

DESIGN NOTES

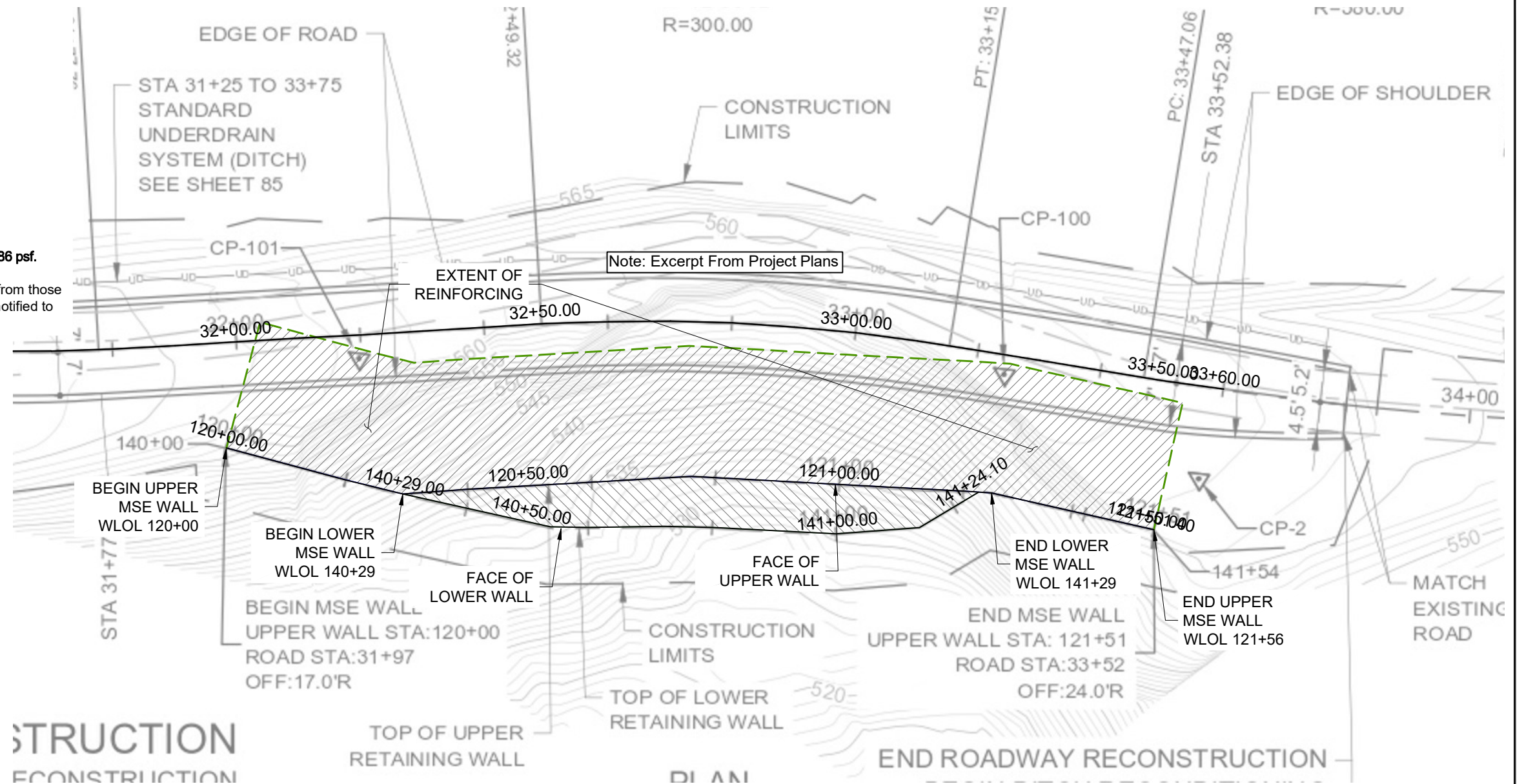
- Design is based on the assumption that backfill within the reinforced soil mass, methods of construction and quality of materials conform to the requirements of Hilfiker Retaining Walls.
- Assumed Soil Characteristics:
 Wall Backfill:
 Unit Weight: 130 pcf
 Internal Friction Angle: 34°
 Cohesion = 0 psf
 Retained Backfill:
 Unit Weight: 130 pcf
 Internal Friction Angle: 30°
 Cohesion = 0 psf
 Foundation Soils:
 Unit Weight: 130 pcf
 Internal Friction Angle: 30°
 Cohesion = 0 psf

 Traffic Surcharge Loading (LL) = 250 psf

**Worst Case Applied Bearing Pressure by MSE Wall-
 @ Lower Wall 12' Height - 5186 psf.**

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.

- If during construction, the wall location, structure location or loads are different than that proposed in this plan set and calculation package, HRW shall be notified to evaluate the need for a redesign.
- The design requires a non-saturated backfill. Surface and sub-surface drainage control may be required to prevent saturation of the backfill or relieve hydrostatic pressures.
- Design Procedure:
 Mechanically Stabilized Earth walls and Reinforced Soil Slopes, FHWA report No. FHWA-NHI-00-043.
- All information hereon is derived from the reference drawings, and is subject to geometric and geotechnical confirmation. The applicable Hilfiker construction guide and specifications are an integral part of this submittal.
- Hilfiker Retaining Walls shall be responsible only for the internal stability of the retaining wall, and not for global stability or foundation bearing capacity. The Owner shall be responsible for global stability and foundation competence. The length of mats is per Project Plans and so Sliding is the responsibility of the Owner. The Owner also is responsible for all job site drainage, safety and fall protection provisions for workers in compliance with OSHA and any other applicable requirements.



Note: Excerpt From Project Plans

PLAN VIEW

SCALE: 1" = 20'



SUPPLIED QUANTITIES:

UPPER WIRE WALL :	2336 FT ²
LOWER WIRE WALL :	848 FT ²

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REV. NO.	DATE	BY	DESCRIPTION
	6-17-24	KLC	Initial .pdf Release
	6-25-24	KLC	Revised per 6/25/24 Plan Check Comments

HILFIKER RETAINING WALLS

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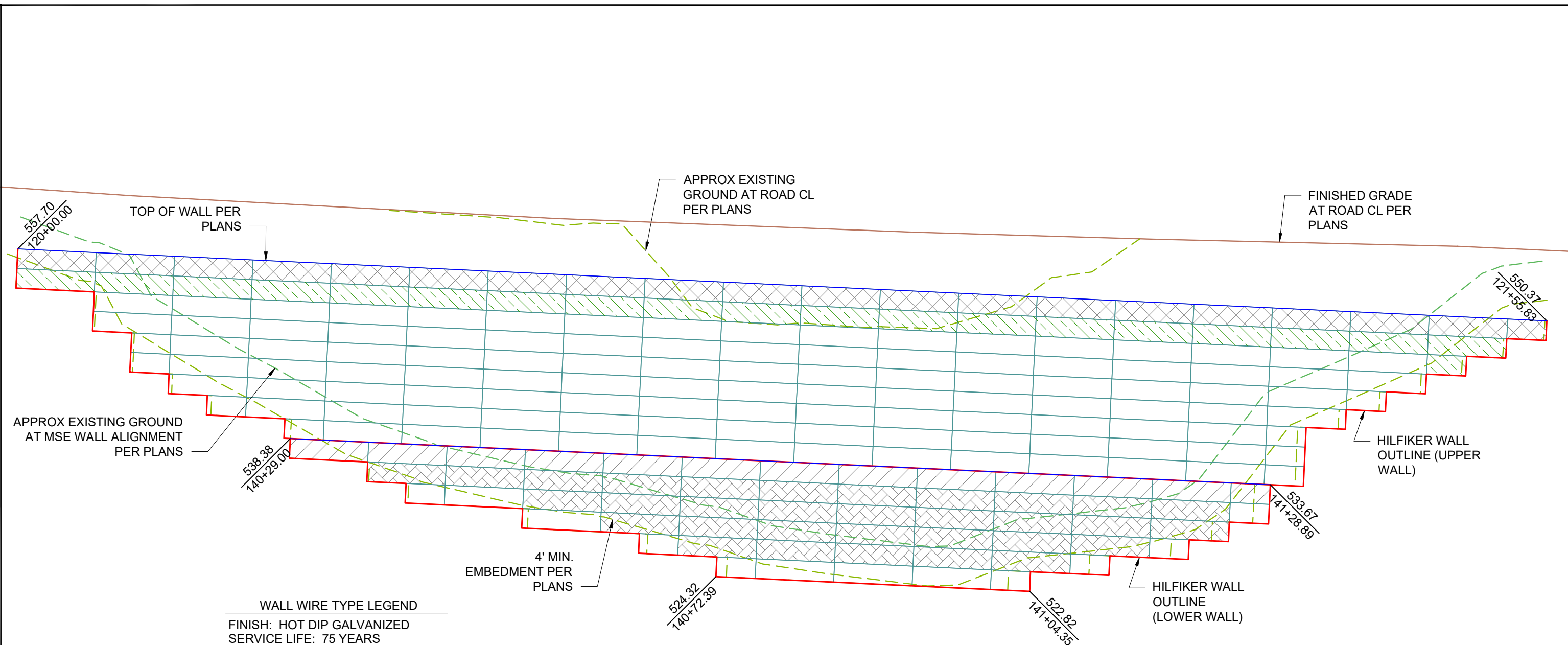
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USFS 2019 RRS ERFO ROAD REPAIRS DESIGN

**MSE WELDED WIRE WALLS
 PLAN VIEW & GENERAL NOTES**

HW 220804DN

PROJECT	24-031
DATE	6-17-24
DESIGN	KLC
DRAWN	KLC
SHT	1 OF 6



- WALL WIRE TYPE LEGEND**
- FINISH: HOT DIP GALVANIZED
SERVICE LIFE: 75 YEARS
-  TYPE 1 - 8X12 W4.5x3.5 MATS
 -  TYPE 2 - 8X21 W4.5x4.0 MATS
 -  TYPE 3 - 8x12 W7.0x3.5 MATS
 -  TYPE 4 - 8x21 W7.0x4.0 MATS
 -  TYPE 5 - 8x21 W9.5x4.0 MATS

UPPER & LOWER WALLS - ELEVATION VIEW
SCALE: 1" = 10'

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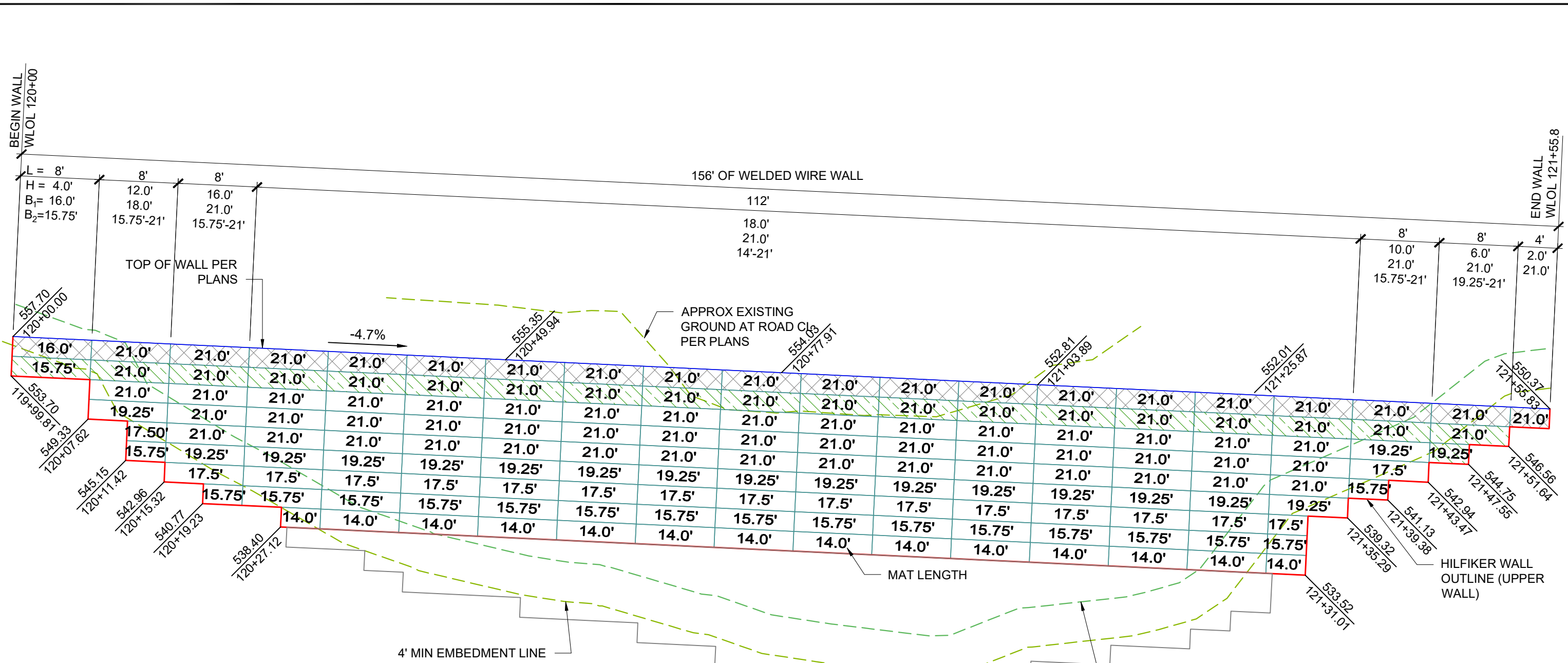
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**MSE WELDED WIRE WALLS
ELEVATION VIEW**

HW 220804DN

PROJECT	24-031
DATE	6-17-24
DESIGN	KLC
DRAWN	KLC
SHT	2 OF 6



WALL WIRE TYPE LEGEND

FINISH: HOT DIP GALVANIZED
SERVICE LIFE: 75 YEARS

	TYPE 1 - 8X12 W4.5x3.5 MATS
	TYPE 2 - 8X21 W4.5x4.0 MATS
	TYPE 3 - 8x12 W7.0x3.5 MATS
	TYPE 4 - 8x21 W7.0x4.0 MATS
	TYPE 5 - 8x21 W9.5x4.0 MATS

UPPER WALL - ELEVATION VIEW

SCALE: 1" = 10'

NOTE:
THIS VARIABLE BASE DESIGN IS SPECIFIED PER PROJECT PLANS. MAT BASE LENGTHS ARE PROVIDED AND ARE NOT DETERMINED BY CES OR HILFIKER. 21' LONG MATS ARE PROVIDED AND ARE EXPECTED TO BE CUT TO THE REQUIRED LENGTH. LENGTHS NOTED IN THE ELEVATION VIEWS ARE PER PLAN CROSS SECTIONS, SOME LENGTHS ARE INTERPOLATED BETWEEN SPECIFIC LENGTHS @ STATED STATIONS. IF LONGER MATS THAN WHAT IS SPECIFIED FIT, MATS CAN BE LONGER THAN THAT WHICH IS NOTED.

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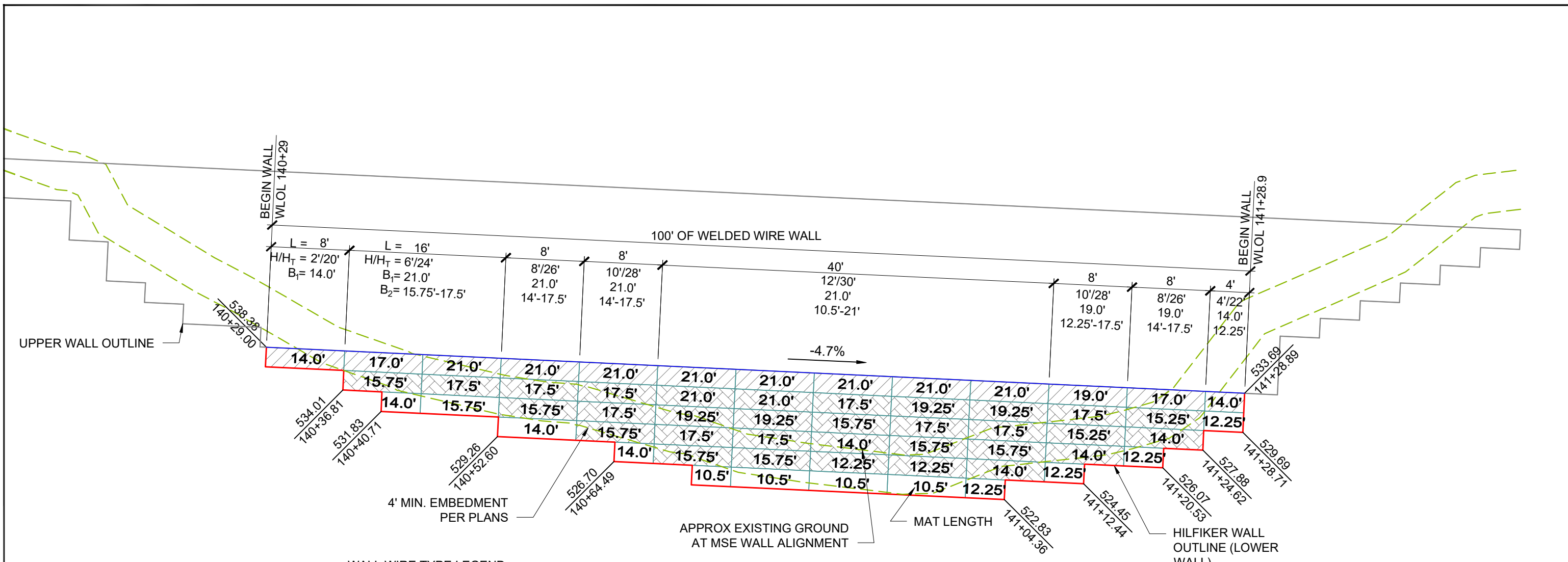
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USFS 2019 RRS ERFO ROAD REPAIRS DESIGN

**MSE WELDED WIRE UPPER WALL
ELEVATION VIEW**

HW 220804DN

PROJECT	24-031
DATE	6-17-24
DESIGN	KLC
DRAWN	KLC
SHT	3 OF 6



WALL WIRE TYPE LEGEND

FINISH: HOT DIP GALVANIZED
SERVICE LIFE: 75 YEARS

	TYPE 1 - 8X12 W4.5x3.5 MATS
	TYPE 2 - 8X21 W4.5x4.0 MATS
	TYPE 3 - 8X12 W7.0x3.5 MATS
	TYPE 4 - 8X21 W7.0x4.0 MATS
	TYPE 5 - 8X21 W9.5x4.0 MATS

LOWER WALL - ELEVATION VIEW
SCALE: 1" = 10'

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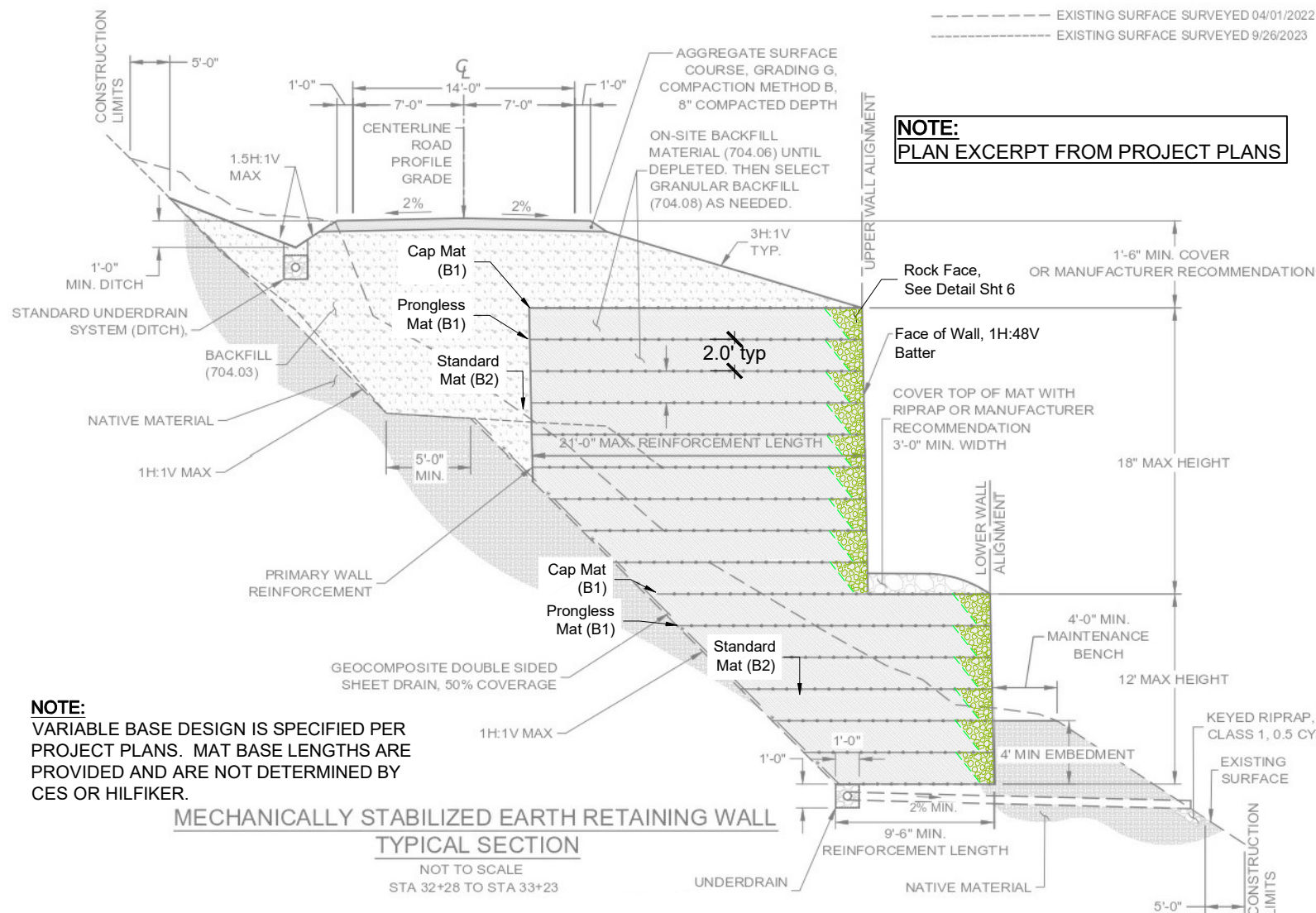
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**MSE WELDED WIRE LOWER WALL
ELEVATION VIEW**

HW 220804DN

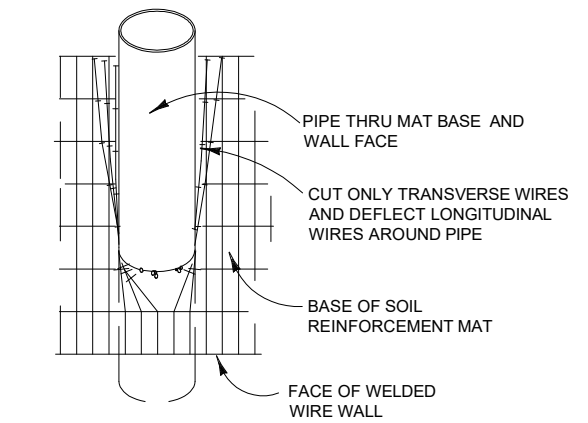
PROJECT	24-031
DATE	6-17-24
DESIGN	KLC
DRAWN	KLC
SHT	4 OF 6



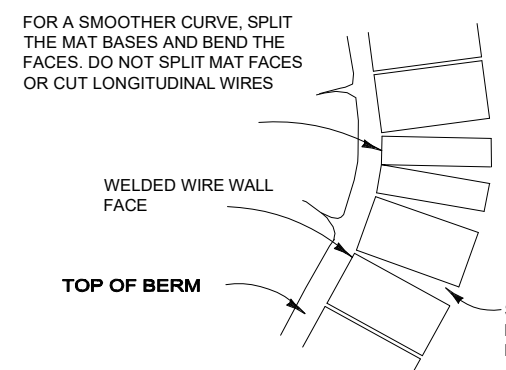
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MECHANICALLY STABILIZED EARTH RETAINING WALL
TYPICAL SECTION
NOT TO SCALE
STA 32+28 TO STA 33+23

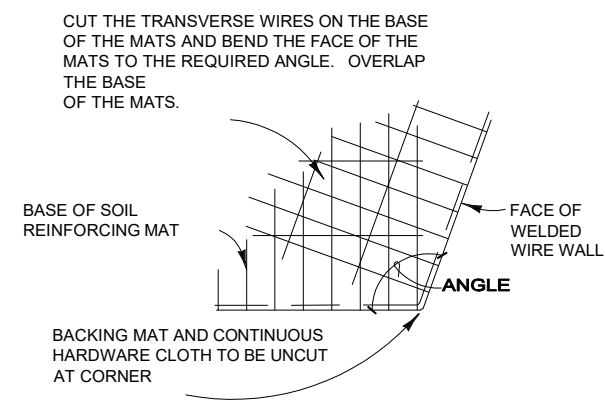
NOTE:
PLAN EXCERPT FROM PROJECT PLANS



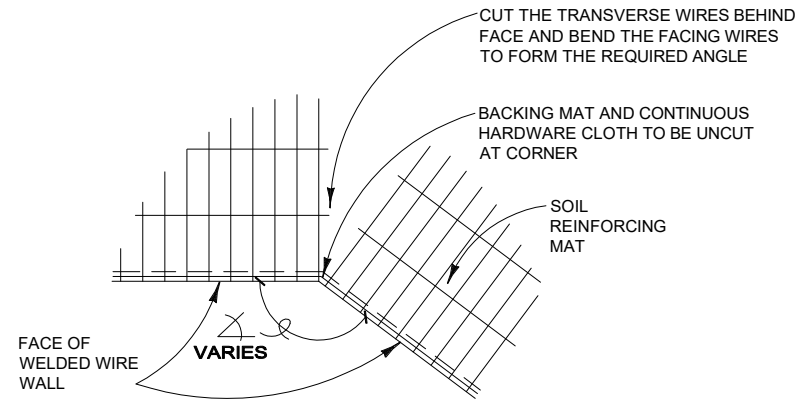
PLAN VIEW
PIPE OR SLEVE PENETRATION
NOT TO SCALE



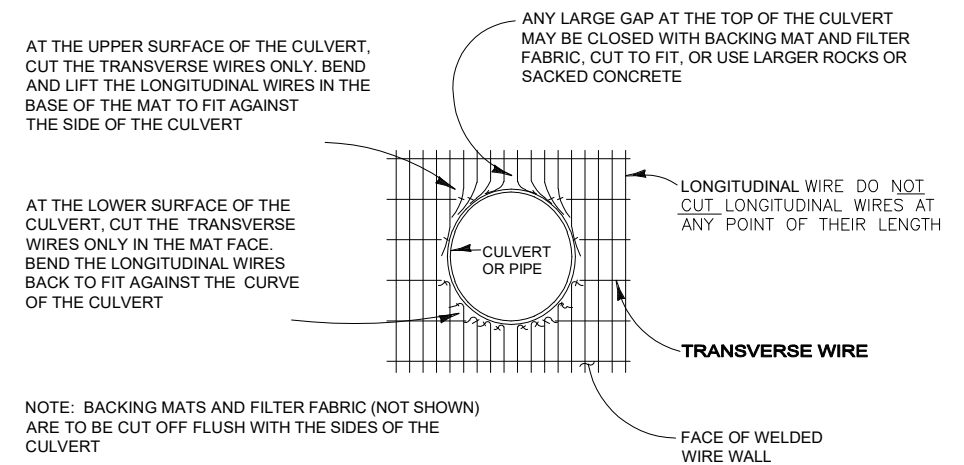
PLAN VIEW
CONCAVE CURVE
NOT TO SCALE



PLAN VIEW
OBTUSE CONVEX ANGLE
NOT TO SCALE



PLAN VIEW
CONCAVE ANGLE DETAIL
NOT TO SCALE



NOTE: BACKING MATS AND FILTER FABRIC (NOT SHOWN) ARE TO BE CUT OFF FLUSH WITH THE SIDES OF THE CULVERT

ELEVATION
CULVERT THRU WALL FACE
NOT TO SCALE

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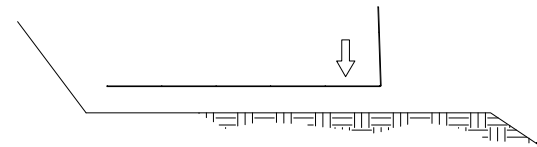
MSE WELDED WIRE WALL
CROSS SECTION & DETAILS

HW 220804DN

PROJECT	24-031
DATE	6-17-24
DESIGN	KLC
DRAWN	KLC
SHT	5 OF 6

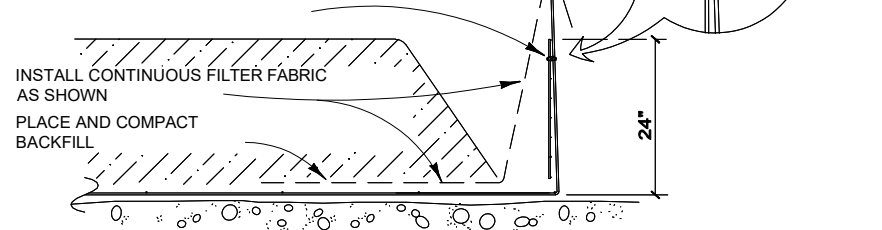
STEP 1

PLACE THE FIRST COURSE OF SOIL REINFORCEMENT MATS ON PREPARED FOUNDATION.



STEP 2

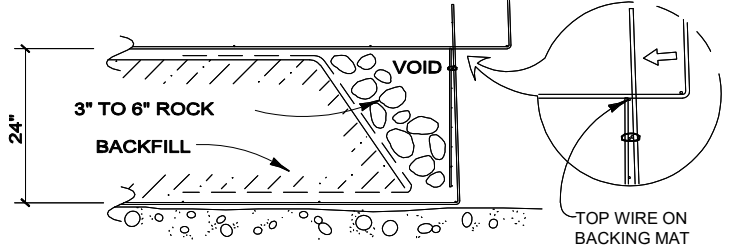
PLACE THE BACKING MAT AGAINST THE INSIDE FACE OF THE SOIL REINFORCEMENT MAT. CLIP THE SECOND-TO-TOP TRANSVERSE WIRE ON THE BACKING MAT TO THE TOP TRANSVERSE WIRE ON THE SOIL REINFORCEMENT MAT.



STEP 3

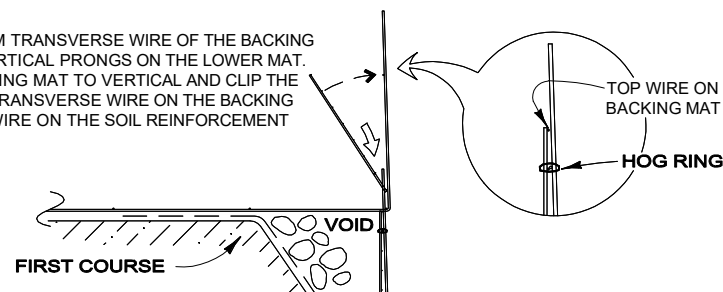
BRING THE FILTER FABRIC OVER THE FRONT AND TOP OF THE BACKFILL AS SHOWN. PLACE THE ROCK IN THE FACE OF THE WALL. LEAVE A VOID AS SHOWN.

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.



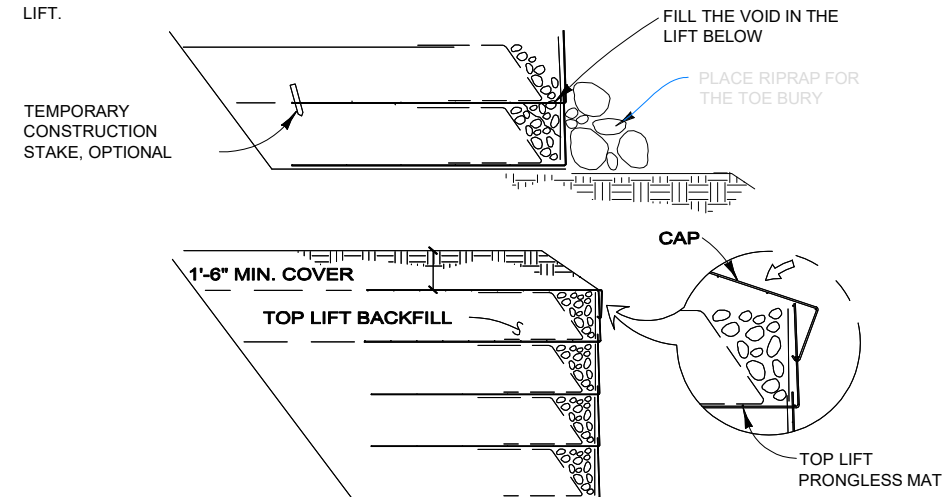
STEP 4

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.

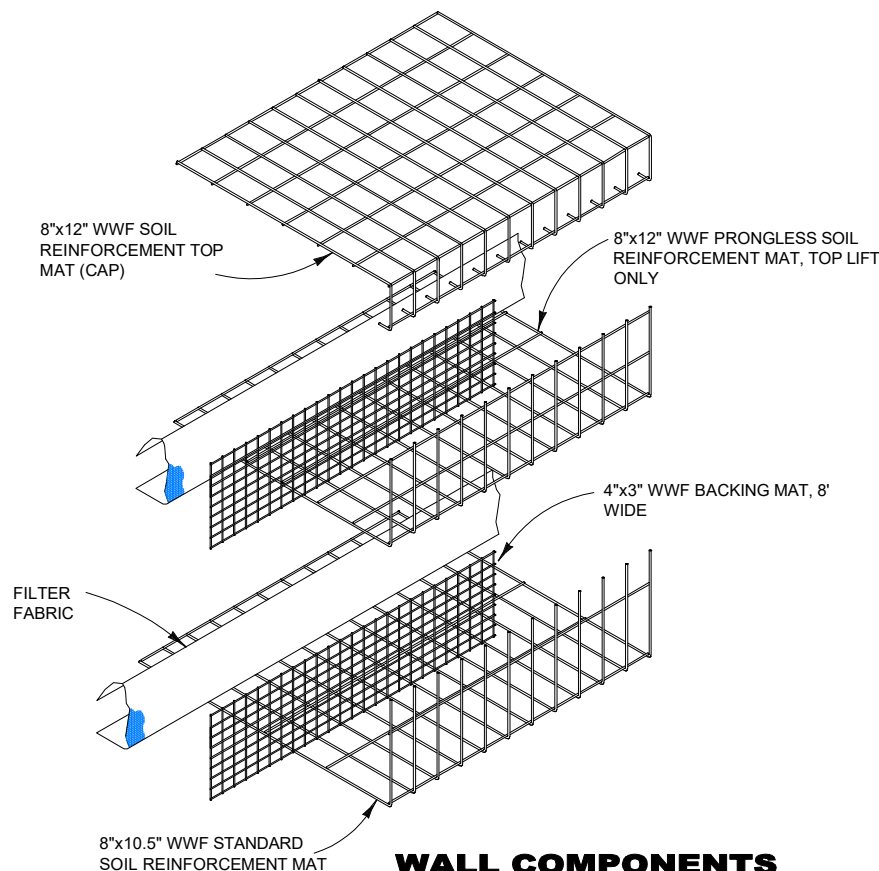


STEP 6: TOP LIFT

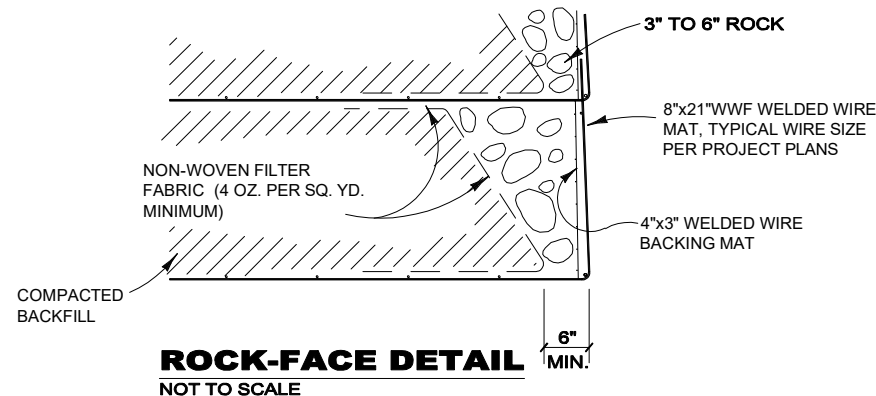
PLACE THE TOP LIFT PRONGLESS MAT, BACKING MAT AND FILTER FABRIC. PLACE AND COMPACT BACKFILL AND ROCK IN THE TOP LIFT. HOOK THE CAP OVER THE MIDDLE TRANSVERSE WIRE ON THE PRONGLESS MAT, AND ROTATE INTO PLACE. PLACE AND COMPACT COVER OVER TOP MAT TO 1'-6" MINIMUM DEPTH.

CONSTRUCTION SEQUENCE

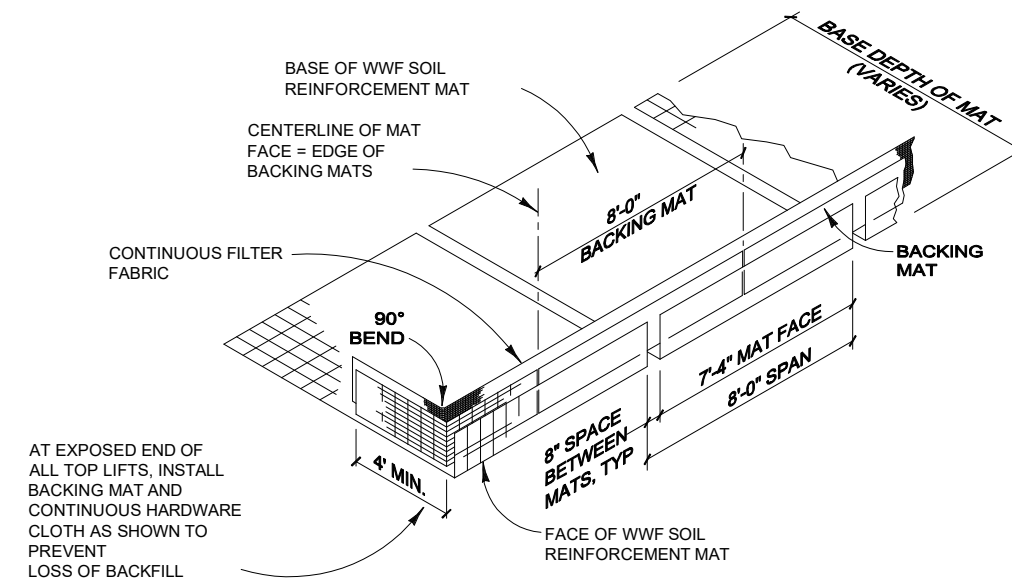
NOT TO SCALE



WALL COMPONENTS
NOT TO SCALE



ROCK-FACE DETAIL
NOT TO SCALE



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

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**MSE WELDED WIRE WALL
CONSTRUCTION SEQUENCE &
DETAILS**

HW 220804DN

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SHT	6 OF 6