

East Anglia THREE

# Appendix 27.6

## Construction material quantities and associated HGV demand (Two Phased)

**Environmental Statement**

Volume 3

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Appendix 27.06 Construction material quantities and associated HGV demand (Two Phased, Phase 1)

material quantities and HGV demand derived by construction consultants AECOM

Table 1

General Data	Value	General Data	Value	General Data	Value	General Data	Value	Miscellaneous allowances	Value
Haul road width (m)	5.5	Native soil backfill depth (m)	0.4	Number of jointing kits per jointing bay location	6	Transition bay height (m)	3	Haul road construction HGV allowance	20%
Haul road depth (mm)	0.197857143	Native soil density (t/m <sup>3</sup> )	1.8	Number of jointing kits per delivery	6	Transition bay length (m)	15	Cables installation HGV allowance	20%
Haul road stone density (t/m <sup>3</sup> )	1.8	Jointing bay width (m)	3	Length of cable tile (mm)	914	Volume of concrete per transition bay (m <sup>3</sup> )	90	Cable joint kit HGV allowance	0%
Geogrid mass (kg/m <sup>2</sup> )	0.22	Jointing bay height (m)	0	No. of tiles per delivery	200	Steel reinforcement for transition bay (t/m <sup>3</sup> )	0.065	Bentonite (Cable installation) HGV allowance	10%
Number of jointing bays per location	1	Jointing bay length (m)	10	Trench depth (m)	1.5	Tipper truck capacity (t)	20	Jointing bay HGV allowance	100%
Number of trenches	2	Volume of concrete per jointing bay (m <sup>3</sup> )	6	Trench width (m)	0.8	Ready mix concrete truck capacity (m <sup>3</sup> )	6	Transition bay HGV allowance	25%
Number of cables per cable section	6	Steel reinforcement for jointing bay (t/m <sup>2</sup> )	0.065	CBS layer depth (m)	0.4	Bentonite density (kg/m <sup>3</sup> )	563		
Number of cables per delivery	1	Transition bay width (m)	10	CBS density (t/m <sup>2</sup> )	1.6	HDD HGV movements per km	0		

Table 2

Section	1	2	3	4	5	6	7	8	9	10	11	Total
Total haul road construction (removal or installation) HGVs	332	130	155	396	28	128	167	704	135	129	210	2,514
Total cable installation HGVs	59	52	45	44	31	37	54	82	16	45	15	480
Total cable joints HGVs	7	7	6	6	4	5	7	10	2	6	2	62
Total bentonite HGVs	22	26	18	13	15	12	30	43	9	20	6	214
Total jointing bay HGVs	124	146	128	120	90	104	156	214	48	128	42	1,300
Total Transition bay HGVs	75	0	0	0	0	0	0	0	0	0	0	75
Grand total deliveries	1,284	643	625	579	279	511	684	3,092	392	575	521	4,645
Grand total (two way movements)	2,568	1,286	1,250	1,158	558	1,022	1,368	6,184	784	1,150	1,042	9,290

Table 3a

Section	1	1	1	2	2	2	3	3	3	4	5	5	5	6	6
Joint bay	TB	1 to 3	4 to 6	7 to 9	10, 11	12, 13	14 to 16	17	18, 19	20 TO 25	26	27	28, 29	30-32	33, 34
Access point	A	B	C	D	E,F	G	H	I	J, K	L	M	N	O	P	V
Haul road length (m)	232	1,194	1,022	601	0	798	1,272	413	0	2,642	230	40	0	670	720
Haul road depth (m)	0.225	0.225	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.250	0.150	0.150	0.150	0.200	0.200
LFAC cable length in jointing bay (m)	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
LFAC cable length in ducts (m)	489	2,105	1,164	1,981	1,209	1,348	1,831	396	790	2,820	675	355	963	777	1,107
Number of jointing bay locations	0	3	3	3	2	2	3	1	2	6	1	1	2	3	2
Number of cable sections	1	3	2	2	2	2	2	1	1	3	1	1	1	1	2
Number of transitions bays	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Haul Road Construction															
Volume of stone (m <sup>3</sup> )	285	1,473	1,282	495	0	660	1,048	398	0	3,633	190	33	0	553	594
Mass of stone (t)	512	2,651	2,272	891	0	1,188	1,886	639	0	6,539	342	59	0	995	1,069
Number of Stone HGVs	26	133	114	45	0	60	95	31	0	327	18	3	0	50	54
Mass of geogrid	0.28	1.44	1.23	0.73	0.00	0.97	1.54	0.50	0.00	3.20	0.28	0.05	0.00	0.81	0.87
Number of Geogrid HGVs	1	1	1	1	0	1	1	1	0	3	1	1	0	1	1
Haul Road Removal HGVs	27	134	115	46	0	61	96	32	0	330	19	4	0	51	55
Haul road (remove or install) number of HGVs	27	134	115	46	0	61	96	32	0	330	19	4	0	51	55

