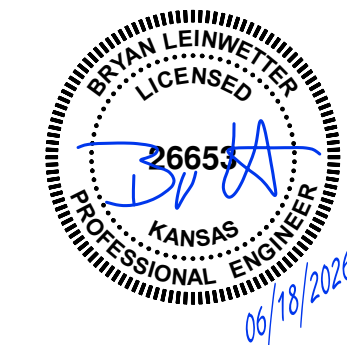


TOPEKA METRO

**REQUEST FOR BIDS
Ryan Bus Garage Drainage
TO-26-07**

**Appendix III
Engineering Studies**



PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
2949 SW WANAMAKER DRIVE, TOPEKA, KANSAS 66614
785.273.2447 WWW.PKMR.ENG.COM

25.198

**TOPEKA METROPOLITAN TRANSIT AUTHORITY
BUS GARAGE DRAINS**

**201 N KANSAS AVE
TOPEKA, KS 66603**

PLUMBING SYMBOL LEGEND	
SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED	
PLUMBING PIPING	PIPING SYMBOLS
SAW WASTE ABOVE GRADE OR FLOOR	SHUTOFF VALVE
SAW WASTE BELOW GRADE OR FLOOR	SHUTOFF VALVE IN RISER
ST STORM ABOVE GRADE OR FLOOR	BALANCING VALVE
ST STORM BELOW GRADE OR FLOOR	PLUG VALVE
ST/O STORM OVERFLOW ABOVE GRADE OR FLOOR	AUTO FLOW CONTROL VALVE
ST/O STORM OVERFLOW BELOW GRADE OR FLOOR	PIPING ELBOW UP
V PLUMBING VENT	PIPING ELBOW DOWN
UGV UNDERGROUND PLUMBING VENT	PIPING TEE
	PIPING TEE UP
	PIPING TEE DOWN
	INCREASER / REDUCER
	UNION
	CAP
	PIPE FLEX
	STRAINER
	CHECK VALVE
	INLINE STRAINER
	TEST PLUG
	GUIDE
	ANCHOR
	TRIPLE DUTY VALVE
	AUTOMATIC 2-WAY CONTROL VALVE
	AUTOMATIC 3-WAY CONTROL VALVE
	SOLENOID VALVE
PIPING SPECIALTIES	GENERAL SYMBOLS
PRESS/ TEMP GAUGE WITH COCK THERMOMETER PRESSURE REDUCING VALVE RELIEF VALVE WATER HAMMER ARRESTER	INDICATES CONNECT TO EXISTING INDICATES ELEVATION
PLUMBING FIXTURES/EQUIPMENT	
CLEAN OUT REDUCED PRESSURE BACKFLOW PREVENTER DOUBLE CHECK BACKFLOW PREVENTER PLUMBING FIXTURE AND CALLOUT FD: FLOOR DRAIN, AD: AREA DRAIN, FS: FLOOR SINK RD: ROOF DRAIN ORD: OVERFLOW ROOF DRAIN	

