



AMS

COLLEGE OF

MARIN

DDC

Dan Davis Communications

**INDIAN VALLEY CAMPUS
NETWORK CABLING IMPROVEMENTS FOR
SURVEILLANCES SYSTEM UPGRADES**

March 2, 2020

IVC 1. IVC ENTRANCE GATE - MARQUEE

IVC 1.1. At the Campus Entrance Marquee Sign install a new network surveillance camera and network access point.

IVC 1.1.1. Using the existing Unistrut frame on the back of the Marquee:

IVC 1.1.1.A. Install a Mini IDF, a NEMA-3R, 18x16x8-inch weatherproof enclosure with cooling fans.

IVC 1.1.1.B. Adjacent to the Mini IDF, install (1) 1^{1/2}" x 6-foot rigid conduit.

IVC 1.1.1.C. At the top of the conduit mount the network access point and below it, mount the network surveillance camera

IVC 1.1.1.D. Use a 3/4" watertight conduit to connect the Marquee to the NEMA enclosure.

IVC 1.1.1.E. Use a 3/4" watertight conduit to connect the NEMA enclosure to network access point and the network surveillance camera.

IVC 1.1.1.F. Inside the Marquee replace the transceiver with a 12-port network switch with SFP fiber modules.

IVC 1.1.1.G. Patch the switch into the LAN with a LC/LC 1-meter fiber patch cord

IVC 1.1.1.H. Route Cat6 copper patch cords from the switch to the network access point and surveillance camera.

IVC 1.1.1.I. Provide (2) additional LC/LC 1-meter SM patch cords

IVC 1.2. AMS provided equipment: None

IVC 1.3. Owner provided Equipment:

IVC 1.3.1. Ruckus Access point T310s

IVC 1.3.2. Mini IDF - NEMA--3R, 18x16x8-inch weatherproof enclosure with cooling fans.

IVC 1.3.3. Switch (12-port ICX7150), and SFP module (1G)

IVC 1.3.4. Note for IT/Network

IVC 1.3.4.A. Uplink with 1GB to MB BDF

IVC 1.3.4.B. Remove existing Media converter

IVC 1.3.5. Note for Electrician: NONE

IVC 1.3.6. Material Links:

IVC 1.3.6.A. <http://www.l-com.com/nema-enclosures-18x16x8-inch-120-vac-weatherproof-enclosure-with-cooling-fan>

IVC 1.3.6.B. <https://support.ruckuswireless.com/products/147-ruckus-t310s>

IVC 1.3.6.C. <https://www.ruckussecurity.com/ICX-7150-C12P.asp>

IVC 2. PARKING LOT 1 – NETWORK SURVEILLANCE CAMERA & AP

IVC 2.1. Parking LOT 1 Pay Station Mini IDF & Fiber Backbone.

IVC 2.1.1. Mount the Mini IDF, a NEMA-3R, 18x16x8-inch weatherproof enclosure with cooling fans, on a Unistrut frame on backside of the Pay Station.

IVC 2.1.2. Install a 2-inch nipple between the Pay Station and Mini IDF to provide access to the existing underground infrastructure and to provide a new network connection to the Pay Station.

IVC 2.1.1. Install (1) 12-strand SM Fiber cable from the MDF-102 in building 27 to the Mini IDF using the existing MM fiber cable as a pull string.

IVC 2.1.1.A. In the MDF-102.

IVC 2.1.1.A.a. Terminate all 12-strands with LC fusion splice connectors

IVC 2.1.1.A.b. House the terminated fibers in the existing fiber tray and snap the terminated connectors into a new 6-duplex LC adapter panel

IVC 2.1.1.B. In the Mini IDF.

IVC 2.1.1.B.a. Mount (1) small wall mount fiber tray

IVC 2.1.1.B.b. Terminate all 12-strands with LC fusion splice connectors and snap them in a new 6-duplex LC adapter panel.

IVC 2.1.1.B.c. House the terminated fibers in the new fiber tray

IVC 2.1.1.B.d. Mount a 12-port network switch with SFP fiber modules

IVC 2.1.1.B.e. Patch the network switch into the LAN.

IVC 2.1.1.B.f. Use Cat6 copper patch cords and patch the Pay Station and the (3) data cables installed at the top of the new Security Pole for the network equipment.

IVC 2.1.1.C. Provide (2) additional LC/LC 1-meter SM patch cords

IVC 2.2. Parking LOT 1 New Security Camera Pole.

IVC 2.2.1. Install a new 12-foot Security Camera Pole adjacent to the West entrance alcove of Building 27 and Parking LOT-1 Pay Station.

IVC 2.2.1.A. Install the network surveillance camera (camera) and access point (AP) at the top of the pole.

IVC 2.2.1.B. Just below the network equipment, install a 2-gang extra deep weatherproof pull box and run (1) ¾" watertight conduit to the camera and AP.

IVC 2.2.1.C. Near the bottom of the pole install a NEMA-3R 12x12x6-inch pull box.

IVC 2.2.1.D. Connect the two pull boxes with a 1" conduit.

