DESIGN DEVELOPMENT *chapter* 08

01 | INTRODUCTION

This chapter reflects on the conceptual premise derived from design informants as listed in Chapter 07, and thereafter to provide a practical application of the concept, into a convincing design strategy.

After understanding the design informants, the conceptual premise, as well as the set of guidelines that have been related back to the three salutogenic realms, an attempt toward the design and technification of this facility, can take place. An opportunity between the guidelines and the end goal of establishing a state of wellbeing, exists, and this is where the presence of design is required (Figure 8.2).
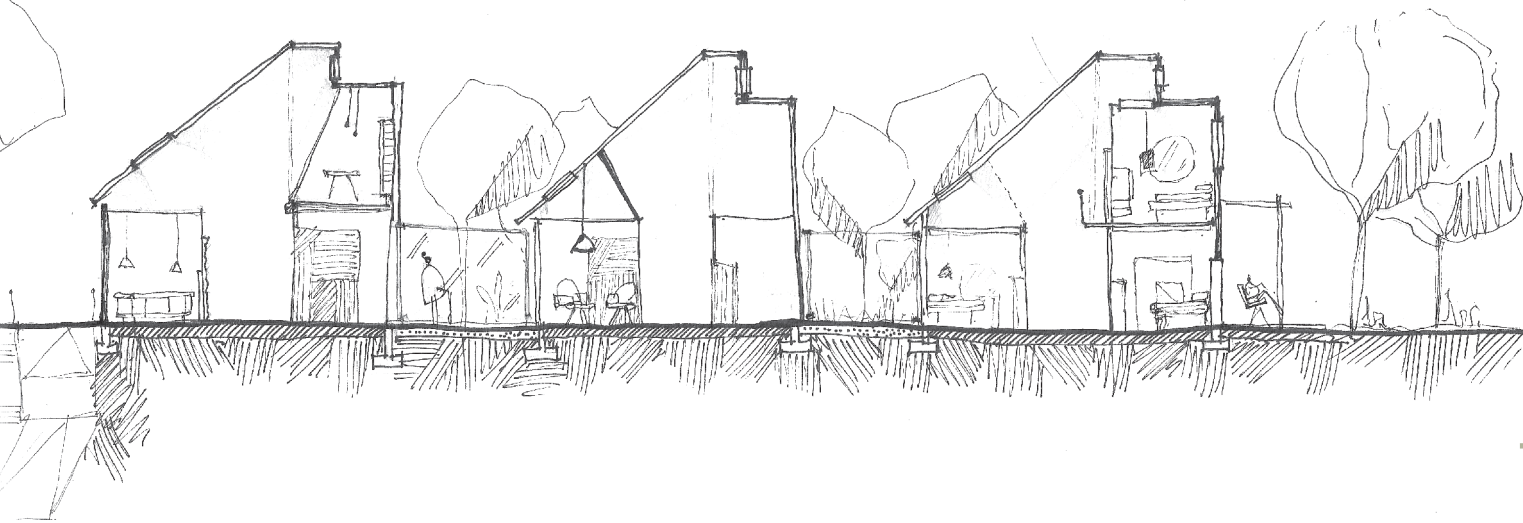

GUIDELINES — GAP [opportunity] — WELLBEING

Figure 8.1: Cover page (Author 2018)
Figure 8.2: Opportunity exists between guidelines and application thereof (Author 2018)

EXISTING LOOKOUT

EXISTING BACKPACKERS ACCOMMODATION

PROPOSED VISITORS PARKING

EXISTING EMPLOYEE'S ACCOMMODATION

EXISTING RESTAURANT

EXISTING MARKET

PROPOSED DAY CLINIC

PROPOSED ALZHEIMER'S FACILITY

EXISTING GREEN HOUSES

PROPOSED VISITORS PARKING

PROPOSED EQUESTRIAN STABLES

EXISTING VISITORS PARKING

EMPLOYEE'S PARKING

100 |

SITE PLAN N.T. SCALE

This chapter has been divided into two distinct categories, the tangible, which includes general space planning and requirements according to standards, such as the SANS 10400, and the intangible, which includes elements such as wayfinding, daylighting and colour. An attempt is made to unpack the design of this facility, for the reader to gain a thorough understanding of the design development of this facility.

Figure 8.3: Final Site Plan - not to scale (Author 2018)

02 | PART 1: TANGIBLE

Spatial Requirements

Private

BEDROOMS
ensuite bathrooms

NURSE'S STATION
staff quarters

QUIET ROOM

PRIVATE: Individual patients or staff

SEMI PRIVATE: Grouped patients, staff, nurses, family & visitors

PUBLIC: Community of Cullinan

Semi - Private

DINING ROOM
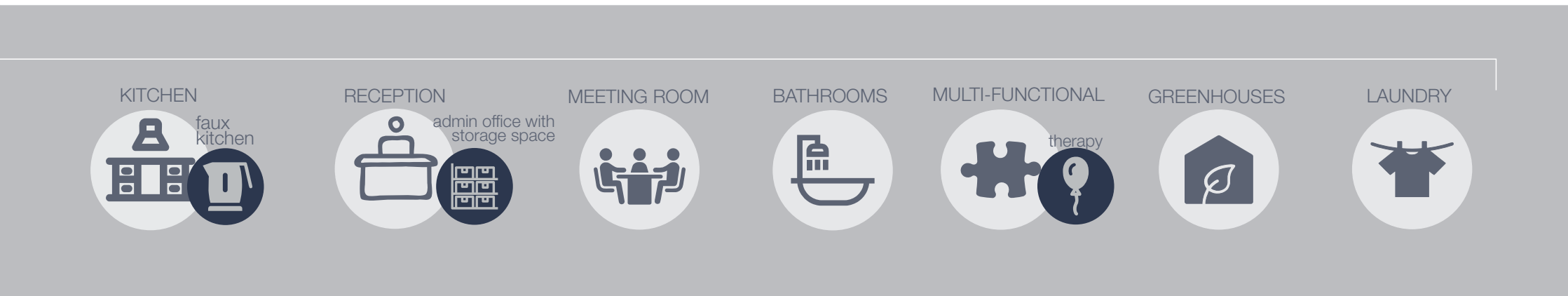
LOUNGE
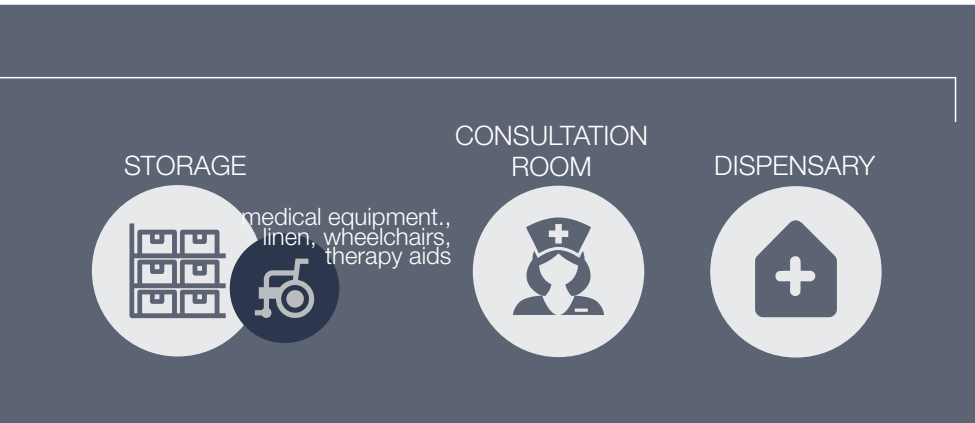
PARLOUR
hair, nails, massages

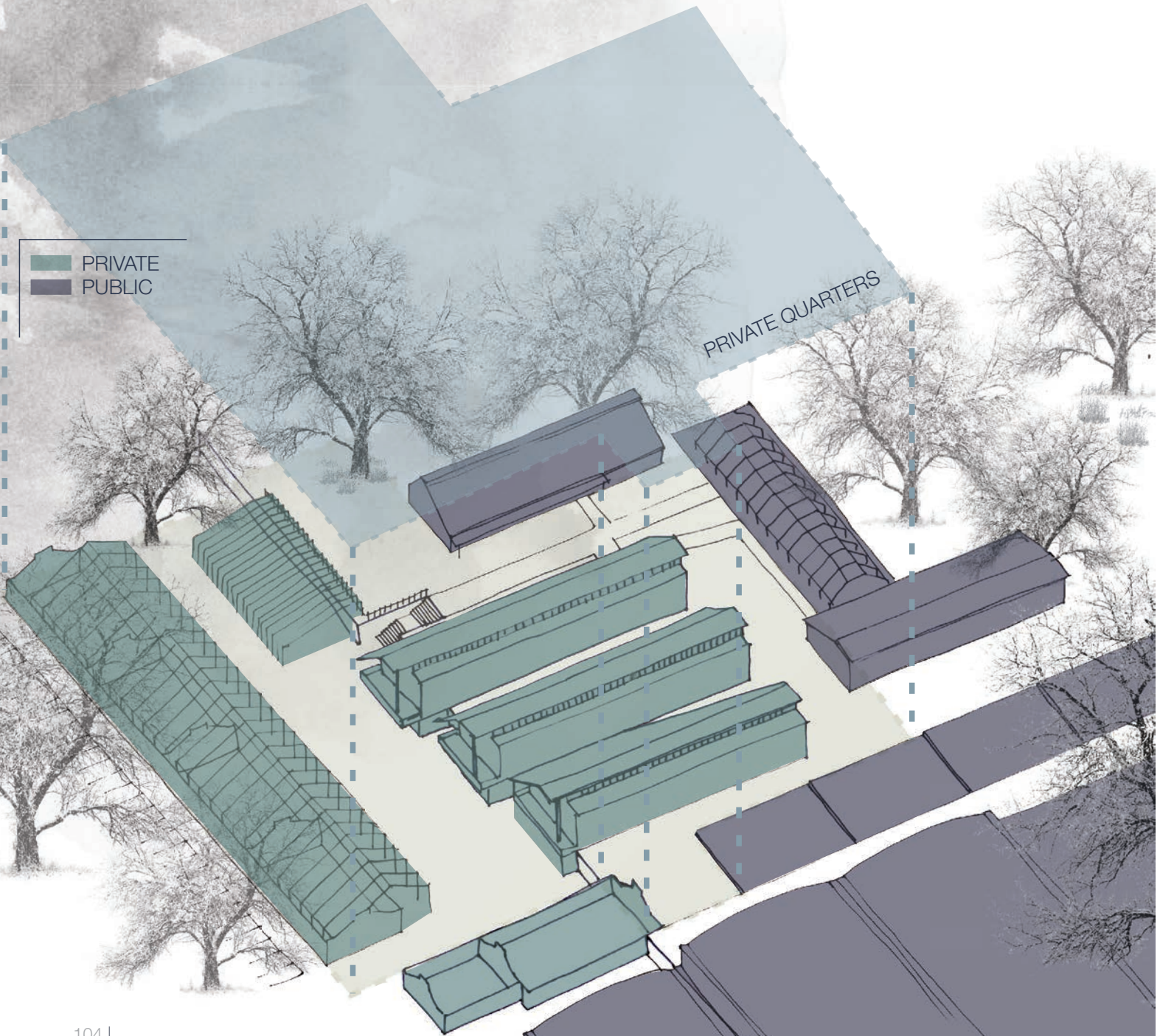*Figure 8.4: Spatial Requirements for the facility (Author 2018)*

The spatial requirements are derived from Chapter 02: Case studies, and Chapter 03: Programme. It is important that all of these programmes are included in a typical Alzheimer's facility, as they all provide a very specific programme to accommodate particular activities.

