

Public Works  
Government Services  
Canada

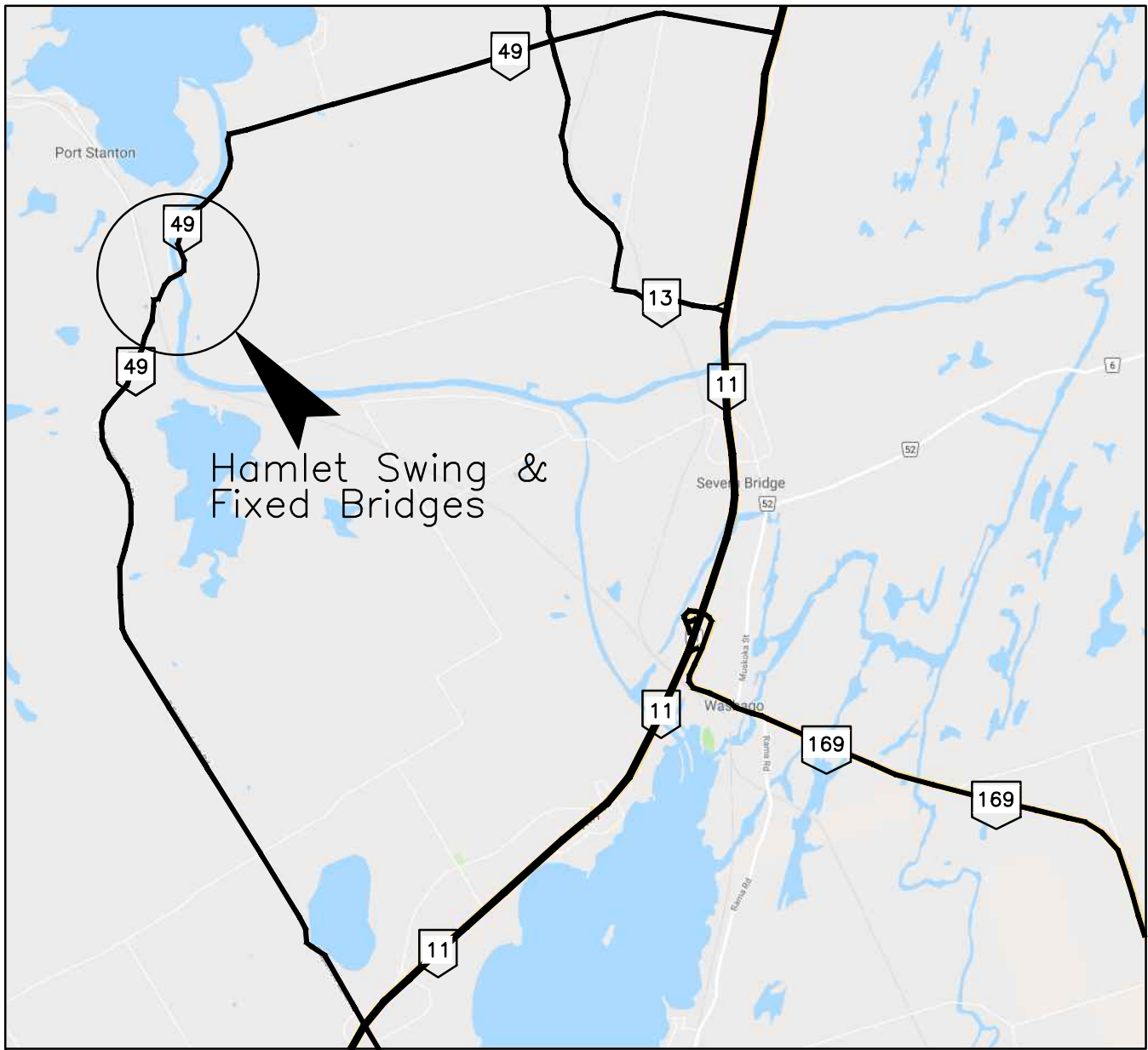
Architectural and  
Engineering Services

Ontario Region

Travaux publics  
Services gouvernementaux  
Canada

Services d'architecture  
et de génie

Région de l'Ontario



SITE PLAN

HAMLET, ONTARIO

TRENT–SEVERN WATERWAY  
HISTORIC SITE OF CANADA  
PARKS CANADA AGENCY

HAMLET SWING & FIXED BRIDGES  
(BRIDGE 57 & 58) REPLACEMENT

R.073593.001

ROADWAY DRAWINGS

|      |  |
|------|--|
| R-00 | ALIGNMENT CONTROL                      |
| R-01 | REMOVALS                               |
| R-02 | NEW CONSTRUCTION – PLAN AND PROFILE I  |
| R-03 | NEW CONSTRUCTION – PLAN AND PROFILE II |
| R-04 | TYPICAL SECTIONS                       |
| R-05 | DETAILS I                              |
| R-06 | DETAILS II                             |
| R-07 | PAVEMENT ELEVATIONS                    |
| R-08 | PAVEMENT MARKING AND SIGNING           |
| R-09 | TRAFFIC MANAGEMENT PLAN                |
| R-10 | TEMPORARY SIGNAGE DETAILS              |

BRIDGE DRAWINGS

|      |  |
|------|--|
| B-00 | LIST OF DRAWINGS                                     |
| B-01 | GENERAL ARRANGEMENT I                                |
| B-02 | GENERAL ARRANGEMENT II                               |
| B-03 | SITE PLAN  |
| B-04 | REMOVALS   |
| B-05 | STAGING AREA AND SUGGESTED WORK SEQUENCE             |
| B-06 | BOREHOLE LOCATION & SOIL STRATA                      |
| B-07 | FOUNDATION LAYOUT                                    |
| B-08 | MICRO-PILE DETAILS                                   |
| B-09 | ABUTMENT FOOTING LAYOUT AND REINFORCING DETAILS      |
| B-10 | WEST ABUTMENT DETAILS                                |
| B-11 | WEST ABUTMENT REINFORCING DETAILS                    |
| B-12 | EAST ABUTMENT DETAILS                                |
| B-13 | EAST ABUTMENT REINFORCING DETAILS                    |
| B-14 | WEST WINGWALLS LAYOUT AND REINFORCING DETAILS        |
| B-15 | EAST WINGWALLS LAYOUT AND REINFORCING DETAILS        |
| B-16 | EAST PIER DETAILS                                    |
| B-17 | EAST PIER REINFORCING                                |
| B-18 | PIVOT PIER MODIFICATION DETAILS I                    |
| B-19 | PIVOT PIER MODIFICATION DETAILS II                   |
| B-20 | PIVOT PIER MODIFICATION REINFORCING I                |
| B-21 | PIVOT PIER MODIFICATION REINFORCING II               |
| B-22 | REST PIERS REHABILITATION I                          |
| B-23 | REST PIERS REHABILITATION II                         |
| B-24 | STRUCTURAL STEEL NOTES AND TRUSS GEOMETRY            |
| B-25 | SWING & FIXED BRIDGES – BUILT-UP AND ROLLED SECTIONS |
| B-26 | SWING BRIDGE – STRUCTURAL STEEL I                    |
| B-27 | SWING BRIDGE – STRUCTURAL STEEL II                   |
| B-28 | SWING BRIDGE – STRUCTURAL STEEL III                  |
| B-29 | SWING BRIDGE – STRUCTURAL STEEL IV                   |
| B-30 | SWING BRIDGE – STRUCTURAL STEEL V                    |
| B-31 | SWING BRIDGE – STRUCTURAL STEEL VI                   |
| B-32 | SWING BRIDGE – STRUCTURAL STEEL VII                  |
| B-33 | SWING BRIDGE – STRUCTURAL STEEL VIII                 |
| B-34 | SWING BRIDGE – STRUCTURAL STEEL IX                   |
| B-35 | SWING BRIDGE – STRUCTURAL STEEL X                    |
| B-36 | SWING BRIDGE – STRUCTURAL STEEL XI                   |
| B-37 | SWING BRIDGE – STRUCTURAL STEEL XII                  |
| B-38 | SWING BRIDGE – STRUCTURAL STEEL XIII                 |
| B-39 | SWING BRIDGE – STRUCTURAL STEEL XIV                  |
| B-40 | SWING BRIDGE – STRUCTURAL STEEL XV                   |
| B-41 | FIXED BRIDGE – STRUCTURAL STEEL I                    |
| B-42 | FIXED BRIDGE – STRUCTURAL STEEL II                   |
| B-43 | FIXED BRIDGE – STRUCTURAL STEEL III                  |
| B-44 | FIXED BRIDGE – STRUCTURAL STEEL IV                   |
| B-45 | FIXED BRIDGE – STRUCTURAL STEEL V                    |
| B-46 | FIXED BRIDGE – STRUCTURAL STEEL VI                   |
| B-47 | TIMBER DECK LAYOUT AND DETAILS                       |
| B-48 | RAILING LAYOUT AND DETAILS                           |
| B-49 | BEARINGS DETAILS                                     |
| B-50 | MISCELLANEOUS DETAILS I                              |
| B-51 | MISCELLANEOUS DETAILS II                             |
| B-52 | MISCELLANEOUS DETAILS III                            |
| B-53 | EXPANSION JOINT DETAILS                              |
| B-54 | TIMBER DECK PANEL ARMOURING ANGLES                   |
| B-55 | 6000mm APPROACH SLABS                                |
| B-56 | CONTROL HOUSE LOCATION                               |
| B-57 | CONTROL HOUSE STRUCTURAL DETAILS                     |
| B-58 | CONTROL HOUSE LAYOUT                                 |

MECHANICAL DRAWINGS

|      |   |
|------|---|
| M-01 | MACHINERY LOCATION PLAN AND NOTES                   |
| M-02 | MECHANICAL NOTES                                    |
| M-03 | PIVOT PIER PLAN AND SECTIONS                        |
| M-04 | CENTER PIVOT ASSEMBLY                               |
| M-05 | CENTER PIVOT DETAILS                                |
| M-06 | CYLINDER TRUNNIONS AND ROD END CONNECTIONS – 1 OF 2 |
| M-07 | CYLINDER TRUNNIONS AND ROD END CONNECTIONS – 2 OF 2 |
| M-08 | TRACK AND BALANCE WHEELS                            |
| M-09 | LIVE LOAD ROLLERS                                   |
| M-10 | SOUTH REST PIER PLAN AND SECTION                    |
| M-11 | EAST PIER PLAN AND SECTION                          |
| M-12 | END CASTORS AND REST PLATES                         |
| M-13 | WEST ABUTMENT PLAN AND SECTION                      |
| M-14 | WEST ABUTMENT ELEVATIONS                            |
| M-15 | END LIFT ASSEMBLY                                   |
| M-16 | END LIFT DETAILS 1                                  |
| M-17 | END LIFT DETAILS 2                                  |
| M-18 | LOCKING PIN ASSEMBLY                                |
| M-19 | LOCKING PIN DETAILS                                 |
| M-20 | END STOP  |
| M-21 | HYDRAULIC POWER UNIT                                |
| M-22 | HYDRAULIC SYSTEM OPERATING SEQUENCE                 |
| M-23 | HYDRAULIC DETAILS                                   |

ELECTRICAL DRAWINGS

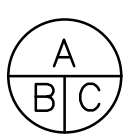
|      |   |
|------|---|
| E-01 | ELECTRICAL NOTES AND INDEX OF DRAWINGS                      |
| E-02 | ELECTRICAL SYMBOLS AND ABBREVIATIONS SHEET 1 OF 2           |
| E-03 | ELECTRICAL SYMBOLS AND ABBREVIATIONS SHEET 2 OF 2           |
| E-04 | ELECTRICAL SITE DEMOLITION PLAN                             |
| E-05 | EXISTING ONE LINE DEMOLITION PLAN                           |
| E-06 | SITE ELECTRICAL DISTRIBUTION PLAN                           |
| E-07 | FLEXIBLE CABLE AND SPAN LIMIT SWITCH DETAILS                |
| E-08 | END LIFT AND LOCKING PIN LIMIT SWITCHES                     |
| E-09 | OPERATOR HOUSE ELECTRICAL EQUIPMENT LAYOUT                  |
| E-10 | ELECTRICAL ONE LINE DIAGRAM                                 |
| E-11 | POWER AND CONTROL BLOCK DIAGRAM                             |
| E-12 | POWER PANEL SCHEDULE  |
| E-13 | CONTROL CABLE SCHEDULE SHEET 1 OF 2                         |
| E-14 | CONTROL CABLE SCHEDULE SHEET 2 OF 2                         |
| E-15 | LIGHTING FIXTURE SCHEDULE                                   |
| E-16 | OPERATOR CONTROL CONSOLE AND BCC ELEVATION                  |
| E-17 | BCC DEVICE LAYOUT AND SCHEDULE                              |
| E-18 | OUTDOOR OPERATOR CONTROL CONSOLE DEVICE LAYOUT AND SCHEDULE |
| E-19 | BRIDGE CONTROL SYSTEM SEQUENCE OF OPERATION – OPENING       |
| E-20 | BRIDGE CONTROL SYSTEM SEQUENCE OF OPERATION – CLOSING       |
| E-21 | BRIDGE OPERATION CONTROL DIAGRAM                            |
| E-22 | CONTROL LOGIC DIAGRAM SHEET 1 OF 6                          |
| E-23 | CONTROL LOGIC DIAGRAM SHEET 2 OF 6                          |
| E-24 | CONTROL LOGIC DIAGRAM SHEET 3 OF 6                          |
| E-25 | CONTROL LOGIC DIAGRAM SHEET 4 OF 6                          |
| E-26 | CONTROL LOGIC DIAGRAM SHEET 5 OF 6                          |
| E-27 | CONTROL LOGIC DIAGRAM SHEET 6 OF 6                          |
| E-28 | HPU CONTROL SYSTEM INTERFACE SHEET 1 OF 3                   |
| E-29 | HPU CONTROL SYSTEM INTERFACE SHEET 2 OF 3                   |
| E-30 | HPU CONTROL SYSTEM INTERFACE SHEET 3 OF 3                   |
| E-31 | NAVIGATION LIGHTING CONTROL                                 |
| E-32 | LIMIT SWITCH DEVELOPMENT                                    |
| E-33 | CCTV AND PUBLIC ADDRESS SYSTEM PLAN AND ELEVATION LAYOUT    |
| E-34 | PUBLIC ADDRESS SYSTEM AND CCTV SYSTEM DIAGRAMS              |
| E-35 | NAVIGATION LIGHTING LAYOUT PLAN                             |
| E-36 | NAVIGATION LIGHT INSTALLATION DETAILS                       |
| E-37 | WARNING GATE AND TRAFFIC LIGHT INSTALLATION DETAILS         |
| E-38 | BRIDGE GROUNDING AND BONDING                                |
| E-39 | MISCELLANEOUS ELECTRICAL INSTALLATION DETAILS SHEET 1 OF 2  |
| E-40 | MISCELLANEOUS ELECTRICAL INSTALLATION DETAILS SHEET 2 OF 2  |

PARSONS



|          |                   |            |
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| 04       |                   |            |
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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|---|---|---|
|  | A | Detail No.<br>No. du détail   |
|   | B | drawing no. – where detail required<br>dessin no. – où détail exigé |
|   | C | drawing no. – where detailed<br>dessin no. – où détaillé            |

|   |         |
|---|---------|
| project title<br>titre du projet                              | Ontario |
| HAMLET BRIDGES<br>(BRIDGE 57 & 58)<br>SWING AND FIXED BRIDGES |         |

|                                  |                  |
|----------------------------------|------------------|
| drawing title<br>titre du dessin | LIST OF DRAWINGS |
|----------------------------------|------------------|

|                         |             |
|-------------------------|-------------|
| drawn by<br>dessine par | ANTHONY LEE |
|-------------------------|-------------|

|                         |                 |
|-------------------------|-----------------|
| designed by<br>conc par | ABOUBAKER FARAH |
|-------------------------|-----------------|

|                             |           |
|-----------------------------|-----------|
| approved by<br>approuve par | KAREN LIU |
|-----------------------------|-----------|

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

|                                |            |
|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

|                              |              |
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| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

|                            |      |
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| drawing no.<br>dessine no. | B-00 |
|----------------------------|------|





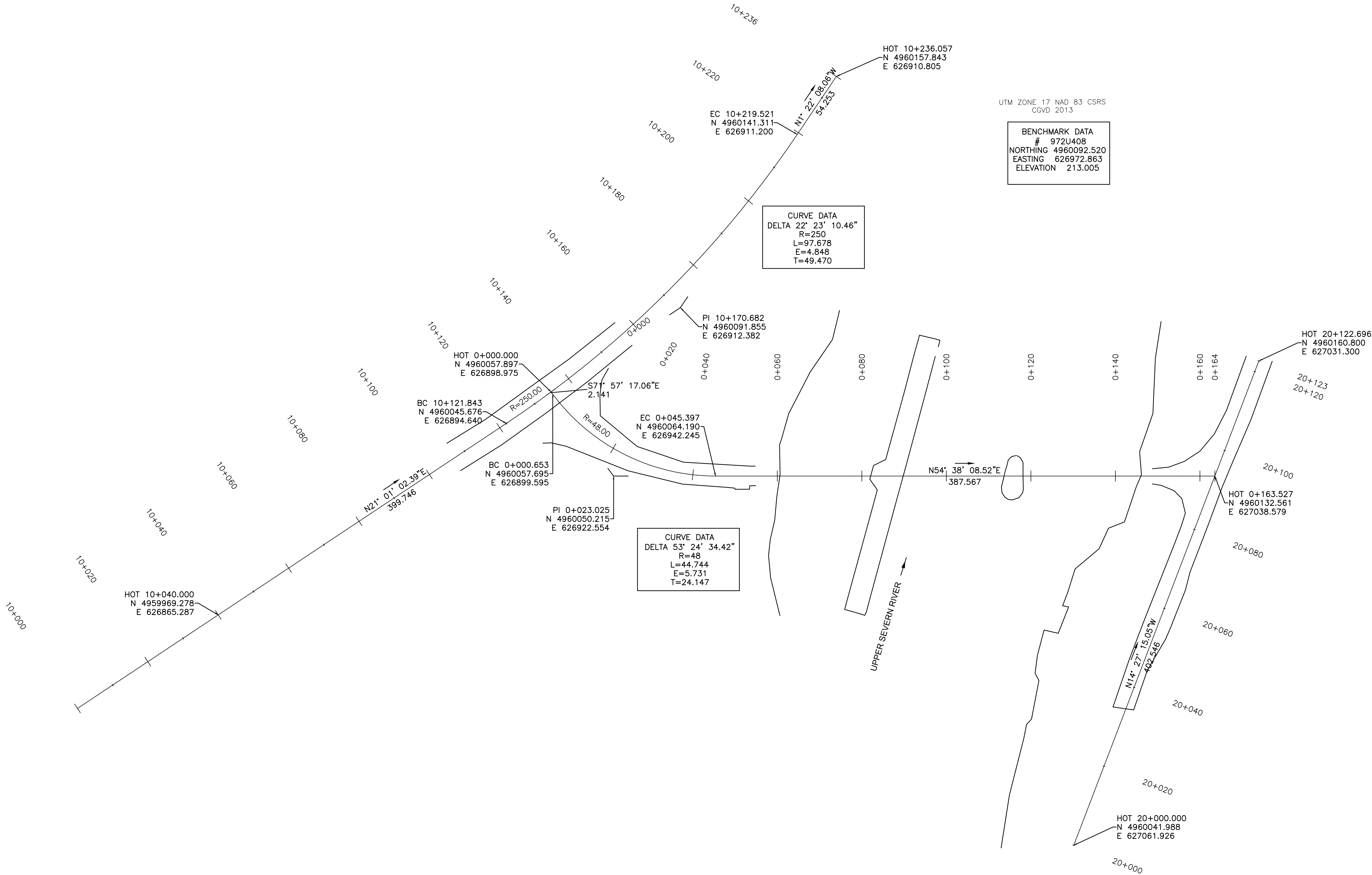
UTM ZONE 17 NAD 83 CSRS  
CGVD 2013

**BENCHMARK DATA**  
# 972U408  
NORTHING 4960092.520  
EASTING 626972.863  
ELEVATION 213.005

**CURVE DATA**  
DELTA 22° 23' 10.46"  
R=250  
L=97.678  
E=4.848  
T=49.470

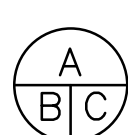


**CURVE DATA**  
DELTA 53° 24' 34.42"  
R=48  
L=44.744  
E=5.731  
T=24.147

UPPER SEVERN RIVER



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
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|---|---|
|  | A Detail no.,<br>No. du détail  |
|  | B drawing no. — where detail required<br>dessin no. — où détail exigé |
|  | C drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet  
  
Ontario  
  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
  
ALIGNMENT CONTROL

drawn by  
dessiné par  
JOEL WRIGHT

designed by  
conc par  
NEIL MUKAI

approved by  
approuvé par  
SAM DINATOLO

bid  
offre  
JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

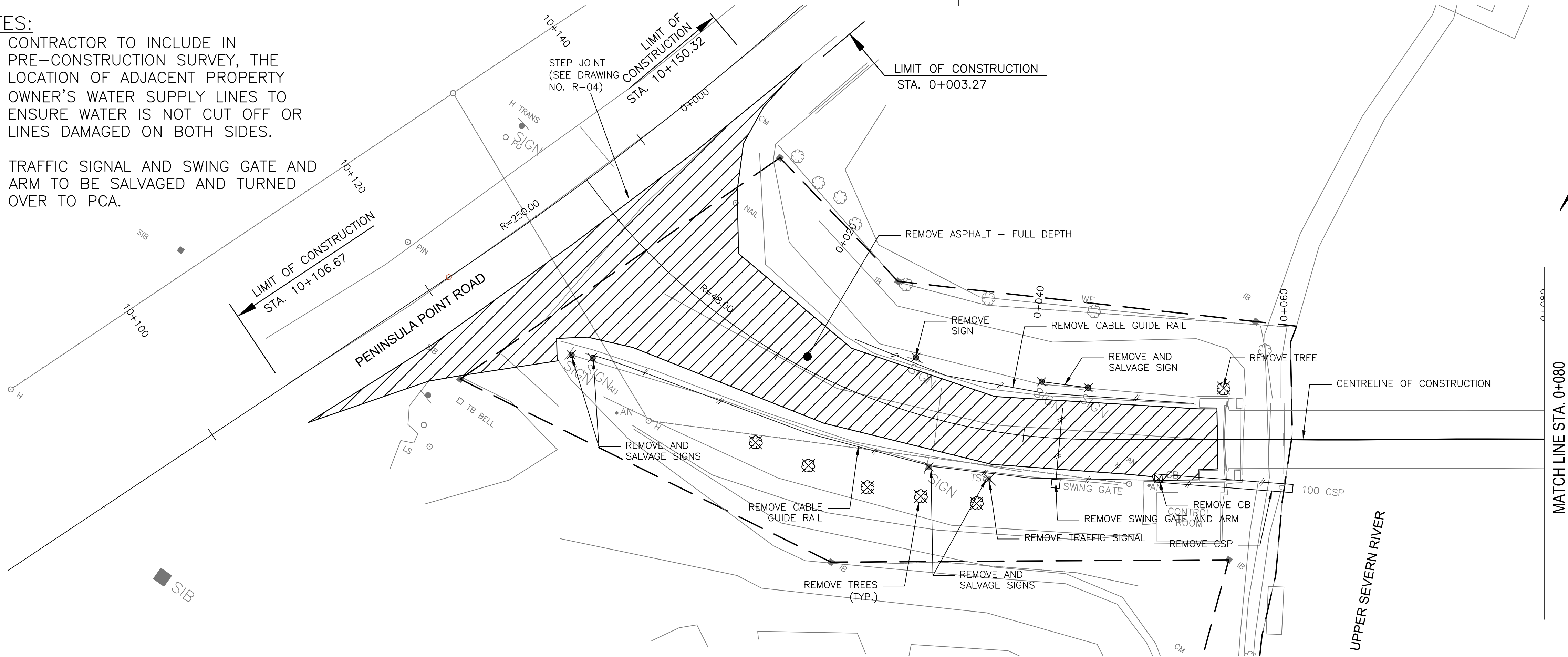
project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
R-00



NOTES:

1. CONTRACTOR TO INCLUDE IN PRE-CONSTRUCTION SURVEY, THE LOCATION OF ADJACENT PROPERTY OWNER'S WATER SUPPLY LINES TO ENSURE WATER IS NOT CUT OFF OR LINES DAMAGED ON BOTH SIDES.
2. TRAFFIC SIGNAL AND SWING GATE AND ARM TO BE SALVAGED AND TURNED OVER TO PCA.

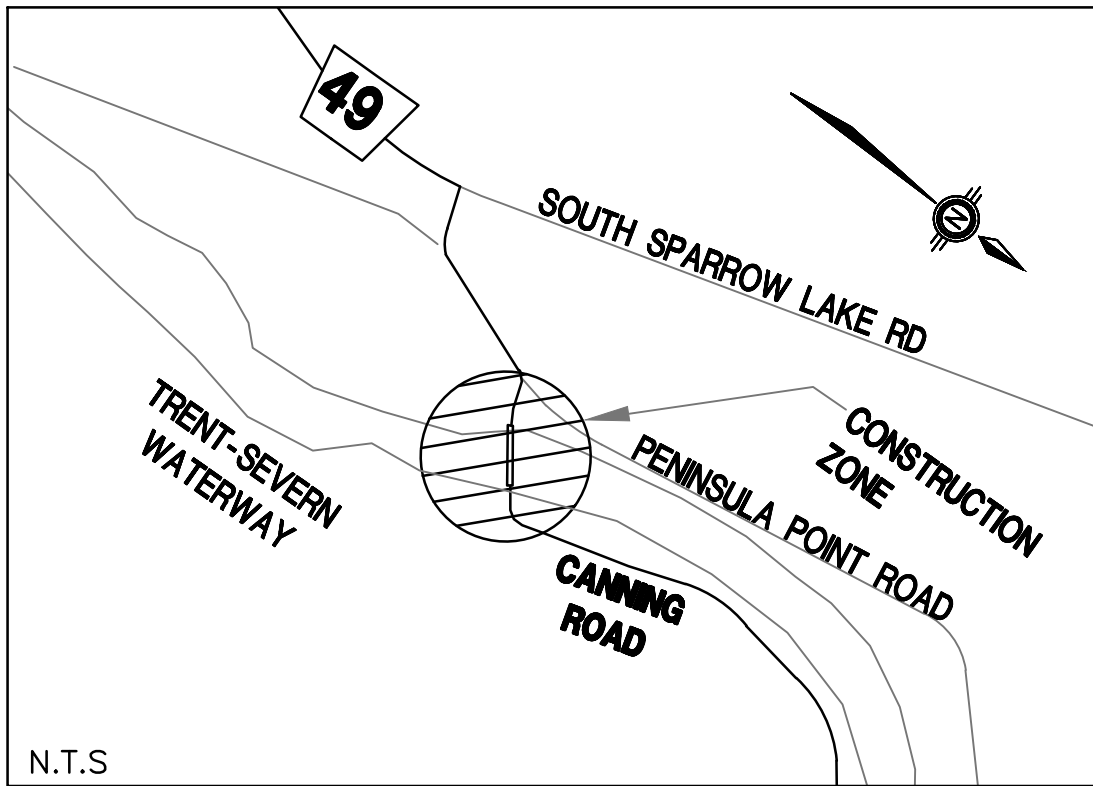


MATCH LINE STA. 0+080

MATCH LINE STA. 0+080

UPPER SEVERN RIVER

HARTLEY ROAD



- LEGEND
- ASPHALT REMOVAL
  - TREE/SIGNAGE REMOVAL
  - GUIDE RAIL/GATE REMOVAL

Public Works and Government Services Canada  
Travaux publics et Services gouvernementaux Canada

PARSONS



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|----------|-------------------|------------|
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dessin no. - où détail exigé  
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dessin no. - où détaillé

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
REMOVALS

drawn by  
dessiné par  
JOEL WRIGHT

designed by  
conçue par  
NEIL MUKAI

approved by  
approuvé par  
SAM DINATOLO

bid  
offre  
JULIO LEON project manager  
administrateur de projets

project date  
date du projet  
2018-07-20

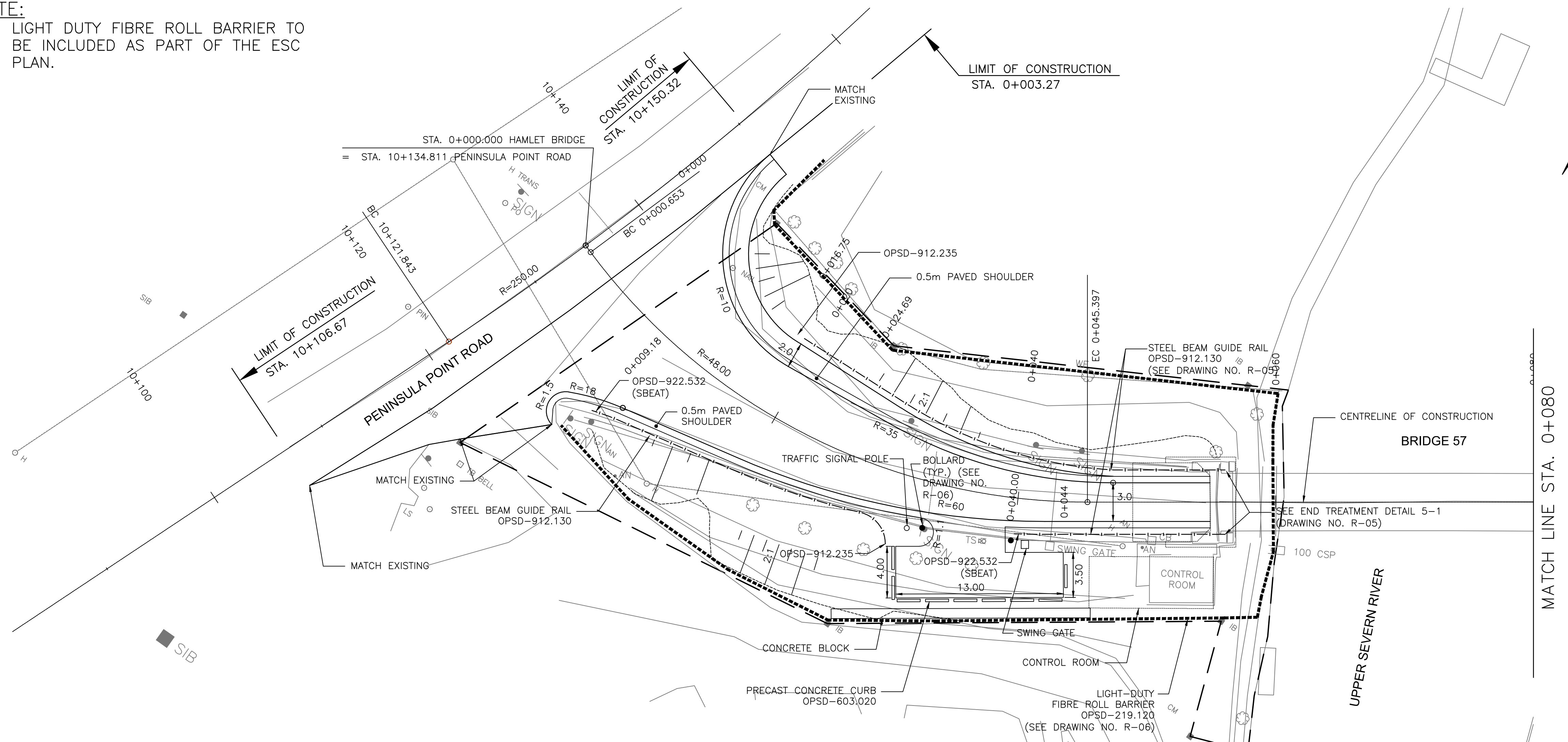
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no. du projet  
R.073593.001

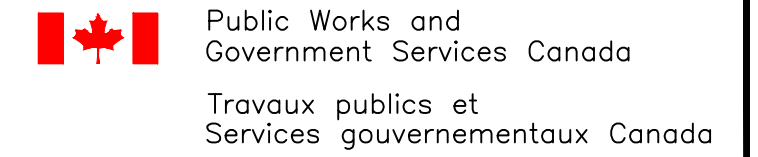
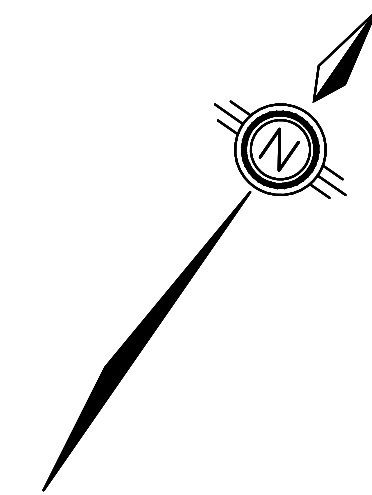
drawing no.  
dessiné no.  
R-01



**NOTE:**

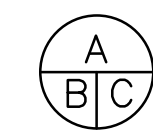
1. LIGHT DUTY FIBRE ROLL BARRIER TO BE INCLUDED AS PART OF THE ESC PLAN.



**PARSONS**

|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
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No. du détail
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dessin no. — où détail exigé
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dessin no. — où détaillé

|                 |  |
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| project title   |  |
| titre du projet |  |

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                                  |
|----------------------------------|
| drawing title<br>titre du dessin |
|----------------------------------|

NEW CONSTRUCTION  
PLAN AND PROFILE II

drawn by  
dessine par **JOEL WRIGHT**

designed by  
conc par

NEIL MUKAI

approved by  
approuvé par **SAM DINATOLO**

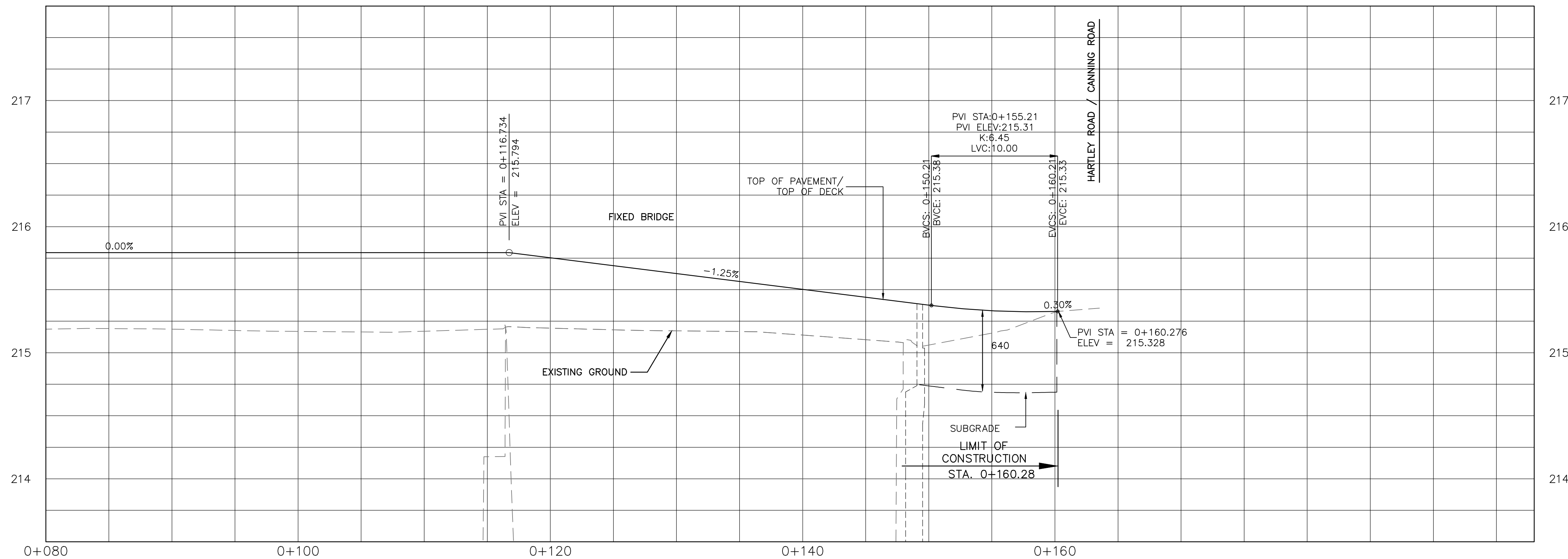
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| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
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| project date   |            |
| date du projet | 2018-07-20 |

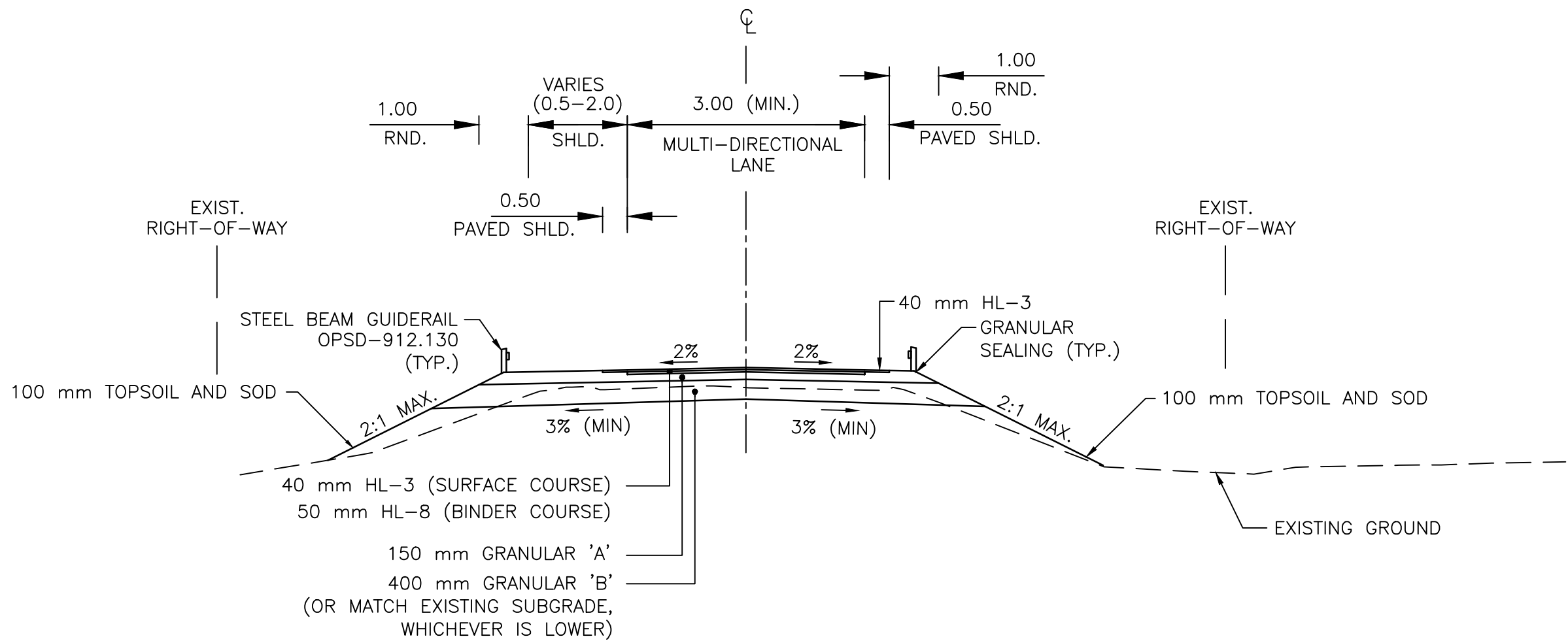
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drawing no.  
dessine no.

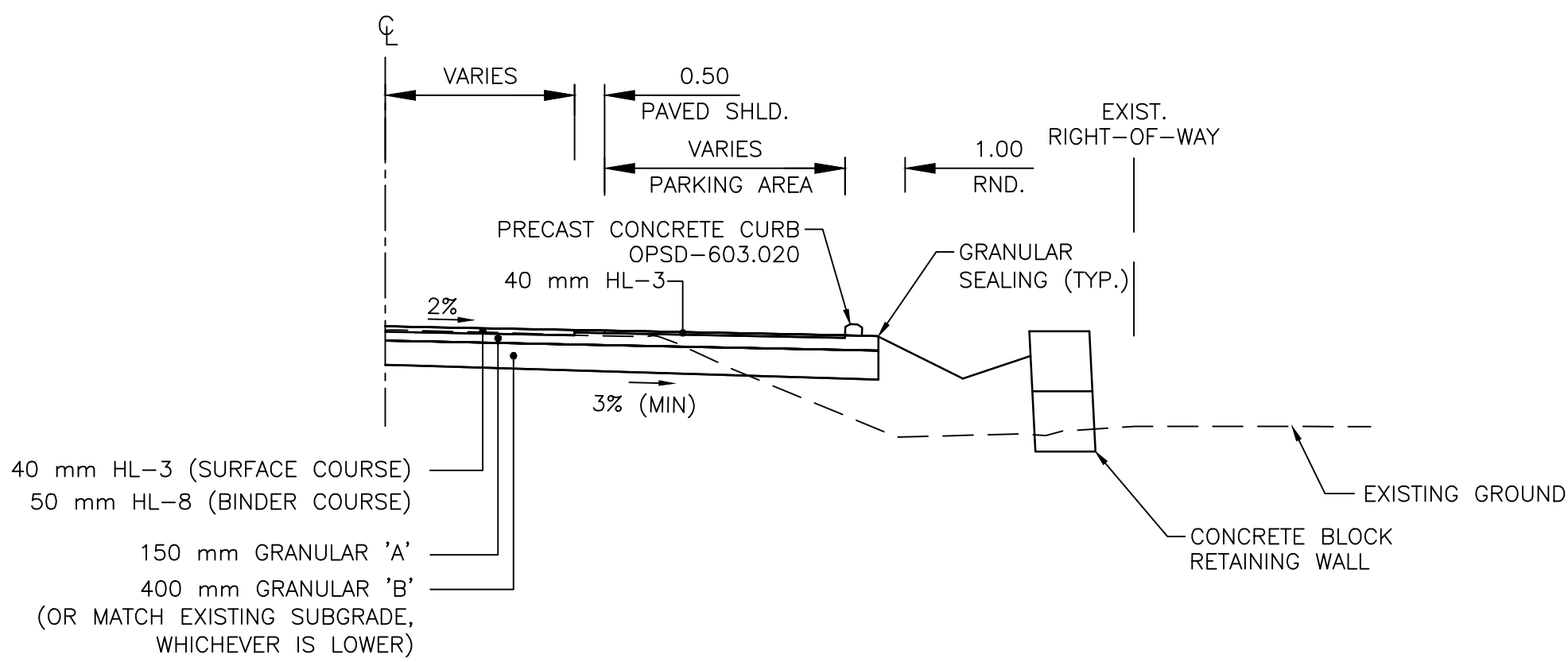
R-03



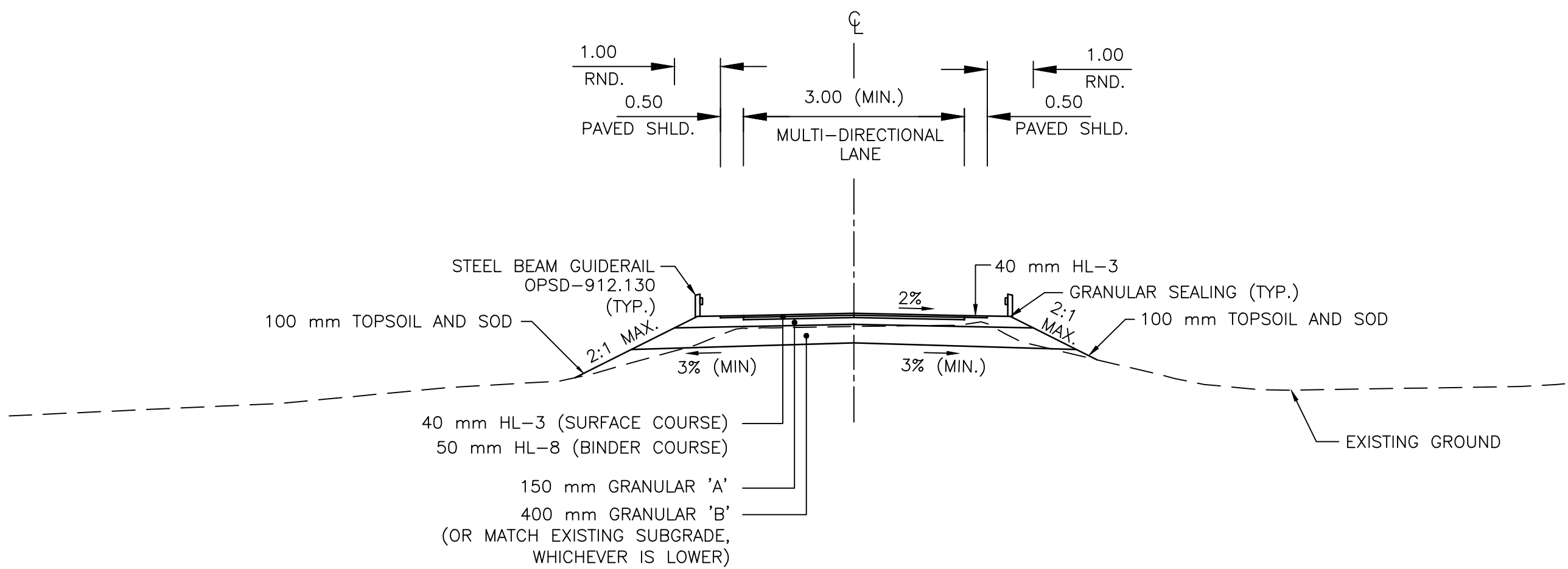




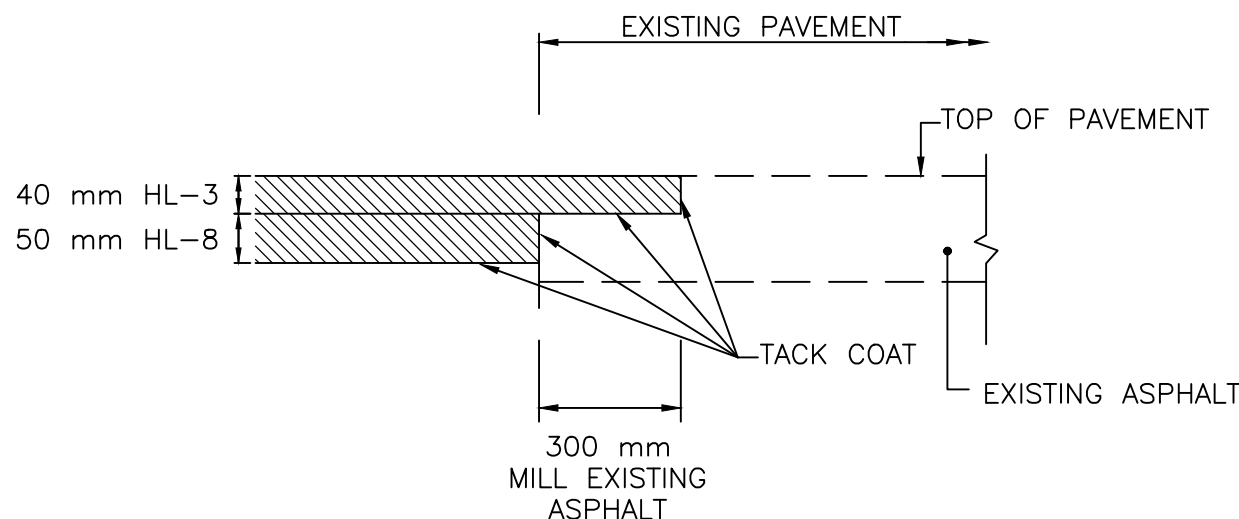
MUSKOKA DISTRICT ROAD 49  
WEST APPROACH SECTION  
N.T.S.



PARKING AREA  
STA. 0+032 TO 0+044  
N.T.S.



MUSKOKA DISTRICT ROAD 49  
EAST APPROACH SECTION  
N.T.S.



STEP JOINT DETAIL 4-1  
N.T.S.

|          |                   |            |
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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

TYPICAL SECTIONS

drawn by  
dessine par

JOEL WRIGHT

designed by  
conc par

NEIL MUKAI

approved by  
approuve par

SAM DINATOLO

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

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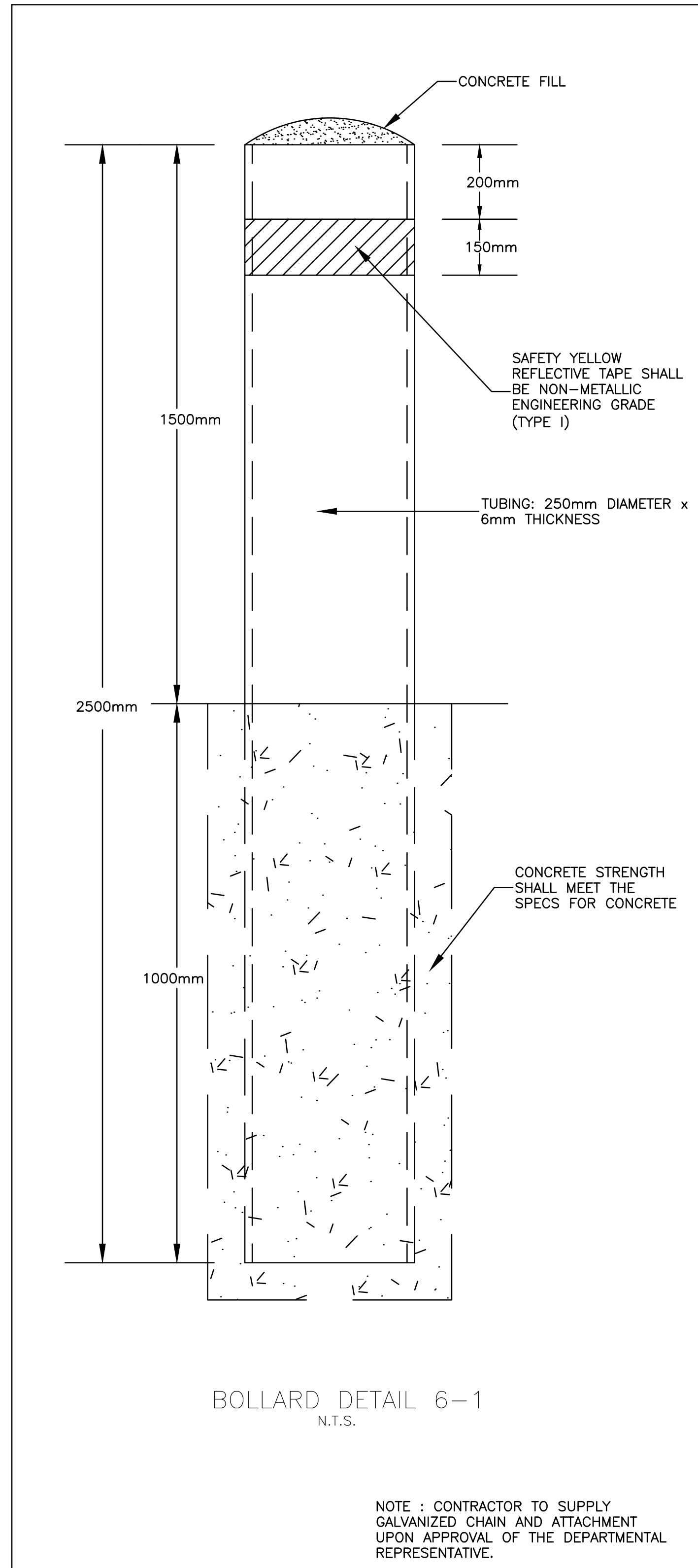
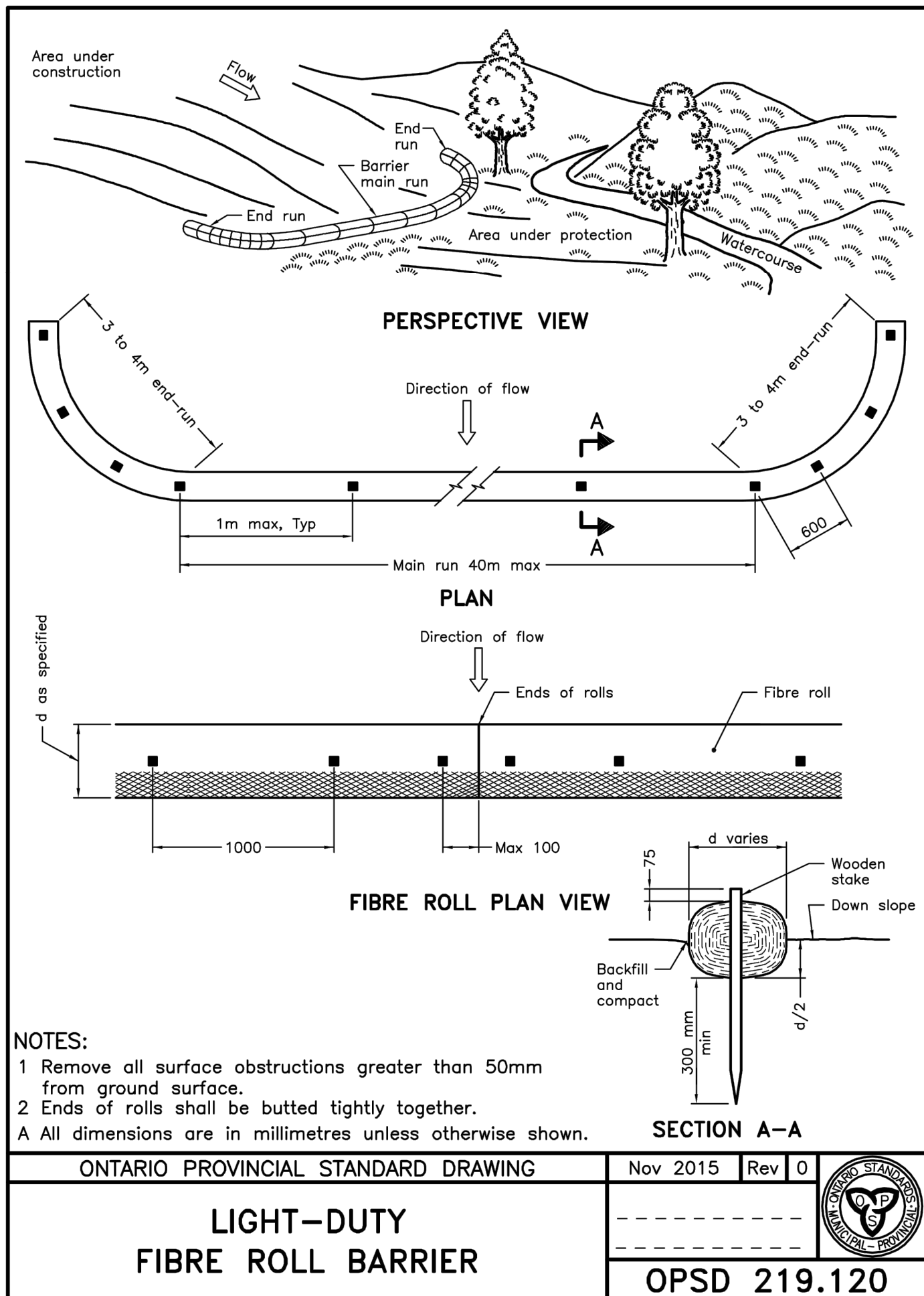
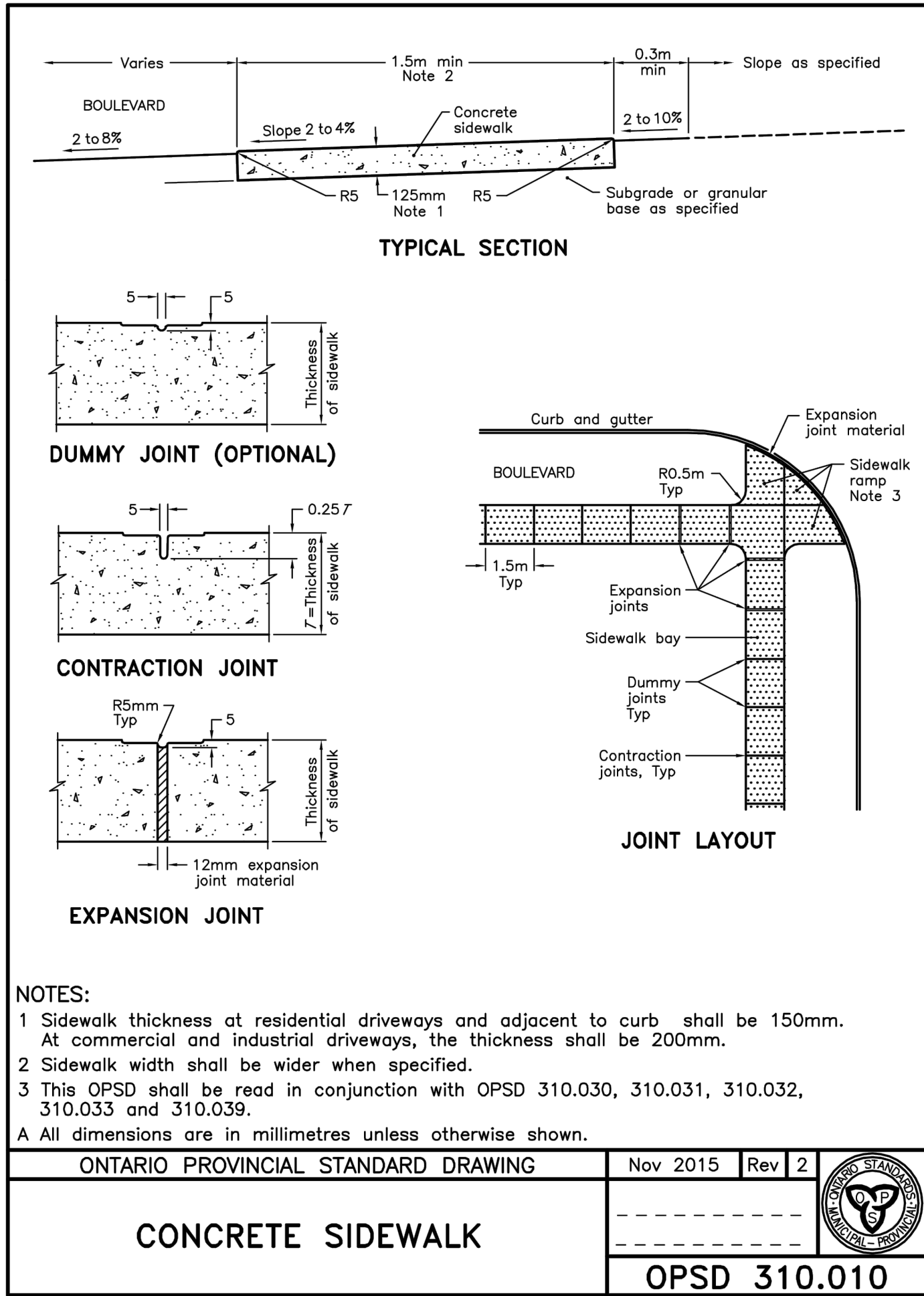
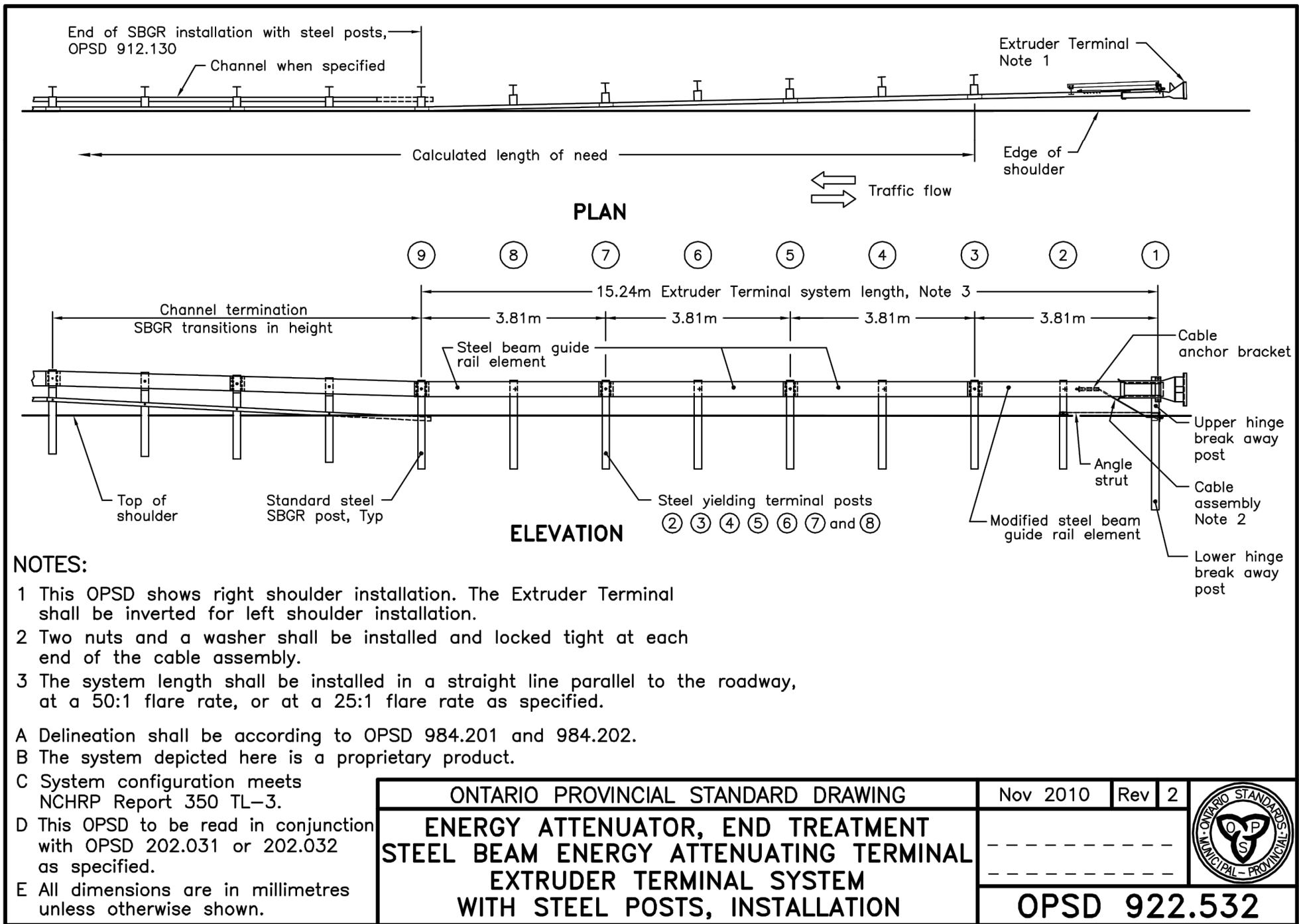
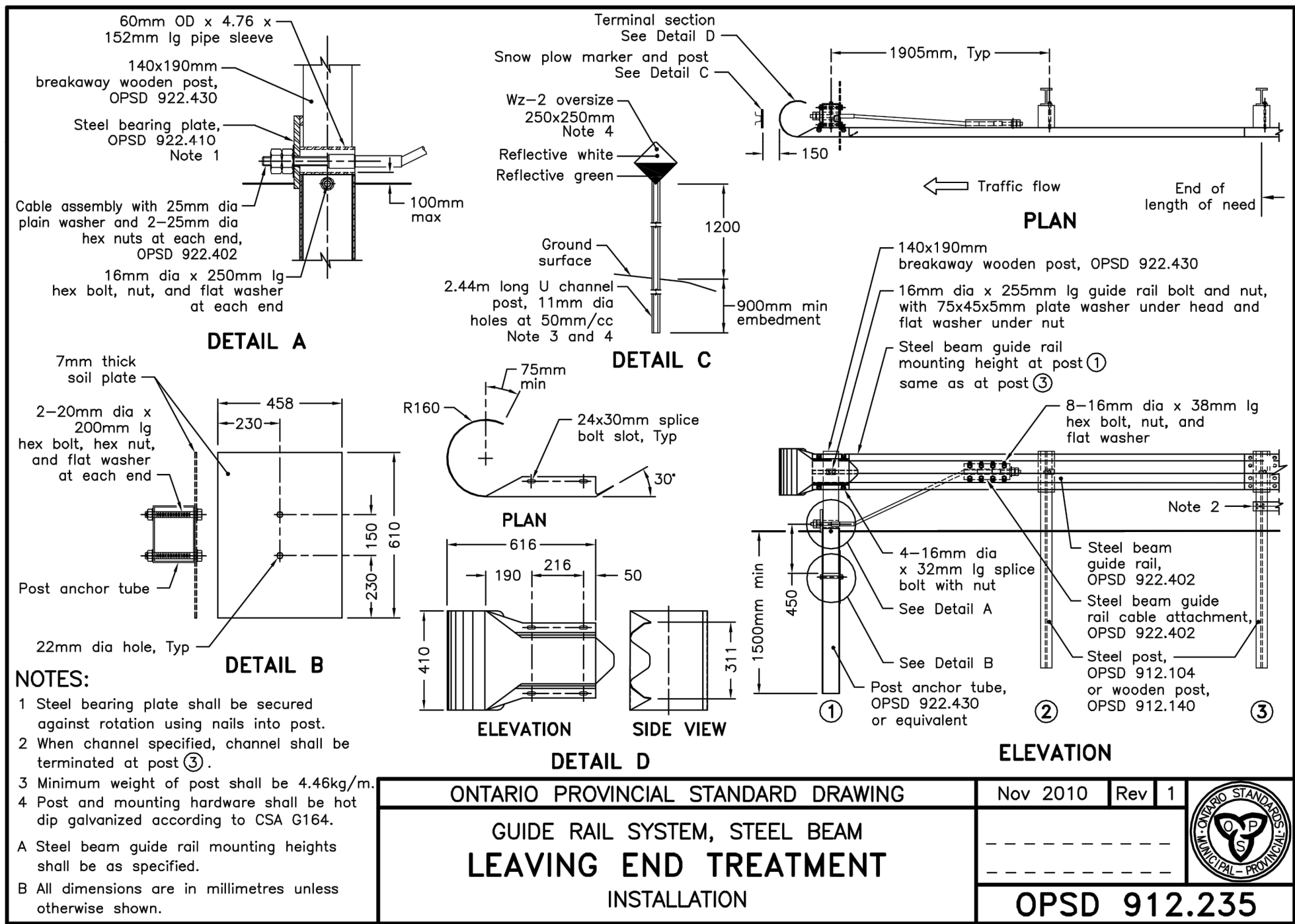
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dessine no.

R-04

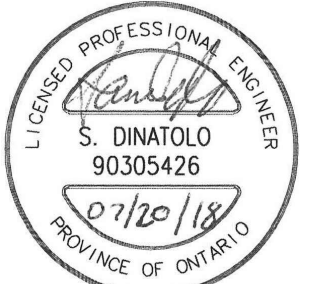








PARSONS



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project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
DETAILS II

drawn by  
dessiné par  
JOEL WRIGHT

designed by  
conc par  
NEIL MUKAI

approved by  
approuvé par  
SAM DINATOLO

bid  
offre  
JULIO LEON

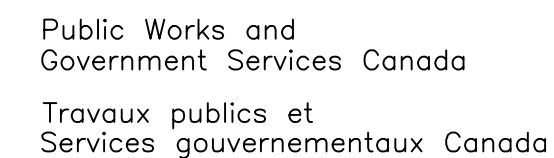
project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

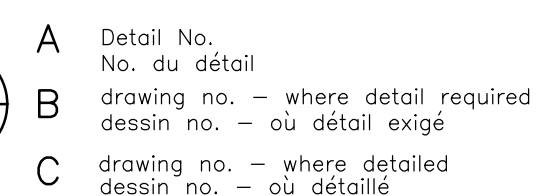
project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
R-06





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notify the Departmental Representative of all discrepancies.



Ontario

|                 |
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| drawing title   |
| titre du dessin |

PAVEMENT ELEVATIONS

drawn by  
dessine par **JOEL WRIGHT**

designed by  
conc par

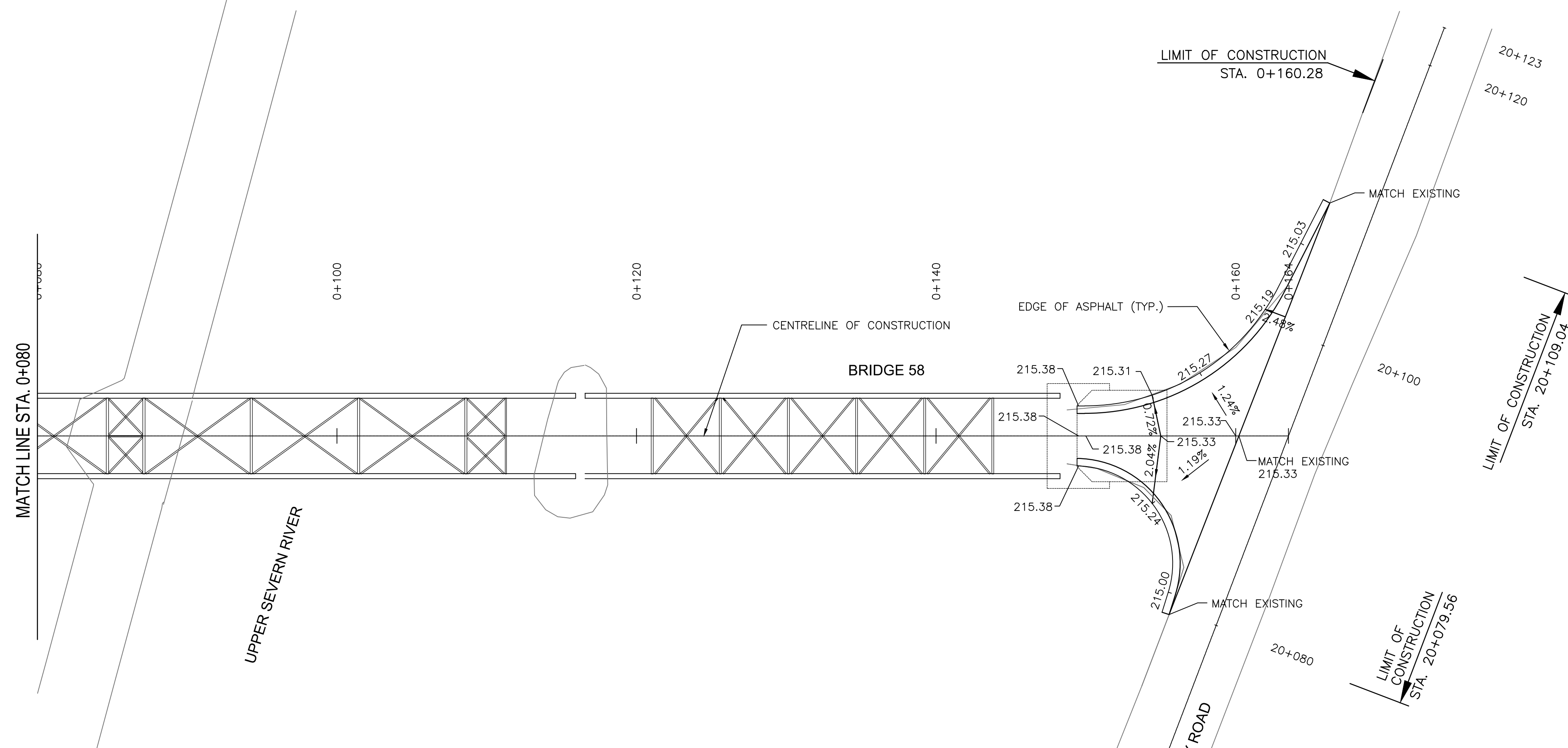
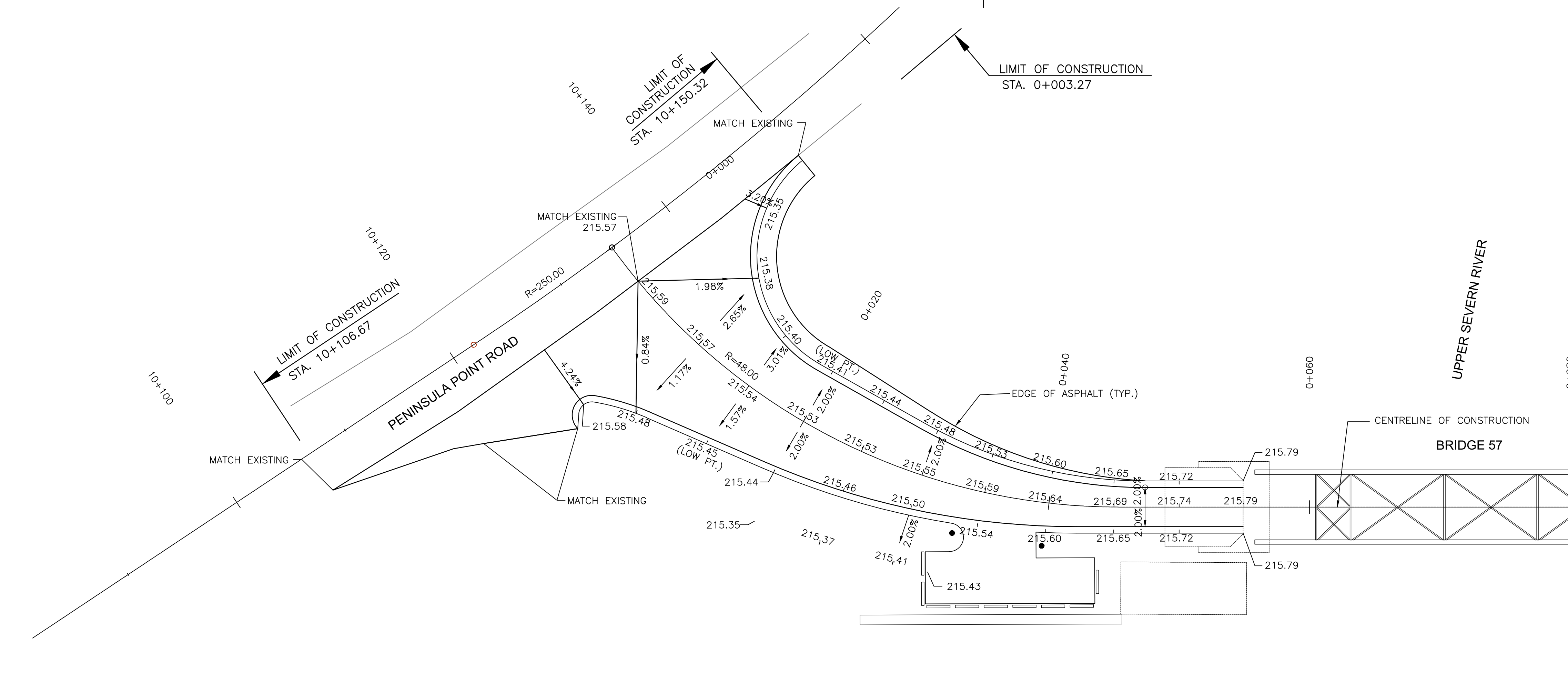
approved by  
approuvé par **SAM DINATOLO**

|            |                           |
|------------|---------------------------|
| bid        | project manager           |
| offre      | administrateur de projets |
| JULIO LEON |                           |

|                                |            |
|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
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| project no.<br>no. du projet | R.073593.001 |
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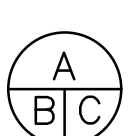


**PARSONS**



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| 04       |                   |            |
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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

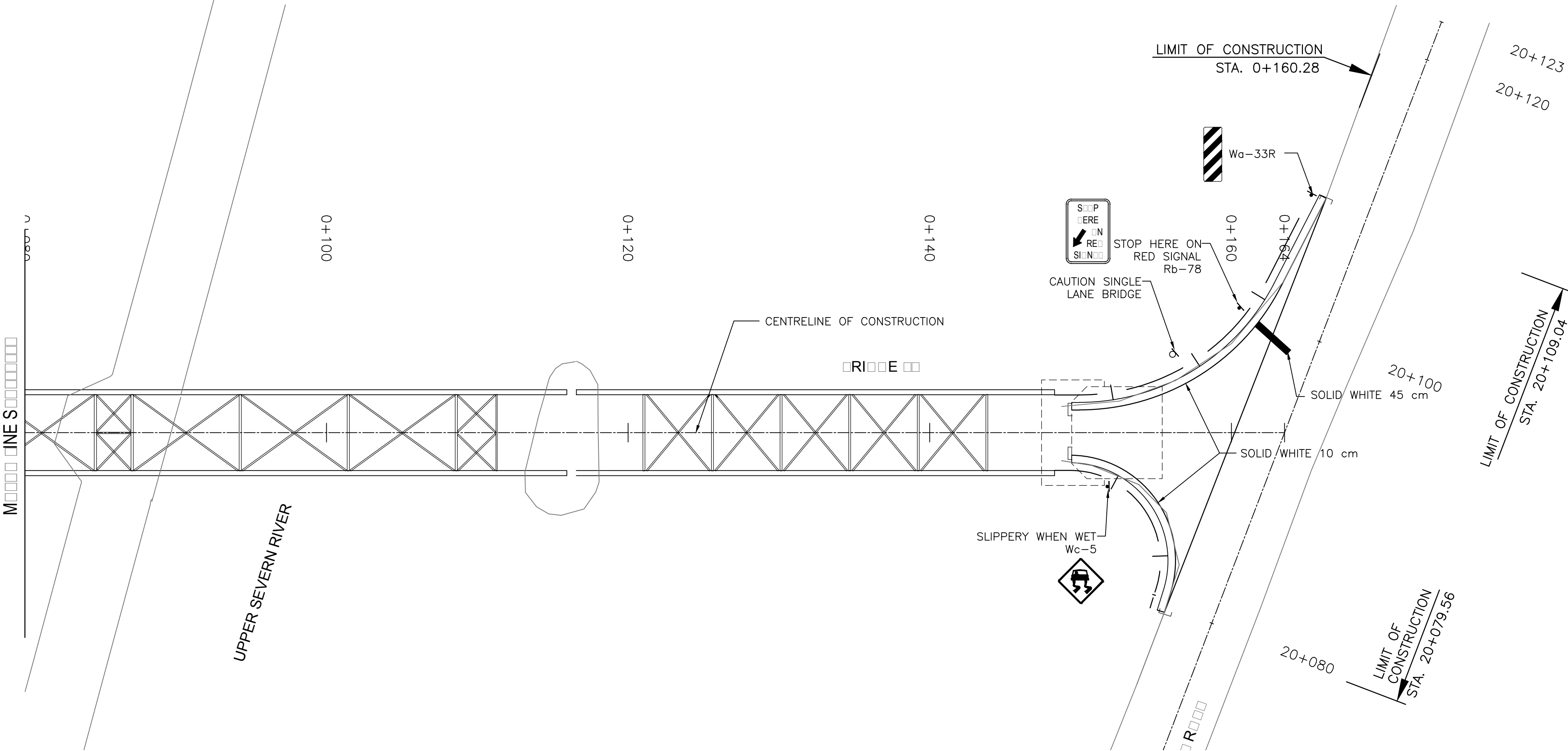
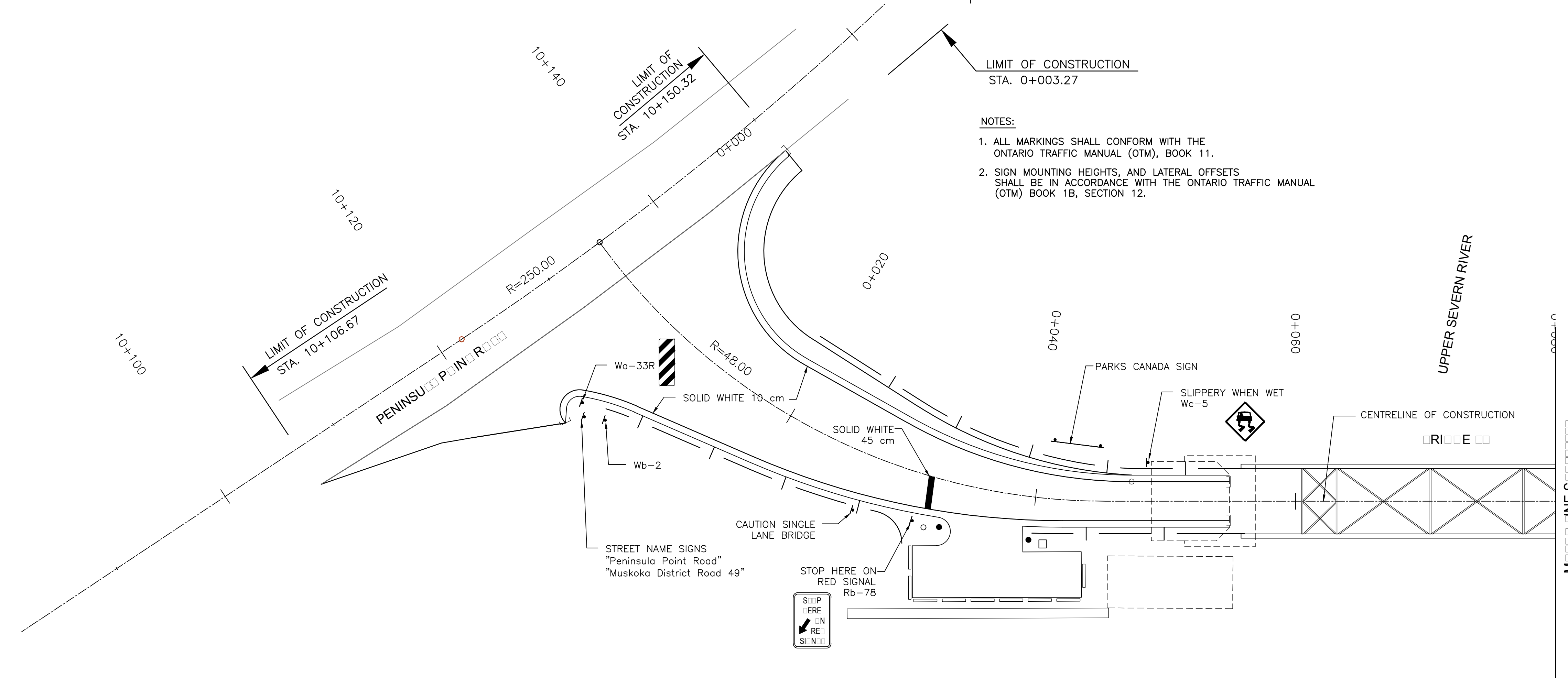
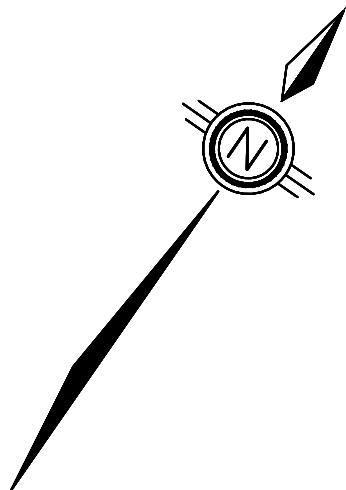
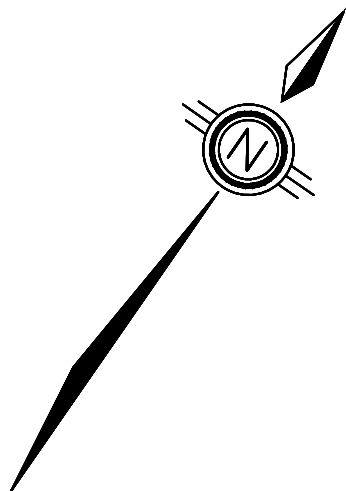
Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

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|  | A Detail No.<br>No. du détail   |
|   | B drawing no. - where detail required<br>dessin no. - où détail exigé |
|   | C drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet  
  
Ontario  
  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
  
PAVEMENT MARKING  
AND SIGNING

|                                |              |
|--------------------------------|--------------|
| drawn by<br>dessiné par        | JOEL WRIGHT  |
| designed by<br>conc par        | NEIL MUKAI   |
| approved by<br>approuvé par    | SAM DINATOLO |
| bid<br>offre                   | JULIO LEON   |
| project date<br>date du projet | 2018-07-20   |
| project no.<br>no. du projet   | R.073593.001 |
| drawing no.<br>dessiné no.     | R-08         |








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| revision |                   | date      |

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 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

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| project title   |  |
| titre du projet |  |

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
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| drawing title   |
| titre du dessin |

