

SPARK – North East Link – Primary Package

Inspection and Test Plan (ITP)

ITP Title: Conduits (Trenching and Install)

ITP Number: NEL-CNT-SDC-2990-PQA-ITP-0042 Rev.0


LOT Number: _____

Primary Asset Location Code: _____

Discipline: _____

Security Classification: OFFICIAL

Spark NELP Approval Record

Function	Position	Name	Signature	Date
Prepared By	Quality Representative	Joe Failla	Joe Failla <small>Digitally signed by Joe Failla DN: C=AU, E=joe.failla@spark-nel-dc.com.au, O=SPARK, CN=Domenic Ciccone Date: 2022.09.06 13:44:52 +10'00'</small>	
Reviewed By	Project Engineer	Domenic Ciccone	Domenic Ciccone <small>Digitally signed by Domenic Ciccone DN: C=AU, E=domenic.ciccone@spark-nel-dc.com.au, O=SPARK, CN=Domenic Ciccone Date: 2022.09.06 13:54:25+10'00'</small>	
Approved By	Quality Manager	Greg Iro	 <small>Digitally signed by Greg Iro Date: 2022.09.07 09:59:06 +10'00'</small>	

Note:

1. Ensure all Records or Checklist References are attached and that each Inspection Requirement is clearly named, signed, and dated.
2. Ensure every Records or Checklist References attached are legible
3. This Inspection Test Plan may be generic – ensure the requirement is demographically clear to your scope of work
4. Verification Inspections where applicable for the IREA stated as "Witness" or "Hold" shall be formally notified for their engagement and with sufficient advance notice time (i.e. 3 days or as agreed with the Sub-IREA Representative and/or the Nominated Authority)
5. All Nominated Authority Hold Points are Witness Points for Sub-IREA
6. The Sub-IREA representative is not required to physically sign-off on ITPs

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PSDR, IFC Drawings

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							Sub-Contractor	Spark NEL Engineer	Nominated Authority	IREA			
1.0	Preliminaries (Include all aspects of Materials, Approvals, IFC Drawings, etc. Ensure all required permits have been raised prior to commencing works)												
1.1	PE	IFC Drawings issued	IFC Drawing Number: PSDR Part 6 Section 2(h)	IFC Drawings, approved plans, technical specification issued for construction Construction of any Construction Package must not commence until at least 5 Business days after the later of when: i). the Construction Documentation has been submitted to the State, the IREA and any Returned Asset Owner (if applicable) in accordance with section 2(f) and ii). Any requirements of the IREA under section 2(g) have been complied with.	V	PW	NR	HP		NR	NR	IFC Drawings	
1.2	PE	Survey Set Out	QMP IFC Drawings	Confirmation and visually inspect survey set out as per the IFC Drawing	V	PW	HP	HP		NR	NR	• InEight Document References: • Lot Map	
2.0	Operations (Include Work Execution – Installation / Manufacturing Process step-by-step)												
2.1	SE	Material Conformance - Pits and Lids	VR 733.07 IFC drawings,	▫ Pits and Lids are correct type & approved notations. ▫ Where the conduits enter the cable pit, a neat hole shall be cut	R	PL + PW	NR	WP		NR	NR	Delivery Dockets (Pit Detail)	

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			VicRoads TC-1220 PSDR Section 14	in the pit using a hole cutter or similar tools. Pits with holes knocked in with a hammer or similar tool will be rejected. ▫ The conduit shall be sealed to the box with silicone sealant or a cementitious grout / mortar where the pit is of HDPE construction. ▫ Light duty pits to be used for non-trafficable areas. Heavy duty (Class D) pits shall be used in trafficable areas. ▫ All conduit entry and exit points into pit walls to be sealed to provide watertight seal.								
2.2	SE	Material Conformance - Conduit	VR 733.02 AS 1345 AS 2053.2 IFC Drawings PSDR Section 10.3	▫ All conduits installed underground shall be rigid heavy-duty grade UPVC in accordance with AS 2053.2. ▫ Electrical – Heavy Duty Grade, Rigid orange UPVC conduit to AS/NZS 2053.2; Profile wall-smooth bore HD UPVC conduit to AS/NZS 2053.6 ▫ Communications – Heavy Duty Grade, Rigid White UPVC communication conduit to AS/NZS 2053.2;	R	PL + PW	NR	WP	NR	NR	Delivery Docket (Conduit Detail)	

