1) THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE INSTRUMENTS AND MAINTAIN THE INSTRUMENTS IN GOOD WORKING ORDER AFTER COMMISSIONING. UNLESS OTHERWISE INDICATED BY THE SER, ALL INSTRUMENTS SHALL BE INSTALLED FLUSH WITH THE GROUND SURFACE. A PROTECTIVE VALVE BOX WITH COVER SHALL BE PROVIDED FOR ALL INSTRUMENTATION. HEAVY COMPACTION EQUIPMENT SHALL NOT APPROACH WITHIN 5 FT OF PROJECTING INSTRUMENTS. DAMAGED INSTRUMENTS SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE WITHIN THREE DAYS UNLESS OTHERWISE AGREED BY THE

1) OBSERVATION WELLS SHALL CONSIST OF STANDARD 1 TO 2 INCH DIAMETER FACTORY SLOTTED PVC THREADED PIPE, WITH 0.02 INCH SIZE OPENINGS, 30 INCHES IN LENGTH, ATTACHED TO A 1 TO 2 INCH DIAMETER SCHEDULE 40 PVC PIPE WITH FLUSH THREADED COUPLINGS AND CAP.

2) A WATER LEVEL SENSOR SHALL BE PROVIDED AND SHALL BE ELECTRICAL WATER LEVEL INDICATORS MODEL 51453, AS MANUFACTURED BY SLOPE INDICATOR COMPANY, SEATTLE, WASHINGTON OR APPROVED EQUAL. THE WATER LEVEL SENSOR(S) SHALL HAVE A MINIMUM CABLE LENGTH OF 100 FEET.

3) VIBRATING WIRE OBSERVATION WELLS SHALL BE INSTALLED TO THE DEPTHS INDICATED ON THE DRAWINGS AND SHALL BE INSTALLED AFTER THE SOLDIER PILES ARE INSTALLED AND PRIOR TO PERFORMING ANY

1) VIBRATING WIRE PIEZOMETERS SHALL BE MODEL 52611099, AS MANUFACTURED BY SLOPE INDICATOR COMPANY, SEATTLE, WASHINGTON, OR EQUAL. VIBRATING WIRE PIEZOMETER TIPS SHALL BE OF HIGH AIR ENTRY CERAMIC TYPE WITH AN AVERAGE PORE DIAMETER OF 1 MICRON USING MARINE BRASS OR STAINLESS STEEL BODIES. THE PIEZOMETER SYSTEM SHALL BE CAPABLE OF MEASURING WATER PRESSURES TO AN ACCURACY OF ±0.6 FEET HEAD OF WATER IN THE RANGE 0-115 FEET HEAD OF WATER.

SHALL BE INSTALLED AFTER THE SOLDIER PILES ARE INSTALLED AND A MINIMUM OF 1 WEEK PRIOR TO PERFORMING ANY EXCAVATION OR DEWATERING WORK WITHIN 100 FEET OF THE PIEZOMETER.

1) ALL INCLINOMETER CASINGS SHALL BE GROOVED PLASTIC 2.75 INCH OUTER DIAMETER CASING. AS

2) INCLINOMETER CASINGS INSTALLED ATTACHED TO SOLDIER PILES SHALL BE INSTALLED TO THE FULL DEPTH OF THE DRILLED SHAFT.

3) INCLINOMETER CASINGS INSTALLED IN SOIL SHALL BE INSTALLED TO A MINIMUM DEPTH OF 100 FEET BELOW GRADE. THE BORING SHALL BE ADVANCED A MINIMUM OFF 15 FEET INTO A SOIL ANCHOR ZONE, AS DIRECTED BY THE SER. INCLINOMETERS SHALL BE INSTALLED AND TESTED AFTER INSTALLATION OF SOLDIER PILES AND A MINIMUM OF 1 WEEK PRIOR TO PERFORMING ANY EXCAVATION DEWATERING WORK OR WITHIN 100 FEET OF THE INCLINOMETER CASING.

4) THE CONTRACTOR SHALL PROVIDE A SPIRAL SENSOR, MODEL 50901, AS MANUFACTURED BY THE SLOPE INDICATOR COMPANY, OR EQUAL. THE SPIRAL SENSOR SHALL BE PROVIDED, AS REQUIRED FOR TESTING OF THE INCLINOMETER TUBING, FOLLOWING INSTALLATION.

COMMUNICATION SOFTWARE, DATA REDUCTION SOFTWARE, 250 FEET OF CABLE, CABLE REEL, PULLEY ASSEMBLY,

6) THE INCLINOMETER PROBE SHALL BE MODEL 50302500, AS MANUFACTURED BY SLOPE INDICATOR COMPANY, OR EQUAL. IN ADDITION, THE CONTRACTOR SHALL FURNISH A DUMMY PROBE TO CHECK FOR CASING GROOVE CONTINUITY, AND OBSTRUCTIONS OR DISTORTIONS OF THE CASING THAT COULD HINDER THE RETRIEVAL OF THE INCLINOMETER PROBE AND CONTROL CABLE.

1) SURFACE SETTLEMENT DMP'S IN PAVED AREAS SHALL BE HARDENED STEEL MARKERS TREATED OR A MINIMUM DIAMETER OF 1/2 INCH AND SIMILAR TO SURVEYOR'S P.K. NAILS. IN UNPAVED AREAS, THE SURFACE SETTLEMENT DMP'S SHALL BE A 2 INCH BY 2 INCH BY 12 INCH LONG WOODEN HUB DRIVEN TO GRADE. THE LOCATION SHALL BE FLAGGED.

2) SETTLEMENT DMP'S ON BUILDINGS SHALL CONSIST OF A 3/16 INCH DIAMETER BRASS OR STAINLESS STEEL ROD, 2 INCHES IN LENGTH OR LONGER, EPOXY GROUTED INTO A 1/4 INCH DIAMETER HOLE DRILLED INTO THE BUILDING. THE EXPOSED END OF THE ROD SHALL HAVE NO SHARP EDGES.

3) ALL SURVEYING EQUIPMENT USED IN CONJUNCTION WITH THE MONITORING OF INSTRUMENTATION, INCLUDING MEASURING TAPES, PRECISE LEVELS AND THEODOLITES SHALL BE MAINTAINED AND CALIBRATED AS REQUIRED BY THE MANUFACTURERS.

4) ALL DMP'S SHALL BE INSTALLED A MINIMUM OF 1 WEEK PRIOR TO THE INSTALLATION OF SOLDIER PILES, AS INDICATED ON THE PLAN.

1) UTILITY MONITORING POINTS SHALL CONSIST OF A 1 INCH DIAMETER EXTRA STRONG STEEL RISER PIPE ENCASED WITHIN A 3-1/2 INCH EXTRA STRONG STEEL SLEEVE PIPE, ALL CENTERED WITHIN A MAXIMUM 5 INCH DIAMETER DRILLED HOLE. THE TIP OF THE RISER AND SLEEVE PIPES SHALL REST ATOP THE UTILITY TO BE MONITORED, ALONG ITS CENTERLINE.

2) ALL UTILITY MONITORING POINTS SHALL BE INSTALLED A MINIMUM OF 1 WEEK PRIOR TO THE INSTALLATION OF SOLDIER PILES, AS INDICATED ON THE PLAN.

C6) PERMANENT LOAD CELLS 1) VIBRATING WIRE OR STRAIN-GAGE LOAD CELL OR ANY OTHER APPROVED TYPE SHALL BE HOLLOW CENTRALLY WITH INNER DIAMETER NOT LESS THAN 4 INCHES. THE LOAD RANGE SHALL BE AT LEAST 1.5 TIMES THE WORKING LOAD OF THE GROUND ANCHOR. THE LOAD CELL MUST BE WATERPROOFED FOR FIELD USE AND MATERIAL OF THE MEMBERS SHALL BE CORROSION FREE OR MADE FROM ALUMINUM ALLOY.

2) A COPY OF ORIGINAL CERTIFICATE OF CALIBRATION MUST BE SUBMITTED TO SER PRIOR TO INSTALLATION. THE CERTIFICATE IS CONSIDERED EXPIRED IF THE CALIBRATION WAS CARRIED OUT MORE THAN 6 MONTHS PRIOR TO SUBMITTAL. MANUFACTURER'S INFORMATION ON THE DURABILITY AND NEED FOR RECALIBRATION WITH TIME SHALL BE PROVIDED.

INSTALLED PRIOR TO THE START OF ANY DEMOLITION AT THE SITE AND SHALL CONTINUOUSLY MONITOR CONSTRUCTION ACTIVITIES AT THE SITE DURING THE PROGRESS OF THE WORK.

2) VIBRATION MONITORING SHALL CONSIST OF A VIBRA-TECH EVERLERT V SEISMOGRAPH, OR EQUAL. C8) MONITORING INTERVALS 1) REFER TO PROJECT SPECIFICATIONS FOR MINIMUM REQUIRED INSTRUMENTATION MONITORING INTERVALS, INSTRUMENTATION READING THRESHOLDS AND LIMITING VALUES.

> 2) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING GROUND CONDITIONS, AS NECESSARY, TO ENSURE THE SAFE PERFORMANCE OF THE WORK. THE CONTRACTOR MAY USE DATA PROVIDED BY THE MINIMUM SPECIFIED INSTRUMENTATION FOR THIS PURPOSE, BUT SHALL BE INDEPENDENTLY RESPONSIBLE TO DETERMINE WHETHER THESE DATA ARE ADEQUATE AND AVAILABLE ON A TIMELY BASIS TO PROTECT PROPERTY AND PROVIDE SAFETY. THE MINIMUM INSTRUMENTATION PROGRAM REQUIRED BY THIS SECTION DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PROVIDING ADDITIONAL INSTRUMENTATION IF, IN THE CONTRACTOR'S OPINION, SUCH ADDITIONAL INSTRUMENTATION IS NECESSARY TO PROVIDE SAFETY AND PROTECT PROPERTY.

1) ALL INSTRUMENTATION SHALL BE INSTALLED BY THE CONTRACTOR. OWNER'S INSTRUMENTATION ENGINEER SHALL OBSERVE INSTRUMENTATION INSTALLATION AND SHALL BE RESPONSIBLE FOR TAKING MEASUREMENTS AT PRE-DETERMINED INTERVALS FOR THE OWNER'S RECORDS.

2) OWNER'S INSTRUMENTATION ENGINEER WILL SHARE DATA WITH CONTRACTOR; HOWEVER THE CONTRACTOR MAY ELECT TO TAKE THEIR OWN INDEPENDENT MEASUREMENTS AT CLOSER TIME INTERVALS TO ENSURE THAT EARTH-RETENTION SYSTEM IS PERFORMING AS EXPECTED. THE CONTRACTOR SHALL BE INDEPENDENTLY RESPONSIBLE TO DETERMINE WHETHER THE MINIMUM INSTRUMENTATION PROGRAM REQUIRED IS ADEQUATE AND AVAILABLE ON A TIMELY BASIS TO PROTECT PROPERTY AND PROVIDE SAFETY. THE MINIMUM INSTRUMENTATION PROGRAM REQUIRED BY THIS SECTION DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PROVIDING ADDITIONAL INSTRUMENTATION IF. IN THE CONTRACTOR'S OPINION. SUCH ADDITIONAL INSTRUMENTATION IS NECESSARY TO PROVIDE SAFETY AND PROTECT PROPERTY.

<u>D - MAIN EXCAVATION</u>

1) INSTALL INSTRUMENTATION REQUIRED PRIOR TO START OF EXCAVATION.

2) EXCAVATION BELOW A LEVEL OF ANCHORS SHALL BE LIMITED TO 2 FEET BELOW THE ANCHOR LEVEL AND SHALL NOT COMMENCE BELOW THIS LEVEL UNTIL ANCHORS AT THAT LEVEL HAVE BEEN INSTALLED, LOAD TESTED, LOCKED-OFF, AND ACCEPTED BY THE SER. PLACEMENT OF TIMBER LAGGING SHALL IMMEDIATELY FOLLOW EXCAVATION IN FRONT OF THE WALL.

3) EXCAVATION SHALL PROCEED AT A PACE THAT PREVENTS MOVEMENT OF UNSUPPORTED SOIL. IF UNSTABLE MATERIAL IS ENCOUNTERED DURING EXCAVATION, TAKE SUITABLE MEASURES TO STABILIZE IT AND PREVENT GROUND

4) MAINTAIN A SUFFICIENT QUANTITY OF MATERIAL ON HAND FOR LAGGING, TIEBACK, AND OTHER OPERATIONS FOR PROTECTION OF THE WORK AND FOR USE IN CASE OF AN ACCIDENT OR AN EMERGENCY. 5) SUPPORTED EXCAVATION SHALL BE DEFINED AS EXCAVATION THAT EXTENDS NO MORE THAN 4 FEET BELOW AN

INSTALLED TIEBACK. PRIOR TO INSTALLATION OF THE FIRST TIEBACK. 6) UNSUPPORTED EXCAVATION SHALL BE DEFINED AS EXCAVATION THAT EXTENDS MORE THAN 4 FEET BELOW AN INSTALLED TIEBACK.

7) UNSUPPORTED EXCAVATION SHALL BE PERMITTED ONLY AS DESCRIBED BELOW: I) UNSUPPORTED EXCAVATION MAY NOT EXTEND MORE THAN 2 FEET BELOW A GIVEN UNINSTALLED TIEBACK LEVEL. II) THE LENGTH OF UNSUPPORTED EXCAVATION OF THE SUPPORT WALL SHALL BE A MAXIMUM OF 100 FEET. III) AT ANY GIVEN STATION, UNSUPPORTED EXCAVATION SHALL BE SUBSEQUENTLY SUPPORTED BY COMMENCING INSTALLATION OF TIEBACKS WITHIN 24 HOURS FROM WHEN THE EXCAVATION FIRST BECAME UNSUPPORTED. TIEBACK INSTALLATION SHALL BE COMPLETED IN A TIMELY AND EXPEDITIOUS MANNER.

8) AFTER ALL TIEBACK LEVELS HAVE BEEN INSTALLED. THE MAXIMUM VERTICAL DISTANCE AT ANY GIVEN STATION BETWEEN THE LOWEST TIEBACK LEVEL AND THE LOWEST POINT OF THE BOTTOM OF THE EXCAVATION SHALL NOT EXCEED 12 FEET.

9) PROVIDE DEWATERING AND DRAINAGE FOR EACH STAGE OF THE EXCAVATION AS REQUIRED.

A) BASED ON AVAILABLE BORING DATA, GRADATION OF SITE SOILS IS VARIABLE AND POCKETS OR LENSES OF HIGH AND LOW PERMEABILITY MAY BE ENCOUNTERED DURING EXCAVATION AND ANCHORED WALL CONSTRUCTION. AS A RESULT, SOME AREAS MAY BE PRONE TO PIPING UNLESS CONTROL OF GROUNDWATER IS PROVIDED.

