, which describe and reflect the client's broader requirements:

Overarching Design Considerations

- Despite the numerous buildings, some historic, some new, and the open spaces between, the whole site should feel unified and have a 'Collective' personality.
- The Collective as a Contemporary Art organisation and the astrological use of the site are about looking forward and exploration, the new aspects of the scheme should be of contemporary design, and at the forefront of sustainable thinking.
- The new aspects of the scheme must be respectful in their scale and design to the historic buildings and overall compound.
- The history of the site and surroundings should be able to be interpreted clearly in the new proposals by all visitors, with few if any interpretive panels.
- Many aspects of the site currently have a sense of abandonment, with overgrown vegetation and collapsed dome structures, although these minor domes should be recognised in future proposals, their detrimental impact on the setting of the Observatory should be addressed.
- The whole site should be fully accessible to all.

2: ARCHITECTURAL REPORT

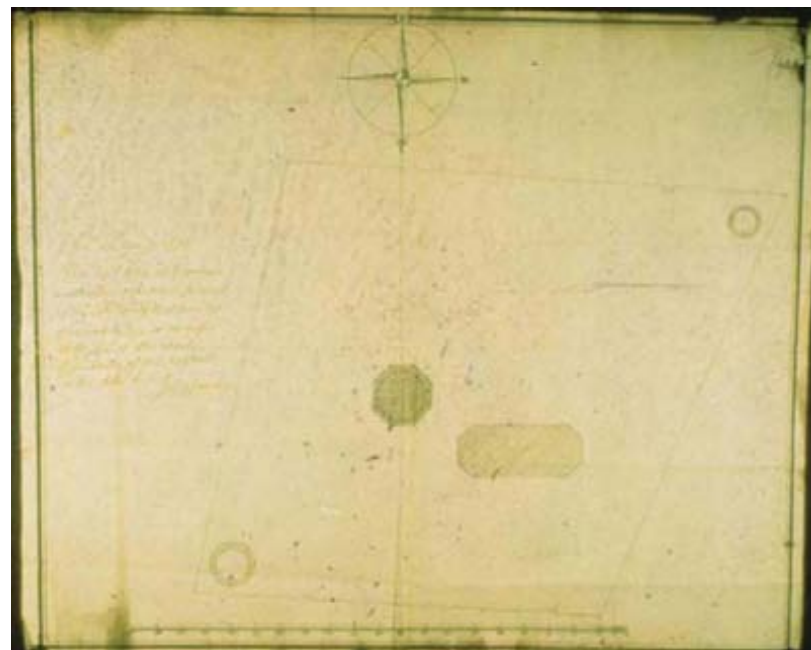
2.1 INTRODUCTION

This report summarises the progress of the 'developed design' for the Calton Hill Observatory project, at RIBA Work Stage 3. These proposals reflect the culmination of a briefing and exploratory process with CEC, The Collective and involving numerous stakeholders. The proposals includes Structural, M&E and Landscape input.

2.2 ARCHITECTURAL EVOLUTION OF THE SITE

The history and significance of the City Observatory site, to science as to the history of the Enlightenment, is such that the *evolution* of the site, through the interventions of Edinburgh architects James Craig, Robert Adam, William Playfair and Robert Morham, needs to be examined.

The proximity of the hill to the town, but elevation above its mirk, made it an ideal location for astronomy. The simple layout of 1776, by surveyor John Laurie, records architect James Craig's first plans for the site, with a diamond-shaped enclosure, an octagonal Observatory near the centre and then two towers, at the north-east and south-west corners. It is generally understood that it was Robert Adam who urged Craig to fortify the walls with towers at the angles and the half-built octagon was abandoned for Craig's "Gothik" Old Observatory, at the south-west corner.



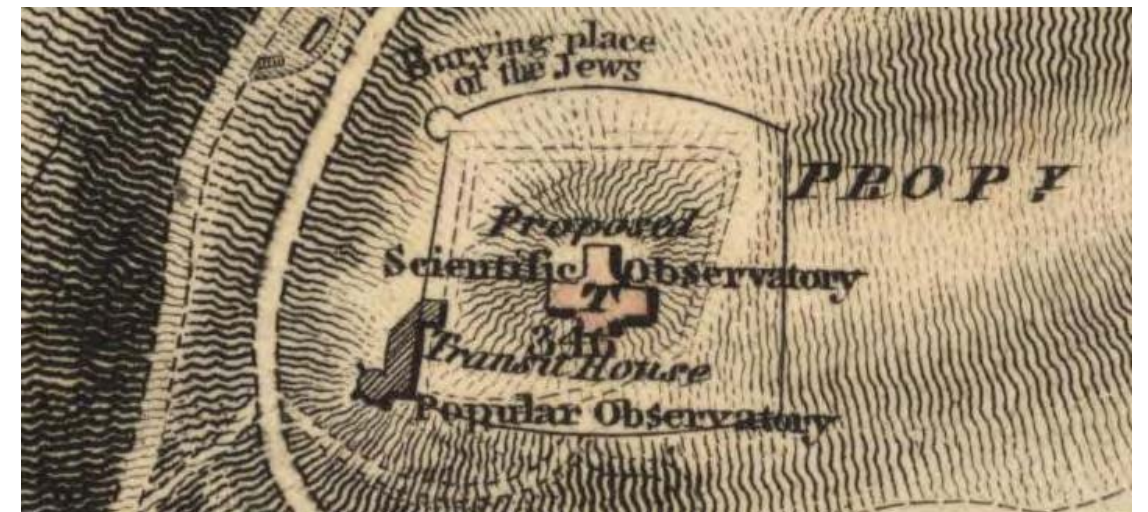
John Laurie, Plan of half the acre ground at the top of Calton Hill – site of the Observatory, 20 April 1776, Edinburgh City Archives

Robert Barker's famous panorama of 1793 – the world's first 360° view – was drawn from the Old Observatory and shows these early interventions, with the original walls and Craig's part-built octagon.



Robert Barker – Excerpt of Panorama of Edinburgh from Calton Hill, 1792. University of Edinburgh Image Collections

Kirkwood's plan of 1817 records the site in transition from Craig and Adam's diamond-shaped, axial plan, to Playfair's four-square, fully-fortified site, with a wall to each airt. The Barker panorama shows that the probable reason for the original diamond shape is that the site fell away sharply to the north-west and it is assumed that, for the regular Playfair plan to be implemented, the ground here was made-up with fill, possibly from the top of the site being flattened for Playfair's Observatory. The presence of fill has been confirmed by recent site investigations.



Robert Kirkwood, 1817 – Excerpt from The Plan of the City of Edinburgh and its Environs, National Library of Scotland

Playfair placed the new City Observatory temple-like at the centre and apex of the walled precinct, but also reinforced Craig and Adam's original conception by fortifying the south-east corner with the monument to his mathematician uncle, John Playfair, completed in 1826 and incorporated into the extended, battered walls in 1828.

The north-east corner then gained its tower/pavilion – first indicated in that original, 1776 John Laurie drawing – in 1896, when City Architect Robert Morham built the City Dome, while the fourth, north-west corner, where a final, concluding pavilion is proposed, remained vacant – save for the store shown in the Barker panorama.

In summary, the elements of this proposal, in relation to the evolution of the site, are as follows:

Playfair's Observatories:

- **City Observatory:** central functions including reception, shop, library and permanent transit telescope; internal divisions removed and columns re-set to regain the integrity of Playfair's dynamic central space; repairs.
- **Transit House:** project space; additions removed, building repaired and the integrity of Playfair's first building on the site recovered.

Walls and Towers: walls repaired and:

- **Old Observatory:** already repaired and renewed as a holiday rental; not part of this project.
- **John Playfair Monument:** repaired.
- **City Dome:** gallery space; repairs and upgrade completed.
- **Fourth Pavilion:** the litter of later domes around the north-west corner, of little architectural worth, are removed and a new stone pavilion set-out in size and location to balance the other three – so recognising the greater weight of the Old Observatory and the City Dome set on Laurie, Craig and Adam's original axis as well as the Fourth Pavillion's geometric kinship with the John Playfair monument; containing, at a lower level, back-of-house fractions and, above, a café/restaurant/salon, looking back at the City Observatory and out towards the distant Forth Bridges, cantilevered over the chamfered corner of the enclosing wall.

Landscape Elements:

- **Lower Level Gallery:** dug into the fill to the north of the site (largely – some limited rock removal) forming a lower level courtyard with the City Dome and the lower level of the Fourth Pavilion; with Gallery offices alongside the new Gallery and with an observation terrace above, at the level of that surrounding the City Observatory but visually separated, by a skylight bench and distinct gravel;
- **Entry Café Kiosk:** lens-shaped, set inside the east gate, in copper.
- **Paths and Terraces:** gently rising and falling paths, aiding accessibility and recovering the general form of the perambulatory paths of the Enlightenment layout shown in the Barker Panorama, including forming resting and viewing places and terraces as those shown at the panorama's planetary models; and in gravel, to be smartly-rolled, as also shown in the panorama.

2.3 DESIGN PROPOSALS AND RESPONSE TO BRIEF – EXISTING BUILDINGS

ENTRANCE GATE & EXISTING KIOSK

Located at eastern entrance to Compound, the East Gate will remain as the main entry point to the compound, as it is the logical principal entrance for visitors arriving by both vehicular and pedestrian means and is also step free, so accessible to all. Café MILK are currently operating at this location within a temporary structure, providing hot drinks and snacks to visitors. The kiosk currently acts as a draw through the entrance gates, welcoming visitors to the City Dome gallery. The south gate will also be open during the day to welcome visitors arriving via the steps from Princes Street. Although this is an important axial route to the Observatory it is no longer practical to use as the principal entrance due to the immediate steps acting as a barrier to some users.



Principal East Gate & main entrance

South Gate secondary entrance

Calton Hill: existing coach and car drop off point & gathering space



East gate and temporary kiosk as existing

CITY DOME

The City Dome interior has been refurbished as part of the phase 1 works, with the Phase 2 aspects of work limited to external fabric repairs and improvements to the surrounding landscaping, along with providing an internal draught lobby to try and improve the internal environment of this vase interior. The existing concrete slab installed in Phase 1 will also be improved with a polished screed, to provide a level surface for displaying artworks and to visually tie it together with the new gallery space.

The interior of the City Dome now has a wonderful honest quality, with exposed brickwork, wrought iron dome mechanics and new concrete fixtures.



City Dome Exterior & Interior gallery space

The existing temporary kiosk will be replaced with a permanent building as part of the Phase 2 works. Further details are included in the proposed building section below.

PROPOSED REMOVALS

The site has a number of ad-hoc additions which have been constructed during the twentieth century which in general have a detrimental impact on the setting of the Observatory; they are detailed below as follows:



Structures to be removed are focused to the north-west corner of the site

CRAWFORD DOME: Built at some point between 1896 – 1908 to house a telescope owned by Lord Crawford, the building is now boarded up. Externally the render skin, brick walls and decorative corning are badly deteriorated, the building has no foundations and is sitting on soft fill material and as such is suffering from structural movement. The dome mechanism is still in working order and the proposal is to remove this and re-use at the Blackford Hill Observatory, with the brick walls being demolished. The position of each of these smaller domes is to be recognised in the landscape proposals.



Crawford Dome



Collapsed Tweedie Dome

COX DOME: The existing dome is in a very bad state of repair and it is proposed that this building will be demolished. The building is not of architectural value and is considered detrimental to the setting of the Observatory.



Cox Dome (white painted, timber, circular structure)



TWEEDIE DOME: The first of the minor domes to be constructed in 1896 the Tweedie Dome is now in a state of collapse and it is proposed that this will be cleared. The building is not of architectural value and is considered detrimental to the Observatory setting.

AERIAL HOUSE & WC'S: The ad-hoc additions of a small stone faced structure originally constructed to house police aerial equipment, an abandoned dome frame and a derelict toilet block adjacent to the Transit House will also be cleared from the site to improve the setting of the surrounding listed buildings.



Aerial building and dome frame



1970's WC block

TRANSIT HOUSE

The Transit House was built in 1812 and is understood to be an early WH Playfair building and precursor to the main Observatory. It is an elegant; one room stone built structure, originally with lead roof and meridonal slot which can be seen in this early Hill & Adamson image below, just projecting above the boundary wall.



Hill & Adamson image indicating Transit House roof with meridonal slot above boundary wall

The proposal is to restore the building's interior and exterior, including reinstating the meridonal slot which would originally have been covered by timber shutters; it is currently infilled and felted over, and the proposal is to install glazing to the slot to ensure the building remains watertight and thus preventing damage from water ingress.

The interior has been fire bombed and vandalised, although much of the existing fabric remains and will be restored. The Transit House will be used as a gathering and workshop space for small groups of visitors. The large sash and case window to the east elevation, originally for viewing the 'two-faced clock' will provide a view into the space for passers-by.



Transit House – historic image prior to WC block being added and with housing over deep earth thermometer



Transit House interior as existing



CITY OBSERVATORY:

External Access:

It is proposed that the City Observatory will be open to the public as a museum, education and retail space. To facilitate accessibility into the building it is proposed that a new access ramp is added to the south west corner of the building to provide access for all onto the raised plinth, which leads to the main entrance door.



City Observatory: location of proposed ramped access to south west corner

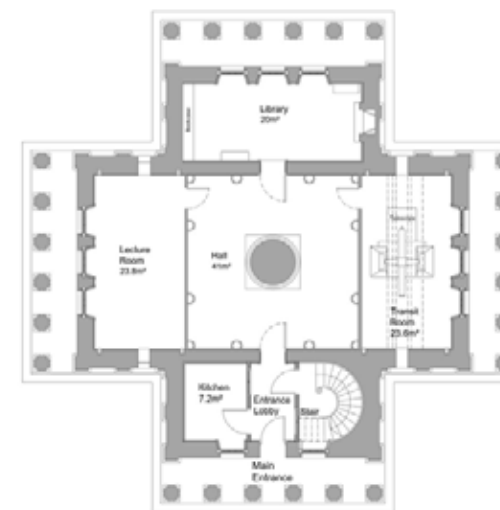


Image of proposed ramp – utilising slim profile bronze to ensure a light-touch on the south facade

Observatory Central Hall:

The main central space within the Observatory was subdivided into three rooms during a refurbishment in the 1940, which has had a detrimental impact on the character and originally intended architecture of this historically significant space. The proposals are to remove these partitions, and reposition and replace the paired internal columns which have previously been moved or removed, in order to restore the original layout. The ceiling has been affected by water ingress and has collapsed in some areas; this will be repaired along with associated cornicing. Later additions such as the two exhibition boxes will also be removed to restore the original clear, singular space with windows to the east and west walls, allowing the central column - supporting the telescope above - to become more in proportion with the room.

A false ceiling has been installed to one of the subdivided rooms and this will be removed so that the full impact of the original volumes can be appreciated. The east and west meridional slots to the walls and roof will be opened up and glazed and the existing shutter mechanism to the west slot will be repaired and restored to working order. The transit telescope will remain in-situ, but for exhibition rather than astronomical purposes.



Existing – Main hall subdivided



Proposed: Central hall recovered, paired columns reinstated



Central Hall, currently overly dominated by central column, supporting telescope above, due to addition of partitions subdividing space and removal and adjustment of columns now offset with cornice above.

