Proposed Mixed-Use Development

51 Kalang Road, Elanora Heights

TRAFFIC AND PARKING ASSESSMENT REPORT

9 March 2021

Ref 20461

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants

Suite 6, 20 Young Street, Neutral Bay NSW 2089 - PO Box 1868, Neutral Bay NSW 2089 - Ph: 9904 3224

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LIST OF ILLUSTRATIONS

1. INTRODUCTION

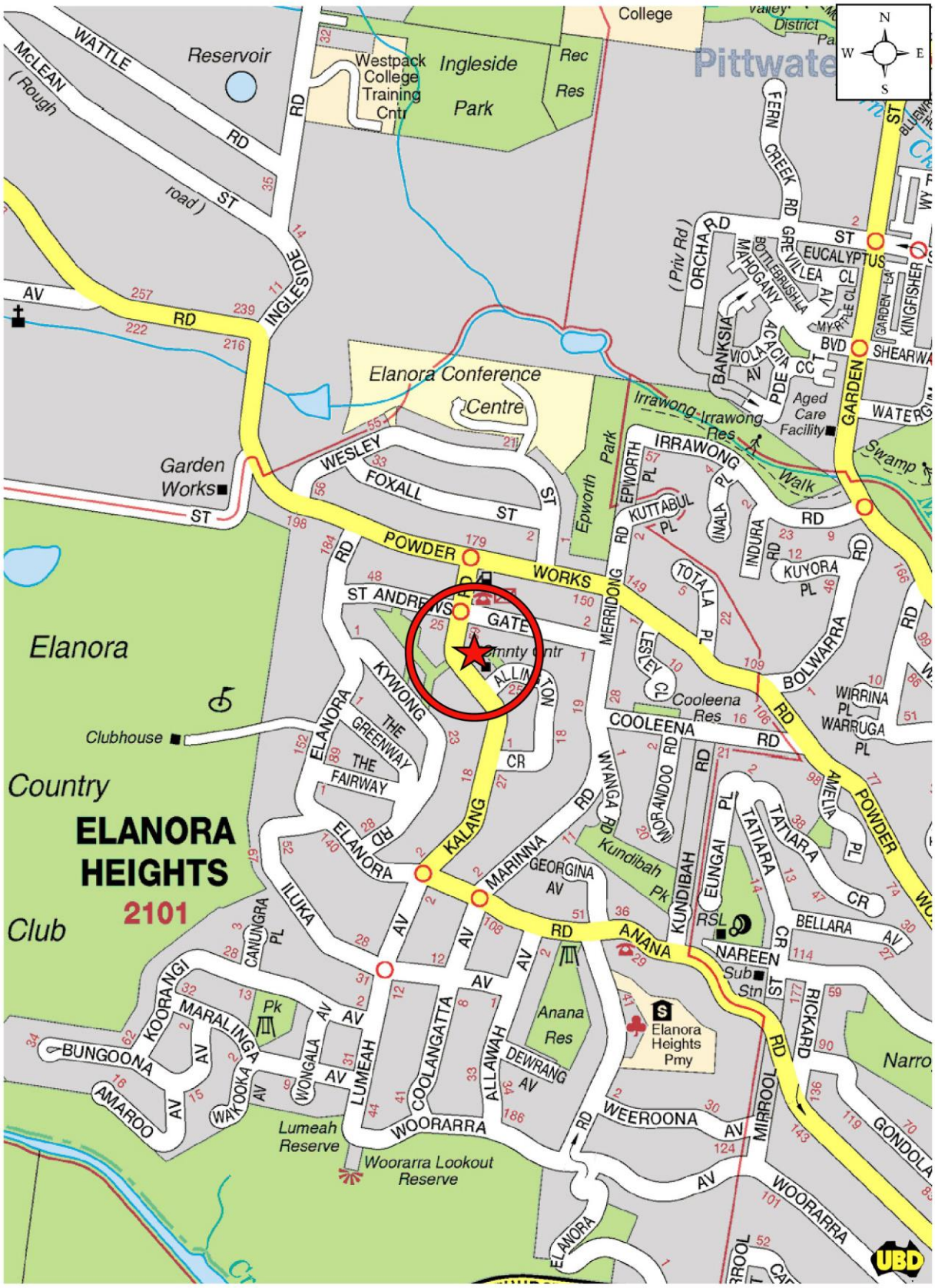
This report has been prepared to accompany a development application to Northern Beaches Council for a mixed-use development proposal to be located at 51 Kalang Road, Elanora Heights (Figures 1 and 2).

The proposed development will involve demolition of existing structures on the site to facilitate the construction of a mixed-use residential apartment building with a ground floor café / commercial component.

Off-street parking is to be accommodated in a single-level basement car parking area in accordance with Council requirements.

The purpose of this report is to assess the traffic and parking implications of the development proposal and to that end this report:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site
- estimates the traffic generation potential of the development proposal
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed car parking facilities for compliance with the relevant codes and standards
- assesses the adequacy and suitability of the quantum of off-street car parking provided on the site.



VARGA TRAFFIC PLANNING Pty Ltd
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LOCATION
FIGURE 1

VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants

SITE
FIGURE 2

2. PROPOSED DEVELOPMENT

Site

The subject site is located on the eastern side of Kalang Road, situated within the Elanora Heights local town centre. It has a street frontage approximately 33 metres in length to Kalang Road, and occupies an area of approximately 680m^2.

The subject site is currently occupied by a singe dwelling house with an associated vehicular access driveway off Kalang Road,

A recent aerial image of the site and its surroundings is reproduced below:

Courtesy of Nearmap Imagery 2020

Proposed Development

The proposed development will involve the demolition of the existing structures on the site to facilitate the construction of a new mixed-use development.

A total of 5 residential apartments are proposed in the new building as follows:

1-bedroom apartments:	3
2-bedroom apartments:	1
3-bedroom apartments:	1
TOTAL APARTMENTS:	**5**

A café and commercial component is also proposed on the ground floor level with a cumulative floor area of 80.8m^2 and 58m^2 respectively.

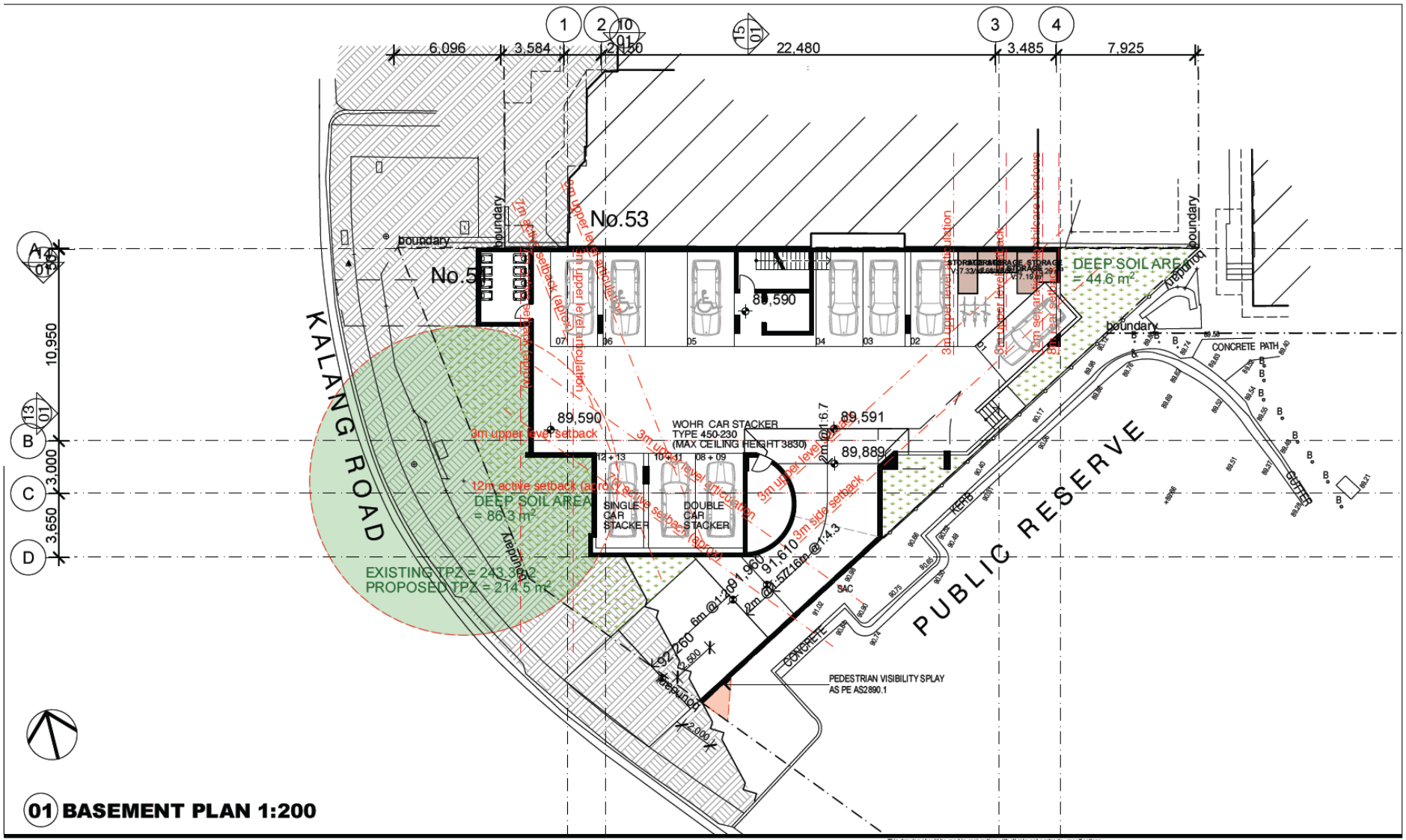
Off-street parking is proposed for a total of 13 cars in a basement car parking area in accordance with Council requirements.