B) THE METHODS OF CONTROLLING GROUNDWATER BOTH INSIDE AND OUTSIDE THE EXCAVATION ARE TO BE CHOSEN BY THE CONTRACTOR, WHO SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN, LOCATION, ARRANGEMENT, EFFECTIVENESS, AND DEPTH OF THE SYSTEM OR SYSTEMS SELECTED TO ACCOMPLISH THE WORK IN ACCORDANCE WITH THE PERFORMANCE CRITERIA SPECIFIED HEREIN. I) CONTROL GROUNDWATER TO PREVENT EXCESSIVE SOIL LOSS DURING EXCAVATION AND INSTALLATION OF LAGGING, AND TO MAINTAIN STABILITY OF THE EXCAVATION SUBGRADE. II) PROVIDE A SUBSTANTIALLY DRY AND STABLE SUBGRADE FOR SUBSEQUENT OPERATIONS. MAINTAIN GROUNDWATER LEVELS INSIDE THE EXCAVATION, AT ALL TIMES DURING CONSTRUCTION, AT LEAST 2 FEET BELOW EXCAVATION LEVEL. III) AVOID DAMAGE TO ADJACENT PROPERTIES, BUILDINGS, STRUCTURES, UTILITIES AND OTHER FACILITIES

ABBREVIATIONS

GRADE

H OR HORIZ

GRADE BEAM

HIGH POINT

HORIZONTAL

HIGH STRENGTH

GALLONS PER MINUTE

HOLLOW STRUCTURAL SECTION

HORIZONTAL EACH FACE

HORIZONTAL INSIDE FACE

HORIZONTAL OUTSIDE FACE

<u>BREVIATIONS</u>			
BREVIATION	WORD OR PHASE	<u>ABBREVIATION</u>	WORD OR PHASE
)	ALLOWABLE STRESS DESIGN	IN. OR "	INCH
•	ALTERNATE	INCL.	INCLUSIVE OR INCLUDING
\cap	AMERICAN CONCRETE INSITITUTE AMERICAN INSTITUTE OF STEEL CONSTRUCTION	INFO IT	INFORMATION
	AMERICAN INSTITUTE OF STEEL CONSTRUCTION AMERICAN IRON AND STEEL INSTITUTE	INFO.JT K	JOINT KIP (1000 POUNDS)
M	AMERICAN SOCIETY FOR TESTING AND MATERIALS	KSF	KIPS/SQUARE FOOT
5	AMERCIAN WELDING SOCIETY	LBS	POUNDS
	ANCHOR BOLT	LE	LEFT END
CH.	ARCHITECT	LW	LIGHTWEIGHT
SS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL APPARENT OPENING SIZE	LWC	LIGHTWEIGHT CONCRETE
)	AT RATE OF	LRFD	LOAD & RESISTANCE FACTOR DESIGN
_,	BALANCE	LLH LLV	LONG LEG HORIZONTAL LONG LEG VERTICAL
	BEAM	LP	LOW POINT
DR BOT.	BOTTOM	LSH	LONG SLOTTED HOLE
V	BOTTOM EACH WAY	MFR	MANUFACTURER
ИТ.	BOUNDARY ELEMENT	MATL	MATERIAL
// / .	BASEMENT CAST-IN-PLACE	MAX.	MAXIMUM
	CENTER OF GRAVITY	MECH.	MECHANICAL
RD.	CENTERED	MIN. NF	MINIMUM NEAR FACE
OR CL	CENTERLINE	NWC	NORMAL WEIGHT CONCRETE
	CLEAN OUT	N	NORTH
	CLEAR	NTS	NOT TO SCALE
 IC.	COLUMN CONCRETE	NO. OR #	NUMBER
۱C.	CONCRETE MASONRY UNIT	O.C.	ON CENTER
SI	CONCRETE REINFORCING STEEL INSTITUTE	O.H. OPNG	OPPOSITE HAND
IN.	CONNECTION	PCI	OPENING PRECAST CONCRETE INSTITUTE
NST.	CONSTRUCTION	PCS	PIECES
NST. JT.	CONSTRUCTION JOINT	PL. OR LP	PLATE
	CONTROL JOINT	PVC	POLYVINYL CHLORIDE
NT.	CUBIC YARD CONTINUOUS	PSF	POUNDS/SQUARE FOOT
ri. PR.	DEPRESSION	PSI	POUNDS/SQUARE INCH
-	DETAIL	PC	PRECAST
. OR Ø	DIAMETER	REF.	REFERENCE OF DEINEODOFMENT
	DIMENSION	REINF. REM.	REINFORCE OR REINFORCEMENT REMAINDER
•	DIRECTION	RE	RIGHT END
_S	DITTO DOWELS	RD	ROOF DRAIN
_3	DOWN	RO	ROUGH OPENING
3	DRAWING	S.A.D.	SEE ARCHITECTURAL DRAWINGS
	EACH	SECT.	SECTION
	EACH END	SC SHT	SHEAR CONNECTOR OR SLIP CRITICAL BOL SHEET
	EACH FACE	SLV	SHORT LEG VERTICAL
	EACH SIDE EACH WAY	SIM.	SIMILAR
	EAST	SPA.	SPACES
	ELEVATION	SOG	SLAB-ON-GRADE
V.	ELEVATOR	S	SOUTH
?	ENGINEER OF RECORD	SQ. SS	SQUARE STAINLESS STEEL
	EQUAL	STD	STANDARD
DOLT.	EXISTING	STL	STEEL
P. BOLT P. JT OR EJ	EXPANSION BOLT EXPANSION JOINT	SDI	STEEL DECK INSTITUTE
. 01 OK L0	EXTERIOR	SER	STRUCTURAL ENGINEER OF RECORD
	FAR FACE	STIFF	STIFFENER
OR '	FEET	STR. SP	STRUCTURAL SUMP PIT
	FINISH	SUP	SUPPORT
FL.	FINISH FLOOR	SYM	SYMMETRICAL
	FLOOR	SCHED.	SCHEDULE
•	FLOOR DRAIN FOOTING	T	TOP
).)	FOUNDATION	T & B	TOP & BOTTOM
	FULL PENETRATION WELD	TEMP	TEMPERATURE OR TEMPORARY
	YIELD STRENGTH OF STEEL	TOC TOS	TOP OF CONCRETE TOP OF STEEL
_V.	GALVANIZED	TOW	TOP OF STEEL
11	GAUGE	TYP.	TYPICAL
IL	GENERAL GRADE	UON	UNLESS OTHERWISE NOTED

