



## **ADDENDUM 1 – BID PACKAGE 2 PHASE B, C, D**

**DATE:** January 7, 2022 **M2 PROJECT #:** 201001

**PROJECT:** Greater Peoria Mass Transit

**OWNER:** GPMTD/ Citylink  
2105 N E Jefferson Ave, Peoria, IL

**DATE OF ISSUE:** December 13, 2021

**CONTRACTOR:** RIVER CITY CONSTRUCTION CO. (Construction Manager at Risk)  
101 Hoffer Ln  
East Peoria, IL 61611

**ADDENDUM 1 – ISSUED FOR CHANGES to the following:**

### **A. DRAWINGS – GENERAL:**

1. Drawing G1-001 revised for Title: Issued for Addendum 1
2. Drawing G-002 revised for Sheet Index issued in Bid Package 2 - Addendum 1

### **B. COMMUNICATIONS DRAWINGS**

1. COM-000:

Under COMMUNICATIONS & SPECIAL SYSTEM SYMBOL LIST - Modified Wireless Access Point notes to reflect that APs will be provided by contractor (furnished and installed).

Added section TELECOMMUNICATIONS NETWORK ELECTROINCS NOTES – Contractor shall now provide network electronics (switches) as shown.

2. COM-101

Modified location of the surveillance cabinet.

Added keynote and keynote reference 8 for additional information about light-pole mounted cameras.

Keynote 2 updated to reflect that there will not be a need for dedicated camera poles.

3. COM-201

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Updated details 1,2,3,4, and 5. Room 213 was changed and made larger from bid drawings. Room layouts and rack elevations have been updated to reflect new equipment specifications.

Added keynotes 42-50.

Updated keynotes 1 and 14. Contractor now provides network switches, updated equipment cabinet keynote (previously specified a standard relay-type rack).

4. COM-401

Updated general note 11 to reflect that contractor provides network switches.

5. COM-402

Updated general note 4 to reflect that contractor provides network switches.

6. COM-501

Updated camera schedule to reflect new parking lot camera specifications.

7. COM-601

Updated detail 6 TELECOMMUNICATIONS GROUNDING RISER DIAGRAM AND BUSBAR DETAIL to reflect ground bus IDs.

8. COM-602

Updated detail 7 CAMERA MOUNT DETAIL – POLE-MOUNTED CAMERA to reflect cameras being installed onto light poles rather than on dedicated camera poles.

9. COM-603

Updated detail 1 EQUIPMENT OUTLET FOR WIRELESS ACCESS POINTS DETAIL to reflect that contractor is furnishing and installing WAPs.

**C. COMMUNICATIONS – Division 27 and Division 28 Specifications:**

**Specification section 27 13 43 – Communications Services Cabling**

- Updated 1.3F. Clarified which patching is to be performed by contractor.
- 2.7C. Clarified "flat" style Modular Patch Panel.

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- 2.8C. Add requirement for NEMA 4 rating for South Building Cabinet.
  - 2.8I.1. Add requirement for additional cooling measures for South Building Cabinet.
  - 2.11. Removed section in its entirety "EQUIPMENT RACK – FREE-STANDING 2-POST".
  - 2.12. Updated several requirements for the Equipment Cabinets.
  - 2.13. Clarified section such that horizontal PDU shall be installed only in wall-mounted equipment cabinets.
  - 2.14. Added new section covering Vertical PDUs.
  - 2.18A. Clarified that AP is no longer furnished by Owner.
  - 3.9.D.4. Corrected formatting error

#### **Specification section 27 16 19 – Communications Patch Cords, Work Area Cords, and Cross-Connect Wire**

- Updated 2.1.B to reflect owner request for "slim" style patch cords at cross-connect.
- 3.1.C Added section to clarify Contractor and Owner responsibilities for patch cord installations.
- 3.2.A. Updated several lengths and quantities of patch cords for contractor to use for bidding purposes.

#### **Specification section 28 23 00 – Video Surveillance System**

- 2.10 – Added and edited language to UPS section to clarify requirements and to distinguish between free-standing UPS and rack-mounted UPS for the two main telecom rooms in Admin.
- 2.15 – Deleted section CAMERA POLE in its entirety. Parking lot cameras will now be mounted to light poles.

#### **D. PROCUREMENT MANUAL:**

1. Section 002000 – Change "Alternate" to Attachment for Items 3. – 7.
2. Section 002000 – Information Available to Bidders – Header has been updated.
3. Section 002100 – Buy America – Header has been Updated.
4. Section 002200 – Disadvantaged Business Enterprise Participation – Header has been updated.
5. Section 002300 – State of Illinois Mandatory Sexual Harassment Training – Header has been updated.
6. Section 002400 - State of Illinois & Federal Third-Party Clauses – Header has been updated.
7. Owner Signature Sheets – Header has been updated.
8. QUESTION: Are Non-Union Companies able to bid on this project?  
ANSWER: Yes, Non-Union Companies are able to bid on this Federally Funded Project. However, prevailing wage and certified payroll will be required to be submitted on a monthly basis.

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**E. SCOPE CLARIFICATIONS:**

**3.1 BUILDING CONCRETE & CAST IN PLACE RETAINING WALL:**

1. This Bid Package has been renamed to "3.1 Building Concrete & Cast In Place Retaining Wall".
2. This Contractor is responsible for the retaining wall in lieu of the 32.1 Site Concrete Paving Contractor.

**6.1 GENERAL WORKS:**

1. This Bid Package is required to furnish and install the retaining wall protection bumpers per detail #4 on drawing C1-501.

**13.1 METAL FRAMED BUILDING SYSTEMS:**

1. Clarification – "Coordinate with the 5.1 Structural Steel Contract – Hanley Steel for the anchor bolt shop drawings, they can provide the correct quantity for the 3.1 Building Concrete & Cast in Place Retaining Wall Contractor to install.

**31.1 EARTHWORK / EXCAVATION / SITE DEMOLITION:**

1. This contractor is required to set up and maintain the erosion control measures and SWPPP reporting until bid package work is completed and equipment demobilizes from site. Confirm work is complete with the Construction Manager prior to demobilizations.

**32.1 SITE CONCRETE PAVING:**

1. This Bid Package has been renamed to "32.1 Site Concrete Paving".
2. The Site Paving Demolition has been moved in its entirety to the 31.1 Earthwork / Excavation/ Site Demolition Package.
3. The Retaining Wall Concrete has been moved to the 3.1 Building Concrete & Cast In Place Retaining Wall Package.
4. This Contractor is responsible for all furnish and installation of pervious pavers and base under the pavers.

**32.2 ASPHALT PAVING:**

1. 32.2 Asphalt Package will be added to the Individual Work Categories as a separate bid package.
2. A defined scope will be issued in the next Addendum.

**F. CONTRACT CLARIFICATIONS:**

1. In the subcontract with River City Construction, the change order percentage (%) rate is as follows:
  - a. A direct subcontractor (1 tier) to RCC has a 15% overhead and profit.
  - b. A direct subcontractor that has a subcontractor to them (2 tier) the 15% overhead and profit is divided as follows:
    - i. Direct (1<sup>st</sup> tier) Subcontractor – 10%

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ii. Subcontractor Sub (2<sup>nd</sup> tier) – 5%

**G. ATTACHMENTS:**

1. See Attached PDF Drawings for Addendum 1
2. See Attached PDF Communications Specifications
3. Pre-Bid Meeting Agenda
4. Pre-Bid Meeting Presentation
5. Pre-Bid Meeting Sign In
6. Section 002000 – Information Available to Bidders
7. Section 002100 – Buy America
8. Section 002200 – Disadvantaged Business Enterprise Participation
9. Section 002300 – State of Illinois Mandatory Sexual Harassment Training
10. Section 002400 – State of Illinois & Federal Third-Party Clauses
11. Owner Signature Sheets
12. Section 003100 – Bid Form
13. See Attached Substitution Request Form

**END OF ADDENDUM 1 – BID PKG 2 SUMMARY**

DIST: Adrian Fernandez, Civil Engineering, Infrastructure Engineering Inc.  
Nirav Patel, Thomas Schilling, MEP Engineering, Clark Dietz  
Robert Raabe, Terry Lindsay, Lindsay and Associates

Prepared By: **VIJAY HUDOCK/ BROOK SAE-CHUA**  
**PROJECT ARCHITECT, MULLER 2**

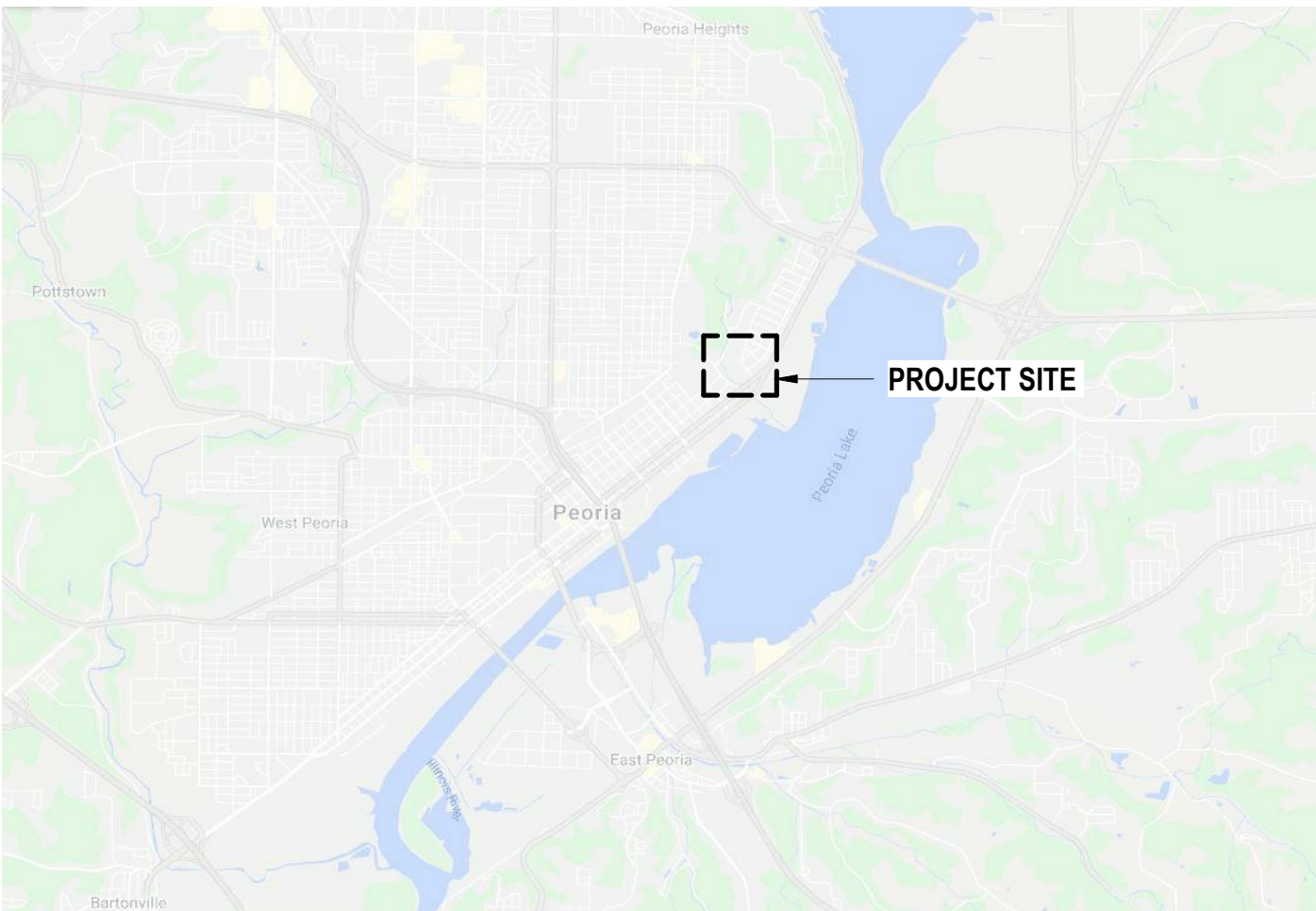


# GPMTD CITYLINK NEW MAINTENANCE FACILITY & RENOVATION: PHASES B, C & D

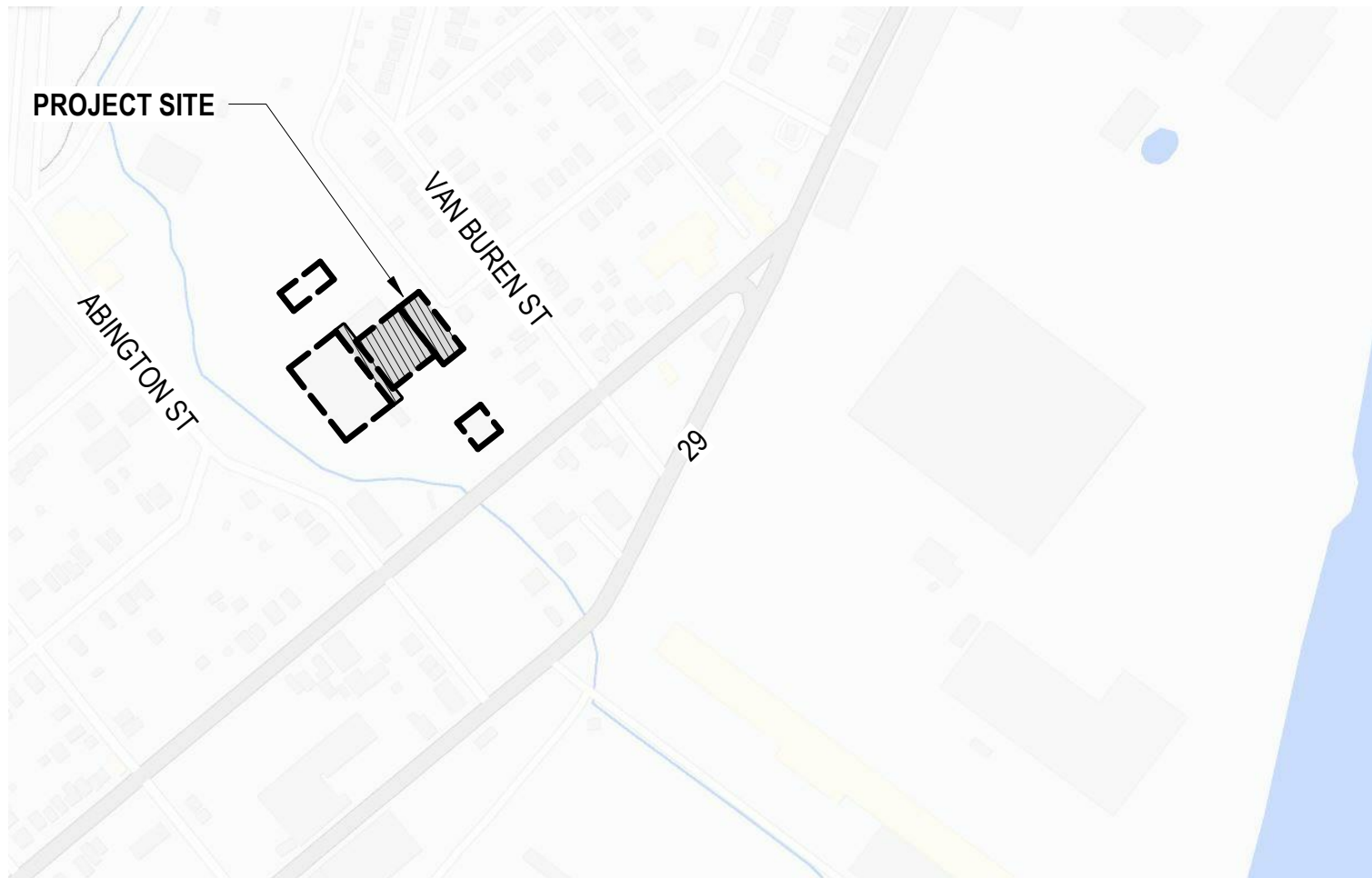
2105 NE JEFFERSON ST  
PEORIA, IL 61603

ISSUED FOR BID PACKAGE 2 - ADDENDUM 1

LOCATION MAP: 



SITE MAP: 



## SCOPE OF WORK

**PHASE B**  
DEMOLITION OF EXISTING NORTH MAINTENANCE GARAGE.  
CONSTRUCTION OF NEW THREE STORIES ADMINISTRATIVE BUILDING AND ONE STORY MAINTENANCE GARAGE. WORKS INCLUDE ARCHTURAL AND ASSOCIATED CIVIL, LANDSCAPE, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, FIRE PROTECTION, AND COMMUNICATION.

**PHASE C**  
RENOVATION OF EXISTING ONE STORY SOUTH GARAGE. WORKS REPLACEMENT OF EXISTING EXTERIOR WALL PANELS, EXTERIOR DOORS, AND ROOF PANELS. INCLUDING ASSOCIATED CIVIL, MECHANICAL, PLUMBING, ELECTRICAL, FIRE PROTECTION, AND COMMUNICATION.

**PHASE D**  
CONSTRUCTION OF NEW ANNEX GARAGE.  
CONSTRUCTION OF NEW ONE STORY ANNEX GARAGE. WORKS INCLUDE ARCHTURAL AND ASSOCIATED CIVIL, LANDSCAPE, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, FIRE PROTECTION, AND COMMUNICATION.

Project  
GPMTD CITYLINK  
NEW MAINTENANCE  
FACILITY & RENOVATION:  
PHASES B, C & D

Prepared For  
GREATER PEORIA MASS TRANSIT  
DISTRICT



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Issue  
**PHASE B, C, D -  
PERMIT**

Issue Date: 01/07/2022

Professional Seals

No.	Description	Date
1	30% DESIGN REVIEW	02/12/2021
2	70% DESIGN REVIEW	05/24/2021
3	PHASE B - BID PKG 1 - ADD 1	08/24/2021
4	100% DESIGN REVIEW	09/17/2021
5	PHASE B - STEEL PKG RE-BID	09/28/2021
6	100% DESIGN REVIEW	11/08/2021
7	PHASE B, C, D - BID PKG 2	12/15/2021
8	PHASE B, C, D - PERMIT	12/17/2021
9	PHASE B, C, D - BID PKG 2 - ADD 1	01/07/2022

Designed: BS Drawn: AD Checked: MS  
Project No: 20-1001

Sheet Title

COVER SHEET

Sheet Number







G-001

M+M PROJECT NO: 20\_1001  
DOB PROJECT NO: XXXXX

Sheet Number	Sheet Name	70% DESIGN REVIEW (05/24/21	PHASE B - BID PKG 1 (07/07/21	100% DESIGN REVIEW (08/17/21	100% DESIGN REVIEW (11/08/21	PHASE B, C, D - BID PKG 2 (12/15/21	PHASE B, C, D - PERMIT (12/17/21	PHASE B, C, D BID PKG 2 ADD 1-17/22
01 GENERAL								
G-001	COVER SHEET	•	•	•	•	•	•	•
G-002	SHEET INDEX	•	•	•	•	•	•	•
G-003	ARCHITECTURAL GENERAL NOTES	•	•	•	•	•	•	•
G-004	ABBREVIATIONS AND SYMBOLS	•	•	•	•	•	•	•
G-005	LIFE SAFETY NOTES & CODE MATRIX	•	•	•	•	•	•	•
G-006	ACCESSIBILITY INFORMATION	•	•	•	•	•	•	•
G-007	ACCESSIBILITY INFORMATION AND SIGNAGE DETAILS	•	•	•	•	•	•	•
G-008	SITE LOGISTICS AND SEQUENCING - RCC EXHIBIT							
G-009	ALTERNATES				•	•		
02 CODE ANALYSIS								
LS-101	LIFE SAFETY PLAN - NORTH	•	•	•	•	•	•	•
LS-102	LIFE SAFETY PLAN - ANNEX	•	•	•	•	•	•	•
LS-103	LIFE SAFETY PLAN - SOUTH	•	•	•	•	•	•	•
LS-104	LIFE SAFETY PLAN - SECOND FLOOR	•	•	•	•	•	•	•
LS-105	LIFE SAFETY PLAN - THIRD FLOOR	•	•	•	•	•	•	•
03 CIVIL								
C-001	CIVIL NOTES	•	•		•	•	•	•
C-002	DRAINAGE NOTES	•	•		•	•	•	•
C-003	EXISTING DRAINAGE EXHIBIT	•	•		•	•	•	•
C-004	PROPOSED DRAINAGE EXHIBIT	•	•		•	•	•	•
C-100	EXISTING CONDITIONS	•	•		•	•	•	•
C-101	SITE PLAN	•	•		•	•	•	•
C-102	ENLARGED SITE PLAN VIEWS	•	•		•	•	•	•
C-103	PARKING PLAN	•	•		•	•	•	•
C-104	SITE UTILIZATION PLAN	•	•		•	•	•	•
C-110	DEMOLITION PLAN	•	•		•	•	•	•
C-111	ENLARGED DEMOLITION VIEWS				•	•	•	•
C-120	EROSION AND SEDIMENT CONTROL PLAN	•	•		•	•	•	•
C-130	GEOMETRICS				•	•	•	•
C-131	GEOMETRICS PARKING LOT				•	•	•	•
C-140	PROPOSED GRADING PLAN	•	•		•	•	•	•
C-141	PROPOSED GRADING PLAN				•	•	•	•
C-142	PROPOSED GRADING PLAN				•	•	•	•
C-143	DETAIL GRADING PLAN				•	•	•	•
C-150	DRAINAGE PLAN	•	•		•	•	•	•
C-151	DRAINAGE SECTIONS				•	•	•	•
C-152	DRAINAGE SECTIONS				•	•	•	•
C-160	UTILITY PLAN	•	•		•	•	•	•
C-161	UTILITY PLAN ENLARGED				•	•	•	•
C-162	UTILITY CROSSING				•	•	•	•
C-170	SIGNAGE AND STRIPING PLAN	•	•		•	•	•	•
C-180	SHEET PILING WALL PLAN AND PROFILE	•	•		•	•	•	•
C-181	SHEET PILING WALL DETAILS	•	•		•	•	•	•
C-200	SECTIONS				•	•	•	•
C-500	SITE DETAILS	•	•		•	•	•	•
C-501	SITE DETAILS	•	•		•	•	•	•
C-502	SITE DETAILS	•	•		•	•	•	•
C-503	ESC DETAILS	•	•		•	•	•	•
C-504	DRAINAGE DETAILS	•	•		•	•	•	•
C-505	STORM DETAILS	•	•		•	•	•	•
C-506	ADA DETAILS	•	•		•	•	•	•
C-507	ILAWC DETAILS	•	•		•	•	•	•
C-508	ILAWC DETAILS	•	•		•	•	•	•
C-509	SITE DETAILS	•	•		•	•	•	•
04 LANDSCAPE								
L-100	LANDSCAPE LAYOUT PLAN				•	•	•	•
L-101	LANDSCAPE PLANTING PLAN				•	•	•	•
L-102	LANDSCAPE DETAILS				•	•	•	•
05A ARCHITECTURE DEMOLITION								
AD-100	DEMOLITION SITE PLAN	•	•	•	•	•	•	•
AD-101	DEMOLITION FLOOR PLAN - SOUTH BUILDING	•	•	•	•	•	•	•
AD-201	DEMOLITION ELEVATIONS - SOUTH BUILDING	•	•	•	•	•	•	•
AD-301	DEMOLITION SECTIONS - SOUTH BUILDING	•	•	•	•	•	•	•
05B ARCHITECTURE								
A-000	3D PHASING DIAGRAM	•	•	•	•	•	•	•
A-100	SITE PLAN	•	•	•	•	•	•	•
A-101	OVERALL FIRST FLOOR PLAN	•	•	•	•	•	•	•
A-102	PARTIAL FIRST FLOOR PLAN - NORTH	•	•	•	•	•	•	•
A-103	PARTIAL FIRST FLOOR PLAN - ANNEX	•	•	•	•	•	•	•
A-104	PARTIAL FIRST FLOOR PLAN - SOUTH	•	•	•	•	•	•	•
A-105	SECOND FLOOR PLAN	•	•	•	•	•	•	•
A-106	THIRD FLOOR PLAN	•	•	•	•	•	•	•
A-111	OVERALL ROOF PLAN	•	•	•	•	•	•	•
A-112	SOUTH ROOF PLAN - NORTH	•	•	•	•	•	•	•
A-113	PARTIAL ROOF PLAN - ANNEX	•	•	•	•	•	•	•
A-114	PARTIAL ROOF PLAN - SOUTH	•	•	•	•	•	•	•
A-121	OVERALL FIRST FLOOR REFLECTED CEILING PLAN	•	•	•	•	•	•	•
A-122	PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - NORTH	•	•	•	•	•	•	•
A-123	PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - ANNEX	•	•	•	•	•	•	•
A-124	PARTIAL FIRST FLOOR REFLECTED CEILING PLAN - SOUTH	•	•	•	•	•	•	•
A-125	SECOND FLOOR REFLECTED CEILING PLAN	•	•	•	•	•	•	•
A-126	THIRD FLOOR REFLECTED CEILING PLAN	•	•	•	•	•	•	•
A-131	ENLARGED FLOOR PLANS				•	•	•	•
A-132	ENLARGED FLOOR PLANS				•	•	•	•
A-133	ENLARGED FLOOR PLANS				•	•	•	•
A-134	ENLARGED FLOOR PLANS				•	•	•	•
A-135	ENLARGED FLOOR PLANS				•	•	•	•
A-136	ENLARGED FLOOR PLANS				•	•	•	•
A-201	BUILDING ELEVATIONS	•	•	•	•	•	•	•
A-202	BUILDING ELEVATIONS	•	•	•	•	•	•	•
A-203	PRECAST ELEVATIONS				•	•	•	•
A-210	ENLARGED BUILDING ELEVATIONS				•	•	•	•
A-211	ENLARGED BUILDING ELEVATIONS				•	•	•	•
A-212	ENLARGED BUILDING ELEVATIONS				•	•	•	•
A-301	BUILDING SECTIONS - ADMIN AND GARAGE	•	•	•	•	•	•	•
A-302	BUILDING SECTIONS - ADMIN AND GARAGE	•	•	•	•	•	•	•
A-303	BUILDING SECTIONS - ANNEX AND SOUTH BUILDING	•	•	•	•	•	•	•
A-310	WALL SECTIONS	•	•	•	•	•	•	•
A-311	WALL SECTIONS	•	•	•	•	•	•	•
A-312	WALL SECTIONS	•	•	•	•	•	•	•
A-313	WALL SECTIONS - ANNEX AND SOUTH BUILDING	•	•	•	•	•	•	•
A-320	3D VIEWS & SECTIONS	•	•	•	•	•	•	•
A-321	3D VIEWS & SECTIONS				•	•	•	•
A-322	3D VIEWS & SECTIONS				•	•	•	•
A-323	3D VIEWS & SECTIONS				•	•	•	•
A-324	3D RENDERINGS				•	•	•	•
A-401	SECTION DETAILS - ADMIN AND GARAGE	•	•	•	•	•	•	•
A-402	SECTION DETAILS - ADMIN AND GARAGE	•	•	•	•	•	•	•
A-403	SECTION DETAILS - ADMIN AND GARAGE	•	•	•	•	•	•	•
A-404	SECTION DETAILS - ADMIN AND GARAGE	•	•	•	•	•	•	•

Sheet Number	Sheet Name	70% DESIGN REVIEW 05/24/21	PHASE B - BID PKG 1 07/07/21	100% DESIGN REVIEW 08/17/21	100% DESIGN REVIEW 11/08/21	PHASE B, C, D - BID PKG 2 12/15/21	PHASE B, C, D - PERMIT 12/17/21	PHASE B, C, D BID PKG 2 ADD 1-17/22
A-405	PLAN DETAILS - ADMIN AND GARAGE		•	•	•	•	•	
A-406	PLAN DETAILS - ADMIN AND GARAGE		•	•	•	•	•	
A-407	PRECAST DETAILS - ADMIN AND GARAGE		•	•	•	•	•	
A-408	METAL PANEL DETAILS		•	•	•	•	•	
A-409	ROOF DETAILS		•	•	•	•	•	
A-410	STOREFRONT DETAILS		•	•	•	•	•	
A-411	SECTION DETAILS - ANNEX AND SOUTH BUILDING		•	•	•	•	•	
A-414	TYPICAL DETAILS		•	•	•	•	•	
A-511	INTERIOR ELEVATIONS	•	•	•	•	•	•	
A-512	INTERIOR ELEVATIONS	•	•	•	•	•	•	
A-520	ENLARGED STAIR PLANS & SECTIONS	•	•	•	•	•	•	
A-521	ENLARGED STAIR PLANS & SECTIONS	•	•	•	•	•	•	
A-522	ENLARGED STAIR PLANS & SECTIONS	•	•	•	•	•	•	
A-523	ENLARGED ELEVATOR PLANS & SECTIONS	•	•	•	•	•	•	
A-524	ENLARGED ELEVATOR PLANS & SECTIONS	•	•	•	•	•	•	
A-525	ENLARGED RESTROOM PLANS & INTERIOR ELEVATIONS	•	•	•	•	•	•	
A-601	DOOR SCHEDULE	•	•	•	•	•	•	
A-602	DOOR DETAILS	•	•	•	•	•	•	
A-603	DOOR DETAILS	•	•	•	•	•	•	
A-604	WINDOW SCHEDULE	•	•	•	•	•	•	
A-605	PARTITION TYPES & DETAILS	•	•	•	•	•	•	
A-606	EXTERIOR ASSEMBLIES	•	•	•	•	•	•	
A-610	STOREFRONT ELEVATIONS	•	•	•	•	•	•	
A-611	STOREFRONT ELEVATIONS	•	•	•	•	•	•	
A-701	PARTIAL FIRST FLOOR FF&E PLAN	•	•	•	•	•	•	
A-702	PARTIAL FIRST FLOOR FF&E PLAN	•	•	•	•	•	•	
A-703	SECOND FLOOR FF&E PLAN	•	•	•	•	•	•	
A-704	THIRD FLOOR FF&E PLAN	•	•	•	•	•	•	
A-705	EQUIPMENT SCHEDULE	•	•	•	•	•	•	
A-706	FINISH SCHEDULE	•	•	•	•	•	•	
A-901	INTERIOR MILLWORK DETAILS	•	•	•	•	•	•	
A-902	INTERIOR MILLWORK DETAILS	•	•	•	•	•	•	
A-904	STAIR DETAILS	•	•	•	•	•	•	
A-905	CEILING DETAILS	•	•	•	•	•	•	
A-910	SIGNAGE & WAYFINDING	•	•	•	•	•	•	
06 STRUCTURAL								
S-000	GENERAL NOTES	•	•	•	•	•	•	
S-001	GENERAL NOTES	•	•	•	•	•	•	
S-002	GENERAL NOTES & KEY NOTES	•	•	•	•	•	•	
S-101A	FOUNDATION PLAN - ADMIN. & GARAGE	•	•	•	•	•	•	
S-101B	FOUNDATION PLAN - PARATRANSIT	•	•	•	•	•	•	
S-101C	FOUNDATION PLAN - ANNEX & SOUTH BUILDING	•	•	•	•	•	•	
S-102	LEVEL 2 FRAMING PLAN - ADMIN. & GARAGE	•	•	•	•	•	•	
S-103A	LEVEL 3 FRAMING PLAN - ADMIN. & GARAGE	•	•	•	•	•	•	
S-103B	ROOF FRAMING PLAN - PARATRANSIT & SOUTH BUILDING	•	•	•	•	•	•	
S-104	ROOF FRAMING PLAN - ADMIN. & CANOPY	•	•	•	•	•	•	
S-200A	SCHEDULES, SECTIONS & DETAILS	•	•	•	•	•	•	
S-200B	SCHEDULES, SECTIONS & DETAILS	•	•	•	•	•	•	
S-201	SCHEDULES, SECTIONS & DETAILS	•	•	•	•	•	•	
S-300	TYPICAL FOUNDATION SECTIONS & DETAILS	•	•	•	•	•	•	
S-301	FOUNDATION SECTIONS & DETAILS	•	•	•	•	•	•	
S-302	FOUNDATION SECTIONS & DETAILS	•	•	•	•	•	•	
S-303	FOUNDATION SECTIONS & DETAILS	•	•	•	•	•	•	
S-400	TYPICAL FRAMING SECTIONS & DETAILS	•	•	•	•	•	•	
S-401	TYPICAL COMPOSITE SECTIONS & DETAILS	•	•	•	•	•	•	
S-402	FRAMING SECTIONS & DETAILS	•	•	•	•	•	•	
S-403	FRAMING SECTIONS & DETAILS	•	•	•	•	•	•	
S-404	CANOPY FRAMING SECTIONS & DETAILS	•	•	•	•	•	•	
S-405	FRAMING SECTIONS & DETAILS	•	•	•	•	•	•	
S-500	BRACE FRAME ELEVATIONS, SECTIONS & DETAILS	•	•	•	•	•	•	
07A MECHANICAL DEMOLITION								
MD-104	SOUTH BUILDING FIRST FLOOR HVAC DEMOLITION PLAN	•	•	•	•	•	•	
MD-114	SOUTH BUILDING ROOF HVAC DEMOLITION PLAN	•	•	•	•	•	•	
MD-204	SOUTH BUILDING FIRST FLOOR VENTILATION DEMOLITION PLAN	•	•	•	•	•	•	
MD-214	SOUTH BUILDING ROOF VENTILATION DEMOLITION PLAN	•	•	•	•	•	•	
07B MECHANICAL								
M-000	MECHANICAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS	•	•	•	•	•	•	
M-102	ADMIN BUILDING FIRST FLOOR HEATING PLAN	•	•	•	•	•	•	
M-103	ANNEX BUILDING FIRST FLOOR HEATING PLAN	•	•	•	•	•	•	
M-104	SOUTH BUILDING FIRST FLOOR HEATING PLAN	•	•	•	•	•	•	
M-105	ADMIN BUILDING SECOND FLOOR HEATING PLAN	•	•	•	•	•	•	
M-106	ADMIN BUILDING THIRD FLOOR HEATING PLAN	•	•	•	•	•	•	
M-112	ADMIN BUILDING ROOF HEATING PLAN	•	•	•	•	•	•	
M-113	ANNEX BUILDING ROOF HEATING PLAN	•	•	•	•	•	•	
M-114	SOUTH BUILDING ROOF HEATING PLAN	•	•	•	•	•	•	
M-202	ADMIN BUILDING FIRST FLOOR VENTILATION PLAN	•	•	•	•	•	•	
M-203	ANNEX BUILDING FIRST FLOOR VENTILATION PLAN	•	•	•	•	•	•	
M-204	SOUTH BUILDING FIRST FLOOR VENTILATION PLAN	•	•	•	•	•	•	
M-205	ADMIN BUILDING SECOND FLOOR VENTILATION PLAN	•	•	•	•	•	•	
M-206	ADMIN BUILDING THIRD FLOOR VENTILATION PLAN	•	•	•	•	•	•	
M-212	ADMIN BUILDING ROOF VENTILATION PLAN	•	•	•	•	•	•	
M-213	ANNEX BUILDING ROOF VENTILATION PLAN	•	•	•	•	•	•	
M-214	SOUTH BUILDING ROOF VENTILATION PLAN	•	•	•	•	•	•	
M-301	ENLARGED MECHANICAL PLANS	•	•	•	•	•	•	
M-401	MECHANICAL SCHEDULES	•	•	•	•	•	•	
M-402	MECHANICAL SCHEDULES	•	•	•	•	•	•	
M-403	MECHANICAL SCHEDULES	•	•	•	•	•	•	
M-404	MECHANICAL SCHEDULES	•	•	•	•	•	•	
M-405	MECHANICAL SCHEDULES	•	•	•	•	•	•	
M-601	MECHANICAL DETAILS	•	•	•	•	•	•	
M-602	MECHANICAL DETAILS	•	•	•	•	•	•	
M-603	MECHANICAL DETAILS	•	•	•	•	•	•	
M-604	MECHANICAL DETAILS	•	•	•	•	•	•	
TC-501	TEMPERATURE CONTROLS SCHEMATICS	•	•	•	•	•	•	
TC-502	TEMPERATURE CONTROLS SCHEMATICS	•	•	•	•	•	•	
TC-503	TEMPERATURE CONTROLS SCHEMATICS	•	•	•	•	•	•	
TC-504	TEMPERATURE CONTROLS SCHEMATICS	•	•	•	•	•	•	
TC-505	TEMPERATURE CONTROLS SCHEMATICS	•	•	•	•	•	•	
TC-506	TEMPERATURE CONTROLS SCHEMATICS	•	•	•	•	•	•	
TC-507	TEMPERATURE CONTROLS SCHEMATICS	•	•	•	•	•	•	
08A PLUMBING DEMOLITION								
PD-004	SOUTH BUILDING FOUNDATION PLUMBING DEMOLITION PLAN	•	•	•	•	•	•	
PD-104	SOUTH BUILDING FIRST FLOOR PLUMBING DEMOLITION PLAN	•	•	•	•	•	•	
08B PLUMBING								
P-000	PLUMBING GENERAL NOTES, LEGEND, AND ABBREVIATIONS	•	•	•	•	•	•	
P-002	ADMIN BUILDING FOUNDATION PLUMBING PLAN	•	•	•	•	•	•	
P-003	ANNEX BUILDING FOUNDATION PLUMBING PLAN	•	•	•	•	•	•	
P-004	SOUTH BUILDING FOUNDATION PLUMBING PLAN	•	•	•	•	•	•	
P-102	ADMIN BUILDING FIRST FLOOR PLUMBING PLAN	•	•	•	•	•	•	
P-103	ANNEX BUILDING FIRST FLOOR PLUMBING PLAN	•	•	•	•	•	•	
P-104	SOUTH BUILDING FIRST FLOOR PLUMBING PLAN	•	•	•	•	•	•	

COMMUNICATIONS & SPECIAL SYSTEM SYMBOL LIST

- SPX
- SPX
- 
- 
- 
- WAP-APX
- COMBINATION VOICE / DATA OUTLET(S). REFER TO EQUIPMENT OUTLET DETAIL UNLESS NOTED OTHERWISE.

(#) = NUMBER OF DATA JACKS & HORIZONTAL CABLES REQUIRED, IF OTHER THAN TWO (2) PER LOCATION.

ALL EQUIPMENT OUTLET INSTALLATION LOCATIONS AND CONNECTIVITY SPECIFICS SHALL BE COORDINATED WITH ANY FURNITURE OR EQUIPMENT RELATED TO THE INSTALLATION. THIS INCLUDES, BUT IS NOT LIMITED TO: DESKS, TABLES, SIMULATORS, OPERATOR STATIONS, PODIUMS, ETC.

IF KEYNOTED AS A COMBINATION POWER / DATA FLOORBOX LOCATION, COORDINATE WITH ELECTRICAL CONTRACTOR, ELECTRICAL DRAWINGS AND ELECTRICAL SPECIFICATIONS FOR REQUIRED CONFIGURATION. REFER TO FLOOR PLANS FOR CABLE / JACK QUANTITY.

MOUNT HEIGHT TO BE 18" AFF UNLESS DIRECTED OTHERWISE.

MODIFIER "TV" DENOTES THE NEED TO COORDINATE MOUNT HEIGHT WITH WALL-MOUNTED TELEVISION AND MOUNT ASSEMBLY (OUTLET SHALL BE BEHIND TELEVISION WHEN TELEVISION IS MOUNTED ON WALL IN FINAL POSITION). REFER TO EQUIPMENT OUTLET DETAIL. TELEVISION FURNISHED BY OTHERS, INSTALLED BY COMMUNICATIONS CONTRACTOR.

1. ADDITIONALLY, PROVIDE SEPARATE A/V SIGNAL OUTLET BEHIND TELEVISION WHERE INDICATED. THIS SIGNAL OUTLET SHALL CONTAIN HDMI AND USB PORTS AT A MINIMUM. PROVIDE COMPATIBLE SIGNAL CABLES FROM SOURCE LOCATION IDENTIFIED ON FLOOR PLANS. CONTRACTOR MUST PROVIDE CONTINUOUS 1-1/2" METALLIC CONDUIT FROM SIGNAL OUTLET BOX BEHIND TELEVISION TO SIGNAL SOURCE FLOOR / DESK BOX OR OPERATOR STATION. ALL CABLES AND JACKS SHALL CONFORM TO THE LATEST ADOPTED STANDARD. E.G. HDMI 2.1. COORDINATE OUTLET AND FLOOR BOXES FOR SIGNAL CONNECTIVITY WITH ELECTRICAL CONTRACTOR AND INTENDED FURNITURE (WHERE APPLICABLE). PROVIDE ANY REQUIRED FLOOR BOXES, CORE DRILLS, AND FIRESTOPPING.

2. PROVIDE MOUNT FOR TELEVISION. MOUNT SHALL BE OF THE FULLY ARTICULATING TYPE. FOR THE PURPOSES OF BIDDING, ASSUME THAT THE TELEVISION SIZE TO BE INSTALLED IS 65".

3. COORDINATE POWER OUTLET WITH ELECTRICAL INSTALLER.
- MODIFIER "VS" DENOTES THE NEED TO PROVIDE VIEWING / OPERATOR STATION FOR THE SURVEILLANCE SYSTEM. REFER TO 28 23 00. CONTRACTOR IS REQUIRED TO PROVIDE MONITORS FOR VIEWING STATIONS.
- WALL-MOUNTED PUBLIC ADDRESS SPEAKER. REFER TO SPECIFICATIONS. "X" REFERS TO SPECIFIC SPEAKER TYPE AND SPECIFICATION (ALPHA CHARACTER). FOR EXAMPLE, "SPA" SHALL REFERENCE SPEAKER TYPE "A" IN SPECIFICATIONS.
- CEILING/PENDANT-MOUNTED PUBLIC ADDRESS SPEAKER. REFER TO SPECIFICATIONS. "X" REFERS TO SPECIFIC SPEAKER TYPE AND SPECIFICATION (ALPHA CHARACTER).
- SURVEILLANCE CAMERA. REFER TO CAMERA SCHEDULE, DETAILS, AND SPECIFICATION SECTION 28 23 00.
- SURVEILLANCE CAMERA - 360-DEGREE STYLE. REFER TO CAMERA SCHEDULE, DETAILS, AND SPECIFICATION SECTION 28 23 00.
- SECURITY SYSTEM CARD READER DOOR CONTROL. REFER TO DETAILS AND SPECIFICATION SECTION28 13 00.
- CONTRACTOR-PROVIDED CEILING-MOUNTED WIRELESS ACCESS POINT. PROVIDE (1) CATEGORY 6A HORIZONTAL CABLE PER 27 13 43 TO TELECOM ROOM DESIGNATED ON PROJECT DRAWINGS FROM EACH ACCES POINT. REFER TO "EQUIPMENT OUTLET FOR WIRELESS ACCESS POINT" DETAIL. REFER ALSO TO REFLECTED CEILING PLANS FOR INSTALLATION ENVIRONMENT (OPEN STRUCTURE, HARD CEILING, OR SUSPENDED GRID). CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY REQUIRED MOUNTS OR RELATED ACCESSORIES.
- "X" REFERS TO SPECIFIC WIRELESS ACCESS POINT MODEL (ALPHA CHARACTER). SEE BELOW FOR DESCRIPTION.
- (A) - FortiAP 221E

(B) - FortiAP 223E

(C) - FortiAP 321C

(D) - FortiAP 423E

(E) - FortiAP S422E
- "NOTE" - IN ADDITION TO THE WIRELESS ACCESS POINT LOCATIONS SHOWN IN THESE DRAWINGS, CONTRACTOR IS RESPONSIBLE FOR PROVIDING (1) WIRELESS ACCESS POINTS IN THE REAR / PAINT BUILDING (NOT SHOWN ON THESE DRAWINGS). CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING HORIZONTAL CABLE, MODULAR JACKS, WAP MOUNT, RACEWAY, AND CABLE TESTING PER THESE DRAWINGS AND SPECIFICATIONS. ACCESS POINT WILL BE INSTALLED IN OPEN STRUCTURE PORTION OF THE BUILDING. COORDINATE FINAL LOCATION OF WAP WITH ENGINEER. FOR THE PURPOSES OF BIDDING, ASSUME AN APPROXIMATE CABLE AND RACEWAY LENGTH OF 150 FEET FROM OFFICE R107 EQUIPMENT CABINET. ASSUME THAT A CATEGORY 6A PATCH PANEL EXISTS IN OFFICE R106A. WAP MODEL TO BE PROVIDED BY CONTRACTOR IS THE S422E.

COMMUNICATIONS & SPECIAL SYSTEMS ABBREVIATIONS

A	AMPERES
AFF	ABOVE FINISHED FLOOR
AL, ALUM	ALUMINUM
A/V	AUDIO / VIDEO
AWG	AMERICAN WIRE GAUGE
BDF	BUILDING DISTRIBUTION FRAME
CKT	CIRCUIT
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUED
CRD	CREDENZA
CT	CONROL/CIRCUIT TRANSFORMER
DDC	DIRECT DIGITAL CONTROL
DEM	DEMAND
E	ELECTRIC
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY
ETM	ELAPED TIME METER
EWC	ELECTRIC WATER COOLER
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPERES
FLUOR	FLUORESCENT
FPC	FIRE PROTECTION CONTRACTOR
FVNR	FULL VOLTAGE NON REVERSING
G.GND	GROUND
GC	GENERAL CONTRACTOR
H	HEIGHT, HAND, HIGH
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
I/O	INPUT / OUTPUT
IDF	INTERMEDIATE DISTRIBUTION FRAME
IN	INCHES
INFL	INFLUENT
ITC	INSTRUMENTATION TERMINATION CABINET
K	KELVIN
KA	KILO-AMPERES
KV	KILO-VOLT
KVA	KILO-VOLT AMPERES
KW	KILOWATTS
L	LOW
LA	LIGHTNING ARRESTOR
LBS	POUNDS
LCP	LOCAL CONTROL PANEL
LED	LIGHT EMITTING DIODE
LG	LINE TO GROUND
LL	LINE TO LINE
LM	LUMEN
LTS	LIGHTS
L.O.	LOCK OUT
LP	LIGHTING PANEL
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MD	MOTORIZED DAMPER
MFR	MANUFACTURER
MLO	MAIN LUG ONLY
MMS	MANUAL MOTOR STARTER
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OFF	OFF
OC	OVERCURRENT
OL'S	OVERLOAD RELAYS
P	POLE(S), PUMP
PB	PUSH BUTTON
PC	PLUMBING CONTRACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PRI	PRIMARY
PTT	PUSH TO TEST
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
R	RED
RECEP	RECEPTACLE
REPL	REPLACE
RGS	RIGID GALVANIZED STEEL
RPM	REVOLUTIONS PER MINUTE
SEC	SECONDARY
SEL SW	SELECTOR SWITCH
SS	STAINLESS STEEL
T	TELEPHONE
TDO	TIME DELAY OPENING
TGB	TELECOMMUNICATIONS GROUND BAR
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
UNV	UNIVERSAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERES
VC	VENTILATING CONTRACTOR
VS	VIEWING STATION (SURVEILLANCE)
VFD	VARIABLE FREQUENCY DRIVE
VT	VARIABLE TORQUE
W	WHITE, WIDTH, WATTS
W/	WITH
XFMR, XF	TRANSFORMER

COMMUNICATIONS & SPECIAL SYSTEM GENERAL NOTES

1. COORDINATE ALL FINAL CAMERA LOCATIONS WITH OWNER AND ANY VISUAL OBSTRUCTIONS. ADJUST VIEWS (DIRECTION, FOV, FOCAL LENGTH, ETC.) TO SATISFACTION OF OWNER. ASSUME THAT LOCATIONS SHOWN ON DRAWINGS ARE APPROXIMATIONS AND ARE SUBJECT TO RELOCATION WITHIN 20 FEET WITH NO ADDITIONAL COMPENSATION FOR INSTALLER.

2. CONTRACTOR SHALL FIRESTOP ALL PENETRATIONS OF WALLS AND FLOORS. REFER TO SPECIFICATIONS.

A. FOR ALL PENETRATIONS INTO TELECOM EQUIPMENT ROOMS, CONTRACTOR SHALL PROVIDE A MANUFACTURED RE-ENTERABLE SYSTEM THAT FEATURES BUILT-IN FIRE AND SMOKE SEALING SYSTEM THAT ALLOWS CABLES TO BE ADDED OR REMOVED WITHOUT THE NEED TO REMOVE OR REINSTALL FIRE STOPPING MATERIALS. EXAMPLES OF SUCH SYSTEMS ARE THE STI EZ PATH OR HILTI SPEED SLEEVE.

B. FOR ALL OTHER COMMUNICATION CABLING APPLICATIONS 2" DIAMETER AND LARGER - CONTRACTOR SHALL PROVIDE A SYSTEM THAT UTILIZES REMOVABLE AND REUSABLE FIRE STOP MATERIAL. EXAMPLES OF SUCH SYSTEMS ARE THE 3M PASS-THROUGH DEVICE, STI FP FIRE-STOP PLUG, OR HILTI CFS-PL FIRE-STOP PLUG.

C. IDENTIFY ALL FIRESTOPPED PENETRATIONS WITH MECHANICAL FASTENERS OR SELF-ADHERING LABELS WITH PERMANENT BONDING LABELS. INCLUDE THE FOLLOWING INFORMATION ON EACH PENETRATION:

a. "FIRESTOPPED PENETRATION"

b. INSTALLED PRODUCT

c. UL SYSTEM NUMBER

d. DATE OF INSTALLATION

e. INSTALLING CONTRACTOR AND PHONE NUMBER

f. TYPE OF BARRIER (FIRE, SMOKE) AND HOURLY RATING

3. COORDINATE ALL FLOOR BOX AND POKE-THROUGH OUTLETS WITH ELECTRICAL.

4. THE MAJORITY OF EXISTING TELECOMMUNICATIONS INFRASTRUCTURE AT THE FACILITY IS UNLABELED, AND DIAGRAMS ARE BASED UPON VISUAL INSPECTION ONLY. CONTRACTOR SHALL CONFIRM ALL CABLE ORIGINS PRIOR TO BEGINNING WORK. ANY MAJOR DISCREPANCIES MUST BE REPORTED TO THE ENGINEER.

5. BACKBONE CABLES SHALL BE IN UNDERGROUND DUCT OR ABOVE-GROUND CONDUITS. TRANSITION TO INNERDUCT UPON REACHING TELECOM ROOMS.

6. CONTRACTOR SHALL PROVIDE NONMETALLIC CONDUIT AND PULL / JUNCTION BOXES FOR TELECOMMUNICATIONS BONDING CONDUCTORS. MINIMUM TRADE SIZE FOR CONDUITS SHALL BE 1-1/2".

7. CONTRACTOR SHALL PROVIDE METALLIC CONDUIT FOR INDOOR COPPER HORIZONTAL CABLES. WHERE CABLES ARE INSTALLED ABOVE SUSPENDED CEILINGS AND WILL BE CONCEALED, CABLES MAY BE RUN "FREE AIR" IN J-HOOKS. REFER TO DETAILS.

8. ALL COOLING EQUIPMENT AFFECTING TELECOM ROOMS SHALL BE INSTALLED AND FULLY OPERATIONAL PRIOR TO POWERING ON ELECTROINCS IN THE TELECOM ROOMS. COORDINATE WITH MECHANICAL CONTRACTOR AND SEQUENCE WORK ACCORDINGLY.

9. CONTRACTOR SHALL MAINTAIN DETAILED AS-BUILT DRAWINGS CONSISTENTLY THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR SHALL EXPECT TO PROVIDE COPIES OF AS-BUILT DOCUMENTS (IN PDF FORMAT) TO THE PROJECT CONSTRUCTION REPRESENTATIVE BI-MONTHLY (AT A MINIMUM) AND TO THE ENGINEER (UPON REQUEST).

10. ALL CONDUITS PROVIDED BY CONTRACTOR FOR TELECOMMUNICATIONS CABLES SHALL BE SIZED SUCH THAT THE TOTAL CONDUIT CAPACITY DOES NOT EXCEED 20% (CURRENT FILL + 100% FUTURE GROWTH).

11. NOT ALL PULL AND JUNCTION BOXES ARE SHOWN. ONLY PULL BOXES AND JUNCTION BOXES SPECIFICALLY REQUIRED BY ENGINEER ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL PULL BOXES AND JUNCTION BOXES PER THE MOST CURRENT NEC AND TIA STANDARDS.

12. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY REQUIRED LIFT EQUIPMENT TO PERFORM THE WORK OUTLINED IN THESE DOCUMENTS.

13. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2020 NATIONAL ELECTRICAL CODE, THE MOST CURRENT EDITION OF THE NATIONAL ELECTRICAL SAFETY CODE, AND ALL APPLICABLE CODES AND ORDINANCES.

14. TELECOMMUNICATIONS SYSTEMS INSTALLATION SHALL CONFORM TO ALL APPLICABLE TIA STANDARDS.

15. CONTRACTOR SHALL PROVIDE ALL MATERIALS FOR A COMPLETE AND WORKING SYSTEM. BIDS SHALL INCLUDE THE TOTAL COST OF SYSTEM, INCLUDING BUT NOT LIMITED TO: EQUIPMENT, LABOR, TERMINATIONS, TESTING, RACEWAYS, LABELING, WARRANTIES, PERMITS, TOOLS, CERTIFICATIONS, TRAINING, LICENSING, ETC.

16. CONFIRM LABELING STANDARDS WITH OWNER. REFER TO DIVISION 27 FOR LABELING REQUIREMENTS.

17. ALL MATERIALS FURNISHED BY CONTRACTOR SHALL BE NEW AND APPROVED BY SHOP DRAWING REVIEW PROCESS.

18. POWER, INSTRUMENTATION, TELECOMMUNICATION, AND CONTROL WIRING SHALL BE INSTALLED IN SEPARATE CONDUITS. SHIELDED CONDUCTORS SHALL NOT BE INSTALLED IN THE SAME CONDUIT AS ANY UNSHIELDED CONDUCTORS.

19. PROVIDE BRIDLE RING CABLE SUPPORTS CONNECTED TO BUILDING STRUCTURE ABOVE ACCESSIBLE CEILINGS FOR ALL TELEPHONE/NETWORK CABLES (CAT 6), DOOR ACCESS CABLES, AND FIRE ALARM CABLES. EACH SYSTEM SHALL HAVE ITS OWN SET OF CABLE SUPPORTS. SYSTEM SHALL NOT BE COMBINED IN COMMON CABLE SUPPORTS. CABLES LOCATED WITHIN WALLS, ABOVE INACCESSIBLE CEILINGS, OR WHERE NO CEILING EXISTS SHALL BE IN CONDUIT.
- Project

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- Issue

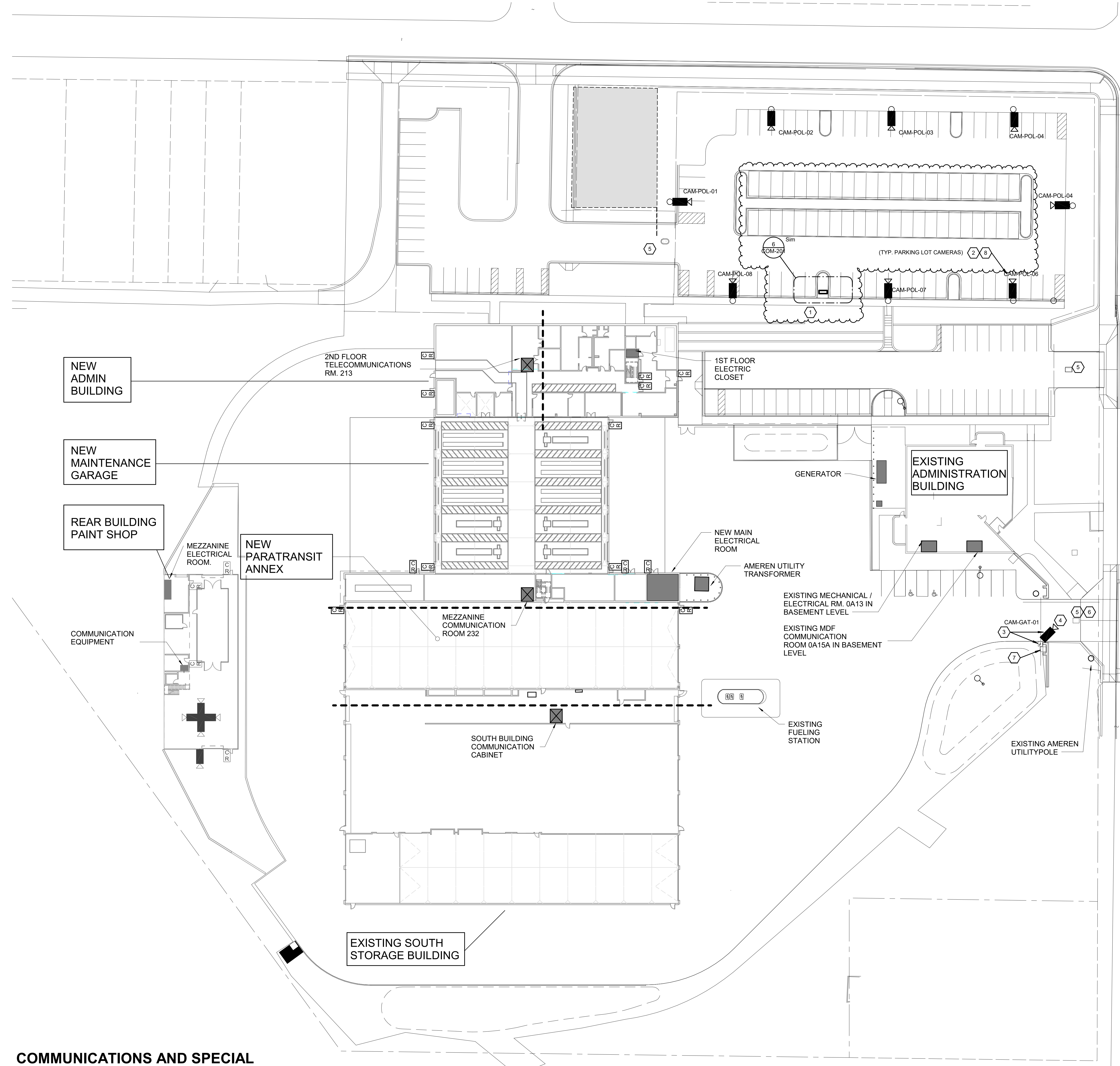
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PKG2- ADD 1
- Issue Date:

01/07/2022
- Professional Seals
- NOT FOR  
CONSTRUCTION
- | No. | Description                     | Date       |
|-----|---------------------------------|------------|
| 1   | 70% DESIGN REVIEW               | 05/24/2021 |
| 2   | 100% DESIGN REVIEW              | 09/17/2021 |
| 3   | 100% DESIGN REVIEW              | 11/08/2021 |
| 4   | PHASE B, C, D - BID PKG 2       | 12/15/2021 |
| 5   | PHASE B, C, D - PERMIT          | 12/17/2021 |
| 6   | PHASE B, C, D - BID PKG2- ADD 1 | 01/07/2022 |
- Designed: DesigneDrawn: Author Checked: Checker

Project No: M1600050
- Sheet Title
- COMMUNICATIONS & SPECIAL SYSTEMS  
GENERAL NOTES,  
LEGEND, AND  
ABBREVIATIONS
- Sheet Number
- COM-000

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## COMMUNICATIONS AND SPECIAL SYSTEMS SITE PLAN

SCALE: 1" = 30'-0"

### NOTES (THIS SHEET)

- SEE SHEET COM-000 FOR COMMUNICATION & SPECIAL SYSTEMS GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
- REFER TO CAMERA SCHEDULE FOR CAMERA DETAILS AND APPLICABLE HORIZONTAL CABLE TERMINATION LOCATIONS.

