CM CLARIFICATION #004

April 9, 2018

PROJECT: CNE Tahlequah Casino

Foreman Manhattan Team has added and/or revised the following documents for review and inclusion by all contractors within their Scope Package Proposal:

- 1. Addendum #1 Issued by James R. Childers Architect, Inc. Dated 4/9/2018
 - a.Cover Sheet
 - **b.** Addendum #1 Summary
 - c. Drawings
- 2. Addendum #2 Issued by James R. Childers Architect, Inc. Dated 4/9/2018
 - a. Cover Sheet
 - b. Addendum #2 Description of Revisions Narrative (MSA Engineering Consultants)
 - c. Drawings
- **3.** Preconstruction RFI Responses a. Pre-con RFI's 001 – 011
- 4. Bid Package #2/2a CM Manual 00 60 06 Exhibit D Documents Listing a. Revised to include CM Clarification #3 and CM Clarification #4
- 5. Bid Package #2/2a CM Manual 00 60 08 Exhibit F Schedule a.Bid Schedule

Please Contact <u>Tina Jones, Buyer IV</u> with any questions: Tina Jones (918) 384-7802 Tina.Jones@cnent.com

- END OF CM CLARIFICATION -

ADDENDUM # 001

Date: 04/09/18

- RE: Cherokee Nation Entertainment Tahlequah Casino
- From: James R Childers Architect, Inc. 45 South 4th Street Fort Smith, Arkansas 72901

This addendum forms part of the Contract Documents, and modifies the documents as noted below. Bidder must acknowledge receipt of this addendum in the FMC Bid Form. Failure to do so may subject the bidder to disqualification.

- *Item 1* Addendum #001 Summary of Changes
- Item 2 Revised Structure Drawing Package



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April 05, 2018

Tahlequah Casino Addendum #01 summary

Sheet No.	Addendum
S1.2	• Added Grade beam, pier cap, & column schedules to sheet.
	• Added Grade beam, pier cap, & column marks to plan.
	Added Callouts for safer room foundation plans
	• Stepped grade beam and added curb to back of house for drainage access.
	• Added section marks to plan.
	• Changed all HSS6x6x3/16 columns to HSS6x6x1/4
S1.3	• Added Grade beam, pier cap, pedestal, & columns schedules to sheet.
	• Added Grade beam, pier cap, pedestal, & column marks to plan.
	• Added callouts for safer room foundation plans.
	• Stepped grade beam and added curb to front of house at sub floor locations.
	• Moved details to sheet S1.6 & S1.7
	• Added section marks to plan.
	• Removed pier and column at grid U-19 & U-27
	• Moved grid 'DD' 1" East
S1.4	• Added Grade beam, pier cap, pedestal, & columns schedules to sheet.
	• Added Grade beam, pier cap, pedestal, & column marks to plan.
	• Added callouts for safer room foundation plans.
	• Stepped grade beam and added curb to front of house at sub floor locations.
	• Added section marks to plan.
	• Removed pier and column at grid E-44
S1.5	Added sheet S1.5
S1.6	Added sheet S1.6
S1.7	Added sheet S1.7
S2.1	 Added enlarged stage pit plan and sections.
	Added pit for dock levelers.
S3.1	Revised roof deck to galvanize.
	Revised column sizes.
S3.2	 Moved brace elevation from Y/BB-19 to U/BB-21
	• Moved frame line 'DD" 1" east
	Revised roof deck to galvanize.
	• Removed column @ U-19 & U-27.

	Removed joist girders on gridline 'U'
	Revised joist framing. Revised joist girder loadings
S3.3	• Removed brace elevation 42/44-E
	• Removed column @ E-44
	Revised joist framing. Revised Joist girder loadings
S3.4	Revised detail 7/S3.4
S4.1	Revised section 2/S4.1
S4.2	Revised column size in framing elevation.
	Revised brace sizes in framing elevations
	Added detail callouts to framing elevations.
	• Frame elevation moved from grid '19' to '21'
	• Removed frame elevation @ grid 'E'
S4.3	Revised column size in framing elevation.
	Added detail callouts to framing elevations
	Added braced frame details
S5.1	Added sheet S5.1





GRA	DE BEAM SO	CHEDULE		PI	ER CAP S	CHEDULI	Ξ		STRUCTL COLUMN	JRAL STE SCHEDI
ARK	WIDTH	THICKNESS	-	CAP MARK	LENGTH	WIDTH	HEIGHT		COL MARK	SI
1	1' - 4"	2' - 0"		PC1	2' - 0"	2' - 0"	2' - 0"		C2	HSS6>
2	3' - 4"	2' - 0"	-	PC2	3' - 0"	2' - 0"	2' - 0"		 C3	HSS8>
	•			PC3	3' - 0"	3' - 0"	2' - 0"		C4	HSS10>
			7	PC4	3' - 2"	3' - 2"	4' - 0"	1	 	W10
				PC5	4' - 0"	2' - 0"	2' - 0"	1	 	HSS12)
				PC6	4' - 0"	3' - 0"	2' - 0"	1	0	HSS12)
ARK	LENGTH	WIDTH		PC7	4' - 0"	3' - 3"	2' - 0"	1		1100127
24	2' - 0"	2' - 0"		PC8	4' - 5"	4' - 5"	2' - 0"	1 [
36	3' - 0"	2' - 0"	-	PC9A	5' - 4"	5' - 4"	2' - 0"	-		



GRADE BEAM SCHEDULE											
FTG MARK	FTG MARK WIDTH THICKNESS										
GB1	1' - 4"	2' - 0"									
GB2 3' - 4" 2' - 0"											
-											

0 4 8 118" =1'-0"

0

- ATTACH DECK TO SUPPORTS W/ HILTI X-HSN 24 ON A 36/4 PATTERN.
 PROVIDE (5) #10 SIDELAP FASTENERS PER SPAN.
- ALL JOISTS IN THIS PLAN TO HAVE 5" SEATS, U.N.O.
 ROOF DECK TO BE 1.5B 22GA. (GALVANIZED).
- ROOF FRAMING PLAN NOTES:

STRUCTU COLUMN	IRAL STEEL SCHEDULE
COL MARK	SIZE
C2	HSS6X6X1/4
C3	HSS8X8X1/4
C4	HSS10X10X1/4
C5	W10X33
C6	HSS12X12X1/4
C7	HSS12X12X3/8
C8	W10X49

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O3-27-2018
Myers-Beatty Engineering, PLLC OK CA 4899 2411 Fayetteville Road, Suite B Van Buren, Arkansas 72956 Ph (479) 474-4412 Fax (479) 474-4413 www.myers-engr.com
CLIENT: CHEROKEE NATION Entertainment
CHEROKEE NATION ENTERTAINMENT TAHLEQUAH CASINO TAHLEQUAH, OKLAHOMA
PROJECT PHASE: BID PACKAGE 02 (100%SET)
DATE DESCRIPTION 1 04/05/18 ADDENDUM #01
03/27/18 17-06 SHEET NUMBER: 1 S4.3

ADDENDUM # 002

Date: 04/09/18

- RE: Cherokee Nation Entertainment Tahlequah Casino
- From: James R Childers Architect, Inc. 45 South 4th Street Fort Smith, Arkansas 72901

This addendum forms part of the Contract Documents, and modifies the documents as noted below. Bidder must acknowledge receipt of this addendum in the FMC Bid Form. Failure to do so may subject the bidder to disqualification.

- *Item 1* Addendum #002 Summary of Changes
- *Item 2* Revised Plumbing Drawings
- Item 3 Revised ITS101 and ITS102

Tahleaquah Casino Addendum 2 April 09, 2018

Description of Revisions Narrative

<u>Sheets</u>	Description
PU1.1	Added (1) 8" Storm drain penetration / floor drain / mop sink to EVS Storage 33. Added floor drain / mop sink EVS 21. Moved waste and vent lines into architectural wall shift in Mens 11 & Womens 13. Added floor drain / sink to Fire Riser 34.
PU1.2	Added carbonated beverage/liquor lines in Bar 17. Extend waste/vent lines to hand sinks in Kitchen 75 & 79. Added mop sink & floor drain to EVS 79B and mop sink to 79A. Relocated vent lines to consolidated column in Bar 85. Added carbonated beverage lines to Bar 85.
PU1.3	Added (2) 8" storm drain penetrations.
PU1.4	Extend waste/vent lines to hand sinks in Banquet Food Preparation 98. Added (3) 8" storm drain penetrations.
PU1.5	Added (2) 4" storm drain penetrations. Added mop sink and floor drain to EVS 91 & 93.