## TRAFFIC MANAGEMENT PLAN

drawn by  
dessine par

designed by  
conc par JAMAL EL-HAJJ

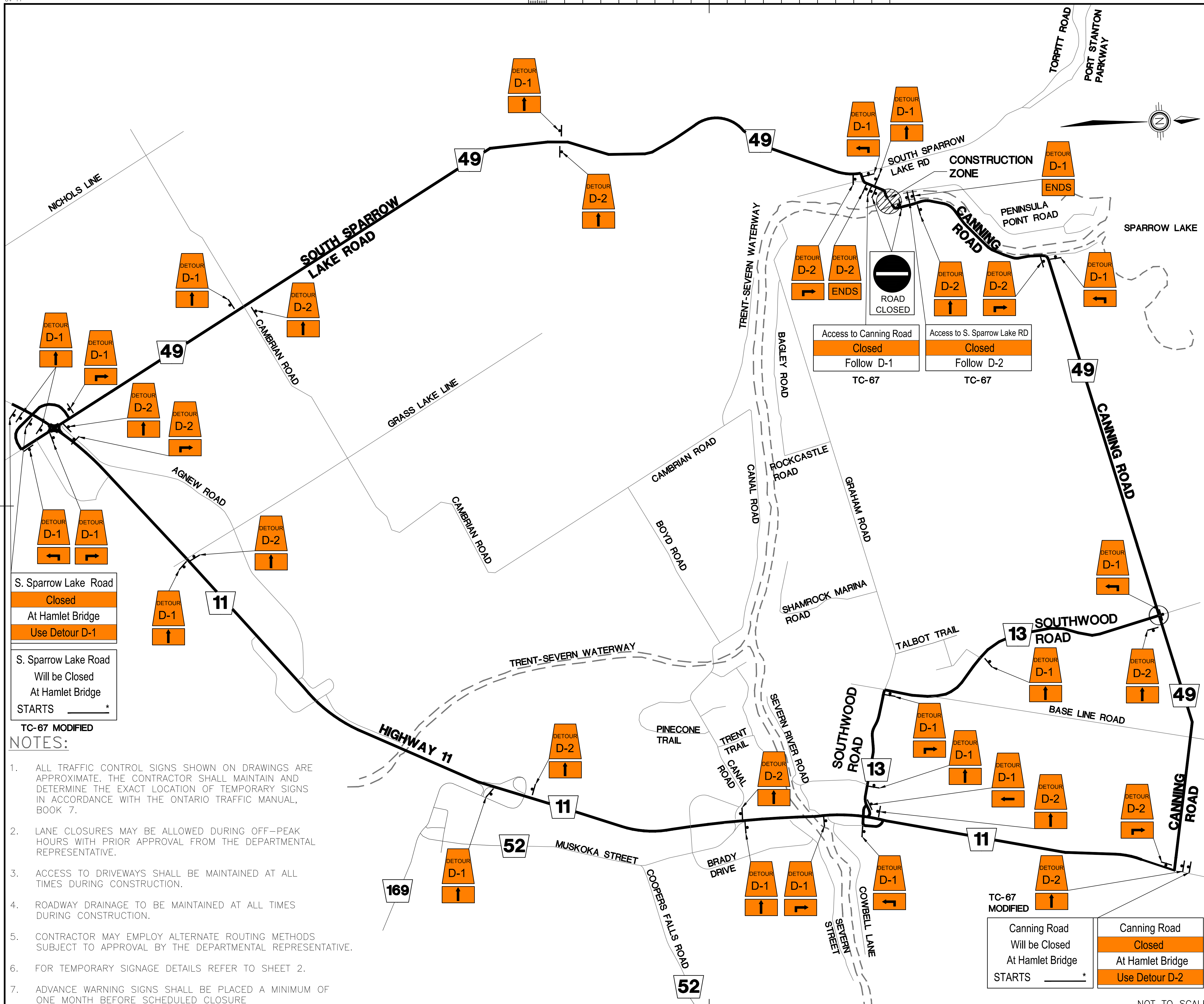
approved by  
approuvé par **SAM DINATOLO**

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|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

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| project date   |            |
| date du projet | 2018-07-20 |

project no.  
no. du projet

R.073593.001

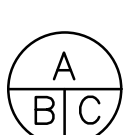

drawing no.  
dessine no.  
R-09





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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|  | B drawing no. — where detail required<br>dessin no. — où détail exigé |
|  | C drawing no. — where detailed<br>dessin no. — où détaillé            |

|   |         |
|---|---------|
| project title<br>titre du projet                              | Ontario |
| HAMLET BRIDGES<br>(BRIDGE 57 & 58)<br>SWING AND FIXED BRIDGES |         |

|                                  |                           |
|----------------------------------|---------------------------|
| drawing title<br>titre du dessin | TEMPORARY SIGNAGE DETAILS |
|----------------------------------|---------------------------|

|                         |             |
|-------------------------|-------------|
| drawn by<br>dessiné par | JOEL WRIGHT |
|-------------------------|-------------|

|                         |               |
|-------------------------|---------------|
| designed by<br>conc par | JAMAL EL-HAJJ |
|-------------------------|---------------|

|                             |              |
|-----------------------------|--------------|
| approved by<br>approuvé par | SAM DINATOLO |
|-----------------------------|--------------|

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|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

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|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

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| project no.<br>no. du projet | R.073593.001 |
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|                            |      |
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| drawing no.<br>dessiné no. | R-10 |
|----------------------------|------|

TC-67 MODIFIED  
120 cm X 150 cm  
Font: Highway Gothic D  
Colour: Legend — Black; Background — White Reflective;  
Overlay Background — Orange Reflective  
Sheeting: Type I, engineering grade

|   |                                   |
|---|-----------------------------------|
| Canning Road<br>Will be Closed<br>At Hamlet Bridge<br>STARTS _____* | * Insert Date<br>(Day/Month/Year) |
|---|-----------------------------------|

|                                    |         |
|------------------------------------|---------|
| Canning Road<br>Closed             | OVERLAY |
| At Hamlet Bridge<br>Use Detour D-2 | OVERLAY |

TC-67 MODIFIED  
120 cm X 150 cm  
Font: Highway Gothic D  
Colour: Legend — Black; Background — White Reflective;  
Overlay Background — Orange Reflective  
Sheeting: Type I, engineering grade

|   |                                   |
|---|-----------------------------------|
| S. Sparrow Lake Road<br>Will be Closed<br>At Hamlet Bridge<br>STARTS _____* | * Insert Date<br>(Day/Month/Year) |
|---|-----------------------------------|

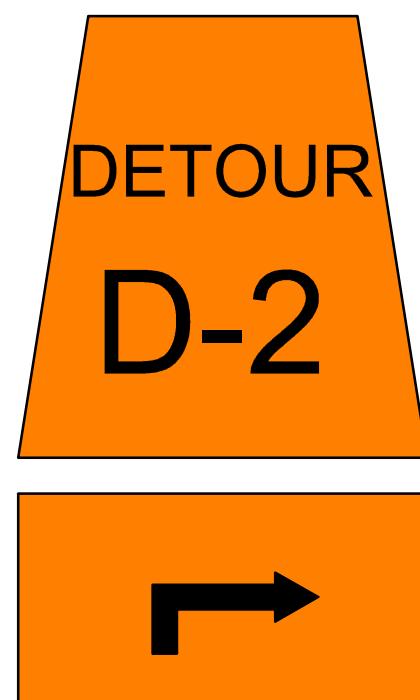
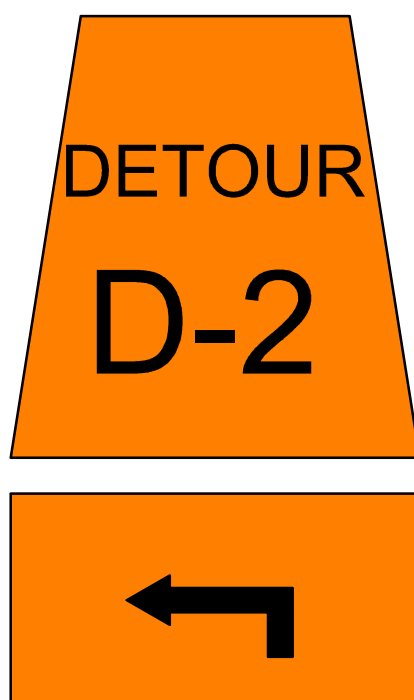
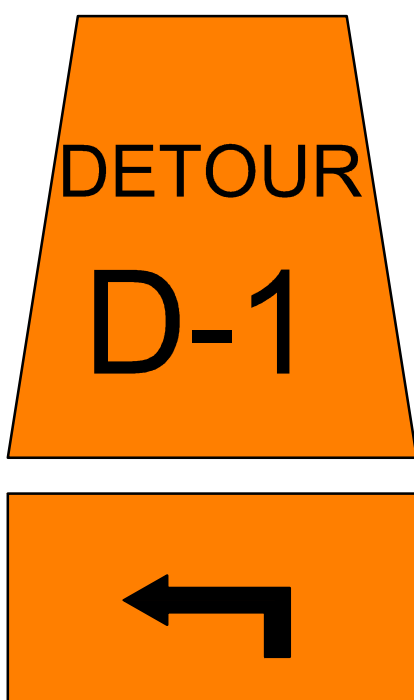
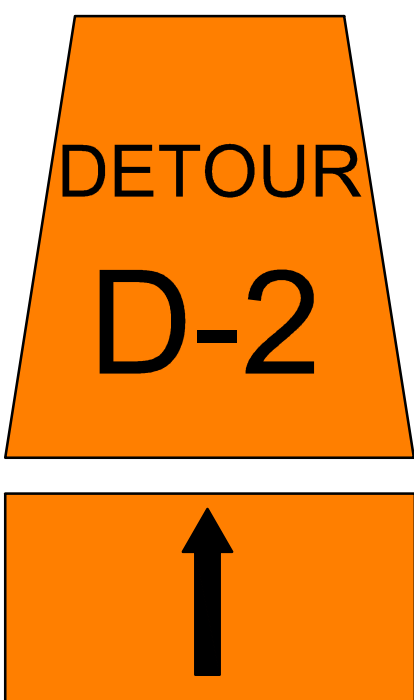
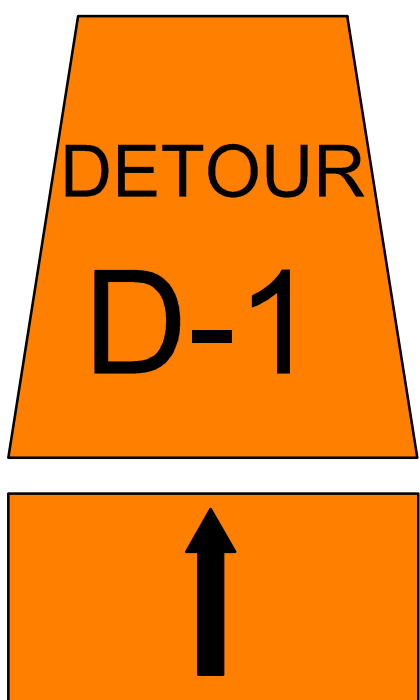
|                                    |         |
|------------------------------------|---------|
| S. Sparrow Lake Road<br>Closed     | OVERLAY |
| At Hamlet Bridge<br>Use Detour D-1 | OVERLAY |

|  |
|--|
| Access to Canning Road<br>Closed<br>Follow D-1 |
|--|

TC-67

|  |
|--|
| Access to S. Sparrow Lake RD<br>Closed<br>Follow D-2 |
|--|

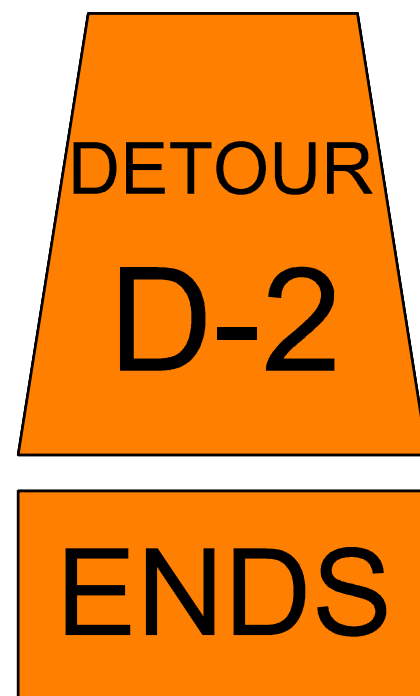
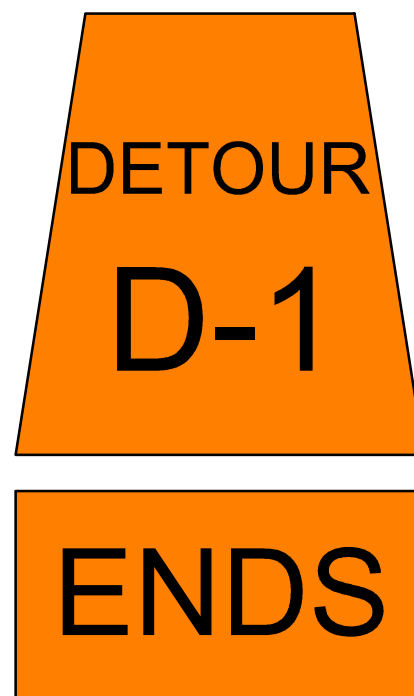
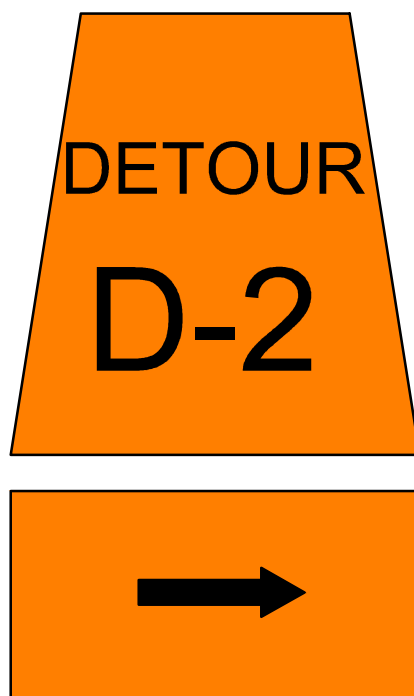
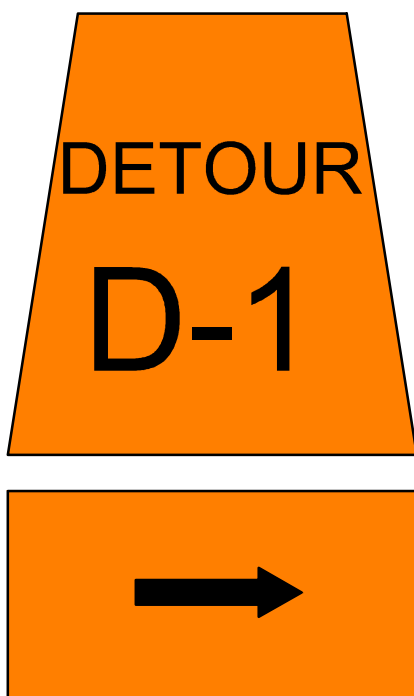
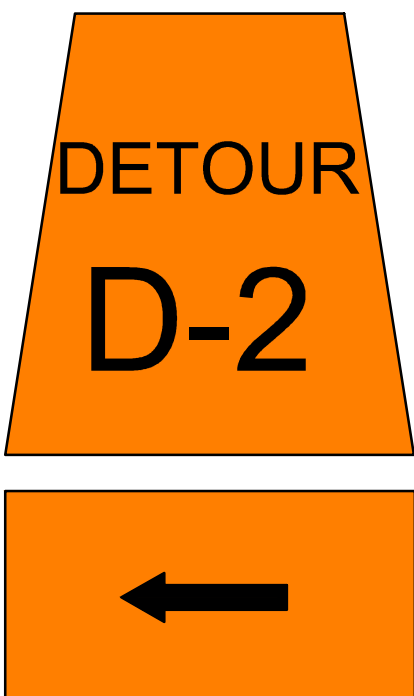
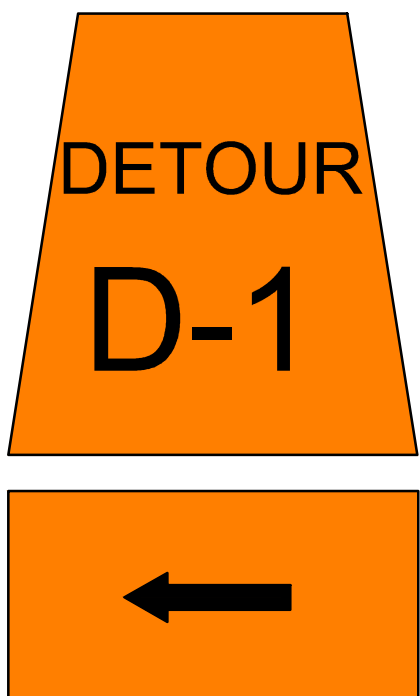
TC-67



TC-10C  
45 cm x 45 cm trapezoid  
30 cm x 45 cm arrow

TC-10AL  
45 cm x 45 cm trapezoid  
30 cm x 45 cm arrow

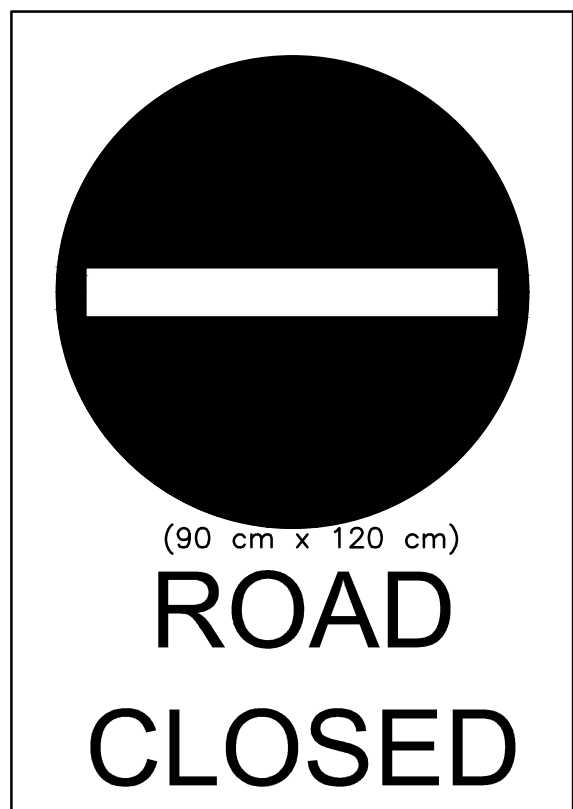
TC-10AR  
45 cm x 45 cm trapezoid  
30 cm x 45 cm arrow



TC-10BL  
45 cm x 45 cm trapezoid  
30 cm x 45 cm arrow

TC-10BR  
45 cm x 45 cm trapezoid  
30 cm x 45 cm arrow

TC-10D  
45 cm x 45 cm trapezoid  
30 cm x 45 cm "ENDS" tab

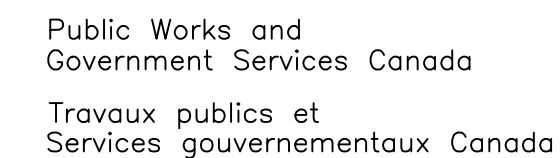


Rb-92

NOTES:

- ALL TRAFFIC CONTROL SIGNS SHOWN ON DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL MAINTAIN AND DETERMINE THE EXACT LOCATION OF TEMPORARY SIGNS IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL, BOOK 7.
- LANE CLOSURES MAY BE ALLOWED DURING OFF-PEAK HOURS WITH PRIOR APPROVAL FROM THE DEPARTMENTAL REPRESENTATIVE.
- ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- ROADWAY DRAINAGE TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- CONTRACTOR MAY EMPLOY ALTERNATE ROUTING METHODS SUBJECT TO APPROVAL BY THE DEPARTMENTAL REPRESENTATIVE.
- FOR TEMPORARY SIGNAGE LOCATIONS REFER TO SHEET 1.
- ADVANCE WARNING SIGNS SHALL BE PLACED A MINIMUM OF ONE MONTH BEFORE SCHEDULED CLOSURE





**PARSONS**



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A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

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| project title   |  |
| titre du projet |  |

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

GENERAL ARRANGEMENT I

drawn by  
dessine par

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

|            |                              |
|------------|------------------------------|
| bid        | project manager              |
| offre      | administrateur<br>de projets |
| JULIO LEON |                              |

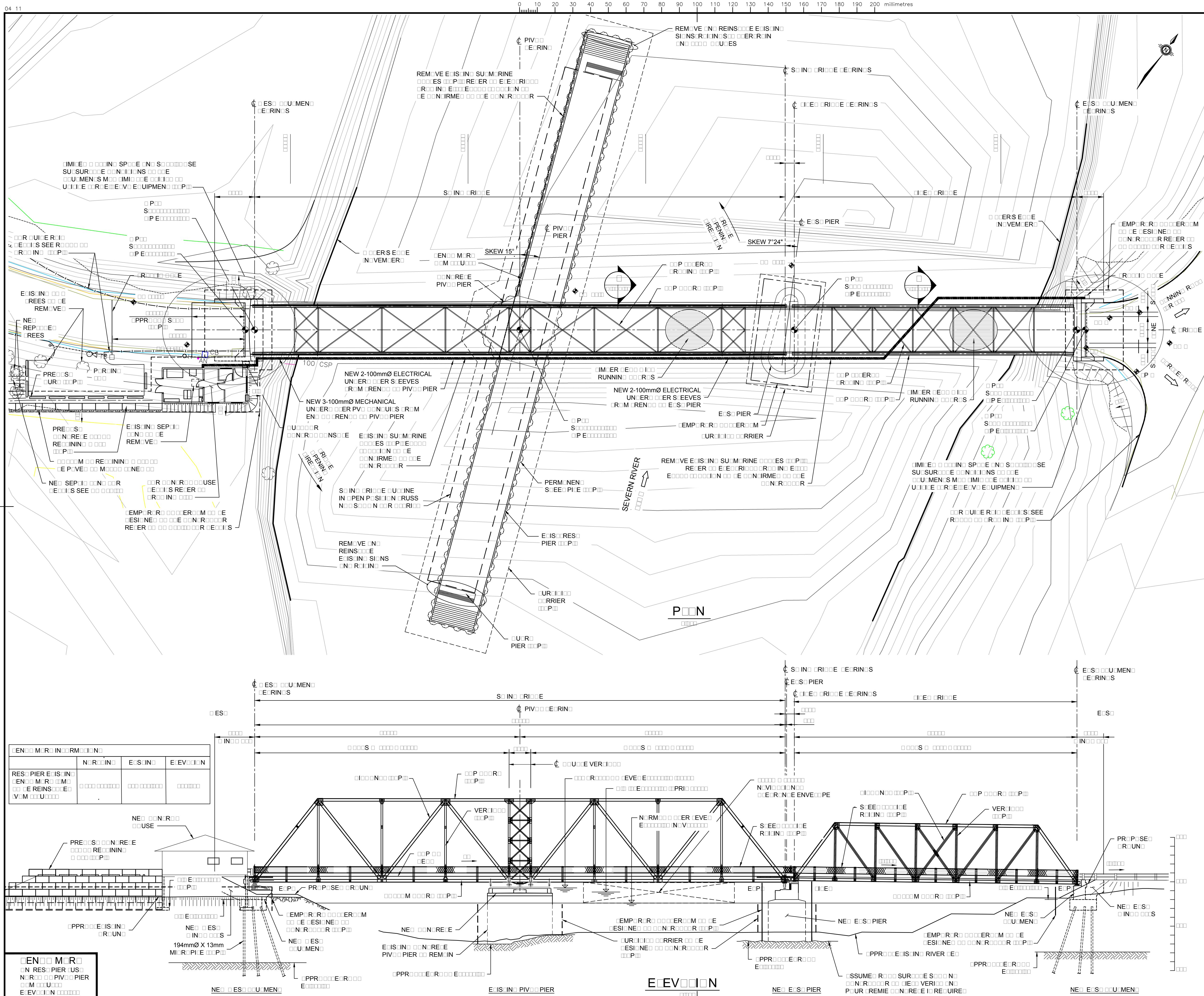
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| project date   |            |
| date du projet | 2018-07-20 |

project no.  
no. du projet

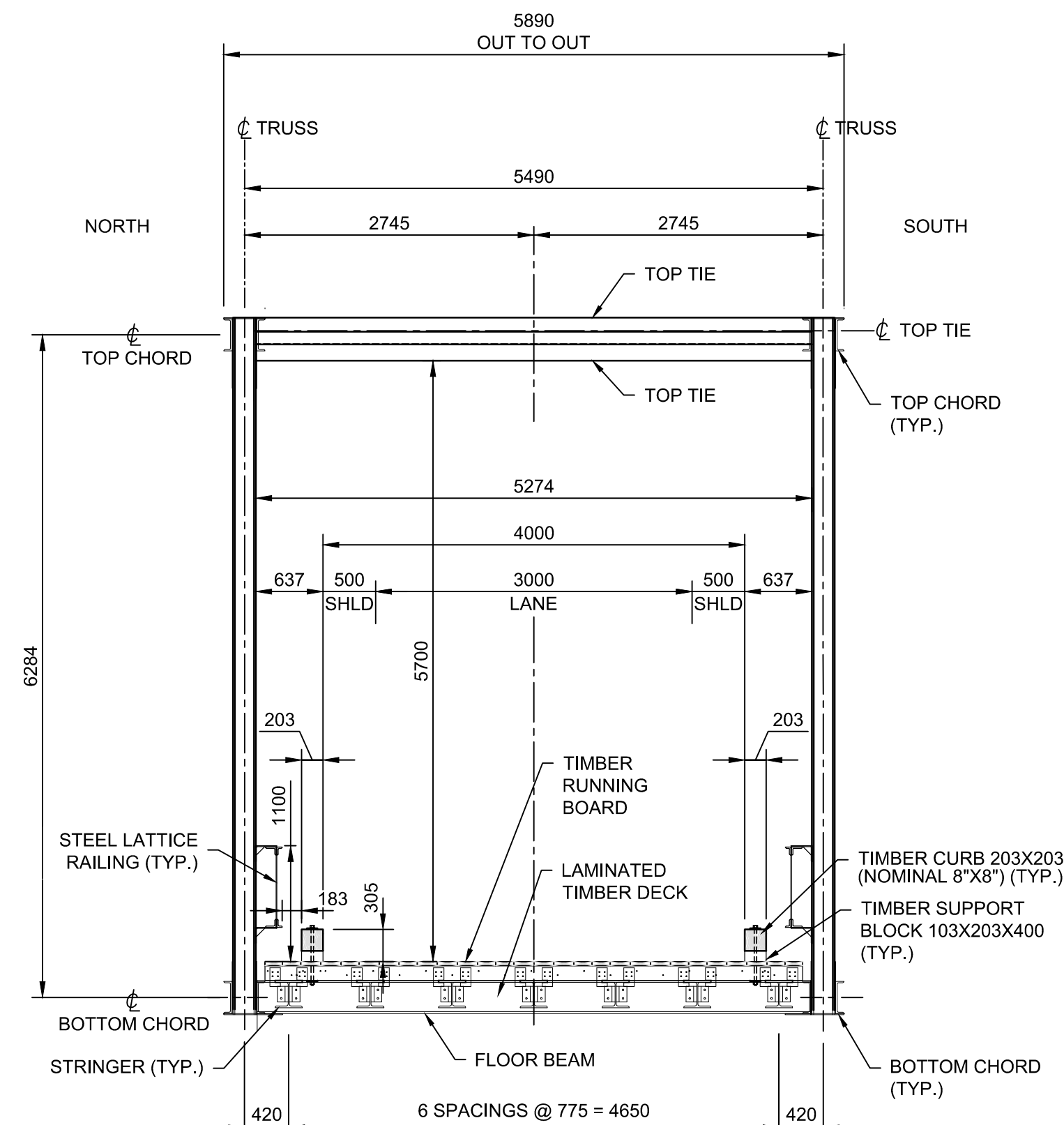
R.073593.001

drawing no.  
dessine no.

B-01







2  
B-01 B-02

FIXED BRIDGE 58  
TYPICAL CROSS-SECTION

1:50



|        |                                      |
|--------|--------------------------------------|
| ABUT.  | ABUTMENT                             |
| BH     | BOREHOLE                             |
| BRGS.  | BEARINGS                             |
| CL     | CENTRELINE                           |
| C/W    | COMPLETE WITH                        |
| DIA    | DIAMETER                             |
| EL.    | ELEVATION                            |
| H.W.L. | HIGH WATER LEVEL                     |
| LG     | LONG                                 |
| MIN.   | MINIMUM                              |
| PL     | PLATE                                |
| R      | RADIUS                               |
| SHLD   | SHOULDER                             |
| T/F    | TOP OF FOOTING                       |
| T/P    | TOP OF PAVEMENT                      |
| THK    | THICK                                |
| T.O.C. | TOP OF CONCRETE                      |
| TYP    | TYPICAL                              |
| U.N.O. | UNLESS NOTED OTHERWISE               |
| U/S    | UNDERSIDE                            |
| WP     | WORKING POINT                        |
| DWT    | DEAD WEIGHT TONNAGE OF VESSEL, tonne |
| V      | DESIGN COLLISION VELOCITY, m/sec     |

1. DIMENSIONS SHOWN ARE IN MILLIMETRES AND ELEVATIONS IN METRES UNLESS OTHERWISE NOTED.

2. ALL DIMENSIONS OF EXISTING ELEMENTS SHOWN SHALL BE CONSIDERED APPROXIMATE.

1. DESIGNED TO CSA S6-14 CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC).
2. DESIGN LIVE LOAD CL-625-ONT.
3. THE EAST PIER IS DESIGNED TO CSA S6-14 CHBDC VESSEL COLLISION FOR:
  - 3.1. DWT = 28 tonne
  - 3.2. V = 2.06 m/s
4. FOUNDATIONS SHALL BE APPROVED BY THE DEPARTMENTAL REPRESENTATIVE

1. ALL TIMBER USED FOR NEW LAMINATED DECK AND CURB SHALL BE PRESSURE TREATED SPRUCE-PINE-FIR (SPF) GRADE SELECT STRUCTURAL (SS).
2. ALL WOOD TO BE PRESURE-TREATED WITH PRESERVATIVE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CSA STANDARD 080 SERIES-15.
3. RUNNING BOARDS TO BE HEMLOCK GRADE SELECT STRUCTURAL (SS).

1. CONCRETE SHALL BE CSA EXPOSURE CLASS C-1 35 MPa.
2. CONCRETE MATERIALS AND METHODS OF CONSTRUCTION TO CSA-A23.1 AND METHODS OF TEST FOR CONCRETE TO CSA-A23.1-14/A23.2-14.
3. SHRINKAGE REDUCING ADMIXTURE TO PRODUCE LOW SHRINKAGE CONCRETE IN COMPLIANCE WITH CSA-A23.1-14/A23.2-14.
4. CONCRETE SURFACES TO RECEIVE NEW CONCRETE TO BE CLEANED AND ROUGHENED TO A MINIMUM 5 mm AMPLITUDE IN ACCORDANCE WITH CSA-A23.1-14/A23.2-14 CLAUSE 7.2.2.

|           |                              |
|-----------|------------------------------|
| FOOTINGS  | 100±25                       |
| PIER CAPS | 70±10                        |
| REMAINDER | 70±20 UNLESS OTHERWISE NOTED |

1. REINFORCING STEEL SHALL BE GRADE 400W .
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL BE CLASS 'B'.
3. BAR MARKS WITH PREFIX 'G' DENOTE HOT-DIPPED GALVANIZED BARS, BEND BARS AFTER GALVANIZING AND TOUCH-UP WITH TWO COATS OF ZINC-RICH PAINT.
4. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD SS12-1 UNLESS INDICATED OTHERWISE.
5. DOWELS SHALL BE GROUTED WITH APPROVED EPOXY ADHESIVE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS OR APPROVED EPOXY BASED ALTERNATIVE DOWELS SHALL HAVE MINIMUM EMBEDMENT AS FOLLOWS UNLESS NOTED OTHERWISE.

| BAR        | MIN. EMBEDMENT LENGTH (mm) |
|------------|----------------------------|
| 15M / G15M | 300                        |
| 20M / G20M | 300                        |
| 25M / G25M | 300                        |

1. REFER TO DRAWING B-24 FOR STRUCTURAL STEEL NOTES.

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS OF THE EXISTING STRUCTURE AND UTILITIES THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE DEPARTMENTAL REPRESENTATIVE AND THE PROPOSED ADJUSTMENT OF THE WORK REQUIRED SHALL BE SUBMITTED FOR APPROVAL TO THE DEPARTMENTAL REPRESENTATIVE.
2. THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING HANDLING, TRANSPORTATION AND ERECTION UNTIL THE BRIDGE SUPERSTRUCTURE IS IN ITS FINAL LOCATION WITH ALL PERMANENT BRACING, CONNECTIONS AND SUPPORTS IN PLACE.
3. ALL PROPRIETARY PRODUCTS SHALL BE USED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
4. MAINTAIN FULL NAVIGATIONAL CLEARANCE THROUGHOUT CONSTRUCTION DURING NAVIGATIONAL SEASON.
5. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
6. CHAMFER ALL EXPOSED CONCRETE EDGES TO 20X20 UNLESS NOTED OTHERWISE.
7. ALL CONSTRUCTION JOINTS TO BE NEAT, STRAIGHT, HORIZONTAL OR VERTICAL LINES AND FORMS TO BE KEPT TIGHT FROM POUR TO POUR.
8. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL UTILITY REMOVAL AND REPLACEMENT WORK REQUIRED FOR THE COMPLETION OF THIS PROJECT. FOR SUBMARINE CABLE REPLACEMENT SEE ELECTRICAL DRAWING E-04.
9. REFER TO ELECTRICAL, MECHANICAL AND HYDRAULIC DRAWINGS FOR TRENCHES, DUCTBANK, AND CONDUIT LOCATIONS.
10. COORDINATE ALL WORK WITH MECHANICAL, ELECTRICAL, HYDRAULIC AND CIVIL DRAWINGS AND SPECIFICATIONS.
11. SHEET PILING INDICATED ON THE CONTRACT IS REQUIRED AS A PERMANENT PART OF THE STRUCTURE. IT IS NOT INTENDED TO REPRESENT A COMPLETE SHORING DEWATERING SCHEME.
12. COFFERDAM SHALL BE DESIGNED BY CONTRACTOR TO BE 100mm ABOVE THE 100 YR. FLOOD LEVEL.





• AN

○ H

○ B&H

○ B

○ LS

□ TB

○

-BENCHMARK

-EXISTING ANCHOR

-EXISTING HYDRO POLE

-EXISTING HYDRO AND BELL

-EXISTING BELL POLE

-EXISTING LIGHT POST

-EXISTING BELL BOX

-EXISTING TREE

□ CB

— H

■ CM

■ IB

■ SIB

—

-CATCHBASIN

-EXISTING TRAFFIC SIGNAL

-EXISTING HYDRO LINE


-CONCRETE MONUMENT

-IRON BAR

-STANDARD IRON BAR

-PROPERTY LINE

- NOTES
1. THE EXISTING UTILITIES AND PROPERTY LINES SHOWN ARE BASED ON SURVEY DRAWING PREPARED BY DEARDEN AND STANTON LIMITED ON DECEMBER 2015.
  2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ELECTRICAL AND MECHANICAL DRAWINGS.
  3. AVAILABLE EXISTING REFERENCES DRAWINGS AND REPORTS ARE LISTED IN THE SPECIFICATIONS.
  4. THE CONTRACTOR MAY PLACE BARGES IN THE SIDE CHANNELS WITHIN LAND OWNED BY PCA. THE CONTRACTOR SHALL NOT OBSTRUCT THE NAVIGATION CHANNEL AND CLEARANCE ENVELOPE THAT IS 17.000m WIDE, EXCEPT DURING THE NAVIGATIONAL SHUT DOWN PERIOD DEFINED IN THE SPECIFICATIONS.

 Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

**PARSONS**



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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|---|--|
| <div><div>A</div><div>B</div><div>C</div></div> | <div>A Detail No.<br/>No. du détail</div> <div>B drawing no. — where detail required<br/>dessin no. — où détail exigé</div> <div>C drawing no. — where detailed<br/>dessin no. — où détaillé</div> |
|---|--|

project title  
titre du projet

Ontario  
  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

SITE PLAN

drawn by  
dessiné par TOM HWANG

designed by  
conc par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. B-03



SWING BRIDGE LOOKING NORTH



WEST APPROACH LOOKING EAST



FIXED BRIDGE LOOKING NORTH



WEST ABUTMENT LOOKING SOUTHWEST



PIVOT PIER LOOKING EAST



EAST PIER LOOKING SOUTH



EAST ABUTMENT AND EMBANKMENT LOOKING SOUTH



DOCK ON THE SOUTHEAST SIDE OF THE BRIDGE



1ST DOCK ON THE SOUTHWEST SIDE OF THE BRIDGE (OWNED BY PCA)



2ND DOCK ON THE SOUTHWEST SIDE OF THE BRIDGE (PRIVATE)



BENCHMARK ON NORTH REST PIER CLOSE TO PIVOT PIER



BENCHMARK ON NORTH REST PIER CLOSE TO PIVOT PIER - UP CLOSE



EAST APPROACH LOOKING WEST



CONTROL HOUSE NORTHWEST SIDE






**LEGEND**

 REMOVAL



1. THE CONTRACTOR TO BE RESPONSIBLE FOR COORDINATING THE RELOCATION OF UTILITIES OFF STRUCTURE AND APPROACHES WITH THE APPLICABLE UTILITY OWNERS.
2. ALL EXISTING SIGNS, TRAFFIC SIGNALS AND WARNING GATES WITHIN THE CONSTRUCTION ZONE TO BE REMOVED AND NEW FOUNDATIONS TO BE PROVIDED FOR ALL ITEMS IDENTIFIED TO BE SALVAGED.
3. REINSTATE EMBANKMENT USING GRANULAR FILL MEETING OPSSM.PROV.1010. FILL TO BE PLACED IN LIFTS NOT EXCEEDING 300mm THICK AND COMPACTED TO AT LEAST 95% OF MAXIMUM DRY DENSITY. EMBANKMENT FILL SLOPES NOT TO EXCEED 2 HORIZONTAL : 1 VERTICAL. REINSTATED SURFACE TO BE FINISHED WITH TOPSOIL, EROSION CONTROL BLANKETS AND HYDROSEED.
4. THE STABILITY OF THE STRUCTURE DURING ALL STAGES OF REMOVAL, INCLUDING COFFERDAMS, DEWATERING AND ENVIRONMENTAL PROTECTION, IS THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR TO PROVIDE TEMPORARY BRACING AS REQUIRED.
5. CONTRACTOR IS RESPONSIBLE FOR THE DETAILED DESIGN OF THE DECONSTRUCTION OF THE STRUCTURE. SUBMISSIONS TO BE STAMPED BY A PROFESSIONAL ENGINEER.
6. DISPOSAL OF ALL DEMOLITION MATERIALS MUST BE IN ACCORDANCE WITH THE SPECIFICATIONS.
7. PIVOT PIER CONCRETE REMOVAL TO BE SCHEDULED WHEN WATER LEVEL IS LOW.

 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

|                 |  |
|-----------------|--|
| project title   |  |
| titre du projet |  |

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

| drawing title | titre du dessin |
|---------------|-----------------|
| 1             | 1               |
| 2             | 2               |
| 3             | 3               |
| 4             | 4               |
| 5             | 5               |
| 6             | 6               |
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| 95            | 95              |
| 96            | 96              |
| 97            | 97              |
| 98            | 98              |
| 99            | 99              |
| 100           | 100             |

## REMOVALS

drawn by  
dessine par

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

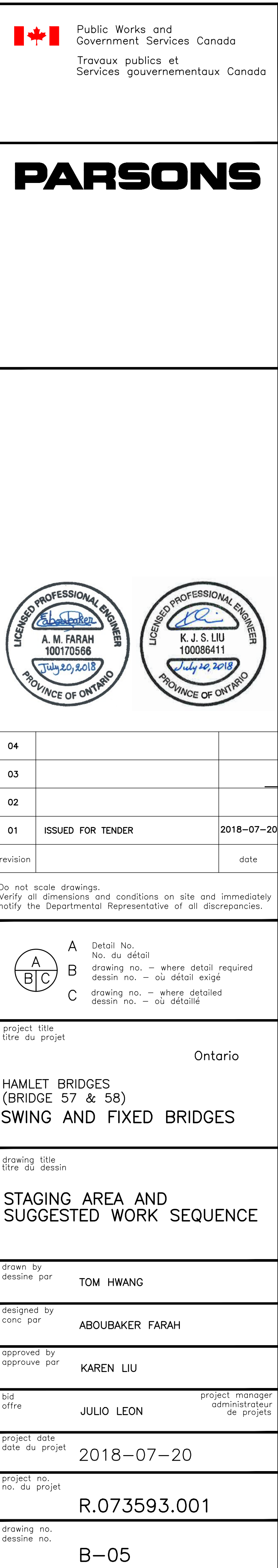
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|----------------|------------|
| project date   | 2018-07-20 |
| date du projet |            |

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|------------------------------|--------------|
| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

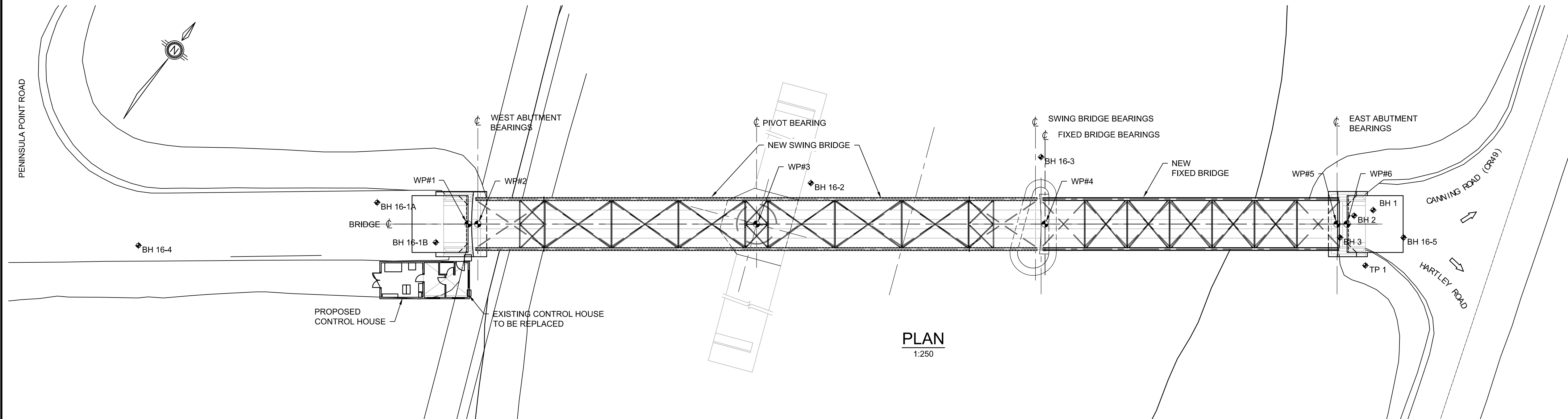
drawing no.  
dessine no.

B-04

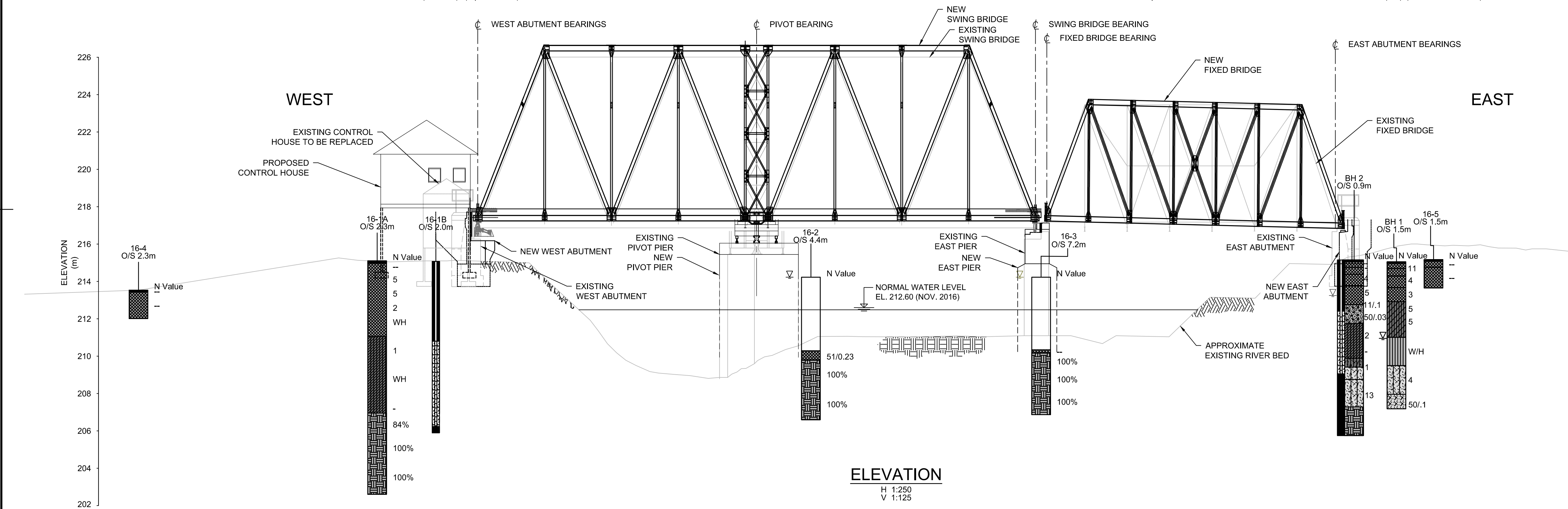






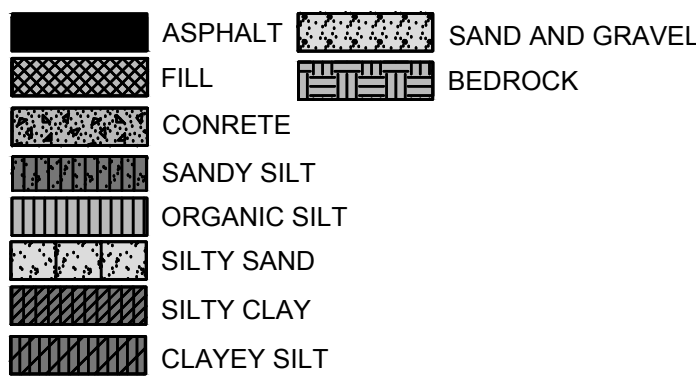


PLAN  
1:250

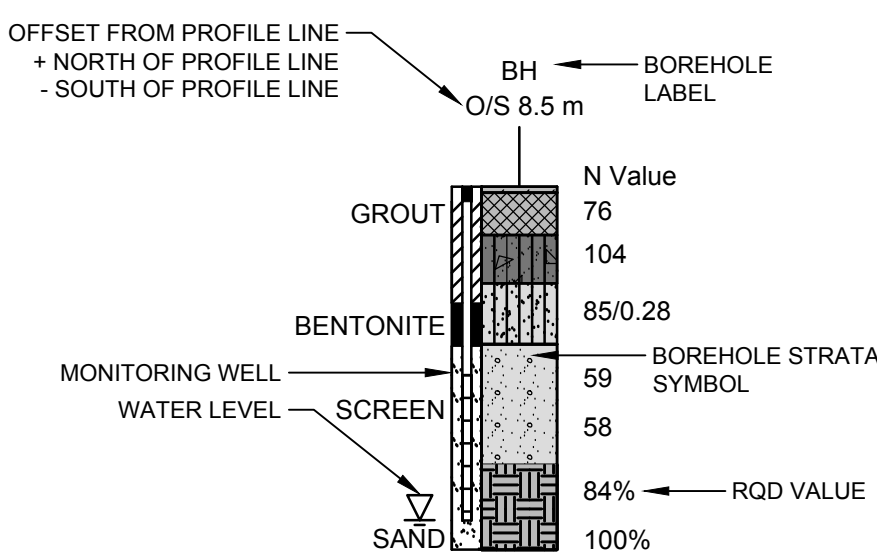


ELEVATION  
H 1:250  
V 1:125

SOIL STRATIGRAPHY



LEGEND



Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

PARSONS



GEOTECHNICAL:

GEOTECHNICAL INFORMATION TAKEN FROM REPORT # 1659973  
REVO REPAIR/UPGRADE-REPLACEMENT OF HAMLET SWING AND  
FIXED BRIDGES, HAMLET, ONTARIO BY GOLDR ASSOCIATES LTD.  
DATED JANUARY 19, 2018



|                 |            |
|-----------------|------------|
| 100% SUBMISSION | 2018-07-06 |
| 99% SUBMISSION  | 2018-05-16 |
| 50% SUBMISSION  | 2018-03-02 |

| revision   | description | date |
|--|-------------|------|
| Do not scale drawings.<br>Verify all dimensions and conditions on site and immediately<br>notify the Departmental Representative of all discrepancies. |             |      |

|   |   |
|---|---|
| A | Detail No.<br>No. du détail   |
| B | drawing no. - where detail required<br>dessin no. - où détail exigé |
| C | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

BOREHOLE LOCATION AND  
SOIL STRATA

drawn by  
dessiné par

MK

designed by  
conçue par

approved by  
approuvé par

bid  
offre

JULIO LEON

project manager  
administrateur de projets

project date  
date du projet

2018-07-06

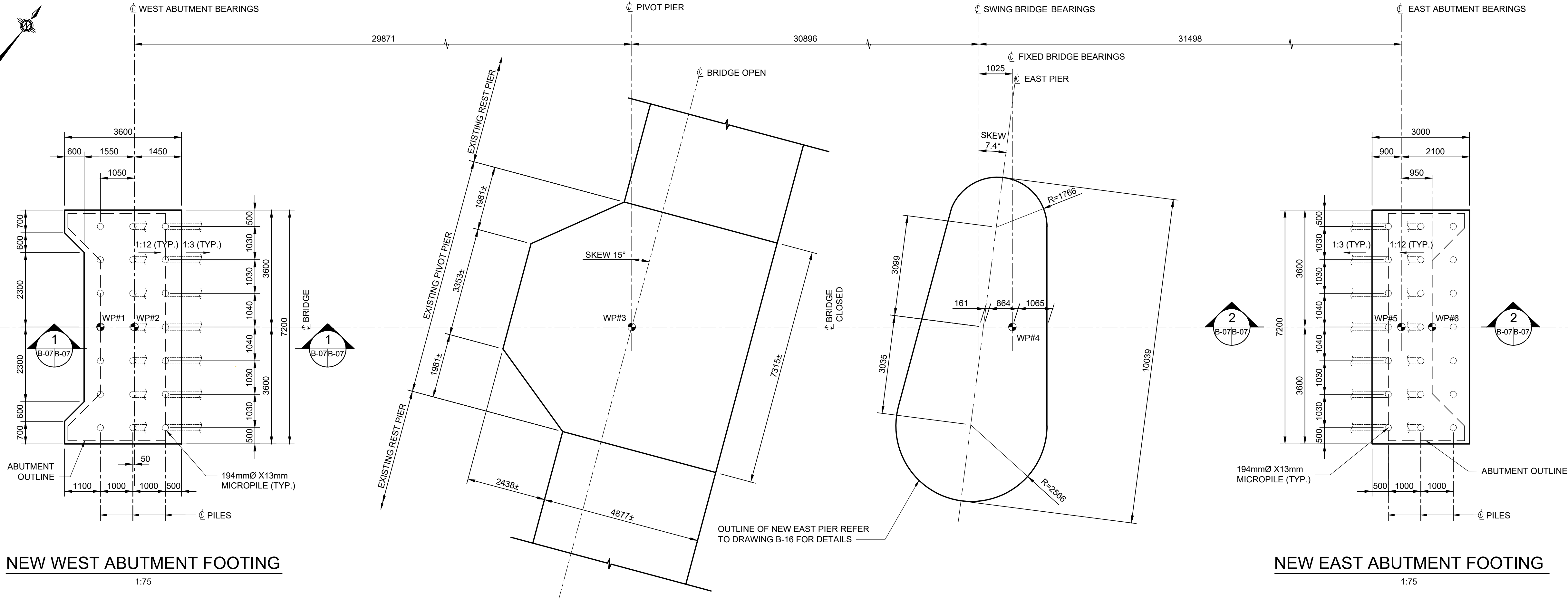
project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.

B-06





NEW WEST ABUTMENT FOOTING

EXISTING PIVOT PIER

NEW EAST PIER

FOUNDATION LAYOUT

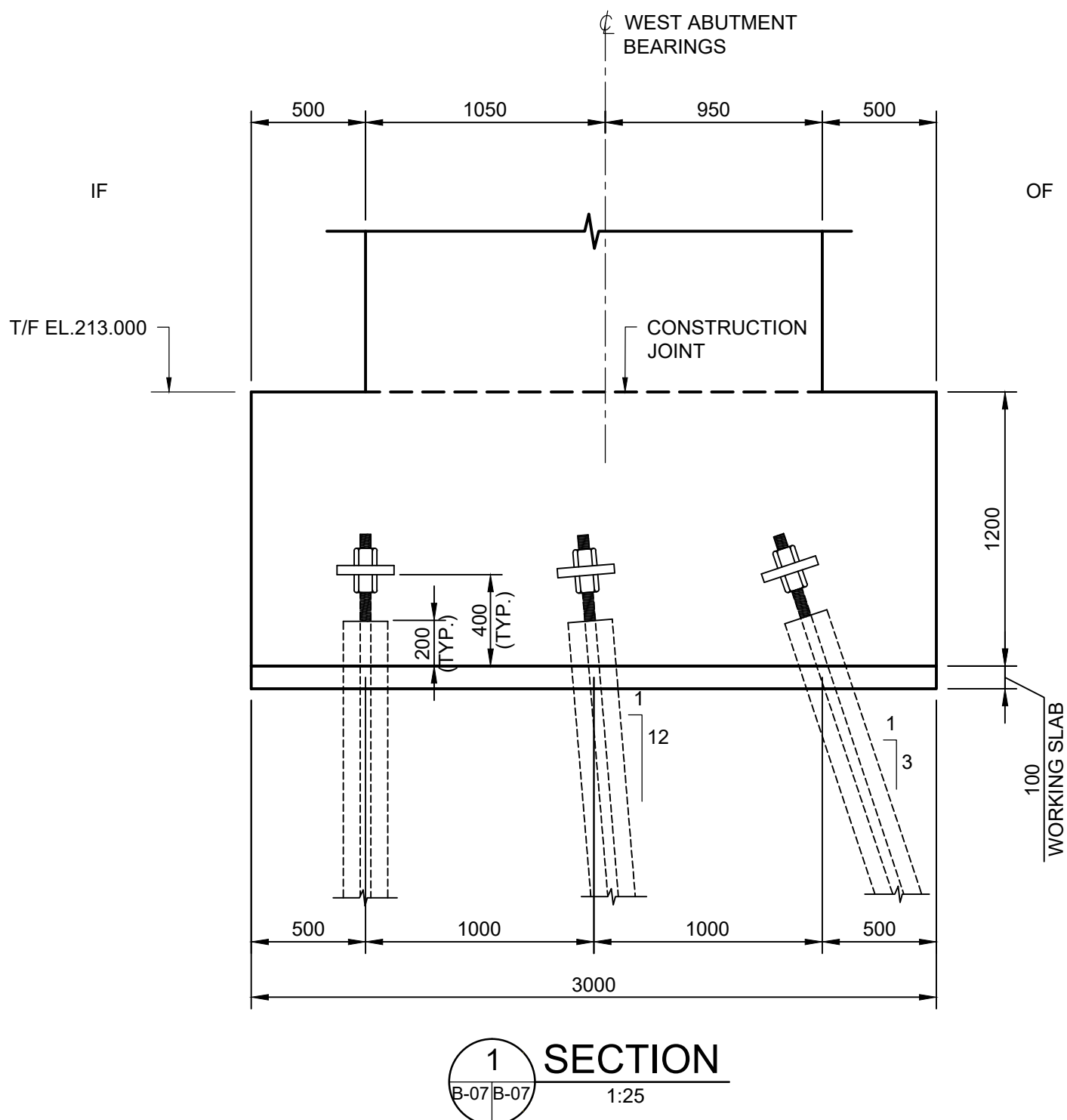
NEW EAST ABUTMENT FOOTING

NOTES:

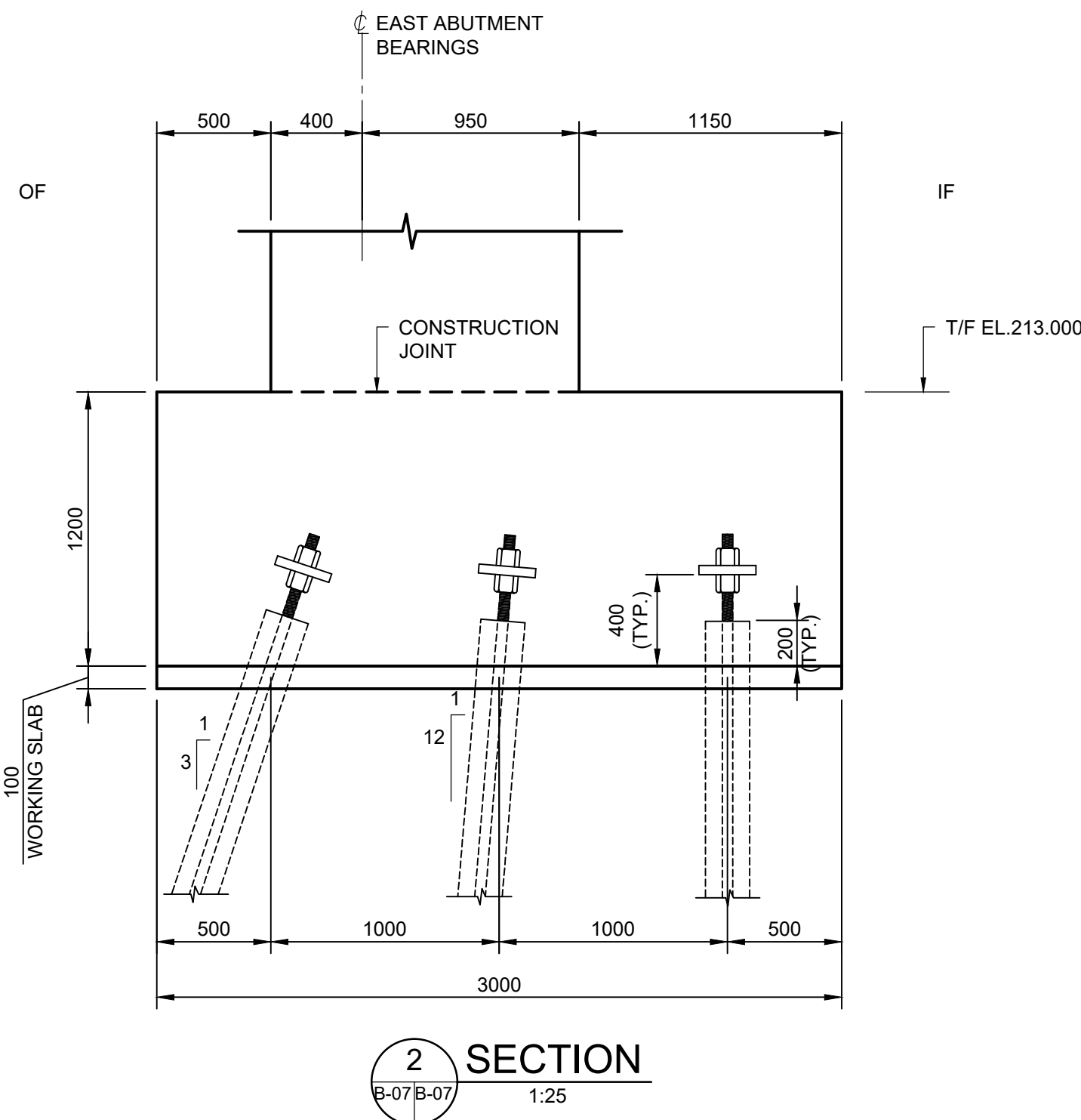
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-08 TO B-13 AND DRAWINGS B-16 TO B-17.

LIST OF ABBREVIATIONS:

IF DENOTES INSIDE FACE  
OF DENOTES OUTSIDE FACE



1 SECTION



2 SECTION

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |   |
|---|---|
| A | Detail No.<br>No. du détail   |
| B | drawing no. - where detail required<br>dessin no. - où détail exigé |
| C | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
FOUNDATION LAYOUT

drawn by  
dessiné par  
ANTHONY LEE

designed by  
conçue par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

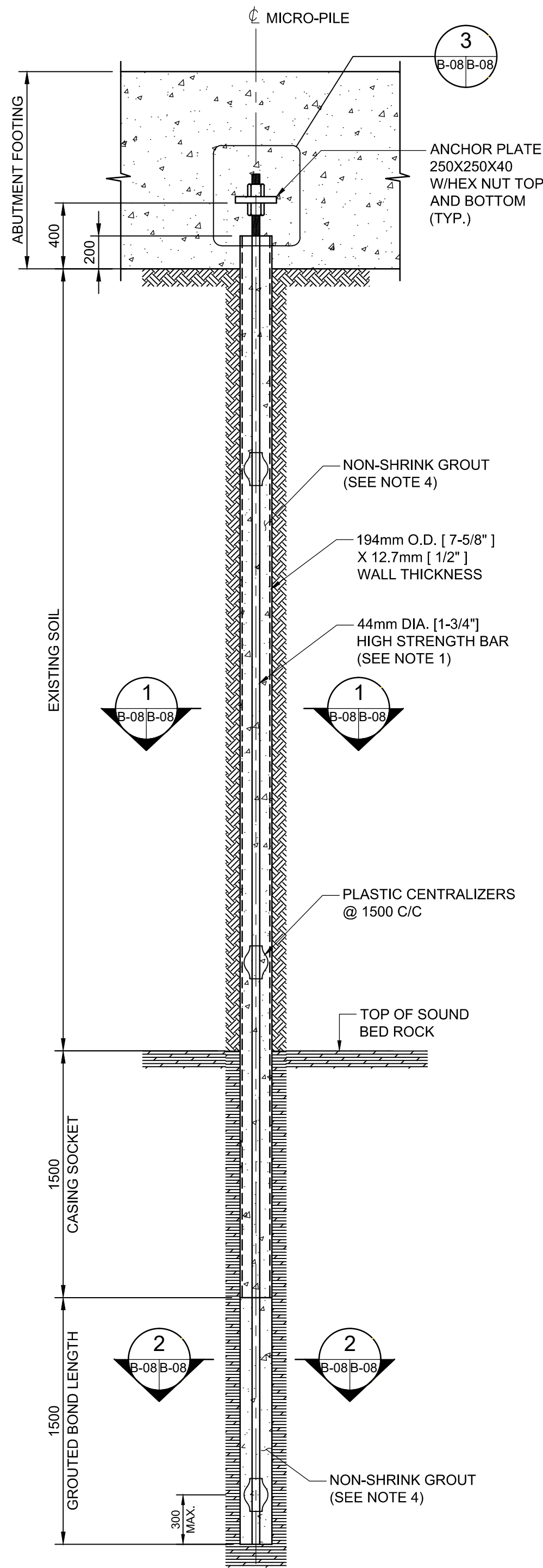
bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

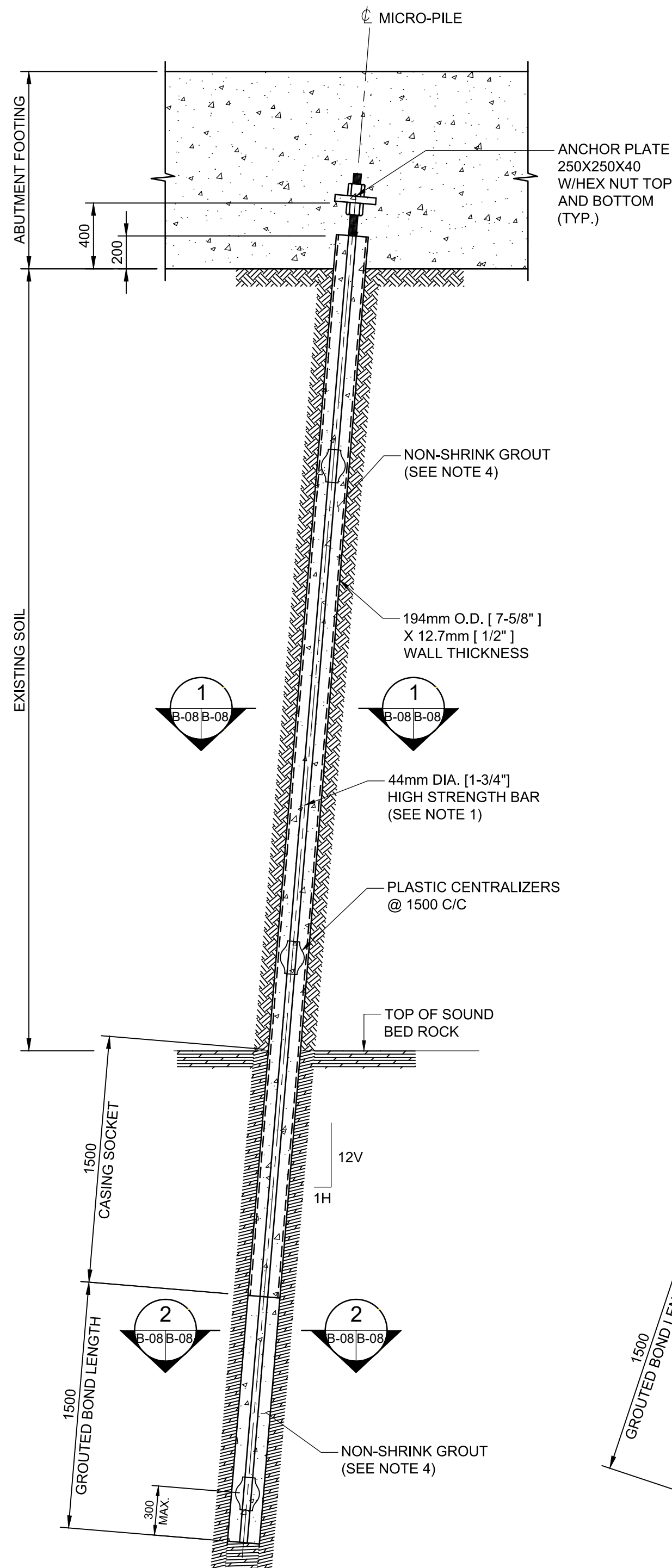
project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
B-07

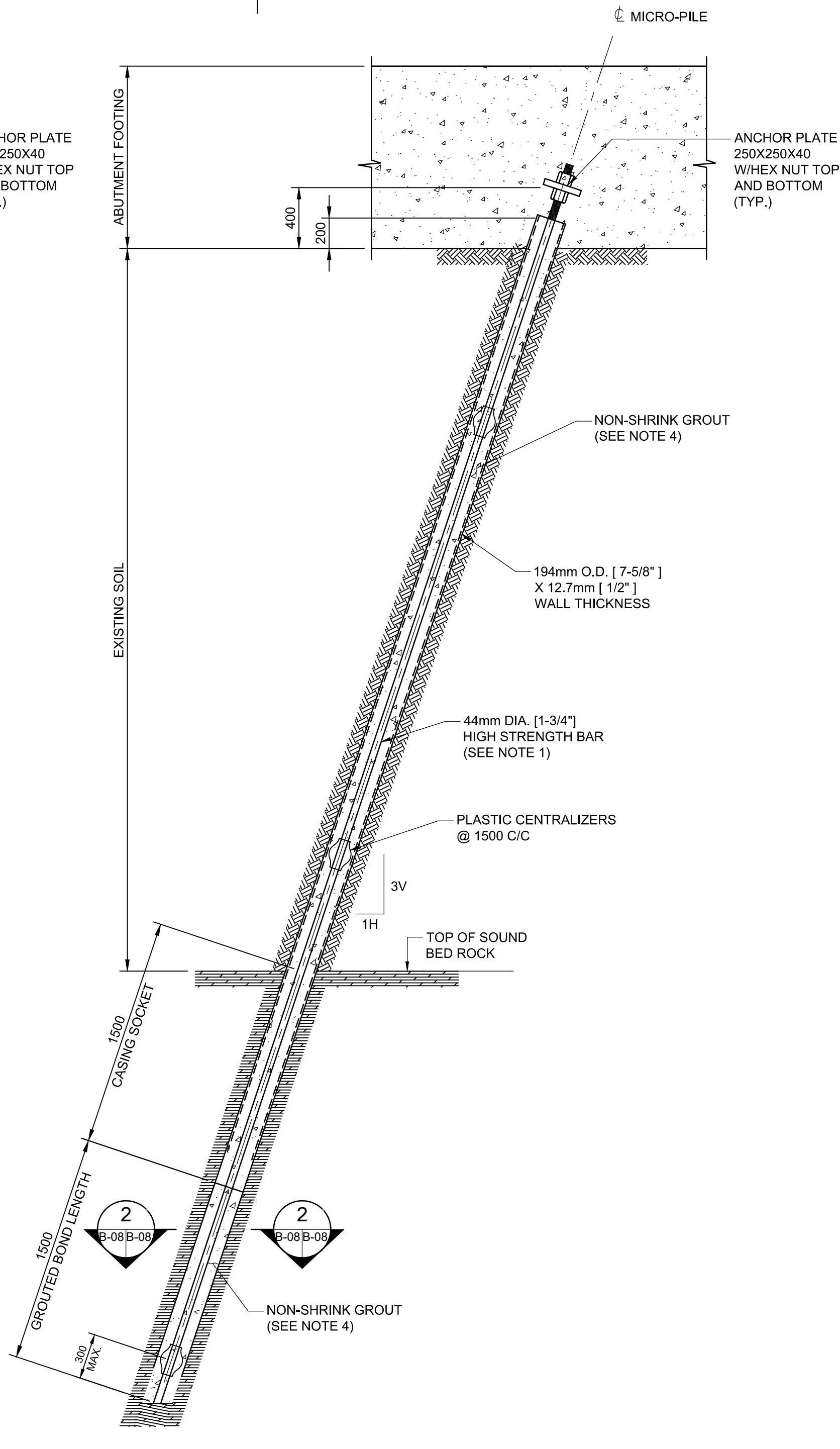




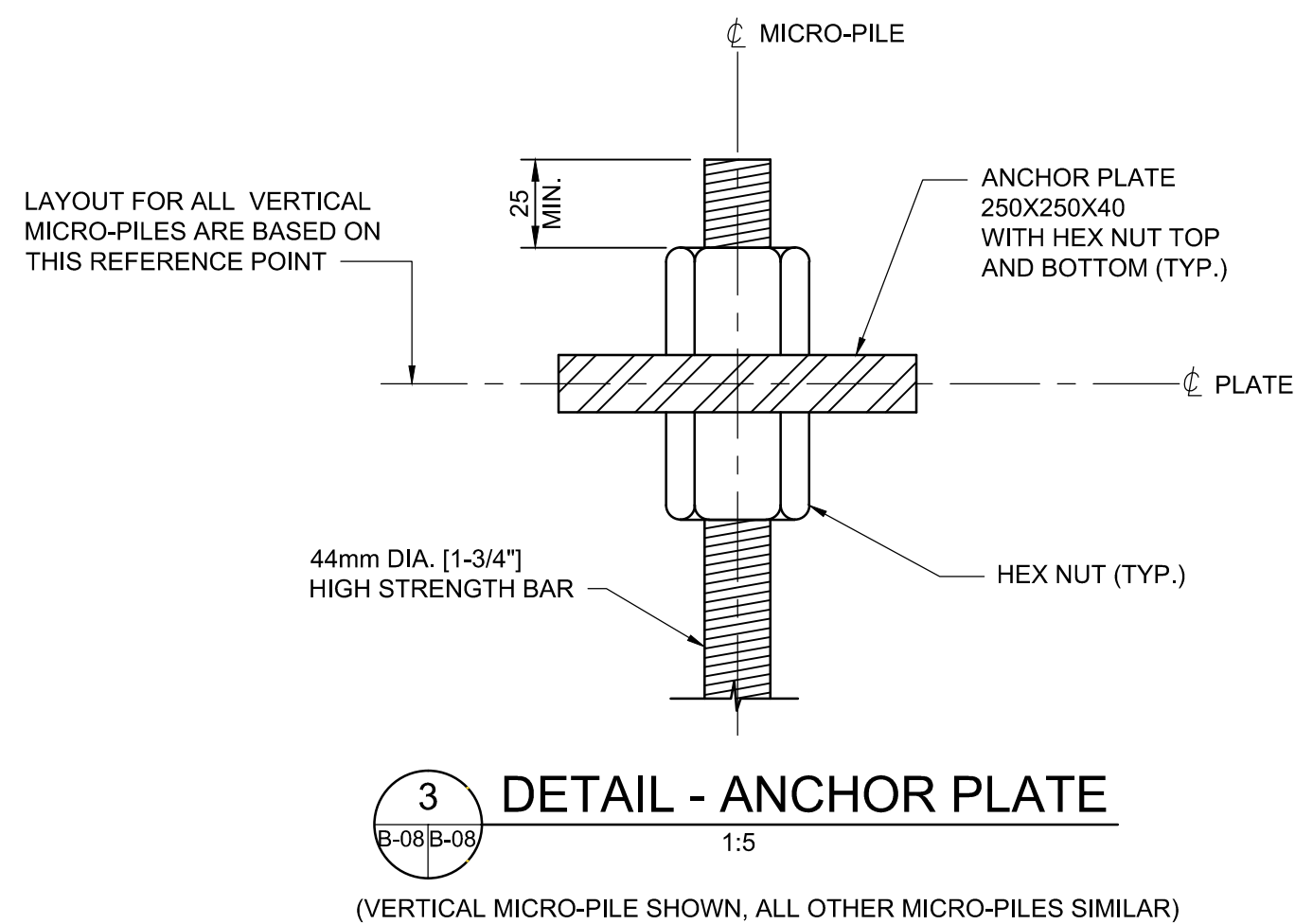
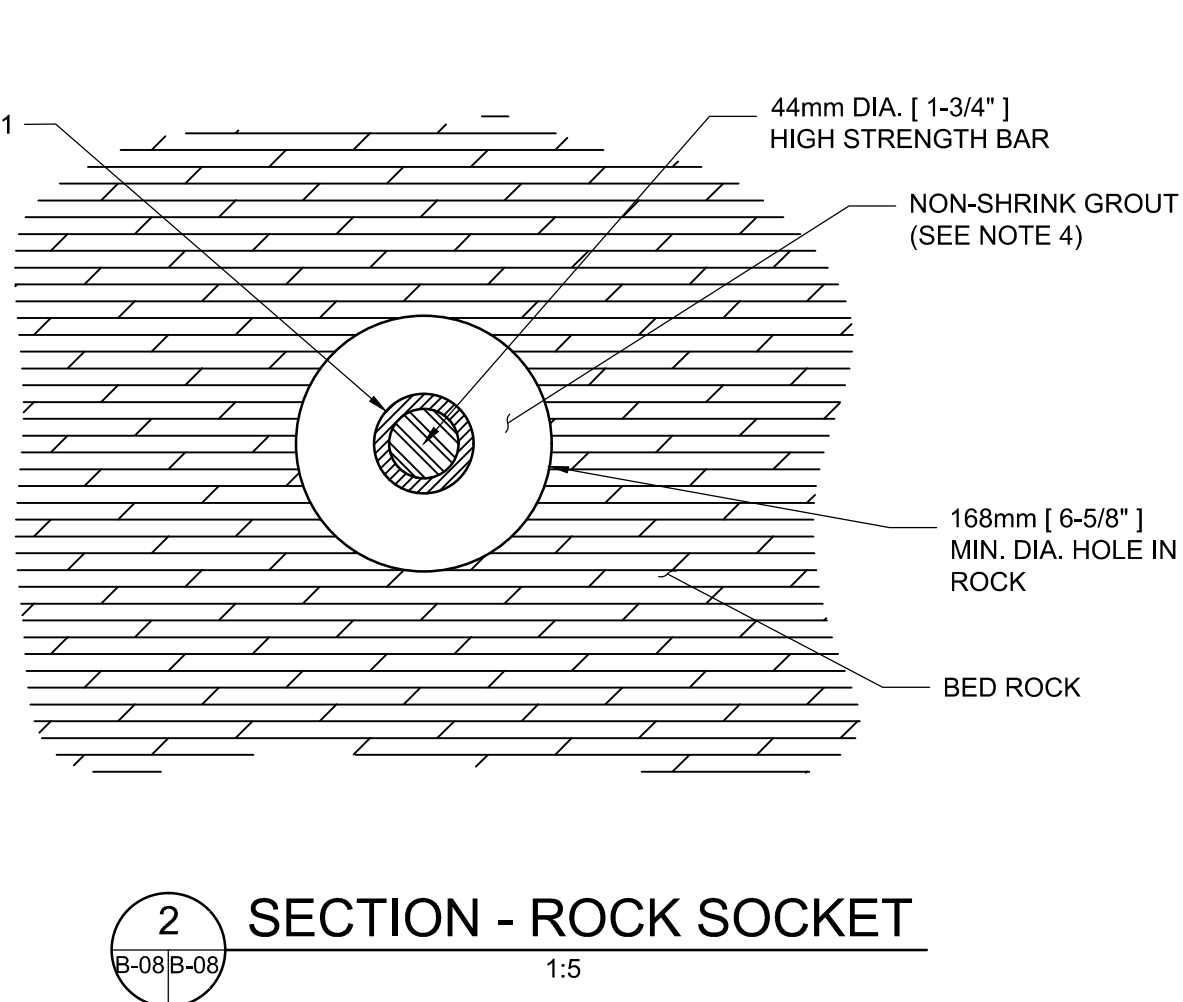
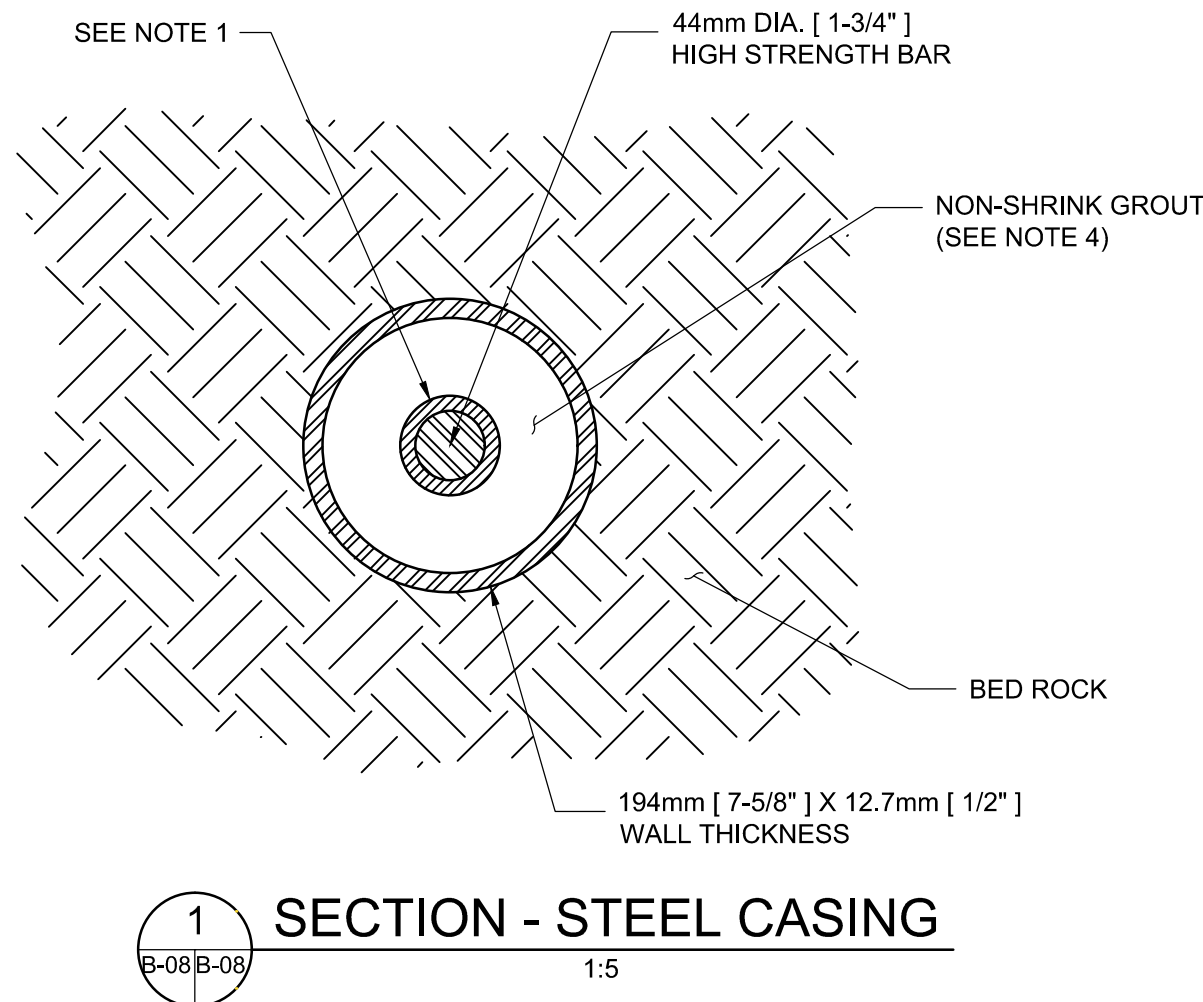
ELEVATION - VERTICAL MICRO-PILE  
1:25



ELEVATION - 1H:12V MICRO-PILE  
1:25



ELEVATION - 1H:3V MICRO-PILE  
1:25



(VERTICAL MICRO-PILE SHOWN, ALL OTHER MICRO-PILES SIMILAR)

NOTES:

1. MICRO-PILE SHALL BE DOUBLE CORROSION PROTECTED AS DESCRIBED IN THE POST-TENSION INSTITUTE - RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS.
2. HIGH STRENGTH BARS TO BE ASTM A722/A722M-15 GRADE 150 KSI WITH  $F_y = 1020$  MPa.
3. MICRO-PILE CASING TO BE API-N80 WITH  $F_y = 550$  MPa.
4. GROUT TO BE 35 MPa AND HAVE ANTI-WASHOUT PROPERTIES.
5. GRADE OF STEEL OF ANCHOR PLATES TO BE 300W.
6. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07, B-09 AND DRAWINGS B-10 TO B-13.

MICRO-PILE GEOTECHNICAL DESIGN CAPACITY  
(ALL MICRO-PILES):

COMPRESSION 750 kN

|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

MICRO-PILE DETAILS

|                                |                 |
|--------------------------------|-----------------|
| drawn by<br>dessiné par        | ANTHONY LEE     |
| designed by<br>conc par        | ABOUBAKER FARAH |
| approved by<br>approuvé par    | KAREN LIU       |
| bid<br>offre                   | JULIO LEON      |
| project date<br>date du projet | 2018-07-20      |
| project no.<br>no. du projet   | R.073593.001    |
| drawing no.<br>dessiné no.     | B-08            |





1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING B-07, B-08 AND DRAWINGS B-10 TO B-13.
2. ADJUST REBARS LOCALLY TO ACCOMMODATE MICROPILES




CJ DENOTES CONSTRUCTION JOINT  
IF DENOTES INSIDE FACE  
OF DENOTES OUTSIDE FACE  
WP DENOTES WORKING POINT  
TYP. DENOTES TYPICAL



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately notify the Departmental Representative of all discrepancies.

