Notes:

1. For the area locations refer to 40-ARI-WS-71-CI-DR-1082.
2. The volumes shown do not account for any additional granular material import that may be required by the contractor for the creation of temporary construction haul roads, in addition to those shown on this drawing.

Platform levels and material volumes are subject to confirmation and change.

Phase 2

Area	No.	Location	Area m2	Cut (m3) Top Soil – To Tip	Cut Top Soil – Reuse	Cut Subsoil – To Tip	Cut Subsoil – Reuse	Cut Existing Platform Material	Cut Superficial / Clay – To Tip	Cut Superficial / Clay – Reuse / Clay	Permanent Fill (m3) Top Soil	Fill Sub Soil	Fill Tip	Fill Superficial / Clay	Fill Existing Platform	Fill Type 1 (Import)	Fill Platform Construction Class 1A (Import)	Fill Platform Construction Type 3 (Import)	Fill Bituminous Surfacing	Temporary Stockpiles	Comments3
A	1	North Platform	3,055	611		1,528		917	4,780									1,315			0.3m depth of existing platform to be removed and new construction provided on top. It is assumed that top, sub and sperficial soil cut volumes from this area are currently stored in the landscaped bunds surrounding the northern platform.
A	2	South Platform	5,360	1,072		2,680		1,340		5,580								2,080			0.25m depth of existing platform to be removed and new construction provided on top. Assumes all material previously stripped from this area is stockpiled in Area 9.
A	3	Middle Extension	3,285		657		1,643			3,160								1,970			
A	3a	Upper Eastern Extension	3,560																		
A	4	North Extension	5,600		1,120		2,800			9,730								3,360			
A	5	East (Lower) Extension	22,240		4,448		11,120			8,230				8653	2,257			13,350			
A	6	Slope	2,625		525		1,313			2,190	788						100				
A	7	Slope	3,300		660		1,650			270	990			5,420							
A	8	Slope	2,600		520		1,300			1,540	780			455			110				
B	9	Vent Shaft Platform	10,910																		
B	9a	Slope	3,330																		
C	10a	Welfare Facility	3,750																		
C	10b	Laydown Area	9,100																		
C	11a	Car park	6,290																		
C	11b	Laydown Area	4,990																		
C	11c	Concrete Batching Plant	10,390																		
C	11d	Slope	1,590																		
C	12	Laydown Area	10,130																		
D	13	Access Road	7,300		1,460		3,650			1,227				5,580		1,700			1,600		
D	13a	Slopes and Ditches	8,375		1,675		4,188			600	1,260			6,010							
E	14	Recharge Well	3,600																		
F	15	Access Tracks	7,340																		
G	16	Attenuation Ponds (Ph2)	9,300		1,860					1,635	1,690			4,380							
G	17	Attenuation Ponds (Ph3)	21,361																		
H		D-Walling	N/A																		
I	18	Bund A	5,500		1,100		2,750				310	1,245	11,653								Assumed Scrub planting for basis of restoration soils thickness.
I	19	Bund A Extention	3,890																		
I	20	Spoil Disposal Area	4,800																		
J	21	Inert Bund	15,000																		
J	22	Temp Top Soil Bund 1	7,410																	8,886	
J	23	Temp Sub Soil Bund 1	7,320		1,464															22,699	
J	24	Temp Top Soil Bund 2	2,400																	3,631	
J	25	Temp Sub Soil Bund 2	2,700		540															9,510	
J	26	Temp Top Soil Bund 3	3,800																		
J	27	Temp Sub Soil Bund 3	3,700																		
J	28	Clay Stockpile	7,160		1,432															7,080	
	Total		233,061	1,683	17,461	4,208	30,413	2,257	4,780	34,162	5,818	1,245	11,653	30,498	2,257	1,700	210	22,075	1,600	51,806	
				94,963							51,471					23,985			1,600	51,806	

Phase 3

No.	Location	Cut (m3) Top Soil	Cut Sub Soil	Cut Superficial / Clay	Cut Inert	Permanent Fill (m3) Top Soil	Fill Sub Soil	Fill Superficial / Clay	Fill Inert	Fill Platform Construction Class 1A (Import)	Fill Type 1 (Import)	Fill Platform Construction Type 3 (Import)	Fill Bituminous Surfacing	Temporary Stockpiles
1	North Platform													
2	South Platform			8,454										
3	Middle Extension													
3a	Upper Eastern Extension	712	1,780	1,080				720				2,150		
4	North Extension													
5	East (Lower) Extension													
6	Slope													
7	Slope													
8	Slope													
9	Vent Shaft Platform	2,182	5,455	19,720								6,550		
9a	Slope	666	1,665	4,570				140						
10a	Welfare Facility	750	1,875	2,370				100				1,875		
10b	Laydown Area	1,820	4,550	2,170				730				5,460		
11a	Car park	1,258	3,145	1,660				990				1,600	1,380	
11b	Laydown Area	998	2,495	90				210				2,495		
11c	Concrete Batching Plant	2,078	5,195	4,680				6,030				2,078	3,117	
11d	Slope	318	795	570				720						
12	Laydown Area	2,026	5,065	5,060				880				5,065		
13	Access Road													
13a	Slopes and Ditches													
14	Recharge Well	720	1,800									2,160		
15	Access Tracks	1,468	3,670	30				3,165			1,200			
16	Attenuation Ponds (Ph2)													
17	Attenuation Ponds (Ph3)	4,272		6,215		3,635		7,932						
	D-Walling													
18	Bund A													
19	Bund A Extention													
20	Spoil Disposal Area	960	2,400											
21	Inert Bund	420												16,719
22	Temp Top Soil Bund 1													8,700
23	Temp Sub Soil Bund 1													7000
24	Temp Top Soil Bund 2													720
25	Temp Sub Soil Bund 2													
26	Temp Top Soil Bund 3													9,403
27	Temp Sub Soil Bund 3	740												36,879
28	Clay Stockpile													24,000
Total		21,388	39,890	56,669	0	3,635	0	21,617	0	0	1,200	29,433	4,497	103,421
		117,947				25,252				30,633			4,497	103,421

Phase 4

No.	Location	Cut (m3) Top Soil	Cut Sub Soil	Cut Inert	Cut Suerficail / Clay	Permanent Fill (m3) Top Soil	Fill Sub Soil	Fill Inert	Fill Superficial / Caly	Temporary Stockpiles
1	North Platform									
2	South Platform									
3	Middle Extension									
3a	Upper Eastern Extension									
4	North Extension									
5	East (Lower) Extension									
6	Slope									
7	Slope									
8	Slope									
9	Vent Shaft Platform									
9a	Slope									
10a	Welfare Facility									
10b	Laydown Area									
11a	Car park									
11b	Laydown Area									
11c	Concrete Batching Plant									
11d	Slope									
12	Laydown Area									
13	Access Road									
13a	Slopes and Ditches									
14	Recharge Well									
15	Access Tracks									
16	Attenuation Ponds (Ph2)									
17	Attenuation Ponds (Ph3)									
	D-Walling			10,000						
18	Bund A									
19	Bund A Extention	778	1,945			225	900	10,500		
20	Spoil Disposal Area									
21	Inert Bund	2,580								
22	Temp Top Soil Bund 1									
23	Temp Sub Soil Bund 1									
24	Temp Top Soil Bund 2									
25	Temp Sub Soil Bund 2									
26	Temp Top Soil Bund 3									3,301
27	Temp Sub Soil Bund 3									1,240
28	Clay Stockpile									
Total		3,358	1,945	10,000	0	225	900	10,500	0	4,541
		15,303				11,625				4,541

Cut	Top Soil	0.2
	Sub Soil	0.5
Fill	Platform Construction	0.6
	Road Construction	0.85
	Laydown Construction	0.5

		Cut	Bulking	Cut (Total)	Fill	Stockpile
Top Soil		17,461	1.05	18,334	5,818	12,517
Sub Soil		30,413	1.10	33,454	1,245	32,209
Superficial / Clay		34,162	1.10	37,578	30,498	7,080
Existing Platform		2,257	1.00	2,257	2,257	-1
Tip	Top Soil	1,683	1.05	1,767	11,653	0
	Sub Soil	4,208	1.10	4,628		
	Other (Inert	4,780	1.10	5,258		
Total		94,963		103,276	51,471	51,805

	Cut	Bulking	Cut (Total)	Fill	Stockpile	Total In Stockpile
Top Soil	21,388	1.05	22,458	3,635	18,823	31,339
Sub Soil	39,890	1.10	43,879	0	43,879	76,088
Superficial / Clay	56,669	1.10	62,336	21,617	40,719	47,799
Tip (inert material)	0	1.05	0	0	0	0
Total	117,947		128,673	25,252	103,421	155,226

	Cut	Bulking	Cut (Total)	Fill	Stockpile	Total In Stockpile
Top Soil	3,358	1.05	3,526	225	3,301	34,640
Sub Soil	1,945	1.10	2,140	900	1,240	77,327
Clay	0	1.10	0	0	0	47,799
Tip (inert material)	10,000	1.05	10,500	10,500	0	0
Total	15,303		16,165	11,625	4,540	159,767

Issue	Date	By	Chkd	Appd
0	25/05/17	JB	CW	AH
	Issue for Planning			

ARUP

Admiral House, Rose Wharf,
78 East Street, Leeds, LS9 8EE
www.

Client
Sirius Minerals Plc

Job Title
Woodsmith Mine
Proposed Minehead

Woodsmith Mine Site
Construction Phase 4
Earthworks Strategy
Volume Calculations

Scale at A1: As Shown
Discipline: Civil
Job No: 253285
Drawing Status: Planning
Drawing No: 40-ARI-WS-71-CI-DR-1083
Issue: 0

Do not scale

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