GEAR AND CONTROL SYMBOLS

SYMBOL	DESCRIPTION	MOUNTING	REMARKS
S_T	MANUAL STARTER WITH THERMAL OVERLOAD(S)	AT EQUIPMENT	
	ELECTRIC MOTOR		
	NON-FUSED DISCONNECT SWITCH	+60"	
F	FUSED DISCONNECT SWITCH	+60"	
	CIRCUIT BREAKER AND ENCLOSURE	+60"	
	MAGNETIC STARTER	+60"	
	COMBINATION MAGNETIC STARTER / NON-FUSED DISCONNECT	+60"	
F	COMBINATION MAGNETIC STARTER / FUSED DISCONNECT	+60"	
	COMB. MAGNETIC STARTER / MOTOR CIRCUIT PROTECTOR (MCP)	+60"	
VFD	COMB. VARIABLE FREQUENCY DRIVE / MOTOR CIRCUIT PROTECTOR (MCP)	FLOOR OR WALL AS SPECIFIED	TOP AT +72" IF WALL MOUNTED
RVS	REDUCED VOLTAGE STARTER	FLOOR OR WALL AS SPECIFIED	TOP AT +72" IF WALL MOUNTED
	LOAD CENTER (SURFACE-MOUNTED)	TOP AT +72"	14"W X 3"D
	LOAD CENTER (FLUSH-MOUNTED)	TOP AT +72"	14"W X 3"D
	LIGHTING AND APPLIANCE PANELBOARD (SURFACE-MOUNTED)	TOP AT +72"	20"W X 6"D
	LIGHTING AND APPLIANCE PANELBOARD (FLUSH-MOUNTED)	TOP AT +72"	20"W X 6"D
	POWER DISTRIBUTION PANELBOARD	WALL	THESE SYMBOLS ARE GENERAL IN NATURE AND MAY VARY IN SIZE AND SHAPE TO SUIT APPLICATION. CROSS HATCHING INDICATES "MAIN PANELBOARD OR SWITCHBOARD" NAME IS INDICATED IN SEMI-QUOTES (I.E. 'L2A', 'HDP')
	SWITCHBOARD	FLOOR	
	METER BASE	TOP AT +72"	
	OPEN - STOP - CLOSE SWITCH	+60"	FURNISH SWITCH UNLESS FURNISHED BY ANOTHER DIVISION. INSTALL AND CONNECT COMPLETE. REFER TO RELATED SPECIFICATION SECTIONS.
T	HVAC THERMOSTAT	+60"	PROVIDED BY DIVISION 15000 U.N.O.
	HAND - OFF - AUTO SWITCH	+60"	
GF	GROUND FAULT PROTECTION		

GENERAL NOTES:

1. ITEMS THAT ARE SHOWN IN LIGHT LINES REPRESENT EQUIPMENT,AND CONDUIT THAT ARE ALEADY IN PLACE.
2. ITEMS THAT ARE SHOWN IN DARK LINES REPRESENT NEW EQUIPMENT, CONDUIT, AND WIRE THAT NEED TO BE PROVIDED.

ONE LINE KEYED NOTES:

(1) EXTEND THE EXISTING GROUNDING ELECTRODE CONDUCTORS FROM THE EXISTING LOCATION TO THE NEW LOCATION OF THE CT/MAIN DISCONNECT SWITCHBOARD LOCATION.

WIRING DEVICE SYMBOLS

SYMBOL	DESCRIPTION	MOUNTING	REMARKS
$	SINGLE-POLE TOGGLE SWITCH	+48"	
$[a]	SINGLE-POLE TOGGLE SWITCH	+48"	SUBSCRIPT KEYS SWITCH TO FIXTURES CONTROLLED.
$2	DOUBLE-POLE TOGGLE SWITCH	+48"	
$3	THREE-WAY TOGGLE SWITCH	+48"	
$4	FOUR-WAY TOGGLE SWITCH	+48"	
$K	KEY-OPERATED SINGLE-POLE TOGGLE SWITCH	+48"	
$P	SINGLE-POLE TOGGLE SWITCH WITH PILOT LIGHT	+48"	
$DIM	DIMMER SWITCH	+48"	RATE DIMMER SWITCH FOR MAXIMUM POSSIBLE WATTAGE
$TIM	TIMER SWITCH	+48"	
$$	(2) SINGLE-POLE TOGGLE SWITCH	+48"	DUAL LEVEL SWITCH OUTBOARD LAMPS SEPARATELY FROM INBOARD LAMPS.
$LV	LOW VOLTAGE MOMENTARY CONTACT SWITCH	+48"	
$3PM	3-POSITION MOMENTARY CONTACT SWITCH	+48"	REFER TO DETAIL UP-ON; CENTER-NEUTRAL; DOWN-OFF
$3PN	3-POSITION MAINTAINED CONTACT SWITCH	+48"	UP-ON; CENTER-OFF; DOWN-ON
C/W	OCCUPANCY SENSOR	AS NOTED	CEILING MOUNTED WITH SUBSCRIPT 'C'; WALL-MOUNTED WITH SUBSCRIPT 'W'
	SPLIT-WIRED DUPLEX RECEPTACLE	+18"	
	SIMPLEX RECEPTACLE	+18"	
	DUPLEX RECEPTACLE	+18"	
	FOURPLEX RECEPTACLE	+18"	
	125/250V RECEPTACLE	+18"	RANGE -- NEMA 14-50R DRYER -- NEMA 14-30R
	GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE	+18"	
	GROUND FAULT CIRCUIT INTERRUPTER FOURPLEX RECEPTACLE	+18"	
	EMERGENCY DUPLEX RECEPTACLE	+18"	
	EMERGENCY FOURPLEX RECEPTACLE	+18"	
(1)	MULTI-OUTLET ASSEMBLY	4" ABOVE BACKSPLASH	
	POWER / TELEPHONE POLE	FLOOR/CEILING	
	CORD DROP WITH DUPLEX RECEPTACLE	+18"	REFER TO DETAIL
(5-20R)	SPECIAL PURPOSE OUTLET	+18"	SUBSCRIPT IN PARENTHESIS INDICATES NEMA CONFIGURATION IF SHOWN. REFER TO DRAWINGS AND/OR EQUIPMENT SCHEDULES. CONFIRM EXACT CONFIGURATION WITH OWNER PRIOR TO INSTALLATION.

ELECTRICAL SYMBOL SCHEDULE GENERAL NOTES

1. MOUNT ALL OUTLETS, DEVICES, AND EQUIPMENT AT HEIGHTS INDICATED BELOW, UNLESS NOTED OTHERWISE ON THE DRAWINGS. UNLESS NOTED OTHERWISE, HEIGHTS ARE GIVEN FROM FINISHED FLOOR TO CENTER OF OUTLET BOX.
2. WHERE OUTLETS, DEVICES, AND EQUIPMENT ARE NOTED BY SUBSCRIPTS, REFER TO ABBREVIATION SCHEDULE FOR DEFINED REQUIREMENTS.
3. WHERE OUTLETS, DEVICES AND EQUIPMENT ARE NOTED BY THE SUBSCRIPT 'A', MOUNT AT 4" ABOVE COUNTER. IF COUNTER HAS A BACK SPLASH, MOUNT AT 4" ABOVE BACK SPLASH. REFER TO ARCHITECTURAL INTERIOR ELEVATIONS AND COORDINATE WITH CASEWORK SUPPLIER.
4. NOT ALL ELECTRICAL SYMBOLS MAY BE USED.

GENERAL SYMBOLS

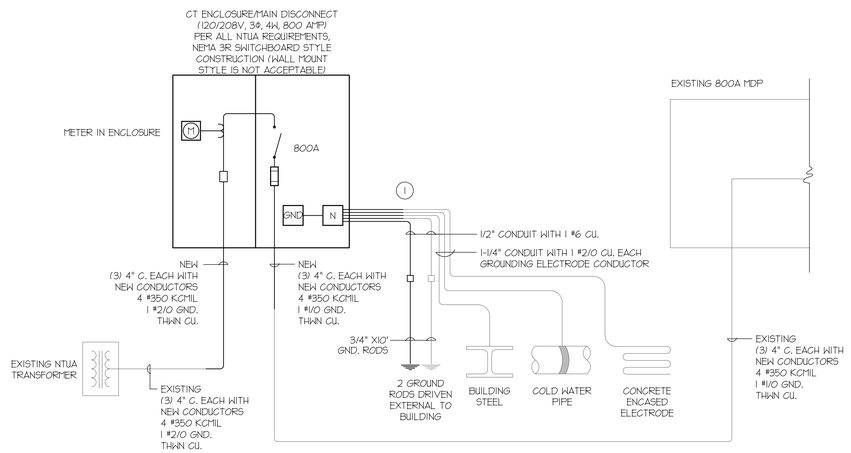
SYMBOL	DESCRIPTION	REMARKS
(XX)	KEYED NOTE	
1 / E-1	DETAIL REFERENCE	TOP NUMBER INDICATES DETAIL NUMBER; BOTTOM LETTER-NUMBER INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN; WHERE NOT SPECIFICALLY REFERENCED, DETAIL IS GENERAL IN NATURE AND SHALL APPLY WHERE APPLICABLE.
2 / E-2	ELEVATION REFERENCE	TOP NUMBER INDICATES ELEVATION NUMBER; BOTTOM LETTER-NUMBER INDICATES WHERE ELEVATION IS SHOWN.
3 / E-3	SECTION REFERENCE	TOP NUMBER INDICATES SECTION NUMBER; BOTTOM LETTER NUMBER INDICATES WHERE SECTION IS SHOWN.
100	ARCHITECTURAL ROOM NUMBER	
AHU / 1	EQUIPMENT NAME / NUMBER	TOP NUMBER ABBREVIATES EQUIPMENT NAME OR TYPE; BOTTOM NUMBER INDICATES EQUIPMENT NUMBER. REFER TO EQUIPMENT SCHEDULE.
1	REVISION NUMBER	USED TO DENOTE CHANGES EITHER ISSUED BY ADDENDUM OR DURING CONSTRUCTION AND TO DENOTE RECORD DRAWING CHANGES.
	BREAKLINE	USED TO BREAK DRAWINGS.

