AMENDMENT OF SOLICITATION / MODIFICATION OF CONTRACT

1. Contract Number	Page of Pages
	1 | 1

2. Amendment/Modification Number	3. Effective Date	4. Requisition/Purchase Request No.	5. Solicitation Caption
002	See Box 16C		**Emergency Communication Systems at the Mall Tunnel**

6. Issued by: Code	7. Administered by (If other than line 6)
District Department of Transportation Office of Contracting and Procurement 55 M Street, SE, 7th Floor Washington, DC 20003	

8. Name and Address of Contractor (No. street, city, county, state and zip code)		9A. Amendment of Solicitation No.
ALL PROSPECTIVE VENDORS	X	**DCKA-2014-B-0075**
		9B. Dated (See Item 11)
		10A. Modification of Contractor/Order No.
Code ____ Facility ____		10B. Dated (See Item 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers ☐ is extended ☒ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) BY separate letter or fax which includes a reference to the solicitation and amendment number. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such may be made by letter or fax, provided each letter or telegram makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (If Required):

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTORS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

	A. This change order is issued pursuant to (Specify Authority): The changes set forth in Item 14 are made in the contract/order no. in item 10A.
	B. The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data etc.) set forth in item 14, pursuant to the authority of 27 DCMR, Chapter 36, Section 3601.2.
	C. This supplemental agreement is entered into pursuant to authority of:
	D. Other (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not ☒ is required to sign this document and return 1 copies to the issuing office.

14. Description of Amendment/Modification (Organized by UCF Section headings, including solicitation/contract subject matter where feasible.)

Solicitation No.: **DCKA-2014-B-0075** is hereby amended as follows:

1. DDOT Critical Infrastructure Protection Design and Integration Drawings, pages 1-23 are hereby incorporated as a part of the solicitation.

15A. Name and Title of Signer (Type or print)		16A. Name of Contracting Officer Courtney Lattimore Contracting Officer	
15B. Name of Contractor (Signature)	15C. Date Signed	16B. District of Columbia (Signature of Contracting Officer)	16C. Date Signed 9/12/14

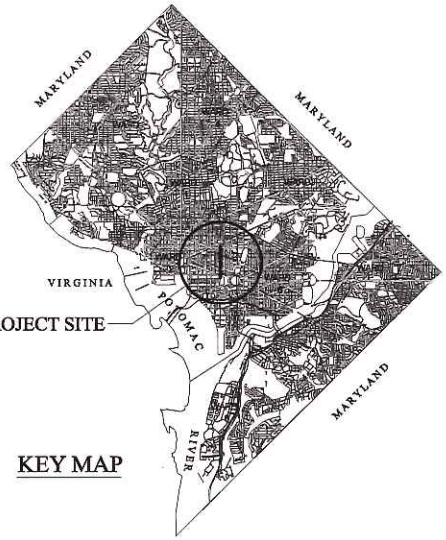
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2008-T-0085-VH	1	23

DISTRICT OF COLUMBIA

TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION
CRITICAL INFRASTRUCTURE PROTECTION
DESIGN AND INTEGRATION

3RD STREET TUNNEL

MALL TUNNEL
SOUTH PORTAL ENTRANCE



KEY MAP

AIR RIGHTS TUNNEL
NORTH PORTAL ENTRANCE

Edwards AND Kelcey

DISTRICT DEPARTMENT OF TRANSPORTATION
DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROTECTION MANAGEMENT ADMINISTRATION

RECOMMENDED FOR APPROVAL:

PROJECT MANAGER, ITS DIVISION /CHIEF, ITS DIVISION

APPROVED:

TRANSPORTATION OPERATIONS ADMINISTRATION

TRANSPORTATION POLICY AND PLANNING ADMINISTRATION

CHIEF ENGINEER, INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION

DATE:

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Tuesday, October 06, 2009 AT 10:32 AM #PLTDRVS$ #PENTBLS$

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP - 0000 (000)	2	23

INDEX

SHEET	TITLE
1	COVER SHEET
2	INDEX AND LEGEND
3	GENERAL AND CONSTRUCTION NOTES
4	ESTIMATE OF QUANTITIES
5	KEY PLAN MALL TUNNEL & AIR RIGHTS TUNNEL
6	PLAN SHEET 1 - MALL TUNNEL
7	PLAN SHEET 2 - MALL TUNNEL
8	PLAN SHEET 3 - MALL TUNNEL
9	PLAN SHEET 4 - MALL TUNNEL
10	PLAN SHEET 5 - AIR RIGHTS TUNNEL
11	PLAN SHEET 6 - AIR RIGHTS TUNNEL
12	TUNNEL SECTIONS
13	CAMERA SCHEDULE
14	3RD STREET TUNNEL CONTROL ROOM
15	AIR RIGHTS TUNNEL ELECTRICAL ROOM
16	TMC EQUIPMENT ROOM
17	SYSTEM ARCHITECTURE
18	TUNNEL ARCHITECTURE
19	CONDUIT DETAILS 1
20	CONDUIT DETAILS 2
21	CAMERA BOX DETAILS
22	CAMERA MOUNTING DETAILS
23	ELECTRICAL SCHEMATIC

LEGEND SYMBOLS AND ABBREVIATIONS

	FIXED CAMERA
	PTZ CAMERA
	PROPOSED CONDUIT
	PROPOSED JUNCTION BOX SURFACE MOUNT (NEMA 4X; IDENTIFIER JB#)
	PROPOSED SURFACE MOUNTED CAMERA BOX (NEMA 4X; IDENTIFIERS ML# AND AR#)
	PROPOSED FUSE
	PROPOSED CIRCUIT BREAKER
	PROPOSED TWO POLE CIRCUIT BREAKER
	PROPOSED ELECTRICAL SPLICE POINT
FOC	12 STRAND FIBER OPTIC CABLE - UNLESS OTHERWISE NOTED
GRS	GALVANIZED RIGID METAL CONDUIT
HYB	HYBRID CABLE (3- #12 AWG AND 1 FOC PIGTAIL)
FRE	PHENOLIC FIBERGLASS REINFORCED EPOXY CONDUIT
LTFMC	LIQUID TIGHT FLEXIBLE METALLIC CONDUIT
SCH	SCHEDULE
CB	CIRCUIT BREAKER
UPS	UNINTERRUPTIBLE POWER SUPPLY

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE

REVISIONS

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. SLB
DESIGNED BY TNW
CHECKED BY RLB
DRAWN BY KBM
PROJECT MGR. SAB

INDEX AND LEGEND

DIVISION CHIEF
DATE
FILE
SHEET 2 OF 23

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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP - 0000 (000)	5	23

GENERAL NOTES:

1. COMPLETE ALL WORK WITHIN THE EXISTING LEGAL RIGHT-OF-WAY OF DDOT. IN LOCATIONS WHERE THE PREFERRED (HARDWIRED) SOLUTION REQUIRES CIP INFRASTRUCTURE TO BE INSTALLED ON/IN STRUCTURES OR RIGHT-OF-WAY NOT OWNED BY DDOT, THE CONTRACTOR WILL COORDINATE WITH DDOT TO OBTAIN APPROPRIATE PERMISSION FROM THE RESPECTIVE OWNER(S). IF SUCH EFFORTS TO OBTAIN EASEMENTS ARE UNSUCCESSFUL OR IN ANY WAY ADVERSELY AFFECTS SCHEDULE OR BUDGET, THE CONTRACTOR IS REQUIRED TO OFFER ALTERNATIVE SOLUTIONS.
2. DO NOT INTERFERE WITH THE OPERATION OF ANY FIRE HYDRANT, FIRE CALL BOX, OR POLICE CALL BOX.
3. CONSTRUCT ALL WORK IN ACCORDANCE WITH SPECIFICATIONS, CURRENT NATIONAL AND LOCAL CODES HAVING JURISDICTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL COORDINATION NECESSARY IS PERFORMED TO IDENTIFY AND LOCATE UTILITIES WITHIN THE PROJECT LIMITS BEFORE BEGINNING WORK. PRIOR TO ANY EXCAVATION OR DEMOLITION WORK IN THE VICINITY OF UNDERGROUND UTILITIES, THE CONTRACTOR MUST CONTACT THE "MISS UTILITY SYSTEM" AND COMPLY WITH THE PROVISIONS OF ACT 187 (MISS UTILITY # 1-800-257-7777 IN D.C. AND 1-800-552-7001 OR 811 IN VA).
5. THE CONTRACTOR MUST ADEQUATELY SUPPORT AND BE RESPONSIBLE FOR ALL UTILITY LINES EXPOSED AS A RESULT OF CONTRACTOR CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO EXISTING INFRASTRUCTURE AND REPAIRS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.
6. ALL NEW UNDERGROUND CONDUIT MUST BE SLOPED TO DRAIN TO JUNCTION BOXES. IF THIS CONDITION CANNOT BE ACCOMPLISHED, THE CONDUIT MUST BE PROVIDED WITH "TEES" AT LOW POINTS OF CONDUIT RUNS.
7. TRENCH, LAY CONDUIT(S), AND BACKFILL ALL CONDUIT TRENCHES AT THE END OF THE DAY, SEED AND STABILIZE DISTURBED AREA IMMEDIATELY. DO NOT TRENCH MORE THAN THE LENGTH THAT CAN BE BACKFILLED AT THE END OF THE DAY.
8. FILTER ALL DEWATERING OF EXCAVATIONS. USE A SUITABLE FILTER AT THE END OF THE PUMP OUTLET.
9. PROVIDE GALVANIZED RIGID STEEL CONDUIT (GRS) FOR ALL RISERS UNLESS OTHERWISE INDICATED.
10. COMPLETE ALL WORK PERTAINING TO NEW AND EXISTING ELECTRICAL SERVICES IN ACCORDANCE WITH ELECTRIC UTILITY AND/OR NEC REQUIREMENTS.
11. ALL FIBER OPTIC SPLICES TO BE MADE IN EQUIPMENT OR SPLICE CABINETS, NO UNDERGROUND OR AERIAL SPLICES ARE PERMITTED.
12. ALL MATERIALS BETWEEN ELECTRIC UTILITY POLE AND SERVICE DISCONNECT ARE TO BE INSTALLED IN ACCORDANCE WITH ELECTRIC UTILITY DESIGN REQUIREMENTS. (PEPCO DESIGN MANUAL)
13. ANY CHANGE TO THE ROADWAY AND STRUCTURE CAUSED BY THE CONTRACTOR'S PERFORMANCE OF WORK SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
14. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.

GENERAL NOTES (CONTINUED)

15. THE FINAL LOCATIONS SHALL BE DETERMINED AT THE PROJECT SITE AND SHALL HAVE THE APPROVAL BY THE PROJECT ENGINEER.
16. ALL ELECTRICAL MATERIALS AND EQUIPMENT FOR WHICH THERE ARE ESTABLISHED UNDERWRITER'S LABORATORIES INC. (UL) STANDARDS SHALL BEAR THE "UL" LABEL.
17. CONDUITS SHALL CROSS EXPANSION JOINTS IN STRUCTURES IN A DIRECTION PARALLEL TO THE STRUCTURE MOVEMENT. EXPANSION FITTINGS SHALL BE PROVIDED AT ALL EXPANSION JOINTS.
18. THE CONTRACTOR SHALL LOCATE AND INSTALL JUNCTION BOXES AS REQUIRED TO PREVENT DAMAGE TO CABLE DURING INSTALLATION.
19. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT DETAILED DESIGN DRAWINGS, CONSTRUCTION METHODOLOGIES AND PRODUCT MANUFACTURER SPECIFICATIONS BEFORE INSTALLING ANY WORK AS A PART OF THIS CONTRACT.
20. CONTRACTOR SHALL COORDINATE CIP CONSTRUCTION WITH DDOT CURRENT CONSTRUCTION PROJECTS IN DESIGN TO AVOID SCHEDULING CONFLICTS AND EQUIPMENT RELOCATION.
21. ALL CIP ELECTRICAL EQUIPMENT SHALL BE POWERED FROM AN EXISTING DDOT SERVICE.
22. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS AND EQUIPMENT TO 1725 FENWICK STREET, NE. THE CONTRACTOR SHALL CONTACT MR. JAMES HENRY AT (202) 698-3677 72 HOURS IN ADVANCE TO ARRANGE FOR DELIVERY OF SAID MATERIALS AND EQUIPMENT.

CONSTRUCTION NOTES

1. CONTRACTOR WILL COORDINATE WITH DDOT'S IT DEPARTMENT FOR ALL WORK REGARDING NETWORK EQUIPMENT, REQUIREMENTS AND CONFIGURATION.
2. ALL CCTV HEAD END EQUIPMENT IN DDOT'S FACILITIES WILL BE INSTALLED IN SECURE NETWORK AND COMMUNICATIONS ROOMS.
3. CONTRACTOR SHALL USE ANY EXISTING CONDUIT/JUNCTION BOX INFRASTRUCTURE OWNED BY OR AVAILABLE TO DDOT BEFORE INSTALLING NEW HARDWARE.
4. CAMERA LOCATIONS INDICATED ON PLANS ARE APPROXIMATE. ALL CIP EQUIPMENT SHALL BE LOCATED ON DDOT PROPERTY. WHERE DESIRED CAMERA VIEWS ARE NOT OBTAINABLE FROM DDOT PROPERTY, ADDITIONAL CAMERAS SHALL BE INSTALLED TO ENSURE SURVEILLANCE COVERAGE.

CONSTRUCTION NOTES (CONTINUED)

5. CONTRACTOR WILL ENSURE PROPER LIGHTING FOR CAMERA VIEWS AT NIGHT FOR ALL OUTDOOR SURVEILLANCE CAMERAS.
6. ALL CAMERA VIEWS SHALL PROVIDE FOR INTENDED SECURITY WHILE PROTECTING THE PRIVACY OF NEARBY RESIDENTS AND BUSINESSES.
7. CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING ABOVE ROADWAY CEILING. CONTRACTOR IS RESPONSIBLE FOR WORKER AND PUBLIC SAFETY WHEN WORKING ABOVE TUNNEL ROADWAY CEILING.
8. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILE, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
9. ANY DEVIATIONS FROM DESIGN PLANS MUST HAVE DDOT APPROVAL PRIOR TO CONSTRUCTION.
10. CONTRACTOR SHALL COORDINATE WITH DDOT TO ACQUIRE SPARE UTP. ALL UTP USED FOR THE CIP SYSTEM SHALL BE DOCUMENTED IN AS-BUILT DRAWINGS.

ELECTRICAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE CODES AND REGULATIONS.
2. ALL CONDUITS, SLEEVES, FLOOR BOXES, CLOSED CABINETS, HANDHOLES, MANHOLES, ACCESS DOORS, AND PANELS SHALL BE PROVIDED BY THE CONTRACTOR.
3. ALL CONDUIT SLEEVES, RACKS, CABINETS, AND CABLE TRAYS SHALL BE GROUNDED BY THE CONTRACTOR.
4. AC POWER CONDUCTORS SHALL NOT BE INSTALLED IN THE SAME CONDUIT AS LOW VOLTAGE AUDIO, CONTROL, DATA, DC POWER OR ANY OTHER LOW VOLTAGE CABLES.
5. ALL METALLIC CONDUIT ROUTES SHALL BE GROUNDED AND BONDED.
6. THE CONTRACTOR MAY REVISE LOCATIONS AND ELEVATIONS OF CONDUIT FROM THOSE INDICATED AS REQUIRED TO SUIT FIELD CONDITIONS. REVISIONS FROM PLANS SHALL BE SUBJECT TO APPROVAL BY THE PROJECT ENGINEER.
7. ALL ELECTRICAL, SAFETY, AND FIRE CODES SHALL BE FOLLOWED. IF NATIONAL, STATE, AND/OR CITY CODES DIFFER ON THE SAME POINT, THEN THE MOST STRICT DEFINITION AND/OR INTERPRETATION SHALL BE FOLLOWED.
8. THE CONTRACTOR SHALL NOT EXCEED THE MAXIMUM TENSILE FORCE THAT THE CABLE MANUFACTURER RECOMMENDS WHEN PULLING CABLE.
9. ALL CONDUCTORS MUST TEST FREE OF CUTS, SHORTS, AND GROUNDS.
10. THE CONTRACTOR SHALL NOT EXCEED THE MINIMUM BEND RADIUS FOR FIBER OPTIC CABLES.
11. CONTRACTOR SHALL INSTALL A 48 STRAND FIBER OPTIC CABLE SHOWN ON SHEETS 9 AND 10 CONNECTING THE AIR RIGHTS TUNNEL TO THE MALL TUNNEL. THE CONTRACTOR SHALL INSTALL THE FIBER OPTIC CABLE IN EXISTING ELECTRICAL DUCT USED BY THE OVERHEIGHT DETECTION SYSTEM. THE CONTRACTOR SHALL ONLY INSTALL NEW CONDUIT AND JUNCTION BOXES SPACED EVERY 500 FEET IF THE EXISTING ELECTRICAL DUCT IS NOT USABLE OR REPAIRABLE.
12. ALL ELECTRICAL WORK REQUIRES INSPECTION FROM DDOT AND OR ELECTRIC UTILITY BEFORE ENERGIZING.

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE
	REVISIONS		

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

GENERAL AND CONSTRUCTION NOTES

PROJECT ENG. ELB
DESIGNED BY TMW
CHECKED BY ELB
DRAWN BY KDW
PROJECT MGR. RAB

DIVISION CHIEF
DATE
FILE
SHEET 5 OF 23

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DES	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP – 0000 (000)	4	23

ESTIMATE OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	QUANTITY
630 02	DOCUMENTATION	LS	1
630 04	MAINTENANCE OF TRAFFIC	LS	1
630 06	MAINTENANCE OF TRAFFIC PLANS	LS	1
630 07	NETWORK GATEWAY	EA	2
630 08	NETWORK SERVERS	EA	13
630 10	WORKSTATIONS	EA	2
630 12	KVM SWITCH (MONITOR, KEYBOARD AND MOUSE)	EA	3
630 14	10/100/1000 BASET NETWORK SWITCH	EA	5
630 16	OUTDOOR PTZ CAMERAS	EA	14
630 18	OUTDOOR FIXED CAMERAS	EA	71
630 20	MPEG 4 VIDEO ENCODERS	EA	22
630 22	UNINTERRUPIBLE POWER SUPPLY	EA	4
630 24	ETHERNET MODEMS	EA	6
630 26	FIBER OPTIC VIDEO MEDIA CONVERTERS	EA	85
630 28	FIBER OPTIC TERMINATION PANELS	EA	2
630 30	12 - STRAND MULTIMODE FIBER OPTIC CABLE (FOC)	LF	29000
630 32	48 - STRAND MULTIMODE FIBER OPTIC CABLE (FOC)	LF	4400
630 34	FIBER OPTIC PATCH CORDS	EA	85
630 36	HYBRID CABLE (3 - #12 AWG AND 1 - FOC PIGTAIL)	LF	11700
630 40	INTELLIGENT VIDEO SYSTEM SOFTWARE	LS	1

ESTIMATE OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	QUANTITY
630 44	MINOR ELECTRICAL DEMOLITION	LS	1
630 48	#6 AWG THWN CONDUCTORS	LF	31950
630 50	1" GALVANIZED RIGID STEEL CONDUIT	LF	860
630 52	2" GALVANIZED RIGID STEEL CONDUIT	LF	880
630 54	1/2" LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT	LF	380
630 56	1" FRE CONDUIT (PHENOLIC)	LF	22850
630 58	2" FRE CONDUIT (PHENOLIC)	LF	1050
630 62	2" SCH 80 PVC CONDUIT (CONCRETE ENCASED)	LF	2200
630 65	ROD AND CLEAN DISTRICT OWNED CONDUIT	LF	2200
630 68	PRECAST PULL BOX	EA	4
630 76	NEMA 4X CAMERA BOXES	EA	30
630 78	TYPE 336-SS TRAFFIC CABINET AND FOUNDATION	EA	4
630 80	NETWORK CABINETS	EA	3
630 82	NEMA 12 NETWORK CABINET	EA	1
630 88	NEMA 4x JUNCTION BOX (16" x 16")	EA	48
630 90	NEMA 4X JUNCTION BOX (8" X 8")	EA	85
630 96	MOBILIZATION	LS	1
630 98	ELECTRIC SERVICE	EA	4
630 100	PEPCO COORDINATION	HOURLY/CREW	32
630 102	SPARE COMPONENTS	LS	1

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE
	REVISIONS		

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

ESTIMATE OF QUANTITIES

PROJECT ENG. ELS
DESIGNED BY TMW
CHECKED BY ELS
DRAWN BY KRM
PROJECT MGR. BAB

DIVISION CHIEF
DATE
FILE
SHEET 4 OF 23

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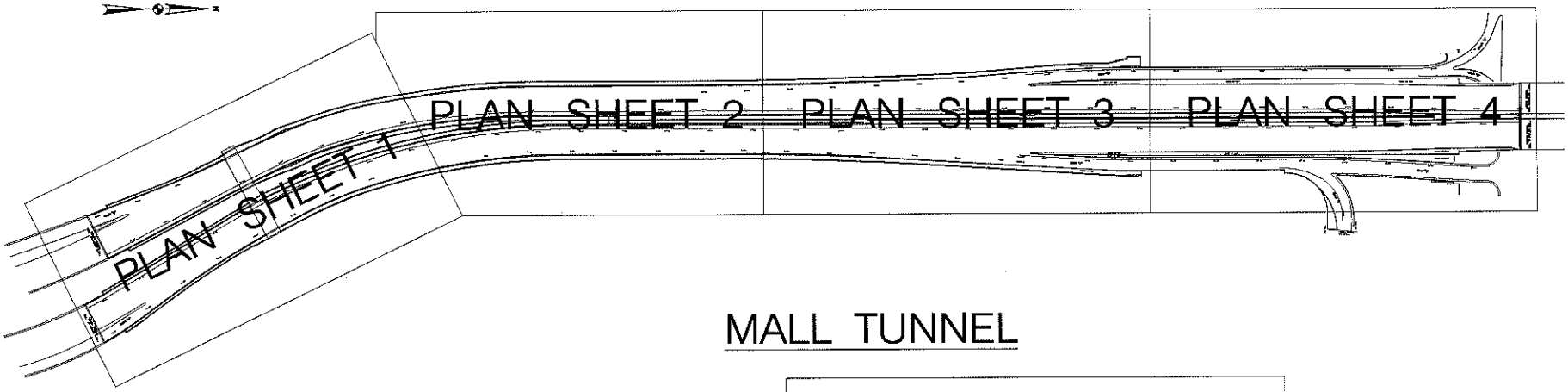
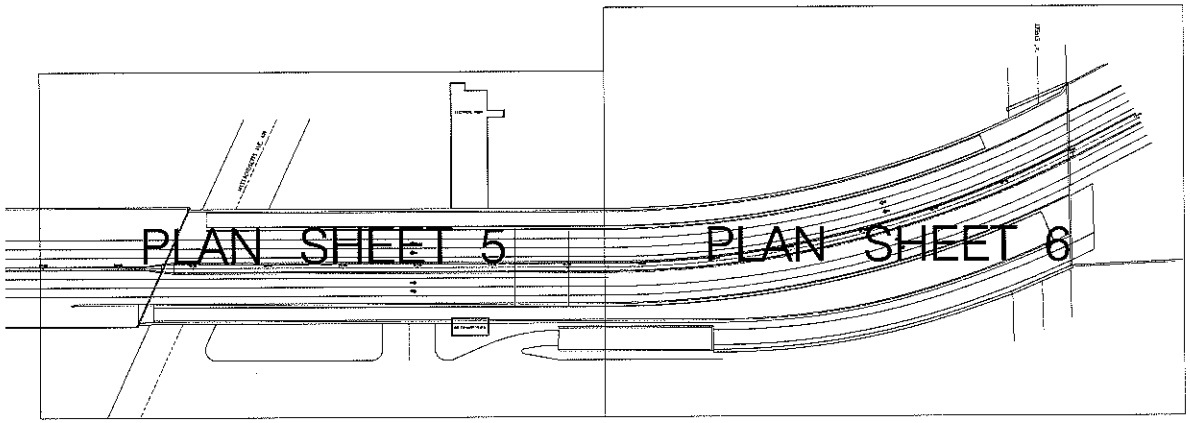
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2008-T-0085-VH	5	23



MALL TUNNEL



AIR RIGHTS TUNNEL

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. BLB
DESIGNED BY TNW
CHECKED BY RAR
DRAWN BY KBM
PROJECT MGR. RAR

KEY PLAN
MALL TUNNEL &
AIR RIGHTS TUNNEL

DIVISION CHIEF

DATE
FILE
SHEET 5 OF 23

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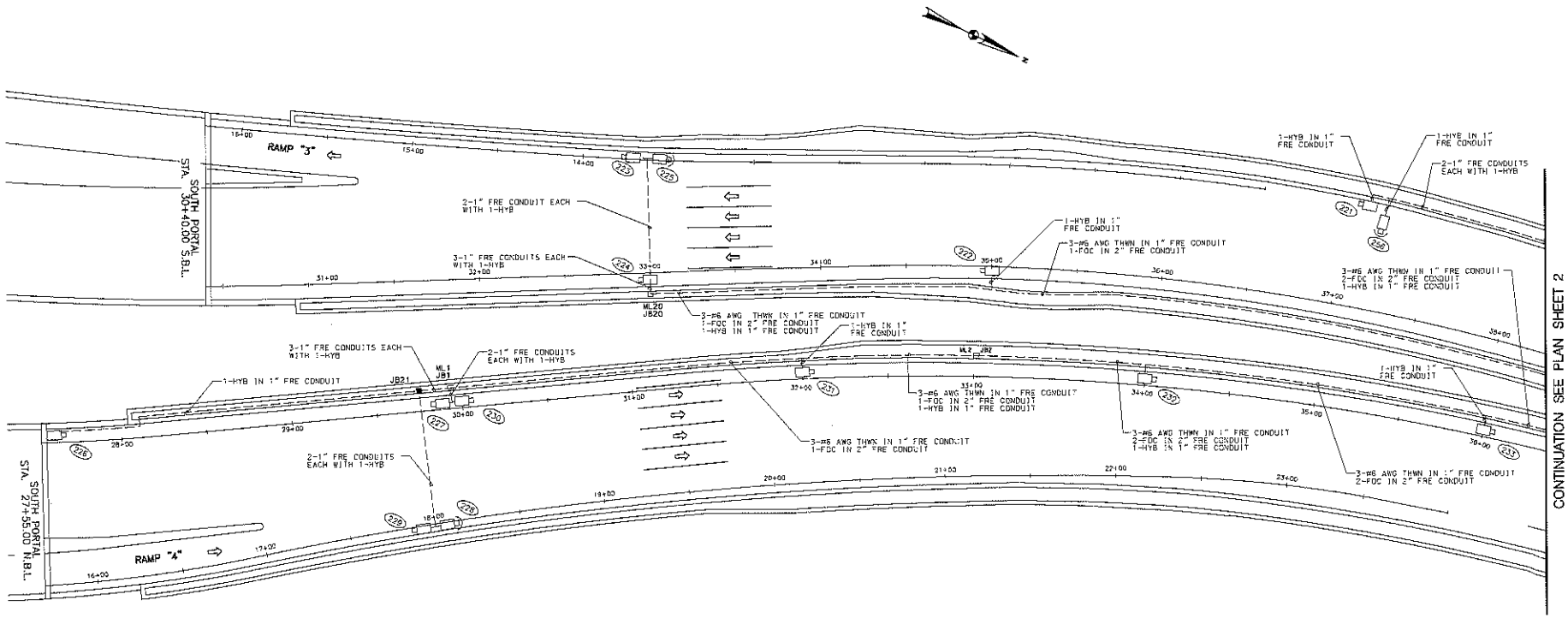
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2008-T-0085-VH	6	23



NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. ALL CONDUIT ROUTES CROSSING THE ROADWAY SHALL BE INSTALLED ABOVE TUNNEL CEILING EXCEPT WHERE NOTED.

15 0 15 30
SCALE: 1" = 30'

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

MALL TUNNEL
PLAN SHEET 1

PROJECT ENG. BLB
DESIGNED BY TNH
CHECKED BY BLB
DRAWN BY KBW
PROJECT MGR. BKB

DIVISION CHIEF

DATE
FILE
SHEET 6 OF 23

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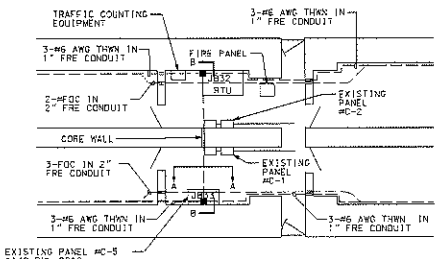
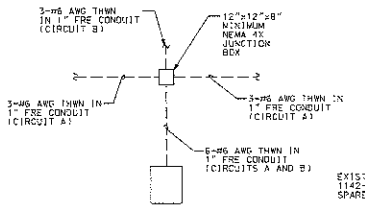
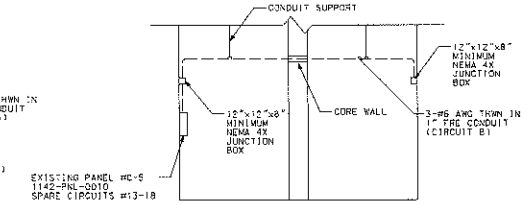
AREA	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2006-T-0085-XH	7	23



CO ANALYZER ROOM
NTS

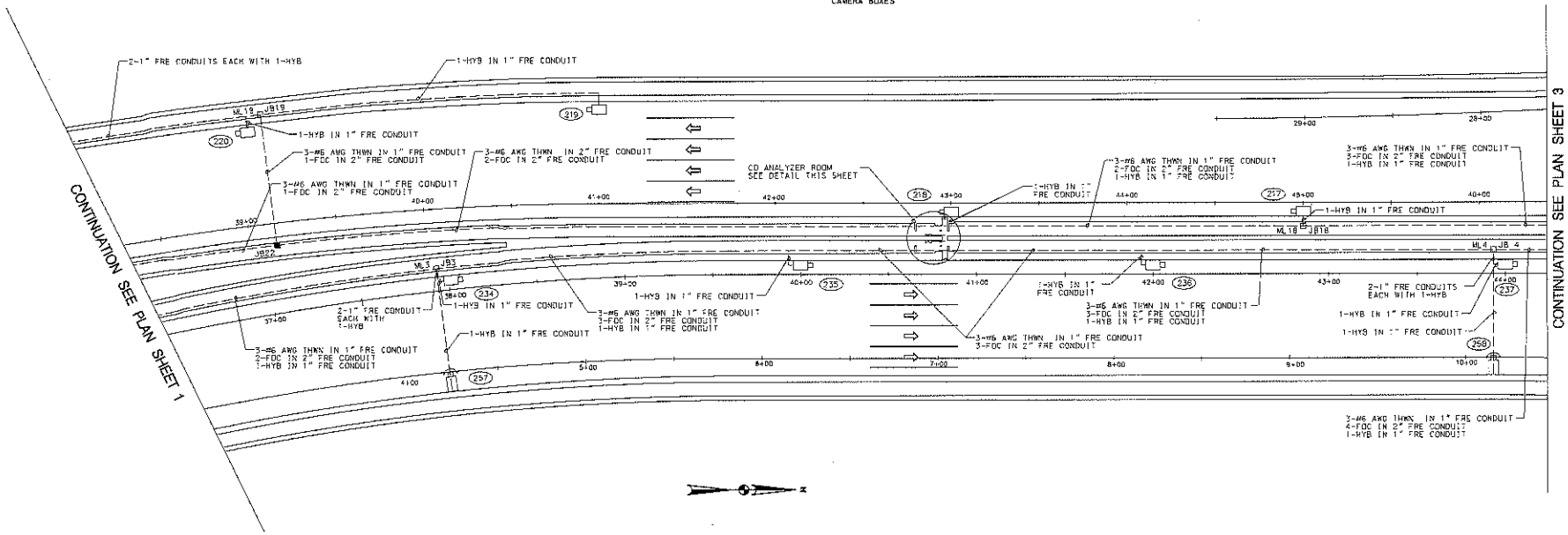


SECTION A-A
NTS



SECTION B-B
NTS

NOTE:
USE 2-208 VAC CIRCUITS FROM PANEL #C-5:
1- CIRCUIT (A) TO SUPPLY POWER TO THE NORTHBOUND CAMERA BOXES
1- CIRCUIT (B) TO SUPPLY POWER TO THE SOUTHBOUND CAMERA BOXES



15 0 15 30
SCALE: 1" = 30'

NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. REFER TO CONDUIT DETAILS FOR CORING WALLS.
5. ALL CONDUIT ROUTES CROSSING THE ROADWAY SHALL BE INSTALLED ABOVE TUNNEL CEILING EXCEPT WHERE NOTED.

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE
	REVISIONS		

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

MALL TUNNEL
PLAN SHEET 2

PROJECT ENG. RJB
DESIGNED BY TNH
CHECKED BY RJB
DRAWN BY MSK
PROJECT MGR. TNH

DIVISION CHIEF
DATE
FILE
SHEET 7 OF 23

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9/25/2009
#PLTDRVS#

REG.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2006-T-0085-VH	8	23

CONTINUATION SEE PLAN SHEET 2

CONTINUATION SEE PLAN SHEET 4

NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. ALL CONDUIT ROUTES CROSSING THE ROADWAY SHALL BE INSTALLED ABOVE TUNNEL CEILING EXCEPT WHERE NOTED.

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

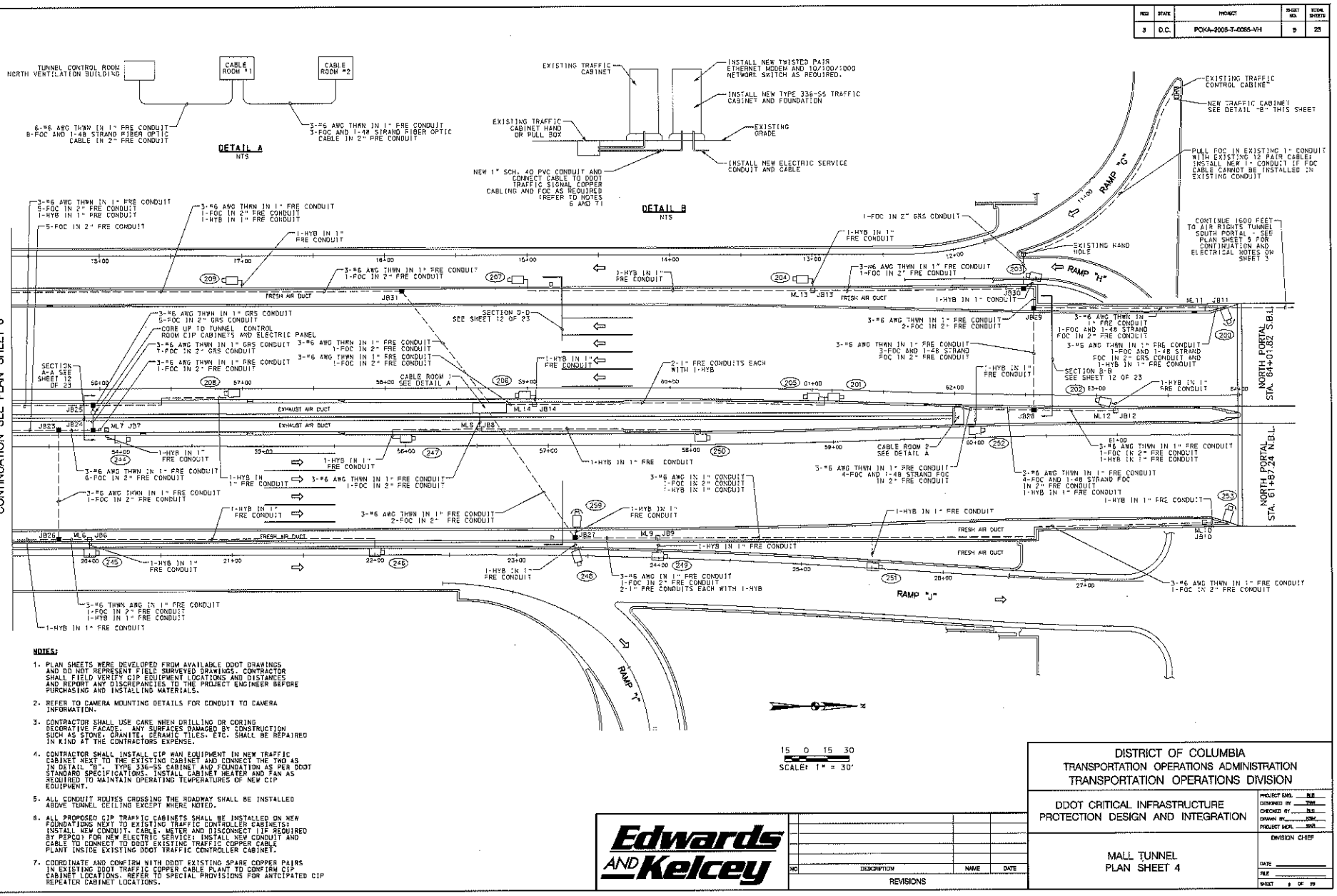
DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

MALL TUNNEL
PLAN SHEET 3

PROJECT ENG. ___ CHECKED BY ___ DRAWN BY ___ PROJECT MGR. ___

DIVISION CHIEF

DATE ___
FILE ___
SHEET 8 OF 23



REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2008-T-0095-NH	9	23

NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. CONTRACTOR SHALL INSTALL CIP WAN EQUIPMENT IN NEW TRAFFIC CABINET NEXT TO THE EXISTING CABINET AND CONNECT THE TWO AS IN DETAIL "B". TYPE 336-SS CABINET AND FOUNDATION AS PER DDOT STANDARD SPECIFICATIONS. INSTALL CABINET HEATER AND FAN AS REQUIRED TO MAINTAIN OPERATING TEMPERATURES OF NEW CIP EQUIPMENT.
5. ALL CONDUIT ROUTES CROSSING THE ROADWAY SHALL BE INSTALLED ABOVE TUNNEL CEILING EXCEPT WHERE NOTED.
6. ALL PROPOSED CIP TRAFFIC CABINETS SHALL BE INSTALLED ON NEW FOUNDATIONS NEXT TO EXISTING TRAFFIC CONTROLLER CABINETS: INSTALL NEW CONDUIT, CABLE, METER AND DISCONNECT (IF REQUIRED BY PEPCO) FOR NEW ELECTRIC SERVICE; INSTALL NEW CONDUIT AND CABLE TO CONNECT TO DDOT EXISTING TRAFFIC COPPER CABLE PLANT INSIDE EXISTING DDOT TRAFFIC CONTROLLER CABINET.
7. COORDINATE AND CONFIRM WITH DDOT EXISTING SPARE COPPER PAIRS IN EXISTING DDOT TRAFFIC COPPER CABLE PLANT TO CONFIRM CIP CABINET LOCATIONS. REFER TO SPECIAL PROVISIONS FOR ANTCIPATED CIP REPEATER CABINET LOCATIONS.

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE
	REVISIONS		

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

MALL TUNNEL
PLAN SHEET 4

PROJECT ENG. BLB
DESIGNED BY TMH
CHECKED BY BLB
DRAWN BY JDW
PROJECT MGR. SMR

DIVISION CHIEF
DATE
FILE
SHEET 9 OF 23

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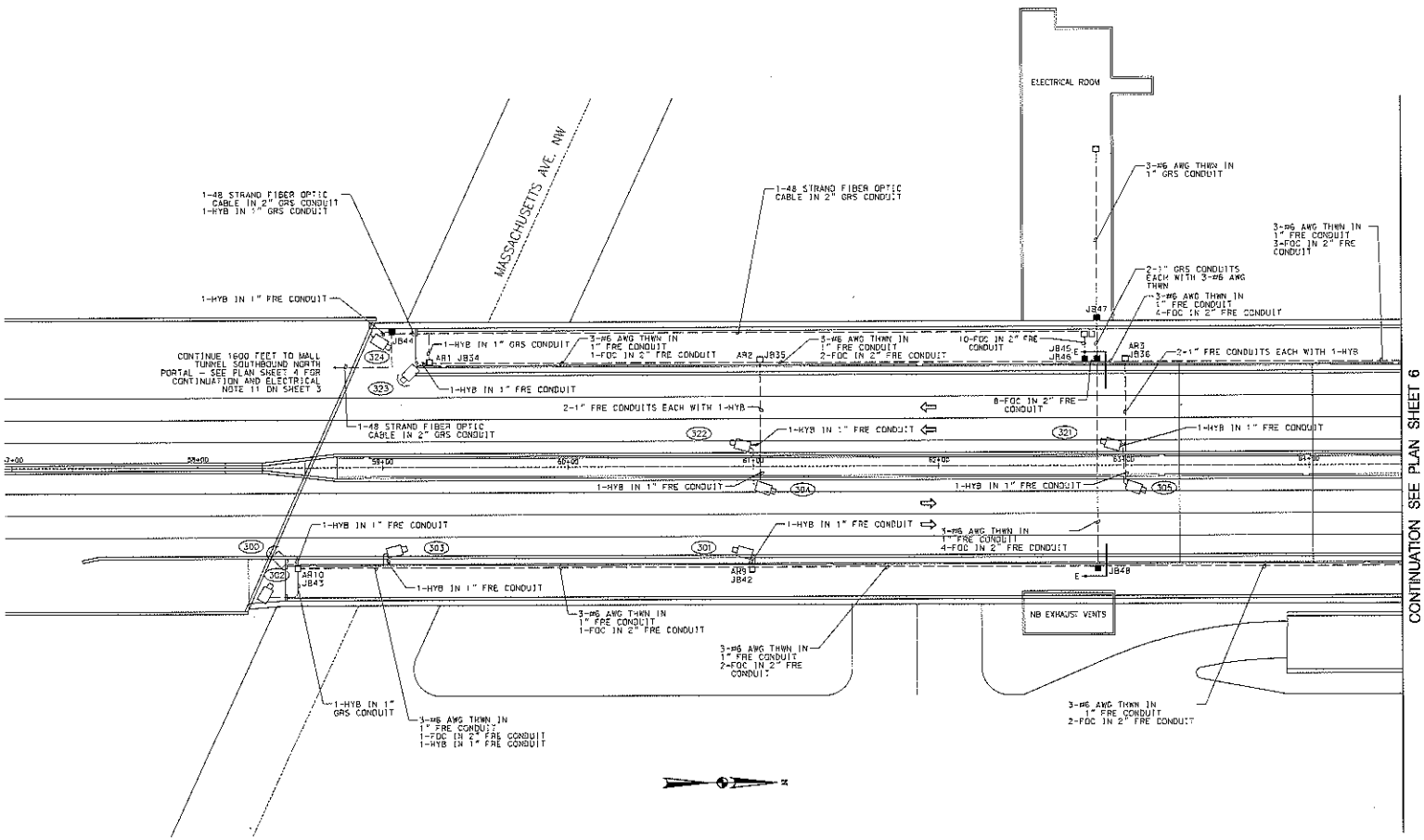
9/25/2009 9:11:08:59

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2006-T-0085-VH	10	23



NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. ALL CONDUIT ROUTES CROSSING THE ROADWAY SHALL BE INSTALLED ABOVE TUNNEL EXCEPT WHERE NOTED.

15 0 15 30
SCALE: 1" = 30'

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

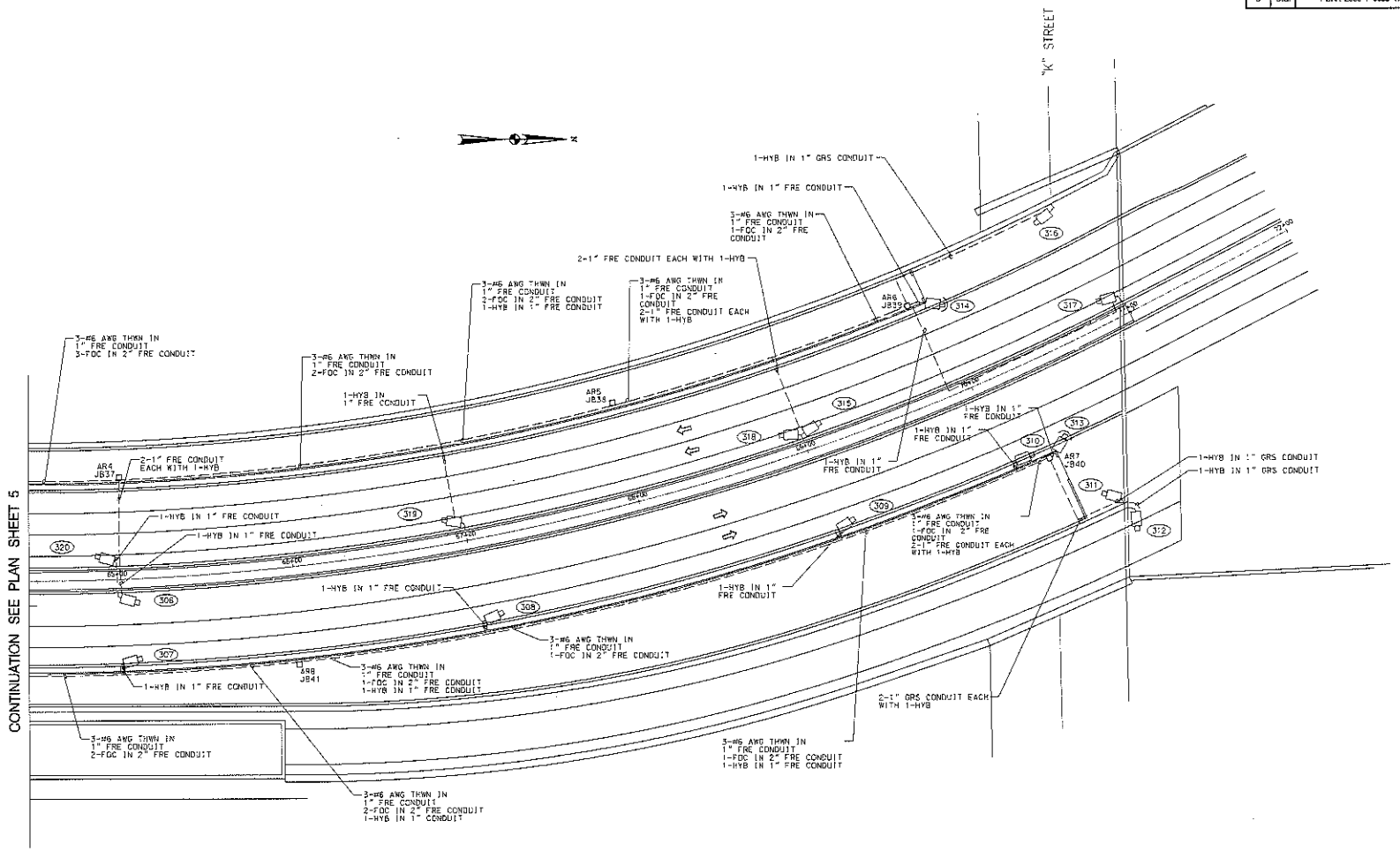
AIR RIGHTS TUNNEL
PLAN SHEET 5

PROJECT ENG.	BLD
DESIGNED BY	TNM
CHECKED BY	RAR
DRAWN BY	KRM
PROJECT MGR.	RAR

DIVISION CHIEF
DATE
FILE
SHEET 10 OF 23

J:\2008 Projects\VTX0060\Civil\Tunnel Drawings\9_25_2009_Final Submission\10 of 23 - Plan Sheet 5.dgn
9/26/2009
#PLTBRYS
#PENTBLS

REG.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2006-T-0085-VH	11	23



15 0 15 30
SCALE: 1" = 30'

NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. ALL CONDUIT ROUTES CROSSING THE ROADWAY SHALL BE INSTALLED ABOVE TUNNEL CEILING EXCEPT WHERE NOTED.

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

AIR RIGHTS TUNNEL
PLAN SHEET 6

PROJECT ENG. BLB
DESIGNED BY TMW
CHECKED BY RAR
DRAWN BY KBM
PROJECT MGR. RAR

DIVISION CHIEF

DATE
FILE
SHEET 11 OF 23

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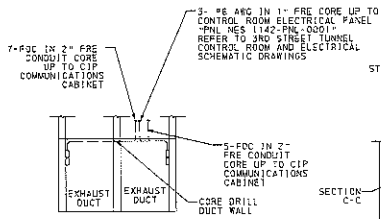
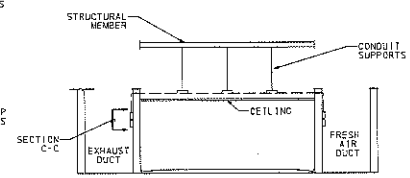
9/26/2009 $PLTDRV$ $PENTBL$

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2006-T-0085-VH	12	23

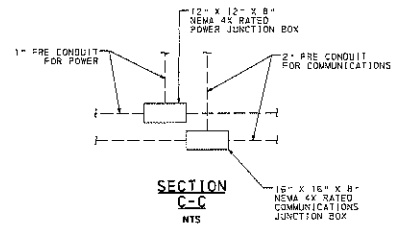


SECTION A-A
NTS

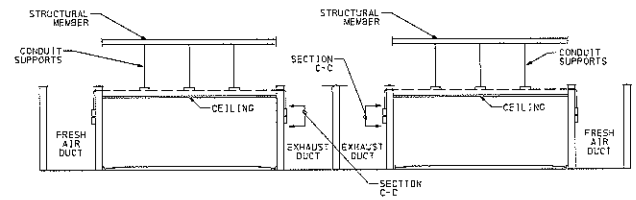
NOTE:
REFER TO 3RD. STREET TUNNEL CONTROL ROOM DRAWING FOR COMMUNICATIONS CABINET.



SECTION B-B
NTS

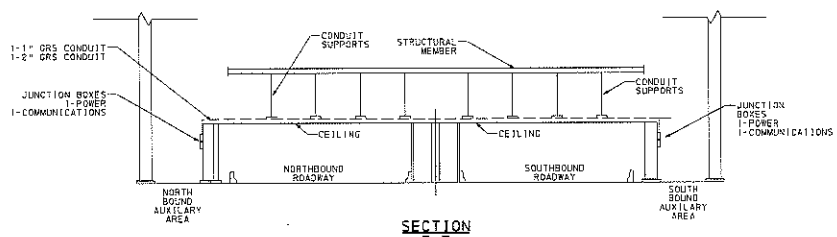


SECTION C-C
NTS

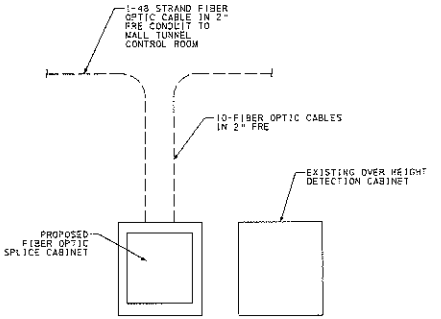


SECTION D-D
NTS

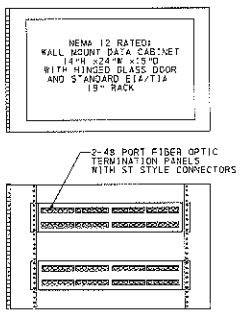
MALL TUNNEL SECTIONS



SECTION E-E
NTS



DETAIL F
NTS



PROPOSED FIBER OPTIC SPLICE CABINET
NTS

AIR RIGHTS TUNNEL SECTIONS

NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. CONTRACTOR SHALL UTILIZE EXISTING CONDUIT HANGERS/SUPPORTS BEFORE INSTALLING NEW. CONDUIT SHALL NOT LAY OR BE MOUNT TO CEILING PANELS.
5. ALL CONDUIT ROUTES CROSSING THE ROADWAY SHALL BE INSTALLED ABOVE TUNNEL CEILING EXCEPT WHERE NOTED.
6. REFER TO SHEETS 19 AND 20 FOR CONDUIT MOUNTING DETAILS.

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. BLB
DESIGNED BY TMY
CHECKED BY BLB
DRAWN BY KBM
PROJECT MGR. RWH

TUNNEL SECTIONS

DIVISION CHIEF
DATE
FILE
SHEET 12 OF 23

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9/26/2009 $PLTDRV$ $PENTBL$

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP - 0000 (000)	13	23

CAMERA SCHEDULE - MALL TUNNEL

CAMERA NO.	TYPE	DESCRIPTION
200	PTZ	VIEW OF NORTH PORTAL SOUTHBOUND TRAFFIC
201	FIXED	VIEW OF RAMP H PORTAL
202	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 62+00 TO 60+00
203	FIXED	VIEW OF RAMP H AND G MERGE STA 12+00 TO 14+00
204	FIXED	VIEW OF RAMP STA 14+00 TO 16+00
205	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 60+00 TO 58+00
206	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 58+00 TO 56+00
207	FIXED	VIEW OF RAMP STA 16+00 TO 18+00
208	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 56+00 TO 54+00
209	FIXED	VIEW OF RAMP STA 18+00 TO 20+00
210	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 54+00 TO 52+00
211	FIXED	VIEW OF RAMP STA 20+00 TO RAMP EXIT
212	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 52+00 TO 50+00
213	FIXED	VIEW OF RAMP AND SOUTHBOUND TRAFFIC MERGE
214	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 50+00 TO 48+00
215	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 48+00 TO 46+00
216	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 46+00 TO 44+00
217	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 44+00 TO 42+00
218	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 42+00 TO 40+00
219	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 40+00 TO 38+00
220	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 38+00 TO 36+00
221	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 36+00 TO 34+00
222	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 34+00 TO 32+00
223	FIXED	VIEW OF OFF RAMP
224	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 32+00 TO SOUTH PORTAL
225	PTZ	VIEW OF SOUTH PORTAL SOUTHBOUND TRAFFIC
226	FIXED	VIEW OF NORTHBOUND ROADWAY STA 29+00 TO 31+00
227	FIXED	VIEW OF NORTHBOUND TRAFFIC FROM SOUTH PORTAL TO STA 29+00
228	PTZ	VIEW OF SOUTH PORTAL NORTHBOUND TRAFFIC .
229	FIXED	VIEW OF NORTHBOUND ON RAMP
230	FIXED	VIEW OF NORTHBOUND ROADWAY STA 31+00 TO 33+00
231	FIXED	VIEW OF NORTHBOUND ROADWAY STA 33+00 TO 35+00
232	FIXED	VIEW OF NORTHBOUND ROADWAY STA 35+00 TO 37+00
233	FIXED	VIEW OF NORTHBOUND ROADWAY STA 37+00 TO 39+00
234	FIXED	VIEW OF NORTHBOUND ROADWAY STA 39+00 TO 41+00
235	FIXED	VIEW OF NORTHBOUND ROADWAY STA 41+00 TO 43+00
236	FIXED	VIEW OF NORTHBOUND ROADWAY STA 43+00 TO 45+00
237	FIXED	VIEW OF NORTHBOUND ROADWAY STA 45+00 TO 47+00
238	FIXED	VIEW OF NORTHBOUND ROADWAY STA 47+00 TO 49+00
239	FIXED	VIEW OF NORTHBOUND ROADWAY STA 49+00 TO 51+00
240	FIXED	VIEW OF NORTHBOUND ROADWAY STA 51+00 TO 53+00
241	FIXED	VIEW OF NORTHBOUND OFF RAMP ENTRANCE TO STA 19+00
242	FIXED	VIEW OF NORTHBOUND OFF RAMP STA 19+00 TO 21+00
243	FIXED	VIEW OF NORTHBOUND ROADWAY STA 53+00 TO 55+00
244	FIXED	VIEW OF NORTHBOUND ROADWAY STA 55+00 TO 57+00
245	FIXED	VIEW OF NORTHBOUND OFF RAMP STA 21+00 TO 23+00
246	FIXED	VIEW OF NORTHBOUND OFF RAMP STA 23+00 TO 25+00
247	FIXED	VIEW OF NORTHBOUND ROADWAY STA 57+00 TO 59+00
248	FIXED	VIEW OF NORTHBOUND OFF RAMP EXIT PORTAL
249	FIXED	VIEW OF NORTHBOUND OFF RAMP STA 25+00 TO 27+00
250	FIXED	VIEW OF NORTHBOUND ROADWAY STA 59+00 TO 61+00
251	FIXED	VIEW OF NORTHBOUND OFF RAMP EXIT PORTAL
252	FIXED	VIEW OF NORTHBOUND ROADWAY STA 61+00 TO NORTH PORTAL EXIT
253	PTZ	VIEW OF NORTH PORTAL NORTHBOUND TRAFFIC
254	PTZ	VIEW OF SOUTHBOUND ROADWAY UNDER DEPARTMENT OF LABOR
255	PTZ	VIEW OF SOUTHBOUND ROADWAY
256	PTZ	VIEW OF SOUTHBOUND ROADWAY
257	PTZ	VIEW OF NORTHBOUND ROADWAY
258	PTZ	VIEW OF NORTHBOUND ROADWAY
259	PTZ	VIEW OF NORTHBOUND ROADWAY UNDER DEPARTMENT OF LABOR

CAMERA SCHEDULE - AIR RIGHTS TUNNEL

CAMERA NO.	TYPE	DESCRIPTION
300	PTZ	VIEW OF SOUTH PORTAL TUNNEL TRAFFIC
301	FIXED	VIEW OF NORTHBOUND ROADWAY PORTAL ENTRANCE TO STA 60+00
302	FIXED	VIEW OF SOUTHEAST OVERHEAD DOOR AND DRIVEWAY
303	FIXED	VIEW OF NORTHBOUND ROADWAY STA 60+00 TO 62+00
304	FIXED	VIEW OF NORTHBOUND ROADWAY STA 62+00 TO 64+00
305	FIXED	VIEW OF NORTHBOUND ROADWAY STA 64+00 TO 66+00
306	FIXED	VIEW OF NORTHBOUND ROADWAY AND WALKWAY STA 66+00 TO 67+50
307	FIXED	VIEW OF NORTHBOUND ROADWAY STA 66+00 TO 68+00
308	FIXED	VIEW OF NORTHBOUND ROADWAY STA 68+00 TO 70+00
309	FIXED	VIEW OF NORTHBOUND ROADWAY STA 70+00 TO 72+00
310	FIXED	VIEW OF PEDESTRIAN DOOR AND WALKWAY
311	FIXED	VIEW OF NORTHEAST OVERHEAD DOOR AND DRIVEWAY
312	FIXED	VIEW OF GATED AREA
313	PTZ	VIEW OF NORTHBOUND NORTH PORTAL TUNNEL TRAFFIC
314	PTZ	VIEW OF SOUTHBOUND NORTH PORTAL TUNNEL TRAFFIC
315	FIXED	VIEW OF SOUTHBOUND PORTAL ENTRANCE TO STA 70+00
316	FIXED	VIEW OF NORTHWEST OVERHEAD DOOR, DRIVEWAY, AND WALKWAY
317	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 70+00 TO 68+00
318	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 68+00 TO 66+00
319	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 66+00 TO 64+00
320	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 64+00 TO 62+00
321	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 62+00 TO 60+00
322	FIXED	VIEW OF SOUTHBOUND ROADWAY STA 60+00 TO 58+00
323	PTZ	VIEW OF SOUTHBOUND SOUTH PORTAL TUNNEL TRAFFIC
324	FIXED	VIEW OF SOUTHEAST OVERHEAD DOOR AND DRIVEWAY

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. BLR
DESIGNED BY TMW
CHECKED BY BLR
DRAWN BY KBM
PROJECT MGR. RAH

CAMERA SCHEDULE

DIVISION CHIEF
DATE
FILE
SHEET 13 OF 23

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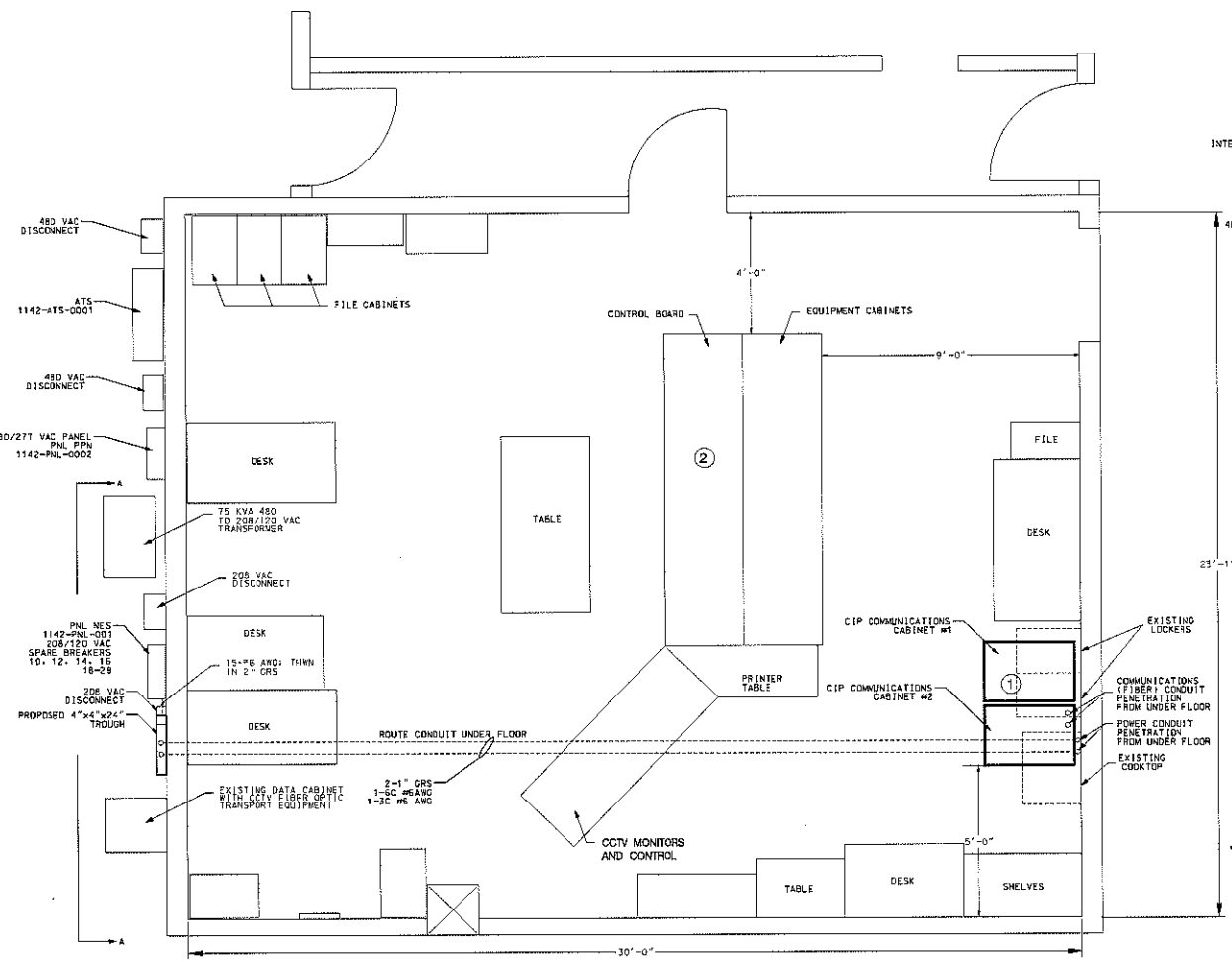
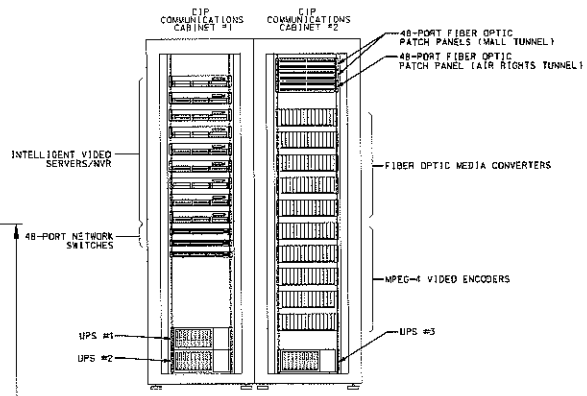
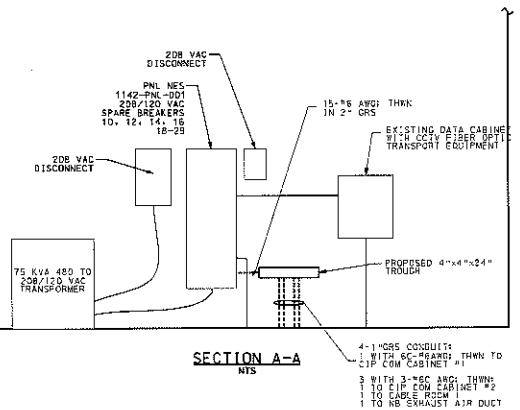
9/25/2009
SPENTBLS$
SPLITDRV$

REG.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2006-T-0085-VH	14	23





PROPOSED EQUIPMENT CABINET LAYOUT
NTS



SECTION A-A
NTS

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING COOKTOP AND LOCKERS. CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ELECTRICAL CABLES.
2. REFER TO SYSTEM ARCHITECTURE FOR EQUIPMENT CONNECTIONS.
3. CONTRACTOR SHALL INSTALL STANDARD 19" EIA/TIA NETWORK CABINETS SIZED APPROPRIATELY FOR PROPOSED CIP EQUIPMENT.
4. CIP COMMUNICATIONS CABINET SHALL BE POWERED BY TWO 208 VAC: 30 AMP CIRCUITS AND COMMUNICATIONS CABINET #2 SHALL BE POWER BY ONE 208 VAC: 30 AMP CIRCUIT FROM PANEL "PNL NES: 1142-PNL-0001".
5. TERMINATE UPS 208 VAC TO A WALL MOUNTED GANG BOX WITH A 30 AMP RATED OUTLET.

CIP CABINET LOCATION ALTERNATIVES

1. PREFERRED CABINET LOCATION AS SHOWN, REMOVE EXISTING COOKTOP AND LOCKERS AND INSTALL CABINETS AGAINST WALL.
2. SECONDARY CABINET LOCATION; COORDINATE WITH DDOT IPMA FOR DEMOLITION OF EXISTING CONTROL PANEL IF REQUIRED.

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

3RD STREET TUNNEL CONTROL ROOM

PROJECT ENG. BLB
DESIGNED BY TNW
CHECKED BY RAR
DRAWN BY KBM
PROJECT MGR. RAR
DIVISION CHIEF
DATE
FILE
SHEET 14 OF 23

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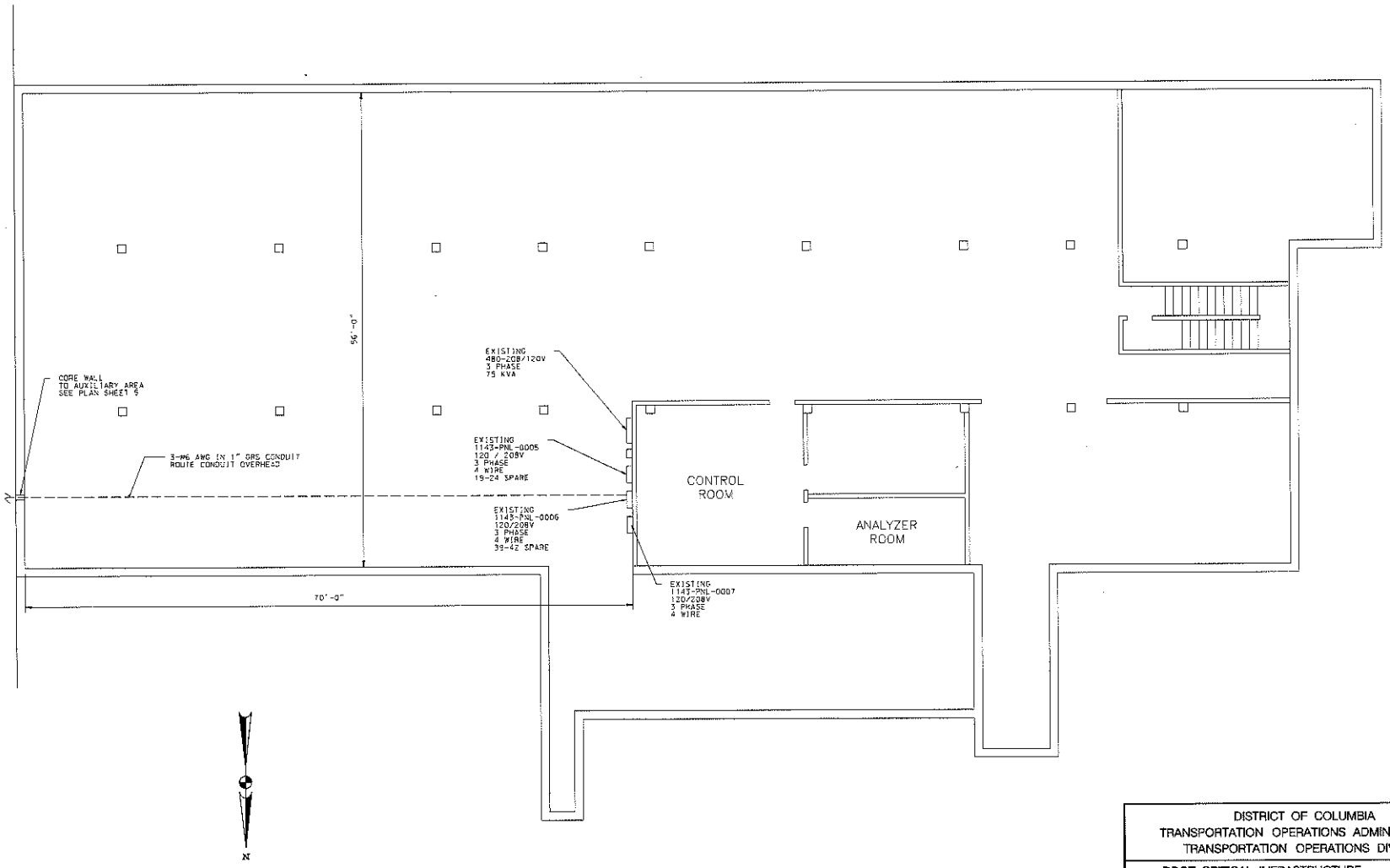
9/26/2009 $PLTDRVS$ $PENTBLS$

