

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

PLAN INDEX	
SH NO.	DESCRIPTION
1	TITLE SHEET
2-4	GENERAL PLAN OF SITE
5	CONSTRUCTION STAGING
6	SOIL BORING DATA
7-14	GENERAL PLAN OF STRUCTURE
15	EXISTING GENERAL PLAN OF STRUCTURE - REMOVALS
16-18	ABUTMENT DETAILS
19-22	PIER DETAILS
23,24	PILE DETAILS
25,26	PRESTRESSED CONCRETE I-BEAM DETAILS
27-30	PRESTRESSED CONCRETE BOX BEAM DETAILS
31-33	STRUCTURAL STEEL DETAILS
34-40	SUPERSTRUCTURE DETAILS
41	DECK REHABILITATION DETAILS
42,43	PIN AND HANGER REPLACEMENT DETAILS
44,45	EXPANSION JOINT DETAILS
46	SLAB AND SCREED DETAILS
47	STEEL REINFORCEMENT DETAILS

MICHIGAN DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED BRIDGE RECONSTRUCTION

MICHIGAN PROJECT

CONTROL SECTION

JOB NUMBER

85025

98765A

US-131

BADLANDS TOWNSHIP
ROUGH RIDER COUNTY

GENERAL NOTES

THE RECONSTRUCTION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES M22.3 - LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR M18 (420-516-44) LOADING.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 1996 EDITION.

THE STATIONING AS SHOWN ON THESE PLANS FOR THE INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY (AND THE RAILROAD) CENTERLINE IS BELIEVED TO BE CORRECT. IT SHALL, HOWEVER, BE CHECKED AT THE TIME OF STARTING CONSTRUCTION, AND IF THE STATIONING SHOWN ON THE PLANS IS INCORRECT, IT SHALL BE REPORTED TO THE DESIGN OFFICE IN LANSING, AND THE STRUCTURE SHALL BE STAKED OUT USING THE ACTUAL INTERSECTION OF THE CENTERLINE OF BRIDGE AND ROADWAY (AND THE RAILROAD) CENTERLINE AS THE CONTROL POINT.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE: GRADE S2	$f'_c = 21 \text{ MPa}$
CONCRETE: GRADE D	$f'_c = 28 \text{ MPa}$
STEEL REINFORCEMENT:	$f_y = 400 \text{ MPa}$
STEEL REINFORCEMENT: STIRRUPS	$f_y = 300 \text{ MPa}$
FOR PRESTRESSED BEAMS	$f_y = 250 \text{ MPa}$
STRUCTURAL STEEL: AASHTO M270 Grade 250	$f_y = 250 \text{ MPa}$
STRUCTURAL STEEL: AASHTO M270 Grade 345	$f_y = 345 \text{ MPa}$
STRUCTURAL STEEL: AASHTO M270 Grade 345W	$f_y = 345 \text{ MPa}$
STRUCTURAL STEEL PINS: ASTM A275	$f_y = 345 \text{ MPa}$
UNS DESIGNATION S20161 OR S21800	$f_y = 345 \text{ MPa}$
PRESTRESSED CONCRETE	$f'_c = 21 \text{ MPa}$
PRESTRESSING STRANDS	$f'_c = 1,860 \text{ MPa}$

PROPOSED PLAN SHEET DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN. ELEVATIONS, COORDINATES AND CURVE ALIGNMENT DATA ARE IN METERS. STATIONS ARE IN KILOMETERS + METERS. EXISTING PLAN SHEET DIMENSIONS ARE IN CUSTOMARY U. S. UNITS.

THE REGULATED WASTE ACTIVITY
IDENTIFICATION NUMBERS FOR THIS
PROJECT ARE AS FOLLOWS:

CONTROL SECTION NUMBER
85025 M1R000037580

STANDARD PLANS
WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

- B-17-B BRIDGE BARRIER RAILING, TYPE 4
- B-102-B STANDARD SLOPE PAVING DETAILS
- B-103-B MOLDING, BEVEL, LIGHT STD. ANCHOR BOLT ASSY., AND NAME PLATE DETAILS

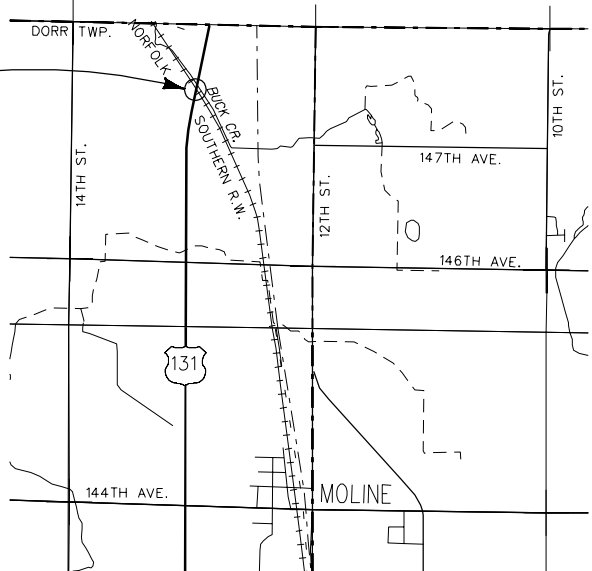
TITLE SHEET LEGEND

PROPOSED PROJECT	=====
EXISTING ROADS	-----
PAVED	=====
BITUMINOUS	-----
GRAVEL	-----
UNIMPROVED OR CITY STREET	-----
SECTION LINE	-----
TOWNSHIP LINE	-----
COUNTY LINE	-----
CITY OR VILLAGE LIMITS	-----
RAILROADS	-----



KEY TO COUNTIES

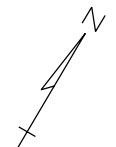
R01 OF 85025
US-131 OVER NORFOLK
SOUTHERN RAILWAY



CONTRACT FOR: REMOVAL OF PORTIONS OF EXISTING STRUCTURE, REPLACING ABUTMENTS, PIER CAPS AND SUPERSTRUCTURE, PLACING SLOPE PROTECTION, MAINTAINING TRAFFIC AND ROAD WORK.

APPROVALS	
RECOMMENDED FOR APPROVAL	PROJECT MANAGER
RECOMMENDED FOR APPROVAL	RESIDENT ENGINEER
MICHIGAN DEPARTMENT OF TRANSPORTATION GREGORY J. ROSINE - DIRECTOR	
APPROVED BY	DEPUTY DIRECTOR - HIGHWAYS
MDOT Michigan Department of Transportation	
MOOT DESIGN COORDINATOR MILLER	
DESIGN UNIT	
CONTROL SECTION	JOB NUMBER
85025	98765A
PROJECT	YEAR
	1

DATE: _____ CORRECTED BY: _____ DATE: _____ DRAWN BY: _____



BENCHMARKS
SEE ROAD PLANS

WITNESSES
SEE ROAD PLANS

UTILITIES

AMERITECH
955 36TH STREET
GRAND RAPIDS, MI 49508
ATTN: JIM LINDQUIST
PHONE: (616) 246-7240

GREAT LAKES ENERGY
P.O. BOX 800
ONE COOPERATIVE DR.
NEWAYGO, MI 49337
ATTN: BILL GYONON
PHONE: (616) 652-1651 EXT. 150

CONSUMERS ENERGY
2021 HOYT STREET
MUSKOGON HEIGHTS, MI 49444
ATTN: TOM RASMUSSEN
PHONE: (616) 722-2631

MICHIGAN CONSOLIDATED GAS CO.
2359 OLTHOFF DRIVE
MUSKOGON, MI 49444
ATTN: JOE RUPAR
PHONE: (616) 726-3571

EXISTING STRUCTURE

THE EXISTING STRUCTURE IS A THREE SPAN SIMPLY SUPPORTED REINFORCED CONCRETE T-BEAM BRIDGE. IT WAS BUILT IN 1927, PROVIDES 9144 CLEAR ROADWAY AND WAS DESIGNED FOR H-15 LOADING.

EXISTING CURVE DATA

EX. M-37 SURVEY & CURVE DATA
 $\Delta 90^{\circ} 39' 57''$ RT
 R=174.859 m
 T=176.983 m
 L=276.701 m
 P=10.447 m
 L1=33.354 m
 ST=16.685 m
 TS=03+035.482
 PIS=03+068.836
 SC=03+085.482

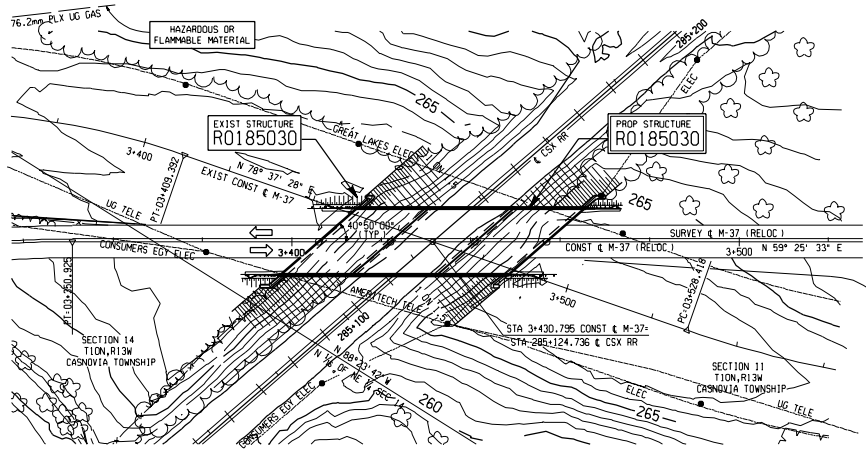
PROPOSED CURVE DATA

PROP. M-37 SURVEY & SPIRAL CURVE DATA
 $\Delta 85^{\circ} 09' 06''$ RT
 R=235.85 m
 K=24.991 m
 P=10.447 m
 L1=33.354 m
 ST=16.685 m
 TS=03+035.482
 PIS=03+068.836
 SC=03+085.482

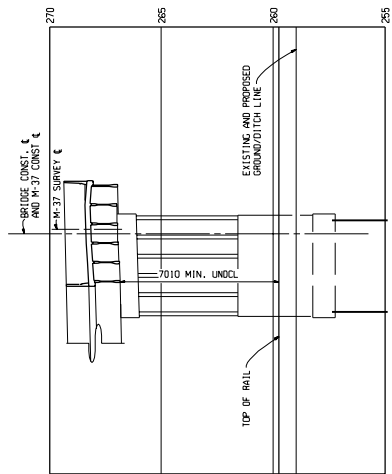
PROP. M-37 SURVEY & CIRCULAR CURVE DATA
 $\Delta 65^{\circ} 18' 57''$ RT
 R=235.85 m
 T=192.848 m
 L=265.443 m
 E=54.564 m
 SC=03+085.482
 PICE=03+227.845
 PT=03+350.325
 SUPER=7.0 %

PROP. WHITE RD. & CURVE DATA
 $\Delta 45^{\circ} 18' 25''$ RT
 R=80.000 m
 T=53.3884 m
 L=63.260 m
 E=6.688 m
 SC=03+106.417
 PI=03+139.806
 PT=03+169.678

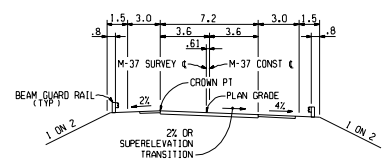
NO.	DESCRIPTION	DATE	BY



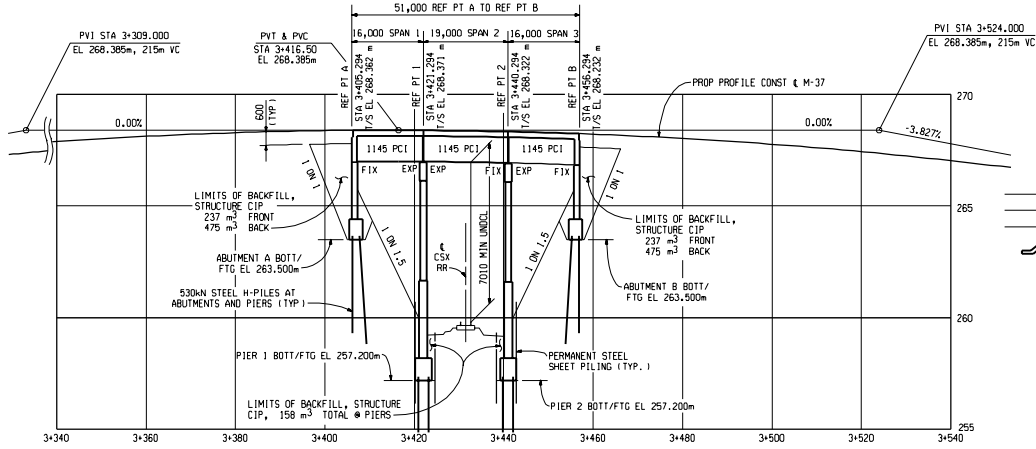
SITUATION PLAN
SCALE: 1:500



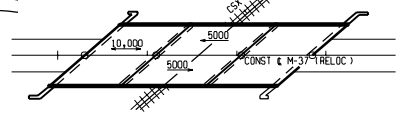
PROFILE CONST. & M-37
VERT. SCALE: 1:500
HOR. SCALE: 1:500



TYPICAL APPROACH SECTION
VIEWED LOOKING UP-STATION
(DIMENSIONS SHOWN ARE IN METERS)



PROFILE CONST. & M-37
VERT. SCALE: 1:200, HOR. SCALE: 1:500



2018 ESTIMATED TRAFFIC DISTRIBUTION

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES REMOVAL OF THE EXISTING BRIDGE, CONSTRUCTION OF THE PROPOSED BRIDGE AND PLACING SLOPE PROTECTION TO THE LIMITS SHOWN. ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

THE GROUND ADJACENT TO THE TRACKS AND STRUCTURE SHALL BE GRADED BY THE CONTRACTOR TO PROVIDE DRAINAGE.

M-37 TRAFFIC IS TO BE DETOURED OVER EXISTING ROADS FOR THE DURATION OF THIS PROJECT.

THE TRAIN MOVEMENT AND SPEED INFORMATION SHOWN IN THE PROPOSAL DOES NOT REPRESENT A COMMITMENT BY THE CSX RAILROAD AND IS SUBJECT TO CHANGE WITHOUT NOTICE.



GENERAL PLAN OF SITE
M-37 OVER CSX R.R., 1.6 km SOUTH OF BAILEY

DATE: _____ CONT. SEC. _____ JOB NO. _____ DESIGN UNIT _____ SHEET _____
 R01 OF 85030 98765A THOMAS 2 OF 47

APPROVED _____
DESIGN SUPERVISING ENGINEER

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

DRAWN BY: _____ CHECKED BY: _____ DATE: _____



BENCHMARKS
SEE ROAD PLANS

WITNESSES
SEE ROAD PLANS

UTILITIES	
AMERITECH 955 36TH STREET GRAND RAPIDS, MI 49508 ATTN: JIM LINDOUT PHONE: (616) 246-7240	GREAT LAKES ENERGY P.O. BOX 800 ONE COOPERATIVE DR. NEWAYGO, MI 49337 ATTN: BILL CONYON PHONE: (616) 652-1651 EXT. 150
CONSUMERS ENERGY 2021 HOVI STREET MUSKEGON HEIGHTS, MI 49444 ATTN: TOM RASMUSSEN PHONE: (616) 722-2631	MICHIGAN CONSOLIDATED GAS CO. 2359 OLTHOFF DRIVE MUSKEGON, MI 49444 ATTN: JOE RUPAR PHONE: (616) 726-3571

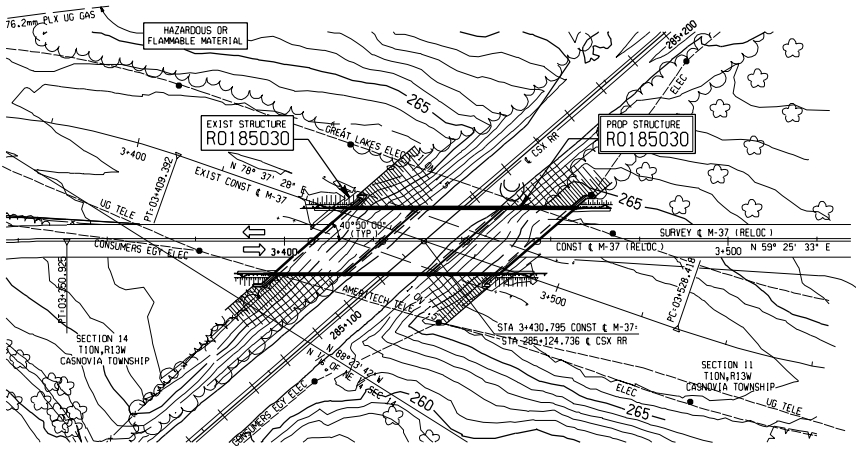
EXISTING STRUCTURE
THE EXISTING STRUCTURE IS A THREE SPAN SIMPLY SUPPORTED REINFORCED CONCRETE T-BEAM BRIDGE. IT WAS BUILT IN 1927, PROVIDES 9144 CLEAR ROADWAY AND WAS DESIGNED FOR H-15 LOADING.

EXISTING CURVE DATA

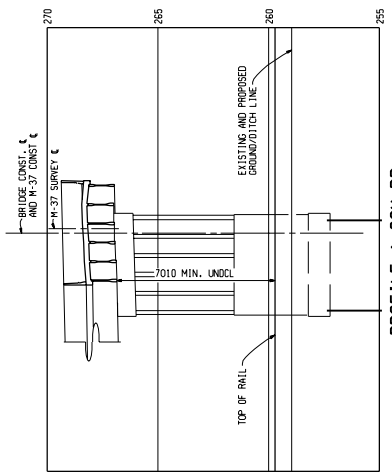
EX. M-37 SURVEY & SPIRAL CURVE DATA
Δ 90°39'57" RT
R 174,859 m
L 176,303 m
L+ 276,701 m
E 73,879 m
PC 103+132.691
PT 103+309.595
PI 103+409.392

PROPOSED CURVE DATA	
PROP. M-37 SURVEY & SPIRAL CURVE DATA	PROP. WHITE RD. & CURVE DATA
Δ +06°09'06" RT	Δ +68°18'57" RT
L 150,000 m	R 122,85 m
K 124,991 m	T 192,848 m
P 10,447 m	L 265,443 m
L1 33,254 m	E 154,564 m
S1 16,685 m	SC 03+085.482
TS 03+035.482	PICC 03+227.845
P15 03+068.836	PT 03+350.925
SC 03+085.482	SUPER 7.0 %

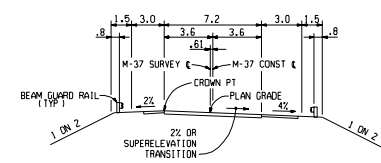
NO.	DESCRIPTION	REVISION	DATE	BY



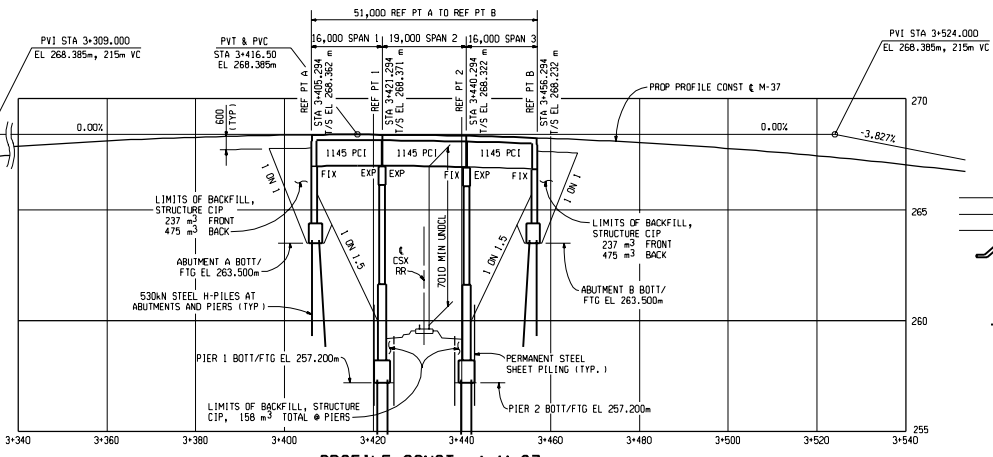
SITUATION PLAN
SCALE - 1:500



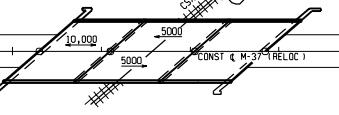
PROFILE & CSX RR
VERT. SCALE - 1:200
HOR. SCALE - 1:500



TYPICAL APPROACH SECTION
VIEWED LOOKING UP-STATION
(DIMENSIONS SHOWN ARE IN METERS)



PROFILE CONST. & M-37
VERT. SCALE - 1:200, HOR. SCALE - 1:500



2018 ESTIMATED TRAFFIC DISTRIBUTION

NOTES:

- THE WORK COVERED BY THESE PLANS INCLUDES REMOVAL OF THE EXISTING BRIDGE, CONSTRUCTION OF THE PROPOSED BRIDGE AND PLACING SLOPE PROTECTION TO THE LIMITS SHOWN. * ALL OTHER WORK IS INCLUDED IN THE ROAD PLANS THAT ARE A PART OF THIS CONTRACT.
- THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
- THE GROUND ADJACENT TO THE TRACKS AND STRUCTURE SHALL BE GRADED BY THE CONTRACTOR TO PROVIDE DRAINAGE.
- M-37 TRAFFIC IS TO BE DETOURED OVER EXISTING ROADS FOR THE DURATION OF THIS PROJECT.
- THE TRAIN MOVEMENT AND SPEED INFORMATION SHOWN IN THE PROPOSAL DOES NOT REPRESENT A COMMITMENT BY THE CSX RAILROAD AND IS SUBJECT TO CHANGE WITHOUT NOTICE.

APPROVED _____ DESIGN SUPERVISING ENGINEER



GENERAL PLAN OF SITE
M-37 OVER CSX R.R., 1.6 km SOUTH OF BAILEY

DATE	CONT. SEC.	DESIGN UNIT	SHEET

RO1 OF 85030 98765A THOMAS 2 OF 47

12.3.5.5.7.8.9.10.11.12.13.14.15.16.17.18.19.20.21.22.23.24.25.26.27.28.29.30.31.32.33.34.35.36.37.38.39.40.41.42.43.44.45.46.47.48.49.50.51.52.53.54.55.56.57.58.59.60.61.62.63

DRAWN BY: _____ CHECKED BY: _____ DATE: _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

NB CONST & DATA

PI # = 2
 P1: 9+295.377
 $\Delta = 40^\circ 13' 29''$ RT
 T: 522.099
 L: 1000.563
 R: 1425.753
 PC: +8+773.278
 PT: -9+774.232

SURVEY NOTES

ALIGNMENT OF NB AND SB ROADWAYS WAS DETERMINED GEOMETRICALLY, UTILIZING A LOCAL COORDINATE SYSTEM. BOTH NB AND SB BRIDGES WERE ASSIGNED SEPARATE STATIONING.

ELEVATION CONTROL WAS BASED UPON EXISTING BRIDGE SEAT ELEVATIONS. ELEVATION CONVERSIONS ARE DIRECT AND CALCULATED BY THE FOLLOWING FORMULA (ENGLISH ELEV. x .3048 = METRIC ELEV.)

EXISTING STRUCTURE

42.36 m (13 SPAN)
 STEEL "M" BEAM
 BUILT IN 1962
 4.91 m CLEARANCE OVER NICHOLS ROAD

BENCH MARKS

B.M.#1 TOP OF NW ABUTMENT	ELEV. 293.895
B.M.#2 TOP OF SW ABUTMENT	ELEV. 293.196
B.M.#3 TOP OF SE ABUTMENT	ELEV. 293.011
B.M.#4 TOP OF NE ABUTMENT	ELEV. 293.766

UTILITIES

294 mm WATER MAIN - 4m TO 5m EAST OF \angle OF NICHOLS RD - CITY OF KALAMAZOO

OVERHEAD ELECTRICAL POWER LINE - EAST OF NICHOLS RD - CONSUMERS ENERGY

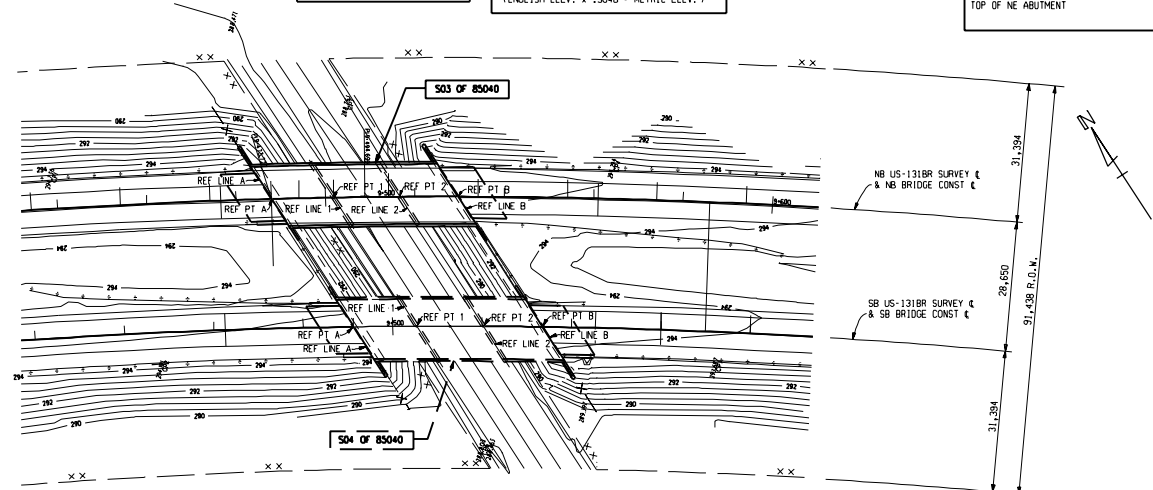
PHONE CABLE - 9 m TO 12 m WEST OF \angle OF NICHOLS RD - AMERITECH

FIBER OPTIC CABLE - 12 m WEST OF \angle OF NICHOLS RD - AMERITECH

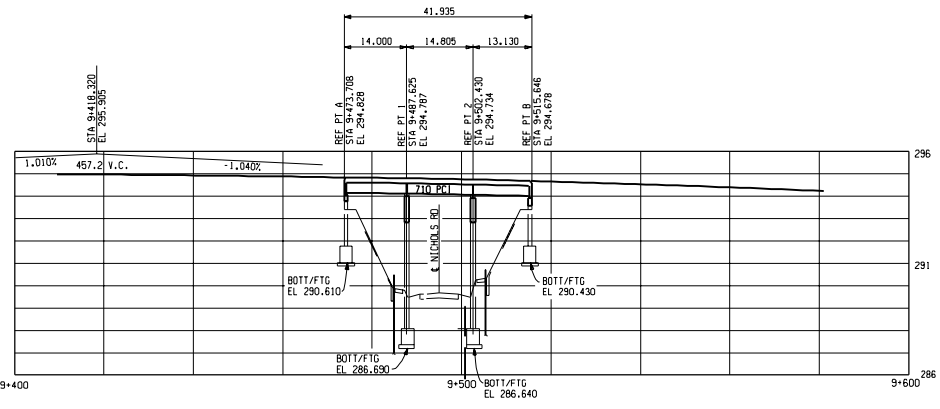
CATV CABLE - .5 m TO .6 m INSIDE EAST EXISTING GUARDRAIL ON NICHOLS RD - ALLEGAN CABLEVISION

152 mm NATURAL GAS MAIN - 9 m WEST OF \angle OF NICHOLS RD - CONSUMERS ENERGY

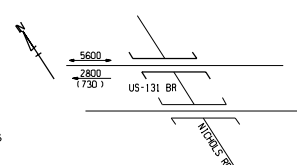
REVISIONS			
NO.	DESCRIPTION	DATE	BY



SITUATION PLAN
SCALE - 1:500



N.B. US-131 PROFILE
VERT. SCALE - 1:200
HOR. SCALE - 1:500



2010 ESTIMATED TRAFFIC DISTRIBUTION

0000 AVERAGE DAILY TRAFFIC
 (000) DESIGN HOURLY VOLUME
 % COMMERCIAL
 -> DIRECTIONAL TRAFFIC
 ->-> TOTAL TRAFFIC

NOTES:

- THE WORK COVERED BY THESE PLANS INCLUDES REPLACING THE SUPERSTRUCTURE, WIDENING THE BRIDGE, RECONSTRUCTION OF PORTIONS OF SUBSTRUCTURE, RECONSTRUCTION OF APPROACH ROADWAY AND STAGING TRAFFIC.
- THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
- US-131BR TRAFFIC IS TO BE MAINTAINED OVER THE BRIDGE BY PART-WIDTH CONSTRUCTION.
- PROPOSED PLAN DATUM IS THE SAME AS EXISTING PLAN DATUM.
- NICHOLS ROAD TRAFFIC IS TO BE MAINTAINED UTILIZING A FLAGGING OPERATION AND TRAFFIC SHIFTS. THE EXISTING SIDEWALK WILL BE CLOSED TO PEDESTRIAN TRAFFIC DURING CONSTRUCTION.
- MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE DURING REMOVAL OF THE SLAB AND BOLSTERS.



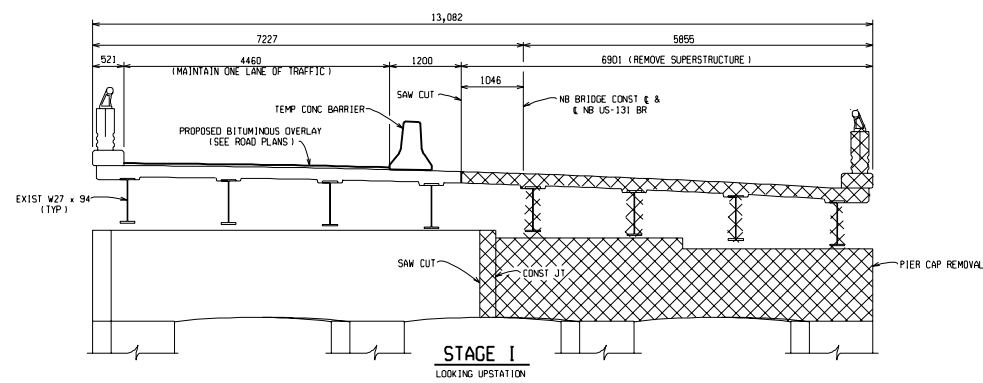
GENERAL PLAN OF SITE			
NB US-131 BR OVER NICHOLS ROAD			
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT
SO3 OF 85040		98765A	MILLER
			SHEET 4 OF 47

APPROVED _____
DESIGN SUPERVISING ENGINEER

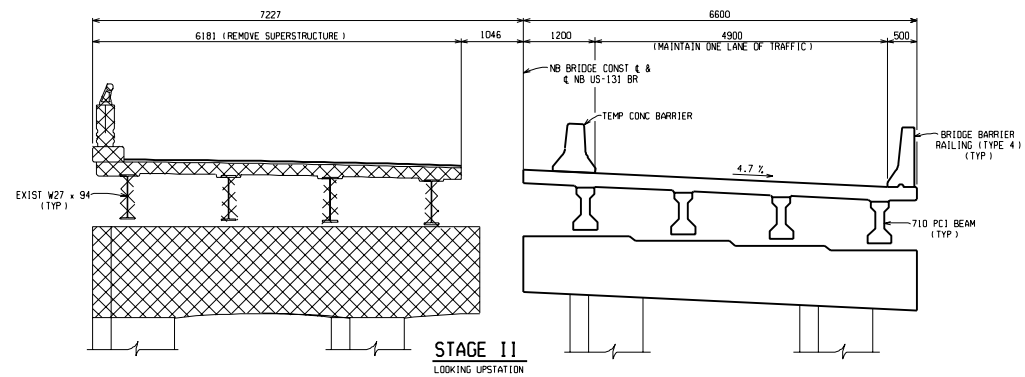
DATE: _____
CORRECTED BY: _____
DATE: _____
DRAWN BY: _____

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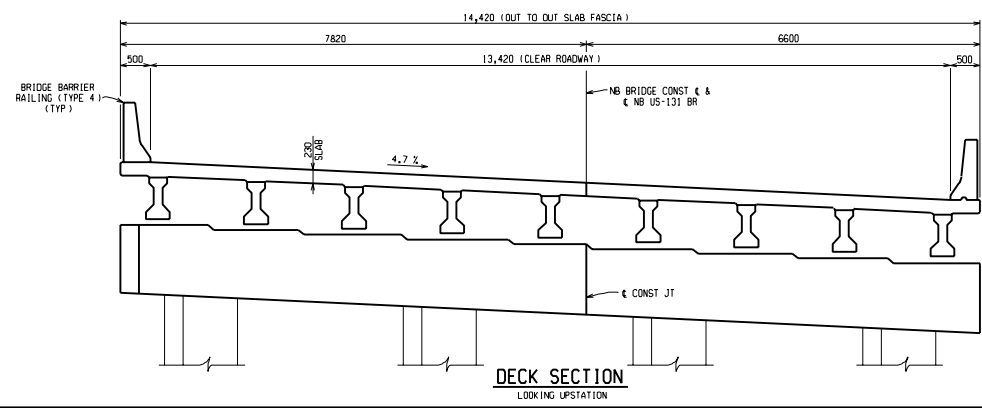
REVISIONS			
NO.	DESCRIPTION	DATE	BY



STAGE I
LOOKING UPSTATION



STAGE II
LOOKING UPSTATION



DECK SECTION
LOOKING UPSTATION

NOTES:

- PLACEMENT OF TEMPORARY CONCRETE BARRIER SHALL BE IN ACCORDANCE WITH STANDARD PLAN R-126-A.
- US-131 TRAFFIC IS TO BE MAINTAINED OVER THE BRIDGE BY PART WIDTH CONSTRUCTION.
- STAGE I**
1. PLACE TEMPORARY BARRIER AND MAINTAIN ONE LANE OF TRAFFIC ON OUTSIDE OF BRIDGE.
 2. REMOVE MEDIAN SIDE OF SUPERSTRUCTURE AND PORTIONS OF SUBSTRUCTURE. RECONSTRUCT MEDIAN SIDE SUPERSTRUCTURE AND PORTIONS OF SUBSTRUCTURE.
- STAGE II**
1. MOVE TEMPORARY BARRIER TO MAINTAIN ONE LANE OF TRAFFIC ON THE MEDIAN SIDE OF BRIDGE.
 2. REMOVE OUTSIDE OF SUPERSTRUCTURE AND PORTIONS OF SUBSTRUCTURE. RECONSTRUCT OUTSIDE SUPERSTRUCTURE AND PORTIONS OF SUBSTRUCTURE.



