UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA

UFS
UV

University of the Free State

QwaQwa Campus

Report on assessment of accessibility of the campus and various buildings for people with disabilities.

October 2013

TABLE OF CONTENTS

The Campus

There is little doubt that the UFS Qwaqwa campus in the Eastern Free State is one of the most picturesque in the country, nestled between the Free State sandstone mountains and the open veld.

The University, previously Uniqwa, under the auspices of the University of the North, was built in 1980 and taken over by the University of the Free State in January 2003. Courses – both undergraduate and postgraduate, and diplomas – are offered on the same basis as at the Main Campus in Bloemfontein.

The campus is a vibrant environment with approximately 5000 students and 230 staff. To date over 6000 degrees and 3000 diplomas have been awarded.

The Qwaqwa Campus plays an important role in bringing higher education to the rural parts of the Eastern Free State.

The Project

Incline Architects was appointed to do an assessment and prepare construction documentation for this project which basically entails the following :

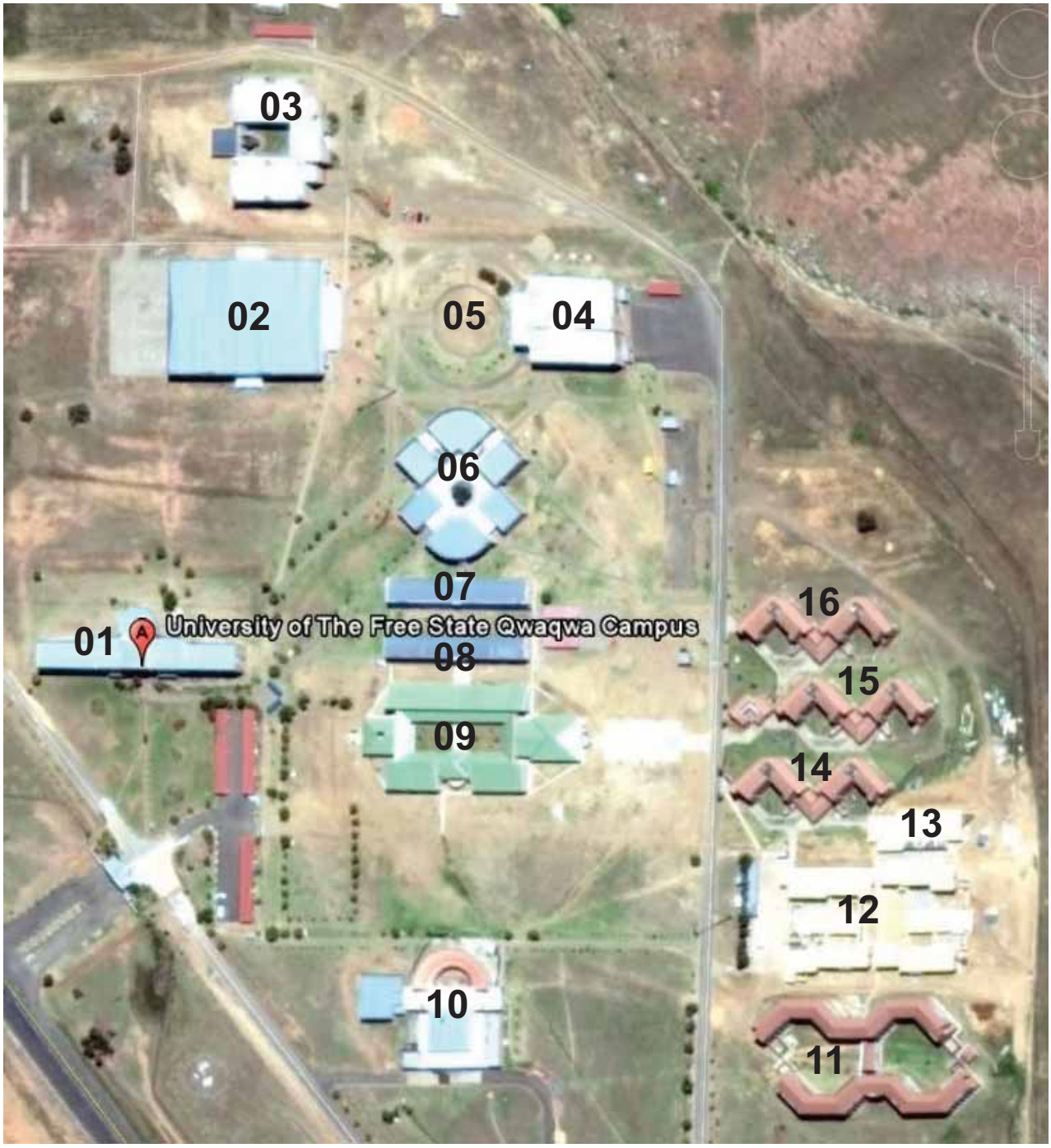
1 Accessibility and ablution facilities of the campus and various buildings for people with disabilities
2 Partial roof covering of the Amphitheatre
3 Propose additional study spaces for students

This report will focus on part 1 and 2 of the brief. Part 3 will form part of the project documentation for the construction/provisioning thereof.

The campus was visited on several occasions to assess and take photographs and talk to the students to determine what the needs and hot-spots are regarding accessibility for students with disabilities to various buildings. These have been compiled in comprehensive documentation drawings for construction and some of it is included as the framework for this report. Detailed drawings and designs is available on request.

AERIAL VIEW OF CAMPUS

01 ADMINISTRATION & ECONOMIC MANAGEMENT SCIENCES
02 NELSON ROLIHLAHLA MANDELA HALL
03 NATURAL & AGRICULTURAL SCIENCES
04 LIBRARY & INFORMATION SERVICES
05 AMPHITHEATRE
06 LECTURE HALLS
07 HUMANITIES
08 EDUCATION
09 TEACHERS TRAINING
10 CAFETERIA & KITCHEN
11 PETER MOKABA RESIDENCE
12 NEW RESIDENCES 2x
13 MEDIA CENTRE
14 HECTOR PETERSON RESIDENCE
15 OR TAMBO RESIDENCE
16 CHRIS HANI RESIDENCE

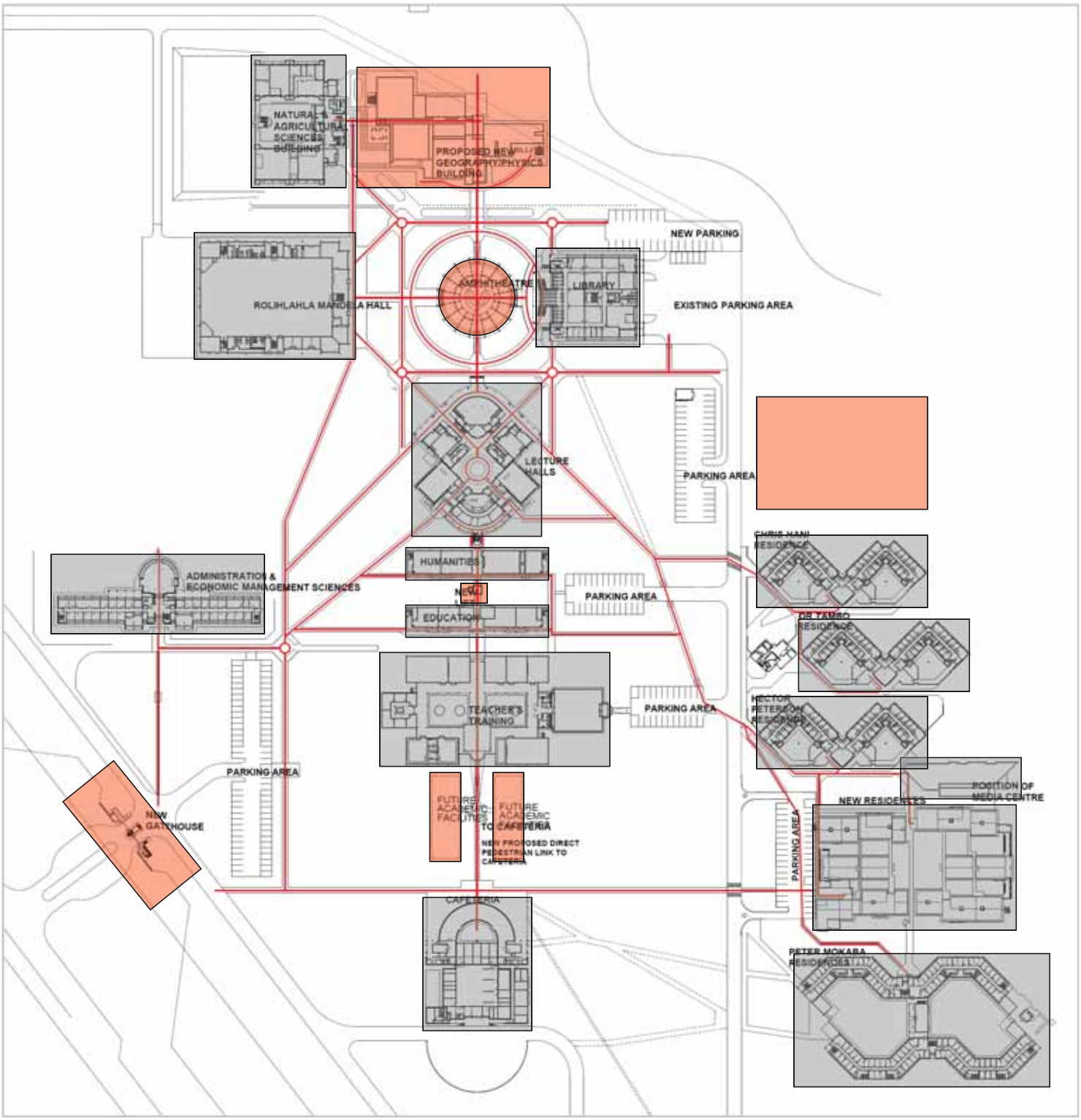


CAMPUS LAY-OUT

Existing Buildings

New Buildings/Structures currently in planning, proposal and construction phases.

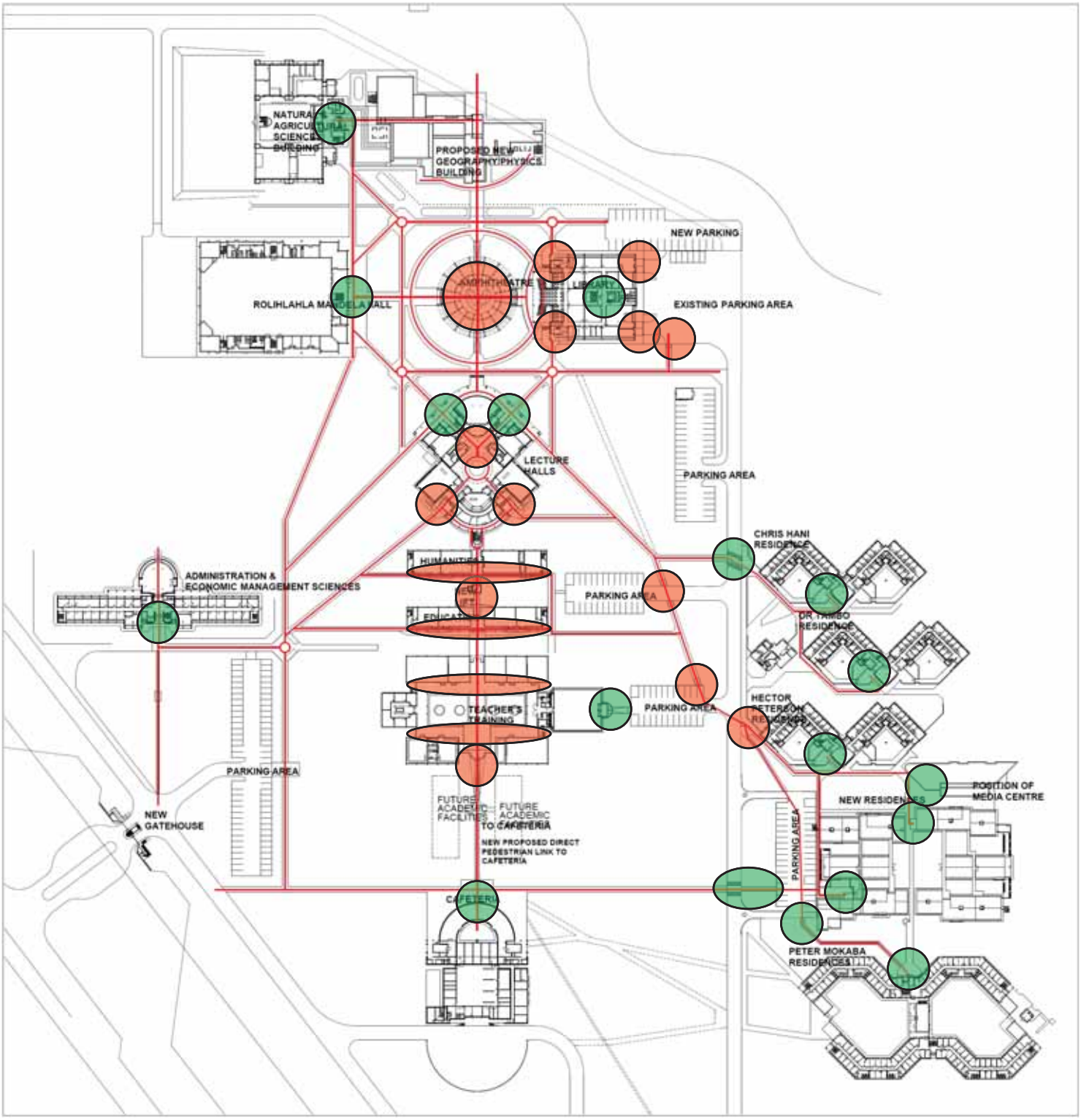
Pedestrian routes



ACCESSIBILITY HOT-SPOTS

Access point/door currently readily accessible to students and staff with disabilities.

