



**2.1 Choice of Materials**

Wood has been the traditional material used in Burnaby for noise attenuation fences. Providing wood fences are properly built (having solid boards double lapped) and maintained they are effective. However as the Bettiol's have pointed out there is a continuing maintenance requirement for wood and there are probably more examples of lapsed maintenance than not. Members of Council have suggested we further review the concrete fencing on the Upper Levels Highway which was briefly discussed in the previous report. Staff spent some time on site visits with the consultant to assess noise fence applications. The system used on the Upper Levels Highway and also for Nordel Way in Delta is a proprietary prefabricated concrete product that simulates the appearance of wood siding. This product is featured in the marketing information sheets and photograph display in the Councillor's Lounge. It has been used as the basis for our subsequent discussion of costs.

**2.2 Height of Fence**

Our acoustical consultant has revisited the Bettiol home and estimated the effect of fence height on attenuation of noise. As indicated in the table below there are significant attenuation gains that accrue from higher fences.

**TABLE 1**

Description	Calculated Noise Level (dB) L <sub>Eq</sub>			
	No Barrier	3m Barrier	3.5m Barrier	4m Barrier
Rear Balcony, typical 2nd floor windows	65.3	60.1	58.6	56.8
Person walking at grade (at a distance equivalent to the front door)	65.1	56.1	54.6	53.3
1st floor windows facing Winston Street	66.2	56.2	54.7	53.4

Although the manufacturer has assured us that erection of a 4m (13 ft) high barrier is not a problem, we note from our site visits that typical fence heights are in the 6-8 foot range and rely on additional features (grade differences, berms, etc.) that are not available at this site on Winston.

**2.3 Length of Fence**

Although the Bettiol's flankage is approximately 36m, the consultant indicates that a barrier should

*"be of a minimum length of 80m with at least the middle 30m at the full height selected. The remainder of the barrier can taper to a minimum height of 2m at each end. Any openings in the barrier for pedestrian passage (ie. at Lozells Avenue) should include an overlapped section to maintain the sound blockage".*

ITEM	11
MANAGER'S REPORT NO.	52
COUNCIL MEETING	92/08/10

Thus any new barrier would extend across the rear of the Bettiol's neighbour's property as well as the Lozells Avenue right-of-way as shown on Sketch 1, attached.

#### 2.4 Landscaping

The previous design concept shown to members of Council and the Bettiols was based on minimizing the impact to the existing landscaping. The scope for doing so with a higher more construction intensive barrier is limited. To facilitate the installation of the concrete fence along the property line, existing trees and landscaping would have to be removed. Some restorative landscaping would be required. A nominal estimate for re-landscaping the right-of-way is \$5,000.

#### 2.5 Costs/Budgeting

In the last Council report a minimalist approach to sound barrier design, based on a 3m wood fence was proposed. The cost of the wood fence was estimated at \$20,000 including landscaping.

The concrete fence manufacturer has supplied us with unit cost estimates which suggest that increasing the fence height from 3m to 4m only increases the total fence costs by less than 20%. Given the significantly perceptible decrease in noise levels achieved with a higher barrier we would recommend the extra expenditure and propose a project budget of \$45,000 including landscaping and contingency.

The funds required are not included in the approved 1992 Capital Budget. Subject to the approval of Council and concurrence of the Bettiols and their neighbour on the recommended concept, we will include this project in the 1993 Budget review process.

#### 3.0 CONCLUSION

Staff are satisfied that the concrete noise barrier discussed in this report would provide satisfactory sound attenuation for the Bettiol residence. If directed by Council we would include the project cost in the 1993 Capital Budget process.

  
DIRECTOR ENGINEERING

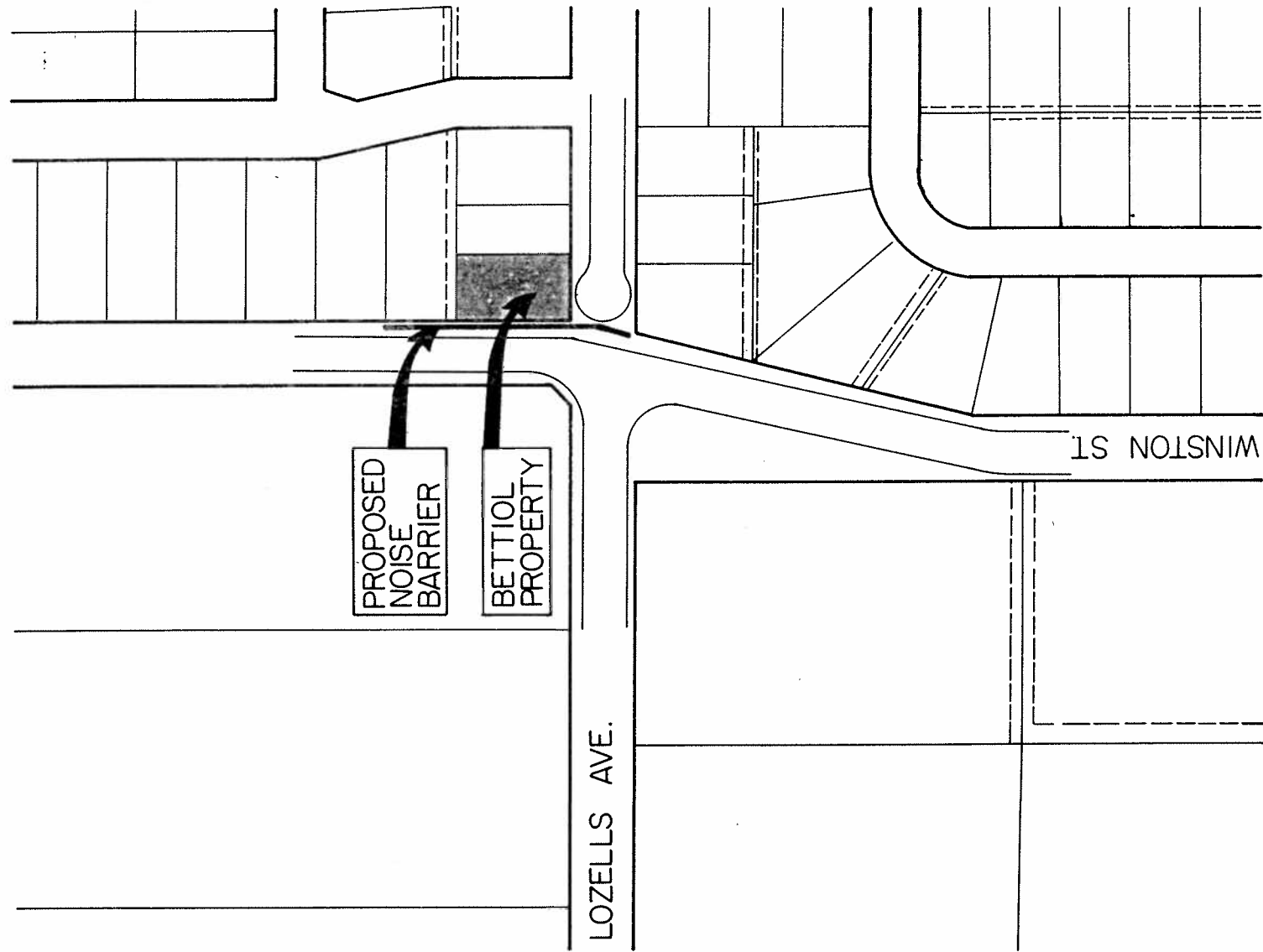
PL:jb  
Attach.

cc: Director Finance  
A/Chief Public Health Inspector  
Director Planning & Building Inspection  
Director Admin. & Community Services

D.L. 43

ITEM 11  
MANAGER'S REPORT NO. 52  
COUNCIL MEETING 92/08/10

133



PROPOSED  
NOISE  
BARRIER

BETTIOI  
PROPERTY

LOZELLS AVE.

WINSTON ST

NO.	DATE	REVISION



FIGURE 1

PROPOSED NOISE BARRIER  
ON WINSTON ST. @ LOZELLS AVE.  
BETTIOI PROPERTY

DESIGNED BY:	DRAWN BY: H. LOUIE	SCALE: N.T.S.
APPRVD BY:	CHECKED BY:	DATE: 92-07-23
		<b>L - 2321</b>