



5350 RUSSELL STREET, PORT ALBERNI

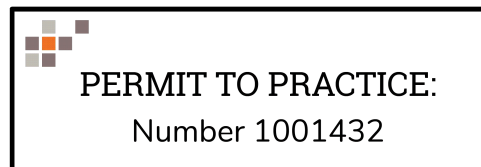
Transportation Impact Assessment

Alexandra Hughes
Transportation Technical Assistant

Author

Kristen Machina, P.Eng.
Senior Transportation Engineer

Reviewer



Prepared For:
Date: March 18, 2024
Our File No: 3704.B01

WATT VICTORIA
302 – 740 Hillside Ave
Victoria, BC V8T 1Z4
250-388-9877



TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	The Site Today	1
1.2	Proposed Development.....	1
1.3	This Report.....	1
2.0	TRANSPORTATION CONTEXT	2
2.1	Road Network	2
2.2	Transit Network.....	3
2.3	Active Transportation Network.....	4
3.0	PROPOSED DEVELOPMENT.....	4
3.1	Site Access	4
3.2	Vehicular Parking	5
4.0	TRAFFIC OPERATIONS ANALYSIS	5
4.1	Existing Conditions.....	5
5.0	CONCLUSIONS.....	9
6.0	RECOMMENDATIONS.....	9

APPENDICES

Appendix A – Site Plan

Appendix B – Circulation plan

Appendix C – Swept Path Assessment



TABLES

Table 1 – Existing Road Network.....	2
Table 2 – Study Area Intersection Overview.....	2
Table 3 – Existing Turning Movement Counts.....	5
Table 4 - Existing Conditions.....	6
Table 5 – Site Trip Generation	8

FIGURES

Figure 1 - Existing AM and PM Traffic Volumes	7
---	---



1.0 INTRODUCTION

WATT Consulting Group is retained by The WestCoast Native Health Care Society to prepare a Transportation Impact Assessment (TIA) for a proposed affordable housing development at 5350 Russell Street in Port Alberni, BC.

1.1 The Site Today

The site today is currently vacant. The site is surrounded by single family houses to the North, East, and South side. The Rainbow Gardens neighbourhood care campus is to the West.

1.2 Proposed Development

The proposed development consists of an infill expansion to the Rainbow Gardens campus. One new 3-storey building with 35 residential units for low to moderate income seniors and people with disabilities is proposed. The site plan is provided in **Appendix A**.

1.3 This Report

This report provides the following:

- An overview of the existing and evolving transportation context
- An overview of the proposed development and the transportation-related features of the proposed site plan
- A projection of the site's trip generation potential
- An assessment of existing traffic patterns and volumes in the study area during the weekday AM and PM peak hours



2.0 TRANSPORTATION CONTEXT

2.1 Road Network

2.1.1 Existing Road Network

An outline of the characteristics of the existing roads and intersections within the study area are provided in **Table 1** and **Table 2**, respectively.

Table 1 – Existing Road Network

Road Name	Ownership	Classification	Extents	# of Lanes	On-Street Parking	Posted Speed Limit
Russell Street	Port Alberni	Local	From River Road to Westporte Boulevard	2 lanes (1 each way with no paint lines)	Yes	50
Russell Place	Port Alberni	Local	From River Road to Rainbow Gardens parking lot	2 lanes (1 each way with no paint lines)	Yes	50
River Road (Highway 4, Pacific Rim Highway)	MOTI	Provincial Highway	From Highway 19 to Tofino	2 lanes (1 each way with left turn lane at intersection)	Yes	50

Table 2 – Study Area Intersection Overview

Intersection	Control Type	Crosswalks
Russell Street / Russell Place	Stop controlled on Russell Place	None
Russell Street / River Road	Stop-controlled on Russell Street	None



2.1.2 Safety Assessment

ICBC crash data was analyzed for Russell Street, Russell Place, and the intersection of River Road / Russell Street. between 2018 – 2022. The River Road / Russell Street intersection had a total of 6 crashes; 2 resulting in fatalities, and the other 4 with property damage only. Both fatal crashes were side impact and occurred on a Sunday. It should be noted that 50% of the crashes at this intersection occurred on a Sunday and almost all between the hours of 12:00 – 17:59. This may suggest that drivers returning home from recreational trips on Sunday afternoons may not be expecting the road or traffic conditions present near this intersection, or they may be exhibiting unsafe behaviour in their haste to return home.

Russell Street had a total of 3 crashes, all involving a parked car. Similarly for Russell Place, all 5 crashes took place in the parking lot or with a parked car. There were no animals, motorcycles or heavy vehicles involved in any of the crashes.

