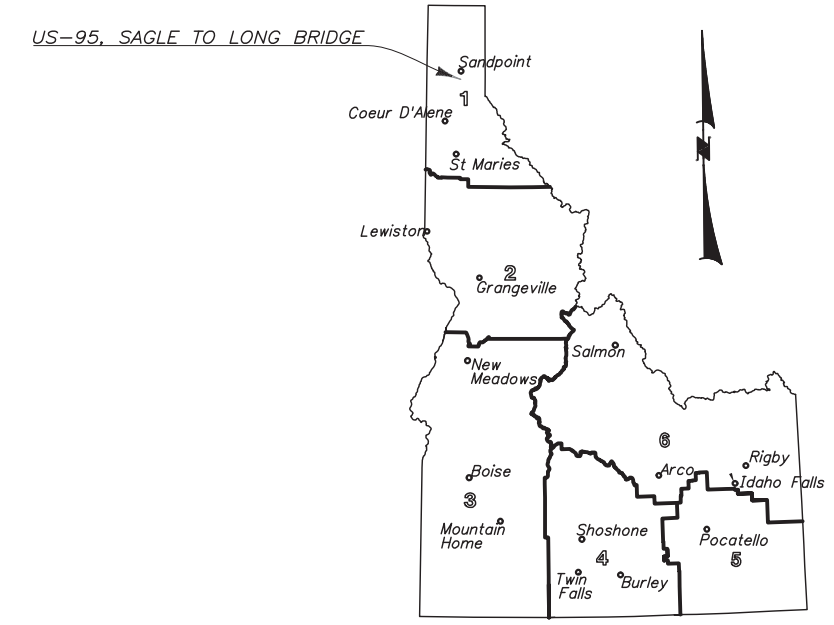


**GENERAL NOTES**

- DESIGN IS BASED ON THE ASSUMPTION THAT BACKFILL WITHIN THE REINFORCED SOIL MASS, METHODS OF CONSTRUCTION AND THE QUALITY OF MATERIALS CONFORM TO THE REQUIREMENTS OF HILFIKER RETAINING WALLS.
- ASSUMED MATERIAL CHARACTERISTICS:  
 WALL BACKFILL (CONTRACTOR TO VERIFY BY TEST):  
 TOTAL UNIT WEIGHT: 125 PCF  
 INTERNAL FRICTION ANGLE: 34° (ASTM D3080)  
 COHESION: 0 PSF  
 RETAINED BACKFILL:  
 TOTAL UNIT WEIGHT: 125 PCF  
 INTERNAL FRICTION ANGLE: 34°  
 COHESION: 0 PSF  
 FOUNDATION SOILS:  
 TOTAL UNIT WEIGHT: 120 PCF  
 INTERNAL FRICTION ANGLE: 30°  
 COHESION: 0 PSF  
  
 IF ACTUAL MATERIAL 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. SURFACE AND SUB-SURFACE DRAINAGE CONTROL IS REQUIRED TO PREVENT SATURATION OF THE BACKFILL OR RELIEVE HYDROSTATIC PRESSURES.
- SURFACE DRAINAGE CONTROL SHALL BE AS SPECIFIED IN THE PROJECT PLANS AND SPECIFICATIONS OR AS DIRECTED BY THE OWNER'S ENGINEER. INTERNAL DRAINAGE IS SPECIFIED IN THIS SUBMITTAL.
- SOIL REINFORCEMENTS SHALL BE FABRICATED OF WELDED WIRE FABRIC CONFORMING TO AASHTO M-32 AND M-55 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M-111 FOLLOWING FABRICATION. MINIMUM GALVANIZATION IS 2.0 OZ/SF (3.4 MIL THICKNESS)
- THIS DESIGN SUBMITTAL IS BASED ON ASTM A1115 - STANDARD PRACTICE FOR CONSTRUCTION OF MECHANICALLY STABILIZED EARTH WALLS WITH INEXTENSIBLE SOIL REINFORCEMENT (LATEST APPROVAL).
- THIS IS A PERMANENT MSE WALL DESIGNED FOR 75 YEARS OF SERVICE. THE OWNER IS THE IDAHO TRANSPORTATION DEPARTMENT.
- SHANNON & WILSON IS NOT THE OWNER'S "ENGINEER OF RECORD" OR THE OWNER'S "GEOTECHNICAL ENGINEER" OR THE OWNER'S "HYDRAULIC ENGINEER," AS DESCRIBED IN ASTM A1115. THE OWNER IS RESPONSIBLE FOR THE FOLLOWING:  
 A. EVALUATING GLOBAL STABILITY  
 B. ESTABLISHING FOUNDATION BEARING RESISTANCE DESIGN CRITERIA  
 C. IMPLEMENTING AN ADEQUATE QUALITY CONTROL PROGRAM
- HILFIKER RETAINING WALLS, INC (800-762-8962) IS THE "WALL SUPPLIER" WHOSE SYSTEM AND COMPONENTS ARE THE SOLE BASIS OF THIS SUBMITTAL.
- SHANNON & WILSON (208-658-8700) IS THE "WALL DESIGN ENGINEER," AS DESCRIBED IN ASTM A1115. SHANNON & WILSON HAS SPECIFIED THE TYPE(S), SIZES, AND LOCATIONS OF BURIED REINFORCEMENTS FOR THIS SUBMITTAL.
- THE ENGINEER OF RECORD ADMINISTERS THE OWNER'S REQUIREMENTS FOR THE LONG-TERM STABILITY OF THE MSE WALL (MSEW), INCLUDING:  
 A. FOUNDATION PREPARATION REQUIREMENTS OF THE GEOTECHNICAL ENGINEER  
 B. SCOUR COUNTERMEASURES ALONG THE TOE  
 C. EROSION COUNTERMEASURES AT THE ENDS  
 D. SURFACE WATER DRAINAGE CONTROLS ABOVE THE WALL  
 E. CONSTRUCTION OF THE SUPPLIED MSEW SYSTEM WITH ALL OF ITS APPURTENANT COMPONENTS  
 F. PROTECTION OF REINFORCEMENT, SUCH THAT UNAUTHORIZED CUTTING OF WIRES DOES NOT OCCUR
- THE DESIGN SURCHARGE LOADING OF THIS SUBMITTAL IS EQUIVALENT TO 2 FEET OF SOIL TO REPRESENT THE LOADING OF PUBLIC VEHICULAR TRAFFIC AND LIGHT CONSTRUCTION EQUIPMENT SET BACK 9- FEET FROM THE WALL FACE. HEAVY CRANES OR SIMILAR HEAVY LOADS SHALL BE SET BACK A MINIMUM OF THE WALL HEIGHT FROM THE WALL FACE (EXAMPLE: 13 FOOT SET BACK FROM A 13-FOOT HIGH WALL). DO NOT STOCKPILE SOIL ON THE MSE WALLS.
- IF THERE ARE BOTTOM OF WALL ELEVATION DISCREPANCIES, NOTIFY THE ENGINEER SO THAT REDESIGN CAN BE CONSIDERED.



**VICINITY MAP**  
NOT TO SCALE

SUPPLIED REINFORCEMENT QUANTITIES				
BASE LENGTH	CAP MAT W7XW3.5 (8"X12")	PRONGLESS MAT W7XW3.5 (8"X12")	STANDARD MAT W7XW3.5 (8"X10.5")	STANDARD MAT W7XW4 (8"X21")
11'	129	129		
10.5'			198	372
9'	4	4		
8.75'			16	5

WALL FACE SUPPLIED	12,368 SF
BACKING MATS (3'-0" HIGH)	98 EA
BACKING MATS (2'-0" HIGH)	636 EA
FILTER FABRIC (7'-6" WIDE)	5,872 LF
HOG RINGS	17,400 EA
PLIERS	6 EA

NOTE: ALL BACKING MATS ARE W5xW2.5.

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

5260 Chinden Blvd.  
Boise, ID 83714  
(208) 658-8700  
Fax: (208) 658-8703

VICINITY, NOTES, QUANTITIES

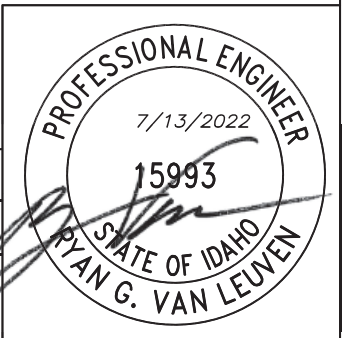
WELDED WIRE WALL  
US-95, SAGLE RD  
TO LONG BRIDGE

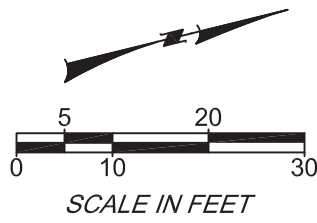
ITD BONNER COUNTY, ID

DWG DATE:  
13 JUL 2022

HRW NO.:  
220505CW

SHEET  
1  
OF 11





BEGIN WW WALL  
LOL STA. 1000+00.00  
US-95 STA. 167+15.00,  
50.00' RT

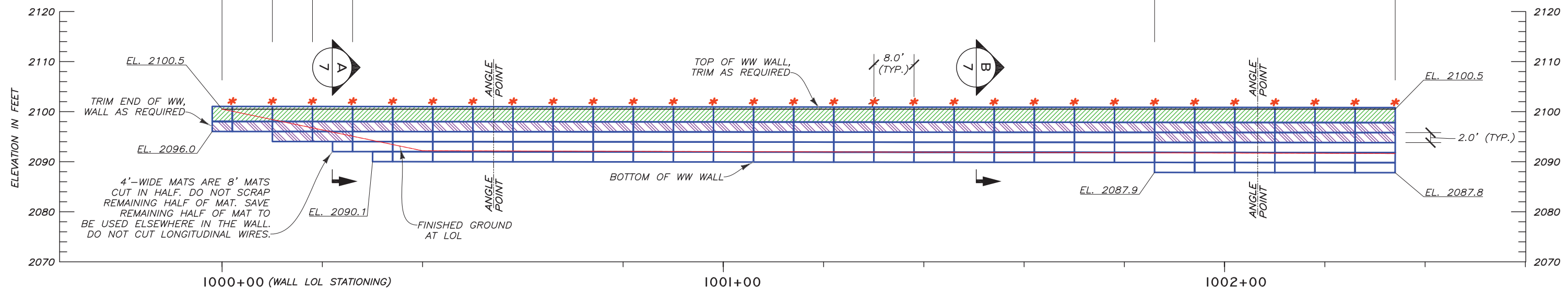
BEGIN WW WALL  
LOL STA. 1000+00.00  
US-95 STA. 167+15.00,  
50.00' RT

ANGLE POINT  
LOL STA. 1000+56.16  
US-95 STA. 167+50.00,  
94.00' RT

ANGLE POINT  
LOL STA. 1002+08.58  
US-95 STA. 169+00.00,  
94.00' RT

MATCH LINE - SHEET 3  
LOL STA. 1002+34.02

H=	5'	7'	9'	11'	13'
B1=	9	9	9	11	11
B2=	8.75	8.75	8.75	10.5	10.5
B3=	-	-	8.75	10.5	10.5



**LEGEND**

	B1	8"x12", W7xW3.5-HDG	LOL	LAYOUT LINE
	B2	8"x10.5", W7xW3.5-HDG	H	WALL HEIGHT (BOTTOM MAT TO CAP MAT)
	B3	8"x21", W7xW4-HDG	B	MAT LENGTH (FT)
*		APPROXIMATE LOCATION OF THE MIDDLE OF EACH 3' BACKING MAT	WW	WELDED WIRE

**DEVELOPED ELEVATION (FRONT FACE)**

GRAPHIC SCALE

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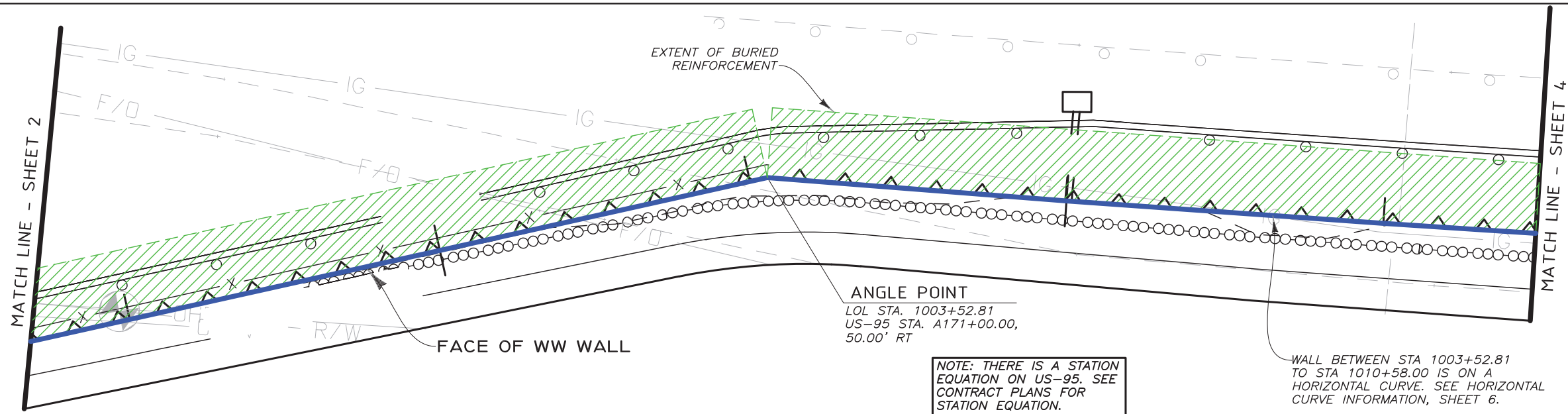
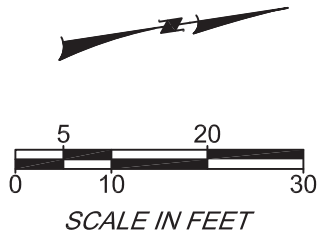
PLAN & ELEVATION  
WELDED WIRE WALL  
US-95, SAGLE RD  
TO LONG BRIDGE

ITD BONNER COUNTY, ID

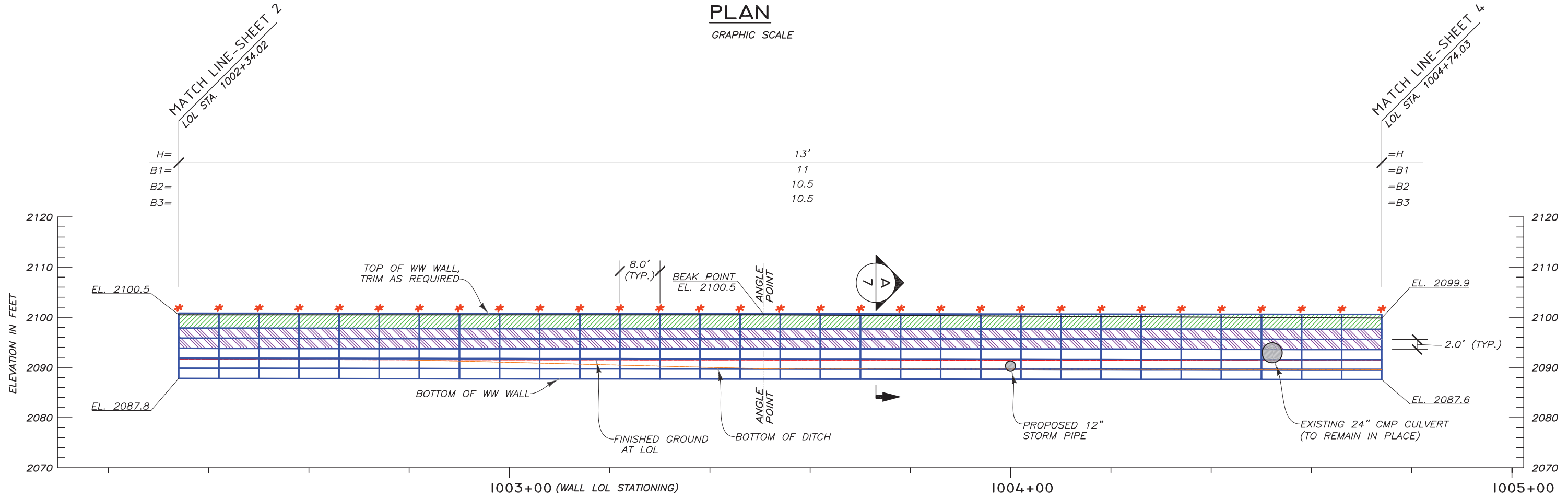
DWG DATE:  
13 JUL 2022  
HRW NO.:  
220505CW  
SHEET  
2  
OF 11

PROFESSIONAL ENGINEER  
7/13/2022  
15993  
RYAN G. VAN LEUVEN  
STATE OF IDAHO

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**PLAN**  
GRAPHIC SCALE



**DEVELOPED ELEVATION (FRONT FACE)**  
GRAPHIC SCALE

**LEGEND**

	B1	8"x12", W7xW3.5-HDG	LOL	LAYOUT LINE
	B2	8"x10.5", W7xW3.5-HDG	H	WALL HEIGHT (BOTTOM MAT TO CAP MAT)
	B3	8"x21", W7xW4-HDG	B	MAT LENGTH (FT)
*		APPROXIMATE LOCATION OF THE MIDDLE OF EACH 3' BACKING MAT	WW	WELDED WIRE

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PLAN & ELEVATION	DWG DATE: 13 JUL 2022
WELDED WIRE WALL	HRW NO.: 220505CW
US-95, SAGLE RD TO LONG BRIDGE	SHEET 3 OF 11
ITD	BONNER COUNTY, ID

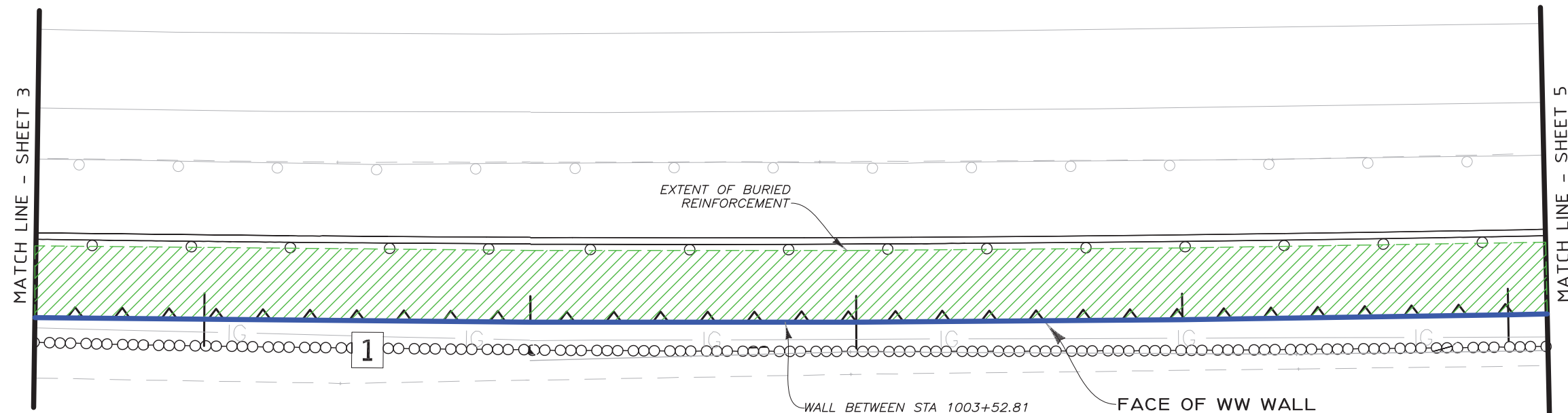
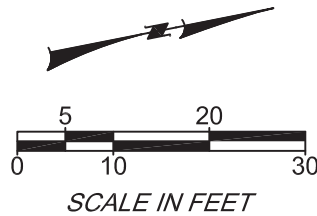
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7/13/2022

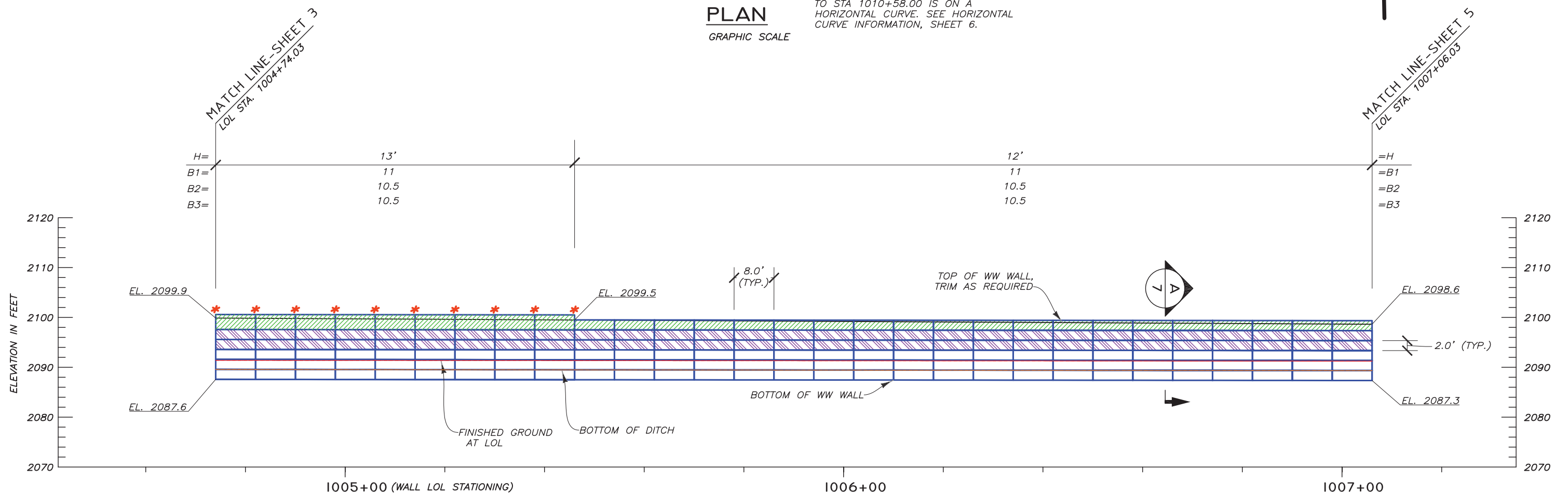
15993

RYAN G. VAN LEUVEN

STATE OF IDAHO



**PLAN**  
GRAPHIC SCALE



**DEVELOPED ELEVATION (FRONT FACE)**  
GRAPHIC SCALE

**LEGEND**

	B1	8"x12", W7xW3.5-HDG	LOL	LAYOUT LINE
	B2	8"x10.5", W7xW3.5-HDG	H	WALL HEIGHT (BOTTOM MAT TO CAP MAT)
	B3	8"x21", W7xW4-HDG	B	MAT LENGTH (FT)
			WW	WELDED WIRE
	* APPROXIMATE LOCATION OF THE MIDDLE OF EACH 3' BACKING MAT			

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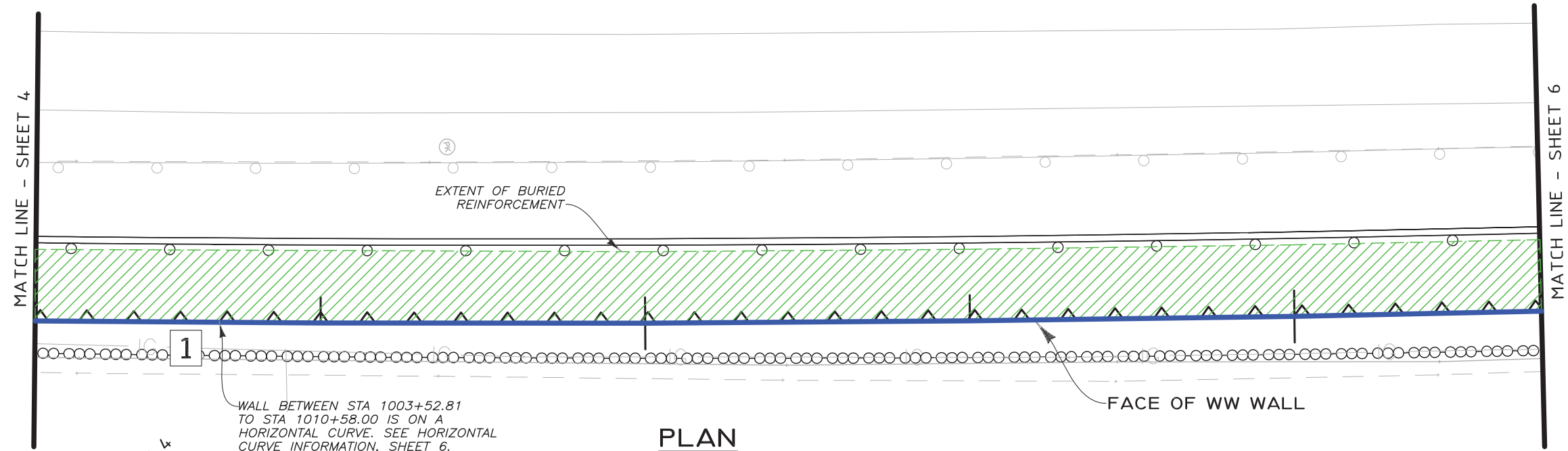
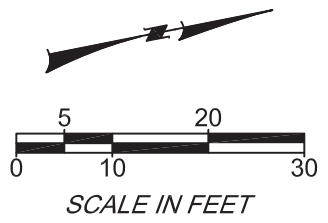
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US-95, SAGLE RD  
TO LONG BRIDGE  
ITD BONNER COUNTY, ID

DWG DATE:	13 JUL 2022
HRW NO.:	220505CW
SHEET	4
OF	11

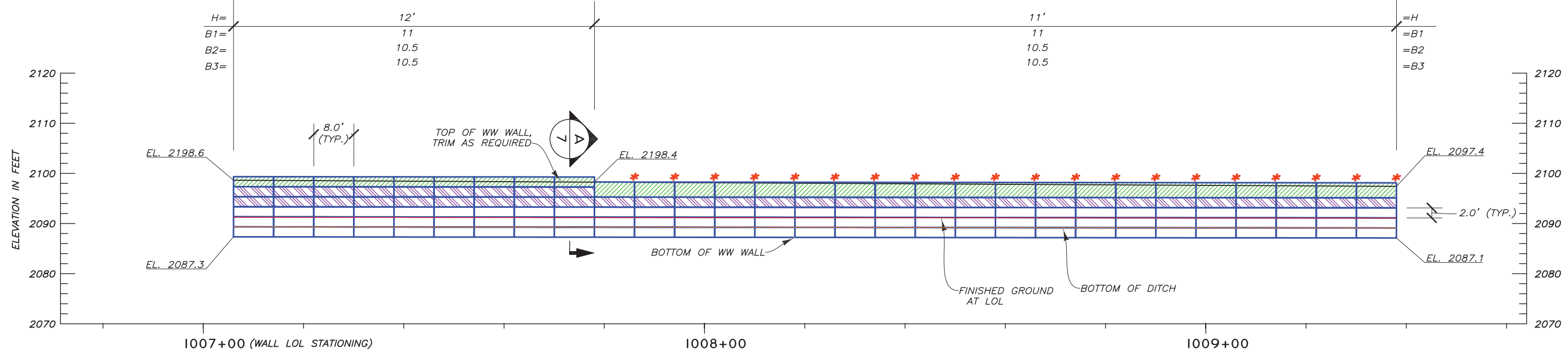
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G. VAN LEUVEN

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WALL BETWEEN STA 1003+52.81 TO STA 1010+58.00 IS ON A HORIZONTAL CURVE. SEE HORIZONTAL CURVE INFORMATION, SHEET 6.

**PLAN**  
GRAPHIC SCALE



**DEVELOPED ELEVATION (FRONT FACE)**  
GRAPHIC SCALE

**LEGEND**

	B1	8"x12", W7xW3.5-HDG	LOL	LAYOUT LINE
	B2	8"x10.5", W7xW3.5-HDG	H	WALL HEIGHT (BOTTOM MAT TO CAP MAT)
	B3	8"x21", W7xW4-HDG	B	MAT LENGTH (FT)
			WW	WELDED WIRE
				* APPROXIMATE LOCATION OF THE MIDDLE OF EACH 3' BACKING MAT

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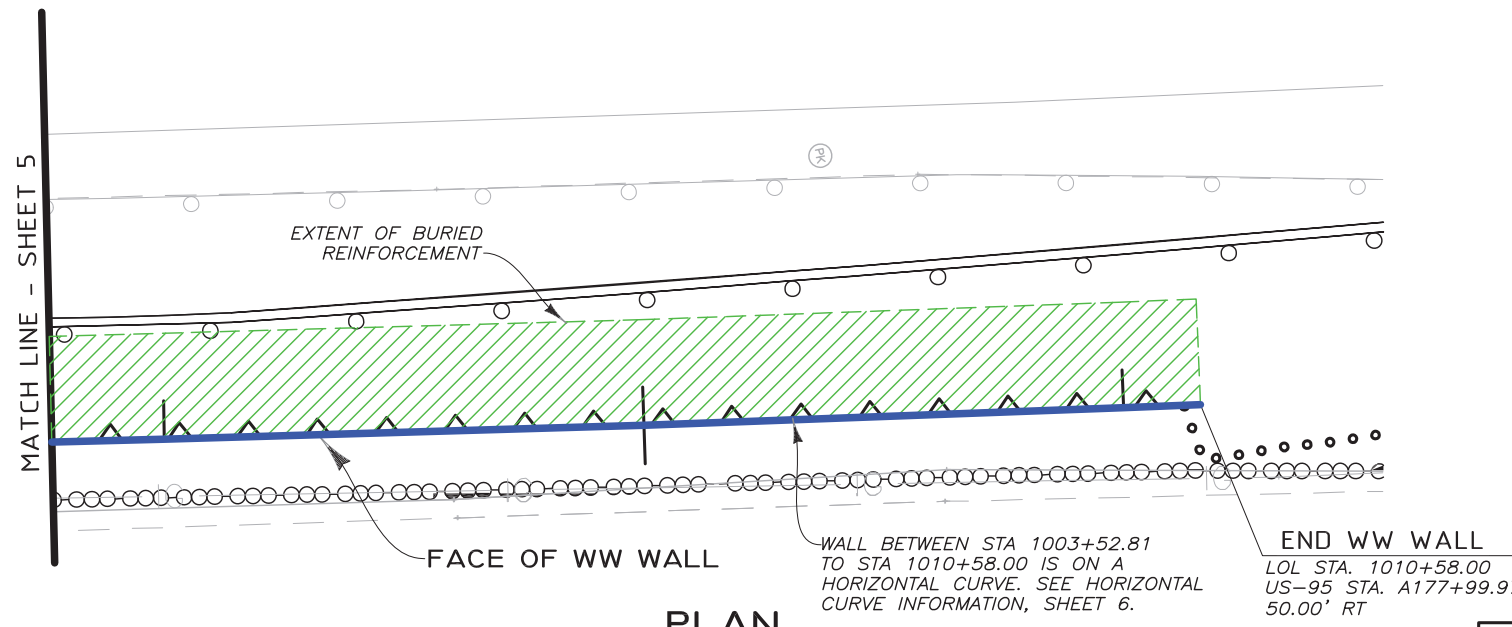
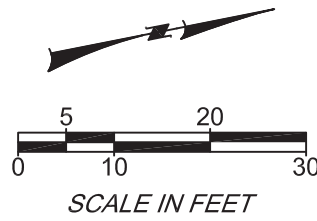
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PLAN & ELEVATION	DWG DATE: 13 JUL 2022
WELDED WIRE WALL US-95, SAGLE RD TO LONG BRIDGE	HRW NO.: 220505CW
ITD	SHEET 5 OF 11

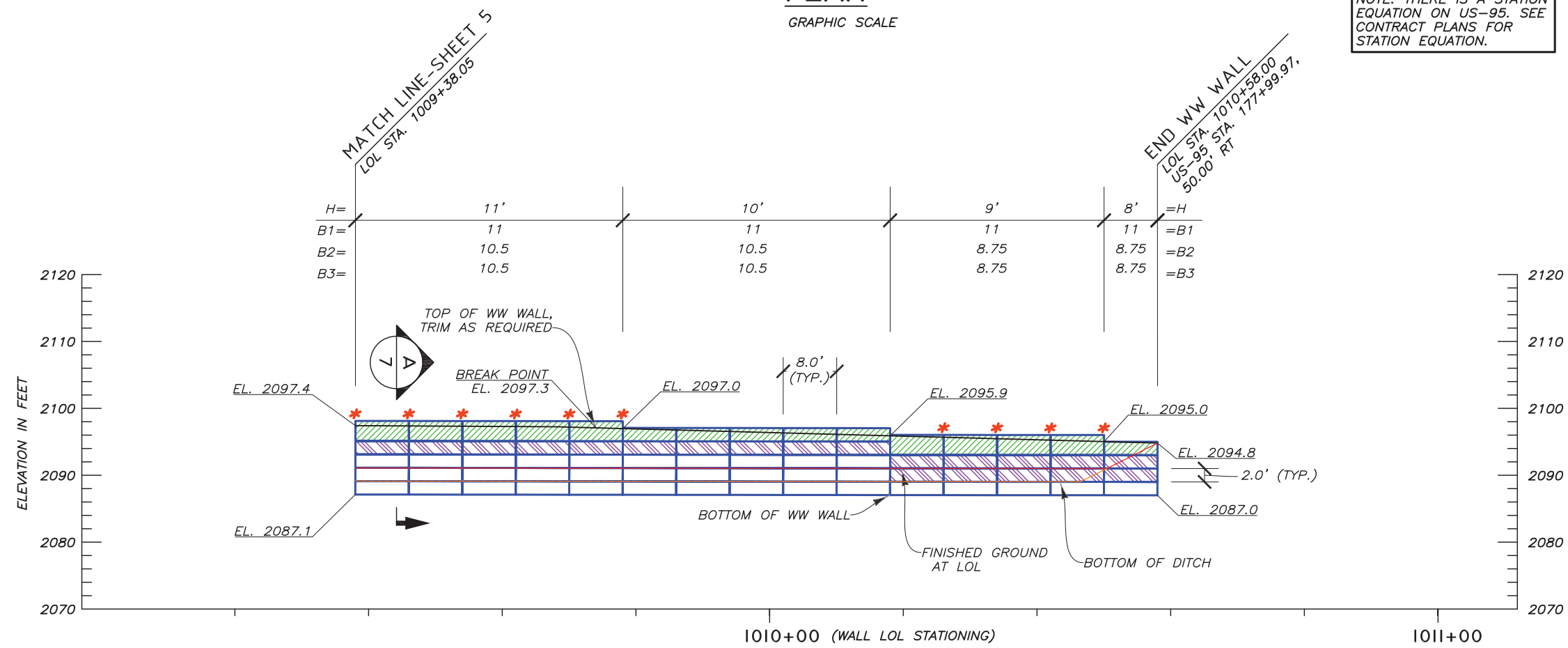
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7/13/2022  
15993

AN G. VAN LEUVEN



**PLAN**  
GRAPHIC SCALE

NOTE: THERE IS A STATION EQUATION ON US-95. SEE CONTRACT PLANS FOR STATION EQUATION.



**LEGEND**

- B1 8"x12", W7xW3.5-HDG
- B2 8"x10.5", W7xW3.5-HDG
- B3 8"x21", W7xW4-HDG
- LOL LAYOUT LINE
- H WALL HEIGHT (BOTTOM MAT TO CAP MAT)
- B MAT LENGTH (FT)
- WW WELDED WIRE
- \* APPROXIMATE LOCATION OF THE MIDDLE OF EACH 3' BACKING MAT

**DEVELOPED ELEVATION (FRONT FACE)**

GRAPHIC SCALE

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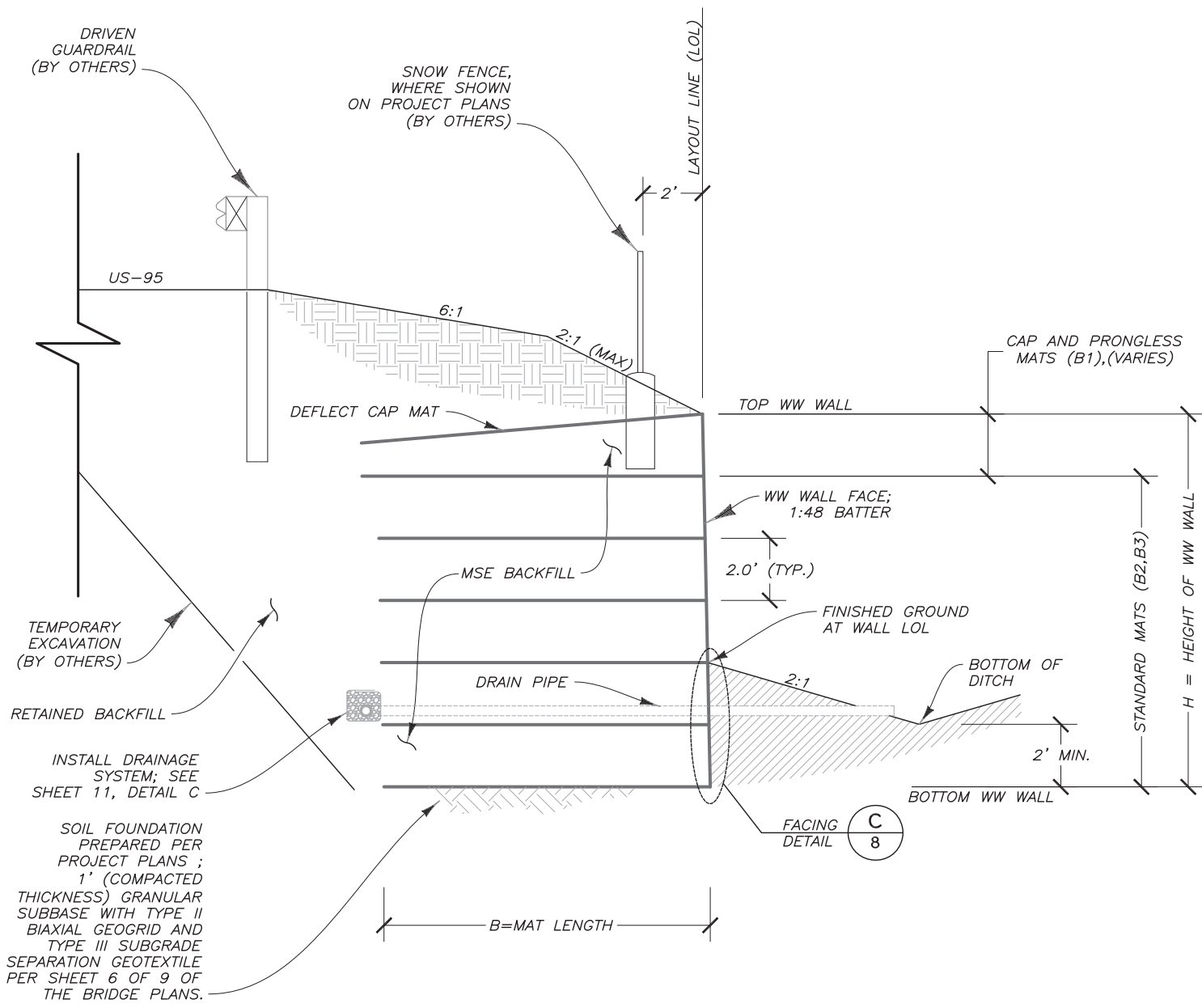
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ITD	SHEET 6 OF 11
BONNER COUNTY, ID	

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7/13/2022  
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STATE OF IDAHO

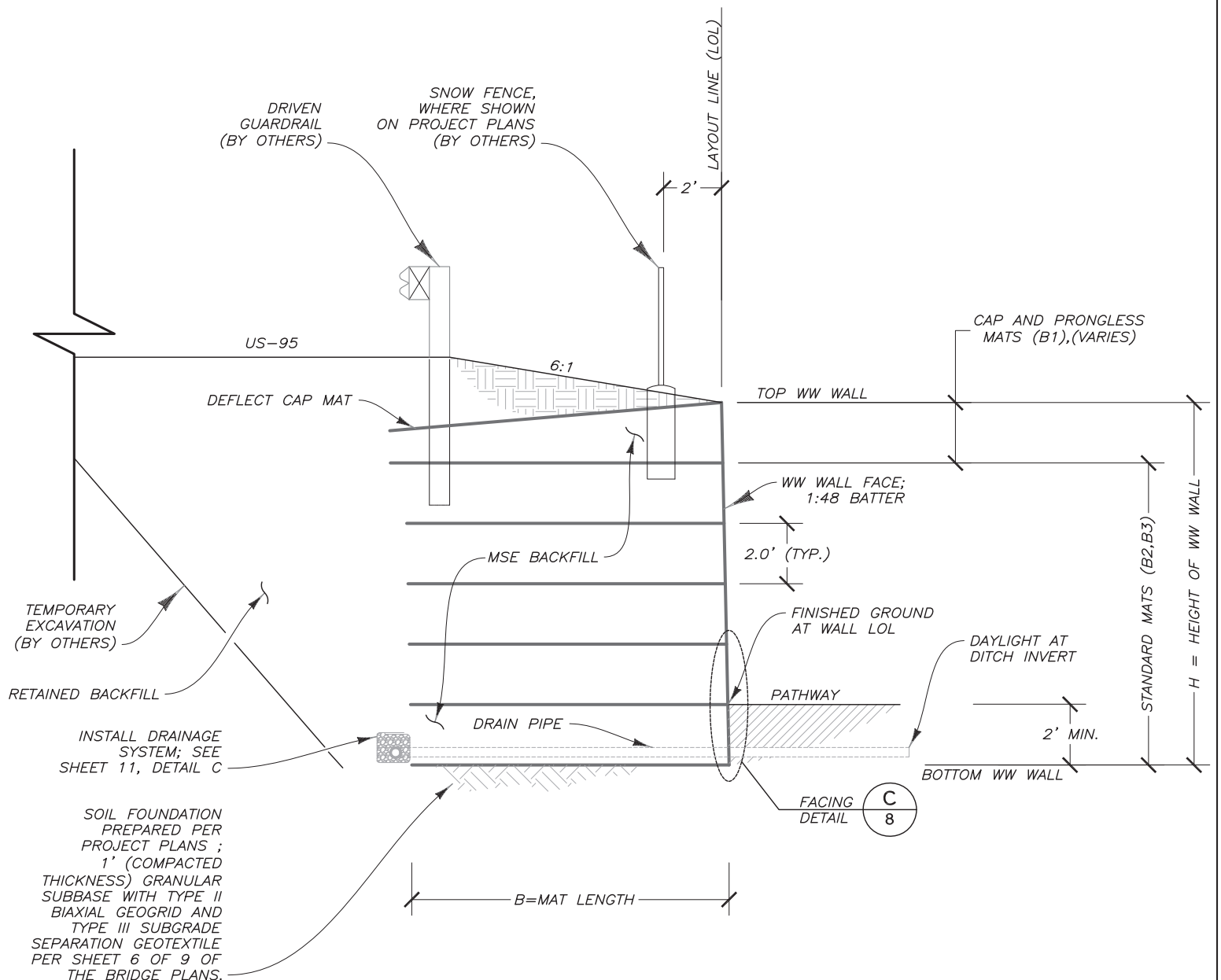
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100598 US-95 Sagle Rd to Long Bridge PREPARED 06-20-2022.dwg

6/20/2022 9:44 AM



**TYPICAL SECTION A**  
 STA 1000+00.00 TO STA 1000+56.16  
 STA 1002+08.58 TO STA 1010+58.00  
 NOT TO SCALE



**TYPICAL SECTION B**  
 STA 1000+56.16 TO STA 1002+08.58  
 NOT TO SCALE

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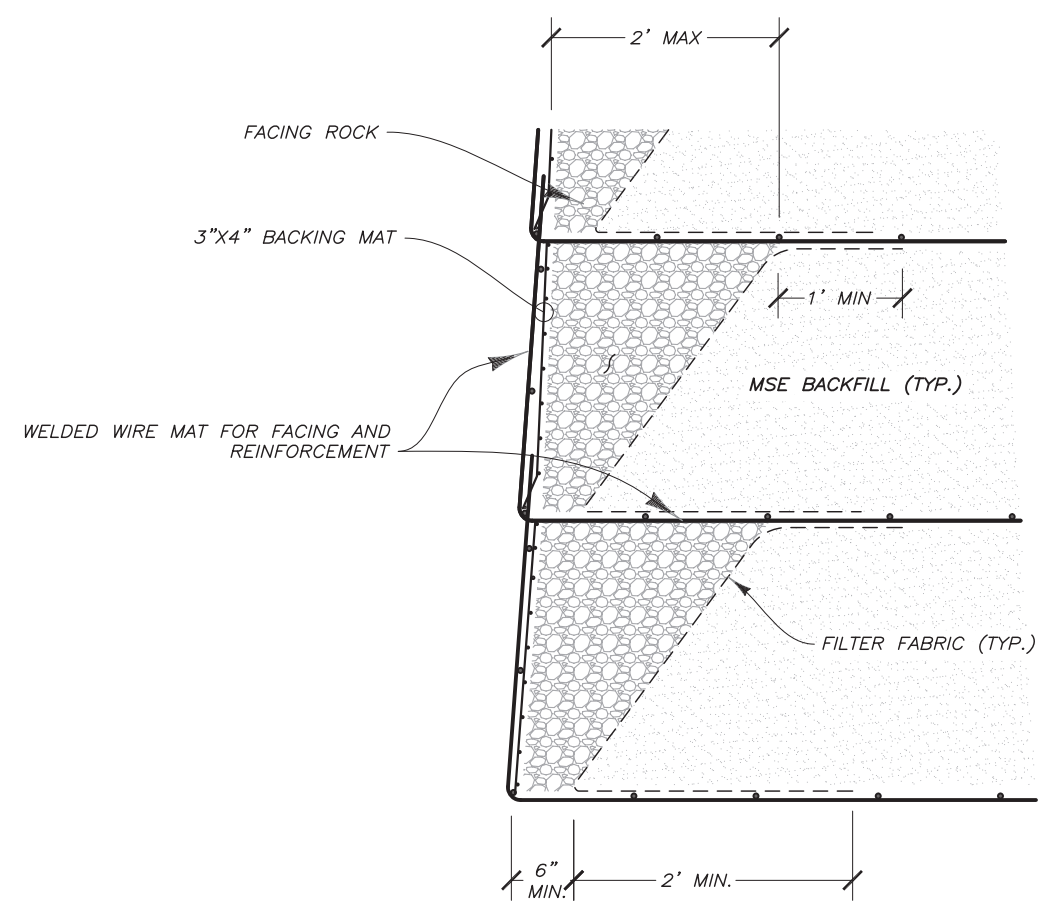
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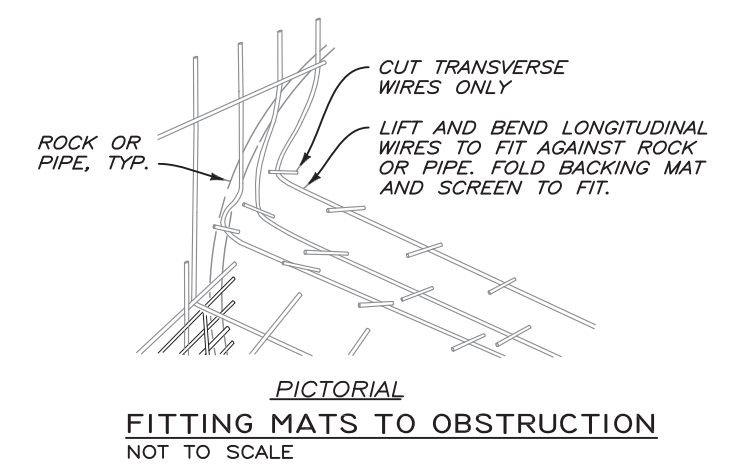
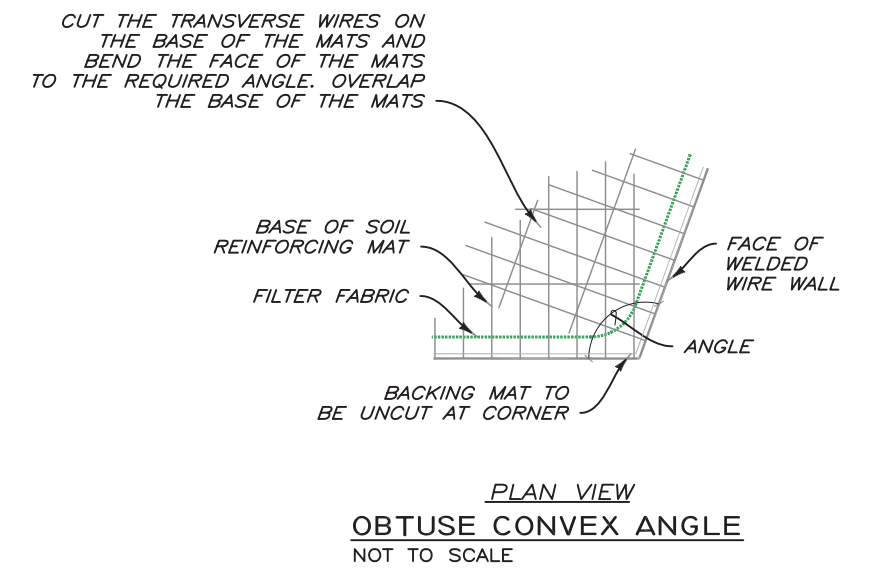
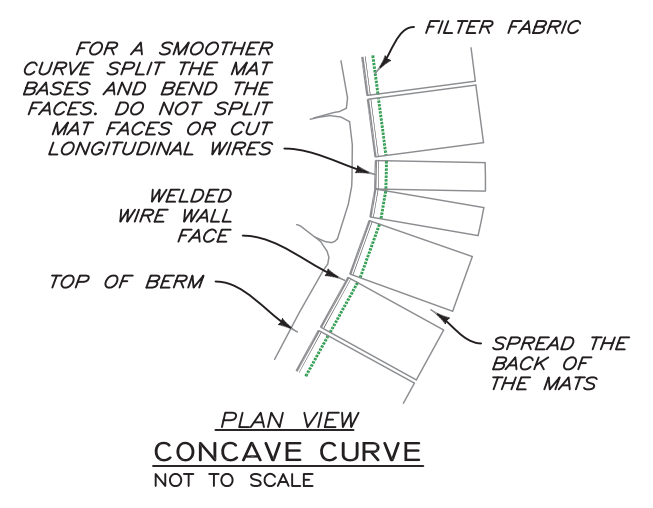
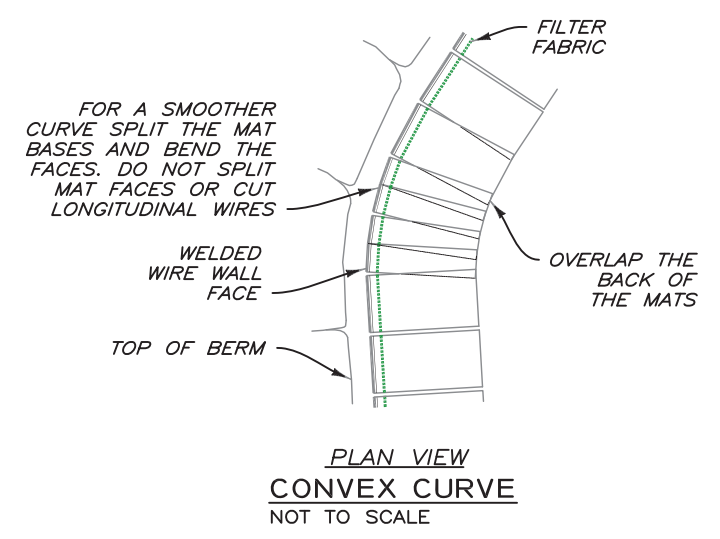
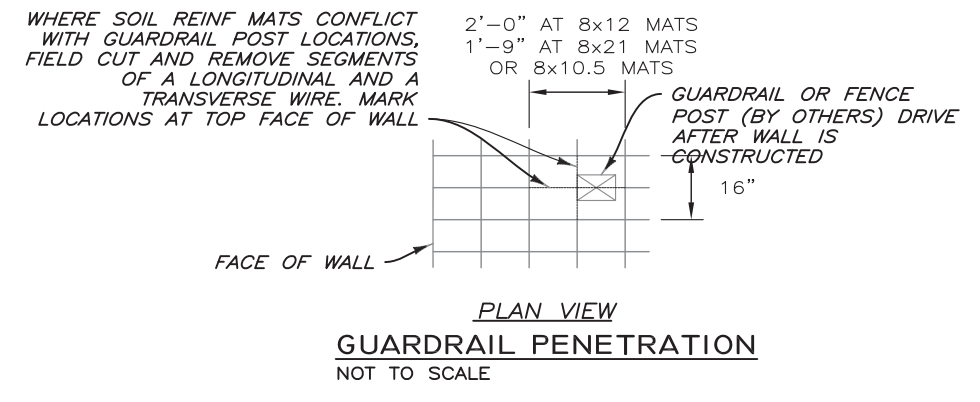
SECTIONS	DWG DATE:
WELDED WIRE WALL US-95, SAGLE RD TO LONG BRIDGE	13 JUL 2022
ITD	HRW NO.: 220505CW
BONNER COUNTY, ID	SHEET 7 OF 11

PROFESSIONAL ENGINEER  
 7/13/2022  
 15993  
 STATE OF IDAHO  
 AN G. VAN LEUVEN

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100598\_US\_95\_Sagle\_Rd\_to\_Long\_Bridge\_PrepARED\_06-20-2022.dwg  
RGV



**FACING DETAIL** (C)  
NOT TO SCALE 7



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**HILFIKER RETAINING WALLS**

1902 HilfiKER Lane  
Eureka, CA 95603-5711  
TOLL FREE 800.762.8962  
PH 707.443.5093 FAX 707.443.2891  
WEB SITE www.hilfiKER.com E-MAIL info@hilfiKER.com

**SHANNON & WILSON, INC.**  
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

5260 Chinden Blvd.  
Boise, ID 83714  
(208) 658-8700  
Fax: (208) 658-8703

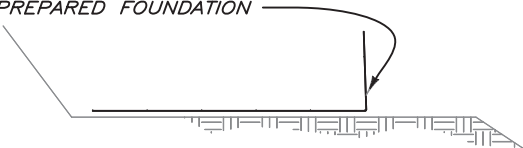
DETAILS	
WELDED WIRE WALL	DWG DATE: 13 JUL 2022
US-95, SAGLE RD	HRW NO.: 220505CW
TO LONG BRIDGE	SHEET 8
ITD	BONNER COUNTY, ID
	OF 11

PROFESSIONAL ENGINEER  
7/13/2022  
15993  
RYAN G. VAN LEUVEN  
STATE OF IDAHO



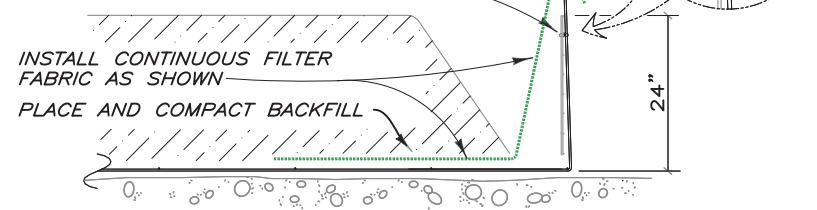
**STEP 1**

PLACE THE FIRST COURSE OF SOIL REINFORCEMENT MATS ON PREPARED FOUNDATION



**STEP 2**

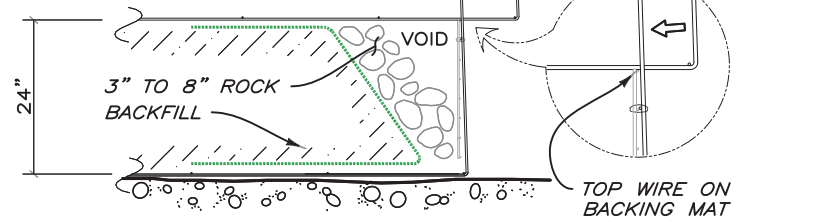
PLACE THE BACKING MAT AGAINST THE INSIDE FACE OF THE SOIL REINFORCEMENT MAT. CLIP THE SECOND-TO-TOP TRANSVERSE WIRE ON THE BACKING MAT TO THE TOP TRANSVERSE WIRE ON THE SOIL REINFORCEMENT MAT.



**STEP 3**

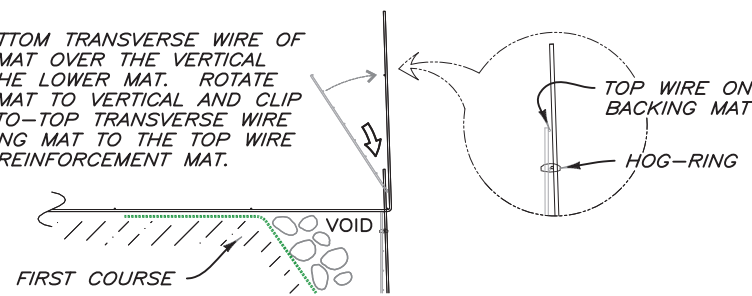
BRING THE FILTER FABRIC OVER THE FRONT AND TOP OF THE BACKFILL AS SHOWN. PLACE THE ROCK IN THE FACE OF THE WALL. LEAVE A VOID AS SHOWN.

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.



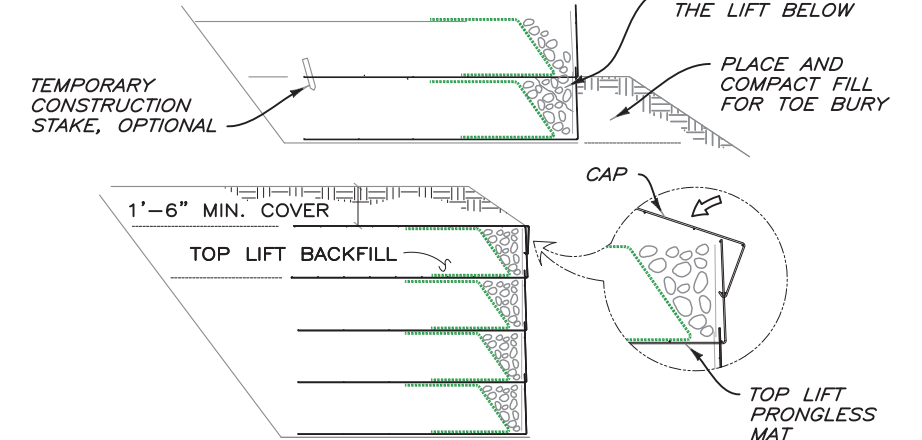
**STEP 4**

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 THROUGH 5 TO THE TOP LIFT.

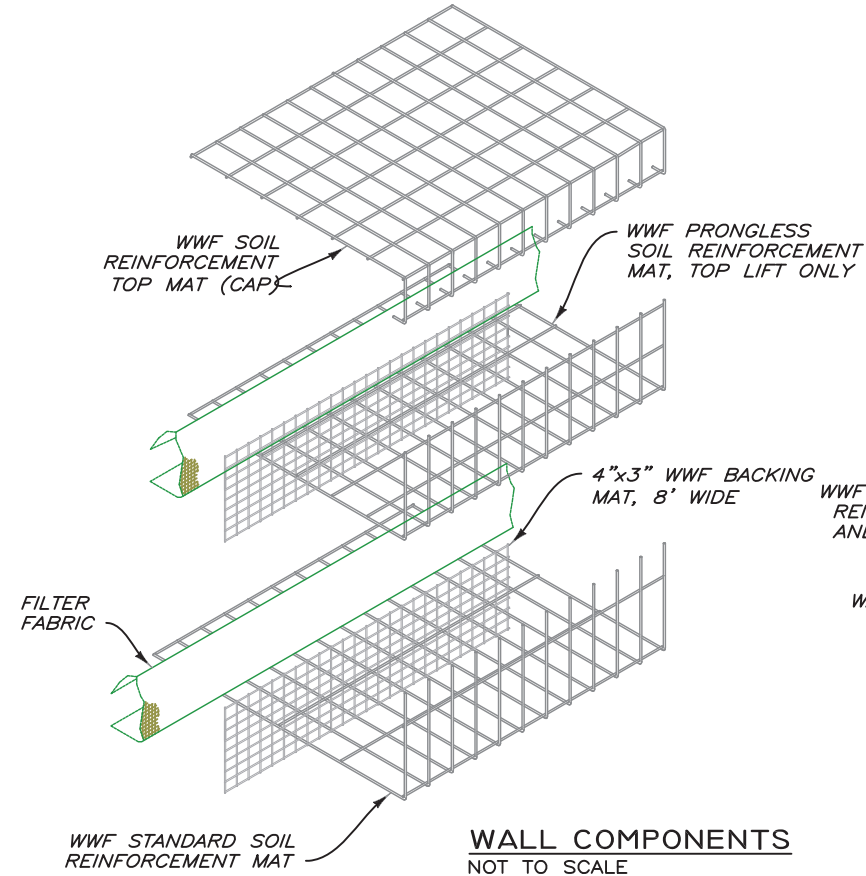


**STEP 6: TOP LIFT**

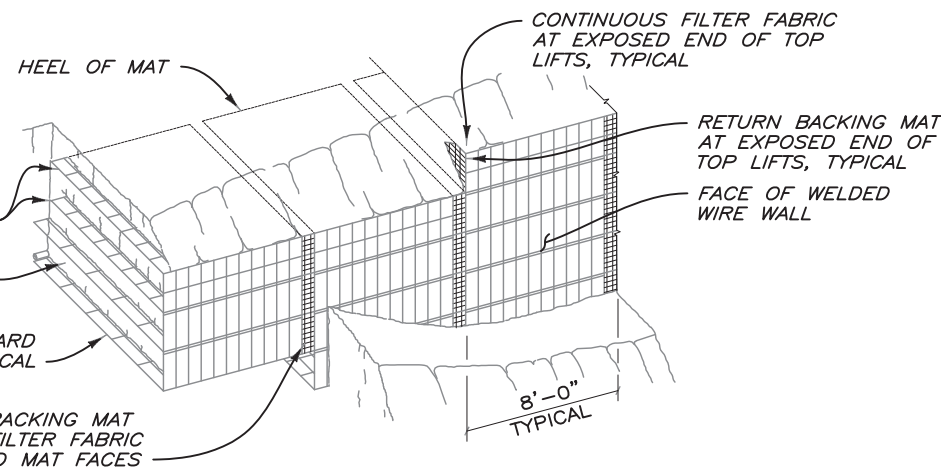
PLACE THE TOP LIFT PRONGLESS MAT, BACKING MAT AND FILTER FABRIC. PLACE AND COMPACT BACKFILL AND ROCK IN THE TOP LIFT. HOOK THE CAP OVER THE MIDDLE TRANSVERSE WIRE ON THE PRONGLESS MAT, AND ROTATE INTO PLACE. PLACE AND COMPACT COVER OVER TOP MAT TO 1'-6" MINIMUM DEPTH.

**CONSTRUCTION SEQUENCE**

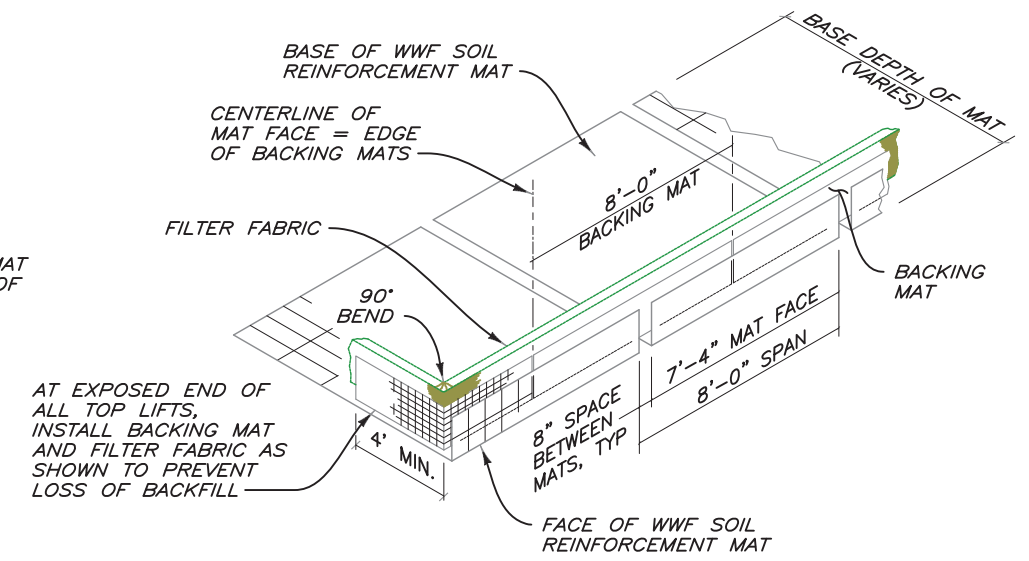
NOT TO SCALE



**WALL COMPONENTS**  
NOT TO SCALE



**PICTORIAL ELEVATION**  
NOT TO SCALE



**ISOMETRIC VIEW**  
**WELDED WIRE WALL COMPONENTS WITH RETURN MAT**  
NOT TO SCALE

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SEQUENCE & DETAILS

WELDED WIRE WALL  
US-95, SAGLE RD  
TO LONG BRIDGE

ITD BONNER COUNTY, ID

DWG DATE:  
13 JUL 2022

HRW NO.:

220505CW

SHEET

9

OF 11

PROFESSIONAL ENGINEER

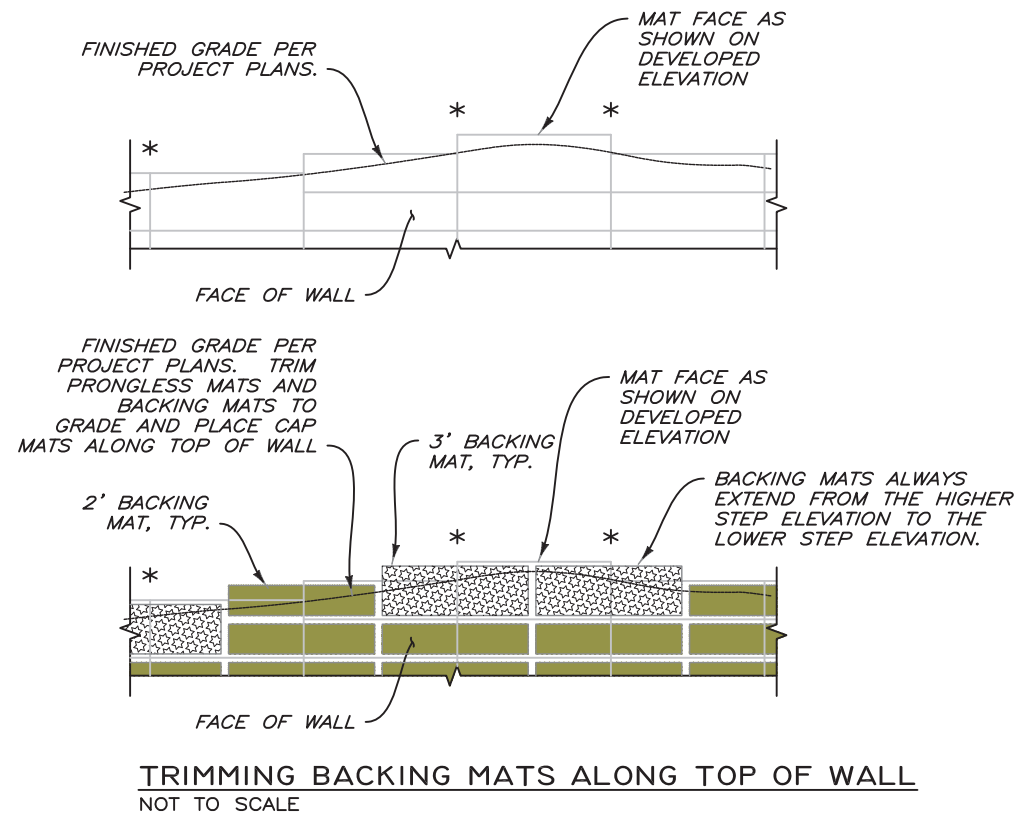
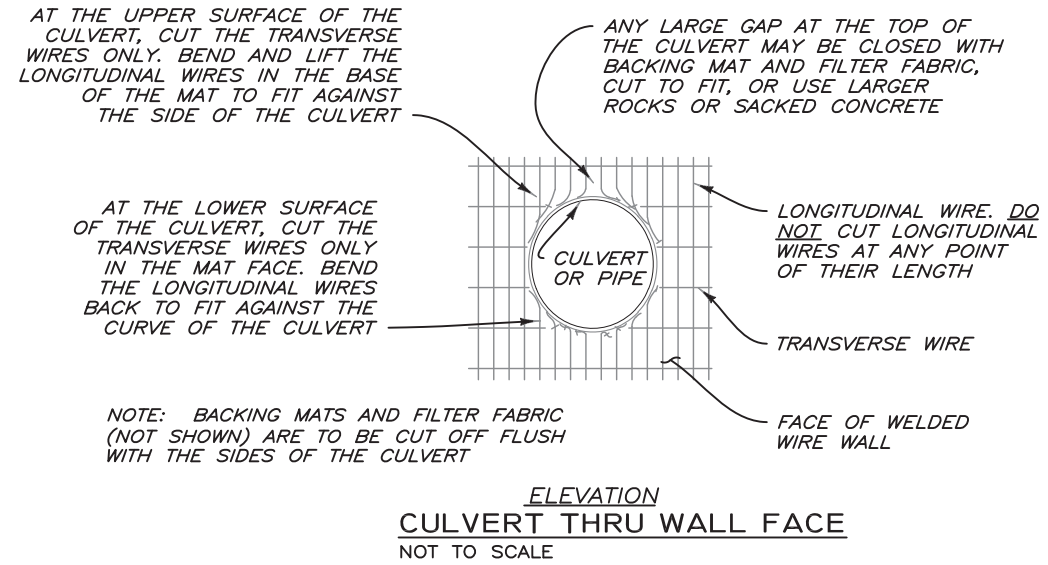
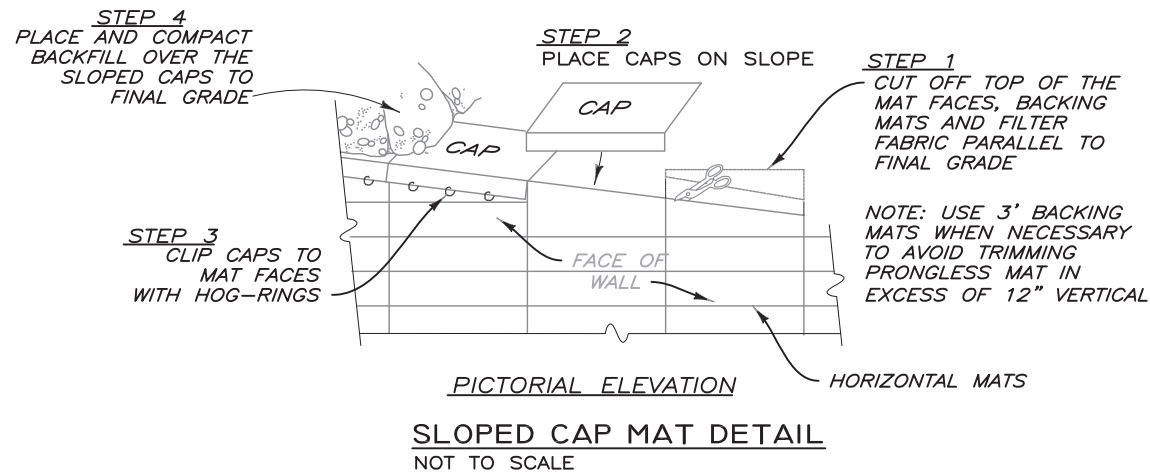
7/13/2022

15993

STATE OF IDAHO

G. VAN LEUVEN

100598 US 95 Sagle Rd to Long Bridge PREPARED 06-20-2022.dwg 6/20/2022 9:44 AM RGV



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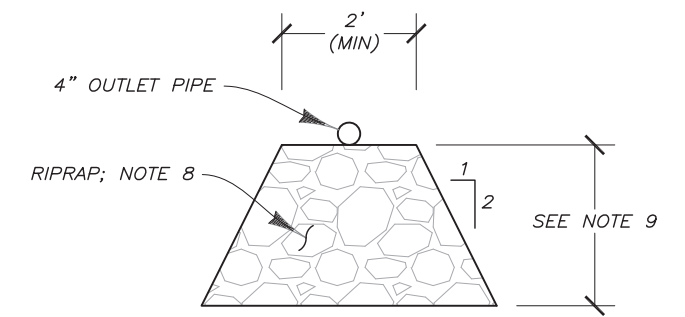
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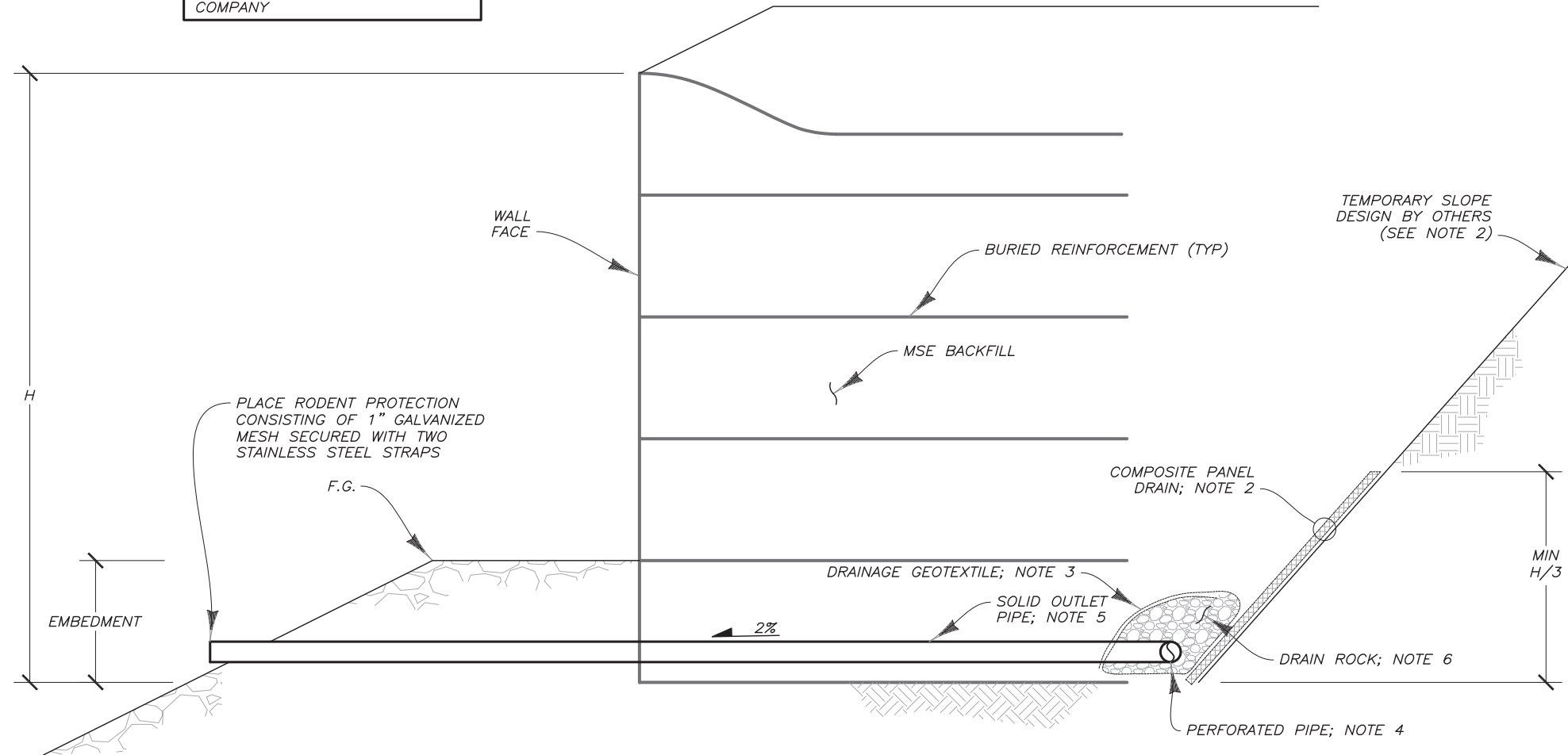


**ELEVATION VIEW - REVETMENT**

NOT TO SCALE

D  
-

DRAINAGE MATERIALS FOR INTERNAL DRAIN SYSTEM TO BE PROVIDED BY CONTRACTOR AND NOT THE HILFIKER RETAINING WALL COMPANY



**TYPICAL SECTION -INTERNAL DRAIN**

NOT TO SCALE

A,B  
7

**DRAIN NOTES:**

1. BASIS OF THE WALL DESIGN IS A NON-SATURATED MSE BACKFILL. IF THE MSE BACKFILL IS COMPRISED OF FREE DRAINING CRUSHED "QUARRY" ROCK, AS DETERMINED BY THE PROJECT GEOTECHNICAL ENGINEER, THEN THE DRAINAGE SYSTEM MAY BE OMITTED BY THE OWNER.
2. THE OWNER SHOULD EXAMINE THE TEMPORARY CUT SLOPE FOR EVIDENCE OF SEEPAGE. AS DETERMINED BY THE OWNER, COVER SEEPS WITH A COMPOSITE PANEL DRAIN, SUCH AS GSE FABRINET 200-MIL COMPOSITE PANEL DRAIN OR OTHER OWNER APPROVED COMPOSITE PANEL DRAIN. THE COMPOSITE PANEL DRAIN PANEL SHOULD HAVE NON-WOVEN DRAINAGE GEOTEXTILE BONDED TO BOTH SIDES.
3. NON WOVEN 718.05 DRAINAGE GEOTEXTILE OR 718.07 TYPE III SUBGRADE SEPARATION GEOTEXTILE, OR APPROVED BY OWNER. IF A COMPOSITE PANEL DRAIN IS USED, ENSURE IMMEDIATE CONTACT BETWEEN DRAINAGE GEOTEXTILE AND COMPOSITE PANEL DRAIN.
4. PERFORATED DRAIN PIPE, 4-INCH DIA SCHED 40 PVC OR OTHER PERFORATED PIPE APPROVED BY OWNER.
5. SOLID 4-INCH DIA SCHED 40 PVC DRAIN PIPE OR OTHER PIPE APPROVED BY OWNER WITH CONNECTOR FITTINGS APPROVED BY OWNER. PROVIDE OUTLETS AT 200' O.C. MAX AND AT EVERY LOW POINT SUCH THAT THE PERFORATED DRAIN PIPE IS FREE DRAINING.
6. DRAIN ROCK IS 703.02 COARSE AGGREGATE FOR CONCRETE, SIZE NO. 2A, OR APPROVED BY OWNER.
7. RIPRAP GEOTEXTILE IS 718.6 RIPRAP/EROSION GRONTRONL GEOTEXTILE, OR APPROVED BY OWNER.
8. 711.04 ANGULAR RIPRAP TYPE AND SIZE APPROVED BY OWNER.
9. THE BENEFIT AND NEED FOR A DRAINAGE REVETMENT TO CONTROL EROSION BELOW DRAIN OUTLETS TO BE DETERMINED BY OWNER. LAYOUT AND DIMENSIONS TO BE DETERMINED BY OWNER.
10. BENCH WIDTH AND TOE BURY AS INDICATED ON THE PLANS OR AS DIRECTED BY OWNER.

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6/20/2022 9:44 AM

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