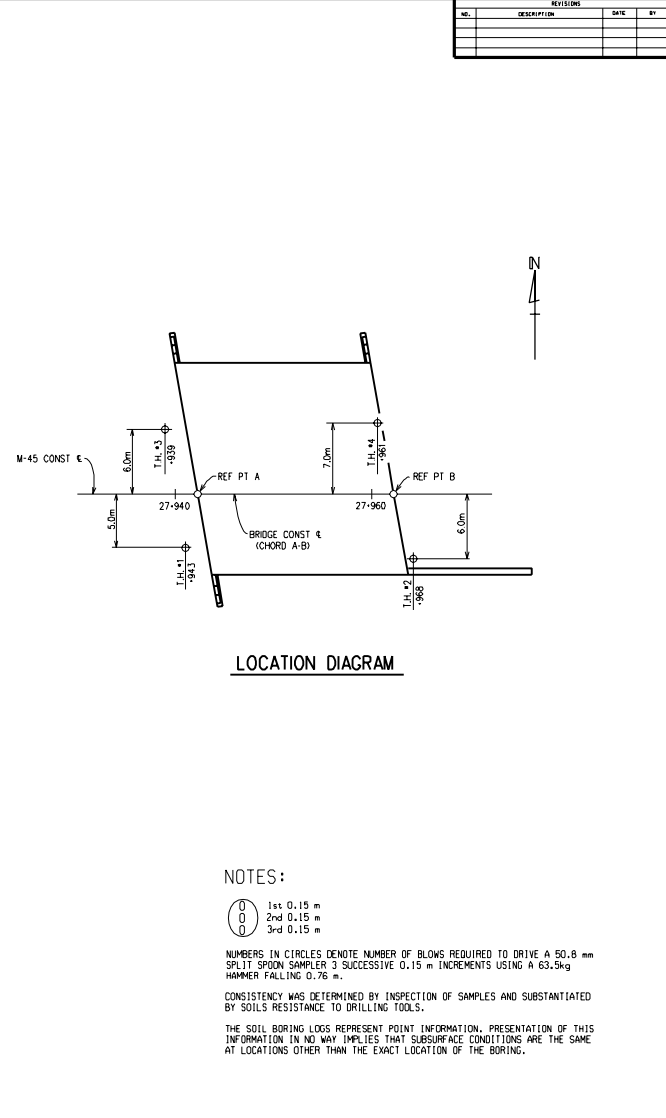
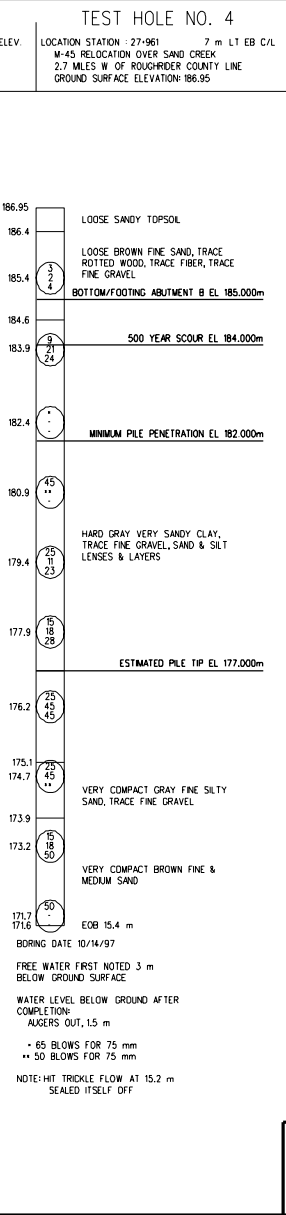
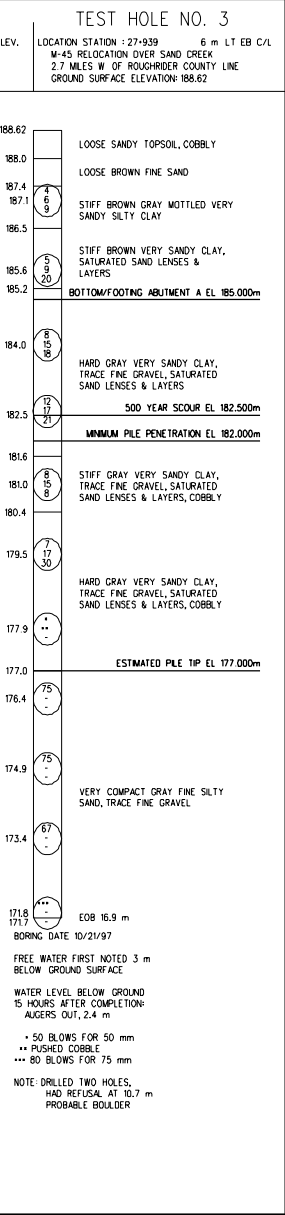
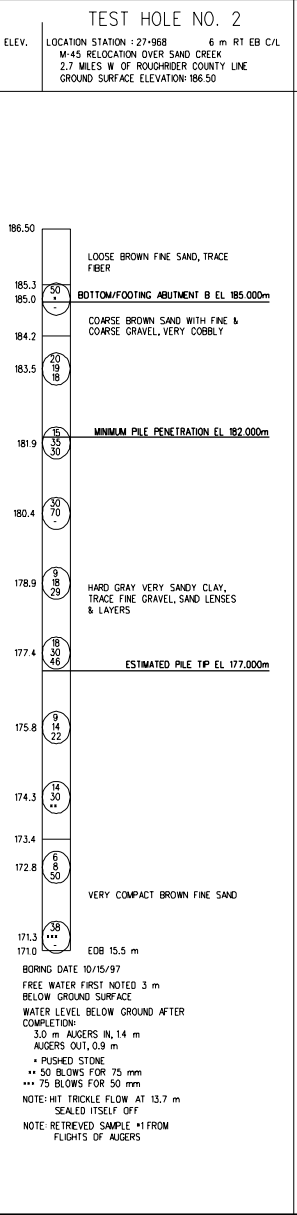
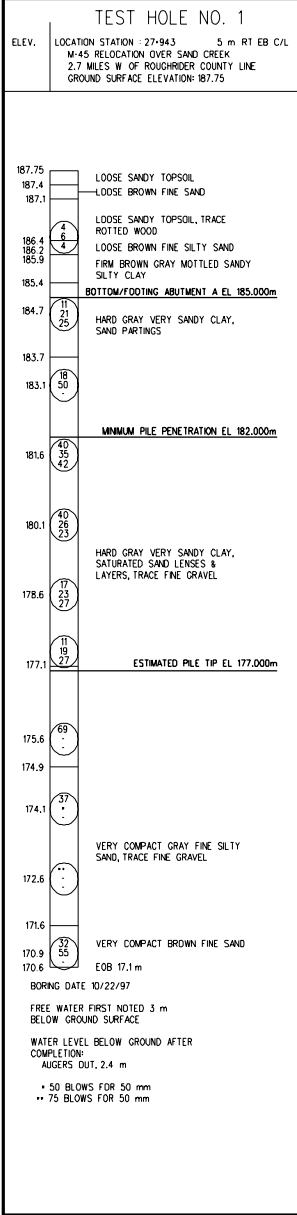
CONSTRUCTION STAGING (NB - US-31)

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85040	98765A	MILLER	5 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

REVISIONS			
NO.	DESCRIPTION	DATE	BY



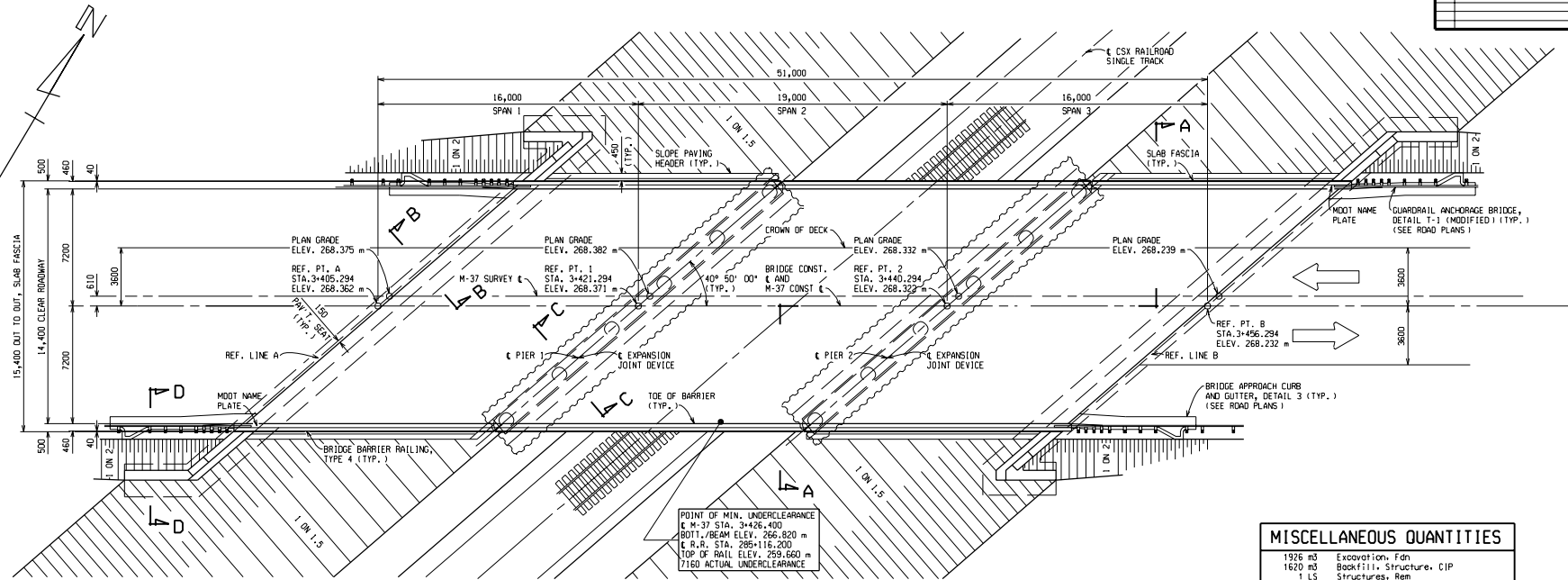
SOIL BORING DATA

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	B03 OF 85035	98765A	TAYLOR	6 OF 47

DRAWN BY: DATE: CORRECTED BY: DATE: FILE NAME: B03B035-061

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

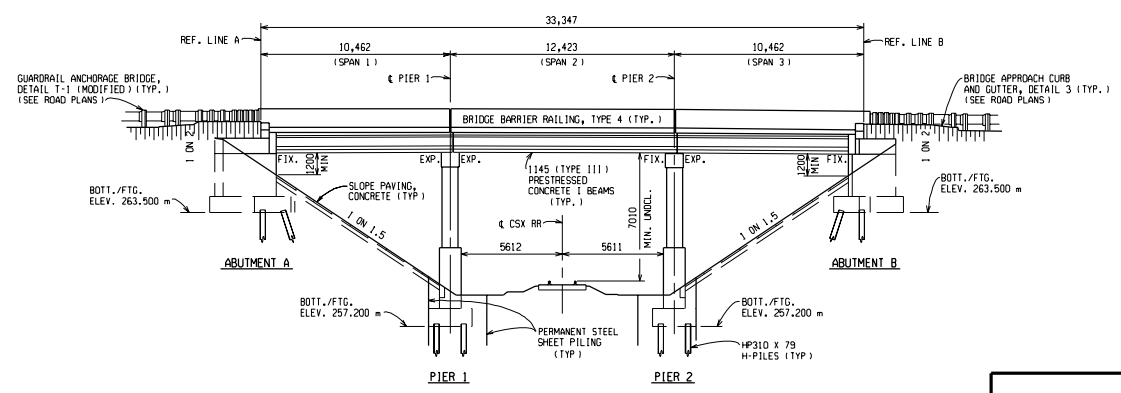
REVISIONS			
NO.	DESCRIPTION	DATE	BY



POINT OF MIN. UNDERCLEARANCE
 @ M-37 STA. 3+426.400
 @ R.R. STA. 285+116.200
 TOP OF RAIL ELEV. 299.660 m
 7160 ACTUAL UNDERCLEARANCE

MISCELLANEOUS QUANTITIES	
1926 m ³	Excavation, Fdn
1920 m ³	Backfill, Structure, CIP
1 LS	Structures, Rem
440 m ²	False Decking
525 m ²	Steel Sheet Piling, Permanent
433 m ²	Slope Paving, Conc
56 m	Slope Paving Header

PLAN



ELEVATION
 1 TO CSX RR

NOTES:

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

FOR DETAILS OF SLOPE PROTECTION, SEE STANDARD B-102.

PERMANENT STEEL SHEET PILING SHALL HAVE A SECTION MODULUS GREATER THAN OR EQUAL TO 973,000 mm³/m OF WALL.

PERMANENT STEEL SHEET PILING SHALL HAVE A TOE ELEVATION NO HIGHER THAN 295.100 m.

FALSE DECKING SHOULD INCLUDE THE AREA OF SPAN 2 OVER THE TRAVEL WAY AND SHOULDERS. THE ESTIMATED AREA IS 220 SQUARE METERS DURING REMOVAL AND 220 SQUARE METERS DURING PROPOSED CONSTRUCTION.

APPROVED _____
 DESIGN SUPERVISING ENGINEER



GENERAL PLAN OF STRUCTURE			
M-37 OVER CSX R.R., 1.6 km SOUTH OF BAILEY			
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT

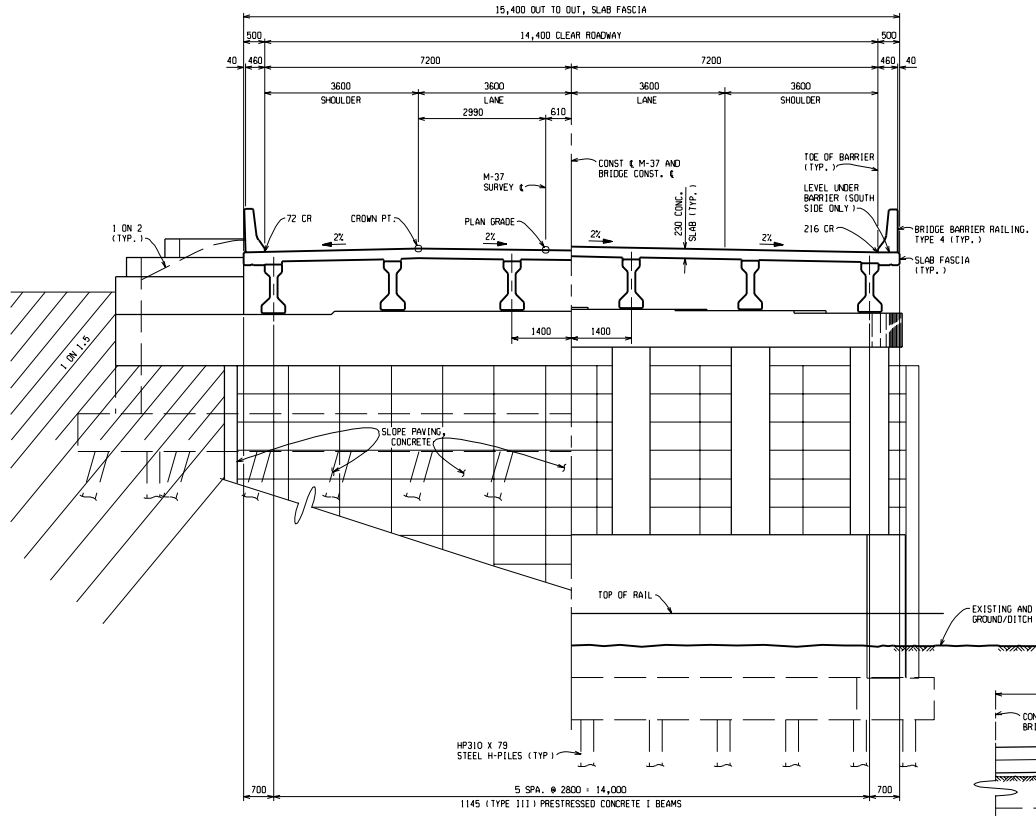
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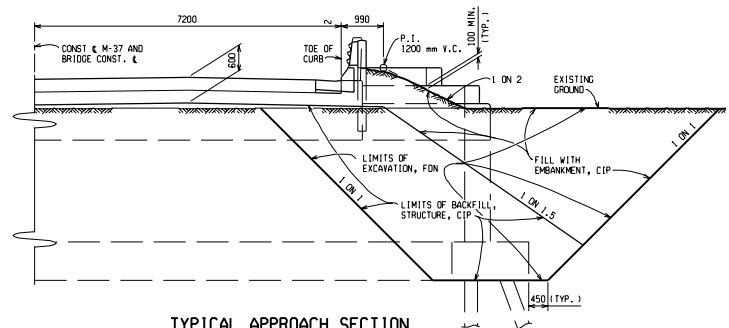
SHEET
 7 OF 47

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

REVISIONS			
NO.	DESCRIPTION	DATE	BY



SECTION A-A
VIEWED LOOKING UP-STATION
NOTE: PERMANENT STEEL SHEET PILING SURROUNDING THE PIER FOOTING IS NOT SHOWN.



TYPICAL APPROACH SECTION

M-37 OVER CSX R.R., 1.6 km SOUTH OF BAILEY

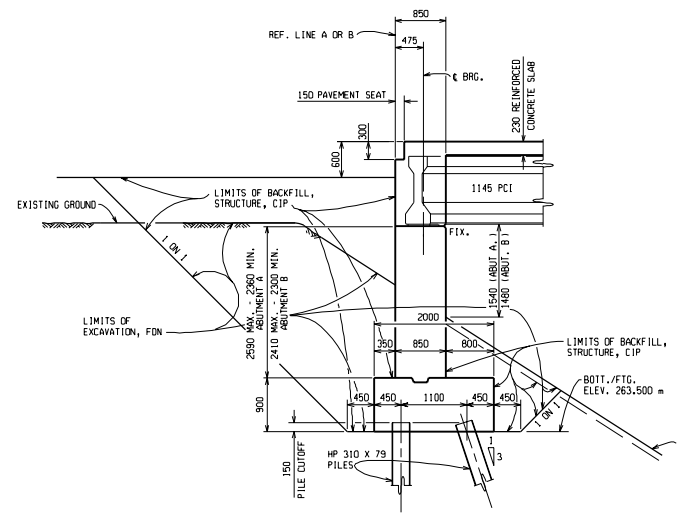
	GENERAL PLAN OF STRUCTURE			
	M-37 OVER CSX R.R., 1.6 km SOUTH OF BAILEY			
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	RO1 OF 85030	98765A	THOMAS	8 OF 47

APPROVED _____
DESIGN SUPERVISING ENGINEER

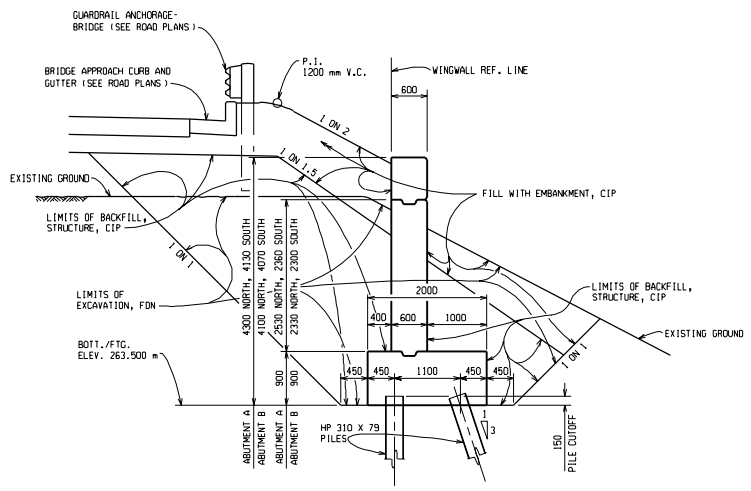
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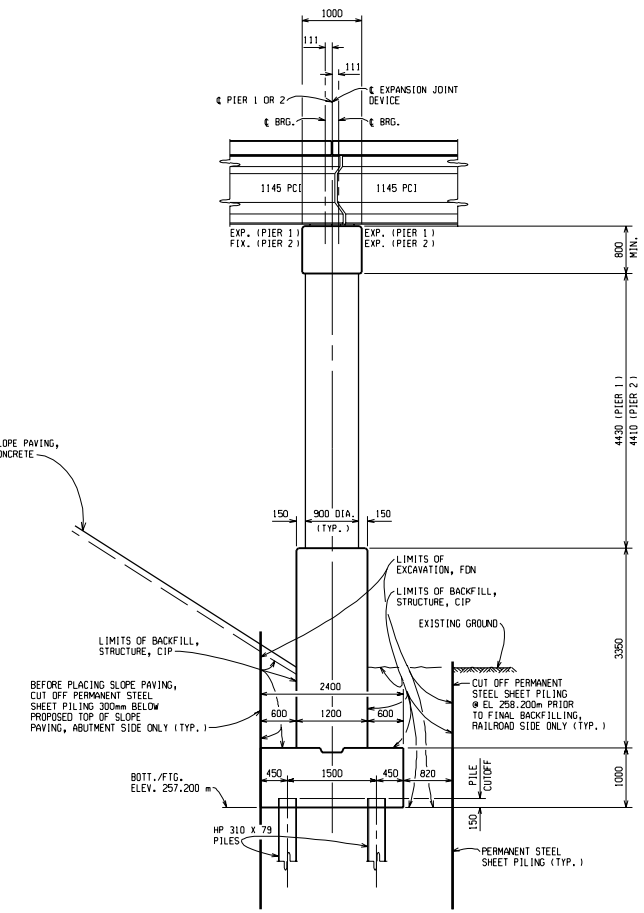
REVISIONS			
NO.	DESCRIPTION	DATE	BY



SECTION B-B



SECTION D-D



SECTION C-C

APPROVED _____
DESIGN SUPERVISING ENGINEER



GENERAL PLAN OF STRUCTURE
M-37 OVER R.R., 1.6 km SOUTH OF BAILEY

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	RO1 OF 85030	98765A	THOMAS	9 OF 47

FILE NAME: r0185030.dwg
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CHECKED BY: _____
DATE: _____
DATE: _____
DATE: _____

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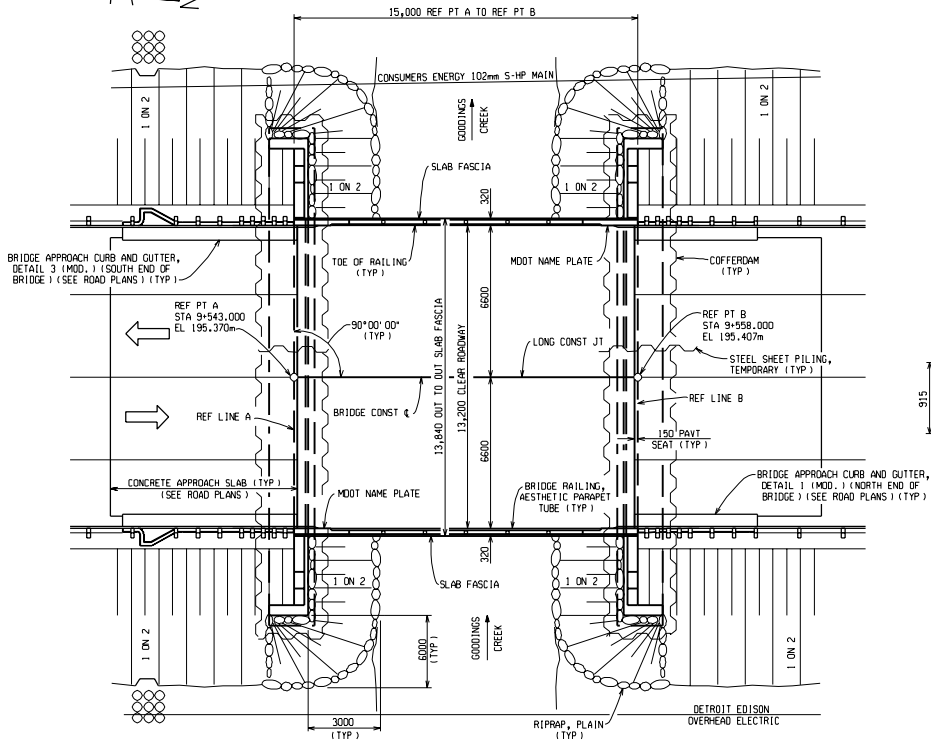
REVISIONS			
NO.	DESCRIPTION	DATE	BY

SUMMARY OF HYDRAULIC ANALYSIS							
FLOOD DATA	DIS. CHARGE (cm)	EXISTING			PROPOSED		
		WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (m)	VELOCITY AT D/S FACE (m/s)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (m)	VELOCITY AT D/S FACE (m/s)	WATERWAY AREA (sq. m) AT D/S FACE	CHANGE IN WSEL IN U/S OF PROPOSED STRUCTURE (m)
50 YEAR	31.2	194.64	1.49	194.61	1.00	31.64	-0.09
100 YEAR	42.5	195.07	1.84	194.99	1.20	36.03	-0.16

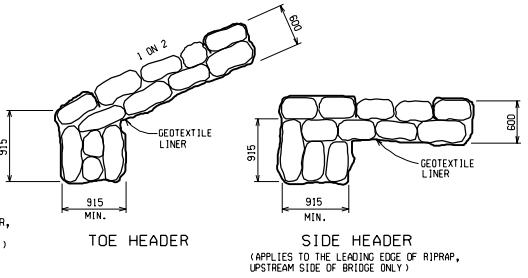
MAXIMUM BRIDGE AREA BELOW LOW CHORD IS 30 SQUARE METERS

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN. THE ELEVATIONS MAY BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

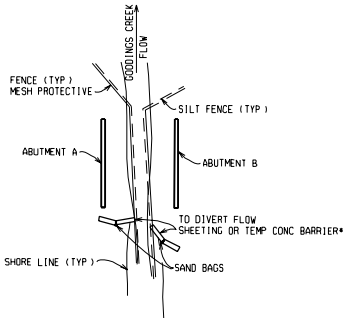
MISCELLANEOUS QUANTITIES	
300 m ³	Backfill, Structure, CIP
1 LS	Structures, Rem
1 LS	Cofferdam
2 m ³	Erosion Control, Filter Bag
735 m ³	Excavation, Fan
290 m ³	Riprap, Plain
330 m ³	False Decking
33 m ³	Steel Sheet Piling, Temp



PLAN

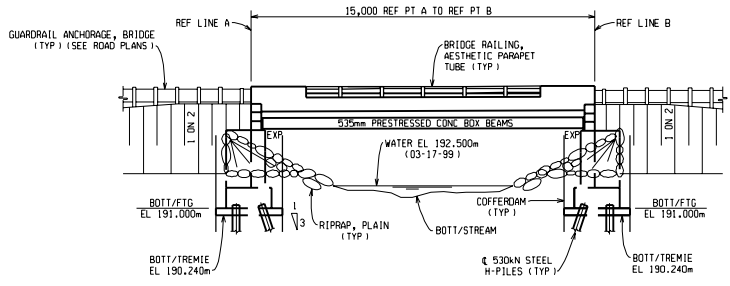


RIPRAP HEADER DETAILS



PLAN OF PROPOSED DIVERSION FOR PLACING RIPRAP

THIS WORK SHALL BE INCLUDED IN THE PAYMENT FOR RIPRAP, PLAIN. *IF WATER IS SHALLOWER THAN 0.6 METERS, TEMP CONC BARRIER OR SANDBAGS CAN BE USED TO DIVERT FLOW. ALTERNATE METHODS OF STREAM DIVERSION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.



ELEVATION

NOTES:

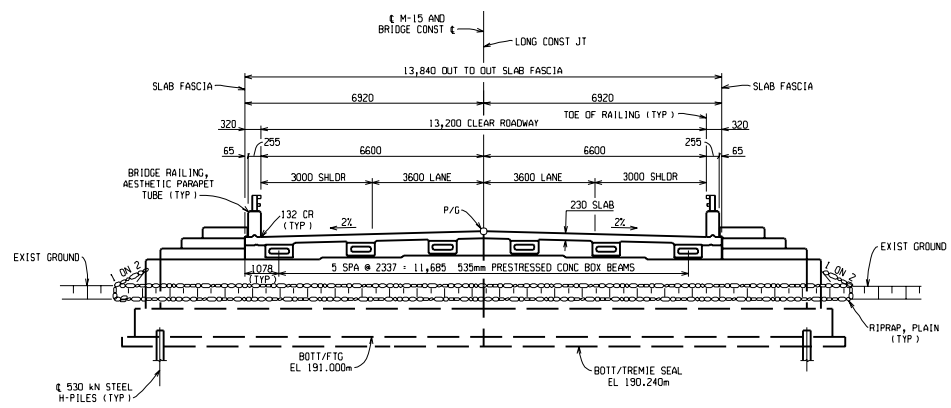
- THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.
- THE COFFERDAM SHEETING AND BRACING MUST INSURE SUPPORT OF THE IN SERVICE PORTION OF THE EXISTING STRUCTURE DURING THE FIRST STAGE OF CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO LOCATE THE BEARING ELEVATION OF THE EXISTING ABUTMENTS AND TO SUBMIT A COFFERDAM DESIGN WHICH HAS BEEN PREPARED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF MICHIGAN.
- THE TREMIE SEAL DESIGN WAS BASED ON A WATER SURFACE AT EL. 194.000m
- THE EXISTING STRUCTURE, PROVIDES A WATERWAY AREA OF 20.5 SQUARE METERS TO UNDERCLEARANCE ELEVATION 194.250m.
- WATER FROM THE DEWATERING OF THE COFFERDAM SHALL BE PUMPED INTO A FILTER BAG.
- THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED. THE ESTIMATED MASS OF RIPRAP IS 140 METRIC TONS.
- THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 77 SQUARE KILOMETERS.
- GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.
- FALSE DECKING SHOULD INCLUDE THE AREA OF SPAN 1 OVER THE TRAVEL WAY AND SHOULDERS. THE ESTIMATED AREA IS 110 SQUARE METERS DURING REMOVAL AND 220 SQUARE METERS DURING PROPOSED CONSTRUCTION.
- WITHOUT THE PREVENTIVE MEASURES SHOWN ON THESE PLANS, THERE IS A POSSIBILITY THAT STREAM BED SCOUR MAY OCCUR. THE ESTIMATED TOTAL SCOUR DEPTH IS CALCULATED TO BE 4.0m AT ABUTMENT A AND 4.5m AT ABUTMENT B. THESE DEPTHS ARE BASED ON A 100 YEAR RUNOFF EVENT.
- EXCAVATED FOUNDATION MATERIAL SHALL BE PLACED IN AN UPLAND AREA.