IVC 2.2.1.E. Trench and install (1) 1.5" PVC conduit between the Security Camera Pole and last underground pull box feeding Parking LOT-1 Pay Station and back fill the trench upon completion.

IVC 2.2.2. Install (3) Cat6 OSP rated data cables from the Mini IDF to the 2-gang pull box below the network equipment.

IVC 2.2.2.A. Terminate both ends of the cables with Cat6 jacks.

IVC 2.2.2.A.a. Use Blue jacks for both ends of cable one

IVC 2.2.2.A.b. Use Orange jacks for both ends of cable two.

IVC 2.2.2.A.c. Use Green jacks for both ends of cable three.

IVC 2.2.2.B. In the Mini IDF

IVC 2.2.2.B.a. Snap the terminated jacks in to a 4-port (SMB) and attached to the back

IVC 2.2.2.C. In the 2-gang box leave the jacks free inside.

IVC 2.2.2.C.a. Use Cat6 patch cords to connect the camera and AP to the jacks

IVC 2.2.2.C.b. Use flag type labels to ID each cable.

IVC 2.2.2.D. Test the cables to current industry standards and label both ends with the approved location label and cable ID.

IVC 2.2.3. Use weatherproof or watertight rating for all pull box and conduit connections.

IVC 2.3. AMS provided equipment:

IVC 2.3.1. Network Camera

IVC 2.4. Owner provided equipment:

IVC 2.4.1. Providing and installing 12-foot Security Camera Pole.

IVC 2.4.2. Mini IDF, NEMA--3R, 18x16x8-inch weatherproof enclosure with cooling fans.

IVC 2.4.3. Note for IT/Network

IVC 2.4.3.A. Ruckus Access point T310d omni directional

IVC 2.4.3.B. Switch (12-port ICX7150), and SFP module (1G)

IVC 2.4.3.C. Uplink with 1GB to MB BDF

IVC 2.4.3.D. Remove existing Media converter

IVC 2.4.4. Note for Electrician:

IVC 2.4.4.A. Provide power to the NEMA-3R, 18x16x8-inch weatherproof box

IVC 2.4.5. Material Links:

IVC 2.4.5.A. <http://www.l-com.com/nema-enclosures-18x16x8-inch-120-vac-weatherproof-enclosure-with-cooling-fan>

IVC 2.4.5.B. <https://support.ruckuswireless.com/products/144-ruckus-t310d>

IVC 3. CAMPUS WAYFINDING DISPLAY - MAIN BUILDING, BLDING-27

IVC 3.1. Remove the Geothermal information sign outside of room MB-124, the Media Resource Center, and install (1) Campus Wayfinding Display (CWD).

IVC 3.1.1. Mount the CWD per ADA height requirements.

IVC 3.1.2. Install (1) 2-Cat6 cable AV location from IDF MB-128 to the new AV location behind the CWD.

IVC 3.1.3. Install the cable down the wall to a single gang cut-in and terminate both ends of each cable with purple Cat6 jacks.

IVC 3.1.4. Snap the terminated jacks into a white 2-port faceplate.

IVC 3.1.5. Test the cables to current industry standards

IVC 3.1.6. Label the Location following the current labeling scheme and cable I.D pattern.

IVC 3.2. AMS provided equipment: None

IVC 3.3. Owner provided Equipment:

IVC 3.3.1. All network equipment and copper patch cords.

IVC 3.3.2. Outdoor touchscreen TV and mount

IVC 3.3.3. Notes for Electrician:

IVC 3.3.3.A. A duplex electrical outlet behind the display.

IVC 4. PARKING LOT 3 CAMERA

IVC 4.1. Install Ubiquiti network bridge on west side of Main Building, Blding-27

IVC 4.1.1. Mount the Ubiquiti antenna in the upper left corner of the west outside wall of the Building.

IVC 4.1.2. Adjacent to the Ubiquiti antenna mount the NEMA-3R-12x12x6-inch enclosure.

IVC 4.1.2.A. Provide a 2" chase through the back of the enclosure into the ceiling space of MB-124, the Media Resource Center.

IVC 4.1.3. Inside the NEMA-3R-12x12x6-inch box, install (1) 3-Cat6 cable, Data location and home run the cables to MDF MB-128.

IVC 4.1.3.A. Terminate both ends with Cat6 jacks.

IVC 4.1.3.A.a. Cable one blue, cable two orange and cable three green.

IVC 4.1.3.B. At the snap the terminated jacks in a white surface mounted box and mount it inside the NEMA-3R-12x12x6-inch box.

IVC 4.1.4. In MDF MB-128

IVC 4.1.4.A. Snap the terminated jacks into the existing patch panel.

IVC 4.1.5. Test the cables to current industry standards

IVC 4.1.6. Label both ends following the current labeling scheme and cable I.D pattern

IVC 4.2. On the Solar Array #3 at the entrance to Parking Lot-2 install (1) surveillance camera and UBIQUITY network bridge

IVC 4.2.1. Mount the Ubiquiti antenna on the horizontal structural support so that it is facing Building 27.

IVC 4.2.2. Adjacent to the Ubiquiti antenna mount a NEMA-3R-12x12x6-inch enclosure to house the antenna's power supply and to make the network connections to the camera.

IVC 4.2.3. Install the network surveillance camera to cover the entrance of parking lot 2.

IVC 4.2.3.A. Run a ¾" liquid tight conduit between the enclosure and the camera and the antenna.

IVC 4.3. AMS provided equipment:

IVC 4.3.1. UBIQUITY network Equipment

IVC 4.3.2. network surveillance cameras

IVC 4.4. Owner provided equipment:

IVC 4.4.1. All Copper patch cords

IVC 4.4.2. Notes for IT:

IVC 4.4.2.A. Patch Ubiquity Uplink with 1GB copper link in the MDF, MB-128.

IVC 4.4.3. Note for Electrician:

IVC 4.4.3.A. Provide a 110V from under solar panel to the NEMA-3R-12x12x6-inch enclosure

IVC 4.4.4. Links:

IVC 4.4.4.A. <https://www.ui.com/products/#default>

IVC 5. MAIN BUS STOP - PARKING LOT 2

IVC 5.1. Installation of the Mini IDF

IVC 5.1.1. Locate the Mini IDF on West end of the bus stop, on the backside facing Building 11

IVC 5.1.2. Mount the IDF on a Unistrut frame

IVC 5.1.2.A. Inside, mount a 12-port network switch

IVC 5.1.2.B. Patch all network connections with Cat6 patch cords.

IVC 5.2. UBIQUITY Network Bridge

IVC 5.2.1. Adjacent to the IDF, mount the UBIQUITY network bridge line of site with the back stairs of Building 11.

IVC 5.2.1.A. Run (1) ¾" watertight conduit from the Mini IDF to the Ubiquity backbox for the, 1GB Ubiquity Uplink.

IVC 5.2.2. Mount the other side of Ubiquity Network Bridge on the back stairs of building 11. Blding 11, line of site of the bus stop.

IVC 5.2.2.A. Run (1) ¾" watertight conduit from the existing data location on the back stairs to the Ubiquity backbox for the, 1GB Ubiquity Uplink.

IVC 5.3. Surveillance camera.

IVC 5.3.1. Ceiling mount the camera in the upper west corner of the Bus Stop

IVC 5.3.2. Install (1) ¾" conduit to connect the camera to the IDF

IVC 5.3.3. Patch the camera into the network with a Cat6 patch cord run though the ¾" conduit.

IVC 5.4. Ruckus Access Point

IVC 5.4.1. Mount a 1.5-inch rigid galvanized conduit on the east end of the bus stop on backside facing the creek.

IVC 5.4.2. The conduit must rise 4-feet above the roof line of the bus stop

IVC 5.4.3. Pole mount the network access point at the top of the conduit

IVC 5.4.4. Connect the access point to the IDF with a ¾" conduit and homerun the 1-Cat6 cable to the IDF.

IVC 5.4.5. Terminate both ends with purple Cat6 jacks.

IVC 5.4.6. Patch the Access Point into the network with Cat6 patch cords.

IVC 5.5. Campus Wayfinding Display.

IVC 5.5.1. Install a Campus Wayfinding Display (CWD) on the east, inside wall of Bus Stop.

IVC 5.5.1.A. Mount the CWD per ADA height requirements.

IVC 5.5.1.B. Install (1) ¾" conduit from the CWD to the Mini IDF.

IVC 5.5.1.C. Install (1) 2-Cat6 cable, data location behind the CWD.

IVC 5.5.1.C.a. Home run the data cables from the CDW to the IDF.

IVC 5.5.1.C.b. Terminate both ends of the Cat6 cables with purple jacks

IVC 5.5.1.C.c. Patch the CWD into the network with Cat6 patch cords

IVC 5.6. Campus General Information Phone

IVC 5.6.1. Install (1) wall phone on the east, inside wall, of the Bus Stop, adjacent to the Campus Wayfinding Display.

IVC 5.6.2. Mount the wall phone backbox and phone per ADA requirements.

IVC 5.6.3. Tie the wall phone backbox to the IDF with a ¾" conduit.

IVC 5.6.4. Install (2) Cat6 data cable to the IDF in the ¾" conduit and terminate both ends with a black Cat 6 jack.

IVC 5.6.5. Patch the Wall Phone into the network with Cat6 patch cords.

IVC 5.7. Bus Stop data location.

IVC 5.7.1. Directly below the Wall Phone install (1) 3-Cat6 cable, data location.

IVC 5.7.2. Install a weatherproof single gang box 18" AFF

IVC 5.7.3. Connect the data location to the wall phone location with a ¾" conduit and homerun the 3-Cat6 cables to the IDF.

IVC 5.7.3.A. Terminate both ends with Cat6 jacks.

IVC 5.7.3.A.a. Cable one blue, cable two orange and cable three green.

IVC 5.8. Test all Cat6 cables to current industry standards.

IVC 5.9. Label all cabling, by following the current labeling scheme and cable I.D. pattern.

IVC 5.10. AMS provide equipment:

IVC 5.10.1. UBIQUITY network bridge,

IVC 5.10.2. network surveillance cameras

IVC 5.11. Owner provided equipment:

IVC 5.11.1. Mini IDF, NEMA--3R, 18x16x8-inch weatherproof enclosure with cooling fans.

IVC 5.11.2. Switch (12-port ICX7150), and SFP module

IVC 5.11.3. Ruckus Access Point T310d omni directional

IVC 5.11.4. Outdoor touchscreen TV and mount.

IVC 5.11.5. Viking outdoor telephone backbox VE-5X10-PNL-SS box &

IVC 5.11.6. Viking outdoor VoIP Phone, K-1900-8-IP-EWP

IVC 5.11.7. All Copper patch cords

IVC 5.11.8. Links:

IVC 5.11.8.A. Mini IDF - <http://www.l-com.com/nema-enclosures-18x16x8-inch-120-vac-weatherproof-enclosure-with-cooling-fan>

IVC 5.11.8.B. <https://www.vikingelectronics.com/products/k-1900-8-ip-ewp/>

IVC 5.11.8.C. <https://www.vikingelectronics.com/products/ve-5x10-pnl-ss/>

IVC 5.11.8.D. <https://www.vikingelectronics.com/product-categories/enhanced-weather-protection/>

IVC 5.11.8.E. <https://www.ui.com/products/#default>

IVC 5.11.9. Notes for Electrician:

IVC 5.11.9.A. Use power from an electrical pull-box behind the structure.

IVC 5.11.9.B. Add (1) Duplex electrical outlet behind the display.

IVC 5.11.9.C. Add (1) Duplex electrical outlet inside the Mini IDF.

IVC 6. BUILDING 10 – FIBER BACKBONE

IVC 6.1. Install (1) 12-strand SM fiber optic to the Campus MDF in Power Plant #3

IVC 6.1.1. Use the existing Campus underground infrastructure

IVC 6.1.2. Inside the IDF

- IVC 6.1.2.A. Terminate all 12-strands with LC fusion splice connectors
- IVC 6.1.2.B. House the terminated fibers in new 1-RU fiber enclosures and snap the terminated connectors into a new 6-duplex LC adapter panel
- IVC 6.1.2.C. Mount the new fiber tray in the top of the existing equipment racks.
- IVC 6.1.3. Inside the Campus MDF
 - IVC 6.1.3.A. Terminate all strands with LC fusion splice connectors.
 - IVC 6.1.3.B. House the terminated fibers in the existing 4-RU fiber enclosure and snap the terminated connectors into a new 6-duplex LC adapter panel.
- IVC 6.1.4. Provide bidirectional OTDR trace results verifying each strand meets current industry standards outlined in the TIA/EIA Family of Standards
- IVC 6.1.5. Label the new adapter panels on both ends as instructed by College IT Dept.
- IVC 6.1.6. Provide an additional (2) SM LC/LC, 1m patch cords.

IVC 6.2. AMS provided equipment: None

IVC 6.3. Owner provided equipment:

- IVC 6.3.1. 2x 10GB transceivers.
- IVC 6.3.2. Notes for IT:
 - IVC 6.3.2.A. Uplink a trunk in switch configuration with link aggregation
- IVC 6.3.3. Note for Electrician: None

IVC 7. BUILDING 11 – FIBER BACKBONE

IVC 7.1. Install (1) 12-strand SM fiber optic to the Campus MDF in Power Plant #3

- IVC 7.1.1. Use the existing Campus underground infrastructure
- IVC 7.1.2. Inside the IDF
 - IVC 7.1.2.A. Terminate all 12-strands with LC fusion splice connectors
 - IVC 7.1.2.B. House the terminated fibers in new 1-RU fiber enclosures and snap the terminated connectors into a new 6-duplex LC adapter panel
 - IVC 7.1.2.C. Mount the new fiber tray in the top of the existing equipment racks.
- IVC 7.1.3. Inside the Campus MDF
 - IVC 7.1.3.A. Terminate all strands with LC fusion splice connectors.
 - IVC 7.1.3.B. House the terminated fibers in the existing 4-RU fiber enclosure and snap the terminated connectors into a new 6-duplex LC adapter panel.
- IVC 7.1.4. Provide bidirectional OTDR trace results verifying each strand meets current industry standards outlined in the TIA/EIA Family of Standards
- IVC 7.1.5. Label the new adapter panels on both ends as instructed by College IT Dept.
- IVC 7.1.6. Provide an additional (2) SM LC/LC, 1m patch cords.

IVC 7.2. AMS provided equipment: None

IVC 7.3. Owner provided equipment:

- IVC 7.3.1. 2x 10GB transceivers.
- IVC 7.3.2. Notes for IT:

- IVC 7.3.2.A. Uplink a trunk in switch configuration with link aggregation
- IVC 7.3.3. Note for Electrician: None

IVC 8. BUILDING 8

IVC 8.1. Install (1) 12-strand SM fiber optic to the Campus MDF in Power Plant #3

- IVC 8.1.1. Use the existing Campus underground infrastructure 400'
- IVC 8.1.2. Inside the IDF
 - IVC 8.1.2.A. Terminate all 12-strands with LC fusion splice connectors
 - IVC 8.1.2.B. House the terminated fibers in new 1-RU fiber enclosures and snap the terminated connectors into a new 6-duplex LC adapter panel
 - IVC 8.1.2.C. Mount the new fiber tray in the top of the existing equipment racks.
- IVC 8.1.3. Inside the Campus MDF
 - IVC 8.1.3.A. Terminate all strands with LC fusion splice connectors.
 - IVC 8.1.3.B. House the terminated fibers in the existing 4-RU fiber enclosure and snap the terminated connectors into a new 6-duplex LC adapter panel.
- IVC 8.1.4. Provide bidirectional OTDR trace results verifying each strand meets current industry standards outlined in the TIA/EIA Family of Standards
- IVC 8.1.5. Label the new adapter panels on both ends as instructed by College IT Dept.
- IVC 8.1.6. Provide an additional (2) SM LC/LC, 1m patch cords.

IVC 8.2. Campus General Information Phone

- IVC 8.2.1. Install (1) wall phone in the old pay phone location in the walkway.
- IVC 8.2.2. Installation must comply with ADA requirements
 - IVC 8.2.2.A. Cover the existing wall penetration one of the following methods
 - IVC 8.2.2.A.a. Mount the wall phone backbox to cover existing wall penetration.
 - IVC 8.2.2.A.b. Mount the wall phone backbox per ADA requirements
 - 8.2.2.A.b.a. Cover the existing wall penetration with a weatherproof 2-gang box
 - 8.2.2.A.b.b. Connect the two boxes with $\frac{3}{4}$ " watertight conduit.
- IVC 8.2.3. Use the existing cable pathway and install (1), 2-Cat6 cable, data location.
 - IVC 8.2.3.A. Terminate both ends of each cable with black Cat6 jacks.
 - IVC 8.2.3.B. In the IDF snap the jacks in the existing patch panel.
 - IVC 8.2.3.C. In wall phone backbox leave the jacks loose with a flag label and patch the Wall Phone into the network with Cat6 patch cord

IVC 8.3. AMS provided equipment: None

IVC 8.4. Owner provided equipment:

- IVC 8.4.1. All copper patch cords
- IVC 8.4.2. 2x 10GB transceivers.
- IVC 8.4.3. Viking outdoor telephone backbox VE-5X10-PNL-SS box &
- IVC 8.4.4. Viking outdoor VoIP Phone, K-1900-8-IP-EWP
- IVC 8.4.5. Notes for IT:

- IVC 8.4.5.A. Uplink a trunk in switch configuration with link aggregation
- IVC 8.4.6. Note for Electrician: None
- IVC 8.4.7. Links:
 - IVC 8.4.7.A. <https://www.vikingelectronics.com/products/k-1900-8-ip-ewp/>
 - IVC 8.4.7.B. <https://www.vikingelectronics.com/products/ve-5x10-pnl-ss/>
 - IVC 8.4.7.C. <https://www.vikingelectronics.com/product-categories/enhanced-weather-protection/>

IVC 9. PARKING LOT 6

IVC 9.1. High-voltage fenced area in Parking LOT-6.

- IVC 9.1.1. Inside the fence area, reinforce the existing Unistrut frame and prepare it to support and mount the new Mini IDF and the new Security Pole.

IVC 9.2. The new 15-foot Security Pole

- IVC 9.2.1. Mount a 1^{1/2}" x 15-foot high rigid galvanized conduit to the Unistrut frame.
- IVC 9.2.2. On or close to the top of the Security pole mount the network Camera and 5' below the camera mount the Ruckus Access point and then 3' below the access point mount a 2-gang extra deep weatherproof box.
- IVC 9.2.3. Install a 3/4" watertight conduit from the camera backbox daisy chaining through access point backbox to the 2-gang extra deep weatherproof box and then down to the Mini IDF.
- IVC 9.2.4. Trench and install (1) 1.5" PVC conduit between the Mini IDF the closest underground pull box and back fill the trench upon completion.

IVC 9.3. Installation of the Mini IDF

- IVC 9.3.1. Locate the Mini IDF adjacent to the security pole on the Unistrut frame
- IVC 9.3.2. Install (1) 12-strand SM Fiber cable to the IDF in Bldg 28.
 - IVC 9.3.2.A. In Bldg 28-A IDF.
 - IVC 9.3.2.A.a. Terminate all 12-strands with LC fusion splice connectors
 - IVC 9.3.2.A.b. House the terminated fibers in the existing fiber tray and snap the terminated connectors into a new 6-duplex LC adapter panel
 - IVC 9.3.2.A.c. Use a LC/LC 1-meter fiber patch cord to patch through the Bldg 28 IDF to Power Plant #3.
 - IVC 9.3.2.B. In the Mini IDF.
 - IVC 9.3.2.B.a. Mount (1) small wall mount fiber tray
 - 9.3.2.B.a.a. Terminate all 12-strands with LC fusion splice connectors and snap them in a new 6-duplex LC adapter panel.
 - 9.3.2.B.a.b. House the terminated fibers in the new fiber tray
 - IVC 9.3.2.B.b. Mount a 12-port network switch with SFP fiber module.
 - IVC 9.3.2.B.c. Use Cat6 copper patch cords to patch all equipment into the network
- IVC 9.3.3. Install (3) Cat6 OSP rated data cables from the Mini IDF to the 2-gang pull box below the network equipment.
 - IVC 9.3.3.A. Terminate both ends of the cables with Cat6 jacks.

IVC 9.3.3.A.a. Use Blue jacks for both ends of cable one

IVC 9.3.3.A.b. Use Orange jacks for both ends of cable two.

IVC 9.3.3.A.c. Use Green jacks for both ends of cable three.

IVC 9.3.3.B. In the Mini IDF

IVC 9.3.3.B.a. Snap the terminated jacks in to a 4-port (SMB) attached inside the IDF.

IVC 9.3.3.C. In the 2-gang box,

IVC 9.3.3.C.a. Leave the terminated jacks free and label each cable with a flag label.

IVC 9.3.3.C.b. Use Cat6 patch cords through the watertight conduit to connect the camera and AP into the network.

IVC 9.3.4. Test the cables to current industry standards and label both ends with the approved location label and cable ID.

IVC 9.3.5. Use weatherproof or watertight rated for all conduit connections.

IVC 9.4. Provide (6) LC/LC 1-meter SM patch cords

IVC 9.5. AMS provided equipment:

IVC 9.5.1. Network Surveillance Cameras

IVC 9.6. Owner provided Equipment:

IVC 9.6.1. Ruckus Access point T310d omni

IVC 9.6.2. Mini IDF - NEMA--3R, 18x16x8-inch weatherproof enclosure with cooling fans.

IVC 9.6.3. Switch (12-port ICX7150), and 2x 10GB SFP modules

IVC 9.6.4. All copper patch cords

IVC 9.6.5. Note for IT/Network

IVC 9.6.5.A. uplink a trunk in switch configuration with link aggregation

IVC 9.6.6. Note for Electrician:

IVC 9.6.6.A. Prove power for the Mini IDF.

IVC 9.6.7. Material Links:

IVC 9.6.7.A. <http://www.l-com.com/nema-enclosures-18x16x8-inch-120-vac-weatherproof-enclosure-with-cooling-fan>

IVC 9.6.7.B. <https://support.ruckuswireless.com/products/144-ruckus-t310d#documents>

IVC 9.6.7.C. <https://www.ruckussecurity.com/ICX-7150-C12P>

IVC 10. ORGANIC FARM BUILDINGS

IVC 10.1. Building 28- A,

IVC 10.1.1. On the Northwest corner of Building 28-A install a Network camera and network access point using the existing camera and outside access point data locations.

IVC 10.2. Building 28-C

IVC 10.2.1. On the Northwest corner of Building 28-C install a Network camera and between the staff office doors facing the greenhouse install a network access point using the existing camera and outside access point data locations.

IVC 10.3. Patch each camera and access point with Cat6 patch cords at the location and in the IDF.

IVC 10.4. AMS provided equipment:

IVC 10.4.1. Network Surveillance Cameras

IVC 10.5. Owner provided Equipment:

IVC 10.5.1. 2x Ruckus Access point T310d

IVC 10.5.2. 2x 10GB SFP modules

IVC 10.5.3. Notes for IT:

IVC 10.5.3.A. uplink a trunk in switch configuration with link aggregation

IVC 10.5.4. Note for Electrician: None

IVC 11. BUILDING 24-BALL FIELD

IVC 11.1. High-power Ubiquiti antenna

IVC 11.1.1. On the southeast corner of Building 24 mount the Ubiquiti antenna inline of site to ball field bathroom area.

IVC 11.2. Install a data location for the Ubiquiti Antenna

IVC 11.2.1. Install (1) 3-Cat6 OSP rated data cables from the Ubiquiti antenna backbox to the IDF in Building 28-A

IVC 11.2.1.A. Penetrate the wall behind the backbox and route the cables through the back of the backbox, inside building 24 to the entrance of the existing underground leading to the IDF in Building 28A. DO NOT USE the IDF in Building 24.

IVC 11.2.1.B. Terminate both ends of the cables with Cat6 jacks.

IVC 11.2.1.B.a. Use Blue jacks for both ends of cable one

IVC 11.2.1.B.b. Use Orange jacks for both ends of cable two.

IVC 11.2.2. Patch the Ubiquiti equipment into the network with Cat6 patch cords.

IVC 11.2.3. Test the cables to current industry standards and label both ends with the approved location label and cable ID.

IVC 11.3. AMS provided equipment:

IVC 11.3.1. UBIQUITY network equipment

IVC 11.3.2. Network Surveillance Cameras

IVC 11.4. Owner provided Equipment:

IVC 11.4.1. All copper patch cords

IVC 12. BALL FIELDS,

IVC 12.1. Installation of the Mini IDF

IVC 12.1.1. Locate the new Mini IDF inside existing pump shed adjacent to the bathrooms.

IVC 12.1.1.A. Install a Unistrut frame inside the pump shed to support the Security pole and the Mini IDF.

IVC 12.1.1.B. Mount the Mini IDF on the Unistrut frame.

IVC 12.1.1.C. Adjacent to the Mini IDF install (1) 1^{1/2}" rigid conduit.

IVC 12.1.1.C.a. The conduit should penetrate the roof through a roof-jack and extend above the roof 6-feet and shall be capped and made weather tight.

IVC 12.1.1.D. Pole mount the access point, camera and a High-Powered Ubiquity Antenna.

IVC 12.1.1.D.a. Mount the access point at the top of the conduit.

IVC 12.1.1.D.b. Mount the Network Camera 12-inches below the Access point and orientate the camera to provide surveillance coverage of the pathways between the bathrooms and the ball field backstops.

IVC 12.1.1.D.c. Mount the High-Powered Ubiquity Antenna just above the roof in line of site Building 24.

IVC 12.1.1.E. Make direct network connection to the network switch by using 20-foot Cat6 patch cords.

IVC 12.1.1.F. Route the patch cords through the back of each backbox into the 1.5" conduit, down the conduit to the Mini IDF.

IVC 12.1.1.G. Mount a 12-port network switch.

IVC 12.2. AMS provided equipment:

IVC 12.2.1. UBIQUITY network equipment

IVC 12.2.2. Network Surveillance Cameras

IVC 12.3. Owner provided Equipment:

IVC 12.3.1. Ruckus Access point T310s

IVC 12.3.2. Mini IDF - NEMA--3R, 18x16x8-inch weatherproof enclosure with cooling fans.

IVC 12.3.3. Switch (12-port ICX7150), and SFP module (1G)

IVC 12.3.4. Note for IT/Network

IVC 12.3.4.A. Uplink a trunk in switch configuration with link aggregation (1GB)

IVC 12.3.5. Note for Electrician:

IVC 12.3.5.A. Provide power for the Mini IDF

IVC 12.4. Material Links:

IVC 12.4.1.A. <http://www.l-com.com/nema-enclosures-18x16x8-inch-120-vac-weatherproof-enclosure-with-cooling-fan>

IVC 12.4.1.B. <https://support.ruckuswireless.com/products/147-ruckus-t310s>

IVC 13. BUILDING 21 – LOCKER SHOWER POOL OFFICE

IVC 13.1. General Information Phone

IVC 13.1.1. Install (1) wall phone in the existing pay phone location outside the Pool Office.

IVC 13.1.1.A. Installation must comply with ADA requirements

IVC 13.1.1.B. Cover the existing wall penetration one of the following methods

IVC 13.1.1.B.a. Mount the wall phone backbox to cover existing wall penetration.

IVC 13.1.1.B.b. Mount the wall phone backbox per ADA requirements

13.1.1.B.b.a. Cover the existing wall penetration with a weatherproof 2-gang box

13.1.1.B.b.b. Connect the two boxes with ¾" watertight conduit.

- IVC 13.1.2. Use the existing cable pathway and install (1), 2-Cat6 cable, data location.
 - IVC 13.1.2.A. Terminate both ends of each cable with black Cat6 jacks.
 - IVC 13.1.2.B. In the IDF snap the jacks in the existing patch panel.
 - IVC 13.1.2.C. In wall phone backbox leave the jacks loose with a flag label and patch the Wall Phone into the network with Cat6 patch cord

IVC 13.2. Surveillance camera.

- IVC 13.2.1. Wall mount the camera on the east outside wall of Building 21 centered with the pool.
- IVC 13.2.2. Surface mount (1) ¾" conduit from the camera backbox to the IDF in room 133.
- IVC 13.2.3. Install (1), 2-Cat6 cable, data location.
 - IVC 13.2.3.A. Terminate both ends of each cable with Yellow Cat6 jacks.
- IVC 13.2.4. In the IDF snap the jacks in the existing patch panel
- IVC 13.2.5. At the camera backbox leave the jacks loose with a flag label and patch the camera into the network with a short Cat6 patch cord.

IVC 13.3. AMS provided equipment:

- IVC 13.3.1. Network Surveillance Cameras

IVC 13.4. Owner provided equipment:

- IVC 13.4.1. Viking outdoor telephone backbox VE-5X10-PNL-SS box &
- IVC 13.4.2. Viking outdoor VoIP Phone, K-1900-8-IP-EWP
- IVC 13.4.3. Notes for IT:
 - IVC 13.4.3.A. All copper patch cords
- IVC 13.4.4. Note for Electrician: None
- IVC 13.4.5. Links:
 - IVC 13.4.5.A. <https://www.vikingelectronics.com/products/k-1900-8-ip-ewp/>
 - IVC 13.4.5.B. <https://www.vikingelectronics.com/products/ve-5x10-pnl-ss/>
 - IVC 13.4.5.C. <https://www.vikingelectronics.com/product-categories/enhanced-weather-protection/>

IVC 14. BUILDING 6

IVC 14.1. Surveillance camera.

- IVC 14.1.1. Locate the camera midway between building 3 and 6 under the breezeway, surface mounted to the bottom side of the exposed support beam
- IVC 14.1.2. Install (1) ¾" conduit from the camera backbox to accessible ceiling space inside building 6, once inside, use existing cable pathways to the IDF.
- IVC 14.1.3. Install (1), 2-Cat6 cable, data location.
 - IVC 14.1.3.A. Terminate both ends of each cable with Yellow Cat6 jacks.
- IVC 14.1.4. In the IDF snap the jacks in the existing patch panel

IVC 14.1.5. It the camera backbox leave the jacks loose with a flag labels and patch the camera into the network with a short Cat6 patch cord.

IVC 14.2. Ruckus Access Point

IVC 14.2.1. Ceiling mount the access point on the 2nd floor breezeway between building 3 and 6 outside the elevator door.

IVC 14.2.2. Install (1) ¾" conduit from the access point backbox to accessible ceiling space inside building 6, once inside, use existing cable pathways to the IDF

IVC 14.2.3. Install (1), 2-Cat6 cable, data location.

IVC 14.2.3.A. Terminate both ends of each cable with Purple Cat6 jacks.

IVC 14.2.3.B. In the IDF snap the jacks in the existing patch panel

IVC 14.2.3.C. At the Access point backbox leave the jacks loose with a flag label and patch the access point into the network with a short Cat6 patch cord.

IVC 14.3. Repair 48-strand SM Fiber Backbone to Power Plant #3

IVC 14.3.1. Cleanout and prep the damage fiber caused by the rates.

IVC 14.3.2. Re-terminate all 48-stands with LC fusion splice-on connectors.

IVC 14.3.3. Snap the terminated connectors into new 12-duplex LC adapter panels and house the adapter panel in the existing fiber trays

IVC 14.3.4. Re-terminate all 48 strands in Power Plant #3 with LC fusion-on Connectors

IVC 14.3.5. Snap the terminated connectors into new 12-duplex LC adapter panels and house the adapter panel in the existing fiber trays

IVC 14.3.6. Provide bidirectional OTDR trace results verifying each strand meets current industry standards outlined in the TIA/EIA Family of Standards

IVC 14.3.7. Label the new adapter panels with the existing labels.

IVC 14.3.8. Provide an additional (8) SM LC/LC, 2m patch cords.

IVC 14.4. AMS provided equipment:

IVC 14.4.1. Network Surveillance Cameras

IVC 14.5. Owner provided Equipment:

IVC 14.5.1. Ruckus Access point

IVC 14.5.2. 2x 10GB SFP modules

IVC 14.5.3. Notes for IT:

IVC 14.5.3.A. uplink a trunk in switch configuration with link aggregation

IVC 14.5.4. Note for Electrician: None

IVC 15. BUILDING 5

IVC 15.1. General Information Phone

IVC 15.1.1. Install (1) wall phone in the existing pay phone location.

IVC 15.1.1.A. Installation must comply with ADA requirements

IVC 15.1.1.B. Cover the existing wall penetration one of the following methods

IVC 15.1.1.B.a. Mount the wall phone backbox to cover existing wall penetration.

IVC 15.1.1.B.b. Mount the wall phone backbox per ADA requirements

15.1.1.B.b.a. Cover the existing wall penetration with a weatherproof 2-gang box

15.1.1.B.b.b. Connect the two boxes with $\frac{3}{4}$ " watertight conduit.

IVC 15.1.2. Use the existing cable pathway and install (1), 2-Cat6 cable, data location.

IVC 15.1.2.A. Terminate both ends of each cable with black Cat6 jacks.

IVC 15.1.2.B. In the IDF snap the jacks in the existing patch panel.

IVC 15.1.2.C. In wall phone backbox leave the jacks loose with a flag label and patch the Wall Phone into the network with Cat6 patch cord

IVC 15.2. AMS provided equipment: None

IVC 15.3. Owner provided equipment:

IVC 15.3.1. Viking outdoor telephone backbox VE-5X10-PNL-SS box &

IVC 15.3.2. Viking outdoor VoIP Phone, K-1900-8-IP-EWP

IVC 15.3.3. Notes for IT:

IVC 15.3.3.A. All Copper patch cords

IVC 15.3.4. Note for Electrician: None

IVC 15.3.5. Links:

IVC 15.3.5.A. <https://www.vikingelectronics.com/products/k-1900-8-ip-ewp/>

IVC 15.3.5.B. <https://www.vikingelectronics.com/products/ve-5x10-pnl-ss/>

IVC 15.3.5.C. <https://www.vikingelectronics.com/product-categories/enhanced-weather-protection/>