

IMPORTANT NOTICE:

THIS ARCHITECTURE DRAWING HAS BEEN INTENTIONALLY ANONYMIZED AND MODIFIED TO PROTECT THE CONFIDENTIALITY OF THE ORIGINAL CUSTOMER, FACILITIES, SYSTEMS, AND OPERATIONAL ENVIRONMENT.

CERTAIN NAMES, ADDRESSING DETAILS, RELATIONSHIPS, CONFIGURATIONS, AND DESIGN ELEMENTS MAY APPEAR INCOMPLETE, GENERALIZED, OR TECHNICALLY INCONSISTENT. THESE CHANGES WERE MADE DELIBERATELY TO PREVENT IDENTIFICATION OF THE CUSTOMER OR RECONSTRUCTION OF THE ORIGINAL PRODUCTION ENVIRONMENT. ALL CUSTOMER-SPECIFIC INFORMATION HAS BEEN REMOVED OR REPLACED WITH GENERIC REPRESENTATIONS.

THE DRAWING IS PROVIDED SOLELY AS A REPRESENTATIVE EXAMPLE OF NETWORK ARCHITECTURE AND SEGMENTATION METHODS I HAVE DESIGNED AND IMPLEMENTED WITHIN INDUSTRIAL AND OPERATIONAL TECHNOLOGY ENVIRONMENTS. IT ILLUSTRATES CONCEPTS SUCH AS HUB-AND-SPOKE CONNECTIVITY, REFINERY AND PIPELINE SEGMENTATION, CONTROLLED INTER-SITE COMMUNICATION, SECURITY-ZONE SEPARATION, AND ISOLATION BETWEEN INDEPENDENTLY OPERATED FACILITIES AND ASSOCIATED PIPELINE SYSTEMS.

THE ORIGINAL DESIGN WAS DEVELOPED USING ESTABLISHED SECURITY AND ARCHITECTURAL PRINCIPLES INFORMED BY APPLICABLE INDUSTRY PRACTICES AND FRAMEWORKS, INCLUDING:

- ISO/IEC 27001 INFORMATION SECURITY MANAGEMENT PRINCIPLES
- THE PURDUE ENTERPRISE REFERENCE ARCHITECTURE
- NIST SP 800-82 GUIDANCE FOR INDUSTRIAL CONTROL SYSTEM AND OPERATIONAL TECHNOLOGY SECURITY

THIS SAMPLE SHOULD NOT BE INTERPRETED AS A COMPLETE IMPLEMENTATION SPECIFICATION, AS-BUILT DRAWING, OR REUSABLE CUSTOMER DESIGN. ACTUAL ARCHITECTURES MUST BE DEVELOPED ACCORDING TO THE OPERATIONAL, CYBERSECURITY, REGULATORY, AVAILABILITY, AND SAFETY REQUIREMENTS OF THE SPECIFIC ENVIRONMENT.

NOTES:

NO.	DATE	BY	REVISION	DESCRIPTION



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DATE:		
CHECKED BY:		
DATE:		
APPROVED BY:		
DATE:		

FORTINET CUSTOMER HQ CITY, ST		
ENGINEERING DOCUMENT - NETWORK ARCHITECTURE DISCLOSURE SHEET		
DOCUMENT NO.	401-24001-V01-DIS	R2

PROJECT: SAMPLE-PIPE-001 FILE: OT DEPLOYMENT - REG. FORTINET DESIGN - GREENFIELD V1.2.VSDX BY: J. LEVINSON DATE: MAR 19, 2024