15000 - MECHANICAL SPECIFICATIONS	
SECTION 15000 - MECHANICAL REQUIREMENTS	
1. GENERAL REQUIREMENTS	
A. ALL WORK SHALL BE IN ACCORDANCE W/ LATEST EDITION OF INTERNATIONAL BUILDING MECHANICAL & PLUMBING CODES, CODES AS ADOPTED BY CITY, COUNTY, STATE & ALL OTHER APPLICABLE CODES.	
B. FURNISH & INSTALL ALL LABOR & MATERIALS REQUIRED FOR COMPLETE, FUNCTIONING, PLUMBING SYSTEM W/ ALL ASSOCIATED EQUIPMENT & APPARATUS AS SHOWN ON PLANS. "PROVIDE" MEANS TO FURNISH & INSTALL.	
C. OBTAIN & PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THIS WORK & SHALL MAKE ARRANGEMENTS FOR MODIFICATIONS TO WATER, GAS & SEWER CONNECTIONS TO BUILDING AS REQUIRED.	
D. VISIT SITE & OBSERVE CONDITIONS UNDER WHICH WORK WILL BE DONE. ANY DISCREPANCIES SHALL BE CALLED TO ARCHITECT'S ATTENTION. NO SUBSEQUENT ALLOWANCE WILL BE MADE IN CONTRACT FOR ANY ERROR OR NEGLIGENCE ON CONTRACTOR'S PART.	
E. FINAL ACCEPTANCE OF WORK SHALL BE SUBJECT TO CONDITION THAT ALL SYSTEMS, EQUIPMENT, APPARATUS & APPLIANCES OPERATE SATISFACTORILY AS DESIGNED & INTENDED. WORK SHALL INCLUDE REQUIRED ADJUSTMENT OF SYSTEMS & CONTROL EQUIPMENT INSTALLED UNDER THESE SPECIFICATIONS.	
F. WARRANT TO OWNER QUALITY OF MATERIAL, EQUIPMENT, WORKMANSHIP & OPERATION OF EQUIPMENT PROVIDED UNDER THESE SPECIFICATIONS FOR ONE YEAR FROM & AFTER COMPLETION OF BUILDING & ACCEPTANCE OF MECHANICAL SYSTEMS BY OWNER.	
G. ALL MATERIALS INSTALLED IN PLENUMS SHALL BE NONCOMBUSTIBLE OR HAVE FLAME/SMOKE INDEX OF NO MORE THAN 25/50 IN ACCORDANCE W/ ASTM E 84.	
H. ROOF PENETRATIONS - MADE BY AUTHORIZED ROOFING CONTRACTOR WHEN REQUIRED.	
SECTION 15100 - PLUMBING	
1. PIPING	
A. WASTE & VENT PIPING - CI BELL & SPIGOT OR HUBLESS CI W/ NEOPRENE GASKET FITTINGS W/ STAINLESS STEEL BANDS. SCHED 40 PVC W/ SOLVENT WELDS MAY BE USED WHERE ALLOWED BY LOCAL CODE.	
FIXTURES - SEE SCHEDULES	
A. DRAINS BY WADE, ZURN, WOODFORD, SMITH, JOSAM.	
EXECUTION	
A. PROVIDE UNIONS OR FLANGED JOINTS IN EACH PIPE LINE PRECEDING CONNECTIONS TO EQUIPMENT TO ALLOW REMOVAL FOR REPAIR OR REPLACEMENT. PROVIDE ALL SCREWED & CONTROL VALVES W/ UNIONS ADJACENT TO EACH CONNECTION. PROVIDE SCREWED END VALVES W/ UNION ADJACENT TO VALVE UNLESS VALVE CAN BE OTHERWISE EASILY REMOVED FROM LINE.	
B. AFTER PIPING IS IN PLACE TEST LINES TO ENSURE NO LEAKS.	
C. ALL PIPING & EQUIPMENT SHALL BE SUPPORTED PROPERLY FROM STRUCTURE.	
D. ESCUTCHEONS - PROVIDE NICKEL-BRASS OR CHROME PLATED ON ALL EXPOSED PIPES WHEN PASSING THRU WALL OR CEILING OF FINISHED ROOMS.	
E. VERIFY FLOOR MATERIALS USED FROM ARCHITECTURAL PLANS & PROVIDE PROPER CLEANOUT TOPS, WHERE THEY OCCUR IN CARPET, QUARRY TILE, VINYL TILE OR CERAMIC TILE.	