Vehicular access to the car parking facilities is to be provided by a combined entry and exit driveway located at the southern end of the Kalang Road site frontage.

Loading / servicing for the non-residential component of the proposed development is expected to be undertaken by a variety of B99 light commercial vehicles (e.g. *Toyota HiAce, Hyundai iLoad* etc.), which are often used to service these small retail / commercial premises, and are capable of fitting into a conventional parking space.

Garbage collection for the residential apartment is to be undertaken by Council's waste contractor, with bins stored on site and brought out onto kerbside locations on collection days.

Plans of the proposed development have been prepared by *Fortey + Grant Architecture* and are reproduced in the following pages.



01 BASEMENT PLAN 1:200

Amendments

A	ISSUED FOR DA	05/03/21

Architect

Fortey + Grant Architecture
Suite 3/Level 1, 1141 Botany Lane
Mascot NSW 2020
mob: 0401 822 223
email: james@fgarch.com.au
Nominated Architect James Grant 6540

Project Details

SHOP TOP HOUSING AT

51 KALANG ROAD
ELENORA HEIGHTS
NSW 2101

This drawing should be read in conjunction with all relevant contracts, specifications, reports and drawings. All dimensions used to be figured dimensions only. Do not scale from drawings. Report any discrepancies to the Architect for a decision before proceeding with work.

Drawn	Approved	Date Printed
JG	JG	5/3/21

Job Number 2002

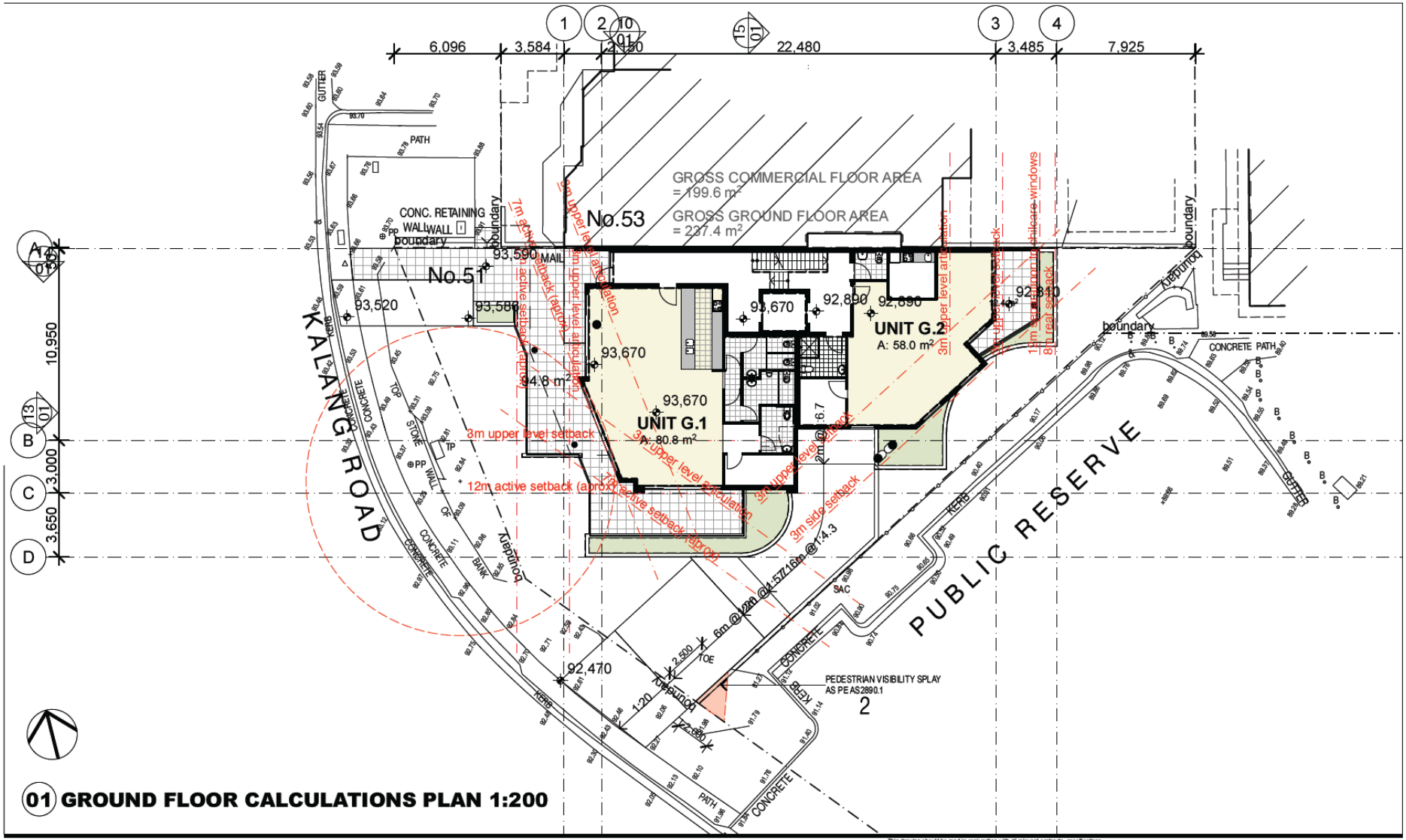
Scale As shown @ A3

Drawing name

BASEMENT PLAN

Drawing Number **DA-02**

Amendment **A**



01 GROUND FLOOR CALCULATIONS PLAN 1:200

Amendments	
A ISSUED FOR DA	05/03/21

Architect

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email: james@fgarch.com.au
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SHOP TOP HOUSING AT

**51 KALANG ROAD
ELENORA HEIGHTS
NSW 2101**

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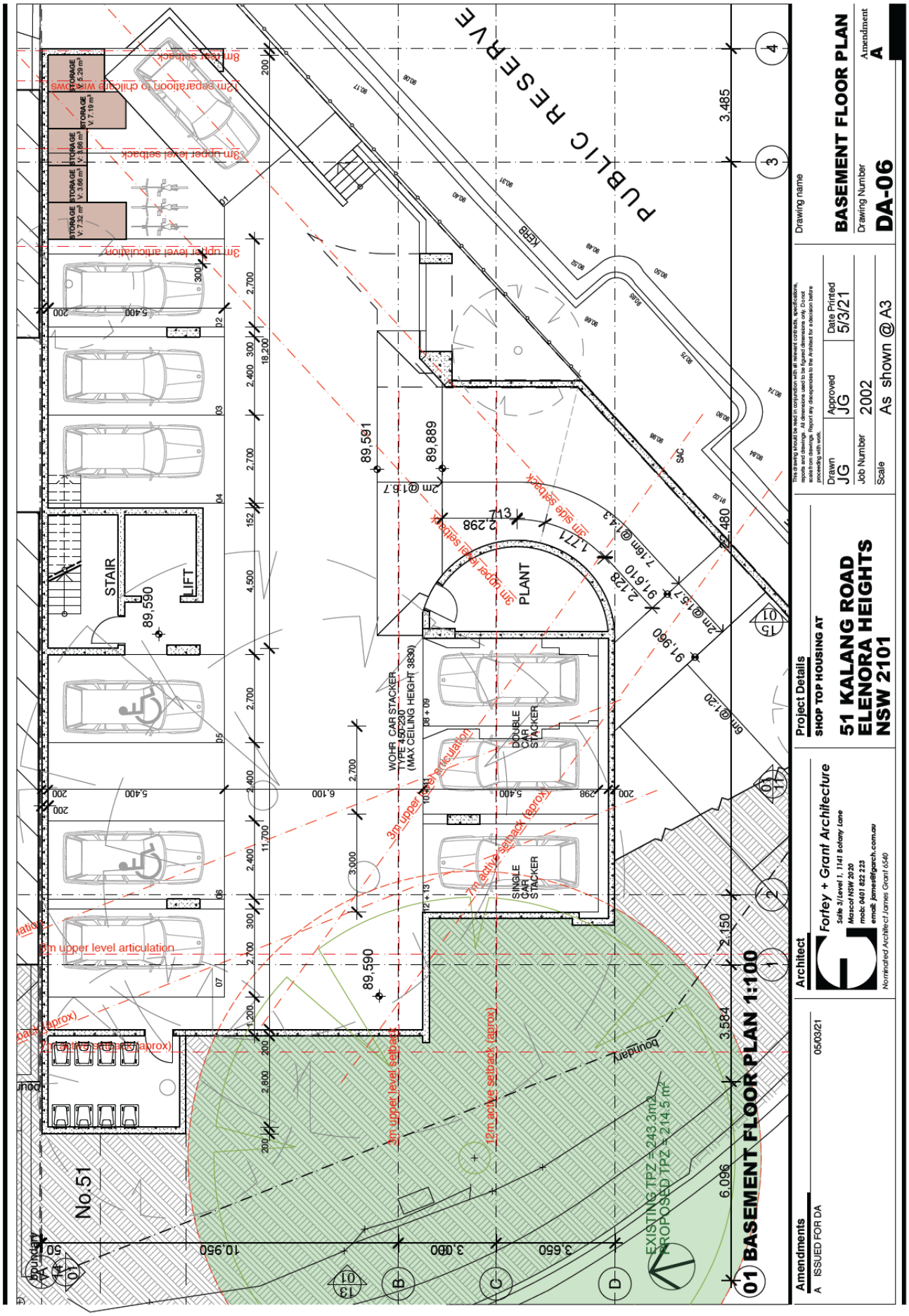
Job Number	2002	
Scale	As shown @ A3	

