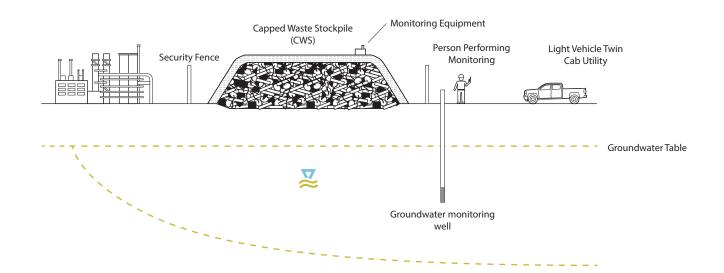
Capped Waste Stockpile Management Options Evaluation Study: Management Options Analysis

APPENDIX B
CWS WASTE MANAGEMENT OPTIONS FLOW CHARTS AND GANTT
CHARTS



LEGEND



Leachate impacted groundwater



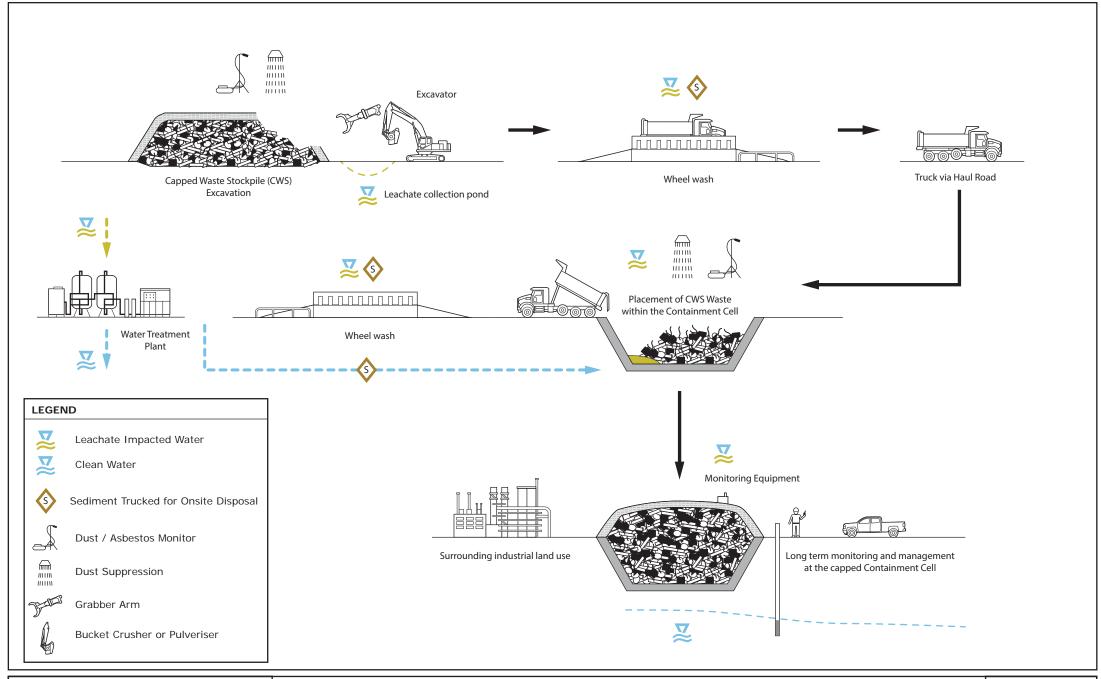
CWS Waste



Do Nothing

FIGURE

6-1



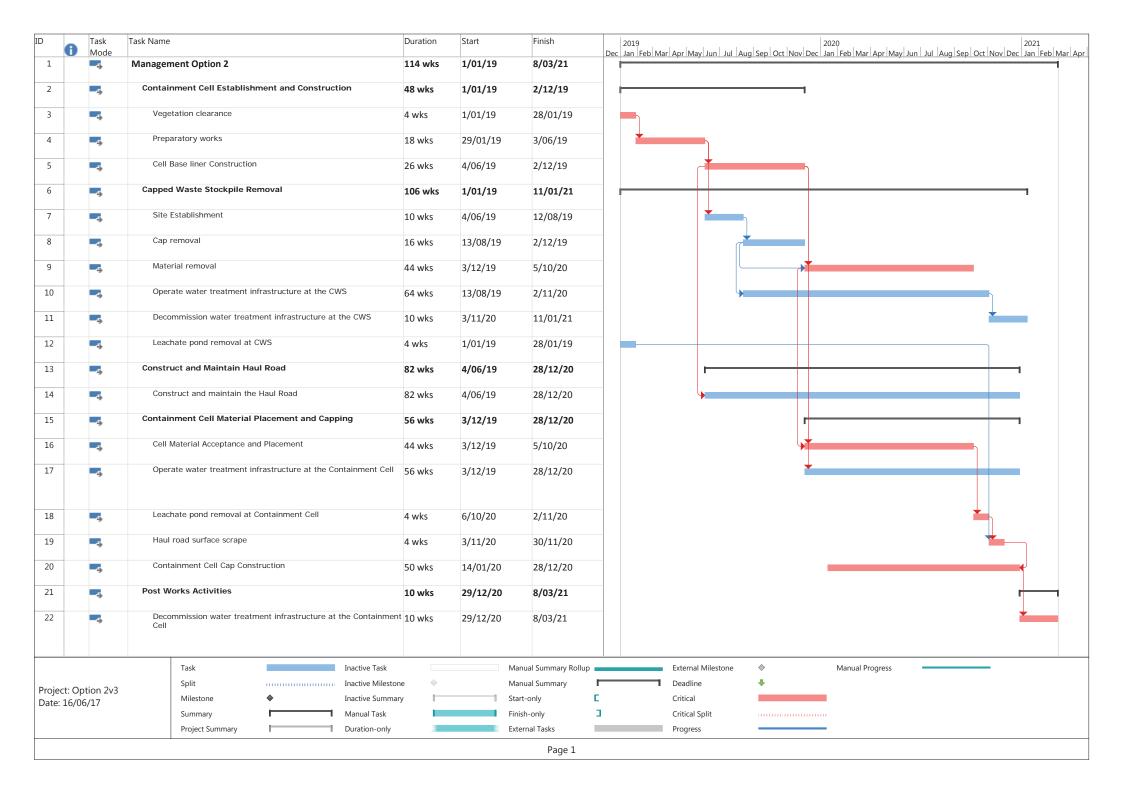


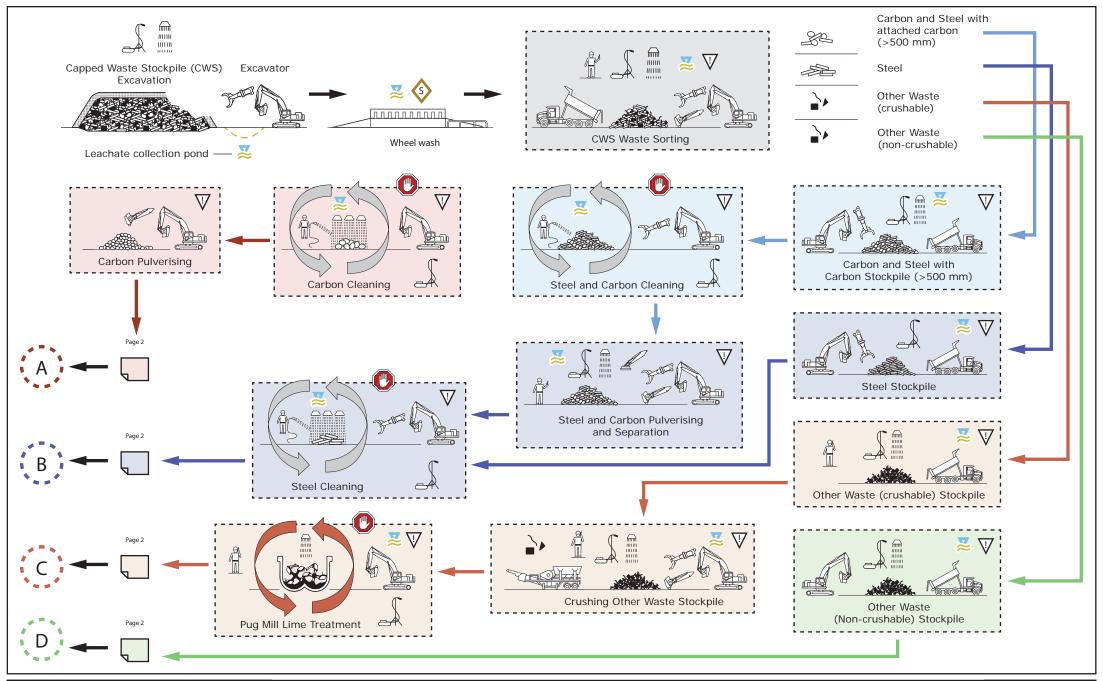
OPTION 2

Onsite Containment Cell

FIGURE

6-2





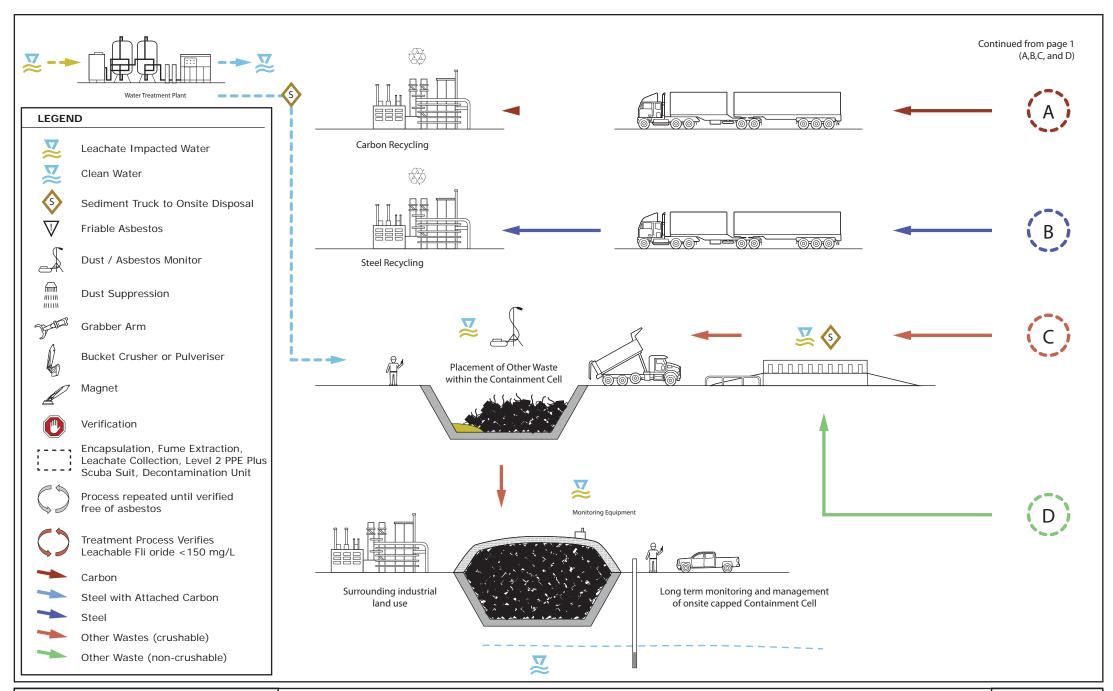


OPTION 3 - Page 1

Recycle, Treat and Onsite Containment Cell

FIGURE

6-3





Date: 23/06/2017

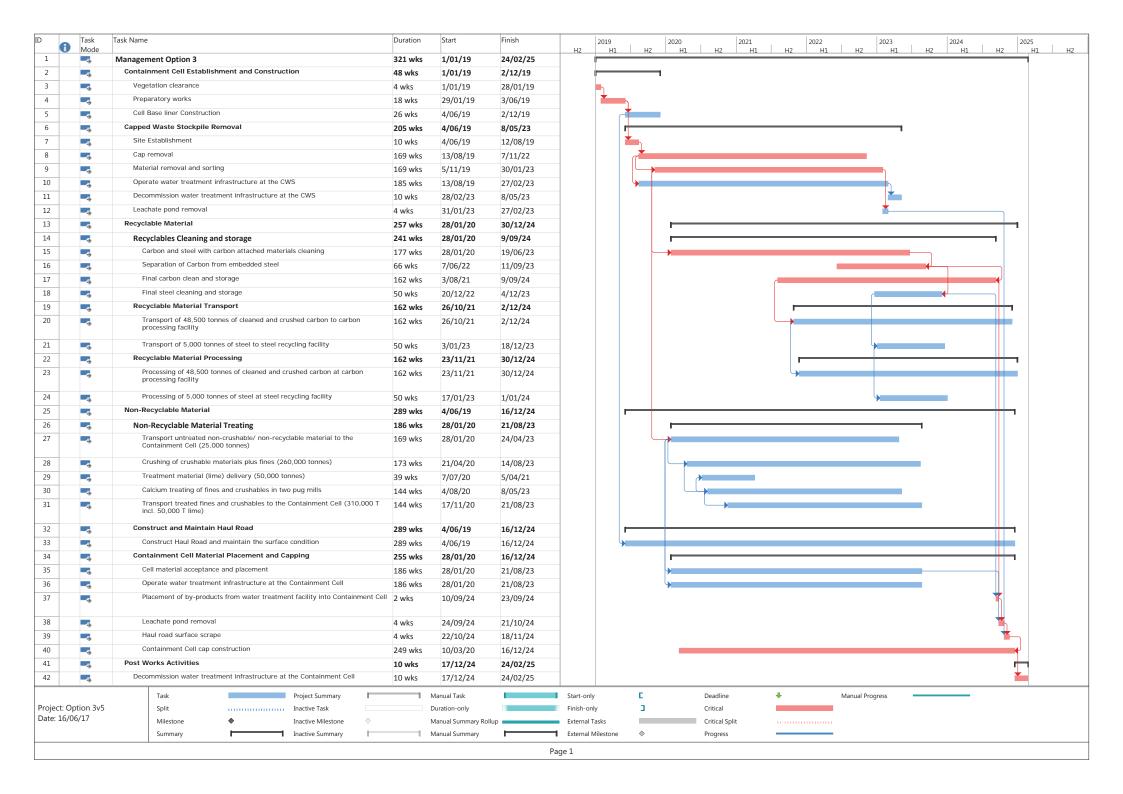
Drafted by: KK

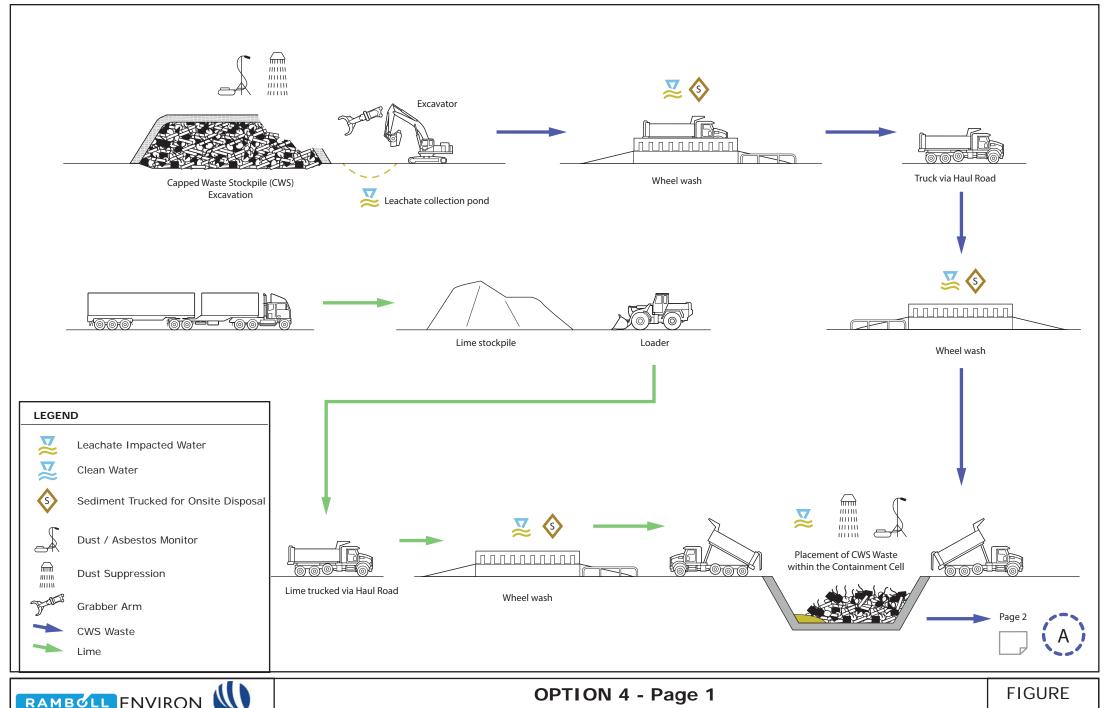
OPTION 3 - Page 2

Recycle, Treat and Onsite Containment Cell

