Standard Operating Procedure (SOP)

Site: Envar Cambridge	**Procedure Title:** SOP – Tunnel Filling	
Originated by: Richard Bramley – H&S manager	**Signature:** Richard Bramley	**Date:** 17.03.2023
Checked by: James Cooper – Compliance manager	**Signature:** James Cooper	**Date:** 17.03.2023
Approved by: Neil Hodson -Operations Manager	**Signature:** Neil Hodsom	**Date:** 17.03.2023

Risk Assessment — Tunnel Filling

Training area	**SOP – Tunnel Filling**		
Employees name	(Print)		Pay Roll No.
Trainers name			
Translator required (Please Circle)	Yes	No	Translators name (Print)
Date			

I confirm that I have received adequate training to complete the task below & shall comply with the training given at all times.

Signed by employee	Signed by Trainer	Training duration

Type of Training (Please Circle)	
Novice	Refresher
Training Literature - Documents provided	
SOP – Tunnel Filling Risk Assessment – Tunnel filling Practical training as required	

Envar Composting Ltd recognises the importance of staff development & provides equal opportunities for all those employed. We believe that training & development should be focused on helping us all maximise our contribution to the success of the business & provide a safe working environment for all those employed.

Introduction

PPE

- **Gloves** – Cut level 5.
- Lace up **Safety footwear**– S3 SRC slip rating.
- **High visibility jacket/vest** – EN471 Class 2 as minimum Class 3
- **Coveralls**
- **Hard Hats.**
- **Safety glasses**
- **Wear RPE** as required.
- **Gas Monitor**
- **Zonesafe Tag**

Possible Hazards:
Moving workplace transport -– working with CAT 3 waste – wet conditions - Biohazard

Possible Risks:
Personal injury from manual handling – slips – trips – falls - E. coli & salmonella poisoning.

NOTE: Coveralls are to be changed daily.

NOTE: Operatives are not to walk near the waste piles.

NOTE: Take extra care when walking in the link building as ground surfaces, may become slippery.

NOTE: All Equipment is to be checked daily & recorded on the weekly operator's defect report sheet.

NOTE: Always protect yourself from other workplace transport.

SAFETY RULES:

1. **PPE & Zonesafe tags must be worn at all times.**
2. **2-way Radios must be used in the link building & in the operational areas at all times.**
3. **The Loading shovels are to STOP when within 10 meters of a pedestrian.**
4. **When lifting, pulling or pushing the correct manual handling techniques must be used.**
5. **No Food & drink to be consumed within the link building.**
6. **Ensure you use 3 points of contact when getting in & out of the loading shovel.**
7. **Do not enter the Plenum without permission from the management.**

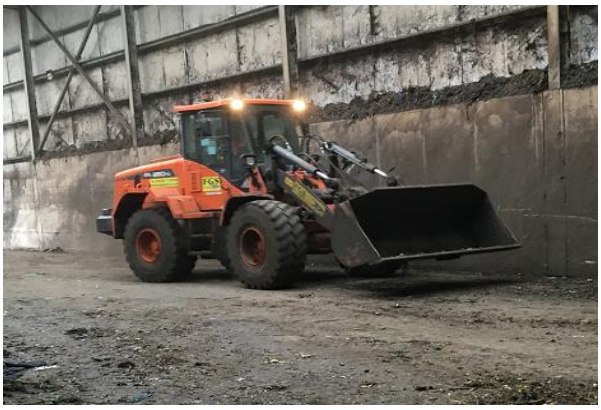
SOP – Tunnel Filling

This SOP supersedes Envar SOP's 02,07,10 &12.

1. Daily pre-start checks.

a. Ensure that all PPE & Zonesafe Tag are worn in the reception & link area.

b. Conduct a pre-start check on the dirty loading shovel, ensuring the equipment have sufficient fuel to conduct the work & record the information on the weekly operator's defect report sheet. If there are any critical or safety faults, report them to your line management.



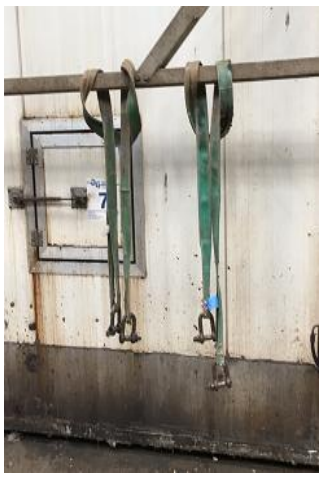
WEEKLY OPERATORS DEFECT REPORT SHEET

MACHINE Type - Plant ID No		Date W/C:		Start Hours		Finish Hours	
Operators Name & date:							

Items to be checked by driver at the start of every shift, you must report any critical safety defects before using the equipment.
Ensure the engine is turned off & keys removed if you are not in the vehicle

EQUIPMENT DAILY CHECK (please ✓)		MON	TUE	WED	THUR	FRI	SAT	SUN	DEFECTS (please write)
Safety Equipment Horn / Flashing beacon / Reversing Sounder /Safety cameras Seat belt /Safety Harness/cage Safety guards /Safety stop buttons (check they are working & function)									
Lights - Headlamps / Work lights Reversing & brake lights. (check function & change bulbs if required)									
Access Steps/ handles/ barriers (check for damage & serviceable)									
Mirrors/windscreen/windows (check for clean/ function / damage)									
Equipment Controls (check they are working correctly)									
Brakes (check they are working & for leaks)									
Engine fluid, oil and water (check the levels & for leaks)									
Transmission / hydraulic oil (check levels & leaks)									
Wheels / tyres/Tracks (Check condition / security / tread or leaks)									
Equipment / bucket condition (check for function & damage)									
Radiator / Intercooler/ Air Con (check they are working & for leaks)									
Batteries (Check secure /serviceable & for leaks)									
Pins, Pivots, Rams, Lift arms & Bucket pins (Check condition /serviceable & for leaks)									
Fire Extinguisher / Fire system (In place & serviceable)									
Machine greased and the filters have been blown or cleaned out									
Other Faults (please write)									
Equipment 30-minute stand for fire watch & cleaning	Day shift								
	Night shift								
Diesel Usage (daily usage in litres & refuelling tag number)	Day shift								
	Night shift								
EQUIPMENT HOURS (Insert equipment usage hours)	Day shift								
	Night shift								
Operator initials (Confirming all info is correct & the equipment is safe to operate)	Day shift								
	Night shift								

c. Check the tunnel filling equipment, chains & shackles, lifting strops are in good condition & fit for purpose.

d. Ensure the fire doors are clear from waste product & the chain is in place or roller shutter door is closed.


e. Check which tunnel requires to be filled from the daily tunnel information sheet that is emailed to the management & site staff.

Example of the Daily tunnel information sheet

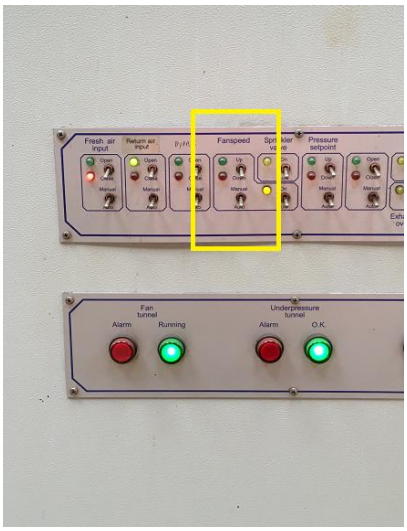
Tunnel	Max Tunnel capacity	Date Filled	Heat Up Time	Empty date and time		Status	Order	Total run time	Remarks
G3	200 tons	09/07/20	3 Days 11 Hrs	Thursday	16/07/2020 20:00	Heating	3	7 Days 12 Hrs	
G4	200 tons	10/07/20	2 Days 15 Hrs	Thursday	16/07/2020 16:00	Ready To Come Out	2	6 Days 17 Hrs	
G5	200 tons	10/07/20	3 Days 23 Hrs	Saturday	18/07/2020 15:20	Heating	4	8 Days 0 Hrs	
G6	200 tons	14/07/20				Heating			
G7	400 tons	14/07/20	2 Days 0 Hrs	Monday	20/07/2020 08:00	Heating	5	6 Days 1 Hrs	
G8	400 tons	14/07/20				Heating			
G9	400 tons	09/07/20	2 Days 10 Hrs	Thursday	16/07/2020 04:30	Ready To Come Out	1	7 Days 0 Hrs	
G10	400 tons					Empty			
G11	400 tons	16/07/20				Heating			

2. Open the Tunnel Door

a. Climb the stairs to the Gicom roof technical area **ensuring that you hold the handrail during the ascent.**



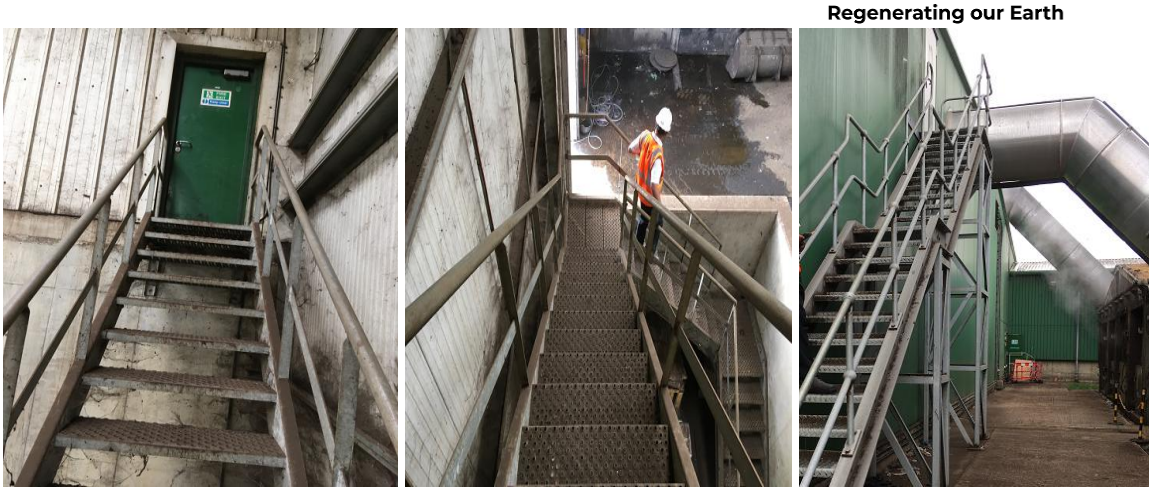

b. Turn down the fan to the corresponding Tunnel by switching the fan to **down & manual** so the fan speed drops to 0.00% which is shown on the tunnel control display.



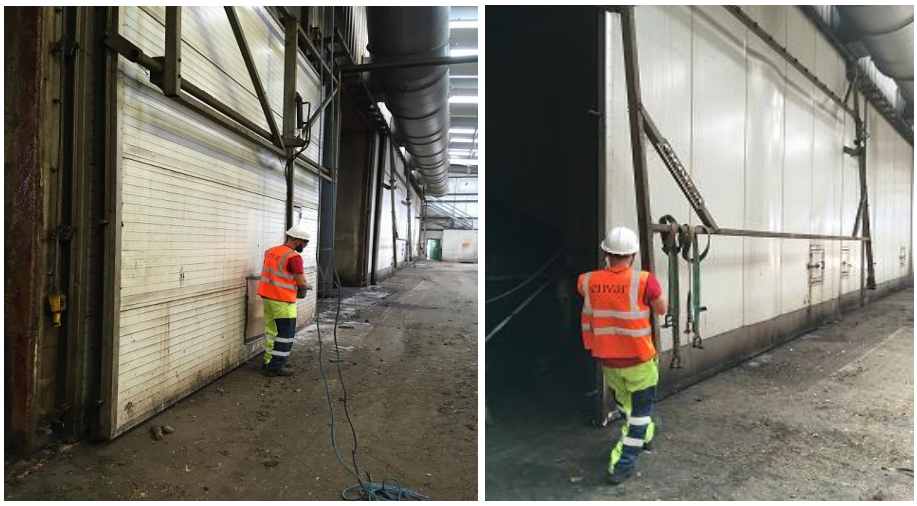

c. Once the fan is at 0% then isolate the frequency converter by turning the switch anti-clockwise to the 'O' - **off position** & isolate with the clip & 'Danger sock is Raised' sign to inform site personnel the sock has been raised & **so the fans cannot be activated to inflate the sock**.



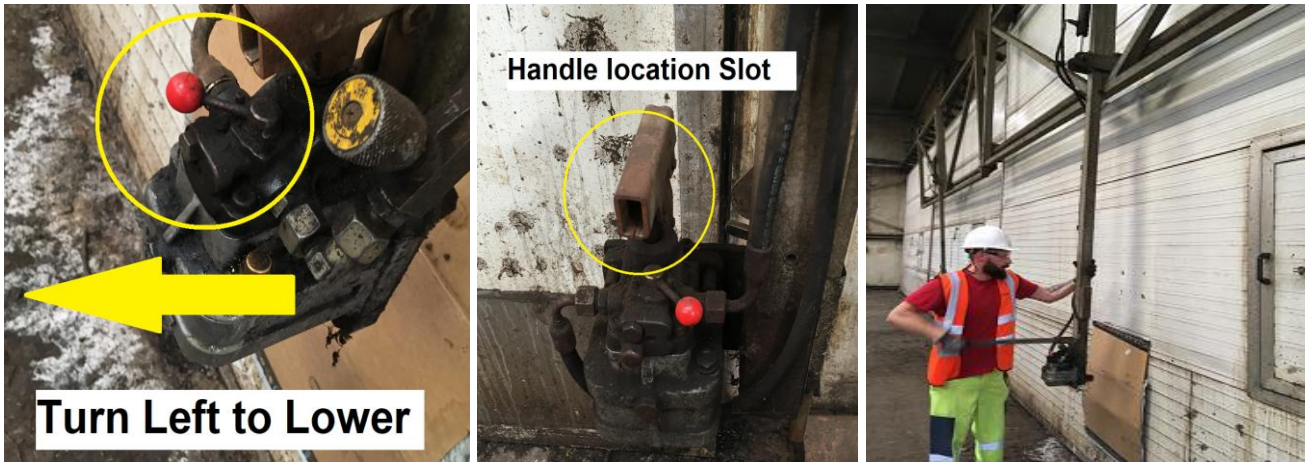
d. Return to the tunnel, ensuring that you have closed & secured the access doors, when descending the stairs **ensure you hold the stair handrail during the descent.**



e. Slide the door cradle over the tunnel door to be opened, position the cradle centrally over the door. **Ensure you use the correct manual handling technique when pushing/pulling the frame.**



f. Lower the frame by turning the lift valve to the left & attach the handle to the lifting unit & pump to lower the frame below the lifting lugs on the tunnel door.



g. The speed can be hydraulically adjusted by turning the valve.

h. Check the Cradle lifting lugs are lowered to the correct height for lifting then push the cradle into the door ensuring the lifting arms are under the door pins.

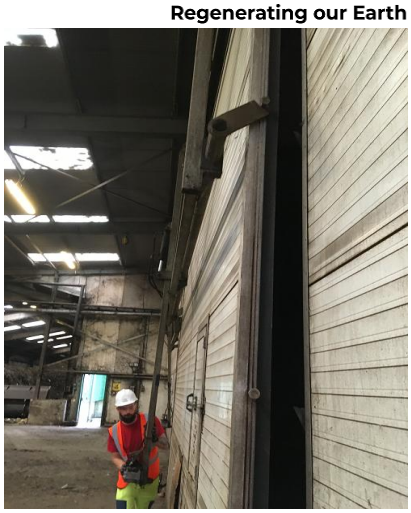
i. Clip the door securing chains from the frame to the door when moving the larger doors (G7-G11).

j. Turning the lift valve to the right & attach the handle to the lifting unit.

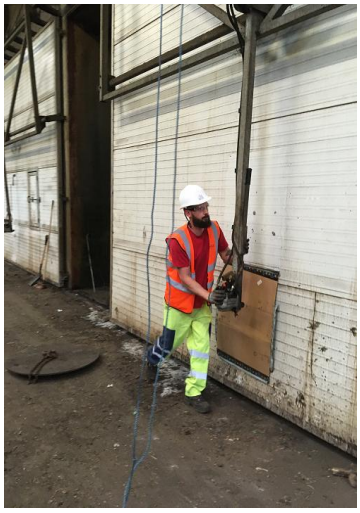
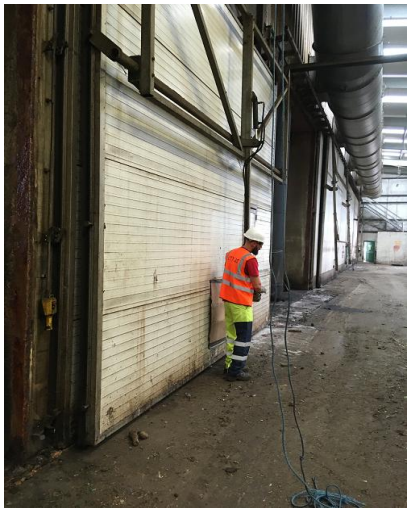
k. Pump the handle to lift the frame & tunnel door. Check the frame lifting arms are in position.

l. Keep pumping the handle until all the door securing pins are lifted above & clear of the keepers.

m. The tunnel door will lift out & away from the tunnel doorway.

n. The door can be moved until the tunnel is fully open & storing the door in front of another tunnel door. **Ensure you use the correct manual handling technique when pushing/pulling the door**.


3. Removing the tunnel air duct sock & covering the plenum.

a. **ENSURE FAN IS OFF BEFORE REMOVING SOCK!** check the tunnel air duct socks are clean & free from damage.


b. Make sure the sock is deflated & Unclip the air duct sock from the Plennum ring ensuring you undo all the ‘L’ bolts.

c. Prepare the air duct sock to be lifted away from the Plenum ring, cleaning away any loose material - on tunnels G3-G6 lower the electric winch hook from the stowage point in the ceiling then attach the lifting rope onto the base of the sock & the lifting hook.

d. Lift up the air duct sock using the electric winch system on Tunnels G3-G6 or the rope system on tunnel G7-G11 & secure the rope to the stowage location, so it is out of the way. Ensure the correct manual handling technique is used. **Once the sock has been lifted take care of the open plenum - if required install a barrier in front of the plenum**.

e. With care, Clean the edge of the plenum ring & remove any dirt that has fallen into the plenum with the long reach grabber. **Ensuring you are away from the edge at all times**. **Do not**

enter the Plenum without permission from the management. Do not leave the plenum uncovered without a safety barrier in place.


f. Remove the bucket off the loading shovel & replace with forks. **Ensure you use 3 points of contact when getting in & out of the loading shovel**. Locate the lifting chains & plenum cover. Place the hook of the chains in the cover lifting eye & place the lifting chain eye over the fork of the loader. With the loader lift the plenum cover & take it to the tunnel.




g. With the loader place the plenum cover securely over the plenum, once in place - tilt the forks forward to remove the chains off the forks. After exiting the loader ensure the cover is securely in place then remove the lifting chains & store them in a safe location.




h. Ensure that all 4 tunnel roof probes are removed & the 2 end probes are stored neatly in a safe position to the side of the door.

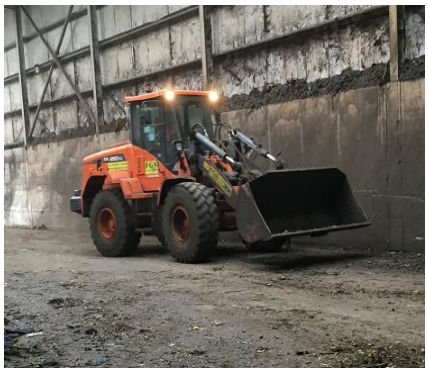
4. Removing the tunnel barriers.

a. With the loader lift the barrier up **ensuring the barrier pins are fully out of the floor holes** & remove the tunnel barriers out of the tunnel entrance, ensuring the barriers are left in a safe location.

- Tunnels G3-G6 has one large barrier that has fork eyes within the barrier, so the loader can lift & remove the barrier.

- Tunnels G7-G11 has 2 smaller barriers that require them to be lifted using strops & shackles that are fixed to the eyelets on the doors & the lifting strops are placed over the forks so the loader can lift & remove the barrier.

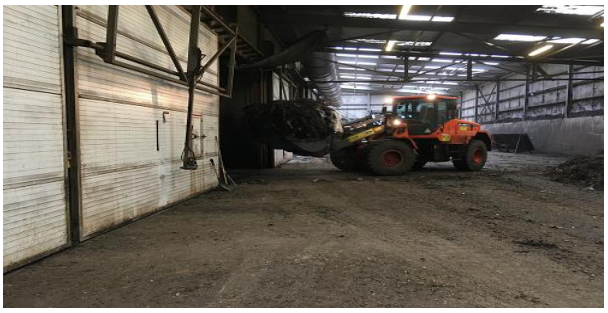
b. Put the loading bucket back onto the loader & check that the out-tunnel end barriers are in position & the tunnel air ducts groves & spigot holes are free from waste material.



c. Push the waste that has not been emptied to the end of the tunnel until the tunnel entrance is free to access for loading.


5. Loading the tunnel with Waste.

a. The tunnels can be loaded with shredded Cat 3 waste using the dirty loading shovel. The loading line marks should be observed when loading the tunnels with waste. Ensure the waste is well mixed with oversize material to ensure the flow of air within the tunnels (if required) prior to filling. If unsure about the density of material, and quantity of oversize to add, check with management. When filling, ensure no material falls over the retaining barrier on to the clean area (ramp).


b. When loading the waste **care must be taken not to hit the tunnel walls, tunnel ceiling or water pipes & damaging the equipment.**


c. The tunnel is filled with processed Cat 3 waste for the whole length until **approx. 2 meters from the tunnel entrance**, to leave space to replace the tunnel barriers. Once the fill level is decided, continue at the *same* level. **Do not leave "hills & valleys".** Do not run on or compact the material as this will affect the airflow.

6. Replacing the tunnel barriers.

a. Prepare the area for the replacement of the barriers by:

- Pushing back any waste in the area where the barrier will be located with a hand shovel.


- Clean out the barrier pin holes with the long trowel.



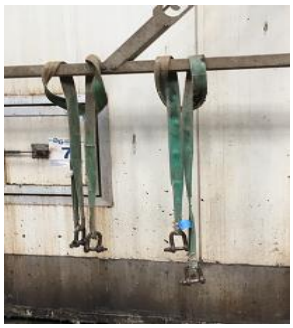

- Scrape any waste away from the plenum cover with the shovel.

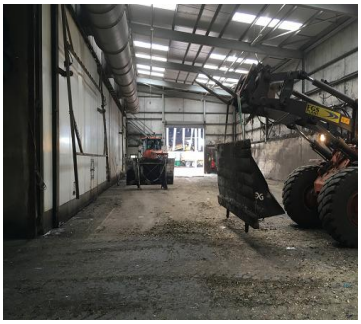
b. Replace the tunnel barriers into the tunnel:

- Remove the bucket off the loading shovel & replace with forks. **Ensure you use 3 points of contact when getting in & out of the loading shovel**.

- Tunnels G3-G6 has one large barrier that has fork eyes within the barrier, so the loader can lift the barrier. Pick up the large barrier with the forks & manoeuvre it back to the tunnel lowering it so the barrier pins locate & the barrier sits flat on the ground.

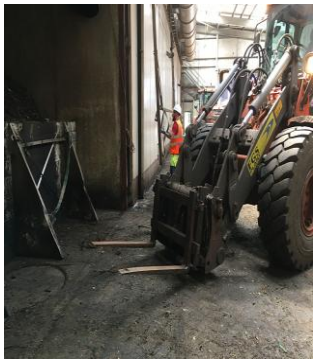
- Tunnels G7-G11 has 2 smaller barriers that require them to be lifted using strops & shackles that are fixed to the eyelets on the doors & the lifting strops are placed over the forks so the loader can pick up the small barrier & manoeuvre it back to the tunnel, lowering it so the barrier pins locate & the barrier sits flat on the ground.

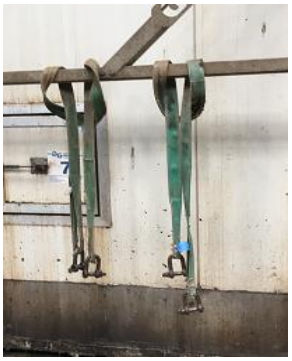







c. Remove the strop & shackles & put them in a secure place. Change the forks & put back on the loading bucket. **Ensure you use 3 points of contact when getting in & out of the loading shovel.**






d. With the loader fill the remaining void behind the barriers with processed CAT 3 waste, **ensuring you do not hit & damage the barriers with the loader**.




e. Clean the door threshold & outside the doors to ensure a good seal. **Ensure that material spilt over the barriers, and drainage gullies are cleaned, and this material is put back into the tunnel being filled to be sanitised. Finally scrape all material in front of tunnel to the next batch of waste to be filled**.


f. Clean the plenum cover for removal & any loose material behind the barrier.

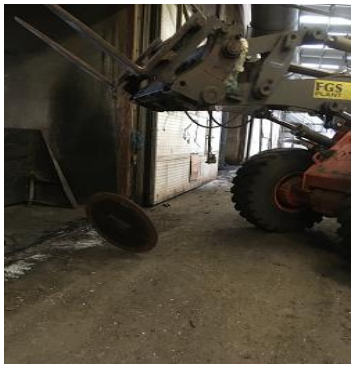


g. Insert the end door probes **as far back as possible at the highest part of the material and ensuring it is firmly into the waste material to get a suitable reading.** Do not pull the sensors by the cable, as this could result in probe failure.


7. Removing the plenum cover & refitting tunnel air duct sock.

a. Remove the bucket off the loading shovel & replace with forks. **Ensure you use 3 points of contact when getting in & out of the loading shovel.** Locate the lifting chains & place the hook of the chains in the plenum cover lifting eye. Place the lifting chain eye over the fork of the loader. With the loader lift the plenum cover & store the cover in a safe location & store the chains in a safe location.

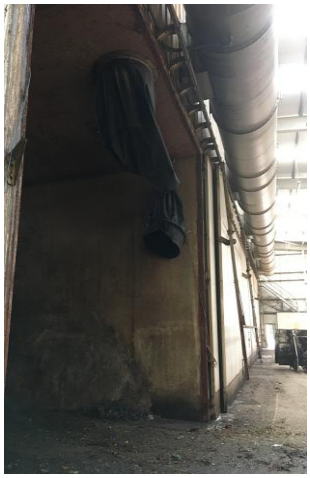


i. With care, clean the edge of the plenum ring & **remove any dirt that has fallen into the plenum** with the broom & long reach grabber to **ensure that there are no blockages within the plenum**. **Ensuring you are away from the edge at all times**. **Do not enter the Plennum without permission from the management. Do not leave the plenum uncovered without a safety barrier in place.**



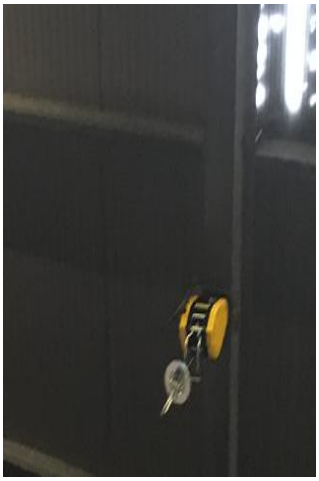
b. Lower the air duct sock using the electric winch system on Tunnels G3-G6 or the rope system on tunnel G7-G11 & secure the rope to the stowage location, so it is out of the way. **Ensure the correct manual handling technique is used**.





c. On tunnels G3-G6 - Remove the lifting rope from the electric winch hook & base of the sock & retract the hook to the stowage point in the ceiling.

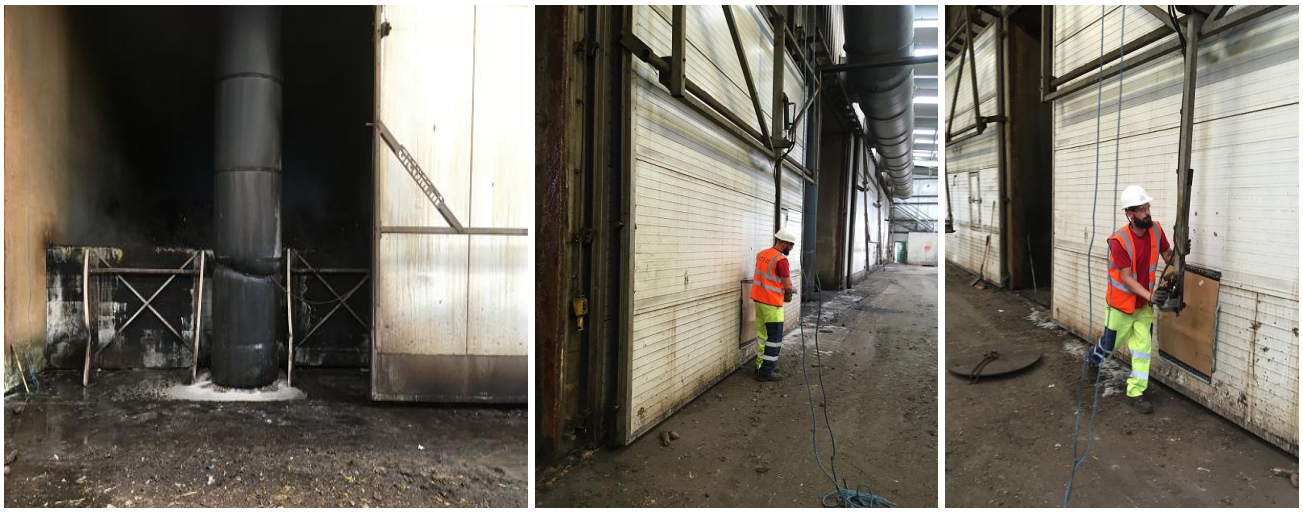




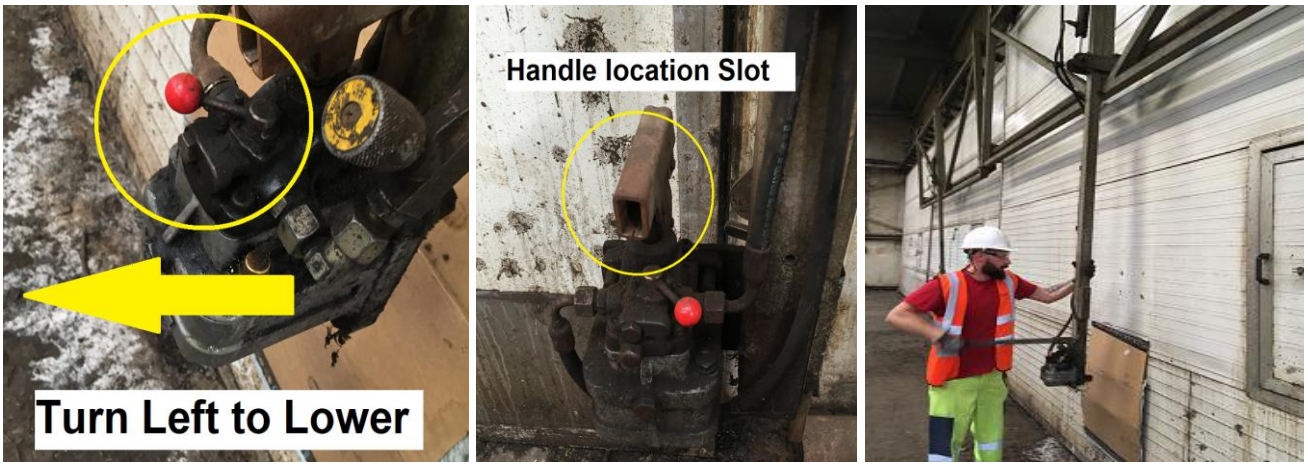
d. Fasten the air duct sock to the Plennum ring ensuring you fasten all the 'L' bolts in a clockwise direction.

8. Closing the tunnel doors.

a. Close the tunnel door by pushing on the cradle frame **Ensure you fully close the door & use the correct manual handling technique when pushing/pulling the door**.



b. Lower the door by turning the lift valve to the left & attach the handle to the lifting unit & pump to lower the door so the door pins engage the lifting lugs on the tunnel door.

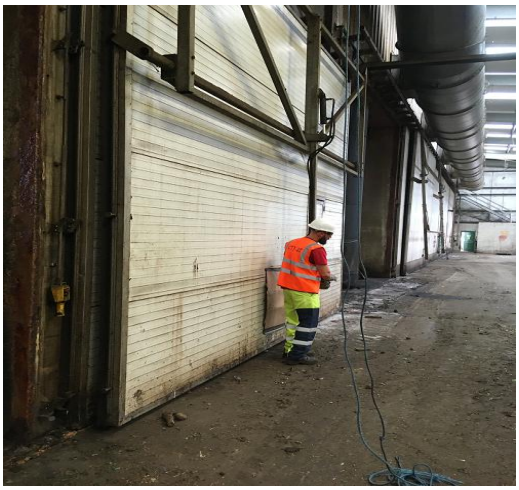


c. Keep pumping the handle until all the door securing pins are lowered & sitting in their keepers.

d. Check the Cradle lifting lugs are lowered the lifting arms are under the door pins.

e. Remove the door securing chains from the door after moving the larger doors (G7-G11).

f. The door cradle can be moved to another door if required. **Ensure you use the correct manual handling technique when pushing/pulling the frame.**




g. Make your way to the outside tunnel door **Always use the 2-way radio to announce you are walking in the operational area.** Ensure the end **void has been filled** if not fill the void with waste from an existing windrow. Then insert the door probe door probe **ensuring it is firmly into the waste material to get a suitable reading.** Do not handle sensors by the cable, as this could result in probe failure.



h. Clean the door threshold & outside the doors to ensure a good seal. **Ensure that material spilt over the barriers, and drainage gullies are cleaned, and this material is put back into the tunnel being filled to be sanitised. Finally clean all material off the ramp in front of tunnel.**


i. Ensure the tunnel door is correctly picked up on the cradle & close the outer tunnel door. **Ensure the correct manual handling technique is used when pushing or pulling.**

j. **Ensure the door pins are in the keepers** & lower the tunnel door by turning the lift valve to the left & attach the handle to the lifting unit & pump to lower the door so the door pins engage the keepers on the tunnel door.

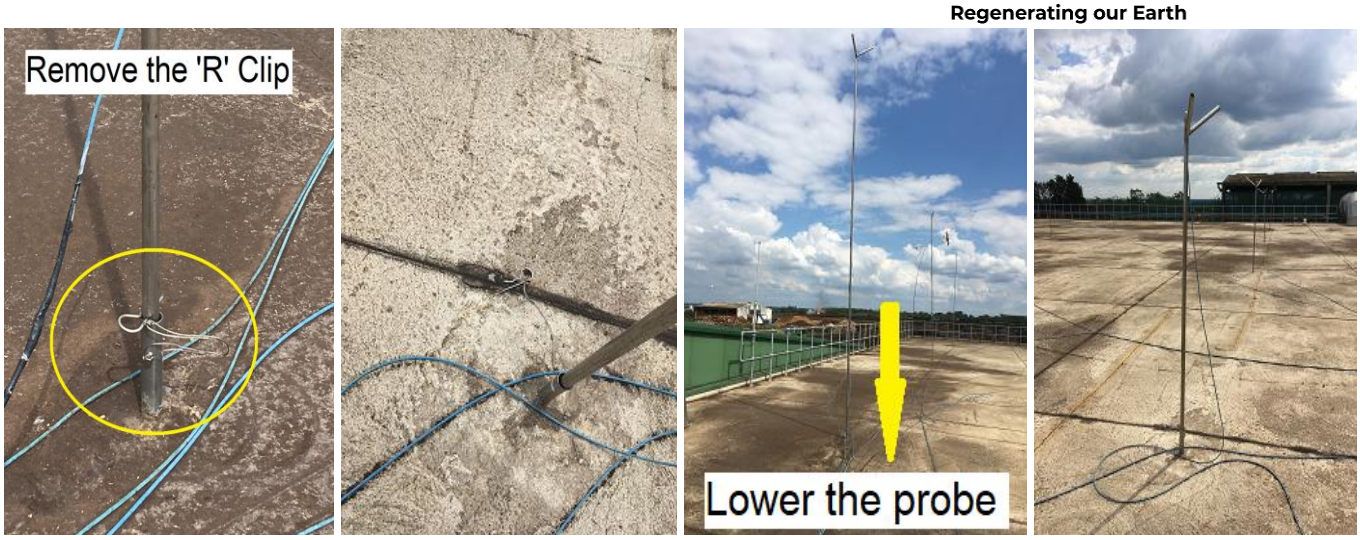
k. Remove the door securing chains from the door after moving the larger doors (G7-G11).

l. The tunnel door cradle frame can be moved to another door if required.

9. Inserting the roof probes & starting the Gicom system.

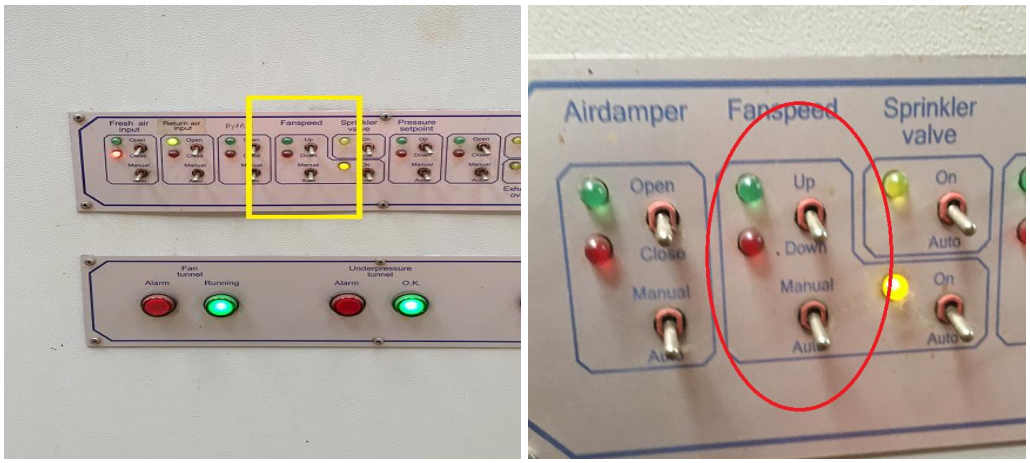
a. Climb the stairs to the Gicom roof technical area **ensuring that you hold the handrail during the ascent.**

b. Insert the probes on the corresponding tunnel –by removing the 'R'-clips & lowering the probe into the waste within the tunnel. The probes will be required to be pushed down **firmly into the waste material to get a suitable reading**. **Ensure the correct manual handling technique is used.**



c. **Remove the clip & 'Danger sock is Raised' sign**. Turn the power switch clockwise to the 'I' - **on position, this will power up the frequency converter** & **so the fans will activate inflating the sock**. Ensure you leave the clip by the unit for future use.

d. Turn on the fan to the corresponding Tunnel by switching the fan to **auto**.



e. The operator then informs the 'WhatsApp' tunnel group that the tunnel is ready.

f. The operator is then to complete the tunnel filling sheet located in each Gicom technical area.

Tunnel Fill - Empty Checklist Sheet

Tunnel Number	Fill Date	Empty Date	Sock fan locked off & unlocked (tick ✓)	All (6) probes in (tick ✓)	Fill - End Floor between main & end-board brushed clean	Emptying - End Floor between main & end-board brushed & gullies cleaned (internal & external)	Main doors closed & sealed. (Ensure all hooks are engaged)	Floor & spigots cleaned	Comments: damage, repairs required etc. NOTE: If fill material on clean-end ramp, clean & disinfect	Operator Name	Operator Signature

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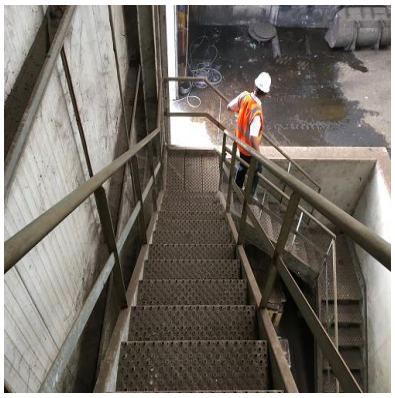
g. Return to the tunnel, ensuring that you have closed & secured the access doors, when descending the stairs **ensure you hold of the stair handrail during the descent.**


10. Additional procedures.

a. All Dirty Loading equipment must be cleaned before they leave the link area.

b. All site personnel/visitors leaving the link building must use the disinfectant footbaths provided to clean their feet.

c. All Dirty loading buckets/attachments/shredders must remain in the link area unless cleaned.

d. All waste in the link building is processed using the **first in - first out system** (FIFO).

e. Any Spillages of fuel /chemical must be reported & cleaned up using the site spill equipment.