BRANCH CIRCUITING SYMBOLS

SYMBOL	DESCRIPTION	REMARKS
	1 CIRCUIT, 2 WIRE BRANCH CIRCUIT HOME RUN TO PANEL	ARROWS: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS REQUIRED. SHORT CROSS LINES: NUMBER OF SHORT CROSS LINES INDICATES NUMBER OF PHASE, TRAVELER, AND/OR SWITCHED CONDUCTORS REQUIRED IF GREATER THAN 1 (ONE). LONG CROSS LINES: NUMBER OF LONG CROSS LINES INDICATES NUMBER OF NEUTRAL CONDUCTORS REQUIRED FOR MULTI-WIRE HOME RUNS. EQUIPMENT GROUND AND ISOLATED GROUND CONDUCTORS: EQUIPMENT GROUND AND ISOLATED GROUND CONDUCTORS ARE NOT SHOWN, BUT ARE REQUIRED AS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS.
	2 CIRCUIT, 3 WIRE BRANCH CIRCUIT HOME RUN TO PANEL	
	3 CIRCUIT, 4 WIRE BRANCH CIRCUIT HOME RUN TO PANEL	
	MULTIPLE WIRE BRANCH CIRCUITING BETWEEN FIXTURES, SWITCHES, DEVICES, ETC.	
	BRANCH CIRCUITING (U.N.O.) TURNED UP OR TOWARDS OBSERVER.	
	BRANCH CIRCUITING (U.N.O.) TURNED DOWN OR AWAY FROM OBSERVER.	
	BRANCH CIRCUITING (U.N.O.) CONTINUATION	
	CONDUIT STUB-IN	CAP AND MARK
	INCOMING SERVICE	
J	JUNCTION BOX	MOUNT AS NOTED. SUBSCRIPT 'F' INDICATES TO PROVIDE A FLOOR BOX WITH BLANK COVERPLATE

ELECTRONIC SYSTEM GENERAL SYMBOLS

SYMBOL	DESCRIPTION	MOUNTING	REMARKS
PANEL NAME	ELECTRONIC SYSTEM PANELBOARD (SURFACE MOUNT)	TOP AT 72"	ELECTRONIC SYSTEMS MAY INCLUDE BUT ARE NOT SPECIFICALLY LIMITED TO, TELEPHONE, DATA, TELEVISION, LIGHTING CONTROL, CLOCKS, FIRE ALARM, ACCESS CONTROL, SECURITY, CCTV, SOUND SYSTEM, NURSE CALL, OR INTERCOM.
PANEL NAME	ELECTRONIC SYSTEM PANELBOARD (FLUSH MOUNT)	TOP AT 72"	
	ELECTRONIC SYSTEM TERMINAL BOARD	TOP AT 72"	



(1) ONE-LINE DIAGRAM
SCALE: NONE

ELECTRICAL SHEET INDEX

ABBREVIATION SCHEDULE

NOTE: NOT ALL ABBREVIATIONS MAY BE USED.

A	ABOVE COUNTER	ISO	ISOLATED
A	AMP OR AMPS	KVA	KILO VOLT AMPERES
ADJ	ADJACENT	KW	KILOWATTS
AFF	ABOVE FINISHED FLOOR	LFMC	LIQUID-TIGHT METAL CONDUIT
AHJ	AUTHORITY HAVING JURISDICTION	LFNC	LIQUID-TIGHT NONMETAL CONDUIT
AL	ALUMINUM	MCA	MINIMUM CIRCUIT AMPS
C	CONDUIT	MLO	MAIN LUGS ONLY
CB	CIRCUIT BREAKER	N.C.	NORMALLY CLOSED
CKT	CIRCUIT	N.I.C.	NOT IN CONTRACT
C.O.'S	CONVENIENCE OUTLETS	N.L.	NIGHT LIGHT
CU	COPPER	N.O.	NORMALLY OPEN
EA	EACH	O.C.	ON CENTER(S)
ELEC	ELECTRICAL	OCP	OVER CURRENT PROTECTION
EM	EMERGENCY	QTY	QUANTITY
EMT	ELECTRIC METALLIC TUBING	R	REMOVE
ENT	ELECTRIC NONMETALLIC TUBING	REQ.	REQUIREMENTS
EQUIP	EQUIPMENT	RMC	RIGID METAL CONDUIT
EWC	ELECTRIC WATER COOLER	RNC	RIGID NONMETALLIC CONDUIT
E, EX	EXISTING	RR	REMOVE AND RELOCATE
EXP	EXPLOSION PROOF	SS	SURGE SUPPRESSION
FA	FIRE ALARM	SCP	SECURITY CONTROL PANEL
FACP	FIRE ALARM CONTROL PANEL	TR	TAMPER RESISTANT
FLA	FULL LOAD AMPS	TYP	TYPICAL
FMC	FLEXIBLE METAL CONDUIT	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
FOB	FREIGHT ON BOARD	UF	UNDER FLOOR
GND	GROUND CONDUCTOR	UG	UNDERGROUND
HOA	HAND-OFF-AUTO	U.N.O.	UNLESS NOTED OTHERWISE
HP	HORSE POWER	W	WITH
IG	ISOLATED GROUND	WP	WEATHER PROOF
IMC	INTERMEDIATE METAL CONDUIT	XFMR	TRANSFORMER
INS	INSULATED		

GENERAL PROJECT NOTES:

1. DIVISION 16000 CONTRACTOR IS RESPONSIBLE FOR READING AND APPLYING WHAT IS IN THE SPECIFICATIONS TO THIS PROJECT. ANYTHING THAT IS NOT INCLUDED ON THE PROJECT THAT IS CALLED OUT IN THE SPECIFICATION SHALL BE LISTED ON THE SUBSTANTIAL COMPLETION PUNCHLIST. THE CONTRACTOR WILL BE REQUIRED TO REMEDY THESE DEFICIENCIES. THERE WILL BE NO EXCEPTIONS.
2. THE CONTRACTOR MAY SCHEDULE A PRE-CONSTRUCTION MEETING , AT THEIR DISCRETION WITH THE ELECTRICAL ENGINEER AND REVIEW THE DRAWINGS AND SPECIFICATIONS. THE MEETING SHALL BE A MAXIMUM OF ONE HOUR AND SHALL TAKE PLACE AT THE ENGINEER'S OFFICE.
3. THE FOLLOWING ITEMS ARE SOME OF THE REQUIREMENTS THAT ARE LISTED IN THE SPECIFICATIONS, THESE ITEMS DO NOT REPRESENT ALL ITEMS AND THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL REQUIREMENTS OF THE SPECIFICATIONS:
   A. INSULATED THROAT CONNECTORS OR PLASTIC BUSHINGS SHALL BE UTILIZED FOR ALL CONDUIT SIZES USED ON THIS PROJECT.
   B. A #10 AWG NEUTRAL CONDUCTOR WILL BE PROVIDED FOR ALL FLUORESCENT LIGHTING CIRCUITS.
   C. THE CONTRACTOR IS RESPONSIBLE FOR UPSIZING CONDUCTORS FOR VOLTAGE DROP PER THE NEC REGARDLESS OF WHETHER IT IS SHOWN ON THE PLANS OR NOT.
   D. THE CONTRACTOR SHALL LABEL ALL ELECTRICAL EQUIPMENT AS IT IS CALLED OUT IN THE SPECIFICATIONS.
   E. THE CONTRACTOR SHALL PROVIDE SEISMIC SUPPORT AND BRACING FOR ALL ELECTRICAL EQUIPMENT AS REQUIRED BY LOCAL AND NATIONAL CODE.
4. THE CONTRACTOR SHALL FOLLOW THE PANELBOARD SCHEDULES AS INDICATED IN THE DRAWINGS. EACH CIRCUIT BREAKER HAS BEEN ASSIGNED A SPECIFIC AREA OF THE BUILDING. NO DEVIATION WILL BE ALLOWED WITHOUT THE APPROVAL FROM THE ELECTRICAL ENGINEER.
5. THE CONTRACTOR SHALL INSTALL PROPER WIRE SIZE AS CALLED OUT ON THE PANELBOARD SCHEDULES. HOWEVER, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE WIRE IS LARGE ENOUGH FOR VOLTAGE DROP.
6. THE CONTRACTOR SHALL VERIFY ALL MECHANICAL OVERCURRENT DEVICES FOR THE ACTUAL MECHANICAL EQUIPMENT SUPPLIED ON THE JOB, PRIOR TO RELEASE OF ANY ELECTRICAL DISTRIBUTION EQUIPMENT. CONTACT THE ELECTRICAL ENGINEER WITH ANY DISCREPANCIES.
7. THE CONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING THE BID, AND SHALL EXAMINE ALL PHYSICAL CONDITIONS WHICH MAY BE MATERIAL TO THE PERFORMANCE OF HIS WORK. NO EXTRA PAYMENTS WILL BE ALLOWED TO THE CONTRACTOR AS A RESULT OF EXTRA WORK MADE NECESSARY BY HIS FAILURE TO DO SO. ANY CASE OF DISCREPANCY OR LACK OF CLARITY SHALL BE PROMPTLY IDENTIFIED TO THE OWNER'S REPRESENTATIVE AND THE ENGINEER FOR CLARIFICATION.
8. THE CONTRACTOR SHALL MAKE SURE THAT ALL BRANCH CIRCUITS THAT ARE AFFECTED BY THIS PROJECT ARE NOT OVERLOADED. PROVIDE ADDITIONAL BRANCH CIRCUITS FROM ELECTRICAL PANELS AS NECESSARY TO COMPLY WITH THE BRANCH CIRCUIT LOADING REQUIREMENTS. PROVIDE ALL MATERIAL AND LABOR AS NECESSARY FOR A COMPETE AND OPERATING SYSTEM.
9. PROVIDE UPDATED, TYPED PANELBOARD SCHEDULE(S) TO REFLECT ALL THE CHANGES MADE INCLUDING EXISTING LOADS. THE EXISTING LOADS SHALL BE NAMED THE SAME AS LISTED ON THE EXISTING PANELBOARD SCHEDULE.