The spaces are then devided into three major categoriesn namely; private, public and semi-private. These categories are dependent on the use of individual and grouped patients, staff members, nurses, family members and visitors of patients, as well as the general public community of Cullinan.

A variety of people are affected by the design of an Alzheimer's facility, and therefore it is of utmost importance to apply an inclusive approach toward the spatial requirements of the facility.

STORAGE
medical equipment., linen, wheelchairs, therapy aids

CONSULTATION ROOM

DISPENSARY

● Public

RESTAURANT

DAYCLINIC

OUTDOOR MARKET

EQUESTRIAN ESTATE

KITCHEN
faux kitchen

RECEPTION
admin office with storage space

MEETING ROOM

BATHROOMS

MULTI-FUNCTIONAL
therapy

GREENHOUSES

LAUNDRY

PROGRAMMES
INTACT (LAURENT)
NEW
PROGRAMMES

PRIVATE
PUBLIC

PRIVATE QUARTERS

GREENHOUSES
Internal greenhouses to be used by patients as form of therapy. Seed planting, bird feeding and playing with sand are amongst the activities that will take place here.
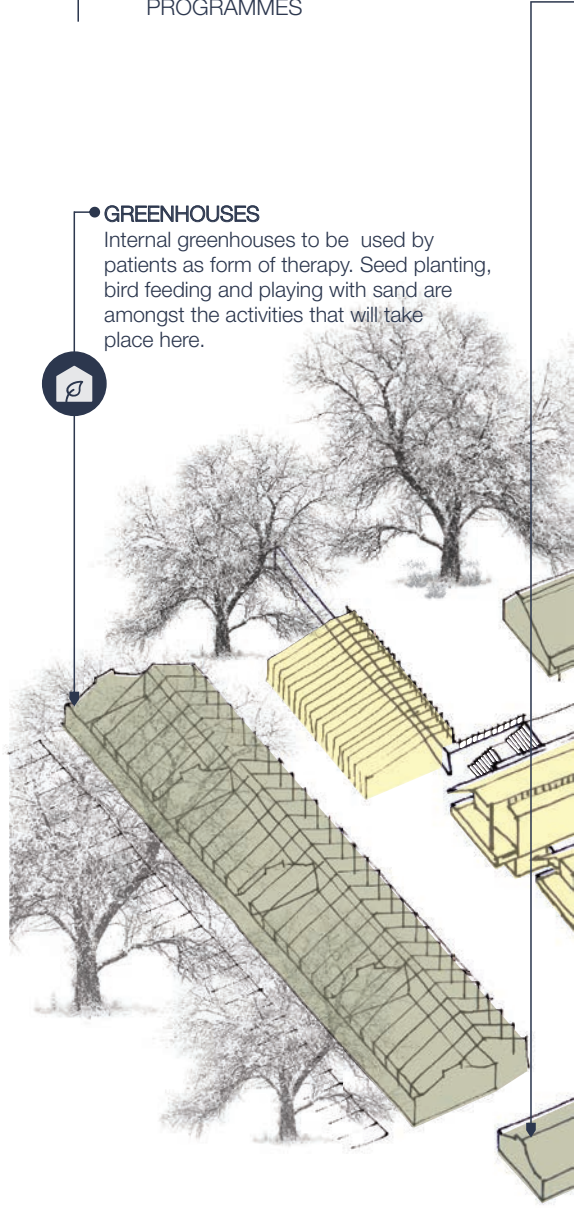
SECURITY AND GUARD HOUSE
This entrance to the site to become a [secondary] service entrance merely used by staff and for deliveries

RESTAURANT
Orientation to be shifted to cater into private quarters as well as public spacs. This restaurant will be used by patients, family members and friends, as well as general public.

OUTDOOR MARKET
Produce and items made by private patients to be sold on this platform back into community of Cullinan

ALZHEIMER'S FACILITY
These 3 buildings become 1 and accommodate patients diagnosed with Alzheimer's disease.
Spaces will include the following:

EQUESTRIAN ESTATE
Stables provided where people could interact with horses. Also becomes a form of therapy for the elderly patients residing in the facility.

WORKSHOP SPACE
Space where activities can take place + items sold in outdoor market space

PUBLIC/PRIVATE DAY CLINIC
72hr medical day clinic to include facilities to accommodate doctor, psychiatrist, psychologist, biokineticist, dispensary etc.
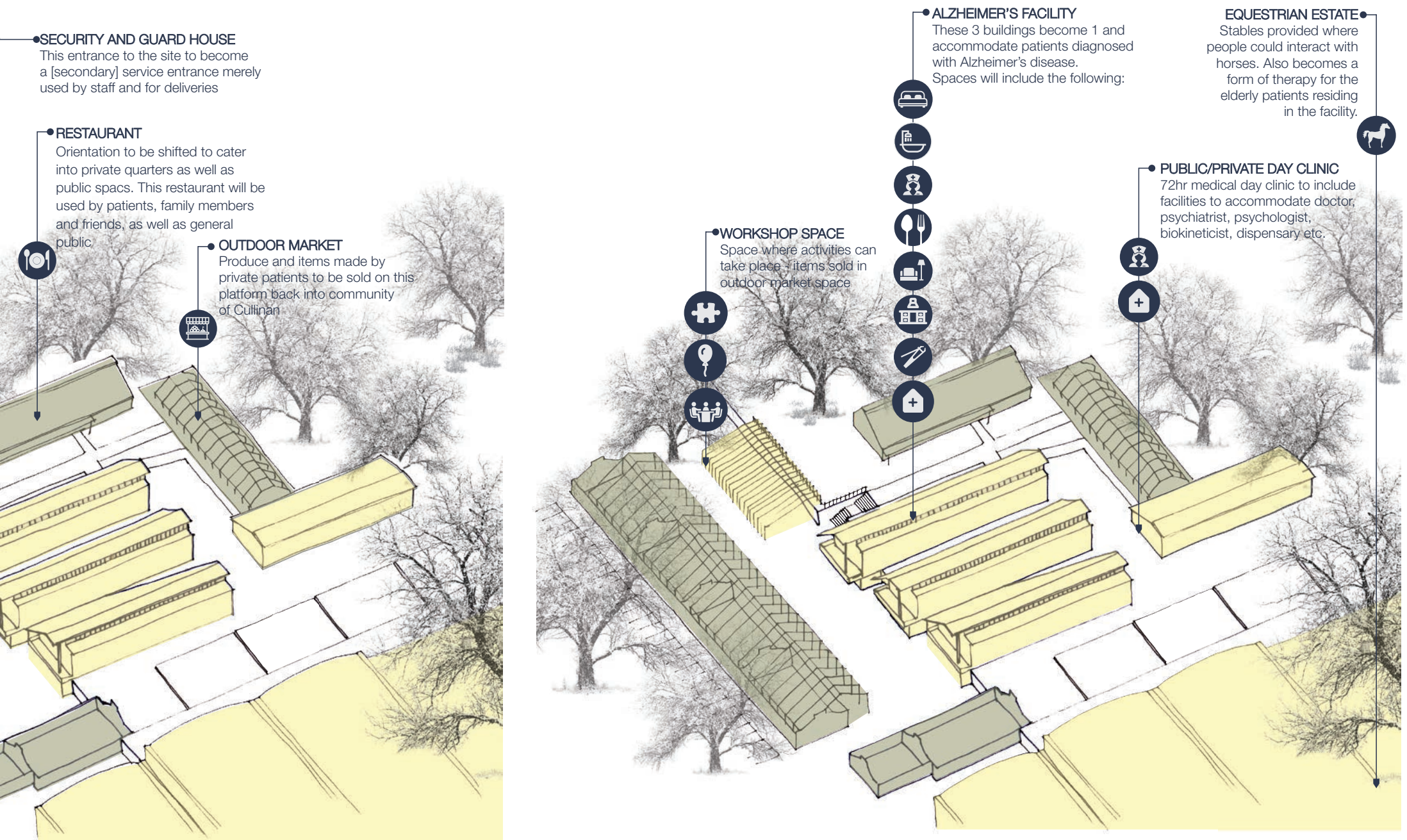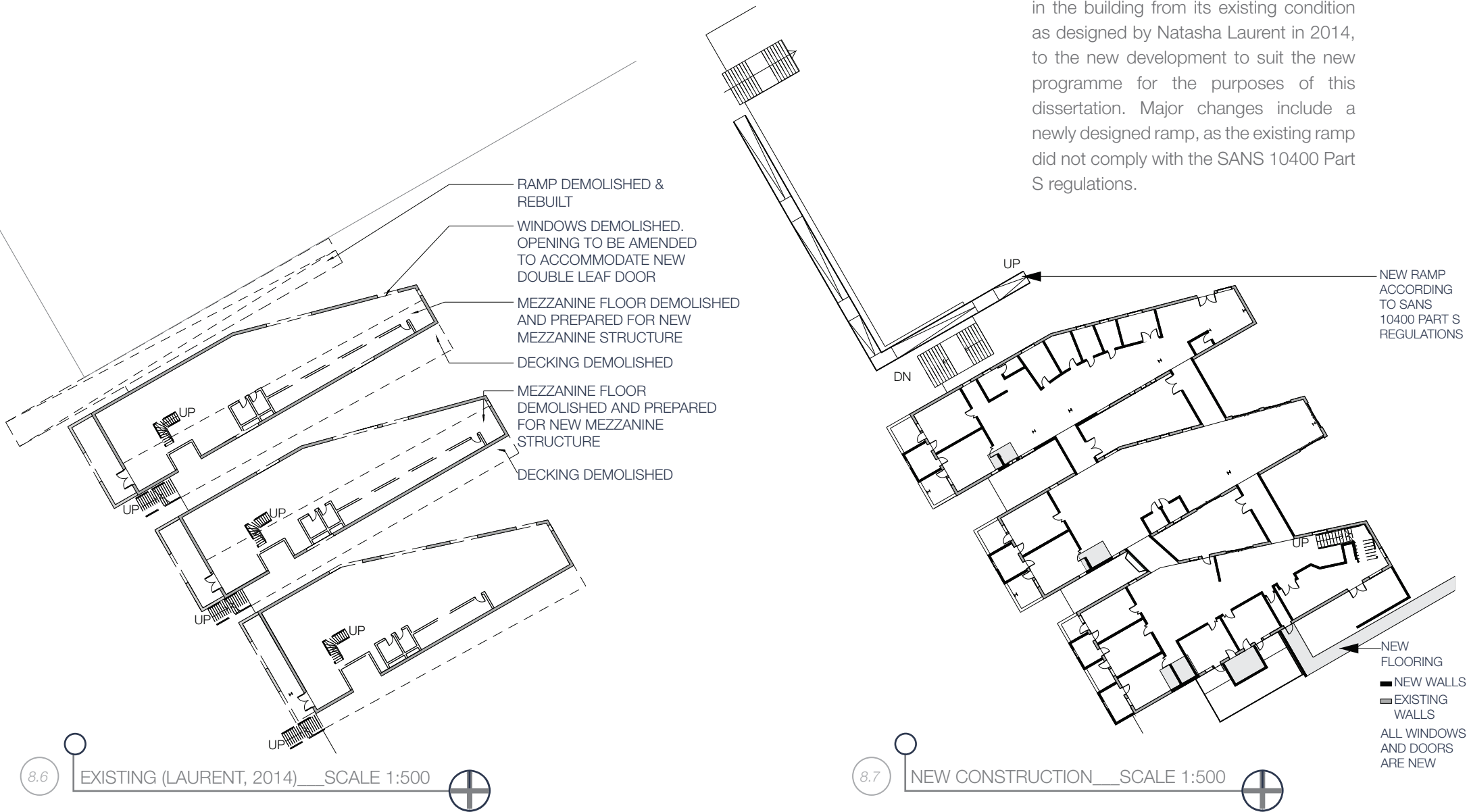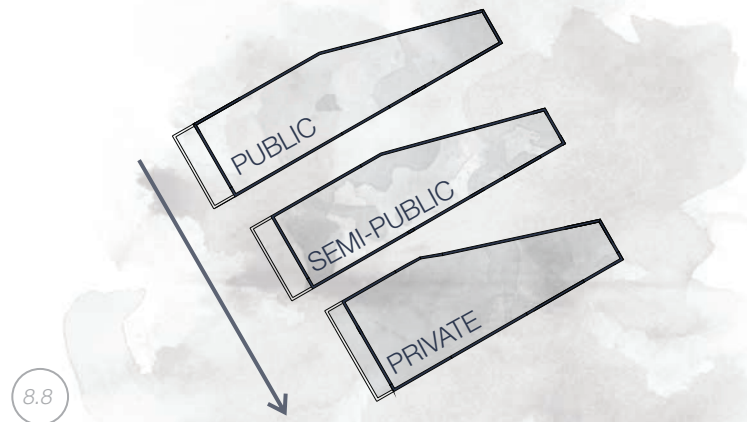
Figure 8.6 and 8.7 illustrates the change in the building from its existing condition as designed by Natasha Laurent in 2014, to the new development to suit the new programme for the purposes of this dissertation. Major changes include a newly designed ramp, as the existing ramp did not comply with the SANS 10400 Part S regulations.