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				▫ Profile wall-smooth bore HD UPVC conduit to AS/NZS 2053.6 Review Certificate of Compliance.								
2.3	SE	Material Conformance - Concrete Mix	VR 703	▫ Application of concrete to comply to VR703.	R	PL + PW	NR	WP	NR	NR	• Delivery Docket • Mix Design	
2.4	SE	Pit Lid Inscription	VicRoads TC-1220	<u>Inscription A:</u> "A1=VICROADS" or "A2=OTHER INSCRIPTION AS SPECIFIED" <u>Inscription B:</u> "B1=ELECTRICAL" or "ELEC" "B2=COMMUNICATIONS" or "COMMS" "B3=TRAFFIC SIGNALS" or "TRAFF SIG" "B4=OTHER INSCRIPTION AS SPECIFIED"	IP	F	NR	WP	NR	NR	Signed ITP	
2.5	Nominated Authority	Excavation & Boring	VR 733.03 & Drawings	▫ Detailed proposals for boring under carriageways shall be submitted to the Superintendent for review two weeks prior to the programmed commencement of work. ▫ Excavation center-line aligns with the design center-line of the	V	PL + PW	NR	WP	HP	WP	Signed ITP	

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							Sub-Contractor	Spark NEL Engineer	Nominated Authority	IREA		
				conduit run, to the dimensions specified. Note: Boring by water jet not permitted. ▫ Excavation floor provides a suitable foundation with all debris removed prior to the placement of Embedment Material ▫ Excavation kept free of water until the conduit has been installed and embedment and fill material(s) placed and compacted to a sufficient height, to prevent flotation of the pipeline.								
2.6	SE	Cover Requirements	VR Table 733.031 IFC Drawings: NEL-CNT-SMEC-2102-IEI-DRG-0031	▫ Minimum Cover for underground conduits shall be 600mm. Note: where minimum depth cover is not possible, a request for an exemption to Superintendent is to be considered (VR 733.03).	V	PL	NR	WP	NR	NR	Signed ITP	
2.7	SE	Material conformance - Bedding and Backfill material	Table VR 733.061 IFC drawings	▫ Material shall be free from perishable matter. ▫ Material shall comply with requirements as set-out in <u>table VR 733.061</u>	IP	PL + PW	NR	WP	NR	NR	Delivery Dockets for: Bedding and Backfilling Material	

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2.8	SE	Bedding Placement and Compaction	VR 733.06 IFC drawings AS 2566	<ul style="list-style-type: none"> Minimum 80mm bedding below conduits on earth foundation Minimum 200mm bedding below conduits on rock foundation Bedding placed to full width of trench, and between conduits Minimum 150mm bedding above top conduit prior to backfill Embedment material shall be placed to ensure uniformity of density with no distortion, dislodgment, or damage to the pipeline. Where required to be compacted, embedment material shall be placed in layers of thickness in accordance with design IFC to achieve the density specified uniformly through the depth of each layer. 	IP	PL	NR	WP	NR	NR	Signed ITP	
2.9	SE	Conduit installation	VR 733.04, IFC Drawings VR 733.01 AS 3000	<ul style="list-style-type: none"> All conduits laid with the alignments, levels, gradients and clearances as per the latest revision of IFC drawings Number of conduits, type spacing and specified colour 	IP	F/ Pit	NR	WP	HP	WP	<ul style="list-style-type: none"> Certificates of Electrical Safety Installation Records 	

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			VR 733.11	conduits are installed as per the latest revision IFC drawings. ▫ All conduit and cable pit installation works for electrical wiring shall be carried out by, or under the direct site supervision of a registered electrical contractor and hold appropriate VicRoads prequalification. ▫ An underground conduit warning sign shall be installed in accordance with VicRoads Drawing TC-1208. ▫ Conduit Installation to comply to VR 733.04 ▫ Each conduit for electrical wiring and communication cables shall be provided with one synthetic draw cord not less than 3mm diameter and minimum breaking strain of 1.6kN (VR 733.05). Note: Draw strings shall be installed in each conduit where there is no cable installed and removed when there is an existing cable(s) in conduit.							• Signed ITP	
2.10	Nominated Authority	Post Bedding (Backfill)	VR 733.06	▫ Once the bedding material has been laid and the conduits put in	IP	F	NR	WP	HP	WP	Signed ITP	

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							Sub-Contractor	Spark NEL Engineer	Nominated Authority	IREA		
				place, works shall not proceed prior to inspection by Superintendent or Representative. Note: Bedding material must not be the same material excavated for the trench, it shall be clearly identifiable as introduced material.								
2.11	SE	Pit installation	VR 733.07 VicRoads Drawings TC-1230, TC-2203 IFC Drawings	<ul style="list-style-type: none"> Pits to be installed on crushed rock base thickness as per IFC Drawings. Access pits shall be installed in accordance with VicRoads drawings TC-2200 to TC-2219. Note: Larger communication pits may be used where deemed appropriate due to splicing or other cable requirements as agreed with the Superintendent. Pits to be constructed such that the Finished Surface Level to the top of the pit lid matches the surrounding FSL. 	V	F/ Pit	NR	WP	NR	NR	<ul style="list-style-type: none"> Certificates of Electrical Safety Installation Records 	
2.12	SE	Pit Lid Surrounds	VR 733.07 (c)	Before the pit lid surround or pre-formed collar is cemented into position, an inspection by a Superintendent (Nominated	IP	F	NR	WP	HP	WP	Signed ITP	

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				Authority Representative) must be carried out.								
2.13	SS	Warning Tape	VR 733.05	<ul style="list-style-type: none"> Marker tape to be installed 300mm below ground level. Marker tape to be installed 75mm from the trench wall. Where both electrical and communication conduits are provided in a trench two marker tapes shall be provided one for electrical and the other for communication conduits. 	V	PL	NR	WP	NR	NR	Photos	
2.14	SE	Detector Pits	VR 733.08	Detector pits and detector pit covers shall be constructed and installed in accordance with VR Standard Drawings TC-1310 and TC-1320.	V	F	NR	WP	NR	NR	Signed ITP	
2.15	SE	Test Records · Compaction (Backfill) · Concrete	VR 733.06(d) VR 703	<u>Backfill Compaction</u> <ul style="list-style-type: none"> Bedding and backfill materials shall have compacted in layers to a density ratio >95%, Moisture content within the range 85% to 115% where backfill material contains material retained on a 37.5mm AS sieve. Note (Backfill): Detailed proposals for compaction of backfill materials of nominal size >40mm shall be	V	PL	NR	WP	NR	NR	NATA Test Records	

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				submitted to Superintendent for review before commencing works. Note (Concrete): Minimum test requirements to comply to VR 703.11 (2021).								
3.0	Post Operations (Include Inspection and Testing)											
3.1	SE	Certification of installation	VR 733.04 VR 733.07 AS 3000	▫ All conduit installation works for electrical wiring and communications cabling shall be carried out by, or under the direct supervision of, appropriately registered and licensed personnel provided by the Contractor.	V	PL	NR	HP	NR	NR	Certificate of Electrical Safety	
3.2	SE	Redline Drawings	VR 733.11 IFC Drawings	a). 'As-Constructed' drawings showing complete conduit network including conduit types, sizes and depths. b). the above "as constructed" drawings shall also show all pits, pit types and pit sizes. c). certificates of electrical safety for all conduits and pits installed d). documentation demonstrating that all pits and conduits have been installed in accordance with requirements of this specification.	V	F	NR	WP	NR	NR	Redline Mark-Up Records	

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4.0	Quality											
4.1	QSR	Identification and control of non-conforming products or services (if applicable)	CQMP	Review and confirm closure of NCR's and associated RFI's prior to closing of construction lot	R	PL		WP			NCR closed with related documentation	InEight Form Reference Numbers (NCRs, RFIs etc)
4.2	QSR	Check all quality records for lot closure	CQMP	All applicable quality records are complete	R	PL		WP			Compiled documents (all data reports and records)	

Legend:					
Responsibility		Method	Inspection / Verification	Test Frequency	Other
SS: Site Supervisor SE: Site Engineer PE: Project Engineer SPE: Senior Project Engineer GE: Geotechnical Engineer PS: Project Surveyor	PSM: Project Systems Manager QSR: Quality Site Rep. STR: Structural Engineer SSR: Site Safety Rep. EMR: Environmental Management Rep. NA: Nominated Authority (Release of HP) IREA: Independent Reviewer (Observer)	V: Verify I: Inspection R: Review T: Test	HP: Hold Point WP: Witness Point NR: Not Required	PW: Prior to Works PL: Per Lot F: Full or 100% Inspection or Testing X1: Inspect or Test at Specified Frequency X2: Random Inspection or Test	QP: Quality Plan RFI: Request for Information NCR: Non-Conformance VC: Verification Checklist XXXX: Sequential Number from Doc Control

DDD – Types: B – Building, C – Civil, G – General, M – Mechanical & Electrical, I – Motorway Operations System (ITS), S – Structure, O – Tolling, T – Tunnel, U – Urban Design & Landscape

Name	Signature and Date	Spark-NELPP REP	Name	Signature and Date
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							Sub-Contractor	Spark NEL Engineer	Nominated Authority	IREA		
Supplier/Subcontractor : (If applicable)												

Lot closure comments:

Spark NELP QA Rep:

Name _____ Signature: _____ Date: _____