INTERIOR DESIGN The Ritchie Organization Pkg D - Garage Earth Retention

Simpson Gumpertz & Heg

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General Notes:

GENERAL NOTES

SWW/RWS/KEW

UNLESS OTHERWISE NOTED V OR VERT. VERTICAL VERTICAL EACH FACE VERTICAL INSIDE FACE VERIFY IN FIELD VERTICAL OUTSIDE FACE

WELDED WIRE FABRIC

WORKING POINT

WEST

WITH

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Portland, ME

1/8"=1'-0" | Sheet Number

CLASS B TENSION SPLICE Fy=60000 PS MINIMUM SPLICE and DEVELOPMENT LENGTH SCHEDULE (UNLESS OTHERWISE SHOWN ON DRAWINGS)

24" | 32" | 40" | 48" | 70" | 80" | 90" | 102" | 11 TOP BARS | 18" | 25" | 31" | 37" | 54" | 62" | 70" | 78" | 87" OTHER BARS | 18" | 25" | 31" | 37" | 54" | 62" | 70" | 78" | 87" TOP BARS DEVELOPMENT 14" | 19" | 24" | 28" | 42" | 47" | 54" | 60" | 67' | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #1^ | 22" | 29" | 36" | 43" | 63" | 72" | 81" | 91" | 101 17" | 22" | 28" | 33" | 48" | 55" | 62" | 70" | 78" OTHER BARS | 17" | 22" | 28" | 33" | 48" | 55" TOP BARS DEVELOPMENT

I. AVOID SPLICES IN REGIONS OF MAXIMUM MOMENT. IF THIS IS NOT POSSIBLE STAGGER SPLICES SO THAT NOT MORE THAN 50% OF THE BARS ARE SPLICED WITHIN A REQUIRED SPLICE LENGTH OTHERWISE INCREASE 2. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST IN THE MEMBER BELOW THE REINFORCEMENT. WALL REINFORCING IS CLASSIFIED AS OTHER BARS.