RAMP DEMOLISHED & REBUILT

WINDOWS DEMOLISHED. OPENING TO BE AMENDED TO ACCOMMODATE NEW DOUBLE LEAF DOOR

MEZZANINE FLOOR DEMOLISHED AND PREPARED FOR NEW MEZZANINE STRUCTURE

DECKING DEMOLISHED

MEZZANINE FLOOR DEMOLISHED AND PREPARED FOR NEW MEZZANINE STRUCTURE

DECKING DEMOLISHED

UP

DN

UP

NEW RAMP ACCORDING TO SANS 10400 PART S REGULATIONS

UP

NEW FLOORING

NEW WALLS
EXISTING WALLS
ALL WINDOWS AND DOORS ARE NEW

UP

UP

UP

UP

8.6 EXISTING (LAURENT, 2014)___SCALE 1:500

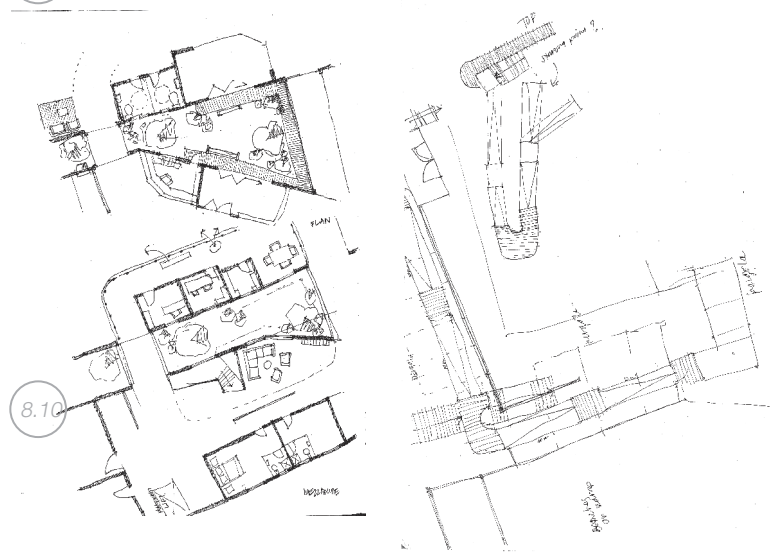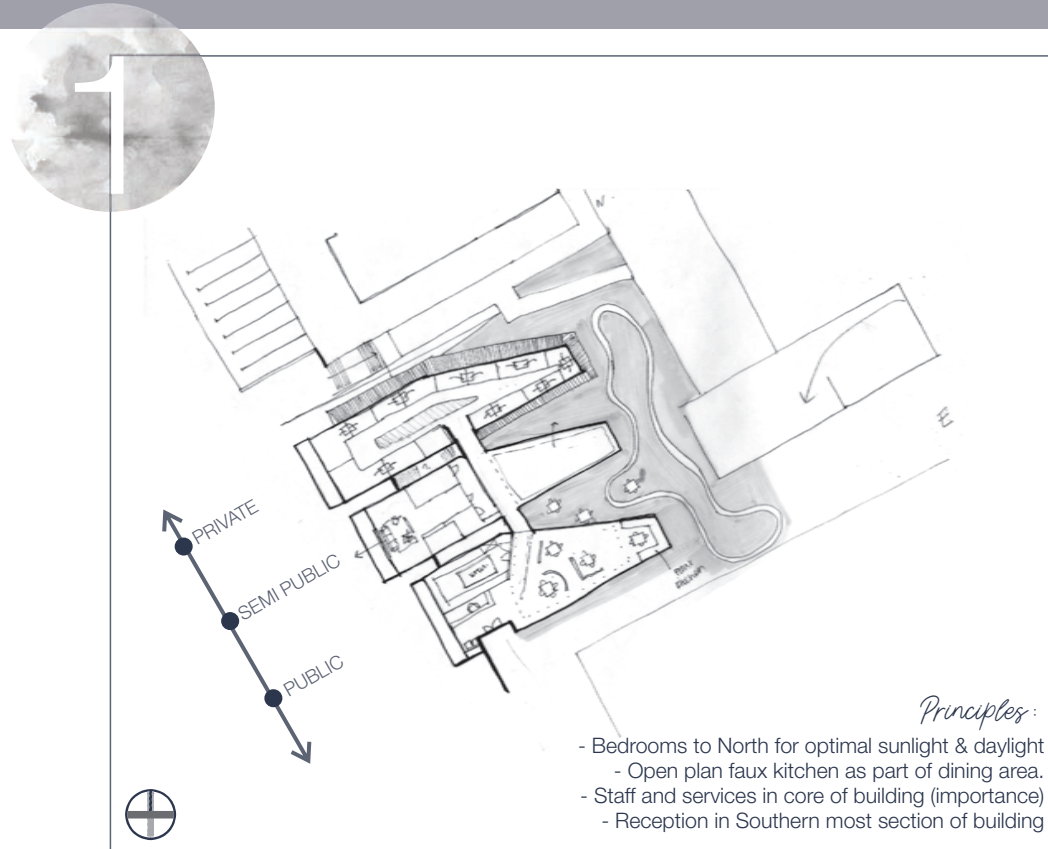8.7 NEW CONSTRUCTION___SCALE 1:500

8.8

8.9

8.10

Figure 8.8 provides a digrammatic plan of the organisation of public to private spaces. It is important that the public area of the building be located close to the entrance of the Residence Estate, so as to accommodate friends and family members easily. As one moves further through the building, the spaces become more private.

The three buildings are connected by means of a wandering path (as seen in Chapter 06: Precedents), that it is a very valuable method of allowing patients to wander without getting lost or reaching a dead end. The entire spatial layout is therefore dervied from the wandering path, as this becomes the main circulatory route throughout the building.

The wandering path evolved by going through a series of design interpretations of the shape of a typical endless path. It was established that a more circular shape provided an easier way of circulation throughout the building, rather than it being rectangular or square.
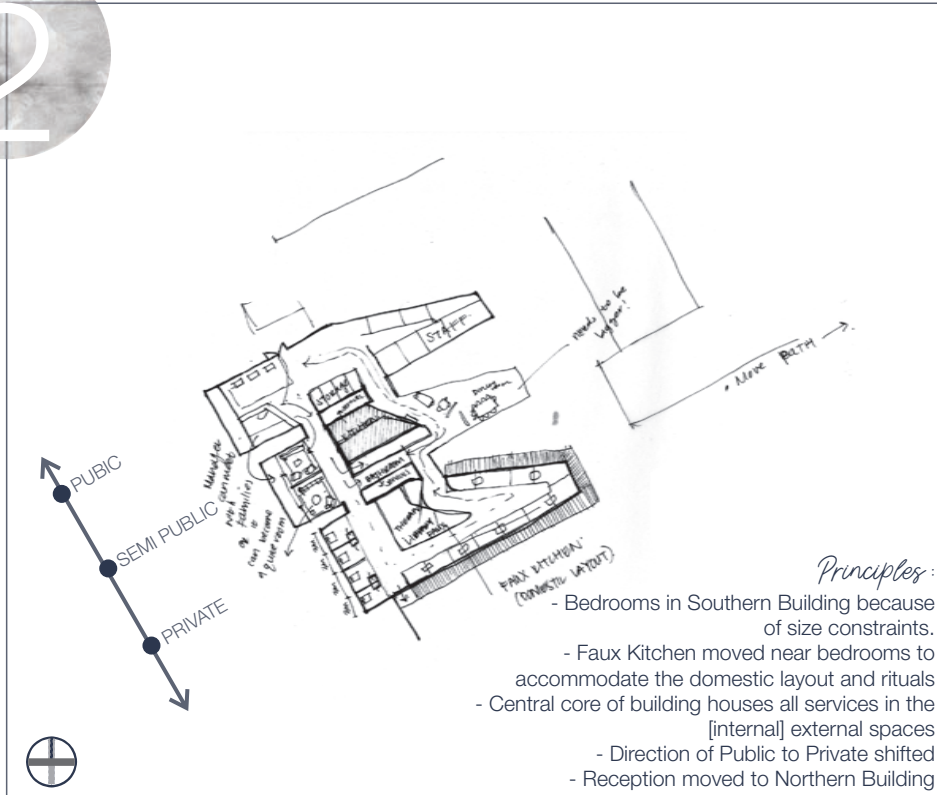
Figure 8.6: Existing Plan (Author 2018)
Figure 8.7: New Construction Plan (Author 2018)
Figure 8.8: Public to Private orginisation (Author 2018)
Figure 8.9: Path development- circular vs square (Author 2018)
Figure 8.10: Plan development iterations (Author 2018)

