



# Corporate Greenhouse Gas Inventory for:

HI-LINE CONTRACTORS S.W. LTD.

Fiscal Year: 2020 / 2021

A Greenhouse Gas inventory produced by MyCarbon, a  
GHG inventory platform provided by Carbon Green Ltd.



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## Introduction

This is a greenhouse gas (GHG) inventory report for HI-LINE CONTRACTORS S.W. LTD, hereby known as Hi-Line for the May 2020 / May 2021 fiscal year. The report is completed by MyCarbon, a platform developed by Carbon Green Ltd. The report follows the five main reporting principals as outlined by ISO 14064-1: **Transparency, relevance, accuracy, consistency, completeness.**

Established in 1998, Hi-Line are one of the UK's leading tree surgery and management companies. A family-owned business. Employing over 250 people, from apprentices to consultants.

Hi-Line provide a full range of professional tree surgery and arboricultural services, as well as cost-effective solutions in all areas of, grounds maintenance and other associated services.

All Hi-Line employees are trained and qualified to NPTC arboriculture standards. Their skilled arborists are ready to provide a qualified and professional range of tree services across all industry sectors.

Hi-Line have held Arboricultural Association accreditation since 2012. Being an arb approved contractor is a mark of quality, assuring customers of good quality tree care undertaken safely and efficiently.

Hi-Line has compiled a GHG inventory report for the May 2020 / May 2021 fiscal year to better understand their emissions and carbon footprint. This report presents the findings of this exercise. The report follows the ISO 14064-1 standard entitled *Specification with Guidance at the Organisation Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*. The report will be made publicly available <https://www.hi-line.co.uk/sustainability/>



## Inventory Team and Contact Information

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## Reporting Period

The inventory covers the 2020 / 2021 fiscal year from 1st June 2020 to 31<sup>st</sup> May 2021.



## Organizational Boundaries

### Company organizational boundaries.

The GHG inventory report covers all Scope 1, 2 and 3 emissions for Hi-Line. The full organizational carbon footprint is calculated within this report including all offices and leased assets. Within the Scope 3 assessment, the full supply chain for Hi-Line is reviewed alongside any indirect emissions required in support of Hi-Lines operations including employee commuting and waste disposal.

Hi-Line has compiled a GHG inventory report for the May 2020 / May 2021 fiscal year to better understand their emissions and carbon footprint. The corporate organizational boundaries for the inventory were defined according to the requirements of **clause 4.1 of the ISO 14064-1 standard**. The selected approach was used for the consolidation of corporate GHG emissions.



## Operational Boundaries

### Identified Emissions

The following emissions were determined to be relevant within the organizational boundaries:

- Office commodities e.g. paper and general office supplies
- Company petrol and diesel usage
- Employee commuting
- Office electricity usage
- Transmission and distribution of power
- Heating oil usage (Gasoil and Kerosene)
- Lubricant usage
- Clothing and safety equipment
- Water consumption and treatment
- Office internet usage
- Waste to landfill and recycled waste
- Leased equipment – Production emissions
- Emissions associated with resulting forestry product (wood by-product)

### Scope 1 Emissions

Scope 1 Emissions
Company petrol and diesel usage
Heating oil usage (Gasoil and Kerosene)
Lubricant usage

### Scope 2 Emissions

Scope 2 Emissions
Office electricity usage



## Scope 3 Emissions

Scope 3 Emissions
Office commodities e.g. paper and general office supplies
Employee commuting
Clothing and safety equipment
Transmission and distribution of power
Water consumption and treatment
Office internet usage
Waste to landfill and recycled waste
Leased equipment – Production emissions

## Exclusions

Emission Exclusions
Emissions associated with resulting forestry product (wood by-product)

### Emissions associated with resulting forestry product (wood by-product)

Large quantities of arboriculture by-product (wood and mulch) are produced as a result of Hi-Lines business operations. These have been identified as Scope 3 emissions produced as part of Hi-Line's business operations. The emissions generated from the by-product are offset due to the carbon storing nature of wood products and the end uses of the wood and mulch. The majority of the by-product is sold by Hi-Line for biomass electricity generation. To avoid double counting with other commercial entities this negative footprint will not be accounted for in this report but instead will be assumed to offset any emissions caused directly from the excluded emissions source (Emissions associated with resulting forestry product (wood by-product)).



## Base Year

The base year is May 2020 / May 2021. This year *could* be classified as having significant business disruption due to COVID, however Hi-Line's business operations were not significantly impacted.

## Quantification Methodology

The methodologies used to collect and assess the emissions data varied throughout the inventory. The primary methodology used was multiplying GHG activity data by appropriate GHG emission factors. All methodologies were selected based on their ability to provide accurate and consistent results. The use of activity data and emission factors was feasible due to the availability of both accurate activity data and emission factors from reputable organisations.

All emission factors for the emissions associated to Hi-Line are provided by Department for Business, Energy & Industrial Strategy and peer reviewed literature sources. Emissions have been calculated by multiplying activity data by emission factors.

Employee commuting was calculated using a survey developed by MyCarbon and conducted by Hi-Line on 37 out of 262 employees. The sample dataset was then extrapolated to model the commuting behaviours of all 262 employees.

For uniforms and safety equipment total annual spend was converted into kg CO<sub>2</sub>e. This was conducted by taking average pricing and weight data for a sample shopping basket, before multiplying by the associated emissions factors.

For leased equipment the weight and type of equipment was used to develop an emissions factor which was multiplied by the quantity of each equipment type and divided by a predicted lifespan in years to account for a realistic proportion of the total leasable potential.





## GHG Inventory Data Quality Management

MyCarbon uses the latest figures from DEFRA and peer reviewed literature for all common emission factors.

Hi-Line's data has been compiled from total annual spend for all emissions sources other than water, internet usage and waste. The data for these three emissions sources was readily available from meter readings or supplier request for information.

VAT has been added to costs that were converted using industry average pricing that also included VAT. This includes company petrol and diesel, uniforms, safety equipment and office supplies.

All data is collected and stored via a secure cloud server. Access to this data is restricted to specific employees of MyCarbon.

Any personal data is anonymised for calculation and reporting purposes.



## GHG Emissions

All emissions in this report have been calculated in CO<sub>2</sub>e, meaning other greenhouse gases have been converted into equivalent CO<sub>2</sub> emissions based on their global warming potential. Please refer to the following tables for finalized emissions resulting from Hi-Line in the fiscal year May 2020 / May 2021.

### Emissions by Source

Company use of diesel and petrol:

Fuel type	Amount used (£)	Amount used (L)	Co Eff [1] (kg CO <sub>2</sub> e/L)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Diesel	746,277.60	631,368.53	2.70553	<b>1,708,186.49</b>	<b>1,708.2</b>
Petrol	60,888.00	342,341.27	2.33969	<b>125,847.21</b>	<b>125.9</b>

\*Conversion factor from cost to litres was taken from Department for Business, Energy and Industrial Strategy monthly average fuel price data for the 12-month period [2]. Diesel: £1.182/L and petrol: £1.132/L

\*VAT has been added to actual price to align with pricing factors.

Use of heating oil and lubricants:

Oil Type	Amount used (£)	Amount used (L)	Co Eff [1] (kg CO <sub>2</sub> e/L)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Gas Oil		54,815	2.75857	<b>151,211.01</b>	<b>151.2</b>
Kerosene		4,773	2.54514	<b>12,147.95</b>	<b>12.1</b>
Chainsaw Oil	12,449.64	4,917.89	2.75	<b>13,585.92</b>	<b>13.6</b>

\*VAT has been added to chainsaw oil price to align with pricing factors.



Office electricity usage and transmissions losses:

Source	Consumption (£)	Consumption (kWh)	Co Eff [1] (kgCO <sub>2</sub> e /kWh)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
UK national electricity grid	15,880.09	76,715.41	<b>0.21233</b>	<b>16,288.98</b>	<b>16.3</b>
UK grid transmission losses	15,880.09	76,715.41	<b>0.00899</b>	<b>689.67</b>	<b>0.7</b>

\*Cost to kWh converted using Hi-Line's electricity tariff

Clothing and safety equipment:

Source	Annual Spend (£)	Amount (kg)	Co Eff [1] (kg CO <sub>2</sub> e/kg)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Normal Uniform	13,826.62	1,046.98	22.31	<b>23,358.19</b>	<b>23.4</b>
Safety Uniform	91,390.75	2,893.61	22.31	<b>64,556.47</b>	<b>64.5</b>
Safety Equipment	85,776.26	769.87	22.31	<b>17,175.78</b>	<b>17.2</b>

\*VAT has been added to costs to align with pricing conversion factors

\*Pricing conversion factor calculation can be found in Appendix section 1. Normal Uniform: £13.21/kg, Safety Uniform: £31.58/kg and Safety Equipment: £111.42/kg. Conversion factors developed using sources [1], [4] and pricing data provided by Hi-Line.

Employee Commuting:

Fuel type	Amount used (£)	Amount used (L)	Co Eff [1] (kgCO <sub>2</sub> e/L)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Diesel	215,406.49	182,238.99	2.70553	<b>493,053.06</b>	<b>493.1</b>
Petrol	102,566.63	90,606.56	2.33969	<b>211,991.27</b>	<b>212.0</b>

\*Employee survey can be found in section 2 of the appendix. Data was extrapolated for 262 employees and 90% attendance used to account for holiday/sickness. See appendix section 2 for more detail.



Office commodities e.g. paper and general office supplies:

Source	Amount used (£)	Co Eff [5] (kg CO <sub>2</sub> e/£)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Office supplies	21,874.72	0.65	<b>14,279.33</b>	<b>14.3</b>

\*VAT added to ensure alignment to suitable emissions factor.

\*Emissions factor converted from USD to GBP from XE.COM rate on 5<sup>th</sup> August 2021: 0.72

Water consumption and treatment:

Source	Amount used (m <sup>3</sup> )	Co Eff [1] (kg CO <sub>2</sub> e/m <sup>3</sup> )	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Water consumption	546	0.149	<b>81.35</b>	<b>0.1</b>
Water treatment	546	0.272	<b>148.51</b>	<b>0.1</b>

Waste to landfill and recycled:

Source	Amount used (L)	Amount used (kg)	Co Eff [1] (kg CO <sub>2</sub> e/kg)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Waste to landfill	145200	71685.2	0.446242	<b>31,988.96</b>	<b>32.0</b>
Waste recycled	132000	65168.4	0.021294	<b>1,387.70</b>	<b>1.4</b>

\*Conversion factor for litres to kg was taken from SEPA UK under the category of non-hazardous mixed waste [8]. Conversion: 0.4937kg/l.

Office internet usage:

Source	Amount used (GB)	Co Eff [6][7] (kWh/GB)	Co Eff [1] (kg CO <sub>2</sub> e/kWh)	CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Internet Usage	70000	1.8	0.21233	<b>26,753.58</b>	<b>26.8</b>



Leased assets – Production emissions:

Source	Leased Quantity	Co Eff [9] [10] [11] (kg CO <sub>2</sub> e/unit)	Usable life (years)	Annual CO <sub>2</sub> e (kg)	CO <sub>2</sub> e (tonnes)
Toyota Hilux	76	7722	7.5	<b>78249.6</b>	<b>78.2</b>
Volkswagen Caddy	79	5265	7.5	<b>55458.0</b>	<b>55.5</b>
Heavy Equipment	6	35100	12	<b>17550.0</b>	<b>17.6</b>
Large Vans	35	7371	7.5	<b>34398.0</b>	<b>34.4</b>
Wood Chippers	27	5265	12	<b>11846.3</b>	<b>11.8</b>

\*Emissions factors for high value leased assets were generated from a single emissions factor for a Toyota Hilux and adjusted based on predicted weight for the other items. The annual emissions associated with the lease contract were calculated by dividing the total production emissions by the predicted usable life of that asset.

Category	CO <sub>2</sub> e (tonnes)	CO <sub>2</sub> e (tonnes) + 5%
Scope 1: Direct Emissions	2011.0	2111.5
Scope 2: Indirect Energy Emissions	16.3	17.1
Scope 3: Indirect Other Emissions	1083.0	1137.1
<b>Total</b>	<b>3110.2</b>	<b>3265.7</b>

\*ISO-14064:1 dictates that 5-10% should be added to the calculated GHG emissions inventory to account for modelling uncertainty. Conservative assumptions were made in regards to mitigated emissions from the use of wood by-product for biomass. Therefore, the minimum 5% has been added to account for modelling uncertainty.



## Summary

Emissions resulting from Hi-Line in the fiscal year May 2020 / May 2021 have been reported by MyCarbon. Emissions have been reported in conformance with the ISO 14064-1 standard entitled *Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

Emissions resulting from Hi-Line in the fiscal year May 2020 / May 2021 have been reported to total **3265.7** tonnes CO<sub>2</sub>e.



## References

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## Appendix

### Section 1 - Clothing and safety equipment:

Normal Uniform					
	Cost (£)	Weight (kg)	Mix	Total Cost (£)	Total Weight (kg)
Polo Shirt	5.46	0.175	5	27.3	0.875
Jacket	18.54	2	2	37.08	4
			Total	64.38	4.875
			Conversion Factor	13.21	£/kg
Safety Uniform					
	Cost (£)	Weight (kg)	Mix	Total Cost (£)	Total Weight (kg)
Polo Shirt	9.33	0.175	5	46.65	0.875
Trousers	26.46	1.7	2	52.92	3.4
Jacket	54.58	2	2	109.16	4
Shoes	100	1.5	1	100	1.5
			Total	308.73	9.775
			Conversion Factor	31.58	£/kg
Safety Equipment					
	Cost (£)	Weight (kg)	Mix	Total Cost (£)	Total Weight (kg)
Chainsaw trousers	191	2	2	382	4
Helmets	83	0.5	1	83	0.5
Shoes	203.5	1.5	1	203.5	1.5
Flame Retardant	42.6	1.3	1	42.6	1.3
High Viz	15.35	0.5	1	15.35	0.5
Safety Gloves	19.95	0.5	2	39.9	1
			Total	668.5	6
			Conversion Factor	111.42	£/kg
Leased equipment					
	Quantity	Production Emissions Per Unit (kgCO2e)	Weight (kg)	Usable Life (years)	Total annual emissions (kgCO2e)
Toyota Hilux	76	7722	2200	7.5	78249.6
Volkswagen Caddy	79	5265	1500	7.5	55458.0
Heavy Equipment	6	35100	10000	12	17550.0
Large Vans	35	7371	2100	7.5	34398.0
Wood Chippers	27	5265	1500	12	11846.3
				Total emissions	197501.9



## Section 2 - Employee Commuting:

Employee ID	Weekly fuel spend for commuting? (£)	Fuel Type	Days commuting per week?	52 week fuel spend for commuting
1	30	Diesel	5	1404
2	30	Diesel	5	1404
3	20	Diesel	5	936
4	20	Petrol	5	936
5	20	Petrol	5	936
6	35	Petrol	5	1638
7	15	Petrol	5	702
8	3	Petrol	5	140.4
9	20	Diesel	5	936
10	1.5	Petrol	5	70.2
11	0	Diesel	0	0
12	50	Diesel	5	2340
13	65	Diesel	5	3042
14	65	Diesel	5	3042
15	35	Petrol	5	1638
16	0	Petrol	0	0
17	30	Diesel	5	1404
18	20	Petrol	5	936
19	0	Diesel	5	0
20	25	Diesel	5	1170
21	10	Petrol	5	468
22	50	Petrol	5	2340
23	0	Diesel	0	0
24	5	Diesel	5	234
25	0	Diesel	0	0
26	50	Diesel	5	2340
27	40	Diesel	5	1872
28	0	Diesel	0	0
29	40	Diesel	5	1872
30	30	Diesel	5	1404
31	25	Petrol	5	1170
32	0	Diesel	5	0
33	60	Diesel	5	2808
34	40	Petrol	5	1872
35	50	Diesel	5	2340
36	40	Diesel	5	1872
37	35	Petrol	5	1638