 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

|                                  |         |
|----------------------------------|---------|
| project title<br>titre du projet | Ontario |
|----------------------------------|---------|

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

### ABUTMENT FOOTING LAYOUT AND REINFORCING DETAILS

drawn by  
dessine par

ANTHONY LEE

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

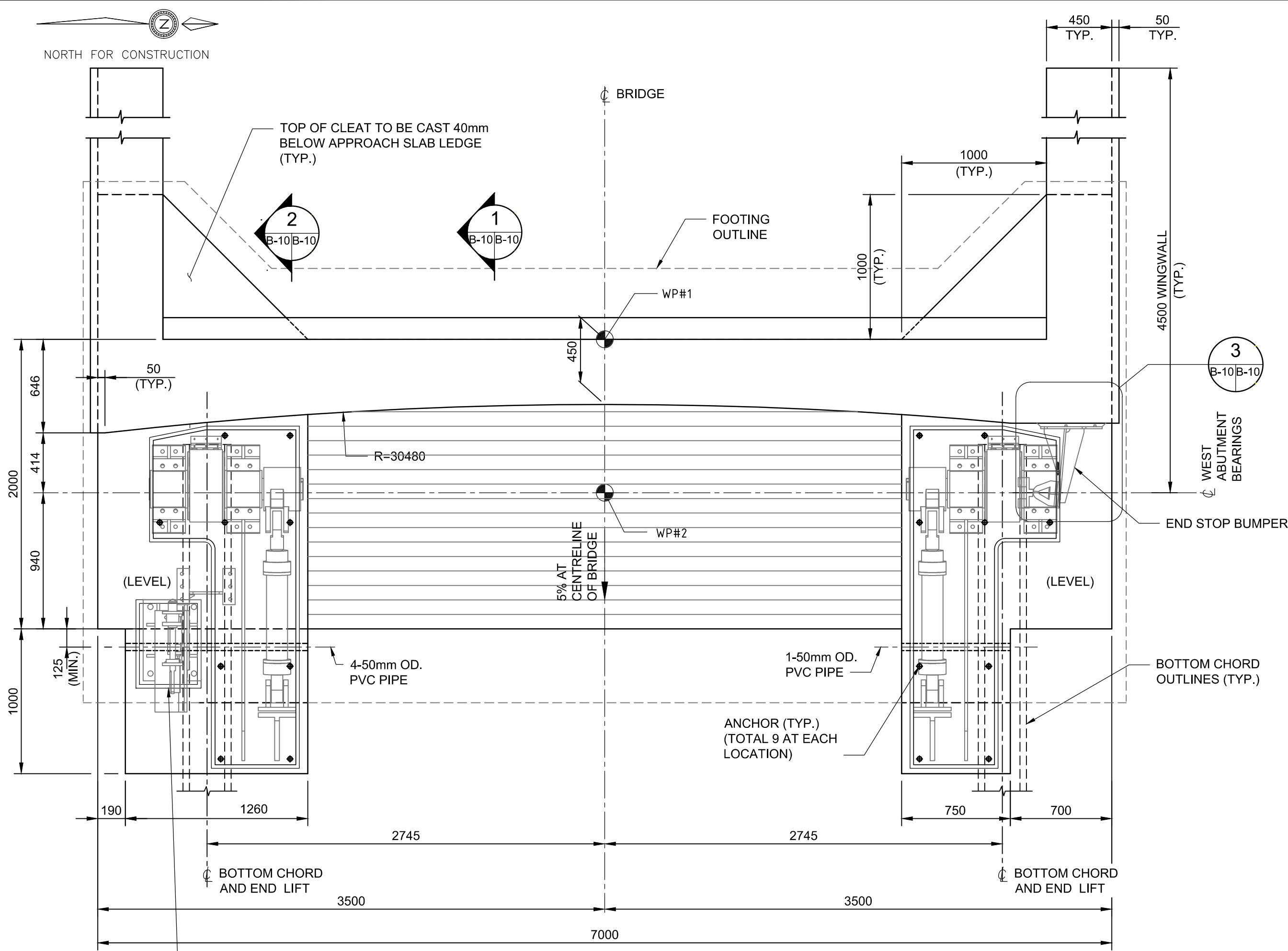
|                |            |
|----------------|------------|
| project date   |            |
| date du projet | 2018-07-20 |

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| project no.   |  |
| no. du projet |  |

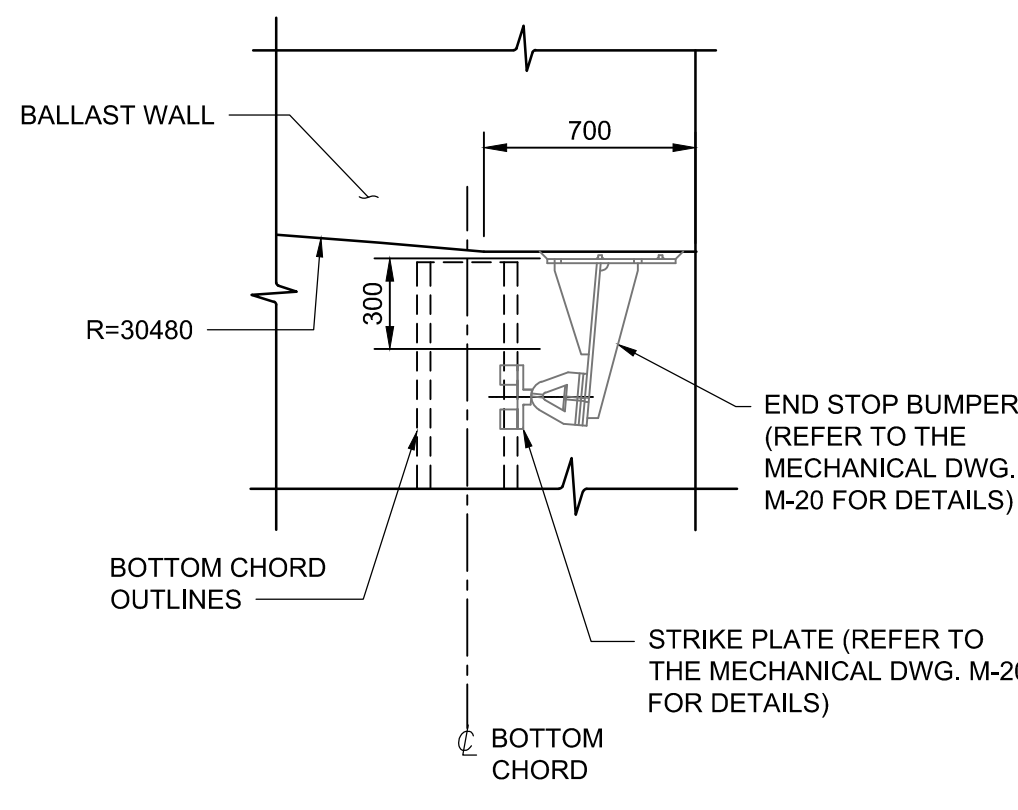
drawing no.  
dessine no.

B-09

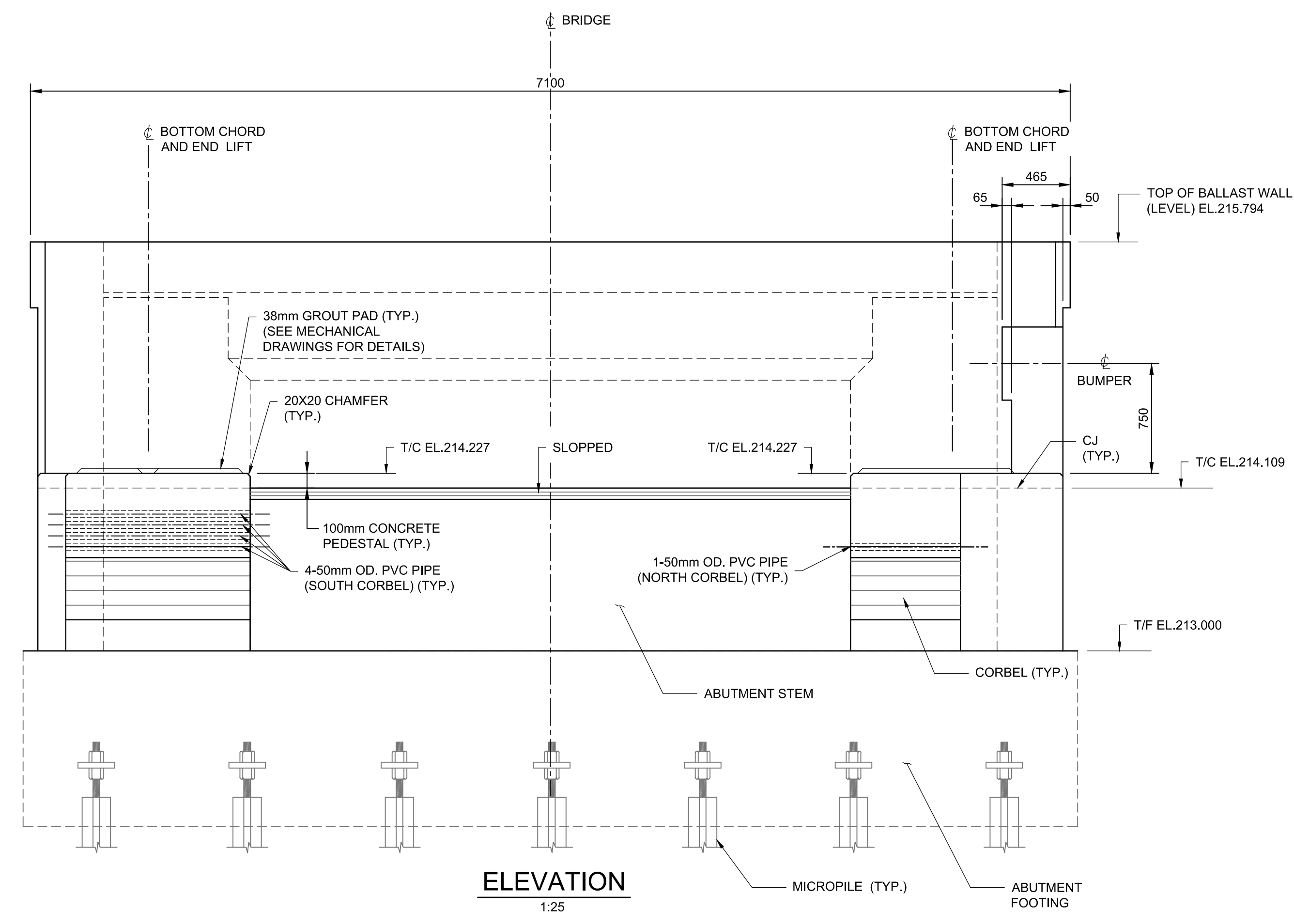
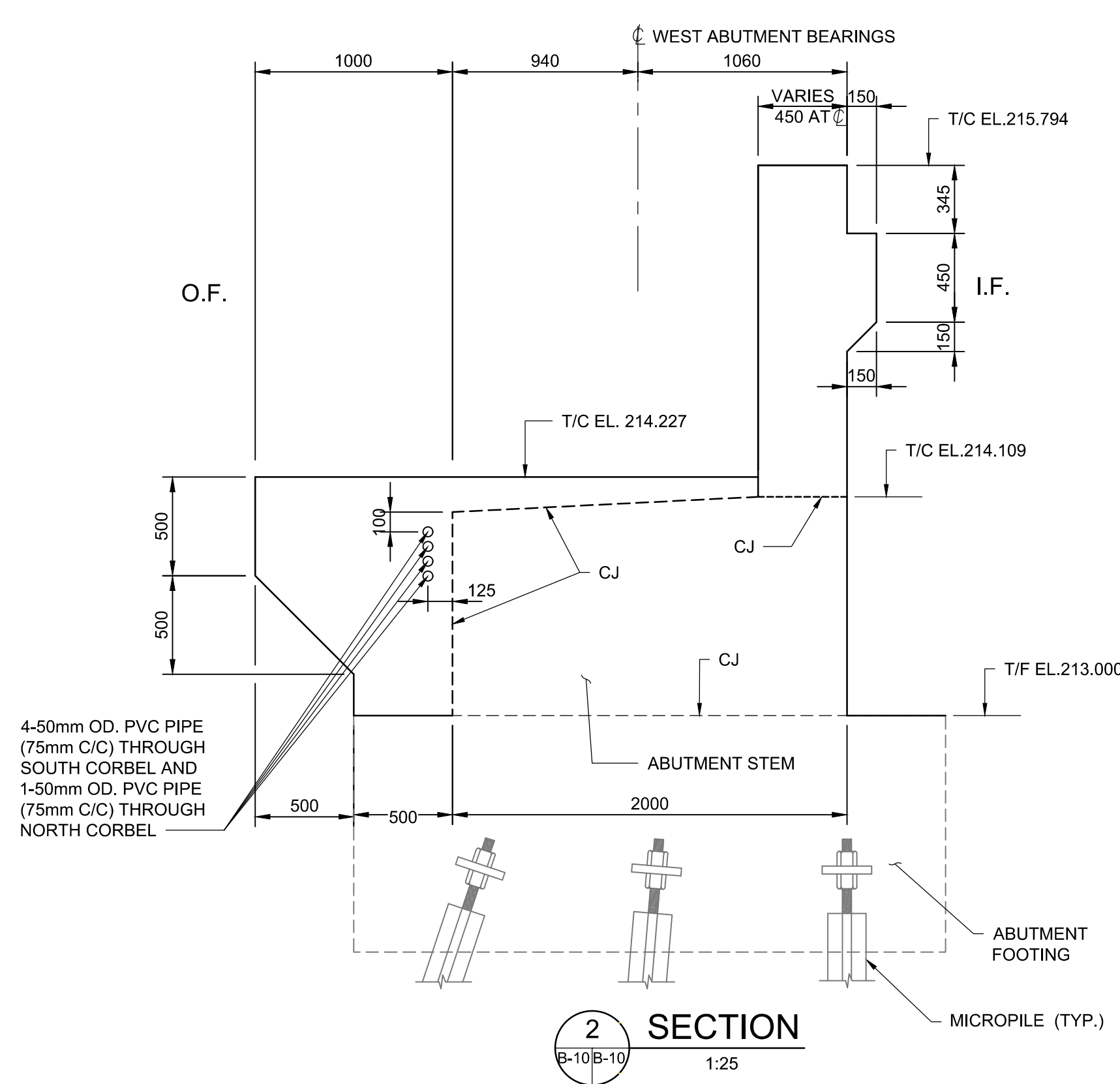
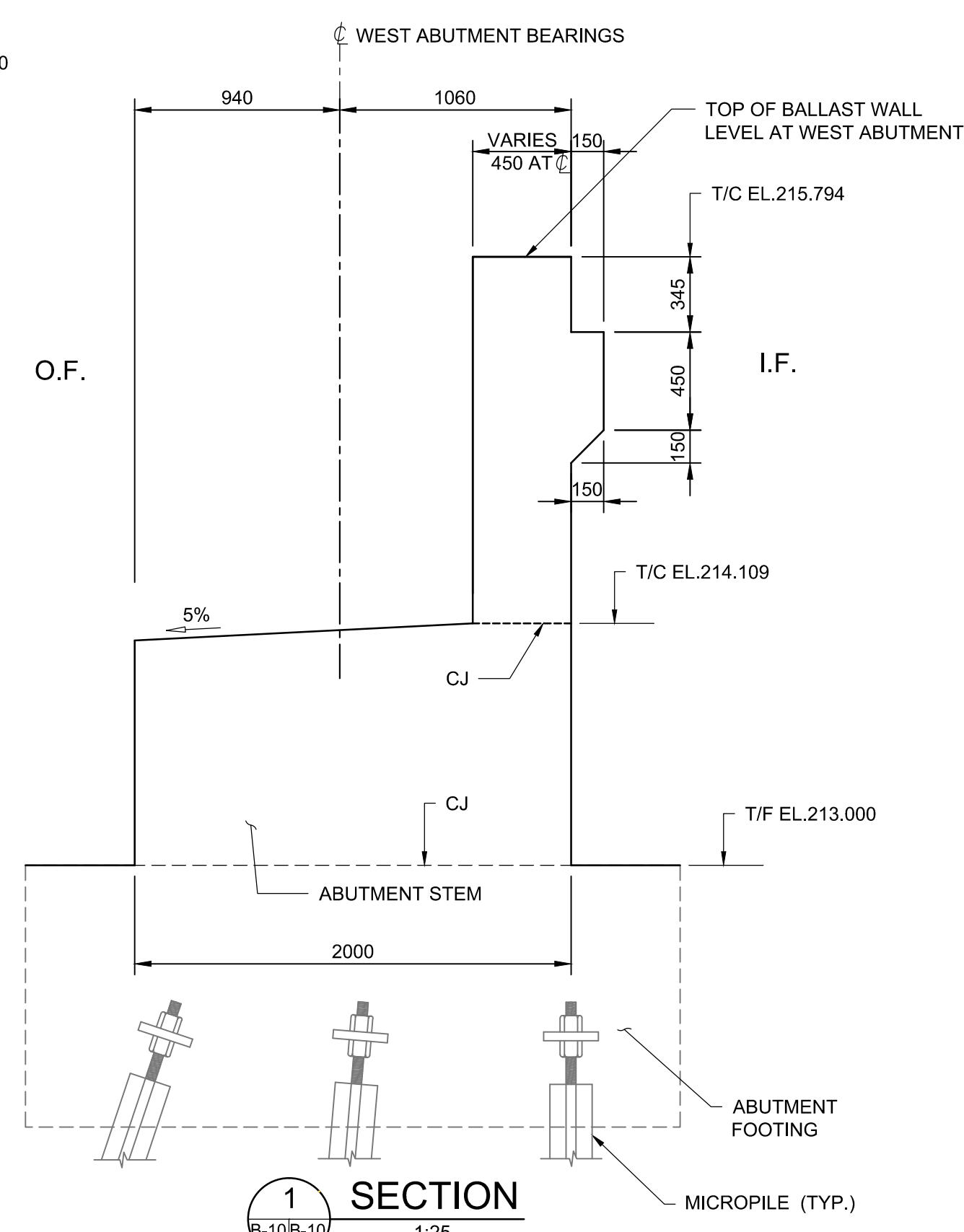




3 DETAILS  
1:25



NOTES:  
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07 TO B-09 AND DRAWINGS B-11 TO B-14.



LIST OF ABBREVIATIONS

|      |                            |
|------|----------------------------|
| CJ   | DENOTES CONSTRUCTION JOINT |
| I.F. | DENOTES INSIDE FACE        |
| O.F. | DENOTES OUTSIDE FACE       |
| OD.  | DENOTES OUTSIDE DIAMETER   |
| CJ   | DENOTES CONSTRUCTION JOINT |
| T/C  | DENOTES TOP OF CONCRETE    |
| T/F  | DENOTES TOP OF FOOTING     |
| WP   | DENOTES WORKING POINT      |



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately notify the Departmental Representative of all discrepancies.

|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
WEST ABUTMENT DETAILS

drawn by  
dessiné par  
ANTHONY LEE

designed by  
conc par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
B-10



1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07 TO B-10, AND DRAWING B-14.



| ANCHOR BOLTS INFORMATION         |               |                           |  |                          |
|----------------------------------|---------------|---------------------------|--|--------------------------|
| LOCATION                         | DIAMETER (mm) | QUANTITY (EACH LOCATION*) | EMBEDMENT DEPTH (mm)   | PRETENSION PER BOLT (kN) |
| END LIFT                         | 25            | 9                         | 600  | 100                      |
| END LATCH PLATE                  | 25            | 4                         | 450  |                          |
| WEST ABUTMENT<br>END STOP BUMPER | 25            | 6                         | DRILL 600mm DEEP HOLE<br>AND INSTALL ANCHORS<br>WITH EPOXY GROUT |                          |

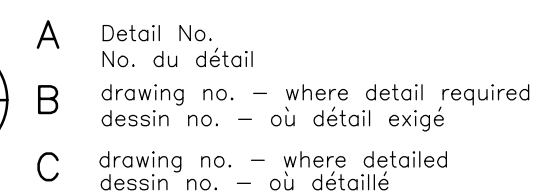
\* REFER TO MECHANICAL DRAWINGS FOR ANCHOR BOLT LAYOUT INFORMATION.

|      |                            |
|------|----------------------------|
| CJ   | DENOTES CONSTRUCTION JOINT |
| I.F. | DENOTES INSIDE FACE        |
| O.F. | DENOTES OUTSIDE FACE       |
| OD.  | DENOTES OUTSIDE DIAMETER   |
| CJ   | DENOTES CONSTRUCTION JOINT |
| T/C  | DENOTES TOP OF CONCRETE    |
| T/F  | DENOTES TOP OF FOOTING     |
| WP   | DENOTES WORKING POINT      |



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.



|                                  |         |
|----------------------------------|---------|
| project title<br>titre du projet | Ontario |
|----------------------------------|---------|

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

## WEST ABUTMENT REINFORCING DETAILS

drawn by  
dessine par

ANTHONY LEE

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

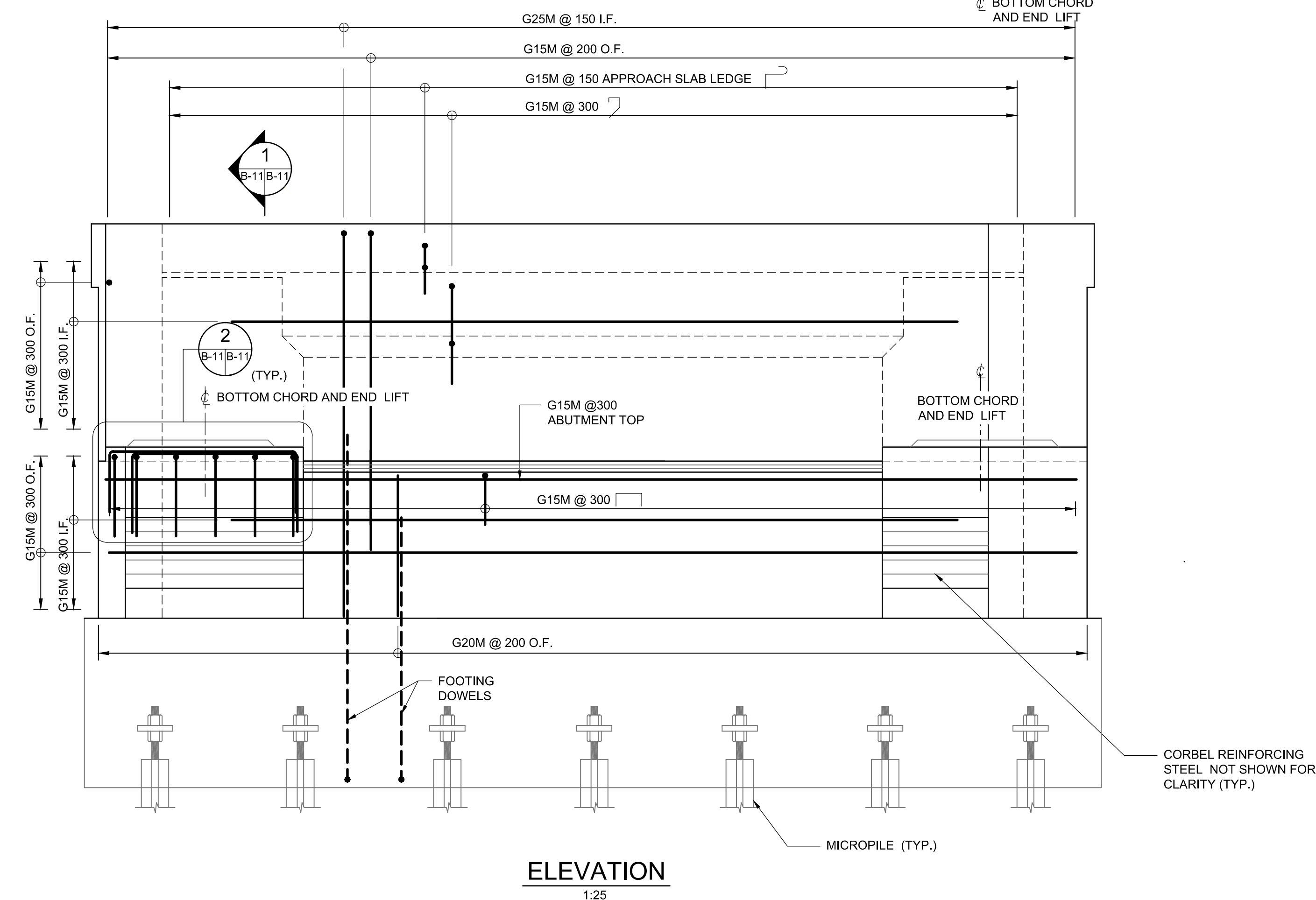
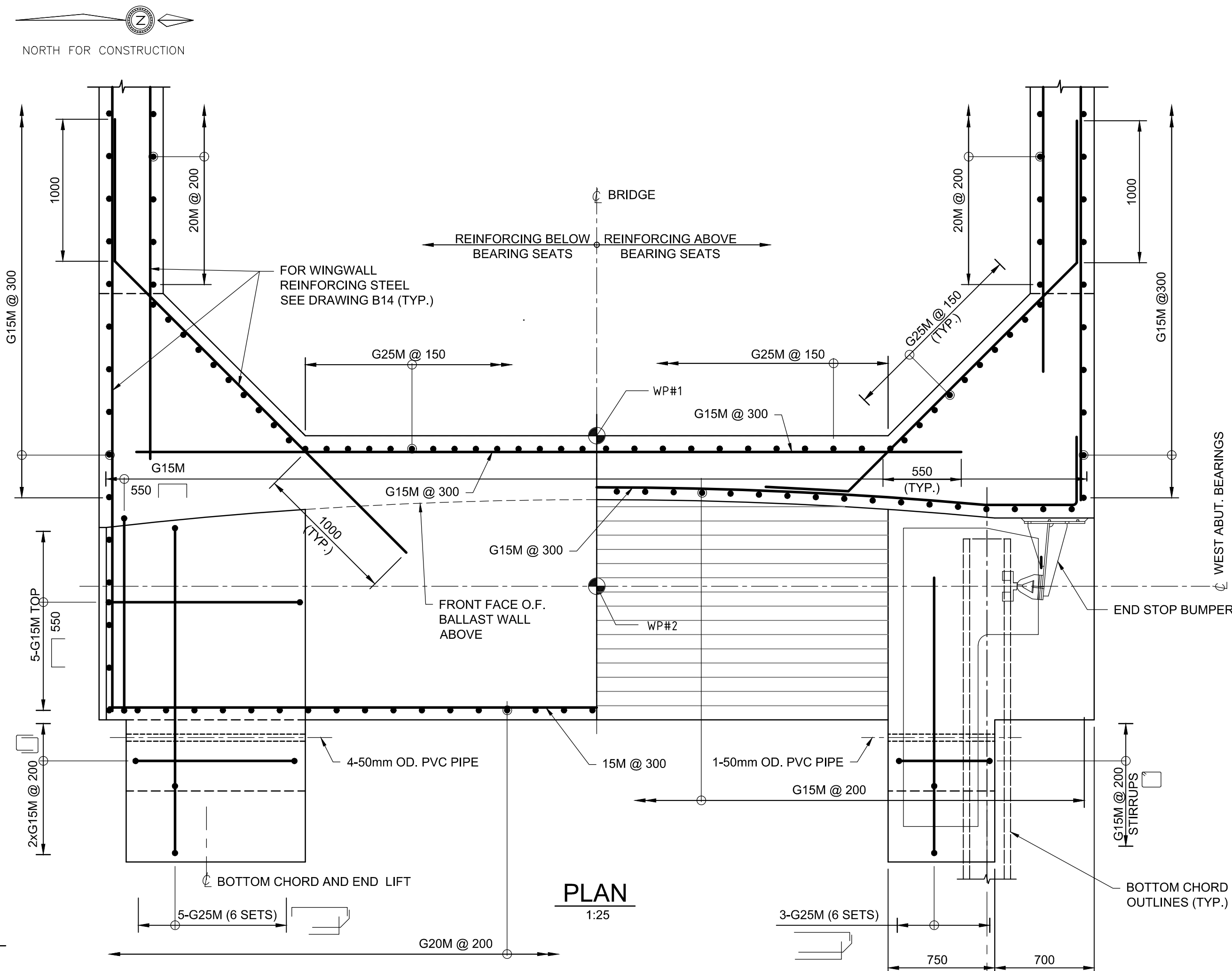
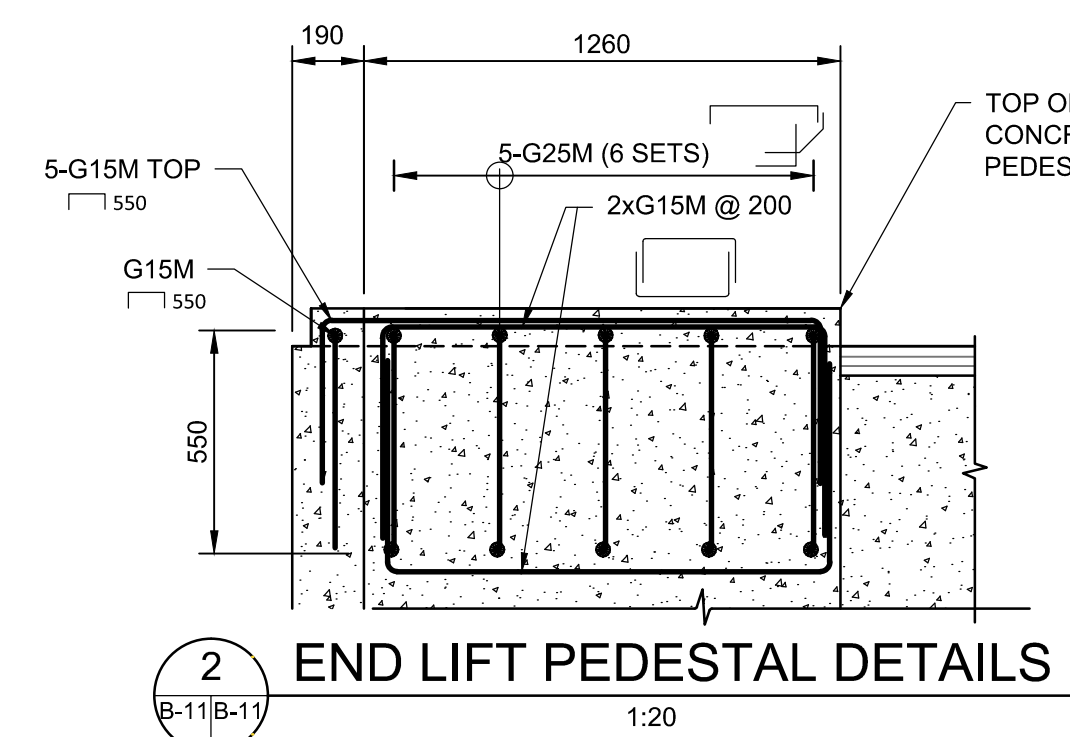
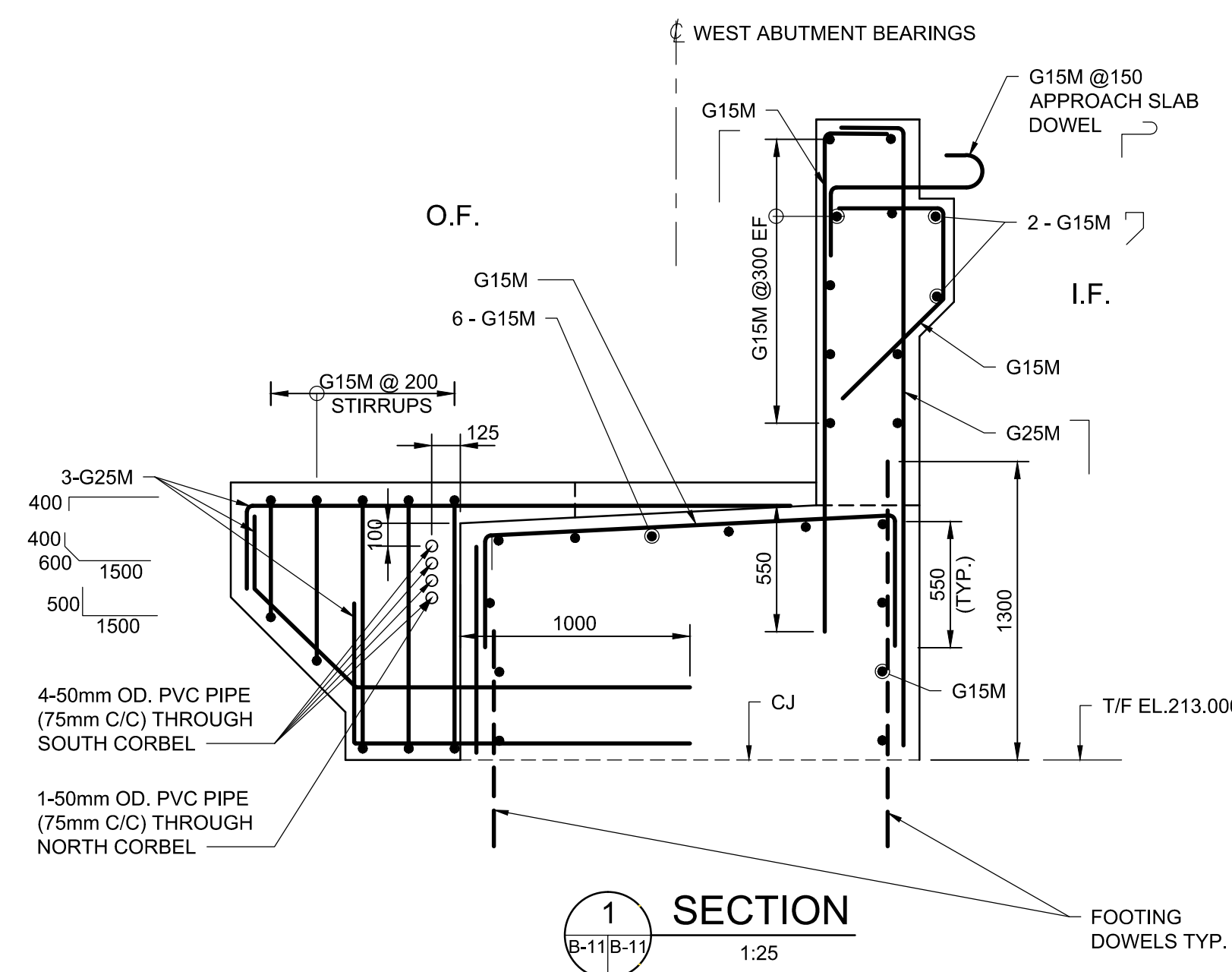
|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

|                                |            |
|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

|                              |              |
|------------------------------|--------------|
| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

drawing no.  
dessine no.

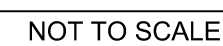
B-11



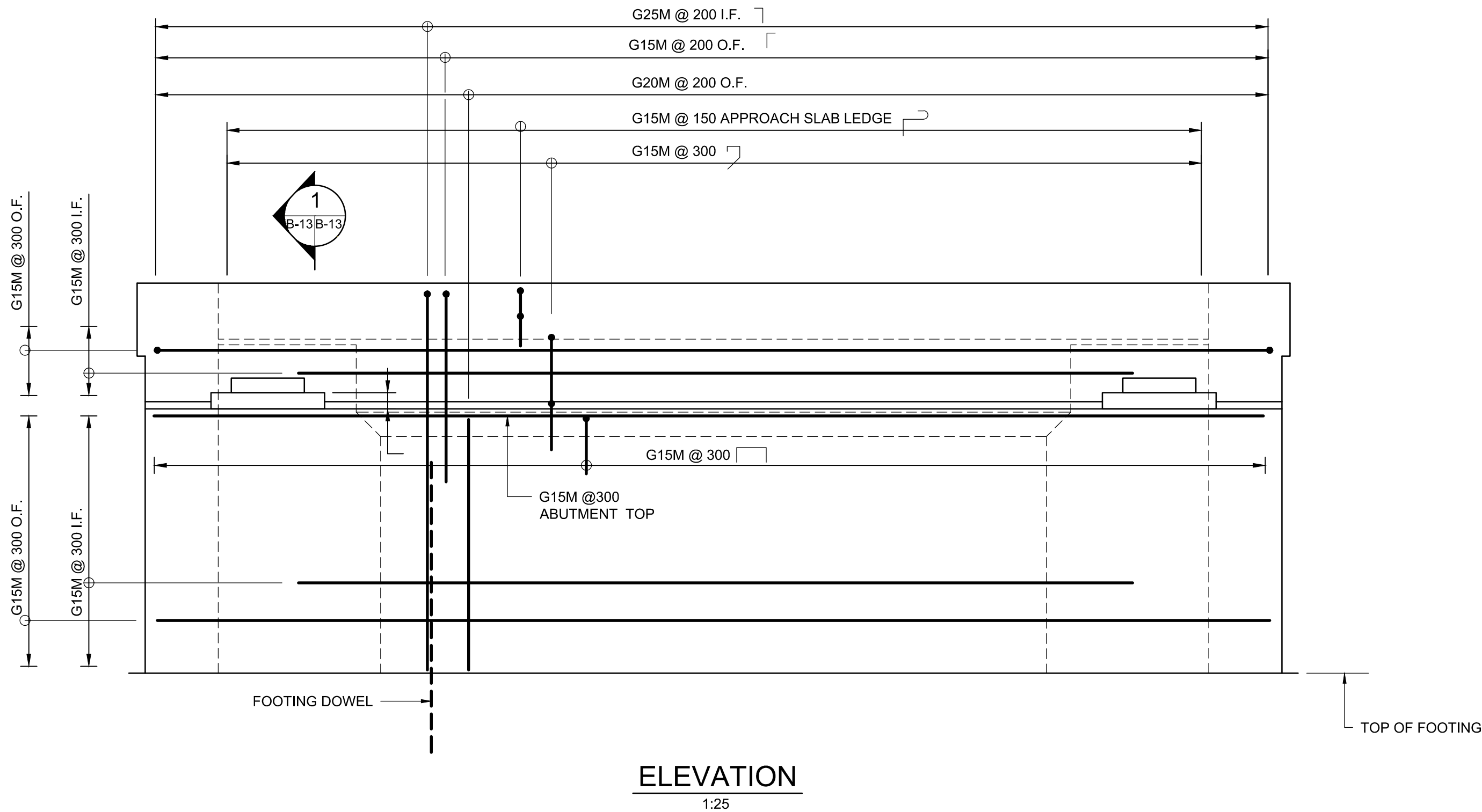
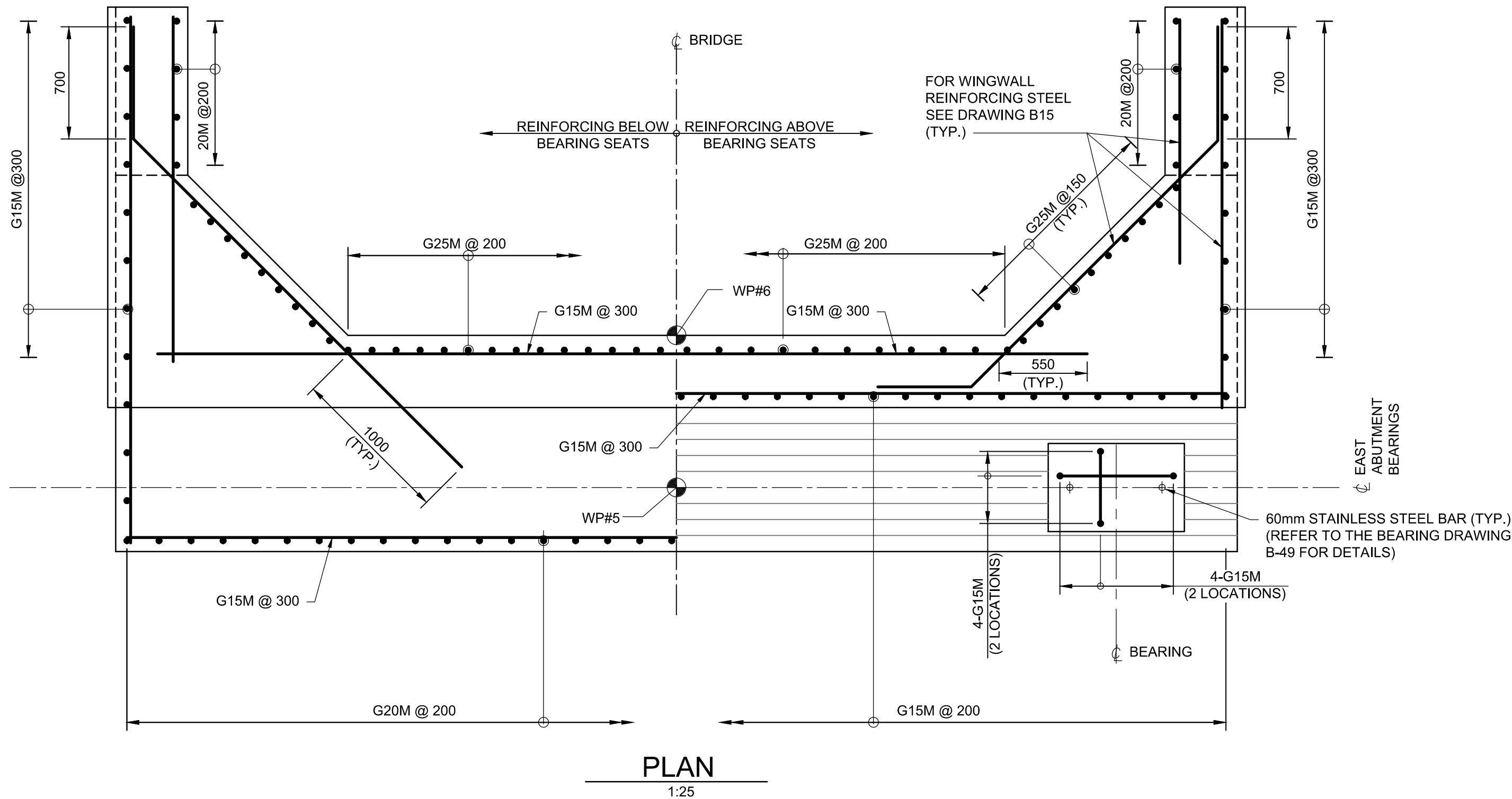
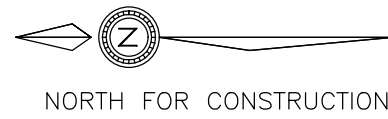




B-12

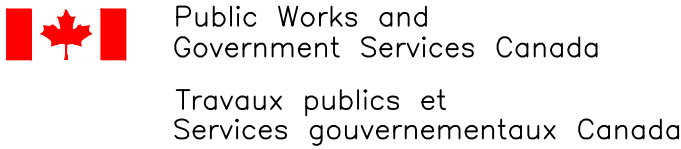






NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07 TO B-09, DRAWINGS B-12 AND B-15.



PARSONS

LIST OF ABBREVIATIONS

- CJ DENOTES CONSTRUCTION JOINT  
I.F. DENOTES INSIDE FACE  
O.F. DENOTES OUTSIDE FACE  
T/C DENOTES TOP OF CONCRETE  
T/F DENOTES TOP OF FOOTING  
WP DENOTES WORKING POINT



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
EAST ABUTMENT  
REINFORCING DETAILS

drawn by  
dessiné par  
ANTHONY LEE

designed by  
conc par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

bid  
offre  
JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
B-13



NOTES:  
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07 TO B-11.

Public Works and Government Services Canada  
Travaux publics et Services gouvernementaux Canada

PARSONS

LIST OF ABBREVIATIONS  
CJ DENOTES CONSTRUCTION JOINT  
I.F. DENOTES INSIDE FACE  
O.F. DENOTES OUTSIDE FACE  
T/C DENOTES TOP OF CONCRETE  
T/F DENOTES TOP OF FOOTING  
WP DENOTES WORKING POINT



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately notify the Departmental Representative of all discrepancies.

|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
WEST WINGWALLS  
LAYOUT AND REINFORCING  
DETAILS

drawn by  
dessiné par  
ANTHONY LEE

designed by  
conçu par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

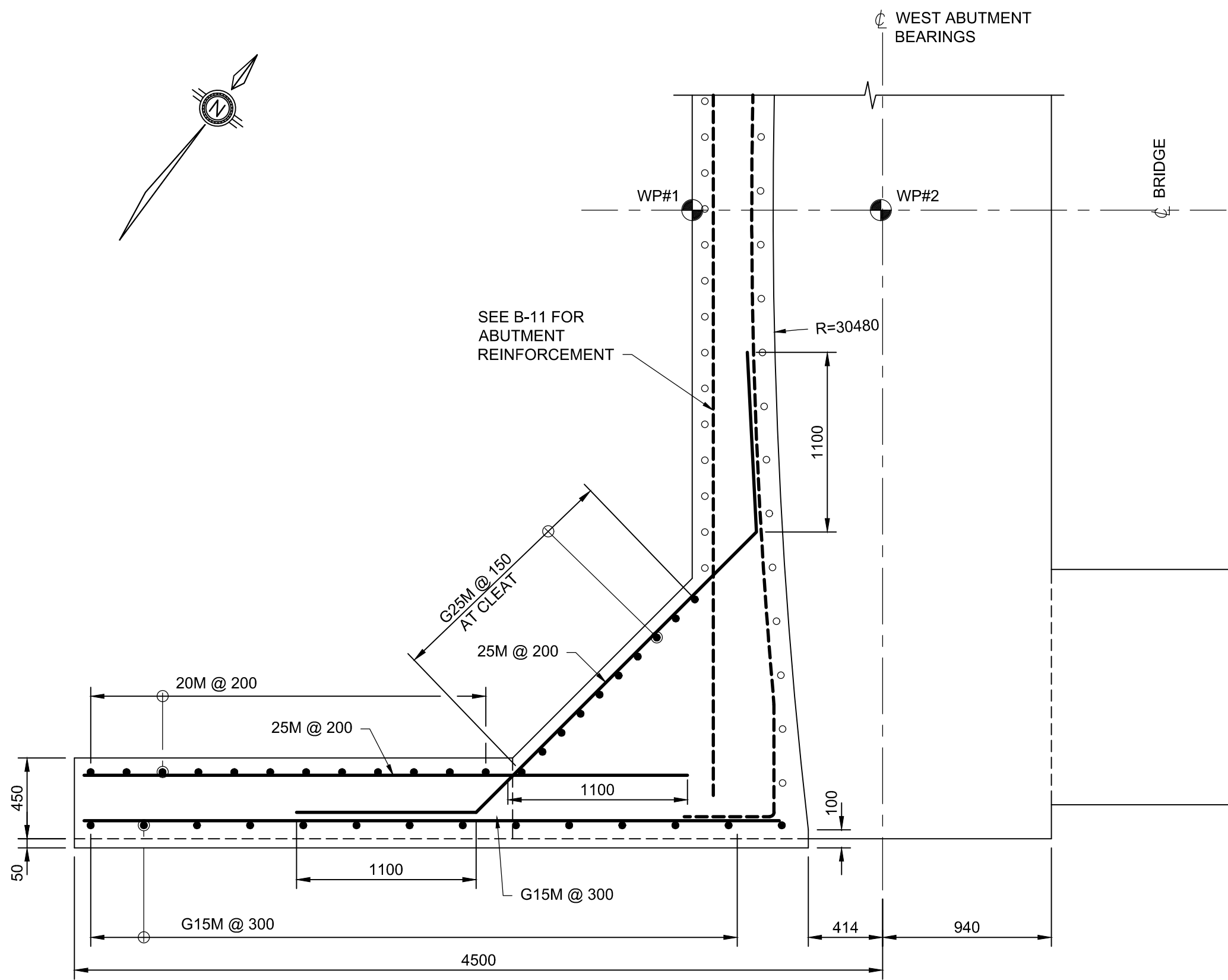
bid  
offre  
JULIO LEON

project manager  
administrateur  
de projets

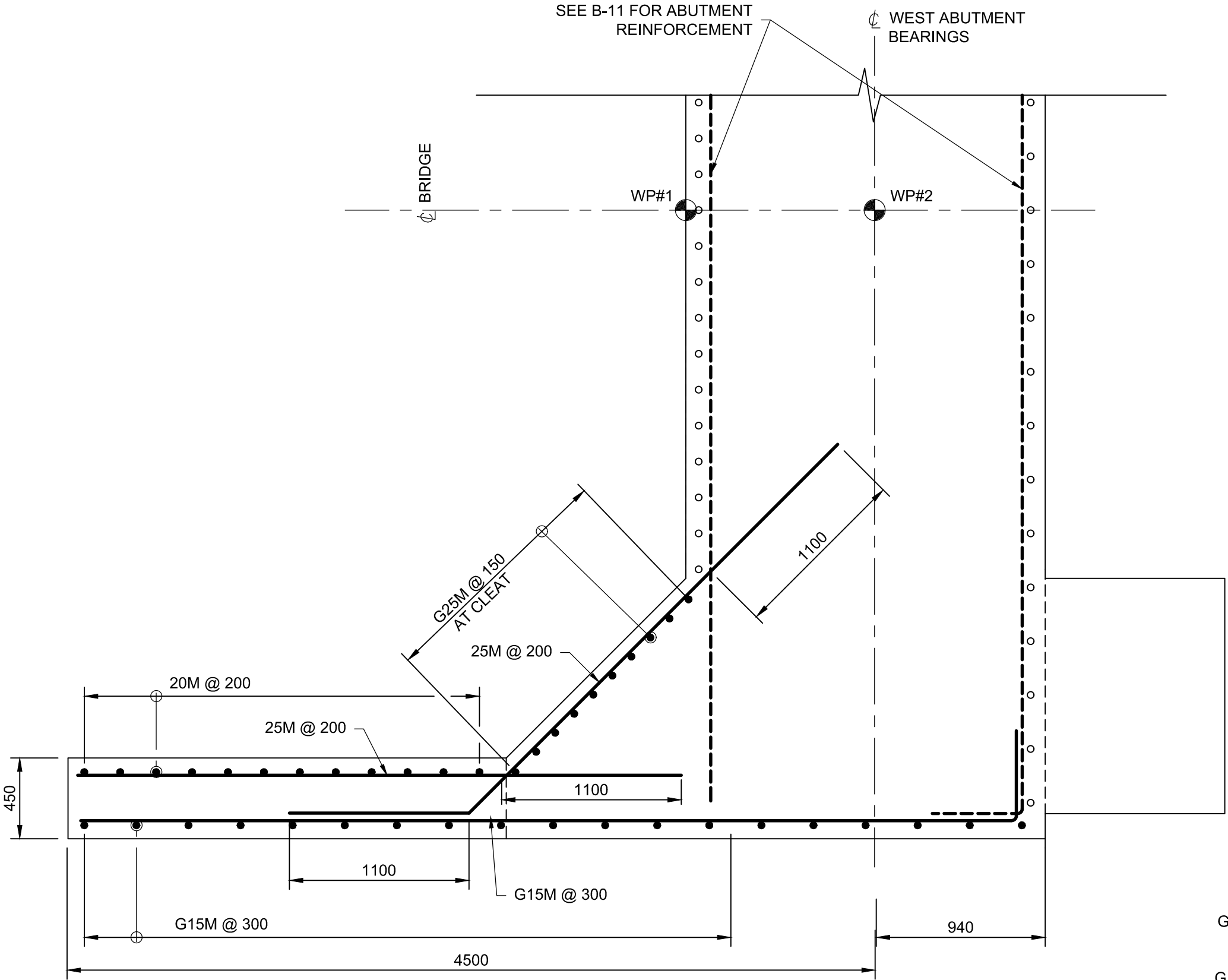
project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

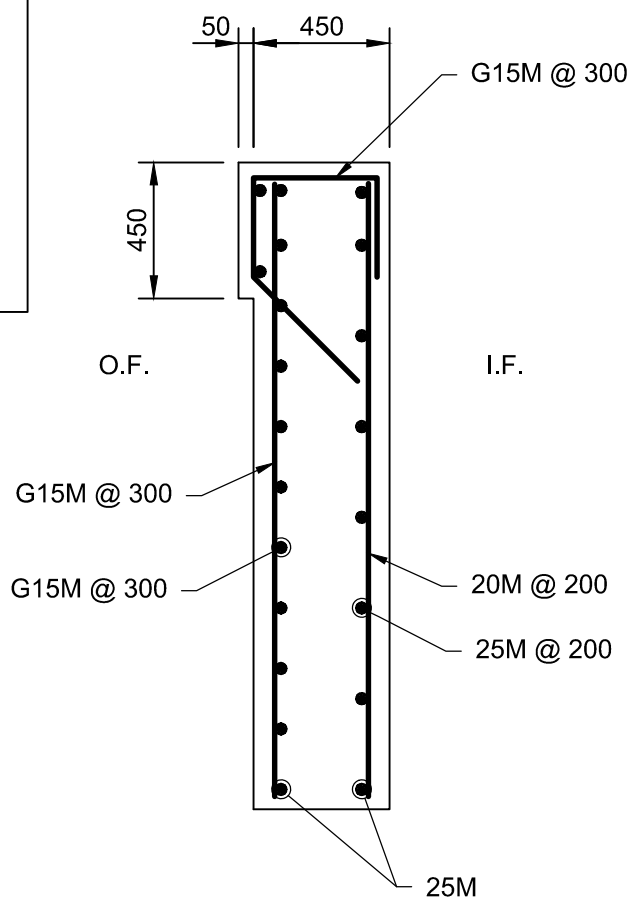
drawing no.  
dessiné no.  
B-14



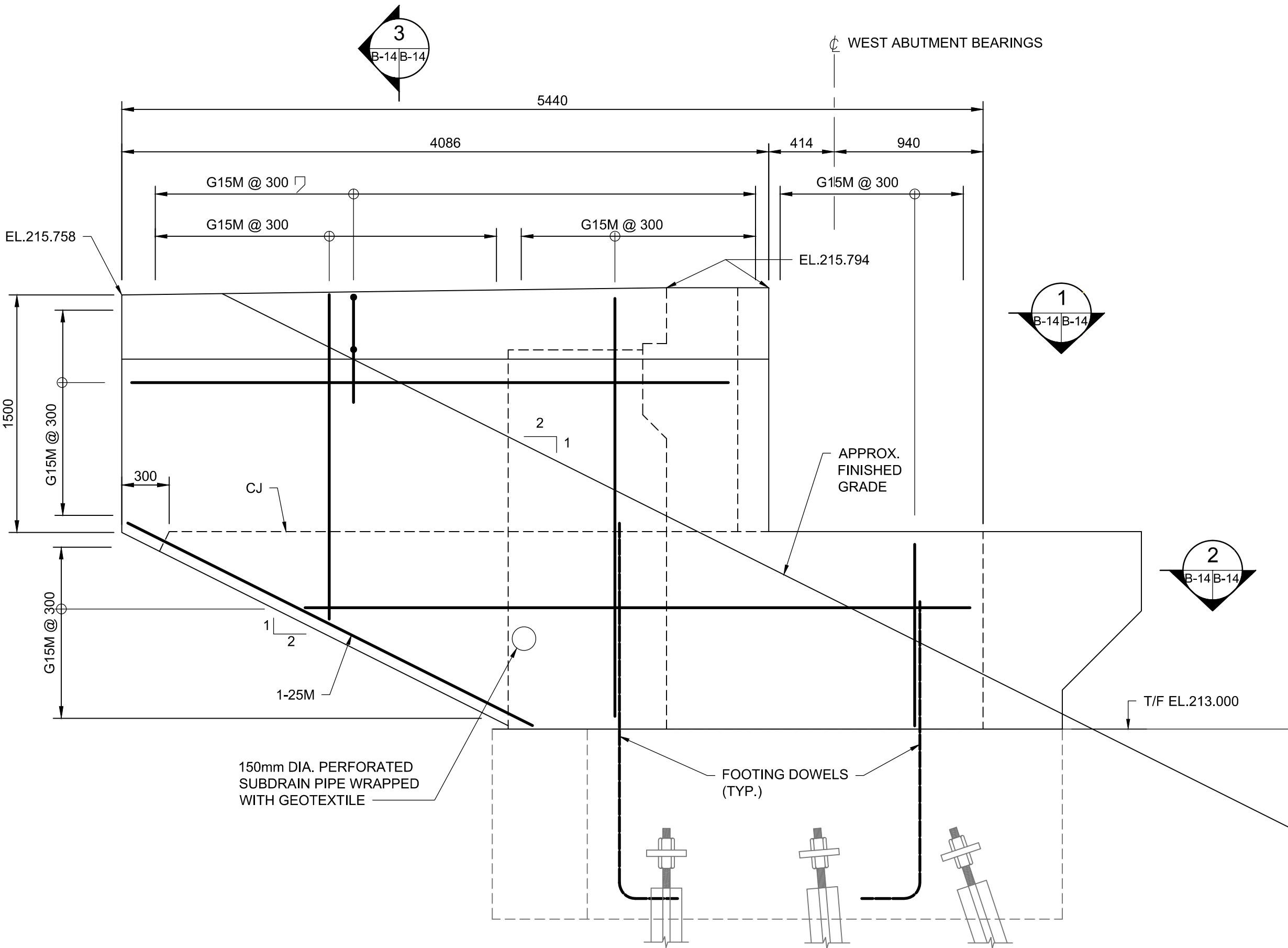
1 SECTION  
B-14B-14  
1:25



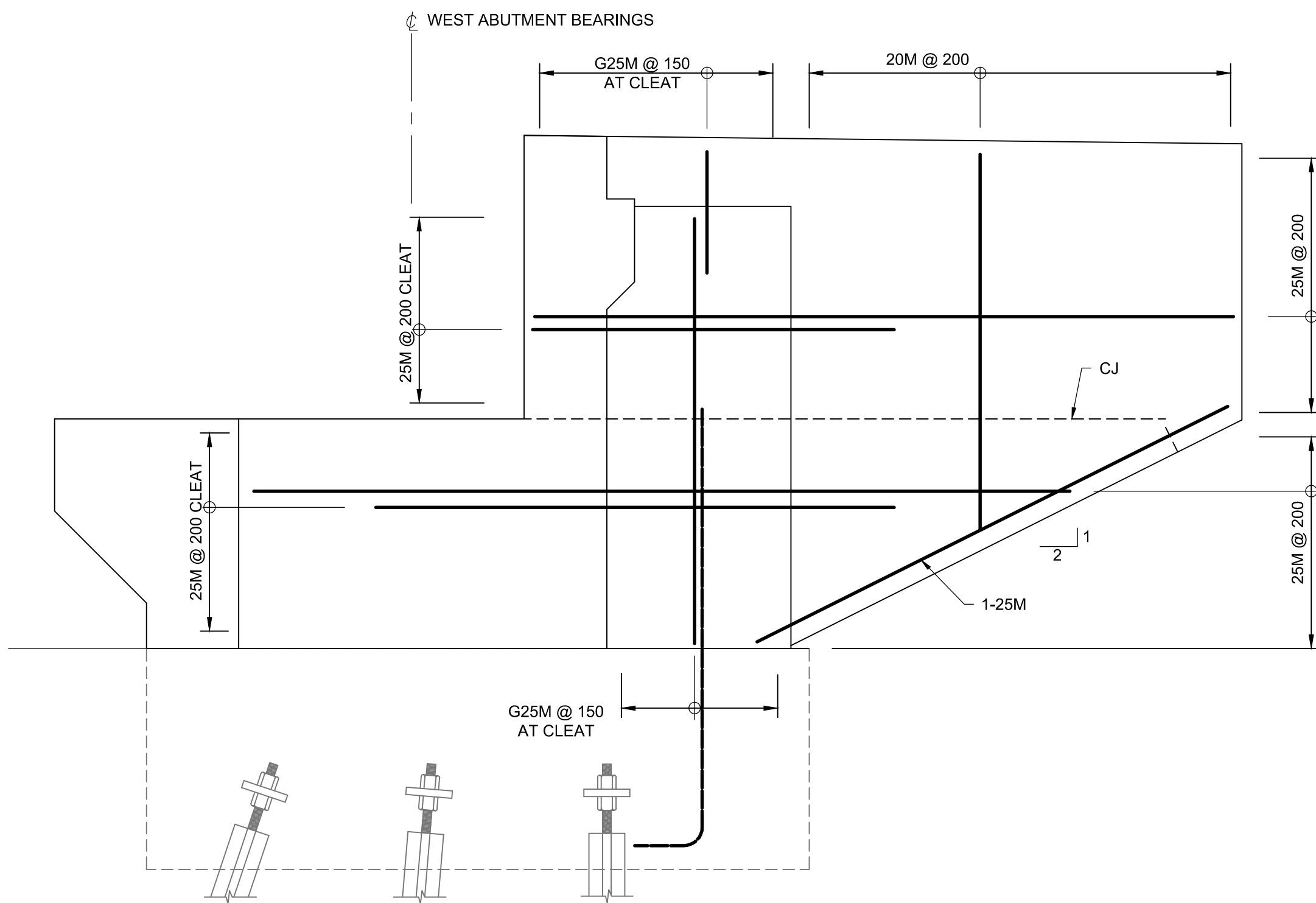
2 SECTION  
B-14B-14  
1:25



3 SECTION  
B-14B-14  
1:25



OUTSIDE FACE - DIMENSIONS AND REINFORCING  
1:25



INSIDE FACE - DIMENSIONS AND REINFORCING  
1:25



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07 TO B-09, DRAWINGS B-12 AND B-13.

Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

PARSONS

LIST OF ABBREVIATIONS

- CJ DENOTES CONSTRUCTION JOINT  
I.F. DENOTES INSIDE FACE  
O.F. DENOTES OUTSIDE FACE  
T/C DENOTES TOP OF CONCRETE  
T/F DENOTES TOP OF FOOTING  
WP DENOTES WORKING POINT



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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notify the Departmental Representative of all discrepancies.

|   |   |
|---|---|
| A | Detail No.<br>No. du détail   |
| B | drawing no. — where detail required<br>dessin no. — où détail exigé |
| C | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

EAST WINGWALLS  
LAYOUT AND REINFORCING  
DETAILS

drawn by  
dessiné par ANTHONY LEE

designed by  
conc par ABOUBAKER FARAH

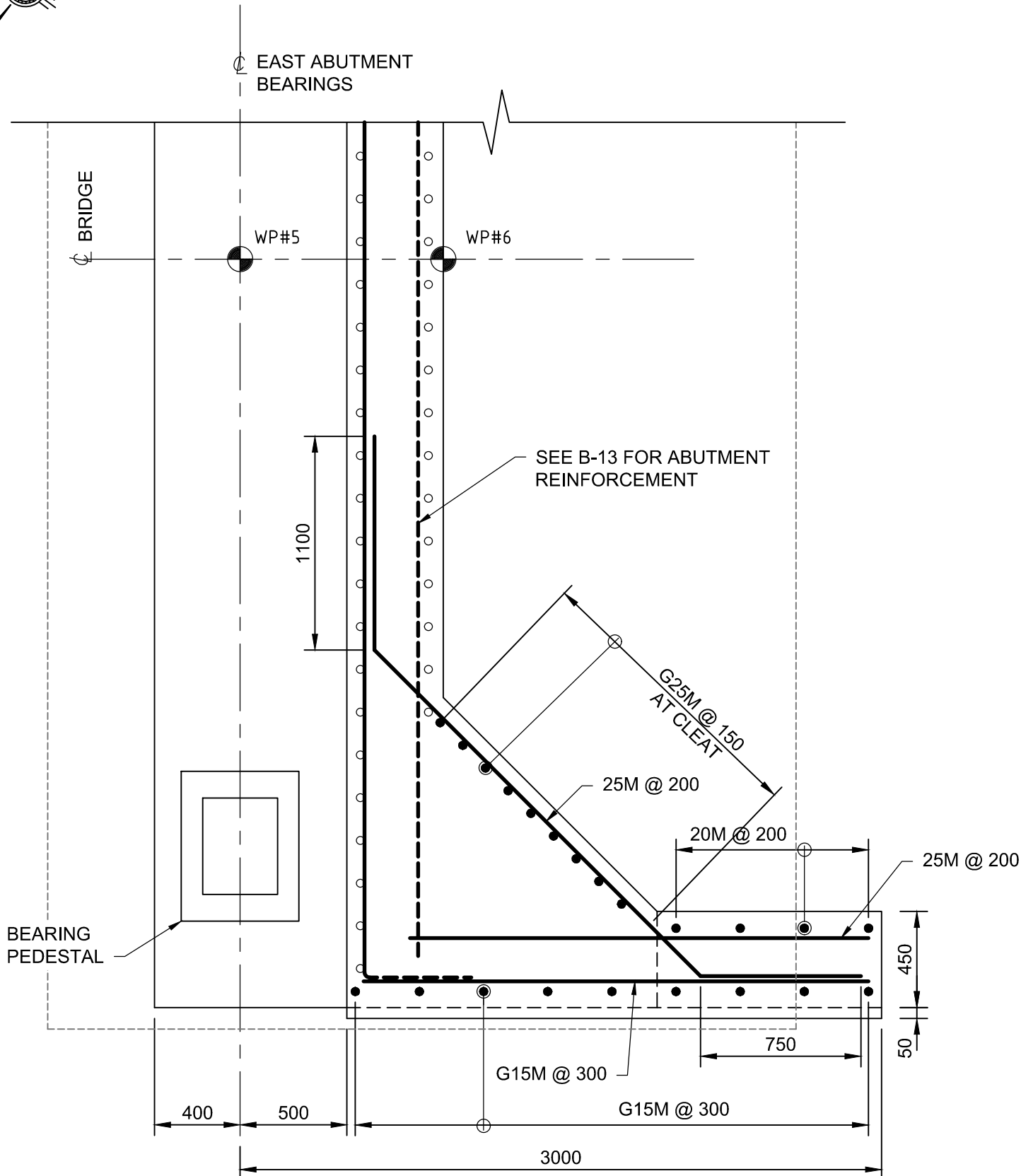
approved by  
approuvé par KAREN LIU

bid  
offre JULIO LEON project manager  
administrateur de projets

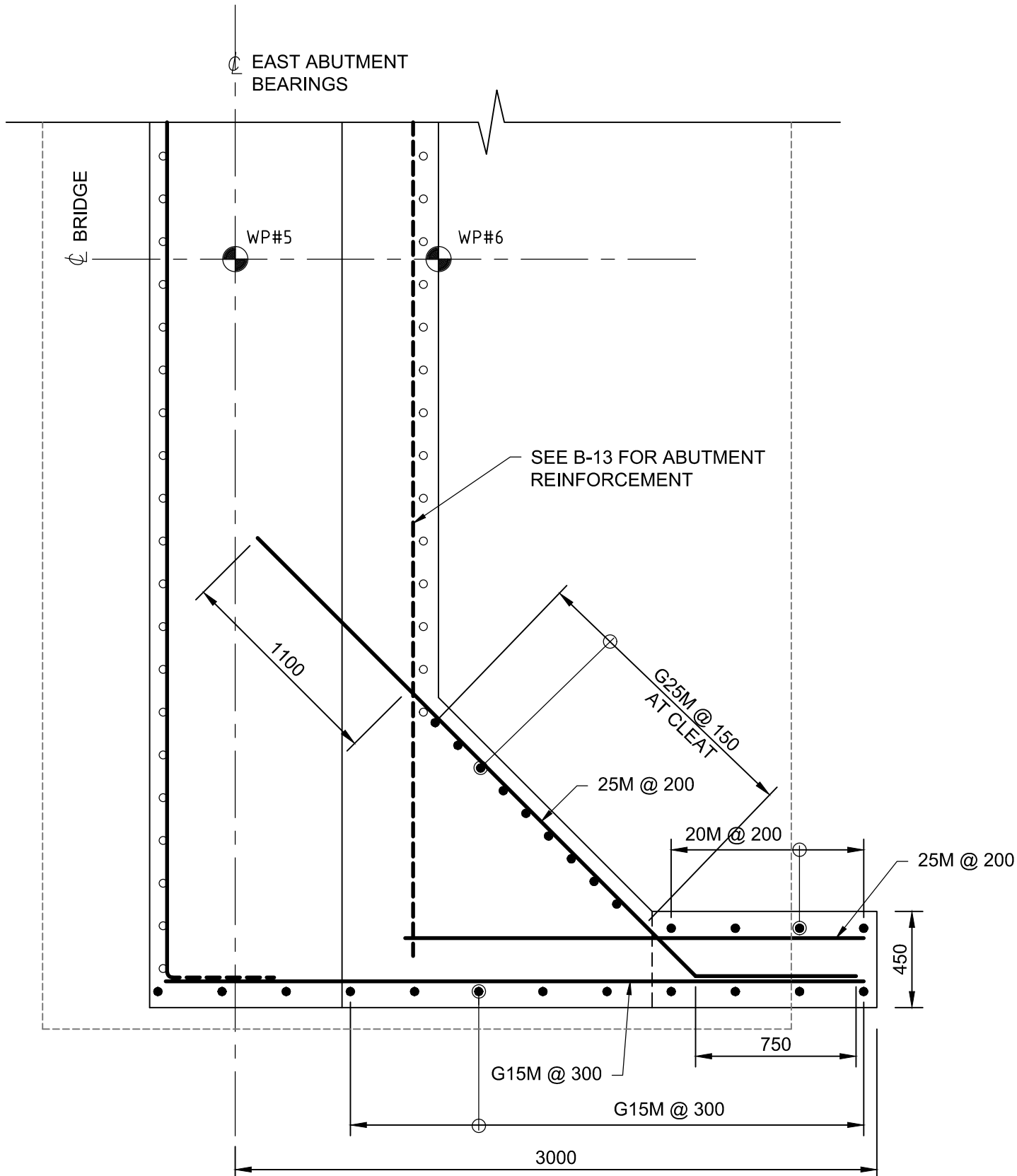
project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

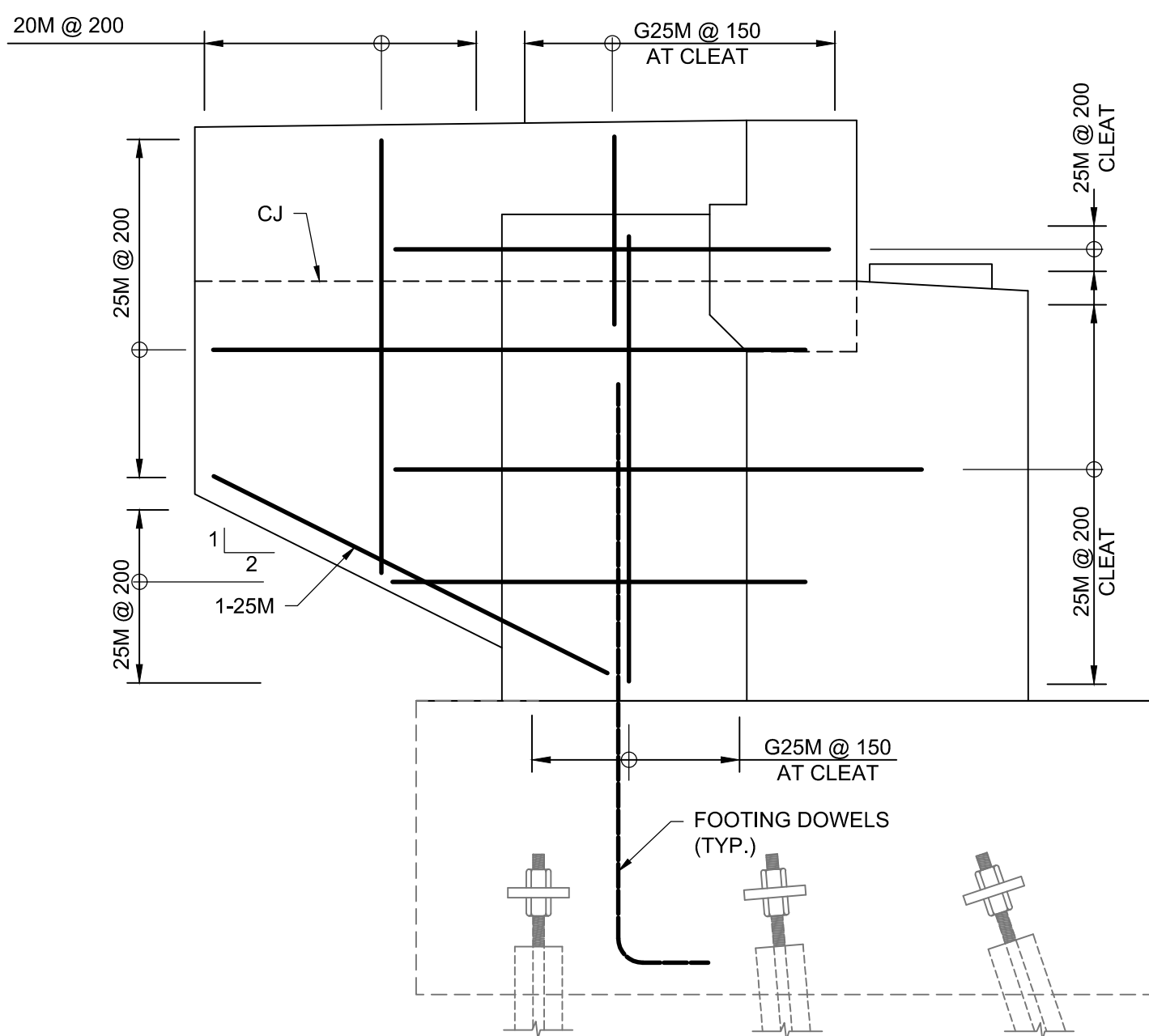
drawing no.  
dessiné no. B-15



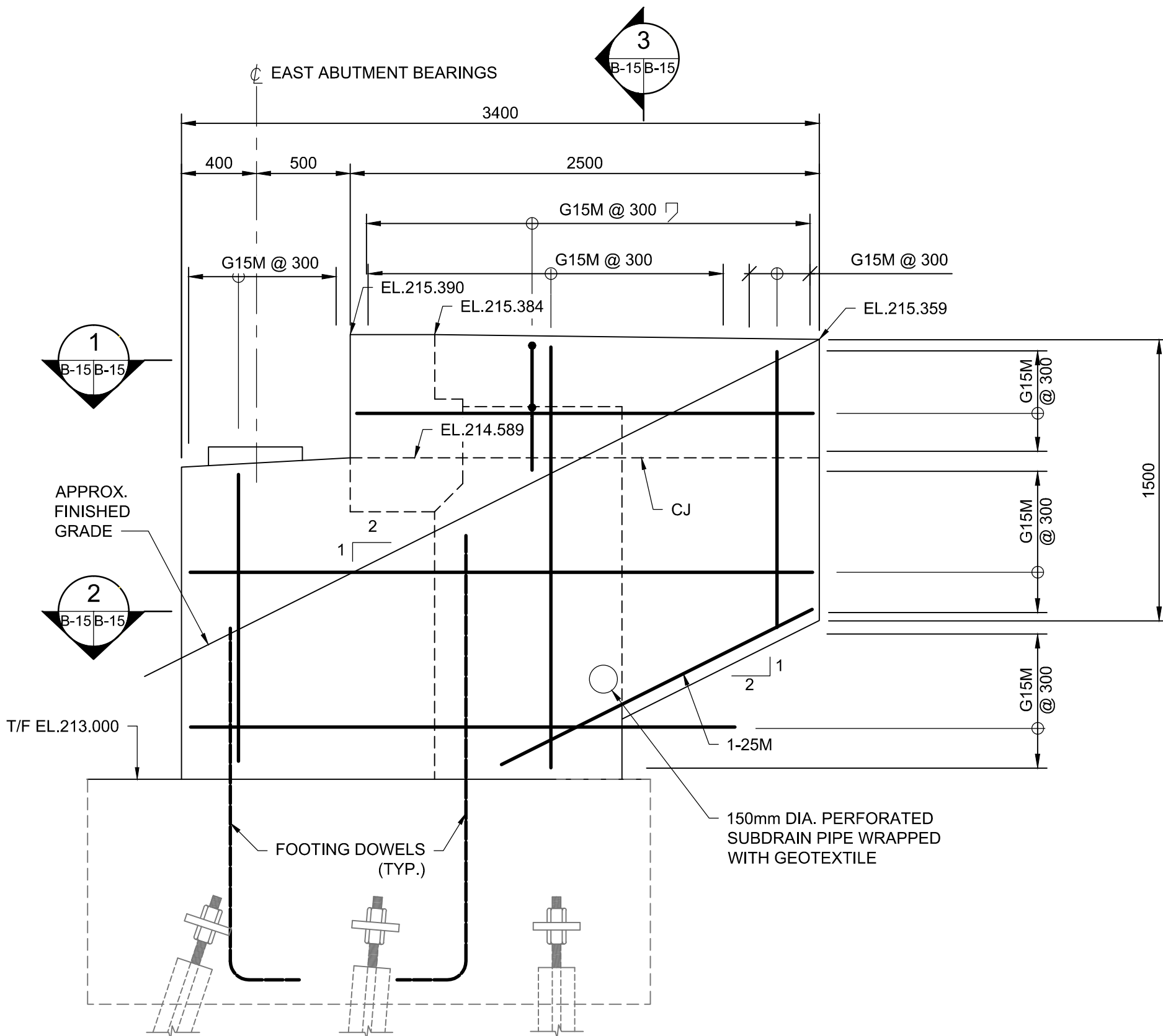
1 SECTION  
B-15B-15  
1:25



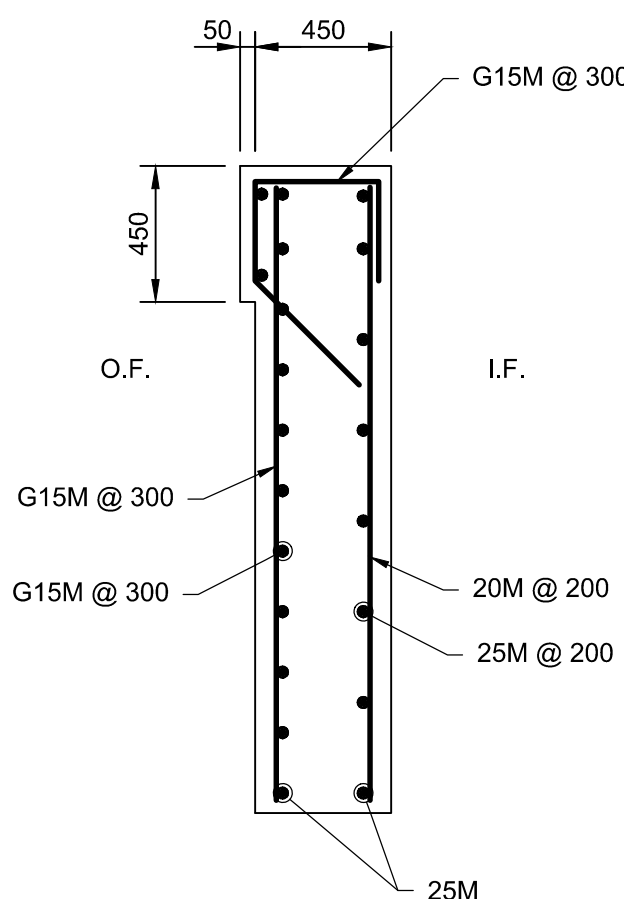
2 SECTION  
B-15B-15  
1:25



INSIDE FACE - DIMENSIONS AND REINFORCING  
1:25



OUTSIDE FACE - DIMENSIONS AND REINFORCING  
1:25



3 SECTION  
B-15B-15  
1:25



NOTES:  
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07 AND B-17.

Public Works and Government Services Canada  
Travaux publics et Services gouvernementaux Canada

PARSONS

LIST OF ABBREVIATIONS  
CJ DENOTES CONSTRUCTION JOINT  
I.F. DENOTES INSIDE FACE  
O.F. DENOTES OUTSIDE FACE  
T/C DENOTES TOP OF CONCRETE  
T/B DENOTES TOP OF BEARING  
WP DENOTES WORKING POINT



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. - where detail required<br>dessin no. - où détail exigé |
|   | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

EAST PIER DETAILS

drawn by  
dessiné par

ANTHONY LEE

designed by  
conçue par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur de projets

project date  
date du projet

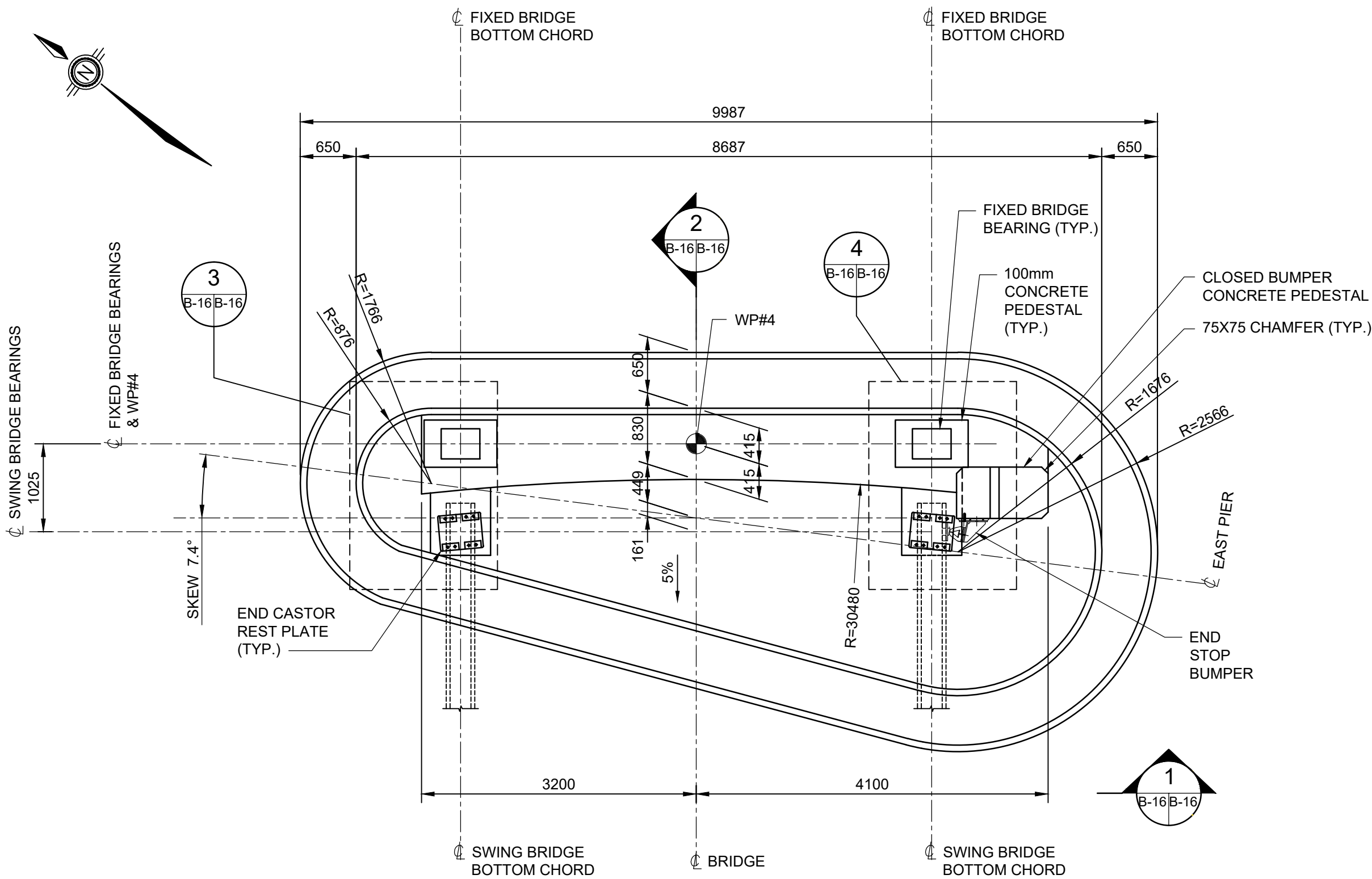
2018-07-20

project no.  
no. du projet

R.073593.001

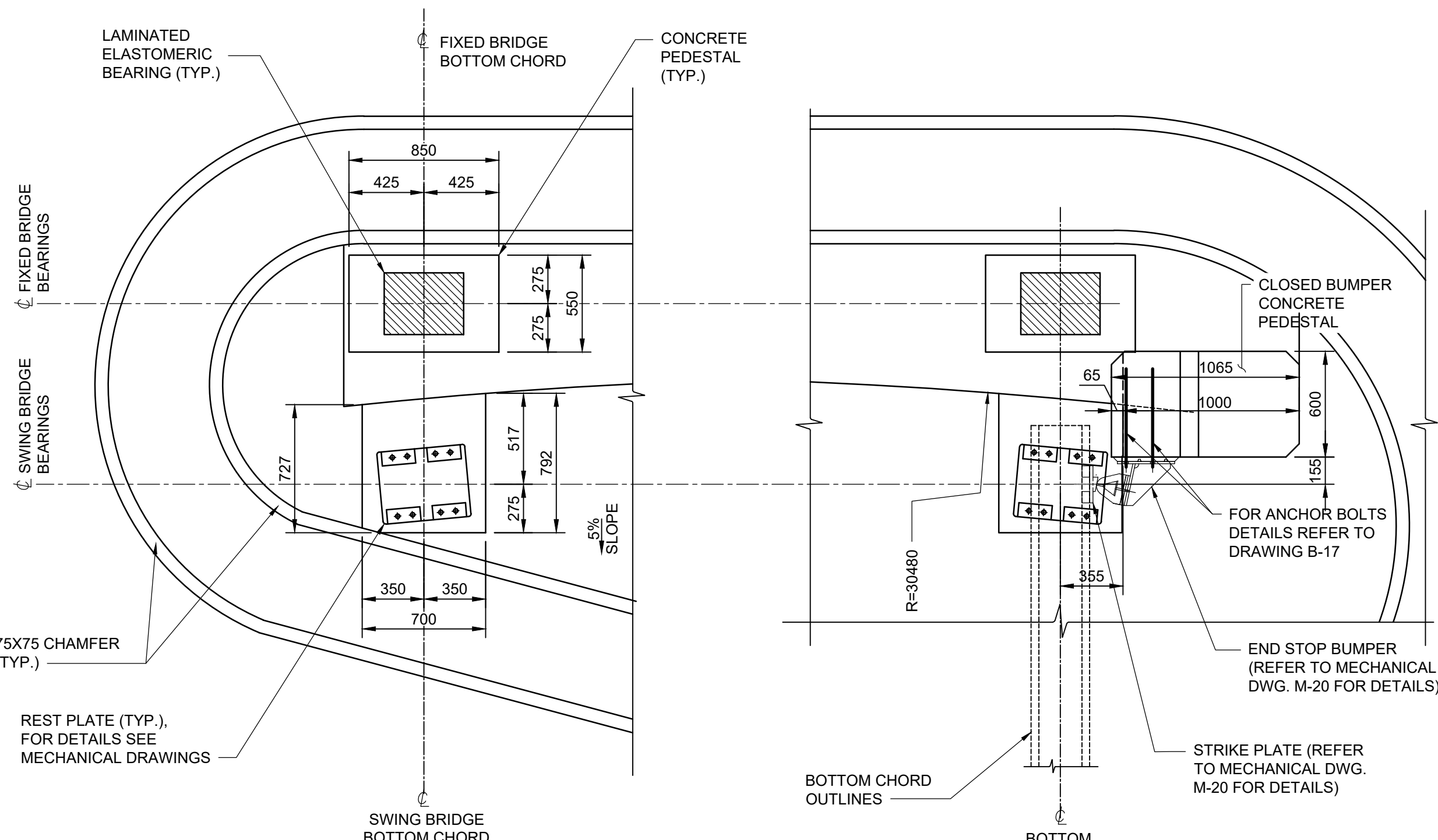
drawing no.  
dessiné no.

B-16



PLAN - EAST PIER FOOTING LAYOUT

1:50

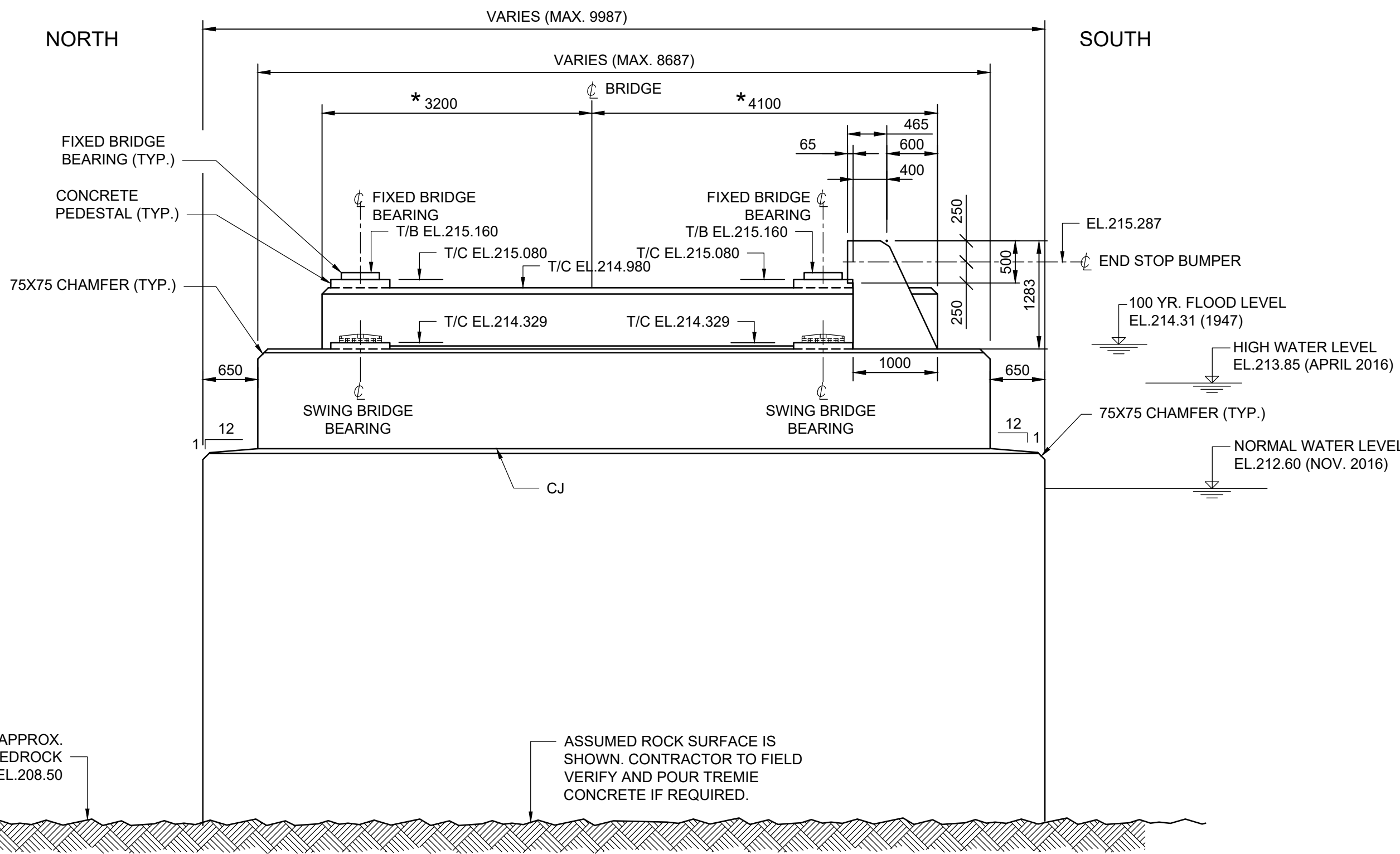


DETAILS

1:25

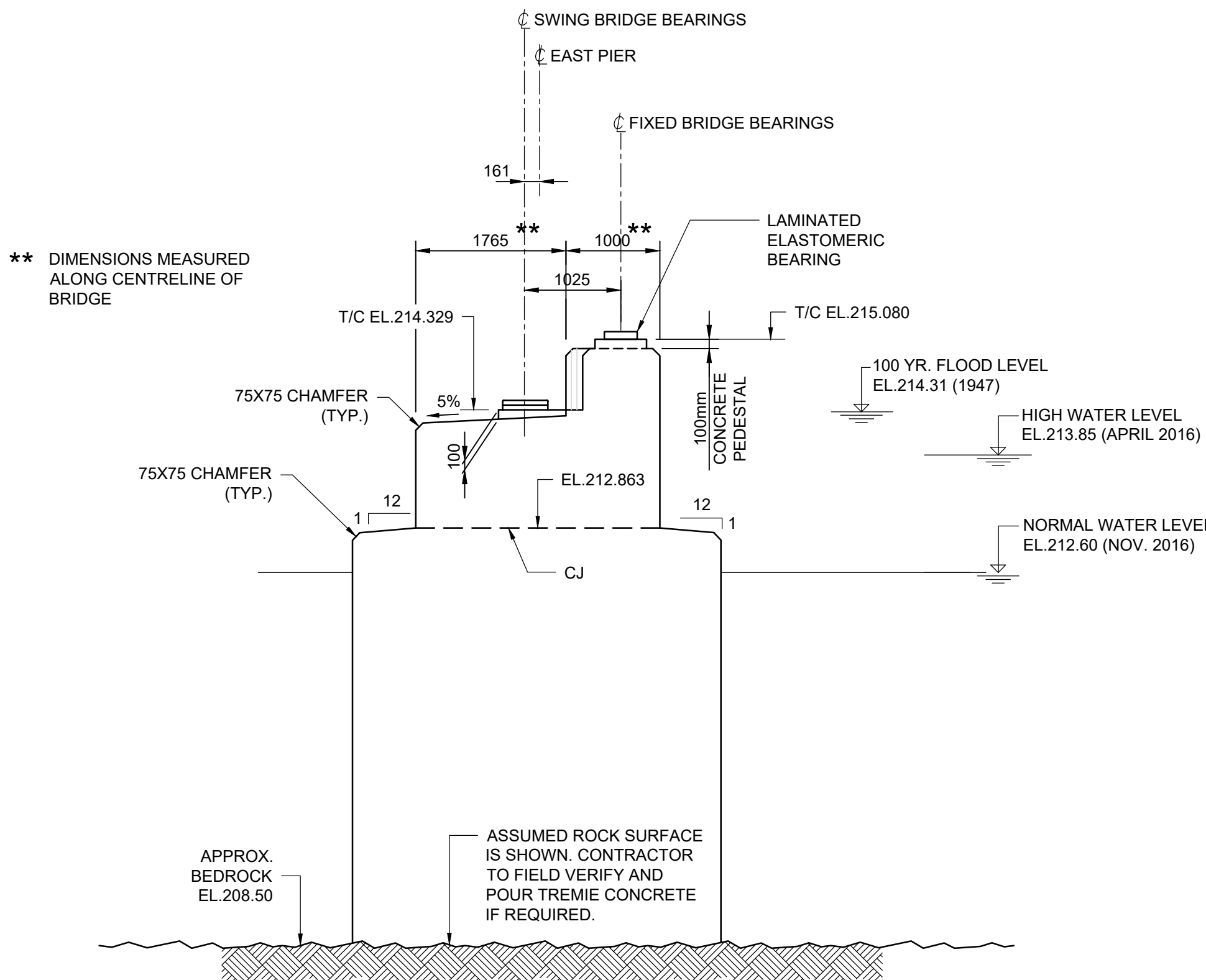
DETAILS

1:25



1 EAST PIER ELEVATION

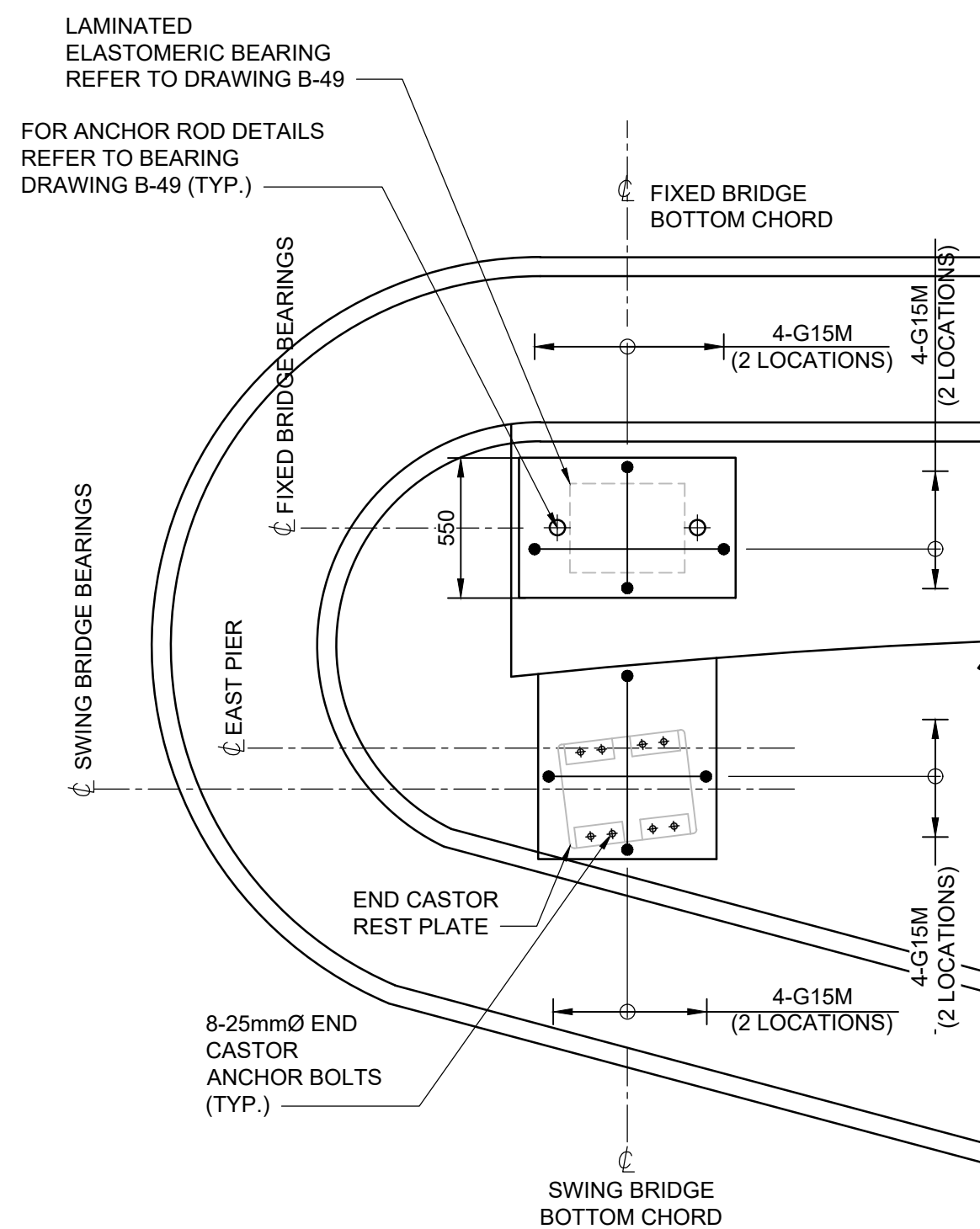
1:50



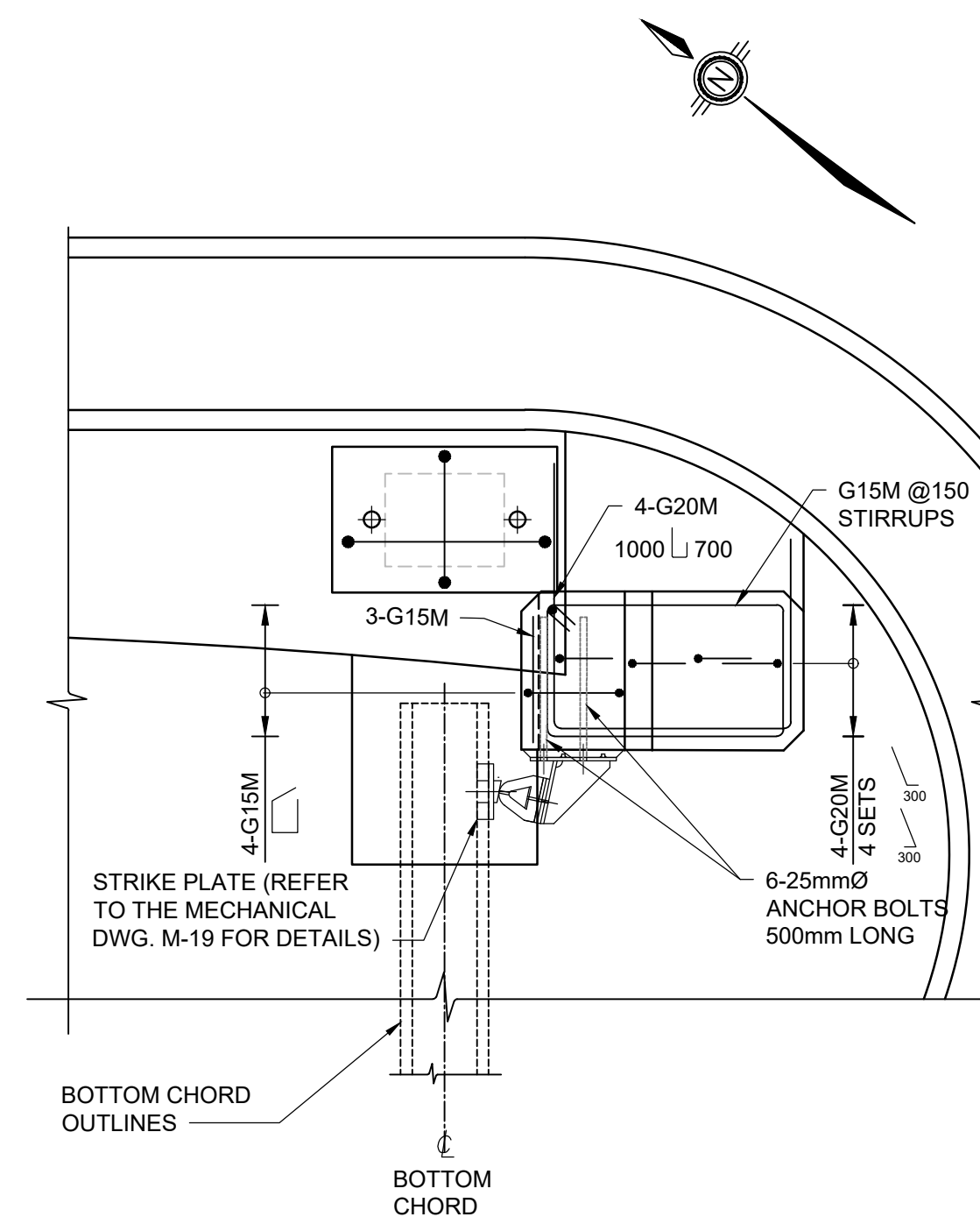
2 ELEVATION

1:50

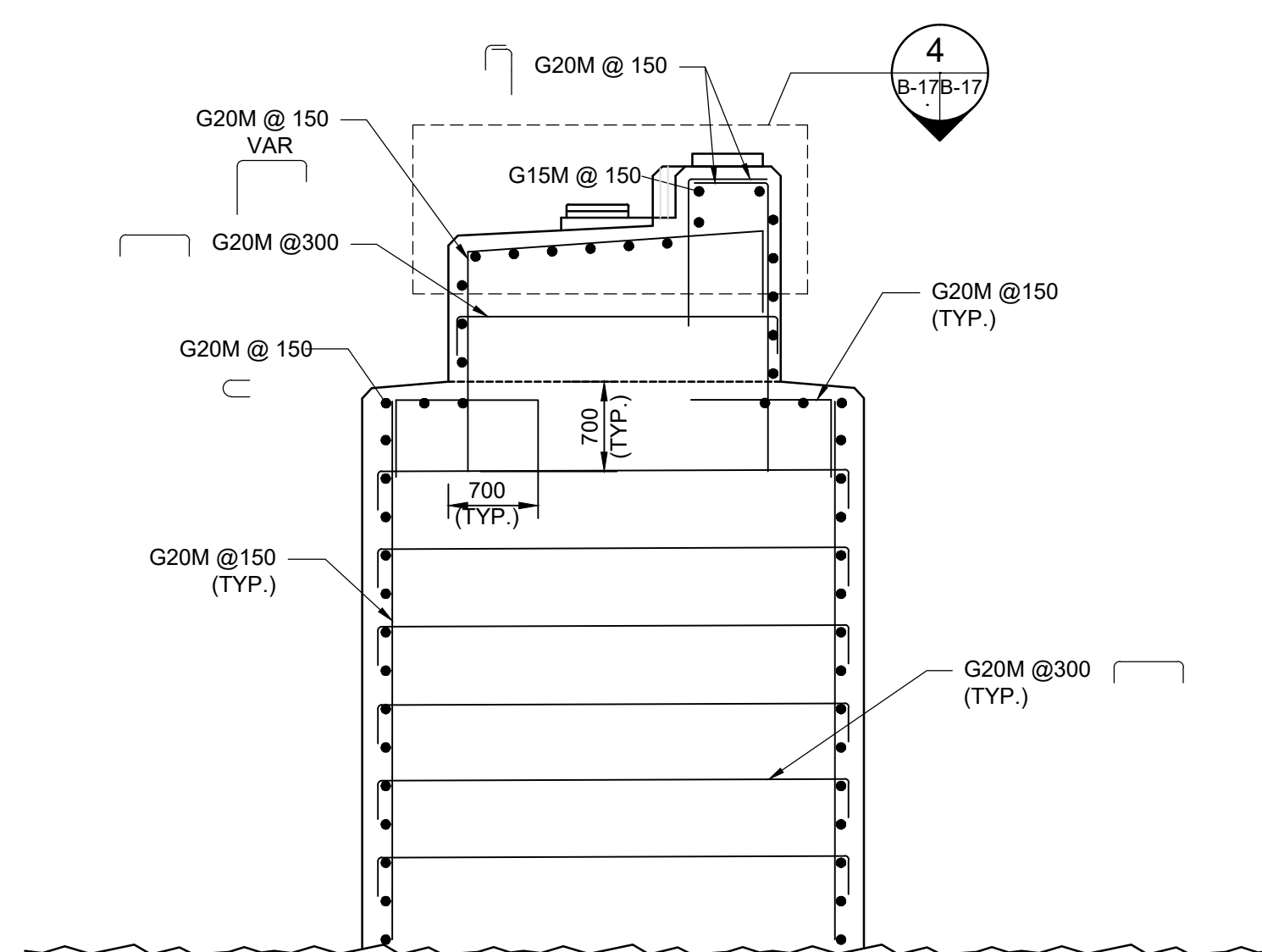




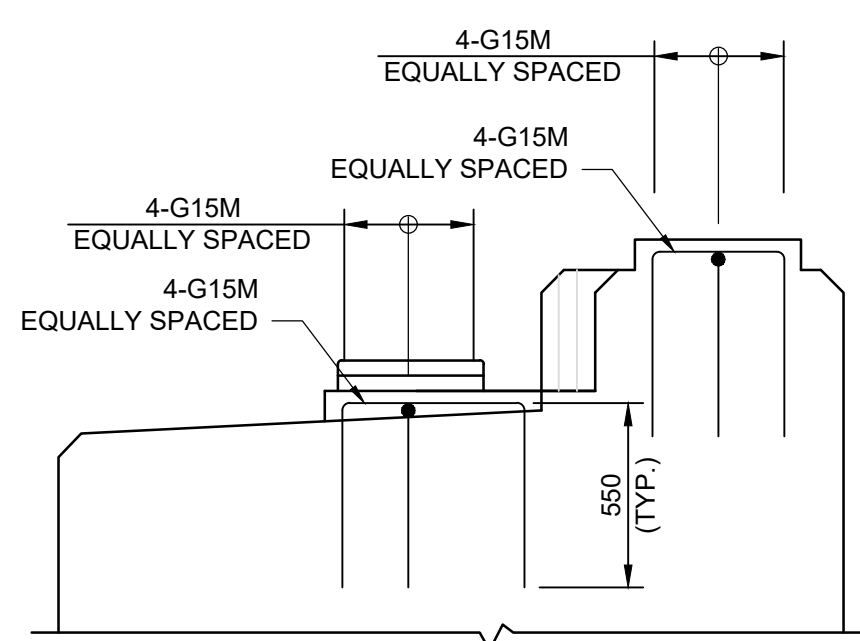
1 SECTION - CONCRETE PEDESTAL



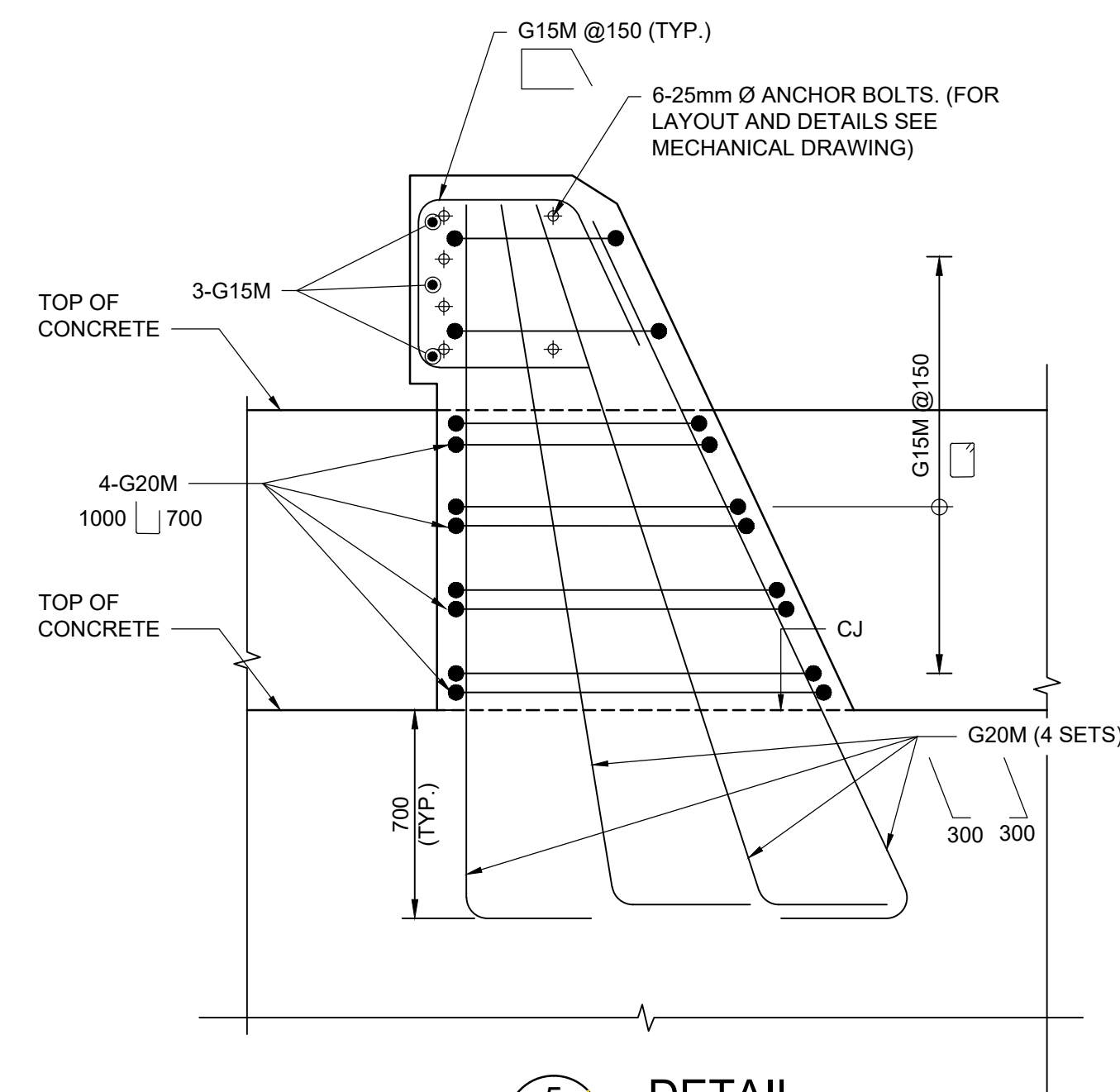
SECTION - CLOSED BUMPER  
CONCRETE PEDESTAL



3 SECTION  
B-17 B-17 1:50



4 DETAIL - CONCRETE PEDESTAL  
B-17 B-17  
1:25




5 DETAIL  
B-17 B-17  
1:15

\* REFER TO MECHANICAL DRAWINGS FOR ANCHOR BOLT LAYOUT INFORMATION.

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-07 AND B-16.

 Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

# PARSONS


## LIST OF ABBREVIATIONS

|      |                            |
|------|----------------------------|
| CJ   | DENOTES CONSTRUCTION JOINT |
| I.F. | DENOTES INSIDE FACE        |
| O.F. | DENOTES OUTSIDE FACE       |
| T/C  | DENOTES TOP OF CONCRETE    |
| T/F  | DENOTES TOP OF FOOTING     |
| WP   | DENOTES WORKING POINT      |



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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notify the Departmental Representative of all discrepancies.

 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

|                 |  |
|-----------------|--|
| project title   |  |
| titre du projet |  |

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

| drawing title | titre du dessin |
|---------------|-----------------|
| 1             | 1               |
| 2             | 2               |
| 3             | 3               |
| 4             | 4               |
| 5             | 5               |
| 6             | 6               |
| 7             | 7               |
| 8             | 8               |
| 9             | 9               |
| 10            | 10              |
| 11            | 11              |
| 12            | 12              |
| 13            | 13              |
| 14            | 14              |
| 15            | 15              |
| 16            | 16              |
| 17            | 17              |
| 18            | 18              |
| 19            | 19              |
| 20            | 20              |
| 21            | 21              |
| 22            | 22              |
| 23            | 23              |
| 24            | 24              |
| 25            | 25              |
| 26            | 26              |
| 27            | 27              |
| 28            | 28              |
| 29            | 29              |
| 30            | 30              |
| 31            | 31              |
| 32            | 32              |
| 33            | 33              |
| 34            | 34              |
| 35            | 35              |
| 36            | 36              |
| 37            | 37              |
| 38            | 38              |
| 39            | 39              |
| 40            | 40              |
| 41            | 41              |
| 42            | 42              |
| 43            | 43              |
| 44            | 44              |
| 45            | 45              |
| 46            | 46              |
| 47            | 47              |
| 48            | 48              |
| 49            | 49              |
| 50            | 50              |
| 51            | 51              |
| 52            | 52              |
| 53            | 53              |
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| 55            | 55              |
| 56            | 56              |
| 57            | 57              |
| 58            | 58              |
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| 62            | 62              |
| 63            | 63              |
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| 67            | 67              |
| 68            | 68              |
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| 74            | 74              |
| 75            | 75              |
| 76            | 76              |
| 77            | 77              |
| 78            | 78              |
| 79            | 79              |
| 80            | 80              |
| 81            | 81              |
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| 83            | 83              |
| 84            | 84              |
| 85            | 85              |
| 86            | 86              |
| 87            | 87              |
| 88            | 88              |
| 89            | 89              |
| 90            | 90              |
| 91            | 91              |
| 92            | 92              |
| 93            | 93              |
| 94            | 94              |
| 95            | 95              |
| 96            | 96              |
| 97            | 97              |
| 98            | 98              |
| 99            | 99              |
| 100           | 100             |

EAST PIER REINFORCING

drawn by  
dessine par **ANTHONY LEE**

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

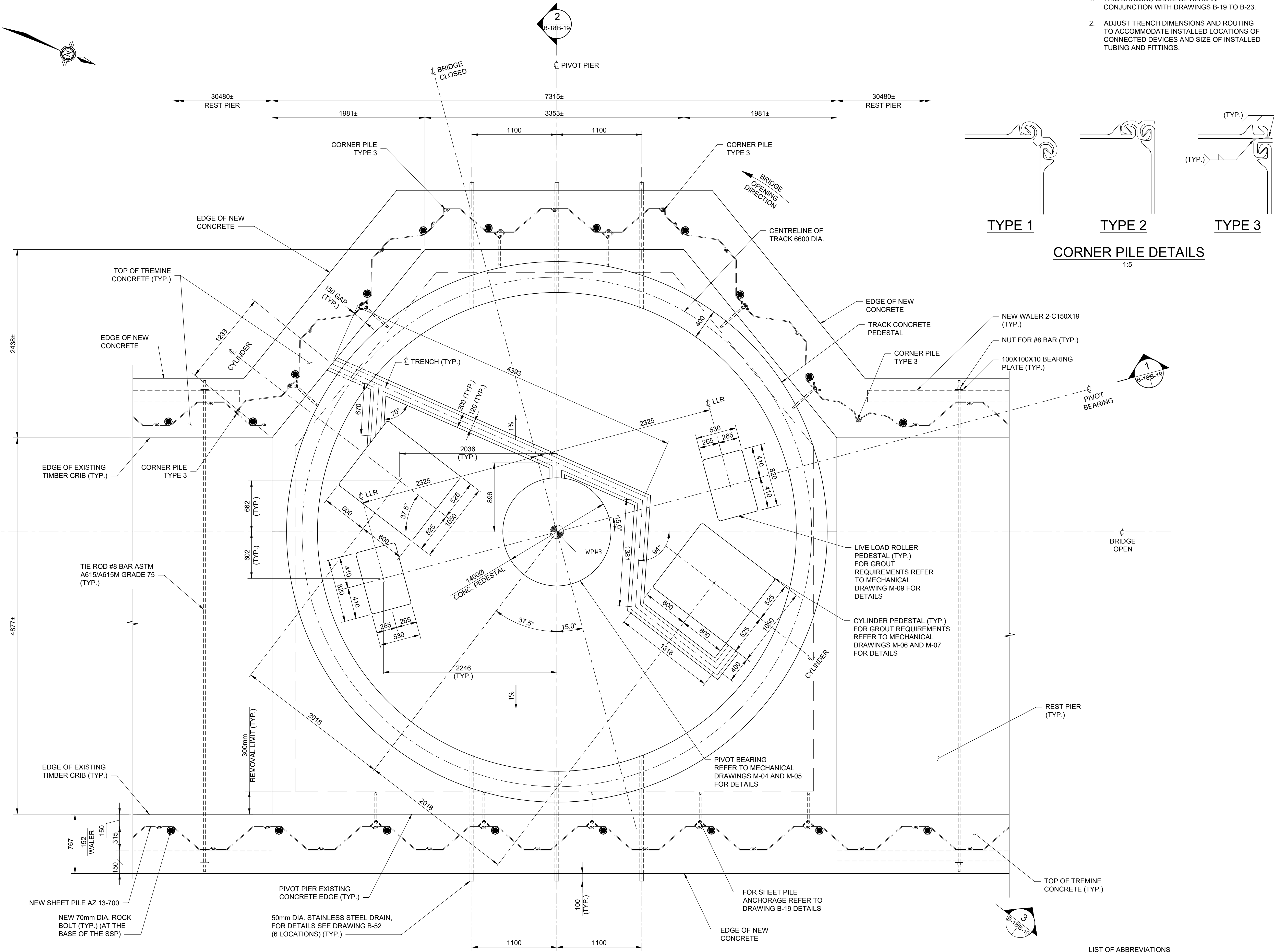
|                |            |
|----------------|------------|
| project date   | 2018-07-20 |
| date du projet |            |

|                              |              |
|------------------------------|--------------|
| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

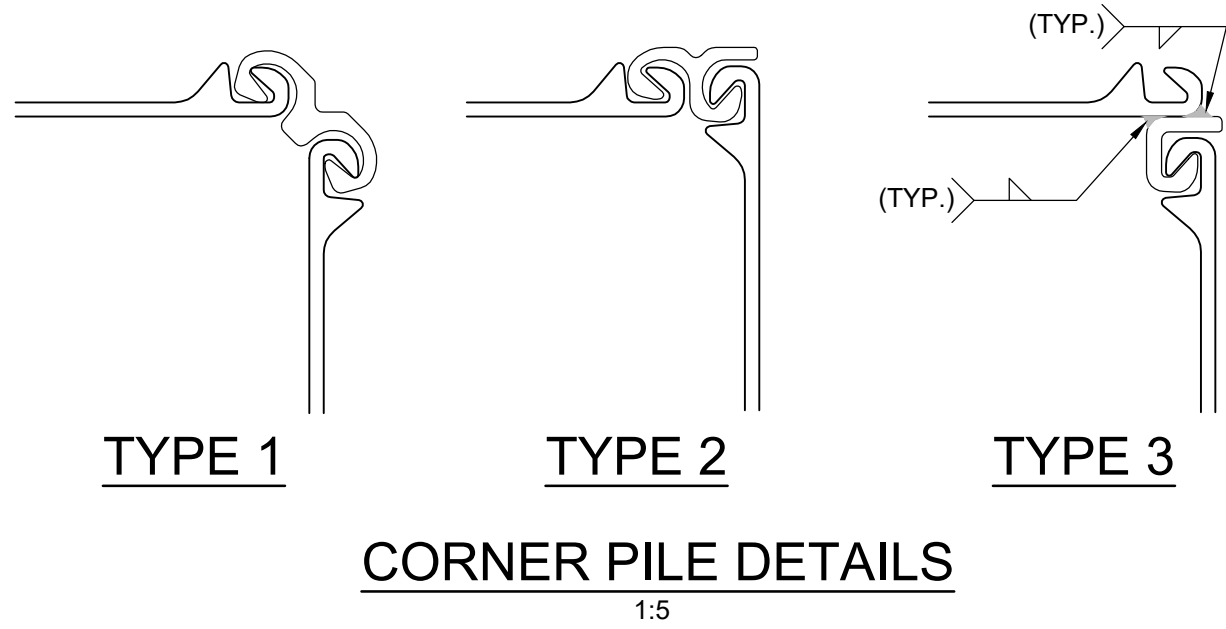
drawing no.  
dessine no.

B-17





- NOTES:
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-19 TO B-23.
  2. ADJUST TRENCH DIMENSIONS AND ROUTING TO ACCOMMODATE INSTALLED LOCATIONS OF CONNECTED DEVICES AND SIZE OF INSTALLED TUBING AND FITTINGS.



PIVOT PIER PLAN  
1:25

- LIST OF ABBREVIATIONS
- CJ DENOTES CONSTRUCTION JOINT
  - LLR DENOTES LIVE LOAD ROLLER
  - SSP DENOTES STEEL SHEET PILE
  - T/C DENOTES TOP OF CONCRETE
  - WP DENOTES WORKING POINT

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

PIVOT PIER  
MODIFICATION DETAILS I

drawn by  
dessiné par

ANTHONY LEE

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.

B-18

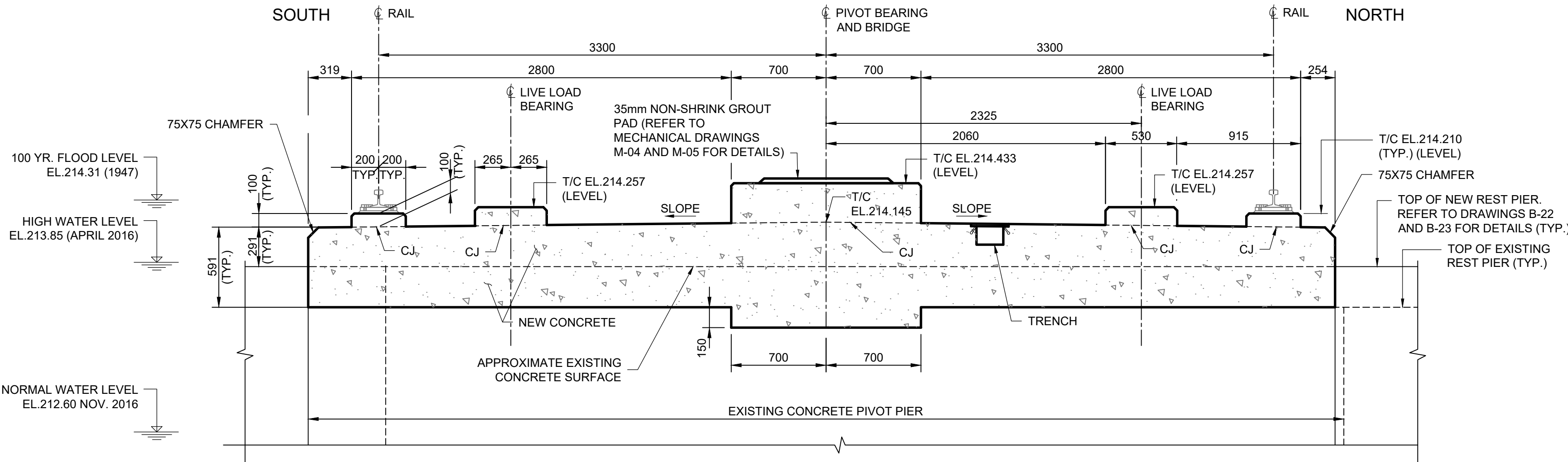


LIST OF ABBREVIATIONS  
CJ DENOTES CONSTRUCTION JOINT  
T/C DENOTES TOP OF CONCRETE  
WP DENOTES WORKING POINT

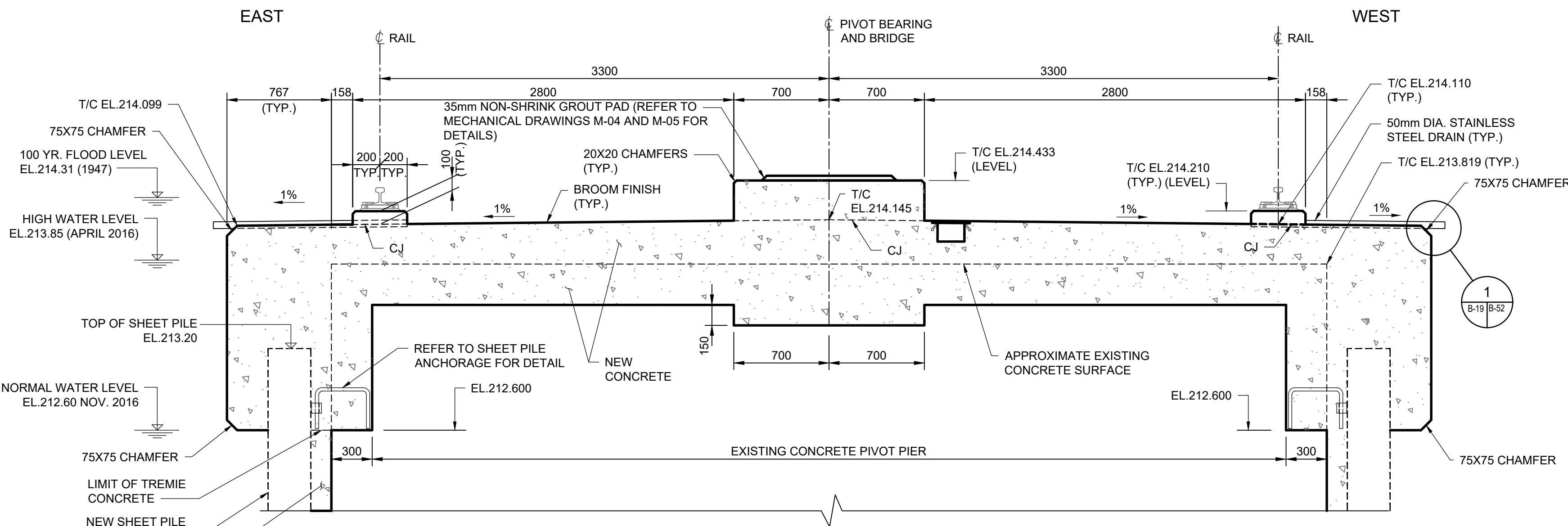
- NOTES:
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-18, AND DRAWINGS B-20 TO B-23.
  - SHEET PILES TO BE FASTENED TO EXISTING PIVOT PIER. PRIOR TO DRIVING SHEET PILES, PROVIDE AND INSTALL SHEET PILE ANCHORS ON INSIDE FACE OF SHEET PILES AS SHOWN IN OPSD 3002.20 AND DRAWINGS B-18 TO B-21 SHEET PILE ANCHORAGE DETAILS. THE CONTRACTOR SHALL SUPPLY TEMPORARY BRACING FOR THE SHEET PILES AT THE PIVOT PIER UNTIL CONCRETE HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH AND THE ANCHORAGE STRENGTH IS FULLY DEVELOPED.

Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

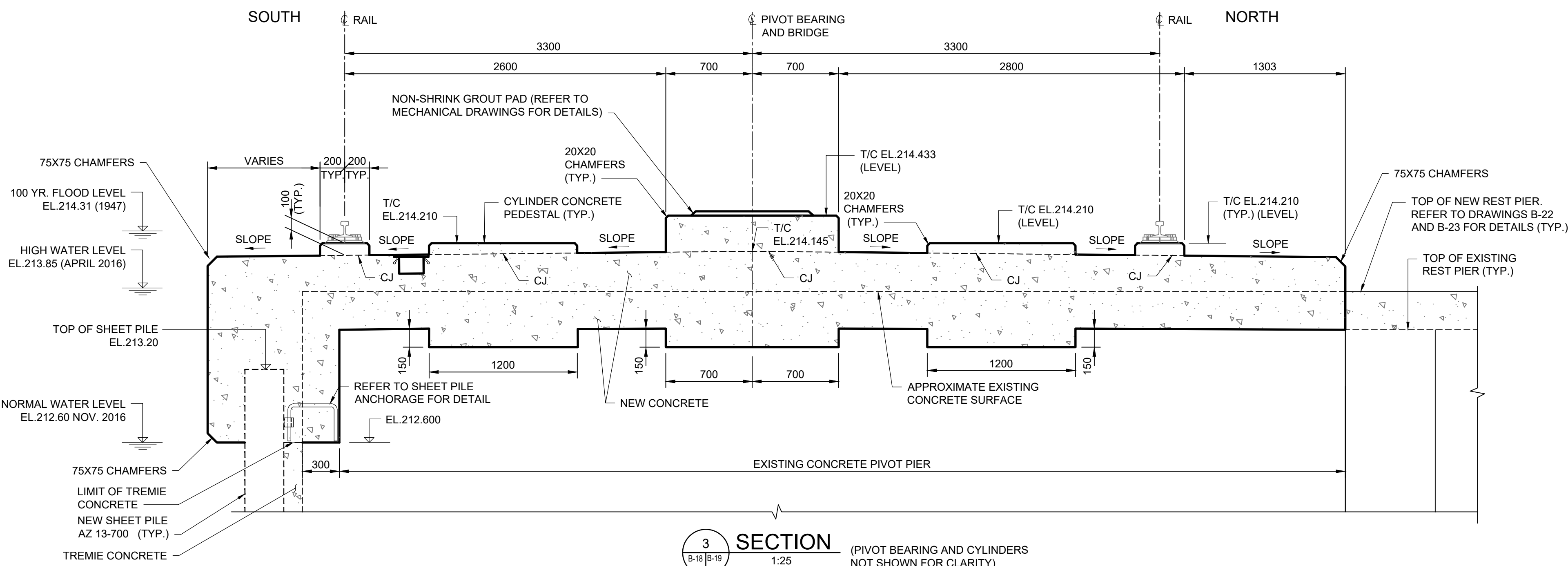
PARSONS



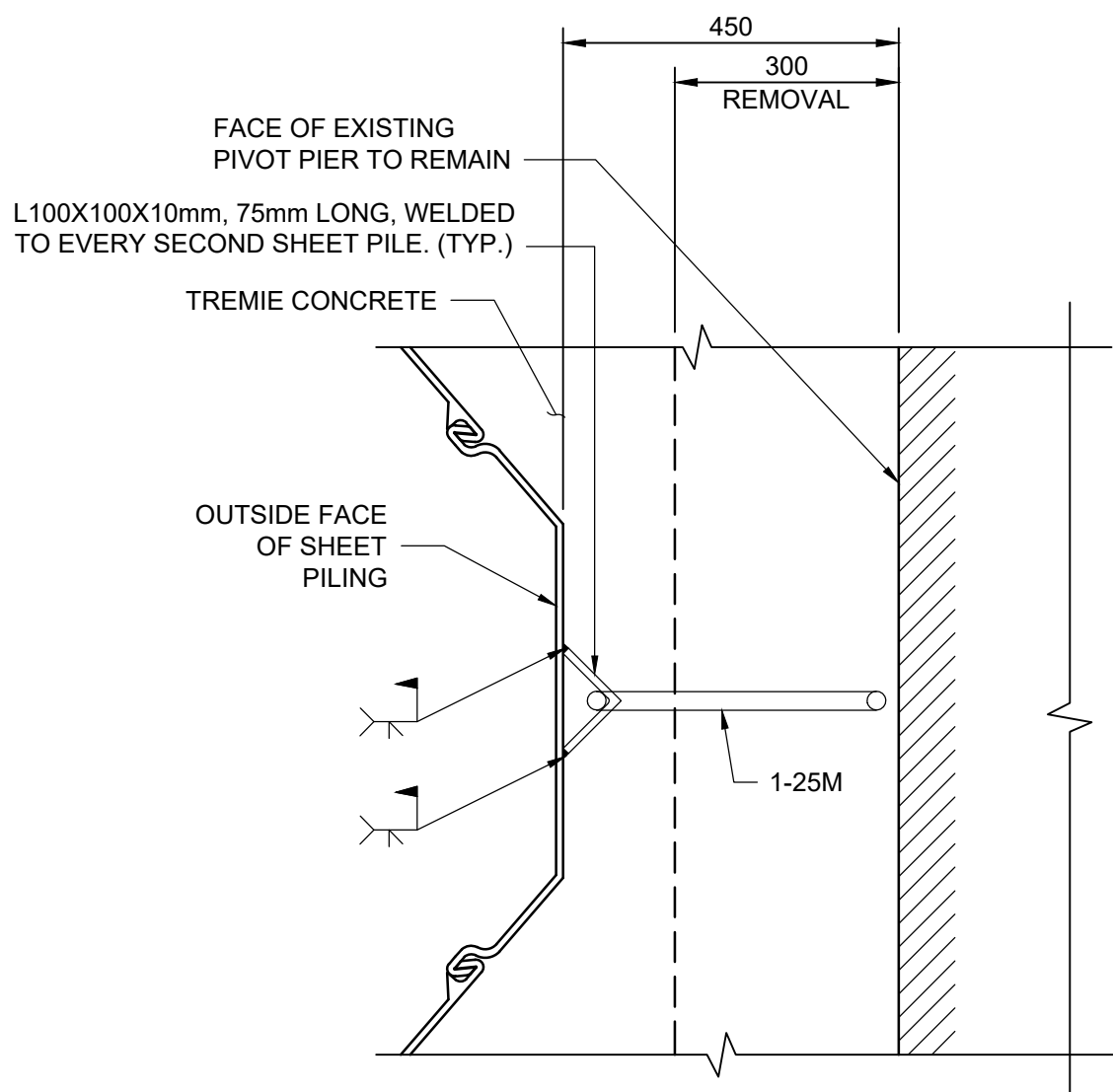
1 SECTION (LIVE LOADROLLER AND PIVOT BEARING NOT SHOWN FOR CLARITY) 1:25



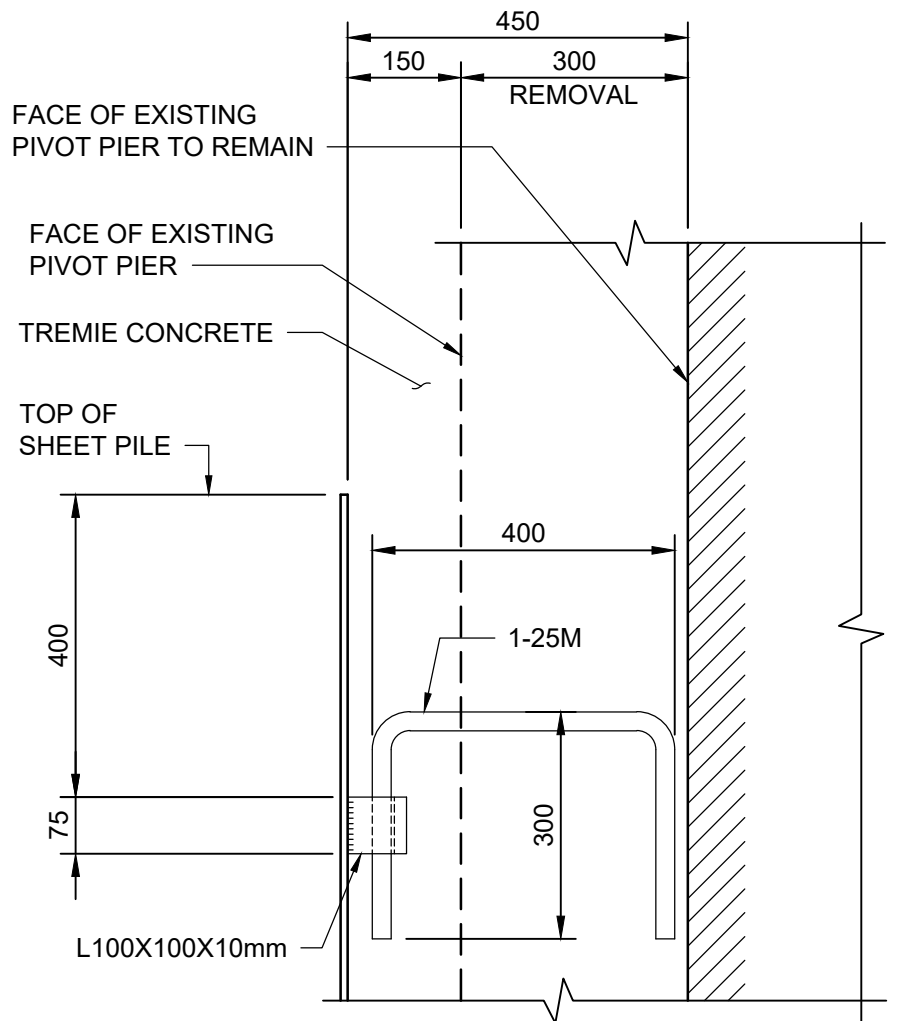
2 SECTION (PIVOT BEARING NOT SHOWN FOR CLARITY) 1:25



3 SECTION (PIVOT BEARING AND CYLINDERS NOT SHOWN FOR CLARITY) 1:25



PLAN 1:10



ELEVATION 1:10

SHEET PILE ANCHORAGE

A Detail No.  
B drawing no. — where detail required  
C drawing no. — where detailed

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

PIVOT PIER  
MODIFICATION DETAILS II

drawn by  
dessiné par

ANTHONY LEE

designed by  
conçue par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

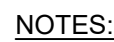
project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.

B-19

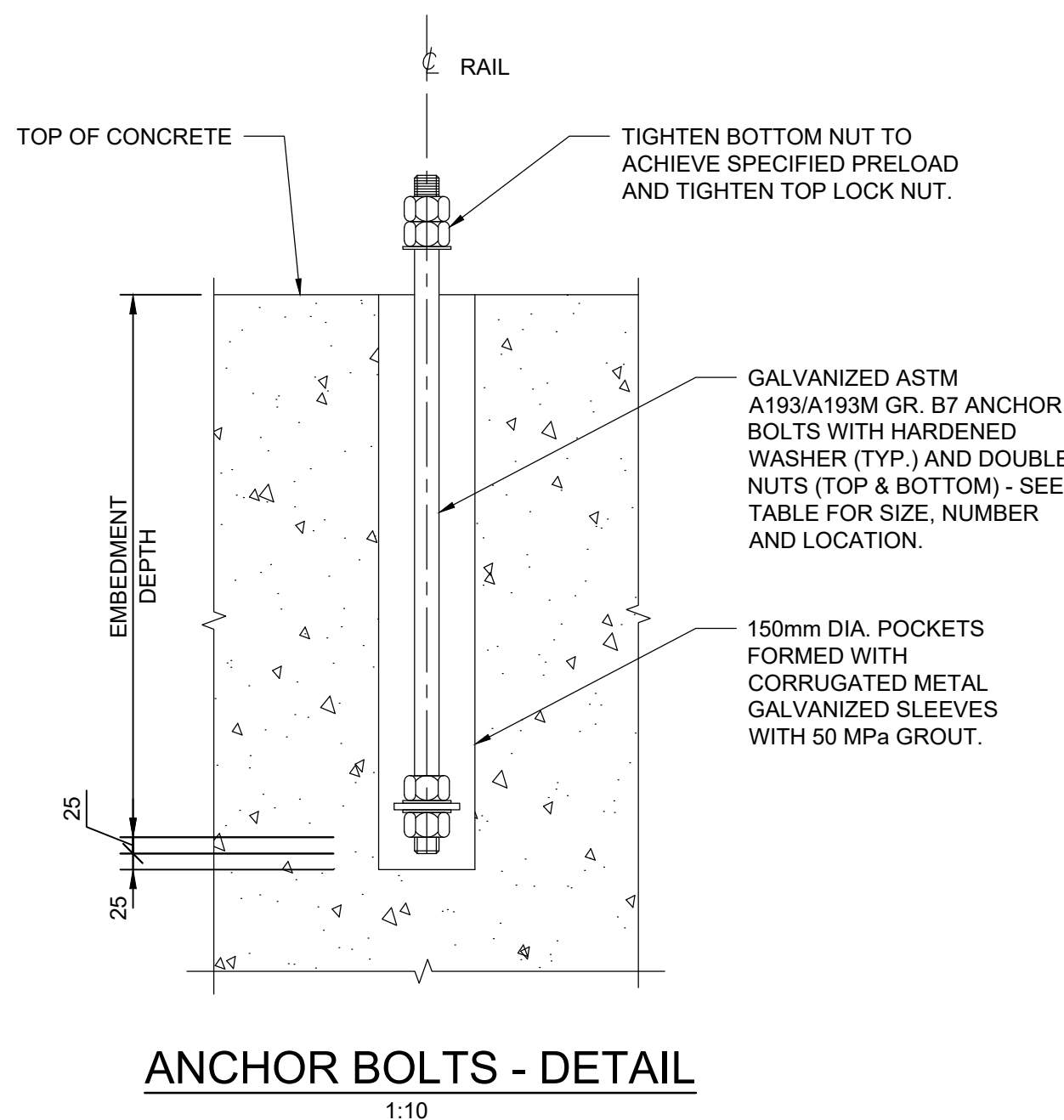




1. EXISTING DIMENSIONS AND ELEVATION SHOWN SHALL BE CONSIDERED APPROXIMATE. CONTRACTOR RESPONSIBLE FOR FIELD MEASUREMENT AND SURVEY OF THE EXISTING PIER AS REQUIRED.
2. CONTRACTOR RESPONSIBLE FOR FINAL COORDINATION OF ANCHOR BOLT AND PLINTH SIZES AND LOCATIONS WITH MECHANICAL ITEMS.
3. NEW RAIL POST-INSTALLED ANCHOR BOLTS MAY BE CORED THROUGH EXISTING REINFORCING STEEL.
4. ALL NEW CONCRETE SURFACES TO BE TREATED WITH TWO COATS OF PENETRATING SEALER APPLIED WET IN WET.
5. ABRASIVE BLAST CLEAN ALL REINFORCING STEEL THAT IS TO BE RETAINED IN ACCORDANCE WITH OPSS 929. REPLACE SEVERELY CORRODED REINFORCING STEEL.
6. CONCRETE SURFACE TO BE ABRASIVE BLAST CLEAN AND A BONDING AGENT SHALL BE APPLIED BEFORE CASTING NEW CONCRETE.
7. AZ 13-700 SHEET PILING INDICATED ON THE CONTRACT IS REQUIRED AS A PERMANENT PART OF THE STRUCTURE. ASTM A572 GRADE 60 WITH  $F_y = 460$  MPa.
8. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-18 TO B-19, AND DRAWINGS B-21 TO B-23.
9. CONTRACTOR TO ADJUST REINFORCEMENT TO SUIT TRENCH.

## LIST OF ABBREVIATIONS

CJ DENOTES CONSTRUCTION JOINT  
WP DENOTES WORKING POINT



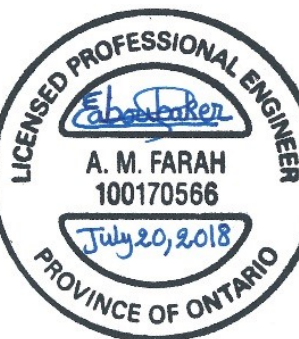
| ANCHOR BOLTS DATA             |                  |                                |  |                                |
|-------------------------------|------------------|--------------------------------|--|--------------------------------|
| LOCATION                      | DIAMETER<br>(mm) | QUANTITY<br>(EACH<br>LOCATION) | EMBEDMENT<br>DEPTH<br>(mm)                                       | PRETENSION<br>PER BOLT<br>(kN) |
| PIVOT<br>BEARING              | 38               | 6                              | 1000   | 200                            |
| CYLINDERS<br>BEARINGS SUPPORT | 32               | 13                             | 750  | 130                            |
| LIVE LOAD<br>SUPPORTS         | 25               | 6                              | 450  | 100                            |
| BALANCE WHEEL<br>RAIL         | 19               | 6<br>(at 3 locations)          | DRILL 450mm DEEP HOLE<br>AND INSTALL ANCHORS<br>WITH EPOXY GROUT |                                |
| BALANCE WHEEL<br>RAIL         | 19               | 4<br>(at 21 locations)         | DRILL 450mm DEEP HOLE<br>AND INSTALL ANCHORS<br>WITH EPOXY GROUT |                                |

REFER TO MECHANICAL DRAWINGS FOR ANCHOR BOLT LAYOUT INFORMATION.



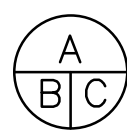
Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

# PARSONS



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| 04       |                   |            |
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| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
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Do not scale drawings.  
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|---|---|
| A | Detail No.<br>No. du détail   |
| B | drawing no. — where detail required<br>dessin no. — où détail exigé |
| C | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|          |        |
|----------|--------|
| drawing  | title  |
| titre du | dessin |

PIVOT PIER  
MODIFICATION REINFORCING I

drawn by  
dessine par

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

bid project manager  
offre administrateur  
JULIO LEON de projets

project date  
date du projet 2018-07-20

project no.  
no. du projet

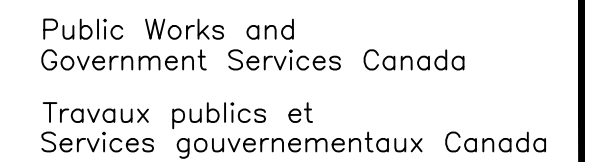
R.073593.001

drawing no.  
dessine no.

B-20



2. CONTRACTOR TO ADJUST REINFORCEMENT TO SUIT TRENCH.

[illegible]

DETAIL - PIVOT PIER TYPICAL TRENCH REINFORCING



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| project title   |
| titre du projet |

|                                  |
|----------------------------------|
| drawing title<br>titre du dessin |
|----------------------------------|

drawn by  
dessine par

ANTHONY LEE

designed by  
conc par

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

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|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
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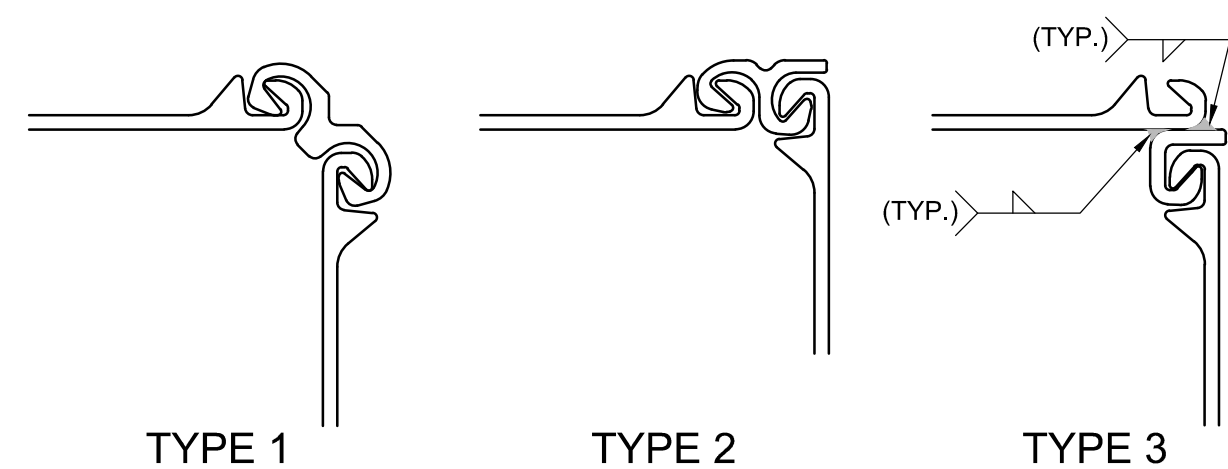
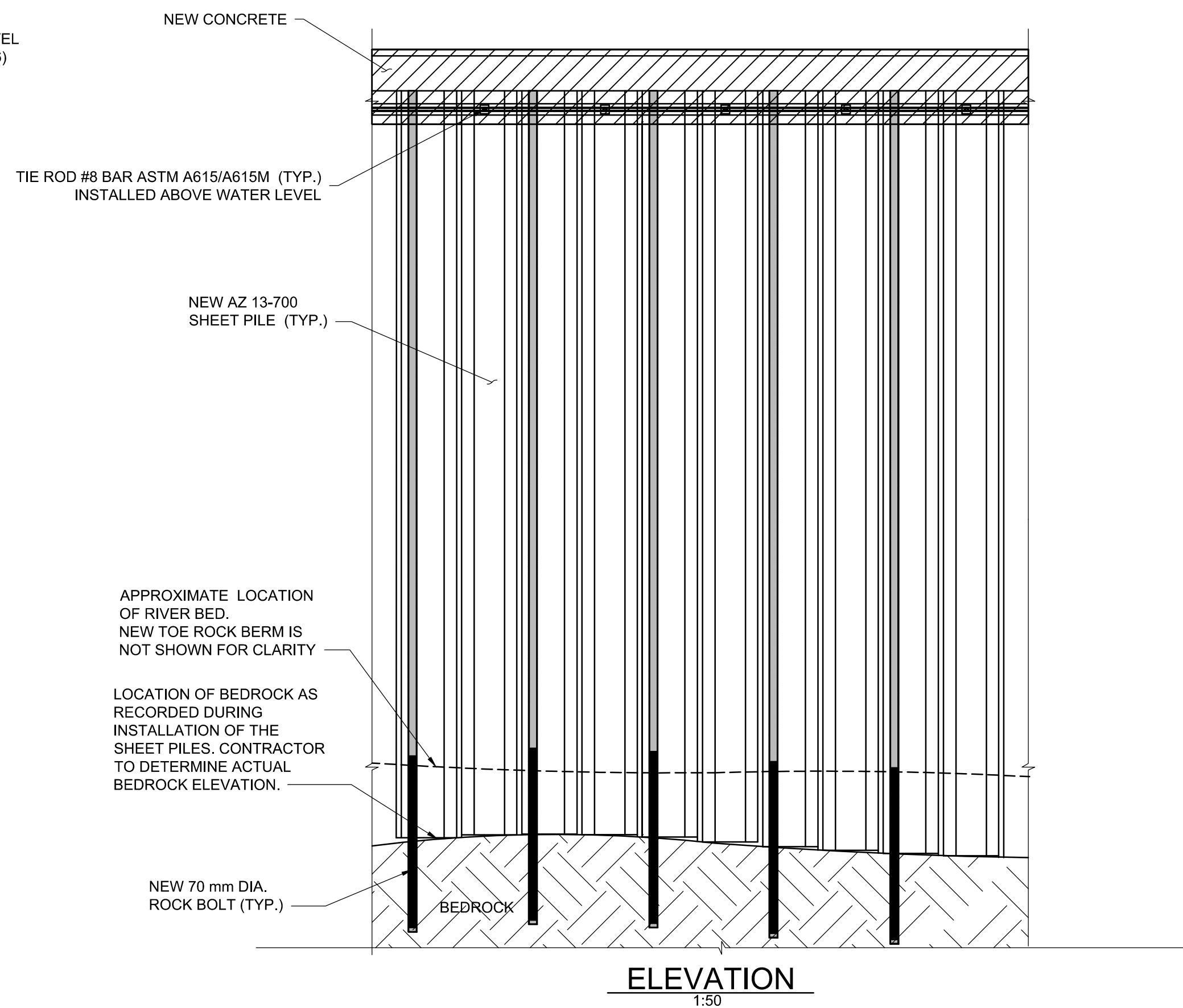
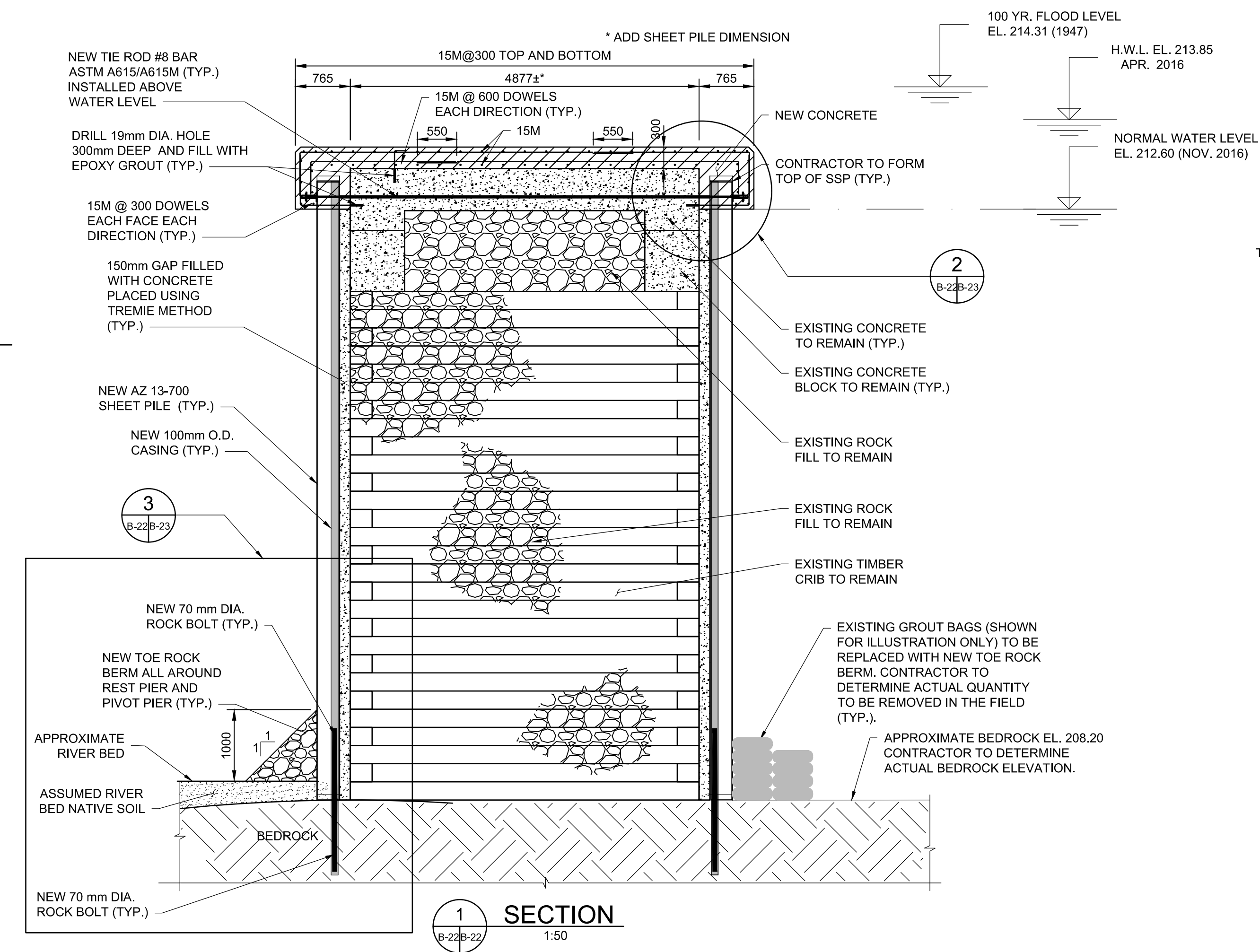
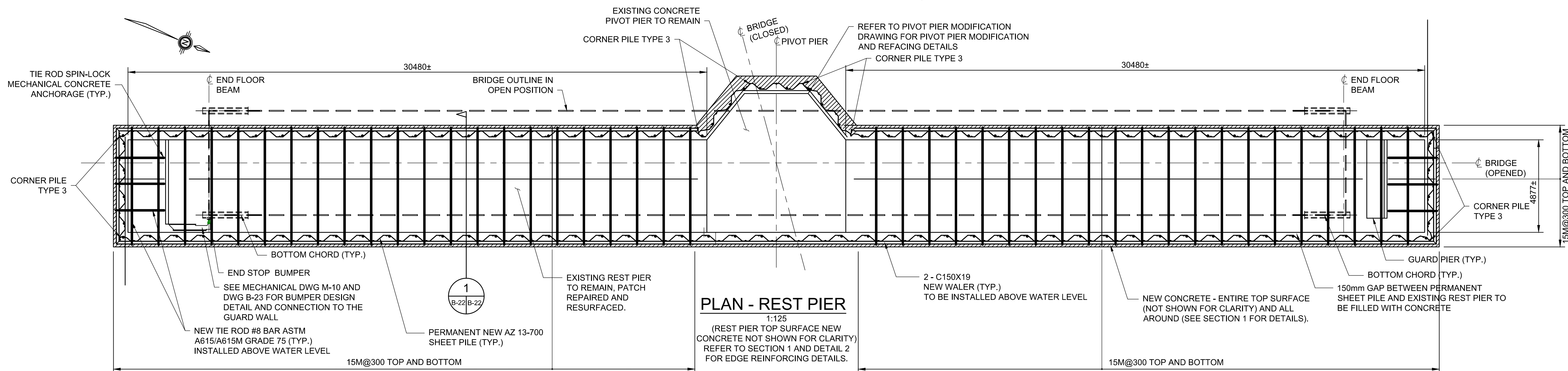
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| drawing no.<br>dessin no. | R.075595.001 |
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B-21

GSC-A1      DATE PLOTTED: YYYY-MM-DD      PLOT SCALE: 1:?      CAD FILE:





## CONSTRUCTION SEQUENCE:

1. REMOVE GROUT BAGS ONE SEGMENT (TO BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE DEPARTMENTAL REPRESENTATIVE) AT A TIME BASED ON STABILITY OF THE REST PIER AND REPLACE WITH NEW TOE ROCK BERM.
2. DRIVE SHEET PILES TO TOP OF BEDROCK.
3. INSTALL ROCK BOLTS AT THE TOES OF THE SHEET PILES AND PLACE TIE RODS ABOVE WATER LEVEL.
4. FILL THE GAP BETWEEN SHEET PILE AND EXISTING REST PIER WITH CONCRETE USING THE TREMIE METHOD.
5. REMOVE AND PATCH REPAIR DELAMINATED CONCRETE FROM THE EXISTING CONCRETE.
6. CONSTRUCT NEW 300 mm REINFORCED CONCRETE OVERLAY AND ALL AROUND THE LIMITS SHOWN.

## NOTE:

1. AZ 13-700 SHEET PILING INDICATED ON THE CONTRACT IS REQUIRED AS A PERMANENT PART OF THE STRUCTURE. ASTM A572 GRADE 60 WITH  $F_y = 460 \text{ MPa}$ .
2. SHEET PILES TO BE FASTENED TO EXISTING PIVOT PIER. PRIOR TO DRIVING SHEET PILES, PROVIDE AND INSTALL SHEET PILE ANCHORS ON INSIDE FACE OF SHEET PILES AS SHOWN IN OPSD 3002.20 AND DRAWINGS B-18 TO B-21 SHEET PILE ANCHORAGE DETAILS.
3. ROCK BOLT BARS TO BE ASTM A615 GRADE 75 WITH  $F_y = 517 \text{ MPa}$ .
4. CASING  $F_y = 350 \text{ MPa}$ .
5. GROUT TO BE 35 MPa AND HAVE ANTI-WASHOUT PROPERTIES.
6. GRADE OF STEEL OF WT AND ANGLE TO BE GRADE 300W.
7. ALL STRUCTURAL STEEL SHALL CONFORM TO G40.20/G40.21 OR ASTM SPECIFICATION A572.
8. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-18 TO B-21, AND DRAWING B-23.



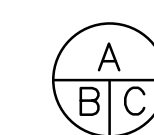
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**PARSONS**



|          |                   |            |
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No. du détail  
B drawing no. — where detail required  
dessin no. — où détail exigé  
C drawing no. — where detailed  
dessin no. — où détaillé

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

REST PIERS REHABILITATION I

drawn by  
dessiné par ANTHONY LEE

designed by  
conc par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

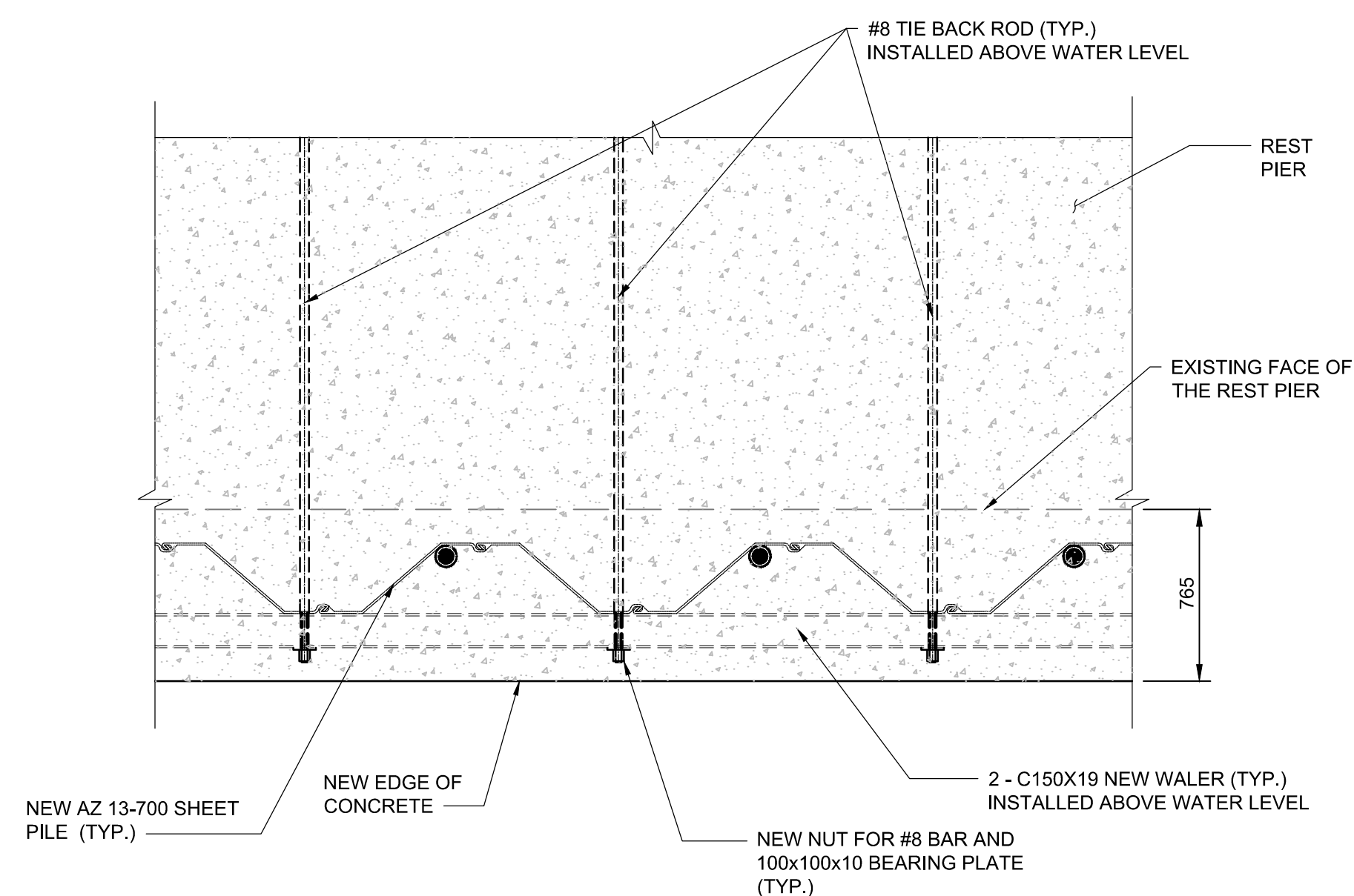
bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

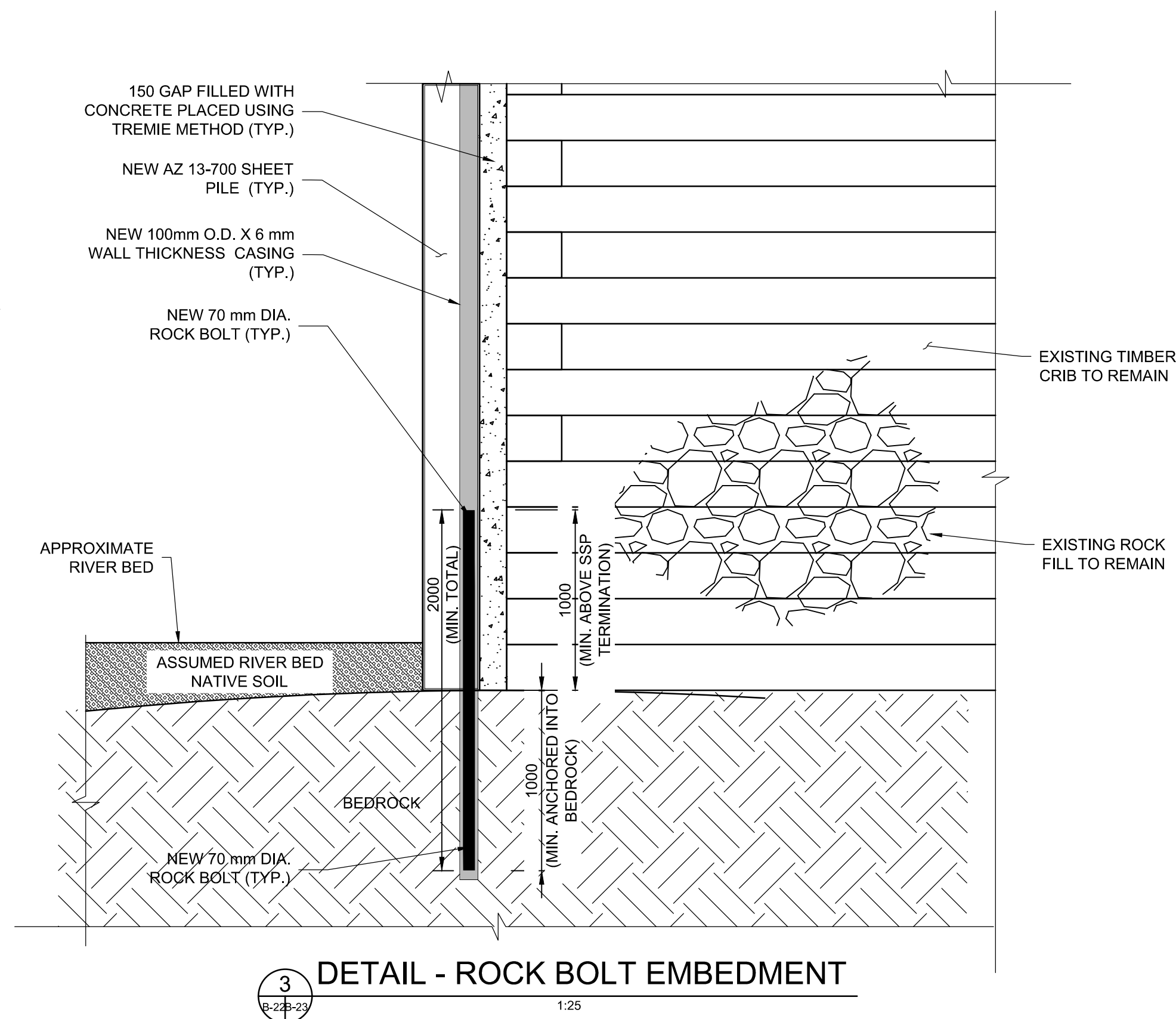
project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. B-22