Library:

The library is situated to the north of the main hall. This room will be restored, and it is proposed the in-built bookcase to the west wall will be repaired and glazed. The remaining two freestanding bookcases are proposed to be removed as are not original to the space and create an imbalance to the proportions of this symmetrical room. The original Playfair fireplace will be returned to working order. A substantial ceiling collapse has occurred and so a new lath and plaster ceiling will be installed throughout. The window bars will be removed to all rooms and timber shutters adjusted to close, it is proposed metal panels will be installed in the shutters to ensure the security of the building can be maintained. This space will be used as a library, a meeting room and a lecture space.



Existing Library in north wing of City Observatory

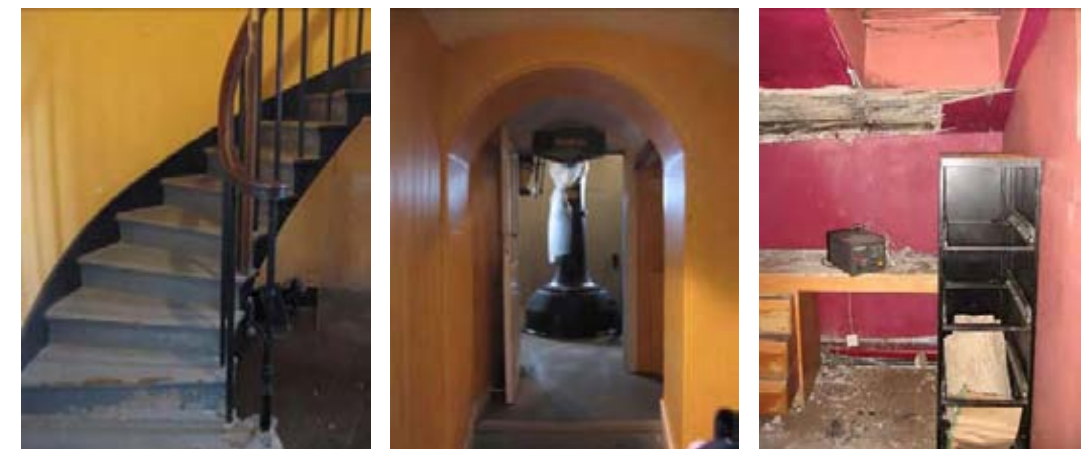
Ancillary Accommodation (within existing kitchen space):

It is proposed that this space be subdivided into two, with a new non-load bearing dry lined partition system. Forming a new accessible WC and small staff tea prep area, both accessed independently from the entrance hall. The entrance hall has four original internal doors, two of which are dummy doors intended by Playfair to retain the symmetry of the space; one of these doors is to be brought into operation to allow access to the WC. The fixed fittings in the tea-prep are to include two base and two wall units, including a fridge and sink.

Stairwell:

The original spiral, pencheck stair is an elegant feature of the Observatory and this will be repaired where damaged and refinished. The walls and ceiling in this space have suffered from condensation damage due to being unheated and so all wall and ceiling linings will be repaired or replaced.

First Floor Hall & Store: The first floor of the Observatory is limited to a small store room, and the McEwan Dome with two small dark rooms off. It is not intended that public can freely access the first floor, but pre-arranged visits and astronomy groups will use it on occasion as the telescope is in working order and will be overhauled as part of the project. The dome mechanism is working and is to be reviewed by a mechanical conservator to ensure it continues to function satisfactorily.



City Observatory: staircase, upper hallway and first floor store as existing

2.4 DESIGN PROPOSALS AND RESPONSE TO BRIEF – PROPOSED BUILDINGS

KIOSK:

The kiosk sits inside the entrance at the east gate. This acts as a draw through the gate and a welcome point for visitors. The kiosk will serve hot drinks and light snacks and also provide an orientation point for the Observatory compound.

The kiosk's oval form responds to a natural depression in the rock face behind, allowing it to sit back from the main path. This oval form evokes the concepts also considered in the landscape scheme of astronomical orbits and time - the bronze columns which support the floating roof above are on defined points on this orbit, which will allow sunlight to cast defined shadows through the clerestory glazing - tracking the movement of the sun and time throughout the day.

The thin, light form of roof and clerestory are designed such that a view up to the Observatory on the hilltop behind is not overly obscured, therefore creating enticing glimpses of the temple on the hill, inviting the public in to explore and discover the site.

Signage is provided on the clerestory glazing, allowing it to be easily changed when Collective re-brand, and will also be back-lit by the glow above the kiosk at darker times of year.

Practically the kiosk is equipped with a fitted counter to display and serve goods, with built-in timber shelving behind the server for displaying goods for sale. Shutters allow the opening to the east face to be closed and secured at night, an access door is provided to the south side. The exact fit-out requirements are to be further developed with the operator during Stage 4.

The kiosk will be clad and roofed in bronze – a sheet metal formed from an alloy of copper and tin, or brass – an alloy of copper and zinc- both are initially bright like new copper but will quickly weather to a warm golden or reddish brown. We will also explore the possibility of using patination oil to provide a more distinctive character to the metal. The use of metal in this manner sits well with the existing zinc dome to the City Observatory and Copper dome to the City Dome.



Visualisation of the kiosk inside the East Gate and Observatory in the distance



Precedent images of similar kiosk buildings – designed by Thomas Hetherwick & Carlo Scarpa

COLLECTIVE GALLERY & OFFICE:

A new, single storey gallery and office building is proposed to the north side of the Observatory, recessed into the hillside allowing the eaves level to sit at the same height as the existing observatory gravel podium. A roof terrace above provides an observation point with long views out to the north and west of the New Town, Forth and beyond.

The rationale of the design stems from a desire not to create a 'shop front' to the gallery and instead create a space which entices the public into a focused space where the artwork is revealed. As audio visual work is often displayed in the space, the building needs to appear open and inviting when the shutters may be closed for light control.

These major aspects of the brief led to the north elevation of the gallery becoming more solid in form, with angled window openings allowing diffused light in, without providing expansive direct views into the space. The windows recesses are sized to allow one person to stand and view out into the art court to the north.

The remaining elevations are largely concealed in the hillside, but will be finished in tooled, self-supporting ashlar stone where visible. As windows are only possible to one elevation, light from above becomes crucial in providing sufficient daylight and ventilation to the rear of the space. Two 'benches' on the roof terrace above provide a seat at this prime observation position, whilst providing indirect light into the space below. These upstands are positioned symmetrically on the Playfair Observatory axis and also, along with a change in gravel colour, help define the square plinth surrounding the Observatory.

The structure is formed in in-situ concrete, which suits the subterranean quality of the building and is also suitable for use on a site with such access difficulties. Internally the concrete will be exposed to the soffit of the gallery and office, and will be created using a shuttering system to ensure a refined finish and will be specified to create a light, uplifting finish. The remaining walls will simply be lined in a robust board which allows for ever changing exhibitions to be installed and the space simply changed to suit. The north, window wall will have a timber lining to facilitate the in-built shutters, which can be painted in the gallery if this better suits the artistic programme.



The gallery has a solidity appropriate to its subterranean quality and as a 'cut face' to the northern edge of the Observatory plinth, but the angled openings with heavily textured ingoes, allow the façade to open-up to the west, welcoming visitors into the gallery.

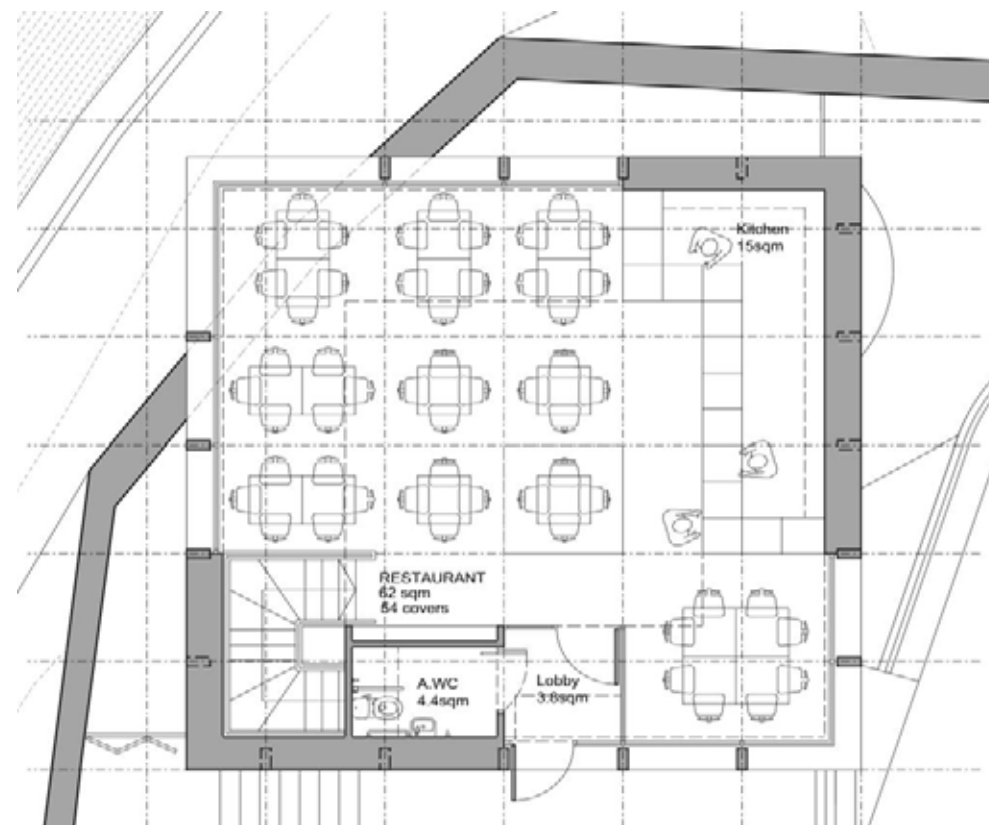


THE SALON:

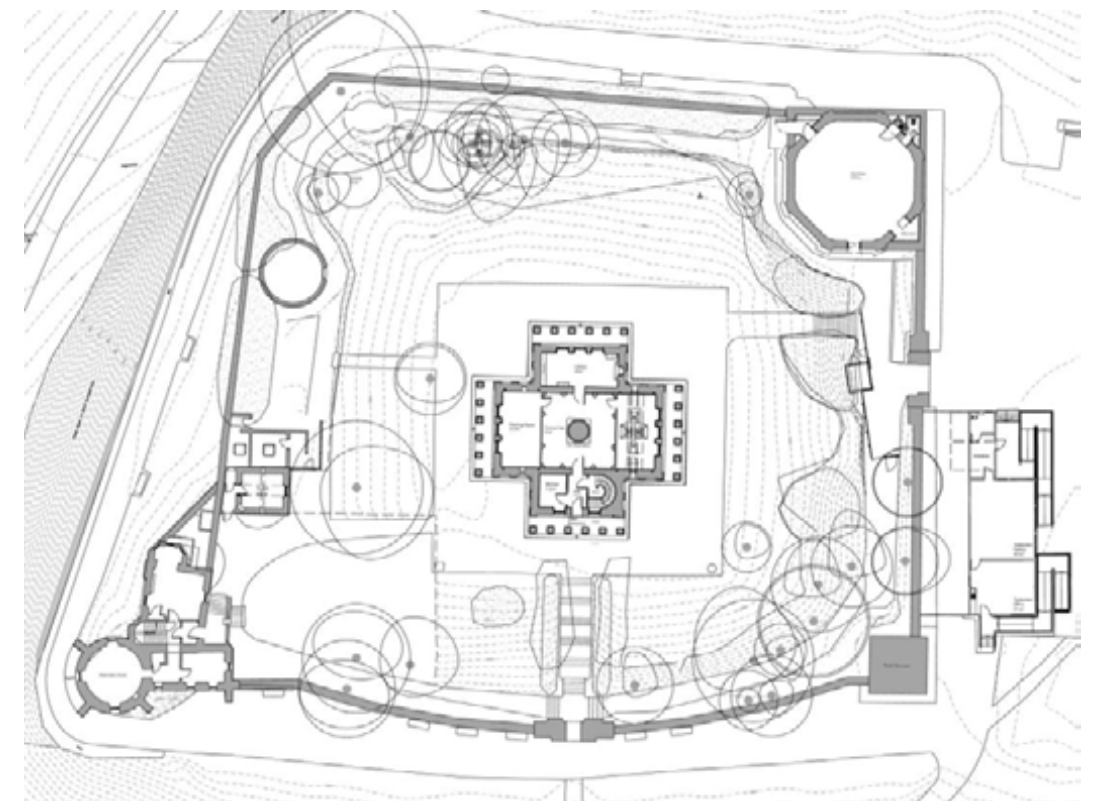
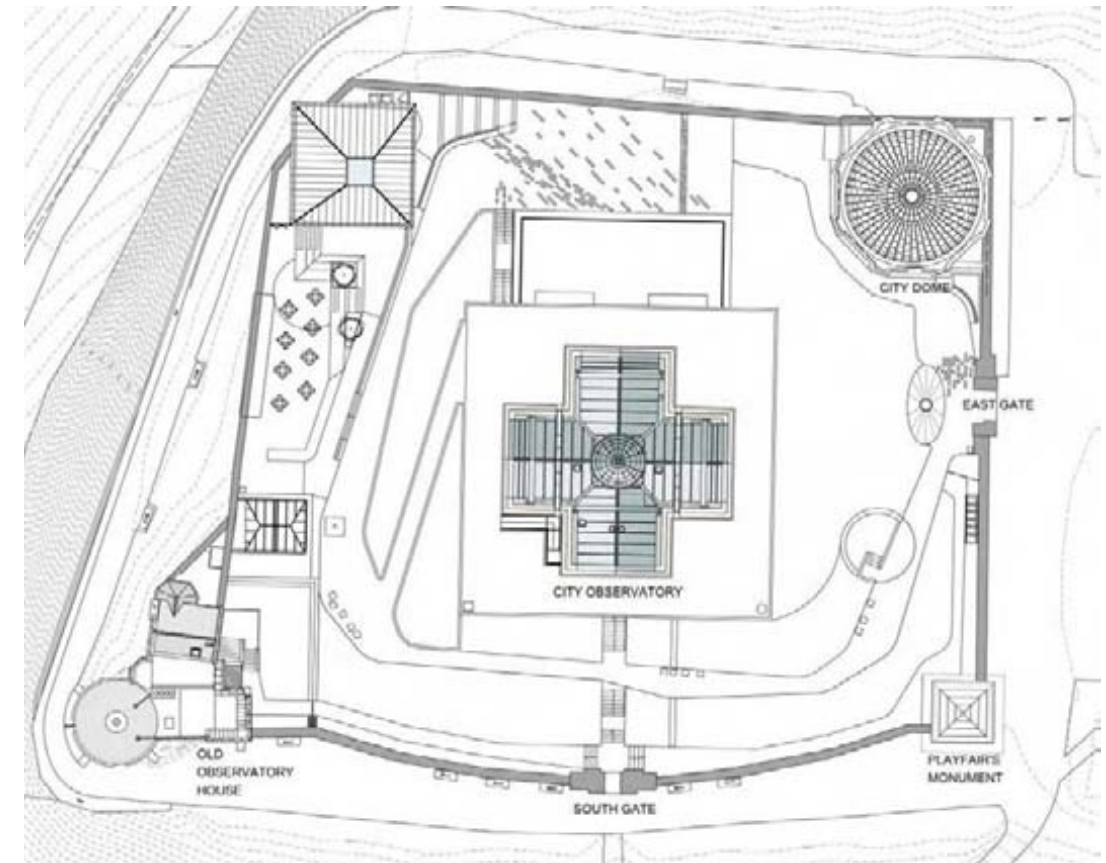
A new pavilion is proposed to north-west corner of the site, formalising the composition of the site as a whole, and providing definition to the remaining empty corner, currently occupied by the remnants of collapsed domes and overgrown trees and shrubs. The pavilion is to house 'The Salon', a restaurant, meeting place and observation point, in name and concept reflecting the Salons of the Enlightenment period which is so closely linked with the City Observatory.

The new stone pavilion is set-out in scale and location to balance the other three corner buildings – recognising the greater weight of the Old Observatory and the City Dome set on Laurie, Craig and Adam's original axis, as well as the Fourth Pavillion's geometric kinship with the John Playfair monument to the south east corner.

In plan, the building recognises this axis, with an offset grid creating column positions to reflect the close views from the south east corner up to the observatory and the wider column arrangement to the north west both opening-up to the sprawling views over the new town and out to the bridges, and providing the columns with a visual 'base' on the existing boundary wall below.



Salon upper floor plan indicating south-east/ north-west axis through the proposed plan

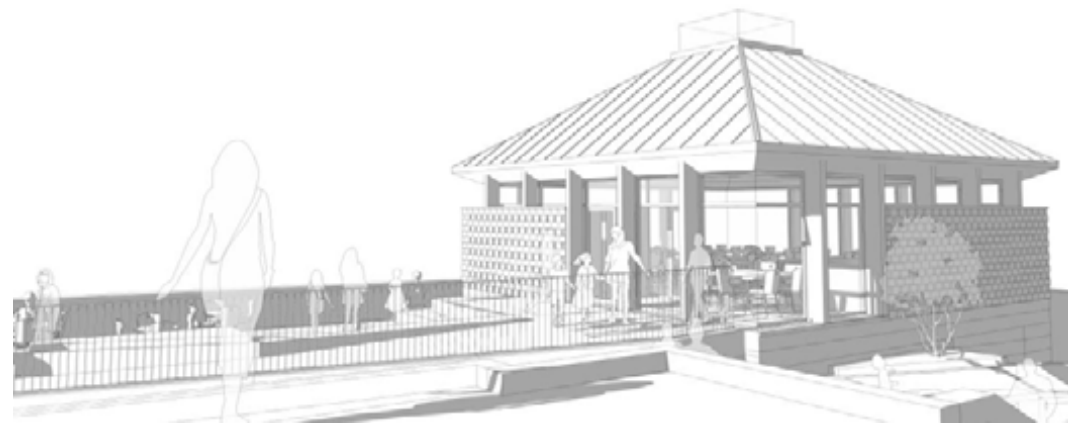


Existing & Proposed site plans - indicating the rationalisation of the site - removing ad-hoc additions and self-seeded planting and augmenting the north-west corner of the site with a pavilion balanced in scale against the three existing buildings defining the boundary corners.

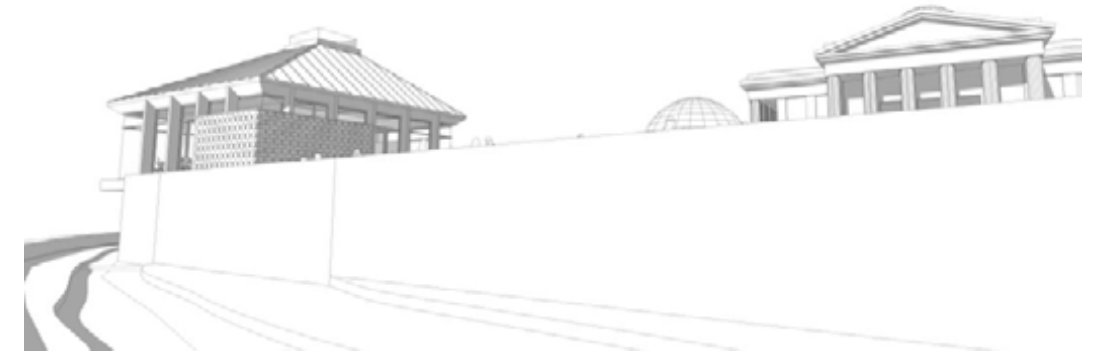


Site aerial (as viewed from Nelson Monument) indicating scale and roof form of new north-west pavilion in the context of the Coty Observatory compound.

The roof form was derived following experimentation of many different forms, to identify a form which was bold enough to stand up for itself on a site with strong domed, pitched and pyramid roof forms, whilst also being contemporary in nature and respectful to the historically and culturally significant site. The external column arrangement and cut-back edge to the roof form, hint at a lightweight, uplifting roof, reminiscent of the surrounding lightweight domes which open up to the sky. The asymmetrical pyramid form is topped by a glass oculus, envisaged as a frameless glass cube, providing conceptual links to the sites history of observing skywards, whilst providing an identifiable symbol of the site and practically providing a joyful interior space with high levels of natural daylight.



View of Salon from Observatory Plinth



View of The Salon and The Observatory (which will become visible once scrub is cleared) from the west path surrounding the compound.

Internally The Salon is arranged over two levels, after many developments through the briefing process and following the outcome of the Site Investigation, it became viable and desirable to house the back-of-house accommodation of plant (providing site wide CHP to all buildings), kitchen, and toilets in the lower ground floor accessed from the north courtyard, with the restaurant occupying the upper ground floor to take full advantage of the breath-taking views enjoyed from this corner. An accessible toilet is available on the upper ground floor, with internal stepped access to the lower ground floor to customer facilities. The Site Investigations found this corner of the site to be fill material, with basalt rock not reached until well below the level of the external path, this enabled excavation for the lower level to become cost effective and has benefited the project immensely in allowing the site to operate in a more practical and financially viable manner going forward.



Interior view from the south east corner window up to the Observatory & across to the City Dome



View from Leith Street/Greenside Row junction as Proposed



View from North Bridge as Proposed



View from Leith Street/Greenside Row junction as Existing



View from North Bridge as Existing

2.5 PROPOSED MATERIALITY

The new buildings materials are a limited palette of stone and zinc. The stone, always constructed in a traditional load bearing manner (and not a hung rainscreen) will be a locally sourced ashlar stone, possibly Cullaloe, which is very similar in geological composition to the Craighleith of the Observatory. The stone face will have a tooled finish, which gives a depth and interest to the stone surface, and can be used to emphasis the horizontal or vertical as desired to reinforce the architectural intent.

The upper stone panels of the Salon depart from a simple tooled ashlar to an offset rusticated coursing which while referencing the rough, cut faces of basalt present on Calton Hill, provides a delicacy to this upper storey which sits atop the boundary wall.

The Salon roof will be finished in zinc which sits quietly alongside the lead roofs of the Transit House and Observatory and does not compete with the green patina of the City Dome. The use of metal is also appropriate in reference to the surrounding lightweight domes clad in zinc and copper, and provides a lightness to the roof form emphasising the verticality of the architecture.

The kiosk walls and roof will again use metal, but instead use a patinated brass which will settle to subtle brown tones and sit well as part of the landscape, providing a welcoming and warm new addition just inside the east gate.

Where balustrading is required to protect the edges of the roof terrace and café terrace, simple steel balustrades are proposed, kept as lightweight as possible, and coated in a coloured galvanising treatment to give a matte brown or grey finish to tone with the surrounding buildings and landscape.



Images of proposed materials – tooled & textured stone, zinc and simple steel balustrades

2.6 SUSTAINABILITY & ENVIRONMENTAL APPROACH

At the heart of “Sustainability” is the need to make best use of our precious environmental resources. But for too long the broad sweep of what “resources” means was set aside for a narrow focus on energy supply – the amount of heat and electricity a building consumed. As a consequence the tendency developed, in considering good sustainability practice in the built environment, to assume that old buildings, built with a solidity and integrity that we get nowhere near today, should be demolished and sent to landfill sites, to be replaced by shiny, new ones with better insulation and updated heat generation, and with some green gizmos bolted-on.

We are starting to realise the folly of forgetting the material and cultural energy embodied in our existing buildings. Malcolm Fraser Architects has been at the forefront of moves to promote a quieter – less rowdy and blustering – conservation-based approach to sustainability, where the interests of the conservation and sustainability sectors – previously thought to be entirely opposed – are united. Twenty years of practice which has fused the repair and renewal of historic buildings with the construction of new, to best contemporary “green” practice, culminated in the Edinburgh Centre for Carbon Innovation, a business and innovation centre for the low carbon economy, led by the University of Edinburgh and renewing the historic, eighteenth century Old Royal High School in the Old Town of Edinburgh. Opened in 2013 this is the first listed building *anywhere* to achieve BREEAM’s top “Outstanding” certification. (BREEAM being the world’s “longest established and most widely used method of assessing, rating and certifying the sustainability of buildings.)

Given that some buildings strive to express their “Sustainable” credentials by being styled to look like green spaceships, festooned with gizmos and, sometimes, set in business parks that are accessed, primarily, by cars, this represents a radically different direction for sustainability.

While the ECCI benefitted from the University’s District Combined Heat and Power infrastructure – as well as the fact that most of the historic interiors had long been stripped out – lessons learnt from this and other projects inform Malcolm Fraser Architects approach to all existing buildings. The practice believes that most existing certification schemes have been drawn-up for new buildings and fit existing ones poorly, and that many encourage expensive and inappropriate moves that sometimes bear a tenuous relationship to the simple, good-sense view of “sustainability” that should prevail. The practice therefore follows, on all projects (whether augmented by certification or not) its own “good practice” code, encompassing:

- Use: the intensification of existing uses or, if no longer viable, the introduction of appropriate new ones that work with the fabric of the building, rather than require its butchering;
- Access: the setting of buildings where they are easily reached on foot or by bicycle and public transport;
- Repair: the conservation and renewal of existing fabric using appropriate traditional techniques;
- Extension: new-built extensions and insertions constructed of materials that lock-in carbon, are natural and non-toxic and, if necessary, can be simply recycled;
- The Basics: improved thermal performance and draught-proofing, with ventilation as necessary to maintain healthy fabric and natural ventilation wherever possible, and awareness of sunshine and orientation;
- Primary Heat Source: all options weighed;
- Buildings that smell good: breathing wall technology instead of toxic membranes;
- Flexibility in use: adaptable spaces and updateable information technologies;
- Simplicity in use: minimised manuals; and, overall,
- a joyful approach to renewal and heritage: old buildings appreciated for the lives they have lived and the life yet to come, and how they have grown and adapted to suit those lives.

Environmental Approach

Fabric upgrades – It is particularly challenging to upgrade the fabric of the Observatory and Transit House (see Building Control section), but where practical the airtightness of the spaces will be improved through air tightness taping and draught proofing to the existing sash and case windows, always bearing in mind the building’s designed requirement to breathe through ventilated floor, wall and roof voids.

Passive Strategy - The buildings adopt a largely passive environmental strategy minimising the use of mechanical systems and naturally ventilating spaces wherever possible. Solar gain will be harnessed in winter and shaded from high summer sun and thermal mass, particularly in the subterranean gallery, will be exploited to ensure a steady response to temperature – avoiding the peaks and troughs of temperature experienced throughout the year.

Insulation - To new buildings, where practical insulation materials with a high 'decrement delay' (time taken before re-emitting heat) are included within the outline specification to reinforcement the beneficial effects of thermal mass on the internal environment. Where insulation is below ground level, an expanded rather than extruded polystyrene insulation will be used as it has much higher environmental credentials and reduces reliance on petrochemical products in building insulation. A preference towards using woodfibre insulation wherever possible due to its vapour open, breathable qualities, will be maintained.

Further detailed investigation of the best insulation type for each condition and effect on the services building model will be required in due course.

General Specification of Materials and Finishes - The outline specification for internal and external materials (described previously within this Architect's Report) have been selected for their aesthetic, functional durability, environmental and cost credentials (including life cycle). Materials are, where possible, locally sourced, natural, non-toxic, recycled and recyclable, although not necessarily simultaneously.

Examples of significant materials within the outline specification include:

- Stone: Scottish (Fife) sourced natural material with long life span
- Bronze: 80% copper 20% tin, with up to 60% of the copper being 100% recycled (depending on timing of sourced copper material)
- Insulation: Timber fibreboard forms part of the insulation/ vapour control layer to new external walls and roofs where possible.
- Linoleum + refurbished timber floor: Two natural and/ or reused materials proposed as floor finishes.
- No pvc, mdf or high VOC content products specified throughout.
- All timber to be FSC certified.

2.7 ACCESSIBILITY

Ensuring the whole site and all buildings would become fully accessible as part of the Phase 2 works was identified as a key criteria from the project outset. The location of the site, and the site itself, present many challenges to accessibility – the Observatory was purposefully positioned at a height approximate 40 metres above Princes Street to ensure the best views skywards. The site can be accessed by road by prior arrangement, but generally is accessed on foot, via steep stairs and paths.

It is client's intention to ensure people of all abilities are able to access the site safely, this includes installing a communication system with the gate at the base of the hill to ensure those requiring assistance or vehicular transport can be accommodated.

Once within the site compound, the landscape proposals seek to provide pathways which reflect the Barker Panorama perambulating routes, whilst also providing wheelchair accessible paths around the whole compound, including up to the Observatory sitting at an elevation over 3 metres above the entrance gate.

We have also worked carefully to ensure that the proposals seek to be inclusive, so that all visitors take the same routes, and there is no segregation of 'accessible' and 'non-accessible' routes. The only instance this has proved to be too challenging to achieve for this site is access to the City Observatory – sitting on a double stepped plinth, whose architectural integrity is fundamental to the architecture of this Grade-A listed building, Access is therefore provided by a new ramp to the south west of the entrance (the only instance where a definitive 'ramp' rather than 1 in 20 or shallower path is used), access between the columns is just achievable – being the same clear width as required by Building Standards for internal doorways. Access to the first floor of this building is also not possible, as a lift could not practically be installed without destroying much of the buildings integrity, however this is generally not for public access aside from organised astronomical meets.

2.8 SURVEYS & HISTORIC REFERENCES

A full set of original Playfair drawings of the 1818 City Observatory & boundary walls are available in Edinburgh University Special Collection and these have been consulted and recorded in detail to inform the proposals. Historic information and advice has also been provided by Dr. Kirsten Carter McKee, Architectural Historian and Playfair Scholar.

Surveys have been conducted to establish the condition of the existing building fabric (see appendices MFA Condition Report and Elliot & Co Structural Report). Ecology & Arboricultural surveys have been conducted to establish the condition and value of the existing planting and ecology on site, these can be found in the Landscape Architects appendices. Site Investigations have also been undertaken to establish the ground conditions and bedrock depth, details of which can be found in Elliot & Co's report.

3.0 STRUCTURAL ENGINEERS REPORT – ELLIOT & CO.

3.1 Introduction

Elliott & Company, Consulting Engineers have been engaged by Faithful and Gould as part of the Design Team led by Malcolm Fraser Architects for the conservation and redevelopment of Calton Hill Observatory compound for the City of Edinburgh Council & Collective Gallery.

The City Observatory is located on Calton Hill in Edinburgh city centre at OS grid reference NT 26215 74205.

Information on the current condition of existing buildings and the site has been gathered from the following sources:

- Visual inspections by Elliott & Company in August and September 2014
- Site Investigations in December 2014 and February 2015
- Historic and archive drawings provided by CEC
- Fabric report and Conservation Plan by LDN from 1998/1999

The visual inspection comprised a walkover survey of accessible areas including sections of the roof space, though it should be noted no opening up work has yet been undertaken. Externally, the wall condition was reviewed, and access to the roof surfaces was gained.

The principal structural work includes:

- Fabric repairs to City Observatory, Transit House and City Dome
- New two storey Café building at northwest corner of the site
- New Gallery building set into the ground at the north of the site
- New single room kiosk building at the East site entrance.

3.2 Site History

The site comprises of several buildings constructed at various times, all associated with astronomy. There are not thought to have been any additional buildings that do not remain today.

Several refurbishments of the City observatory have been recorded which primarily consist of reworking the interior, with only minor structural alterations.

The chronology is summarised as follows:

1725	Hill purchased by Town Council
1776	Observatory House Built by Thomas Short
1795	Lyon's Mausoleum Built
1812	Transit House Built
1818-22	City Observatory Built by W H Playfair
1826	John Playfair Monument completed.
1828	Observatory Compound Walls built.
1870	City Observatory dome enlarged by Piazzzi Smyth
1893	Old Observatory House extended.
1895	City Dome, designed by Robert Morham, completed.
1895-8	City Observatory interior altered by Robert Morham
1896	Royal Observatory moved to Blackford Hill
1896	Tweedie Dome appears on OS Map
1897	Crawford Dome built
1908	Cox Dome appears on OS Map
1940s	City Observatory dome repaired, internal columns altered, partitions erected.
1970s	Extension to north of transit house forming toilet block.

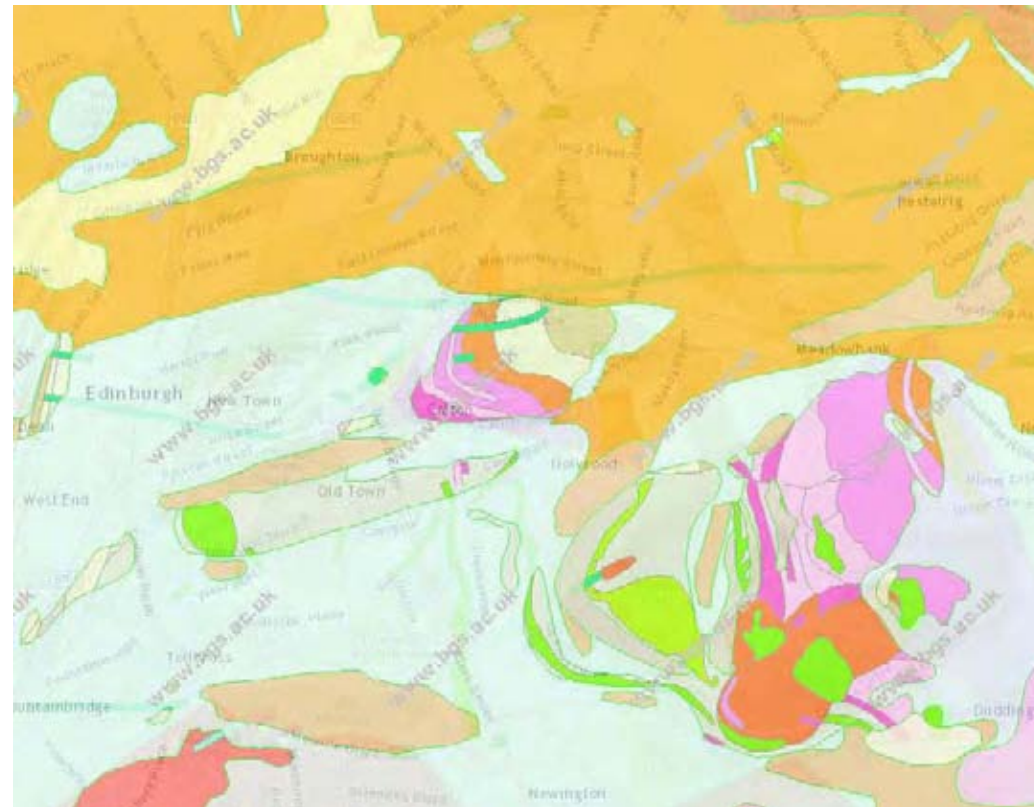
3.3 Archaeology

Due to the history of the site, its prominent location and past discovery of Lyon's Mausoleum it is reasonable to assume that there is a possibility of archaeology in areas of built up ground. It will be necessary to appoint an archaeologist to inform the design development and in the construction phase of the works the archaeologist will require a watching brief and the project programme will need to accommodate this process.

3.4 Desktop Geological Assessment

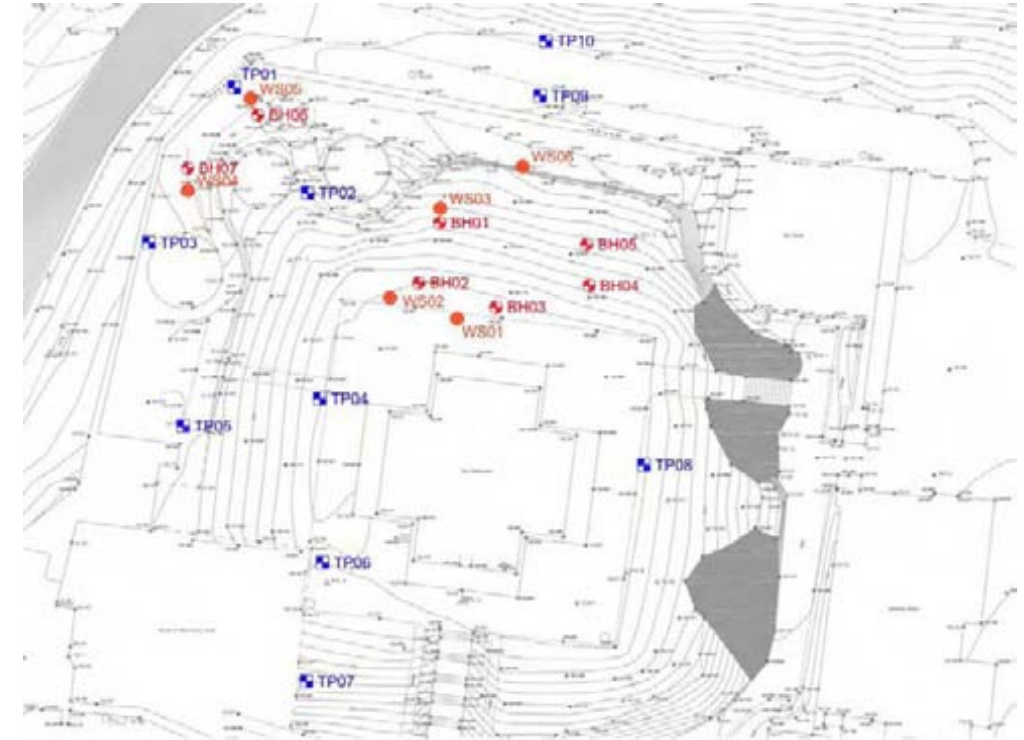
The following geological map is taken from British Geological Survey. It indicates that there are three rock formations that fall within the site:

- Arthur's Seat Volcanic Formation - Mugearite.
- Arthur's Seat Volcanic Formation - Basaltic-rock, Plagioclase-macrophyric
- Arthur's Seat Volcanic Formation – Tuff
- Central Scotland Late Carboniferous Tholeiitic Dyke Swarm - Quartz-microgabbro



3.5 Anticipated Ground Conditions

A site investigation was carried out between December 2014 and February 2015 by Causeway Geotech. The investigation consisted of boreholes and trial pits as indicated below. An interpretive geotechnical report by Geovia is available.



This investigation has shown that the ground to the centre and east of the site is shallow (0.3-0.7m) topsoil over volcanic bedrock. This bedrock is anticipated to provide a suitable bearing surface for tradition strip foundations and provide a high bearing capacity.

Over the Northwest corner of the site, at the location of the proposed café building, the bedrock drops away sharply to up to 4.65m below current ground level. Over the bedrock is made ground of loose granular fill material. This fill material is anticipated to have a low bearing capacity and not suitable for strip foundations. Bored mini piles through the fill material to the bedrock are therefore recommended.

3.6 Service Utilities

Information on the existing utilities servicing the site have been provided by the client. They include, electricity, gas, water and communications. All of which enter the site from the south side, serving the City Observatory from the SW corner.

Additional utilities have been recently installed to service the Collective's temporary accommodation and the City Dome. The associated manholes, which exist to the southwest of the City Observatory, have been poorly formed and should be replaced as part of the works.

3.7 Below Ground Drainage

Existing Drainage

Eight rainwater down pipes exist around the perimeter of the City Observatory building, these are built into the internal face of the walls. A single manhole down from the south-west corner of the building is presumed to aggregate the surface water from these and wastewater from the kitchen.

Available drainage records from the City of Edinburgh Council indicate that the drains of the City Observatory connect to the drains of Observatory House and then down the hill to the sewer along Greenside Place. See attached extract of drainage record.

The age of the existing buildings imply that the drainage network will have been made with cast iron and vitrified clay pipes. It is recommended that the system is inspected and surveyed by a specialist CCTV contractor to confirm the extend capacity and condition.

Drainage from the City Dome runs to a manhole to the north of the precinct wall, and then follows the perimeter to Observatory House. The route briefly enters the precinct to cut off the corner to avoid the Jewish Mausoleum out with the precinct walls. This drainage run was installed in 2013.

Proposed Drainage

Drainage for the proposed Gallery, Café, and Kiosk buildings will be able to connect into the City Dome drainage as it is at sufficient depth beneath ground level. Refer to attached drawing CL101.

3.8 Existing Buildings, Structure and Condition

Refer to the attached drawings for the structural arrangement and condition of the City Observatory Building.

City Observatory Structure

The City Observatory building is classically styled, built in a cruciform plan, with a central dome and four pitched roof wings at the cardinal points. The building is built in ashlar stonework. Each wing is closed with a pediment on six stone columns. The roofs are typically lead-covered to the wings, though the condition/details are presumed to be sub-standard due to the various areas showing signs of water ingress. Due to the dome and the various openable transit slots in the roof, it should be noted that the detailing would be complex.

Externally there are typically three openings in each gable behind the portico's, typical windows, but with a door in the central opening on the south elevation. In addition there are tall slot windows on the north & south elevations of the west & east wings, which were associated with the Transit Telescope and the Mural Circle Instruments.

The structure of the City observatory largely matches the original Playfair drawings with the following exceptions:

- The dome has been replaced
- The floor level for the room under the dome has been altered
- Two new small spaces have been added either side of the dome
- Locations of false columns have been altered
- New non-load bearing partitions added

The roof structure over the central room consists of two primary trusses spanning north-south, one each side of the dome, and two secondary trusses spanning east-west on the remaining two sides of the dome. Common rafters form the hipped roof shape over these trusses.

The roof structures over the wings consist of common raised collar trusses. The curved ceiling of the East and West wings are formed with curved joists hung from the roof structure. The north wing has a flat ceiling soffit on

independent joists, while the south wing has a ceiling along the underside of the rafters.

The roof structure at the pediments was not accessible but is shown on original drawings to be common rafters on purlins. The soffits of the pediments are formed with flagstones.

The dome is formed from wrought iron sheets riveted together (with no armature) and supported on three wheels to allow rotation. The flashing at the dome base has been replaced (at a time unknown) with galvanised steel. The dome is not the original timber dome shown on drawings and is assumed to have been installed in conjunction with the alterations of 1895.

The first floor of the south wing is formed from suspended timber joists, spanning over load bearing walls below. The floor around the telescope is formed from suspended timber joists spanning between the roof trusses. Evidence is visible that this floor was originally higher level matching Playfair's drawings.

At ground floor, the central hall, formerly the Great Room, is decorated with a deep projecting cornice/frieze bearing on "glued-up" columns. While the Playfair drawings show 4 columns on each side of the square, there are currently only 2 columns on each side. Two non-load-bearing walls have been introduced to close off the Transit Telescope and the former Mural Circle Instrument rooms. A new lowered plasterboard ceiling has also been introduced to the West room, it is anticipated that the original curved ceiling soffit remains above.

The ground floor consists of timber joists spanning over sleeper walls, the surface of the ground beneath has been sealed with bitumen.

The central astronomical instrument (Cooke Refractor Telescope) is supported independently off a large tapered stone pillar in the centre of the building.

Foundations are assumed to be bearing directly on the shallow bedrock as noted on the Playfair drawings.

City Observatory Roof

The roof surfaces have been stripped of lead and currently have a plasticised felt finish that is in poor condition. There is evidence of water penetration into the building and ceilings have collapsed in two areas.

Severe rot has been identified to the bearing of one principal truss, which has caused the truss to drop by approximately 30mm. This will need a beam end repair.

No significant rot was identified to remaining accessible roof timbers, however an allowance should be made to inspect and repair rafter ends and wall plates during roof works when all timbers will be visible and accessible.

Adequate ventilation to the roof void was not identified; ventilation should be introduced with new roof coverings, particularly if insulation is being considered.

There is evidence of the two transit slots to the east & west, though these have been covered by the current roof finishes. It is assumed these will be reinstated, complete with shuttering system.

Ground Floor

The accessible ground floor joists were observed to be in good condition and appear to have been replaced (ie not original). Some ventilation to the floor void was identified, however their locations are concentrated to the north and west sides and therefore do not allow cross flow. New vents would be beneficial to increase ventilation.

Elevations

Some areas of the stonework at roof level appear damp and have vegetation growing. This is concentrated at the north elevations. One Doric column of the north elevation was noted to have a thin diagonal crack through the majority of its thickness. This appears to be a natural defect and currently shows no signs of distress, however a repair is recommended for robustness. No structural issues were observed with the remaining stonework, which appears to be relatively high quality and in good condition.



Roof truss at Dome



Roof structure at north wing



Rot at truss bearing



Pulley mechanism for transit slots



Ceiling damage in central hall



Ceiling damage over stair



City Observatory Dome



North east corner indicating vegetation growth on stonework



Stone column with diagonal fissure

3.9 Transit House Structure & Condition

The Transit House is a small single storey, single room observatory building with slightly later built lobby.

The structure consists of coursed rubble masonry walls and a hipped timber roof with Transit Slot.

The collar of the roof is at a very high level to provide adequate headroom. The roof structure is therefore likely to rely on the walls to prevent spreading.

The ceiling appears to be to the underside of the rafter/collar and consequently there is minimal roof void and timbers could not be inspected. Allowance should be made to inspect and repair/replace rafters and wall plates.

3.10 City Dome Structure & Condition

The City Dome is a double height octagonal building with a domed roof and a single interior space. The walls are ashlar masonry exterior with brick inner skin. The dome is formed with a metal armature clad in fibreglass panels. The rotation mechanism for the dome does not appear to be operational.

Work was undertaken to the building as part of the Stage 1 works and remains in good condition, though works to finish the interior and floor slab were not completed.

Three small ancillary rooms off the NW, NE & SE corners of the building have flat roofs with bitumen felt covering. One roof standing water due to lack of falls and will require improvement.

No significant structural issues were observed.

3.11 Crawford Dome Structure & Condition

The Crawford Dome is a small circular building with a domed roof and a single interior space. The walls are cement rendered brick masonry. The dome is formed with a metal armature clad in fibreglass panels seated on eight wheels and the rotation mechanism is still operational (although in need of maintenance).

The render is in poor condition with many large areas damaged or missing, this has caused some loss of mortar to the brick masonry. The render will be concealing lintols to the openings which are likely to have deteriorated due to lack of maintenance and waterproofing.

The Site Investigation found that the dome is built off minimal foundations that are bearing on fill material.

3.12 Existing Building Proposals

With the exception of the Crawford Dome, which is to be demolished, the buildings are all to undergo fabric repairs. There are no significant structural alterations proposed.