Principles :
- Bedrooms to North for optimal sunlight & daylight
- Open plan faux kitchen as part of dining area.
- Staff and services in core of building (importance)
- Reception in Southern most section of building

PRIVATE

SEMI PUBLIC

PUBLIC

2

PUBIC

SEMI PUBLIC

PRIVATE

Principles :
- Bedrooms in Southern Building because of size constraints.
- Faux Kitchen moved near bedrooms to accommodate the domestic layout and rituals
- Central core of building houses all services in the [internal] external spaces
- Direction of Public to Private shifted
- Reception moved to Northern Building

3

PRIVATE

SEMI PUBLIC

PUBIC

Principles :
- Bedrooms to North and West of building
- Layout derived around 8-shaped wandering path
- Wandering path meets in middle of building and becomes the semi private dining area
- Reception area moved to South to be closer to parking area

Figure 8.11-8.13: Space Planning iterations (Author 2018)
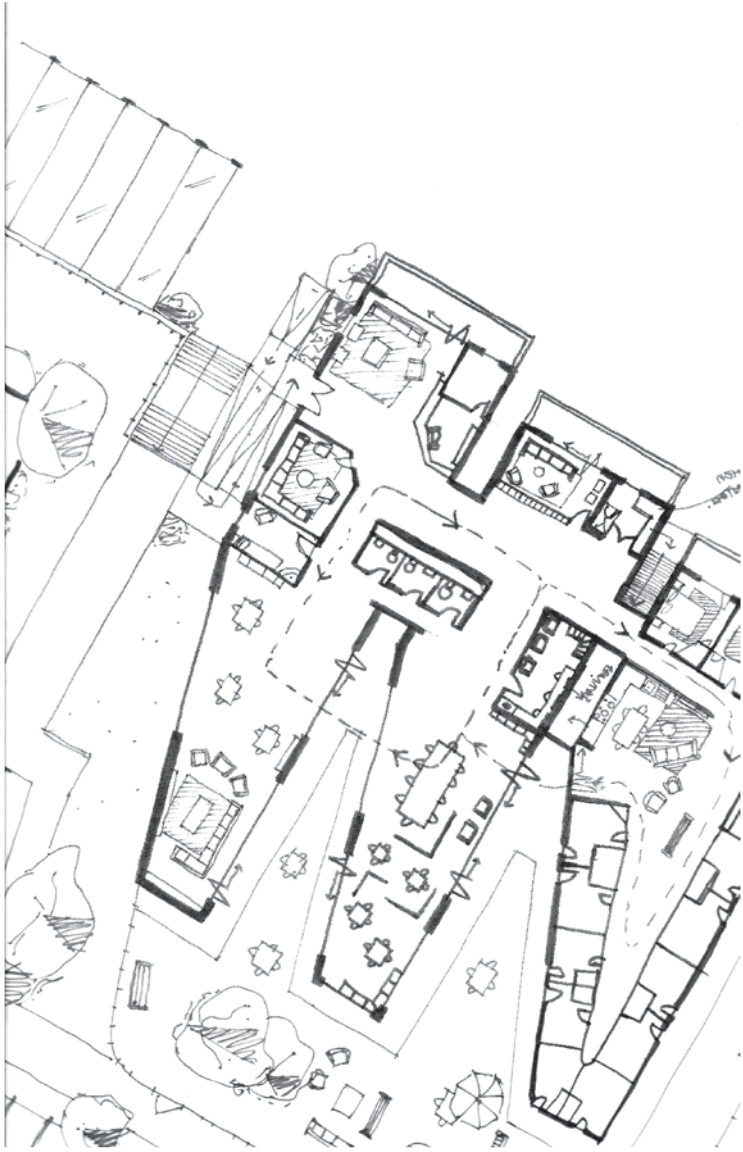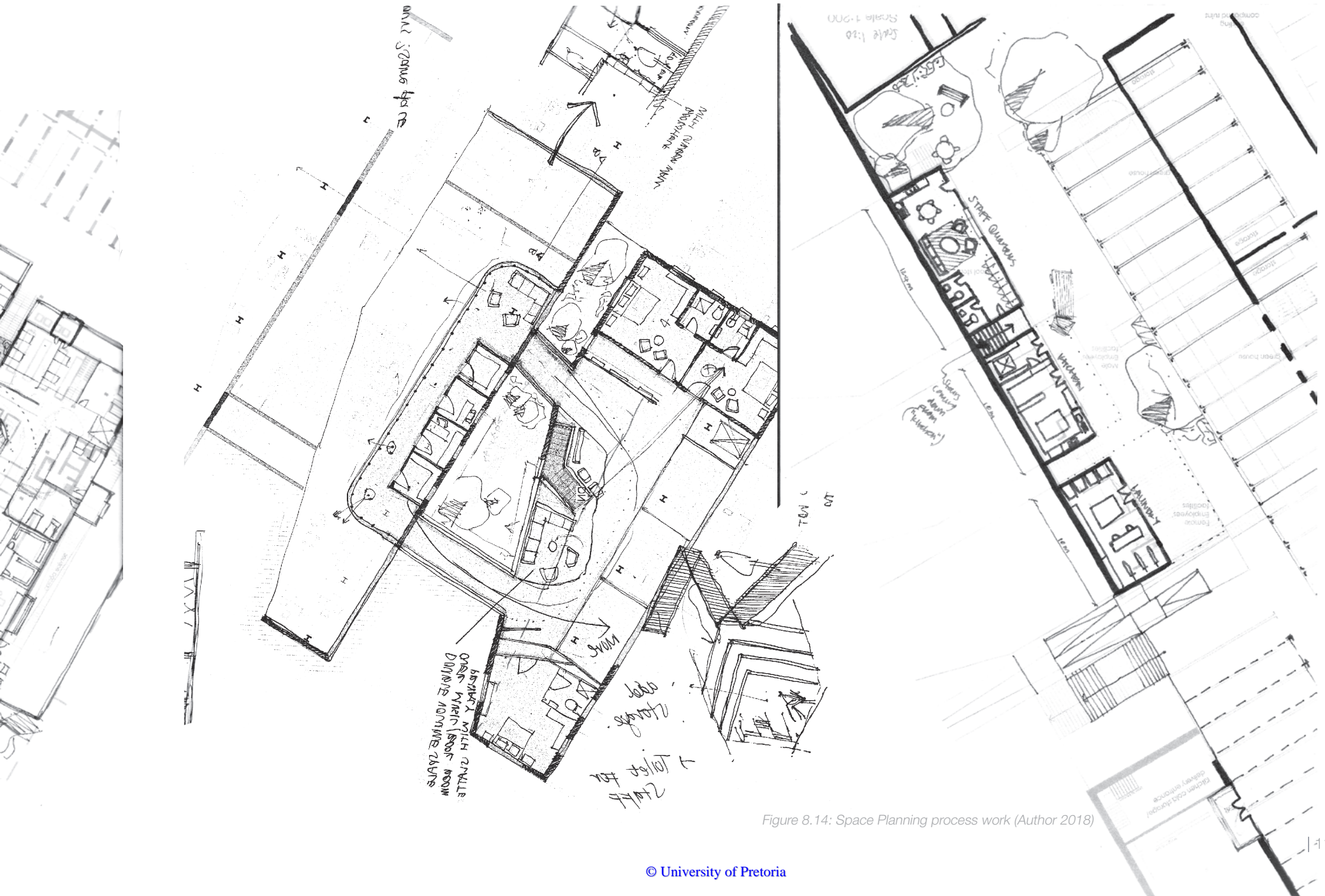
GROUND FLOOR LEVEL

LOWER GROUND FLOOR LEVEL

ENTRANCE TO FACILITY

RECEPTION

WAITING AREA

MEETING ROOM

ACCESSIBLE TOILET

STORAGE
TILES

CONSULTATION ROOM
TILES

DISPENSARY
VINYL

NURSE'S STATION

HAIR, NAILS & MASSAGE PARLOUR
VINYL

GARDEN

ACCESS HATCH

ACCESS

FOYER

BEDROOM 1
LAMINATE

PRIVATE PATIO

BEDROOM 2
LAMINATE

PRIVATE LOUNGE

PRIVATE PATIO

TV ROOM & LOUNGE
VINYL

FAUX KITCHEN

DINING ROOM

WINDOW BUILT IN SEAT DETAIL

FOYER

BEDROOM 3
LAMINATE

PRIVATE PATIO

BATH

BEDROOM 4
LAMINATE

PRIVATE LOUNGE

PRIVATE PATIO

MULTI-FUNCTIONAL THERAPY ROOM

GARDEN

NURSES STATION
VINYL

MUSIC ROOM
VINYL

SERVICE KITCHEN
TILES

Kitchen Yard, Refuse, Delivery Entrance

BATH

BEDROOM 5
LAMINATE

PRIVATE PATIO

FOYER

PRIVATE LOUNGE

PRIVATE MASSAGE
TILES

BEDROOM 6
LAMINATE

BATH

PRIVATE PATIO

BEDROOM 7

BEDROOM 8
LAMINATE

BATH

PLATFORM LIFT

Private garden with lookout on Equestrian Stables

BATH

NEW RAMP ACCORDING TO SANS 10400 PART S_DISABILITIES AT 1:12 GRADIENT TO ACCOMMODATE ALL USERS. APPROPRIATE LANDINGS PLACED AT ROUGHLY EVERY 8-9M DEPENDING ON DESIGN OF SITE

NEWLY DESIGNED STAIRCASE ACCORDING TO THE SANS 10400 WITH ACCOMPANYING HANDRAIL AND BALLUSTRADE

NEW SHARED BATHROOMS BETWEEN 1-4 RESIDENTS. DOORS SWING TO OUTSIDE ACCORDING TO THE SANS 10400 PART S. ALL BATHROOMS CAN ACCOMMODATE WHEELCHAIR USERS.

EXISTING GREENHOUSES WHERE RESIDENTS COULD GROW PRODUCE AS PART OF THERAPY. PRODUCE GROWN IS THEN SOLD IN THE OUTDOOR MARKET AREA TO GENERATE FUNDS FOR THE RESIDENCE

SMALL PATIOS WITH BALUSTRADE, ALLOWING RESIDENTS TO LOOK OUT ONTO THE GREENHOUSES TO THE SOUTH WEST OF THE SITE

PATIENT BEDROOMS FITTED WITH A STANDARD PEGBOARD WALL PANELING SYSTEM AS DESIGNED IN DETAIL A. THIS GIVES PATIENTS THE FREEDOM TO RE-ARRANGE THEIR BEDROOMS ACCORDING TO THEIR CURRENT DESIRES. THIS PANELING SYSTEM, ALSO ALLOWS FLEXIBILITY FOR THE BEDROOMS TO ACCOMMODATE THE NEXT PATIENT WITHOUT HAVING TO MAKE MAJOR CHANGES TO THE BEDROOM.