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<table><tr><th>S/N</th><th>DRAWING NO.</th><th>REV.</th><th>DATE</th><th>DRAWING TITLE</th></tr><tr><td>00</td><td>401-24001-V01-000</td><td>R2</td><td>09/30/2024</td><td>FORTINET CUSTOMER - COVER SHEET & DWG. LIST</td></tr><tr><td>01</td><td>401-24001-V01-001</td><td>R2</td><td>09/30/2024</td><td>FORTINET CUSTOMER - HUB FORTINET - CALL/SPEC SHEET</td></tr><tr><td>02</td><td>401-24001-V01-002</td><td>R2</td><td>08/08/2024</td><td>FORTINET CUSTOMER - SPOKE FORTINET - CALL/SPEC SHEET</td></tr><tr><td>03</td><td>401-24001-V01-003</td><td>R2</td><td>08/11/2024</td><td>FORTINET CUSTOMER - MAIN - ORIGINAL VIEW - HUB & SPOKE</td></tr><tr><td>04</td><td>401-24001-V01-004</td><td>R2</td><td>08/11/2024</td><td>FORTINET CUSTOMER - EXPANDED VIEW - HUB & SPOKE</td></tr><tr><td>05</td><td>401-24001-V01-005</td><td>R2</td><td>08/08/2024</td><td>FORTINET CUSTOMER - SPOKE SITE EXPANDED LLD</td></tr><tr><td>06</td><td>401-24001-V01-006</td><td>R2</td><td>08/11/2024</td><td>FORTINET CUSTOMER - 3RD PARTY CONTROL CENTER - HLD</td></tr><tr><td>07</td><td>401-24001-V01-007</td><td>R2</td><td>08/11/2024</td><td>FORTINET CUSTOMER - MAIN REFINERY HLD</td></tr><tr><td>08</td><td>401-24001-V01-007</td><td>R4.4</td><td>08/11/2024</td><td>FORTINET CUSTOMER - AWS VPC SEGMENTATION LLD</td></tr></table>															S/N	DRAWING NO.	REV.	DATE	DRAWING TITLE	00	401-24001-V01-000	R2	09/30/2024	FORTINET CUSTOMER - COVER SHEET & DWG. LIST	01	401-24001-V01-001	R2	09/30/2024	FORTINET CUSTOMER - HUB FORTINET - CALL/SPEC SHEET	02	401-24001-V01-002	R2	08/08/2024	FORTINET CUSTOMER - SPOKE FORTINET - CALL/SPEC SHEET	03	401-24001-V01-003	R2	08/11/2024	FORTINET CUSTOMER - MAIN - ORIGINAL VIEW - HUB & SPOKE	04	401-24001-V01-004	R2	08/11/2024	FORTINET CUSTOMER - EXPANDED VIEW - HUB & SPOKE	05	401-24001-V01-005	R2	08/08/2024	FORTINET CUSTOMER - SPOKE SITE EXPANDED LLD	06	401-24001-V01-006	R2	08/11/2024	FORTINET CUSTOMER - 3 RD PARTY CONTROL CENTER - HLD	07	401-24001-V01-007	R2	08/11/2024	FORTINET CUSTOMER - MAIN REFINERY HLD	08	401-24001-V01-007	R4.4	08/11/2024	FORTINET CUSTOMER - AWS VPC SEGMENTATION LLD
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NOTES: R2 - ADDED COVER SHEET INDEX TOTAL OF 7 PAGES				<table><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td>R2</td><td>09/30/24</td><td>JVL</td><td>IFR - CHGS. TRACKED</td></tr><tr><td>NO.</td><td>DATE</td><td>BY</td><td>REVISION DESCRIPTION</td></tr></table>																				R2	09/30/24	JVL	IFR - CHGS. TRACKED	NO.	DATE	BY	REVISION DESCRIPTION	JVL J V LEVINSON			<table><tr><td colspan="2">DRAWN BY: J. LEVINSON</td></tr><tr><td colspan="2">DATE: 09/19/2024</td></tr><tr><td colspan="2">CHECKED BY: B. TAYLOR</td></tr><tr><td colspan="2">DATE: 09/19/2024</td></tr><tr><td colspan="2">APPROVED BY:</td></tr><tr><td colspan="2">DATE:</td></tr></table>		DRAWN BY: J. LEVINSON		DATE: 09/19/2024		CHECKED BY: B. TAYLOR		DATE: 09/19/2024		APPROVED BY:		DATE:		<table><tr><td colspan="3">FORTINET CUSTOMER HQ CITY, ST</td></tr><tr><td colspan="3">ENGINEERING DOCUMENT - NETWORK ARCHITECTURE MAIN COVER SHEET - INDEX</td></tr><tr><td>DOCUMENT NO.</td><td>401-24001-V01-000</td><td>R2</td></tr></table>			FORTINET CUSTOMER HQ CITY, ST			ENGINEERING DOCUMENT - NETWORK ARCHITECTURE MAIN COVER SHEET - INDEX			DOCUMENT NO.	401-24001-V01-000	R2				
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PROJECT: SAMPLE-PIPE-001 FILE: OT DEPLOYMENT - REG. FORTINET DESIGN - GREENFIELD V1.2.VSDX BY: J. LEVINSON DATE: MAR 19, 2024