### KEYNOTES

- PROVIDE PAD-MOUNTED SURVEILLANCE EQUIPMENT ENCLOSURE AND CONCRETE PAD PER 28 23 00.
- PROVIDE POLE-MOUNTED CAMERAS PER SPECIFICATIONS. REFER TO POLE-MOUNTED CAMERA DETAIL.
- PROVIDE WALL-MOUNTED CAMERA PER SCHEDULE AND SPECIFICATIONS. PROVIDE LONG-RANGE POE EXTENDER PER 28 23 00 - BASE UNIT SHALL RESIDE IN TELECOM ROOM PER CAMERA SCHEDULE AND BE POWERED VIA POE SWITCH. HORIZONTAL CABLE MAY SHARE SAME RACEWAY TO REACH AREA AS THAT OF CARD READER / GATE KEYPAD CABLES. PROVIDE NEMA 4 JUNCTION BOX PER 28 05 33 ON WEST SIDE OF MASONRY WALL TO HOUSE THE REMOTE EXTENDER MODULE NEAR THE CAMERA. PROVIDE 3/4" CONDUIT PER DIV 26 BETWEEN JUNCTION BOX AND CAMERA AND BETWEEN JUNCTION BOX AND CARD READER TERMINATION POINT.
- PROVIDE (1) SPARE HORIZONTAL CABLE AT THIS CAMERA LOCATION.
- PROVIDE CARD READER, INTERCOM, AND POST PER DETAILS AND 28 13 00 FOR GATE ENTRY. COORDINATE FINAL LOCATION WITH GATE EQUIPMENT.
- REMOVE EXISTING CARD READER AND PEDESTAL. PREPARE SPACE FOR NEW PEDESTAL AND ACCESS CONTROL DEVICES.
- EXISTING GATE CONTROLLER LOCATION.
- PROVIDE METALLIC FLEX CONDUIT FOR HORIZONTAL CABLES INSIDE OF LIGHT POLE FOR PROTECTION AND SEPARATION. COORDINATE MOUNT HEIGHT OF CAMERA WITH POLE INSTALLER FOR FACTORY-SUPPLIED CABLE HOLE LOCATION AND SIZE.

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PKG2- ADD 1

Issue Date: 01/07/2022

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No.	Description	Date
1	100% DESIGN REVIEW	11/08/2021
2	PHASE B, C, D - BID PKG 2	12/15/2021
3	PHASE B, C, D - PERMIT	12/17/2021
4	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

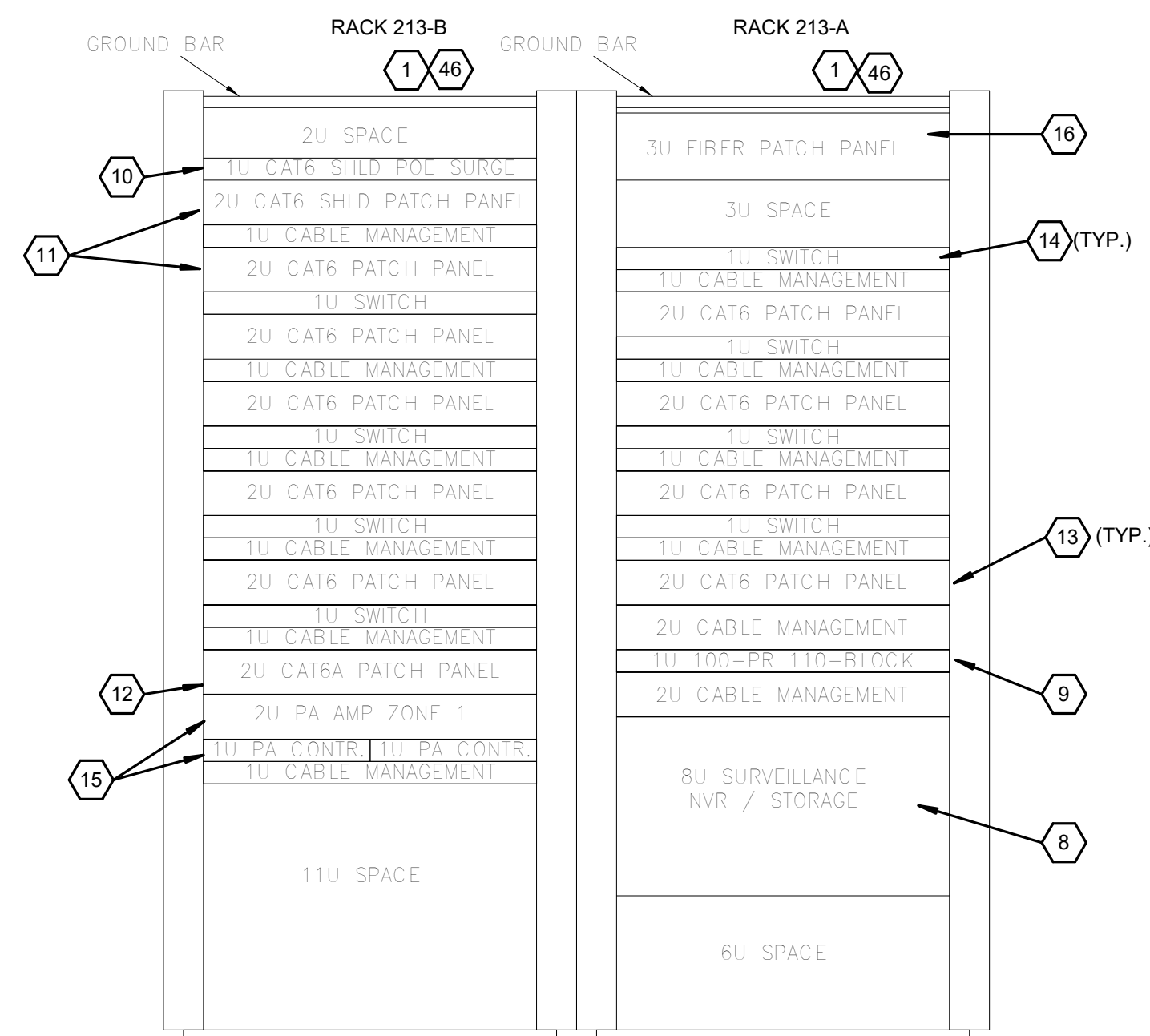
Designed: SMK Drawn: JRF Checked: LMZ  
Project No: M1600050

Sheet Title

COMMUNICATIONS  
AND SPECIAL  
SYSTEMS SITE PLAN

Sheet Number

COM-101



1. SEE SHEET COM-000 FOR COMMUNICATIONS & SPECIAL SYSTEMS GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFER TO TELECOMMUNICATIONS GROUNDING DIAGRAM FOR OVERALL GROUNDING REQUIREMENTS.
3. CONFIRM ALL FINAL RACK ELEVATIONS WITH OWNER.
4. REFER TO CAMERA RISER DIAGRAM.

1. PROVIDE 42U 4-POST FREE-STANDING EQUIPMENT CABINET WITH GROUND BAR, PATCH PANELS, CABLE (JUMPER) MANAGEMENT, AND OTHER EQUIPMENT AS SHOWN PER 27 13 43 AND 28 23 02. PROVIDE COPPER BONDING CONDUCTOR FROM GROUNDING BUSBAR IN ROOM PER SPECIFICATIONS AND DETAILS. PROVIDE VERTICAL PDU / SURGE PROTECTIVE DEVICE PER 27 13 43. CONFIRM FINAL RACK LAYOUTS WITH IT STAFF.
2. PROVIDE TELECOM EQUIPMENT CABINET WITH GROUNDING BUSBAR PER SPECIFICATIONS AND TELECOMMUNICATIONS GROUNDING DETAILS. MOUNT AT APPROXIMATELY 7'-6" AFF.
3. DEDICATED 20-AMPERE 120-VOLT CIRCUIT AND DOUBLE-DUPLEX RECEPTACLE BY ELECTRICAL CONTRACTOR. RECEPTACLE BOX SHALL BE MOUNTED TO CABLE RUNWAY.
4. PROVIDE 18" WIDE CABLE RUNWAY PER SPECIFICATION 27 13 43. BOND TO TELECOMMUNICATION BUSBAR PER SPECIFICATIONS AND GROUNDING DETAILS.
5. FIRE ALARM PANEL BY OTHERS.
6. SIMPLEX 16-30 RECEPTACLE FOR UPS BY ELECTRICAL. COORDINATE LOCATION WITH ELECTRICAL. COORDINATE RECEPTACLE CONFIGURATION MATCHES PROPOSED UPS UNIT - REFER TO 28 23 00 FOR UPS SPECIFICATIONS.
7. PROVIDE RACK-MOUNTED ONLINE DOUBLE-CONVERSION TYPE UPS WITH BYPASS. REFER TO 28 23 00.
8. PROVIDE SURVEILLANCE NVR AND STORAGE PER 28 23 00.
9. PROVIDE RACK-MOUNTED 110-BLOCK. TERMINATE ALL INCOMING BACKBONE COPPER TWISTED-PAIR CABLES TO THIS BLOCK. PROVIDE CROSS-CONNECT WIRING AS REQUIRED TO INTERCONNECT ANY CIRCUITS REQUIRING SINGLE-PAIR CONNECTIVITY.
10. PROVIDE SHIELDED POE SURGE SUPPRESSOR PER 28 23 00. REFER TO CAMERA RISER DIAGRAM.
11. PROVIDE PATCH PANELS FOR SURVEILLANCE CAMERAS. REFER TO 27 13 43.
12. PROVIDE PATCH PANELS FOR WIRELESS ACCESS POINTS. REFER TO 27 13 43.
13. PROVIDE PATCH PANELS FOR HORIZONTAL CABLES SERVING GENERAL-USE TELECOM EQUIPMENT OUTLETS PER 27 13 43.
14. PROVIDE NETWORK SWITCH. REFER TO COM-000 FOR DETAILS.
15. PROVIDE 16-PORT ADDRESS PRIMARY CONTROLLER, BACKUP CONTROLLER, AND AMPLIFIER(S) PER 27 51 16. REFER TO PA RISER DIAGRAM. PROVIDE DUAL 1/2U RACK MOUNT KIT FOR CONTROLLERS. NOTE THAT AMPLIFIER QUANTITY AND RU SHOWN FOR AMPLIFIERS DOES NOT NECESSARILY REFLECT THE QUANTITY OF AMPLIFIERS REQUIRED TO POWER ALL SPEAKERS - CONTRACTOR IS RESPONSIBLE FOR SIZING AMPLIFIERS AND CIRCUITS AND PROVIDING QUANTITY REQUIRED FOR COMPLETE SYSTEM.
16. PROVIDE RACK-MOUNTED FIBER OPTIC PATCH PANEL PER 27 13 43.
17. PROVIDE 26U WALL-MOUNTED EQUIPMENT CABINET WITH GROUND BAR, PATCH PANELS, CABLE (JUMPER) MANAGEMENT, AND OTHER EQUIPMENT AS SHOWN PER 27 13 43. PROVIDE COPPER BONDING CONDUCTOR FROM GROUNDING BUSBAR IN ROOM PER SPECIFICATIONS AND DETAILS. PROVIDE POWER STRIP / SURGE ARRESTERS PER 27 13 43 - COORDINATE FINAL LOCATION OF POWER STRIPS WITH EQUIPMENT AND FINAL RACK LAYOUTS.
18. DEDICATED 20-AMPERE 120-VOLT CIRCUIT AND DOUBLE-DUPLEX RECEPTACLE BY ELECTRICAL CONTRACTOR. RECEPTACLE BOX SHALL BE MOUNTED TO CABINET BACKPLANE.
19. PROVIDE RACK-MOUNTED UPS PER 28 23 00.
20. PROVIDE WALL-MOUNTED FIBER OPTIC PATCH ENCLOSURE PER 27 13 43.
21. PROVIDE WALL-MOUNTED AC SURGE PROTECTOR / POWER STRIP PER 27 13 43.
22. PROVIDE DIN RAIL-MOUNTED DC POWER SUPPLY PER 28 23 00.
23. PROVIDE PAD-MOUNTED SURVEILLANCE EQUIPMENT ENCLOSURE WITH CONCRETE PAD. GROUND BAR AND HEATER KIT PER 28 23 00. SIZE 50" H X 30" W X 17" D MINIMUM. COORDINATE WITH ELECTRICAL FOR CONDUIT SUB-UPS.
24. DOUBLE-DUPLEX RECEPTACLE, CIRCUIT WIRING, AND CONDUIT BY ELECTRICAL CONTRACTOR.
25. PROVIDE INDOOR/OUTDOOR FIBER OPTIC CABLE PER FIBER OPTIC RISER DIAGRAM. PROVIDE 25' SLACK LOOP COILED AND PROTECTED IN CABINET IN LOCATION THAT DOES NOT INTERFERE WITH ANY COMPONENTS (NOT SHOWN).
26. 2" PVC CONDUIT FOR SURVEILLANCE HORIZONTAL CABLES BY ELECTRICAL CONTRACTOR.
27. PVC CONDUIT AND BUSHING FOR FIBER OPTIC CABLE BY ELECTRICAL CONTRACTOR.
28. GROUND ROD AND #6 AWG COPPER GEC BY ELECTRICAL CONTRACTOR.
29. PROVIDE #6 AWG COPPER BONDING CONDUCTOR BETWEEN GROUND BAR AND CABINET. REMOVE PANT AS REQUIRED FOR SOLID CONNECTION TO CABINET. PROVIDE #6 AWG COPPER BONDING CONDUCTOR BETWEEN GROUND BAR AND EMBEDDED REBAR. REFER TO 28 23 00.
30. COPPER BONDING CONDUCTOR BETWEEN INCOMING EGC AND GROUND BAR BY ELECTRICAL CONTRACTOR.
31. PROVIDE NEMA 5-15P / PIGTAIL POWER CABLE BETWEEN AC SURGE PROTECTOR AND POWER SUPPLY TERMINALS.
32. PROVIDE FIBER OPTIC PATCH CORD PER SPECIFICATIONS.
33. CABINET MOUNTING PLANE.
34. PROVIDE UTP PATCH CORD BETWEEN ETHERNET SURGE PROTECTIVE DEVICE AND POE SWITCH. NOTE - OBSERVE SURGE PROTECTOR MANUFACTURERS SUGGESTED CABLE LENGTH FOR PATCH CORD.
35. PROVIDE BONDING CONDUCTOR PER SURGE PROTECTIVE DEVICE MANUFACTURER. ENSURE LENGTH IS KEPT TO A MINIMUM.
36. PROVIDE DIN RAIL AS REQUIRED FOR MOUNTING EQUIPMENT SHOWN.
37. PROVIDE DIN RAIL INDUSTRIAL SWITCH PER 28 23 00. BOND CHASSIS TO GROUND BAR PER MANUFACTURER REQUIREMENTS.
38. PROVIDE WALL-MOUNTED POE SURGE PROTECTOR PER 28 23 00.
39. PROVIDE HORIZONTAL CABLE(S) TO POLE-MOUNTED CAMERAS. REFER TO CAMERA SCHEDULE.
40. SPARE CONDUIT STUB FOR FUTURE USE.
41. PROVIDE ACCESS CONTROL MAIN CONTROLLER AND ENCLOSURE PER 28 13 00.
42. PROVIDE FREE-STANDING TOWER TYPE UPS PER 28 13 00. UPS SHALL BE UTILIZED FOR ALL ELECTRONICS IN ROOMS. VIA THE PANELBOARD AD2T-GP-L1 - ELECTRICAL. TO PROVIDE INPUT CIRCUIT - COORDINATE WITH ELECTRICAL. UPS SHALL FEED PANELBOARD AD2T-GP-L1. AND ALL NETWORK ELECTRONICS / POWER DISTRIBUTION UNITS IN RACKS SHALL BE THEN FED FROM THE PANELBOARD.
43. TWIST-LOCK RECEPTACLE FOR VERTICAL PDU FROM UPS PANEL AD2T-GP-L1 BY ELECTRICAL CONTRACTOR. RECEPTACLE CONFIGURATION SHALL MATCH THE PLUGS FOR CONTRACTOR-PROVIDED PDU. ASSUME L14-30R FOR BIDDING RECEPTACLE SHALL BE MOUNTED ON CABLE RUNWAY. COORDINATE WITH ELECTRICAL.
44. GENERAL-USE RECEPTACLE BY EC. GENERAL-USE RECEPTABLES IN ROOM MAY BE ON SAME CIRCUIT. INSTALLATION HEIGHT SHALL BE APPROXIMATELY 18" AFF. COORDINATE WITH ELECTRICAL CONTRACTOR.
45. PROVIDE CORE DRILLS AND SLEEVES TO LOWER AND UPPER LEVELS. QUANTITY AS REQUIRED FOR CABLES AND SLEEVES. FORTY AND FIVE PASSING THROUGH, PLUS (1) SPARE AT EACH GROUP OF CORES FOR FUTURE USE. REFER TO FLOOR PLANS.
46. PROVIDE (1) VERTICAL PDU FOR EQUIPMENT RACK / CABINET PER 27 13 43.
47. CIRCUIT SHALL BE FED FROM PANEL AD2-T-GP-L1. COORDINATE WITH EC.
48. CIRCUIT SHALL BE FED FROM PANEL MG2-T-GP-L-S1. COORDINATE WITH EC.
49. PROVIDE HORIZONTAL RACK-MOUNTED SURGE SUPPRESSOR PER SPECIFICATIONS.
50. PROVIDE TGB PER GROUNDING DETAILS. MOUNT IN CONVENIENT LOCATION NEARBY CABINET.

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Issue

**PHASE B, C, D - BID**  
**PKG2- ADD 1**

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Professional Seals

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2	100% DESIGN REVIEW	11/08/2021
3	PHASE B, C, D - BID PKG 2	12/15/2021
4	PHASE B, C, D - PERMIT	12/17/2021
5	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

Designed: Design Drawn: Author Checked: Check  
Project No: M1600050

Sheet Title

COMMUNICATIONS &  
SPECIAL SYSTEMS  
ENLARGED PLANS

Sheet Number:

COM-201

## NOTES (THIS SHEET)

- SEE SHEET COM-000 FOR COMMUNICATIONS & SPECIAL SYSTEMS GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
- THIS DRAWING CONTAINS INFORMATION ABOUT NEW SINGLE-MODE FIBER ONLY. UNLESS NOTED SPECIFICALLY OTHERWISE, IT IS NOT INTENDED TO BE ALL-INCLUSIVE OF ALL FIBER OPTIC CABLING SERVING THE SITE. REFER TO FLOOR PLANS FOR FURTHER ROUTING INFORMATION.
- TEST ALL NEW FIBER OPTIC CABLE PER SPECIFICATION SECTION 27 10 00.
- NEW PATCH PANELS ARE TO BE INSTALLED INTO EXISTING AND NEW EQUIPMENT RACKS AND CABINETS UNLESS NOTED OTHERWISE. COORDINATE PATCH PANEL LOCATION WITHIN RACK WITH OWNER PRIOR TO INSTALLATION.
- REMOVAL OF EXISTING TELECOMMUNICATIONS CABLES SHALL NOT OCCUR UNTIL NEW LINKS ARE ESTABLISHED. CONTRACTOR IS RESPONSIBLE FOR CUTOVER SEQUENCING.
- NOT ALL REQUIRED JUNCTION BOXES ARE SHOWN ON THIS DETAIL. CONTRACTOR SHALL ADHERE TO ALL RELEVANT NEC AND TIA STANDARDS FOR PULL AND JUNCTION BOX PLACEMENT, INSTALLATION, AND SIZING.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE AND WORKING SYSTEM. ANY COMPONENTS REQUIRED FOR THE COMPLETE AND FINAL WORKING SYSTEM ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- EXISTING SALIENT SERVERS IN EXISTING ADMIN 0A15A SUPPORTING THE SURVEILLANCE SYSTEM ARE TO BE REMOVED BY OWNER. COORDINATE CUTOVER TO NEW SURVEILLANCE SYSTEM WITH IT STAFF.
- PROVIDE SURVEILLANCE SYSTEM VIEWING STATIONS PER FLOOR PLANS AND SPECIFICATION SECTION 28 23 00.
- THE MAJORITY OF EXISTING TELECOMMUNICATIONS INFRASTRUCTURE AT THE FACILITY IS UNLABELED, AND DIAGRAMS ARE BASED UPON VISUAL INSPECTION ONLY. CONTRACTOR SHALL CONFIRM ALL CABLE ORIGINS PRIOR TO BEGINNING WORK. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER.
- NETWORK SWITCHES BY CONTRACTOR UNLESS NOTED OTHERWISE. REFER TO COM-000.

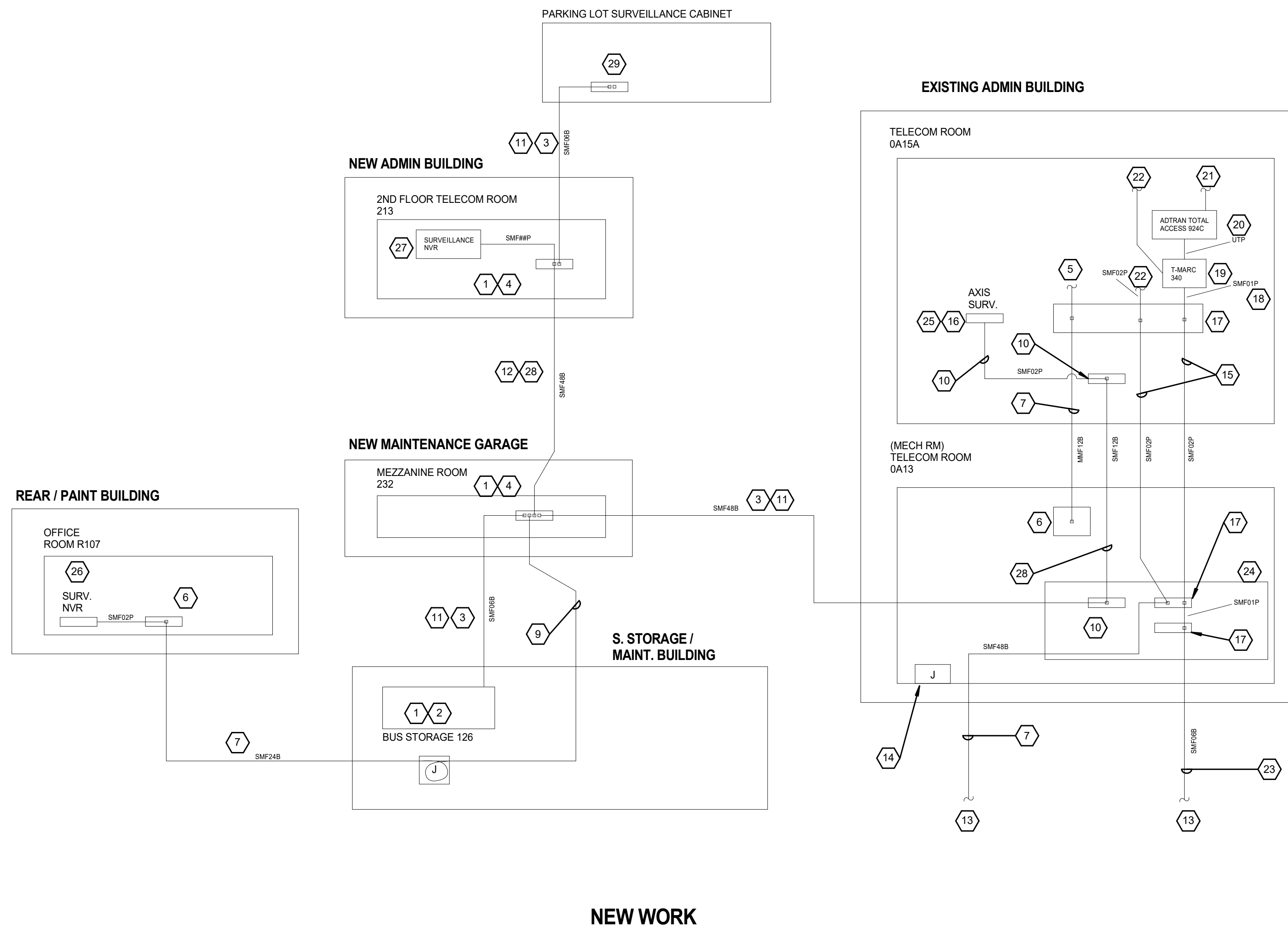
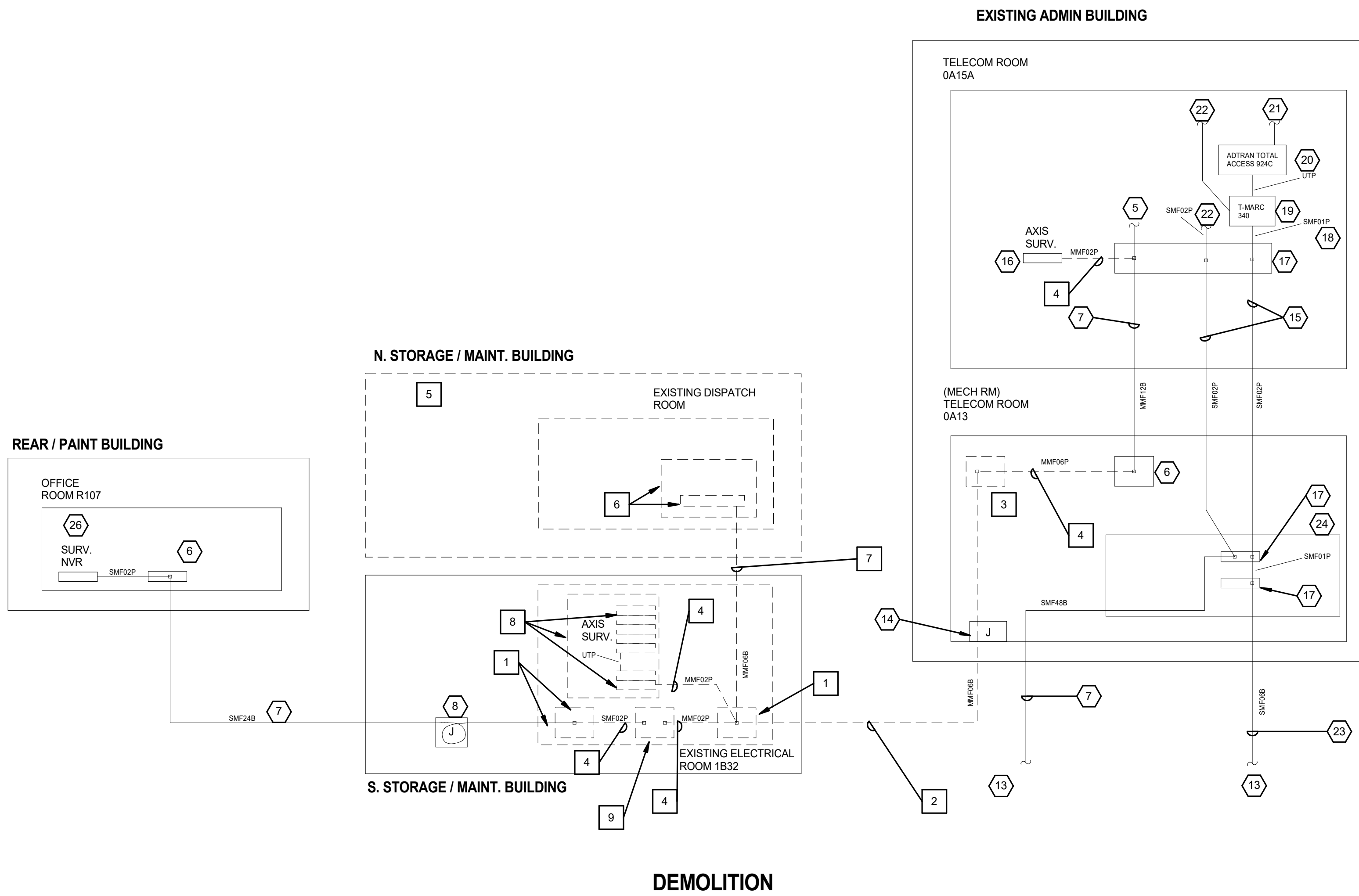
## # DEMOLITION KEYNOTES

- REMOVE FIBER PATCH PANEL. REMOVE FIBER TERMINATIONS AS REQUIRED TO PULL FIBER CABLE BACK TO EXISTING JUNCTION BOX.
- REMOVE EXISTING 6-STRAND OM1 62.5/125 FIBER OPTIC CABLE AND RACEWAY. PRECISE ROUTE OF UNDERGROUND DUCT BANK BETWEEN BUILDINGS IS NOT KNOWN.
- REMOVE WALL-MOUNTED FIBER PATCH ENCLOSURE
- REMOVE DUPLEX OM1 PATCH CORDS.
- ENTIRE BUILDING TO BE DEMOLISHED. REFER TO DEMOLITION DRAWINGS.
- REMOVE RACK-MOUNTED FIBER OPTIC PATCH PANEL, WALL-MOUNTED RACK, AND MODULAR PATCH PANELS. RETURN NETWORK SWITCHES TO OWNER.
- REMOVE FIBER OPTIC CABLE.
- REMOVE WALL-MOUNTED NETWORK EQUIPMENT CABINET. RETURN ELECTRONICS TO OWNER.
- REMOVE SINGLEMODE-TO-MULTIMODE MEDIA CONVERTER. RETURN TO OWNER.

## # KEYNOTES

- PROVIDE NEW FIBER PATCH PANEL(S), MODULAR PATCH PANELS, CABLE MANAGEMENT, AND PATCH CORDS PER SPECIFICATIONS. REFER TO FLOOR PLANS FOR MORE INFORMATION.
- PROVIDE NEW WALL-MOUNTED EQUIPMENT CABINET. REFER TO FLOOR PLANS FOR MORE INFORMATION.
- PROVIDE QUANTITY SHOWN OF INDOOR/OUTDOOR-TYPE FIBER OPTIC CABLE PER SPECIFICATIONS. REFER TO FLOOR PLANS FOR MORE INFORMATION.
- PROVIDE NEW FREE-STANDING NETWORK RACK(S). REFER TO FLOOR PLANS AND RACK ELEVATIONS FOR MORE INFORMATION.
- FIBER OPTIC PATCH CORD(S) TO LOCAL NETWORK SWITCHES.
- EXISTING WALL-MOUNTED FIBER OPTIC PATCH ENCLOSURE TO REMAIN.
- EXISTING FIBER OPTIC CABLE TO REMAIN.
- EXISTING JUNCTION BOX NEAR EXISTING ELECTRICAL ROOM CURRENTLY HOLDS APPROXIMATELY 500 FT OF LOOPED FIBER OPTIC SLACK.
- ROUTE EXISTING COILED FIBER SLACK THROUGH NEW UNDERGROUND DUCT BANK AND RACEWAY TO REACH NEW MAINTENANCE GARAGE MEZZANINE.
- PROVIDE NEW FIBER PATCH PANEL AND PATCH CORDS IN TELECOM RACK / CABINET PER SPECIFICATIONS.
- PROVIDE FIBER OPTIC CABLE IN UNDERGROUND DUCT BANK. REFER TO ELECTRICAL DRAWINGS.
- PROVIDE FIBER OPTIC CABLE IN ABOVE-GROUND 2-1/2" EMT CONDUITS. PROVIDE PULL BOXES AND 4-CELL FABRIC INNERDUCT.
- UNKNOWN ORIGIN OF FIBER OPTIC CABLE. 48-STRAND OF SINGLE-MODE FIBER TO REMAIN. IT IS BELIEVED THIS CABLE MAY BE FROM COMCAST OR STRATUS NETWORKS.
- EXISTING WALL-MOUNTED JUNCTION BOX TO REMAIN.
- EXISTING FIBER OPTIC PATCH CORD TO REMAIN.
- EXISTING SURVEILLANCE POE SWITCH TO REMAIN- AXIS MODEL T8516. PROVIDE DUPLEX LC MINI-GBIC / SFP SINGLE-MODE TRANSCEIVER TO INTERFACE WITH NEW FIBER OPTIC CABLEING.
- EXISTING RACK-MOUNTED FIBER OPTIC PATCH PANEL TO REMAIN.
- SIMPLEX SINGLE-MODE FIBER OPTIC PATCH CORD TO REMAIN.
- STRATUS NETWORK WAN INTERFACE TO REMAIN.
- ADTRAN TOTAL ACCESS IP BUSINESS GATEWAY TO REMAIN.
- TWISTED-PAIR MULTI-PAIR COPPER CABLE TO REMAIN.
- UTP CABLES TO RACK-MOUNTED NETWORK SWITCHES AND OTHER NETWORKING ELECTRONICS.
- STRATUS 6-STRAND INDOOR/OUTDOOR FIBER OPTIC CABLE TO REMAIN.
- EXISTING WALL-MOUNTED EQUIPMENT CABINET.
- CONTRACTOR TO INTEGRATE ALL CAMERAS CURRENTLY WIRED TO THIS SWITCH INTO THE NEW SURVEILLANCE SYSTEM. THERE ARE CURRENTLY (15) CAMERAS PLUGGED INTO THIS POE SWITCH. CONTRACTOR IS RESPONSIBLE FOR ALL DETAILS OF THIS INTEGRATION - INCLUDING, BUT NOT LIMITED TO, SERVER PROCESSING, BANDWIDTH, AND STORAGE CALCULATIONS, LICENSING, AND ALL OTHER REQUIREMENTS FOR SYSTEM AS OUTLINED IN SPECIFICATIONS.
- EXISTING NVR / SURVEILLANCE SWITCH TO REMAIN. INTEGRATE CAMERAS IN REAR BUILDING TO NEW CAMERA NVR SYSTEM. PROVIDE ANY REQUIRED HARDWARE, LABOR, AND PROGRAMMING FOR INTEGRATION. THERE ARE CURRENTLY 5 CAMERAS BEING USED IN THE REAR MAINTENANCE GARAGE. PROVIDE FIBER OPTIC CONNECTION PATHWAY TO NVR SERVER IN NEW ADMIN BUILDING TO ESTABLISH LINK.
- PROVIDE NEW SURVEILLANCE NVR PER SPECIFICATIONS.
- PROVIDE QUANTITY SHOWN OF INDOOR-TYPE FIBER OPTIC CABLE PER SPECIFICATIONS. REFER TO FLOOR PLANS FOR MORE INFORMATION. PROVIDE 2" METALLIC CONDUIT AND JUNCTION BOXES WITH SEGMENTED FABRIC INNERDUCTS.
- PROVIDE WALL-MOUNTED FIBER OPTIC PATCH ENCLOSURE PER SPECIFICATIONS. REFER TO PARKING LOT SURVEILLANCE CABINET DETAIL.

FIBER OPTIC CABLE LEGEND  
(2) MMF06B = MULTIMODE FIBER, 6 STRAND, BACKBONE  
= B / P (BACKBONE CABLE OR PATCH CORD)  
= NUMBER OF STRANDS  
= MMF / SMF (MULTIMODE OR SINGLEMODE FIBER)  
= QUANTITY OF CABLES OR CORDS (IF MORE THAN ONE)



## 1 FIBER OPTIC RISER DIAGRAM

NOT TO SCALE

Project  
GPMTD CITYLINK  
NEW MAINTENANCE  
FACILITY & RENOVATION:  
PHASES B, C & D

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Issue  
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6	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

Designed: DesignDrawn: Author Checked: Checker  
Project No: M1600050

Sheet Title

FIBER OPTIC RISER  
DIAGRAM

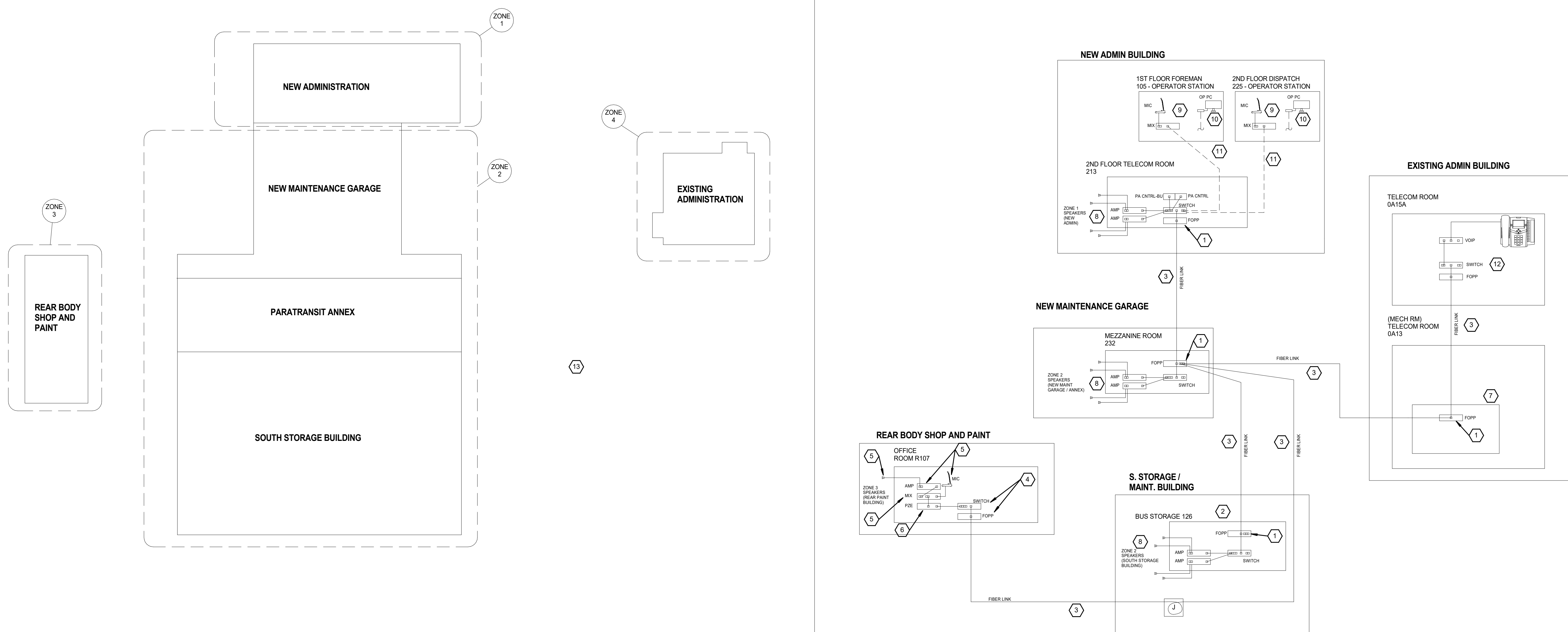
Sheet Number

COM-401

## 1 PUBLIC ADDRESS ZONE DIAGRAM AND RISER DIAGRAM

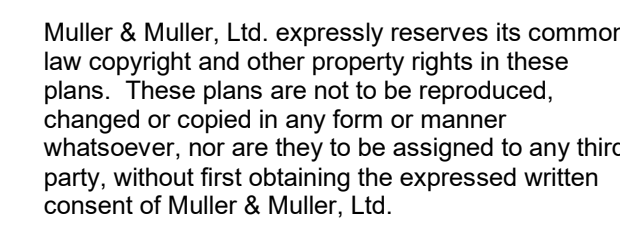
5. STANDARDS MUST BE FOLLOWED. ANY COMPONENTS REQUIRED FOR THE COMPLETE AND FINAL WORKING SYSTEM ARE THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ANY REQUIRED CABLES AND PATCH CORDS TO INTERCONNECT THE PUBLIC ADDRESS SYSTEM TO THE OVERALL SITE NETWORK AND TO INTERCONNECT ALL PUBLIC ADDRESS EQUIPMENT.
4. ALL NETWORK SWITCHES BY CONTRACTOR UNLESS DIRECTED OTHERWISE. REFER TO DRAWING COM-000.

1. FIBER PATCH PANELS BY 27 13 43 CONTRACTOR.
2. EQUIPMENT CABINET BY 27 13 43 CONTRACTOR.
3. FIBER OPTIC CABLE BY 27 13 43 CONTRACTOR.
4. EXISTING NETWORK COMPONENTS.
5. EXISTING PUBLIC ADDRESS HARDWARE.
6. PROVIDE PAGE ZONE EXTENDER PER 27 15 16. PROVIDE ANY REQUIRED POWER CABLES, SIGNAL CABLES, AND NETWORK CABLES REQUIRED TO THE TIE INTO EXISTING AND NEW PUBLIC ADDRESS SYSTEMS.
7. EXISTING WALL-MOUNTED EQUIPMENT CABINET.
8. PROVIDE SPEAKERS PER 27 15 16. REFER TO FLOOR PLANS FOR REQUIRED SPEAKER TYPES IN EACH AREA. PROVIDE ANY REQUIRED MOUNTING HARDWARE. NOTE - FOR CLARITY - NOT ALL REQUIRED SPEAKERS ARE SHOWN ON THIS DIAGRAM. REFER TO FLOOR PLANS FOR SPEAKER QUANTITIES AND PLACEMENT.
9. PROVIDE MIXER AND MICROPHONE FOR PA OPERATOR STATION PER 27 15 16.
10. PC BY OWNER. CONFIGURE AS REQUIRED TO SUPPORT PA SYSTEM OPERATION.
11. PROVIDE NETWORK CONNECTION TO SUPPORT DEVICE. NOT ALL REQUIRED NETWORK COMPONENTS ARE SHOWN ON THIS DIAGRAM.
12. EXISTING VOIP SYSTEM FOR OLD ADMINISTRATION BUILDING TO REMAIN. PROVIDE INTERFACE EQUIPMENT AS REQUIRED TO INTEGRATE INTO NEW EXISTING PA SYSTEM. CONFIRM DESIRED SETTINGS RELATED TO OVERALL ADMIN BUILDING WITH OWNER PRIOR TO INTEGRATION.
13. CONFIGURE PUBLIC ADDRESS SYSTEM TO RECOGNIZE THE SEPARATE ZONES AS SHOWN IN THIS DETAIL.



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Issue

**PHASE B, C, D - BID  
PKG2- ADD 1**

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Professional Seals

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1	100% DESIGN REVIEW	09/17/2021
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4	PHASE B, C, D - PERMIT	12/17/2021
5	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

Designed: SMK    Drawn: JRF    Checked: LMZ  
Project No: M1600050

Sheet Title

## PUBLIC ADDRESS ZONE AND RISER DIAGRAMS

Sheet Number:

COM-402

6

Plan Tag #	Instal Type - New / Replacement / Existing To Remain (ETR) / Future Use / Relocate	Building	Floor	Room Number	Direction / Field of View	Instal Location		Enclosure Type	Mount Type	Ceiling Type	Audio	IP/Analog	Camera Type	Cable Termination Location (Room)
						Interior	Exterior							
CAM-106-01	NEW	ADMINISTRATION	1	106 RECEIVING	SE STORAGE	X		DOME	WALL	STRUCTURE			B	ADMIN 213
CAM-106-02	NEW	ADMINISTRATION	1	106 RECEIVING	CENTRAL 360 DEG			360 DOME / SAUCER	PENDANT	STRUCTURE			C	ADMIN 213
CAM-118-01	NEW	ADMINISTRATION	1	118 GARAGE	EAST	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-02	NEW	ADMINISTRATION	1	118 GARAGE	EAST	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-03	NEW	ADMINISTRATION	1	118 GARAGE	EAST	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-04	NEW	ADMINISTRATION	1	118 GARAGE	SOUTH	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-05	NEW	ADMINISTRATION	1	118 GARAGE	SOUTH	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-06	NEW	ADMINISTRATION	1	118 GARAGE	SOUTH	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-07	NEW	ADMINISTRATION	1	118 GARAGE	WEST	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-08	NEW	ADMINISTRATION	1	118 GARAGE	WEST	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-09	NEW	ADMINISTRATION	1	118 GARAGE	WEST	X		BULLET	WALL	STRUCTURE			A	ADMIN 213
CAM-118-10	NEW	ADMINISTRATION	1	118 GARAGE	EAST	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-11	NEW	ADMINISTRATION	1	118 GARAGE	EAST	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-12	NEW	ADMINISTRATION	1	118 GARAGE	EAST	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-13	NEW	ADMINISTRATION	1	118 GARAGE	NORTH	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-14	NEW	ADMINISTRATION	1	118 GARAGE	NORTH	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-15	NEW	ADMINISTRATION	1	118 GARAGE	NORTH	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-16	NEW	ADMINISTRATION	1	118 GARAGE	WEST	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-17	NEW	ADMINISTRATION	1	118 GARAGE	WEST	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-118-18	NEW	ADMINISTRATION	1	118 GARAGE	WEST	X		BULLET	WALL	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-119-01	NEW	ADMINISTRATION	1	119 CHASSIS WASH	WEST	X		DOME	WALL	STRUCTURE			E	ADMIN 232 (MEZZ)
CAM-120-01	NEW	ADMINISTRATION	1	120 TOOL STORAGE	EAST	X		DOME	WALL	STRUCTURE			B	ADMIN 232 (MEZZ)
CAM-120-02	NEW	ADMINISTRATION	1	120 TOOL STORAGE	WEST	X		DOME	WALL	STRUCTURE			B	ADMIN 232 (MEZZ)
CAM-122-01	NEW	ADMINISTRATION	1	122 EQUIPMENT	NORTHWEST	X		DOME	WALL	STRUCTURE			B	ADMIN 232 (MEZZ)
CAM-123-01	NEW	ADMINISTRATION	1	123 TIRE	NORTHWEST	X		DOME	WALL	STRUCTURE			B	ADMIN 232 (MEZZ)
CAM-128-01	NEW	ADMINISTRATION	1	128 CORRIDOR	WEST	X		DOME	WALL	STRUCTURE			B	ADMIN 213
CAM-128-02	NEW	ADMINISTRATION	1	128 CORRIDOR	EAST	X		DOME	WALL	STRUCTURE			B	ADMIN 213
CAM-129-01	NEW	ADMINISTRATION	1	129 CORRIDOR	180 SOUTH	X		DOME	WALL	STRUCTURE			D	ADMIN 213
CAM-200-01	NEW	ADMINISTRATION	2	200 VESTIBULE	EAST	X		DOME	WALL	HARD CEILING			B	ADMIN 213
CAM-202-01	NEW	ADMINISTRATION	2	202 LOBBY	NORTHEAST	X		DOME	WALL	STRUCTURE			B	ADMIN 213
CAM-231-01	NEW	ADMINISTRATION	2	231 MEZZANINE	WEST TOWARD STAIRS AND IT	X		DOME	WALL	STRUCTURE			B	ADMIN 232 (MEZZ)
CAM-225-01	NEW	ADMINISTRATION	2	225 DISPATCH	NORTHWEST	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-319-01	NEW	ADMINISTRATION	3	319 FINANCE SUITE	EAST 180	X		DOME	CEILING	SUSPENDED GRID			D	ADMIN 213
CAM-319-02	NEW	ADMINISTRATION	3	319 FINANCE SUITE	EAST 180	X		DOME	WALL	SUSPENDED GRID			D	ADMIN 213
CAM-334-01	NEW	ADMINISTRATION	3	334 BOARD ROOM	SOUTHWEST	X		DOME	WALL	HARD CEILING			B	ADMIN 213
CAM-334-02	NEW	ADMINISTRATION	3	334 BOARD ROOM	NORTHWEST	X		DOME	WALL	HARD CEILING			B	ADMIN 213
CAM-461-01	NEW	ADMINISTRATION	2	461 CORRIDOR 2ND FLR	NORTHWEST - ENTRANCE	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-461-02	NEW	ADMINISTRATION	2	461 CORRIDOR 2ND FLR	EAST CORRIDOR	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-461-03	NEW	ADMINISTRATION	2	461 CORRIDOR 2ND FLR	WEST CORRIDOR	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-461-04	NEW	ADMINISTRATION	2	461 CORRIDOR 2ND FLR	NORTH STAIRWELL	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-465-01	NEW	ADMINISTRATION	3	465 VESTIBULE 3RD FLR	EAST 180	X		DOME	WALL	SUSPENDED GRID			D	ADMIN 213
CAM-467-01	NEW	ADMINISTRATION	3	467 CORRIDOR 3RD FLR	EAST	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-467-02	NEW	ADMINISTRATION	3	467 CORRIDOR 3RD FLR	WEST	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-467-03	NEW	ADMINISTRATION	3	467 CORRIDOR 3RD FLR	EAST	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-467-04	NEW	ADMINISTRATION	3	467 CORRIDOR 3RD FLR	WEST	X		DOME	WALL	SUSPENDED GRID			B	ADMIN 213
CAM-497-01	NEW	ADMINISTRATION	1	497 LOBBY 1ST FLR	NORTH 180	X		DOME	WALL	SUSPENDED GRID			D	ADMIN 213
CAM-EXT-01	NEW	EXTERIOR - ADMIN	2	-	NORTH WEST PEDESTRIAN ENTRANCE	X		DOME	WALL	-			E	ADMIN 213
CAM-EXT-02	NEW	EXTERIOR - ADMIN	2	-	PEDESTRIAN ENTRANCE, PARKING LOT GATE	X		DOME	WALL	-			E	ADMIN 213
CAM-EXT-03	NEW	EXTERIOR - ADMIN	2	-	WEST BUS ENTRANCE	X		DOME	WALL	-			E	ADMIN 213
CAM-EXT-04	NEW	EXTERIOR - ADMIN	2	-	WEST BUS ENTRANCE - FACING WEST	X		DOME	WALL	-			F	ADMIN 213
CAM-EXT-05	NEW	EXTERIOR - ADMIN	2	-	WEST BUS ENTRANCE	X		DOME	WALL	-			E	ADMIN 232 (MEZZ)
CAM-EXT-06	NEW	EXTERIOR - ADMIN	2	-	EAST BUS ENTRANCE	X		DOME	WALL	-			E	ADMIN 232 (MEZZ)
CAM-EXT-07	NEW	EXTERIOR - ADMIN	2	-	EAST BUS ENTRANCE - FACING EAST	X		DOME	WALL	-			F	ADMIN 213
CAM-EXT-08	NEW	EXTERIOR - ADMIN	2	-	EAST BUS ENTRANCE	X		DOME	WALL	-			E	ADMIN 213
CAM-EXT-09	NEW	EXTERIOR - ADMIN	3	-	TOWARD PARKING LOT	X		DOME	WALL	-			E	ADMIN 213
CAM-EXT-10	NEW	EXTERIOR - SOUTH	1	-	SOUTH - DOORS & DRIVE	X		DOME	WALL	-			E	SOUTH CABINET
CAM-EXT-11	NEW	EXTERIOR - SOUTH	1	-	NORTH - DOORS AND DRIVE	X		DOME	WALL	-			E	SOUTH CABINET
CAM-EXT-12	NEW	EXTERIOR - SOUTH	1	-	NORTH - DOORS AND DRIVE	X		DOME	WALL	-			E	SOUTH CABINET
CAM-EXT-13	NEW	EXTERIOR - SOUTH	1	-	SOUTH - DOORS & DRIVE	X		DOME	WALL	-			E	SOUTH CABINET
CAM-EXT-14	NEW	EXTERIOR - ADMIN	1	-	LOADING DOCK	X		DOME	WALL	-			E	ADMIN 213
CAM-EXT-15	NEW	EXTERIOR - ANNEX	1	-	WEST	X		DOME	WALL	-			F	ADMIN 232 (MEZZ)
CAM-EXT-16	NEW	EXTERIOR - ANNEX	1	-	EAST	X		DOME	WALL	-			F	ADMIN 232 (MEZZ)
CAM-EXT-17	NEW	EXTERIOR - ADMIN	2	-	NORTH BUILDING EXTERIOR	X		DOME	WALL	-			F	ADMIN 213
CAM-ANX-01	NEW	ANNEX	1	125 ANNEX	EAST	X		BULLET	PENDANT	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-ANX-02	NEW	ANNEX	1	125 ANNEX	WEST	X		BULLET	PENDANT	STRUCTURE			A	ADMIN 232 (MEZZ)
CAM-126-01	NEW	SOUTH	1	126	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-02	NEW	SOUTH	1	126	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-03	NEW	SOUTH	1	126	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-04	NEW	SOUTH	1	126	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-05	NEW	SOUTH	1	126	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-06	NEW	SOUTH	1	126	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-07	NEW	SOUTH	1	126	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-08	NEW	SOUTH	1	126	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-09	NEW	SOUTH	1	126	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-126-10	NEW	SOUTH	1	126	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-127-01	NEW	SOUTH	1	127	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-127-02	NEW	SOUTH	1	127	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-127-03	NEW	SOUTH	1	127	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-127-04	NEW	SOUTH	1	127	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-127-05	NEW	SOUTH	1	127	EAST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-127-06	NEW	SOUTH	1	127	WEST	X		BULLET	PENDANT	STRUCTURE			A	SOUTH CABINET
CAM-POL-01	NEW	NORTH PARKING LOT	-	-	EAST	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-POL-02	NEW	NORTH PARKING LOT	-	-	SOUTH	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-POL-03	NEW	NORTH PARKING LOT	-	-	SOUTH	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-POL-04	NEW	NORTH PARKING LOT	-	-	SOUTH	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-POL-05	NEW	NORTH PARKING LOT	-	-	WEST	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-POL-06	NEW	NORTH PARKING LOT	-	-	NORTH	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-POL-07	NEW	NORTH PARKING LOT	-	-	NORTH	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-POL-08	NEW	NORTH PARKING LOT	-	-	NORTH	X		DOME	POLE	-			D	PARKING LOT CABINET
CAM-GAT-01	NEW	EAST GATE	-	-	NE	X		DOME	WALL	-			E	ADMIN 213

1

## CAMERA SCHEDULE

NOT TO SCALE

## KEYNOTES

- FOR CAMERA EQUIPMENT REQUIREMENTS, INCLUDING FOV, RESOLUTIONS, AND ENVIRONMENTAL RATINGS, REFER TO 28 23 00.

