

FIRE PROTECTION

ABBREVIATIONS

AB	ABOVE	ID	INSIDE DIAMETER
ABF	ABOVE FINISHED FLOOR	IN OR *	INCH
AF	ABOVE FINISHED GRADE	INT	INTERIOR
APPROX	APPROXIMATE	INTW	INTERIOR (WALL)
ARCH	ARCHITECTURAL	L	LINEAR FEET
ASME	AMERICAN SOCIETY OF MECH ENG	LB OR LBS	POUNDS
AUTO	AUTOMATIC	LF	LINEAR FEET
B	BOTTOM	M	MINIMUM
BE	BOTTOM ELEVATION	MAX	MAXIMUM
BFG	BELOW FINISHED GRADE	MC	MECHANICAL CONTRACTOR
BJ	BUILDING JOISTS	MCH	MECHANICAL
BLDG	BUILDING	MFR	MANUFACTURER
BLW	BELOW	MIN	MINIMUM
BOT	BOTTOM	MTD	MOUNTED
C	CENTRAL	MTG	MOUNTING
CLG	CEILING	N	NOT APPLICABLE
CONC	CONCRETE	NA	NOT APPLICABLE
CONN	CONNECT CONNECTION	NC	NOT IN CONTRACT
CONST	CONSTRUCT/CONSTRUCTION	NO	NUMBER
COORD	COORDINATE	NTS	NOT TO SCALE
D	DEGREE	O	ON CENTER
DEG	DEGREE	OC	ON CENTER
DEPT	DEPARTMENT	OPNG	OPENING
DIA	DIAMETER	OS&Y	OPEN SCREW AND YOKE GATE VALVE
DISC	DISCONNECT	P	PHASE
DN	DOWN	PC	PLUMBING CONTRACTOR
DR	DRAIN	PLBG	PLUMBING
DWG	DRAWING	PSI	POUNDS PER SQUARE INCH
EC	ELECTRICAL CONTRACTOR	PSIA	POUNDS PER SQUARE ABSOLUTE
EL	ELEVATION	PSIG	POUNDS PER SQUARE GAUGE
ELEC	ELECTRICAL	R	ROUND
EMER	EMERGENCY	RD	ROUND
ENCL	ENCLOSURE	RF	ROOF
EQUIP	EQUIPMENT	RM	ROOM
ETR	EXISTING TO REMAIN	RPM	REVOLUTIONS PER MINUTE
EXIST	EXISTING	S	SHEET
EXP	EXPOSED	SHT	SHEET
F	FAIRMENHET	SPEC	SPECIFICATIONS
FD	FLOOR DRAIN	SQ	SQUARE
FHC	FIRE HOSE CABINET	STD	STANDARD
FLEX	FLEXIBLE	STL	STEEL
FLR	FLOOR	STOR	STORAGE
FT	FOOT/FEET	SUSP	SUSPEND/SUSPENDED
FUT	FUTURE	T	TEMPERATURE
G	GROUND	TEMP	TEMPERATURE
GA	GALVE/GAGE	THRU	THROUGH
GAL	GALLON	TJ	THROUGH JOISTS
GALV	GALVANIC or GALVANIZED	TYP	TYPICAL
GC	GENERAL CONTRACTOR	U	UNLESS NOTED OTHERWISE
GEN	GENERAL	UNO	UNLESS NOTED OTHERWISE
GPH	GALLONS PER HOUR	W	WITH
GPM	GALLONS PER MINUTE	W/O	WITHOUT
GRD	GRADE	WT	WEIGHT
H	HIGH		
HC	HEATING (HVAC) CONTRACTOR		
HORIZ	HORIZONTAL		
HR	HOUR		
HT	HEIGHT		

