SL ENGINEERING

PROJECT COMPLETION REPORT–
94A Chelsea Street, Linwood, Christchurch

Ref: 1281-2409

Date: 14/11/2024

Table of Contents

1. INTRODUCTION

1.1 GENERAL

SL Engineering have been engaged by Vison 360 to carry out construction monitoring for repair and releveling of the subfloor/foundation of the existing dwelling at 94A Chelsea Street, Linwood, Christchurch, to ensure the structural repairs have been undertaken as per engineering report and re-levelling plans dated 19/09/2024.

The MBIE guidelines "Repairing and rebuilding houses affected by canterbury earthquakes" have been referenced in this report where appropriate.

Our findings and recommendation are summarised below.

Mapped and MBIE Technical Category	TC2	
Year Built	1990	
Number of Storey(s)	1	Residential House
Foundation Type	Type C	
Floor Area Approx.	110 m^2	
Wall Cladding	Masonry brick veneer	Heavy
Roof Cladding	corrugated metal roof	Light
Floor Levels	▪ 22 mm on the dwelling concrete floor ▪ 8 mm on the garage concrete floor	Measured at post floor levelling

1.2 SCOPE OF WORKS

We confirm that structural repair assessments were carried out by SLEG through the following Construction monitoring Schedule,

25/09/2024 – Ground observation at under pinning locations and pre-pour reinforcement works

26/09/2024 – Under pinning reinforcement works inspection (Contractor sent the photos and SLEG reviewed them)

04/11/2024 – Final Floor level and crack repair inspection

25&26/11/2024 – Exterior cladding Crack repair inspection (Contractor sent the photos and SLEG reviewed them)

2. STRUCTURAL REPAIRS

2.1 FOUNDATION RELEVELLING

The building is relevelled by mechanical jacking of the concrete perimeter foundation as per lifting Option 1 of the MBIE Guidance: Part A, Appendix A1.1.3. We have inspected the underpinning pad excavation prior to pouring concrete and verified the soil condition. We also have verified the reinforcement work for the underpinning pad.

We have inspected and measured floor level post levelling. Perimeter foundation crack repairs, floor crack repairs, cladding step crack repairs and linings repairs were completed.
The overall floor level variation was measured to be approximate as follows:

- 22 mm over the dwelling concrete floor.
- 8 mm on the garage concrete floor

There are no major apparent local steep slopes exceeding 1V:200H identified. Please refer to the level survey plan attached. Based on the site measurement and levels taken in the site we consider that the re-levelling works are acceptable.

3. CONCLUSION

Overall, we confirm that structural repairs to the foundation were observed to have been carried out as per the recommendation given in our engineer's assessment report and releveling design drawings dated 19/09/2024 (ref: 1281-2409).

The suitability for occupancy must be re-assessed by a structural engineer after any future moderate earthquakes.

4. LIMITATIONS

This report is provided solely for use by the Vison 360 and its relevant building consent authorities. SL Engineering shall not be relied on by any other parties without written approval from SL Engineering.

The suitability for occupancy must be re-assessed by a structural engineer after any future moderate earthquakes.

A floor level survey using Zip-Level Pro-2000 instrument of a typical accuracy of ±3mm was carried out during the inspection and is presented in the Floor Level Plan attached in this report. It should be noted that the purpose of the floor level survey is to provide assistance in determining possible structural damage of the building and therefore should be treated as indicative only. Where a high-level dependence and an accurate and credible presentation of the survey information are required, a registered professional surveyor should be engaged to carry out the survey.

5. REFERENCES

- Canterbury Earthquake Recovery Authority, Christchurch City Council, Selwyn District Council and Waimakariri District Council: Canterbury Geotechnical Database (https://canterburygeotechnicaldatabase.projectorbit.com/)

- SL Engineering Structural Assessment report for 94A Chelsea Street, Linwood, Christchurch
- Ministry of Business, Innovation and Employment (MBIE) (2012). Repairing and Rebuilding Houses affected by the Canterbury Earthquakes http://www.dbh.govt.nz/guidance-on-repairs-afterearthquake

6. CLOSURE

If you have any clarification, please contact the undersigned below.

Prepared by:	Approved by:
	
A. Anburuvel *BSc Eng (Civil), PhD* *Civil/Structural Engineer* *anbu@slengineering.co.nz*	**Sana Amirthalingam** *BSc Eng (Hons), MSc (Structural), CPEng, CMEngNZ* *Director/ Senior Structural Engineer* *sana@slengineering.co.nz*

Appendix A:

1. Site Reports
2. Floor Level Plan (Post Floor Levelling)

Appendix A

SITE REPORTS

SL ENGINEERING Email: admin@slengineering.co.nz	**Construction Monitoring**	
	Site Visit Record	**01**

Project Name	*Structural Assessment & Repair*		
Site Address	*94A Chelsea St*	***Job No***	*1281-2409*
Site Contact	*Cyril*	***Mobile***	*021325183*
Date	*25/09/2024*	***Time***	*10:00 am*
Reason for Site Visit	*Construction Monitoring – EQC Repair*		
Visit by	*Sana & Anbu*	***Consent No***	*BCN/2024/7422*
Weather	*Fine*	***Local Authority***	*Christchurch City Council*

Observations

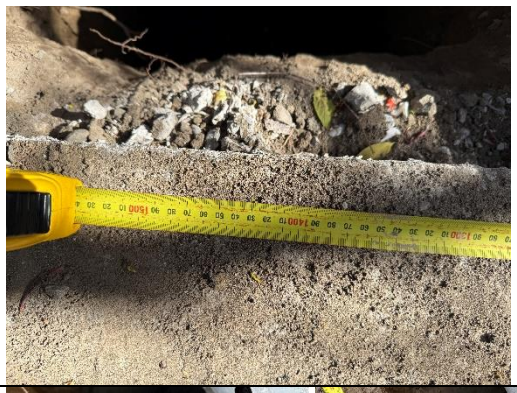
A. Site inspection was carried out to inspect the excavation for the underpinning pad and pre-pour. The following observations were made.

1.

The works were in progress.

2.

The pad excavation depth of min. 600 mm below NGL verified.

3.	 	*Underpinning pad spacing verified to be between 1.5 – 2.0 m. Ok as per design.*
4.	 	*Verified the pad size (600 mm). Updated calculations annexed.*
5.		*3HD12 reinforcement verified. Not placed at the excavation.*

6.		*Couple of pits observed with stagnant water.*

Action required

1. *The reinforcement for the underpinning pads to be installed*
2. *Pump out the water before pouring the concrete*

Any hold points	*Yes – Provide photos as requested above*
Notes	1. *The next inspection will be to inspect the final floor levels and repairs. SLEG should be contacted in advance with a minimum of 48hrs notice*

SL ENGINEERING

Project: 94a Chelsea St
Project No: 1281-2409
Date: 16/09/2024

For slab house lifting

Input Data

Dead Load (G)	Load (kPa)	*Span (m)*	*Pad Spacing (m)*	Load (kN)
Roof	0.60	4.20	2.00	5.04
Wall+Cladding	1.80	2.50	2.00	9.00
	0.00	0.00	0.00	0.00
Pad	5.00	0.80	0.80	3.20
Floor	2.50	1.20	2.00	6.00
Foundation (200 mm deep)	5.00	0.30	2.00	3.00
				0.00

Live Load (Q)				
Roof	0.25	4.20	2.00	2.10
Floor	1.50	1.20	2.00	3.60
				0.00

Snow Load (Su)				
Roof	0.70	4.20	2.00	5.88

Wind Load (Wu)				
Roof	-1.50	4.20	2.00	-12.60

Loading

Dead, G	26.24	*kN*
Live, Q	5.70	*kN*
Snow, S	5.88	*kN*
Wind Uplift Serv, W_{serv}	-8.44	*kN*
Wind Uplift Ult, W_{ult}	-12.60	*kN*

Soil Data

Allowable bearing	100	*kPa*
Ultimate soil bearing	200	*kPa*

ULS

Load Combinations

1.35G	35.42	*kN*	Design Load	40.04 *kN*
1.2G + 1.5Q	40.04	*kN*		
0.9G + Wu	11.02	*kN*		
1.2G + S_u +γ_cQ	39.65	*kN*		

SLS

Load Combinations

G	26.24	*kN*	Design Load	34.68 *kN*
G + γ_lQ	28.52	*kN*		
G + γ_sQ	30.23	*kN*		
G+ $\gamma_s S_s$	30.24	*kN*		
G+W_s	34.68	*kN*		

Pad size:	700	*mm diameter*		*Psls =*	90.1 *kPa*
	A =	*0.384845094*	m²	*Puls =*	104.0 *kPa*
	600	*mm square*		*Psls =*	96.3 *kPa*
	A =	*0.36*	m²	*Puls =*	111.2 *kPa*

Min. Pad Area (ULS)	*0.2002*	m²	
Min. Pad Area (SLS)	*0.3468*	m²	
Hence the minimum pad size is	*665*	mm (circular pad)	**OK**
	589	mm (square pad)	**OK**

Provide 600mm square x200mm (D) or 700mm Circular x 200mm pad

SL ENGINEERING Email: admin@slengineering.co.nz	**Construction Monitoring**	
	Site Visit Record	**01A**

Project Name	*Structural Assessment & Repair*		
Site Address	*94A Chelsea St*	***Job No***	*1281-2409*
Site Contact	*Cyril*	***Mobile***	*021325183*
Date	*Photos received on 26/09/2024*	***Time***	-
Reason for Site Visit	*Construction Monitoring – EQC Repair*		
Visit by	-	***Consent No***	*BCN/2024/7422*
Weather	-	***Local Authority***	*Christchurch City Council*

Observations

A. No site inspection was carried out. The contractor sent the photos. SLEG reviewed. The following observations were made.

1. 

The reinforcement for the underpinning pads installed.

Action required

None

Any hold points	*None*
Notes	*1. Pump out the water before pouring the concrete* *2. The next inspection will be to inspect the final floor levels and repairs. SLEG should be contacted in advance with a minimum of 48hrs notice*

SL ENGINEERING Email: admin@slengineering.co.nz	**Construction Monitoring** **Site Visit Record**	**02**

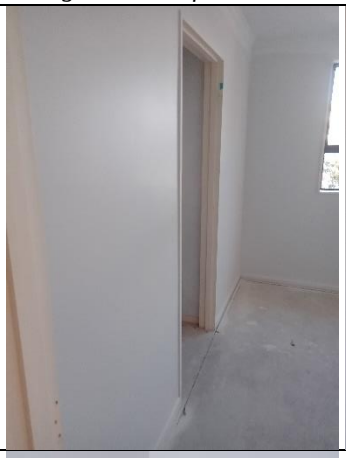
Project Name	*Structural Assessment & Repair*		
Site Address	*94A Chelsea St*	***Job No***	*1281-2409*
Site Contact	*Grant*	***Mobile***	*021 225 8094*
Date	*04/11/2024*	***Time***	*10:00 am*
Reason for Site Visit	*Construction Monitoring – EQC Repair*		
Visit by	*Anbu*	***Consent No***	*BCN/2024/7422*
Weather	*Fine*	***Local Authority***	*Christchurch City Council*

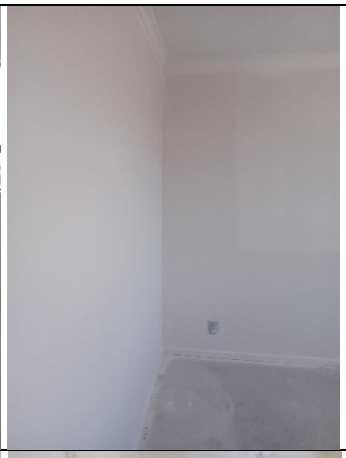
Observations

A. Site inspection was carried out to inspect the final floor levels and to observe the crack repair. The following observations were made.

1. The final floor level differences are as follows
Dwelling Concrete floor – 22 mm
Garage concrete floor – 8 mm

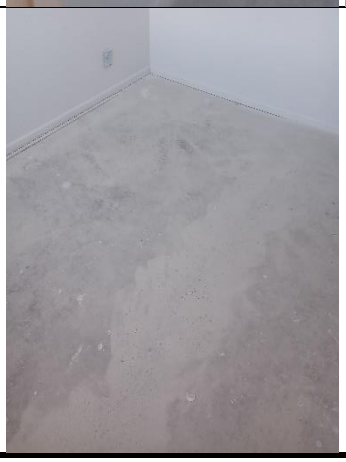
2.





The wall linings were repaired.

3.



The cracks in the dwelling concrete floor repaired.

4.		*Perimeter foundation cracks repaired.*

Action required

None

Any hold points	*None*
Notes	*1. Cracks on the exterior brick veneer cladding to be repaired. Please send the photos after repair.*

SL ENGINEERING Email: admin@slengineering.co.nz	**Construction Monitoring**	
	Site Visit Record	**02A**

Project Name	*Structural Assessment & Repair*		
Site Address	*94A Chelsea St*	***Job No***	*1281-2409*
Site Contact	*Grant*	***Mobile***	*021 225 8094*
Date	*Photos received on 25,26/11/2024*	***Time***	-
Reason for Site Visit	*Construction Monitoring – EQC Repair*		
Reviewed by	*Anbu*	***Consent No***	*BCN/2024/7422*
Weather	-	***Local Authority***	*Christchurch City Council*

Observations

A. No site visit was carried out. The contractor sent the photos. SLEG reviewed them. The following observations were made.

1.

Cracks on the exterior brick veneer cladding repaired.

Action required

None

Any hold points	*None*
Notes	*None*

PRODUCER STATEMENT PS3 - CONSTRUCTION

ISSUED BY: **vision 360 limited**
(Contractor)

TO: **94A Chelsea Street**
(Employer/Principal)

IN RESPECT OF: structural Repairs to House including releveling works as per consented docs.

(Description of Building Work)

AT: **94A Chelsea street**

Vision 360 ltd has contracted to
(Contractor)

Kelter Plus Limited
(Employer/Principal)

to carry out and complete the **Carpentry** work in regard to the above contract as per the Building Code, Plans, Specifications, Consent Conditions and Consultant Instructions in accordance with a contract titled

Structural repairs
('the contract')

I **Ash MCconchie** believe on reasonable grounds that **I have** carried out and completed the work in respect to the Building Code Clause(s) **B1 B2** C1 C2 C3 C4 D1 D2 E1 E2 E3 F1 F2 F3 F4 F5 F6 F7 F8 G1 G2 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12 G13 G14 G15 H1 C/AS1 6.20 C/AS1 6.2

All ☐ Part only
as specified in the attached particulars of the building works in accordance with the contract.

LPB Name Ash Mcconchie LBP No 111412

Date 29/11/24

This producer statement is confirmation by the builder(s) that they have carried out the building work in accordance with the drawings, specifications (and site amendments) that are part of the contract / building consent documents.

Work covered by this statement should have been supervised and checked by suitably qualified tradespersons.
The Engineer requires this producer statement and a copy of the T/A's building consent conditions, to confirm that items of the contract that he has not personally examined, have in fact been built according to the documents, so that the Engineer may issue appropriate documents to the T/A for it to release the Code Compliance Certificate

PRODUCER STATEMENT – PS4
CONSTRUCTION REVIEW

BUILDING CODE CLAUSE(S): B1 **JOB NUMBER:** 1281-2409

ISSUED BY: SL Engineering Group Ltd
(Construction Monitoring Firm)
TO: Vision 360
(Owner/Developer)
TO BE SUPPLIED TO: Christchurch City Council
(Building Consent Authority)
IN RESPECT OF: Repairs to existing dwelling- Floor re-levelling and earthquake repairs
(Description of Building Work)
AT: 94A Chelsea Street, Linwood, Christchurch
(Address, Town/City)
LEGAL DESCRIPTION: Flat 2 DP 59340 on Lot 14 DP 41143 having share in 813 m2 **N/A** ☐

We have been engaged by the owner/developer referred to above to provide CM 2 **level of construction monitoring relating to** the Clause(s) named above of the Building Code for the building work which is covered by PS1(s) issued by SL Engineering Group Ltd (*Engineering Design Firm*) and which is described in the documents relating to the Building Consent No. BCN/2024/7422 and those relating to Building Consent Amendment(s) No. issued during the course of the works, .

We have sighted these Building Consents and the conditions attached to them.
If any of the fields above are too small, please write "refer the Schedule".

Authorised instructions/variation(s) detailed/listed in the Schedule have been issued during the course of the works.

On the basis of these review(s) and information supplied by the contractor during the course of the works and **on behalf of the engineering firm** undertaking this Construction Monitoring, **I believe on reasonable grounds** that the building works covered by the above-mentioned PS1(s) have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above or in the Schedule on page 2, with respect to Clause(s) B1/VM1&VM4&AS1, MBIE of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I, *(Name of Construction Monitoring Professional)* Sananthanan Amirthalingam, am:

- CPEng number 1023988
- I hold the following qualifications B.Sc Eng(Hons), M.Sc (Struc) CPEng CMEngNZ

The Construction Monitoring Firm holds a current policy of Professional Indemnity Insurance no less than $200,000 The Construction Monitoring Firm Is not a member of ACE New Zealand.

SIGNED BY *(Name of Construction Monitoring Professional)*: Sananthanan Amirthalingam
(Signature below):

ON BEHALF OF *(Construction Monitoring Firm)*: SL Engineering Group Ltd Date: 26/11/20

Note: This statement has been prepared solely for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Construction Monitoring Firm only. As a condition of reliance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in tort or otherwise, is limited to the sum of $200,000.

This form is to accompany **Forms 6 or 8 of the Building (Forms) Regulations 2004** for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACE NEW ZEALAND AND ENGINEERING NEW ZEALAND

SCHEDULE to PS4

Please include an itemised list of all referenced documents, drawings, or other supporting materials in relation to this producer statement below:

The construction monitoring was undertaken and followed the recommendation given:

1. Structural Assessment Report by SL Engineering , 94A Chelsea Street, Linwood, Christchurch, Project Ref: 1281-2409, Rev 1 dated 19/09/2024, BC Approval Stamped on 23/09/2024

2. Site Notes (1, 1A, 2 and 2A) by SL Engineering.

3. Project Completion Report by SL Engineering, 94A Chelsea Street, Linwood, Christchurch, Project Ref: 1281-2409 dated 14/11/2024

GUIDANCE ON USE OF PRODUCER STATEMENTS

Information on the use of Producer Statements and Construction Monitoring Guidelines can be found on the Engineering New Zealand website
https://www.engineeringnz.org/engineer-tools/engineering-documents/producer-statements/

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects (NZIA), Institution of Professional Engineers New Zealand (now Engineering New Zealand), Association of Consulting and Engineering New Zealand (ACE NZ) in consultation with the Building Officials Institute of New Zealand (BOINZ). The original suite of producer statements has been revised at the date of this form to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with part of the reasonable grounds necessary for the issue of a Building Consent or a Code Compliance Certificate, without necessarily having to duplicate review of design or construction monitoring undertaken by others.

PS1 DESIGN Intended for use by a suitably qualified independent engineering design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 DESIGN REVIEW Intended for use by a suitably qualified independent engineering design review professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 CONSTRUCTION Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011[2]

PS4 CONSTRUCTION REVIEW Intended for use by a suitably qualified independent engineering construction monitoring professional who either undertakes or supervises construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACE New Zealand and Engineering New Zealand to interpret the Producer Statement.

Competence of Engineering Professional
This statement is made by an engineering firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its personnel.

The person signing the Producer Statement on behalf of the engineering firm will have a professional qualification and proven current competence through registration on a national competence-based register such as a Chartered Professional Engineer (CPEng).

Membership of a professional body, such as Engineering New Zealand provides additional assurance of the designer's standing within the profession. If the engineering firm is a member of ACE New Zealand, this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent engineering professional".

Professional Indemnity Insurance
As part of membership requirements, ACE New Zealand requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard practice for the relationship between the BCA and the engineering firm.

Professional Services during Construction Phase
There are several levels of service that an engineering firm may provide during the construction phase of a project (CM1-CM5 for engineers[3]). The building Consent Authority is encouraged to require that the service to be provided by the engineering firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4
Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

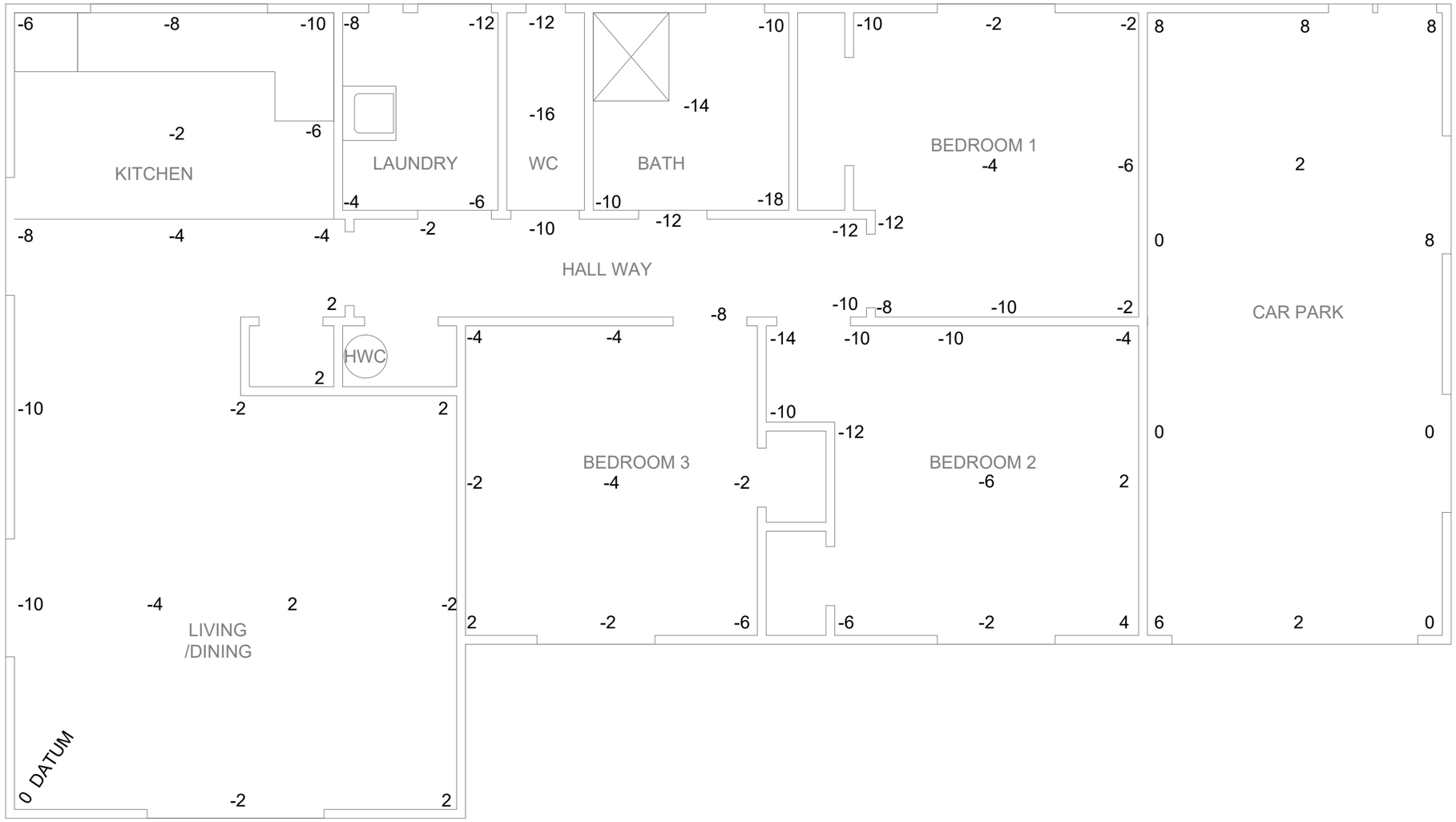
Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013
2 NZIA Standard Conditions of Contract SCC 2011
3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACE New Zealand/Engineering New Zealand 2004)
4 PN01 Guidelines on Producer Statements

www.acenz.org.nz
www.engineeringnz.org

FLOOR LEVEL PLAN

Unit 8,27 Tyne Street, Addington Email: admin@slengineering.co.nz Phone: 032616014



NOTES:

1. MEASUREMENTS LOCATION ARE APPROXIMATE & INDICATIVE ONLY
2. FLOOR PLAN LAYOUT IS INDICATIVE ONLY & NOT TO SCALE.
3. INSTRUMENT USED FOR MEASUREMENT HAS A RATED ACCURACY OF +/-3.0mm (ZIP LEVEL PRO 2000). OTHER SOURCES OF VARIATION TO THE MEASUREMENT CAN INCLUDE CONSTRUCTION TOLERANCES, CARPET, WEAR & ATMOSPHERIC TEMPERATURE CHANGES.
4. ALL MEASUREMENT HAVE BEEN ADJUSTED TO THE FLOOR COVERING TYPE AT THE DATUM.
5. FLOOR LEVEL DIFFERENCE BETWEEN THE HIGHEST & LOWEST POINT IS AS FOLLOWS:
   - 22mm OVER THE DWELLING CONCRETE FLOOR
   - 8mm OVER THE GARAGE CONCRETE FLOOR
6. DO NOT SCALE FROM THIS DRAWING IN EITHER PAPER OR DIGITAL FORM. USE WRITTEN DIMENSIONS ONLY.

LEGEND:

10 FLOOR LEVEL

SL ENGINEERING CIVIL STRUCTURAL GEO
SL Engineering Group Ltd
8/27 Tyne Street, Addington
www.slengineering.co.nz
admin@slengineering.co.nz | 03 261 6014

Project:	STRUCTURAL ASSESSMENT
Address:	94a CHELSEA STREET, LINWOOD, CHRISTCHURCH.
Drawing Title:	FINAL FLOOR LEVELS
Client:	VISION360

Rev.	Remark/Comment	Date
1	FINAL FLOOR LEVELS	04-11-2024

Job Ref:	1281-2409		Sheet: S03
Design:	AS	Drawn: KRISH	
Approved:	AS	1:50	Original size: A3