ABBREVIATIONS	
A/E ARCHITECT / ENGINEER	G/C GENERAL CONTRACTOR
AFF ABOVE FINISHED FLOOR	GFCI GROUND FAULT CIRCUIT INTERRUPTER
AFG ABOVE FINISHED GRADE	GPM GALLONS PER MINUTE
AG ABOVE GRADE	HTG HEATING
AHJ AUTHORITY HAVING JURISDICTION	JB JUNCTION BOX
ARCH ARCHITECT	LED LIGHT EMITTING DIODE
BC BELOW GRADE	LWT LEAVING WATER TEMPERATURE
BLDG BUILDING	M/C MECHANICAL CONTRACTOR
C CONDUIT	MH MANHOLE
CO CLEAN OUT	P/C PLUMBING CONTRACTOR
CTE CONNECT TO EXISTING	PSI POUNDS PER SQUARE INCH
DCW DOMESTIC COLD WATER	PVC POLYVINYLCHLORIDE
DA DIAMETER	RE/REF REFER / REFERENCE
ELEV ELEVATION	RL RELOCATED ITEM
EX EXISTING ITEM	
FFA FROM FLOOR ABOVE	TFA TO FLOOR ABOVE
FFB FROM FLOOR BELOW	TFB TO FLOOR BELOW
FFCO FINISHED FLOOR CLEAN OUT	TP TAMPERPROOF
FFCO FLUSH GRADE CLEAN OUT	TYP TYPICAL
FL FLOW LINE	UNO UNLESS NOTED OTHERWISE
FLR FLOOR	VTB VENT THROUGH ROOF
FP FIRE PROTECTION	WCO WALL CLEANOUT
FPM FEET PER MINUTE	WP WEATHERPROOF
FWCO FLUSH WALL CLEAN OUT	

GENERAL PLUMBING NOTES

- COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE INTERNATIONAL PLUMBING CODE, LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ.
- NO PIPING SHALL BE INSTALLED WHERE IT WILL SUBJECT TO FREEZING TEMPERATURES. PIPING IN EXTERIOR WALLS SHALL BE INSTALLED ON THE WARM SIDE OF BUILDING INSULATION, INSULATED AND THE CHASE SHALL BE VENTILATED WITH GRILLES ALLOWING INDOOR AMBIENT CONDITIONS TO CIRCULATE THROUGH THE CHASE.
- PROVIDE CLEANOUTS IN THE FOLLOWING LOCATIONS:
 - IN ALL HORIZONTAL DRAINS (WITHIN THE BUILDING) NOT MORE THAN 100 FEET APART.
 - IN BUILDING SEWERS LOCATED NO MORE THAN 100 FEET APART MEASURED FROM THE UPSTREAM ENTRANCE OF THE CLEANOUT.
 - EACH CHANGE OF DIRECTION OF THE BUILDING DRAIN OR HORIZONTAL WASTE OR SOIL LINES GREATER THAN 45 DEGREES WHERE MORE THAN ONE CHANGE OF DIRECTION OCCURS IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED FOR EACH 40 FEET OF DEVELOPED LENGTH OF THE DRAINAGE PIPING.
 - AT THE BASE OF EACH WASTE OR SOIL STACK.
 - NEAR THE JUNCTION OF THE BUILDING DRAIN AND BUILDING SEWER.

