

RETAINING WALL GENERAL NOTES:

1. DESIGN

DESIGN BASED ON CIVIL DOCUMENTS PREPARED BY SCHLAGEL & ASSOCIATES SHEET C2.0 DATED 10.18.2017

A. WALL DESIGN: LOCAL AND INTERNAL STABILITY PER "NCMA DESIGN MANUAL FOR SEGMENTAL RETAINING WALLS" THIRD ADDITION

MINIMUM SAFETY FACTORS	
EXTERNAL FAILURE MODES	
SLIDING	= 1.5
OVERTURNING	= 2.0
BEARING	= 1.5
INTERNAL SLIDING	= 1.5

B. SOIL DESIGN VALUES

SOIL	DESCRIPTION	FRICTION ANGLE φ	UNIT WEIGHT (PCF)
FOUNDATION SOIL	CLAY	25	120
RETAINED SOIL	3/4" CLEAN GRAVEL	34	115

ALL DESIGN CALCULATIONS HAVE BEEN PERFORMED BASED ON THESE ASSUMED SOIL PARAMETERS. NOTIFY ENGINEER IF ACTUAL ONSITE SOIL CONDITONS VARY FROM LISTED VALUES

C. DESIGN LOADING (TYPICAL UNLESS NOTED OTHERWISE)

VALUE (PSF)	SURCHARGE SET BACK (FT)	SOURCE	MAXIMUM BACKSLOPE	MAXIMUM TOESLOPE
50	--	INCIDENTAL	0°	11°

D. GLOBAL STABILITY: S1 STRUCTURAL HAS NOT PERFORMED A GLOBAL STABILITY ANALYSIS ON THESE WALLS. S1 STRUCTURAL ACCEPTS NO RESPONSIBILITY OR LIABILITY FOR GLOBAL STABILITY AND IT'S EFFECT ON THE SEGMENTAL RETAINING WALL SYSTEM

2. MATERIALS:

A. BIG-BLOCK PRECAST MODULAR WALL UNITS: SHALL BE AS LISTED IN THE BIG BLOCK QUANTITIES SCHEDULE AND MANUFACTURED (BY A LICENSED BIG BLOCK INC MANUFACTURER) HAVING A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI AND AN AIR CONTENT OF 6% ± 1.5%. ALL UNITS SHALL BE SOUND AND FREE OF CRACKS OR OTHER DEFECTS THAT WOULD INTERFERE WITH THE PROPER PLACING OF THE UNIT OR SIGNIFICANTLY IMPAIR THE STRENGTH OR PERFORMANCE OF THE CONSTRUCTION.

BLOCK PROPERTIES			
MANUFACTURER	UNIT	BATTER	SETBACK (IN)
BIG BLOCK	PER SCHEDULE & ELEVATIONS	4°	1-1/4"

B. DRAINAGE AGGREGATE/RETAINED FILL: SHALL CONSIST OF A CLEAN CRUSHED STONE MEETING ALL REQUIREMENTS OF ASTM C33 #57 OR #67 ROCK INCLUDING THE FOLLOWING GRADATION AS DETERMINED IN ACCORDANCE WITH ASTM D422:

SIEVE SIZE	PERCENT PASSING
1"	100%
3/4"	90-100%
1/2"	25-60%
#4	0-10%
#8	0-5%

C. LEVELING PAD: COMPACTED MODOT TYPE V AGGREGATE BASE

D. DRAIN PIPE: DRAINAGE PIPE SHALL BE A 4"Ø PERFORATED OR SLOTTED PVC, OR CORRUGATED HDPE PIPE. THE DRAINAGE PIPE MAY BE WRAPPED WITH A GEOTEXTILE TO FUNCTION AS A FILTER. DRAIN PIPE SHALL BE MANUFACTURED WITHIN ACCORDANCE OF ASTM D3034 OR F758.