Project

GPMTD CITYLINK  
NEW MAINTENANCE  
FACILITY & RENOVATION:  
PHASES B, C & D

Prepared For

GREATER PEORIA MASS TRANSIT  
DISTRICT



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ClarkDietz

INFRASTRUCTURE  
ENGINEERING | INCORPORATED

Lindsay & Associates, Inc.  
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# E. Orlow Boulevard, Suite 205, Aurora, Illinois 60014-4027  
Phone 630.245.6820

Issue

PHASE B, C, D - BID  
PKG2- ADD 1

Issue Date:

01/07/2022

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CONSTRUCTION

No.	Description	Date
1	70% DESIGN REVIEW	05/24/2021
2	100% DESIGN REVIEW	09/17/2021
3	100% DESIGN REVIEW	11/08/2021
4	PHASE B, C, D - BID PKG 2	12/15/2021
5	PHASE B, C, D - PERMIT	12/17/2021
6	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

Designed: Design:Drawn: Author Checked: Checker

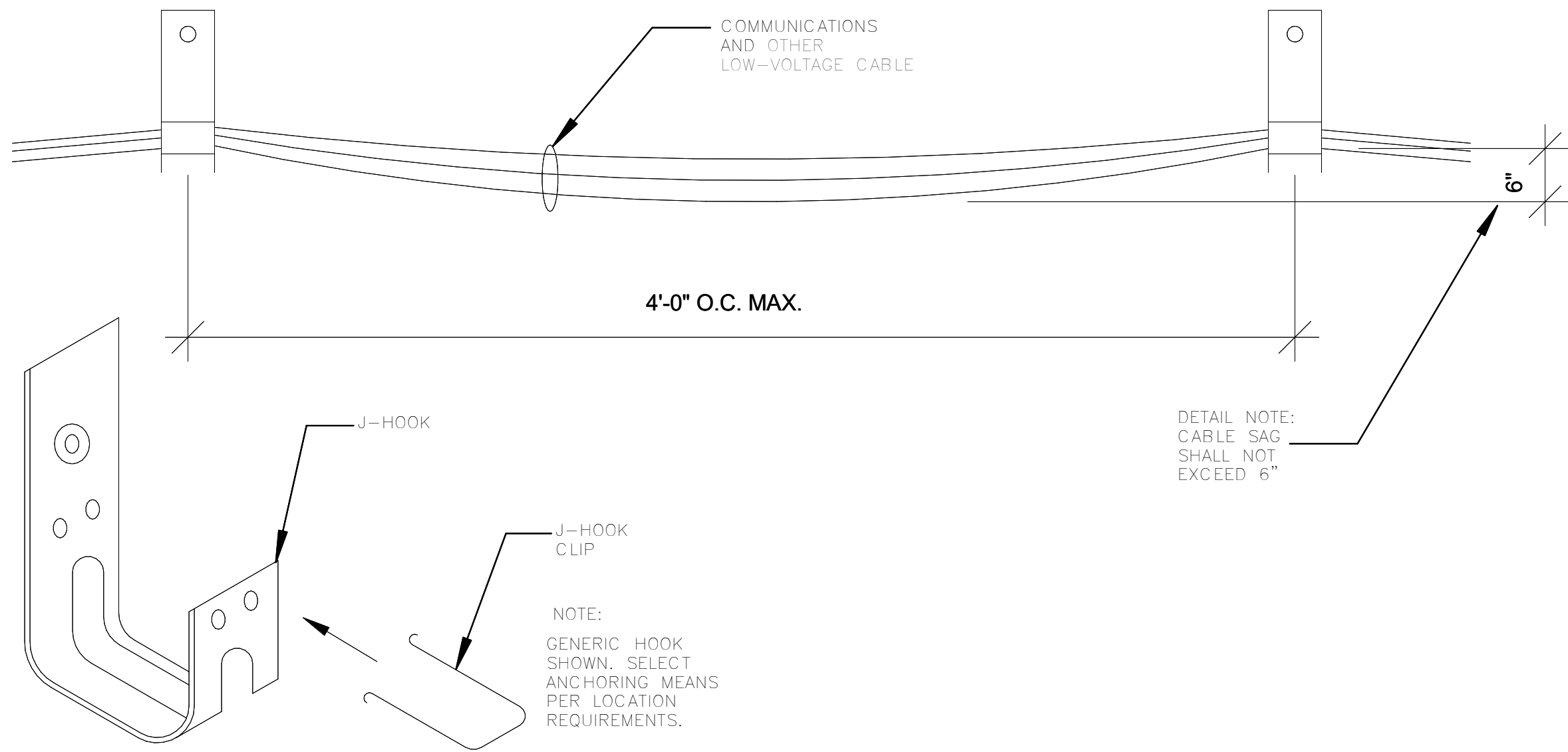
Project No: M1600050

Sheet Title

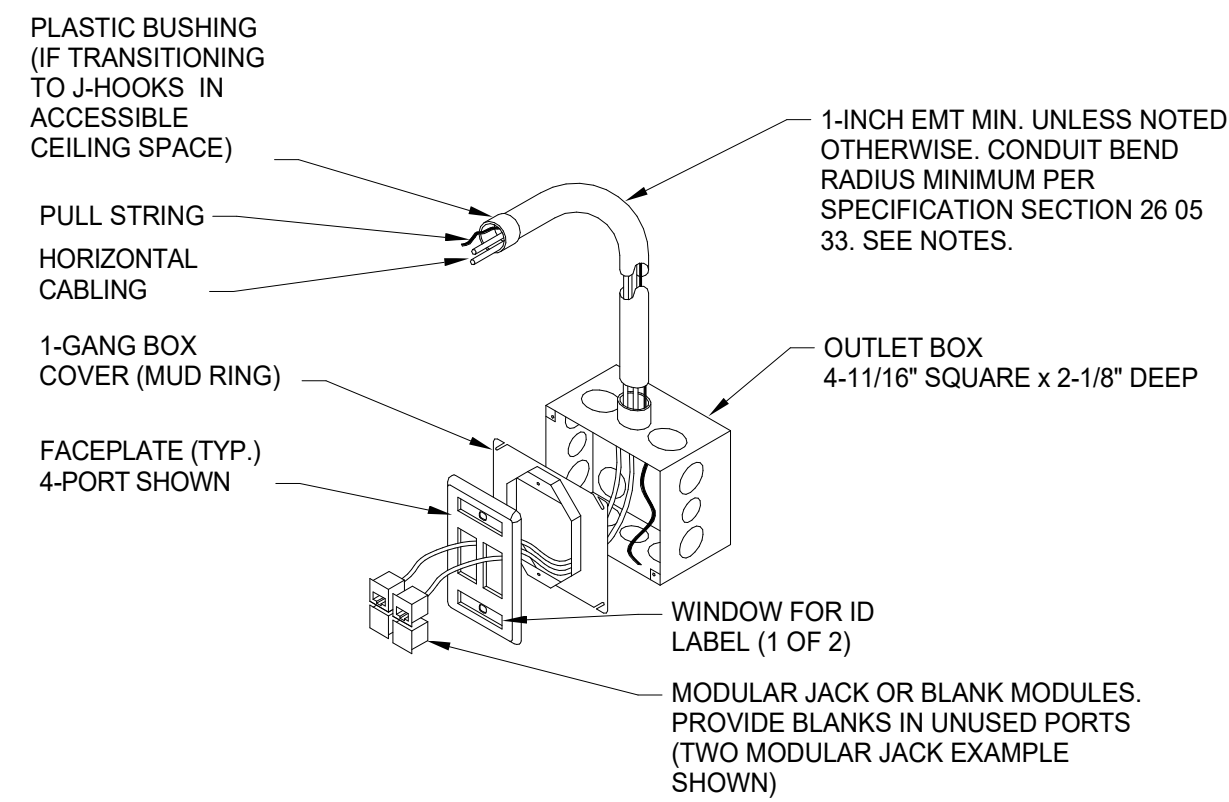
COMMUNICATIONS &  
SPECIAL SYSTEMS  
SCHEDULES

Sheet Number

COM-501

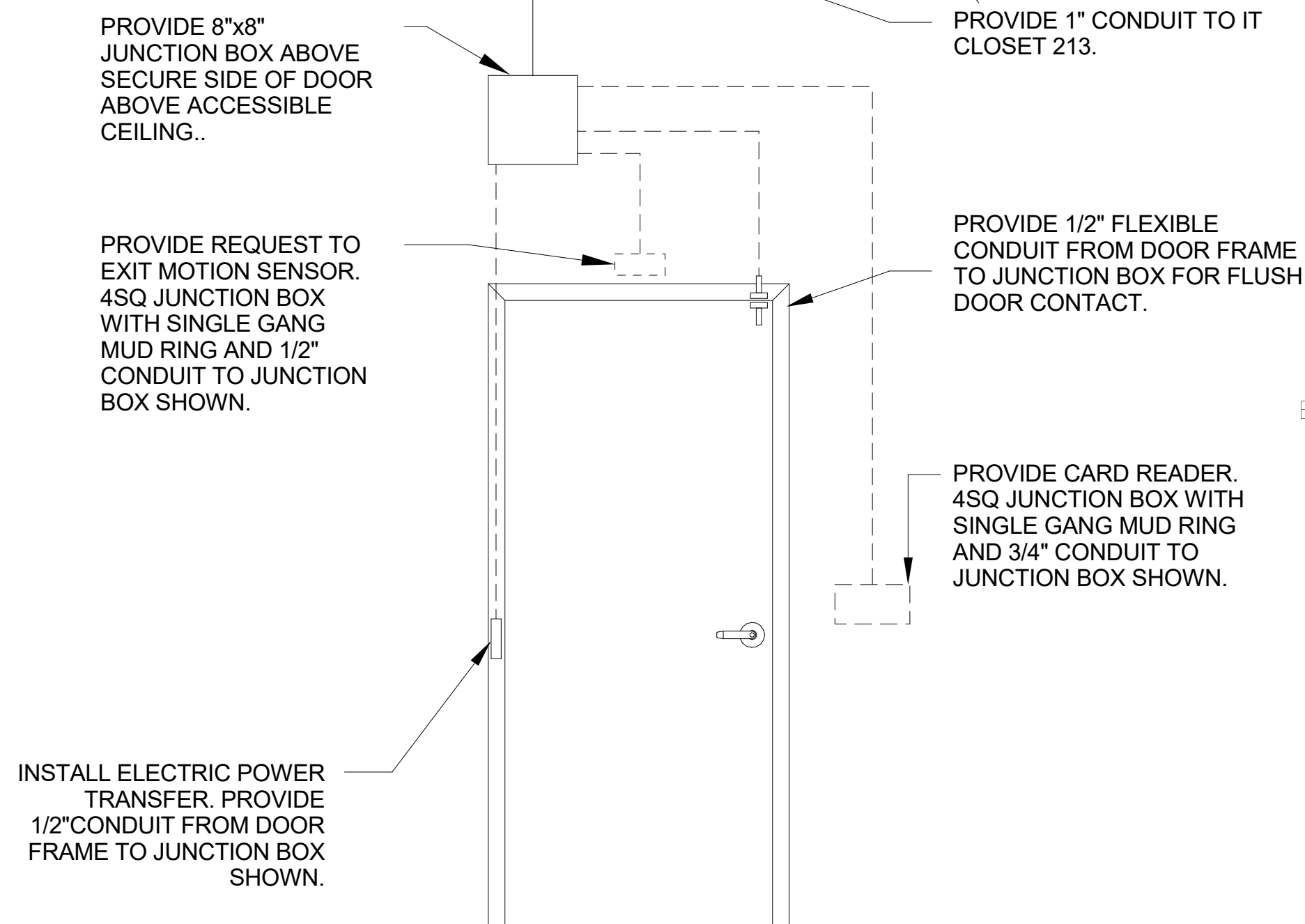


## 1 CABLE SUPPORT HOOK INSTALLATION DETAIL



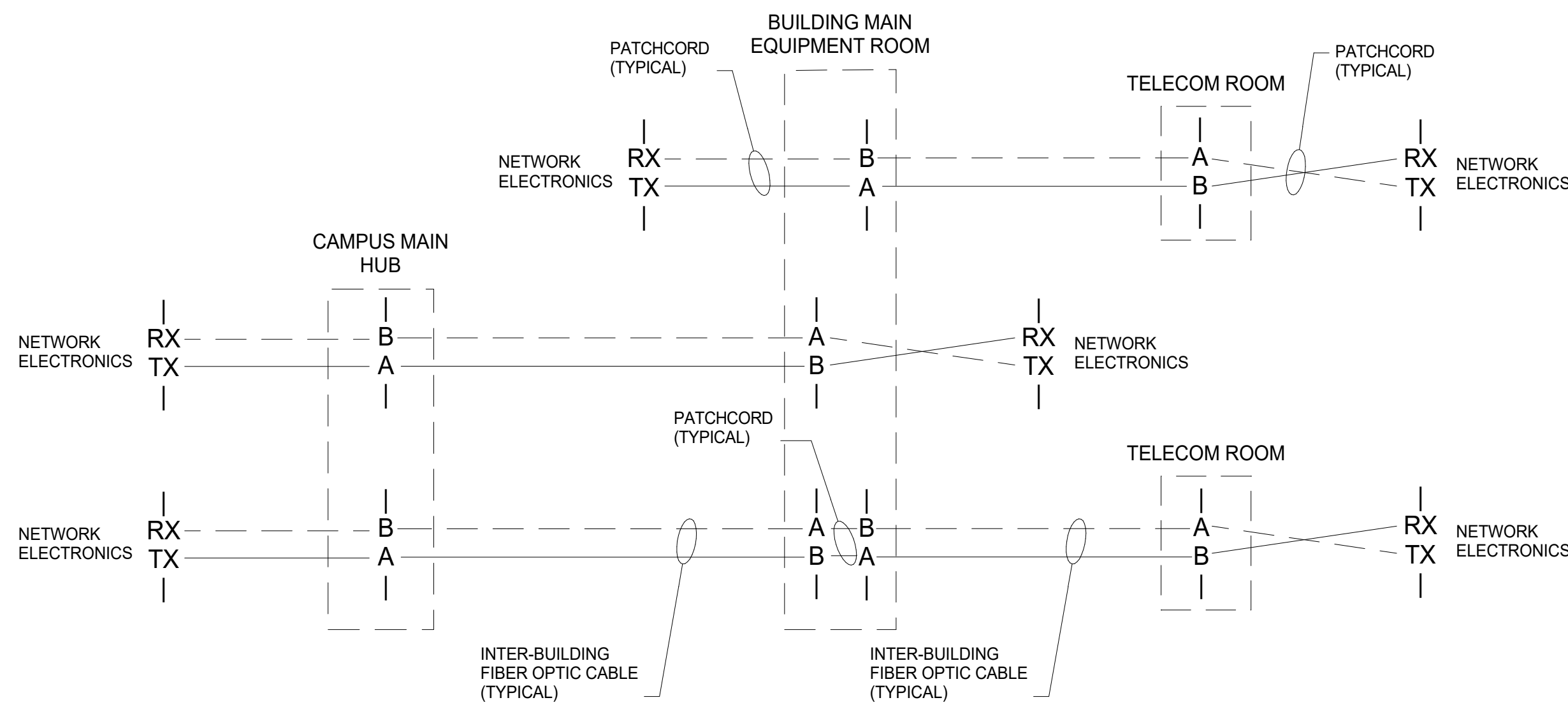
- NOTES:**
- CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  - CONDUIT SHALL BE CONTINUOUS FROM OUTLET BOX TO ACCESSIBLE CEILING SPACE. OR IN CONDUIT CONTINUOUSLY WHERE CABLES WOULD BE OTHERWISE EXPOSED. CABLES SHALL NOT BE EXPOSED - ONE EXCEPTION IS WITHIN DEDICATED TELECOMMUNICATIONS ROOMS WITH FREE-STANDING EQUIPMENT RACKS.
  - PROVIDE PULL STRING IN ALL CONDUITS.
  - REFER TO DIV 27 SPECIFICATIONS MODULAR JACK CONNECTOR TYPES.
  - PROVIDE TWO (2) HORIZONTAL CABLES AND MODULAR JACKS TO EACH EQUIPMENT OUTLET UNLESS SHOWN OTHERWISE ON PROJECT DRAWINGS.

## 3 COMMUNICATIONS EQUIPMENT OUTLET ROUGH-IN



## 4 CORD ACCESS DETAIL

NOT TO SCALE



- KEY:**
- B = B-A ADAPTER ORDER; KEYWAYS UP OR TO RIGHT  
A = A-B ADAPTER ORDER; KEYWAYS DOWN OR LEFT
- NOTES:**
- PER ANSI/TIA-568-C.0, ANNEX B.
  - POSITION FIBERS IN CONSECUTIVE ORDER BOTH ENDS. REVERSE-PAIR POSITIONING IS NOT ALLOWED.
  - USE OF CROSS-OVER TYPE OPTICAL PATCH CORDS (A-B / B-A) FOR ALL INTERCONNECTION BETWEEN CABLE SYSTEM SEGMENTS AND BETWEEN THE CABLE SYSTEM AND NETWORK ELECTRONICS ASSUMED.
  - THIS DETAIL IS FOR ILLUSTRATIVE PURPOSES - THE ACTUAL CONFIGURATION OF THE FACILITY'S FIBER OPTIC SYSTEM IS DETAILED ELSEWHERE IN PROJECT DRAWINGS.

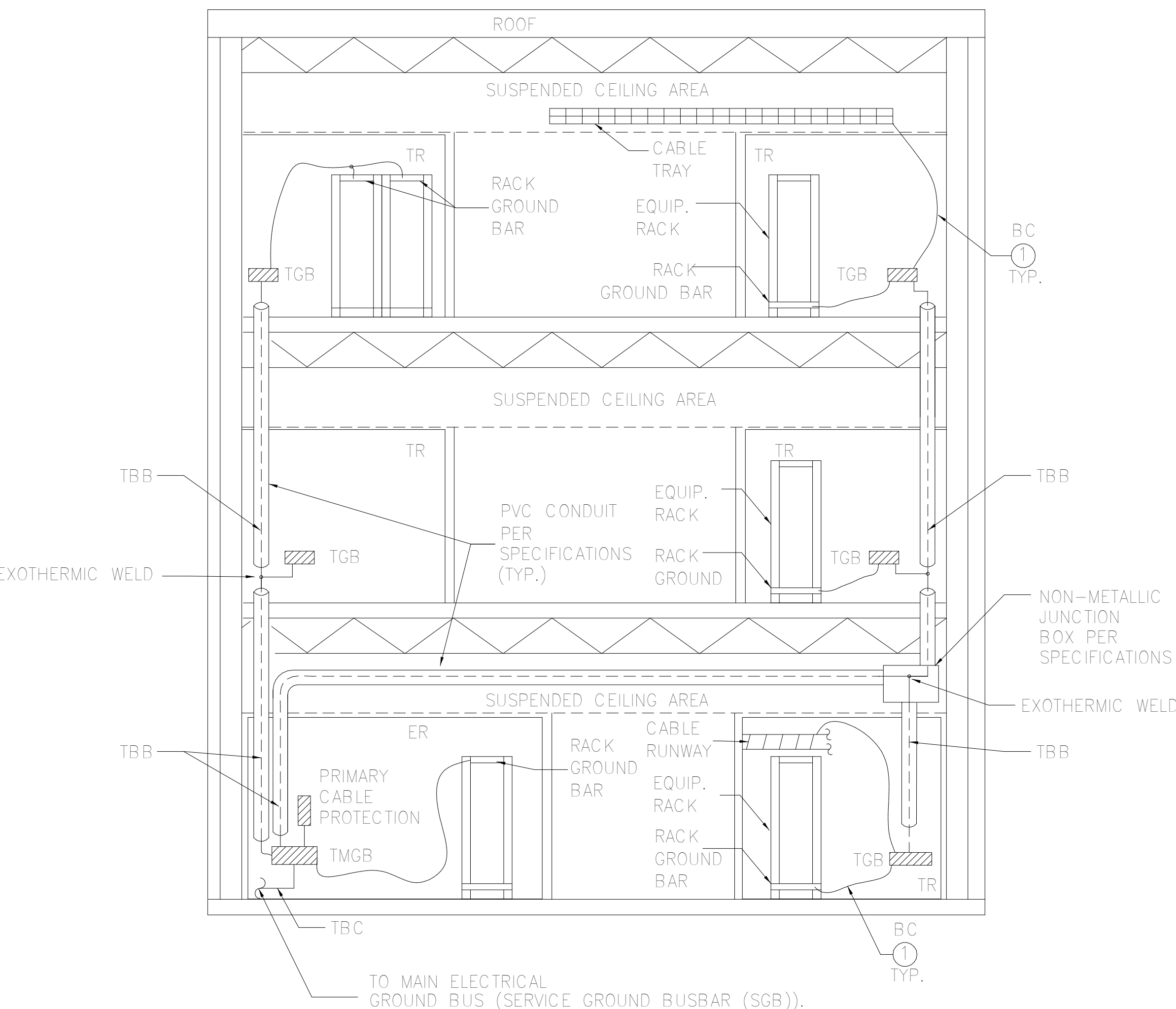
## 2 FIBER OPTIC CABLE SYSTEM CONFIGURATION AND CIRCUIT PATH

NOT TO SCALE

TBB = TELECOMMUNICATIONS BONDING BACKBONE  
TGB = TELECOMMUNICATIONS GROUNDING BUSBAR - TIN PLATED DOUBLE LUG COPPER BAR  
TMGB = TELECOMMUNICATIONS MAIN GROUNDING BUSBAR - TIN PLATED DOUBLE LUG COPPER BAR  
TR = TELECOMMUNICATIONS ROOM  
ER = EQUIPMENT ROOM  
EF = ENTRANCE FACILITY  
GEC = GROUNDING ELECTRODE CONDUCTOR  
TBC = TELECOMMUNICATIONS BONDING CONDUCTOR  
BC = BONDING CONDUCTOR

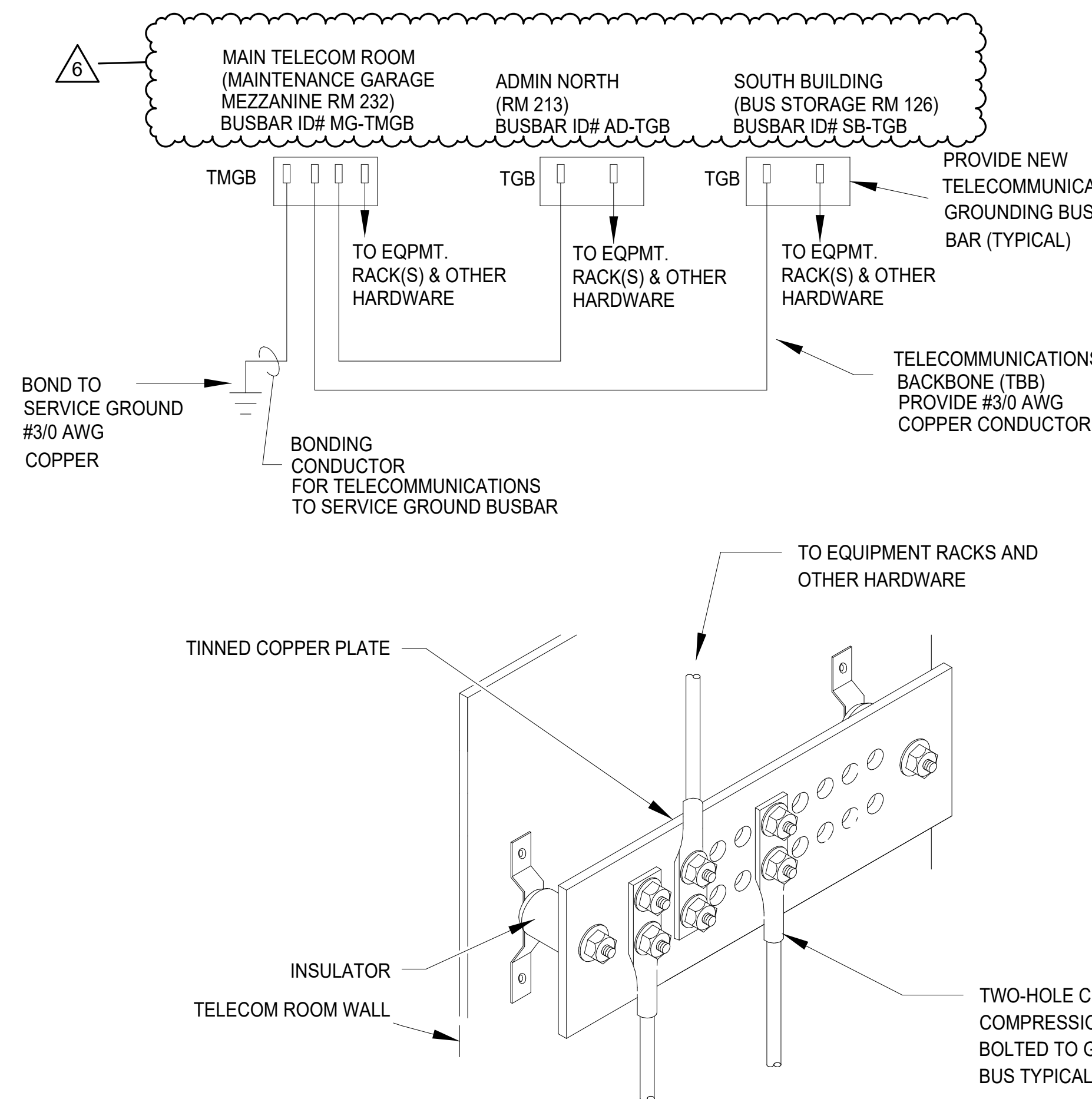
TELECOMMUNICATIONS GROUNDING DIAGRAM NOTE:

- 1** IN MOST CASES, WHERE ANY BONDING CONDUCTOR (BC) DOES NOT EXCEED 100 FT, A MINIMUM OF A #6 AWG COPPER BONDING CONDUCTOR IS SUFFICIENT FOR REFERENCING ALL METALLIC SURFACES WITHIN THE TELECOMMUNICATIONS ENVIRONMENT. HOWEVER, A BONDING CONDUCTOR THAT IS RUN AT DISTANCES LONGER THAN 100 FT SHOULD BE CALCULATED FOR A SIZE THAT CONFORMS TO THE GUIDELINES SET BY THE NEC.



## 5 TYPICAL TELECOMMUNICATIONS GROUNDING DIAGRAM

NOT TO SCALE



## 6 TELECOMMUNICATIONS GROUNDING RISER DIAGRAM AND BUSBAR DETAIL

NOT TO SCALE

**NOTES (THIS DETAIL):**

- TELECOMMUNICATIONS CONTRACTOR SHALL BOND ALL METAL RACKS, ENCLOSURES, CABLE RUNWAY, AND OTHER METALLIC ELEMENTS IN MAIN EQUIPMENT ROOM AND TELECOMMUNICATIONS ROOMS TO GROUND BUS BAR WITH #6 AWG COPPER
- REFER TO SECTION 27 05 26 FOR CONDUCTOR, BUSBAR SIZE AND HOLE SIZE AND SPACING

Project  
**GPMTD CITYLINK  
NEW MAINTENANCE  
FACILITY & RENOVATION:  
PHASES B, C & D**

Prepared For  
**GREATER PEORIA MASS TRANSIT  
DISTRICT**



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*Structural Engineers*  
# 2, Collins Boulevard, Suite 205, Aurora, Illinois 60014-4027  
Phone: 630.244.0020

Issue  
**PHASE B, C, D - BID  
PKG2- ADD 1**

Issue Date: 01/07/2022

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No.	Description	Date
1	70% DESIGN REVIEW	05/24/2021
2	100% DESIGN REVIEW	09/17/2021
3	100% DESIGN REVIEW	11/08/2021
4	PHASE B, C, D - BID PKG 2	12/15/2021
5	PHASE B, C, D - PERMIT	12/17/2021
6	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

Designed: DesignDrawn: Author Checked: Checker  
Project No: M1600050

Sheet Title

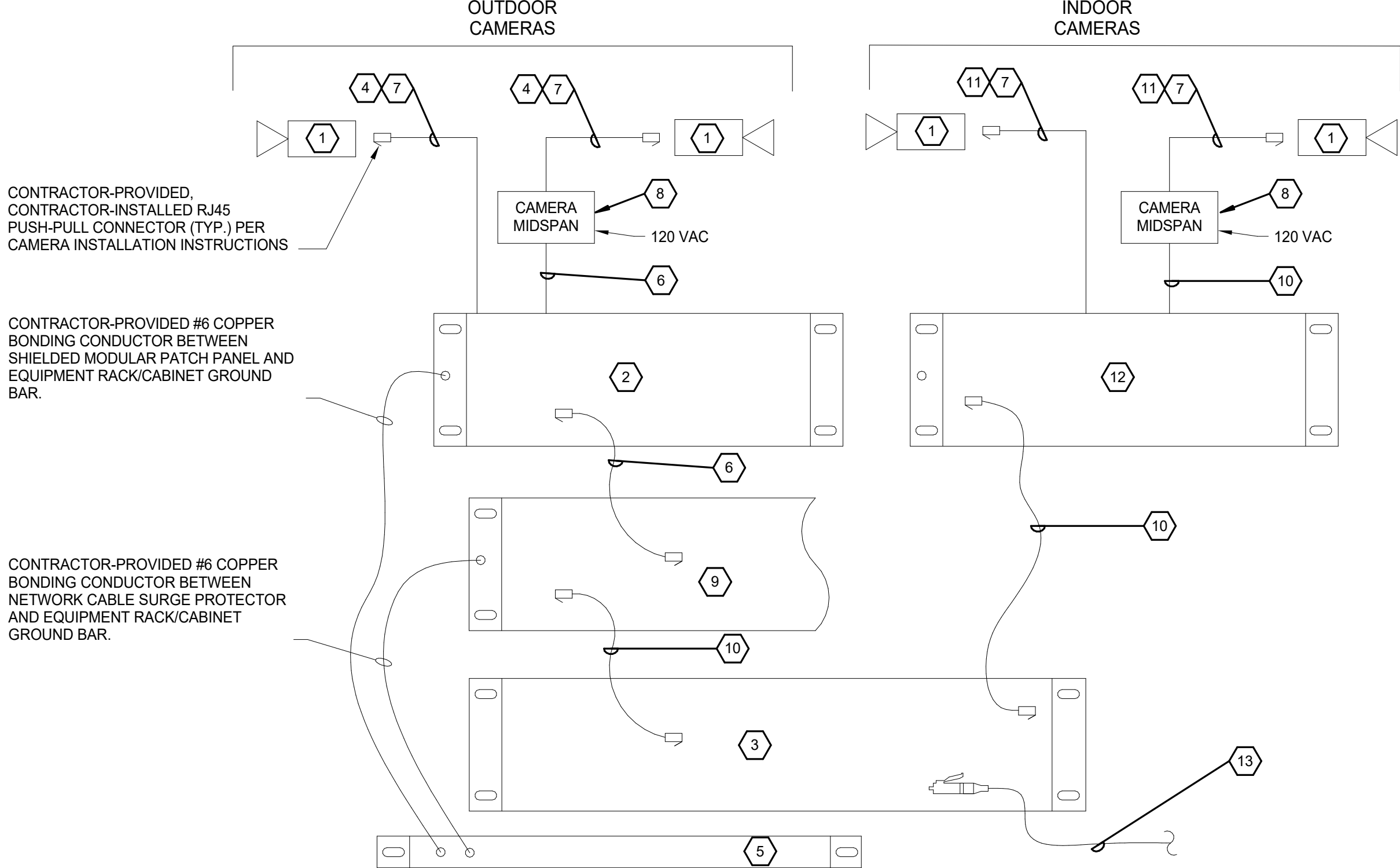
**COMMUNICATIONS &  
SPECIAL SYSTEMS  
DETAILS**

Sheet Number

**COM-601**

KEYNOTES (THIS DETAIL):

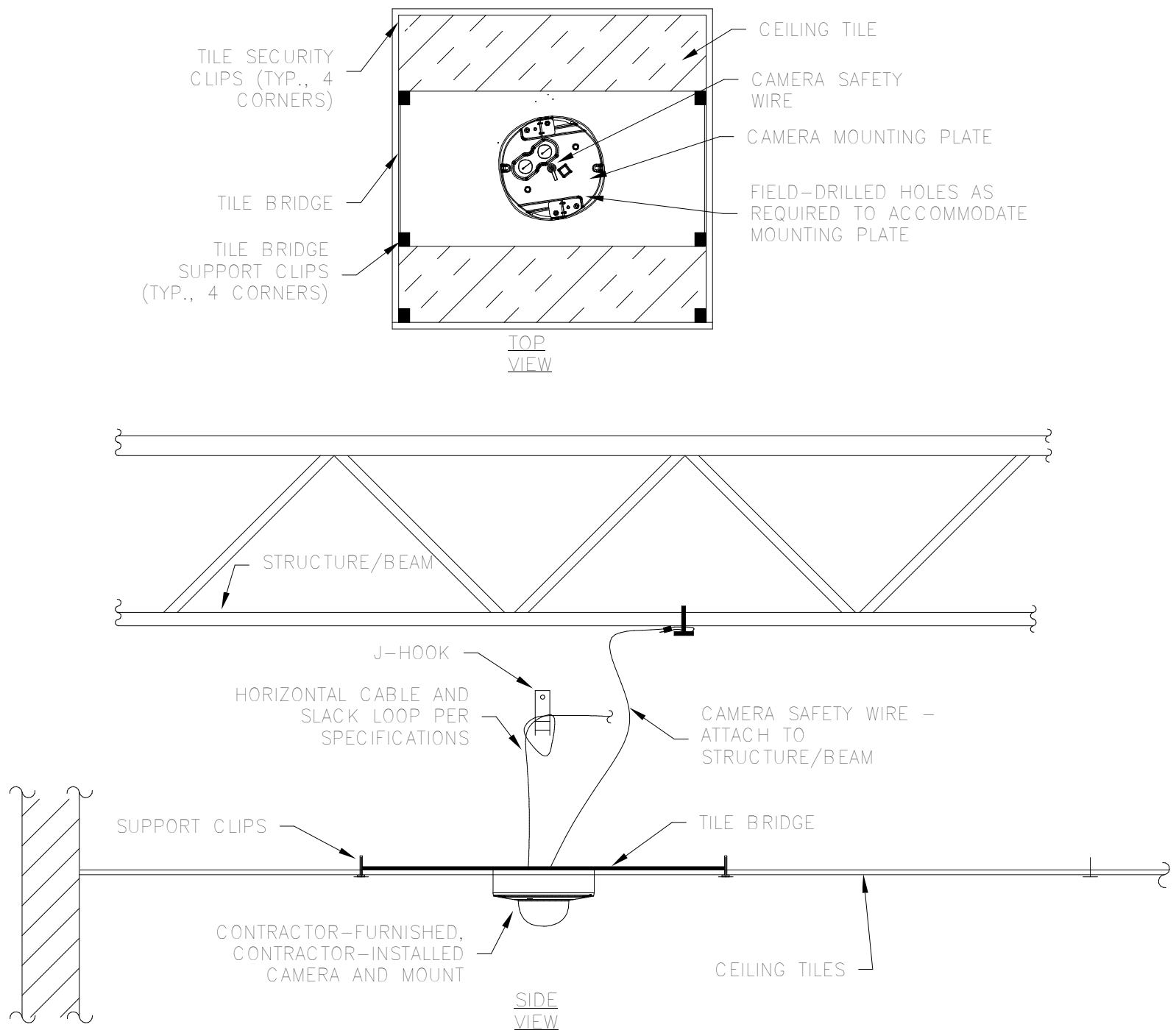
1. NETWORK CAMERA PROVIDED BY CONTRACTOR.
2. CONTRACTOR FURNISHED, CONTRACTOR INSTALLED SHIELDED MODULAR PATCH PANEL WITH GROUND LUG(S) PER SPECIFICATIONS.
- 2.1. PATCH PANEL IS OMITTED FOR THOSE CABLES TERMINATING IN PAD-MOUNTED ENCLOSURE - REFER TO PROJECT DRAWINGS FOR APPLICABILITY. CONTRACTOR SHALL THEN TERMINATE CABLES TO SHIELDED MODULAR PLUGS PER SPECIFICATIONS. REFER TO PARKING LOT SURVEILLANCE CABINET DETAIL.
3. NETWORK POE SURVEILLANCE SWITCH BY CONTRACTOR. REFER TO SPECIFICATIONS.
4. F/UTP HORIZONTAL CABLE BY CONTRACTOR. REFER TO SPECIFICATIONS.
5. EQUIPMENT RACK/CABINET GROUND BAR PROVIDED BY CONTRACTOR UNLESS SHOWN OTHERWISE ON DRAWINGS.
6. F/UTP PATCH CORDS BY CONTRACTOR. REFER TO SPECIFICATIONS.
7. CONTRACTOR-PROVIDED CONDUIT PER SPECIFICATIONS.
8. CONTRACTOR-PROVIDED CAMERA MIDSPAN (AS APPLICABLE).
9. CONTRACTOR-PROVIDED NETWORK CABLE SURGE PROTECTOR. REFER TO SPECIFICATIONS. PROVIDE RACK-MOUNTED SURGE PROTECTOR FOR THOSE CABLES TERMINATING IN EQUIPMENT RACK OR WALL-MOUNTED CABINET; PROVIDE WALL-MOUNTED SURGE PROTECTOR FOR THOSE CABLES TERMINATING IN PAD-MOUNTED ENCLOSURE.
10. UTP PATCH CORDS BY CONTRACTOR. REFER TO SPECIFICATIONS.
11. UTP HORIZONTAL CABLE BY CONTRACTOR. REFER TO SPECIFICATIONS.
12. CONTRACTOR FURNISHED, CONTRACTOR INSTALLED MODULAR PATCH PANEL PER SPECIFICATIONS.
13. PROVIDE FIBER OPTIC PATCH CORDS AND FIBER OPTIC BACKBONE CABLES PER SPECIFICATIONS TO INTERCONNECT COPPER SURVEILLANCE NETWORK TO THE CAMERA SERVER.



- NOTES:
1. CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  2. THIS DETAIL IS FOR ILLUSTRATIVE PURPOSES. REFER TO FLOOR PLANS AND SPECIFICATIONS FOR COMPLETE SURVEILLANCE SYSTEM REQUIREMENTS.

1 CAMERA RISER DIAGRAM

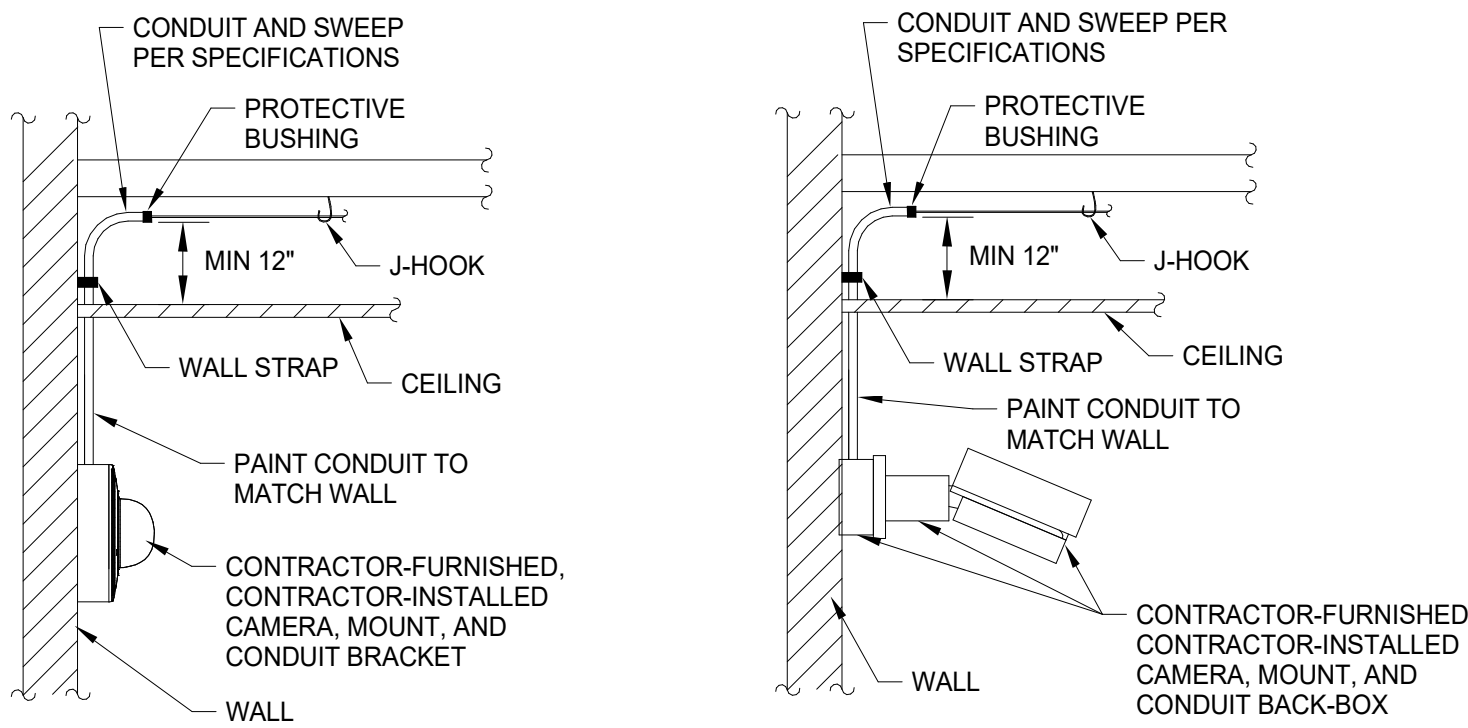
NOT TO SCALE



- NOTES:
1. CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  2. PROVIDE TAMPER-RESISTANT FASTENERS AND CONDUIT BODIES FOR ALL INSTALLATIONS BELOW CEILING OR BELOW 15'-0" AFF.

6 CAMERA MOUNT DETAIL - SUSPENDED CEILING

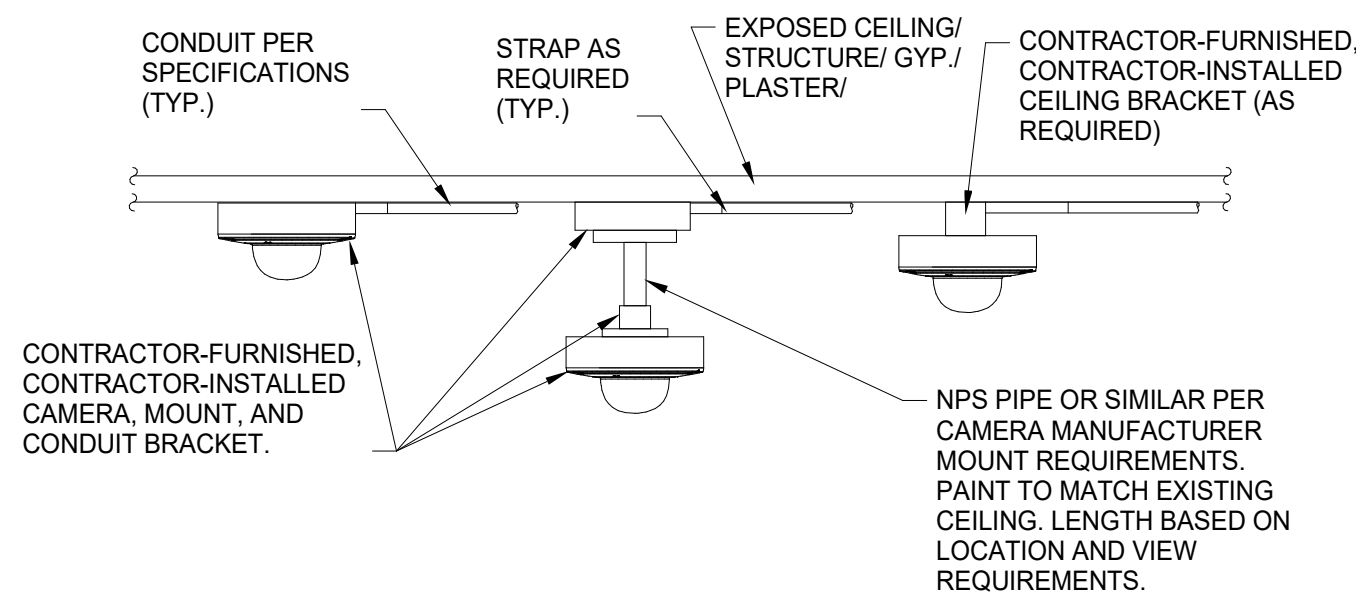
NOT TO SCALE



- NOTES:
1. CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  2. PROVIDE TAMPER-RESISTANT FASTENERS AND CONDUIT BODIES FOR ALL INSTALLATIONS BELOW CEILING OR BELOW 15'-0" AFF.
  3. FOR IRREGULAR WALL SURFACES, PROVIDE ADDITIONAL SUPPORTS, SHIMS, AND MOUNTING BOXES FOR THE CAMERA MOUNTS AS REQUIRED FOR PLUMB INSTALLATION. THESE MATERIALS SHALL BE LISTED FOR THE ENVIRONMENT AND APPLICATION.

2 CAMERA MOUNT DETAIL - WALL-MOUNT SUSPENDED GRID CEILING

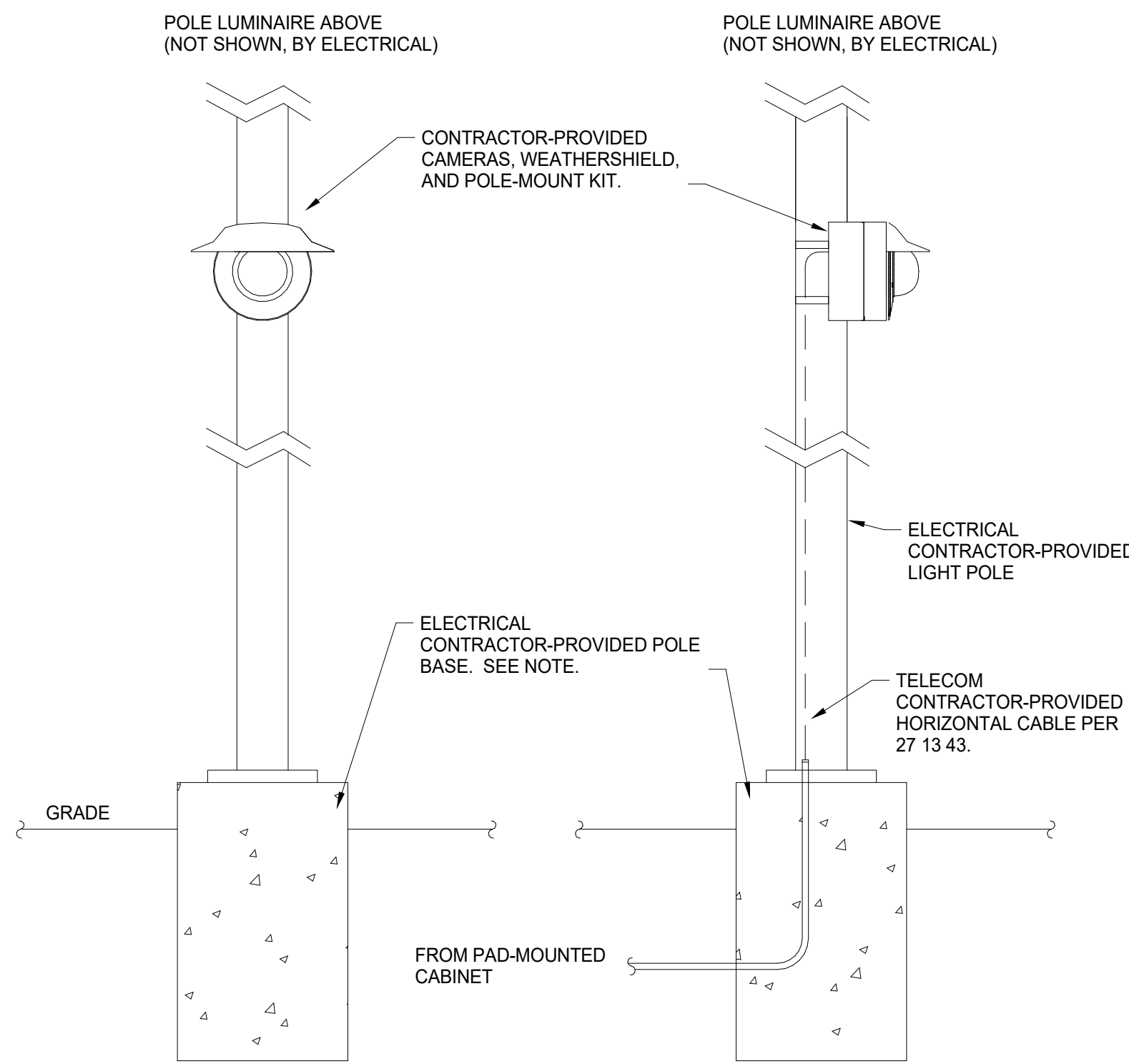
NOT TO SCALE



- NOTES:
1. CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  2. PROVIDE TAMPER-RESISTANT FASTENERS AND CONDUIT BODIES FOR ALL INSTALLATIONS BELOW CEILING OR BELOW 15'-0" AFF.
  3. PROVIDE LIQUID-TIGHT CONNECTORS FOR ALL LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUITS.
  4. CAMERA MOUNT TYPE VARIES BASED ON CAMERA MODEL (FLUSH-MOUNTED/CEILING-MOUNT WITH NPS PIPE).

4 CAMERA MOUNT DETAIL - HARD CEILING

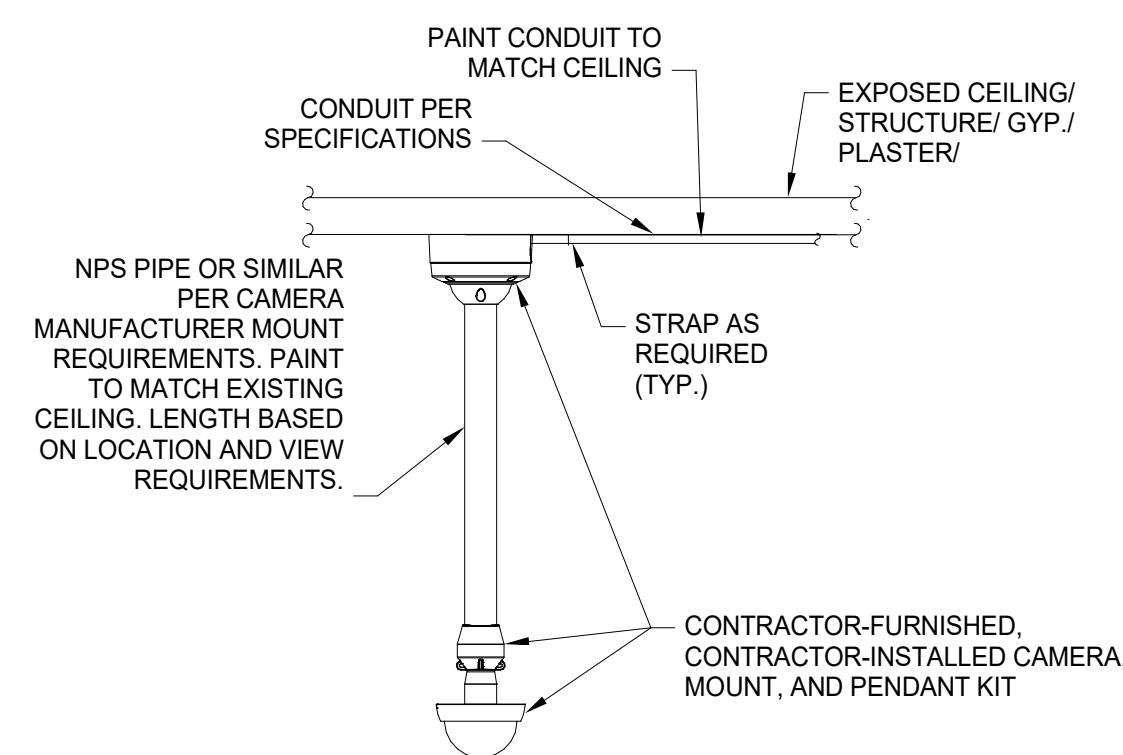
NOT TO SCALE



- NOTES:
1. COMMUNICATIONS CONTRACTOR TO FURNISH ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  2. PROVIDE TAMPER-RESISTANT FASTENERS AND CONDUIT BODIES FOR ALL INSTALLATIONS BELOW 15'-0" AFF.
  3. PROVIDE SEALS TO PREVENT PASSAGE OF MOISTURE THROUGH CONDUITS AND PENETRATIONS.
  4. COORDINATE WITH ELECTRICAL FOR HOLES IN POLE REQUIRED FOR THE PASSAGE OF HORIZONTAL CABLES. PROVIDE PROTECTION FOR CABLES. PROTECTION AND SEALS AGAINST LIQUID INGRESS, AND PROTECTION AGAINST CORROSION.
  5. CAMERA FINAL HEIGHT SHALL BE APPROXIMATELY 12 FEET ABOVE FINAL GRADE. COORDINATE TARGET HEIGHT WITH POLE BASE HEIGHT AND POLE HEIGHT.
  6. REFER TO POLE BASE DETAIL IN ELECTRICAL DRAWINGS. PROVIDE 1-1/2" PVC CONDUIT MINIMUM FOR HORIZONTAL CABLES PLUS (1) SPARE CONDUIT STUB (NOT SHOWN). \*NOTE - CABLES NOT ASSOCIATED WITH POLE'S CAMERAS SHALL NOT PASS THROUGH POLE BASE OR POLE - EACH POLE'S CAMERA HORIZONTAL CABLES SHALL BE HOME RUN FROM PAD-MOUNTED CABINET.

7 CAMERA MOUNT DETAIL - POLE-MOUNTED CAMERA

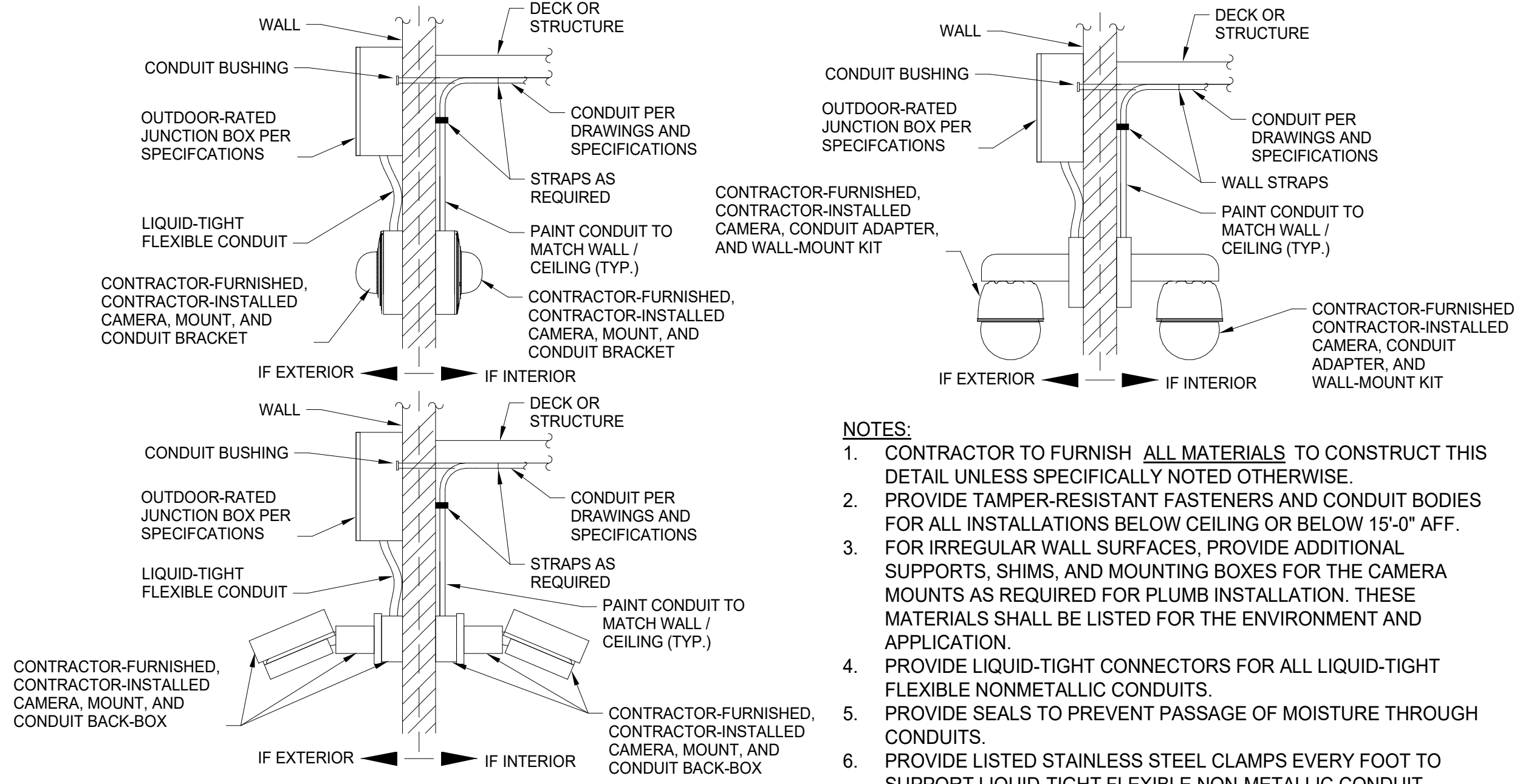
NOT TO SCALE



- NOTES:
1. CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  2. PROVIDE TAMPER-RESISTANT FASTENERS FOR ALL INSTALLATIONS BELOW 15'-0" AFF.

3 CAMERA MOUNT DETAIL - INDOOR PENDANT - PHASE 2

NOT TO SCALE



- NOTES:
1. CONTRACTOR TO FURNISH ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE.
  2. PROVIDE TAMPER-RESISTANT FASTENERS AND CONDUIT BODIES FOR ALL INSTALLATIONS BELOW CEILING OR BELOW 15'-0" AFF.
  3. FOR IRREGULAR WALL SURFACES, PROVIDE ADDITIONAL SUPPORTS, SHIMS, AND MOUNTING BOXES FOR THE CAMERA MOUNTS AS REQUIRED FOR PLUMB INSTALLATION. THESE MATERIALS SHALL BE LISTED FOR THE ENVIRONMENT AND APPLICATION.
  4. PROVIDE LIQUID-TIGHT CONNECTORS FOR ALL LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUITS.
  5. PROVIDE SEALS TO PREVENT PASSAGE OF MOISTURE THROUGH CONDUITS.
  6. PROVIDE LISTED STAINLESS STEEL CLAMPS EVERY FOOT TO SUPPORT LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT.

