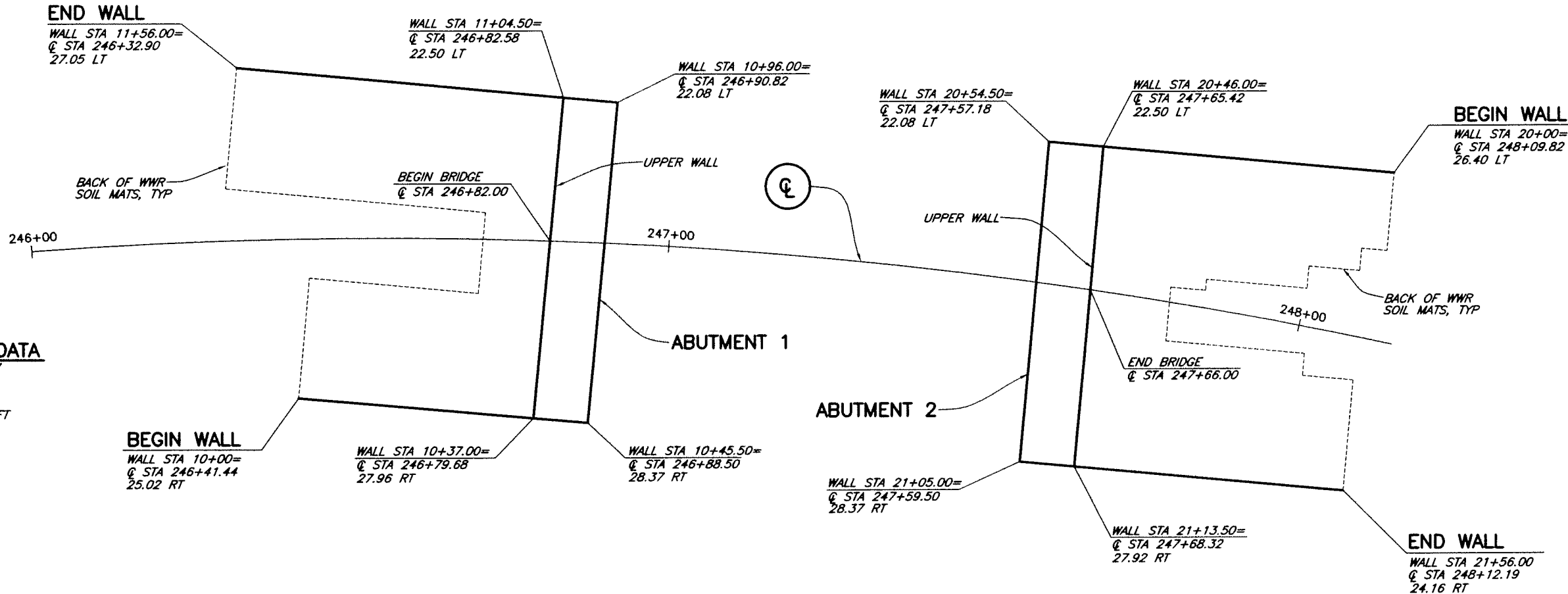


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(HRW 070913 AW)

**CURVE DATA**

$\Delta = 14^{\circ}56'43''$   
 $R = 750.00'$   
 $T = 98.37'$   
 $L = 195.63'$   
 $e = 0.048\text{ FT/FT}$



**PLAN- ABUTMENTS 1&2**

1"=10'

**DESIGN NOTES**

- DESIGN IS BASED ON THE ASSUMPTION THAT BACKFILL WITHIN THE REINFORCED SOIL MASS, METHODS OF CONSTRUCTION AND QUALITY OF MATERIALS CONFORM TO THE REQUIREMENTS OF HILFIKER RETAINING WALLS.
- ASSUMED SOIL CHARACTERISTICS:  
 REINFORCED WALL BACKFILL:  
 UNIT WEIGHT: 130 PCF  
 INTERNAL FRICTION ANGLE: 38°  
 COHESION: 0 PSF  
 RANDOM BACKFILL:  
 UNIT WEIGHT: 130 PCF  
 INTERNAL FRICTION ANGLE: 36°  
 COHESION = 0 PSF  
 COEFFICIENT OF ACTIVE SOIL PRESSURE: 0.260  
 FOUNDATION SOILS:  
 FRICTION ANGLE FOR SLIDING: 36°  
 COHESION = 0 PSF  
 MAXIMUM APPLIED BEARING PRESSURE: 5.3 KSF (D.L.+L.L.)  
 IF ACTUAL CHARACTERISTICS, GRADES OR DIMENSIONS OF SOIL MATERIALS DIFFER FROM THOSE LISTED ABOVE OR SHOWN ON THE PLANS HILFIKER RETAINING WALLS SHALL BE NOTIFIED TO EVALUATE THE NEED TO REDESIGN.
- THE DESIGN REQUIRES A NON-SATURATED BACKFILL TO PREVENT HYDROSTATIC PRESSURES AND ACCELERATED CORROSION OF THE SOIL REINFORCEMENT.  
 DRAINAGE CONTROL SHALL BE AS SPECIFIED IN THE PROJECT PLANS AND SPECIFICATIONS OR AS DIRECTED BY THE OWNER'S ENGINEER. PAYMENT FOR DRAINAGE SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- REFERENCE DOCUMENTS:  
 PLANS AND SPECIFICATIONS PROVIDED IN PDF DOCUMENT TITLED "AK PFH 40(2) SLO DUC BRIDGE" PREPARED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, DATED AUGUST 2007.

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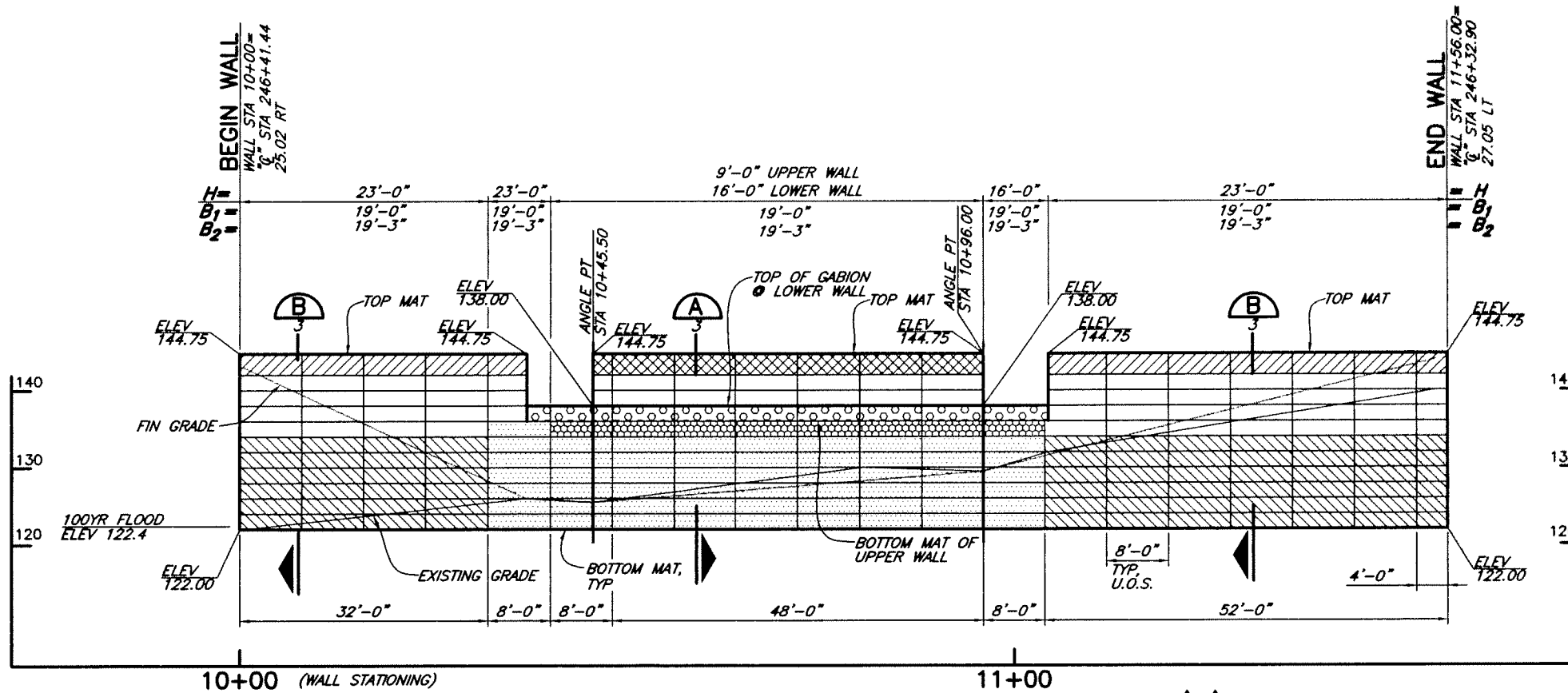
**WELDED WIRE WALL  
HILFIKER RETAINING WALLS**



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 Eureka, CA 95503-5711  
 TOLL-FREE 800.762.8962  
 PH 707.443.5093 FAX 707.443.2891  
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CONSULTING ENGINEERS & GEOLOGISTS, INC. 212 W. Webster Eureka, CA 95501 FAX (707)441-8877	
<b>PLAN &amp; NOTES</b>	
DESIGN	K/JM
DR	JSD
CHK	K/JM
APVD	
NO.	NO.
DATE	DATE
REVIEW COMMENT	REVISIONS
REVIEW COMMENT	REVISIONS
BY	BY
SHEET 1 OF 5	
DATE 4/2/08	
PROJ. NO. 008002.100	



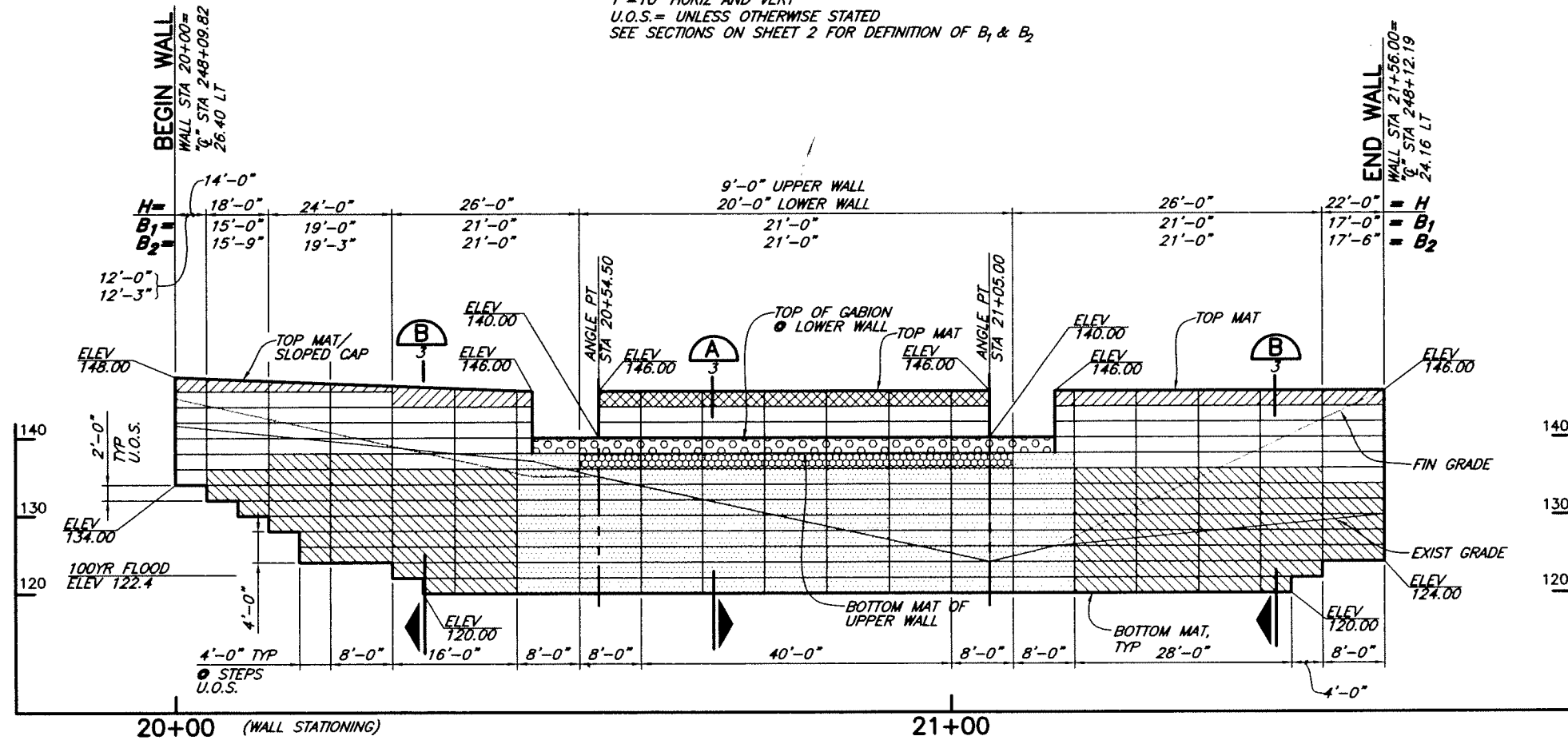
**WWR REINF MAT LEGEND**

- 8x12, W4.5xW3.5 WWR SOIL REINFORCING MATS
- 8x21, W7xW4 WWR SOIL REINFORCING MATS
- 8x21, W9.5xW4 WWR SOIL REINFORCING MATS
- 8x12, W7xW3.5 WWR SOIL REINFORCING MATS
- 3'Dx2'H GABIONS
- 8x21, W9.5xW4 WWR SOIL REINFORCING MATS W/ 8x21, W4.5xW4 WWR INTERMEDIATE MATS
- 8x12, W9.5xW4 WWR SOIL REINFORCING MATS W/ 8x21, W4.5xW4 WWR INTERMEDIATE MATS

THE FIRST VALUES SHOWN FOR THE WWR CALLOUTS ARE THE OPENING SIZES IN THE WIRE MATS (INCHES), AND THE W VALUES ARE STANDARD WIRE SIZES. SEE WALL ELEVATIONS AND SECTIONS FOR MAT WIDTHS AND BASE DEPTHS.

**DEVELOPED ELEVATION-ABUTMENT 1**

1"=10' HORIZ AND VERT  
U.O.S.= UNLESS OTHERWISE STATED  
SEE SECTIONS ON SHEET 2 FOR DEFINITION OF B<sub>1</sub> & B<sub>2</sub>



**WWR REINF MAT LEGEND**

- 8x12, W4.5xW3.5 WWR SOIL REINFORCING MATS
- 8x21, W7xW4 WWR SOIL REINFORCING MATS
- 8x21, W9.5xW4 WWR SOIL REINFORCING MATS
- 8x12, W7xW3.5 WWR SOIL REINFORCING MATS
- 3'Dx2'H GABIONS
- 8x21, W9.5xW4 WWR SOIL REINFORCING MATS W/ 8x21, W4.5xW4 WWR INTERMEDIATE MATS
- 8x12, W9.5xW4 WWR SOIL REINFORCING MATS W/ 8x21, W4.5xW4 WWR INTERMEDIATE MATS

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**DEVELOPED ELEVATION-ABUTMENT 2**

1"=10' HORIZ AND VERT  
U.O.S.= UNLESS OTHERWISE STATED  
SEE SECTIONS ON SHEET 2 FOR DEFINITION OF B<sub>1</sub> & B<sub>2</sub>

VERIFY SCALES  
BAR IS ONE INCH ON ORIGINAL DRAWING  
1"=10'  
1"=10'  
1"=10'  
1"=10'

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FAX (707)441-8877

**SEAN**

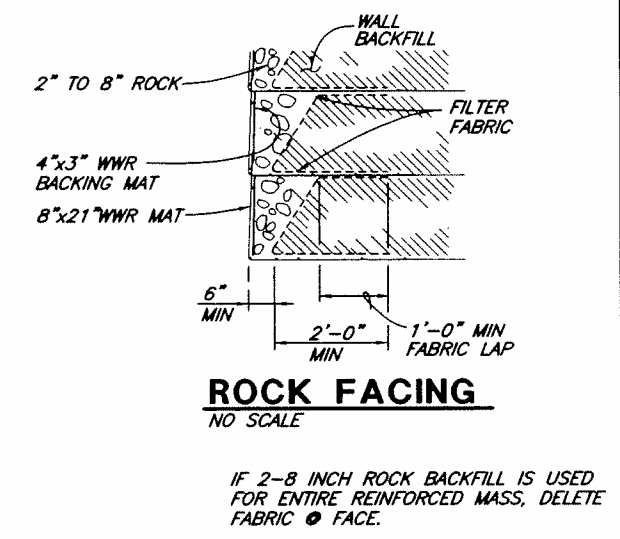
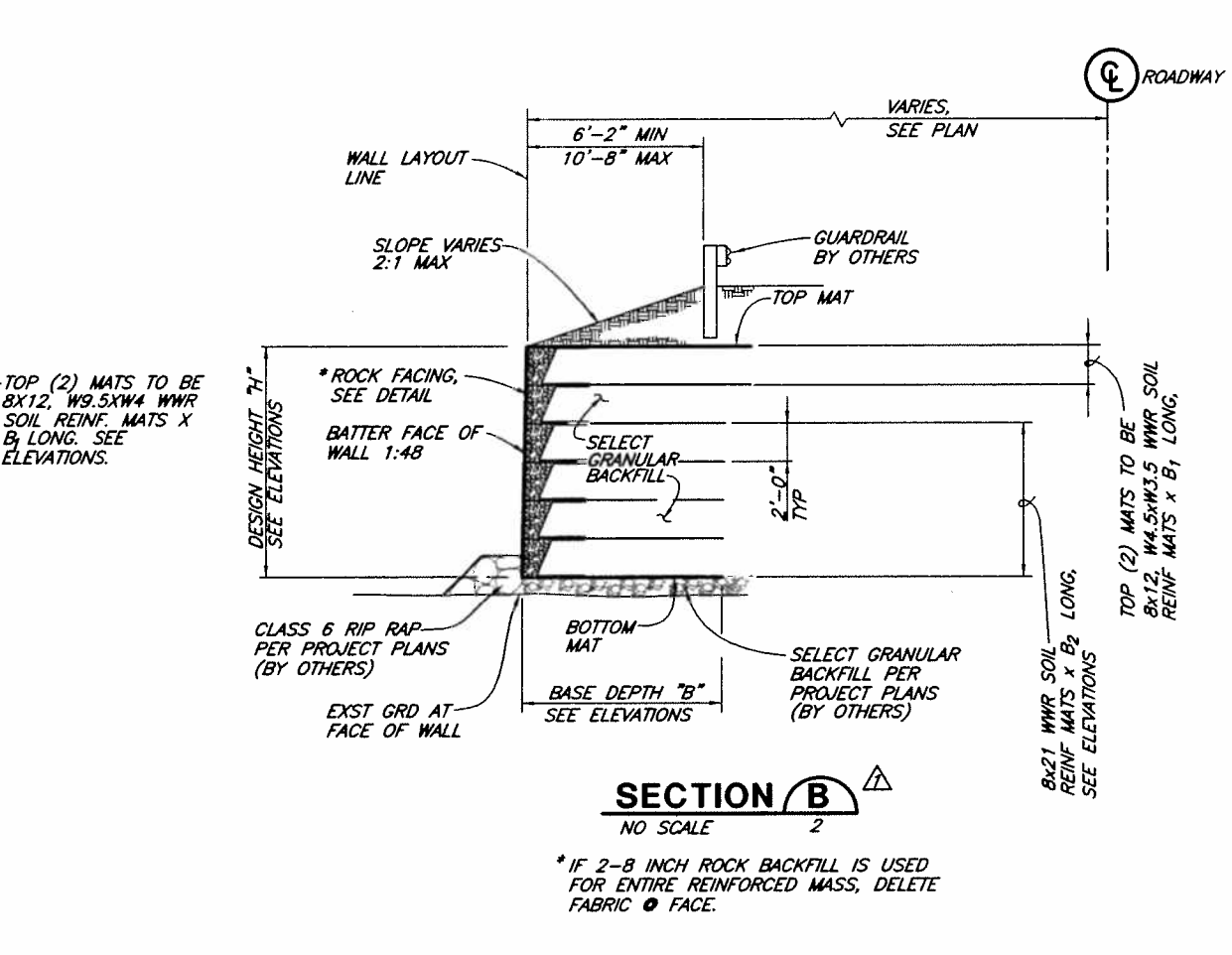
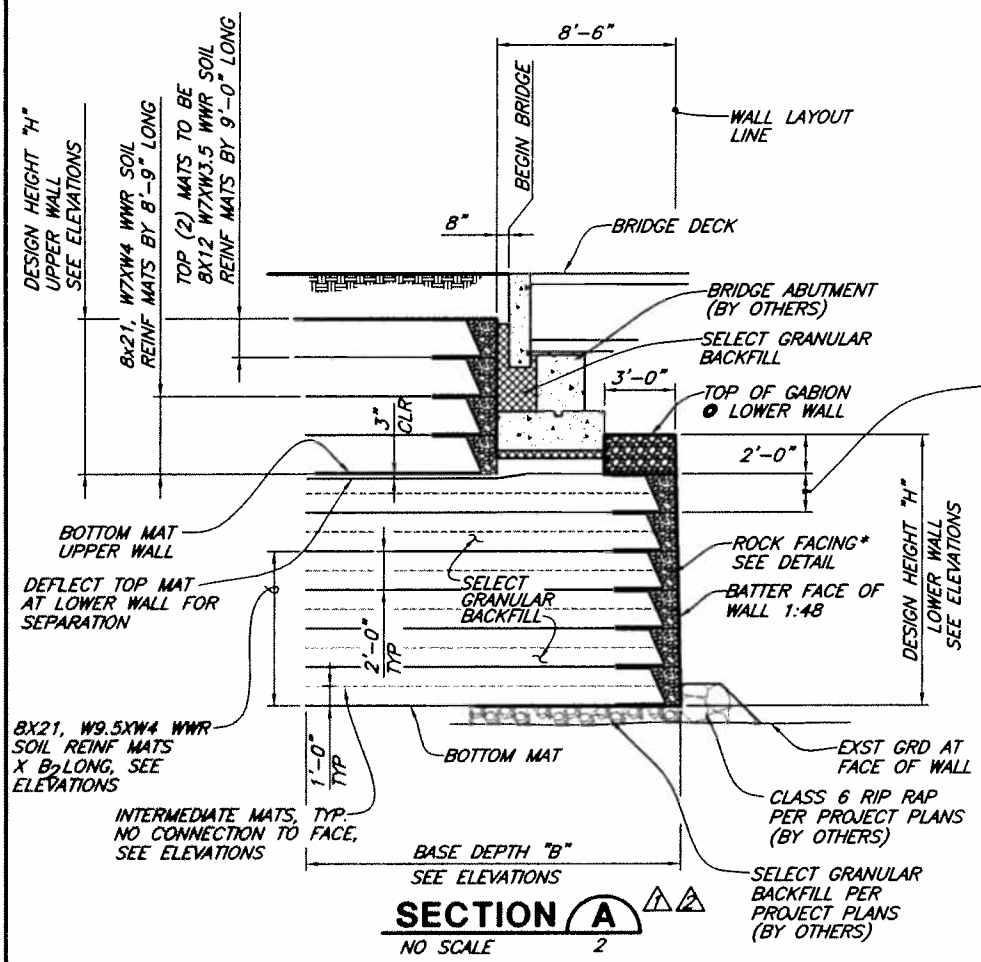
NO.	DATE	REVISION
1	6/19/08	REVIEW COMMENT
2	5/14/08	REVISIONS

SLO DUC BRIDGE AK PFH 40(2)  
TONGASS NATIONAL FOREST  
ALASKA

**ELEVATIONS**

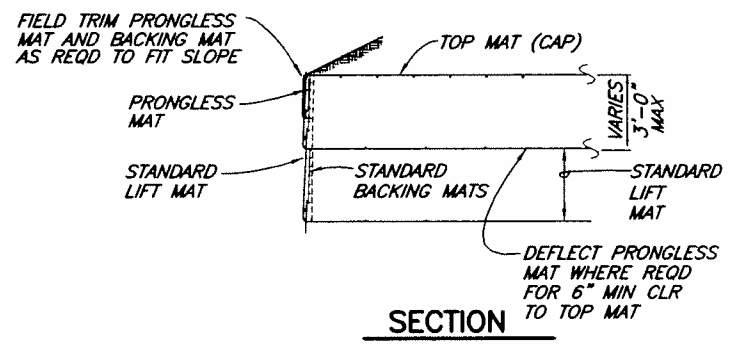
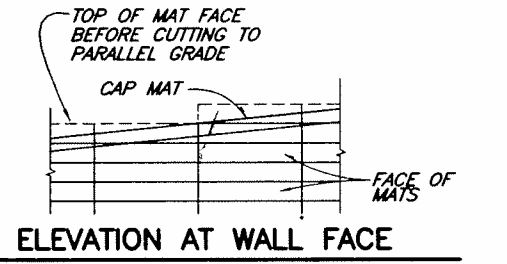
SHEET  
**2** OF 5  
DATE 4/2/08  
PROJ NO 008002.100

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(HRW 070913 AW)



\*IF 2-8 INCH ROCK BACKFILL IS USED FOR ENTIRE REINFORCED MASS, DELETE FABRIC @ FACE.

\*IF 2-8 INCH ROCK BACKFILL IS USED FOR ENTIRE REINFORCED MASS, DELETE FABRIC @ FACE.



- INSTALLATION SEQUENCE**
1. PLACE THE PRONGLESS MATS AND BACKING MATS FOR THE TOP LIFTS.
  2. CUT THE PRONGLESS AND BACKING MAT FACES OFF PARALLEL TO THE SLOPE OF THE FINAL GRADE.
  3. PLACE AND COMPACT THE BACKFILL IN THE TOP LIFTS TO PARALLEL THE FINAL GRADE SLOPE.
  4. PLACE THE CAPS ON THE BACKFILL AND CLIP THEM TO THE PRONGLESS MAT FACES WITH HOG RINGS.
  5. PLACE AND COMPACT THE FINAL COVER OVER THE CAP MATS.

**SLOPED CAP DETAILS**  
NO SCALE

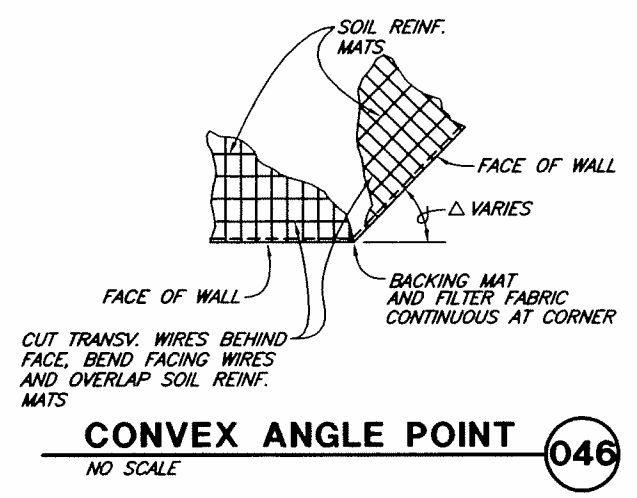
**MATERIAL LIST- ABUTMENTS 1&2**

BASE DEPTH	CAP MAT W4.5xW3.5	PRONGLESS MAT W4.5xW3.5	CAP MAT W7xW3.5	PRONGLESS MAT W7xW3.5	CAP MAT W9.5xW4	PRONGLESS MAT W9.5xW4	FLAT MAT W4.5xW4	STANDARD MAT W7xW4	STANDARD MAT W9.5xW4
21'-0"	6	6	7	7	9	7	81	45	121
19'-3"	—	—	—	—	—	—	63	71	131
19'-0"	13	13	7	7	9	8	—	—	—
17'-6"	—	—	—	—	—	—	—	5	5
17'-0"	1	1	—	—	—	—	—	—	—
15'-9"	—	—	—	—	—	—	—	5	3
15'-0"	1	1	—	—	—	—	—	—	—
12'-3"	—	—	—	—	—	—	—	3	—
12'-0"	—	—	—	—	—	—	—	—	—
9'-0"	—	—	—	—	—	—	—	—	—
8'-9"	—	—	—	—	—	—	—	—	—

WALL FACE SUPPLIED	7,184 SQ. FT.
GABIONS	28 CU. YD.
WALL BACKFILL*	5,153 CU. YD.
BACKING MATS (2'-0" HIGH)	428 EA
BACKING MATS (3'-0" HIGH)	20 EA
FILTER FABRIC (7'-6" WIDE)	3,584 LF
HOG RINGS	10,600 EA
PLIERS	5 EA

\*NEAT, TOP MAT TO BOTTOM MAT



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**SECTION, DETAILS AND MATERIALS LIST**

DESIGN	K/JM	BY	
DR	JSD	DATE	6/19/08
CHK	K/JM	REVIEW COMMENT REVISIONS	5/14/08
APVD		REVIEW COMMENT REVISIONS	

SLO DUC BRIDGE AK PFH 40(2)  
TONGASS NATIONAL FOREST  
ALASKA

DATE 4/2/08  
PROJ NO 008002.100

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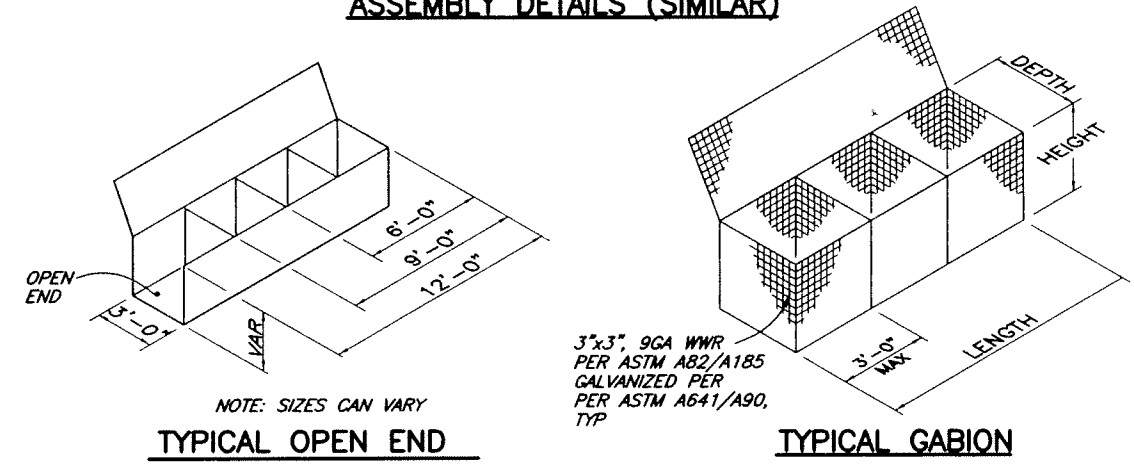
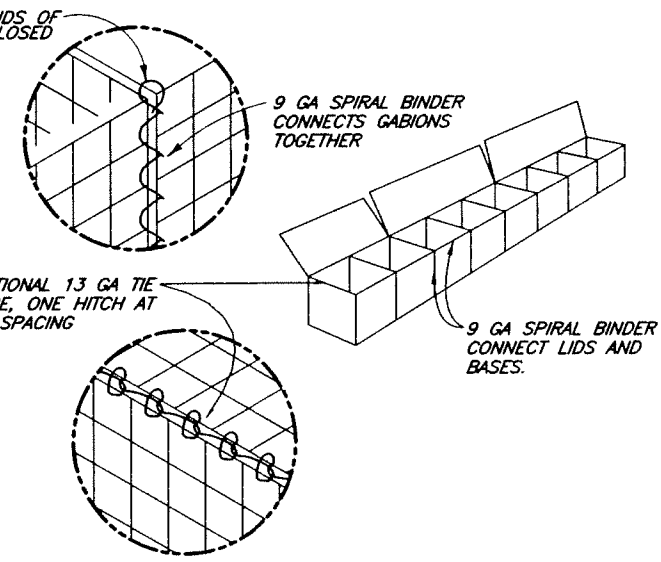
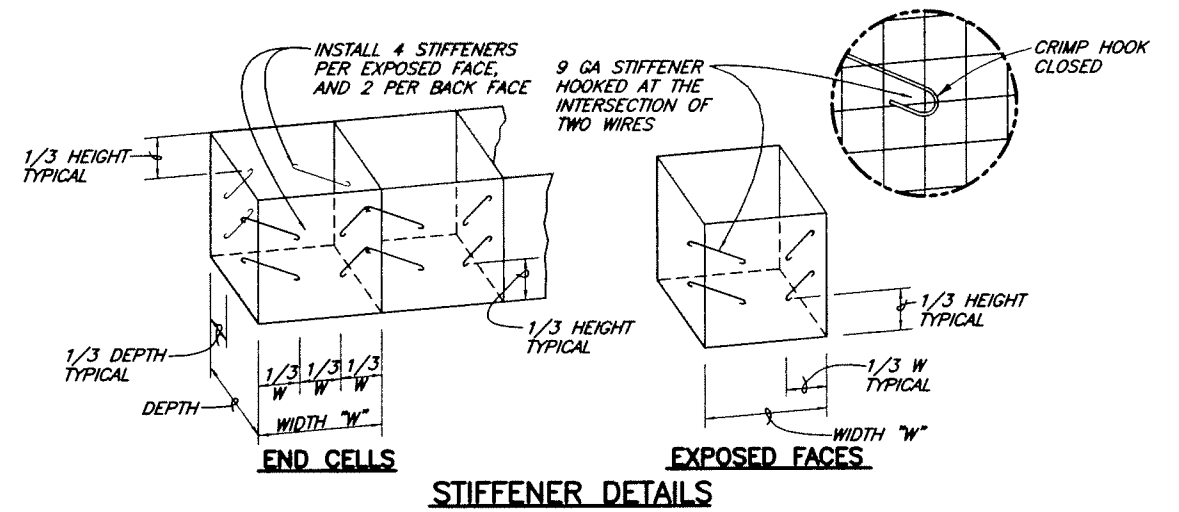
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**1902**  
LIFTED

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**ARTWELD GABION DETAILS**  
NO SCALE

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IF NOT ONE INCH ON SCALES, ACCORDINGLY

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**SEAN**

NO.	DATE	REVISION	BY

DSGN	K/JW
DR	JSD
CHK	K/JW
APVD	

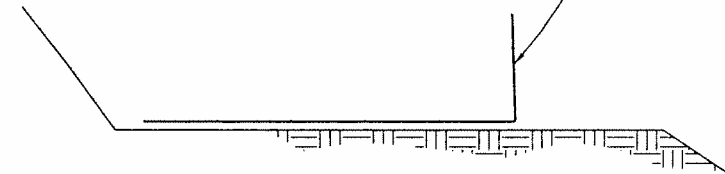
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ALASKA

**GABION DETAILS**

SHEET  
4 OF 5  
DATE 6/24/08  
PROJ. NO.  
008002.100

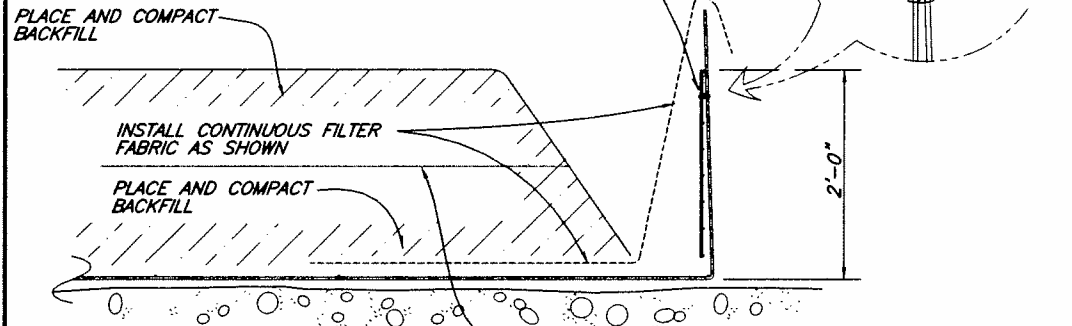
**STEP 1**

PLACE THE FIRST COURSE OF SOIL REINFORCEMENT MATS ON PREPARED FOUNDATION



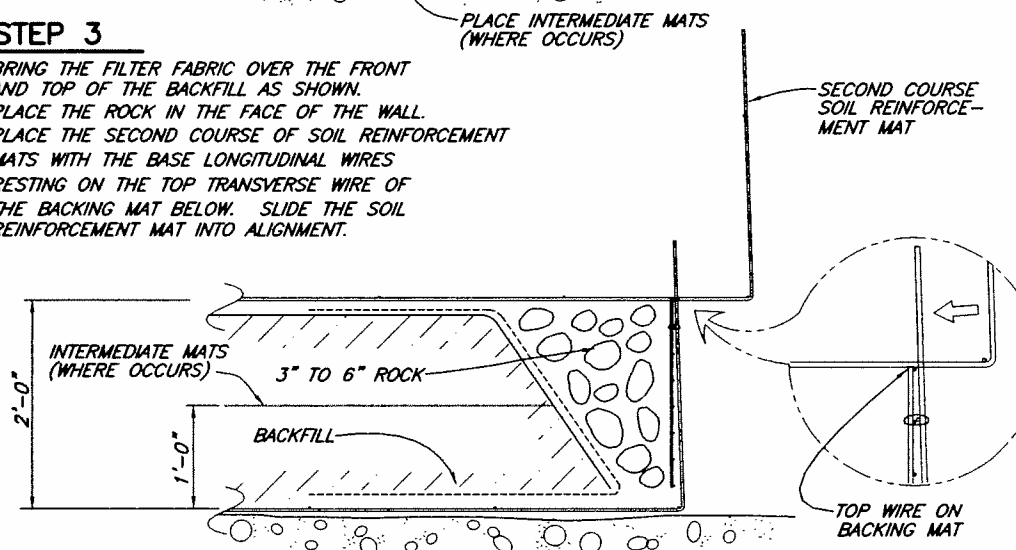
**STEP 2**

PLACE THE BACKING MAT AGAINST THE INSIDE FACE OF THE SOIL REINFORCEMENT MAT. CLIP THE SECOND-TO-TOP TRANSVERSE WIRE ON THE BACKING MAT TO THE TOP TRANSVERSE WIRE ON THE SOIL REINFORCEMENT MAT



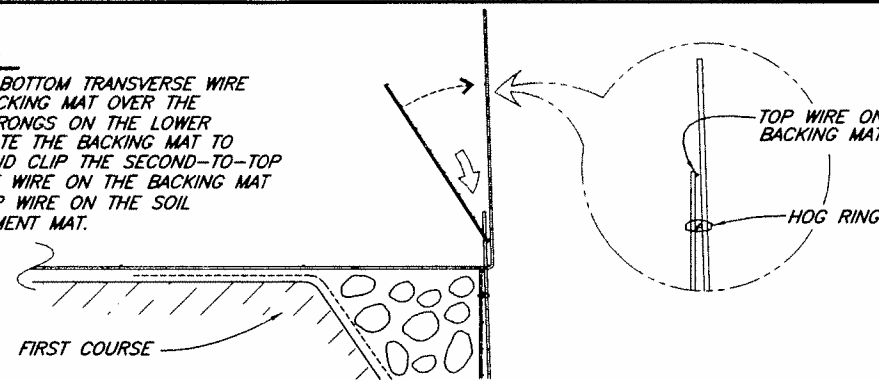
**STEP 3**

BRING THE FILTER FABRIC OVER THE FRONT AND TOP OF THE BACKFILL AS SHOWN. PLACE THE ROCK IN THE FACE OF THE WALL. PLACE THE SECOND COURSE OF SOIL REINFORCEMENT MATS WITH THE BASE LONGITUDINAL WIRES RESTING ON THE TOP TRANSVERSE WIRE OF THE BACKING MAT BELOW. SLIDE THE SOIL REINFORCEMENT MAT INTO ALIGNMENT.



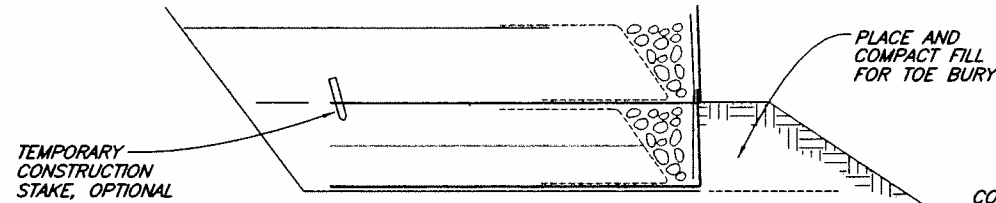
**STEP 4**

HOOK THE BOTTOM TRANSVERSE WIRE OF THE BACKING MAT OVER THE VERTICAL PRONGS ON THE LOWER MAT. ROTATE THE BACKING MAT TO VERTICAL AND CLIP THE SECOND-TO-TOP TRANSVERSE WIRE ON THE BACKING MAT TO THE TOP WIRE ON THE SOIL REINFORCEMENT MAT.



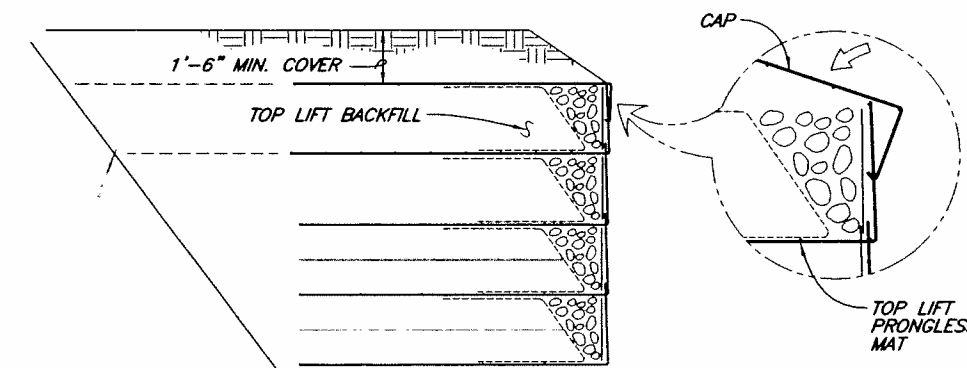
**STEP 5**

INSTALL THE FILTER FABRIC AS IN STEPS 2 AND 3. PLACE AND COMPACT THE BACKFILL AND ROCK TO THE BASE ELEVATION OF THE NEXT MAT. REPEAT STEPS 2 THRU 5 TO THE TOP LIFT.



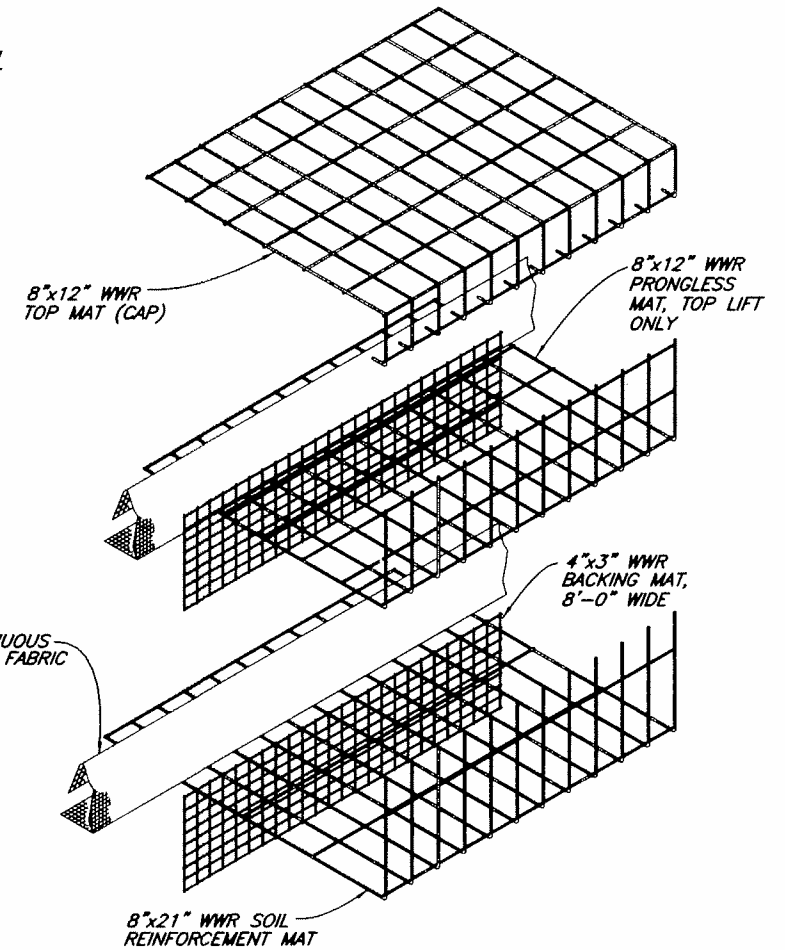
**STEP 6: TOP LIFT**

PLACE THE TOP LIFT PRONGLESS MAT, BACKING MAT AND FILTER FABRIC. PLACE AND COMPACT BACKFILL AND ROCK IN THE TOP LIFT. HOOK THE CAP OVER THE MIDDLE TRANSVERSE WIRE ON THE PRONGLESS MAT, AND ROTATE INTO PLACE. PLACE AND COMPACT COVER OVER TOP MAT TO 1'-6" MINIMUM DEPTH.



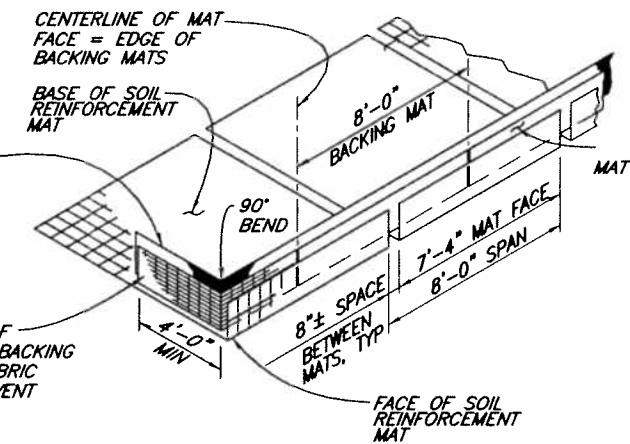
**CONSTRUCTION SEQUENCE- ROCK FACE**

NO SCALE



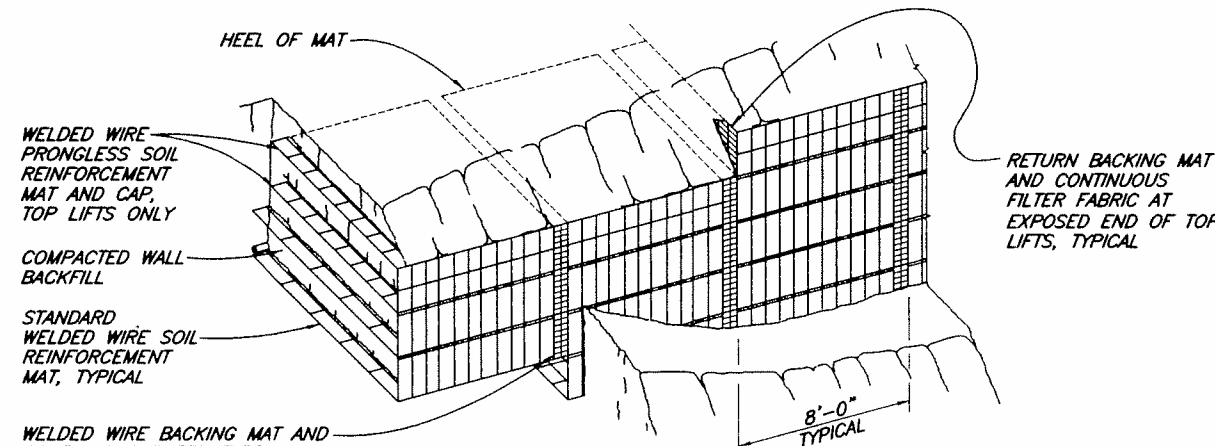
**WALL COMPONENTS**

NO SCALE



**ASSEMBLED WALL COMPONENTS**

NO SCALE



**PICTORIAL ELEVATION- COBBLE FACE**

NO SCALE

AT EXPOSED END OF ALL LIFTS, INSTALL BACKING MAT AND FILTER FABRIC AS SHOWN TO PREVENT LOSS OF BACKFILL

RETURN BACKING MAT AND CONTINUOUS FILTER FABRIC AT EXPOSED END OF TOP LIFTS, TYPICAL

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<b>SN</b>	
REVISION	BY
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REVIEW COMMENT REVISIONS	K/JM
DATE	6/19/08
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DR	JSD
CHK	K/JM
APVD	APVD
DESIGN	K/JM
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<b>CONSTRUCTION SEQUENCE</b>	
SHEET	5 OF 5
DATE	4/2/08
PROJ. NO.	008002.100