E. FILTER FABRIC: SHALL BE A NONWOVEN GEOTEXTILE COMPOSED OF POLYPROPYLENE FIBERS WITH A MINIMUM FLOW RATE OF 140 GPF/SF WHEN TESTED PER ASTM D4491

3. WALL CONSTRUCTION

A. EXCAVATION: CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN OF THE PROJECT GRADING PLANS. CONTRACTOR SHALL TAKE PRECAUTIONS TO LIMIT THE AMOUNT OF OVER-EXCAVATION. EXCAVATION STABILITY AND SHORING INCLUDING THE EXCAVATIONS' INFLUENCE ON ADJACENT PROPERTY IS THE RESPONSIBILITY OF THE CONTRACTOR.

B. FOUNDATION SOIL:

- B.1. MINIMUM REQUIRED FOUNDATION SOIL BEARING CAPACITY IS 2000 PSF FOR UNLESS NOTED OTHERWISE.
B.2. FOUNDATION SOIL SHALL BE OBSERVED BY THE OWNER'S GEOTECHNICAL ENGINEER TO VERIFY FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS THE MINIMUM REQUIRED BEARING CAPACITY LISTED ON EACH WALL ELEVATION.
B.3. FOUNDATION SOIL EXTENDS FROM THE TOE OF THE LEVELING PAD TO THE BACK OF THE REINFORCED ZONE. ANY SOIL NOT MEETING THE REQUIRED STRENGTH SHALL BE REMOVED AND REPLACED WITH SOIL MEETING THE MINIMUM DESIGN CRITERIA AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
B.4.

C. LEVELING PAD:

- C.1. LEVELING PAD SHALL BE PLACED AS SHOWN ON THE DRAWINGS WITH A MINIMUM THICKNESS OF 6".
LEVELING PAD SHALL BE CONSTRUCTED TO PROVIDE FULL BEARING OF RETAINING WALL UNITS.
C.2. CONCRETE LEVELING PADS SHALL CURE A MINIMUM OF 12 HOURS PRIOR TO UNIT PLACEMENT.

D. UNIT INSTALLATION:

- D.1. THE FIRST COURSE OF SEGMENTAL CONCRETE WALL UNITS SHALL BE PLACED ON THE BASE LEVELING PAD AND CHECKED FOR LEVEL, ALIGNMENT, AND FULL CONTACT WITH BASE.
UNITS SHALL BE PLACED SIDE BY SIDE FOR THE FULL LENGTH OF WALL ALIGNMENT. ALIGNMENT SHALL BE DONE WITH A STRING LINE OR OFFSET MEASUREMENT FROM A BASELINE.
D.2.

- D.3. PLACE FILTER FABRIC BETWEEN JOINTS OF ADJACENT BLOCKS.
D.4. PLACE DRAINAGE AGGREGATE A MINIMUM OF 12" DIRECTLY BEHIND AND BETWEEN UNITS PLACE RETAINED BACKFILL DIRECTLY AGAINST DRAIN AGG AND COMPACT. EXCESS MATERIAL SHALL BE REMOVED FROM THE TOP OF THE UNIT PRIOR TO PLACEMENT OF THE NEXT COURSE.
D.5. LAY UP EACH COURSE ENSURING POSITIVE CONTACT WITH THE SHEAR KEY OF THE COURSE BELOW.

E. RETAINED BACKFILL PLACEMENT:

- E.1. RETAINED BACKFILL SHALL BE PLACED IN A MAXIMUM OF 8" COMPACTED LIFTS. ALL MATERIAL WITHIN 3' OF THE WALL FACE SHALL BE COMPACTED WITH A LIGHTWEIGHT COMPACTOR SUCH AS A VIBRATORY PLATE OR A DRUM VIBRATORY ROLLER.
E.2. CLEAN GRAVEL BACK FILL (DRAIN AGGREGATE) SHALL BE COMPACTED WITH A MINIMUM OF 3 PASSES OF A VIBRATORY PLATE OR DRUM COMPACTOR.
E.3. WELL GRADED GRAVEL BACKFILL (MODOT TYPE V) SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) AT A MOISTURE CONTENT NECESSARY TO OBTAIN THE MINIMUM COMPACTION.
E.4. RETAINED BACKFILL SHALL BE COMPACTED FROM FROM THE BACK OF THE WALL UNIT REARWARD INTO THE EMBANKMENT.

F. DRAIN PIPE INSTALLATION: DRAINAGE COLLECTION PIPES SHALL BE INSTALLED TO MAINTAIN GRAVITY FLOW OF WATER AWAY FROM THE RETAINED ZONE. THE DRAIN PIPE SHOULD CONNECT INTO A STORM SEWER OR DAYLIGHT AS SHOWN IN DETAIL 1/RW-1

G. PROTECTION OF WORK:

- G.1. AT THE END OF EACH DAYS OPERATION SLOPE BACKFILL AWAY FROM THE FACING TO DIRECT SURFACE RUNOFF AWAY FROM THE WALL FACE.
G.2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENSURE THAT THE SURFACE WATER RUNOFF FROM ADJACENT CONSTRUCTION AREA IS NOT ALLOWED TO ENTER THE RETAINING WALL AREA.
G.3. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROTECT ALL WORK FROM DAMAGE BY OTHER TRADES ONCE THE WALL INSTALLATION IS COMPLETE.

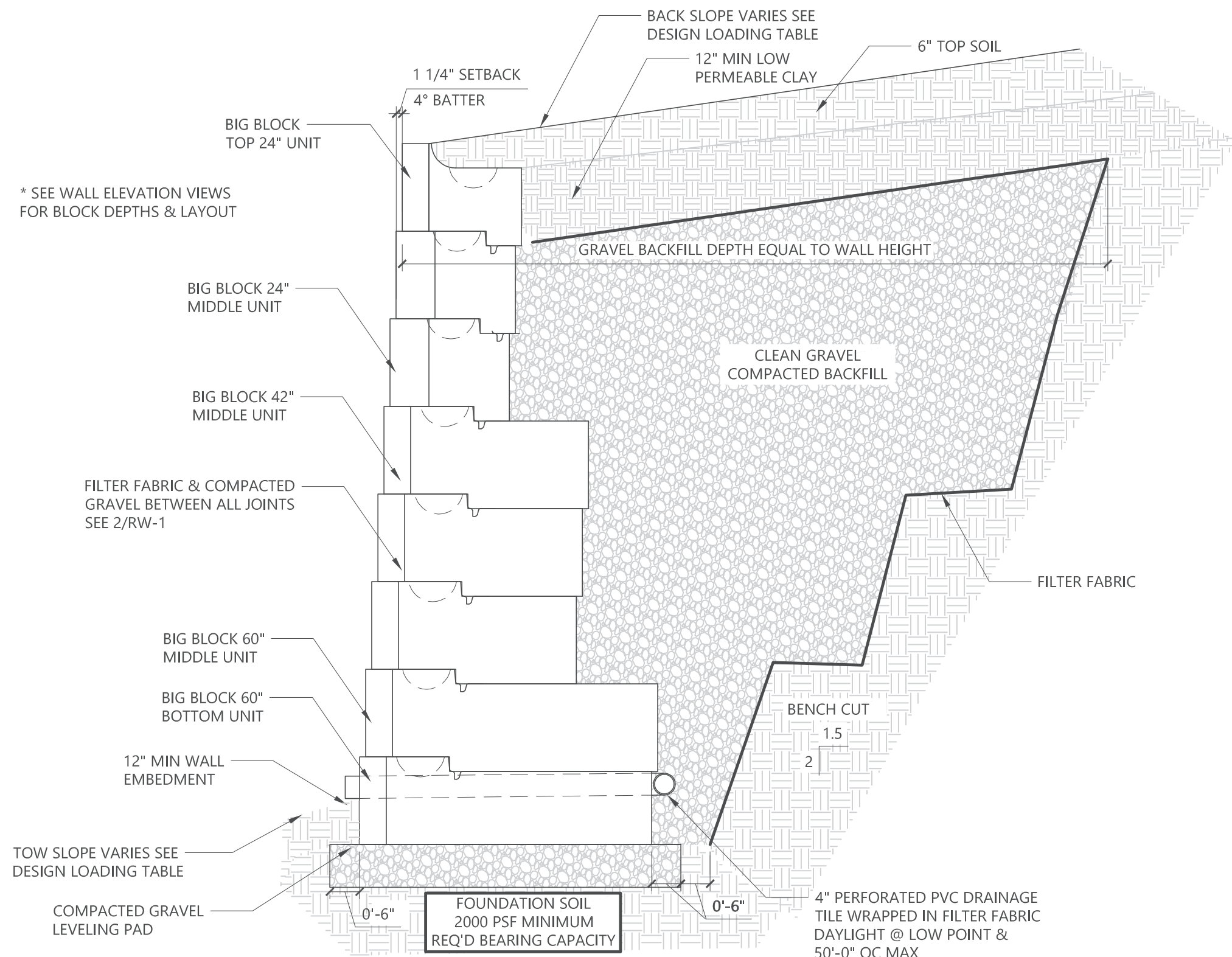
H. SPECIAL INSPECTIONS:

- H.1. THE OWNER OR OWNERS REPRESENTATIVE IS RESPONSIBLE FOR ENGAGING THE SERVICES OF AN INDEPENDENT THIRD PARTY SPECIAL INSPECTOR TO OBSERVE AND VERIFY ALL SOIL PROPERTIES AS WELL AS VERIFY CORRECT INSTALLATION OF ALL SYSTEM COMPONENTS TO MEET THE REQUIREMENTS OF THESE DRAWINGS.
H.2. FAILURE TO PERFORM THE TESTING AND INSPECTION AS STATED HEREIN WILL RELEASE S1 STRUCTURAL FROM IT'S LIABILITY FOR THIS DESIGN.
H.3. IT IS THE SPECIAL INSPECTOR'S RESPONSIBILITY TO VERIFY THE FOLLOWING ITEMS
•FOUNDATION SOIL PRIOR TO PLACEMENT OF LEVELING PAD AND RETAINED BACKFILL.
•VERIFY MATERIAL PROPERTIES OF DRAIN AGG & RETAINED BACKFILL MEET REQUIREMENTS
•PROPER TYPE AND DEPTH OF GRAVITY WALL UNITS.
•COMPACTION OF DRAIN AGG AND RETAINED FILL.
DRAIN AGG - VISUAL OBSERVATION
KDOT AB-3 - COMPACTION TESTING AT FREQUENCY DETERMINED BY SPECIAL INSPECTOR