5 CAMERA MOUNT DETAIL - WALL-MOUNT FOR HARD OR STRUCTURE CEILING

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2	100% DESIGN REVIEW	09/17/2021
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6	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

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Project No: M1600050

Sheet Title  
COMMUNICATIONS &  
SPECIAL SYSTEMS  
DETAILS

Sheet Number

COM-602

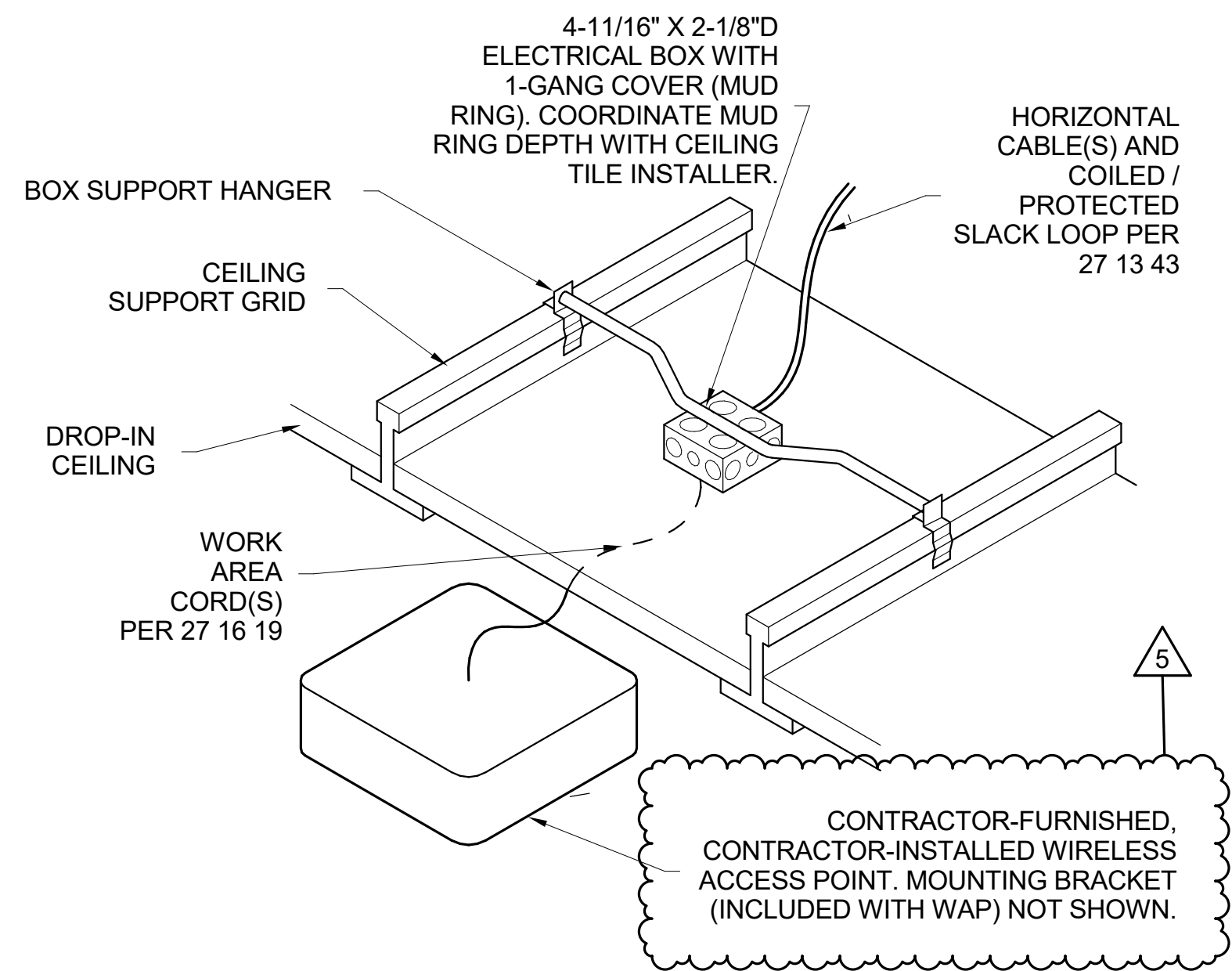
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## NOTES (THIS SHEET)

- SEE SHEET COM-000 FOR COMMUNICATIONS & SPECIAL SYSTEMS GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

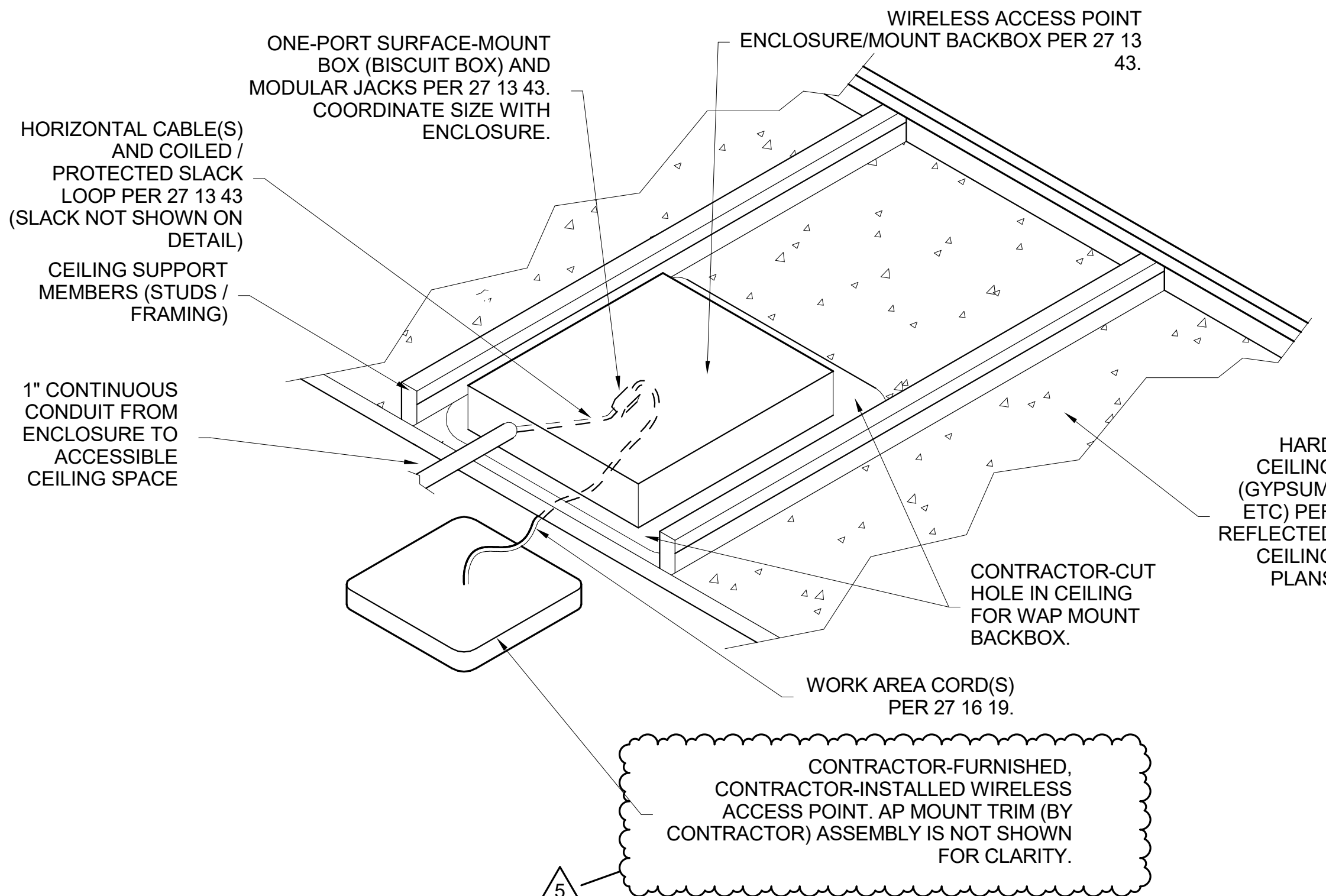
### DROP-IN / SUSPENDED CEILING WAP DETAIL



#### NOTES:

- REFER TO ENCLOSURE/MOUNT MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FURTHER INFORMATION AND OTHER REQUIREMENTS. REFER TO TELECOMMUNICATION PLANS FOR WAP MODEL NUMBERS.
- PROVIDE SUPPORT WIRE TO PERMANENT BUILDING STRUCTURE PER MANUFACTURER RECOMMENDATIONS.
- \*NOTE - DROP-IN CEILING DETAIL SHOWS ONLY THOSE INSTALLATIONS IN WHICH THE CEILING TILE SYSTEM IS BASED ON 2' X 2' GRIDS AND TILES. HOWEVER, THERE ARE AREAS THAT MAY REQUIRE THE WAP TO BE INSTALLED INTO A 2' X 8' OR 2' X 4' (FOR EXAMPLE) CEILING GRID SYSTEM. CONTRACTOR IS RESPONSIBLE FOR ANY CUTTING OF TILES AND FOR PROVIDING GRID SECTIONS NEEDED TO ACCOMMODATE THE INSTALLATION.
- PROVIDE QUANTITY OF HORIZONTAL CABLES PER SPECIFICATIONS AND PROJECT DRAWINGS. ONLY ONE IS SHOWN ON DETAIL FOR CLARITY. PROVIDE MODULAR JACK IN SURFACE-MOUNTED BOX PER 27 13 43. SURFACE-MOUNTED BOX MAY BE HUNG AND PROTECTED WITH SLACK LOOP. LABEL BOX WITH WAP ID AND PATCH PANEL ID.
- CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY STATED OTHERWISE.

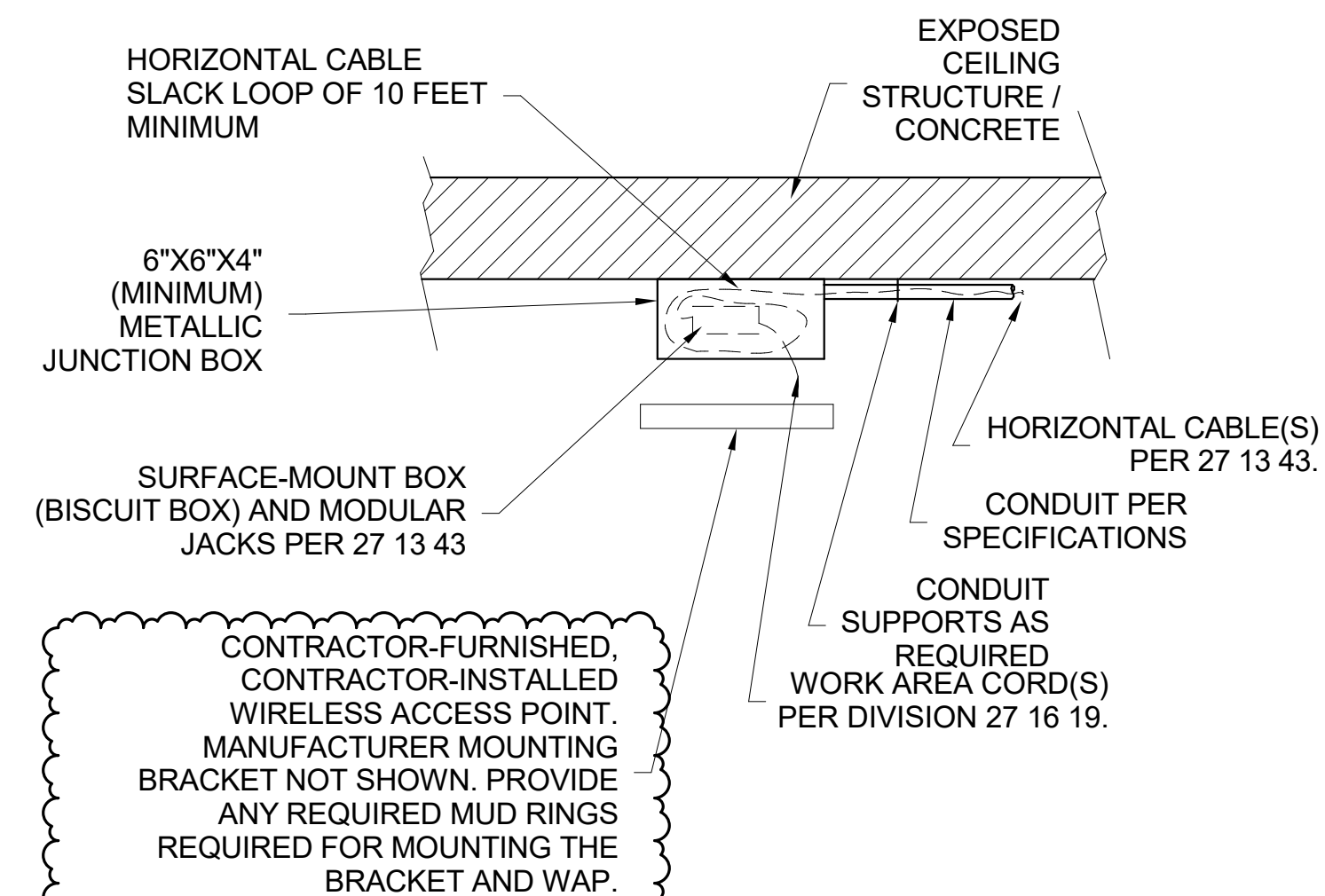
### HARD CEILING WAP DETAIL



#### NOTES:

- REFER TO ENCLOSURE/MOUNT MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR FURTHER INFORMATION AND OTHER REQUIREMENTS.
- PROVIDE ENCLOSURE SUPPORT TO FRAMING PER MANUFACTURER INSTRUCTIONS (NOT SHOWN ON THIS DETAIL). PROVIDE SUPPORT WIRE TO PERMANENT BUILDING STRUCTURE PER MANUFACTURER RECOMMENDATIONS.
- PROVIDE QUANTITY OF HORIZONTAL CABLES PER SPECIFICATIONS AND PROJECT DRAWINGS. ONLY ONE IS SHOWN ON DETAIL FOR CLARITY.
- CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY STATED OTHERWISE.
- REFER TO COMMUNICATIONS AND SPECIAL SYSTEMS SHEET COM-000 FOR MODEL NUMBER OF ACCESS POINTS REQUIRING THIS MOUNT CONFIGURATION.
- CONTRACTOR SHALL PROVIDE COMPATIBLE MOUNT FOR ACCESS POINTS REQUIRING THIS INSTALLATION CONFIGURATION. REFER TO 27 13 43.
- CONDUIT SHOWN SHALL BE CONTINUOUS UNTIL REACHING ACCESSIBLE CEILING SPACE.

### CONCRETE / OPEN STRUCTURE CEILING WAP DETAIL



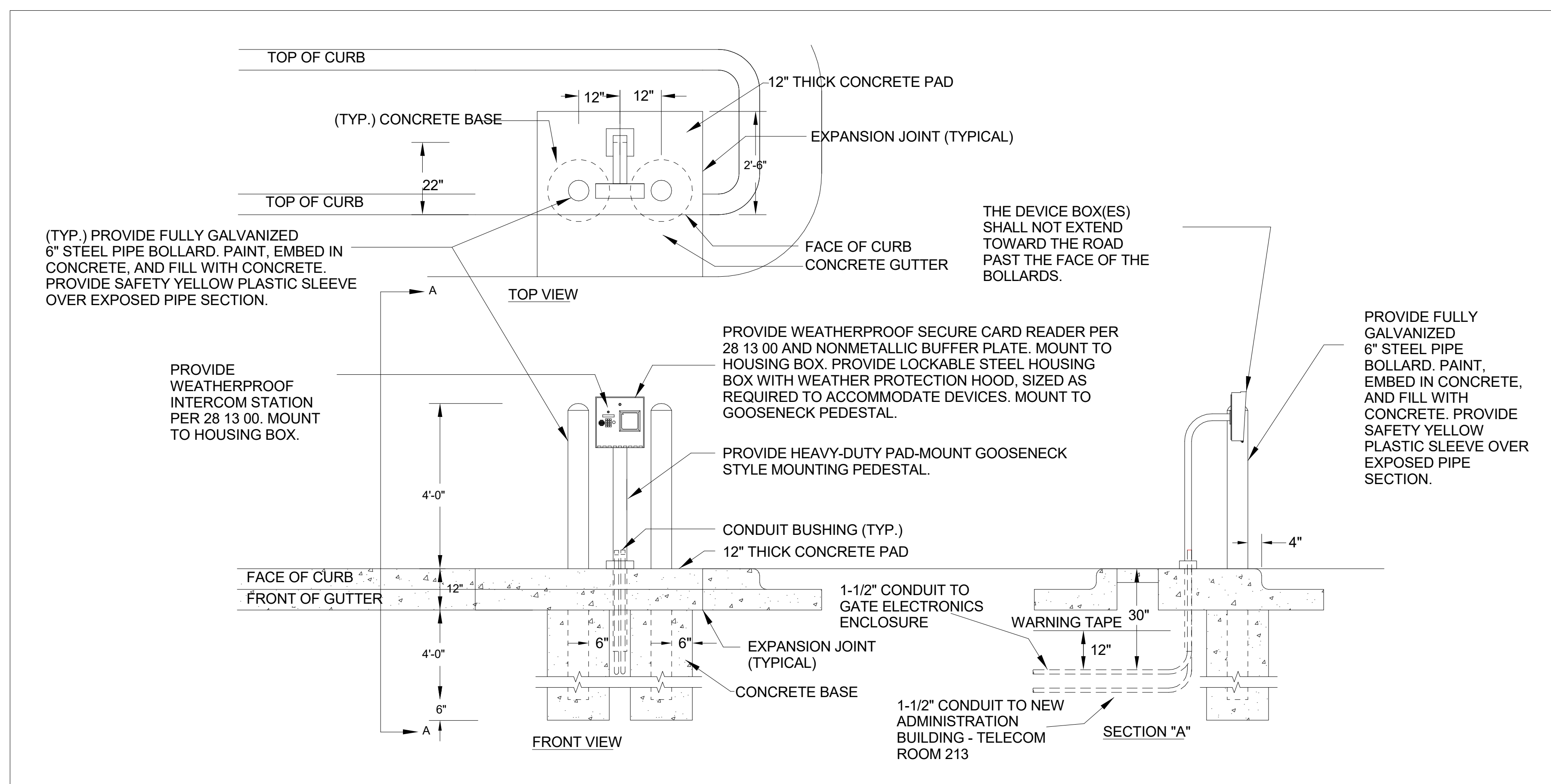
#### NOTES:

- WHERE EXPOSED CEILING IS COMPRISED OF STEEL DECKING / JOISTS / RAFTERS, MOUNT BOX AND WAP TO JOIST BOTTOM, WHERE POSSIBLE. IF THIS IS NOT POSSIBLE, CONFIRM DESIRED MOUNT LOCATION WITH OWNER.
- PROVIDE QUANTITY OF HORIZONTAL CABLES PER SPECIFICATIONS AND PROJECT DRAWINGS. ONLY ONE IS SHOWN ON DETAIL FOR CLARITY.
- CONTRACTOR TO PROVIDE ALL MATERIALS TO CONSTRUCT THIS DETAIL UNLESS SPECIFICALLY STATED OTHERWISE.
- CONTRACTOR SHALL PROVIDE METALLIC CONDUIT FOR HORIZONTAL CABLES IN LOCATIONS WHERE CABLES WOULD OTHERWISE BE EXPOSED.

1

### EQUIPMENT OUTLET FOR WIRELESS ACCESS POINTS DETAIL

NOT TO SCALE



2

### PEDESTAL DETAIL - CARD READER AND INTERCOM

NOT TO SCALE

Project

GPMTD CITYLINK  
NEW MAINTENANCE  
FACILITY & RENOVATION:  
PHASES B, C & D

Prepared For

GREATER PEORIA MASS TRANSIT  
DISTRICT



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Issue

PHASE B, C, D - BID  
PKG2- ADD 1

Issue Date:

01/07/2022

Professional Seals

NOT FOR  
CONSTRUCTION

No.	Description	Date
1	100% DESIGN REVIEW	09/17/2021
2	100% DESIGN REVIEW	11/08/2021
3	PHASE B, C, D - BID PKG 2	12/15/2021
4	PHASE B, C, D - PERMIT	12/17/2021
5	PHASE B, C, D - BID PKG2- ADD 1	01/07/2022

Designed: DesigneDrawn: Author Checked: Checker  
Project No: M1600050

Sheet Title

COMMUNICATIONS &  
SPECIAL SYSTEMS  
DETAILS

Sheet Number

COM-603

## SECTION 27 13 43

### COMMUNICATIONS SERVICES CABLING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes backboards, cabinets, termination devices, outlets, and premises wiring.
- B. Related Sections:
  - 1. Section 26 05 33 - Raceways and Boxes for Electrical Systems
  - 2. Section 26 05 34 - Floor Boxes for Electrical Systems.
  - 3. Section 26 27 26 - Wiring Devices: Wall plates.
  - 4. Section 27 05 26 - Grounding and Bonding for Communications Systems.
  - 5. Section 27 05 53 - Identification for Communications Systems.

##### 1.2 REFERENCES

- A. International Electrical Testing Association:
  - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems
- B. National Fire Protection Association:
  - 1. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces
- C. Telecommunications Industry Association/Electronic Industries Alliance:
  - 1. TIA/EIA 568 - Commercial Building Telecommunications Cabling Standard
  - 2. TIA/EIA 569 - Commercial Building Standard for Telecommunications Pathways and Spaces
- D. Underwriters Laboratories, Inc.:
  - 1. UL 2043 - Fire Test for Heat and Visible Smoke Release for Discrete Products and their Accessories Installed in Air-Handling Spaces.

##### 1.3 SYSTEM DESCRIPTION

- A. Service entrance from Communications Utility Company.
- B. Service Entrance Pathway: Empty raceway from point of Communications Utility connection at property line to building service terminal backboard.
- C. Entrance Wiring: By Contractor unless directed otherwise on drawings or specifications.
- D. Backbone Wiring: By Contractor unless directed otherwise on drawings or specifications.
- E. Horizontal Wiring: By Contractor.
- F. Patching: By Contractor, except for patch cables between switches and patch panels. Patch cable installation between switches and patch panels shall be by Owner / IT staff – contractor shall coordinate this patching with Owner and provide all relevant permanent link data. Owner shall also install Work Area Cords for general-use wall Equipment Outlets – this does not include

Work Area Cords for WAPs, surveillance equipment, or similar. Contractor is responsible for furnishing ALL Patch Cords and Work Area Cords per 27 16 19 and installing all except those specifically noted here and elsewhere in the Specifications.

G. Design Intent:

1. General
  - a. The Structured Cabling System is based on a hierarchy of cables and termination locations.
  - b. All cables and related termination, support and grounding hardware, bonding, shall be furnished, installed, wired, tested, labeled, and documented by the Contractor, as detailed in the following sections. Bonding and grounding system shall be complete as described in the drawings and specifications and shall be coordinated with the work performed under specification 26 05 26.
  - c. Provide all labor and materials necessary to construct the system as described herein. This includes – but is not limited to – furnishing and installing cable, cable supports, racking and termination components, termination, testing, labeling, and documentation.
  - d. Refer to Part 2 PRODUCTS, Part 3 EXECUTION and the project drawings for applicable connectivity types and installation requirements.
2. Horizontal Cabling
  - a. Horizontal Cabling System links the termination in the work area (Equipment Outlet (EO)) to the Horizontal Cross-connect serving the location (e.g. Telecommunications Room (TR)). This cabling and the related connectors (both ends) is referred to as the “Permanent Link” in this section.

1.4 SUBMITTALS

A. Product Data

1. Submit documents including:
  - a. Manufacturer's Product data for all products proposed indicating construction, materials, ratings, and all other parameters identified in Part 2 (Products) below. Access Point Mount submittal shall include proof of compatibility for the models to be installed. Structured Cabling submittal shall include Test Data confirming Horizontal Cabling Channel Performance.
  - b. Submit manufacturer certifications of compatibility of the Horizontal Cables and termination components – combinations must be recognized and documented by component manufacturer. Warranty and performance specifications shall reflect this compatibility.
  - c. All information requested in “Bidder Qualifications” below.
  - d. Upon request by Engineer, furnish (1) two-foot section of each cable type to be installed for final approval by Engineer. This two-foot section shall have the manufacturer's cable markings visible. Upon request, samples from every reel sent to the site shall be provided
  - e. Manufacturer's installation instructions.
  - f. Prior to any cable tests, provide a test plan including physical test setup, all proposed test options, certificates of calibration for all instruments, pass / fail limits, test equipment parameters (e.g. TIA-568.3.D-1), test equipment make and model listing, and a testing example (pdf and native file of the test instrument, such as.flw for Fluke) reflecting every cable type installed in this project. Failure to provide the above information **prior to testing** shall be grounds for the Owner/Engineer to reject any and all Documentation of Results on related testing and to require a repeat of the affected test.
    - 1) Owner and/or A/E may be in attendance to witness testing. Provide a minimum of one (1) week advance notice to allow for such participation.

B. Bidder Qualifications

1. Furnish certification documents confirming contractor status as an active participant in Installers Program operated by Manufacturer of Cabling or Termination Components used shall be from the manufacturer.
2. Upon request, furnish project experience and certification documentation list as identified under "Quality Assurance / Bidder Qualifications" below.
  - a. Completed Project List showing minimum one project meeting the requirements listed.
    - 1) For each project listed provide:
      - a) Name and location of installation.
      - b) Date of initial operation of system by owner. (Minimum period of operation for reference project shall be 12 months.)
      - c) Owner's representative to contact and their telephone number.

1.5 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations and sizes of pathways and outlets. Provided test results as described elsewhere in this document.

1.6 QUALITY ASSURANCE

A. Manufactured Items

1. The manufacturer(s) of cabling and connectivity components shall be a company specializing in and having a minimum of five years documented experience in producing products similar to those specified in this and related sections.

1.7 QUALIFICATIONS

- A. The contractor shall have been in this line of business for a minimum of five (5) years and have successfully completed one or more projects of scope 50% or more of the magnitude specified by these documents.
- B. Contractor shall have necessary certifications to provide for Guarantees as specified herein.
1. Contractor shall have a Building Industry Consulting Service International (BICSI) certified Registered Communications Distribution Designer (RCDD) on staff that is directly involved in overseeing the project.
  2. Contractor shall be an active participant in Installers Program operated by Manufacturer of Cabling or Termination Components used. Contractor shall be a participant in this program at time of Bidding and remain so throughout project.
  3. Contractor shall have on the project team at a minimum one (1) certified Installer trained by the manufacturer(s) of the cabling, hardware and accessories installed under this project.
  4. At least (1) member of each test team shall be factory trained/certified in use of the test equipment. The project foreman shall have been factory trained in the use of the test equipment.

1.8 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing work of this section to coordinate with other trades.

1.9 EXTRA MATERIALS

- A. Not used.

## 1.10 COORDINATION

- A. Utility charges for service installation paid by Owner and are not part of this contract.

## PART 2 PRODUCTS

### 2.1 TELEPHONE TERMINATION BACKBOARDS

- A. Material: Fire retardant Plywood. Painted a neutral color on all 6 sides (gray or similar). Paint shall be applied such that the fire rated label remains intact and is visible.
- B. Size: 8 x 8 feet, 3/4 inch thick.

### 2.2 SHIELDED / UNSHIELDED HORIZONTAL CABLE

- A. General:
  - 1. The Horizontal Cable System is based on the installation of 4-pair, copper twisted-pair cables from the Equipment Outlet to the Horizontal Cross-connect (wiring hub). The combined cable and termination hardware is referred to as the "Permanent Link".
  - 2. Unshielded Twisted-Pair (UTP) is the default choice for the horizontal cable unless noted otherwise. For outdoor surveillance devices such as IP cameras, F/UTP cable shall be provided. Provide UTP cables for indoor cameras.
  - 3. Provide indoor/outdoor wet location-rated cables for those cables installed in underground ducts or serving equipment on light poles.
  - 4. Cable and Termination Components (Jack, Patch Panel/Wiring Blocks) are specified to function as a System. The compatibility of the Cable to be installed with the proposed termination components shall be recognized and documented by the Termination Component Manufacturer.
  - 5. All Horizontal Permanent Link Cable shall be of the same manufacturer throughout the project.
  - 6. All Horizontal Permanent Link connectivity components shall be of the same manufacturer throughout the project.
- B. Application:
  - 1. There shall be no distinction between Horizontal Cables designated for "DATA" and "VOICE" (Telephone and/or other analog) applications.
- C. Performance:
  - 1. Where Cable, Component and Permanent Link performance is specified to "Exceed Category 6", performance shall be defined as follows:
    - a. Manufacturer's published literature shall document performance margins over worst-case ANSI/TIA-568-C.2 Category 6 Channel requirements for Power Sum Attenuation-to-Crosstalk Ratio (PSACR). Channel – as tested – shall include 4-connections (minimum). Data shall be verified by an independent source (e.g. ETL, Intertek).

Performance Margins shall be greater than zero (0) at all frequencies up to and including 250-MHz. PSACR shall remain positive at all frequencies up to and including 250-MHz.
  - 2. Where Cable, Component and Permanent Link performance is specified to "Meet Category 6A", performance shall be defined as follows:

- a. Meet or exceed ANSI/TIA Category 6A criteria.

Performance Margins exceeding those defined by the referenced standard are not required.  
PSACR shall remain positive on all frequencies up to 500-MHz.

3. Cable and connecting components that comprise the "Permanent Link" shall meet or exceed the requirements for "DTE Power via the MDI" to provide at least 25W at the Powered Device as defined by the IEEE 802.3at-2009 "Power over Ethernet Plus (PoE+)" standard.

D. Project Requirements:

1. Cable shall be listed as being suitable for use in the environment defined.
  - a. Cable Rating: CMR or approved substitutes as defined by the NEC. CATV equivalents apply for coaxial cable where specified.
2. Cable and connectivity type, performance and features for included applications are as follows:
  - a. Workstation Link (to Equipment Outlet)

1) Performance:	Exceed Category 6
2) Cable Type:	4-pair UTP
3) Cable Jacket Color:	Blue
4) Modular Jack Pinning and Color:	T568B, Blue
  - b. Wireless Access Point Location

1) Performance:	Meet Category 6A
2) Cable Type:	4-pair UTP
3) Cable Jacket Color:	White
4) Modular Jack Pinning and Color:	T568B, Blue

    - Terminate in 8P8C Modular Jack. Install Modular Jack into Surface-Mount Box (a.k.a. Biscuit Box / Wall-Mount Box) at "equipment end" of cable. Acceptable Surface-Mount Boxes are Hubbell ISB 42 series or similar. Where two such cables for Wireless Access Points are shown to be installed at one WAP location on project drawings, install Modular Jacks into two-port Surface-Mount Box.
  - c. Camera Location

1) Performance:	Exceed Category 6
2) Cable Type:	4-pair UTP
3) Cable Jacket Color:	Green*
4) Modular Jack Pinning and Color:	T568B, Green

\*Note – wet-location cables for surveillance are acceptable in standard gray if no option found for color above\*

E. Horizontal Twisted-Pair Cable:

1. All Cables and Termination hardware shall be technically compliant with and installed in accordance with the referenced ANSI/TIA documents and perform as required to provide the margins stated herein.
2. All cables shall be suitable for the installation in the environment defined.
3. Cables shall be Underwriters Laboratory (UL) listed, comply with Article 800 (Communications Circuits) of the National Electrical Code and shall meet the specifications of NEMA (low loss), UL 444, and ICEA.
4. Construction:

- a. Horizontal Cables shall be constructed of individually twisted pairs with 23-AWG insulated solid copper conductors.
  - b. Pairs shall be identified by a banded color code in which conductor insulation is marked with a dominant color and banded with a contrasting color as follows:
    - 1) Pair 1: White-Blue/Blue (or Blue/White)
    - 2) Pair 2: White-Orange/Orange (or Orange/White)
    - 3) Pair 3: White-Green/Green (or Green/White)
    - 4) Pair 4: White-Brown/Brown (or Brown/White)
  5. Cable Rating shall be identified in the above article "Horizontal Permanent Link".
  6. Cable Jacket color(s) shall be identified in the above article "Horizontal Permanent Link".
  7. Cable shall be packaged in a way that minimizes the tangling and kinking of the cable during installation. Examples are open reels or packages that incorporate a rotating reel.
  8. Cable performance shall be as required to meet the specified Permanent Link and Channel performance as specified in the above Article "Horizontal Permanent Link".
- F. Horizontal Cable Termination:
1. Refer to Part 2 articles "Equipment Outlet" and "Modular Patch Panel".
  2. Termination hardware performance shall be performance shall be as required to meet the criteria defined in "Horizontal Cabling/Performance" above.

## 2.3 COAXIAL HORIZONTAL CABLE

- A. Cable shall be RG-6 type; Quad-shield.
- B. Cable Rating shall be as identified in the above article "Horizontal Permanent Link".
- C. Construction:
  1. RG-6, Quad Shield
  2. Shielding shall include a 100% foil shield and a minimum 60% aluminum braid.
  3. Center Conductor – 18 AWG Copper-clad Steel
  4. Outer jacket – As required for rating.
- D. Impedance: 75 Ohms
- E. Cable Attenuation shall be documented to 1 GHz (1000 MHz) or higher.

## 2.4 EQUIPMENT OUTLET

- A. General:
  1. Station cables shall each be terminated at their designated workstation location in the connector types described in the sub-sections below. Included are Modular Jacks and Coaxial Connector assemblies. These connector assemblies shall snap into a mounting frame. The combined assembly is referred to as the Equipment Outlet (EO).
  2. EO mounting configurations shall be as follows:
    - a. Flush in new boxes.
  3. The Equipment Outlet Frame-wall-and furniture-mount assemblies-shall accommodate:
    - a. A minimum of four (4) Modular Jacks or Coaxial Connectors when installed on a wall mount assembly.
    - b. The outlet frame shall incorporate a mechanism for adjusting the surface plate to a plumb position.
  4. Connector mounting the faceplate/frame shall be as follows. Where "Angled" orientation is specified, connector exits the faceplate at a (approx..) 45 degree angle with the connector facing the floor.

- a. Wall-Mount: Flush
  - b. Furniture-Mount: Flush
  - c. Floor Box Assembly: Flush
- 5. The same orientation and positioning of Jacks and Connectors shall be utilized throughout the installation.
- 6. Wall Mount Outlet Faceplates shall incorporate recessed designation strips at the top and bottom of the frame for identifying labels. Designation shall be fitted with clear plastic covers.
- 7. Unused jack positions shall be fitted with a removable blank inserted into the opening.
- 8. Faceplate of the EO shall be constructed of High Impact Plastic.
- 9. Faceplate Color shall (1) match other utilities in the building or (2) when installed in Surface Raceway (if applicable), match the color of the Raceway.
- B. Outlet for Dirty or other Harsh Environment (Body Shop):
  - 1. Construction:
    - a. Form 2-gang.
    - b. Faceplate Material: Stainless Steel
    - c. Capacity: (1) or (2) connector assemblies as required by location.
    - d. Jack Configuration/Mounting: Flush mount; Includes mount for dust cap.
  - 2. Configured with dust cap which is tethered to faceplate when not in use.
  - 3. Meets IP67 sealing requirements.
- C. Outlet for Wall-mounted Telephone Sets
  - 1. Outlets intended for wall-mounted telephone sets shall be installed where identified ("W") on the Project Drawings. The Wall Plate shall be of Stainless Steel construction, accommodate one (1) modular jack as previously defined, mounted on a standard single gang outlet box or bracket and include mating lugs for wall phone mounting.
- D. 4-pair Copper Connector (Modular Jack)
  - 1. Connector type for 4-pair, copper twisted-pair cabling shall be a 8-pin, 8-conductor (8P8C) Modular Jack.
  - 2. The interface between the jack and the 4-pair cable shall be an insulation-displacement type contact. Termination components shall be designed to maintain the cable's pair twists as closely as possible to the point of mechanical termination to meet performance requirements.
  - 3. Modular Jacks shall be UL verified and listed.
  - 4. Modular Jack spring wire contacts shall have a minimum of 50 micro-inches of gold plating.
  - 5. Modular Jack performance shall be as required to meet the specified Permanent Link and Channel performance as specified in the above Article "Horizontal Permanent Link".
  - 6. Modular Jack pinning and Color(s) shall be as identified in the above article "Horizontal Permanent Link".
- E. Coaxial Connector
  - 1. Terminate coax cable at the Equipment Outlet and at the Telecommunications Room in a Male "F" type connector.
  - 2. The Male F-Connector shall:
    - a. Be matched to the cable type proposed by the contractor.
    - b. Be a single piece connector.
    - c. Incorporate a compression sleeve.
    - d. Incorporate seals to inhibit moisture from entering the connector assembly.
  - 3. When preparing the cable for termination, manufacturer installation procedures shall be adhered to. Special care shall be taken to ensure the proper center conductor length as specified by the manufacturer.

4. The Male F Connectors shall be mated to Female/Female Feed-thru Couplings at both the Outlet and Patch Panel locations. These couples shall be matched to the Male F connector type. Couplings shall be of sufficient length as to allow for the Male F-Connector to fully seat (both sides).

## 2.5 FIBER OPTIC CABLING

### A. General

1. Indoor/outdoor type fiber optic cable or indoor-type per Project Drawings and installation environment. Indoor/Outdoor cable shall be suitable for installation in building riser systems, in conduit, and underground ducts.
2. Cable shall be Loose Tube design (Indoor/Outdoor) or Tight-Buffer design (Indoor).
3. Cable materials shall be all dielectric (no conductive material)
4. Cable shall be rated: OFNR (Optical Fiber Non-Conductive Riser)
5. Indoor / Outdoor Cable shall incorporate a blocking material, swellable yarn, or other means to prevent the incursion of water into the cable.
6. Cable construction shall be as required to meet the specified rating.
7. Outer Jacket: As required for rating
8. The outer sheath shall be marked with the manufacturer's name, date of manufacture, fiber type, flame rating, UL symbol, and sequential length markings every two feet. Markings shall be in a contrasting color to the cable jacket.
9. Temperature Range
  - a. Storage: -40° to +70°C (no irreversible change in attenuation)
  - b. Operating: -40° to +70°C
  - c. Installation 0° to 60°C
10. Humidity Range: 0 to 100%
11. Max, Tensile Load.
  - a. < 12-fibers
    - 1) During Installation: 1350 Newtons (312 lb force) (no irreversible change in attenuation)
    - 2) Long Term: 400 N (85 lb force)
12. Bending Radius
  - a. During Installation: 20 times cable diameter
  - b. No Load: 10 times cable diameter
13. The fiber count in each cross-section will vary. For quantities and other design information, refer to the Project Drawings.
14. All optical fibers shall be sufficiently free of surface imperfections and inclusions to meet the optical, mechanical, and environmental requirements of this specification. Factory optical fiber splices are not allowed.
15. All fibers shall have been subjected to a minimum tensile proof test by the fiber manufacturer equivalent to 100-kpsi.

- B. All fibers in each cable shall be guaranteed to meet the stated specifications.

### C. Single-Mode Optical Fibers

1. Single-mode, doped silica core surrounded by a concentric glass cladding
2. Fiber shall meet requirements of:
  - a. TIA-492CAAB - Detail Specification for Class IVa Dispersion-unshifted (non-shifted) Single-Mode Optical Fibers with Low Water Peak (equivalent to ITU G652.D.)
  - b. IEC 60793-2-50 Type B1.3
3. Cabled Fiber:

- a. Indoor / Tight-Buffer - ISO/IEC type OS1 (sometimes manufacturer mis-identified as OS2)
  - b. Outdoor or Indoor/Outdoor - Loose-Buffer - ISO/IEC type OS2
  - c. Fiber Coating Diameter - 250  $\mu\text{m}$  (nominal) primary coating; 900  $\mu\text{m}$  (nominal) secondary coating where tight buffer cable design is specified. All coatings shall be mechanically strippable without damaging the optical fiber.
4. Fiber Attenuation (max. dB/km @23 $\pm$ 5 °C)
- |           | ISP | OSP  |
|-----------|-----|------|
| @ 1310 nm | 1.0 | 0.65 |
| @ 1550 nm | 1.0 | 0.65 |
5. No single-mode optical fiber shall show a point discontinuity greater than 0.1 dB at the specified wavelengths.

## 2.6 FIBER OPTIC PATCH PANEL

### A. Fiber optic Connector

1. The Optical Connector shall be LC-type.
2. The connector ferrule shall be ceramic or glass-in-ceramic. The optical fiber within the connector ferrule shall be secured with an adhesive or mechanical process to prevent pistoning and other movement of the fiber strand.
3. Cable termination method shall be fusion splicing of factory-terminated cable assemblies ("pigtailed") to the installed cable.
4. The connector body shall be a composite material.
5. The attenuation per mated pair shall not exceed the following value:
  - a. Singlemode 0.75 dB
6. Mated pair attenuation shall include in-connector stub splice or splice used to splice pigtail to backbone cable.
7. These values shall hold throughout the Cable System. Connectors shall sustain a minimum of 200 mating cycles per EIA/TIA-455-21 without violating specifications.
8. The connector shall meet the mechanical performance criteria of the applicable EIA/TIA-455 Fiber Optic Test Procedures (FOTP).
9. Connector end-face finish – Ultra physical contact (UPC)
10. Color of connector body or strain-relief boot shall indicate fiber type as follows:  
Single-mode UPC – blue
11. Reflectance 9max) when mated with a patch cord made up of connector of comparable design : -40 dB (single mode UPC)

### B. ENCLOSURE AND ADAPTER PANELS

1. All terminated fibers shall be mated to Duplex LC Adapters. Adapters shall be mounted on a panel, connected to pigtailed splice Cassette that, in turn, snaps into the enclosure. The proposed enclosure shall be designed to accommodate a changing variety of connector types.
2. Color of Adapter (all except ST-type) shall indicate fiber type as follows:
  - a. Singlemode UPC - Blue
3. Fiber Optic Patch Panels shall be rack-mounted or wall-mounted. Refer to Project Drawings for appropriate enclosure type.
4. Fiber Optic Patch Panel enclosure shall be sized to accommodate the total fiber count to be installed at each location as defined in the specifications and drawings - including those not terminated (if applicable).

5. Rack-mounted unit height shall be 2 RU minimum to simplify access. Refer to Project Drawings for fiber count – Contractor shall ensure that space exists in the enclosure for future fiber optic additions.
  6. Wall-mounted enclosures shall include jumper protection in the form of a metal channel or similar (often referred to as jumper protection door). This protection shall serve to protect fiber jumper cables from physical damage as they are plugged into an enclosure port and to provide channel for cable management.
  7. Provide strain relief for all cables passing through the enclosure.
- C. Fiber Optic Patch Panel shall be enclosed assemblies affording protection to the cable subassemblies and to the terminated ends. The enclosures shall incorporate a hinged or retractable front cover designed to protect the connector couplings and fiber optic jumpers.
- D. The patch panel enclosure shall provide for strain relief of incoming cables and shall incorporate radius control mechanisms to limit bending of the fiber to the manufacturer's recommended minimums or 1.2", whichever is larger
- E. All Fiber Optic Patch Panels shall provide protection to both the "facilities" and "user" side of the coupling. The patch panel enclosure shall be configured to require front access only when patching. The incoming cables (e.g., Backbone, Riser, etc.) shall not be accessible from the patching area of the panel. The enclosure shall provide a physical barrier to access of such cables.
- F. Where termination is to include splicing of factory-terminated cable assemblies, Patch Panel enclosure shall be sized adequately to accommodate the required splice hardware and fiber slack.

## 2.7 MODULAR PATCH PANEL

- A. Patch Panels shall incorporate Modular Jacks meeting the specifications of the Equipment Outlet detailed in the above article "Equipment Outlet".
- B. Patch panels featuring removable modular jack assemblies shall have a jack color shall be maintained as indicated in the above article "Equipment Outlet".
- C. Modular Patch Panel shall be of the Flat type.
- D. Where specified on Project Drawings, provide Shielded Modular Patch Panel (camera locations). Shielded Modular patch Panels shall include a grounding lug.
- E. Modular Patch Panel configuration shall not exceed 48 ports (2 rows of 24 ports each) in a 2 RU panel. Panel designs which feature removable modular jack assemblies shall be fully populated (all ports occupied by jacks) and be provided in increments of no less than 12-jacks.
- F. Modular Patch Panel cable termination shall:
1. Have the ability to seat and cut 8 conductors (4 pairs) at a time and shall have the ability of terminating 22-through 26-gauge plastic insulated, solid and stranded copper conductors.
  2. Be designed to maintain the cable's twists as closely as possible to the point of mechanical termination.
  3. Include color coded designation strips or other markings to identify conductor position.

- G. Modular Patch Panels shall incorporate cable support and/or strain relief mechanisms to secure cables at the termination block and to ensure that all manufacturers minimum bend radius specifications are adhered to.
- H. Modular Patch Panel performance shall be as required to meet the specified Permanent Link and Channel performance.

## 2.8 EQUIPMENT CABINET

- A. Refer to the project drawings for quantities and sizes required at each location.
- B. Equipment cabinet shall comply with State Building Codes for the seismic area where installed.
- C. For cabinets installed nearby areas subject to water spray such as wash bays, or in dirty environments such as garages, provide gasketed NEMA 4 rating for enclosure.
- D. Shall accommodate 19" mounting width, mounting depth shall be 24" at a minimum, unless noted otherwise on Project Drawings. Steel construction and black in color.
- E. Shall have a load capacity of 350 lb minimum, whether cabinet is in open or closed position. Cabinet shall not shift / twist and become un-closeable under rated weights.
- F. Shall be of a three-section construction including (a) wall-mount section that incorporates cable entry, (b) center section and (c) Door. Each section shall be hinged to facilitate access. Hinges shall be configurable to open LEFT OR RIGHT. Refer to project drawings for proper door and center section swing.
- G. Door shall be solid. Door depth shall be 2-inches or greater. Door shall be lockable and furnished with two (2) keys. Door shall be at least 24-inches in width.
- H. Wall-mounted section shall incorporate knockouts (top and bottom) for conduit and cable access.
- I. Provide Fan/Filter Kit at top and bottom of enclosure to ensure adequate airflow. Position Fan/Filter at top on side opposite location of the Fan/Filter on bottom.
  - 1. For those cabinets installed in non-temperature-controlled areas such as garages, provide additional fans as required to maintain safe temperatures for network electronics. Shop drawings shall reflect these additional measures.
- J. The cabinet shall be configured to allow for adjustment of the channel uprights (front to rear) in 1-inch increments, spaced to accommodate industry standard 19-inch mounting, and tapped to accept 12-24 screws. The cabinet shall be vented to allow for airflow through the cabinet.
- K. Cabinet(s) shall be equipped with vertical and horizontal cable management hardware, in the form of rings and guides, as to allow an orderly routing of optical fiber and twisted pair jumpers from the patch panel to the customer provided network equipment. Managers shall be:
  - 1. 2RU plastic or painted steel panel;
  - 2. Configured with a minimum of five (5) jumper distribution rings
  - 3. Be configured with a cover

## 2.9 CABLE RUNWAY

- A. Sometimes referred to as "Ladder Rack", Cable Runway is used for support and routing of cabling within a Telecommunications Equipment Room.
- B. Construction:
  - 1. Rungs welded to tubular stringers
  - 2. Stringer Height - 1.5 inches
  - 3. Rung Spacing - 9 inches on center
  - 4. Radius Drop for cable guides shall be compatible with all cable minimum bend radii
- C. Finish:
  - 1. Manufacturer's standard epoxy paint or baked-polyester powder coat
  - 2. Color: Black
  - 3. Width: As shown on Project Drawings.

## 2.10 BACKBONE TWISTED-PAIR COPPER CABLE

- A. Cable shall be UL-listed and be compliant with NEC Article 800 (Communications Circuits).
- B. Cable shall meet the physical and electrical requirements of "Backbone Cable" as defined by the referenced TIA standards.
- C. Cables shall incorporate 24 AWG solid, annealed, bare copper conductors. All conductors shall be continuous and splice free. Bridge taps are not allowed.
- D. Conductors shall be insulated with a thermoplastic skin. Insulated conductors shall be stranded into pairs of varying lay lengths in order to minimize cross-talk.
- E. Conductors shall be identified by the insulation color of each conductor. The color code shall follow the industry standard composed of ten (10) distinctive colors to identify 25 pairs in accordance with ICEA publication S-80-576-2002. Marking of each mate of the primary conductor in a pair with the color of that primary conductor is optional.
- F. When cables of larger than 25 pairs are required, the core shall be assembled into 25-pair sub-units, each color coded in accordance with ICEA publication S-80-576. Cables with over 600 pairs shall have 25-pair binder groups combined into super units. These super units shall be wrapped with a solid color thread that follows the primary color scheme of white, red, black, yellow and violet. Binder color code integrity shall be maintained wherever cables are spliced.
- G. Cable pair count shall be as detailed on the Project Drawings.
  - 1. INTER-BUILDING TWISTED-PAIR COPPER CABLE
    - a. Cable shall be suitable for installation in underground duct.
    - b. A flooding compound shall be applied over the core and to all surfaces of the shield/armor to resist moisture entry and to inhibit corrosion.
    - c. The cable core shall be filled with a waterproofing compound and wrapped with a non-hygroscopic core tape.
    - d. The cables shall contain an overall corrugated, coated aluminum shield, which is electrically continuous over its entire length.
    - e. The cable shall be finished with a black polyethylene jacket, which is sequentially printed with a footage marker at regular intervals.

2. INTRA-BUILDING TWISTED-PAIR COPPER CABLE

- a. Cable shall meet or exceed NEC Article 800 Type CMR or CMP as required, and be suitable for in-building installation. Jacket and cable construction shall be as required to meet the specified rating.
- b. Cable transmission performance shall meet or be better than TIA Category 3 criteria.
- c. Where cable pair counts exceed 50-pair, provide cable in 50-pair increments (separate cables). For example, if a 200-pair cable is specified on the plans, provide (4) 50-pair cables to allow for separation and future selective demolition.
- d. Cable shall contain an overall corrugated, coated aluminum shield that is electrically continuous over its entire length.

2.11 NOT USED

2.12 EQUIPMENT CABINET – 4-POST ENCLOSURE TYPE

- A. Refer to the Project Drawings for quantities required at each location. Where additional Equipment Racks are required or where existing racks are in place and none are required, it shall be so noted on the Project Drawings
- B. Equipment Rack shall comply with Building Codes for the seismic area where installed.
- C. Rack shall be of the RU height as designated on Project Drawings. Unit shall be self-supporting.
- D. Channel Upright spacing: Per EIA/ECA-310 to accommodate Industry standard 19" mounting.
- E. Construction:
  1. Material: Steel
  2. Finish: Powder-coated surface
  3. Plastic materials shall meet or exceed UL94 standard HB rating.
  4. All interior components of the cabinets shall not have electroplated zinc coating to minimize zinc whiskers near active equipment.
  5. Color: black
  6. The vertical mounting rails shall be easily adjustable to allow different mounting depths.
    - a. Each vertical mounting rail shall be marked on both sides with lines showing the top and bottom of each U and the number U space next to the middle hole. Each U consists of three square holes and is 1.75 inches (44.45 mm) high.
  7. Shall be capable of holding minimum of 3,750 lb of static load.
- F. The unit shall include M6 caged nuts, bolts and cup washers, and caged nut tool for the mounting of equipment inside the unit.
- G. Both the front and rear doors shall be designed with lift-off hinges allowing for quick and easy detachment without the use of tools.
  1. The front and rear doors shall open a minimum of 120 degrees to allow easy access to the interior.
  2. The front door of the unit shall be reversible so that it can be mounted on either side.
  3. Split rear doors are provided for increased service clearance.

4. The front door of the unit shall be capable of being installed on the rear of the unit and the rear doors shall be capable of being installed on the front of the unit.
- H. The unit shall include half-height side panels that are removed without tools using easy finger latches for fast access to cabling and equipment.
1. The side panels on the unit shall double as privacy panels when the units are bayed together.
  2. Side panels shall be flush with the frame so the overall width of the unit does not change with the side panels installed.
  3. Baying brackets must provide two sets of mounting holes for standard cabinet spacing of 24” or 600mm.
  4. Shall be releasable by quick-release latch
    - a. Enclosure width shall not change by removal of side panels.
- I. Grounding:
1. All cabinet components such as doors, side panels, roofs, etc. shall be bonded directly to the frame.
  2. Grounding points shall be provided on the cabinet’s frame to externally bond each unit to the telecommunication grounding system.
- J. Ventilation:
1. The unit shall have ventilated front and rear doors to provide adequate airflow required by the major server manufacturers.
  2. The unit shall provide the means to mount optional cooling accessories for high-density applications.
  3. The manufacturer shall offer an optional toolless blanking panel kit to prevent the recirculation of hot exhaust air.
- K. Cable Access
1. Eight cable entry slots in roof minimum
  2. Top cable management openings shall be provided in the cabinet roof.
  3. Cable opening edges shall be protected with plastic grommets or radiused edges.
  4. Bottom cable management opening shall be provided in the cabinet base.
  5. Side cable management opening shall be provided in the cabinet base. A minimum of two and maximum of four vertical PDU mount cable organizers shall be offered.
- L. Environmental:
1. The unit shall have a minimum of IP 20 rating for protection against touch, ingress of foreign bodies, and ingress of water.
  2. Manufacturer must certify products are RoHS and China RoHS compliant.
  3. The cabinet shall both protect the user from mechanical hazards and generally meet the requirements (stability, mechanical strength, aperture sizes, etc.) as defined in IEC 60950 Third Edition.
- M. Security:
1. The unit shall include a front door lock, rear door lock and four (4) side panel locks. All six (6) locks shall be configured to use the same key. Two copies of the key shall be included.
    - a. Replacement key lock cylinders from the handle manufacturer shall be available to provide a minimum of 220 unique key combinations on the front and rear doors.

- N. Stabilization
  - 1. The unit shall ship with provisions for stabilization in the field using the pallet mounting brackets.
  - 2. The manufacturer shall offer an optional stabilizer kit that can be attached to the cabinet frame. The frame can then be bolted to the floor.
- O. Basis of Design – APC Netshelter SX, model AR3100.

## 2.13 POWER STRIP / SURGE SUPPRESSOR (HORIZONTAL RACK-MOUNTED)

- A. Unless noted otherwise on project drawings, provide MINIMUM of (1) Power Strip / Surge Suppressor at each equipment cabinet for powering of the network electronics.
  - 1. It is only necessary to provide (1) Power Strip / Surge Suppressor for wall-mounted Equipment Cabinets.
- B. Power Strip shall:
  - 1. Be rack mountable (19-inch rack, for equipment racks).
  - 2. Be compliant with UL-1449, UL-1283 and UL-497A
  - 3. Provide Transient suppression to 13 kA. Protection shall be in all 3 modes (hot-neutral, hot-ground & neutral-ground).
  - 4. Meet or exceed IEEE 587 Category A & B specification
  - 5. Provide High Frequency Noise Suppression as follows:
    - a. >20 dB @ 50-kHz
    - b. >40 dB @ 150-kHz
    - c. >80 dB @ 1-MHz
    - d. >30 dB @ 6- to 1000-MHz
  - 6. Provide a minimum of 2700 Joules of AC Energy Absorption
  - 7. Be equipped with a 12-foot power cord
  - 8. Provide a minimum of six (6) outlets
  - 9. Have an ampere rating that matches the supply circuit (typically 20 amps, refer to Project Drawings)

## 2.14 VERTICAL PDU

- A. Where referenced on Project Drawings for free-standing equipment cabinets, provide switched network-capable vertical PDU as follows.
  - 1. Input NEMA L14-30P, 208 / 120 volt single-phase.
  - 2. Outputs:
    - a. (1) C19/C21
    - b. (16) 5-20R
    - c. (7) C13/C15
  - 3. PDU shall be capable of remote load management, outlet-level controls and power cycling, and sequence control.
  - 4. PDU shall be capable of operation with an ambient temperature of up to 60 degrees C.
  - 5. PDU shall occupy zero horizontal RU in rack or cabinet. Shall be optimized to fit vertically into the 4-post free-standing equipment cabinets as specified elsewhere in this Section.
  - 6. Outlets shall be of the high-retention type.
  - 7. Shall be capable of alerting for overload conditions

8. Shall include gigabit ethernet connectivity
9. Shall utilize network management card
10. Shall be capable of providing up to four secure access levels – administrator, device user, read-only user, and network-only user.
11. Shall be accessible via web browser, SNMP, and Telnet.
12. Shall have upgradeable firmware.
13. Shall be capable of network port sharing. Single IP address can be used for 32 interlinked PDUs
14. Metering accuracy shall adhere to IEC 62053-21 class 1 standards.
15. Maximum input current shall be 30 amps.
16. Basis of Design – APC Rack PDU, APDU9970.

#### 2.15 AC POWER STRIP / SURGE SURGE SUPPRESSOR (WALL-MOUNTED)

- A. Requirements are similar to the rack-mounted type except:
1. Provide a minimum of 3000 Joules of AC Energy Absorption
  2. Be equipped with a 6-foot power cord
  3. Have mounting holes for wall-mounting

#### 2.16 FLEXIBLE NONMETALLIC INNERDUCT AND FITTINGS

- A. Flexible nonmetallic innerduct may be used as follows:
1. To segment conduit(s), increasing capacity
  2. As protection to backbone fiber optic cables when install in cable tray,
  3. As protection to fiber optic cables within equipment rooms and telecommunications rooms.
- B. Innerduct shall be corrugated.
- C. Where not installed in a continuous length, innerduct segments should be spliced using couplings designed for that purpose
- D. Any vacant innerduct shall be equipped with a pull cord and capped at all ends to inhibit the entry of water and contaminants
- E. Innerduct should be rated (e.g. Flame-retardant, Riser or Plenum) as required by the installation environment. Riser and Plenum innerduct shall be of a color contrasting to that of the “Standard” and Flame-retardant innerduct. The preferred colors are Orange (“Standard & Flame-retardant) and White (Riser and Plenum).
- F. Nominal duct size shall be 1-inch (minimum).
- G. Flame-retardant Innerduct
1. Innerduct installed within buildings (not including riser paths) or utility tunnels shall meet all of the above General requirements plus:
    - a. Be fabricated of flame-retardant materials suitable for installation such environments, and
    - b. Meet or exceed all requirements for flame resistant duct as required by BELLCORE TR-NWT-000356 (Section 4.33).