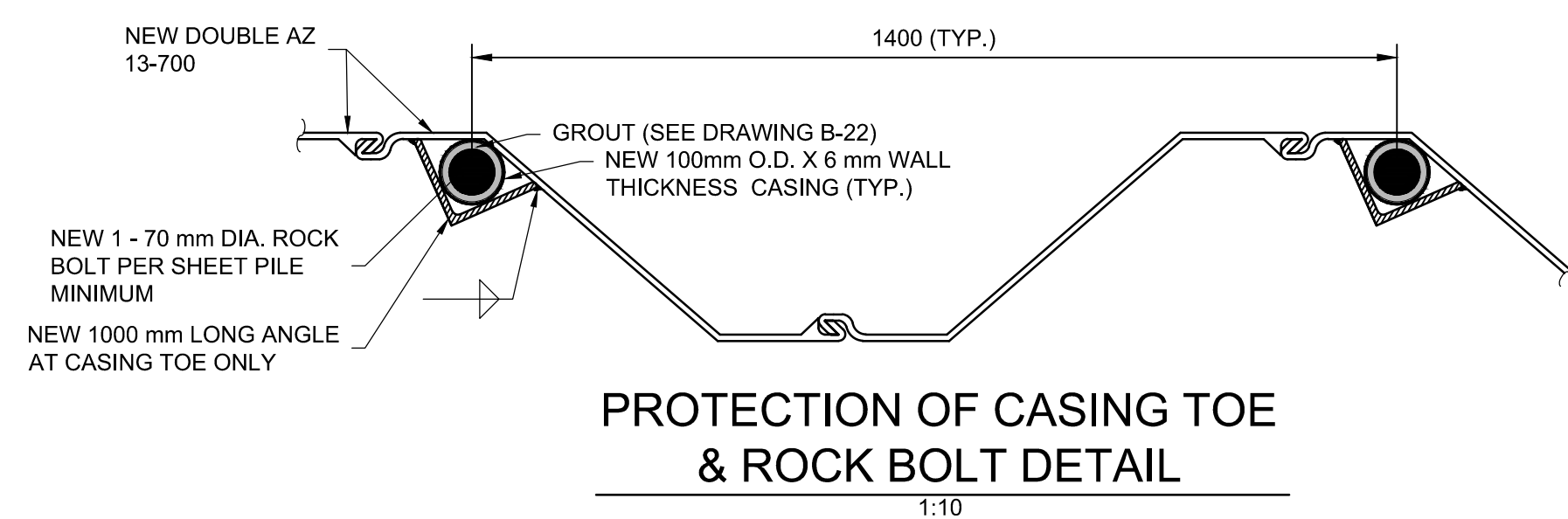




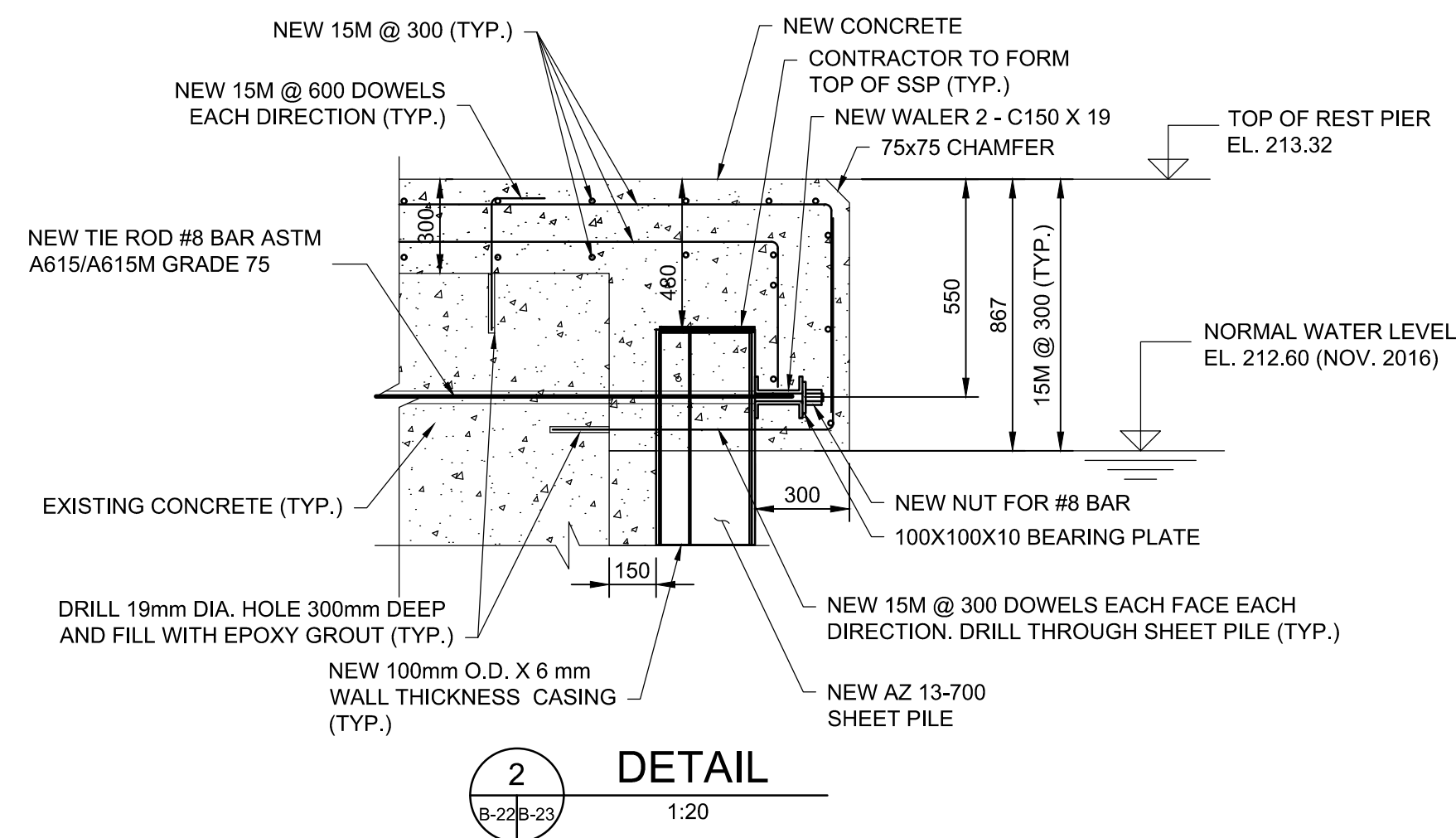
**REST PIER PLAN**  
1:25



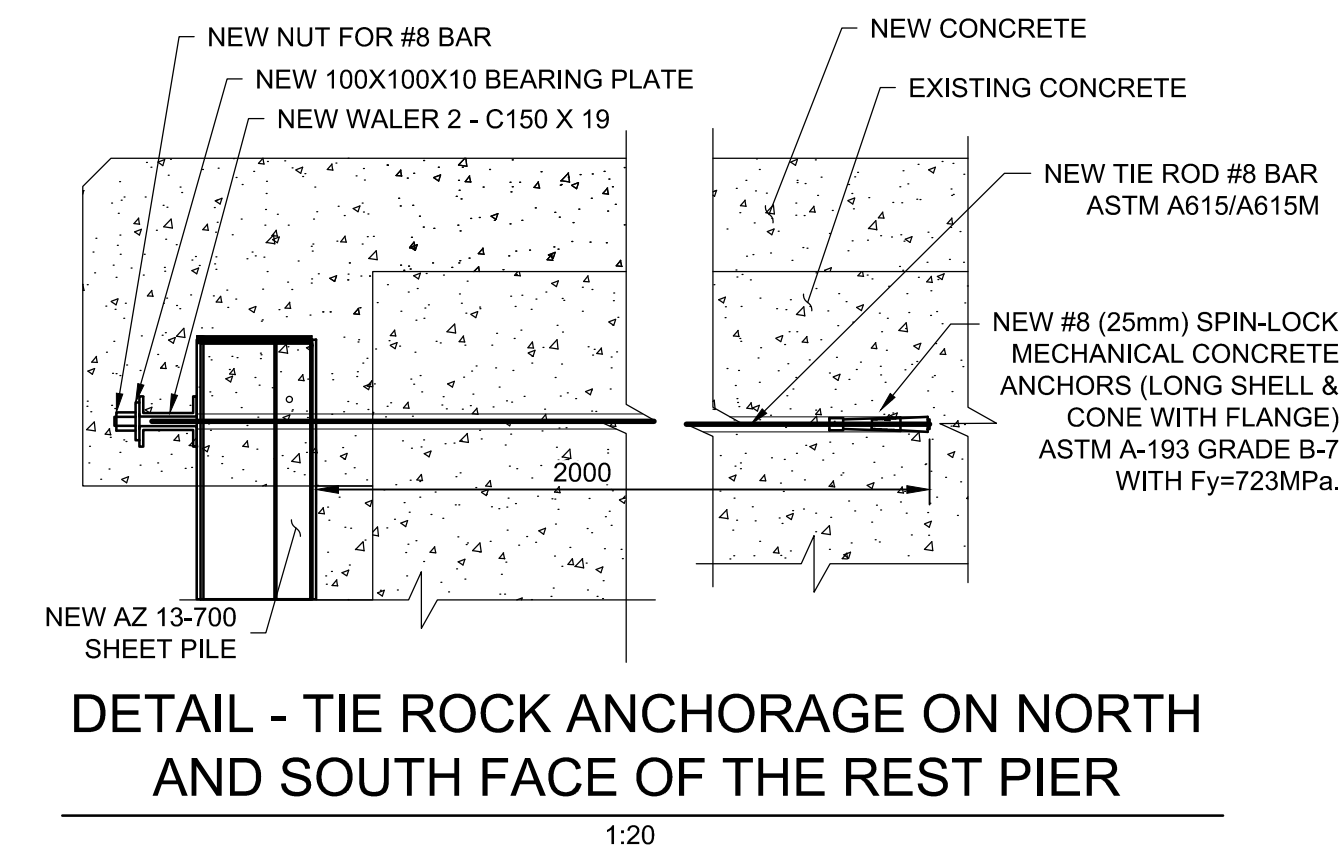
**DETAIL - ROCK BOLT EMBEDMENT**  
1:25



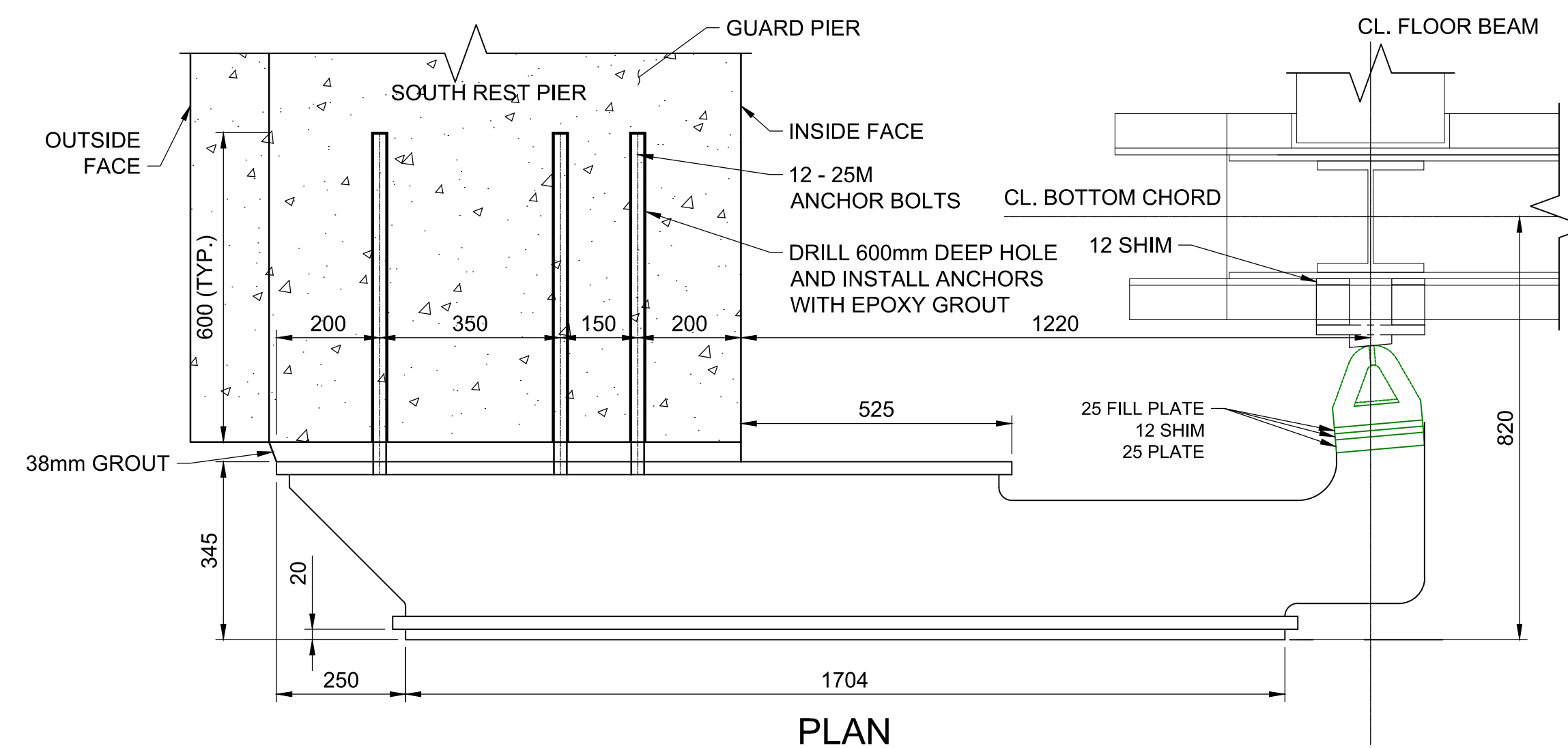
**PROTECTION OF CASING TOE & ROCK BOLT DETAIL**  
1:10



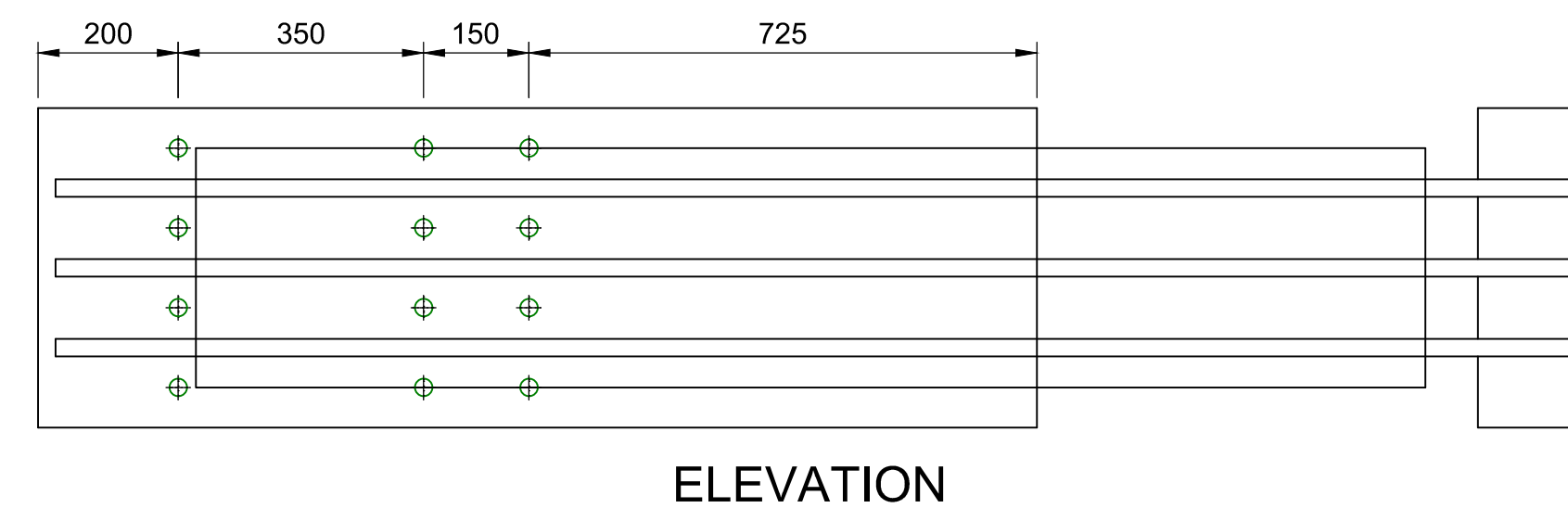
**DETAIL**  
1:20



**DETAIL - TIE ROCK ANCHORAGE ON NORTH AND SOUTH FACE OF THE REST PIER**  
1:20

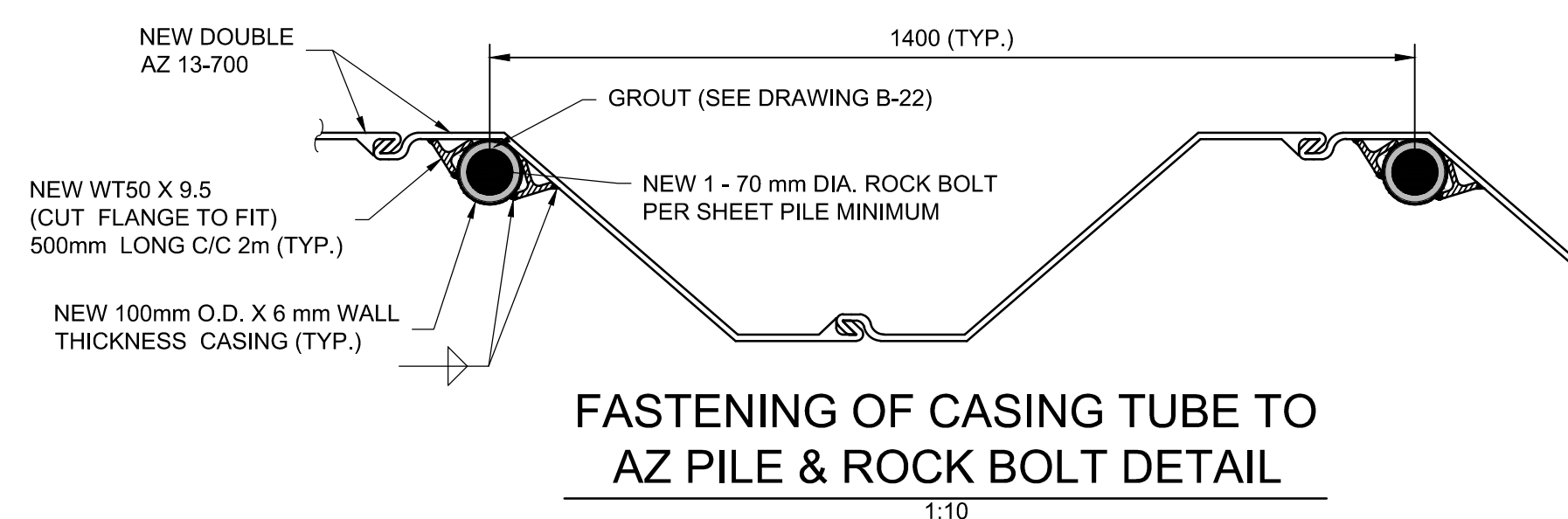


**PLAN**



**ELEVATION**

**BUMPER ASSEMBLY CONNECTION DETAIL (REFER TO MECHANICAL DRAWING M-10 FOR DETAIL)**  
1:10



**FASTENING OF CASING TUBE TO AZ PILE & ROCK BOLT DETAIL**  
1:10

| ANCHOR BOLTS INFORMATION |               |                            |  |                          |
|--------------------------|---------------|----------------------------|--|--------------------------|
| LOCATION                 | DIAMETER (mm) | QUANTITY (EACH LOCATION *) | EMBEDMENT DEPTH (mm)                                       | PRETENSION PER BOLT (kN) |
| REST PIER BUMPER         | 25            | 12                         | DRILL 600mm DEEP HOLE AND INSTALL ANCHORS WITH EPOXY GROUT |                          |

\* REFER TO MECHANICAL DRAWINGS FOR ANCHOR BOLT LAYOUT INFORMATION.

NOTE:  
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-18 TO B-22

**PARSONS**



|          |                   |            |
|----------|-------------------|------------|
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|   |                                     |
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| A | Detail No.                          |
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| C | drawing no. - where detailed        |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

REST PIERS REHABILITATION II

drawn by  
dessiné par ANTHONY LEE

designed by  
conç par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. B-23



STRUCTURAL STEEL NOTES:

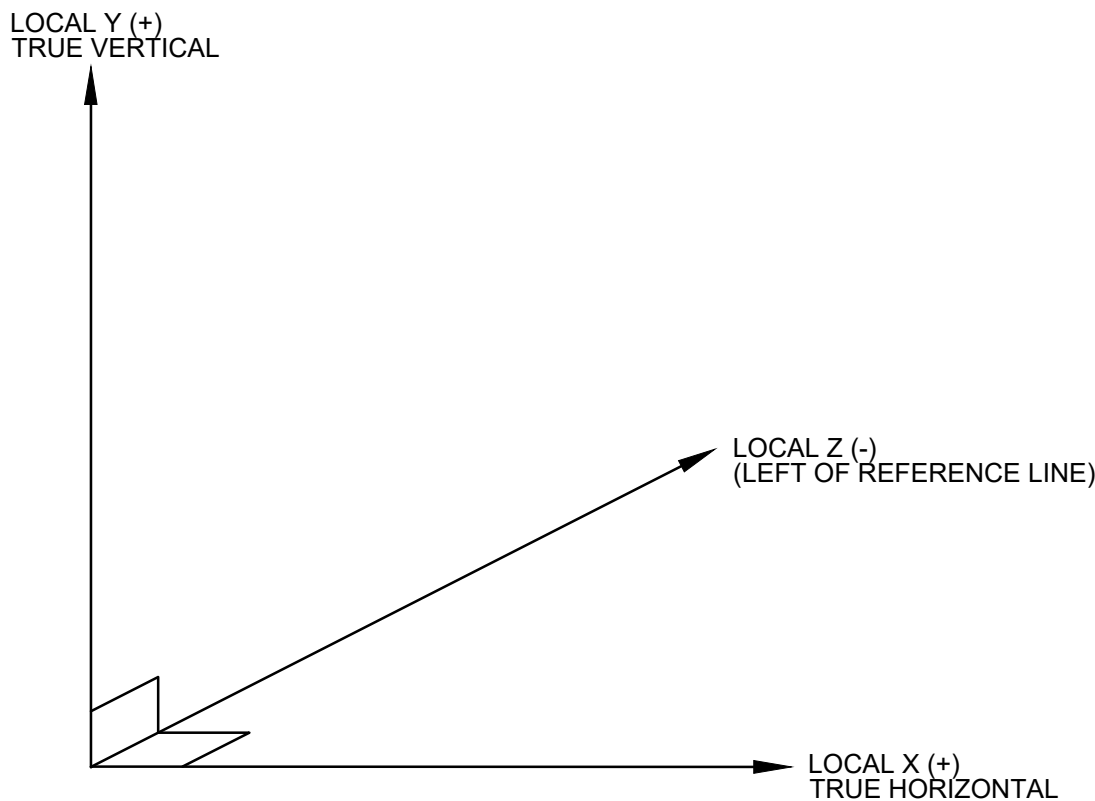
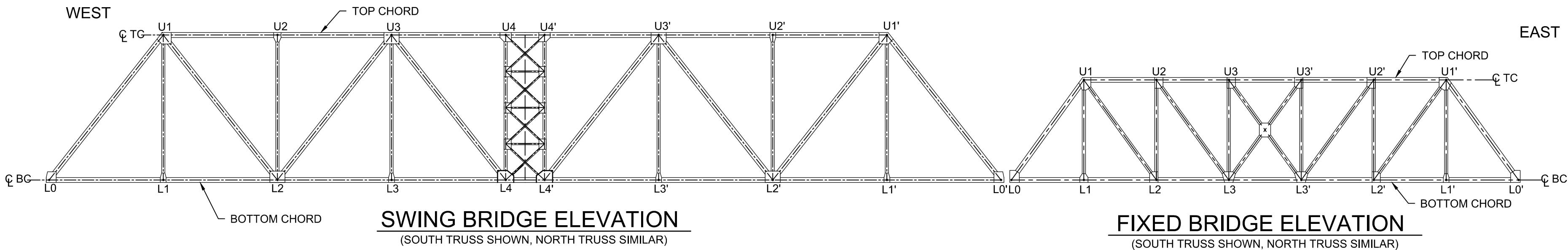
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH B-25, THE SWING BRIDGE STRUCTURAL STEEL DRAWINGS 26 TO 40, AND THE FIXED BRIDGE STRUCTURAL STEEL DRAWINGS 41 TO 46.
- FEATURES OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME CHARACTER AS SHOWN FOR SIMILAR CONDITIONS.
- THE CONTRACTOR SHALL EXAMINE THE SITE AND SATISFY ITSELF OF THE ACTUAL CONDITIONS AND REQUIREMENTS OF THE WORK.
- ALL STRUCTURAL STEEL SHALL CONFORM TO CSA G40.20/G40.21 GRADE 350WT. THE CHARPY IMPACT ENERGY REQUIREMENTS SHALL BE 27 JOULES AND THE TEST TEMPERATURE SHALL BE -30°C. ROLLED SECTIONS SHALL CONFORM TO G40.20/G40.21 OR A588/A588M SPECIFICATION A588, AND THE CHARPY IMPACT ENERGY REQUIREMENTS SHALL BE 27 JOULES.
- BOLTS ON COATED STEEL SHALL BE GALVANIZED ASTM A325M TYPE 1, M22 UNLESS OTHERWISE NOTED. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.
- ALL LENGTHS SHOWN ARE IN THE HORIZONTAL PLANE AND MEASURED AT 20°C.
- NO FIELD WELDING IS PERMITTED.
- PIVOT GIRDER AND PIVOT DIAPHRAGM SHALL BE METALIZED. ALL STRUCTURAL STEEL BELOW DECK LEVEL EXCLUDING THE BOTTOM CHORDS, PIVOT GIRDER AND PIVOT DIAPHRAGMS SHALL BE GALVANIZED. ALL TRUSS STRUCTURAL STEEL ABOVE DECK LEVEL INCLUDING THE BOTTOM CHORDS, EXCLUDING THE CONTACT SURFACES OF BOLTED JOINTS TO BE COATED WITH THREE COAT SYSTEM, CONFIRM TOP COAT COLOR WITH DEPARTMENT REPRESENTATIVE PRIOR TO FABRICATION.
- ALL FRAYING SURFACES OF BOLTED CONNECTIONS TO BE CLASS "B" OR BETTER. ALL BOLTS BROUGHT TO SLIP-CRITICAL CONDITION BY TURN-OF-NUT METHOD.
- ALL BUTT WELDS IN FLANGE AND WEB SHOP SPLICES SHALL BE FINISHED FLUSH OR SMOOTH AS INDICATED, BY GRINDING WHERE NECESSARY IN THE DIRECTION OF APPLIED STRESSES. IF SHOP SPLICES ARE REQUIRED IN LOCATIONS OTHER THAN THOSE WHERE PLATE SIZES HAVE TRANSITIONS, THEIR LOCATION SHALL BE APPROVED BY THE DEPARTMENTAL REPRESENTATIVE.
- UNLESS OTHERWISE NOTED THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

| MATERIAL THICKNESS OF THICKER PART JOINED (mm) | MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm) |
|--|--|
| TO 12 INCLUSIVE                                | 5  |
| OVER 12 TO 20                                  | 6  |
| OVER 20 TO 40                                  | 8  |
| OVER 40 TO 60                                  | 10   |
| OVER 60 TO 120                                 | 12   |

- UNLESS OTHERWISE NOTED, LONGITUDINAL WEB STIFFENERS SHALL BE CUT 25mm SHORT OF THE TRANSVERSE WEB STIFFENERS.
- CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING HANDLING, TRANSPORTATION AND ERECTION AND UNTIL THE STRUCTURAL STEEL IS IN ITS FINAL LOCATION WITH ALL SUPPORTS IN PLACE.
- THE CONTRACTOR TO MACHINE STRUCTURAL PLATES WHEREVER A MACHINERY COMPONENT IS ATTACHED AND PROVIDE A 1.6 µm FINISH. PLATE THICKNESSES ARE SHOWN AFTER MACHINING. MACHINE PLATES AFTER WELDING AND STRESS RELIEVING. MACHINE UNSTIFFENED PLATES AFTER CONNECTING TO OTHER STRUCTURAL MEMBERS. FASTENERS PASSING THROUGH MACHINED SURFACES SHALL BE COUNTERSUNK OR COUNTER BORED AND BE RECESSED 2 mm BELOW THE MACHINED SURFACE. MACHINED SURFACES SHALL BE FLAT WITHIN 0.26 mm OVER THE MACHINED AREA FOR THE CONNECTION OF ONE CONNECTED MACHINERY COMPONENT OR SUPPORT.
- THE TRUSS CONNECTION DETAILS DEVELOPED ON THIS DRAWING SET ARE BASED ON THE ROLLED SECTION ALTERNATIVE FOR THE TRUSS MEMBERS. IF BUILT-UP MEMBERS ARE SELECTED, ADJUSTMENT TO THESE DETAILS WILL BE REQUIRED.

LIST OF ABBREVIATIONS:

TC DENOTES TOP CHORD  
BC DENOTES BOTTOM CHORD  
D DENOTES DIAGONAL  
V DENOTES VERTICAL  
U DENOTES UPPER  
L DENOTES LOWER  
FB DENOTES FLOOR BEAM  
S DENOTES STRINGER  
TB DENOTES TOP BRACING  
TT DENOTES TOP TIE  
PB DENOTES PORTAL BRACING  
SB DENOTES SWAY BRACING  
BB DENOTES BOTTOM BRACING  
LB DENOTES LATERAL BRACING  
PG DENOTES PIVOT GIRDER  
LG DENOTES LOADING GIRDER  
PD DENOTES PIVOT DIAPHRAGM  
LLR DENOTES LIVE LOAD ROLLER  
SBW DENOTES STRINGER/BALANCE WHEEL BEAM  
TYP. DENOTES TYPICAL



LOCAL TRUSS COORDINATE SYSTEM DEFINITION  
(RESPECTIVE FOR EACH TRUSS)

NOTES:

ALL COORDINATES ARE IN LOCAL TRUSS COORDINATE SYSTEM.

TRUSS GEOMETRY IS ESTABLISHED SUCH THAT TRUSS STEEL IS FABRICATED AND ERECTED IN THE HORIZONTAL POSITION, A HORIZONTAL BETWEEN L0 AND L0' REFERENCE POINTS SUCH THAT THE CORRESPONDING REFERENCE POINTS FOR EACH TRUSS ARE AT THE SAME ELEVATION, AFTER ASSEMBLED AND MOVED INTO THE FINAL PLAN POSITION. FOR THE FIXED BRIDGE THE TRUSS IS ROTATED AND SET DOWN AT THE GLOBAL STATIONING ELEVATION SUCH THAT THE PLANE BETWEEN L0 AND L0' REFERENCE POINTS HAS A CONSTANT NEGATIVE SLOPE FROM L0 TO L0'.

| SWING BRIDGE TRUSS PRIMARY CONTROL REFERENCE POINTS* |       |                   |       |       |                   |           |
|--|-------|-------------------|-------|-------|-------------------|-----------|
| REFERENCE POINT                                      | TRUSS | LOCAL COORDINATES |       |       | GLOBAL STATIONING |           |
|  |       | X (M)             | Y (M) | Z (M) | STATION           | ELEVATION |
| L0 (WEST)  | SOUTH | 0.000             | 0.000 | 0.000 | 0+055.967         | 215.287   |
| L0' (EAST)   | SOUTH | 59.742            | 0.000 | 0.000 | 0+115.709         | 215.287   |
| L0 (WEST)  | NORTH | 0.000             | 0.000 | 0.000 | 0+055.967         | 215.287   |
| L0' (EAST)   | NORTH | 59.742            | 0.000 | 0.000 | 0+115.709         | 215.287   |

\*REFERENCE POINTS GIVEN AT THE CENTERLINE OF THE STRUCTURAL MEMBER

| FIXED BRIDGE TRUSS PRIMARY CONTROL REFERENCE POINT* |       |                   |       |       |                   |           |
|---|-------|-------------------|-------|-------|-------------------|-----------|
| REFERENCE POINT                                     | TRUSS | LOCAL COORDINATES |       |       | GLOBAL STATIONING |           |
|   |       | X (M)             | Y (M) | Z (M) | STATION           | ELEVATION |
| L0 (WEST)   | SOUTH | 0.000             | 0.000 | 0.000 | 116.734           | 215.455   |
| L0' (EAST)  | SOUTH | 31.829            | 0.000 | 0.000 | 148.563           | 215.057   |
| L0 (WEST)   | NORTH | 0.000             | 0.000 | 0.000 | 116.734           | 215.455   |
| L0' (EAST)  | NORTH | 31.829            | 0.000 | 0.000 | 148.563           | 215.057   |

\*REFERENCE POINTS GIVEN AT THE CENTERLINE OF THE STRUCTURAL MEMBER



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project title  
titre du projet

Ontario

HAMLET BRIDGE  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

STRUCTURAL STEEL NOTES  
AND TRUSS GEOMETRY

drawn by  
dessiné par

RADU STANCIU

designed by  
conç par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.

B-24



04 11  
J:\TOR\776122 Hamlet\B7\Drawings\B-25 SWING BRIDGE - FIXED BRIDGE-BUILD-UP AND ROLLED SECTIONS.dwg  
Jul 20, 2018 - 11:53am  
REVISED BY: AKL

| SWING BRIDGE SECTIONS                      |  |                  |
|--|--|------------------|
| SECTION NAME                               | ROLLED SECTION (SHOWN IN THIS PACKAGE) | BUILT-UP SECTION |
| TOP CHORD (TC)                             |  |                  |
| VERTICAL (V1-V4, V1'-V4')                  | W 200X71                               |                  |
| DIAGONAL (D0 & D0')                        |  |                  |
| DIAGONAL (D1-D2, D1'-D2')                  |  |                  |
| BOTTOM CHORD (BC)                          |  |                  |
| FLOOR BEAM (FB0-FB4, FB0'-FB4')            | W 460X177                              |                  |
| STRINGER (S1-S7)                           | W 310X118                              |                  |
| LOADING GIRDER (LG)                        |  |                  |
| PIVOT GIRDER (PG)                          |  |                  |
| PIVOT DIAPHRAGM (PD)                       |  |                  |
| TOP TIES (TT)                              |  |                  |
| STRINGER @ PIVOT (S2', S3', S4', S5', S6') |  |                  |

| SWING BRIDGE SECTIONS (CONTINUED) |  |                  |
|-----------------------------------|--|------------------|
| SECTION NAME                      | ROLLED SECTION (SHOWN IN THIS PACKAGE) | BUILT-UP SECTION |
| STRINGER BALANCE WHEEL (SBW)      |  |                  |
| PORTAL FRAME BRACING (PB)         |  |                  |
| TOP BRACING (TB)                  | L102X102X13                            |                  |
| BOTTOM BRACING (BB)               | WT 155X37                              |                  |
| CENTRAL LATERAL BRACING (LB)      | L89X89X13                              |                  |
| BALANCE WHEEL BEAM (B)            | W250X89                                |                  |
| SWAY FRAME BRACING (SB)           |  |                  |
| DIAGONAL (D3, D3')                |  |                  |

| FIXED BRIDGE SECTIONS      |  |                  |
|----------------------------|--|------------------|
| SECTION NAME               | ROLLED SECTION (SHOWN IN THIS PACKAGE) | BUILT-UP SECTION |
| TOP CHORD (TC)             |  |                  |
| VERTICAL (V1-V3 & V1'-V3') | W 200X71                               |                  |
| DIAGONAL (D0 & D0')        |  |                  |
| DIAGONAL (D1-D3 & D1'-D3') | W 200X71                               |                  |
| BOTTOM CHORD (BC)          |  |                  |
| FLOOR BEAM (FB0-FB7)       | W 310X118                              |                  |
| STRINGER (S1-S7)           | W 250X149                              |                  |
| TOP TIES (TT)              | W 250X45                               |                  |
| TOP BRACING (TB)           | WT 155X30                              |                  |
| BOTTOM BRACING (BB)        | WT 155X30                              |                  |

PARSONS

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH STRUCTURAL STEEL NOTES DRAWING B-24 AND SWING BRIDGE STRUCTURAL STEEL I TO XV DRAWINGS, AND FIXED BRIDGE STRUCTURAL STEEL I TO VI DRAWINGS.



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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

SWING AND FIXED BRIDGES  
BUILT-UP AND ROLLED  
SECTIONS

drawn by  
dessiné par

RADU STANCIU

designed by  
conçue par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.

B-25






**PARSONS**



2. ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

SWING BRIDGE  
STRUCTURAL STEEL I  
STEEL FRAMING

drawn by  
dessine par **RADU STANCIU**

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

|                |            |
|----------------|------------|
| project date   | 2018-07-20 |
| date du projet |            |

|                              |              |
|------------------------------|--------------|
| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

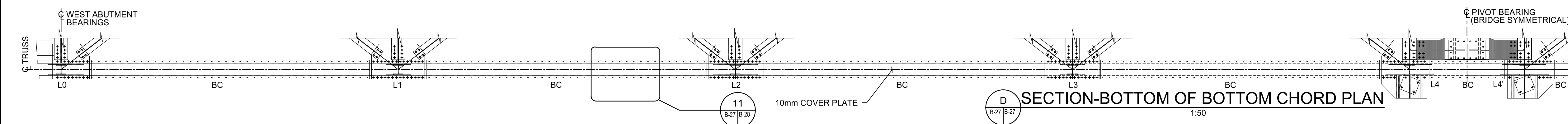
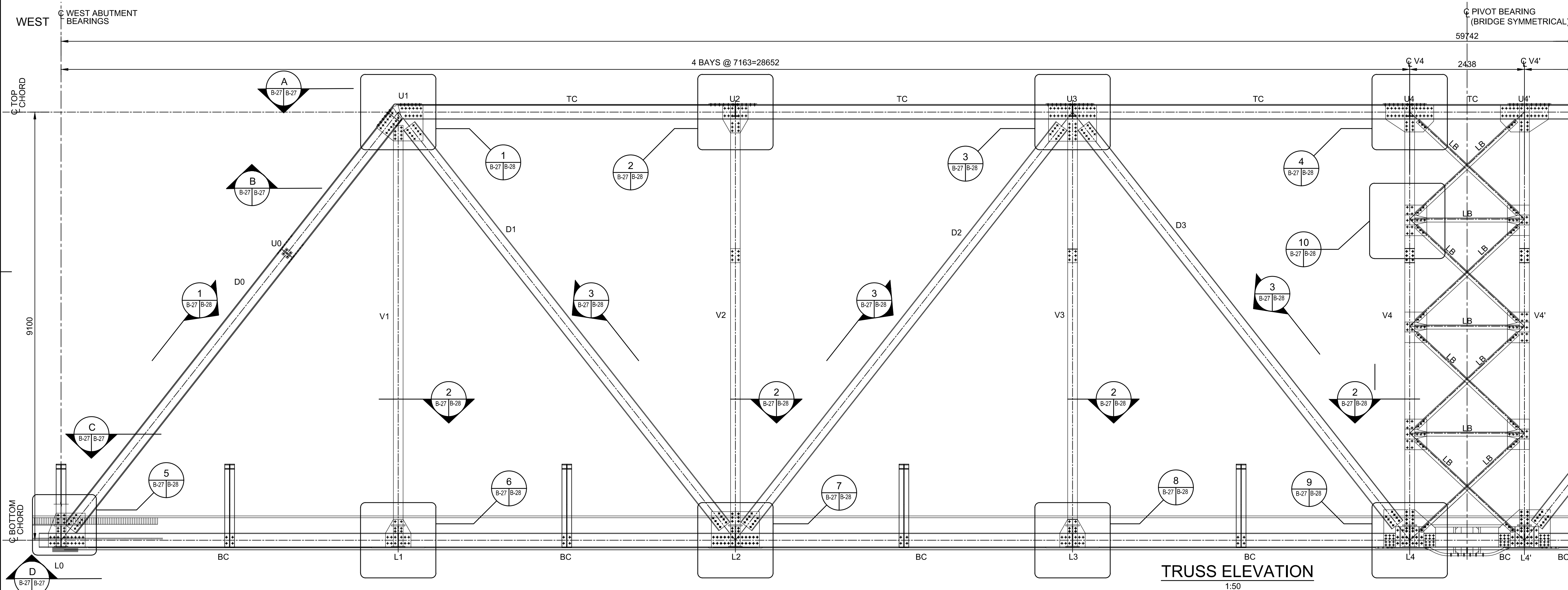
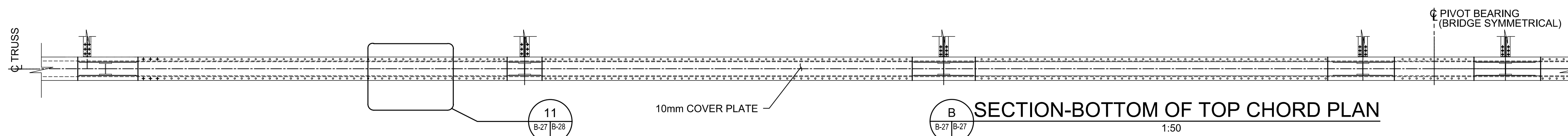
drawing no.  
dessine no.



1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-26 AND DRAWINGS B-28 TO B-40.
2. ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.



**PARSONS**



|          |                   |          |
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| 04       |                   |          |
| 03       |                   |          |
| 02       |                   |          |
| 01       | ISSUED FOR TENDER | 2018-07- |
| revision |                   | date     |

Do not scale drawings.  
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A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

|                 |  |
|-----------------|--|
| project title   |  |
| titre du projet |  |

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|          |        |
|----------|--------|
| drawing  | title  |
| titre du | dessin |

## SWING BRIDGE STRUCTURAL STEEL II

drawn by  
dessine par **RADU STANCIU**

designed by  
conc par

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

|                                |            |
|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

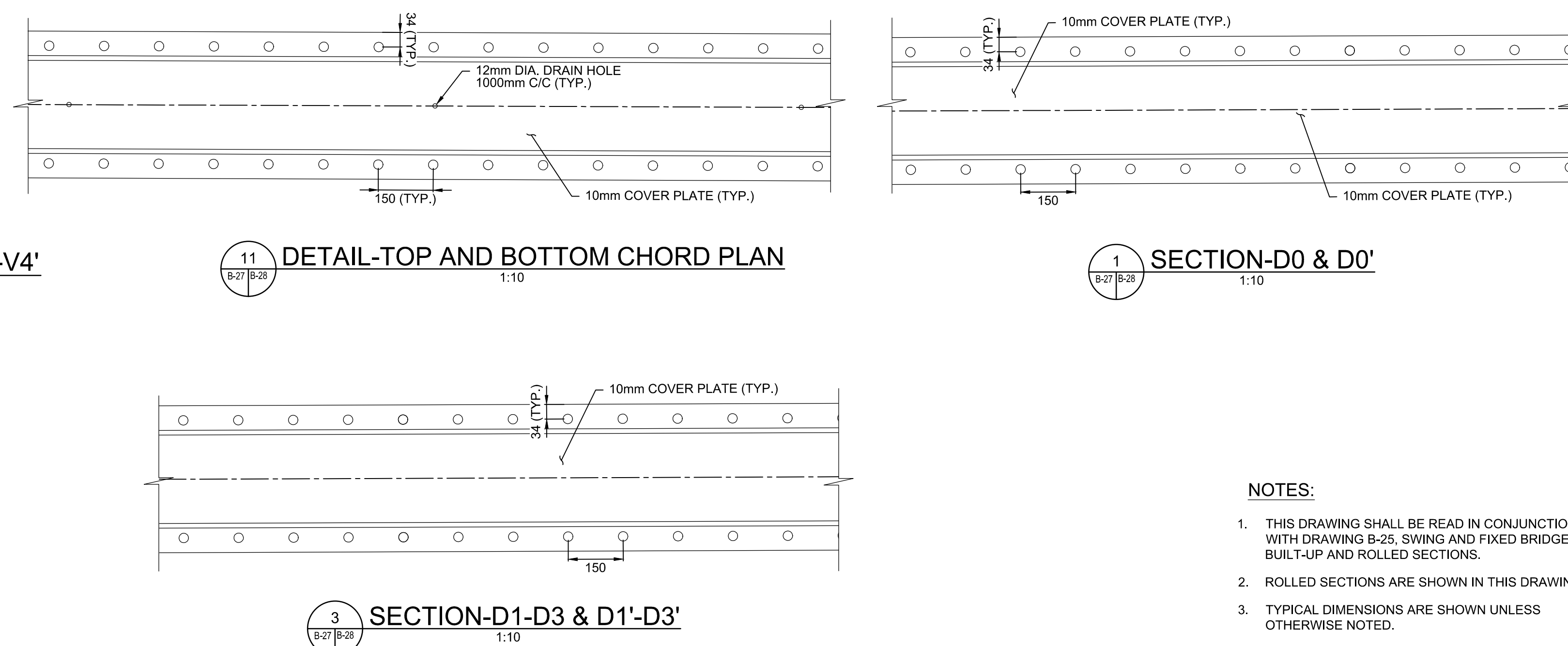
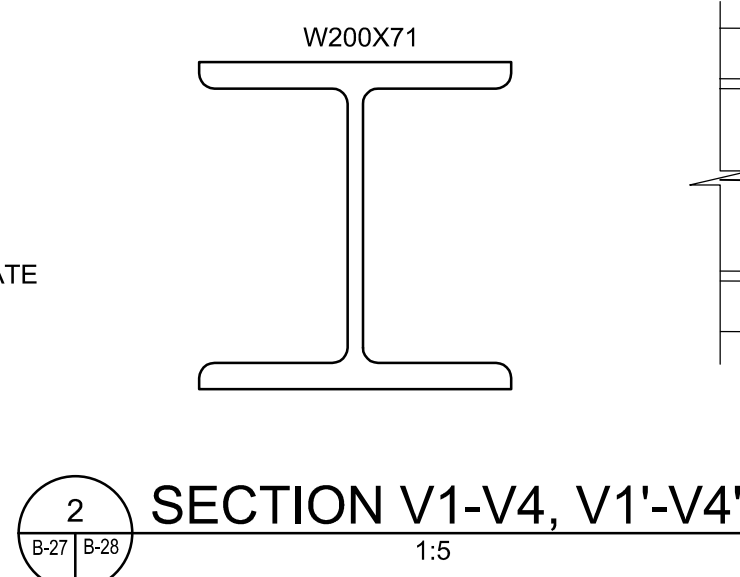
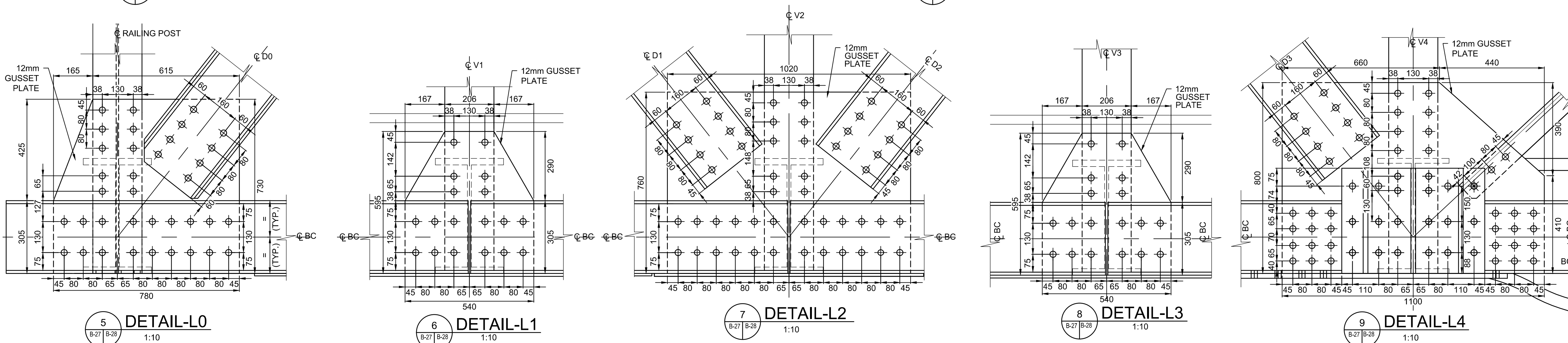
project no.  
no. du projet

R.073593.001

drawing no.  
dessine no.

B-27





- ## NOTES:
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING B-25. SWING AND FIXED BRIDGES BUILT-UP AND ROLLED SECTIONS.
  2. ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.
  3. TYPICAL DIMENSIONS ARE SHOWN UNLESS OTHERWISE NOTED.
  4. ROLLED SECTIONS CONNECTIONS ARE SHOWN. ADJUSTMENTS MAY BE REQUIRED IF BUILT-UP SECTIONS ARE SELECTED.
  5. WORKLINE=CENTROID OF THE STRUCTURAL MEMBER



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|                                  |         |
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| project title<br>titre du projet | Ontario |
|----------------------------------|---------|

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

## SWING BRIDGE STRUCTURAL STEEL III

drawn by  
dessine par **RADU STANCIU**

designed by  
conc par

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

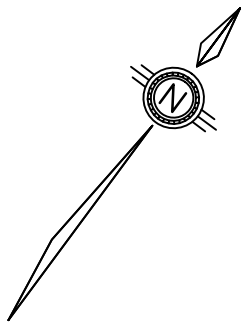
|                                |            |
|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

project no.  
no. du projet

R.073593.001

|                            |      |
|----------------------------|------|
| drawing no.<br>dessine no. | B-28 |
|----------------------------|------|





BALANCING NOTES:

- CONTRACTOR TO PREPARE AND SUBMIT BALANCE REPORTS IN ACCORDANCE WITH THE SPECIFICATIONS.
- LOCATIONS AND QUANTITIES OF BALANCE MATERIAL SHOWN IN THESE PLANS ARE APPROXIMATE. CONTRACTOR TO DETERMINE AND DOCUMENT THE EXACT QUANTITY AND LOCATION IN ACCORDANCE WITH THE SPECIFICATIONS.
- SPARE BLOCKS ARE IN ADDITION TO THOSE REQUIRED TO BALANCE THE STRUCTURE.
- CONTRACTOR IS RESPONSIBLE FOR BALANCING THE STRUCTURE AS NOTED IN THE SPECIFICATIONS AND AS SHOWN.

MATERIAL: STEEL TO CAN/CSA G40.20/G40.21, ASTM A588 OR APPROVED EQUIVALENT  
FINISH: HOT DIP GALVANIZED  
WEIGHT: 44kg ± 1kg/ STEEL BALANCE PLATE  
QUANTITY: 6 PERMANENT BALANCE PLATES (STEEL PLATE 400x350x40) ON EACH SIDE OF FB0 AND FB1 WEBS AS SHOWN IN SECTION 18 AND FLOOR SYSTEM PLAN, FOR A TOTAL OF 24 PERMANENT BALANCE PLATES. .

132 BALANCE PLATES (STEEL PLATE 400x350x40) FOR SWING SPAN BALANCING (INCLUDING 12 SPARE PLATES). BALANCE PLATES ARE TO BE FASTENED TO FB0, FB1, FB2, FB3, FB0', FB1', FB2' AND FB3' WEBS.

SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS RELATED TO SWING SPAN BALANCING



Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

**PARSONS**

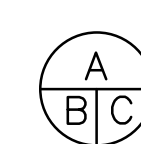
NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-28 AND B-30 TO B-40.
- ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.
- ALL TRUSS CONNECTION DETAILS DEVELOPED ON THIS DRAWING SET ARE BASED ON THE ROLLED SECTION ALTERNATIVE FOR THE TRUSS MEMBERS. IF FB BUILT-UP MEMBERS ARE SELECTED, ADJUSTMENT TO THESE DETAILS WILL BE REQUIRED.



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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- A Detail No.  
No. du détail  
B drawing no. — where detail required  
dessin no. — où détail exigé  
C drawing no. — where detailed  
dessin no. — où détaillé

project title  
titre du projet  
Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

SWING BRIDGE  
STRUCTURAL STEEL IV  
STEEL FRAMING

drawn by  
dessiné par

RADU STANCIU

designed by  
conç par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

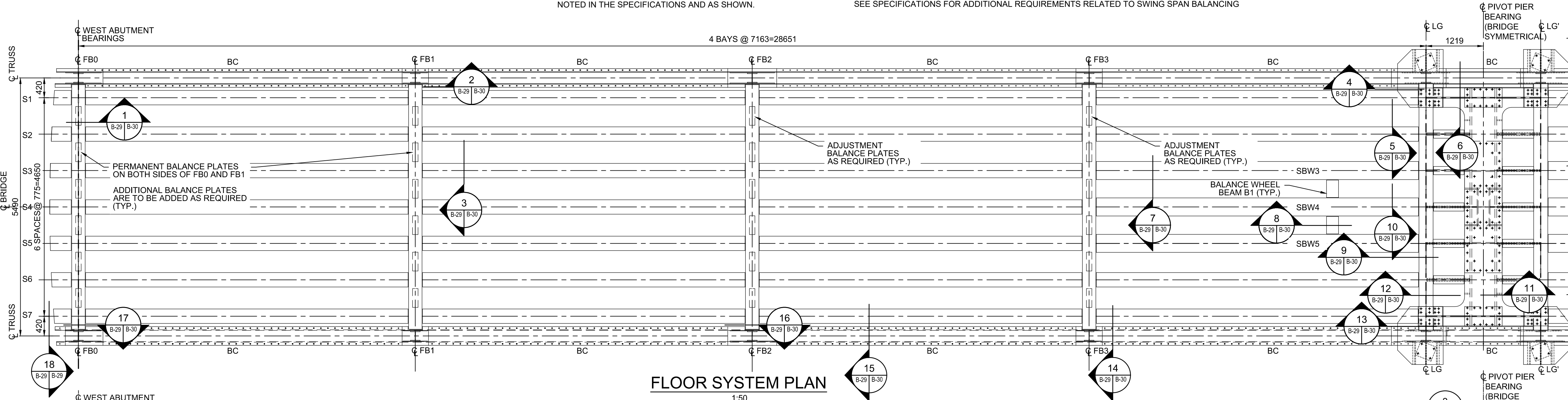
2018-07-20

project no.  
no. du projet

R.073593.001

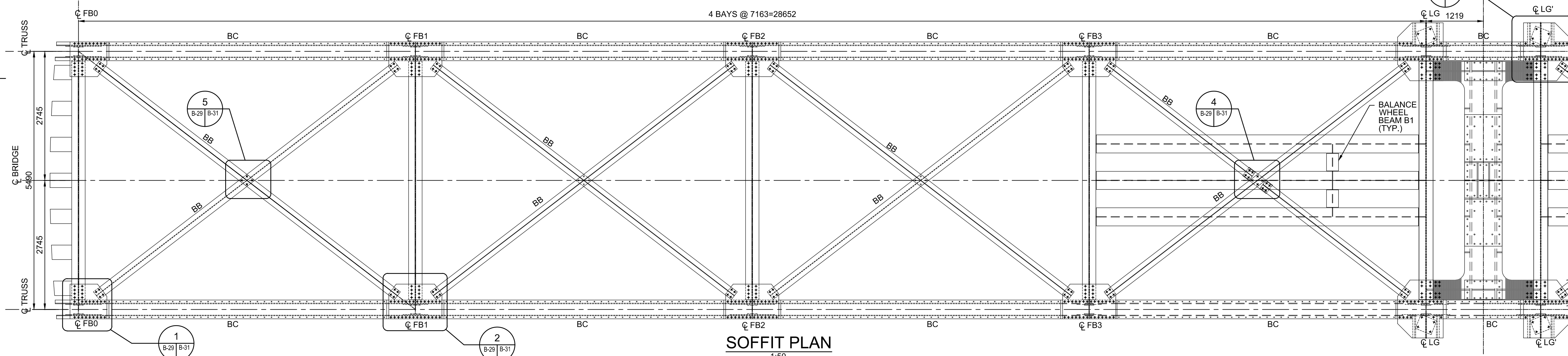
drawing no.  
dessiné no.

B-29



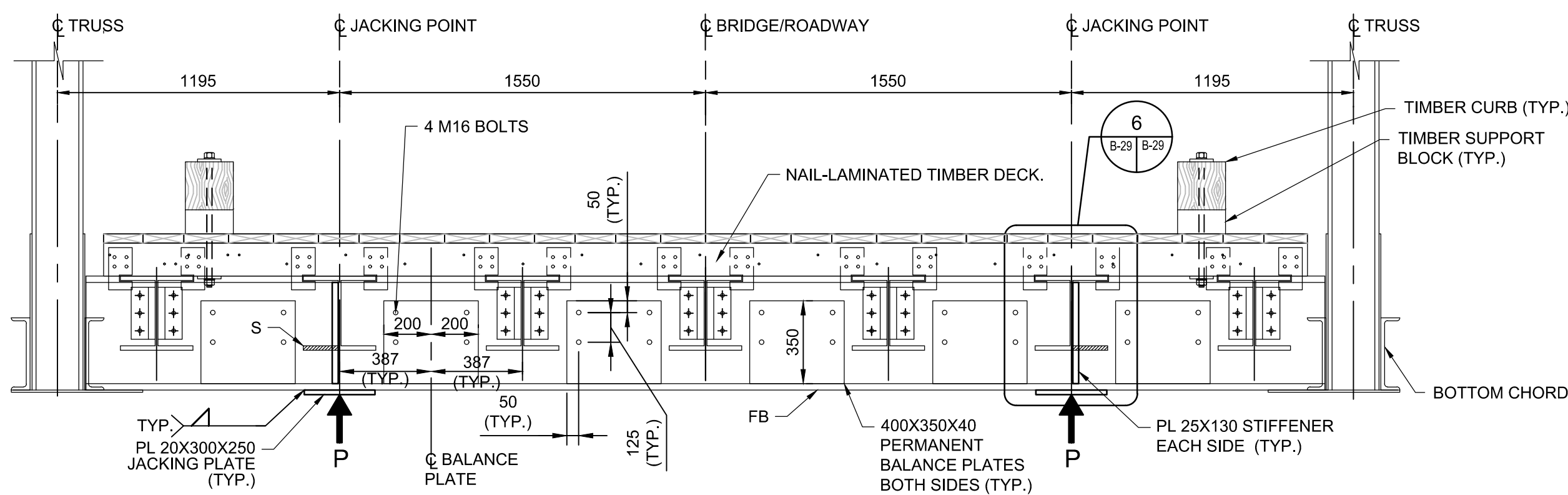
FLOOR SYSTEM PLAN

1:50



SOFFIT PLAN

1:50



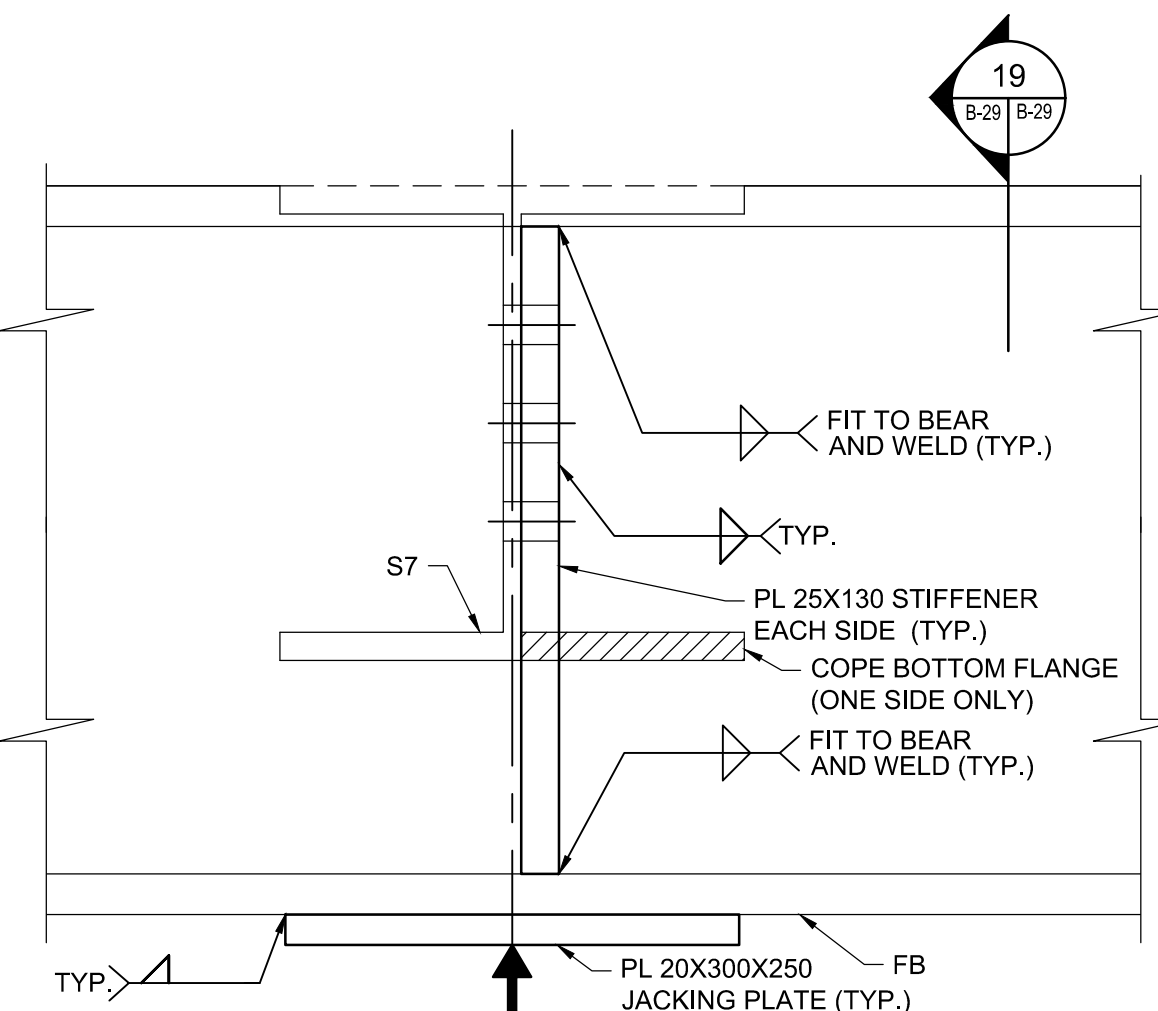
SECTION 18

1:20

| FUTURE JACKING LOAD* (KN) |     |
|---------------------------|-----|
| LOCATION                  | P   |
| WEST ABUTMENT @ FB0       | 225 |
| EAST PIER @ FB0'          | 225 |

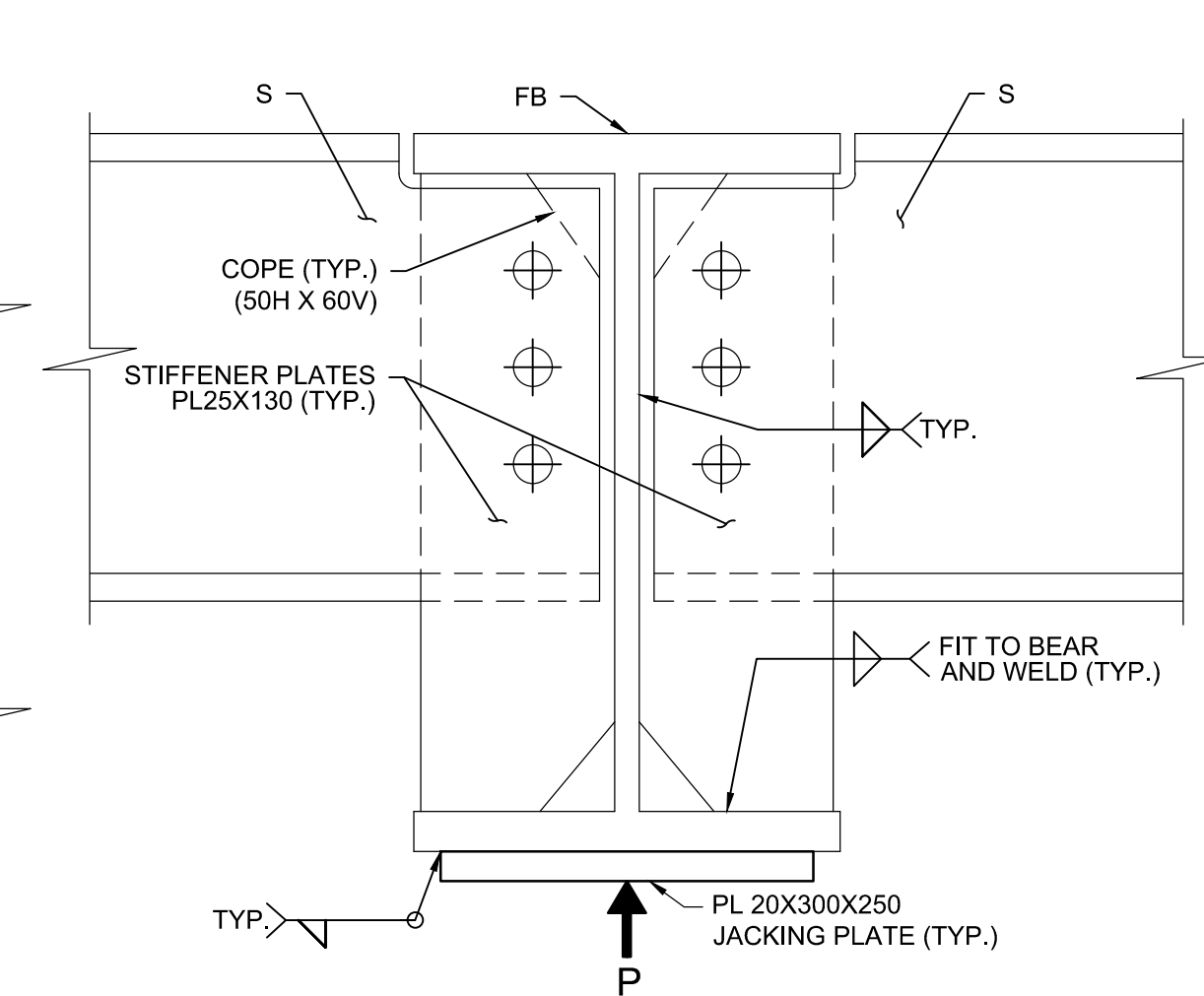
\*SLS PERMANENT LOAD ONLY

NOTE:  
JACKING TO OCCUR AT ALL LOCATIONS  
SIMULTANEOUSLY WHEN STRUCTURE IS  
IN CLOSE POSITION.



DETAIL 6

1:5



SECTION 19

1:5



PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

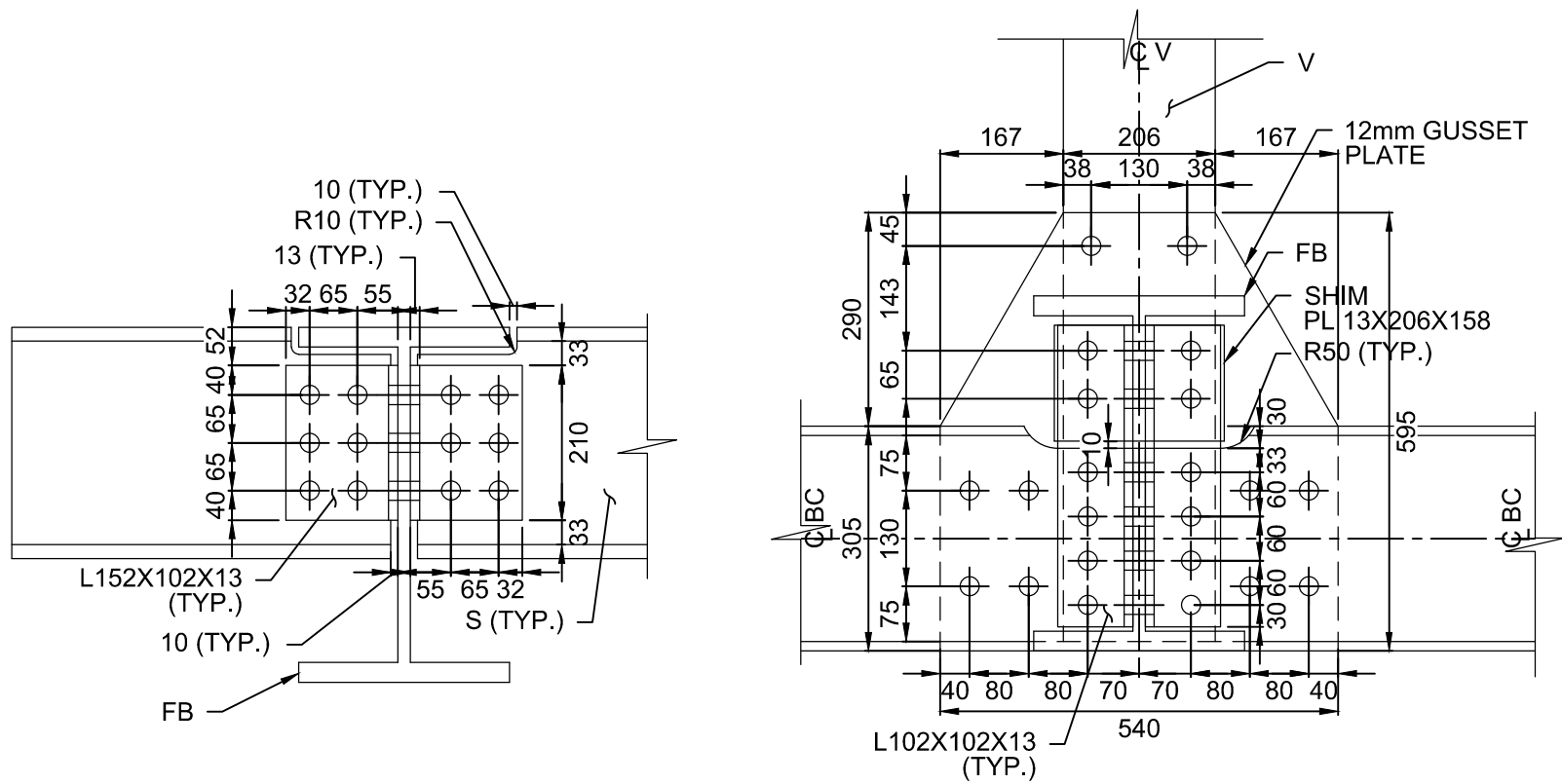
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
SWING BRIDGE  
STRUCTURAL STEEL V  
FLOOR SYSTEM CONNECTIONS

|   |                 |
|---|-----------------|
| drawn by<br>dessiné par                         | RADU STANCIU    |
| designed by<br>conc par                         | ABOUBAKER FARAH |
| approved by<br>approuvé par                     | KAREN LIU       |
| bid<br>offre                                    | JULIO LEON      |
| project manager<br>administrateur<br>de projets |                 |
| project date<br>date du projet                  | 2018-07-20      |
| project no.<br>no. du projet                    | R.073593.001    |
| drawing no.<br>dessiné no.                      | B-30            |

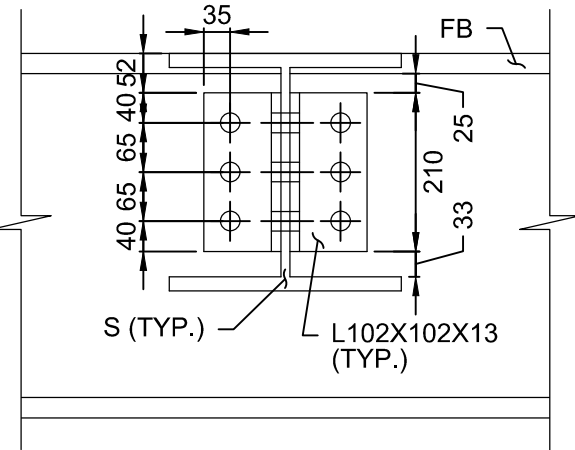
NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-29 AND DRAWINGS B-31 TO B-40.
- ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.
- TYPICAL DIMENSIONS ARE SHOWN UNLESS OTHERWISE NOTED.
- ROLLED SECTIONS CONNECTIONS ARE SHOWN. ADJUSTMENTS MAY BE REQUIRED IF BUILT-UP SECTIONS ARE SELECTED.

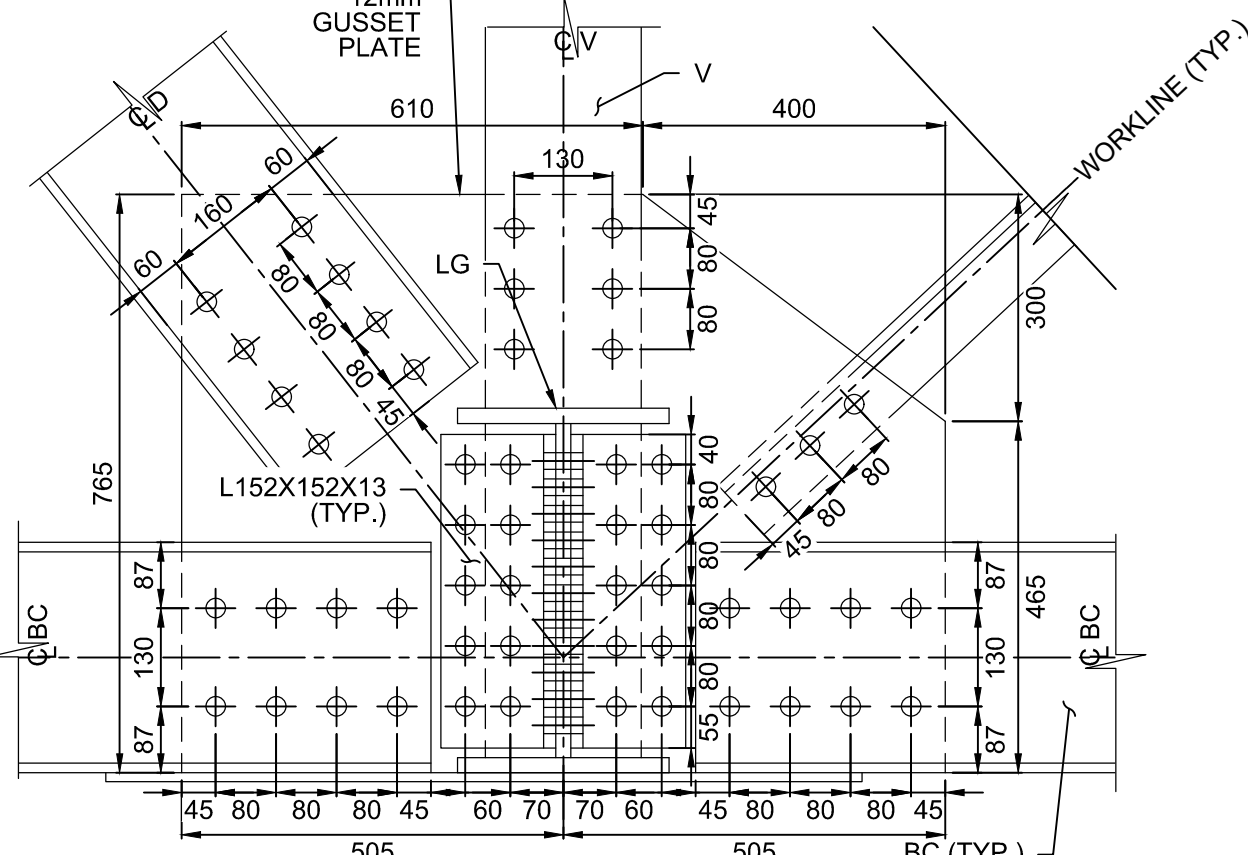


1 SECTION  
B-29 B-30  
1:10

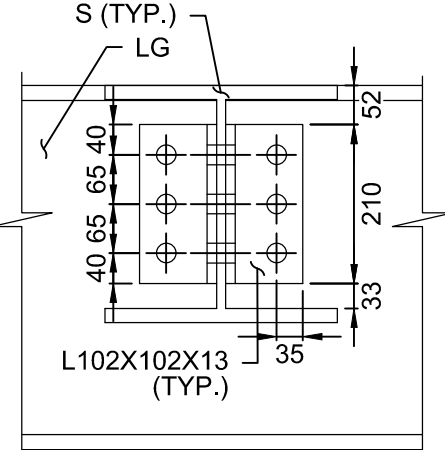
2 SECTION  
B-29 B-30  
1:10



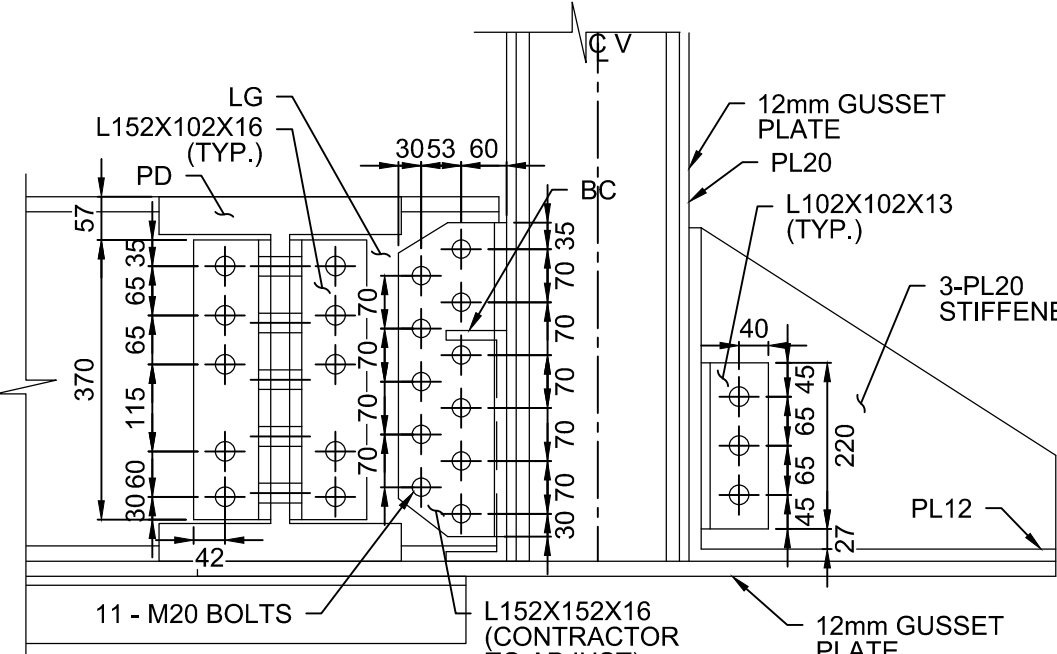
3 SECTION  
B-29 B-30  
1:10



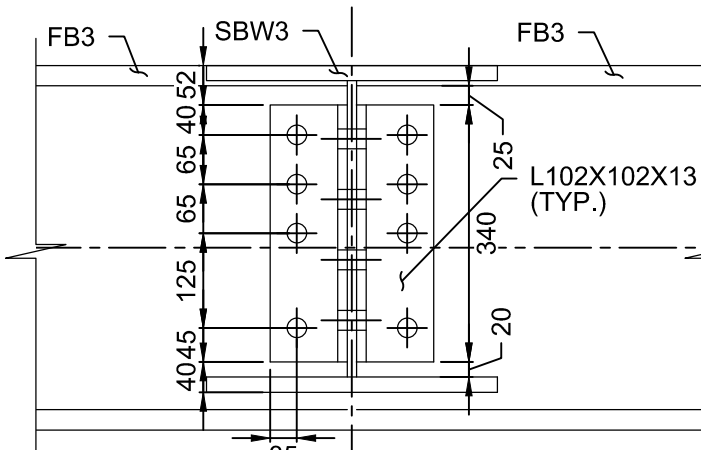
4 SECTION  
B-29 B-30  
1:10



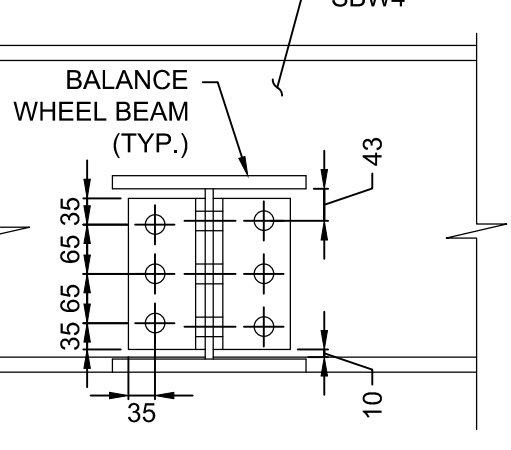
5 SECTION  
B-29 B-30  
1:10



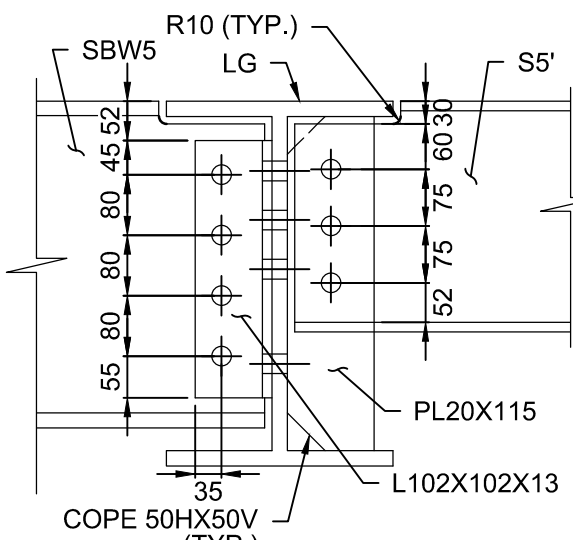
6 SECTION  
B-29 B-30  
1:10



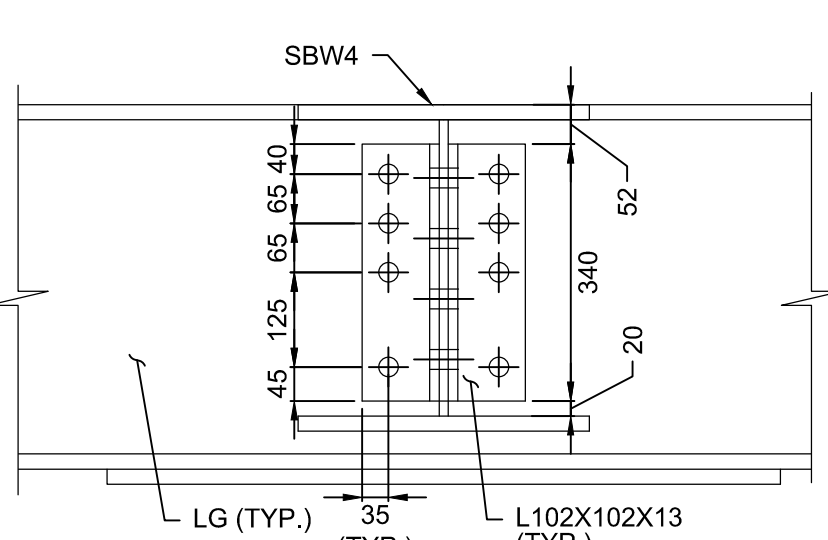
7 SECTION  
B-29 B-30  
1:10



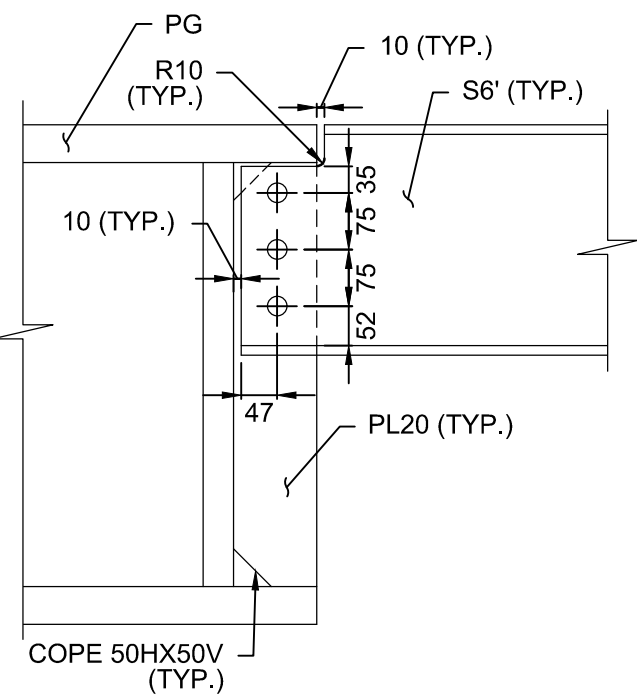
8 SECTION  
B-29 B-30  
1:10



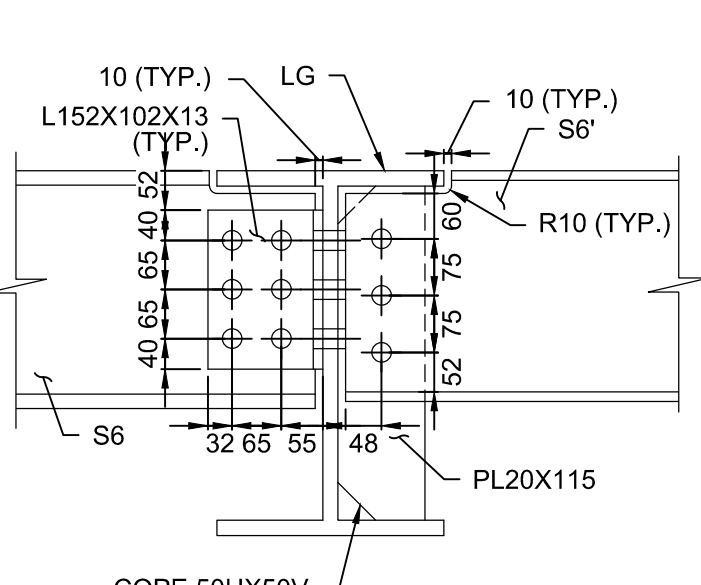
9 SECTION  
B-29 B-30  
1:10



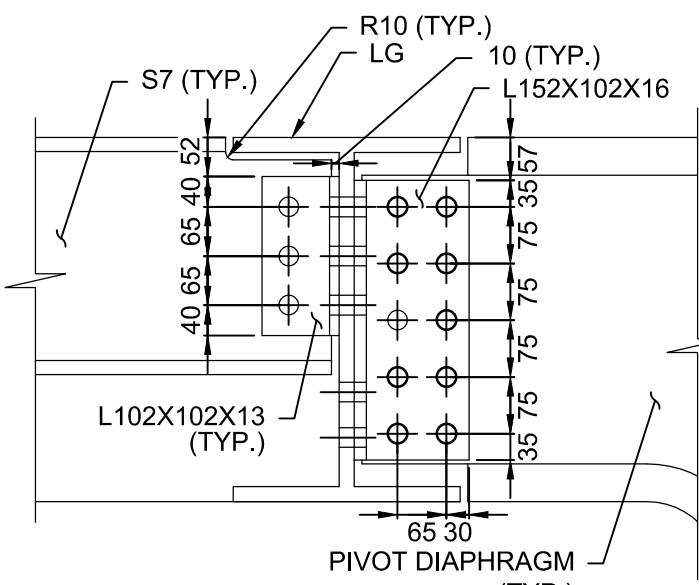
10 SECTION  
B-29 B-30  
1:10



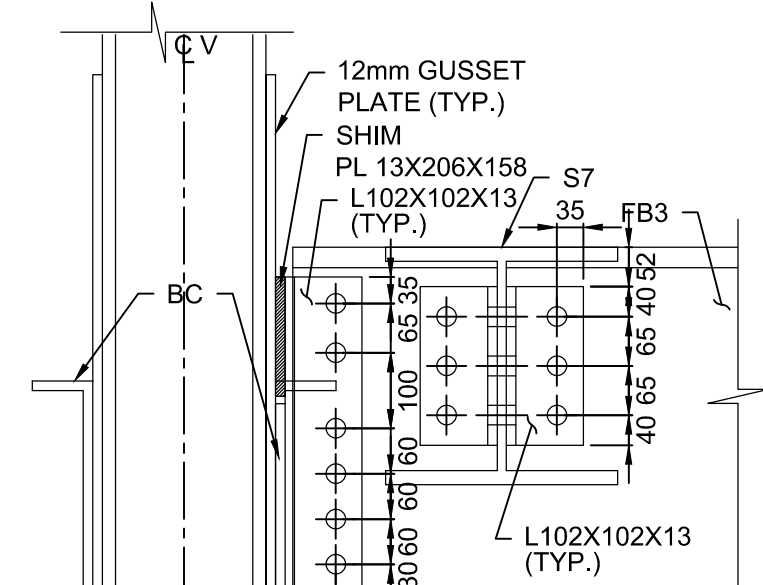
11 SECTION  
B-29 B-30  
1:10



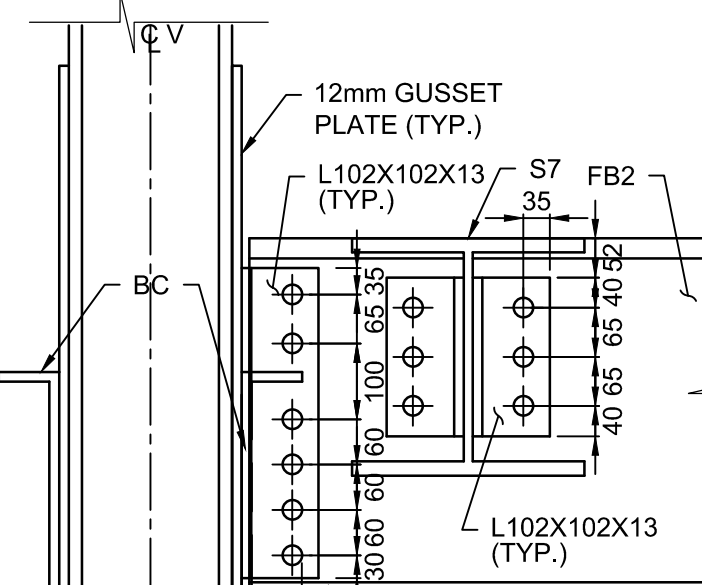
12 SECTION  
B-29 B-30  
1:10



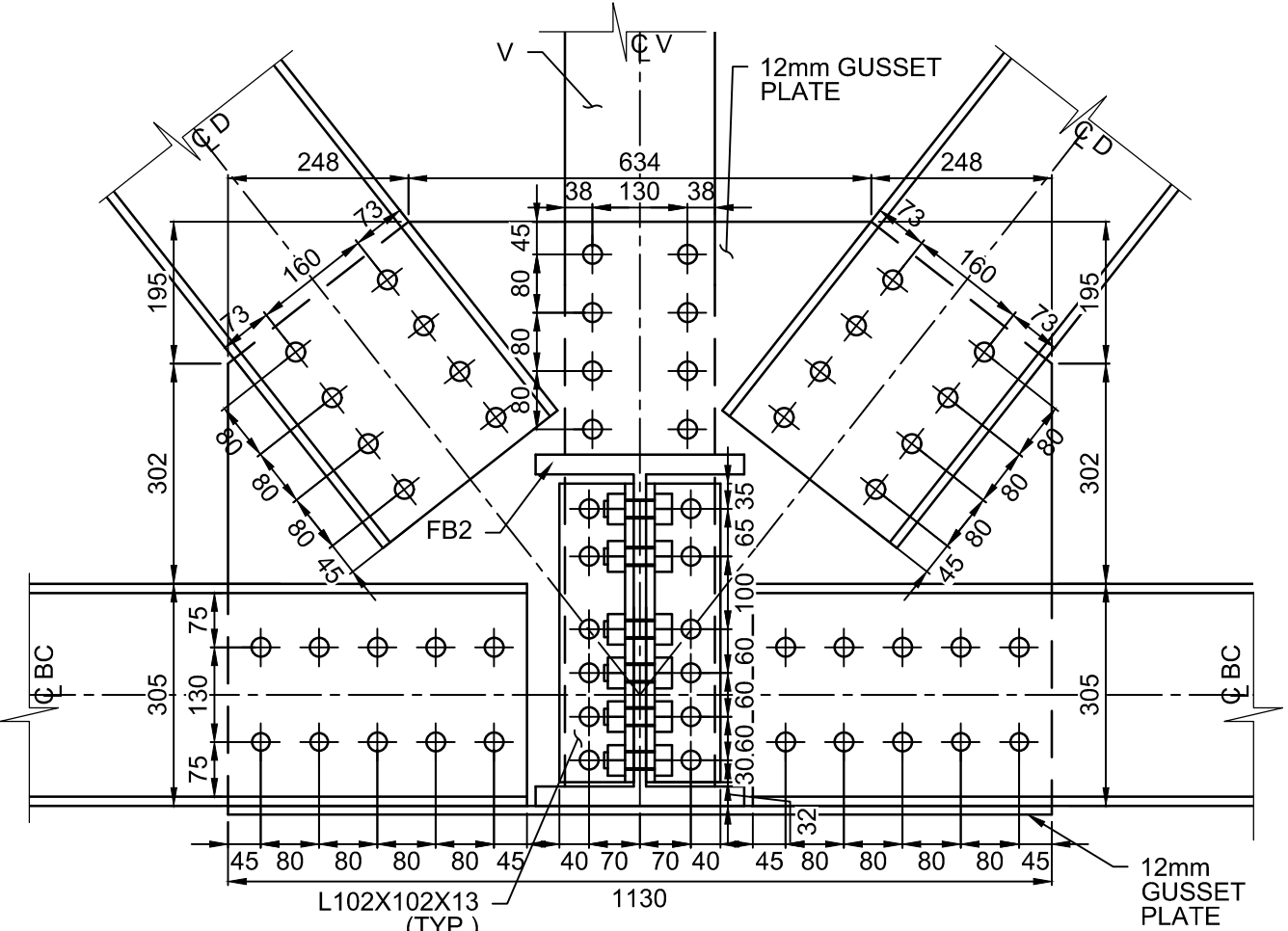
13 SECTION  
B-29 B-30  
1:10



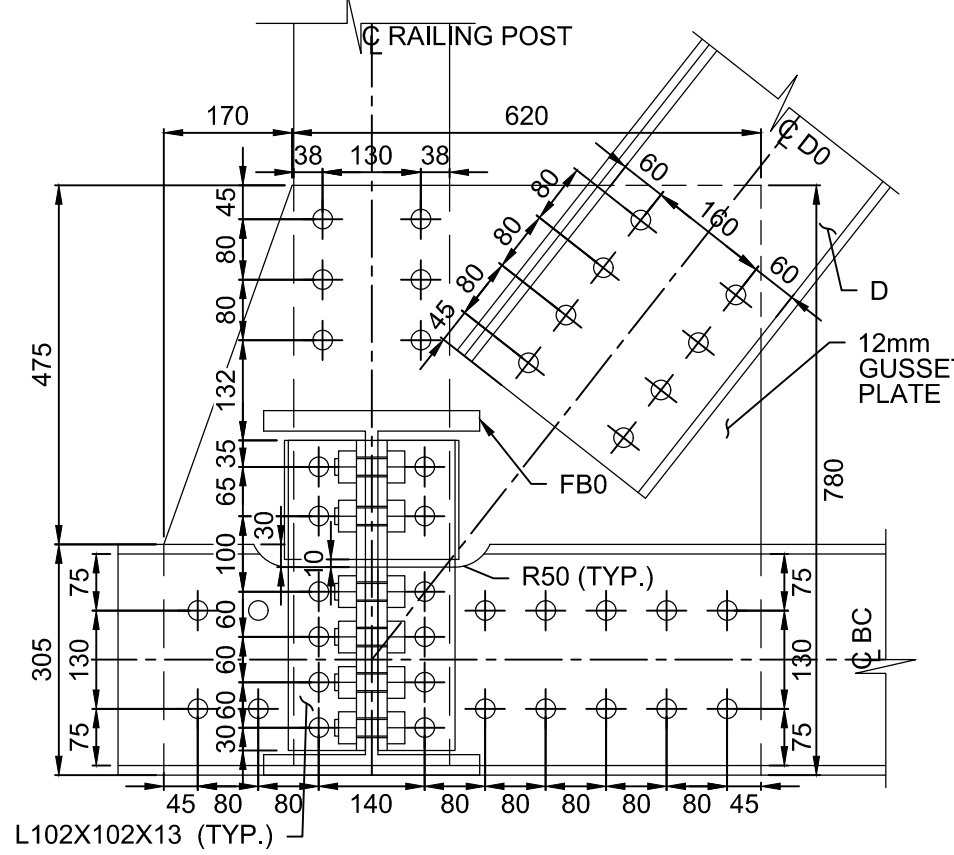
14 SECTION  
B-29 B-30  
1:10



15 SECTION  
B-29 B-30  
1:10

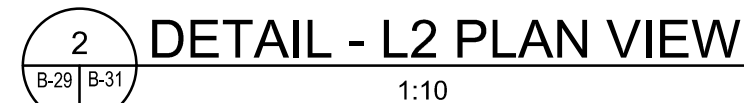
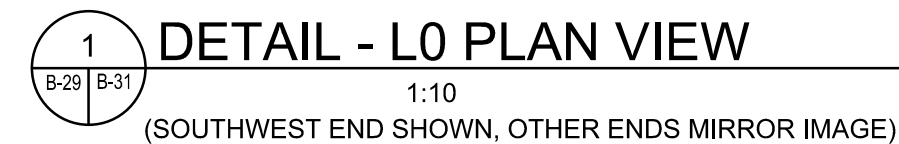
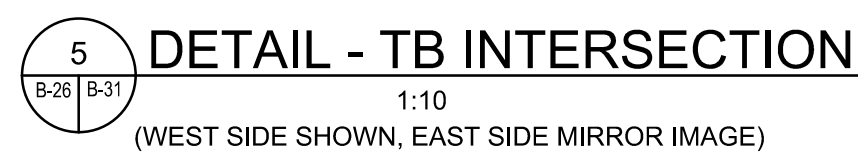
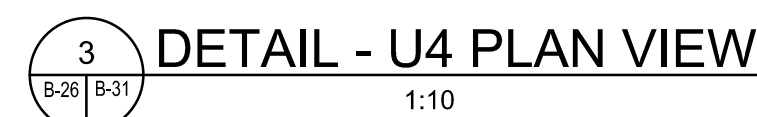
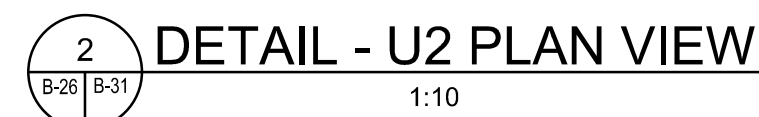


16 SECTION  
B-29 B-30  
1:10



17 SECTION  
B-29 B-30  
1:10






1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-30 AND DRAWINGS B-32 TO B-40.
2. ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.
3. TYPICAL DIMENSIONS ARE SHOWN UNLESS OTHERWISE NOTED.
4. ROLLED SECTIONS CONNECTIONS ARE SHOWN. ADJUSTMENTS MAY BE REQUIRED IF BUILT-UP SECTIONS ARE SELECTED.
5. WORKLINE-CENTROID OF THE STRUCTURAL MEMBER



Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
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Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

SWING BRIDGE  
STRUCTURAL STEEL VI

drawn by  
dessine par

RADU STANCIU

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par **KAREN LIU**

|              |            |
|--------------|------------|
| bid<br>offre | JULIO LEON |
|--------------|------------|

|                |            |
|----------------|------------|
| project date   | 2018-07-20 |
| date du projet |            |

|                              |              |
|------------------------------|--------------|
| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

drawing no.  
dessine no.

B-31



NOTES:  
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-31 AND DRAWINGS B-33 TO B-40.  
2. ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.

\* DIMENSION "J" MEASURED PERPENDICULAR TO CENTERLINE EXPANSION JOINT. REFER TO DRAWING B-53 FOR DETAILS.  
\*\* DIMENSION IS FOR RAISED AND OPEN POSITIONS.  
\*\*\* DIMENSION IS FOR RAISED POSITION AS SHOWN. FOR OPEN POSITION DIMENSION REFER TO MECHANICAL DRAWING M-16  
\*\*\*\* DIMENSION IS FOR THE SOUTHWEST BEARING.  
\*\*\*\*\* DIMENSION IS FOR NORTHWEST BEARING.

Public Works and Government Services Canada  
Travaux publics et Services gouvernementaux Canada

PARSONS



|          |                   |            |
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| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings. Verify all dimensions and conditions on site and immediately notify the Departmental Representative of all discrepancies.

|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
SWING BRIDGE  
STRUCTURAL STEEL VII

drawn by  
dessiné par  
RADU STANCIU

designed by  
conc par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

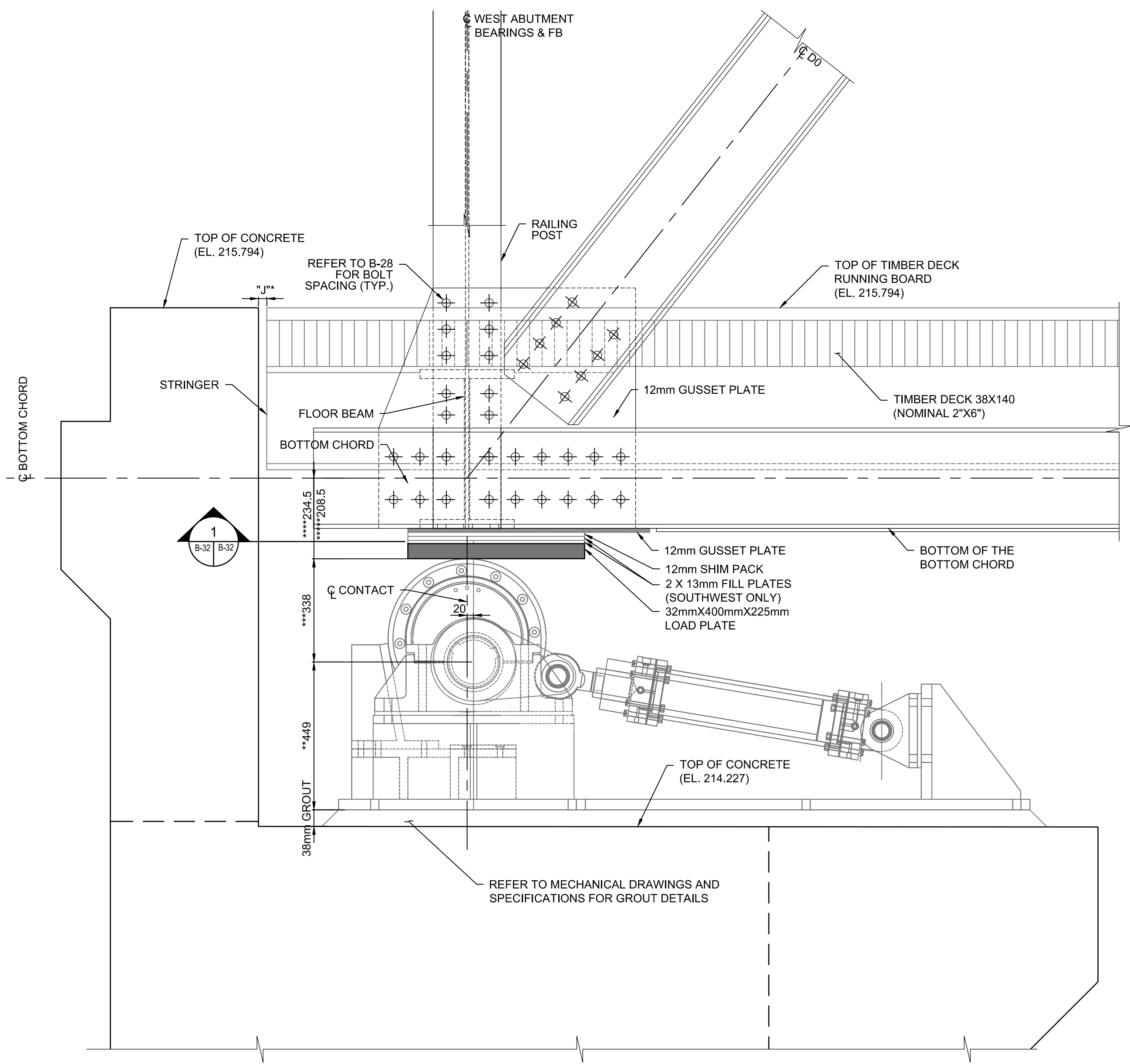
bid  
offre  
JULIO LEON

project manager  
administrateur de projets

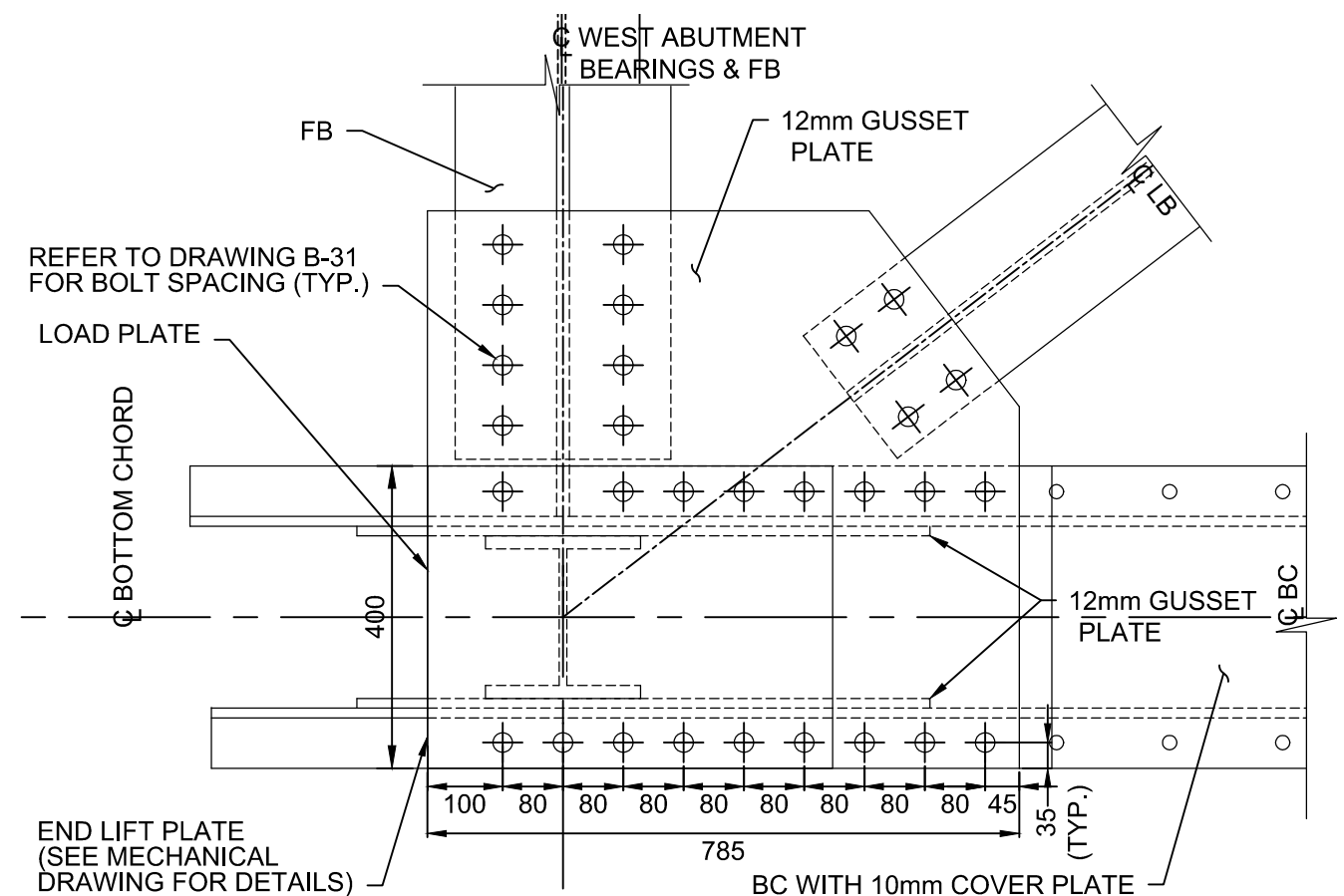
project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

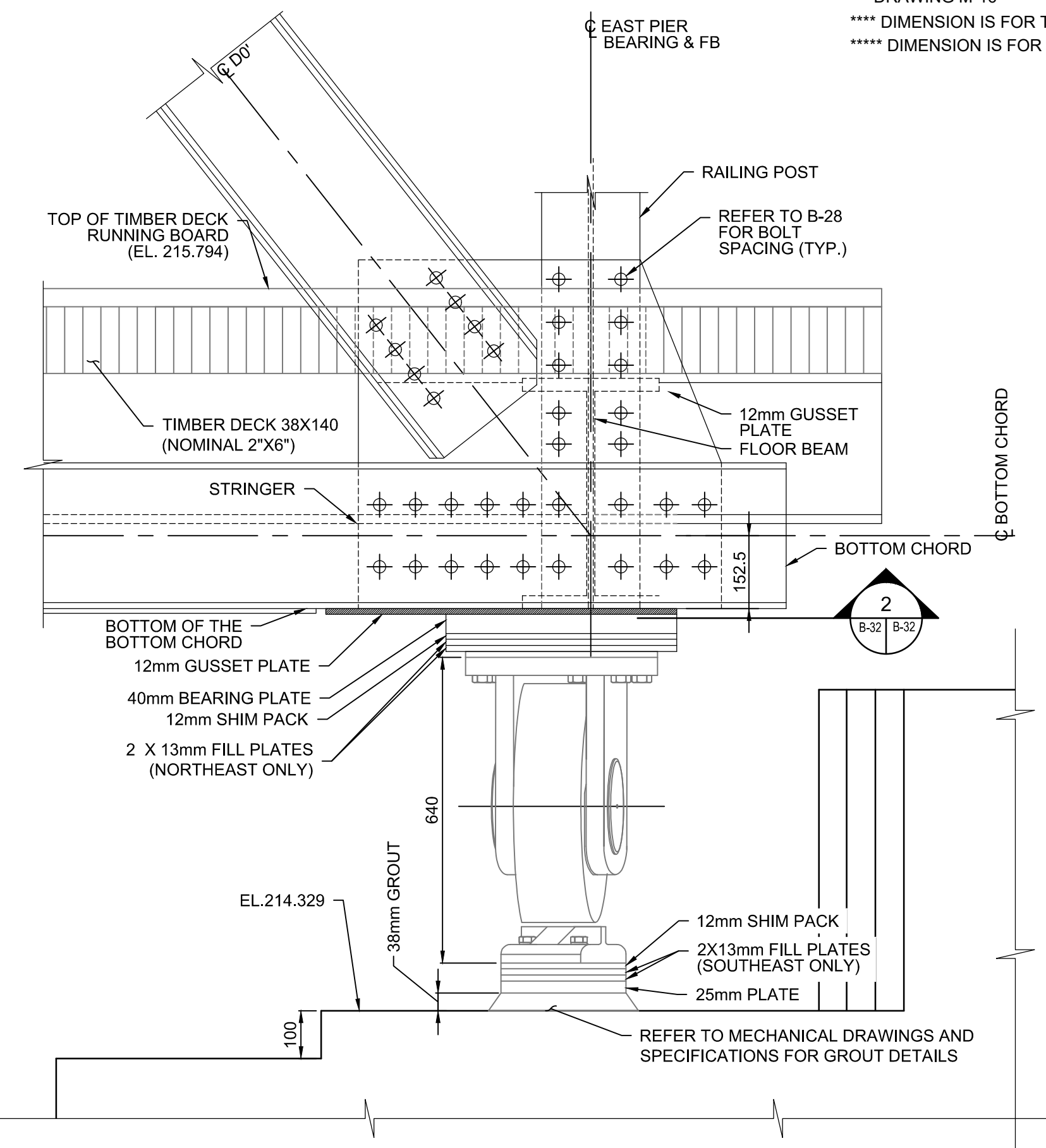
drawing no.  
dessiné no.  
B-32



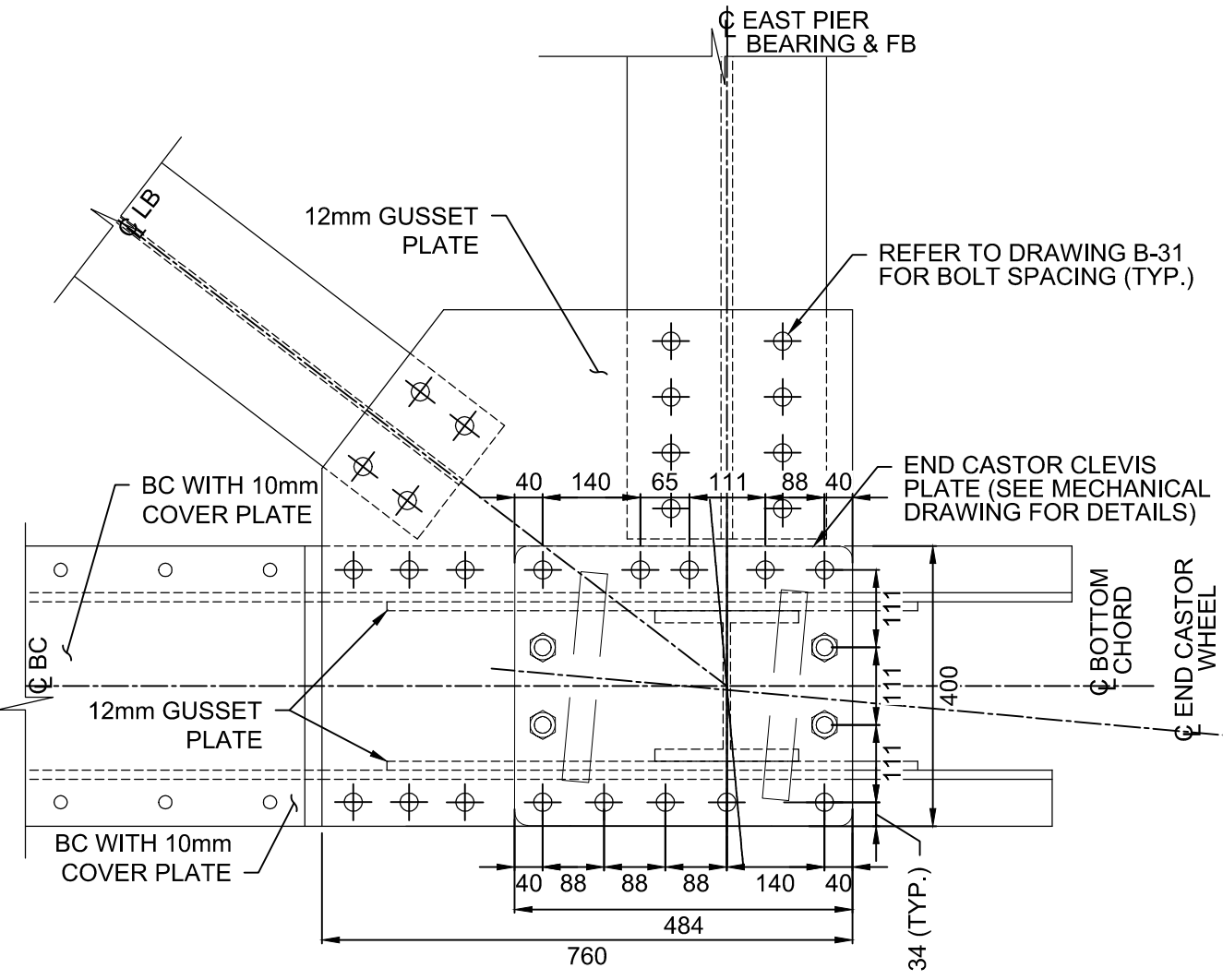
6  
B-26 B-32  
DETAIL-WEST ABUTMENT END LIFTS  
1:10



1  
B-32 B-32  
SECTION-WEST ABUTMENT END LIFTS-PLAN VIEW  
1:10

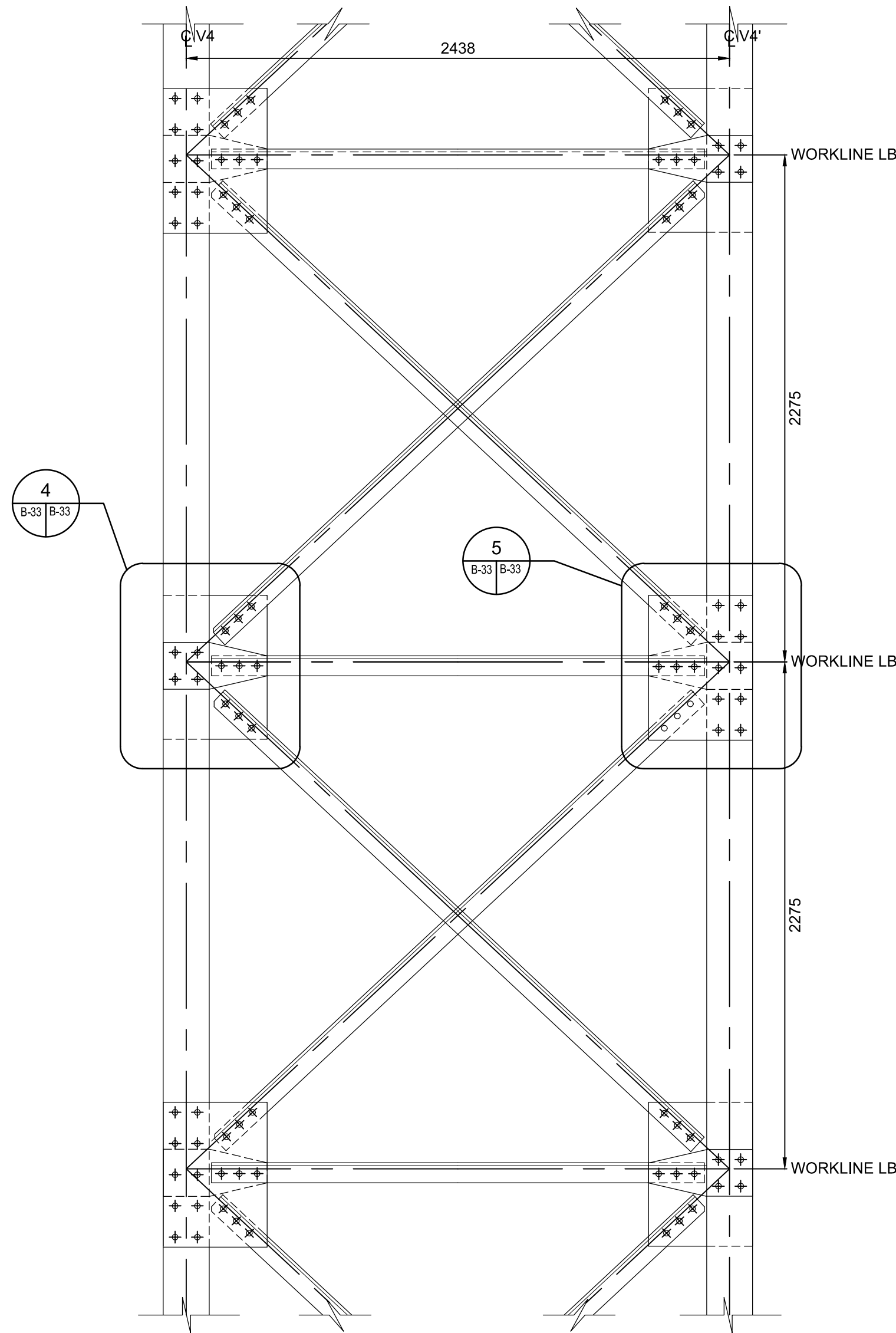


7  
B-28 B-32  
DETAIL-EAST PIER END CASTORS  
1:10

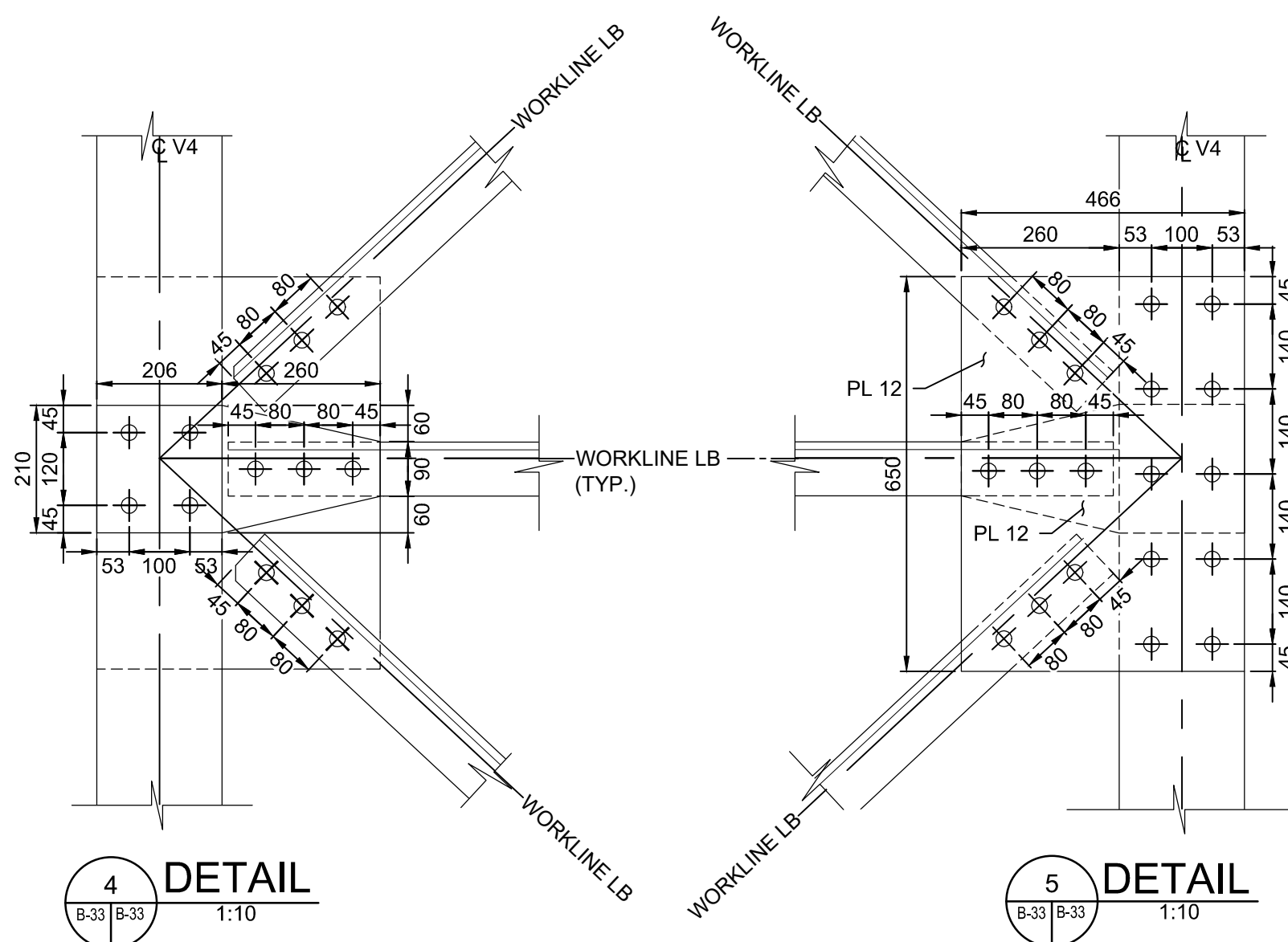


2  
B-32 B-32  
SECTION-EAST PIER END CASTORS-PLAN VIEW  
1:10  
SOUTHEAST SHOWN  
NORTHEAST OPPOSITE HAND



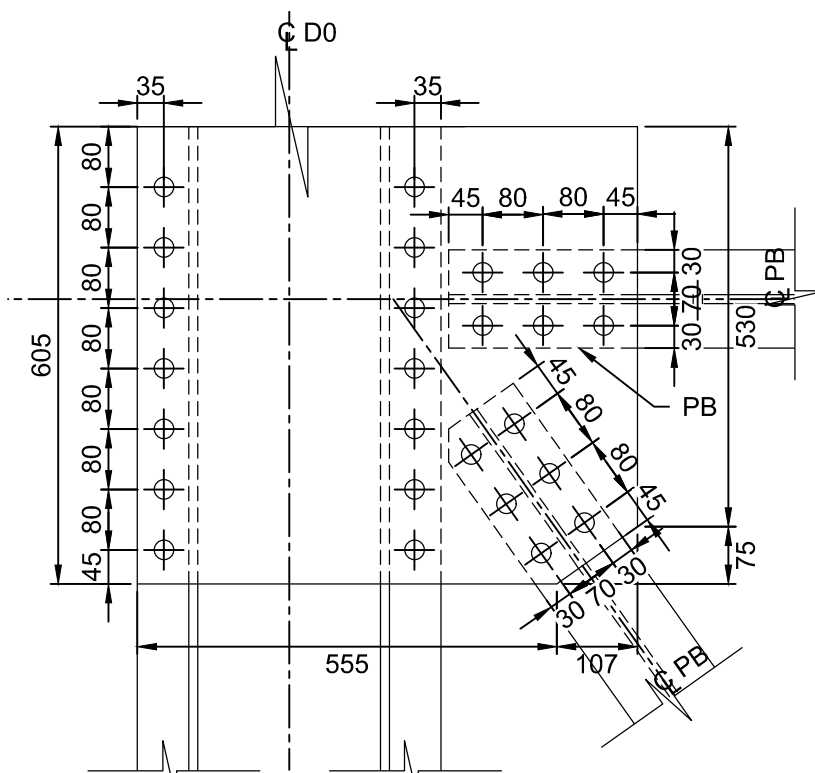


5 DETAIL ELEVATION  
1:20

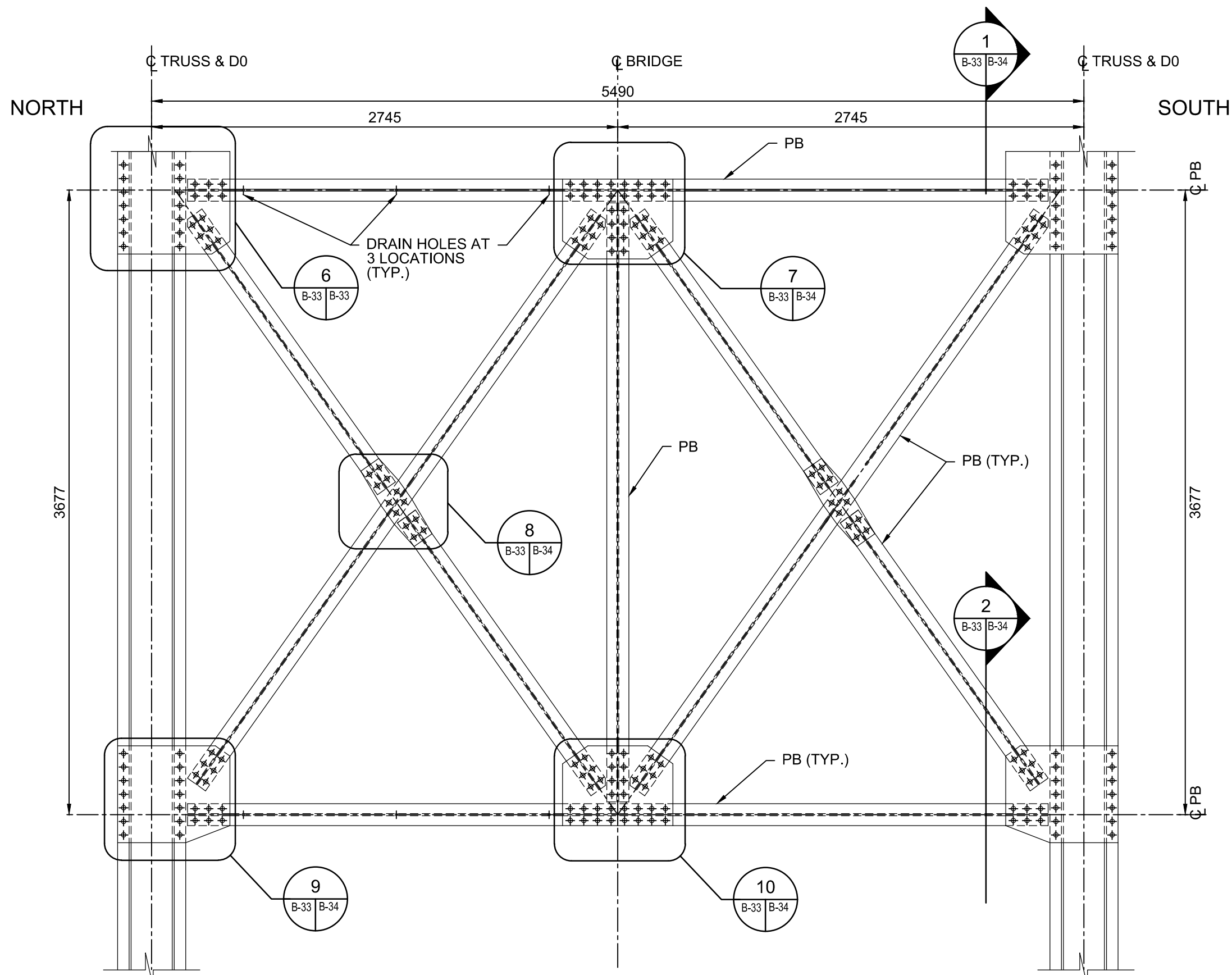


4 DETAIL  
1:10

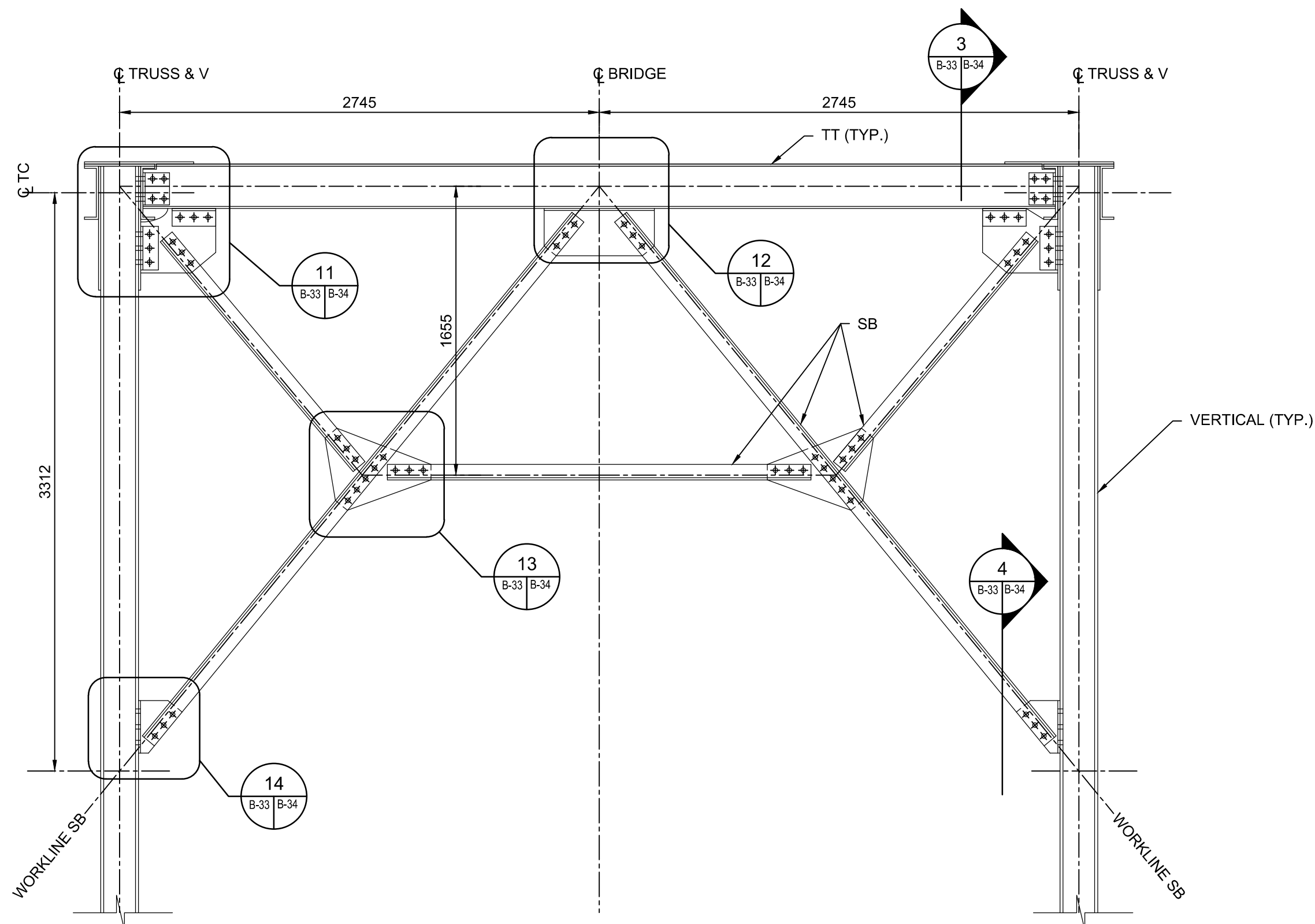
5 DETAIL  
1:10



6 DETAIL  
1:10



2 SECTION PORTAL BRACING  
1:25



3 SECTION SWAY BRACING  
1:25

NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING B-24 TO B-32 AND DRAWINGS B-34 TO B-40.
- ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.
- TYPICAL DIMENSIONS ARE SHOWN UNLESS OTHERWISE NOTED.
- ALL TRUSS CONNECTIONS DETAILS DEVELOPED ON THIS DRAWING SET ARE BASED ON THE ROLLED SECTION ALTERNATIVE FOR THE TRUSS MEMBERS. IF BUILT-UP MEMBERS ARE SELECTED, ADJUSTMENT TO THESE DETAILS WILL BE REQUIRED.
- WORKLINE=CENTROID OF THE STRUCTURAL MEMBER

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
| C | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
SWING BRIDGE  
STRUCTURAL STEEL VIII

drawn by  
dessiné par  
RADU STANCIU

designed by  
conçue par  
ABOUBAKER FARAH

approved by  
approuvée par  
KAREN LIU

bid  
offre  
JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
B-33



**PARSONS**



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |  |
|---|--|
| <div><div>A</div><div>B</div><div>C</div></div> | <div>Detail No.<br/>No. du détail</div> <div>drawing no. — where detail required<br/>dessin no. — où détail exigé</div> <div>drawing no. — where detailed<br/>dessin no. — où détaillé</div> |
|---|--|

project title  
titre du projet

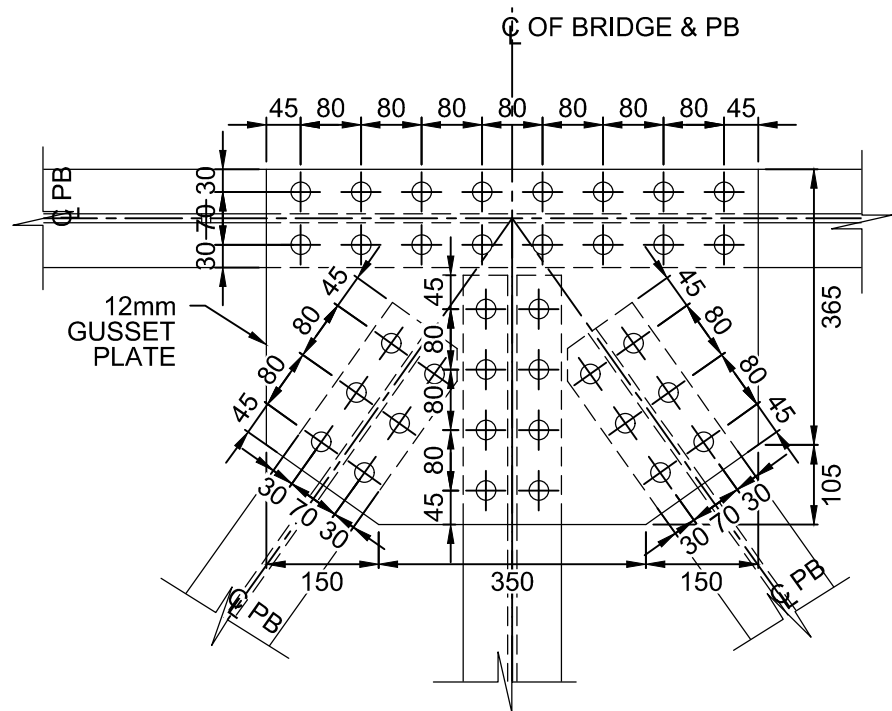
Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

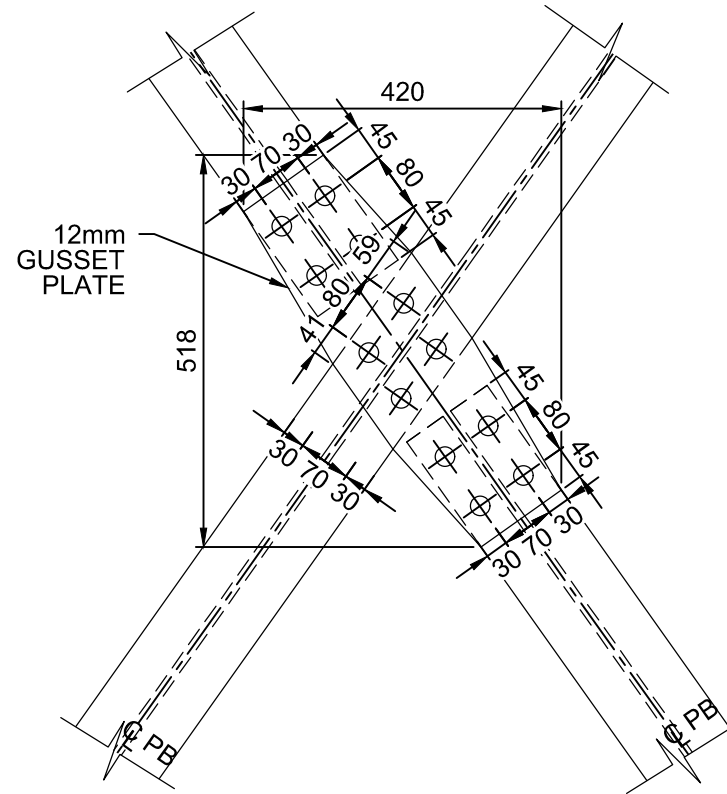
drawing title  
titre du dessin

SWING BRIDGE  
STRUCTURAL STEEL IX

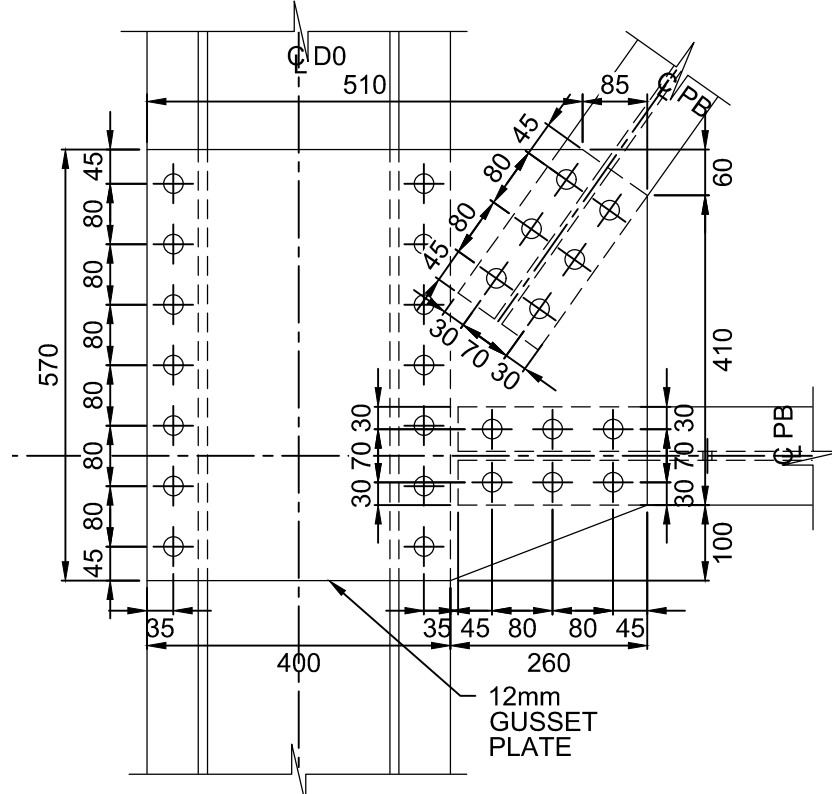
|                                |                 |  |
|--------------------------------|-----------------|--|
| drawn by<br>dessiné par        | RADU STANCIU    |  |
| designed by<br>conc par        | ABOUBAKER FARAH |  |
| approved by<br>approuvé par    | KAREN LIU       |  |
| bid<br>offre                   | JULIO LEON      | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20      |  |
| project no.<br>no. du projet   | R.073593.001    |  |
| drawing no.<br>dessiné no.     | B-34            |  |



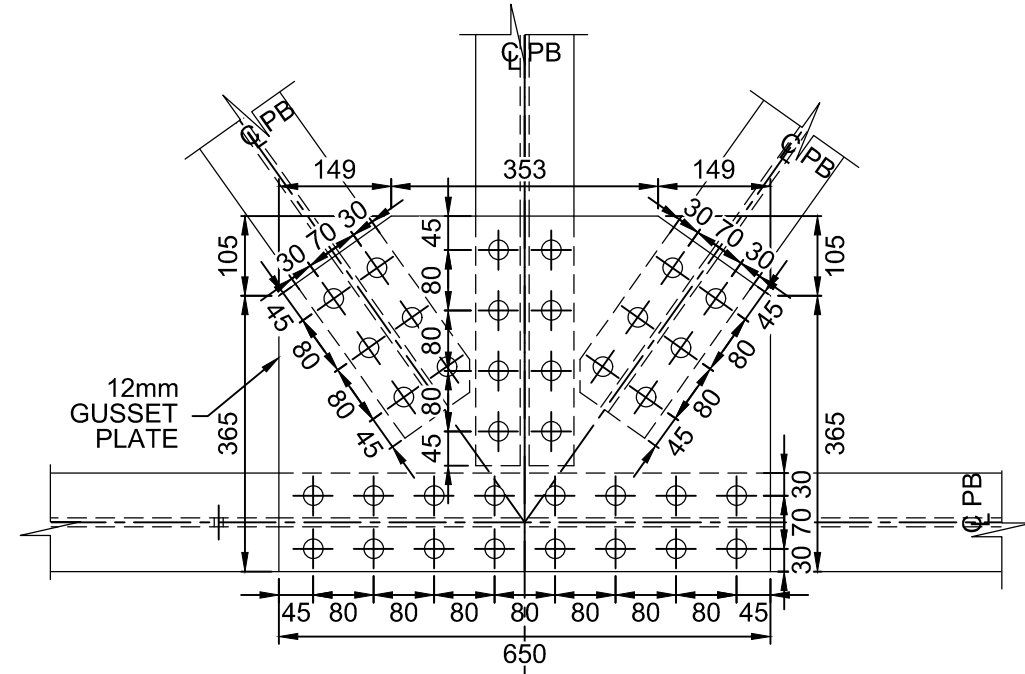
7 DETAIL-PORTAL BRACING  
1:10



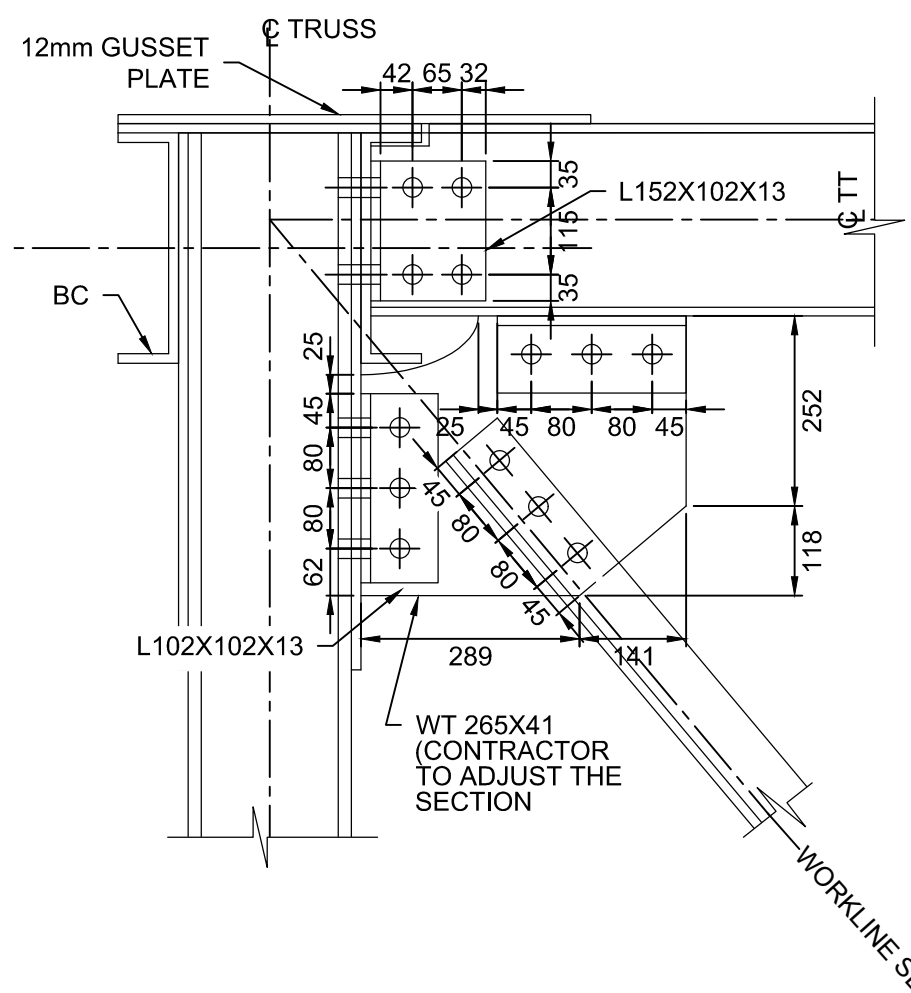
8 DETAIL-PORTAL BRACING  
1:10



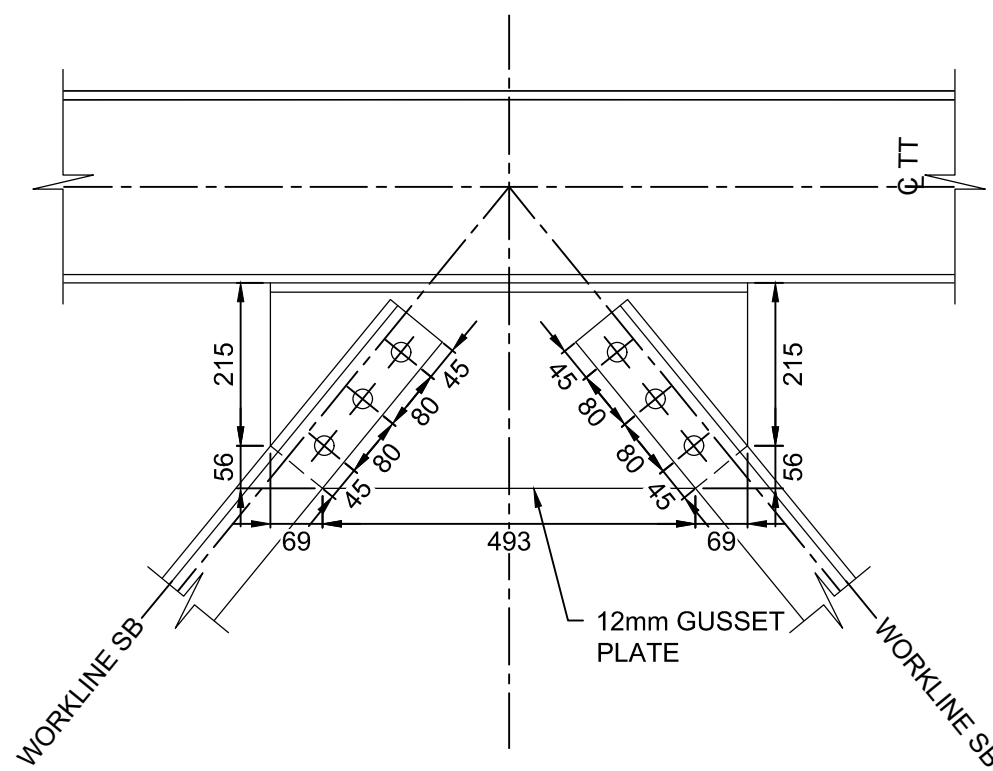
9 DETAIL-PORTAL BRACING  
1:10



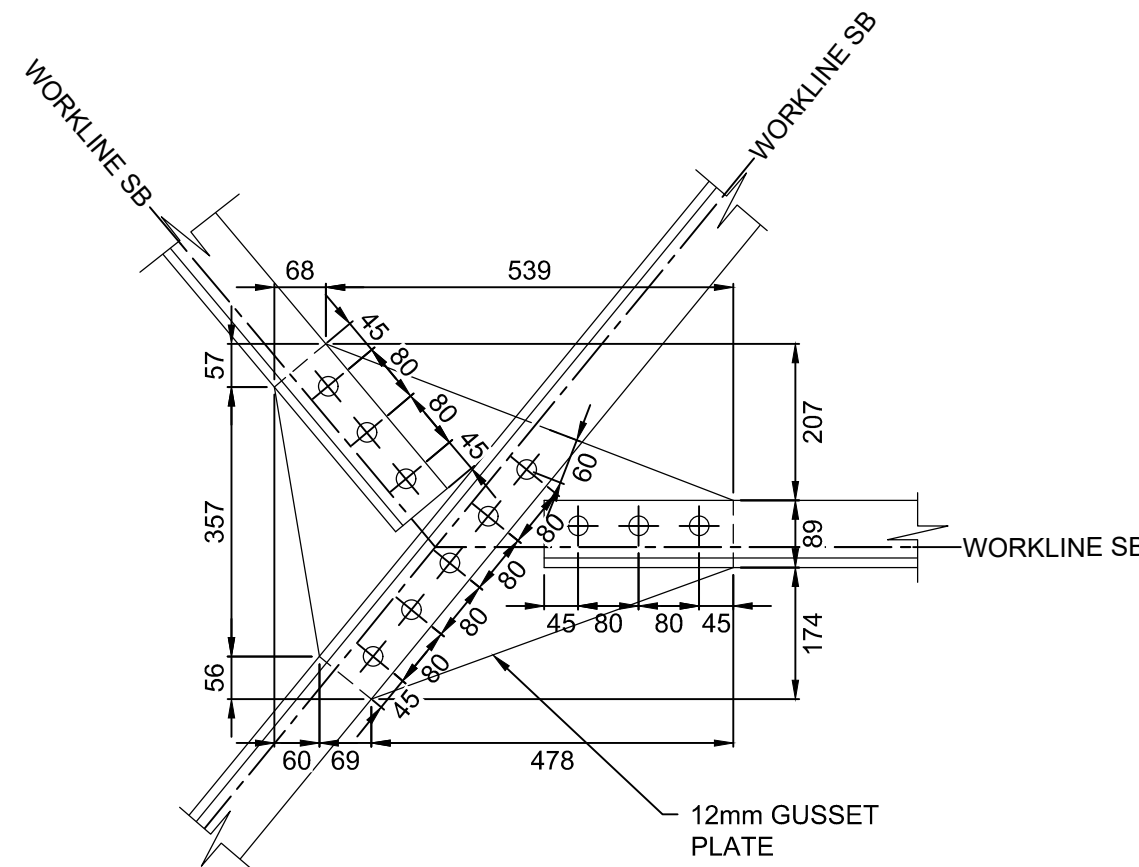
10 DETAIL-PORTAL BRACING  
1:10



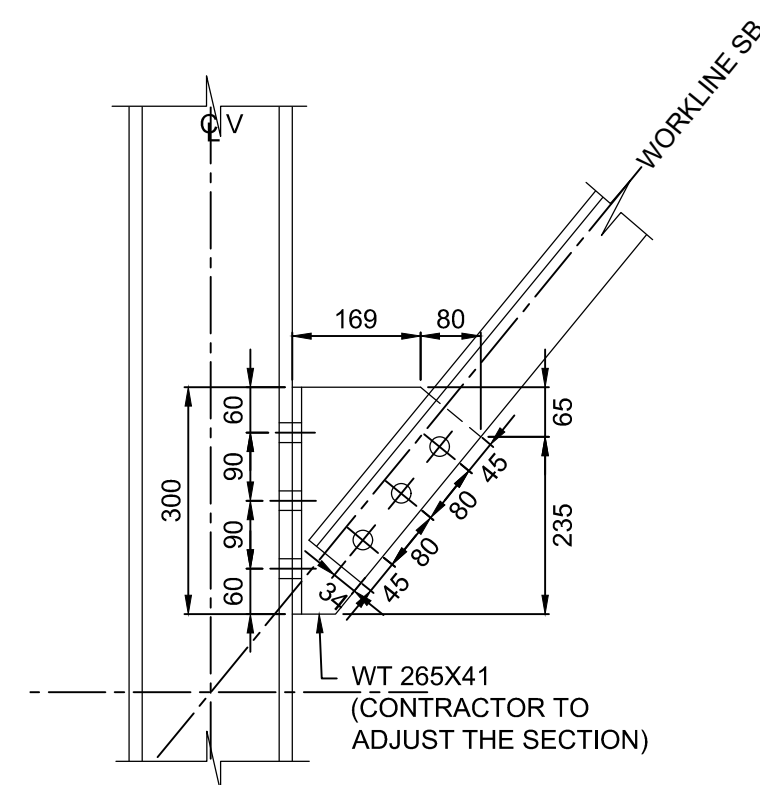
11 DETAIL-SWAY BRACING  
1:10



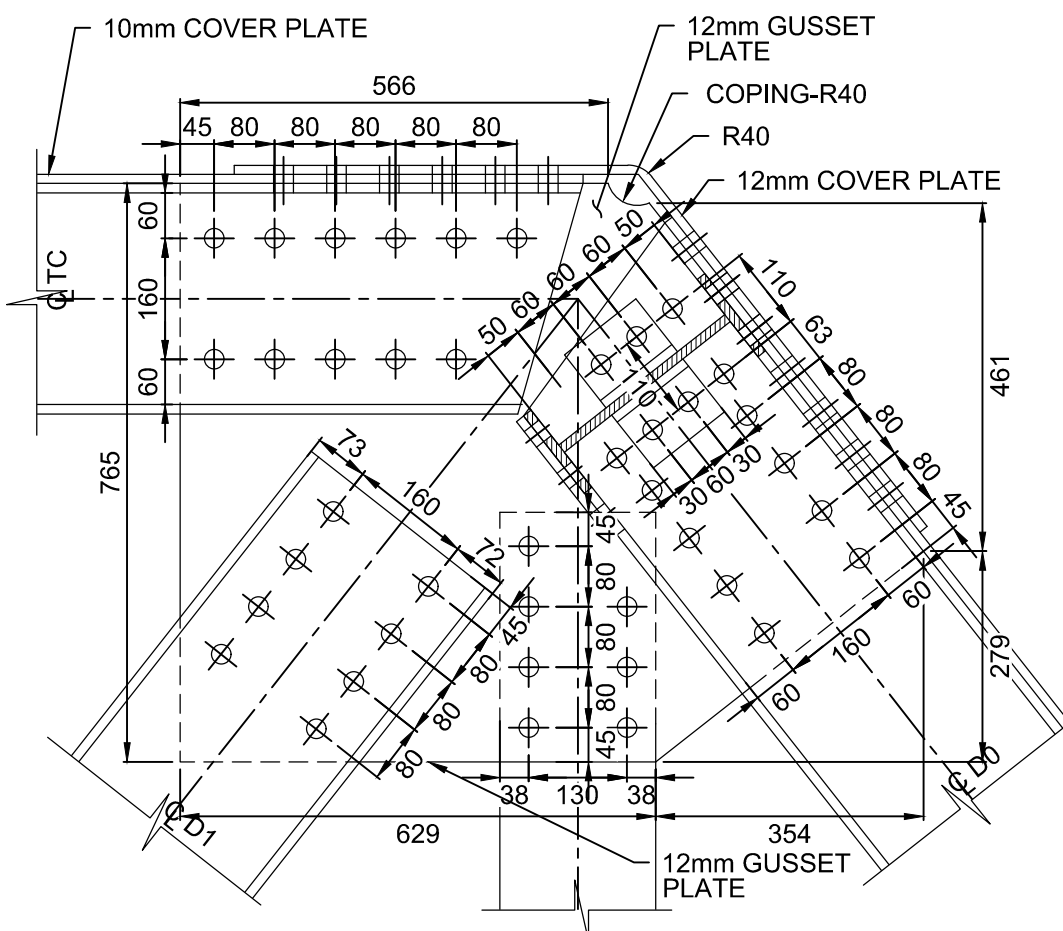
12 DETAIL-SWAY BRACING  
1:10



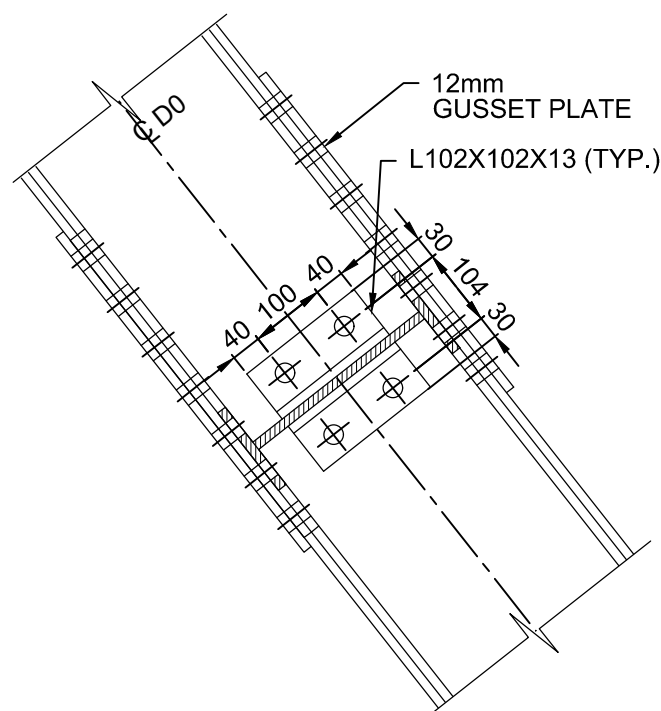
13 DETAIL-SWAY BRACING  
1:10



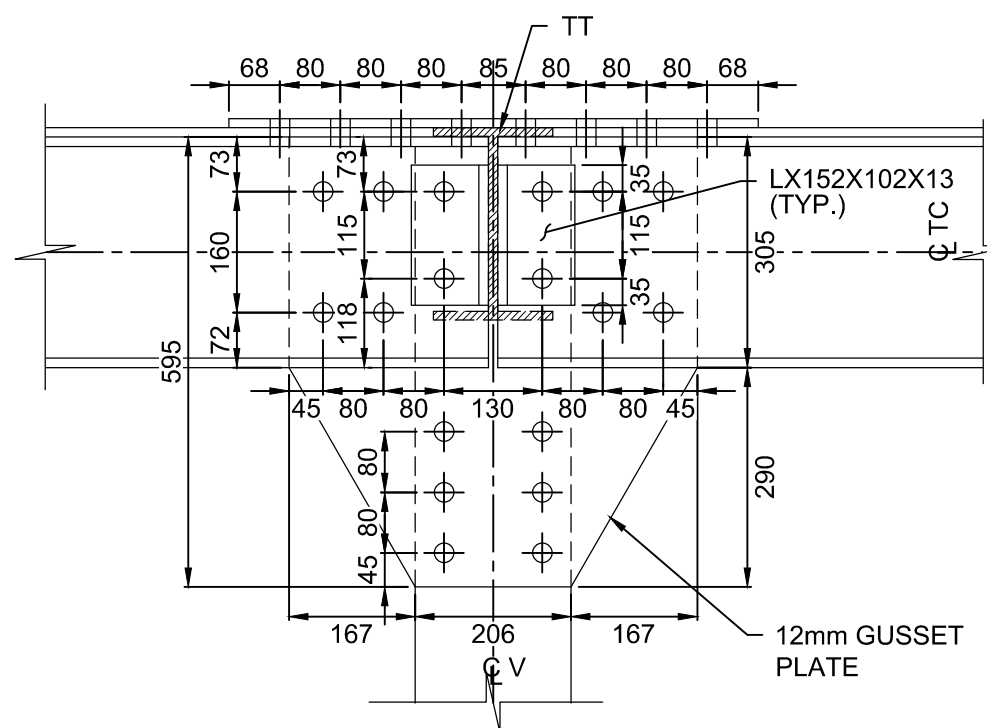
14 DETAIL-SWAY BRACING  
1:10



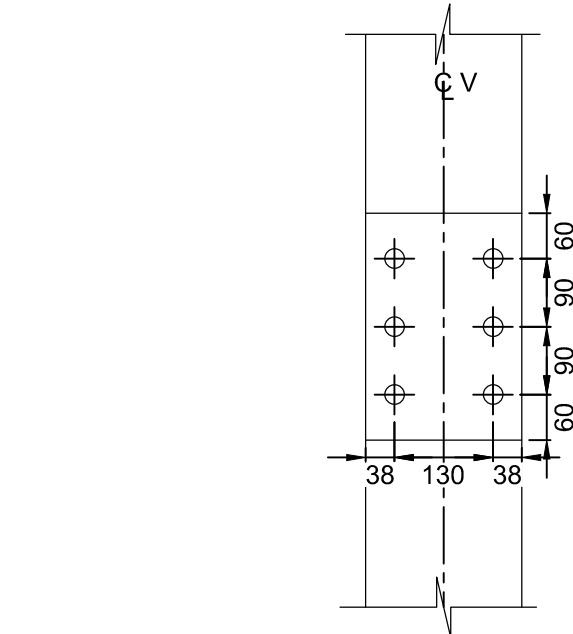
1 SECTION-PORTAL BRACING  
1:10



2 SECTION-PORTAL BRACING  
(DIAGONAL PORTAL BRACING NOT SHOWN FOR CLARITY)  
1:10



3 SECTION-SWAY BRACING  
(DIAGONAL SWAY BRACING NOT SHOWN FOR CLARITY)  
1:10



4 SECTION-SWAY BRACING  
(DIAGONAL SWAY BRACING NOT SHOWN FOR CLARITY)  
1:10

NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-33 AND DRAWINGS B-35 TO B-40.
- ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.
- TYPICAL DIMENSIONS ARE SHOWN UNLESS OTHERWISE NOTED.
- ALL TRUSS CONNECTION DETAILS DEVELOPED ON THIS DRAWING SET ARE BASED ON THE ROLLED SECTION ALTERNATIVE FOR THE TRUSS MEMBERS. IF BUILT-UP MEMBERS ARE SELECTED, ADJUSTMENT TO THESE DETAILS WILL BE REQUIRED.
- WORKLINE=CENTROID OF THE STRUCTURAL MEMBER



PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet  
  
Ontario  
  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
  
SWING BRIDGE  
STRUCTURAL STEEL X  
PIVOT GIRDER ASSEMBLY

drawn by  
dessiné par  
RADU STANCIU

designed by  
conc par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

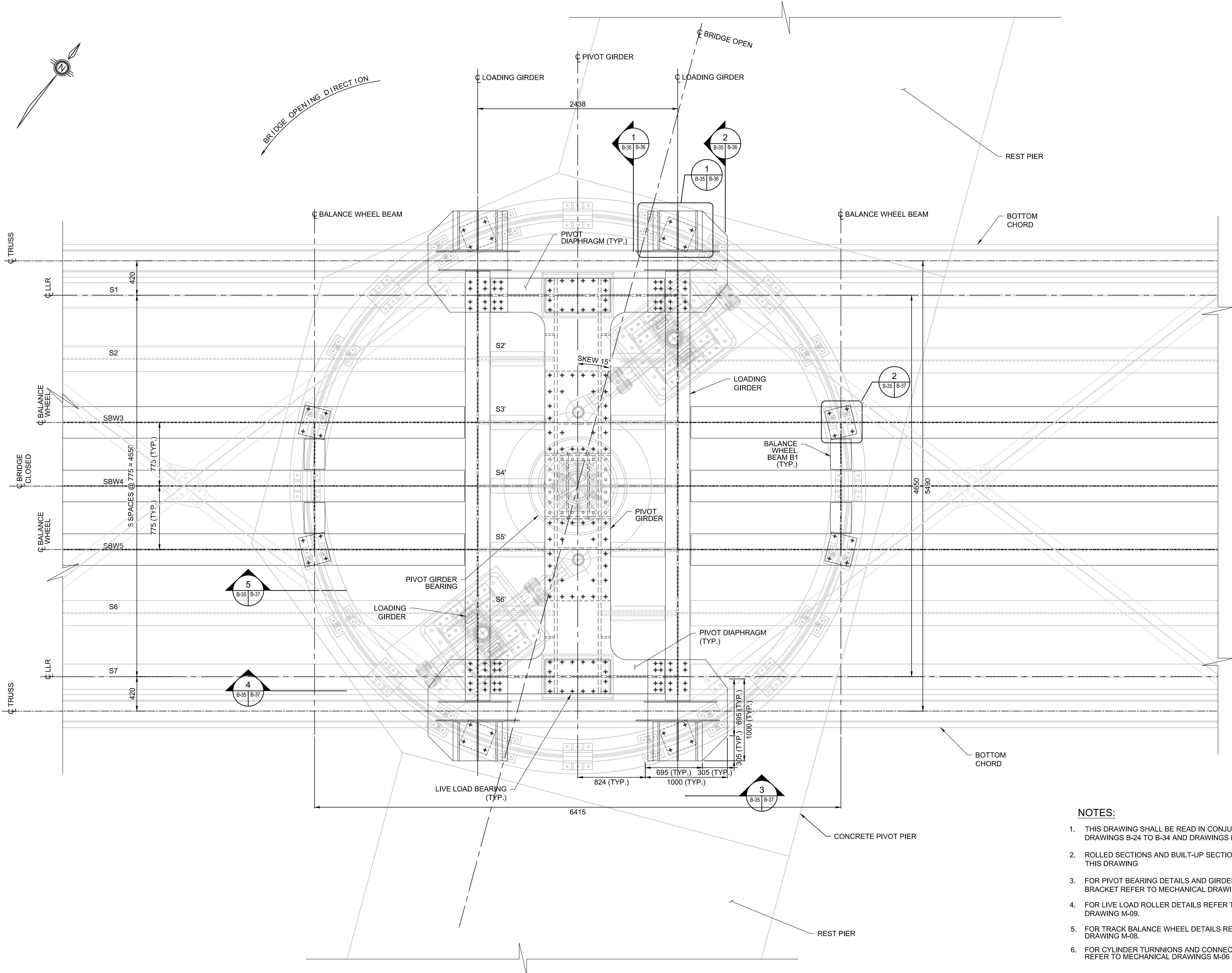
bid  
offre  
JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
B-35



PLAN SWING BRIDGE PIVOT SYSTEM

1:25

NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-34 AND DRAWINGS B-36 TO B-40.
- ROLLED SECTIONS AND BUILT-UP SECTIONS ARE SHOWN IN THIS DRAWING
- FOR PIVOT BEARING DETAILS AND GIRDER CONNECTION BRACKET REFER TO MECHANICAL DRAWINGS M-04 AND M-05.
- FOR LIVE LOAD ROLLER DETAILS REFER TO MECHANICAL DRAWING M-09.
- FOR TRACK BALANCE WHEEL DETAILS REFER TO MECHANICAL DRAWING M-08.
- FOR CYLINDER TURNNIONS AND CONNECTIONS DETAILS REFER TO MECHANICAL DRAWINGS M-06 AND M-07.

LIST OF ABBREVIATIONS:

S DENOTES STRINGER  
PG DENOTES PIVOT GIRDER  
BC DENOTES BOTTOM CHORD  
LG DENOTES LOADING GIRDER  
PD DENOTES PIVOT DIAPHRAGM  
BB DENOTES BOTTOM BRACING  
LLR DENOTES LIVE LOAD ROLLER  
SBW DENOTES STRINGER BALANCE WHEEL



PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.<br>No. du détail   |
| B | drawing no. — where detail required<br>dessin no. — où détail exigé |
| C | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

SWING BRIDGE  
STRUCTURAL STEEL XI  
PIVOT GIRDER ASSEMBLY

drawn by  
dessiné par RADU STANCIU

designed by  
conc par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

bid  
offre JULIO LEON project manager  
administrateur de projets

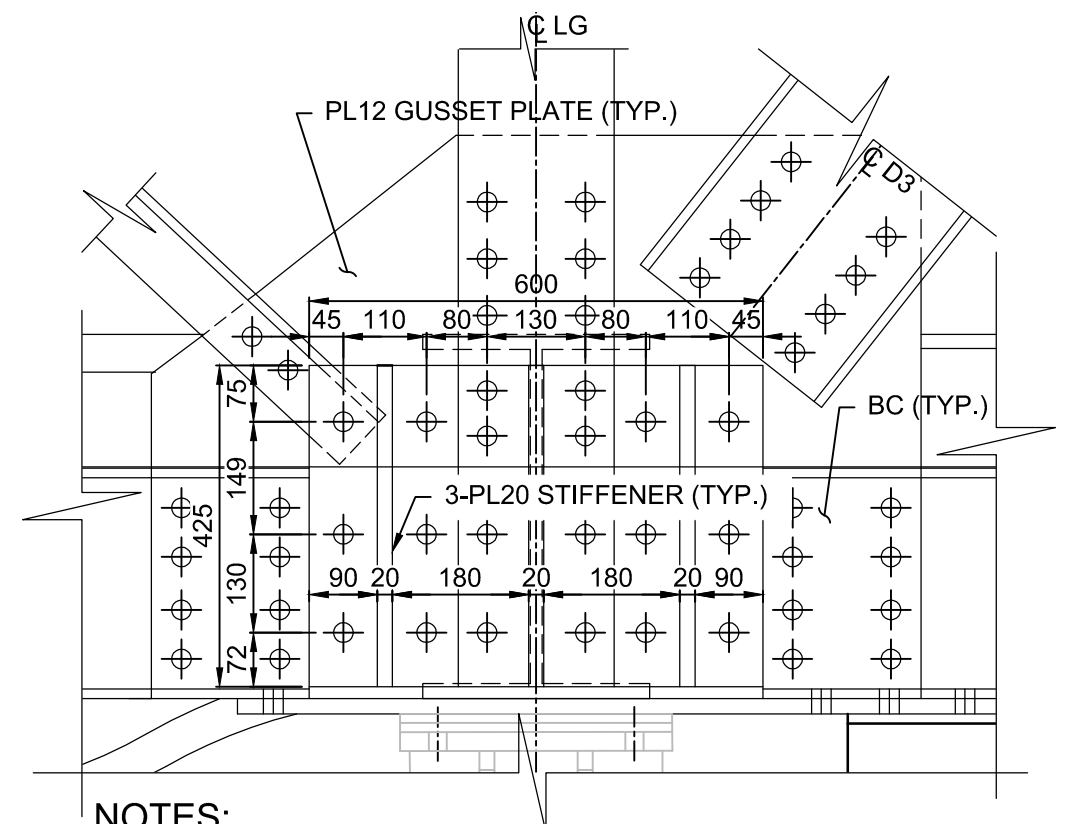
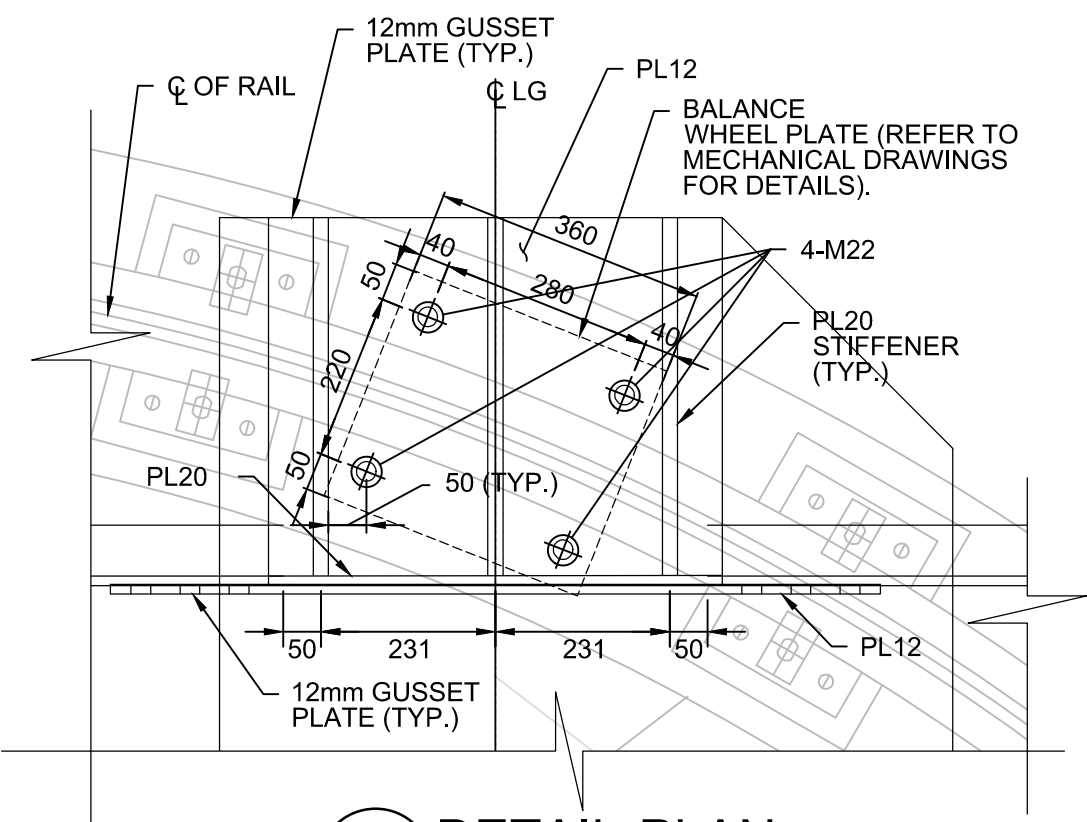
project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. B-36

NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH  
DRAWINGS B-24 TO B-35, AND DRAWINGS B-37 TO B40.