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DATE
REVISIONS
NO.

MONUMENT VALLEY
WELCOME CENTER

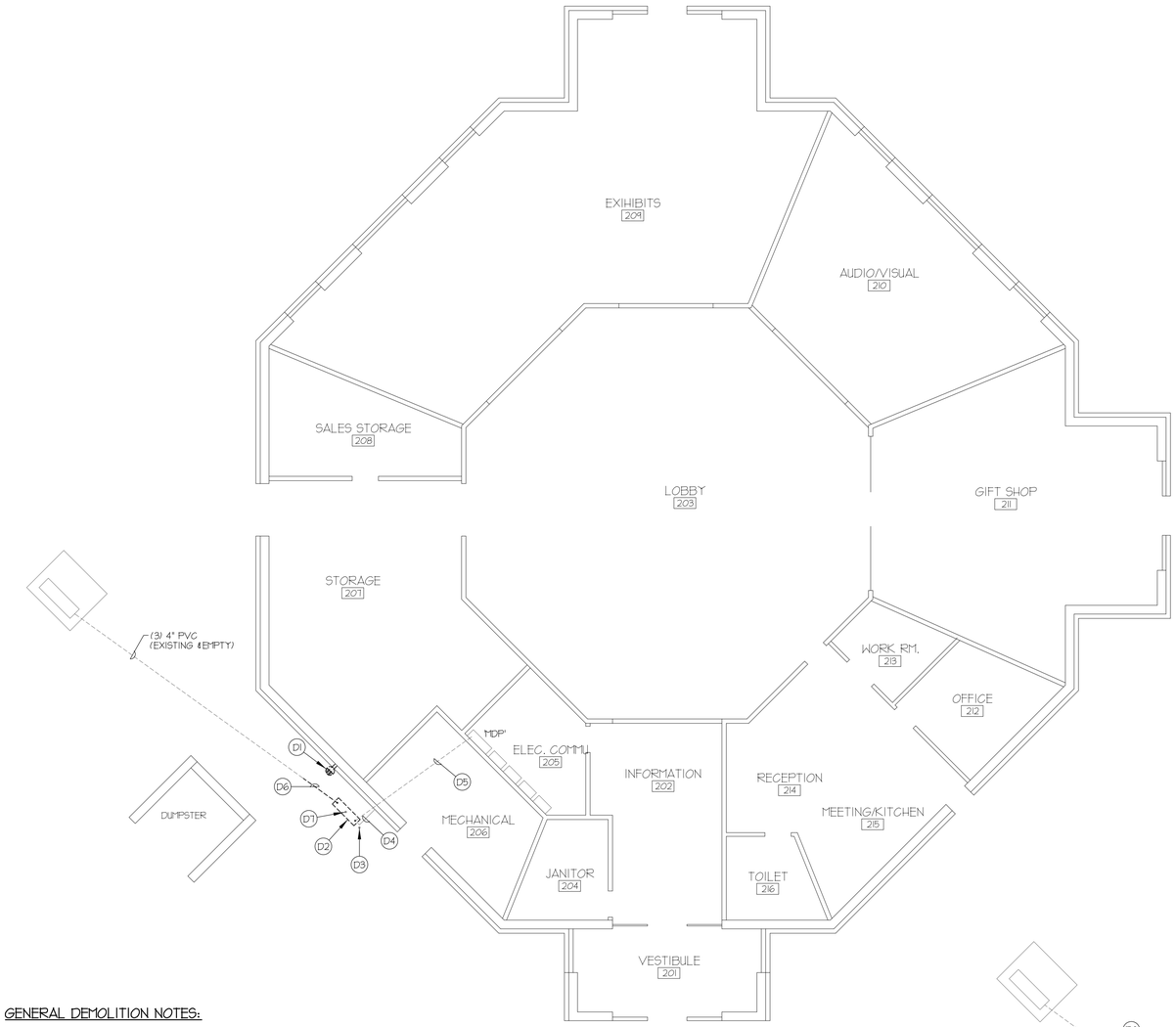
SYMBOL SCHEDULES AND
ONE-LINE DIAGRAM

DRAWN BY DML
DESIGNED BB
CHECKED DPW

DATE 02/20/08
FILENAME 2008-008

PROJECT
2008-008

SHEET
E-01



2 DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

GENERAL DEMOLITION NOTES:

1. UNLESS SPECIFICALLY NOTED OTHERWISE, REMOVE ALL ELECTRICAL ITEMS SHOWN IN DARK & DASHED LINES. ITEMS SHOWN IN LIGHT & SOLID LINES ARE TO REMAIN. DEMOLITION ITEMS ARE SHOWN TO GIVE A BASIC DESCRIPTION OF THE EXTENTOF DEMOLITION WORK, BUT MAY NOT BE INCLUSIVE. PROVIDE DEMOLITION WORK IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

A. DISCONNECT AND REMOVE ANY/ALL FIXTURES, DEVICES, EQUIPMENT, ETC. REQUIRED FOR PROPER COMPLETION OF THE WORK WHETHER SHOWN OR NOT.

B. RELOCATE, REWIRE, AND/OR RECONNECT ANY/ALL FIXTURES, DEVICES, EQUIPMENT, ETC. THAT FOR ANY REASON OBSTRUCTS CONSTRUCTION.

C. LEAVE ALL EXISTING FIXTURES, DEVICES, EQUIPMENT, ETC. IN PORTIONS OF THE BUILDING NOT BEING REMODELED, IN WORKING CONDITION. RESTORE ALL INTERRUPTED BRANCH CIRCUITS, FEEDERS, ETC.

D. REMOVE AND DISPOSE OF ALL RACEWAYS, CONDUCTORS, BOXES, DEVICES, EQUIPMENT, ETC. THAT ARE NOT TO BE REUSED. TERMINATE AT ACCESSIBLE JUNCTION BOX BY PROVIDING PROPER KNOCK-OUT CLOSURE, TAPE CONDUCTORS, LABEL AS "SPARE" WITH CIRCUIT NO., ZONE NO., OR OTHER CHARACTERISTIC IDENTIFYING SOURCE.

E. EXISTING RACEWAYS MAY BE REUSED, IF IN PLACE, WHERE POSSIBLE, AND WHERE IN COMPLIANCE WITH THE SPECIFICATIONS AND THE INTENT OF THE CONTRACT DOCUMENTS. UPGRADE AND OR PROVIDE NEW CONDUIT SUPPORTS WHERE NECESSARY FOR ALL RACEWAYS BEING REUSED. INSURE INTEGRITY OF EXISITING RACEWAYS BEFORE REUSE.

F. CONCEAL ALL RACEWAY AND WIRING IN EXISTING WALLS, CEILINGS, FLOORS, ETC. THE USE OF WIREMOLD IS PERMITTED ONLY WHERE SPECIFICALLY NOTED ON DRAWING.

G. DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOFS, ETC.

H. COORDINATE WITH OWNER WHAT EQUIPMENT SHOULD BE DISPOSED OF AND WHAT EQUIPMENT IS TO BE RETURNED TO OWNER.

DEMOLITION KEYED NOTES:

(D1) EXISTING EXTERIOR MOUNTED OUTLET TO BE REMOVED. EXISTING WIRES SHALL BE REMOVED BACK TO THE NEXT DEVICE IN LINE. THIS BOX SHALL BE ABANDONED IN PLACE. PROVIDE BLANK COVER PLATE OVER BOX. IF THIS DEVICE IS AN INTERMEDIATE DEVICE WITH DEVICES THAT ARE UPSTREAM AND DOWNSTREAM, THE CONTRACTOR SHALL PHYSICALLY MOVE THE LOCATION OF THE BOX SO THAT IT IS NOT LOCATED BEHIND THE NEW GT/MAIN DISCONNECT SWICHGEAR CABINET. MODIFY CONDIT AND WIRING AS NECESSARY. NO EXPOSED CONDUIT IS ALLOWED AND CUTTING AND PATCHING OF THE EXISTING WALL SHALL BE DONE AS NECESSARY TO MOVE THIS DEVICE LOCATION.