H. Riser-rated Innerduct

1. Innerduct installed within building riser shafts shall meet all of the above General requirements plus:
  - a. Be fabricated of flame-retardant materials suitable for installation such environments, and
  - b. Meet or exceed all requirements for flame propagation as specified by test method UL-1666 and referenced by the National Electrical Code (NEC) Section 770.154 for listed optical fiber raceways being installed in vertical runs in a shaft between floors.

I. Fabric Innerduct

1. Innerduct installed within conduits for the purposes of segmenting shall meet all of the above General requirements plus:
  - a. Be constructed of PET multifilament and Nylon 6 monofilament yarns, and
  - b. Have pre-installed pulling tape in each cell, and
  - c. Be sized based on the nominal conduit size into which it is to be installed, and
  - d. Be pre-lubricated from factory

2.17 TERMINATION BLOCKS

- A. Blocks shall be 110-type.
- B. The mechanical termination shall:
  1. Have the ability of terminating 22 - 26 AWG plastic insulated, solid and stranded copper conductors
  2. Provide a direct connection between the cable and jumper wires
- C. Each row shall be cable of terminating
  1. Twenty-five pair groups (Backbone Cables) using 5-pair Termination Clips.
- D. Block performance shall be as follows
  1. Backbone Cabling: Category 3 performance or better
- E. Blocks shall incorporate a label holder which is to be used to identify the cable pairs. Label shall be color coded to indicate cabling type.
- F. Blocks shall identify pair position by a color designation - Blue, Orange, Green, Brown and Slate. (Backbone only).
- G. Blocks shall be 19" rack-mountable if so specified on Project Drawings.

2.18 WIRELESS ACCESS POINT MOUNT (HARD CEILING INSTALLATIONS)

- A. Mount shall be compatible with Wireless Access Points designated on Project Drawings..
- B. WAP shall be listed and shall meet requirements for plenum installations.
- C. Mount shall be of a recessed design, such that only the front face of the WAP is exposed for optimal coverage.

- D. Mount shall be easily accessible such that the WAP and cables in the backbox are easily reached.
- E. Mount shall include a paintable trim kit.
- F. Mount shall contain provisions for attaching metallic conduit, trade size knockouts of 1”.
- G. Mount shall have adequate space for storage of cable slack loop and surface-mount boxes (biscuit boxes).
- H. Mount shall have provisions for securing enclosure to ceiling joists.

### PART 3 EXECUTION

#### 3.1 GENERAL

- A. Refer to Project Drawings which indicate Equipment Outlet locations, major cable routes and termination locations within the building.
- B. Furnish and install all cables, connectors, hardware and equipment as shown on the drawings and as specified above.
- C. Should it be found by the Engineer that the materials or any portion thereof furnished and installed under this contract fail to comply with the specifications and drawings with the respect or regard to the quality, value of materials, appliances or labor used in the work, it shall be rejected and replaced by the Contractor and all work disturbed by changes necessitated in consequence of said defects or imperfections shall be made good at the Contractor's expense.
- D. All cables, termination components and support hardware shall be furnished, installed, tested and documented by the Contractor unless noted otherwise.

#### 3.2 CABLE INSTALLATION

- A. General
  - 1. Install all cables in continuous lengths from endpoint to endpoint. No splices shall be allowed unless noted otherwise.
  - 2. Cable shall be suitable for the installation environment through which it passes. General Purpose or Riser-rated installed in a Plenum area shall be in conduit.
  - 3. Furnish all required installation tools to facilitate cable pulling without damage to the cable jacket. Such equipment is to include, but not limited to, sheaves, winches, cable reels, cable reel jacks, duct entrance tunnels, pulling tension gauge and similar devices. All equipment shall be of substantial construction to allow steady progress once pulling has begun. Makeshift devices, which may move or wear in a manner to pose a hazard to the cable, shall not be used.
  - 4. Pull all cable by hand unless installation conditions require mechanical assistance. Where mechanical assistance is used, care shall be taken to ensure that the maximum tensile load for the cable as defined by the manufacturer is not exceeded. This may be in the form of continuous monitoring of pulling tension, use of a “break-away” or other approved method.
  - 5. Use a swivel between the pull-line and pulling grip to prevent the pull-line from imparting a twist to the cable.
  - 6. Fiber optic cables shall make bends in conduit sweeps, not in junction or pull boxes.

7. Complete all work using qualified personnel utilizing state-of-the-art equipment and techniques. During pulling operation an adequate number of workers shall be present to allow cable observation at all points of duct entry and exit, as well as to feed cable and operate pulling machinery.
8. Pull cable in accordance with cable manufacturer's recommendations and ANSI/IEEE C2 standards. Manufacturer's recommendations shall be a part of the cable submittal. Recommended pulling tensions and pulling bending radius shall not be exceeded. Any cable bent or kinked to radius less than recommended dimension shall not be installed. If any installed cable is kinked to a radius less than recommended dimension it shall be replaced by the contractor with no additional cost to the project.
9. All wiring shall be run "free-air", in conduit, in a secured metal raceway or in modular furniture as designated on the plan drawings. All cable shall be free of tension at both ends.
10. Avoid abrasion and other damage to cables during installation.
11. All cable shall be free of tension at both ends. In cases where the cable must bear some stress, Kellum grips may be used to spread the strain over a longer length of cable.
12. Manufacturer's minimum bend radius specifications shall be observed in all instances.
13. A pull cord (nylon; 1/8" minimum) shall be co-installed with all cable installed in any conduit.
14. Protection of cable from foreign materials:
  - a. Provide adequate physical protection during construction to prevent foreign material application or contact with any cable type.
    - 1) Foreign material is defined as any material that would negatively impact the validity of the manufacturer's performance warranty. This includes, but is not limited to, overspray of paint (accidental or otherwise), drywall compound, or any other surface chemical, liquid or compound that could come in contact with the cable, cable jacket or cable termination components.
    - 2) Overspray of paint on any cable, cable jacket or cable termination component will not be accepted.
    - 3) Use of any cleaning agents to remove overspray shall be per the cable manufacturer's written consent.
    - 4) It shall be the Contractor's responsibility to replace any component in its entirety affected by a foreign material. This shall be at no additional cost to the project.
    - 5) Should the manufacturer and/or warrantor of the structured cabling system desire to physically inspect the installed condition and certify the validity of the structured cabling system (via a signed and dated statement by an authorized representative of the structured cabling manufacturer), the Owner may, at their sole discretion, agree to accept said warranty in lieu of having the affected cables replaced.
    - 6) In the case of plenum cabling, in addition to the statement from the manufacturer, submit a letter from the local Authority Having Jurisdiction stating that they consider the plenum rating of the cable to be intact and acceptable.

B. Horizontal (Station) Cable Installation

1. Refer to the project Drawings which identify the location of the Horizontal Cross-connect and Equipment Outlet (EO) locations.
2. Route Horizontal Cabling to the Telecommunications Room (TR).
3. The maximum station cable drop length for Data and Voice UTP (Category 6 or Category 6A) shall not exceed 295-feet (90-meters) in order to meet data communications performance specifications. This length is measured from the termination panel in the wiring closet to the outlet and must include any slack required for the installation and termination.
  - a. The Contractor is responsible for installing station cabling in a fashion as to avoid unnecessarily long runs. Any area that cannot be reached within the above constraints should be identified and reported to the Engineer prior to installation.
  - b. Changes to the plan shall be approved by the Engineer.
4. Where installed free-air, installation shall consider the following:

- a. Cable shall run at right angles and be kept clear of other trades work.
  - b. Support cables according to code utilizing "J-Hook" supports anchored to ceiling concrete, or structural steel beams. Cable support devices shall be designed to maintain cables bend to larger than the minimum bend radius.
    - 1) J-Hooks shall incorporate a metal wire or other type closure to retain the cables.
  - c. Space supports at a maximum 4-foot interval unless limited by building construction. If cable "sag" at mid-span exceeds 6-inches, another support shall be used.
  - d. Do not place cable directly on the ceiling grid or attach cable in any manner to the ceiling grid wires.
  - e. Do not attach cables to existing cabling, plumbing or steam piping, ductwork, ceiling supports or electrical or communications conduit.
5. Care should be taken in the use of cable ties to secure and anchor the station cabling. Ties should not be over tightened as to compress the cable jacket. No sharp burrs should remain where excess length of the cable tie has been cut.
  6. Protect cable sheaths from damage from sharp edges. Where a cable passes over a sharp edge, provide a bushing or grommet to protect the cable.
  7. Place a coil of 4 feet in each cable shall in the ceiling at the last support (e.g. J-Hook, Bridle Ring, etc.) before the cables enter a fishable wall, conduit, surface raceway or box.
  8. At any location where workstation cables are installed into movable partition walls or modular furniture via a service pole, 12" of slack shall be left in each station cable under 250-feet in length to allow for change in the office layout without re-cabling. These "service loops" shall be secured at the last cable support before the cable leaves the ceiling. Minimum coil diameter shall be 8-inches.
  9. Cables for wireless access points shall include 15-feet of slack. These "service loops" shall be secured at the last cable support before the cable leaves the ceiling. Minimum coil diameter shall be 8-inches.
  10. Cat6 and Cat6A shall not be kept separate and shall not be comingled in runs. Provide independent supports for each cable type.
  11. Cat6 and Cat6A cables shall not utilize the same wall penetrations and sleeves. Provide independent sleeves to maintain system separation.
  12. At all Telecommunication Rooms (TR), provide approximately 10-feet of slack in each station cable to allow for changes in the telecommunication room layout without re-cabling.
    - a. This slack shall not be required where a horizontal cable length in excess of 295-feet would result.
    - b. Secure cable slack to the cable runway above the equipment racks.
    - c. Cable bend s shall be 200% of the cable recommended minimum bend radius or greater.
  13. Minimum separation distances between communications wires and cables, and any electric light, power, Class 1, non-powered fire alarm, or medium power network-powered broadband communications circuit shall comply with NEC Article 800.
  14. In addition, to reduce or eliminate EMI, the following minimum separation distances shall be adhered to:
    - a. Thirty-nine (39) inches from transformers and motors.
    - b. Cabling installed in cable tray shall be separated from fluorescent lamps and associated fixtures by a minimum of 5 inches (125 mm).
    - c. Zero pathway separation distance is permitted when electrically conductive communications cables, power conductors or both are enclosed in metallic pathways that meet the following conditions:
      - 1) Metallic pathway(s) completely enclose the power conductors and are continuous.
      - 2) Metallic pathway(s) are properly bonded and grounded per ANSI/TIA-607-B; and
      - 3) Walls of the pathway(s) have a minimum thickness 1 mm (0.04 in) nominal if made of steel (1/2" EMT minimum)

15. No separation is required between power and telecommunications cables crossing at right angles.
16. All openings shall be sleeved and fire stopped per prevailing code and building construction ratings upon completion of cable installation.
17. Within the equipment room in which Data Cabling is to be terminated, use only Hook and Loop (e.g. "Velcro") ties from room entry to the point of termination. This is to facilitate the addition of future cables.
18. Fit all Connectors (e.g. modular jacks and coaxial type) with a dust cover.

### 3.3 GROUNDING AND BONDING

- A. Where a cable incorporates metal armor, strength elements or other metallic elements (not including conductors), Bond those elements to an approved ground using a #6 AWG solid copper conductor. Cable grounding hardware and method shall be per manufacturer's recommendations.
- B. Bonding Conductor may be routed unenclosed on Cable Runway and on Equipment Rack.
- C. Bond each rack and cabinet via on-rack ground bar or grounding strip to the Telecommunications Ground Busbar (TGB) using a #6 AWG (or larger) insulated stranded copper conductor (GREEN jacket or GREEN jacket with one or more yellow stripes per NEC paragraph 250.119).
- D. Bond each rack to the TGB via a separate conductor. Alternatively, a single bonding conductor may be run from the TGB to the row of racks and a conductor for each rack tapped off the single Bonding conductor.
- E. Install ground bar such that there is a bond between it and rack/cabinet. Remove paint from the rack/cabinet at the connection point. Use thread-forming (paint piercing) type mounting screws.
- F. Use manufactured straps between spliced sections of Cable Runway per manufacturer's recommendations. Bond each segment of Cable Runway to Telecom Grounding Busbar in room.

### 3.4 EQUIPMENT CABINET (WALL-MOUNTED) AND EQUIPMENT RACK (FREESTANDING)

- A. Refer to the Project Drawings for Quantities by location.
- B. Confirm exact location and orientation with owner prior to permanent installation.
- C. Mount Vertical Jumper Management hardware using means recommended by the wall-mounted cabinet manufacturer. Provide such hardware left and right side of all cabinets.
- D. Position racks and cabinets to provide minimum clearances as follows:
  1. ~6" between the rack upright or cabinet sidewall and the wall to allow for cabling in that area.
  2. 40" from the rear of the rack upright or cabinet rear door to the wall behind the rack to allow for access by maintenance personnel.
  3. 40" workspace in front of the rack or cabinet front door.
  4. Locations where these guidelines cannot be followed should be brought to the attention of the Engineer for resolution prior to installation.
- E. Mount all hardware and equipment between 18" and 79" above floor level. This is to afford easy access and, in the case of the lower limit, prevent damage to the components. Positioning of hardware should be reviewed and approved by the Engineer and DFD Construction Representative prior to installation

- F. Provide cable management hardware on both the front and back of rack/cabinet to allow an orderly and secure routing of cabling.
- G. Provide horizontal cable management hardware per elsewhere in this section.
- H. Vertical jumper management shall provide for cable routing on front and rear of each rack and cabinet.
- I. Use Paint Piercing Washers and screws per manufacturer's recommendations to ensure that all elements of the rack or cabinet assembly are electrically common. Apply antioxidant paste to surfaces with which Paint Piercing Washers will come into contact per manufacturer's recommendations.
- J. For each Equipment Rack and Cabinet, provide:
  - 1. Mounting Screws; minimum quantity (24)
  - 2. Releasable (e.g. "hook & loop") cable support ties; minimum quantity (50)
- K. Rack Installation:
  - 1. Bolt Equipment Rack(s) to the floor as recommended by the manufacturer. Multiple racks shall be joined, and the ground made common on each. Rack shall also be stabilized by extending a brace extending to the wall. Alternately, overhead cable runway ("ladder rack") over which the cabling accesses the equipment rack(s) shall provide this function.
  - 2. Mount Vertical Jumper Management hardware on spacers attached to the rack uprights and not on the upright itself. Where multiple racks are to be installed, mount this hardware between the uprights of adjacent racks and at each end of the row. Secure rack uprights and spacers per manufacturer recommendations.
- L. Cabinet Installation:
  - 1. Provide cable access in cabinet top(s) to facilitate cable entry. Field fabrication is acceptable.
  - 2. Where cabinet is Air Conditioned, configure cable entry to maintain integrity of the enclosure and proper air-flow. Use of a "Brush Kit" is an example of an acceptable method.
  - 3. Use anchoring means appropriate for the wall type and to support the rated load of the Cabinet.

### 3.5 CABLE RUNWAY

- A. Provide cable runway and accessories necessary for complete system.
- B. Size and lay out cable runway per project Drawings.
- C. Install per manufacturer's recommendations with cross- members (rungs) at the top of the stringer.
- D. Brace to racks with support brackets made by runway or rack manufacturer and intended for this purpose. Method shall provide adequate clearance for use of cable dropouts and to maintain cable bends to greater than recommended minimums.
- E. Provide radius drops where cables drop from Cable Runway to Equipment Rack and at elevation changes of 6 inches or more.

- F. Support at wall and at intermediate points not supported by equipment racks per manufacturers recommendations. Maximum allowable deviation of runway from level horizontal plane measured across length of cable runway shall be 5/8 inch, with tray loaded to capacity.
- G. Fasten cables to cable runway at intervals not to exceed 48 inches using hook and loop cable ties.

### 3.6 EQUIPMENT OUTLET

- A. General:
  - 1. Outlets shall be flush mounted on wall-mounted boxes, in floor-mounted boxes, on Surface Raceway and in modular furniture.
  - 2. Mount level.
  - 3. Unless noted otherwise on drawings, default mounting height (from finished floor to center line of outlet) in new installation shall be as follows:
    - 1) Standard Data Outlet 18-inches
  - b. Outlet for Wall-Mounted Telephone per ADA
- B. Wireless Access Point (WAP) Locations
  - 1. Unless noted otherwise on drawings, mount Equipment Outlet intended for use with a Wireless Access Point (WAP) as follows:
    - a. Drop Ceilings - Cut ceiling tiles and deliver cabling into 2-gang outlet box mounted on a grid box hanger (a.k.a. "tile bridge").
    - b. Exposed Ceilings (surface mount) - cabling piped out of tray to a 2-gang outlet box.
    - c. Drywall - deliver cable into flush mounted 2-gang outlet box.
  - 2. Reduce opening to 1-gang using "mud ring".
  - 3. Provide cable slack at each location to allow for re-location of the EO. Unless noted otherwise on the project drawings, slack length (each cable) shall be 20-feet.

### 3.7 CABLE TERMINATION

- A. General:
  - 1. At the Telecommunications Rooms, position all Data and Voice Cables on termination hardware in sequence of the Outlet I.D. starting with the lowest number.
    - a. Termination Hardware (Blocks and Patch Panels) Positioning and Layout must be reviewed and approved by the Engineer prior to construction. The review does not exempt the Contractor from meeting any of the requirements stated in this document.
  - 2. At each Equipment Outlet terminate cabling per manufacturer's recommendations.
    - a. Terminate Plus using pin/pair assignments as identified in the above article "Horizontal Permanent Link".
- B. Modular Patch Panels
  - 1. Install Modular Patch Panel(s) in a fashion as to allow future station cabling to be terminated on the panel without disruption to existing connections.
  - 2. Size Modular Patch Panels to accommodate a minimum of 20% growth in the quantity of stations relative to the initial installation.
  - 3. At Equipment Outlet and Modular Patch Panel, ensure that the twists in each cable pair are preserved to within 0.5-inch of the termination for Data cables. The cable jacket shall be removed only to the extent required to make the termination.
- C. Coaxial

1. Prepare cable for termination per manufacturer's installation procedures. Special care shall be taken to ensure the proper center conductor length as specified by the manufacturer.
2. Terminate all cables in the specified connector type.
3. At the Horizontal Cross-connect, mate with F-type feed-through couplings mounted on rack-mounted patch panel.
4. Provide wall mounted distribution hardware at the utility demarcation point as identified on the plans. Distribution hardware shall consist of Toner Cable Total Tap #TXMT-3H and termination modules to accommodate the number of cables required and a minimum of 10% additional cables.

### 3.8 IDENTIFICATION AND LABELING

- A. Refer to Section 27 05 53 "Identification for Communications Systems" for Identification and Labeling guidelines for this Project.

### 3.9 TESTING AND ACCEPTANCE

- A. General:
  1. Prior to testing, provide a summary of the proposed test plan for each cable type including equipment to be used, set-up, test frequencies or wavelengths, results format, etc. Failure to provide the above information shall be grounds for the Owner/Engineer to reject any and all Documentation of Results on related testing and to require a repeat of the affected test.
  2. Visually inspect all cabling and termination points to ensure that they are complete and conform to the wiring pattern defined herein. Provide to the Engineer with a written certification that this inspection has been made.
  3. Conduct acceptance testing according to a schedule coordinated with the Owner and Engineer.
    - a. Representatives of the Owner may be in attendance to witness the test procedures. Provide a minimum of one (1) week advance notice to allow for such participation.
    - b. Provide Test Plan as part of this notice or sooner.
  4. Supply all equipment and personnel necessary to conduct the acceptance tests.
    - a. All equipment used in testing shall be maintained and calibrated per manufacturer's guidelines. Provide documentation of equipment calibration.
  5. Document all tests. Refer to the Article "DOCUMENTATION" below which details requirements.
  6. Set Test Unit Limits to match specified performance requirements. For example, for Category 6 Horizontal Cabling, limits should be set to "Category 6 Permanent Link". Test limit for fiber optic cable should be set to consider cable length, connectors and, if applicable, splices.
  7. All cabling shall be 100% fault free unless noted otherwise. If any cable is found to be outside the specification defined herein, that cable and the associated termination(s) shall be replaced at the expense of the contractor. The applicable tests shall then be repeated.
  8. Should it be found by the Engineer that the materials or any portion thereof furnished and installed under this contract fail to comply with the specifications and drawings, with the respect or regard to the quality, amount of value of materials, appliances or labor used in the work, it shall be rejected and replaced by the Contractor and all work distributed by changes necessitated in consequence of said defects or imperfections shall be made good at the Contractor's expense.
  9. The Engineer or may request that a random field re-test—not to exceed 10% of the installed cabling—be conducted on the cable system to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the Contractor, additional testing can be requested to the extent determined necessary by the

Engineer, including a 100% re-test. Any and all re-tests shall be at no additional cost to the project.

B. Copper Backbone Cabling

1. Verify cable as free of shorts within the pairs, for continuity, pair validity and polarity and for conductor position on termination hardware.
2. For pair counts exceeding 100-pair, a percentage of "bad" pairs not to exceed 3% in any cable shall be allowed. Identify and document all bad pairs.
3. Correct any mis-positioned pairs.

C. Horizontal 4-pair Copper Cabling:

1. General:
  - a. Testing shall be from the Equipment Outlet to the Modular Patch Panel at the TR on which the cables are terminated.
  - b. The cabling must pass all the specified requirements. Conditional passing test results that are within the measurements accuracy of the test equipment (e.g. "\*\*PASS") are not acceptable.
  - c. When the EO is located on/in the wall behind modular furniture, a patch cord may be inserted into the EO to allow the furniture to be returned to its normal location. Cable testing, in this case, will be done with the patch cord.
  - d. Horizontal "Station" cables shall be free of shorts within the pairs, and be verified for continuity, pair validity and polarity, and Wire Map (Conductor Position on the Modular Jack).
  - e. Correct any defective, split or mis-positioned pairs.
  - f. Additional testing of Cabling Systems rated at TIA Category 5e and higher shall be performed to confirm proper functioning and performance.
2. Performance Testing:
  - a. Testing of the Transmission Performance of station cables shall include the following:
    - 1) Length
    - 2) Attenuation (Insertion Loss)
    - 3) Pair-to-Pair NEXT Loss
    - 4) PSNEXT Loss
    - 5) Attenuation-to-Crosstalk Ratio (ACR)
    - 6) Power-sum ACR (PSACR)
    - 7) Propagation Delay
    - 8) Delay Skew
    - 9) Return Loss
  - b. Cables shall be tested to the maximum frequency defined by the standards covering that performance category. Transmission Performance Testing shall be performed using a test instrument designed for testing to the specified frequencies. Test records shall verify "PASS" on each cable and display the specified parameters - comparing test values with standards based "templates" integral to the unit. Test method shall document all parameters specified by the standard.
  - c. Performance testing shall be per ANSI/TIA-568-C.2 Permanent Link test configuration and procedures
  - d. Where margin(s) over compliance with the identified standard(s) is specified, field verify that the necessary margins are met and take corrective actions necessary to remedy out-of-spec links.
  - e. The maximum length of station cable shall not exceed 90 meters, which allows 10 meters for equipment and patch cables.
  - f. In order to establish testing baselines, cable samples of known length and of the cable type and lot installed shall be tested. The cable may be terminated with an 8-position Modular plug (8-pin) to facilitate testing. Net Propagation Velocity (NPV) and nominal

attenuation values shall be calculated based on this test and be utilized during the testing of the installed cable. This requirement can be waived if NPV data is available from the cable manufacturer for the exact cable type under test.

- g. In the event results of the tests are not satisfactory, make changes as necessary, and shall then repeat the test or tests which disclosed faulty or defective material, equipment or installation method, and shall make additional tests as the Engineer deems necessary at no additional expense to the project or Owner.

D. Special Considerations:

- 1. Where the horizontal cabling includes an interconnect (e.g. where a zone cable is extended from a Consolidation Point to the work area Equipment Outlet (EO)), testing of the Permanent Link shall be from the Horizontal Cross-connect at the Telecom Room to the EO and include the interconnect.
- 2. Where a Surge Protector is in place as part of the Horizontal Permanent Link, performance testing shall include the Surge Protector.
- 3. Where Cabling is terminated in a Modular Plug at the device location (e.g., Video Surveillance Camera or Wireless Access Point), use Modular-Jack to Modular Jack adapter cord.
- 4. Where backbone cabling is installed, testing shall include Shield Continuity

E. Coaxial Cable Testing

- 1. Test coaxial cables to:
  - a. Locate Breaks, Faults or flawed terminations.
  - b. Verify Length.
  - c. Verify Impedance (to within 5% of nominal value).
  - d. Verify Return Loss (5-MHz to 1-GHz).
- 2. Terminate cable - as required by individual tests - with its characteristic impedance.

F. Performance Testing For Fiber Optic Cabling

- a. The fibers utilized in the installed cable shall be traceable to the manufacturer. Upon request by the Owner, provide cable manufacturer's test report for each reel of cable provided. These test reports shall include:
  - 1) Manufacturer's on-the-reel attenuation test results at the specified wavelengths for each optical fiber of each reel prior to shipment from the manufacturer.
  - 2) On-the-reel Bandwidth performance as tested at the factory.
- b. Tests Prior to Installation
  - 1) At Contractor discretion and at no additional cost to the Owner, Contractor may perform tests deemed necessary by the Contractor to ensure integrity of any Owner furnished optical fiber. Tests may range from a simple "flashlight test" to an OTDR of each optical fiber of each cable reel prior to installation. Upon request, the contractor shall supply this test data to the Owner and Engineer prior to installation.
- c. Tests After Installation
  - 1) Upon completion of cable installation and termination, test Fiber Optic cabling to include:
    - a) Optical Attenuation ("Insertion Loss" Method)
    - b) Verification of Link Integrity (OTDR)
- d. Optical Attenuation Testing
  - 1) Measure Optical Attenuation on all terminated optical fibers in both directions of transmission using the "Insertion Loss" method.

- Measurement shall be inclusive of the optical connectors and couplings installed at the system endpoints. Access Jumper length (each end) shall be 1 to 5 meters (3.3 to 16.4 ft)
- 2) Test singlemode fibers in accordance with ANSI/TIA-568 and 526-7 and Method A.1 (one jumper reference) at 1310 nm (nominal) and 1550nm.
  - 3) Attenuation of optical fibers (all fiber types) shall not exceed the values calculated per TIA-568-D.
  - 4) Singlemode fiber where cable length  $\leq$  300-meters and includes no splices – 1.5 dB.
- e. OTDR Testing
- 1) Document all fibers - even those that are left un-terminated (if applicable) - in one direction of transmission using an Optical Time Domain Reflectometer
    - a) (OTDR). Test single-mode fibers at 1310 nm (nominal) and 1550 nm.
  - 2) OTDR(s) used in testing shall incorporate high-resolution optics optimized for viewing of short cable sections. Set Pulse Width to shortest width usable and still obtain clean trace.
  - 3) Use jumpers of adequate length at both ends of cable under test to allow viewing of the entire length of the cable, including the connectors at the launch and tail end.
  - 4) OTDR traces revealing a point discontinuity greater than 0.2 dB in a multi-mode fiber, or 0.1 dB in a single mode fiber at any of the tested wavelengths or any discontinuity showing a reflection at that point shall be a valid basis for rejection of that fiber by the Owner. The installation of that cable shall be reviewed in an effort to remove any external stress that may be causing the fault. If such efforts do not remove the fault, that cable and the associated terminations shall be replaced at the expense of the contractor.
  - 5) Submitted traces should document connector Reflectance performance as meeting the specified criteria for the connector type(s) installed.

### 3.10 INNERDUCTS

- A. Where required by the project design or other sections of this specification, install fiber optic cable in protective innerduct.
- B. Innerduct shall be riser or plenum rated as required by the installation environment. At minimum, innerduct should extend to the ladder rack above the termination enclosure at system endpoints.
- C. Where not installed in a continuous length, splice innerduct segments using couplings designed for that purpose.
- D. Identify all exposed innerduct is to be labeled at 35-foot (minimum) intervals with tags indicating ownership, the cable type (e.g. "Fiber Optic Cable") and the cables it contains.
- E. Contractor shall determine optimum size and quantity to satisfy the requirements of the installation ensure that the mechanical limitations - including Minimum Bend Radius - of the cable are considered.

- F. Extend innerduct into the termination enclosure at system endpoints.
- G. For fabric innerduct installation, follow all manufacturer installation requirements, including the use of swivels for pulling, proofing conduit with mandrels, and free-floating the pull rope during installation.

### 3.11 DOCUMENTATION

- A. General:
  - 1. Upon completion of the installation, provide project documentation to the Engineer for review. Documentation shall include the items detailed in the sub-sections below. Provide approved test results and documentation in Operating and Maintenance Manuals.
  - 2. Submit documentation of Test Results in electronic form for review and distribution.
  - 3. Where documentation provided in electronic form requires unique software (e.g. NATIVE formats) other than Adobe Acrobat Reader for viewing test results, provide one (1) copy of such software. The software shall run on a MICROSOFT *Windows*-based personal computer supplied by the Owner. Software shall include license if applicable.
  - 4. Provide final documentation on CD-ROM. Interim documentation may be submitted to the Engineer for review via email, FTP, CD-ROM or other electronic means.
  - 5. Name file(s) and records to include building, route or other cable identifiers that match labeling formats used. Prefix file name with the project number.
    - a. Provide test results and describe the conduct of the tests including the date of the tests, the equipment used and the procedures followed. At the request of the Engineer, provide copies of the original test results.
  - 6. The Engineer may request that a 10% random field re-test be conducted on the cable system at no additional cost to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the Contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.
- B. Test Data – Copper Media
  - 1. Test results shall include a record of test frequencies, cable type, conductor pair and cable I.D., measurement direction, test equipment type, model and serial number, calibration date, test date, reference setup, and crew member name(s).
  - 2. Submit Test Results for each Horizontal Link and each Backbone Cable in electronic form as follows:
    - a. In the native format of the test instrument (e.g. .flw for Fluke, .sdf for Agilent or Ideal, etc.).
    - b. Summarized in a fashion that includes a graphical display of key test parameters. The Summary shall be in Adobe Acrobat (.pdf) format and include all records. Individual .pdf documentation of individual records (e.g. for each horizontal cable) are not required.

### 3.12 AS-BUILT CONSTRUCTION DRAWINGS

- A. Provide Record Drawings which denote as-built information.
  - 1. Include cable routes and outlet locations.
  - 2. Identify Telecommunications and other low-voltage Outlet locations by their sequential number as defined elsewhere in these documents. Numbering, icons and drawing conventions used shall be consistent throughout all documentation provided.

### 3.13 WARRNTY

- A. See Division 1, WARRANTIES for general requirements.
- B. Minimum Warranty for Structured Cable System sub-systems shall be as follows:
  - 1. Horizontal Copper Permanent Link – 15 years. Warranty shall be direct from manufacturer(s) of cabling and connecting components to Owner.
- C. Warranties shall include all labor, material, and travel time.
- D. Provide Warranty Certification of the Horizontal Copper Permanent Link by the manufacturer(s) of cabling and connecting components as part of system documentation.
  - 1. Submit documents to manufacturer as required for Extended Warranties.

END OF SECTION

## SECTION 27 16 19

### COMMUNICATIONS PATCH CORDS, WORK AREA CORDS, AND CROSS-CONNECT WIRE

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. This section describes the general, product and execution requirements relating to furnishing of Communications Patch Cords, Work Area Cords and/or Cross-Connect Wire for the project.
- B. Related Sections:
  - 1. Section 27 13 43 – Communications Services Cabling
  - 2. Section 27 05 53 - Identification for Communications Systems.

##### 1.2 REFERENCES

- A. Telecommunications Industry Association/Electronic Industries Alliance:
  - 1. TIA/EIA 568 - Commercial Building Telecommunications Cabling Standard
  - 2. TIA/EIA 569 - Commercial Building Standard for Telecommunications Pathways and Spaces

##### 1.3 SYSTEM DESCRIPTION

- A. Patch cords, Work Area Cords, and Cross-connect wire requirements, quantities, and spares.

##### 1.4 SUBMITTALS

- A. Product Data
  - 1. Submit documents including:
    - a. Manufacturer's Product data for all products proposed indicating construction, materials, ratings, and all other parameters identified in Part 2 (Products) below. Structured Cabling submittal shall include Test Data confirming Horizontal Cabling Channel Performance.
    - b. Manufacturer's installation instructions.

##### 1.5 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record and report as part of as-built documentation the actual quantity and length of each type of Patch Cords and Work Area Cords installed, and quantity and length of each type provided as spare.

##### 1.6 QUALITY ASSURANCE

- A. Manufactured Items
  - 1. The manufacturer(s) of cabling and connectivity components shall be a company specializing in and having a minimum of five years documented experience in producing products similar to those specified in this and related sections.

##### 1.7 EXTRA MATERIALS / SPARES

- A. Refer to Part 3.

## PART 2 PRODUCTS

### 2.1 COPPER TWISTED-PAIR PATCH CORDS AND WORK AREA CORDS

- A. For purposes of this section, "Patch Cords" refer to those cords used at the Horizontal Cross-connect; Work Area Cords are those used in the user/work area to connect between the horizontal cabling and user devices
- B. Patch Cords for use at Horizontal Cross-Connect shall be of a "slim" construction.
- C. In a Zone Cabling installation, the cables between the Consolidation Point (CP) and the Equipment Outlet (EO) are considered part of the Permanent Link, if applicable.
- D. Patch Cords and Work Area Cords shall be labeled with (1) manufacturer part number and (2) length (if not included in par number). At least one end of the cord shall be labeled.
- E. Modular Plugs shall incorporate Strain-relief and be a Snag-less design. Size of the assembly shall allow for patch cords to be positioned in adjacent ports of Modular Patch Panel specified in elsewhere in Division 27.
- F. Patch/Work Area Cord assembly shall meet performance requirements of TIA-568-C.2. See PART 3 for performance "Category" requirements.
- G. Construction:
  - 1. 4-Pair; 26 AWG stranded copper twisted pairs
  - 2. Unshielded Twisted-Pair (UTP) / Unshielded Twisted-pair with overall Shield (F/UTP)
  - 3. 8-Position, 8-Conductor (8P8C) Modular Plug at both ends; Straight-through pair orientation
  - 4. Modular Plug Pin/Pair Assignments (pinning): TIA T568A/B
  - 5. Indoor Locations:
    - a. Cable jacket material shall be PVC. Jacket color(s) shall be as indicated in Part 3.
  - 6. Outdoor / wet locations:
    - a. Cable jacket shall be PE (Polyethylene) or other material that provides moisture, water and UV protection for outdoor applications.
    - b. Cable temperature range : -40° C to +70° C
- H. Cable jacket shall be marked with manufacturer's name and cable type.
- I. Patch/Work Area Cord assembly shall meet performance requirements of IEEE 802.3af and 802.3at for Power-over Ethernet applications.

### 2.2 MODULAR-TO-110 PATCH CORDS

- A. Patch Cord assembly shall meet performance requirements of TIA-568-C.2. Category 3.
- B. Construction:
  - 1. 1-, 2- and/or 4-pair; 24 AWG stranded copper twisted pairs. Refer to PART 3 for requirements
  - 2. Unshielded (UTP)

3. 8-Position, 8-Conductor (8P8C) Modular Plug at one end and 110-type connector at opposite end. 110-type connector width shall match pair count.
- C. Modular Plug Pin/Pair Assignments (pinning):
  1. 1-pair cords – Pair terminated on pins 5 & 4
  2. 2- and 4-pair cords – Per specification Section 27 13 43
- D. 110-type connectors shall be designed to ensure proper orientation of plug when connecting to termination block.
- E. Cable jacket material shall be PVC and be marked with manufacturer's name and cable type. Jacket color(s) shall be as indicated in PART 3.

## 2.3 FIBER OPTIC PATCH CORDS

- A. Patch Cords shall be labeled with (1) manufacturer part number and (2) length (if not included in par number). At least one end of the cord shall be labeled.
- B. Construction:
  1. Shall be of a tight-buffered construction
  2. Simplex (1 fiber) and/or Duplex (2 fibers) as indicated in PART 3.
  3. Incorporate optical fiber type(s) meeting specifications of backbone cabling in Section 27 16 19 – Communications Services Cabling.
  4. Incorporate connector type(s) as indicated in PART 3 of this section
  5. Incorporate strain relief at rear of each connector body.
- C. Optical connectors shall comply with TIA-604 "Fiber Optic Connector Intermateability Standards (FOCIS) and applicable addenda for connector type(s) specified.
- D. Duplex patch cords shall have channels (fibers) shall be of equal length. Channels shall be identified by strain-relief boot color or other means.
- E. Duplex Cords fitted with duplex connectors (e.g. SC, LC) shall be configured so fiber position A connects to B and B connects to A per TIA-568-C.3.
- F. Cable jacket material shall be PVC. Jacket shall be factory marked indicating manufacturer and cable type.
- G. Single-mode Fiber Optic Patch Cords:
  1. Optical Connector
    - a. Ferrule material - Ceramic or glass-in-ceramic
    - b. Ferrule Polish - End-face geometry shall be in compliance with Telcordia GR-326-CORE, Issue 3
    - c. Insertion Loss (mated pair) shall be 0.30 dB or better.
    - d. Cable jacket color shall be YELLOW to indicate fiber type.
    - e. Connector body color shall indicate fiber type and polish as follows: UPC polish = BLUE, APC polish = GREEN.

## 2.4 CROSS-CONNECT WIRE

- A. Cross-connect wire shall be:
  - 1. 24-AWG, copper twisted-pair
  - 2. Unjacketed
- B. Insulation Color:
  - 1. 4-pair - white-blue/blue, white-green/green, white-orange/orange & white-brown/brown
  - 2. 1-pair - white-blue/blue or white-green/green (Refer to PART 3)
  - 3. 2-pair - white-blue/blue & white-green/green
- C. Spool holders, where applicable, shall be assemblies designed for that purpose.

## PART 3 EXECUTION

### 3.1 GENERAL

- A. Furnish Patch/Work Area Cords and/or Cross-connect Wire in the configuration(s) and quantities as follows below.
- B. Quantities, jacket color(s) and length(s) indicated **are for purposes of bidding. Confirm actual requirements, quantities, and lengths with Owner and AE during construction. Excessive lengths resulting in sloppy and unprofessional appearance will be rejected and cords shall be replaced by Contractor at no cost to the Owner.**
- C. Copper Patch cords shall be installed by Owner / IT staff between patch panels and network switches. Work Area Cords shall be installed by Owner/ IT staff between wall outlets and User PCs and other similar hardware. Contractor shall install all Surveillance- and WAP-related Work Area Cords.
- D. Install Patch Cords and/or Cross-connect Wire to construct cross-connect between horizontal and backbone cabling. Coordinate patching with Owner.
- E. All cables, termination components and support hardware shall be furnished, installed, tested and documented by the Contractor unless noted otherwise.

### 3.2 CONFIGURATIONS AND QUANTITIES

- A. Copper Twisted Pair Patch Cords and Work Area Cord
  - 1. 4-pair Modular Patch/Work Area Cord
    - a. Performance: TIA Category 6
    - b. Jacket Color: Blue
    - c. Length: 3 ft. - Quantity (304)
    - d. Length: 6 ft. - Quantity (304)
  - 2. 4-pair Modular Patch/WAP Cord
    - a. Performance: TIA Category 6A
    - b. Jacket Color: White

- c. Length: 3 ft. - Quantity (30)
  - d. Length: 6 ft. - Quantity (30)
- 3. 4-pair Modular Patch/Surveillance Cord
  - a. Performance: TIA Category 6
  - b. Indoor Type UTP
    - 1) Jacket Color: Green
    - 2) Length: 3 ft. - Quantity (90)
  - c. Indoor Type F/UTP
    - 1) Jacket Color: Green
    - 2) Length: 3 ft. - Quantity (30)
- B. Modular-to-110 Patch Cords
  - 1. Performance: Category 3
  - 2. Color: White
  - 3. 2-pair, Length 15 ft. – Quantity 30
- C. Fiber Optic Patch Cords
  - 1. Fiber Type: Single-mode OS2
    - a. Ferrule Polish - Ultra-Physical Contact (UPC)
    - b. Duplex, LC -to- LC, Length: 5 meter - Quantity: (30)
    - c. Duplex, LC -to- LC, Length: 2 meter - Quantity: (30)
- D. Cross-Connect Wire
  - 1. Provide cross-connect wire as required to complete contractor-installed cross-connects.
  - 2. Furnish cross-connect wire on spool(s) in pair-count and length as follows:
    - a. 1-pair (white-blue/blue) Length on each spool: 500 ft

### 3.3 WARRANTY

- A. See Division 1, WARRANTIES for general requirements.
- B. Manufacturer shall replace components that fail in materials or workmanship within specified warranty period. Warranty Period is as follows (minimum):
  - 1. Twisted Pair Modular Patch Cords – 5 years
  - 2. Fiber Optic Patch Cords – 5 years

END OF SECTION

SECTION 28 23 00

VIDEO SURVEILLANCE SYSTEM

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes furnishing and installation of cabling, equipment, and support hardware as follows:
1. Cable Pathways
  2. Camera rough-in
  3. IP Network Cameras
  4. Camera Housings
  5. Camera Mounts
  6. Camera Power Supply/Supplies
  7. Cabling (Signal, Power, Control) and Termination Hardware
  8. Cable Support Hardware
  9. Network Electronics (Routers, switches, etc.)
  10. Power-over-Ethernet (PoE) Injectors (as applicable; may be integrated into network electronics)
  11. Network Video Recorder (NVR) and related equipment and software
  12. Equipment Cabinets, Racks, Patch Panels
  13. Uninterruptible Power Supplies (UPS)
  14. Surge Protective Devices
  15. Video Management System (VMS)
  16. Automatic Transfer PDU
  17. DC Power Supply (DIN rail type)
  18. Industrial Ethernet Switch (DIN rail type)
  19. Pad-Mounted Equipment Enclosure
  20. Camera Pole
  21. Long-Range PoE Extender
  22. Licensing and software updates
- B. Related Requirements:
1. Section 26 05 26 - Grounding and Bonding for Electrical Systems: Grounding components.
  2. Section 27 13 43 – Communications Services Cabling
  3. Section 28 13 00 - Access Control: Equipment for recording and controlling access to buildings.

1.2 PRE-INSTALLATION MEETINGS / POSITIONING AND LENS ADJUSTMENT

- A. Prior to rough-in at camera locations, the contractor shall demonstrate all camera locations for the purposes of making final camera position and lens adjustments. Contractor shall provide 14 day notice (minimum) to allow for participation by Owner.
- B. Demonstration of the camera view at each location shall be as follows:
1. Place representative camera at the given location and display the video on a temporary monitor or workstation. Provide laptop computer or other suitable display as required to perform this work.
  2. Camera placement may be by temporary support or by holding the camera in place by hand.

3. Owner representative will direct the contractor to the desired field of view at that location.
  4. Document the approved field of view by saving the image electronically (preferred), taking a still photo of the viewing monitor or other approved means.
  5. At locations where Pan-Tilt-Zoom capabilities are called for, the movement of the camera shall be simulated and the views at the extents of this movement documented.
- C. For purposes of bidding, contractor shall assume the responsibility to provide temporary power supply, PoE injector or other means to power camera for this demonstration.
- D. The Contractor shall include in his estimate, minor adjustments in camera location/placement relative to plan to account for unanticipated obstructions to the field of field, mechanical interferences with new raceway and lighting fixture obstructions. There shall be no additional cost for this adjustment. Minor adjustments are considered those that do not change the housing type or mounting conditions and either a) decreases the distance from the camera to the wiring hub or b) increased the distance from the camera to the wiring hub by no more than ten (20) feet when compared to the location shown on the drawings.

### 1.3 SUBMITTALS

- A. Product Data: Submit catalog data showing electrical characteristics and connection requirements for each component. This includes, but is not limited to:
1. Preparation instructions and recommendations.
  2. Storage and handling requirements
  3. Installation methods
- B. Shop Drawings: Indicate electrical characteristics and connection requirements, including system wiring diagram.
1. Schematic of system components with physical space requirements
  2. System network topology diagram
  3. Camera mount details – all camera mounting variations will be completely detailed by the contractor. Provide diagrams, part cutsheets, and sketches as needed to show the complete mount assembly. Submittals will be rejected if mount details are not included.
  4. Connecting riser diagrams for all interfacing equipment
    - a. List of all equipment with part numbers
    - b. Locations for all components to be installed under this scope of work.
  5. Include backup time / power calculations and assumptions in submittal for all UPS equipment.
  6. Provide NVR storage calculations to show that storage capacity provided will meet the duration requirements as directed elsewhere in this Section.
  7. Provide detailed information for each type of software required for all systems, and show that all specifications and system needs are met.
  8. Contractor must show that ALL camera specifications are met. Failure to prove that products meet minimum specifications shall result in rejection of the shop drawings.
  9. Where multiple products are given in a submittal, Contractor shall circle, box, highlight, or otherwise mark the shop drawings (use colors that are easy to see on the background, such as bright yellow or red) to indicate which specific product is being proposed. Failure to annotate the shop drawings in such a way will result in shop drawing rejection.
  10. Provide computer-generated diagram of any Pad-mounted equipment cabinets, including dimensions and annotations detailing every component within. Provide

complete BOM for cabinet and included components. Provide thermostat watt ratings and cabinet manufacturer's suggested thermostat settings.

- C. Camera mounting details specific to location.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Schematic drawings - specific to project - of all circuits from the field devices to the required connection points. The diagrams shall show schematic wiring of equipment and all connections to be made to devices. Terminal connections in the equipment shall be numbered to correspond to the diagrams for use in making connections. Wiring diagrams shall be coordinated so that terminal numbering, circuit designation and equipment or device designations are the same on all drawings. All drawings must be submitted and approved by the Engineer before installation starts, but such approval will not waive any specification requirements unless specifically stated
- F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- G. Qualifications Statements:
  - 1. Submit qualifications for manufacturer, supplier, and installers per QUALIFICATIONS.
  - 2. Submit manufacturer's approval of installer.
- H. System must be fully compliant with the 2019 National Defense Authorization Act (NDAA). No products or software prohibited by this Act shall be acceptable under this Contract. Contractor must provide certifications of compliance for all products that are restricted under this Act.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Project Record / As-built Documents: Record actual locations of cameras and routing of support cable. Provide map of patch panel ports, identifying which equipment outlets correspond to which patch panel and port. Provide actual field conditions upon completion of installation. Contractor shall submit both PDF and AutoCAD versions of complete as-built documents upon project substantial completion.
  - 1. Progress as-built documents shall be submitted to A/E on a bi-weekly basis (pdf only).
- B. Operation and Maintenance Data: Submit instructions for operating system and performing routine troubleshooting procedures.
- C. Maintenance Contracts – submit maintenance service agreement per PART 3.
- D. Manufacturer Warranty Documentation for all components.

#### 1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years of experience, and with service facilities within **100 miles** of Project.
- B. Supplier: Authorized distributor of specified manufacturer with minimum three years' experience.
- C. Installer / Technician: Authorized and Certified installer of manufacturer components with service facilities within **100 miles** of Project. Installer shall have documented experience installing at least 3 projects of similar size and complexity.
  - 1. Utilize only manufacturer-trained technicians to install, program, and service surveillance equipment and software. Provide certifications as part of SUBMITTALS.

2. Ensure technicians have a minimum of five continuous years of technical experience in electronic security systems, including IP networking and Surveillance Servers.
- D. References: Contractor shall provide four current project references from clients with systems of similar scope and complexity which became operational in the past three years.
  1. At least two references shall be utilizing the same system components, in a similar configuration as the proposed system.
  2. References shall include a current point of contact, company or agency name, business address, telephone number, and if the contact agrees, include a basic system description and date of project completion.

## 1.6 EXISTING CONDITIONS

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.
- B. Examine and record existing surveillance systems as outlined below. The existing surveillance systems shall be integrated into new System per this Specification:
  1. Existing Administration Building
  2. Existing Rear (Paint) Building

## PART 2 PRODUCTS

### 2.1 SYSTEM DESCRIPTION

- A. Description: Furnish and install a complete Video Surveillance System as described herein and as shown on the plans; to be wired, connected, programmed, and in fully operational condition. Include color cameras, monitors and mounts, camera mounts/brackets, camera housings, interconnect cables, viewing stations, software, licensing, power supplies and UPS, mounting racks, all wiring, connections to devices, outlet boxes, junction boxes, raceways, protective measures, and all other necessary material for a complete operating system.
- B. System must be fully compliant with the 2019 National Defense Authorization Act (NDAA).
- C. Major features of the video surveillance system shall include:
  1. IP (Network) Cameras, including all required licenses for cameras and VMS
  2. Central display (viewing stations) of video signals.
  3. Video stream switching/routing.
  4. Surveillance System Server, Video Management Software (VMS), and Storage
  5. Dedicated client GUI programmed for full system monitoring, control, and management.
- D. System shall include new cameras at the approximate locations shown on the plans, and shall integrate existing camera systems as directed in Part 1. Final locations of new cameras shall be coordinated with Owner as outlined elsewhere in this Section.
- E. Installed system shall include all licensing costs and software updates though the warranty period (see PART 3).
  1. VMS shall offer easy-to-use automatic or manual online activation via the Internet and alternatively, offline activation via email and web for closed surveillance networks.
  2. VMS software and upgrades shall include:

- a. Free access to any new product versions for the purchased VMS software product
- b. 100% credit on owners current VMS software products when upgrading to a more advanced version of the same VMS product.
- c. Case Management online tool for submitting and tracking technical cases.
- d. Direct Access to technical support via e-mail and phone
- e. Prioritized handling of support phone call response times based upon criticality of issue, for questions submitted by email or that cannot be answered in initial phone call.
- f. Additional years of software upgrades available for purchase separately.

## 2.2 IP (Network) CAMERAS

- A. Description: Video cameras, camera outlets, camera controls, inter-connect cables, and accessories to generate video images, process them, and distribute them. System shall display images on monitors associated with viewing stations and record them via NVR.
- B. Contractor is responsible for all required installation accessories, including but not limited to camera, conduit, mounts, pendant kits, adapters, domes, brackets, conduit adapters, pole mounts, pipe mount extensions, cases, connectors, weather shields, backboxes, and any other hardware needed for installation in the environment specified. Provide midspan as required for those cameras whose power requirements exceed what is available per port on the network POE switch.
- C. Cameras features (type A):
  1. 3840 x 2160 @ 30 fps
  2. Bullet Style
  3. 1/2.5" progressive scan RGB CMOS
  4. Remote zoom and focus
  5. Varifocal F1.6, 2.8-9.8mm
  6. Horizontal FOV 109-37 degrees
  7. Vertical FOV 57-21 degrees
  8. Digital PTZ
  9. Support for micro SD/SDHC/SDXC and 256-bit encryption
  10. Wide-dynamic range, 120dB
  11. Minimum illumination
    - a. 0.18 lx (color)
    - b. 0.04 lux (black / white)
    - c. 0.00 lux (IR illumination via IR cut filter)
  12. H.264, MJPEG compression
  13. Controllable frame rate and bandwidth
  14. IP66/IP67, NEMA4x, IK10 impact rating
  15. Image options (minimum):
    - a. Privacy masking
    - b. Mirroring
    - c. Corridor format
    - d. Exposure mode
    - e. Saturation
    - f. Contrast
    - g. Brightness
    - h. Sharpness
    - i. WDR

j. White balance

16. Audio streaming: audio in, simplex
17. Analytics including / supported: fence, objects, exclusion zones, motion alarm event triggering, autotracking, perimeter,
18. Auto shutter speed adjustment from 1/62500 to 2 s
19. Compatibility: Open network video interface conformant (ONVIF) device
20. Mount: As required for camera type and location. Refer to project drawings.
21. Operating temperature down to -40 C
22. Connectors :
  - a. Shielded RJ45 10/100Base-T PoE
  - b. I/O for digital inputs and outputs, 4-pin terminal block
  - c. 3.5mm mic/line-in
23. IR range of 25m minimum
24. 5-year warranty minimum
25. Axis P1448-LE or approved equivalent

D. Cameras features (type B):

1. 1920 x 1080 @ 60 fps (no WDR), @30 fps (WDR active)
2. Dome Style
3. 1/2.8 " progressive scan RGB CMOS
4. Remote zoom and focus
5. Varifocal F1.8, 3.4-8.9mm
6. Horizontal FOV 100-36 degrees
7. Vertical FOV 53-20 degrees
8. Digital PTZ
9. Support for micro SD/SDHC/SDXC and 256-bit encryption
10. Wide-dynamic range, 120dB
11. Minimum illumination
  - a. 0.1 lx (color)
  - b. 0.02 lux (black / white)
12. H.264, H.265, MJPEG compression
13. Controllable frame rate and bandwidth
14. IP66/IP67, NEMA4x, IK10 impact rating
15. Image options (minimum):
  - a. Privacy masking
  - b. Mirroring
  - c. Corridor format
  - d. Exposure mode
  - e. Saturation
  - f. Contrast
  - g. Brightness
  - h. Sharpness
  - i. WDR
  - j. White balance
16. Audio streaming: two-way connectivity with optional hardware
17. Analytics including / supported: fence, objects, motion alarm event triggering,
18. Auto shutter speed adjustment from 1/66500 to 2 s
19. Compatibility: Open network video interface conformant (ONVIF) device
20. Mount: As required for camera type and location. Refer to project drawings.
21. Operating temperature down to -40 F
22. Connectors :
  - a. Shielded RJ45 10/100Base-T PoE

- 23. 5-year warranty minimum
- 24. Axis P3245-VE or approved equivalent.

E. Cameras features (type C):

- 1. 4 x 2560 x 1440 @ 30 fps
- 2. 360-degree "Saucer" style
- 3. 4 x 1/2.5" progressive scan RGB CMOS
- 4. Remote zoom and focus
- 5. Motorized focus and zoom
- 6. Varifocal F1.8-2.6, 3-6mm
- 7. Horizontal FOV (per sensor) 101-49 degrees
- 8. Vertical FOV (per sensor) 54-29 degrees
- 9. Diagonal FOV (per sensor) 116-58 degrees
- 10. Support for micro SD/SDHC/SDXC and 256-bit encryption
- 11. Wide-dynamic range, 120dB
- 12. Minimum illumination
  - a. 0.20 lx (color)
  - b. 0.04 lux (black / white)
  - c. 0.00 lux (IR illumination via IR cut filter)
- 13. H.264, MJPEG compression
- 14. Controllable frame rate and bandwidth
- 15. IP66/IP67, NEMA4x, IK09 impact rating
- 16. Image options (minimum):
  - a. Privacy masking
  - b. Mirroring
  - c. Corridor format
  - d. Exposure mode
  - e. Saturation
  - f. Contrast
  - g. Brightness
  - h. Sharpness
  - i. WDR
  - j. White balance
- 17. Audio streaming: two-way with optional hardware
- 18. Analytics including / supported: fence, objects, exclusion zones, motion alarm event triggering, , perimeter,
- 19. Auto shutter speed adjustment from 1/66500 to 1/5 s
- 20. Compatibility: Open network video interface conformant (ONVIF) device
- 21. Mount: As required for camera type and location. Refer to project drawings.
- 22. Operating temperature down to -30 C
- 23. Connectors :
  - a. Shielded RJ45 10/100/1000Base-T PoE
- 24. IR range of 15m minimum
- 25. 5-year warranty minimum
- 26. Axis P3719-PLE or approved equivalent.

F. Cameras features (type D):

- 1. 4320 x 1920 @ 30 fps (no WDR), 15 fps (WDR)
- 2. Dome Style 180-degree panoramic
- 3. 4 x 1/2.9" progressive scan RGB CMOS
- 4. Remote zoom and focus
- 5. Fixed focus F2.0, 3.2mm

6. Horizontal FOV 180 degrees
7. Vertical FOV 90 degrees
8. Support for micro SD/SDHC/SDXC and 256-bit encryption
9. Wide-dynamic range, 120dB
10. Minimum illumination
  - a. 0.17 lx (color)
  - b. 0.05 lux (black / white)
11. H.264, MJPEG compression
12. Controllable frame rate and bandwidth
13. IP66/IP67, NEMA4x, IK10 impact rating
14. Image options (minimum):
  - a. Privacy masking
  - b. Mirroring
  - c. Corridor format
  - d. Exposure mode
  - e. Saturation
  - f. Contrast
  - g. Brightness
  - h. Sharpness
  - i. WDR
  - j. White balance
15. Audio streaming: two-way with optional hardware
16. Analytics including / supported: fence, objects, exclusion zones, motion alarm event triggering, perimeter,
17. Auto shutter speed adjustment from 1/33500 to 1/10 s
18. Compatibility: Open network video interface conformant (ONVIF) device
19. Mount: As required for camera type and location. Refer to project drawings.
20. Operating temperature down to -40 C
21. Connectors :
  - a. Shielded RJ45 10/100/1000Base-T PoE
22. 5-year warranty minimum
23. Axis P3807-PVE or approved equivalent

G. Cameras features (type E):

1. 3840 x 2160 @ 30 fps
2. Dome Style
3. 1/2.5" progressive scan RGB CMOS
4. Remote zoom and focus
5. Electronic image stabilization
6. Varifocal F1.5, 4.3-8.6mm
7. Horizontal FOV 93-48 degrees
8. Vertical FOV 51-27 degrees
9. Digital PTZ
10. Support for micro SD/SDHC/SDXC and 256-bit encryption
11. Wide-dynamic range, 120dB
12. Minimum illumination
  - a. 0.15 lx (color)
  - b. 0.03 lux (black / white)
  - c. 0.00 lux (IR illumination via IR cut filter)
13. H.264, MJPEG compression
14. Controllable frame rate and bandwidth
15. IP66/IP67, NEMA4x, IK10+ impact rating
16. Image options (minimum):

- a. Privacy masking
  - b. Mirroring
  - c. Corridor format
  - d. Exposure mode
  - e. Saturation
  - f. Contrast
  - g. Brightness
  - h. Sharpness
  - i. WDR
  - j. White balance
- 17. Audio streaming: full duplex
  - 18. Analytics including / supported: fence, objects, exclusion zones, motion alarm event triggering, perimeter,
  - 19. Auto shutter speed adjustment from 1/28500 to 2 s
  - 20. Compatibility: Open network video interface conformant (ONVIF) device
  - 21. Mount: As required for camera type and location. Refer to project drawings.
  - 22. Operating temperature down to -50 C
  - 23. Connectors :
    - a. Shielded RJ45 10/100Base-T PoE
    - b. I/O for digital inputs and outputs, 4-pin terminal block
    - c. 3.5mm mic/line-in
    - d. 3.5mm mic/line-out
  - 24. IR range of 40m minimum
  - 25. 5-year warranty minimum
  - 26. Axis Q3518-LVE or approved equivalent

H. Cameras features (type F):

- 1. 8192 X 1728 (14.2 MP) @ 30 fps
- 2. Dome Style 180-degree panoramic
- 3. 4 x 5MP 1/2.5" progressive scan RGB CMOS
- 4. Fixed focus F1.88, 5.9mm
- 5. Horizontal FOV 180 degrees
- 6. Vertical FOV 38 degrees
- 7. Support for micro SD/SDHC/SDXC and 256-bit encryption
- 8. Wide-dynamic range, 120dB
- 9. Minimum illumination
  - a. 0.16 lx (color)
  - b. 0.06 lux (black / white)
- 10. H.264, H.265, MJPEG compression
- 11. Controllable frame rate and bandwidth
- 12. IP66/IP67, NEMA4x, IK10 impact rating
- 13. Image options (minimum):
  - a. Privacy masking
  - b. Mirroring
  - c. Corridor format
  - d. Exposure mode
  - e. Saturation
  - f. Contrast
  - g. Brightness
  - h. Sharpness
  - i. WDR
  - j. White balance

14. Audio streaming: two-way
15. Analytics including / supported: fence, objects, exclusion zones, motion alarm event triggering, perimeter,
16. Auto shutter speed adjustment from 1/40000 to 1/25 s
17. Compatibility: Open network video interface conformant (ONVIF) device
18. Mount: As required for camera type and location. Refer to project drawings.
19. Operating temperature down to -40 C
20. Connectors:
  - a. Shielded RJ45 1000Base-T PoE
  - b. 3.5mm analog/digital mic/line-in
  - c. I/O for digital inputs and outputs, 4-pin terminal block
  - d. 5-year warranty minimum
21. Axis Q3819-PVE or approved equivalent

## 2.3 CAMERA POWER SUPPLY

- A. Description: In general, cameras shall be powered by power over ethernet (POE) ports on network switches. For those cameras requiring dedicated power injectors due to per-port power limitations of switches, provide manufacturer-approved midspan for the camera.

## 2.4 COPPER CABLING

- A. Performance:
1. All Cables and Termination hardware shall be technically compliant with and installed in accordance with applicable TIA/EIA standards and perform as required to provide the Permanent Link margins stated herein.
  2. All cables shall be suitable for installation in the environment defined.
  3. Cables shall be Underwriters Laboratory (UL) listed, comply with Article 800 (Communications Circuits) of the National Electrical Code and shall meet the specifications of NEMA (low loss), UL 444, and ICEA.
- B. Construction:
1. Refer to specification section 27 13 43.
  2. Horizontal Cables shall be constructed of individually twisted pairs with 23-AWG (Category 6) - as applicable - insulated solid copper conductors.
  3. Cable Rating to be CMR
  4. Cable Jacket color shall be Green
    - a. Exception – some wet-location / OSP cables are only available in standard gray or black. This is acceptable for OSP cables.
  5. Outdoor cameras: Provide 4-pair Category 6 Shielded (F/UTP) cable.
  6. Indoor cameras; Provide 4-pair Category 6 UTP cable.
  7. Cables installed in ducts or to exterior locations or where exposed outdoors (beyond building footprint) require wet-location / OSP cable.
    - a. Cables in raceway that terminate to a camera that is mounted to the exterior of a building may use indoor cable.
  8. Terminate all signal cabling at new telecom equipment cabinet / rack per Project Drawings
  9. Terminate all cabling at camera locations in an 8P8C Modular Plug or as directed by manufacturer installation instructions.

## 2.5 STATION CORDS AND PATCH CORDS

- A. Provide patch cords at patch panels and as required at camera locations. Color to match Horizontal Cables. Length as required for connectivity without excessive slack.

## 2.6 MODULAR PATCH PANEL

- A. Refer to specification section 27 13 43.

## 2.7 VIEWING STATIONS - Located in Rooms: (a) Dispatch 225 and (b) Foreman Office 105. Additionally, Contractor shall integrate existing Viewing Station equipment in Rear Building Office R107 into new system.

- A. Description: Viewing Station PC. Minimum requirements:

1. Windows 10 Professional
2. Intel-core i9 3.6 GHz
3. Dedicated Video Memory: 12GB GDDR6 Graphics card(s) with the appropriate number of display output ports – matching the quantity of monitors to be installed, with (1) spare port for future use. Provide high-resolution monitors per elsewhere in this Section, and cables capable of supporting resolutions.
4. Ram 16 GB DDR4, 1024 MHz expandable to 32 GB
5. 240 GB SSD (Solid State Drive)
6. (1) 24" (1440p minimum) and (2) 32" (3840 x 2160 minimum) Monitors unless directed otherwise on Project Drawings. Monitor technology shall not be susceptible to screen burn-in image retention due to static images of surveillance scenes. Pixel shifting is one feature allowed to meet this requirement. Monitor tuning and screen saver setup is also the responsibility of the Contractor. Monitor shall be wall- and desk-mountable. Contractor shall provide any required mounts as required for installation environment. All wall mounts shall be of the fully articulating type.
7. Software license for VMS client and any other software licenses required for operation.
8. Include standard USB keyboard, mouse, microphone, and any other peripherals required for fully functional surveillance viewing station.
9. Confirm all specifications with camera system such as NVR (for example) – if required specifications for the viewing station exceed those listed here, contractor shall provide viewing station specs that meet or exceed that which is required by NVR.
10. Contractor is responsible for providing all equipment, cables, physical installation, mounts, connectivity, setup, and programming to suit the installation location and owner preferences.
11. Contractor shall provide all required boxes and raceways required between signal source and monitors for a neat, professional, and orderly appearance. There shall be no exposed cables running up walls, for example.
12. Contractor shall verify with owner the preferred installation location for monitors, PCs, and other peripherals with Owner prior to construction.

## 2.8 NETWORK VIDEO RECORDER (NVR)

- A. Description: Rack Mounted server-based modular digital storage and management system optimized for IP-based video surveillance. For the purposes of this Contract, this unit shall be referred to as an NVR (Network Video Recorder).
  1. NVR shall be equipped with an operating system software such as Windows Server 2019 (64-bit) or similar.
  2. NVR chassis shall be capable of being mounted into a standard 19-inch rack.

3. NVR shall include enterprise-grade software for the purposes of video management, viewing, and storage. This software shall be referred to as the Video Management System (VMS).
4. NVR must be compatible with and have appropriate amount of storage (and future processing and storage capacity for surveillance expansions in these additional areas) to integrate the existing cameras:
  - a. In the Phase A "Rear" Building of the GPMTD Citylink property. For the purposes of bidding, assume that 8 cameras of similar type to those described in this Section are to be integrated through the network.
  - b. In the Existing Administration Building. The current VMS used in the Existing Administration building will no longer be used after completion of this project. All storage, processing, and VMS related to this existing system will take place as directed on Project Drawings in the New Administration Building. Contractor will be responsible for all aspects of migrating these existing cameras to the new Surveillance System and VMS installed as part of this contract.
    - 1) Owner will be responsible for decommissioning and removal of existing camera server hardware from Telecommunications Rooms in the Existing Administration Building, after successful cutover to new Surveillance System.
    - 2) For the purposes of sizing new Surveillance System (throughput, processing, storage requirements, and other parameters) assume for the purposes of bidding that 16 cameras similar to those specified elsewhere in this Section are present in Existing Administration and will need to be integrated into the new System.
5. Compatible with 4K camera resolutions
6. Camera station and software licenses shall be provided by Contractor.
7. NVR shall be capable of connecting camera counts and types as described in these Project Drawings and Specifications, plus future expansion of 20% of current total. Assume future cameras will be of similar transmission bit rate and resolutions as those installed per this Contract.
8. The NVR system shall support multiple storage arrays including high-speed SAS, NLSAS, and SATA configurations within the server.
9. The NVR system capacity shall be expandable through the addition of network-centralized storage.
10. Operating system and other softwares shall be stored on solid-state drive (SSD). Capacity shall be 1 TB minimum – Contractor shall confirm drive size will accommodate all current and future expansion needs as outlined elsewhere in this Specification.
  - a. Provide redundant copy of OS / VMS drive via RAID 1
  - b. Provide additional (unattached) 3<sup>rd</sup> drive of the same type and capacity for the purposes of replacement of OS / VMS after a failure. Drive shall contain software recovery image.
11. Processor, video cards, memory, throughput, and all other such NVR hardware and performance calculations shall be provided by Contractor and sized to accommodate all software and connected hardware for both current use and any future expansion outlined in the Project Documents.
12. Hard disk drives for storage and retrieval of video shall be of the Enterprise class. Drives shall be of the SAS type, with MTBF at least 1.5 million hours.
  - a. Provide a rack-mounted RAID enclosure that contains RAID controller, cooling, and processor. The enclosure shall incorporate redundant fans and power supplies. Enclosure shall support hot-swapping of the storage drives in the field.

13. Supports RAID 0,1,5,6,10. Provide hard disk storage space in a RAID 6 volume redundant array. Contractor must provide storage calculations and HDD storage based on those calculations, such that:
  - a. Video recordings must be stored for a minimum of 30 days. This includes all cameras in this Contract, and also the cameras outlined in the section EXISTING CONDITIONS.
14. In addition to the video storage HDDs required above, provide identical drives for spares. Drive spare count shall be equal to 25% of the total calculated storage size (or, minimum 3 Drives spare).
15. NVR shall include option for external archiving (NAS and SAN)
16. NVR shall include software that continually monitors the NVR and its connected assets and provides status to administrators. The monitoring program shall have a corresponding client application which allows for remote NVR system visibility and event monitoring from a client workstation. These data points monitored shall include, but are not limited to:
  - a. Hardware alarms
  - b. System monitoring such as processor, memory, power supply, and cooling systems
  - c. Drive status and utilization
  - d. Throughput utilization
  - e. Camera connectivity and monitoring
  - f. Data collection, logging, and alarms for out-of-range monitored parameters and notifications.
  - g. Loss of network
  - h. Storage full
  - i. Recording error
17. NVR shall have functionality that supports a system-wide status report update. Frequency and content of report shall be user-definable but shall have the capability of providing comprehensive reports for hardware, software, alarms, connected devices, and other statuses.
18. Connectors (minimum):
  - a. SFP+ ports – provide SFP ports and transceiver modules in coordination with owner's available fiber optic cable (fiber optic cable by specification section 27 13 43) and data transmission needs for the surveillance system. Ports and transceivers must be fully compatible with NVR and fiber optic cabling. Include spares for future use.
  - b. DisplayPort x 2
  - c. HDMI x 2
  - d. DVI x 1
  - e. USB 3.0 x 6
  - f. Gigabit RJ45 LAN interface port x 4
19. Power Supply
  - a. The system power supply shall be capable of operating over a voltage range of 115 – 230 VAC and frequency range of 47 - 63 Hz. Coordinate power supply configuration, voltage, and plug type with incoming UPS / PDU power connection.
  - b. The system shall employ redundant power supplies. The secondary power supply shall be identical to the primary and shall be able to provide power to the NVR upon primary failure, with automatic failover and automatic fallback capabilities.
  - c. Power supply shall utilize overvoltage, overcurrent, short-circuit, and overtemperature protection. The NVR shall be capable of interfacing with and generating alarms and status monitoring data for the power supply.
20. Capable of both onsite/offsite viewing along with supporting hardware and software

21. NVR must be capable of simultaneous digital multi-channel live streaming and recording of video from IP cameras with support for H.264, H.265, MPEG-4/ASP, MJPEG.
22. Video motion detection (camera-independent) that meets the following minimum requirements:
  - a. Recording will begin when motion is detected and stop after 5 minutes of no motion. Sensitivity must be configurable.
  - b. Searchable metadata – searchable motion detection metadata created during motion detection
  - c. Image stabilization to minimize false recordings
  - d. Detection of objects entering or leaving field of view
  - e. Detection of repositioning, blinding, or tampering with camera. Upon detection, all cameras shall begin recording
  - f. Detection of multiple line crossings from as few as 1 to as many as 3 or better
  - g. Masking of objects to minimize false recordings.
  - h. Exclusion zones definable per camera to keep irrelevant / undesired motion from triggering recording.
23. Five (5) year warranty.

## 2.9 VIDEO MANAGEMENT SYSTEM (VMS) SOFTWARE

A. Acceptable manufacturers are Milestone, Genetec, and OnSSI.

B. VMS features:

1. VMS shall have capability to span multiple physical sites, and allow (with appropriate permissions) transmission of data between those sites. Sites may or may not have direct connection, and may be connected only through a WAN – the VMS shall be able to accommodate any such arrangement, where the distinct physical sites share a common VMS and can be linked as required. The VMS supplied under this contract shall be capable of supporting such an arrangement. The distinct sites shall be able to operate independently when communications between the two is lost and be able to restore itself upon communication restoration. Licensing supplied as part of this contractor shall reflect this need.
2. The video management system shall be IP-based and comply with established network and video standards.
3. The system shall accept video and audio from network cameras and video encoders compliant with the manufacturer's open API.
4. The system shall provide for client connectivity to the system. This includes internal viewing stations (pc), mobile devices, and web-based.
  - a. *Management Client*: The administration interface for all parts of the VMS, designed to be run remotely from, for example, an administrator's computer.
  - b. *Full Viewing Client*: Designed for day-to-day use by dedicated operators, to be run remotely on the operator's computer. Full Viewing Client provides dedicated task-oriented tabs for Live Video, Video Playback, Sequence Explorer, plus dockable tabs for System Monitor and Alarm Monitor. Full Viewing Client supports definable keyboard and joystick button shortcuts for frequently used actions, including window or camera selection.
  - c. *Web Client*: Browser-based application for the occasional or remote user that needs easy access to live video monitoring and audio listening with PTZ control including use of presets, and video and audio playback and export, with defined exports available for later usage or download.

- d. *Mobile Client*: Native mobile app for smartphone or tablet users, for easy access to live and playback of cameras, and to activate system events and outputs. Additionally, for use as a remote recording device by using the mobile device's built-in camera, whereby video from the device's camera is streamed back to the VMS and recorded like a standard camera
- 5. VMS must support network segmentation into separate device, server and internet-connected networks.
- 6. The video management system shall be equipped with a graphical user interface, providing the following functionality:
  - a. Display multiple different video streams.
  - b. Display multiple video streams with multiple split views
  - c. Support optimized rendering for smooth display of video in resolutions up to 4K
  - d. Provide real-time navigation between multi-views using a quick view button
  - e. Support drag and drop of video sources within the user interface
  - f. Support multiple screens when operating on a computer that supports such a configuration
  - g. Be able to display facility maps with interactive camera icons to call up live video and audio from the selected camera
  - h. Be able to import graphical map data in the following formats:
    - 1) JPEG, BMP, PNG, GIF
  - i. Access to functions such as floor plans, video streams and alarms shall be configurable on a per user level.
  - j. Support any aspect ratio provided by the installed cameras.
- 7. The video management system shall provide the following user functionality:
  - a. Live view functionality
    - 1) Single camera live view
    - 2) Multi-views
    - 3) Sequence Views
    - 4) Ultra HD live views (4K)
  - b. Recording Functionality
    - 1) Continuous recording
    - 2) Scheduled recording
    - 3) Event-driven recording (motion, audio, cross line, action, camera tampering, loss of network camera connection, etc.)
    - 4) Manually initiated recording
    - 5) Individually and configurable resolution and frame rate for each video source
    - 6) Unlimited recorded material based on availability of storage device
    - 7) Video and audio shall be recorded using a manufacturer-designed format preventing manipulation of the content and shall contain information about date, time and source of the recorded material
    - 8) Retrieval of failover recordings from cameras or encoders
  - c. Playback Functionality
    - 1) Provide synchronized playback of different recorded video streams (full stream)
    - 2) Provide an ability to export multiple selected video and audio sequences with standalone player
  - d. Search Functionality
    - 1) Provide ability to search for video based upon multiple criteria (not limited to):

- a) Time and date
  - b) Per camera
  - c) Motion detection with customizable area of view
  - d) Video streaming content
8. The system shall support traditional network cameras, video encoders, PTZ network cameras, and thermal network cameras.
- a. VMS shall support pre-set positions of PTZ cameras.
  - b. VMS shall support PTZ tour functions. Tour functions shall be fully definable by the user.
9. VMS shall support the use of joysticks and other 3<sup>rd</sup>-party control boards.
10. The system shall support the use of wide angle/360 cameras.
11. The system shall support audio encoded with the video stream and make this available to the users.
12. The video management system shall support the following Input/Output and Access Control functionality:
- a. Accept notifications and alarms from an unlimited number of auxiliary devices connected to the network.
  - b. Received notifications and alarms shall be able to generate events within the video management system.
13. The video management system shall support integration with ONVIF Profile S conformant devices as defined by the ONVIF Organization that complies with relevant parts of IEC 62676-2-3.
14. The video management system shall support the use of open and published API (Application Programmers Interface), which shall provide necessary information for functional integration of third-party applications.
15. The video management system shall support multi-site functionality, whereby the system is part of a multisite system.
16. The video management system shall support multiple concurrent video management clients and apps connected to a video management server.
17. Central service component of the VMS responsible for handling system configuration, distributing the configuration to other system components, such as recording servers, and for facilitating user authentication.
18. *Failover Management Server*: Installation of the Management Server service in a Microsoft Windows Failover Cluster, or similar, which ensures that another server takes over the Management Server function, should the first server fail.
19. *Recording Server*: Service responsible for communications, recording and event handling for all devices (cameras, video and audio encoders, I/O modules, metadata sources, etc).
20. *Event Server*: Service that handles various tasks related to events, alarms, maps and third-party integrations via the SDK.
21. *Failover Event Server*: Implementation of Event Server service by installing Event Server in a Microsoft Windows Cluster, or similar, to ensure that another server takes over should the first server fail.
22. *Log Server*: Service that writes all VMS system, audit and rule-triggered log messages to database
23. *Service Channel*: Service responsible for communicating the following:
- a. Service and configuration messages to Full Viewing Client
  - b. Updates to a Video Wall monitor layout
  - c. Communicating that a specific Failover Recording Server is active
24. *Microsoft SQL Server*: Microsoft database server application for the Management Server, Event Server and Log Server services

## 2.10 UNINTERRUPTIBLE POWER SUPPLY (UPS)

- A. UPSs are to be provided to maintain power to Video Surveillance Systems including rack-mounted NVR, switches, and other network electronics. Viewing Stations are also required to have local UPS protection (PCs, monitors).
- B. UPS size shall be such that the full load of the equipment in the new equipment racks will be able to function without interruption for at least 5 minutes during a power loss event. Contractor to provide sizing calculations based on operating conditions during shop drawing review. Each UPS shall be sized based upon **all surveillance, networking, and public address electronic equipment in rack(s) / cabinet(s)** + spare capacity for future (as outlined elsewhere in this Section) with an additional 25% overhead. Refer to Project Drawings for Rack Elevations.
- C. Free-standing UPS units and rack-mounted UPS units shall be scalable. Additional capacity shall be available for future load additions.
- D. The UPS for the rack-mounted Video Surveillance System NVR and other rack-mounted equipment shall be of the free-standing or rack-mountable type (refer to Project Drawings for locations of each type) and shall meet the following minimum requirements:
  - 1. The UPS shall be of the line “on-line” double-conversion topology design.
  - 2. The UPS shall be hot-swappable or include a modular power distribution unit (PDU) that utilizes a manual bypass switch. I.e. - The UPS shall be able to be removed from the system completely without loss of power to the loads. Bypass may be integral to UPS or separate equipment.
  - 3. Efficiency shall be at least 90% at full load.
  - 4. UPS shall have RJ-45 network interface port.
    - a. Free-standing UPS shall have RJ-45, modbus-IP, bacnet-IP, RS-485, SNMP, HTTP connectivity.
  - 5. UPS shall have surge energy rating of 360 Joules or higher
  - 6. UPS shall meet UL 1449 requirements for noise and surge filtering
  - 7. The UPS shall have backfeed protection.
  - 8. The UPS shall employ a PFC-compatible pure sine wave technology.
  - 9. The nominal input voltage shall be:
    - a. Rack-mounted UPS - 208-volt single phase, 40- 70 Hz (auto sensing)
    - b. Free-standing UPS – 208-volt three-phase, 40-70 Hz (auto sensing).
  - 10. The unit shall operate normally with a +/-10% input voltage fluctuation at 0.85 power factor, 0 degree to 40 degree C in humidity of 0 to 95%. The UPS units shall deliver 150% of rated power for 10 cycles and 110% for 3 minutes minimum.
  - 11. Output voltage regulation, on-line +/- 3% of nominal.
  - 12. Batteries shall be sealed lead acid gel cell maintenance-free type. Batteries shall be sized as recommended by the manufacturer to supply the dc power to the UPS for the runtime required. The batteries shall be circuit breaker protected and the charger gives a fault indication and shutdown if an overvoltage condition occurs. Batteries shall be hot swappable.
  - 13. The complete UPS and batteries shall be furnished and warranted by the manufacturer for three years.
  - 14. The UPS unit shall have an LCD display for monitoring features including but not limited to:
    - a. AC line
    - b. Battery Power
    - c. Alarm Indicator

15. Audible alarms for:
    - a. Battery Discharge
    - b. Low Battery
    - c. Overload
    - d. Short Circuit
    - e. UPS faults
  16. UPS shall have internal bypass, both automatic and manual
  17. UPS shall be capable of remote monitoring – interface all alarms to the VMS software for operator notifications
  18. UPS shall be compatible with generator input power.
  19. For rack-mounted UPS units, provide 2-post or 4-post rack kit as needed to install UPS in rack.
  20. For rack-mounted UPSs, ensure that the UPS has long enough power cord to reach the power outlet. Contractor is made aware that this may require a custom package for the UPS. No extension cords or other similar aftermarket connectivity is allowed. Outlets at the top of a rack (or installed on cable runway) can cause problems for UPSs installed in lower part of rack. Submit shop drawings accordingly.
  21. Input power connection to UPS shall be:
    - a. For rack-mounted units, L6-30P or similar.
    - b. For free-standing UPS – hard-wired connection
  22. Output Power connections shall be compatible with rack-mounted electronics.
    - a. For free-standing and rack-mounted UPSs, outputs shall match the incoming lugs of a UPS-powered distribution panelboard. Refer to Project Drawings. Coordinate requirements with electrical contractor.
    - b. For rack-mounted UPSs, outputs must match PDU input connections. Refer to 27 13 43 for specific PDU specifications.
- E. Acceptable manufacturers:
1. For the free-standing UPS type are Liebert EXS, Mitsubishi Diamondplus, Eaton 9EHD, or similar.
  2. For rack-mounted type, APC, Eaton, or similar.
- F. The UPSs for each Viewing Station shall have similar backup times to that of the rack-mounted unit. UPS shall be of the tower type. UPS shall employ pure sinewave technology.
- G. UPS units for wall-mounted cabinets shall:
1. Be rack-mountable and of a 2RU size
  2. Have minimum 2200 VA capacity
  3. Have LCD interface
  4. Be of the Online Double-Conversion topology
  5. Employ “pure sinewave” or other similar technology (no stepped approximation waveform types allowed)
  6. Have power input that is compatible with standard 120-volt plugin, NEMA 5-15/20P
  7. Have network interface card for remote monitoring (Ethernet, RS-232, and USB)
  8. Be scalable with external battery packs
  9. Surge energy rating shall be 430 Joules (minimum)
  10. Employ power factor correction technologies (PFC)
  11. Have circuit breaker protection factory standard
  12. Have Internal Bypass
  13. Have upgradeable firmware
  14. Be able to operate in hot, humid environments for entire service life

15. APC Smart-UPS SC or approved equal.

## 2.11 SURGE PROTECTION

- A. Description: Outdoor cameras served by copper cabling shall incorporate Surge Protection in the path from the camera to network electronics.
- B. Features:
  1. Supports Category 6 transmission.
  2. Protects 10/100/1000 Base-T Ethernet networks.
  3. Provides protection for both common-mode and differential-mode surges.
  4. Supports Modes A and B of 802.11af-2003 (PoE) and 802.11at-2009 (PoE+) standards.
  5. Supports shielded F/UTP cabling
  6. Solid-state design
  7. Complies with Telcordia GR-1089-CORE (Intra-Building).
  8. Network Interface: 8P8C Modular Jacks (e.g. RJ45).
  9. External Ground Lug to match cable type to ground bar.
  10. All pairs protected
  11. Surge protectors for rack-mounted equipment shall be rack mountable. Surge protectors shall be wall-mount type where directed on Project Drawings.
  12. Surge protectors for exterior environments shall have rated operating temperature of -40 to 70 degrees C.
  13. Meets UL Primary (497) and Isolated Loop (497B)
  14. Shall have 10-year warranty

## 2.12 DC POWER SUPPLY (DIN RAIL TYPE)

- A. Description: Camera cables terminated to DIN rail-style switches in locations such as outdoor pedestal cabinets require a power supply as follows.
- B. Features:
  1. Industrial / extreme temperature rated
  2. DIN rail mounted
  3. Adjustable voltage output
  4. Power rating of 240 watts
  5. Output voltage as required by components to be powered (tolerance max +/- 1%)
  6. Max Vripple 120 mV (pk-pk)
  7. Load regulation  $\leq 1\%$
  8. UL 508 approved
  9. Built-in active PFC function, PF>0.93
  10. Short-circuit, overload, overvoltage, and over-temperature protections
  11. Cooling by free-air convection (fanless design)
  12. Output voltage status LED indicators
  13. Screw terminal connectors
  14. Universal ac voltage input 100-240 volts
  15. Operational temperature -40 to 70 degrees C

## 2.13 INDUSTRIAL ETHERNET SWITCH (DIN RAIL TYPE)

- A. Description: POE ethernet switch for harsh environments to be used for surveillance camera connectivity in exterior locations as directed on Project Drawings.

B. Features:

1. Industrial / extreme temperature rated
2. DIN rail mounted
3. IP30 enclosure
4. Management via web, Telnet/SSH, SNMP, Command-line interface (CLI)
5. (8) 10/100-BASE TX POE+ ports, RJ45
6. (2) 100BASE-FX, 1000BASE-SX/LX.LHX/XD/ZX Gigabit Fiber ports
  - a. Provide compatible SFP transceiver for fiber optic connectivity to surveillance network.
7. Digital input and outputs
8. Serial Console port
9. Thermal monitoring
10. POE 802.af, 802.at or as required by connected devices
11. Watts per port = 30
12. POE port control, enable / disable, power mode
13. Operating temperature -40 to 75 degrees C.
14. Input nominal voltage shall match power supply output

## 2.14 PAD-MOUNTED EQUIPMENT ENCLOSURE

A. Description: Outdoor-rated enclosure (cabinet) for housing remote camera equipment, including but not limited to: fiber optic patch enclosures, power supplies, network switches, and surge protectors.

B. Features:

1. Aluminum Construction
2. Powder-coated standard green color, with solar reflective ceramic coating to reduce enclosure's direct solar load.
3. Cabinet physical size shall be per Project Drawings. If not shown on drawings, contractor to propose size that will fit all necessary components.
4. Enclosure shall include a backplane (mounting plate) which is offset from the enclosure wall by stand-offs. This backplane shall facilitate the mounting of components within the enclosure.
5. The enclosure shall carry a rating of NEMA 3R minimum.
6. Doors shall be gasketed and shall have provisions for padlocking.
7. Cabinet shall be overhang-vented, and overhang shall have screened vent holes (no side vents).
8. Enclosure shall be of a double-door construction.
9. Enclosure shall be UL 508A compliant
10. DIN rails shall be UL listed.
11. Cabinet shall be installed on a concrete pad. Pad dimensions shall 3" wider than the enclosure on every side. Pad shall be sloped to prevent water accumulation on pad. Chamfer edges. Excavate to depth of 36" and replace with compacted open-graded granular fill with filter fabric at bottom of excavation hole. Pour 6" concrete pad with 2" below grade and 4" above grade. Reinforce with #4 rebar at 12" O.C. at mid-thickness. Bond rebar at to cabinet ground bar with #6 AWG bare copper conductor – bond to embedded rebar shall be made with exothermic weld.
12. Provide heater and adjustable thermostat kit. Heater shall be sized such that condensation will not occur in cabinet. Watt rating and cabinet manufacturer-suggested thermostat settings shall be included in shop drawing submittals.

13. Contractor shall provide wireduct, spiral wrap, wire-ties, hook-and-loop Velcro straps, and D-rings as required to maintain a neat and professional appearance for cable management. Unmanaged excess cable slack is not allowed.
14. Provide UL-listed grounding and bonding busbar. Busbar shall be copper with tin plating. Minimum size 2" x 10" with standoffs (bonding type – not insulated). Minimum thickness 1/4". Busbar shall accept 2-hole lugs with minimum lug capacity of 8. Provide any required matching lugs for all wires terminated to bus. Refer to 27 05 26 for other grounding and bonding requirements. Bond cabinet door(s), backplane, cabinet, rebar mesh in concrete pad, and all other equipment with ground lug in cabinet at a minimum.

## 2.15 NOT USED

## 2.16 LONG-RANGE POE EXTENDER

A. Description: Components for extending range of PoE circuits such as IP cameras. Provide such an extender(s) where specifically identified on Project Drawings.

B. Features:

1. Extends Ethernet and PoE links up to 1000 meters
2. Supports the IEEE camera POE standards for cameras specified (802.3af, 802.3at)
3. Supports data rate 10/100-Base-TX
4. Compatible with RJ45 shielded plugs and Category 5e / 6 cables
5. Input power shall be either PoE or via separate ac adapter
6. Case shall be aluminum
7. Operating conditions -40 to 70 deg C.
8. Shall have network (link, activity, speed) indicator LEDs and power indicator LEDs
9. Shall consist of a "base" and "extender" module, where extended twisted-pair cable is connected between to exceed 100m limitations
10. Shall have network (link, activity, speed) indicator LEDs and power indicator LEDs.
11. Shall be suitable for installation in enclosures that are outdoors.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Visit site and verify that site conditions are in agreement with design package. Report all changes to the site or conditions which will affect performance of the system to the Owner. Do not take any corrective action without written permission from the Owner.
- B. Verify that existing site conditions are acceptable for product installation in accordance with manufacturer's instructions.
- C. Verify that wire runs, related items, and conditions are ready to receive work of this Section.
- D. Verify LAN connections for server and workstation computers.
- E. Provide access to the internet for the primary NVR server.

### 3.2 PREPARATION

- A. Review configurable features of the NVR with the Owner's Representative and document the results of the meeting in the Project planning documents. The following configuration topics shall be resolved prior to configuring equipment and services:
1. Internet Service Provider, firewall, and IP schema for NVR devices.
  2. Methods and network requirements related to interconnecting and integrating existing remote cameras (refer to EXISTING CONDITIONS).
  3. Time server synchronization scheme for overall security system
  4. Plan for system testing, startup, and demonstration
  5. Acceptance test concept and, on approval, develop specifics of the test
  6. List of default user IDs and passwords (factory defaults) for NVR VMS application, servers and workstations / viewing stations.
  7. Provide a schedule with a list of participants to attend monthly coordination and progress update meeting until job completion. Attendees shall include:
    - a. Owner's Representative of Facilities Management, Information Services, Security Management
    - b. Contractor Project Manager
    - c. Manufacturer(s) Employed Representative
    - d. Architect / Engineer / Security Consultant
  8. At all coordination meetings with Owner's Representative, present Project planning documents and review, adjust, and prepare final setup documents. Use final documents to set up system software.
  9. Owner's Representative and Owner shall assist in establishing procedural guidelines and in defining terminology and conditions unique to the Owner's operation.
  10. Supervise installation to appraise ongoing progress of other trades and contracts, make allowances for all ongoing work, and coordinate the requirements of the installation of the Video Surveillance System.
  11. Coordinate Owner installation or update of workstation operating system software and web browser software to a version as specified by the NVR provider.
  12. Coordinate Owner-managed computer and network security practices as specified by the NVR provider.

### 3.3 INSTALLATION

- A. General: The complete installation shall be done in a neat, workmanlike manner in accordance with Division 26 and 27 of these documents, the manufacturer's recommendations and as directed by the Owner and Engineer. Deploy Video Surveillance System in accordance with the manufacturer's deployment instructions, including workstation and integration instructions and requirements.
1. Collaborate with Owner's Representative on the application of manufacturer's hardening guide recommendations.
  2. Supervise installation to appraise ongoing progress of other trades and contracts, make allowances for all ongoing work, and coordinate the requirements of the Video Surveillance System installation.
  3. Drawings and Diagrams:
    - a. System devices identified on building drawings are intended to generally indicate areas where such devices are to be located. Determine final location of these devices in accordance with Owner's requirements.

- b. Riser diagrams are schematic and do not show every conduit, wire box, fitting, or other accessories. Provide such materials as necessary for a complete and functioning installation.
  4. Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions and product carton installation instructions.
  5. All firmware in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the components to ensure approved integration compatibility.
  6. Install, configure, and test Video Surveillance System for complete and proper operation.
- B. Camera Installation:
  1. Camera mounts shall be rigidly attached to structural members.
  2. All mounts shall be compatible with camera, installation environment, and mounting surfaces. Contractor is responsible for providing all mount parts as required for installation.
  3. Install cameras, mounts, power supplies, control equipment, monitors, recording equipment and related hardware as applicable per manufacturer recommendations.
  4. Configure pre-sets and programmable tour functions (PTZ only if applicable).
  5. Connect Alarm Input(s)/Alarm Output(s) and/or connections to other systems as specified.
  6. All cameras installed in exterior locations shall be free of water ingress to camera, mount, building, or other mounting structure.
- C. Cable Installation:
  1. All wiring shall be run in conduit or in a secured metal raceway as designated on the plan drawings. All cable shall be free of tension at each end. Where cables travel through concealed ceiling space, j-hooks or other similar "free-air" raceway methods may be employed. Refer to TIA standards and project documents for maximum sag and support intervals.
  2. Size conduit per manufacturers recommendations or per project plans, whichever is larger.
  3. All video, network, power, and control wire and cable (as applicable) shall be secured with multiple-use cable straps.
  4. Cable straps shall be Hook-and-Loop type to provide easy access for servicing of cable.
- D. Network Settings:
  1. Where IP (Network) type cameras are installed, coordinate network addresses and camera settings with Owner IT department. Contractor is responsible for configuring cameras, VMS settings, and any other configuration required for a fully operational system.
  2. Provide documentation of horizontal cabling identifying which Patch Panel port each camera cable is terminated (e.g. Camera X = port Y). Contractor is responsible for patching between patch panel and network electronics.
- E. Install engraved plastic nameplates as specified in Sections 26 05 53 and 27 05 53 - Identification for Electrical and Identification for Communications Systems.
- F. Ground and bond video surveillance equipment as specified in Section 26 05 26 - Grounding and Bonding for Electrical Systems.
- G. Pad-mounted Equipment Cabinet:

1. Each piece of equipment in cabinet shall be permanently identified with engraved, machine-generated plastic nameplates. Telecommunication devices, circuit breakers, control devices, etc., shall each be provided with an engraved plastic nameplate. All nameplate information shall be correlated with the wiring diagrams. Wiring diagrams prepared by the integrator shall contain complete nameplate information including exact wording of the legends. Submit nameplate information for Engineer's review. Plates shall be black letters on white plate with 1/4-inch lettering, minimum.
2. Provide wire identification per 27 05 53.

### 3.1 FIELD QUALITY CONTROL

- A. Furnish manufacturer's field representative to supervise final wiring connections and system adjustments.
- B. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than 2 days on-Site for installation, inspection, field testing, and instructing Owner's personnel in maintenance of equipment.
  1. Perform acceptance reviews with Owner's representative of camera and system configurations and their documentation
  2. Perform final acceptance testing in the presence of Owner's representative, executing a point-by-point inspection against a documented test plan that demonstrates compliance with system requirements as designed and specified, including response times for control actions and sequences, and rules-based actions. Tests shall demonstrate the functionality of each individual device control item, including camera alarm outputs and control relays (as applicable).
  3. Conduct acceptance tests in presence of Owner's representative, verifying that each device point and sequence is operating correctly and properly reporting back to control panel and control center, and provide Owner's Representative with written report of test results.
  4. Specific tests shall be witnessed by Authorities Having Jurisdiction if necessary.
  5. Consider Video Surveillance System accepted only after all acceptance test items have been successfully checked-off.
    - a. Beneficial use of part or all of the system shall not be considered as acceptance.
  6. As required to sufficiently demonstrate the Video Surveillance System functionality, request the console operator on duty and his/her superior to perform certain daily operations.
  7. Complete all required training prior to initiation of the final acceptance test.
  8. Inspect the installation of all field computers and devices.
    - a. Point out general neatness and quality of installation, test the full functionality of each individual device, and show that mounting, backbox and conduit meet compliance requirements.
  9. Owner's Representative shall, upon successful completion of the final acceptance test (or subsequent punch list retest), issue a letter of final acceptance.
  10. Owner's Representative retains right to suspend and/or terminate testing at any time when the system fails to perform as specified.
    - a. Collaborate with Owner's Representative prior to start of testing, to establish criteria pass/fail criteria and classification of test execution problems, such as:
      - 1) *Pass/fail*: Criteria determining what constitutes a test pass or failure
      - 2) *Suspension and resumption*: Criteria determining when testing must be suspended and resulted later
      - 3) *Show Stopper*: Stop test, fix problem and restart test from beginning

- 4) *Major Problem:* Fix problem before test can be resumed or concluded
  - 5) *Minor Problem:* Add problem to "punch list", complete test
  - 6) *Special Issue:* Investigate to determine which problem category above category applies
  - b. If it becomes necessary to suspend testing or inspections, work diligently to complete/repair all outstanding items to the condition specified in Specification and as indicated on related drawings.
  - c. Supply Owner's Representative with detailed completion schedule outlining phase by phase completion dates and a tentative date for a subsequent punch list retest.
  - d. During final acceptance test, make no adjustments, repairs or modifications to system without permission of Owner's Representative.
11. Documentation
- a. Upon completion of the installation, provide project documentation to the Owner and Engineer for review.
  - b. Documentation shall include the items detailed in the sub-sections below. Provide approved test results and documentation in Operations and Maintenance Manuals.
  - c. Submit documentation of Test Results in electronic form for review and distribution.
  - d. Where documentation provided in electronic form requires unique software (e.g. NATIVE formats) other than Adobe Acrobat Reader for viewing test results, provide one (1) copy of such software. The software shall run on a MICROSOFT Windows-based personal computer supplied by the Owner. Software shall include license if applicable.
12. Cameras. Verify the following for each camera:
- a. Camera produces a clear picture and is aimed per site requirements.
  - b. Camera maintains a clear picture and automatically compensates for changing light conditions including day/night change.
  - c. Camera has wide dynamic range installed where specified and operates to prevent camera blinding.
  - d. Camera provides complete and correct coverage of the area specified.
  - e. Pan, Tilt, and Zoom (PTZ) function (as applicable) is fully controllable and functions correctly.
  - f. PTZ cameras (if applicable) are able to perform call to preset positions by simulating an event alarm.
  - g. Cameras are fitted with anti-tamper devices where specified.
13. Operator/Viewing Station Control. Verify the following:
- a. Display orientation/position, camera/view identification.
  - b. Display and/or notification of alarm condition (if applicable).
  - c. Manual control of cameras (if applicable).
  - d. Automatic sequencing and control of cameras (pre-sets, tours, if applicable).
  - e. Real time video analysis functions (such as movement detection) are performed in real time and the corresponding view displayed on the monitor.
14. Recording and Playback functions. Verify the following:
- a. Data storage has been installed on the workstation as specified.
  - b. System hardware supplied is per specification.
  - c. Correct video data is recorded by the system in response to simulated alarms.
  - d. Manual record function operates correctly.

- e. Playback functions operate correctly including Play, Stop, Pause, Rewind, Fast forward, Frame by frame view.
    - f. Retrieval of stored video.
    - g. Export of stored video.
  - 15. Adjust, repair, modify, or replace components failing to perform as specified, and rerun tests.
  - 16. Make final adjustments to equipment under direction of manufacturer's representative.
- C. Furnish installation certificate from equipment manufacturer's representative attesting equipment has been properly installed and is ready for startup and testing.

### 3.2 ADJUSTING

- A. Adjust manual lens irises to meet lighting conditions.
- B. Perform field software changes after the initial programming session to "fine tune" operating parameters and sequence of operations based on any revisions to the Owner's operating requirements.
- C. Installer / Default Factory Accounts:
  - 1. Remove all default, installer, or temporary user accounts and passwords used during installation that are not part of End-user's final operational requirements.
  - 2. Assign new passwords that are substantially different from factory default passwords to user accounts that match factory-default user accounts.
  - 3. Apply appropriate measures from manufacturer's system hardening guide.

### 3.3 DEMONSTRATION AND TRAINING

- A. Demonstrate equipment startup, shutdown, routine maintenance, and emergency repair procedures to Owner's personnel.
- B. Submit training plans and instructor qualifications to Owner's Representative for approval. Coordinate with Owner's Representative to accommodate owner shift schedules to reduce impact to regular operations. Training to include:
  - 1. Overview of System Topology and General Concepts.
  - 2. Overview of Product Used.
  - 3. Overview of Monitoring/Control Layout.
  - 4. Overview of Labeling Formats.
  - 5. Camera control functionality (if applicable).
  - 6. Overview of Test Results and their meaning.
  - 7. Overview of Documentation.
- C. Training shall be held at Project Site and shall be conducted during normal working hours.
- D. Provide (1) Training Session.
  - 1. Training session duration shall be not less than three hours.
  - 2. Number of Students for training session shall be 20 maximum.
  - 3. Provide hard copy of training materials for each student plus one digital copy.
- E. Owner reserves the right to videotape session(s) for use as future refresher materials for Owner technical staff.

### 3.4 WARRANTY

- A. This Contractor shall guarantee the following for a period of five (5) years from date of substantial completion of this work:
  - 1. All provided materials, labor, equipment, services, licenses, and third-party products necessary to maintain Video Surveillance System as specified throughout Warranty period.
  - 2. Installation of all equipment, hardware, cabling, and related components
  - 3. Warranties shall include labor, materials, and travel time.
  - 4. All software service releases, and device driver packs made available during the Warranty period shall be provided at no additional cost to the Owner
- B. Contractor shall repair, replace or alter systems or parts of systems having failed, or found defective or not meeting specified performance requirements. This shall be at no cost to the Owner. If while fulfilling requirements of this warranty, the Contractor disturbs other work, the Contractor shall arrange for such disturbed work to be restored to its original condition by the responsible Contractor. This shall be at no cost to the Owner.
- C. Provide Owner with emergency service center contact information, including phone number and email address. Emergency service center shall be staffed 24 hours a day, 365 days a year and be located within 100 miles of the deployment facility
  - 1. Owner may initiate service calls when system is not functioning properly.
  - 2. Owner has sole authority for determining emergency and non-emergency system failures
  - 3. Emergency is defined as any system failure that Owner determines will place a facility at increased risk
  - 4. For events determined to be emergencies, provide same-day four-hour service response with continued status updates at least every four hours
  - 5. For non-emergency events, provide service response within eight hours with continued status updates at least twice a week

### 3.5 O&M MANUALS

- A. Provide documents in hard copy and in electronic form.
  - 1. Product and test data as Adobe Acrobat (pdf) files.
  - 2. Drawings and schematics as Adobe Acrobat and AutoCAD (dwg) files.
  - 3. Submit images of individual camera views as JPEG – tagged with camera ID
- B. Manuals shall include:
  - 1. Drawings annotated to show as-installed camera locations, cable routes, and major equipment locations
  - 2. Cabling and equipment schematics
  - 3. Complete and labeled wiring diagram of entire system
  - 4. Approved submittals
  - 5. Warranty certifications
  - 6. Test plan and test report sheets
  - 7. Programming documents (presets, tours, motion detection settings, etc.)
  - 8. Hardware and software technical manuals
  - 9. Equipment rack / cabinet elevations
  - 10. Viewing station schematic and hardware list
  - 11. Warranty information, including contact information
  - 12. Licensing information, contact information, and current cost schedule for system

END OF SECTION



**Greater Peoria Mass Transit  
Peoria, IL**

**Pre-Bid Meeting**  
1.05.22 / 2:00 p.m.

**1. Introductions:**

Greater Peoria Mass Transit – Owner  
Muller & Muller – Architect  
River City Construction – Construction Manager

**Project Overview:** This is a three-story Administration Building, 33,460 sq ft with an attached Maintenance Garage, which is 24,793, and an existing parking garage, that will be renovated and a new annex totaling 50,000 sq ft. The Administration Building contains concrete foundations, a steel structure, metal panel cladding, storefront, and curtainwall. The interiors include locker rooms, simulator rooms, training rooms, general office, and conference rooms. The Maintenance Garage is comprised of concrete foundations and a precast structure. There are 5 ea. maintenance lanes, a bridge crane, a skywalk, mezzanine space, storage, and MEPF spaces.

**2. Pre-Construction Schedule**

- a. Final Addendum – January 14<sup>th</sup>, 2022
  - i. All RFI's are due to RCC by January 12<sup>th</sup>, 2022, at 2:00 p.m.
  - ii. Email to Beth Schupp @ [bschupp@rccllc.com](mailto:bschupp@rccllc.com)
- b. Bids Due – January 20<sup>th</sup>, 2022, at 2:00 p.m.
- c. Bid Scope Reviews – 2 weeks
- d. Board Approval – February 14, 2022
  - i. Notice to Proceed Issued.

**3. Bidding**

- a. **Bids due – January 20<sup>th</sup>, 2022, at 2:00 p.m.**
- b. **NO emailed bids** will be accepted.
- c. Sealed bids turned into Greater Peoria Mass Transit (2105 NE Jefferson, Peoria; by work category on Bid Form.
  - i. 2.1 Selective Demolition
  - ii. 3.1 Building Concrete
  - iii. 4.1 Masonry
  - iv. 6.1 General Works
  - v. 7.1 Composite Metal Wall Panels

Builders...Concept to Completion.



- vi. 7.2 Roofing
- vii. 8.1 Aluminum Storefront, Windows, & Curtain Walls
- viii. 9.1 Flooring
- ix. 9.2 Painting
- x. 13.1 Metal Framed Building Systems
- xi. 14.1 Elevators
- xii. 21.1 Fire Protection
- xiii. 22.1 Plumbing
- xiv. 23.1 Heating, Ventilating, Air Conditioning, & Temperature Controls
- xv. 26.1 Electrical/Communications/Electrical Safety & Security
- xvi. 26.2 Photovoltaic Solar Systems
- xvii. 31.1 Earthwork/Excavation/Site Demolition
- xviii. 32.1 Site Paving Demolition/Site Concrete Paving & Retaining Wall
- xix. 33.1 Site Utilities

**NOTE: Must review scope of work outlined in Procurement Manual**

- d. Envelope must be sealed & clearly marked w/Project Name, Bidders Name & the Work Category Number & Scope.
- e. Submitting more than one (1) work category – separate sealed bids are required.
- f. Combination Bids are also accepted.
- g. All Owner Signature sheets need to be signed, notarized, & attached to bid form.
  - 1. Buy America
  - 2. Compliance w/Federal Lobbying Regulations
  - 3. Certification Regarding Debarment & Suspension
  - 4. Affidavit of Non-Collusion
  - 5. Indemnity & Insurance Requirements
  - 6. DBE Letter of Intent
  - 7. DBE Affidavit
  - 8. DBE Unavailable Certificate
  - 9. Certificate of Compliance with Prevailing Wage
  - 10. Prompt Payment Affidavit
- i. Located in Procurement Manual – Right before the Bid Form
- h. 5% Bid Bond required.
  - i. AIA 312 Bond Form acceptable.
  - ii. Cashier's Check acceptable.
- i. 100% Payment & Performance Bond.
  - i. RCC is carrying the Payment & Performance Bond.
  - ii. Alternate #8 is on Bid Form for an Add if Owner requires at time of Award.

Builders...Concept to Completion.

- j. Labor Rates are required to be filled out on the bid form.
- k. Project is Tax Exempt.
  - i. Certificate will be sent out upon award.
- l. Overall Project has a 12% DBE Goal.
- m. Documents located on RCC website & Smart Bid which all notifications will be sent out from.
  - i. RCC Website: <https://www.rccllc.com/smart-bid/>
- n. Procurement Manual
  - i. 001000 Instructions to Bidders
  - ii. 002000 Information to Bidders
  - iii. 002100 Buy America NOT Buy American
  - iv. 002200 Disadvantaged Business Enterprise Participation
  - v. 002300 State of Illinois Mandatory Sexual Harassment Training
  - vi. 002400 Federal and State Clauses
  - vii. 003100 Bid Forms
  - viii. 003132 Geotechnical Data
  - ix. 008200 Insurance Coverage
  - x. 009000 Work Categories/Scopes
  - xi. 009001 Subcontractor Contract Example

#### 4. Alternates

- i. Alternate #1 – Fuel Island – Remove & replace existing metal ceiling panel, downspouts, & light fixtures. Provide new prefinished metal ceiling panel, new LED fixtures (1), prefinished metal downspouts, and paint existing metal cladding on columns and fascia.
- ii. Alternate #2 – Clear & grub the North Lot, located at the East of the current construction parking area. Cut down to the subgrade, and then install, grade, & compact the initial 6" aggregate base. This is to be used as the temporary staging & construction parking area.
  - 1. Include an allowance of \$2,000 within this alternate to maintain the path from this staging area to the jobsite.
  - 2. See Attachment A, included in bid documents for the area that this Alternate #2 applies to.
- iii. Alternate #3 – Transit Center hardware replacement remove and replace existing hardware with new hardware component required to coordinate keying system with facilities
- iv. Alternate #4 – Vehicle lift – provide delete alternate of one-in-ground scissor lift and one parallelogram lift, including associated control, power, underground plumbing and slab depression.
- v. Alternate #5 – Bridge crane – provide delete alternate for deletion of one-bridge crane, including associated foundations.

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## CONSTRUCTION

- vi. Alternate #6 – Vinyl fencing – provide alternate for vinyl fencing with 6' tall galvanized steel chain link fence with vinyl insert.
- vii. Alternate #7 – Steel Picket Fencing – provide alternate for steel picket fence along Jefferson Street and Van Buren Street only. The balance of the fence is to be 6' tall galvanized steel chain link fence.
- viii. Alternate #8 – Payment & Performance Bonds – Provide an add if payment and performance bonds are required by the Owner after award.
- ix. Alternate #9 – Retaining Wall – Provide delete alternate for approximately 80 feet of existing curved retaining wall at the Northwest corner of the site to remain. Only East/West retaining wall to be removed for construction of new building. Provide approximately 40 feet of new retaining wall that connects between west end of new building & existing curved retaining wall.
- x. Alternate #10 – Not used.
- xi. Alternate #11 – North parking lot cameras – Provide delete alternate for (6) cameras and required utilities at new north parking lot.

## 5. Logistics & Phasing Plans

1. Sequencing of Site – Attachment B
2. Phasing B Demolition – Attachment C
3. Phase B Construction Site Logistics Plan – Attachment D
4. Phases C & D Fencing – Attachment E
5. Phases B, C, & D Demo Plan – Attachment F
6. Phases B, C, & D Asphalt Patching – Attachment G

## 6. Project Schedule

- a. Master Schedule – Will be issued with addenda.
- b. Key Milestones
  - a. Board Approval – February 14<sup>th</sup>, 2022
  - b. NTP – Week of February 14<sup>th</sup>
  - c. Permit – Architects have submitted & are working with the City currently.
  - d. Sanitary Sewer Start – March 28<sup>th</sup>
  - e. 1978 Building Demo – May 9<sup>th</sup>
  - f. Structural Steel – August
  - g. Precast – October
  - h. Phase B Substantial Completion – April 2023
  - i. Phase C & D Substantial Completion – December 2023

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## 7. Questions / Answers

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# Greater Peoria Mass Transit Phase B,C&D Building Pre-Bid Meeting

January 5<sup>th</sup>, 2022



# CM and A/E Team



CONSTRUCTION MANAGER:  
RIVER CITY CONSTRUCTION, LLC  
101 HOFFER LANE  
EAST PEORIA, ILLINOIS  
P: (309) 694-3120



Architect:  
MULLER 2  
700 N SANGAMON  
CHICAGO, ILLINOIS  
P: (312) 432-4180



MECHANICAL/FIRE PROTECTION & IT  
ENGINEERS:  
CLARKDIETZ

*Lindsay & Associates, Inc.*  
*Structural Engineers*  
*8 E. Galena Boulevard, Suite 208, Aurora, Illinois 60506-4027*  
*Phone (630) 264-9650*

STRUCTURAL ENGINEERS:  
LINDSAY & ASSOCIATES



INFRASTRUCTURE  
ENGINEERING | INCORPORATED

CIVIL ENGINEERS:



# Project Overview



## Phase B, C, & D

- 3-Story Admin Bldg. – 33,460 sq ft.
- Attached Maintenance Garage – 24,793 sq ft.
- Existing parking garage to be renovated & a new Annex totaling 50,000 sf ft.



# Pre-Construction Schedule

Final Addendum: January 14<sup>th</sup>, 2022 –

ALL RFI's must be received by: January 12<sup>th</sup>, 2022, at 2:00 p.m.

\*\*\*Email to Beth Schupp @ [bschupp@rccllc.com](mailto:bschupp@rccllc.com)

Bids Due: January 20<sup>th</sup>, 2022, at 2:00 p.m.

Bid Scope Reviews: 2 weeks

Board Approval: February 14<sup>th</sup>, 2022– Notice to Proceed this week



# Bidding

- **Bids due by January 20<sup>th</sup>, 2022 @ 2:00 PM**
- **NO emailed bids** will be accepted.
- Sealed bids turned into Greater Peoria Mass Transit
  - 2105 NE Jefferson, Peoria
    - By Work Category on Bid Form
      - 2.1 Selective Demolition
      - 3.1 Building Concrete
      - 4.1 Masonry
      - 6.1 General Works
      - 7.1 Composite Metal Wall Panels
      - 7.2 Roofing
      - 8.1 Aluminum Storefront, Windows, & Curtain Walls
      - 9.1 Flooring
      - 9.2 Painting
      - 13.1 Metal Framed Building Systems
      - 14.1 Elevators
      - 21.1 Fire Protection



# Bidding

- Work Categories Continued:
  - 22.1 Plumbing
  - 23.1 Heating, Ventilating, Air Conditioning, & Temperature Controls
  - 26.1 Electrical/Communications/Electrical Safety & Security
  - 26.2 Photovoltaic Solar Systems
  - 31.1 Earthwork/Excavation/Site Demolition
  - 32.1 Site Paving Demolition/Site Concrete Paving & Retaining Wall
  - 33.1 Site Utilities

**\*\*\*Must review scope of work outlined in Procurement manual**



# Bidding

- Envelope must be sealed and clearly marked with the Project Name, the Bidder's name, the Work Category number and definition (scope), Owner's address, and address to where bid is delivered on the envelope.

Example:

Greater Peoria Mass Transit – Phase B,C,D – Bid Package

#2

3.1 Building Concrete

- If submitting more than one work category, there must be separate envelopes for each bid.
- Combination Bids are acceptable.

# Bidding

- All Owner Signature Sheets need to be signed, notarized, & attached to bid form.
  1. Buy America
  2. Compliance w/Federal Lobbying Regulations
  3. Certification Regarding Debarment & Suspension
  4. Affidavit of Non-Collusion
  5. Indemnity & Insurance Requirements
  6. DBE Letter of Intent
  7. DBE Affidavit
  8. DBE Unavailable Certificate
  9. Certificate of Compliance with Prevailing Wage
  10. Prompt Payment Affidavit
- Located in the Procurement Manual – Right Before the Bid Form.

# Bidding – Owner Signature Sheets

## Buy America

### ***Certificate of Compliance with 49 U.S.C. 5323(j)(1)***

The offeror hereby certifies that it will meet the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 CFR Part 661.5.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Company Name: \_\_\_\_\_

Title: \_\_\_\_\_

### ***Certificate of Non-Compliance with 49 U.S.C. 5323(j)(1)***

The offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j)(1) and 49 C.F.R. 661.5, but it may qualify for an exception pursuant to 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 C.F.R. 661.7.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Company Name: \_\_\_\_\_

Title: \_\_\_\_\_

## Certification Regarding Debarment and Suspension

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the contractor is required to verify that none of the contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the GPMTD. If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the GPMTD, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

Authorized Official: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Where the Contractor is unable to certify to any of the statements in this certification, such Contractor shall attach an explanation to this proposal.

The Contractor, certifies or affirms the truthfulness and accuracy of the contents of the statement submitted on or with this certification and understands that the provisions of 31 U.S.C. Sections 3801 ET Seq. are applicable thereto.