	GENERAL PLAN OF STRUCTURE			
	M-15 OVER GOODINGS CREEK, 1.2 km SOUTH OF VASSAR			
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
BO1	OF 85045	98765A	THOMAS	10 OF 47

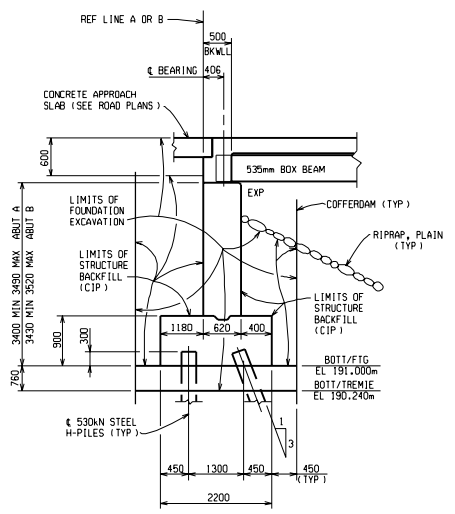
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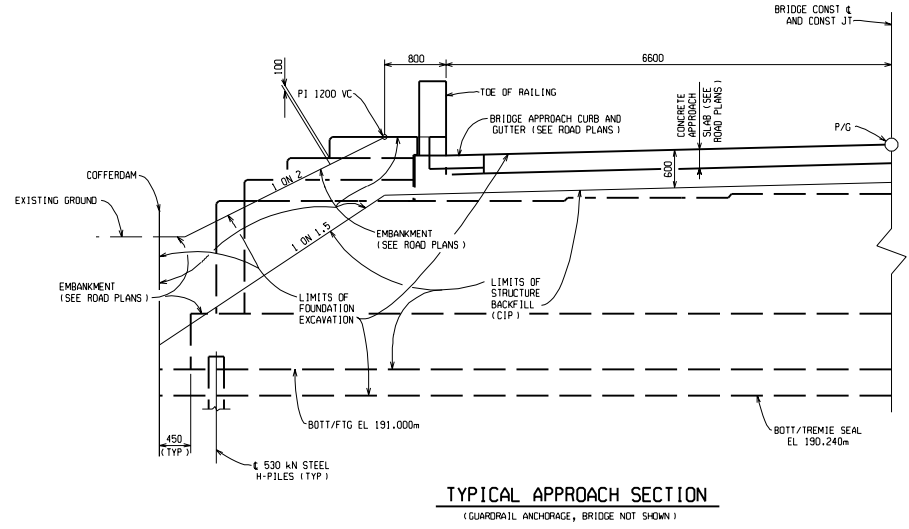
REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION
(LOOKING UPSTATION)



TYPICAL ABUTMENT SECTION



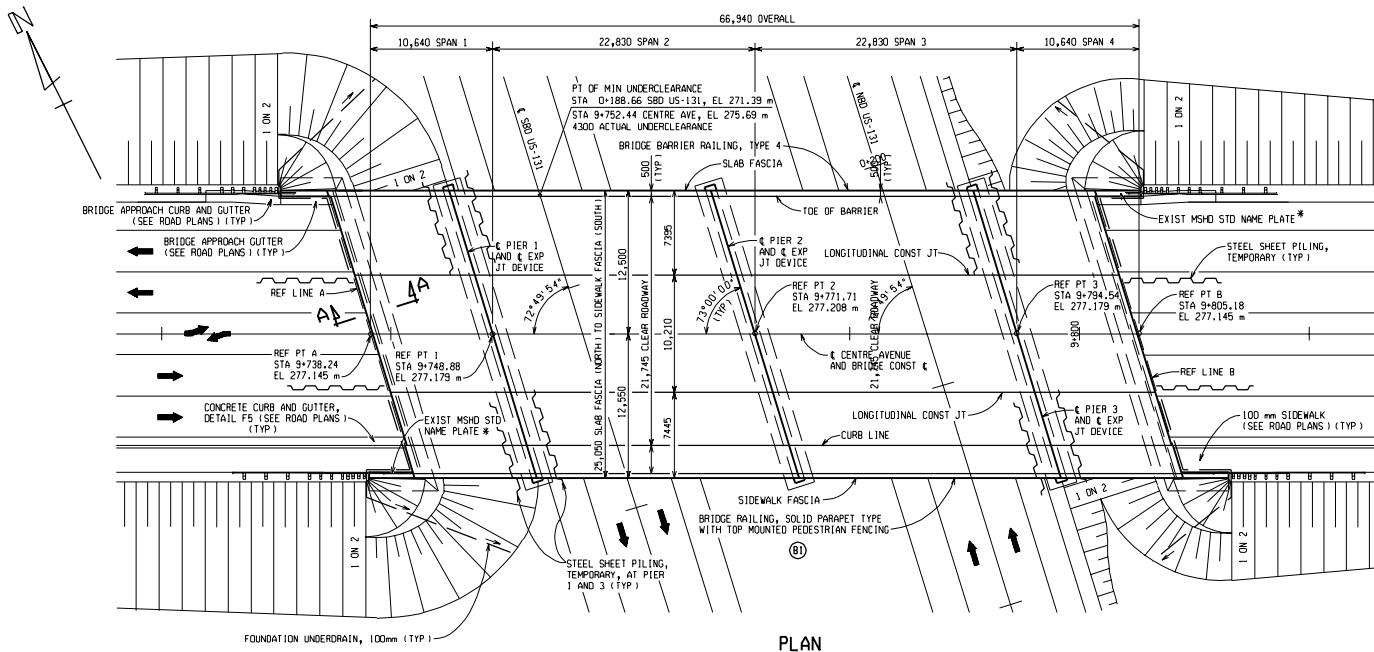
TYPICAL APPROACH SECTION
(GUARDRAIL ANCHORAGE, BRIDGE NOT SHOWN)

	GENERAL PLAN OF STRUCTURE			
	M-15 OVER GOODINGS CREEK, 1.2 km SOUTH OF VASSAR			
	DATE	CONT. SEC.	JOB NO.	DESIGN UNIT
	BO1 OF 85045	98765A	THOMAS	SHEET 11 OF 47

DRAWN BY: DATE: CORRECTED BY: DATE: CHECKED BY: DATE:

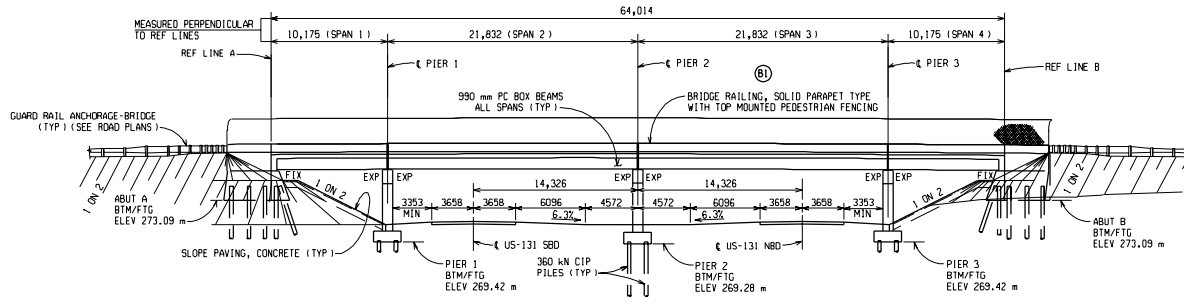
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REVISIONS			
NO.	DESCRIPTION	DATE	BY



* SALVAGE THE EXIST MSHD STD NAME PLATE DURING REMOVAL, AND REMOUNT ON BRIDGE BARRIER RAILING, TYPE 4, NOT PAID FOR SEPARATELY BUT INCLUDED IN PAYMENT FOR 'STRUCTURES, REHABILITATION, REMOVE PORTIONS'.

MISCELLANEOUS QUANTITIES		
1	LUMP SUM	STRUCTURES, REHABILITATION, REMOVE PORTIONS
205	m ³	EMBANKMENT (CIP)
99	m	FOUNDATION UNDERDRAIN, 100mm
4	EACH	OUTLET ENDING, 100mm
437	m ³	EXCAVATION, FDN
1059	m ³	BACKFILL, STRUCTURE (CIP)
324	m ³	SLOPE PAVING, CONCRETE
95	m	SLOPE PAVING, BENDERS
145	m ²	STEEL SHEET PILING, TEMPORARY
1674	m ²	FALSE DECKING



NOTES:

THE REHABILITATION DESIGN IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS18 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH. THE LOAD FACTOR METHOD WAS USED FOR THIS DESIGN. THE ORIGINAL STRUCTURE WAS DESIGNED FOR H15-44 LOADING.

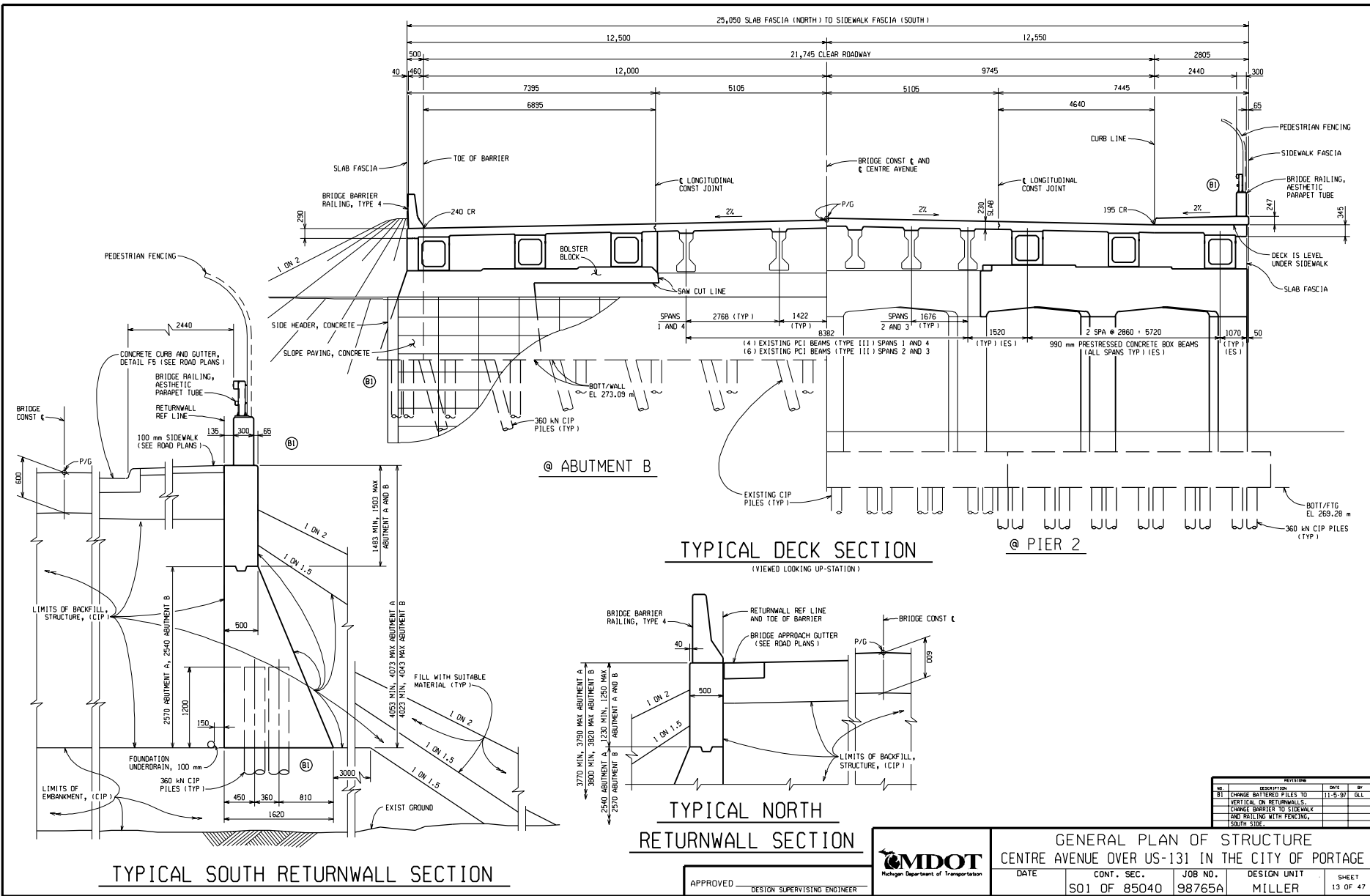
FOR DETAILS OF SLOPE PROTECTION, SEE STANDARD B-102.

ES DENOTES EACH SIDE.

 Michigan Department of Transportation	GENERAL PLAN OF STRUCTURE CENTRE AVENUE OVER US-131 IN THE CITY OF PORTAGE			
	DATE	CONT. SEC.	JOB NO.	DESIGN UNIT
APPROVED _____ DESIGN SUPERVISING ENGINEER	S01 OF 85040	98765A	MILLER	SHEET 12 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62



CHECKED BY: DATE: DRAWN BY: DATE:

NO	DESCRIPTION	DATE	BY
B1	CHANGE BATTERED PILES TO VERTICAL ON RETURNWALLS	11-5-97	GLL
	CHANGE BARRIER TO SIDEWALK AND RAILING WITH FENCING, SOUTH SIDE.		

MDOT
Michigan Department of Transportation

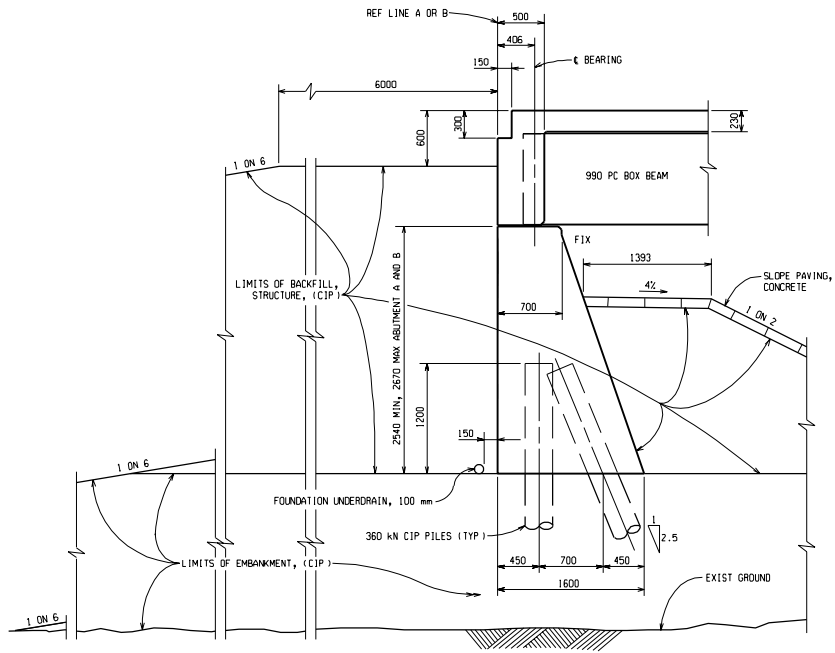
GENERAL PLAN OF STRUCTURE
CENTRE AVENUE OVER US-131 IN THE CITY OF PORTAGE

DATE: _____ CONT. SEC. S01 OF 85040 JOB NO. 98765A DESIGN UNIT MILLER SHEET 13 OF 47

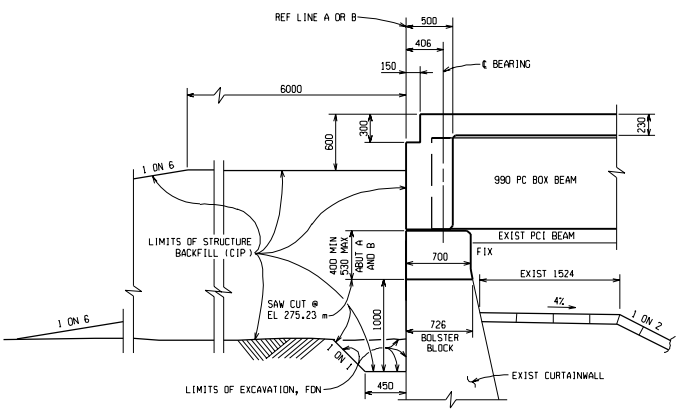
APPROVED _____ DESIGN SUPERVISING ENGINEER

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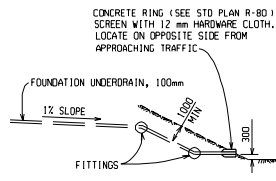
REVISIONS			
NO.	DESCRIPTION	DATE	BY



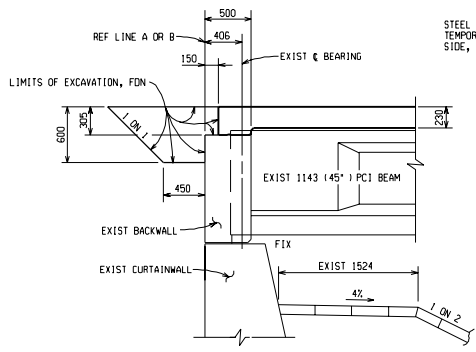
TYPICAL ABUTMENT EXTENSION SECTION



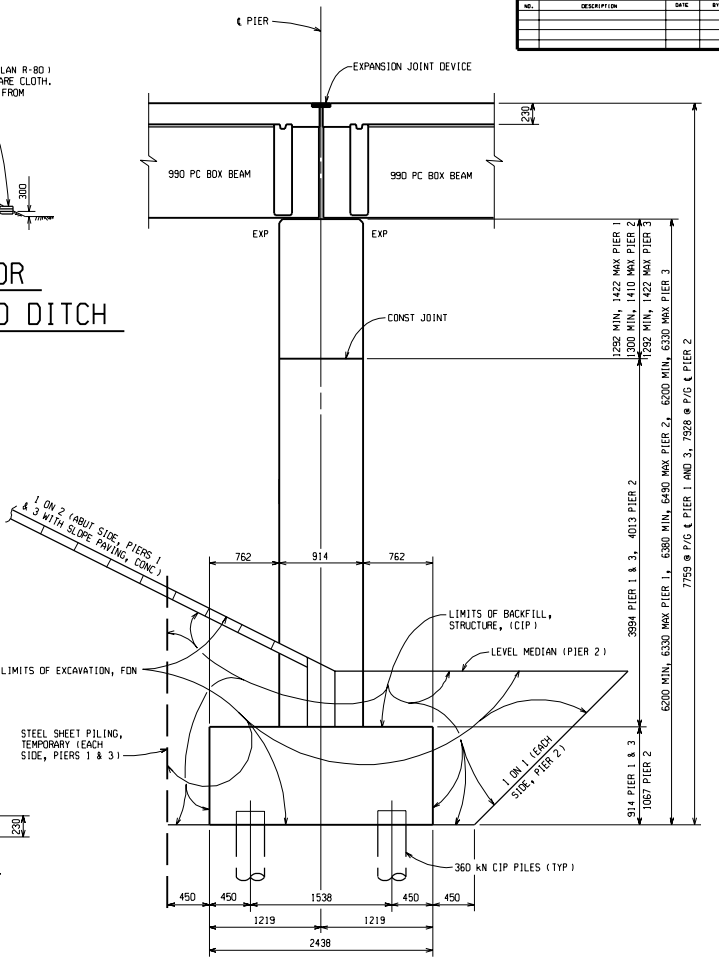
TYPICAL BOLSTER BLOCK SECTION



DETAIL FOR DRAINAGE INTO DITCH



SECTION A-A



TYPICAL PIER EXTENSION SECTION



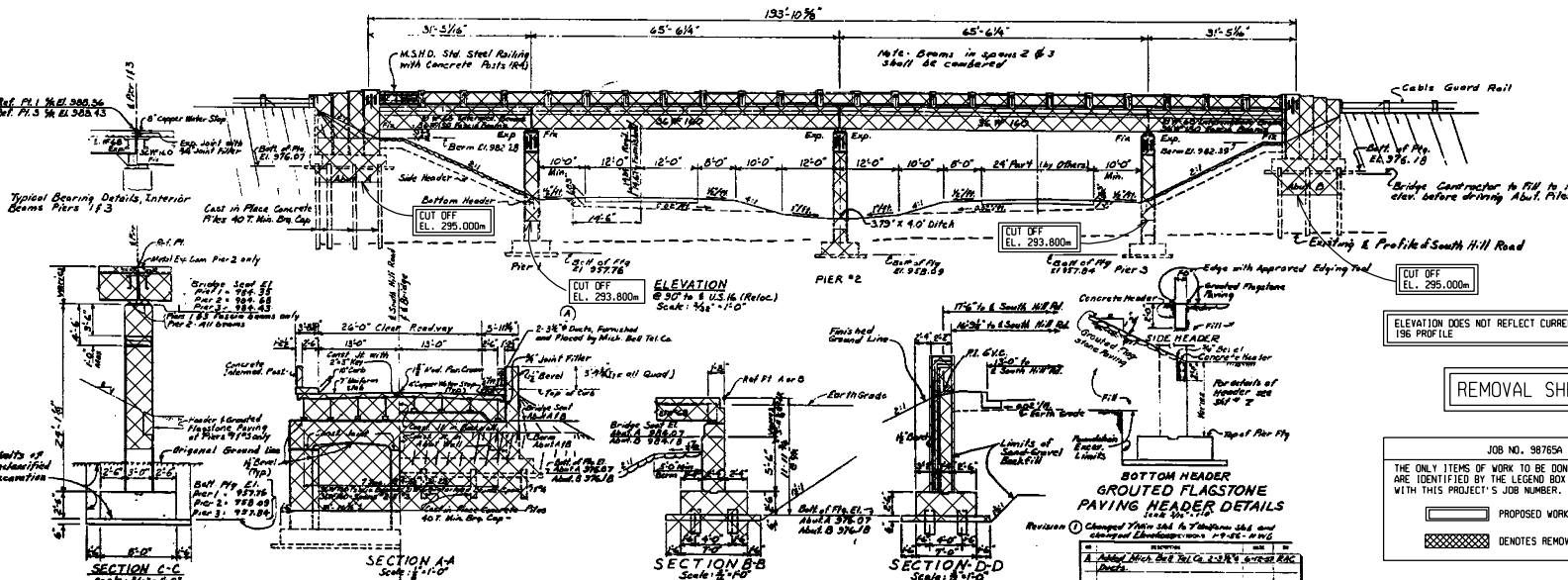
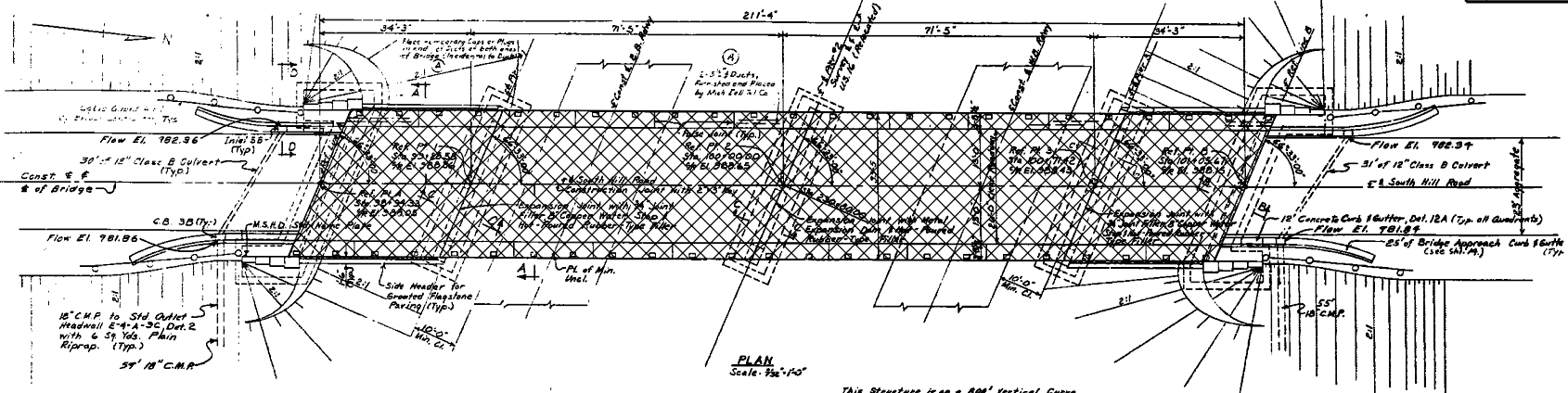
GENERAL PLAN OF STRUCTURE
CENTRE AVENUE OVER US-131 IN THE CITY OF PORTAGE

APPROVED _____ DESIGN SUPERVISING ENGINEER

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET

DATE: _____ CORRECTED BY: _____ DATE: _____ DRAWN BY: _____

NO.	DESCRIPTION	DATE	BY



ELEVATION DOES NOT REFLECT CURRENT 196 PROFILE

REMOVAL SHEET

JOB NO. 98765A

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED BY THE LEGEND BOX BELOW, LABELED WITH THIS PROJECT'S JOB NUMBER.

PROPOSED WORK

DENOTES REMOVAL PORTIONS



EXISTING GENERAL PLAN OF STRUCTURE (REMOVAL)
I-96 UN SOUTH HILL RD

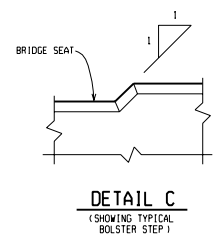
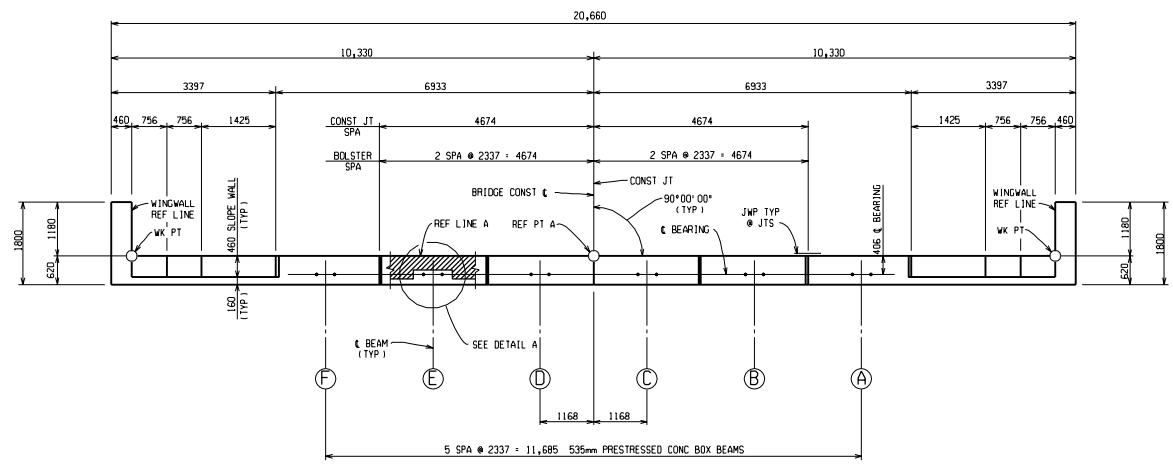
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	S03 OF 85055	98765A	TAYLOR	15 OF 47

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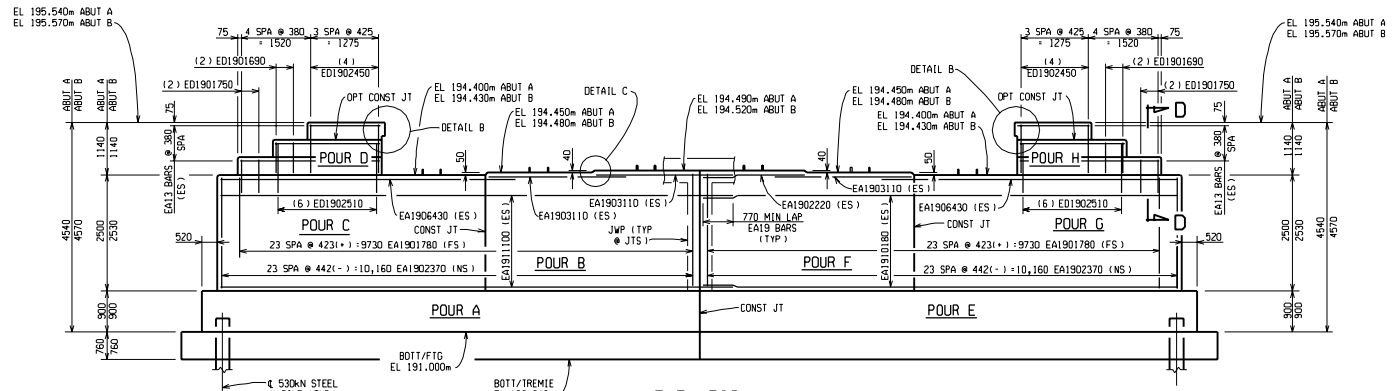
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REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF WALL
ABUTMENT A SHOWN ABUTMENT B
SIMILAR BY 180° ROTATION



ELEVATION
ABUTMENT A SHOWN ABUTMENT B
SIMILAR BY 180° ROTATION



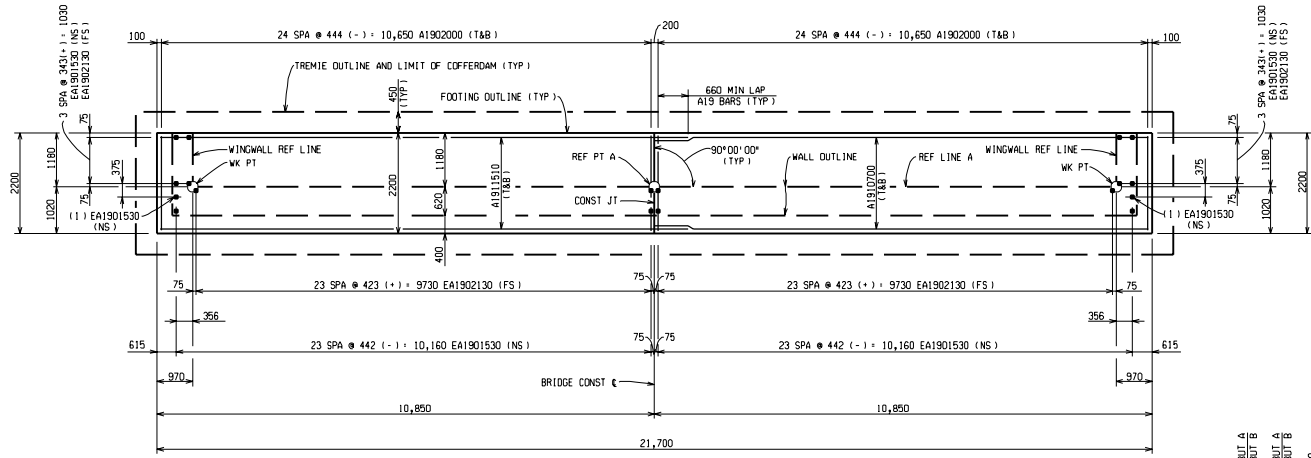
ABUTMENT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	BO1 OF 85045	98765A	THOMAS	16 OF 47

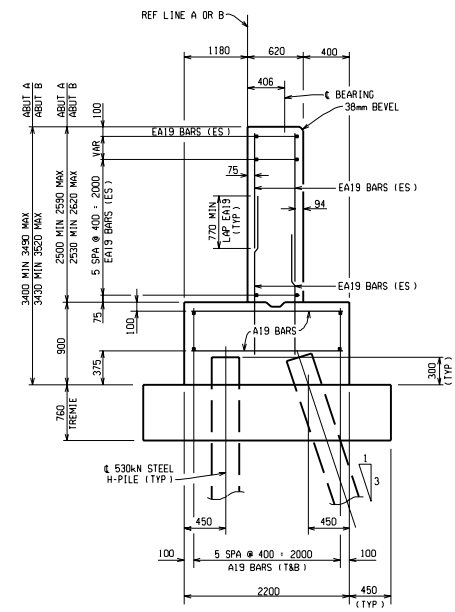
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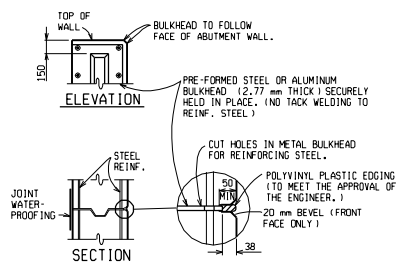
REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF FOOTING
 ABUTMENT A SHOWN ABUTMENT B
 SIMILAR BY 180° ROTATION

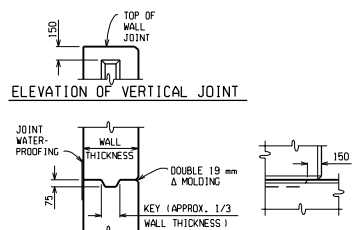


TYPICAL ABUTMENT SECTION



METAL BULKHEAD DETAILS

NOTES: METAL BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT AT CONTRACTOR'S EXPENSE. CARE IS TO BE USED IN CASTING CONCRETE TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.