(D2) EXISTING 800 AMP DISCONNECT AND ASSOCIATED UNISTRUCT MOUNTING FRAME TO BE TOTALLY REMOVED. PATCH AND REPAIR WALL AS NECESSARY USING APPROVED METHODS AND MATERIALS. RETURN DISCONNECT TO OWNER.

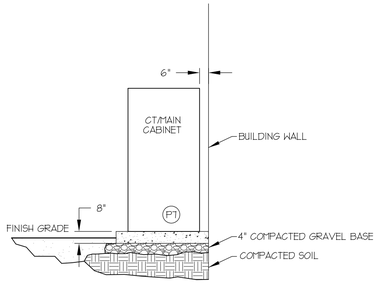
(D3) EXISITNG GROUND ROD TO REMAIN IN PLACE. EXISTING GROUNDING ELECTRODE CONDUCTOR TO BE EXTENDED TO NEW GT/MAIN DISCONNECT LOCATION.

(D4) EXISTING GROUND WIRE COVERED WITH 3/4" PVC CONDUIT EXTENDING FROM THE BUILDING SHALL BE MODIFIED SO THAT CONDUIT EXTENDS DOWN INTO THE GROUND. REFER TO POWER PLAN FOR ADDITIONAL INFORMATION.

(D5) THE EXISTING CONDUCTORS ASSOCIATED WITH THE MAIN 800 BRANCH FEEDER (3 PARALLEL SETS OF #1500 KCMIL + GROUND) FROM THE EXISTING 800 AMP DISCONNECT TO EXISTING MDP' SHALL BE REMOVED TOTALLY. THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND MODIFIED. REFER TO THE POWER PLAN FOR ADDITIONAL INFORMATION.

(D6) REMOVE PORTION OF EXISTING SERVICE CONDUITS AS NECESSARY TO ALLOW FOR NEW GT/MAIN DISCONNECT SWITCHGEAR TO BE INSTALLED. REFER TO THE POWER PLAN FOR ADDITIONAL INFORMATION.

(D7) EXISTING GROUNDING ELECTRODE CONDUCTORS TO BE DISCONNECTED FROM THE 800 AMP DISCONNECT WHICH IS BEING REMOVED. REFER TO KEYED NOTE NO. P3 FOR ADDITIONAL INFORMATION.



3 GT/MAIN CABINET INSTALLATION DETAIL
E02
SCALE: NONE

KEYED NOTES:

(P1) PROVIDE AN LB CONDULET FOR THE EXISTING 3/4" CONDUIT AND RUN THE CONDUIT DOWN THE EXTERIOR BUILDING SURFACE INTO THE GROUND SO THAT THE EXISTING GROUND WIRE CAN BE EXTENDED OVER TO THE SWITCHGEAR 'MS'. REFER TO DEMOLITION KEYED NOTE NO. D4 FOR ADDITIONAL INFORMATION.

(P2) EXTEND NEW BRANCH CONDUCTORS AND ASSOCIATED GROUND CONDUCTOR FROM MDP' TO NEW SWITCHGEAR 'MS'. EXTEND EXISTING CONDUIT AS NECCESSARY FOR A COMPLETE INSTALLATION. REFER TO THE ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

(P3) EXISTING GROUNDING ELECTRODE CONDUCTORS SHALL BE EXTENDED TO THE NEW SWITCHGEAR 'MS' LOCATION. EXTEND CONDUCTORS TO THE NEW LOCATION USING AN IRREVERSIBLE SPLICE OR CADWELD CONNECTION.

(P4) ADD AN ADDITIONAL GROUND ROD A MINIMUM OF 10' FROM THE EXISTING 3/4" X10' GROUND ROD.

(P5) PROVIDE AN 8" CONCRETE HOUSEKEEPING PAD FOR NEW SWITCHGEAR 'MS'.

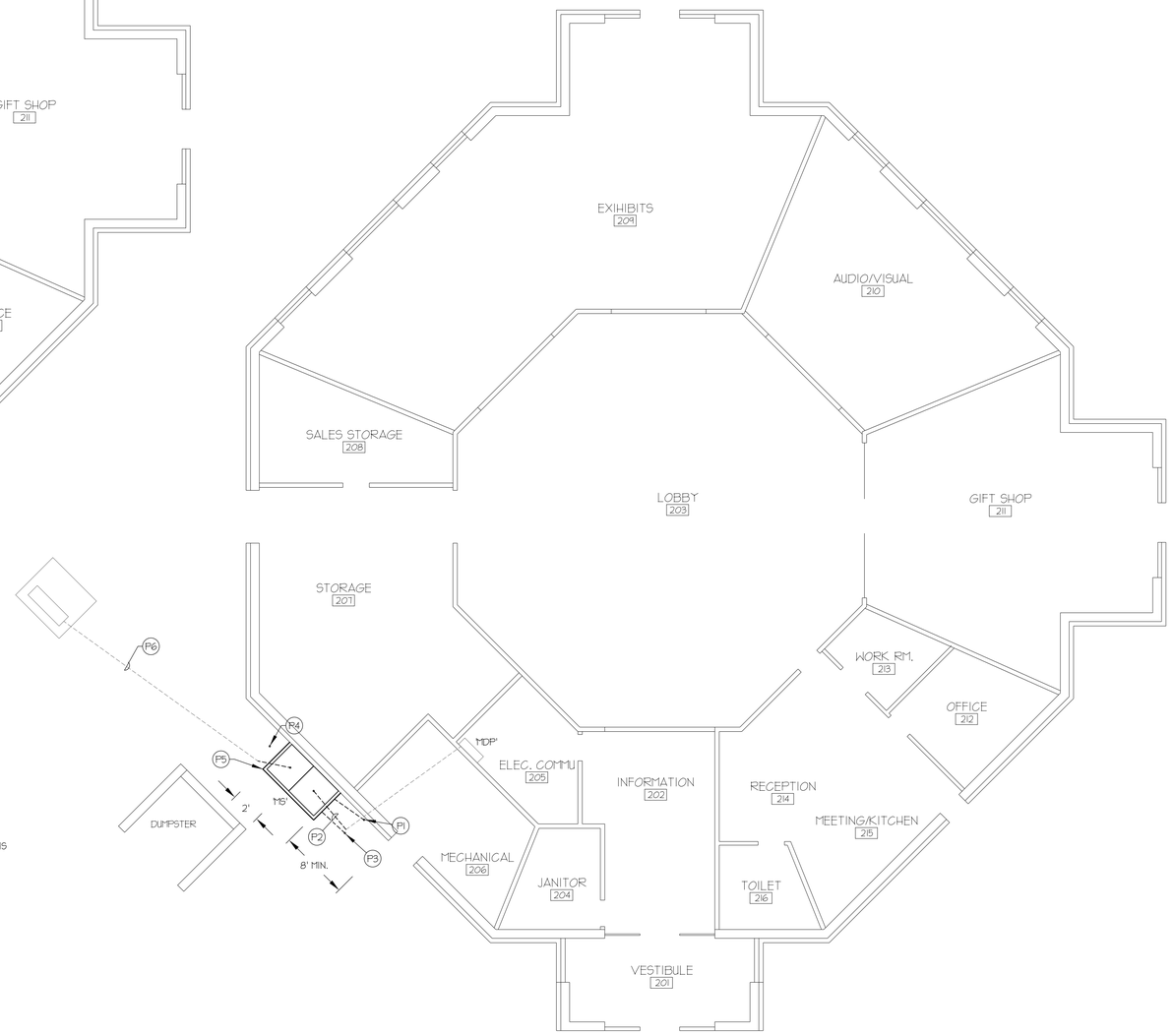
(P6) MODIFY AND EXTEND THE EXISTING CONDUITS FROM THE TRANSFORMER INTO THE NEW SWITCHGEAR 'MS'. REFER TO THE ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.

(P7) SEISMICALLY SECURE SWITCHGEAR 'MS' TO NEW HOUSE KEEPING PAD PER ALL LOCAL AND STATE CODES.

GENERAL NOTES:

1. ITEMS THAT ARE SHOWN IN LIGHT LINES REPRESENT EQUIPMENT,AND CONDUIT THAT ARE ALEADY IN PLACE.

2. ITEMS THAT ARE SHOWN IN DARK LINES REPRESENT NEW EQUIPMENT, CONDUIT, AND WIRE THAT NEED TO BE PROVIDED.



1 POWER PLAN
SCALE: 1/8" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
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NO.	REVISIONS	DATE

MONUMENT VALLEY
WELCOME CENTER

ELECTRICAL DEMOLITION
AND POWER PLAN

DRAWN BY DML
DESIGNED BB
CHECKED DPW

DATE 02/20/08
FILENAME 2008-008

PROJECT
2008-008

SHEET
E-02

SECTION 16000 - ELECTRICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

The contract documents indicate the extent of electrical work. Provide all labor, materials, equipment, supervision and service necessary for a complete electrical system.

Make final electrical connections for all equipment having electrical requirements including, but not necessarily limited to, equipment specified under all divisions of the contract, owner-furnished equipment, etc.

1.02 RELATED SECTIONS:

Other Divisions relating to electrical work, apply to the work of this section. See other applicable Divisions including, but not necessarily limited to concrete, metals, wood, plastics, thermal and moisture protection, finishes, etc.

1.03 INTERPRETATIONS OF DRAWINGS AND SPECIFICATIONS:

Prior to bidding the job, submit requests for clarification in writing to the Architect/Engineer prior to issuance of the final addendum. When conflicts occur among codes, standards, drawings, and/or specifications, the most stringent requirements shall govern. Provide all materials, labor, and equipment to meet the intent, purpose, and function of the contract documents.

1.04 QUALITY ASSURANCE:

Perform work in accordance with all governing codes, rules, and regulations including the following minimum codes:

National Electric Code (NEC)
Uniform Building Code (UBC)
Uniform Fire Code (UFC)
Uniform Mechanical Code (UMC)
American Disability Act (ADA)

Comply with all standards where applicable for equipment and materials including the following minimum standards:

Underwriter's Laboratories (UL)
American Society for Testing Materials (ASTM)
Certified Ballast Manufacturers (CBM)
Insulated Power Cable Engineers Association (IPCEA)
National Electrical Manufacturer's Institute (NEMA)
American National Standards Institute (ANSI)
Electrical Testing Laboratories (ETL)
National Fire Protection Association (NFPA)

Comply with all state and local codes and ordinances. Obtain all permits, inspections, etc. required by authority having jurisdiction. Include all fees in bid. The contractor shall have a current state contracting license applicable to type of work to be performed under this contract.

1.05 SHOP DRAWINGS:

Submit shop drawings in accordance with requirements sets forth in applicable architectural sections. Submit shop drawing on wiring devices, motor starters, panelboards, overcurrent protective devices, transformers, and light fixtures.

1.06 OPERATION AND MAINTENANCE MANUALS:

Submit operation and maintenance manuals in accordance with requirements set forth in applicable architectural sections.

1.07 RECORD DRAWINGS:

Maintain on a daily basis a complete set of "Record Drawings", reflecting an accurate record of all work including addendums, revisions, and changes. Record all "Record Drawing" information on a set of blue line prints of the contract drawings. Final payment willl be issued upon receipt of record drawings.

1.08 WARRANTY:

Ensure that the electrical system installed under this contract is in proper working order and in compliance with drawings, specifications, and/or authorized changes and is free from electrical defects. Without additional charge, replace or repair, to satisfaction of the owner's representative, except from ordinary wear and tear, any part of the installation which may fail or be determined unacceptable within a period of one (1) year after final acceptance. Warranty incandescent and fluorescent lamps only for a period of two months from the date of substantial completion.

PART 2 - PRODUCTS

2.01 GENERAL:

Provide new electrical equipment conforming to all requirements as set forth in the above standards. Provide UL labeled equipment where such label is applicable. Provide only specified products or products approved by addendum. Provide samples if so required by the architect or engineer before or after the bid.

2.02 ELECTRICAL CONNECTIONS FOR EQUIPMENT:

Provide all materials for electrical connections including, but not necessarily limited to, raceways, fittings, conductors, cords, cord caps, wiring devices, pressure connectors, lugs, electrical insulating tape, heat-shrinkable tubing, cable ties, wire nuts, and other items and accessories as required.

2.03 CONDUIT RACEWAYS:

RIGID METAL CONDUIT (RMC): Provide zinc-coated, hot-dipped galvanized, rigid metallic conduit in accordance with Federal Specification WW-C-0581 and ANSI C80.1. Provide fully-threaded, malleable steel fittings, rain-tight and concrete-tight as applicable.

INTERMEDIATE METAL CONDUIT (IMC): Provide hot-dipped galvanized, intermediate metal conduit in accordance with Federal Specification WW-C-581. Provide fully-threaded, malleable steel fittings, rain-tight and concrete-tight as applicable.

ELECTRIC METALLIC TUBING (EMT): Provide electric metal tubing in accordance with Federal Specification WW-C-563 and ANSI C80.3. Provide insulated throat, non-indenter, set screw, malleable steel fittings. Provide concrete-tight fittings in suspended slabs.

FLEXIBLE METAL CONDUIT: Provide zinc-coated, flexible metal conduit in accordance with Federal Specification WW-C-566. Provide flexible metal conduit fittings in accordance with Federal Specification W-F-406, Type I, Class I, and Style A.

LIQUID-TIGHT FLEXIBLE METAL CONDUIT: Provide galvanized, flexible metal conduit with liquid-tight, PVC coated, moisture and oil proof cover. Provide liquid-tight flexible metal conduit fittings in accordance with Federal Specification W-F-406, Type I, Class 3, Style G.

NON-METALLIC CONDUIT: Provide non-metallic conduit in accordance with ANSI/NEMA TC 9, Type I for concrete encasement, Type 2 for direct burial. Provide non-metallic conduit fittings in accordance with ANSI/NEMA TC 9 to match conduit types and materials.

SIZES: Provide conduits in sizes as indicated in contract documents, but not less than 1/2". The only allowable exception is 3/8" flexible metal conduit as whips to light fixtures.

2.04 CONDUCTORS AND CABLES

GENERAL: Provide 600 Volt copper cables and conductors as follows: For No. 10 AWG and smaller, provide solid copper conductors with THHN/THWN insulation. For No. 8 AWG and larger, provide stranded copper conductors with THHN/THWN insulation.

COLOR CODING: Provide color and coding of conductors, either by insulation color or minimum 12" band of colored tape on black insulation, as follows:

Conductor	120/200V
A-Phase	Black
B-Phase	Red
C-Phase	Blue
Neutral	White
Ground	Green

Provide different colors for switch legs and travelers.

2.05 ELECTRICAL BOXES AND FITTINGS

INTERIOR OUTLET BOXES: Provide one piece, galvanized, flat-rolled, sheet steel interior outlet boxes of types, shapes, and sizes to suit respective location and installation. Construct with stamped knockouts on back and sides and with threaded screw holes. Provide corrosion-resistant screws for securing boxes, covers, and wiring devices.

Size all junction boxes in accordance with NEC Table 370-16(a), with a minimum box size of 4" x 4" x 1-1/2". Where three or more raceway entries are made, provide outlet boxes with a minimum depth of 2-1/8".

Provide 4" square octagonal outlet boxes for surface-mounted, ceiling fixture outlets. Mount each box independently of the conduit on standard 3/8" stud, or box hangar where applicable. Include backing and supports as required to support weight of light fixture.

Provide plaster rings of sizes and shapes to match outlet boxes where applicable.

WEATHERPROOF OUTLET BOXES: Provide corrosion-resistant, cast-metal weatherproof outlet boxes, of types, shapes, and sizes, with threaded conduit ends, cast metal faceplates with spring-hinged waterproof caps, face plate gaskets, and corrosion-resistant fasteners.

JUNCTION AND PULL BOXES: Provide code-gauge sheet steel junction and pull boxes, with removable screw-on covers and welded seams, of types, shapes, and sizes to suit each respective location and installation. Size all junction and pull boxes in accordance with NEC 370-28. Provide stainless steel nuts, bolts, screws, and washer.

CONDUIT BODIES: Provide galvanized, cast-metal conduit bodies of type, shapes, and sizes to suit respective locations and installation. Construct with threaded conduit entrance ends and removable covers. Provide corrosion-resistant screws.

ACCESSORIES: Provide all accessories including, but not necessarily limited to, bushings, knockout closures, locknuts, offset connectors, etc. of types, shapes, and sizes to suit respective locations and installation. Construct of corrosion-resistant steel.

2.06 SUPPORTING DEVICES:

Securely anchor and seismically brace all electrical equipment in accordance with regulations contained in the most recent adopted edition of the UBC, and the guidelines for Seismic Restraints for Electrical Systems (SMACNA). Provide all materials to meet such requirements for complete raceway support systems, including, but not necessarily limited to steel channel, support clips, clamps, bracket supports, hangers, nuts, bolts, fittings, brackets, expansion anchors, threaded rods, and all associated accessories.

2.09 GROUNDING:

GENERAL: Provide grounding equipment and accessories of types, sizes, ratings, and electrical characteristics indicated or as otherwise required to provide a complete system.

GROUNDING CONDUCTORS: Unless noted otherwise, provide grounding conductors with stranding and insulation types to match phase conductors. Size ground conductors as indicated on drawings. Do not size ground conductors smaller than that allowable by NEC.

PART 3 - EXECUTION

3.01 GENERAL:

Provide only quality workmanship conforming to the best electrical construction practices. Prior to construction, layout electrical work and coordinate work with other trades. Sequence, coordinate, and integrate installation of materials and equipment for efficient flow of the work. Install electrical equipment to facilitate maintenance and repair or replacement of equipment components. Coordinate the installation of electrical materials and equipment above ceilings with suspension system, mechanical equipment and systems, and structural components.

Install wiring devices and accessories in accordance with manufacturer's written instruction, applicable requirements of the NEC, NEMA Standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to insure that products fulfill requirements.

3.02 CLEAN:

Clean up all equipment, conduit, fittings, wire, packing cartons, plastic, and other debris that is a direct result of the installation of the work of this division. Keep the site clean and safe during the progress of the work. Clean fixtures, interior and exterior of all equipment, and raceways prior to final acceptance. Vacuum interior of all electrical panels and equipment. Correct any damaged equipment. Touch-up or repaint if necessary.

3.03 TEMPORARY POWER:

Provide temporary power and lighting during construction in accordance with the NEC and the State Industrial Commission. Coordinate temporary power requirements with the Mall. The Mall will charge $150.00 or 15 cents per square foot of leased space, whichever is greater for temporary power. Include all cost associated with temporary power in bid.

3.04 POWER OUTAGES:

All power outages required for execution of this work shall occur during non-standard working hours and at the convenience of the owner and/or mall. Include all costs for overtime work in bid. Coordinate all outages and proceed only after receiving authorization from the owner's and/or mall's representative. Keep all outages to an absolute minimum.

3.05 STORAGE AND PROTECTION OF MATERIALS:

Provide storage space for storage of materials and apparatus and assume complete responsibility for all losses due to any cause whatsoever. Do not store materials and apparatus in any public thoroughfare or in any area on the site where such storage would constitute a hazard to persons in the vicinity. Protect completed work, work underway, and apparatus against loss or damage.

3.06 FIRE PENETRATION SEALS:

Seal all raceway penetrations through fire-rated floors, wall, and ceilings. Provide penetration sealants and fittings of ratings to match the rating of the penetrated materials.

3.07 EXCAVATING FOR ELECTRICAL WORK:
Prior to excavating, locate and protect existing utilities and other underground work in a manner which will ensure that no damage or service interruption will result from excavating and backfilling. Observe all State and Local codes prior to excavating. Do not disturb walls, footings, and other structural members in any way.

Provide barricades, warning signs, and illumination to protect persons from injury at excavations. Provide temporary coverings and heat as necessary to protect bottoms of excavations from freezing and frost action. Do not install electrical work on frozen excavation bases or subbases.

Do not excavate for electrical work until the work is ready to proceed without delay. Temporarily store excavated materials near excavation in manner which will not interfere with or damage excavation or other work. Dispose of and remove excavated materials which are either in excess of quantity needed for backfilling or do not comply with the requirements for backfill material.

3.08 BACKFILL MATERIALS:

For buried conduits or cables (other than below slab-on-grade, or concrete-encased), provide 2" thickness of well-graded sand on all sides of conduits or cables. For trench backfill to within 6" of final grade, provide soil material suitable for compacting to required densities. For top 6" of excavation, provide top soil. Use power-driven hand-operated compaction equipment to compact backfill materials as follows:

Laun/Landscaped Areas: 85 percent for cohesive soils, 95 percent for cohesionless soils.

Paved Areas, other than roadways: 90 percent for cohesive soils, 95 percent for cohesionless soils.

Where subsidence is observable at electrical work excavations during project warranty period, remove surface, add backfill material, compact, and replace surface treatment. Restore surface to original condition.

3.10 ELECTRICAL CONNECTIONS FOR EQUIPMENT:

For permanently installed fixed equipment, install conductors in flexible liquid-tight conduit from junction box to equipment control panel or connection point. For movable equipment, provide wiring devices, cord caps, and multi-conductor cables as required. Verify electrical load characteristics of all equipment prior to rough-in. Report any variances from electrical characteristics noted in the contract documents to the Architect/Engineer prior to rough-in.

3.11 CONDUIT RACEWAYS:

GENERAL: Use rigid metal conduit for conduit bends greater than 22 degrees where buried below grade or slab on grade. Install RMC where raceway passes vertically through slab-on-grade. Use RMC for exposed runs where conduit is subject to moisture, weather, or mechanical injury. Use in hazardous locations in accordance with all NEC requirements. Use intermediate metal conduit for exposed runs where conduit is subject to moisture, weather, or mechanical injury. Use in hazardous locations in accordance with all NEC requirements. Use electric metal tubing for above-grade feeders, branch circuits, and signal and control circuit, unless specifically noted otherwise on drawings. Install in suspended slabs. Use flexible metal conduit as whips for lighting fixtures, fixed equipment where not exposed to weather of moisture, other devices where required by NEC. Use liquid-tight flexible metal conduit for connection to motor terminal boxes, fixed equipment where subject to moisture or weather, and other equipment subject to movement or vibration. Use non-metallic conduit for below-grade service entrances, feeders, branch circuits, and signal and control circuit, unless specifically noted otherwise on drawings.

METHODS: Maintain a minimum of 12" clearance between steam or hot water lines or other hot surfaces. Where such clearance is impractical, insulate conduit with approved materials. Install conduits parallel with or at right angles to lines of the structure. Route conduits symmetrically where possible.

CONCEALING: Conceal all conduits in finished wall, floors, and ceilings except in mechanical, electrical, and communication rooms, unless specifically noted on drawings.

CONTINUITY: Provide raceways that are electrical continuous to insure a low impedance ground path.

BURIED CONDUITS: Comply with all burial depths as defined in NEC Section 300-5. Bury all conduits at least 24" below grade, unless specifically indicated otherwise on drawings. Mark all buried conduit that do not require concrete encasement by placing yellow, plastic, 6" wide marker tape along entire length of run 12" below final grade. Slope all conduits toward manholes or pull boxes for proper drainage. Use weep holes. Gravel drainage pockets are not permitted. Coat all metal conduits with an approved asphaltic compound or wrap with two layers of approved corrosion protection tape.

CONCRETE-ENCASEMENT: Provide ductbank construction using 3000 psi at 28 day strength concrete. Sprinkle red marker dye on top of ductbank. Provide minimum 4" cover on all sides of exterior conduits. Provide conduit spacers where applicable.

FIELD CUTS AND THREADS: Cut all conduits square. Remove all sharp or rough edges and ream all burrs, inside and outside. Provide clean sharp threads on RMC and IMC.

SUSPENDED SLABS: Install conduits as close as practical to the middle of the slab. Do not install conduits of diameter greater than 1/3 of the slab thickness. Space conduits not less than 3 diameters on centers, except at stub-up locations.

CONDUIT CONNECTIONS: Provide double locknuts and insulating bushings for RMC and IMC terminating at panels and boxes.

EXPANSION FITTINGS: Provide expansion joint fittings in all conduit runs crossing structural expansion joints, whether above-grade, in slab-on-grade, or in suspended slabs.

CLEANING: Pull a mandril and swab through all conduit before installing conductors.

3.12 CONDUCTORS AND CABLES:
METHODS: Install cables in conduits by manual or mechanical means. Insure that cable reels and pulling apparatus are firm secured prior to pulling. Use pulling attachments and materials including approved swivel connections, pulling eyes, friction tape etc. as applicable. Carefully follow all applicable safety requirements when pulling cables.

Tension: Do not exceed manufacturer's recommendations for maximum allowable tension, side wall pressure, and minimum allowable bending radius. Use only UL listed, wire and cable pulling compound recommended by the specific cable manufacturer.

SPLICES: Follow all manufacturer's instructions for splicing and cable terminations. Do not splice cables in conduit bodies. Do not splice control cables.

TESTING: Prior to energization, test cable and wire for continuity of circuiting and short circuits. Megger all feeders and branch circuits rated 100 Amps and greater.

3.13 ELECTRICAL BOXES AND FITTINGS:

METHODS: Where outlet boxes are subject to weather or moisture, install weatherproof outlet boxes. Remove knockouts only for entering conduits. Provide knockout closures to cap unused knockout holes where blanks are mistakenly removed. Install boxes and conduit bodies in readily accessible locations. Install recessed boxes with faces of boxes or rings flush with finished surfaces. Seal all openings between outlet box and adjacent surfaces with plaster, grout, or similar suitable material.

For stud construction, provide bar hangars and assemblies, support clips, box supports, etc. as required to hold outlet box securely in place. Do not use nails or weld outlet boxes to metal studs. Provide at least 10" of conduit between boxes set on opposite walls. Securely fasten outlet boxes to structural surfaces to which attached.

For concrete or masonry construction, solidly embed electrical boxes in concrete and masonry. Provide box supports as required to keep outlet boxes flush with finished surfaces.

3.14 SUPPORTING DEVICES:

METHODS: Install supporting devices in accordance with manufacturer's written instructions, applicable standards, recognized industry practices. Provide supporting devices for raceways, and junction and pull boxes at locations and intervals in accordance with all NEC requirements.

3.17 GROUNDING:

METHODS: Ground the complete electrical installation including the system neutral, metallic conduits and raceways, boxes, fittings, devices, cabinets, equipment, and separately derived systems in accordance with the NEC and all other applicable codes to provide a permanent, continuous, low impedance, grounding system.

Provide grounding system such that the resistance from the service entrance ground bus, through the grounding electrode to earth is not greater than 5 ohms.

CLEANING: Thoroughly clean all metal contact surfaces prior to installation of clamp-on connectors.

EQUIPMENT BONDING AND GROUNDING: Provide an NEC sized conductor, whether indicated or not on the drawings, in raceways as follows:

A. Non-metallic conduits and ducts.
B. Distribution feeders.
C. Motor and equipment branch circuits.
D. Device and lighting branch circuits.

ADDITIONAL GROUNDING INSTALLATION REQUIREMENTS: Provide grounding bushings and bonding jumpers for all conduits terminating in reducing washers, concentric, eccentric or oversized knockouts at panelboards, cabinets, and gutters. Provide bonding jumpers across expansion and deflection couplings in conduit runs, across pipe connections at water meters, and across dielectric couplings in metallic cold water piping system. Provide bonding wire in all flexible conduit 6' in length or greater, unless otherwise specified herein.

SECTION 16182 - SWITCHBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this section.

B. This section is a Division 16 General Provisions section, and is part of each Division 16 section making reference to switchboards.

1.2 DESCRIPTION OF WORK:

A. Extent of switchboards is indicated by drawings and schedules and is specified herein.

1.3 QUALITY ASSURANCE:

A. STANDARDS: Refer to Section 16001 - Electrical General Provisions as applicable.

B. SUBMITTALS:

1. Shop Drawings: Submit dimensioned drawings of switchboards and enclosures showing accurately scaled layouts of enclosures. Include schedule of devices, including, but not necessarily limited to, circuit breakers, fusible switches, fuses, and accessories.
2. Equipment Room Layouts: Submit dimensioned drawings of all equipment rooms indicating spatial relationships to other proximate equipment. Insure that all code required clearances are maintained.

PART 2 - PRODUCTS

2.1 VENDORS:

A. Subject to compliance with all requirements, provide products from one of the follows:

1. Cutler-Hammer
2. General Electric
3. Siemens
4. Square D

2.2 GENERAL:

A. Provide switchboards, enclosures, and ancillary components, of types, sizes, and ratings indicated. Provide overcurrent protective devices, etc. as indicated on drawings for a complete installation. See Section 16180 - Overcurrent Protective Devices.

B. Rate devices, etc. equal to or greater than the short circuit current rating indicated. Provide fully-rated systems only. Series-rated systems are not acceptable, unless specifically noted otherwise.

2.1 AC DEAD-FRONT SWITCHBOARDS:

A. Provide factory assembled, front accessible, dead-front, floor-standing switchboards in NEMA types to suit respective applications. Construct bus bars of silver-plated copper, braced to withstand RMS symmetrical fault current indicated. Provide ground bus in each section. Provide ANSI-61 painted finish.

B. Lugs shall be copper only.

PART 3 - EXECUTION

3.1 GENERAL:

A. Install switchboards in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 IDENTIFICATION:

A. Provide 1/16" thick black plastic laminate labels with 1/4" high lettering on exterior of each enclosure indicating name of switchboard. Bolt labels to enclosure. Mark on enclosure the source of power by indicating the panel and circuit number.

B. Provide red plastic laminate label for emergency loads.

3.1 MOUNTING:

A. Provide 8" high concrete pad. Mount switchboard as indicated, but in no case higher than 6'-7" from finished floor to highest mounted breaker handle top of switchboard including concrete pad. Bolt switchboard to concrete pad in accordance with local codes.

3.2 CIRCUIT DIRECTORIES:

A. Provide 1/16" thick black plastic laminate labels with 1/4" high lettering for each load served.

B. Provide red plastic laminate label for emergency loads.

3.3 WIRING METHODS:

A. Arrange conductors neatly within enclosure, and secure with suitable nylon ties.

SECTION 16180 - OVERCURRENT PROTECTIVE DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. This section is a Division 16 General Provisions section, and is part of each Division 16 section making reference to overcurrent protective devices.

1.2 DESCRIPTION OF WORK:

A. Extent of overcurrent protective devices is indicated by drawings and schedules and is specified herein.

B. Type of overcurrent protective devices in this section include the following:

1. Fuses

1.3 QUALITY ASSURANCE:

A. STANDARDS: Refer to Section 16001 - Electrical General Provisions as applicable.

B. SUBMITTALS:

1. SHOP DRAWINGS: Submit manufacturer's data on overcurrent protective devices including specifications, time-current trip characteristics curves, mounting requirements, installation instructions, etc. Submit dimensioned drawings of overcurrent protective devices.
2. Equipment Room Layouts: Submit dimensioned drawings of all equipment rooms indicating spatial relationships to other proximate equipment. Insure that all code required clearances are maintained.

PART 2 - PRODUCTS

2.1 GENERAL:

A. Provide overcurrent protective devices and ancillary components of types, sizes, ratings, and electrical characteristics indicated. Provide enclosures in NEMA ratings as indicated and suitable for applications.

2.2 FUSES:

A. VENDORS:

Subject to compliance with all requirements, provide fuses from one of the following:

1. Bussmann
2. Gould Shawmut
3. Reliance
4. Littlefuse

B. FUSES:

General: Provide fuses as integral components of disconnects, fusible switches, and bolted pressure switches. Provide fuses in types and sizes as recommended by manufacturer's written instructions. Provide fuses for mains, feeders, and branch circuits as follows:

1. Circuits 601 to 6000 amperes: Shall be protected by current limiting Bussmann Low-Peak Time-Delay Fuses KRP-C or equivalent. Fuses shall be UL Class L with an interrupting rating of 200,000 amperes r.m.s. symmetrical.
2. Motor and Transformer Circuits 0 to 600 amperes: Shall be protected by current-limiting Bussmann Low-Peak Dual Element Fuses LPN-RK (250 volts) or LPS-RK (600 volts) or equivalent. Fuses shall be UL Class RK1 with an interrupting rating of 200,000 amperes r.m.s. symmetrical.
3. Feeders to Circuit Breaker Panels 0 to 600 amperes: Shall be protected by current-limiting Bussmann Low-Peak Time Delay fuses LPJ or equivalent. Fuses shall be UL Class RK1 with an interrupting rating of 200,000 amperes r.m.s. symmetrical.

PART 3 - EXECUTION

3.1 GENERAL:

A. Install overcurrent protective devices in accordance with manufacturer's written instructions, applicable requirements of NEC, NEMA standards, and NECA's "Standards of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.

3.2 SIZING FUSES:

A. Size all fuses in accordance with manufacturer's written recommendations, whether fuse size is indicated on drawings or not. If nuisance tripping occurs, increase fuse size and disconnect if necessary as required to provide nuisance-free tripping. Adjust fuse size for proper ambient temperature, frequent starting and stopping of motor loads, and for loads with long start times.

3.3 IDENTIFICATION:

A. Provide 1/16" thick black plastic laminate labels with 1/4" high lettering on the exterior of each disconnect indicating name of disconnect or load served. Bolt labels to enclosure. Mark on interior cover the source of power by indicating the panel and circuit number.

3.4 SPARE PARTS:

A. Spare Fuses: For each type and ampere rating, furnish one spare fuse for every 5 provided, but not less than three total.

REGISTERED PROFESSIONAL ENGINEER
DAVID P. WHITTON
No.264397
STATE OF UTAH

ENVISION ENGINEERING
Direction. Then Velocity.
244 West 300 North, Suite 100
Salt Lake City, Utah 84103
801.534.1130 ph 801.534.1080 fax

NO.	REVISIONS	DATE

MONUMENT VALLEY
WELCOME CENTER

ELECTRICAL
SPECIFICATIONS

DRAWN BY DML
DESIGNED BB
CHECKED DPW

DATE 02/20/08
FILENAME 2008-008

PROJECT
2008-008

SHEET
E-03

KEYED NOTES:

1. PROVIDE A MINIMUM 3'-0" SEPARATION FROM DOOR FRAME PER ALL NTUA REQUIREMENTS.
2. CONFIRM EXACT PLACEMENT OF SWITCHGEAR WITH NTUA OFFICIALS PRIOR TO WORK. REFER TO SHEET E401A FOR CONTACT INFORMATION.
3. PROVIDE CONCRETE PAD FOR SWITCHGEAR EQUIPMENT.
4. INTERCEPT EXISTING MAIN SERVICE CONDUITS AND TURN UP INTO NEW SWITCHGEAR. REFER TO FACTORY SHOP DWG FOR SWITCHGEAR PRIOR TO WORK FOR PROPER COORDINATION. REFER TO ONE-LINE.
5. PROVIDE ALL REQUIRED TRENCHING, BACKFILLING, REMOVAL OF EXISTING CONCRETE SURFACES, CORE DRILLING, ETC. TO ROUTE CONDUITS FOR VARIOUS PANELS SHOWN ON ONE-LINE DIAGRAM.

1 / E-101 SITE ELECTRICAL PLAN
SCALE: 1/8"=1'-0"

NORTH

EMA
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CONSULTANTS

MONUMENT VALLEY VENDOR VILLAGE

MONUMENT VALLEY, UT

OWNER
NAVAHO NATION DEPARTMENT OF ECONOMIC DEVELOPMENT

MARK	DATE	DESCRIPTION
	7-29-05	REQUEST FOR CODE APPROVAL

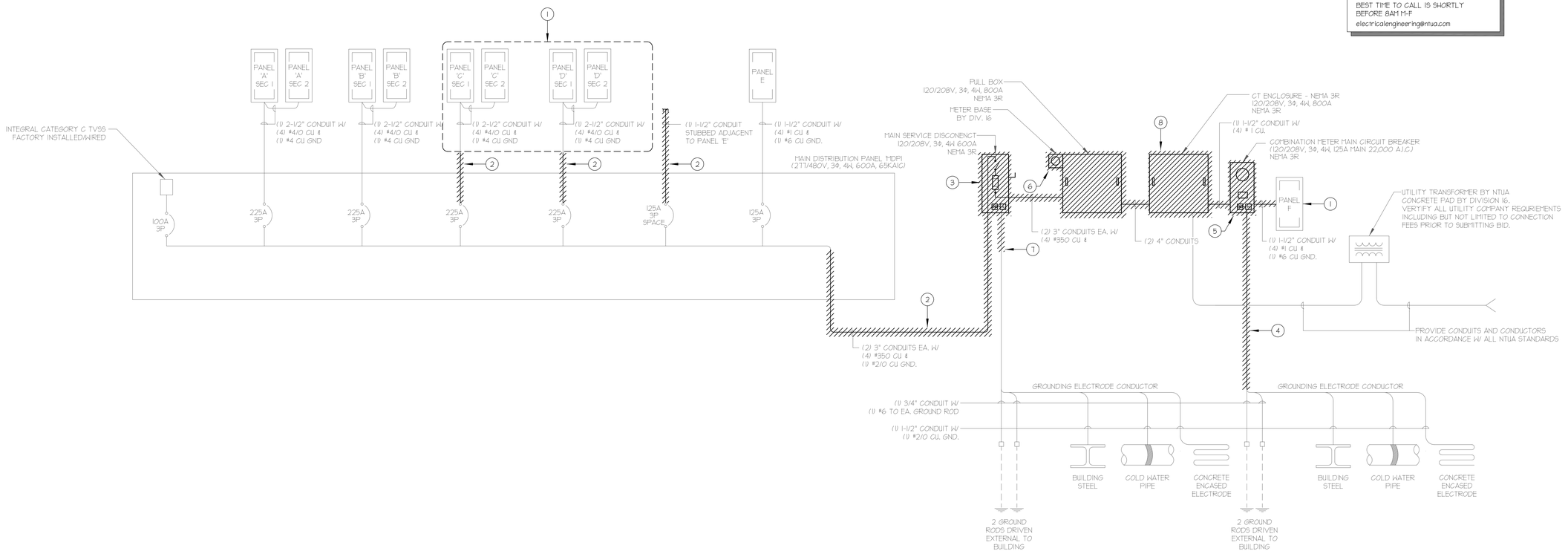
PROJECT NUMBER: 2002-07
DRAWING FILE:
DRAWN BY:
CHECKED BY:

SHEET TITLE

SITE ELECTRICAL PLAN

E-101

OF



NTUA:
NAVAJO TRIBAL UTILITY AUTHORITY
ELECTRICAL ENGINEERING DEPARTMENT
PO BOX 170
FORT DEFIANCE AZ, 86504
CONTACT: VIRGYNTHIA CHARLEY
(928) 691-3515
BEST TIME TO CALL IS SHORTLY BEFORE 8AM M-F
electricalengineering@ntua.com

DEMOLITION ONE-LINE DIAGRAM

1 / E-401 SCALE: NONE

KEYED NOTES:

1. PANEL(S) SHALL BE REFED FROM NEW PANEL 'MSP'. REFER TO ONE-LINE DIAGRAM.
2. DISCONNECT AND REMOVE CONDUCTORS AND ACCESSIBLE CONDUIT. CAP CONDUIT PORTIONS WHICH ARE NOT ACCESSIBLE IN FLOOR OR EXTERIOR WALLS.
3. DISCONNECT AND REMOVE FUSED DISCONNECT COMPLETE.
4. REMOVE CONDUCTORS FROM COMBINATION METER MAIN/ CIRCUIT BREAKER TO GROUNDING ELECTRODE CONDUCTOR.
5. DISCONNECT AND REMOVE COMBINATION METER/MAIN CIRCUIT BREAKER COMPLETE.
6. DISCONNECT AND REMOVE ELECTRIC METER BASE.
7. REFER TO ONE-LINE DIAGRAM FOR REVISIONS TO GROUNDING SYSTEM.
8. DISCONNECT AND REMOVE CT ENCLOSURE COMPLETE. REFER TO ONE-LINE FOR NEW REQUIREMENTS.

GENERAL NOTES:

1. EXISTING EQUIPMENT IS INDICATED IN LIGHT PEN.
2. EQUIPMENT, CONDUCTORS, CONDUIT OR PORTIONS THEREOF, INDICATED IN HATCHED LINES SHALL BE REMOVED. REFER TO ONE-LINE FOR NEW REQUIREMENTS.

EMA
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MONUMENT VALLEY, UT
OWNER
NAVAHO NATION DEPARTMENT OF ECONOMIC DEVELOPMENT

MARK	DATE	DESCRIPTION
	7-29-05	REQUEST FOR CODE APPROVAL

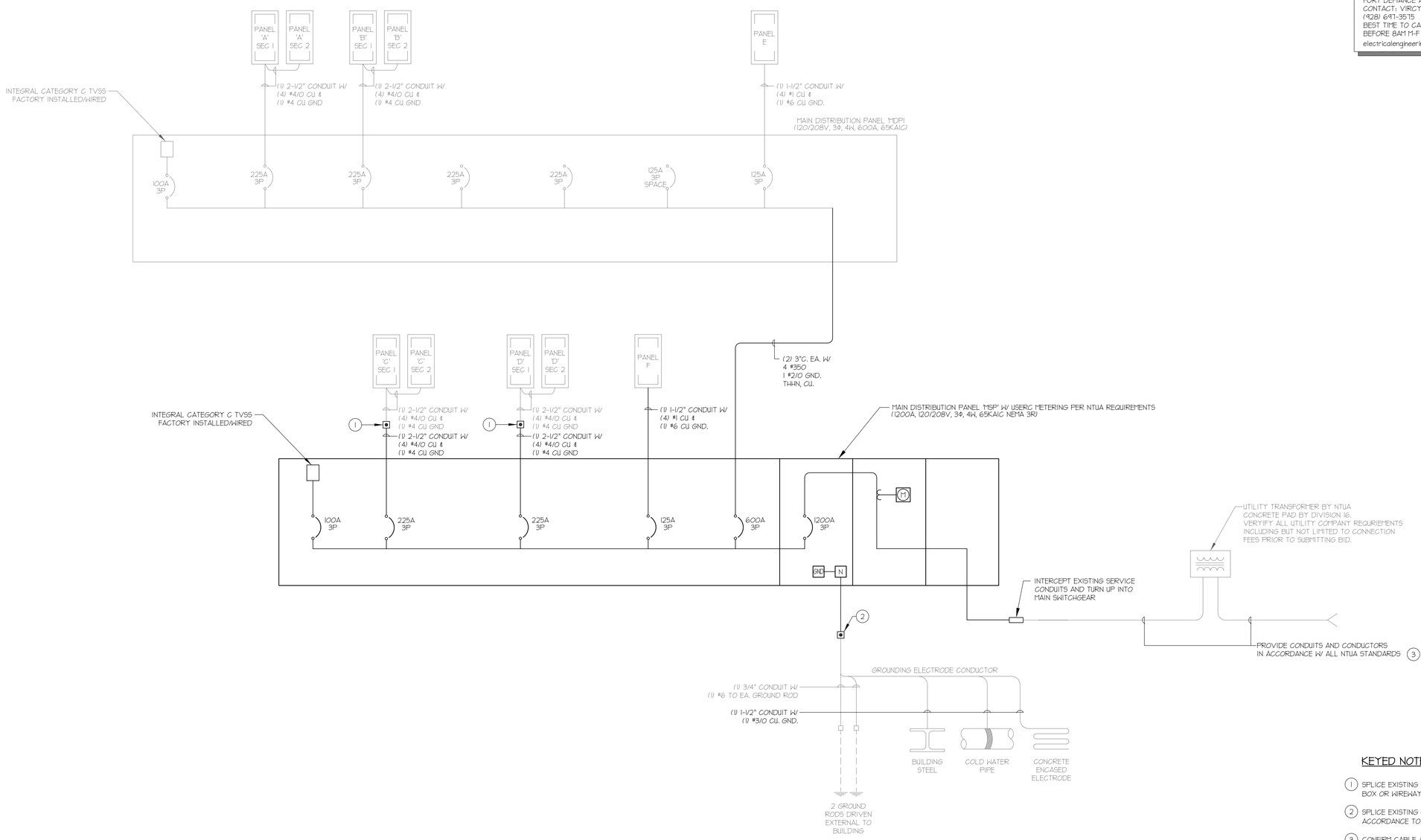
PROJECT NUMBER: 2002-07
DRAWING FILE:
DRAWN BY:
CHECKED BY:

SHEET TITLE

ONE-LINE DIAGRAM & DETAILS

E-401A

OF



1 E-401 NEW ONE-LINE DIAGRAM
SCALE: NONE

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KEYED NOTES:

1. SPLICE EXISTING FEEDER CONDUCTORS IN NEW JUNCTION BOX OR WIREWAY.
2. SPLICE EXISTING GROUNDING ELECTRODE CONDUCTORS IN ACCORDANCE TO NEC 250.64.C.
3. CONFIRM CABLE AND CONDUIT REQUIREMENTS WITH NTUA. UPGRADE FEEDERS AS REQUIRED.
4. CONNECT EXISTING CONDUCTORS TO LUGS IN NEW CT ENCLOSURE.

GENERAL NOTES:

1. ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE TO NTUA REQUIREMENTS.
2. A MINIMUM DISTANCE OF 3'-0" IS REQUIRED BETWEEN ELECTRICAL EQUIPMENT AND ANY WINDOWS OR DOORS.
3. NEW ELECTRICAL EQUIPMENT SHALL BE OF SAME MANUFACTURER AS EXISTING.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO ENGINEER PRIOR TO ORDERING EQUIPMENT. CONTACT: FRANCIS ROSADO, ENVISION ENGINEERING, TEL: 801.924.5543.
5. CONDUIT FITTINGS MUST BE SET SCREW TYPE NOT COMPRESSION.

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CONSULTANTS

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NAVAHO NATION DEPARTMENT OF ECONOMIC DEVELOPMENT

MARK	DATE	DESCRIPTION
	7-29-05	REQUEST FOR CODE APPROVAL

PROJECT NUMBER: 2002-07
DRAWING FILE:
DRAWN BY:
CHECKED BY:

SHEET TITLE
ONE-LINE DIAGRAM & DETAILS

E-401B
OF