



Noise Mitigation Efforts

BUILT TO **CONNECT**

Deputation June 26, 2023



Presentation Key Points



- Acoustic information from HGC - Acoustic Engineers,
- Results of acoustic assessments,
- Noise control actions,
- Independent verification of acoustic assessment - GHD,
- Financial commitment,
- Our Company and our People,

- *Retained an external acoustic engineering company, Howe Gastmeier Chapnik Limited (HGC Ltd) 2022*
 - HGC carried out a preliminary Acoustic Assessment of the facility located at 35 Elgin Street North, Thornbury.
 - HGC measured sound levels at the facility on March 3rd and July 26th, 2022 at stationary sources and neighbouring offsite points of reception.
 - Follow up sound level monitoring carried out April 19th 2023 by HGC.
 - Measurements were utilized as input data to model a predictive acoustic model of facility.
 - Acoustic assessment was carried out in line with the MECP sound level limits to assess the sound emissions of the facility.
 - **The contribution of each individual source to the overall offsite sound levels was determined to identify opportunities for introduction of noise control measures.**

Acoustic engineering studies 2022-23 - Results



- Seven key points of reception were considered in the assessment noted R1-R7



Acoustic engineering studies 2022-23 - Results



- *Individual noise sources identified – NS01-NS22*



Acoustic engineering studies 2022-23 - Results



- *Predicted Mitigated Sound Level Contours (dBA) 4.5 m above grade – Daytime hours*



Acoustic engineering studies 2022-23 - Results



- *Predicted Mitigated Sound Level Contours (dBA) 4.5 m above grade – Night time hours*



Acoustic engineering studies 2022-23 - Results



- *Point of reception sound level limits summary (in line with EASR requirements)*

Table 2: Applicable Sound Level Limits L_{EQ} [dBA]

Point of Reception	Daytime (07:00 to 19:00)	Evening (19:00 to 23:00)	Nighttime (23:00 to 07:00)
R1/R2/R3	50	50	45
R4	60	57	51
R5	61	58	51
R6	62	59	53
R7	53	50	45

Noise control measures - engineering



- *Sandblast Baghouse – isolation of fan casings and motors atop the housing from the outdoors using engineered acoustical enclosure. Fitment of the duct between the baghouse and adjacent building with acoustical lagging. HGC recommendation.*
 - *Noise control equipment designed, fabricated and installed by noise control supply company Parklane Mechanical – completed March 2023*



Noise control measures - engineering



- *Sandblast Baghouse – isolation of fan casings and motors atop the housing from the outdoors using engineered acoustical enclosure.*
 - *Following mitigation – 20 dBA noise reduction achieved.*

Table 3: Measured Sound Power Levels [dB re 10^{-12} Watt] & In-situ Performance of Acoustical Enclosure & Lagging – Sandblast Baghouse

Source Description	dBA Sum
Pre-Abatement Sound Power Level	109
Post-Abatement Sound Power Level	89
Recommended Sound Level Reduction	18
Measured Sound Level Reduction	20
Target Achieved? (Yes/No)	Yes

Consultation with neighbours – noise barrier options



Feedback on Noise Barriers Options

Consultation with neighbours Jan 10th 2023 meeting



- Feedback from an Acoustic Engineering consultant following a site visit and walkabout on Dec 18th 2022 has been received regarding noise barrier options.
- Options considered include trees, wooden fencing and concrete with the following noise reductions:
 - Trees (e.g. cedars, conifers etc.) – planted along the boundary line would provide minimum reduction in noise levels unless sufficient coverage.
 - Wood wall/fence would provide about 2db reduction (by-law height restriction).
 - Concrete is maximum density and would provide the most reduction but is cost prohibitive.
 - The existing barriers provide the best overall reduction in noise. Note: During the site walkabout there were a few “gaps” that were identified that could be mitigated further.

Noise control measures – Noise barriers



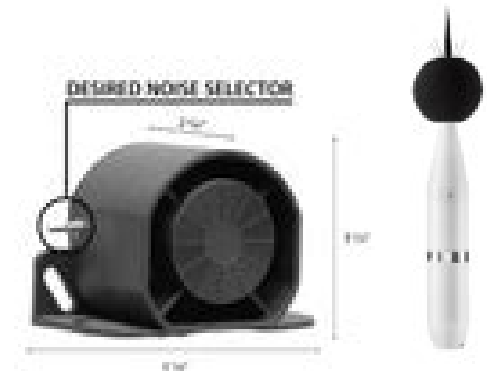
- *Storage containers – HGC site visit 18th December 2022 identified barrier options and recommended position of storage containers along the working yard edge on the north side. Used a crane to relocate without gaps through which noise could “escape”*



Consultation with neighbours - Noise monitoring



- *Noise Monitoring Equipment Installation*
 - *Following requests by the neighbours to help identify specific noise sources the Acoustic Engineer also provided assistance and advice to procure a SvanNET SV307A Noise Monitoring Station.*
 - *Located and mounted at a height as directed by the Acoustic Engineer to gather maximum sound in the yard.*
 - *Required main power supply install, mounting pole, 4G wireless connection and software licensing.*
 - *External cameras – to understand noise sources better at specific times.*
- *Has allowed direct feedback on specific noise sources and a two-way channel with neighbours through a dedicated email facility to address potential concerns immediately.*
- *Monthly employee communication – signs, education, reverse parking.*
- *Forklift White noise back up alarms installed*
 - *forklifts replaced with Paco 660 white noise alarms*



Noise control measures – Operations



- *Operations, activity set and scheduling*
 - We have rescheduled housekeeping operations such as emptying bins, garbage, steel plate turnings, scrap steel to occur in or around the start of our afternoon shift, 4:00 p.m., in order to eliminate noise from lift truck and pedestrian traffic after 7:00 p.m.
 - Worked with all suppliers, transportation and logistics companies, customers, drivers and dispatch offices to educate and update on our requirements to schedule loading/unloading activity no later than 5pm
 - Roll up doors are kept closed after 7:00 p.m. in order to reduce noise generated by operations in the facility.
 - Warehouse Project Phase 1 –Yard traffic - additional racking and special narrow aisle forklift purchased to move parts stored outside to inside location to reduce outside traffic



Warehouse Project Phase 2 : Storage Building

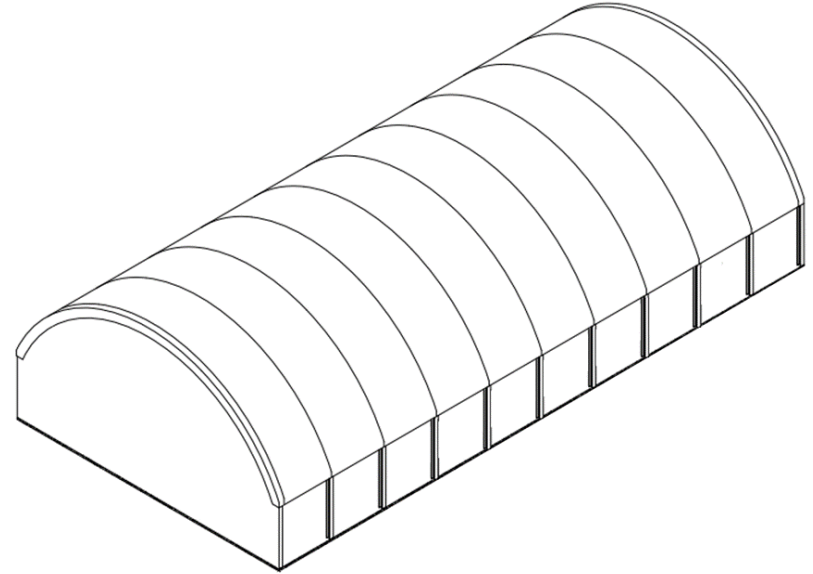


Purpose:

- To reduce employee activity and the physical storage of parts in the yard.
- Reduction of yard traffic is planned with the building of a new storage facility on the east side of the property.

Benefits:

- Improved efficiency of storage outside of the main building.
- Reduced storage in the yard.
- Reduced time in the yard.
- Reduced forklift activity in the yard.
- Acoustical absorbing insulation.
- Dampening of noise from Hwy 26.



Current Activities



- *Bulk Tank Loading Oxygen and Nitrogen*
 - We have rescheduled deliveries by our supplier Linde to deliver prior to 7pm (previously after 7pm).
 - Install of an oxygen tank double the size of the previous underway to halve the number of deliveries (completed) Deconstruct occurred and Linde on site this week to continue install. housekeeping operations such as emptying
 - Nitrogen deliveries – request to Linde to provide “quieter” tank loading connections for this site.
- *Continued Community Engagement*
 - Consultation with neighbours to review issues and build relationships.
 - Improvement in processes as part of the regular bi-monthly meetings (initiated June 27 2022)
 - Astec committed to on-going meetings to further develop and improve relationships with neighbours and be more transparent with work accomplished to date.
- *Continued retention of Acoustic Engineer HGC*
 - Further work contracted for additional identification of potential optimum height of barriers in place.
- *Contracted verification Acoustic Engineer GHD*
 - Site visit carried out 18th May 2023 to verify HGC initial model and to check actual noise measurements post mitigation measures implementation

Noise Level Verification Results



- *Receptor Noise Level Measurements – all meet the required limits and verify the original model.*
- “Based on this assessment, we find that all receptors (R1-R7) are in compliance with the limits of your Acoustic Assessment Report (AAR), as summarized below.” - Patrick Chen, GHD
- *Full report once complete was submitted to MECP.*

Receptor ID	Receptor Description	Sound Level at Receptor (dBA) (Day/Night)	Facility Sound Level Limit (dBA) (Day/Night)
R1	Two-Storey Residential Dwelling North of Facility on Bay Street East	46/42	50/45
R2	Two-Storey Residential Dwelling Northeast of Facility on Bay Street East	50/43	50/45
R3	Two-Storey Residential Dwelling East of Facility on Bay Street East	48/40	50/45
R4	Two-Storey Motel Dwelling Southeast of Facility on Highway 26	55/43	60/51
R5	Two-Storey Motel Dwelling Southeast of Facility on Highway 26	55/51	60/51
R6	Two-Storey Residential Dwelling South of Facility on Highway 26	57/53	62/53
R7	Two-Storey Proposed Residential Dwelling West of Facility on Elgin Street North	52/45	53/50

Continued commitment and costs to date:



Project accomplished	Cost to date (\$)	Proposed cost (\$)
Acoustic Engineer Studies	20,000	
Verification Engineer Study	6,000	
Engineering (Baghouse)	81,000	
Warehouse Project Phase 1	124,000	
Warehouse Project Phase 2		314,000
Noise barriers	3,000	8,000
External cameras	6,000	
Noise monitoring equipment	20,000	1,500 (annual)
Forklift white noise back up	1,200	
Bulk loading upgrades	1,300	
Totals	262,500	323,500

Thank you