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2008-T-0085-VH	15	23



Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. BLB
DESIGNED BY TNW
CHECKED BY RAR
DRAWN BY KRM
PROJECT MGR. RAR

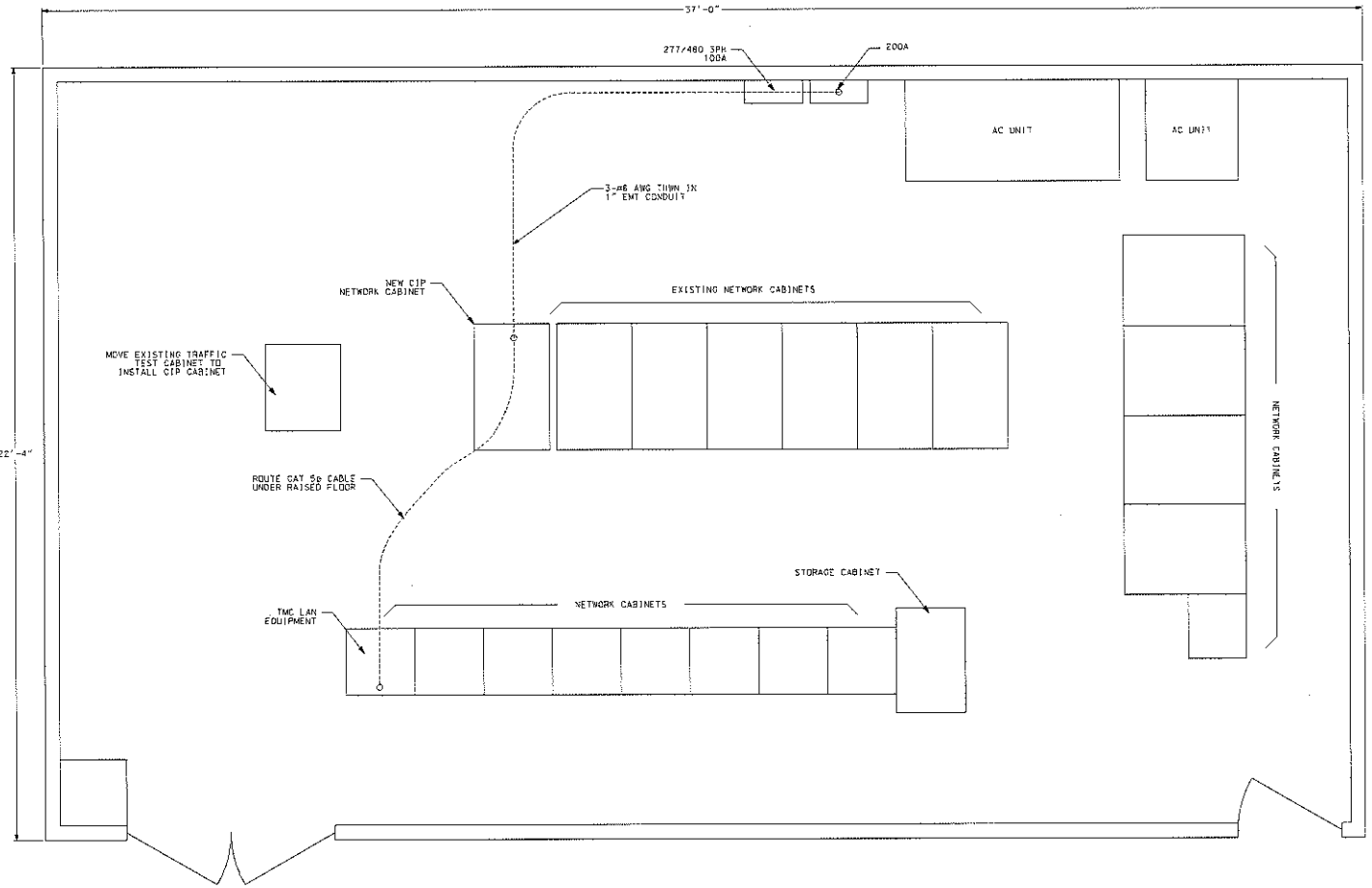
AIR RIGHTS TUNNEL ELECTRICAL ROOM

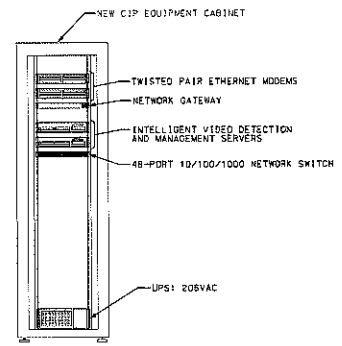
DIVISION CHIEF

DATE
FILE
SHEET 15 OF 23

J:\2008 Projects\YTX0000\Cad\TunnelDrawings\9.25.2009_FinalSubmission\15 of 23 - Air Rights ElectricalRoom.dgn
9/26/2009 $PLTDRV$ $PENTBL$

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2006-T-0085-VH	18	23





PROPOSED EQUIPMENT CABINET LAYOUT

NTS

NOTES:

1. INSTALL NEW CIP NETWORK CABINET. CABINET SHALL MATCH EXISTING IBM 9309 NETFINITY CABINET: MODEL 42E
2. CIP NETWORK SWITCH SHALL CONNECT TO TMC LOCAL AREA NETWORK IN CABINET SHOWN. CONTRACTOR SHALL USE CATEGORY 5e NETWORK RATED EQUIPMENT AND CABLE. CONTRACTOR SHALL COORDINATE WITH DDOT IT FOR NETWORK PROVISIONING AND CONNECTIONS.
3. THE CIP CABINET UPS SHALL BE POWERED BY A DEDICATED 208VAC, 30AMP CIRCUIT.
4. CONTRACTOR WILL COORDINATE WITH DDOT IT DEPARTMENT FOR INSTALLTION AND PROVISIONING ANY CIP NETWORK EQUIPMENT AND FOLLOW DDOT IT STANDARDS AND SECURITY POLICIES.

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. BLB
DESIGNED BY THW
CHECKED BY RAR
DRAWN BY KBM
PROJECT MGR. RAR

DIVISION CHIEF

TMC EQUIPMENT ROOM

DATE
FILE
SHEET 18 OF 23

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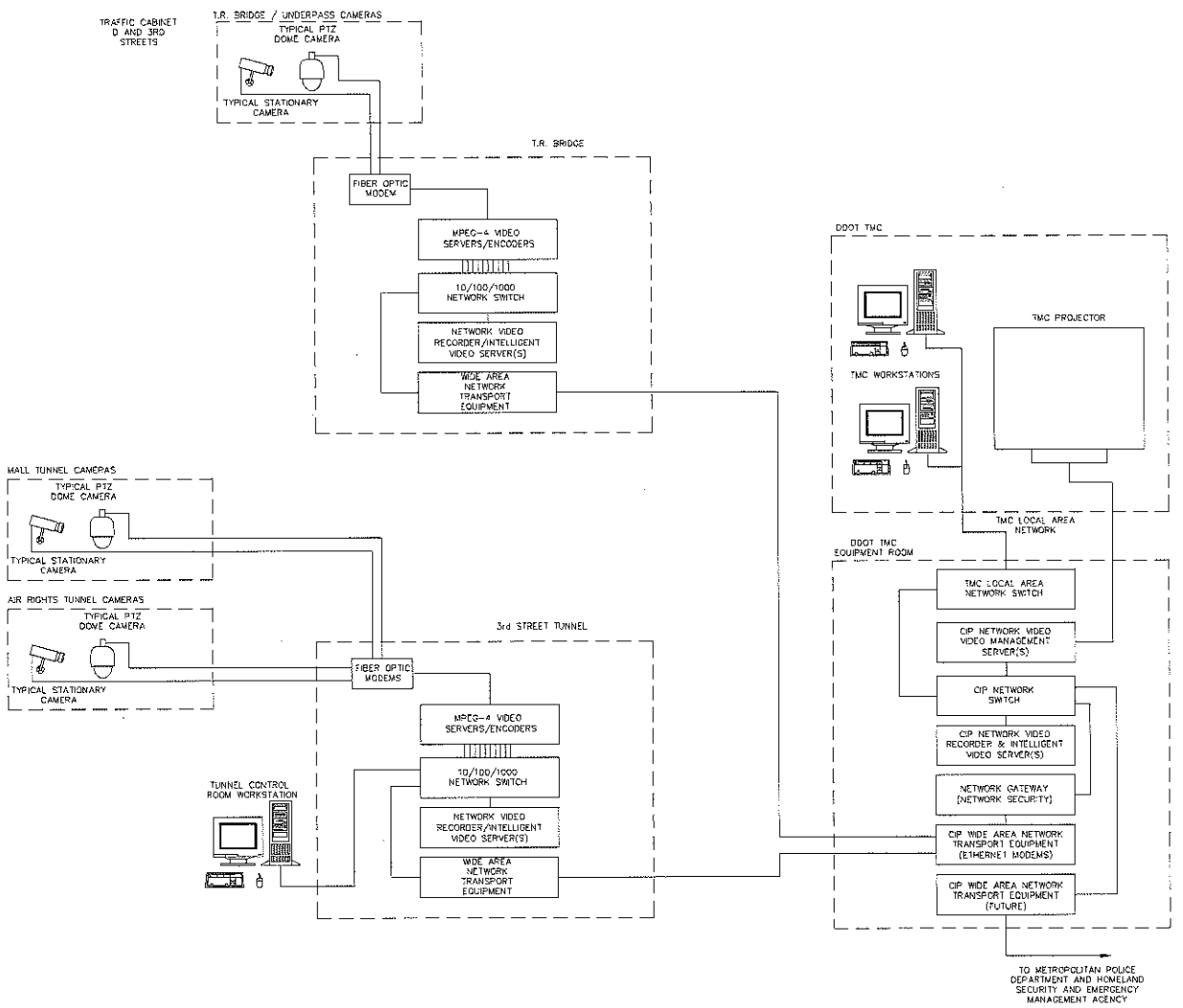
9/26/2009 $PLTDRV5$ $PENTBL5$

REQ	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
3	D.C.	POKA-2008-T-0085-VH	17	23



Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

DISTRICT OF COLUMBIA
TRANSPORTATION OPERATIONS ADMINISTRATION
TRANSPORTATION OPERATIONS DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

SYSTEM ARCHITECTURE

PROJECT ENG. BLB
DESIGNED BY TNW
CHECKED BY RAR
DRAWN BY KBM
PROJECT MGR. RAR

DIVISION CHIEF

DATE
FILE
SHEET 17 OF 23

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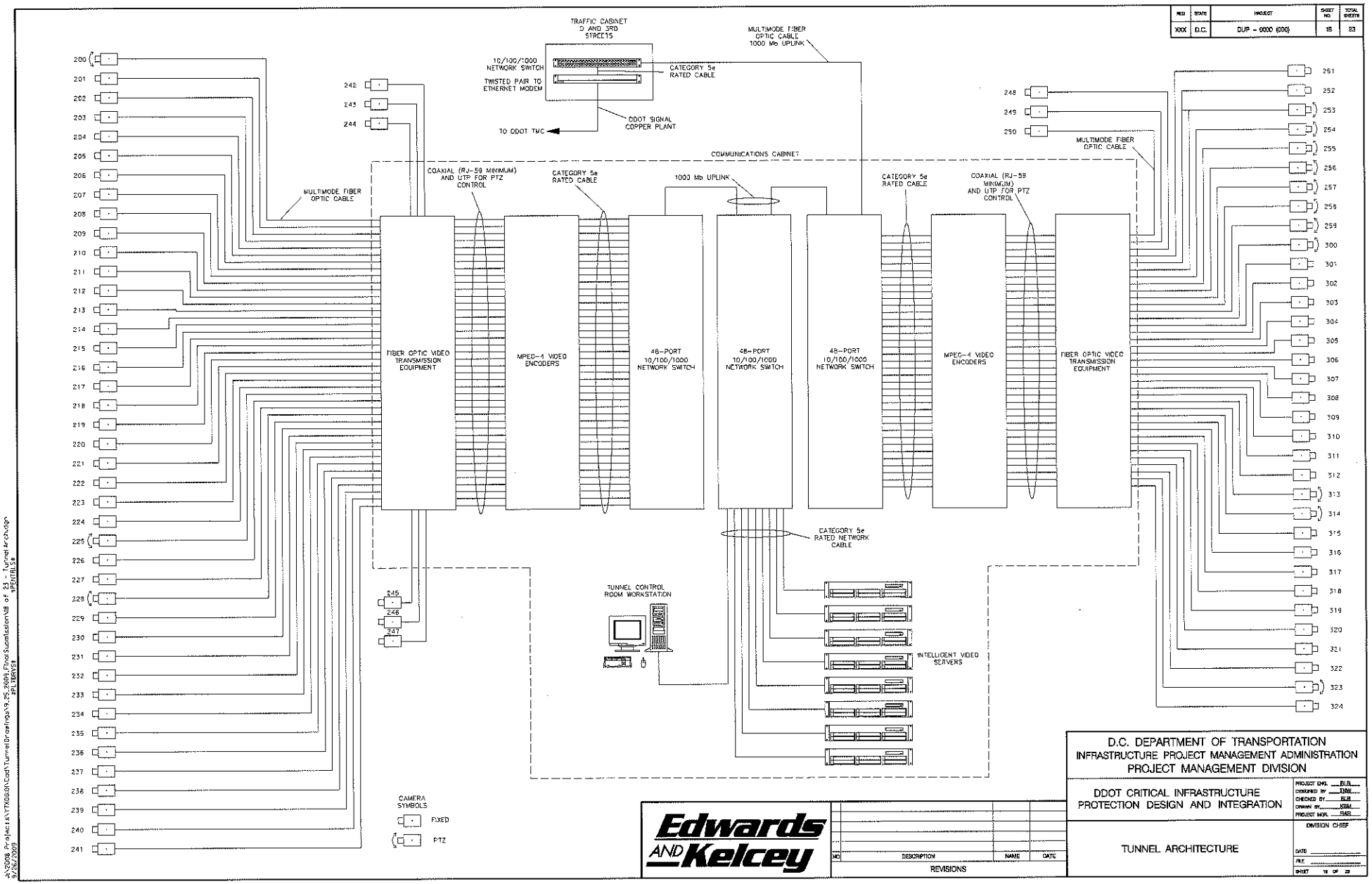
9/26/2009 $PLTDRV$ $PENTBL$