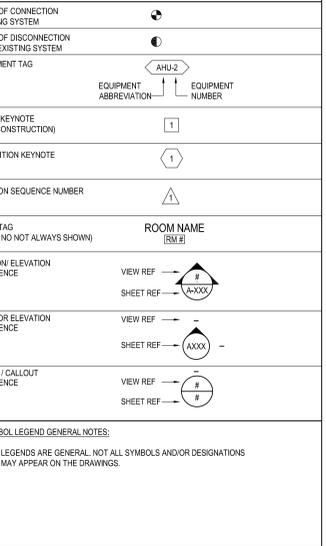
FLOW TEST DATA

STATIC PRESSURE: 64 PSI
 RESIDUAL PRESSURE: 47 PSI
 FLOWING: 1000 GALLONS
 LOCATION OF FLOW TEST: 12:12:00 BY A COMMUNAL ON THE EXISTING FIRE LOOP AROUND BUILDING AT FIRE HYDRANT.

SYMBOLS AND DESIGNATIONS



GRAPHIC SYMBOLS

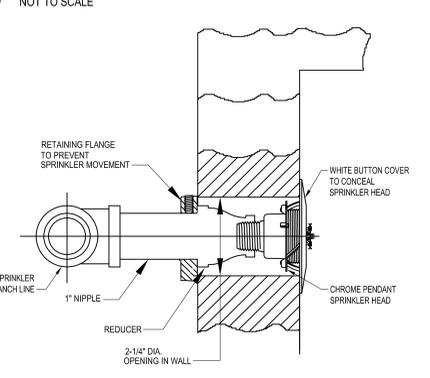


FIRE PROTECTION GENERAL NOTES

- A. ALL FIRE PROTECTION PIPING, EQUIPMENT, DEVICES, AND SPRINKLER HEADS SHOWN ON FIRE PROTECTION DRAWINGS ARE FOR ILLUSTRATIVE PURPOSES ONLY TO REPRESENT THE GENERAL SCOPE OF WORK. FINAL FIRE PROTECTION SYSTEM DESIGN AND LAYOUT IS THE SOLE RESPONSIBILITY OF THE FIRE PROTECTION CONTRACTOR. INSTALLATION DRAWINGS SHOWING THE ENTIRE FIRE PROTECTION SYSTEMS SHALL BE GENERATED BY THE FIRE PROTECTION CONTRACTOR. DRAWINGS SHALL BE SEALED BY A PENNSYLVANIA REGISTERED ENGINEER IN RESPONSIBLE CHARGE FOR PERMIT APPROVAL TO SERVE AS ENGINEER OF RECORD (EOR).
- B. FIRE PROTECTION CONTRACTOR IS RESPONSIBLE TO PERFORM AND MEET ALL CODE REQUIRED TESTS, INCLUDING, BUT NOT LIMITED TO, FLOW TEST, DRAIN TEST, AIR SURVEY TEST, INSPECTORS TEST, PRESSURE TEST AND VERIFICATION OF THE FIRE ALARM SYSTEM. SUBMIT ALL INSPECTION REPORTS AND TEST CERTIFICATES TO THE OWNER, O&M MANUAL, AND AS REQUESTED BY AUTHORITY HAVING JURISDICTION.
- C. FIRE PROTECTION CONTRACTOR IS RESPONSIBLE TO COMPLETE AND SUBMIT COPIES OF CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR ALL WORK PERFORMED. UPON COMPLETION OF THE WORK, TO THE APPROPRIATE AUTHORITIES, LOCAL FIRE MARSHALL, BUILDING INSPECTOR AND OWNER. PROVIDE A COPY IN THE O&M MANUAL.
- D. FIRE PROTECTION WORK PERFORMED ON THIS PROJECT SHALL BE SIZED PER HYDRAULIC CALCULATIONS.
- E. FIRE PROTECTION WORK SHALL BE DONE IN ACCORDANCE WITH NFPA 13, ALL APPLICABLE STATE AND LOCAL CODES AND THE AUTHORITY HAVING JURISDICTION TO DELIVER A PENALTY FREE SYSTEM.
