



Consultants in Acoustics & Noise Control

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facsimile transmittal

To: Mr. Frank Kernick Fax: 403-678-2055

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Company: Eagle Terrace Developments Date: November 21, 2003

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From: Kevin Packer Pages: 9

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Re: Spring Creek Mountain Village FFA File: 103-851-01  
Railway Traffic Noise Assessment

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- Urgent       For Your Review       Please Comment       Please Reply       For Your Information
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Please find attached a copy of our revised letter report regarding our Rail Traffic Noise Assessment for the Spring Creek Mountain Village development in Canmore, Alberta. We will mail an original copy to Southwell Trapp & Associates as well. Once you have reviewed this information, we would be happy to discuss our findings further. If you have any questions please contact Cliff Faszer or myself.

Regards,  
Kevin Packer, P.Eng.

cc: Ralph Southwell – Southwell Trapp & Associates Ltd. 276-7152

Suite 304, 605 1<sup>st</sup> Street SW Calgary, Alberta T2P 3S9

November 21, 2003

Mr. Frank Kernick  
Restwell Trailer Park & Cabins  
#1A, 502 3<sup>rd</sup> Avenue  
Canmore, Alberta  
T1W 2G2

Dear Mr. Kernick:

**Re: Spring Creek Mountain Village  
Railway Traffic Noise Assessment  
File 103-851-01**

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As a part of the redevelopment of the current Restwell trailer park the developer of the Spring Creek Mountain Village lands is proposing to build single family housing, located at the S.W. ¼ Section 33-24-10-5 between Policeman's Creek and the Canadian Pacific Railway line in Canmore, Alberta. At the request of the developer, Faszer Farquharson & Associates Ltd. has performed a theoretical rail traffic noise assessment for the single family portion of the development. The objective of this report is to determine what noise impact the Canadian Pacific Railway line will have on these homes and, if required, how to reduce the rail line traffic noise within the houses.

The writers, Mr. Clifford C. Faszer, P. Eng. and Kevin Packer, P. Eng. of Faszer Farquharson & Associates Ltd., have reviewed the site plan and section received from Southwell Trapp & Associates Ltd. on September 5, 2003 for the area of concern. Rail traffic information was received from the Canadian Pacific Railway. Based on this information rail traffic noise levels were calculated at the façade of a typical two and half story single detached home with a front drive garage facing the rail line. We have also undertaken an Acoustic Insulation Factor (AIF) analysis to determine what building envelope constructions would be required to meet the exterior acoustic insulation requirements according to the CMHC guideline.

#### *Site Description*

The single family portion of the Spring Creek Mountain Village development consists of seven lots, each on which will be built a two and half story maximum height single detached home with a front drive garage facing the rail line. Attached is a site plan showing the location of the lots with respect to the rail line. The train noise levels were calculated at the façade of a typical single family home built on lot 3. The north sides of the homes will face the rail line, at a distance of approximately 58m. A site section drawing is attached indicating the site grades and the location of the receivers for the noise calculations.



**Table 2**  
**Rocky Mountain Village**  
**Combined Railway Traffic Noise Levels**

Location	Engine Noise (dB)	Wheel Noise (dB)	Whistle Noise (dB)	Combined Level (dB)
Typical Single Family Home, Main Floor, North Wall	61	57	0	62
Typical Single Family Home, Main Floor, North Wall w/ 1.5m Berm & 2m Sound Attenuating Fence	58	53	0	59
Typical Single Family Home, Main Floor, East or West Wall	58	54	0	59
Typical Single Family Home, Main Floor, East or West Wall w/ 1.5m Berm & 2m Sound Attenuating Fence	55	50	0	56
Typical Single Family Home, Second Floor, North Wall	63	59	0	64
Typical Single Family Home, Second Floor, North Wall w/ 1.5m Berm & 2m Sound Attenuating Fence	64	56	0	65
Typical Single Family Home, Second Floor, East or West Wall	60	56	0	61
Typical Single Family Home, Second Floor, East or West Wall w/ 1.5m Berm & 2m Sound Attenuating Fence	61	53	0	62

### *Indoor Noise Analysis*

The AIF requirements are based on the room usage. The AIF values of the various exterior-building components are based on their size in proportion to the room floor area. Thus an AIF analysis may indicate that a room with a large window area relative to floor area may require that the sound transmission loss of the windows be increased or the size of the windows be decreased.

The results of the AIF analysis for Spring Creek Mountain Village indicate that with or without a noise barrier or berm and sound attenuating fence at the property line, it is possible for rooms located on the north side of the homes, facing the rail line to meet the CMHC guideline using common or slightly upgraded exterior wall and window constructions. The calculations undertaken for some common room, wall and window sizes, indicate that in order to have high enough AIF values to meet the CMHC guideline the exterior walls should have the interior layer of gwb attached to the studs with resilient channel or be stucco or brick faced walls. Similarly the exterior windows should have laminated glass or thicker glass panes than the typical residential 3mm glass - 13mm air space - 3mm glass windows.

The calculations indicate that if a sufficiently high barrier were built at the property line it may negate the requirement for upgraded wall and window constructions for rooms on the north side of the homes, depending on their use and layout. Due to the geometry of the site, with the rail line slightly elevated above the homes, a shorter barrier such as, for example, a 1.5m earth berm with a 2m high sound attenuating fence on top of the berm or a 3.5m high barrier may negate the requirement for upgraded wall and window constructions for north facing rooms on the main level the homes, depending on their use and layout, but would not provide the required attenuation of rail traffic noise to the upper levels of the homes. The CMHC calculation method indicates that due to the reduction in the noise attenuation provided by the soft ground surface with a barrier present, the noise levels at the upper stories of the homes would actually be slightly higher with a sound barrier than without it, unless the barrier were at least approximately 5.5m high enabling it to physically block more of the engine exhaust noise. Using common or slightly upgraded exterior wall and window constructions, it would still possible for rooms located on the upper stories on the north side of the homes, facing the rail line, to meet the CMHC guideline if a berm and sound attenuating fence combination less than 5.5m high were built at the property line.

Once there are finalized plans and elevations for the homes, AIF calculations will need to be performed to determine the specific construction of the window and wall types required to meet the CMHC guideline.

### *Ventilation*

The CMHC guideline requires an alternate means of ventilation for the homes other than opening windows when the noise levels are above 55 dBA. As the rail traffic noise levels range from 56 to 65 dBA this is the case for this project. If forced-air heating systems are used in the homes, alternate means of ventilation include an allowance for the installation of air conditioning or a two-speed fan with a manual damper to close off the R/A duct in the summer. This allows the furnace fan to draw in outside air through the fresh air duct and circulate it in the suite. With non-forced air systems the installation of an exhaust fan system with acoustically lined ducts and elbows that would provide  $\frac{3}{4}$  air changes per hour can be used.

**Faszer  
Farquharson  
& ASSOCIATES LTD.**

**Consultants in Acoustics  
& Noise Control**

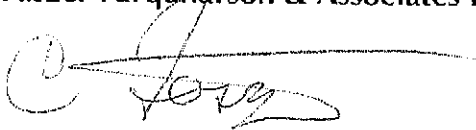
*Summary*

The AIF analysis indicated that for single family homes built on the area of concern, it is possible to meet the CMHC guideline using common or slightly upgraded exterior wall and window constructions for rooms located on the north side of the homes facing the rail line. Rooms with north (rail line) exposure may require exterior walls with the interior layer of gwb attached to the studs with resilient channel, or stucco or brick exterior facing. Windows in these rooms may require laminated glass or thicker panes than the typical residential 3mm glass - 13mm air space - 3mm glass window construction. Once there are finalized plans and elevations for the homes, AIF calculations will need to be performed to determine the required window and wall types to meet the CMHC guideline.

If you have any questions concerning the above please contact the undersigned.

Sincerely,

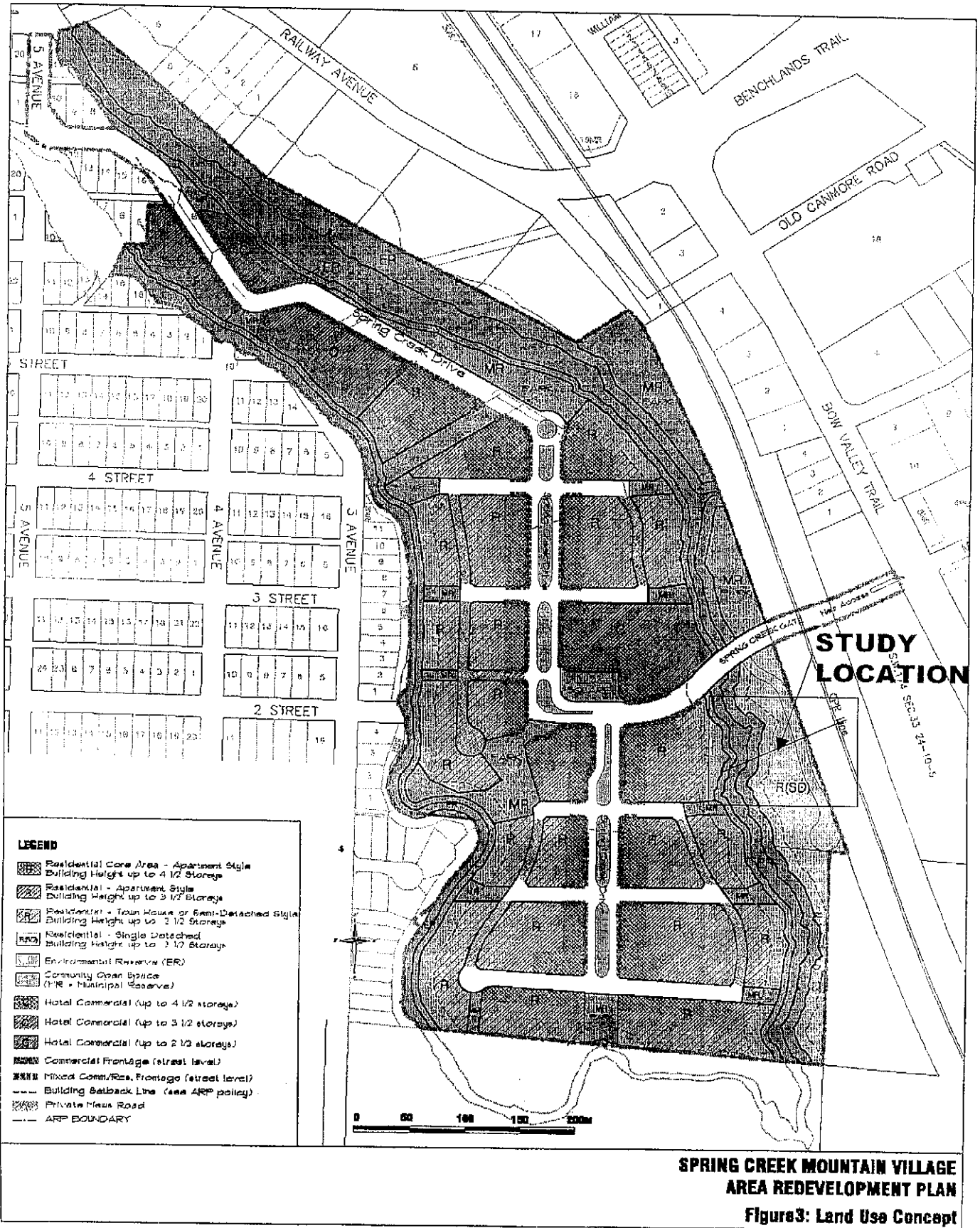
**Faszer Farquharson & Associates Ltd.**

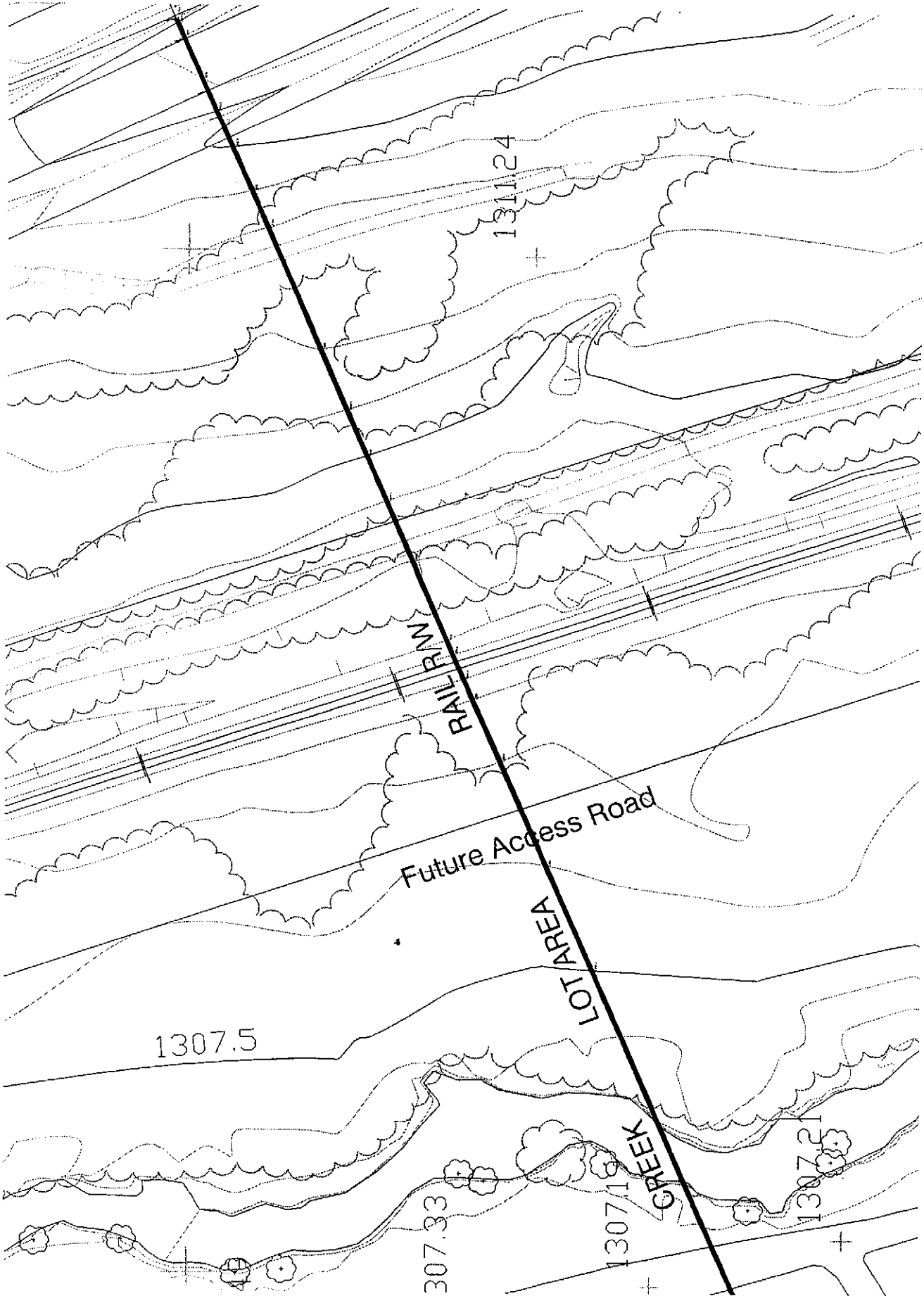


Clifford C. Faszer, P. Eng.

Attachment

cc: Ralph Southwell – Southwell Trapp & Associates Ltd.





SPRING CREEK MOUNTAIN VILLAGE  
 PARTIAL SITE PLAN

1:1000

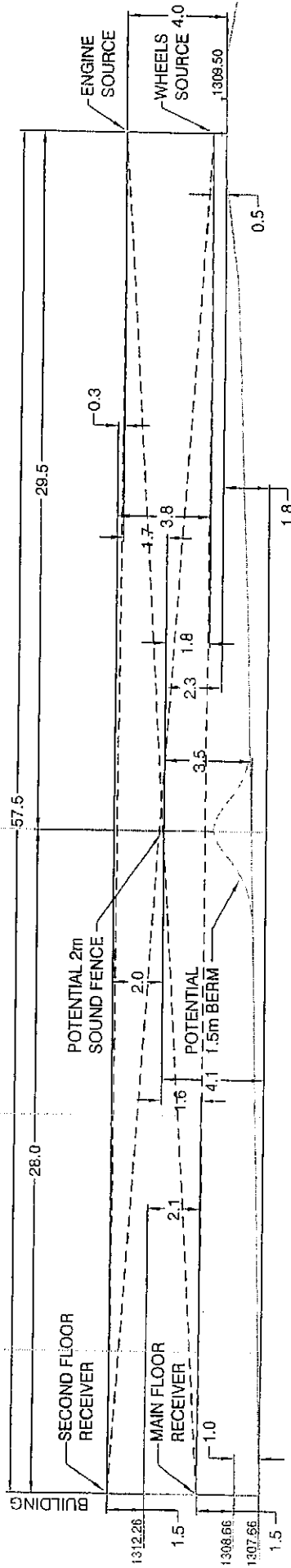
Eraser  
 arquharson  
 & ASSOCIATES LTD.



20m 6-10m 12m Rail R/W (61m)

Future Access Road 12m

Front Yard 7-10m



SECTION - RAIL LINE TO  
TYPICAL HOUSE FRONT  
w/ POTENTIAL 1.5m BERM  
& 2m SOUND FENCE

Faszer  
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& ASSOCIATES LTD.