D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. BLB
DESIGNED BY TNW
CHECKED BY BLB
DRAWN BY KBM
PROJECT MGR. RAR

TUNNEL ARCHITECTURE

DIVISION CHIEF
DATE
FILE
SHEET 18 OF 23

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE

REVISIONS

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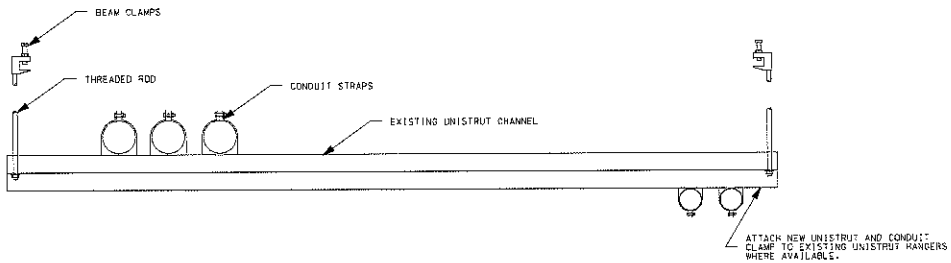
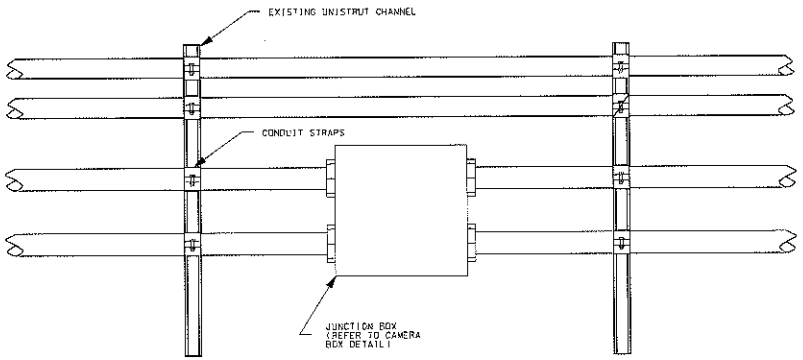
9/26/2009 $PLTDRVS$ $PENTBLS$

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP – 0000 (000)	19	23



EXISTING UNISTRUT CONDUIT HANGER USING BEAM CLAMPS

NTS



EXISTING UNISTRUT CONDUIT HANGER SURFACE MOUNT

NTS

NOTES:

1. INSTALL NEW UNISTRUT CONDUIT HANGERS, CONDUIT CLAMPS, ROD AND BEAM CLAMPS WHERE EXISTING HANGER SPACE IS UNAVAILABLE OR TO MEET CONDUIT SUPPORT SPACING REQUIREMENTS.
2. ALL METALLIC COMPONENTS CHANNEL, THREADED ROD AND BEAM CLAMPS ARE TO BE GALVANIZED.
3. CONDUIT INSTALLED OVER TUNNEL CEILING SHALL BE SUPPORTED BY HANGERS ATTACHED TO STRUCTURAL MEMBERS. CONDUIT SHALL NOT LAY OR BE ATTACHED DIRECTLY TO THE TUNNEL CEILING.

GENERAL NOTES:

1. CONDUIT AND CABLING SHALL BE INSTALLED IN ACCORDANCE WITH NEC, NESC OR LOCAL CODES HAVING JURISDICTION.
2. NETWORK AND FIBER OPTIC CABLE SHALL BE INSTALLED AND TERMINATED IN ACCORDANCE WITH TIA/EIA AND DDOT IT STANDARDS.
3. CONDUIT SHALL BE CONCEALED IN CEILINGS, WALLS AND FLOORS WHEN POSSIBLE. CONTRACTOR WILL TAKE EXTRA PRECAUTIONS NOT TO DAMAGE, SCRATCH OR CRACK FINISHED SURFACES SUCH AS GRANITE, CONCRETE, ETC. WHEN INSTALLING EXPOSED CONDUIT ON THESE SURFACES.
4. CONDUIT THAT IS INSTALLED ON OR THROUGH AN EXPANSION JOINT SHALL BE PROVIDED WITH EXPANSION FITTING.
5. EXPOSED CONDUIT SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO THE BUILDING WALLS.
6. THREAD CONDUIT AND REAM IN A MANNER WHICH WILL RESULT IN CONDUITS HAVING NEITHER BURRS NOR SHARP EDGES. CUT CONDUIT SQUARE.
7. INSTALL JUNCTION OR PULL BOXES TO AVOID EXCESSIVE RUNS OR BENDS.
8. ALL METALLIC CONDUIT SHALL BE BONDED TO GROUND.
9. SECURE AND SEAL CONDUIT JOINTS IN THE APPROPRIATE MANNER IN ACCORDANCE WITH THE CABINET'S NEMA RATING. CONDUIT CONNECTIONS SPRAY SHALL BE WATER-TIGHT.
10. DAMAGE TO THE CONDUIT GALVANIZED COATING SHALL BE REPAIRED.
11. MAINTAIN A 2-INCH MINIMUM SEPARATION BETWEEN CONDUIT.
12. SWEEPS AND/OR JUNCTION BOXES SHALL BE USED FOR CONDUIT CONTAINING FIBER OPTIC CABLE TO MAINTAIN BENDING RADIUS.
13. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
14. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
15. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
16. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
17. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
20. COMPLETENESS AND ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE GUARANTEED. LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES MUST BE VERIFIED PRIOR TO ANY EARTH MOVING ACTIVITIES
21. CONTRACTOR SHALL UTILIZE EXISTING CONDUIT, CONDUIT HANGERS BEFORE INSTALLING NEW INFRASTRUCTURE.

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

CONDUIT DETAILS 1

PROJECT ENGR. RLD
DESIGNED BY TMW
CHECKED BY BLR
DRAWN BY KSM
PROJECT MGR. RMR

DIVISION CHIEF
DATE
FILE
SHEET 19 OF 23

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9/25/2009
xpLTBRVSs

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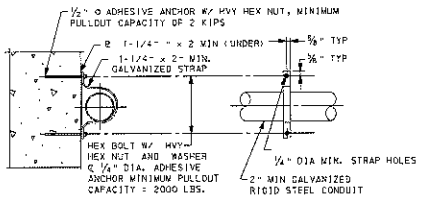
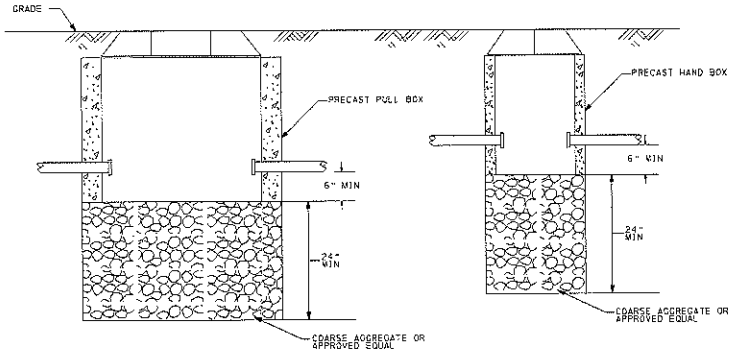
XXX	D.C.	DUP – 0000 (000)	20	23



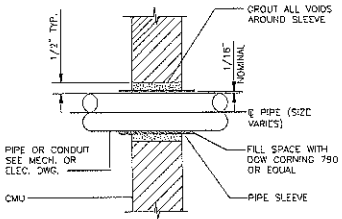
TYPICAL CONDUIT HANGER (WALL MOUNTED)
NTS

NOTES :

1. GALVANIZE ALL HARDWARE, ETC. IN ACCORDANCE WITH THE SPECIFICATIONS. UNLESS OTHERWISE NOTED.
2. USE FRE STRAPS WITH FRE CONDUIT.

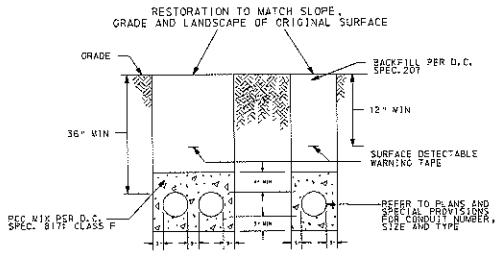


TYPICAL PULL BOX AND HAND BOX DETAIL
NTS

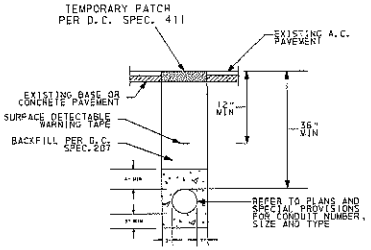


NOTES: (FOR FIRE-RATED WALL ONLY)
1. PIPE ANCHORAGE IS REQUIRED NEARBY TO PREVENT PIPE MOVEMENT THROUGH PENETRATION.
2. CABLES WITHIN CONDUIT PENETRATION SHALL BE FIRE SEALED AFTER INSTALLATION
3. REMOVE SLEEVE FOR PENETRATIONS THROUGH POURED CONCRETE WALLS AND GROUT.

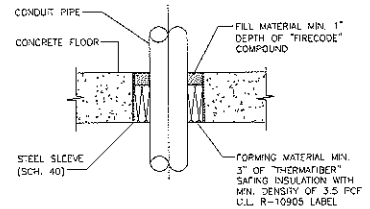
TYPICAL CONDUIT WALL PENETRATION
NTS



CONDUIT INSTALLATION IN SOIL
NTS



TYPICAL PAVEMENT TRENCH DETAIL
NTS



NOTE:
1. TYPICAL PENETRATION REMOVE SLEEVE AND GROUT. USE SLEEVE AND FIRE RATED MATERIAL WHERE REQUIRED.
2. CONDUIT CORES SHALL BE LOCATED AT HOLLOW CELL OF PRECAST CONCRETE PANEL DO NOT CUT PRESTRESSING STRAND.

TYPICAL CONDUIT FLOOR PENETRATION
NTS

NOTES:

1. REFER TO DDOT STANDARD DRAWINGS 617.20, 617.21 AND 617.25 FOR PULL BOX, HAND BOX AND CONDUIT INSTALLATION DIAGRAMS.
2. PULL AND HAND BOXES SHALL BE SET AND LEVEL TO MATCH EXISTING SURFACE.
3. PULL AND HAND BOXES SHALL BE INSTALLED ON A RODENT BARRIER. REFER TO DDOT STANDARD DRAWINGS 617.20 AND 617.21.
4. CONDUIT KNOCKOUTS SHALL BE PRECAST IN PULL AND HAND BOXES.
5. PULL AND HAND BOXES SHALL BE PLACED 10 FEET FROM EDGE OF PAVEMENT WHERE POSSIBLE.
6. ALL EXPOSED CONDUIT AND HARDWARE SHALL BE FIBERGLASS REINFORCED EPOXY (FRE) EXCEPT WHERE NOTED. FRE SHALL TRANSITION TO LIQUID TIGHT FLEXIBLE METALLIC CONDUIT AS SHOWN IN THE DRAWINGS. UNDERGROUND CONDUITS AND STUB-OUTS SHALL BE SCHEDULE 80 PVC.
7. RESTORE SURFACE GRADE TO ORIGINAL CONDITON AFTER CONSTRUCTION.
8. PULL BOX AND HAND BOX SHALL BE PRECAST CONCRETE AND SHALL SATISFY D.C. SPECIFICATION 803.01 (3500 PSI).

Edwards AND Kelcey

NO.	DESCRIPTION	NAME	DATE

REVISIONS

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

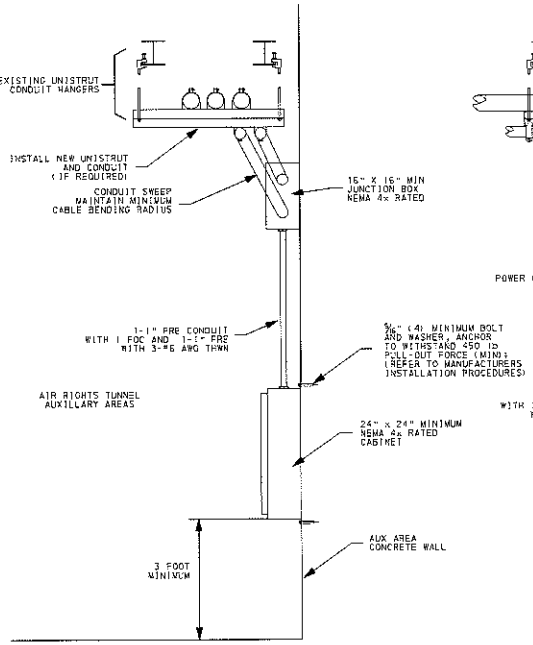
CONDUIT DETAILS 2

PROJECT ENG. BJR
DESIGNED BY TNW
CHECKED BY BJR
DRAWN BY KSW
PROJECT MGR. BAR

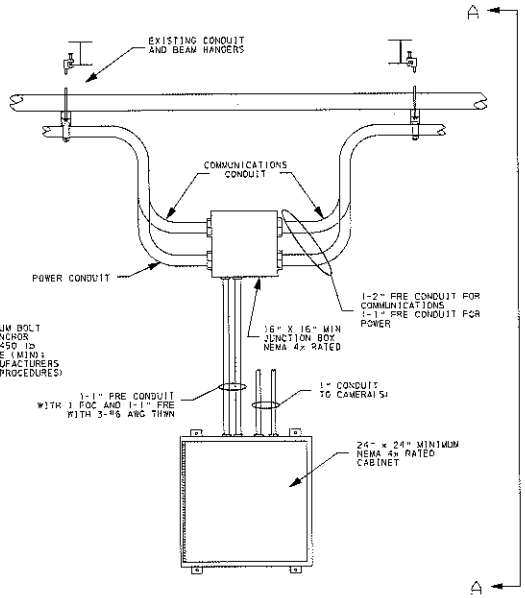
DIVISION CHIEF
DATE
FILE
SHEET 20 OF 23

J:\2008 Projects\YM008\Cad\Tunnel Drawings\9.25.2009 Final Submission\20 of 23 - Conduit Details 2.dgn
9/25/2009 4PLTBRVS9 4PENTBLS4

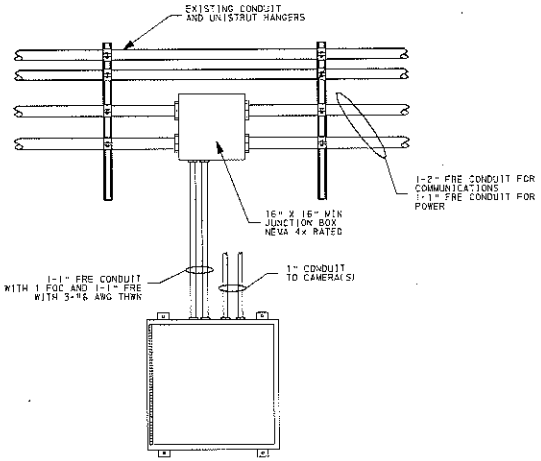
RED	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP - 0000 (000)	21	23