NOTES:

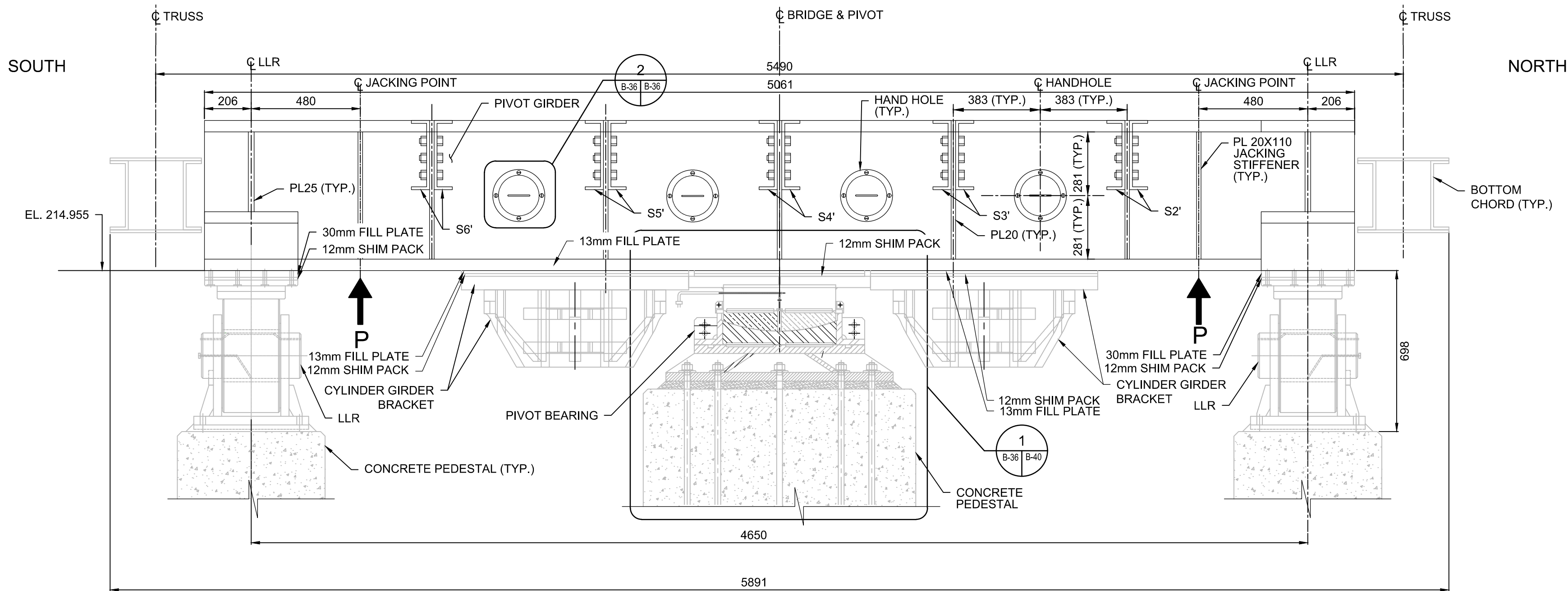
- ROLLED SECTIONS CONNECTIONS ARE SHOWN. ADJUSTMENTS  
MAY BE REQUIRED IF BUILT-UP SECTIONS ARE SELECTED.

SECTION 1:10

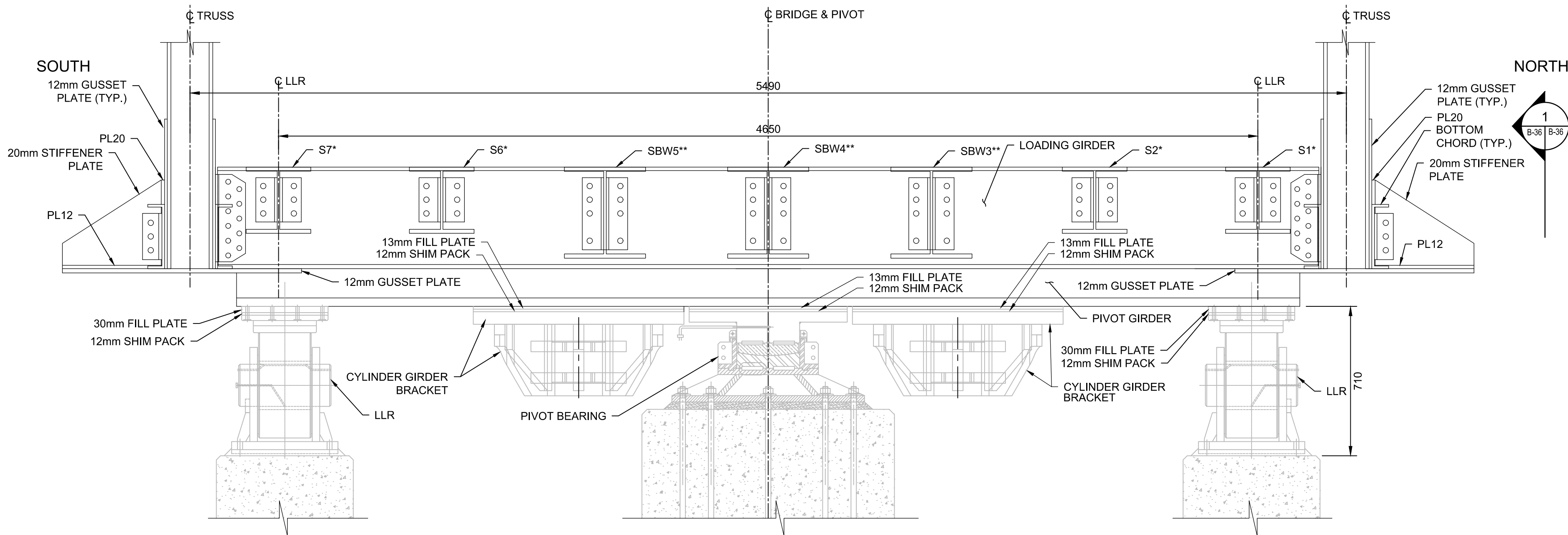
| FUTURE JACKING LOAD* KN |     |
|-------------------------|-----|
| LOCATION                | P   |
| PIVOT GIRDER            | 725 |

\* SLS PERMANENT LOAD ONLY

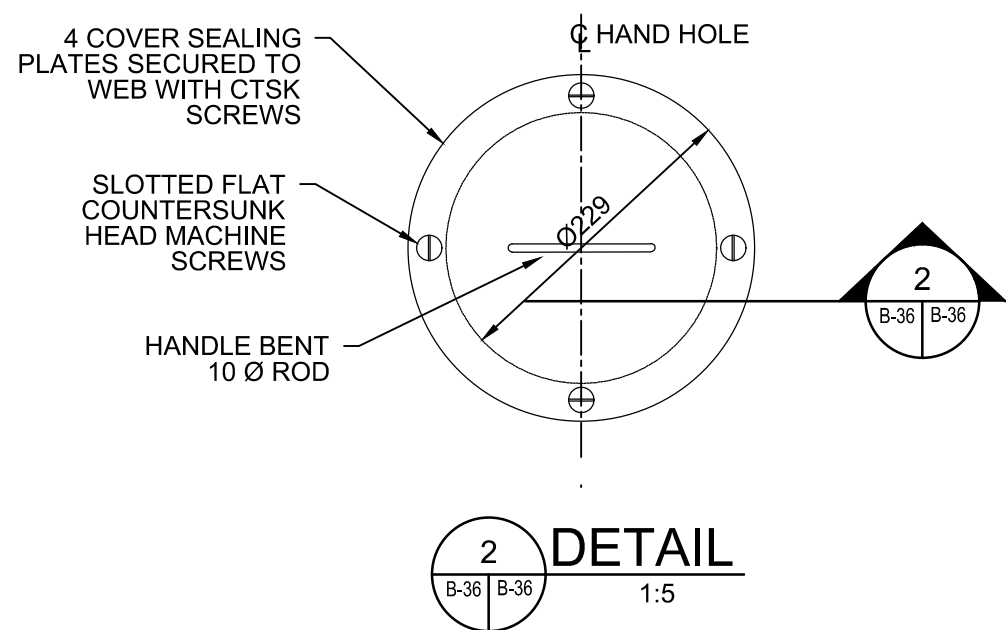
NOTE: JACKING TO OCCUR AT ALL LOCATIONS  
SIMULTANEOUSLY WHEN STRUCTURE IS IN CLOSED  
POSITION.



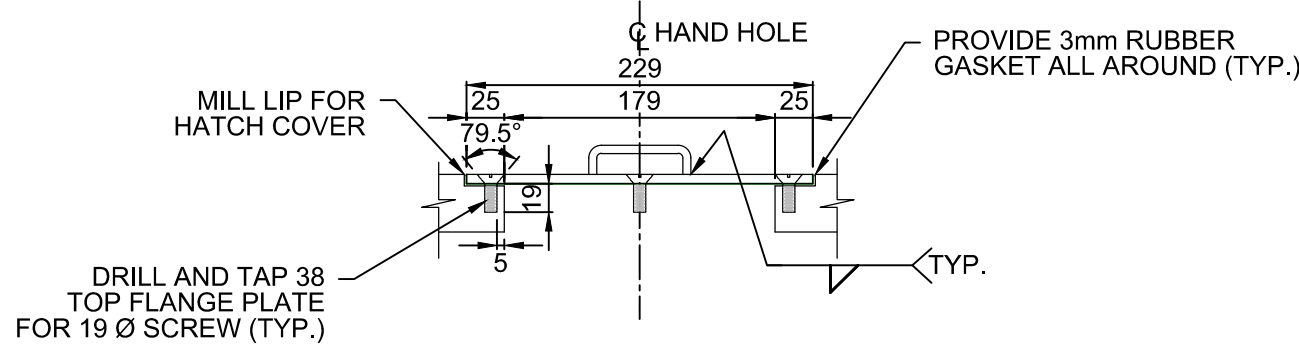
SECTION 1:15



SECTION 2:15

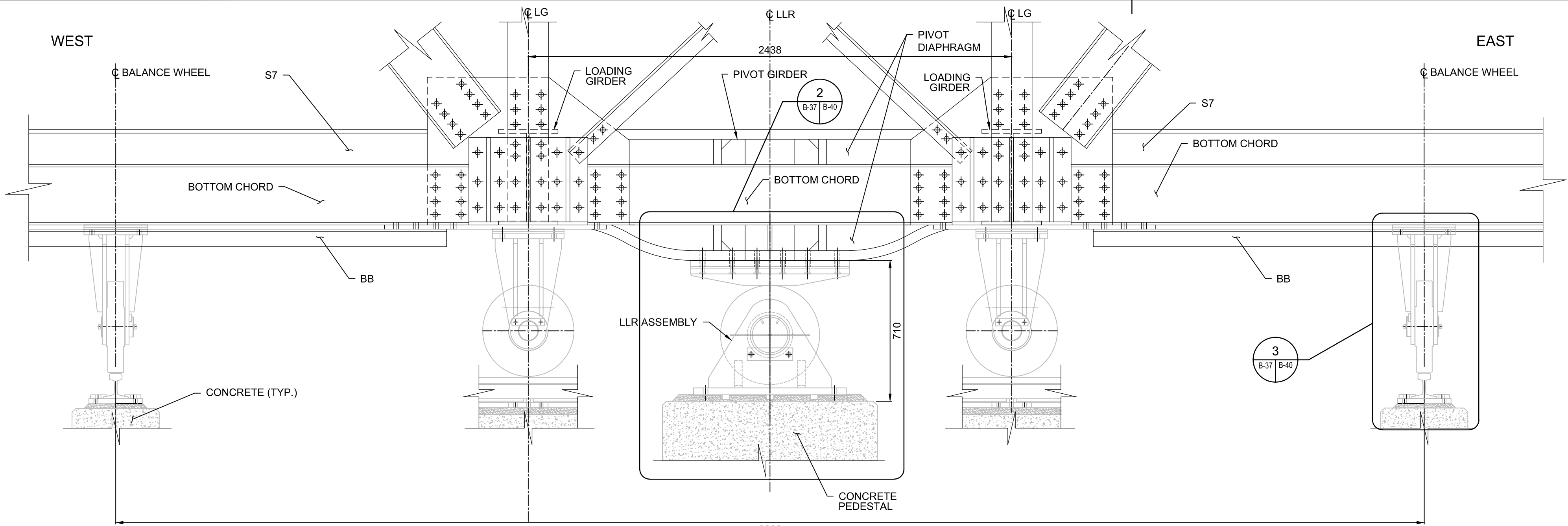


DETAIL 2:15

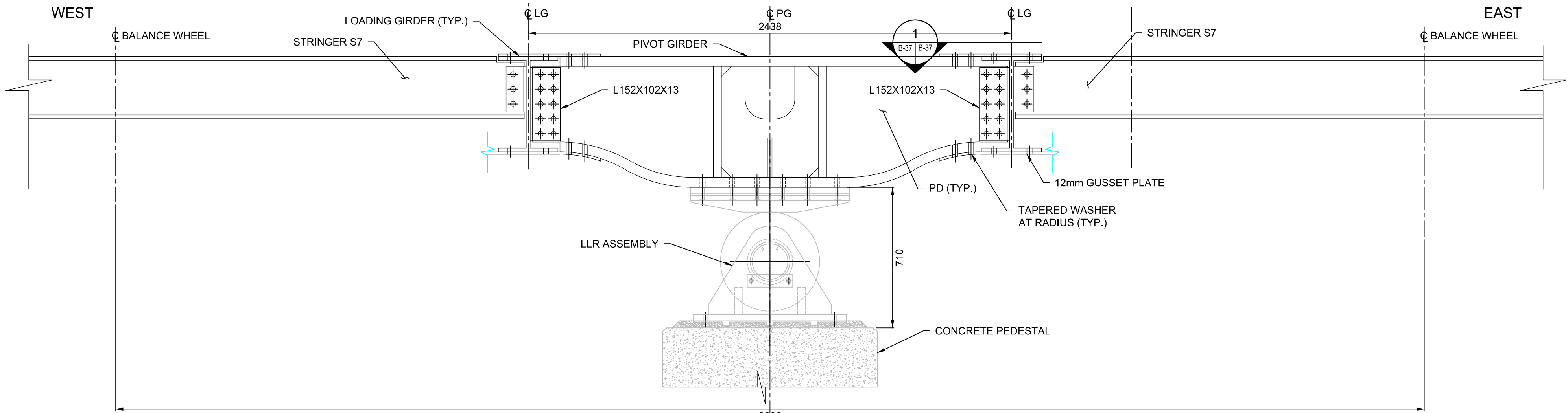


SECTION 2:15

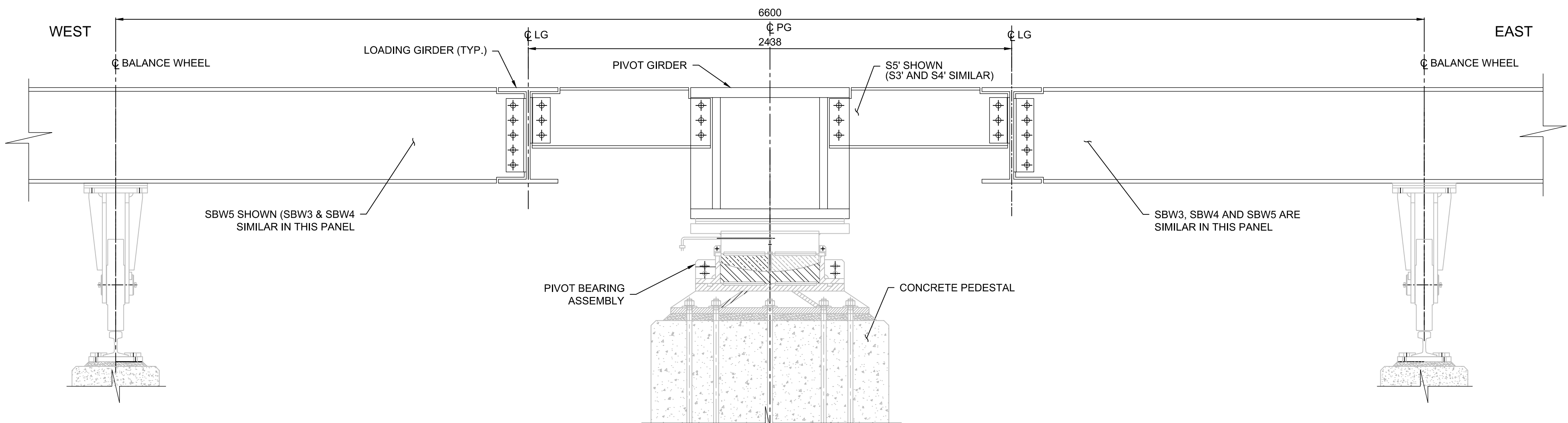




3 SECTION  
1:15



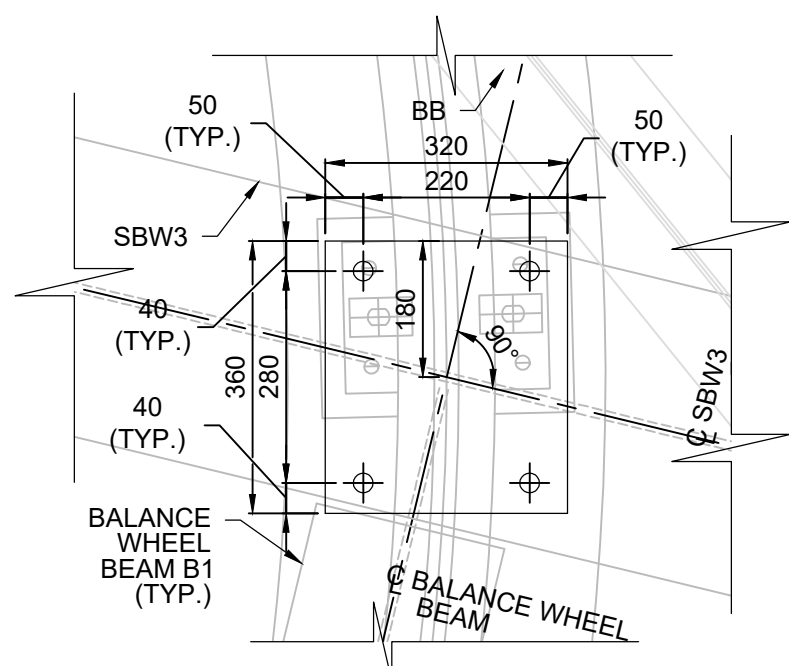
4 SECTION-PIVOT DIAPHRAGM AND STRINGER S7/S1  
1:15



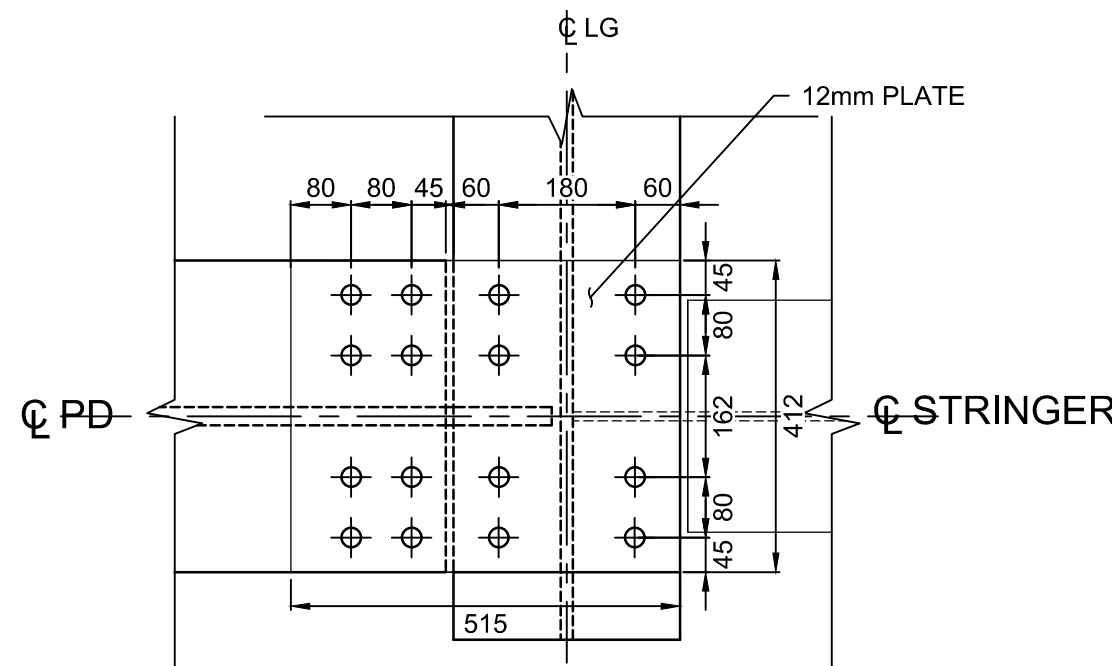
5 SECTION-SBW5 AND S5' (SBW3, S3' AND SBW4, S4' SIMILAR)  
1:15

NOTE:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-36, AND DRAWINGS B-38 TO B-40.



2 DETAIL-BALANCE WHEEL CONNECTION  
1:10



1 SECTION-TOP CONNECTION PLATE  
1:10

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. - where detail required<br>dessin no. - où détail exigé |
| C | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

SWING BRIDGE  
STRUCTURAL STEEL XII  
PIVOT GIRDER ASSEMBLY

drawn by  
dessiné par RADU STANCIU

designed by  
conçue par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. B-37





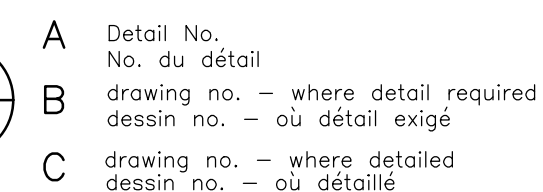
NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-37, AND DRAWINGS B-39 TO B-40.
2. ROLLED SECTIONS AND BUILT-UP SECTIONS ARE SHOWN IN THIS DRAWING.



|          |                   |           |
|----------|-------------------|-----------|
| 04       |                   |           |
| 03       |                   |           |
| 02       |                   |           |
| 01       | ISSUED FOR TENDER | 2018-07-7 |
| revision |                   | date      |

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|                 |  |
|-----------------|--|
| project title   |  |
| titre du projet |  |

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

SWING BRIDGE  
STRUCTURAL STEEL XIII  
PIVOT GIRDER

drawn by  
dessine par

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

|                                |            |
|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

project no.  
no. du projet

R.073593.001

drawing no.  
dessine no.

B-38





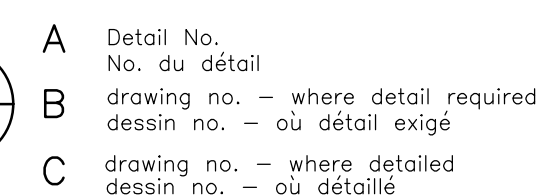
NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-38 AND DRAWING B-40.
2. ROLLED SECTIONS AND BUILT-UP SECTIONS ARE SHOWN IN THIS DRAWING.



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
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|                 |  |
|-----------------|--|
| project title   |  |
| titre du projet |  |

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

SWING BRIDGE  
STRUCTURAL STEEL XIV  
PIVOT GIRDER

drawn by  
dessine par **RADU STANCIU**

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par **KAREN LIU**

|              |            |
|--------------|------------|
| bid<br>offre | JULIO LEON |
|--------------|------------|

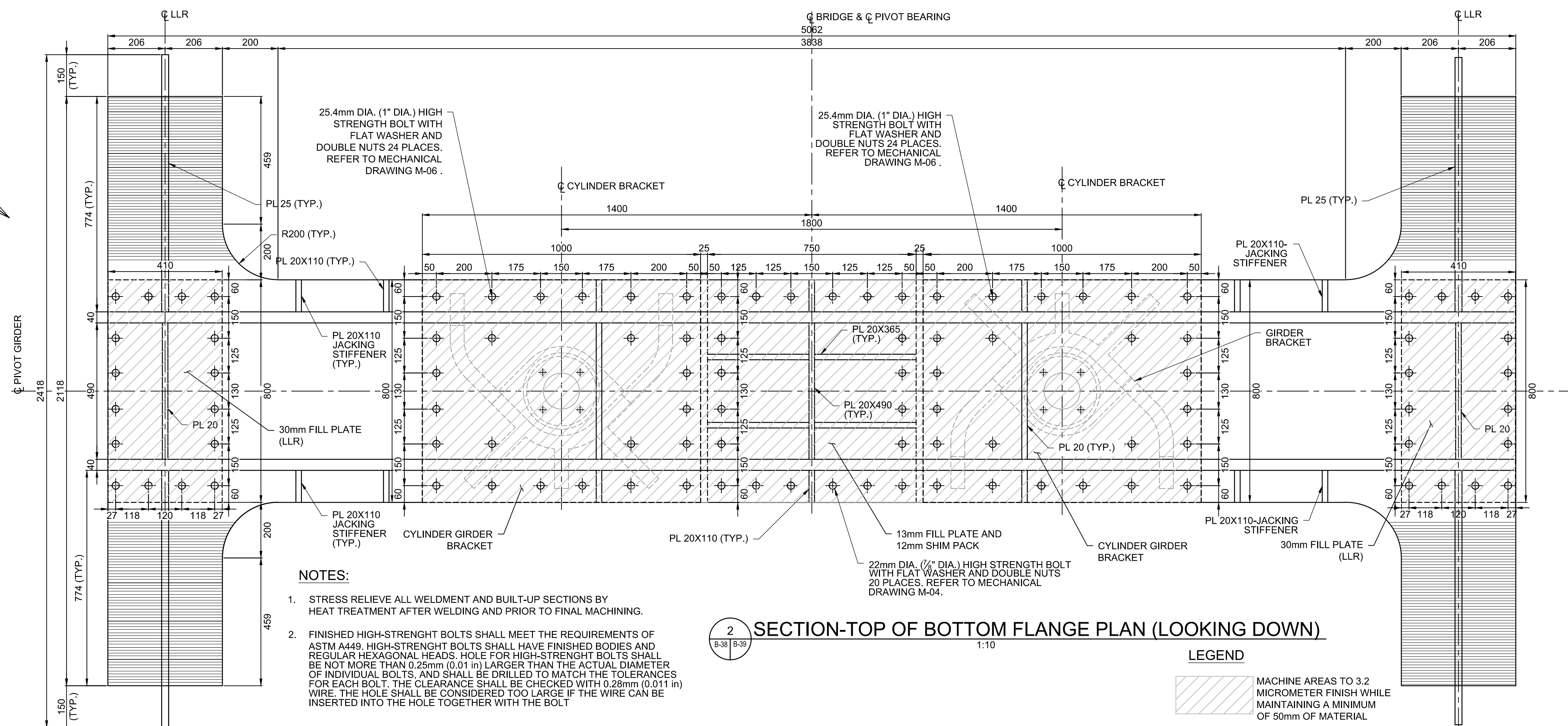
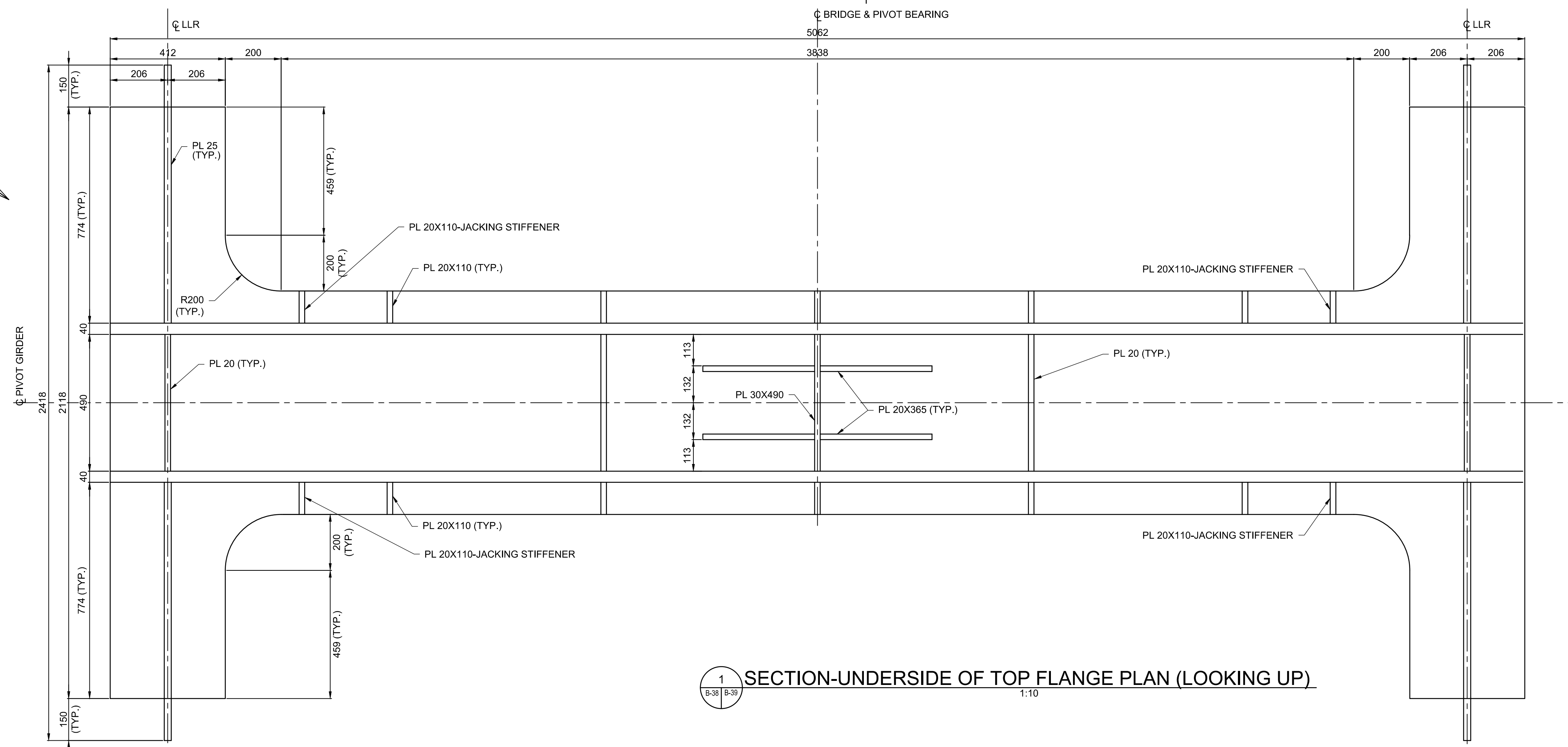
|                |            |
|----------------|------------|
| project date   |            |
| date du projet | 2018-07-20 |

project no.  
no. du projet

R.073593.001

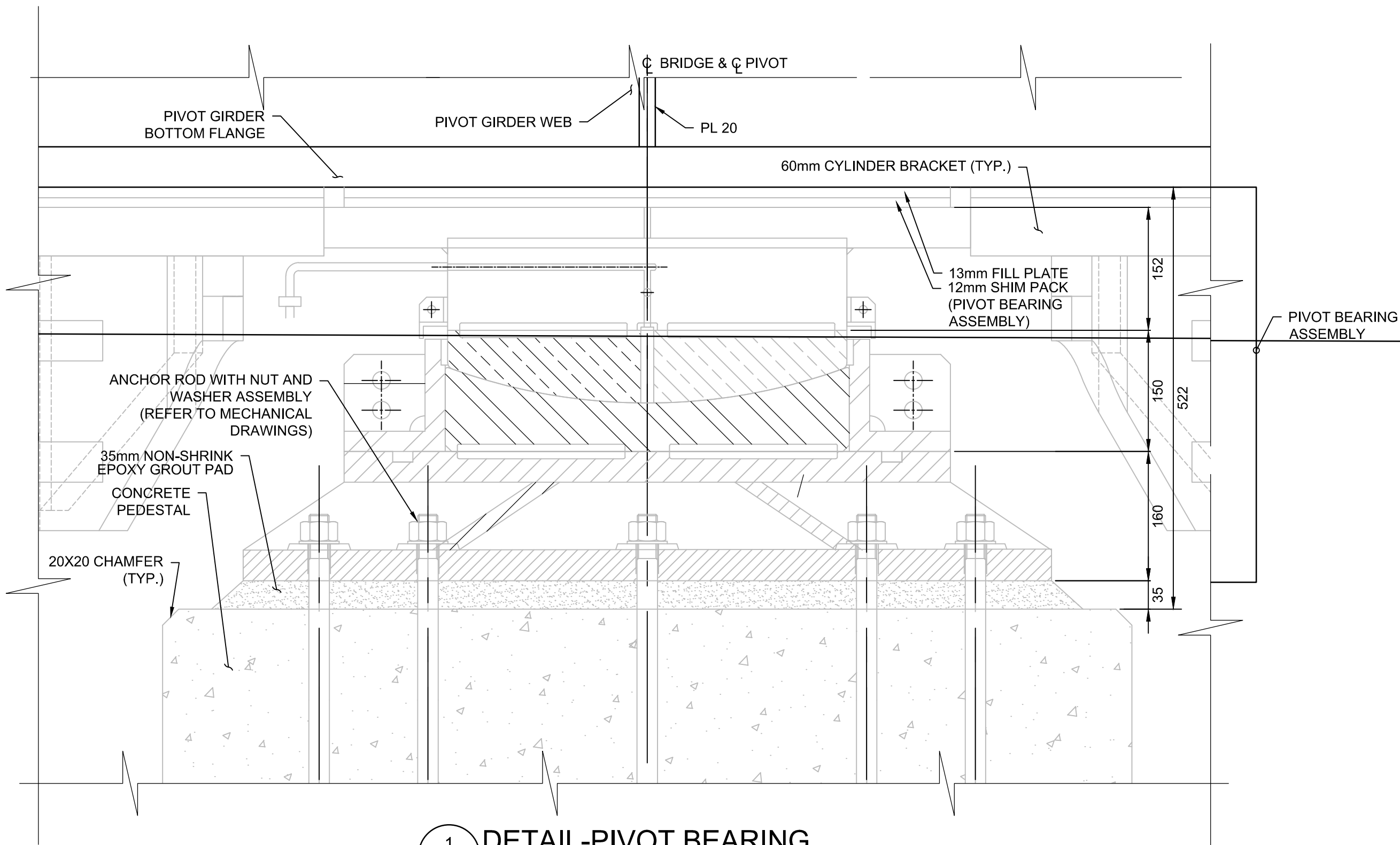
drawing no.  
dessine no.

B-39

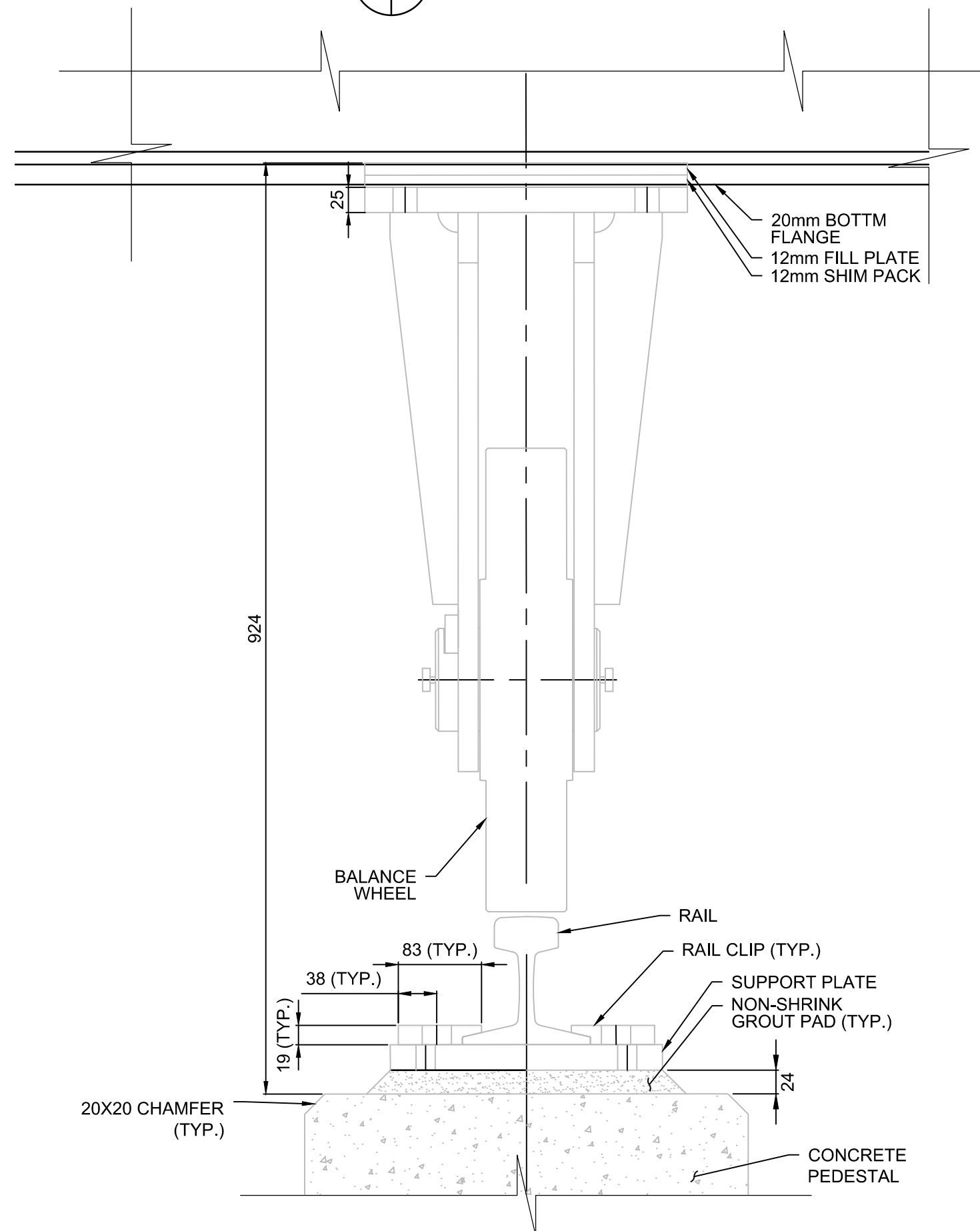


J:\TOR\476122 Hamlet\BT\Drawings\B-39 SWING BRIDGE - STRUCTURAL STEEL XIV.dwg  
Jul 19, 2018 - 6:38pm  
REVISED BY: AKL

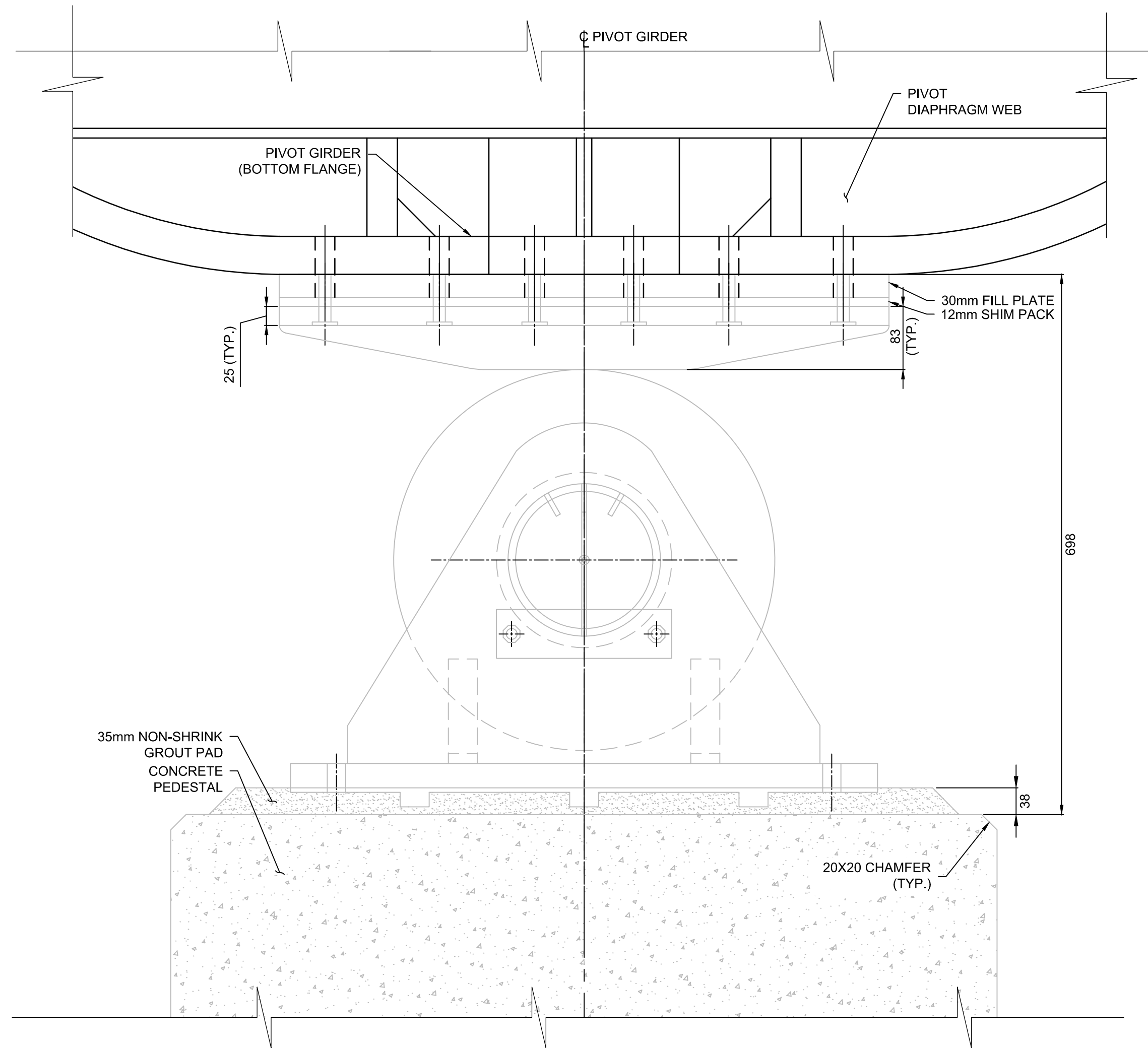




1 DETAIL-PIVOT BEARING  
1:5



3 DETAIL-BALANCE WHEEL  
1:5



2 DETAIL-LIVE LOAD ROLLER  
1:5

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24 TO B-39.

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
SWING BRIDGE  
STRUCTURAL STEEL XV  
PIVOT GIRDER ASSEMBLY

drawn by  
dessine par  
RADU STANCIU

designed by  
conc par  
ABOUBAKER FARAH

approved by  
approuve par  
KAREN LIU

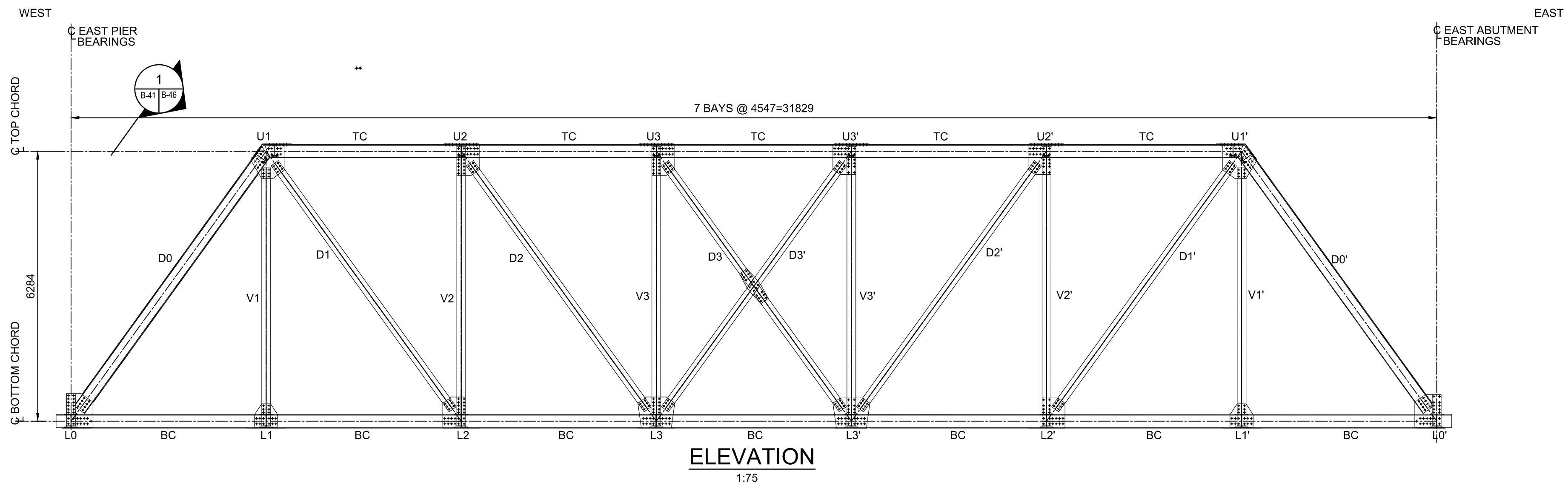
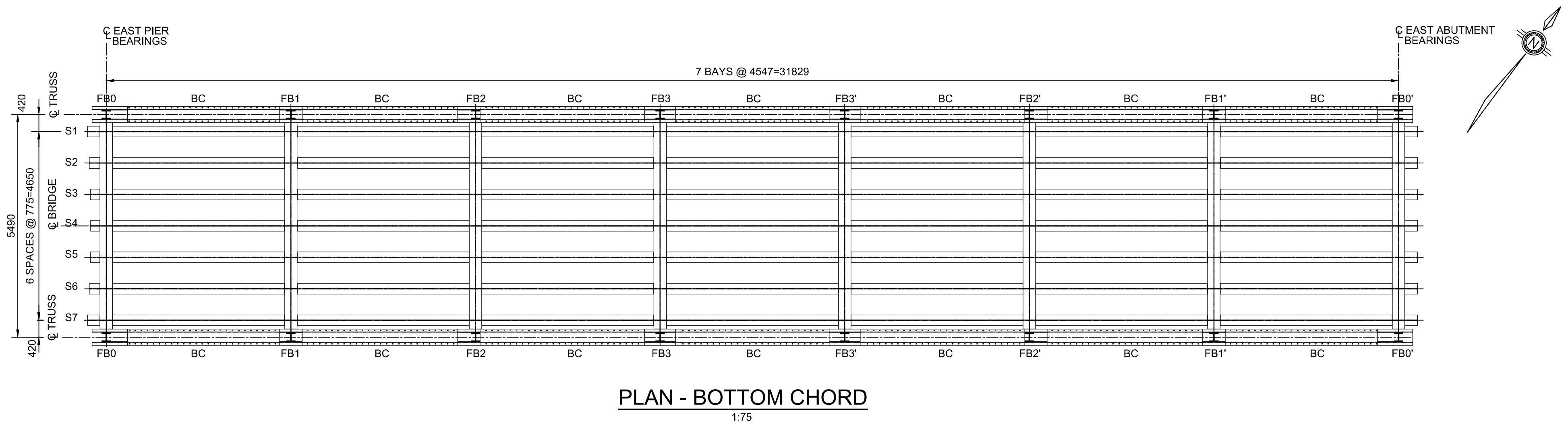
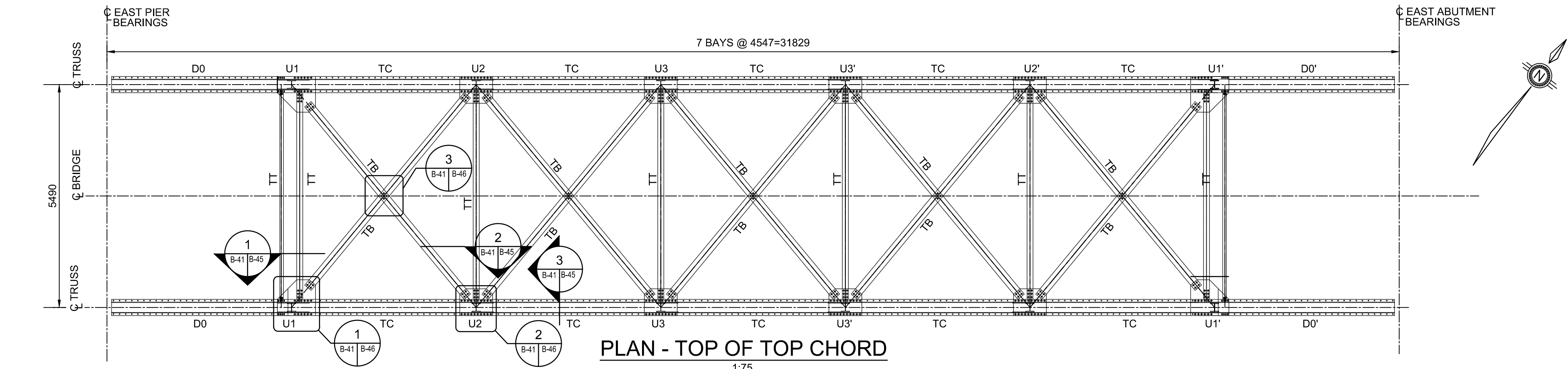
bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessine no.  
B-40





- NOTES:
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24, B-25, AND DRAWINGS B-42 TO B-46.
  - ROLLED SECTIONS ARE SHOWN IN THIS DRAWING

Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

FIXED BRIDGE  
STRUCTURAL STEEL I

drawn by  
dessiné par RADU STANCIU

designed by  
conç par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

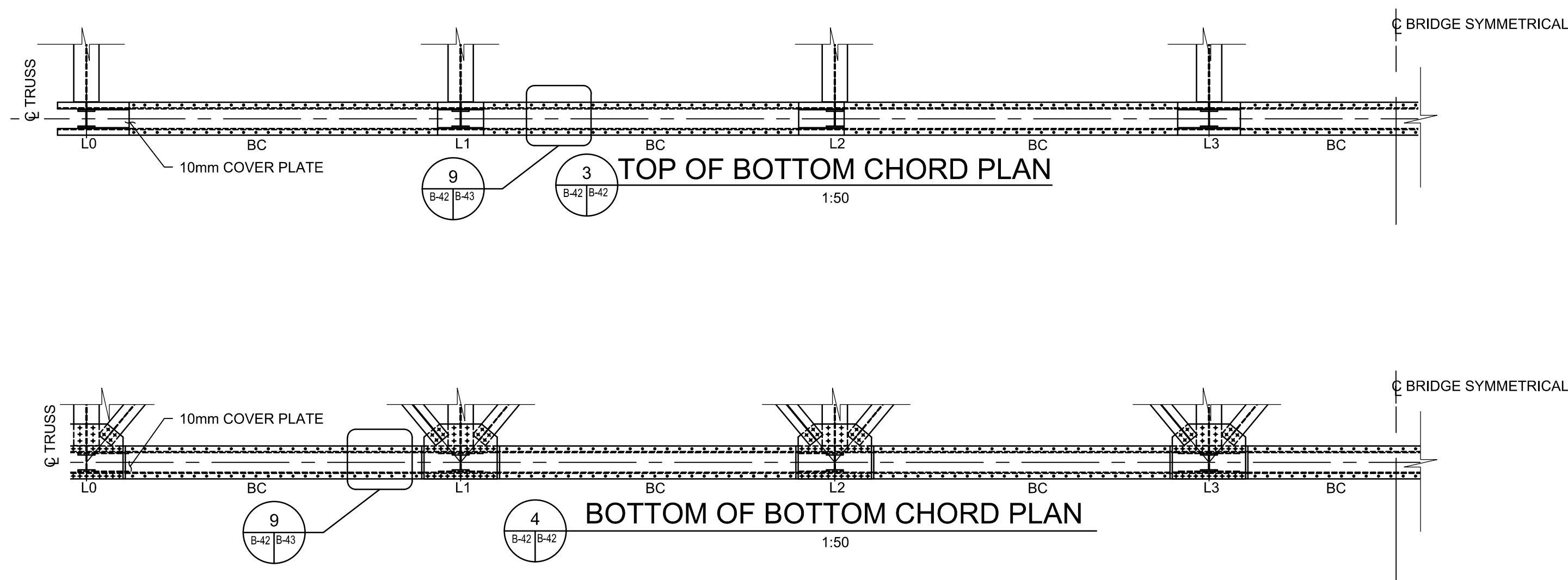
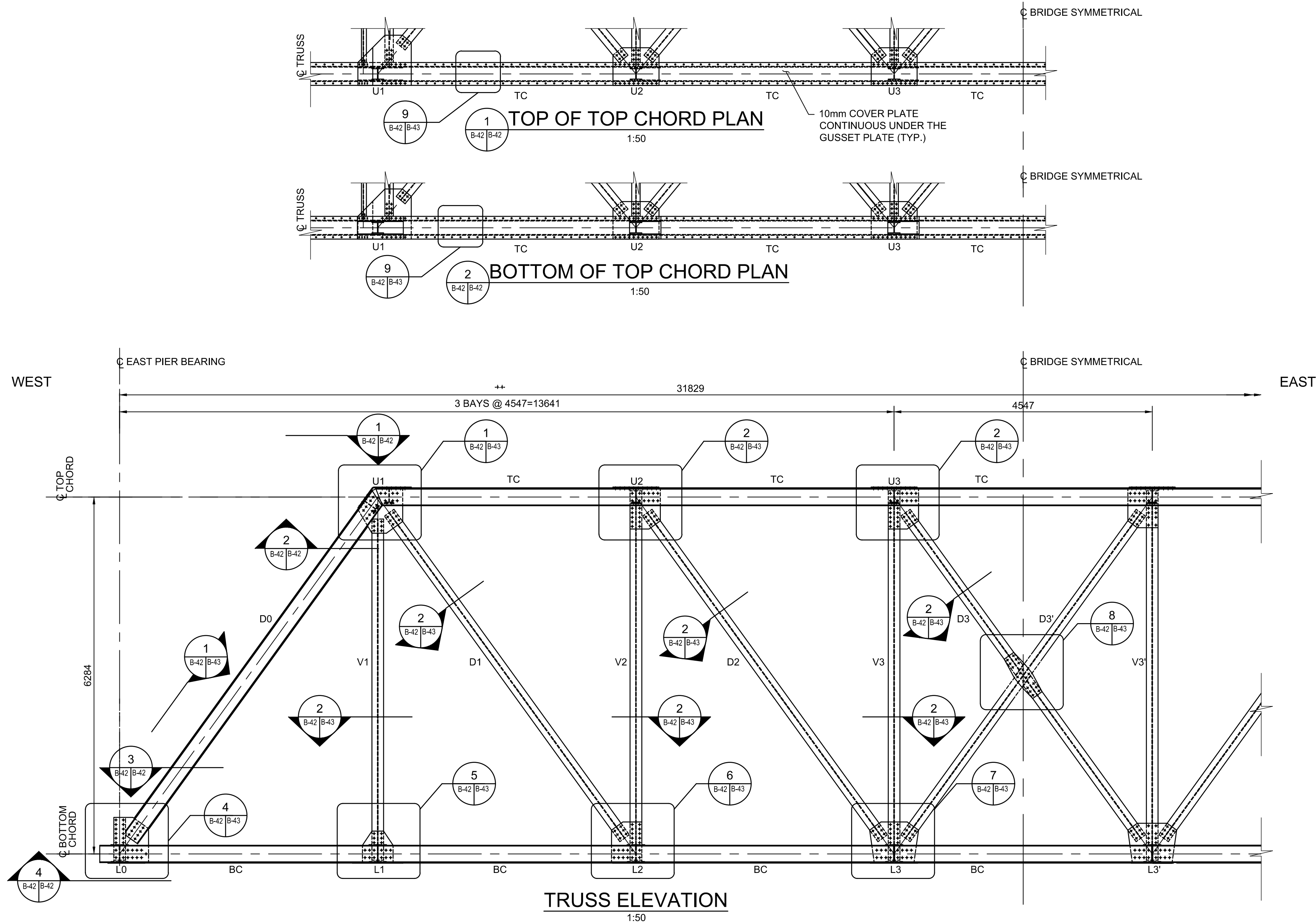
bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. B-41

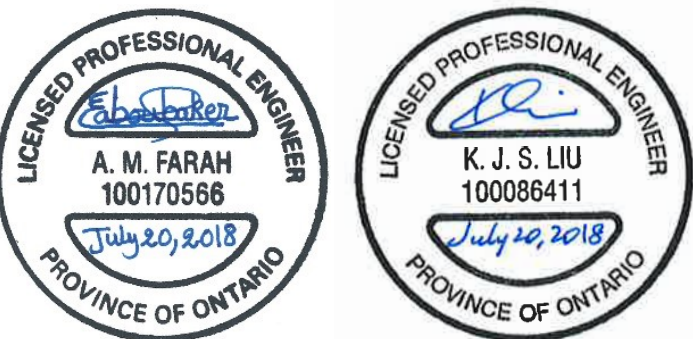




NOTES:

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24, B-25, AND DRAWINGS B-41, B-43.
- ROLLED SECTIONS ARE SHOWN IN THIS DRAWING

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
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| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

FIXED BRIDGE  
STRUCTURAL STEEL II

drawn by  
dessiné par RADU STANCIU

designed by  
conçu par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

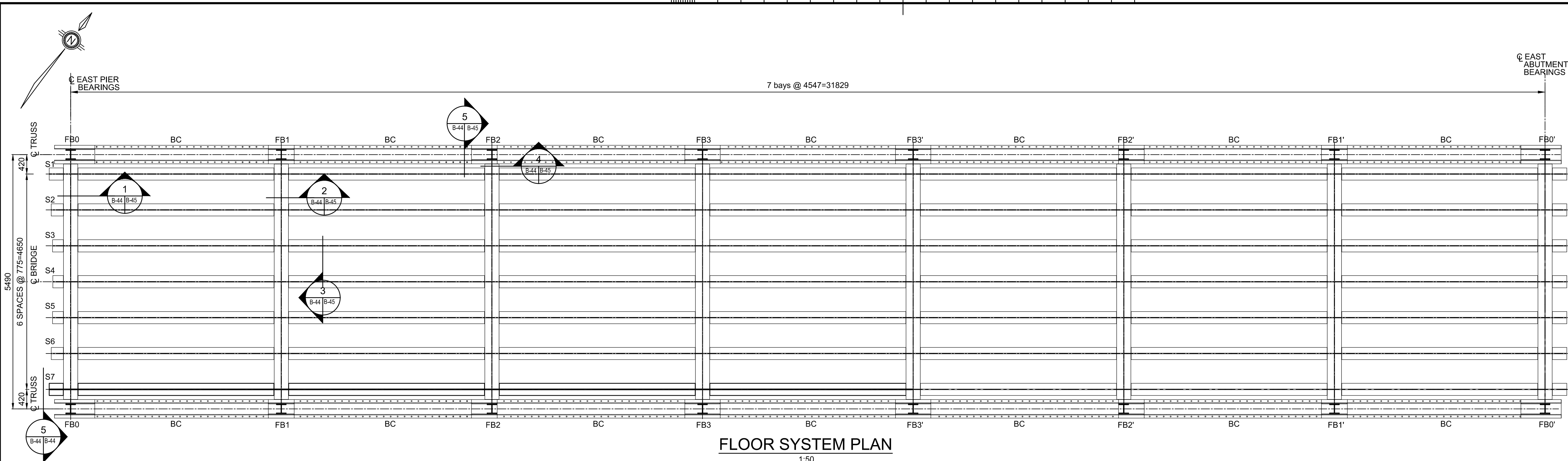
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no. du projet R.073593.001

drawing no.  
dessiné no. B-42

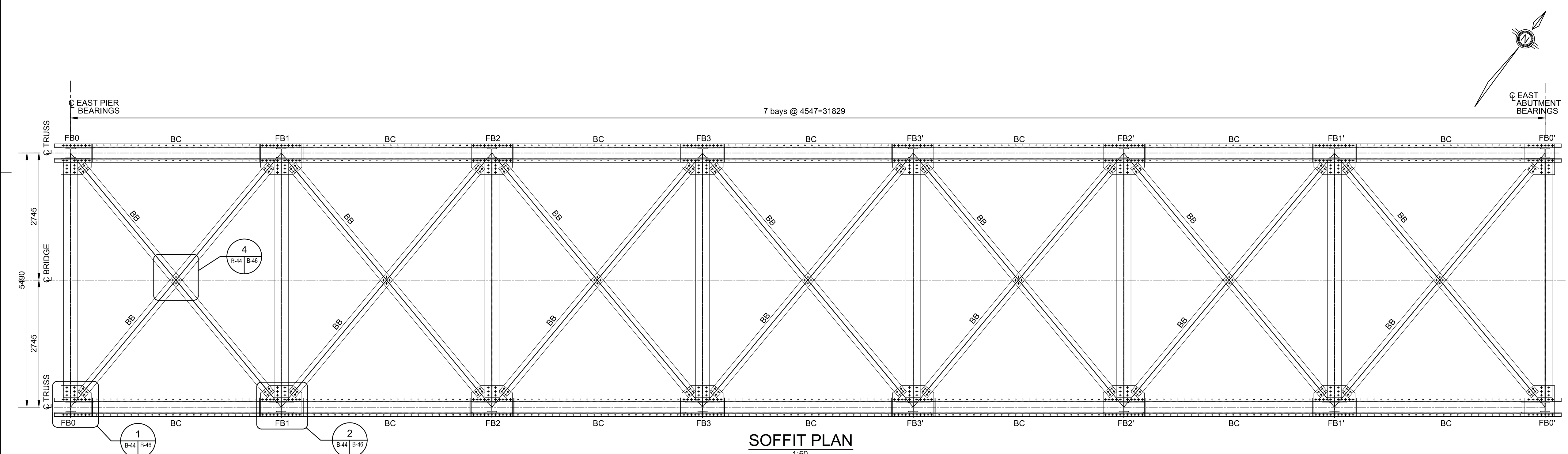




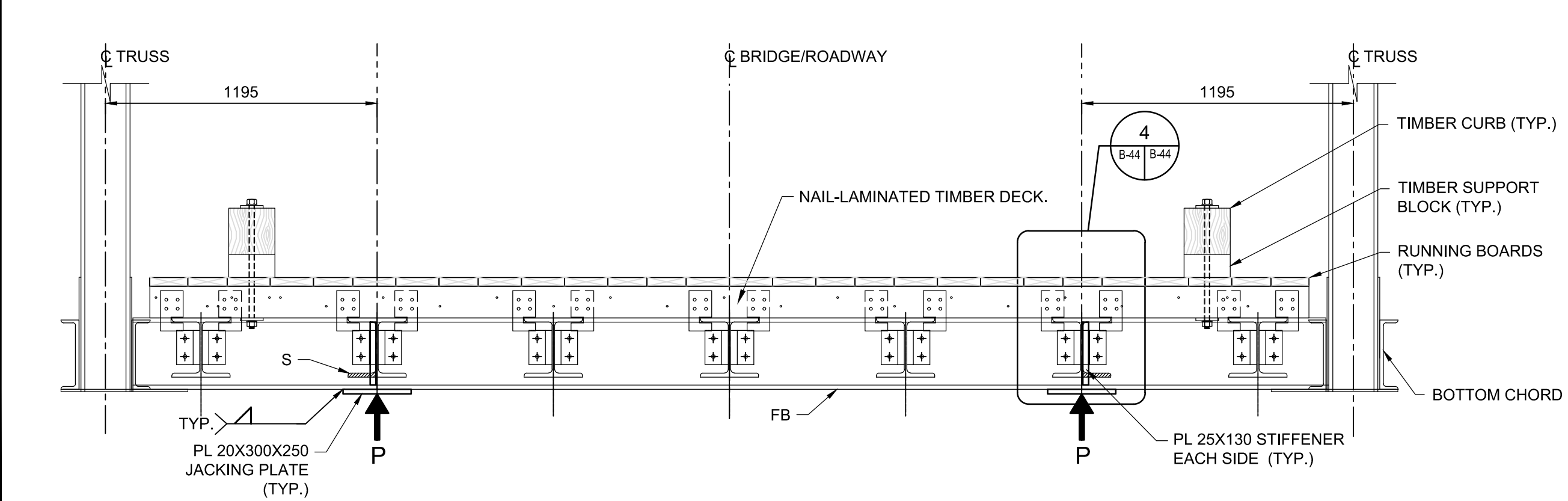




FLOOR SYSTEM PLAN  
1:50

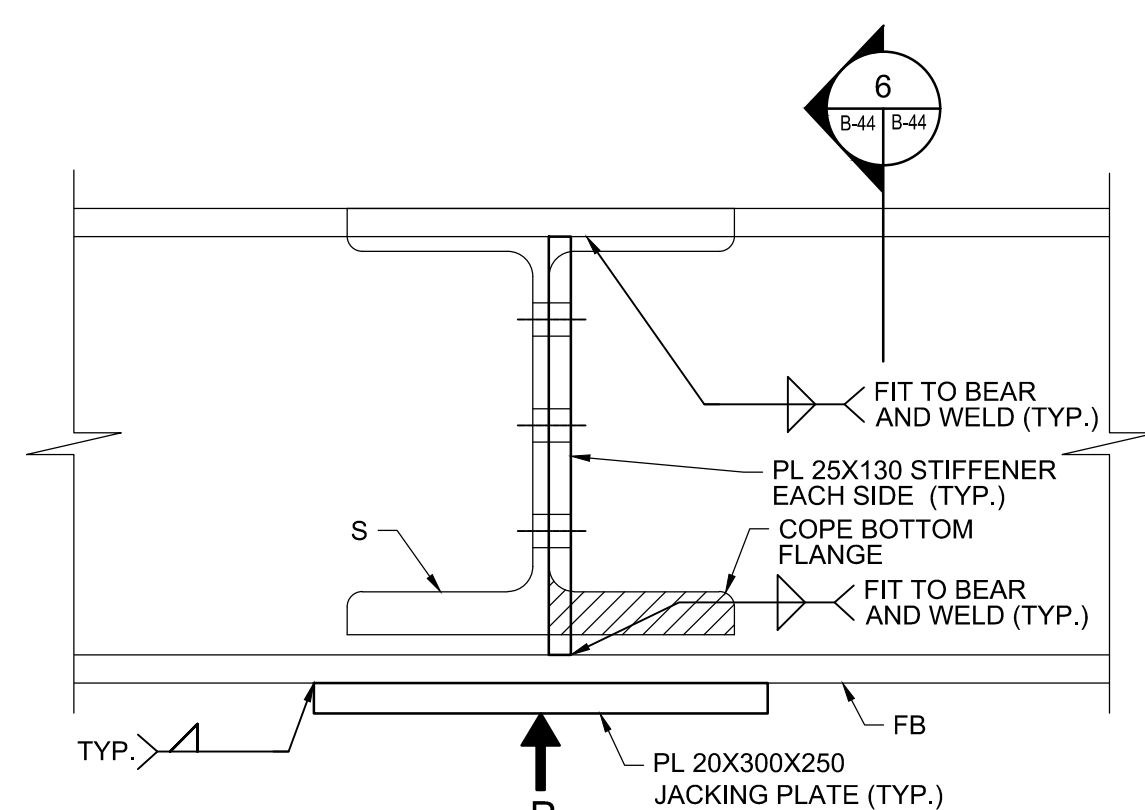


SOFFIT PLAN  
1:50

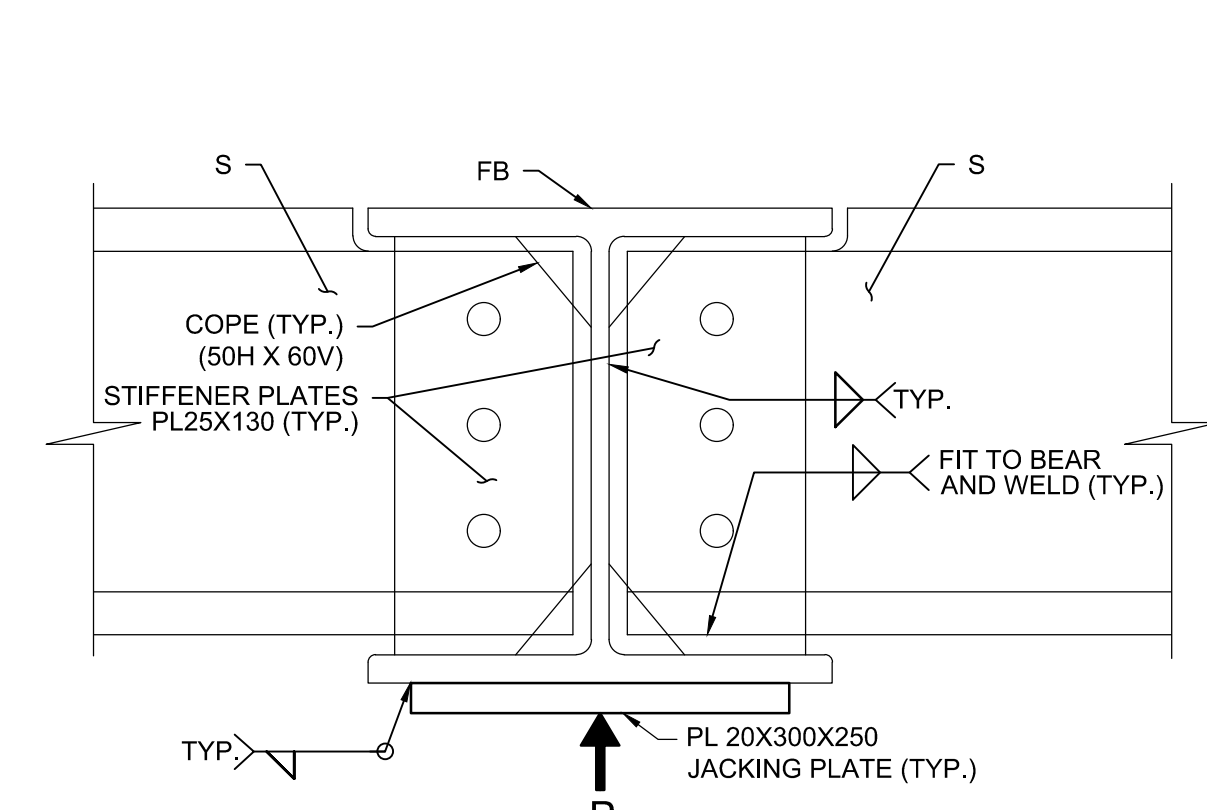


SECTION  
1:20

| FUTURE JACKING LOAD* (Kn) |     |
|---------------------------|-----|
| LOCATION                  | P   |
| WEST ABUTMENT @ FBO       | 235 |
| EAST PIER @ FBO'          | 235 |
| *SLS PERMANENT LOAD ONLY  |     |



DETAIL  
1:5



SECTION  
1:5

PARSONS

- NOTES:
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24, B-25, AND DRAWINGS B41 TO B46.
  - ROLLED SECTIONS ARE SHOWN IN THIS DRAWING



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
| C | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

FIXED BRIDGE  
STRUCTURAL STEEL IV

drawn by  
dessiné par

designed by  
conçue par

approved by  
approuvé par

bid  
offre

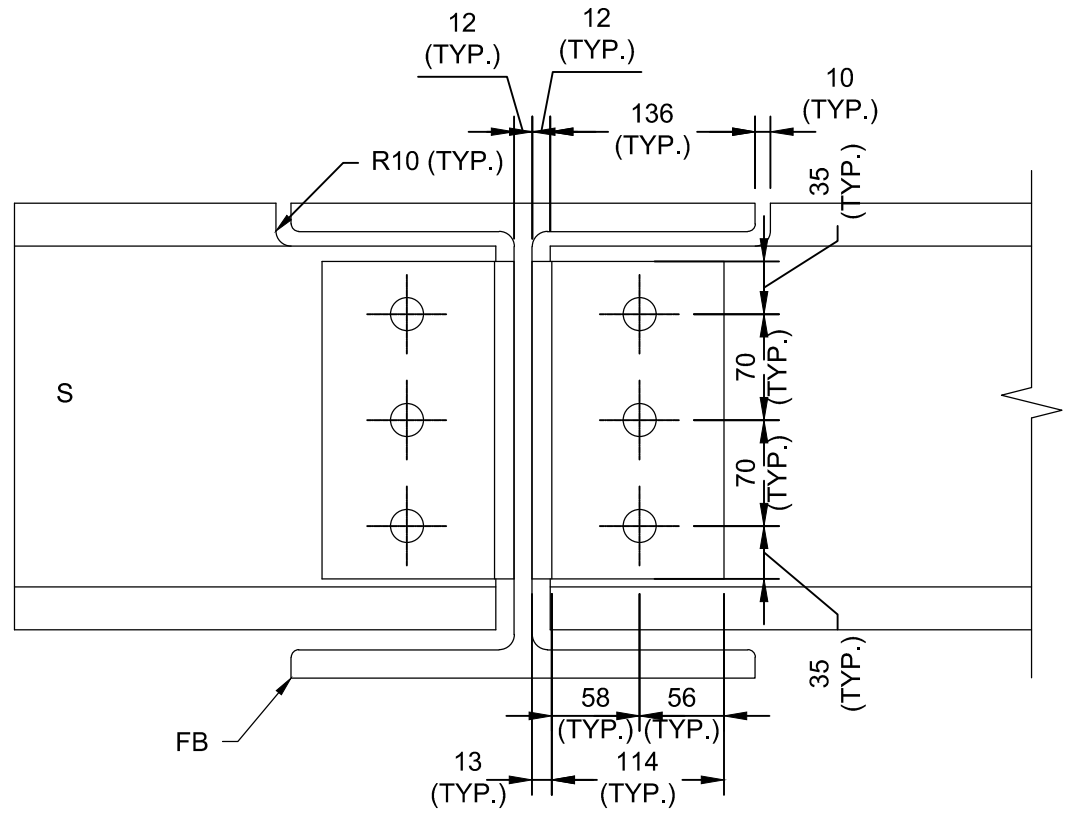
project date  
date du projet

project no.  
no. du projet

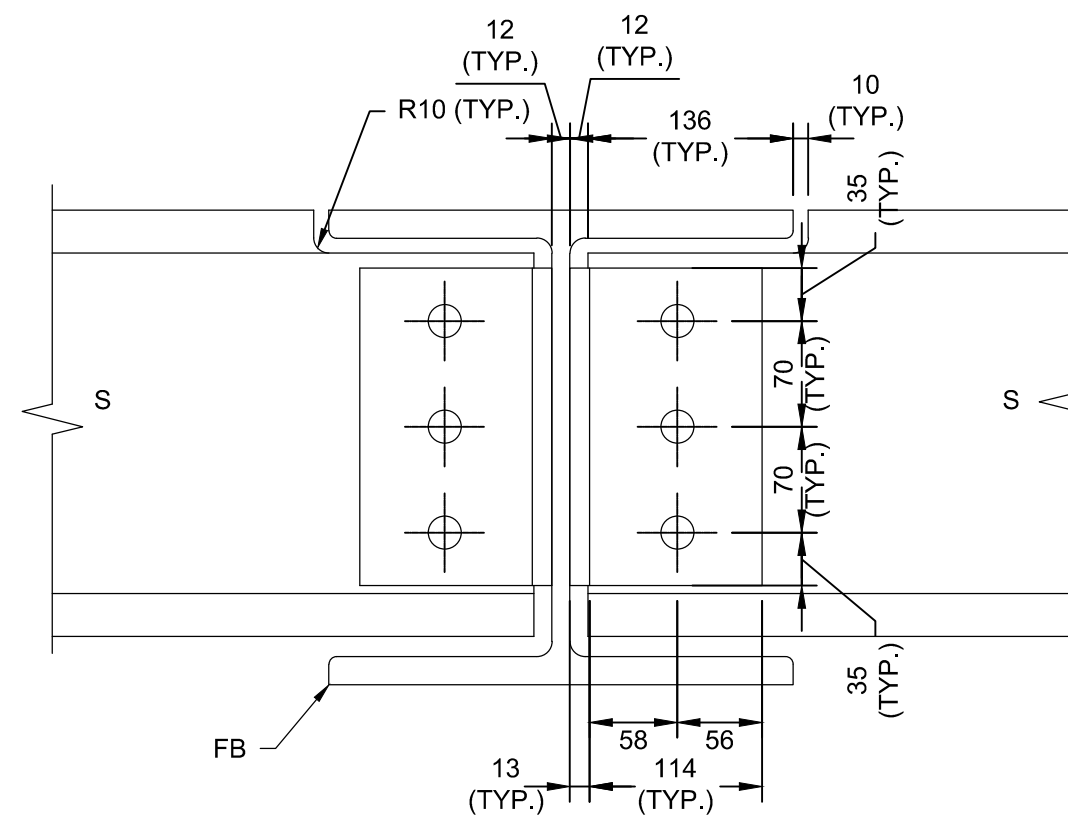
drawing no.  
dessiné no.