FIRE SPRINKLER NOTES

- 1. SPRINKLER CONTRACTOR SHALL PROVIDE SYSTEM DESIGN, LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY FOR THE COMPLETE DESIGN BUILD FIRE SPRINKLER SYSTEM.
- THE DESIGN AND INSTALLATION SHALL CONFORM TO ALL REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 13) AND THE GENERAL REQUIREMENTS OF APPLICABLE SECTIONS OF THE INTERNATIONAL BUILDING CODE, THE SPECIFIC REQUIREMENTS OF THE LOCAL FIRE PREVENTION BUREAU, AND THE OWNER'S INSURANCE UNDERWRITER.
- 3. THE SYSTEM SHALL INCLUDE, BUT IS NOT LIMITED TO, SPRINKLER HEADS, VALVES, ESCUTCHEONS, PIPING, FITTINGS, HANGERS, DRAINS, WET TEST CONNECTIONS, SIGNS AND OTHER IDENTIFICATION MARKINGS AS REQUIRED.
- ALL MATERIALS AND EQUIPMENT USED IN THE INSTALLATION OF FIRE PROTECTION SYSTEMS SHALL BE LISTED AS APPROVED BY UNDERWRITERS LABORATORIES, INC., "LIST OF INSPECTED FIRE PROTECTION EQUIPMENT AND MATERIALS," OR APPROVED BY OTHER APPROPRIATE, NATIONALLY RECOGNIZED TESTING LABORATORIES FOR USE IN SEDINKLER SYSTEMS, AND SHALL BE THE LATEST DESIGN OF THE MANUEACTURED
- SPRINKLER SYSTEMS, AND SHALL BE THE LATEST DESIGN OF THE MANUFACTURER.
 SPRINKLER HEADS SHALL BE PROVIDED AS REQUIRED AND CONFORM TO THE LATEST EDITION OF NFPA 13.
 PIPING PIPE HANGERS AND SUPPORTS SHALL CONFORM TO THE LATEST EDITION OF
- PIPING, PIPE HANGERS AND SUPPORTS SHALL CONFORM TO THE LATEST EDITION OF NFPA 13.
 INSTALL HEADS AT ENJOYED HEIGHT WITH ESCUTCHEON OF DIRECTLY IN DEDUCED OF
- INSTALL HEADS AT FINISHED HEIGHT WITH ESCUTCHEON, OR DIRECTLY IN REDUCER OF EXTRA LENGTH DROPS RATHER THAN PLUGGING. IF EXTRA LENGTH DROPS ARE INSTALLED, CUT BACK HEADS AFTER CEILING INSTALLATION IN THE CUSTOMARY MANNER.
- SPRINKLER DROPS ARE TO BE INSTALLED PRIOR TO INSTALLATION OF CEILING SYSTEM THEN REMOVED AND REINSTALLED AFTER INSTALLATION OF CEILING SYSTEM, WITH DROPS MODIFIED, AS REQUIRED. PROVIDE ESCUTCHEONS AT EACH SPRINKLER HEAD.
 COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, DIFFUSERS, GRILLES, ELECTRICAL AND PLUMBING PIPING, AS NECESSARY TO INTERFACE COMPONENTS OF
- FIRE SPRINKLER PIPING PROPERLY WITH OTHER WORK.
 10. AFTER SYSTEM IS COMPLETELY INSTALLED, IT SHALL BE FILLED AND TESTED IN ACCORDANCE WITH LOCAL REQUIREMENTS, AND THE REQUIREMENTS OF THE
- APPLICABLE NFPA BULLETINS. 11. FINAL SHOP DRAWINGS SHALL FIRST BE SUBMITTED TO THE STATE FIRE MARSHAL. FOLLOWING THEIR REVIEW AND APPROVAL, SUBMIT TO THE OWNER'S INSURANCE COMPANY. FOLLOWING THEIR SIGNATURED APPROVAL, THE SHOP DRAWINGS SHALL BE SENT TO THE ARCHITECT FOR CEILING DESIGN COORDINATION ONLY. IF REQUIRED BY ANY REVIEWING AGENT, OR IF REVIEW COMMENTS REQUIRE EXTENSIVE REVISIONS, THE SUBMITTAL SHALL BE REVISED AS REQUIRED AND RESUBMITTED FOR APPROVAL
- BEFORE SUBMISSION TO THE ARCHITECTS OFFICE.
 12. THE CONTRACTOR GUARANTEES THAT ALL WORK INSTALLED SHALL BE FREE OF ALL DEFECTS IN WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE CERTIFICATION OF COMPLETION AND ACCEPTANCE OF THE WORK.
 13. ADDITIONAL SPRINKLER HEADS SHALL BE PROVIDED AS REQUIRED AND CONFORM TO
- THE LATEST EDITION OF NFPA 13.
 14. ADDITIONAL PIPING, PIPE HANGERS AND SUPPORTS SHALL CONFORM TO THE LATEST EDITION OF NFPA 13.ADDITIONAL PIPING, PIPE HANGERS AND SUPPORTS SHALL
- CONFORM TO THE LATEST EDITION OF NFPA 13. 15. ACTIVATE THE SPRINKLER SYSTEM FOR PROTECTION PURPOSES AS SOON AS DROPS HAVE BEEN COMPLETE IN ANY ONE SECTION OF THE SPRINKLER
- HAVE BEEN COMPLETE IN ANY ONE SECTION OF THE SPRINKLER.16. ALL SPRINKLER HEADS AND ESCUTCHEONS SHALL HAVE MOUNTING TYPE (FLUSH OR SEMI-RECESSED), FINISH AND COLOR AS SELECTED BY ARCHITECT.
- 17. ALL SPRINKLERS SHALL BE CENTERED WITHIN THE CEILING GRID, COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO SUBMITTAL OF DRAWINGS TO FIRE DEPARTMENT.

<u> PART ONE - GENERAL</u>

- 1. THE CONTRACTOR SHALL PROVIDE THE WORK SHOWN ON THE DRAWINGS AND SPECIFIED FOR THEIR INDIVIDUAL SECTIONS OF WORK. THE WORD "WORK" SHALL MEAN ALL LABOR, TRANSPORTATION, MATERIAL, EQUIPMENT, TOOLS, INSTALLATION, SUPERVISION AND ANY OTHER INCIDENTAL ITEMS OR SERVICES NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE COMPLETE SYSTEMS, WHICH SHALL BE PROVIDED WHETHER OR NOT SPECIFICALLY INDICATED OR NOTED.
- 2. ALL GENERAL CONDITIONS, SPECIAL REQUIREMENTS OR GENERAL REQUIREMENTS OF THE CONSTRUCTION SPECIFICATIONS ARE MADE PART OF THIS SPECIFICATION AND HAVE THE SAME FORCE AND AFFECT AS IF COMPLETELY REPRODUCED.
- THE WORD "PROVIDE" SHALL MEAN FURNISH AND INSTALL, MAKE ALL FINAL CONNECTIONS AND LEAVE IN AN APPROVED COMPLETE OPERATING CONDITION.
 ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF THE APPLICABLE INTERNATIONAL BUILDING CODE (IBC), UNIFORM MECHANICAL CODE (UMC),
- UNIFORM PLUMBING CODE (UPC), NATIONAL ELECTRIC CODES (NEC) AND ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL FEES AND OBTAINING ALL
- PERMITS AND INSPECTIONS REQUIRED FOR THE WORK.
 6. THE CONTRACTOR SHALL CAREFULLY EXAMINE ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COORDINATE THE WORK WITH ALL OTHER TRADES INCLUDING, BUT NOT LIMITED TO, THE CONTRACT DOCUMENTS, SHOP DRAWINGS, ETC. FOR ALL GENERAL
- CONSTRUCTION, STRUCTURAL, MECHANICAL, ELECTRICAL AND SPECIALTY CONTRACTOR WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FITTING OF MATERIAL INTO THE BUILDING AS PLANNED, WITHOUT INTERFERENCE WITH OTHER WORK, AND SHALL MAKE REASONABLE MODIFICATIONS IN THE LAYOUTS NEEDED TO PREVENT CONFLICT WITH OTHER TRADES, TO PROVIDE ACCESS AND FOR THE PROPER EXECUTION OF THE WORK.
- 7. DRAWINGS ARE DIAGRAMMATIC AND SCHEMATIC IN NATURE, AND INDICATE THE TYPE, SIZE, ARRANGEMENT AND LOCATION OF MATERIALS AND EQUIPMENT. WORK INCLUDES CERTAIN COMPONENTS, APPURTENANCES AND RELATED SPECIALTIES THAT MAY NOT BE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY ITEMS TO COMPLETE THE WORK ACCORDING TO INDUSTRY STANDARDS. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO CALL OUT FOR FINISHED WORK, TESTED AND READY FOR OPERATION. DO NOT SCALE DRAWINGS. ARRANGEMENT OF EQUIPMENT AND ROUTING OF PIPES AND DUCTWORK, ETC. INDICATED ON DRAWINGS SHALL BE ROUTED PLUMB AND AT RIGHT ANGLES TO BUILDING CONSTRUCTION AND MAY REQUIRE MODIFICATION DUE TO UNFORESEEN CONDITIONS AND REQUIRE ON SITE REVISIONS DURING CONSTRUCTION. (SEE ALSO "BIDDING").
- ALL WORK REQUIRED FOR IDENTICAL ITEMS SHOWN ON THE DRAWINGS SHALL BE PROVIDED, ALTHOUGH EACH SPECIFIC IDENTICAL ITEM MAY NOT BE SHOWN IN DETAIL.
 THE CONTRACTOR SHALL SUBMIT FIVE SETS OF SHOP DRAWINGS AND TECHNICAL DATA SHEETS FOR ALL EQUIPMENT AND MATERIALS SPECIFIED HEREIN TO THE ENGINEER. THE ENGINEER SHALL REVIEW SHOP DRAWINGS AND TECHNICAL DATA SHEETS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND ISSUE A WRITTEN ASSESSMENT TO THE OWNER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ENGINEERING FEES NECESSARY TO CHANGE PERMIT DOCUMENTS BASED ON ALTERNATE SUBMITTAL PACKAGES/EQUIPMENT SUBSTITUTIONS.
- 10. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER FOR CONSIDERATION PRIOR TO BIDDING. THE OWNER'S REPRESENTATIVE SHALL PREAPPROVE ANY PROPOSED SUBSTITUTION IN WRITING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT OR MATERIALS WITH OTHER BUILDING TRADES, INCLUDING ALL ELECTRICAL, STRUCTURAL, OR ARCHITECTURAL ELEMENTS. THE CONTRACTOR SHALL IDENTIFY AND ANNOTATE ALL REVISED REQUIREMENTS PER BUILDING TRADE ON THE SHOP DRAWINGS. THE CONTRACTOR SHALL ALSO IDENTIFY ALL COST DEBITS OR CREDITS IN WRITING FOR THE PROPOSED CHANGES PER BUILDING TRADE.
- 11. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH FIVE (5) COMPLETE SETS OF AS-BUILT DOCUMENTS ACCURATELY SHOWING THE MATERIALS AND EQUIPMENT AS INSTALLED.
- 12. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE (1) YEAR FROM DATE OF ACCEPTANCE BY OWNER. REFRIGERATION COMPRESSORS SHALL BE GUARANTEED FOR A MINIMUM OF FIVE (5) YEARS FROM DATE OF OWNER'S ACCEPTANCE. IN ADDITION, THE CONTRACTOR SHALL GUARANTEE THAT THE INSTALLATION WHEN OPERATED IN ACCORDANCE WITH THE CONTRACTOR'S INSTRUCTIONS WILL DEVELOP CAPACITY AND CHARACTERISTICS AS SPECIFIED AND WILL FULFILL EACH AND EVERY REQUIREMENT OF THE DRAWINGS AND SPECIFICATIONS. SHOULD THE INSTALLATION IN ANY WAY FAIL TO DO SO, THE CONTRACTOR WILL, WITHOUT DELAY OR WITHOUT COST TO THE OWNER, PROVIDE WHATEVER ADDITIONAL EQUIPMENT, MATERIAL, AND LABOR REQUIRED TO CORRECT THE DEFICIENCY AND COMPLY WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS.
- 13. CONTRACTOR SHALL CHECK AND VERIFY ALL SIZES, DIMENSIONS, AND CONDITIONS BEFORE STARTING ANY WORK. ANY DEVIATIONS OR PROBLEMS SHALL BE TRANSMITTED TO THE ENGINEER FOR REVIEW.
- 14. PROVIDE BASE AND COUNTER FLASHING FOR ITEMS PENETRATING THE ROOF OR EXTERIOR WALLS.
- 15. STARTERS AND CONTROLS FOR MOTORS, ETC. TO BE FURNISHED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO INSTALL THE AFOREMENTIONED ITEMS, AND FURNISH ALL POWER WIRING. ALL CONTROL AND INTERLOCKING WIRING SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
- ALL WORK SHOWN IS NEW UNLESS NOTED OTHERWISE.
 MAINTAIN OCCUPANCY AND FIRE WALL SEPARATION INTEGRITY AS REQUIRED. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF ALL OCCUPANCY/FIREWALL SEPARATIONS AND SPECIFIC DETAILS FOR CONSTRUCTION. PROVIDE ALL NECESSARY FIRE AND SMOKE FIRE DAMPERS, ACCESS DOORS, CAULKING, ETC. FOR APPROVED INSTALLATION.

PLUMBING SPECIFICATIONS

<u>BIDDING</u>

- THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS. THE CONTRACTOR SHALL COMPARE THE WORK SPECIFIED IN THE CONTRACT DOCUMENTS WITH THE EXISTING CONDITIONS. CONTRACTOR SHALL IDENTIFY AND NOTATE ALL WORK OR CONDITIONS THAT ARE DIFFERENT FROM THE CONTRACT DOCUMENTS OR THEIR INTENT. THE CONTRACTO SHALL, UPON DISCOVERY, IMMEDIATELY NOTIFY AND REPORT, IN WRITING, ANY DISCREPANCIES TO THE ENGINEER. NO EXTRAS OR CHANGE ORDERS WILL BE ALLO FOR FAILURE TO PERFORM THE PRE-BID SITE VISIT.
- 2. BASE PROPOSAL ON MANUFACTURER NAMES LISTED UNLESS "OR EQUAL" IS INDICAT PROVIDE SUBSTITUTION REQUESTS A MINIMUM OF FIVE (5) BUSINESS DAYS PRIOR TO DATE CLOSING TO ALLOW TIME FOR DUE CONSIDERATION OF PROPOSED ALTERNAT DETERMINATION OF SUBSTITUTION OF EQUALITY RESTS SOLELY WITH THE ENGINEE

PART TWO - PRODUCTS PLUMBING EQUIPMENT

1. PROVIDE PLUMBING EQUIPMENT AS SPECIFIED AND/OR SCHEDULED HEREIN AND IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. EQUIPMENT SHALL OPERATE ACCORDING TO THE MANUFACTURER'S "OWNER'S OPERATING AND MAINTENANCE MANUAL" TROUBLE FREE AND CONFORMING TO THE YEAR WARRANTEE.

PLUMBING PRODUCTS

- DOMESTIC WATER PIPING: (ABOVE GROUND) TYPE "L" COPPER ABOVE GRADE (ASTM WROUGHT FITTINGS(ASME B16.22), JOINTS: ANSI/ASTM B32, SOLDER, GRADE 95 TA, 0 MAX LEAD. (UNDER GROUND: PROTECTED FROM SOIL) TYPE "K" COPPER BELOW GF (ASTM B-88), HARD DRAWN, WROUGHT FITTINGS (ASME B16.22) JOINTS: AWS A5.8, BC SILVER BRAZE.
- DOMESTIC WASTE & VENT PIPING MATERIALS: ABOVE GROUND SHALL BE NO-HUB C/ IRON(ASTM-A-888, CISPI 301). BELOW GROUND SHALL BE NO-HUB CAST IRON (ASTM-/ CISPI 301). PVC/ABS DWV PIPING MAY BE USED UNDERGROUND BASED ON SOIL CONDITIONS.
- 3. GAS PIPING: ABOVE GRADE SCHEDULE 40 BLACK IRON(ASME A-53), THREADED MALL FITTINGS INSIDE AND GALVANIZED FITTINGS AND PIPE WHERE EXPOSED, JOINT COMPOUND. PROVIDE ISOLATION VALVES AT ALL EQUIPMENT. BELOW GRADE GAS P SHALL BE POLYETHYLENE (PE) GAS PIPING WITH BUTT FUSION JOINTS. PIPING SHALL LABELED GAS. GAS VALVE SHALL BE BRONZE BODY, BRONZE TAPERED PLUG, NON-LUBRICATED, TEFLON PACKING, THREADED ENDS.
- 4. PIPE INSULATION: ALL DOMESTIC COLD WATER PIPING (IN UNCONDITIONED SPACES AND ALL DOMESTIC HOT WATER PIPING ABOVE GROUND SHALL BE INSULATED WITH THICK FIBERGLASS PIPE INSULATION WITH ALL-SERVICE JACKET AND MAXIMUM K VA OF 0.27 AT 75⁴F. WHERE CLEARANCE LIMITATIONS PREVENT THE USE OF FIBERGLASS INSULATION, A MINIMUM 3/4" THICK CLOSED CELL NEOPRENE PIPE INSULATION MAY E USED.
- 5. PIPE HANGERS: PIPE SIZES 1/2" TO 1 1/2": MALLEABLE IRON, CARBON STEEL, ADJUST SWIVEL, SPLIT RING. PIPE SIZES 2" TO 4": CARBON STEEL, ADJUSTABLE, CLEVIS. PIP SIZES 6" AND OVER: ADJUSTABLE STEEL YOKE, CAST IRON ROLL, DOUBLE HANGER.
- RAIN WATER DRAIN PIPING SHALL BE CAST IRON, UNLESS OTHERWISE APPROVED.
 CONDENSATE DRAIN PIPING: TYPE "M" COPPER (ASTM B-88), WROUGHT FITTINGS (AS B16.22), JOINTS: ANSI/ASTM B32, SOLDER, GRADE 95 TA, 0.2% MAX LEAD.
- 8. HEAT TRACE: RAY CHEM, XL-TRACE SYSTEM, INSTALLED PER MANUFACTURERS RECOMMENDATION.

<u>NOTES</u>

- DIELECTRIC FITTINGS SHALL BE USED WHEREVER DISSIMILAR METALS ARE JOINED.
 ALL UNDERGROUND WATER PIPING SHALL BE WRAPPED WITH TAPE, ENCASED WITH A FOAM, COATED WITH A PROTECTIVE COATING, OR ROUTED THROUGH CONDUIT FOR PASSIVE CATHODIC PROTECTION. NO PIN HOLE LEAKS IN PROTECTIVE COATING OR TAPE ARE ALLOWED.
- PROVIDE ACCESS PANELS IN CEILING TO ACCESS VALVES WHERE REQUIRED.
 PLUMBING FIXTURES: PROVIDE CHROME PLATED ANGLE STOPS WITH ESCUTCHEON PLATES AT PLUMBING FIXTURES. ALL PLUMBING FIXTURES SHALL COMPLY WITH LOCAL REGULATIONS AND ADOPTED WATER CONSERVATION CODES.
- 5. DISINFECT ALL POTABLE WATER SYSTEMS IN ACCORDANCE WITH PLUMBING CODE AND/OR, AWWA STANDARD. PROVIDE WRITTEN CONFIRMATION TO OWNERS REPRESENTATIVE THAT THIS WORK HAS BEEN COMPLETED.

SHEET NUMBER PU0.0 PU1.1 PU1.1 PU1.2 PU1.3 PU1.4 PU1.4 PU1.5 PU1.5 PU1.5		PLUMBING
PU0.0 PLUMBING COVERSHEET AND SHEET INDEX PU1.1 PLUMBING ENLARGED UNDERSLAB PLAN - GAMING PU1.2 PLUMBING ENLARGED UNDERSLAB PLAN - SOUTH PU1.3 PLUMBING ENLARGED UNDERSLAB PLAN - BOH PU1.4 PLUMBING ENLARGED UNDERSLAB PLAN - BANQUET B PU1.5 PLUMBING ENLARGED UNDERSLAB PLAN - NORTH Grand total: 6 Grand total: 6	SHEET	
PU1.1 PLUMBING ENLARGED UNDERSLAB PLAN - GAMING PU1.2 PLUMBING ENLARGED UNDERSLAB PLAN - SOUTH PU1.3 PLUMBING ENLARGED UNDERSLAB PLAN - BOH PU1.4 PLUMBING ENLARGED UNDERSLAB PLAN - BANQUET B PU1.5 PLUMBING ENLARGED UNDERSLAB PLAN - NORTH Grand total: 6	PU0.0	PLUMBING COVERSHEET AND SHEET INDEX
PU1.2 PLUMBING ENLARGED UNDERSLAB PLAN - SOUTH PU1.3 PLUMBING ENLARGED UNDERSLAB PLAN - BOH PU1.4 PLUMBING ENLARGED UNDERSLAB PLAN - BANQUET B PU1.5 PLUMBING ENLARGED UNDERSLAB PLAN - NORTH Grand total: 6	PU1.1	PLUMBING ENLARGED UNDERSLAB PLAN - GAMING
PU1.3 PLUMBING ENLARGED UNDERSLAB PLAN - BOH PU1.4 PLUMBING ENLARGED UNDERSLAB PLAN - BANQUET B PU1.5 PLUMBING ENLARGED UNDERSLAB PLAN - NORTH Grand total: 6	PU1.2	PLUMBING ENLARGED UNDERSLAB PLAN - SOUTH
PU1.4 PLUMBING ENLARGED UNDERSLAB PLAN - BANQUET B PU1.5 PLUMBING ENLARGED UNDERSLAB PLAN - NORTH Grand total: 6	PU1.3	PLUMBING ENLARGED UNDERSLAB PLAN - BOH
PU1.5 PLUMBING ENLARGED UNDERSLAB PLAN - NORTH Grand total: 6	PU1.4	PLUMBING ENLARGED UNDERSLAB PLAN - BANQUET B
Grand total: 6	PU1.5	PLUMBING ENLARGED UNDERSLAB PLAN - NORTH
	Grand total: 6	

	PART	THREE - EXECUTION
	1	
-	1.	NECESSARY FOR THE INSTALL ATION OF THE WORK CUTTING AND PATCHING SHALL BE
THE		DONE BY WORKMEN SKILLED IN THE TRADES REQUIRED AND PAID BY THE CONTRACTOR
		REQUIRING THE WORK COMPLETED.
R	2.	THE CONTRACTOR SHALL PROVIDE ALL RIGGING, HANDLING OF MATERIALS AND
	З	EQUIPMENT, AND THE NECESSARY PROTECTION FOR MATERIALS AND EQUIPMENT.
	5.	OR DAMAGE UNTIL ACCEPTED BY OWNER. ALL WORK SHALL BE TURNED OVER TO OWNER
TED.		CLEAN AND IN NEW CONDITION.
O BID	4.	PIPES AND/OR CONDUITS PASSING THROUGH WALL, FLOORS AND PARTITIONS SHALL BE
E. D		PROVIDED WITH SLEEVES. SLEEVES PASSING THROUGH WATER PROOFING OR DAMP
Π.		CONSTRUCTION SHALL BE FIRE PROOFED WITH MATERIAL APPROVED FOR THE FIRE
		RATING OF THE SEPARATION AREA AND U.L. LISTED.
	5.	EACH CONTRACTOR SHALL PROVIDE ALL FOUNDATIONS, HANGERS, AND SUPPORTS FOR
		ALL EQUIPMENT SUPPLIED AND/OR INSTALLED UNDER THEIR WORK. ANY EQUIPMENT WITH
		CONNECTIONS TO PIPING IF APPLICABLE
	6.	WHERE PIPES OR CONDUITS PASS THROUGH WALLS, FLOORS, OR CEILINGS IN FINISHED
ONE-		AREAS, THEY SHALL BE FURNISHED WITH ESCUTCHEON PLATES (COLOR PER ARCHITECT
	_	AND/OR INTERIOR DESIGNER).
	7.	AT THE CONCLUSION OF THE JOB, EACH PIECE OF EQUIPMENT, VALVE, SWITCH, STARTER,
		CONCEALED COVERED OR UNCOVERED IN ACCORDANCE WITH OSHA AND ANSI
/I B-88),		REGULATIONS. IDENTIFY PIPES NEAR EACH VALVE WITH "BRANDY-PERMA' CODE PIPE
).2%		TAPE" OR T. & B. WESTLINE "TEL-A-PIPE" INDICATING DIRECTION OF FLOW, SERVICE, ZONE,
RADE		AND SIZE. TAPE SHALL BE APPLIED TO PIPE, CONDUIT, OR COVERING. VALVES AND
JuP		CONTROLS SHALL BE IDENTIFIED BY 2-INCH LACQUERED BRASS TAGS WITH STAMPED LETTERS EASTENED WITH "S" HOOKS OR CHAINS FOUIDMENT IS TO BE IDENTIFIED AS TO
AST		FUNCTION AND PURPOSE BY MEANS OF PERMANENTLY ATTACHED LAMINATED ENGRAVED
A-888,		PHENOLIC NAMEPLATES WITH BEVELED EDGES, AND WHITE LETTERS ON BLACK
	_	BACKGROUND. (NO ADHESIVE LABELS ALLOWED).
	8.	AT THE CONCLUSION OF THE WORK, ALL EQUIPMENT AND SYSTEMS SHALL BE BALANCED,
		OPERATING SYSTEM(S), DEMONSTRATE OPERATION OF ALL SYSTEMS TO THE OWNER'S
PIPING		DESIGNATED REPRESENTATIVE. THE TEST AND BALANCE WORK SHALL BE PERFORMED IN
BE		ACCORDANCE WITH NEBB OR AABC STANDARDS, BY INDEPENDENT, APPROVED, AND
	•	CERTIFIED TEST AND BALANCE PERSONNEL.
	9.	THE MECHANICAL/PLUMBING CONTRACTOR IS RESPONSIBLE FOR RETAINING AND PAYING
1"		INSTALLATION DRAWINGS FOR MECHANICAL/PLUMBING SYSTEMS SEISMIC RESTRAINT
LUE		SUPPORT, PER THE PROJECT BUILDING CODE. PRIOR TO CONSTRUCTION, THE
S		CONTRACTOR SHALL SUBMIT MECHANICAL SYSTEMS SHOP DRAWINGS BASED UPON MULTI
ЗĒ		DISCIPLINE COORDINATION. INCLUDED WITH THE SHOP DRAWING SUBMISSION SHALL BE
TABLE		FACH AREA NOTED NEEDING SEISMIC SUPPORT FOR THE MECHANICAL SYSTEMS THERE
E		SHALL BE A SEISMIC DRAWING DETAILING THE REQUIRED SUPPORT. THE SEISMIC
		SUPPORT DRAWINGS SHALL BE SIGNED AND SEALED BY A REGISTERED STRUCTURAL
		ENGINEER IN THE SAME STATE AS THE PROJECT. IN ADDITION TO THE PROJECT DESIGN
ME		TEAM REVIEW, THE SEISMIC SUPPORT DRAWINGS WILL BE ISSUED TO THE LOCAL BUILDING

- REVIEW IS AT THE CONTRACTOR'S RISK. 10. PIPE HANGERS: PIPE SIZES 1/2" TO 1 1/2" - 6'-0" MAX SPACING, 3/8" ROD DIAMETER; PIPE SIZES 2" TO 3" - 10'-0" MAX SPACING, 1/2" ROD DIAMETER; PIPE SIZES 4 TO 6"-10'-0" MAX SPACING, 5/8" ROD DIAMETER.
- PROVIDE WATER HAMMER ARRESTORS AT ALL QUICK CLOSING WATER VALVES. PROVIDE TYPE AS PER SCHEDULE.
 WATER PROOFING AND FLASHING OF PIPE PENETRATIONS THROUGH EXTERIOR WALL AND
- WATER FROOTING AND FLASHING OF PIPE PENETRATIONS THROUGH EXTERIOR WALL AND ROOF SHALL BE BY THIS CONTRACTOR. PLUMBING CONTRACTOR SHALL COORDINATE LOCATIONS AND METHODS WITH GENERAL CONTRACTOR PRIOR TO CONSTRUCTION OF ROOF DECK.
 CONTRACTOR SHALL OR TAIN FROM THE ARCHITECT THE EXACT LOCATION OF FOUR MENTS.
- CONTRACTOR SHALL OBTAIN FROM THE ARCHITECT THE EXACT LOCATION OF EQUIPMENT, PLUMBING FIXTURES, FLOOR DRAINS AND ANY OTHER APPARATUS SPECIFIED IN THESE DRAWINGS.
 PROVIDE CLEAN OUTS IN SANITARY MARTE AND DRAWNINGS ACCOUNTY AND TO DRAWNINGS.
- PROVIDE CLEAN OUTS IN SANITARY, WASTE AND DRAIN LINES AS SHOWN AND AS REQUIRED BY LOCAL CODE. ALL CLEANOUTS SHALL BE READILY ACCESSIBLE.
 PROVIDE BALANCE VALVE FOR HOT WATER RETURN SYSTEM AS REQUIRED.
 PROVIDE DESSURE DEDUCING VALVE IN OVERTICA AS DESCURED.
- PROVIDE PRESSURE REDUCING VALVE IN SYSTEM AS REQUIRED.
 PROVIDE A NON-VENTED TRAP ON ALL INDIRECT WASTE PIPING FIVE (5) TO FIFTEEN (15) FEET IN DEVELOPED LENGTH. INDIRECT WASTE PIPING WITH ANGLES AND CHANGES OF DIRECTION SHALL BE BE PROVIDED WITH CLEANOUTS.
 WHERE A SINK IN A BAR, SODA FOUNTAIN, OR COUNTER HAS AN INDIRECT WASTE, THE
- DEVELOPED LENGTH FROM THE SINK OUTLET SHALL NOT EXCEED FIVE (5) FEET.

G - DRAWING INDEX UNDERSLAB						
SHEET NAME	03.27.2018 - BID PACKAGE 02	04.09.2018 Addendum 2	WM.DD.YYYY	MM.DD.YYYY	MM.DD.YYYY	Content Series
	Х	Х				UNDERSLAB PACKAGE
	Х	Х				UNDERSLAB PACKAGE
	Х	Х				UNDERSLAB PACKAGE
	Х	Х				UNDERSLAB PACKAGE
3OH	Х	Х				UNDERSLAB PACKAGE
	Х	Х				UNDERSLAB PACKAGE

James R. Childers Architect, Inc. 45 South 4th Street Fort Smith, AR 72901 479-783-2480 www.childersarchitect.com PROFESSIONAL SEAL: APR 09 2018 CONSULTANT LOGO: CHEROKEE NATION Entertainment Entertainment CHEROKEE NATION ENTERTAINMENT TAHLEQUAH CASINO μM PROJECT PHASE: BID PACKAGE 02 (100% SET)
 REVISIONS

 #
 DATE
 DESCRIPTION

 2
 04/09/18
 ADDENDUM 2
 DATE: JOB NUMBER: 03/27/18 17-06 SHEET NUMBER: PU1.4 PLUMBING ENLARGED UNDERSLAB PLAN -____BANQUET BOH___

GENERAL NOTES:

1. ALL WATER PIPING SHALL BE INSTALLED ON THE INTERIOR SIDE OF THE BUILDING. 2. THE CUTTING, NOTCHING AND BORING OF HOLES IN FLOOR JOIST AND WALL STUDS SHALL BE IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE INTERNATIONAL BUILDING CODE.

 CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL PLUMBING ROUGH-IN LOCATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURES AND EQUIPMENT LOCATIONS.
 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING AS

REQUIRED TO ACCOMMODATE HIS WORK. 5. SANITARY DRAINAGE PIPING SHALL BE SLOPED: UNDER 3" AT 1/4" PER FOOT, 3" AND

LARGER AT 1/8" PER FOOT. 6. PLUMBING CONTRACTOR SHALL COORDINATE ROUTING OF PIPING WITH ALL OTHER TRADES PRIOR TO COMMENCING WORK.

 ALL PLUMBING FIXTURES SHALL BE WATER CONSERVATION TYPE AS MANDATED BY LOCAL BUILDING DEPARTMENT.
 ALL WATER CLOSETS DESIGNATED AS ACCESSIBLE SHALL BE INSTALLED SUCH THAT THE ACTUATOR IS OPERABLE FROM THE WIDE SIDE OF THE WATER CLOSET.

 PRIOR TO INSTALLATION OF SEWER AND WATER PIPING BELOW GRADE
 COORDINATE EXACT LOCATIONS AND DEPTHS OF BURIAL WITH CIVIL AND FOUNDATION DRAWINGS AND CORRESPONDING ENGINEERS.
 REFER TO THE PLUMBING DIAGRAMS THAT APPLY TO THE WORK ON THIS DRAWING. THESE DIAGRAMS PROVIDE GUIDANCE AS TO INSTALLATION INTENT AND DO NOT

NECESSARILY SHOW ALL COMPONENTS REQUIRED.

1.	2" VENT UP.
2.	2" WASTE UP.
3.	3" WASTE UP.
4	4" WASTEUP
<u>م</u> ج ک	4"STÔRM DRAIN.
Ľ	uuul2

S:\Cad Drawings\Casinos\CNE Tahlequah Casino - ASU\Sheets\ASU-YS.dwg, 4/9/2018 12:07:58 PM, AutoCAD PDF (General Documentation).pc3

S:\Cad Drawings\Casinos\CNE Tahlequah Casino - ASU\Sheets\ASU-YS.dwg, 4/9/2018 12:08:01 PM, AutoCAD PDF (General Documentation).pc3

LOW VOLTAGE CONDUIT PLAN

Job #: 3882 Tahlequah Cherokee Casino

Tahlequah, Oklahoma

Foreman | Manhattan, A Joint Venture

RFI LOG

#	Subje	ect	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
PC-011	Stage	Pit Details	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Chris Griffin	04/09/2018	04/09/18			TBD		Yes (Unknowr
		Chris Griffin Sent Wed Apr 4, 2018 at 06:14 pm CDT See S2.1, please see attached and provide the following details for the stage pit.													
	Q:	 sheet waterp ramp and lan 	roofing a ding deta	round the pit and ramp ails / sections as indicate	d on the attachm	ent									
		PC-011 Attachment.pdf													
	A :	Gary Moore (Childers) Resp 1. Install per manufa 2. See addendum 00 Gary Moore	oonded Fr actures)1.	i Apr 6, 2018 at 09:29 p recommendation	m UTC at all vertica	l surfaces in th	e pit.								
PC-010	Slab O)n Grade Edge Details	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Chris Griffin	04/09/2018	04/09/18			TBD		Yes (Unknowr
	Q:	Chris Griffin Sent Wed Apr Per email correspondence,	4, 2018 a please p	t 03:13 pm CDT rovide slab on grade edg	ge details.										
		Gary Moore (Childers) Resp	onded Fr	ri Apr 6, 2018 at 09:27 p	m UTC										
	A :	See addendum	001.												
		Gary Moore													
PC-009	Grade	Beam Step Details	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Chris Griffin	04/09/2018	04/09/18			TBD		Yes (Unknown
	Q:	Chris Griffin Sent Wed Apr Per email correspondence,	4, 2018 a please p	t 02:14 pm CDT rovide a grade beam ste	p detail at the red	cesses slab transitio	ns along the buildir	ng perimeter.							
	A:	Gary Moore (Childers) Resp See addendum (Gary Moore	oonded Fr 001.	ri Apr 6, 2018 at 09:26 p	m UTC										
PC-008	Bathro	oom Grade Beam Detail	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Patrick Fogarty	04/09/2018	04/09/18			Yes (Unknown)		 Yes (Unknowr
	Q:	Patrick Fogarty Sent Wed A Per email dated 4/2/18 for 1. Is it the intent to have Cl 2. If CMU is intended to sit 3. Note 10/S0.1 states pen	pr 4, 201 n Gary M MU sit on at grade l etrations	8 at 01:53 pm CDT oore, grade beams at th the grade beam or a ste beam, what will be the s in foundations are not to	e safer rooms are m wall? lab edge detail? L o be done unless	intended to be held arge thickened edg shown, does this no	l 2'8" below finish fl e or tie into wall? te also apply to CMI	oor to accomm U walls?	odate under slab) utilities.					
		Please provide details to be	e issued i	n bid clarification.											
		Gary Moore (Childers) Besr		ri Apr 6 2019 at 00.25 p	m LITC										

Foreman | Manhattan, A Joint Venture

Job #: 3882 Tahlequah Cherokee Casino

Tahlequah, Oklahoma

	Subje	ect	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
PC-007	Concr	rete Pedestal Details	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Chris Griffin	04/09/2018	04/09/18			TBD		Yes (Unknown)
	Q:	Chris Griffin Sent Wed Apr Per email correspondence	4, 2018 a , please p	t 01:52 pm CDT rovide concrete pedest	al details for the str	uctural steel colun	nns along the buildir	ng perimeter.							
	A:	Gary Moore (Childers) Res See addendum Gary Moore	ponded Fr 001.	ri Apr 6, 2018 at 09:25 p	om UTC										
PC-006	Slab o	on Grade Curing	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Patrick Fogarty	04/09/2018	04/09/18			TBD		TBD
	Q:	Patrick Fogarty Sent Wed Apr 4, 2018 at 01:22 pm CDT Per S2.1 note 7 states all concrete slabs to be water cures. Do not use any curing compounds. Per spec section 03 30 00, 2.07 Curing materials are listed. Additionally, section 3.11 of 03 30 00 several methods are provided for curing. In field conversations with Kevin Ogle and James Carter, water curing is not solely required. FMC would like to confirm waterborne dissipatating cures can be used on the project. This will be more conducive to the fast paced nature of the project.													
	A :	Gary Moore (Childers) Res After talking to the owner See addendum 001. Gary Moore	ponded Fr and engin	ri Apr 6, 2018 at 09:35 p eer the note was remov	om UTC ved.										_
PC-005	Sheet Detail	: Waterproofing Location/ Is	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Patrick Fogarty	04/09/2018	04/09/18					_
	Q:	Patrick Fogarty Sent Wed / Bid Package 2 specificatio	Apr 4, 201 ns include	.8 at 01:05 pm CDT e spec section 07 1300 s	sheet waterproofing	g, however FMC ca	nnot locate details c	or locations of v	vhere the product	is intended to be	used. Please clarif	y scope of us	se and details fo	r application.	
		Gary Moore (Childers) Res The sheet waterproofing is	ponded Fr s to be ins	ri Apr 6, 2018 at 09:11 p talled on all vertical sur	om UTC faces in the slab at	the following locat	ions:								
	A:	 The pit below the Stage The recessed areas with Gary Moore 	n raised flo	poring.											
PC-004	A: Gener	1. The pit below the Stage 2. The recessed areas with Gary Moore rator Specification	n raised flo Closed	ooring. Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Patrick Fogarty	04/09/2018	04/05/18			TBD		– No
PC-004	A: Gener Q:	The pit below the Stage The recessed areas with Gary Moore Trator Specification Patrick Fogarty Sent Wed / Per note 1 of the generato issued. Please provide in c	Closed Apr 4, 201 r details, o rder for Fo	Manhattan - Tulsa 8 at 01:01 pm CDT contractor is to provide oreman Manhattan to e	None a 480V, 3PH, 4W g valuate lead times	Moore, Gary (Chil enerator and to ref and budget.	04/04/2018 er to specifications	Patrick Fogarty for additional ir	04/09/2018 nformation. Per b	04/05/18 id package 1 or 2, 9	specifications rela	ting to the go	TBD enerators have r	not been	– No
PC-004	A: Gener Q: A:	The pit below the Stage The recessed areas with Gary Moore Patrick Fogarty Sent Wed <i>J</i> Per note 1 of the generato issued. Please provide in c Gary Moore (Childers) Res See attached specification 263213.13.pdf	Closed Closed Apr 4, 201 r details, o rder for Fo ponded Ti 26 3213.	Manhattan - Tulsa 8 at 01:01 pm CDT contractor is to provide oreman Manhattan to e hu Apr 5, 2018 at 06:27 13 Diesel Emergency E	None a 480V, 3PH, 4W g valuate lead times pm UTC ngine Generators.	Moore, Gary (Chil enerator and to ref and budget.	04/04/2018 er to specifications	Patrick Fogarty for additional ir	04/09/2018	04/05/18 id package 1 or 2, s	specifications rela	ting to the g	TBD enerators have r	not been	– No
PC-004	A: Gener Q: A: Pit for	The pit below the Stage The recessed areas with Gary Moore Patrick Fogarty Sent Wed / Per note 1 of the generato issued. Please provide in c Gary Moore (Childers) Res See attached specification 263213.13.pdf Underfloor Air Distribution	Closed Apr 4, 201 r details, r rder for Fr ponded TI 26 3213. Closed	Manhattan - Tulsa 8 at 01:01 pm CDT contractor is to provide oreman Manhattan to e hu Apr 5, 2018 at 06:27 13 Diesel Emergency E Manhattan - Tulsa	None a 480V, 3PH, 4W g valuate lead times pm UTC ngine Generators. None	Moore, Gary (Chil enerator and to ref and budget. Moore, Gary (Chil	04/04/2018 er to specifications 04/04/2018	Patrick Fogarty for additional ir Patrick Fogarty	04/09/2018 nformation. Per b	04/05/18 id package 1 or 2, s 04/06/18	specifications rela	ting to the g	TBD enerators have r	not been	- No
PC-004	A: Gener Q: A: Pit for Q:	The pit below the Stage The recessed areas with Gary Moore Trator Specification Patrick Fogarty Sent Wed J Per note 1 of the generato issued. Please provide in c Gary Moore (Childers) Res See attached specification 263213.13.pdf Underfloor Air Distribution Patrick Fogarty Sent Wed J From previous projects wit including size, shape, reba	Closed Apr 4, 201 r details, c rder for F ponded T1 26 3213. Closed Apr 4, 201 h under a requirer	Manhattan - Tulsa 8 at 01:01 pm CDT contractor is to provide oreman Manhattan to e hu Apr 5, 2018 at 06:27 13 Diesel Emergency E Manhattan - Tulsa 8 at 12:57 pm CDT ccess floor air distributi nents, embeds, etc. in o	None a 480V, 3PH, 4W g valuate lead times pm UTC ngine Generators. None on, it has been see order to bid comple	Moore, Gary (Chil enerator and to ref and budget. Moore, Gary (Chil n to have a pit at tl tely on April 11th.	04/04/2018 er to specifications 04/04/2018 he supply duct to un	Patrick Fogarty for additional ir Patrick Fogarty derfloor transit	04/09/2018 nformation. Per b 04/09/2018 cion. Will that be t	04/05/18 id package 1 or 2, s 04/06/18 :he design intent fo	specifications rela	ting to the g	TBD enerators have r please provide o	not been design details	- No -

Foreman | Manhattan, A Joint Venture

Job #: 3882 Tahlequah Cherokee Casino

Tahlequah, Oklahoma

#	Subje	ct	Status	Responsible Contractor	Received From	Assignee	Date Initiated	RFI Manager	Due Date	Closed Date	Ball In Court	Location	Schedule Impact	Cost Code	Cost Impact
		MSA Engineering 4-6-2018													_
PC-002	Routing	g of Mechanical Piping	Closed	Manhattan - Tulsa	None	Moore, Gary (Chil	04/04/2018	Patrick Fogarty	04/09/2018	04/06/18					
	Q:	Patrick Fogarty Sent Wed Per S0.1 note 10 under F underground from the sk	Apr 4, 201 oundations d to the bu	8 at 12:52 pm CDT , Slab-on-grade - Gener ilding, penetrations ma	al; foundations ar ay be needed. If ov	e not to be penetrate verhead, will glycol or	d by conduits, pipe other anti-freeze	es, etc. What measures be	is the design inten needed?	t for routing of me	chanical piping fro	om the centra	al plant skid to t	he RTU's? lf	
	A :	Gary Moore (Childers) Re The hydronic piping shall We will need a 4" waste f Robbie Jones MSA Engineer 4-6-2018	sponded Fr be routed rom civil, W	i Apr 6, 2018 at 06:06 g above grade, The plant /e have sent a revision	om UTC is less that 5 feet to civil engineer.	from the building. NC) glycol is required								-
PC-001	Slab or	n Grade Thickness	Closed	Manhattan - Tulsa	None	Hargrave, Casey (03/21/2018	Patrick Fogarty	03/22/2018	03/23/18			No		— TBD
	Q:	Patrick Fogarty Sent Wed Per detail 3/S1.3, typical provided, please confirm	Mar 21, 20 pier cap is s slab on gra)18 at 11:32 am CDT shown with a slab trans ade will be designed at	ition. However, no 4". If not, please c	o clarification to slab t larify dimension for sl	hickness is provid lab on grade in ord	ed at the deta ler to coordin	ail or the other she ate building pad el	ets associated with evation in rough g	n bid package 01. rading bid manual	Slab thickne I.	ss scales to 4" p	er the scale	

Casey Hargrave (Childers) Responded Wed Mar 21, 2018 at 07:26 $\rm pm$ UTC Slab shall be 5 inches.

A:

Casey A Hargrave, Architect

SECTION 263213.13

DEISEL EMERGENCY ENGINE GENERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes packaged engine-generator sets for emergency and standby power supply with the following features:
 - 1. Diesel engine.
 - 2. Unit-mounted cooling system.
 - 3. Unit-mounted control and monitoring.
 - 4. Performance requirements for sensitive loads.
 - 5. Outdoor enclosure.

1.3 **DEFINITIONS**

- A. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.
- B. LP: Liquid petroleum.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of packaged engine generator indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. In addition, include the following:
 - 1. Thermal damage curve for generator.
 - 2. Time-current characteristic curves for generator protective device.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
 - 2. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.
 - 3. Vibration Isolation Base Details: Signed and sealed by a qualified professional engineer. Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include base weights.
 - 4. Wiring Diagrams: Power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installer manufacturer and testing agency.
- B. Source quality-control test reports.
 - 1. Certified summary of prototype-unit test report.
 - 2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
 - 3. Certified Summary of Performance Tests: Certify compliance with specified requirement to meet performance criteria for sensitive loads.
 - 4. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
 - 5. Report of sound generation.
 - 6. Report of exhaust emissions showing compliance with applicable regulations.
 - 7. Certified Torsional Vibration Compatibility: Comply with NFPA 110.
- C. Field quality-control test reports.
- D. Warranty: Special warranty specified in this Section.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
 - 1. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
 - 1. Maintenance Proximity: Not more than four hours' normal travel time from Installer's place of business to Project site.
 - 2. Engineering Responsibility: Preparation of data for vibration isolators and seismic restraints of engine skid mounts, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 200 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.
- C. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL), and that is acceptable to authorities having jurisdiction.
 - 1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.
- D. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.

- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- F. Comply with ASME B15.1.
- G. Comply with NFPA 37.
- H. Comply with NFPA 70.
- I. Comply with NFPA 99.
- J. Comply with NFPA 110 requirements for Level 1 emergency power supply system.
- K. Comply with UL 2200.
- L. Engine Exhaust Emissions: Comply with applicable state and local government requirements.
- M. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

1.8 **PROJECT CONDITIONS**

- A. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
 - 1. Ambient Temperature: 5 to 40 deg C.
 - 2. Relative Humidity: 0 to 95 percent.
 - 3. Altitude: Sea level to 1000 feet.

1.9 COORDINATION

A. Coordinate size and location of concrete bases for package engine generators. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Caterpillar; Engine Div.
 - 2. Generac Power Systems, Inc.
 - 3. Kohler Co.
 - 4. Magnetek, Inc.
 - 5. Onan/Cummins Power Generation; Industrial Business Group.
 - 6. Spectrum Detroit Diesel.

2.2 ENGINE-GENERATOR SET

- A. Factory-assembled and -tested, engine-generator set.
- B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation; and have lifting attachments.
 - 1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and generator-set center of gravity.
- C. Capacities and Characteristics:
 - 1. Power Output Ratings: Nominal ratings as indicated.
 - 2. Output Connections: Three-phase, four wire.
 - 3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.
- D. Generator-Set Performance:
 - 1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.
 - 2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent stepload increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
 - 3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
 - 4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
 - 5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
 - 6. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
 - 7. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
 - 8. Start Time: Comply with NFPA 110, Type 10, system requirements.
- E. Generator-Set Performance for Sensitive Loads:
 - 1. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.
 - a. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.
 - 2. Steady-State Voltage Operational Bandwidth: 1 percent of rated output voltage from no load to full load.
 - 3. Transient Voltage Performance: Not more than 10 percent variation for 50 percent stepload increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 second.

- 4. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency from no load to full load.
- 5. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
- 6. Transient Frequency Performance: Less than 2-Hz variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within three seconds.
- 7. Output Waveform: At no load, harmonic content measured line to neutral shall not exceed 2 percent total with no slot ripple. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
- 8. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.
- 9. Excitation System: Performance shall be unaffected by voltage distortion caused by nonlinear load.
 - a. Provide permanent magnet excitation for power source to voltage regulator.
- 10. Start Time: Comply with NFPA 110, Type 10, system requirements.

2.3 ENGINE

- A. Fuel: Fuel oil, Grade DF-2.
- B. Rated Engine Speed: 1800 rpm.
- C. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm.
- D. Lubrication System: The following items are mounted on engine or skid:
 - 1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
 - 2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
 - 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- E. Engine Fuel System:
 - 1. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
 - 2. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.
 - 3. Dual Natural Gas with LP-Gas Backup (Vapor-Withdrawal) System:
 - a. Carburetor.
 - b. Secondary Gas Regulators: One for each fuel type.
 - c. Fuel-Shutoff Solenoid Valves: One for each fuel source.
 - d. Flexible Fuel Connectors: One for each fuel source.
- F. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity.
- G. Governor: Adjustable isochronous, with speed sensing.

- H. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generatorset mounting frame and integral engine-driven coolant pump.
 - 1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
 - 2. Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.
 - 3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.
 - 4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
 - 5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.
 - a. Rating: 50-psig maximum working pressure with coolant at 180 deg F and noncollapsible under vacuum.
 - b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.
- I. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.
 - 1. Minimum sound attenuation of 25 dB at 500 Hz.
 - 2. Sound level measured at a distance of 10 feet from exhaust discharge after installation is complete shall be 85 dBA or less.
- J. Air-Intake Filter: Standard-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.
- K. Starting System: 24-V electric, with negative ground.
 - 1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in Part 1 "Project Conditions" Article.
 - 2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
 - 3. Cranking Cycle: As required by NFPA 110 for system level specified.
 - 4. Battery: Adequate capacity within ambient temperature range specified in Part 1 "Project Conditions" Article to provide specified cranking cycle at least twice without recharging.
 - 5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
 - 6. Battery Compartment: Factory fabricated of metal with acid-resistant finish and thermal insulation. Thermostatically controlled heater shall be arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in Part 1 "Project Conditions" Article. Include accessories required to support and fasten batteries in place.
 - 7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
 - 8. Battery Charger: Current-limiting, automatic-equalizing and float-charging type. Unit shall comply with UL 1236 and include the following features:
 - a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
 - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.

- c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
- d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
- e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
- f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

2.4 FUEL OIL STORAGE

- A. Comply with NFPA 30.
- B. Base-Mounted Fuel Oil Tank: Factory installed and piped, complying with UL 142 fuel oil tank. Features include the following:
 - 1. Tank level indicator.
 - 2. Capacity: Fuel for forty eight (48) hours' continuous operation at 100 percent rated power output.
 - 3. Vandal-resistant fill cap.
 - 4. Containment Provisions: Comply with requirements of authorities having jurisdiction.

2.5 CONTROL AND MONITORING

- A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.
- B. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.
- C. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the generator set. Mounting method shall isolate the control panel from generator-set vibration.
- D. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common wall-mounted control and monitoring panel.
- E. Configuration: Operating and safety indications, protective devices, basic system controls, engine gages, instrument transformers, generator disconnect switch or circuit breaker, and other indicated components shall be grouped in a combination control and power panel. Control and monitoring section of panel shall be isolated from power sections by steel barriers. Panel features shall include the following:
 - 1. Wall-Mounting Cabinet Construction: Rigid, self-supporting steel unit complying with NEMA ICS 6. Power bus shall be copper. Bus, bus supports, control wiring, and temperature rise shall comply with UL 891.
 - 2. Current and Potential Transformers: Instrument accuracy class.

- F. Indicating and Protective Devices and Controls: As required by NFPA 110 for Level 1 system, and the following:
 - 1. AC voltmeter.
 - 2. AC ammeter.
 - 3. AC frequency meter.
 - 4. DC voltmeter (alternator battery charging).
 - 5. Engine-coolant temperature gage.
 - 6. Engine lubricating-oil pressure gage.
 - 7. Running-time meter.
 - 8. Ammeter-voltmeter, phase-selector switch(es).
 - 9. Generator-voltage adjusting rheostat.
 - 10. Fuel tank derangement alarm.
 - 11. Fuel tank high-level shutdown of fuel supply alarm.
 - 12. Generator overload.
- G. Indicating and Protective Devices and Controls:
 - 1. AC voltmeter.
 - 2. AC ammeter.
 - 3. AC frequency meter.
 - 4. DC voltmeter (alternator battery charging).
 - 5. Engine-coolant temperature gage.
 - 6. Engine lubricating-oil pressure gage.
 - 7. Running-time meter.
 - 8. Ammeter-voltmeter, phase-selector switch(es).
 - 9. Generator-voltage adjusting rheostat.
 - 10. Start-stop switch.
 - 11. Overspeed shutdown device.
 - 12. Coolant high-temperature shutdown device.
 - 13. Coolant low-level shutdown device.
 - 14. Oil low-pressure shutdown device.
 - 15. Fuel tank derangement alarm.
 - 16. Fuel tank high-level shutdown of fuel supply alarm.
 - 17. Generator overload.
- H. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.
- I. Connection to Data Link: A separate terminal block, factory wired to Form C dry contacts, for each alarm and status indication is reserved for connections for data-link transmission of indications to remote data terminals. Data system connections to terminals are covered in Section 260913 "Electrical Power Monitoring and Control."
- J. Common Remote Audible Alarm: Comply with NFPA 110 requirements for Level 1 systems. Include necessary contacts and terminals in control and monitoring panel.
 - 1. Overcrank shutdown.
 - 2. Coolant low-temperature alarm.
 - 3. Control switch not in auto position.
 - 4. Battery-charger malfunction alarm.
 - 5. Battery low-voltage alarm.

- K. Common Remote Audible Alarm: Signal the occurrence of any events listed below without differentiating between event types. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset.
 - 1. Engine high-temperature shutdown.
 - 2. Lube-oil, low-pressure shutdown.
 - 3. Overspeed shutdown.
 - 4. Remote emergency-stop shutdown.
 - 5. Engine high-temperature prealarm.
 - 6. Lube-oil, low-pressure prealarm.
 - 7. Fuel tank, low-fuel level.
 - 8. Low coolant level.
- L. Remote Alarm Annunciator: Comply with NFPA 99. An LED labeled with proper alarm conditions shall identify each alarm event and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.
- M. Remote Emergency-Stop Switch: Flush; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation.

2.6 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Generator Circuit Breaker: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489.
 - 1. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
 - 2. Trip Settings: Selected to coordinate with generator thermal damage curve.
 - 3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
 - 4. Mounting: Adjacent to or integrated with control and monitoring panel.
- B. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground-fault. Integrate ground-fault alarm indication with other generator-set alarm indications.

2.7 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1.
- B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
- C. Electrical Insulation: Class H or Class F.
- D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.
- E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- F. Enclosure: Dripproof.
- G. Instrument Transformers: Mounted within generator enclosure.

- H. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.
 - 1. Adjusting rheostat on control and monitoring panel shall provide plus or minus 5 percent adjustment of output-voltage operating band.
- I. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.
- J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.
- K. Subtransient Reactance: 12 percent, maximum.

2.8 OUTDOOR GENERATOR-SET ENCLOSURE

- A. Description: Vandal-resistant, weatherproof steel housing, wind resistant up to 100 mph. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure.
- B. Description: Prefabricated or preengineered walk-in enclosure with the following features:
 - 1. Construction: Galvanized-steel, metal-clad, integral structural-steel-framed building erected on concrete foundation.
 - 2. Structural Design and Anchorage: Comply with ASCE 7 for wind loads.
 - 3. Space Heater: Thermostatically controlled and sized to prevent condensation.
 - 4. Louvers: Equipped with bird screen and filter arranged to permit air circulation when engine is not running while excluding exterior dust, birds, and rodents.
 - 5. Hinged Doors: With padlocking provisions.
 - 6. Ventilation: Louvers equipped with bird screen and filter arranged to permit air circulation while excluding exterior dust, birds, and rodents.
 - 7. Thermal Insulation: Manufacturer's standard materials and thickness selected in coordination with space heater to maintain winter interior temperature within operating limits required by engine-generator-set components.
 - 8. Muffler Location: External to enclosure.
- C. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.
 - 1. Louvers: Fixed-engine, cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow.
 - 2. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.

2.9 MOTORS

- A. General requirements for motors are specified in Division 23 Section "Common Motor Requirements for HVAC Equipment."
 - 1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
 - 2. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in electrical Sections.

2.10 VIBRATION ISOLATION DEVICES

- A. Restrained Spring Isolators: Freestanding, Steel, Open-Spring Isolators with Vertical-Limit Stop Restraint in Two-Part Telescoping Housing:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Ace Mountings Co., Inc.
 - b. California Dynamics Corporation.
 - c. Isolation Technology, Inc.
 - d. Kinetics Noise Control, Inc.
 - e. Mason Industries, Inc.
 - f. Vibration Eliminator Co., Inc.
 - g. Vibration Isolation.
 - h. Vibration Mountings & Controls, Inc.
 - 2. Two-Part Telescoping Housing: A steel top and bottom frame separated by an elastomeric material and enclosing the spring isolators. Housings are equipped with adjustable snubbers to limit vertical movement.
 - a. Drilled base housing for bolting to structure with an elastomeric isolator pad attached to the underside. Bases shall limit floor load to 500 psig.
 - b. Threaded top housing with adjustment bolt and cap screw to fasten and level equipment.
 - 3. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 - 4. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 - 5. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 - 6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

2.11 FINISHES

A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosionresistant pretreatment and compatible primer.

2.12 SOURCE QUALITY CONTROL

- A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.
 - 1. Tests: Comply with NFPA 110, Level 1 Energy Converters and with IEEE 115.
- B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
 - 1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
 - 2. Full load run.
 - 3. Maximum power.
 - 4. Voltage regulation.
 - 5. Transient and steady-state governing.
 - 6. Single-step load pickup.

- 7. Safety shutdown.
- 8. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.
- 9. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine-generator performance.
- B. Examine roughing-in of piping systems and electrical connections. Verify actual locations of connections before packaged engine-generator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.
- B. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.
- C. Install packaged engine generator on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Division 03 Section "Cast-in-Place Concrete."
 - 1. Comply with requirements for vibration isolation devices specified in this section.
- D. Install Schedule 40, black steel piping with welded joints and connect to engine muffler. Install thimble at wall. Piping shall be same diameter as muffler outlet. Flexible connectors and steel piping materials and installation requirements are specified in Division 23 Section "Hydronic Piping Specialties."
 - 1. Install condensate drain piping to muffler drain outlet full size of drain connection with a shutoff valve, stainless-steel flexible connector, and Schedule 40, black steel pipe with welded joints. Flexible connectors and piping materials and installation requirements are specified in Division 23 Section "Hydronic Piping Specialties."
- E. Electrical Wiring: Install electrical devices furnished by equipment manufacturers but not specified to be factory mounted.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping and specialties.
- B. Connect fuel, cooling-system, and exhaust-system piping adjacent to packaged engine generator to allow service and maintenance.
- C. Connect engine exhaust pipe to engine with flexible connector.

- D. Connect fuel piping to engines with a gate valve and union and flexible connector.
 - 1. Diesel storage tanks, tank accessories, piping, valves, and specialties for fuel systems are specified in Division 23 Section "Facility Fuel-Oil Piping."
- E. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."
- F. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.4 IDENTIFICATION

A. Identify system components according to Division 23 Section "Identification for HVAC Piping and Equipment" and Division 26 Section "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- C. Perform tests and inspections and prepare test reports.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- D. Tests and Inspections:
 - 1. Perform tests recommended by manufacturer and each electrical test and visual and mechanical inspection for "AC Generators and for Emergency Systems" specified in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, single-step full-load pickup test.
 - 3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
 - a. Measure charging voltage and voltages between available battery terminals for fullcharging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
 - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
 - c. Verify acceptance of charge for each element of the battery after discharge.
 - d. Verify that measurements are within manufacturer's specifications.
 - 4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and floatcharging conditions.
 - 5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
 - 6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg. Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
 - 7. Exhaust Emissions Test: Comply with applicable government test criteria.

- 8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
- 9. Harmonic-Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.
- E. Coordinate tests with tests for transfer switches and run them concurrently.
- F. Test instruments shall have been calibrated within the last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.
- G. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
- H. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
- I. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- J. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
- K. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- L. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each power wiring termination and each bus connection. Remove all access panels so terminations and connections are accessible to portable scanner.
 - 1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan 11 months after date of Substantial Completion.
 - 2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - 3. Record of Infrared Scanning: Prepare a certified report that identifies terminations and connections checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Refer to Division 01 Section "Demonstration and Training."

- 1. The Subcontract Agreement (including all attached and referenced Exhibits).
- 2. Manhattan General Provisions.
- 3. The Agreement between Manhattan and the Owner ("Agreement").
- 4. General Conditions of the Contract.
- 5. Supplementary and other Conditions.
- 6. Exhibits and Riders enumerated and attached to the Agreement.
- 7. All Addenda issued prior to and all modifications issued after execution of the Agreement.
- 8. Alternates as selected and incorporated herein.
- 9. Unit Prices.
- 10. Plans and Specifications as follows:

BIDDING & CONTRACTING REQUIREMENTS: Bid and Contracting Manual, as prepared by Manhattan Construction, dated <u>March 29, 2018</u>

GEOTECH REPORT: CNE Tahlequah Casino as prepared by Building & Earth (*Project No. OK170293*) dated <u>January 17th, 2018</u>

SPECIFICATIONS:

CNE Tahlequah Casino Bid Package 01: As prepared by James R. Childers dated <u>March 6th, 2018</u> CNE Tahlequah Casino Bid Package 02: As prepared by James R. Childers dated <u>March 27th, 2018</u>

DRAWINGS:

CNE Tahlequah Casino Bid Package 01: As prepared by James R. Childers dated <u>March 6th, 2018</u> CNE Tahlequah Casino Bid Package 02: As prepared by James R. Childers dated <u>March 27th, 2018</u>

SWPPP: CNE Tahlequah Casino as prepared by ADG dated <u>March 6th, 2018</u>

ADDENDA/AMENDMENTS: (none to date)

MCC CLARFICATIONS:

MCC Clarification #001:	3/27/18
MCC Clarification #002:	3/28/18
MCC Clarification #003:	4/6/18
MCC Clarification #004:	4/9/18

BID PACKAGE 01 (March 6, 2018)

SPECIFICATIONS

DIVISION 00 – Procurement Requirements and Contracting Requirements 00 0102 – Project Information

00 0105 – Geotechnical Data

DIVISION 01 – General Requirements

DIVISION 03 – Concrete 03 3000 – Cast in Place Concrete

DIVISION 31 – EARTHWORK

- 31 2000 Earthwork
- 31 2319 Dewatering
- 31 2500 Erosion and Sedimentation Control
- 31 5000 Excavation Support and Protection
- 31 6329 Drilled Concrete Piers and Shafts

DIVISION 32 – SITE IMPROVEMENTS

Section 32 9200 – Turf and Grasses 32 9200 – Turf and Grasses

DIVISION 33 – UTILITIES Section 33 5100 – Private Storm Sewer

Geotechnical Engineering Report by Building & Earth Sciences, Inc. dated January 17, 2018

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<u>CIVIL</u>

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<u>ELECTRICAL</u>

ESK-002 ELECTRICAL EXHIBITS

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BID PACKAGE 02 (March 27, 2018)

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07 1300 – Sheet Waterproofing 07 2100 – Thermal Insulation

DIVISION 22 – PLUMBING

22 1113 – Water Distribution 22 1313 – Private Sanitary Sewerage 22 1316 – Sanitary Waste and Vent Piping

DIVISION 23 – HEATING, VENTING, AND AIR CONDITIONING

23 6500 – Closed Circuit Cooling Tower 23 7313 – Central Station Air Handling Units 23 7313.1 – Central Station Air Handling Units

DIVISION 26 – ELECTRICAL

26 0519 - Low Voltage Electrical Power Conductors and Cables

26 0526 - Grounding and Bonding for Electrical Systems

26 0529 - Hangers and Supports for Electrical Systems

26 0533 - Raceways and Boxes for Electrical Systems

26 0543 - Underground Ducts and Raceways for Electrical Systems

26 0544 - Sleeves and Sleeve Seals for Electrical Raceways and Cabling

26 4113 - Lighting Protection for Structures

DIVISION 31 – EARTHWORK

31 3116 – Termite Control

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<u>CIVIL</u>

C0.01b INDEX AND GENERAL CONSTRUCTION NOTES C0.02b PLAT OF TOPOGRAPIC MAPPING (1 OF 2) C0.03b PLAT OF TOPOGRAPIC MAPPING (2 OF 2) C2.02b UTILITY PLAN INDEX C6.02b SANITARY SEWER INDEX C6.05b SANITARY SEWER PLAN AND PROFILE - LINE A

C6.10b SANITARY SEWER PLAN AND PROFILE - LINE A (CONT) C6.15b SANITARY SEWER PLAN AND PROFILE - LINE A (CONT) C6.20b SANITARY SEWER PLAN AND PROFILE - LINE A (CONT) C6.25b SANITARY SEWER PLAN AND PROFILE - LINE B C6.30b SANITARY SEWER PLAN AND PROFILE - LINE B (CONT) C7.02b WATER INDEX C7.05b WATER LINE PLAN AND PROFILE - LINE A C7.10b WATER LINE PLAN AND PROFILE - LINE A (CONT) C7.15b WATER LINE PLAN AND PROFILE - LINE B C7.20b WATER LINE PLAN AND PROFILE - LINE B (CONT) C7.25b WATER LINE PLAN AND PROFILE - LINE C C7.30b WATER LINE PLAN AND PROFILE - LINE D C7.35b WATER LINE PLAN AND PROFILE - LINE D (CONT) **C9.10b CIVIL CONSTRUCTION DETAILS C9.15b CIVIL CONSTRUCTION DETAILS C9.20b CIVIL CONSTRUCTION DETAILS**

STRUCTURE

S0.1 STRUCTURAL NOTES S1.1 FOUNDATION PLAN OVERALL S1.2 FOUNDATION PLAN AREA A S1.3 FOUNDATION PLAN AREA B S1.4 FOUNDATION PLAN AREA C S2.1 SLAB PLAN S3.1 ROOF FRAMING PLANS S3.2 ROOF FRAMING PLANS S3.3 ROOF FRAMING PLANS S3.4 SAFER ROOMS FRAMING PLANS S3.5 SNOW DRIFT PLANS S4.1 BUILDING SECTIONS S4.2 FRAME ELEVATIONS S4.3 FRAME ELEVATIONS

PLUMBING

PU0.0 PLUMBING COVERSHEET AND INDEX PU1.1 PLUMBING ENLARGED UNDERSLAB PLAN – GAMING PU1.2 PLUMBING ENLARGED UNDERSLAB PLAN – SOUTH PU1.3 PLUMBING ENLARGED UNDERSLAB PLAN – BOH PU1.4 PLUMBING ENLARGED UNDERSLAB PLAN - BANQUET BOH PU1.5 PLUMBING ENLARGED UNDERSLAB PLAN – NORTH

ELECTRICAL

E0.0 SYMBOL LIST **E0.1 GENERAL NOTES** E0.2 SINGLE LINE AND FOOD SERVICE SYSTEM NOTES **E0.3 SCHEDULES E0.4 ELECTRICAL DIAGRAM** E0.10 SINGLE LINE DIAGRAM - MAIN SERVICE SWITCHBOARD 'TCMSA' **F0.11 PARTIAL SINGLE LINE DIAGRAM** E0.12 SINGLE LINE DIAGRAM - MAIN SERVICE SWITCHBOARD 'TCMSB' **E0.13 PARTIAL SINGLE LINE DIAGRAM E0.14 PARTIAL SINGLE LINE DIAGRAM E0.40 LIGHTING FIXTURE SCHEDULE** E1.0 ELECTRICAL OVERVIEW PLAN E1.1 ENLARGED POWER PLAN - GAMING E3.1 ENLARGED ELECTRICAL ROOM PLAN E3.2 ENLARGED ELECTRICAL ROOM PLANS EFS112 FOODSERVICE ELECTRICAL CONNECTION PLAN EFS113 FOODSERVICE ELECTRICAL CONNECTION PLAN

EFS115 FOODSERVICE ELECTRICAL CONNECTION PLAN ES1.0 ELECTRICAL SITE PLAN ES1.0A ELECTRICAL SITE PLAN - CCTV INFRASTRUCTURE

FOOD SERVICE

FS100 FOODSERVICE EQUIPMENT OVERVIEW FS101 FOODSERVICE EQUIPMENT ARRANGMENT PLAN FS102 FOODSERVICE EQUIPMENT ARRANGMENT PLAN FS103 FOODSERVICE EQUIPMENT ARRANGMENT PLAN FS104 FOODSERVICE EQUIPMENT ARRANGMENT PLAN FS105 FOODSERVICE EQUIPMENT ARRANGMENT PLAN FS106 FOODSERVICE EQUIPMENT SPECIAL COND. PLAN FS107 FOODSERVICE EQUIPMENT SPECIAL COND. PLAN FS108 FOODSERVICE EQUIPMENT SPECIAL COND. PLAN FS109 FOODSERVICE EQUIPMENT SPECIAL COND. PLAN FS110 FOODSERVICE EQUIPMENT SLAB RECESS PLAN FS111 FOODSERVICE EQUIPMENT PRELIM. MEP CONNECTION PLAN FS112 FOODSERVICE EQUIPMENT PRELIM. MEP CONNECTION PLAN FS113 FOODSERVICE EQUIPMENT PRELIM. MEP CONNECTION PLAN FS114 FOODSERVICE EQUIPMENT PRELIM. MEP CONNECTION PLAN FS115 FOODSERVICE EQUIPMENT PRELIM. MEP CONNECTION PLAN FS116 FOODSERVICE EQUIPMENT PRELIM. MEP CONNECTION PLAN

LOW VOLTAGE

ITS101 LOW VOLTAGE CONDUIT PLAN ITS102 LOW VOLTAGE CONDUIT PLAN

Activity ID	RESP	Activity Name	Org Re Dur D	em ur	Start	Finish	2018 Mar Apr May Jun Jul Aug Sep Oct Nov 5 12 19 26 2 9 16 23 30 6 13 20 27 3 10 17 24 1 8 15 22 29 5 12 19 26
TAHLE	QUAH	CHEROKEE CASINO					
CONST	PUCTI						
	FMC	Mahiliza	1	0	20 Mar 184	22 Mar 184	
CS 1012	FMC		1	2	00 Apr 18	11 Apr 18	
CS 1013	FMC	Clear Grub Undergut	5	5	12 Apr 18	18 Apr 18	
CS 1014	FMC	Construct Building Pad and Loop Pood (Phase 1)	15	15	10 Apr 18	00 May 18	Construct Building Pad and Loop Road (Phase 1)
CS-1015	FMC	Remaining Rough Grade (Phase 2)	20	20	10-May-18	07-Jup-18	Remaining Rough Grade (Phase 2)
CS-1019	FMC	Water Tan & Install Meter Vault	6	6	22-May-18	30-May-18	Water Tap & Install Meter Vault
CS-1022	FMC	SAS Tan and Bore	6	6	22-May-18	30-May-18	SAS Tap and Bore
CS-1017	FMC	Install Storm Drainage	15	15	22-May-18	12-Jun-18	Install Storm Drainage
CS-1024	FMC	Install Sanitary Mains and Hydrants	35	35	22-May-18	11-Jul-18	Install Sanitary Mains and Hydrants
CS-1018	FMC	Install Temporary Electric Conduit	5	5	13-Jun-18	19-Jun-18	Install Temporary Electric Conduit
FOUNDA	TION		-				
CS-1023	FMC	Drill / Reinforce / Place Piers	10	10	10-Mav-18	23-May-18	Drill / Reinforce / Place Piers
CS-1026	FMC	Form / Reinforce / Place Pier Caps & Grade Beams	20	20	24-May-18	21-Jun-18	Form / Reinforce / Place Pier Caps & Grade Beams
CS-1028	FMC	MEP UG - Beverage Lines - Area C	4	4	24-May-18	30-May-18	MEP UG - Beverage Lines - Area C
CS-1029	FMC	MEP UG - Electrical - Area C	10	10	24-May-18	07-Jun-18	MEP UG - Electrical - Area C
CS-1031	FMC	MEP UG - Plumbing - Area C	15	15	24-May-18	14-Jun-18	MEP UG - Plumbing - Area C
CS-1033	FMC	MEP UG - Area B	5	5	15-Jun-18	21-Jun-18	MEP UG - Area B
CS-1034	FMC	MEP UG - Area A	10	10	22-Jun-18	06-Jul-18	MEP UG - Area A
CS-1021	FMC	Form / Reinforce / Place SOG - Area B & C to GL 19 (Lower Slab &	7	7	18-Jun-18	26-Jun-18	Form / Reinforce / Place SOG - Area B & C to GL 19 (Lower Slab & Stage Pit)
CS-1038	FMC	Form / Reinforce / Place SOG - Area C Upper Slab	12	12	27-Jun-18	13-Jul-18	Form / Reinforce / Place SOG - Area C Upper Slab
CS-1039	FMC	Form / Reinforce / Place SOG - Area A & B Lower Slab	5	5	16-Jul-18	20-Jul-18	Form / Reinforce / Place SOG - Area A & B Lower Slab
CS-1045	FMC	Form / Reinforce / Place SOG - Area A & B Upper Slab	10	10	23-Jul-18	03-Aug-18	Form / Reinforce / Place SOG - Area A & B Upper Slab
STRUCTL	JRE						
CS-1047	FMC	Erect Steel (Columns / Beams / Girders) - Area C	7	7	16-Jul-18	24-Jul-18	Erect Steel (Columns / Beams / Girders) - Area C
CS-1048	FMC	Erect Steel (Columns / Beams / Girders) - Area B	7	7	25-Jul-18	02-Aug-18	Erect Steel (Columns / Beams / Girders) - Area B
CS-1049	FMC	Erect Steel (Columns / Beams / Girders) - Area A	7	7	03-Aug-18	13-Aug-18	Erect Steel (Columns / Beams / Girders) - Area A
CS-1058	FMC	Deck & Detail - Area C	8	8	25-Jul-18	03-Aug-18	Deck & Detail - Area C
CS-1057	FMC	Deck & Detail - Area B	8	8	06-Aug-18	15-Aug-18	Deck & Detail - Area B
CS-1055	FMC	Deck & Detail - Area A	8	8	16-Aug-18	27-Aug-18	Deck & Detail - Area A
CS-1067	FMC	Fire Proofing - Area C	2	2	06-Aug-18	07-Aug-18	Fire Proofing - Area C
CS-1065	FMC	Fire Proofing - Area B	2	2	16-Aug-18	17-Aug-18	Fire Proofing - Area B
CS-1059	FMC	Fire Proofing - Area A	2	2	28-Aug-18	29-Aug-18	Fire Proofing - Area A
							Bate Participant Parti

Start Date: 20-Nov-17 Finish Date: 13-Mar-19 Data Date: 30-Mar-18 Run Date: 09-Apr-18

Tahlequah Cherokee Casino Tahlequah, OK FMC Project # 3882

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