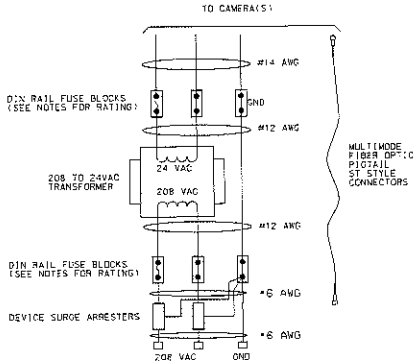
SECTION A-A
NTS



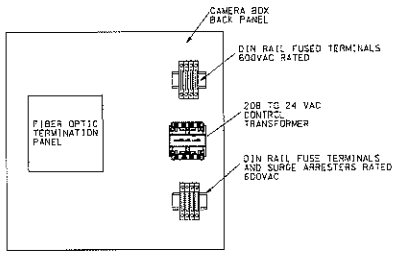
AIR RIGHTS TUNNEL CAMERA BOX CONFIGURATION
NTS



MALL TUNNEL CAMERA BOX CONFIGURATION
NTS



CAMERA BOX WIRING
NTS



CAMERA BOX LAYOUTS
NTS

NOTES:

1. CAMERA FUSES SHALL BE RATED 2A FOR FIXED CAMERAS AND 5A FOR PTZ CAMERAS. TRANSFORMER PRIMARY FUSE SHALL BE RATED 2A MINIMUM.
2. USE 208 TO 24 VAC: 25C VA RATED CONTROL TRANSFORMERS FOR ALL CAMERA BOXES: EXCEPT ML W1 AND AR # 7 USE TRANSFORMERS RATED 350 VA.
3. DIN RAILS AND TERMINAL FUSE BLOCKS SHALL BE ASSEMBLED WITH APPROPRIATE END STOPS, SEPARATOR BLOCKS AND HARDWARE.
4. CAMERA BOX INTERNAL WIRING SHALL BE 12 AWG. 600V STRANDED CONDUCTORS.
5. EACH CAMERA BOX 12-STRAND MULTIMODE FIBEROPTIC CABLE SHALL BE HOMERUN BACK TO THE COMMUNICATIONS CABINET OR SPLICE CABINET.
6. FIBER OPTIC CABLES SHALL BE INSTALLED AS PER MANUFACTURERS INSTALLATION PROCEDURE. BENDING RADIUS SHALL BE MAINTAINED.
7. CAMERA BOX ENCLOSURE AND JUNCTION BOX SHALL BE RATED NEMA 4X.
8. CONDUIT PENETRATIONS FOR ALL ENCLOSURES AND JUNCTION BOXES SEALED AND LIQUID TIGHT.

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE
	REVISIONS		

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

CAMERA BOX DETAILS

PROJECT ENG.	BLB
DESIGNED BY	TNW
CHECKED BY	SLA
DRAWN BY	KRM
PROJECT MGR.	RAR

DIVISION CHIEF
DATE
FILE
SHEET 21 OF 23

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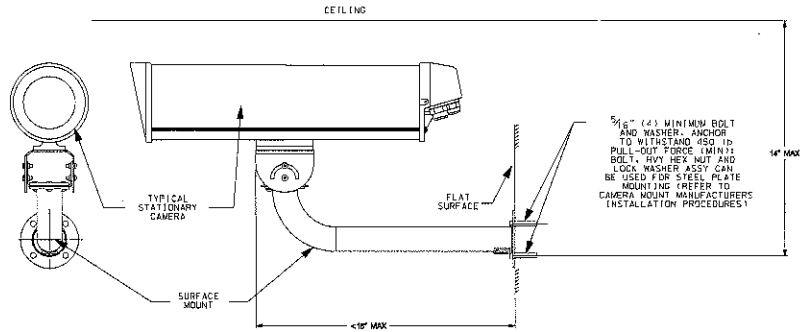
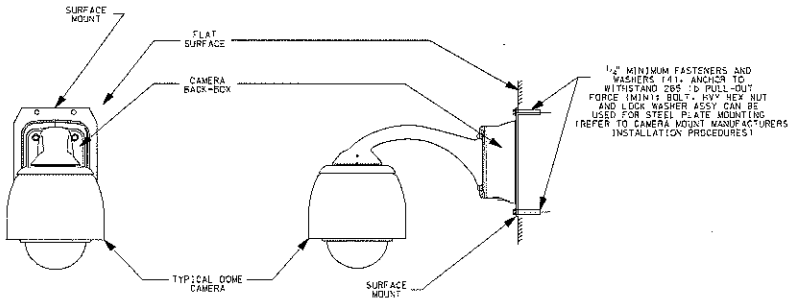
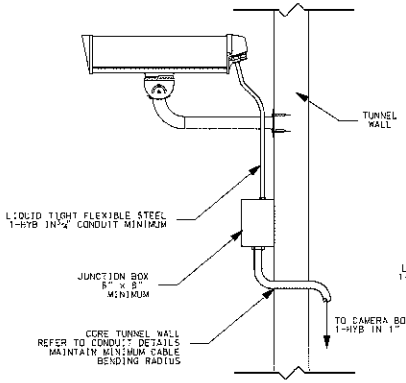
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP - 0000 (000)	22	23



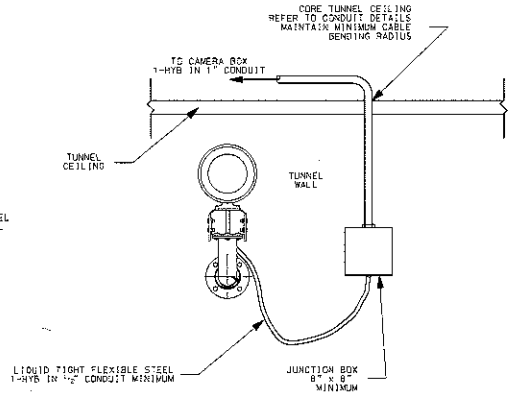
SURFACE MOUNT FIXED CAMERA
NTS



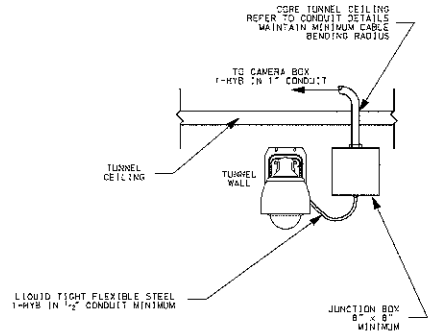
SURFACE MOUNT DOME CAMERA
NTS



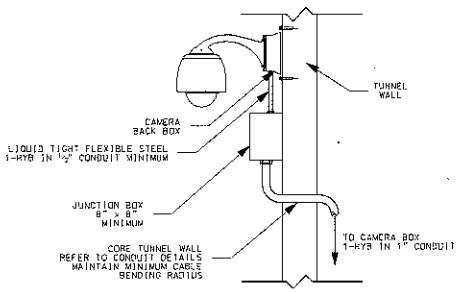
WALL FEED FIXED CAMERA
NTS



CEILING FEED FIXED CAMERA
NTS



CEILING FEED DOME CAMERA
NTS



WALL FEED DOME CAMERA
NTS

NOTES:

1. PLAN SHEETS WERE DEVELOPED FROM AVAILABLE DDOT DRAWINGS AND DO NOT REPRESENT FIELD SURVEYED DRAWINGS. CONTRACTOR SHALL FIELD VERIFY CIP EQUIPMENT LOCATIONS AND DISTANCES AND REPORT ANY DISCREPANCIES TO THE PROJECT ENGINEER BEFORE PURCHASING AND INSTALLING MATERIALS.
2. REFER TO CAMERA MOUNTING DETAILS FOR CONDUIT TO CAMERA INFORMATION.
3. CONTRACTOR SHALL USE CARE WHEN DRILLING OR CORING DECORATIVE FACADE. ANY SURFACES DAMAGED BY CONSTRUCTION SUCH AS STONE, GRANITE, CERAMIC TILES, ETC. SHALL BE REPAIRED IN KIND AT THE CONTRACTORS EXPENSE.
4. PTZ DOME CAMERAS WILL BE INSTALLED OVER SIDEWALKS PROTECTED BY CONCRETE BARRIERS.
5. ALL CAMERAS, PTZ AND FIXED SHALL BE MOUNTED AS HIGH AS POSSIBLE HEIGHTS MAY DIFFER THROUGHOUT BOTH TUNNELS.

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE

REVISIONS

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

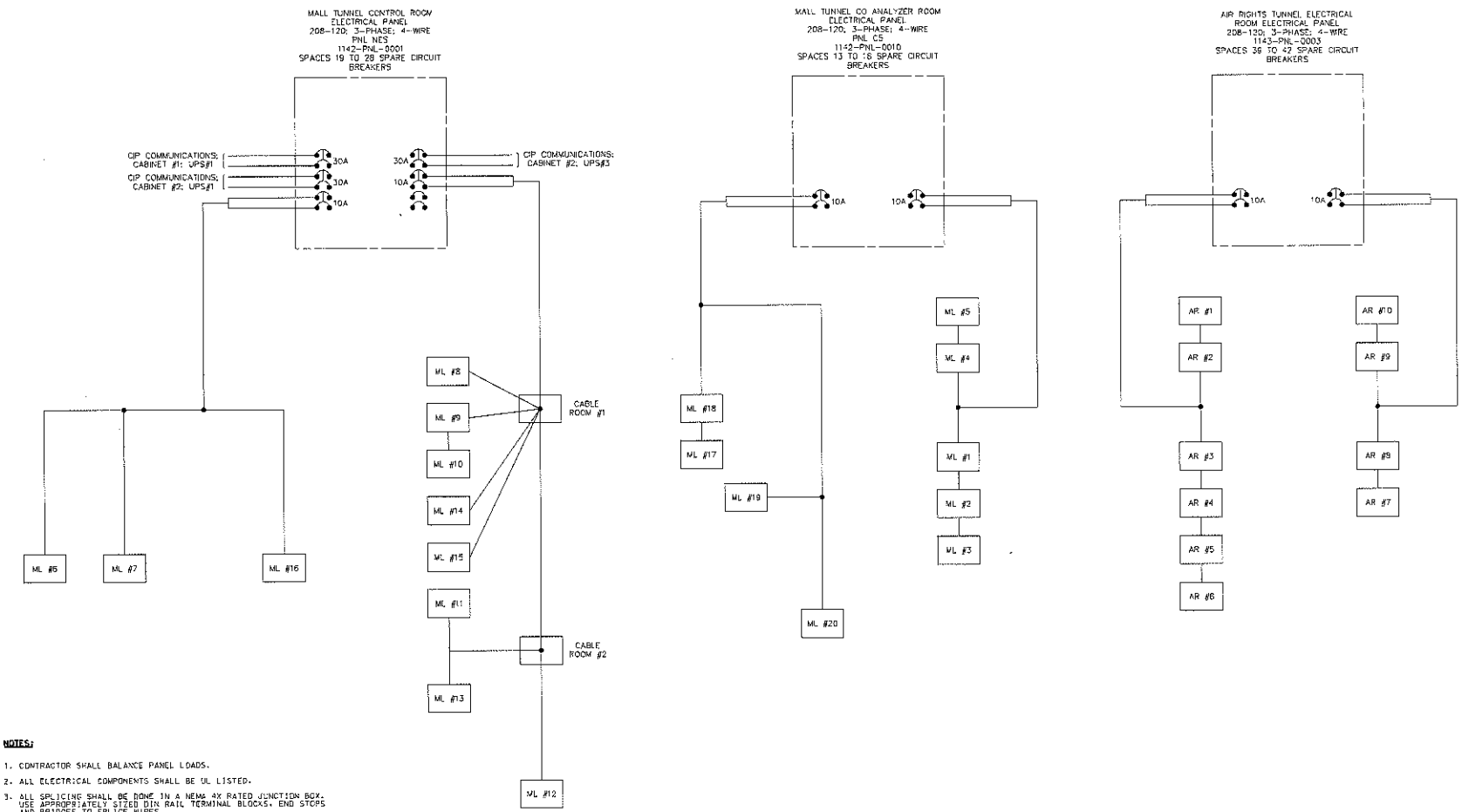
CAMERA MOUNTING DETAILS

PROJECT ENG.	BLR
DESIGNED BY	TNW
CHECKED BY	BLR
DRAWN BY	KBM
PROJECT MGR.	PAR

DIVISION CHIEF
DATE
FILE
SHEET 22 OF 23

J:\9008 Projects\TX0008\Civil\TunnelDrawings\9-25-2009 Final Submission\22 of 23 - Camera Mounting Details.dgn
9/24/2009 #PLTBNVS#

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
XXX	D.C.	DUP – 0000 (000)	23	23



NOTES:

1. CONTRACTOR SHALL BALANCE PANEL LOADS.
2. ALL ELECTRICAL COMPONENTS SHALL BE UL LISTED.
3. ALL SPLICING SHALL BE DONE IN A NEMA 4X RATED JUNCTION BOX. USE APPROPRIATELY SIZED DIN RAIL TERMINAL BLOCKS, END STOPS AND BRIDGES TO SPLICE WIRES.
4. CONTRACTOR SHALL SIZE AND INSTALL A 208VAC BOOST TRANSFORMER IF REQUIRED.
5. REFER TO SHEET 21 FOR CAMERA BOX WIRING.
6. REFER TO PLAN SHEETS FOR WIRE SIZES.
7. CONTRACTOR SHALL INSTALL NEW 2 POLE CIRCUIT BREAKERS EXISTING ELECTRICAL PANELS.

Edwards AND Kelcey

NO	DESCRIPTION	NAME	DATE

REVISIONS

D.C. DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE PROJECT MANAGEMENT ADMINISTRATION
PROJECT MANAGEMENT DIVISION

DDOT CRITICAL INFRASTRUCTURE PROTECTION DESIGN AND INTEGRATION

PROJECT ENG. BLB
DESIGNED BY TNW
CHECKED BY BLB
DRAWN BY KBM
PROJECT MGR. RAP

ELECTRICAL SCHEMATIC

DIVISION CHIEF
DATE
FILE
SHEET 23 OF 23

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9/26/2009 $PLTDRVS$ $PENTBLS$