Drawing name

GROUND FLOOR CALCULATIONS

Drawing Number **DA-03**

Amendment **A**


PUBLIC RESERVE
No.51
STAIR
LIFT
PLANT
WOHR CAR STACKER TYPE 450-230 (MAX CEILING HEIGHT 3830)
DOUBLE CAR STACKER
SINGLE CAR STACKER
STORAGE
3m upper level articulation
3m upper level setback
12m active setback (aprox)
EXISTING TPZ = 243.3m2
PROPOSED TPZ = 214.5 m2
01 BASEMENT FLOOR PLAN 1:100
Amendments
A ISSUED FOR DA
05/03/21
Architect
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Mascot NSW 2020
mob: 0401 822 223
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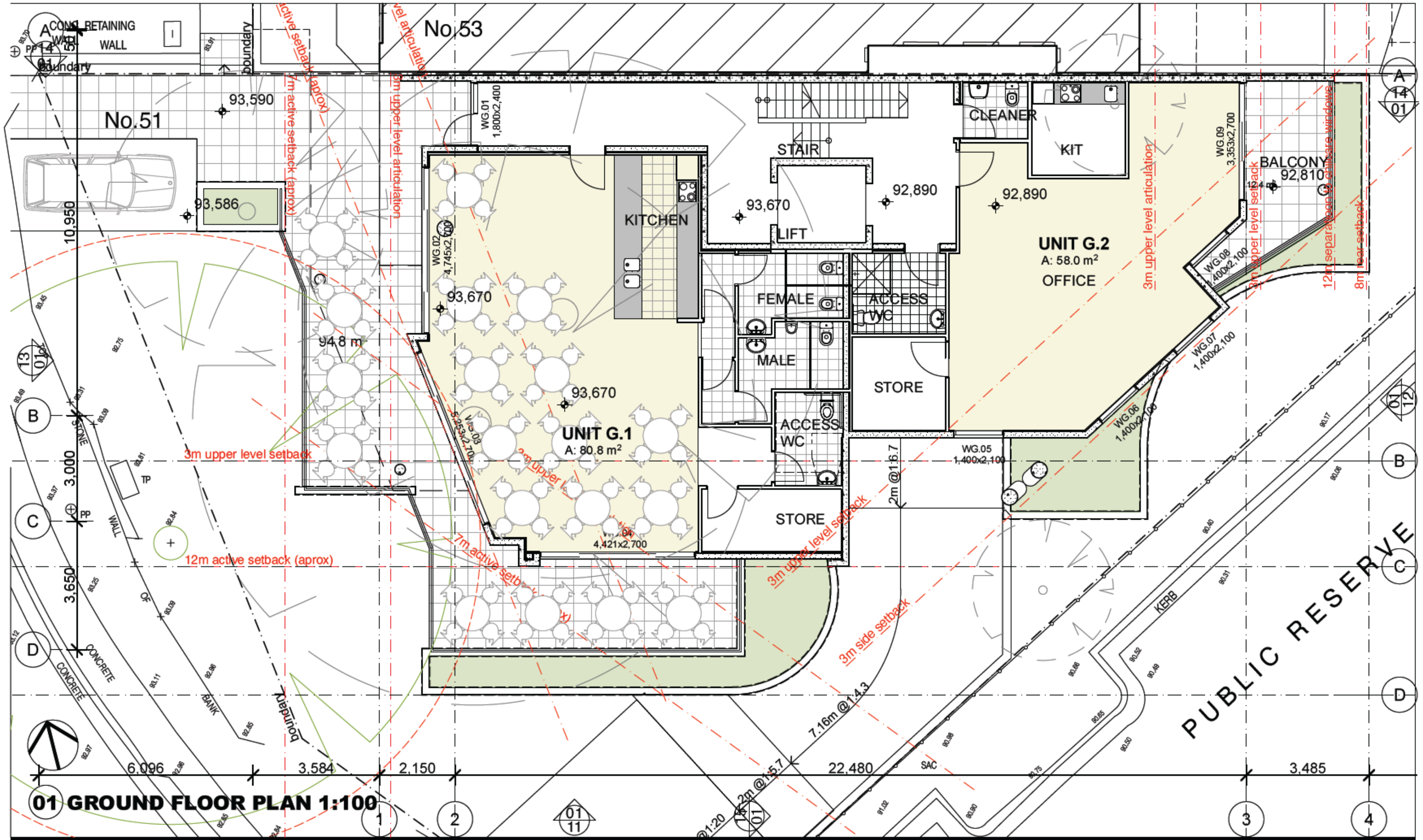
Nominated Architect James Grant 6540
Project Details
SHOP TOP HOUSING AT
51 KALANG ROAD
ELENORA HEIGHTS
NSW 2101
Drawn JG
Approved JG
Date Printed 5/3/21
Job Number 2002
Scale As shown @ A3
Drawing name
BASEMENT FLOOR PLAN
Drawing Number DA-06
Amendment A



01 GROUND FLOOR PLAN 1:100

9

VARGA TRAFFIC PLANNING PTY LTD

Amendments		
A	ISSUED FOR DA	05/03/21

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Nominated Architect James Grant 6540

Project Details

SHOP TOP HOUSING AT

51 KALANG ROAD ELENORA HEIGHTS NSW 2101

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Job Number	2002	
Scale	As shown @ A3	

Drawing name

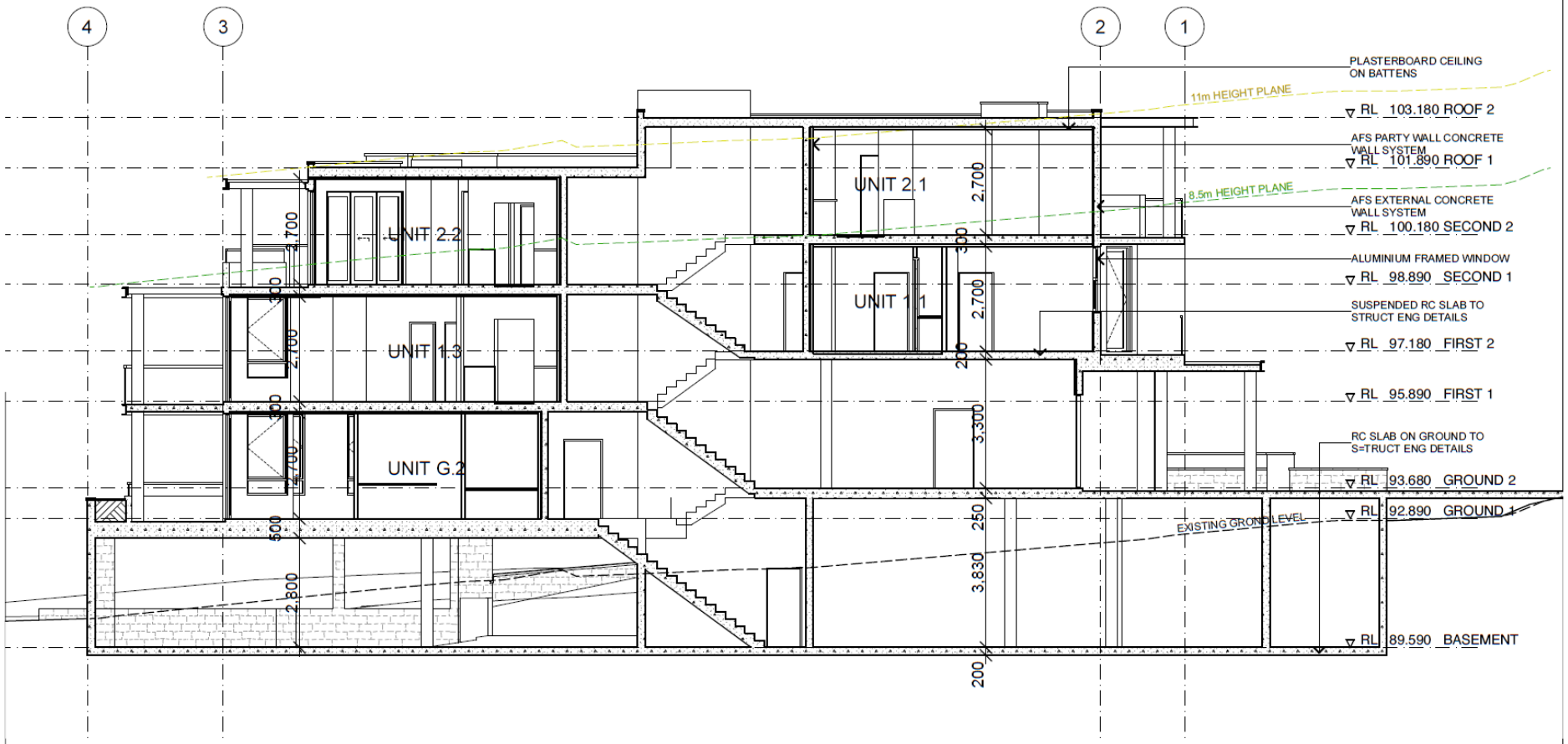
GROUND FLOOR PLAN

Drawing Number

DA-07

Amendment

A



01 SECTION 1:100

Amendments

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Project Details

SHOP TOP HOUSING AT

51 KALANG ROAD ELENORA HEIGHTS NSW 2101

Drawn	Approved	Date Printed
JG	JG	5/3/21

Job Number 2002

Scale As shown @ A3

Drawing name

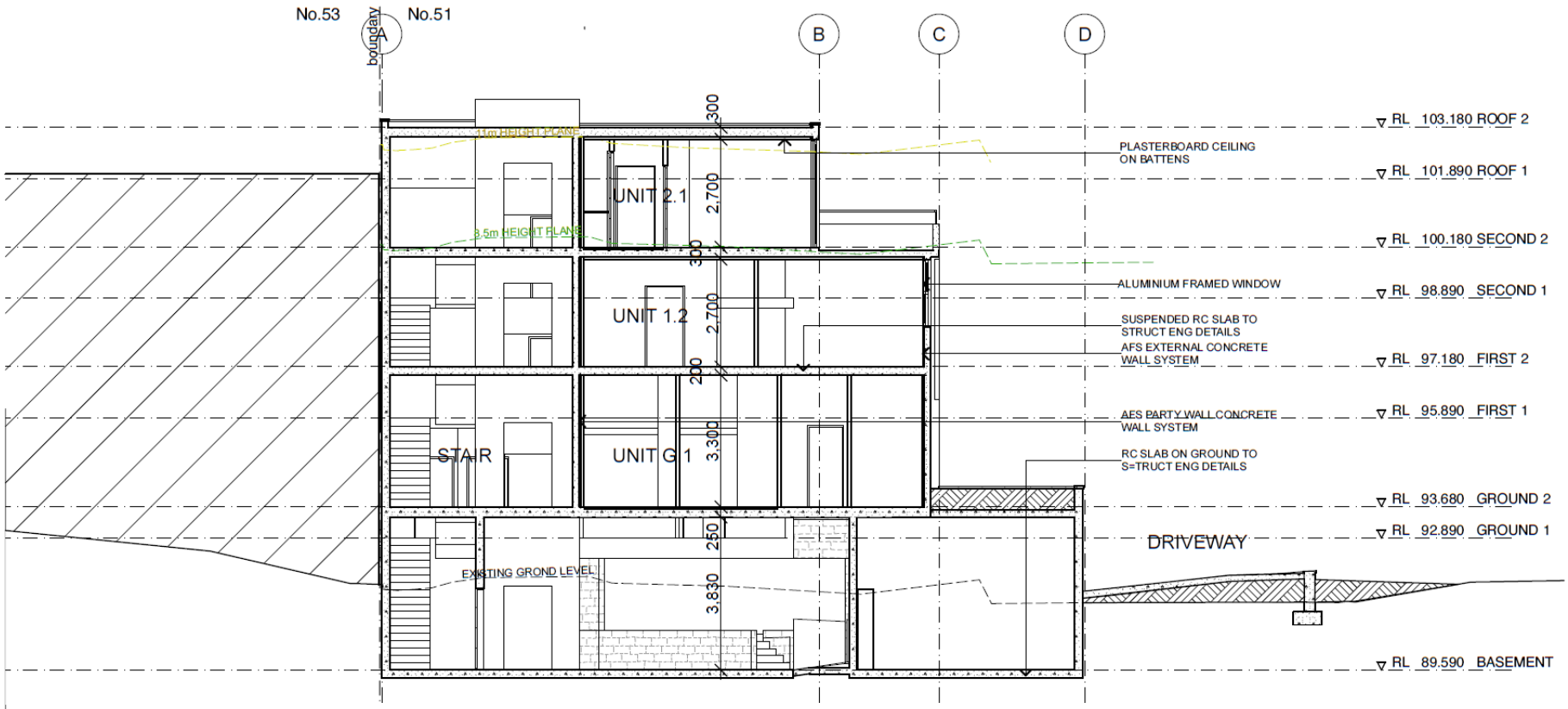
SECTION

Drawing Number

DA-14

Amendment

A



01 SECTION 1:100

Amendments

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Project Details

SHOP TOP HOUSING AT

51 KALANG ROAD ELENORA HEIGHTS NSW 2101

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JG	JG	5/3/21

Job Number 2002

Scale As shown @ A3

Drawing name

SECTION

Drawing Number

DA-15

Amendment **A**

3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Maritime Services is illustrated on Figure 3.

Wakehurst Parkway is classified by the RMS as a *State Road* and provides the key north-south road link in the area, linking North Narrabeen to North Balgowlah. It typically carries one-two traffic lanes in each direction with turning lanes provided at key locations.

Powder Works Road is classified by the RMS as a *Regional Road* which provide a key east-west road link in the area, linking North Narrabeen and Ingleside. It typically carries one traffic lane in each direction in the vicinity of the site with turning lanes provided at key locations. Kerbside parking is generally permitted along both sides of the road, subject to sign-posted restrictions.

Kalang Road is a local, unclassified road which is primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted along both sides of the roads, subject to sign-posted restrictions.

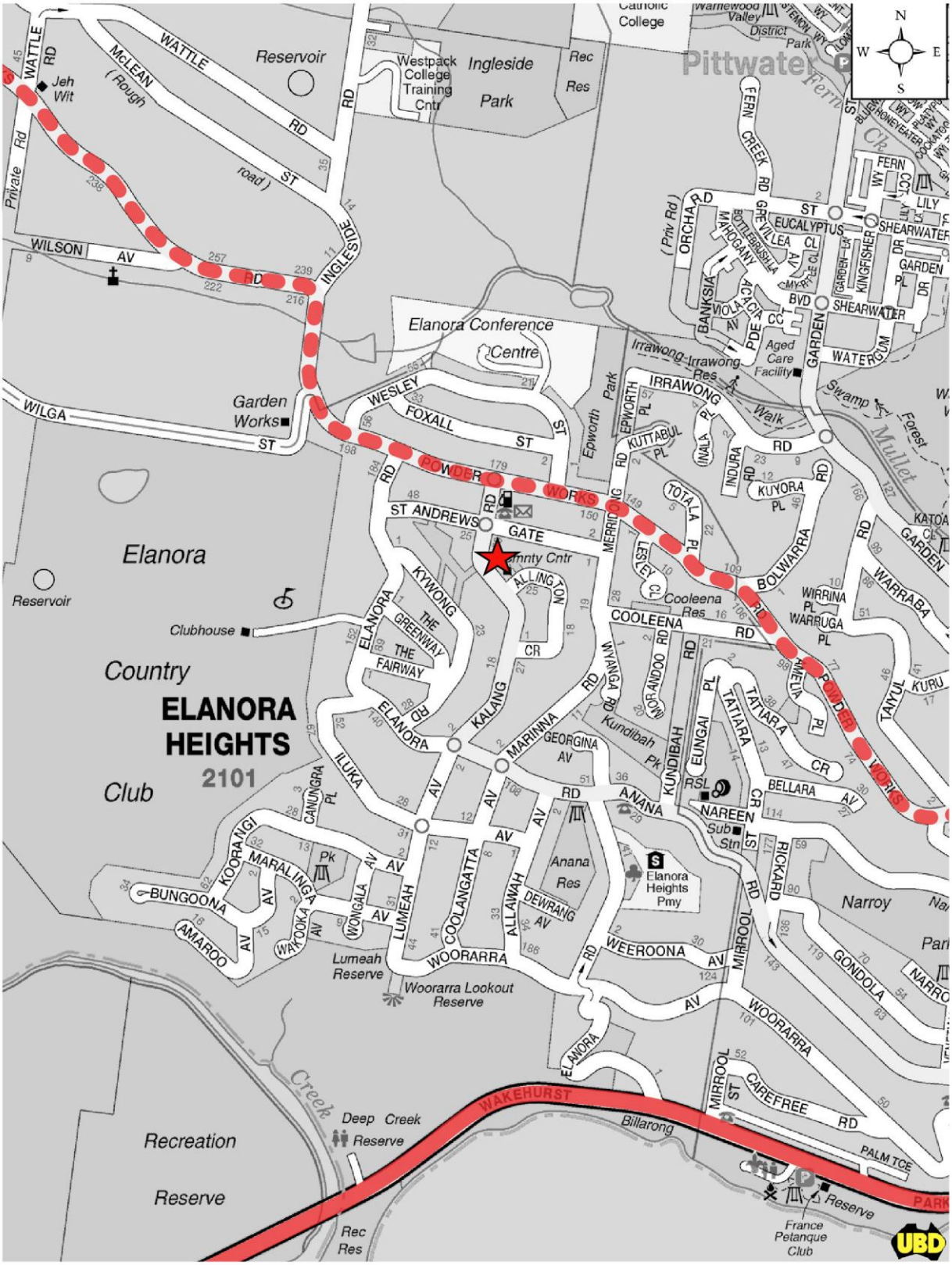
Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- a 50 km/h SPEED LIMIT which applies to Powder Works Road, Kalang Road and all other local roads in the area

- ROUNDABOUTS in Kalang Road where it intersects with Powder Works Road and also St Andrews Gate

- RAISED PEDESTRIAN CROSSING located along Kalang Road, in between Powder Works Road and St Andrews Gate.


ELANORA HEIGHTS
2101
Elanora
Country
Club
Reservoir
Clubhouse
Garden Works
Elanora Conference Centre
Westpack College Training Cntr
Ingleside Park
Rec Res
Pittwater
Irrawong Res
Aged Care Facility
Swamp
Forest
Mullet
Creek
Deep Creek Reserve
Recreation Reserve
Lumeah Reserve
Woorarra Lookout Reserve
Anana Res
Elanora Heights Pmy
Cooleena Res
Billarong
France Petanque Club
WAKEHURST
POWDER WORKS
WILSON AV
INGLESIDE RD
WESLEY
FOXALL ST
ST ANDREWS GATE
COOLEENA RD
BOLWARRA RD
IRRAWONG RD
WEEROONA AV
WOORARRA AV
CAREFREE RD
PALM TCE
Key:
State Road
Regional Road
VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants
ROAD HIERARCHY
FIGURE 3


N
W
E
S
FOXALL ST
POWDER WORKS RD
POWDER WORKS RD
WESLEY ST
50
ST ANDREWS GATE
RD
ST ANDREWS GATE
KALANG
50
KALANG
CR
ALLINGTON
KYWONG RD
RD
Key:
Give Way Sign
50
Speed LImit
School Zone
Speed Hump
Roundabout
Pedestrian Crossing
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING TRAFFIC CONTROLS
FIGURE 4

Projected Traffic Generation

The traffic implications of a development proposal primarily concern the effects of the *additional* traffic flows generated as a result of the development and its impact on the operational performance of the adjacent road network during the morning and afternoon commuter peak periods.

An indication of the traffic generation potential of the development proposal is provided by reference to the Roads and Maritime Services' publication *Guide to Traffic Generating Developments, Section 3 – Land Use Traffic Generation (October 2002)* and the updated traffic generation rates in the RMS *Technical Direction* (TDT 2013/04a) document.

The RMS *Guidelines* and *Technical Direction* are based on extensive surveys of a wide range of land uses and nominate the following traffic generation rates which are applicable to the development proposal:

Medium Density Residential Flat Building

Up to 2 bedrooms:	0.4-0.5 peak hour vehicle trips per dwelling
3 bedrooms or more:	0.5-0.65 peak hour vehicle trips per dwelling

Commercial

AM Peak:	1.6 peak hour vehicle trips per 100m^2 GFA
PM Peak:	1.2 peak hour vehicle trips per 100m^2 GFA

Restaurant / Café

AM Peak:	*generally do not coincide with road network peak hour
PM Peak:	5 peak hour vehicle trips per 100m^2 GFA

Application of the above traffic generation rates to the various components of the development proposal yields a traffic generation potential of approximately 3 vehicle trips per hour (vph) during the AM peak hour, and 7 vph during the PM peak hour, as set out below:

Projected Future Traffic Generation Potential

	AM	PM
Residential (5 apartments):	2.3 vph	2.3 vph
Café (80.8m^2):	-	4.0 vph
Commercial (58m^2):	0.9 vph	0.7 vph
TOTAL TRAFFIC GENERATION POTENTIAL:	**3.2 vph**	**7.0 vph**

That projected future level of traffic generation potential should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by the existing uses of the site, in order to determine the *nett increase (or decrease)* in traffic generation potential expected to occur as a consequence of the development proposal.

The RMS *Guidelines* nominates the following traffic generation rates which are applicable to the existing development:

Low Density Residential Dwellings
0.95-0.99 peak hour vehicle trips per dwelling

Application of the above traffic generation rates to the existing residential dwelling on the site yields a traffic generation potential of approximately 1 vph during both the AM and PM peak hour.

Accordingly, it is likely that the proposed development will result in a *nett increase* in the traffic generation potential of the site of approximately 2 vph during the AM peak hour, and 6 vph during the PM peak hour as set out below:

Projected Nett Increase in Peak Hour Traffic Generation Potential of the Site as a Consequence of the Development Proposal

	AM	PM
Projected Future Traffic Generation Potential:	3.2 vph	7.0 vph
Less Existing Traffic Generation Potential:	-1.0 vph	-1.0 vph
NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:	**2.2 vph**	**6.0 vph**

That projected nett increase in traffic activity as a consequence of the development proposal is minimal, is consistent with the land zoning objectives of the site, and will clearly not have any unacceptable traffic implications in terms of road network capacity.

4. PARKING IMPLICATIONS

Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 5 and comprise:

- 2 HOUR PARKING restrictions along the eastern side of Kalang Road, including along the entire site frontage

- a LOADING ZONE located along the northern side of St Andrews Gate, directly outside the *Elanora Heights IGA*

- NO PARKING restrictions along the southern side St Andrews Gate in the vicinity of the Kalang Road / St Andrews Gate roundabout

- NO STOPPING restrictions along the eastern side of Kalang Road, along the corner bend of the road

- BUS ZONES located at regular intervals along both sides of Kalang Road

- generally UNRESTRICTED parking elsewhere outside of the local centre area, including along both sides of Kalang Road (south of the site) and St Andrews Gate.

Off-Street Car Parking Provisions

The off-street car parking requirements applicable to the development proposal are specified in the *Pittwater 21 Development Control Plan 2011, Section B6 – Access and Parking* document in the following terms:

Multi-Unit Housing / Residential Flat Buildings / Shop Top Housing

1 bedroom dwellings:	1 space per dwelling
2 or more bedroom dwellings:	2 spaces per dwelling
Visitors:	1 space per 3 dwellings (rounded up)


N
W
E
S
1P
Front to
Kerb
LZ
ST ANDREWS GATE
ST ANDREWS GATE
BZ
KALANG ROAD
2P 90° Front to Kerb
KALANG ROAD
Key:
No Stopping
No Parking
Restricted Parking
BZ Bus Zone
LZ Loading Zone
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING PARKING RESTRICTIONS
FIGURE 5

Business Premises and Office Premises

2.5 car parking spaces per 100m^2 Gross Lettable Area (GLA)

Restaurants and Cafés

1 per 30m^2 GLA

Application of the above car parking rates to the various components of the development proposal yields an off-street car parking requirement of 13 spaces as set out below:

Residential (5 apartments)	7.0 spaces
Visitors:	1.7 spaces
Café (80.8m^2)	2.7 spaces
Commercial (58m^2):	1.5 spaces
TOTAL:	**12.9 spaces**

The proposed development makes provision for a total of 13 off-street car parking spaces in a single-level basement car parking area, thereby satisfying Council's car parking requirements.

The geometric design layout of the proposed car parking facilities has been designed to generally comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1:2004* and *Parking Facilities Part 6 - Off-Street Parking for People with Disabilities AS2890.6* in respect of ramp grades & transitions, driveway & aisle widths, overhead clearances and parking bay dimensions.

It is noted that 6 of the 13 off-street car parking spaces are to be provided in a *pit-style* mechanical car stacker which allows each car to be parked / retrieved independently without the need to move cars parked on other platforms. The nominated car stacker model is a WOHR PARKLIFT TYPE 450-230-380H, and its specifications are reproduced in Appendix A.

Off-Street Bicycle Parking Provision

The off-street bicycle parking requirements applicable to the development proposal are specified in *Pittwater 21 Development Control Plan 2011, Section B6 – Access and Parking* document in the following terms:

> **Residential**
> 1 space per 3 dwellings
>
> **Business**
> 1 space per 1,000m² GFA *or* a minimum of 4 bicycle racks (whichever is greater)

Application of the above bicycle parking requirements to the various components outlined in the development proposal yields an off-street bicycle parking requirement of 6 spaces as set out below:

Residential (5 apartments):	1.7 spaces
Café / Commercial (138.7m²):	4.0 spaces
TOTAL:	**5.7 spaces**

The proposed development makes provision for a total of 6 off-street bicycle parking spaces including 3 residential storage cages that are each capable of storing a bicycle within the secure basement parking area, thereby satisfying Council's bicycle parking requirements.

Conclusion

In summary, the proposed parking facilities satisfy the relevant requirements specified in Council's DCP as well as the Australian Standards and it is therefore concluded that the proposed development will not have any unacceptable parking implications.

APPENDIX A

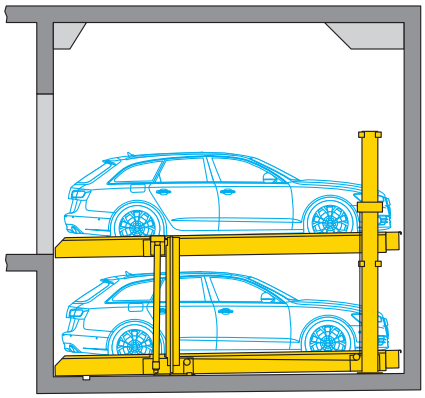
CAR STACKING SYSTEMS SPECIFICATIONS

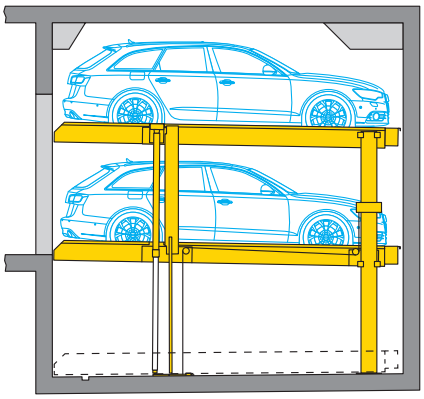
Data Sheet
WÖHR PARKLIFT 450

- **Single units: 2 cars**
  Double units: 4 cars

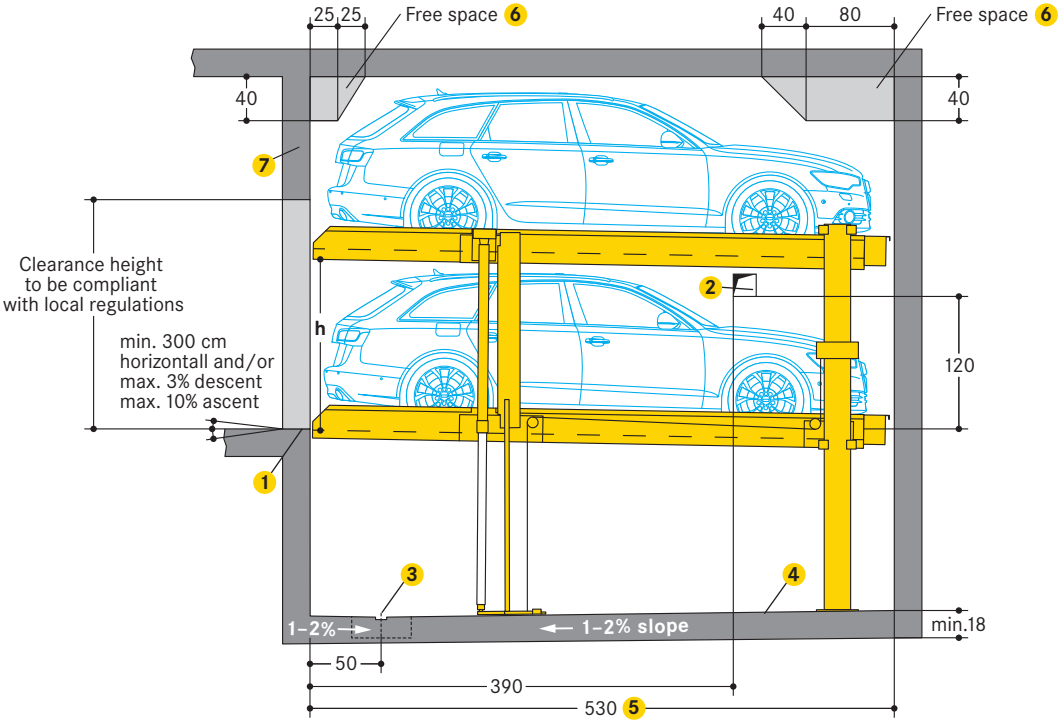
- **Platform load options:**
  – max. 2000 kg, load per wheel 500 kg
  – max. 2600 kg, load per wheel 650 kg

- **Platform slopes for drive-on:**
  – upper level: 1° = 2% ascent
  – lower level: 1° = 2% descent
  Platform slopes help drainage





Length dimensions underground car park (height dimensions see page 2)



1 Yellow-black safety marking:
– compliant to ISO 3864, 10 cm wide, along the pit edges (see page 4 »Static calculations and construction works requirements«)

2 In case of intermediate walls:
– 15 x 15 cm opening for electric and hydraulic system cables and piping
– after installation, do not close the opening

3 Recommended drainage channels:
– 10 x 2 cm, with a 50 x 50 x 20 cm drainage pit
– in case of installation of a sump pump, it is necessary to comply with the drainage pit dimensions specified by the pump manufacturer

4 Channels or undercuts/concrete haunches:
– not allowed along the pit floor-to-wall joints
– should channels or undercuts be necessary, the system width needs to be reduced or the pit needs to be wider

5 500 cm vehicle length = 530 cm pit length
– for longer vehicles:
vehicle length + 30 cm safety distance = pit length
(pit length max. 550 cm)

6 Free spaces for any connections performed by the customer:
– please ask WÖHR for the dimension sheets

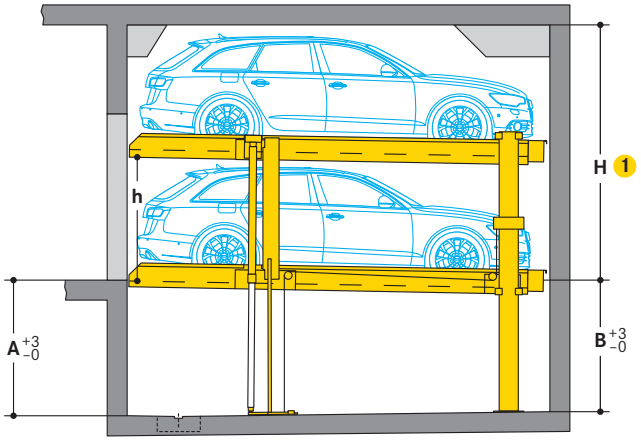
7 Lintel

Dimensions

– all dimensions specified are the minimum, finished dimensions
– tolerances must be taken into consideration
– all dimensions are given in cm

WÖHR Autoparksysteme GmbH | Ölgrabenstr. 14 | 71292 Friolzheim | Germany
+49 [0] 7044 46-0 | +49 [0] 7044 46-149 | info@woehr.de | www.woehr.de

Height dimensions Standard type

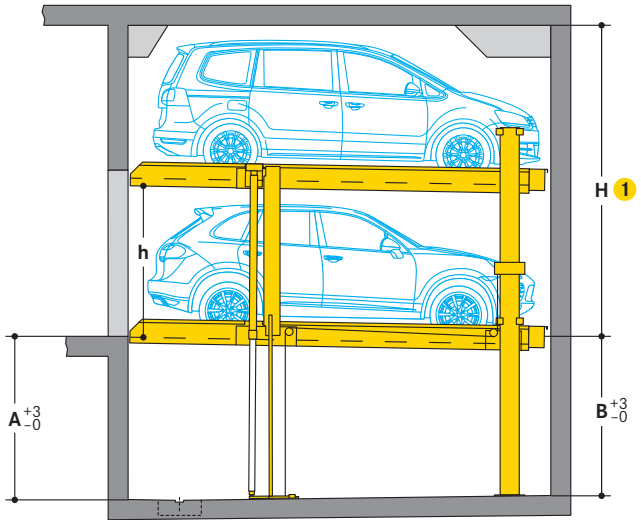


Type	Height (H) 1	Pit depth A	Pit depth B	Vehicle height 2 UL	Vehicle height 2 LL	Platform distance (h)
450-170	320	170	165	L+S: 150	L+S: 150	155
450-175	325	175	170	L+S: 150	L+S: 155	160
	330	175	170	L+S: 155	L+S: 155	160
450-180	330	180	175	L+S: 150	L+S: 160	165
	340	180	175	L+S: 160	L+S: 160	165
450-185	335	185	180	L+S 150	L+S: 165	170
	350	185	180	L+S: 165	L+S: 165	170
450-190	340	190	185	L+S: 150	L+S: 170	175
	360	190	185	L+S: 170	L+S: 170	175
450-195	345	195	190	L+S: 150	L+S 175	180
	370	195	190	L+S: 175	L+S 175	180
450-200	350	200	195	L+S: 150	L+S: 180	185
	380	200	195	L+S: 180	L+S: 180	185

1 With an increase in headroom available, correspondingly taller cars will be able to park on the upper platform.

2 UL= upper level / LL = lower level
L = Limousine / S = Station wagon

Height dimensions Premium type

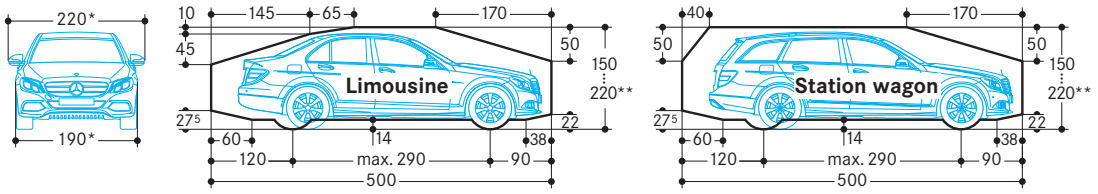


Type	Height (H) 1	Pit depth A	Pit depth B	Vehicle height 2 UL	Vehicle height 2 LL	Platform distance (h)
450-205	355	205	200	L+S: 150	L+S: 185	190
	390	205	200	L+S: 185	L+S: 185	190
450-210	360	210	205	L+S: 150	L+S: 190	195
	400	210	205	L+S: 190	L+S: 190	195
450-215	365	215	210	L+S: 150	L+S: 195	200
	410	215	210	L+S: 195	L+S: 195	200
450-220	370	220	215	L+S: 150	L+S: 200	205
	420	220	215	L+S: 200	L+S: 200	205
450-225	375	225	220	L+S: 150	L+S: 205	210
	430	225	220	L+S: 205	L+S: 205	210
450-230	380	230	225	L+S: 150	L+S: 210	215
	440	230	225	L+S: 210	L+S: 210	215
450-235	385	235	230	L+S: 150	L+S: 215	220
	450	235	230	L+S: 215	L+S: 215	220
450-240	390	240	235	L+S: 150	L+S: 220	225
	460	240	235	L+S: 220	L+S: 220	225

1 With an increase in headroom available, correspondingly taller cars will be able to park on the upper platform.

2 UL= upper level / LL = lower level
L = Limousine / S = Station wagon

Clearance profile (for standard vehicles)



* for a 250 cm platform width

** The overall vehicle height including roof luggage rails and antenna mounts must not exceed the max. vehicle height dimensions specified

Width dimensions

Platform widths:

250 cm (single units), 500 cm (double units):
– for 190 cm vehicle width (without outside mirror)

260–270 cm (single units), 520–540 cm (double units):
– for vehicles wider than 190 cm (without outside mirror)
– for units with imtermediate walls
– for units at the end of the driving aisle

For comfortable parking, entry and exit conditions platform widths upon 250 cm are recommended. Reduced platform width means reduced parking comfort depending on the vehicle width, vehicle type, individual driving style, access situation of the garage.

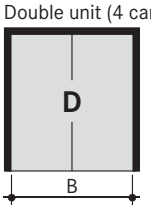
Width dimensions (underground car park)

Intermediate walls

Single unit (2 cars)

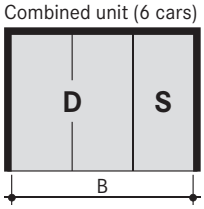
Space requirements B	clear platform width
260	230
270	240
280	**250**
290	**260**
300	**270**

Double unit (4 cars)



Space requirements B	clear platform width
490	460
510	480
530	**500**
550	**520**
570	**540**

Combined unit (6 cars)



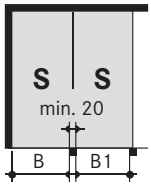
Space requirements B	clear platform width
750	460+230
780	480+240
810	**500+250**
840	**520+260**
870	**540+270**

The driving aisle width must comply with local regulations

It is possible to combine different widths

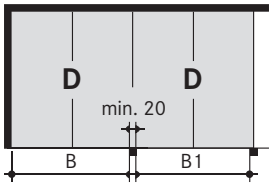
Columns external to the pit

Single unit (2 cars)



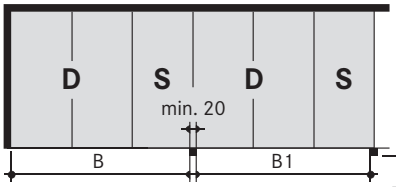
Space requirements wall-column B	column-column B1	clear platform width
250	240	230
260	250	240
270	**260**	**250**
280	**270**	**260**
290	**280**	**270**

Double unit (4 cars)



Space requirements wall-column B	column-column B1	clear platform width
480	470	460
500	490	480
520	**510**	**500**
540	**530**	**520**
560	**550**	**540**

Combined unit (6 cars)



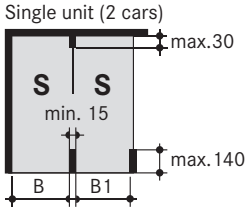
Space requirements wall-column B	column-column B1	clear platform width
740	730	460+230
770	760	480+240
800	**790**	**500+250**
830	**820**	**520+260**
860	**850**	**540+270**

The driving aisle width must comply with local regulations

It is possible to combine different widths

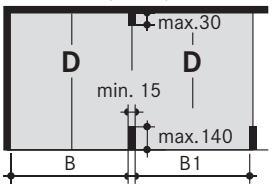
Columns in the pit

Single unit (2 cars)



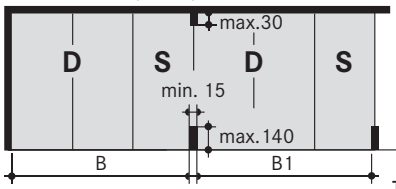
Space requirements wall-column B	column-column B1	clear platform width
255	245	230
265	255	240
275	**265**	**250**
285	**275**	**260**
295	**285**	**270**

Double unit (4 cars)



Space requirements wall-column B	column-column B1	clear platform width
485	475	460
505	495	480
525	**515**	**500**
545	**535**	**520**
565	**555**	**540**

Combined unit (6 cars)

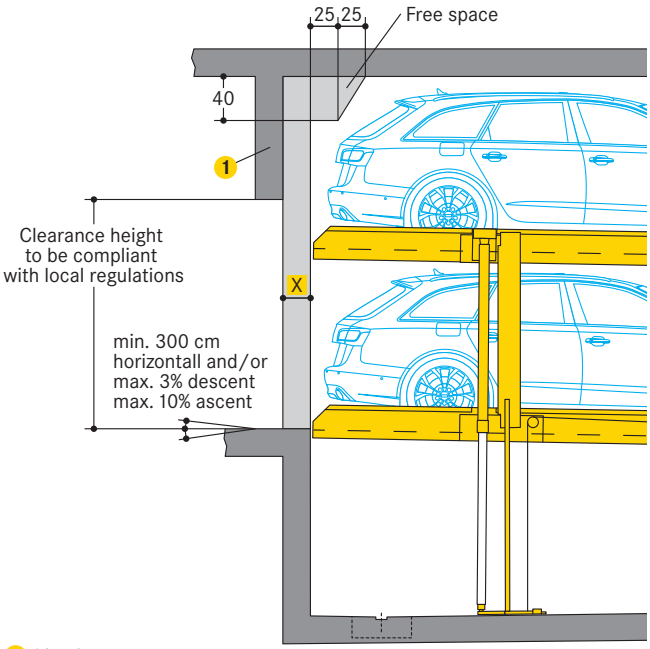


Space requirements wall-column B	column-column B1	clear platform width
745	735	460+230
775	765	480+240
805	**795**	**500+250**
835	**825**	**520+260**
865	**855**	**540+270**

The driving aisle width must comply with local regulations

It is possible to combine different widths

Garages with doors

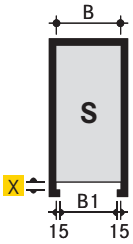


1 Lintel

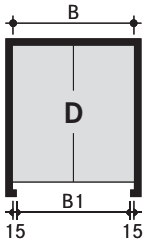
X = 10/15 cm for roller shutters

Dimension X to be defined by customer with the door supplier.

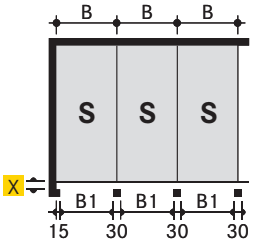
Single unit (2 cars)



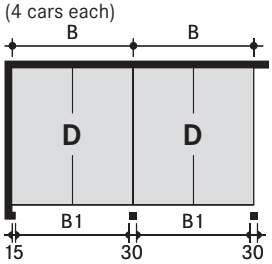
Double unit (4 cars)



Garage rows with single doors (2 cars each)



Garage rows with double doors (4 cars each)

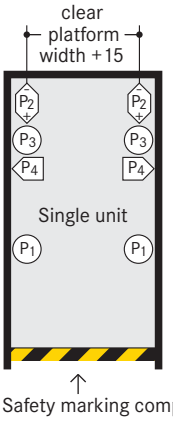


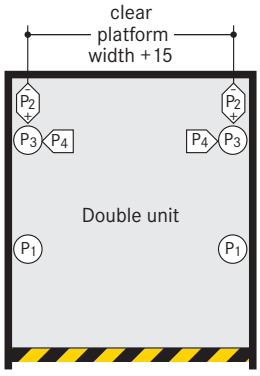
Space requirements B	B1*	clear platform width
260	230	230
270	240	240
280	**250**	**250**
290	**260**	**260**
300	**270**	**270**

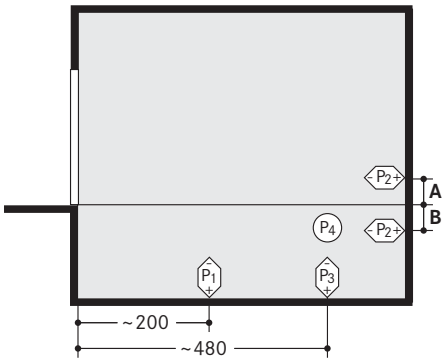
Space requirements B	B1*	clear platform width
490	460	460
510	480	480
530	**500**	**500**
550	**520**	**520**
570	**540**	**540**

* B1 = drive-in passage width

Static calculations and construction works requirement







Safety marking compliant to ISO 3864

P1	+ 45 kN* / – 15 kN
P2	+ 4 kN / – 4 kN
P3	+ 17 kN
P4	+ 3 kN

P1	+ 80 kN* / – 30 kN
P2	+ 4 kN / – 4 kN
P3	+ 30 kN
P4	+ 3 kN

*specified load bearing data includes the vehicle weight

Standard type	A	B
Parklift 450-170	–	0
Parklift 450-175	–	5
Parklift 450-180	–	10
Parklift 450-185	–	15
Parklift 450-190	–	20
Parklift 450-195	–	25
Parklift 450-200	–	30

Premium type	A	B
Parklift 450-205	20	–
Parklift 450-210	15	–
Parklift 450-215	10	–
Parklift 450-220	5	–
Parklift 450-225	–	0
Parklift 450-230	–	5
Parklift 450-235	–	10
Parklift 450-240	–	15

Fixing of the system frames to the floor slab:
- using base plates (approx. 140 cm²)
- using adhesive anchor bolts
- hole depth to 12–14 cm
- concrete thickness of at least 18 cm

Concrete quality grade:
- compliant to the static requirements of the construction
- min. C20/25 grade (for dowel fastening)

Walls:
- front drive-in wall and rear wall in concrete
- perfectly flat wall surfaces
- without protruding sections such as border edgings, pipes and tubes, etc.

Frame bearing points:
- the specified lengths are expressed as mean value
- for the exact data, specific TÜV-tested data sheets are available

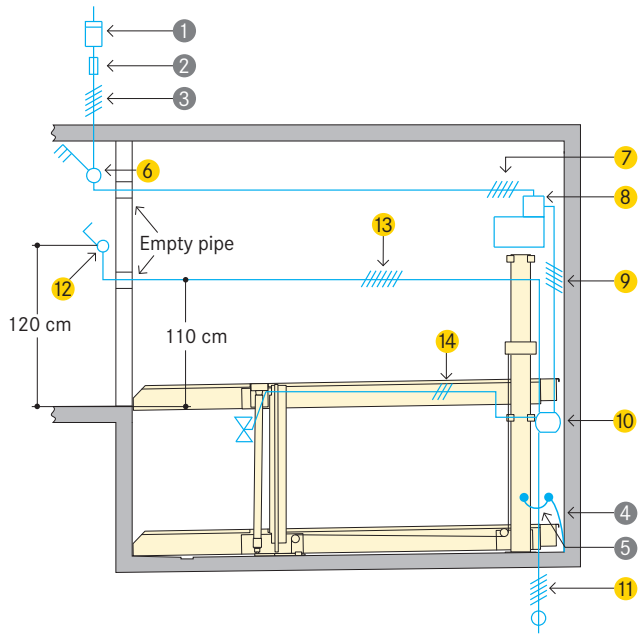
Extra space for hydraulic power packs

Dimensions in cm	1–5 Parklifts	6–10 Parklifts
Length:	100	150
Height:	140	140
Depth:	35	35

Hydraulic power pack placement options:
- located either on the top platform so that it moves with unit or on the wall
- where this is not possible, it is necessary to arrange for an extra space above drive-in level (i.e. for a wall recess or a niche)

Electrical specifications

Installation diagram



Cabling preparation to be performed by the customer:

- up to the main switch to be in place prior to starting the installation operations
- connection to the main switch during installation
- system functional check testing can be performed by WÖHR together with the electrician provided by the customer
- if requested at a later date, functional check testing can be performed by WÖHR at extra-cost

Grounding and potential equalisation:

- to be performed by the customer compliant to DIN EN 60204
- connections required every 10 metres

To be performed by the customer

Item	Quantity	Description	Position	Recurrence
1	1 piece	power meter	in the feed cable	
2	1 piece	fuse protection or automatic circuit breaker compliant to DIN VDE 0100 part 430: – 3 x 16 A slow blow for 3,0 kW power pack – 3 x 25 A slow blow for 5,5 kW power pack	in the feed cable	1 x per power pack
3	based on site conditions	compliant to local power supply regulations 3 phases + N + PE* 230/400 V, 50 Hz	feed cables to main switch	1 x per power pack
4	every 10 m	grounding and potential equalisation lead-out connection	along pit floor edges/ rear wall	
5	1 piece	grounding and potential equalisation compliant to DIN EN 60204	from lead-out connection to system	1 x per system

* to DIN VDE 0100 sections 410 and 430 (no permanent load) 3 phases + N+ PE (three phase current)

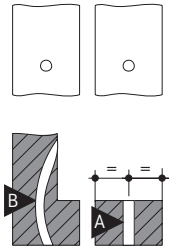
Note: for garages with doors the door manufacturer must be consulted before the electrical feed cabling is laid.

Scope of delivery by WÖHR (unless otherwise specified)

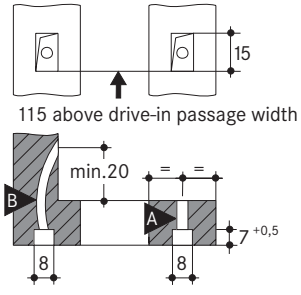
Item	Description
6	Lockable main switch
7	5 x 2,5² PVC control cable leading from the main switch to the power pack
8	Hydraulic power pack with three-phase motor, 3.0 or 5.5 kW. Ready-wired switching cabinet with motor safety contactor
9	5 x 1,5² PVC control cable
10	Branch connector
11	5 x 1,5² PVC control cable lead-out to the system alongside
12	UP/down operating unit with EMERGENCY STOP. Possibly located on the left, but always out of the platform's range of movement. Cable feed-in strictly from below leading upwards (2 keys for each parking space).
13	7 x 1,5² PVC control cable
14	3 x 1,5² control cable for the cylinder valve lead

Operating panel recesses and empty piping requirements

Flush mounted



Recess mounted



A M20 plastic or steel-armoured piping

B M20 flexible, plastic-insulated piping

Notes and directions

Scope of application

- suitable for residential buildings, office buildings and business premises, hotels
- only for long-term users that have been instructed on how to use the system
- for frequently changing users (e.g. for office, hotel and business premises or similar):
  - only parking on top platform
  - performance of technical system adjustments is necessary
  - consultation with WÖHR is mandatory

Noise protection

Basis is the German DIN 4109 “Noise protection in buildings”.

With the following conditions required 30 dB (A) in rooms can be provided:

- noise protection package from our accessory
- insulation figure of the construction of min. $R'_w = 57$ dB
- walls which are bordering the parking systems must be done as single wall and deflection resistant with min. m’= 300 kg/m²
- solid ceiling above the parking systems with min. m’= 400 kg/m²

At differing constructional conditions additional sound absorbing measures are to be provided by the customer.

The best results are reached by separated sole plates from the construction.

Increased noise protection:

If increased noise protection must be provided planning has to be confirmed on a project basis by WÖHR.

Drainage

Water leaks into the pit:
- in the winter, up to 40 litres of snow water can possibly come with the wheel housings in just one parking process

Recommended drainage channels:
- along the front end sections of the pit
- connecting to a floor drain or drainage pit (50 x 50 x 20 cm)
- with manual emptying out of the drainage pit
- alternatively installation of a pump or drainage channel into the sewerage system, to be performed by the customer

Sideways slope drainage:
- only into a gutter
- not possible in the remaining pit section

Lengthways slope drainage:
- provided according to specified construction dimensions

Environmental safety:
- coating of the pit flooring is recommended
- installation of an oil and/or petrol separator unit between the drainage connection and the main sewerage system is recommended

Temperature

- system operating range: –10° to +40°C (with unloaded platforms lowering speed is reduced if less than +5° C)
- humidity: 50% at +40°C
- in the event of changes to system conditions please consult with WÖHR

Lighting

- sufficient lighting of the driving aisle and of the parking places must be performed by the customer

Fire safety

- all fire safety requirements and all mandatory equipment (fire extinguisher and fire alarm systems, etc.) must be performed by the customer

Conformity examination (TÜV)

- voluntary conformity assessment by the TÜV SÜD

The parking systems are compliant to:
- EC Machinery Directive 2006/42/EC
- DIN EN 14010

Railings

Railings mandatory:
- when exceeding the permissible, country-specific construction gaps and openings

Safety fences mandatory:
- when walkways resp. traffic passageways running alongside or behind Parklifts and/or systems positioned along border walls
- safety fences according to DIN EN ISO 13857 to be performed by the customer (also during the construction phase)

Maintenance

- WÖHR and all the WÖHR partners abroad provide an installation and customer service network
- regular, annual maintenance is provided subject to the stipulation of a maintenance agreement

Prevention of corrosion damage

- all operations listed in the WÖHR Cleaning and Maintenance Instructions are to be performed regularly (independently of maintenance operations)
- zinc-plated parts, components and platforms are to be kept clean of dirt, road-salt and any other debris (due to corrosion hazards)
- always keep the garage well ventilated and deaerated

Surface protection

- please consider the information on surface protection!

Tender specification

- please consider the specifications!

Parking Place-Profile

- please consider the product information Parking Place-Profile!

Construction formalities

- the documentation necessary for construction permit applications is provided by WÖHR on demand

Construction alterations and/or modifications

- the right to construction or model modifications and/or variations is hereby reserved
- the right to any subsequent part modification and/or variation and amendments in procedures and standards due to technical and engineering progresses or due to environmental regulation changes is also hereby reserved