The proposed works to the City Observatory include:

- Removing non-load bearing partitions at ground floor and reinstating original columns
- Timber repairs to roof trusses, rafters and wall plates
- Reinstating the transit slots with glazing
- Introducing a ground floor toilet in the current kitchen space.

Further Investigations:

A site investigation has been carried out and an interpretive geotechnical report provided. The remaining further investigations recommended include:

An inspection of the existing metal dome by a conservation metal worker

A CCTV survey of the existing drainage

Various areas of opening up are recommended to assist in specifying repairs and to de-risk the scope of any repairs.

3.13 New Buildings Structure

Gallery Building

The Gallery Building is to be set into the slope of the existing ground and will therefore be below ground level on three sides.

The ground in this area is predominantly rock at shallow depth, with the exception of the northeast corner of the building. The foundations will be strip foundations directly onto the rock where possible, with any unexpected variations to the rock level made up with trench fill. The excavation is to be kept to a minimum to reduce risk to the existing City Observatory building.

The floor will be a ground bearing concrete slab.

The superstructure is to be formed with solid reinforced concrete walls with external insulation and damp proofing. The walls can be cast up against the exposed rock face of the south and east elevations. At the west elevation this will be a retaining wall, retaining the fill material overlaying the rock.

The roof structure is to be formed with a concrete slab cast with downstand beams at close centres. An architectural balustrade will provide edge protection around the roof and allow its use as a terrace.

Restaurant Building

The Restaurant Building consists of a basement and a ground floor. The ground floor has a cantilever at one corner over the pathway.

The ground in this area is predominantly deep fill material over bedrock. The foundations will therefore be ground beams over mini piles to bedrock below. The basement floor will be a suspended concrete slab.

The basement wall construction will be similar to the Gallery Building, with all external walls reinforced concrete retaining the surrounding fill material. The

external walls, along with a selection of internal partitions formed of block work will support the floor structure over.

The first floor structure will be a concrete slab spanning over the walls below. The slab will be thickened (to 275mm) over the plant room to provide the structure for the cantilevered corner.

The roof structure of the upper floor will be formed from two steel frames spanning in each direction and following the roof line, each will have a structural tie at ceiling level. Timber joists between the steel frames will form the roof structure. A steel eaves beam running the perimeter will provide support for the roof and provide a cantilevered structure for the two column free corners. The eaves beam will be supported on a series of galvanised steel columns external to the building envelope.

Concrete shear walls in both directions at the northeast and southwest corner will provide lateral stability to the columns. A clerestory window exists above these shear walls requiring the columns to resist lateral loads in bending for a short distance.

Kiosk

The Kiosk is a small single storey structure.

The ground in this area forms part of existing path and is expected to be shallow fill material over bedrock. Foundations will be concrete strip foundations around the perimeter with blockwork underbuilding to ground level. The floor will be a ground bearing concrete slab.

The superstructure will be formed from a series of steel/bronze CHS posts, stabilised by the plywood clad timber walls. The roof formed in timber and seated on the posts.

LANDSCAPE ARCHITECT'S REPORT

4.1 INTRODUCTION

INSPIRATION

"A contemporary interpretation of the cultural, natural, and creative heritage of the City through observational experiences"

Our approach came from the instinctive interpretation of the site elements: at the first sight the various elements from past and present are spread on the site like fragments of time and they can be seen as a series of stars that form a constellation [i.e. different elements from different periods that need to work together as a system]

Definition of constellation:

- various groups of stars
- the section of heaven occupied by such a group
- the group of the relative position of stars
- figurative: the group or configuration of ideas, feelings, characteristics, objects that are related in some way [i.e. referring to the Enlightenment period]

CONCEPTUAL APPROACH

Taking inspiration from constellations and planetary orbits, we believe that this astronomical mechanism can suggest how the connections work through the site, able to 'link the nodes' and to unify the space in a unique experience .

Those connections can be described more like desire lines; 'relations of power' between the elements; conceptual engagement at different levels.

The landscape surrounding the buildings has to offer a way to experience the place: the external environs of the walled enclosure are to be flexible and adaptable family of spaces, a canvas on which a multitude of activities and users can be included but never be dominant over the others.

Importance of the sequence of the element that you find along the route. In particular, the Listed Architectural Heritage needs to be respected, but the site's redevelopment must be forward looking and contemporary.

For this reason, the contemporary art spaces are located at the end of this orbit, as a culmination point of the experience of the site. Being situated at a lower level, the feeling will be of an immersion into contemporary art. At that point the visitors will find themselves in a totally different environment, a more intimate space that allows a different level of observation and reflection. The North wall precludes the view towards the Firth of Forth, there are no distractions from the actual art experience. Art does not have to compete with the view, yet subconsciously still sits within its context.

Hierarchy of routes in 2 main orbits:

- the main orbit goes clockwise from the main entrance towards the Playfair gateway and steps, through the Historical Architectural Heritage of both site and City first and then lead to the Contemporary Art area
 - the secondary orbit is a less defined route, implied desire lines around the Site
- The spiral running around the main Observatory building echos the Ammonite shell, reconnecting the story to the very close connection with Time Keeping in the navy past [i.e. Time Ball on top of the Nelson monument: a visual signal that enable the captains of the ships anchored in the Forth to set their chronometers accurately]

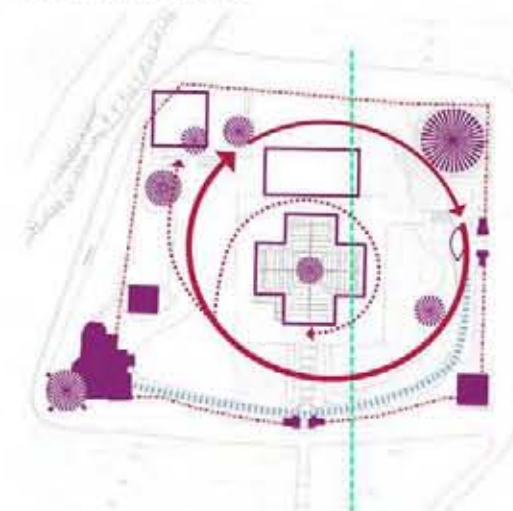


Calton Hill - densification and rarefaction



Base elements as stars

Connection between elements as orbits



Clockwise route through the site



Constellation | Observatory | Orbits | Ammonite Shell

VISUAL APPROACH

Along the 'orbital route' the visitor will always keep a visual contact with the City, a chronological journey from the extinct volcano to the new built, experiencing a cinematic zoom IN/zoom OUT over the city: > Arthur's seat > Old Town > New Town > closer sea view > long distance and wider sea view over the Firth of Forth

RHYTHM = concept of TIME + SPACE

In various traditions all around the world, the ascension in itself, as an upward movement towards something, recalls the idea of preparation for an extraordinary experience, and it has to do with something sacred. In Dante's Divina Commedia, for example, it was intended as a route of purification and learning experience. Also, many artist (Richard Long and Marina Abramovich amongst others) have explored the topic of the Art of Walking, finding out that 'walking' is more than just the destination, and 'the voyage out is always a voyage inwards' [Robert McFarlane]

As perfectly expressed by the Barker's Panorama (Robert Barker, Panorama of Edinburgh from Calton Hill, 1792 - University of Edinburgh Art Collection, work record ID: 0016491, catalogue number: EU0492, image ID: 100241, 19551x3577mm, watercolour), drawn from the roof of Observatory House (before the construction of the Transit house and of the Playfair Observatory), the proposed route would follow chronologically the development of the history of the place, following an order while talking about the development of the City from its very ancient origins to more recent times.

Like in a film scenario, the zoom IN/zoom OUT distance of the different views on points of interest (like a film shot) along the circular route (panning camera) plays a very important role: it keeps the attention of the visitors on through the whole experience.

The orientation of the view along the path changes constantly, and that means that what the visitor will experience too will be 360 degrees of variation of light on the cityscape, very dramatic and evocative on the hills especially in the late afternoon.

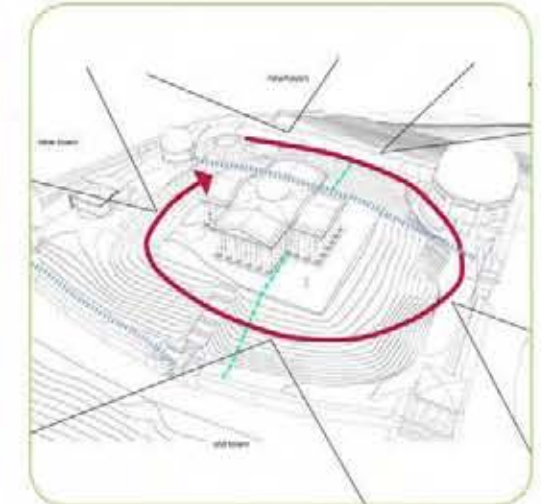
Visual Experience

By re-drawing the route to experience the site as a spiral path running from the east gate clockwise towards the new gallery spaces, the sequence becomes one of the main characters of the play. The physical and visual experience of the visitors walking through the site culminates with the stunning wide view over the Firth of Forth.

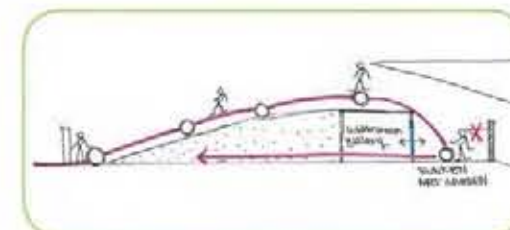
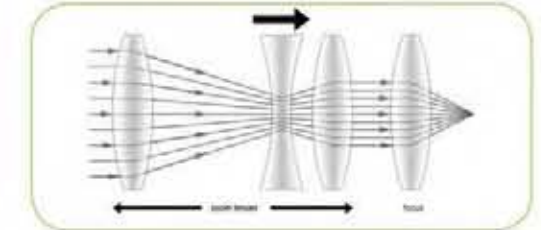
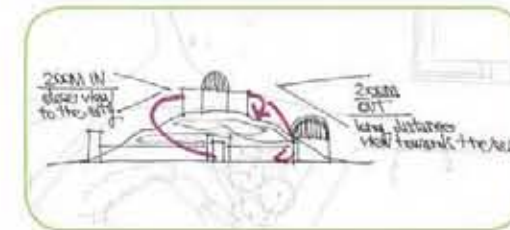
At this culmination, the visitors are ready to immerse themselves into the contemporary art space, a completely different kind of experience: the lower level is more intimate, a sunken garden where the art can flow freely from the inside to the outside.



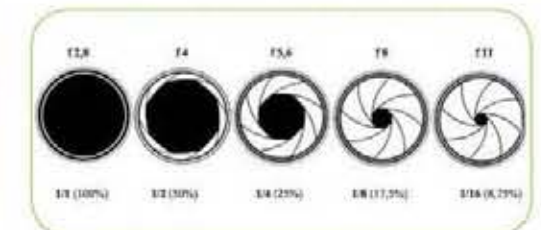
Spiral path



Sequence as panning camera



Calton Hill



Zoom In/Out | Variation of focal length/angle



Barker's Panorama, 1792 - Sequence: from Arthur's Seat towards the Forth



Origins of Edinburgh from an extinct volcano - Salisbury's Craigs - and then the Old Town



from the New Town to more recent developments - long views to the Firth of Forth

INITIAL STUDIES ON RELATIONS BETWEEN SPACES

The resulting Design Solution must put the site in the physical and historic context of Edinburgh and Scotland, but it also aims to recognise the Collective's ambition to have the site acknowledged by an international audience with a unique sense of place.

This sense of place will encompass both city views and micro climatic & ecological factors.

Specifically, the site must accommodate:

- full access to all buildings and facilities for all users, addressing the site's topography
- support the individual building functions, repurposed and proposed
- integrate the individual buildings into a collective external environment / experience utilising collaborative detailing where possible to provide a unity from the inside to the outside spaces and vice versa
- provide an opportunity for outdoor exhibition & performance space
- address the private/public boundary and security to the 'Observatory House'
- reuse site won materials if possible
- recognise the life costing of any maintenance burden imparted by the design, onto the operators

In particular, the private/public boundary needs some consideration: it has to be clear and well defined but at the same time we want to avoid the effect of a fenced enclosure that would compromise the unity of the place.

The proposed route aims to unify the different spaces spread around the site, and even more important, express the intention of drawing the visitors through the heritage of the site and lead them to the sunken art garden of the contemporary spaces.

Key characteristics of the proposed path/strategy:

- minimal approach / the landscape does not want to compete with the architectural heritage and city context
- densification/rarefaction of elements to suggest particularly interesting stops [best views, deep earth thermometer, etc] in order to create a less obvious wayfinding
- subtle paving details to draw people to the sunken art garden [the route we suggest as the best one it will not be the only one possible: if someone would like to come in through the east gate and turn left there will be no impediments]

MATERIALS 'MOOD'

The themes of Observation and Time are key components of both former and future uses of the site and may inform design solutions that come forward.

The intention is to use basalt stone from the site to create bespoke elements (seats for example) that would remind and underline the volcanic origins of the hill / coming from the excavations for the subterranean art gallery.

Another proposal is to use weathering materials (copper / Corten) to create details like edgings or other elements: the weathering process would emphasize the concept of passing of time deeply related with one of the context of the site – time keeping role of Calton Hill [Time Ball on top of Nelson Monument and the two faces clock next to the Transit House]

The transit circle [Edinburgh Meridian] can be highlighted in a subtle way, for example thinking about specific species changing colour at a selected time of the year to accentuate this passing of time by deliberately marking the seasons.



Cut into the rock



A look to the sky



Observation of landscape



Light



Volcanic origins: basalt rocks reuse



Axial VS radial



Density variations to express movement/flow



Weathering process



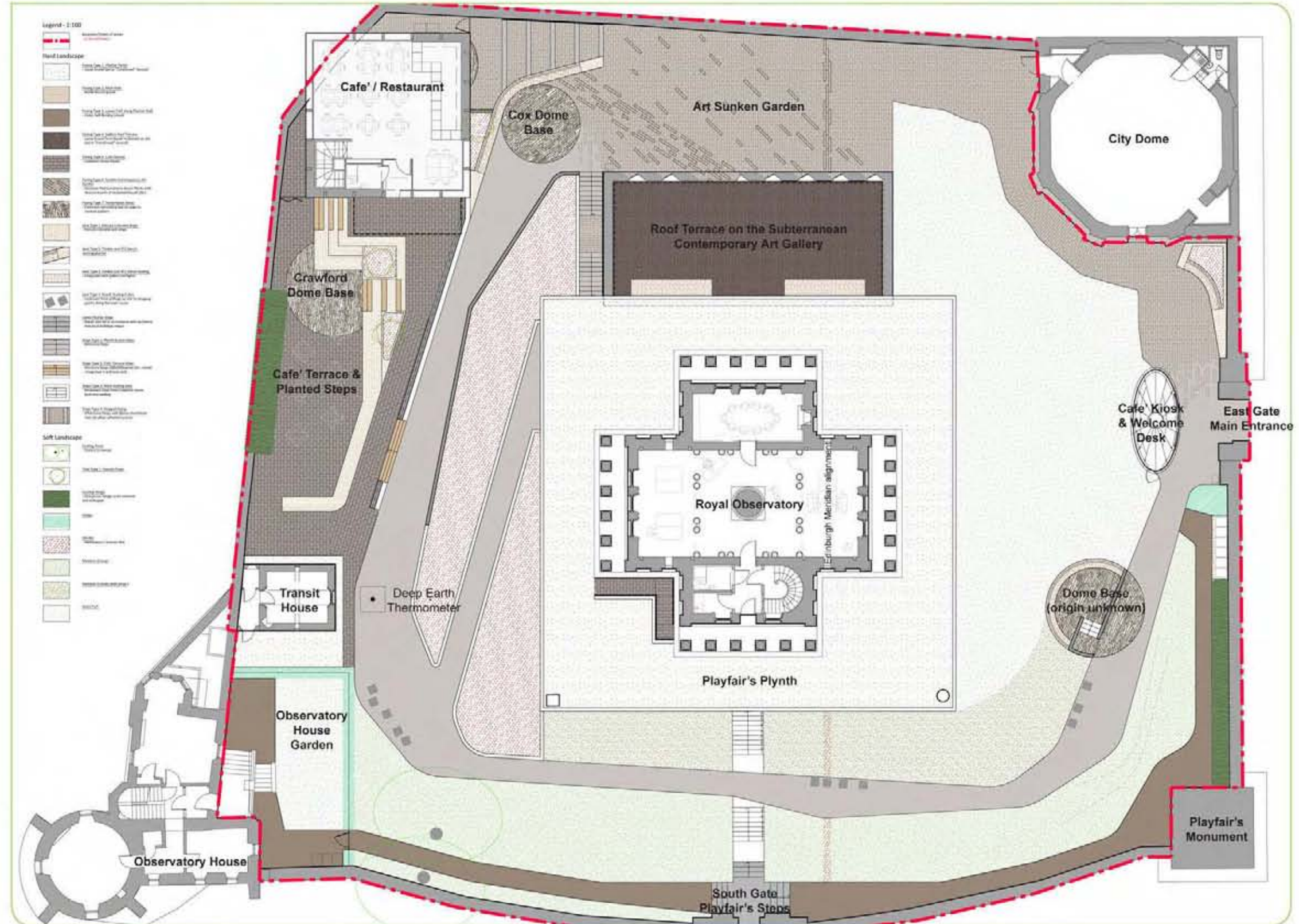
Immersion into an intimate space



LANDSCAPE ARCHITECT'S REPORT

4.2 DESIGN

GENERAL ARRANGEMENT



External Works General Arrangement

LANDSCAPE ARCHITECT'S REPORT

4.2 DESIGN

GENERAL ARRANGEMENT

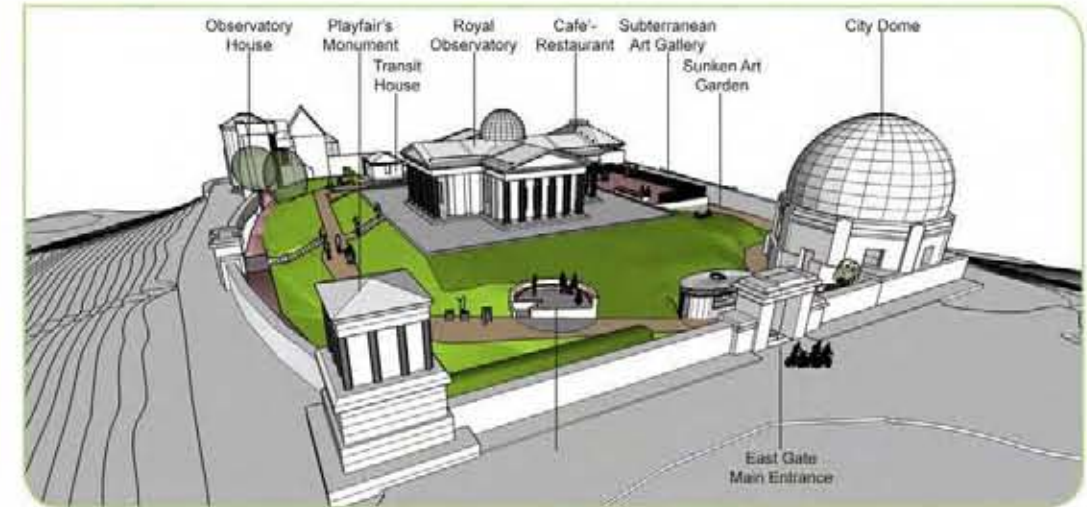
Calton hill sits within the Edinburgh skyline as a way-marker for navigation. Not only in the historic context of the mariners as a sea faring chronograph, but for the residents and visitors to the City alike. Playfair's temple on a green knoll can be seen from greater elevation at Arthur's' seat and the Castle, and as a sky-lined silhouette. It is important therefore that this historic context was respected in the programming of the redevelopment.

The initial observation of the celestial bodies described in the concept pages has been re-interpreted at a human scale as general observation itself. The site has an unrivalled position within the city to both have the macro view and perspective afforded by the vantage of elevation and exposure, but the micro observation of the specific uses and functions within the confinement of the Playfair wall.

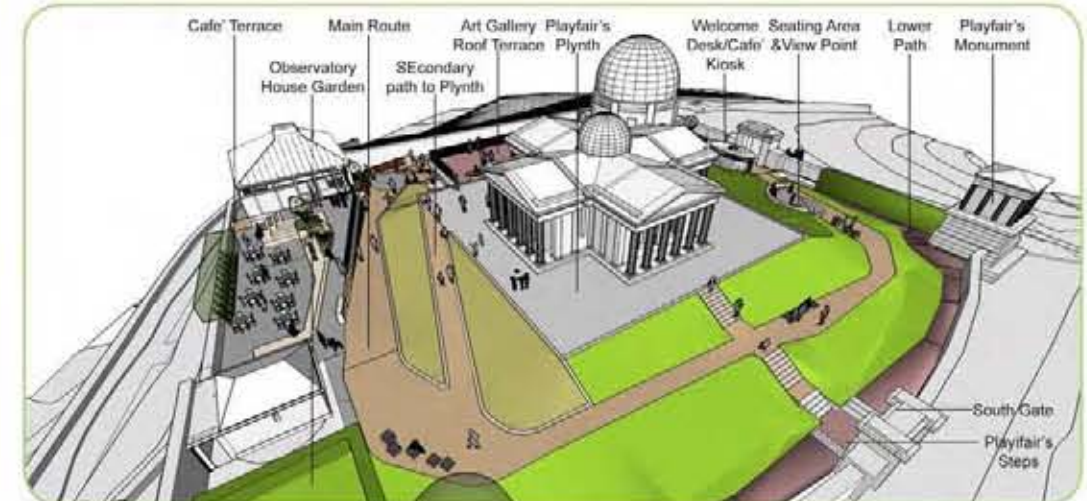
It is the conversations between these different uses and users that the design tries to capitalise on. The spiral route around the site (initially developed from the conceptual approach as a key device to experience the site) allows the design of a space that is fully accessible for all. A key constraint of the site was the knoll itself. Conceived in a time when access via steps and steep embankments was acceptable, the repurposing of the site for an inclusive experience for all abilities could have rendered a maze of ramps and railings. The spiralling circumnavigation of the site ties this together not only in the spacial journey and story of the Barker's Panorama, but also the hierarchy and intensity of the new uses of the collective programme.

The restaurant and gallery spaces that sit conceptually at the climax of the circumnavigation also have the highest intensity of landscape treatments. The stone terraces respond to the intensity of use at these areas, while the strong and well defined planting concepts described in detail elsewhere respond to that hierarchy. The planting palette, predominantly grasses and meadows across the knoll, adds a 4th dimension to the concepts of observation and time. Deliberately specified at this site for the purpose of micro observation of flora and fauna, the planting is further selected to mark time, and the seasons in detail. These species will also change through the day as the sun and daylight play across the flower and seed heads. Strong spherical forms within these softer plantings will recall the myriad of observation domes found on the site.

There is an intent to retain the exposed and excavated geology on the site, and working with the collective's artist in residence and local stone masons, the basalt stone will be reinterpreted in a creative way to create informal seating interventions above the surface and inserted as planks at ground level to the stone paving of the Art Terrace. Smaller gravel aggregate of the more fractured seam(s) will be used to cover the roof terrace of the new gallery. The seating interventions, tying the user back to the volcanic origins of the site are then also used as a device to inform the user. Their locations around the perambulation of the path are designated to create places to stop, pause and reflect. When the user takes that time to make an observation, they are rewarded with the realisation that these locations are set to coincide with key views of the city scape. The macro observation of the city and region beyond, first recorded from the site by the Barker panorama. These, and other gathering spaces programmed around the site, invite people to enter discussion and debate, either programmed in workshops and classes, or just informally with fellow patrons, thus promoting the genesis of general discourse. The exchange of experiences and opinions are facilitated by the design: these were key elements of Edinburgh's enlightenment and perhaps one final metaphor for a site that transcends the new and old; the near and far; the natural and the refined; all in the context of union between the traditional and the contemporary.