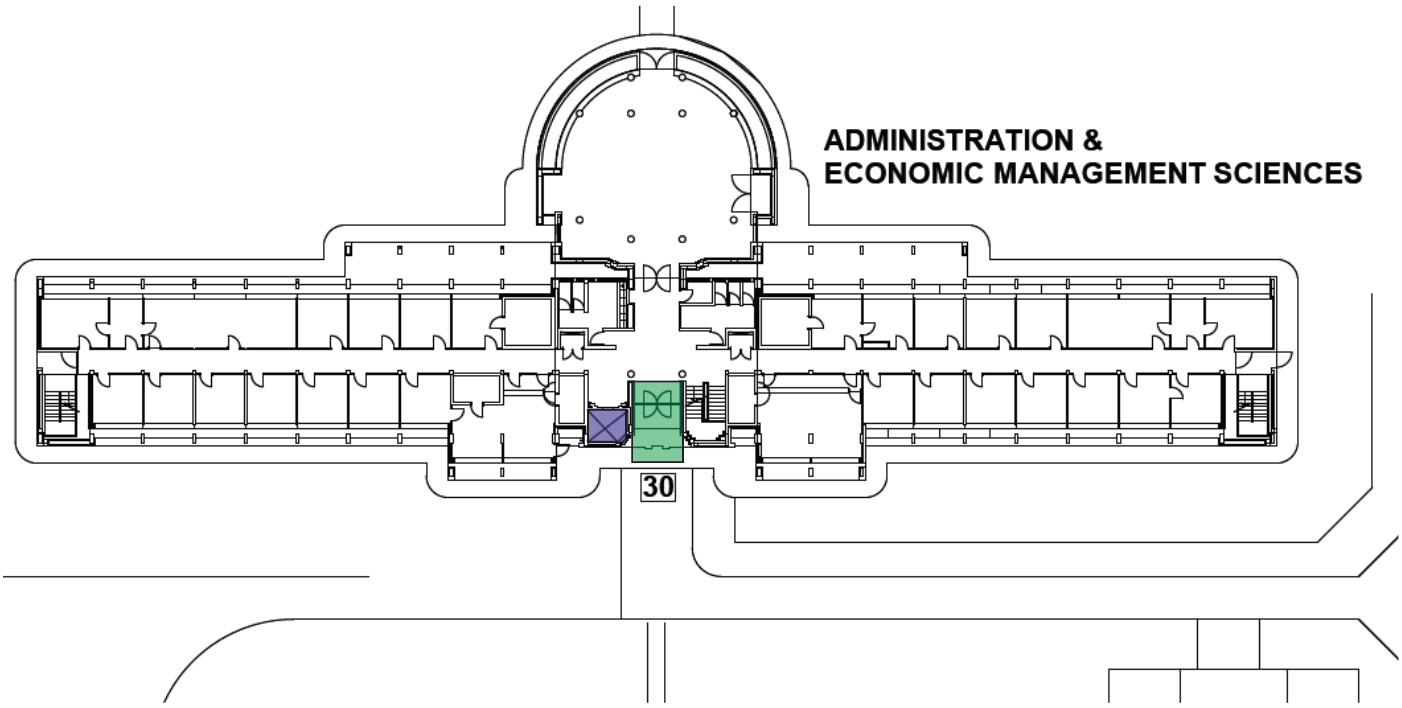
Access point/door not currently accessible to students and staff with disabilities. This item will be included in project documentation for construction.



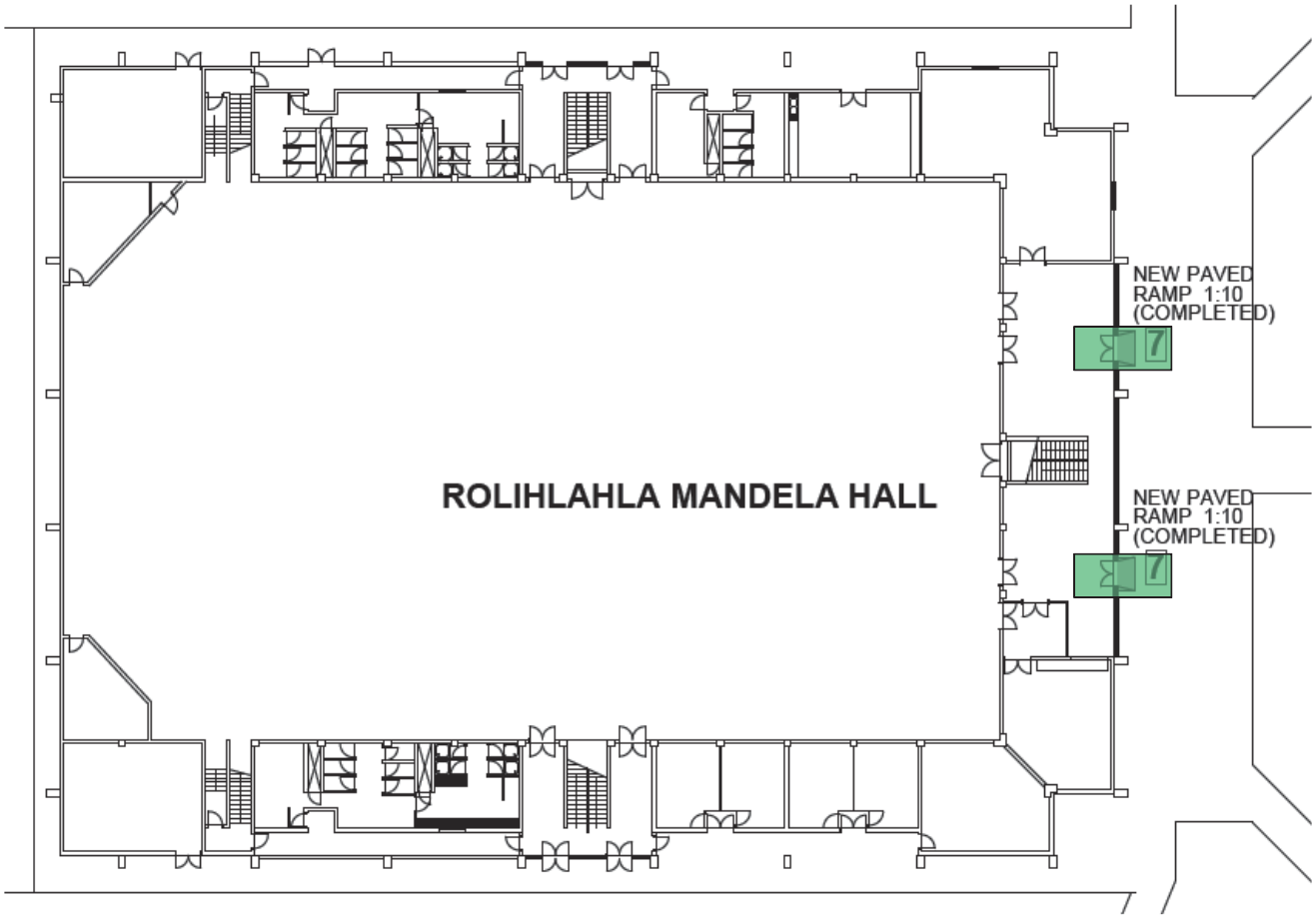
ADMINISTRATION BUILDING

The Administration & Economic Management Sciences Building is a two-storey office- and lecture halls building with a canteen for staff. The building's main entrance is on the south side. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

The second floor is accessible via three staircases in the building and a lift in the foyer. The lift is of sufficient size to accommodate at least a wheelchair and another person. No construction work here is necessary.

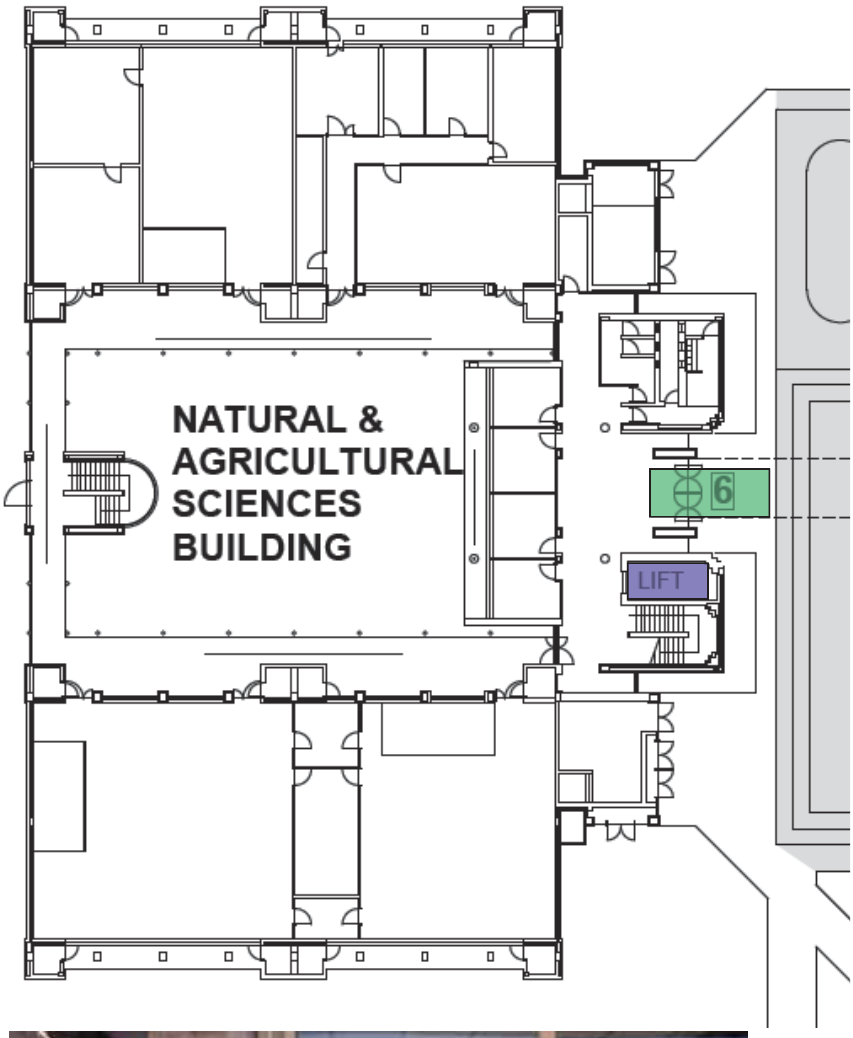


The Rolihlahla Mandela Hall is a single-storey multi-purpose hall building with a ancillary services around the outside and a multi-purpose floor area in the centre. The raised spectator areas around this floor is not accessible to wheelchairs and therefore spectator space for wheelchair-bound visitors should be arranged on the lower level. The building's main entrances is on the east side. These entrance doorways has no raised thresholds and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.



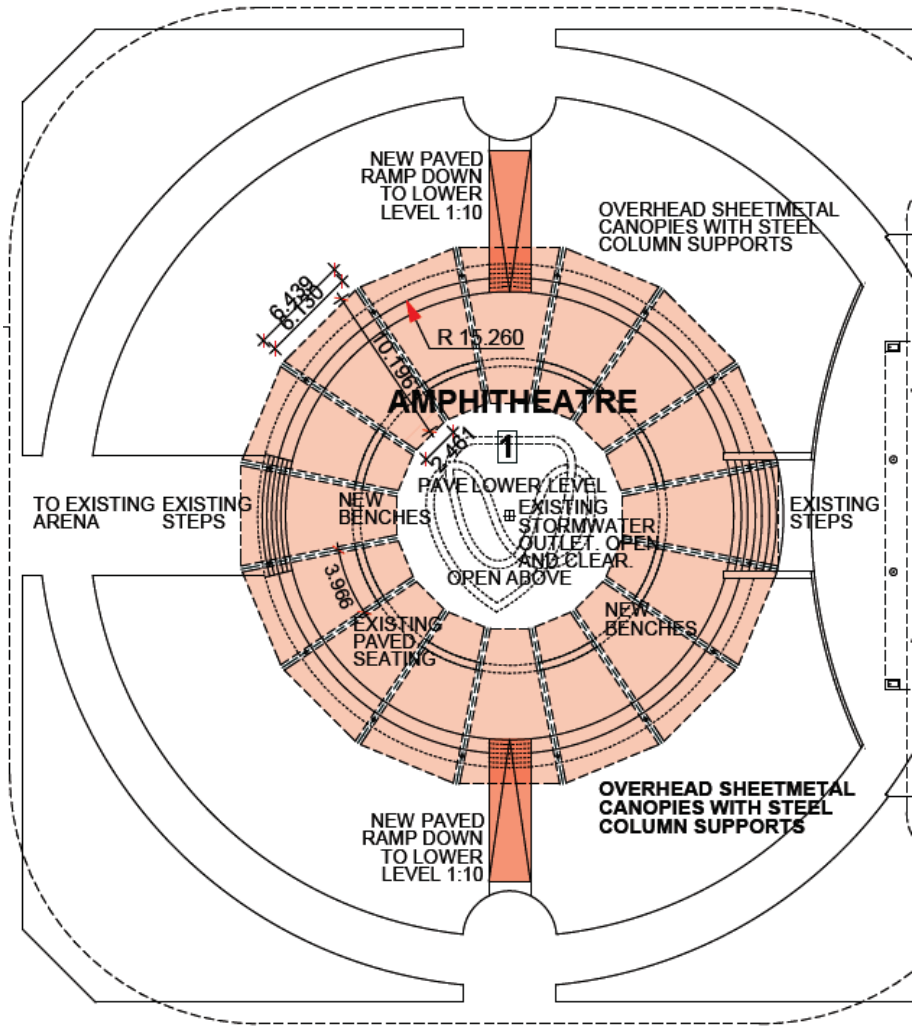
The Natural & Agricultural Sciences Building is a two-storey office- and lecture halls building with a central courtyard. The building's main entrance is on the east side. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

The second floor is accessible via two staircases in the building and a lift in the foyer. The lift is of sufficient size to accommodate at least a wheelchair and another person. No construction work here is necessary. This lift will eventually be utilised for the new adjacent Geography & Physics Building as well.