Both Russell Street and Russell Place have wide cross sections (between 11.5 – 12.5 metres wide), with low traffic volumes, and limited on-street parking activity. The curb radius on the southern corner at the Russell Street / Russell Place intersection is also exceedingly large (approximately 15 metres), and there is a downhill grade on Russell Street as it approaches River Road. These factors may all contribute to higher selected speeds for drivers travelling along these two streets.

The River Road / Russell Street intersection is located along a straightaway at a very slight skew, however it is located very close (within 150 metres) of a horizontal curve that restricts visibility in both directions. The proximity of the Riverbend Cafe & General Store at 6109 River Road to the edge of the traveled way may also restrict sightlines for drivers turning onto River Road.

2.2 Transit Network

2.2.1 Existing Transit Network

The existing transit network in the vicinity of the site includes two bus routes; Route 3: River Road and Route 4: Crosstown which only operates in the evenings. Both routes have a stop located on Compton Road / Falls Road. This stop is located around 350m from the proposed building (about a 5 minute walk); however, there are no amenities at the stop (no shelter, bench or trashcan), there are no marked crossing facilities for pedestrians to cross Falls Road, and the stop is only in one direction, as the route only operates in a counterclockwise loop.



2.3 Active Transportation Network

2.3.1 Existing Active Transportation Network

River Road has a sidewalk the north side of the road and a gravel path on the south side. No dedicated cycling facilities are provided. Russell Street does not have any sidewalks or infrastructure for cyclists / pedestrians; however, it has low traffic volumes. The ability to travel to downtown Port Alberni without a vehicle is challenging, as it is about 6km away, and facilities for pedestrians, cyclists, and people using mobility devices require travelling in mixed vehicle traffic, or directly adjacent to it.

3.0 PROPOSED DEVELOPMENT

The proposed development consists of an infill expansion to the Rainbow Gardens campus. One new 3-storey building with 35 residential units for low to moderate income seniors and people with disabilities is proposed. The current site plan is provided in **Appendix A**.

3.1 Site Access

One new vehicular access is proposed from Russell Street, approximately 30m north of Russell Place, on the south side of the building. The main access is on the south side of the building, with other access on the north side and west side, located by the current Rainbow Gardens building. There is only 50m from the new proposed vehicular access to the intersection of Russell Street / Russell Place, where there is a steep hill after. The stopping sight distance required for a design speed of 50 km/h is 65 m. Only 50 m of stopping sight distance is provided looking south from this access due to the sharp drop-off south of the Russell Street / Russell Place intersection. It is recommended that the posted speed limit on Russell Street be reduced to a minimum of 40 km/h to better align the available sight distance with an appropriate posted speed. Due to the high proportion of seniors with limited mobility in the area, it is proposed to further reduce the posted speed limit to 30 km/h in this area. The circulation plan can be found in **Appendix B**.



3.2 Vehicular Parking

The proposed development is proposing 16 parking spaces located in a surface parking lot adjacent to the apartment buildings. There is one accessible parking spot as well as 2 possible EV charging stations. There is scooter parking located in the building by the South entrance with storage.

A swept path assessment demonstrating the ability of a passenger vehicle and a garbage truck to maneuver through the proposed parking lot can be found in **Appendix C**. Passenger vehicles can generally enter and exit the proposed spaces successfully, however an increased apron at the west end of the parking lot is recommended to accommodate maneuvering into / out of the parking space at the end of the aisle.

Garbage trucks must enter the site, collect garbage, and reverse out onto Russell Street. Due to the low traffic volumes and wide pavement width on Russell Street, this is acceptable.

4.0 TRAFFIC OPERATIONS ANALYSIS

4.1 Existing Conditions

4.1.1 Existing Traffic Volumes

Turning movement counts were established for intersections in the study area for the weekday AM and PM peak hours. Traffic counts adopted as the basis for this study are summarized in **Table 3**. The existing conditions found from the traffic counts are summarized in **Table 4**.

Table 3 – Existing Turning Movement Counts

Intersection	Count Date	Time Period	Source
River Road / Russell Street	February 21, 2024	8:00 – 9:00 AM 4:00 – 5:00 PM	WATT
Russell Street / Russell Place	February 21, 2024	8:00 – 9:00 AM 4:00 – 5:00 PM	WATT



Table 4 - Existing Conditions

Movement	v/c	LOS	Delay (s)	95% Queue (m)
River Road / Russell Street				
SBL	0.08 (0.11)	B (C)	14.12	0 (0)
SBR	0.00 (0.00)	B (B)	10.49	0 (0)
EBL	0.00 (0.00)	A (A)	7.81	0 (0)
EBT	0.00 (0.00)	A (A)	0.00	0 (0)
WBR	0.00 (0.00)	A (A)	0.00	0 (0)
WBT	0.00 (0.00)	A (A)	0.00	0 (0)
Russell Street / Russell Place				
NBL	0.01 (0.01)	A (A)	7.27 (7.27)	0 (0)
NBT	0.00 (0.00)	A (A)	0.00 (0.00)	0 (0)
SBT	0.00 (0.00)	A (A)	0.00 (0.00)	0 (0)
SBR	0.00 (0.00)	A (A)	0.00 (0.00)	0 (0)
EBL	0.00 (0.00)	A (A)	8.84 (8.98)	0 (0)
EBR	0.01 (0.01)	A (A)	8.58 (8.46)	0 (0)

Notes:

1. ## (##) = AM (PM)
2. ## = Value exceeding threshold

All movements at both intersections in the study area operate at LOS A during both the weekday morning and afternoon peak periods except for the southbound turning movements from Russell Street onto River Road, which operate at LOS B or C. Queues are negligible, and the streets are well under capacity. No mitigation measures are required. The intersection locations with the AM and PM existing traffic volumes can be found in **Figure 1**.

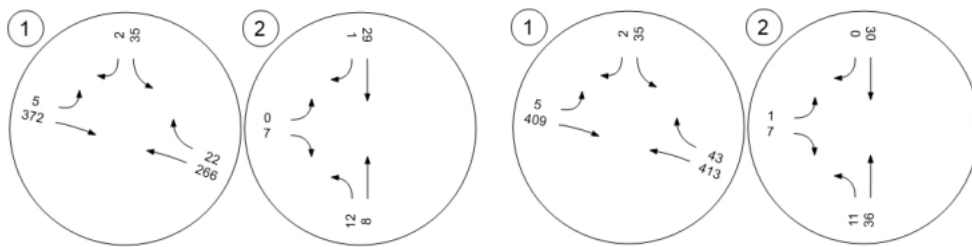


Figure 1 - Existing AM and PM Traffic Volumes

4.1.2 Site Trip Generation

Vehicular trip generation rates are based on the *ITE Trip Generation Manual (11th Edition)*. The trip generation forecast for the site is provided in **Table 5**. The proposed development is forecast to generate 7 new trips during the weekday AM peak hour and 3 new trips during the weekday PM peak hour. Most trips are anticipated to come from and head to the east on River Road. The new development can be acceptably accommodated on the road network in the study area.



Table 5 – Site Trip Generation

Use	AM Peak Hour			PM Peak Hour		
	In	Out	2-Way	In	Out	2-Way
Trip Generation Rates						
Affordable Housing – Seniors (ITE 223 ⁽¹⁾)	0.10	0.08	0.18	0.05	0.04	0.09
Vehicular Trip Generation						
35 units	4	3	7	2	1	3

Notes:

1. Trip rates are per dwelling unit.



5.0 CONCLUSIONS

The proposed building has 16 parking spots, two of which to have possible EV charging ports, as well as 1 accessible parking spot. The circulation of the parking lot is acceptable for the garbage removal and loading when they pull into the parking lot and reverse out. Additional manoeuvring space for vehicles accessing the parking space at the end of the aisle is required. Refer to the vehicle movements attached in **Appendix C**.

Infrastructure for active transportation in the vicinity of the site is not suitable for all ages and abilities. There is a bus stop available within a 5 minute walk of the site, however it has limited amenities for passengers.

All movements at both intersections in the study area currently operate at LOS C or better during both the weekday AM and PM peak periods. No mitigation measures are required.

The new building is an affordable housing building for low to moderate income seniors and residents with disabilities. The building will generate a total of 7 trips during the peak AM hours and 4 trips during the peak PM hours. Most of the trips are anticipated to travel eastbound on River Road. The proposed development will have limited impact on the existing road network.

The access of the parking lot is located 50m north from the Russell Street / Russell Place intersection. Due to the sharp drop-off located after the intersection, the stopping sight distance provided does not meet the requirements for a 50 km/h design speed. It is recommended that the posted speed limit on Russell Street be reduced to 30 km/h to better align the available sight distance and high population of seniors with an appropriate posted speed.