South East axonometric view



South West axonometric view

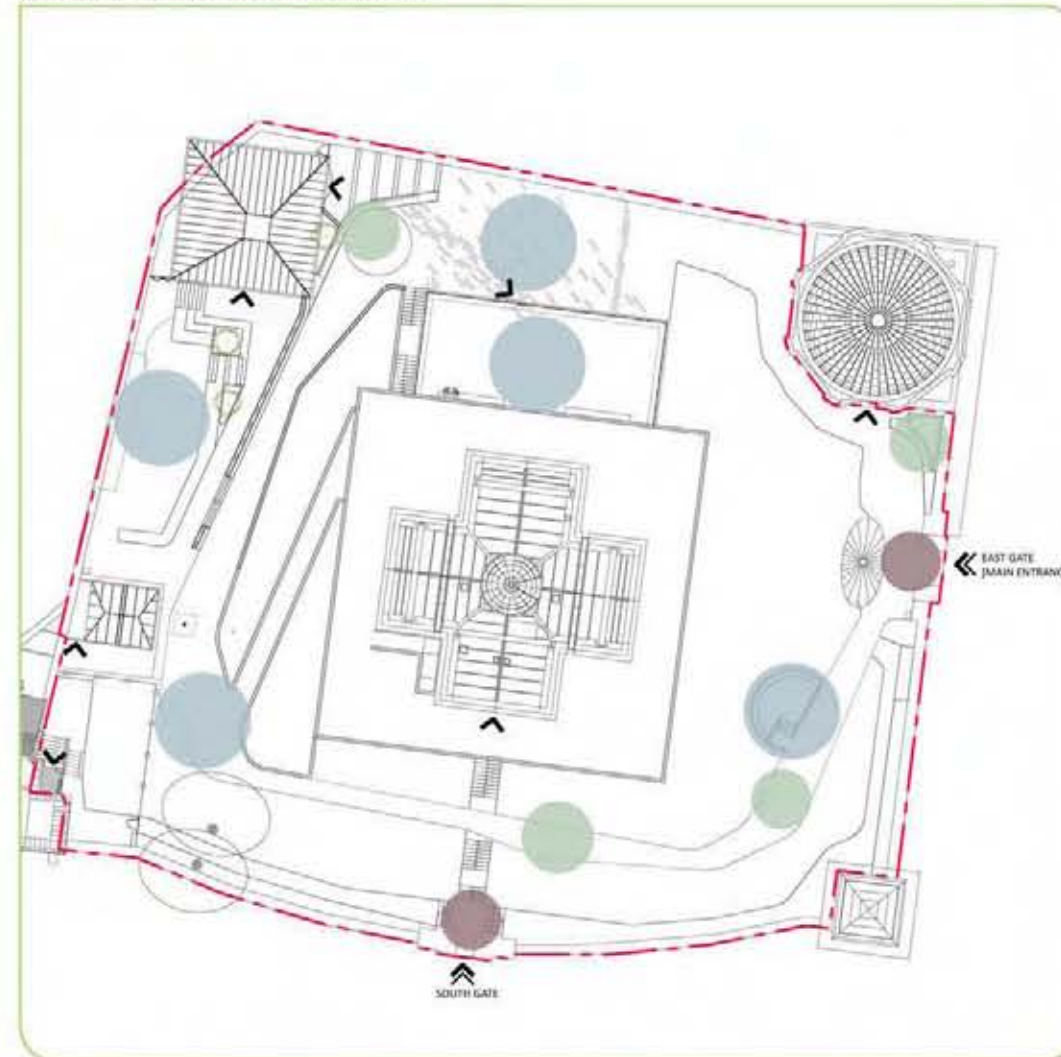


North East axonometric view

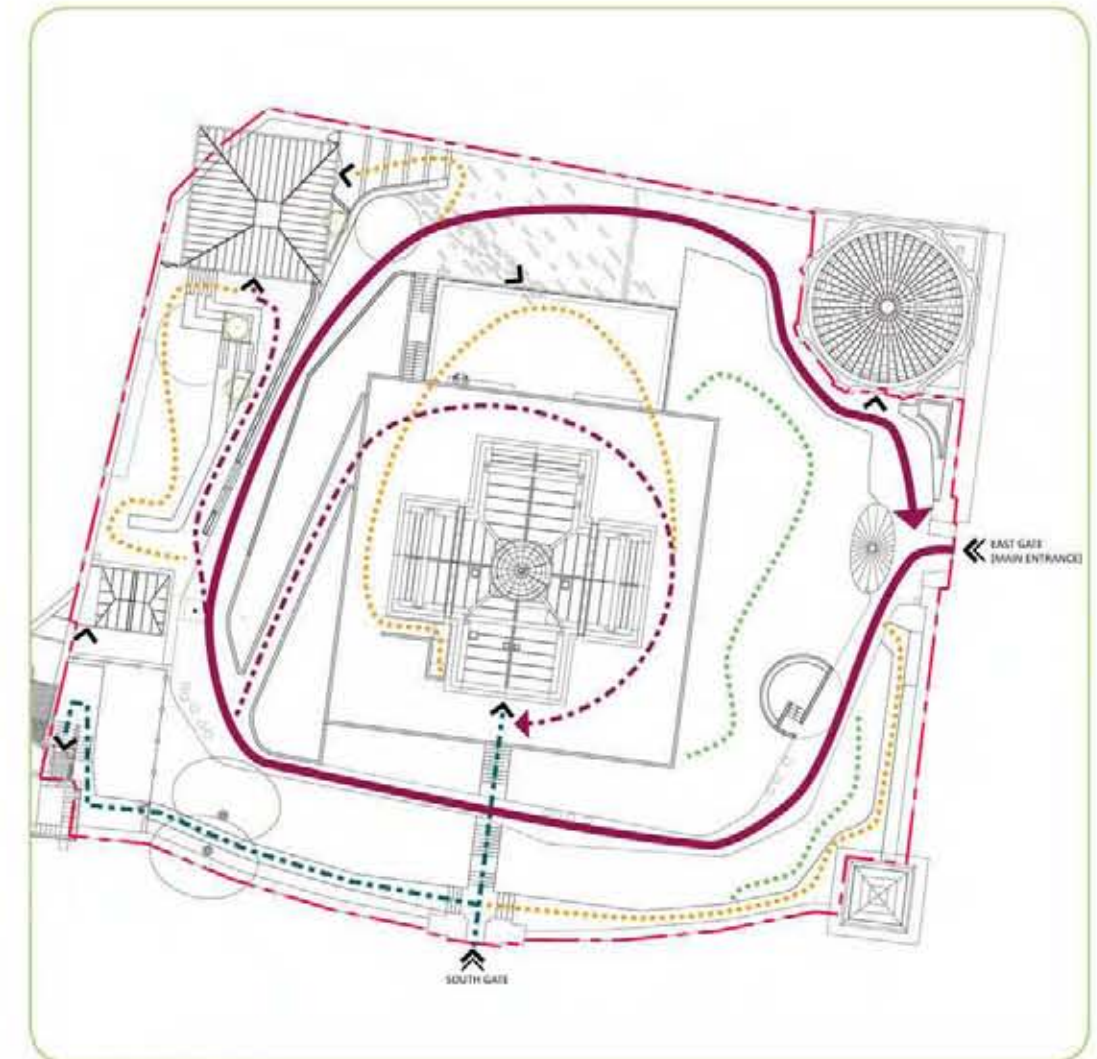
LANDSCAPE ARCHITECT'S REPORT

4.3 DESIGN

PERAMBULATION AND PAUSES



Pausing Points Diagram

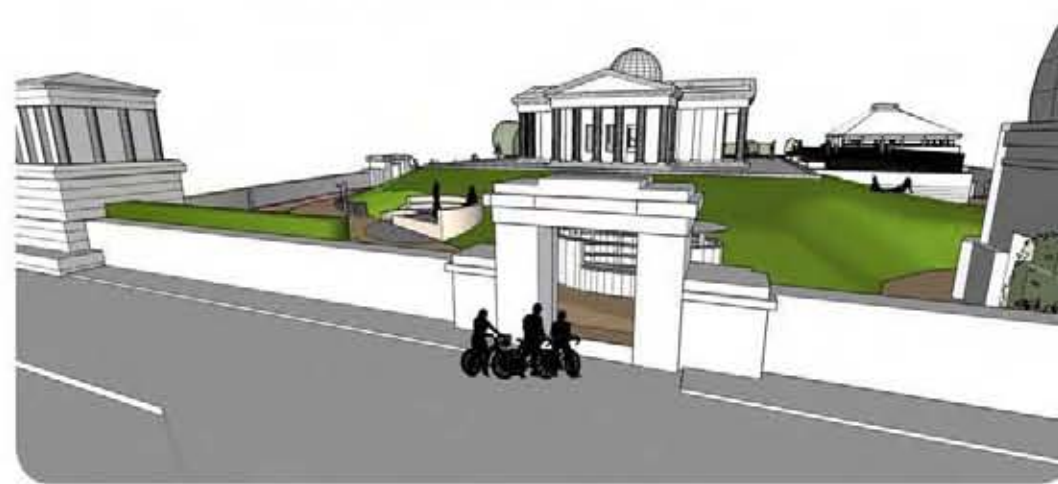


Circulation Diagram

LANDSCAPE ARCHITECT'S REPORT

4.3 DESIGN

PERAMBULATION: SEQUENCE SKETCH VIEWS



Welcome - East Gate: main entrance to the site



First stopping area: ex dome seating area



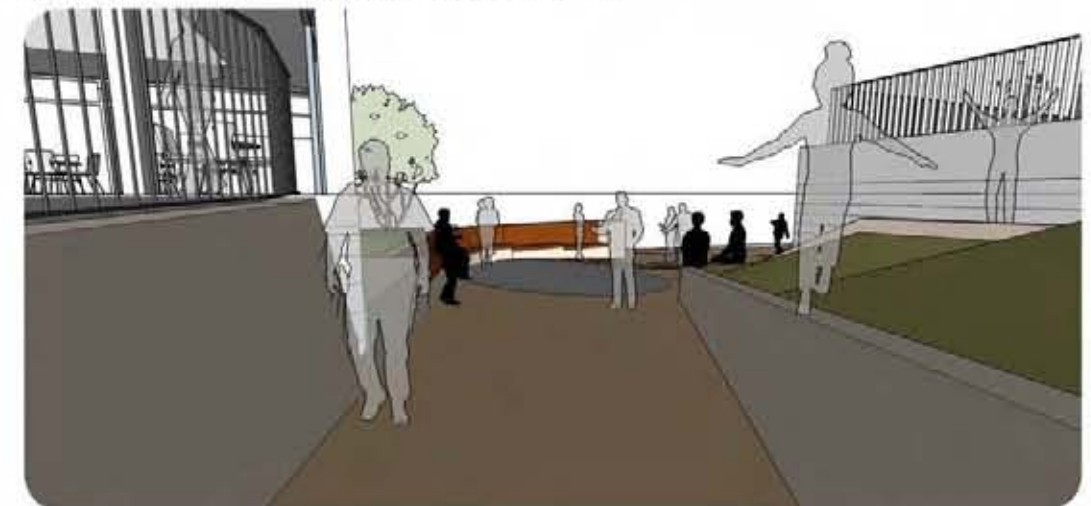
Informal stop (basalt cubes cluster) and retained axial access to the Playfair's Plynth



Route node: choice between cafe/plynth/art garden and gallery



Narrowing route as threshold to the Contemporary Art area

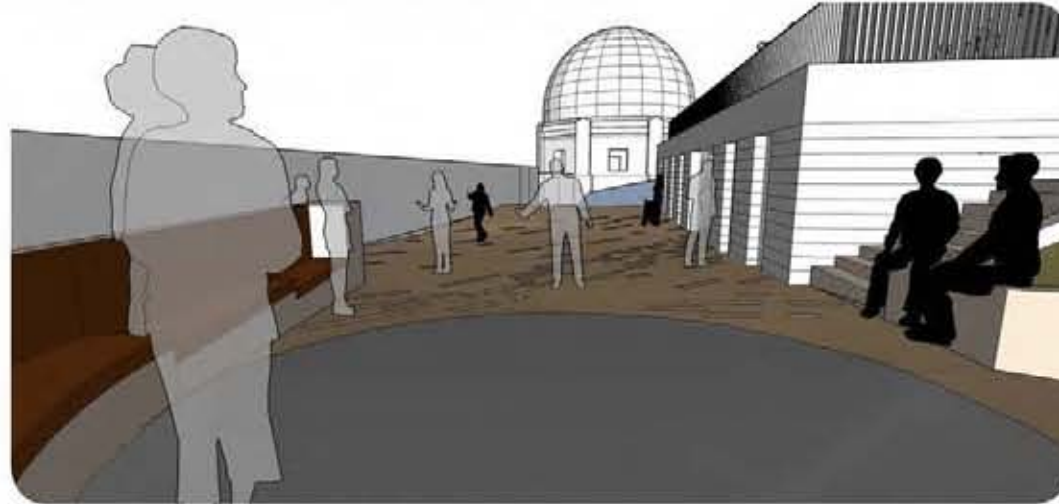


First glance to the Contemporary Art garden

LANDSCAPE ARCHITECT'S REPORT

4.3 DESIGN

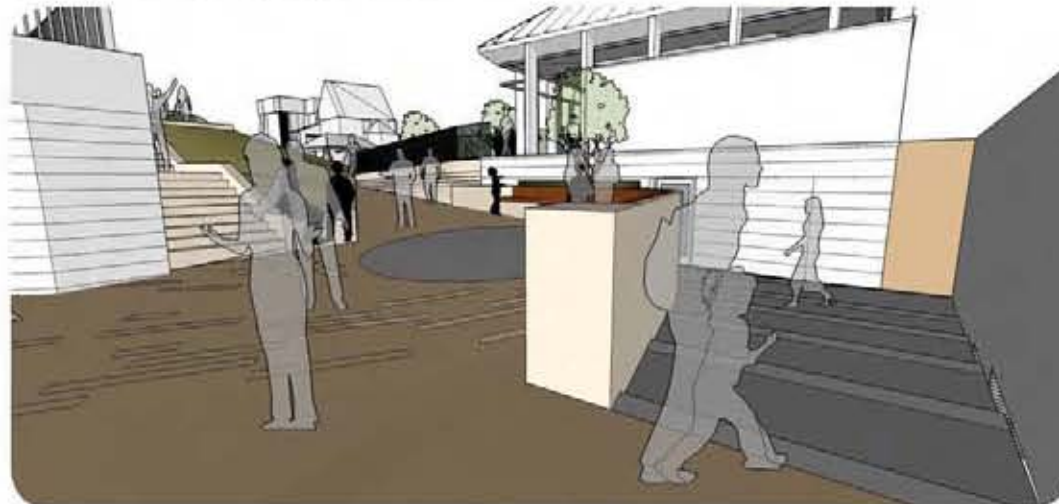
PERAMBULATION: SEQUENCE SKETCH VIEWS



Overall view to the Contemporary Art garden



View from the Gallery roof terrace down onto the ex dome orientation node/seating area



Access to the lower level of the Cafe' building



View backward to Contemporary Art garden



City Dome path

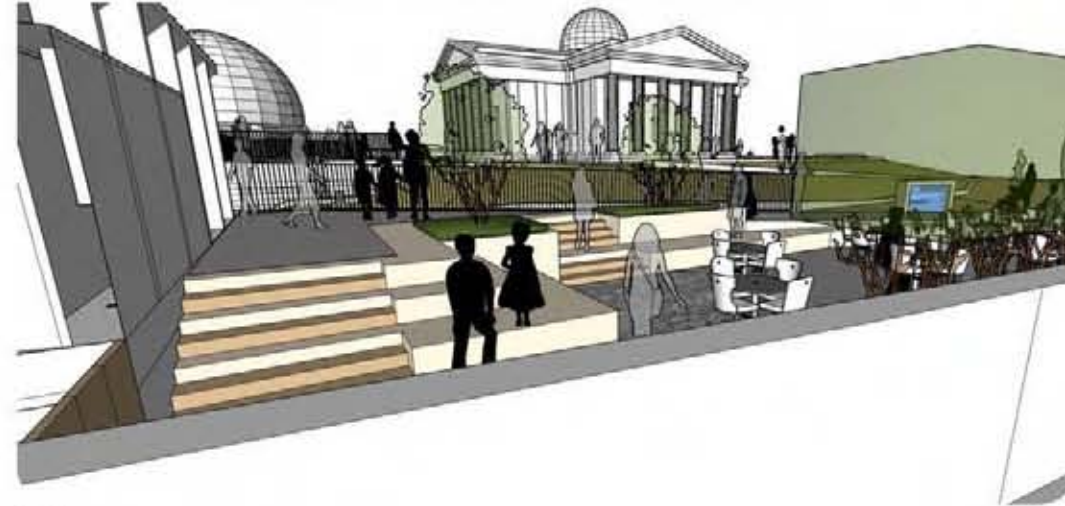


City Dome entrance - seating area/gathering space

LANDSCAPE ARCHITECT'S REPORT

4.3 DESIGN

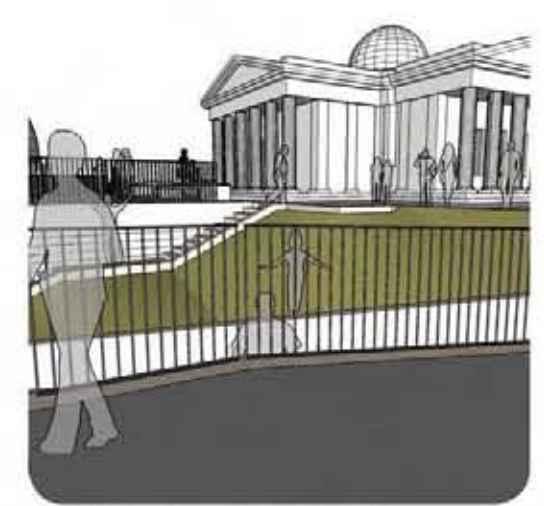
GATHERING SPACES/STOPPING POINTS SKETCH VIEWS



Cafe' terrace



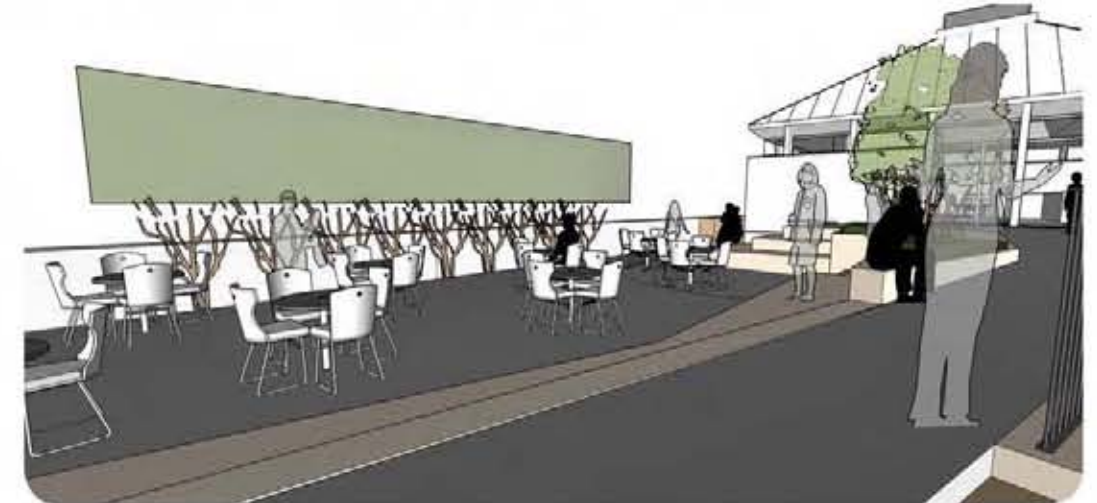
View from inside the Cafe' towards Art garden



View from Cafe' terrace towards the Plinth



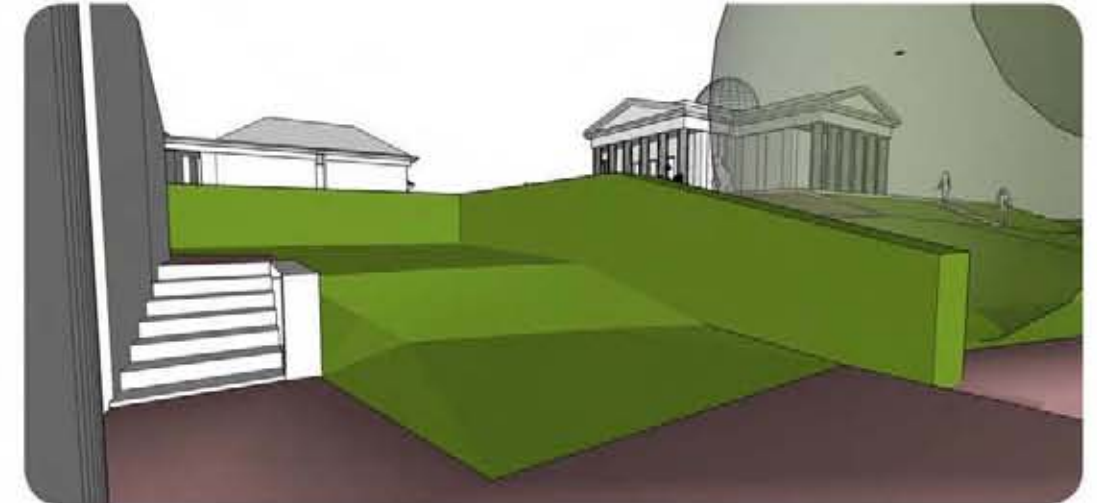
View from inside the Cafe' towards Cafe' terrace



Cafe' terrace



South Gate and Playfair's steps

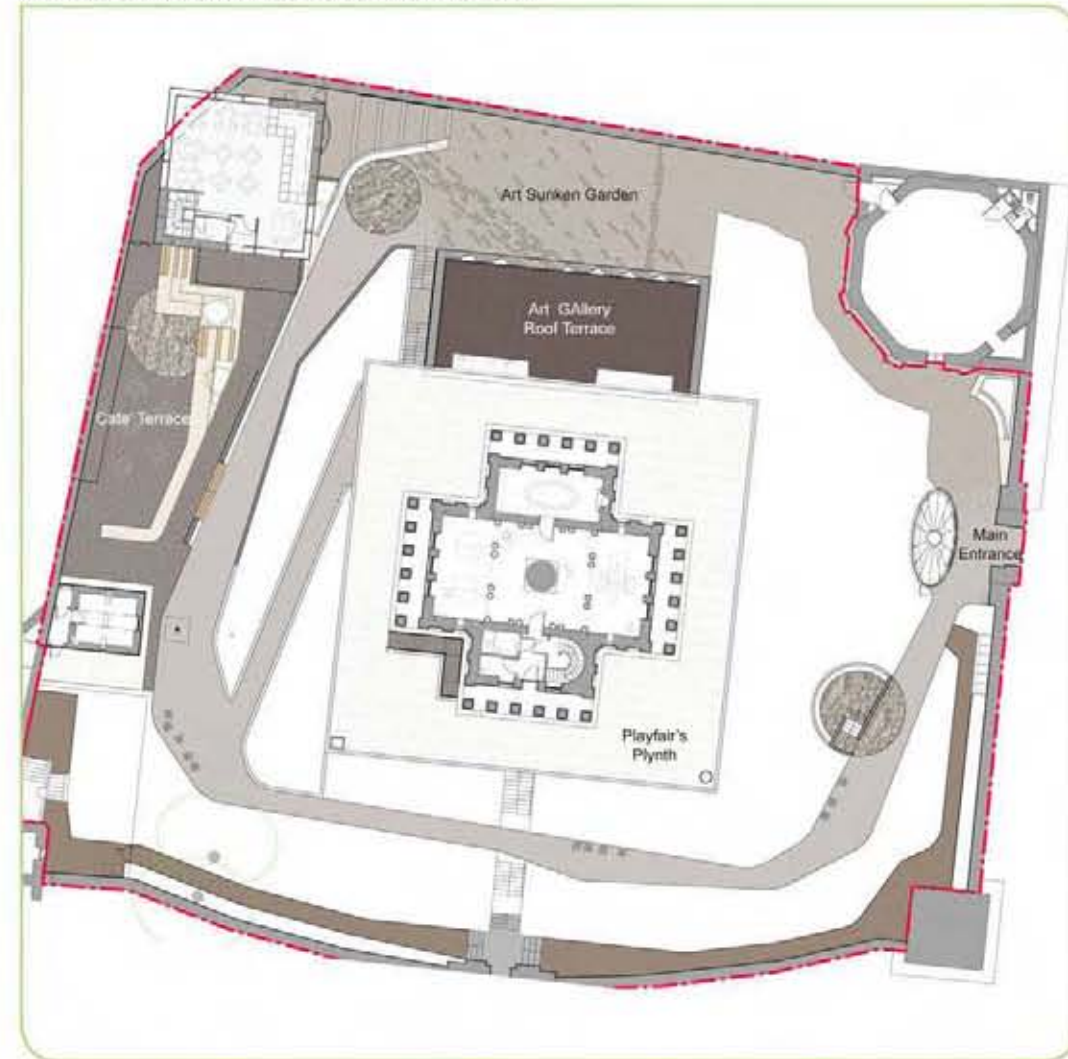


Observatory House garden / privacy with a view

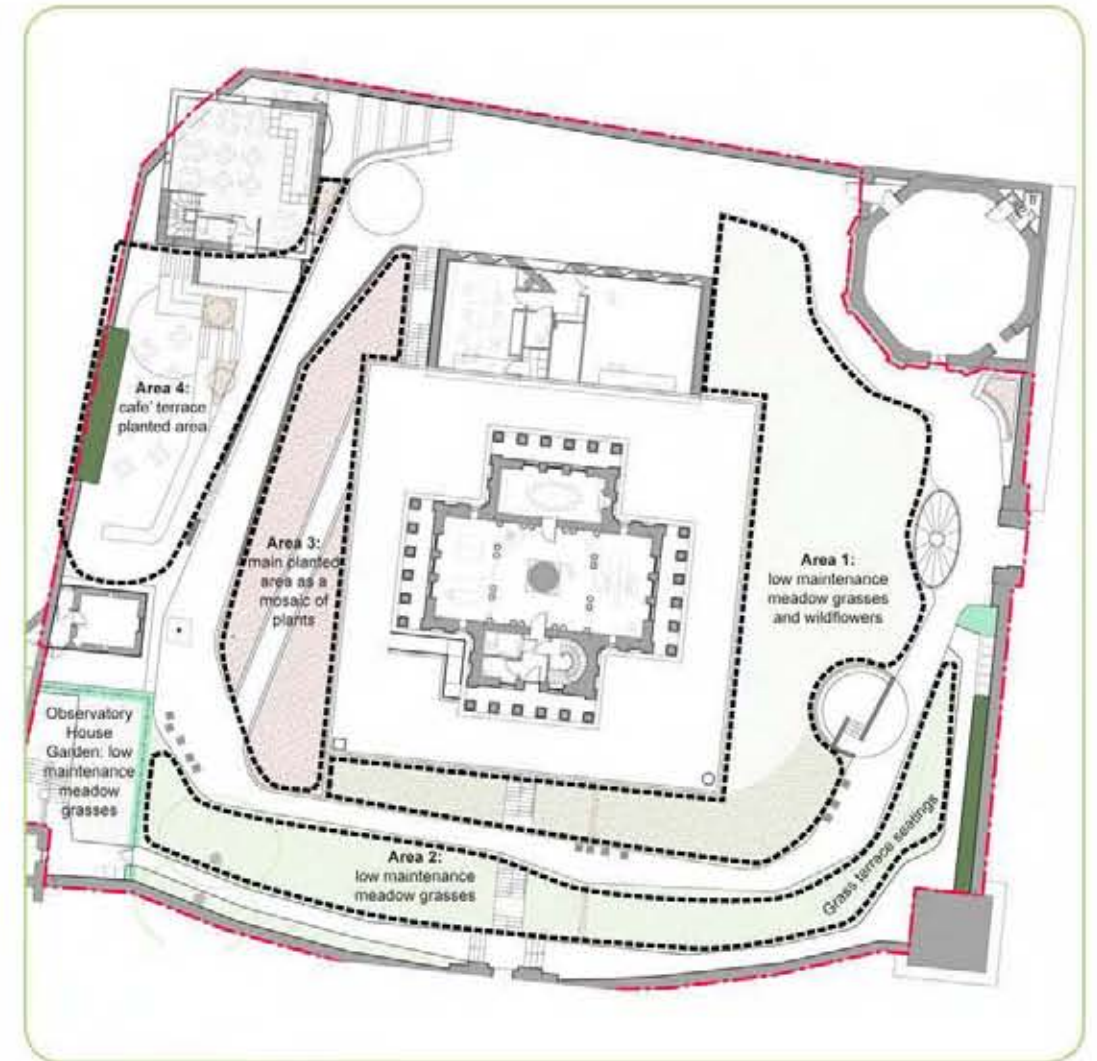
LANDSCAPE ARCHITECT'S REPORT

4.4 LANDSCAPE MATERIALS

HARD/SOFT LANDSCAPE PROPORTION



Hard Landscape Areas



Soft Landscape Areas

LANDSCAPE ARCHITECT'S REPORT

4.4 LANDSCAPE MATERIALS

MATERIALS PALETTE: HARD WORKS



Horonizing caithness



Silver/grey loose gravel



Buff colours water bound gravel to paths



'Red' sandstone



basalt stone inserts



caithness planks



loose basalt gravel



Listed Playfair's Steps



Cox Dome steps



Whinstone steps



Precast concrete steps



Precast concrete steps/planters

LANDSCAPE ARCHITECT'S REPORT

4.4 LANDSCAPE MATERIALS

MATERIALS PALETTE: SOFT WORKS

This planting is characterised by a contemporary and vibrant, yet subtle plant palette of both evergreen and perennial planting that'll tolerate the open and exposed conditions of the site. Plants have been chosen for their overall effect, each as an ensemble piece of the bigger picture, where shape, foliage colour, form & texture are as important as flower colour in attaining the perceived look.

The suggested palette exhibits a range of predominantly blues and purples with soft lilac, rich green, indigo and white. Plants will continue to provide year round interest with many exciting textural, layered and veiled effects throughout the year. Parchment and bronzed grasses, rich russet tones, persistent brown seedheads, vibrant stems and seasonal finery will continue to provide interest through late autumn and winter and can look stunning when back-lit by early morning or evening sun or when covered in mist or rime. Additionally, many of the selected plants will attract bees and butterflies and will look amazing against the architectural solidity of evergreen elements, vibrant winter stems or sandstone surfaces and facades.

The Planting Plans will encompass four distinct areas, though each containing an element of the other to provide continuity across the site and as follows:

1. The area to the immediate east and south of the observatory consists of a low maintenance, low key meadow with mown areas and paths for picnicking. Unmown areas may reflect the circular pattern in the hardscape that in turn reflects the ghosts of domes removed and continuing the theme of circles and globes across the site. These areas and the bank to the immediate front (south) of the observatory will be augmented with plugs of indigenous, nectar rich Knapweeds and Field Scabious typically found in grasslands of this sort across Scotland and will attract Bumblebees and Butterflies to the site. These flowers will be found in a higher concentration at the western end of this area in order to create a natural continuation into the more densely planted show piece planting west of the observatory.

2. The low maintenance meadow between the paths to the front (south) of the observatory will be as above excluding additional wildflowers.

3. The main planted area to the west of the observatory consists of a visually stunning tapestry or mosaic of plants in a limited colour palette that ebbs and flows, rises and falls across the entire space. This is characterised by a range of subtle perennials, grasses and sub-shrubs punctuated by the architectural spheres of pruned Box (Buxus) balls of varying size, that'll 'float' within the sea of ethereal grasses and more nebulous perennials. This exciting planting style crosses and re-crosses the sloping access path to create further tension and interest. Another aspect of the planting here will be the use of globe shaped flowers and seasonal bulbs that echo the shape and solidity of the pruned box balls, many of which, along with amorphous grasses, will trap and hold the light. Winter interest comes in the form of vibrant winter stems and persistent russet seed heads amongst parchment grasses and the omnipresent spheres of evergreen Box (Buxus).

4. The small areas of planting adjacent to the café terrace and east of the café pick up elements of adjacent planting with perhaps a cloud-pruned Box (Buxus) or suitable multi-stemmed tree creating a stunning focal point on the terrace or to the shadier east of the café. Tall, vertical grasses would be particularly effective here against the horizontal courses of sandstone in addition to providing a superb foil and year-round interest for a small multi-stem tree and russet brown seedheads in the bed to the east of the café. A self-clinging climber in this location would soften the severity of the building in addition to providing superb autumn finery.



Existing trees



Existing ivy



Retained hedges, reshaped



Area 1



Area 2



Area 3



Area 3



Area 4



LANDSCAPE ARCHITECT'S REPORT

4.4 LANDSCAPE MATERIALS

MATERIALS PALETTE: STREET FURNITURE



Railing: balustrade + view through + back seat



Railing/balustrade



Deep earth thermometer position/alignment



Cast iron staff, uncertain use, retained as feature



Comfortable seats / gathering spaces



Wall wash luminaires



Downlighters



Grazing luminaires



LANDSCAPE ARCHITECT'S REPORT

4.5 ATMOSPHERIC/MOOD VIEWS

CONTEMPORARY SPACES - CLOSE UPS



Contemporary Art Garden

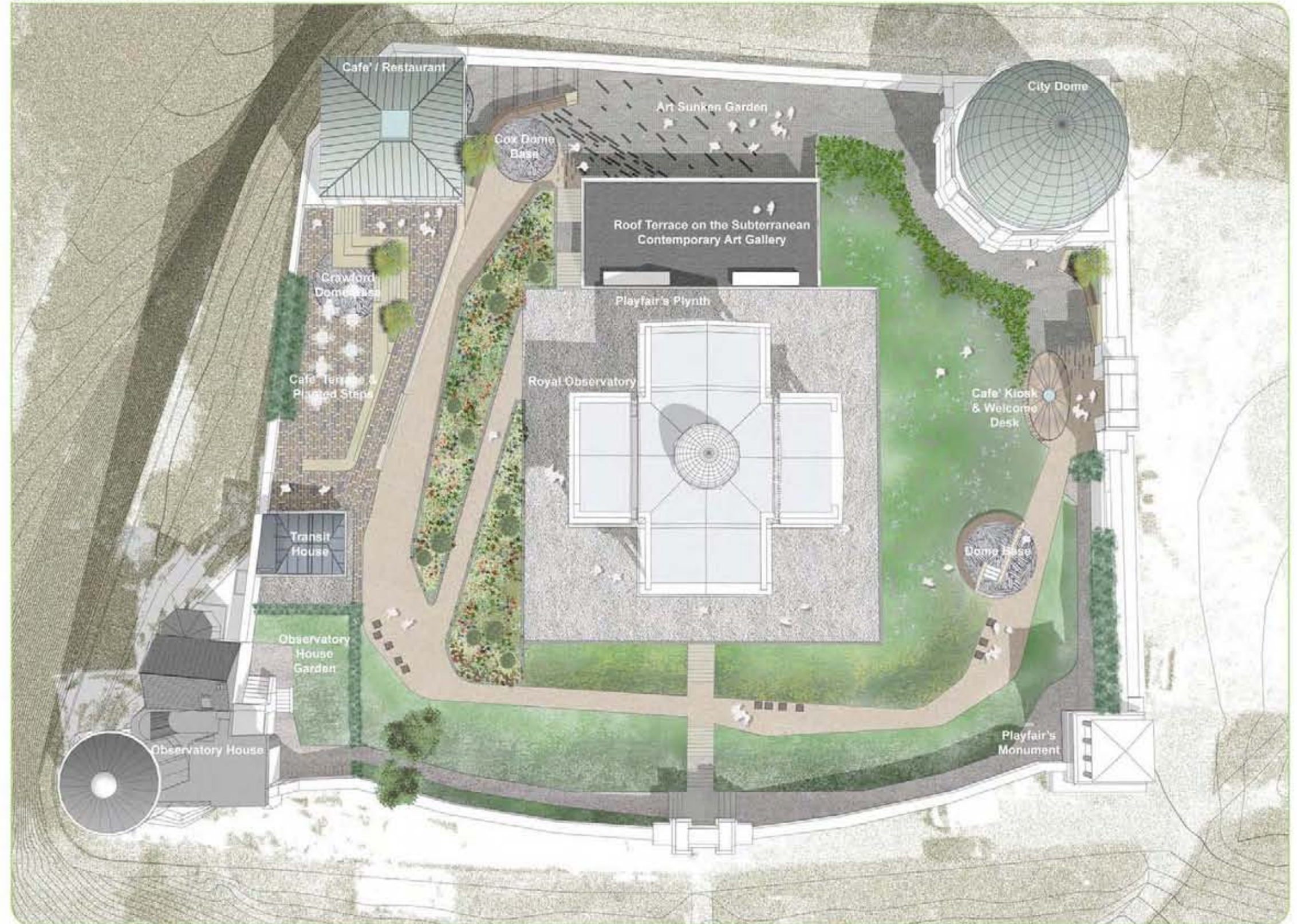


Cafe Terrace

LANDSCAPE ARCHITECT'S REPORT

4.6 DESIGN

RENDER LANDSCAPE PLAN



Aerial view of the site