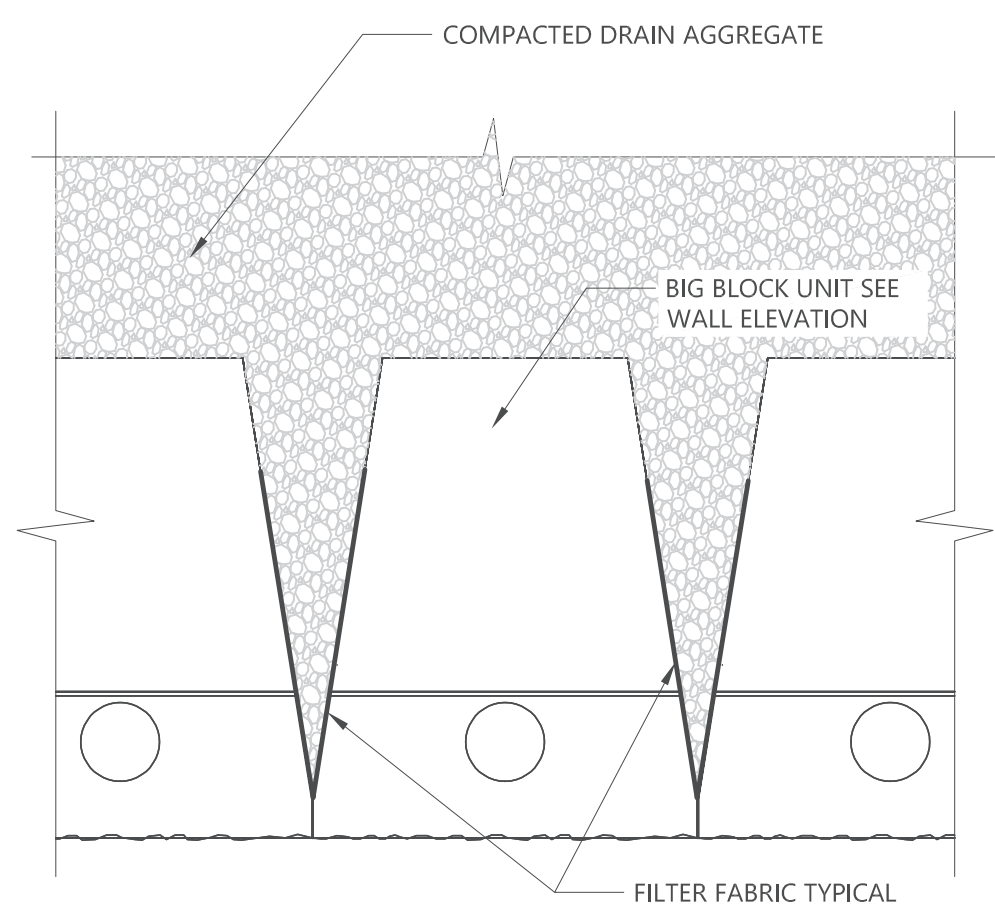


BIG BLOCK QUANTITIES				
BLOCK	MARK	DEPTH	QTY.	AREA
TOP	T	24"	66	396
MIDDLE	M	24"	114	684
BOTTOM	B	24"	16	96
MIDDLE 42"	M42	42"	80	480
BOTTOM 42"	B42	42"	14	84
MIDDLE 60"	M60	60"	9	54
BOTTOM 60"	B60	60"	33	198
HALF MIDDLE	HM	24"	2	6
HALF TOP LEFT	HTL	24"	3	9
HALF TOP RIGHT	HTR	24"	1	3
HALF MIDDLE 42"	HM42	42"	2	6
HALF BOTTOM	HB	24"	1	3
TOP RIGHT	TR	24"	1	6
TOTAL				2025

