

Appendix B

## Construction Programme

**TMCLKL Northern Connection Sub-sea Tunnel Section**

**Possession / Access Dates**

N13Ji, Jii, Ki & Kii - Possession / Access (after E&M scope)	0	16-Oct-19	
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**Contract Key Dates**

[KD-2b] Stage 2b Completion - TSS between CP33 to CP13	0	15-Apr-19*	
[KD-2c] Stage 2c Completion - Remaining TSS & TSA	0	30-Sep-19*	
[KD-2d] Stage 2d Completion - MHS C&C Tunnel	0	15-Nov-19*	
[KD-3b] Stage 3b Completion - NLF Provision for CLP, LV & ...	0	02-Oct-19*	
[KD-3f] Stage 3f Achievement - NLS/NAR - provide access	0	02-Oct-19*	
[KD-3g] Stage 3g Completion - SVS Tunnel	0	30-Sep-19*	
[KD-3i] Stage 3i Completion - South Approach Ramp	0	15-Oct-19*	
[KD-10] Section 3A Completion - SVB	0	20-Jul-19*	
[KD-10a] Stage 5 Completion - SVB BL2	0	11-May-19*	

**Portion Handover Dates**

N5 - Handover	0	30-Apr-19*	
N10 (excl Tunnel) - Handover	0	30-Sep-19*	
N11A - Handover	0	15-Feb-19*	
N11B - Handover	0	15-Feb-19*	
N13Ji, Jii, Ki & Kii - Handover for E&M Contract scope	0	15-Feb-19*	
N13B - Handover	0	12-Apr-19*	

**North Approach Ramp**

[KD-3f] Stage 3f Achievement - NAR - provide access	0	02-Oct-19*	
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**Access Ramp Section**

NAR Pipe Pile Section - Base Slab	48	22-Jan-19	25-Mar-19
NAR Pipe Pile Section - Strut S2 Removal	24	12-Mar-19	09-Apr-19
NAR Pipe Pile Section - Wall up to S1	48	26-Mar-19	27-May-19
NAR Pipe Pile Section - Strut S1 Removal	24	14-May-19	11-Jun-19
NAR Pipe Pile Section - Wall Remaining	48	28-May-19	24-Jul-19

**NLS Interface (OAP-NAR-DWG-10442-B)**

NLS Cell 3 Dwall removal (down to -3.0mPD) - 188m3	18	18-Jan-19	14-Feb-19
Strut Installation and Excavation down to FWL	12	15-Feb-19	28-Feb-19
NLS Cell 3 Dwall removal (down to -6.0mPD) - 134m3	18	01-Mar-19	21-Mar-19
NLS/NAR Stitch structure - Base Slab & S2 removed	36	19-Mar-19	04-May-19
Resume Tunnel Ramp Access	0	06-May-19	
NLS/NAR Stitch structure - Remaining Wall Structure & Stru	48	06-May-19	03-Jul-19
NAR Parapet, Cable Trough	58	25-Jul-19	02-Oct-19*

**North Launching Shaft**

[KD-3f] Stage 3f Achievement - NLS - provide access	0	02-Oct-19*	
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**NLS Cell 1-3 Remaining Structure**

Availability of NAR Access to Tunnel	0	06-May-19	
Cell 1 & 2 Top Slab Closing	24	22-May-19	19-Jun-19
<b>ML02</b>			
ML02 Cell 1 & 2 OHVD Slab	24	16-Jan-19	19-Feb-19
<b>ML03</b>			
ML03 Cell 1 & 2 Preparation for BRL structure	24	16-Jan-19	19-Feb-19
ML03 Cell 1 & 2 BRL Structure	48	20-Feb-19	17-Apr-19
NLS W6 & W7 - Wall opening - closing	24	03-Apr-19	06-May-19
ML03 Cell 1 & 2 OHVD Slab	24	18-Apr-19	21-May-19

**NLF Demobilization & At-grade works**

[KD-3b] Stage 3b Completion - NLF Provision for CLP, LV & ...	0	02-Oct-19*	
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**Portion N12 & Portion N6B**

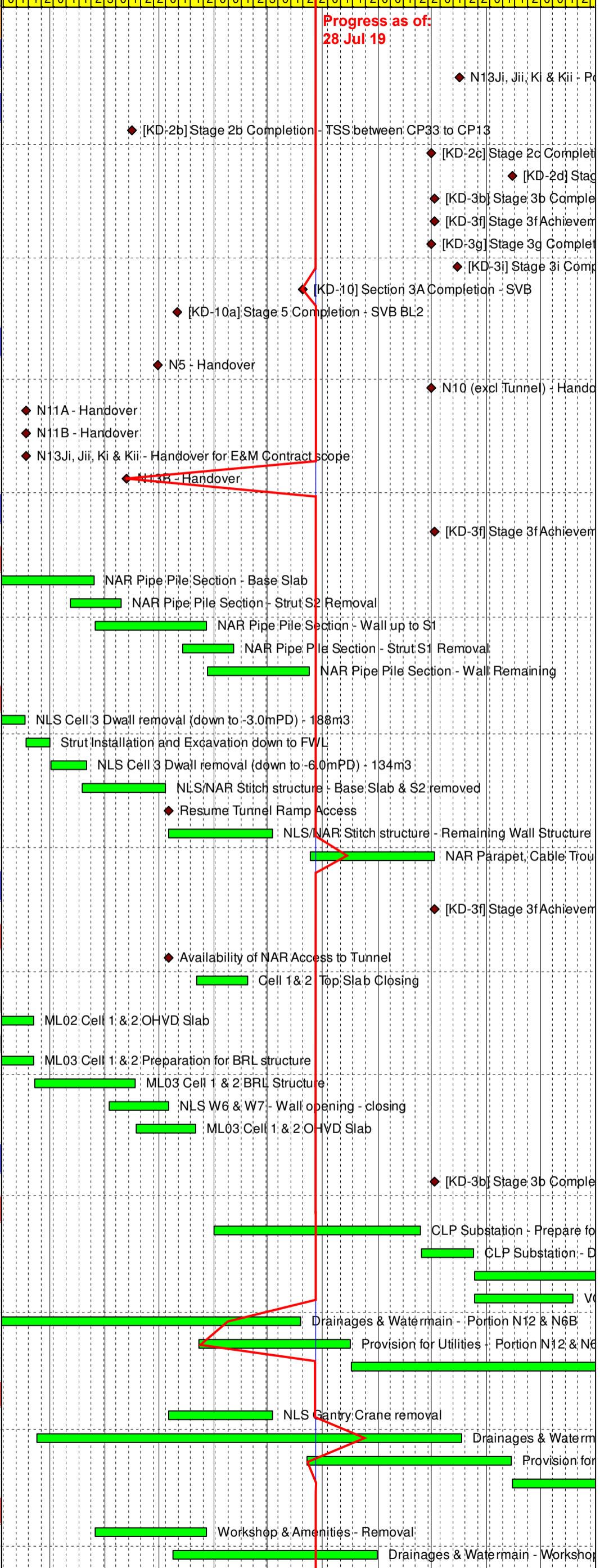
CLP Substation - Prepare for CLP Consent for de-energiza	96	01-Jun-19	24-Sep-19
CLP Substation - De-energization	24	25-Sep-19	24-Oct-19
CLP Substation - Dismantling & Removal	178	25-Oct-19	01-Jun-20
VO-009 Temporary Protection Barrier - Dismantling & Remc	48	25-Oct-19	19-Dec-19
Drainages & Watermain - Portion N12 & N6B	144	17-Jan-19	19-Jul-19
Provision for Utilities - Portion N12 & N6B	72	23-May-19	16-Aug-19
Utilities parties coordination & Remaining Civil Provision - I	117	17-Aug-19	07-Jan-20

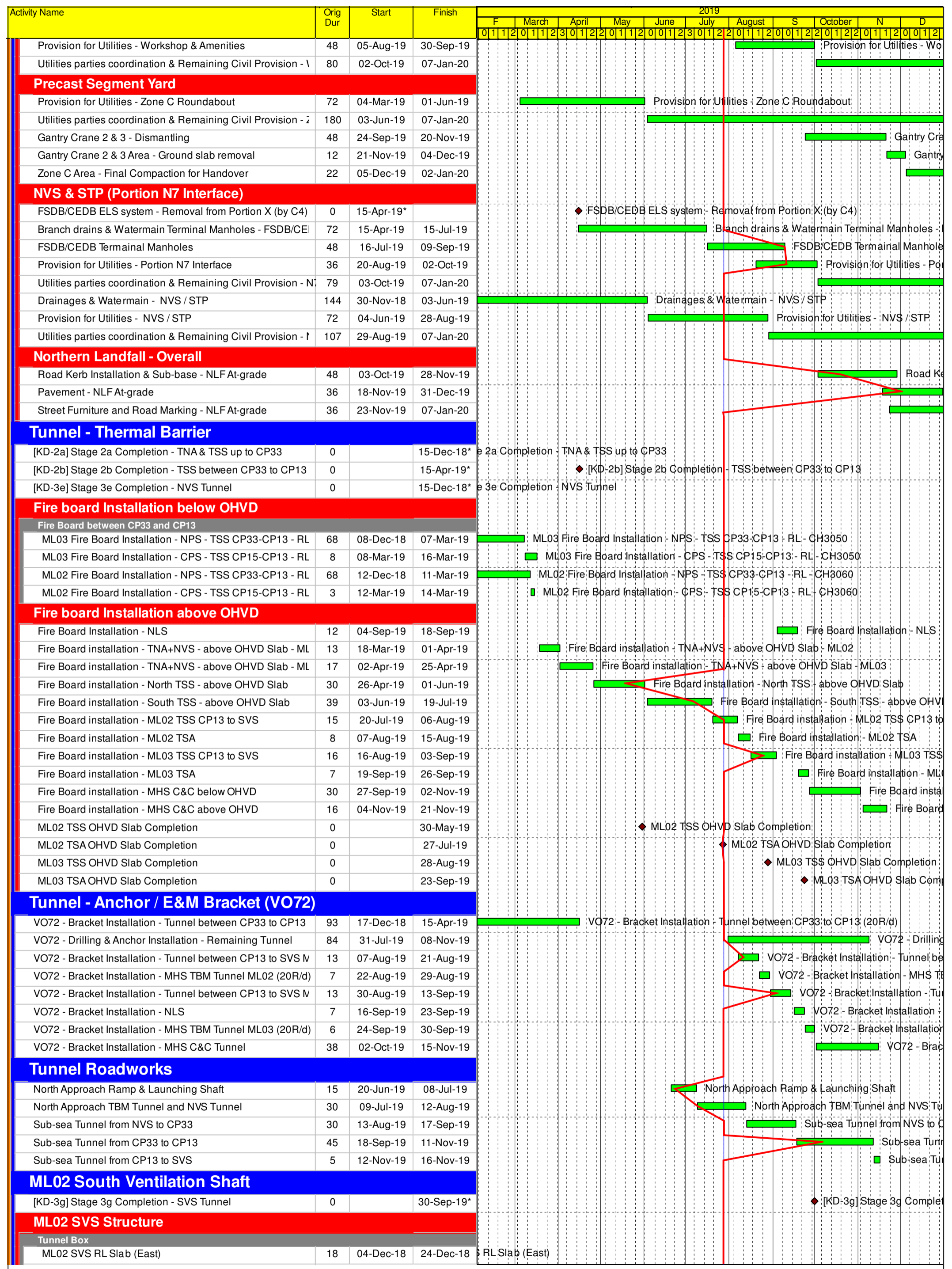
**North Launching Shaft**

NLS Gantry Crane removal	48	06-May-19	03-Jul-19
Drainages & Watermain - NLS	194	21-Feb-19	17-Oct-19
Provision for Utilities - NLS	96	23-Jul-19	14-Nov-19
Utilities parties coordination & Remaining Civil Provision - I	43	15-Nov-19	07-Jan-20

**Sloping Seawall**

Workshop & Amenities - Removal	48	26-Mar-19	27-May-19
Drainages & Watermain - Workshop & Amenities	96	09-May-19	31-Aug-19





Activity Name	Orig Dur	Start	Finish	2019																
				F	March	April	May	June	July	August	S	October	N	D						
				0	1	2	0	1	1	2	3	0	1	2	0	1	2	3	0	1
ML02 SVS OHVD Slab	18	27-Dec-18	17-Jan-19	ML02 SVS OHVD Slab																
ML02 SVS Tunnel Roof Slab	15	18-Jan-19	04-Feb-19	ML02 SVS Tunnel Roof Slab																
ML02 SVS BRL (West) - Ramp / Backfill Removal	12	24-Apr-19	08-May-19	ML02 SVS BRL (West) - Ramp / Backfill Removal																
ML02 SVS BRL walls (West)	33	09-May-19	18-Jun-19	ML02 SVS BRL walls (West)																
ML02 SVS RL Slab (West)	15	19-Jun-19	06-Jul-19	ML02 SVS RL Slab (West)																
ML02 SVS West wall remaining after CP7	18	02-Sep-19	23-Sep-19	ML02 SVS West wall remaining after CP7																
ML02 SVS Tunnel - Prepare for E&M Contractor Access	6	24-Sep-19	30-Sep-19	ML02 SVS Tunnel - Prepare for E&M Contractor Access																
<b>Above Tunnel Vent Duct</b>																				
ML02 SVS Tunnel Roof Wall (-28.70 to -21.90)	30	12-Feb-19	18-Mar-19	ML02 SVS Tunnel Roof Wall (-28.70 to -21.90)																
ML02 SVS Above Tunnel Roof Wall & Slab (-21.90 to -18.7)	36	19-Mar-19	04-May-19	ML02 SVS Above Tunnel Roof Wall & Slab (-21.90 to -18.7)																
ML02 SVS Below BL2 Wall & Slab + Backfill (-18.70 to -6.95)	60	06-May-19	17-Jul-19	ML02 SVS Below BL2 Wall & Slab + Backfill (-18.70 to -6.95)																
ML02 SVS Dwall opening for Duct connection to SVB S1	24	18-Jul-19	14-Aug-19	ML02 SVS Dwall opening for Duct connection to SVB S1																
ML02 SVS BL2 Wall & Slab (-6.95 to -0.45)	27	15-Aug-19	16-Sep-19	ML02 SVS BL2 Wall & Slab (-6.95 to -0.45)																
ML02 SVS Dwall opening for Duct connection to SVB S2	27	24-Sep-19	26-Oct-19	ML02 SVS Dwall opening for Duct connection to SVB S2																
ML02 SVS BL1 Wall & Slab (-0.45 to +1.80)	30	28-Oct-19	30-Nov-19	ML02 SVS BL1 Wall & Slab (-0.45 to +1.80)																
ML02 SVS Duct Roof Wall & Slab	24	02-Dec-19	31-Dec-19	ML02 SVS Duct Roof Wall & Slab																
ML02 SVS Tunnel Roof to BBL2 W/P & Backfill (-21.90 to -18.70)	60	06-May-19	17-Jul-19	ML02 SVS Tunnel Roof to BBL2 W/P & Backfill (-21.90 to -18.70)																
ML02 SVS BL2 W/P & Backfill (-8.00 to -0.65)	21	29-Aug-19	23-Sep-19	ML02 SVS BL2 W/P & Backfill (-8.00 to -0.65)																

### CP7 South Ventilation Shaft

#### ML02 SVS

ML02 SVS Access Ramp for CP7	6	12-Feb-19	18-Feb-19
ML02 SVS CP7 Dwall opening + Excavation (Bottom)	24	19-Feb-19	18-Mar-19
ML02 SVS CP7 Invert Slab, Wall & Middle Slab	15	19-Mar-19	04-Apr-19
ML02 SVS CP7 Temp Strut	6	06-Apr-19	12-Apr-19
ML02 SVS CP7 Bottom section backfilling	6	13-Apr-19	23-Apr-19
ML02 SVS CP7 Upper Excavation & modify arches	24	08-Jul-19	03-Aug-19
ML02 SVS CP7 Top section - Structure	24	05-Aug-19	31-Aug-19

### ML03 South Ventilation Shaft

#### ML03 SVS Structure

Tunnel Box			
ML03 SVS RL Wall	30	19-Dec-18	25-Jan-19
ML03 SVS OHVD Slab	18	26-Jan-19	22-Feb-19
ML03 SVS ARL Wall	21	23-Feb-19	19-Mar-19
ML03 SVS Tunnel Roof Slab	15	20-Mar-19	06-Apr-19
Above Tunnel Vent Duct			
ML03 SVS Tunnel Roof Wall (-28.70 to -21.90)	30	08-Apr-19	17-May-19
ML03 SVS Above Tunnel Roof Wall & Slab	36	18-May-19	29-Jun-19
ML03 SVS Below BL2 Wall & Slab (-18.70 to -6.95)	50	02-Jul-19	28-Aug-19
ML03 SVS Dwall opening for Duct connection to SVB	18	29-Aug-19	19-Sep-19
ML03 SVS BL2 Duct Connection to SVB	30	20-Sep-19	26-Oct-19
ML03 SVS Dwall opening for Duct connection to SVB	18	04-Nov-19	23-Nov-19
ML03 SVS BL1 Duct connection to SVB	30	25-Nov-19	31-Dec-19
ML03 SVS Tunnel Roof to BBL2 W/P & Backfill (-21.90 to -18.70)	45	16-Jul-19	05-Sep-19
ML03 SVS BL2 W/P & Backfill (-8.00 to -0.65)	24	05-Oct-19	02-Nov-19

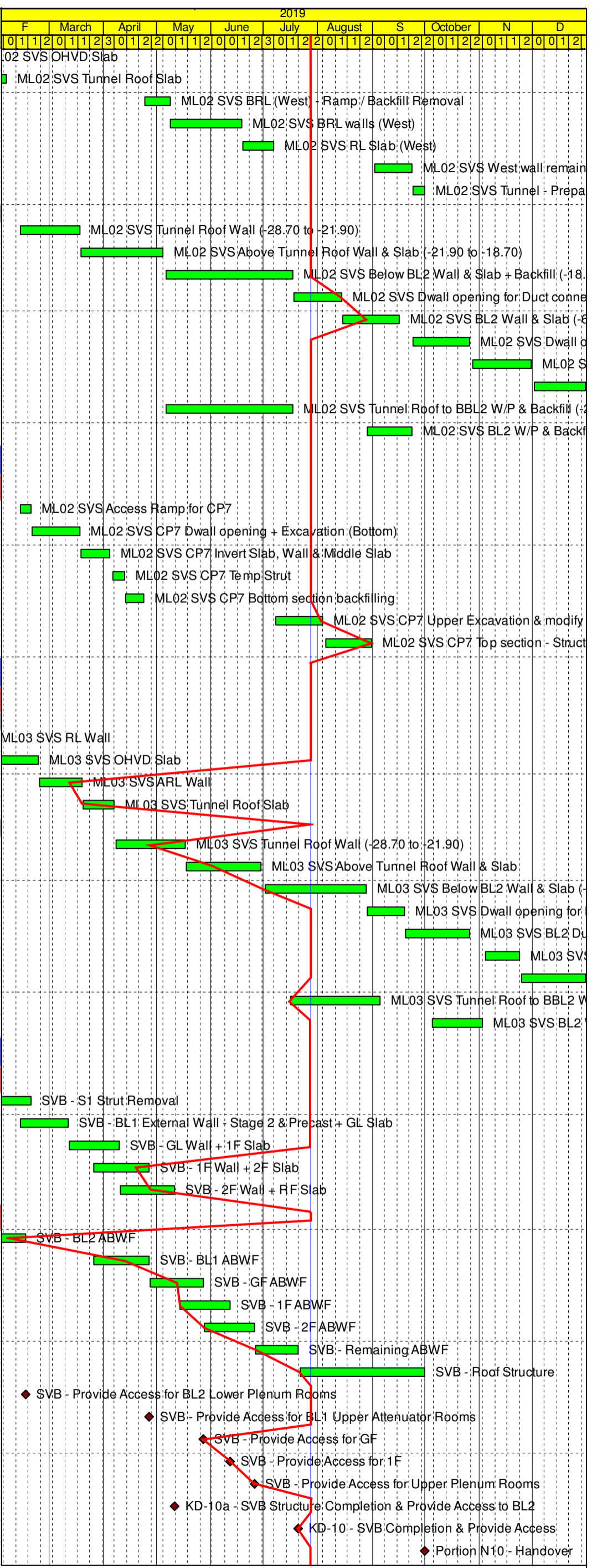
### South Ventilation Building

#### Structure

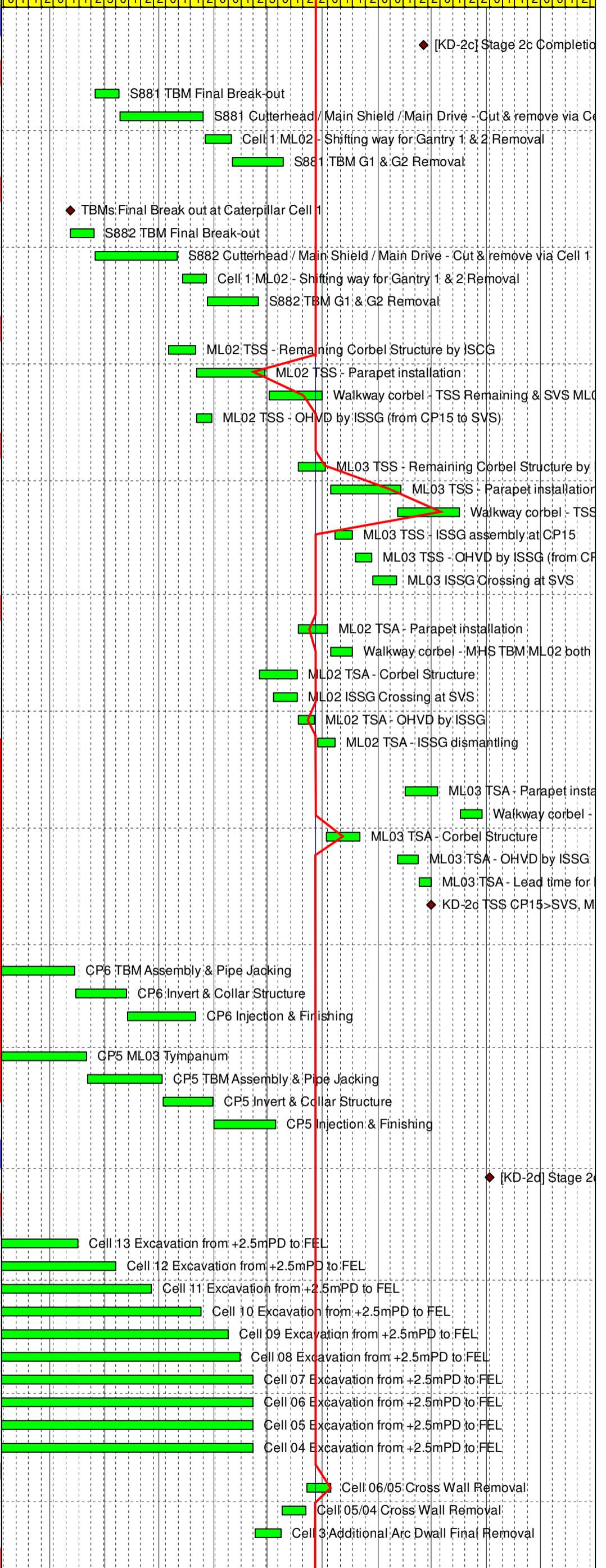
SVB - S1 Strut Removal	12	29-Jan-19	18-Feb-19
SVB - BL1 External Wall - Stage 2 & Precast + GL Slab	24	12-Feb-19	11-Mar-19
SVB - GL Wall + 1F Slab	24	12-Mar-19	09-Apr-19
SVB - 1F Wall + 2F Slab	24	26-Mar-19	26-Apr-19
SVB - 2F Wall + RF Slab	24	10-Apr-19	11-May-19

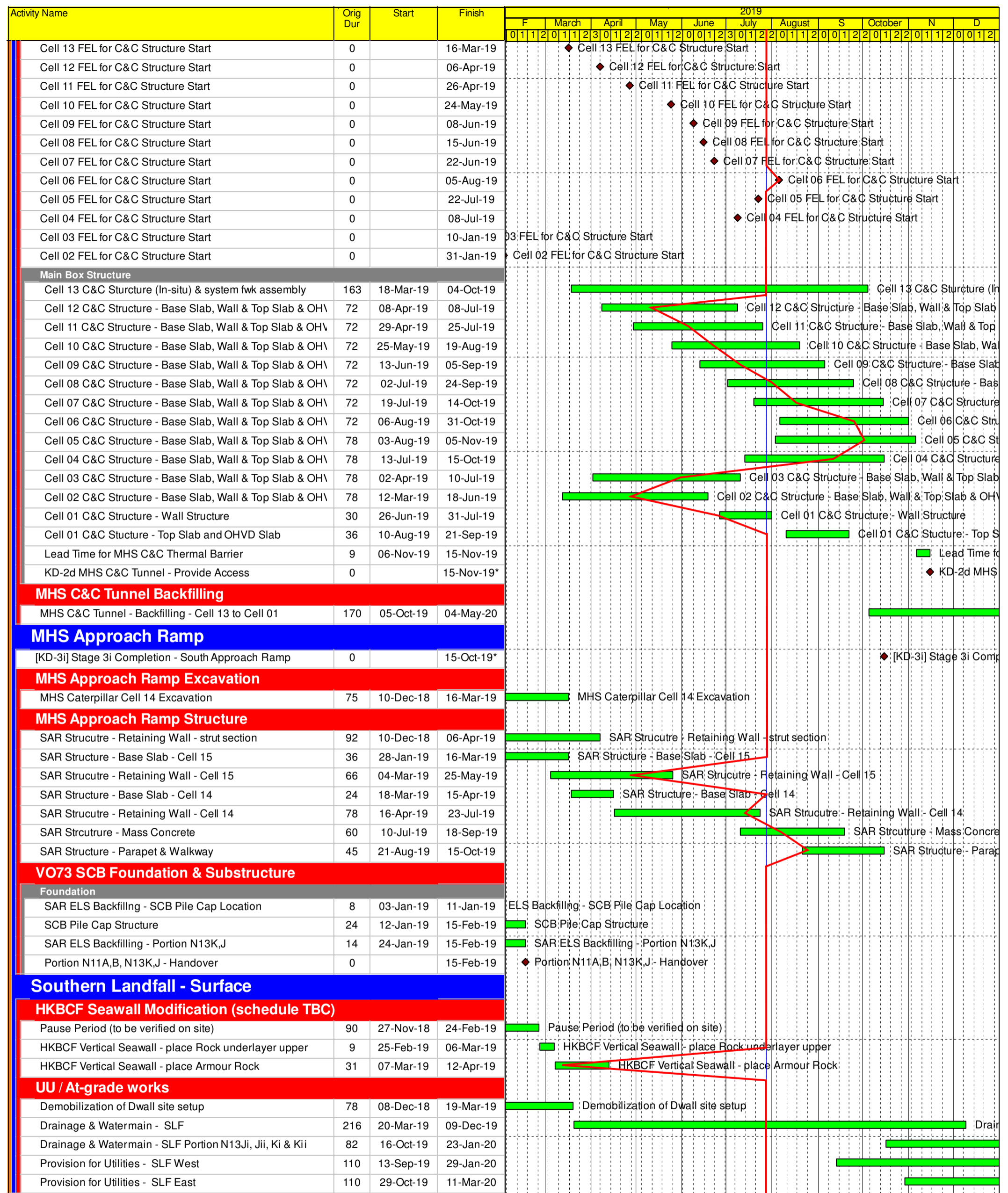
#### ABWF

SVB - BL2 ABWF	40	21-Dec-18	15-Feb-19
SVB - BL1 ABWF	24	26-Mar-19	26-Apr-19
SVB - GF ABWF	24	27-Apr-19	27-May-19
SVB - 1F ABWF	24	14-May-19	11-Jun-19
SVB - 2F ABWF	24	28-May-19	25-Jun-19
SVB - Remaining ABWF	21	26-Jun-19	20-Jul-19
SVB - Roof Structure	60	22-Jul-19	30-Sep-19
SVB - Provide Access for BL2 Lower Plenum Rooms	0		15-Feb-19
SVB - Provide Access for BL1 Upper Attenuator Rooms	0		26-Apr-19
SVB - Provide Access for GF	0		27-May-19
SVB - Provide Access for 1F	0		11-Jun-19
SVB - Provide Access for Upper Plenum Rooms	0		25-Jun-19
KD-10a - SVB Structure Completion & Provide Access to BL2	0		11-May-19*
KD-10 - SVB Completion & Provide Access	0		20-Jul-19*
Portion N10 - Handover	0		30-Sep-19*



Activity Name	Orig Dur	Start	Finish
<b>South Approach TBM Tunnel</b>			
[KD-2c] Stage 2c Completion - Remaining TSS & TSA	0		26-Sep-19*
<b>S881 TBM</b>			
S881 TBM Final Break-out	14	26-Mar-19	08-Apr-19
S881 Cutterhead / Main Shield / Main Drive - Cut & remove	36	09-Apr-19	25-May-19
Cell 1 ML02 - Shifting way for Gantry 1 & 2 Removal	12	27-May-19	10-Jun-19
S881 TBM G1 & G2 Removal	24	11-Jun-19	09-Jul-19
<b>S882 TBM</b>			
TBMs Final Break out at Caterpillar Cell 1	0	12-Mar-19	
S882 TBM Final Break-out	14	12-Mar-19	25-Mar-19
S882 Cutterhead / Main Shield / Main Drive - Cut & remove	36	26-Mar-19	11-May-19
Cell 1 ML02 - Shifting way for Gantry 1 & 2 Removal	12	14-May-19	27-May-19
S882 TBM G1 & G2 Removal	24	28-May-19	25-Jun-19
<b>ML02 TSS Internal Structure</b>			
ML02 TSS - Remaining Corbel Structure by ISCG	13	06-May-19	21-May-19
ML02 TSS - Parapet installation	33	22-May-19	29-Jun-19
Walkway corbel - TSS Remaining & SVS ML02 both side	26	02-Jul-19	31-Jul-19
ML02 TSS - OHVD by ISSG (from CP15 to SVS)	8	22-May-19	30-May-19
<b>ML03 TSS Internal Structure</b>			
ML03 TSS - Remaining Corbel Structure by ISCG	14	18-Jul-19	02-Aug-19
ML03 TSS - Parapet installation	35	05-Aug-19	13-Sep-19
Walkway corbel - TSS Remaining & SVS ML03 both side	27	12-Sep-19	16-Oct-19
ML03 TSS - ISSG assembly at CP15	9	08-Aug-19	17-Aug-19
ML03 TSS - OHVD by ISSG (from CP15 to SVS)	9	19-Aug-19	28-Aug-19
ML03 ISSG Crossing at SVS	12	29-Aug-19	11-Sep-19
<b>ML02 TSA Internal Structure</b>			
ML02 TSA - Parapet installation	15	18-Jul-19	03-Aug-19
Walkway corbel - MHS TBM ML02 both sides	12	05-Aug-19	17-Aug-19
ML02 TSA - Corbel Structure	18	26-Jun-19	17-Jul-19
ML02 ISSG Crossing at SVS	12	04-Jul-19	17-Jul-19
ML02 TSA - OHVD by ISSG	9	18-Jul-19	27-Jul-19
ML02 TSA - ISSG dismantling	9	29-Jul-19	07-Aug-19
<b>ML03 TSA Internal Structure</b>			
ML03 TSA - Parapet installation	16	16-Sep-19	04-Oct-19
Walkway corbel - MHS TBM ML03 both sides	11	17-Oct-19	29-Oct-19
ML03 TSA - Corbel Structure	16	03-Aug-19	21-Aug-19
ML03 TSA - OHVD by ISSG	9	12-Sep-19	23-Sep-19
ML03 TSA - Lead time for Fire Proofing	6	24-Sep-19	30-Sep-19
KD-2c TSS CP15>SVS, MHS TBM Tunnel - Provide Access	0		30-Sep-19*
<b>TSA Cross Passage</b>			
<b>CP6</b>			
CP6 TBM Assembly & Pipe Jacking	42	01-Feb-19	14-Mar-19
CP6 Invert & Collar Structure	24	15-Mar-19	12-Apr-19
CP6 Injection & Finishing	28	13-Apr-19	21-May-19
<b>CP5</b>			
CP5 ML03 Tympanum	36	01-Feb-19	21-Mar-19
CP5 TBM Assembly & Pipe Jacking	42	22-Mar-19	02-May-19
CP5 Invert & Collar Structure	24	03-May-19	31-May-19
CP5 Injection & Finishing	28	01-Jun-19	05-Jul-19
<b>MHS Cut-and-cover Tunnel</b>			
[KD-2d] Stage 2d Completion - MHS C&C Tunnel	0		02-Nov-19*
<b>N MHS C&amp;C Caterpillar Excavation</b>			
<b>MHS C&amp;C Cell 12 to 04</b>			
Cell 13 Excavation from +2.5mPD to FEL	75	10-Dec-18	16-Mar-19
Cell 12 Excavation from +2.5mPD to FEL	80	24-Dec-18	06-Apr-19
Cell 11 Excavation from +2.5mPD to FEL	89	02-Jan-19	26-Apr-19
Cell 10 Excavation from +2.5mPD to FEL	105	09-Jan-19	24-May-19
Cell 09 Excavation from +2.5mPD to FEL	105	23-Jan-19	08-Jun-19
Cell 08 Excavation from +2.5mPD to FEL	105	30-Jan-19	15-Jun-19
Cell 07 Excavation from +2.5mPD to FEL	111	30-Jan-19	22-Jun-19
Cell 06 Excavation from +2.5mPD to FEL	123	16-Jan-19	22-Jun-19
Cell 05 Excavation from +2.5mPD to FEL	129	09-Jan-19	22-Jun-19
Cell 04 Excavation from +2.5mPD to FEL	140	24-Dec-18	22-Jun-19
<b>Cross Wall Removal</b>			
Cell 06/05 Cross Wall Removal	12	23-Jul-19	05-Aug-19
Cell 05/04 Cross Wall Removal	12	09-Jul-19	22-Jul-19
Cell 3 Additional Arc Dwall Final Removal	12	24-Jun-19	08-Jul-19
<b>N MHS C&amp;C Caterpillar Structure</b>			





Date	Revision	Checked	Approved
22-Dec-17	Rev. H	WYu	
05-Feb-18	Rev. I AC	WYu	
07-Mar-18	Rev. I	WYu	
18-Jul-18	Rev. J	WYu	