6.0 RECOMMENDATIONS

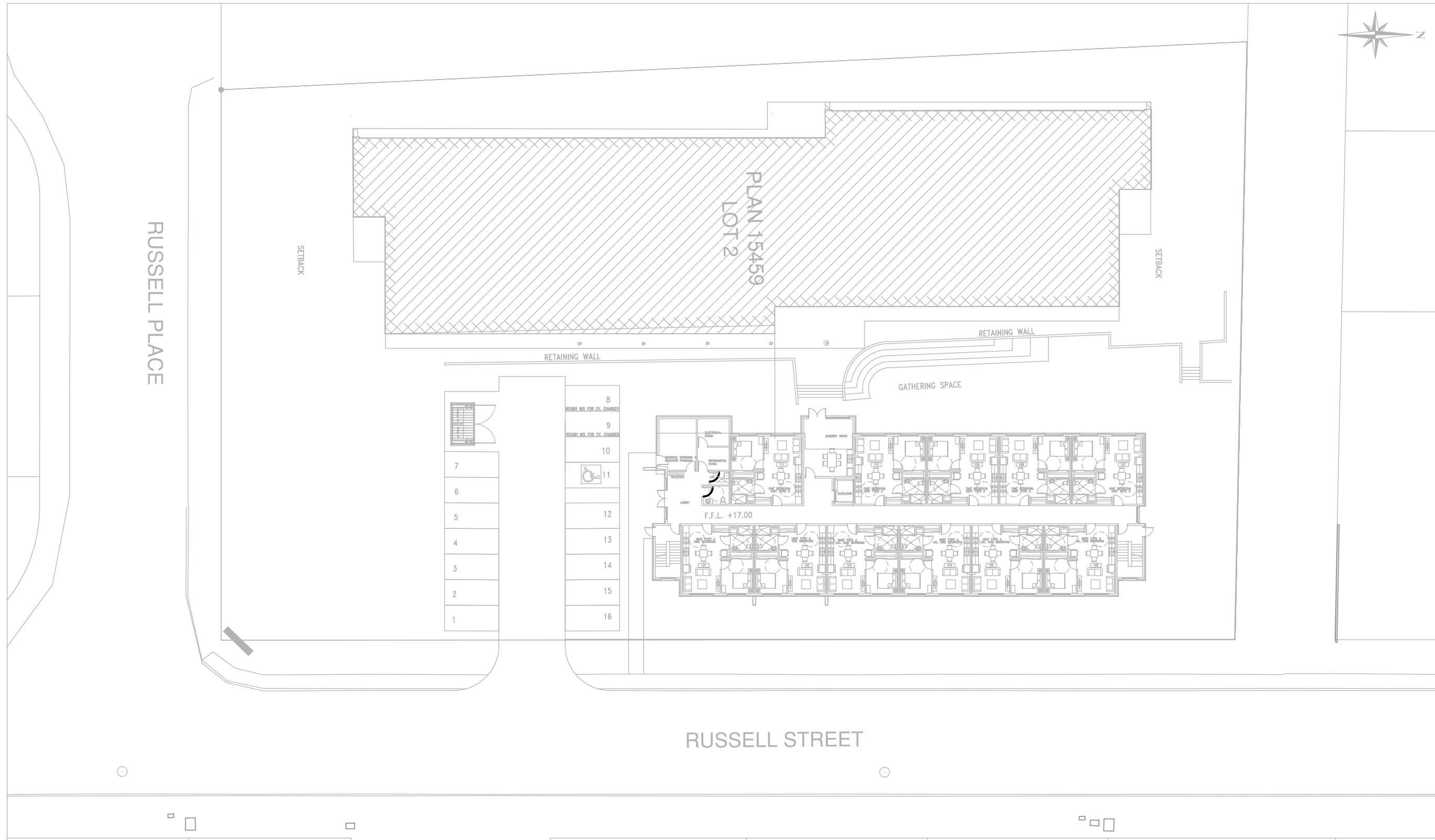
The developer should expand the apron of the parking lot at the west end to facilitate maneuvering into and out of the parking spaces at the end of the aisle.

The City of Port Alberni should reduce the posted speed limit on Russell Street to a maximum of 40 km/h to better align the available sight distance with an appropriate posted speed. However, based on the high population of seniors in the area, it is recommended that the posted speed limit should be further reduced to 30km/h.

The city of Port Alberni should work with BC Transit to improve passenger amenities and service at the Compton Road / Falls Street bus stop.



APPENDIX A – SITE PLAN



LEGEND:

PERMIT TO PRACTICE:
 THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT, AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO CONTRACT.

SEAL:

REVISIONS		
0	REVISION DESCRIPTION	YYYY-MM-DD
1	Issued For Review	2024-03-08
2		
3		
4		
5		
6		
7		

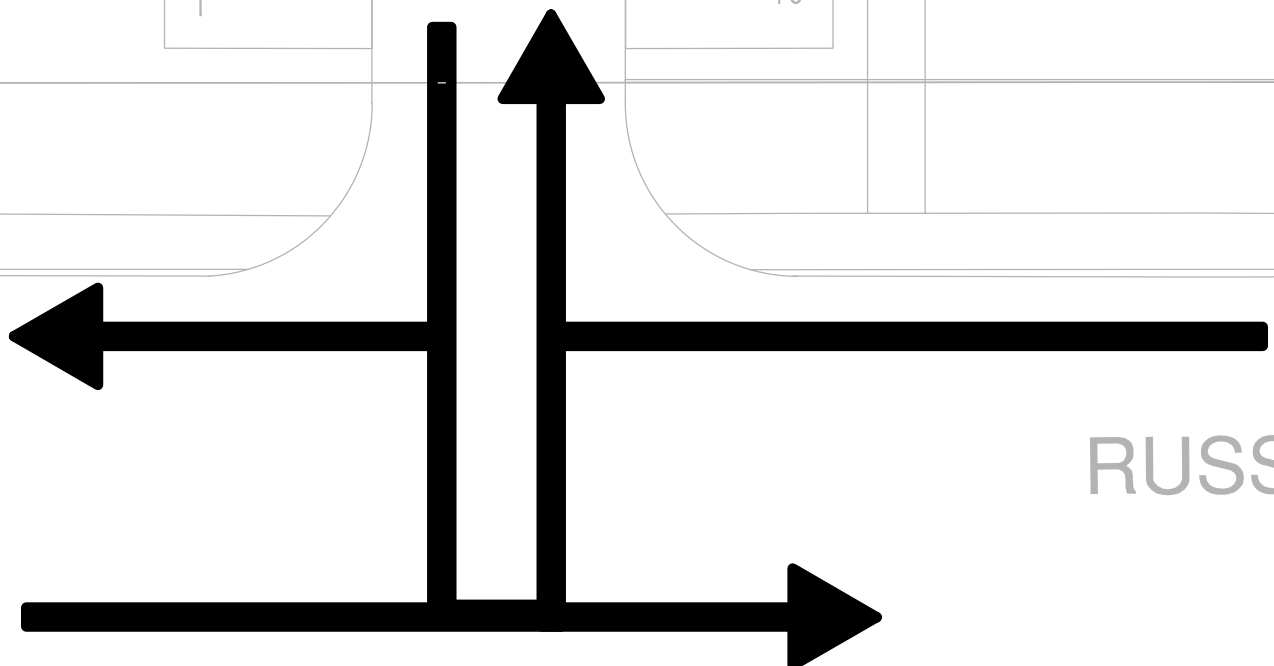
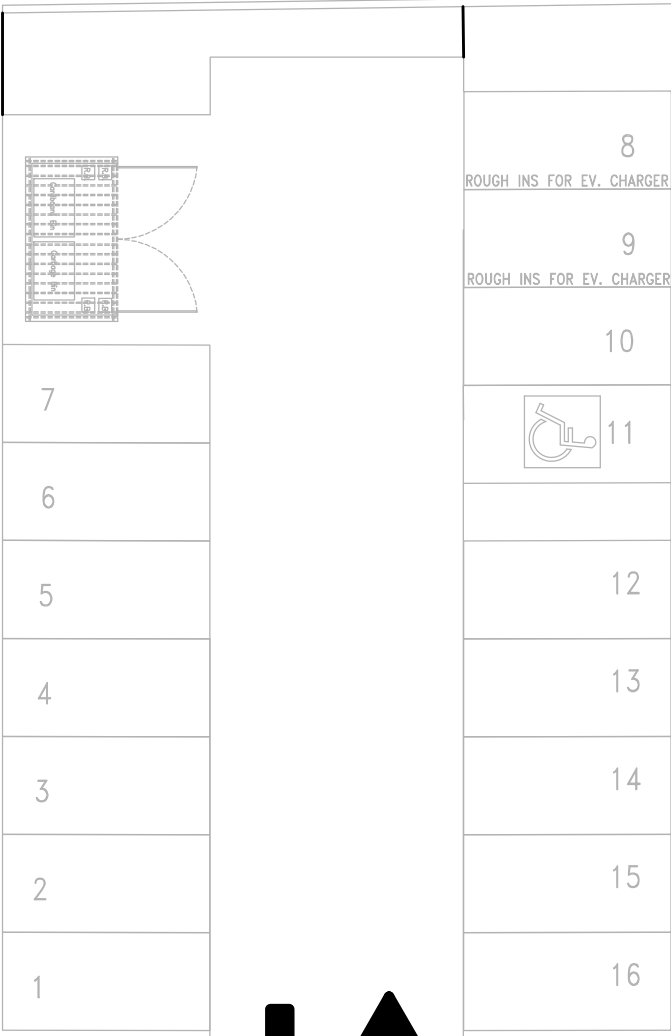
3704.B01 Site Plan 5350 Russell Street		
DRAWING NO: FD-01	SCALE: 1:400	DRAWN: AH
DESIGN SPEED: -	DESIGN VEHICLE: -	CHECKED: KM

WATT
 Consulting Group
WATTCONSULTINGGROUP.COM
 PROJECT NO: 3704.B01



APPENDIX B – CIRCULATION PLAN

CE



RUSSELL STR

LEGEND:

PERMIT TO PRACTICE:
 THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT, AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO CONTRACT.

SEAL:

REVISIONS		
0	REVISION DESCRIPTION	YYYY-MM-DD
1	Issued For Review	2024-03-08
2		
3		
4		
5		
6		
7		

3704.B01
Parking Circulation
5350 Russell Street

DRAWING NO: FD-02	SCALE: 1:200	DRAWN: AH
DESIGN SPEED: -	DESIGN VEHICLE: -	CHECKED: KM

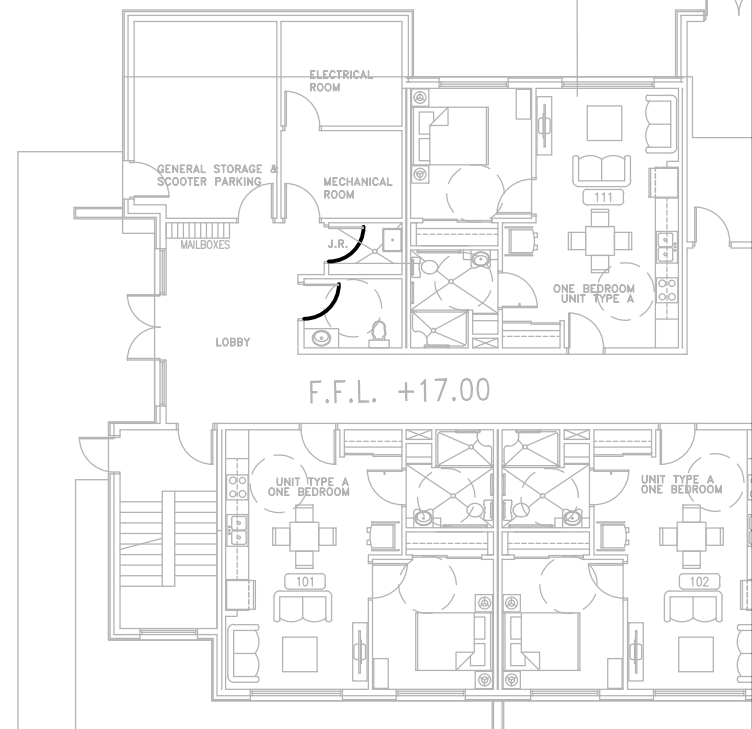
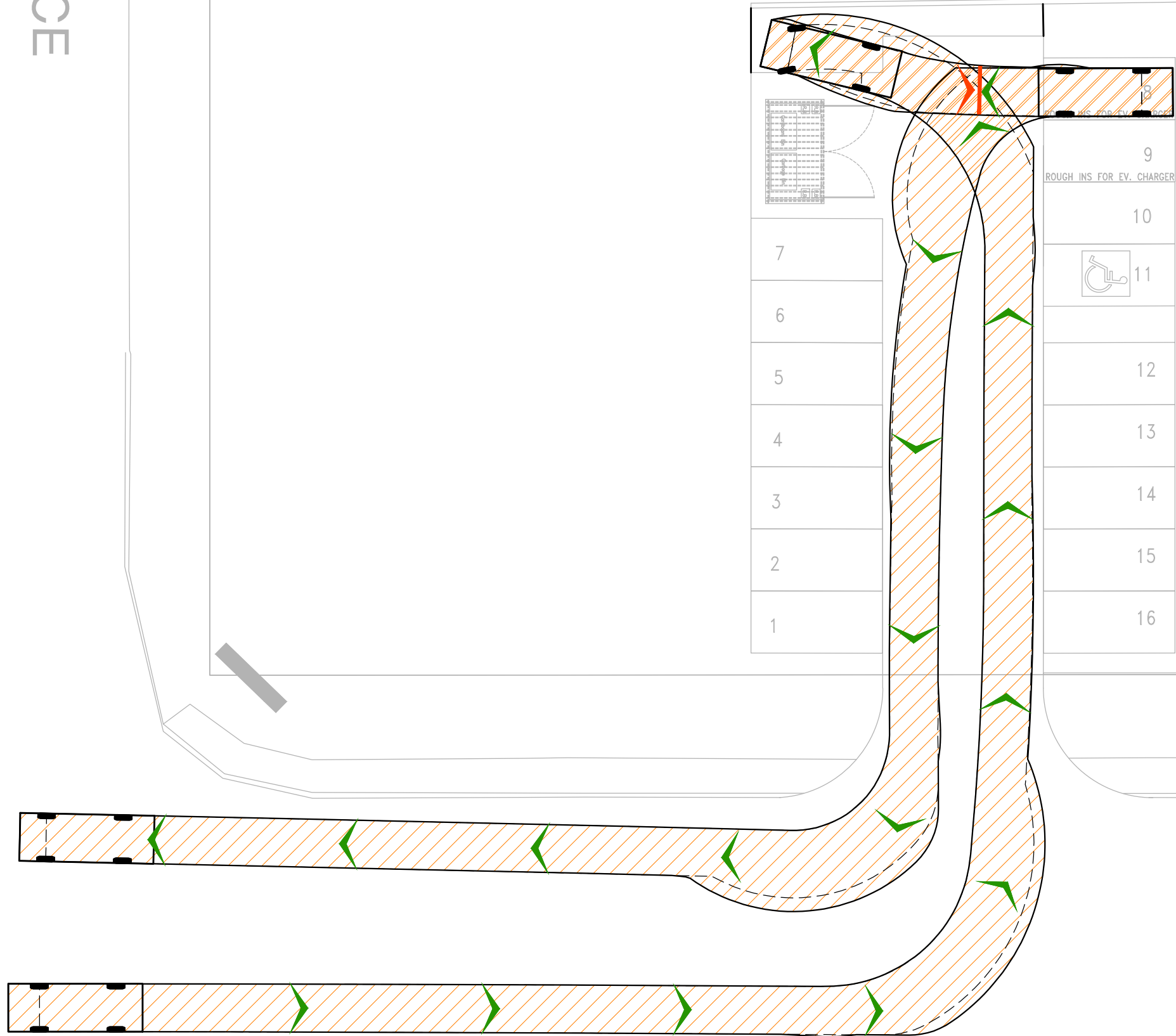
WATT
 Consulting Group
 WATTCONSULTINGGROUP.COM
 PROJECT NO: 3704.B01



APPENDIX C – SWEPT PATH ASSESSMENT

FACE

RETAINING WALL



RUSSELL STR

LEGEND:

P - Passenger Car
Overall Length: 5.600m
Overall Width: 2.000m
Overall Body Height: 1.555m
Min Body Ground Clearance: 0.340m
Track Width: 2.000m
Lock-to-lock time: 4.00s
Curb to Curb Turning Radius: 6.300m

PERMIT TO PRACTICE:
SEAL:
THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT, AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO CONTRACT.

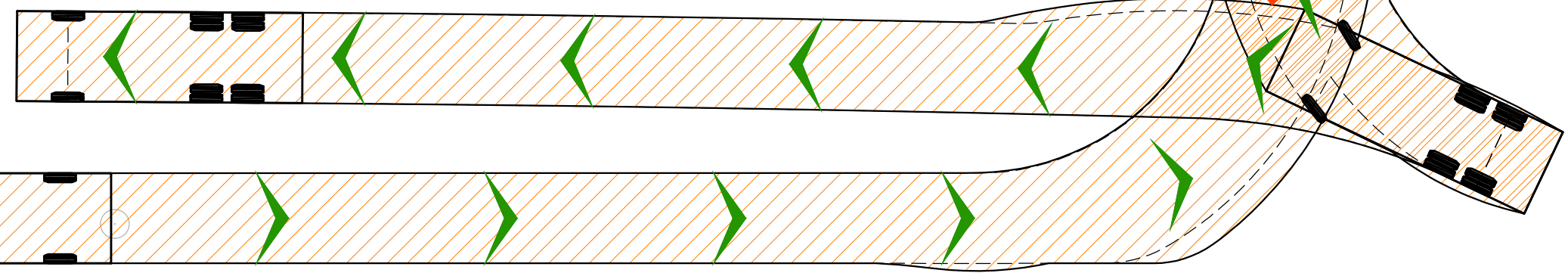
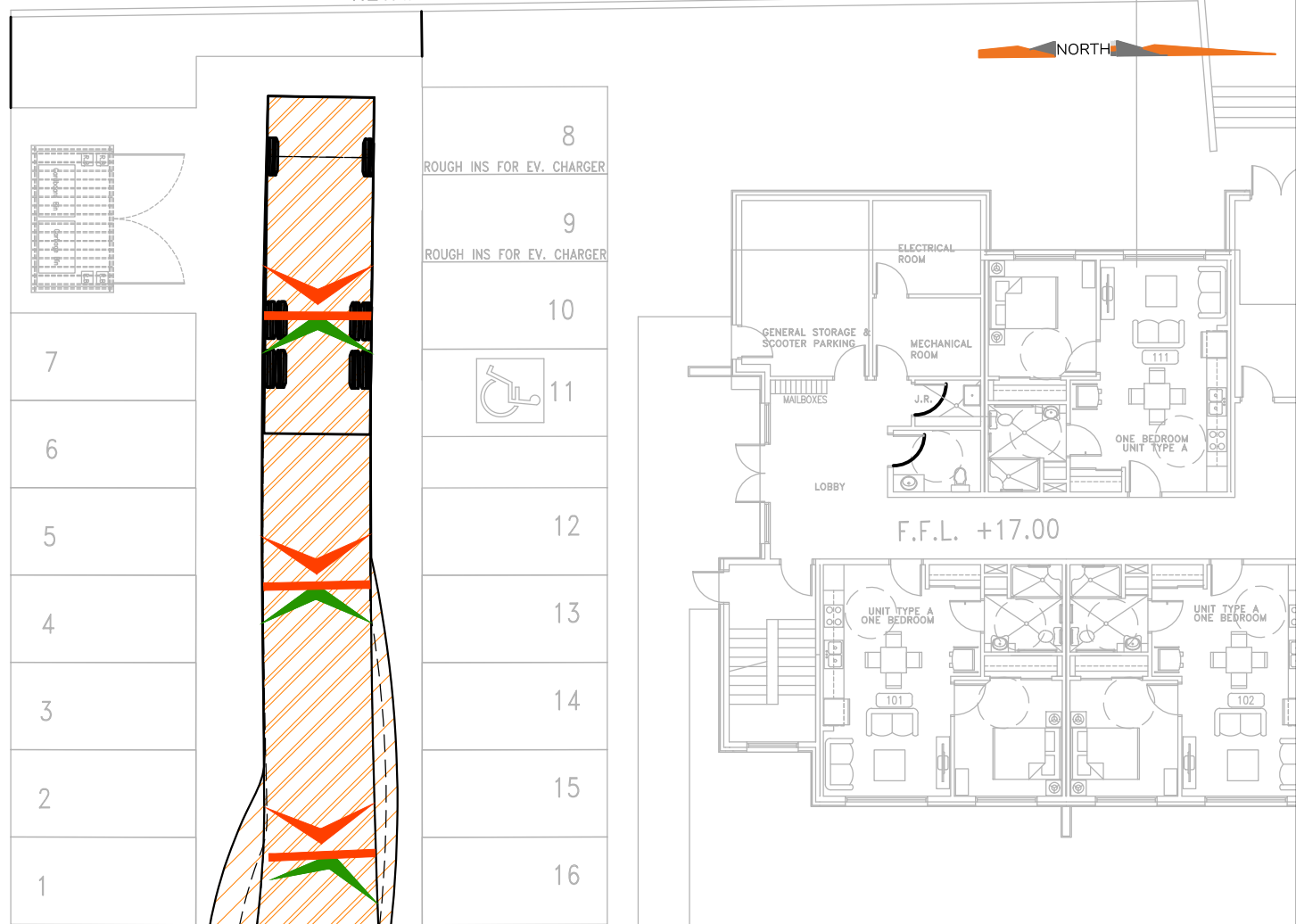
REVISIONS		
0	REVISION DESCRIPTION	YYYY-MM-DD
1	Issued For Review	2024-03-08
2		
3		
4		
5		
6		
7		

3704.B01 Parking Circulation 5350 Russell Street		
DRAWING NO: FD-03	SCALE: 1:200	DRAWN: AH
DESIGN SPEED: -	DESIGN VEHICLE: Passenger Car	CHECKED: KM

WATT
Consulting Group
WATTCONSULTINGGROUP.COM
PROJECT NO: 3704.B01

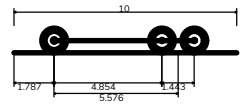
FACE

RETAINING WALL



RUSSELL STR

LEGEND:



City of Richmond Private Garbage
 Overall Length 10.000m
 Overall Width 3.150m
 Overall Body Height 0.551m
 Min Body Ground Clearance 0.551m
 Track Width 3.150m
 Lock-to-lock time 6.00s
 Wall to Wall Turning Radius 12.500m

PERMIT TO PRACTICE:

THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT, AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO CONTRACT.

SEAL:

REVISIONS		
0	REVISION DESCRIPTION	YYYY-MM-DD
1	Issued For Review	2024-03-08
2		
3		
4		
5		
6		
7		

3704.B01
 Parking Circulation
 5350 Russell Street

DRAWING NO: FD-04	SCALE: 1:200	DRAWN: AH
DESIGN SPEED: -	DESIGN VEHICLE: Garbage Truck	CHECKED: KM

WATT
 Consulting Group
 WATTCONSULTINGGROUP.COM
 PROJECT NO: 3704.B01