Authorized Official: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Compliance with Federal Lobbying Regulations

The undersigned certifies to the best of his/her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

By: \_\_\_\_\_  
Official

\_\_\_\_\_  
Signature of Company  
Date

\_\_\_\_\_  
Official's Title

## Affidavit of Non-Collusion

I hereby swear (or affirm) under the penalty for perjury:

1. That I am the proposer (if the proposer is an individual), a partner in the proposal (if the proposer is a partnership), or an officer or employee of the proposing corporation having authority to sign on its behalf (if the proposer is a corporation);
2. That the attached proposal has been arrived at by the proposer independently and have been submitted without collusion and without any agreement, understanding, or planned common course of action with any other vendor or materials, supplies, equipment, or service described in the Request for Proposals, designed to limit independent proposals or competition;
3. That the contents of this bid proposal has not been communicated by the proposer or its employees or agents to any person not an employee or agent of the proposer or its surety on any bond furnished with the proposal, and will not be communicated to any such person prior to the official opening of the proposal; and
4. That I have fully informed myself regarding the accuracy of the statements made in the affidavit.

Signed: \_\_\_\_\_

Company Name: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

Notary Public: \_\_\_\_\_

My Commission expires \_\_\_\_\_, 20\_\_\_\_

Proposer's Federal Employer Identification Number: \_\_\_\_\_  
(Number used on Employer's Quarterly Federal Tax Return)

**MUST BE  
ATTACHED  
TO BID FORM**

# Bidding - Owner Signature Sheets

## Indemnity and Insurance Requirements

1. These are the Indemnity and Insurance Requirements for Contractors providing services or supplies to Greater Peoria Mass Transit District (GPMTD). By agreeing to perform the work or submitting a proposal, you verify that you comply with and agree to be bound by these requirements. If any additional Contract documents are executed, the actual Indemnity language and Insurance Requirements may include additional provisions as deemed appropriate by GPMTD.

2. You should check with your insurance advisors to verify compliance and determine if additional coverage or limits may be needed to adequately insure your obligations under this agreement. These are the minimum required and do not in any way represent or imply that such coverage is sufficient to adequately cover the Contractor's liability under this agreement. The full coverage and limits afforded under Contractor's policies of Insurance shall be available to GPMTD and these Insurance Requirements shall not in any way act to reduce coverage that is broader or includes higher limits than those required. The Insurance obligations under this agreement shall be: 1—all the Insurance coverage and limits carried by or available to the Contractor; or 2—the minimum Insurance requirements shown in this agreement, whichever is greater. Any insurance proceeds in excess of the specified minimum limits and coverage required, which are applicable to a given loss, shall be available to GPMTD.

3. Contractor shall furnish the GPMTD with original Certificates of Insurance including all required amendatory endorsements (or copies of the applicable policy language effecting coverage required by this clause) and a copy of the Declarations and Endorsement Page of the CGL policy listing all policy endorsements to GPMTD before work begins. GPMTD reserves the right to require full-certified copies of all Insurance coverage and endorsements.

### I. INDEMNIFICATION

To the fullest extent permitted by law, Contractor agrees to indemnify, and hold harmless, and upon request, defend GPMTD, its officers, directors, Board Members, employees, agents, representatives, volunteers, subsidiaries, successors, and assigns ("Indemnitees"), from any claim, liability, damage, expense, suit or demand (including, without limitation, reasonable attorneys' fees and court costs) for any losses, damages, injuries, or death to any persons including Contractor's employees or any Subcontractor's employees, or for damage or loss to any third-party property, arising out of or in any manner related to, based upon, or in connection with any operations, performance, breach, course or scope of Work, act, omissions, or presence upon, use, or other encountering of any property, facilities, personnel, vehicles, equipment, or operation of GPMTD by or involving GPMTD, Contractor or any of their employees, agents, representatives, facilities, vehicles, materials, equipment, or Subcontractors (regardless of tier) or anyone directly or indirectly employed by any of them, in any connection with the Work performed by or on behalf of Contractor, regardless of whether the Contractor is a party to any lawsuit. In that regard, this obligation to indemnify includes, without limitation, claims against GPMTD for GPMTD's own negligence or fault.

### II. INSURANCE

All insurance required except for worker's compensation shall be endorsed to add Greater Peoria Mass Transit District, its officials, Board members, employees, agents and volunteers to be added to all liabilities policies as additional insureds. The contractor's insurer will provide at least 30 days written notice of cancellation.

I have read and understand the above requirements and agree to be bound by them for any work performed for the GPMTD.

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed name: \_\_\_\_\_

### DBE Letter of Intent

To: \_\_\_\_\_  
(Name of Proposer)

The undersigned intends to perform work in connection with the above project as a DBE (circle one):

Individual \_\_\_\_\_ Corporation \_\_\_\_\_ Partnership \_\_\_\_\_ Joint Venture \_\_\_\_\_

The Disadvantaged Business Enterprise status of the undersigned is confirmed:

1. On the reference list of Disadvantaged Business Enterprises dated \_\_\_\_\_; or
2. On the attached Disadvantaged Business Enterprise Identification Statement.

The undersigned is prepared to perform the following work in connection with the above project (Specify in detail particular work items or parts thereof to be performed):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The DBE contractor will perform this work at the following price: \_\_\_\_\_

You have projected the following commencement date for such work, and the undersigned is projecting completion of such work as follows:

Items	Projected Commencement Date	Projected Completion Date
_____	_____	_____
_____	_____	_____

The above work will not be subject to a non-Disadvantaged Business Enterprise at any tier. The undersigned will enter into a formal agreement for the above work with you, conditioned upon your execution of a contract with GPMTD.

Name of Disadvantaged Business Enterprise: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## DBE Good Faith Effort (For information only – not to be returned)

1. The GPMTD has established a twelve percent (12.0%) goal for Disadvantaged Business Enterprise (DBE) participation for this contract. Therefore, a proposer must, in order to be responsible and responsive, make a good-faith effort to meet the goal. The proposer can meet this requirement in either of two (2) ways. First, the proposer can meet or exceed the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if the proposer doesn't meet the goal, the proposer can document its good-faith efforts to meet the goal. This means that the proposer must show that it took all necessary and reasonable steps to achieve the DBE goal, or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.
2. The GPMTD will use the good-faith efforts mechanism as required by 49 CRF part 26. It is up to the GPMTD to make a fair and reasonable judgment whether a proposer that did not meet the goal made adequate good-faith efforts. The GPMTD will consider the quality, quantity, and intensity of the different kinds of efforts that the proposer made. The efforts employed by the proposer should be those that one could reasonably expect a proposer to take, if the proposer were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good-faith efforts to meet the DBE contract requirements. As emphasized by the Department of Transportation, GPMTD's determination concerning the sufficiency of the firm's good-faith efforts is a judgment call; meeting quantitative formulas is not required.
3. The GPMTD will not require that a proposer meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the proposer shows that an adequate good-faith was made. The rule specifically prohibits the GPMTD from ignoring bona fide good-faith efforts.
4. The following is a list of types of actions that the GPMTD will consider as part of the proposer's good-faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.
  - a. Soliciting through all reasonable and available means (e.g. attendance at pre-proposal meetings, advertising, and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The proposer must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The proposer must determine with certainty whether or not a DBE is certified.
  - b. The DBEs are interested by taking appropriate steps to follow up initial solicitations.
  - c. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
  - d. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

### DBE Affidavit

State of: \_\_\_\_\_ Date: \_\_\_\_\_

County: \_\_\_\_\_

The undersigned, being duly sworn, deposes and says that he/she is the (sole owner, partner, president, treasurer, or other duly authorized official of a corporation) of

(Name of Official) \_\_\_\_\_

(Name of DBE) \_\_\_\_\_

and certifies that since the date of its certification through the IL UCP, the certification has not been revoked nor has it expired nor has there been any change in the minority status of

(Name of DBE) \_\_\_\_\_

(Signature and Title of Person Making Affidavit) \_\_\_\_\_

Sworn to before me this \_\_\_\_\_ day \_\_\_\_\_, 20 \_\_\_\_\_

(Notary Public) \_\_\_\_\_

NOTE: The proposer must attach the DBE's most recent certification letter or document to this affidavit.

## Good-Faith Effort (Continued)

- e. Negotiating in good-faith with interested DBEs. It is the proposer's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

A proposer using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities, as well as contract goals, into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a proposer's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the proposer of the responsibility to make good-faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs, if the price difference is excessive or unreasonable.

- f. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations, and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of proposals from DBEs in the Contractor's efforts to meet the project goal.
- g. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance, as required by the recipient or contractor.
- h. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- i. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and Local minority/women business assistance offices; and other organizations, as allowed on a case-by-case basis, to provide assistance in the recruitment and placement of DBEs.

**MUST BE  
ATTACHED TO  
BID FORM**

# Bidding - Owner Signature Sheets

## DBE Unavailable Certification

I, \_\_\_\_\_, the \_\_\_\_\_  
(Name) (Title)

of \_\_\_\_\_ certify that on \_\_\_\_\_  
(Proposer/Prime Contractor) (Date)

I contacted the following Disadvantaged Business Enterprise to obtain a proposal to perform the following work item(s):

DBE Organization	Work Items Sought	Form of Proposal Sought (i.e., materials, materials & labor, labor only, etc.)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

To the best of my knowledge and belief, said Disadvantaged Business Enterprise was unavailable for work on this project, or unable to prepare a proposal, for the following reason(s):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ was offered an opportunity on \_\_\_\_\_  
(Name of Disadvantaged Business Enterprise) (Date)

by \_\_\_\_\_ to submit a proposal to perform the above identified work.  
(Proposer)

The above statement is a true and accurate account of why I did not submit a proposal on this project.

Signed: \_\_\_\_\_  
(Disadvantaged Business Enterprise Official)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## Certificate of Compliance with Prevailing Wages

The Vendor shall agree to comply with the GPMTD Prevailing Wage requirements by signing and dating the following:

### PREVAILING WAGES

The State of Illinois has enacted the "Prevailing Wage Act" 820 ILCS 130 et seq.

To the extent and as required by the "Prevailing Wage Act", the general prevailing rate of wages in this locality for laborers, mechanics and the workers engaged in construction of public works coming under the jurisdiction of the GPMTD is hereby ascertained to be the same as the prevailing rate of wages for construction work in Peoria County area as determined by the Department of Labor of the State of Illinois as of July of the current year.

Nothing herein contained shall be construed to apply said general prevailing rate of wages as herein ascertained to any work or employment except public works construction and landscaping construction of the GPMTD to the extent required by the aforesaid Act.

The Contractor shall promptly submit certified payrolls as required by the Illinois Prevailing Wage Act. An electronic database is provided by the Department of Labor to submit Certified Payroll within a Certified Transcript of Payroll Portal created and managed by the Department of Labor.

By signature below, the Bidder/Proposer, \_\_\_\_\_, agrees to comply with Prevailing Wage Requirements.

\_\_\_\_\_  
Signature of Bidder's Authorized Official

\_\_\_\_\_  
Print - Name and Title of Bidder's Authorized Official

\_\_\_\_\_  
Date

## Prompt Payment Affidavit

Complete either (A) or (B), as applicable

(A) The undersigned affirms, to the best of his/her knowledge and belief, that:

- (1) The undersigned understands and agrees that the Contractor is required to pay all Subcontractors for all work that any Subcontractor has satisfactorily completed no later than thirty (30) days after the Contractor has received payment from GPMTD for that work.
- (2) The undersigned understands and agrees that the Contractor is required to pay retainage amounts, if any, to a Subcontractor no later than thirty (30) days after the GPMTD has released retainage to the Contractor for that portion of the work.
- (3) The undersigned understands and agrees that any delay in or postponement of payment to any Subcontractor by the Contractor requires the Contractor to demonstrate good cause and to receive prior written approval by GPMTD's General Manager or his/her authorized representative.
- (4) The undersigned understands and agrees that the GPMTD will not pay the Contractor for Services performed or Deliverables submitted unless and until the Contractor certifies that the Subcontractors have been promptly paid for the work or services they have performed under all previous payment requests, as evidenced by the filing with the GPMTD the Contractor's sworn statement that the Contractor has complied with the prompt payment requirements.

The undersigned solemnly declares and affirms under penalty of perjury that the above and foregoing are true and correct, and that he/she is authorized on behalf of the Contractor to sign this affidavit.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Official's Name and Title

\_\_\_\_\_  
Date

(B) The undersigned solemnly declares and affirms under penalty of perjury that no Subcontractors will be used in the performance of the work or services and, as such, the statutory prompt payment requirements are inapplicable. The undersigned further declares that he/she is authorized on behalf of the Contractor to sign this affidavit.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Officials Name

\_\_\_\_\_  
Date

**MUST BE ATTACHED TO BID FORM**

# Bidding

- 5% Bid Bond Required.
  - AIA 312 Bond Form acceptable.
  - Cashier's Check acceptable.
- 100% Payment & Performance Bond.
  - RCC is carrying the Payment & Performance Bond.
  - Alternate #8 is called out on the Bid Form to include an additional cost, if the Owner requires an individual subcontractor to carry these bonds at time of award
- Labor Rates are required to be filled out on the bid form.
- Project is Tax Exempt.
  - Certificate will be sent out upon award.
- Overall Project has a 12% DBE Goal

# Bidding

- Documents are housed on RCC website & Smartbid for all notifications
  - Drawings, Procurement Manual/Specifications, & Addendums
- RCC Website: <https://www.rccllc.com/smart-bid/>

- Procurement Manual

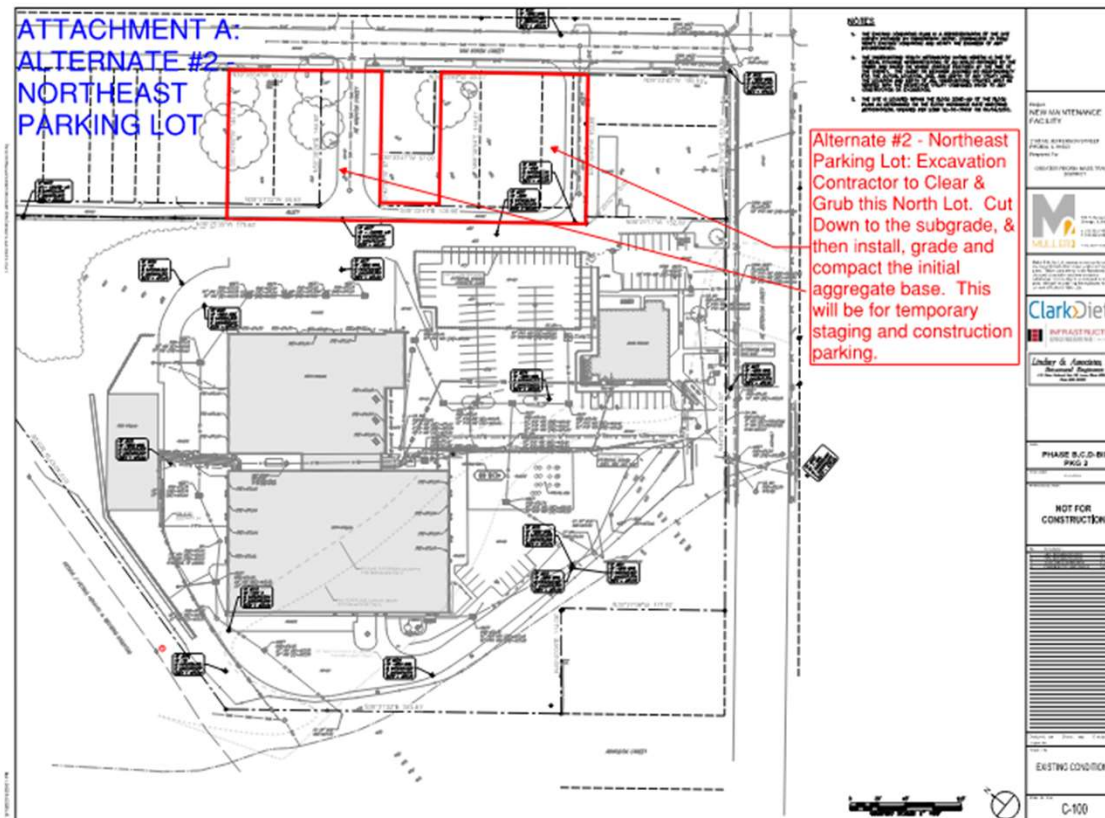
001000	Instructions to Bidders
002000	Information to Bidders
002100	Buy America NOT Buy American
002200	Disadvantaged Business Enterprise Participation
002300	State of Illinois Mandatory Sexual Harassment Training
002400	Federal and State Clauses
003100	<b>Bid Forms</b>
003132	Geotechnical Data
008200	Insurance Coverage
009000	Work Categories / Scopes
009001	Subcontractor Contract Example



# Alternates

Alternate #1 – Fuel Island – Remove & replace existing metal ceiling panel, downspouts, & light fixtures. Provide new prefinished metal ceiling panel, new LED fixtures (1), prefinished metal downspouts, & paint existing metal cladding on columns & fascia.

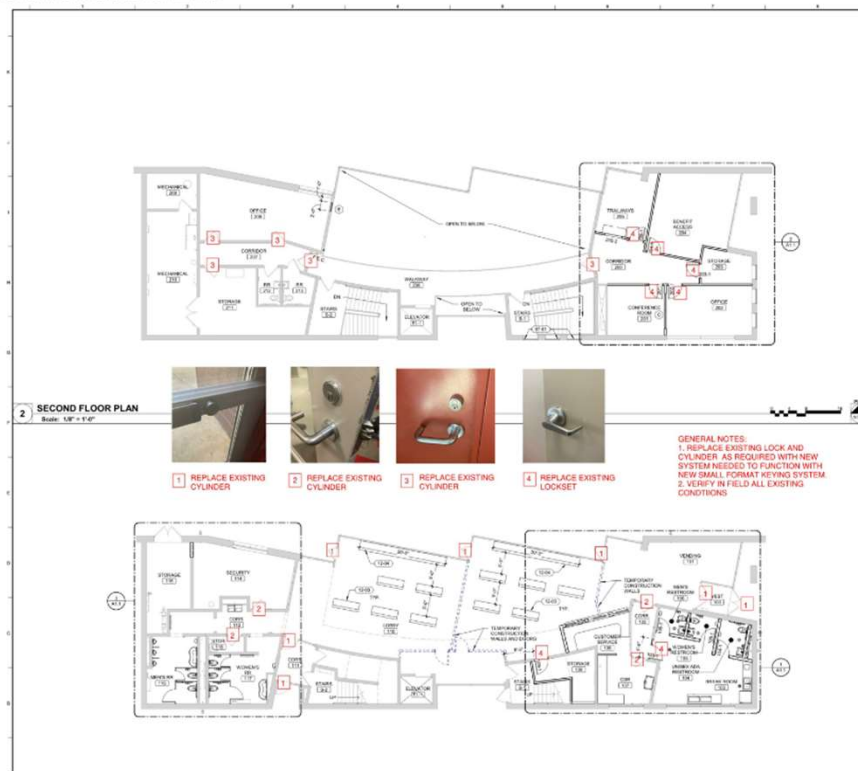
Alternate #2 – **Clear & grub the North Lot** - Located at the East of the current construction parking area. Cut down to the subgrade, and then install, grade, & compact the initial 6" aggregate base. This is to be used as the temporary staging & construction parking area.






## Alternate #3 – Transit Center Hardware Replacement - Remove & replace existing hardware with new hardware component required to coordinate keying system w/facilities.

### ALTERNATES

1. FILL, FILLING, REMOVE AND REPLACE EXISTING METAL CEILING PANEL, DOWNROPS AND LIGHT FIXTURES. PROVIDE NEW PREPARED METAL CEILING PANEL, DOWNROPS AND LIGHT FIXTURES. PROVIDE EXISTING METAL CEILING PANEL, DOWNROPS AND LIGHT FIXTURES.
2. TRANSIT CENTER HARDWARE REPLACEMENT - REMOVE AND REPLACE EXISTING HARDWARE IN TRANSIT CENTER HARDWARE COMPONENT REQUIRED TO COORDINATE KEYING SYSTEM WITH FACILITIES.
3. REMOVE LIFT - PROVIDE DELETE ALTERNATE FOR REMOVAL OF ONE IN GROUND SCISSOR LIFT AND ONE PARALLEL SCISSOR LIFT, INCLUDING ASSOCIATED CONTROL, POWER, UNDERGROUND PIPING AND SLAB DEPRESSION.
4. BRIDGE CRANE - PROVIDE DELETE ALTERNATE FOR REMOVAL OF BRIDGE CRANE AND ASSOCIATED FOUNDATIONS.
5. VINYL FENCING - PROVIDE ALTERNATE FOR VINYL FENCING WITH 1 1/2" GALVANIZED STEEL CHAINLINK FENCE WITH VINYL INFILL.
6. STEEL ROOST FENCING - PROVIDE ALTERNATE FOR STEEL ROOST FENCE ALONG JEFFERSON STREET AND UNIVERSITY STREET. THE BALANCE OF THE FENCE IS TO BE 1 1/2" GALVANIZED STEEL CHAINLINK FENCE.
7. RETAINING WALL - PROVIDE DELETE ALTERNATE FOR APPROXIMATELY 15 FEET OF EXISTING CURVED RETAINING WALL AT THE NORTHWEST CORNER OF THE SITE TO REMAIN. ONLY EXISTING RETAINING WALL TO BE REMOVED FOR CONSTRUCTION FOR BUILDING. PROVIDE APPROXIMATELY 15 FEET OF NEW RETAINING WALL THAT CONNECTS BETWEEN WEST END OF NEW BUILDING AND EXISTING CURVED RETAINING WALL.
8. NORTH PARKING LOT - PROVIDE DELETE ALTERNATE FOR ALL CAMERAS AND REQUIRED UTILITIES AT NORTH PARKING LOT.



Project							
GPMTO CITYLINK NEW MAINTENANCE FACILITY & RENOVATION PHASES B, C & D							
Prepared For							
GREATER PEORIA MASS TRANSIT DISTRICT							
							
2000 N. UNIVERSITY CHICAGO, IL 60647 312.462.4500 312.462.4501							
Muller & Muller, Ltd. represents the contractor in the preparation and review of the contract documents. The contractor is responsible for the design and construction of the project. The contractor is not responsible for the design and construction of the project.							
							
Clark Dietz, Inc. represents the contractor in the preparation and review of the contract documents. The contractor is responsible for the design and construction of the project. The contractor is not responsible for the design and construction of the project.							
							
Linday & Associates, Inc. Structural Engineering 4300 N. Lincoln Ave. Ste. 200, Peoria, IL 61611 309.696.1000							
PHASE B, C, D - BID PKG 2							
NOT FOR CONSTRUCTION							
<table><tr><th>NO.</th><th>REVISION</th><th>DATE</th></tr><tr><td>1</td><td>ISSUED FOR BIDDING</td><td>08/08/2011</td></tr></table>		NO.	REVISION	DATE	1	ISSUED FOR BIDDING	08/08/2011
NO.	REVISION	DATE					
1	ISSUED FOR BIDDING	08/08/2011					
Prepared By: _____							
Project No.: 08-1081							
Drawing No.: 08-1081							
ALTERNATES							

## Alternates

Alternate #4 – Vehicle lift – Provide delete alternate of one-inground scissor lift and one parallelogram lift, including associated control, power, underground plumbing & slab depression.

Alternate #5 – Bridge Crane – Provide delete alternate for deletion of one-bridge crane, including associated foundations.

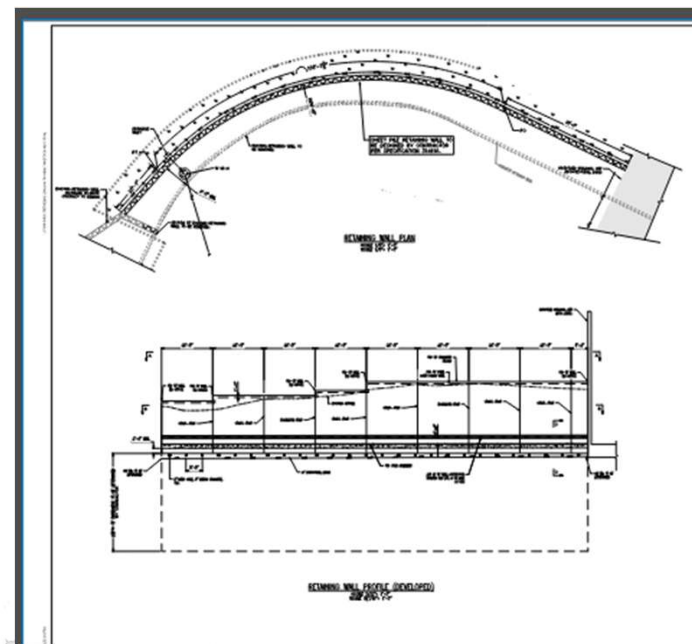
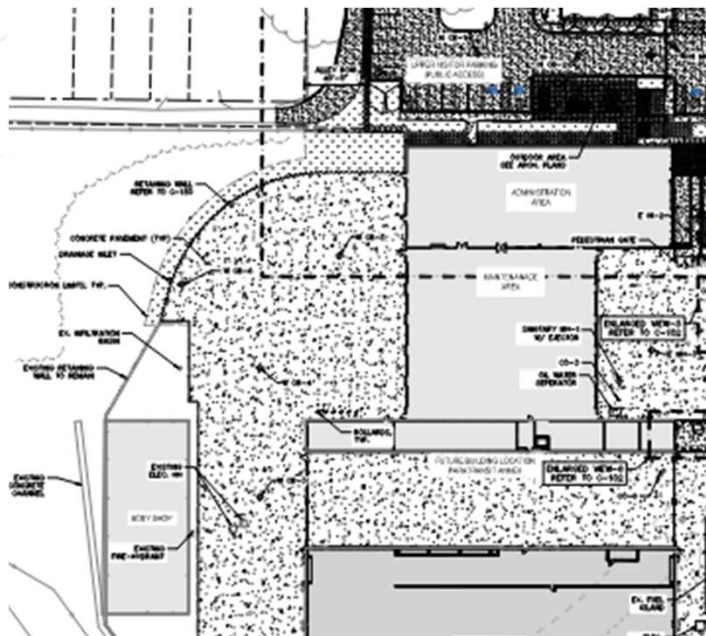
Alternate #6 – Vinyl Fencing – Provide alternate for vinyl fencing with 6' tall galvanized steel chain link fence with vinyl insert.

Alternate #7 – Steel Picket Fencing – Provide alternate for steel picket fence along Jefferson Street & Van Buren Street only. The balance of the fence is to be 6' tall galvanized steel chain link fence.

Alternate #8 – Payment & Performance Bonds – Provide an add if payment & performance bonds are required by the Owner after award.

# Alternates

Alternate #9 – Retaining Wall – Provide delete alternate for approximately 80 feet of existing curved retaining wall at the Northwest corner of the site to remain. Only East/West retaining wall to be removed for construction of new building. Provide approximately 40 feet of new retaining wall that connects between west end of new building & existing curved retaining wall.



Alternate #10 – Not used.

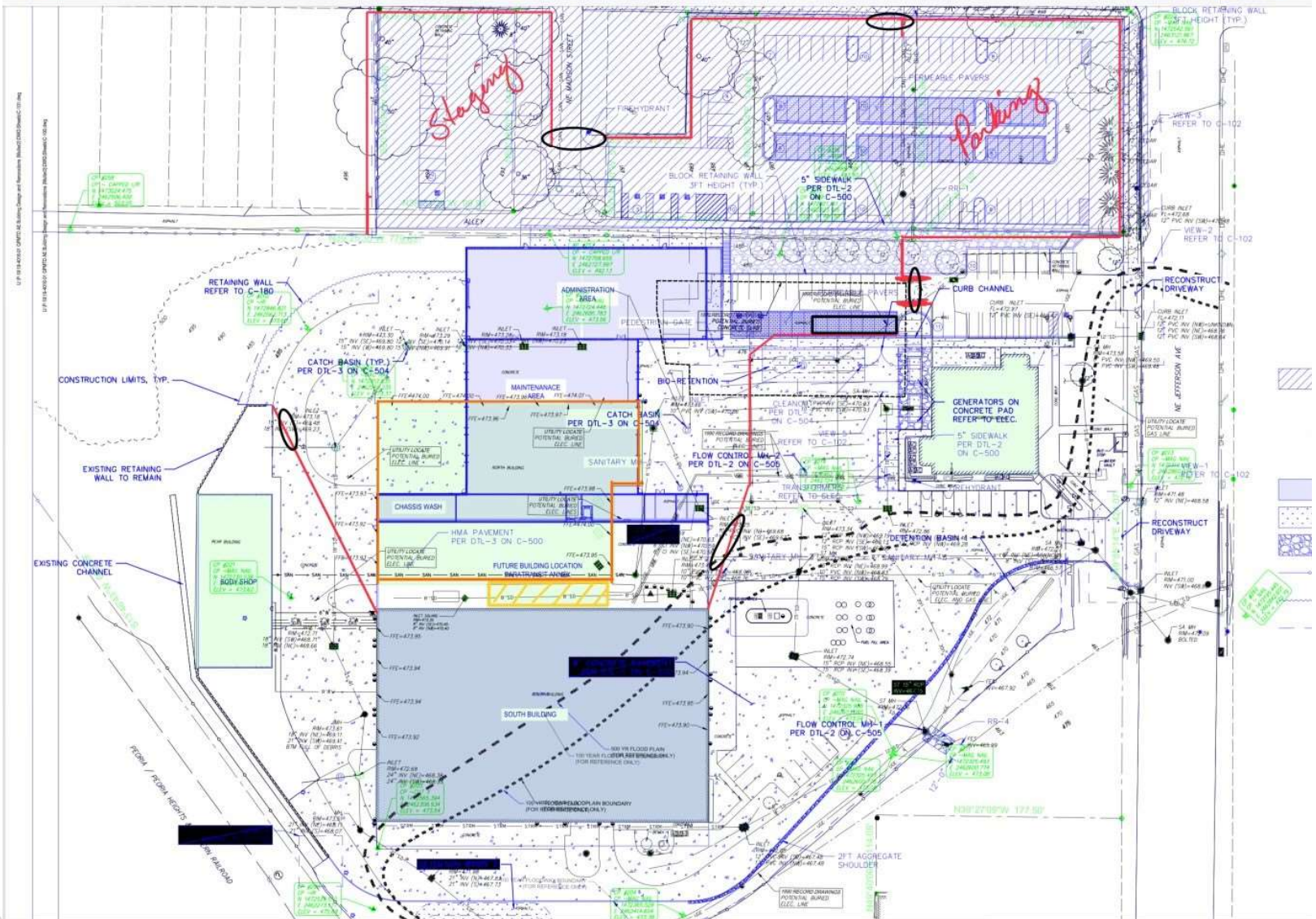
Alternate #11 – North Parking Lot Cameras – Provide delete alternate for (6) cameras and required utilities at new North parking lot.

# Logistics Plan

7:30 AM Mon Aug 16

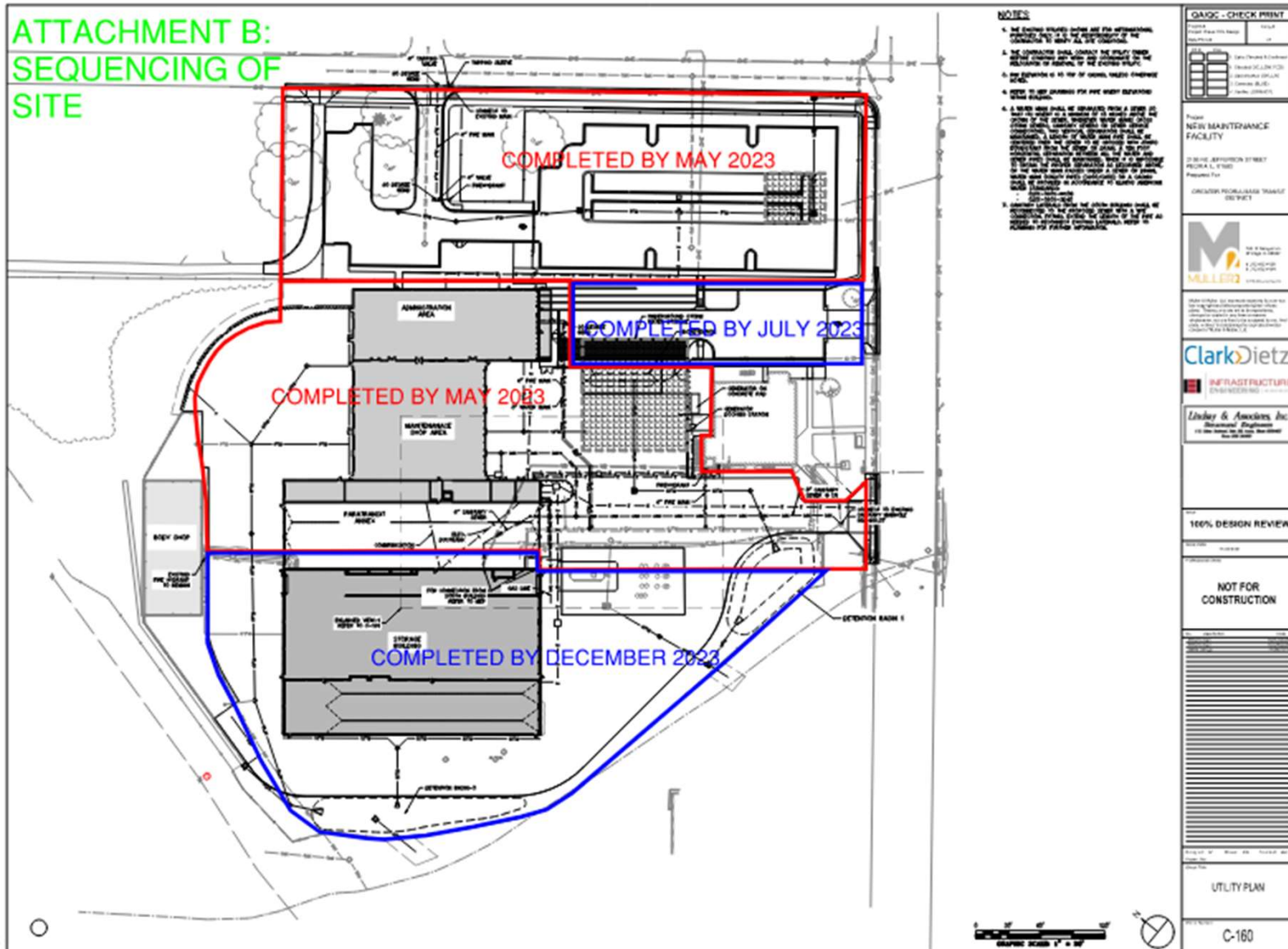
Done

Pages 17 &amp; 18 Overlay.pdf

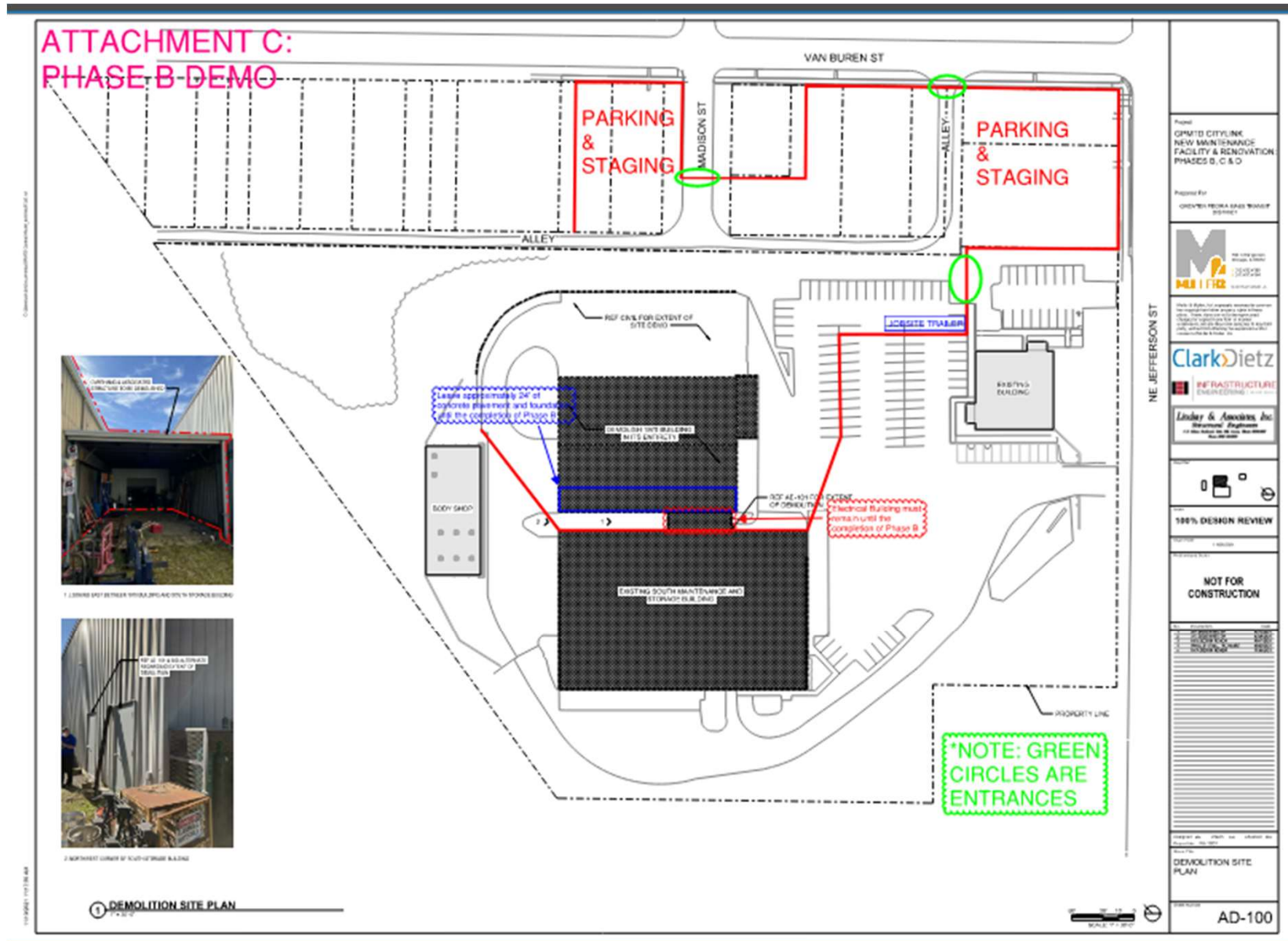
 94% 

# Logistics & Phasing Plans – Attachment B

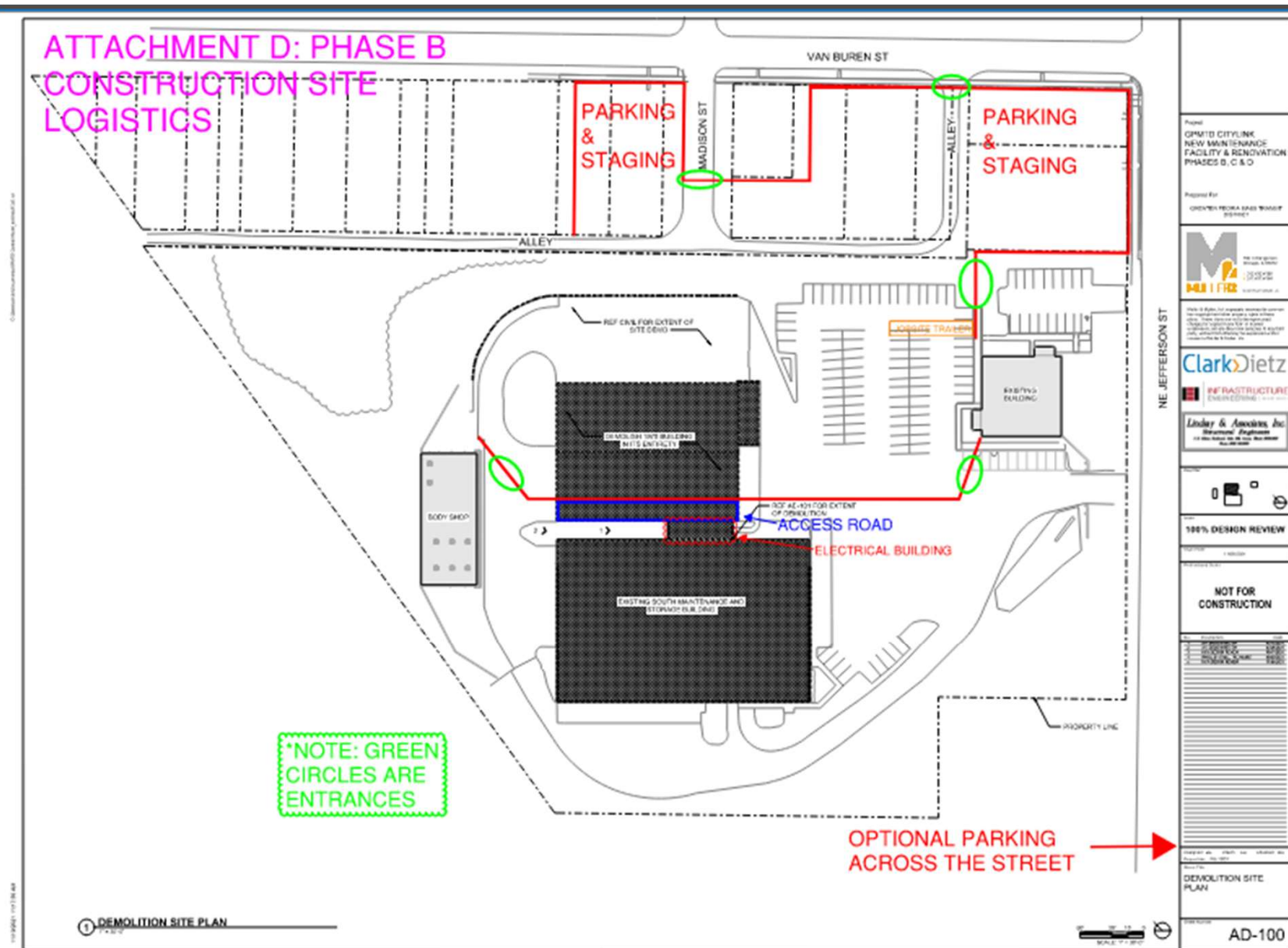
## ATTACHMENT B: SEQUENCING OF SITE



# Logistics & Phasing Plans – Attachment C



## Logistics &amp; Phasing Plans – Attachment D



**ATTACHMENT E: PHASES C & D FENCING**

**KEYNOTES**

- STOP SIGN & POST
- NO PARKING SIGN & POST
- AVOIDING SIGN & POST
- AVOIDING EXISTING SIGNAGE FOR (SIGNAL)
- STOP SIGN
- NO PARKING SIGN
- STOP SIGN
- STOP SIGN (POST) NOT SIGN

**LEGENDS**

- LIMIT OF ROAD
- SIGN & POST
- EXISTING DRIVEWAY

**SIGNAGE & STRIPING NOTES**

1. AVOIDABLE PARKING SPACES SHALL BE FOR 8'-0" TO 10'-0" ON 10'-0" ON 10'-0"
2. ALL OTHER PARKING SPACES SHALL BE 8'-0" WIDE BY 10'-0" FT LENGTH UNLESS OTHERWISE NOTED
3. WHEEL STOPS TO BE PROVIDED ONLY AT THE LOCATIONS SHOWN

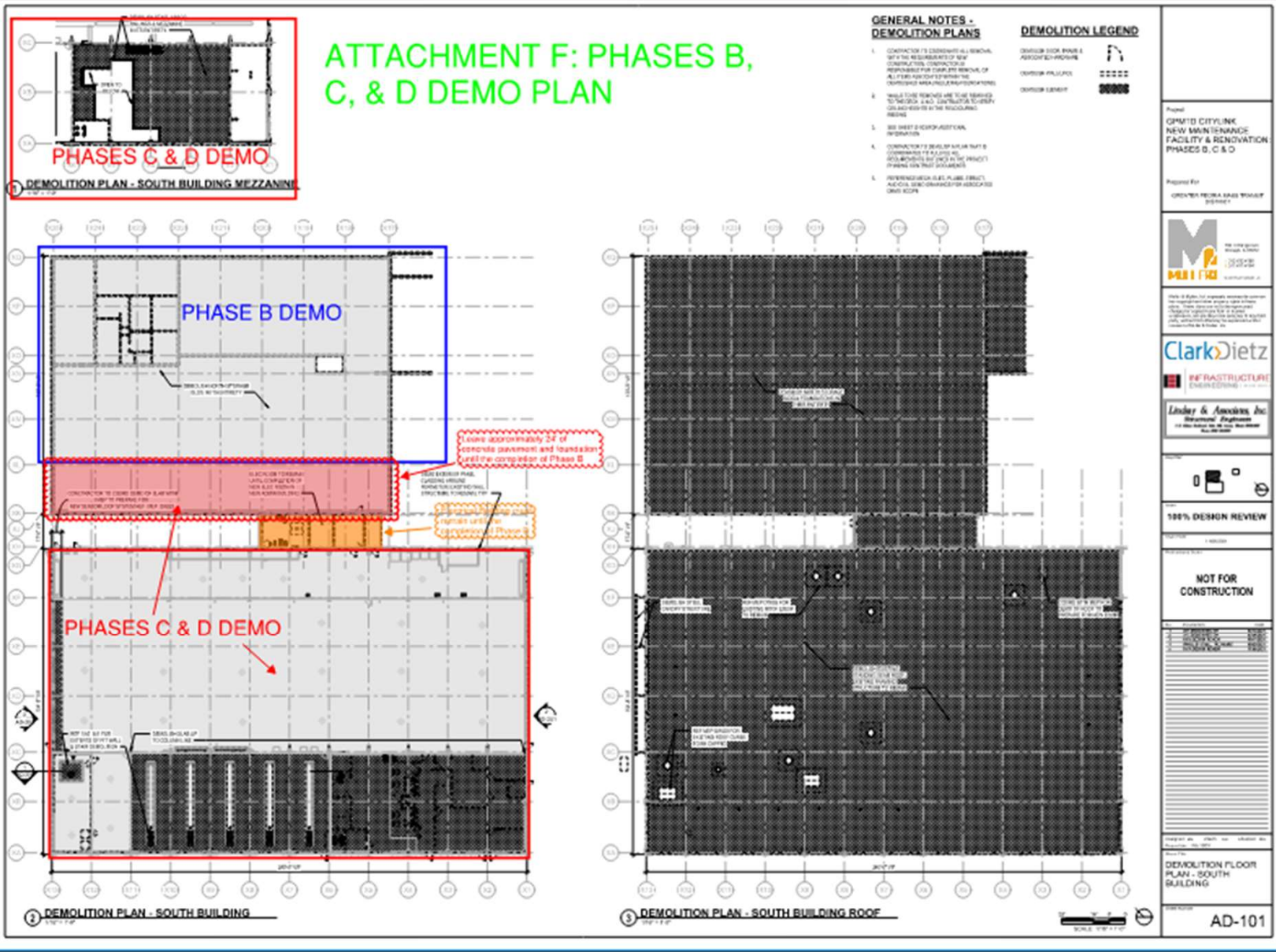
**100% DESIGN REVIEW**

**NOT FOR CONSTRUCTION**

**SIGNAGE AND STRIPING PLAN**

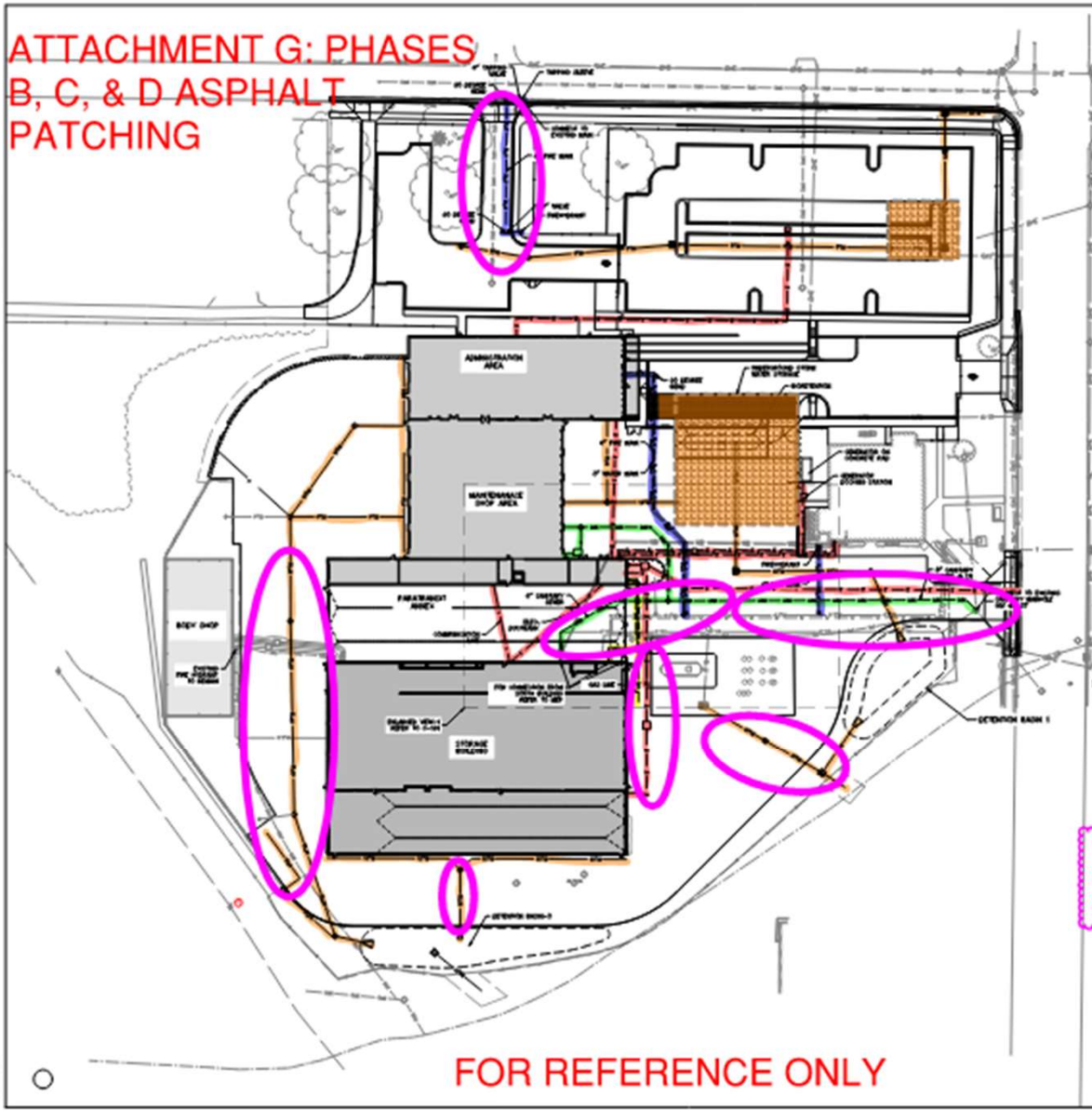
**C-170**

# Logistics & Phasing Plans – Attachment F



# Logistics & Phasing Plans – Attachment G

## ATTACHMENT G: PHASES B, C, & D ASPHALT PATCHING



FOR REFERENCE ONLY

### NOTES

1. THE EXISTING UTILITIES SHOWN ARE FOR INFORMATION PURPOSES ONLY AND ARE NOT A GUARANTEE OF THE ACCURACY OF THE INFORMATION.
2. THE CONTRACTOR SHALL VERIFY THE EXISTING UTILITIES AND MAKE ANY NECESSARY ADJUSTMENTS TO THE UTILITIES IN ACCORDANCE WITH THE DESIGN.
3. THE EXISTING UTILITIES ARE TO BE MAINTAINED AND NOT REMOVED OR DISRUPTED.
4. A NEW WATER MAIN SHALL BE INSTALLED WITH A 12" DIAMETER AND A 10' DEPTH OF COVER. THE NEW WATER MAIN SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN AND SHALL BE MAINTAINED AND NOT REMOVED OR DISRUPTED.
5. THE CONTRACTOR SHALL VERIFY THE EXISTING UTILITIES AND MAKE ANY NECESSARY ADJUSTMENTS TO THE UTILITIES IN ACCORDANCE WITH THE DESIGN.

### QA/QC - CHECK PRINT

NO.	DESCRIPTION	DATE	BY
1	Check Print		
2	Check Print		
3	Check Print		
4	Check Print		
5	Check Print		

Project:  
NEW MAINTENANCE FACILITY

20000 JEFFERSON STREET  
PHASE A, 1000

Prepared For:  
CONCRETE CONSTRUCTION TRUST



ClarkDietz  
INFRASTRUCTURE  
ENGINEERING

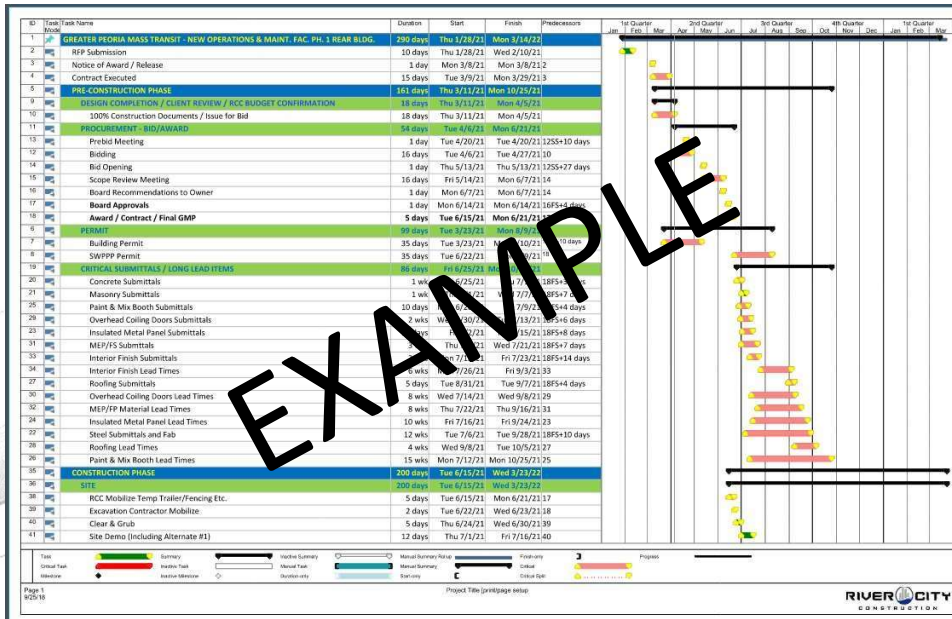
Linsley & Associates, Inc.  
Professional Engineering  
10000 JEFFERSON STREET, SUITE 100  
PHASE A, 1000

100% DESIGN REVIEW  
NOT FOR CONSTRUCTION

UTILITY PLAN  
C-160

\*NOTE: CIRCLED AREAS  
REPRESENT ASPHALT  
PATCHING LOCATIONS

# Master Project Schedule

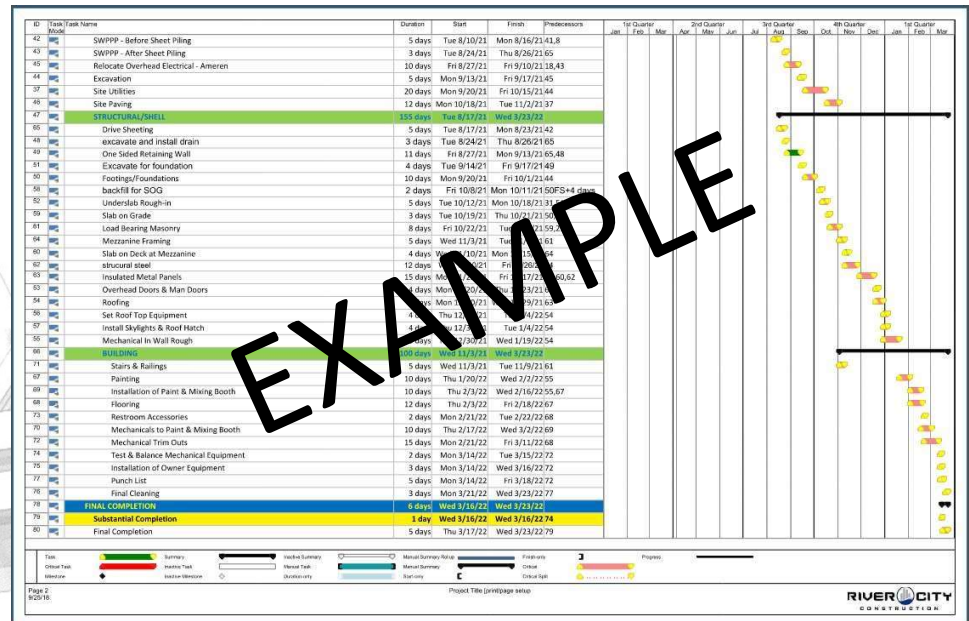


## KEYMILESTONES

- Board Approval – February 14
- NTP – Week of February 14th
- Permit – M2 has submitted & is working w/City

## KEYMILESTONES

- Sanitary Sewer Start – March 28<sup>th</sup>
- 1978 Building Demo – May 9th
- Structural Steel – August
- Precast – October
- Phase B Sub. Completion – April 2023
- Phase C & D Sub. Completion – Dec. 2023



# Questions

## Questions and Answers

Thank you for attending!  
We look forward to your bid! 😊



**Project Name: Greater Peoria Mass Transit – New Operations & Maintenance Facility: Phase B, C, & D**  
**Location**

Meeting: Pre-Bid

Date: January 5<sup>th</sup>, 2021

Time: 2:00 p.m.

Location: 2105 NE Jefferson St – GPMTD Downstairs Conference Room

**Sign-In Sheet**

Name	Company	Phone	E-Mail
Beth Schupp	RCC	309-694-3120	<a href="mailto:bschupp@rccllc.com">bschupp@rccllc.com</a>
Kent Grigsby	RCC	309-694-3120	<a href="mailto:kgrigsby@rccllc.com">kgrigsby@rccllc.com</a>
Cade Lansford	RCC	309-360-6382	<a href="mailto:clansford@rccllc.com">clansford@rccllc.com</a>
Dennis Dragoo	Dragoo Painting	309-679-7887	<a href="mailto:dragoopt@mtco.com">dragoopt@mtco.com</a>
Jeff Nott	Commercial Mechanical Inc. (CMI)	309-243-7768	<a href="mailto:jeff@cmi.b2">jeff@cmi.b2</a>
Shawn Brandon	Carpet Weavers	309-657-1505	<a href="mailto:sbrandon@carpetweavers.com">sbrandon@carpetweavers.com</a>
Jason Brown	RCC	309-694-3120	<a href="mailto:jbrown@rccllc.com">jbrown@rccllc.com</a>
Ryan Koener	K-Com Technologies	309-697-5550	<a href="mailto:rak@koener.com">rak@koener.com</a>
Kim Freitag	PIPCO	309-692-4060	<a href="mailto:kimf@pipco-co.com">kimf@pipco-co.com</a>
Tim Pec	RCC	309-694-3120	<a href="mailto:tpec@rccllc.com">tpec@rccllc.com</a>
Matt Cicciarelli	PIPCO	309-692-4060	<a href="mailto:mattc@pipco-co.com">mattc@pipco-co.com</a>
Steve Belfield	Dashco/Rainguard	309-633-1383	<a href="mailto:bids@dashco.site">bids@dashco.site</a>
Dave Homerin	Lighting Associates	309-303-1981	<a href="mailto:dhomerin@laiweb.net">dhomerin@laiweb.net</a>
Brent Higgins	Standard H&C	309-671-5417	<a href="mailto:bhiggins@standardheat.com">bhiggins@standardheat.com</a>
Jay Austin	ICCI	309-303-1981	<a href="mailto:jaustin@ilcivil.com">jaustin@ilcivil.com</a>
Keith Eimer	F.E. Moran	224-254-0337	<a href="mailto:Keith.eimer@femoran.com">Keith.eimer@femoran.com</a>
Troy Saunders	U.C.M.	309-657-7878	<a href="mailto:Troy.saunders@ucm.biz">Troy.saunders@ucm.biz</a>
Chad Gardner	Overlander	309-694-1468	<a href="mailto:cgardner@obie.biz">cgardner@obie.biz</a>
Chris Swearingen	Garber	309-256-1598	<a href="mailto:swearch@garberheating.com">swearch@garberheating.com</a>
Wes Ernst	Halo Solar	309-830-5228	<a href="mailto:wernst@halosolar.net">wernst@halosolar.net</a>
Josh Runyon	RC Demo	309-299-0207	<a href="mailto:josh@rcdemolition.com">josh@rcdemolition.com</a>
Ryan Zobrist	Zobrist Construction	309-263-1230	<a href="mailto:ryan@zobristconstruction.com">ryan@zobristconstruction.com</a>

Builders...Concept to Completion.

Lee Lushina	East Moline Glass	309-369-4282	<a href="mailto:lee.lushina@eastmolineglass.com">lee.lushina@eastmolineglass.com</a>
Sam Hobson	BMI Contractors	309-657-4469	<a href="mailto:bmicontractors@yahoo.com">bmicontractors@yahoo.com</a>
Matt Dries	Dries Bros Plumbing	309-691-4535	<a href="mailto:matt@driesbros.com">matt@driesbros.com</a>
Brian Rich	G.A. Rich	309-447-6234	<a href="mailto:brian@garich.com">brian@garich.com</a>
Joe Roberts	G.A. Rich	309-447-6234	<a href="mailto:joe@garich.com">joe@garich.com</a>
Dalton Koehl	Hein	309-691-4774	<a href="mailto:dkoehl@heinconstruction.com">dkoehl@heinconstruction.com</a>
Mike Wyatt	Zeller Electric	309-404-9127	<a href="mailto:mwyatt@zeller-electric.com">mwyatt@zeller-electric.com</a>
Jason Atherton	Ironhustler Excavating	309-397-6890	<a href="mailto:jason@ironhustlerexcavating.com">jason@ironhustlerexcavating.com</a>
Justin Thomas	Otto Baum	309-261-4805	<a href="mailto:justinthomas@ottobaum.com">justinthomas@ottobaum.com</a>
Nate Zeltwanger	CAD	309-925-2092	<a href="mailto:nate@cadconstructioninc.com">nate@cadconstructioninc.com</a>
Vince LaHood	Conrad Sheet Metal	309-829-1006	<a href="mailto:vince@conradsheetmetal.com">vince@conradsheetmetal.com</a>
Dan Antrim	Kelly Glass	309-208-9607	<a href="mailto:dan@kellyglass.co">dan@kellyglass.co</a>
Jeff Craft	Craft Building	309-886-3242	<a href="mailto:jcraft@craftbuilding.com">jcraft@craftbuilding.com</a>
Brian Thompson	Zeller Electric	309-263-2353	<a href="mailto:bthompson@zeller-electric.com">bthompson@zeller-electric.com</a>
Brook Sae-Chua	Muller & Muller	773-437-7306	<a href="mailto:bsaechua@muller2.com">bsaechua@muller2.com</a>
Mark Stromberg	Muller & Muller	773-655-2322	<a href="mailto:mstromberg@muller2.com">mstromberg@muller2.com</a>
Stephanie Coad	Muller & Muller	312-313-7767	<a href="mailto:scoad@muller2.com">scoad@muller2.com</a>
Adrian Fernandez	Infrastructure Engineering	312-425-9560	<a href="mailto:afernandez@infrastructure-eng.com">afernandez@infrastructure-eng.com</a>
Nirav Patel	Clark-Dietz	312-648-9900	<a href="mailto:nirav.patel@clarkdietz">nirav.patel@clarkdietz</a>
Nick Standefer	CityLink	309-676-4040	<a href="mailto:nstandefer@ridecitylink.org">nstandefer@ridecitylink.org</a>
Doug Roelfs	CityLink	309-676-4040	<a href="mailto:droelfs@ridecitylink.org">droelfs@ridecitylink.org</a>
Steve Green (Teams)	CityLink	309-676-4040	<a href="mailto:sgreen@ridecitylink.org">sgreen@ridecitylink.org</a>
Jamie Arbogast (Teams)	CityLink	309-676-4040	<a href="mailto:jarbogast@ridecitylink.org">jarbogast@ridecitylink.org</a>
Terry Lindsay (Teams)	Lindsay & Associates	630-264-9650	<a href="mailto:t.lindsay@lindsay-se.com">t.lindsay@lindsay-se.com</a>
Peter Haralovich (Teams)	Safetyline Equipment Corporation (Steril-Koni)	812-322-3535	<a href="mailto:peter@usalift.com">peter@usalift.com</a>
Barry Rapp (Teams)	Johnson HVACR & Foodservice Equipment	309-620-2104	<a href="mailto:brapp@jmsinc.net">brapp@jmsinc.net</a>
Eric Kunkel (Teams)	Automatic Fire Sprinkler	309-275-9598	<a href="mailto:erick@autofiresprinkler.com">erick@autofiresprinkler.com</a>

Builders...Concept to Completion.

Trent Perry (Teams)	Allied Construction	309-673-3233	<a href="mailto:tperry@alliedconst.com">tperry@alliedconst.com</a>
CJ Wood (Teams)	Henson-Robinson	217-544-8451	<a href="mailto:cj@henson-robinson.com">cj@henson-robinson.com</a>
Jordan Hunt (Teams)	A&H Steel	309-397-9272	<a href="mailto:jhunt@a-hsteel.com">jhunt@a-hsteel.com</a>
Jeff Labuz (Teams)	DH Pace	309-275-8257	<a href="mailto:Jeff.labuz@dhpac.com">Jeff.labuz@dhpac.com</a>
Scott Reyling (Teams)	The Hitchcock Company	309-679-9750	<a href="mailto:sreyling@hitchcockfire.com">sreyling@hitchcockfire.com</a>
Jared Liescheidt (Teams)	Ruyle	309-210-4332	<a href="mailto:jliescheidt@ruylecorp.com">jliescheidt@ruylecorp.com</a>
Chad Turpin (Teams)	Caliber Coatings	309-294-9557	<a href="mailto:chad@calibercoatingsplus.com">chad@calibercoatingsplus.com</a>
Greg Campen (Teams)	Peoria Metro	309-256-2270	<a href="mailto:gcampen@peoriametro.com">gcampen@peoriametro.com</a>
Andrew Weeks (Teams)	NE Finch	309-657-4133	<a href="mailto:aweeks@nefinch.com">aweeks@nefinch.com</a>
Leida Pickett (Teams)	Schindler	314-330-5891	<a href="mailto:leida.pickett@schindler.com">leida.pickett@schindler.com</a>
Terry Hargrove (Teams)	BASE2	309-509-6705	<a href="mailto:thargrove@relyonbase2.com">thargrove@relyonbase2.com</a>
Kyle Shepherdson (Teams)	J.J. Braker	309-266-6447	<a href="mailto:kyleshepherdson@jjbraker.com">kyleshepherdson@jjbraker.com</a>
Michael Boyle (Teams)	Western Specialty Contractors	309-678-9779	<a href="mailto:michaelb@westernspecialtycontractors.com">michaelb@westernspecialtycontractors.com</a>
Tim Braker (Teams)	J.J. Braker	309-266-6447	<a href="mailto:timbraker@jjbraker.com">timbraker@jjbraker.com</a>
Andy Zeller (Teams)	ANJ Electric	309-285-0381	<a href="mailto:andy@anjinc.com">andy@anjinc.com</a>
Tim Rittbusch (Teams)	First Build Associates	309-383-4510	<a href="mailto:tim@firstbuild.net">tim@firstbuild.net</a>
Trey Solorio (Teams)	Wrightway Interior	309-360-6909	<a href="mailto:trey@wrightwayint.com">trey@wrightwayint.com</a>
Edward Taiwo (Teams)	Tabitha Ventures	309-692-1473	<a href="mailto:edward@tabithainc.com">edward@tabithainc.com</a>
Jeff Stiel	Ficek Electric	815-223-2775	<a href="mailto:jstiel@ficekelectric.com">jstiel@ficekelectric.com</a>
Ben Adair	S&S Builders	309-692-0828	<a href="mailto:badair@sns-co.com">badair@sns-co.com</a>
	<b>CM @ Risk has not heard back from this phone number</b>	309-208-8064	
Dustin Wilgus	<b>CM @ Risk could not find contact info</b>		

Builders...Concept to Completion.

**SECTION 002000 – INFORMATION AVAILABLE TO BIDDERS**

- A. Information listed below is not part of the Contract Documents and does not relieve Bidders from doing investigative work to determine the accuracy of the information provided.
1. Attachment A – Alternate #2 – North-East Parking Lot
  2. Attachment B – Sequencing of Site
  3. [Attachment C](#) – Phase B Demo
  4. [Attachment D](#) – Phase B Construction Site Logistics Plan
  5. [Attachment E](#) – Phases C & D Fencing
  6. [Attachment F](#) – Phases B, C, & D Demo Plan
  7. [Attachment G](#) – Phase B, C, & D Asphalt Patching
  8. Master Schedule – (Issued with addenda)
- B. Information listed below will be part of the Contract Documents.
1. 002100 Buy America
  2. 002200 Disadvantaged Business Enterprise Participation
  3. 002213 Supplementary Instructions to Bidders
  4. 002300 State of Illinois Sexual Harassment Training
  5. 002400 Federal & State Clauses
  6. 012300 Alternates

END OF SECTION 002000

**SECTION 002100 – BUY AMERICA**

**Buy America**

The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, and microcomputer equipment and software. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

END OF SECTION 00 21 00

**SECTION 002200 – DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION**

**Disadvantaged Business Enterprise (DBE) Participation**

1. This contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, *Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs*. The national goal for participation of Disadvantaged Business Enterprises (DBE) is 12%. The agency's overall goal for DBE participation is 12%. A separate contract goal for DBE participation has not been established for this procurement.
2. The contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contract. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the GPMTD deems appropriate. Each subcontract the contractor signs with a subcontractor must include the assurance in this paragraph (see 49 CFR 26.13(b)).
3. Bidders/Proposers are required to document sufficient DBE participation to meet these goals or, alternatively, document adequate good faith efforts to do so, as provided for in 49 CFR 26.53. Award of this contract is conditioned on submission of the following concurrent with and accompanying an initial bid:
  - a. The names and addresses of DBE firms that will participate in this contract;
  - b. A description of the work each DBE will perform;
  - c. The dollar amount of the participation of each DBE firm participating;
  - d. Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal;
  - e. Written confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment; and
  - f. If the contract goal is not met, evidence of good faith efforts to do so.

Proposers must present the information required above as a matter of responsiveness with initial bids (see 49 CFR 26.53(3)).

The successful bidder/offeror will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.
4. The contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor's receipt of payment for that work from the GPMTD. In addition, is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to this contract is satisfactorily completed.
5. The contractor must promptly notify the GPMTD, whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work.

Peoria – CityLink Bus Garage  
New Maintenance  
Facility & Renovation

The contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the GPMTD.

END OF SECTION 00 22 00

**SECTION 002300 – STATE OF ILLINOIS MANDATORY SEXUAL HARASSMENT TRAINING**

**State of Illinois Mandatory Sexual Harassment Training**

Every employer in the State of Illinois is required to provide employees with sexual harassment prevention training that complies with section 2-109 of the Illinois Human Rights Act (“IHRA”).

[www.Illinois.gov/DHR/Training](http://www.Illinois.gov/DHR/Training)

END OF SECTION 00 23 00

## STATE OF ILLINOIS AND FEDERAL THIRD-PARTY CLAUSES

### 1 Financial Assistance

This contract is subject to financial assistance contracts between the GPMTD and the United States Department of Transportation.

### 2 Interest of Members of in Congress

No member of or delegate to the Illinois General Assembly shall be admitted to any share or part of this contract or to any benefit arising therefrom.

### 3 Prohibited Interests

No member, or officer, or employee of the GPMTD or a local public body with financial interest or control in this contract during his tenure or for one year thereafter shall have any interest, direct or indirect, in this contract or the proceeds thereof.

### 4 Contract Changes

Any proposed change in this contract shall be submitted to the GPMTD for its prior written approval.

### 5 Subcontracts

The contractor shall not enter into any sub-contracts or agreements, or start any work by the work forces of the contractor or use any materials from the stores, of the contractor, with respect to this contract, without the prior concurrence of the Illinois Department of Transportation. All such subcontracts, agreements, and force work and materials shall be handled as prescribed for third-party contracts, agreements and force-account work by the IDOT manual for Public Transportation Capital Improvement Grants. All request for concurrence shall be submitted to the GPMTD for approval prior to submittal to IDOT.

### 6 Vendor Registration with Illinois Department of Human Rights

Vendor must provide proof of Registration with the Illinois Department of Human Rights.

### 7 Assignment

Assignment of any portion of the work by Subcontract must be approved in advance by the GPMTD.

### 8 Retention of Records

The contractor shall maintain records to show actual time devoted and cost incurred for a minimum of three (3) years after the completion of the contract.

### 9 Ownership of Records

The GPMTD shall retain ownership of all plans, specifications, and related documents.

### 10 Audit and Inspection of Records

The contractor shall permit the authorized representatives to the GPMTD and the State of Illinois to inspect and audit all data and records of the contractor relating to his performance under the contract.

### 11 Government (IL) Inspection

Representatives of the State of Illinois shall have the right to inspect all project works. The County of Peoria shall have the right to inspect the materials before accepting them. Acceptance of delivery of the aforementioned items shall not release the bidder from liability for faulty workmanship or materials even after final payment has been made for the services. The County of Peoria reserves the right and shall be at liberty to inspect all materials and workmanship at any time during the construction process, and shall have the right to reject all materials and workmanship which do not conform with the specifications; provided, however, that the County of Peoria is not required to make such inspection and no inspection, so made shall relieve the bidder from any obligation to furnish materials and workmanship strictly in accordance with the specifications.

### 12 Prime Contractor Participation

When appropriate, normally construction and service-related contracts, the selected Contractor will be designated the prime contractor and shall normally perform, with his own staff, work equivalent to at least fifty percent (50%) of the total amount of work for the Project. Only non-equipment and materials pay items of a contract will be used in computing the total amount of work conducted by the prime contractor at the work site. The participation percentage of a prime contractor is normally negotiable until finalized in an awarded contract.

### 13 Warranty of Construction

A warranty of construction will normally be provided for construction projects. Construction warranties will normally be for a minimum period of one (1) calendar year, unless otherwise noted in the contract award, from the date of each Project completion, as evidenced by the date of final acceptance of the work. At a minimum, the Contractor warrants that work performed under any contract conforms to the contract requirements and is free of any defect of equipment, material, or workmanship performed by the Contractor or any of its subcontractors or suppliers. The Buyers shall be entitled to all warranties as provided by law.

Under this warranty condition, the Contractor shall remedy at its own expense any such failure to conform, or any such defect. Nothing in the above intends or implies that this warranty provision shall apply to work which has been abused or neglected by the Buyer.

The Contractor shall not limit or exclude any implied warranties, and any attempt to do so shall render a contract voidable at the option of the Buyer. The Contractor warrants that the goods and equipment furnished will conform to the specifications, drawings, plans, descriptions or requirements noted in the solicitation or submittal packages, and any subsequent contract or agreement, as amended.

The Contractor warrants that any construction services, work, or materials purchased by the Buyer will conform to the standards promulgated by the U.S. Department of Labor, under the Occupational Safety and Health Act (OSHA) of 1970.

Construction warranties may be covered in further detail by the Construction Specifications of a given solicitation package.

#### 14 No Obligation by the Federal Government

1. The Purchaser and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the Purchaser, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.
2. The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

#### 15 Program Fraud and False or Fraudulent Statements or Related Acts

1. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.
2. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.
3. The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

#### 16 Access to Records and Reports

The following access to records requirements apply to this Contract:

1. Where the Purchaser is not a State but a local government and is the FTA Recipient or a sub-grantee of the FTA Recipient in accordance with 49 C. F. R. 18.36(i), the Contractor agrees to provide the Purchaser, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 C. F. R. 633.17 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311.
2. Where the Purchaser is a State and is the FTA Recipient or a sub-grantee of the FTA Recipient in accordance with 49 C.F.R. 633.17, Contractor agrees to provide the Purchaser, the FTA Administrator or his authorized representatives, including any PMO Contractor, access to the Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311.

By definition, a major capital project excludes contracts of less than the simplified acquisition threshold currently set at \$100,000.

3. Where the Purchaser enters into a negotiated contract for other than a small purchase or under the simplified acquisition threshold and is an institution of higher education, a hospital or other non-profit organization and is the FTA Recipient or a sub-grantee of the FTA Recipient in accordance with 49 C.F.R. 19.48, Contractor agrees to provide the Purchaser, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions.
4. Where any Purchaser which is the FTA Recipient or a sub-grantee of the FTA Recipient in accordance with 49 U.S.C. 5325(a) enters into a contract for a capital project or improvement (defined at 49 U.S.C. 5302(a)1) through other than competitive bidding, the Contractor shall make available records related to the contract to the Purchaser, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.
5. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
6. The Contractor agrees to maintain all books, records, accounts and reports required under this contract for a period of not less than three years after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case Contractor agrees to maintain same until the Purchaser, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. Reference 49 CFR 18.39(i)(11).
7. FTA does not require the inclusion of these requirements in subcontracts.

### 17 Changes to Federal Requirements

Federal Changes - Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the [Master Agreement](#) between Purchaser and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

### 18 Termination Provisions

1. **Termination for Convenience (General Provision)** The GPMTD may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the Government's best interest. The Contractor shall be paid its costs on work performed up to the time of termination. GPMTD will not be responsible for lost profits or contract closeout cost, if this contract is terminated for convenience. The Contractor shall promptly submit its termination claim to GPMTD to be paid the Contractor. If the Contractor has any property in its possession belonging to the GPMTD, the Contractor will account for the same, and dispose of it in the manner the GPMTD directs.
2. **Termination for Default [Breach or Cause] (General Provision)** If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or, if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the GPMTD may terminate this contract for default. Termination shall be affected by serving a notice of termination on the contractor setting forth the manner in which the Contractor is in default. The contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract.

If it is later determined by the GPMTD that the Contractor had an excusable reason for not performing,

such as a strike, fire, or flood, events which are not the fault of or are beyond the control of the Contractor, the GPMTD, after setting up a new delivery of performance schedule, may allow the Contractor to continue work, or treat the termination as a termination for convenience.

3. **Opportunity to Cure (General Provision)** The GPMTD in its sole discretion may, in the case of a termination for breach or default, allow the Contractor 10 business days in which to cure the defect. In such case, the notice of termination will state the time period in which cure is permitted and other appropriate conditions.

If Contractor fails to remedy to GPMTD's satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within ten (10) days after receipt by Contractor of written notice from GPMTD setting forth the nature of said breach or default, GPMTD shall have the right to terminate the Contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude GPMTD from also pursuing all available remedies against Contractor and its sureties for said breach or default.

4. **Waiver of Remedies for any Breach** In the event that GPMTD elects to waive its remedies for any breach by Contractor of any covenant, term or condition of this Contract, such waiver by GPMTD shall not limit GPMTD's remedies for any succeeding breach of that or of any other term, covenant, or condition of this Contract.

5. **Termination for Default (Construction)** If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract or any extension or fails to complete the work within this time, or if the Contractor fails to comply with any other provisions of this contract, the GPMTD may terminate this contract for default. The GPMTD shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. In this event, the Recipient may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Recipient resulting from the Contractor's refusal or failure to complete the work within specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Recipient in completing the work.

The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause if-

- A. the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include: acts of God, acts of the Recipient, acts of another Contractor in the performance of a contract with the Recipient, epidemics, quarantine restrictions, strikes, freight embargoes; and
- B. the contractor, within [10] days from the beginning of any delay, notifies the GPMTD in writing of the causes of delay. If in the judgment of the GPMTD, the delay is excusable, the time for completing the work shall be extended. The judgment of the GPMTD shall be final and conclusive on the parties, but subject to appeal under the Disputes clauses.

If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Recipient.

## 19 Civil Rights Requirements

The following requirements apply to the underlying contract:

1. **Nondiscrimination** - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees

to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

2. *Equal Employment Opportunity* - The following equal employment opportunity requirements apply to the underlying contract:
  - a. *Race, Color, Creed, National Origin, Sex* - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
  - b. *Age* - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § § 623 and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
  - c. *Disabilities* - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.
3. The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary, to identify the affected parties.

## 20 DOL EEO (Construction)

Equal Employment Opportunity Requirements for Construction Activities. Comply, when undertaking "construction" as recognized by the U.S. Department of Labor (U.S. DOL), with:

- (a) U.S. DOL regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. chapter 60, and
- (b) Executive Order No. 11246, "Equal Employment Opportunity in Federal Employment," September 24, 1965, 42 U.S.C. § 2000e note (30 Fed. Reg. 12319, 12935), as amended by any later Executive Order that amends or supersedes it, referenced in 42 U.S.C. § 2000e note.

## 21 Disadvantaged Business Enterprise (DBE) Participation

1. This contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, *Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs*. The national goal for participation of Disadvantaged Business Enterprises (DBE)

is 9%. The agency's overall goal for DBE participation is 9%. A separate contract goal for DBE participation has not been established for this procurement.

2. The contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contract. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the GPMTD deems appropriate. Each subcontract the contractor signs with a subcontractor must include the assurance in this paragraph (see 49 CFR 26.13(b)).
3. Bidders/Proposers are required to document sufficient DBE participation to meet these goals or, alternatively, document adequate good faith efforts to do so, as provided for in 49 CFR 26.53. Award of this contract is conditioned on submission of the following concurrent with and accompanying an initial bid:
  - a. The names and addresses of DBE firms that will participate in this contract;
  - b. A description of the work each DBE will perform;
  - c. The dollar amount of the participation of each DBE firm participating;
  - d. Written documentation of the bidder/offeree's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal;
  - e. Written confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment; and
  - f. If the contract goal is not met, evidence of good faith efforts to do so.Proposers must present the information required above as a matter of responsiveness with initial bids (see 49 CFR 26.53(3)).

The successful bidder/offeree will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.

4. The contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor's receipt of payment for that work from the GPMTD. In addition, is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to this contract is satisfactorily completed.
5. The contractor must promptly notify the GPMTD, whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the GPMTD.

## 22 Incorporation of FTA Terms

Incorporation of Federal Transit Administration (FTA) Terms - The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in [FTA Circular 4220.1E](#) are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any (name of grantee) requests which would cause (name of grantee) to be in violation of the FTA terms and conditions.

### 23 Suspension and Debarment

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the contractor is required to verify that none of the contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

### 24 Buy America

For contractors who apply for a bid for an award of \$150,000 or more. The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, and microcomputer equipment and software. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

### 25 Disputes, Breaches, Defaults, or Other Litigation

For contractors who apply for a bid for an award of \$250,000 or more. Disputes arising in the performance of this Contract which are not resolved by agreement of the parties shall be decided in writing by the authorized representative of GPMTD's General Manager. This decision shall be final and conclusive unless within five (5) days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the General Manager. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the General Manager shall be binding upon the Contractor and the Contractor shall abide by the decision.

Performance During Dispute - Unless otherwise directed by GPMTD, Contractor shall continue performance under this Contract while matters in dispute are being resolved.

Claims for Damages - Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefor shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

Remedies - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the GPMTD and the Contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which the GPMTD is located.

Rights and Remedies - The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights

and remedies otherwise imposed or available by law. No action or failure to act by the GPMTD or the Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

#### 26 Disclosure of Lobbying Activities

Byrd Anti-Lobbying Amendment, 31 U.S.C. 1352, as amended by the Lobbying Disclosure Act of 1995, P.L. 104-65 [to be codified at 2 U.S.C. § 1601, et seq.] - Contractors who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

#### 27 Clean Air

For contractors who apply for a bid for an award of \$150,000 or more. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. The Contractor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

The Contractor also agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FTA.

#### 28 Clean Water

For contractors who apply for a bid for an award of \$150,000 or more. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

The Contractor also agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance provided by FTA.

#### 29 Cargo Preference

Cargo Preference - Use of United States-Flag Vessels - The contractor agrees: a. to use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels; b. to furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of leading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the contractor in the case of a

subcontractor's bill-of-lading.) c. to include these requirements in all subcontracts issued pursuant to this contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

### 30 Fly America

The Contractor agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and sub-recipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

### 31 Davis-Bacon and Copeland Anti-Kickback Acts

(1) **Minimum wages** - (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

1. Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and

3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and
4. With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(v)(A) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

1. The work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is utilized in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the

contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination with 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(v) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(2) **Withholding** - The Greater Peoria Mass Transit District shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the [ *insert name of grantee* ] may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) **Payrolls and basic records** - (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the GPMTD for transmission to the Federal Transit Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents

(Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

1. That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete;
2. (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
3. (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Federal Transit Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) **Apprentices and trainees** - (i) *Apprentices* - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program.

If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) *Trainees* - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) *Equal employment opportunity* - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) **Compliance with Copeland Act requirements** - The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) **Subcontracts** - The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) **Contract termination: debarment** - A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) **Compliance with Davis-Bacon and Related Act requirements** - All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) **Disputes concerning labor standards** - Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its

subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) **Certification of eligibility** - (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

### 32 Contract work Hours and Safety Standards

For contractors who apply for a bid for an award of \$100,000 or more. The records to be maintained under this clause shall be made available by the Contractor or Sub-contractor for inspection, copying, or transcription by authorized representatives of the FTA, US Department of Transportation, or the Department of Labor, and the Contractor or Sub-contractor will permit such representatives to interview employees during working hours on the job.

1. **Overtime requirements** - No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages** - In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.
3. **Withholding for unpaid wages and liquidated damages** - The (write in the name of the grantee) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.
4. **Subcontracts** - The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

### 33 Performance and Payment Bonds (Construction)

The contractor shall furnish a performance bond in an amount equal to 100% of his or her contracted price.

The Contractor shall be required to obtain performance and payment bonds as follows:

a) Performance bonds

The penal amount of performance bonds shall be 100 percent (100%) of the original contract price. The GPMTD may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The GPMTD may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

b) Payment bonds

The penal amount of the payment bonds shall equal Fifty percent (50%) of the contract price if the contract price is not more than \$1 million.

### 33.1 Bid Bond Requirements (Construction)

The contractor shall furnish a performance bond in an amount equal to Five percent (5%) of his or her contract price.

a) Bid Security

A Bid Bond must be issued by a fully qualified surety company acceptable to the GPMTD and listed as a company currently authorized under 31 CFR, Part 223 as possessing a Certificate of Authority as described thereunder.

b) Rights Reserved

In submitting this Bid, it is understood and agreed by the bidder that the right is reserved by GPMTD to reject any and all bids, or part of any bid, and it is agreed that the Bid may not be withdrawn for a period of [ninety (90)] days subsequent to the opening of bids, without the written consent of GPMTD. It is also understood and agreed that if the undersigned bidder should withdraw any part or all of his bid within [ninety (90)] days after the bid opening without the written consent of GPMTD, shall refuse or be unable to enter into this Contract, as provided above, or refuse or be unable to furnish adequate and acceptable Performance Bonds and Labor and Material Payments Bonds, as provided above, or refuse or be unable to furnish adequate and acceptable insurance, as provided above, he shall forfeit his bid security to the extent of GPMTD damages occasioned by such withdrawal, or refusal, or inability to enter into an agreement, or provide adequate security therefor.

It is further understood and agreed that to the extent the defaulting bidder's Bid Bond, Certified Check, Cashier's Check, Treasurer's Check, and/or Official Bank Check (excluding any income generated thereby which has been retained by GPMTD as provided in the Instructions to Bidders shall prove inadequate to fully recompense GPMTD for the damages occasioned by default, then the undersigned bidder agrees to indemnify GPMTD and pay over to GPMTD the difference between the bid security and GPMTD's total damages, so as to make GPMTD whole.

The undersigned understands that any material alteration of any of the above or any of the material contained on this form, other than that requested, will render the bid unresponsive.

### 34 Seismic Safety Requirements

The Contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The Contractor also agrees to ensure that all work performed under this contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

### 35 Energy Conservation

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

### 36 Recycled Products

Recovered Materials - The contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

### 37 Access Requirements for Persons with Disabilities

The Recipient agrees to comply with the provisions of 49 U.S.C. § 5301(d), which sets forth the Federal policy that elderly persons and persons with disabilities have the same right as other persons to use transit service and facilities, and that special efforts shall be made in planning and designing those services and facilities to implement transportation accessibility rights for elderly persons and persons with disabilities. The Recipient also agrees to comply with all applicable requirements of the following Federal laws and any subsequent amendments thereto: section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicap; the Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. §§ 12101 et seq., which requires accessible facilities and services to be made available to persons with disabilities; and the Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 et seq., which requires that buildings and public accommodations be accessible to persons with disabilities.

**Buy America**

***Certificate of Compliance with 49 U.S.C. 5323(j)(1)***

The offeror hereby certifies that it will meet the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 CFR Part 661.5.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Company Name: \_\_\_\_\_

Title: \_\_\_\_\_

\_\_\_\_\_

***Certificate of Non-Compliance with 49 U.S.C. 5323(j)(1)***

The offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j)(1) and 49 C.F.R. 661.5, but it may qualify for an exception pursuant to 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 C.F.R. 661.7.

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Company Name: \_\_\_\_\_

Title: \_\_\_\_\_

**Compliance with Federal Lobbying Regulations**

The undersigned certifies to the best of his/her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

By: \_\_\_\_\_  
Official

\_\_\_\_ Signature of Company  
Date

\_\_\_\_\_  
Official's Title

**Certification Regarding Debarment and Suspension**

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the contractor is required to verify that none of the contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the GPMTD. If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the GPMTD, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

Authorized Official: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

---

Where the Contractor is unable to certify to any of the statements in this certification, such Contractor shall attach an explanation to this proposal.

The Contractor, certifies or affirms the truthfulness and accuracy of the contents of the statement submitted on or with this certification and understands that the provisions of 31 U.S.C. Sections 3801 ET Seq. are applicable thereto.

Authorized Official: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

---

**Affidavit of Non-Collusion**

I hereby swear (or affirm) under the penalty for perjury:

1. That I am the proposer (if the proposer is an individual), a partner in the proposal (if the proposer is a partnership), or an officer or employee of the proposing corporation having authority to sign on its behalf (if the proposer is a corporation);
2. That the attached proposal has been arrived at by the proposer independently and have been submitted without collusion and without any agreement, understanding, or planned common course of action with any other vendor or materials, supplies, equipment, or service described in the Request for Proposals, designed to limit independent proposals or competition;
3. That the contents of this bid proposal has not been communicated by the proposer or its employees or agents to any person not an employee or agent of the proposer or its surety on any bond furnished with the proposal, and will not be communicated to any such person prior to the official opening of the proposal; and
4. That I have fully informed myself regarding the accuracy of the statements made in the affidavit.

Signed: \_\_\_\_\_

Company Name: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

Notary Public: \_\_\_\_\_

My Commission expires \_\_\_\_\_, 20\_\_\_\_\_

Proposer's Federal Employer Identification Number: \_\_\_\_\_  
(Number used on Employer's Quarterly Federal Tax Return)

### **Indemnity and Insurance Requirements**

1. These are the Indemnity and Insurance Requirements for Contractors providing services or supplies to Greater Peoria Mass Transit District (GPMTD). By agreeing to perform the work or submitting a proposal, you verify that you comply with and agree to be bound by these requirements. If any additional Contract documents are executed, the actual Indemnity language and Insurance Requirements may include additional provisions as deemed appropriate by GPMTD.
2. You should check with your Insurance advisors to verify compliance and determine if additional coverage or limits may be needed to adequately insure your obligations under this agreement. These are the minimum required and do not in any way represent or imply that such coverage is sufficient to adequately cover the Contractor's liability under this agreement. The full coverage and limits afforded under Contractor's policies of Insurance shall be available to GPMTD and these Insurance Requirements shall not in any way act to reduce coverage that is broader or includes higher limits than those required. The Insurance obligations under this agreement shall be: 1—all the Insurance coverage and limits carried by or available to the Contractor; or 2—the minimum Insurance requirements shown in this agreement, whichever is greater. Any insurance proceeds in excess of the specified minimum limits and coverage required, which are applicable to a given loss, shall be available to GPMTD.
3. Contractor shall furnish the GPMTD with original Certificates of Insurance including all required amendatory endorsements (or copies of the applicable policy language effecting coverage required by this clause) and a copy of the Declarations and Endorsement Page of the CGL policy listing all policy endorsements to GPMTD before work begins. GPMTD reserves the right to require full-certified copies of all Insurance coverage and endorsements.

#### **I. INDEMNIFICATION**

To the fullest extent permitted by law, Contractor agrees to indemnify, and hold harmless, and upon request, defend GPMTD, its officers, directors, Board Members, employees, agents, representatives, volunteers, subsidiaries, successors, and assigns ("Indemnitees"), from any claim, liability, damage, expense, suit or demand (including, without limitation, reasonable attorneys' fees and court costs) for any losses, damages, injuries, or death to any persons including Contractor's employees or any Subcontractor's employees, or for damage or loss to any third-party property, arising out of or in any manner related to, based upon, or in connection with any operations, performance, breach, course or scope of Work, act, omissions, or presence upon, use, or other encountering of any property, facilities, personnel, vehicles, equipment, or operation of GPMTD by or involving GPMTD, Contractor or any of their employees, agents, representatives, facilities, vehicles, materials, equipment, or Subcontractors (regardless of tier) or anyone directly or indirectly employed by any of them, in any connection with the Work performed by or on behalf of Contractor, regardless of whether the Contractor is a party to any lawsuit. In that regard, this obligation to indemnify includes, without limitation, claims against GPMTD for GPMTD's own negligence or fault.

#### **II. INSURANCE**

All insurance required except for worker's compensation shall be endorsed to add Greater Peoria Mass Transit District, its officials, Board members, employees, agents and volunteers to be added to all liabilities policies as additional insureds. The contractor's insurer will provide at least 30 days written notice of cancellation.

I have read and understand the above requirements and agree to be bound by them for any work performed for the GPMTD.

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed name: \_\_\_\_\_

**DBE Good Faith Effort**  
***(For information only – not to be returned)***

1. The GPMTD has established a twelve percent (12.0%) goal for Disadvantaged Business Enterprise (DBE) participation for this contract. Therefore, a proposer must, in order to be responsible and responsive, make a good-faith effort to meet the goal. The proposer can meet this requirement in either of two (2) ways. First, the proposer can meet or exceed the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if the proposer doesn't meet the goal, the proposer can document its good-faith efforts to meet the goal. This means that the proposer must show that it took all necessary and reasonable steps to achieve the DBE goal, or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.
2. The GPMTD will use the good-faith efforts mechanism as required by 49 CRF part 26. It is up to the GPMTD to make a fair and reasonable judgment whether a proposer that did not meet the goal made adequate good-faith efforts. The GPMTD will consider the quality, quantity, and intensity of the different kinds of efforts that the proposer made. The efforts employed by the proposer should be those that one could reasonably expect a proposer to take, if the proposer were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere pro forma efforts are not good-faith efforts to meet the DBE contract requirements. As emphasized by the Department of Transportation, GPMTD's determination concerning the sufficiency of the firm's good-faith efforts is a judgment call; meeting quantitative formulas is not required.
3. The GPMTD will not require that a proposer meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the proposer shows that an adequate good-faith was made. The rule specifically prohibits the GPMTD from ignoring bona fide good-faith efforts.
4. The following is a list of types of actions that the GPMTD will consider as part of the proposer's good-faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.
  - a. Soliciting through all reasonable and available means (e.g. attendance at pre-proposal meetings, advertising, and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The proposer must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The proposer must determine with certainty whether or not a DBE is certified.
  - b. The DBEs are interested by taking appropriate steps to follow up initial solicitations.
  - c. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
  - d. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

**Good-Faith Effort (Continued)**

- e. Negotiating in good-faith with interested DBEs. It is the proposer's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

A proposer using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities, as well as contract goals, into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a proposer's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the proposer of the responsibility to make good-faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs, if the price difference is excessive or unreasonable.

- f. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations, and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of proposals from DBEs in the Contractor's efforts to meet the project goal.
- g. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance, as required by the recipient or contractor.
- h. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- i. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and Local minority/women business assistance offices; and other organizations, as allowed on a case-by-case basis, to provide assistance in the recruitment and placement of DBEs.

**DBE Letter of Intent**

To: \_\_\_\_\_  
(Name of Proposer)

The undersigned intends to perform work in connection with the above project as a DBE (circle one):

Individual \_\_\_\_\_ Corporation \_\_\_\_\_ Partnership \_\_\_\_\_ Joint Venture \_\_\_\_\_

The Disadvantaged Business Enterprise status of the undersigned is confirmed:

1. On the reference list of Disadvantaged Business Enterprises dated \_\_\_\_\_; or
2. On the attached Disadvantaged Business Enterprise Identification Statement.

The undersigned is prepared to perform the following work in connection with the above project (Specify in detail particular work items or parts thereof to be performed):

---

---

---

The DBE contractor will perform this work at the following price: \_\_\_\_\_

---

You have projected the following commencement date for such work, and the undersigned is projecting completion of such work as follows:

Items	Projected Commencement Date	Projected Completion Date
_____	_____	_____
_____	_____	_____

The above work will not be sublet to a non-Disadvantaged Business Enterprise at any tier. The undersigned will enter into a formal agreement for the above work with you, conditioned upon your execution of a contract with GPMTD.

Name of Disadvantaged Business Enterprise: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Peoria – CityLink Bus Garage  
New Maintenance  
Facility & Renovation

Date: \_\_\_\_\_

**DBE Affidavit**

State of \_\_\_\_\_

Date: \_\_\_\_\_

County: \_\_\_\_\_

The undersigned, being duly sworn, deposes and says that he/she is the (sole owner, partner, president, treasurer, or other duly authorized official of a corporation) of

\_\_\_\_\_  
(Name of Official)

\_\_\_\_\_  
(Name of DBE)

and certifies that since the date of its certification through the IL UCP, the certification has not been revoked nor has it expired nor has there been any change in the minority status of

\_\_\_\_\_  
(Name of DBE)

\_\_\_\_\_  
(Signature and Title of Person Making Affidavit)

Sworn to before me this \_\_\_\_\_ day \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
(Notary Public)

NOTE: The proposer must attach the DBE's most recent certification letter or document to this affidavit.

**DBE Unavailable Certification**

I, \_\_\_\_\_, the \_\_\_\_\_  
(Name) (Title)

of \_\_\_\_\_ certify that on \_\_\_\_\_  
(Proposer/Prime Contractor) (Date)

I contacted the following Disadvantaged Business Enterprise to obtain a proposal to perform the following work item(s):

<b><u>DBE Organization</u></b>	<b><u>Work Items Sought</u></b>	<b><u>Form of Proposal Sought (i.e., materials, materials &amp; labor, labor only, etc.)</u></b>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

To the best of my knowledge and belief, said Disadvantaged Business Enterprise was unavailable for work on this project, or unable to prepare a proposal, for the following reason(s):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_ was offered an opportunity on \_\_\_\_\_  
(Name of Disadvantaged Business Enterprise) (Date)

by \_\_\_\_\_ to submit a proposal to perform the above identified work.  
(Proposer)

The above statement is a true and accurate account of why I did not submit a proposal on this project.

Signed: \_\_\_\_\_  
(Disadvantaged Business Enterprise Official)

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Certificate of Compliance with Prevailing Wages**

The Vendor shall agree to comply with the GPMTD Prevailing Wage requirements by signing and dating the following:

**PREVAILING WAGES**

The State of Illinois has enacted the "Prevailing Wage Act" 820 ILCS 130 *et seq.*

To the extent and as required by the "Prevailing Wage Act", the general prevailing rate of wages in this locality for laborers, mechanics and the workers engaged in construction of public works coming under the jurisdiction of the GPMTD is hereby ascertained to be the same as the prevailing rate of wages for construction work in Peoria County area as determined by the Department of Labor of the State of Illinois as of July of the current year.

Nothing herein contained shall be construed to apply said general prevailing rate of wages as herein ascertained to any work or employment except public works construction and landscaping construction of the GPMTD to the extent required by the aforesaid Act.

The Contractor shall promptly submit certified payrolls as required by the Illinois Prevailing Wage Act. An electronic database is provided by the Department of Labor to submit Certified Payroll within a Certified Transcript of Payroll Portal created and managed by the Department of Labor.

By signature below, the Bidder/Proposer, \_\_\_\_\_, agrees to comply with Prevailing Wage Requirements.

\_\_\_\_\_  
Signature of Bidder's Authorized Official

\_\_\_\_\_  
Print - Name and Title of Bidder's Authorized Official

\_\_\_\_\_  
Date

**Prompt Payment Affidavit**

**Complete either (A) or (B), as applicable**

**(A)** The undersigned affirms, to the best of his/her knowledge and belief, that:

- (1) The undersigned understands and agrees that the Contractor is required to pay all Subcontractors for all work that any Subcontractor has satisfactorily completed no later than thirty (30) days after the Contractor has received payment from GPMTD for that work.
- (2) The undersigned understands and agrees that the Contractor is required to pay retainage amounts, if any, to a Subcontractor no later than thirty (30) days after the GPMTD has released retainage to the Contractor for that portion of the work.
- (3) The undersigned understands and agrees that any delay in or postponement of payment to any Subcontractor by the Contractor requires the Contractor to demonstrate good cause and to receive prior written approval by GPMTD's General Manager or his/her authorized representative.
- (4) The undersigned understands and agrees that the GPMTD will not pay the Contractor for Services performed or Deliverables submitted unless and until the Contractor certifies that the Subcontractors have been promptly paid for the work or services they have performed under all previous payment requests, as evidenced by the filing with the GPMTD the Contractor's sworn statement that the Contractor has complied with the prompt payment requirements.

The undersigned solemnly declares and affirms under penalty of perjury that the above and foregoing are true and correct, and that he/she is authorized on behalf of the Contractor to sign this affidavit.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Official's Name and Title

\_\_\_\_\_  
Date

---

**(B)** The undersigned solemnly declares and affirms under penalty of perjury that no Subcontractors will be used in the performance of the work or services and, as such, the statutory prompt payment requirements are inapplicable. The undersigned further declares that he/she is authorized on behalf of the Contractor to sign this affidavit.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Officials Name

\_\_\_\_\_  
Date

**SECTION 003100 – BID FORM**

**Bids Due:**        **January 20<sup>th</sup>, 2022 @ 2pm**

**Bid Opening:**   **Greater Peoria Mass Transit District – New Maintenance Facility & Renovation Phase B, C, D –  
Bid Package #2**

2105 NE Jefferson St, Peoria IL 61603

**Delivery:**        (1) hard copy of **BID FORM** in sealed envelope to Greater Peoria Mass Transit District  
Office (Mailed or Hand Delivered)

**Instructions:**   Sealed envelope shall have the name of project, name of company, workcategory  
number and definition of scope on outside of envelope.

**Deliver/Mailed Address:**        **Greater Peoria Mass Transit District  
Attn: Jamie Arbogast  
2105 NE Jefferson St  
Peoria, IL 61603**

**Contractor Information:**        **Name of Company:** \_\_\_\_\_

**License No.:** \_\_\_\_\_

**DUNN's #:** \_\_\_\_\_

**Point of Contact:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**LUMP SUM BID FOR: GREATER PEORIA MASS TRANSIT DISTRICT – NEW MAINTENANCE FACILITY &  
RENOVATION PHASE B, C, & D – STRUCTURAL STEEL – RE-BID**

1. The Undersigned, having received and examined the bidding documents titled, “**Greater Peoria Mass Transit District CityLink New Operations & Maintenance Facility**” and having visited the site and examined the conditions affecting the Work, we hereby propose and agree to furnish all labor, materials, equipment, appliances, and services, and to perform operations necessary to complete the Work as required by said Contract Documents, for the Work identified below.

**2. LUMP SUM BASE BID:**

Pursuant to notices given, the undersigned offers to furnish labor, equipment, and materials necessary to complete the construction work in accordance with contract documents prepared by Muller & Muller, Ltd as follows:

**Work Category (Number, Description):** \_\_\_\_\_

**Addenda/Clarifications Received:** \_\_\_\_\_

**Base Bid Amount:** \_\_\_\_\_

\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**3. LUMP SUM COMBINATION BID:**

Pursuant to notices given, the undersigned offers to furnish labor, equipment, and materials necessary to complete the construction work in accordance with contract documents prepared by Muller & Muller, Ltd as follows:

**Combination Work Categories (Number, Description):** \_\_\_\_\_

\_\_\_\_\_

**Addenda/Clarifications Received:** \_\_\_\_\_

**Combination Bid Amount:** \_\_\_\_\_

\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**4. Alternates:**

**Alternate #1:**

1. **Fuel Island – Remove and replace existing metal ceiling panel, downspouts, and light fixtures. Provide new prefinished metal ceiling panel, new LED fixtures (1), prefinished metal downspouts, and paint existing metal cladding on columns and**

fascia. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**B. Alternate #2:**

1. Clear & grub the North lot, located to the East of the current construction parking area. Cut down to the subgrade, and then install, grade, and compact the initial 6" aggregate bas. This is to be used as the temporary staging and construction parking area.
2. Include an allowance of \$2,000 within this alternate to maintain the path from this staging area to the jobsite.
3. Please see Attachment A, included in the bid documents for the area that this Alternate #2 applies to.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**C. Alternate #3:**

1. Transit Center hardware replacement remove and replace existing hardware with new hardware component required to coordinate keying system with facilities.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**D. Alternate #4:**

1. Vehicle lift – provide delete alternate for deletion of one in-ground scissor lift and one parallelogram lift, including associated control, power, underground plumbing and slab depression.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**E. Alternate #5:**

1. Bridge crane – provide delete alternate for deletion of on-bridge crane, including associated foundations.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**F. Alternate #6:**

1. Vinyl fencing – provide alternate for vinyl fencing with 6' tall galvanized steel chainlink fence with vinyl insert.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**G. Alternate #7:**

1. Steel Picket Fencing – Provide alternate for steel picket fence along Jefferson Street and Van

Buren Street only. The balance of the fence is to be 6' tall galvanized steel chain link fence.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$\_\_\_\_\_)

**H. Alternate #8:**

1. **Payment & Performance Bonds - Provide an add if payment and performance bonds are required.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$\_\_\_\_\_)

**I. Alternate #9:**

1. **Retaining wall – Provide delete alternate for approximately 80 feet of existing curved retaining wall at the Northwest corner of the site to remain. Only East/West retaining wall to be removed for construction of new building. Provide approximately 40 feet of new retaining wall that connects between west end of new building and existing curved retaining wall.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$\_\_\_\_\_)

**J. Alternate #10:**

1. **Not used.**

**K. Alternate #11:**

1. **North parking lot cameras – Provide delete alternate for (6) cameras and required utilities at new north parking lot.**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ DOLLARS (\$\_\_\_\_\_)

**5. Unit Cost:**

**Labor Rates:**

<u>Description</u>	<u>ST</u>	<u>OT</u>	<u>DT</u>
_____	\$ _____	\$ _____	\$ _____
_____	\$ _____	\$ _____	\$ _____
_____	\$ _____	\$ _____	\$ _____
_____	\$ _____	\$ _____	\$ _____

**Substitutions / Voluntary Alternates:**

The Undersigned agrees to furnish material in strict accordance with the Bidding Documents.

The Undersigned further proposes to substitute the following alternate materials, equipment or methods of construction for the indicated changes in contract amount in accordance with the Instructions to Bidders. Product data and description of proposed substitutions are attached.

<u>Description</u>	<u>Add</u>	<u>Deduct</u>
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____

5. The Undersigned agrees to furnish a listing of major subcontractors and manufacturers with their Bid. After submission of this list by the Bidder, and after approval by the Owner, Construction Manager, and Engineer, it shall not be changed unless written approval of change is authorized by the Owner, Construction Manager, and Engineer.
6. **Final Completion of Work:** If the Undersigned receives written notification of acceptance of this Proposal within sixty (60) days after the Bid Opening Date, the Undersigned agrees to execute a Contract for the Work described and complete the completion dates in the project schedule.
7. The surety company writing the bonds shall be subject to approval by the Construction Manager. If the Construction Manager does not approve the surety company, for good and sufficient reason, then the Subcontractor shall furnish bonds with another surety company acceptable to the Construction Manager.
8. The Undersigned understands and agrees to comply with and be bound by the Instructions to Bidders issued for this Work.
9. The Undersigned acknowledges the following:
  - a. Receipt of complete set of documents and understands the meaning of their content and shall willingly comply with the guidelines set forth in those documents.
  - b. **Receipt of Addenda numbers** \_\_\_\_\_.
  - c. Costs and premiums for Payment and Performance bond insurance, all permits and fees are included in the bid amount.
  - d. Bid shall remain in force for a period of **Ninety (90)** consecutive calendar days from the due date, and Bids may be accepted or rejected during this period. Bids not accepted within said

ninety (90) consecutive days shall be deemed rejected.

- e. Complete scope of work for the Work Category submitting bid for, including all labor, material, equipment, etc. required to perform the work as such.
- f. Special provisions as set forth in the scopes are included in the scope of work of the Bid.
- g. Coordination between your work and the work of other contractors, including review of other contractor's Work Scopes, Drawings, and Specifications.

**IDENTIFICATION OF BIDDER & SIGNATURE:**

**(Circle One)**                      **CORPORATION**                      **PARTNERSHIP**                      **INDIVIDUAL**

Name: \_\_\_\_\_

Signature (must be an officer other than Secretary): \_\_\_\_\_

Business Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

President: \_\_\_\_\_

Vice President: \_\_\_\_\_

SEAL:

**SECTION 008200 – SCHEDULE OF INSURANCE COVERAGES REQUIRED**

**PART 1 – SUBCONTRACT INSURANCE REQUIREMENTS**

<b>Standard Subcontract Insurance Requirements</b>	
<b>Coverage Type</b>	<b>Limits</b>
Workers' Compensation	Statutory Limits for each respective State
Employer's Liability	\$1,000,000 each accident \$1,000,000 policy limit \$1,000,000 each person
Auto Liability (Includes autos owned, hired, or non- owned)	\$1,000,000 combined single limit
General Liability	\$1,000,000 per occurrence \$2,000,000 Aggregate \$2,000,000 Completed Operations
Excess/Umbrella Liability	\$1,000,000 per occurrence \$1,000,000 aggregate

Liability limits can be satisfied with a combination of underlying and/or excess or umbrella coverage. Please note, the above limits are the minimum acceptable to River City Construction but may need to be changed depending upon the specific requirements of the project owner.

River City Construction, LLC, and others as required by the project owner, must be named as an additional insured under the liability coverage on a primary and non-contributory basis. Evidence of the above coverages must be supplied to River City Construction within 10 days of being issued a subcontract.

END OF SECTION 008200

SECTION 01 25 00.01

SUBSTITUTION REQUEST FORM

FACILITY/PROJECT: \_\_\_\_\_

TO: ARCHITECT/ENGINEER OF RECORD: \_\_\_\_\_

CC: OWNER'S REPRESENTATIVE: \_\_\_\_\_

DATE SUBMITTED: \_\_\_\_\_

GENERAL CONTRACTOR: \_\_\_\_\_

SUBMITTING CONTRACTOR: \_\_\_\_\_  
(if different from GC)

Address: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Referenced Specification Section: \_\_\_\_\_ Paragraph: \_\_\_\_\_

REQUESTED SUBSTITUTION:		In Lieu of Specified Manufacturer/Product:
Manufacturer Name		
Product/Model		
Manufacturer Address		
Contact Name		
Phone Number		

Reason for Substitution (select one of the following):

- ☐ The specified product or method of construction is no longer available.
- ☐ There is no condition under which the specified product or method of construction can be installed as shown on the Contract Documents.
- ☐ There is no condition under which the specified product or method of construction can be provided within the time limits of the Contract.
- ☐ Additional benefits (in cost, time, or performance) are available to the Owner with the requested substitute product.

Additional Explanation: \_\_\_\_\_

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Attach applicable supporting documentation including, but not limited to, the following (select all that are included with this request):

- ☐ Itemized Comparison of the requested substitution with product specified. REQUIRED
- ☐ Performance and Test Data, including performance against specified reference standards. REQUIRED
- ☐ Manufacturer's Qualifications: Evidence of manufacturer qualifications and reputation for prompt delivery and efficiency in servicing products. REQUIRED
- ☐ Previous Installations: Attach list of not less than 5 similar projects on which proposed substitution was used. List projects in the Chicago area. List name and address of project, date of installation, and name, address, and phone number of Architect. REQUIRED
- ☐ Color Chart, illustrating Manufacturer's full range. IF APPLICABLE
- ☐ Installation Instructions. IF APPLICABLE
- ☐ Maintenance Instructions. IF APPLICABLE
- ☐ Changes in Work: Attach data relating to changes required in other work to permit use of proposed substitution and changes required in construction schedule. IF APPLICABLE
- ☐ Cost Data: Attach accurate cost data on proposed substitution in comparison with product specified. IF APPLICABLE

In making this request for substitution, the Submitting Contractor and General Contractor represents that:

- a) Contractor has examined the Contract Documents and investigated the proposed product/system and has determined that the proposed substitution is appropriate for the use intended for this Project, and shall meet or exceed the quality level of the specified product/system.
- b) Contractor shall provide the same warranties for the substituted product/system as required for the product/system specified.
- c) Contractor shall coordinate installation of accepted substitution into Work, and make changes to other Work that may be required for the Work to be complete with no additional cost to the Owner.
- d) Contractor waives all claims for additional costs related to accepted substitutions that may subsequently become apparent.
- e) Cost data is complete and includes all related costs for this Project.

Submitting Company Name:\_\_\_\_\_

Authorized Signature:\_\_\_\_\_

Printed Name:\_\_\_\_\_ Date:\_\_\_\_\_

REVIEWED BY INSTALLER: (company name):\_\_\_\_\_

Signature:\_\_\_\_\_ Date:\_\_\_\_\_

REVIEWED BY MANUFACTURER: (company name):\_\_\_\_\_

Signature:\_\_\_\_\_ Date:\_\_\_\_\_

REVIEWED BY GENERAL CONTRACTOR: (company name):

Signature:\_\_\_\_\_ Date:\_\_\_\_\_

Requests that are not complete will be returned by the AOR/EOR for additional information.

Requests that do not meet Owner requirements for acceptable substitutions will be rejected.

AOR/EOR REVIEW: The submitted information has been reviewed by the Architect/Engineer of Record and found to be complete and meets the Owner requirements for acceptable substitution

Agreement By (Name): \_\_\_\_\_

AOR/EOR Firm Name: \_\_\_\_\_

Date: \_\_\_\_\_

OWNER REVIEW:

Substitution Accepted by Owner: \_\_\_\_\_ Date: \_\_\_\_\_

Submit substituted product for review

Substitution Rejected by Owner: \_\_\_\_\_ Date: \_\_\_\_\_

Submit specified product for review

END OF SECTION