CONSTRUCTION JOINT DETAILS

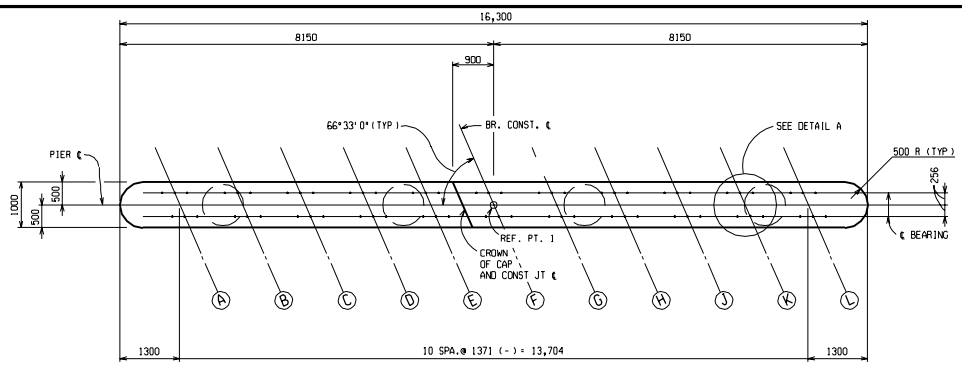
NOTE: WHERE OPTIONAL CONSTRUCTION JOINTS ARE USED, THERE WILL BE NO PAYMENT FOR THE REQUIRED JOINT WATERPROOFING.



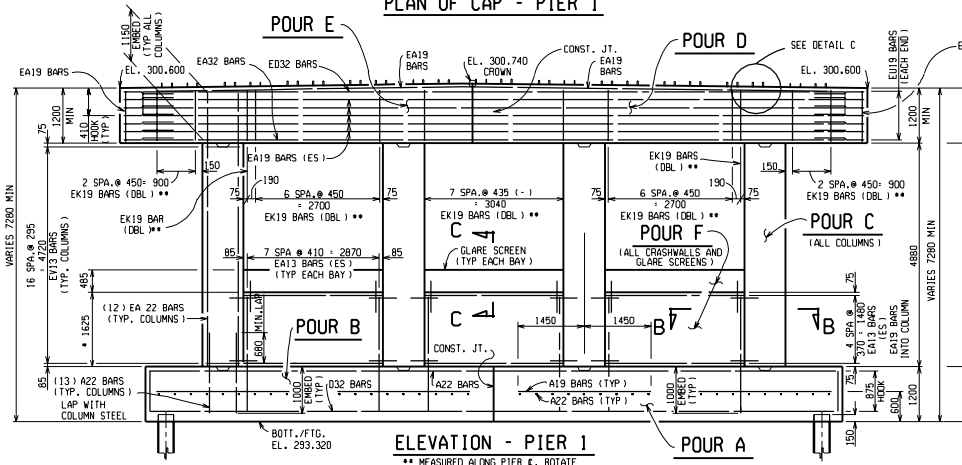
ABUTMENT DETAILS				
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET

DRAWN BY: DATE: CHECKED BY: DATE: REVISIONS

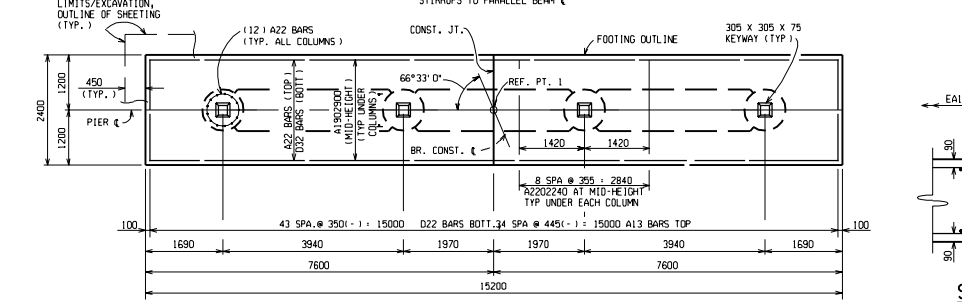
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PLAN OF CAP - PIER 1

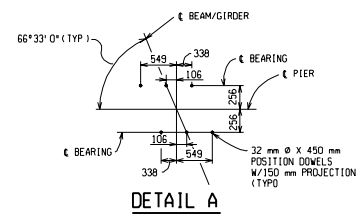


ELEVATION - PIER 1

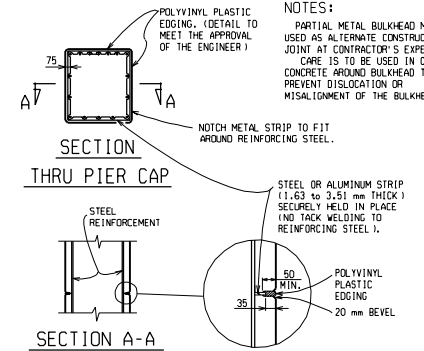


PLAN OF FOOTING - PIER 1

* HEIGHT IS ASSUMED, TOP OF CRASHWALL SHALL BE AT LEAST 1015mm ABOVE THE FINISHED SHOULDER ELEVATION AND SHALL MATCH THE MEDIAN BARRIER HEIGHT.



DETAIL A



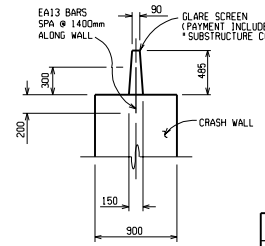
PARTIAL METAL BULKHEAD DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY

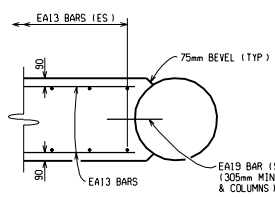
NOTES:
PARTIAL METAL BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT AT CONTRACTOR'S EXPENSE. CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SUBSTRUCTURE CONCRETE QUANTITIES	
POUR	PIER 1
A	22.0
B	22.0
C	12.7
D	10.0
E	10.0
F	13.3
GR TOTAL 90 CUBIC METERS	

MISCELLANEOUS QUANTITIES	
2305 kg	Reinforcement, Steel
3335 kg	Reinforcement, Steel, Epoxy Coated



SECTION C-C



SECTION B-B

END VIEW

NOTES:
ES DENOTES EACH SIDE.
FOR BEVEL AND MOLDING DETAILS, SEE STANDARD PLAN B-103-SERIES.
REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.



PIER DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET

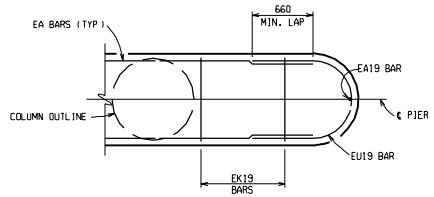
S03 OF 85055 98765A TAYLOR 19 OF 47

DRAWN BY: DATE: CORRECTED BY: DATE:

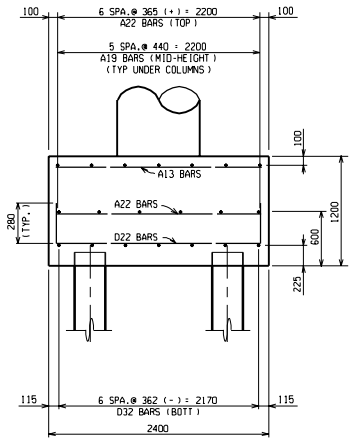
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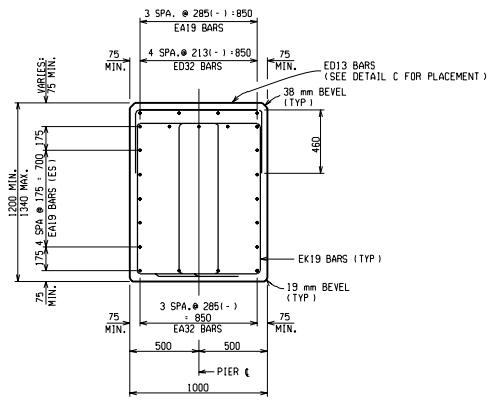
REVISIONS			
NO.	DESCRIPTION	DATE	BY



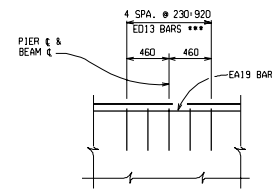
END OF CAP SECTION



SECTION THRU FOOTING

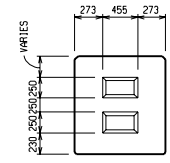


SECTION THRU CAP

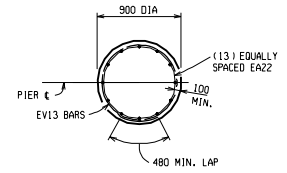


DETAIL C

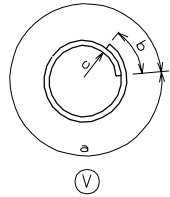
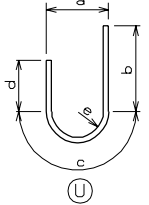
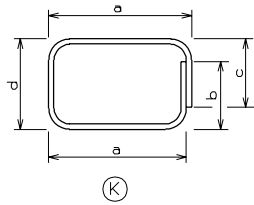
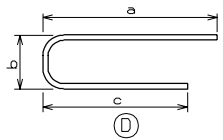
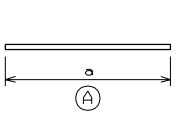
*** PLACE PERPENDICULAR TO PIER (TYP. @ BEAMS B THRU K)



CAP SHEAR KEY DETAIL



SECTION THRU COLUMN



MIN. LAP TABLE	
EA10 BARS	360
EA13 BARS	430
EA16 BARS	610
EA19 BARS	760



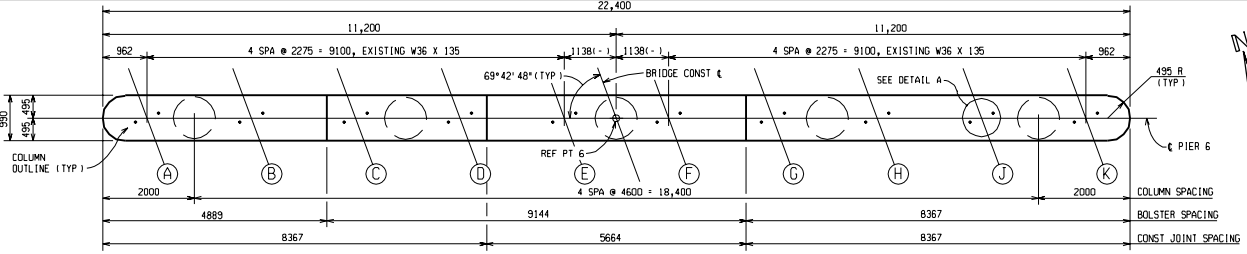
PIER DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85055	98765A	TAYLOR	20 OF 47

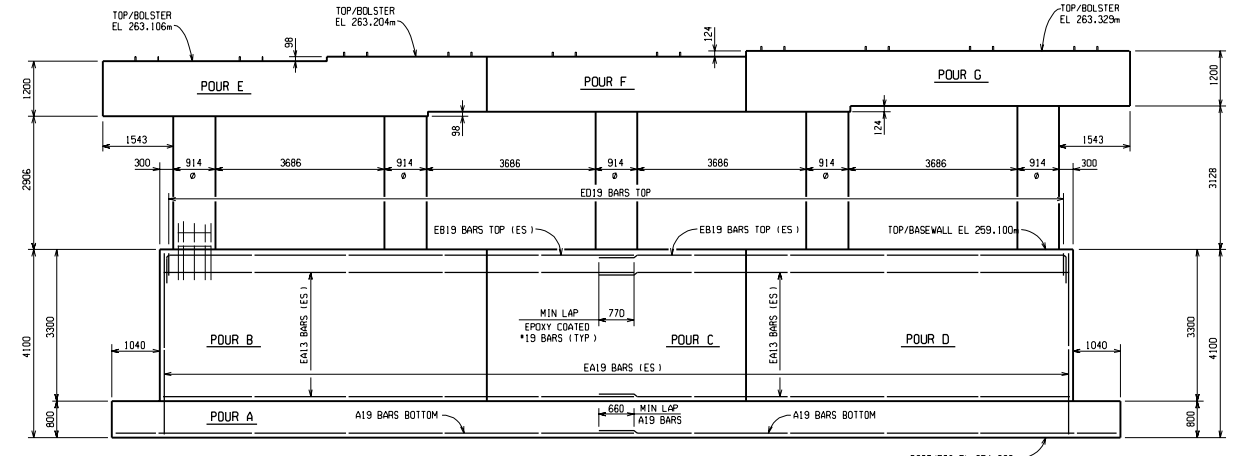
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FILE NAME: s:\0385055.pn

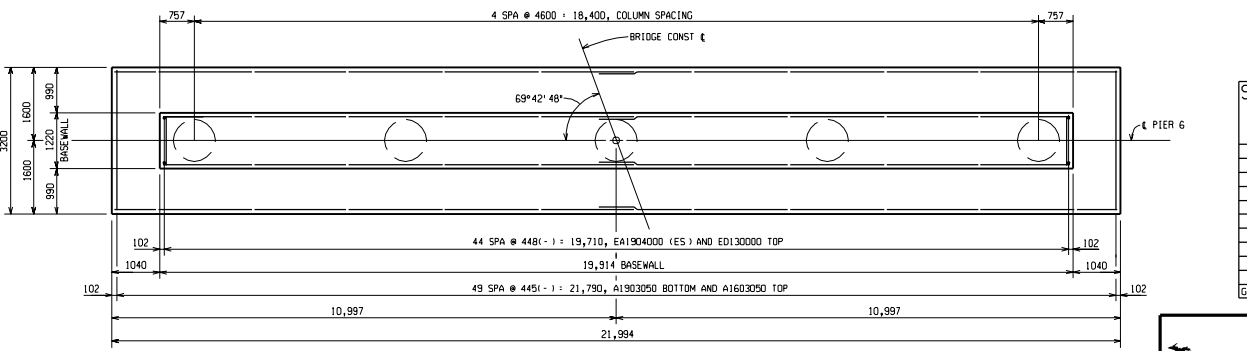
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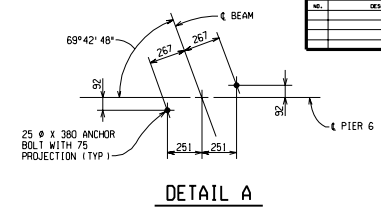
PLAN OF CAP - PIER



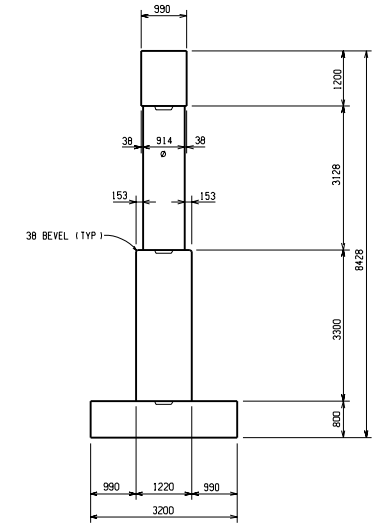
ELEVATION - PIER



FOOTING PLAN - PIER



DETAIL A



END VIEW

REVISIONS			
NO.	DESCRIPTION	DATE	BY

SUBSTRUCTURE CONCRETE QUANTITIES

POUR	PIER 1	PIER 2
A		
B		
C		
D		
E		
F		
G		
H		
TOTAL		
GRAND TOTAL:	m3	

MISCELLANEOUS QUANTITIES

372 m3	Substructure Conc
44 m2	Water Repellent Treatment

NOTES:

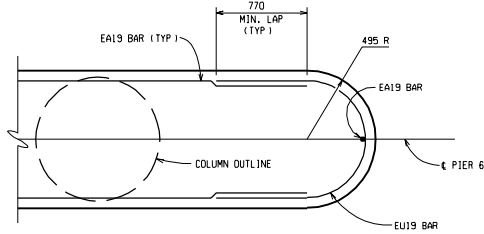
- ES DENOTES EACH SIDE.
- PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO THE TOP OF PIERS, PRIOR TO PLACING MASONRY PLATES AND AFTER THE ELASTOMERIC BEARINGS HAVE BEEN PLACED IN FINAL POSITION ON THE STRUCTURE.
- THE CONTRACTOR MAY ADHESIVE ANCHOR POSITION DOWELS IN HOLES DRILLED IN THE CONCRETE AT PIERS 1 AND 2.
- FOR BEVEL AND MOLDING DETAILS, SEE STANDARD B-103.



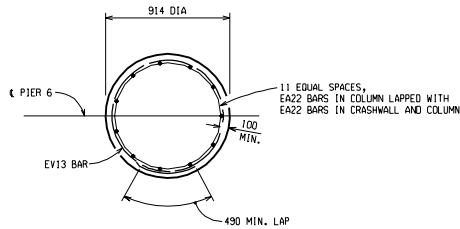
PIER DETAILS				
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	R13 OF 85060	98765A	TAYLOR	21 OF 47

DATE: _____ CHECKED BY: _____ DATE: _____ DRAWN BY: r1385060.pn

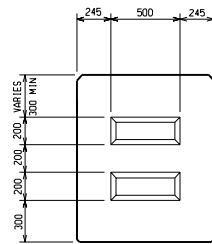
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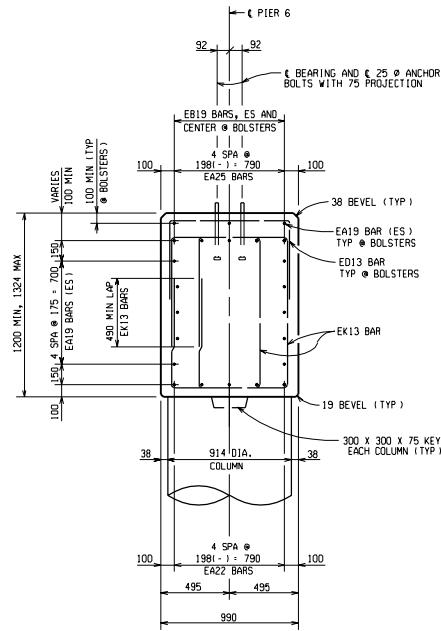
TYPICAL CAP END SECTION



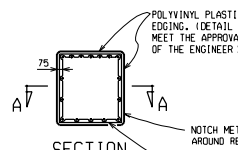
TYPICAL COLUMN SECTION



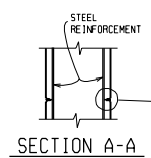
SHEAR KEY DETAIL
(KEY DEPTH = 75)



TYPICAL CAP SECTION



SECTION A-A



SECTION A-A

PARTIAL METAL BULKHEAD DETAILS

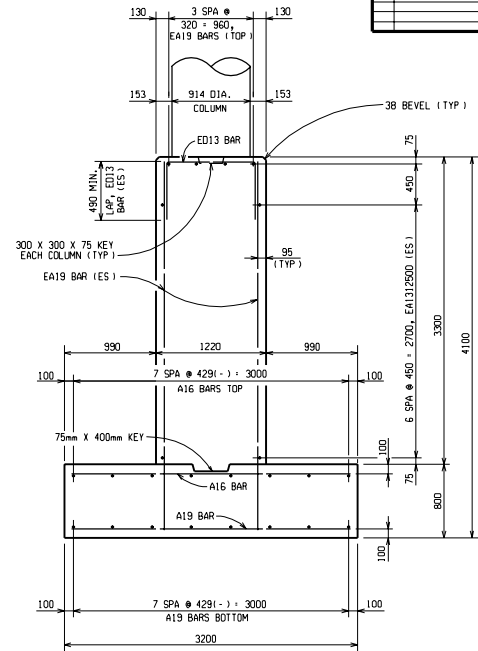
(PARTIAL METAL BULKHEAD DETAILS AT PIER CAP IS SHOWN. PARTIAL METAL BULKHEAD AT CRASHWALL IS SIMILAR.)

NOTES:
PARTIAL METAL BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT AT CONTRACTOR'S EXPENSE. CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

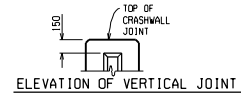
STEEL OR ALUMINUM STRIP (1.63 TO 3.51 mm THICK) SECURELY HELD IN PLACE AND TACK WELDING TO REINFORCING STEEL.

POLYVINYL PLASTIC EDGING (DETAIL TO MEET THE APPROVAL OF THE ENGINEER)

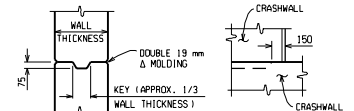
NOTCH METAL STRIP TO FIT AROUND REINFORCING STEEL.



TYPICAL FOOTING AND BASEWALL SECTION



ELEVATION OF VERTICAL JOINT



SECTION

ELEV. OF HORIZ. JOINT

CONSTRUCTION JOINT DETAILS

REVISIONS			
NO.	DESCRIPTION	DATE	BY



PIER DETAILS

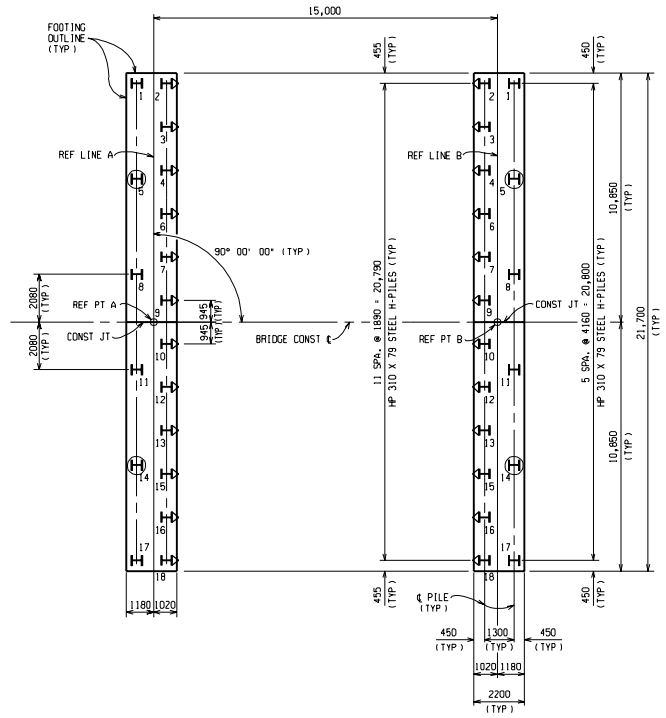
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DRAWN BY: DATE: CORRECTED BY: DATE:

FILE NAME: r1385060.ppt

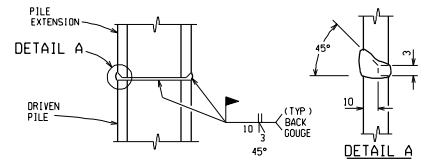
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REVISIONS			
NO.	DESCRIPTION	DATE	BY

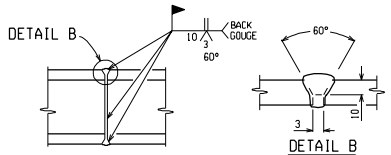


PILE LAYOUT
(COFFERDAM OUTLINE IS NOT SHOWN)

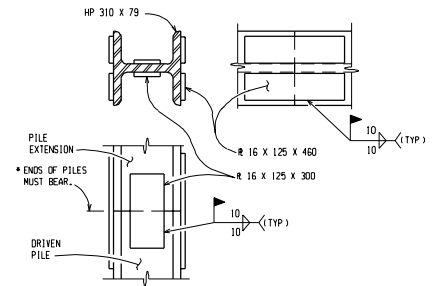
530 kN CAPACITY HP 310 X 79 PILES						
LOCATION	PILE TYPE	NUMBER OF PILES	ESTIMATED LENGTH FURNISHED & DRIVEN EACH METERS TOTAL METERS	SPLICES (EACH)	CUT-OFF ELEV.	
ABUT. A	TEST	2	12	24		191.300 m
	VERTICAL	4	9	36		191.300 m
	BATTERED	12	10	120		191.300 m
ABUT. B	TEST	2	11	22		191.300 m
	VERTICAL	4	8	32		191.300 m
TOTAL	VERTICAL	4	9	36	29	191.300 m
	BATTERED	12	10	120		191.300 m



SPLICE DETAILS
FOR PILES IN PLACE (HORIZONTAL JOINT)

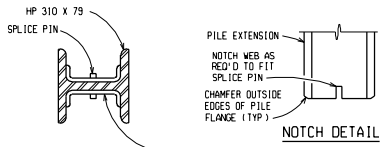


SPLICE DETAILS
FOR PILES IN HORIZONTAL POSITION

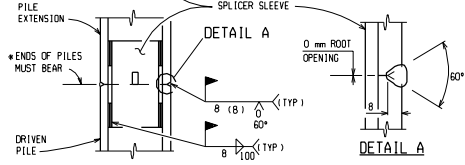


SPLICE DETAILS

* SET UPPER SPLICE SECTION IN PLACE WITH SPLICE PLATES ATTACHED, TAP SEVERAL TIMES WITH THE HAMMER TO IMPROVE BEARING CONTACT, THEN COMPLETE WELDING OF PLATES TO THE LOWER SECTION.



NOTCH DETAIL



ALTERNATE SPLICE DETAILS

MISCELLANEOUS QUANTITIES

- 1 LS Pile Driving Equipment, Furn
- 84 m Prebore, Fdn Piling
- 342 m Pile, Steel, Furn and Driven, 310 mm
- 4 ea Test Pile, Steel, 310 mm

NOTES:

- H -- DENOTES VERTICAL PILES.
- H -- DENOTES BATTERED PILES.
- (H) -- DENOTES VERTICAL TEST PILES.
- ALL PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 530kN.
- ESTIMATED PILE PENETRATIONS HAVE BEEN DETERMINED BY USE OF STATIC FORMULA.
- BATTER PILES FOR ABUTMENTS A & B SHALL BE DRIVEN TO A 3V:1H BATTER.
- STEEL PILES SHALL BE HP 310x79.

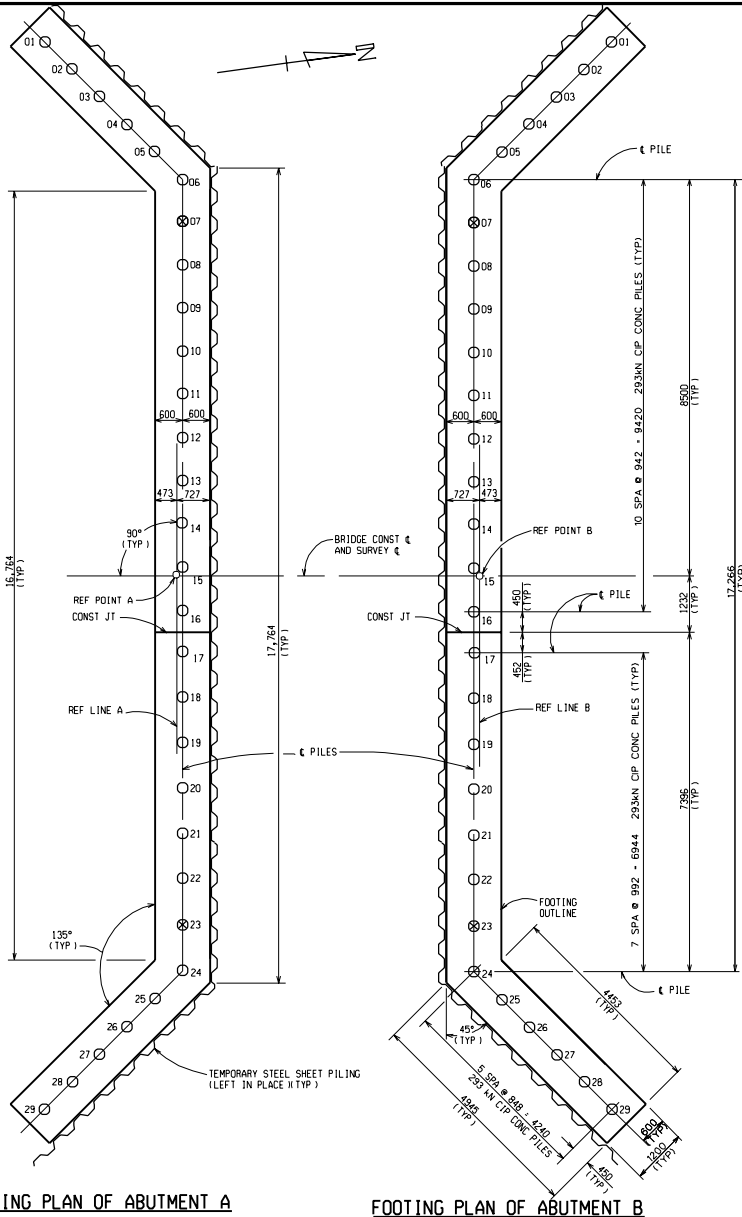


PILE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	BO1 OF 85045	98765A	THOMAS	23 OF 47

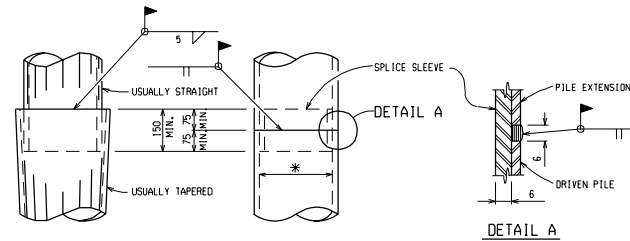
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62



FOOTING PLAN OF ABUTMENT A

FOOTING PLAN OF ABUTMENT B



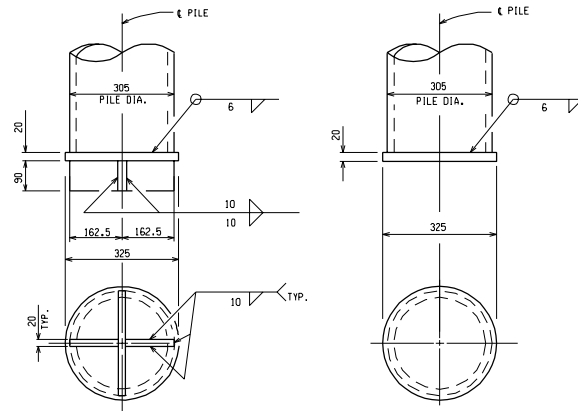
FLUTED PIPE PILE SHELL
 (USE 6 mm WELD WHEN SHELL IS 6.07 mm THICK METAL.)

SPIRAL WELDED OR SEAMLESS PIPE PILE SHELL
 SPLIT CHILL RINGS AS RECOMMENDED BY THE MANUFACTURER SHOULD BE SUBSTITUTED FOR SPLICE SLEEVES AT THE OPTION OF THE CONTRACTOR.

* O.D. OF SLEEVE TO FIT I.D. OF PILE.

C.I.P. PILE SPlice DETAILS

LOCATION	PILE TYPE	NUMBER OF PILES	ESTIMATED LENGTH FURNISHED & DRIVEN EACH METERS	TOTAL METERS	PILE POINTS (EACH)	SPLICES (EACH)	CUT-OFF ELEV.
ABUT A	TEST	2	16	32			176.330m
	VERTICAL	27	13	351			176.330m
ABUT B	TEST	2	13	26			176.330m
	VERTICAL	27	10	270			176.330m
TOTAL				679	58	57	



ALTERNATE C.I.P. PILE POINT DETAILS

FOR POINT BEARING PILES ONLY. USE WHEN RECOMMENDED BY SOILS SECTION.

C.I.P. PILE POINT DETAILS

679 m	Pile, CIP Conc. Furn and Driven, 305 mm
4 ea	Test Pile, CIP Conc, 305 mm
1 LS	Pile Driving Equipment, Furn

NOTES:

- -- DENOTES VERTICAL PILES.
- ⊗ -- DENOTES VERTICAL TEST PILES.
- POINTS FOR PILE SHELLS SHALL BE FORGINGS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE PILE POINTS DETAILED ON THIS SHEET SHOULD NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE BID ITEM "PILE, CIP CONC, FURN AND DRIVEN, 305mm".
- ALL PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 293 KN.
- ESTIMATED PILE PENETRATIONS HAVE BEEN DETERMINED BY USE OF STATIC FORMULA.
- PILE SHELLS SHALL BE A MINIMUM OF 5.84 mm NOMINAL WALL THICKNESS (3 gage), 305 mm O.D.



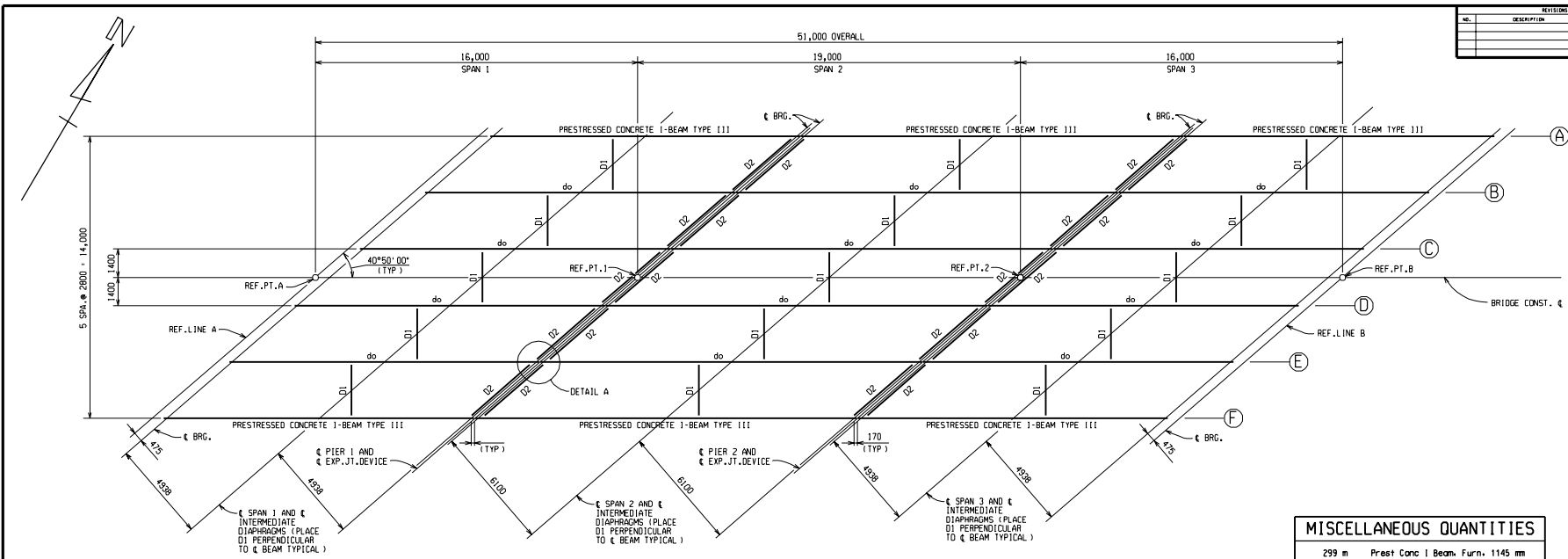
PILE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	B03 OF 85065	98765A	TAYLOR	24 OF 47

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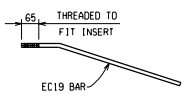
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REVISIONS			
NO.	DESCRIPTION	DATE	BY

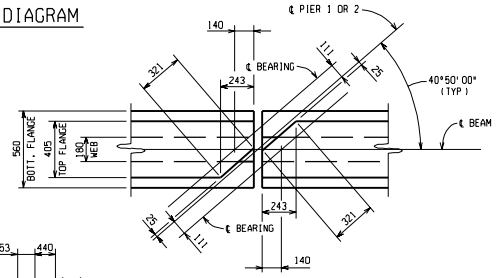


ERECTION DIAGRAM

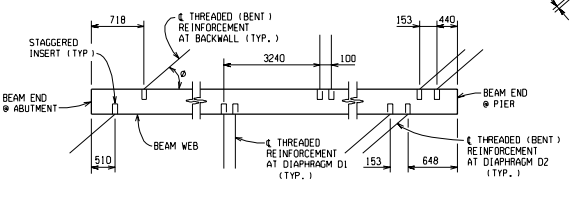
MISCELLANEOUS QUANTITIES	
299 m	Prest Conc I Beam, Furn. 1145 mm
299 m	Prest Conc I Beam, Erect. 1145 mm
4 mt	Bearing, Elastomeric, 26 mm



THREADED BAR DETAIL
THREADED EC19 BAR REQUIRED AT DIAPHRAGM D2, SEE SUPERSTRUCTURE DETAILS.

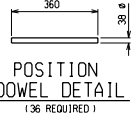


DETAIL A
BLOCK OUT TOP FLANGE OF BEAM, AS SHOWN, AT THE PIER (TYP.). DIAPHRAGMS ARE NOT SHOWN.

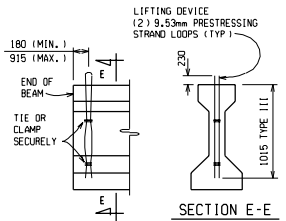


CONCRETE INSERT DETAILS

CONCRETE INSERTS AT ENDS OF BEAM AND AT MIDSPAN SHALL BE STAGGERED. THREADED REINFORCEMENT FOR STAGGERED INSERTS REQUIRED FOR DIAPHRAGM D2 SHALL BE BENT TO THE REQUIRED ANGLE PRIOR TO INSTALLATION. BENT REINFORCEMENT MAY REQUIRE INSTALLATION BEFORE BEAM IS ERECTED. OMIT INSERTS ON OUTSIDE OF FASCIA BEAMS EXCEPT AT ABUTMENTS.



POSITION DOWEL DETAIL
136 REQUIRED



LIFTING DEVICE DETAILS

NOTES:

- PRESTRESSING STRANDS SHALL BE 15.24 mm NOMINAL DIAMETER MEETING THE REQUIREMENTS OF ASTM A416M, GRADE1860, LOW RELAXATION STRAND.
- PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS OF 196 kN EACH.
- CONCRETE INSERTS SHALL BE 19 mm DIAMETER, RICHMOND, TYPE 12 OR TYPE TL2F; DANTON SUPERIOR, TYPE B-1 HEAVY OR TYPE B-18; WILLIAMS, TYPE C12 OR TYPE C-19; MEADOW STEEL, TYPE CT-2 OR TYPE CX-4; OR EQUAL.
- END BLOCKS ARE OPTIONAL.
- TOTAL ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE IS 8 mm FOR BEAMS IN SPANS 1 AND 3, AND 12 mm FOR BEAMS IN SPAN 2.
- THE ESTIMATED BEAM CAMBER AT RELEASE IS 15 mm FOR BEAMS IN SPANS 1 AND 3, AND 26 mm FOR BEAMS IN SPAN 2. THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.
- THREADING OF REINFORCEMENT AND INSTALLATION INTO CONCRETE INSERTS IS INCLUDED IN THE BID ITEM *PREST CONC I BEAM, FURN, 1145 mm*.
- LIFTING DEVICES SHALL BE REMOVED. REMOVAL IS INCLUDED IN THE BID ITEM *PREST CONC I BEAM, ERCT, 1145 mm*.
- POSITION DOWELS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M 232. POSITION DOWELS ARE NOT PAID FOR SEPARATELY, BUT INCLUDED IN PAYMENT FOR *PREST CONC I-BEAM, FURN, 1145 mm*.

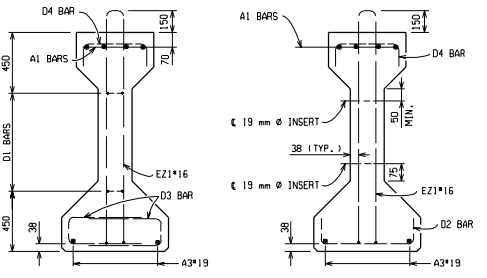


PRESTRESSED CONCRETE I-BEAM DETAILS

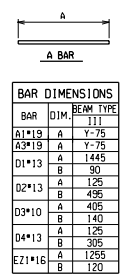
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	R01 OF 85030	98765A	THOMAS	25 OF 47

DRAWN BY: DATE: CORRECTED BY: DATE:

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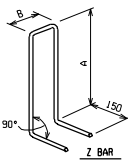
SECTION A-A SECTION B-B
SHOWING STEEL REINFORCEMENT ARRANGEMENT IN TYPE III BEAM



BAR DIMENSIONS

BAR	DIM.	BEAM TYPE
A1*19	A	Y-75
A3*19	A	Y-75
D1*13	B	30
D2*13	B	496
D3*10	A	405
D4*13	B	140
D4*13	B	305
EZ1*16	A	1255
EZ1*16	B	120

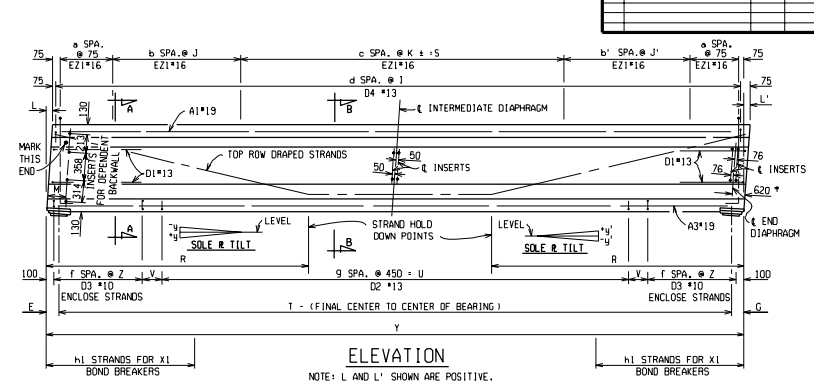
E INDICATES EPOXY COATED BAR



BEAM DATA

SPAN	1	2	3
TYPE	III	III	III
NO. REQ.	6	6	6
a	4	4	4
b	19	21	19
b'	19	21	19
c	12	19	12
d	34	42	34
E	140	140	140
f	4	4	4
g	27	35	27
G	140	140	140
I	448	447	448
J	200	180	200
K	200	180	200
K	586	591	586
L*	0	0	0
L**	0	0	-14
M**	614	614	614
P	OPTIONAL	OPTIONAL	OPTIONAL
R	0	7576	0
S	7034	10620	7033
T	15104	18660	15103
U	12150	15750	12150
V	317	295	316
Y	15384	18940	15383
Z	300	300	300
MSS METRIC (mm)	13.6	16.3	13.6

* FORMING DIMENSION. IF L OR L* IS COMPUTED TO BE BETWEEN -13 mm & +13 mm USE L=0 OR L*=0.
** MEASURED ALONG BEAM C.

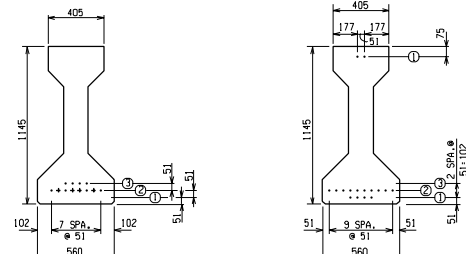


ELEVATION
NOTE: L AND L* SHOWN ARE POSITIVE.

SOLE R TILT TABLE

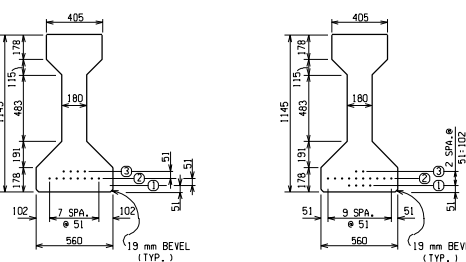
BEAM LINE	SPAN 1		SPAN 2		SPAN 3	
	ABUT A	PIER 1	PIER 1	PIER 2	PIER 2	ABUT B
A	-1	1	0	2	0	3
B	-1	1	0	2	0	3
C	-1	1	-1	2	0	3
D	-1	1	-1	2	0	2
E	-1	1	-1	2	0	2
F	-1	1	-1	2	0	2

* MEASURED ALONG BEAM C.



TYPE III (SPAN 1 AND 3) TYPE III (SPAN 2)

SHOWING STRAND ARRANGEMENT AT END FACE
● DEBONDED STRAND (BOND BREAKER) LOCATION
● STRAND LOCATION



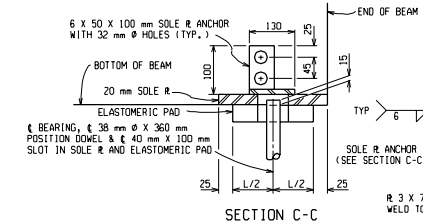
TYPE III (SPAN 1 AND 3) TYPE III (SPAN 2)

SHOWING STRAND ARRANGEMENT AT MIDSPAN
● STRAND LOCATION

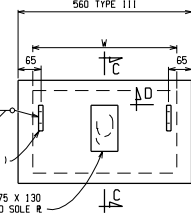
BOND BREAKERS

SPAN	ROW	h	x
1	2	4	2100
3	2	4	2100

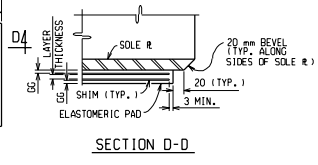
SPAN 2: BOND BREAKERS NOT REQUIRED.



SECTION C-C



PLAN

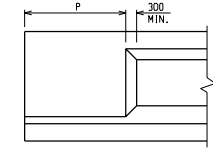


SECTION D-D

BEARING DETAILS

ELASTOMERIC PAD AND SHIM DIMENSIONS

	SPAN 1		SPAN 2		SPAN 3	
	ABUT A	PIER 1	PIER 1	PIER 2	PIER 2	ABUT B
THICKNESS	26	26	26	26	26	26
(L) PARALLEL TO BEAM	230	230	230	230	230	230
(W) PERPENDIC. TO BEAM	480	480	480	480	480	480
LG	6	6	6	6	6	6
LAYERS	1 @ 3	1 @ 3	1 @ 3	1 @ 3	1 @ 3	1 @ 3
SHIMS	2 @ 3	2 @ 3	2 @ 3	2 @ 3	2 @ 3	2 @ 3



END BLOCK DETAIL
MAXIMUM LENGTH *P* FOR OPTIONAL END BLOCK IS 900 mm.

STRAND LOCATION TABLE

SPAN	TYPE	MIDSPAN (SECTION B-B)						END FACE (SECTION A-A)						TOTAL NUMBER	REQUIRED CONCRETE COMPRESSIVE STRENGTH			
		TOP	TOP	TOP	TOP	TOP	TOP	TOP	TOP	TOP	TOP	TOP	TOP		TOP	28 DAY	AT RELEASE	
1	III	0	8	4	0	0	0	0	8	4	0	0	0	0	0	12	35 MPa	25 MPa
2	III	4	10	2	0	0	0	4	10	2	0	0	0	0	16	42 MPa	29 MPa	
3	III	0	8	4	0	0	0	0	8	4	0	0	0	0	12	35 MPa	25 MPa	



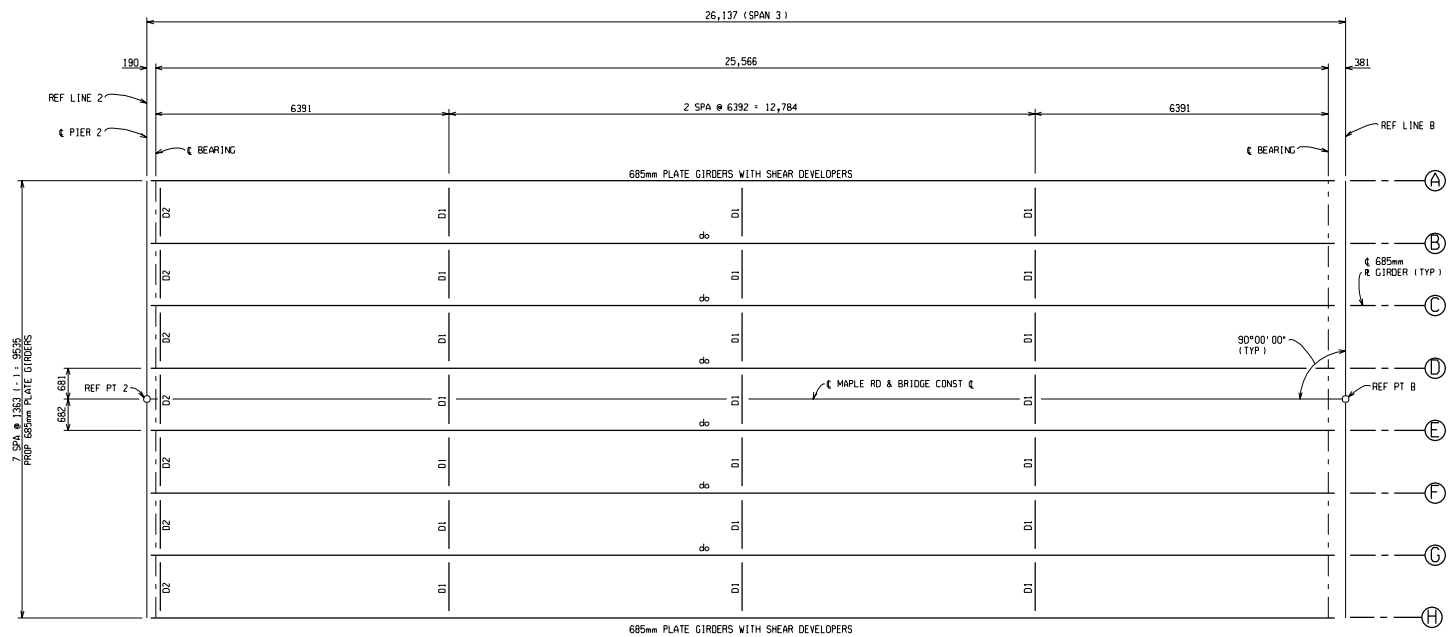
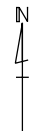
PRESTRESSED CONCRETE I-BEAM DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	RO1 OF 85030	98765A	THOMAS	26 OF 47

DRAWN BY: FILE NAME: P08503016-16 CHECKED BY: DATE: CORRECTED BY: DATE:

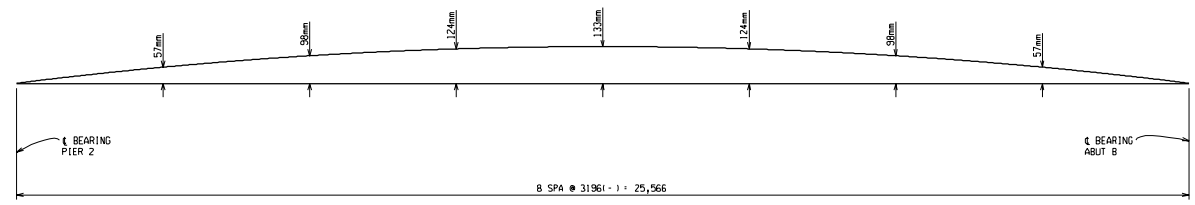
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REVISIONS			
NO.	DESCRIPTION	DATE	BY



MISCELLANEOUS QUANTITIES		
2 m ²	Bearing, Elastomeric, 39 mm	
53,257 kg	Structural Steel, Plate, Furn and Fab	
53,257 kg	Structural Steel, Plate, Erect	
1 LS	Field Rep of Damaged Coating	
1 LS	Shear Developers	

ERECTION DIAGRAM



CAMBER DIAGRAM (SPAN 3)

NOTES:

- ES DENOTES EACH SIDE.
- THE GIRDERS IN SPAN 3 SHALL BE CAMBERED WITH ORDINATES AS SHOWN ON THE CAMBER DIAGRAM. HEATING IS TO BE USED, IF NECESSARY, TO PROVIDE THE CAMBER WITHIN THE TOLERANCE SPECIFIED IN THE AWS SPECIFICATIONS. THE CAMBER SHOWN IS TO BE MEASURED WITH THE GIRDER LYING ON ITS SIDE.
- FIELD CONNECTIONS SHALL BE BOLTED WITH M20 HIGH-STRENGTH BOLTS.
- THE WEIGHT OF END & INTERMEDIATE DIAPHRAGMS (LN Kg) SHALL BE INCLUDED IN THE PAY ITEMS, "Structural Steel, Plate, Furn and Fab" & "Structural Steel, Plate, Erect".
- SHEAR DEVELOPERS SHALL BE 19 mm DIAMETER STUDS.
- THE QUANTITY STRUCTURAL STEEL INCLUDES:
STEEL 53,257 kg
- ALL STRUCTURAL STEEL SHALL BE COATED ACCORDING TO SUBSECTION 716 OF THE STANDARD SPECIFICATIONS. THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL BE LIGHT GREY, FEDERAL STANDARD NUMBER 8598 COLOR NUMBER 16443.
- STRUCTURAL STEEL SHALL CONFORM TO ASSHTO M270, GRADE 345, OR ASSHTO M270, GRADE 345W, 148SH10 M270, GRADE 250. STEEL MAY BE USED IN LIEU OF THESE STEELS FOR BEARINGS AND DIAPHRAGMS I.
- POSITION DOWELS SHALL BE HOT DIPPED GALVANIZED ACCORDING TO ASSHTO M232. POSITION DOWELS ARE INCLUDED IN PAY ITEM "Structural Steel, Plate, Furn and Fab."
- IF THE POSITION DOWELS AT ABUTMENT B ARE MISALIGNED, IN RELATIONSHIP TO THE CENTERLINE OF BEARINGS, DUE TO TEMPERATURE EFFECTS ON THE GIRDERS, HOLES IN THE ELASTOMERIC BEARINGS SHALL BE CENTERED ON THE DOWELS.



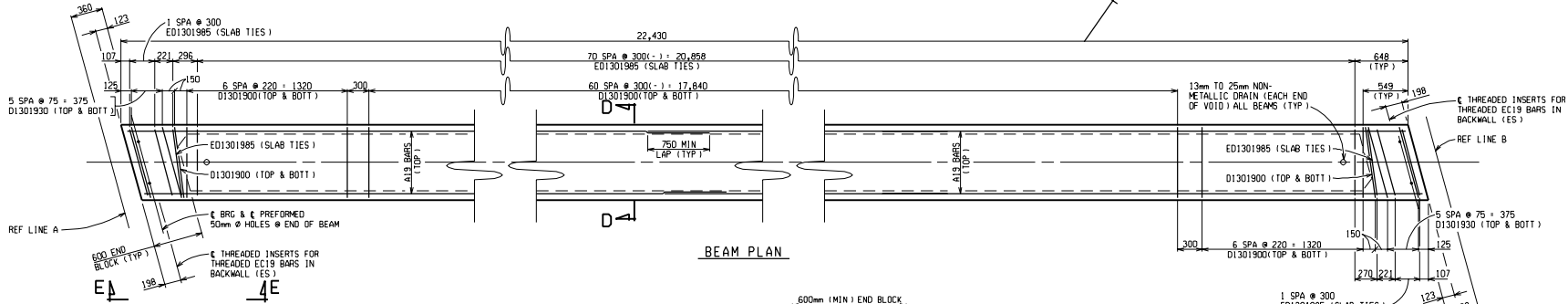
STRUCTURAL STEEL DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S08 OF 85050	98765A	MILLER	31 OF 47

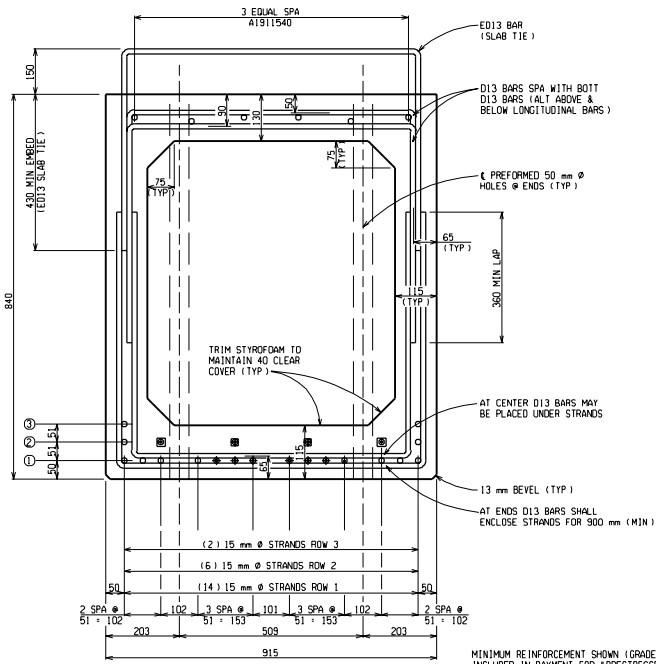
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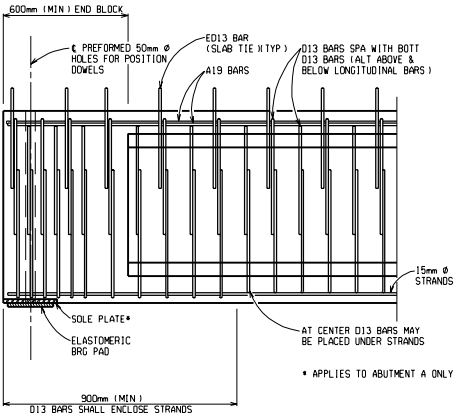
NO.	DESCRIPTION	DATE	BY



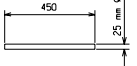
BEAM PLAN



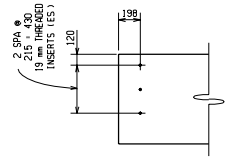
SECTION D-D



SECTION THROUGH END BLOCK

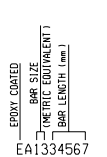


POSITION DOWEL DETAIL
 (*40 REQUIRED) NOT PAID FOR SEPARATELY BUT INCLUDED IN PAYMENT FOR *PRESTRESSED CONCRETE BOX BEAM, FURNISHED, 840 mm". POSITION DOWELS SHALL NOT BE INSTALLED UNTIL THE BEAMS HAVE BEEN SET IN THEIR FINAL POSITION ON THE STRUCTURE.

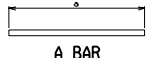


VIEW E-E

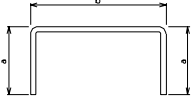
INSERTS FOR BACKWALL THREADED REINFORCEMENT



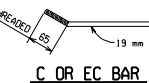
BAR LEGEND



A BAR



D OR ED BAR



C OR EC BAR

THREADED C AND EC BARS ARE INCLUDED IN SUPERSTRUCTURE BAR SCHEDULE

BOX BEAM BAR DIMENSIONS			
BAR	DIMENSIONS	IND	REQ'D
A191540	a = 11540 b = 80		
D1301900	a = 551 b = 798		1540
D1301930	a = 551 b = 868		240
ED1301985	a = 550 b = 825		770

MINIMUM REINFORCEMENT SHOWN (GRADE 40) IS NOT PAID FOR SEPARATELY, BUT INCLUDED IN PAYMENT FOR *PRESTRESSED CONCRETE BOX BEAM, 840 mm. FURNISHED.
 ■ INDICATES 2 STRANDS TO BE DESIGNED FOR 4700 FROM EACH END OF BEAM.
 ■ INDICATES 3 STRANDS TO BE DESIGNED FOR 1900 FROM EACH END OF BEAM.
 ● INDICATES 6 STRANDS TO BE DESIGNED FOR 1400 FROM EACH END OF BEAM.



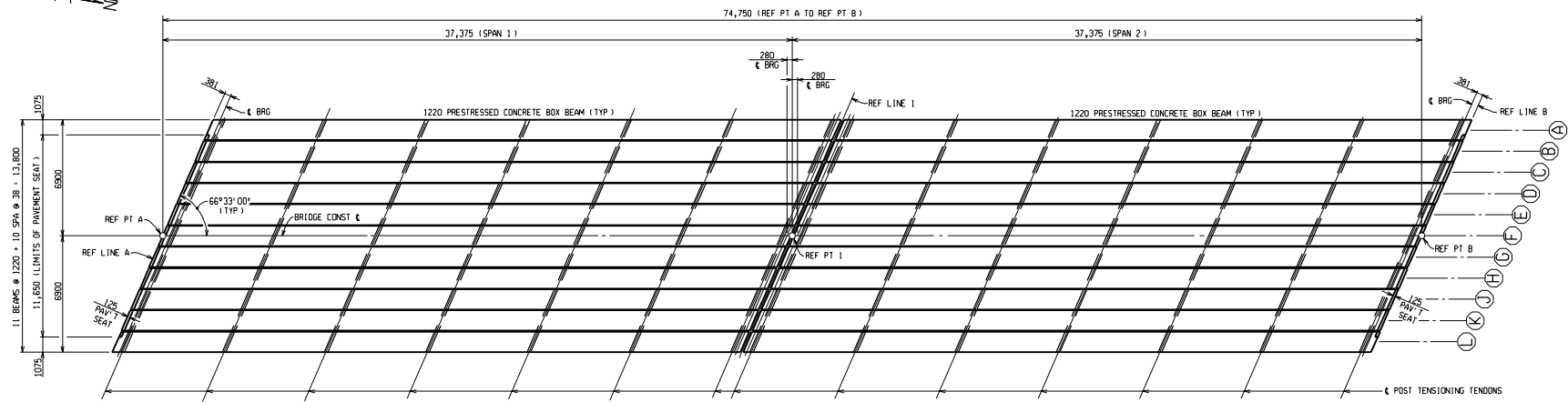
840 PC BOX BEAM DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	RO1 OF 85070	98765A	MILLER	28 OF 47

DATE: _____ CORRECTED BY: _____ DATE: _____ DRAWN BY: _____ FILE NAME: P0185070.DWG

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REVISIONS			
NO.	DESCRIPTION	DATE	BY

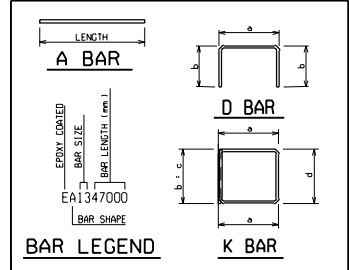


ERECTION DIAGRAM

SPAN	REQUIRED CONCRETE COMPRESSIVE STRENGTH (MPa)		CAMBER AT MIDPOINT (mm)	WEIGHT (METRIC TONS)
	28 DAYS	AT RELEASE		
1	45	32	44	57
2	45	32	44	57

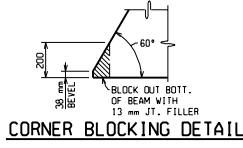
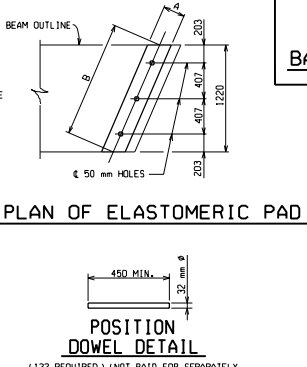
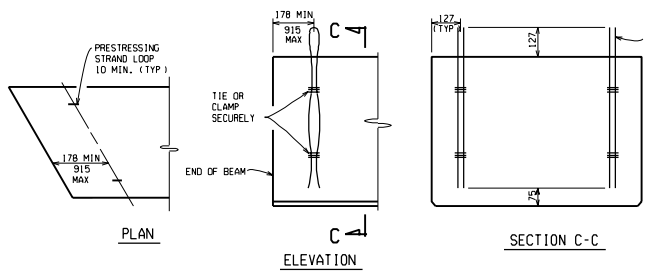
LOCATION	SPAN 1		SPAN 2	
	ABUT A	PIER 1	PIER 1	ABUT B
THICKNESS	26	20	20	26
PARALLEL TO REF. LINE, "B"	1270	1270	1270	1270
PERPENDICULAR TO REF. LINE, "A"	200	180	180	200

* ELASTOMERIC PAD IS TRAPEZOIDAL IN SHAPE.



MISCELLANEOUS QUANTITIES	
1 LS	Post Tensioning
6 m ²	Bearing, Elastomeric, 20 mm
6 m ²	Bearing, Elastomeric, 26 mm
1032 m ²	Prest Conc Deck, 1220 mm

NOTES:
 PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS OF 195 kN.
 TOTAL ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE IS 20 mm.
 DURING HANDLING AND TRANSPORTATION, BEAMS CAN BE SUPPORTED 915 mm FROM THE END.
 LIFTING DEVICES SHALL BE REMOVED AFTER BEAMS ARE ERECTED. REMOVAL IS INCLUDED IN THE BID ITEM "PRESTRESSED CONCRETE DECK, 1220 mm".
 POSITION DOWELS SHALL CONFORM TO SECTION 708.02 OF THE 1996 STANDARD SPECIFICATIONS FOR CONSTRUCTION EXCEPT THAT THE YIELD STRENGTH SHALL NOT BE LESS THAN 448 MPa. POSITION DOWELS SHALL BE HOT-DIP GALVANIZED ACCORDING TO AASHTO M332. POSITION DOWELS ARE INCLUDED IN PAYMENT FOR "PRESTRESSED CONCRETE DECK, 1220 mm".
 THE ESTIMATED BEAM CAMBER AT RELEASE IS 44 mm. THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.
 THE INITIAL FORCE IN THE TRANSVERSE POST-TENSIONING TENDONS SHALL BE 460 kN EACH.
 PRESTRESSING STRANDS SHALL BE 15.24 mm NOMINAL DIAMETER MEETING THE REQUIREMENTS OF ASTM A416M, GRADE 1860, LOW RELAXATION STRAND.



NOTE: LIFTING OF BEAM SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES. OTHER TYPES OF LIFTING DEVICES MAY BE USED SUBJECT TO APPROVAL BY THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

(132 REQUIRED) (NOT PAID FOR SEPARATELY BUT INCLUDED IN PAYMENT FOR "PREST CONC DECK, 1220 mm")

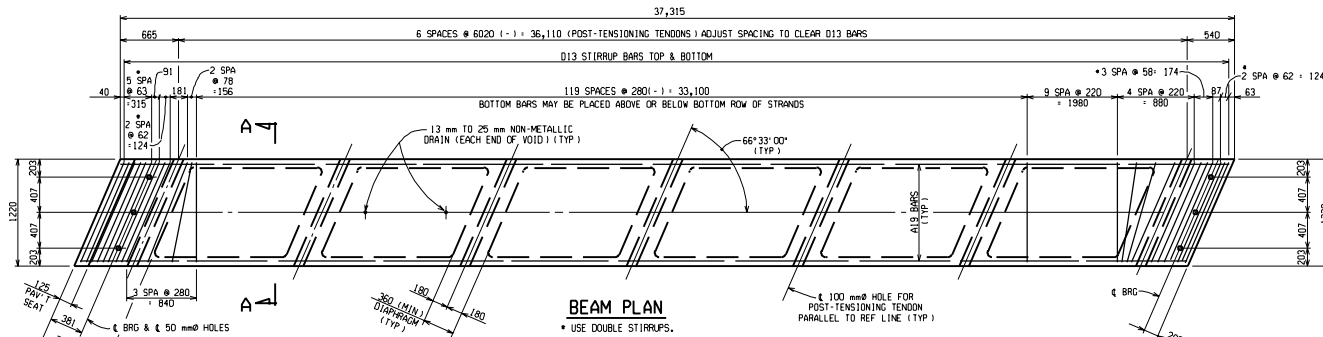


PRESTRESSED CONCRETE BOX BEAM DETAILS				
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85055	98765A	TAYLOR	29 OF 47

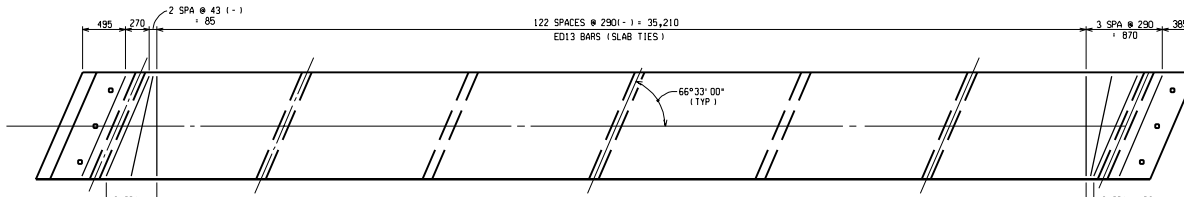
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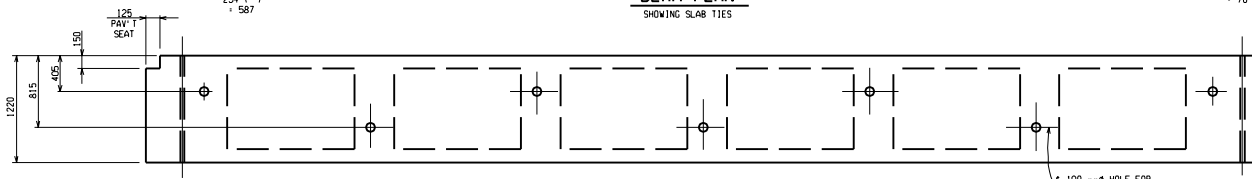
REVISIONS			
NO.	DESCRIPTION	DATE	BY



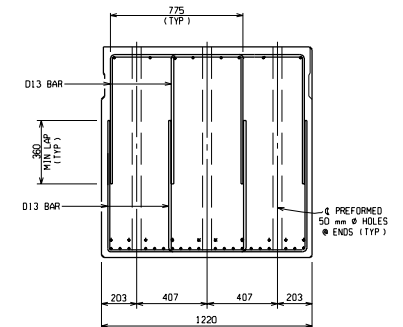
BEAM PLAN
• USE DOUBLE STIRRUPS.



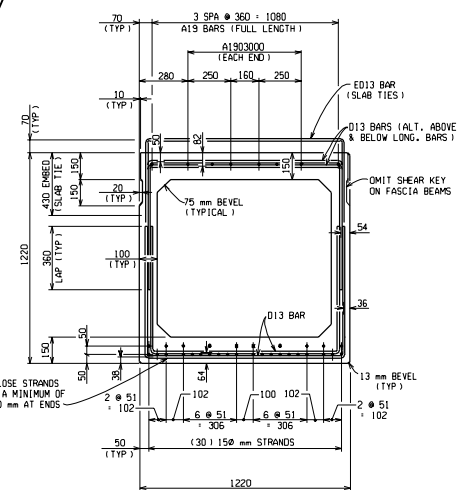
BEAM PLAN
SHOWING SLAB TIES



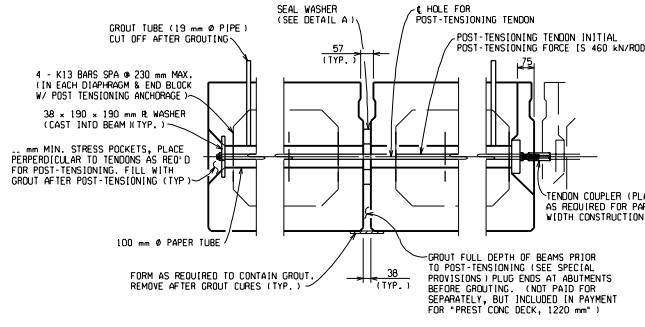
BEAM ELEVATION



SECTION B-B

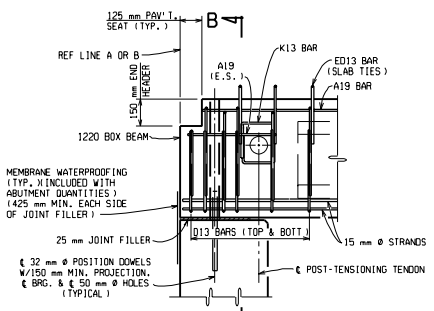


SECTION A-A

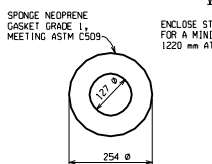


POST-TENSIONING DETAIL

NOTE: STRESS POCKETS, ANCHOR PLATES AND TENDON COUPLERS SHALL BE AS REQUIRED FOR THE POST-TENSIONING SYSTEM PROVIDED.



SECTION THRU END BLOCK AT ABUTMENT



DETAIL A
64 mm THICK SEAL WASHER

WASHER IS NOT PAID FOR SEPARATELY BUT IS INCLUDED IN PAYMENT FOR "PREST CONC DECK, 1220 mm"



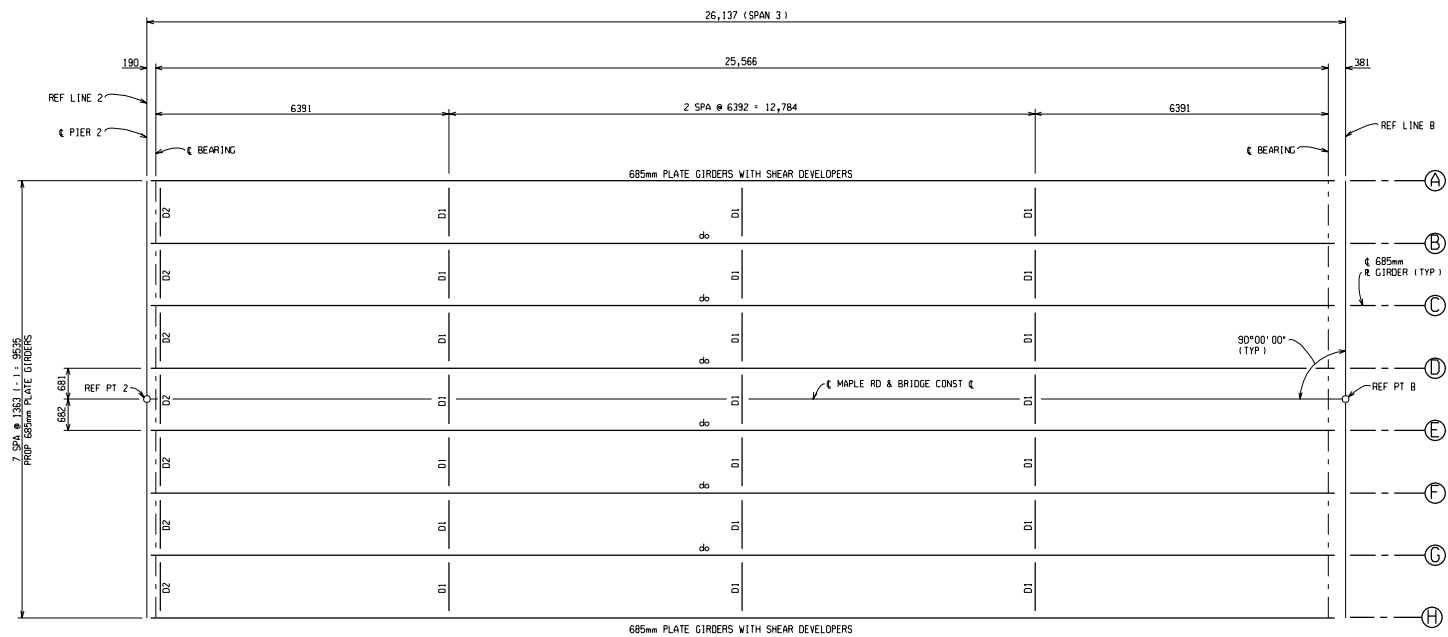
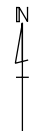
PRESTRESSED CONCRETE BOX BEAM DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85055	98765A	TAYLOR	30 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

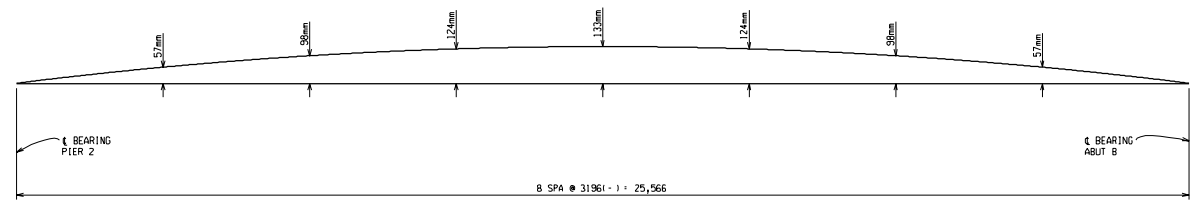
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REVISIONS			
NO.	DESCRIPTION	DATE	BY



ERECTOR DIAGRAM

MISCELLANEOUS QUANTITIES		
2 m ²	Bearing, Elastomeric, 39 mm	
53,257 kg	Structural Steel, Plate, Furn and Fab	
53,257 kg	Structural Steel, Plate, Erect	
1 LS	Field Rep of Damaged Coating	
1 LS	Shear Developers	



CAMBER DIAGRAM (SPAN 3)

NOTES:

- ES DENOTES EACH SIDE.
- THE GIRDERS IN SPAN 3 SHALL BE CAMBERED WITH ORDINATES AS SHOWN ON THE CAMBER DIAGRAM. HEATING IS TO BE USED, IF NECESSARY, TO PROVIDE THE CAMBER WITHIN THE TOLERANCE SPECIFIED IN THE AWS SPECIFICATIONS. THE CAMBER SHOWN IS TO BE MEASURED WITH THE GIRDER LYING ON ITS SIDE.
- FIELD CONNECTIONS SHALL BE BOLTED WITH M20 HIGH-STRENGTH BOLTS.
- THE WEIGHT OF END & INTERMEDIATE DIAPHRAGMS (IN Kg) SHALL BE INCLUDED IN THE PAY ITEMS, "Structural Steel, Plate, Furn and Fab" & "Structural Steel, Plate, Erect".
- SHEAR DEVELOPERS SHALL BE 19 mm DIAMETER STUDS.
- THE QUANTITY STRUCTURAL STEEL INCLUDES:
STEEL 53,257 kg
- ALL STRUCTURAL STEEL SHALL BE COATED ACCORDING TO SUBSECTION 716 OF THE STANDARD SPECIFICATIONS. THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL BE LIGHT GREY, FEDERAL STANDARD NUMBER 8998 COLOR NUMBER 16443.
- STRUCTURAL STEEL SHALL CONFORM TO A588TO M270, GRADE 345, OR A588TO M270, GRADE 345W, 148SH10 M270, GRADE 250. STEEL MAY BE USED IN LIEU OF THESE STEELS FOR BEARINGS AND DIAPHRAGMS I.
- POSITION DOWELS SHALL BE HOT DIPPED GALVANIZED ACCORDING TO A588TO M232. POSITION DOWELS ARE INCLUDED IN PAY ITEM "Structural Steel, Plate, Furn and Fab."
- IF THE POSITION DOWELS AT ABUTMENT B ARE MISALIGNED, IN RELATIONSHIP TO THE CENTERLINE OF BEARINGS, DUE TO TEMPERATURE EFFECTS ON THE GIRDERS, HOLES IN THE ELASTOMERIC BEARINGS SHALL BE CENTERED ON THE DOWELS.



STRUCTURAL STEEL DETAILS

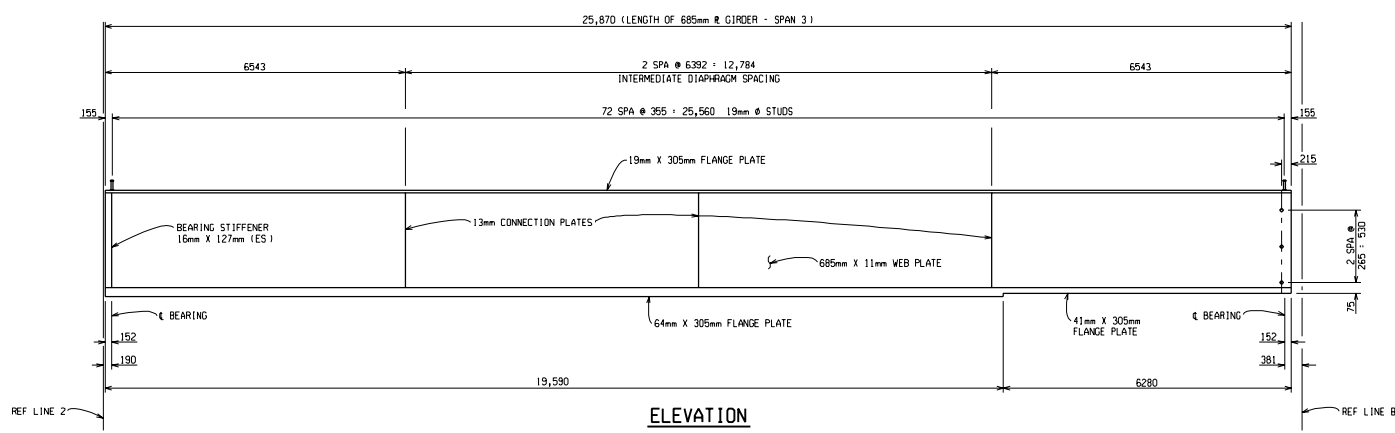
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S08 OF 85050	98765A	MILLER	31 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

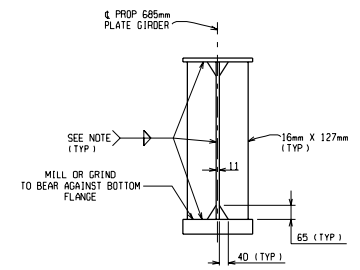
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REVISIONS			
NO.	DESCRIPTION	DATE	BY

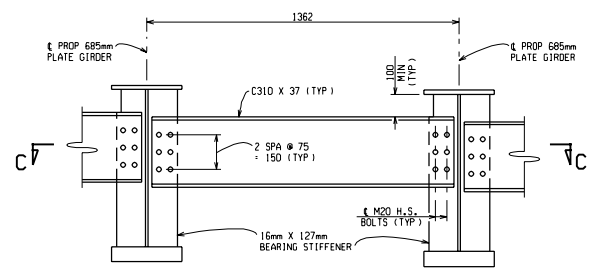


ELEVATION

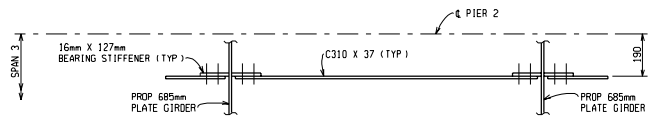


BEARING STIFFENER DETAIL

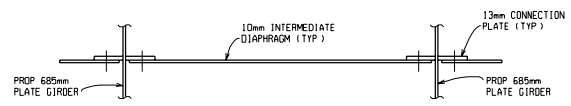
NOTE: WRAP WELD AROUND OUTSIDE EDGE. STOP ALL WELDS 6mm SHORT OF CORNER CLIPS.



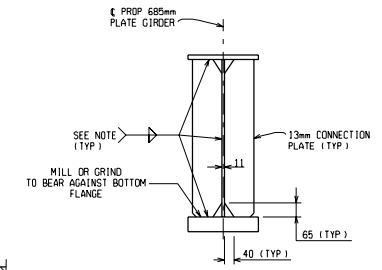
END DIAPHRAGM D2
(7 REQUIRED)



SECTION C-C

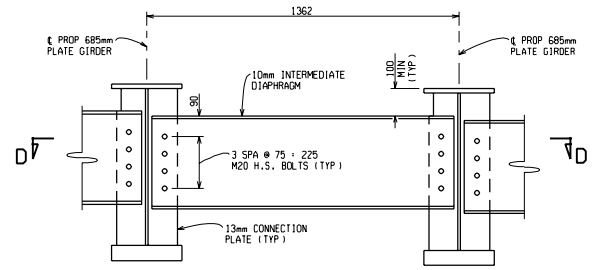


SECTION D-D

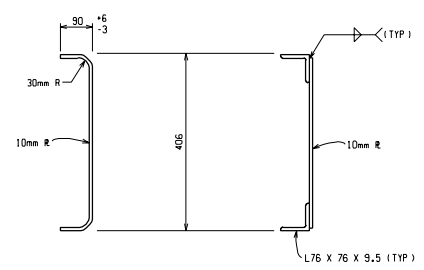


13mm CONNECTION PLATE FOR INTERMEDIATE DIAPHRAGMS

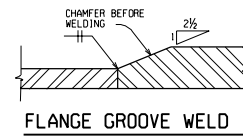
NOTE: WRAP WELD AROUND OUTSIDE EDGE. STOP ALL WELDS 6mm SHORT OF CORNER CLIPS.



INTERMEDIATE DIAPHRAGM D1
(21 REQUIRED)



ALTERNATE
TYPICAL INTERMEDIATE DIAPHRAGM



FLANGE GROOVE WELD



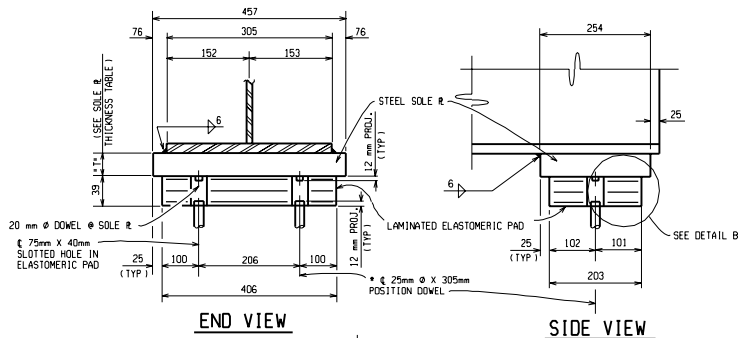
STRUCTURAL STEEL DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S08 OF 85050	98765A	MILLER	32 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

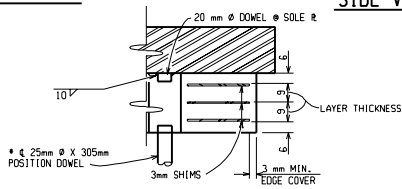
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

REVISIONS			
NO.	DESCRIPTION	DATE	BY

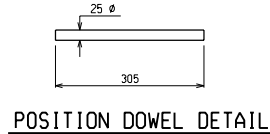


END VIEW

SIDE VIEW



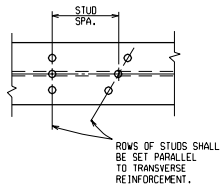
DETAIL B



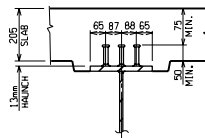
POSITION DOWEL DETAIL

ELASTOMERIC BEARING DETAILS

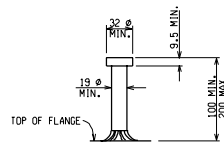
(FOR PIER 2, SPAN 3 & ABUTMENT B)
 • POSITION DOWELS ARE AT ABUTMENT B ONLY.



PLAN



SECTION



STUD DETAIL

STUD SHEAR DEVELOPER DETAILS

SOLE PLATE THICKNESS TABLE "T" (mm)

BEAM	PIER 2 SPAN 3	ABUT B
A	19	25
B	35	38
C	57	64
D	76	25
E	76	25
F	57	64
G	35	38
H	19	25

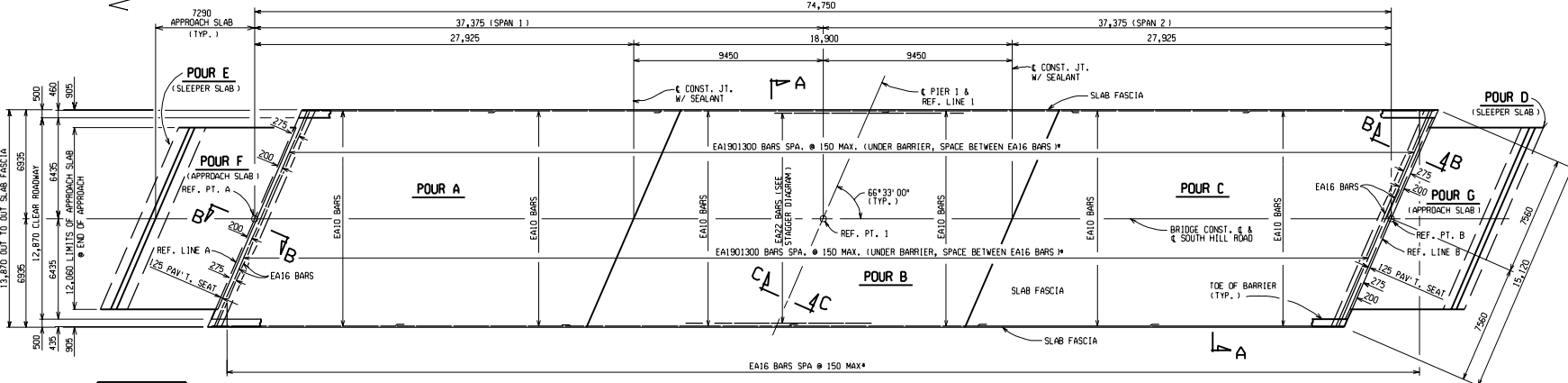
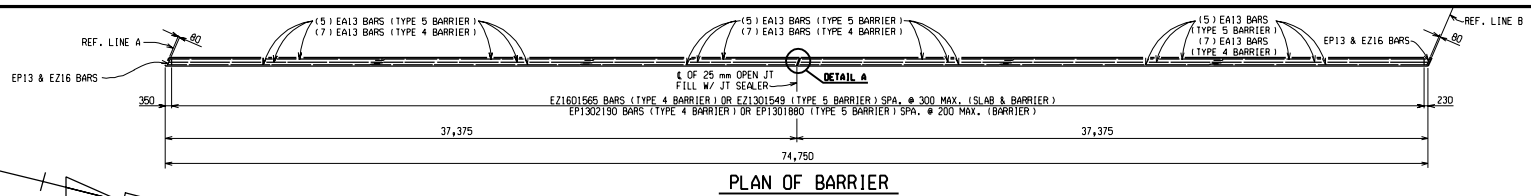
	STRUCTURAL STEEL DETAILS			
	DATE	CONT. SEC.	JOB NO.	DESIGN UNIT
	S08 OF 85050	98765A	MILLER	SHEET 33 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

DATE: _____ CORRECTED BY: _____ DATE: _____ DRAWN BY: _____ FILE NAME: 40385056.dwg

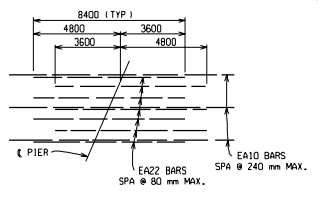
REVISIONS			
NO.	DESCRIPTION	DATE	BY



MIN. LAP TABLE

EA10 BARS -	360
EA13 BARS -	490
EA16 BARS -	610
EA19 BARS -	720

PLAN OF DECK
 * TRANSVERSE BARS ARE PERPENDICULAR TO BRIDGE CONSTRUCTION & BAR CUT DIAGRAM REQUIRED.



STAGGER DIAGRAM
(TYP ACROSS DECK)

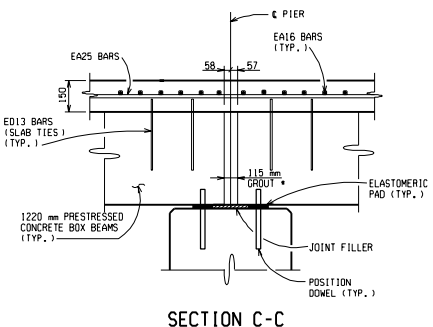
MISCELLANEOUS QUANTITIES

236 m ³	Superstructure Conc. Night Casting
1 LS	Superstructure Conc. Form, Finish, and Cure, Night Casting
75 m	Bridge Barrier Rolling, Type 4
75 m	Bridge Barrier Rolling, Type 5
25310 kg	Reinforcement, Steel, Epoxy Coated
1 LS	Bridge Lighting, Furnish and Remove
236 m ³	Bridge Lighting, Operate and Maintain
14 m ²	Joint Waterproofing
12 ea	Reflective Marker, Permanent Barrier

SUPERSTRUCTURE CONCRETE NIGHT CASTING QUANTITIES

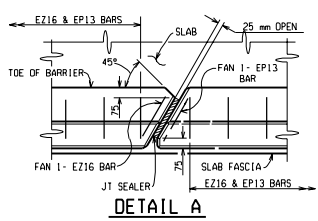
POUR	CUBIC METERS
A	68.9
B	47.4
C	68.9
D	5.0
E	5.0
F	20.4
G	20.4

NOTES:
 ALL DECK POURS AND APPROACH SLAB POURS ARE DESIGNATED AS NIGHT POURS, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03J OF THE STANDARD SPECIFICATIONS.
 NO PORTION OF THE DECK FORMWORK SHALL ENCRDACH ON THE EXISTING UNDERCLEARANCE.
 ALPHABETICAL DESIGNATION OF DECK POURS IS NOT A POUR SEQUENCE. CAST DECK POURS OVER PIERS AFTER OTHER DECK POURS HAVE BEEN CAST.
 THE CONTRACTOR SHALL MAKE ADJUSTMENTS AT THE TRANSVERSE CONSTRUCTION JOINTS TO PROVIDE A MINIMUM OF 75mm CLEAR COVER FOR REINFORCING STEEL.
 ATTACH APPROACH CURB AND GUTTER TO THE APPROACH SLAB WITH SLAB TIES SEE ROAD SHEETS.
 POUR APPROACH SLABS FROM EXPANSION LOCATION TOWARD REFERENCE LINE.
 JWP DENIES JOINT WATERPROOFING.
 FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL, NAME PLATE MOUNTING, MOLDING AND BEVEL DETAILS, SEE STANDARD B-17 AND B-103.
 FOR NAME PLATE LOCATION, SEE GENERAL PLAN OF STRUCTURE.
 EDGE OR *GROOVE* DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.
 BRIDGE SIGN CONN., CONC., TYPE E, MODIFIED SHALL BE IN ACCORDANCE WITH SIGN SUPPORT TYPICAL PLAN VIII-800M EXCEPT AS MODIFIED ON THESE DETAILS.
 THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 12mm DEEP BY 3 mm WIDE (MINIMUM) IN THE TOP OF SLAB AT TRANSVERSE CONSTRUCTION JOINTS AND ABOVE PIER. THE JOINT IS TO BE SAWED BEFORE CASTING OF BARRIERS AND IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 9.14.04.
 LONGITUDINAL DECK REINFORCEMENT SHALL EXTEND 710 mm INTO BRIDGE APPROACH CURB & GUTTER.
 REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.



SECTION C-C

* INCLUDED IN THE PAY ITEM "SUPERSTRUCTURE CONCRETE, NIGHT CASTING".



DETAIL A

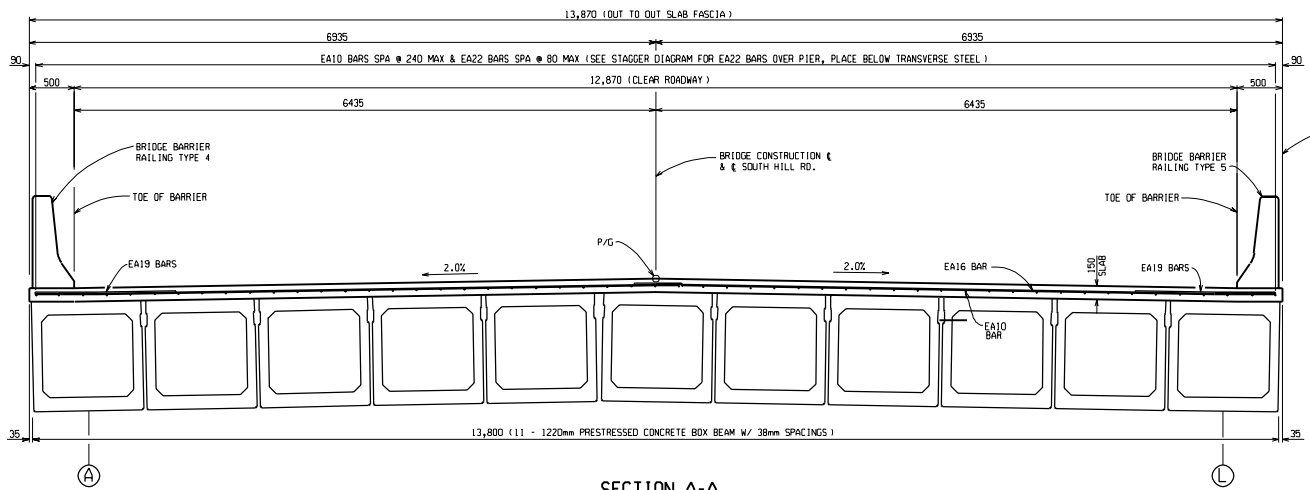


SUPERSTRUCTURE DETAILS

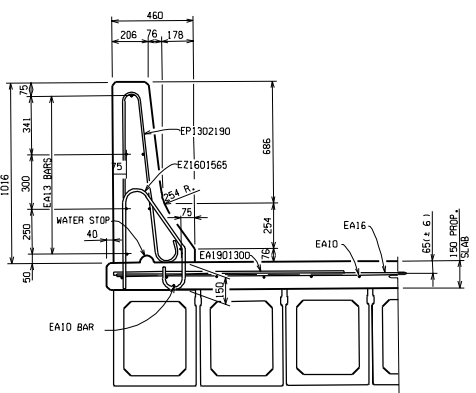
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85055	98765A	TAYLOR	34 OF 47

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

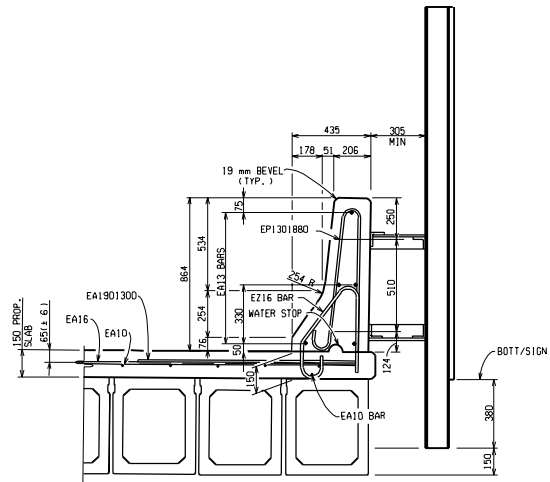
REVISIONS			
NO.	DESCRIPTION	DATE	BY



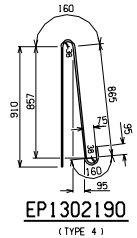
SECTION A-A



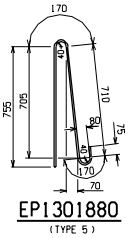
TYPICAL SECTION THRU TYPE 4 BARRIER
WEST SIDE OF STRUCTURE



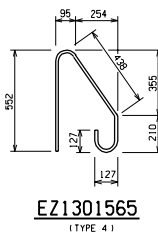
TYPICAL SECTION THRU TYPE 5 BARRIER
EAST SIDE OF STRUCTURE



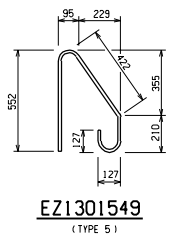
EPI302190
(TYPE 4)



EPI301880
(TYPE 5)



EZ1301565
(TYPE 4)



EZ1301549
(TYPE 5)



SUPERSTRUCTURE DETAILS

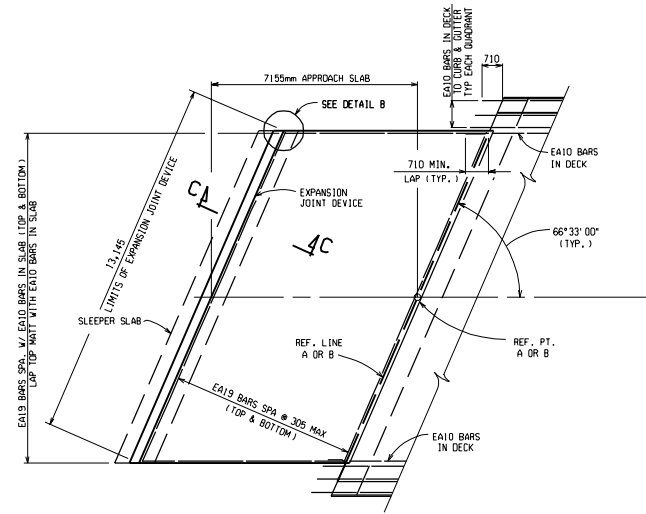
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85055	98765A	TAYLOR	35 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

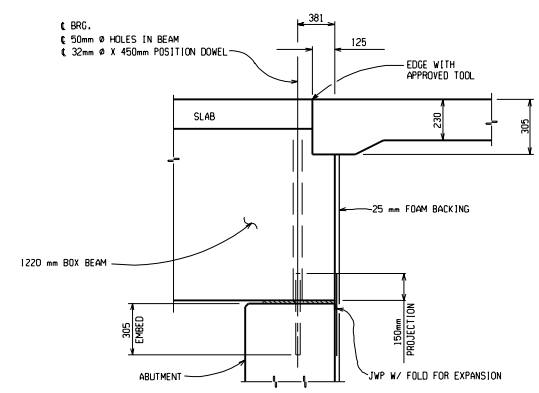
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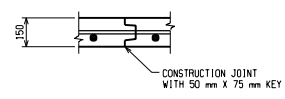
REVISIONS			
NO.	DESCRIPTION	DATE	BY



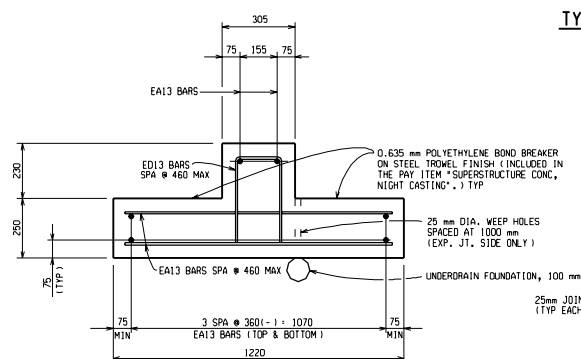
PLAN OF APPROACH



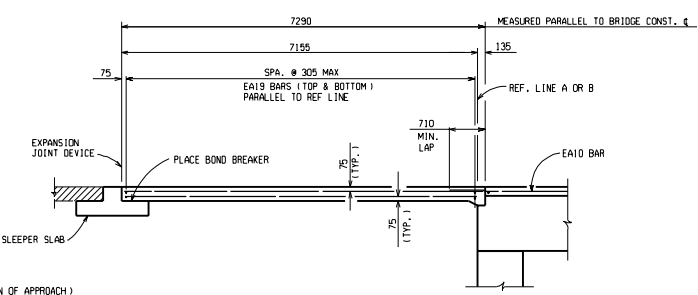
SECTION B-B



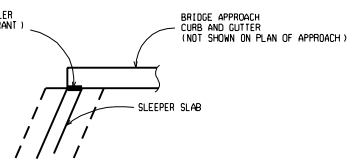
TYPICAL CONSTRUCTION JOINT



TYP SECTION THRU SLEEPER SLAB



APPROACH SECTION



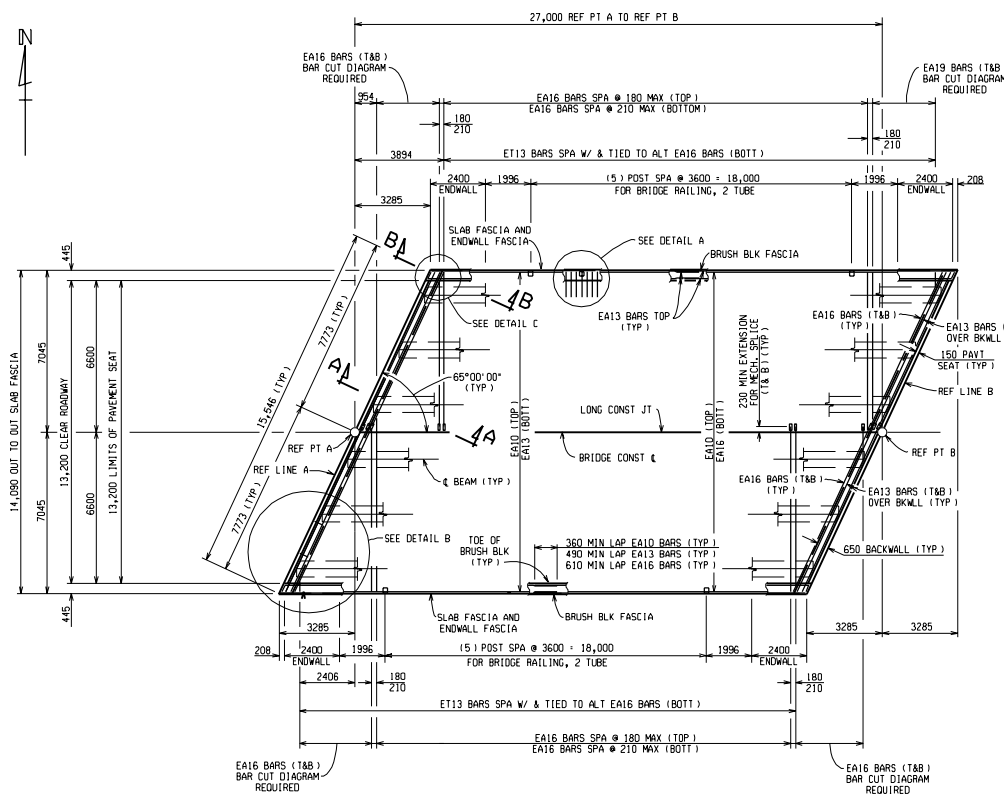
DETAIL "B"

	SUPERSTRUCTURE DETAILS			
	DATE	CONT. SEC.	JOB NO.	DESIGN UNIT
	S03 OF 85055	98765A	TAYLOR	SHEET 36 OF 47

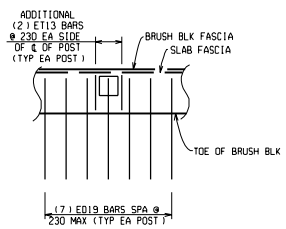
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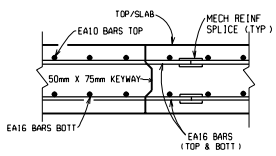
REVISIONS			
NO.	DESCRIPTION	DATE	BY



PLAN OF SLAB

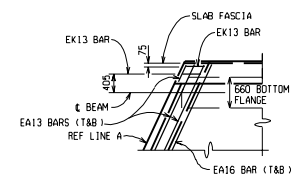


DETAIL A



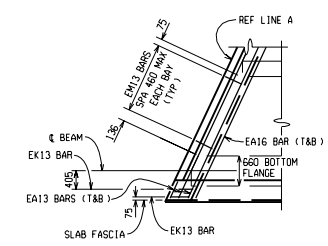
TYPICAL LONGITUDINAL CONSTRUCTION JOINT SECTION

THE CONTRACTOR IS TO PROVIDE A SAWED JOINT 12mm DEEP BY 3mm WIDE MINIMUM IN THE TOP OF THE SLAB AT THE LONGITUDINAL CONSTRUCTION JOINT. THE JOINT IS TO BE FILLED WITH HOT-POURED JOINT SEALANT OR COLD-APPLIED JOINT SEALANT, SINGLE COMPONENT TYPE IN ACCORDANCE WITH STANDARD SPECIFICATION SUBSECTION 9.14.04, NOT PAID FOR SEPARATELY BUT INCLUDED IN PAYMENT FOR *SUPERSTRUCTURE CONCRETE, FORMING, FINISHING AND CURING, NIGHT CASTING*.



DETAIL C

(NORTHWEST QUADRANT SHOWN. SOUTHWEST QUADRANT IS THE SAME BY 180° ROTATION)

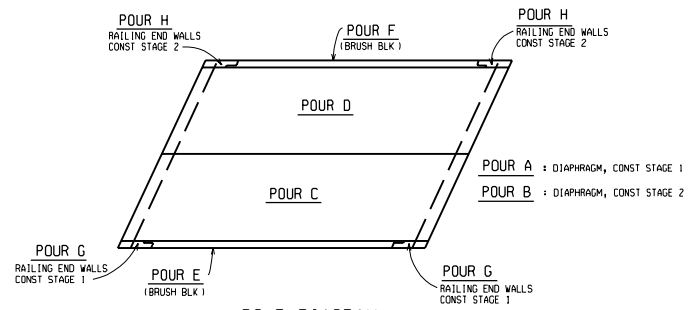


DETAIL B

(SOUTHWEST QUADRANT SHOWN. NORTHEAST QUADRANT IS THE SAME BY 180° ROTATION)

SUPERSTRUCTURE CONCRETE, NIGHT CASTING QUANTITIES

POUR	CUBIC METERS
A	3.8
B	3.8
C	56.2
D	56.2
E	2.4
F	2.4
G	1.6
H	1.6
TOTAL CONC: 128 CUBIC METERS	



POUR DIAGRAM

NOTE: POURS C AND D INCLUDE BACKWALLS



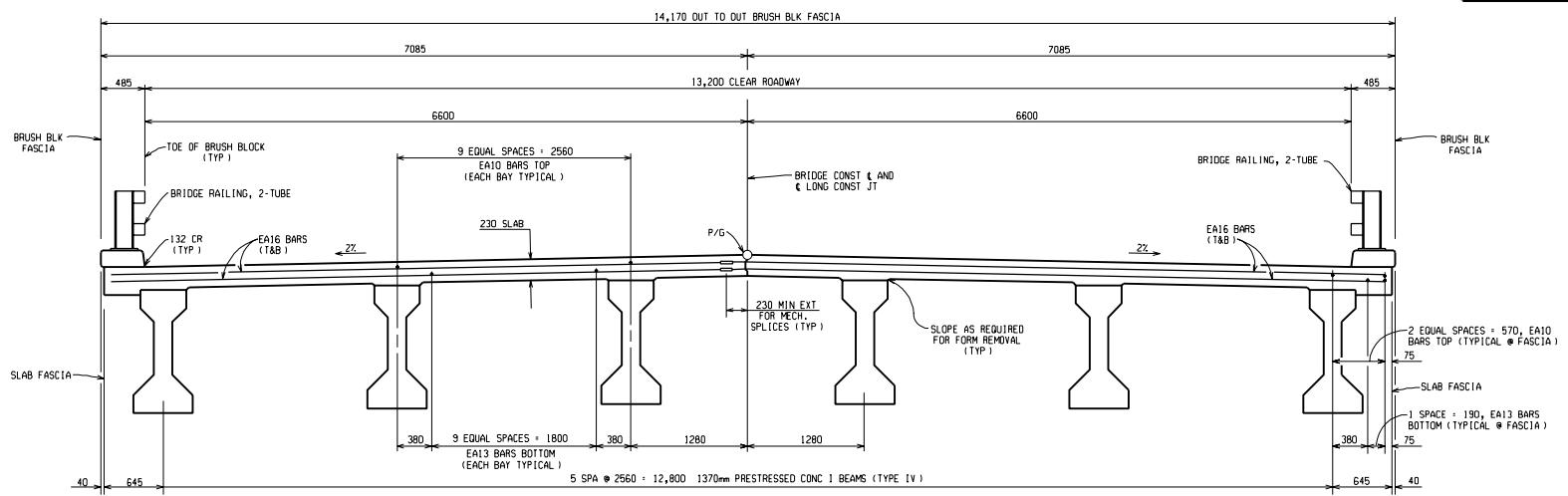
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	B02 OF 85075	98765A	MILLER	37 OF 47

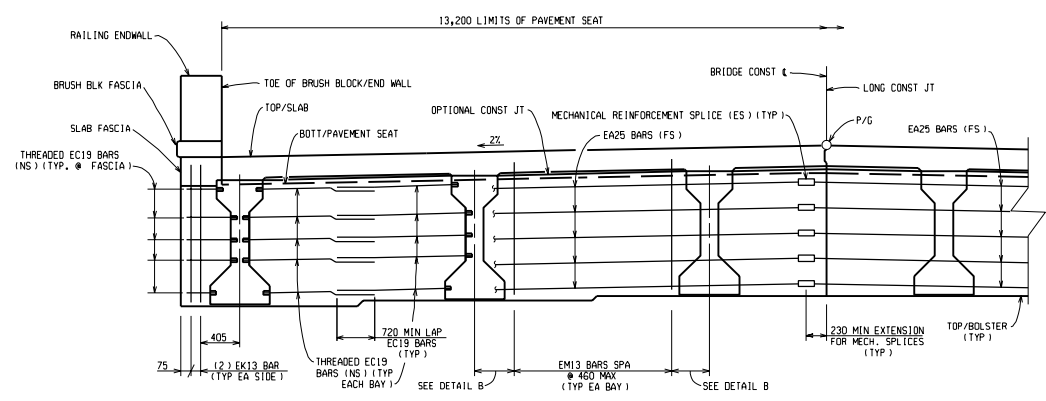
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL DECK SECTION
(LOOKING UP STATION)



PARTIAL BACKWALL ELEVATION

ABUTMENT B SHOW LOOKING UP STATION.
ELEVATION IS VIEWED PERPENDICULAR TO
BRIDGE CONST C.



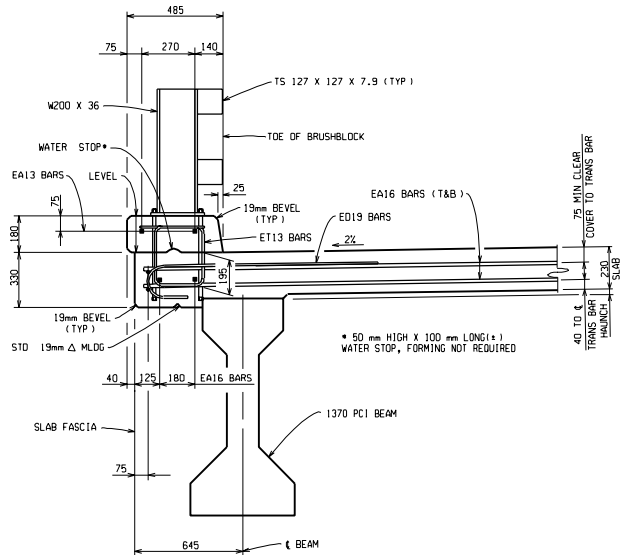
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	B02 OF 85075	98765A	MILLER	38 OF 47

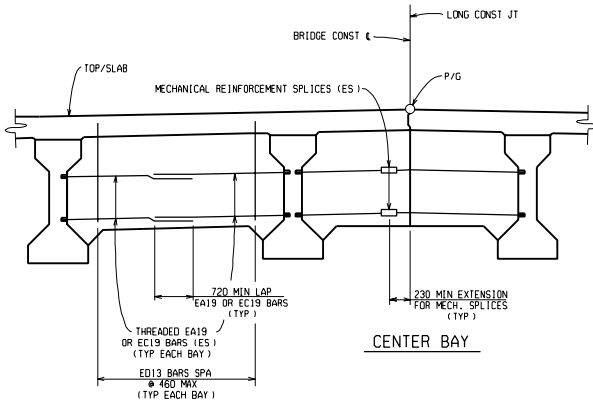
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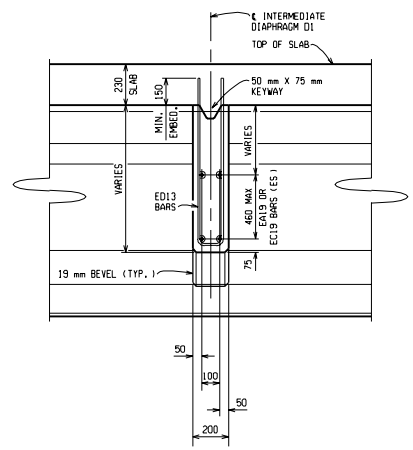
REVISIONS			
NO.	DESCRIPTION	DATE	BY



TYPICAL RAILING SECTION
SHOWING BRIDGE RAILING, 2 TUBE



DIAPHRAGM D1 ELEVATION
SHOWING INTERMEDIATE DIAPHRAGMS LOOKING UP STATION. ELEVATION IS VIEWED PERPENDICULAR TO BRIDGE CONST.



TYPICAL DIAPHRAGM SECTION

MISCELLANEOUS QUANTITIES	
47 m	Bridge Railing, 2 Tube
21 m ²	Joint Waterproofing
1 LS	Superstructure Conc. Form, Finish, and Cure, Night Casting
128 m ³	Superstructure Conc. Night Casting
128 m ³	Bridge Lighting, Operate and Maintain
1 LS	Bridge Lighting, Furnish and Remove
296 ea	Reinforcement, Mechanical Splice

NOTES:

ES DENOTES EACH SIDE.
T&B DENOTES TOP & BOTTOM.
NS DENOTES NEAR SIDE.
FS DENOTES FAR SIDE.

FOR BRIDGE RAILING, ANCHORAGE FOR GUARDRAIL, MOLDING AND BEVEL DETAILS, SEE STANDARD B-21-C AND B-103-B.

DO NOT POUR DECK CONCRETE UNTIL DIAPHRAGM CONCRETE ATTAINS A COMPRESSIVE STRENGTH OF 21 MPa.

THE CONTRACTOR MAY USE STEEL STAY-IN-PLACE DECK FORMS AT HIS OWN EXPENSE (DECK FORM RIBS SHALL BE FILLED WITH EXPANDED POLYSTYRENE BEFORE CASTING DECK).

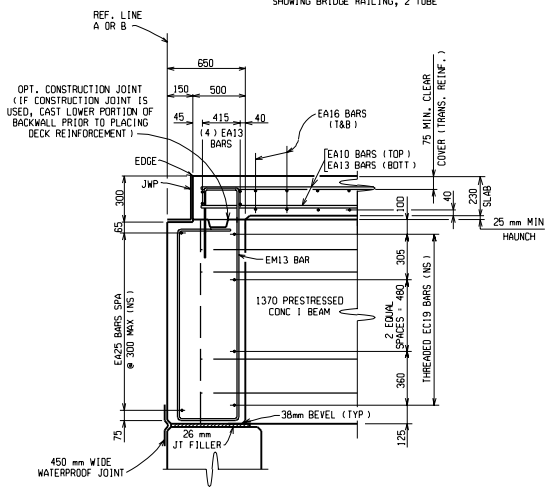
JWP DENOTES JOINT WATERPROOFING.

FOR NAME PLATE LOCATION, SEE SHEET 4.

EDGE OR *GROOVE* DENOTES EDGING OR GROOVING WITH AN APPROVED TOOL.

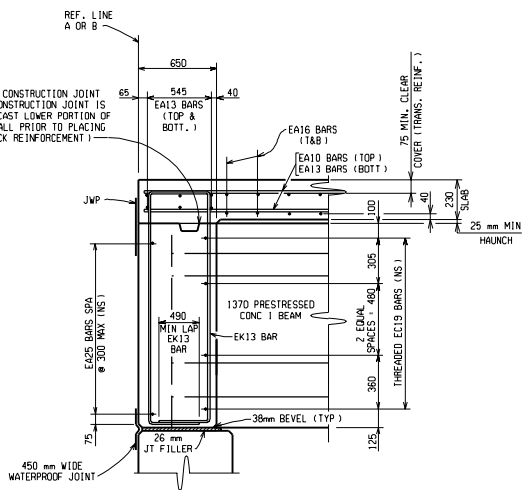
ALPHABETICAL DESIGNATION OF POURS IS NOT TO BE CONSTRUED AS A POUR SEQUENCE.

THIS DECK POUR IS DESIGNATED A NIGHT POUR, AND THEREFORE SUBJECT TO THE RESTRICTIONS OF SECTION 706.03J OF THE STANDARD SPECIFICATIONS.



SECTION A-A

NOTE: WHERE OPTIONAL CONSTRUCTION JOINTS ARE USED, THERE WILL BE NO PAYMENT FOR THE REQUIRED JOINT WATERPROOFING.



SECTION B-B

NOTE: WHERE OPTIONAL CONSTRUCTION JOINTS ARE USED, THERE WILL BE NO PAYMENT FOR THE REQUIRED JOINT WATERPROOFING.



SUPERSTRUCTURE DETAILS

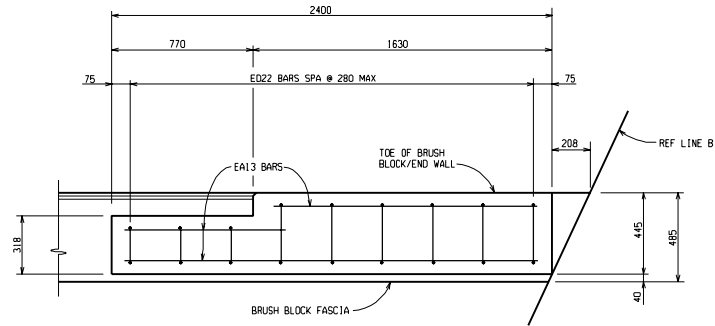
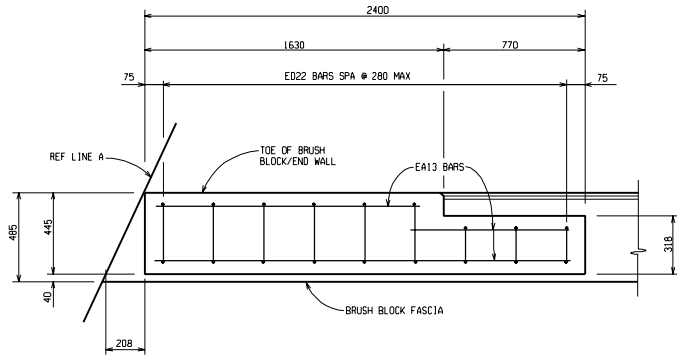
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	B02 OF 85075	98765A	MILLER	39 OF 47

DATE: _____ CORRECTED BY: _____ DATE: _____ DRAWN BY: _____

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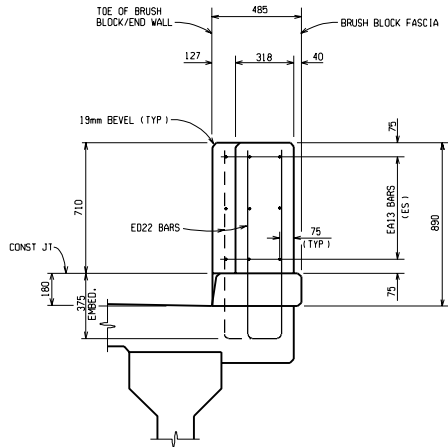
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REVISIONS			
NO.	DESCRIPTION	DATE	BY



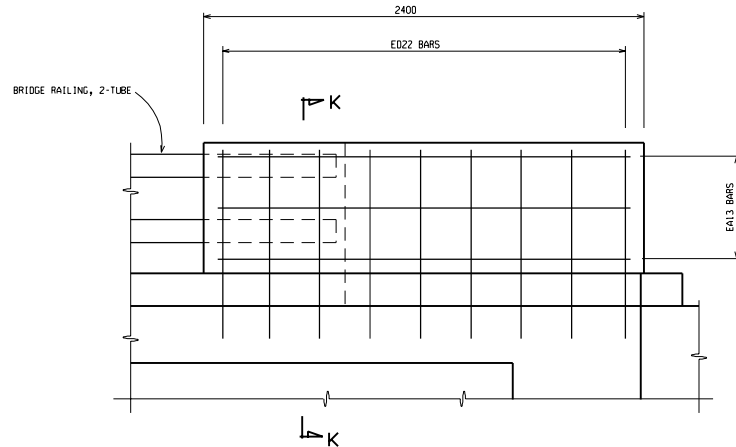
PLAN SOUTH RAILING END WALLS

NORTH END WALLS SIMILAR
BY 180° ROTATION



SECTION K-K

(METAL RAILING TUBES
ARE NOT SHOWN)



ELEVATION



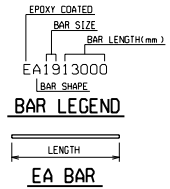
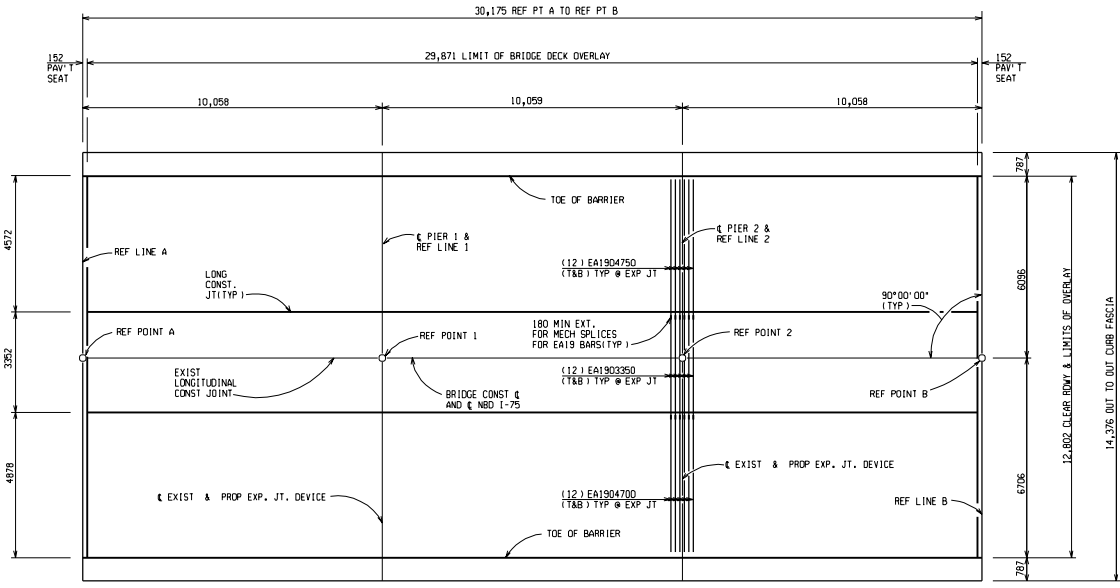
SUPERSTRUCTURE DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	B02 OF 85075	98765A	MILLER	40 OF 47

FILE NAME: B0285075.dwg
DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE:

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REVISIONS			
NO.	DESCRIPTION	DATE	BY



EPOXY COATED STEEL REINFORCEMENT		
BAR	NO. REQ'D	TOTAL MASS
EA1904750	24	255
EA1903950	24	180
EA1904700	24	252
OVERLAY		213
GRAND TOTAL		900

MISCELLANEOUS QUANTITIES

135 m ²	False Decking Reinforcement, Steel, Epoxy Coated
900 kg	Bit Patch, Rem
2 m ²	Scarifying
383 m ²	Hydrodemolition, First Pass
15 m ²	Hydrodemolition, Second Pass
55 m ³	Conc. Bridge Deck Overlay
29 m	Deck Joint, Rem
383 m ²	Bridge Deck Surface Construction
7 m ³	Conc. Groove D
2 m ³	Hand Chipping, Other Than Deck
5 m ²	Patch, Forming
200 m ²	Water Repellent Treatment
2 m ³	Patching Conc. LW
1 m ³	Patch, Full Depth
48 ea	Reinforcement, Mechanical Splice

* FOR SUBSTRUCTURE AND BEAM END REPAIR AS DIRECTED BY THE ENGINEER (SEE SHEET 35).
 THE ACTUAL QUANTITY OF "CONCRETE, BRIDGE DECK OVERLAY" PLACED ON THE DECK WAS CUBIC METERS. (THIS INFORMATION IS TO BE FILLED IN BY THE ENGINEER WHEN SUBMITTING "AS CONSTRUCTED" PLANS.)

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES RESURFACING THE EXISTING BRIDGE DECK, REPLACING EXPANSION JOINTS, SUBSTRUCTURE REPAIR, APPROACH WORK AND MAINTAINING TRAFFIC.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

1-75 TRAFFIC IS TO BE MAINTAINED OVER THE BRIDGE BY PART-WIDTH CONSTRUCTION.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE.

BEFORE OVERLAYING, SOUND CONCRETE TO DETERMINE WHETHER 450 mm REMOVAL AT EITHER SIDE OF TRANSVERSE JOINTS WILL BE ADEQUATE. INCREASE THE REMOVAL LIMITS IF NECESSARY.

THE VOLUME OF CONCRETE, BRIDGE DECK OVERLAY IS BASED ON THE OVERLAY AND AN ESTIMATED QUANTITY TO REPLACE UNSOUND CONCRETE AND TO MAKE CROWN ADJUSTMENTS AS DETERMINED BY THE ENGINEER.

THE SPALLED AREAS ON THE BEAM BOTTOMS ADJACENT TO THE BEARINGS (SPAN 1, PIER 1, BEAMS B,C,D,F,G AND H; SPAN 2, BEAMS C,D,E,F,G AND H) & AS DIRECTED BY ENGINEER ON SUBSTRUCTURE UNITS, SHALL BE HAND CHIPPED AND PATCHED WITH PATCHING MORTAR OR CONCRETE. CARE SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING STEEL REINFORCEMENT AND PRESTRESSING STRANDS DURING HAND CHIPPING.

THE EXPOSED EDGE OF ALL BEARING PLATES SHALL BE HAND-TOOL CLEANED AND COATED WITH BRUSH APPLIED ALUMINUM FILLED EPOXY MASTIC, NOT PAID FOR SEPARATELY BUT INCLUDED IN PAYMENT FOR "HAND CHIPPING, OTHER THAN DECK."

SILICA FUME MODIFIED CONCRETE OR LATEX MODIFIED CONCRETE MAY BE SELECTED FOR THE BRIDGE DECK OVERLAY CONCRETE, SEE SPECIAL PROVISION.

CHIPPED AREAS SHALL BE BLAST CLEANED TO REMOVE ALL LATTECE FROM CONCRETE AND RUST OR CORROSION FROM REINFORCING STEEL.

THE CONTRACTOR SHALL REMOVE AND REPLACE ONLY THAT PORTION OF THE BARRIER THAT IS NECESSARY FOR INSTALLATION OF THE DECK JOINT.

THE ITEM "JOINT, REMOVE" INCLUDES HAND CHIPPING WITHIN LIMITS REQUIRED FOR REMOVAL.

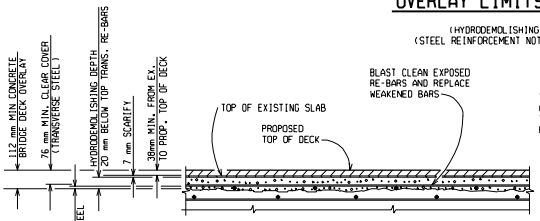
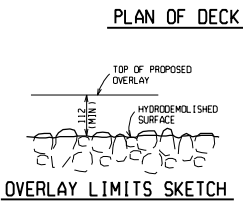
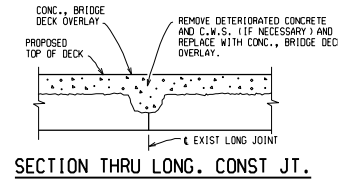
FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 600 mm TO 1200 mm HIGH SECTIONS WITH THE TOP OF FORM NO MORE THAN 1200 mm ABOVE THE LEVEL OF CONCRETE AS THE POUR PROGRESSES.

PENETRATING WATER REPELLENT TREATMENT SHALL BE APPLIED TO ALL SURFACES OF THE PIERS.

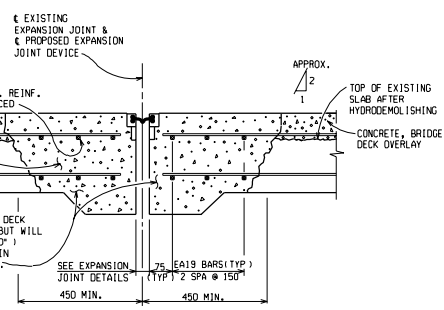
FALSE DECKING SHALL INCLUDE THE AREA OF SPAN 2 OVER THE TRAVELED WAY AND SHOULDERS.

BRIDGE OVERLAY CROSS SLOPE SHALL BE 2.0%.

T & B DENOTES TOP & BOTTOM.



REMOVE EXISTING EXPANSION JOINT. CONCRETE REMOVAL IS INCLUDED IN THE BID ITEM "DECK JOINT, REM". EXISTING LONGITUDINAL REINFORCEMENT SHALL BE LEFT INTACT AND BLAST CLEANED. TRANSVERSE REINFORCEMENT SHALL BE REPLACED AS SHOWN, AND PAID FOR AS "REINFORCEMENT, STEEL, EPOXY COATED."



SECTION AT PROPOSED EXPANSION JOINT DEVICE

BEFORE FORMING, SOUND CONCRETE TO SEE IF ADDITIONAL REMOVAL WILL BE REQUIRED.



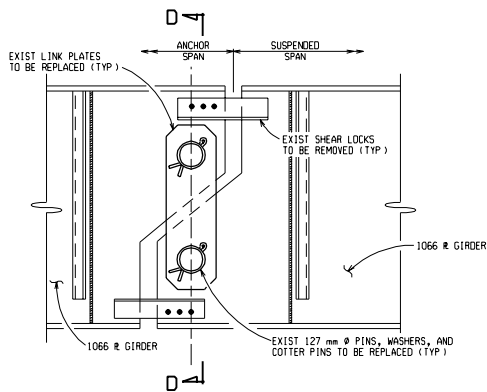
DECK REHABILITATION DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S02 OF 85080	98765A	THOMAS	41 OF 47

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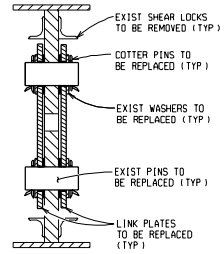
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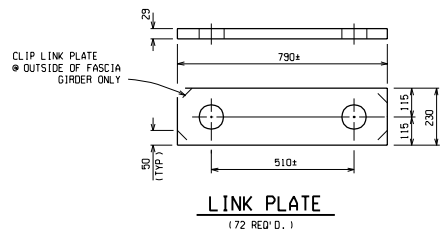


PIN & HANGER ELEVATION (EXISTING)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.



SECTION D-D (EXISTING)



LINK PLATE (72 REQ'D.)

MISCELLANEOUS QUANTITIES	
36 ea	Support, Suspension, Temp
144 ea	Bushing
3000 kg	Structural Steel, Furn and Fab, Pin and Hanger
36 ea	Hanger Assembly, Rem and Erect
36 ea	Hanger Assembly, Field Measurement
1 LS	Steel Structure, Cleaning, Partial, Type 4
1 LS	Steel Structure, Coating, Partial, Type 4
1 LS	Field Rep of Damaged Coating
15 m	Protective Shield, Utility Pipe

NOTES:

THE AREA BEHIND AND AROUND THE HANGER ASSEMBLY SHALL BE COATED PRIOR TO INSTALLING THE NEW LINK PLATES AND PINS. PROPOSED LINK PLATES SHALL BE SHOP COATED. PROPOSED STIFFENERS SHALL BE FIELD PAINTED.

THE CONTRACTOR WILL BE FURNISHED WITH PLANS OF THE EXISTING STRUCTURE IF REQUESTED.

ALTERNATE DESIGNS OF THE TEMPORARY SUPPORT SHALL BE BASED ON LOADS AS FOLLOWS:
694 kN VERTICAL GIRDER LOAD.

THE COLOR OF THE URETHANE PROTECTIVE COAT SHALL MATCH COLOR NUMBER 15488, LIGHT BLUE, OF FEDERAL STANDARD NUMBER 595B.

THIS BRIDGE IS COATED WITH LEAD BASED PAINT.

SEE SUBSECTION 715 OF THE STANDARD SPECIFICATIONS FOR PROTECTION OF WORK AND ENVIRONMENT DURING THE BLAST CLEANING OF STRUCTURES.

THE ENGINEER SHALL INSPECT THE STRUCTURAL STEEL PARTS THAT HAVE BEEN BLAST CLEANED FOR EVIDENCE OF CRACKS OR LOSS OF SECTION DUE TO CORROSION OF MORE THAN 25 PERCENT. SUCH DETERIORATION SHALL BE REPORTED IN WRITING TO THE ENGINEER, STRUCTURES AND ROAD MAINTENANCE OF THE MAINTENANCE DIVISION IN LANSING.

SHEAR LOCKS SHALL BE REMOVED BY METHODS APPROVED BY THE ENGINEER BEFORE STRUCTURE IS BLAST CLEANED. INCLUDED IN THE BID ITEM *STEEL STRUCTURE, CLEANING, PARTIAL, TYPE 4*.

WELDING ON EXISTING GIRDERS WILL NOT BE PERMITTED.

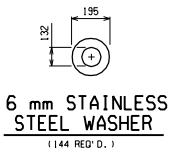
THE ESTIMATED AREA OF STRUCTURAL STEEL TO BE COATED IS 555 SQ METERS.

THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO AVOID OVERSPRAY ON ADJACENT SUBSTRUCTURE AND SUPERSTRUCTURE CONCRETE SURFACES. INCLUDED IN THE BID ITEM *STEEL STRUCTURE, COATING, PARTIAL, TYPE 4*.

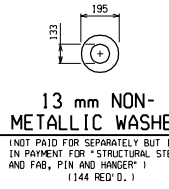
THE PROTECTION OF WORK AND ENVIRONMENT DURING BLAST CLEANING OF WEBS BEHIND AND AROUND HANGER ASSEMBLIES SHALL BE ACCORDING TO SUBSECTION 715 OF THE STANDARD SPECIFICATIONS. INCLUDED IN THE BID ITEM *HANGER ASSEMBLY, REMOVE AND ERCT*.

THE CONTRACTOR SHALL NOTIFY EACH UTILITY COMPANY 48 HOURS IN ADVANCE OF WORK IMPACTING THAT COMPANY'S CONDUITS OR FACILITIES.

AMERITECH CONDUITS SHALL NOT BE CLEANED AND COATED.

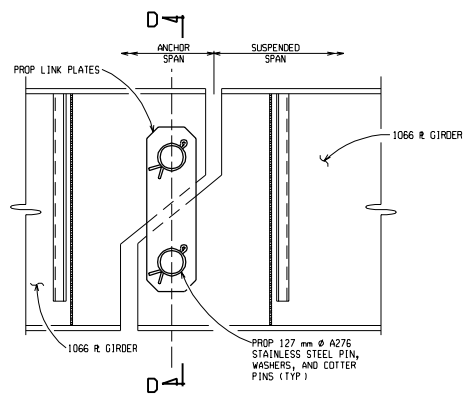


6 mm STAINLESS STEEL WASHER (144 REQ'D.)

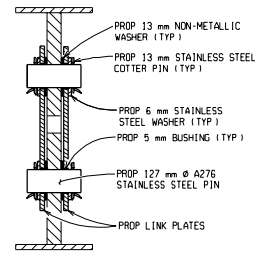


13 mm NON-METALLIC METALLIC WASHER (144 REQ'D.)

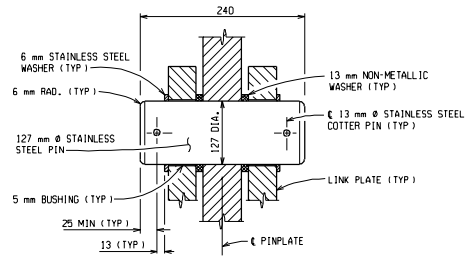
(NOT PAID FOR SEPARATELY BUT INCLUDED IN PAYMENT FOR *STRUCTURAL STEEL, FURN AND FAB, PIN AND HANGER*.)



PIN & HANGER ELEVATION (PROPOSED)



SECTION D-D (PROPOSED)



PROPOSED PIN DETAIL (72 REQ'D.)

THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OF THE EXISTING HANGER ASSEMBLIES INDICATED ON THE PLANS PRIOR TO THE PREPARATION OF LINK PLATE AND PIN SHOP DRAWINGS.



PIN & HANGER REPLACEMENT DETAILS

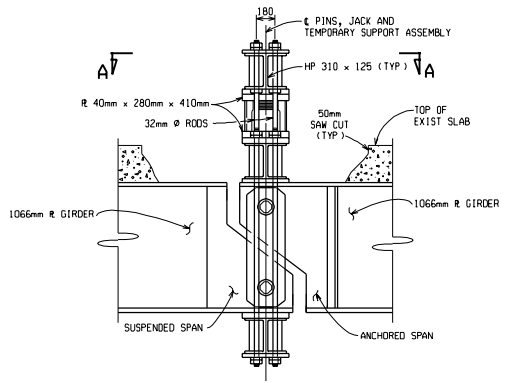
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	S09 OF 85055	98765A	TAYLOR	42 OF 47

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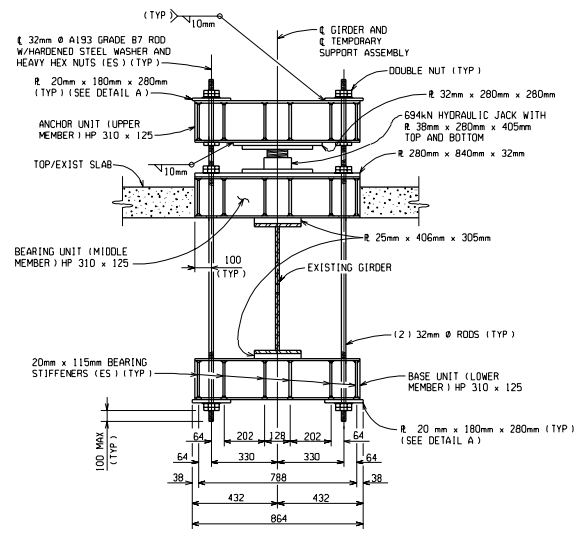
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TEMPORARY SUPPORT END VIEW

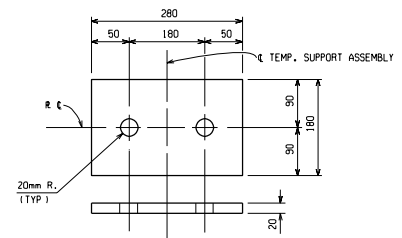
(TO APPLY NEAR PIERS 1, 2, & 3)
 (TEMPORARY SUPPORT AT FASCIA GIRDERS IS SHOWN, TEMPORARY SUPPORTS AT INTERIOR GIRDERS ARE SIMILAR)

- NOTES:
- 38mm Ø DRILLED HOLES IN ALL HP SECTIONS AND PLATES.
 - NUTS ARE USED AS SHIMS.
 - STOP WELD 6mm SHORT OF CORNER CLIPS, WRAP WELD AROUND OUTSIDE EDGE OF STIFFENERS.



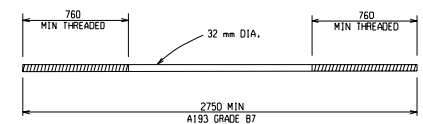
SECTION B-B

(SHOWING ELEVATION VIEW OF TEMPORARY SUPPORT)
 (TYPICAL ALL GIRDERS)



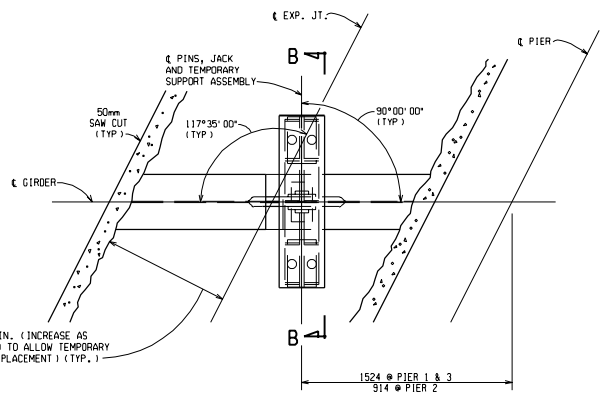
DETAIL A

(4 REQ'D PER ASSEMBLY)



SUSPENDER ROD DETAIL

4 REQUIRED PER ASSEMBLY W/7 HEAVY HEX NUTS & 4 HARDENED WASHER PER ROD



SECTION A-A

(SHOWING PLAN VIEW OF TEMPORARY SUPPORT)

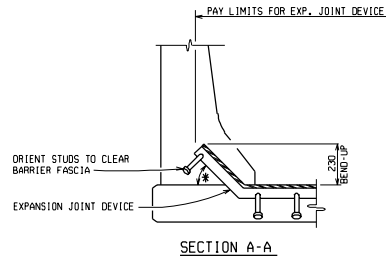


PIN & HANGER REPLACEMENT DETAILS

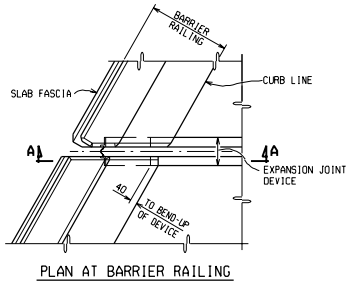
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	S09 OF 85055	98765A	TAYLOR	43 OF 47

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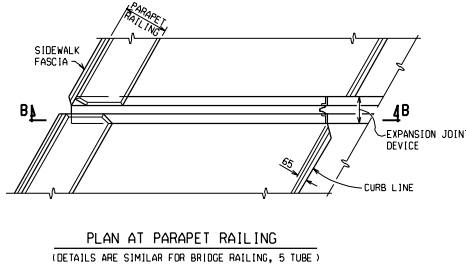
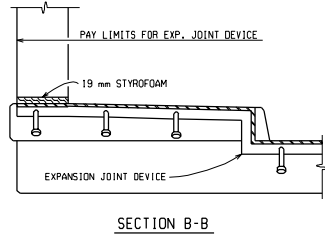
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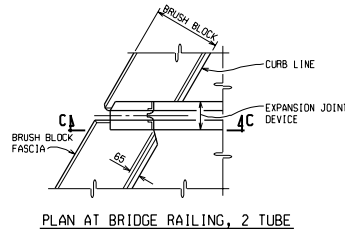
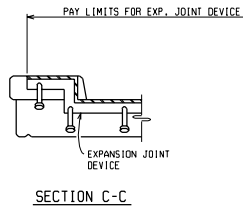
*—FOR ANGLES OF CROSSING FROM 90° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.



BARRIER TREATMENT



SIDEWALK TREATMENT



BRUSH BLOCK TREATMENT

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE

NOTES:

JOINT TYPES:
 THE EXPANSION JOINT DEVICE SHALL BE OF A TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW:

DEVICE	MANUFACTURER
WABO STRIP SEAL	WATSON-BOWMAN & ACME, INC.
PRO-SPAN	FEL-PRO, INC.
STEELFLEX-SSA2	D.S. BROWN
STEELFLEX-SSCM	D.S. BROWN
STEELFLEX-RS	D.S. BROWN
UNIFLEX 40 SS	STRUCTURAL RUBBER PRODUCTS CO.
STRIPED 40BL	STRUCTURAL RUBBER PRODUCTS CO.

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION:

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE EXPANSION JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 707.16 OF THE STANDARD SPECIFICATIONS.

THE PRO-SPAN DEVICE MUST INCORPORATE A CAST-IN-PLACE STEEL SEAT.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.4-E SHALL BE REQUIRED BETWEEN THE SEAL AND STEEL ANCHORAGE.

ALL BOLT WELL CAVITIES SHALL BE FILLED WITH AN APPROVED FLEXIBLE EPOXY OR A SEALANT CONFORMING TO FEDERAL SPECIFICATION TT-5-00230C.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPLICING THE SEALING GLAND, IT SHALL BE SPLICED BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

DETAILS AT CURBS OR BARRIERS:

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS:

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

ITEM	QUANTITY	UNIT	AMOUNT
EXPANSION JOINT DEVICE		m	



EXPANSION JOINT DETAILS

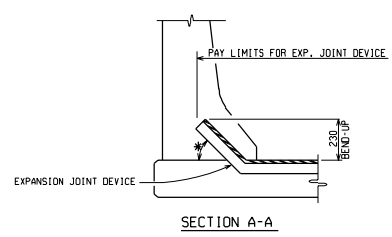
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	85030	98765A	THOMAS	44 OF 47

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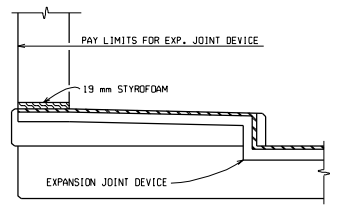
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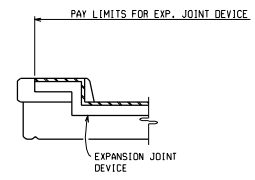


SECTION A-A

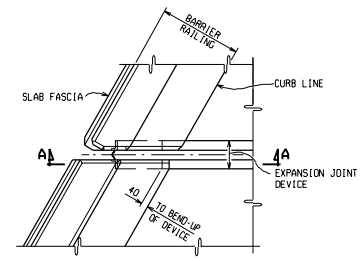
*—FOR ANGLES OF CROSSING FROM 30° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG EXPANSION JT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.



SECTION B-B

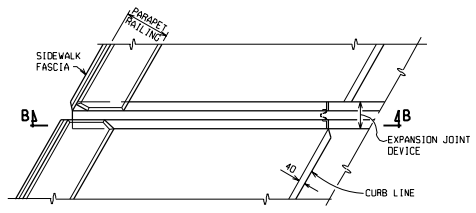


SECTION C-C



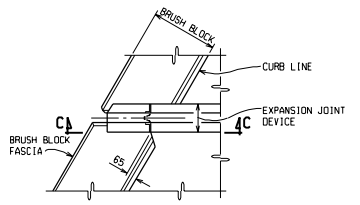
PLAN AT BARRIER RAILING

BARRIER TREATMENT



PLAN AT PARAPET RAILING
(DETAILS ARE SIMILAR FOR BRIDGE RAILING, 5 TUBE)

SIDEWALK TREATMENT



PLAN AT BRIDGE RAILING, 2 TUBE

BRUSH BLOCK TREATMENT

NOTES:

JOINT TYPES

THE EXPANSION JOINT DEVICE SHALL BE A LOW PROFILE TYPE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR HAS THE OPTION OF USING ANY OF THE DEVICES LISTED BELOW OR AN APPROVED EQUAL.

DEVICE	MANUFACTURER
WABO STRIP SEAL-TYPE E	WATSON-BOWMAN & ACME, INC.
STEEFLIX-SSC	D.S. BROWN
JEENE-W PROFILE	HYDROZO/JEENE

THE MODEL OF THE JOINT TYPE SELECTED SHALL BE SUITABLE TO ACCOMMODATE THE TOTAL MOVEMENT NOTED ON THE PLANS.

COMPLETE WORKING DRAWINGS OF ALL DETAILS OF FABRICATION OF THE EXPANSION JOINT DEVICE SHALL BE SUBMITTED FOR REVIEW IN ACCORDANCE WITH STANDARD SPECIFICATION 104.02. THIS REQUIREMENT IS WAIVED FOR EXPANSION JOINT DEVICES FOR WHICH A SET OF STANDARD INSTALLATION DETAILS HAS BEEN APPROVED. STANDARD INSTALLATION DETAILS CAN BE OBTAINED FROM THE DESIGN DIVISION.

FABRICATION AND INSTALLATION

THE EXPANSION JOINT SHALL BE SHOP FABRICATED TO CONFORM TO THE CONTOUR OF THE BRIDGE DECK, BARRIERS, ETC. IT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SUBJECT TO NOTES HEREIN AND THE APPROVAL OF THE ENGINEER.

THE TOP OF THE ELASTOMERIC JOINT DEVICE SHALL BE SET 3 - 6 mm BELOW THE CONCRETE SLAB (PAVEMENT) WITH A TOLERANCE OF ± 3 mm.

THE STEEL ANCHORAGE FOR STRIP SEAL GLANDS SHALL NOT BE GALVANIZED.

THE ELASTOMERIC CONCRETE NOSING SHALL BE WABOCRETE FMV, DELCRETE, JEENE PC-92 OR AN APPROVED EQUAL.

THE AREA OF THE STEEL ANCHORAGE AND SEALING GLAND WHICH WILL BE IN CONTACT WITH A SEALANT, OR LUBRICANT-ADHESIVE SHALL BE CLEANED WITH TOLUENE OR OTHER APPROVED SOLVENT.

WHERE THE SEALING GLAND IS LOCKED INTO A STEEL ANCHORAGE, A LUBRICANT-ADHESIVE CONFORMING TO STANDARD SPECIFICATION 914.04E SHALL BE REQUIRED BETWEEN THE SEAL AND THE ANCHORAGE.

IN THE EVENT THAT THE CONSTRUCTION SEQUENCE REQUIRES SPlicing THE SEALING GLAND, IT SHALL BE SPliced BY AN APPROVED METHOD (SUCH AS COLD VULCANIZATION) BY A TRAINED REPRESENTATIVE OF THE MANUFACTURER.

WHERE IMPLANTABLE SEALS ARE USED, THE MANUFACTURER'S INSTALLATION PROCEDURE MUST BE STRICTLY ADHERED TO AND PERFORMED BY AN AUTHORIZED CONTRACTOR.

DETAILS AT CURBS OR BARRIERS

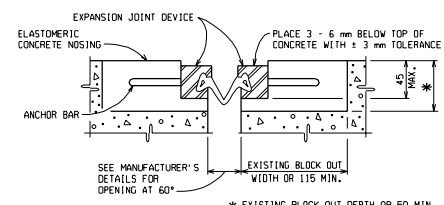
THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

MATERIALS

THE COST OF ALL MATERIALS AND LABOR REQUIRED FOR PROPER INSTALLATION OF THE EXPANSION JOINT (INCLUDING ELASTOMERIC CONCRETE NOSING) AND THE TERMINAL ASSEMBLIES AT THE CURBS, SIDEWALKS, OR BARRIERS IS INCLUDED IN THE PAYMENT FOR THE EXPANSION JOINT DEVICE.

ITEM	QUANTITY		AMOUNT
	UNIT	AMOUNT	
EXPANSION JOINT DEVICE	m		

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE	REQUIRED LENGTH OF EXPANSION JOINT DEVICE



SECTION THROUGH EXPANSION JOINT
THE MINIMUM BLOCK OUT DIMENSIONS SHOWN ARE APPLICABLE FOR DEVICES WITH STRIP SEALS ONLY.



EXPANSION JOINT DETAILS

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	85040	98765A	MILLER	45 OF 47

EJ4F

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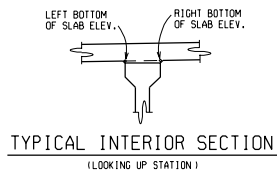
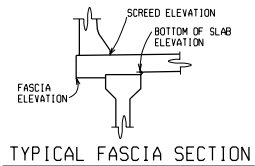
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

BOTTOM OF SLAB ELEVATIONS

		SPAN 1				SPAN 2				SPAN 3				REF. B	
		0	1	2	3	0	1	2	3	0	1	2	3		4
A	FASCIA	294.866	294.870	294.866	294.852	294.829	294.828	294.833	294.828	294.809	294.780	294.778	294.776	294.768	294.728
	RIGHT	294.944	294.945	294.939	294.923	294.899	294.898	294.901	294.896	294.876	294.847	294.846	294.844	294.837	294.800
B	LEFT	294.877	294.879	294.873	294.857	294.833	294.831	294.835	294.829	294.810	294.780	294.779	294.778	294.770	294.733
	RIGHT	294.863	294.865	294.859	294.842	294.818	294.817	294.815	294.815	294.795	294.766	294.765	294.763	294.756	294.719
C	LEFT	294.797	294.798	294.792	294.776	294.752	294.750	294.754	294.748	294.729	294.699	294.698	294.697	294.689	294.674
	RIGHT	294.782	294.784	294.778	294.761	294.737	294.736	294.740	294.734	294.714	294.685	294.684	294.682	294.675	294.659
D	LEFT	294.716	294.718	294.712	294.695	294.671	294.670	294.673	294.667	294.648	294.618	294.617	294.615	294.608	294.592
	RIGHT	294.702	294.703	294.697	294.681	294.657	294.655	294.659	294.653	294.633	294.604	294.603	294.601	294.594	294.578
E	LEFT	294.636	294.637	294.631	294.614	294.590	294.589	294.592	294.586	294.567	294.537	294.536	294.534	294.527	294.511
	RIGHT	294.621	294.623	294.616	294.600	294.576	294.574	294.578	294.572	294.552	294.523	294.521	294.520	294.513	294.497
F	LEFT	294.556	294.556	294.550	294.534	294.509	294.508	294.511	294.505	294.486	294.456	294.455	294.453	294.446	294.430
	RIGHT	294.541	294.542	294.536	294.519	294.495	294.494	294.497	294.491	294.471	294.442	294.440	294.439	294.431	294.416
G	LEFT	294.474	294.476	294.469	294.453	294.428	294.427	294.431	294.424	294.405	294.375	294.374	294.372	294.364	294.349
	RIGHT	294.460	294.461	294.455	294.438	294.414	294.413	294.416	294.410	294.390	294.361	294.359	294.358	294.350	294.334
H	LEFT	294.394	294.395	294.389	294.372	294.348	294.346	294.350	294.343	294.324	294.294	294.292	294.291	294.283	294.267
	RIGHT	294.379	294.381	294.374	294.358	294.333	294.332	294.335	294.329	294.309	294.280	294.278	294.277	294.269	294.253
J	LEFT	294.313	294.314	294.308	294.291	294.267	294.265	294.269	294.262	294.242	294.213	294.211	294.210	294.202	294.186
	FASCIA	294.233	294.236	294.230	294.215	294.191	294.189	294.193	294.186	294.166	294.135	294.133	294.130	294.121	294.103

SCREED ELEVATIONS

LEFT	295.182	295.185	295.180	295.167	295.146	295.145	295.148	295.142	295.123	295.096	295.095	295.092	295.083	295.067	295.045
RIGHT	294.530	294.531	294.525	294.510	294.488	294.487	294.488	294.481	294.461	294.432	294.431	294.426	294.416	294.398	294.375
CONST. JOINT	294.826	294.828	294.823	294.809	294.787	294.786	294.788	294.781	294.762	294.734	294.733	294.729	294.719	294.702	294.680



BULKHEAD ELEVATIONS

	ABUT. A	295.158	295.136	295.111	295.080	295.036
A	295.181	295.158	295.136	295.111	295.080	295.036
B	295.101	295.078	295.056	295.030	294.999	294.955
C	295.020	294.997	294.975	294.949	294.918	294.874
D	294.939	294.916	294.894	294.868	294.837	294.793
E	294.859	294.835	294.813	294.787	294.756	294.711
F	294.778	294.755	294.732	294.706	294.675	294.630
G	294.698	294.674	294.651	294.625	294.594	294.549
H	294.617	294.593	294.570	294.544	294.512	294.467
J	294.536	294.512	294.489	294.463	294.431	294.386

NOTES:

BOTTOM OF SLAB ELEVATIONS ARE AT RIGHT ANGLES TO THE BEAM CENTERLINE AND ARE BASED ON THE CONDITION THAT THE BEAMS AND DIAPHRAGMS ARE COMPLETELY ERECTED WITH NO OTHER LOADS APPLIED. THESE ELEVATIONS INCLUDE ALLOWANCE FOR VERTICAL CURVE AND DEFLECTION DUE TO FORMS, STEEL REINFORCEMENT, CONCRETE SLAB, BARRIER AND UTILITIES.

SCREED ELEVATIONS ARE BASED ON THE CONDITION THAT NO SLAB CONCRETE HAS BEEN CAST AND THAT FORMWORK AND STEEL REINFORCEMENT ARE IN PLACE.

SCREED RAILS FOR FINISHING OF STRUCTURAL CONCRETE SHALL BE LOCATED OVER FASCIA BEAMS.

SECTIONS FOR BOTTOM OF SLAB AND/OR SCREED ELEVATIONS ARE GIVEN ALONG BEAM CENTERLINES FROM CENTERLINE OF BEARING TO CENTERLINE OF BEARING AT EQUAL SPACINGS.



SLAB AND SCREED DATA (NB US-131)

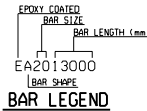
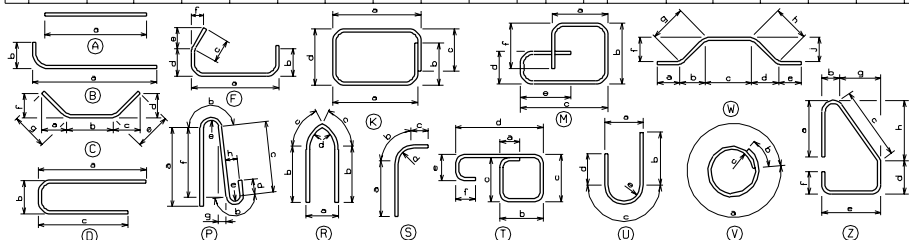
DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85040	98765A	MILLER	46 OF 47

DRAWN BY: DATE: CORRECTED BY: DATE:

FILE NAME: I:\085040.dwg

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

BAR	DIMENSIONS										NO. REB'D	TOTAL WT.
	a	b	c	d	e	f	g	h	j			
EA1301625	1625										1	2
EA1302230	2230										1	2
EA1302690	2690										1	3
EA1303295	3295										1	3
EA1303315	3315										3	10
EA1303615	3615										3	11
EA1303755	3755										1	4
EA1304360	4360										1	4
EA1306000	6000										2	12
EA1900640	640										7	10
EA1900910	910										10	20
EA1901990	1990										10	44
EA1907605	7605										4	68
EA1908070	8070										2	36
EA1913985	13985										2	63
EB1901160	640	520									78	202
ED1902190	945	300	945								3	15
ED1903190	1445	300	1445								1	7
ED1903270	1580	300	1390								3	22
ED1903380	1635	300	1445								10	76
ED1904160	2025	300	1835								5	46
EK1906730	2585	520	520	520							5	75
TOTAL ABUTMENT A = 735												
EA1301410	1410										1	1
EA1301710	1710										1	2
EA1302470	2470										1	2
EA1302770	2770										1	3
EA1303300	3300										3	10
EA1303530	3530										1	4
EA1303600	3600										3	11
EA1303830	3830										1	4
EA1305800	5800										2	12
EA1900640	640										8	11
EA1900910	910										11	22
EA1902090	2090										10	47
EA1908335	8335										4	75
EA1908600	8600										2	38
EA1913690	13690										2	61
EB1901160	640	520									78	202
ED1902190	945	300	945								3	15
ED1903190	1445	300	1445								1	7
ED1903270	1580	300	1390								3	22
ED1903380	1635	300	1445								11	83
ED1904160	2025	300	1835								5	46
EK1906830	2635	520	520	520							5	76
TOTAL ABUTMENT B = 754												



BAR	DIMENSIONS										NO. REB'D	TOTAL WT.		
	a	b	c	d	e	f	g	h	j					
EA1007400	7400											57	236	
EA1008990	8990											57	287	
EA1010160	10160											57	324	
EA1010725	10725											16	96	
EA1301100	1100											316	346	
EA1301280	1280											124	158	
EA1306750	6750											28	188	
EA1306800	6800											20	137	
EA1307175	7175											28	200	
EA1307580	7580											28	211	
EA1307665	7665											20	152	
EA1307670	7670											40	305	
EA1308225	8225											4	33	
EA1308365	8365											4	33	
EA1308995	8995											4	36	
EA1309165	9165											4	36	
EA1309410	9410											96	898	
EA1309875	9875											40	393	
EA1311130	11130											40	443	
EA1311260	11260											16	179	
EA1607210	7210											278	3111	
EA1607560	7560											36	422	
EA1607675	7675											280	3335	
EA1608105	8105											32	403	
EA1608470	8470											8	105	
EA1609165	9165											8	114	
EA1609410	9410											130	1899	
EA1900670	570											6	8	
EA1900600	600											6	8	
EA1900680	680											12	18	
EA1901095	1095											32	78	
EA1901185	1185											84	222	
EA1901195	1195											32	85	
EA1901330	1330											84	250	
EA1901420	1420											32	102	
EA1901600	1600											6	21	
EA1901800	1800											6	24	
EA1906000	6000											196	2628	
EA1907150	7150											42	671	
EA1907750	7750											42	727	
EA1907690	7690											42	722	
EA1908440	8440											42	792	
EA1908455	8455											4	76	
EA1908695	8695											4	77	
EA1908995	8995											4	80	
EA1909165	9165											4	82	
ED1300660	350	160	350									62	53	
ED1301290	580	130	580									96	123	
EK1302920	810	380	380	540								8	23	
EM1303145	405	865	540	565	300	470						64	200	
EPI302070	850	170	805	75	40	800	90	80				8	16	
EPL302190	910	170	865	75	40	860	95	80				416	906	
EW1301590	620	75	150	75	620	75	100	100				64	101	
EW1302800	595	150		595	730							730	64	178
EZ1601430	310	95	345	85	290	305	195	285				8	18	
EZ1601575	520	95	440	255	265		260	355				278	680	
TOTAL SUPERSTRUCTURE = 23049														

* THREADED REINFORCEMENT

MISCELLANEOUS QUANTITIES	
28994 kg	Reinforcement, Steel, Epoxy Coated

NOTE:
REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

REVISION	DATE	BY



STEEL REINFORCEMENT DETAILS (NB-US-131)

DATE	CONT. SEC.	JOB NO.	DESIGN UNIT	SHEET
	S03 OF 85040	98765A	MILLER	47 OF 47

DRAWN BY: DATE: CHECKED BY: DATE: CORRECTED BY: DATE: