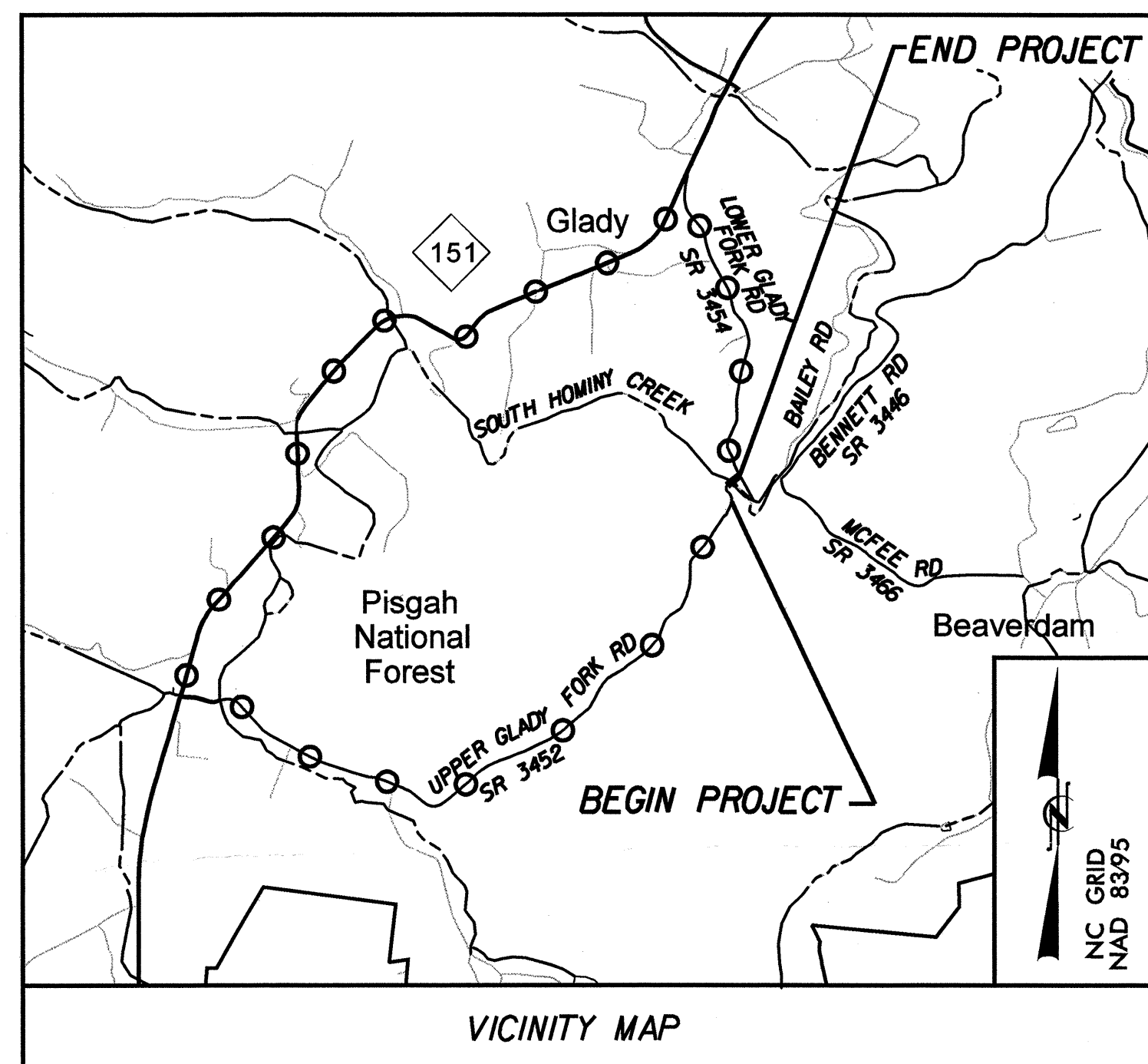


SEE SHEET 1-A FOR INDEX OF SHEETS
SEE SHEET 1-B FOR CONVENTIONAL PLAN SHEET SYMBOLS

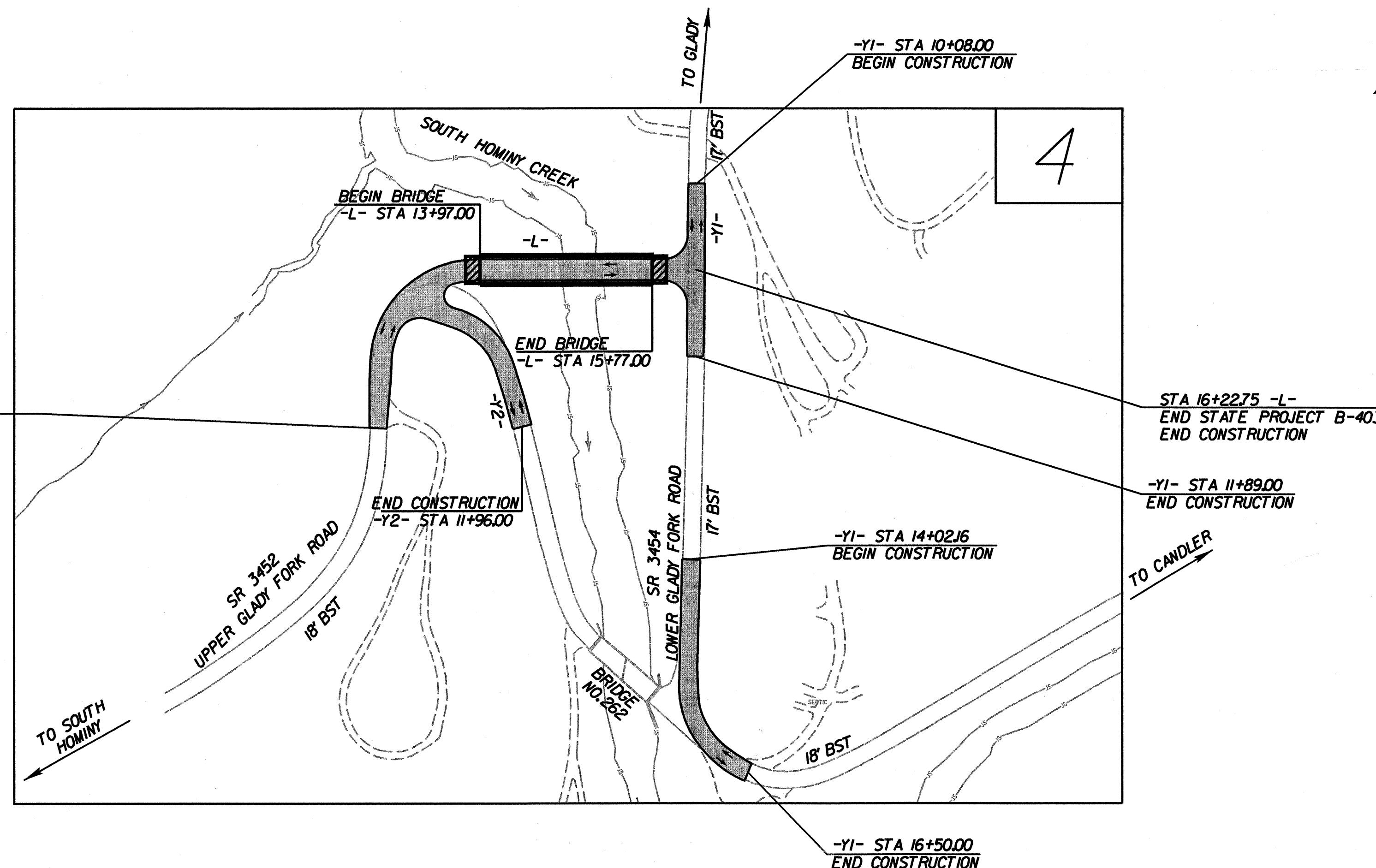
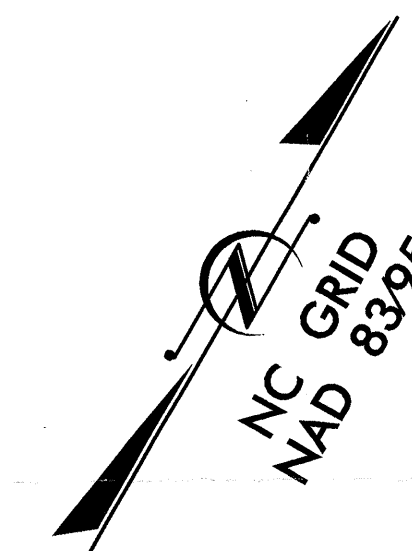


OFF-SITE DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
BUNCOMBE COUNTY

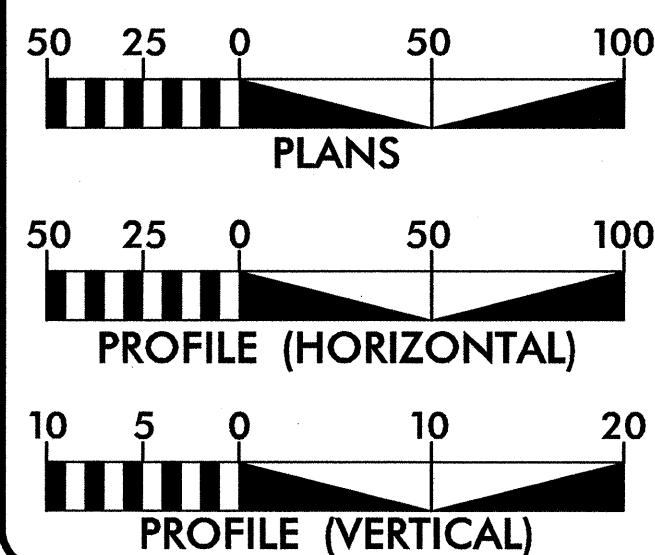
LOCATION: BRIDGE NO. 262 OVER SOUTH HOMINY CREEK ON SR 3452
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4037	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33403.1.1	BRZ-3452(1)	P.E.	
33403.2.1	BRZ-3452(1)	RIGHT-OF-WAY	
33403.2.1	BRZ-3452(1)	UTILITY	
33403.3.1	BRZ-3452(1)	CONSTRUCTION	



NCDOT CONTACT: B.D. TAYLOR, P.E.
PROJECT ENGINEER
ROADWAY DESIGN UNIT

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 750 VPD
ADT 2030 = 1,100 VPD
DHV = 10%
D = 60%
T = 3% *
V = 50 mph
DESIGN EXCEPTION:
HORIZONTAL RADIUS
VERTICAL CURVE K
FUNCTIONAL CLASSIFICATION:
LOCAL RURAL
* (TTST 1% + DUAL 2%)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4037 = 0.052 MILE
LENGTH OF STRUCTURE TIP PROJECT B-4037 = 0.034 MILE
TOTAL LENGTH OF TIP PROJECT B-4037 = 0.086 MILE

PLANS PREPARED FOR THE NCDOT BY:



2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

JULY 2, 2007

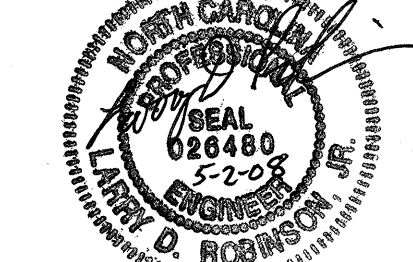
LETTING DATE:

JULY 15, 2008

JEFFREY W. MOORE, PE
PROJECT ENGINEER

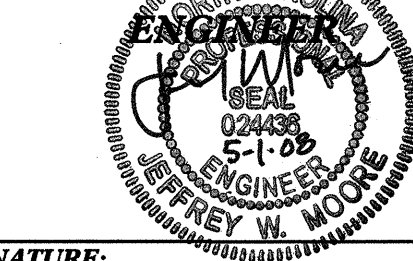
J. JASON PACE, PE
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER



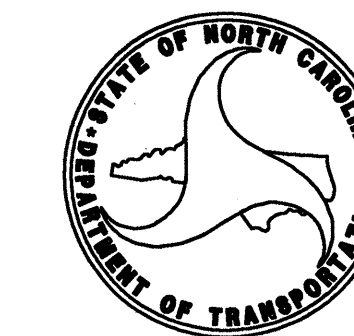
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ROADWAY DESIGN ENGINEER



SIGNATURE: [Signature]

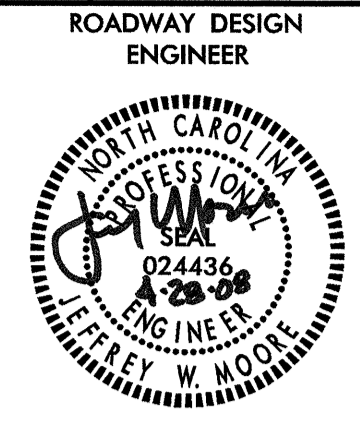
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



art millan
STATE HIGHWAY DESIGN ENGINEER

TIP PROJECT: B-4037

CONTRACT: C201868



EFF. 07-18-06
REV. 01-02-07

33403.3.1 (B-4037)
BUNCOMBE COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 AND 2-A	TYPICAL SECTIONS, PAVEMENT SCHEDULE, AND MISCELLANEOUS DETAILS
2-B	ANCHORAGE FOR FRAMES DETAIL
2-C	SHOP CURVED GUARDRAIL DETAIL
2-D THRU 2-N	NCDOT STANDARD DRAWING NO. 1801.02 (SHEETS 1 THRU 11)
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES
3-B	SUMMARY OF GUARDRAIL, SUMMARY OF PAVEMENT REMOVAL, AND EARTHWORK SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-8	TRAFFIC CONTROL PLANS
SD-1 THRU SD-3	SPECIAL SIGN DESIGNS
PM-1	PAVEMENT MARKING PLAN
EC-1 THRU EC-5	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS SECTION SUMMARY SHEET
X-1 THRU X-23	CROSS SECTIONS
S-1 THRU S-23	STRUCTURE PLANS

GENERAL NOTES: 2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

**GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:**

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

CITY OF ASHEVILLE, AT&T, AND HAYWOOD ELECTRIC MEMBERSHIP CORPORATION

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

2006 ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
300.01	Method of Pipe Installation - Method 'A'
422.10	Reinforced Bridge Approach Fills
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
654.01	Pavement Repairs
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
816.04	Markers for Drainage Structure and Concrete Pad
840.00	Concrete Base Pad for Drainage Structures
840.33	Angled Vane Grates and Frames
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

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4/24/2008

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. B-4037	SHEET NO. I-B
---------------------------------	------------------

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	-----
Property Monument	□ EGM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	□

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Swamp Marsh	⊥
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	E
Proposed Temporary Construction Easement	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Utility Easement	PUE

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Wheel Chair Ramp	WCR
Curb Cut for Future Wheel Chair Ramp	CCFR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	⊕
Single Shrub	⊙
Hedge	-----
Woods Line	-----
Orchard	⊕
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊕
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	⊕
H-Frame Pole	●
Recorded U/G Power Line	P
Designated U/G Power Line (S.U.E.*)	P

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
Recorded U/G Telephone Cable	T
Designated U/G Telephone Cable (S.U.E.*)	T
Recorded U/G Telephone Conduit	TC
Designated U/G Telephone Conduit (S.U.E.*)	TC
Recorded U/G Fiber Optics Cable	T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	T FO

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	A/G Water

TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊕
U/G TV Cable Hand Hole	⊕
Recorded U/G TV Cable	TV
Designated U/G TV Cable (S.U.E.*)	TV
Recorded U/G Fiber Optic Cable	TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	TV FO

GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
Recorded SS Forced Main Line	FSS
Designated SS Forced Main Line (S.U.E.*)	FSS

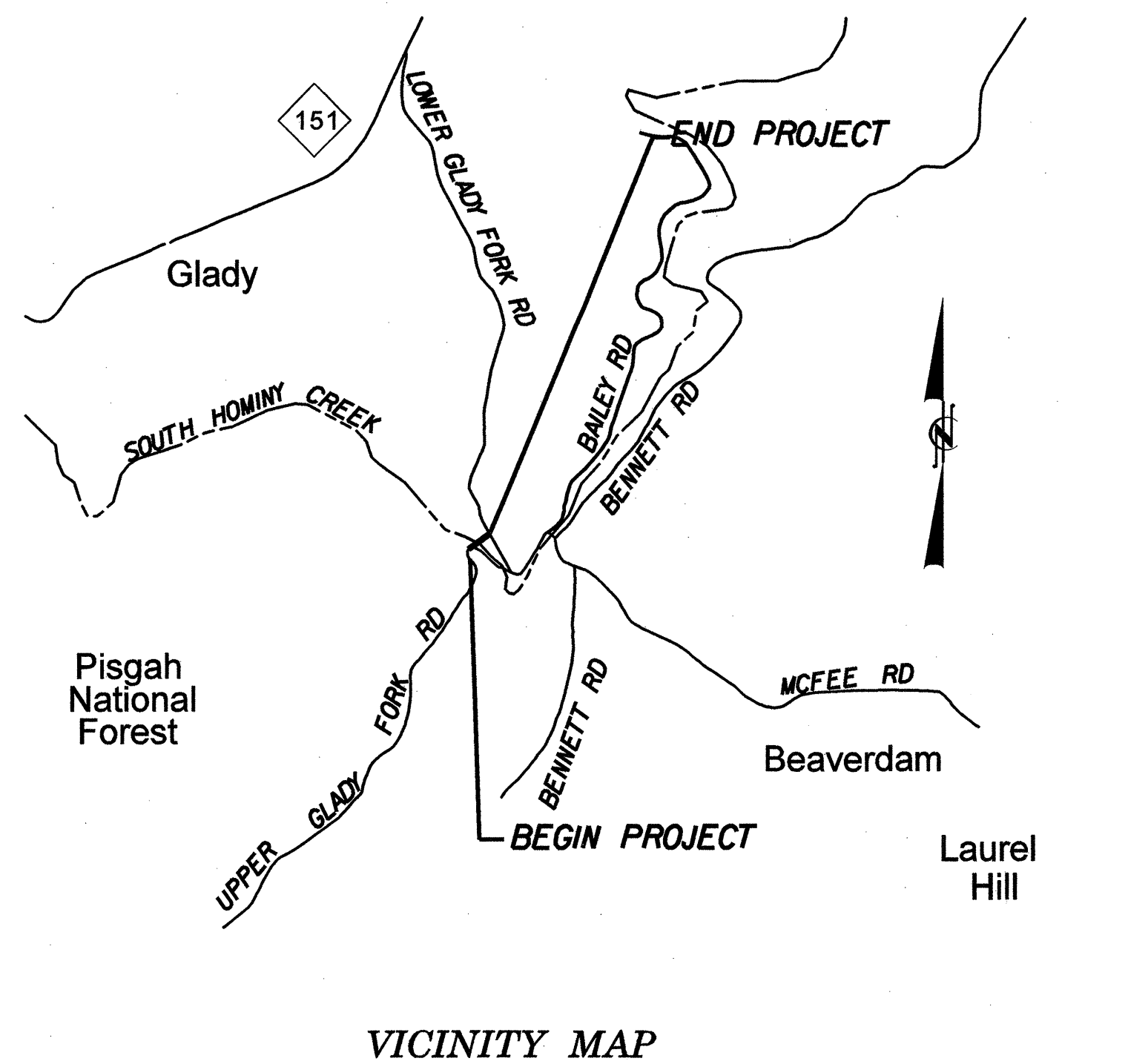
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	U/G
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

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4/3/2008

SURVEY CONTROL SHEET B-4037



VICINITY MAP

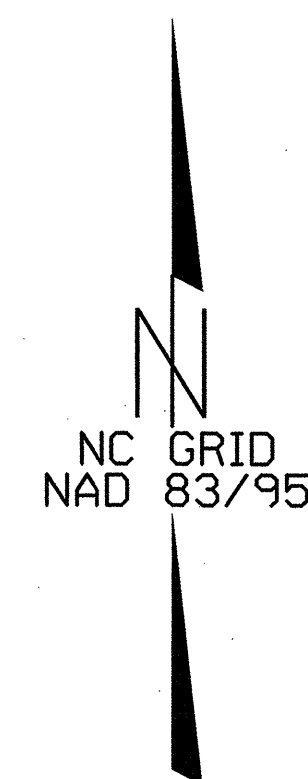
BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
	1	BL-1	657072.5242	896570.7502	2222.76	OUTSIDE PROJECT LIMITS	
	2	BL-2	657507.6015	896795.2308	2235.74	10+09.07	12.57 RT
	3	BL-3	657824.2905	896695.8087	2226.97	13+35.36	18.00 LT
	4	BL-4	657746.5435	897064.6506	2208.61	16+06.57	256.11 RT
	GPS1	B4037-1	657503.0354	897258.7632	2201.39	10+26.39	475.05 RT

 BM1 ELEVATION - 2235.29
 N 657341 E 896748
 L STATION 10+00
 S 11° 54' 54.2" W DIST 162.52
 NAIL IN BASE OF 13 IN. POPLAR

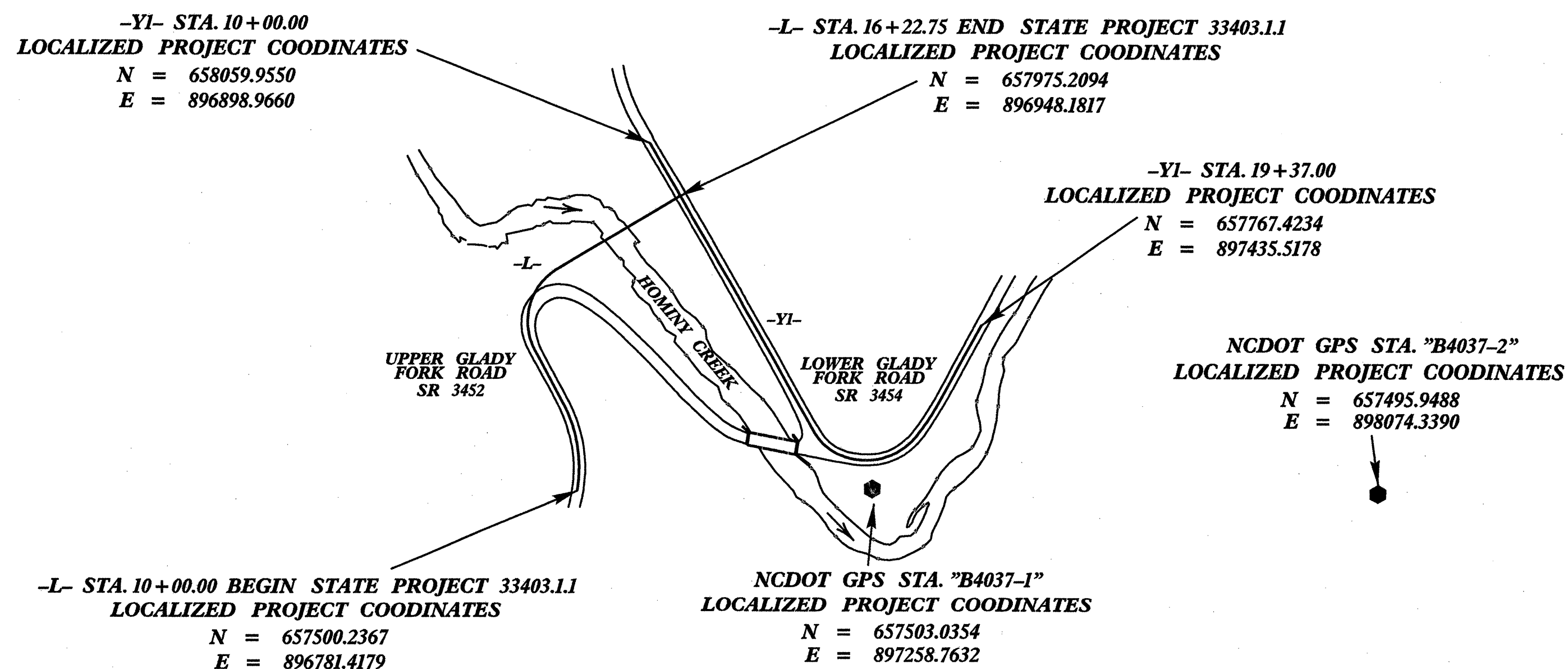
 BM2 ELEVATION - 2199.23
 N 657697 E 896950
 L STATION 11+24 197 RIGHT
 NAIL IN BASE OF 32 IN. POPLAR

 BM3 ELEVATION - 2213.37
 N 657791 E 897032
 Y1 STATION 13+00 19 RIGHT
 NAIL IN BASE OF 13 IN. BLACK WALNUT

 BM4 ELEVATION - 2192.16
 N 657649 E 897393
 Y1 STATION 18+13 20 RIGHT
 NAIL IN BASE OF 11 IN. BLACK WALNUT



DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4037-1" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 657503.0354(±) EASTING: 897258.7632(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999776694 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4037-1" TO -L- STATION 10+00.00 IS S 89°39'51" W 477.35' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
 B4037_LS_CONTROL_060621.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

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4/3/2008

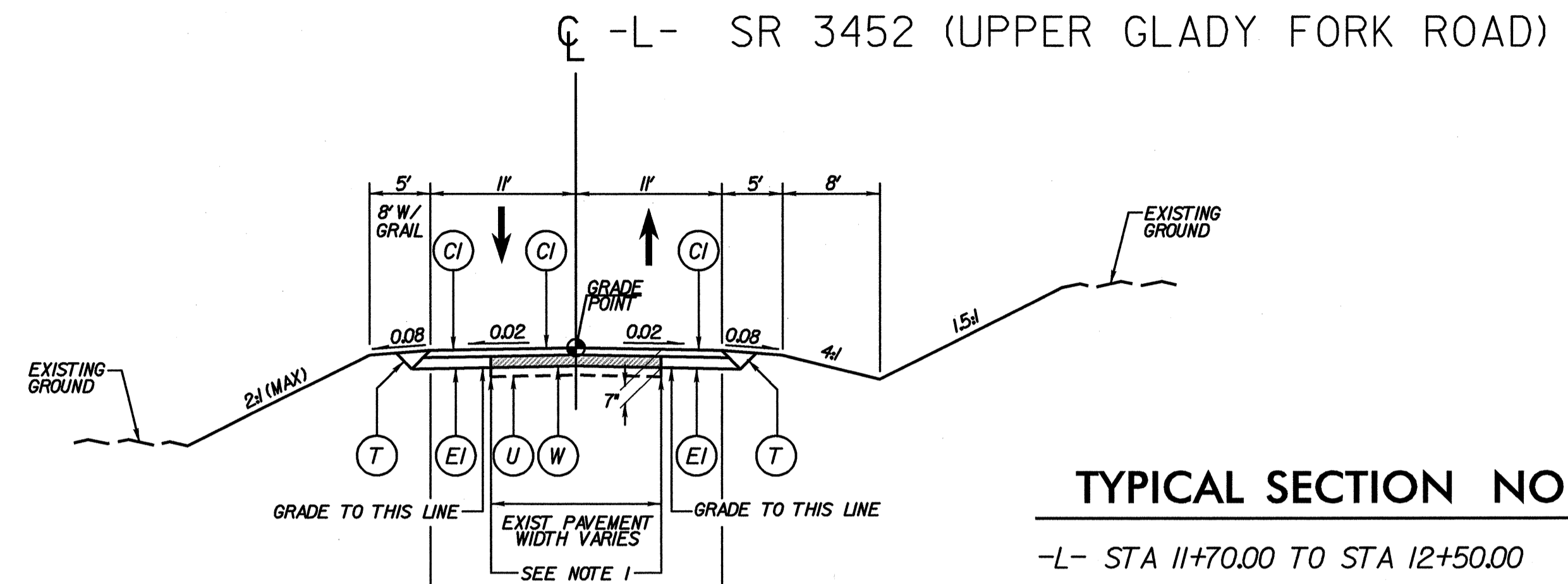


Kimley-Horn
and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

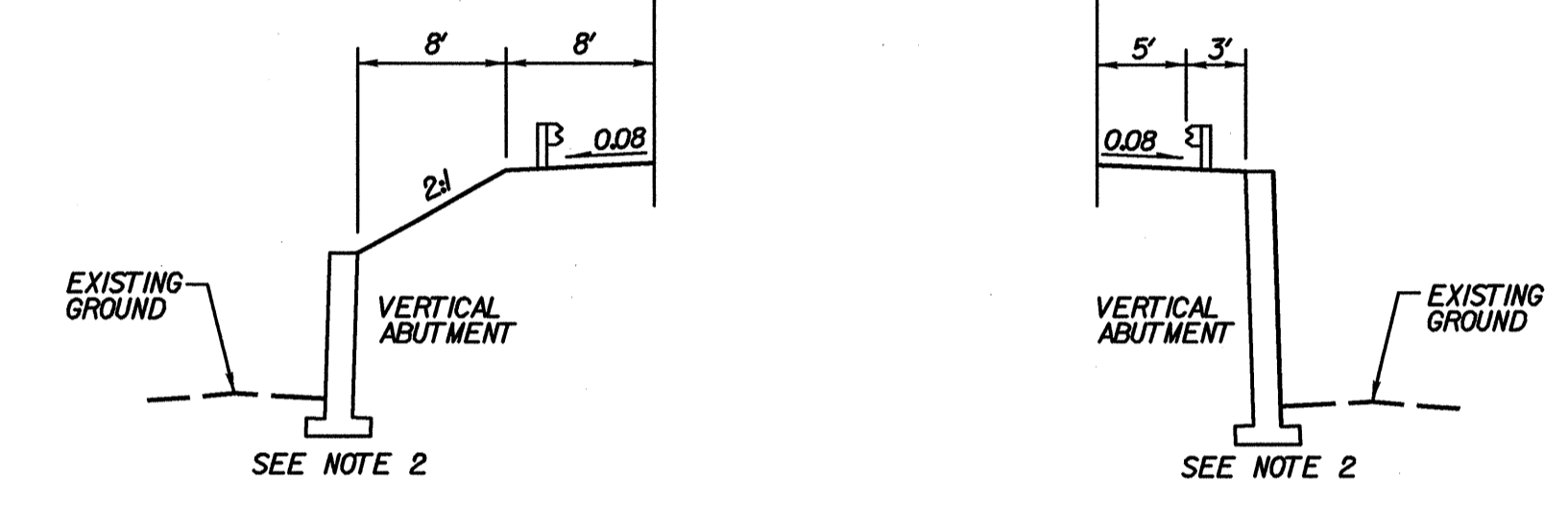
PROJECT REFERENCE NO. B-4037		SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER	

PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5 1/2" DEPTH.
R	PROPOSED SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL THIS SHEET)

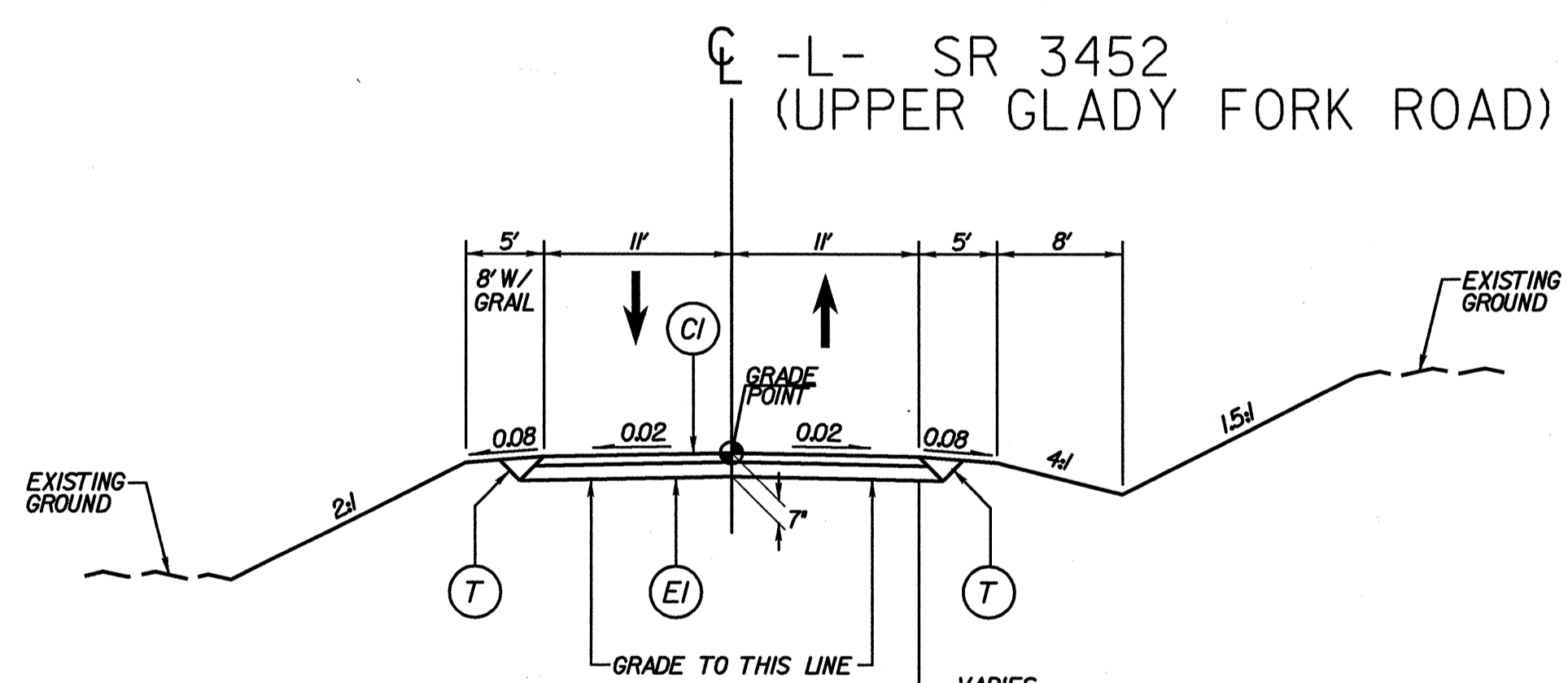


TYPICAL SECTION NO. 1
-L- STA 11+70.00 TO STA 12+50.00



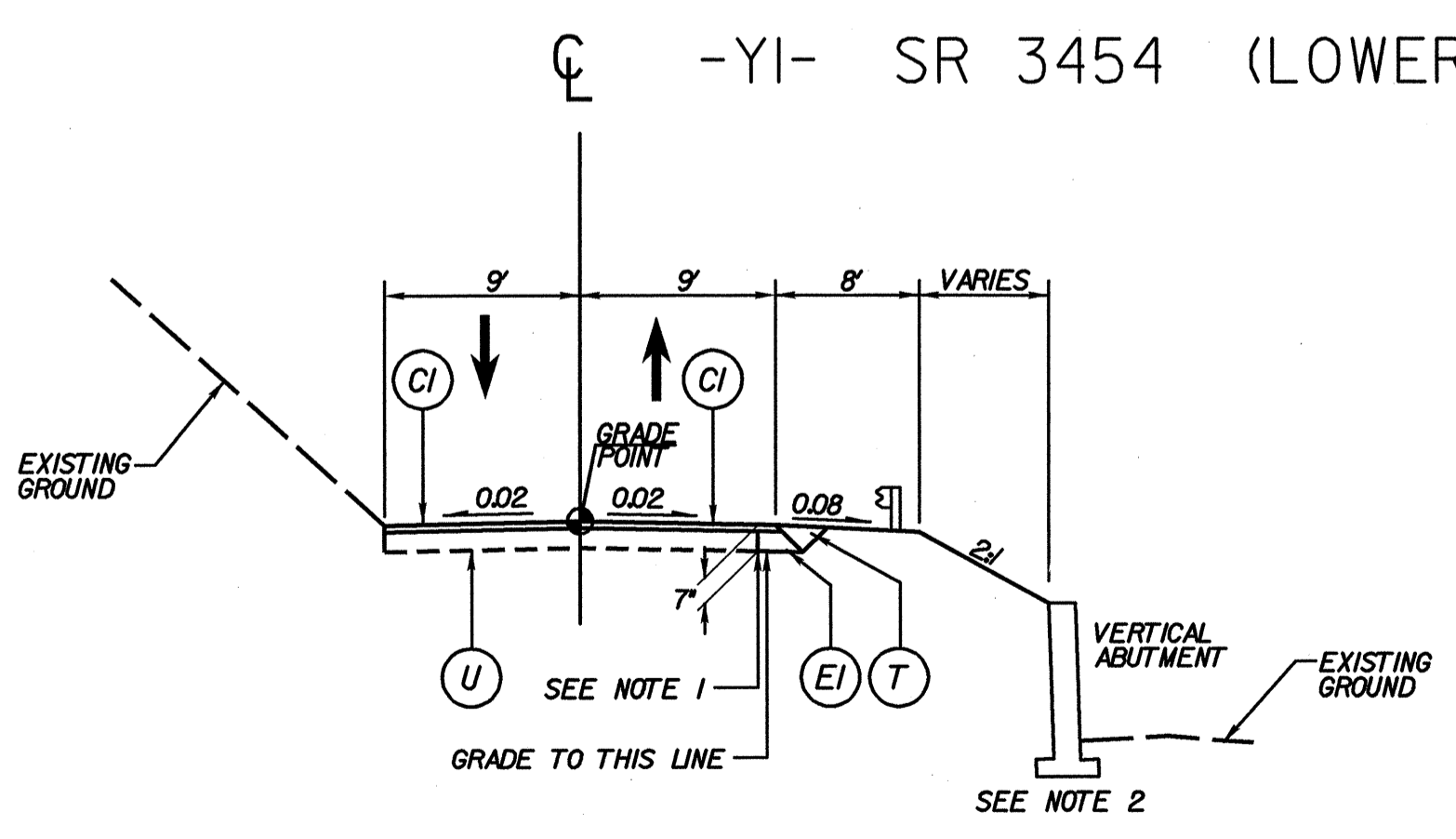
TYPICAL SECTION NO. 1A
-L- STA 13+24.25 TO STA 13+97.00 (LT)

TYPICAL SECTION NO. 1B
-L- STA 13+62.70 TO STA 13+97.00 (RT)

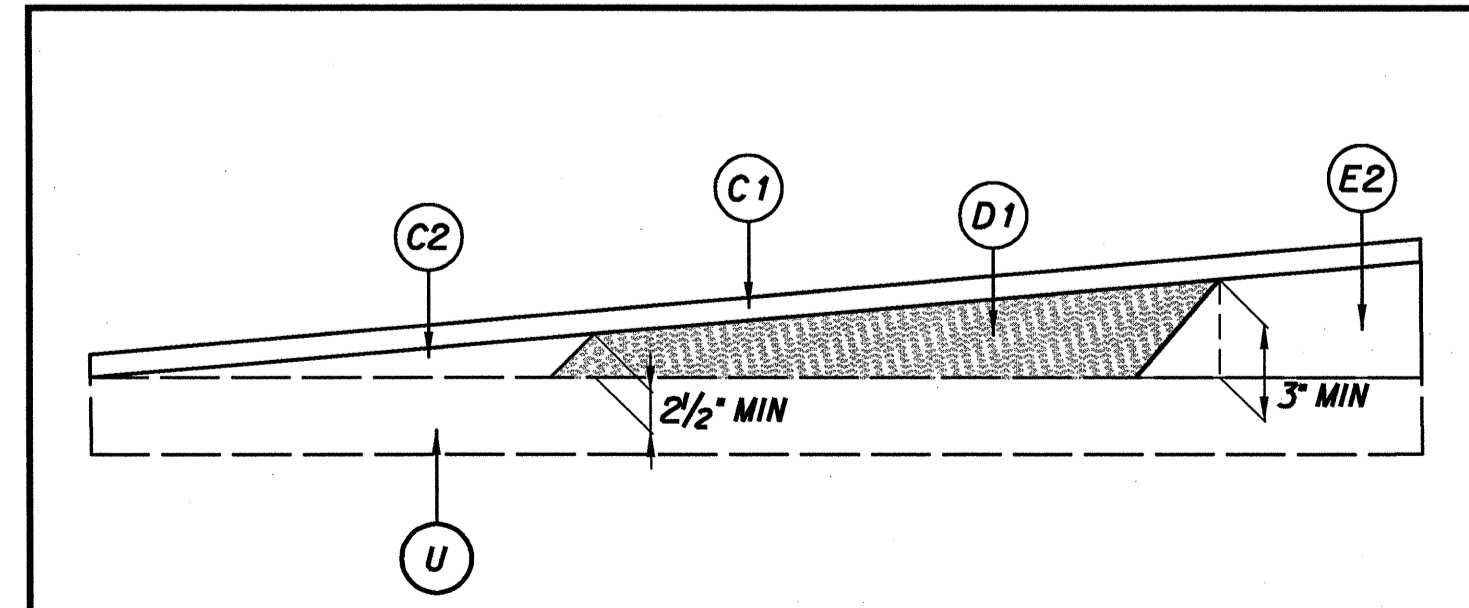


TYPICAL SECTION NO. 2
-L- STA 12+50.00 TO STA 13+97.00 (BEGIN BRIDGE)
-L- STA 15+77.00 (END BRIDGE) TO STA 16+13.75

NOTES:
1: SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT AND PROVIDE 1' MINIMUM WIDTH FULL DEPTH PAVEMENT
2: SEE PLANS FOR VERTICAL ABUTMENT LOCATIONS
3: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED




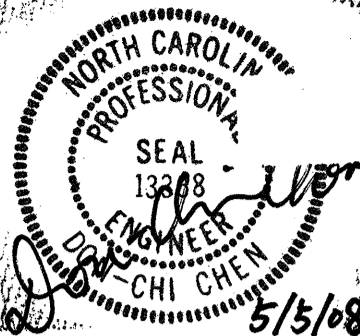
TYPICAL SECTION NO. 3
-YI- STA 10+08.00 TO STA 11+89.00

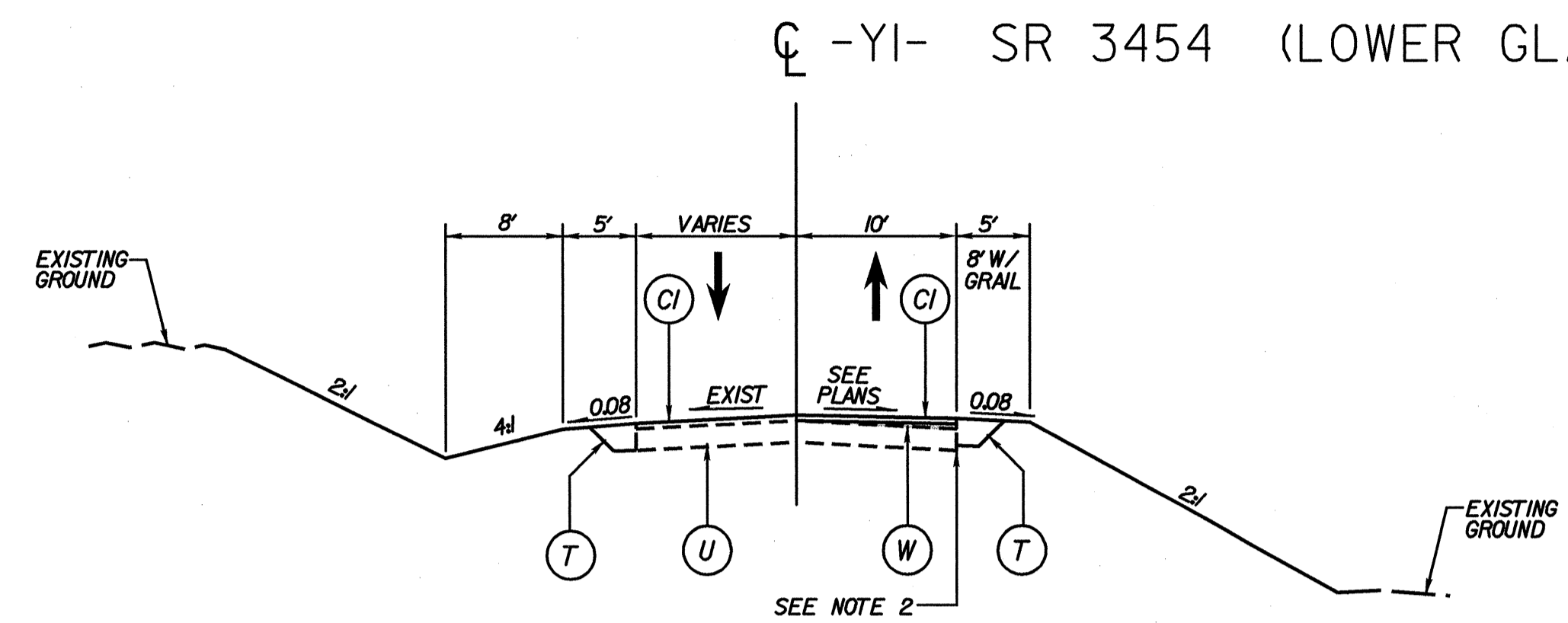


DETAIL W SHOWING METHOD OF WEDGING

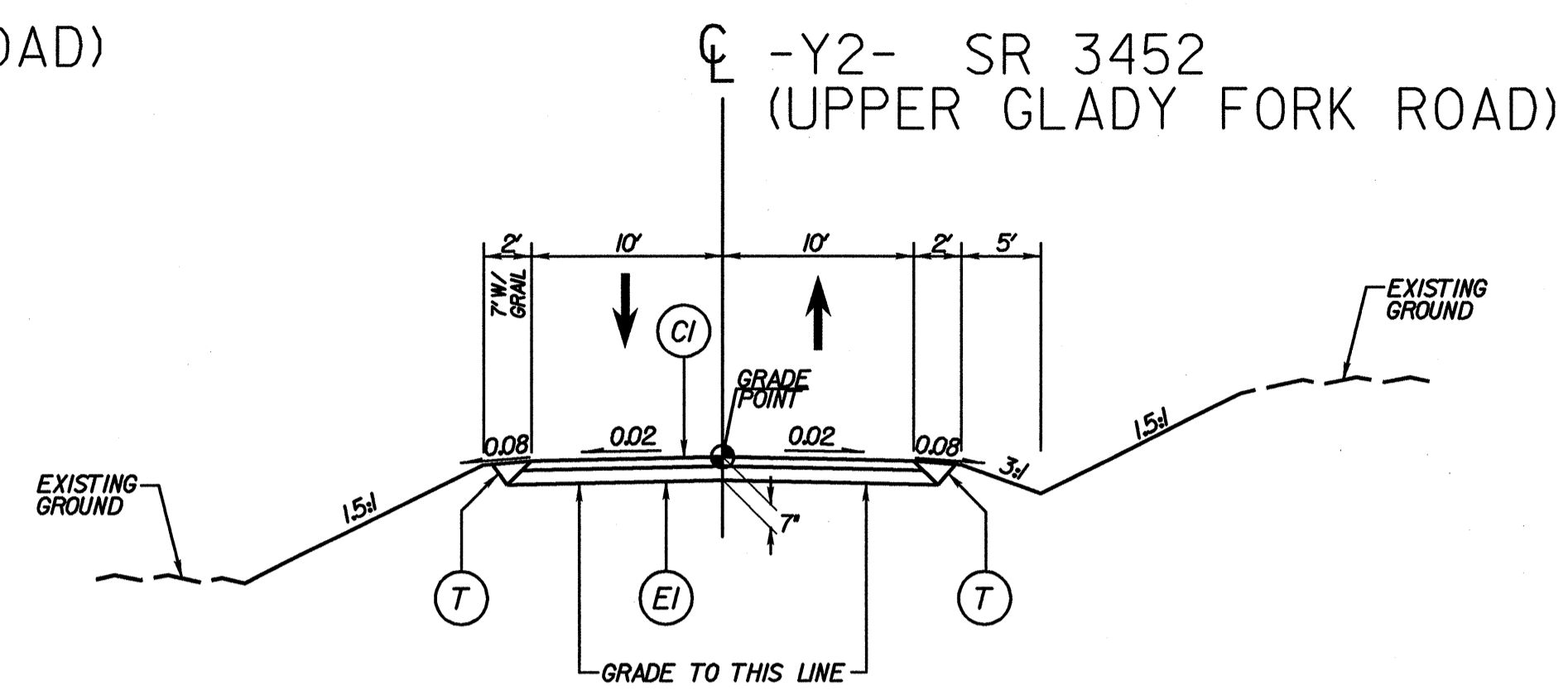
TYPICAL SECTION NO. 2A
-L- STA 15+92.00 TO STA 16+13.75 (RT)
-YI- STA 11+34.28 TO STA 11+80.00 (RT)

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PROJECT REFERENCE NO.		SHEET NO.	
B-4037		2-A	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
			
Kimley-Horn and Associates, Inc. P.O. BOX 33068 RALEIGH, N.C. 27636-3068			



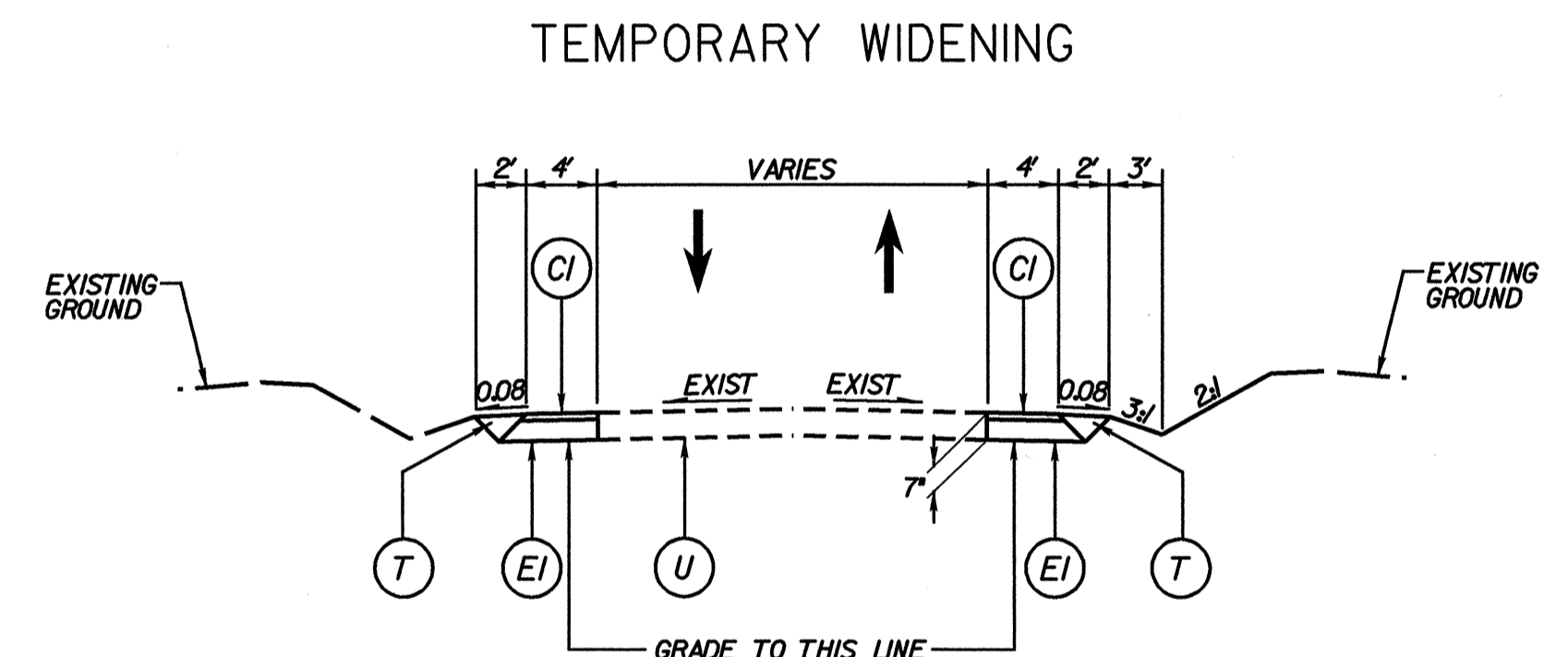
TYPICAL SECTION NO. 4
-Y1- STA 14+02.16 TO STA 16+50.00



TYPICAL SECTION NO. 6
-Y2- STA 10+12.12 TO STA 11+96.00

PAVEMENT SCHEDULE

CI	3" SF9.5A
EI	4" B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL SHEET NO.2)



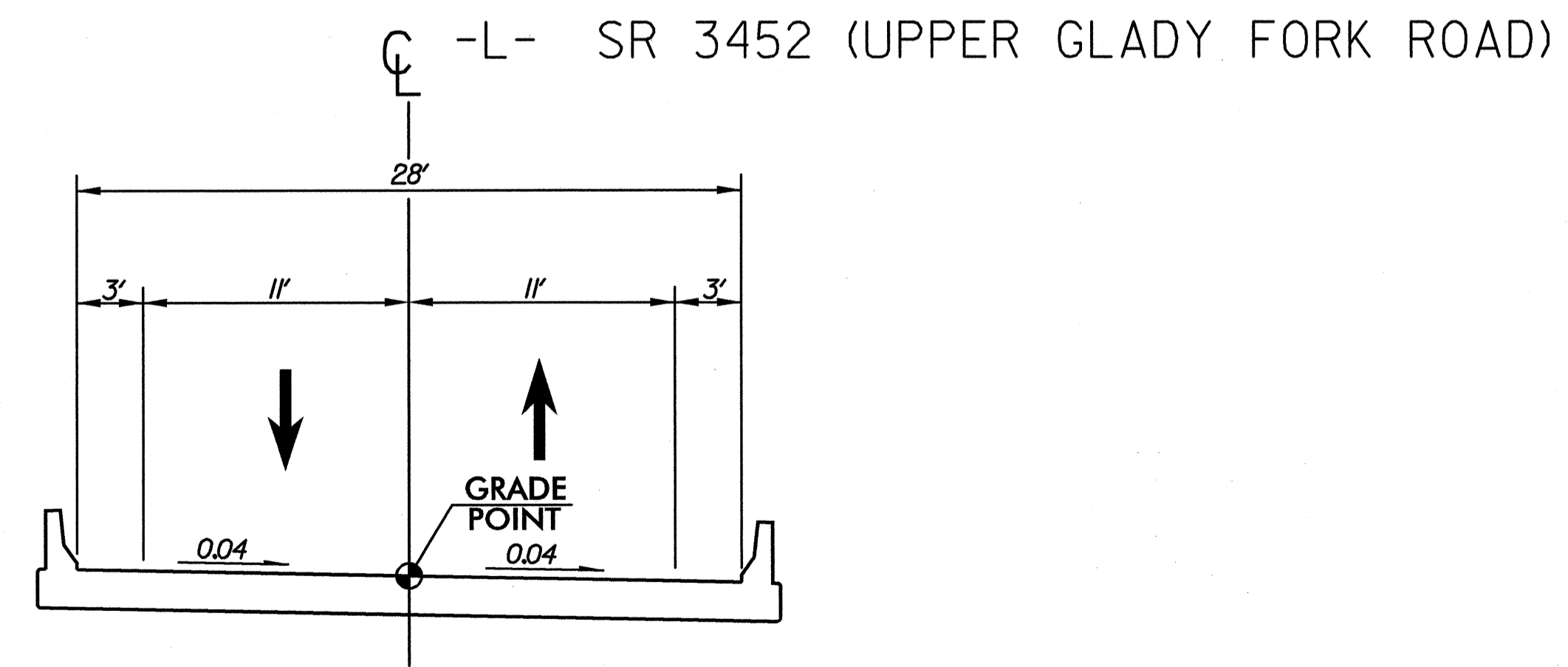
TYPICAL SECTION NO. 5
-L- STA 12+00 TO STA 14+26 RT
-L- STA 14+15 TO STA 14+33 RT

- NOTES:
1. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT AND PROVIDE 1' MINIMUM WIDTH FULL DEPTH PAVEMENT
 2. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT
 3. SEE PLANS FOR VERTICAL ABUTMENT LOCATIONS
 4. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED

DESIGN DATA

ADT 2008 = 750 VPD
 ADT 2030 = 1,100 VPD
 DHV = 10%
 D = 60%
 TTST = 1%
 DUAL = 2%
 V = 50 mph

FUNCTIONAL CLASSIFICATION:
 LOCAL RURAL

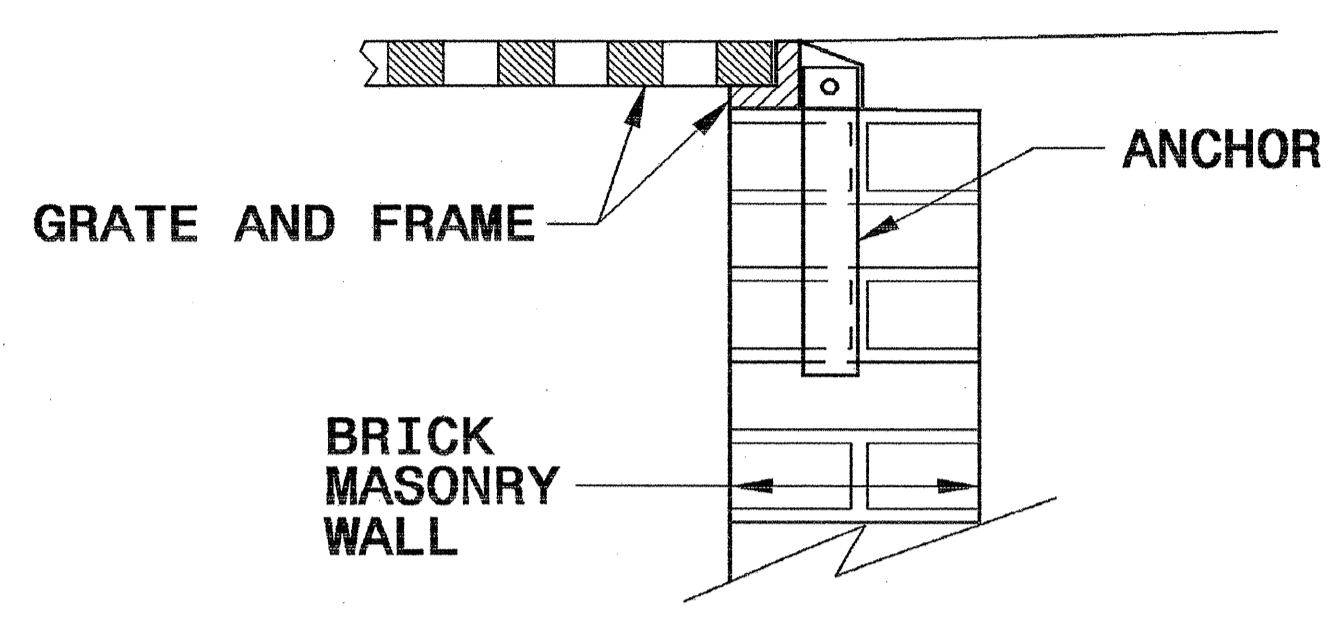


BRIDGE TYPICAL SECTION NO. 1

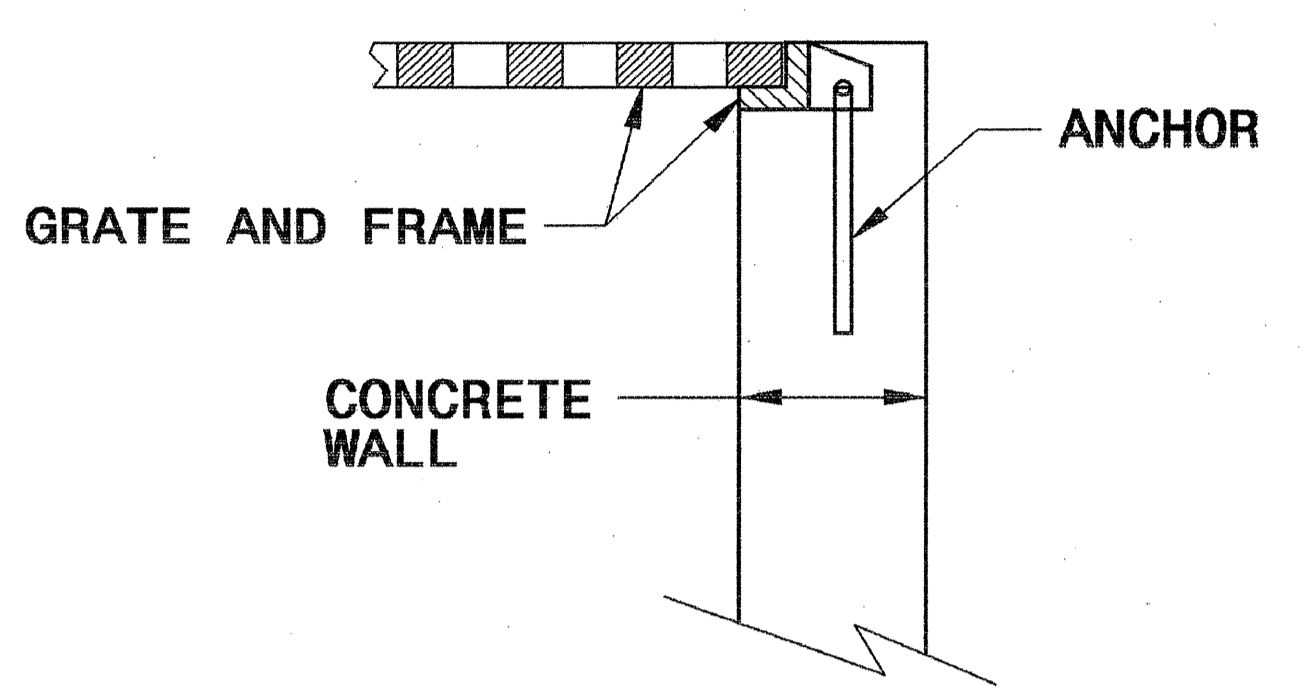
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

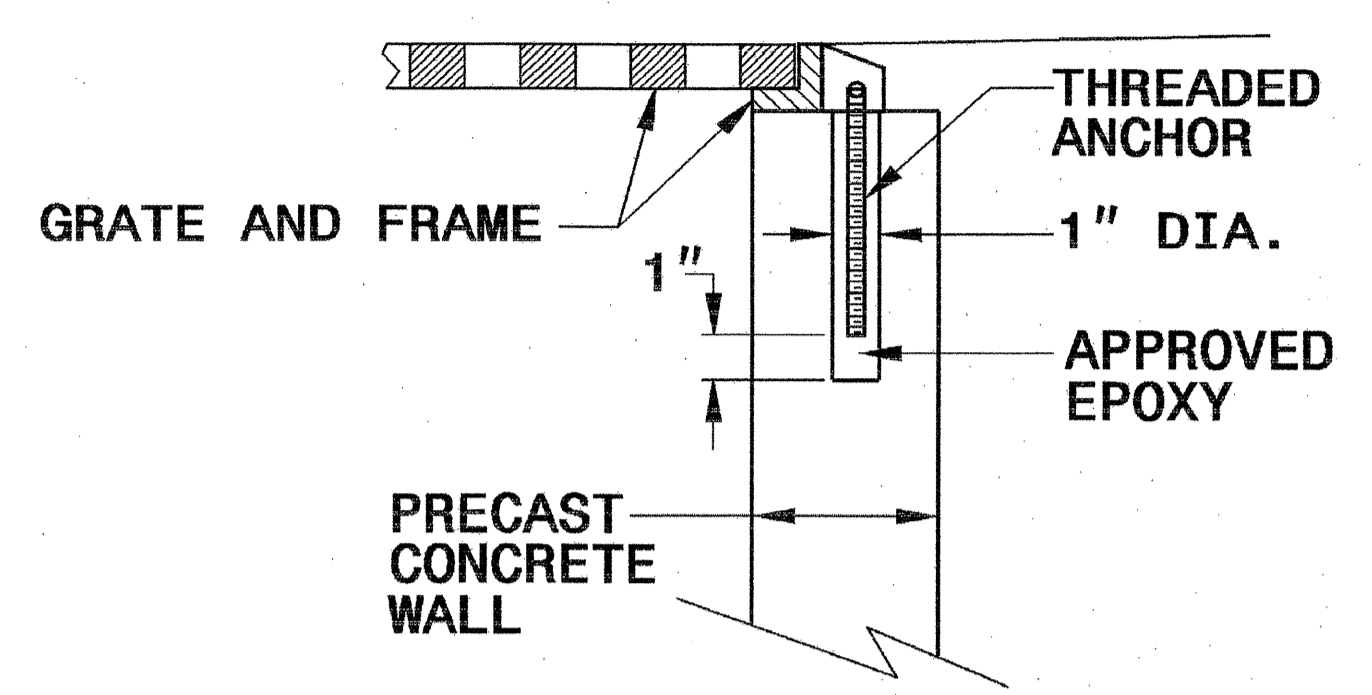
SHEET 1 OF 1
840D25



**BRICK MASONRY
CONSTRUCTION**



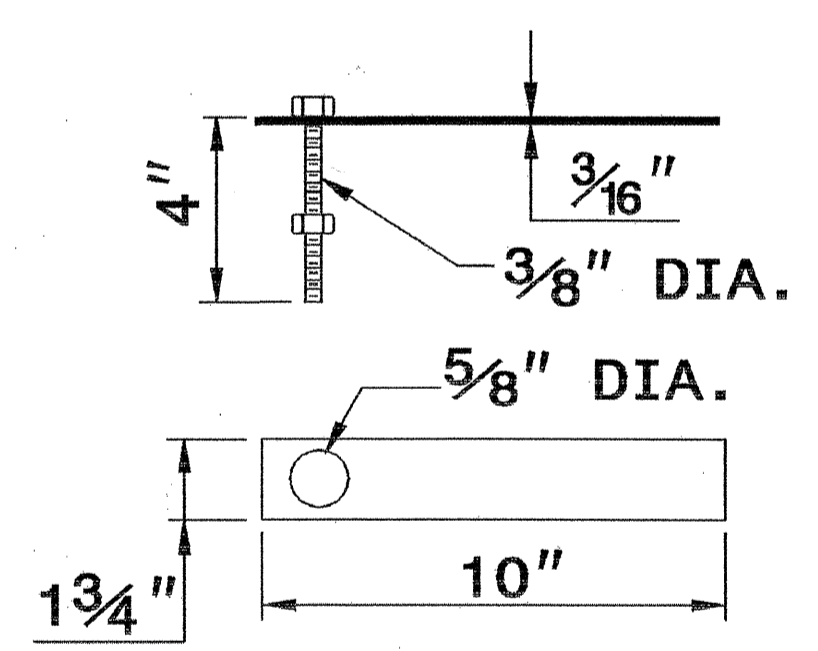
**CONCRETE
CONSTRUCTION**



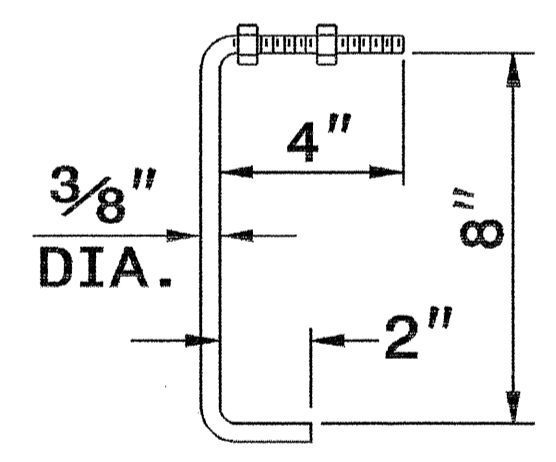
**PRECAST CONCRETE
CONSTRUCTION**

**DETAIL SHOWING ANCHORAGE OF
FRAME FOR GRATED DROP INLET**

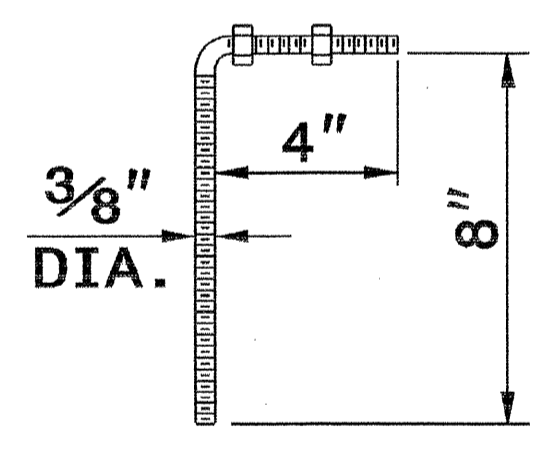
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



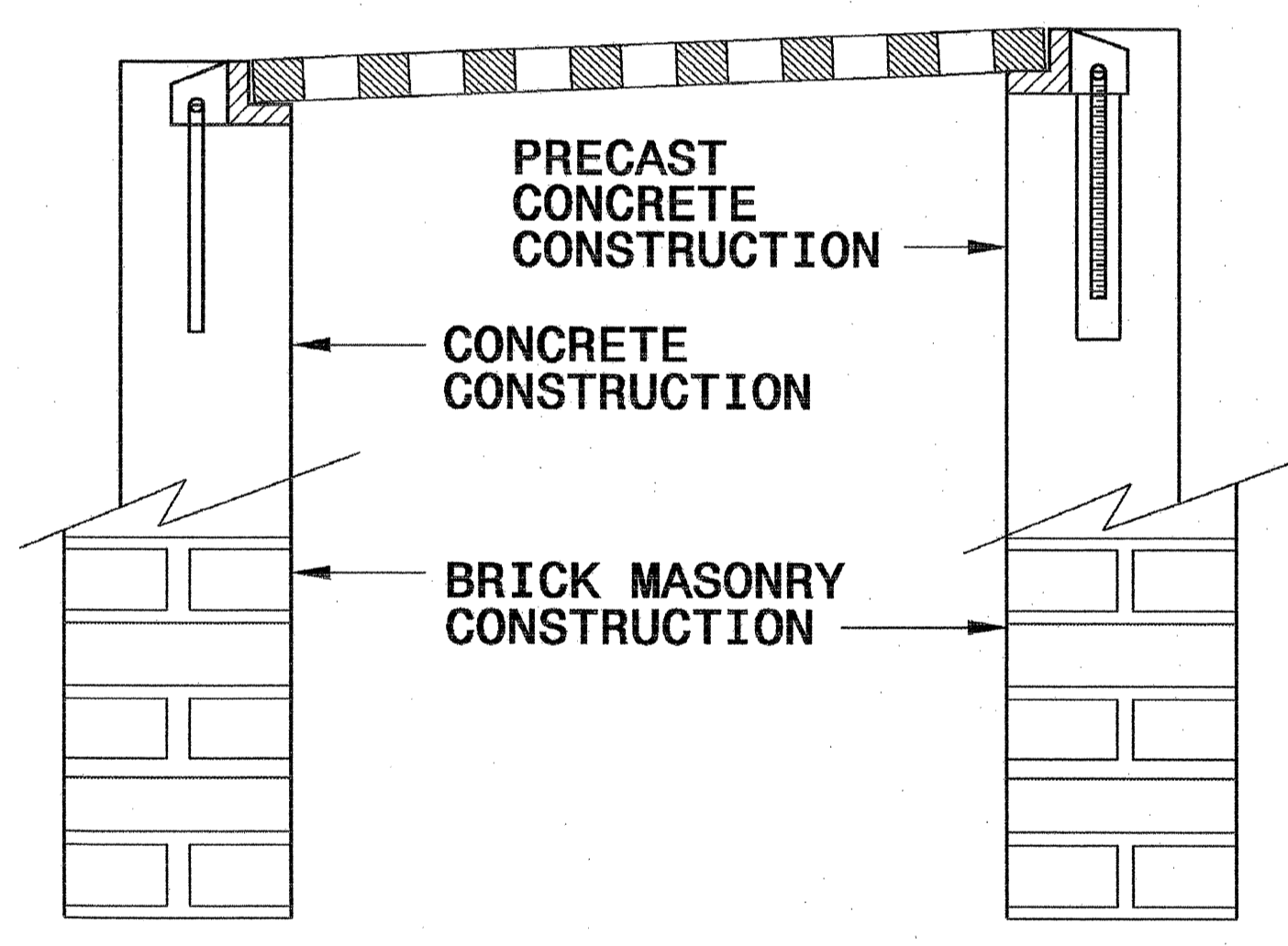
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



**PRECAST
CONCRETE ANCHOR**
3/8" DIA. BENT BAR



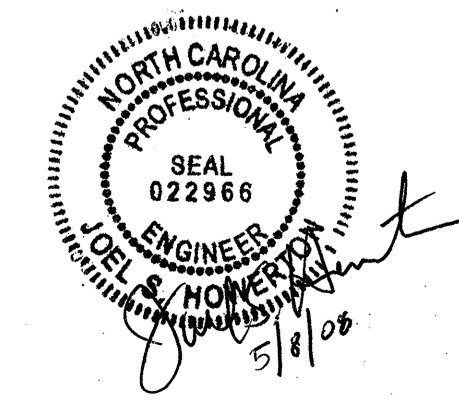
**FRAME AND GRATE INSTALLATION
FOR NORMAL CROWN AND
SUPERELEVATED SECTIONS**

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

27-SEP-2006 08:59 S:\Contractors\port\9539\Special Details\erward\stds\06\stds to Special Details\840D25 Anchorage For Frames\0840d25.dgn erward A1 P222223



**PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

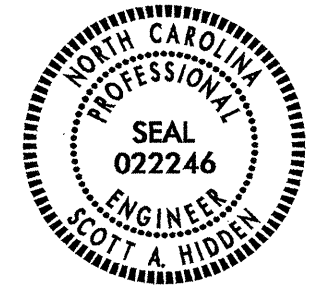
SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25	DATE: 07/18/06
MODIFIED BY: E.E. WARD	DATE: 9/25/06
CHECKED BY:	DATE:
FILE SPEC.:	

STANDARD TEMPORARY MSE WALL OPTIONS

TEMPORARY MSE WALL OPTION	VENDOR	CONTACT INFORMATION	REINFORCEMENT TYPE	SHEETS
TEMPORARY FABRIC WALL	N/A	N/A	POLYESTER OR POLYPROPYLENE FABRIC	3
HILFIKER TEMPORARY WALL	HILFIKER RETAINING WALLS	1902 HILFIKER LANE, EUREKA, CA 95503-5711 707-443-5093 WWW.HILFIKER.COM	WELDED WIRE MAT	4
SIERRASCAPE TEMPORARY WALL	TENSAR EARTH TECHNOLOGIES, INC	5883 GLENRIDGE DRIVE, SUITE 200 ATLANTA, GA 30328-5363 404-250-1290 WWW.TENSARCORP.COM	GEOGRID	5
RETAINED EARTH TEMPORARY WALL	THE REINFORCED EARTH COMPANY	8614 WESTWOOD CENTER DRIVE, SUITE 1100 VIENNA, VA 22182-2233 703-749-4325 WWW.REINFORCEDEARTH.COM	WELDED WIRE MESH	6-8
TERRATREL TEMPORARY WALL	THE REINFORCED EARTH COMPANY	8614 WESTWOOD CENTER DRIVE, SUITE 1100 VIENNA, VA 22182-2233 703-749-4325 WWW.REINFORCEDEARTH.COM	RIBBED STEEL STRIPS	9-11

GEOTECHNICAL ENGINEER



ENGINEER

Scott A. Hadden 3/29/07
SIGNATURE DATE

FOR STANDARD TEMPORARY MSE WALLS, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT TEMPORARY MSE WALLS OR STANDARD SHORING, STANDARD TEMPORARY MSE WALLS ARE OPTIONAL.

WHEN NOTES ON PLANS REQUIRE TEMPORARY MSE WALLS, USE STANDARD TEMPORARY MSE WALLS OR CONTRACTOR DESIGNED TEMPORARY MSE WALLS.

WHEN THE ALIGNMENT OF STANDARD TEMPORARY MSE WALLS RESULTS IN AN INTERIOR ANGLE LESS THAN 90 DEGREES, SUBMIT AN ACUTE CORNER DETAIL FOR THE SPECIFIC SITUATION IN ACCORDANCE WITH THE WALL VENDOR RECOMMENDATIONS. ALSO, SUBMIT A "STANDARD TEMPORARY MSE WALL SELECTION FORM" FOR EACH TEMPORARY MSE WALL LOCATION. SUBMIT THESE ITEMS AT LEAST 14 DAYS BEFORE BEGINNING WALL CONSTRUCTION.

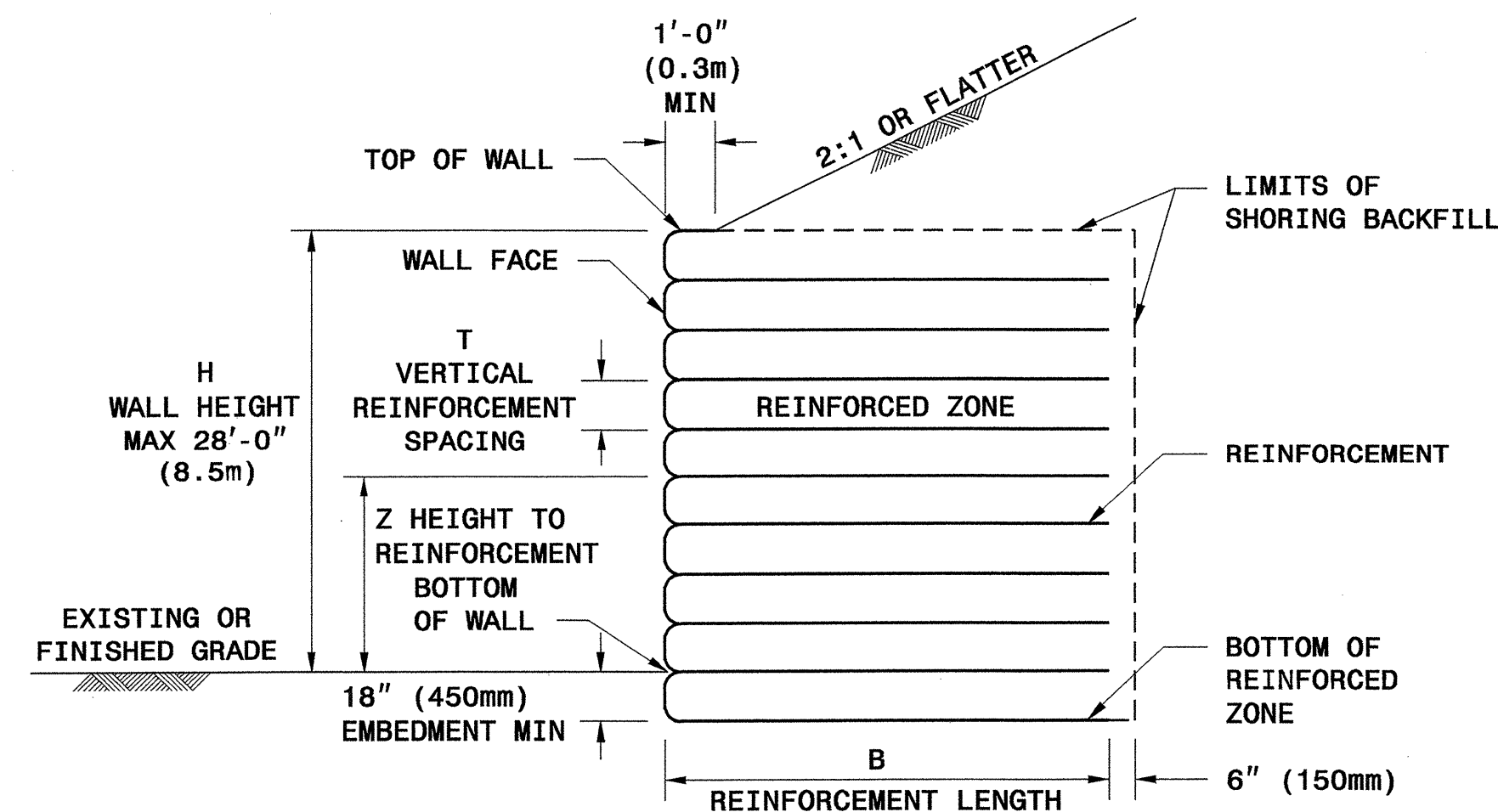
STANDARD TEMPORARY MSE WALLS ARE BASED ON THE FOLLOWING CONDITIONS:

- 1) MAXIMUM WALL HEIGHT IS 28'-0" (8.5m).
- 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
- 3) EXISTING OR FINISHED GRADE IN FRONT OF WALL IS 6:1 (H:V) SLOPE OR FLATTER.
- 4) THE GRADE OF THE TOP OF WALL IS LESS THAN 4% FOR RETAINED EARTH AND TERRATREL TEMPORARY WALLS.
- 5) DESIGN SERVICE LIFE IS 3 YEARS.
- 6) MATERIAL IN REINFORCED ZONE IS SHORING BACKFILL.
- 7) MAXIMUM APPLIED BEARING PRESSURE IS 1 TSF (100 KPA) FOR WALL HEIGHTS UP TO 8'-0" (2.4m), 2 TSF (195 KPA) FOR WALL HEIGHTS BETWEEN 8'-0" AND 18'-0" (2.4m AND 5.5m) AND 3 TSF (290 KPA) FOR WALL HEIGHTS OVER 18'-0" (5.5m).

STANDARD TEMPORARY MSE WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M³)
 FRICTION ANGLE = 30 DEGREES
 COHESION = 0 PSF (0 KPA)
 GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF REINFORCED ZONE.

DO NOT USE STANDARD TEMPORARY MSE WALLS WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW THE BOTTOM OF REINFORCED ZONE.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF STANDARD TEMPORARY MSE WALLS. COLLECT AND DIRECT RUNOFF AWAY FROM WALLS AND SHORING BACKFILL.



SLOPE CASE

EXCAVATE AS NECESSARY FOR STANDARD TEMPORARY MSE WALLS IN ACCORDANCE WITH THE FOLLOWING FOR THE WALL OPTION CHOSEN:

- 1) MINIMUM EMBEDMENT OF 18" (450mm) UNLESS WALL BEARS ON ROCK, CONCRETE OR PAVEMENT AS DETERMINED BY THE ENGINEER
- 2) VERTICAL STEPS IN INCREMENTS EQUAL TO THE VERTICAL REINFORCEMENT SPACING
- 3) WITH THE EXCEPTION OF EITHER THE FIRST OR LAST SECTION OF WALL, HORIZONTAL SECTION LENGTHS IN INCREMENTS EQUAL TO THE FOLLOWING:

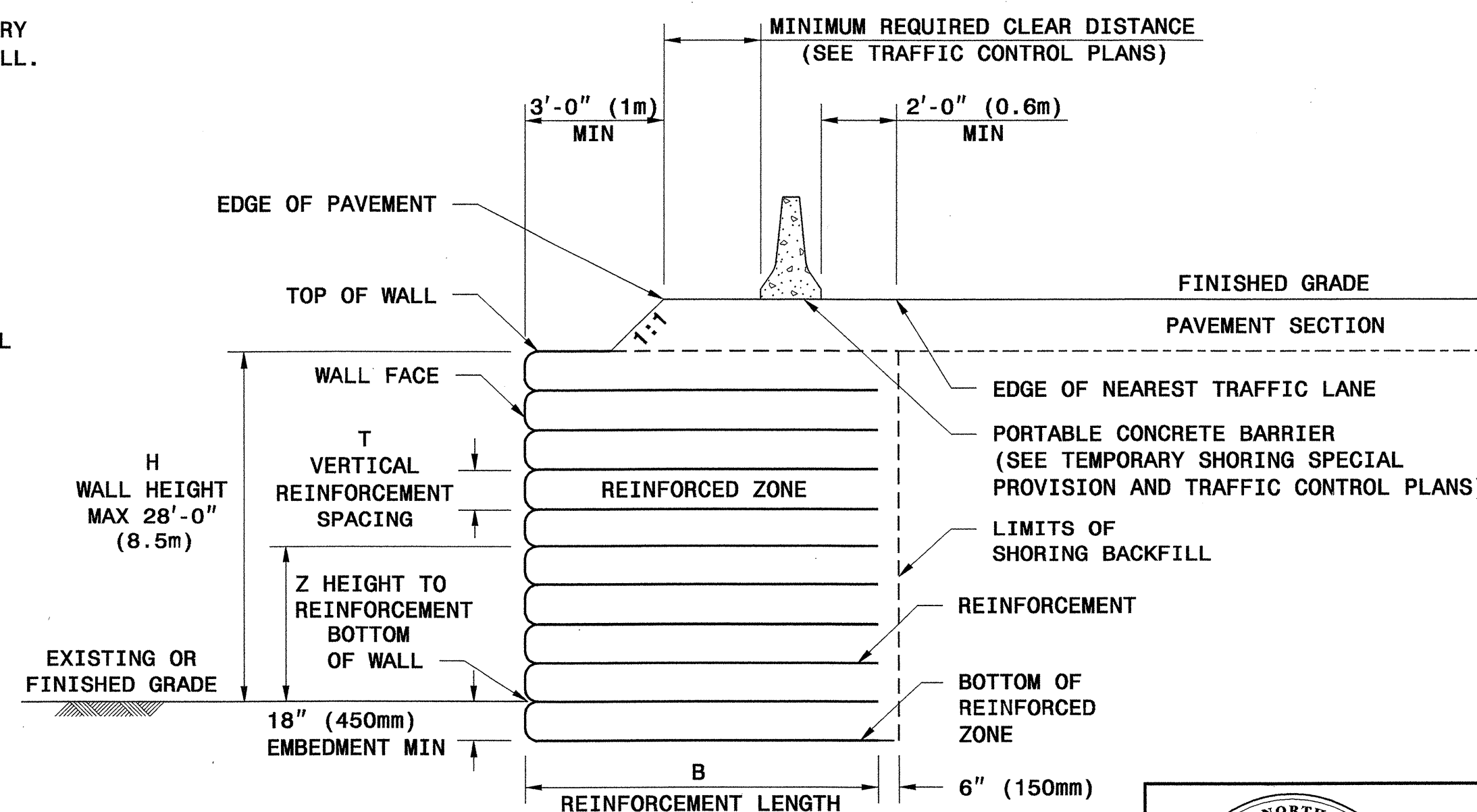
STANDARD TEMPORARY MSE WALL OPTION	INCREMENT
TEMPORARY FABRIC WALL	9'-0" (2.7m) MIN (VARIES)
HILFIKER TEMPORARY WALL	10'-0" (3.0m) MIN (VARIES)
SIERRASCAPE TEMPORARY WALL	18'-7 1/4" (5.7m)
RETAINED EARTH TEMPORARY WALL	24'-0" (7.3m)
TERRATREL TEMPORARY WALL	19'-8" (6.0m)

DO NOT PLACE SHORING BACKFILL OR FIRST REINFORCEMENT LAYER UNTIL OBTAINING APPROVAL OF THE EXCAVATION DEPTH AND FOUNDATION MATERIAL.

IF APPLICABLE, INSTALL FOUNDATIONS LOCATED WITHIN THE REINFORCED ZONE BEFORE BEGINNING WALL CONSTRUCTION UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

ERECT AND MAINTAIN FACINGS AND FORMS AS SHOWN ON THE STANDARD TEMPORARY MSE WALL DETAILS. STAGGER VERTICAL JOINTS OF FACINGS AND FORMS TO CREATE A RUNNING BOND WHEN POSSIBLE UNLESS SHOWN OTHERWISE ON THESE DETAILS.

PLACE FACINGS AND FORMS AS NEAR TO VERTICAL AS POSSIBLE WITH NO NEGATIVE BATTER. CONSTRUCT STANDARD TEMPORARY MSE WALLS WITH A VERTICAL AND HORIZONTAL TOLERANCE OF 3" (75mm) WHEN MEASURED WITH A 10'-0" (3m) STRAIGHT EDGE AND AN OVERALL VERTICAL PLUMBNESS (BATTER) AND HORIZONTAL ALIGNMENT OF LESS THAN 6" (150mm).



SURCHARGE CASE

PLACE REINFORCEMENT AT LOCATIONS AND ELEVATIONS SHOWN ON THE STANDARD TEMPORARY MSE WALL DETAILS AND IN SLIGHT TENSION FREE OF KINKS, FOLDS, WRINKLES OR CREASES.

DO NOT SPLICE REINFORCEMENT IN THE REINFORCEMENT DIRECTION (RD), i.e., PARALLEL TO THE WALL FACE. SEAMS ARE ALLOWED IN THE CROSS-REINFORCEMENT DIRECTION (CRD).

CONTACT THE ENGINEER WHEN EXISTING OR FUTURE STRUCTURES SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT. TO AVOID STRUCTURES, DEFLECT, SKEW AND MODIFY REINFORCEMENT.

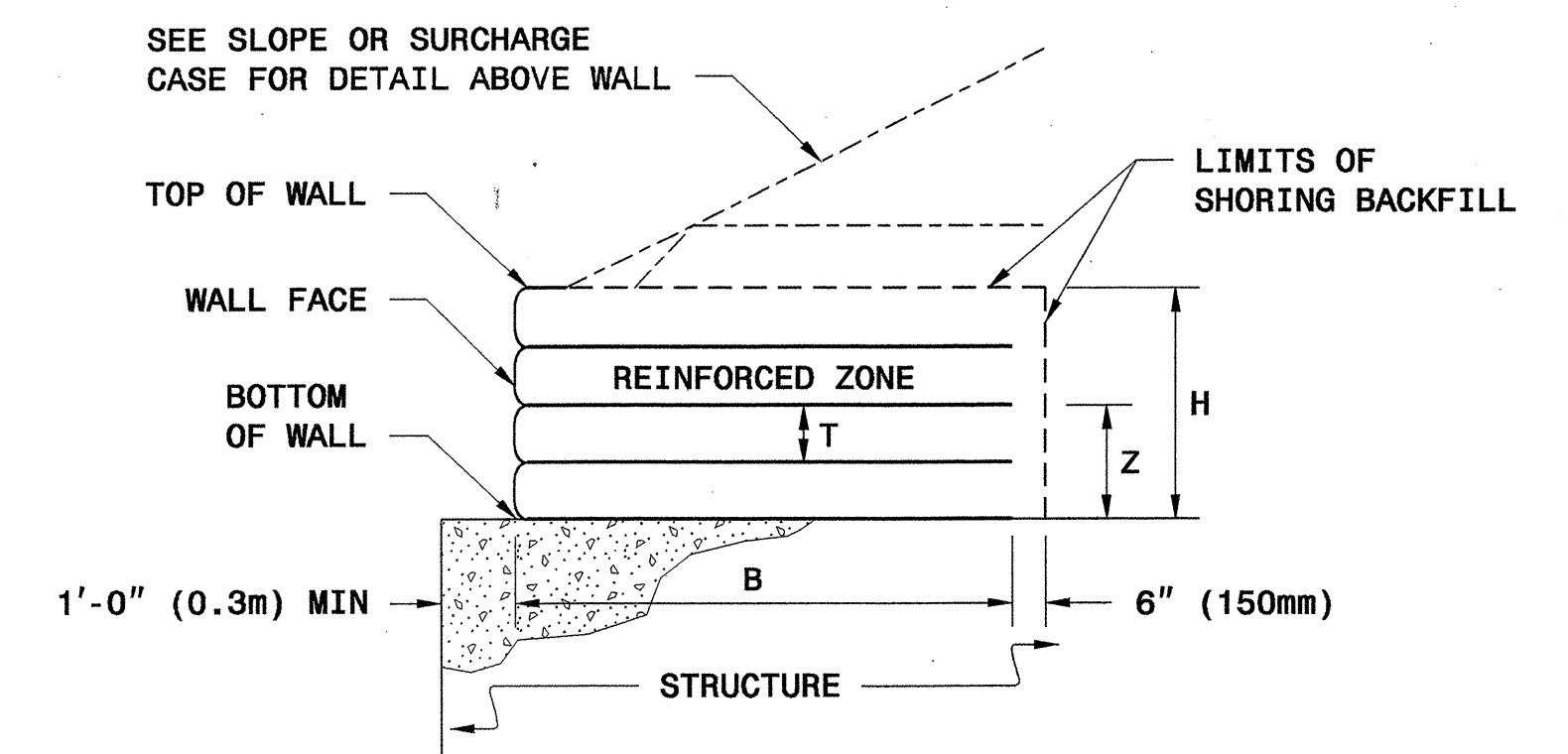
PLACE SHORING BACKFILL IN 8" TO 10" (200mm to 250mm) THICK LIFTS AND COMPACT IN ACCORDANCE WITH SUBARTICLE 235-4(C) OF THE STANDARD SPECIFICATIONS. USE ONLY HAND OPERATED COMPACTION EQUIPMENT WITHIN 3'-0" (1m) OF THE WALL FACE.

DO NOT DAMAGE REINFORCEMENT WHEN PLACING AND COMPACTING SHORING BACKFILL. DO NOT OPERATE HEAVY EQUIPMENT ON REINFORCEMENT UNTIL IT IS COVERED WITH AT LEAST 10" (250mm) OF SHORING BACKFILL. DO NOT USE SHEEPSFOOT, GRID ROLLERS OR OTHER TYPES OF COMPACTION EQUIPMENT WITH FEET.

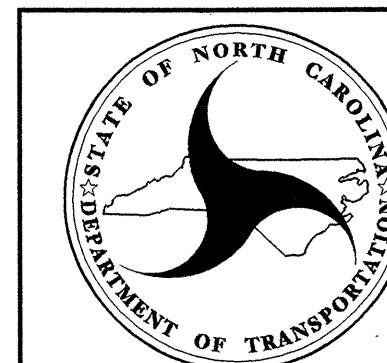
COVER REINFORCING AND RETENTION FABRIC WITH AT LEAST 3" (75mm) OF SHORING BACKFILL. PLACE TOP REINFORCEMENT LAYER BETWEEN 4" AND 24" (100mm and 600mm) BELOW TOP OF WALL DEPENDING ON WALL OPTION.

BENCH STANDARD TEMPORARY MSE WALLS INTO THE SIDES OF EXCAVATIONS WHERE APPLICABLE.

IF THE TOP OF WALL IS WITHIN 5'-0" (1.5m) OF FINISHED GRADE, REMOVE TOP FORM OR FACING AND INCORPORATE THE TOP REINFORCEMENT LAYER INTO THE FILL WHEN PLACING FILL IN FRONT OF THE WALL. STANDARD TEMPORARY MSE WALLS REMAIN IN PLACE PERMANENTLY UNLESS REQUIRED OTHERWISE.



TEMPORARY MSE WALL ON STRUCTURE



GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS

SHEET 1 OF 11 DATE: 2-20-07

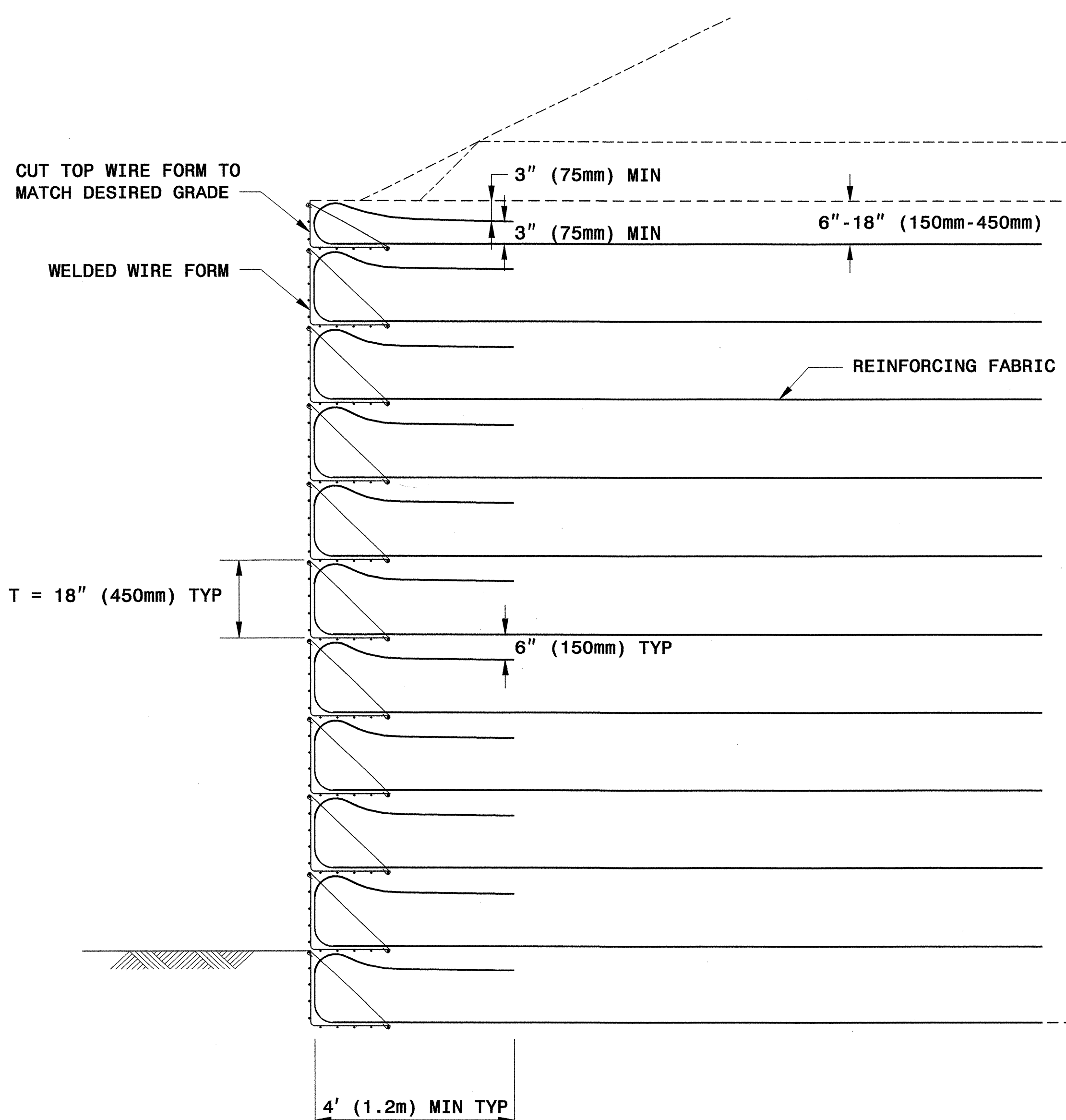
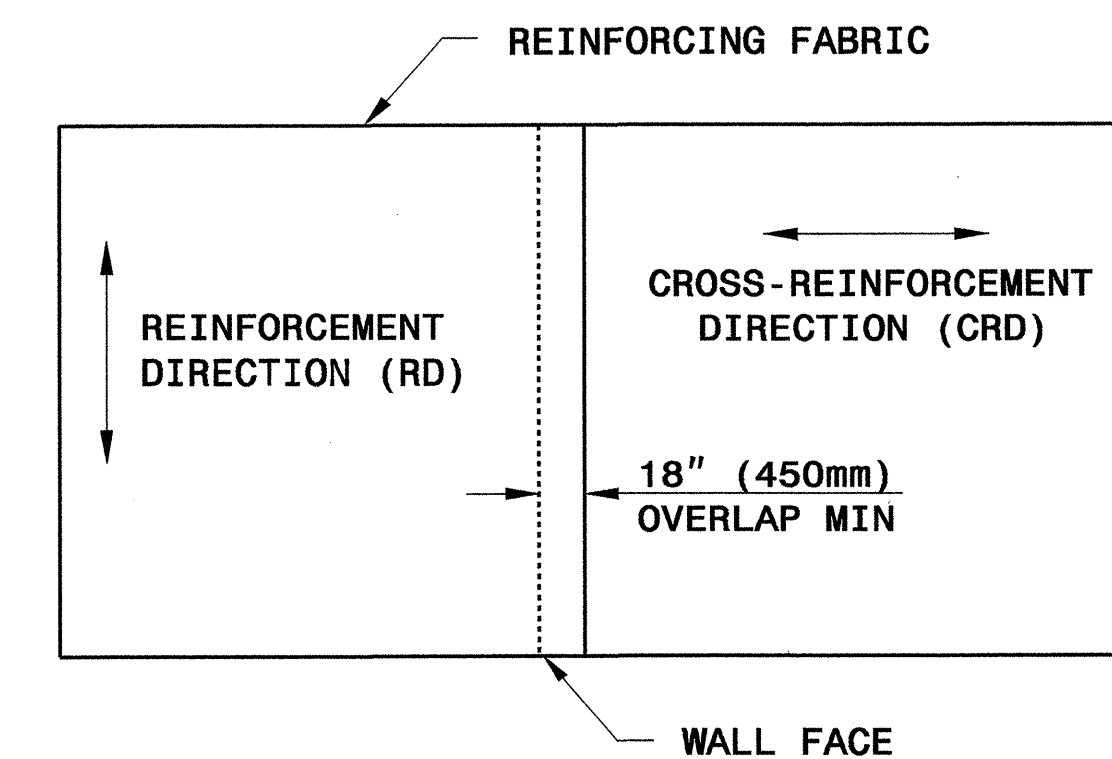
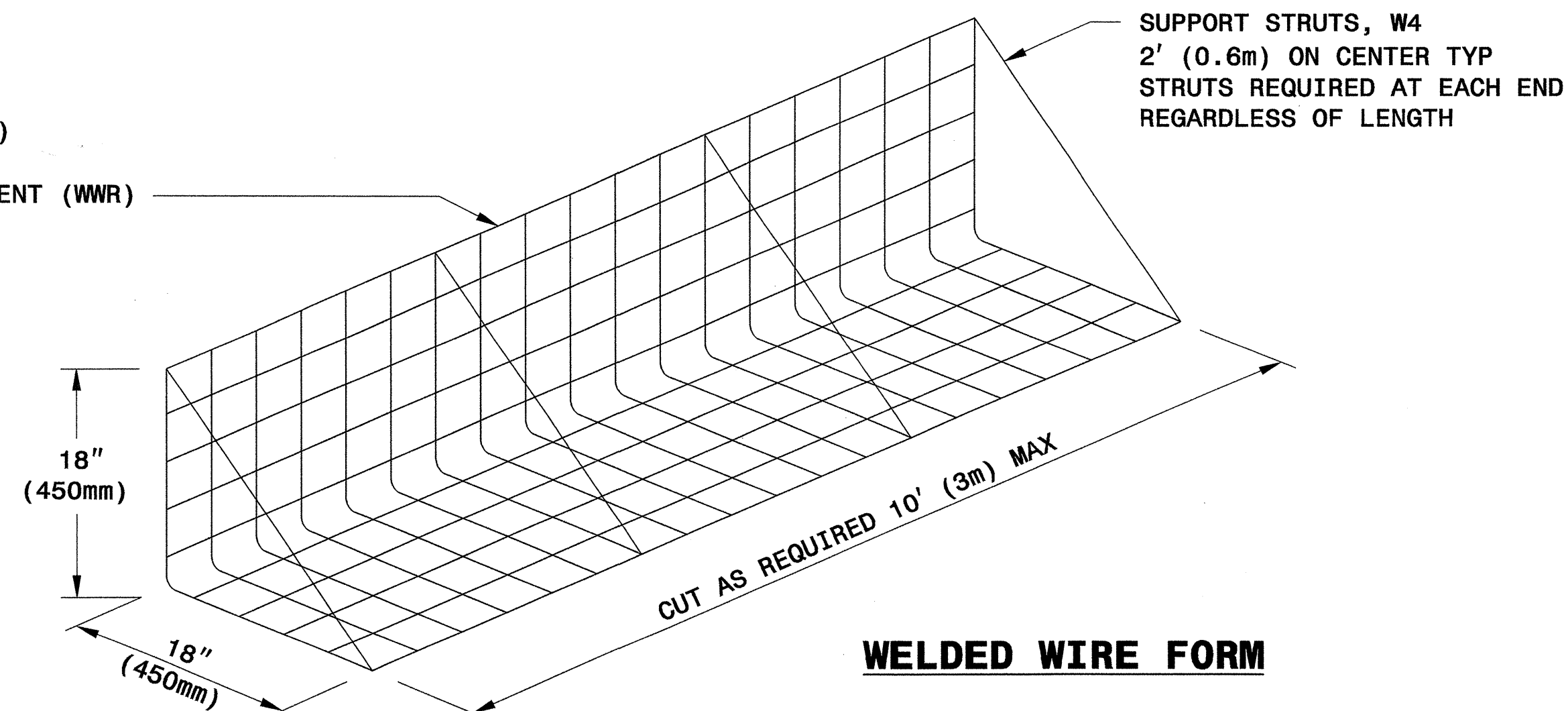
GEOTECHNICAL ENGINEER

ENGINEER



Scott A. Hadden 3/29/07
SIGNATURE DATE

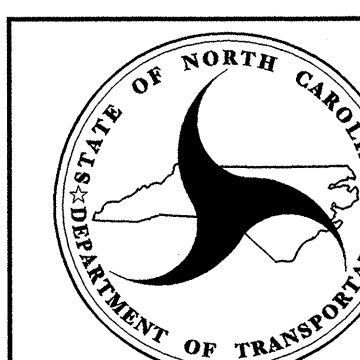
4" X 4" (102mm X 102mm)
W4 X W4 (MW26 X MW26)
WELDED WIRE REINFORCEMENT (WWR)



**MINIMUM REQUIRED REINFORCING FABRIC STRENGTH FOR RD*
(SLOPE AND SURCHARGE CASES)**

WALL HEIGHT H FEET (M)	POLYESTER WIDE WIDTH TENSILE STRENGTH @ ULTIMATE LB/INCH (KN/M)	POLYPROPYLENE WIDE WIDTH TENSILE STRENGTH @ ULTIMATE LB/INCH (KN/M)
4 (1.2)	200 (35)	200 (35)
6 (1.8)	200 (35)	200 (35)
8 (2.4)	200 (35)	200 (35)
10 (3.0)	200 (35)	230 (40)
12 (3.7)	220 (39)	264 (46)
14 (4.3)	248 (43)	297 (52)
16 (4.9)	276 (48)	330 (58)
18 (5.5)	304 (53)	364 (64)
20 (6.1)	332 (58)	397 (70)
22 (6.7)	359 (63)	431 (76)
24 (7.3)	387 (68)	464 (81)
26 (7.9)	415 (73)	497 (87)
28 (8.5)	443 (78)	531 (93)

*RD = REINFORCEMENT DIRECTION

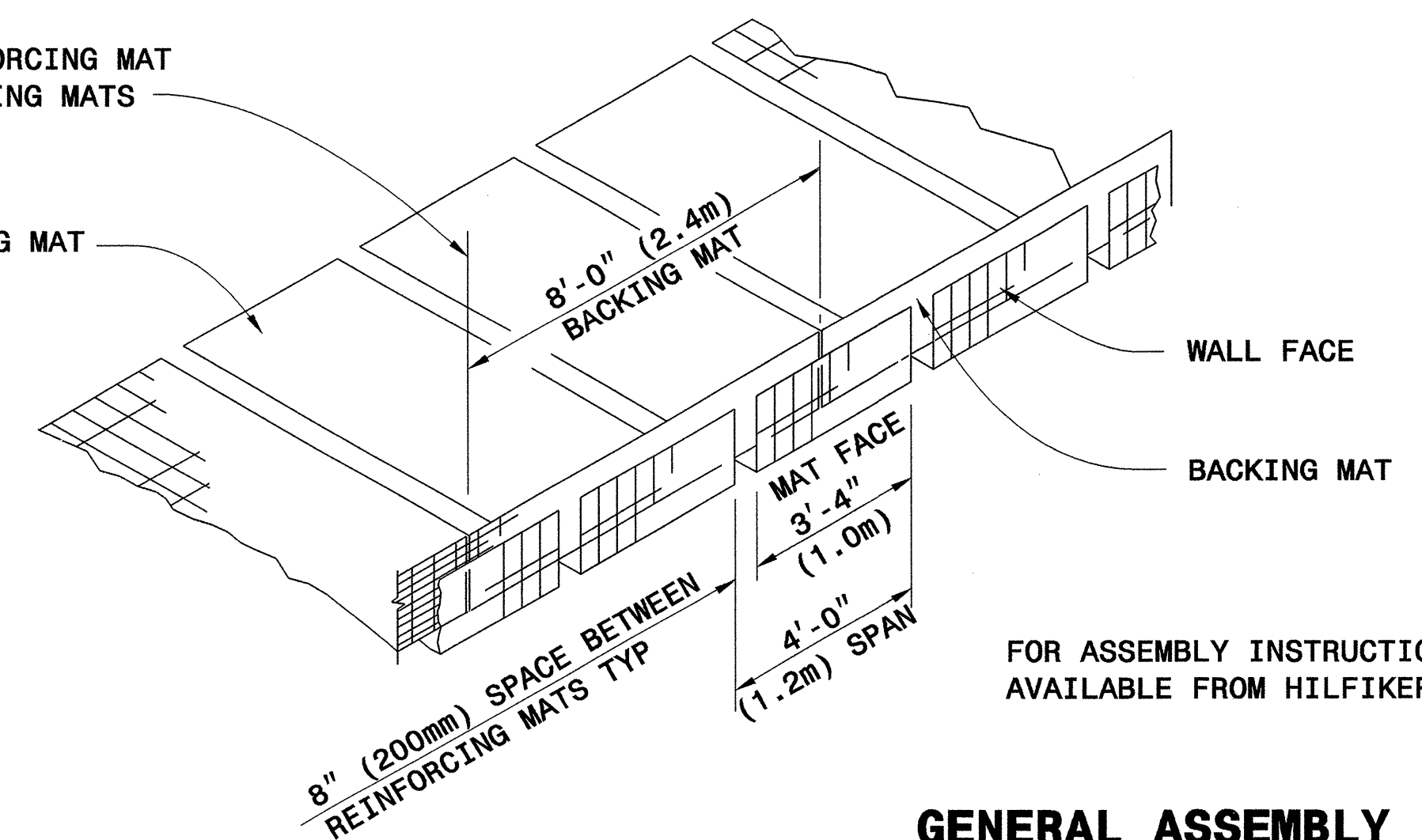


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STANDARD DRAWING NO. 1801.02

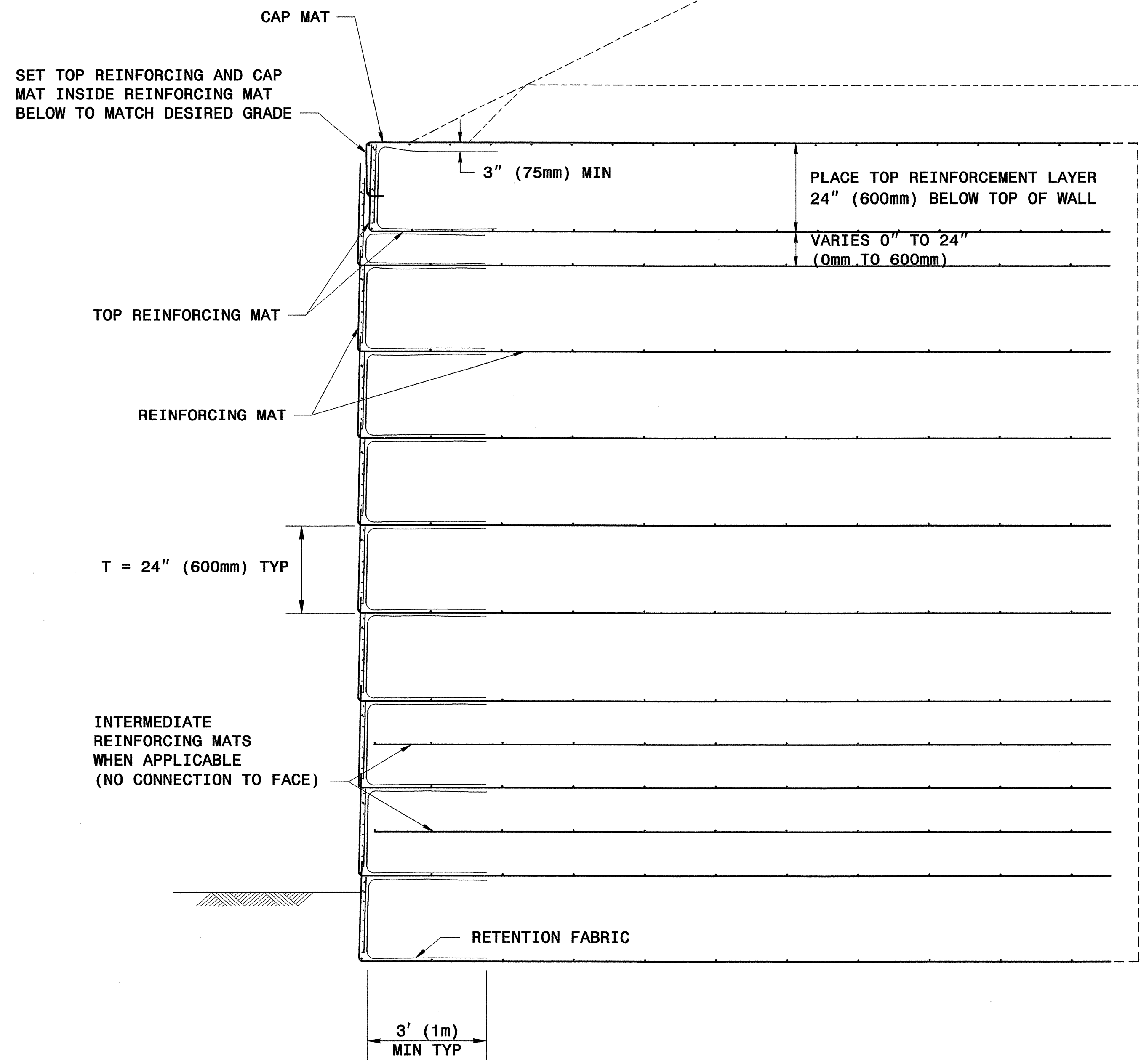
TEMPORARY FABRIC WALL

CENTERLINE OF REINFORCING MAT
FACE = EDGE OF BACKING MATS



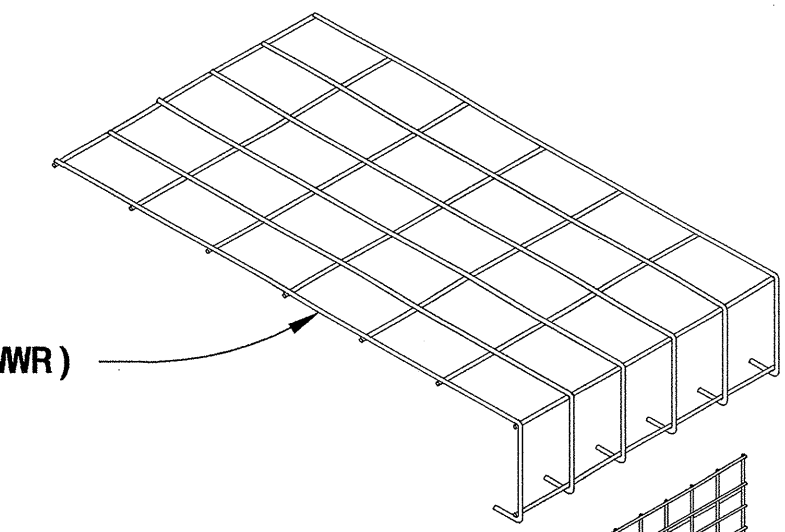
FOR ASSEMBLY INSTRUCTIONS, SEE WELDED WIRE WALL CONSTRUCTION GUIDE AVAILABLE FROM HILFIKER WEBSITE AT WWW.HILFIKER.COM/WWW

GENERAL ASSEMBLY DETAIL

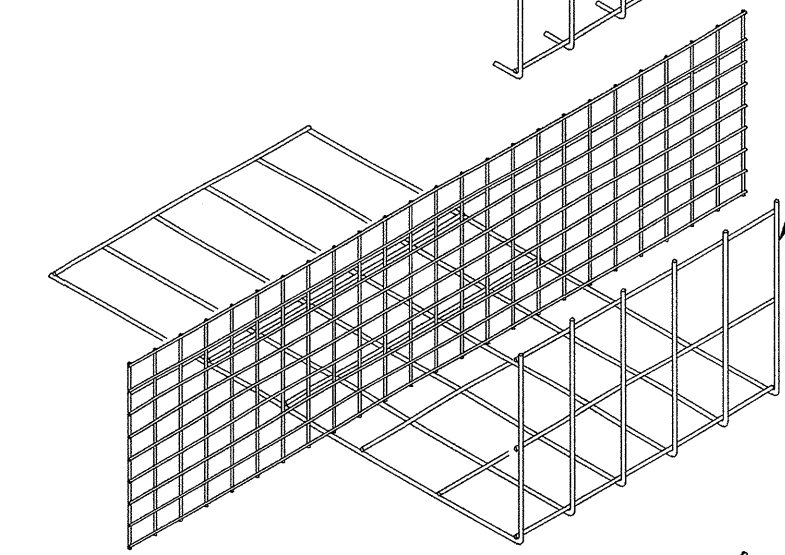


TYPICAL SECTION

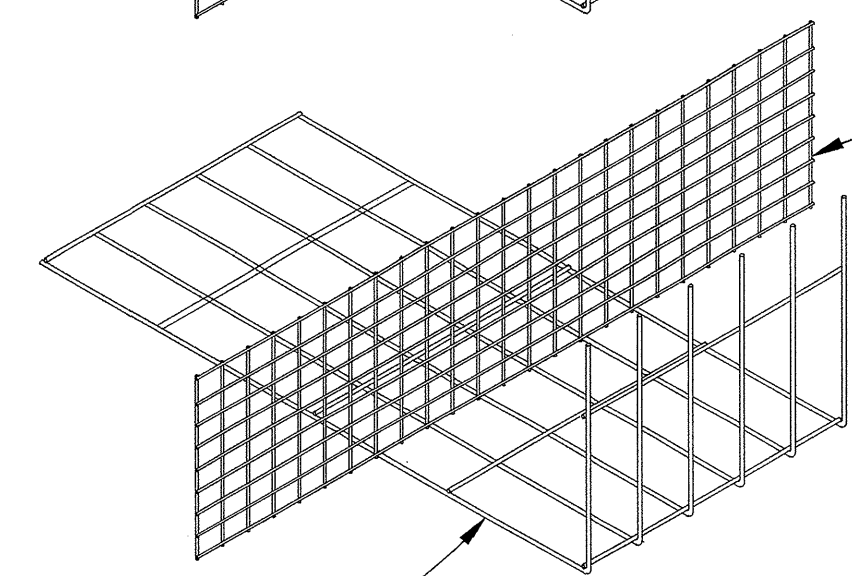
8" X 12" (203mm X 305mm)
W4.5 X W3.5 (MW29 X MW23)
CAP MAT
WELDED WIRE REINFORCEMENT (WWR)



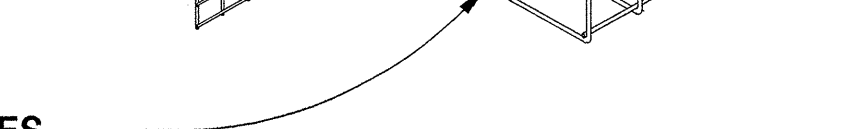
8" X 12" (203mm X 305mm)
W4.5 X W3.5 (MW29 X MW23) WWR
TOP REINFORCING MAT (NO PRONGS)



4" X 3" (102mm X 76mm)
W5 X W2.5 (MW32 X MW16) WWR
BACKING MAT
8' (2.4m) WIDE




8" X 21" (203mm X 533mm)
REINFORCING MAT
SEE SHEETS 2 AND 3 FOR GAUGE SIZES



WALL COMPONENTS



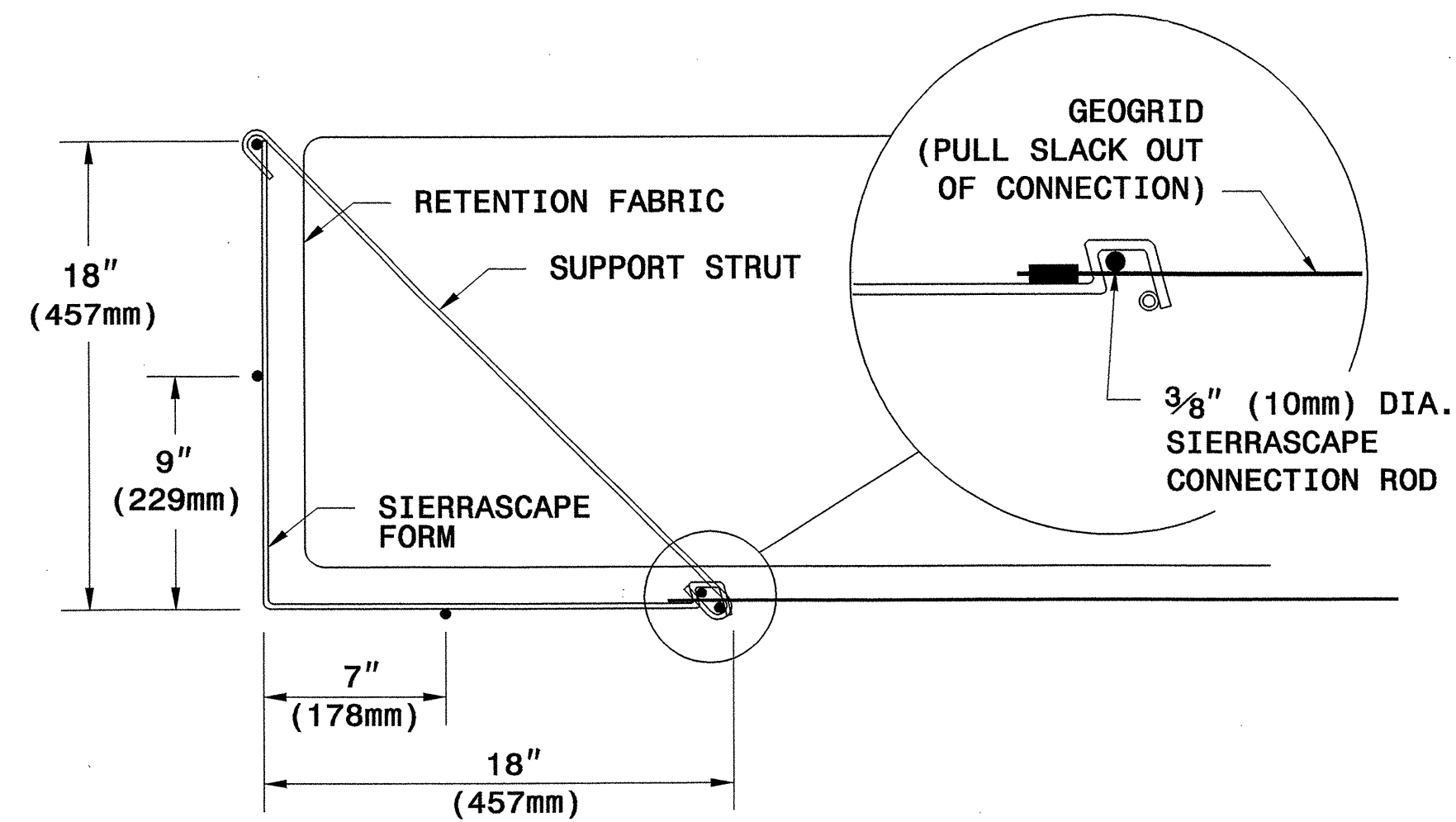
GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH



STANDARD DRAWING NO. 1801.02
HILFIKER TEMPORARY WALL
SHEET 4 OF 11
DATE: 12-19-06

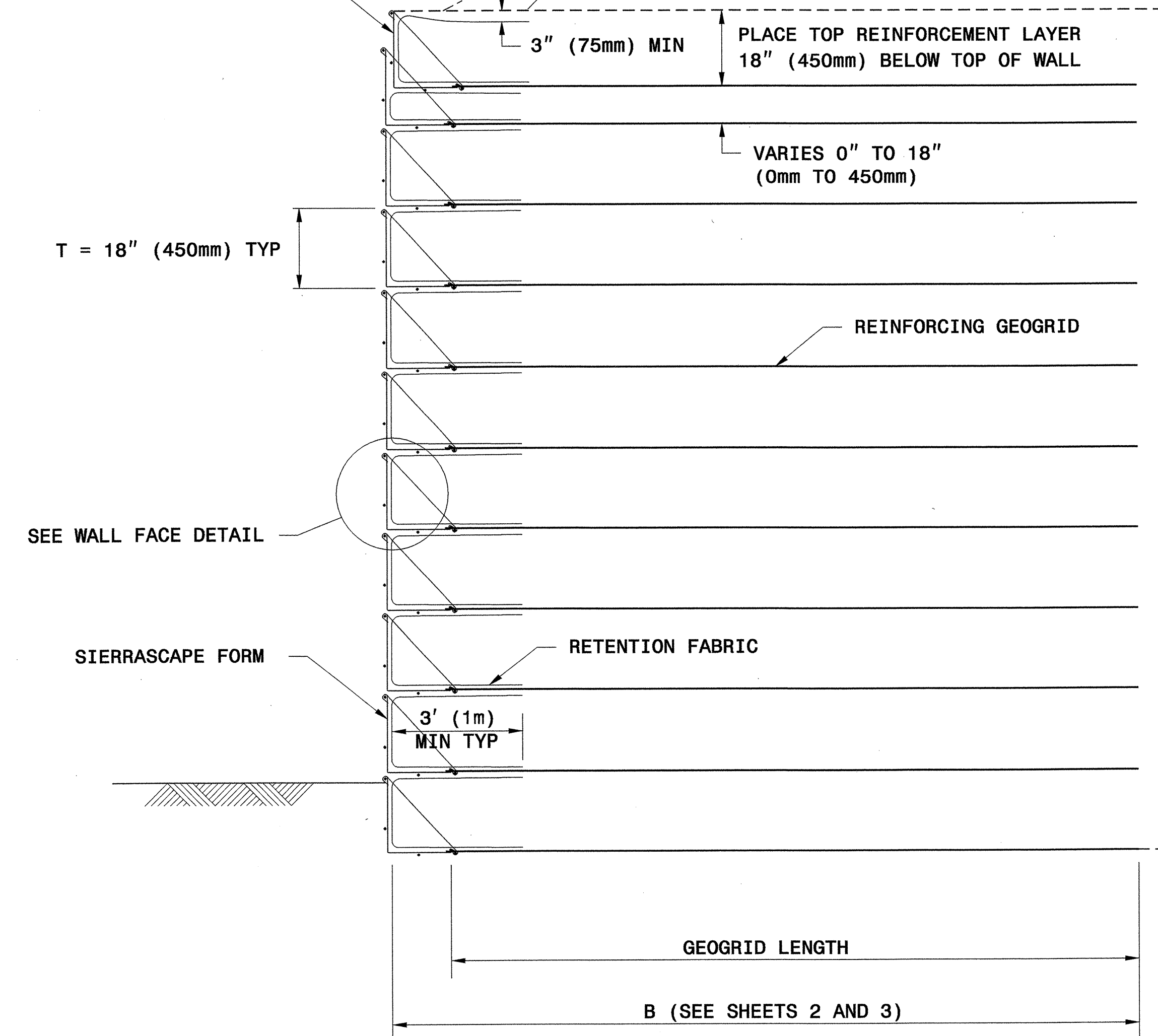


Scott A. Shidden 3/29/07
 SIGNATURE DATE SIGNATURE DATE

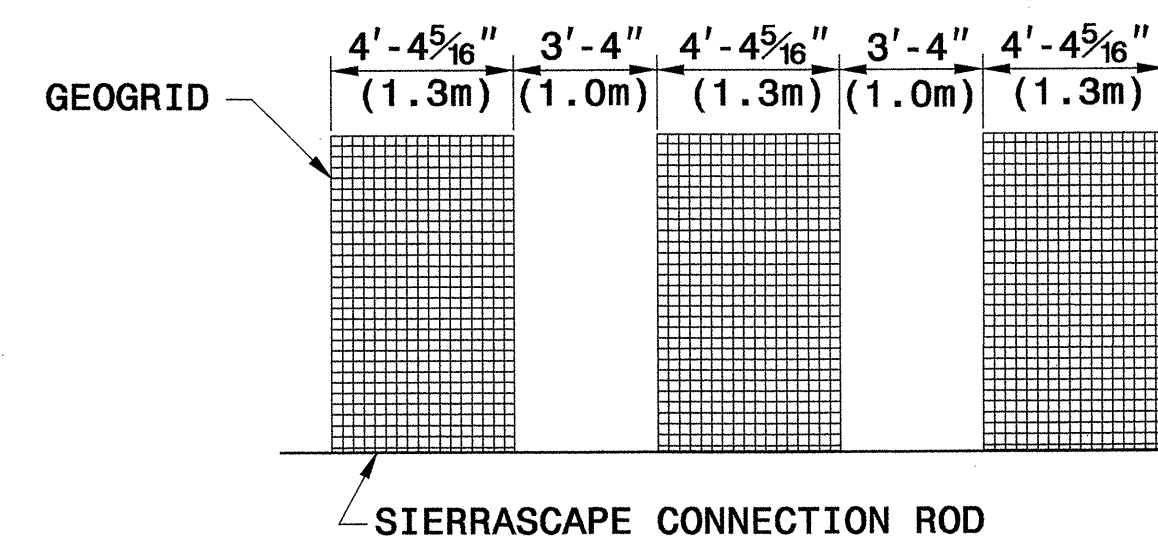


WALL FACE DETAIL

SET TOP WIRE FORM
 INSIDE WIRE FORM BELOW
 TO MATCH DESIRED GRADE

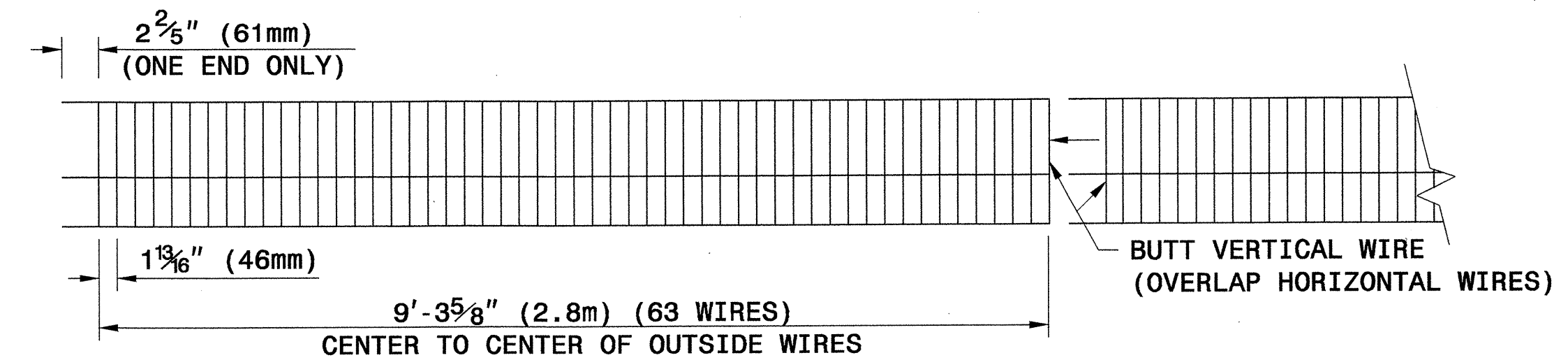


TYPICAL SECTION

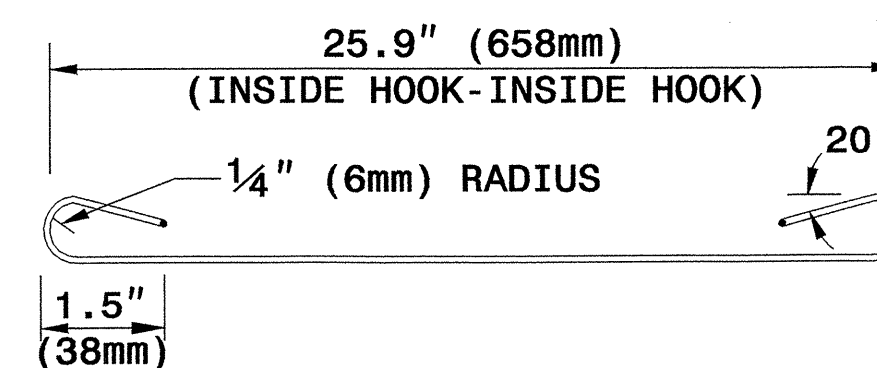


PLACE ALTERNATE LAYERS OF GEOGRID IN STAGGERED PATTERN SUCH THAT THE LAYER ABOVE IS CENTERED OVER SPACE BELOW

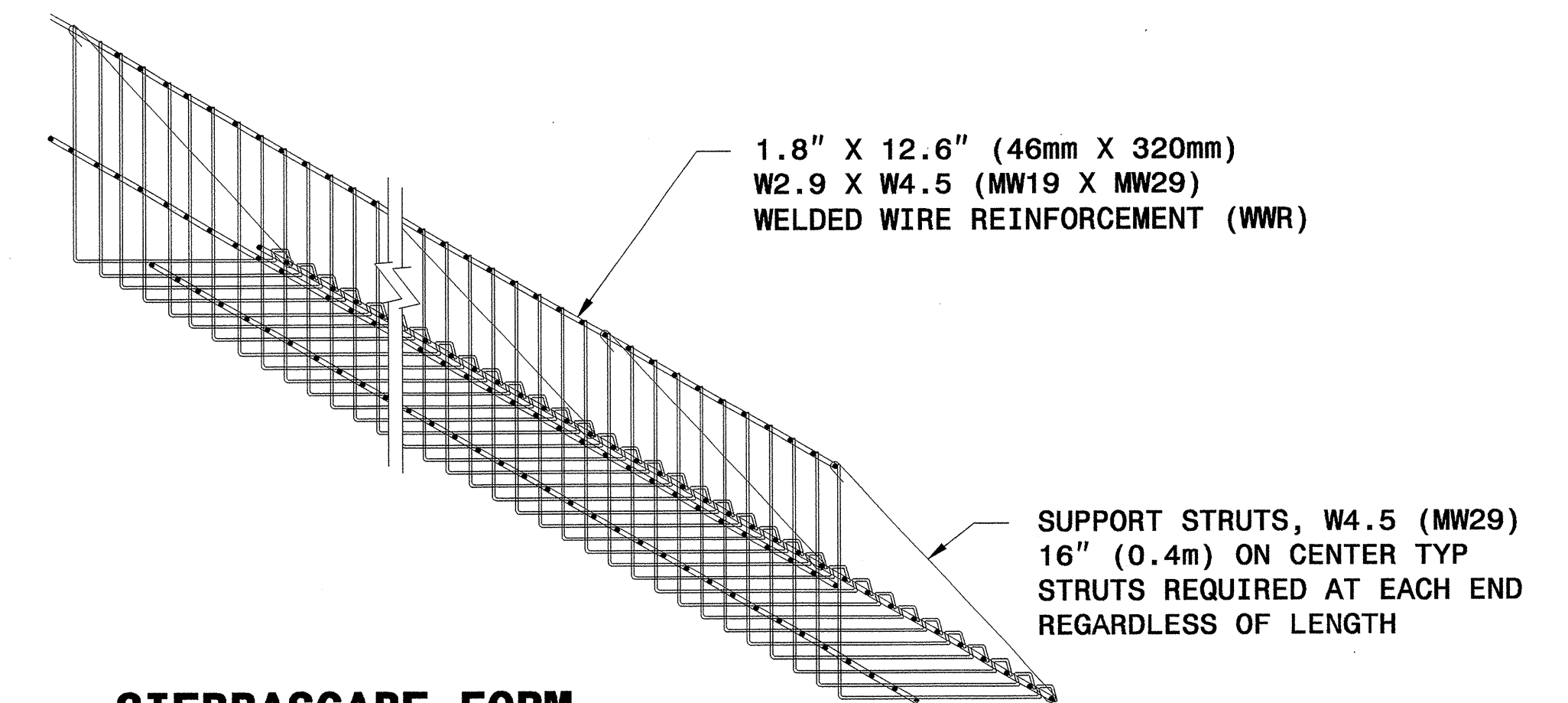
TYPICAL GEOGRID COVERAGE



ELEVATION VIEW

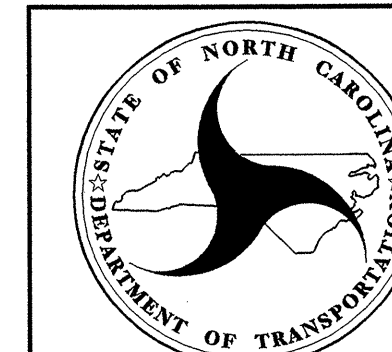
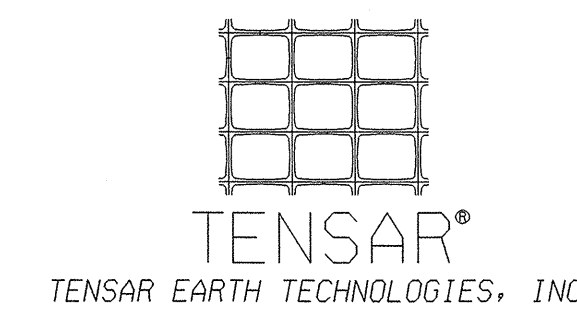


SUPPORT STRUT



SIERRASCAPE FORM

WALL COMPONENTS



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 RALEIGH

STANDARD DRAWING NO. 1801.02

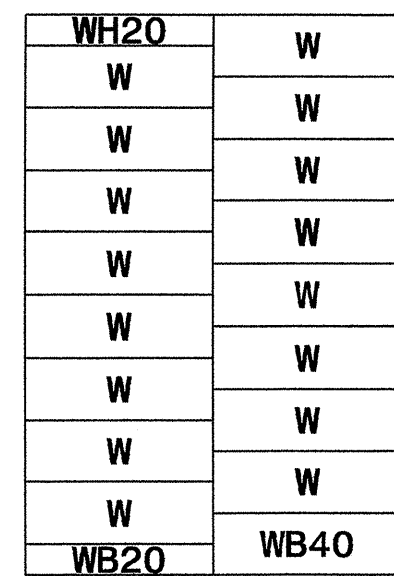
SIERRASCAPE TEMPORARY WALL



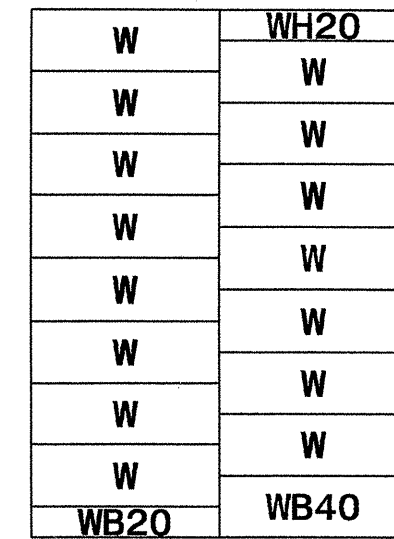
Signature: Scott A. Shidden 3/29/07
 SIGNATURE DATE SIGNATURE DATE

PANEL LAYOUTS

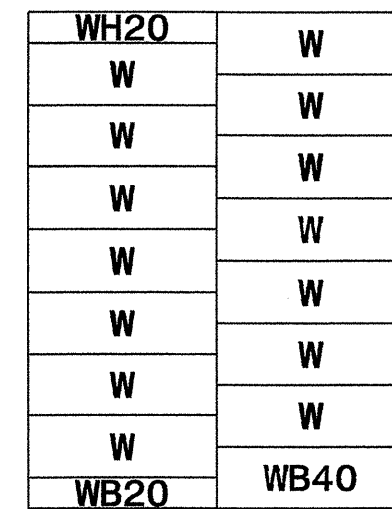
H - WALL HEIGHT
 (FEET-INCHES)
 (METER)



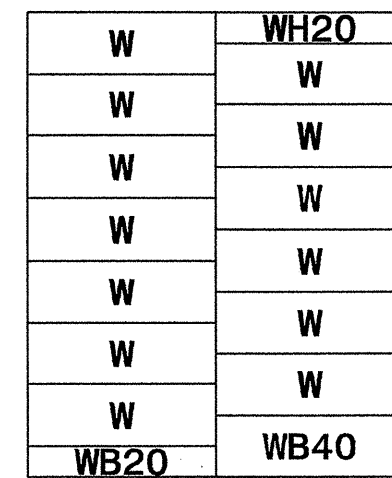
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 < 8.5



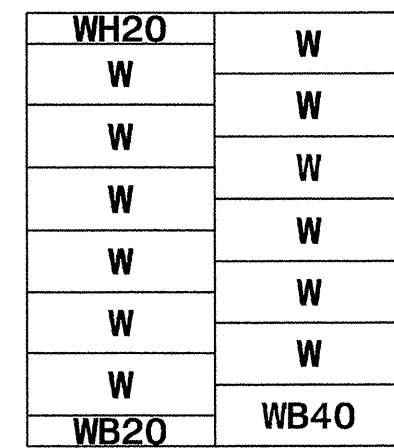
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 < 8.2



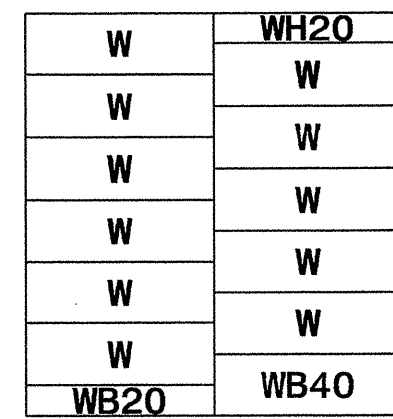
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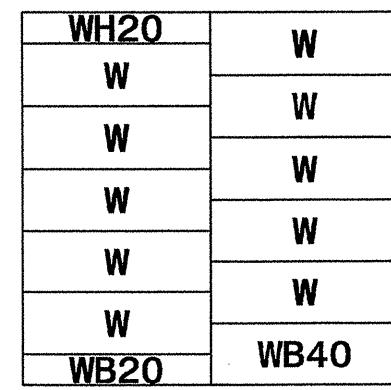
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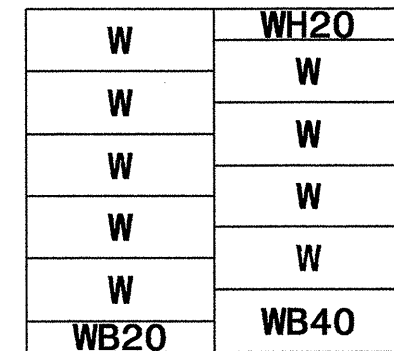
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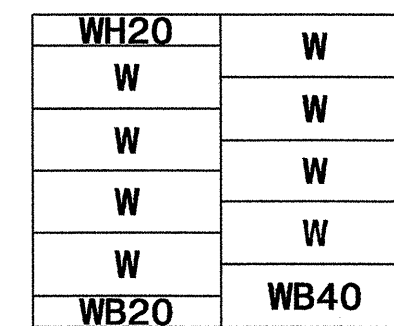
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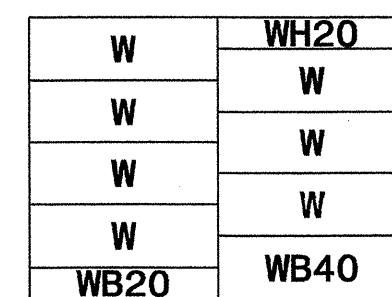
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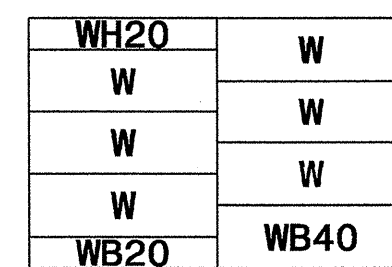
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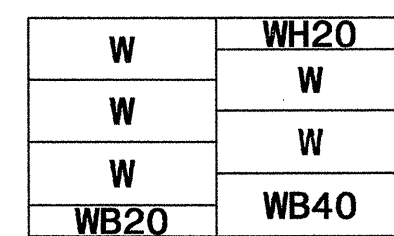
< 15 - 4
 < 4.7



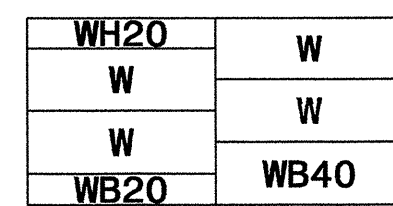
< 13 - 8
 < 4.2



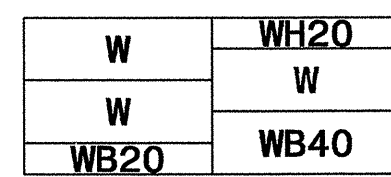
< 12 - 0
 < 3.7



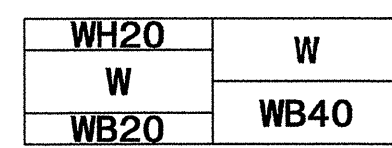
< 10 - 4
 < 3.2



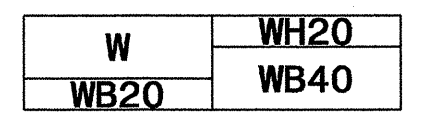
< 8 - 8
 < 2.6



< 7 - 0
 < 2.1

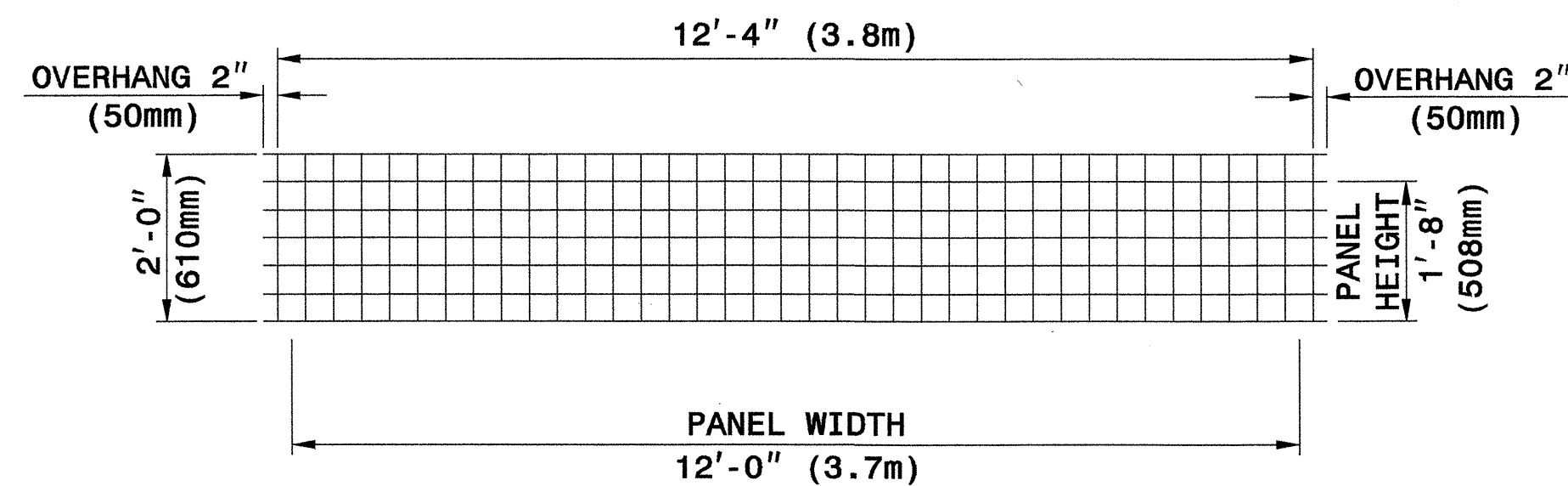


< 5 - 4
 < 1.6

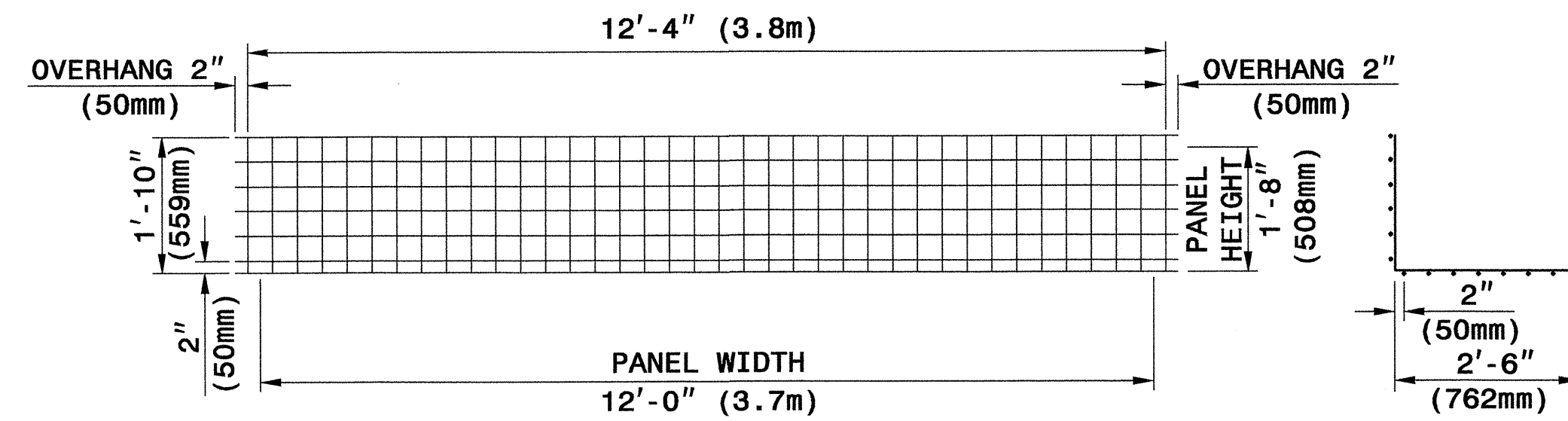


< 3 - 8
 < 1.1

(FEET-INCHES)
 (METER)

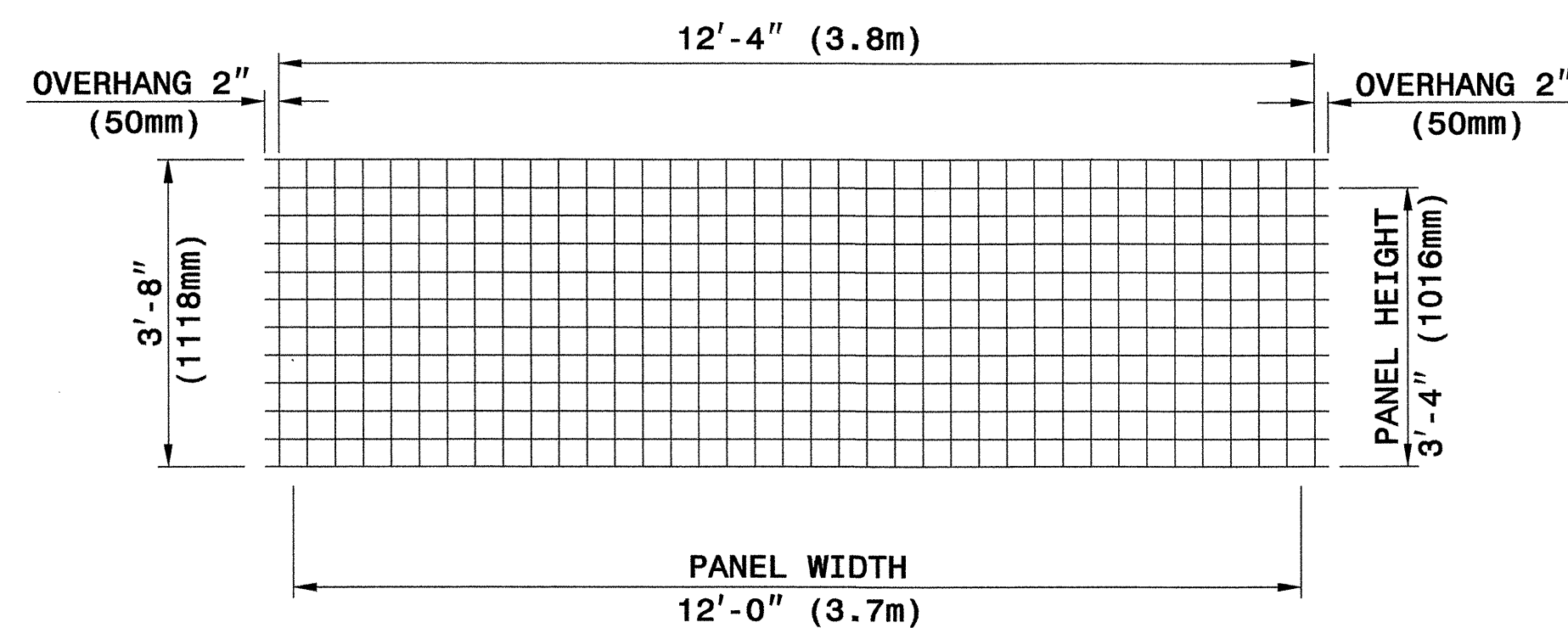


TYPE WH20

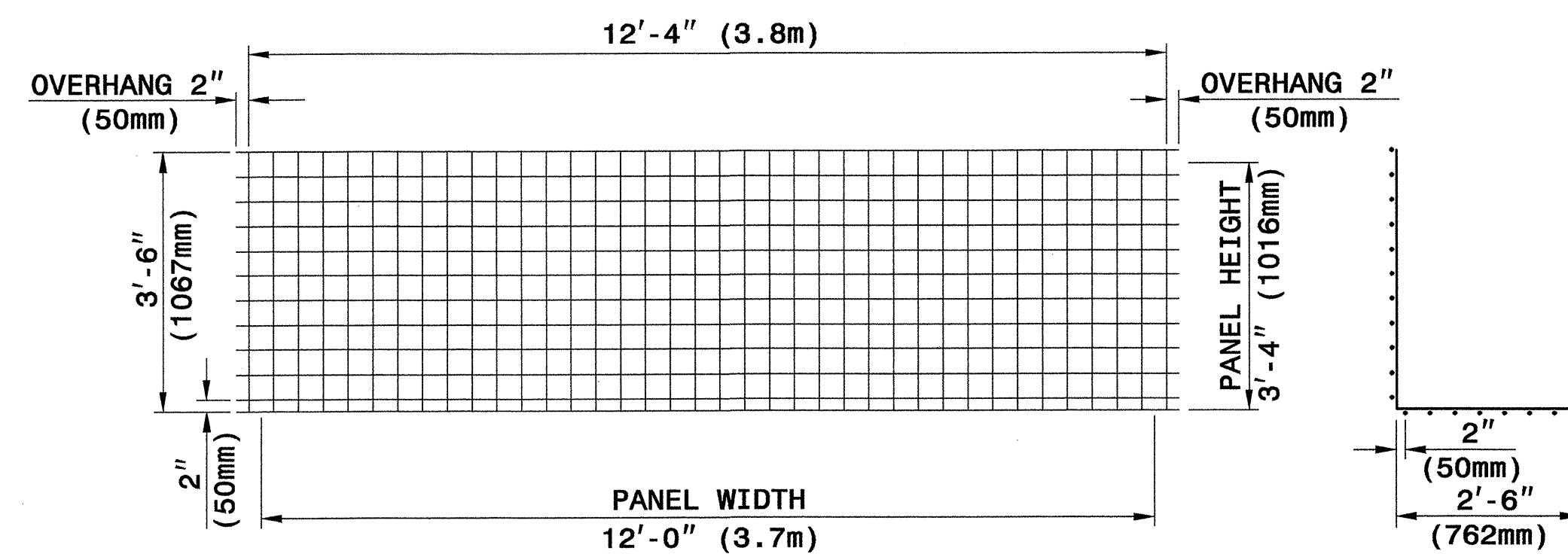


TYPE WB20

SECTION



TYPE W



TYPE WB40

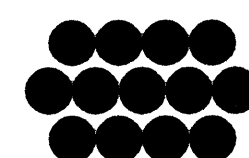
SECTION

WELDED WIRE FACINGS

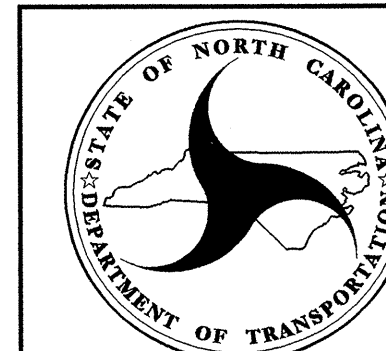
WELDED WIRE FORMS

PANEL TYPES (WELDED WIRE FACINGS AND FORMS)

4" X 4" (100mm X 100mm), W8 X W8 (MW52 X MW52) WELDED WIRE REINFORCEMENT (WWR)



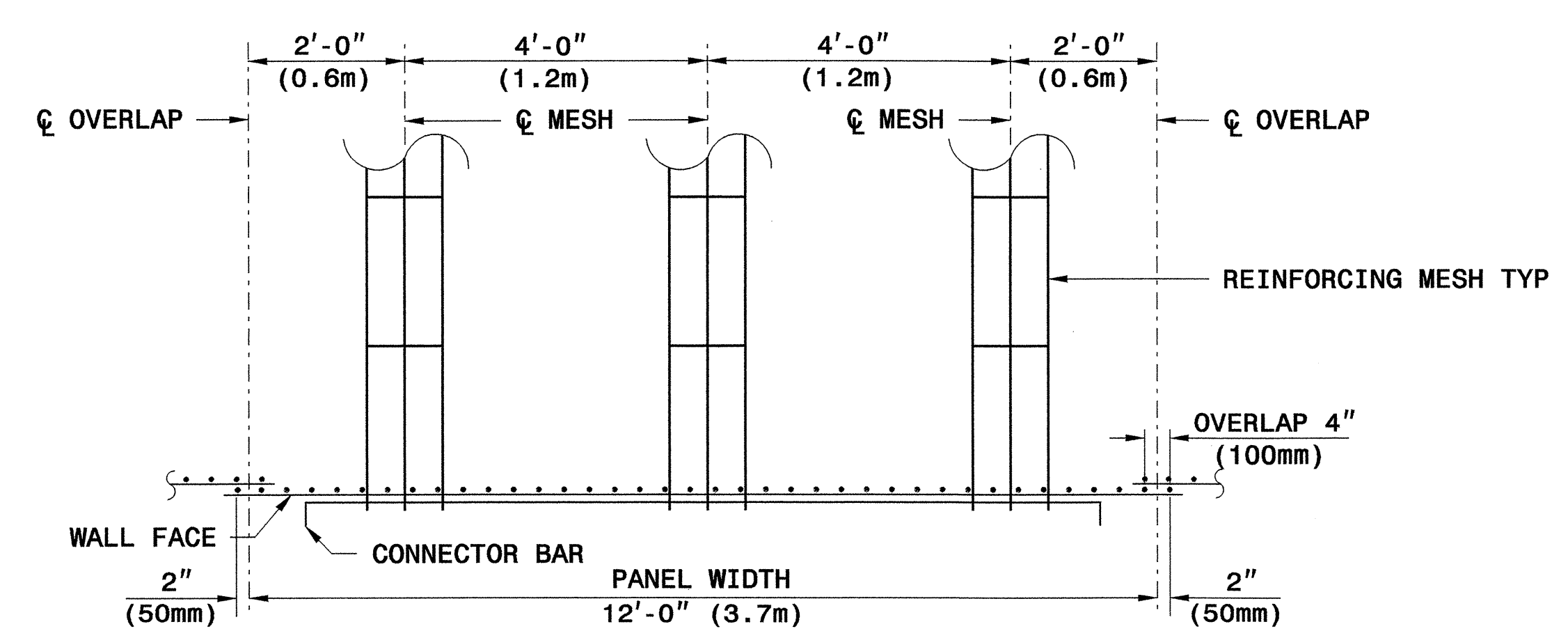
The Reinforced Earth Company



GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

RETAINED EARTH
 TEMPORARY WALL



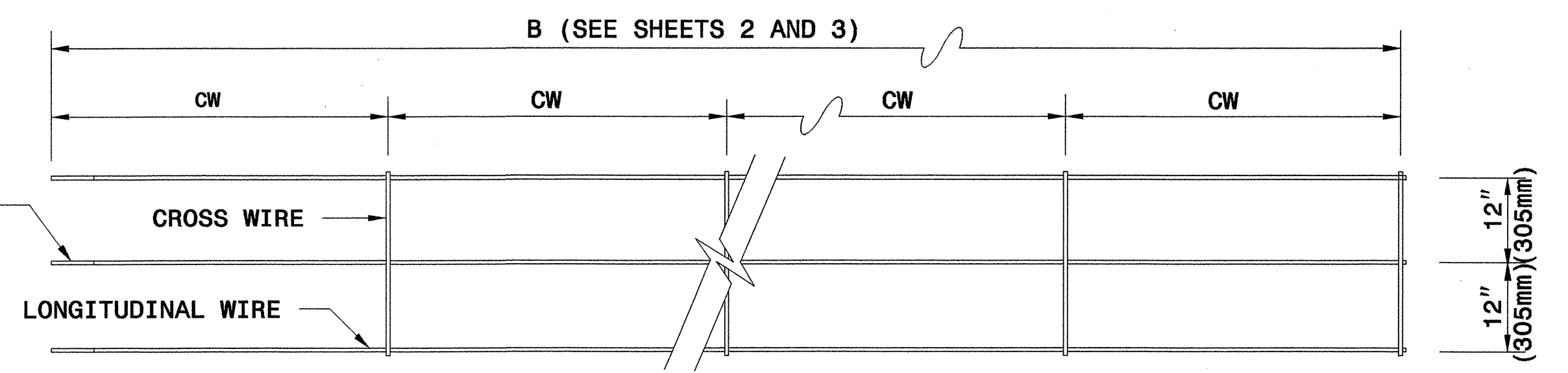
**REINFORCING MESH PLACEMENT DETAIL
(PLAN VIEW)**



1/2" (13mm) DIA. BAR

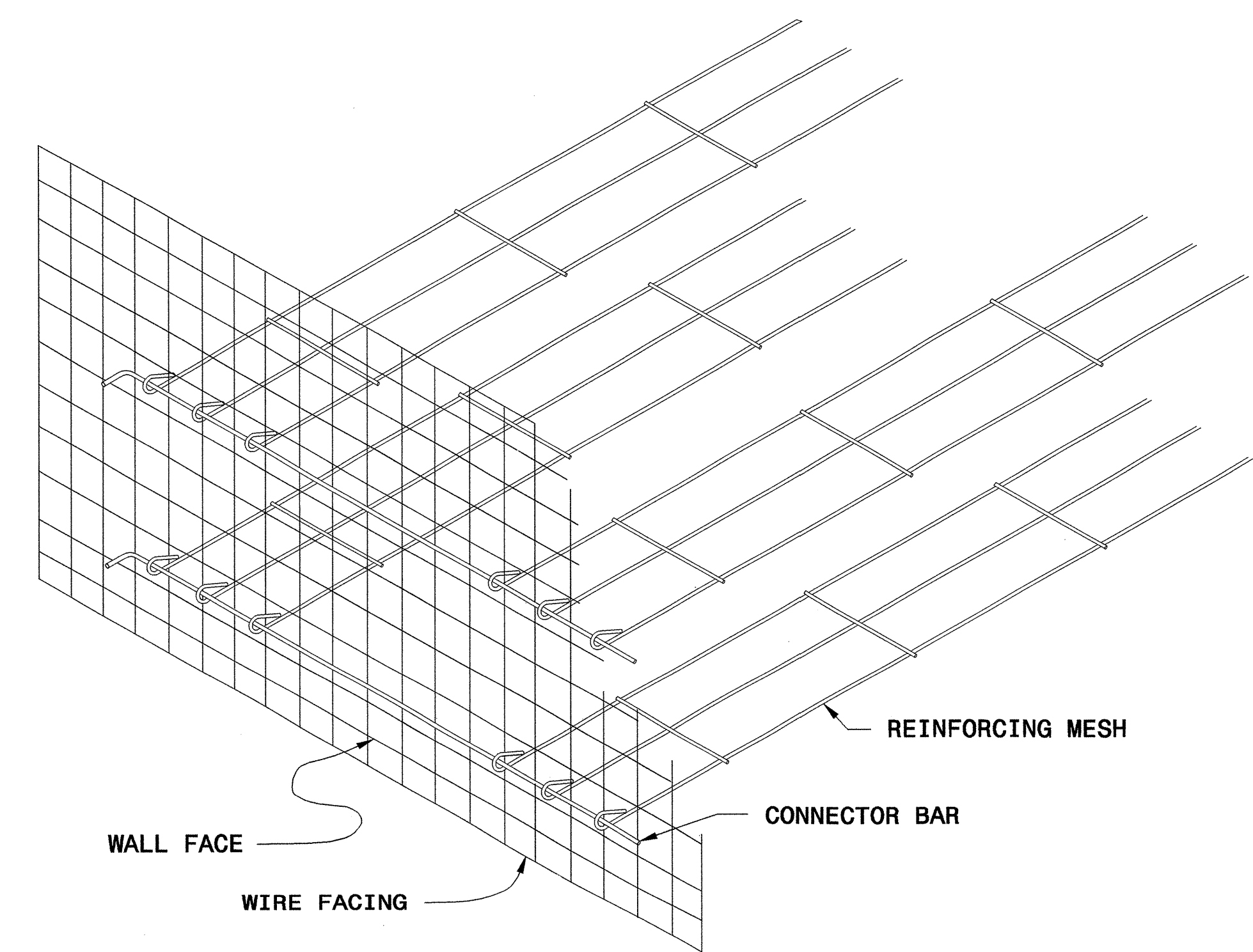
CONNECTOR BAR

LOOPEd END OF MESH
(SEE REINFORCING MESH LOOP DETAIL)



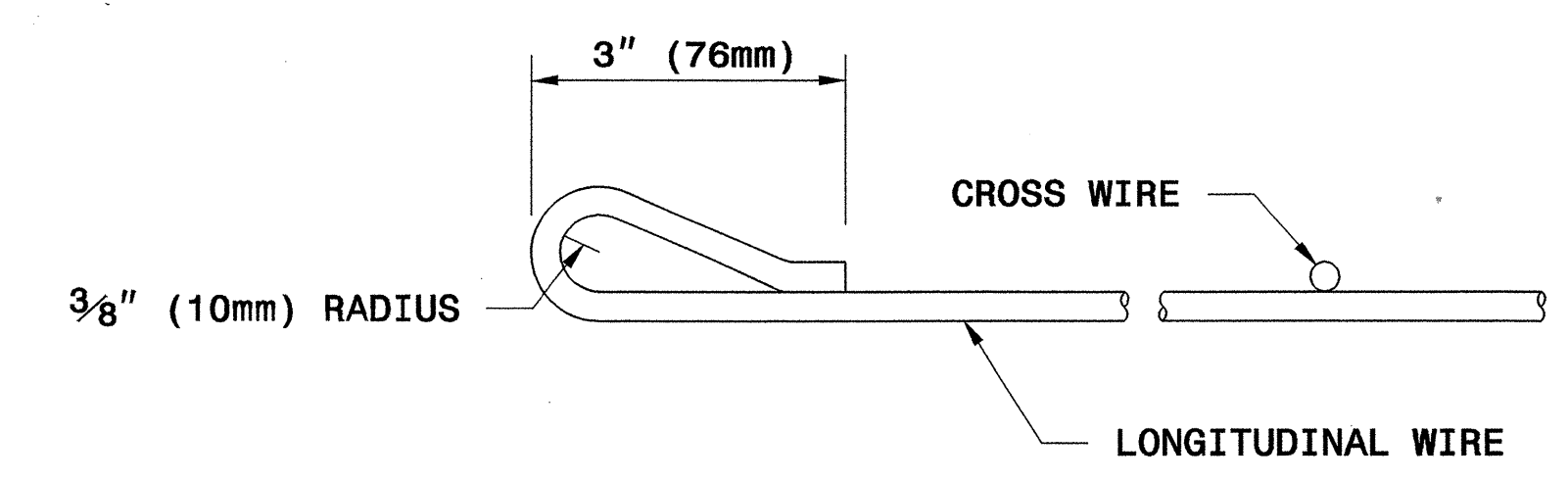
3W8 X W8 x 2.0' (3MW52 X MW52 X 610mm)
 NO. OF LONGITUDINAL WIRES
 GAUGE OF LONGITUDINAL WIRES
 GAUGE OF CROSS WIRES
 SPACING OF CROSS WIRES IN FT (mm), CW

REINFORCING MESH DESIGNATION




GENERAL ASSEMBLY DETAIL

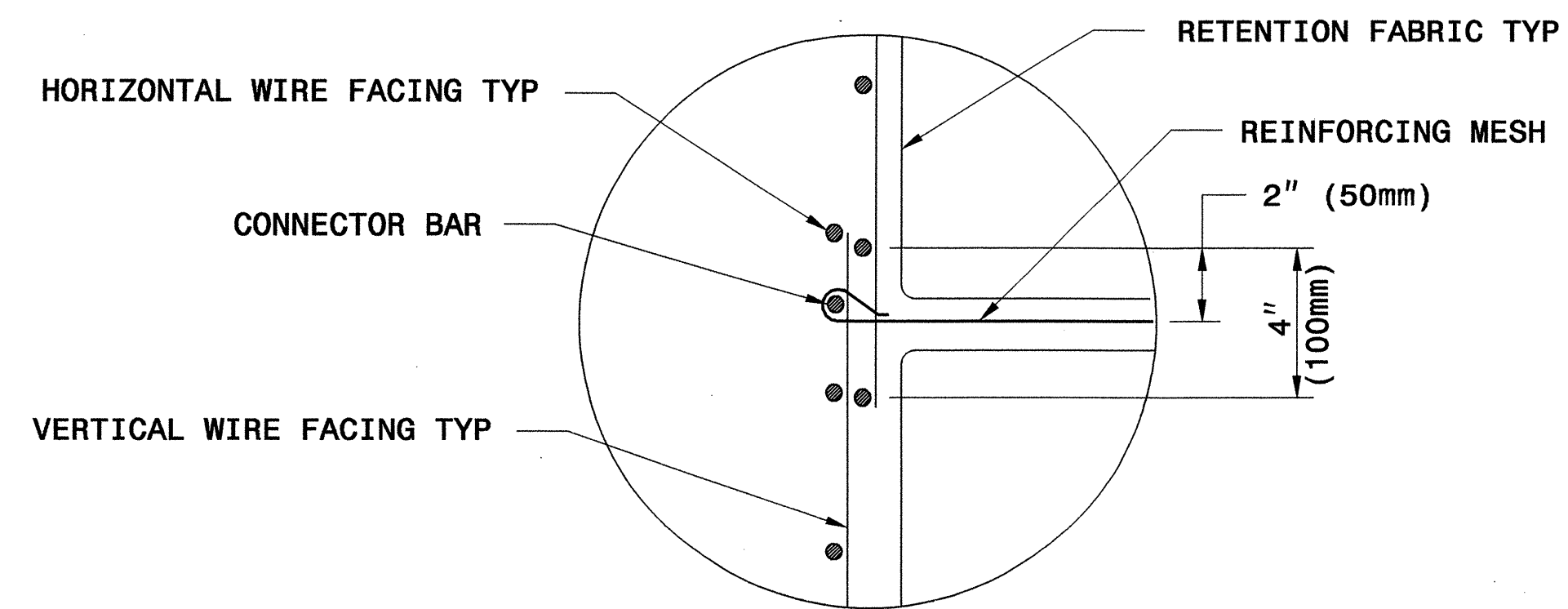
REINFORCING MESH



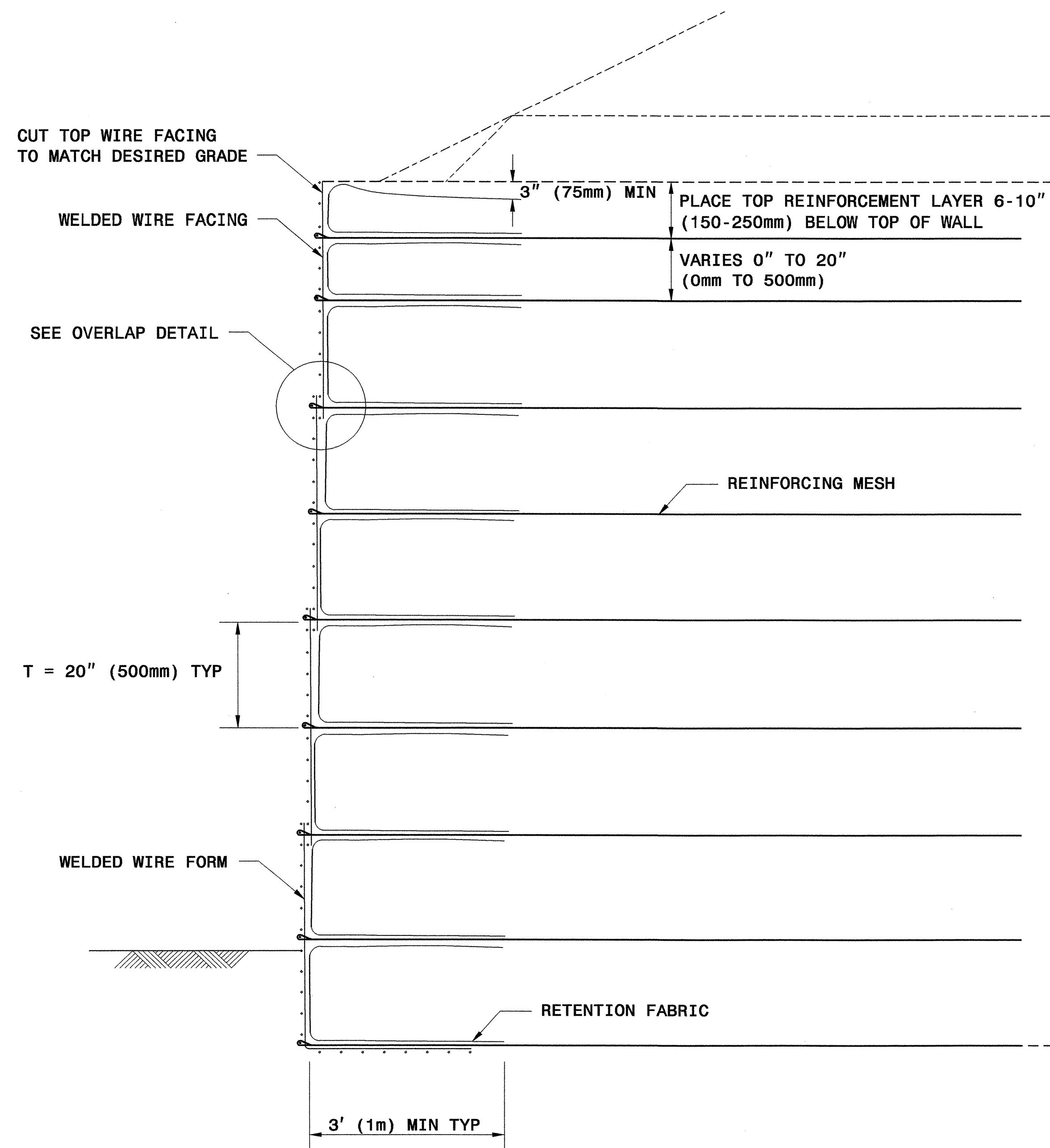
REINFORCING MESH LOOP DETAIL



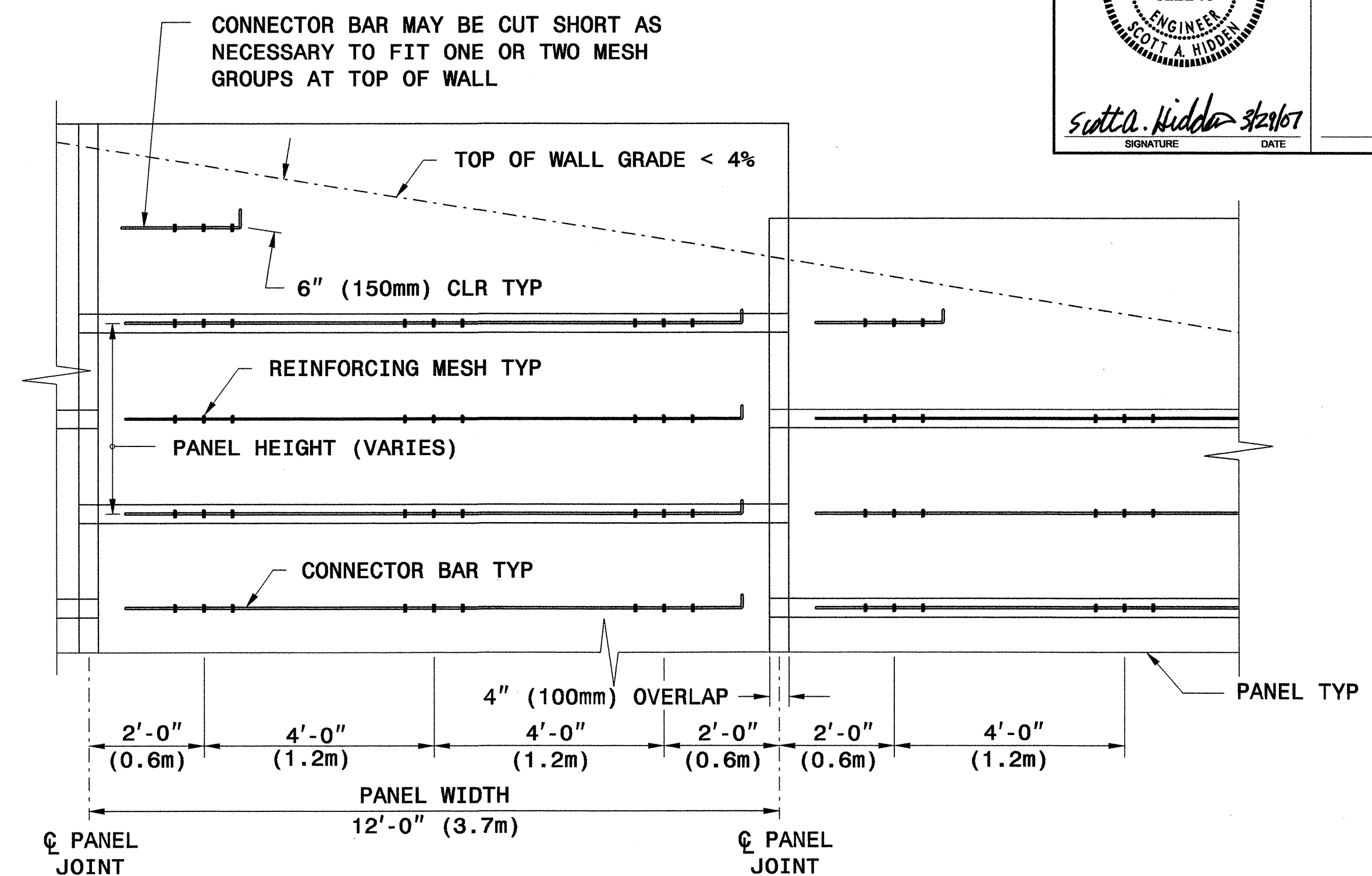
GEOTECHNICAL ENGINEER  Scott A. Hadden SIGNATURE DATE	ENGINEER SIGNATURE DATE
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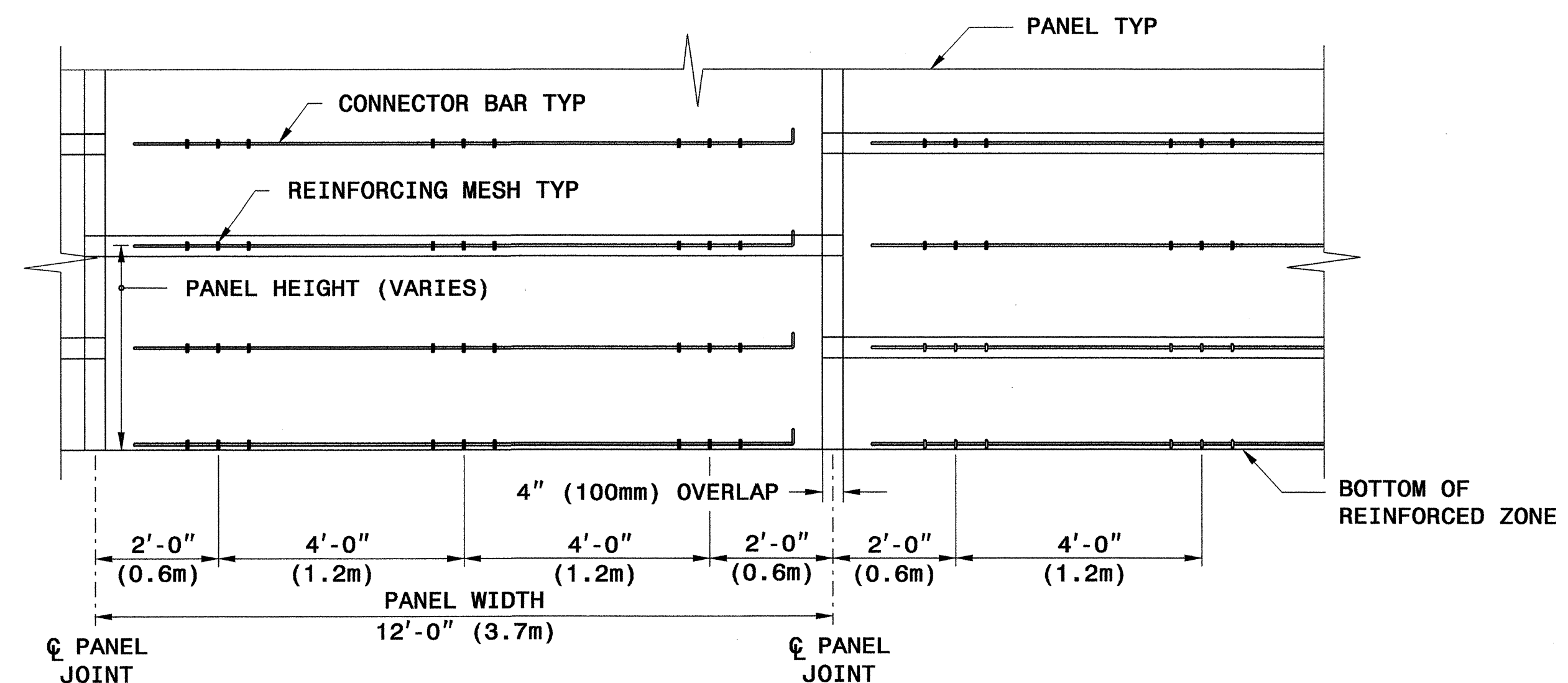
OVERLAP DETAIL



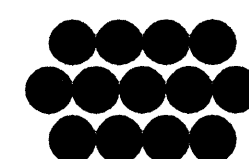
TYPICAL SECTION



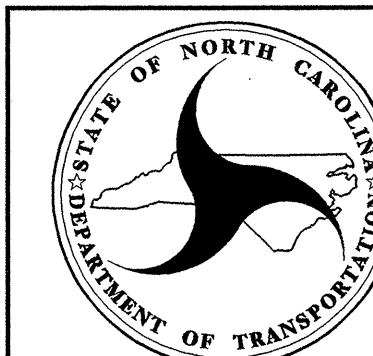
**TYPICAL ELEVATION @ TOP OF WALL
(WIRES NOT SHOWN FOR CLARITY)**



**TYPICAL ELEVATION @ BOTTOM OF WALL
(WIRES NOT SHOWN FOR CLARITY)**



The Reinforced Earth Company

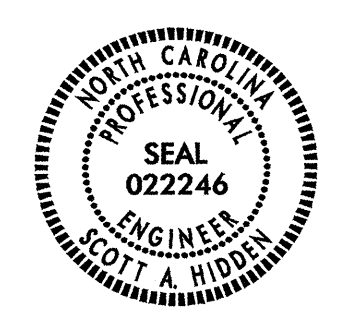


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RALEIGH

STANDARD DRAWING NO. 1801.02

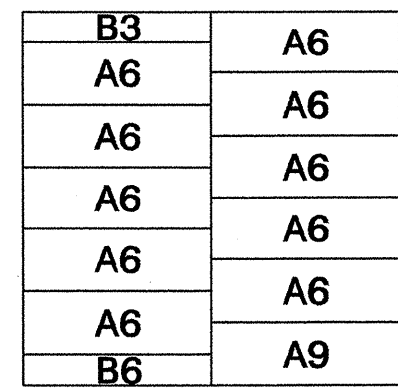
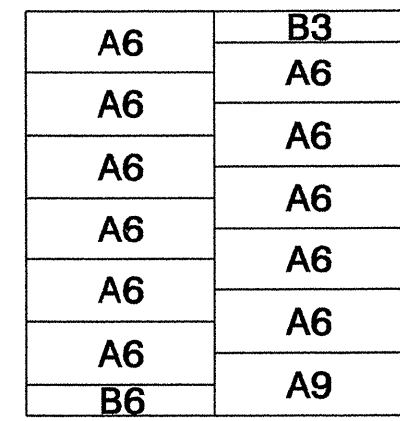
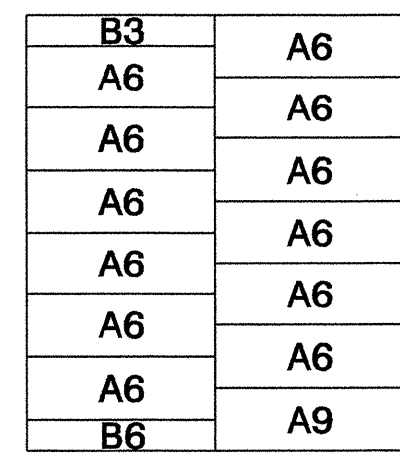
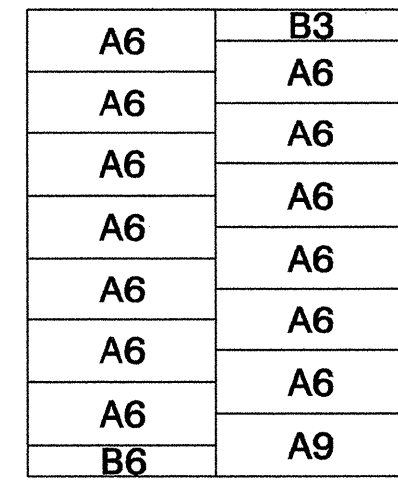
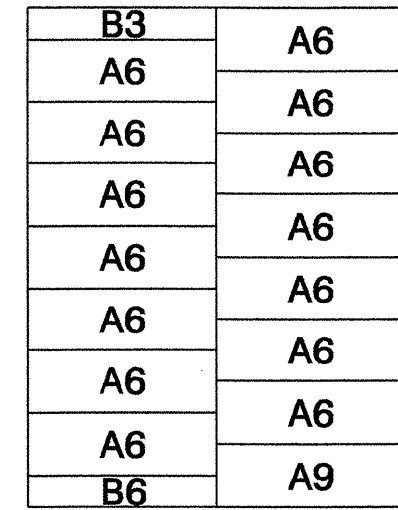
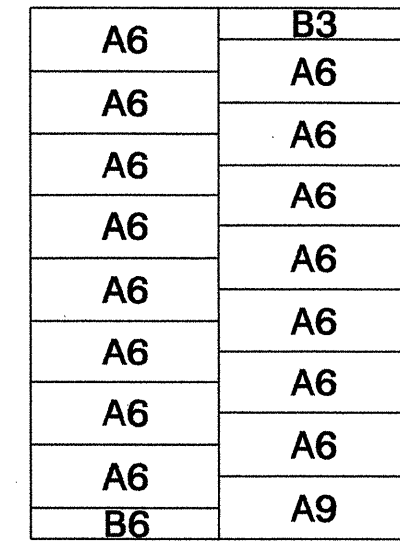
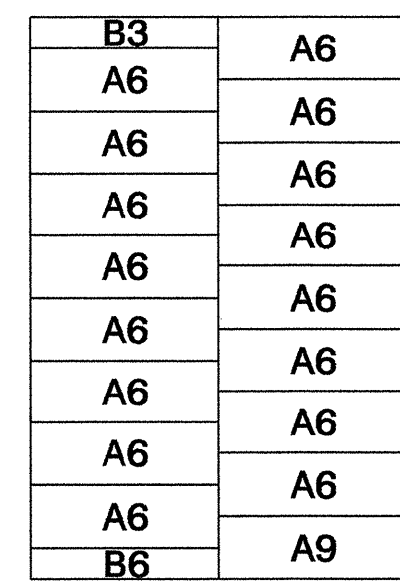
RETAINED EARTH
TEMPORARY WALL



Signature: Scott A. Hadden
Date: _____

PANEL LAYOUTS

H - WALL HEIGHT
(FEET - INCHES)
(METER)



< 28 - 0
< 8.5

< 27 - 8
< 8.4

< 26 - 0
< 7.9

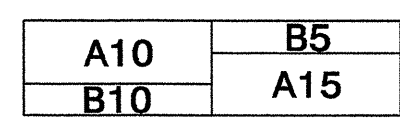
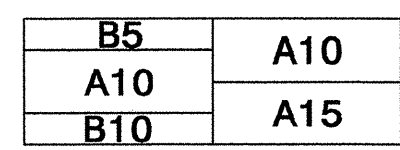
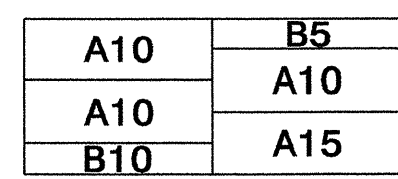
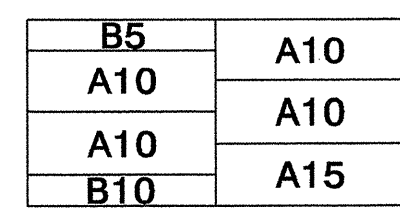
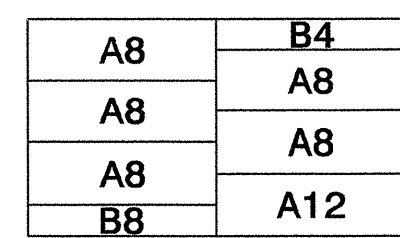
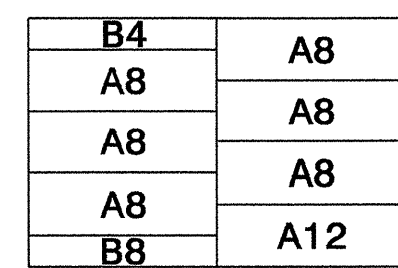
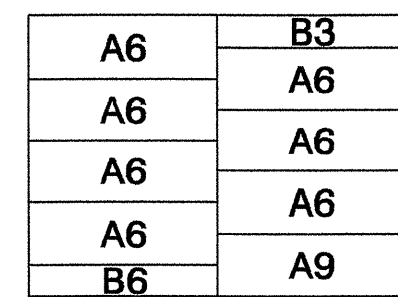
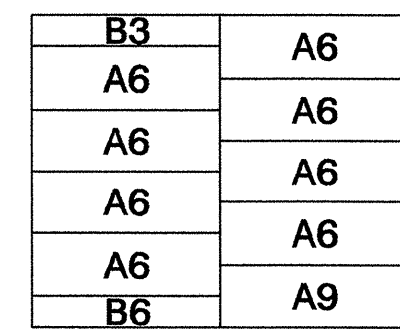
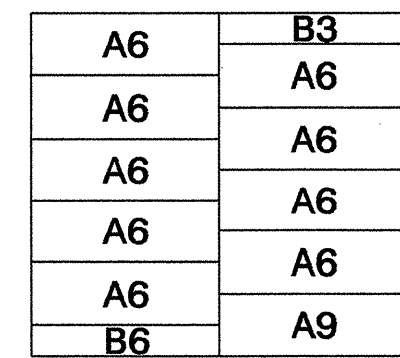
< 24 - 4
< 7.4

< 22 - 8
< 6.9

< 21 - 0
< 6.4

< 19 - 4
< 5.9

(FEET - INCHES)
(METER)



< 17 - 8
< 5.4

< 16 - 0
< 4.9

< 14 - 4
< 4.4

< 12 - 8
< 3.9

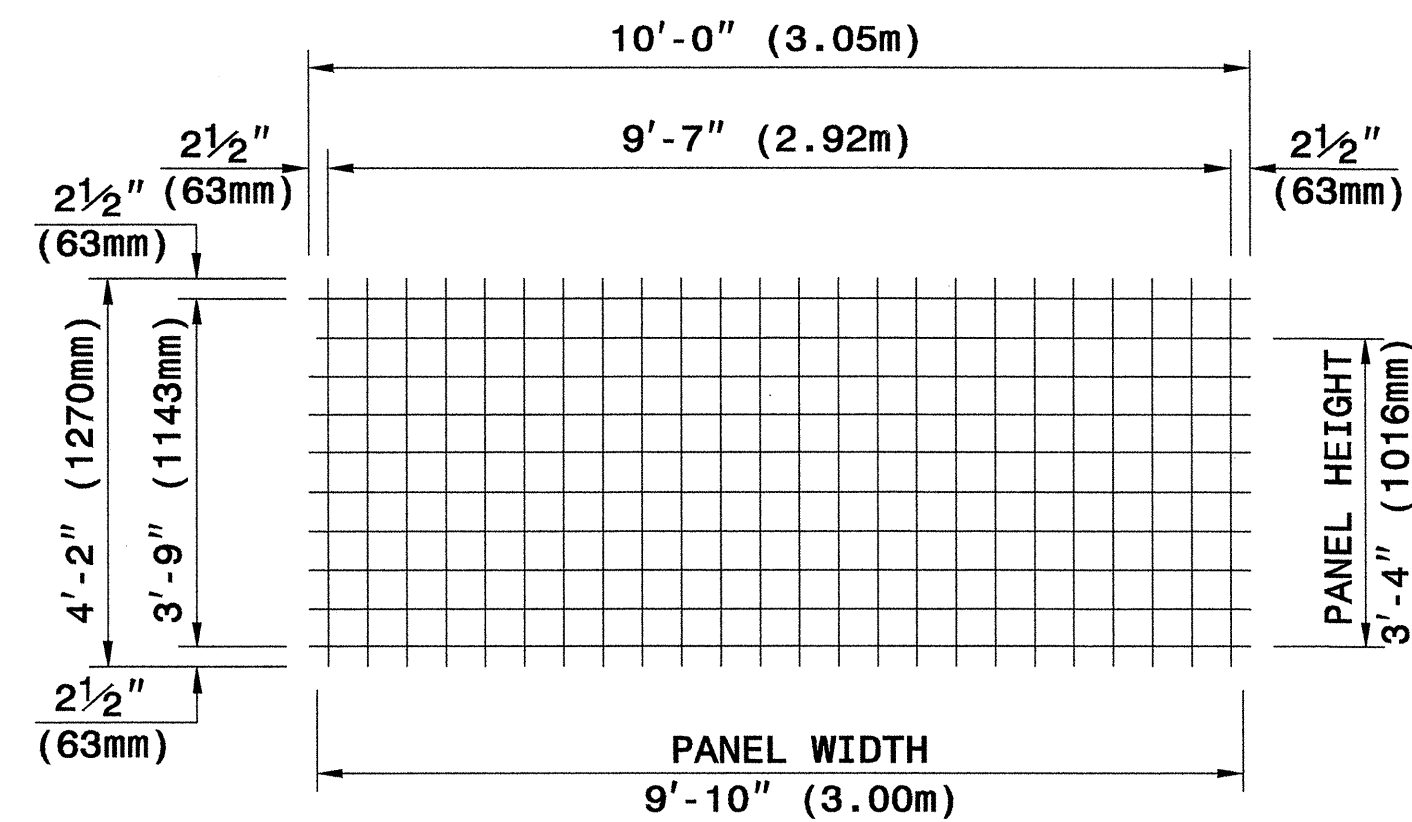
< 11 - 0
< 3.4

< 9 - 4
< 2.8

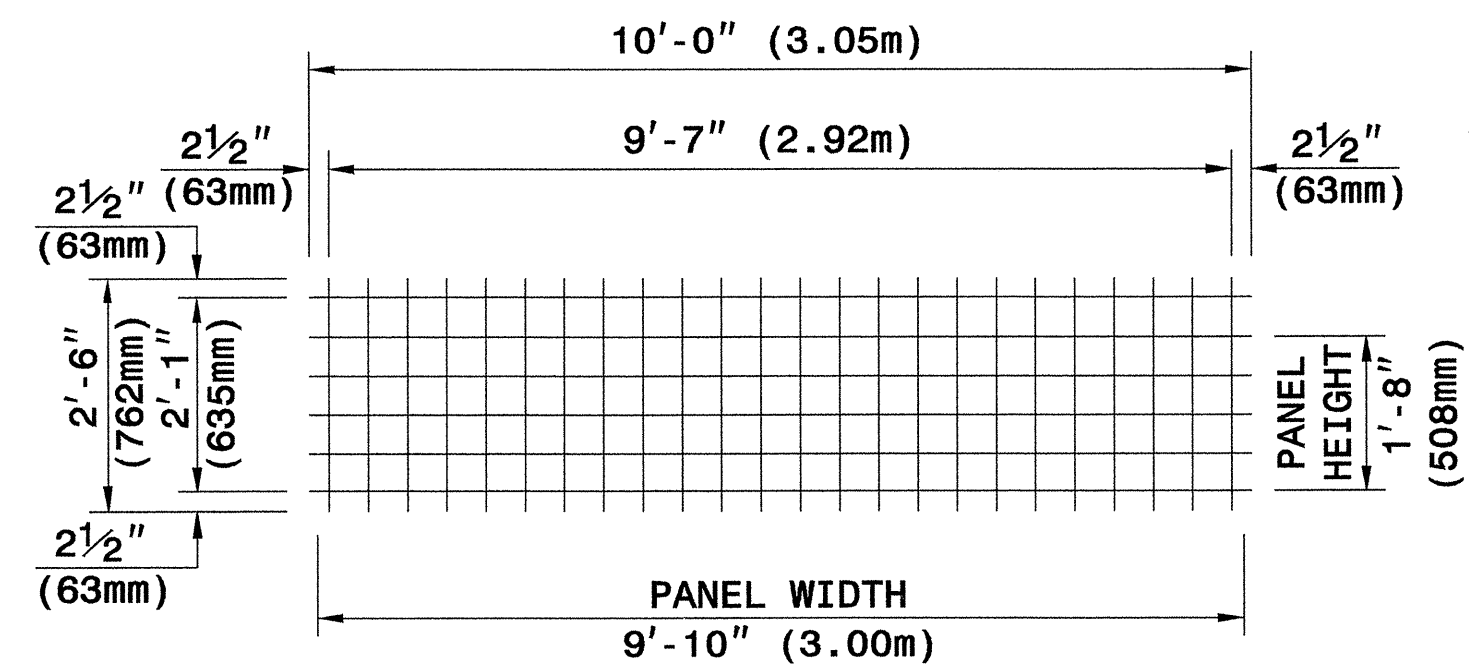
< 7 - 8
< 2.3

< 6 - 0
< 1.8

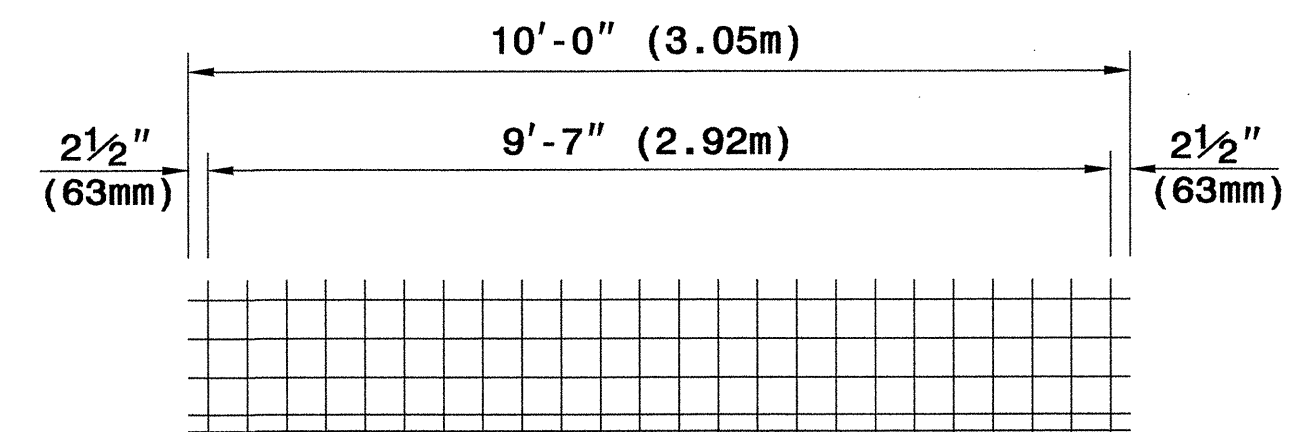
< 4 - 4
< 1.3



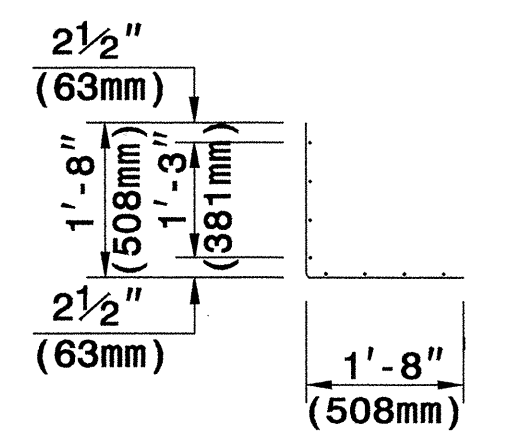
TYPE A



TYPE B



WELDED WIRE FORM

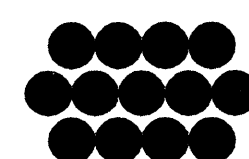


SECTION

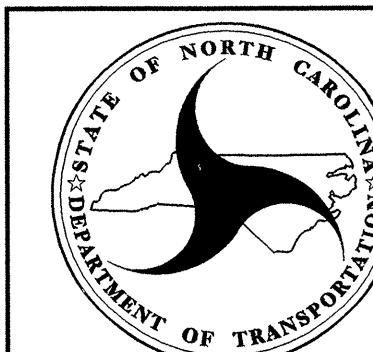
WELDED WIRE FACINGS

PANEL TYPES (WELDED WIRE FACINGS AND FORM)

5" X 5" (125mm X 125mm), W5 X W5 (MW32 X MW32) WELDED WIRE REINFORCEMENT (WWR)




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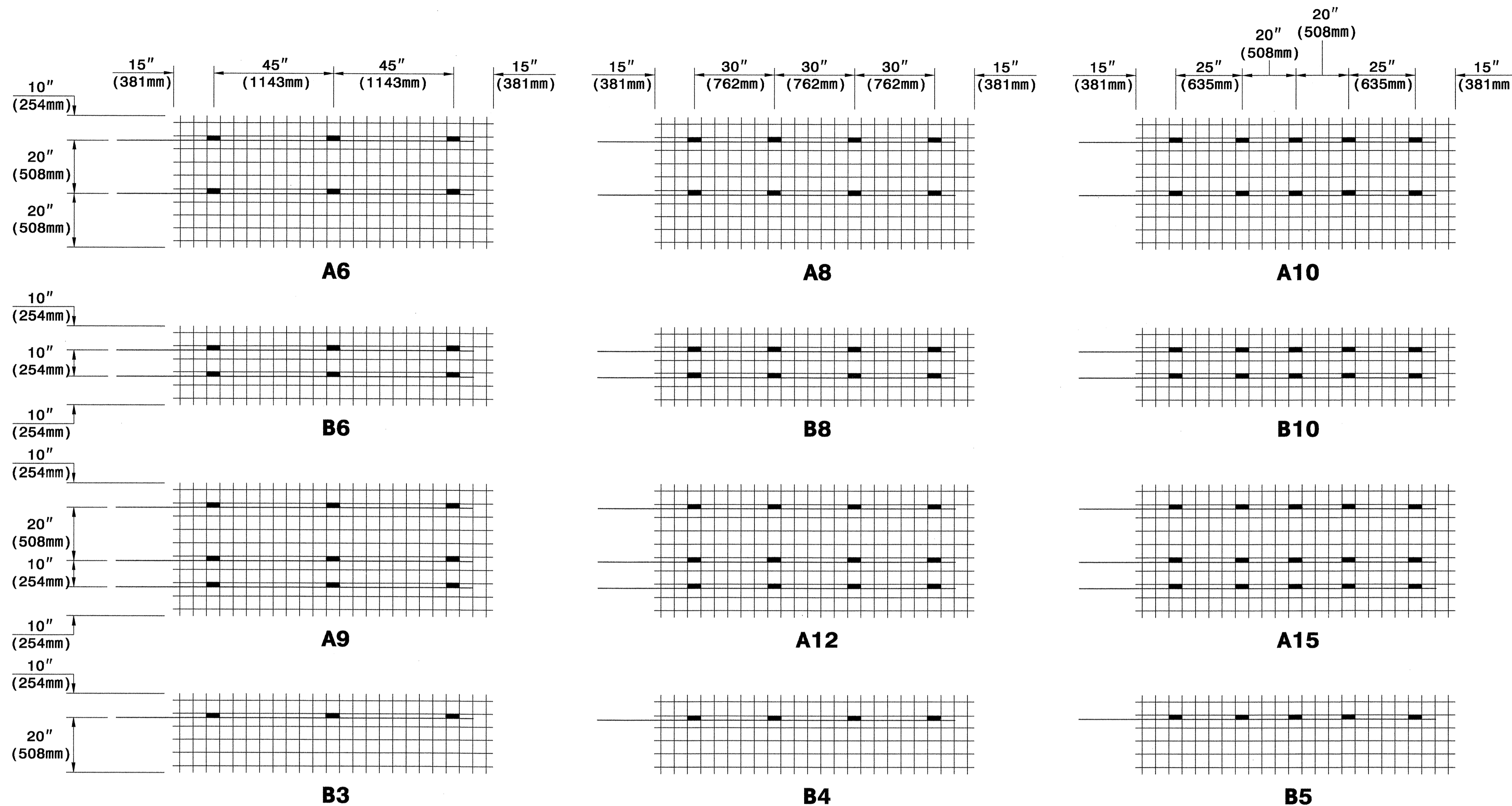


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RALEIGH

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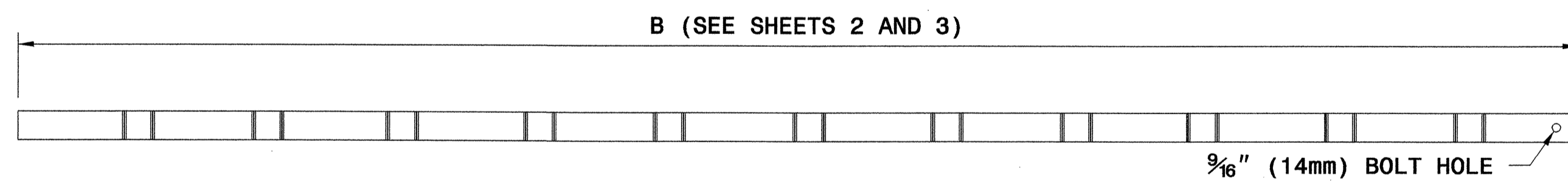
TERRATREL
TEMPORARY WALL

GEOTECHNICAL ENGINEER  Scott A. Hadden 3/21/07 SIGNATURE DATE	ENGINEER SIGNATURE DATE
--	--

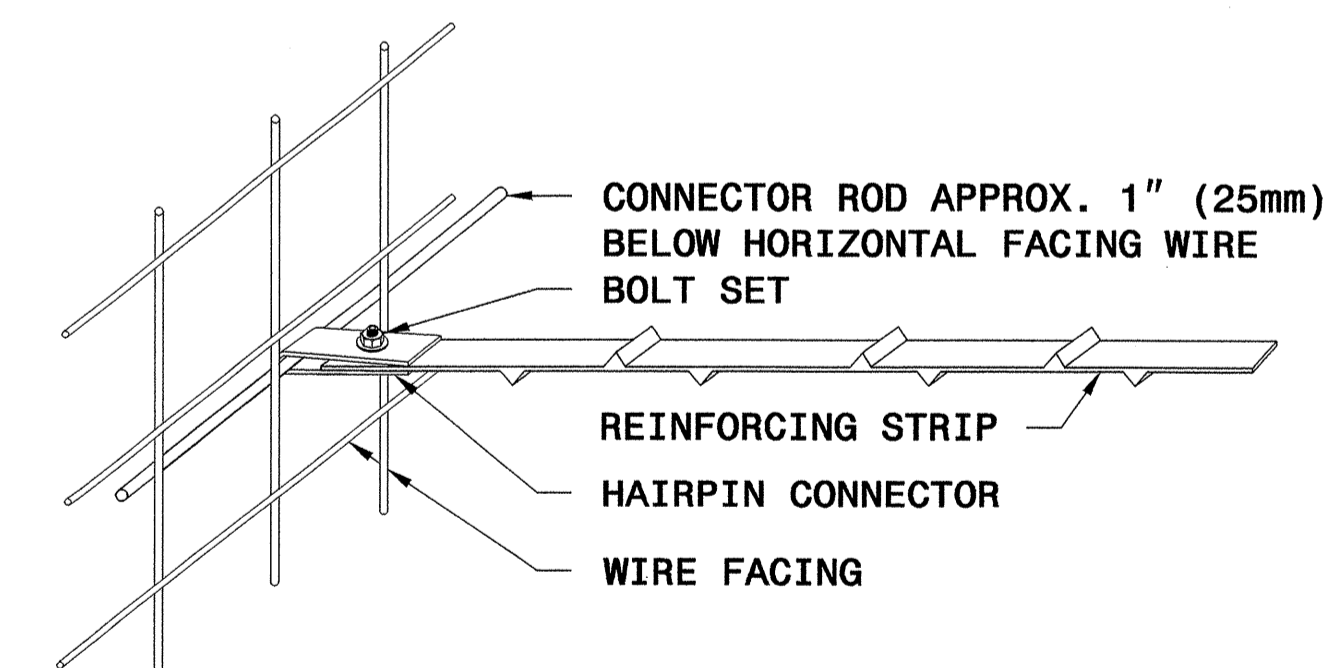


KEY: A8
 NUMBER OF REINFORCING STRIPS
 PANEL TYPE

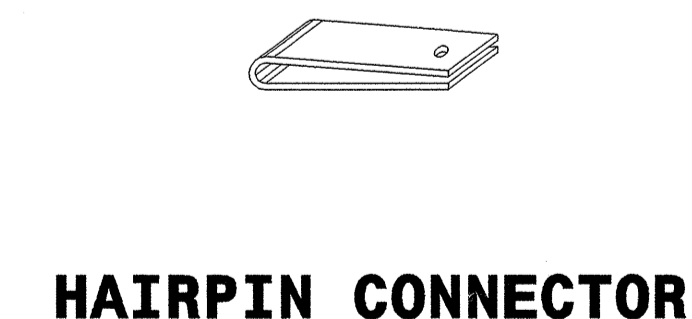
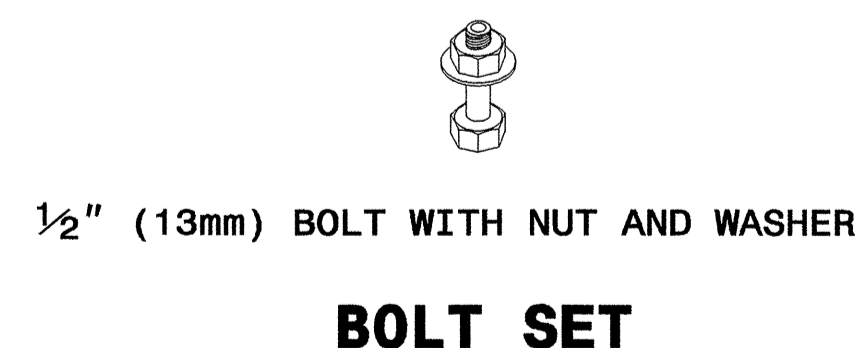
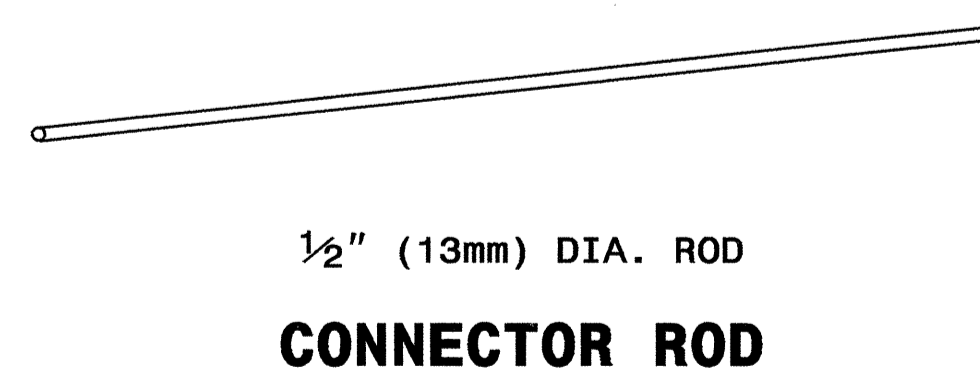
CONNECTOR ROD AND REINFORCING STRIP PLACEMENT DIAGRAMS



REINFORCING STRIP - 2" X 5/32" (50mm X 4mm)

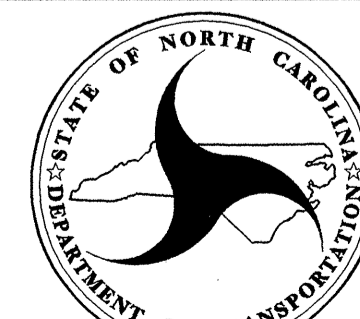


STRIP TO FACING CONNECTION



WALL COMPONENTS




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STANDARD DRAWING NO. 1801.02

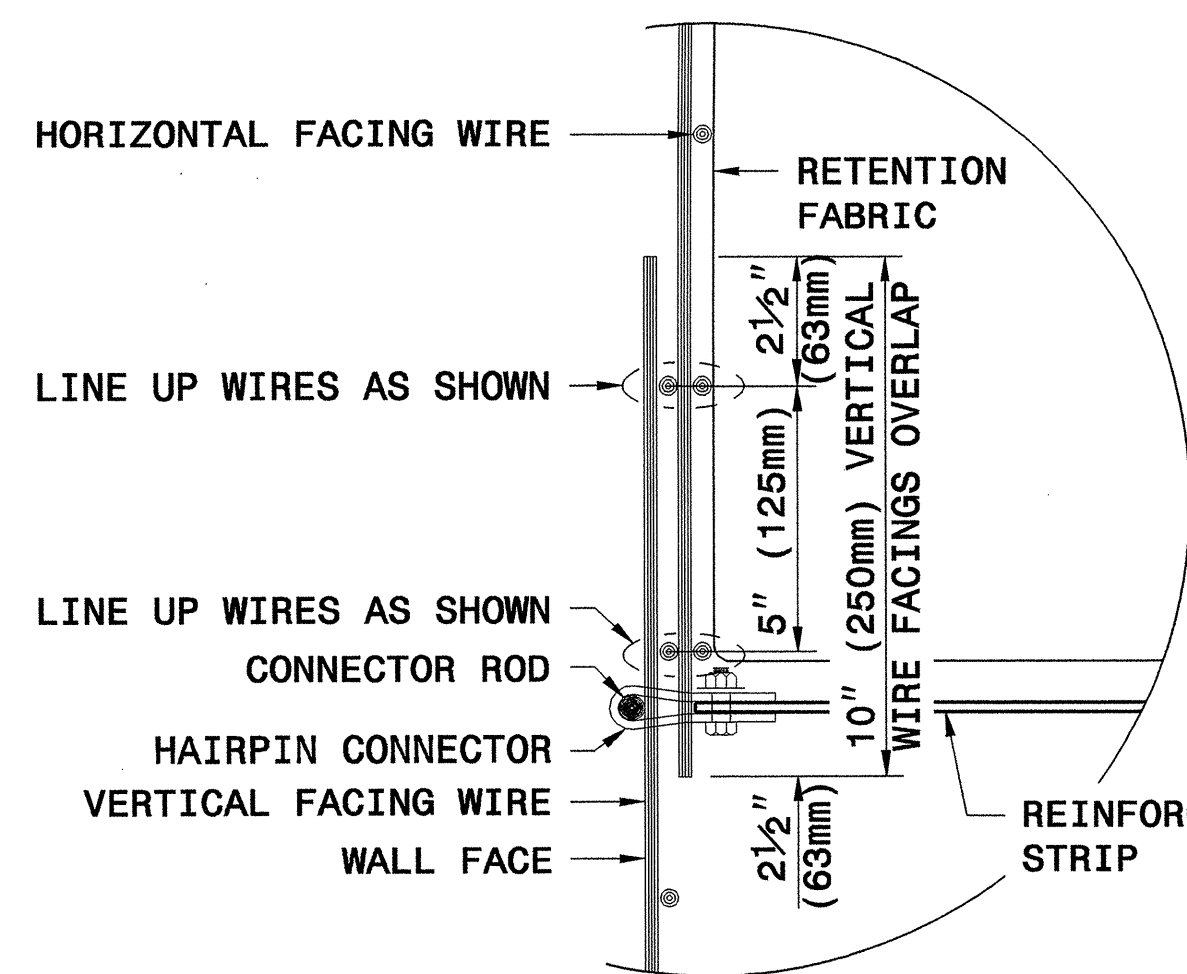
**TERRATREL
TEMPORARY WALL**

GEOTECHNICAL ENGINEER

ENGINEER

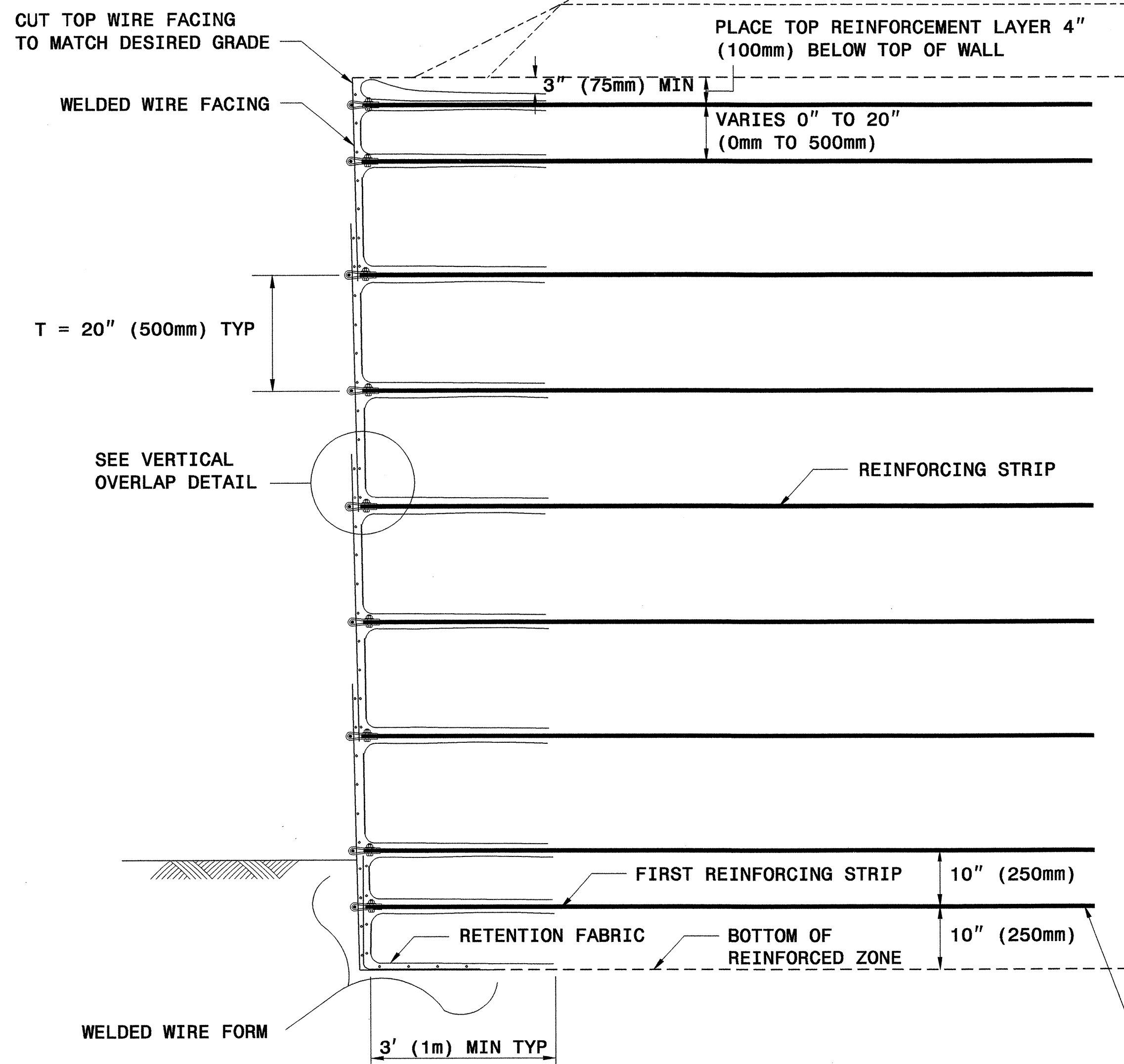


S. A. Hadden
SIGNATURE DATE



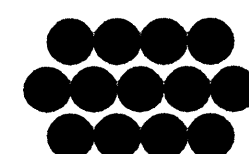
OVERLAP FACINGS VERTICALLY ONE FULL 5" (125mm) WIRE SQUARE DISREGARDING HALF SQUARES AT EDGES

VERTICAL OVERLAP DETAIL

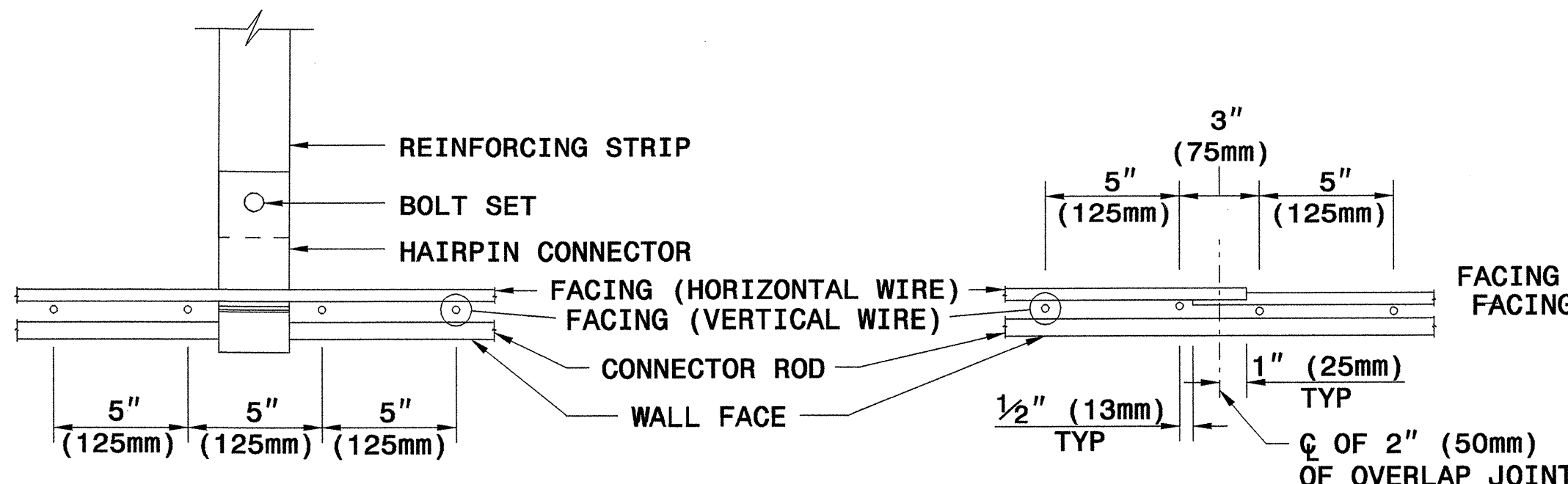


TYPICAL SECTION

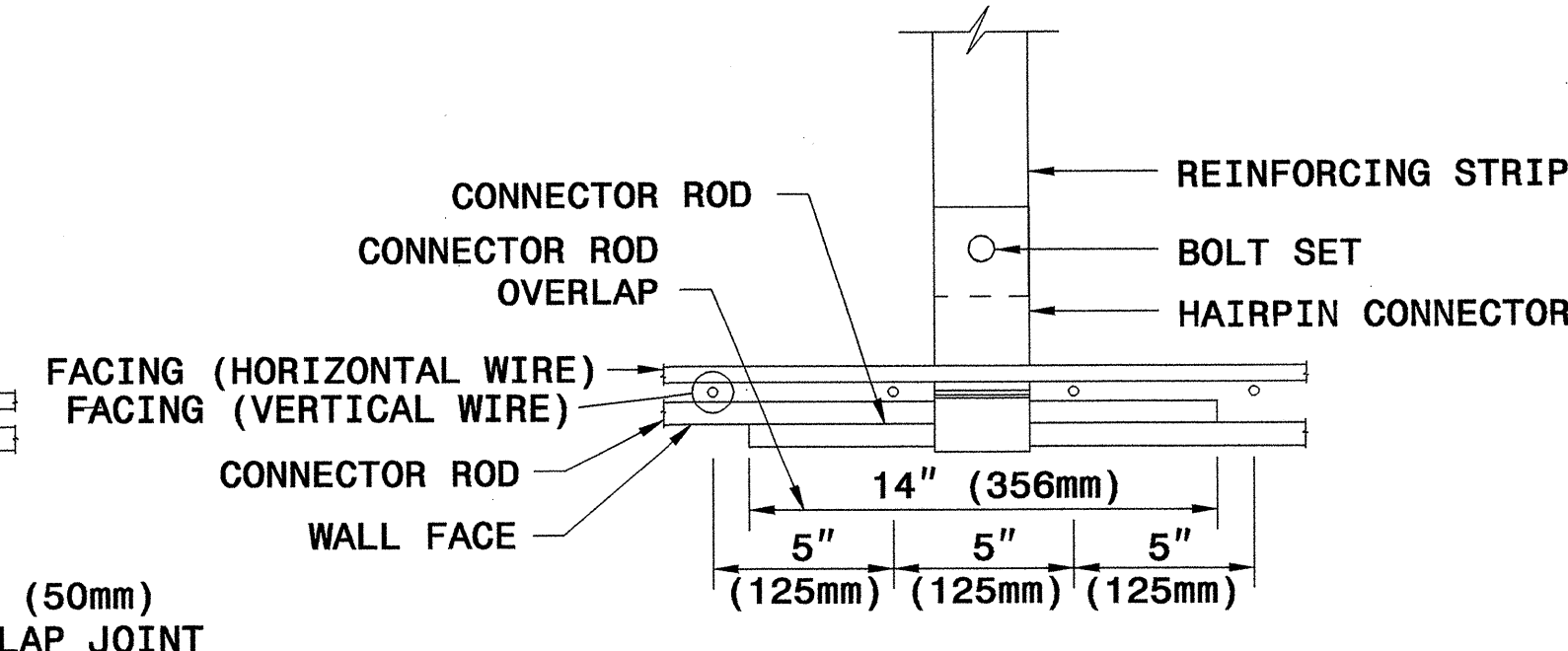
PLACE LOWEST REINFORCING STRIP 10" (250mm) FROM BOTTOM OF REINFORCED ZONE



The Reinforced Earth Company

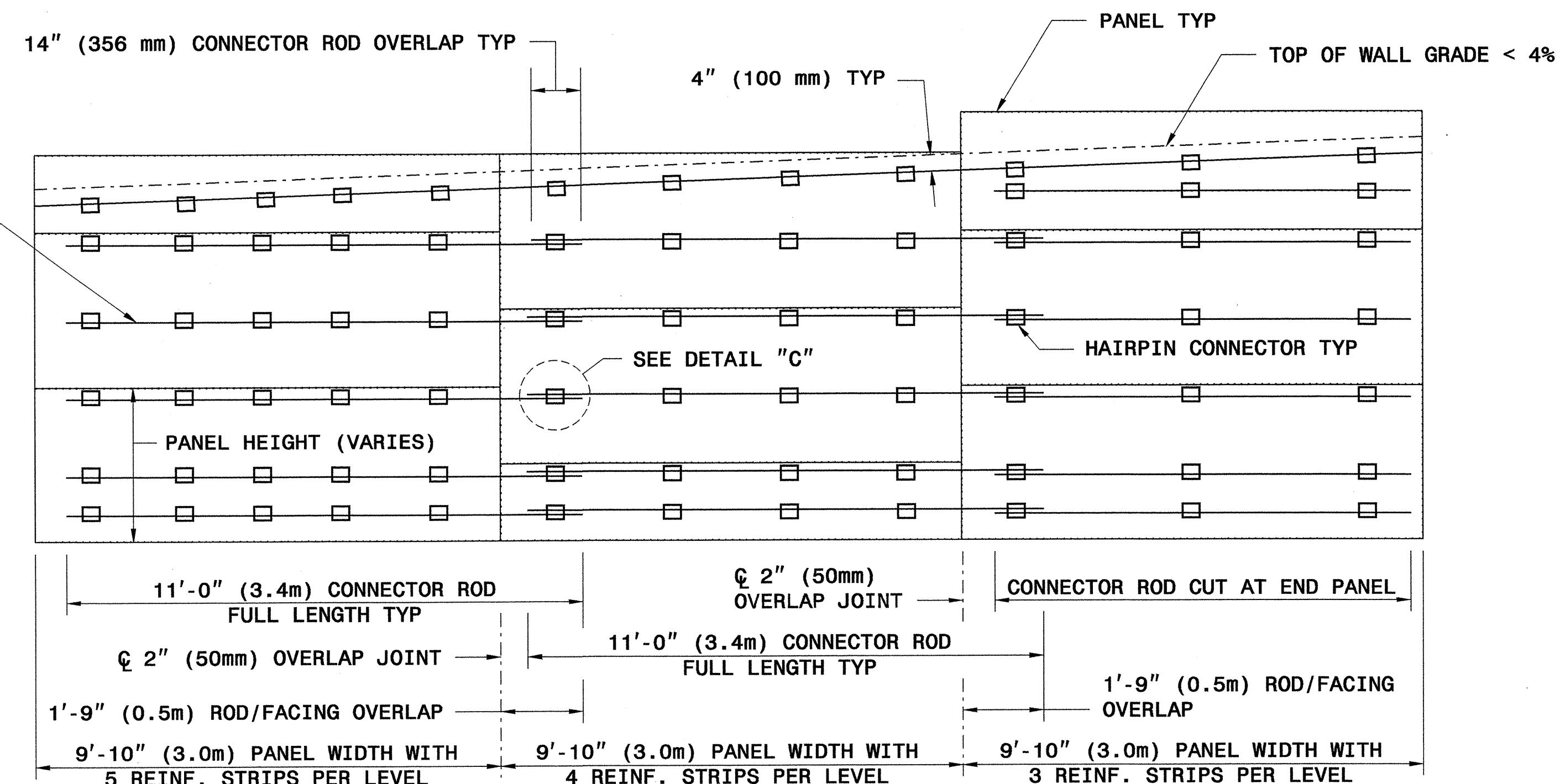


**PLAN DETAIL 'A'
STRIP CONNECTION**

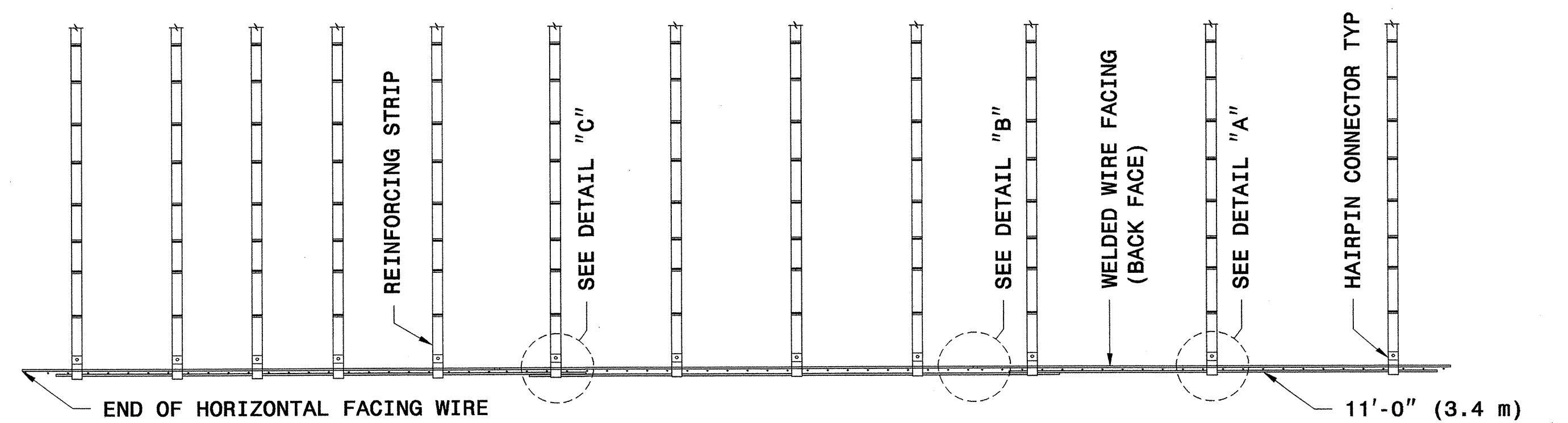


**PLAN DETAIL 'B'
HORIZONTAL OVERLAP DETAIL**

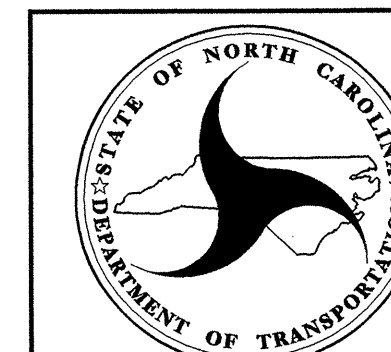
**PLAN DETAIL 'C'
STRIP CONNECTION WITH
HORIZONTAL OVERLAP DETAIL**



**TYPICAL ELEVATION
(WIRES NOT SHOWN FOR CLARITY)**



TYPICAL PLAN



GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

TERRATREL
TEMPORARY WALL

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

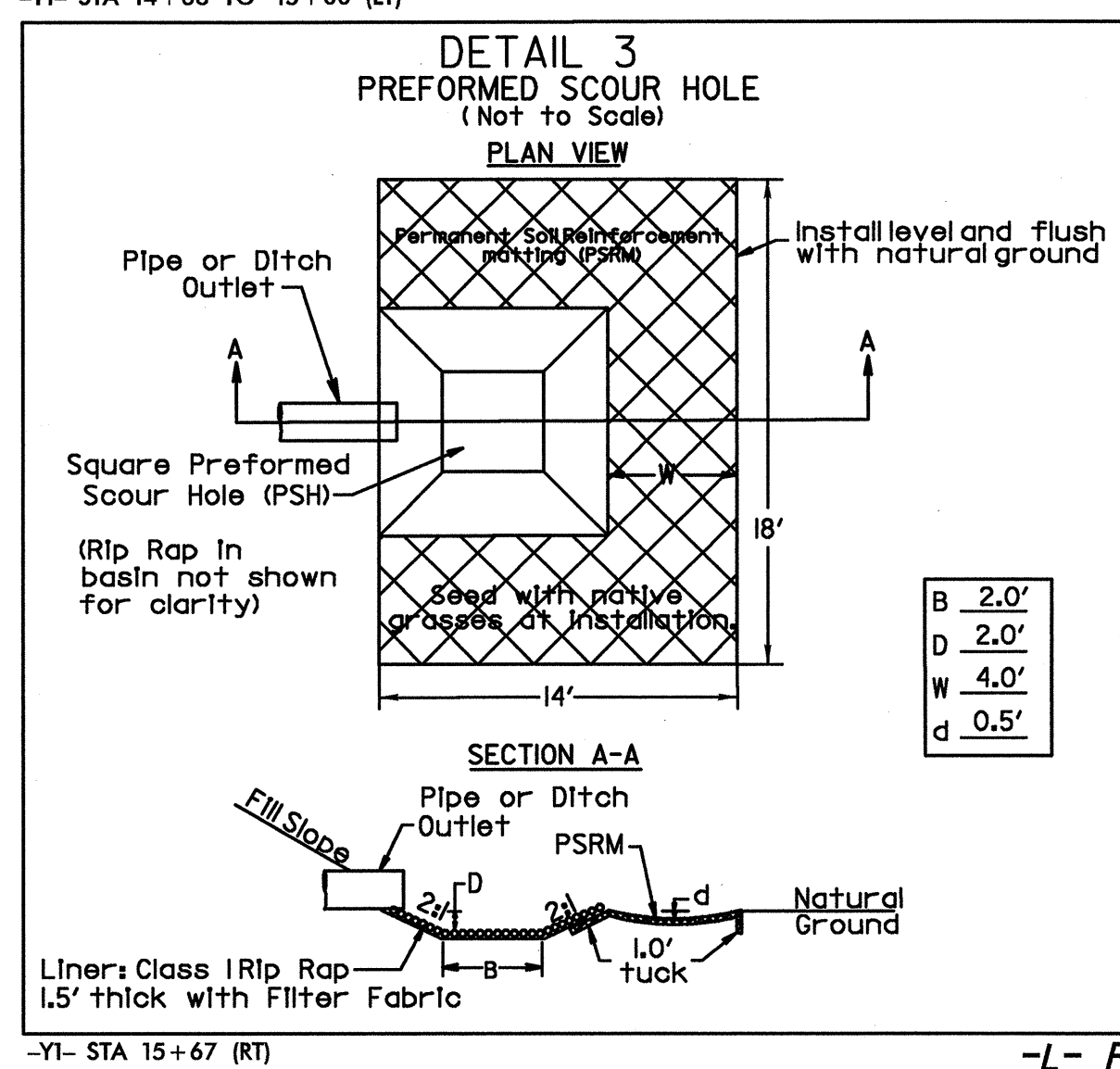
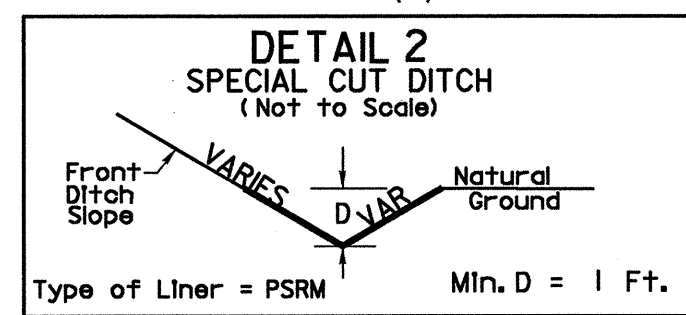
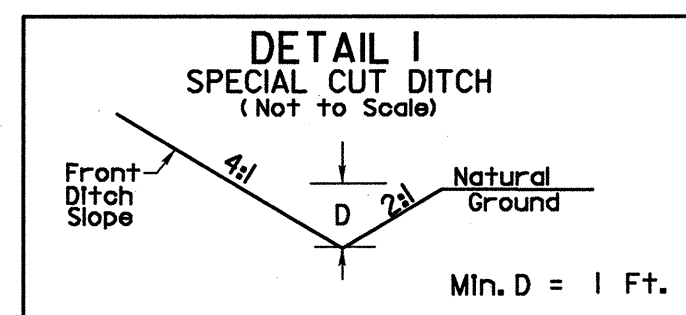
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201868

ItemNumber	Sec #	Quantity	Unit	Description
000010000-N	800	Lump Sum		MOBILIZATION
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (14+87.00)
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	10	CY	UNDERCUT EXCAVATION
008000000-E	SP	100	TON	CLASS IV SUBGRADE STABILIZATION
019500000-E	265	100	CY	SELECT GRANULAR MATERIAL
019600000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
019900000-E	SP	720	SF	TEMPORARY SHORING
031800000-E	300	7	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
037200000-E	310	48	LF	18" RC PIPE CULVERTS, CLASS III
071400000-E	310	12	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
080700000-E	310	2	EA	18" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
099500000-E	340	52	LF	PIPE REMOVAL
122000000-E	545	25	TON	INCIDENTAL STONE BASE
148900000-E	610	230	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	20	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
152500000-E	610	360	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
156000000-E	620	35	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
169300000-E	654	25	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
200000000-N	806	19	EA	RIGHT OF WAY MARKERS
202200000-E	815	23	CY	SUBDRAIN EXCAVATION
203300000-E	815	17	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
205500000-E	815	3	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
206600000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
207700000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
228600000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES
236300000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840***** (840.33)
255600000-E	846	80	LF	SHOULDER BERM GUTTER
303000000-E	862	100	LF	STEEL BM GUARDRAIL
304500000-E	862	275	LF	STEEL BM GUARDRAIL, SHOP CURVED
310500000-N	862	2	EA	STEEL BM GUARDRAIL TERMINAL SECTIONS
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
319500000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
327000000-N	SP	5	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
331700000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
362800000-E	876	2	TON	RIP RAP, CLASS 1
365600000-E	876	280	SY	FILTER FABRIC FOR DRAINAGE
365900000-N	SP	1	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
440000000-E	1110	332	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	96	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	59	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
442000000-N	1120	3	EA	CHANGEABLE MESSAGE SIGN
443000000-N	1130	50	EA	DRUMS
443500000-N	1135	50	EA	CONES
444500000-E	1145	96	LF	BARRICADES (TYPE III)
445000000-N	1150	400	HR	FLAGGER
446500000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS

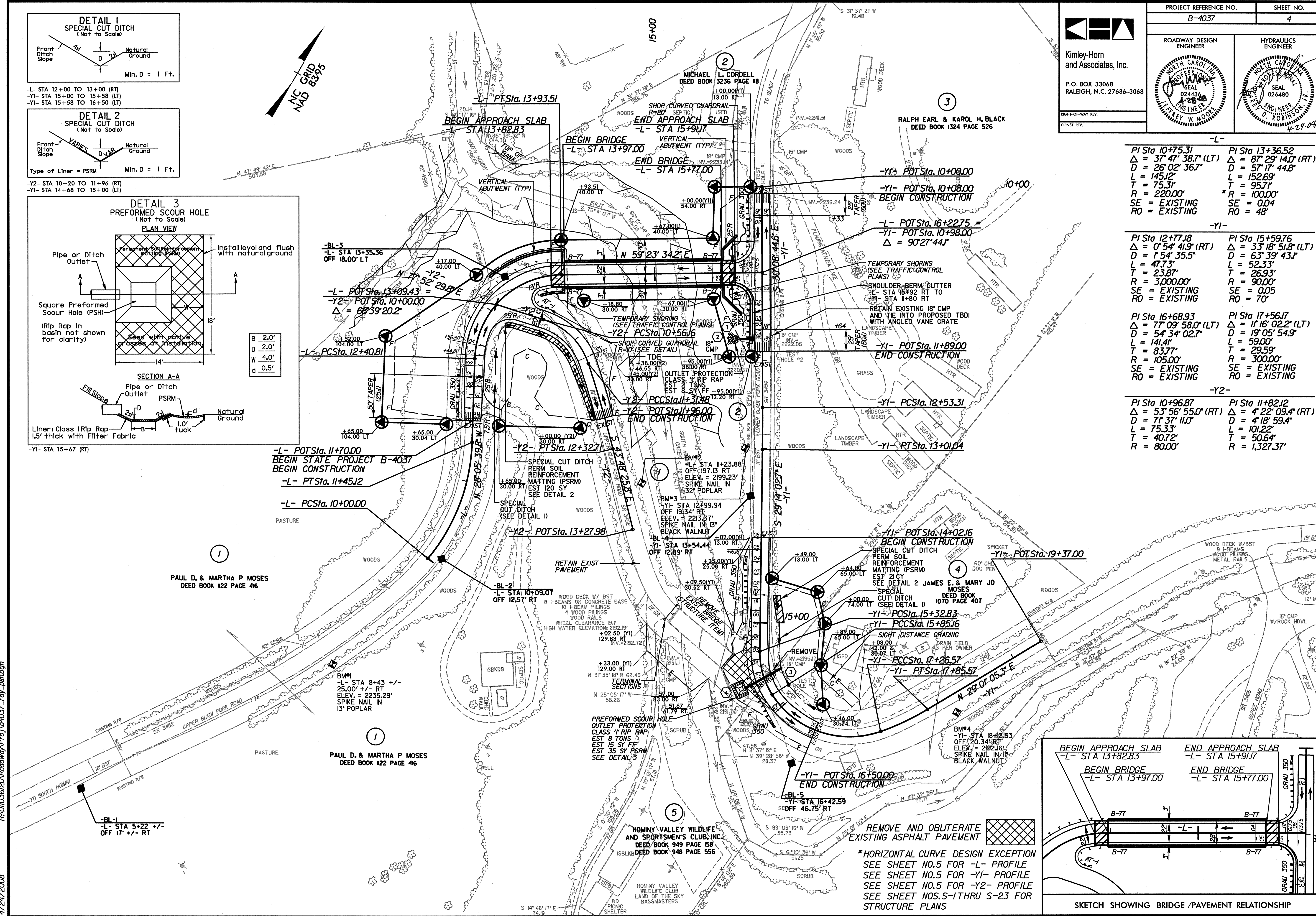
ItemNumber	Sec #	Quantity	Unit	Description
448500000-E	1170	135	LF	PORTABLE CONCRETE BARRIER
481000000-E	1205	17,494	LF	PAINT PAVEMENT MARKING LINES (4")
483500000-E	1205	60	LF	PAINT PAVEMENT MARKING LINES (24")
485000000-E	1205	149	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
600000000-E	1605	1,630	LF	TEMPORARY SILT FENCE
600600000-E	1610	160	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	90	TON	SEDIMENT CONTROL STONE
601500000-E	1615	3	ACR	TEMPORARY MULCHING
601800000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	110	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	1	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	350	LF	SAFETY FENCE
603000000-E	1630	670	CY	SILT EXCAVATION
603600000-E	1631	500	SY	MATting FOR EROSION CONTROL
603700000-E	SP	10	SY	COIR FIBER MAT
603800000-E	SP	205	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	20	LF	1/4" HARDWARE CLOTH
607103000-E	SP	240	LF	COIR FIBER BAFFLES
607105000-E	SP	1	EA	*** SKIMMER (1-1/2")
608400000-E	1660	3.5	ACR	SEEDING & MULCHING
608700000-E	1660	2	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	2.5	TON	FERTILIZER TOPDRESSING
611400000-N	SP	2	HR	SPECIALIZED HAND MOWING
611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL

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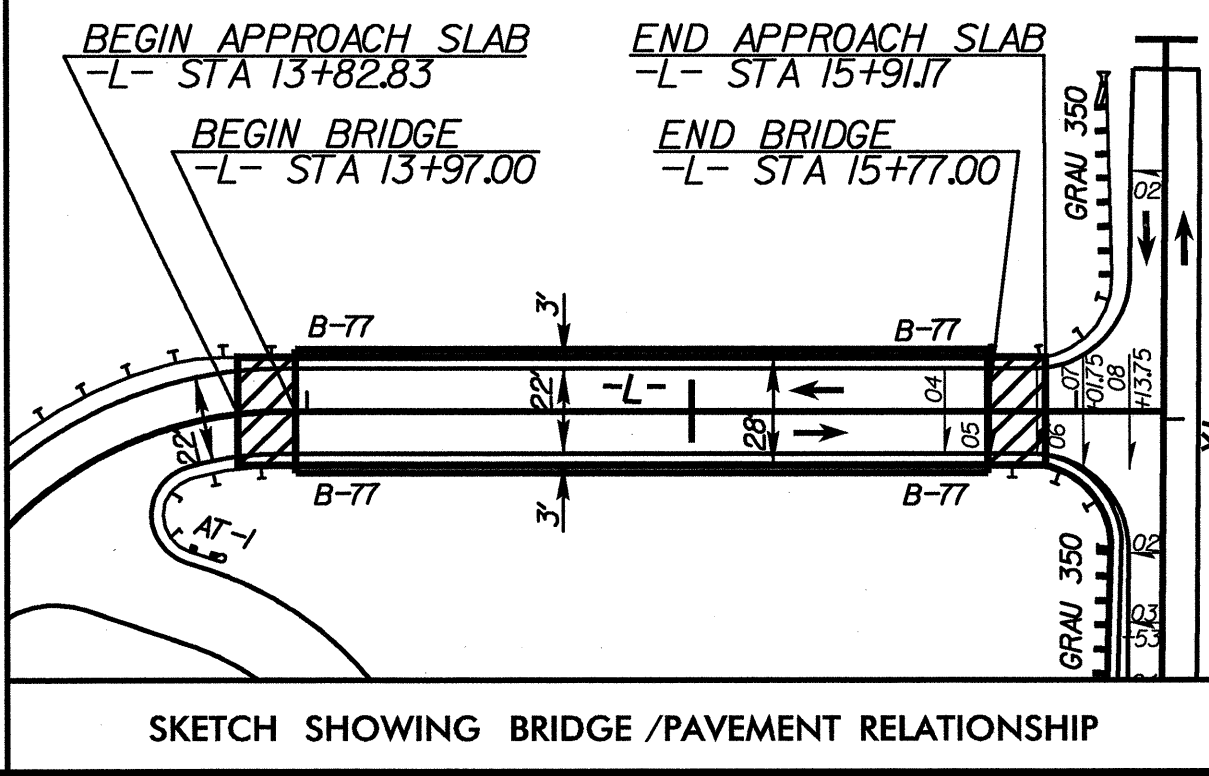
4/3/2008



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-L-		-Y1-		-Y2-	
PI Sta 10+75.31	PI Sta 13+36.52	PI Sta 10+00.00	PI Sta 10+08.00	PI Sta 12+77.88	PI Sta 15+59.76
$\Delta = 37^\circ 47' 38.7\"$	$\Delta = 87^\circ 29' 14.0\"$	$\Delta = 26^\circ 02' 36.7\"$	$\Delta = 57^\circ 17' 44.8\"$	$\Delta = 0^\circ 54' 41.9\"$	$\Delta = 33^\circ 18' 51.8\"$
D = 145.12'	D = 152.69'	D = 145.12'	D = 152.69'	D = 154.355'	D = 63.39' 43.1'
L = 145.12'	L = 152.69'	L = 145.12'	L = 152.69'	L = 47.73'	L = 52.33'
T = 75.31'	T = 95.71'	T = 75.31'	T = 95.71'	T = 23.87'	T = 26.93'
R = 220.00'	*R = 100.00'	R = 220.00'	*R = 100.00'	R = 3.0000'	R = 90.00'
SE = EXISTING	SE = 0.04	SE = EXISTING	SE = 0.04	SE = EXISTING	SE = 0.05
RO = EXISTING	RO = 48'	RO = EXISTING	RO = 48'	RO = EXISTING	RO = 70'
-Y1-		-Y2-			
PI Sta 16+68.93	PI Sta 17+56.17	PI Sta 10+96.87	PI Sta 11+82.12		
$\Delta = 77^\circ 09' 58.0\"$	$\Delta = 1^\circ 16' 02.2\"$	$\Delta = 53^\circ 56' 55.0\"$	$\Delta = 4^\circ 22' 09.4\"$		
D = 54.34' 02.7'	D = 19.05' 54.9'	D = 71.37' 11.0'	D = 4.18' 59.4'		
L = 141.41'	L = 59.00'	L = 75.33'	L = 101.22'		
T = 83.77'	T = 29.59'	T = 40.72'	T = 50.64'		
R = 105.00'	R = 300.00'	R = 80.00'	R = 1.327.37'		
SE = EXISTING	SE = EXISTING	SE = EXISTING	SE = EXISTING		
RO = EXISTING	RO = EXISTING	RO = EXISTING	RO = EXISTING		



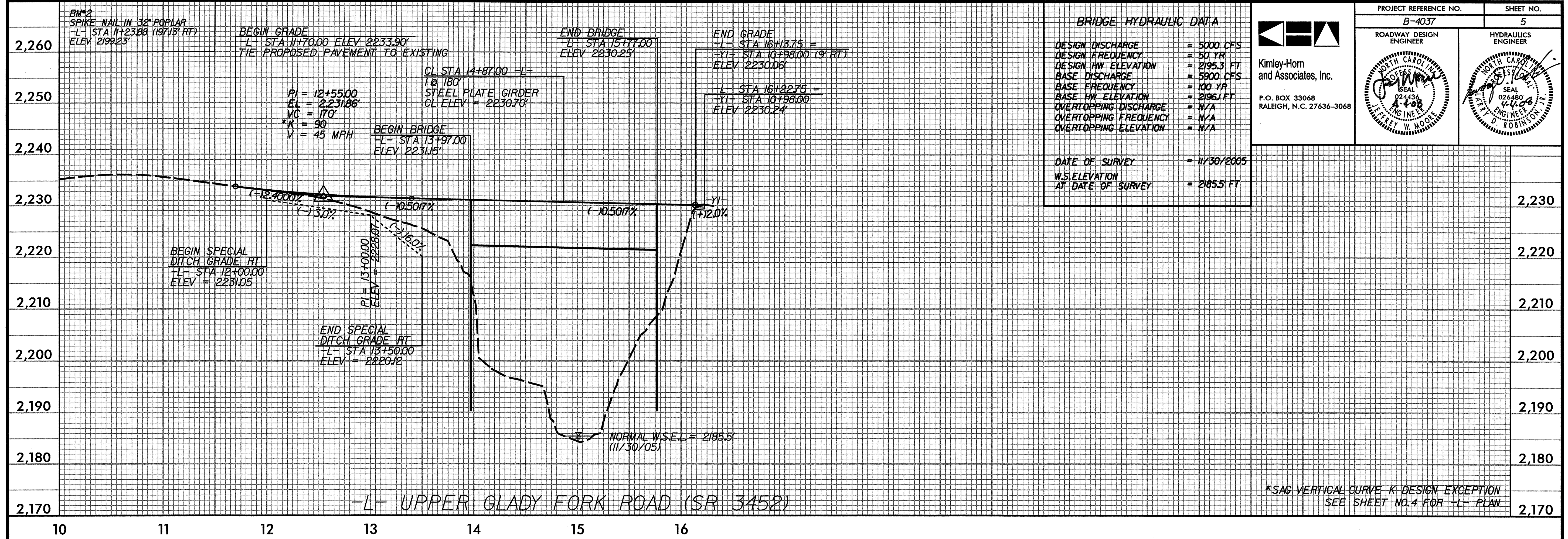
*HORIZONTAL CURVE DESIGN EXCEPTION
 SEE SHEET NO.5 FOR -L- PROFILE
 SEE SHEET NO.5 FOR -Y1- PROFILE
 SEE SHEET NO.5 FOR -Y2- PROFILE
 SEE SHEET NOS.S-1THRU S-23 FOR
 STRUCTURE PLANS

Kimley-Horn
and Associates, Inc.
P.O. BOX 33068
RALEIGH, N.C. 27636-3068

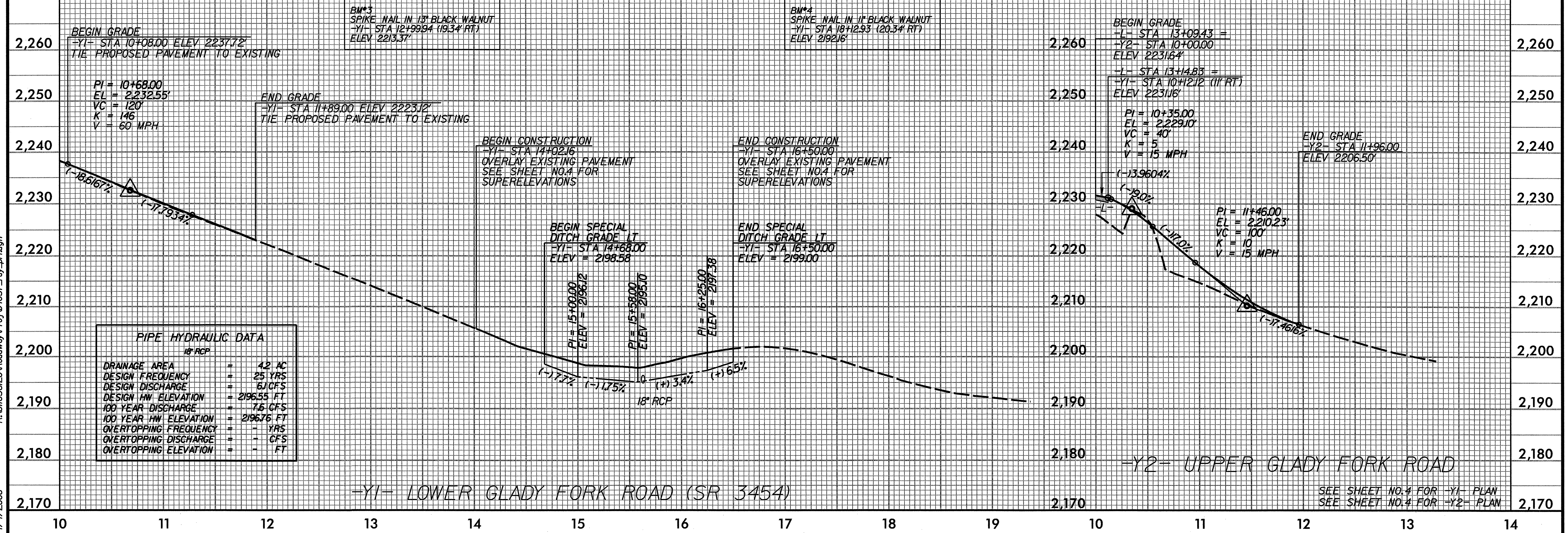
BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 5000 CFS
DESIGN FREQUENCY	= 50 YR
DESIGN HW ELEVATION	= 2195.3 FT
BASE DISCHARGE	= 5900 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 2196.1 FT
OVERTOPPING DISCHARGE	= N/A
OVERTOPPING FREQUENCY	= N/A
OVERTOPPING ELEVATION	= N/A

DATE OF SURVEY	= 11/30/2005
W.S. ELEVATION AT DATE OF SURVEY	= 2185.5 FT



*SAG VERTICAL CURVE K DESIGN EXCEPTION
SEE SHEET NO. 4 FOR -L- PLAN



SEE SHEET NO. 4 FOR -Y1- PLAN
SEE SHEET NO. 4 FOR -Y2- PLAN