- F. CONTRACTOR SHALL PROVIDE SPRINKLER COVERAGE IN ACCORDANCE WITH NFPA 13, ALL APPLICABLE STATE AND LOCAL CODES AND THE AUTHORITY HAVING JURISDICTION. THE COVERAGE SHALL ALSO INCLUDE SPRINKLER COVERAGE IN AREAS WHERE OBSTRUCTIONS WITH DUCTWORK REQUIRE ADDITIONAL SPRINKLER HEADS BENEATH THE OBSTRUCTION.
- G. PIPING AND SPRINKLER HEAD LOCATIONS SHALL BE COORDINATED TO ALLOW MAXIMUM HEAD CLEARANCES AND ACCESSIBILITY TO PIPING AND SURROUNDING EQUIPMENT.
- H. THE ENTIRE SPRINKLER SYSTEM SHALL BE DESIGNED, FURNISHED AND INSTALLED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, LOCAL, CODES AND THE AUTHORITY HAVING JURISDICTION, INCLUDING BUT NOT LIMITED TO, INTERNATIONAL BUILDING CODE, NFPA 13.21.25; NATIONAL ELECTRIC CODE.
- I. THE ENTIRE SPRINKLER SYSTEM SHALL USE COMPONENTS THAT ARE UL LISTED, FACTOR MUTUAL TESTED, AND MEETING THE FIRE MARSHALL REQUIREMENTS.
- J. DESIGN AND OBTAIN APPROVAL FROM AUTHORITY HAVING JURISDICTION FOR THE FIRE PROTECTION SYSTEM SPECIFIED. PAY FOR ALL REVIEW FEE AND ASSOCIATED PERMITS, EXPENSES, ETC. PREPARE LICENSED ENGINEER(S) SEALED AND SIGNED "WORKING PLANS" AND HYDRAULIC CALCULATION AND SUBMIT TO AUTHORITIES HAVING JURISDICTION FOR REVIEW, COMMENT AND APPROVAL.
- K. REFER TO EXISTING CONDITIONS, ARCHITECTURAL DRAWING SECTIONS, WALL SECTIONS AND STRUCTURAL DRAWINGS FOR STRUCTURAL, STEEL, ELEVATIONS AND SPACE AVAILABLE ABOVE THE FINISHED CEILING. PROVIDE ALL APPROPRIATE SUPPORT AND BRACING TO THE BUILDING STRUCTURE AS REQUIRED FOR INSTALLATION OF PIPING WITHIN THE GIVEN CONDITIONS.
- L. CONCEAL PIPING, VALVES, AND FITTINGS ABOVE CEILING AND IN CHASES WHERE THEY OCCUR, UNLESS NOTED OTHERWISE. FURNISH AND INSTALL ACCESS PANELS FOR ALL VALVES, GAUGES AND SWITCHES CONCEALED WITHIN WALLS OR ABOVE CEILING.
- M. PROVIDE PIPE SLEEVES THROUGH ALL FIRE RATED WALLS (INCLUDING DRYWALL CONSTRUCTION) FOR INSTALLATION OF FOAM SEALANT. SLEEVES IN FLOORS AND MASONRY WALLS SHALL BE SCHEDULE 40 GALVANIZED STEEL. SLEEVES IN DRYWALL SHALL BE 16 GAGE GALVANIZED STEEL SHEET METAL TURN.