HIGH WINDOWS IN BATHROOMS TO ALLOW FOR NATURAL DAYLIGHT AND TO CONTROL PRIVACY OF THE RESIDENTS

Cibes A8000 PLATFORM LIFT FOR LOADS UP TO 1000 KG WITH 1300MM DOOR OPENING, EASY-TO-USE TACTILE BUTTONS WITH BRAILLE, EMERGENCY LIGHT, ALARM BUTTON, EMERGENCY STOP BUTTON AND CLEAR, EASY-TO-READ TEXT CONTROL PANEL. PLATFORM LIFT IS LARGE ENOUGH TO ACCOMMODATE A SINGLE BED AND 2 CARETAKERS

PRIVATE PATHWAY TO DAYCLINIC IN CASE OF EMERGENCY OR IF RESIDENT NEEDS TO BE TAKEN THROUGH ENTRANCE TO AVOID DISTURBING OTHER RESIDENTS
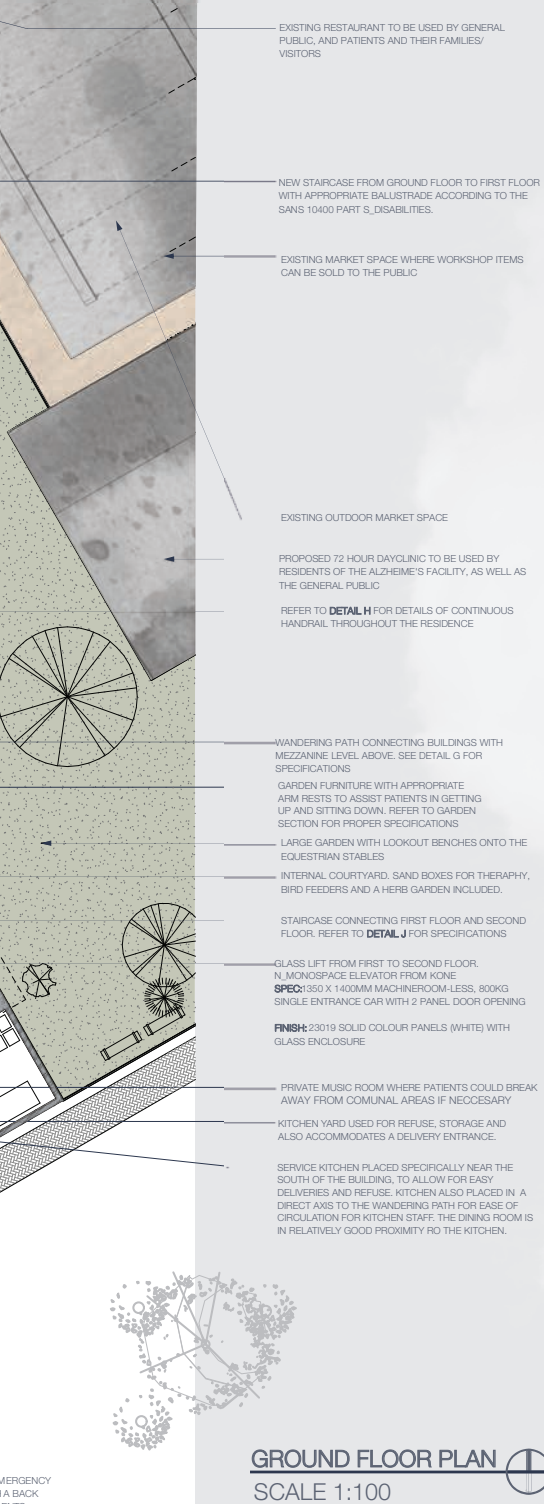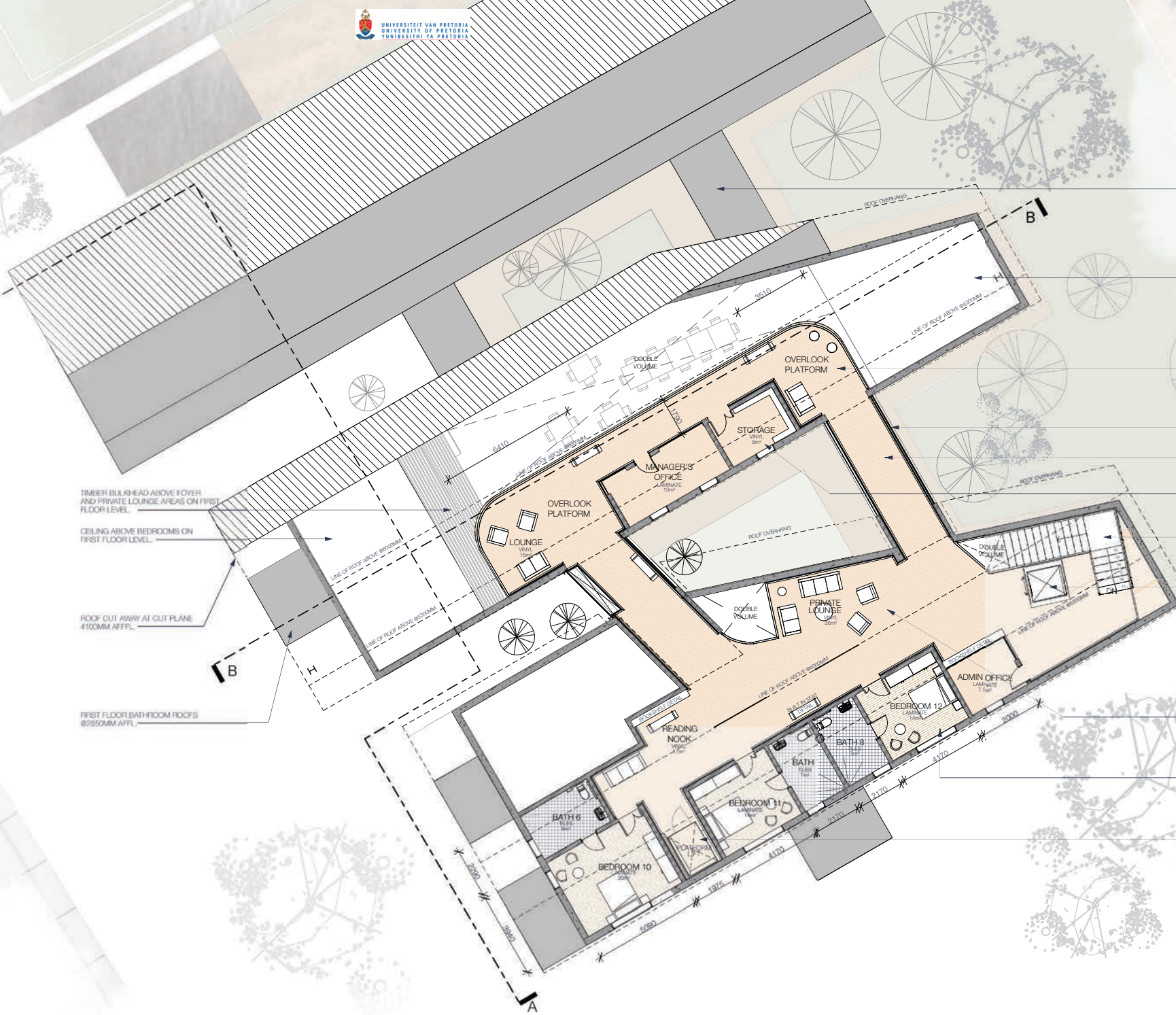
UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

EXISTING RESTAURANT TO BE USED BY GENERAL PUBLIC, AND PATIENTS AND THEIR FAMILIES/ VISITORS

NEW STAIRCASE FROM GROUND FLOOR TO FIRST FLOOR WITH APPROPRIATE BALLISTRADE ACCORDING TO THE SANS 10400 PART S_DISABILITIES.

EXISTING MARKET SPACE WHERE WORKSHOP ITEMS CAN BE SOLD TO THE PUBLIC

EXISTING OUTDOOR MARKET SPACE

PROPOSED 72 HOUR DAYCLINIC TO BE USED BY RESIDENTS OF THE ALZHEIME'S FACILITY, AS WELL AS THE GENERAL PUBLIC

REFER TO **DETAIL H** FOR DETAILS OF CONTINUOUS HANDRAIL THROUGHOUT THE RESIDENCE

WANDERING PATH CONNECTING BUILDINGS WITH MEZZANINE LEVEL ABOVE. SEE DETAIL G FOR SPECIFICATIONS

GARDEN FURNITURE WITH APPROPRIATE ARM RESTS TO ASSIST PATIENTS IN GETTING UP AND SITTING DOWN. REFER TO GARDEN SECTION FOR PROPER SPECIFICATIONS

LARGE GARDEN WITH LOOKOUT BENCHES ONTO THE EQUESTRIAN STABLES

INTERNAL COURTYARD. SAND BOXES FOR THERAPHY, BIRD FEEDERS AND A HERB GARDEN INCLUDED.

STAIRCASE CONNECTING FIRST FLOOR AND SECOND FLOOR. REFER TO **DETAIL J** FOR SPECIFICATIONS

GLASS LIFT FROM FIRST TO SECOND FLOOR. N_MONOSPACE ELEVATOR FROM KONE **SPEC:**1350 X 1400MM MACHINEROOM-LESS, 800KG SINGLE ENTRANCE CAR WITH 2 PANEL DOOR OPENING

FINISH: 23019 SOLID COLOUR PANELS (WHITE) WITH GLASS ENCLOSURE

PRIVATE MUSIC ROOM WHERE PATIENTS COULD BREAK AWAY FROM COMUNAL AREAS IF NECCESARY

KITCHEN YARD USED FOR REFUSE, STORAGE AND ALSO ACCOMMODATES A DELIVERY ENTRANCE.

SERVICE KITCHEN PLACED SPECIFICALLY NEAR THE SOUTH OF THE BUILDING, TO ALLOW FOR EASY DELIVERIES AND REFUSE. KITCHEN ALSO PLACED IN A DIRECT AXIS TO THE WANDERING PATH FOR EASE OF CIRCULATION FOR KITCHEN STAFF. THE DINING ROOM IS IN RELATIVELY GOOD PROXIMITY RO THE KITCHEN.

EMERGENCY A BACK ENTS

GROUND FLOOR PLAN
SCALE 1:100

Figure 8.15: Final First Floor Plan Layout (Author 2018)

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

TIMBER BULKHEAD ABOVE FOYER
AND PRIVATE LOUNGE AREAS ON FIRST
FLOOR LEVEL.

CEILING ABOVE BEDROOMS ON
FIRST FLOOR LEVEL.

ROOF CUT AWAY AT CUT PLANE
4100MM AFFFL.

FIRST FLOOR BATHROOM ROOFS
@2850MM AFFL.

DOUBLE
VOLUME

OVERLOOK
PLATFORM

MANAGER'S
OFFICE
LAMINATE
13m²

STORAGE
VINYL
8m²

OVERLOOK
PLATFORM

LOUNGE
VINYL
16m²

ROOF OVERHANG

DOUBLE
VOLUME

PRIVATE
LOUNGE
VINYL
20m²

DOUBLE
VOLUME

ADMIN OFFICE
LAMINATE
7.5m²

READING
NOOK
VINYL
47m²

BEDROOM 12
LAMINATE
13m²

BATH 8

BATH

BEDROOM 11
LAMINATE
17m²

BATH 6

BEDROOM 10
20m²

ROOF STRUCTURE WITH CHROMODEK ROOF SHEETING ENCLOSING THE PASSAGE THAT JOINS THE TWO BUILDINGS.

TV ROOM AND LOUNGE ON FIRST FLOOR LEVEL (BELOW CEILING)

OVERLOOKING PLATFORM, ALLOWING STAFF MEMBERS TO ALWAYS HAVE A VISUAL ON RESIDENTS THROUGHOUT THE FACILITY

REFER TO DETAIL H FOR DETAILS OF CONTINUOUS HANDRAIL THROUGHOUT THE RESIDENCE

WANDERING PATH CONNECTING BUILDINGS WITH MEZZANINE LEVEL ABOVE. SEE DETAIL G FOR SPECIFICATIONS

STORAGE SPACE FOR SPARE WHEELCHAIRS, RESPIRATOR MACHINES, THERAPY AIDS ECT. ALL ITEMS CAN BE TRANSPORTED DOWN THE PLATFORM LIFT FOR EASE OF MOVEMENT

STAIRCASE CONNECTING FIRST FLOOR AND SECOND FLOOR. REFER TO DETAIL J FOR SPECIFICATIONS

GLASS LIFT FROM FIRST TO SECOND FLOOR.

N_MONOSPACE ELEVATOR FROM KONE
SPEC: 1350 X 1400MM MACHINEROOM-LESS, 800KG SINGLE ENTRANCE CAR WITH 2 PANEL DOOR OPENING OF 1000MM.
FINISH: 23019 SOLID COLOUR PANELS (WHITE) WITH GLASS ENCLOSURE

INFORMAL LOUNGE BASED ON SAME PRINCIPLES AS FIRST FLOOR FOYERS AND LOUNGES

DOUBLE BEDROOMS ACOMODATING A MARRIED COUPLE IN THE CASE OF ONE PERSON BEING DIAGNOSED WITH ALZHEIMER'S DISEASE

Cibes A8000 PLATFORM LIFT FOR LOADS UP TO 1000 KG WITH 1300MM DOOR OPENING, EASY-TO-USE TACTILE BUTTONS WITH BRAILLE, EMERGENCY LIGHT, ALARM BUTTON, EMERGENCY STOP BUTTON AND CLEAR, EASY-TO-READ TEXT CONTROL PANEL. PLATFORM LIFT IS LARGE ENOUGH TO ACCOMMODATE A SINGLE BED AND 2 CARETAKERS.

FIRST FLOOR PLAN
SCALE 1:100

Colour coded Zone Plan

1:200

OVERALL LIGHTING AND ACOUSTICS STRATEGY

ZONE 1: SOCIAL / public

Acoustics

ABSORPTION

MODERATE
absorption required

TYPICAL SOLUTION:
1. Insulative ceiling material
2. Furniture selected with absorbing fabrics
3. Acoustic Wall panelling

REDUCED REVERBERATION IN SPACE

TYPICAL SPECIFICATION:
9.5 mm Rhino board flush plastered ceiling, painted white and fixed to aluminium substructure from Saint Gobain.
- Very high sound absorption
- Green Star accredited
- Moisture Resistant

Lighting

MINIMUM LUX LEVELS REQUIRED
[200 lux = 200 lumens per m2]
m2 X 300lux = Quantity/lumens

RECEPTION: 200 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Alba Spazio smokey pendant with glass shade. 3000k warm white
Quantity: 4

LOUNGE: 200 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 4

FAUX KITCHEN: 200 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2

MEETING ROOM: 300 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2

MUSIC ROOM: 200 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2

WAITING ROOM: 300 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 8

MULTI FUNCTIONAL: 300 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2

DINING ROOM: 200 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 8
Elza Spazio smokey pendant with glass shade. 3000k warm white
Quantity: 4

PARLOUR: 300 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 8

ALBA   ELZA

ZONE 1: PERSONAL / private

Acoustics

ABSORPTION

COMPLETE
absorption required

TYPICAL SOLUTION:
1. Insulative ceiling material
2. Furniture selected with absorbing fabrics
3. Acoustic Wall panelling
4. Elimination of hard surfaces where sounds bounces and travels

REDUCED REVERBERATION IN SPACE
& REDUCED TRAVELED SOUND

TYPICAL SPECIFICATION:
12.5 mm Gyprex acoustic ceiling board with concealed ceiling grid from Saint Gobain.
- Excellent sound absorption (0.1 absorption coefficient)
- 0.12 W/mk thermal comfort (relatively good)

Lighting

BEDROOMS: 75 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 4

BATHROOMS: 100 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2

CONSULTATION ROOM: 300 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2

TOILETS: 100 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 1

ZONE 1: WORKING & CIRCULATION

Acoustics

ABSORPTION

MODERATE
absorption required

TYPICAL SOLUTION:
1. Insulative ceiling material
2. Furniture selected with absorbing fabrics
3. Acoustic Wall panelling

REDUCED REVERBERATION IN SPACE

Lighting

NURSE'S STATION: 300 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2

WANDERING PATH: 75 lux
Specification:
Actros 25 downlighter with die cast Aluminium body (white) from Spazio (2640 Lm)
Quantity: 2 every 2000mm

Figure 8.16: Final Second Floor Plan Layout (Author 2018)

Bedrooms:

These are the most private spaces in the facility. Patients' wellbeing will be primarily affected by their bedrooms, as these are spaces in which they will be spending most of their time. Each bedroom will consist of a semi-private area that is separated by partitioning to allow for privacy. Each bedroom accommodates 2 patients, and bedrooms that are situated next to each other, is divided by moveable partitioning to allow for the bedrooms to be joined. This will allow for the space to become much larger, and to accommodate up to 4 patients, if this would become a need for a frail care situation.

Private Bathroom:

A common bathroom is shared between two bedrooms, therefore a maximum of 4 patients/residents share a bathroom. Each bathroom is large enough to allow for a patient in a wheelchair and 2 caregivers to use the bathroom when a patient requires assistance showering. Bathrooms are fitted with adequate grab rails and handrails according to the SANS 10400 Part S. Showers are fitted with moveable seats and a adjustable shower hose to assist patients when showering.

Figure 8.17: Spatial Allocations: Bedrooms & Bathrooms (Author 2018)
Figure 8.18: Spatial Allocations: Nurse Station & Music Room (Author 2018)
Figure 8.19: Spatial Allocations: Dining Room (Author 2018)

Nurse's Station:

Two stations are situated in different areas of the building. Both the Nurse's Stations have a clear sight-line down the wandering path. This allows for staff member to always have visual access to patients as they as circulate through the building. The Nurse's Stations act as important landmarks along the wandering path, which could assist the patients with orientation and familiarity. These spaces are designed as an open visual threshold for patients passing, rather than a closed off office, which could cause frustration and confusion amongst patients.

Quiet Room/Music Room:

This room is situated to the south of the southern internal courtyard, and has large windows looking out onto the activities taking place in the garden. This room has been designed with multi-functionality in mind, as it could be used as a music, prayer, or reading room where patients can escape and relax. The acoustic treatment of this space is vital, as it is important for the sound to stay within the space rather than travelling down the hallways, which could create a disturbance for other patients.

Dining Room:

This is an open plan room that functions together with the faux kitchen and the lounge. This space can accommodate all the patients residing at the facility if necessary. This room mainly consists of a large dining room table that can be split into smaller 4-seater tables if required. Food is served at this table, however activities can also be done in a group or individual setting. It is important for the dining room to resemble that of a domestic setting to activate familiarity amongst the patients. The table is designed at the correct height (740mm) and width (860mm) to accommodate different types of chairs including wheelchairs as suggested by Timlin and Rysenbry (2010:30). The table is also be designed with round contrasting edges, to lessen the impact when a patient falls or walks into the corners (Timlin & Rysenbry, 2010:30). Certain chairs are specified to accommodate different types of settings:

a. Chairs with high seats, either straight or sloping arm rests, high back and head rest area are ideal for patients who are stiff and require extra support.

b. Chairs with lower seats and sloped back rests are ideal for sitting at a dining room table for when meals are served.

c. Chairs with higher seats (520mm), straight sturdy armrests, sloped backs and head rests are ideal for patients who are very stiff or very tall. This will allow patients to not have to bend down too much and get up easily.

d. Benches with sloped arm rests and low backs, are perfect for sitting in groups or at a table.

| 17
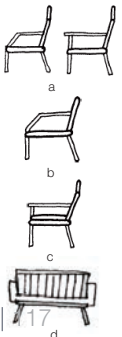
Lounge:

The lounge area is a comfortable space where patients can relax and watch TV. This room aims to resemble that of a home, with comfortable furniture and soft lighting.

Parlour:

This room will house different activities such as hairdressing, manicures and massages. As per the case studies, (c.f. Chapter 2); physical touch is a very important factor in ensuring the wellbeing of patients with Alzheimer's disease. Patients in the later stages of Alzheimer's disease, tend to develop a fear of water . Therefore a platform is created where patient's hair could be washed and seen as an activity (fun and pampering) rather than a burden.

General Kitchen and Faux Kitchen:

Two different kitchens are required in this facility. A Faux kitchen where patients could gather around a table and have tea or ice cupcakes, and a general kitchen where meals are prepared, food is stored and dishes are washed. The faux kitchen serves more as a therapeutic environment where patients could be reminded of a domestic setting. It is important for this kitchen to resemble that of a standard kitchen including appliances (that are plugged out, or safe to use), sink and cupboards.

Figure 8.20: Spatial Allocations: Lounge & Parlour (Author 2018)
Figure 8.21: Spatial Allocations: General Kitchen & Faux Kitchen (Author 2018)
Figure 8.22: Spatial Allocations: Reception, Meeting Room, Multi-functional therapy Room & General WC's (Author 2018)
Figure 8.23: Spatial Allocations: Consultation Room & Dispensary (Author 2018)

Reception and Meeting Room:

This is an important threshold into the facility, as it is the first space that families and patients will experience. The function of the reception space, is to welcome visitors and to receive new patients. The reception area comprises of back of house offices for admin staff, as well as a Manager's office with a small lounge for families to discuss items of interest if necessary.

Multi-functional Therapy Room:

A space is required where group therapy sessions can take place. This could also become a space where visitors and family members can partake in activities along with patients.

General water closets:

These wc's will be used by all users within the facility, and therefore need to be inclusive to all patients including those with physical impairments. These spaces have been designed to comply with all SANS10400 requirements with regards to layout and assistive devices.

Consultation Room:

This room is required where patients could be examined when feeling ill. This is a locked room that only staff members would have access to when in use. The layout of this room is important, as it is important to create a space where patients feel comfortable to be examined.

Dispensary:

A small dispensary is required where medication can be stored and prepared for patients. It is allocated in conjunction with the Nurse's station, for efficient circulation throughout the facility. This room is designed according to standards in terms of lighting, ventilation and safety features. The dispensary is only to be accessed by qualified nurses and staff members, and should be hidden from patients if possible, therefore the door is only accessible from inside the Nurse's station.

MEDIATOR:
COMFORTABLE
SENSORY
EXPERIENCE

NUMBING OF
THE SENSES

SENSORY
OVERLOAD

Sensory Scale

"Colour and contrast can both be used to enable people with sight loss and dementia to identify different rooms and key features inside and outside of their homes. Good use of colour and contrast can facilitate independant living, for example, by supporting people to find their way around and to use fixtures and facilities such as lighting unassisted." (Greasley-Adams, et al., 2010)

Figure 8.24: Sensory Scale (Author 2018)

03 | PART 2: INTANGIBLE

Different intangible categories were considered as part of this study, to allow the design development of this facility to reach its full potential, by establishng an environment conductive to activating the last SOC realm, namely meaningfullness. Sensory stimulants are explained briefly to give the reader an understanding of intangible elements that are considered to be part of the design. It is important that a comfortable state of a sensory experience is achieved for a patient, rather than sensory overload. It can be seen in Figure 8.24, that a sensory experience can be measured on a scale ranging from a state of numbing the senses, to sensory overload. Sensory stimulants are identified and explained as follows:

1. View of Nature: Patients perceive natural environments as more restorative than urban environments (Van den Berg, A. E., Hartig, T. & Staats, H., 2007). Consequently, nature and the outdoors becomes a far more appropriate site for patients that are mentally exhausted (Dilani, 2008:60).

2. Daylighting: Dalini (2008:60), explains that natural daylight can increase the psychological and physiological being of all patients. He further explains that the idea of viewing nature through a window could become a restorative form of therapy (Dilani, 2008). The position and type of window becomes a connection to the outer world, allowing daylight and natural ventilation in, whilst providing a view to the patient. Biamonti and Imamogullari notes (2017:2236), that twilight syndrome is a common state amongst Alzheimer's patients, and that the daylighting should therefore be controlled manually to ameliorate the stress caused by this syndrome.

3. Landmarks: Dalini (2008:62) explains that the inclusion of beacons or landmarks in buildings could become an evident form of orientation for confused patients. Different design elements incorporated into the design of spaces provide signifiers for spatial coordination. At the same time, a balance needs to be maintained between the incorporation of design

elements as spatial signifiers and the potential of an indiscriminate proliferation of elements that could fuel patient confusion. Thus, design decisions need to be rigorously tested against potential psychological effects.

4. Colour: Colour is a critical consideration when designing for people with Alzheimer's disease. From the case studies (c.f. Chapter 2) it was observed that the introduction of contrasting soft colours can provide a sense of familiarity and cheerfulness in patient bedrooms. Dalini (2008:61) indicates that colours can have symbolic meaning to patients, which could enhance cultural familiarity. Some colours are reminiscent of certain religions and identities, while others may remind patients of an earlier period in their life. Warm colours have an activating effect, while cool colours have a calming effect (Dilani, 2008). Thus, it is critical to find a balance between colour schemes when designing for patients that suffer from constant confusion to reduce the possibility of anxiety. The University of Stirling (Greasley-Adams, et al., 2010),
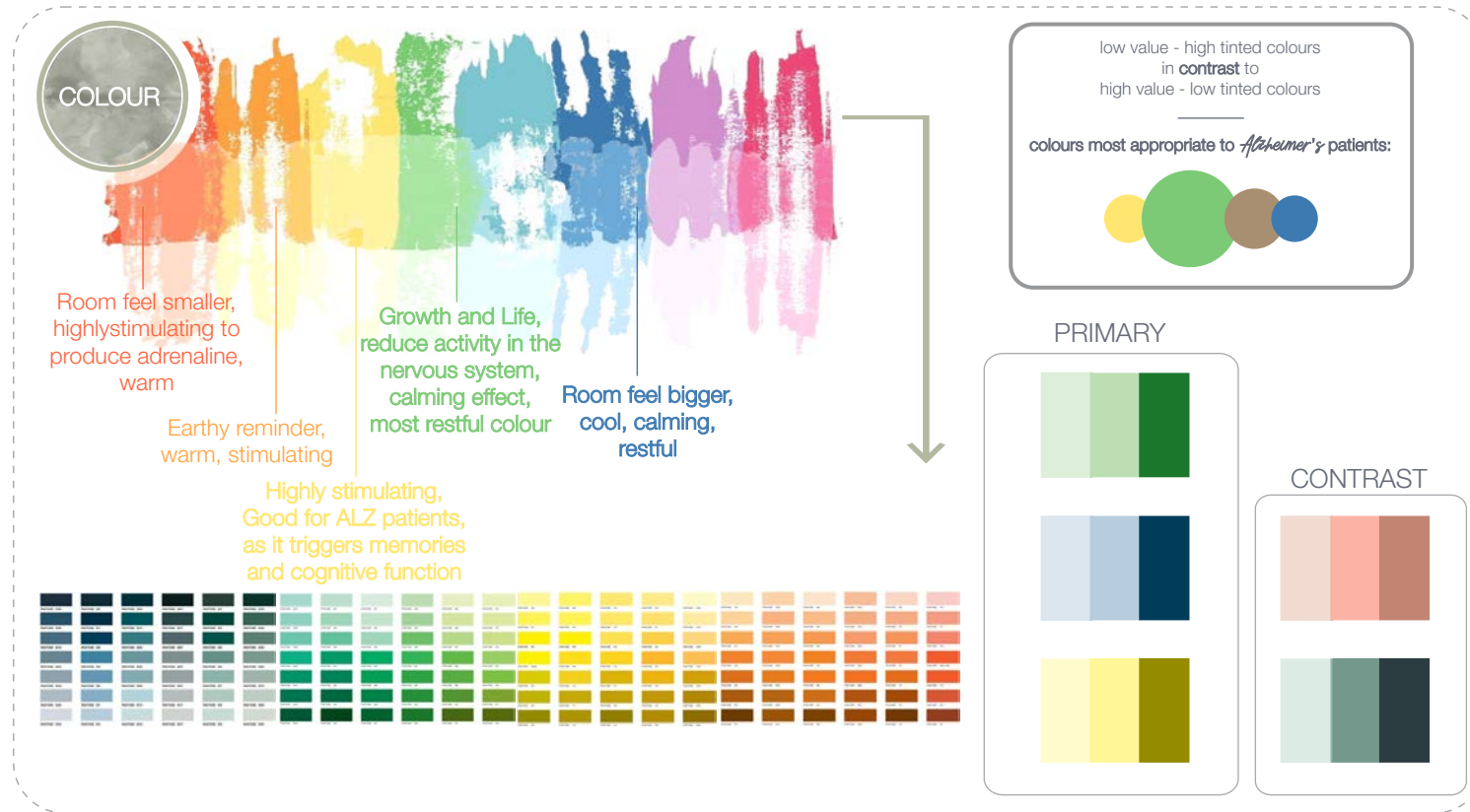
COLOUR

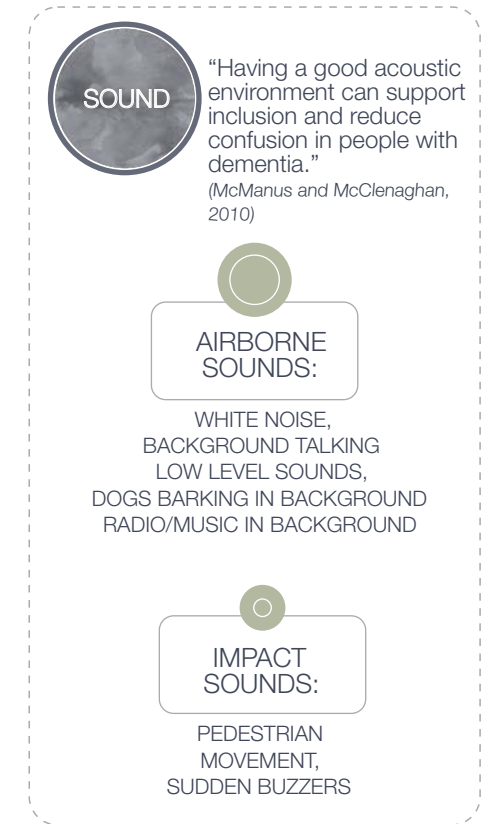Room feel smaller, highlystimulating to produce adrenaline, warm

Earthy reminder, warm, stimulating

Highly stimulating, Good for ALZ patients, as it triggers memories and cognitive function

Growth and Life, reduce activity in the nervous system, calming effect, most restful colour

Room feel bigger, cool, calming, restful

low value - high tinted colours in **contrast** to high value - low tinted colours

colours most appropriate to *Alzheimer's* patients:

PRIMARY

CONTRAST

Figure 8.25: Colour (Author 2018)

SOUND

"Having a good acoustic environment can support inclusion and reduce confusion in people with dementia."
(McManus and McClenaghan, 2010)

AIRBORNE SOUNDS:

WHITE NOISE,
BACKGROUND TALKING
LOW LEVEL SOUNDS,
DOGS BARKING IN BACKGROUND
RADIO/MUSIC IN BACKGROUND

IMPACT SOUNDS:

PEDESTRIAN MOVEMENT,
SUDDEN BUZZERS

Figure 8.26: Sound (Author 2018)

states the following; "It is worth bearing in mind that due to natural thickening of the lens with age, older people may experience colours as 'washed out' and may increasingly find blues, greens and purples harder to differentiate." Therefore, it is important to keep in mind that low value (high tinted colours) need to be in contrast to high value (low tinted colours), to allow a patient to differentiate colours easily. Colours need to highlight important elements, hightlight risks, reduce unwanted elements (such as hiding a door not to be accessed by a patient). Most importantly, thresholds (such as floor finishes) between spaces ought not to contrast too much, as this can create

the impression of a level change which may cause a patient to trip or fall (Figure 8.25).

5. Sounds: Numerous studies have been conducted on the positive and negative effects of noise on Alzheimer's patients. It has been established that too much noise can create irritation and anxiety (Dilani, 2008). Noise can contribute to a patient's mental exhaustion, which negatively effects their wellbeing (Dilani, 2008). Therefore, careful consideration of noise and acoustics needs to be undertaken. Research has found that music can promote health, since it can create a calming effect on a patient

suffering from severe anxiety. Dalini (2008:63), states that appropriate music could also lower blood pressure levels, heart rates and breathing frequencies as well as increase body temperature. Biamonti and Imamogullari states (2017:2236), that music and familiar audio are prominent stimulants for patients with Alzheimer's disease, and that a synthetic 70bpm heartbeat audio can be played in the background to assist patients to regulate their sleeping patterns. The figure above illustrates the types of sounds that can be experienced by patients in a typical facility.

AROMA

early stage loss of smell

FRESH BREAD

KITCHEN

COFFEE

GARDEN   *Fragrant Flowers*

JASMINE   ROSES   LAVENDER   WILD ORCHID

Figure 8.27: Aroma (Author 2018)

THERMAL COMFORT

ameliorate stress

Important to create the **ILLUSION** of thermal comfort when **sunlight** isn't present in a space.

BATHROOM

UNDRESSING - *vulnerable*
COLD WATER - *uneasy*
[generally stressful and unfamiliar]

BEDROOM

UNDRESSING - *vulnerable*
SLEEPING - *very private*
[generally public]

materiality   lighting   colour

Figure 8.28: Thermal Comfort (Author 2018)

6. Smell

The smell of freshly baked bread is a sensory experience that can activate familiarity amoungst elderly patients. It is important that the smells that are present in the facility, are pleasant to the patients. Plants that have interesting fragrances and textures, easily provide sensory stimulation. Flowers and plants such as Jasmine, Lavender and Wild Orchids are fragrant enough to create pleasant smells, without becomming overbearing (Figure 8.27).

7. Thermal Comfort

It is common knowledge that elderly people tend to get cold quite quickly. Therefore, it is important to create the illusion of warmth in an interior environment, even though the sun is not shining. By addressing elements such as materiality, lighting and colour, the illusion of warmth can be created in a space, such a bathroom, where patients generally feel very vulnerable as they have to undress with a nurse or staff member assisting them. Bathrooms can generally become stressful and unfamiliar spaces, becau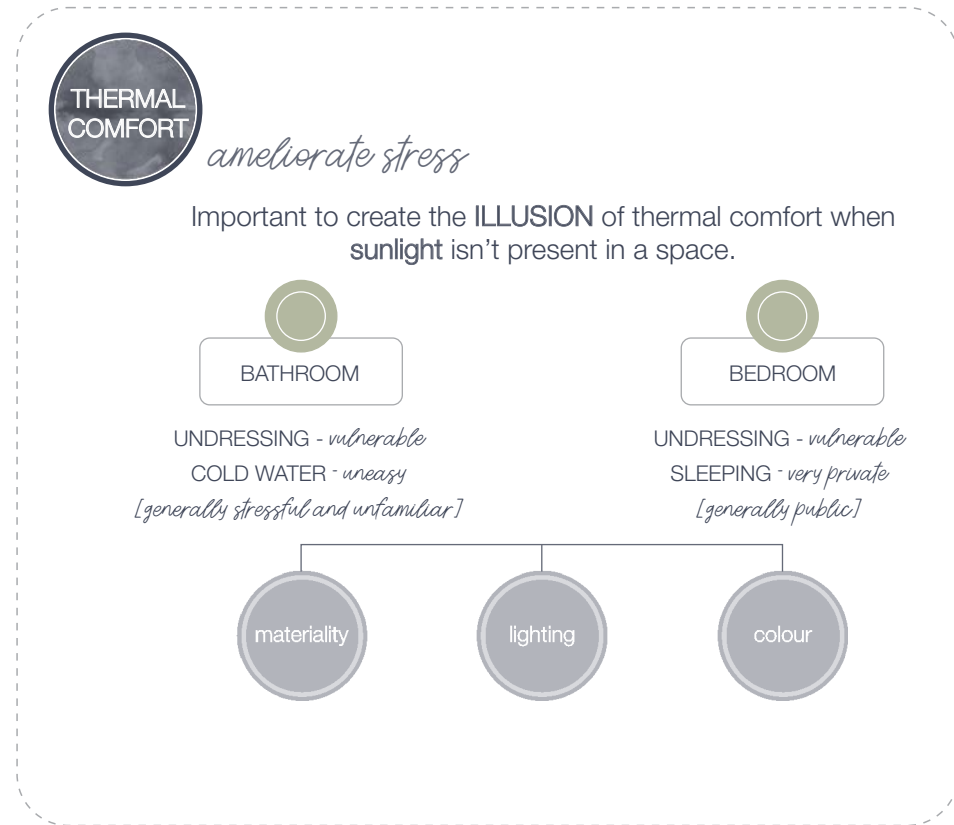se of the element of undressing, cold water hitting the skin, and the feeling of cold floor tiles on bare-feet. It is therefore, very important to be able to control the thermal comfort or 'perceived thermal comfort' in these types of spaces to ameliorate the stress that is associated with bathrooms (Figure 8.28).

8. Familiarity with physical loose objects:

a. Art: Art can stimulate cognitive thinking (Dilani, 2008). An Alzheimer's patient, having lost their short-term memory, can possibly recall memories by looking at art, paintings or photos. At the same
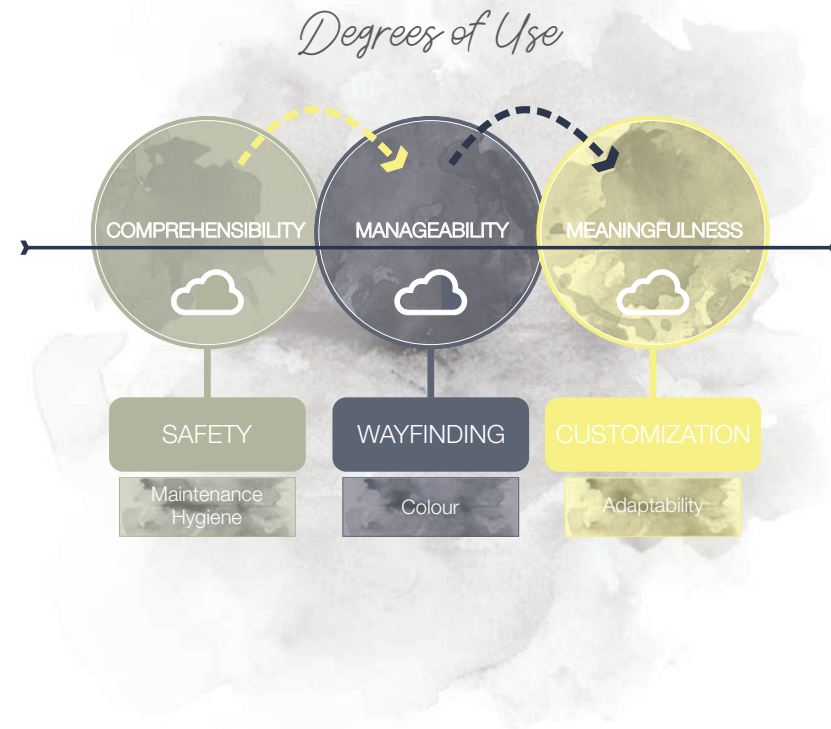
time, designers need to be cognisant that certain art may be offensive to certain patients. Therefore, the selection and specification of art needs to be carefully researched and considered.

b. Furniture: The look and feel of general furniture items is also be carefully considered when designing for patients with Alzheimer's disease. Objects look like what the intended function is for, doors are "door-like", and resemble the normal thud when closed as suggested by Osmond (1958). Furniture could look similar to those that would have been in homes, portable pieces could be moveable, but solid enough

to not be pushed around too often (Osmond, 1958).

Dilani (Dilani, 2008) concludes in his article that patients ought to be exposed to daylighting, visual and physical access to natural environments, colours, beacons, and appropriate sounds so as to be able to be exposed to the possibility of wellbeing. Attractive spaces for social interactions are required for patients to build relationships and create individual meaningfulness. All these factors also contribute to a heightened Sense of Coherence, which enhances coping strategies and wellbeing.

Degrees of Use

COMPREHENSIBILITY MANAGEABILITY MEANINGFULNESS

SAFETY WAYFINDING CUSTOMIZATION

Maintenance
Hygiene Colour Adaptability

04 | DEGREES OF USE

When reflecting back onto the Sense of Coherence model set out by Antonovsky (1996), the three realms of comprehensibility, manageability and meaningfulness; can be directly related into three different degrees of use, which relates tangible to intangible design. The realm of comprehensibility, which allows a patient to read and understand their environment, relates to safety, which includes aspects of maintenance and hygiene control.

The second realm, manageability, allows a patient to control their environments. This can be achieved through wayfinding and use of colour and contrast. The final realm, meaningfulness, allows a patient to embrace their environments through customisation and adaptability.

It is further established that the choice in materiality also affects these degrees of use directly, and is discussed in Chapter 9 in detail.

Figure 8.29: The degrees of Use (Author 2018)

PHYSICAL
ENVIRONMENT

SALUTOGENIC
REALMS

INTERACTION
WITH NATURE

05 | DETAILING STRATEGY

In Chapter 05 (Theory), it can be summarised that the application of the Sence of Coherence model (Antonovsky, 1996:11) and the theory surrounding the presence of nature in interior environments as stipulated by Ulrich (2001), both become spatial criteria from which certain spaces within the facility can be identified, designed in detail and finally technified. The theory, can now be translated into tangible design.

The list of criteria then exists and includes the following:
1. A space that has a direct relationship to the patient inhabiting it. (physical environment = wellbeing),
2. A space with the potential to comply with all three realms,
3. A space where patient could interact with nature (Ulrich, 2001)

Five areas within the residence are specified in particular that comply with the detailing strategy criteria as in figure 8.31 above. These spaces are most important as they are perceived to effect the residents the most. These areas include the following:
1. Wandering path,
2. Foyer and Private Lounges,
3. Bedrooms,
4. Private Bathrooms, and
5. Internal Courtyard

Figure 8.30: (top left) Design Criteria (Author 2018)
Figure 8.31: (top) Areas of Design (Author 2018)

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UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

OUTSIDE DINING AREA

NEW RAMP

PUBLIC GARDEN AREA

STAIRCASE FROM GF TO FF

LAUNDRY ROOM

BEDROOM ENRTRANCE HALLS

INTERNAL GARDENS

STORAGE FACILITY

PRIVATE BEDROOMS

ADMIN & STAFF DECK

BRIDGE

NEW RAMP WITH TIMBER PERGOLA STRUCTURE ABOVE

BEDROOM DOORS RESEMBLING THOSE OF DOMESTIC FRONT DOORS

BEDROOMS WITH CUSTOMIZABLE, ACOUSTIC PEGBOARD SYSTEM AS WALL PANELS

NEW DOUBLE STO... BRIDGE CONNECT... TWO BUILDINGS, A... INTERNAL PASSAG...

LAUNDRY

STORAGE

STORAGE

STAFF QUARTERS

BEDROOM BALCONIES

STAFF AND HOLDING

EQUESTRIAN STABLES

SECTION AA___SCALE 1:100

06 | CONCLUSION

As part of this chapter, the design development was explained in order for the reader to gain a better understanding of the areas that will be technified in detail in the following chapter.

Chapter 05: Theory and Chapter 06: Precedents, provided two of the major key factors that guided the design development process.

The importance of this chapter, is to establish that all of the interdependent elements throughout this study, which have now merged into a singular design that can be taking one phase further, and resolved technically.