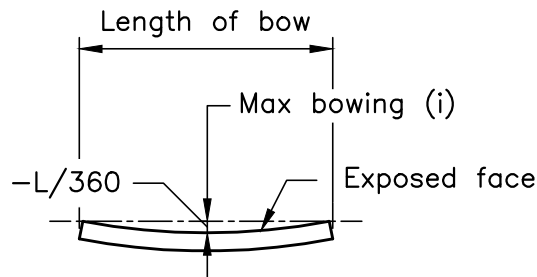
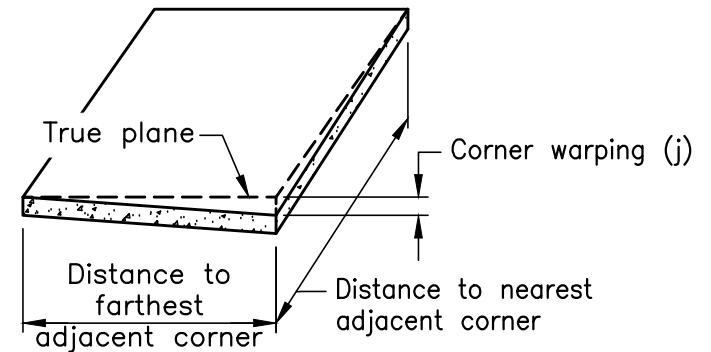


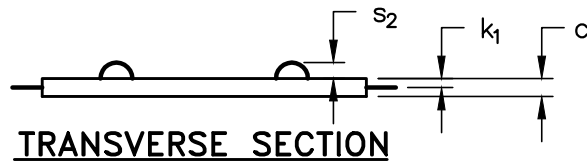
CONVEX BOWING



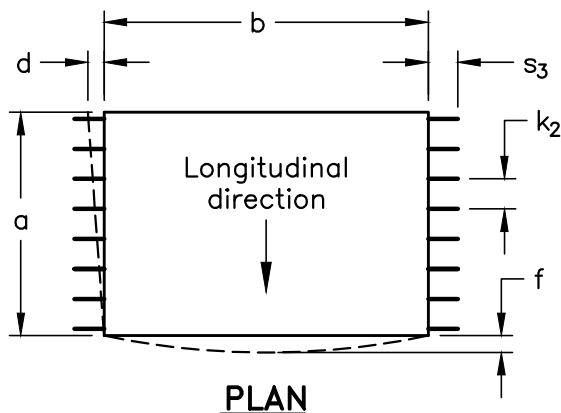
CONCAVE BOWING



CORNER WARPING



TRANSVERSE SECTION



PLAN

TABLE 1 – FABRICATION TOLERANCE

a	Width (panel dimension parallel to long direction of the bridge)	±5mm
b	Length (panel dimension parallel to transverse direction of the bridge)	±5mm
c	Nominal depth	±5mm
d	Variation from specified plan end squareness or skew	±6mm
f	Sweep	±3mm
k ₁	Location of strand perpendicular to plane of panel	±3mm
k ₂	Location of strand parallel to plane of panel	±6mm
s ₂	Stirrup projection from surface	±10mm
s ₃	Strand projection from end	±10mm
i	Maximum bowing	±length/360
j	Corner warping (measured per 300mm of distance from nearest adjacent corner)	±1.5mm per 300mm
	Local smoothness (deviation of straightness from all element edges)	±5mm in 3m
	Location of inserts for structural connections	±13mm

NOTES:

1. Length is a straight-line measurement taken horizontally at the mid-height of element in the longitudinal direction.
2. Width is a straight-line measurement taken horizontally at the mid-height of element in the transverse direction.
3. Nominal depth is a straight-line measurement taken vertically at the mid-length of element.
4. Horizontal alignment is deviation of straightness from all element edges.
5. Not all elements may contain the described features.
6. For dimensional tolerances not specified, the maximum allowable dimensional variation shall be 1:800 or ±5mm, whichever is greater.

MINISTRY OF TRANSPORTATION ONTARIO DRAWING

June 2023

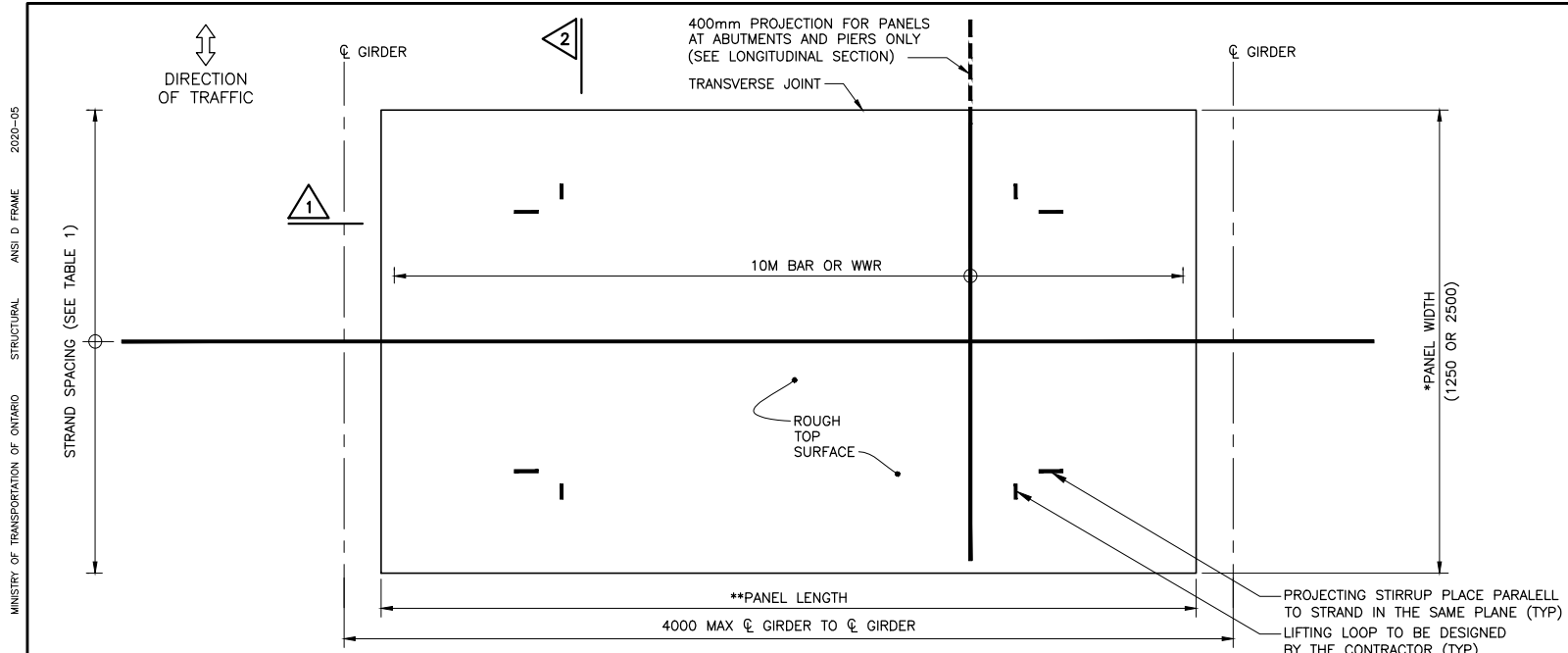
Rev 0

FABRICATION TOLERANCES FOR PARTIAL DEPTH
PRECAST DECK PANELS

DRAFT

MTOD – 3960.100

FILE NAME: C:\USERS\WEZAKYVA\ONE\DRIVE - GOVERNMENT OF ONTARIO\DESKTOP\JAMES_109_TOL_ERUM_2023\SS109-42_MARCH_27_2023_DRAFT.DWG
 MODIFIED: 2023-06-01 14:29



TYPICAL PRESTRESSED DECK PANEL PLAN
(ALL PANEL LENGTHS)

* PANEL DIM. PARALLEL TO LONG DIRECTION OF BRIDGE
 ** PANEL DIM. PARALLEL TO TRANSVERSE DIRECTION OF THE BRIDGE

METRIC
 DIMENSIONS ARE IN METRES AND/OR
 MILLIMETRES UNLESS OTHERWISE SHOWN
 DRAWING NOT TO BE SCALED
 100mm ON ORIGINAL DRAWING

Ontario Ministry of Transportation

CONT WP **DRAFT**

PARTIAL DEPTH PRECAST DECK PANELS FOR STEEL GIRDERS DETAILS

SHEET

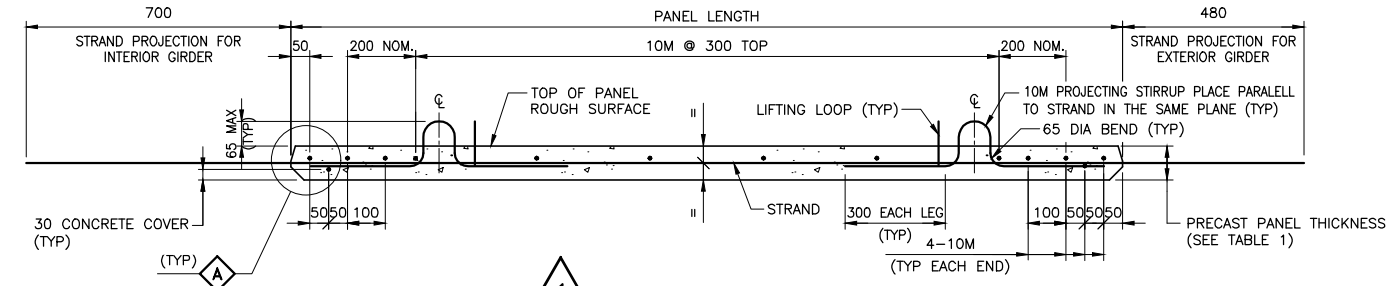
TABLE 1

TABLE OF PRESTRESSED DATA											
PANEL LENGTH (m)	≤1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8
STRAND SPACING (mm)	300	275	250	225	175	150	125	100	100	75	75
*JACKING FORCE (kN)	77										
BREAKING STRENGTH (kN)	102										
PANEL THICKNESS (mm)	90								100		110

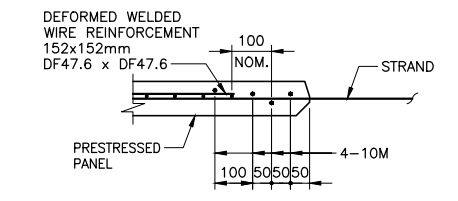
* SPECIFIED JACKING FORCE EXCLUDES THE FORCE TO COMPENSATE FOR ANCHORAGE SLIP AND TEMPERATURE CORRECTION.

NOTES TO DESIGNER:

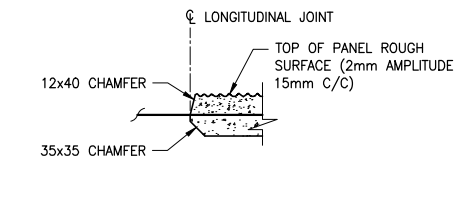
- THIS STANDARD IS ONLY APPLICABLE FOR DECK PANELS SPANNING TRANSVERSELY BETWEEN LONGITUDINAL GIRDERS, WITH A MINIMUM TOP FLANGE WIDTH OF 450mm OR GREATER.
- THE TOP FLANGE WIDTH IS PREFERRED TO BE UNIFORM THROUGHOUT THE LENGTH OF GIRDER IN ORDER TO HAVE A STANDARD LENGTH OF PRECAST PANEL.
- IF THE CONCRETE STRENGTH OF THE CORRESPONDING CAST-IN-PLACE CONCRETE TOPPING IS GREATER THAN 40 MPa, THEN THE STRENGTH OF THE PRECAST PANEL SHALL BE INCREASED TO MATCH.
- THE TOTAL COMPOSITE DECK SLAB SHALL BE 225mm FOR 90mm THICK PANELS, FOR 100mm AND 110mm THICK PANELS COMPOSITE DECK THICKNESS SHALL BE 250mm.
- WHEN THE REQUIRED PANEL LENGTH FALLS BETWEEN THOSE VALUES LISTED IN TABLE 1, THEN USE THE STRAND SPACING FOR THE NEXT LARGER LISTED PANEL LENGTH.
- HEIGHT AND LOCATION OF SHEAR CONNECTORS TO BE DESIGNED TO ACCOMMODATE THE DECK PANEL DETAIL OVER THE TOP FLANGE.
- THE "NOTES TO DESIGNER" SHALL BE DELETED FROM THIS DRAWING PRIOR TO ISSUING.



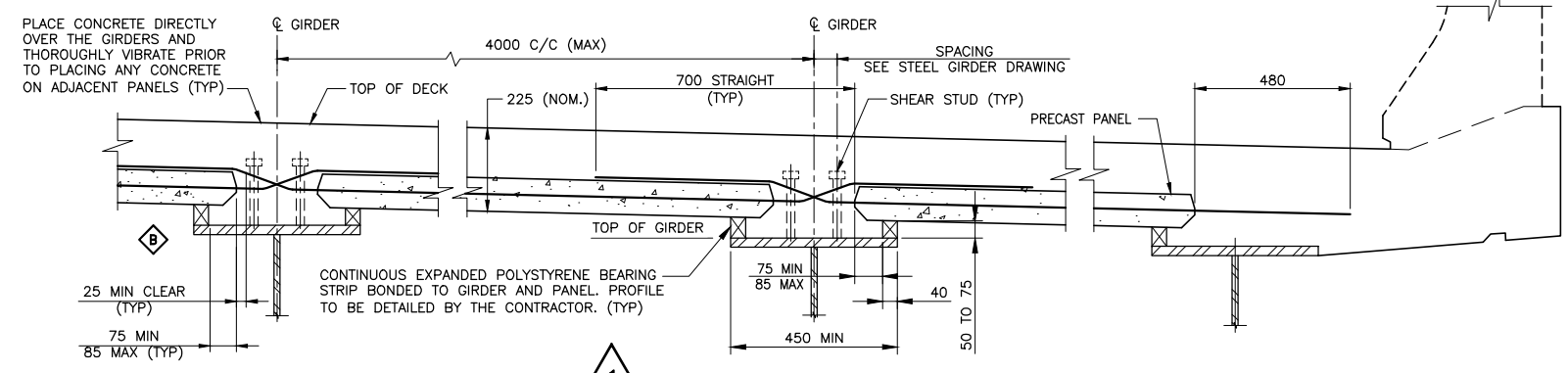
1 TYPICAL PRESTRESSED DECK PANEL SECTION



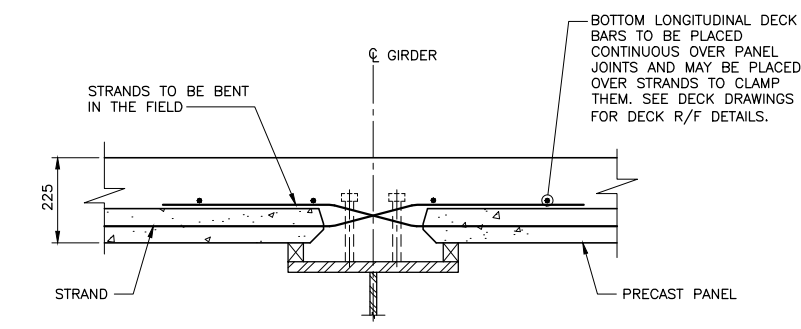
1 OPTIONAL DETAIL WITH WWR



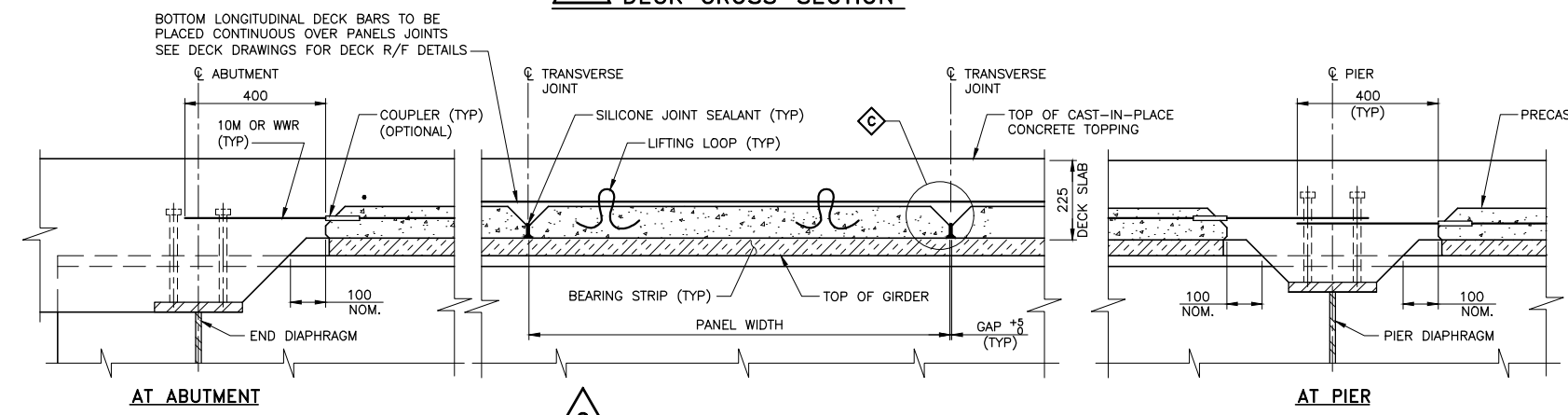
A CHAMFER DETAIL (TYP)



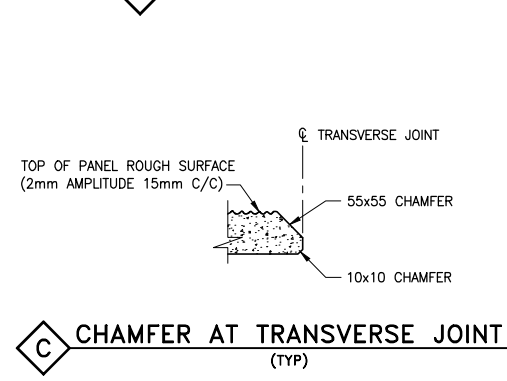
1 DECK CROSS-SECTION



B REINFORCEMENT



2 LONGITUDINAL SECTION



C CHAMFER AT TRANSVERSE JOINT (TYP)

- NOTES:**
- THESE DRAWINGS SHOW DETAILS FOR PARTIAL DEPTH PRECAST DECK PANELS FOR USE WITH STEEL GIRDERS.
 - SHOP DRAWINGS SHOWING PANEL LAYOUT AND ASSOCIATED CONSTRUCTION DETAILS SHALL BE PRODUCED BY THE CONTRACTOR.
 - THE DECK PANELS ARE DESIGNED AS NON-COMPOSITE TO SUPPORT THE DEAD LOAD OF THE PANEL, CAST-IN-PLACE CONCRETE TOPPING, AND 2.4 kPa OF CONSTRUCTION LOADING.
 - LIFTING LOOPS SHALL BE MADE VISUALLY DIFFERENT FROM STIRRUP PROJECTIONS, SUCH AS: ORIENTED IN A DIFFERENT DIRECTION OR USING OTHER SUITABLE METHODS.
 - FOR DECK SLAB WITH STAINLESS STEEL OR GFRP REINFORCING, THE LIFTING LOOPS SHALL BE STAINLESS STEEL OR SHALL BE CUT OFF AFTER INSTALLATION.
 - CLEAR COVER TO REINFORCING STEEL: SOFFIT OF PANEL 40 ±10/-5mm UNLESS NOTED OTHERWISE.
 - PROJECTED STIRRUPS ARE OPTIONAL AND NOT REQUIRED FOR STRUCTURAL DESIGN OF THE PANELS AND MAY BE PROVIDED TO TIE THE CAST-IN-PLACE CONCRETE TOPPING REINFORCEMENT FOR EASE IN CONSTRUCTION. USE STAINLESS STEEL STIRRUPS FOR DECK REINFORCED WITH STAINLESS STEEL OR GFRP REBAR.
 - THE BEARING STRIPS THAT ARE USED TO SUPPORT THE PANELS PRIOR TO POURING THE CAST-IN-PLACE TOPPING SHALL BE DETAILED BY THE CONTRACTOR AND SHALL REMAIN IN PLACE. BEARING STRIP SHALL BE BONDED TO GIRDER AND PANEL BY INDUSTRIAL GRADE ADHESIVE AND ANY GAPS SHALL BE SEALED WITH CAULKING. AT GIRDER FIELD SPLICE, CUT THE BEARING STRIP TO SUIT TOP FLANGE SPLICE PLATE.
 - CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE PANELS AND THE BEARING STRIPS DURING CONSTRUCTION.
 - BOTTOM LONGITUDINAL DECK BARS TO BE PLACED CONTINUOUS ON PRECAST DECK PANELS AND SHALL NOT HAVE LAP SPLICES OVER THE TRANSVERSE JOINTS OF PANELS.
 - CONTRACTOR IS REMINDED TO PAY ATTENTION TO THE QUALITY OF VIBRATION OF THE WET CONCRETE PLACED OVER GIRDER FLANGES SO THAT IT FLOWS AND PROPERLY FILLS UNDER THE EDGES OF THE PRECAST DECK PANELS.
 - CONTRACTOR TO SUBMIT SUPPORTING DOCUMENTS FOR APPROVAL PRIOR TO FABRICATION IF RESISTANCE WELDING IS PLANNED TO BE USED TO FABRICATE THE REINFORCEMENT CAGE.
 - FABRICATOR MAY ADJUST THE STRAND/REBAR SPACING TO CREATE SEVERAL 100x100mm STEEL FREE AREAS TO ACCOMMODATE CORES FOR QUALITY ASSURANCE TESTING. THE LOCATIONS FROM WHERE CORES MAY BE TAKEN SHALL BE CLEARLY MARKED ON DECK PANEL WORKING DRAWINGS. CORE SIZE SHALL BE AS SPECIFIED ELSEWHERE IN THE CONTRACT.
 - CONTRACTOR SHALL FIELD MEASURE OR TAKE SURVEY ELEVATIONS OF THE ACTUAL CAMBER ON THE GIRDER BEFORE DETAILING THE BEARING STRIP HEIGHTS.
 - FABRICATION TOLERANCES SHALL BE ACCORDING TO MTD 3960.100.

MATERIALS:

- CONCRETE STRENGTHS**
30 MPa AT TRANSFER AND 40 MPa AT 28 DAYS.
- PRESTRESSING STEEL**
PRESTRESSING STEEL SHALL BE LOW RELAXATION SEVEN WIRE STRAND, SIZE DESIGNATION 9mm DIA. GRADE 1860 MPa.
- REINFORCING STEEL**
REINFORCING STEEL SHALL BE GRADE 500W.
- WELDED WIRE REINFORCEMENT**
WELDED WIRE REINFORCEMENT SHALL BE DEFORMED AND GRADE 500 MPa IN ACCORDANCE WITH ASTM A1064.
- BEARING STRIP**
THE BEARING STRIP SHALL BE HIGH DENSITY EXPANDED POLYSTYRENE WITH A MINIMUM COMPRESSIVE STRENGTH OF 0.38 MPa (55 PSI).

REFER TO THE STRUCTURAL MANUAL FOR PROFESSIONAL ENGINEER STAMPING REQUIREMENTS.

STANDARD DRAWING
 JUNE 1, 2023
 SS109-42
 PARTIAL DEPTH PRECAST DECK PANELS FOR STEEL GIRDERS - DETAILS

REVISIONS		DATE	BY	DESCRIPTION
DESIGN	CHK	CODE	CSA S6-19	LOAD CL 625-ONT
DRAWN	CHK	SITE		DATE DWG

FILE NAME: C:\USERS\WEZAKVA\ONE DRIVE - GOVERNMENT OF ONTARIO\DESKTOP\JAMES 109_TOL_ERUM_2023\SI109-43_MARCH_27_2023_DRAFT.DWG
 MODIFIED: 2023-06-01 14:44
 MINISTRY OF TRANSPORTATION OF ONTARIO STRUCTURAL ANS D FRAME 2020-05

Ontario Ministry of Transportation
 CONT WP **DRAFT**
 PARTIAL DEPTH PRECAST DECK PANELS FOR NU GIRDERS - DETAILS SHEET

METRIC
 DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN
 DRAWING NOT TO BE SCALED
 100mm ON ORIGINAL DRAWING

TABLE 1

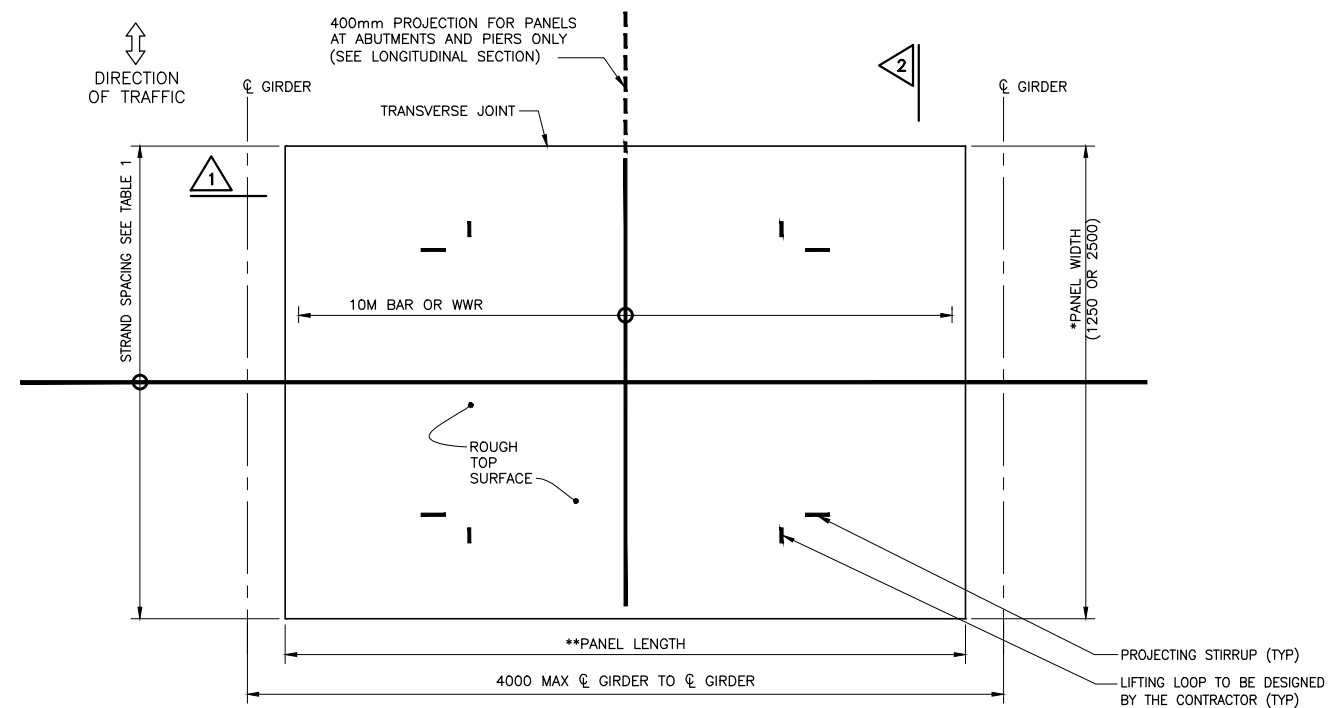
TABLE OF PRESTRESS DATA

PANEL LENGTH (m)	≤1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
STRAND SPACING (mm)	300	275	250	225	175	150	125	100
*JACKING FORCE (kN)	77							
BREAKING STRENGTH (kN)	102							

* SPECIFIED JACKING FORCE EXCLUDES THE FORCE TO COMPENSATE FOR ANCHORAGE SLIP AND TEMPERATURE CORRECTION.

NOTES TO DESIGNER:

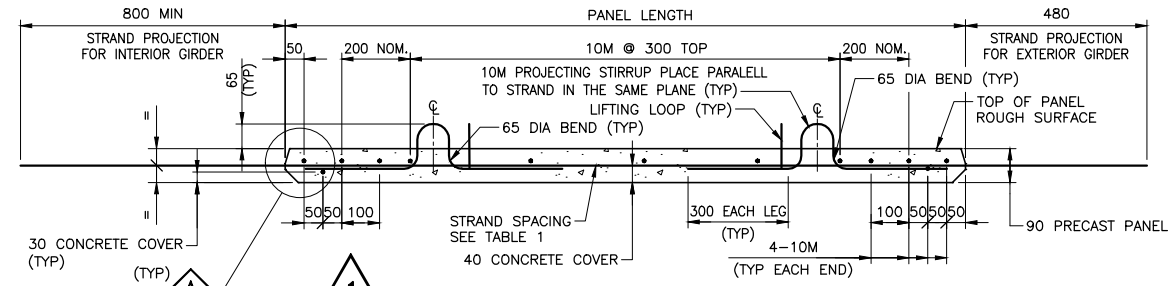
- THIS STANDARD IS ONLY APPLICABLE FOR DECK PANELS SPANNING TRANSVERSELY BETWEEN LONGITUDINAL GIRDERS.
- THESE PANELS ARE INTENDED FOR USE ON GIRDERS SPANNING LONGITUDINALLY BETWEEN SUPPORTS UP TO A MAXIMUM SPACING OF 4.0m ON CENTRE.
- IF THE CONCRETE STRENGTH OF THE CORRESPONDING CAST-IN-PLACE DECK IS GREATER THAN 40 MPa, THEN THE STRENGTH OF THE PRECAST PANEL SHALL BE INCREASED TO MATCH.
- WHEN THE REQUIRED PANEL LENGTH FALLS BETWEEN THOSE VALUES LISTED IN TABLE 1, THEN USE THE STRAND SPACING FOR THE NEXT LARGER LISTED PANEL LENGTH.
- THE TOTAL COMPOSITE DECK SLAB SHALL BE 225mm.
- WHEN CALCULATING THE ELEVATIONS THE DESIGNER IS ALERTED THAT THE MINIMUM DECK HAUNCHES OVER GIRDERS TOP FLANGE IS 50mm.
- THE 'NOTES TO DESIGNER' SHALL BE DELETED FROM THIS DRAWING PRIOR TO ISSUING.



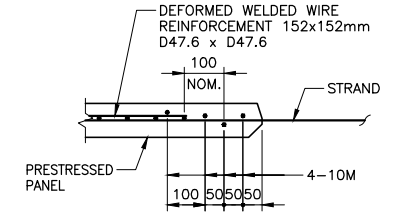
TYPICAL PRESTRESSED DECK PANEL (ALL PANEL LENGTHS)

PLAN

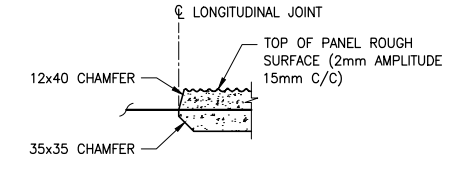
* PANEL DIM. PARALLEL TO LONG DIRECTION OF BRIDGE
 ** PANEL DIM. PARALLEL TO TRANSVERSE DIRECTION OF THE BRIDGE



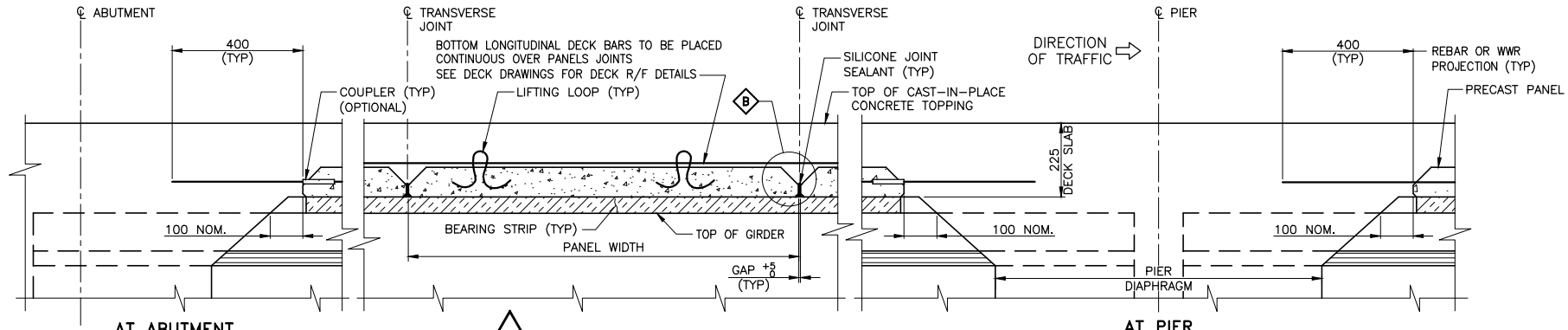
1 TYPICAL SECTION OF PRESTRESSED DECK PANEL



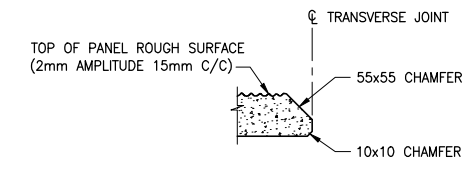
1 OPTIONAL DETAIL WITH WWR (PRESTRESSED PANELS ONLY)



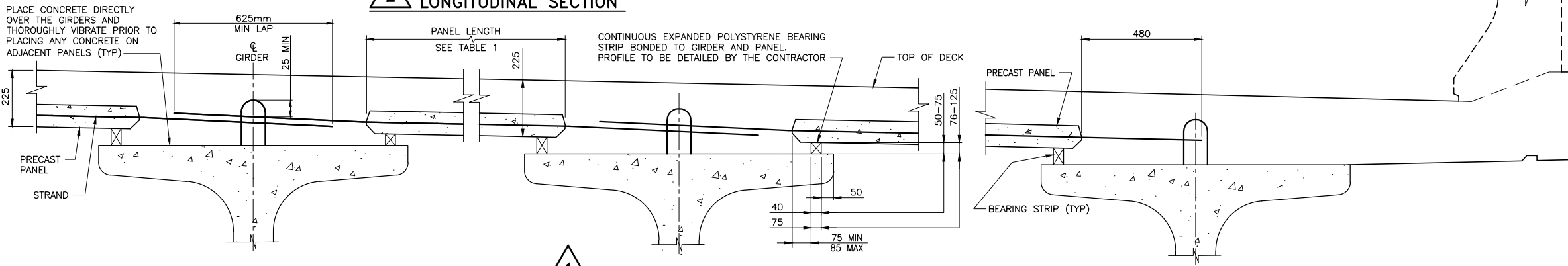
A CHAMFER DETAIL (TYP)



2 LONGITUDINAL SECTION



B CHAMFER AT TRANSVERSE JOINT (TYP)



1 DECK CROSS-SECTION

- NOTES:**
- THESE DRAWINGS SHOW DETAILS FOR PARTIAL DEPTH PRECAST DECK PANELS FOR USE WITH NU GIRDERS.
 - PANELS 1.4m OR LESS MAY BE SUPPLIED AS REINFORCED CONCRETE WITH 15M @ 300mm IN PLACE OF STRAND. THE 15M REINFORCING STEEL PROJECTIONS SHALL BE THE SAME AS STRAND PROJECTIONS LABELED ON SECTION.
 - SHOP DRAWINGS SHOWING PANEL LAYOUT AND ASSOCIATED CONSTRUCTION DETAILS SHALL BE PRODUCED BY THE CONTRACTOR.
 - LIFTING LOOPS SHALL BE MADE VISUALLY DIFFERENT FROM STIRRUP PROJECTIONS, SUCH AS: ORIENTED IN A DIFFERENT DIRECTION OR USING OTHER SUITABLE METHODS.
 - PROJECTED STIRRUPS ARE OPTIONAL AND NOT REQUIRED FOR STRUCTURAL DESIGN OF THE PANELS AND MAY BE PROVIDED TO TIE THE CAST-IN-PLACE CONCRETE TOPPING REINFORCEMENT FOR EASE IN CONSTRUCTION. USE STAINLESS STEEL STIRRUPS FOR DECK REINFORCED WITH STAINLESS STEEL OR GFRP REBAR.
 - CLEAR COVER TO REINFORCING STEEL: SOFFIT OF PANEL 40 ±10/-5mm UNLESS NOTED OTHERWISE.
 - THE BEARING STRIPS THAT ARE USED TO SUPPORT THE PANELS PRIOR TO POURING THE CAST-IN-PLACE TOPPING SHALL BE DETAILED BY THE CONTRACTOR AND SHALL BE BONDED TO THE GIRDER BY INDUSTRIAL GRADE ADHESIVE, WITH ANY GAPS SEALED WITH CAULKING. CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE PANELS AND THE BEARING STRIPS DURING CONSTRUCTION.
 - BOTTOM LONGITUDINAL DECK BARS TO BE PLACED CONTINUOUS ON PRECAST DECK PANELS AND SHALL NOT HAVE LAP SPICES OVER THE TRANSVERSE JOINTS OF PANELS.
 - LIFTING LOOPS SHALL BE CUT OFF AND REMOVED PRIOR TO PLACING CONCRETE FOR THE CAST-IN-PLACE PORTION OF THE DECK.
 - CONTRACTOR IS REMINDED TO PAY ATTENTION TO THE QUALITY OF VIBRATION OF THE WET CONCRETE PLACED OVER GIRDER FLANGES SO THAT IT FLOWS AND PROPERLY FILLS UNDER THE EDGES OF THE PRECAST DECK PANELS.
 - CONTRACTOR TO SUBMIT SUPPORTING DOCUMENTS FOR APPROVAL PRIOR TO FABRICATION IF RESISTANCE WELDING IS PLANNED TO BE USED TO FABRICATE THE REINFORCEMENT CAGE.
 - FABRICATOR MAY ADJUST THE STRAND/REBAR SPACING TO CREATE SEVERAL 100x100mm STEEL FREE AREAS TO ACCOMMODATE CORES FOR QUALITY ASSURANCE TESTING. THE LOCATIONS FROM WHERE CORES MAY BE TAKEN SHALL BE CLEARLY MARKED ON DECK PANEL SHOP DRAWING. CORE SIZE SHALL BE AS SPECIFIED ELSEWHERE IN THE CONTRACT.
 - FABRICATION TOLERANCES SHALL BE ACCORDING TO MTD0 3960.100.

- MATERIALS:**
- CONCRETE STRENGTHS**
30 MPa AT TRANSFER AND 40 MPa AT 28 DAYS.
 - PRESTRESSING STEEL**
PRESTRESSING STEEL SHALL BE LOW RELAXATION SEVEN WIRE STRAND, SIZE DESIGNATION 9mm DIA. GRADE 1860 MPa.
 - REINFORCING STEEL**
REINFORCING STEEL SHALL BE GRADE 500W.
 - WELDED WIRE REINFORCEMENT**
WELDED WIRE REINFORCEMENT SHALL BE DEFORMED AND GRADE 500 MPa IN ACCORDANCE WITH ASTM A1064.
 - BEARING STRIP**
THE BEARING STRIP SHALL BE HIGH DENSITY EXPANDED POLYSTYRENE WITH A MINIMUM COMPRESSIVE STRENGTH OF 0.38 MPa (55 PSI).

REFER TO THE STRUCTURAL MANUAL FOR PROFESSIONAL ENGINEER STAMPING REQUIREMENTS.

STANDARD DRAWING SS109-43
 JUNE 1, 2023
 PARTIAL DEPTH PRECAST DECK PANELS FOR NU GIRDERS - DETAILS

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN: CHK CODE CSA S6-19/LOAD CL 625-ONT DATE
 DRAWN: CHK SITE | DWG