SEISMIC RISK ASSESSMENT (SRA)

ASSESSOR USER GUIDE
Version 1.0

Prepared by: Engineers and Geoscientists British Columbia

April, 2018

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
PREFACE

This User Guide is a supporting document for the use of the Assessor, the on-line tool for the generation of Seismic Risk Assessment (SRA) reports for the British Columbia Ministry of Education Seismic Mitigation Program (SMP).

The Assessor has been developed by the Engineers and Geoscientists British Columbia on behalf of the Ministry of Education. The Assessor will be used by engineering consultants, Technical Review Board reviewers, District and Ministry staff in the preparation and review of SRAs for Vancouver Island, Haida Gwaii and Richmond K – 12 schools.

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
TABLE OF CONTENTS

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
HOME PAGE

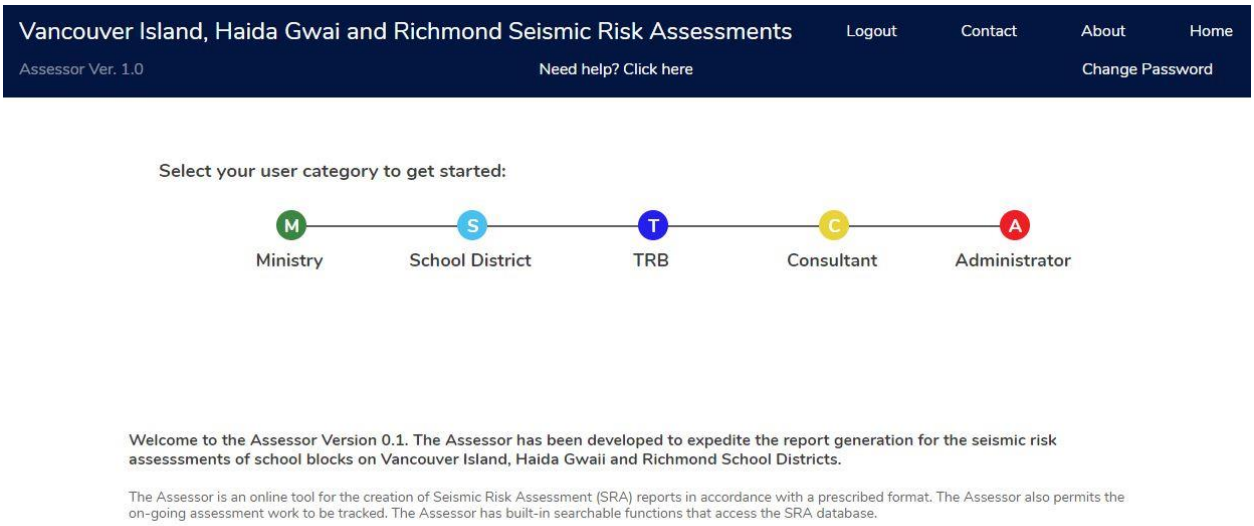

Figure 1.1: Assessor Home Page

Website

To access the Assessor, go to the website:

http://smp-vihgr.com/

Home Page

When you click on the above website, the Assessor Home Page will appear, as given in Figure 1.1.

The Assessor is intended for five categories of users, as given on the Home Page. This edition of the Assessor User Guide focuses on the Consultant and the TRB Reviewer. The functionality of the Assessor for the other users will be addressed in future User Guide editions. Each user has a predefined category or set of categories that the user can access. For example, consultants cannot access the Administration part of the Assessor.

Assessor Enquiries

Any Assessor enquiries on technical or software issues are supported by the “Need Help? Click here” feature at the top of the page. You can also direct your enquiries to:

support@smp-vihgr.com

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
LOGIN

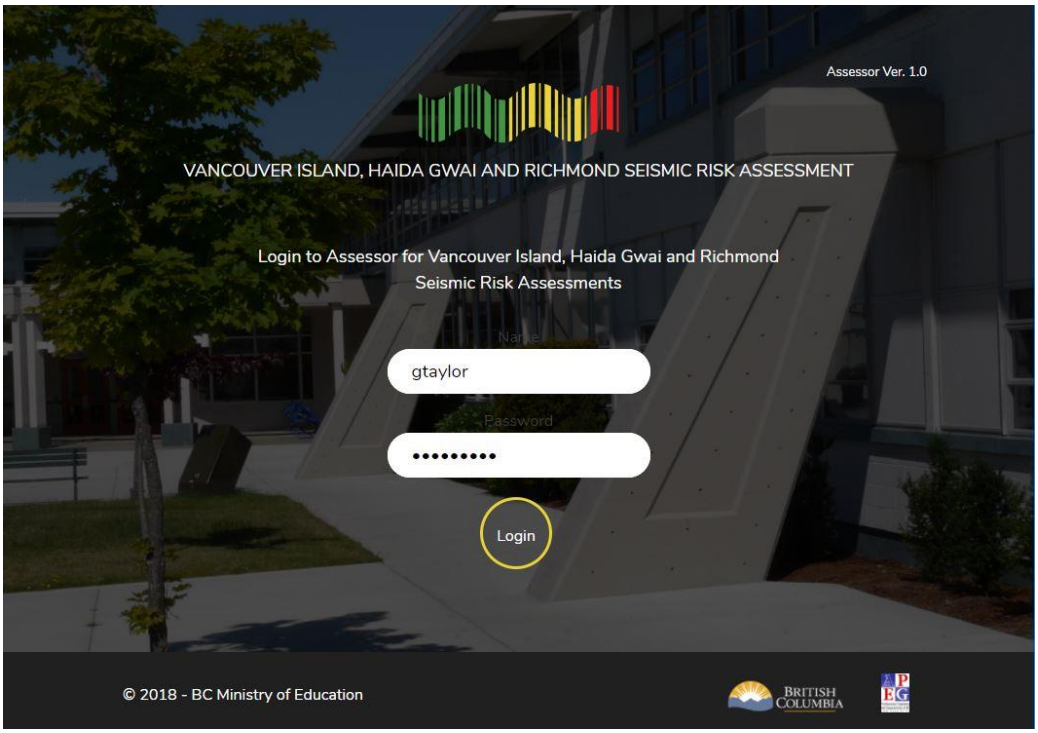

Figure 2.1: Login

Login

Once you click on your user selection on the Home page, the above Login page will appear, as given in Figure 2.1.

Enter your Username, Password and then click on “Login”.

Note that your Username and Password will be provided by the SRA Manager.

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
CONSULTANT HOME PAGE

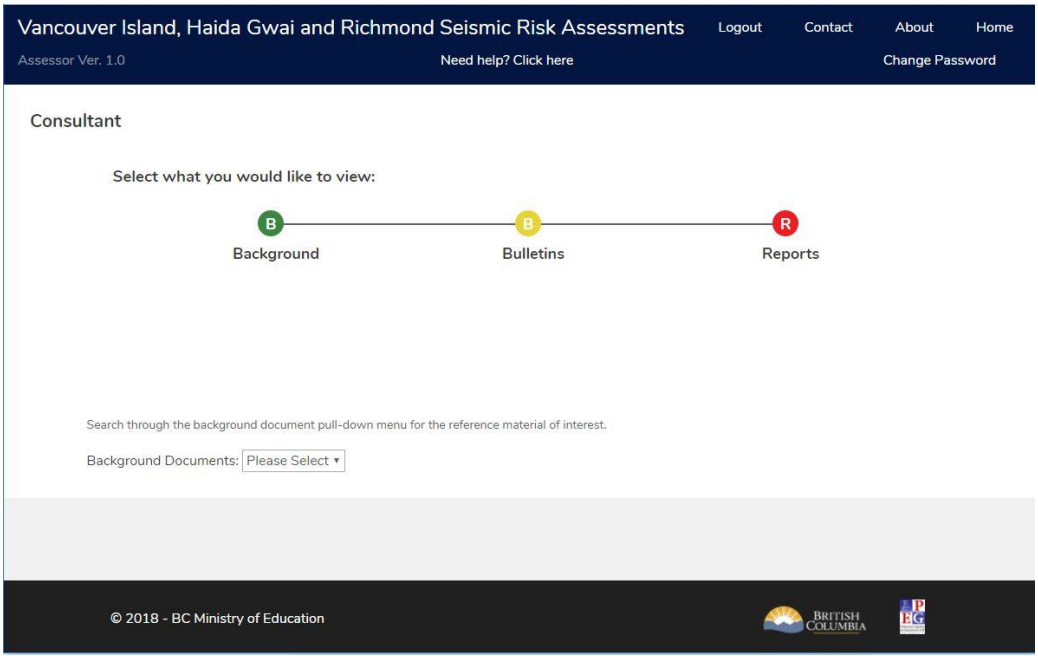

Figure 3.1: Consultant Home Page

Selections

The Consultant Home Page gives you, the Consultant, the following three choices:

> **Background**: Clicking on "Background" will give you access to a list of reference documents, as given by the pull-down menu.
>
> **Bulletins**: Bulletins are intended to keep you up-to-date with the project and any upcoming events, including approaching delivery deadlines. We recommend that you check Bulletins on a regular basis.
>
> **Reports**: This is where you start the report generation process for the blocks assigned to you. Refer to Chapter 4 for details on this important function of the Assessor.

Background and Bulletins are not activated in Version 1.0 of the Assessor. These functions will be activated in future versions of the tool.

Home Page

Click on "Vancouver Island, Haida Gwaii and Richmond Seismic Risk Assessments" to return to the Home Page.

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
CONSULTANT REPORT PAGE

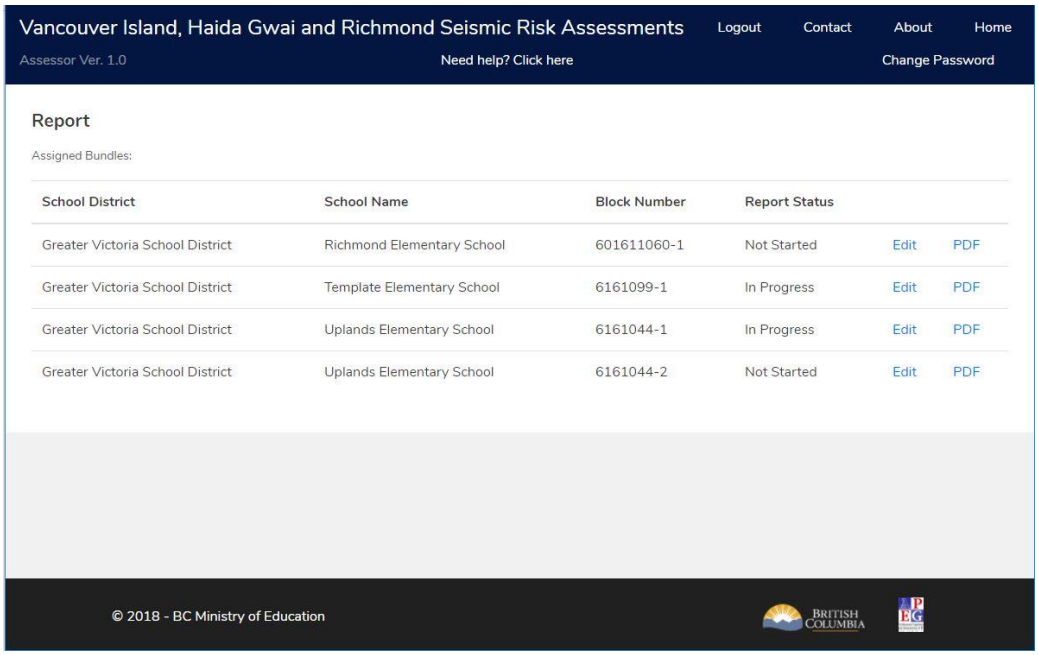

Figure 4.1: Consultant Report Page

Getting Started

The Consultant Report Page is where the Consultant starts the process of generating a Seismic Risk Assessment (SRA) report.

Bundles

The blocks assigned to the Consultant are listed on this page. The status of each report is given. Each block report has Edit and PDF functions.

Starting a SRA Report

To start on a SRA report, click on “Edit” and follow the procedure, as given in Chapter 5.

PDF Creation

When your report is finished to your satisfaction, click on “PDF”. You will need to wait for 10 – 15 seconds before the PDF is generated and ready for printing or downloading.

Report Details

Refer to Chapter 5 for details on the creation of a SRA report.

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
CONSULTANT REPORT EDITING

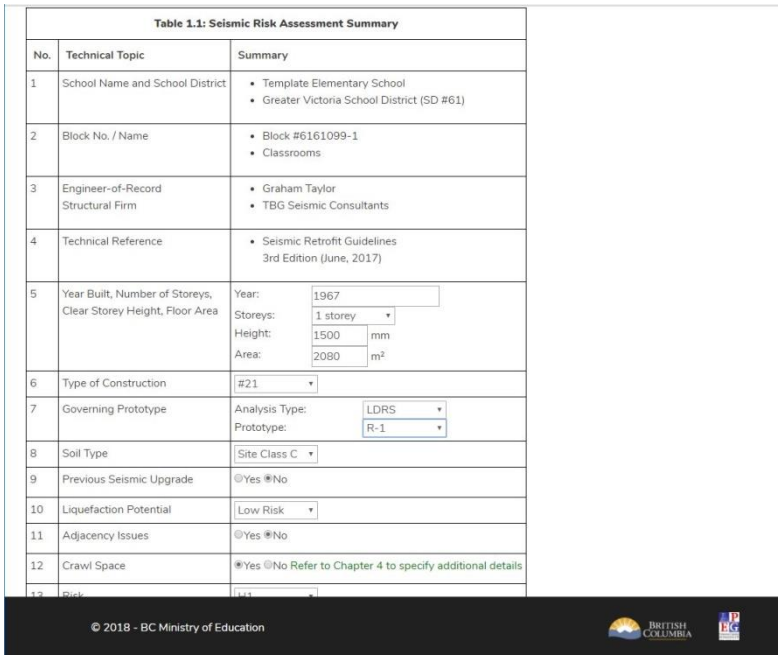

Table 1.1: Seismic Risk Assessment Summary

No.	Technical Topic	Summary
1	School Name and School District	• Template Elementary School • Greater Victoria School District (SD #61)
2	Block No. / Name	• Block #6161099-1 • Classrooms
3	Engineer-of-Record Structural Firm	• Graham Taylor • TBG Seismic Consultants
4	Technical Reference	• Seismic Retrofit Guidelines 3rd Edition (June, 2017)
5	Year Built, Number of Storeys, Clear Storey Height, Floor Area	Year: 1967 Storeys: 1 storey Height: 1500 mm Area: 2080 m²
6	Type of Construction	#21
7	Governing Prototype	Analysis Type: LDRS Prototype: R-1
8	Soil Type	Site Class C
9	Previous Seismic Upgrade	Yes No
10	Liquefaction Potential	Low Risk
11	Adjacency Issues	Yes No
12	Crawl Space	Yes No Refer to Chapter 4 to specify additional details
13	Risk	H1

Figure 5.1: Consultant Report Editing

Example Report

Refer to Appendix A for an example report prepared for a fictitious school block in Victoria.

Report Structure

The layout of a SRA report is structured as follows:

Cover and Preface: The cover and preface page are predefined.

Four Chapters: Each report comprises four chapters.

Chapter 1: Chapter 1 comprises a SRA summary similar to the SPIR summary page. Your professional seal will be required for the completed SRA report.

Chapter 2: Chapter 2 comprises one or two photographs of the block.

Chapter 3: Chapter 3 provides a key plan to positively identify the location of the SRA block.

Chapter 4: Chapter 4 gives a narrative on the block construction, the governing block element and the Analyzer parameters that were used to determine the block risk. Chapter 4 is to include at least one figure that illustrates the block construction and the identification of the governing block element.

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
CONSULTANT REPORT EDITING

Report Editing

The SRA report is created by editing a standardized on-line form. The report is created by providing the following information:

Pull-down Menu Selections: The Chapter 1 data is generated by selections from a number of pull-down menus that augment some numerical entries.

Photograph and Key Plan: Chapter 2 and Chapter 3 require you to upload photograph and key plan files.

Block Analysis: Chapter 4 primarily requires text entry to create the narrative on the block construction and the governing block element. Table 4.1 prompts data entry to define the Analyzer analysis parameters. You will need to upload at least one file to create Figure 4.1 that illustrates the block governing element. A second figure can be added at your discretion.

Report Shortcuts

Immediately above the on-line Table 1.1, you have the option of copying another completed SRA report to fast-track your preparation of the new SRA report.

Table 1.1

Your choices in Table 1.1 have an impact on the content of Chapter 4. If you choose “Yes” for “Previous Seismic Upgrade”, “Adjacency Issues” or “Crawl Space”, you will need to provide text for sections in Chapter 4 under these same headings. You will also need to include a section in Chapter 4 on liquefaction if you select “High Risk” for liquefaction potential.

Chapter 4 Details

Chapter 4 is best illustrated by the example in Appendix A. Features of Chapter 4 are as follows:

Block Description: You will need to create a number of descriptive paragraphs under “Block Description”. These paragraphs are characterized as structural elements of the block. A number of preset choices are provided for these structural elements. You can create your own customized structural element by choosing “Other”. You can customize a previous copied report by deleting non-relevant structural elements and adding new structural elements.

Governing Portion of Block: This section needs to be completed.

Soils: This is also a mandatory section of the report that requires your input.

Primary Governing Element: This narrative is the most important descriptive text in the report. You can make reference to Figure 4.1 for clarity.

Secondary Governing Element: This section is optional.

Risk Summary: Your introductory paragraph for Risk Summary and the individual “Block Risk Elements”, as illustrated in Appendix A, are the culmination of this report.

Chapter 4 Details (continued)

Table 4.1: The Analyzer data requirements in Table 4.1 need to be completed.

Figure 4.1: Your selected scanned sketch or section from the design drawings is to be uploaded for Figure 4.1. A second figure can be added.

Report Completion

Upon completion of the report, a PDF file of the report can be prepared by clicking “PDF”. The report will take 10 – 15 seconds to be generated. The PDF report can then be printed and saved.

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
TRB REVIEW REPORT

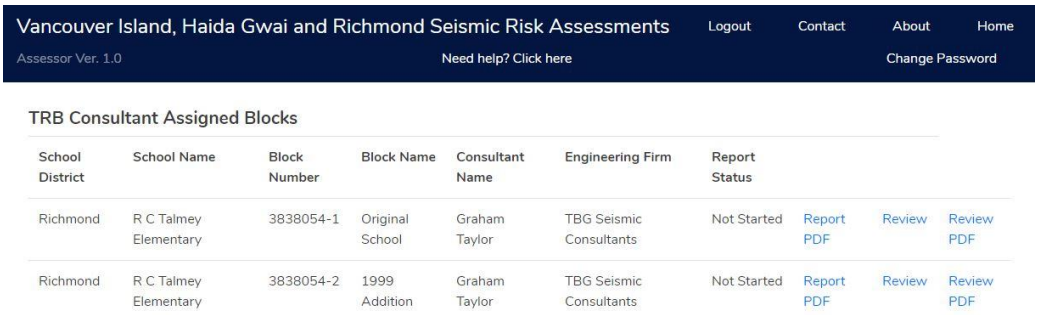

Figure 6.1: TRB Review Blocks

TRB Review Blocks

When you click on “TRB” on the Home Page and complete your Login, you will be presented with a page similar to that illustrated in Figure 6.1.

Figure 6.1 lists the blocks assigned for TRB review. Your version of Figure 6.1 will list the blocks that you have been assigned for preparing TRB reviews.

When the SRA report is complete (Report Status), you can click on “Report PDF” to review the report. When you have completed your review, you are now in a position to generate your TRB report, as detailed in the next section.

SEISMIC RISK ASSESSMENT (SRA)
ASSESSOR USER GUIDE
TRB REVIEW REPORT HOME PAGE

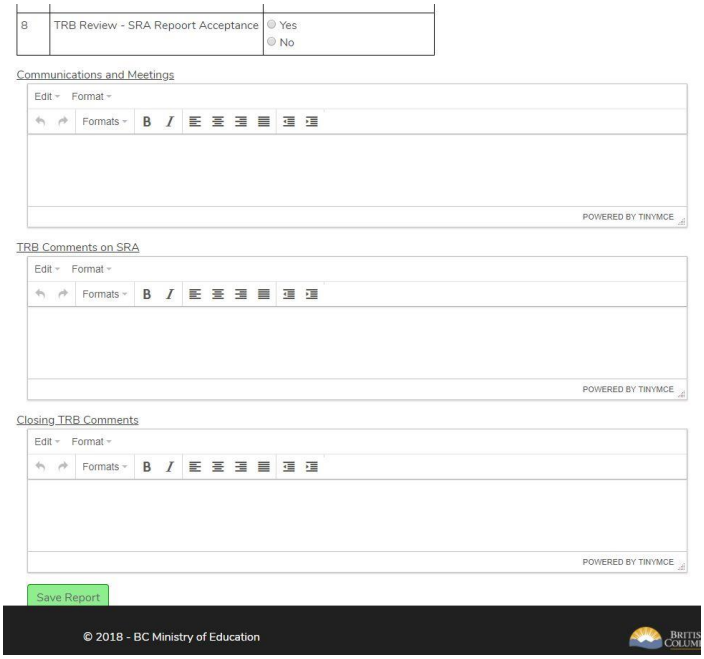

Figure 6.2: TRB Report Screen Capture

TRB Report

When you click on “Review”, as given in Figure 6.1, you initiate a TRB review report as illustrated in Figure 6.2. On page one of your TRB review report, your only selection is acceptance of non-acceptable of the SRA as given at the bottom of the table. Your TRB review report is then completed by adding text in the three sections on page two of your report (refer to Figure 6.2).

When you have finished your TRB review report, save the report and generate a PDF file by clicking on “Review PDF”, as given in the right column of the TRB Consultant Assigned Blocks page.

APPENDIX A

SRA REPORT EXAMPLE

Seismic Risk Assessment

REPORT NO. SRA-61
FOR
BLOCK #6161099-1 (CLASSROOMS)
TEMPLATE ELEMENTARY SCHOOL

3461 Henderson Road
Victoria, BC
V9P5A8

Facility No. 6161099

School District No. 61
Greater Victoria School District

Structural Engineering Guidelines for the
Performance-based Seismic Assessment and Retrofit of
Low-rise British Columbia School

This Seismic Risk Assessment (SRA) report is the report that documents the seismic risk posed by a potentially high risk school block.

The Ministry of Education requires that a School District submit a SRA for any school block as the first due diligence step in support of the District's request that the given block be added to the list of high risk school blocks in the province.

The Engineers and Geoscientists British Columbia (EGBC) was requested by the Ministry of Education to develop the format and technical requirements for the SRA.

From a structural engineering perspective, the SRA for a high risk block is the first step toward starting a Seismic Project Identification Report (SPIR) that will document seismic retrofit options for the seismically deficient school block.

On-going feedback from engineering practitioners is encouraged to advance future enhancements of the SRA document.

Table 1.1: Seismic Risk Assessment Summary

No.	Technical Topic	Summary
1	School Name and School District	• Template Elementary School • Greater Victoria School District (SD #61)
2	Block No. / Name	• Block #6161099-1 • Classrooms
3	Engineer-of-Record Structural Firm	• Graham Taylor • TBG Seismic Consultants
4	Technical Reference	• Seismic Retrofit Guidelines 3rd Edition (June, 2017)
5	Year Built, Number of Storeys, Clear Storey Height, Floor Area	• Year: 1967 • Storeys: 1 storey • Height: 1500 mm • Area: 2080 m²
6	Type of Construction	• #21(Older and Heavier Classrooms)
7	Governing Prototype	• Analysis Type: LDRS • Prototype: R-1
8	Soil Type	• Site Class C
9	Previous Seismic Upgrade	• No
10	Liquefaction Potential	• Low Risk
11	Adjacency Issues	• No
12	Crawl Space	• Yes
13	Risk	• H1

(Professional Seal and Signature)
Date

Figure 2.1: West Elevation
Block #6161099-1
Classrooms
Template Elementary School

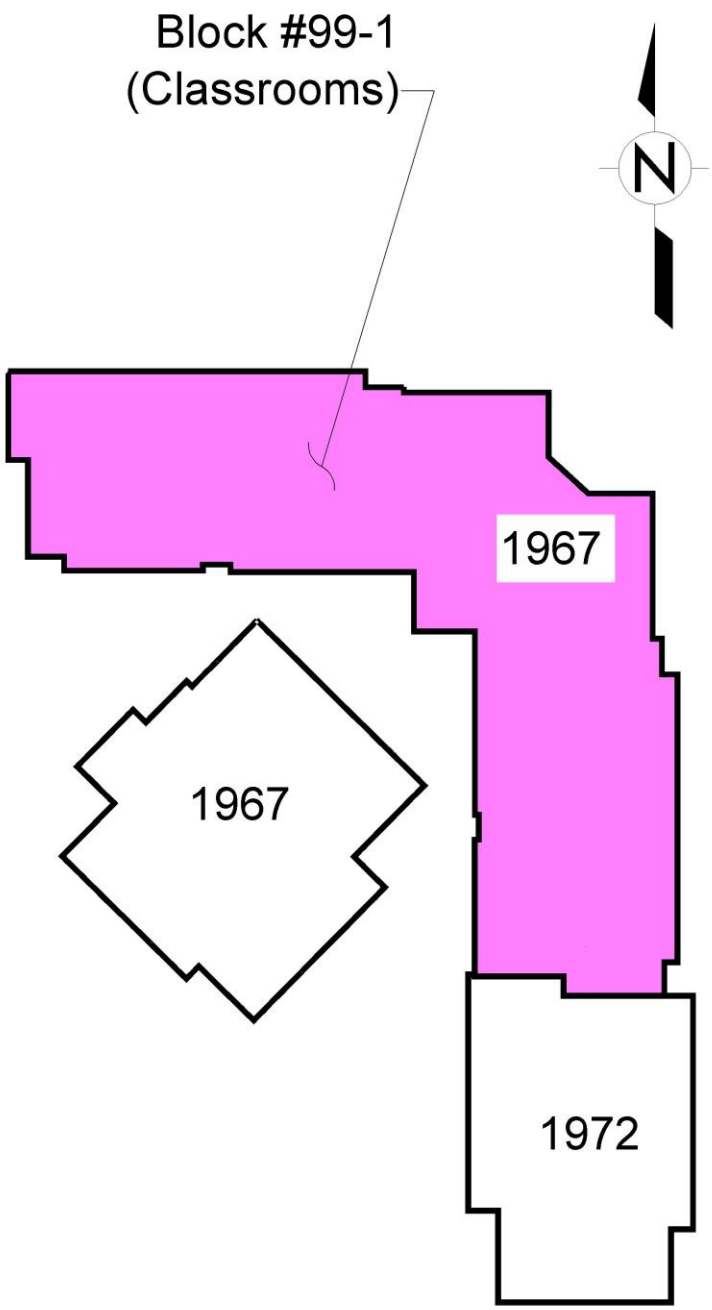

Figure 3.2: Key Plan
Block #6161099-1
Classrooms
Template Elementary School

Introduction

This chapter details the engineering analysis that generated the seismic risk classification (H1) given on the summary page (page 11).

Block Description

A typical cross-section of the block is given in Figure 4.1. A description of the significant structural elements is as follows:

Year of Construction:

The classrooms were built in three different construction periods with 1958 being the year of construction for the predominate part of the block.

Crawl Space:

The classrooms have a significant crawl space that has exterior concrete foundation walls as high as 1500 mm. Interior crawl space walls are comprised of unsheathed stud walls.

Storey Height:

The classrooms are one storey in height with aa clear storey height of 3050 mm.

VLS:

The VLS is comprised of wood frame walls.

Lateral System:

Above the foundations, the lateral deformation resisting system is comprised of horizontal boards. The exterior concrete foundation walls act as out-of-plane rocking cantilevers at the top of the narrow concrete footings.

Roof Diaphragm:

The wood roof diaphragm is a non-governing element of the block construction.

Governing Portion of Block

The out-of-plane rocking of the concrete foundation walls is the governing element of this block. Figure 4.1 illustrates the exterior foundation wall configuration. The crawl space interior vertical support is provided by unsheathed stud walls (pony walls). The highly rectangular plan configuration of the classrooms minimizes the out-of-plane restraint provided by the end foundation walls for the mid-length portion of the exterior foundation walls.

Soils

The block is founded on Site Class C soils.

Primary Governing Element

The crawl space concrete foundation walls are the governing element for this block. The 1500 mm high foundation walls are founded on a narrow concrete footing that has been cast in a separate pour. Given the classrooms have a long narrow profile in plan, the foundation walls have limited out-of-plane rocking restraint from the end walls. As noted in Table 4.1, the foundation walls have been analyzed using the R-1 LDRS prototype.

Crawl Space

The crawl space has concrete foundation walls that are up to 1500 mm in height. These foundation walls are supported on narrow concrete footings. The interior walls are comprised of unsheathed wood frame stud walls.

Block Risk Elements:

Risk:

This block has been assigned a "H1 – High Level 1" Priority Retrofit Ranking.

Foundation Walls:

This risk ranking is governed by the out-of-plane rocking performance of the exterior concrete foundation walls.

Table 4.1: Typical Section

No.	Data Description	Value
1	Prototype	R-1
2	Community	Victoria
3	Soil Type	Site Class C
4	Factored Resistance	3.00 %W_s
5	Clear Storey Height	1500 mm
6	Drift Limit	19.00 %

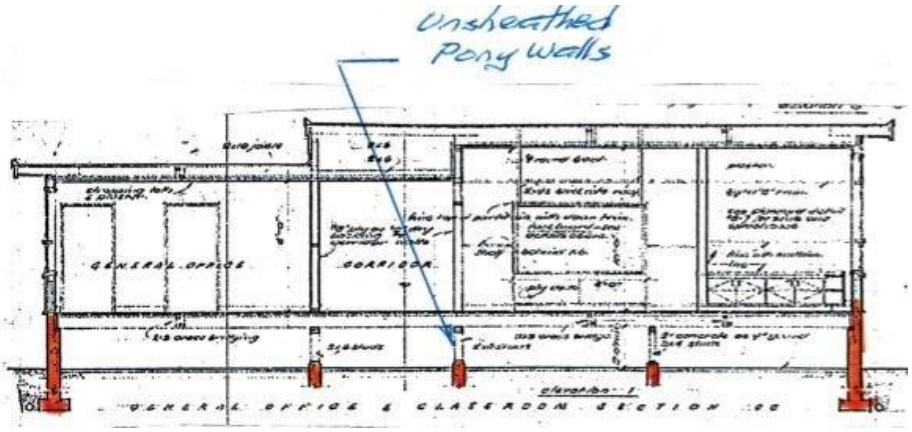

Figure 4.1: Typical Section
Block #6161099-1
Classrooms
Template Elementary School