- N. ALL EQUIPMENT USED IN CONJUNCTION WITH THIS SYSTEM SHALL BE LISTED IN ACCORDANCE WITH UL AND FACTORY MUTUAL.
- O. FIRE PROTECTION CONTRACTOR SHALL NOT INSTALL SPRINKLER PIPING OR HEADS DIRECTLY BELOW EQUIPMENT WHICH REQUIRED SERVICE. ALL COORDINATION SHALL BE COMPLETED ON THE COORDINATION SHOP DRAWINGS FOR FINAL REVIEW BY ENGINEER.
- P. PLASTIC PIPING SHALL NOT BE PERMITTED.
- Q. SPRINKLER HEADS SHALL BE CENTERED IN CEILING TILES.
- R. FURNISH AND INSTALL REQUIRED QUANTITY OF RISERS, FLOW SWITCHES AND SUPERVISORY VALVES AS NEEDED. ALL SPRINKLER CONTROL VALVES EXCEPT DRAIN VALVES SHALL BE ELECTRONICALLY SUPERVISED AND EQUIPPED WITH SUPERVISORY SWITCHES.
- S. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT AND WIRING FROM ALL FLOW SWITCHES AND SUPERVISORY SWITCHES TO FIRE ALARM PANEL. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS AT THE SWITCHES AND AT THE PANELS.
- T. UNLESS NOTED OTHERWISE, SPRINKLER HEADS IN FINISHED CEILING SHALL BE ADJUSTABLE, FULLY CONCEALED WITH WHITE COVER PLATE. FOR OTHER AREAS WHERE CEILING ARE NOT INSTALLED, SPRINKLER HEADS SHALL BE CHROME-PLATED AND OF APPROPRIATE ORIENTATION (UPRIGHT, PENDENT, SIDEWALL).
- U. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH ALL DUCTWORK, RACEWAYS, CABLE TRAYS CONDUITS, STRUCTURAL MEMBERS, PIPING AND ARCHITECTURAL CEILING HEIGHTS AND DESIGN INTENT.
- V. COORDINATE SPRINKLER PIPING, EQUIPMENT, HEADS, APPURTENANCES, ETC. WITH THAT OF OTHER TRADES SO THAT SPRINKLER WORK WILL BE INSTALLED IN THE MOST DIRECT MANNER AND SO THAT INTERFERENCE BETWEEN PIPING, DUCTS, EQUIPMENT AND ARCHITECTURAL OR STRUCTURAL FEATURES WILL BE AVOIDED.
- W. SPRINKLER PIPING, EQUIPMENT, HEADS, APPURTENANCES, ETC. INSTALLED WITHOUT REGARD FOR WORK OF OTHER TRADES WILL BE REJECTED IN ANY SITUATION WHERE AN UNDESIRABLE CONDITION OR AN UNFAIR HARSHIP FOR OTHER TRADES, OR OWNER.

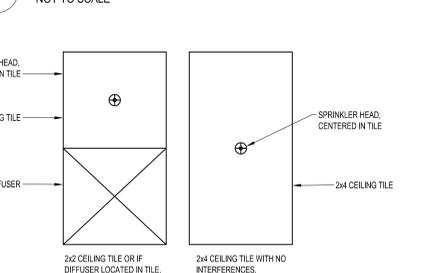
1 INSTITUTIONAL QUICK RESPONSE FLUSH PENDENT SPRINKLER - TYP

NOT TO SCALE



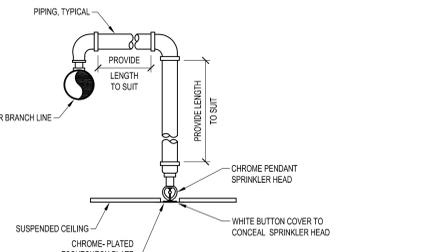
2 INSTITUTIONAL QUICK RESPONSE SIDEWALL SPRINKLER - TYP

NOT TO SCALE



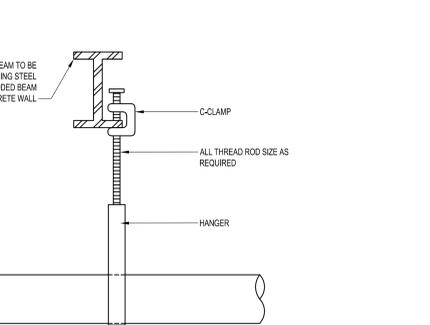
3 SPRINKLER HEAD LOCATION DETAIL - TYP

NOT TO SCALE



4 CONCEALED SPRINKLER HEAD DROP - TYP

NOT TO SCALE



5 PIPE HANGER AND SUPPORT - TYP

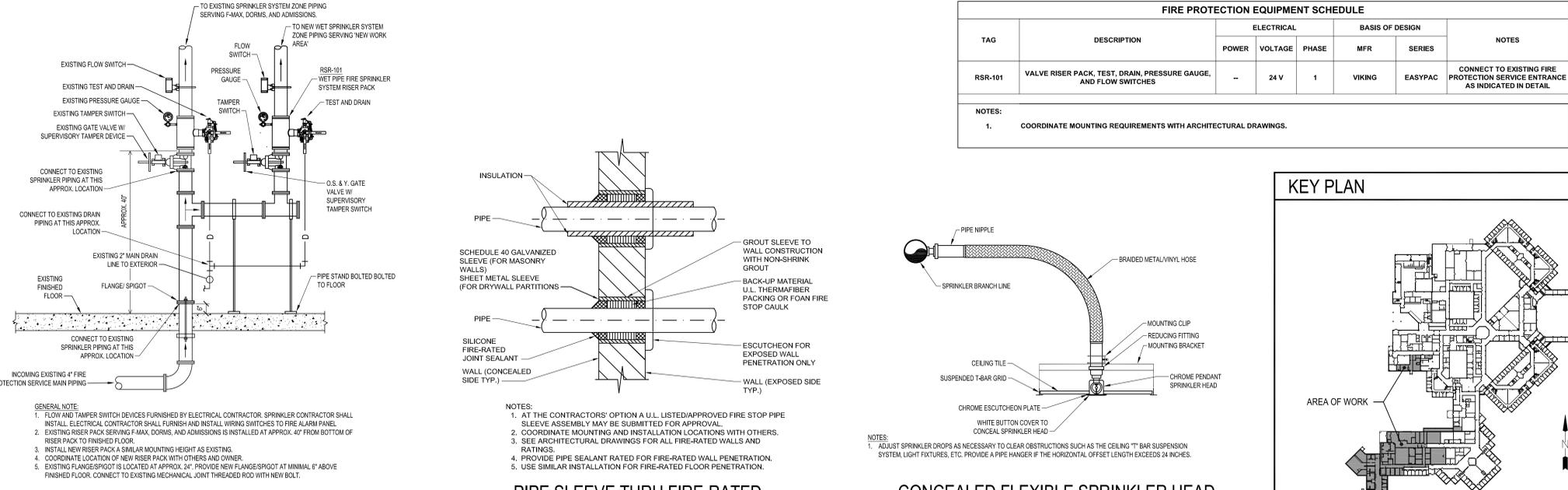
NOT TO SCALE



PIPING AND FITTING ASSEMBLY SCHEDULE

DESIGNATION	SYSTEM NAME	SYSTEM TEMP RANGE	PRESSURE RANGE	MATERIAL	CONNECTION TYPE	INSULATION MATERIAL	INSULATION THICKNESS				COVERING	COVERING COLOR	IDENTIFICATION PRIMARY COLOR	IDENTIFICATION SECONDARY COLOR	IDENTIFICATION TEXT
							Ø<1"	1"Ø-2"	2"Ø-4"	4"Ø-8"					
—D	DRAIN	LESS THAN 99 DEGREES GREATER THAN 100 DEGREES	0-20 PSI	CPL, GST	SLD, GLU, NPT	ELM, FBG	1/2"	1"	1"	1"	EXP: ALM, SST CCL: FSK	GREEN	WHITE	DRAIN	
—FPM	FIRE PROTECTION MAIN	LESS THAN 100 DEGREES	0-150 PSI	CPL, GST	SLD, NPT	FBG	1/2"	1"	1"	1"	EXP: ALM, SST CCL: FSK	GREEN	WHITE	DRAIN	
—FPW	FIRE PROTECTION - WET PIPE SYSTEM	LESS THAN 100 DEGREES	0-150 PSI	PER NFPA 13, NO PLASTIC	PER NFPA 13	NONE	—	—	—	—	NONE	RED	WHITE	SPRINKLER MAIN	
		LESS THAN 100 DEGREES	0-150 PSI	PER NFPA 13, NO PLASTIC	PER NFPA 13	NONE	—	—	—	—	NONE	RED	WHITE	SPRINKLER - WET	

NOTES:
 1. ALL PIPING SYSTEM TYPES MAY NOT BE USED ON THESE CONTRACT DOCUMENTS.
 2. FOR HEAT TRACED SYSTEMS, INCLUDE IDENTIFICATIONS FOR BOTH HEAT TRACING AND SYSTEM DESIGNATION.
 3. WHERE PLASTIC PIPING IS USED IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPATIBILITY OF THE INSTALLED PIPING SYSTEM WITH THE BUILDING'S HVAC SYSTEM, WHERE PLENUM RATED MATERIALS ARE REQUIRED BY ANY FEDERAL, STATE, OR MUNICIPAL AUTHORITY'S CONSTRUCTION CODES, PLASTIC PIPING SHALL BE COVERED IN ITS ENTIRETY BY AN APPROVED FIRE RETARDANT INSULATING MATERIAL. FIRE RETARDANT INSULATING SYSTEMS SHALL BE CERTIFIED TO MEET ASTM E-84 AND UL 723 STANDARDS FOR FLAME SPREAD AND SMOKE GENERATION. FIRE RETARDANT INSULATING SYSTEMS SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.
 4. LABEL PIPING EVERY 25', AT EACH CONNECTION TO A TEE, AND AT FLOOR PENETRATIONS.
 5. COVERING COLOR APPLIES TO EXPOSED INTERIOR PIPING ONLY.
 6. ALL INSULATION SHALL HAVE A COVERING. DO NOT PAINT INSULATION DIRECTLY.
 7. VERIFY FINAL COVERING COLOR WITH OWNER ON A ROOM-BY-ROOM BASIS PRIOR TO ORDERING COVERINGS.



GENERAL NOTE:
 1. FLOW AND TAMPER SWITCH DEVICES FURNISHED BY ELECTRICAL CONTRACTOR. SPRINKLER CONTRACTOR SHALL INSTALL ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL WIRING SWITCHES TO FIRE ALARM PANEL.
 2. EXISTING RISER PACK SERVING F-MAX, DORMS, AND ADMISSIONS IS INSTALLED AT APPROX. 40" FROM BOTTOM OF RISER PACK TO FINISHED FLOOR.
 3. INSTALL NEW RISER PACK A SIMILAR MOUNTING HEIGHT AS EXISTING.
 4. COORDINATE LOCATION OF NEW RISER PACK WITH OTHERS AND OWNER.
 5. EXISTING FLANGE SPIGOT IS LOCATED AT APPROX. 24". PROVIDE NEW FLANGES/SPIGOT AT MINIMAL #1 ABOVE FINISHED FLOOR. CONNECT TO EXISTING MECHANICAL JOINT THREADED ROD WITH NEW BOLT.

7 PIPE SLEEVE THRU FIRE-RATED WALL - TYP

NOT TO SCALE

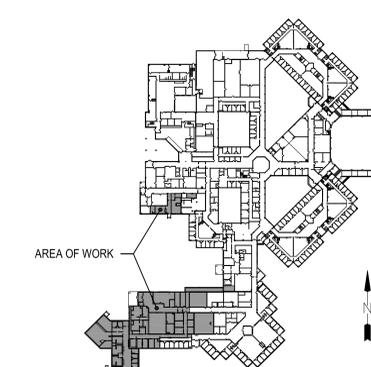


8 CONCEALED FLEXIBLE SPRINKLER HEAD DROP - TYP

NOT TO SCALE



KEY PLAN



ISSUED FOR BID