

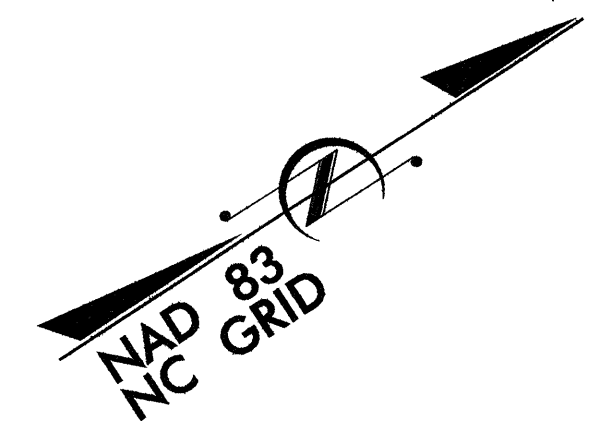
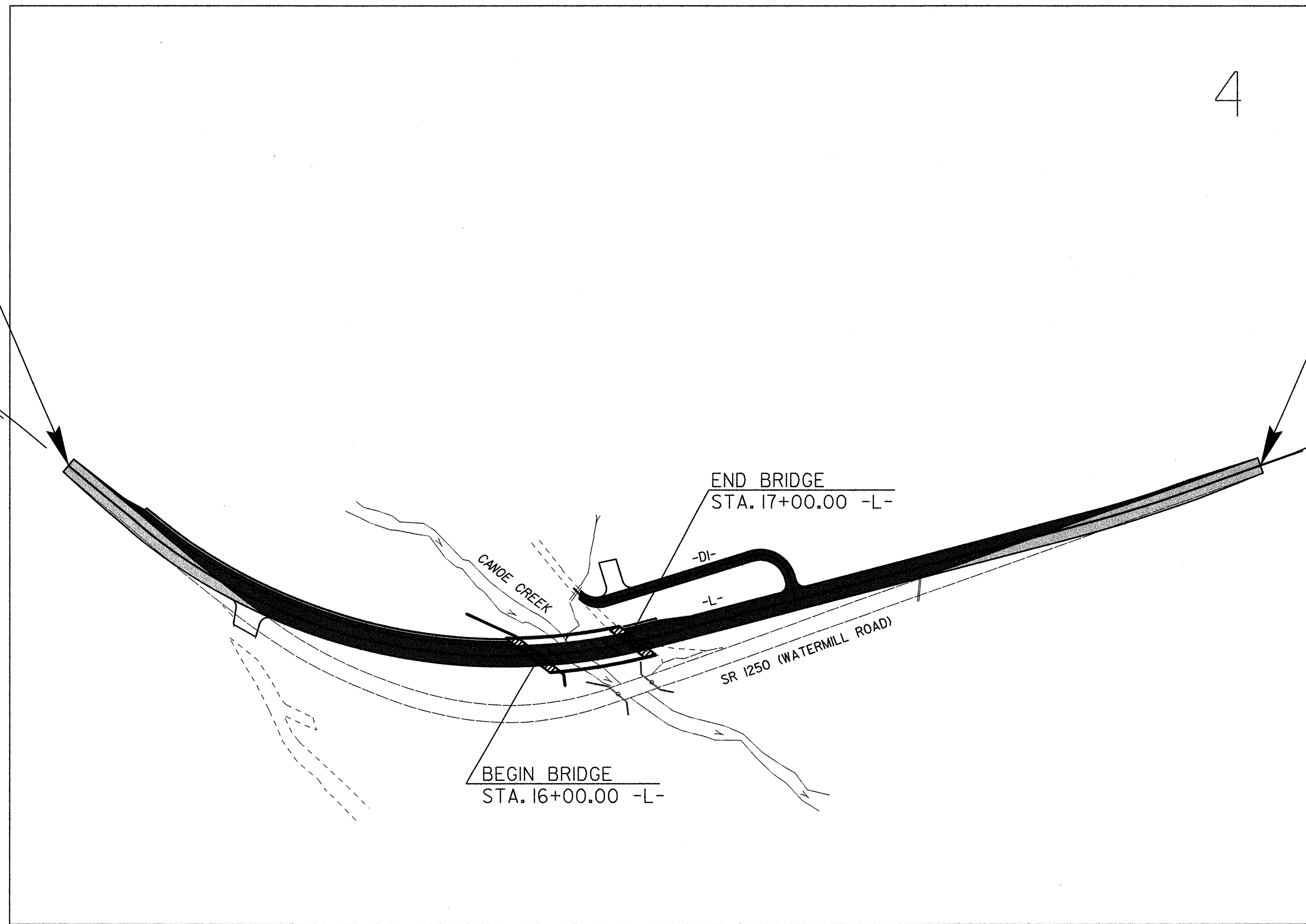
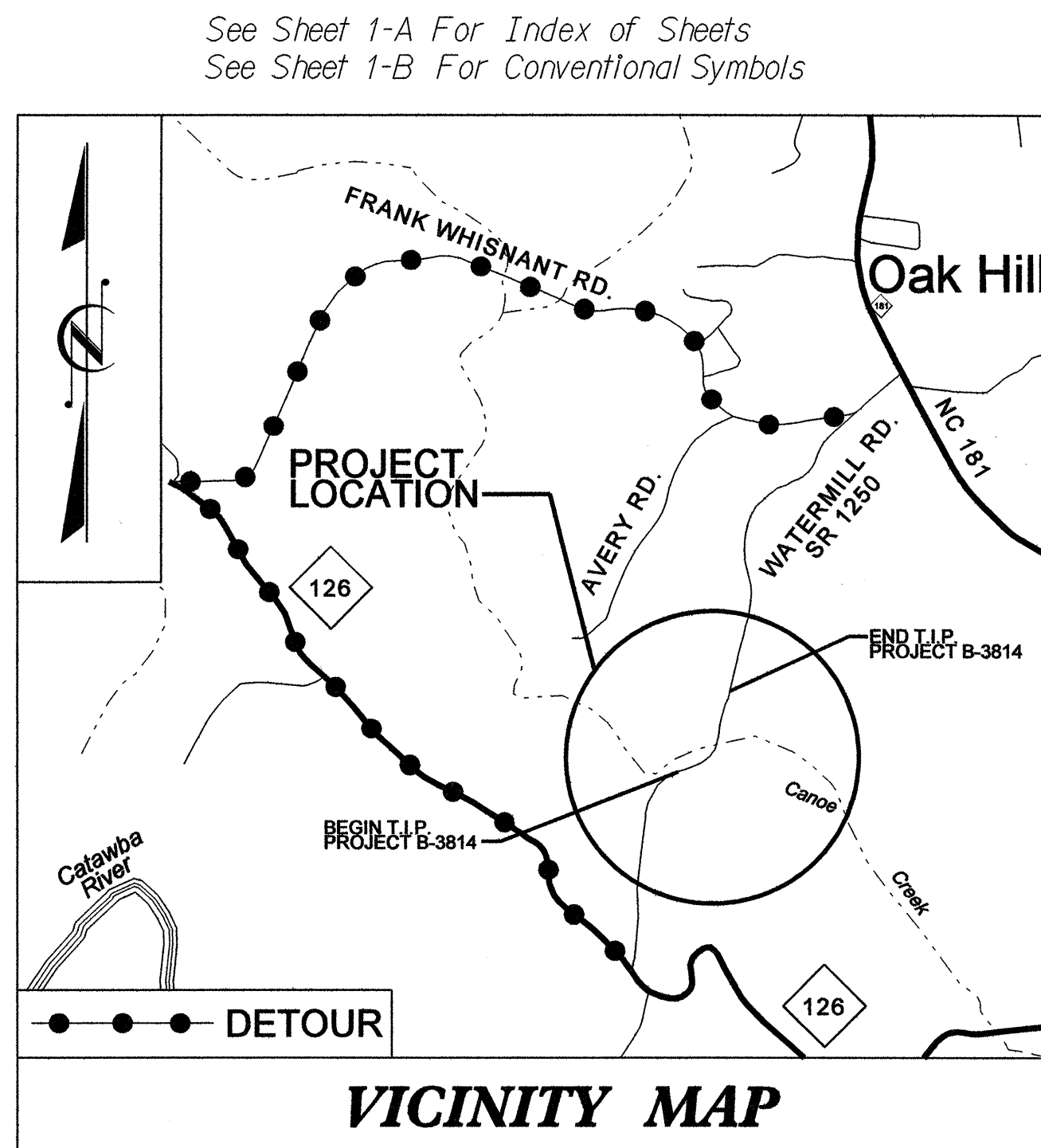
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|----------------|--------------|
| N.C. | B-3814 | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 33269.1.1 | BRZ-1250(1) | PE | |
| 33269.3.1 | BRZ-1250(1) | RW & UTILITIES | |
| 33269.2.2 | BRZ-1250(1) | CONSTRUCTION | |
| | | | |
| | | | |
| | | | |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

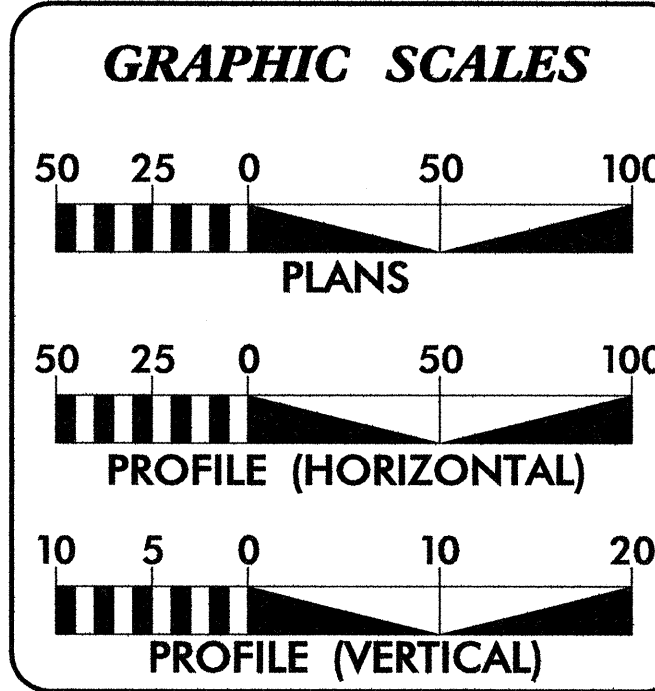
LOCATION: BRIDGE NO. 56 OVER CANOE CREEK ON SR 1250

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURES.



TIP PROJECT: B-3814

CONTRACT: C201786



DESIGN DATA

| | |
|-------------------|-----------------------|
| ADT 2006 = | 1984 |
| ADT 2030 = | 3520 |
| DHV = | 13 % |
| D = | 60 % |
| T = | 4 % * |
| V = | 40 MPH |
| * TTST 2% DUAL 2% | |
| FUNC CLASS = | RURAL MAJOR COLLECTOR |

PROJECT LENGTH

| | | |
|---|---|-------------|
| LENGTH ROADWAY T.I.P. PROJECT B-3814 | = | 0.256 MILES |
| LENGTH STRUCTURES T.I.P. PROJECT B-3814 | = | 0.019 MILES |
| TOTAL LENGTH T.I.P. PROJECT B-3814 | = | 0.275 MILES |

* DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED, HORIZONTAL & VERTICAL STOPPING SIGHT DISTANCE, SAG & CREST VERTICAL CURVE K, AND MAXIMUM GRADE.

Prepared In the Office of:

PBS&J
5200 77 CENTER DRIVE, SUITE 500
CHARLOTTE, NORTH CAROLINA 28217
PHONE: (704) 522-7275

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 18, 2006

LETTING DATE:
APRIL 15, 2008

STEVE DRUM, P.E.
PROJECT ENGINEER

VIRGINIA T. SCHAAR, P.E.
PROJECT DESIGN ENGINEER

CATHY S. HOUSER, P.E.
NCDOT CONTACT

PROFESSIONAL ENGINEER

SEAL 29185

2/22/2008 P.E.

PROFESSIONAL ENGINEER

SEAL 17265

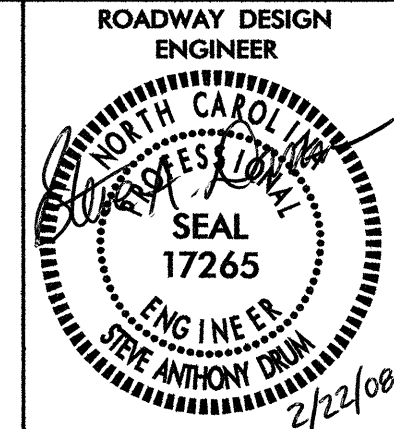
2/22/08

STATE HIGHWAY DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

22-FEB-2008 08:21 R:\Roadway\Proj\B3814-RDY_TSH.dgn \$\$\$USERNAME\$\$\$



| INDEX OF SHEETS | |
|------------------|---|
| Sheet Number | Sheet |
| 1 | TITLE SHEET |
| 1-A | INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS |
| 1-B | CONVENTIONAL SYMBOLS |
| 1-C | SURVEY CONTROL SHEET |
| 1-D | CENTERLINE COORDINATE LIST |
| 2 | TYPICALS SECTIONS AND PAVEMENT SCHEDULE |
| 2-A | ANCHORAGE FOR FRAMES |
| 2-B | STANDARD TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS |
| 2-C | STANDARD TEMPORARY MSE WALL REINFORCEMENT TABLES-ENGLISH UNITS |
| 2-D | TEMPORARY FABRIC WALL |
| 2-E | HILFIKER TEMPORARY WALL |
| 2-F | SIERRASCAPE TEMPORARY WALL |
| 2-G THRU 2-I | RETAINED EARTH TEMPORARY WALL |
| 2-J THRU 2-L | TERRATREL TEMPORARY WALL |
| 3 | SUMMARY OF QUANTITIES |
| 3-A | SUMMARY OF EARTHWORK, EXISTING ASPHALT PAVEMENT REMOVAL, DRAINAGE QUANTITIES AND GUARDRAIL PLAN SHEET |
| 4 | PLAN SHEET |
| 5 | PROFILE SHEET |
| TCP-1 THRU TCP-9 | TRAFFIC CONTROL PLANS |
| SD-1 | SPECIAL SIGN DESIGN |
| EC-1 THRU EC-5 | EROSION CONTROL PLANS |
| RF-1 | REFORESTATION DETAIL |
| UO-1 THRU UO-2 | UTILITIES BY OTHERS PLANS |
| X-0 | CROSS-SECTION SUMMARY SHEET |
| X-1 THRU X-9 | CROSS-SECTIONS |
| S-1 THRU S-22 | STRUCTURE PLANS |
| W-1 THRU W-4 | WALL PLANS |

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

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

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.

SUBSURFACE PLANS:
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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 MORGANTON AND AT&T OF NORTH CAROLINA
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 ENGLISH 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 |
|--|---|
| DIVISION 2 - EARTHWORK | |
| 200.02 | Method of Clearing - Method II |
| 225.02 | Guide for Grading Subgrade - Secondary and Local |
| 225.04 | Method of Obtaining Superelevation - Two Lane Pavement |
| DIVISION 3 - PIPE CULVERTS | |
| 300.01 | Method of Pipe Installation - Method 'A' |
| 310.10 | Driveway Pipe Construction |
| DIVISION 4 - MAJOR STRUCTURES | |
| 422.10 | Reinforced Bridge Approach Fills |
| DIVISION 5 - SUBGRADE, BASES AND SHOULDERS | |
| 560.01 | Method of Shoulder Construction - High Side of Superelevated Curve - Method I |
| DIVISION 8 - INCIDENTALS | |
| 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 |
| 840.13 | Concrete Bridge Approach Drop Inlet - 12" thru 24" Pipe |
| 840.18 | Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe |
| 840.27 | Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe |
| 840.29 | Frames and Narrow Slot Flat Grates |
| 840.45 | Precast Drainage Structure |
| 840.66 | Drainage Structure Steps |
| 840.72 | Pipe Collar |
| 846.01 | Concrete Curb, Gutter and Curb & Gutter |
| 846.04 | Drainage Installation in Shoulder Berm Gutter |
| 862.01 | Guardrail Placement |
| 862.02 | Guardrail Installation |
| 862.03 | Structure Anchor Units |
| 862.04 | Anchoring End of Guardrail - B-77 and B-83 Anchor Units |
| 876.02 | Guide for Rip Rap at Pipe Outlets |

3/15/06

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

| | |
|-------------------------------------|-------|
| State Line | ----- |
| County Line | ----- |
| Township Line | ----- |
| City Line | ----- |
| Reservation Line | ----- |
| Property Line | ----- |
| Existing Iron Pin | ○ |
| Property Corner | ⊗ |
| Property Monument | □ |
| Parcel/Sequence Number | (23) |
| Existing Fence Line | ----- |
| Proposed Woven Wire Fence | ----- |
| Proposed Chain Link Fence | ----- |
| Proposed Barbed Wire Fence | ----- |
| Existing Wetland Boundary | ----- |
| Proposed Wetland Boundary | ----- |
| Existing Endangered Animal Boundary | ----- |
| Existing Endangered Plant Boundary | ----- |

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

| | |
|--------------------|-------|
| Standard Gauge | ----- |
| RR Signal Milepost | ○ |
| 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 | ----- |
| Proposed Temporary Construction Easement | ----- |
| Proposed Temporary Drainage Easement | ----- |
| Proposed Permanent Drainage Easement | ----- |
| Proposed Permanent Utility Easement | ----- |

ROADS AND RELATED FEATURES:

| | |
|--------------------------------------|-------|
| Existing Edge of Pavement | ----- |
| Existing Curb | ----- |
| Proposed Slope Stakes Cut | ----- |
| Proposed Slope Stakes Fill | ----- |
| Proposed Wheel Chair Ramp | ----- |
| Proposed Wheel Chair Ramp Curb Cut | ----- |
| Curb Cut for Future Wheel Chair Ramp | ----- |
| 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 | ----- |
| Bridge Wing Wall, Head Wall and End Wall | ----- |
| MINOR: | |
| Head and End Wall | ----- |
| Pipe Culvert | ----- |
| Footbridge | ----- |
| Drainage Box: Catch Basin, DI or JB | ----- |
| 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 | ----- |
| Designated U/G Power Line (S.U.E.*) | ----- |

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 | ----- |
| Designated U/G Telephone Cable (S.U.E.*) | ----- |
| Recorded U/G Telephone Conduit | ----- |
| Designated U/G Telephone Conduit (S.U.E.*) | ----- |
| Recorded U/G Fiber Optics Cable | ----- |
| Designated U/G Fiber Optics Cable (S.U.E.*) | ----- |

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 | ----- |

TV:

| | |
|--|-------|
| TV Satellite Dish | ⊗ |
| TV Pedestal | □ |
| TV Tower | ⊗ |
| U/G TV Cable Hand Hole | □ |
| Recorded U/G TV Cable | ----- |
| Designated U/G TV Cable (S.U.E.*) | ----- |
| Recorded U/G Fiber Optic Cable | ----- |
| Designated U/G Fiber Optic Cable (S.U.E.*) | ----- |

GAS:

| | |
|-----------------------------------|-------|
| Gas Valve | ⊗ |
| Gas Meter | ⊗ |
| Recorded U/G Gas Line | ----- |
| Designated U/G Gas Line (S.U.E.*) | ----- |
| Above Ground Gas Line | ----- |

SANITARY SEWER:

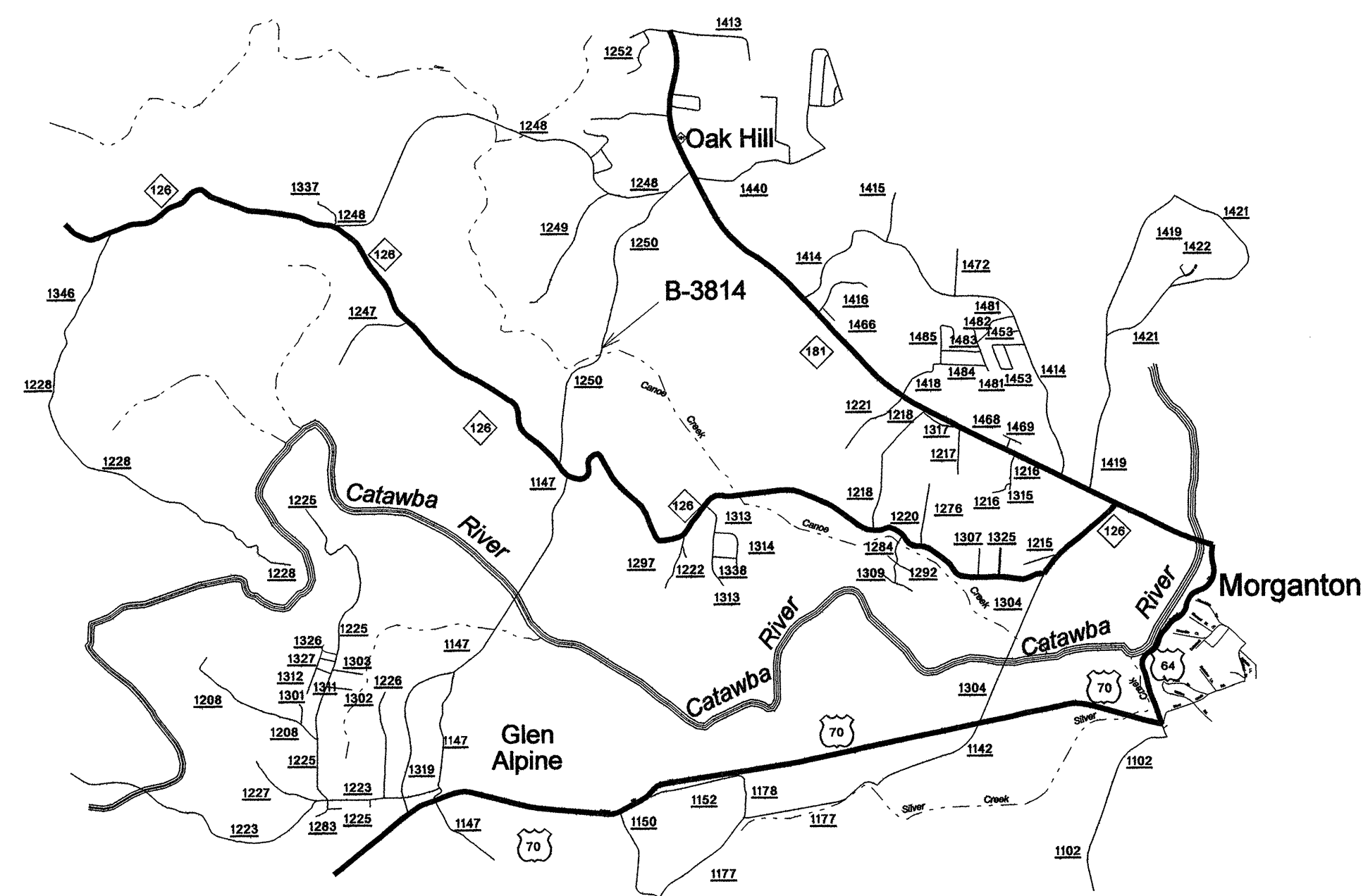
| | |
|--|-------|
| Sanitary Sewer Manhole | ⊗ |
| Sanitary Sewer Cleanout | ⊗ |
| U/G Sanitary Sewer Line | ----- |
| Above Ground Sanitary Sewer | ----- |
| Recorded SS Forced Main Line | ----- |
| Designated SS Forced Main Line (S.U.E.*) | ----- |

MISCELLANEOUS:

| | |
|--|--------|
| Utility Pole | ○ |
| Utility Pole with Base | □ |
| Utility Located Object | ○ |
| Utility Traffic Signal Box | □ |
| Utility Unknown U/G Line | ----- |
| 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. |

NCDOT GPS STATION B-3814-2
 LOCALIZED PROJECT COORDINATES
 N = 745886.2907
 E = 1180322.5762

SURVEY CONTROL SHEET



VICINITY MAP
NOT TO SCALE

NOTES

SITE CALIBRATION HAS NOT BEEN PROVIDED FOR THIS PROJECT
 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:

B3814_LS_1C_050712.DGN

IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
 IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
 NCDOT FOR MONUMENT "B-3814-1"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 744703.9601 FT) EASTING: 1180059.96601 FT)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
 (GROUND TO GRID) IS: 0.999903817
 THE N.C. LAMBERT GRID BEARING AND
 LOCALIZED HORIZONTAL GROUND DISTANCE FROM
 "B-3814-1" TO "L- STATION 10+00.00 IS
 S 55° 47' 02.47" W 46.13'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

⊕ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL
 BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

| BL | POINT | DESC. | NORTH | EAST | ELEVATION | L STATION | OFFSET |
|-----|----------|-------|-------------|--------------|-----------|-----------|-----------------------|
| 1 | BL-1 | | 743921.2007 | 1179422.0035 | 1091.4500 | 10+44.09 | 13.55 LT |
| 2 | BL-2 | | 744001.7705 | 1179735.1054 | 1090.4400 | 13+53.15 | 53.57 RT |
| 3 | BL-3 | | 744234.6570 | 1179946.6422 | 1064.4500 | 16+41.40 | 75.35 RT |
| 4 | B-3814-1 | | 744703.9601 | 1180059.9660 | 1098.5000 | 21+12.95 | 26.32 RT |
| 5 | BL-5 | | 745886.2907 | 1180140.2374 | 1125.5600 | 24+49.65 | 14.23 RT |
| 200 | B-3814-2 | | 745886.2907 | 1180322.5762 | 1122.6600 | | BEYOND PROJECT LIMITS |

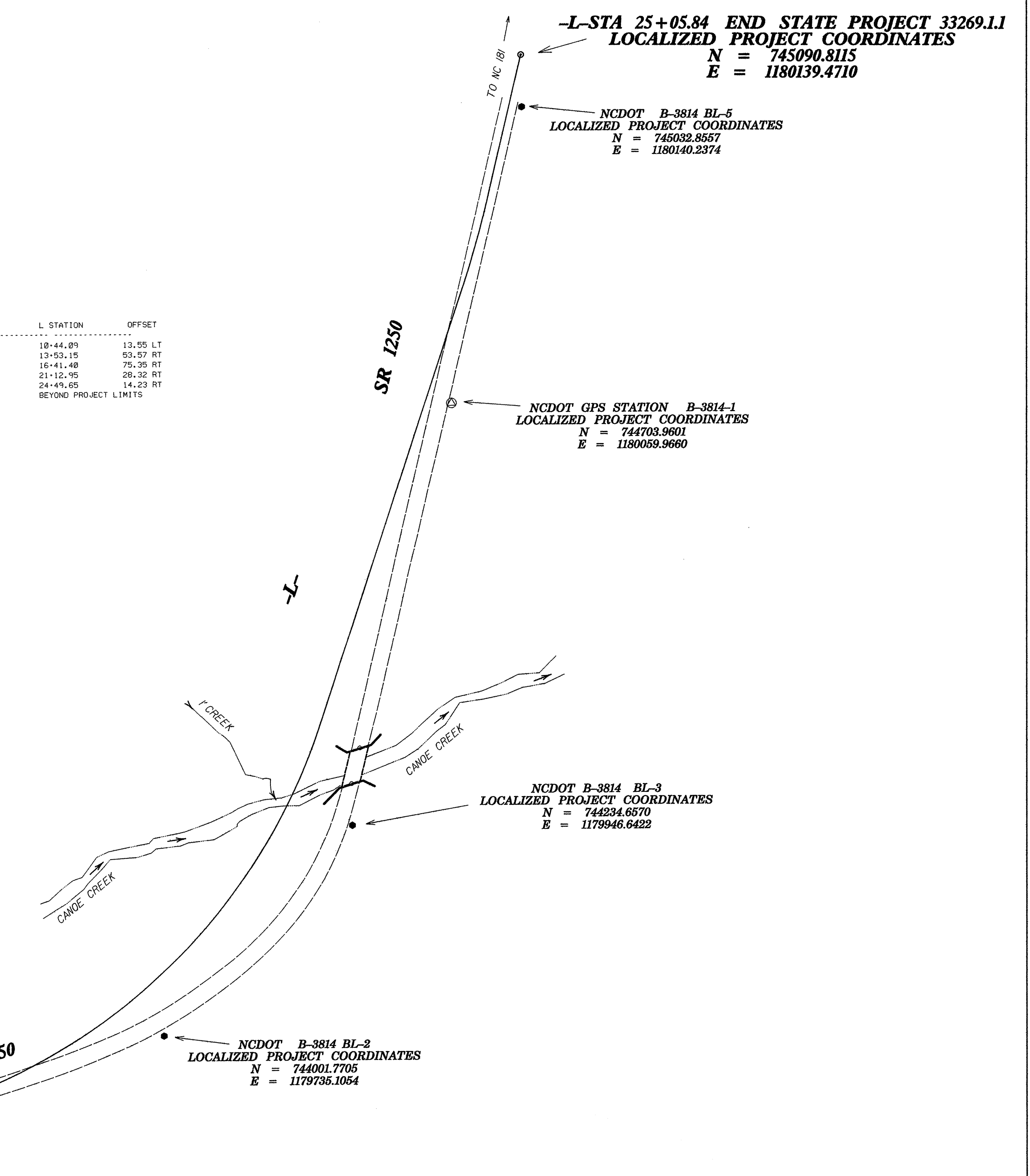
.....
 BSM1 ELEVATION = 1076.01
 N 744811 E 1179488
 L STATION 11+29 82' LEFT

 BSM2 ELEVATION = 1071.84
 N 744183 E 1179957
 L STATION 16+06 109'
 RIGHT

 BSM3 ELEVATION = 1122.66
 N 745895 E 1180196
 L STATION 25+06
 N 85° 50' 54.3" E DIST 56.88'

NCDOT B-3814 BL-1
 LOCALIZED PROJECT COORDINATES
 N = 743921.2007
 E = 1179422.0035

-L-STA 10+00.000 BEGIN STATE PROJECT 33269.1.1
 LOCALIZED PROJECT COORDINATES
 N = 743895.2620
 E = 1179383.8587



-L-STA 25+05.84 END STATE PROJECT 33269.1.1
 LOCALIZED PROJECT COORDINATES
 N = 745090.8115
 E = 1180139.4710

NCDOT B-3814 BL-5
 LOCALIZED PROJECT COORDINATES
 N = 745032.8557
 E = 1180140.2374

NCDOT GPS STATION B-3814-1
 LOCALIZED PROJECT COORDINATES
 N = 744703.9601
 E = 1180059.9660

NCDOT B-3814 BL-3
 LOCALIZED PROJECT COORDINATES
 N = 744234.6570
 E = 1179946.6422

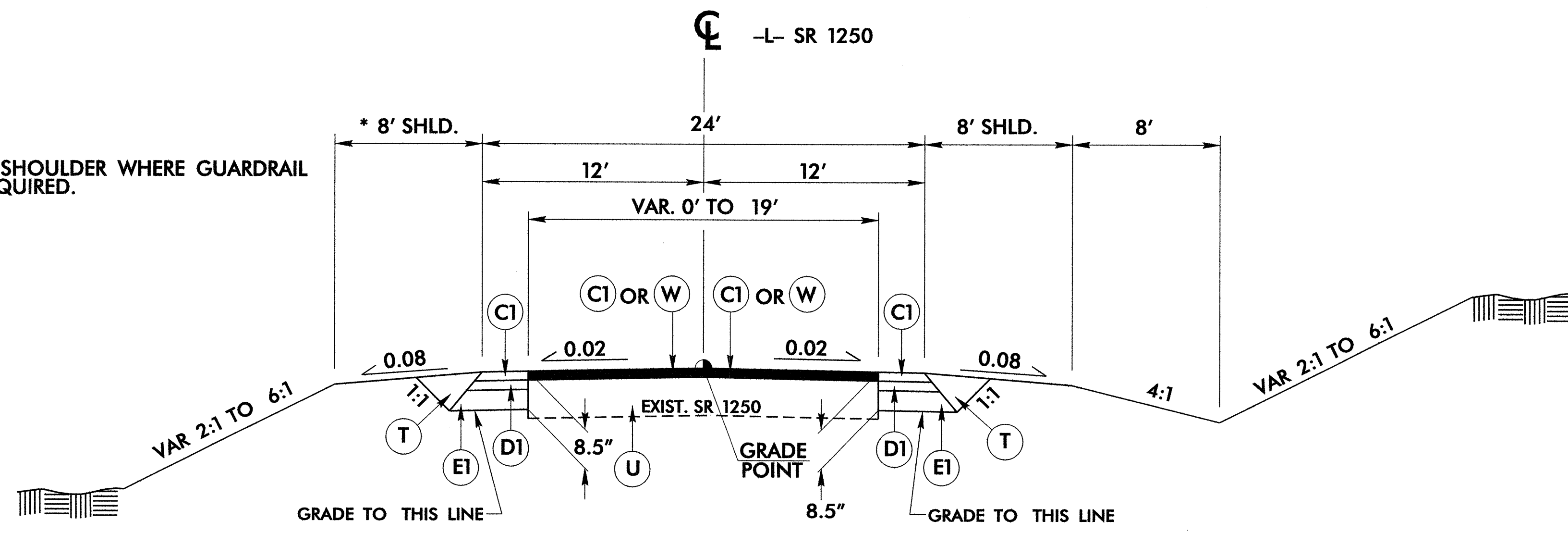
NCDOT B-3814 BL-2
 LOCALIZED PROJECT COORDINATES
 N = 744001.7705
 E = 1179735.1054

NOTE: DRAWING NOT TO SCALE

6/2/99

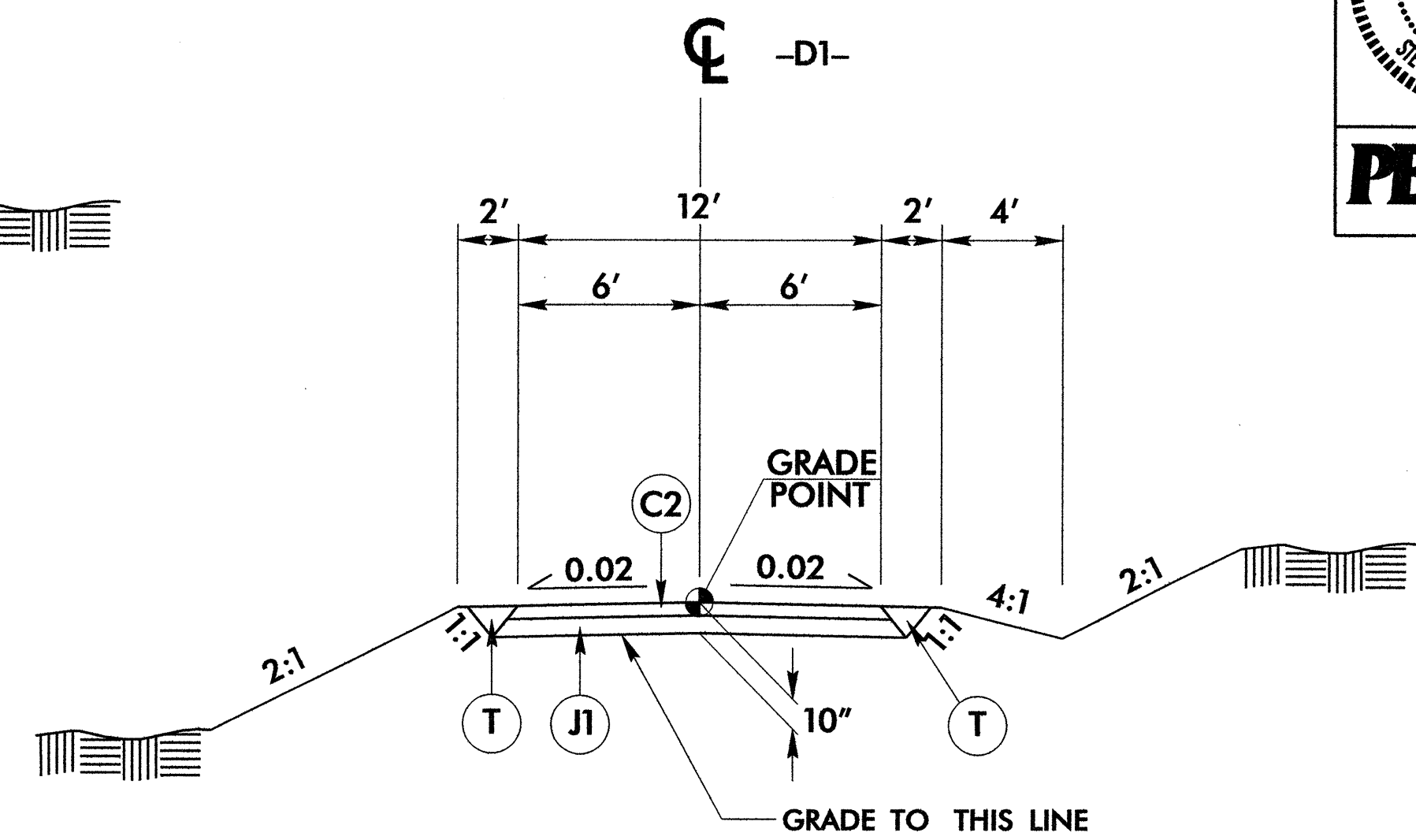
| | |
|--|---|
| PROJECT REFERENCE NO. B-3814 | SHEET NO. 2 |
| ROADWAY DESIGN ENGINEER SEAL 17265 ANTHONY DRAIN | PAVEMENT DESIGN ENGINEER SEAL 22885 CLARK S. MORRISON |
| | |
| PBSJ 5200 77 CENTER DRIVE, SUITE 500 CHARLOTTE, NORTH CAROLINA 28217 (704) 522-7275 | |

* 11' SHOULDER WHERE GUARDRAIL IS REQUIRED.



TYPICAL SECTION NO. 1

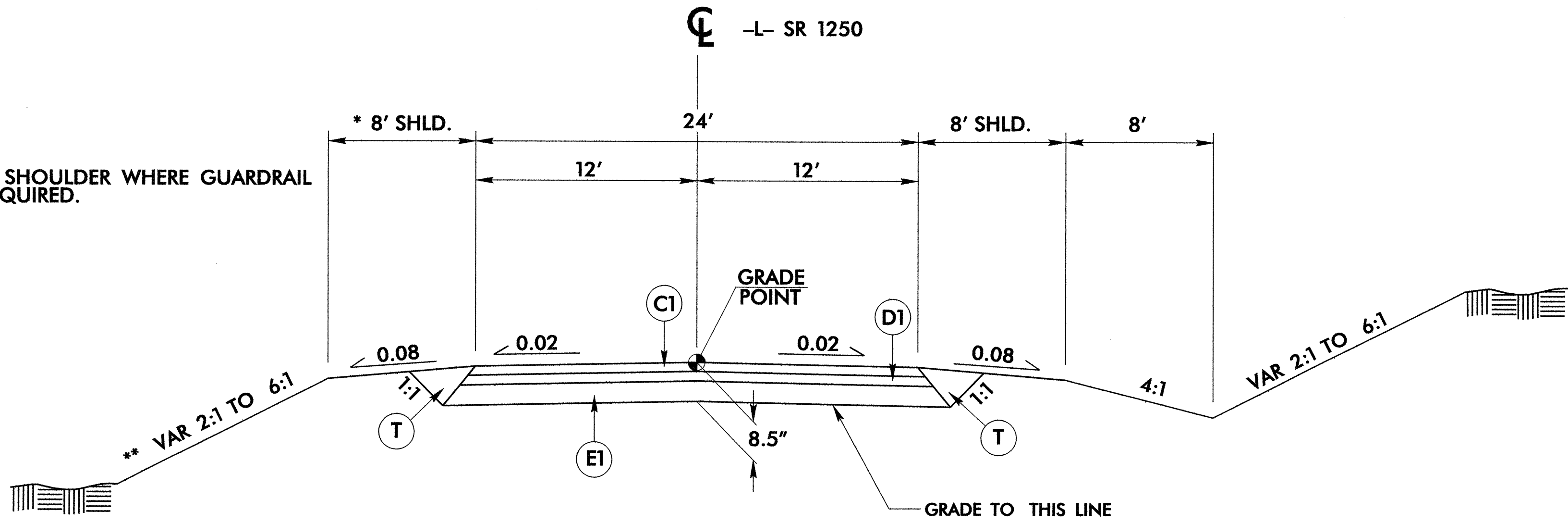
USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 10+00.00 TO STA. 12+81.04
 -L- STA. 20+48.32 TO STA. 24+54.04



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:
 -D1- STA. 10+42.52 TO STA. 12+88.44

* 11' SHOULDER WHERE GUARDRAIL IS REQUIRED.

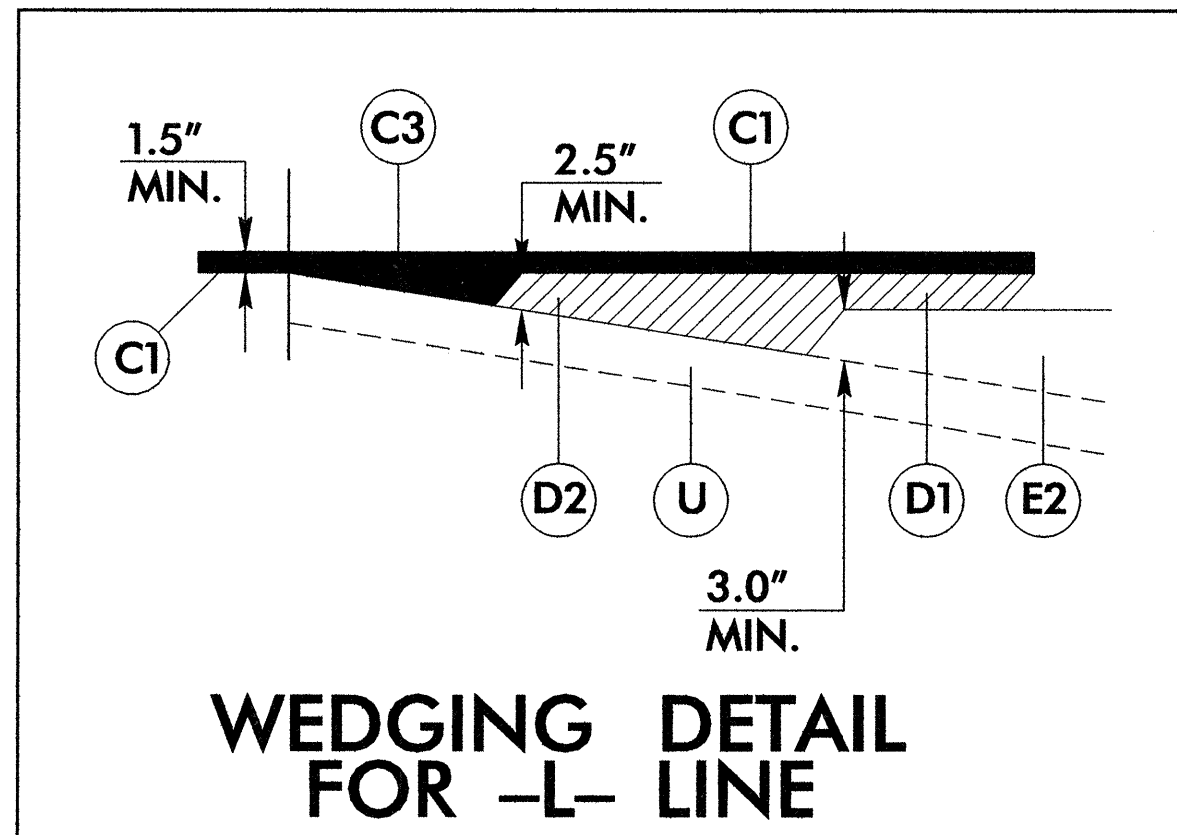


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -L- STA. 12+81.04 TO STA. 16+00.00 (BEGIN BRIDGE)
 -L- STA. 17+00.00 (END BRIDGE) TO STA. 20+48.32

** NOTE: USE 1.5:1 SLOPE LEFT SIDE FROM STA. 17+00.00 TO 18+00.00 (SEE SHEET 2-C FOR DETAIL)

| PAVEMENT SCHEDULE | |
|-------------------|---|
| C1 | PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. |
| C2 | PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS. |
| C3 | 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" OR GREATER THAN 1 1/2" IN DEPTH. |
| D1 | PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD. |
| D2 | 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" IN DEPTH. |
| E1 | PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 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" IN DEPTH. |
| J1 | PROP. 8" AGGREGATE BASE COURSE |
| T | EARTH MATERIAL |
| U | EXISTING PAVEMENT |
| W | VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL) |



NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

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STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

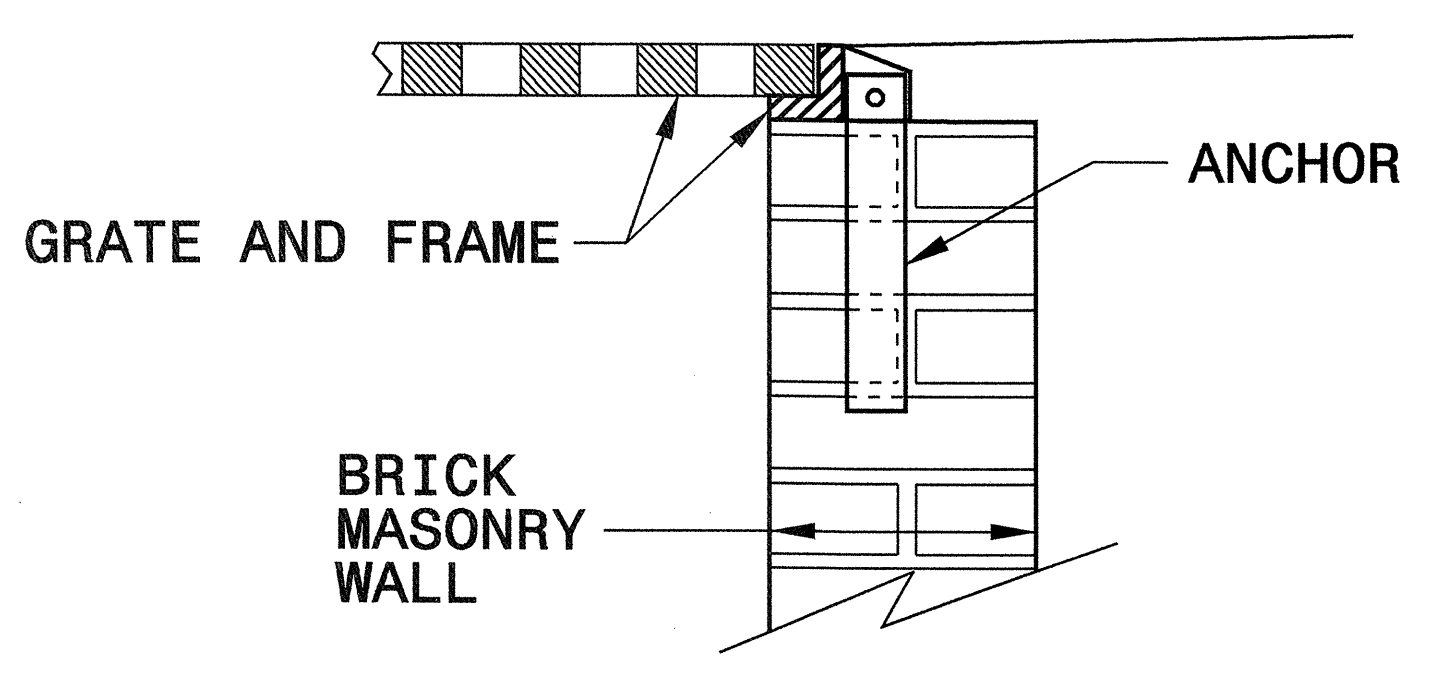
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

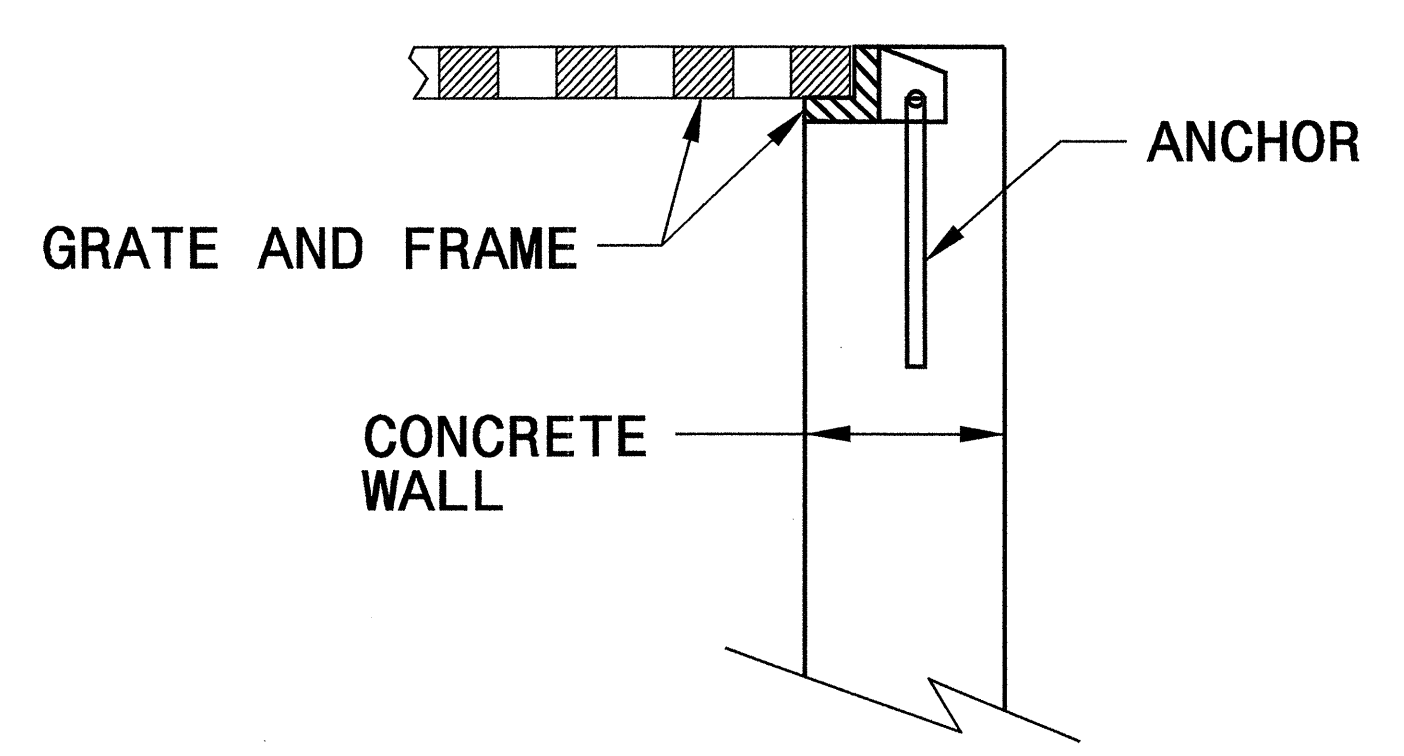
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ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

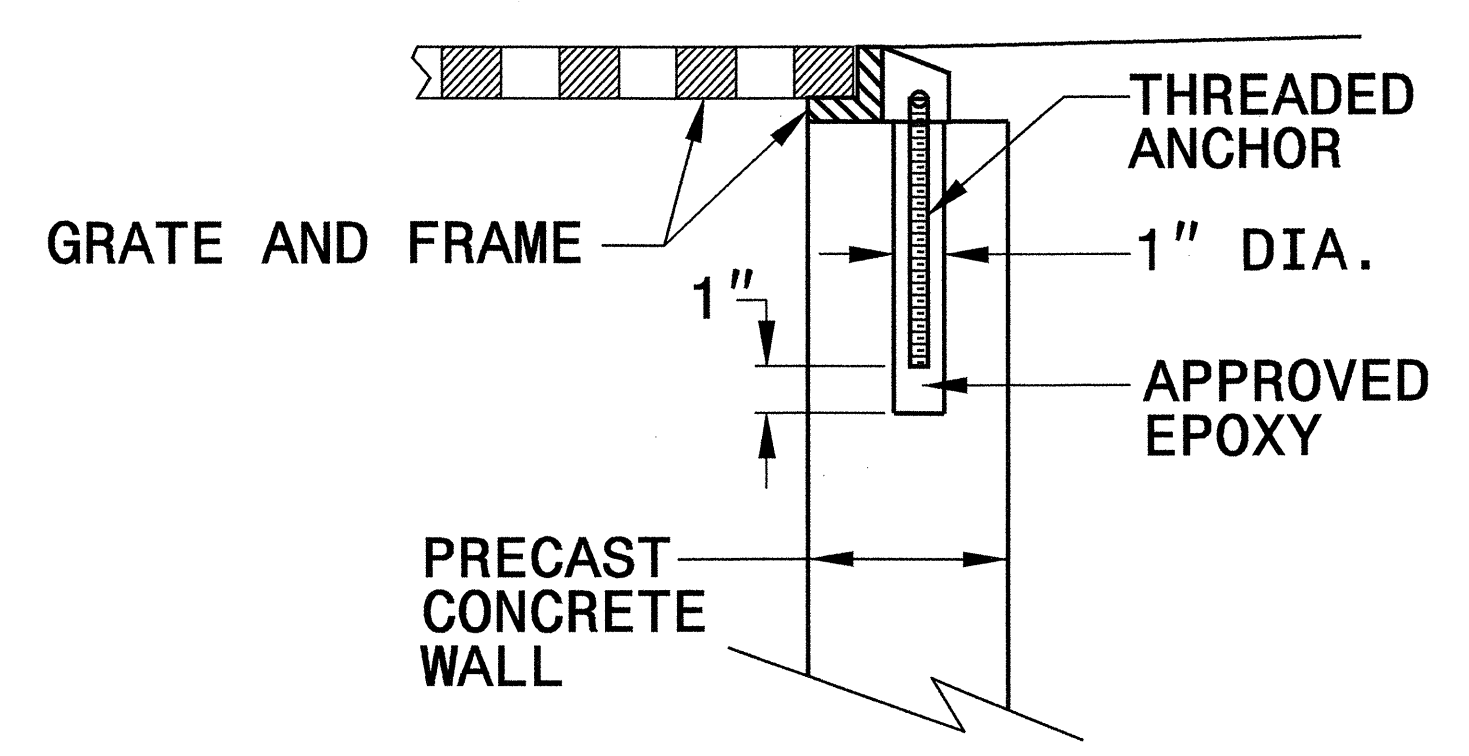
SHEET 1 OF 1
840D25



**BRICK MASONRY
CONSTRUCTION**



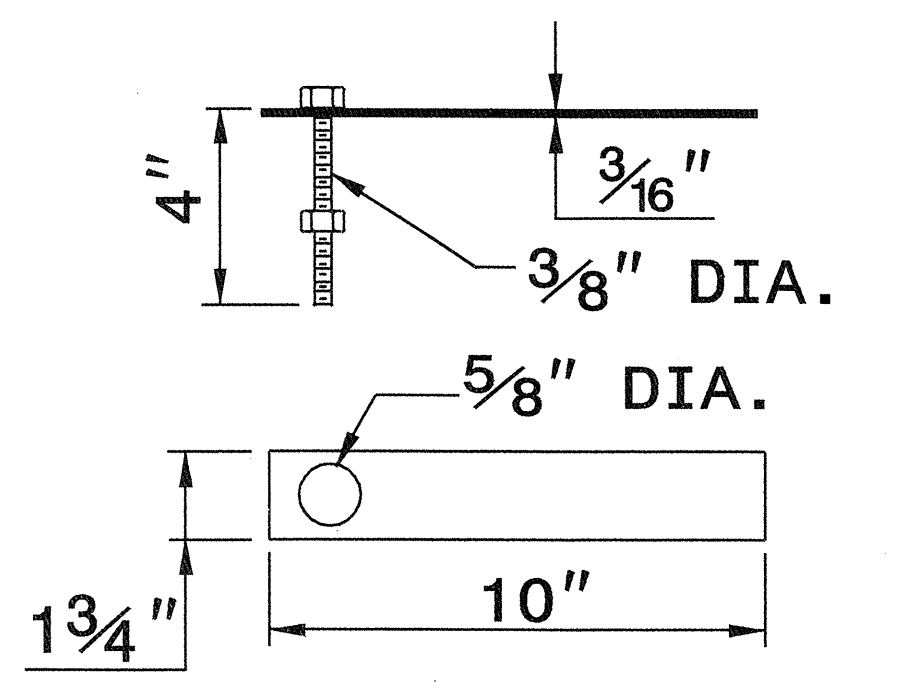
**CONCRETE
CONSTRUCTION**



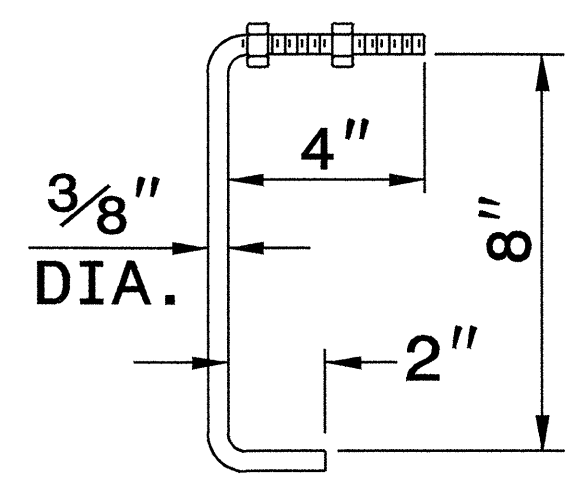
**PRECAST CONCRETE
CONSTRUCTION**

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

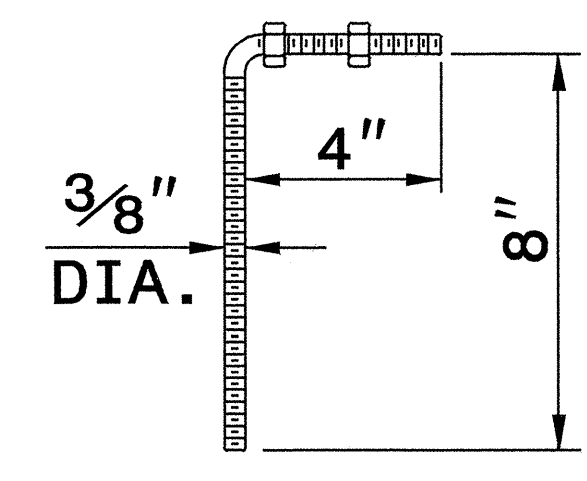
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL
OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



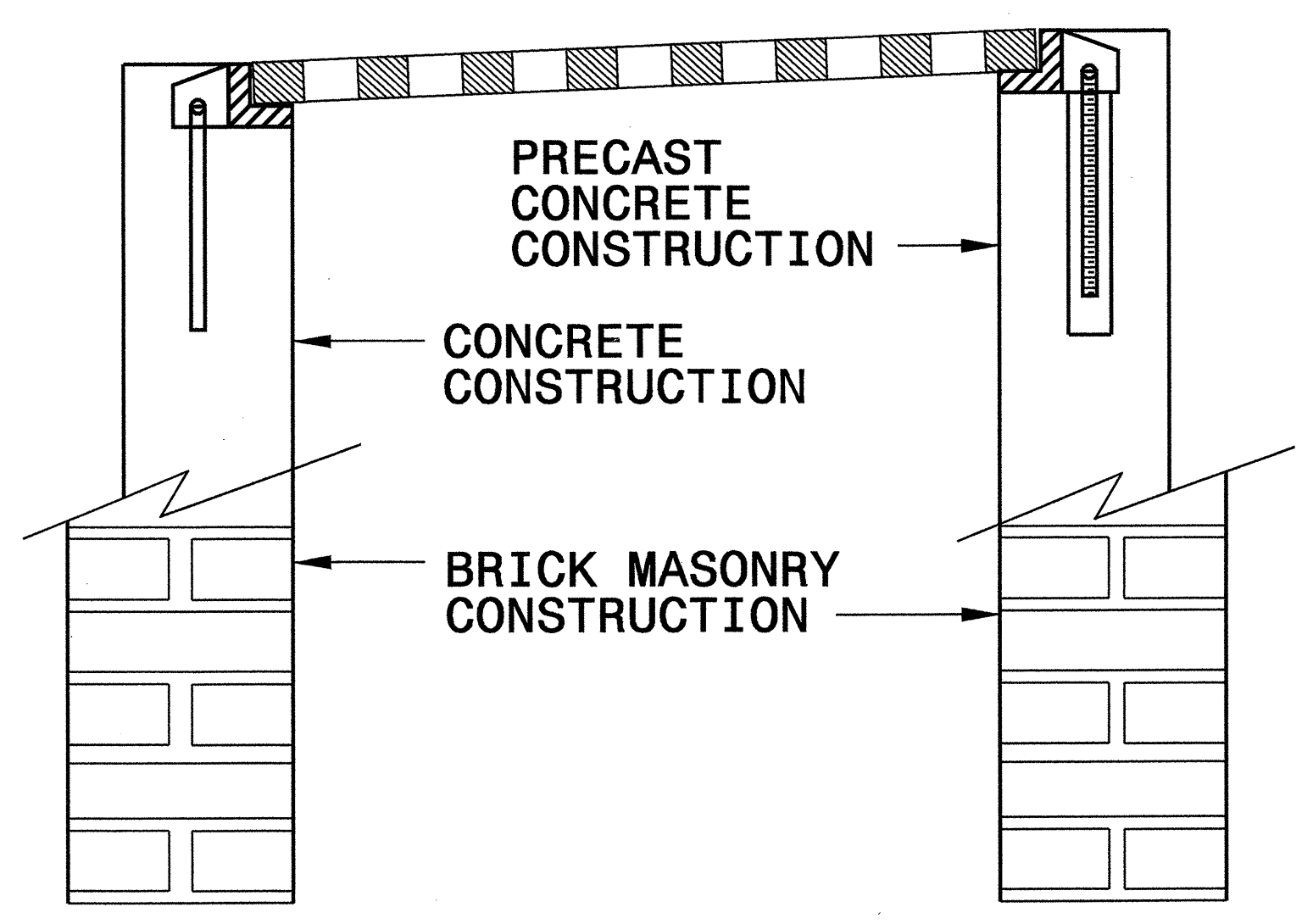
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR

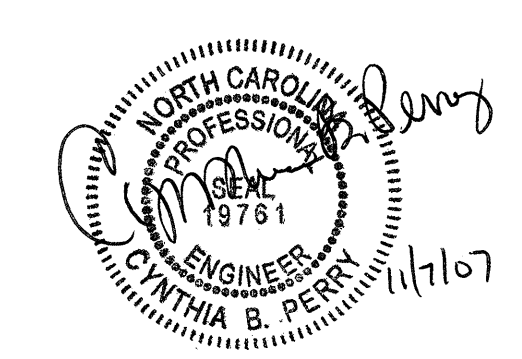


**PRECAST
CONCRETE ANCHOR**
3/8" DIA. BENT BAR



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

O:\MPE-2007_09\04
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**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

| | |
|---|---|
| GEOTECHNICAL ENGINEER  Scott A. Shidden 2/20/07 <small>SIGNATURE DATE</small> | ENGINEER <small>SIGNATURE DATE</small> |
|---|---|

| 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 |

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.

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 INCREMENT 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).

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.

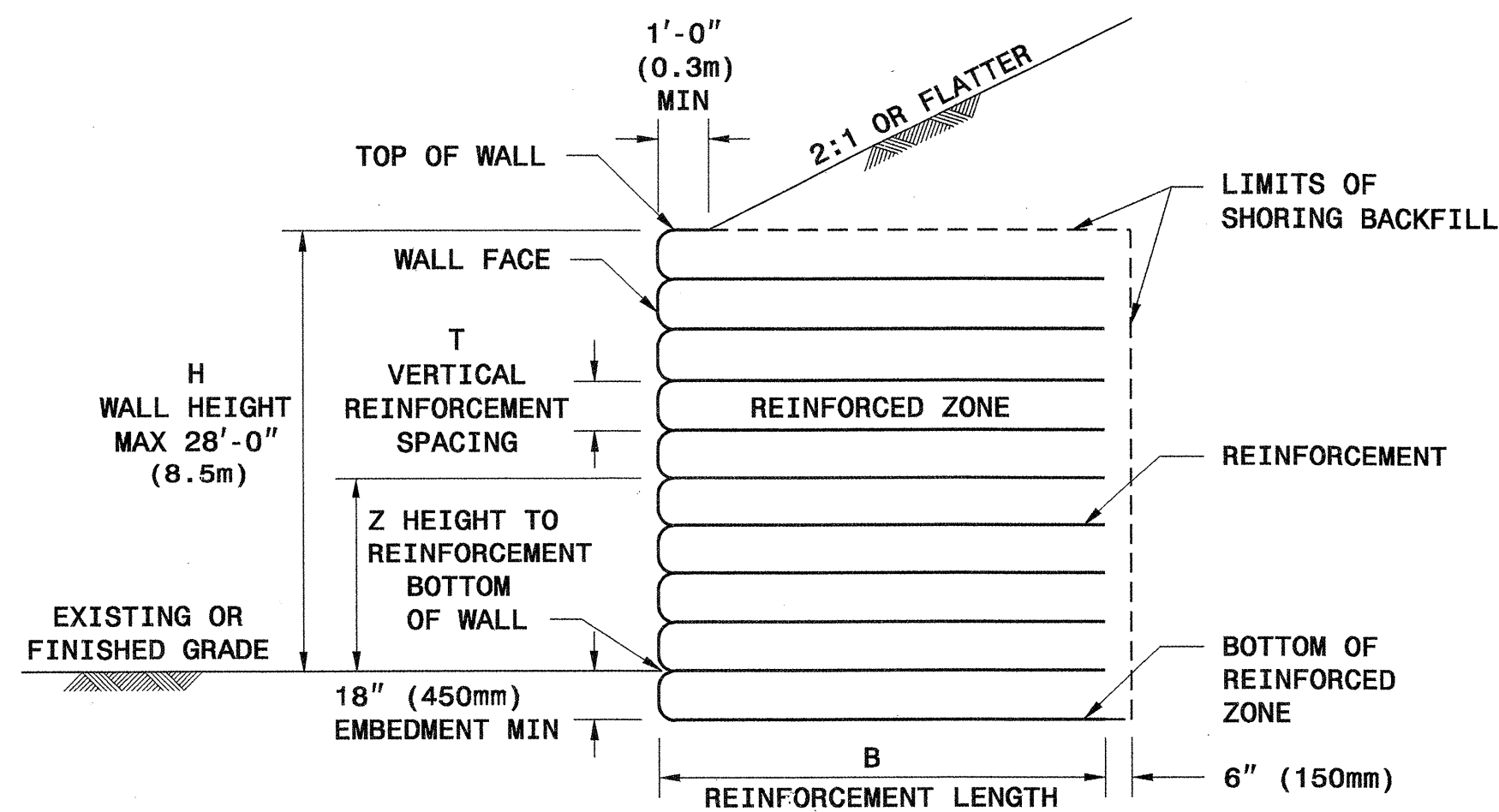
PLACE SHORING BACKFILL IN 8" TO 10" (200mm to 250mm) THICK LIFTS AND COMPACT IN ACCORDANCE WITH SUBARTICLE 235-4(C) OF THE STANDARD SPECIFICATIONS. USE ONLY HAND OPERATED COMPACTION EQUIPMENT WITHIN 3'-0" (1m) OF THE WALL FACE.

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.

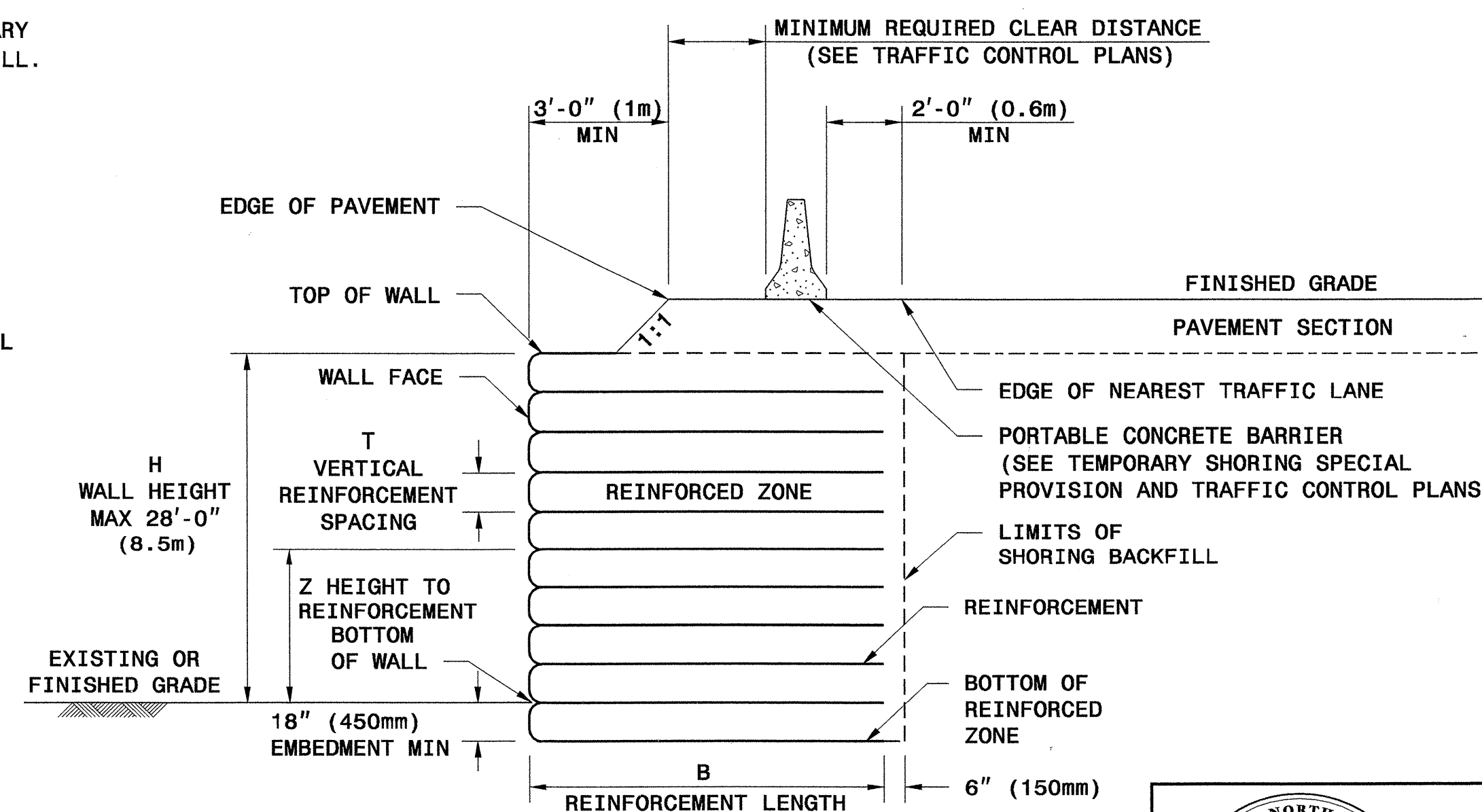
COVER REINFORCING AND RETENTION FABRIC WITH AT LEAST 3" (75mm) OF SHORING BACKFILL. PLACE TOP REINFORCEMENT LAYER BETWEEN 4" AND 24" (100mm and 600mm) BELOW TOP OF WALL DEPENDING ON WALL OPTION.

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

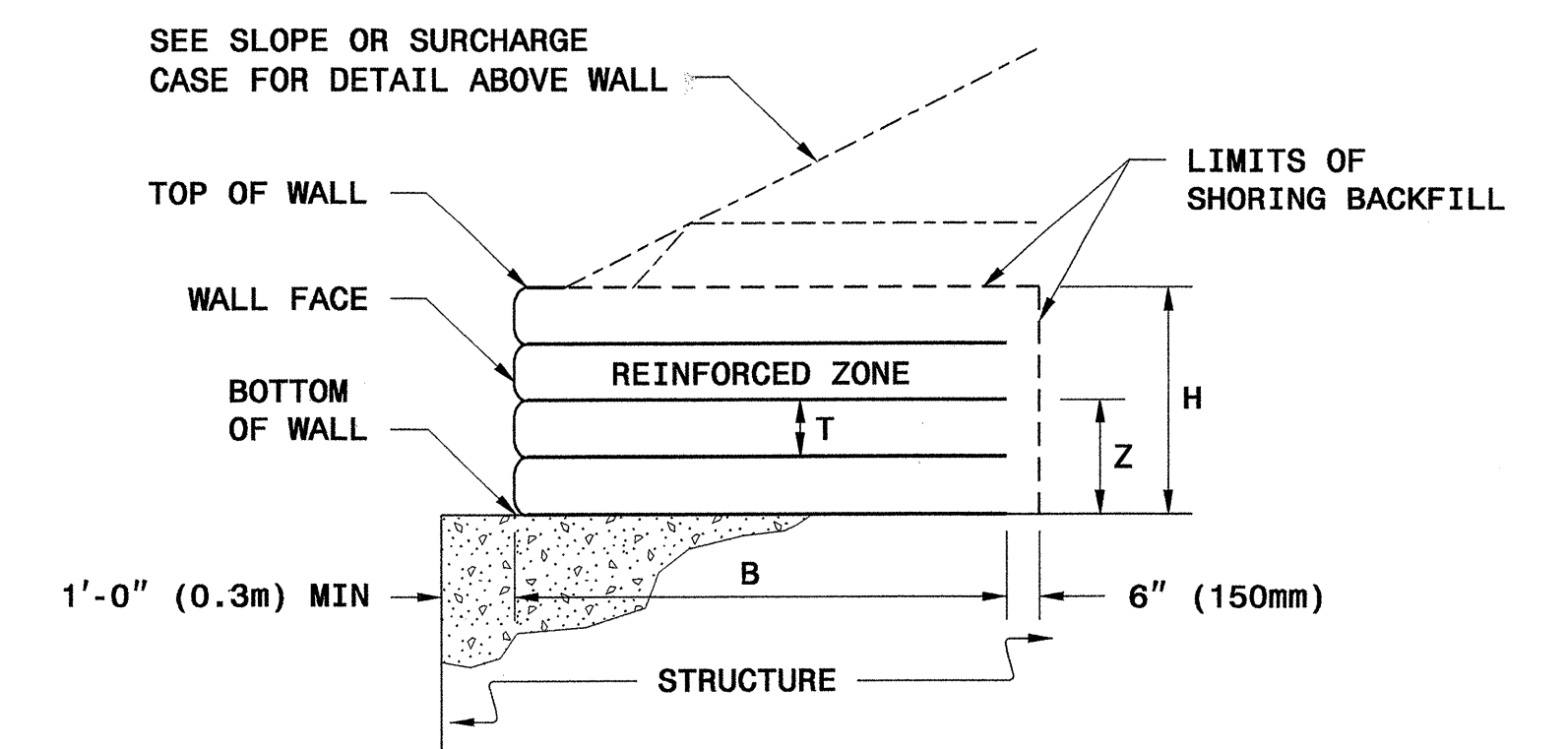
IF THE TOP OF WALL IS WITHIN 5'-0" (1.5m) OF FINISHED GRADE, REMOVE TOP FORM OR FACING AND INCORPORATE THE TOP REINFORCEMENT LAYER INTO THE FILL WHEN PLACING FILL IN FRONT OF THE WALL. STANDARD TEMPORARY MSE WALLS REMAIN IN PLACE PERMANENTLY UNLESS REQUIRED OTHERWISE.



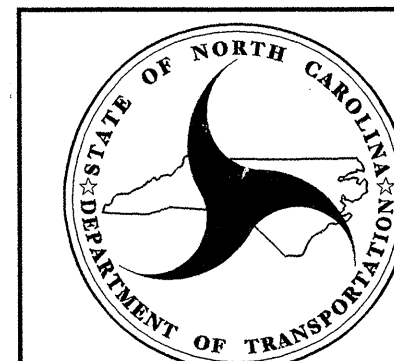
SLOPE CASE



SURCHARGE CASE



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

GEOTECHNICAL ENGINEER ENGINEER

Scott A. Hadden 3/24/07

MINIMUM REQUIRED REINFORCEMENT LENGTH B (FT)

(FOR ALL WALL OPTIONS)

HOW TO USE THIS SHEET:

- FOR ALL WALL OPTIONS, DETERMINE MINIMUM REQUIRED REINFORCEMENT LENGTH (B) FROM TABLE AT RIGHT BASED ON WALL HEIGHT (H) AND SLOPE OR SURCHARGE CASE
- FOR STANDARD TEMPORARY FABRIC WALL, SEE SHEET 3 FOR FABRIC STRENGTH REQUIREMENTS BASED ON WALL HEIGHT (H)
- FOR ALL OTHER WALL OPTIONS, DETERMINE REINFORCEMENT TYPE FROM TABLES BELOW FOR EACH HEIGHT TO REINFORCEMENT (Z) BASED ON WALL HEIGHT (H) AND SLOPE OR SURCHARGE CASE

| WALL HEIGHT H (FT) | <8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 |
|--------------------|----|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| SLOPE CASE | 8 | 11 | 13 | 14 | 16 | 18 | 20 | 22 | 24 | 25 | 27 |
| SURCHARGE CASE | 8 | 9 | 11 | 12 | 14 | 15 | 16 | 18 | 19 | 21 | 22 |

TERRATREL TEMPORARY WALL (STRIPS PER LEVEL PER PANEL)

| H (FT) | <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT-INCHES) |
|---------|----|--------|--------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------------|
| 27 - 8 | | | | | | | | | | | | | 3 | |
| 26 - 10 | | | | | | | | | | | | | 3 | |
| 25 - 2 | | | | | | | | | | | | | 3 | |
| 23 - 6 | | | | | | | | | | | | | 3 | |
| 21 - 10 | | | | | | | | | | | | | 3 | |
| 20 - 2 | | | | | | | | | | | | | 3 | |
| 18 - 6 | | | | | | | | | | | | | 3 | |
| 16 - 10 | | | | | | | | | | | | | 3 | |
| 15 - 2 | | | | | | | | | | | | | 3 | |
| 13 - 6 | | | | | | | | | | | | | 3 | |
| 11 - 10 | | | | | | | | | | | | | 3 | |
| 10 - 2 | | | | | | | | | | | | | 3 | |
| 8 - 6 | | | | | | | | | | | | | 3 | |
| 6 - 10 | | | | | | | | | | | | | 3 | |
| 5 - 2 | | | | | | | | | | | | | 3 | |
| 3 - 6 | | | | | | | | | | | | | 3 | |
| 1 - 10 | | | | | | | | | | | | | 3 | |
| 0 - 2 | | | | | | | | | | | | | 3 | |
| -0 - 8 | | | | | | | | | | | | | 3 | |

SIERRASCAPE TEMPORARY WALL (GEOGRID TYPE)

11 = UX1100MSE 16 = UX1600MSE
14 = UX1400MSE 17 = UX1700MSE
15 = UX1500MSE

| H (FT) | <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT) |
|--------|----|--------|--------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|
| 26.5 | | | | | | | | | | | | | 11 | |
| 25.5 | | | | | | | | | | | | | 11 | |
| 24 | | | | | | | | | | | | | 11 | |
| 22.5 | | | | | | | | | | | | | 11 | |
| 21 | | | | | | | | | | | | | 11 | |
| 19.5 | | | | | | | | | | | | | 11 | |
| 18 | | | | | | | | | | | | | 11 | |
| 16.5 | | | | | | | | | | | | | 11 | |
| 15 | | | | | | | | | | | | | 11 | |
| 13.5 | | | | | | | | | | | | | 11 | |
| 12 | | | | | | | | | | | | | 11 | |
| 10.5 | | | | | | | | | | | | | 11 | |
| 9 | | | | | | | | | | | | | 11 | |
| 7.5 | | | | | | | | | | | | | 11 | |
| 6 | | | | | | | | | | | | | 11 | |
| 4.5 | | | | | | | | | | | | | 11 | |
| 3 | | | | | | | | | | | | | 11 | |
| 1.5 | | | | | | | | | | | | | 11 | |
| 0 | | | | | | | | | | | | | 11 | |
| -1.5 | | | | | | | | | | | | | 11 | |

HILFIKER TEMPORARY WALL (WELDED WIRE MAT TYPE)

4.5 = W4.5 x W3.5
7.0 = W7.0 x W3.5
9.5 = W9.5 x W4.0

| H (FT) | <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT) |
|--------|----|--------|--------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|
| 26 | | | | | | | | | | | | | | 4.5 |
| 24 | | | | | | | | | | | | | | 4.5 |
| 22 | | | | | | | | | | | | | | 4.5 |
| 20 | | | | | | | | | | | | | | 4.5 |
| 18 | | | | | | | | | | | | | | 4.5 |
| 16 | | | | | | | | | | | | | | 4.5 |
| 14 | | | | | | | | | | | | | | 4.5 |
| 12 | | | | | | | | | | | | | | 4.5 |
| 10 | | | | | | | | | | | | | | 4.5 |
| 8 | | | | | | | | | | | | | | 4.5 |
| 6 | | | | | | | | | | | | | | 4.5 |
| 4 | | | | | | | | | | | | | | 4.5 |
| 3 | | | | | | | | | | | | | | 4.5 |
| 2 | | | | | | | | | | | | | | 4.5 |
| 1 | | | | | | | | | | | | | | 4.5 |
| 0 | | | | | | | | | | | | | | 4.5 |
| -1.5 | | | | | | | | | | | | | | 4.5 |

RETAINED EARTH TEMPORARY WALL (WELDED WIRE MESH TYPE)

3X1 = 3W8 x W8 x 1.0'
3X2 = 3W8 x W8 x 2.0'

| H (FT) | <4 | 4 TO 6 | 6 TO 8 | 8 TO 10 | 10 TO 12 | 12 TO 14 | 14 TO 16 | 16 TO 18 | 18 TO 20 | 20 TO 22 | 22 TO 24 | 24 TO 26 | 26 TO 28 | Z (FT-INCHES) |
|---------|----|--------|--------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------------|
| 27 - 6 | | | | | | | | | | | | | | 3X1 |
| 26 - 10 | | | | | | | | | | | | | | 3X1 |
| 25 - 2 | | | | | | | | | | | | | | 3X1 |
| 23 - 6 | | | | | | | | | | | | | | 3X1 |
| 21 - 10 | | | | | | | | | | | | | | 3X1 |
| 20 - 2 | | | | | | | | | | | | | | 3X1 |
| 18 - 6 | | | | | | | | | | | | | | 3X1 |
| 16 - 10 | | | | | | | | | | | | | | 3X1 |
| 15 - 2 | | | | | | | | | | | | | | 3X1 |
| 13 - 6 | | | | | | | | | | | | | | 3X1 |
| 11 - 10 | | | | | | | | | | | | | | 3X1 |
| 10 - 2 | | | | | | | | | | | | | | 3X1 |
| 8 - 6 | | | | | | | | | | | | | | 3X1 |
| 6 - 10 | | | | | | | | | | | | | | 3X1 |
| 5 - 2 | | | | | | | | | | | | | | 3X1 |
| 3 - 6 | | | | | | | | | | | | | | 3X1 |
| 1 - 10 | | | | | | | | | | | | | | 3X1 |
| 0 - 2 | | | | | | | | | | | | | | 3X1 |
| -1 - 6 | | | | | | | | | | | | | | 3X1 |

NOTES FOR HILFIKER TEMPORARY WALL

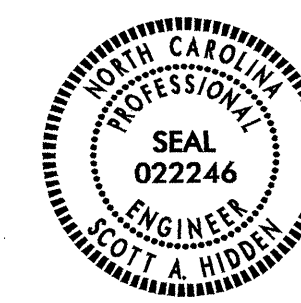
- CAP MAT AT TOP OF WALL IS NOT INCLUDED IN TABLES.
- REINFORCEMENT IS NOT REQUIRED AT 1' LEVEL FOR SLOPE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 24'.
- REINFORCEMENT IS NOT REQUIRED AT 3' LEVEL FOR SLOPE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 26'.
- REINFORCEMENT IS NOT REQUIRED AT 1' LEVEL FOR SURCHARGE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 26'.

GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY MSE WALL REINFORCEMENT TABLES - ENGLISH UNITS

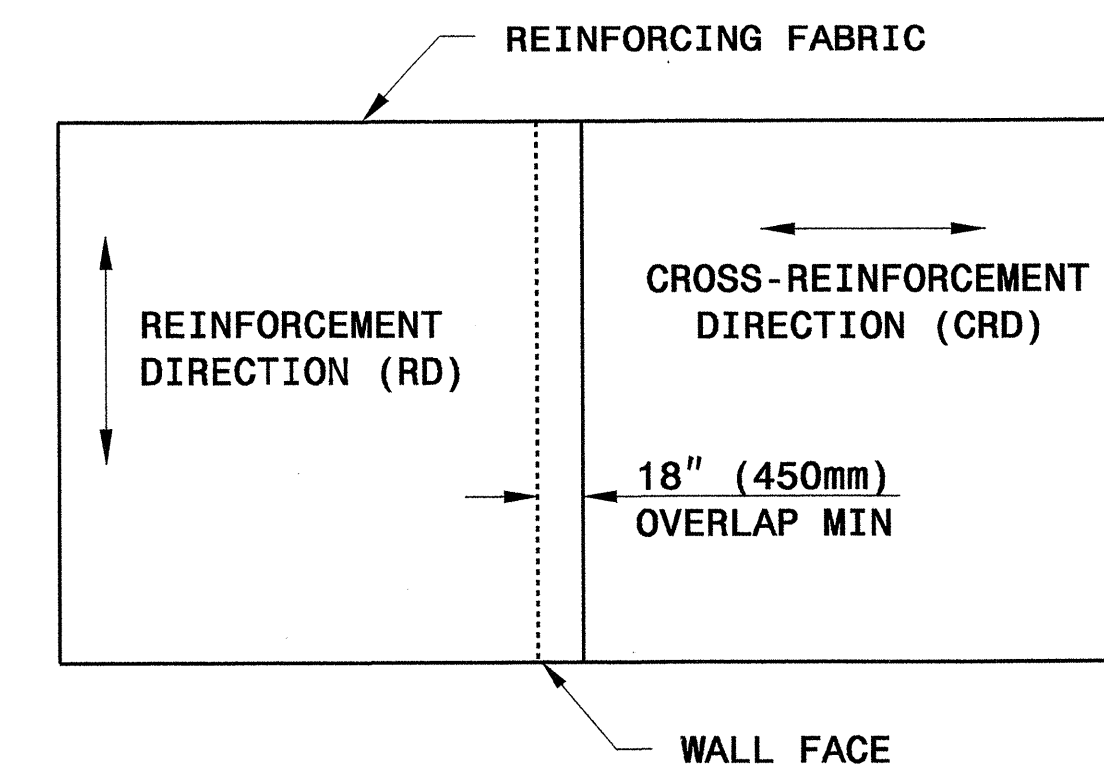
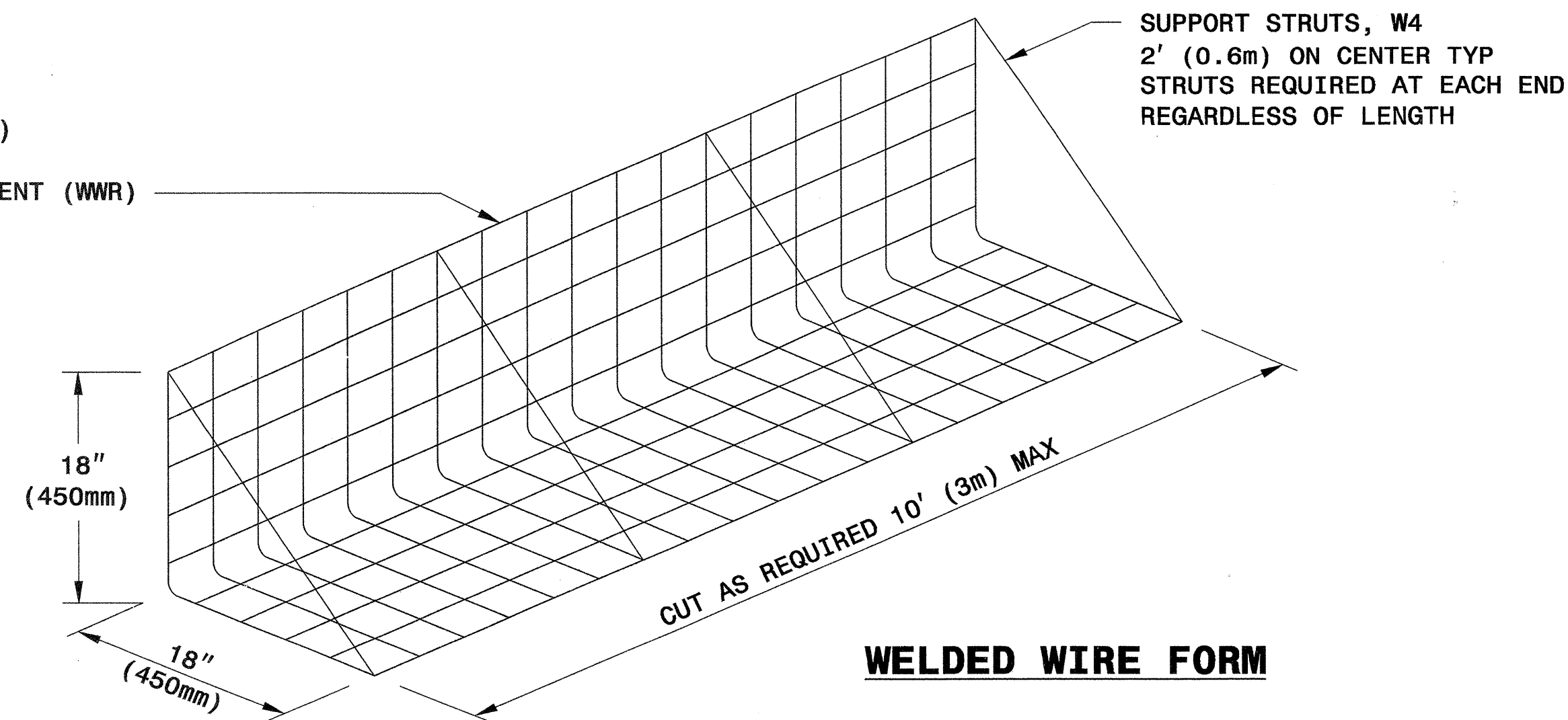
SHEET 2 OF 11 DATE: 2-20-07



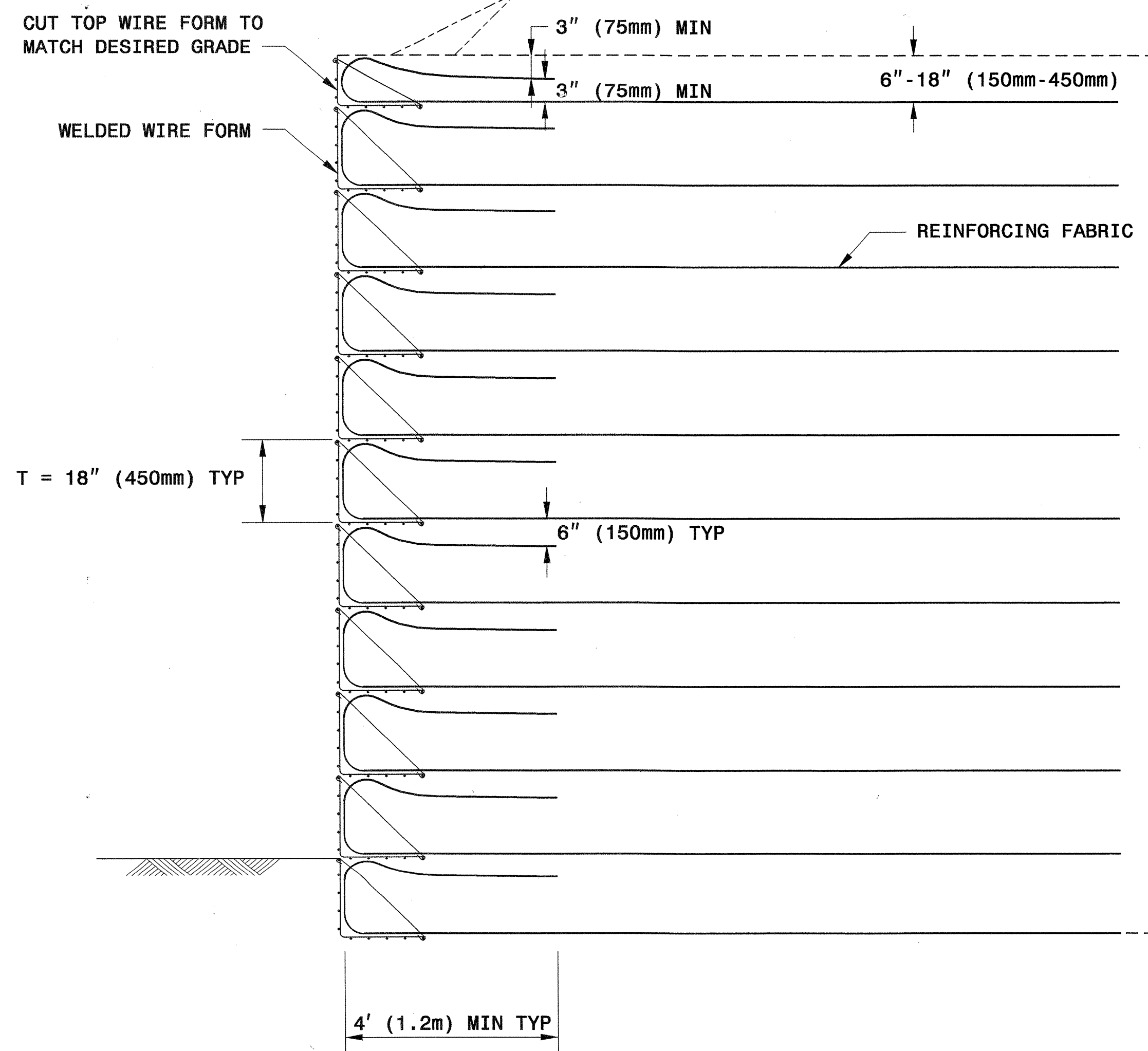
Scott A. Hadden
SIGNATURE DATE

SIGNATURE DATE

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



PLAN VIEW OF FABRIC OVERLAP

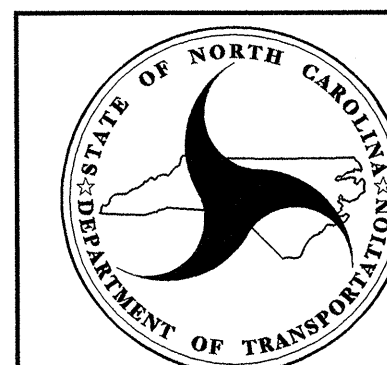


TYPICAL SECTION

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



GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

TEMPORARY FABRIC WALL

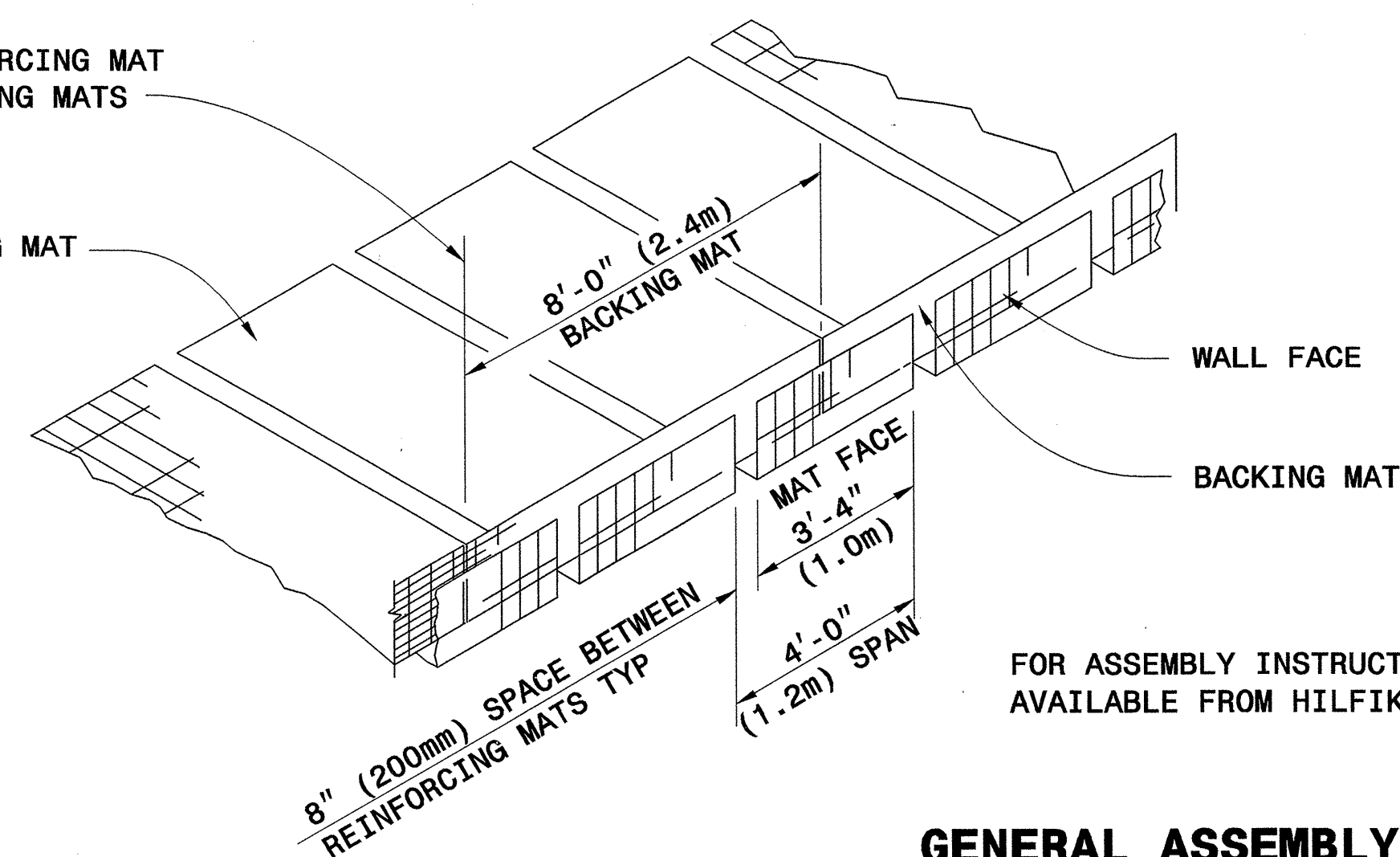


Scott A. Shidden 3/29/07

SIGNATURE DATE SIGNATURE DATE

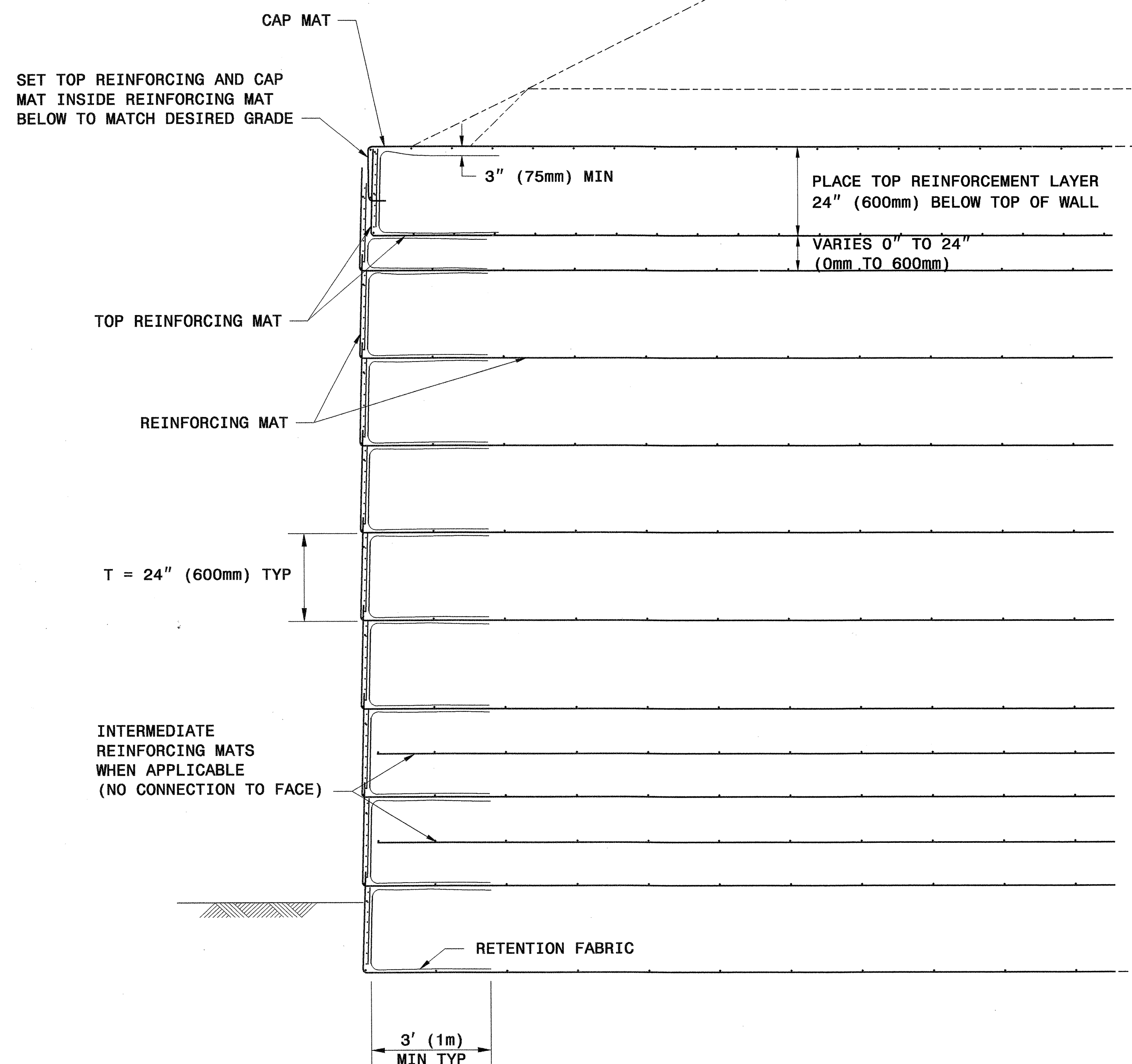
CENTERLINE OF REINFORCING MAT
FACE = EDGE OF BACKING MATS

REINFORCING MAT



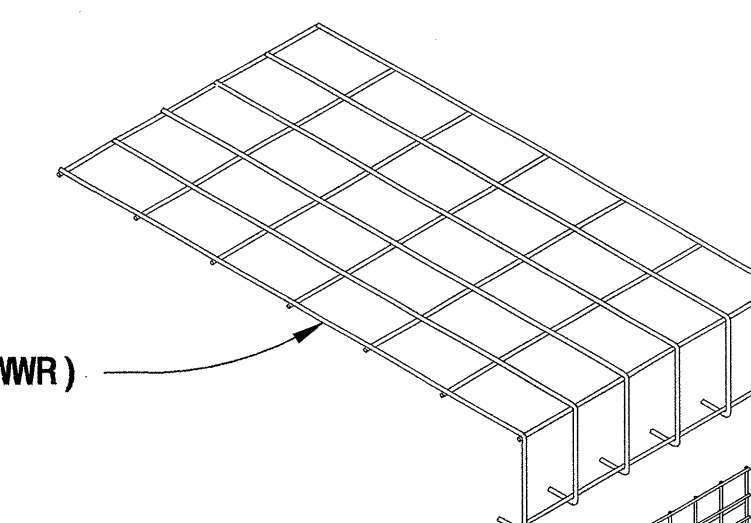
FOR ASSEMBLY INSTRUCTIONS, SEE WELDED WIRE WALL CONSTRUCTION GUIDE AVAILABLE FROM HILFIKER WEBSITE AT WWW.HILFIKER.COM/WWW

GENERAL ASSEMBLY DETAIL

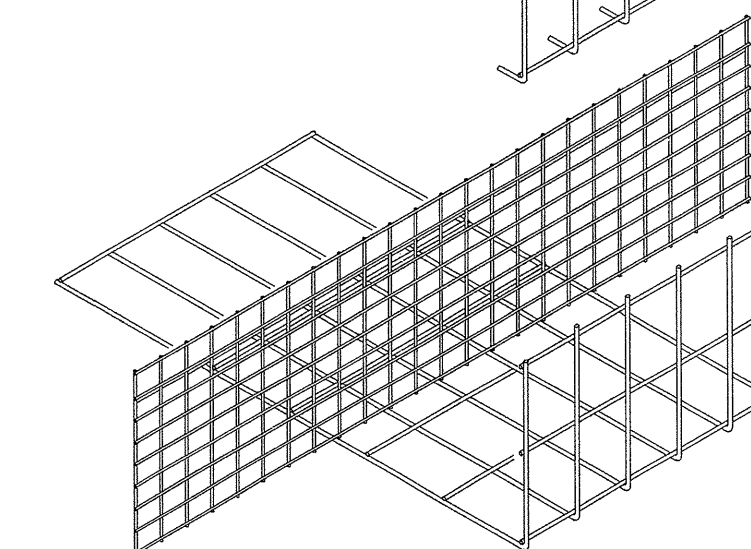


TYPICAL SECTION

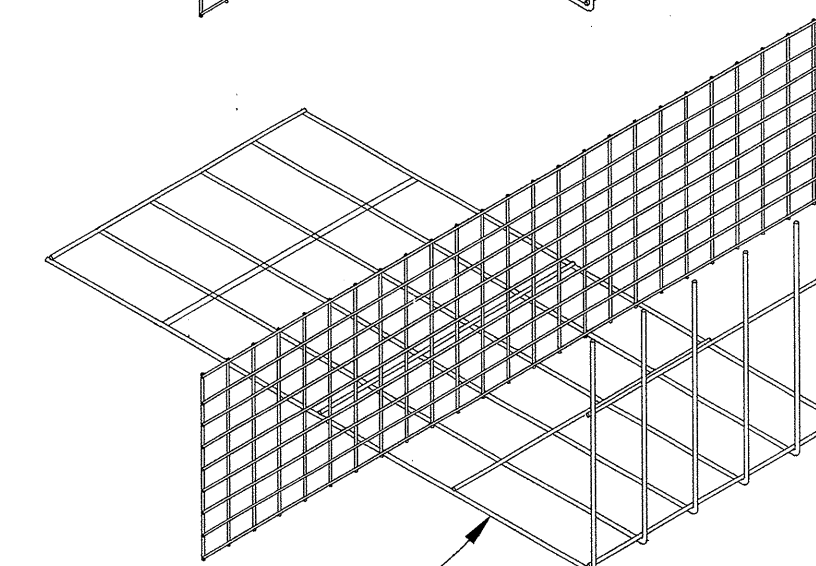
8" X 12" (203mm X 305mm)
W4.5 X W3.5 (MW29 X MW23)
CAP MAT
WELDED WIRE REINFORCEMENT (WWR)



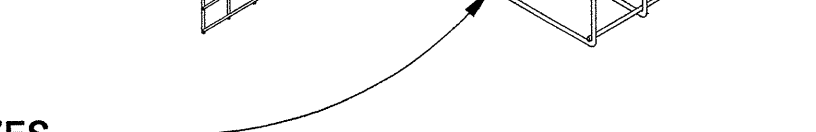
8" X 12" (203mm X 305mm)
W4.5 X W3.5 (MW29 X MW23) WWR
TOP REINFORCING MAT (NO PRONGS)



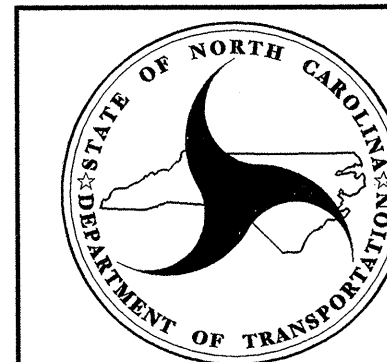
4" X 3" (102mm X 76mm)
W5 X W2.5 (MW32 X MW16) WWR
BACKING MAT
8' (2.4m) WIDE




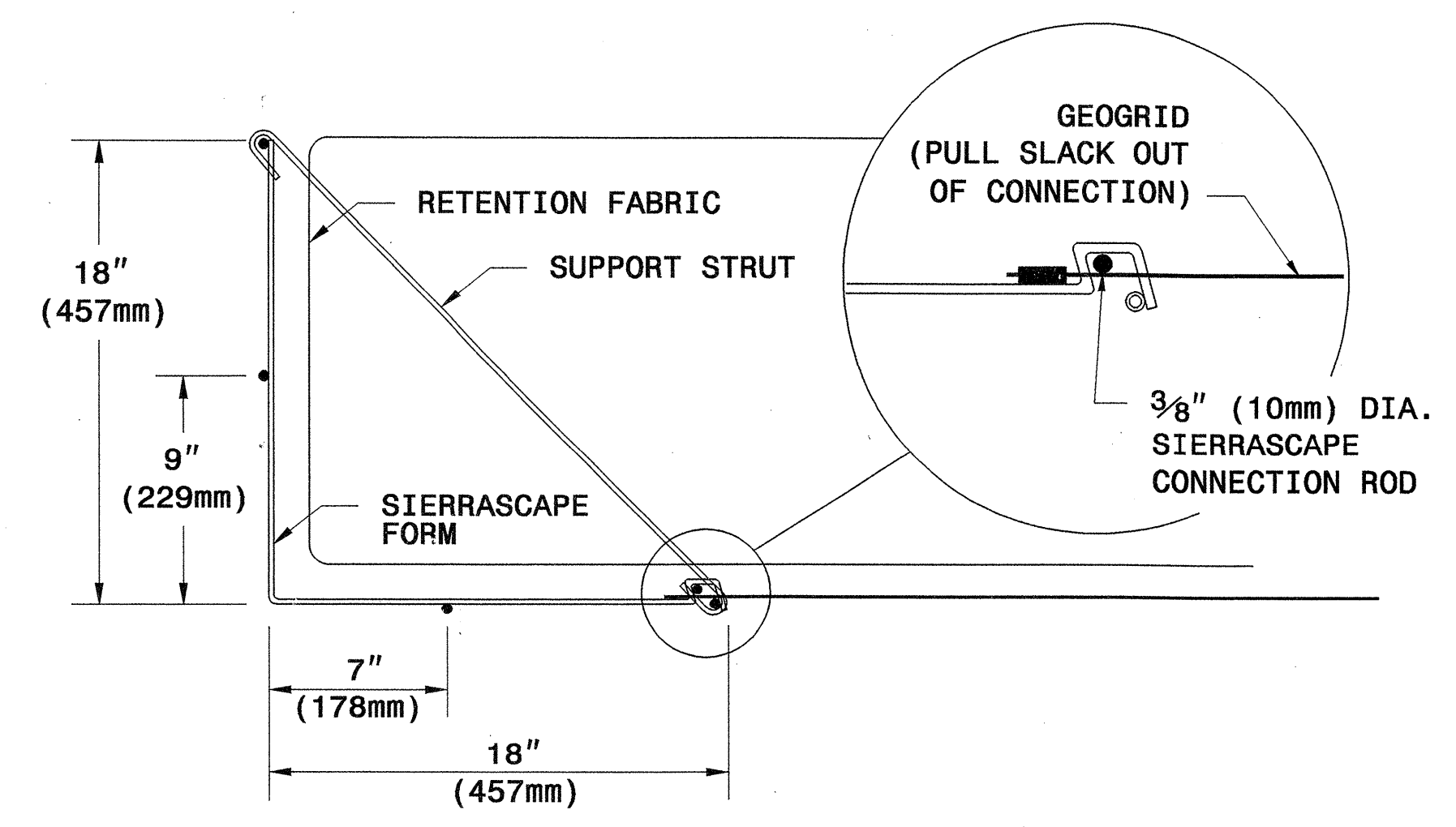
8" X 21" (203mm X 533mm)
REINFORCING MAT
SEE SHEETS 2 AND 3 FOR GAUGE SIZES



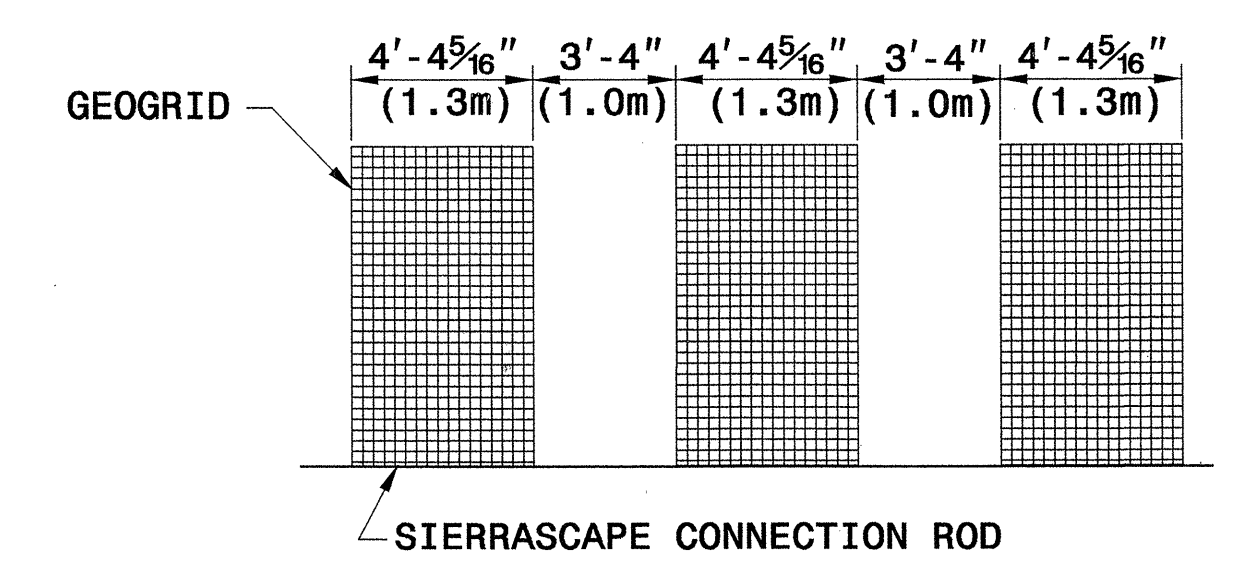
WALL COMPONENTS



| | |
|--|---|
| GEOTECHNICAL ENGINEER  Scott A. Shidden 5/29/07 <small>SIGNATURE DATE</small> | ENGINEER <small>SIGNATURE DATE</small> |
|--|---|



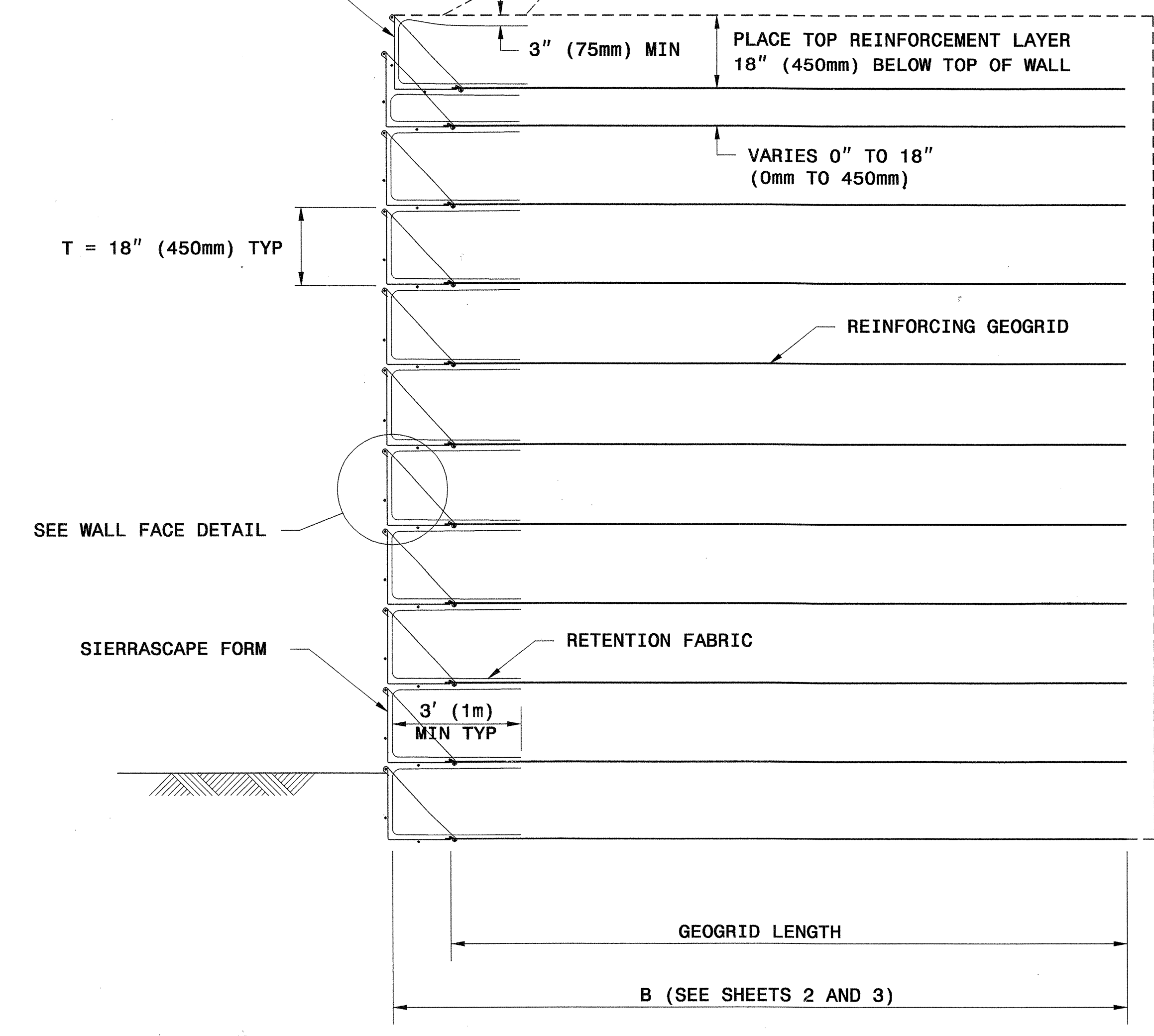
WALL FACE DETAIL



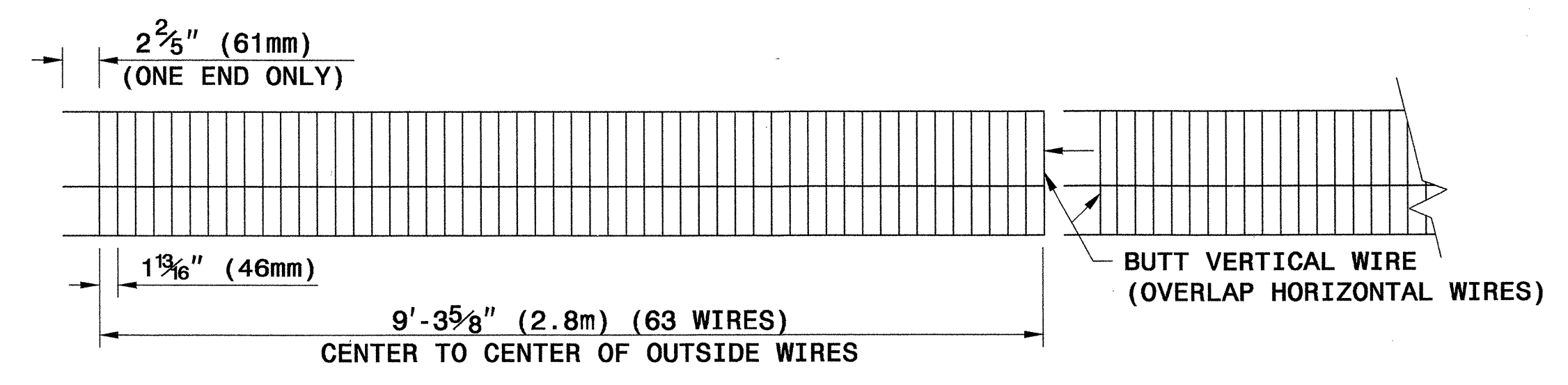
PLACE ALTERNATE LAYERS OF GEOGRID IN STAGGERED PATTERN SUCH THAT THE LAYER ABOVE IS CENTERED OVER SPACE BELOW

TYPICAL GEOGRID COVERAGE

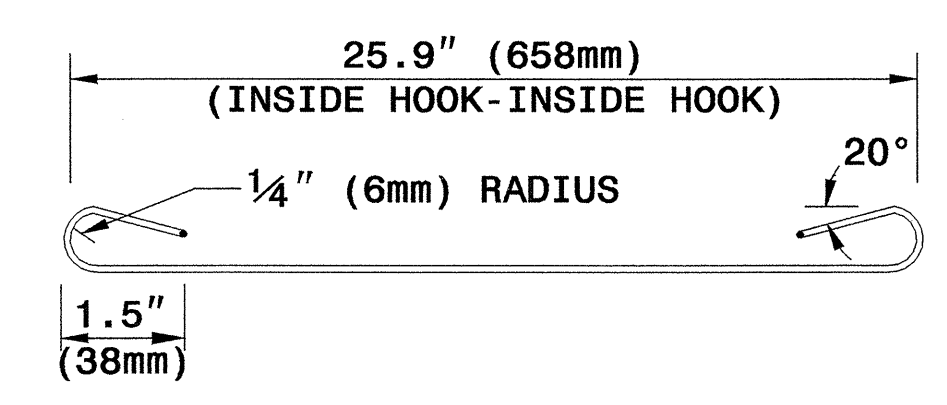
SET TOP WIRE FORM INSIDE WIRE FORM BELOW TO MATCH DESIRED GRADE



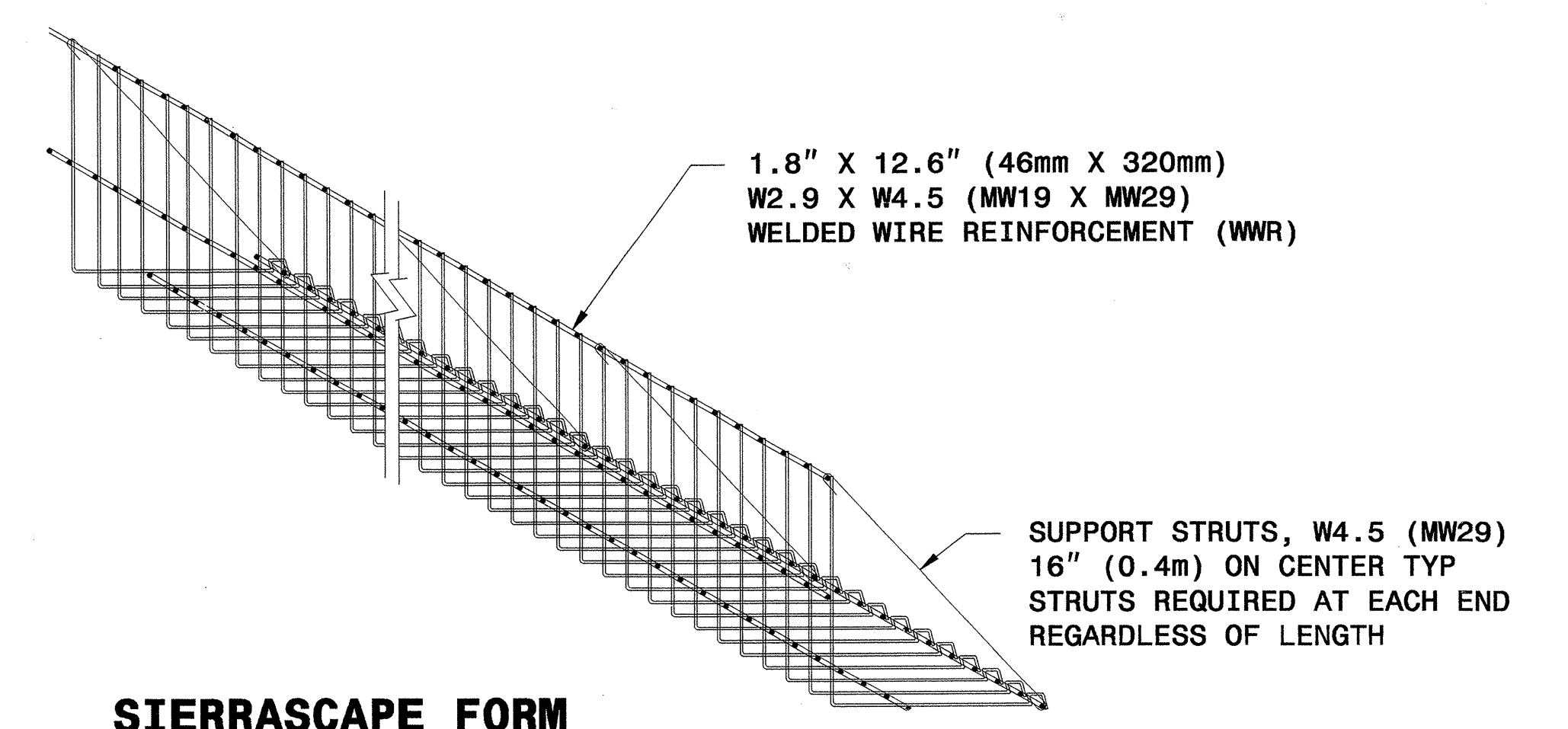
TYPICAL SECTION



ELEVATION VIEW

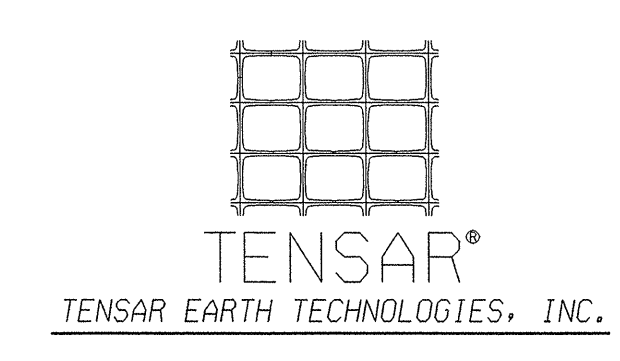



SUPPORT STRUT



SIERRASCAPE FORM

WALL COMPONENTS




GEOTECHNICAL ENGINEERING UNIT
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 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

SIERRASCAPE TEMPORARY WALL

 SHEET 5 OF 11 DATE: 12-19-06

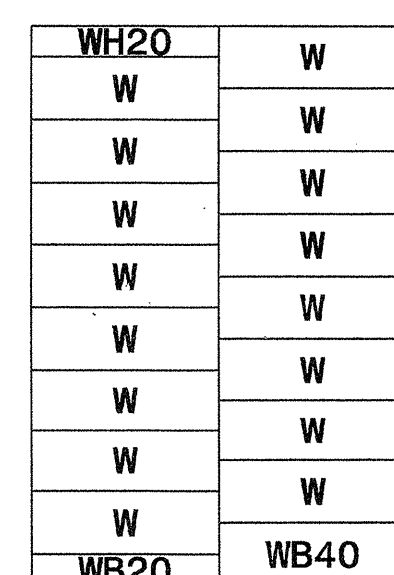
GEOTECHNICAL ENGINEER ENGINEER



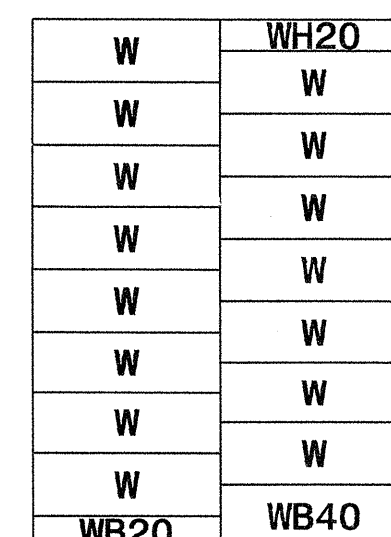
Signature: *Scott A. Hadden* 3/29/07
 SIGNATURE DATE SIGNATURE DATE

PANEL LAYOUTS

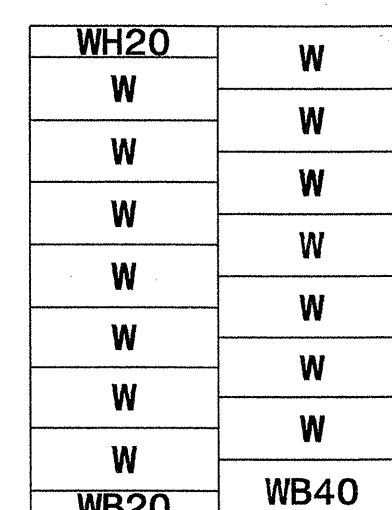
H - WALL HEIGHT
 (FEET-INCHES)
 (METER)



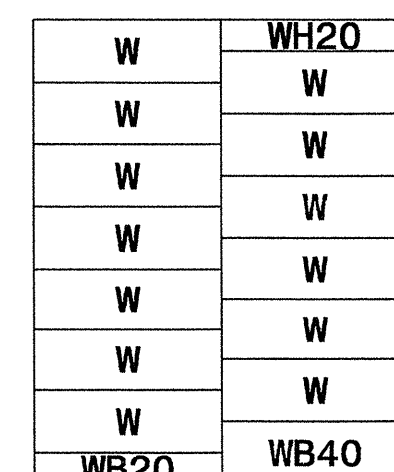
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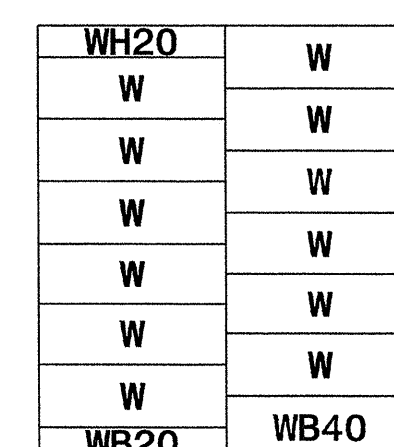
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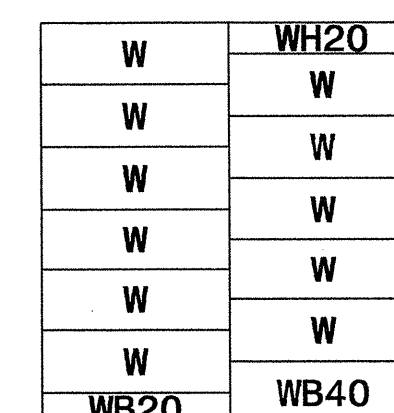
< 25 - 4
 < 7.7



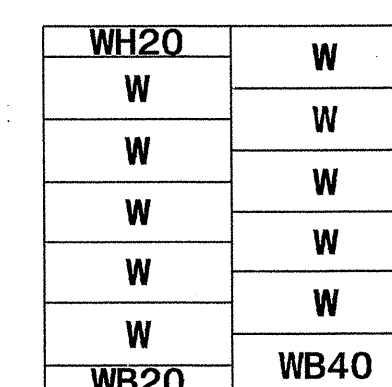
< 23 - 8
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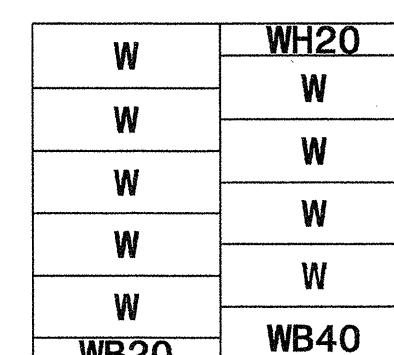
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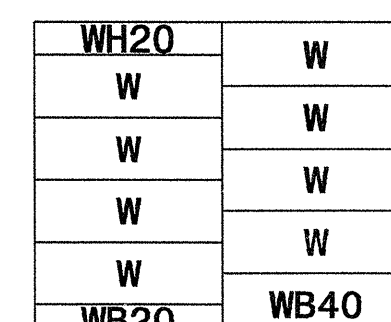
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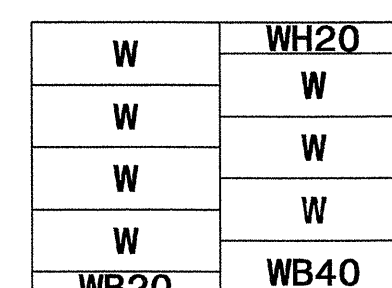
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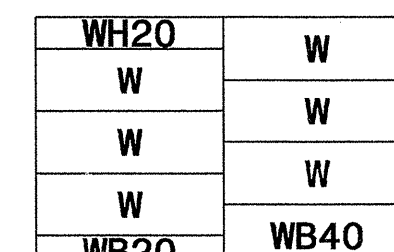
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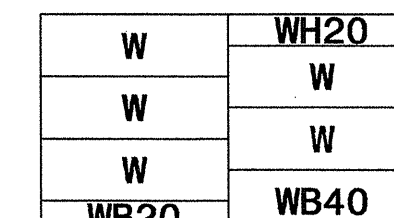
< 15 - 4
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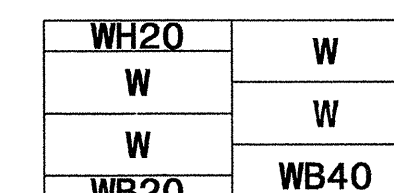
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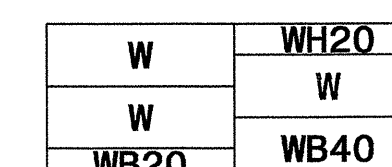
< 12 - 0
 < 3.7



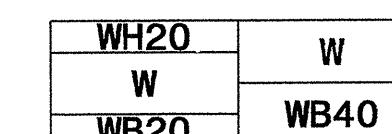
< 10 - 4
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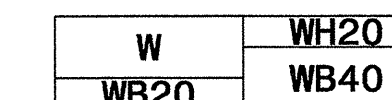
< 8 - 8
 < 2.6



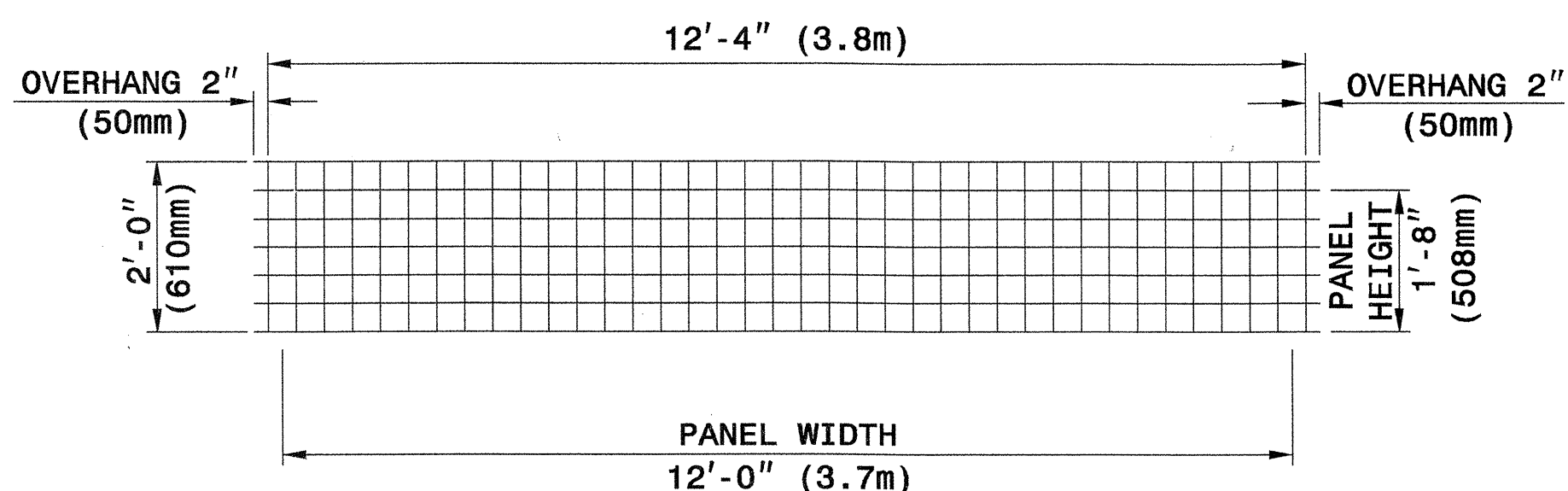
< 7 - 0
 < 2.1



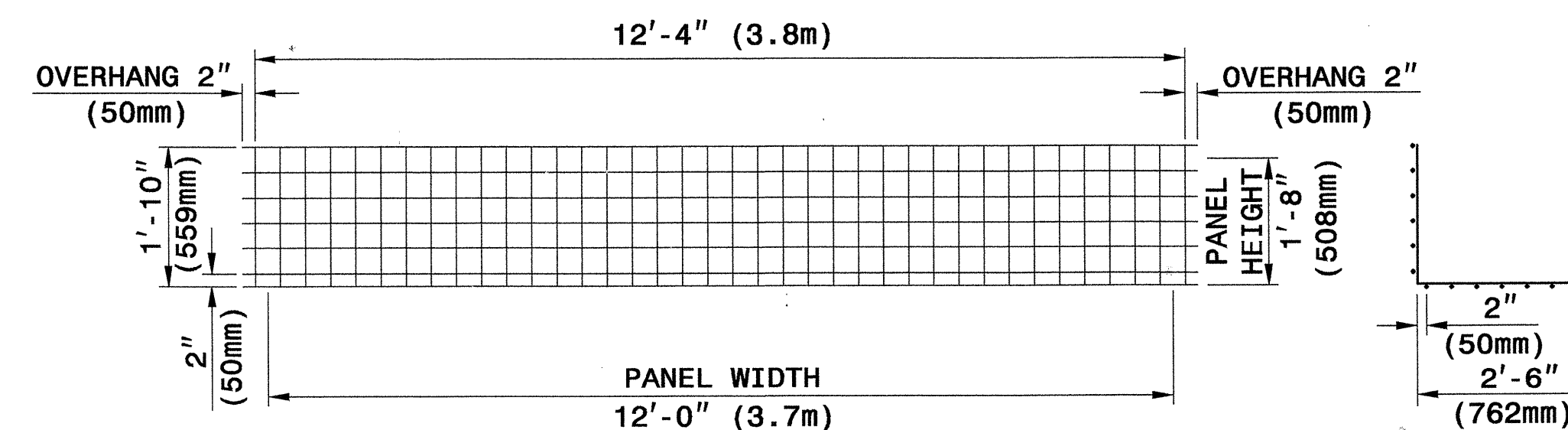
< 5 - 4
 < 1.6



< 3 - 8
 < 1.1

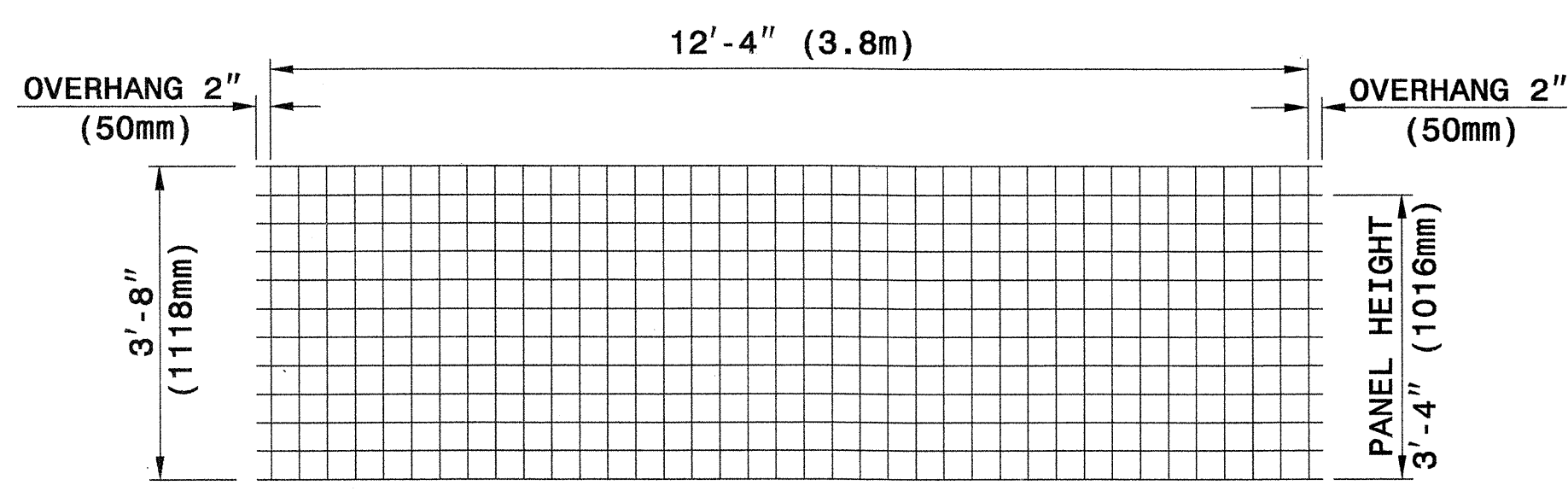


TYPE WH20

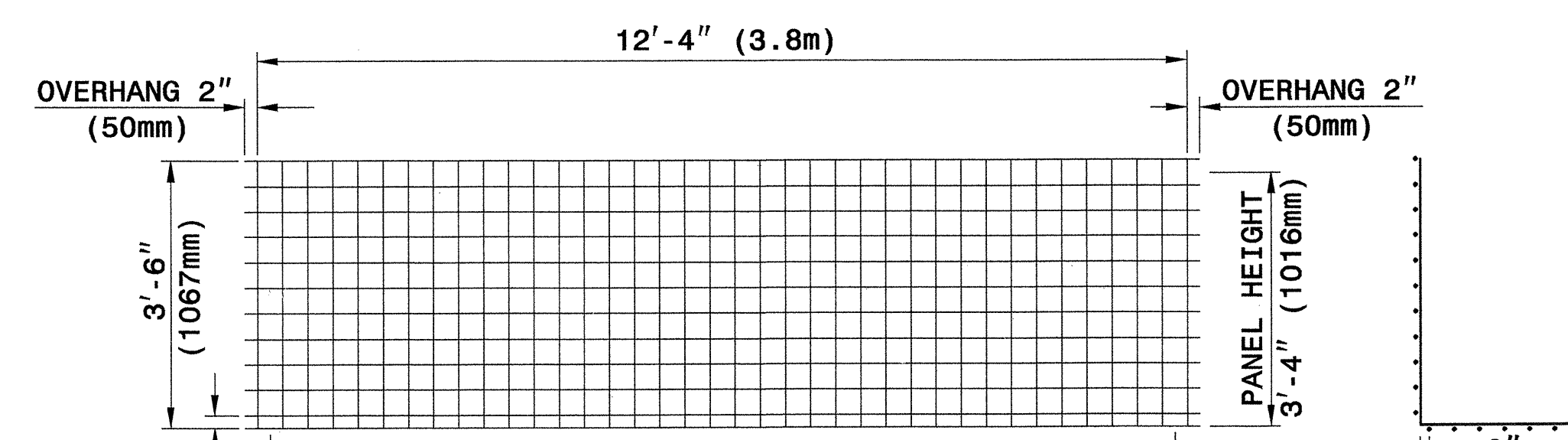


TYPE WB20

SECTION



TYPE W



TYPE WB40

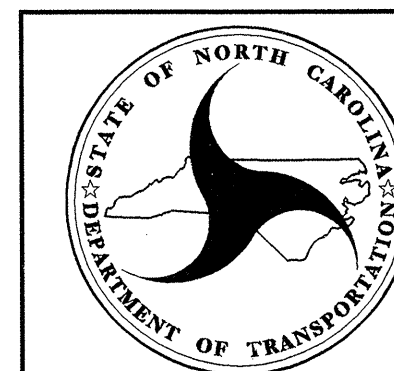
SECTION

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)



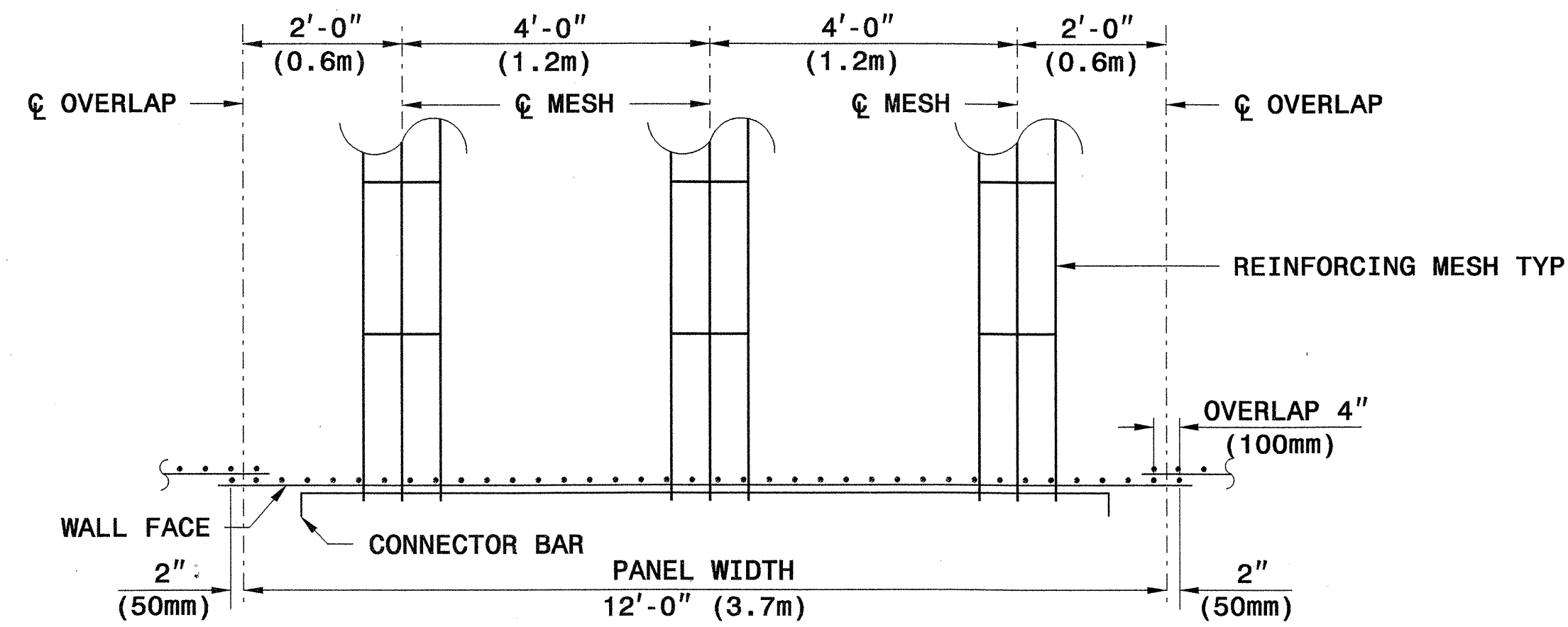
GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

RETAINED EARTH
 TEMPORARY WALL



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

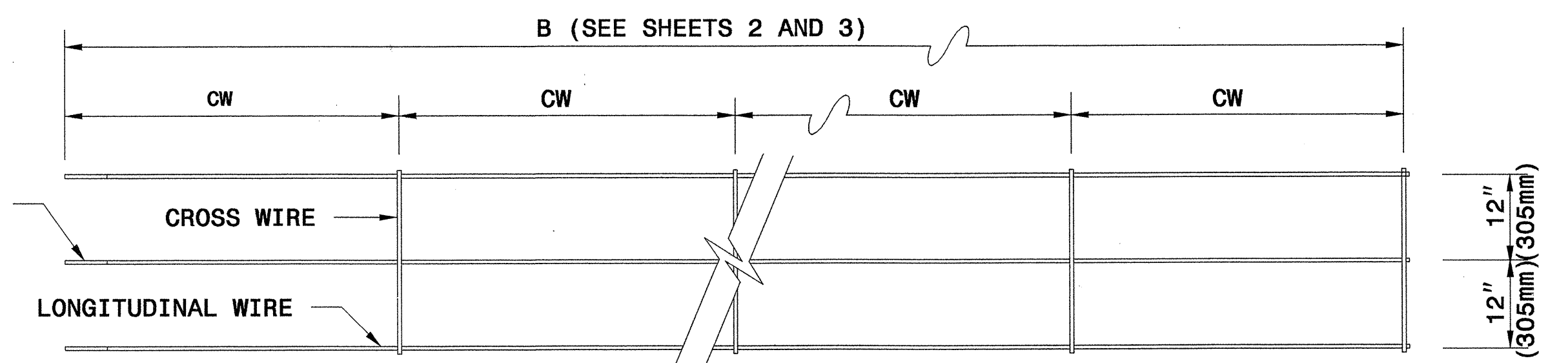


**REINFORCING MESH PLACEMENT DETAIL
(PLAN VIEW)**



1/2" (13mm) DIA. BAR

CONNECTOR BAR

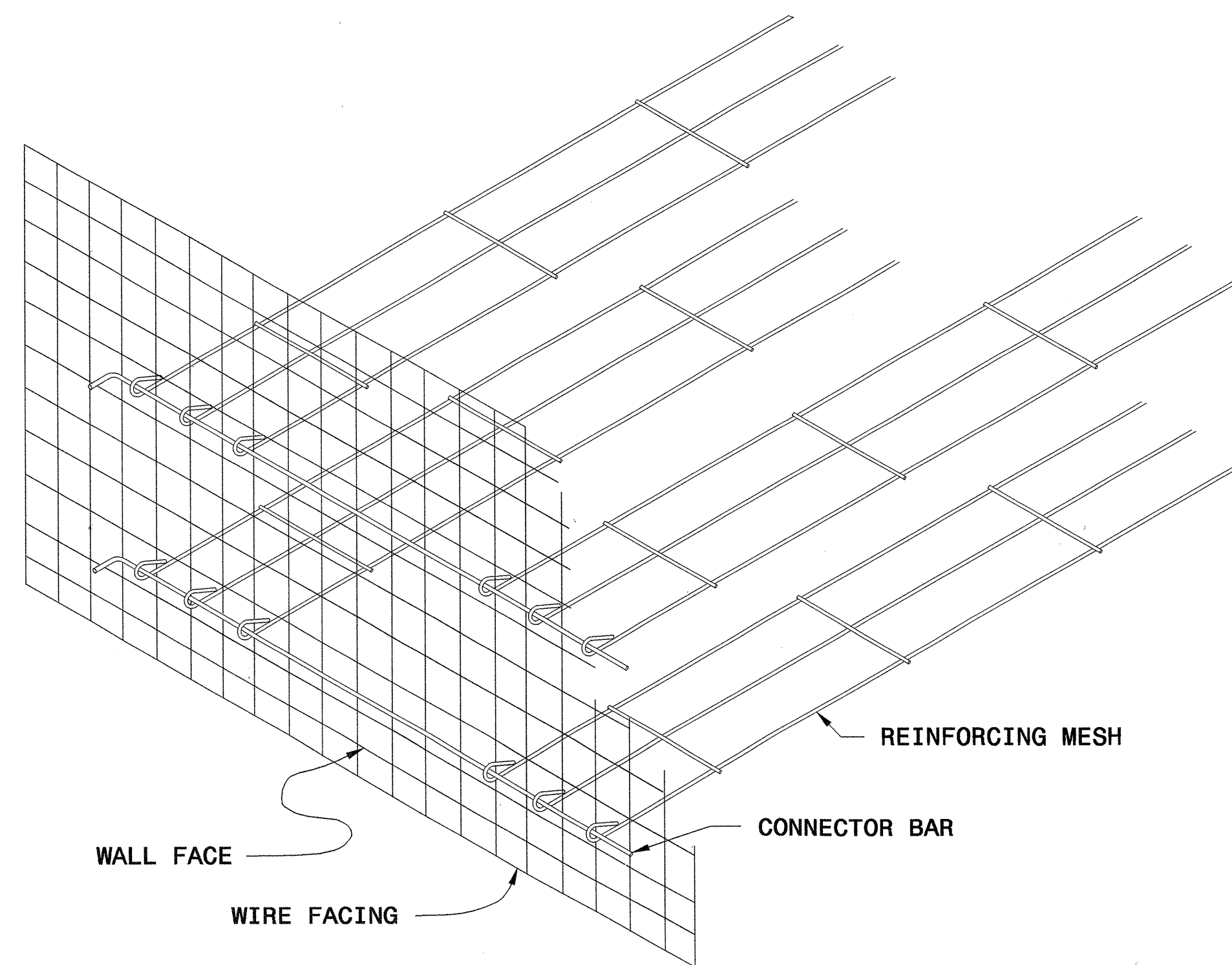


LOOPED END OF MESH
(SEE REINFORCING MESH LOOP DETAIL)

IF REINFORCEMENT LENGTH IS NOT AN INCREMENT OF 2'-0" (610mm) MAKE CW EQUAL TO 12" (305mm) AT THE END OF THE REINFORCING MESH OPPOSITE THE LOOPED END

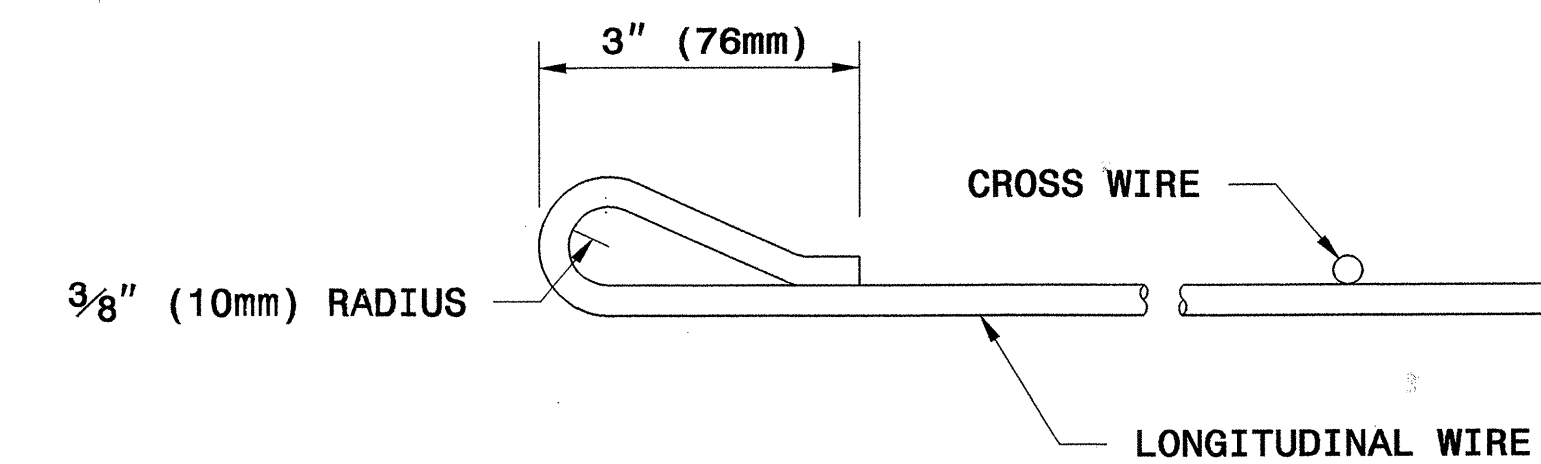
3W8 X W8 x 2.0' (3MW52 X MW52 X 610mm)
 NO. OF LONGITUDINAL WIRES
 GAUGE OF LONGITUDINAL WIRES
 GAUGE OF CROSS WIRES
 SPACING OF CROSS WIRES IN FT (mm), CW

REINFORCING MESH DESIGNATION

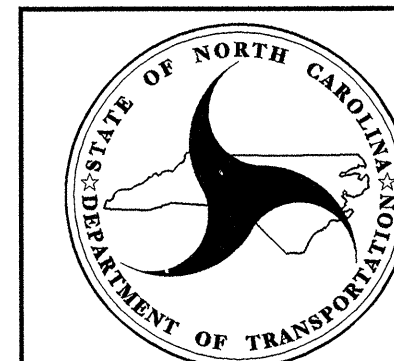


GENERAL ASSEMBLY DETAIL

REINFORCING MESH



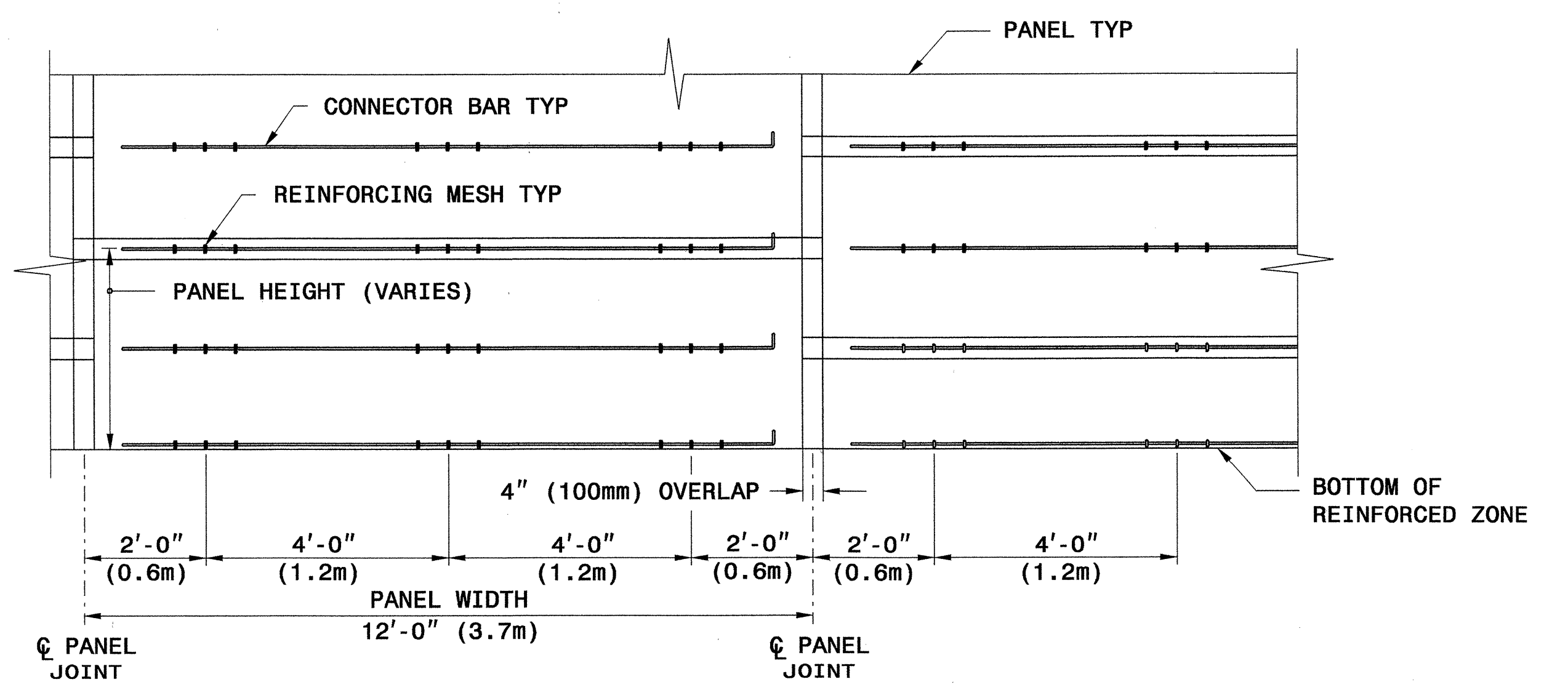
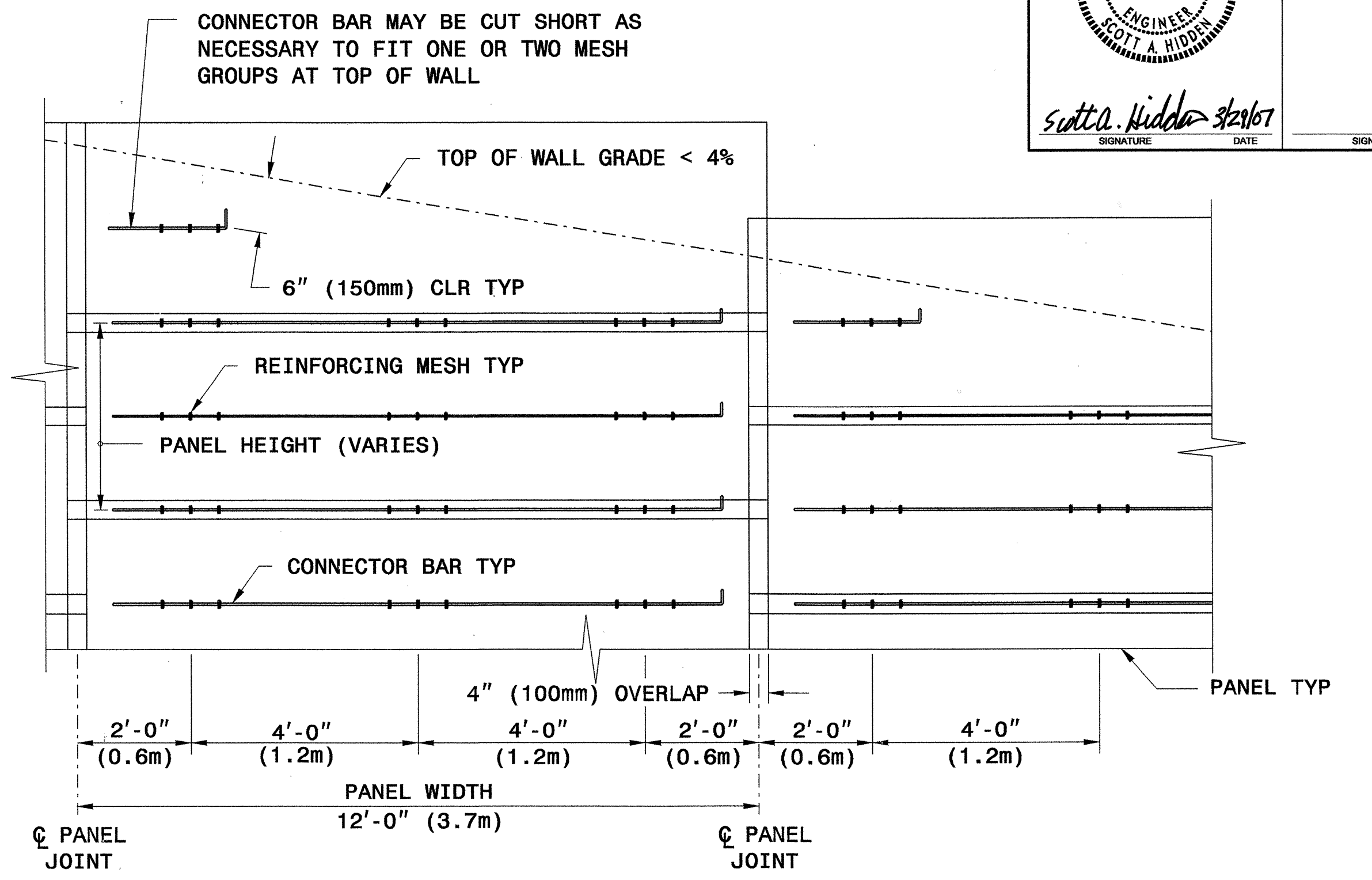
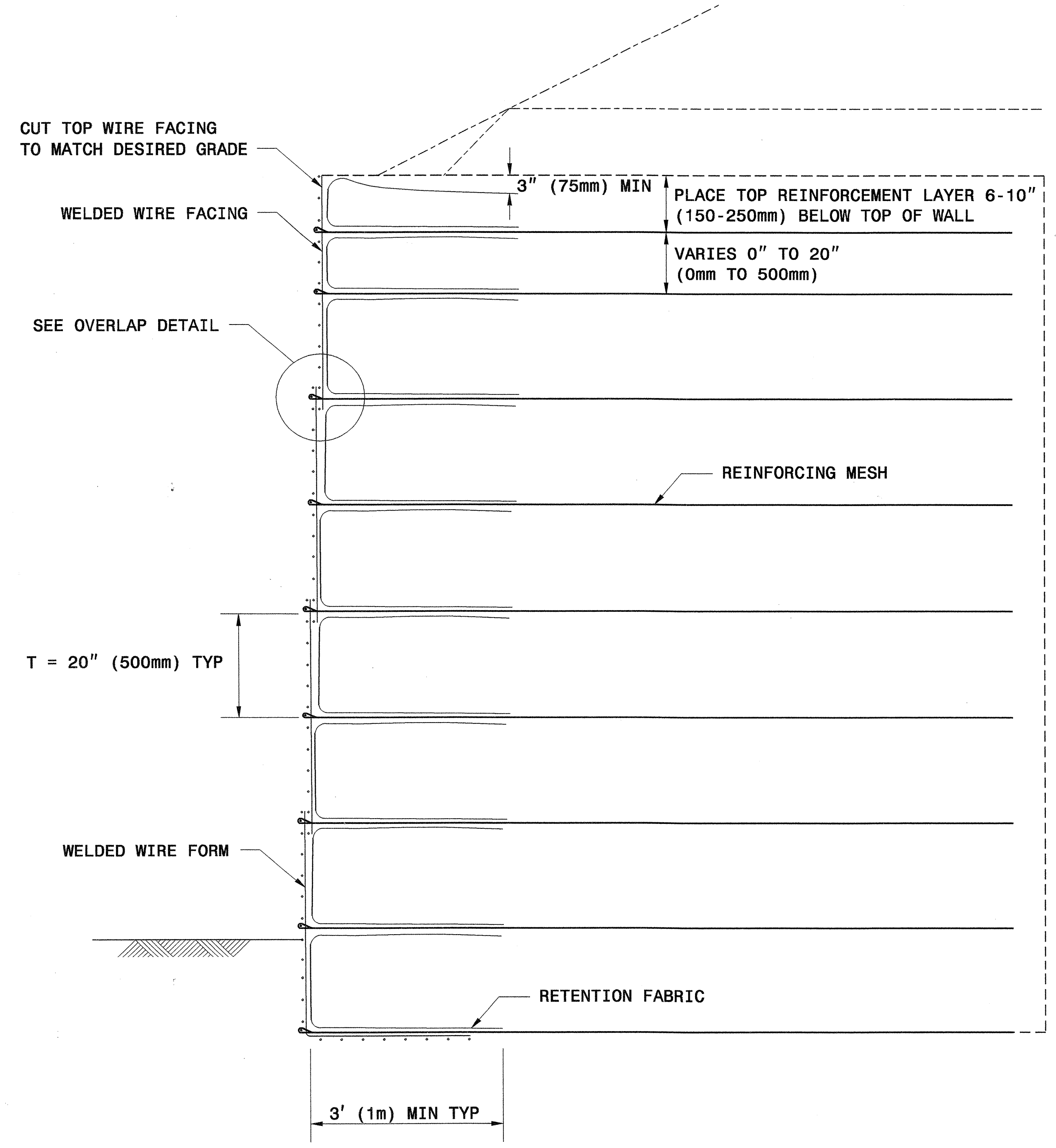
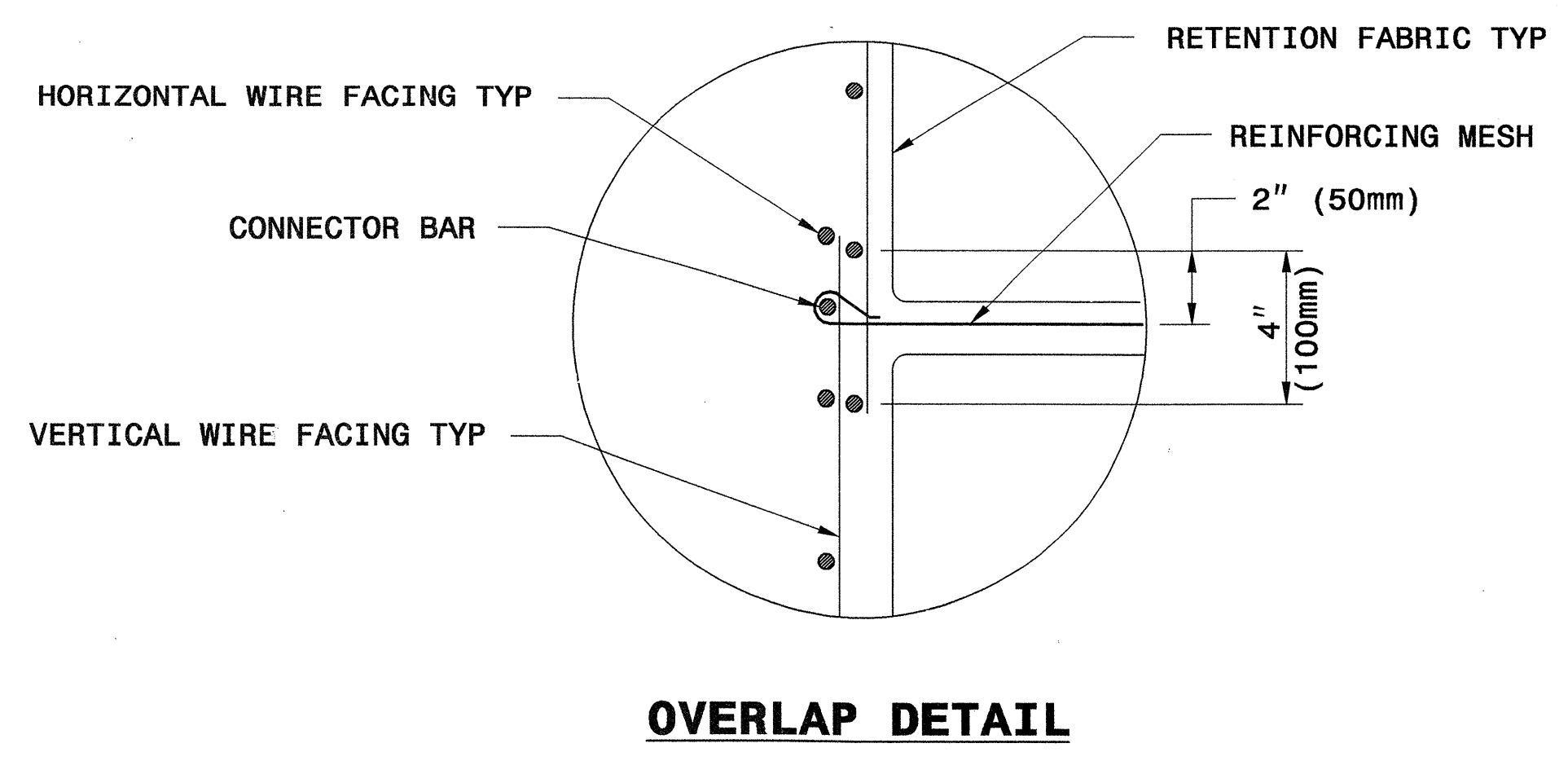
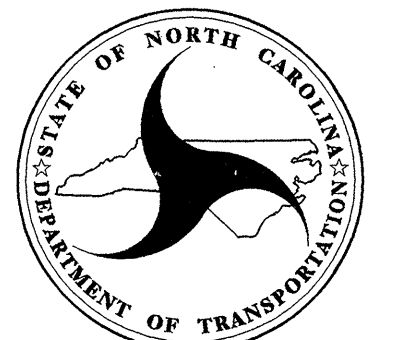
REINFORCING MESH LOOP DETAIL



GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

RETAINED EARTH
 TEMPORARY WALL

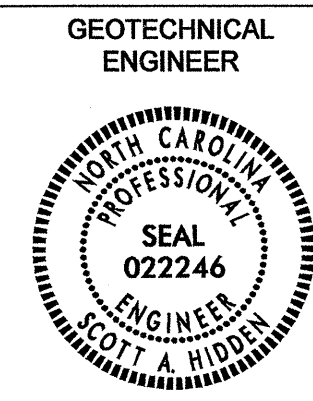



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RALEIGH

STANDARD DRAWING NO. 1801.02

**RETAINED EARTH
TEMPORARY WALL**

SHEET 8 OF 11 DATE: 12-19-06



SCOTT A. HADDEN 3/29/07
 SIGNATURE DATE

PANEL LAYOUTS

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

| | |
|----|----|
| B3 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| A6 | B3 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| B3 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| A6 | B3 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| B3 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| A6 | B3 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| B3 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

< 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

| | |
|----|----|
| A6 | B3 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| B3 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|----|
| A6 | B3 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| A6 | A6 |
| B6 | A9 |

| | |
|----|-----|
| B4 | A8 |
| A8 | A8 |
| A8 | A8 |
| A8 | A8 |
| B8 | A12 |

| | |
|----|-----|
| A8 | B4 |
| A8 | A8 |
| A8 | A8 |
| A8 | A8 |
| B8 | A12 |

| | |
|-----|-----|
| B5 | A10 |
| A10 | A10 |
| A10 | A10 |
| B10 | A15 |

| | |
|-----|-----|
| A10 | B5 |
| A10 | A10 |
| B10 | A15 |

| | |
|-----|-----|
| B5 | A10 |
| A10 | A15 |

| | |
|-----|-----|
| A10 | B5 |
| B10 | A15 |

< 17 - 8
 < 5.4

< 16 - 0
 < 4.9

< 14 - 4
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< 12 - 8
 < 3.9

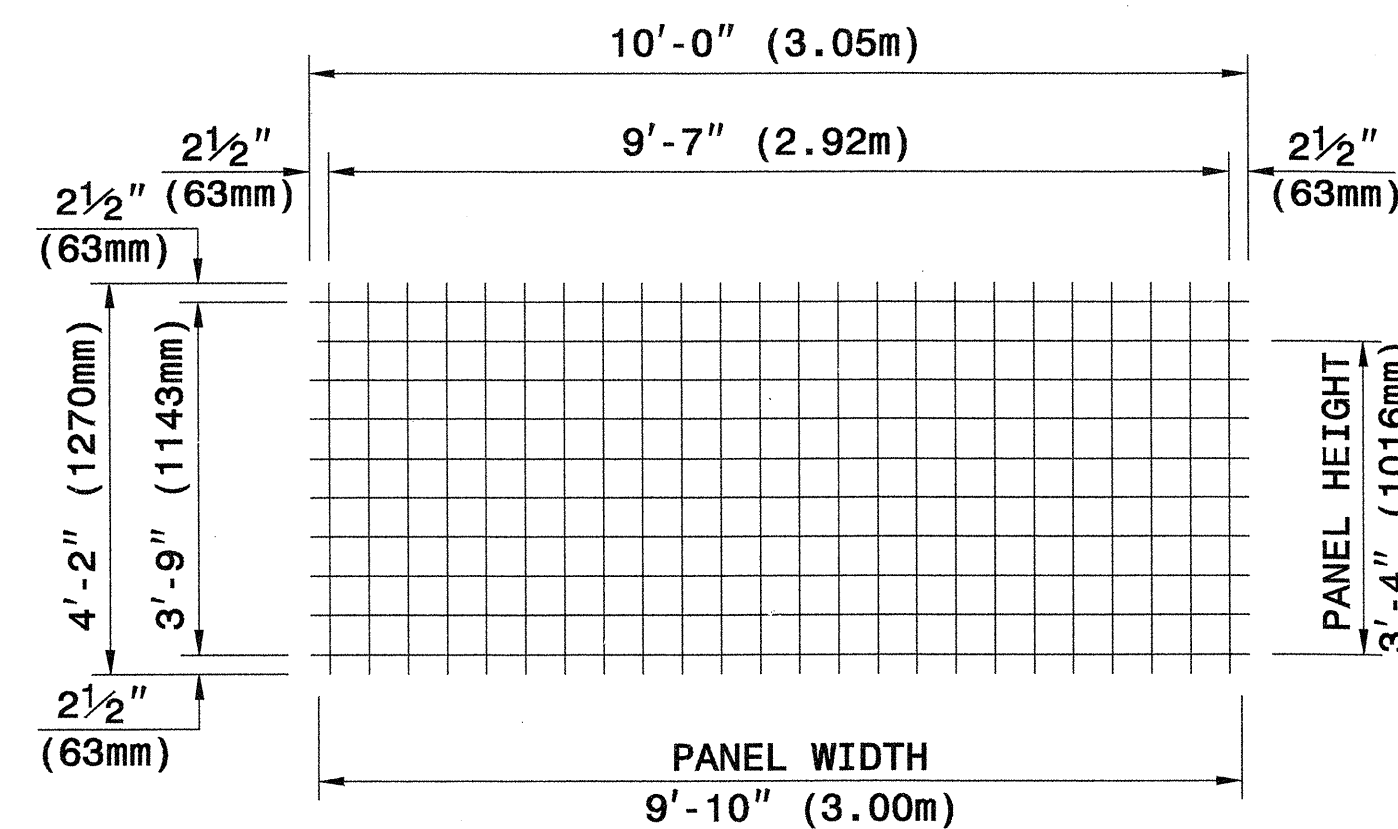
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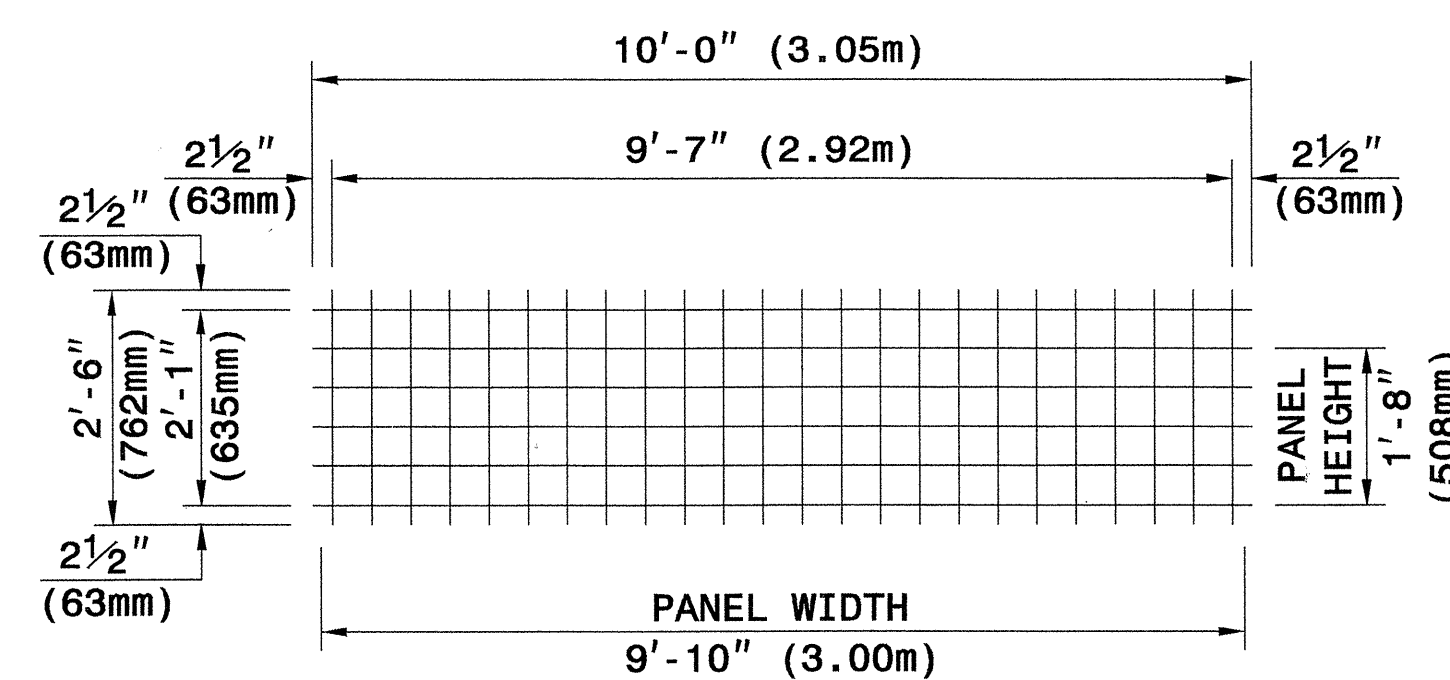
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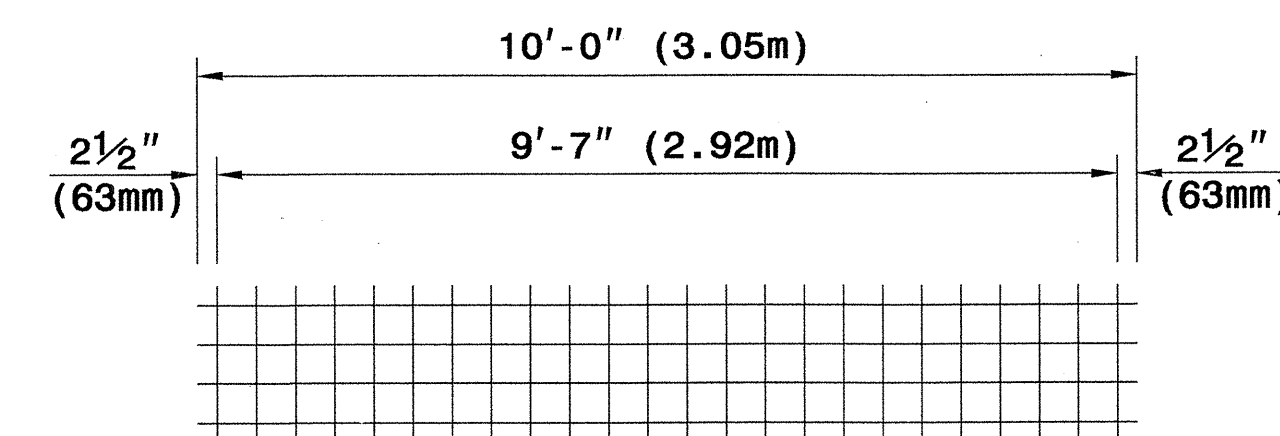
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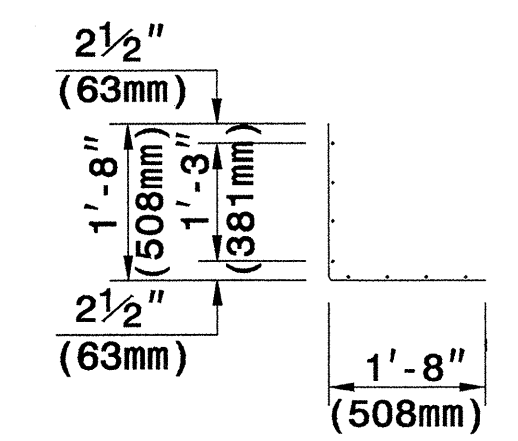
TYPE A



TYPE B



WELDED WIRE FORM

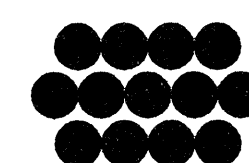


SECTION

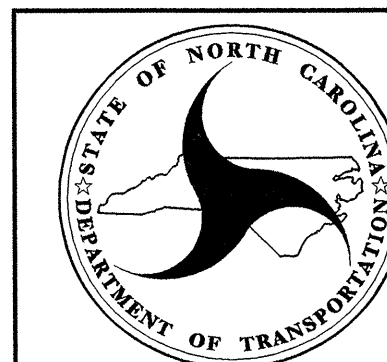
WELDED WIRE FACINGS

PANEL TYPES (WELDED WIRE FACINGS AND FORM)

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



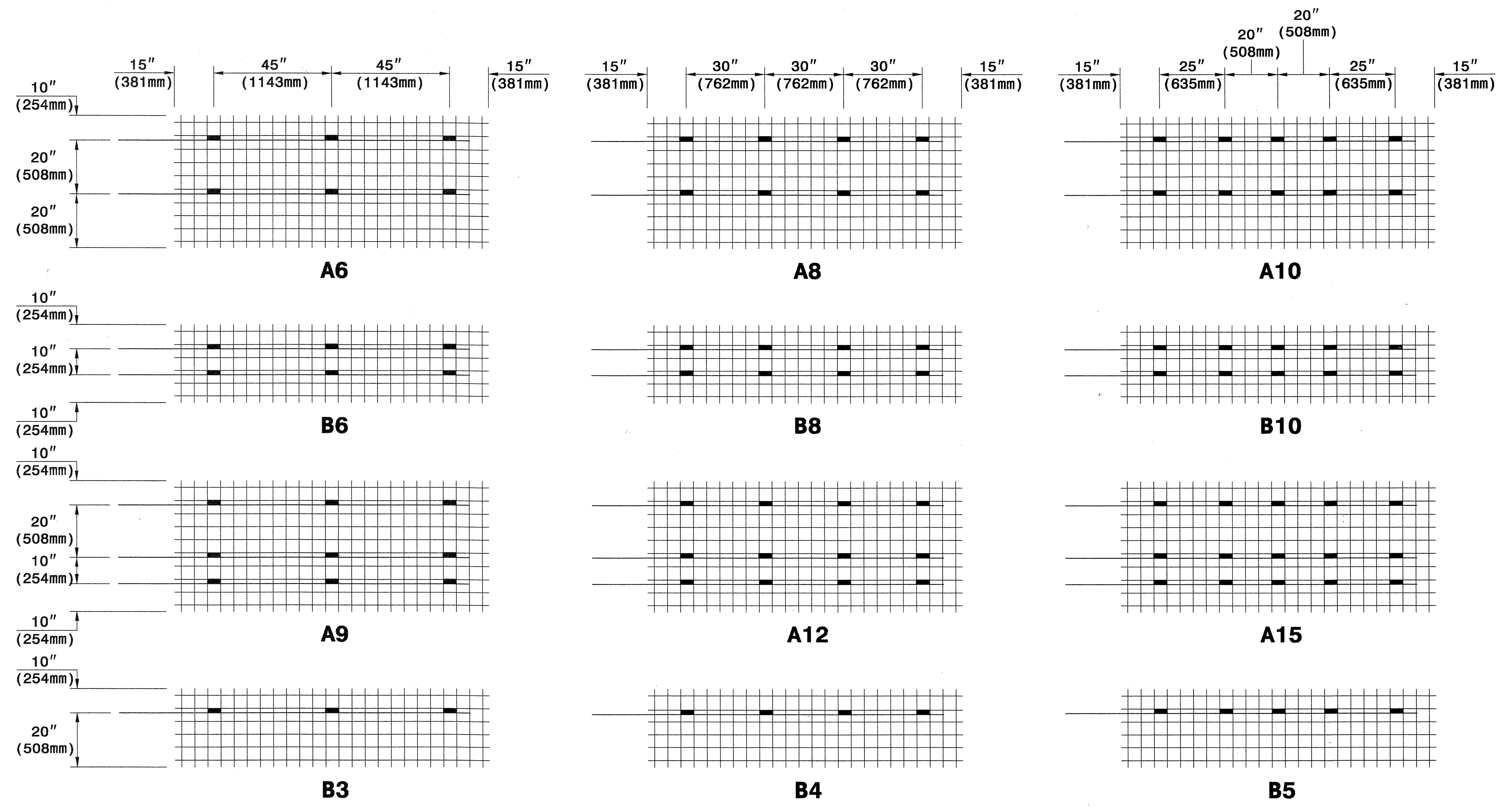
The Reinforced Earth Company



GEOTECHNICAL ENGINEERING UNIT
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 RALEIGH

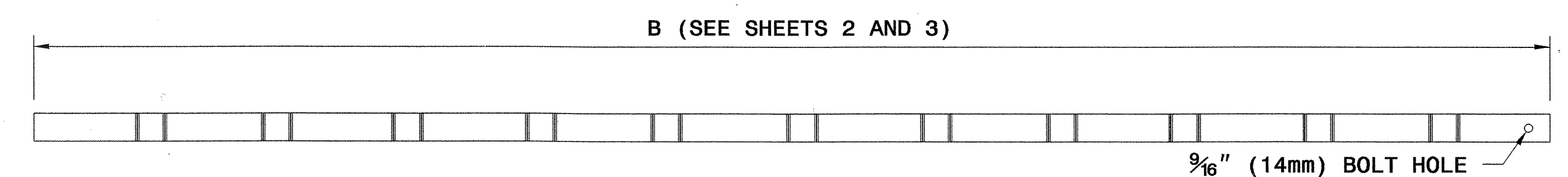
STANDARD DRAWING NO. 1801.02

TERRATREL TEMPORARY WALL

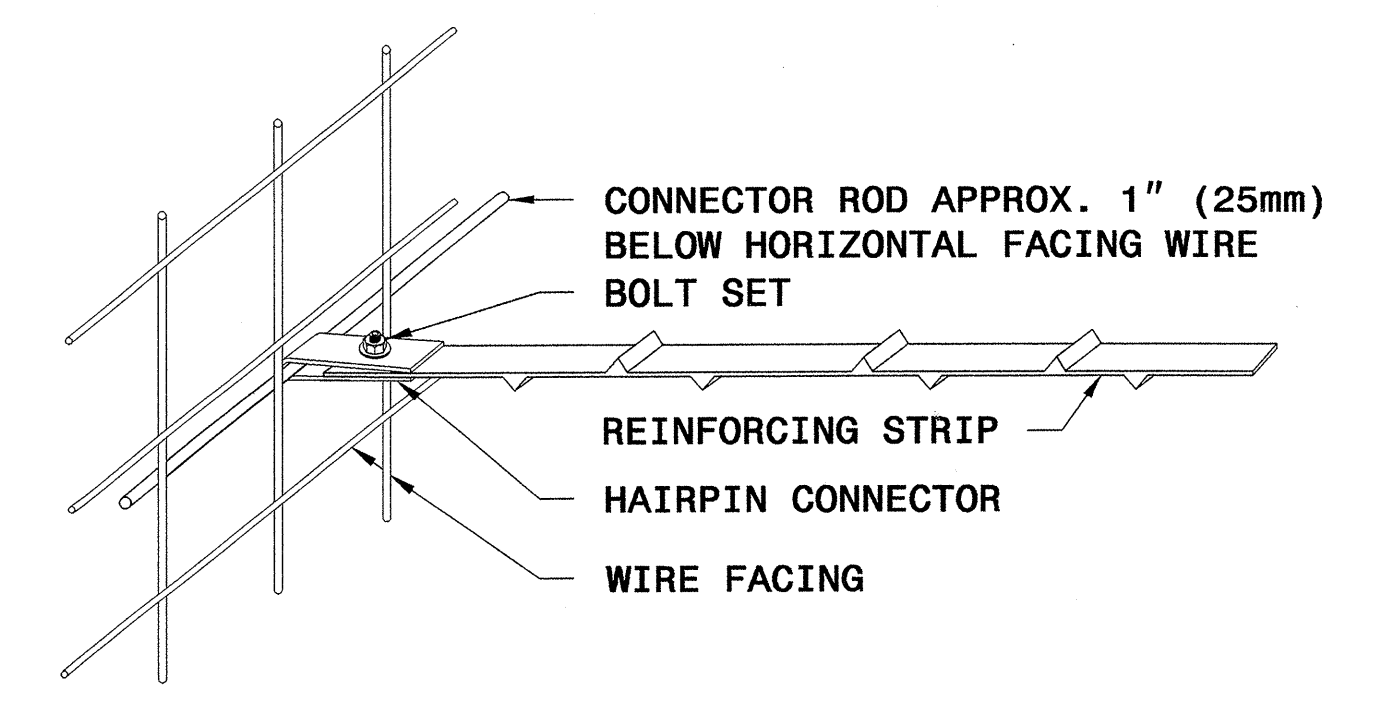


KEY: A8
 NUMBER OF REINFORCING STRIPS
 PANEL TYPE

CONNECTOR ROD AND REINFORCING STRIP PLACEMENT DIAGRAMS



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

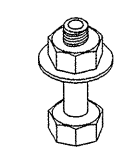


STRIP TO FACING CONNECTION



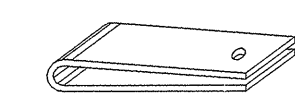
1/2" (13mm) DIA. ROD

CONNECTOR ROD



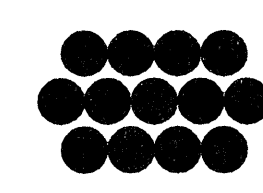
1/2" (13mm) BOLT WITH NUT AND WASHER

BOLT SET

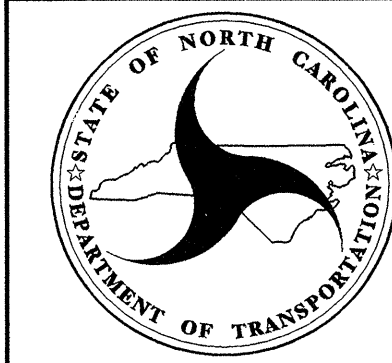


HAIRPIN CONNECTOR

WALL COMPONENTS



The Reinforced Earth Company

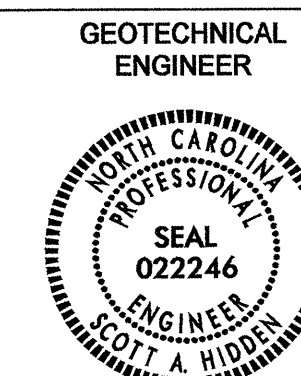


GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

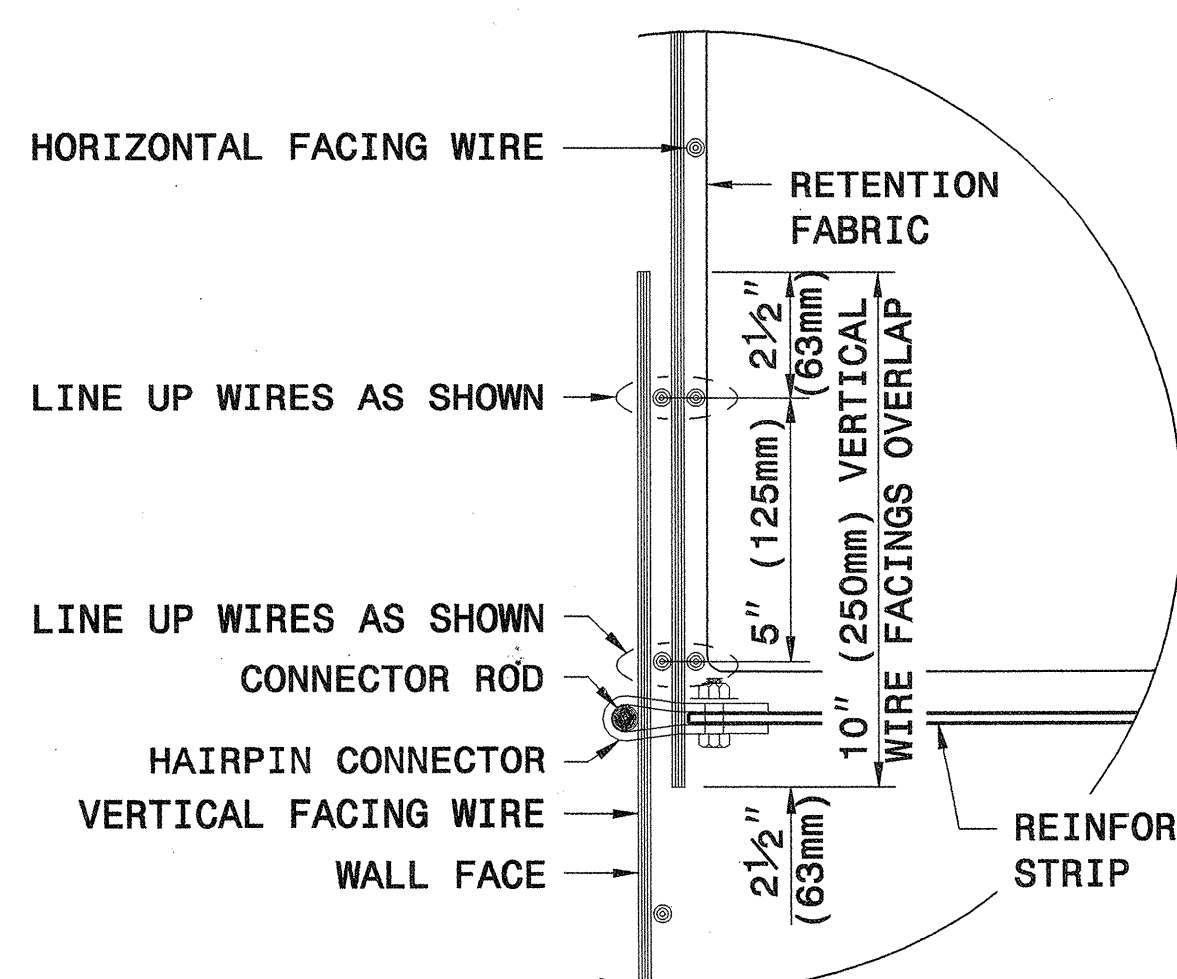
TERRATREL
 TEMPORARY WALL

SHEET 10 OF 11 DATE: 12-19-06



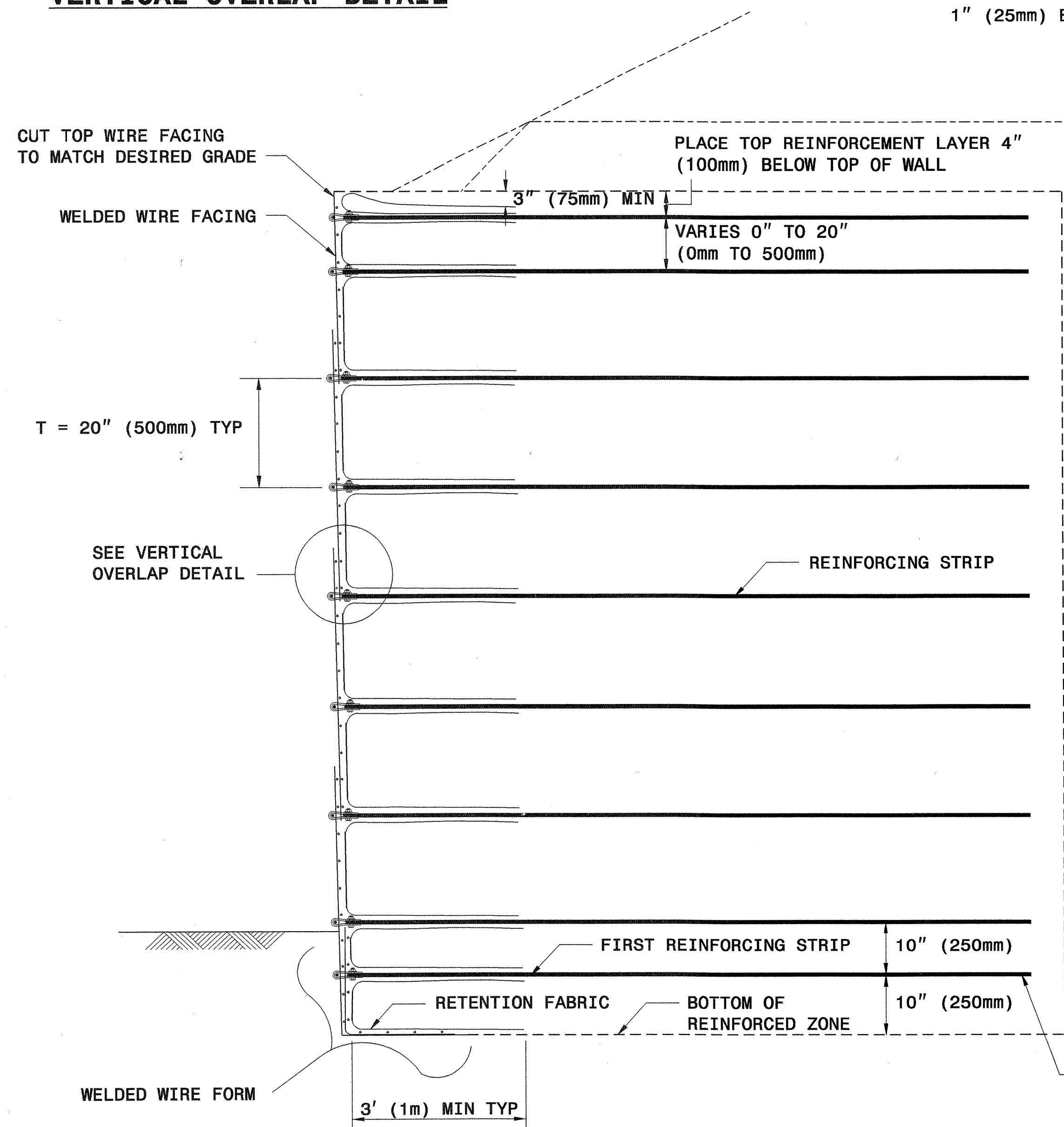
Scott A. Hidden
SIGNATURE DATE

ENGINEER
SIGNATURE DATE



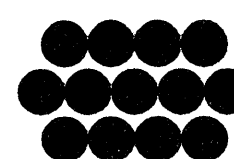
OVERLAP FACINGS VERTICALLY ONE FULL 5" (125mm) WIRE SQUARE DISREGARDING HALF SQUARES AT EDGES

VERTICAL OVERLAP DETAIL

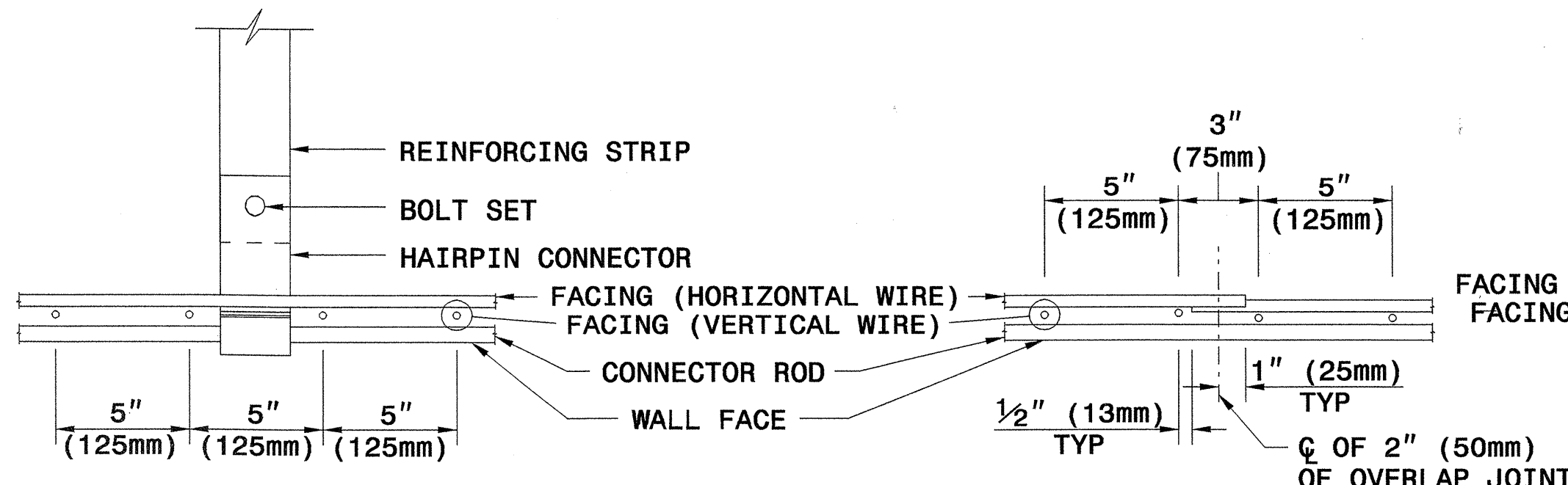


TYPICAL SECTION

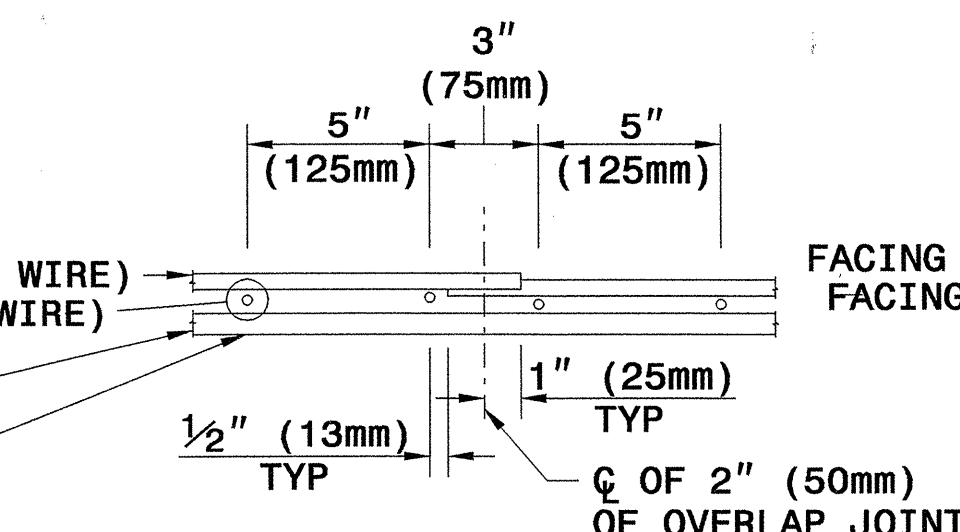
PLACE LOWEST REINFORCING STRIP 10" (250mm) FROM BOTTOM OF REINFORCED ZONE



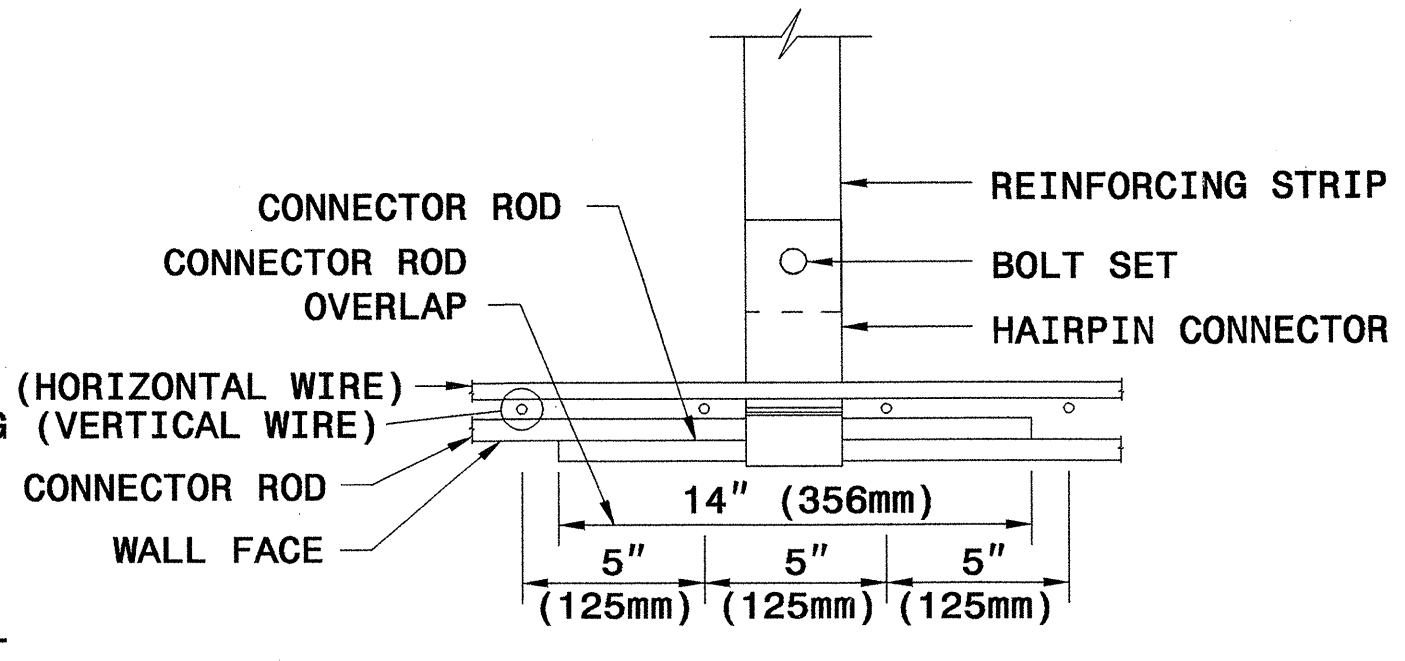
The Reinforced Earth Company



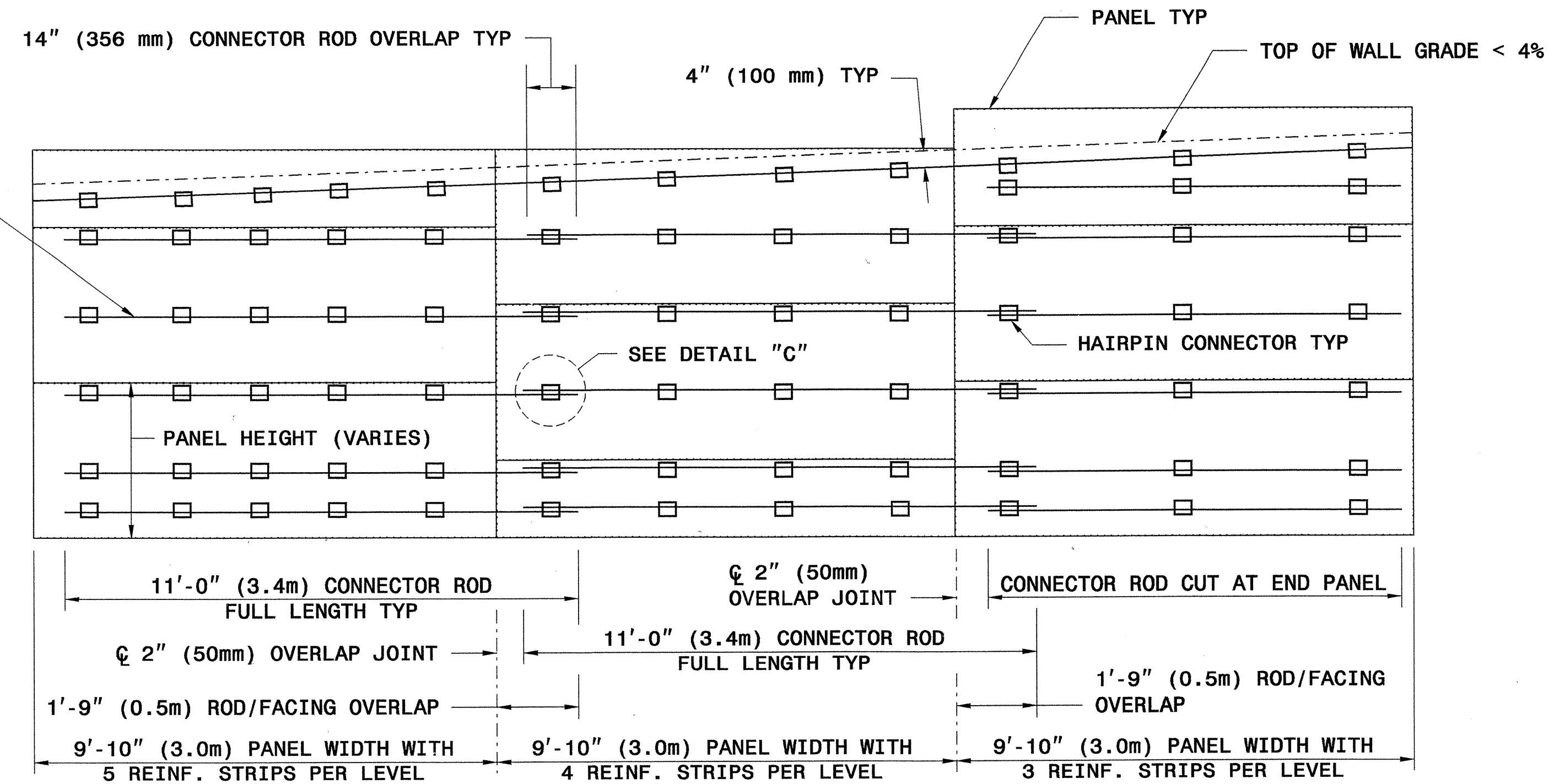
**PLAN DETAIL 'A'
STRIP CONNECTION**



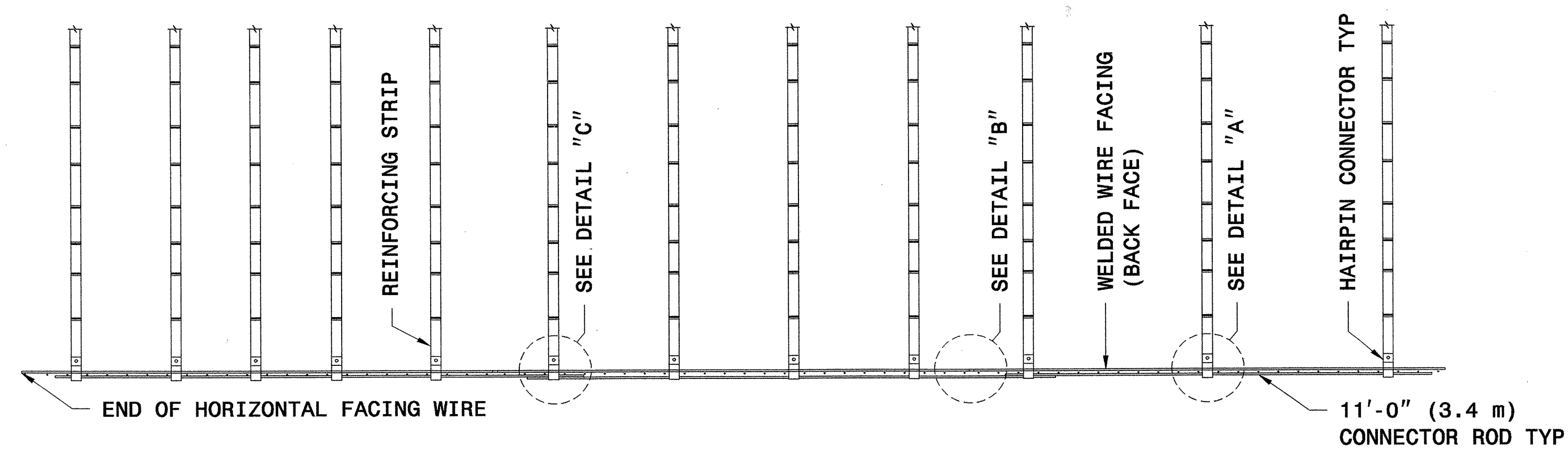
**PLAN DETAIL 'B'
HORIZONTAL OVERLAP DETAIL**



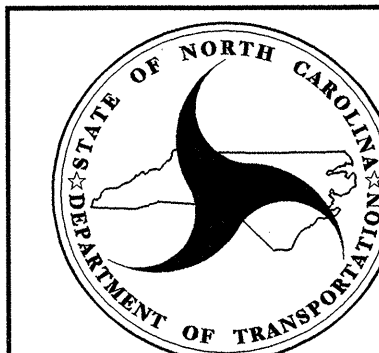
**PLAN DETAIL 'C'
STRIP CONNECTION WITH
HORIZONTAL OVERLAP DETAIL**



**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**

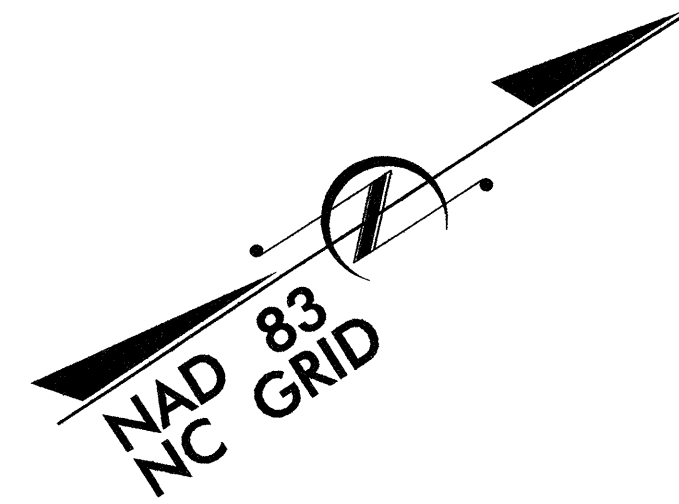
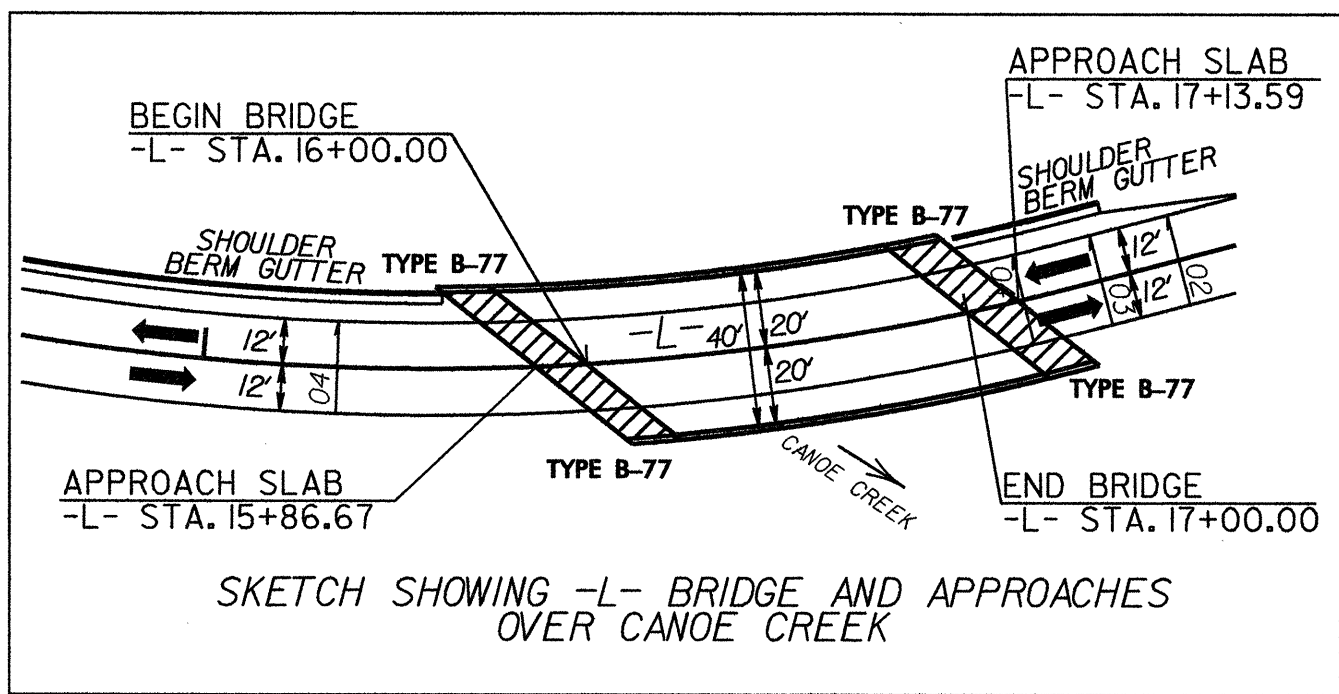
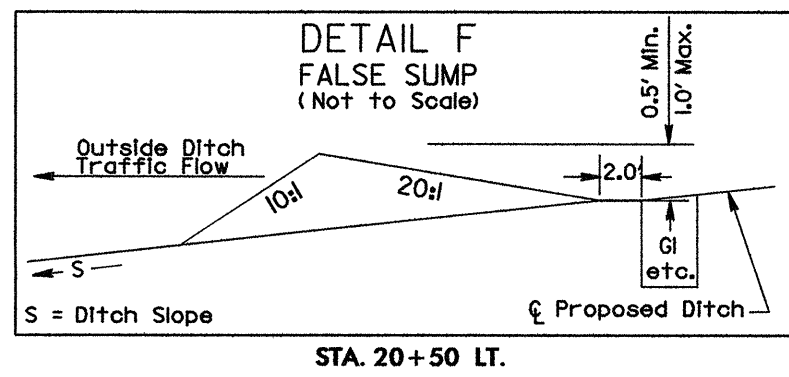
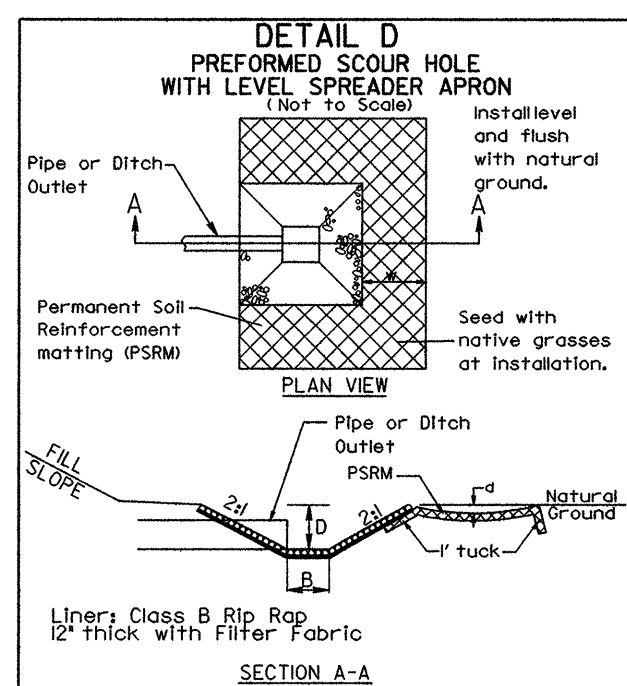
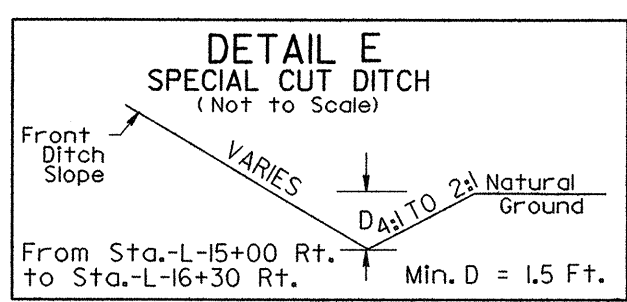
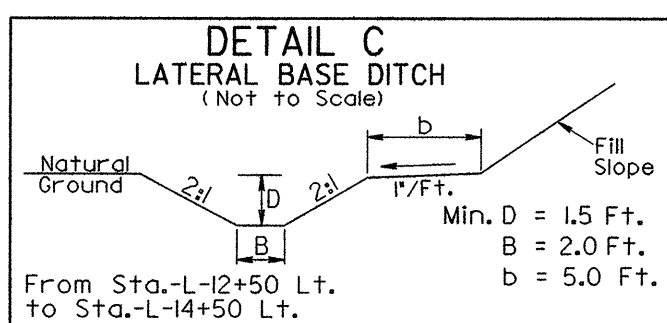
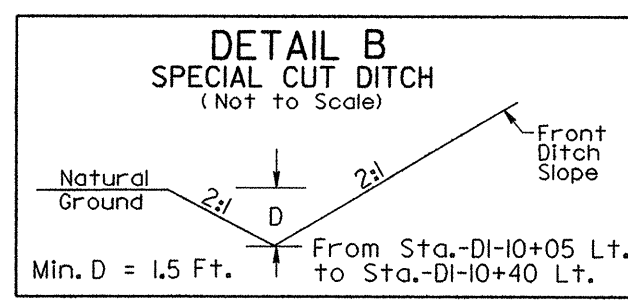
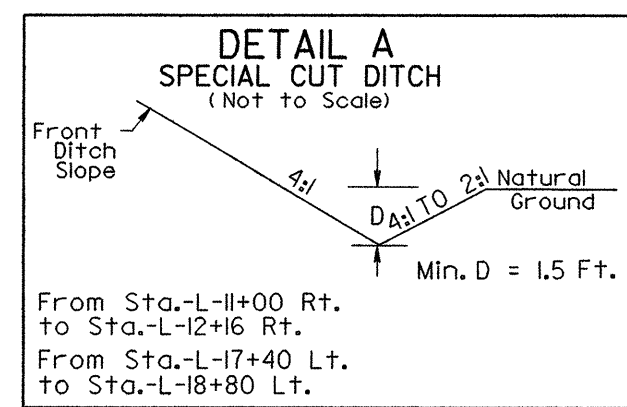
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201786

| ItemNumber | Sec # | Quantity | Unit | Description |
|--------------|-------|----------|------|--|
| 0000100000-N | 800 | Lump Sum | | MOBILIZATION |
| 0029000000-N | SP | Lump Sum | | REINFORCED BRIDGE APPROACH FILL STATION ***** (16+50.00) |
| 0043000000-N | 226 | Lump Sum | | GRADING |
| 0050000000-E | 226 | 1 | ACR | SUPPLEMENTARY CLEARING & GRUBBING |
| 0057000000-E | 226 | 100 | CY | UNDERCUT EXCAVATION |
| 0080000000-E | SP | 500 | TON | CLASS IV SUBGRADE STABILIZATION |
| 0134000000-E | 240 | 200 | CY | DRAINAGE DITCH EXCAVATION |
| 0195000000-E | 265 | 500 | CY | SELECT GRANULAR MATERIAL |
| 0196000000-E | 270 | 500 | SY | FABRIC FOR SOIL STABILIZATION |
| 0199000000-E | SP | 825 | SF | TEMPORARY SHORING |
| 0241000000-E | SP | 80 | SY | GENERIC GRADING ITEM ROCK PLATING |
| 0318000000-E | 300 | 50 | TON | FOUNDATION CONDITIONING MATERIAL, MINOR STRS |
| 0342000000-E | 310 | 36 | LF | *** SIDE DRAIN PIPE (30") |
| 0343000000-E | 310 | 68 | LF | 15" SIDE DRAIN PIPE |
| 0372000000-E | 310 | 32 | LF | 18" RC PIPE CULVERTS, CLASS III |
| 0378000000-E | 310 | 36 | LF | 24" RC PIPE CULVERTS, CLASS III |
| 0708000000-E | 310 | 220 | LF | 15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK |
| 0806000000-E | 310 | 6 | EA | 15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK |
| 1121000000-E | 520 | 276 | TON | AGGREGATE BASE COURSE |
| 1220000000-E | 545 | 25 | TON | INCIDENTAL STONE BASE |
| 1489000000-E | 610 | 810 | TON | ASPHALT CONC BASE COURSE, TYPE B25.0B |
| 1498000000-E | 610 | 540 | TON | ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B |
| 1525000000-E | 610 | 370 | TON | ASPHALT CONC SURFACE COURSE, TYPE SF9.5A |

| ItemNumber | Sec # | Quantity | Unit | Description |
|--------------|-------|----------|------|---|
| 1560000000-E | 620 | 85 | TON | ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22 |
| 1693000000-E | 654 | 25 | TON | ASPHALT PLANT MIX, PAVEMENT REPAIR |
| 2000000000-N | 806 | 26 | EA | RIGHT OF WAY MARKERS |
| 2022000000-E | 815 | 224 | CY | SUBDRAIN EXCAVATION |
| 2033000000-E | 815 | 168 | CY | SUBDRAIN FINE AGGREGATE |
| 2044000000-E | 815 | 1,000 | LF | 6" PERFORATED SUBDRAIN PIPE |
| 2055000000-E | 815 | 30 | EA | 6" SUBDRAIN PIPE WYES, TEES, & ELBOWS |
| 2066000000-N | 815 | 2 | EA | CONCRETE PAD FOR SUBDRAIN PIPE OUTLET |
| 2077000000-E | 815 | 12 | LF | 6" OUTLET PIPE (SUBDRAINS) |
| 2253000000-E | 840 | 1 | CY | PIPE COLLARS |
| 2286000000-N | 840 | 3 | EA | MASONRY DRAINAGE STRUCTURES |
| 2367000000-N | 840 | 3 | EA | FRAME WITH TWO GRATES, STD 840.29 |
| 2556000000-E | 846 | 507 | LF | SHOULDER BERM GUTTER |
| 3030000000-E | 862 | 787.5 | LF | STEEL BM GUARDRAIL |
| 3150000000-N | 862 | 5 | EA | ADDITIONAL GUARDRAIL POSTS |
| 3270000000-N | SP | 4 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 |
| 3317000000-N | 862 | 4 | EA | GUARDRAIL ANCHOR UNITS, TYPE B-77 |
| 3380000000-E | 862 | 37.5 | LF | TEMPORARY STEEL BM GUARDRAIL |
| 3389100000-N | SP | 2 | EA | GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY |
| 3649000000-E | 876 | 25 | TON | RIP RAP, CLASS B |
| 3656000000-E | 876 | 270 | SY | FILTER FABRIC FOR DRAINAGE |
| 3659000000-N | SP | 1 | EA | PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON |
| 4400000000-E | 1110 | 378 | SF | WORK ZONE SIGNS (STATIONARY) |
| 4405000000-E | 1110 | 96 | SF | WORK ZONE SIGNS (PORTABLE) |
| 4410000000-E | 1110 | 114 | SF | WORK ZONE SIGNS (BARRICADE MOUNTED) |

| ItemNumber | Sec # | Quantity | Unit | Description |
|--------------|-------|----------|------|--|
| 4430000000-N | 1130 | 75 | EA | DRUMS |
| 4435000000-N | 1135 | 10 | EA | CONES |
| 4445000000-E | 1145 | 128 | LF | BARRICADES (TYPE III) |
| 4450000000-N | 1150 | 64 | HR | FLAGGER |
| 4810000000-E | 1205 | 26,400 | LF | PAINT PAVEMENT MARKING LINES (4") |
| 4850000000-E | 1205 | 500 | LF | REMOVAL OF PAVEMENT MARKING LINES (4") |
| 6000000000-E | 1605 | 1,400 | LF | TEMPORARY SILT FENCE |
| 6006000000-E | 1610 | 120 | TON | STONE FOR EROSION CONTROL, CLASS A |
| 6009000000-E | 1610 | 485 | TON | STONE FOR EROSION CONTROL, CLASS B |
| 6012000000-E | 1610 | 150 | TON | SEDIMENT CONTROL STONE |
| 6015000000-E | 1615 | 3 | ACR | TEMPORARY MULCHING |
| 6018000000-E | 1620 | 100 | LB | SEED FOR TEMPORARY SEEDING |
| 6021000000-E | 1620 | 0.5 | TON | FERTILIZER FOR TEMPORARY SEEDING |
| 6024000000-E | 1622 | 100 | LF | TEMPORARY SLOPE DRAINS |
| 6027000000-N | 1622 | 3 | EA | INLET PROTECTION AT TEMPORARY SLOPE DRAINS |
| 6029000000-E | SP | 400 | LF | SAFETY FENCE |
| 6030000000-E | 1630 | 1,600 | CY | SILT EXCAVATION |
| 6036000000-E | 1631 | 1,250 | SY | MATTING FOR EROSION CONTROL |
| 6037000000-E | SP | 20 | SY | COIR FIBER MAT |
| 6038000000-E | SP | 1,950 | SY | PERMANENT SOIL REINFORCEMENT MAT |
| 6042000000-E | 1632 | 60 | LF | 1/4" HARDWARE CLOTH |
| 6071030000-E | SP | 350 | LF | COIR FIBER BAFFLES |
| 6071050000-E | SP | 3 | EA | *** SKIMMER (1-1/2") |
| 6084000000-E | 1660 | 4.8 | ACR | SEEDING & MULCHING |
| 6087000000-E | 1660 | 1.5 | ACR | MOWING |
| 6090000000-E | 1661 | 50 | LB | SEED FOR REPAIR SEEDING |
| 6093000000-E | 1661 | 0.25 | TON | FERTILIZER FOR REPAIR SEEDING |
| 6096000000-E | 1662 | 75 | LB | SEED FOR SUPPLEMENTAL SEEDING |
| 6108000000-E | 1665 | 2.25 | TON | FERTILIZER TOPDRESSING |
| 6114000000-N | SP | 2 | HR | SPECIALIZED HAND MOWING |
| 6117000000-N | SP | 12 | EA | RESPONSE FOR EROSION CONTROL |
| 6123000000-E | 1670 | 0.25 | ACR | REFORESTATION |



| | | | |
|--|--------|---------------------|---|
| PROJECT REFERENCE NO. | B-3814 | SHEET NO. | 4 |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | SEAL 17265 | |
| SEAL 17265 | | SEAL 29185 | |
| ENGINEER | | ENGINEER | |
| 2/22/08 | | 2/22/08 | |
| 5200 77 CENTER DRIVE, SUITE 500 CHARLOTTE, NORTH CAROLINA 28217 (704) 522-7275 | | | |

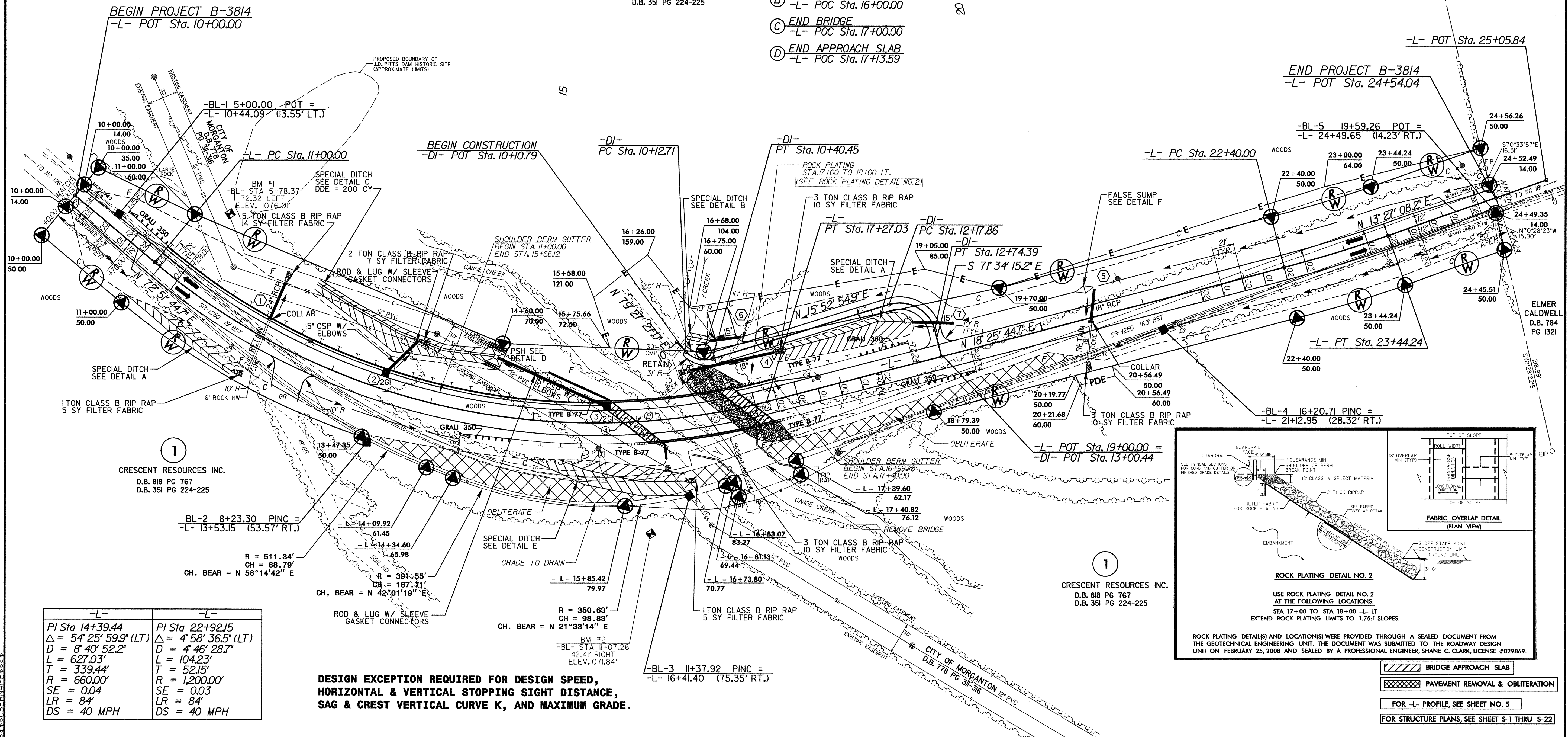
LUTHER & DARLENE WISEMAN
D.B. 825 PG 761

| STATION | B | D | d | W | STONE | FF |
|--------------|------|------|------|------|---------|-------|
| -L- 14+50 LT | 3.8' | 2.7' | 0.5' | 4.0' | 11 TONS | 24 SY |

| | |
|---------------------------------------|---------------------------------------|
| -DI- | -DI- |
| PI Sta 10+28.21 | PI Sta 12+54.45 |
| $\Delta = 63^{\circ} 34' 32.0''$ (LT) | $\Delta = 92^{\circ} 32' 49.9''$ (RT) |
| $D = 229^{\circ} 10' 59.2''$ | $D = 163^{\circ} 42' 08.0''$ |
| $L = 27.7'$ | $L = 56.53'$ |
| $T = 15.49'$ | $T = 36.59'$ |
| $R = 25.00'$ | $R = 35.00'$ |
| $SE = N/A$ | $SE = N/A$ |
| $DS = N/A$ | $DS = N/A$ |

1
CRESCENT RESOURCES INC.
D.B. 818 PG 767
D.B. 351 PG 224-225

- 1 BEGIN APPROACH SLAB
-L- POC Sta. 15+86.67
- 2 BEGIN BRIDGE
-L- POC Sta. 16+00.00
- 3 END BRIDGE
-L- POC Sta. 17+00.00
- 4 END APPROACH SLAB
-L- POC Sta. 17+13.59



| -L- | -L- |
|---------------------------------------|--------------------------------------|
| PI Sta 14+39.44 | PI Sta 22+92.15 |
| $\Delta = 54^{\circ} 25' 59.9''$ (LT) | $\Delta = 4^{\circ} 58' 36.5''$ (LT) |
| $D = 8^{\circ} 40' 52.2''$ | $D = 4^{\circ} 46' 28.7''$ |
| $L = 627.03'$ | $L = 104.23'$ |
| $T = 339.44'$ | $T = 52.15'$ |
| $R = 660.00'$ | $R = 1,200.00'$ |
| $SE = 0.04$ | $SE = 0.03$ |
| $LR = 84'$ | $LR = 84'$ |
| $DS = 40$ MPH | $DS = 40$ MPH |

DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED,
HORIZONTAL & VERTICAL STOPPING SIGHT DISTANCE,
SAG & CREST VERTICAL CURVE K, AND MAXIMUM GRADE.

- BRIDGE APPROACH SLAB
- PAVEMENT REMOVAL & OBLITERATION
- FOR -L- PROFILE, SEE SHEET NO. 5
- FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-22

5/28/99

PBSJ 5200 77 CENTER DRIVE, SUITE 500
CHARLOTTE, NORTH CAROLINA 28217
(704) 522-7275

| | |
|--|---|
| PROJECT REFERENCE NO. B-3814 | SHEET NO. 5 |
| ROADWAY DESIGN ENGINEER SEAL 17265 STEPHEN ANTHONY DANN 2/22/08 | HYDRAULICS ENGINEER SEAL 29185 WILLIAM HINER 2/22/08 |