FIGURE

6-3

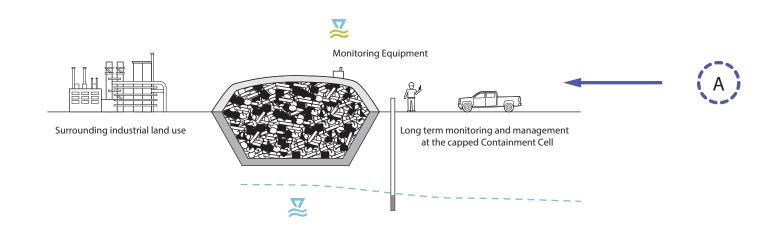




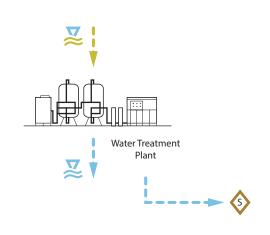


Onsite Containment Cell With Lime Application

6-4









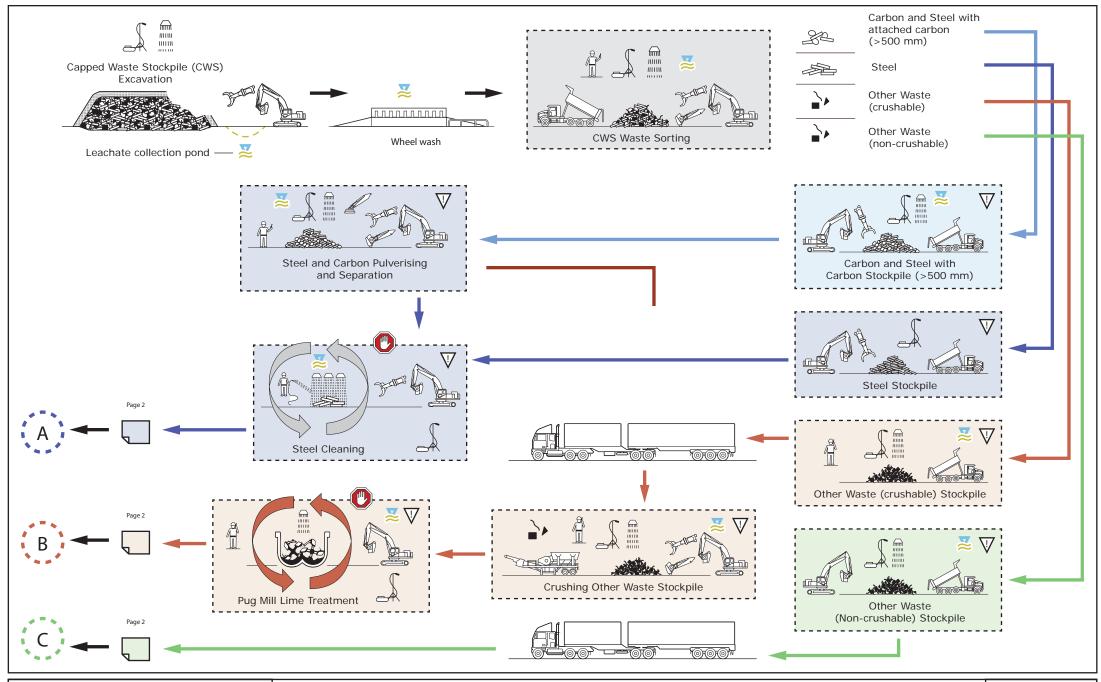
OPTION 4 - Page 2

Onsite Containment Cell with Lime Application

FIGURE

6-4

ID	Та	ask	Task Name		Duration	Start	Finish
1		ode	Management Option 4		116 wks	1/01/19	22/03/21
2		÷	Containment Cell Establishment and Cons	truction	48 wks	1/01/19	2/12/19
3	-	÷	Vegetation clearance		4 wks	1/01/19	28/01/19
4	-	÷	Preparatory works		18 wks	29/01/19	3/06/19
5		5	Cell Base liner construction		26 wks	4/06/19	2/12/19
6			Capped Waste Stockpile Removal		84 wks	4/06/19	11/01/21
	_						
7	-	-)	Site establishment		10 wks	4/06/19	12/08/19
8	-	-	Cap removal		16 wks	13/08/19	2/12/19
9	-	-	Material removal		44 wks	3/12/19	5/10/20
10	-	4	Operate water treatment infrastructure at t	he CWS	64 wks	13/08/19	2/11/20
			Decommission water treatment infrastructu				
11	-			ic at the GWJ	10 wks	3/11/20	11/01/21
12	-	÷	Leachate pond removal at the CWS		4 wks	6/10/20	2/11/20
13	-	-	Construct and Maintain Haul Road		82 wks	4/06/19	28/12/20
14	-	÷	Construct Haul Road and maintain surface of	condition	82 wks	4/06/19	28/12/20
15		5	Containment Cell Material Placement and	Capping	68 wks	24/09/19	11/01/21
16			Cell material acceptance and placement				
	-	→			46 wks	3/12/19	19/10/20
17	-	÷	Treatment material (lime) transportation ar	nd stockpiling	52 wks	24/09/19	21/09/20
18	-	-	Treatment material placement		46 wks	3/12/19	19/10/20
19	-	-	Operate water treatment infrastructure at t	he Containment Cell	58 wks	3/12/19	11/01/21
20		4	Leachate pond removal at the Containment	Cell	4 wks	20/10/20	16/11/20
			Haul road surface scrape				
21	-	→			4 wks	17/11/20	14/12/20
22	-	-	Containment Cell cap construction		52 wks	14/01/20	11/01/21
23	-	-	Post Works Activities		10 wks	12/01/21	22/03/21
24	-	-	Decommission water treatment infrastructu	re at the Containment Cell	10 wks	12/01/21	22/03/21
			Tarl	Tograding T. J.			
			Task Split	Inactive Task Inactive Milestone	\rightarrow	Manual Su	mmary Rollup
Project: 0 Date: 16/			Milestone •	Inactive Summary		Start-only	-
,			Summary	Manual Task		Finish-only	
			Project Summary	Duration-only		External Ta	
							Page 1



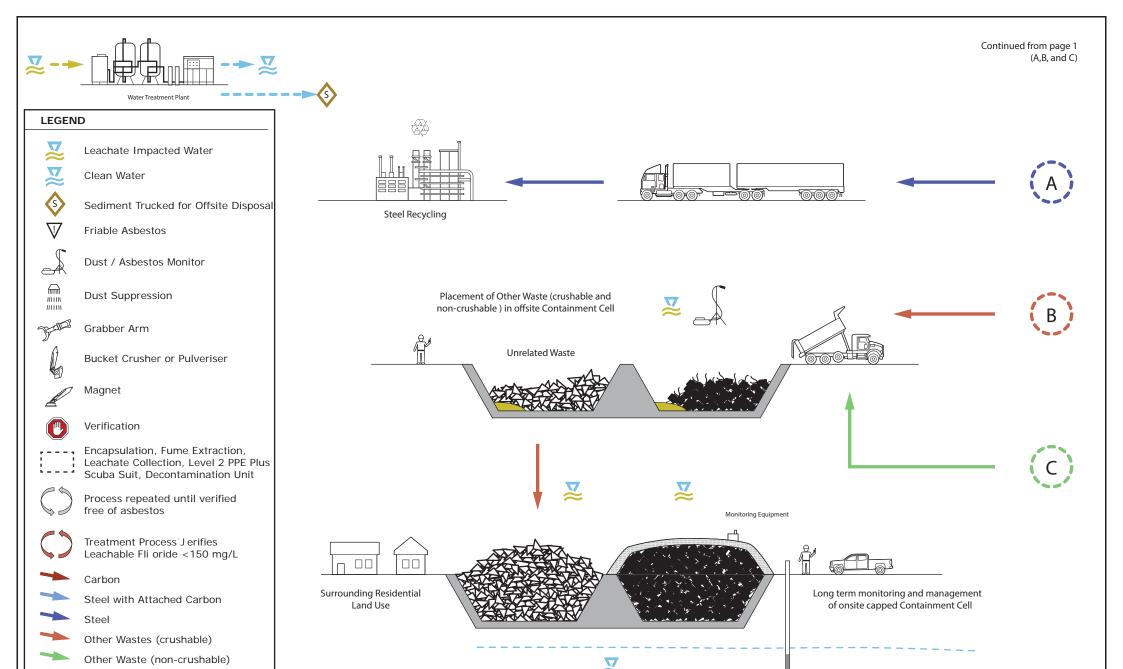


OPTION 5 - Page 1

Offsite Treatment and Containment Cell

FIGURE

6-5





HYDRO

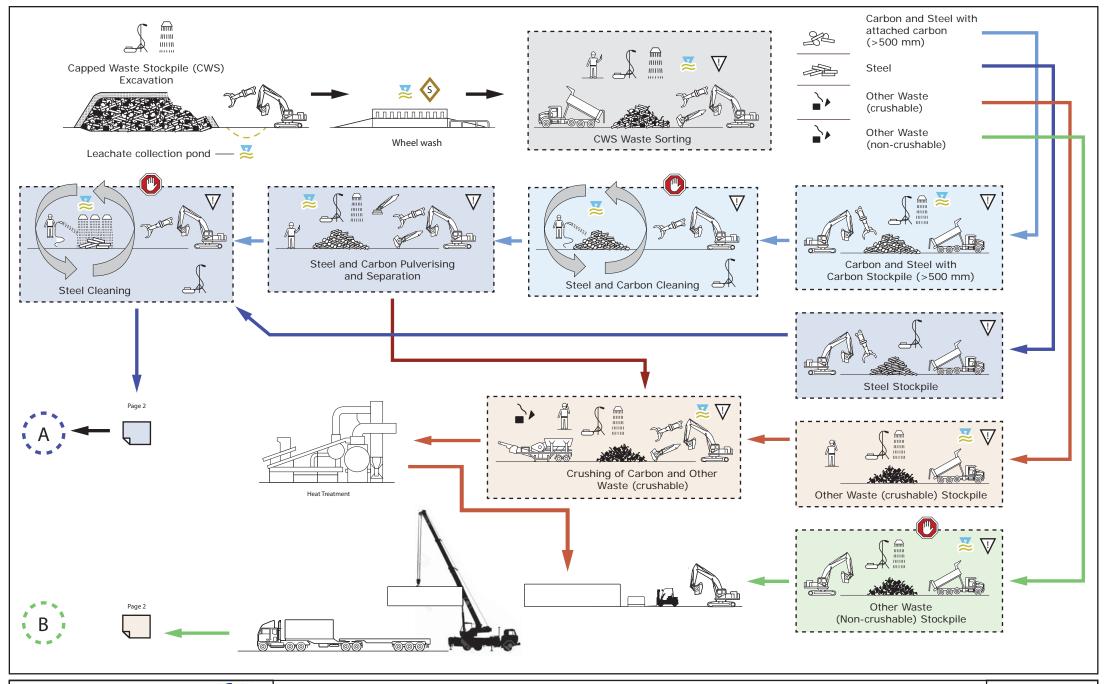
OPTION 5 - Page 2

Offsite Treatment and Containment Cell

FIGURE

6-5

A	Task Mode	Task Name	Duration	Start	Finish	Predecessors	2019 2020 2021 2022 2023 2024 2025
1	Mode	Management Option 5	332 wks	1/01/19	12/05/25		Dtr
	-5	Capped Waste Stockpile Removal	108 wks	1/01/19	25/01/21		
	-5	Site establishment	10 wks	1/01/19	11/03/19		
	-5	Cap removal	16 wks	12/03/19	1/07/19	3	
	-5	Material removal and sorting	66 wks	2/07/19	5/10/20	4	
	-5	Operate water treatment infrastructure at the CWS	86 wks	12/03/19	2/11/20	4SS	
	-5	Decommission water treatment infrastructure at the CWS	12 wks	3/11/20	25/01/21	6	
	-5	Leachate pond removal at the CWS	4 wks	6/10/20	2/11/20	5	<u> </u>
	-5	Recyclables	88 wks	24/09/19	31/05/21		
	-5	Recyclables Cleaning and storage	78 wks	24/09/19	22/03/21		
	_5	Separation of carbon from embedded metals	66 wks	24/09/19	28/12/20	5SS+12 wks	
	-5	Final metals cleaning and storage	50 wks	7/04/20	22/03/21	11FF+12 wks	
	_5	Recyclable Material Transport	5 wks	23/03/21	26/04/21		H
+	-5	Transport of 5,000 tonnes of steel to steel recycling facility	5 wks	23/03/21	26/04/21	12	
+	-5	Recyclable Material Processing	5 wks	27/04/21	31/05/21		ri e
	-5	Processing of 5,000 tonnes of steel at steel recycling facility	5 wks	27/04/21	31/05/21	14	<u> </u>
	-	Non-Recyclable Material	306 wks	2/07/19	12/05/25		
	-5	Transport of all other material to the offsite containment cell facility	234 wks	2/07/19	25/12/23	5SS	
	-5	Containment Cell Establishment and Construction	44 wks	7/01/20	9/11/20		
	-5	Preparatory works	18 wks	7/01/20	11/05/20	23SS-44 wks	—
	-5	Cell Base liner Construction	26 wks	12/05/20	9/11/20	20	
	-5	Material Treating	223 wks	10/11/20	17/02/25		
	-5	Sorting non-recyclable materials into fines and crushables, ar non-crushables	167 wks	10/11/20	22/01/24	18FF+4 wks	
	-	Transport untreated non-crushable/ non-recyclable material t the offsite containment cell	o 167 wks	17/11/20	29/01/24	23SS+1 wk,21	***
	-5	Crushing of crushable materials plus fines (308,000 tonnes)	206 wks	17/11/20	28/10/24	23SS+1 wk	
5	-5	Treatment material (lime) delivery (50,000 tonnes)	52 wks	20/07/21	18/07/22	27SS-4 wks	*
	-5	Calcium treating of fines and crushables in two pug mills	171 wks	17/08/21	25/11/24	25FF+4 wks	
	-5	Transport treated fines and crushables to the offsite containment cell (358,000 tonnes incl. 50,000 tonnes lime)	171 wks	9/11/21	17/02/25	27FF+12 wks	─
	-5	Containment Cell Material Placement and Capping	234 wks	17/11/20	12/05/25		
)		Cell material acceptance and placement	222 wks	17/11/20	17/02/25	24SS	
	-5	Operate water treatment infrastructure at the offsite	222 wks	17/11/20	17/02/25	30SS	
2	-5	containment cell Leachate pond removal at the Containment Cell	4 wks	18/02/25	17/03/25	30	
3	-3	Haul road surface scrape	4 wks	18/03/25	14/04/25	32	
1		Containment Cell cap construction	26 wks	12/11/24	12/05/25	33FF+4 wks	
5	-3	Post Works Activities	10 wks	18/02/25	28/04/25		
5	-5	Decommission water treatment infrastructure at the Containment Cell	10 wks	18/02/25	28/04/25	31	
		Task Inactive Task		Mar	nual Summary Rollup		External Milestone Manual Progress
		Split Inactive Milesto	ne 🔷		nual Summary		Deadline
	Option 5\	/4 Milestone ♦ Inactive Summa			*	C	Critical
e: 8/0	J3/ 1./	Summary Manual Task			*	3	Critical Split
		Project Summary Duration-only		Exte	ernal Tasks		Progress
					Page	. 1	





OPTION 6 - Page 1

Offsite Containment in Salt Mine

FIGURE

6-6







Leachate Impacted Water



Clean Water



Sediment Trucked for Offsite Disposal



Friable Asbestos



Dust / Asbestos Monitor



Dust Suppression



Grabber Arm



Bucket Crusher or Pulveriser



Magnet



Verification



Encapsulation, Fume Extraction, Leachate Collection, Level 2 PPE Plus Scuba Suit, Decontamination Unit



Process repeated until verified free of asbestos



Carbon



Steel with Attached Carbon



Steel

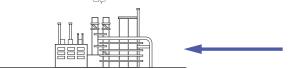


Other Wastes (crushable)



Other Waste (non-crushable)

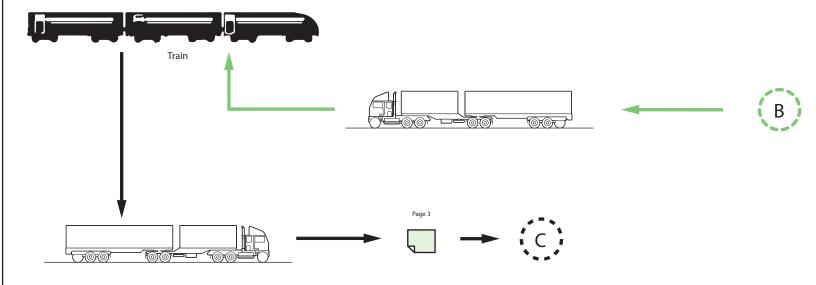














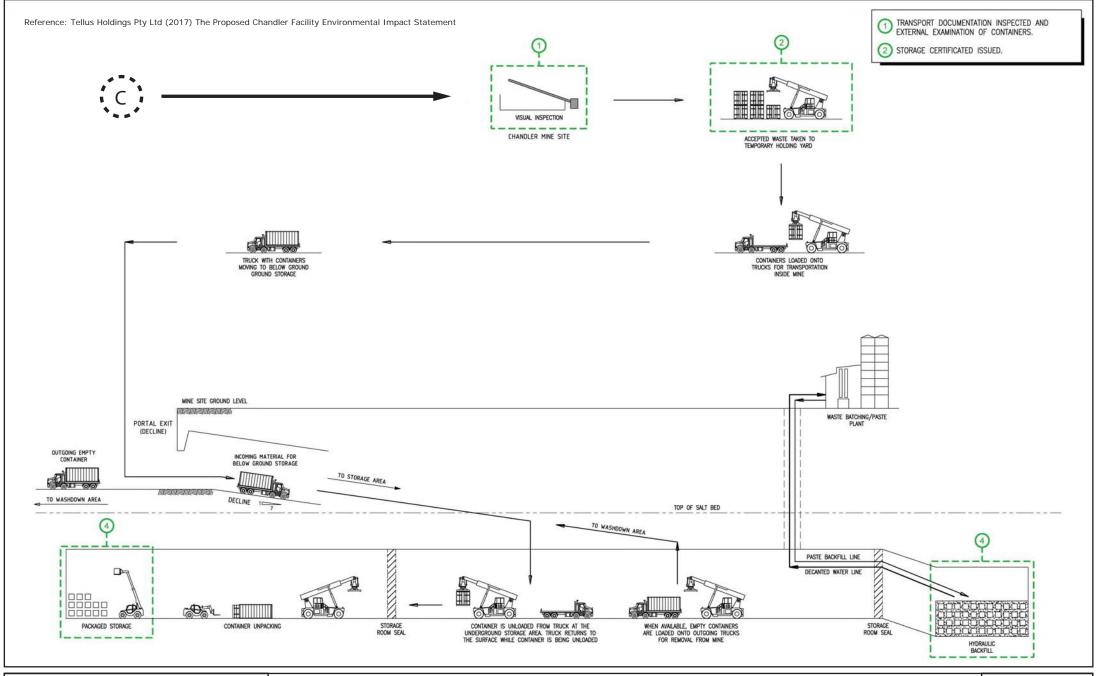


OPTION 6 - Page 2

Offsite Containment in Salt Mine

FIGURE

6-6





OPTION 6 - Page 3

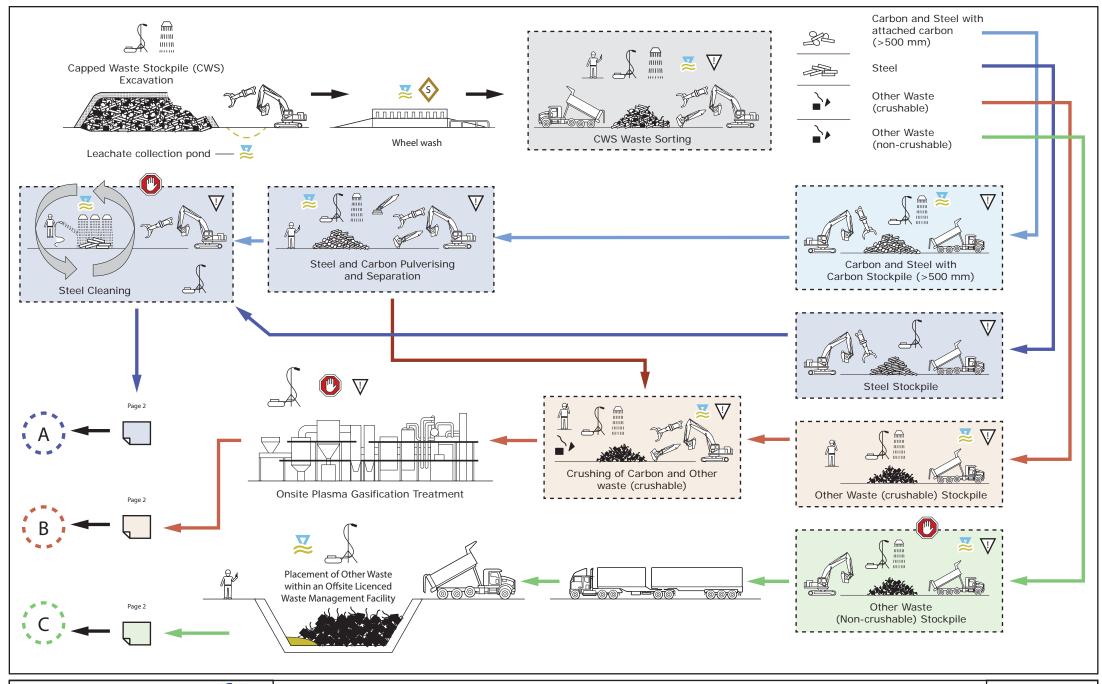
Offsite Containment in Salt Mine

FIGURE

6-6

)	0	Task Mode	Task Name	Duration	Start	Finish	Predecessors	2018	H1	H1	2020 H1
1		-5	Management Option 6	937 wks	1/01/19	15/12/36				7.12	
2		*	Capped Waste Stockpile Removal	246 wks	1/01/19	18/09/23					
3	III	-5	Site Establishment	10 wks	1/01/19	11/03/19					
4		-5	Cap removal	16 wks	12/03/19	1/07/19	3				
5	=	-5	Material removal and sorting	206 wks	2/07/19	12/06/23	4			_	
6	III	-5	Operate water treatment infrastructure at the capped waste stockpile	226 wks	12/03/19	10/07/23	4SS	-		-	
7		-5	Decommission water treatment infrastructure at the CWS	10 wks	11/07/23	18/09/23	6				
8		-5	Recyclables	89 wks	30/07/19	12/04/21					
9		-5	Materials Cleaning and Storage	79 wks	30/07/19	1/02/21					
10		-5	Separation of Carbon from embedded metals	66 wks	30/07/19	2/11/20	5SS+4 wks				
11		-5	Final metals cleaning	50 wks	11/02/20	25/01/21	10FF+12 wks				
12		-5	Metals storage	1 wk	26/01/21	1/02/21	11	-			
13		-5	Recyclable Material Transport	5 wks	2/02/21	8/03/21					
14		-5	Transport of 5,000 tonnes of steel to steel recycling facility	5 wks	2/02/21	8/03/21	12	-			
15		-5	Recyclable Material Processing	5 wks	9/03/21	12/04/21					
16		-5	Processing of 5,000 tonnes of steel at steel recycling facility	5 wks	9/03/21	12/04/21	14				
17		-5	Non-Recyclable Material	899 wks	24/09/19	15/12/36					
18		-5	Material Treating	863 wks	24/09/19	7/04/36					
19		-5	Crushing of carbon, fines and crushable materials	206 wks	24/09/19	4/09/23	5SS+12 wks				
20		-5	Treat at 600 degrees celcius	857 wks	5/11/19	7/04/36	19SS+6 wks				
21		-5	Material Transport	84 wks	13/02/35	22/09/36		-			
22		-5	Transport from Smelter to rail terminal	72 wks	13/02/35	30/06/36	20FF+12 wks				
23		-5	Transport from rail terminal to Tellus Rail Terminal	67 wks	12/06/35	22/09/36	22FF+12 wks				
24		-5	Receiving Facility Treated Material Disposal	39 wks	18/03/36	15/12/36					
25		-5	Facility material acceptance and placement	39 wks	18/03/36	15/12/36	23FF+12 wks	-			
	<u> </u>		Task Inactive Task		Manual Summ	nary Rollup	Externa	al Milestone	\$	Manual Progress	
roiec	t: On	tion 6v3	Split Inactive Milestone	\Leftrightarrow	Manual Summ	nary	Deadlin	ne	•		
	16/06		Milestone • Inactive Summary		Start-only	Е	Critical				
			Summary Manual Task		Finish-only	3	Critical			u .	
			Project Summary Duration-only		External Tasks		Progres	SS		-	







OPTION 7 - Page 1

Plasma Gasification

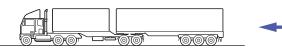
FIGURE

6-7





Steel Recycling





LEGEND



Leachate Impacted Water



Clean Water



Sediment Trucked for Offsite Disposal



Friable Asbestos



Dust / Asbestos Monitor



Dust Suppression



Grabber Arm



Bucket Crusher or Pulveriser



Magnet



Verification



Encapsulation, Fume Extraction, Leachate Collection, Level 2 PPE Plus Scuba Suit, Decontamination Unit



Process repeated until verified free of asbestos



Carbon

Steel



Steel with Attached Carbon



Other Wastes (crushable)



Other Waste (non-crushable)



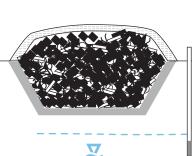


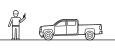




Stockpiled for Suitable Re-Use











RAMBOLL ENVIRON



OPTION 7 - Page 2

Plasma Gasification

FIGURE

6-7

AS130525

Date: 23/06/2017 Drafted by: KK