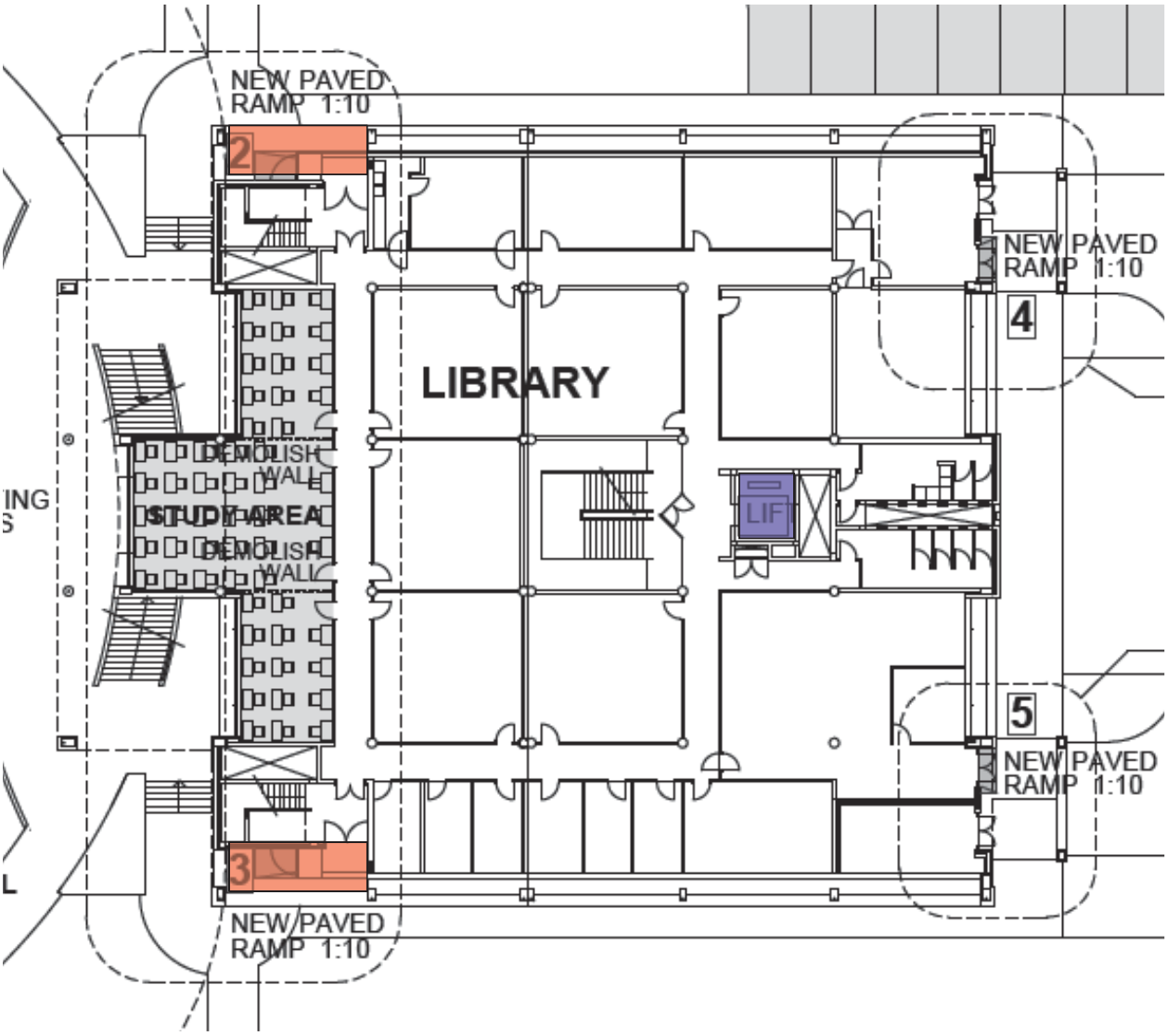


The existing open Amphitheatre is a round area with paved seating on the perimeter and a grass lawn in the centre with a stormwater outlet grid in the middle. The requirement was identified to partially cover this space and make it more accessible to wheelchairs. Detailed construction documentation has been done and is going into construction soon to address those requirements. The lower paved level of the Amphitheatre will be accessible via two ramps conforming to the relevant regulations.

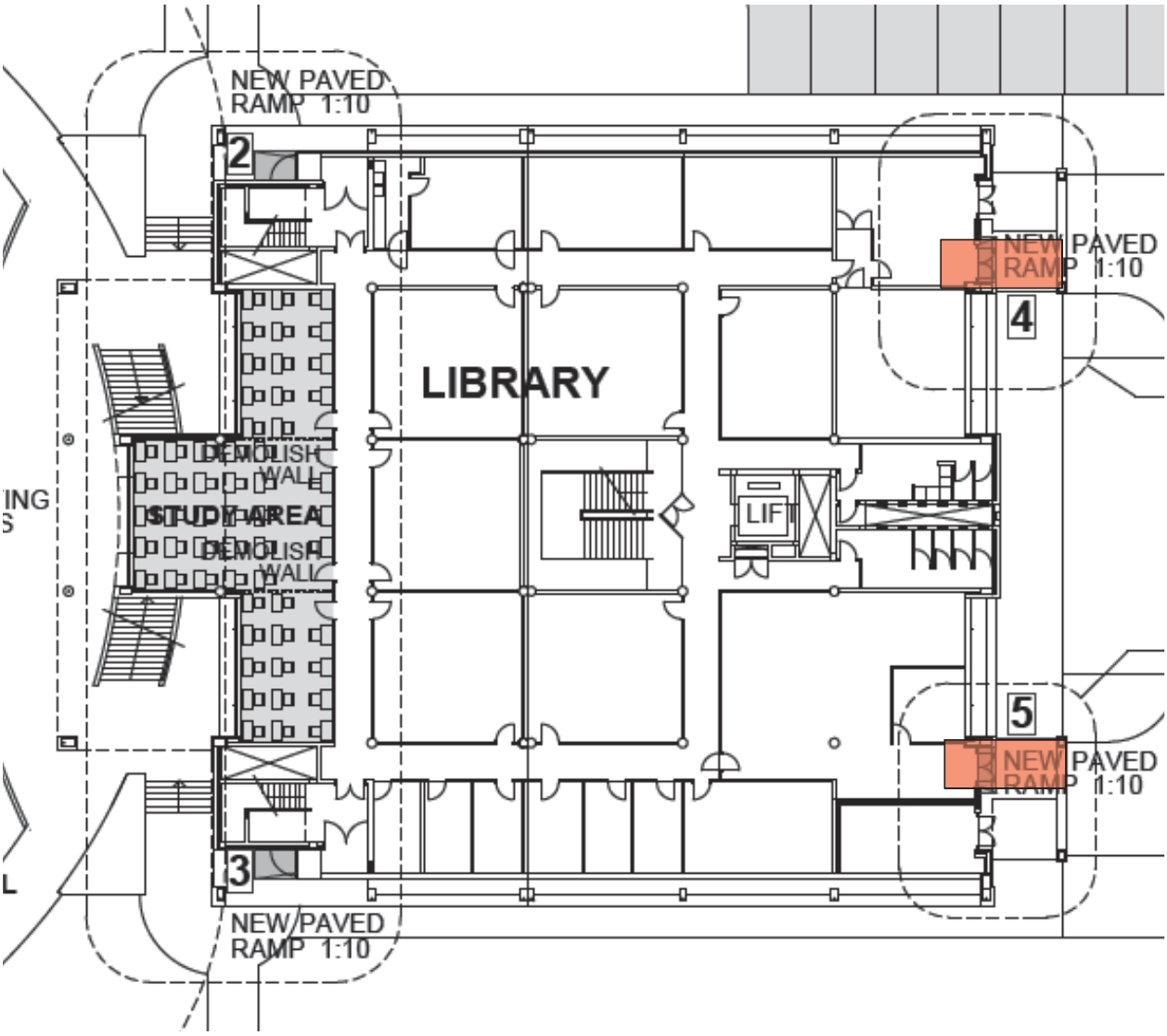
The photo below shows the existing Amphitheatre and a architect's rendering of the proposed roof structure is next to it.



The Library & Information Services Building is a three-storey library- and lecture halls building. The building's main entrance is on the west side via a double staircase leading to the Library reception area. This entrance is not accessible for wheelchairs and therefore alternative means to provide access to the building is required. The two side-entrances on the north- and south sides will be provided with paved ramps of sufficient width and inclination to allow wheelchairs to easily traverse it. This will also allow access to the building's existing central lift which serves al three floors. The lift is of sufficient size to accommodate at least a wheelchair and another person.

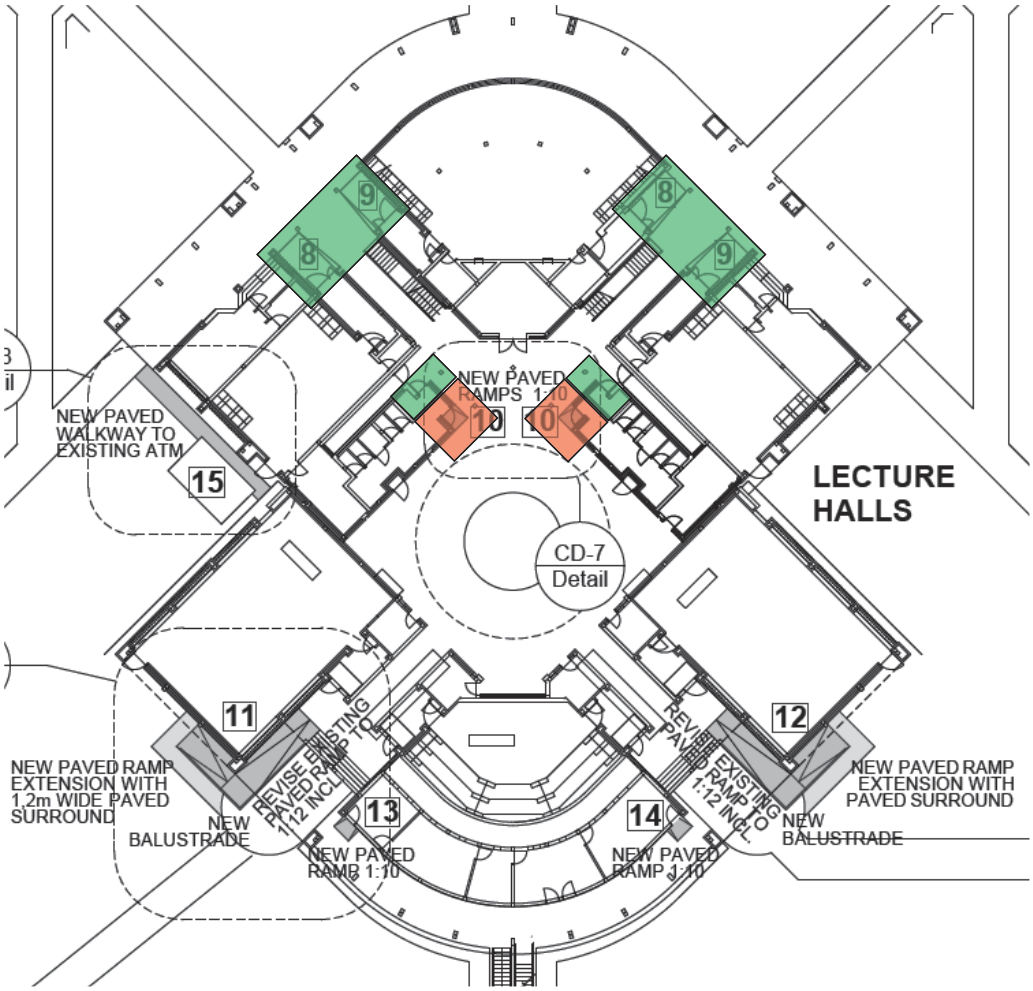


The two entrances on the east side is also not accessible for wheelchairs. These entrances will be provided with paved ramps of sufficient width and inclination to allow wheelchairs to easily traverse it.



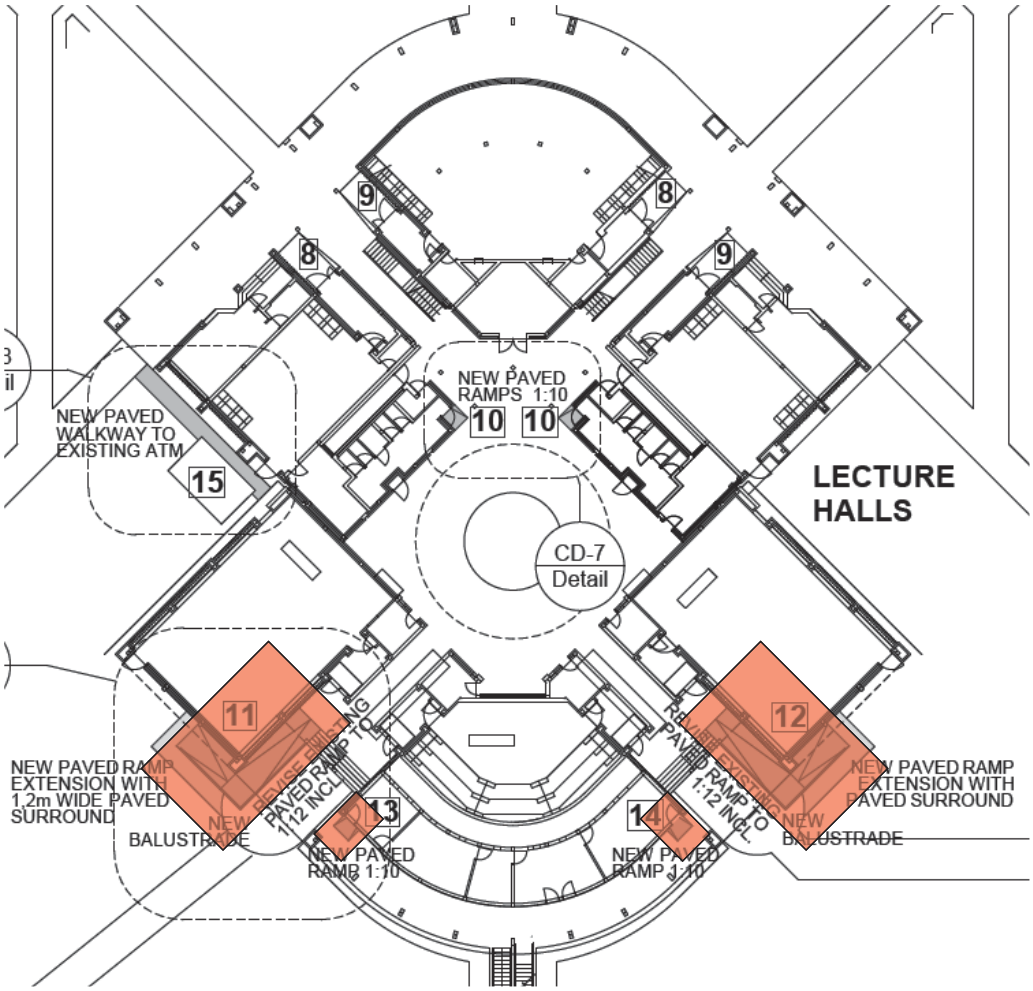
The Lecture Halls Building is a single storey building with five theatre-style lecture rooms arranged around a central courtyard. The entrances to the lower level of two of these lecture rooms is on the north side. These entrance doorways has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

The entrances to the Ladies' and Mens' bathroom facilities from the courtyard is also not accessible due to a raised threshold/step. New paved ramps of sufficient width and conforming to the applicable regulations will be built here.

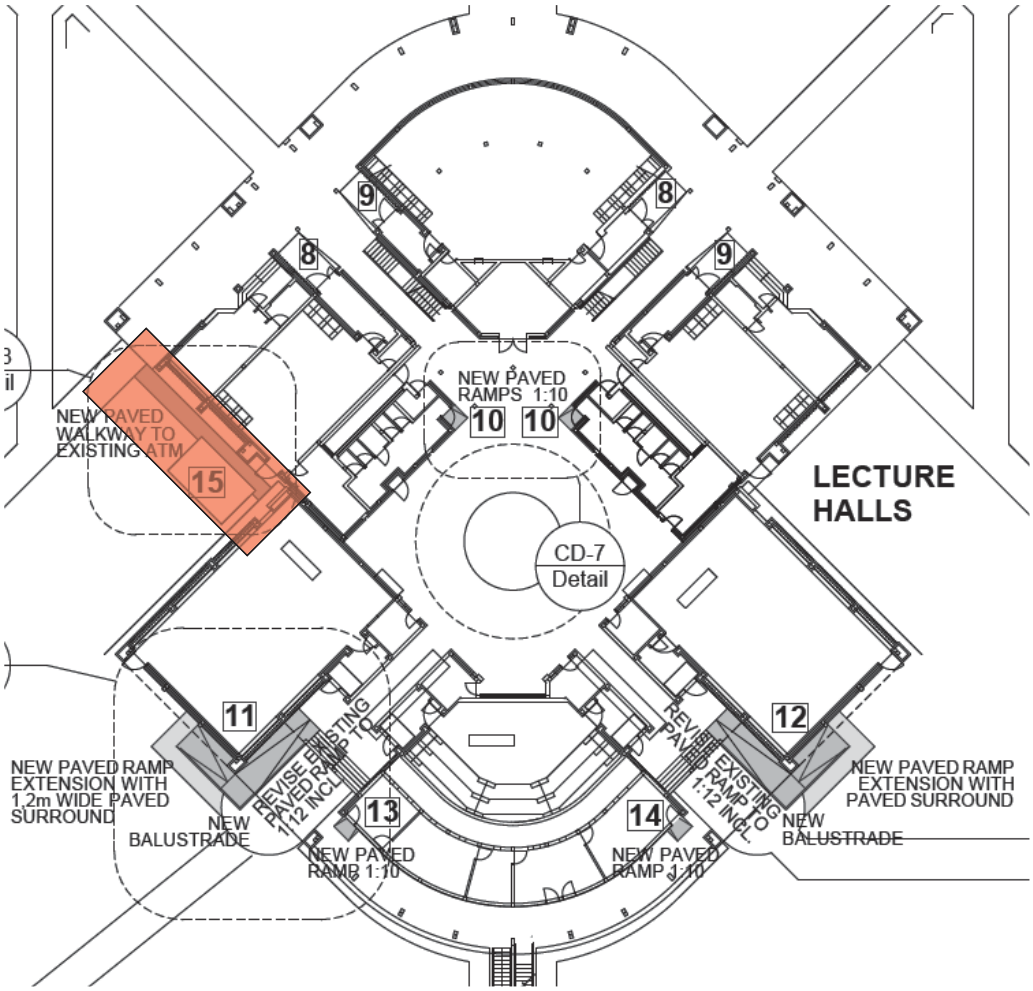


The entrances to the lower level of three of these lecture rooms is on the south side. These entrance doorways has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper.

However, to reach them two existing ramps and several steps need to be traversed. These ramps is not of regulation inclination and would make unassisted wheelchair access impossible. They will be demolished and two new longer paved ramps with a rest-landing in the middle, will be constructed. These paved ramps will be of sufficient width and conform to the applicable regulations.

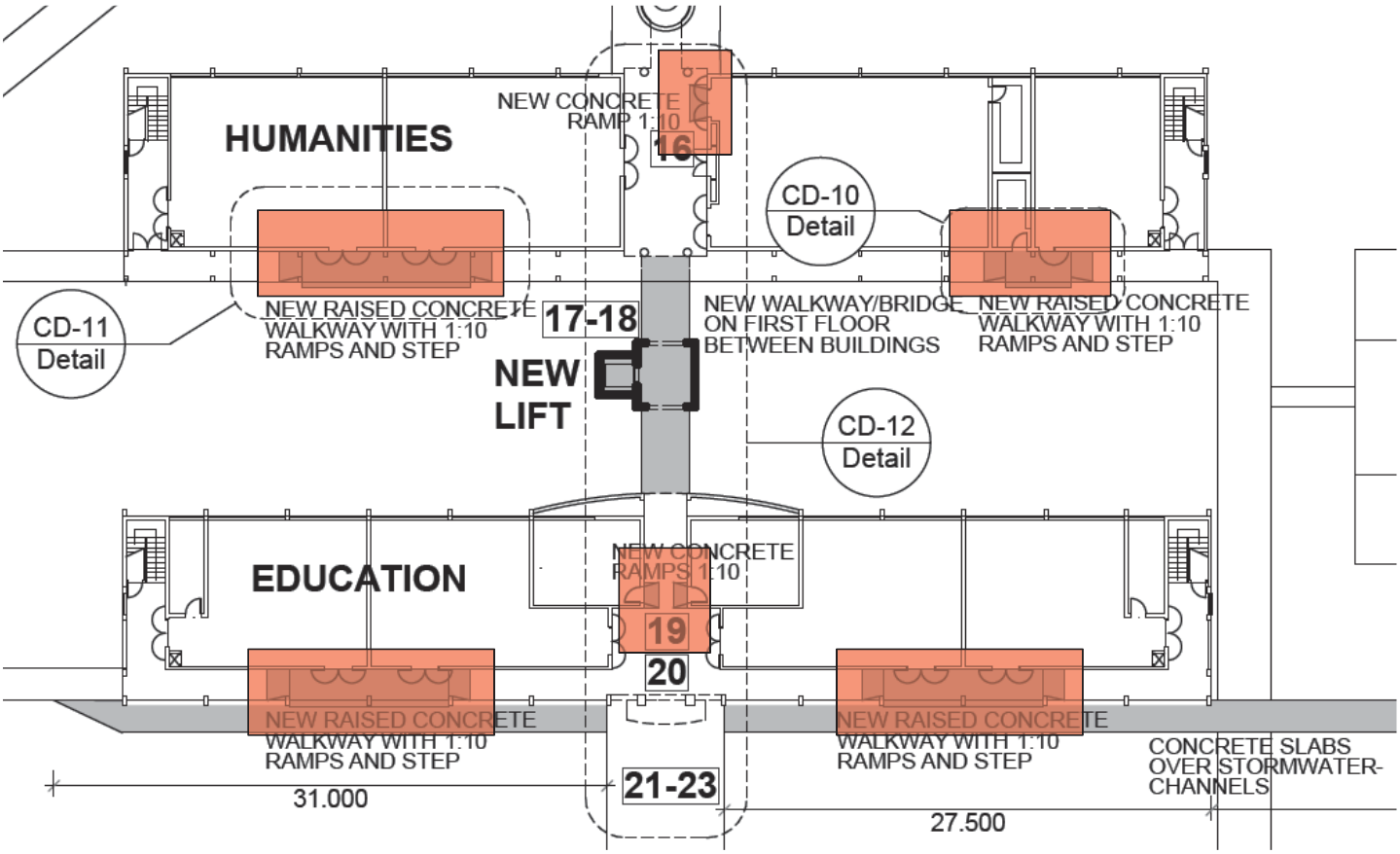


The existing ATM that is located on the west side of the building is placed on a concrete podium with a paved surround. Access to the ATM is only possible over the grass lawn between the podium and the paved walkway. A new paved walkway of sufficient width will be built to allow better access for all students and staff, not only wheelchair-bound students.

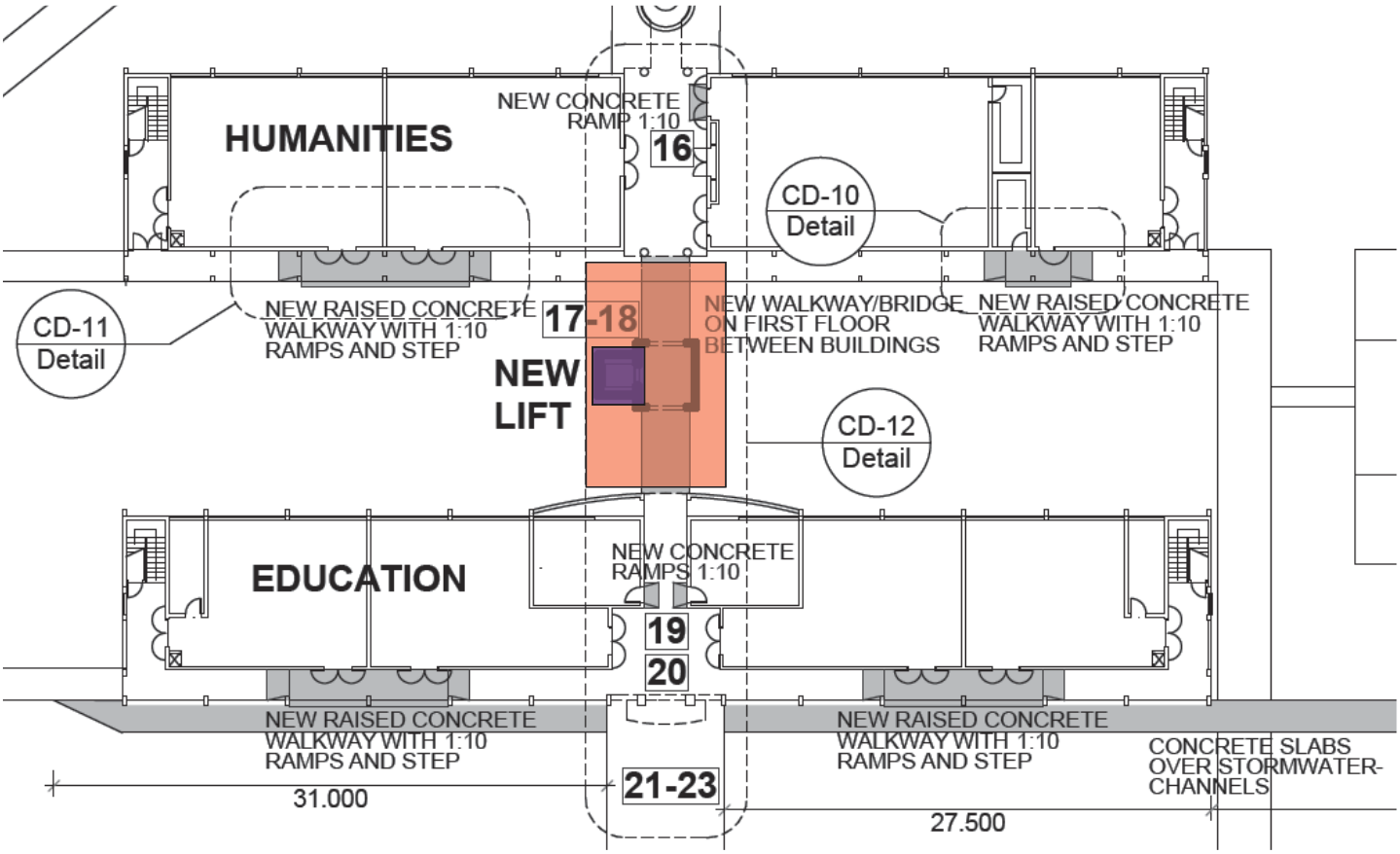


The Humanities & Education Buildings is two double storey buildings with lecture rooms on the ground floor and offices on the first floor. The first floors can only be reached via two staircases on either end of the buildings. The entrances to the lecture rooms is on the south side. These entrance doorways has a raised threshold. New raised concrete levels with ramps on either side in the walkway, will be constructed to reach the lecture rooms.

The entrances to the Ladies' and Mens' bathroom facilities is also not accessible due to a raised threshold/step. New concrete ramps of sufficient width and conforming to the applicable regulations will be built here.

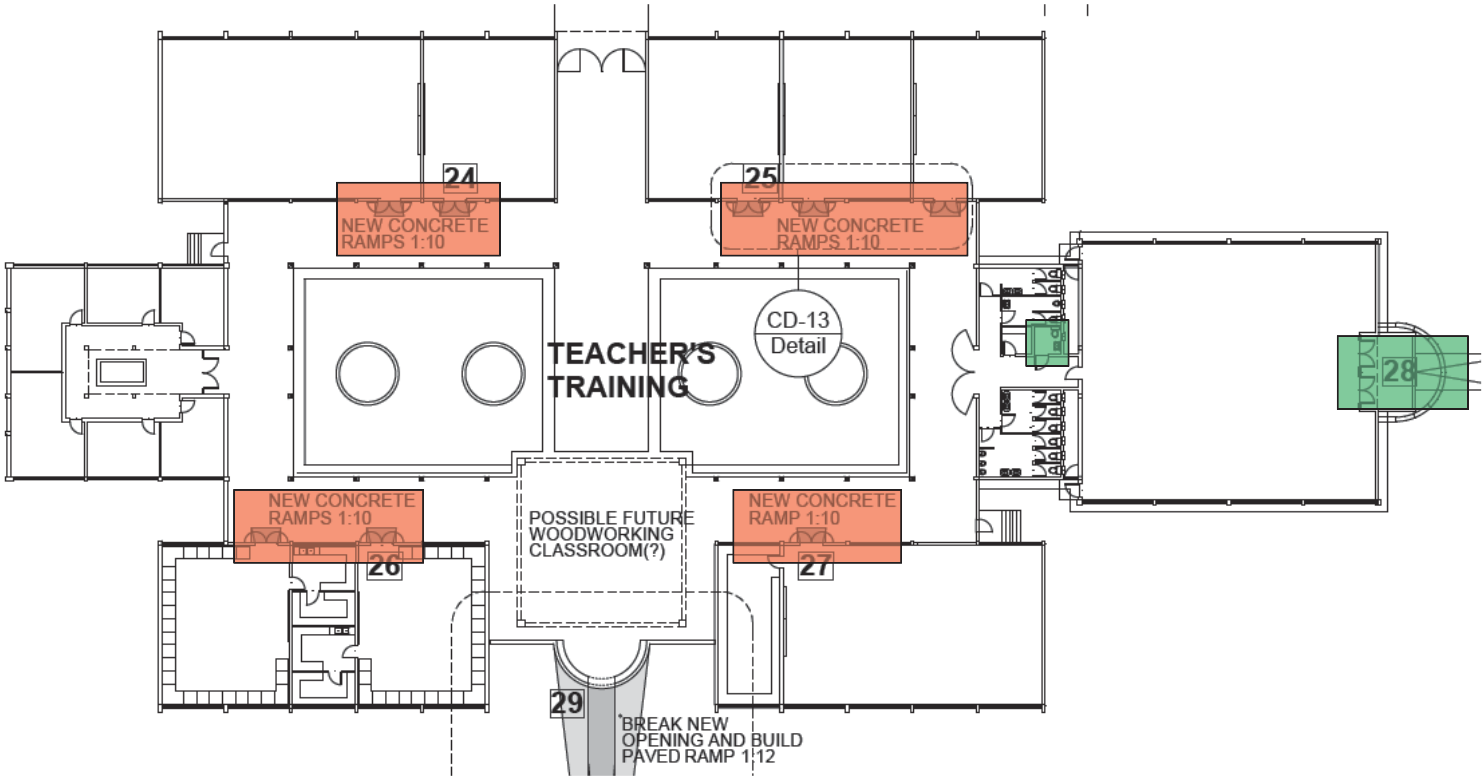


The two buildings is currently not linked in any way. To gain wheelchair access to the offices on the first floor, a new central shared lift will be built that is linked to both buildings via a concrete walkway/bridge. This lift will be provided with a sheltered lobby to protect it from the natural elements, without interfering with the pedestrian flow through the buildings.



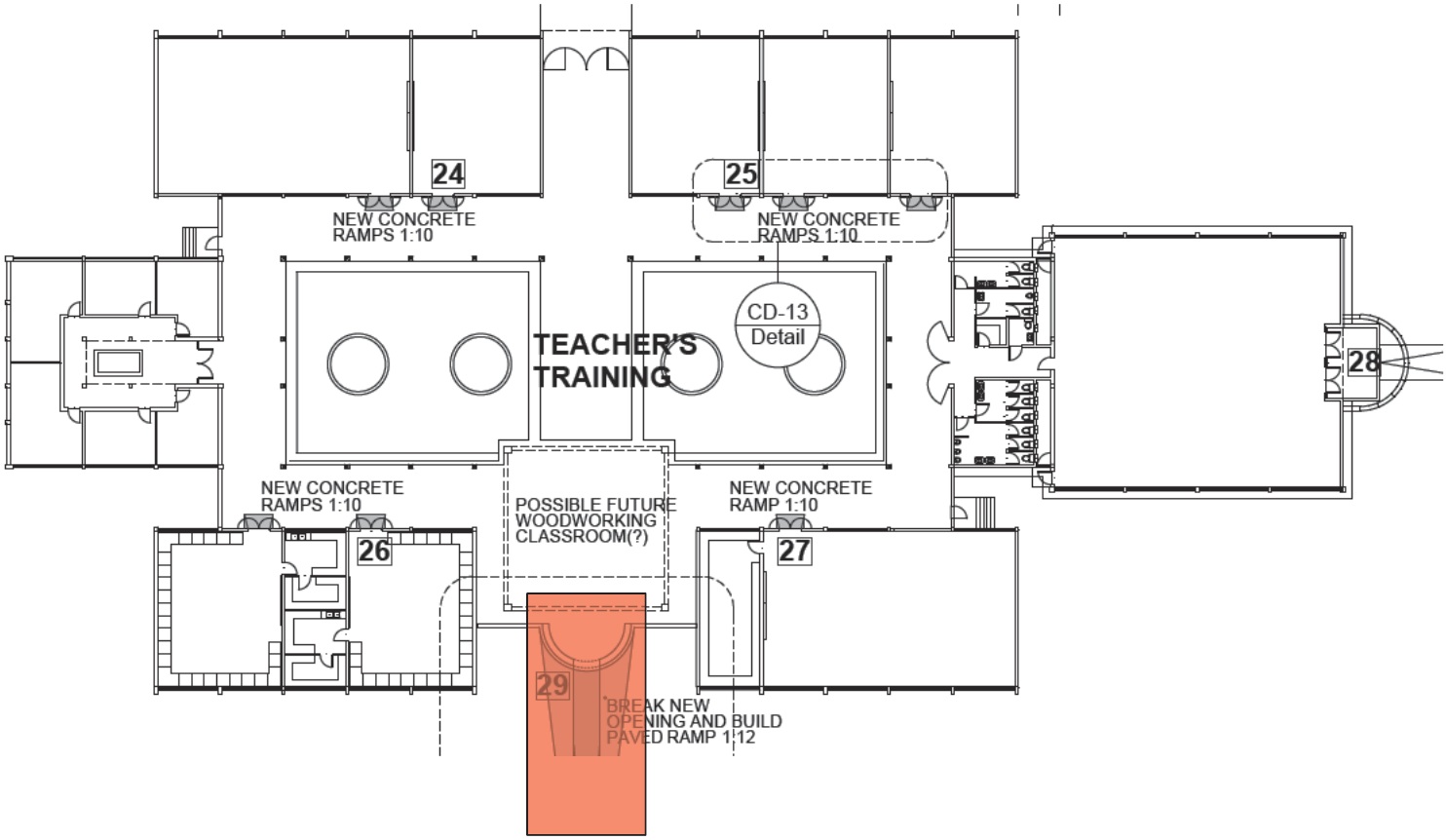
The Teacher's Training Building is a single storey group of buildings with lecture rooms and offices. The entrances to the lecture rooms is arranged around a central courtyard. These entrance doorways has a raised threshold. New raised concrete levels with ramps in the walkway, will be constructed to reach the lecture rooms.

The entrance to the conference room on the east side is also on the east side. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

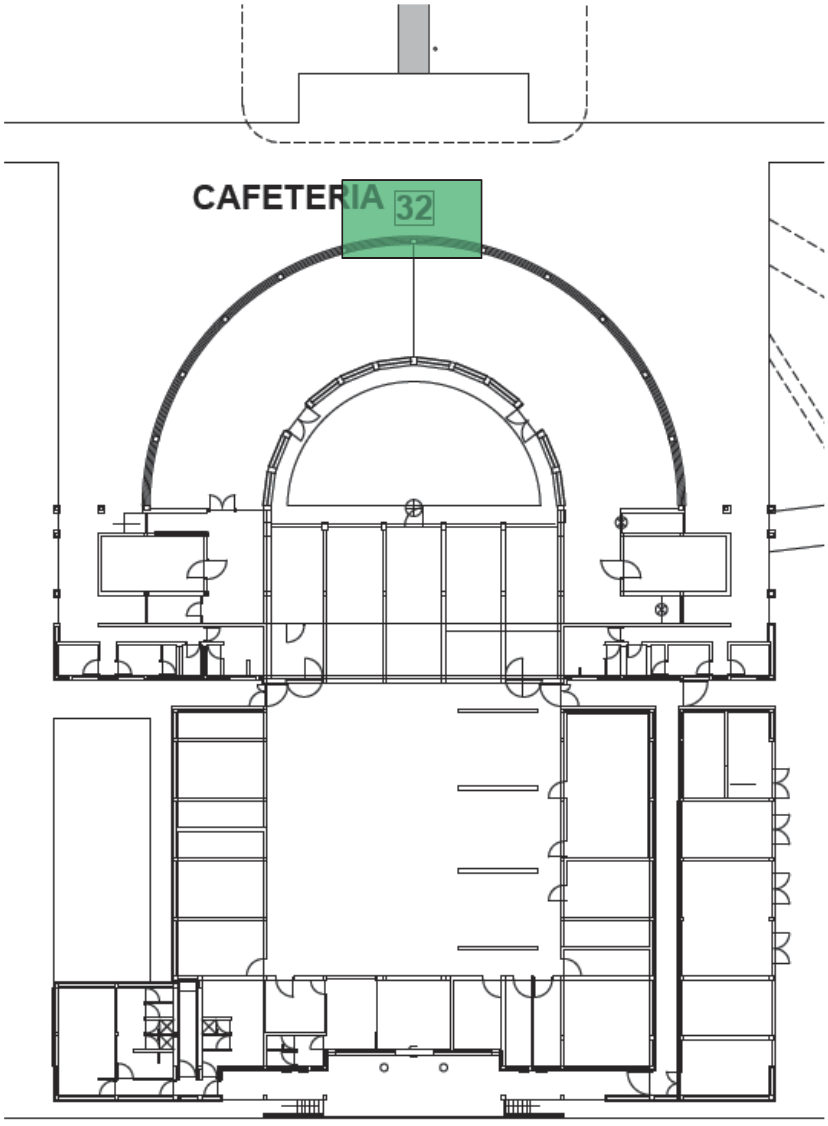


There is currently no clear, easy pedestrian route to reach the Cafeteria on the south side of the campus. A sensible option would be to continue the central pedestrian axis of the campus and provide a walkway through the Teacher's Training courtyard. An opening will be demolished in the existing curved wall with seating benches and a new paved ramp of sufficient width and of an inclination that conforms to the applicable regulations be built on the south side of the building.

This would necessitate that no further classrooms be built on this central axis. However, it will create the opportunity for new academic facilities on either side of the walkway to the Cafeteria (see Site Lay-out drawing on p.2).



The Cafeteria Building is a single storey building. The main entrance to the Cafeteria is on the north side located on the campus central axis. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

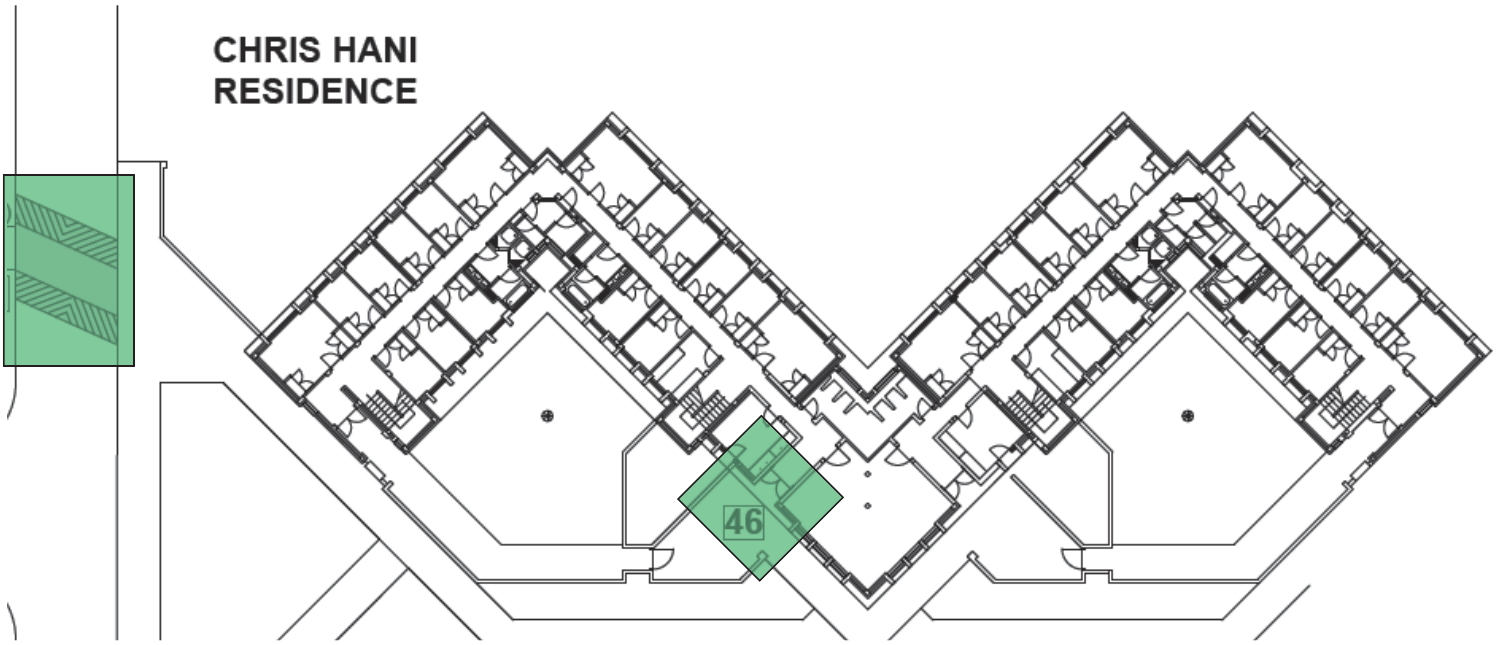


CHRIS HANI RESIDENCE

The Chris Hani Residence is a three storey building consisting of four perpendicular wings. The main entrance to the residence lobby is on the south-western side. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

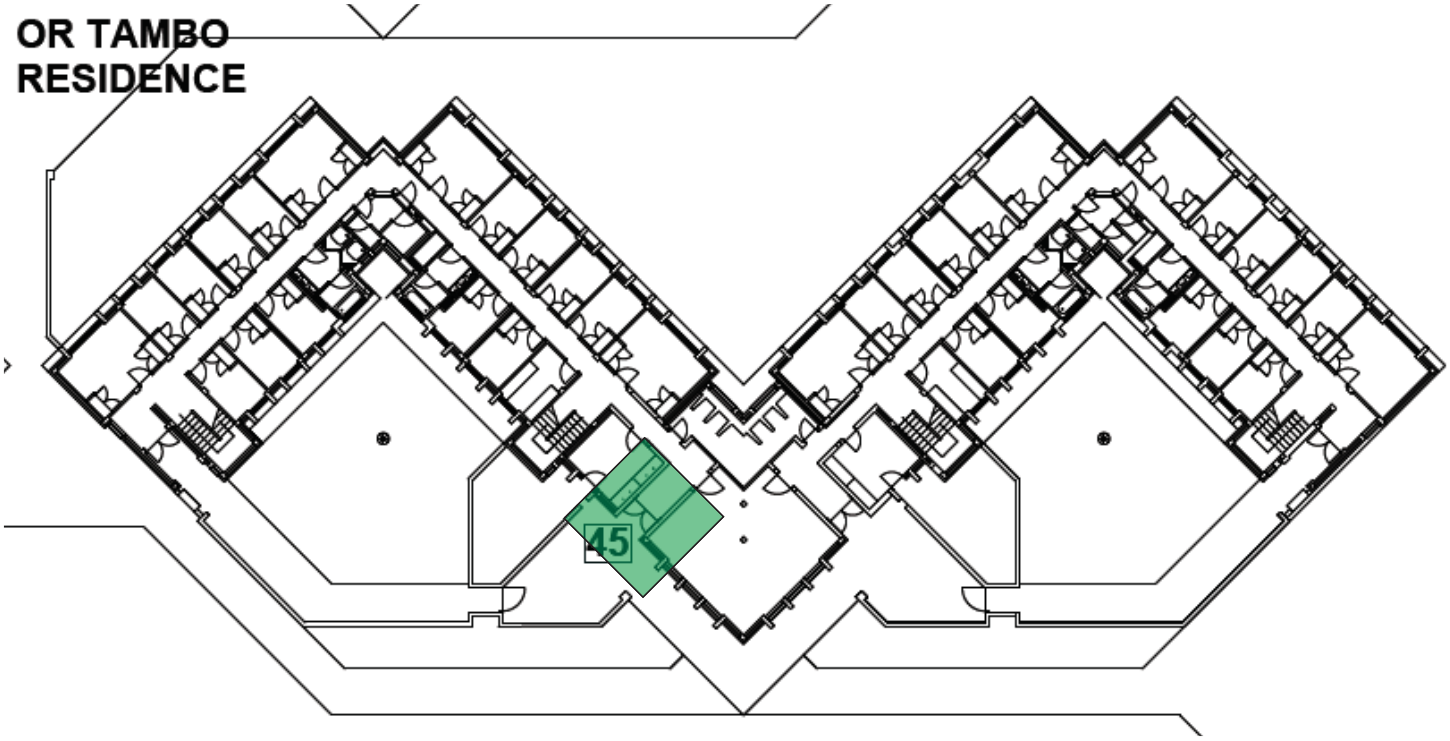
The first and second floors of the residence is only accessible via four staircase in the building. Therefore wheelchair-bound residents will be accommodated on the ground floor.

A new raised walkway has already been built over the road directly to the west of the residence. This walkway provides unhindered pedestrian and wheelchair access from the academic campus to the residence part of campus.



The OR Tambo Residence is a three storey building consisting of four perpendicular wings. The main entrance to the residence lobby is on the south-western side. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

The first and second floors of the residence is only accessible via four staircase in the building. Therefore wheelchair-bound residents will be accommodated on the ground floor.



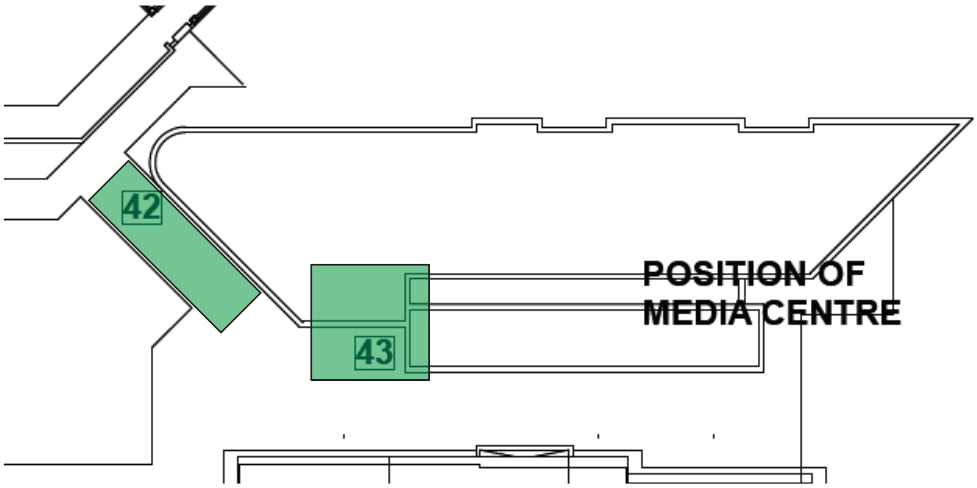
The Hector Peterson Residence is a three storey building consisting of four perpendicular wings. The main entrance to the residence lobby is on the south-western side. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

The first and second floors of the residence is only accessible via four staircase in the building. Therefore wheelchair-bound residents will be accommodated on the ground floor.

A new wheelchair accessible ramp is included to be built into the kerb of the road adjacent to the residence.

The Media Centre is a single storey building located between the residences on the east side of campus. The main entrance to the lobby is on the south side. This entrance doorway has a small threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

A paved access ramp as part of the walkway to the Media Centre is of sufficient width and inclination to conform to the applicable regulations. No construction work here is neccesary.



The two new Residences is two double storey buildings consisting of three parallel wings. The main entrance to the residence lobby is on the south-western and north-western sides. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

The first floors of the residence is only accessible via staircases in the building. Therefore wheelchair-bound residents will be accommodated on the ground floor.

Access to the western Residence is via a wheelchair accessible ramp. No construction work here is necessary.

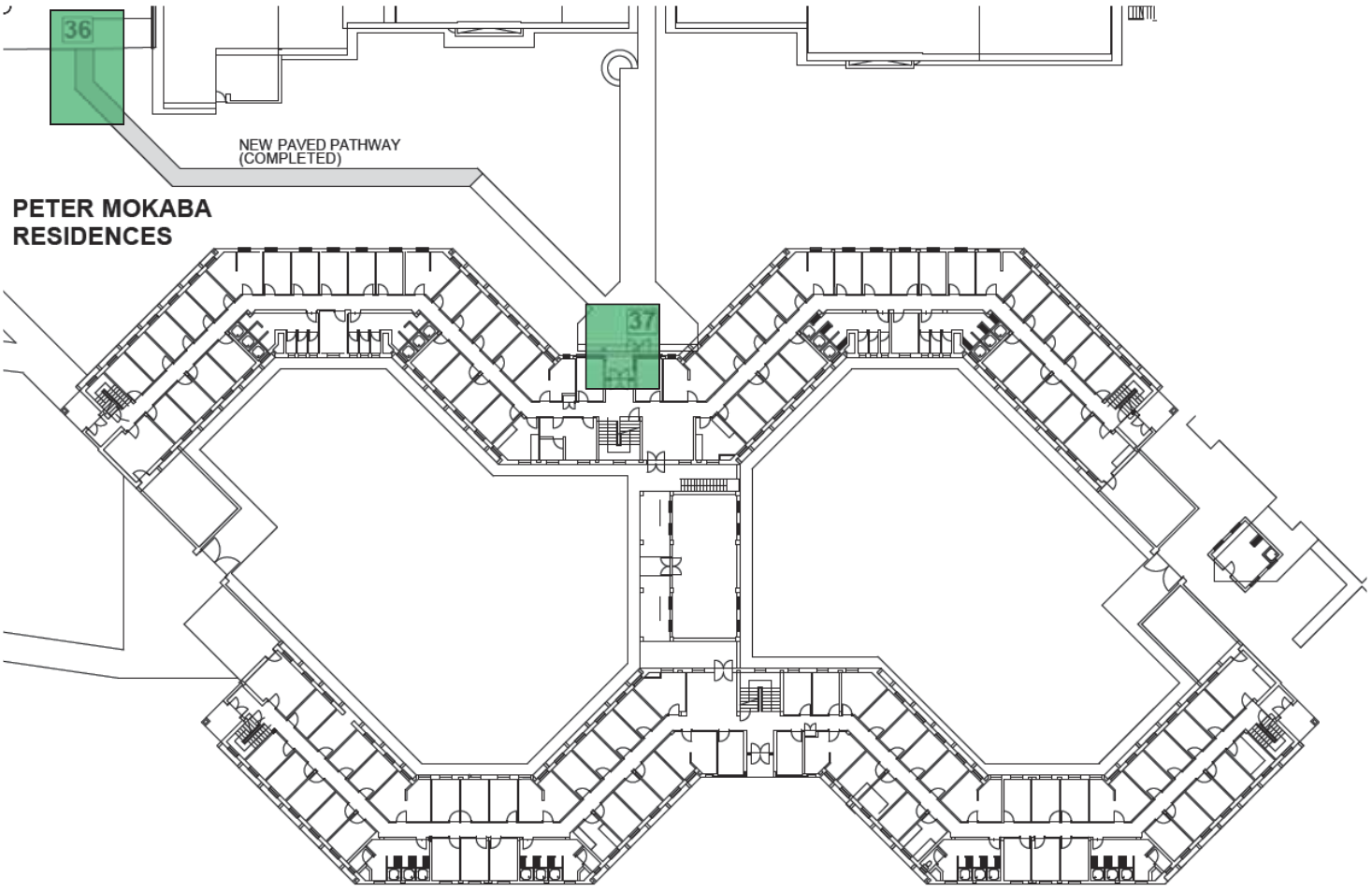
Internal access between the three parallel wings iof each residence is via covered wheelchair accessible ramps. No construction work here is necessary.

PETER MOKABA RESIDENCE

The Peter Mokaba Residence is a three storey building consisting of four wings. The main entrance to the residence lobby is on the north side. This entrance doorway has no raised threshold and is of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. No construction work here is necessary.

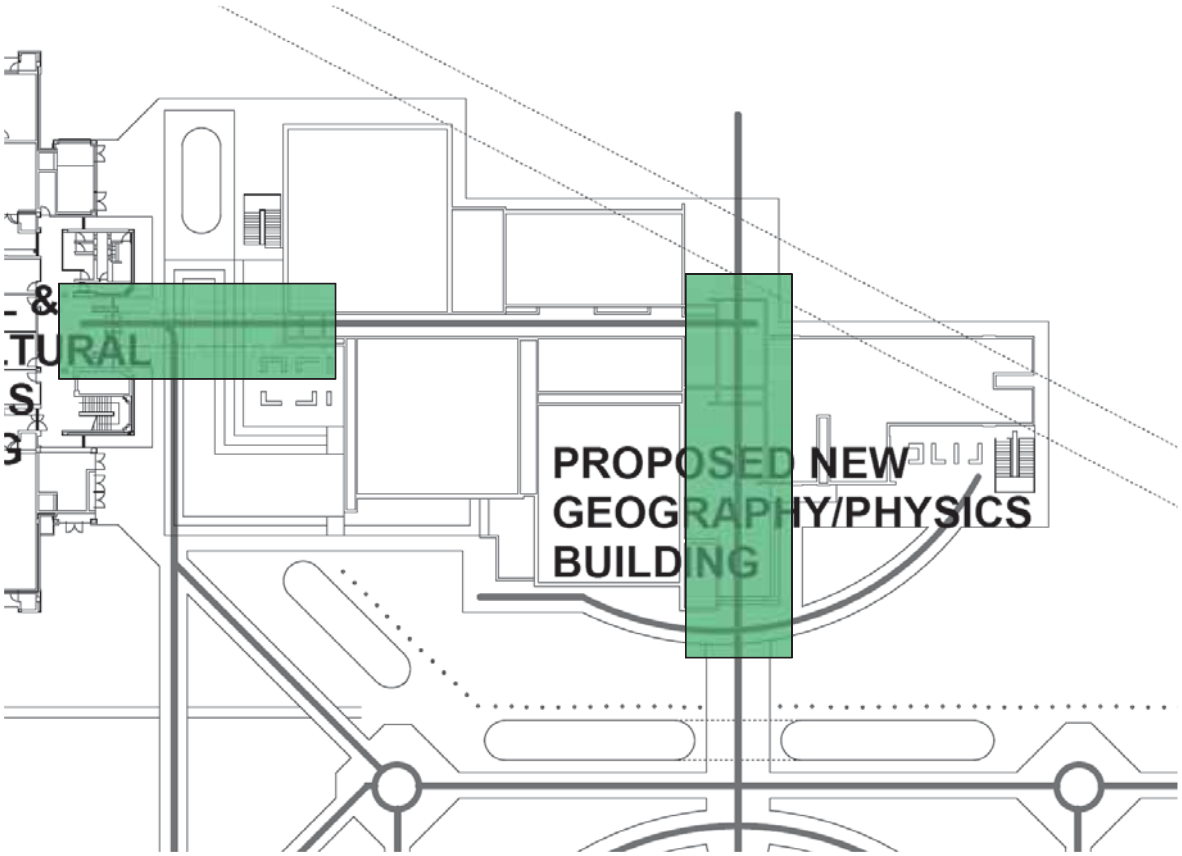
The first and second floors of the residence is only accessible via staircases in the building. Therefore wheelchair-bound residents will be accommodated on the ground floor.

A new wheelchair accessible walkway is currently being constructed to access the entrance from the parking area and the main campus. No further construction work here is necessary.



The new Geography/Physics building will be a double storey building consisting of lecture halls, offices and laboratories. The main entrance to the entrance lobby will be on the south side. This entrance doorway and all other entrance to the building, will have no raised threshold and will be of sufficient width and inclination to be traversed by a wheelchair without being pushed by a helper. Construction work is scheduled to start in November 2013 and be completed by the end of 2014.

The first floor will be accessible via three staircases and an existing lift in the adjacent Natural Sciences building and a roof-covered linking bridge between the two.



The following buildings/spaces have been identified to be addressed for accessibility. Refer to the included site plan of the campus

Page	Building / Area	Actions to be taken	Comments	Timeframe
05	Administration & Economic Management Sciences	• Entrance to building is accessible. • Both floors of building is accessible via a lift.		Completed
06	Nelson Rolihlahla Mandela Hall	• Entrances to building is accessible • People with disabilities have access to lower level only.		Completed
07	Natural & Agricultural Sciences	• Entrance to building is accessible. • Both floors of building is accessible via a lift.		Completed
08	Amphitheatre	• Provide two paved ramps to lower level. • Build partial roof covering.		Nov. 2014
09	Library & Information Services	• Provide access ramps to 2x doors to lower level to gain access to existing central lift. • Provide access ramps to 2x doors on East side to gain access to academic facilities. • Create accessible study space for students on lower level.		Nov. 2014
11	Lecture Halls	• Lower level of lecture rooms are accessible to students with disabilities. • Provide access ramps to toilets. • Demolish and rebuild existing paved ramps on south side. • Build paved pathway to existing ATM machine.		Nov. 2014
14	Humanities & Education	• Build concrete ramps to access all lecture rooms and toilets. • Build central lift and linking bridges to gain access to top floor of both buildings.		Nov. 2014

16	Teacher's Training	• Build concrete ramps to access all lecture rooms. • Entrance to lecture room on east side is accessible. • Break open opening in curved wall on south side and build paved ramp with handrails to gain easy access to south part of campus and cafeteria.		Nov. 2014
18	Cafeteria	• Entrance to cafeteria on north side is accessible.		Completed
19	Chris Hani Residence	• Access across road to residences is now accessible via completed raised walkway (speed-hump). • Main entrance door to residence is accessible to people with disabilities. • No lift in the three storey-building, therefore access is to ground floor only.		Completed
20	OR Tambo Residence	• Main entrance door to residence is accessible to people with disabilities. • No lift in the three storey-building, therefore access is to ground floor only.		Completed
21	Hector Peterson Residence	• Access from road to walkway to residence should be provided via concrete ramp in kerb. • Main entrance door to residence is accessible to people with disabilities. • No lift in the three storey-building, therefore access is to ground floor only.		Nov. 2014 Completed
22	Media Centre	• Main entrance door to Media Centre is accessible to people with disabilities.		Completed

23	New Residences	• Main entrance doors to both residences is accessible. • No lift in the two storey buildings, therefore access for people with disabilities is to ground floor only. • Access between residences is via paved ramps.		Completed
25	Peter Mokaba Residence	• Main entrance door to the residence is accessible. • Access from parking area is accessible for people with disabilities via newly paved pathway.		Completed
26	New Geography Physics Building	• All access to the new building will be accessible to people with disabilities. • The top floor of the two storey building will be accessible via the lift in the adjacent Natural Sciences building and a linking bridge.		Dec. 2014

Wayfinding entails a person's spatial orientation where the user is actively using the space.

Spatial orientation requires the user to form an overall mental *image of the layout of his environment*, known as a *cognitive map*. Cognitive mapping is the ability to visualize a map but does not imply that the user is actively using the space. Wayfinding uses the cognitive mapping process to solve location-based problems and enhances the identification of users within their spatial position.

The process of identification promotes the user's feeling of ownership of and responsibility for the campus.

Wayfinding (actively changing map, diagrams, signage, information boards etc.) is a dynamic relationship to the space. It is dynamic in that people's movement with their direct sense of orientation to place must be accommodated. Wayfinding, in general, is lacking on the UFS QwaQwa campus and needs to be addressed. Further, the differently labled accesses on campus are often separated from the abled-bodied entrances, leading to two different spatial orientations. The separation contributes to the differently labled user's inability to identify with the campus. This report and the corresponding construction documentation aims to address the issue of different accesses for people with disabilities and able-bodied students and staff.

Wayfinding on the campus is currently being addressed for all users through a **universal signage and information system document** as part of a separate project that is being developed.

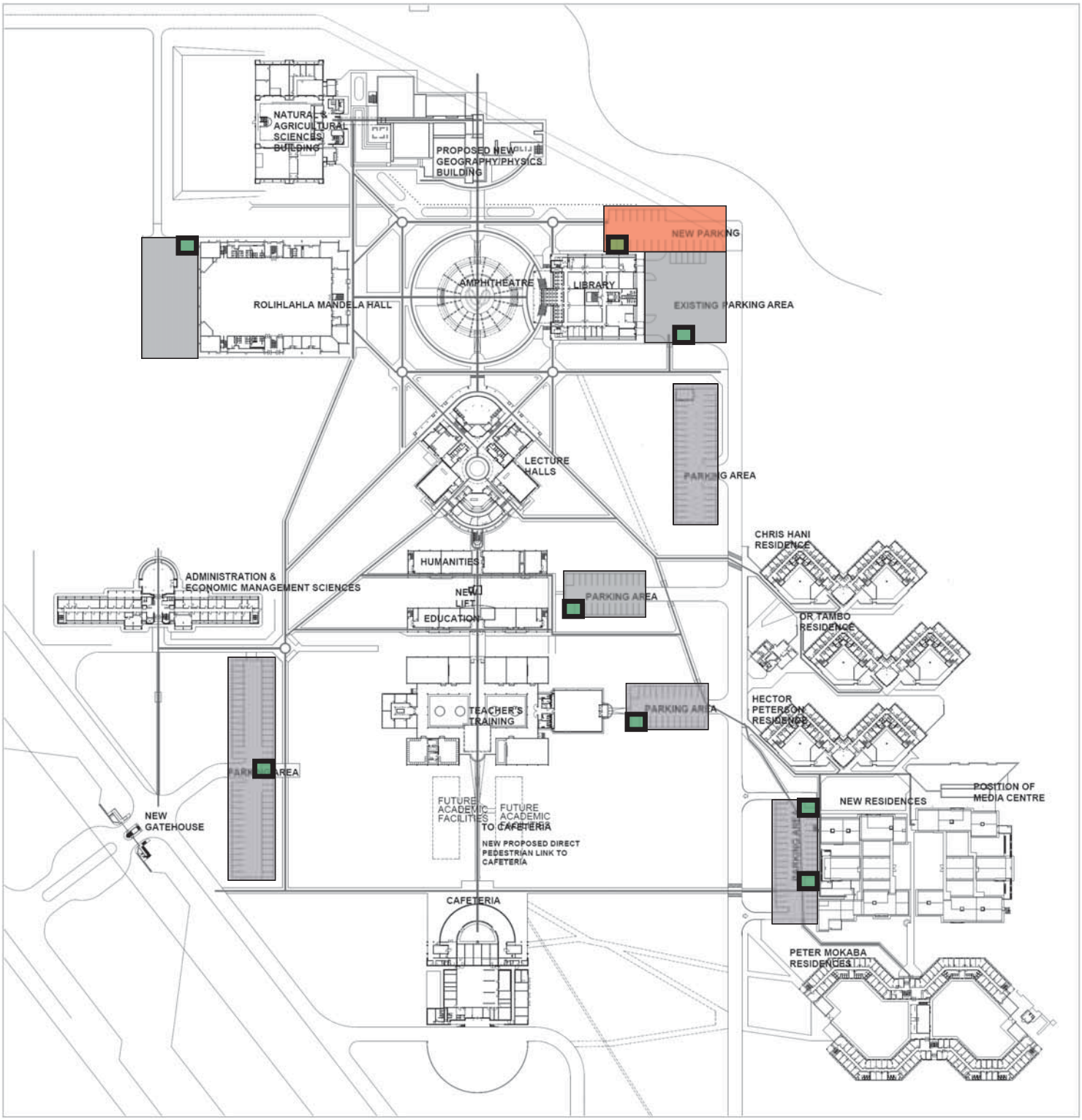
Information adapted from: ***Huelat, B.J.*** *2007. Wayfinding: Design for Understanding. A Position Paper for the Environmental Standards Council of The Center for Health Design.*

PARKING FOR DRIVERS WITH DISABILITIES

Existing tarred parking areas

New proposed parking areas

Proposed parking bay positions for disabled drivers to be established if not already indicated



Please see report on next pages.

Our Ref: Persons with disabilities.002cdj

14 October 2013

Bloemfontein

3 Bermakor Park
52 Reid Street
Westdene 9300
PO Box 20083
Willows 9320

Tel: +27 51 447 1711
Fax: +27 51 447 1714
Web: www.gibb.co.za

Incline Architects
Private Bag X01
Suite 158
Brandhof
9324

For the attention of Mr L Delport

Dear Sir

PARKING FOR PERSONS WITH DISABILITIES ON THE QWAQWA CAMPUS OF THE UNIVERSITY OF THE FREE STATE

Accessibility for persons with disabilities, making use of motor vehicles on campus refers.

On the road, persons with physical impairments operate vehicles within the exact same environment as able bodied persons. They are subjected to exactly the same rules, regulations and visual environment. Hence, the University of the Free State's Guidance System and Operational Guidelines, compiled by GIBB, make full provision for all road users. Way finding is also included in the Guidance System. Once parked, the disembarking from a motor vehicle, moving to a building and moving within a building requires special attention to accommodate wheelchairs.

There is no clear design guideline to use to determine the exact number and position of parking for persons with disabilities. The main considerations for parking are:

- Close proximity for persons with walking impairments
- Size of parking bays for persons with wheelchairs
- No other impairments are relevant to this study.

Notable requirements from the National Building Regulations SANS 10400S are:

- Signs should not be less than 2m above driveway level.
- Only one parking bay per person with disabilities shall be provided for employees.
- Where more than 50 parking bays are provided for a specific building at least one parking bay per 25 parking bays provided shall be provided for vehicles used by persons with disabilities.
- The dimensions and gradients for such parking bays are provided and should comply with the Southern Africa Development Community Road Traffic Signs Manual (SADC RTSM)
- The parking bays each provided should be within 50m from the accessible entrance of each building.
- Such parking bays shall be properly demarcated with relevant vertical signs and road painted markings.
- A vertical clearance of 2.4m is specified.

The National Guidelines on Parking for Persons with Disabilities basically endorse the SANS 10400S requirements, but is more specific on quantifying the number of parking bays required.

Currently, there are about 230 formal parking bays provided on this campus. In the proposed layout for parking for drivers with disabilities a total of 18 parking bays are demarcated for persons with disabilities. The requirement in terms of the National Guidelines is 7 parking bays. These parking bays are conveniently located, relative to the various access points to the pedestrian routes.

Based on the information above it can be concluded that this campus is accessible for persons with disabilities, making use of motor vehicles.

Yours faithfully
for GIBB (Pty) Ltd

C F de Wet PrEng
Technical Executive

In accordance with its vision to be a university that is recognised across the world for excellence in academic achievement and in human reconciliation, the University of the Free State is committed to provide a universally accessible environment to all students, staff and visitors to all three campuses of the university. To create an accessible environment that is conducive and welcoming to everybody on campuses that were not designed with accessibility in mind, is not an easy task. When the principles of universal design and access are applied, the environment and spaces can be enjoyed by all users alike, creating a sense of belonging and togetherness. The common perception that accessibility only provides equitable access and opportunities for persons in wheelchairs is refuted by universal access, stating that is to the advantage and for the use of everybody. Parents with infants in strollers, delivery persons with trollies or carrying heavy material, library patrons carrying an armful of books, academic staff with wheeled (rolling) laptop bags and older people all benefit from the availability of a ramp, elevator or automated door.

The current accessibility project of the UFS was initiated in 2009, evaluating the accessibility status of the UFS at the time. Priority inaccessible areas and spaces were identified and listed to be converted and improved over a period of 5 years, revising the list every year. The focus of the project has primarily been on areas and spaces where most student activities take place, where specific needs and challenges have been identified and where specific departments/divisions of the UFS has requested the improvement of access. The project does not only include access to buildings but also accessible bathrooms, sufficient accessible parking spaces, accessible walkways and also accessibility within the classroom. The emphasis of the project is not only on wheelchair users and persons with mobility impairments but to create an environment that can easily be navigated and used by everybody.

Hetsie Veitch
Assistant Director : Student Affairs
University of the Free State

Extracts from the regulations in the newly published **SANS 10400-S : 2011**

4.3 Parking

4.3.1 For employee parking, at least one parking space shall be accessible for persons with disabilities.

4.3.2 In addition to the requirement of 4.3.1, where provision has been made within a building, or on the site on which such building is erected, for the parking of more than 50 motor vehicles,

a) at least one parking space per 25 parking spaces (or part thereof) and at least 20 % of the parking spaces at rehabilitation and medical facilities shall be provided for parking of vehicles used by persons with disabilities;

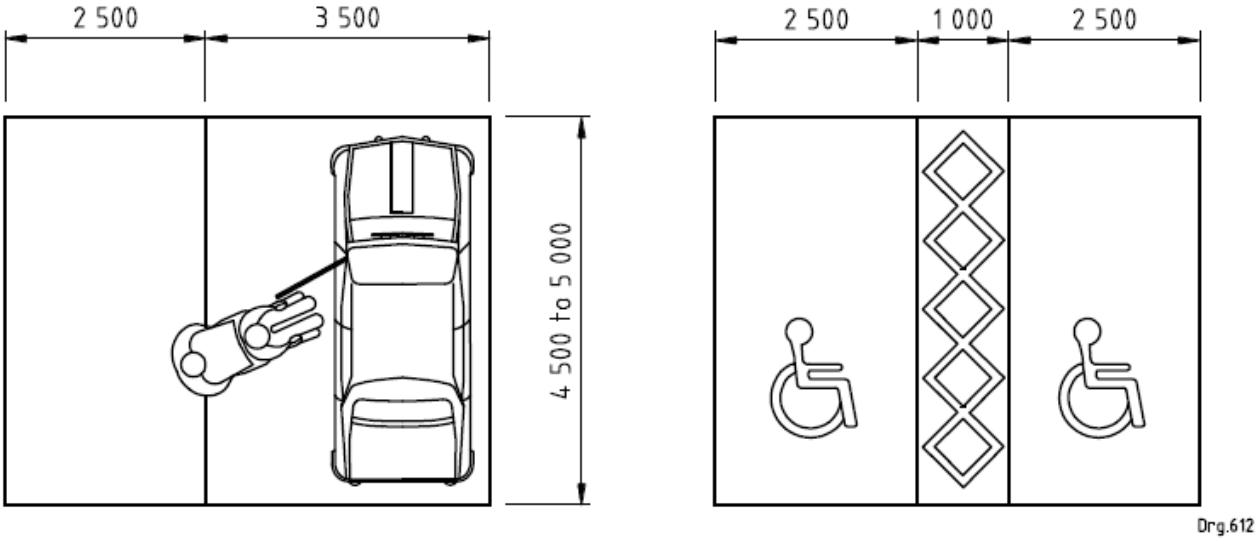
b) the parking spaces provided for vehicles used by persons with disabilities shall be of a suitable length, shall be at least of the dimensions shown in figure 2, and shall be situated on and accessed from a surface that is not steeper than 1:50;

c) any parking space provided for vehicles used by persons with disabilities shall be located within 50 m of an accessible entrance;

d) any parking space provided for vehicles used by persons with disabilities shall be clearly demarcated as being intended for the use of persons with disabilities only;

e) entry and routing to any parking space designated for persons with disabilities shall be provided with a clear height of at least 2,4 m and shall allow for the entry of vehicles suitable for use by wheelchair users, particularly those that have a hoist to carry the wheelchair on top of the car.

4.3.3 Parking spaces shall be identified by a vertical sign incorporating the international symbol for access by persons with disabilities, in accordance with 4.2. The international symbol shall also be clearly painted on the road surface (see figure 2) and it shall be 1 000 mm × 1 000 mm.



a) Full width for wheelchair needed adjacent to standard bay

b) Marked out shared space between two standard bays

Figure 2 — Accessible parking bays

4.4 External and internal circulation

4.4.1 General

4.4.1.1 An accessible route shall form part of an external and internal circulation route.

NOTE The space allowances of this part of SANS 10400 should accommodate the use of self-propelled wheelchairs. The minimum dimensions might need to be increased to accommodate the full range of different types of wheelchair.

4.4.1.2 At least one accessible route shall be provided within the boundary of the site from all public transportation stops, accessible parking spaces, passenger loading zones and public streets and pavements to the accessible building entrance which they serve and the facilities inside the building.

4.4.1.3 There shall be a means of access suitable for use by persons with disabilities from the outside of the building to the ground storey.

4.4.1.4 The clear width of the walking surfaces shall not be less than 900 mm (such as between bollards in parking areas, or between planters and seating) and shall not be reduced by protruding objects. If the clear width is less than 1,5 m, an accessible route shall be provided with passing spaces of 1,5 m × 1,5 m (minimum) at intervals not exceeding 5,0 m, or an intersection of two walking surfaces which provide a T-shaped space.

4.4.1.5 Each accessible entrance to a building shall have at least one door or doorway in accordance with the requirements of 4.6.1.

4.4.1.6 Revolving doors, revolving gates and turnstiles shall not form part of an accessible route.

4.4.1.7 Pause areas, with suitable seating, shall be provided adjacent to an accessible route at intervals that do not exceed 25 m.

4.4.2 Turning spaces

4.4.2.1 The turning space allowance, e.g. for a wheelchair, guide dog or person on crutches, shall be a minimum of 1,5 m in diameter, inclusive of any toe and knee clearances.

4.4.2.2 Doors shall not be permitted to swing into the turning spaces.

4.4.3 Obstructions in the path of travel

4.4.3.1 Protruding objects shall not reduce the clear width required for accessible routes.

4.4.3.2 Hanging signs, lights, awnings and objects that protrude into circulation spaces shall have a clearance of at least 2 m above the trafficable surface.

4.4.3.3 Windows and doors shall not open across a walkway, corridor, stair or ramp. Doorstops shall be so positioned that any door will open to its maximum, and that they will not create a hazard.

4.4.3.4 Wall-mounted fire extinguishers, hose reels, telephones, litter bins and any other wall-mounted fittings shall

a) be designed to be easily seen,

b) be shielded or recessed to prevent injuries, and

c) be accompanied by a feature that warns of the presence of the potential hazard and that is possible to detect by a person using a white cane or stick.

4.4.3.5 A dished channel shall not be constructed within the boundaries of a path.

4.4.3.6 A drainage grating that is within the boundaries of a path shall be set flush with the surface of the path. Such grating shall be placed so that its longitudinal elements are perpendicular to the main walking direction, and the gap between them shall not exceed 13 mm.

4.4.3.7 Where identified parking for persons with disabilities is provided, a kerb cut that has a slip-resistant finish and gradient that does not exceed 1:12 shall be provided immediately adjacent to the bay (see figure 3).

NOTE 1 Kerb cuts should be provided where required, and in conjunction with pedestrian crossings, taxi and bus ranks and parking garages.

NOTE 2 The recommended surface between a pavement and roadway is a ramp fitted with tactile guidance surface indicators. This provides a safe and trafficable surface for wheelchair users, and a detectable surface to indicate to persons with visual impairments that they are leaving a pedestrian footpath and entering a traffic roadway.

4.7 Changes in level

4.7.1 In trafficable areas for public use, any changes in level shall comply with the requirements of SANS 10400-D, and with the requirements given in 4.7.2 and 4.7.3.

4.7.2 A raised kerb, not less than 75 mm high, or a skirting rail not more than 300 mm high, measured vertically above the surface, shall be provided on exposed sides of any ramp, stairway, balcony or any similar area where a change in level occurs.

4.7.3 Where a change in level of more than 600 mm occurs, a handrail shall also be provided.

4.8 Ramps

NOTE 1 Ramps might be required for use by persons without disabilities, for example, persons pushing trolleys who require ramps as an alternative to stepped access.

NOTE 2 Ramps should only be provided where level access cannot be achieved. Where a ramp is provided, stepped access should normally accompany it for persons with ambulant disabilities who find ramps difficult to use.

4.8.1 Any ramp or series of ramps shall provide a safe, comfortable and convenient route for wheelchair users.

4.8.2 Any ramp provided in terms of this part of SANS 10400 shall

a) have a gradient, measured along the centre line, that is not steeper than 1:12 ;

b) have a clear, trafficable surface not less than 1 100 m wide;

c) have a surface in accordance with 4.5;

d) have a landing at the top and bottom of each ramp of not less than 1,2 m in length (clear of any door swing) and of width not less than that of the ramp;

e) comply with the requirements between landings as given in table 2 and figure 11;

f) have a handrail on both sides of the ramp or, where the width is greater than 2,4 m, a central handrail in accordance with the requirements of 4.10 where the gradient is steeper than 1:15;

g) where ramps in the same direction are used for a vertical rise of more than 600 mm, be staggered by the width of the ramp, in order to prevent a long straight line of ramps (see also 4.8.2(d)).

NOTE Where the total rise contemplated for a series of ramps is greater than 2 m, consideration should be given to alternative means of vertical circulation.

4.10 Handrails

The design and construction of handrails shall be in accordance with the following:

a) handrails shall have an elliptical gripping surface profile that is approximately 50 mm wide and 40 mm deep, or a circular profile of diameter not less than 35 mm and not more than 50 mm;

b) the height to the top of a handrail from the nosing of the tread of the stairs or from the surfaces of a ramp shall be in the range 900 mm to 1 000 mm and shall remain consistent along the length;

c) handrails shall be securely fixed and shall be rigid;

d) the surface of the handrail and wall, or any other surface adjacent to them, shall be free of any sharp or abrasive elements;

e) the clear width between a handrail and an adjacent wall shall be at least 60 mm;

f) handrails shall extend 300 mm horizontally beyond the top and bottom of the ramp or stairway (see figure 12 and shall return to the supporting structure or shall be finished with a positive return, and the minimum dimensions for landings on escape routes as required in SANS 10400-T shall be maintained;

g) handrails shall be continuous between landings where this does not create a hazard;

h) handrails shall be supported centrally from below with not less than 50 mm between the underside of the handrail and the top of the support;

i) where a stairway is wider than 2,4 m, a handrail shall be provided at no more than 2,4 m intervals.

NOTE Handrails that extend at the top and bottom of a stairway are a tactile aid for persons with visual impairments, and a balancing aid for ambulant persons with disabilities.

4.11 Lifts

4.11.1 Lifts include passenger lifts and through-floor lifts, where

a) passenger lifts serve all the storeys of the building that can be accessed by the stairway, and

b) through-floor lifts may be used to serve a partial storey (see SANS 10400-A) of area greater than 100 m^2.

NOTE A through-floor lift can be used in small buildings, as an alternative to a passenger lift.

4.11.2 Passenger lifts shall

a) have a minimum internal dimension of 1,1 m in width and 1,4 m in depth, clear of surface finishes;

b) have a doorway with an unobstructed width of not less than 800 mm;

c) be fitted with horizontal handrails the full length of the lift car sides at a height of between 850 mm and 1 000 mm above the floor level of the lift;

d) have a mirror on the top half of the rear wall equal to the width of the lift to enable wheelchair users to back out of the lift where the lift has internal dimensions less than 1,5 m in width and 2,0 m in depth;

e) have a clear circulation space of not less than 1,5 m × 1,5 m at the entrance of the lift on each floor;

f) have audible and visible warnings in the lift lobby and lift car to indicate the lift car approaching, the arrival of the lift, the lift doors opening, the lift doors closing, the floor requested and at which floor the lift stops;

g) have control buttons, including emergency control buttons, that are in accordance with 4.14;

h) have illuminance on the control panel that is not less than 150 lx;

i) stop level with the landing on each floor that they serve.

4.13 Auditoriums, grandstands and halls

4.13.1 Where any building contains one or more auditoriums or halls fitted with fixed seating, floor space accessible to any person in a wheelchair shall be set aside for the accommodation of wheelchairs in such auditoriums or halls. Such space shall

a) be situated adjacent, or in close proximity, to an exit door and shall be so arranged that a wheelchair will not obstruct any aisle or exit door, and

b) be of a size sufficient to accommodate

1) a minimum of one wheelchair where the number of fixed seats for which the auditorium or hall is designed is not more than 50,

2) a minimum of two wheelchairs where the number of fixed seats for which the auditorium or hall is designed is more than 50 but not more than 400, and

3) a minimum of three wheelchairs or a number of wheelchairs equal to 0,5 % of the number of fixed seats for which the auditorium or hall is designed, whichever is the greater, where such number of fixed seats is more than 400.

4.13.2 Wheelchair positions shall be distributed evenly throughout the facility. For each wheelchair position a companion seat shall be provided.

4.13.3 Each space accessible to a wheelchair shall be not less than 900 mm × 1,4 m. Such a space shall provide a line of vision of the performance comparable to the full range of seating that is not wheelchair accessible.

S2 Facilities to be Provided

(1) In any building contemplated in regulation **S1** requiring facilities for persons with disabilities:

(a) persons with disabilities shall be able to safely enter the building, use all the facilities subject to the provisions of subregulation **(3)** within it and leave it;

(b) there shall be a means of access suitable for use by persons with disabilities, from the main and ancillary approaches of the building to the ground storey; via the main entrance, and any secondary entrance;

(c) there shall be a means of egress suitable for use by persons with disabilities from any point in a building to a place of safety in the event of an emergency;

(d) any lift installation that is provided shall be capable of serving the needs of persons with disabilities who are likely to be using the building;

(e) any commonly used path of travel shall be free of obstacles which limit, restrict or endanger the travel of persons with disabilities, or which prevent persons with disabilities from accessing the facilities provided in the building and the presence of such obstruction shall be made evident in a suitable manner to persons with impaired vision; and

(f) a suitable means of access shall be provided to any auditorium or hall situated in any building and such auditorium or hall shall, in relation to its seating capacity, be provided with sufficient open space to accommodate a reasonable number of persons who use wheelchairs or other assistive devices.

(2) Where parking for more than 50 motor vehicles is provided in or in connection with any building having a means of access contemplated in subregulation **(1)**, adequate parking space shall be provided for the parking of motor vehicles used by persons with disabilities and a suitable means of access shall be provided from the parking area, whether such parking area be inside or outside such building, to the ground storey of such building.

(3) Where, in terms of regulation **P1**, toilet facilities are required and the building is one requiring facilities for persons with disabilities in terms of regulation **S1**, an adequate number of such facilities shall be suitable for use by persons with disabilities: Provided that toilet facilities shall not be required in any such building classified as H3 in terms of regulation **A20**.