Cables

Number of cables	6	24	18	18	12	12	18	6	12	36	6	6	12	18	12
Number of HGVs	6	24	18	18	12	12	18	6	12	36	6	6	12	18	12
Cable Joint Kits	6	24	18	18	12	12	18	6	12	36	6	6	12	18	12
Cable joints number of HGVs	1	3	3	3	2	2	3	1	2	6	1	1	2	3	2

Bentonite (Cable installation)

Volume of fluid required (m <sup>3</sup> )	46	198	110	187	114	127	172	37	74	266	64	33	91	73	104
Mass of Bentonite (kg)	2,764	11,897	6,579	11,197	6,833	7,619	10,349	2,238	4,465	15,939	3,815	2,006	5,443	4,392	6,257
Bentonite HGVs	1	3	2	3	2	2	2	1	1	3	1	1	1	1	2
Water required (m <sup>3</sup> )	46	198	110	187	114	127	172	37	74	266	64	33	91	73	104
Water HGVs	2	7	4	7	4	5	6	2	3	9	3	2	4	3	4
Number of HGVs	3	10	6	10	6	7	8	3	4	12	4	3	5	4	6

Jointing Bays

Number of joint bays	0	3	3	3	2	2	3	1	2	6	1	1	2	3	2
Volume of concrete (m <sup>3</sup> )	0	36	36	36	24	24	36	12	24	72	12	12	24	36	24
Number of HGVs	0	6	6	6	4	4	6	2	4	12	2	2	4	6	4
Mass of steel (t)	0.00	2.34	2.34	2.34	1.56	1.56	2.34	0.78	1.56	4.68	0.78	0.78	1.56	2.34	1.56
Number of HGVs	0	1	1	1	1	1	1	1	1	3	1	1	1	1	1
Total exported material HGVs	0	11	11	11	7	7	11	4	7	21	4	4	7	11	7
Concrete block HGVs	0	7	7	7	5	5	7	3	5	14	3	3	5	7	5
Pre-cast concrete slab HGVs	0	6	6	6	4	4	6	2	4	12	2	2	4	6	4
Transition bays number of HGVs	0	31	31	31	21	21	31	12	21	60	12	12	21	31	21

Transition Bays

Number of transitions bays	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Volume of concrete (m <sup>3</sup> )	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of HGVs	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mass of steel (t)	7.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of HGVs	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total exported native soil volume (m <sup>3</sup> )	450	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total exported native soil mass (t)	810	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Native soil HGVs	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transition bays number of HGVs	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3b

Section	7	7	7	7	7	8	8	8	8	8	8	9	9	10	10	11
<b>Joint bay</b>	<b>35-36</b>	<b>37</b>	<b>38-39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43-45</b>	<b>46</b>	<b>47-48</b>	<b>49-52</b>	<b>53</b>	<b>54</b>	<b>55</b>	<b>56-57</b>	<b>58-60</b>	<b>61-62</b>
Access point	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK, AL	AM
Haul road length (m)	480	0	720	0	594	220	1,150	440	970	1,900	370	120	170	300	0	780
Haul road depth (m)	0.150	0.000	0.150	0.150	0.150	0.250	0.250	0.250	0.250	0.250	0.450	0.450	0.450	0.450	0.450	0.450
LFAC cable length in jointing bay (m)	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
LFAC cable length in ducts (m)	1,633	700	1,409	377	357	594	1,364	394	1,487	2,567	171	484	385	467	1,604	950
Number of jointing bay locations	2	1	2	1	1	1	3	1	2	3	1	1	1	2	3	2
Number of cable sections	2	1	2	1	1	1	2	1	2	3	1	1	1	1	2	1
Number of transitions bays	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Haul Road Construction</b>																
Volume of stone (m³)	396	0	594	0	490	303	1,581	605	1,334	2,613	916	297	421	743	0	1,931
Mass of stone (t)	713	0	1,069	0	882	545	2,846	1,089	2,401	4,703	1,648	535	757	1,337	0	3,475
Number of Stone HGVs	36	0	54	0	45	27	142	54	120	235	83	27	38	67	0	174
Mass of geogrid	0.58	0.00	0.87	0.00	0.72	0.27	1.39	0.53	1.17	2.30	0.45	0.15	0.21	0.36	0.00	0.94
Number of Geogrid HGVs	1	0	1	0	1	1	1	1	1	2	1	1	1	1	0	1
Haul Road Removal HGVs	37	0	55	0	46	28	143	55	121	237	84	28	39	68	0	175
<b>Haul road (remove or instal) number of HGVs</b>	<b>37</b>	<b>0</b>	<b>55</b>	<b>0</b>	<b>46</b>	<b>28</b>	<b>143</b>	<b>55</b>	<b>121</b>	<b>237</b>	<b>84</b>	<b>28</b>	<b>39</b>	<b>68</b>	<b>0</b>	<b>175</b>

<b>Cables</b>																
Number of cables	12	6	12	6	6	6	18	6	12	24	6	6	6	12	18	12
Cables number of HGVs	12	6	12	6	6	6	18	6	12	24	6	6	6	12	18	12

<b>Cable Joint Kits</b>																
Number of joint kits	12	6	12	6	6	6	18	6	12	24	6	6	6	12	18	12
Jointing kits number of HGVs	2	1	2	1	1	1	3	1	2	3	1	1	1	2	3	2

<b>Bentonite (Cable installation)</b>																
Volume of fluid required (m³)	154	37	133	36	52	56	128	37	140	242	16	46	36	43	151	89
Mass of Bentonite (kg)	9,230	2,238	7,964	2,131	2,792	3,357	7,709	2,227	8,405	14,509	966	2,736	2,176	2,583	9,066	5,369
Bentonite HGVs	2	1	2	1	2	2	3	2	3	5	2	2	2	2	3	2
Water required (m³)	154	37	133	36	56	56	128	37	140	242	16	46	36	43	151	89
Water HGVs	6	2	5	2	2	2	5	2	5	9	1	2	2	2	6	3
<b>Bentonite number of HGVs</b>	<b>8</b>	<b>3</b>	<b>7</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>8</b>	<b>14</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>9</b>	<b>5</b>

<b>Jointing Bays</b>																
Number of joint bays	2	1	2	1	1	1	3	1	2	3	1	1	1	2	3	2
Volume of concrete (m³)	24	12	24	12	12	12	36	12	24	36	12	12	12	24	36	24
Number of HGVs	4	2	4	2	2	2	6	2	4	6	2	2	2	4	6	4
Mass of steel (t)	1.56	0.78	1.56	0.78	1	1	2	1	2	2	1	1	1	2	2	2
Number of HGVs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total exported material HGVs	7	4	7	4	4	4	11	4	7	11	4	4	4	7	11	7
Concrete block HGVs	5	3	5	3	3	3	7	3	5	7	3	3	3	5	7	5
Pre-cast concrete slab HGVs	4	2	4	2	2	2	6	2	4	6	2	2	2	4	6	4
<b>Jointing bays number of HGVs</b>	<b>21</b>	<b>12</b>	<b>21</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>31</b>	<b>12</b>	<b>21</b>	<b>31</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>21</b>	<b>31</b>	<b>21</b>

<b>Transition Bays</b>																
Number of transitions bays	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Volume of concrete (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of HGVs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mass of steel (t)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of HGVs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total exported native soil volume (m³)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total exported native soil mass (t)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Native soil HGVs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Transition bays number of HGVs</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 4a

<b>Number of HGVs with Misc. Allowances</b>																
Section	1	1	1	2	2	2	2	3	3	3	4	5	5	5	6	6
Total haul road construction (removal or installation) HGVs	33	161	138	56	0	74	116	39	0	396	23	5	0	62	66	
Total cable installation HGVs	8	29	22	22	15	15	22	8	15	44	8	8	15	22	15	
Total cable joints HGVs	1	3	3	3	3	3	3	1	2	6	1	1	2	3	2	
Total bentonite HGVs	4	11	7	11	7	8	9	4	5	13	7	5	4	5	7	
Total jointing bay HGVs	0	62	62	62	42	42	62	24	42	120	24	24	42	62	42	
Total Transition bay HGVs	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 4b

<b>Number of HGVs with Misc. Allowances</b>																
Section	7	7	7	7	7	8	8	8	8	8	9	9	9	10	10	11
Total haul road construction (removal or installation) HGVs	45	0	66	0	56	34	172	67	146	285	101	34	47	82	0	210
Total cable installation HGVs	15	8	15	8	8	8	22	8	15	29	8	8	8	15	22	15
Total cable joints HGVs	1	1	1	1	1	1	2	1	2	3	1	1	1	2	3	2
Total bentonite HGVs	4	4	4	4	4	5	5	4	5	13	7	5	4	5	7	6
Total jointing bay HGVs	42	24	42	24	24	24	62	24	42	62	24	24	24	42	62	42
Total Transition bay HGVs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5a

<b>Grand total deliveries</b>																
Section	1	1	1	2	2	2	3	3	3	4	5	5	5	6	6	
Grand total deliveries	121	266	232	154	66	141	212	76	64	579	61	42	65	154	132	
Grand total (two way movements)	242	532	464	308	132	282	424	152	128	1,158	122	84	130	308	264	

Table 5b

<b>Grand total deliveries</b>																
Section	7	7	7	7	7	8	8	8	8	8	9	9	9	10	10	11
Grand total deliveries	113	37	133	37	84	72	268	105	214	394	138	72	85	146	97	275
Grand total (two way movements)	226	74	266	74	188	144	536	210	428	788	276	144	170	292	194	550

**Appendix 27.6 ends here**