MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

ST. CHARLES COUNTY

RTE. 364

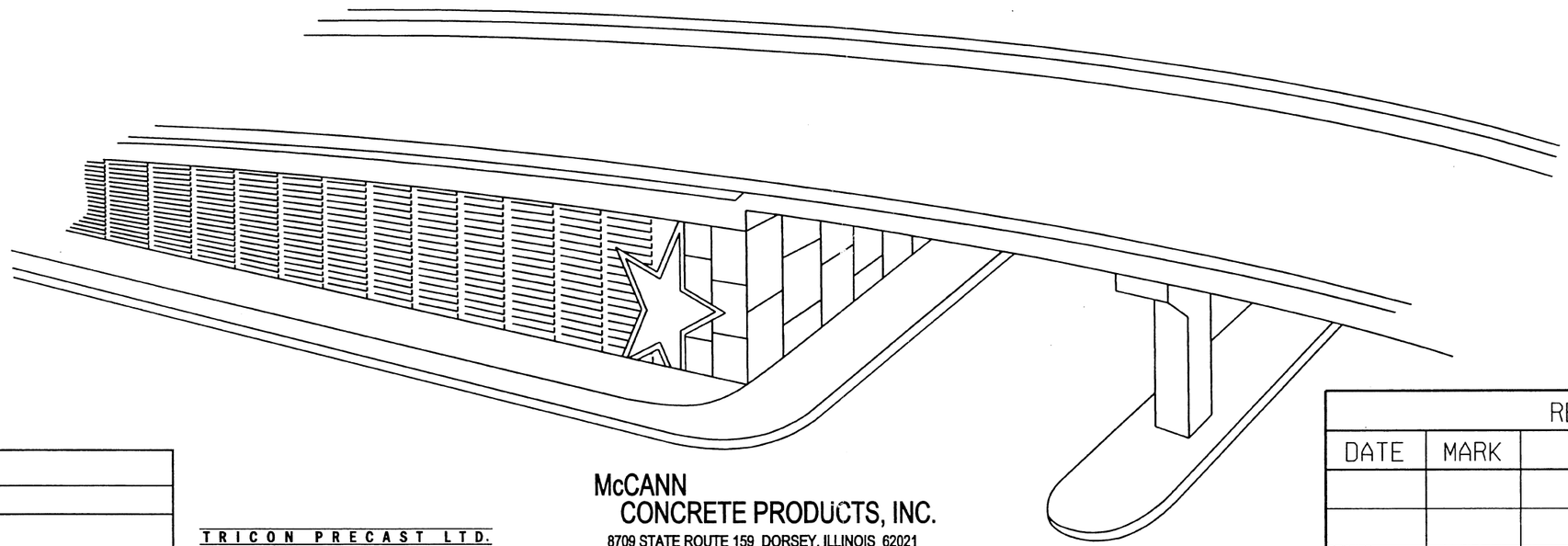
JOB #: J6U1028P

MSE RETAINING WALLS A7666, A7694

TPL090777

FRED WEBER

CONSTRUCTION DRAWINGS



SHEET INDEX	
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2	PLAN
3-4	ELEVATION
5-6	STANDARD DETAILS
7	PRECAST COPING DETAILS
8	CIP COPING DETAILS
9	OBSTRUCTION AND CORNER DETAILS
10	STANDARD PANEL DETAILS

ENGINEER:

STATE OF MISSOURI
GUY CHRISTOPHER NELSON
NUMBER PE-2007032437
PROFESSIONAL ENGINEER

10/2/09

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A Tricon Precast Company

1009 44th STREET, SUITE A-2
WYOMING, MI 49509
PH. (616) 261-8630

REVISIONS		
DATE	MARK	DESCRIPTION

DRAWN BY: KJL

DESIGN BY: KRP

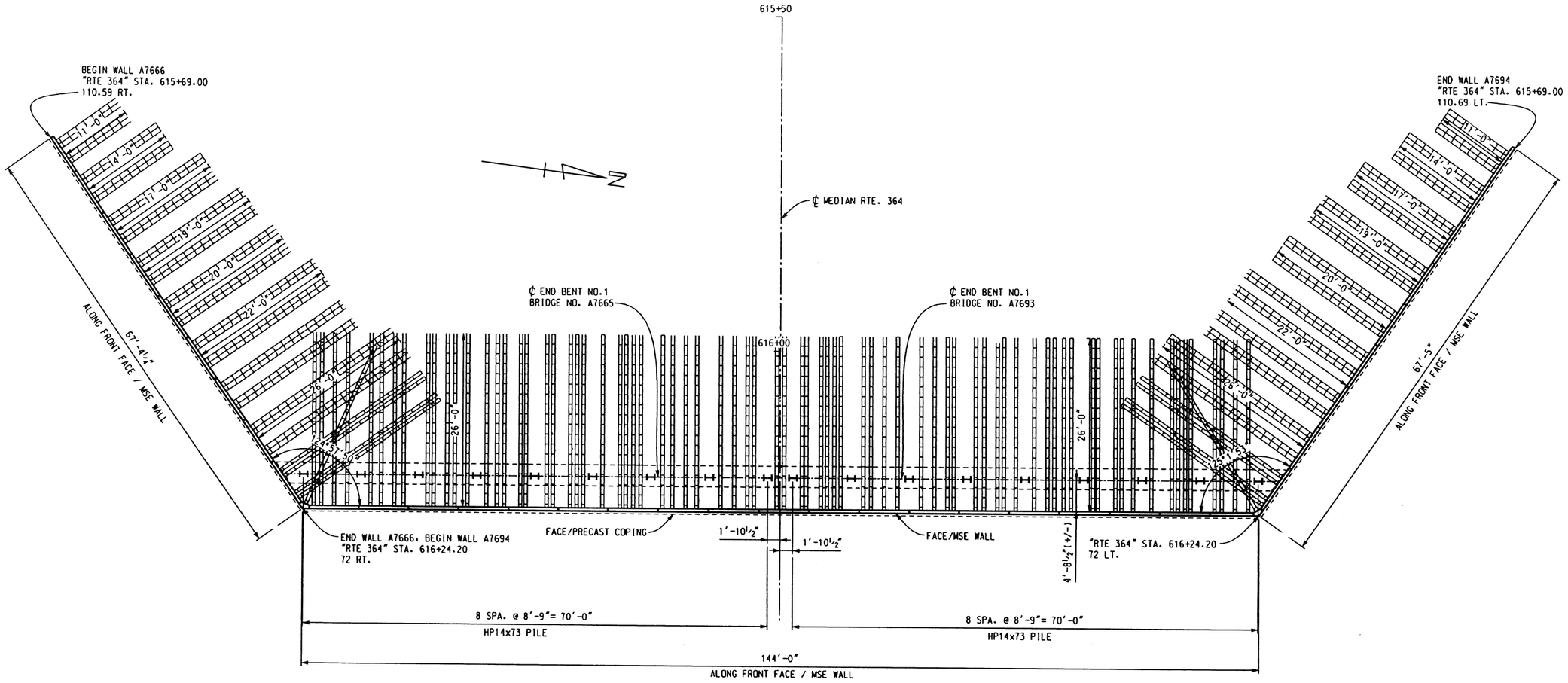
CHECKED BY: TJS

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

TITLE SHEET

CONTRACTOR : FRED WEBER

PROJECT NO.:		JOB NO.:	
RTE. 364		J6U1028P	
	TRICON JOB NO.: 090777	DATE: 10/02/09	SHEET 1 of 10



MSE WALL A7666, A7694 - PLAN

NOTES:
HORIZONTAL AND VERTICAL LAYOUT SHALL BE AS DETAILED IN THE CONTRACT PLANS.

PLAN VIEW STATIONS AND OFFSETS ARE TO FRONT FACE OF WALL.

ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL.

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GUY CHRISTOPHER NELSON
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REVIEWING ENGINEER:

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLAN, WALL A7666 AND WALL A7694
CONTRACTOR : FRED WEBER

DRAWN BY: KJL	PROJECT NO.: RTE. 364	JOB NO.: J6U1028P	
DESIGNED BY: KRP		TRICON JOB NO.: 090777	DATE: 10/02/09
CHECKED BY: TJS			SHEET 2 of 10

DESIGN CASE 1
Hd=8.00'
B=11.00'
F.P.=1.415 KSF
PANEL COLUMN 1, 39
ROW 1-3: W9.5xW11.0, 9"x12"

DESIGN CASE 2
Hd=10.53'
B=14.00'
F.P.=1.884 KSF
PANEL COLUMN 2, 38
ROW 5: W9.5xW11.0, 9"x18"
ROW 1-4: W9.5xW11.0, 9"x24"

DESIGN CASE 3
Hd=12.56'
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F.P.=2.219 KSF
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F.P.=2.362 KSF
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ROW 3-8: W9.5xW11.0, 9"x24"
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DESIGN CASE 7
Hd=20.70'
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Hd=24.44'
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F.P.=3.179 KSF
PANEL COLUMN 9-31
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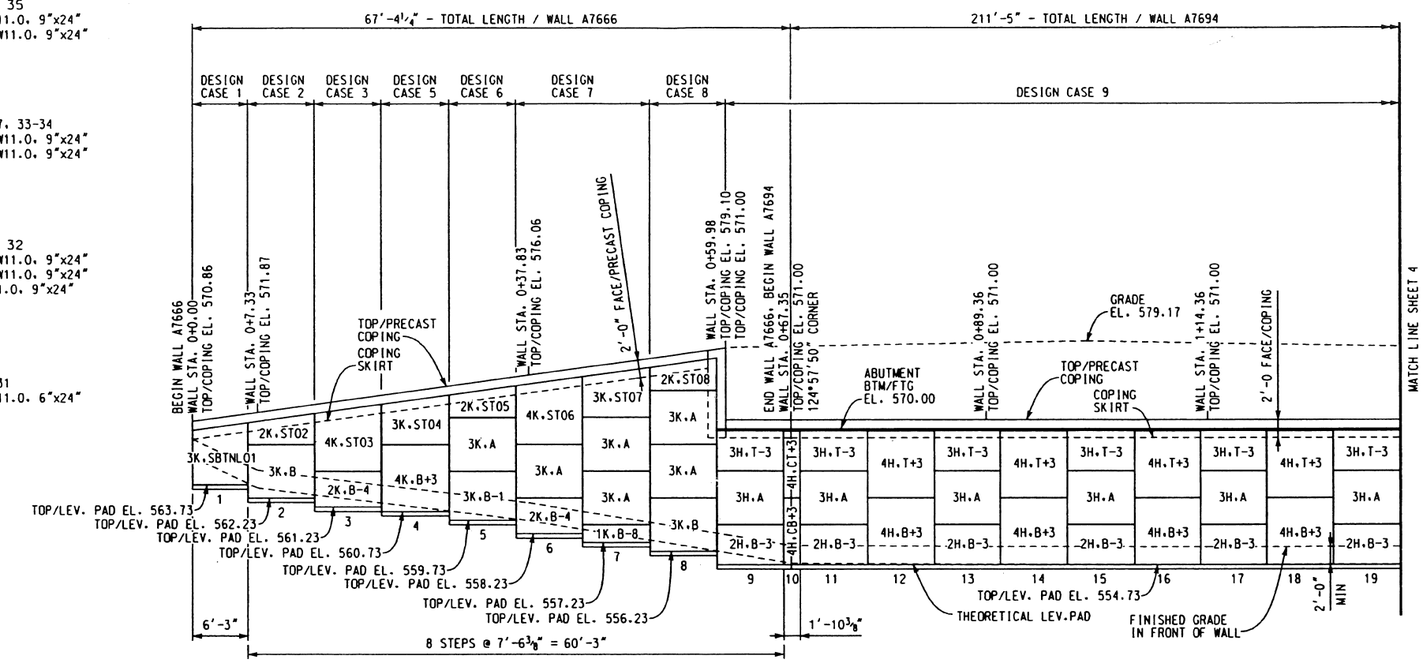

MSE WALL A7666 AND WALL A7694 - FRONT FACE ELEVATION

*BACKFILL BASED ON NEATLINE LIMITS

QUANTITY SUMMARY - WALL A7666	
OVERALL WALL FACE:	1033 sft
OVERALL PANEL FACE:	956 sft
LEVELING PAD:	68 ft
PRECAST COPING:	66 ft
VERT.CIP COPING:	11 ft
CIP COPING:	2 ft
BACKFILL:	758 cyd

ALL ROW DESIGNATIONS START FROM BOTTOM OF WALL.

FOR PANEL COLUMNS WITH MORE OR LESS SOIL MAT ROWS THAN THE GOVERNING DESIGN CASE, ADD OR ELIMINATE THE HIGHEST SOIL MAT ROW (TOP MAT) TO MATCH THE DESIGNATED AMOUNT OF PANEL COLUMN SOIL MAT ROWS FOR THAT PANEL COLUMN.

LEGEND:
H_d = DESIGN HEIGHT PER CONTRACT SPECIFICATIONS.

B = LENGTH OF SOIL REINFORCEMENT.

F.P. = MAXIMUM IMPOSED LOAD ON FOUNDATION BY MSE MASS FOR DESIGNATED LENGTH OF WALL.

NO. OF ANCHOR ROWS — PANEL NUMBER
TYPE OF MAT ANCHOR — 2K. T-1A — FORM LINER

NOTES:
HORIZONTAL AND VERTICAL LAYOUT SHALL BE AS DETAILED IN THE CONTRACT PLANS.

PRECAST COPING SHALL BE PLACED IN STANDARD 15'-0"(NOM.) LENGTHS WITH 1/2" JOINT FALLING RANDOMLY IN RELATION TO PANEL JOINTS. SPECIAL END AND BREAK POINT PIECES SHALL BE CIP BY OTHERS.

STATIONS AND OFFSETS ARE TO FRONT FACE OF WALL.

ALL DIMENSIONS ARE ALONG FRONT FACE OF WALL.

PANEL FINISH IS SMOOTH. CORNERS SHALL HAVE SMOOTH FINISH.

STATE OF MISSOURI
GUY CHRISTOPHER NELSON
NUMBER PE-2007032437
PROFESSIONAL ENGINEER
ENGINEER 10/2/09

N O T I C E

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REVIEWING ENGINEER:

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
ELEVATION, WALL A7666 AND WALL A7694
CONTRACTOR : FRED WEBER

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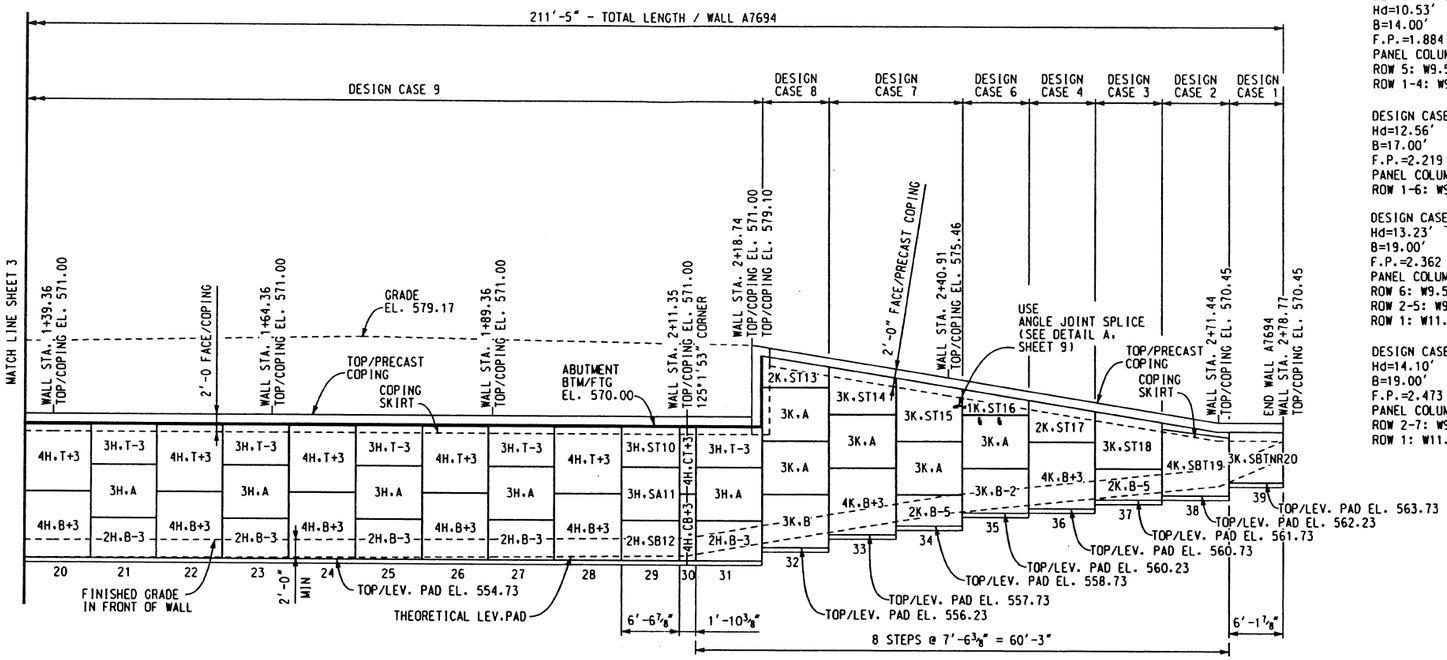
DESIGNED BY: KRP		TRICON JOB NO.: 090777	DATE: 10/02/09	SHEET: 3 of 10	
CHECKED BY: TJS					



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*BACKFILL BASED ON NEATLINE LIMITS

QUANTITY SUMMARY - WALL A7694	
OVERALL WALL FACE:	3319 sft
OVERALL PANEL FACE:	3099 sft
LEVELING PAD:	212 ft
PRECAST COPING:	208 ft
VERT.CIP COPING:	11 ft
CIP COPING:	2 ft
*BACKFILL:	2857 cyd

*BACKFILL BASED ON NEATLINE LIMITS

TOTAL QUANTITY SUMMARY - WALL A7666, A7694	
OVERALL WALL FACE:	4352 sft
OVERALL PANEL FACE:	4055 sft
LEVELING PAD:	280 ft
PRECAST COPING:	274 ft
VERT.CIP COPING:	22 ft
CIP COPING:	4 ft
*BACKFILL:	3615 cyd

ALL ROW DESIGNATIONS START FROM BOTTOM OF WALL.

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STATE OF MISSOURI
GUY CHRISTOPHER NELSON
NUMBER PE-2007032437
PROFESSIONAL ENGINEER
ENGINEER: 10/2/09

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REVIEWING ENGINEER:

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
ELEVATION, WALL A7694
CONTRACTOR : FRED WEBER

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DESIGNED BY: KRP		TRICON JOB NO.: 090777	DATE: 10/02/09
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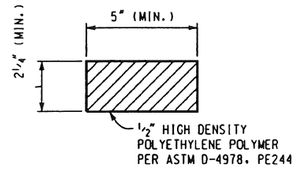
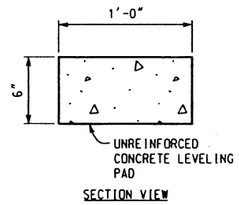
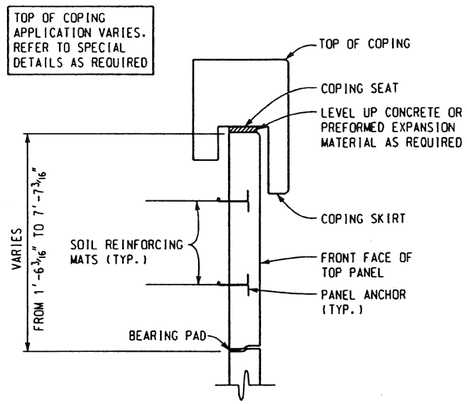


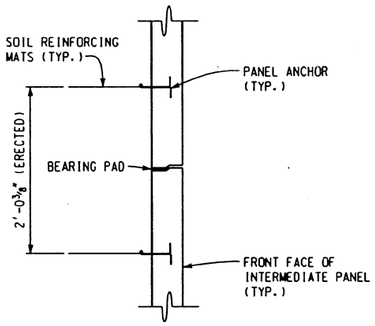
TYPICAL BEARING PAD



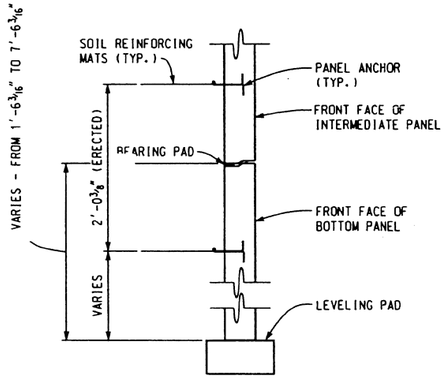
TYPICAL CIP LEVELING PAD



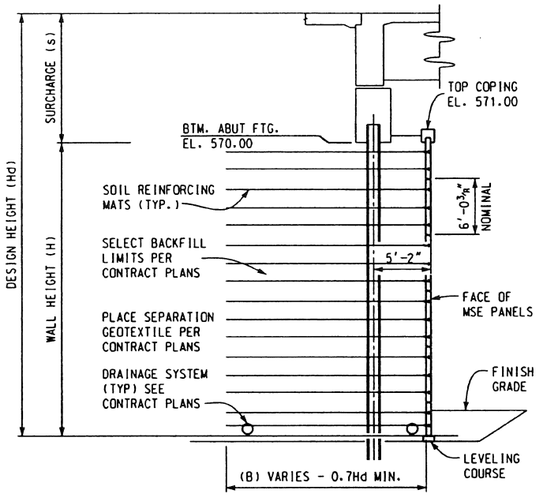
TYPICAL TOP PANEL



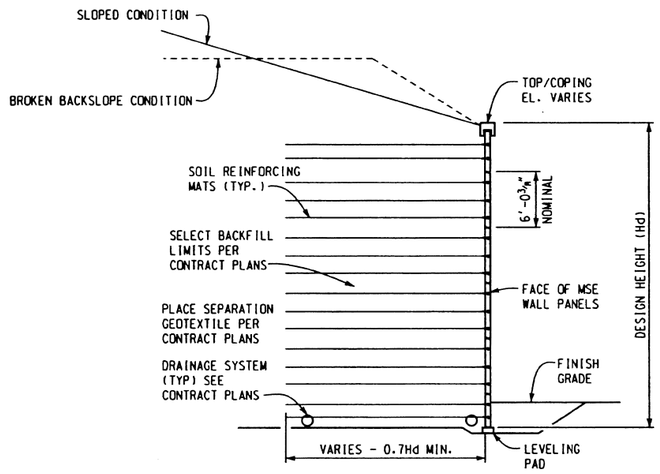
TYPICAL INTERMEDIATE PANEL



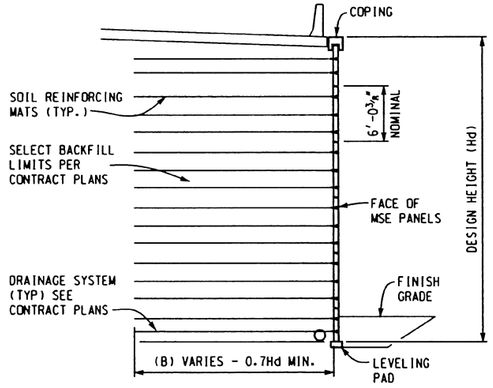
TYPICAL BOTTOM PANEL



TYPICAL MSE WALL SECTION AT ABUTMENT



TYPICAL MSE WALL SECTION



TYPICAL MSE WALL SECTION

FLAT BACKSLOPE - SHOWN W/ TRAFFIC BARRIER
NON-TRAFFIC CONDITION SIMILAR

GENERAL NOTES:

THE MSE WALL DESIGN IS BASED ON AASHTO STANDARD 2002 DESIGN SPECIFICATIONS AND THE CONTRACT SPECIFICATIONS

THE MSE WALL WAS DESIGNED BASED ON THE FOLLOWING ASSUMPTIONS:

- -SELECT BACKFILL PROPERTIES OF 132.4pcf UNIT WEIGHT AND 34phi ANGLE.
- -240 PSF LIVE LOAD SURCHARGE.
- -75 YEAR DESIGN LIFE.

THE MAXIMUM FACTORED BEARING PRESSURE APPLIED BY THE MSE WALL MASS HAS BEEN DETERMINED FOR EACH DESIGN CASE. GLOBAL STABILITY IS THE RESPONSIBILITY OF THE OWNER.

STEEL SOIL REINFORCING MESH AND PANEL EMBEDS SHALL BE AASHTO M 32 AND AASHTO M 55 AND GALVANIZED PER AASHTO M 232 OR AASHTO M 111.

FOR LOCATION AND ALIGNMENT OF MSE WALLS REFER TO CONTRACT DOCUMENTS.

IF NECESSARY, THE CONTRACTOR SHALL OBTAIN TECHNICAL ASSISTANCE FROM A TPL REPRESENTATIVE DURING WALL ERECTION TO DEMONSTRATE PROPER CONSTRUCTION PROCEDURES.

PRIOR TO WALL CONSTRUCTION FOUNDATION SOILS SHALL BE COMPACTED WITH A VIBRATORY ROLLER. ANY UNSUITABLE SOILS SHALL BE REMOVED AND REPLACED.

THE BACK OF ALL PANEL JOINTS SHALL BE COVERED BY THE SPECIFIED GEOTEXTILE FILTER FABRIC AND ATTACHED TO THE PANELS WITH AN ADHESIVE SUPPLIED BY PRECAST PANEL SUPPLIER.

WALL CONSTRUCTION:

IF EXISTING OR FUTURE STRUCTURE PIPES, FOUNDATIONS OR GUARD POSTS WHICH ARE WITHIN THE REINFORCED VOLUME INTERFERE WITH THE NORMAL PLACEMENT OF REINFORCING MESH AND SPECIFIC DIRECTION HAS NOT BEEN PROVIDED ON THE PLANS, THE CONTRACTOR SHALL NOTIFY TRICON PRECAST, LTD. TO DETERMINE WHAT COURSE OF ACTION SHOULD BE TAKEN.

CONCRETE SHAFTS OR PILES WITHIN THE REINFORCED MASS OR IN THE NEAR VICINITY SHOULD BE PLACED PRIOR TO CONSTRUCTION OF THE RETAINING WALL.

BACKFILL SHALL BE PLACED IN MAXIMUM 8" LIFTS. IN ACCORDANCE WITH THE SPECIFICATION FOR RETAINED SOIL WALLS TO A LEVEL OF 2" MINIMUM ABOVE THE REINFORCEMENT MESH ANCHORS EMBEDDED IN THE PANELS. INSTALLATION OF REINFORCEMENT MESH SHALL BE PERMITTED ONLY AFTER PLACEMENT AND COMPACTION OF THE BACKFILL MATERIAL HAS REACHED THE REQUIRED LEVEL.

HEAVY COMPACTION AND OPERATION EQUIPMENT SHALL BE KEPT A MINIMUM DISTANCE OF 3'-0" FROM BACK FACE OF WALL PANEL. COMPACTION WITHIN 3'-0" OF THE PANEL SHALL BE ACHEIVED WITH AT LEAST THREE (3) PASSES OF A LIGHTWEIGHT MECHANICAL TAMPER, ROLLER OR VIBRATORY SYSTEM.

PRECAST PANEL NOTES:

PANEL CONCRETE SHALL BE CLASS A-1 AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000-PSI AT 28 DAYS.

ALL PANEL REINFORCING STEEL SHALL BE WELDED WIRE FABRIC CONFORMING TO ASTM A-82 AND A-185, AND SHALL BE GALVANIZED PER AASHTO M 232 OR M 111.

ALL PANELS SHALL BE CAST IN ACCORDANCE WITH THE TOLERANCES SET FORTH IN MoDOT SECTION 1052.30.9

IF ANY OF THE DETAILS OR SPECIFICATIONS CONTAINED IN THESE DESIGN DOCUMENTS VARY FROM THE PROJECT SPECIFICATIONS, THE MOST STRINGENT SHALL APPLY.

STATE OF MISSOURI
GUY CHRISTOPHER NELSON
NUMBER PE-2007032437
PROFESSIONAL ENGINEER
ENGINEER: 10/2/09

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CONTRACTOR: FRED WEBER

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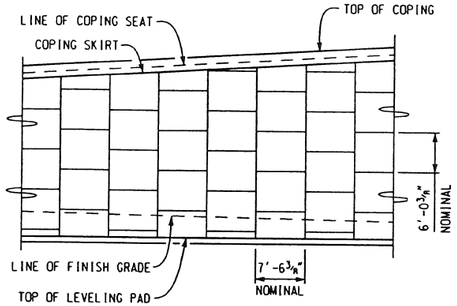
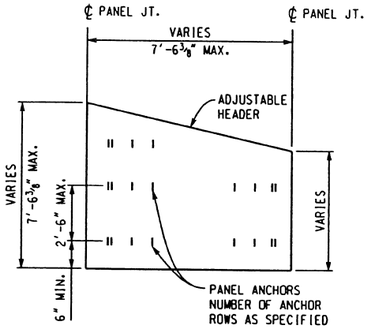
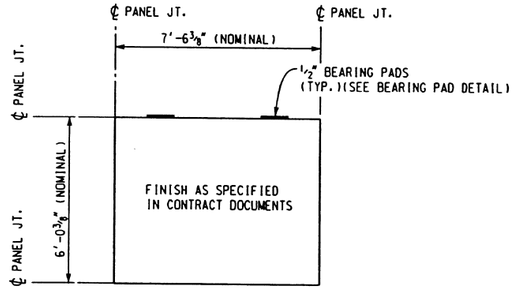


TYPICAL MSE WALL ELEVATION



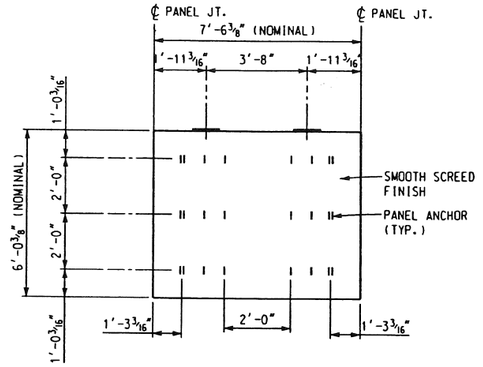
SPECIAL PANEL BACK FACE ELEVATION

(SEE SPECIAL PANEL DETAILS FOR ANCHOR LOCATIONS)



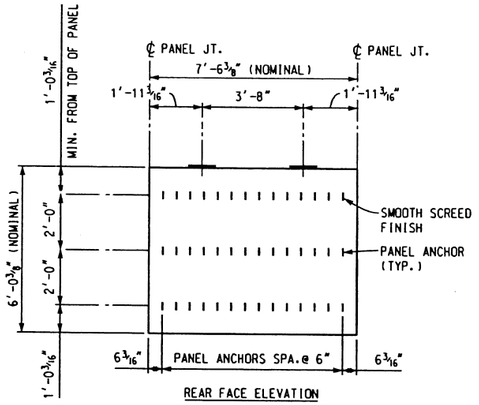
FRONT FACE ELEVATION

(SHIPLAP NOT SHOWN FOR CLARITY)



STANDARD K PANEL BACK FACE ELEVATION

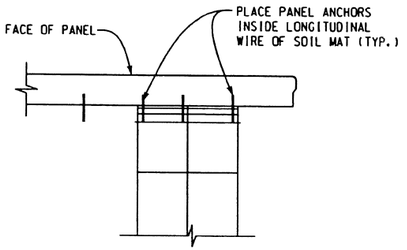
(SHIPLAP NOT SHOWN FOR CLARITY)
TYPE 'K' = 1'-6" WIDE



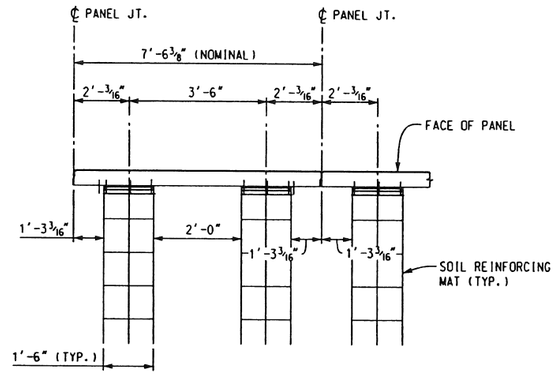
REAR FACE ELEVATION

STANDARD H PANEL ELEVATION

(SHIPLAP NOT SHOWN FOR CLARITY)
MAT WIDTH WILL VARY - SEE ELEVATIONS FOR MAT DESIGNATIONS:
TYPE 'H' = 0'-6" WIDE

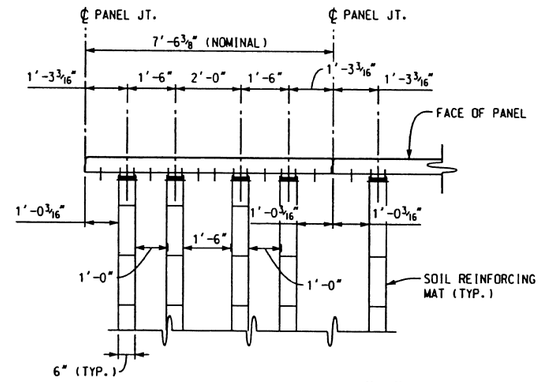


SOIL MAT CONNECTION DETAIL



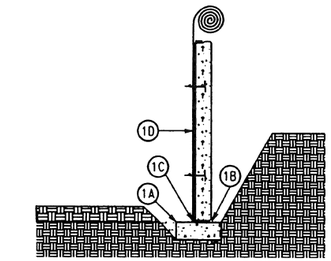
A, B, & T PANEL WITH TYPE "K" SOIL REINFORCEMENT MATS

(2) SOIL MATS PER ROW FOR 7'-6 3/8" PANEL

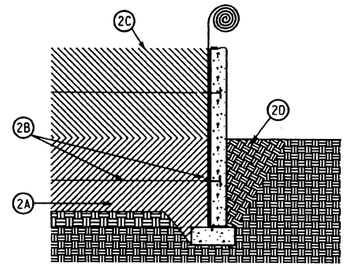


PANEL WITH TYPE "H" SOIL REINFORCEMENT MATS

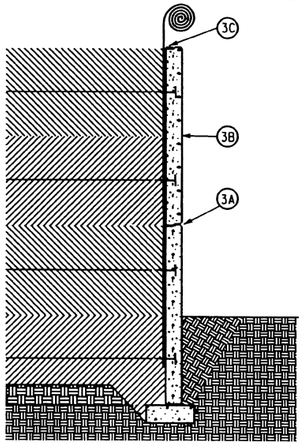
(4) SOIL MATS PER ROW FOR 7'-6 3/8" PANEL



1A. CAST OR PLACE LEVELING PAD ON PREPARED FOUNDATION. COMPACT ANY VOIDS ON BACK FACE SIDE.
1B. LAYOUT PROPER PANEL FACE ALIGNMENT ON LEVELING PAD.
1C. PLACE AND PLUMB BOTTOM ROW OF PANELS. USE PLASTIC SHIMS AS REQUIRED.
1D. COVER ALL VERTICAL AND HORIZONTAL JOINTS WITH SPECIFIED FILTER FABRIC.



2A. PLACE AND COMPACT BACKFILL TO LEVEL OF FIRST PANEL ANCHOR IN MAX. 8" LIFTS.
2B. PLACE SOIL REINFORCING MAT AND SECURE WITH LOCKING ROD. REMOVE SLACK IN MAT AND CONNECTION.
2C. PLACE COMPACT BACKFILL TO NEXT ANCHOR ROW. START FROM END OF MAT AND WORK TOWARD PANEL.
2D. BACKFILL AND COMPACT TOE AT FACE OF WALL.



3A. PLACE BEARING PADS AT TOP OF PANEL
3B. PLACE AND PLUMB NEXT LIFT OF PANELS.
3C. REPEAT SEQUENCE 2B THRU 3C UNTIL TOP OF WALL ELEVATION IS REACHED.

TYPICAL CONSTRUCTION SEQUENCE

STATE OF MISSOURI
GUY CHRISTOPHER NELSON
NUMBER PE-2007032437
PROFESSIONAL ENGINEER
ENGINEER 10/2/09

N O T I C E:

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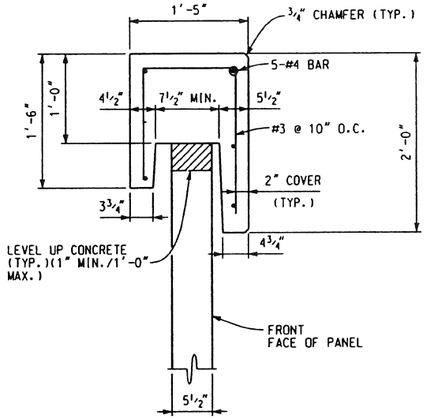
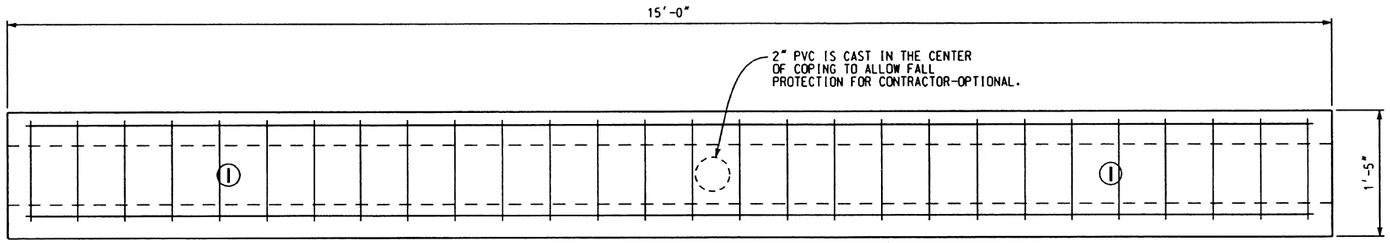
REVIEWING ENGINEER:

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
STANDARD DETAILS
CONTRACTOR : FRED WEBER

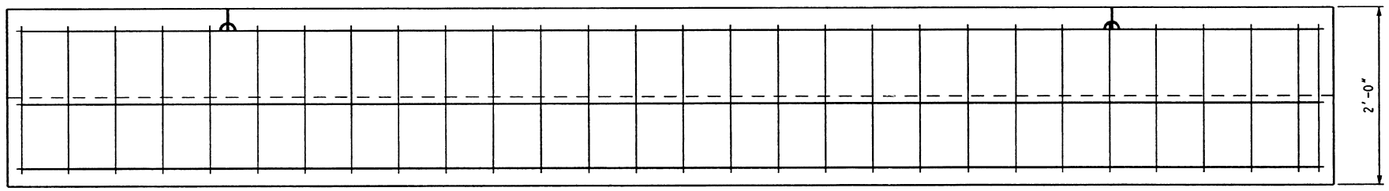
DRAWN BY: KJL	PROJECT NO.: RTE. 364		JOB NO.: J6U1028P	
DESIGNED BY: KRP		TRICON JOB NO.: 090777	DATE: 10/02/09	SHEET 6 of 10
CHECKED BY: TJS				



STANDARD PRECAST COPING



PLAN



FRONT FACE ELEVATION

STANDARD PRECAST COPING

NOTES:
1. STEEL DIMENSION ARE OUT TO OUT
2. COPING HAS BEEN DESIGNED AS SOLID. IF ANY DRAIN SLOTS, ETC. ARE REQUIRED PLEASE ADVISE McCANN.
3. PRECAST COPING TO BE MANUFACTURED IN STANDARD 15'-0" LENGTHS. SPECIAL LENGTH AND MITERED PIECES SHALL BE FIELD MEASURED AND CAST TO FIT BY CONTRACTOR.
4. THROAT DIMENSIONS MAY VARY DUE TO PANEL FINISH.
5. DUE TO NATURE OF WELDED WIRE CAGE FABRICATION, LONGITUDINAL BAR LOCATION COULD VARY.
6. 2" PVC CAST IN CENTER OF COPING FOR A TEMPORARY SAFETY OPTION FOR CONTRACTOR. CUT WELDED WIRE TO ACCOMMODATE PLACEMENT OF PVC OPTIONAL.

STATE OF MISSOURI
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ENGINEER: 10/2/09

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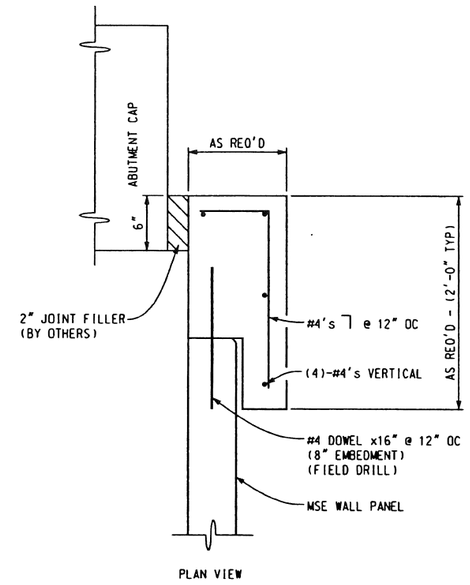
REVIEWING ENGINEER:

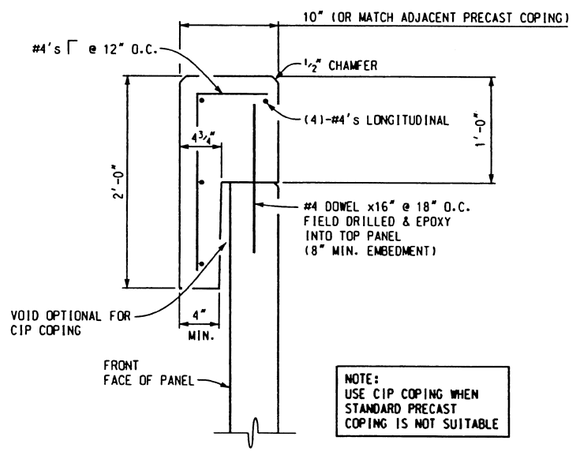
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PRECAST COPING DETAILS
CONTRACTOR : FRED WEBER

DRAWN BY: KJL	PROJECT NO.: RTE. 364	JOB NO.: J6U1028P	
DESIGNED BY: KRP			
CHECKED BY: TJS	TRICON JOB NO.: 090777	DATE: 10/02/09	SHEET: 7 of 10



PLAN VIEW

CIP VERTICAL CLOSURE COPING



CIP COPING

STATE OF MISSOURI
GUY CHRISTOPHER NELSON
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PROFESSIONAL ENGINEER
ENGINEER
10/2/09

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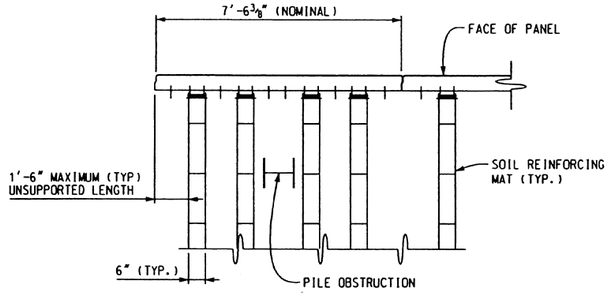
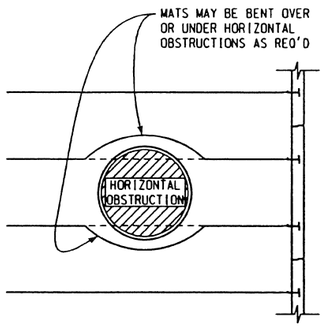
DESIGNED BY: KRP		TRICON JOB NO.: 090777	DATE: 10/02/09	SHEET 8 of 10
CHECKED BY: TJS				

NOTE:
ADDITIONAL ANCHORS ARE PROVIDED ON PRECAST PANELS. ALL ANCHORS DO NOT NEED TO BE USED. MOVE MESH TO AVOID OBSTRUCTIONS. MAINTAIN MINIMUM NUMBER OF MESH REQUIRED PER PANEL.



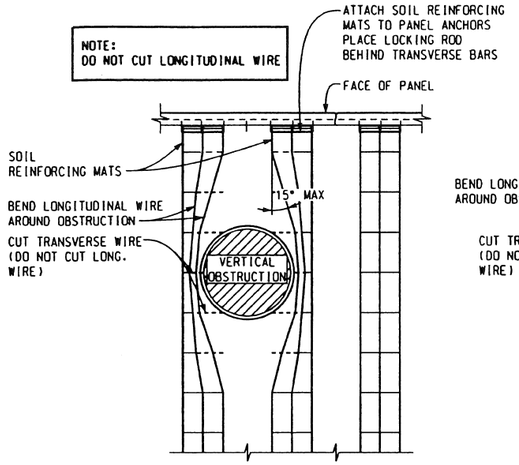
TYPICAL MESH LAYOUT AT PILE

NOTE:
IF CONDITIONS ARE SIGNIFICANTLY DIFFERENT THAN THESE DETAILS. NOTIFY ENGINEER FOR SPECIFIC DESIGN REQUIREMENTS

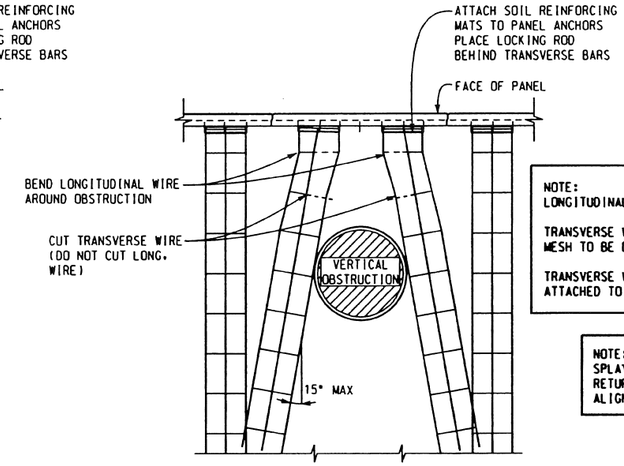


HORIZONTAL OBSTRUCTION

NOTE:
DO NOT CUT LONGITUDINAL WIRE



VERTICAL OBSTRUCTION



NOTE:
LONGITUDINAL WIRE MAY NOT BE CUT.

TRANSVERSE WIRE MAY BE CUT TO ALLOW MESH TO BE DEVIATED AROUND OBSTICLES.

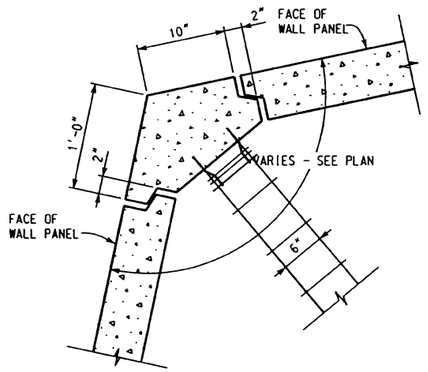
TRANSVERSE WIRE MUST BE LEFT ATTACHED TO LONGITUDINAL WIRES.

NOTE:
SPLAYED MSE MESH NEED NOT RETURN TO PERPENDICULAR ALIGNMENT TO MSE PANELS.

VERTICAL OBSTRUCTION

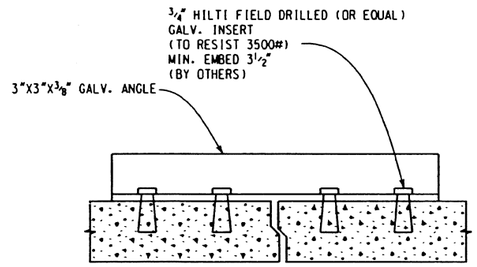
* ANGLE GREATER THAN 15° REQUIRE MECHANICAL ANCHOR

NOTE:
IF CONDITIONS ARE SIGNIFICANTLY DIFFERENT THAN THESE DETAILS. NOTIFY ENGINEER FOR SPECIFIC DESIGN REQUIREMENTS



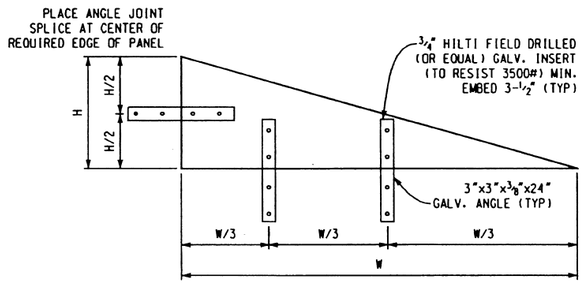
PLAN VIEW

CORNER DETAIL



ANGLE JOINT SPLICE

* ONE PER MAT ROW AS NEEDED



DETAIL A

STATE OF MISSOURI
GUY CHRISTOPHER NELSON
NUMBER PE-2007032437
PROFESSIONAL ENGINEER

ENGINEER: 10/2/09

N O T I C E:

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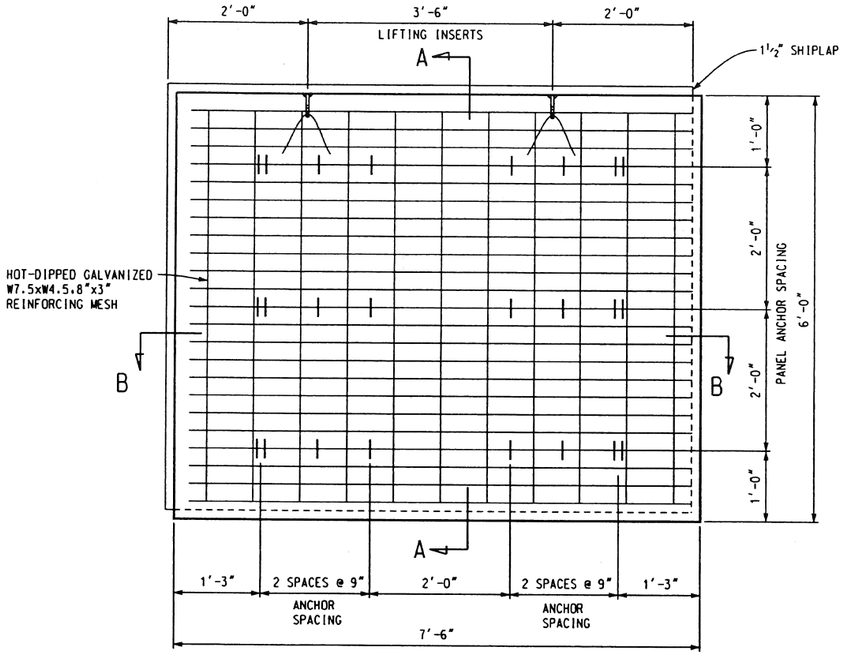
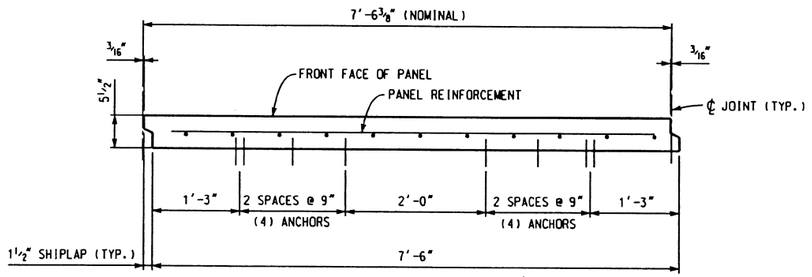
REVIEWING ENGINEER:

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
OBSTRUCTION AND CORNER DETAILS
CONTRACTOR : FRED WEBER

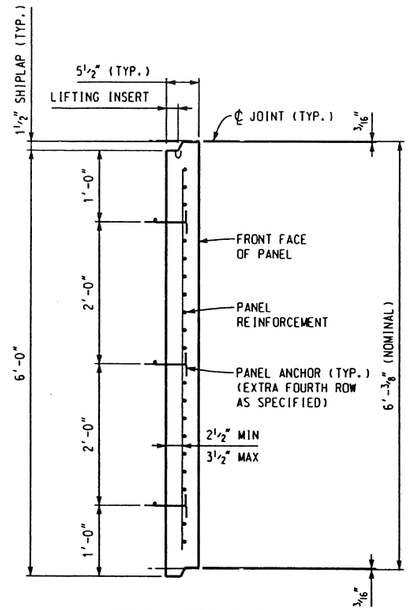
DRAWN BY: KJL	PROJECT NO.: RTE. 364		JOB NO.: J6U1028P		
DESIGNED BY: KRP		TRICON JOB NO.: 090777	DATE: 10/02/09	SHEET 9 of 10	
CHECKED BY: TJS					



STANDARD PANEL TYPE "3K.A"
W/ STANDARD REINFORCEMENT
BACKFACE ELEVATION

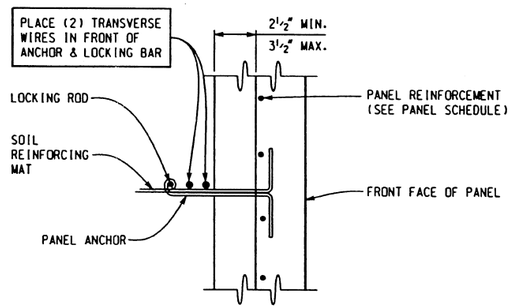


SECTION B-B



SECTION A-A

NOTE:
THICKNESS DOES NOT INCLUDE FINISH FINS
WHERE APPLICABLE

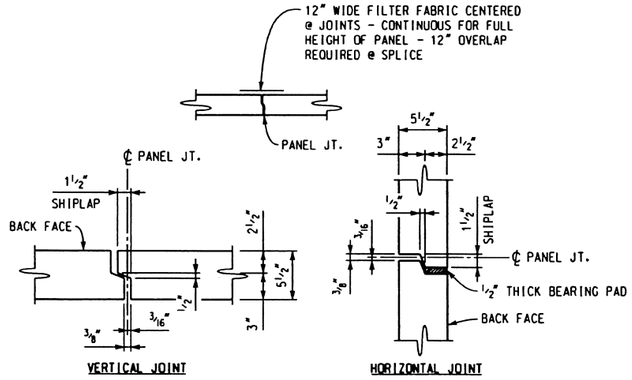


TYPICAL PANEL ANCHOR DETAIL

PANEL REINFORCEMENT	
TYPE/SIZE	SPACING
W7.5xW4.5	8"x3"

PANEL REINFORCMENT NOTES:

WIRE MESH REINFORCEMENT & LOOP EMBEDS SHALL MEET THE REQUIREMENTS OF AASHTO M 32 AND AASHTO M 55, AND SHALL BE GALVANIZED PER AASHTO M 232 OR AASHTO M 111.



STANDARD PANEL JOINT DETAILS

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STANDARD PANEL DETAILS
CONTRACTOR: FRED WEBER

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