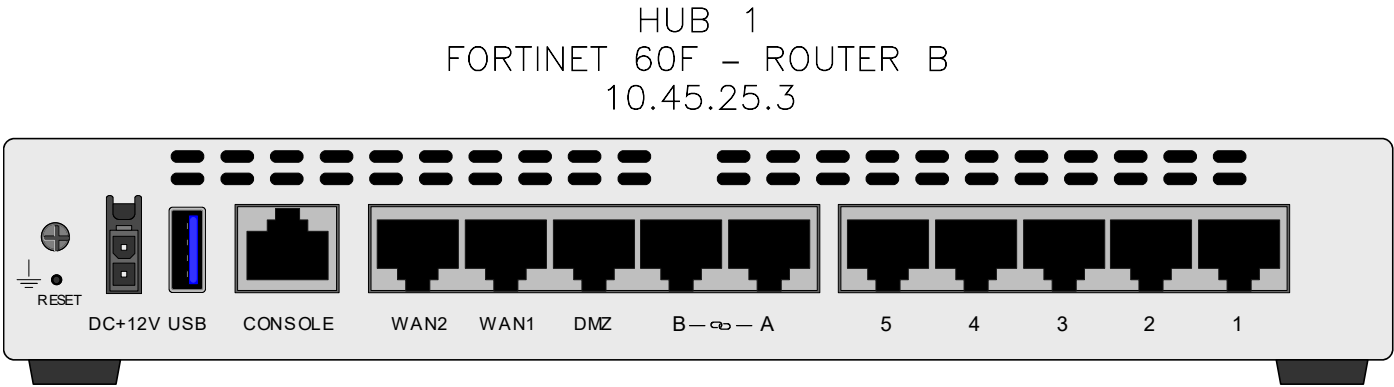
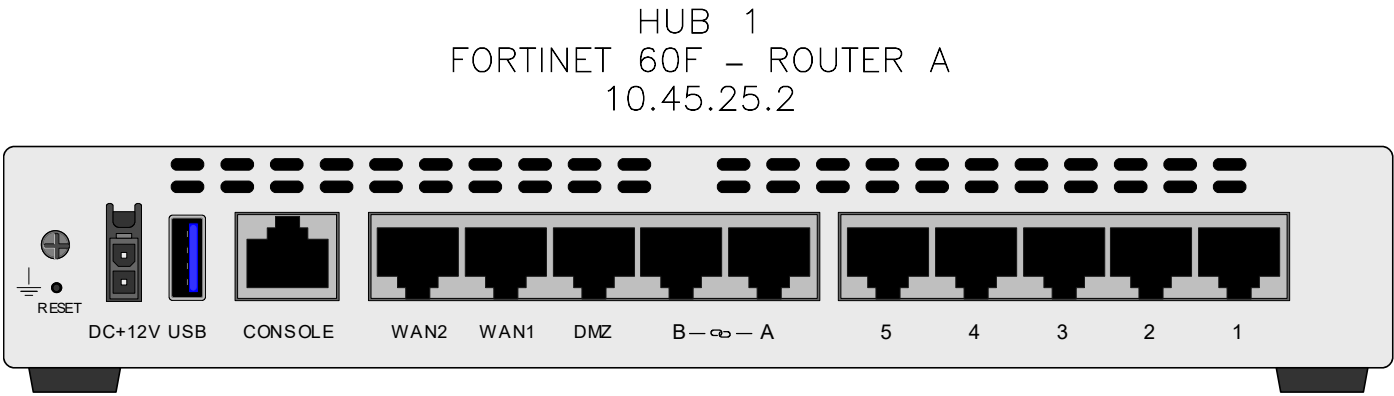
FORTINET FG-60F

SECURITY:

- Expectations:
- > Segmentation of OT data in a SECURE fashion
 - > Securely remote into devices for single pane of glass management
 - > Communication from 3RD PARTY CONTROL to the spoke level
 - > True Redundancy both in WAN and LAN cnxs
 - Redundant VPNs to 3RD PARTY CONTROL Network

SPEC S:

- > 2x GE RJ45 WAN ports,
- > 5x GE RJ45 LAN ports,
- > 1x GE RJ45 DMZ port,
- > 1x USB port,
- > IPS Throughput: 1.4 Gbps
- > Firewall Throughput (1518 / 512 / 64 byte UDP): 10/10/6 Gbps
- > Firewall Throughput: 9Mpps
- > IPsec VPN Throughput (512 byte): 6.5 Gbps
- > SSL Inspection Throughput (IPS, avg. HTTPS): 630 Mbps
- > High Availability Configurations: Active-Active, Active-Passive, Clustering
- > Concurrent Sessions (TCP): 700,000
- > Secure SD-WAN
- > Universal ZTNA



INTERFACES

- > WAN1 - AT&T FIBER
- > WAN2 - STARLINK
- > LAN1 - HA LINK
- > LAN2 - SECURITY SEGMENT

LICENSES

- > OT Security Service
(OT Detection, OT Vulnerability correlation, Virtual Patching, OT Signature / Protocol Decoders)
- > FortiCare 24x7 Comp. Support - ESA

NOTES:					 J V L E V I N S O N	DRAWN BY: J. LEVINSON		FORTINET CUSTOMER HQ CITY, ST			
						DATE: 03/18/2024					
						CHECKED BY: B. TAYLOR		NETWORK PROPOSED – 04/05/2024 HUB – FORTINET – DETAILED			
						DATE: 02/28/2024					
						APPROVED BY:		DOCUMENT NO. 401–24001–V01–001 R1			
						DATE:					
	R1	03/06/24	JVL	ISSUED FOR REVIEW							
	NO.	DATE	BY	REVISION DESCRIPTION							

PROJECT: SAMPLE-PIPE-001 FILE: OT DEPLOYMENT - REG. FORTINET DESIGN - GREENFIELD V1.2.VSDX BY: J. LEVINSON DATE: MAR 19, 2024

SECURITY:

- Expectations:
- > Segmentation of OT data in a SECURE fashion
 - > Securely remote into devices for single pane of glass management
 - > Communication from 3RD PARTY CONTROL to the spoke level
 - > True Redundancy both in WAN and LAN cnxs

LICENSES:

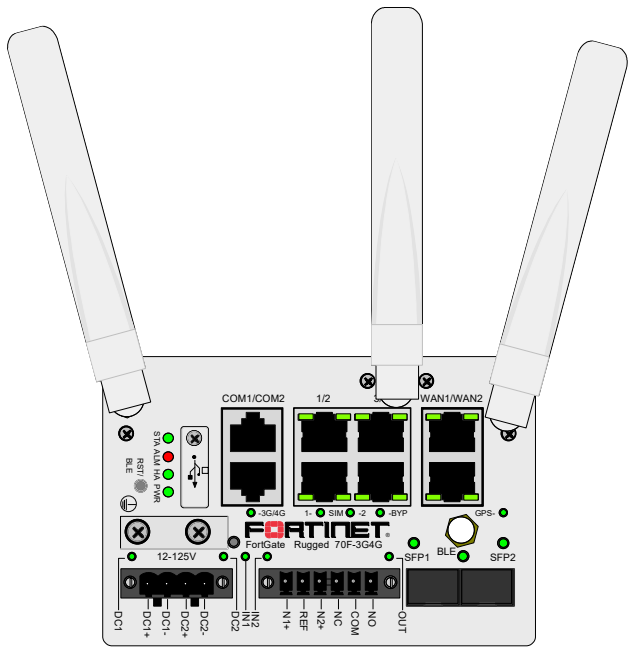
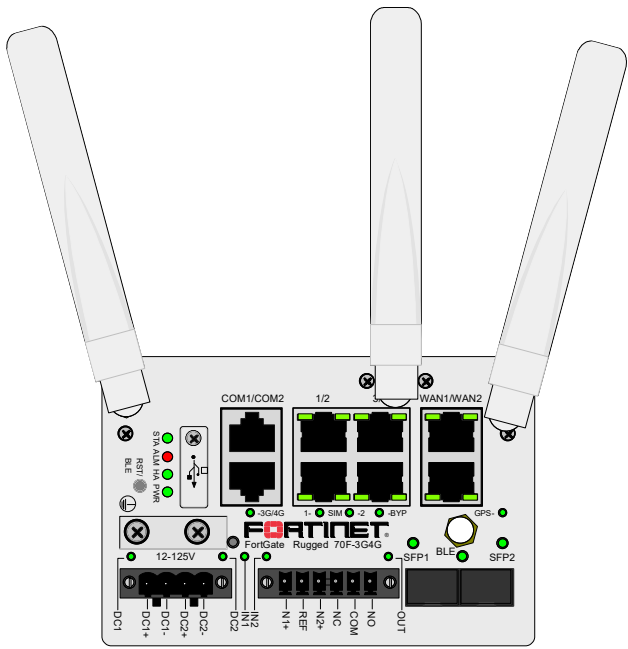
- > OT Security Service (OT Detection, OT Vulnerability correlation, Virtual Patching, OT Signature / Protocol Decoders)
- > FortiCare 24x7 Comp. Support - ESA

SPEC S:

- > Ruggedized, indoor, IP40
- > 4x GE RJ45 LAN ports,
- > 2x GE RJ45 WAN ports,
- > 2x SFP slots,
- > 1x USB port,
- > 1x MicroSD card slot,
- > Embedded 3G/4G LTE wireless WAN module (includes, 2x SIM slots - Active/Passive, 2x external SMA WWAN antennae)
- > Passive GPS (includes, 1x external SMA GPS antenna),
- > Dual power inputs
- > IPS Throughput: 975 Mbps
- > Firewall Throughput (1518 / 512 / 64 byte UDP): 8/8/8 Gbps
- > Firewall Throughput: 12Mpps
- > IPsec VPN Throughput (512 byte): 6.5 Gbps
- > SSL Inspection Throughput (IPS, avg. HTTPS): 500 Mbps
- > High Availability Configurations: Active-Active, Active-Passive, Clustering
- > Concurrent Sessions (TCP): 1M

AT&T FIRSTNET: BAND 14
VERIZON FRONTLINE: BAND 13

FORTINET
FRG70F-3G4G



LTE:

B1, B2, B3, B4, B5, B7, B8, B9, B12,
B13, B18, B19, B20, B26, B28, B29,
B30, B32, B41, B42, B43, B46,
B48, B66

Sierra Wireless EM7565
(2 SIM Slots, Active/Passive)

UMTS/HSPA+:

B1, B2, B3, B4, B5, B6, B8, B9,
B29

INTERFACES:

- > WAN1 - AT&T FIBER
- > WAN2 - STARLINK
- > LTE PRIMARY - VERIZON FIRSTRESPONDERS
- > LTE FAILOVER - AT&T LTE
- > LAN1 - HA LINK
- > LAN2 - SECURITY SEGMENT

NOTES:

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R1	03/06/24	JVL	ISSUED FOR REVIEW
NO.	DATE	BY	REVISION DESCRIPTION

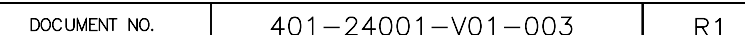


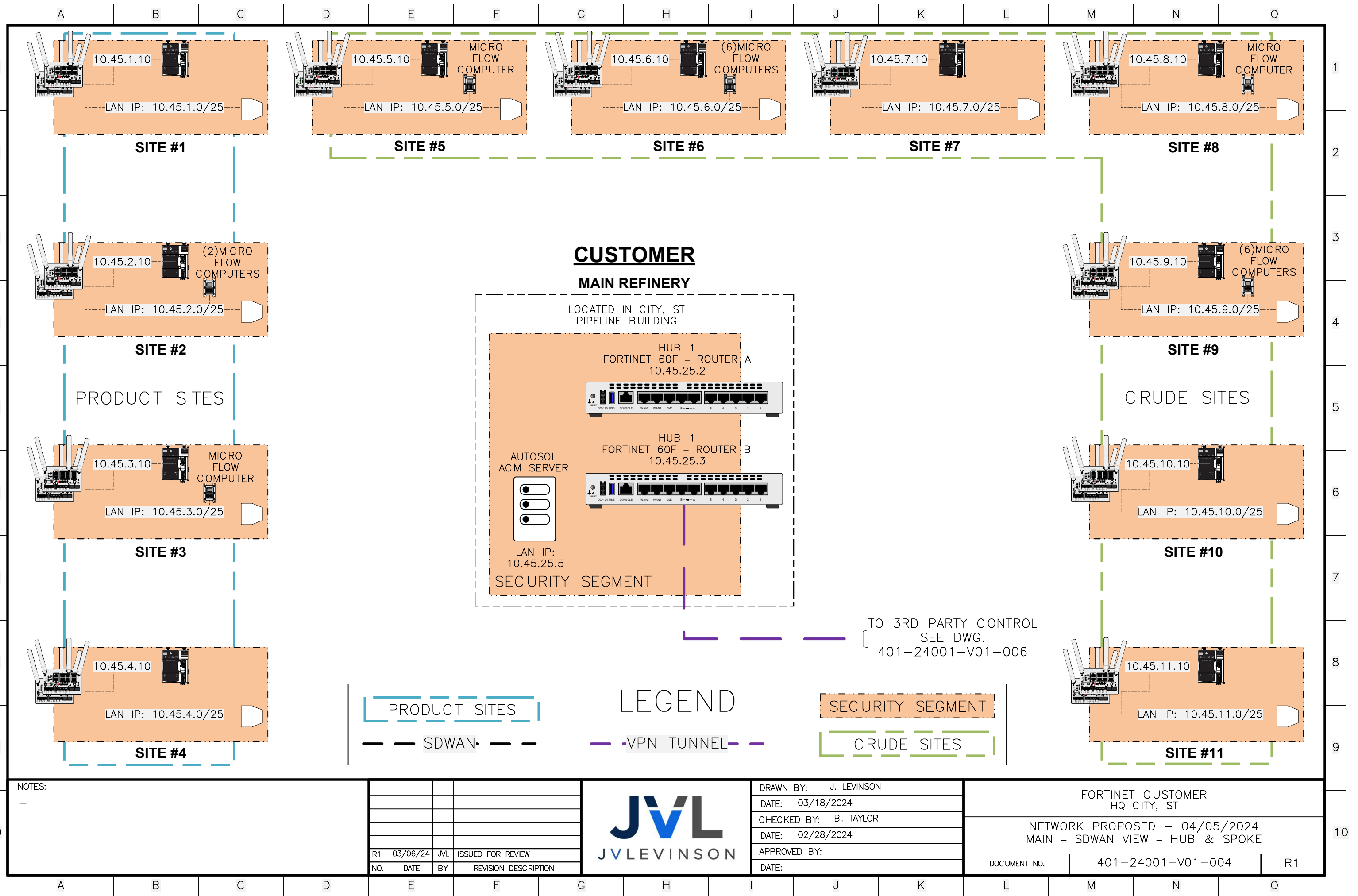
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DATE:	03/18/2024
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DATE:	02/28/2024
APPROVED BY:	
DATE:	

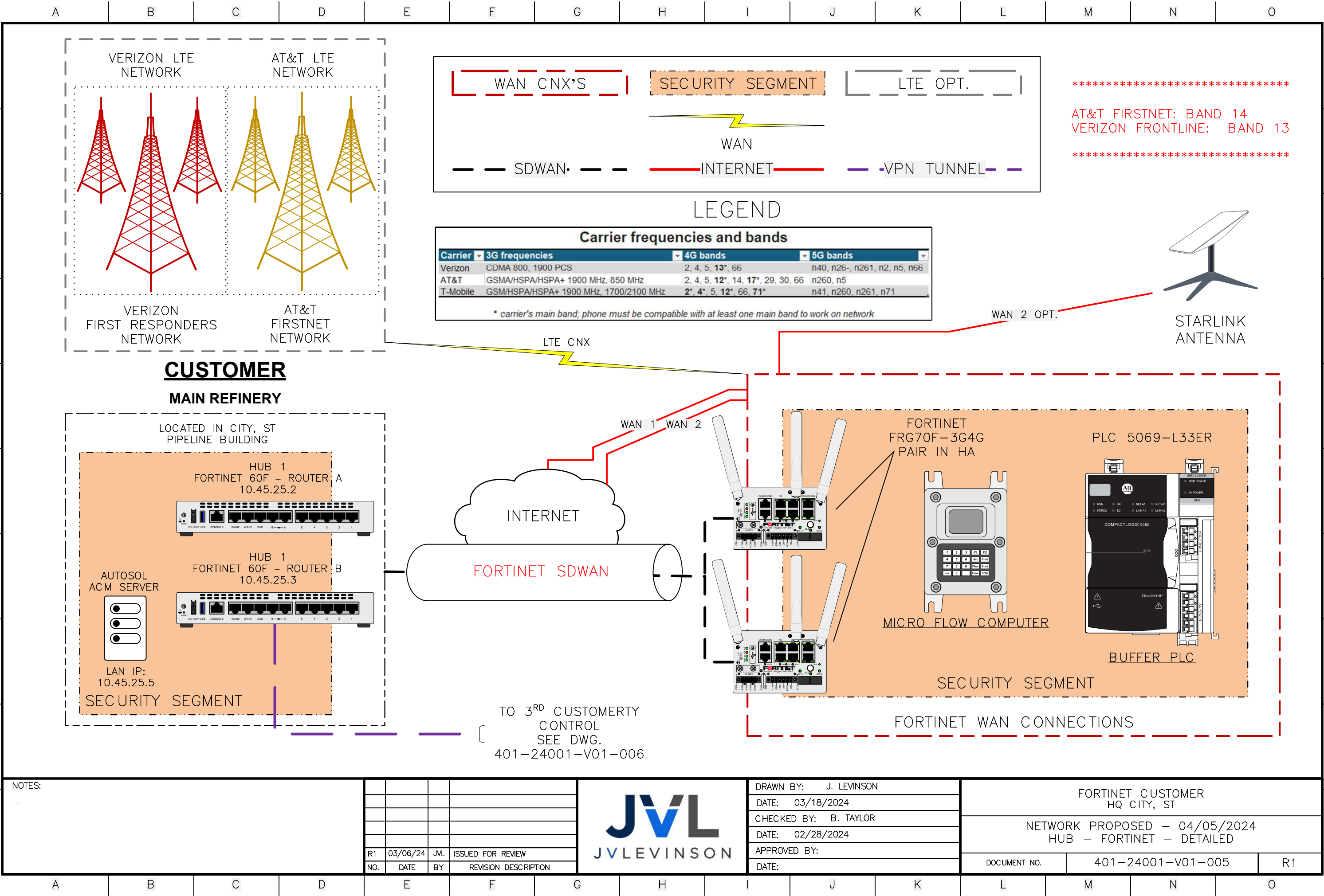
FORTINET CUSTOMER
HQ CITY, ST

NETWORK PROPOSED - 04/05/2024
SPOKE 3G4G - FORTINET - DETAILED

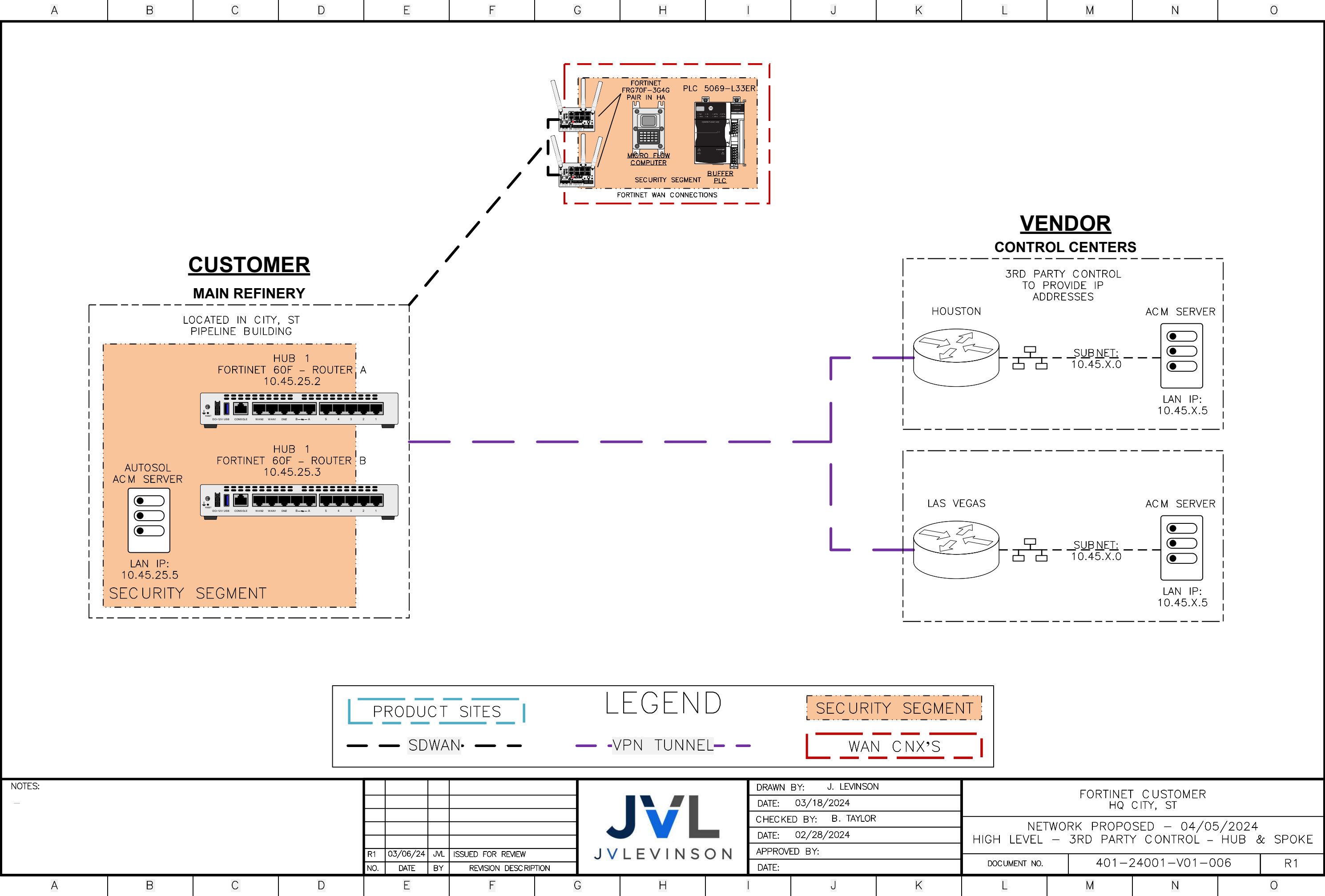
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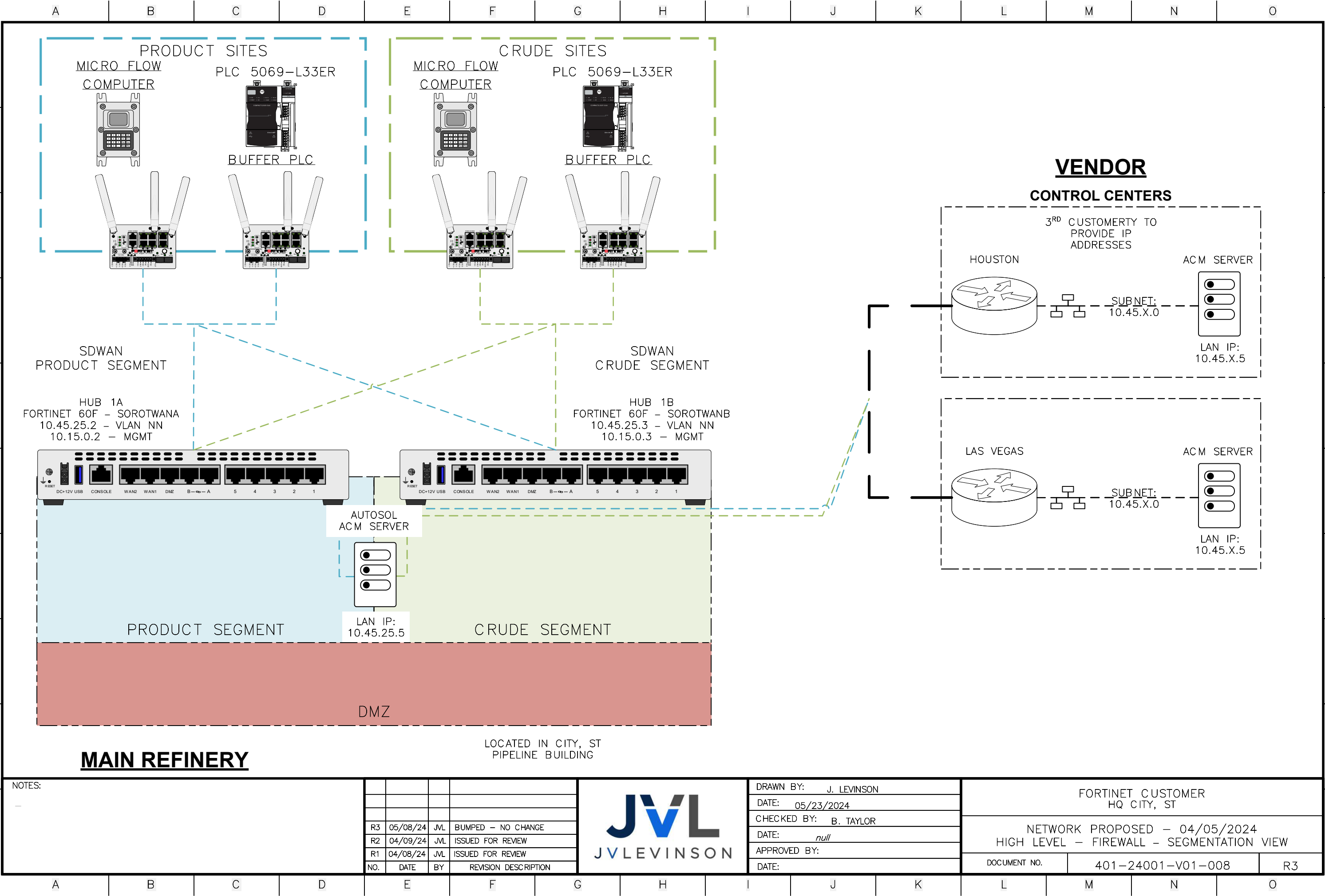


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						DATE: 03/18/2024			
						CHECKED BY: B. TAYLOR	NETWORK PROPOSED — 04/05/2024 HUB — FORTINET — DETAILED		
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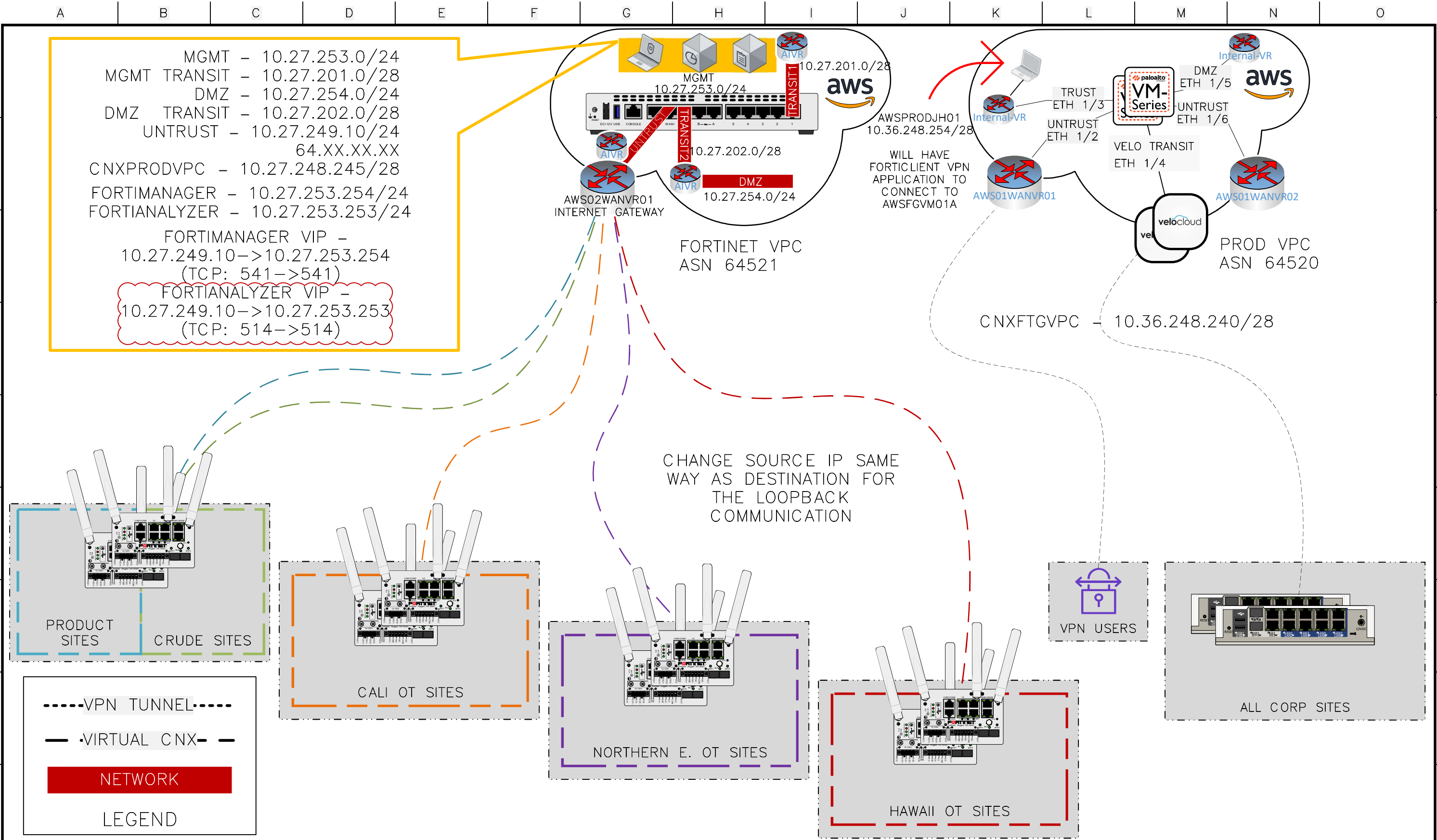


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						DATE:				
	R1	03/06/24	JVL	ISSUED FOR REVIEW		NETWORK PROPOSED – 04/05/2024				
	NO.	DATE	BY	REVISION DESCRIPTION		HIGH LEVEL – 3RD PARTY CONTROL – HUB & SPOKE				
						DOCUMENT NO.	401–24001–V01–006	R1		

PROJECT: SAMPLE-PIPE-001 FILE: OT DEPLOYMENT - REG. FORTINET DESIGN - GREENFIELD V1.2.VSDX BY: J. LEVINSON DATE: MAR 19, 2024



NOTES: —						DRAWN BY: J. LEVINSON	FORTINET CUSTOMER HQ CITY, ST		
						DATE: 05/23/2024			
						CHECKED BY: B. TAYLOR	NETWORK PROPOSED — 04/05/2024 HIGH LEVEL — FIREWALL — SEGMENTATION VIEW		
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R2	04/09/24	JVL	ISSUED FOR REVIEW						
R1	04/08/24	JVL	ISSUED FOR REVIEW						
	NO.	DATE	BY	REVISION DESCRIPTION					



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-				DATE: 05/30/2024				HQ CITY, ST			
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