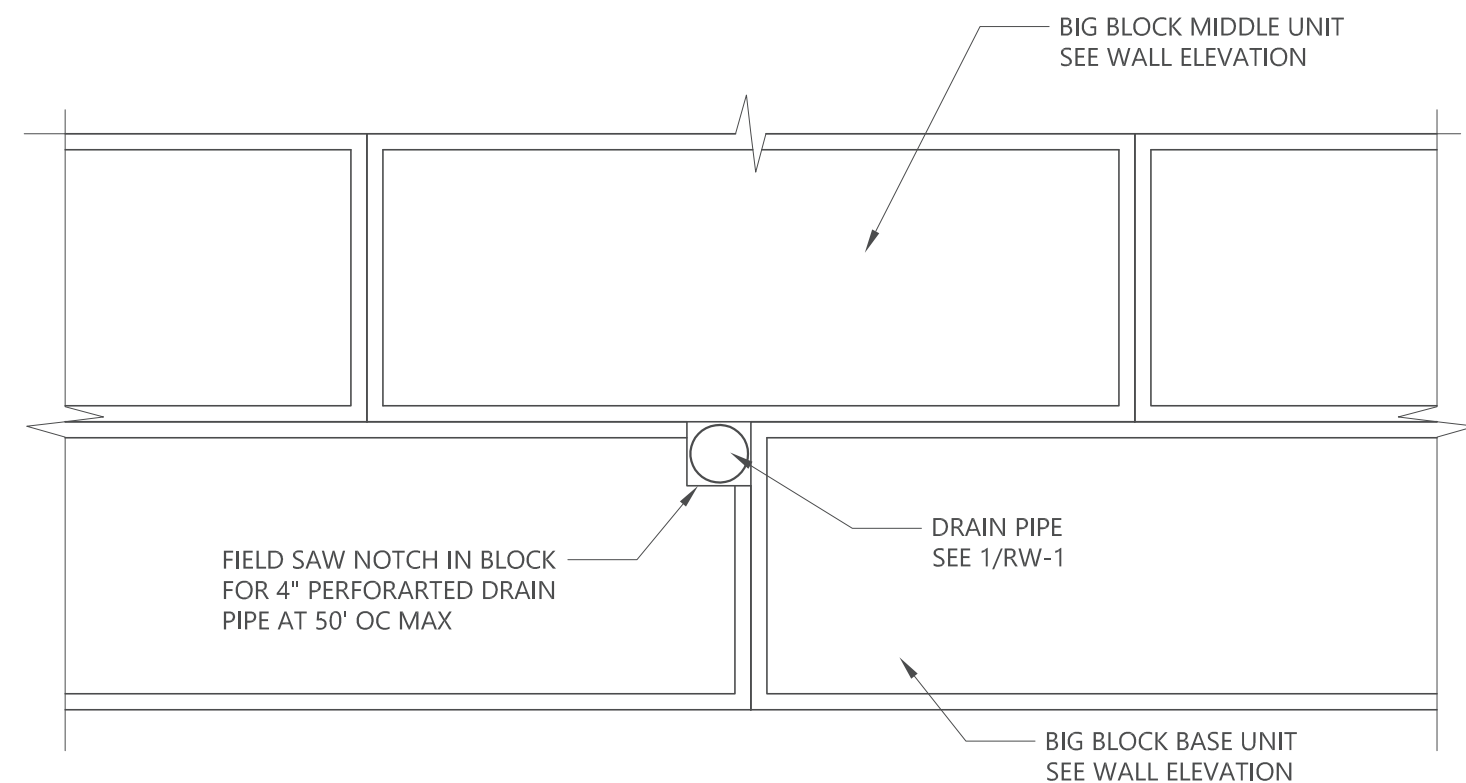
"AREA" IS THE TOTAL FACE AREA IN SQUARE FEET FOR THAT UNIT



1 GRAVITY WALL SECTION
RW-1 NOT TO SCALE



2 JOINT DETAIL
RW-1 NOT TO SCALE



3 DRAIN PIPE ELEVATION VIEW
RW-1 NOT TO SCALE

APPROVED
By: Ed Moore III
Date: 12/8/2017

☒ Reviewed ☐ Not Required for Our Review
☐ Rejected ☐ Revise and Resubmit
☐ Revise Where Noted. Resubmittal Not Required
By: Jeffrey T. Skidmore, P.E. Date: 12-19-2017



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PROJECT #

117-083

BIG BLOCK SEGMENTAL RETAINING WALL
COLEMAN EQUIPMENT
4101 NE LAKEWOOD WAY
LEE'S SUMMIT, MISSOURI



SHEET INFO:

RW-1

GENERAL NOTES &
TYPICAL DETAILS

DATE:

11.14.2017

REV #1 12.06.2017





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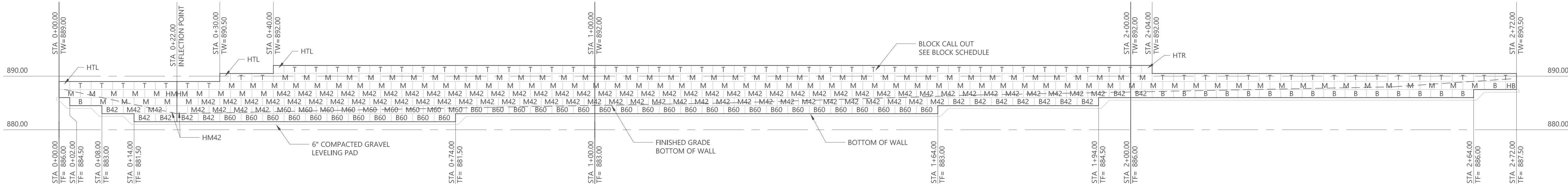
RW-2

WALL ELEVATION

DATE:

11.14.2017

REV #1 12.06.2017



1 WALL ELEVATION

RW-2

SCALE: 1"=10'-0"



2 WALL LOCATION PLAN

RW-2

GENERAL LOCATION ONLY SEE CIVIL PLANS FOR MORE INFORMATION
SCALE: NOT TO SCALE