COORDINATION NOTES

- COORDINATE REQUIREMENTS FOR INSTALLATION OF SYSTEMS AND EQUIPMENT WITH ALL OTHER TRADES.
- THE CONTRACTOR SHALL COORDINATE THE ROUTING AND PATH OF ALL SYSTEMS PIPES, ETC WITH THE POSITION AND LAYOUT OF THE STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY OFFSETS, TURNS, RISERS AND DROPS FOR SYSTEMS AND COMPONENTS AS NEEDED TO INSTALL THE MEP SYSTEMS TO CLEAR STRUCTURE, CEILINGS, ETC AND OTHER SYSTEMS IN POTENTIAL CONFLICT WITH ROUTING.
- CHECK SPACE REQUIREMENTS WITH OTHER TRADES AND STRUCTURE/CONSTRUCTION TO INSURE THAT ALL MATERIALS AND EQUIPMENT CAN BE INSTALLED IN THE SPACE ALLOTTED. MAKE MODIFICATIONS THERETO AS REQUIRED AND APPROVED.
- TRANSMIT TO OTHER TRADES ALL INFORMATION REQUIRED FOR WORK TO BE PROVIDED UNDER THEIR RESPECTIVE SECTIONS IN AMPLE TIME FOR INSTALLATION.
- WHEREVER WORK INTERCONNECTS WITH WORK OF OTHER TRADES, COORDINATE WITH THOSE TRADES TO INSURE THAT ALL SUBCONTRACTORS HAVE THE INFORMATION NECESSARY SO THAT THEY MAY PROPERLY INSTALL ALL CONNECTIONS AND EQUIPMENT. IDENTIFY ALL ITEMS OF WORK THAT REQUIRE ACCESS SO THAT THE CEILING TRADE WILL KNOW WHERE TO INSTALL ACCESS DOORS AND PANELS.
- COORDINATE, PROJECT AND SCHEDULE WORK WITH OTHER TRADES IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE.
- DRAWINGS SHOW THE GENERAL RUNS OF PIPING. ANY SIGNIFICANT CHANGES IN LOCATION OF ITEMS NECESSARY IN ORDER TO MEET FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/ENGINEER AND RECEIVE HIS APPROVAL BEFORE SUCH ALTERATIONS ARE MADE. ALL SUCH MODIFICATIONS SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND REPAIR OF SURFACES, AREAS AND PROPERTY THAT MAY BE DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES.
- ADJUST LOCATION OF PIPING, ETC. TO PREVENT INTERFERENCES, BOTH ANTICIPATED AND ENCOUNTERED. DETERMINE THE EXACT ROUTE AND LOCATION OF EACH ITEM PRIOR TO FABRICATION. MAKE OFFSETS, TRANSITIONS AND CHANGES IN DIRECTION IN SYSTEMS AS REQUIRED TO MAINTAIN ADEQUATE CLEARANCES AND HEADROOM.
- WHEREVER THE WORK IS OF SUFFICIENT COMPLEXITY, PREPARE ADDITIONAL COORDINATION DRAWINGS AND ORGANIZE ON-SITE MEETINGS WITH ALL RELATED SUBCONTRACTORS TO COORDINATE THE WORK BETWEEN TRADES. DRAWINGS SHALL CLEARLY SHOW THE WORK AND ITS RELATION TO THE WORK OF OTHER TRADES, AND BE SUBMITTED FOR REVIEW PRIOR TO COMMENCING SHOP FABRICATION OR ERECTION IN THE FIELD.
- COORDINATE WITH LOCAL UTILITY PROVIDERS FOR THEIR REQUIREMENTS FOR SERVICE CONNECTIONS AND PROVIDE ALL NECESSARY PAYMENTS, MATERIALS, LABOR AND TESTING TO ACCOMPLISH THE WORK.

GENERAL NOTES

- SOME ROOM NAMES MAY NOT BE SHOWN FOR PURPOSE OF CLARIFYING PLAN. REFER TO ARCHITECTURAL PLANS FOR REFERENCE TO ROOM NAMES NOT SHOWN.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND KEEP AT THE JOB SITE, AN UP TO DATE SET OF "RECORD DRAWINGS" SHOWING ALL CHANGES FROM THE ORIGINAL PLANS. THE CONTRACTOR SHALL DELIVER THE "RECORD DRAWINGS" TO THE ENGINEER AT THE CONCLUSION OF THE PROJECT ELECTRONICALLY.
- THESE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS (NEW AND EXISTING), DIMENSIONS, AND CLEARANCES PRIOR TO THE COMMENCEMENT OF WORK AND SHALL INCLUDE ALL COSTS, EQUIPMENT, MATERIAL, ACCESSORIES, ETC. REQUIRED FOR A FULLY COMPLETE, FUNCTIONAL AND CODE COMPLIANT INSTALLATION.
- FINAL LOCATIONS OF ALL DEVICES, LIGHT FIXTURES, EQUIPMENT ETC SHALL BE INDICATED ON THE ARCHITECTURAL DRAWINGS. ALL DIMENSIONAL INFORMATION SHALL BE OBTAINED FROM ARCHITECTURAL PLANS. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED FROM MEP DRAWINGS.
- THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, APPROVALS, LICENSES, ETC. AS NEEDED FOR THE COMPLETE INSTALLATION AND PROJECT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR ALL FEES AND DATA NEEDED FOR THIS.

GEN. RENOVATION NOTES

- DISCONNECT AND REMOVE ANY EQUIPMENT, PIPING, ETC THAT WAS INSTALLED AS PART OF THE BUILDING SHELL THAT IS NOT NEEDED OR CONFLICTS WITH THIS BUILD OUT.
- EXISTING UNDERGROUND PIPING LOCATIONS ARE ESTIMATED BASED UPON ANTICIPATED ROUTINGS. FIELD VERIFY EXACT LOCATIONS DURING CONSTRUCTION AND PROVIDE ALL NECESSARY MODIFICATIONS.
- SAWCUT GRADE FLOOR SLABS TO INSTALL NEW PIPING, DRAINS, ETC. PATCH FLOOR TO MAKE LIKE NEW AFTER INSTALLATION. TAKE CARE TO LOCATE EXISTING CONDUIT, ETC AND AVOID CUTTING EXISTING CONDUITS BY NOT OVERCUTTING SLAB DEPTH.

ISSUED FOR:	
DESCRIPTION	DATE
1	
2	
3	
4	
5	
6	
7	
8	

© PEARSON KENT MCKINLEY RAAF ENGINEERS, LLC	
DRAWN BY:	KAH
CHECKED BY:	BSL

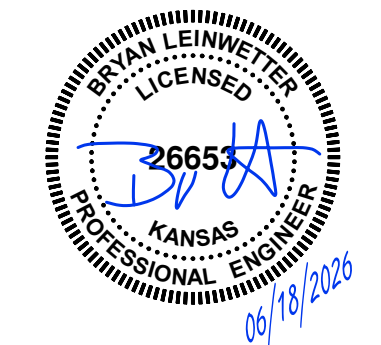
SHEET TITLE:
**PLUMBING NOTES,
SYMBOLS, & SPECS**

DATE:	PKMR PROJECT:
6/18/2026	25.198

SHEET NUMBER:
P-1

GENERAL DEMOLITION NOTES

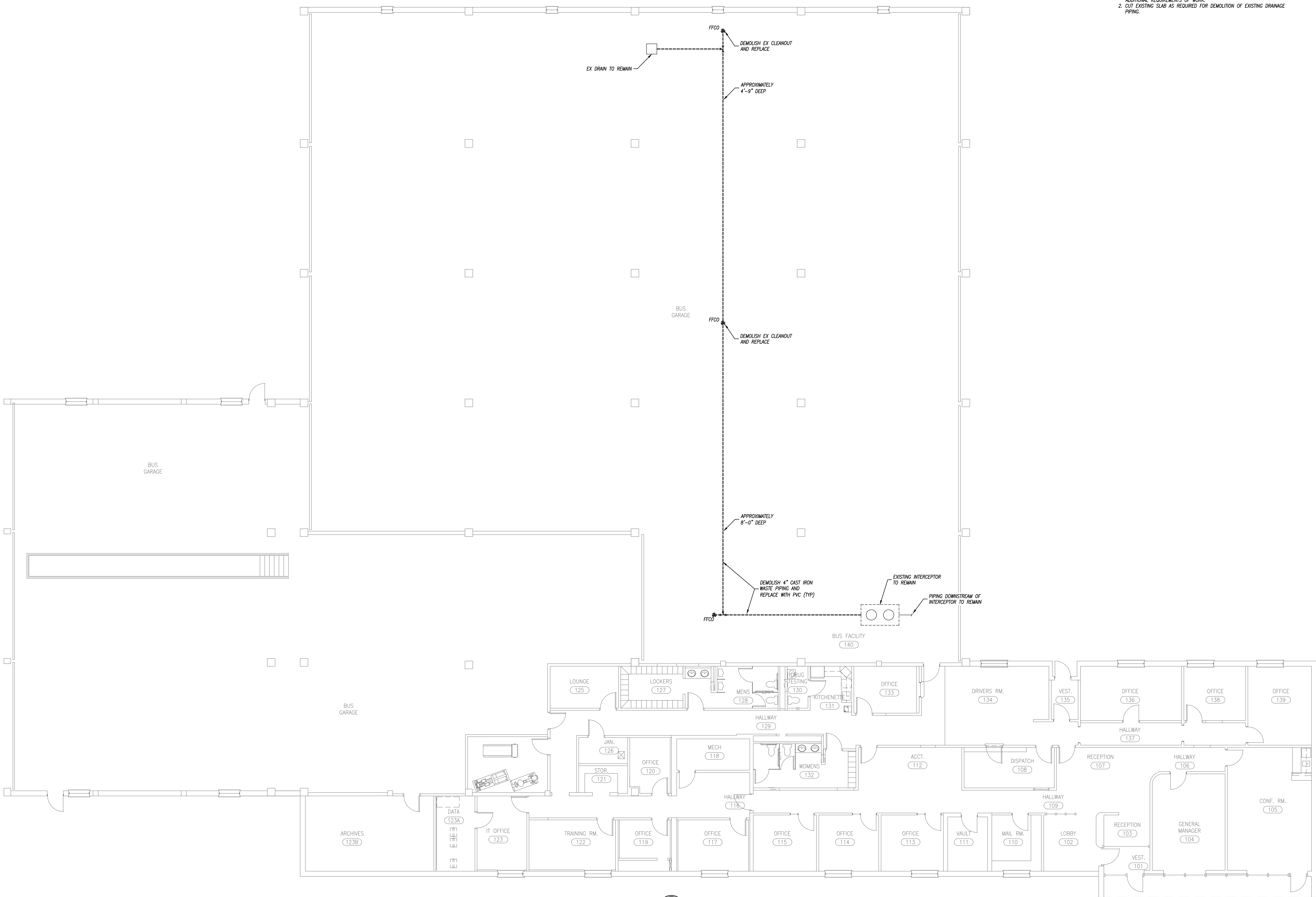
1. REFER TO GENERAL DEMOLITION NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. CUT EXISTING SLAB AS REQUIRED FOR DEMOLITION OF EXISTING DRAINAGE PIPING.



PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
2949 SW WANAMAKER DRIVE, TOPEKA, KANSAS 66614
785.273.2447 WWW.PKMRENG.COM

**TOPEKA METROPOLITAN TRANSIT AUTHORITY
BUS GARAGE DRAINS**

201 N KANSAS AVE
TOPEKA, KS 66603



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

ISSUED FOR:	
DESCRIPTION	DATE
1	
2	
3	
4	
5	
6	
7	
8	

© PEARSON KENT MCKINLEY RAAF ENGINEERS, LLC
DRAWN BY: KAH
CHECKED BY: BSL

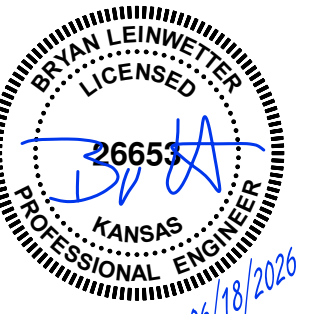
SHEET TITLE:
**PLUMBING DEMO
FLOOR PLAN**

DATE: 6/18/2026 PKMR PROJECT: 25.198
SHEET NUMBER:

P-2

GENERAL PLUMBING NOTES

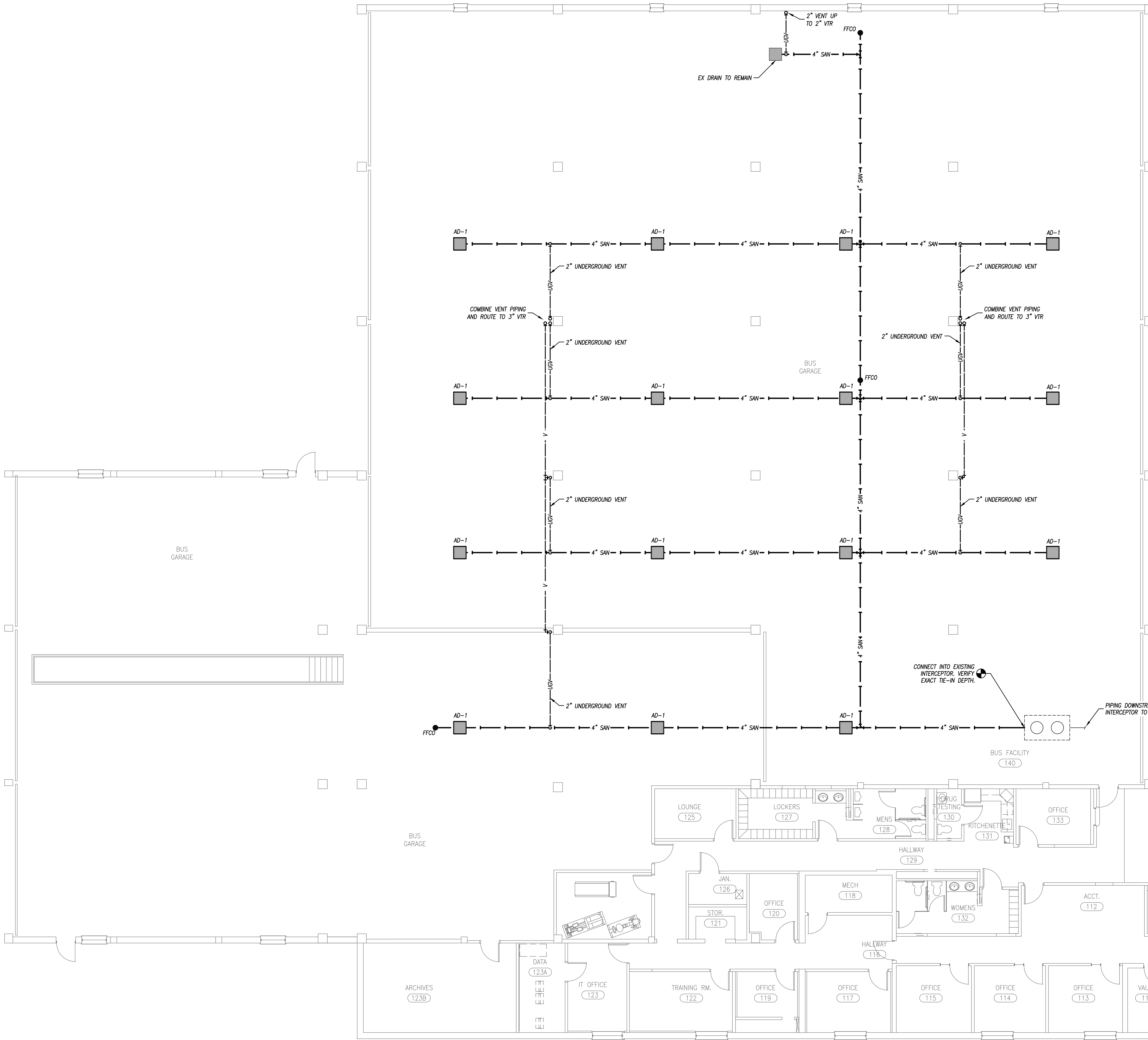
1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
2. REFER TO PLUMBING FIXTURE / DRAIN SCHEDULES FOR PIPING SIZES FOR INDIVIDUAL CONNECTIONS TO FIXTURES AND RISERS NOT SHOWN ON PLANS.
3. NO SANITARY OR VENT PIPING BELOW GRADE SHALL BE LESS THAN 2".
4. ALL VENT PIPING SHOWN IS DIAGRAMMATIC. USE APPROPRIATE FITTINGS FOR VENT PIPING BELOW FLOOD RIM OF FIXTURE.
5. NOT ALL CLEANOUPS ARE SHOWN FOR DRAWING CLARITY. CONTRACTOR SHALL INSTALL ALL CODE-REQUIRED CLEANOUPS (RE: GENERAL NOTES ON COVER SHEET). COORDINATE EXACT LOCATIONS OF CLEANOUPS WITH ARCHITECT.
6. CUT AND PATCH EXISTING SLAB AS REQUIRED FOR INSTALLATION OF NEW AREA DRAINS AND ASSOCIATED WASTE AND VENT PIPING.



PEARSON KENT MCKINLEY RAAF ENGINEERS LLC
2949 SW WANAMAKER DRIVE, TOPEKA, KANSAS 66614
785.273.2447 WWW.PKMR.ENG.COM

**TOPEKA METROPOLITAN TRANSIT AUTHORITY
BUS GARAGE DRAINS**

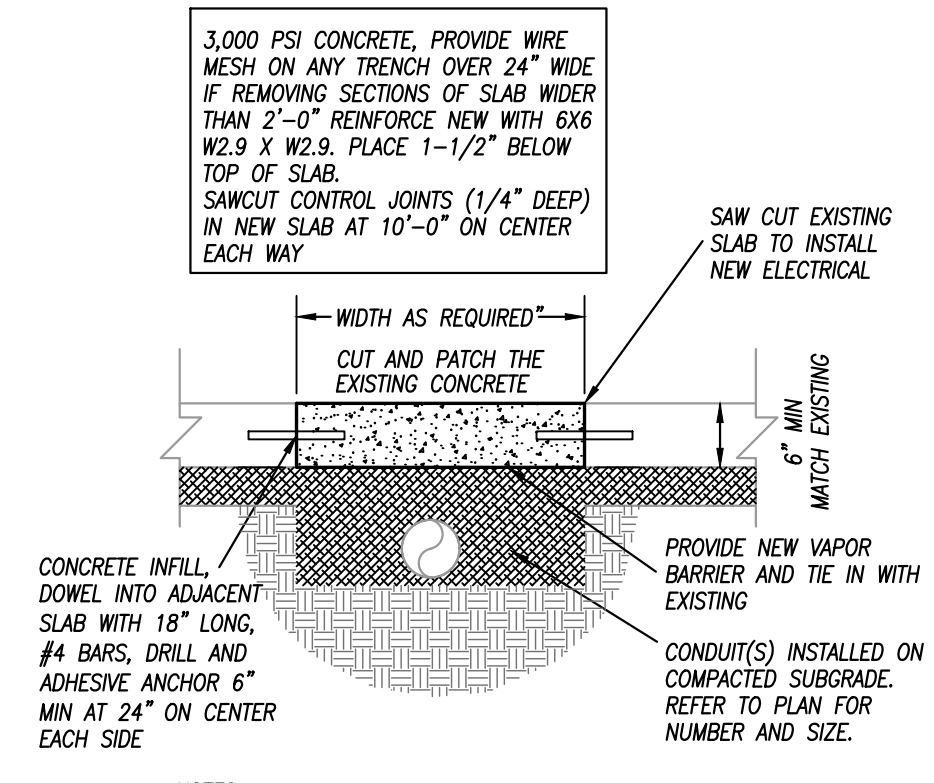
201 N KANSAS AVE
TOPEKA, KS 66603



AREA DRAIN SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NUMBER	SERVICE	TOP/GRATE SIZE	WASTE SIZE	REMARKS
AD-1	WATTS	FD-530	AREA DRAIN	24.5"x24.5"	4"	1

REMARKS:
1. PROVIDE WITH HEAVY DUTY EPOXY COATED CAST IRON GRATE.



FLOOR SLAB REPAIR DETAIL
NO SCALE

FLOOR PLAN - PLUMBING
SCALE: 1/8" = 1'-0"

ISSUED FOR:

DESCRIPTION	DATE

© PEARSON KENT MCKINLEY RAAF ENGINEERS, LLC

DRAWN BY: KAH
CHECKED BY: BSL

SHEET TITLE:
PLUMBING FLOOR PLAN

DATE: 6/18/2026 PKMR PROJECT: 25.198
SHEET NUMBER: