East Anglia ONE North Offshore Windfarm

Appendix 26.22

Derivation of Construction Material Quantities and Associated HGV Demand (Scenario 1)

Environmental Statement
Volume 3

Applicant: East Anglia ONE North Limited
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Material Vehicle Movements

Reference	General Data (Fixed Information)	Units	Value	Source/Comments
1.01	Number of Projects		2	OPEDA / Project Parameters
1.02	Number of circuits per project		2	OPEDA / Project Parameters
1.03	Tipper Truck Capacity	Tonnes	20	8x4 Rigid Tipper http://www.mqp.co.uk/vehicle.htm
1.04	Ready Mix Concrete truck Capacity	m^3	6	6m3 Truck mixer https://www.hanson.co.uk/en/technical-information/truck-information
1.05	Steel reinforcement per m3 of concrete	t/m^3	0.065	Assumed
1.06	Type 1 Stone Density	t/m^3	2.3	MOT Type 1 https://www.smithsbletchington.co.uk/mot-type-1
1.07	Crusher Run Stone Density	t/m^3	2.1	Crusher Run Stone https://www.smithsbletchington.co.uk/limestone-crusher-run
1.08	Compound / Haul Road Type 1 Sub-base Thickness	m	0.15	Drawing ED11892-GE-2040 A
1.09	Compound / Haul Road Crushed Stone Thickness	m	0.1	Drawing ED11892-GE-2040 A
1.10	Geogrid mass/Area	kg/m^2	0.22	Tensar SS20 https://www.drainagesuperstore.co.uk/user/u/files/jdp-tensar-geogrid.pdf
1.11	Mass of geogrid per delivery	Tonnes	2	Assumed
1.12	Concrete Block Length	m	0.215	https://www.travisperkins.co.uk/Solid-Dense-Concrete-Block-7-3N-100mm/p/700064
1.13	Concrete Block Width	m	0.215	https://www.travisperkins.co.uk/Solid-Dense-Concrete-Block-7-3N-100mm/p/700064
1.18	Concrete Block Height	m	0.1	https://www.travisperkins.co.uk/Solid-Dense-Concrete-Block-7-3N-100mm/p/700064
1.19	Number of concrete blocks per pallet	-	60	10 block on base of 1.2x1m pallet then 6 rows high
1.20	Number of pallets per delivery	-	5	Assumed
1.21	Native Soil Density	t/m^3	2	Worst case for Glacial Clays
1.22	Mass of bentonite bag	kg	25	https://mistralni.co.uk/products/sodium-bentonite-grg
1.23	Number of bentonite bags per pallet	-	42	https://mistralni.co.uk/products/sodium-bentonite-grg
1.24	Density of bentonite	t/m^3	0.9	https://mistralni.co.uk/products/sodium-bentonite-grg
1.25	Number of bentonite pallets per delivery	-	5	Assumed
1.26	Volume of fluid delivery vehicle	litres	30,000	Articulated Water Tanker https://www.water-direct.co.uk/what-we-do/water-tankers/
1.27	Heras Fencing Panel Hight	m	2	Heras HSG 151 Fencing https://www.heras-mobile.co.uk/fencing/151-system
1.28	Heras Fencing Panel Width	m	3.5	Heras HSG 151 Fencing https://www.heras-mobile.co.uk/fencing/151-system
1.29	Weight Per Panel	kg	16	Heras HSG 151 Fencing https://www.heras-mobile.co.uk/fencing/151-system
1.30	No of panels per delivery	-	125	Assumed 2T of panelling per delivery (includes all required feet and connectors)
1.31	Topsoil Depth	m	0.45	Assumed
1.32	Density of Topsoil	t/m^3	0.67	https://www.rolawn.co.uk/calculating-topsoil-requirements
1.33	Length of stock fencing roll	m	500	1.15 Cattle Fence https://www.jacksons-fencing.co.uk/fencing/agricultural-fencing/wire-fencing-stock
1.34	Frequency of Wooden Post	m	5	Assumed
1.35	Frequency of tension post (includes 2 stay posts)	m	50	Assumed
1.36	Length of fencing (including required posts) per HGV Delivery	m	4000	Assumed

Reference	Landfall Data (Fixed Information)	Units	Value	Source/Comments
2.01	Width of HDD Compound	m	190	Drawing ED11892-GE-2016 Rev D
2.02	Length of HDD Compound	m	70	Drawing ED11892-GE-2016 Rev D
2.03	Number of HDDs per compound	-	8	Drawing ED11892-GE-2016 Rev D
2.04	Number of marine export cables per project	-	2	OPEDA / Project Parameters
2.05	Marine Export cable diameter	m	0.285	EA1 Metodology
2.06	Marine export cable length per drum	m	500	Unknown
2.07	Number of marine export cable drums per delivery	-	0	Brought in from offshore
2.08	Number of marine fibre cables per project	-	2	OPEDA / Project Parameters
2.09	Marine fibre cable diameter	m	0	Unknown
2.10	Marine fibre cable length per drum	m	0	Unknown
2.11	Number of marine fibre cable drums per delivery	-	0	Brought in from offshore
2.12	HDD reamed diameter	m	1.1	Calculated (2.16 * 4/3)
2.13	Volume of drill fluid required per metre length of bore	m^3	2.38	(2.5 times volume of soil removed based on advice from Tim Riggall, Riggall & Associates on 31/07/2018)
2.14	Percentage of drill fluid removed from site	%	40	Assumed
2.15	Bentonite required	kg/m^3 of drill fluid	37	Assumed 20kg/1000l for clay and 65kg/1000l for gravels
2.16	HDD duct diameter	m	0.8	EA1 Metodology
2.17	HDD duct section length	m	0	Brought in from offshore
2.18	No of HDD duct lengths per delivery	-	0	Brought in from offshore
2.19	Number of transition bays to be constructed	-	4	OPEDA / Project Parameters
2.20	Transition bay width (construction footprint)	m	42	Project Parameters
2.21	Transition bay height (construction footprint)	m	3	Project Parameters
2.22	Transition bay length (construction footprint)	m	37	Project Parameters
2.23	Transition bay width (underground infrastructure only)	m	6	OPEDA / Project Parameters
2.24	Transition bay height (underground infrastructure only)	m	1.8	OPEDA / Project Parameters
2.25	Transition bay length (underground infrastructure only)	m	21	OPEDA / Project Parameters
2.26	Transition bay slab surface area	m^2	126	Calculated (2.23 x 2.25)
2.27	Transition bay slab thickness	m	0.2	To be confirmed
2.28	Transition bay slab concrete volume	m^3	25.2	Calculated (2.26 x 2.27)
2.29	Transition bay steel reinforcement	Tonnes	1.638	Calculated (1.05 x 2.28)
2.30	Number of blocks per transition bay	-	2196	WA Calculation
2.31	Precast concrete slab length	m	5.26	Assumed (to be designed)
2.32	Precast concrete slab width	m	0.5	Assumed (to be designed)
2.33	Precast concrete slab height	m	0.25	Assumed (to be designed)
2.34	Number of precast concrete slabs per delivery	-	4	Each slab approx. 5T
2.35	Number of precast concrete slabs per transition bay	-	42	Calculated (2.25 x 2.32)
2.36	Depth to top of transition bay installed underground infrastructure	m	1.2	Project Parameters
2.37	Temporary HGV holding zone at Elm Tree farm	m^2	1200	From plan minus 2 public road access areas
2.38	Additional Area required of HGV Turning Area	m^2	250	Drawing ED11892-GE-20131

Reference	Onshore Data (Fixed Information)	Units	Value	Source/Comments
3.01	Large CCS compound length	m	200	Drawing ED11892-GE-2058
3.02	Large CCS compound width	m	165	Drawing ED11892-GE-2058
3.03	Large CCS compound tarmac area	m^2	6,000	Drawing ED11892-GE-2058
3.04	Large CCS compound hardstanding area	m^2	21,200	Drawing ED11892-GE-2058
3.05	Medium CCS compound length	m	160	Drawing ED11892-GE-2057
3.06	Medium CCs compound width	m	88	Drawing ED11892-GE-2057
3.07	Medium CCS compound hardstanding area	m^2	11050	Drawing ED11892-GE-2057
3.08	Small CCS compound length	m	100	Drawing ED11892-GE-2056
3.09	Small CCS compound width	m	50	Drawing ED11892-GE-2056
3.10	Small CCS compound Hardstanding Area	m^2	3950	Drawing ED11892-GE-2056
3.11	Number of terrestrial export cables per project	-	6	OPEDA / Project Parameters
3.12	Number of terrestrial fibre cables per project	-	2	OPEDA / Project Parameters
3.13	Number of trenches per project	-	2	OPEDA / Project Parameters
3.14	Number of export cable ducts per trench	-	3	OPEDA / Project Parameters
3.15	Number of fibre cable ducts per trench	-	1	OPEDA / Project Parameters
3.16	Number of Projects to have cables installed in ducts	-	2	OPEDA / Project Parameters
3.17	Number of Projects for empty ducts to be installed	-	0	OPEDA / Project Parameters
3.18	Normal Onshore Cable Route Width	m	50.1	OPEDA / Project Parameters
3.19	Reduced Onshore Cable Route Width	m	27.1	OPEDA / Project Parameters
3.20	Cable trench width	m	0.9	Project Parameters
3.21	Cable trench depth	m	1.615	Project Parameters
3.22	Cement Bound Sand (CBS) depth	m	1.1	ED11892-GE-2041 A
3.23	CBS Volume per m run of trench	m^3	0.31	ED11892-GE-2041 A
3.24	CBS density	t/m^3	1.6	Assumed
3.25	Tile length	m	1	https://www.powerandcables.com/product/product-category/stokbord-cable-protection-1000mm-x-450mm/
3.26	Tile width	m	0.45	https://www.powerandcables.com/product/product-category/stokbord-cable-protection-1000mm-x-450mm/
3.27	Tile Height	m	0.02	Assumed
3.28	Number of tiles per delivery	-	800	Assumed. Based on 40 per pack and 20 packs per delivery
3.29	Depth to top of tile	m	1.00	ED11892-GE-2041 A
3.30	Terrestrial export cable diameter	m	0.17	OPEDA / Project Parameters
3.31	Terrestrial export cable length per drum	m	500	Project Parameters
3.32	Number of terrestrial export cable drums per delivery	-	1	Weight of cable 34T
3.33	Terrestrial fibre cable diameter	m	0.025	Assumed
3.34	Terrestrial fibre cable length per drum	m	2000	TBC
3.35	Number of terrestrial fibre cable drums per delivery	-	1	TBC
3.36	Diameter of terrestrial export cable ducts	m	0.25	ED11892-GE-2041 A
3.37	Diameter of terrestrial fibre cable ducts	m	0.11	ED11892-GE-2041 A
3.38	Length of terrestrial export cable duct	m	6	Page 32 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
3.39	Length of terrestrial fibre cable duct	m	6	Page 30 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
3.40	Number of terrestrial export cable ducts per pack	-	16	Page 32 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
3.41	Number of terrestrial fibre cable ducts per pack	-	90	Page 30 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
3.42	Number of duct packs per delivery	-	4	Assumed
3.43	Bentonite required for cable installation in ducts	kg/m^3 of fluid	60	Assumed
3.44	Maximum distance between joining bays	m	500	Project Parameters
3.45	Number of export cables per jointing bay	-	3	Project Parameters
3.46	Number of joining bays per location	-	2	Project Parameters
3.47	Jointing bay width (construction footprint)	m	18.6	Project Parameters
3.48	Jointing bay height (construction footprint)	m	2.9	Project Parameters
3.49	Jointing bay length (construction footprint)	m	30.6	Project Parameters
3.50	Jointing bay width (underground infrastructure only)	m	3	OPEDA / Project Parameters
3.51	Jointing bay height (underground infrastructure only)	m	1.7	OPEDA / Project Parameters
3.52	Jointing bay length (underground infrastructure only)	m	15	OPEDA / Project Parameters
3.53	Jointing bay slab surface area	m^2	45	Calculated (3.50 x 3.52)
3.54	Jointing bay slab thickness	m	0.2	To be confirmed
3.55	Jointing bay slab concrete volume	m^3	9	Calculated (3.53x 3.54)
3.56	Jointing bay steel reinforcement	Tonnes	0.585	Calculated (1.05 x 3.55)
3.57	Number of blocks per jointing bay	-	1394	WA Calculation
3.58	Precast concrete slab length	m	3	Assumed (to be designed)
3.59	Precast concrete slab width	m	1	Assumed (to be designed)
3.60	Precast concrete slab height	m	0.3	Assumed (to be designed)
3.61	Number of precast concrete slabs per delivery	-	8	Each slab approx. 2.5T
3.62	Number of concrete slabs per joining bay	-	15	Calculated (3.52 x 3.59)
3.63	Depth to top of jointing bay installed underground infrastructure	m	1.2	Project Parameters
3.64	Number if cable joint kits per jointing bay	-	3	Assumed
3.65	Number of cable joint kits per delivery	-	3	Assumed
3.66	Maximum distance between link boxes	m	500	Project Parameters
3.67	Number of link boxes per jointing bay	-	2	Project Parameters
3.68	Link box height	m	1.5	Project Parameters
3.69	Width of haul road / permanent access road	m	4.5	OPEDA / Project Parameters
3.70	Minimum distance between Passing Places	m	87	ED11892-GE-2006
3.71	Length of passing place	m	32	ED11892-GE-2006
3.72	Width of passing place	m	4	ED11892-GE-2006
3.73	Area of passing place	m^2	128	Calculated (3.71 x 3.72)
3.74	Volume of Type 1 Stone required per passing place	m^3	19.2	Calculated (1.08 x 3.73)
3.75	Volume of Crusher Run Stone Required per passing place	m^3	12.8	Calculated (1.09 x 3.73)
3.76	Width of Medium Length HDD Compound	m	175	Drawing ED11892-GE-2017 Rev E
3.77	Length of Medium Length HDD Entry Pit Compound	m	70	Drawing ED11892-GE-2017 Rev E
3.78	Width of Short Length HDD Entry Pit Compound	m	145	5m spacing between drills
3.79	Length of Short Length HDD Entry Pit Compound	m	50	-
3.80	Width of Short Length HDD Exit Pit Compound	m	145	5m spacing between drills
3.81	Length of Medium / Short Length HDD Exit Pit Compound	m	30	-
3.82	Standard Length of Short HDD	m	112	WA Calculation
3.83	Number of HDDs per compound	-	18	Drawing ED11892-GE-2017 Rev E
3.84	HDD reamed diameter	-	0.4	Calculated (3.88 * 4/3)
3.85	Volume of drill fluid required per metre length of bore	m^3	0.19	(1.5 times volume of soil removed based on advice from Tim Riggall, Riggall & Associates on 02/08/2018, "1.5 x volume, that will be conservative")
3.86	Volume of drill fluid removed from site per metre length of bore	m3	0.11	((Based on advice from Tim Riggall, Riggall & Associates on 02/08/2018 "for waste fluid to be removed from site assume 0.5 x hole volume plus the volume displaced by the duct")
3.87	Bentonite required	kg/m^3 of drill fluid	37	Assumed
3.88	Onshore HDD duct diameter	m	0.25	Assumed
3.89	Onshore HDD duct section length	m	10	Assumed
3.90	No of HDD duct lengths per delivery	-	25	Assumed
3.91	Number of welfare / HDD rigs / infrastructure per compound	-	100	Drawing ED11892-GE-2017 Rev C

Reference	Access and Permanent Haul Road Data (Fixed Information)	Units	Value	Source/Comments
4.01	Area of access tarmac surface	m^2	170	ED11892-GE-2038 A
4.02	Length of R2 8m external radi kerbing required per access	m	25	ED11892-GE-2038 A
4.03	Maximum Length of K2 straight kerbing required per access	m	394.5	ED11892-GE-2038 A
4.04	Length of one R2 8m external radi kerb	m	0.78	https://www.marshalls.co.uk/commercial/assets/documents/product-specifications/kerb07.pdf
4.05	Length of one K2 straight kerb	m	0.914	https://www.marshalls.co.uk/commercial/assets/documents/product-specifications/kerb07.pdf
4.06	Number of internal radi kerbs required per access	-	32	Calculated (4.02 / 4.04)
4.07	Maximum Number of straigtht kerbs required per access	-	432	Calculated (4.03 / 4.05)
4.08	Number of R2 8m external radi kerbs per pallet	-	10	Assumed
4.09	Number of R2 straight kerbs per pallet	-	18	Assumed
4.10	Number of kerb pallets per delivery	-	6	Assumed
4.12	Maximum volume of concrete required for kerbing at each access	m^3	33.2	Volume calculated from design drawing x length of kerbing required.
4.13	Maximum Depth of Type 1 mortar required	m	0.04	Worst case Assumed
4.14	Maximum Volume of Type 1 mortar required per access	m^3	2.1	Calculated (125 x (4.02 + 4.02) x 4.13)
4.15	Maximum Volume of cement required per access	m^3	0.49	Type 1 mortar 1 part cement, 1/4 parts lime and 3 parts sand
4.16	Density of cement	tonnes/m^3	3.15	
4.17	Mass of cement required per access	tonnes	0.16	Calculated (4.15 / 4.16)
4.18	Mass of cement per bag	kg	25	https://www.condell-ltd.com/full-pallet-general-purpose-cement-opc-25kg-60-per-pallet?gclid=EAIaIQobChMImPHW447O2gIVB-MbCh2LUwy-EAQYBCABEgIQA_D_BwE
4.19	Number of cement bags per pallet	-	60	https://www.condell-ltd.com/full-pallet-general-purpose-cement-opc-25kg-60-per-pallet?gclid=EAIaIQobChMImPHW447O2gIVB-MbCh2LUwy-EAQYBCABEgIQA_D_BwE
4.20	Maxiumum Volume of lime required per access	m^3	0.12	Type 1 mortar 1 part cement, 1/4 parts lime and 3 parts sand
4.21	Density of lime	tonnes/m^3	2.21	https://www.slb.com/-/media/Files/miswaco/ps-drilling-fluids/lime.pdf?la=en&hash=2FD5F24971492980C016D52C63F7FFCC7B40F0A7
4.22	Mass of lime required per access	tonnes	0.06	Calculated (4.20 / 4.21)
4.23	Mass of lime per bag	kg	25	https://www.condell-ltd.com/rugby-lime-25kg?gclid=EAIaIQobChMI5suZyJDO2gIVQucbCh2r-wUAEAQYASABEgJRHPD_BwE
4.24	Number of lime bags per pallet	-	60	Assumed
4.25	Maxiumum Volume of sand required per access	m^3	1.48	Type 1 mortar 1 part cement, 1/4 parts lime and 3 parts sand
4.26	Density of sand	tonnes/m^3	1.70	https://www.smithsbletchington.co.uk/mixed-building-sand
4.27	Mass of sand required per access	tonnes	0.87	Calculated (4.20 / 4.21)
4.28	Mass of sand per bag	Tonnes	0.9	https://www.condell-ltd.com/rugby-lime-25kg?gclid=EAIaIQobChMI5suZyJDO2gIVQucbCh2r-wUAEAQYASABEgJRHPD_BwE
4.29	Number of cement pallets / lime pallets / sand bags per delivery	-	4	Assumed (assumes all three items can be delivered in same delivery
4.30	Depth of sub-base beneth kerb	m	0.150	Assumed
4.31	Maximum volume of sub-base beneath kerb	m^3	25.17	Calculated from design drawing and length of kerbing.
4.32	Permanent access road sub-base depth	m	0.225	Suffolk County Council Estate Road Specification
4.33	Permanat access road Asphalt Depth	m	0.25	Suffolk County Council Estate Road Specification
4.34	Bulk Density of Asphalt	tonnes/m^3	2.36	https://www.engineeringtoolbox.com/density-solids-d_1265.html
4.35	Width of Permanent Access Corridor	m	10.1	

Reference	Substation (Fixed Information)	Units	Value	Source/Comments
5.01	Length of Substation Compound	m	190	ED11892-GE-2037 A
5.02	Width of Substation Compound	m	190	ED11892-GE-2037 A
5.03	Area of Substation Compound	m^2	36100	Calculated (5.01 x 5.03)
5.04	Depth of surface concrete slab	m	0.15	Nominal for non trafficed yard slab
5.05	Depth of sub-base beneath concrete slab	m	0.15	Nominal for non trafficed yard slab
5.06	Number of interconnector trenches per substation	-	2	Iberdrola Drawing EA1-GRD-DH-PRY-108930
5.07	Depth of trench	m	1.615	ED11892-GE-2044 A
5.08	Width of trench	m	1.450	ED11892-GE-2044 A
5.09	Diameter of 400kV cable	m	0.120	SPR Document EA1-GRD-H-PRY-028854-Rev1-ONCA - 400kV Technical Components Document
5.10	400kV cable length per drum	m	500	Assumed
5.11	Number of 400kV cable drums per delivery	-	1	Assumed
5.12	Diameter of fibre cable	m	0.025	TBC
5.13	Fibre cable length per drum	m	2000	Assumed
5.14	Number of fibre cable drums per delivery	-	1	Assumed
5.15	Diameter of ECC cable	m	0.05	TBC
5.16	ECC length per drum	m	2000	Assumed
5.17	Number of ECC cable drums per delivery	-	1	Assumed
5.18	Number of 400kV Cable Ducts per trench	-	3	ED11892-GE-2044 A
5.19	Diameter of 400kV cable ducts	m	0.20	ED11892-GE-2044 A
5.20	Length of 400kV cable duct	m	6	Page 32 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.21	Number of 400KV cable ducts per pack	-	25	Page 32 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.22	Number of fibre cable ducts per trench	-	1	ED11892-GE-2044 A
5.23	Diameter of fibre cable ducts	m	0.11	ED11892-GE-2044 A
5.24	Length of fibre cable ducts	m	6	Page 30 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.25	Number of fibre cable ducts per pack	-	90	Page 30 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.26	Number of sub ducts within fibre cable duct	-	4	ED11892-GE-2044 A
5.27	Diameter of sub ducts	m	0.032	ED11892-GE-2044 A
5.28	Length of sub duct coil	m	50	Page 37 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.29	Number of sub duct coils per pack	-	4	Page 37 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.30	Number of ECC cable ducts per trench	-	1	ED11892-GE-2044 A
5.31	Diameter of ECC Cable Ducts	m	0.11	ED11892-GE-2044 A
5.32	Length of fibre cable ducts	m	6	Page 30 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.33	Number of fibre cable ducts per pack	-	90	Page 30 http://www.emtelle.com/wp-content/uploads/2015/05/Duct-Catalogue-2015-1.pdf
5.34	Number of duct packs per delivery	-	4	Assumed
5.35	Cement Bound Sand (CBS) depth	m	1.24	ED11892-GE-2044 A
5.36	CBS Volume per m run of trench	m^3	0.43	ED11892-GE-2044 A
5.37	CBS density	t/m^3	1.6	Assumed
5.38	Tile length	m	1	https://www.powerandcables.com/product/product-category/stokbord-cable-protection-1000mm-x-450mm/
5.39	Tile width	m	0.45	https://www.powerandcables.com/product/product-category/stokbord-cable-protection-1000mm-x-450mm/
5.40	Tile Height	m	0.05	Assumed
5.41	Number of tiles per delivery	-	800	Assumed. Based on 40 per pack and 20 packs per delivery
5.42	Depth to top of tile	m	1.14	ED11892-GE-2044 A
5.43	Bentonite required for cable installation in ducts	kg/m^3 of fluid	60	Assumed
5.44	Substation CCS compound length	m	190	Drawing ED11892-GE-2057
5.45	Substation CCs compound width	m	90	Drawing ED11892-GE-2057
5.46	Substation CCS compound hardstanding area	m^2	11050	Drawing ED11892-GE-2057

Measured Parameters	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of accesses	-	0	1	1	0	1	2	1	1
Permanent Haul road length	m	0	0	0	0	0	0	0	1700
Permanent Haul road width	m	0	0	0	0	0	0	0	8
Tempoary Hardstanding Haul road length	m	0	2428	2904	582	86	1728	1135	400
Tempoary tarmac haul road length	m	0	0	0	0	0	0	453	0
Number of HGV Turning Areas	-	0	0	0	0	0	1	0	0
Number of Large CCS	-	0	0	0	0	0	0	1	0
Number of Medium CCS	-	1	1	1	0	0	0	0	0
Number of Small CCS	-	0	0	0	1	0	1	0	0
Number of substation CCS	-	0	0	0	0	0	0	0	2
Number of HGV Holding Areas	-	0	0	0	0	0	0	0	0
Number of joint bays required per project	-	0	10	10	4	0	6	8	0
Length of Trenching	m	0	2078	2296	582	86	1728	1588	326
Number of transition bays per project	-	2	0	0	0	0	0	0	0
Number of Landfall HDD locations	-	1	0	0	0	0	0	0	0
Length of Landfall HDD	m	1300	0	0	0	0	0	0	0
Number of Medium Length HDD Drilling Compounds	-	0	1	0	0	0	0	0	0
Total length of medium length HDD	m	0	407	0	0	0	0	0	0
Number of Medium Length HDD Exit Pit Compounds	m	0	0	1	0	0	0	0	0
Number of Short Length HDD Drilling Compounds	-	0	0	0	0	0	0	0	0
Total length of short length HDD	m	0	0	0	0	0	0	0	0
Number of Short Length HDD Exit Pit Compounds	-	0	0	0	0	0	0	0	0
Number of Substation Operational Compounds	-	0	0	0	0	0	0	0	2
Volume of Topsoil to be removed from Substation Site and SUDS	m³	0	0	0	0	0	0	0	19,051
Volume of Sub-soil to be imported/exported for Substation Site and SUDS	m³	0	0	0	0	0	0	0	612
Distance between National Grid and Project Substations	m	0	0	0	0	0	0	0	20

Total Vehicle Movmenets (without miscellaneous allowances)		Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Access from Public Road HGV Movements		0	52	52	0	52	98	52	29
Permanent Haul Road HGV Movements		0	0	0	0	0	0	0	1,058
Total haul road construction HGV movements		0	816	976	200	34	596	1,030	206
Total CCS Construction HGV movements		624	624	624	226	0	226	1,854	1,242
Total HGV Holding Area at Elm Tree Farm HGV Movements		0	0	0	0	0	0	0	0
Total Marine Electrical Cable HGV Movements		0	0	0	0	0	0	0	0
Total Marine Fibre Cable HGV Movements		0	0	0	0	0	0	0	0
Total Terrestrial Electrical Cable HGV Movements		0	60	56	14	3	42	39	8
Total Terrestrial Fibre Cable HGV Movements		0	5	5	2	1	4	4	1
Total cable joint kits HGV movements		0	20	20	8	0	12	16	0
Total tile HGV movements		0	21	23	6	1	18	16	4
Total trench HGV movements		0	669	739	188	29	556	511	106
Total cable duct HGV movements		0	69	77	20	3	58	53	11
Bentonite (cable Installation in Ducts) HGV Movements		0	0	0	0	0	0	0	0
Jointing bay HGV movements		0	583	583	235	0	351	468	0
Transition bay HGV movements		181	0	0	0	0	0	0	0
Landfall HDD HGV movements		3,066	0	0	0	0	0	0	0
Medium Length Onshore HDD Drilling Compound HGV movements		0	898	0	0	0	0	0	0
Medium Length Onshore HDD Exit Pit Compound HGV movements		0	0	298	0	0	0	0	0
Short Length Onshore HDD Drilling Compound HGV movements		0	0	0	0	0	0	0	0
Short Length Onshore HDD Exit Pit Compound HGV movements		0	0	0	0	0	0	0	0
Substation Compound Earthworks and Surface HGV Movements		0	0	0	0	0	0	0	3,863
Project Substation - National Grid Connection		0	0	0	0	0	0	0	15
Grand total deliveries		**3,871**	**3,817**	**3,453**	**899**	**123**	**1,961**	**4,043**	**6,543**
Grand total (two way movements)		**7,742**	**7,634**	**6,906**	**1,798**	**246**	**3,922**	**8,086**	**13,086**

Access From Public Road Construction	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of accesses	m	0	1	1	0	1	2	1	1
Area of tarmac surface	m²	0	170	170	0	170	340	170	170
Volume of Sub-base stone (Type 1)	m³	0	63	63	0	63	127	63	63
Mass of Type 1 stone required	Tonnes	0	146	146	0	146	292	146	146
Number of Type 1 stone deliveries	-	**0**	**8**	**8**	**0**	**8**	**15**	**8**	**8**
Volume of Asphalt	m³	0	43	43	0	43	85	43	43
Mass of Asphalt	Tonnes	0	100	100	0	100	201	100	100
Number of Asphalt Deliveries	-	**0**	**6**	**6**	**0**	**6**	**11**	**6**	**6**
Number of R2 8m external radi kerbs	-	0	32	32	0	32	64	32	32
Number of K2 straight kerbs	-	0	432	432	0	432	864	432	432
Total number of pallets of kerbs	-	0	27	27	0	27	54	27	27
Number of kerb deliveries	-	**0**	**5**	**5**	**0**	**5**	**10**	**5**	**5**
Volume of concrete required	m³	0.0	33.2	33.2	0.0	33.2	66.4	33.2	33.2
Number of concrete deliveries	-	**0**	**6**	**6**	**0**	**6**	**12**	**6**	**6**
Volume of mortor requred	m³	0	2	2	0	2	4	2	2
Mass of cement required	Tonnes	0.00	0.16	0.16	0.00	0.16	0.31	0.16	0.16
Mass of lime required	Tonnes	0.00	0.06	0.06	0.00	0.06	0.11	0.06	0.06
Mass of sand required	Tonnes	0.00	0.87	0.87	0.00	0.87	1.74	0.87	0.87
Number of Cement pallets required	-	0	1	1	0	1	1	1	1
Number of lime pallets required		0	1	1	0	1	1	1	1
Number of sand bags required		0	1	1	0	1	2	1	1
Number of cement pallet, lime pallet and sand bag deliveries		**0**	**1**	**1**	**0**	**1**	**1**	**1**	**1**
Volume of Topsoil to be removed from site (permanent access only)	m³	0	0	0	0	0	0	0	77
Mass of Topsoil to be removed from site (permanent access only)	Tonnes	0	0	0	0	0	0	0	51
Number of topsoil removal movements (permanent access only)	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
Removal of tempoary access movements	-	**0**	**26**	**26**	**0**	**26**	**49**	**26**	**0**
Number of HGV movements	**-**	**0**	**52**	**52**	**0**	**52**	**98**	**52**	**29**

Permanent Haul Road Construction	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Haul road length	m	0	0	0	0	0	0	0	1700
Haul road width	m	0	0	0	0	0	0	0	8.0
Number of passing places required	-	0	0	0	0	0	0	0	9
Surface area	m²	0	0	0	0	0	0	0	13,600
Volume of Sub-base stone For road and kerbing	m³	0	0	0	0	0	0	0	3,264
Mass of stone	Tonnes	0	0	0	0	0	0	0	7,507
Number of stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**376**
Volume of Asphalt	m³	0	0	0	0	0	0	0	3,400
Mass of Asphalt	Tonnes	0	0	0	0	0	0	0	8,024
Number of Asphalt Deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**402**
Number of K2 Straight Kerbs	-	0	0	0	0	0	0	0	1,860
Total number of pallets of kerbs	-	0	0	0	0	0	0	0	103
Number of kerb deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**
Maximum volume of concrete required for kerbing	m³	0	0	0	0	0	0	0	269.0
Number of concrete deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**45**
Volume of mortor requred	m³	0	0	0	0	0	0	0	17.0
Volume of cement required	m³	0	0	0	0	0	0	0	4.00
Mass of cement required	Tonnes	0	0	0	0	0	0	0	1.27
Volume of lime required	m³	0	0	0	0	0	0	0	1.00
Mass of lime required	Tonnes	0	0	0	0	0	0	0	0.57
Volume of sand required	m³	0	0	0	0	0	0	0	12.00
Mass of sand required	Tonnes	0	0	0	0	0	0	0	7.1
Number of Cement pallets required	-	0	0	0	0	0	0	0	1
Number of lime pallets required	-	0	0	0	0	0	0	0	1
Number of sand bags required	-	0	0	0	0	0	0	0	8
Number of cement pallet, lime pallet and sand bag deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
Length of permanent security fencing required	m	0	0	0	0	0	0	0	3,420.2
Number of fencing panels required	-	0	0	0	0	0	0	0	978
Number of fencing panel deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**
Volume of Topsoil to be removed from site	m³	0	0	0	0	0	0	0	6,120
Mass of Topsoil to be removed from site	Tonnes	0	0	0	0	0	0	0	4,100
Number of topsoil removal movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**206**
Number of HGV movements	**-**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,058**

Haul Road Construction	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Hardstanding Haul road length	m	0	2428	2904	582	86	1728	1135	400
Number of passing places required	-	0	28	34	7	1	20	0	0.0
Number of HGV Turning Areas	-	0	0	0	0	0	1	0	0
Volume of Sub-base stone required	m³	0	2,177	2,613	527	77	1,588	1,532	540
Mass of sub-base stone required	Tonnes	0	5,006	6,010	1,213	178	3,652	3,524	1,242
Number of sub-base stone deliveries	-	**0**	**251**	**301**	**61**	**9**	**183**	**177**	**63**
Volume of Crusher Run stone required	m³	0	1,451	1,742	352	52	1,059	1,022	360
Mass of Crusher Run stone required	Tonnes	0	3,047	3,658	738	108	2,223	2,145	756
Number of Crusher Run stone deliveries	-	**0**	**153**	**183**	**37**	**6**	**112**	**108**	**38**
Surface area	m²	0	14,510	17,420	3,515	515	10,586	10,215	3,600
Mass of geogrid required	Tonnes	0.00	3.19	3.83	0.77	0.11	2.33	2.25	0.79
Number of geogrid deliveries	-	**0**	**2**	**2**	**1**	**1**	**2**	**2**	**1**
Length of stock proof fencing required	m	0.0	4,956.2	5,908.2	1,264.2	272.2	3,556.2	2,370.2	900.2
Number of Stockproof fencing deliveries	-	**0**	**2**	**2**	**1**	**1**	**1**	**1**	**1**
Length of tarmac haul road	m	0	0	0	0	0	0	453	0
Area of tarmac haul road	m²	0	0	0	0	0	0	4,077	0
Volume of Sub-base stone	m³	0	0	0	0	0	0	917.325	0
Mass of stone	Tonnes	0	0	0	0	0	0	2,110	0
Number of stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**106**	**0**
Volume of Asphalt	m³	0	0	0	0	0	0	1,019	0
Mass of Asphalt	Tonnes	0	0	0	0	0	0	2,405	0
Number of Asphalt Deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**121**	**0**
Removal of haul road movements	-	**0**	**408**	**488**	**100**	**17**	**298**	**515**	**103**
Number of HGV movements	**-**	**0**	**816**	**976**	**200**	**34**	**596**	**1,030**	**206**

CCS Construction	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of CCS	1	1	1	1	1	0	1	1	2
Compound Hard Standing Surface Area	m²	11050	11050	11050	3950	0	3950	21200	22100
Volume of Sub-base stone required	m³	1,658	1,658	1,658	593	0	593	3,180	3,315
Mass of sub-base stone required	Tonnes	3,812	3,812	3,812	1,363	0	1,363	7,314	7,625
Number of sub-base stone deliveries	-	**191**	**191**	**191**	**69**	**0**	**69**	**366**	**382**
Volume of Crusher Run stone required	m³	1,105	1,105	1,105	395	0	395	2,120	2,210
Mass of Crusher Run stone required	Tonnes	2,321	2,321	2,321	830	0	830	4,452	4,641
Number of Crusher Run stone deliveries	-	**117**	**117**	**117**	**42**	**0**	**42**	**223**	**233**
Mass of geogrid required	Tonnes	2.43	2.43	2.43	0.87	0.00	0.87	4.66	4.86
Number of geogrid deliveries	-	**2**	**2**	**2**	**1**	**0**	**1**	**3**	**3**
Compound Tarmac Surface Area	m²	0	0	0	0	0	0	6000	0
Volume of Sub-base stone	m³	0	0	0	0	0	0	1350	0
Mass of stone	Tonnes	0	0	0	0	0	0	3,105	0
Number of stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**156**	**0**
Volume of Asphalt	m³	0	0	0	0	0	0	1,500	0
Mass of Asphalt	Tonnes	0	0	0	0	0	0	3,540	0
Number of Asphalt Deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**177**	**0**
Length of security fencing required	m	496	496	496	300	0	300	730	1,120
Number of fencing panels required	-	142	142	142	86	0	86	209	320
Number of fencing panel deliveries	-	**2**	**2**	**2**	**1**	**0**	**1**	**2**	**3**
Removal of compound movements	-	**312**	**312**	**312**	**113**	**0**	**113**	**927**	**621**
Number of HGV movements	**-**	**624**	**624**	**624**	**226**	**0**	**226**	**1,854**	**1,242**

HGV Holding Area at Elm Tree Farm to be constructed as part of Landfall HDD Enabling Works	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of Holding Areas	-	0	0	0	0	0	0	0	0
Holding Area Surface Area	m²	0	0	0	0	0	0	0	0
Volume of Sub-base stone required	m³	0	0	0	0	0	0	0	0
Mass of sub-base stone required	Tonnes	0	0	0	0	0	0	0	0
Number of sub-base stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of Crusher Run stone required	m³	0	0	0	0	0	0	0	0
Mass of Crusher Run stone required	Tonnes	0	0	0	0	0	0	0	0
Number of Crusher Run stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mass of geogrid required	Tonnes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of geogrid deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Length of security fencing required	m	0	0	0	0	0	0	0	0
Number of fencing panels required	-	0	0	0	0	0	0	0	0
Number of fencing panel deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Removal of compound movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	**-**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Marine Electrical Cables	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Length of Marine HDD	m	0	0	0	0	0	0	0	0
Total Length of Marine Electrical Cable required	m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total number of drums	-	0	0	0	0	0	0	0	0
Number of HGV movements	**-**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Marine Fibre Cables	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Length of cable route	m	0	0	0	0	0	0	0	0
Total Length of Terrestrial Cable Required	m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total number of drums	-	0	0	0	0	0	0	0	0
Number of HGV movements	**-**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Terrestrial Electrical Cables	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Length of cable route	m	0	2485	2296	582	86	1728	1588	326
Total Length of Terrestrial Cable Required	m	0.0	29820.0	27552.0	6984	1032.0	20736.0	19056.0	3912.0
Total number of drums	-	0	59.64	55.104	13.968	2.064	41.472	38.112	7.824
Number of HGV movements	**-**	**0**	**60**	**56**	**14**	**3**	**42**	**39**	**8**

Terrestrial Fibre Cables	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Length of cable route	m	0	2485	2296	582	86	1728	1588	326
Total Length of Terrestrial Cable Required	m	0	9940	9184	2328	344	6912	6352	1304
Total number of drums	-	0	4.97	4.592	1.164	0.172	3.456	3.176	0.652
Number of HGV movements	**-**	**0**	**5**	**5**	**2**	**1**	**4**	**4**	**1**

Cable Joint Kits	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of joint bays required	-	0	20	20	8	0	12	16	0
Total number of kits required	-	0	60	60	24	0	36	48	0
Number of HGV movements	**-**	**0**	**20**	**20**	**8**	**0**	**12**	**16**	**0**

Protective Covers	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Total length of protective covers	m	0	16624	18368	4656	688	13824	12704	2608
Total number of protetive covers	-	0	16624	18368	4656	688	13824	12704	2608
Number of HGV movements	**-**	**0**	**21**	**23**	**6**	**1**	**18**	**16**	**4**

Trench (Cable Ducts)	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Length of Trenching	m	0	2078	2296	582	86	1728	1588	326
Total length of trenching	m	0	8312	9184	2328	344	6912	6352	1304
Total CBS volume	m^3	0	2,592	2,864	726	107	2,156	1,981	407
CBS mass	Tonnes	0	4148	4583	1162	172	3449	3170	651
CBS number of deliveries	-	**0**	**208**	**230**	**59**	**9**	**173**	**159**	**33**
Total exported native soil volume	m^3	0	4600.692	5083.344	1288.548	190.404	3825.792	3515.832	721.764
Total exported native soil mass	Tonnes	0	9201.384	10166.688	2577.096	380.808	7651.584	7031.664	1443.528
Total exported native soil number of deliveries	-	**0**	**461**	**509**	**129**	**20**	**383**	**352**	**73**
Number of HGV movements	**-**	**0**	**669**	**739**	**188**	**29**	**556**	**511**	**106**

Cable Ducts To Install In Trench	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Total length of 250mm ducting	m	0	24936	27552	6984	1032	20736	19056	3912
Total length of 110mm ducting	m	0	8312	9184	2328	344	6912	6352	1304
Number of 250mm cable duct packs required	-	0	260	287	73	11	216	199	41
Number of 110mm cable duct packs	-	0	16	18	5	1	13	12	3
Number of HGV movements	**-**	**0**	**69**	**77**	**20**	**3**	**58**	**53**	**11**

Bentonite (cable installation in Tench Ducts)	**Units**	**Landfall HDD**	**1**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B and Substation Zone**
Volume of fluid required for export cable	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume of fluid required for fibre cable	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total mass of bentonite required	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of bags required	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of bentonite deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Water required	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of water deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	**-**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Jointing Bays Construction	**Units**	**Landfall HDD**	**1**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B and Substation Zone**
Number of jointing bays	-	0	20	20	8	0	12	16	0
Total Jointing bay concrete volume (m^3)	m^3	0	180	180	72	0	108	144	0
Number of concrete deliveries	-	**0**	**30**	**30**	**12**	**0**	**18**	**24**	**0**
Total Number of blocks	-	0	27,880	27,880	11,152	0	16,728	22,304	0
Number of block movements	-	**0**	**93**	**93**	**38**	**0**	**56**	**75**	**0**
Total number of slabs	-	0	0	0	0	0	0	0	0
Number of slab movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Native soil to be disposed of	m^3	0	1530	1530	612	0	918	1224	0
Total Native Soil Tonnage	Tonnes	0	9,180	9,180	3,672	0	5,508	7,344	0
Number of native soil movements	-	**0**	**459**	**459**	**184**	**0**	**276**	**368**	**0**
Total Steel reinforcement (t)	Tonnes	0	11.7	11.7	4.68	0	7.02	9.36	0
Number of steel deliveries	-	**0**	**1**	**1**	**1**	**0**	**1**	**1**	**0**
Number of HGV movements	**-**	**0**	**583**	**583**	**235**	**0**	**351**	**468**	**0**

Transition Bays Construction	**Units**	**Landfall HDD**	**1**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B and Substation Zone**
Number of transition bays	-	4	0	0	0	0	0	0	0
Total Transition bay concrete volume	m^3	100.8	0	0	0	0	0	0	0
Number of concrete deliveries	-	**17**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of blocks	-	8,784	0	0	0	0	0	0	0
Number of block movements	-	**30**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total number of slabs	-	168	0	0	0	0	0	0	0
Number of slab movements	-	**42**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Native soil to be disposed of	m^3	907.2	0	0	0	0	0	0	0
Total Native Soil Tonnage	Tonnes	1814.4	0	0	0	0	0	0	0
Number of native soil movements	-	**91**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Steel reinforcement (t)	Tonnes	6.552	0	0	0	0	0	0	0
Number of steel deliveries	-	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	**-**	**181**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Landfall HDDs	**Units**	**Landfall HDD**	**1**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B and Substation Zone**
Number of Landfall HDD locations	-	**1**	0	0	0	0	0	0	0
Compound Surface Area	m^2	13300	0	0	0	0	0	0	0
Volume of Sub-base stone required	m^3	1,995	0	0	0	0	0	0	0
Mass of sub-base stone required	Tonnes	4,589	0	0	0	0	0	0	0
Number of sub-base stone deliveries	**-**	**230**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of Crusher Run stone required	m^3	1,330	0	0	0	0	0	0	0
Mass of Crusher Run stone required	Tonnes	2,793	0	0	0	0	0	0	0
Number of Crusher Run Stone deliveries	**-**	**140**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mass of geogrid required	Tonnes	2.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of geogrid deliveries	**-**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Length of security fencing required	m	520	0	0	0	0	0	0	0
Number of fencing panels required	**-**	149	0	0	0	0	0	0	0
Number of fencing panel deliveries	**-**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Removal of compound movements	**-**	**374**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Length of Landfall HDD	m	1300	0	0	0	0	0	0	0
Total Number of HDDs		8	0	0	0	0	0	0	0
Total length of HDD	m	10400	0	0	0	0	0	0	0
Number of HDPE ducting required	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Number of HDPE duct deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of excavated material	m^3	9883.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Native Soil Tonnage	Tonnes	19766.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of excavated material deliveries (off site)	-	**989**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Drill fluid required	m^3	24708.6	0.0	0	0	0	0	0	0
Number of water deliveries	-	**824**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of drill fluid removed from site	m^3	9883.5	0.0	0	0	0	0	0	0
Number of waste drill fluid deliveries	-	**330**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total mass of bentonite required for drilling	kg	914219.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume of fluid required for export cable duct	m^3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total mass of bentonite required to infill cable duct	kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total mass of bentonite required	kg	914219.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of bags required	-	36568.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of bentonite deliveries	-	**175**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	**-**	**3,066**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Medium Length Onshore HDD Drilling Compound	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of Medium Length HDD Drilling Compounds	-	0	1	0	0	0	0	0	0
Compound Surface Area	m²	0	12250	0	0	0	0	0	0
Volume of Sub-base stone required	m³	0	1,838	0	0	0	0	0	0
Mass of sub-base stone required	Tonnes	0	4,226	0	0	0	0	0	0
Number of sub-base stone deliveries	-	**0**	**212**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of Crusher Run stone required	m³	0	1,225	0	0	0	0	0	0
Mass of Crusher Run stone required	Tonnes	0	2,573	0	0	0	0	0	0
Number of Crusher Run Stone deliveries	-	**0**	**129**	**0**	**0**	**0**	**0**	**0**	**0**
Mass of geogrid required	Tonnes	0.00	2.70	0.00	0.00	0.00	0.00	0.00	0.00
Number of geogrid deliveries	-	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**
Length of security fencing required	m	0	490	0	0	0	0	0	0
Number of fencing panels required	-	0	140	0	0	0	0	0	0
Number of fencing panel deliveries	-	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**
Removal of compound movements	-	**0**	**345**	**0**	**0**	**0**	**0**	**0**	**0**
Total length of medium length HDD	m	0	407	0	0	0	0	0	0
Total Number of HDDs		0	18	0	0	0	0	0	0
Total length of HDD	m	0	7326	0	0	0	0	0	0
Number of HDPE ducting required	-	0	732.6	0	0	0	0	0	0
Number of HDPE duct deliveries	-	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of excavated material	m³	0.00	920.6	0.0	0.00	0.00	0.00	0.00	0.00
Total Native Soil Tonnage	Tonnes	0.0	1841	0.0	0.0	0.0	0.0	0.0	0.0
Number of excavated material deliveries (off site)	-	**0**	**93**	**0**	**0**	**0**	**0**	**0**	**0**
Drill fluid required for drilling	m³	0	1381	0	0	0	0	0	0
Number of water deliveries	-	**0**	**47**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of drill fluid removed from site	m³	0	820	0	0	0	0	0	0
Number of waste drill fluid deliveries	-	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**0**
Total mass of bentonite required for drilling	kg	0	51094	0	0	0	0	0	0
Number of bags required	-	0	2044	0	0	0	0	0	0
Number of bentonite deliveries	-	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	**-**	**0**	**898**	**0**	**0**	**0**	**0**	**0**	**0**

Medium Length Onshore HDD Exit Pit Compound	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of Medium Length HDD Exit Pit Compounds	-	0	0	1	0	0	0	0	0
Compound Surface Area	m²	0	0	5250	0	0	0	0	0
Volume of Sub-base stone required	m³	0	0	788	0	0	0	0	0
Mass of sub-base stone required	Tonnes	0	0	1,811	0	0	0	0	0
Number of sub-base stone deliveries	-	**0**	**0**	**91**	**0**	**0**	**0**	**0**	**0**
Volume of Crusher Run stone required	m³	0	0	525	0	0	0	0	0
Mass of Crusher Run stone required	Tonnes	0	0	1,103	0	0	0	0	0
Number of Crusher Run Stone deliveries	-	**0**	**0**	**56**	**0**	**0**	**0**	**0**	**0**
Mass of geogrid required	Tonnes	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00
Number of geogrid deliveries	-	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
Length of security fencing required	m	0	0	410	0	0	0	0	0
Number of fencing panels required	-	0	0	118	0	0	0	0	0
Number of fencing panel deliveries	-	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**
Removal of compound movements	-	**0**	**0**	**149**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	**-**	**0**	**0**	**298**	**0**	**0**	**0**	**0**	**0**

Short Length Onshore HDD Drilling Compound	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of Short Length HDD Drilling Compounds	-	0	0	0	0	0	0	0	0
Compound Surface Area	m²	0	0	0	0	0	0	0	0
Volume of Sub-base stone required	m³	0	0	0	0	0	0	0	0
Mass of sub-base stone required	Tonnes	0	0	0	0	0	0	0	0
Number of sub-base stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of Crusher Run stone required	m³	0	0	0	0	0	0	0	0
Mass of Crusher Run stone required	Tonnes	0	0	0	0	0	0	0	0
Number of Crusher Run Stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mass of geogrid required	Tonnes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of geogrid deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Length of security fencing required	m	0	0	0	0	0	0	0	0
Number of fencing panels required	-	0	0	0	0	0	0	0	0
Number of fencing panel deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Removal of compound movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total length of short length HDD	m	0	0	0	0	0	0	0	0
Total Number of HDDs		0	0	0	0	0	0	0	0
Total length of HDD	m	0	0	0	0	0	0	0	0
Number of HDPE ducting required	-	0	0	0	0	0	0	0	0
Number of HDPE duct deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of excavated material	m³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Native Soil Tonnage	Tonnes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of excavated material deliveries (off site)	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Drill fluid required for drilling	m³	0.0	0.0	0.0	0.0	0	0	0	0
Number of water deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of drill fluid removed from site	m³	0.0	0.0	0.0	0.0	0	0	0	0
Number of waste drill fluid deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total mass of bentonite required	kg	0.0	0.0	0.0	0.0	0	0	0	0
Number of bags required	-	0.0	0.0	0.0	0.0	0	0	0	0
Number of bentonite deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	**-**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Short Length Onshore HDD Exit Pit Compound	**Units**	**Landfall HDD**	**1**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B and Substation Zone**
Number of Short Length HDD Exit Pit Compounds	-	0	0	0	0	0	0	0	0
Compound Surface Area	m²	0	0	0	0	0	0	0	0
Volume of Sub-base stone required	m³	0	0	0	0	0	0	0	0
Mass of sub-base stone required	Tonnes	0	0	0	0	0	0	0	0
Number of sub-base stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Volume of Crusher Run stone required	m³	0	0	0	0	0	0	0	0
Mass of Crusher Run stone required	Tonnes	0	0	0	0	0	0	0	0
Number of Crusher Run Stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mass of geogrid required	Tonnes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of geogrid deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Length of security fencing required	m	0	0	0	0	0	0	0	0
Number of fencing panels required	-	0	0	0	0	0	0	0	0
Number of fencing panel deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Removal of compound movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Substation Compound Earthworks, Road and Hardstanding	**Units**	**Landfall HDD**	**1**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B and Substation Zone**
Number of Substation Operational Compounds	-	0	0	0	0	0	0	0	2
Length of Tarmac Road	m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1800.0
Surface area of tarmac road	m²	0	0	0	0	0	0	0	8,100
Volume of Sub-base stone for tarmac road	m³	0	0	0	0	0	0	0	1,823
Mass of stone for tarmac road	Tonnes	0	0	0	0	0	0	0	4,192
Area of concrete slab	m²	0	0	0	0	0	0	0	64,100
Volume of Sub-base stone for concrete slab	m³	0	0	0	0	0	0	0	9,615
Mass of stone for Sub-base	Tonnes	0	0	0	0	0	0	0	22,115
Number of stone deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,316**
Volume of Asphalt	m³	0	0	0	0	0	0	0	2,025
Mass of Asphalt	Tonnes	0	0	0	0	0	0	0	4,779
Number of Asphalt Deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**239**
Volume of concrete required	m³	0	0	0	0	0	0	0	9,615
Number of Concrete deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,603**
Volume of Topsoil to be removed from Substation Site (earthworks)	m³	0	0	0	0	0	0	0	19,051
Mass of Topsoil to be removed from site	Tonnes	0	0	0	0	0	0	0	12,764
Number of topsoil removal movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**639**
Volume of Sub-soil to be removed from site Substation Site (earthworks)	m³	0	0	0	0	0	0	0	612
Mass of Sub-soil to be removed from site	Tonnes	0	0	0	0	0	0	0	1,224
Number of Sub-soil removal movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**62**
Length of permanent security fencing required	m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,520.0
Number of fencing panels required	-	0	0	0	0	0	0	0	435
Number of fencing panel deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
Number of HGV movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,863**

Project Substation - National Grid Connection	**Units**	**Landfall HDD**	**1**	**2A**	**2B**	**3A**	**3B**	**4A**	**4B and Substation Zone**
Total Length of Trenching	-	0	0	0	0	0	0	0	80
Total CBS volume	m³	0	0	0	0	0	0	0	34
CBS mass	Tonnes	0	0	0	0	0	0	0	55
CBS number of deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
Total exported native soil volume	m³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.10
Total exported native soil mass	Tonnes	0	0	0	0	0	0	0	110.2
Total exported native soil number of deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
Total Length of 400kV Cable Required	m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	240.0
Total number of 400kV Cable drums	-	0	0	0	0	0	0	0	1
Total length of fibre cable required	m	0.0	0.0	0.0	0.0	0.0	0.0	0.0	320.0
Total number of fiber cable drums	-	0	0	0	0	0	0	0	1
Total length of ECC cable required	m	0	0	0	0	0	0	0	80
Total number of ECC cable drums	-	0	0	0	0	0	0	0	1
Total number of cable drum deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
Number of cable cover tiles required	-	0	0	0	0	0	0	0	240
Total Cable tile deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Total length of 200mm cable ducting (for 400kV cable)	m	0	0	0	0	0	0	0	240
Total length of 110mm Fibre cable ducting	m	0	0	0	0	0	0	0	80
Total length of 32mm fibre cable ducting	m	0	0	0	0	0	0	0	320
Total length of 110mm ECC cable ducting	m	0	0	0	0	0	0	0	80
Number of 400kV cable duct packs required	-	0	0	0	0	0	0	0	2
Number of 110mm Fibre cable duct packs required	-	0	0	0	0	0	0	0	1
Number of 32mm fibre cable duct coils required	-	0	0	0	0	0	0	0	2
Number of 110mm ECC cable duct packs required.	-	0	0	0	0	0	0	0	1
Number of duct pack / duct coil deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Volume of fluid required for export cable	m³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume of fluid required for fibre cable	m³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume of fluid required for 32mm fibre ducts	m³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volume of fluid for ECC Cable	m³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total mass of bentonite required	kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of bags required	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of bentonite deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Water required	m³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Number of water deliveries	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HGV movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**

Miscellaneous allowances and total HGV estimates

Activity	Units	Value	Comment
Access from Public Road HGV Movements	%	25	If unfavourable ground is found thicker sub-base may be required
Permanent Haul Road HGV Movements	%	25	If unfavourable ground is found thicker sub-base may be required
Total haul road construction HGV movements	%	20	If unfavourable ground is found geogrid / geotextiles can be introduced which will reduce stone depth therefore low risk of significant increase in vehicle movements
Total CCS Construction HGV movements	%	20	If unfavourable ground is found geogrid / geotextiles can be introduced which will reduce stone depth therefore low risk of significant increase in vehicle movements
Total HGV Holding Area at Elm Tree Farm HGV Movements	%	20	If unfavourable ground is found geogrid / geotextiles can be introduced which will reduce stone depth therefore low risk of significant increase in vehicle movements
Total Marine Electrical Cable HGV Movements	%	0	Worst case already assumed -1300m of cable required
Total Marine Fibre Cable HGV Movements	%	0	Worst case already assumed - separate fibre cable required
Total Terrestrial Electrical Cable HGV Movements	%	0	Worst case already assumed - 1 cable per delivery
Total Terrestrial Fibre Cable HGV Movements	%	0	Worst case already assumed - 1 cable per delivery
Total cable joint kits HGV movements	%	0	Worst case already assumed - 1 delivery per JB.
Total tile HGV movements	%	0	Tile Specs TBC
Total trench HGV movements	%	50	If unfavourable ground is encountered trench sides can be battered back to 1/3 therefore increased CBS required and more natural soils to be removed
Total cable duct HGV movements	%	15	Nominal percentage for damage to ducts
Bentonite (cable Installation in Ducts) HGV Movements	%	10	Nominal percentage for spillages and waste
Jointing bay HGV movements	%	0	Worst case already assumed
Transition bay HGV movements	%	0	Worst case already assumed
Landfall HDD HGV movements	%	25	Possible occurrence of poor ground conditions at HDD locations.
Medium Length Onshore HDD Drilling Compound HGV movements	%	25	Possible occurrence of poor ground conditions at HDD locations.
Medium Length Onshore HDD Exit Pit Compound HGV movements	%	25	Possible occurrence of poor ground conditions at HDD locations.
Short Length Onshore HDD Drilling Compound HGV movements	%	25	Possible occurrence of poor ground conditions at HDD locations.
Short Length Onshore HDD Exit Pit Compound HGV movements	%	25	Possible occurrence of poor ground conditions at HDD locations.
Substation Compound Earthworks and Surface HGV Movements	%	25	Possible occurrence of poor ground conditions at HDD locations.
Project Substation - National Grid Connection	%	50	If unfavourable ground is encountered trench sides can be battered back to 1/3 therefore increased CBS required and more natural soils to be removed

Total Vehicle Movmenets (with miscellaneous allowances)		Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Access from Public Road HGV Movements		0	65	65	0	65	123	65	37
Permanent Haul Road HGV Movements		0	0	0	0	0	0	0	1,323
Total haul road construction HGV movements		0	980	1,172	240	41	716	1,236	248
Total CCS Construction HGV movements		749	749	749	272	0	272	2,225	1,491
Total HGV Holding Area at Elm Tree Farm HGV Movements		0	0	0	0	0	0	0	0
Total Marine Electrical Cable HGV Movements		0	0	0	0	0	0	0	0
Total Marine Fibre Cable HGV Movements		0	0	0	0	0	0	0	0
Total Terrestrial Electrical Cable HGV Movements		0	60	56	14	3	42	39	8
Total Terrestrial Fibre Cable HGV Movements		0	5	5	2	1	4	4	1
Total cable joint kits HGV movements		0	20	20	8	0	12	16	0
Total tile HGV movements		0	21	23	6	1	18	16	4
Total trench HGV movements		0	1,004	1,109	282	44	834	767	159
Total cable duct HGV movements		0	80	89	23	4	67	61	13
Bentonite (cable Installation in Ducts) HGV Movements		0	0	0	0	0	0	0	0
Jointing bay HGV movements		0	583	583	235	0	351	468	0
Transition bay HGV movements		181	0	0	0	0	0	0	0
Landfall HDD HGV movements		3,833	0	0	0	0	0	0	0
Medium Length Onshore HDD Drilling Compound HGV movements		0	1,123	0	0	0	0	0	0
Medium Length Onshore HDD Exit Pit Compound HGV movements		0	0	373	0	0	0	0	0
Short Length Onshore HDD Drilling Compound HGV movements		0	0	0	0	0	0	0	0
Short Length Onshore HDD Exit Pit Compound HGV movements		0	0	0	0	0	0	0	0
Substation Compound Earthworks and Surface HGV Movements		0	0	0	0	0	0	0	4,829
Project Substation - National Grid Connection		0	0	0	0	0	0	0	23
Grand total deliveries		**4,763**	**4,690**	**4,244**	**1,082**	**159**	**2,439**	**4,897**	**8,136**
Grand total (two way movements)		**9,526**	**9,380**	**8,488**	**2,164**	**318**	**4,878**	**9,794**	**16,272**
Percentage increase in Two Way Vehicle Movements	**%**	**23.0**	**22.9**	**22.9**	**20.4**	**29.3**	**24.4**	**21.1**	**24.3**

Compound Welfare and Plant Requirements

General Data	Value	Source/Comments
Number of Welfare / Container Units Per Delivery	1	Worst Case
Number of plant per delivery	1	Worst Case
Frequency of Skip Emptying (weeks)	2	Assumed

Large CCS Requirements (Welfare and Operation Plant)	Value	Source/Comments
Site Office Unit	24	ED11892-GE-2058
Canteen Unit	8	ED11892-GE-2058
Tool Storage Unit	12	ED11892-GE-2058
Workshop Unit	4	ED11892-GE-2058
Mobile Toilet Unit	8	ED11892-GE-2058
Washing / Changing Unit	4	ED11892-GE-2058
First Aid Unit	2	ED11892-GE-2058
Drying Room Unit	4	ED11892-GE-2058
Freshwater Storage Container (2 per delivery)	8	ED11892-GE-2058
Foul Water Storage Container (2 per delivery)	8	ED11892-GE-2058
Bunded Fuel Tank (1 per delivery)	4	ED11892-GE-2058
Generator (2 per delivery)	8	ED11892-GE-2058
General Waste Skip (1 per delivery)	8	ED11892-GE-2058
Wheel Wash (assume 3 deliveries to mobilise)	1	ED11892-GE-2058
Weigh bridge (assume 3 deliveries to mobilise)	0	ED11892-GE-2058
Telehandler	4	
Road Sweeper	1	
Number of HGV Movements	**98**	

Medium CCS Requirements (Welfare and Operation Plant)	Value	Source/Comments
Site Office Unit	8	ED11892-GE-2057
Canteen Unit	4	ED11892-GE-2057
Tool Storage Unit	8	ED11892-GE-2057
Workshop Unit	2	ED11892-GE-2057
Mobile Toilet Unit	4	ED11892-GE-2057
Washing / Changing Unit	2	ED11892-GE-2057
First Aid Unit	0	ED11892-GE-2057
Drying Room Unit	2	ED11892-GE-2057
Freshwater Storage Container (2 per delivery)	4	ED11892-GE-2057
Foul Water Storage Container (2 per delivery)	4	ED11892-GE-2057
Bunded Fuel Tank (1 per delivery)	2	ED11892-GE-2057
Generator (2 per delivery)	4	ED11892-GE-2057
General Waste Skip (1 per delivery)	4	ED11892-GE-2057
Wheel Wash (assume 3 deliveries to mobilise)	1	ED11892-GE-2057
Weigh bridge (assume 3 deliveries to mobilise)	0	ED11892-GE-2057
Telehandler	2	
Road Sweeper	1	
Number of HGV Movements	**48**	

Small CCS Requirements (Welfare and Operation Plant)	Value	Source/Comments
Site Office Unit		
Canteen Unit	2	ED11892-GE-2056
Tool Storage Unit	4	ED11892-GE-2056
Workshop Unit		
Mobile Toilet Unit	2	ED11892-GE-2056
Washing / Changing Unit	2	ED11892-GE-2056
First Aid Unit		
Drying Room Unit	2	ED11892-GE-2056
Freshwater Storage Container (2 per delivery)	2	ED11892-GE-2056
Foul Water Storage Container (2 per delivery)	2	ED11892-GE-2056
Bunded Fuel Tank (1 per delivery)	1	ED11892-GE-2056
Generator (2 per delivery)	2	ED11892-GE-2056
General Waste Skip (1 per delivery)	2	ED11892-GE-2056
Wheel Wash (assume 3 deliveries to mobilise)		
Weigh bridge (assume 3 deliveries to mobilise)		
Telehandler	1	
Road Sweeper		
Number of HGV Movements	**19**	

Landfall HDD Compound Requirements (Welfare and Operation Plant)	Value	Source/Comments
Site Office Unit	4	ED11892-GE-2016 Rev D
Canteen Unit / Lunch Room	4	ED11892-GE-2016 Rev D
Welfare Unit	4	ED11892-GE-2016 Rev D
Tool Storage Unit	4	ED11892-GE-2016 Rev D
Workshop Unit	4	ED11892-GE-2016 Rev D
Generator (2 per delivery)	4	
Freshwater Storage Container (2 per delivery)	4	
Foul Water Storage Container (2 per delivery)	4	
General Waste Skip (1 per delivery)	4	
Bunded Fuel Tank	4	ED11892-GE-2016 Rev D
Bentonite Storage Container	4	ED11892-GE-2016 Rev D
Mixing Tank	4	ED11892-GE-2016 Rev D
Cuttings Container	4	ED11892-GE-2016 Rev D
Drill Pipe Rack	8	ED11892-GE-2016 Rev D
Mud Pump	4	ED11892-GE-2016 Rev D
Power Pack	4	ED11892-GE-2016 Rev D
Driller's Cabin	4	ED11892-GE-2016 Rev D
HDD Rig	1	ED11892-GE-2016 Rev D
Telehandler	1	
Number of HGV Movements	**68**	

Onshore HDD Entry Pit Compound Requirements (Welfare and Operation Plant)	Value	Source/Comments
Site Office Unit	2	ED11892-GE-2017 Rev C
Canteen Unit / Lunch Room	2	ED11892-GE-2017 Rev C
Welfare Unit	2	ED11892-GE-2017 Rev C
Tool Storage Unit	2	ED11892-GE-2017 Rev C
Workshop Unit	2	ED11892-GE-2017 Rev C
Generator (2 per delivery)	2	
Freshwater Storage Container (2 per delivery)	2	
Foul Water Storage Container (2 per delivery)	2	
General Waste Skip (1 per delivery)	2	
Bunded Fuel Tank	2	ED11892-GE-2017 Rev C
Bentonite Storage Container	2	ED11892-GE-2017 Rev C
Mixing Tank	2	ED11892-GE-2017 Rev C
Cuttings Container	2	ED11892-GE-2017 Rev C
Drill Pipe Rack	9	ED11892-GE-2017 Rev C
Mud Pump	9	ED11892-GE-2017 Rev C + 2 Fibre drills per project
Power Pack	9	ED11892-GE-2017 Rev C + 2 Fibre drills per project
Driller's Cabin	9	ED11892-GE-2017 Rev C + 2 Fibre drills per project
HDD Rig	2	ED11892-GE-2017 Rev C + 2 Fibre drills per project
Telehandler	2	
Number of HGV Movements	**63**	

Onshore HDD Exit Pit Compound Requirements (Welfare and Operation Plant)	Value	Source/Comments
Site Office / Welfare Unit	4	
General Waste Skip (1 per delivery)	2	
Generator (2 per delivery)	4	
Tool Storage Unit	4	
Drill Pipe Rack	4	
Number of HGV Movements	**15**	

Substation Construction Compound Requirements (Welfare and Operation Plant)	Value	Source/Comments
Site Office Unit	6	ED11892-GE-2059 + 2061
Canteen Unit	2	ED11892-GE-2059 + 2061
Tool Storage Unit	6	ED11892-GE-2059 + 2061
Workshop Unit	1	ED11892-GE-2059 + 2061
Mobile Toilet Unit	2	ED11892-GE-2059 + 2061
Washing / Changing Unit	1	ED11892-GE-2059 + 2061
First Aid Unit	0	ED11892-GE-2059 + 2061
Drying Room Unit	1	ED11892-GE-2059 + 2061
Freshwater Storage Container (2 per delivery)	2	ED11892-GE-2059 + 2061
Foul Water Storage Container (2 per delivery)	2	ED11892-GE-2059 + 2061
Bunded Fuel Tank (1 per delivery)	1	ED11892-GE-2059 + 2061
Generator (2 per delivery)	2	ED11892-GE-2059 + 2061
General Waste Skip (1 per delivery)	2	ED11892-GE-2059 + 2061
Telehandler	1	
Road Sweeper	1	
Number of HGV Movements	**27**	

Section		Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Compound Welfare and Operation Plant Requirements		400	452	372	146	0	130	772	54
Grand total deliveries		**400**	**452**	**372**	**146**	**0**	**130**	**772**	**54**
Grand total (two way movements)		**800**	**904**	**744**	**292**	**0**	**260**	**1,544**	**108**

Compound Welfare and Operation Plant Requirements	Units	Landfall HDD	1	2A	2B	3A	3B	4A	4B and Substation Zone
Number of Large CCS	-	0	0	0	0	0	0	1	0
Number of Medium CCS	-	1	1	1	0	0	0	0	0
Number of small CCS	-	0.0	0	0	1	0	1	0	0
Duration of Construction Consolidation Site	Weeks	52	100	108	108		92.0	144.0	0
Number of Skip Movements	-	**104**	**200**	**216**	**108**	**0**	**92**	**576**	**0**
Number of Landfall Compounds	-	1	0	0	0	0	0	0	0
Duration of Landfall Compound Usage	Weeks	32	0	0	0	0	0	0	0
Number of Skip Movements	-	**64**	**0**	**0**	**0**	**0**	**0**	**0**	
Number of Onshore HDD Drilling Compounds (medium and short length)	-	0	1	0	0	0	0	0	0
Combined Duration of Onshore HDD Drilling Compound Usage	Weeks	0	30	0	0	0	0	0	0
Number of Skip Movements	-	**0**	**30**	**0**	**0**	**0**	**0**	**0**	**0**
Number of HDD Exit Pit Compounds (medium and short length)	-	0	0	1	0	0	0	0	0
Combined Duration of Landfall Compound Usage	Weeks	0	0	30	0	0	0	0	0
Number of Skip Movements	-	**0**	**0**	**30**	**0**	**0**	**0**	**0**	**0**
Number of Substation Constuction Compounds	-	0	0	0	0	0	0	0	2
Duration of Substation Construction Compound Usage	Weeks	0	0	0	0	0	0	0	132
Number of Skip Movements	-	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**264**
Number of HGV movements to Establish Compounds	**-**	**116**	**111**	**63**	**19**	**0**	**19**	**98**	**54**
Number of HGV movements to Demobilise Compounds	**-**	**116**	**111**	**63**	**19**	**0**	**19**	**98**	**54**
Total Number of Skip Movements	**-**	**168**	**230**	**246**	**108**	**0**	**92**	**576**	**264**
Total Number of Compound HGV Movements	**-**	**400**	**452**	**372**	**146**	**0**	**130**	**772**	**372**

Compound Welfare and Plant Requirements

Reference	General Data (Fixed Information)	Units	Value	Source/Comments
1.03	Tipper Truck Capacity	Tonnes	20	8x4 Rigid Tipper http://www.mqp.co.uk/vehicle.htm
1.04	Ready Mix Concrete truck Capacity	m^3	6	6m3 Truck mixer https://www.hanson.co.uk/en/technical-information/truck-information
1.06	Type 1 Stone Density	t/m^3	2.3	MOT Type 1 https://www.smithsbletchington.co.uk/mot-type-1
1.07	Crusher Run Stone Density	t/m^3	2.1	Crusher Run Stone https://www.smithsbletchington.co.uk/limestone-crusher-run
1.08	Compound / Haul Road Type 1 Sub-base Thickness	m	0.15	Drawing ED11892-GE-2040 A
1.09	Compound / Haul Road Crushed Stone Thickness	m	0.1	Drawing ED11892-GE-2040 A
1.10	Geogrid mass/Area	kg/m^2	0.22	Tensar SS20 https://www.drainagesuperstore.co.uk/user/u/files/jdp-tensar-geogrid.pdf
1.11	Mass of geogrid per delivery	Tonnes	2	Assumed
1.27	Heras Fencing Panel Hight	m	2	Heras HSG 151 Fencing https://www.heras-mobile.co.uk/fencing/151-system
1.28	Heras Fencing Panel Width	m	3.5	Heras HSG 151 Fencing https://www.heras-mobile.co.uk/fencing/151-system
1.29	Weight Per Panel	kg	16	Heras HSG 151 Fencing https://www.heras-mobile.co.uk/fencing/151-system
1.30	No of panels per delivery	-	125	Assumed 2T of panelling per delivery (includes all required feet and connectors)
1.33	Length of stock fencing roll	m	500	1.15 Cattle Fence https://www.jacksons-fencing.co.uk/fencing/agricultural-fencing/wire-fencing-stock
1.34	Frequency of Wooden Post	m	5	Assumed
1.35	Frequency of tension post (includes 2 stay posts)	m	50	Assumed
1.36	Length of fencing (including required posts) per HGV Delivery	m	4000	Assumed
3.61	Width of haul road / permanent access road	m	4.5	OPEDA / Project Parameters
3.62	Minimum distance between Passing Places	m	87	ED11892-GE-2006
3.63	Length of passing place	m	32	ED11892-GE-2006
3.64	Width of passing place	m	4	ED11892-GE-2006
3.65	Area of passing place	m^2	128	Calculated (3.63 x 3.64)
3.66	Volume of Type 1 Stone required per passing place	m^3	19.2	Calculated (1.08 x 3.65)
3.67	Volume of Crusher Run Stone Required per passing place	m^3	12.8	Calculated (1.09 x 3.65)

Reference	Access and Permanent Haul Road Data (Fixed Information)	Units	Value	Source/Comments
4.01	Area of access tarmac surface	m^2	170	ED11892-GE-2038 A
4.02	Length of R2 8m external radi kerbing required per access	m	25	ED11892-GE-2038 A
4.03	Maximum Length of K2 straight kerbing required per access	m	394.5	ED11892-GE-2038 A
4.04	Length of one R2 8m external radi kerb	m	0.78	https://www.marshalls.co.uk/commercial/assets/documents/product-specifications/kerb07.pdf
4.05	Length of one K2 straight kerb	m	0.914	https://www.marshalls.co.uk/commercial/assets/documents/product-specifications/kerb07.pdf
4.06	Number of internal radi kerbs required per access	-	32	Calculated (4.02 / 4.04)
4.07	Maximum Number of straigtht kerbs required per access	-	432	Calculated (4.03 / 4.05)
4.08	Number of R2 8m external radi kerbs per pallet	-	10	Assumed
4.09	Number of R2 straight kerbs per pallet	-	18	Assumed
4.10	Number of kerb pallets per delivery	-	6	Assumed
4.12	Maximum volume of concrete required for kerbing at each access	m^3	33.2	Volume calculated from design drawing x length of kerbing required.
4.13	Maximum Depth of Type 1 mortar required	m	0.04	Worst case Assumed
4.14	Maximum Volume of Type 1 mortar required per access	m^3	2.1	Calculated (125 x (4.02 + 4.02) x 4.13)
4.15	Maximum Volume of cement required per access	m^3	0.49	Type 1 mortar 1 part cement, 1/4 parts lime and 3 parts sand
4.16	Density of cement	$tonnes/m^3$	3.15	
4.17	Mass of cement required per access	tonnes	0.16	Calculated (4.15 / 4.16)
4.18	Mass of cement per bag	kg	25	https://www.condell-ltd.com/full-pallet-general-purpose-cement-opc-25kg-60-per-pallet?gclid=EAIaIQobChMImPHW447O2gIVB-MbCh2LUwy-EAQYBCABEgIQA_D_BwE
4.19	Number of cement bags per pallet	-	60	https://www.condell-ltd.com/full-pallet-general-purpose-cement-opc-25kg-60-per-pallet?gclid=EAIaIQobChMImPHW447O2gIVB-MbCh2LUwy-EAQYBCABEgIQA_D_BwE
4.20	Maxiumum Volume of lime required per access	m^3	0.12	Type 1 mortar 1 part cement, 1/4 parts lime and 3 parts sand
4.21	Density of lime	$tonnes/m^3$	2.21	https://www.slb.com/-/media/Files/miswaco/ps-drilling-fluids/lime.pdf?la=en&hash=2FD5F24971492980C016D52C63F7FFCC7B40F0A7
4.22	Mass of lime required per access	tonnes	0.06	Calculated (4.20 / 4.21)
4.23	Mass of lime per bag	kg	25	https://www.condell-ltd.com/rugby-lime-25kg?gclid=EAIaIQobChMI5suZyJDO2gIVQucbCh2r-wUAEAQYASABEgJRHPD_BwE
4.24	Number of lime bags per pallet	-	60	Assumed
4.25	Maxiumum Volume of sand required per access	m^3	1.48	Type 1 mortar 1 part cement, 1/4 parts lime and 3 parts sand
4.26	Density of sand	$tonnes/m^3$	1.70	https://www.smithsbletchington.co.uk/mixed-building-sand
4.27	Mass of sand required per access	tonnes	0.87	Calculated (4.25 / 4.26)
4.28	Mass of sand per bag	Tonnes	0.9	https://www.condell-ltd.com/rugby-lime-25kg?gclid=EAIaIQobChMI5suZyJDO2gIVQucbCh2r-wUAEAQYASABEgJRHPD_BwE
4.29	Number of cement pallets / lime pallets / sand bags per delivery	-	4	Assumed (assumes all three items can be delivered in same delivery
4.30	Depth of sub-base beneth kerb	m	0.150	Assumed
4.31	Maximum volume of sub-base beneath kerb	m^3	25.17	Calculated from design drawing and length of kerbing.
4.32	Permanent access road sub-base depth	m	0.225	Suffolk County Council Estate Road Specification
4.33	Permanat access road Asphalt Depth	m	0.25	Suffolk County Council Estate Road Specification
4.34	Bulk Density of Asphalt	$tonnes/m^3$	2.36	https://www.engineeringtoolbox.com/density-solids-d_1265.html
4.35	Width of Permanent Access Corridor	m	10.1	
4.36	Width of Access Road to Sealing End Compounds	m	3.7	Instruction from PRW email 25/04/2019

Access From Public Road Construction	Units	Access to Pylons 16, 17 and 18	Access to Pylons 19 and 20	Access to Pylons 21, 22 and 23	
Number of accesses	m	0	0	0	
Area of tarmac surface	m²	0	0	0	
Volume of Sub-base stone (Type 1)	m³	0	0	0	
Mass of Type 1 stone required	Tonnes	0	0	0	
Number of Type 1 stone deliveries	-	**0**	**0**	**0**	
Volume of Asphalt	m³	0	0	0	
Mass of Asphalt	Tonnes	0	0	0	
Number of Asphalt Deliveries	-	**0**	**0**	**0**	
Number of R2 8m external radi kerbs	-	0	0	0	
Number of K2 straight kerbs	-	0	0	0	
Total number of pallets of kerbs	-	0	0	0	
Number of kerb deliveries	-	**0**	**0**	**0**	
Volume of concrete required	m³	0.0	0.0	0.0	
Number of concrete deliveries	-	**0**	**0**	**0**	
Volume of mortor requred	m³	0	0	0	
Mass of cement required	Tonnes	0.00	0.00	0.00	
Mass of lime required	Tonnes	0.00	0.00	0.00	
Mass of sand required	Tonnes	0.00	0.00	0.00	
Number of Cement pallets required	-	0	0	0	
Number of lime pallets required		0	0	0	
Number of sand bags required		0	0	0	
Number of cement pallet, lime pallet and sand bag deliveries		**0**	**0**	**0**	
Volume of Topsoil to be removed from site (permanent access only)	m³	0	0	0	
Mass of Topsoil to be removed from site (permanent access only)	Tonnes	0	0	0	
Number of topsoil removal movements (permanent access only)	-	**0**	**0**	**0**	
Removal of tempoary access movements	-	**0**	**0**	**0**	**Total**
Number of HGV movements	**-**	**0**	**0**	**0**	**0**
Total Number of Two-way HGV movements	-	**0**	**0**	**0**	**0**

Stone Haul Road Construction	Units	Access to Pylons 16, 17 and 18	Access to Pylons 19 and 20	Access to Pylons 21, 22 and 23	
Haul road length	m	1100			
Number of passing places required	-	13	0	0	
Volume of Sub-base stone required	m³	992	0	0	
Mass of sub-base stone required	Tonnes	2,282	0	0	
Number of sub-base stone deliveries	-	**115**	**0**	**0**	
Volume of Crusher Run stone required	m³	661	0	0	
Mass of Crusher Run stone required	Tonnes	1,389	0	0	
Number of Crusher Run stone deliveries	-	**70**	**0**	**0**	
Surface area	m²	6,614	0	0	
Mass of geogrid required	Tonnes	1.46	0.00	0.00	
Number of geogrid deliveries	-	**1**	**0**	**0**	
Length of stock proof fencing required	m	2,209.0	0.0	0.0	
Number of Stockproof fencing deliveries	-	**1**	**0**	**0**	
Removal of haul road movements	-	**187**	**0**	**0**	**Total**
Number of HGV movements	**-**	**374**	**0**	**0**	**374**
Total Number of Two-way HGV movements	-	**748**	**0**	**0**	**748**

Tarmac Haul Road Construction to Sealing End Compounds	Units	Location TBC
Haul road length	m	500
Surface area	m²	1,850
Volume of Sub-base stone for road	m³	417
Mass of stone	Tonnes	959
Number of stone deliveries	-	**48**
Volume of Asphalt	m³	463
Mass of Asphalt	Tonnes	1,092
Number of Asphalt Deliveries	-	**55**
Length of stock proof fencing required	m	1,000
Number of stock proof fencing deliveries	-	**1**
Volume of Topsoil to be removed from site	m³	833
Mass of Topsoil to be removed from site	Tonnes	558
Number of topsoil removal movements	-	**28**
Number of HGV movements	**-**	**132**
Total Number of Two-way HGV movements	-	**264**

Compound Welfare and Plant Requirements

Building	Height (m)	Length (m)	Width (m)	Area (m²)	Number of
Control Building	6.00	40.00	25.00	1000.00	1.00
Statcom/SVC Building	15.00	30.00	22.00	660.00	2.00
GIS Building	15.00	40.00	20.00	800.00	1.00
Shunt Reactor	8.00	18.00	12.00	216.00	2.00

Other Structures	Height (m)	Length (m)	Width (m)	Area (m²)	Number of	Loading Weight (t)
External Blast Walls	16.00	26.00	0.30	N/A	0.00	N/A
Main Transformer	10.00	23.00	17.00	391.00	2.00	575.00
Auxiliary Transformer	5.00	6.00	3.00	18.00	2.00	15.00
Reactors + STATCOM equipment	15.00	25.00	20.00	500.00	2.00	100.00
Switch Board Assemblies	3.00	75.00	1.50	112.50	10.00	3.00
Control Panel assemblies	3.00	1.50	1.00	1.50	20.00	0.30
HPL Compact Breaker	3.00	14.00	0.60	8.40	12.00	1.50
HV Horizontal Line Disconnect Switch	12.00	0.50	0.50	0.25	10.00	0.30
HV Vertical break feeder disconnect switch	12.00	0.50	0.50	0.25	10.00	0.30
Emergency Diesel Generator	4.00	10.00	5.00	50.00	1.00	15.00
Emergency Diesel Fire Pump	1.00	2.50	2.00	5.00	2.00	20.00
Filter/Capacitor Bank	18.00	10.00	10.00	100.00	2.00	10.00

Building	Item	Description	Unit Weight (kg/m²)	Total Volume (m³)	Total Area (m²)	Density (kg/m³)	Total Weight (t)	Material	Delivery	HGV Movements	Number of unit	Total HGV Movements
Control Building (total for 1No.)	pad foundations	5x5x1m deep RC concrete on a 25x8m grid plus ridge column at both gables		350		2,400	840	Concrete	6	59	1	59
	concrete slab within building	200mm thick concrete slab	480	200	1,000	2,400	480	Concrete	6	34	1	34
		on 150mm thick type 1 sub base	345	180	1,200	2,300	414	Stone	20	21	1	21
	extra concrete plinths for equipment in building	TBC									1	0
	perimeter ground beam	450mm deep x 600mm wide, 130m long		35		2,400	84	Concrete	6	6	1	6
	steel frame	80 kg/m2 includes secondary steel (purlins and cladding rails and door framing, and a 10% allowance for connections. Based on max 25m span and 8m bay centres , 6m ridge height.	80		1,000		80	Steel	12.5	7	1	7
	cladding	composite cladding panels 150mm thick -	10		1,780		18	Cladding	12.5	2	1	2
								Total (1no)		**129**	**Total**	**129**

Building	Item	Description	Unit Weight (kg/m²)	Total Volume (m³)	Total Area (m²)	Density (kg/m³)	Total Weight (t)	Material	Delivery	HGV Movements	Number of unit	Total HGV Movements
Statcom/SVC Building (total for 1No.)	RC Pad foundations	4.5x4.5x1m deep RC concrete on a 22x6m grid plus ridge column at both gables		284		2,400	680	Concrete	6	48	2	96
	Concrete ground bearing slab within building	200mm thick concrete slab	480	132	660	2,400	317	Concrete	6	22	2	44
		on 150mm thick type 1 sub base	345	119	792	2,300	273	Stone	20	14	2	28
	extra concrete plinths for equipment in building	TBC									2	0
	Perimeter ground beam	450mm deep x 600mm wide, 104m long		28		2,400	67	Concrete	6	5	2	10
	Steel frame	134 kg/m2 includes secondary steel (purlins and cladding rails and door framing, and a 10% allowance for connections. Based on max 22m span and 6m bay centres , 8m ridge height.	134		660		88	Steel	12.5	8	2	16
	Cladding	composite cladding panels 150mm thick -	10		2,220		22	Cladding	12.5	2	2	4
								Total (1no)		**99**	**Total**	**198**

Building	Item	Description	Unit Weight (kg/m²)	Total Volume (m³)	Total Area (m²)	Density (kg/m³)	Total Weight (t)	Material	Delivery	HGV Movements	Number of unit	Total HGV Movements
GIS Building	RC Pad foundations	5x5x1m deep RC concrete on a 20x8m grid plus ridge column at both gables		433		2,400	1,040	Concrete	6	73	1	73
	Concrete ground bearing slab within building	200mm thick concrete slab	480	160	800	2,400	384	Concrete	6	27	1	27
		on 150mm thick type 1 sub base	345	144	960	2,300	331	Stone	20	17	1	17
	extra concrete plinths for equipment in building	TBC									1	0
	Perimeter ground beam	450mm deep x 600mm wide, 120m long		32		2,400	78	Concrete	6	6	1	6
	Steel frame	80 kg/m2 includes secondary steel (purlins and cladding rails and door framing, and a 10% allowance for connections. Based on max 20m span and 8m bay centres , 15m ridge height.	80		800		64	Steel	12.5	6	1	6
	Cladding	composite cladding panels 150mm thick -	10		2,600		26	Cladding	12.5	3	1	3
								Total (1no)		**132**	**Total**	**132**

Building	Item	Description	Unit Weight (kg/m²)	Total Volume (m³)	Total Area (m²)	Density (kg/m³)	Total Weight (t)	Material	Delivery	HGV Movements	Number of unit	Total HGV Movements
Shunt Reactor	RC Pad foundations	3x3x0.75m deep RC concrete on a 12x6m grid plus ridge column at both gables		68		2,400	162	Concrete	6	12	2	24
	Concrete ground bearing slab within building	200mm thick concrete slab	480	43	216	2,400	104	Concrete	6	8	2	16
		on 150mm thick type 1 sub base	345	39	259	2,300	89	Stone	20	5	2	10
	extra concrete plinths for equipment in building	TBC									2	0
	Perimeter ground beam	450mm deep x 600mm wide, 60m long		16		2,400	39	Concrete	6	3	2	6
	Steel frame	80 kg/m2 includes secondary steel (purlins and cladding rails and door framing, and a 10% allowance for connections. Based on max 12m span and 6m bay centres , 8m ridge height.	80		216		17	Steel	12.5	2	2	4
	Cladding	composite cladding panels 150mm thick -	10		696		7	Cladding	12.5	1	2	2
								Total (1no)		**31**	**Total**	**62**

Structure	Item	Description	Unit Weight (kg/m²)	Total Volume (m³)	Total Area (m²)	Density (kg/m³)	Total Weight (t)	Material	Delivery	HGV Movements	Number of unit	Total HGV Movements
External blast walls	10 No. Blast walls between transformers	16m high x 26m long x 450mm thick blast walls		187		2,400	449	Concrete	6	31	0.00	0
								Total (1no)		**31**	**Total**	**0**

Structure/Bases	Item	Description	Unit Weight (kg/m²)	Total Volume (m³)	Total Area (m²)	Density (kg/m³)	Total Weight (t)	Material	Delivery	HGV Movements	Number of unit	Total HGV Movements
Main Transformer	RC Base/Foundation	1no. 23m x 17m x 450mm thick	1,080	175.95	391.00	2,400	422.28	Concrete	6	30	2	60
	Sub base	150mm thick type 1 sub base	345	70.38	469.20	2,300	161.87	Stone	20	9	2	18
Auxiliary Transformer	RC Base/Foundation	1no. 6m x 3m x 300mm thick	720	5.40	18.00	2,400	12.96	Concrete	6	1	2	2
	Sub base	150mm thick type 1 sub base	345	3.24	21.60	2,300	7.45	Stone	20	1	2	2
Reactors + STATCOM equipment	RC Base/Foundation	1no. 25m x 20m x 450mm thick	1,080	225.00	500.00	2,400	540.00	Concrete	6	38	2	76
	Sub base	150mm thick type 1 sub base	345	90.00	600.00	2,300	207.00	Stone	20	11	2	22
Switch Board Assemblies	RC Base/Foundation	1no. 75m x 1.5m x 300mm thick	720	33.75	112.50	2,400	81.00	Concrete	6	6	10	60
	Sub base	150mm thick type 1 sub base	345	20.25	135.00	2,300	46.58	Stone	20	3	10	30
Control Panel assemblies	RC Base/Foundation	1no. 1.5m x 1.5m x 300mm thick	720	0.45	1.50	2,400	1.08	Concrete	6	1	20	20
	Sub base	150mm thick type 1 sub base	345	0.27	1.80	2,300	0.62	Stone	20	1	20	20
HPL Compact Breaker	RC Base/Foundation	1no. 14m x 0.6m x 300mm thick	720	2.52	8.40	2,400	6.05	Concrete	6	1	12	12
	Sub base	150mm thick type 1 sub base	345	1.51	10.08	2,300	3.48	Stone	20	1	12	12
HV Horizontal Line Disconnect Switch	RC Base/Foundation	1no. 0.5m x 0.5m x 300mm thick	720	0.08	0.25	2,400	0.18	Concrete	6	1	10	10
	Sub base	150mm thick type 1 sub base	345	0.05	0.30	2,300	0.10	Stone	20	1	10	10
HV Vertical break feeder disconnect switch	RC Base/Foundation	1no. 0.5m x 0.5m x 300mm thick	720	0.08	0.25	2,400	0.18	Concrete	6	1	10	10
	Sub base	150mm thick type 1 sub base	345	0.05	0.30	2,300	0.10	Stone	20	1	10	10
Emergency Diesel Generator	RC Base/Foundation	1no. 10m x 5m x 450mm thick	720	15.00	50.00	2,400	36.00	Concrete	6	3	1	3
	Sub base	150mm thick type 1 sub base	345	9.00	60.00	2,300	20.70	Stone	20	2	1	2
Emergency Diesel Fire Pump	RC Base/Foundation	1no. 2.5m x 2m x 300mm thick	720	1.50	5.00	2,400	3.60	Concrete	6	1	2	2
	Sub base	150mm thick type 1 sub base	345	0.90	6.00	2,300	2.07	Stone	20	1	2	2
Filter/Capacitor Bank	RC Base/Foundation	1no. 10m x 10m x 300mm thick	720	30.00	100.00	2,400	72.00	Concrete	6	5	2	10
	Sub base	150mm thick type 1 sub base	345	18.00	120.00	2,300	41.40	Stone	20	3	2	6
								Total (1no)		**122**	**Total**	**399**

Total	**920**