B-44

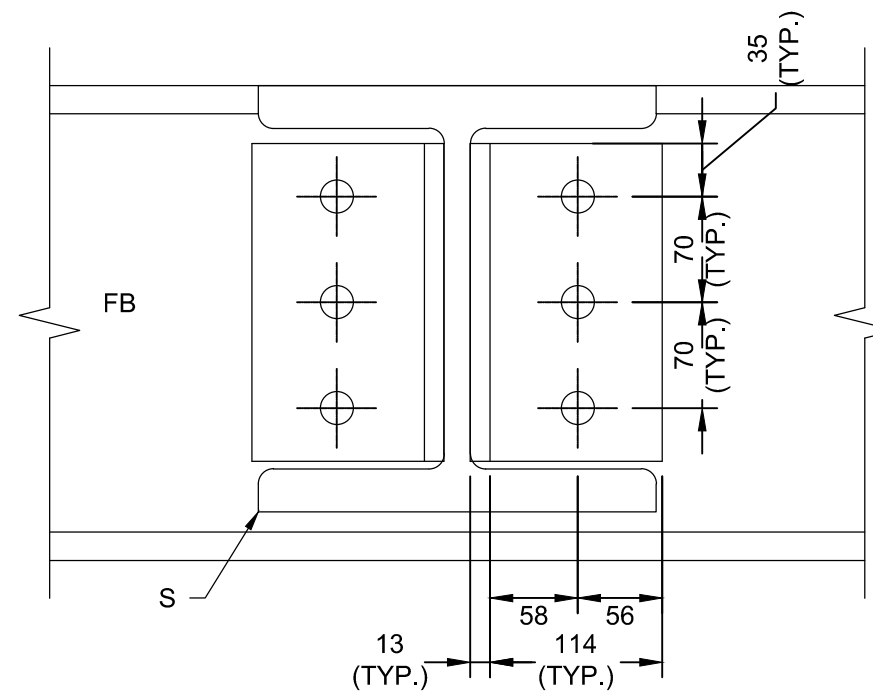




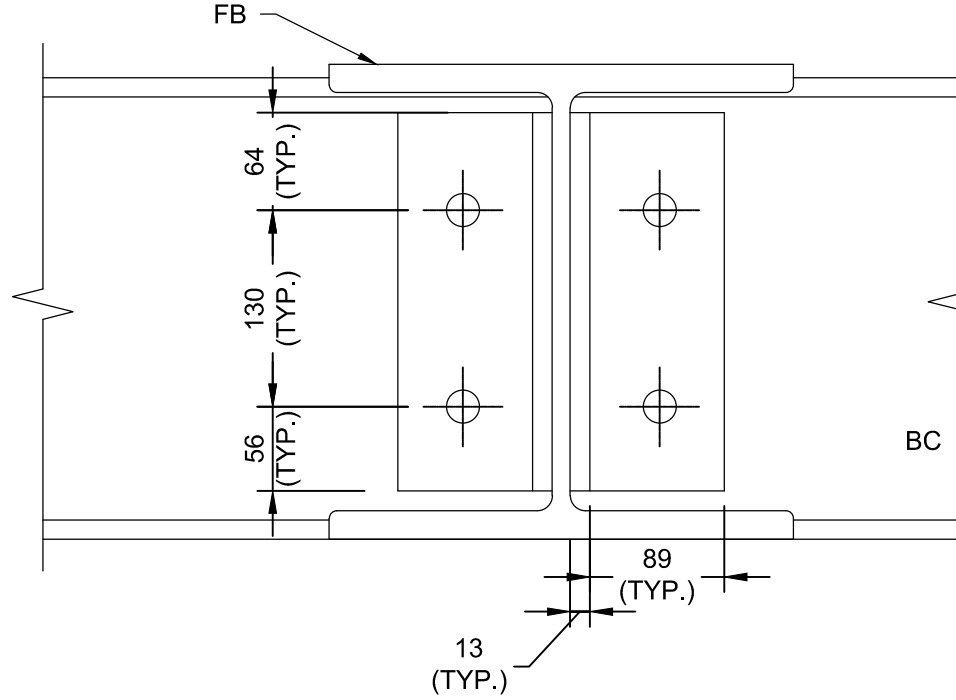
1 SECTION  
B-44 B-45  
1:5



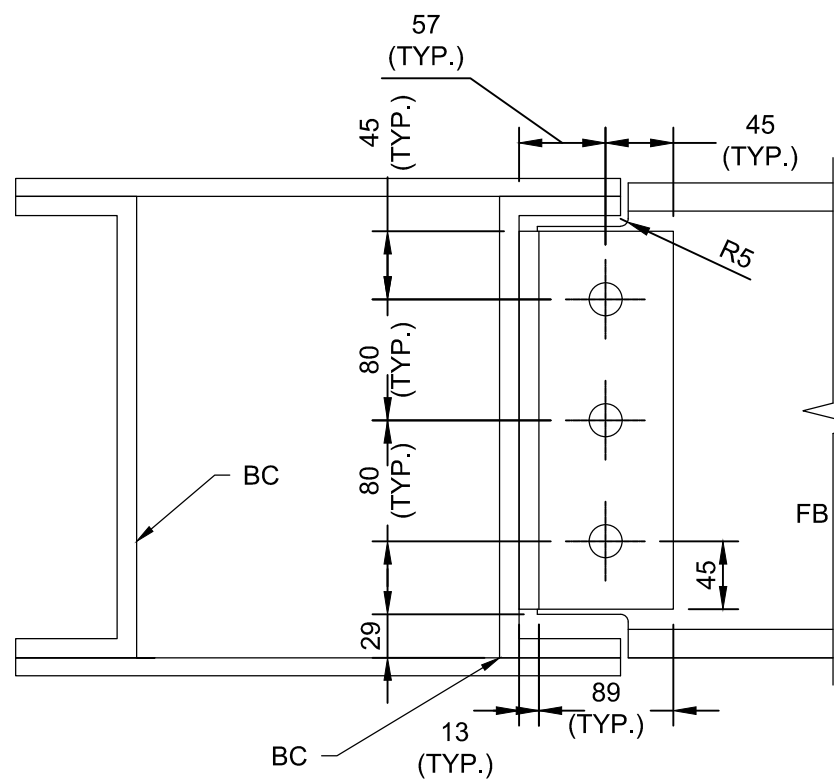
2 SECTION  
B-44 B-45  
1:5



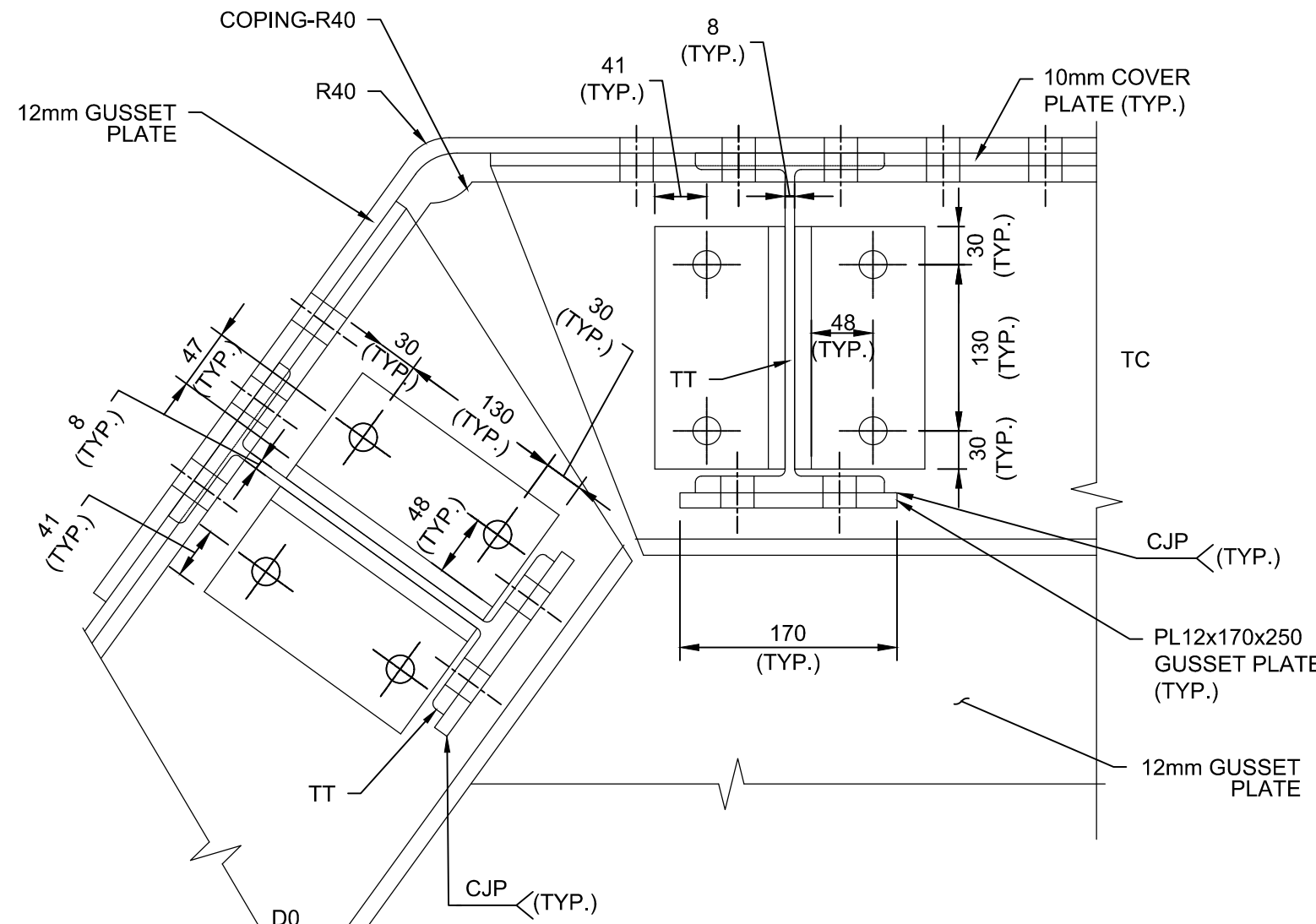
3 SECTION  
B-44 B-45  
1:5



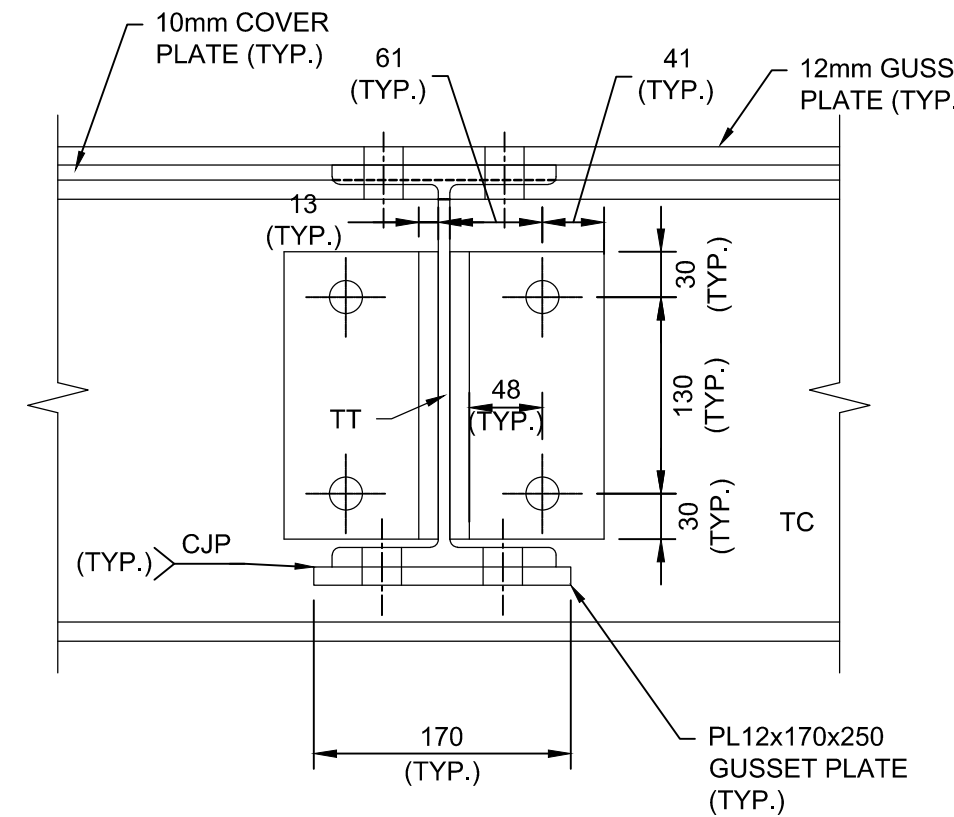
4 SECTION  
B-44 B-45  
1:5



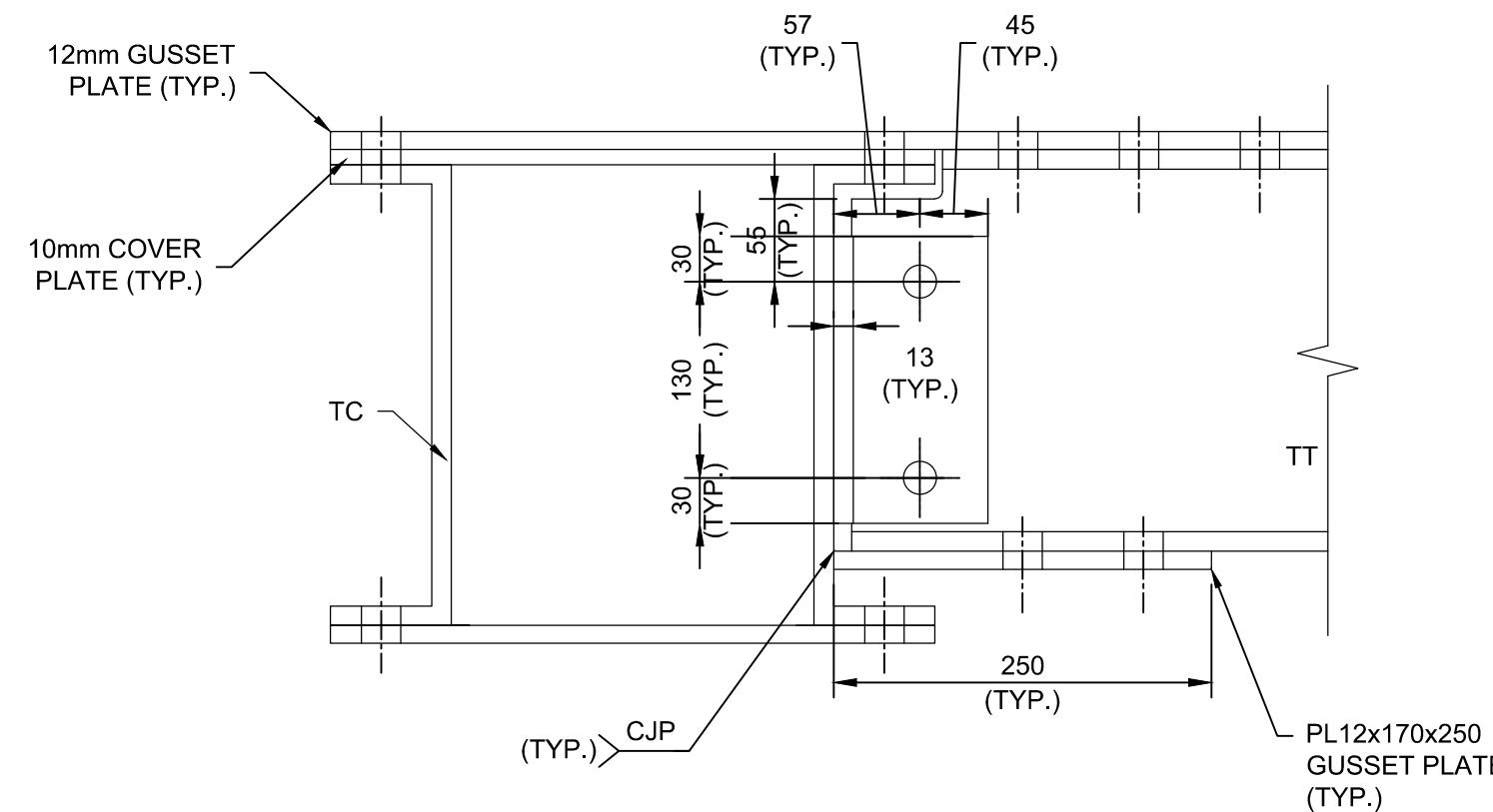
5 SECTION  
B-44 B-45  
1:5



1 SECTION  
B-41 B-45  
1:5  
(VERTICAL AND DIAGONAL  
NOT SHOWN FOR CLARITY)



2 SECTION  
B-41 B-45  
1:5



3 SECTION  
B-41 B-45  
1:5

- NOTES:
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24, B-25, AND DRAWINGS B41 TO B46.
  - ROLLED SECTIONS ARE SHOWN IN THIS DRAWING
  - TYPICAL DIMENSIONS ARE SHOWN UNLESS OTHERWISE NOTED

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
FIXED BRIDGE  
STRUCTURAL STEEL DETAILS V

drawn by  
dessiné par  
RADU STANCIU

designed by  
conçue par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

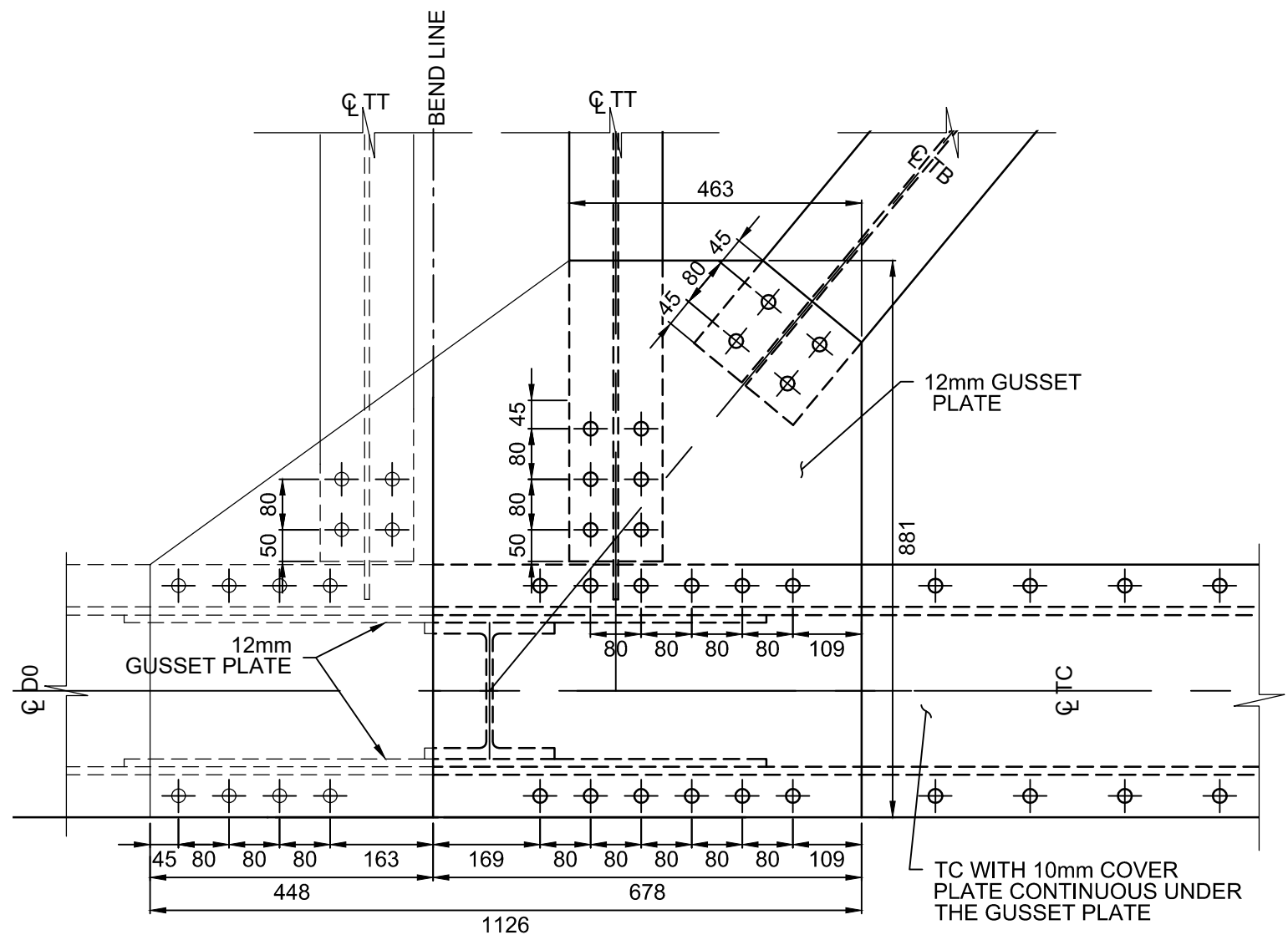
bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

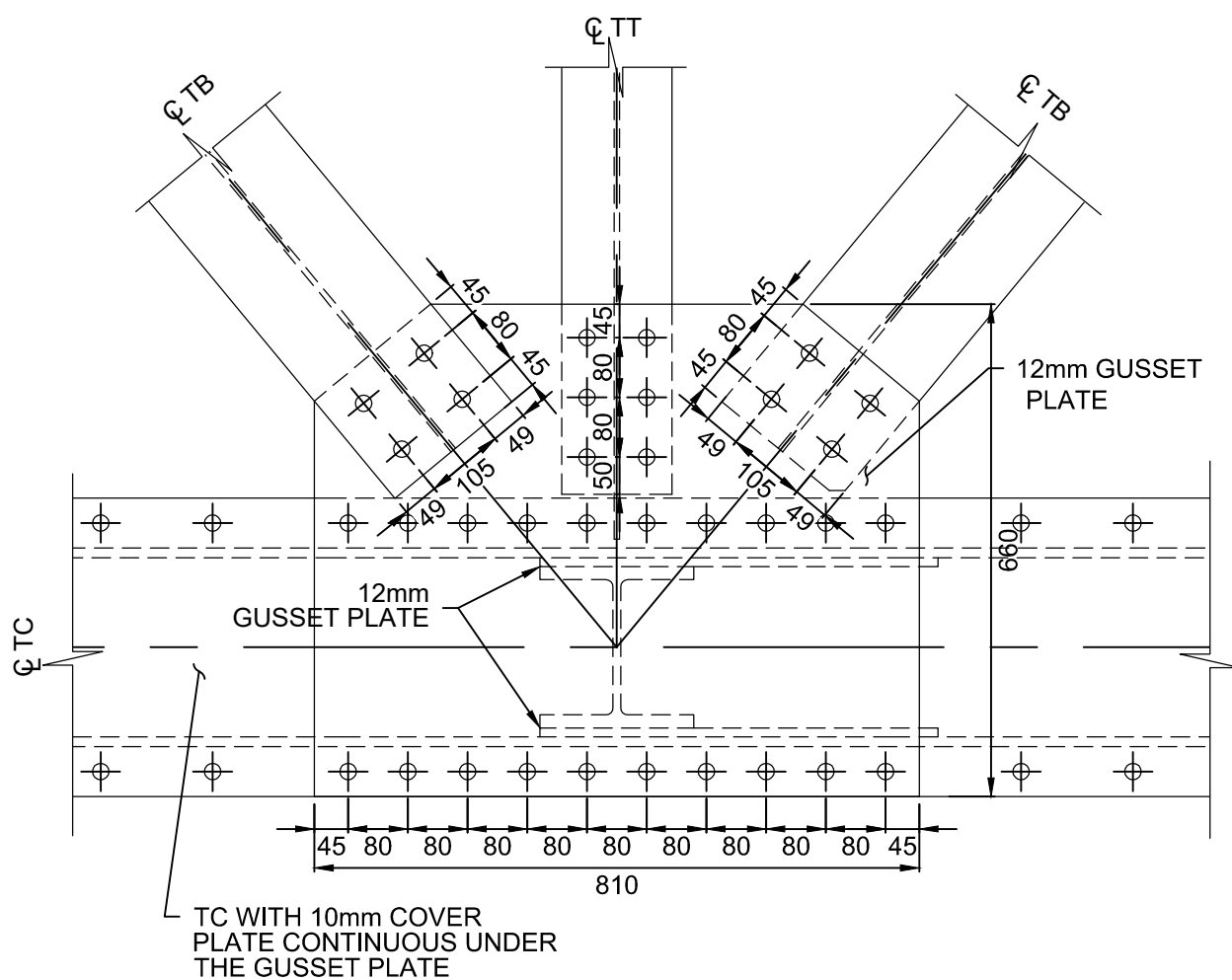
project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
B-45

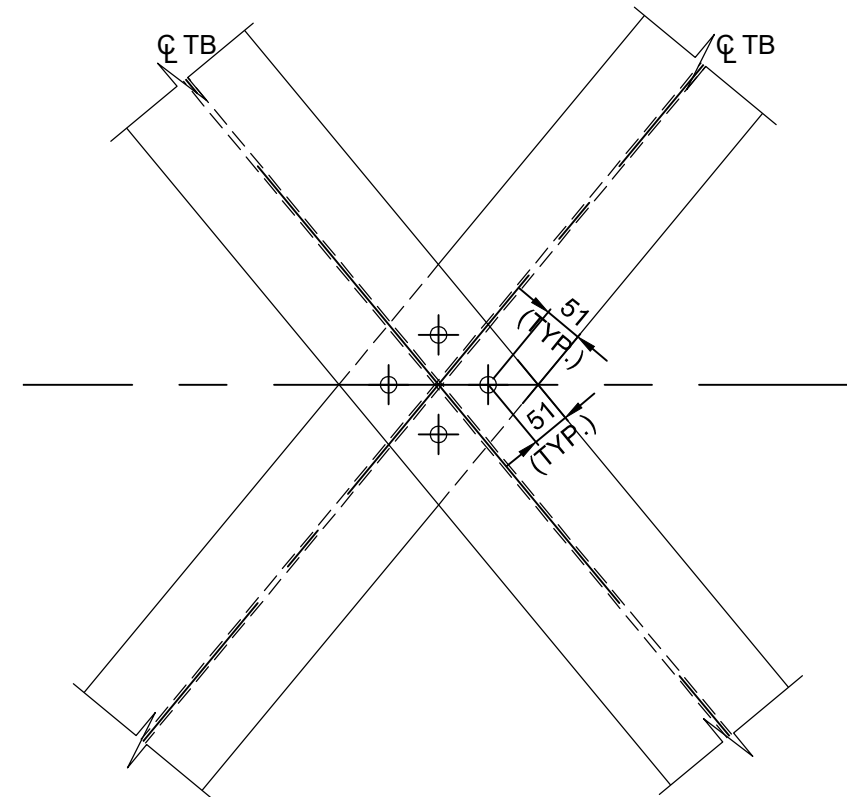




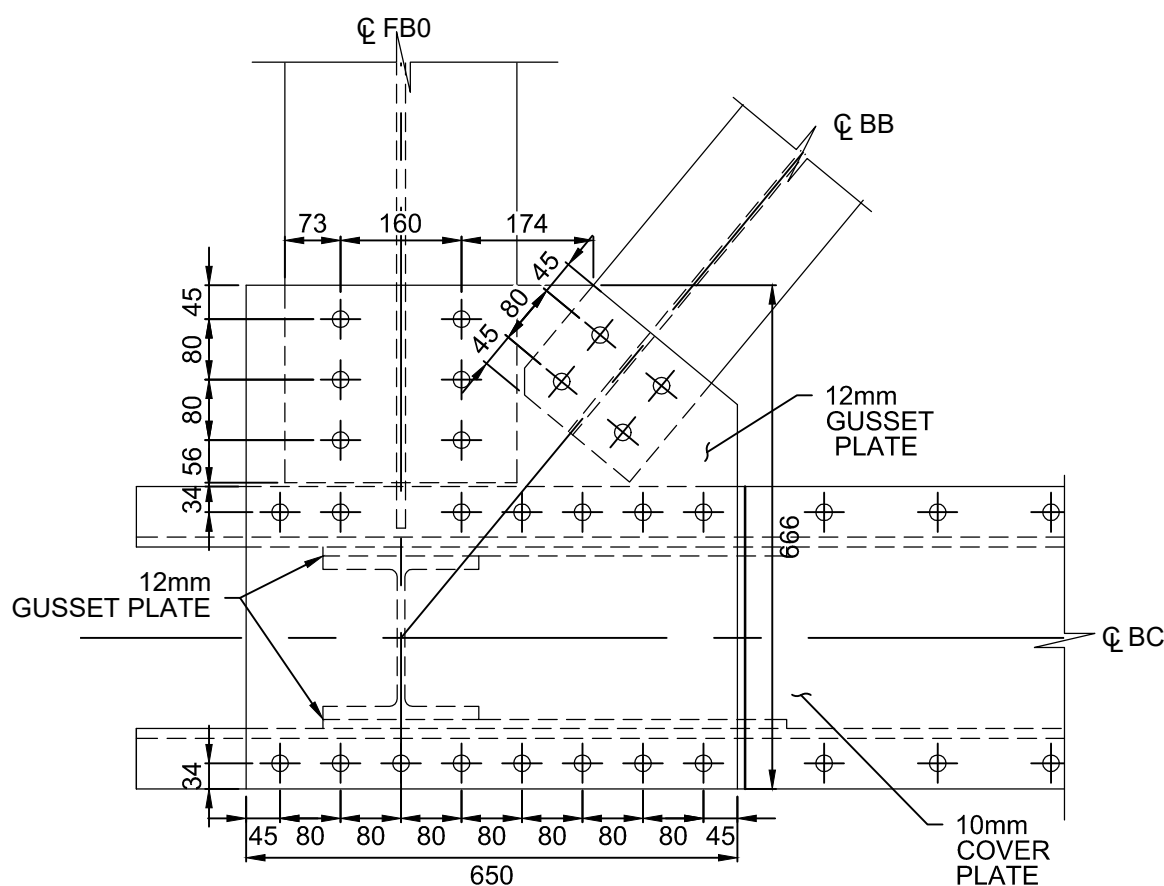
1 SECTION-U1 DEVELOPED PLAN VIEW  
1:10



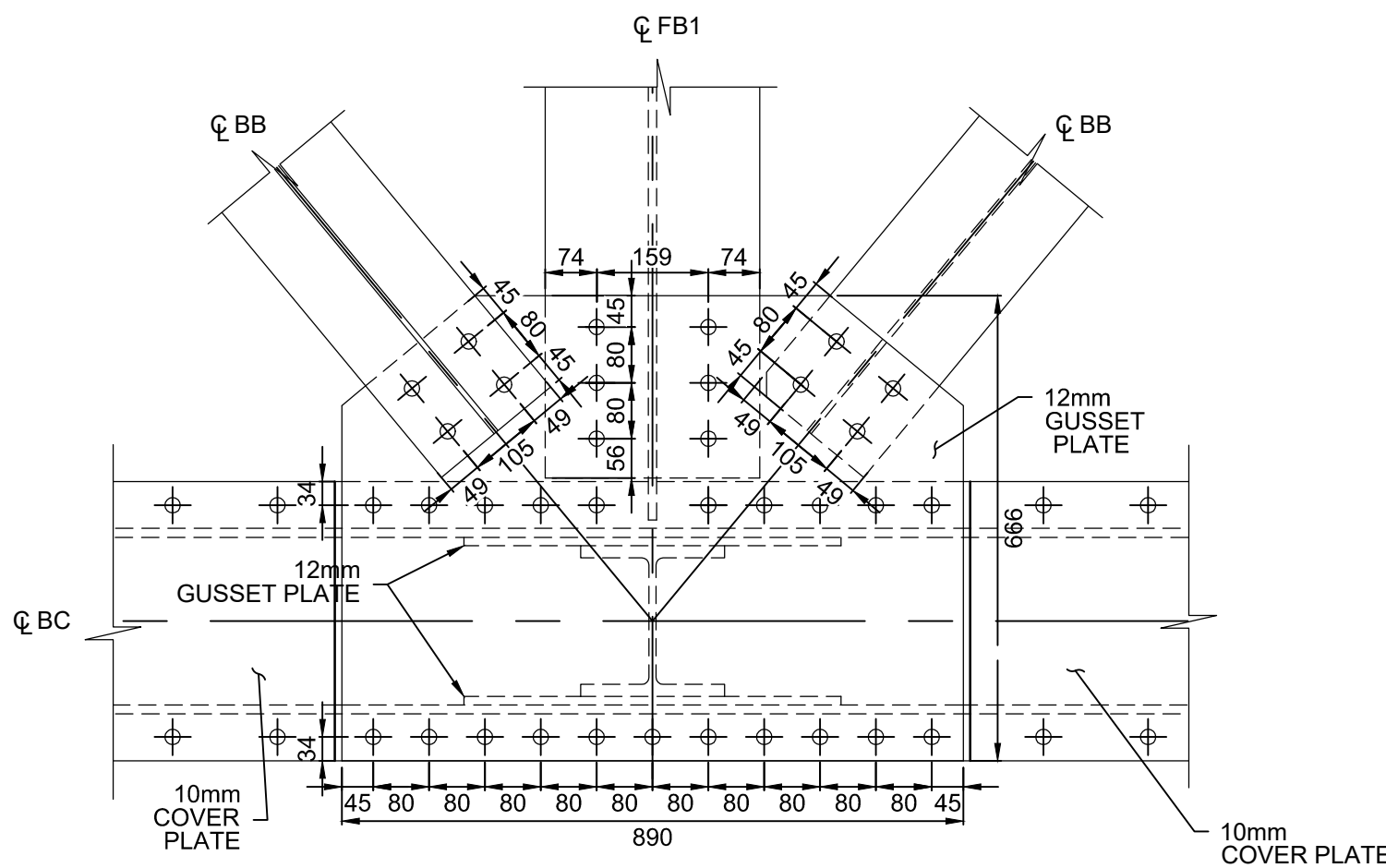
2 DETAIL-U2 PLAN VIEW  
1:10



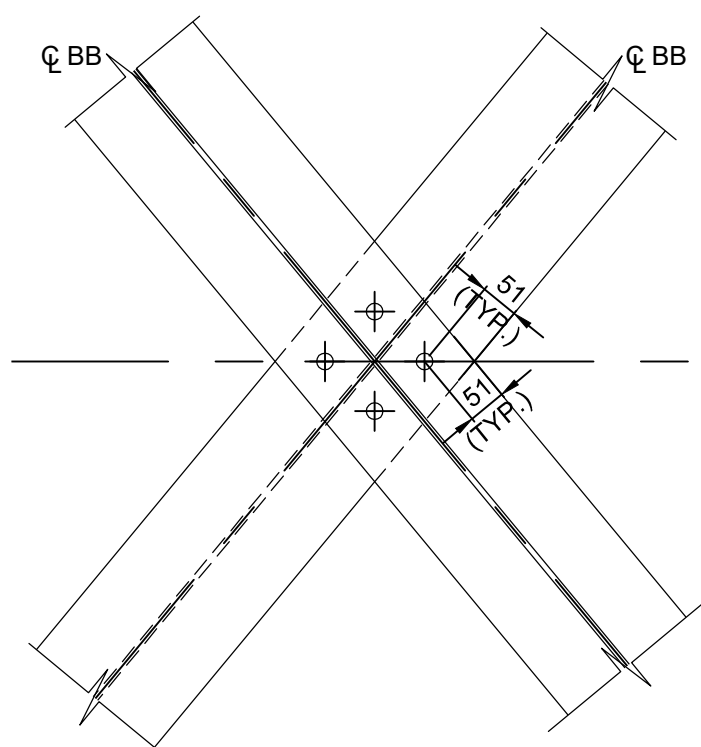
3 DETAIL-PLAN TOP BRACING TYPICAL  
1:10



1 DETAIL-L0 BOTTOM GUSSET PLATE  
1:10



2 DETAIL-L1 BOTTOM GUSSET PLATE  
1:10



4 DETAIL-PLAN BOTTOM BRACING TYPICAL  
1:10

- NOTES:
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS B-24, B-25, AND DRAWINGS B-41 TO B-45.
  - ROLLED SECTIONS ARE SHOWN IN THIS DRAWING.

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
FIXED BRIDGE  
STRUCTURAL STEEL VI

drawn by  
dessiné par  
RADU STANCIU

designed by  
conç par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

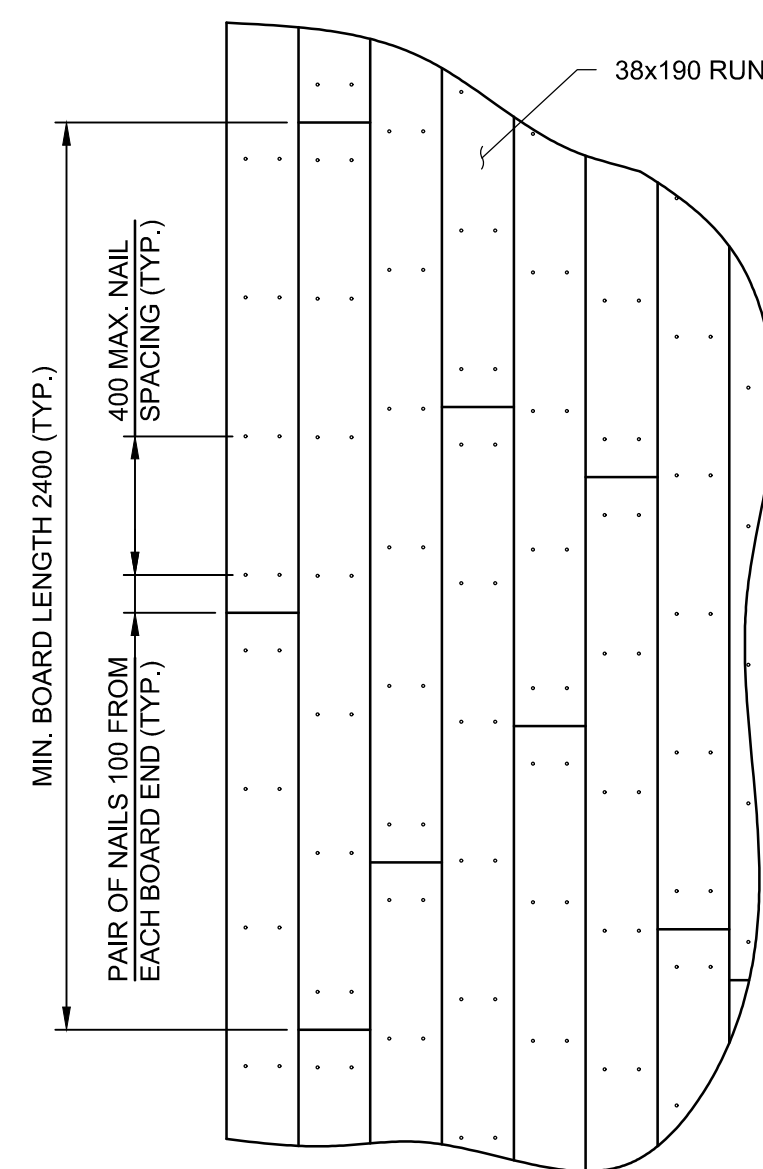
bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

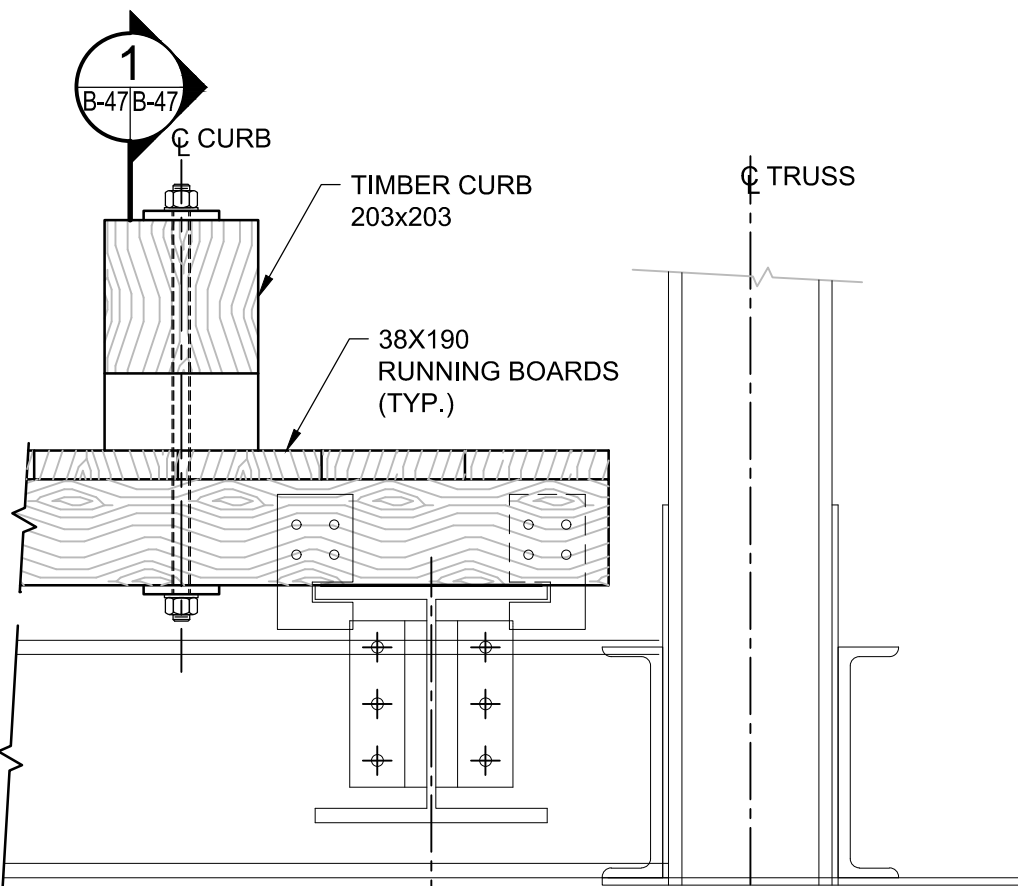
drawing no.  
dessiné no.  
B-46





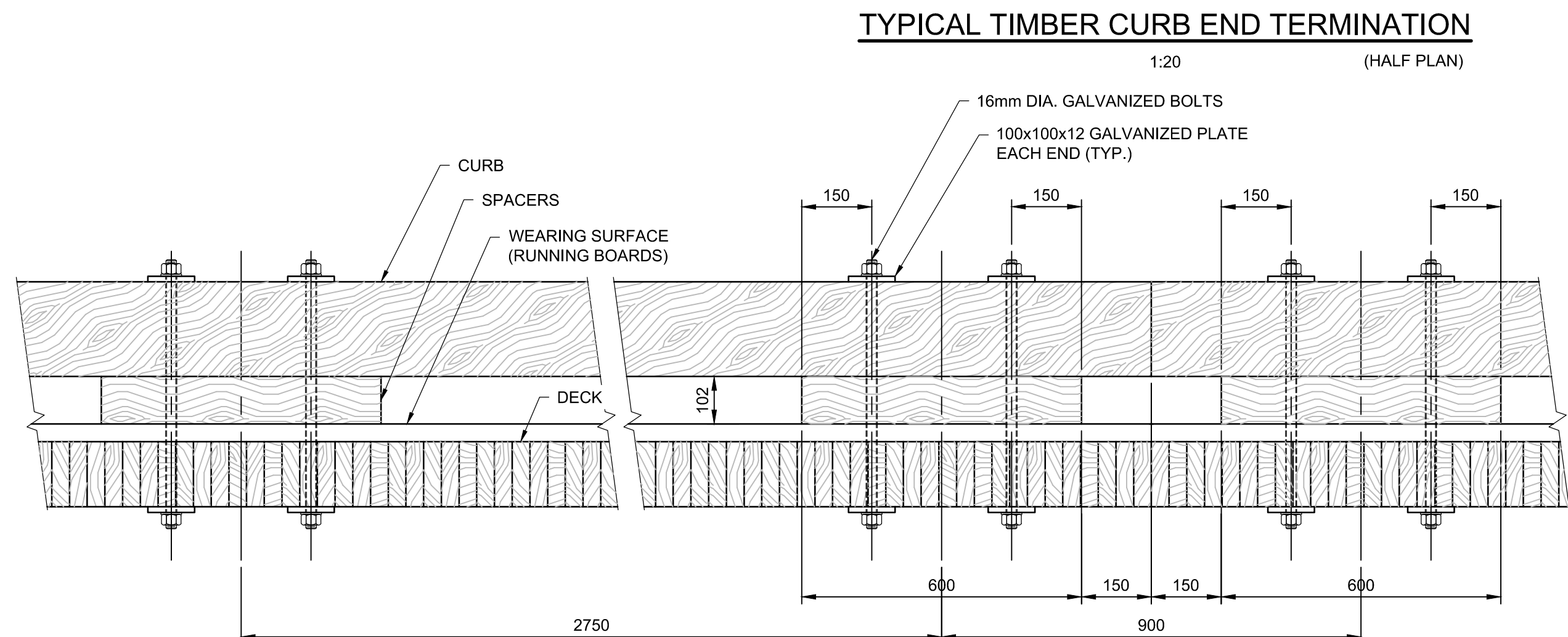
## TYPICAL RUNNING BOARDS

1:20 (PLAN VIEW)

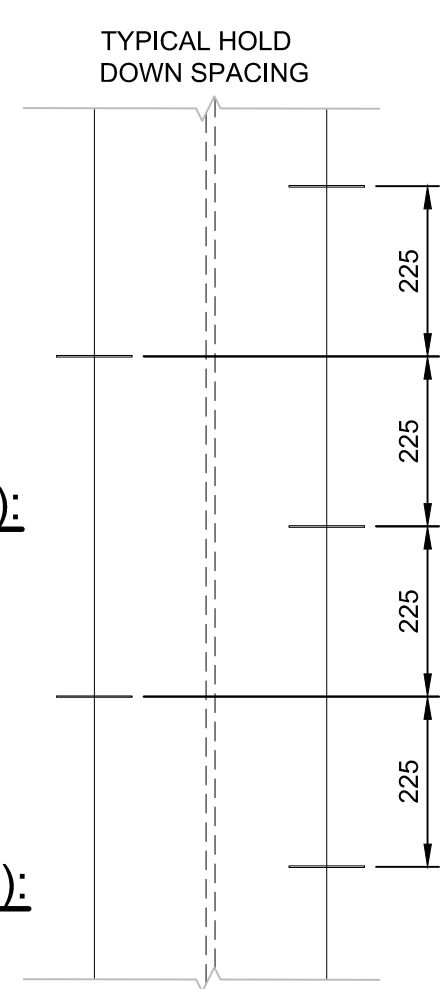


## TYPICAL TIMBER CURB

1:10

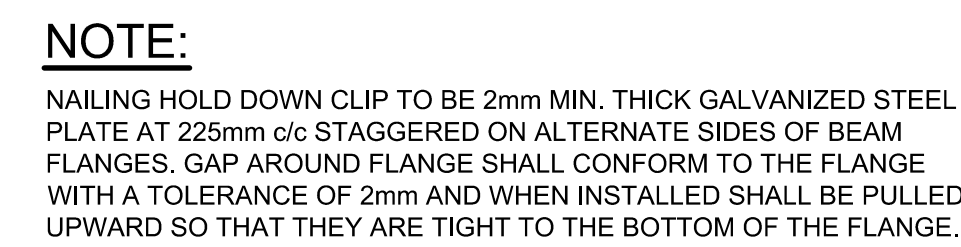


1:20 (HALF PLAN)



## PLAN

1:10

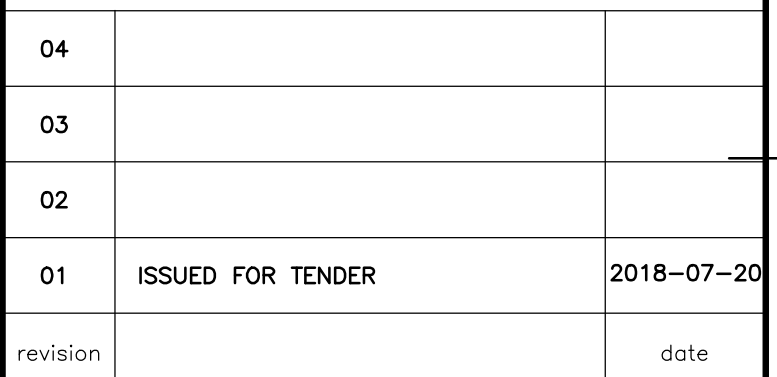



### TYPICAL DECK HOLD DOWN CLIP DETAIL

1:5

1. ALL TIMBER USED FOR NEW LAMINATED DECK AND CURB SHALL BE PRESSURE TREATED SPF GRADE SELECT STRUCTURAL (SS).
2. ALL WOOD TO BE PRESURE-TREATED WITH PRESERVATIVE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CSA 080 SERIES-15.
3. RUNNING BOARDS TO BE HEMLOCK GRADE SELECT STRUCTURAL (SS).

1. NAILS FOR NEW TIMBER DECK SHALL BE HOT-DIPPED GALVANIZED TO CSA B111.
2. LAMINATED DECK BOARDS SHALL BE SPLICED ONLY OVER SLEEPERS, ONLY ONE SPLICE PER LINE, AND SPLICES SHALL BE STAGGERED BY AT LEAST 700 mm.

**PARSONS**

 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

Ontario

|                 |  |
|-----------------|--|
| drawing title   |  |
| titre du dessin |  |

## TIMBER DECK LAYOUT AND DETAILS

drawn by  
dessine par

designed by  
conc par

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

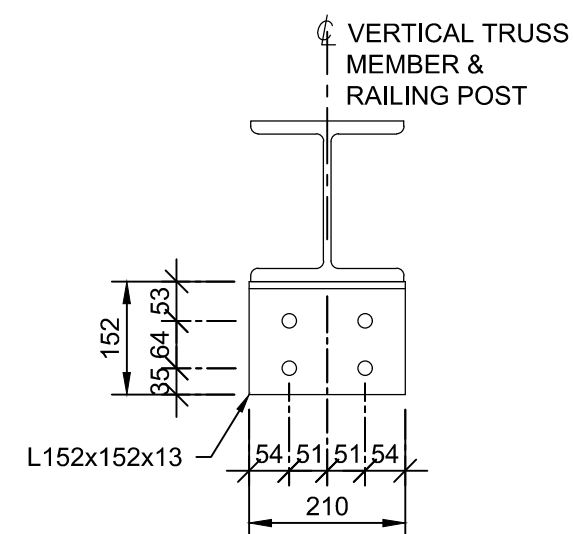
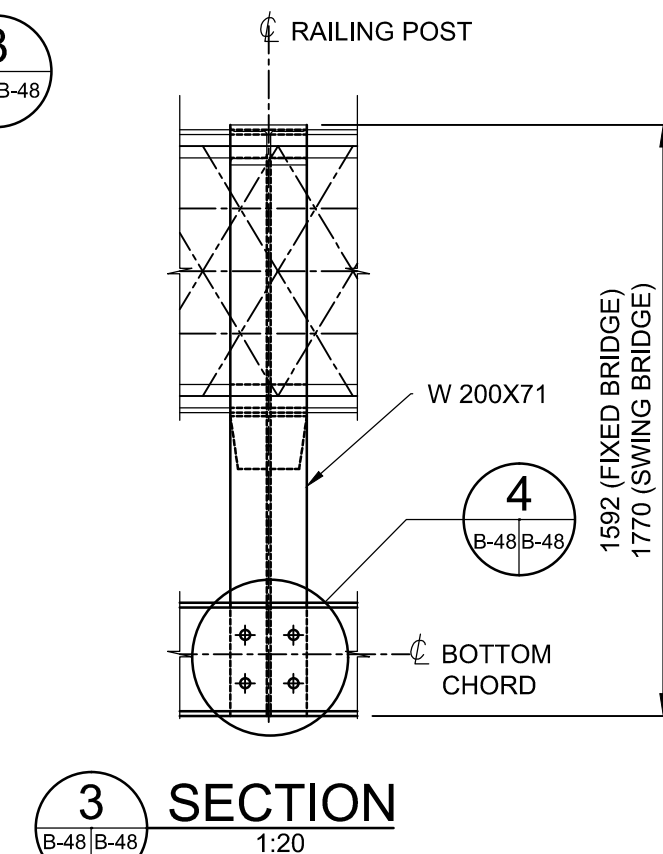
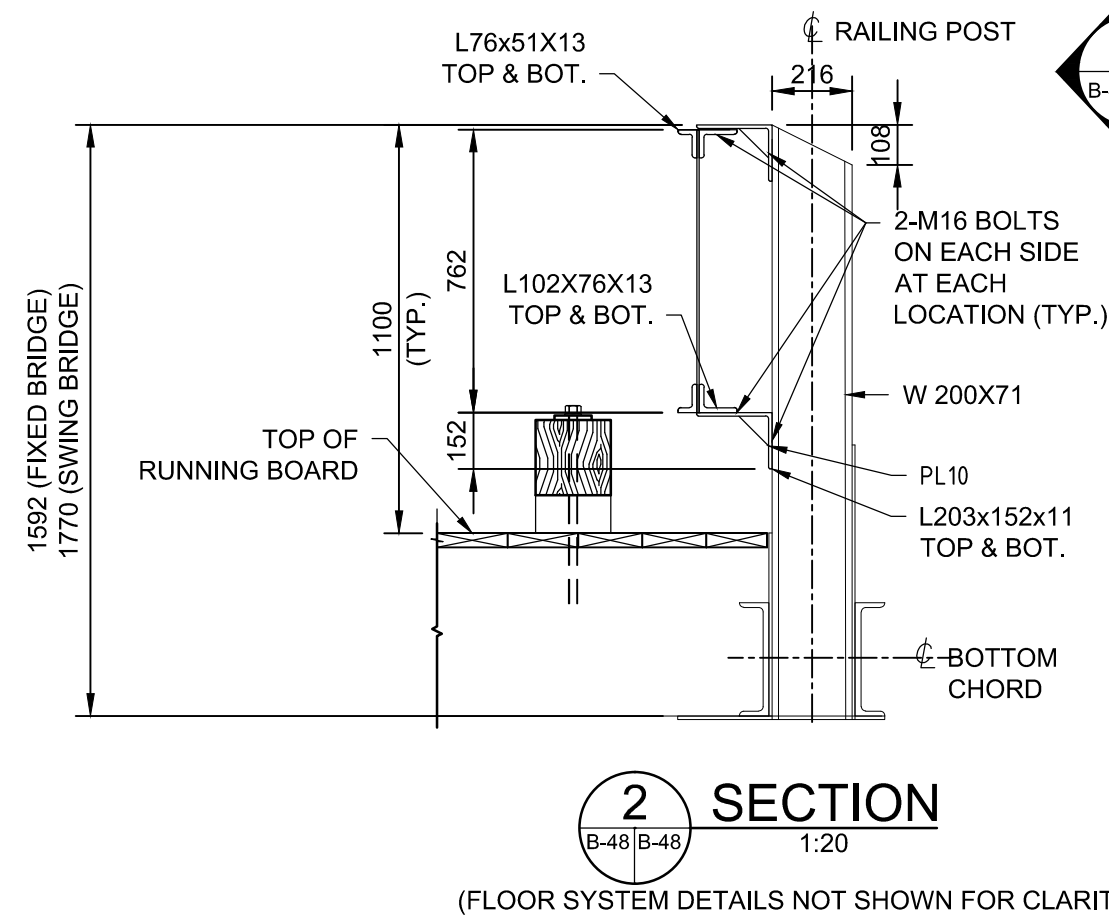
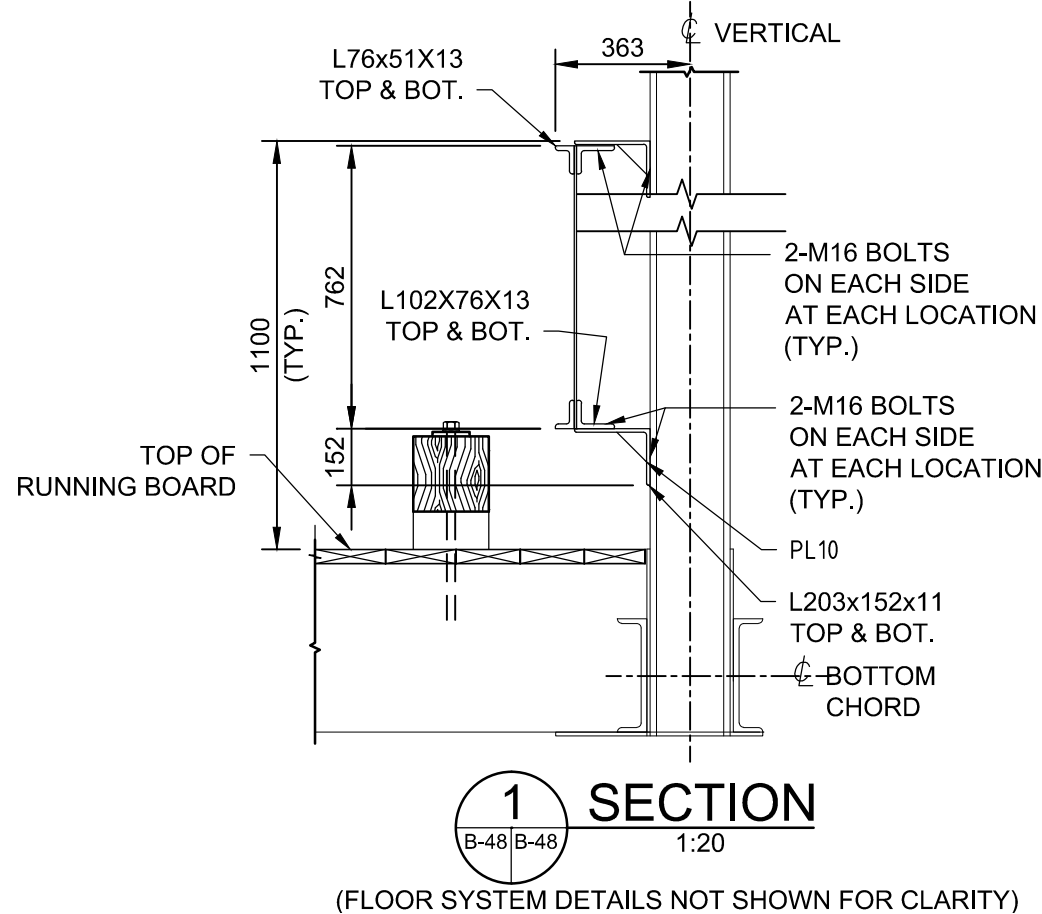
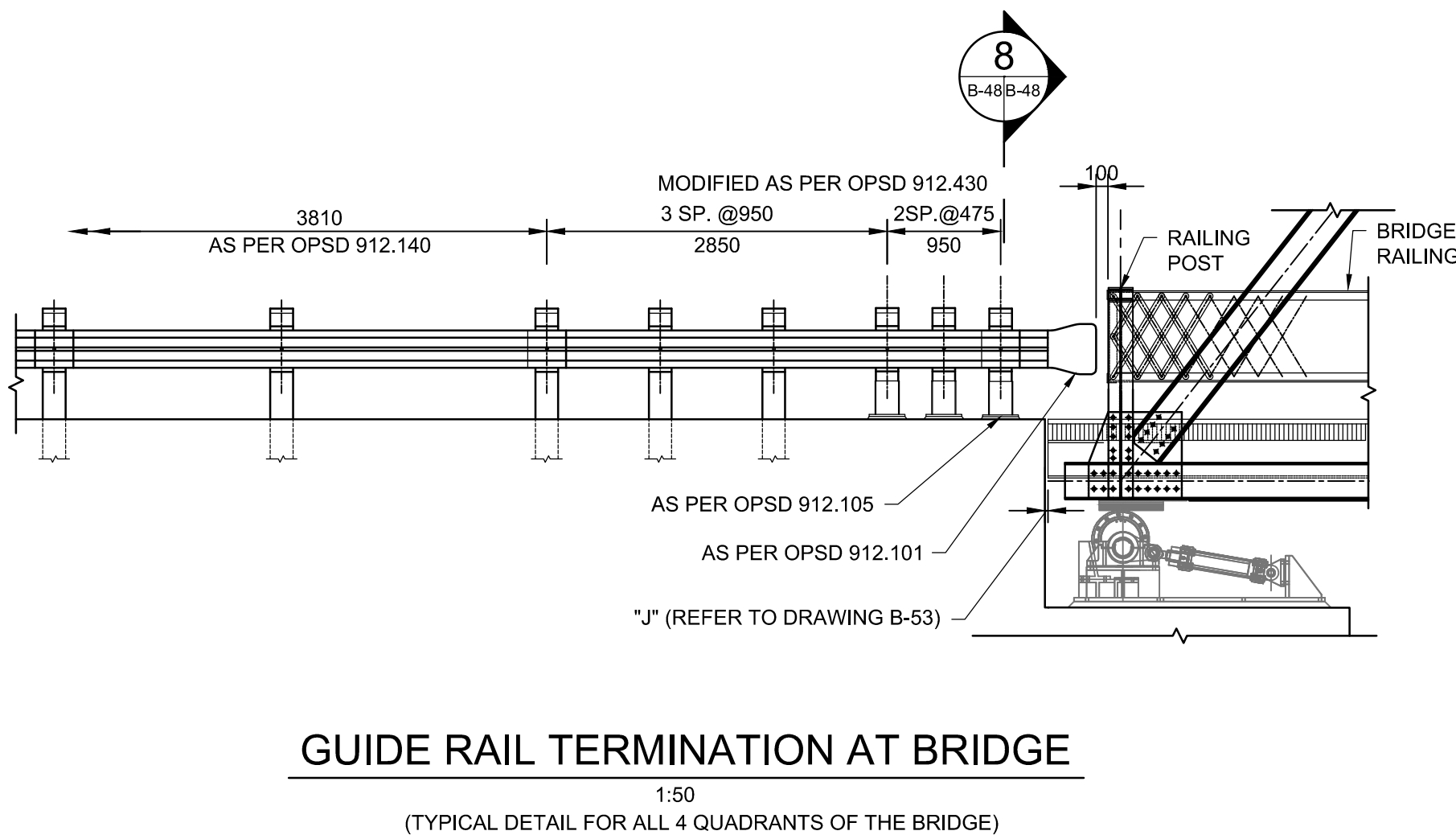
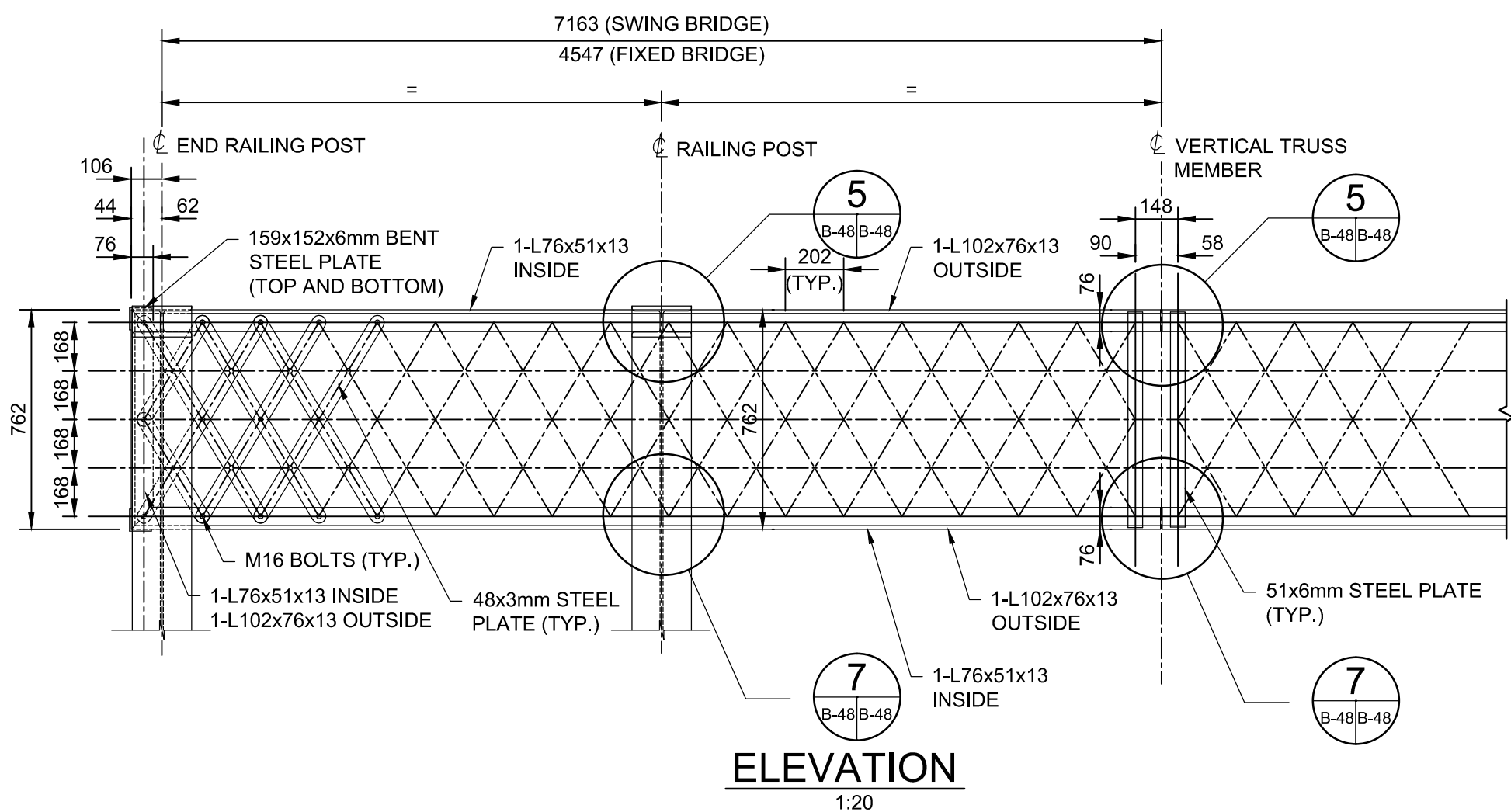
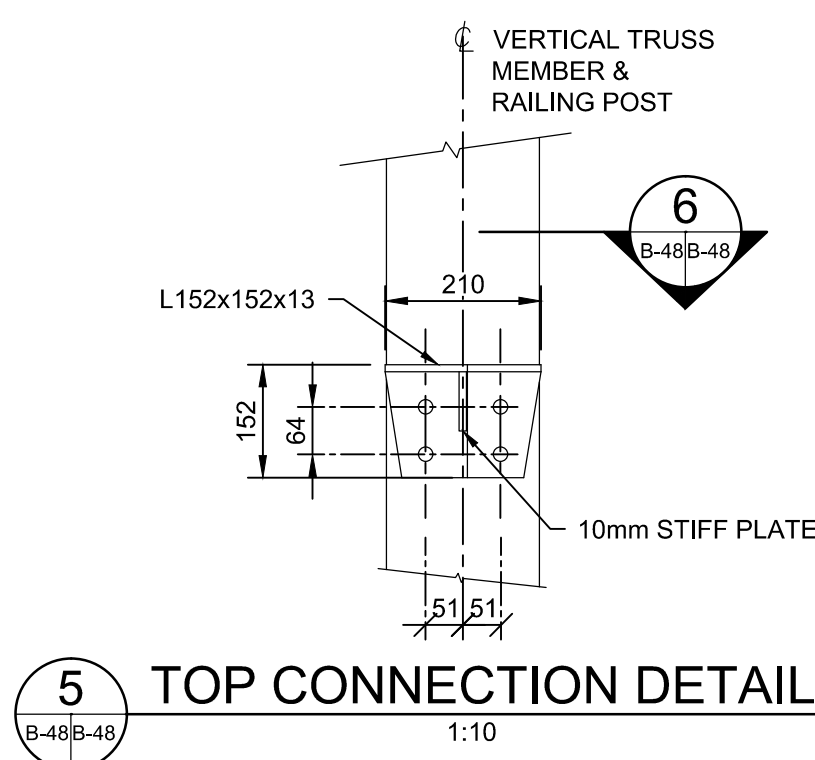
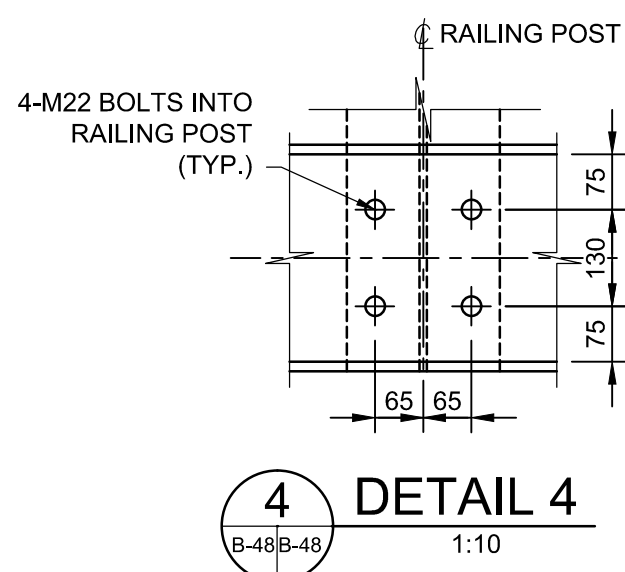
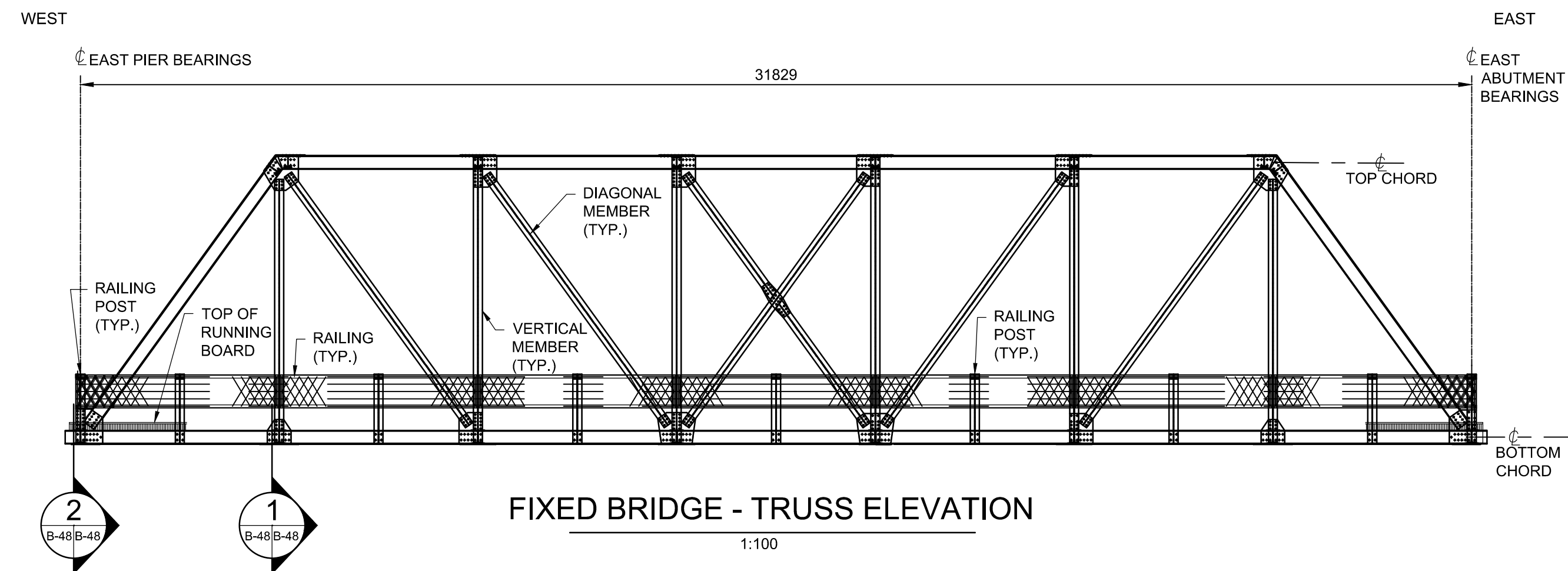
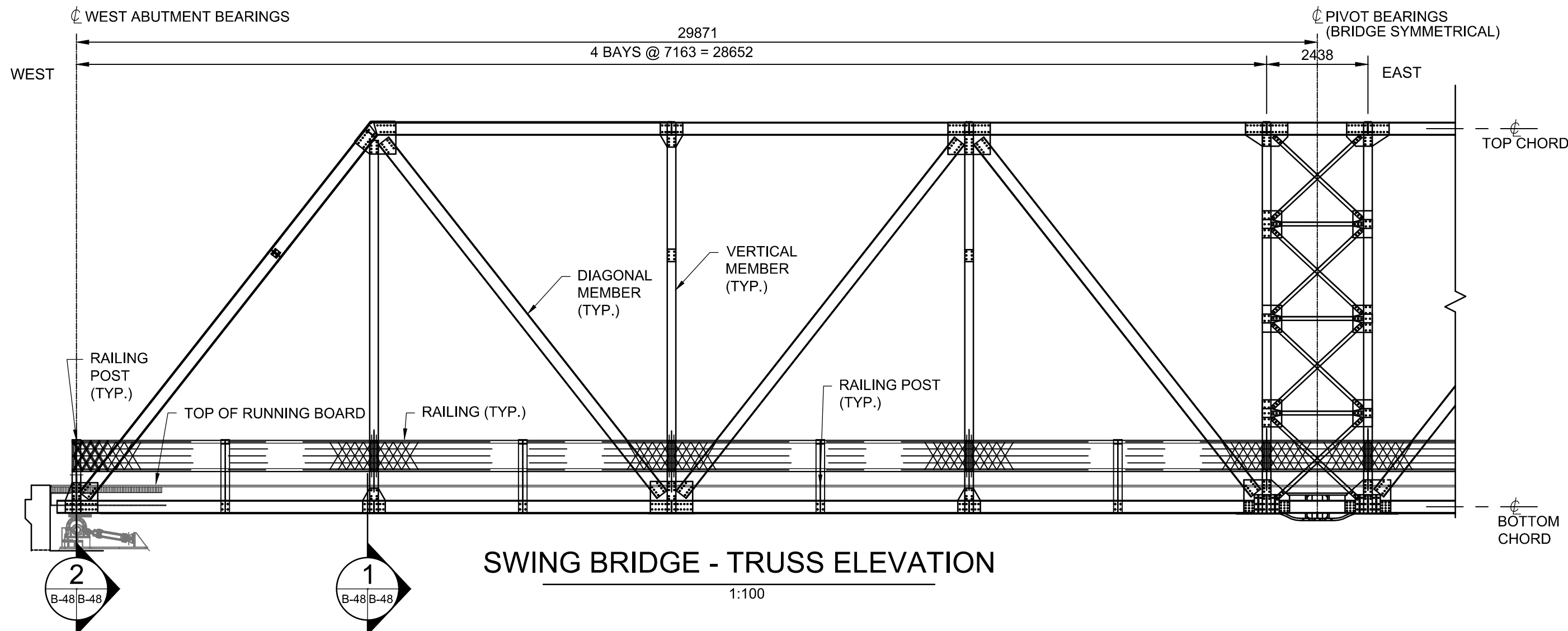
|                                |            |
|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

|               |
|---------------|
| project no.   |
| no. du projet |

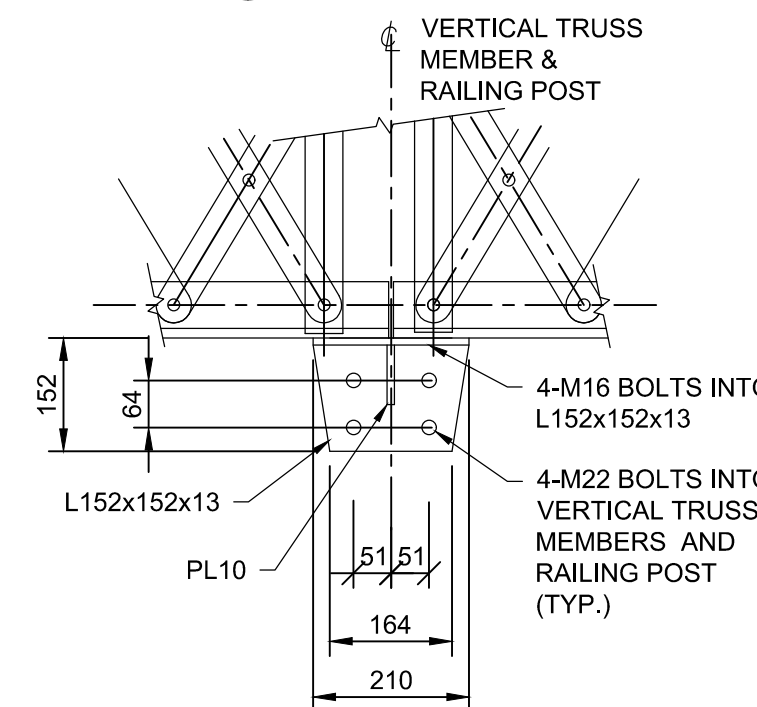
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|---------------------------|
| R:075555.001              |
| drawing no.<br>dessin no. |

B-47

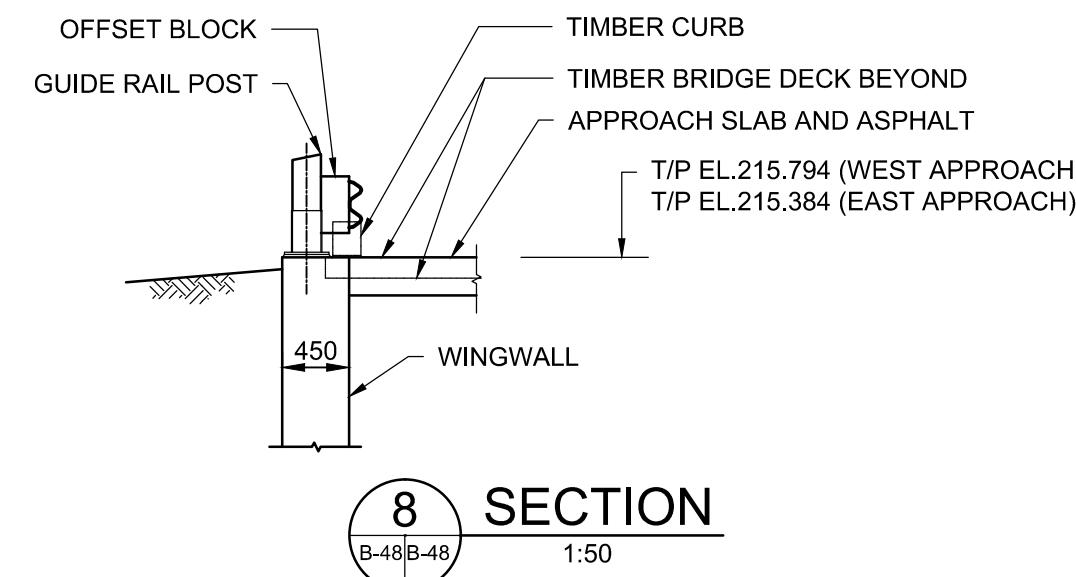




6 SECTION  
1:10



7 BOTTOM CONNECTION DETAIL  
1:10



PARSONS

LIST OF ABBREVIATIONS:

BOT DENOTES BOTTOM  
SP DENOTES SPACING  
STIFF DENOTES STIFFENER  
TYP DENOTES TYPICAL



|          |                   |            |
|----------|-------------------|------------|
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| revision | description       | date       |

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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

RAILING LAYOUT AND DETAILS

drawn by  
dessiné par ANTHONY LEE

designed by  
conc par ABOUBAKER FARAH

approved by  
approuvé par KAREN LIU

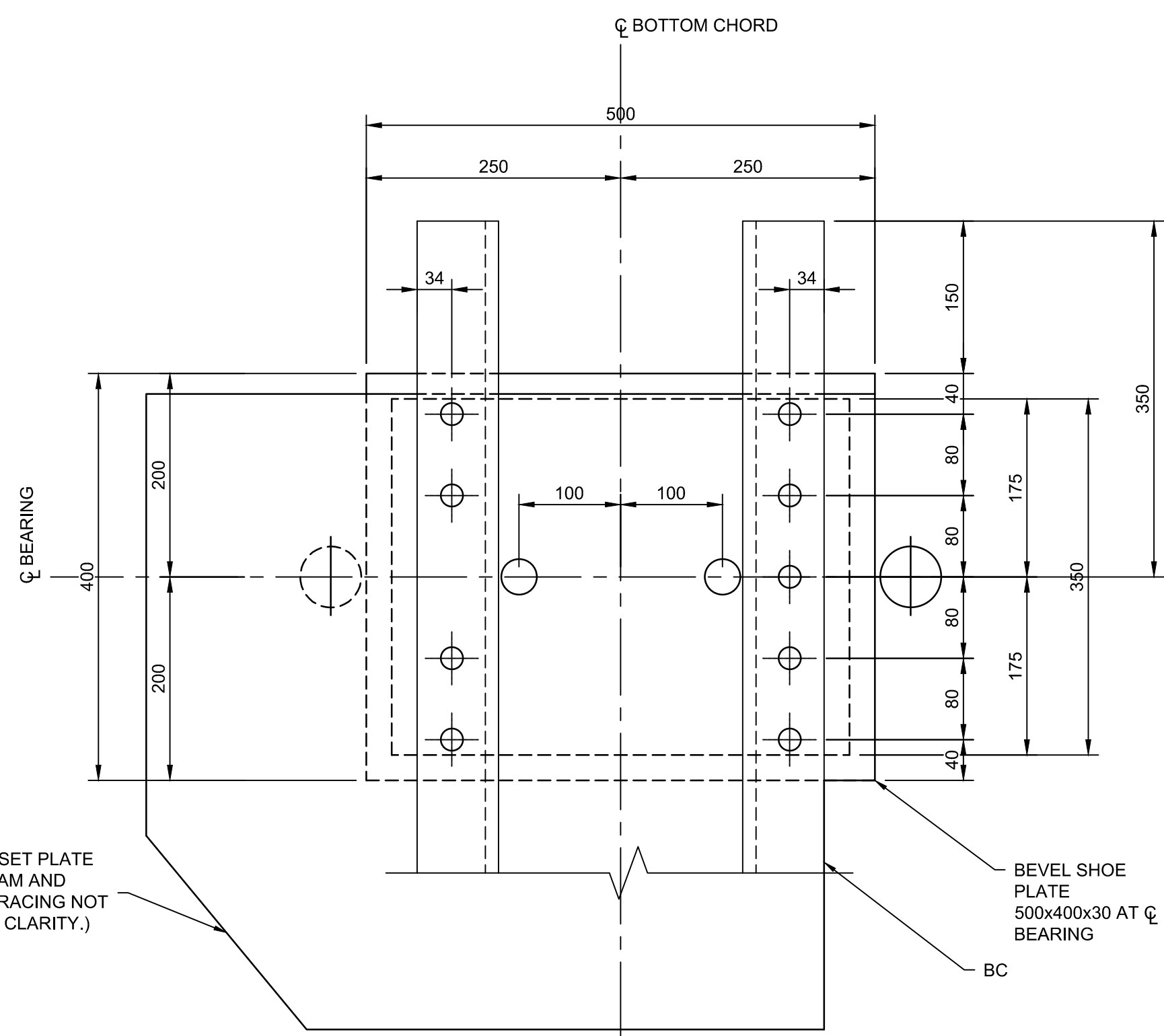
bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

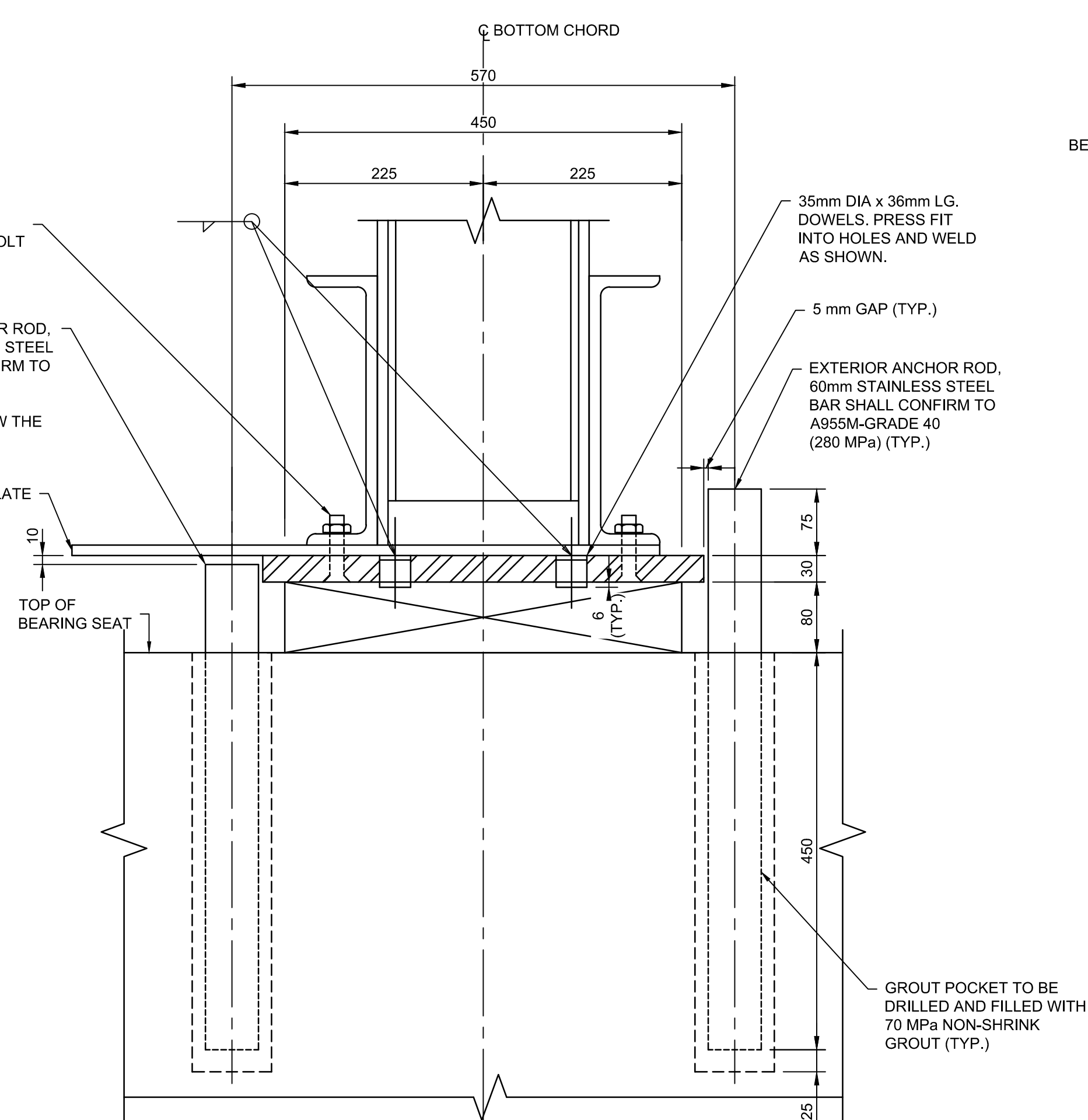
project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. B-48



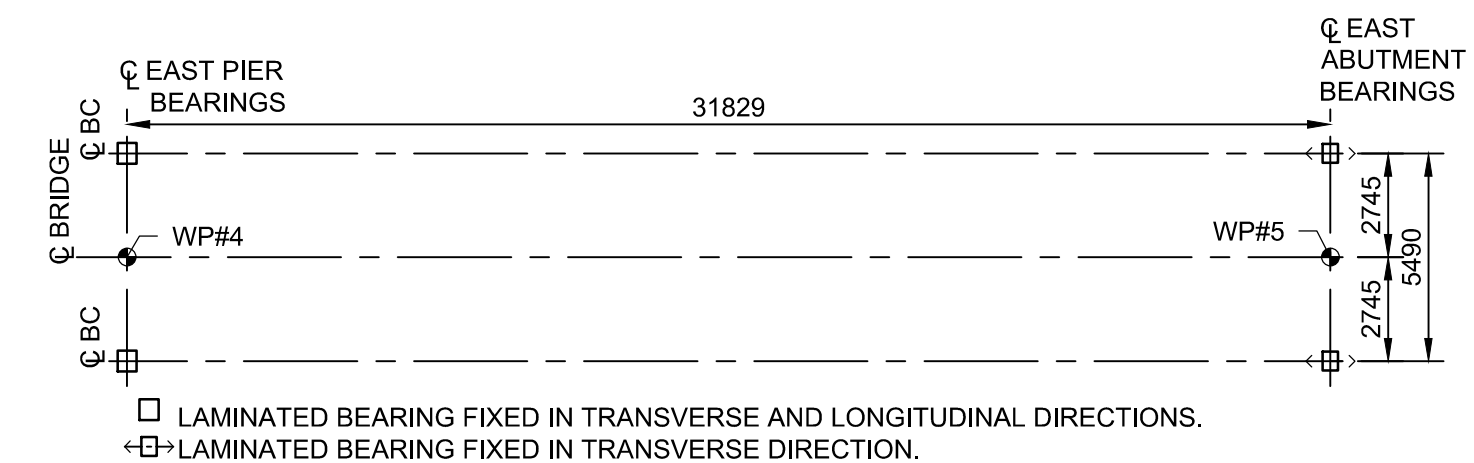


### PLAN-EXPANSION BEARING AT EAST ABUTMENT



ELEVATION  
EXPANSION BEARING AT EAST ABUTMENT

(SOUTH BEARING DETAILS SHOWN, NORTH BEARING MIRROR IMAGE)

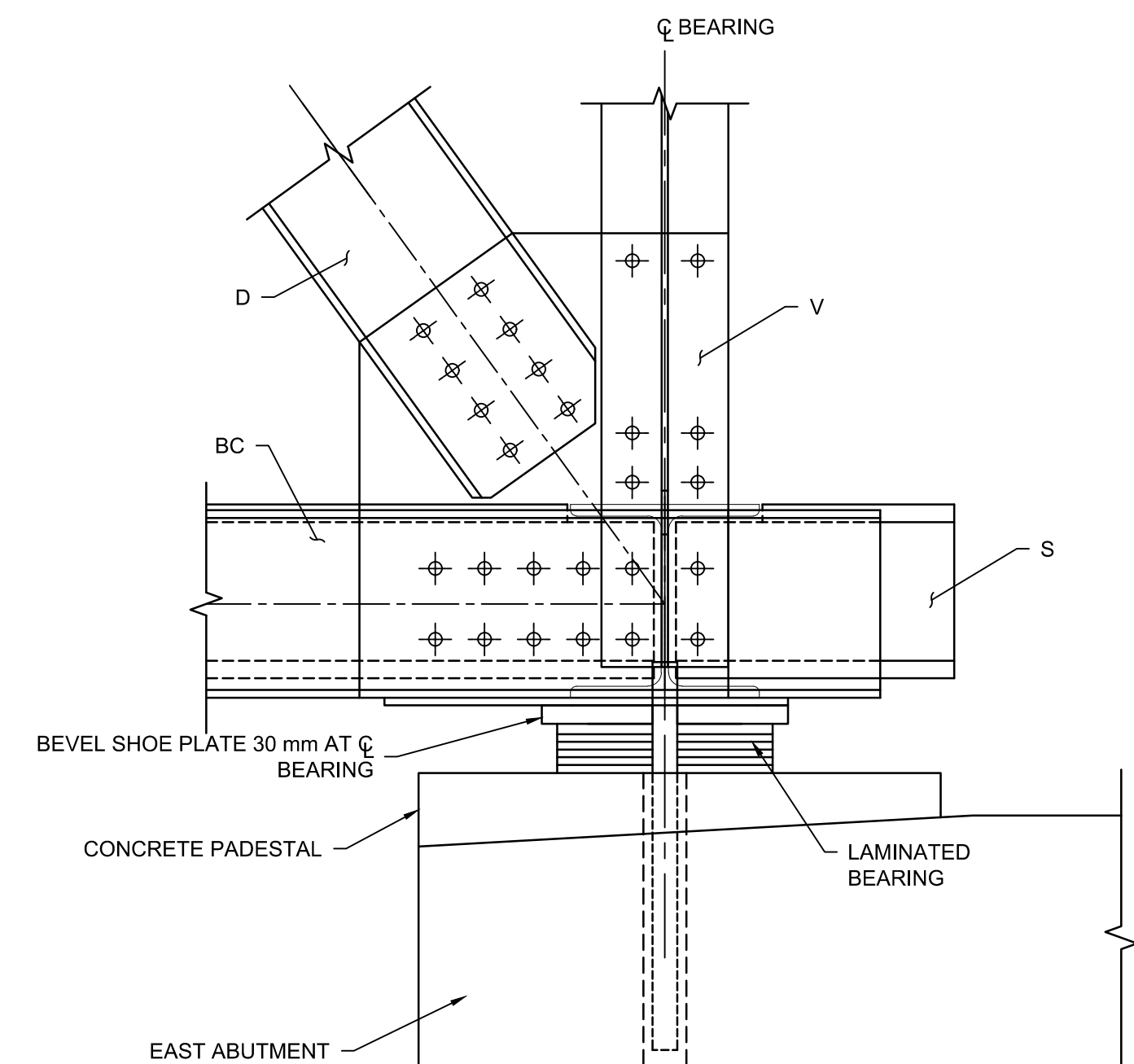


1:200



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1:10



1:10

| ELASTOMERIC BEARING DATA       |                            |              |               |
|--------------------------------|----------------------------|--------------|---------------|
| LOCATION                       |                            | EAST PIER    | EAST ABUTMENT |
| TYPE                           |                            | LAMINATED    | ELASTOMERIC   |
| SIZE (mm)                      |                            | 450x350x80   | 450x350x80    |
| NUMBER REQUIRED                |                            | 2            | 2             |
| SERVICEABILITY<br>LIMIT STATES | DEAD LOAD (kN)             | 400          | 400           |
|                                | TOTAL LOAD (kN)            | 846          | 853           |
|                                | MOVEMENT (mm)              | (+/-) 0      | (+/-) 19      |
|                                | ROTATION (radian)          | (+/-) 0.0151 | (+/-) 0.0151  |
|                                | MAXIMUM SHEAR RATE (kN/mm) | 1.96         | 1.96          |
| ULTIMATE<br>LIMIT STATES       | DEAD LOAD (kN)             | 481          | 481           |
|                                | TOTAL LOAD (kN)            | 1238         | 1249          |

## GENERAL NOTES

1. THE CONTRACTOR SHALL ADJUST BEARING SEAT ELEVATIONS AND REINFORCING STEEL TO SUIT ACTUAL HEIGHTS OF BEARING SPECIFIED MANUFACTURING TOLERANCE SHALL BE TAKEN INTO ACCOUNT.
2. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESS FROM THE TOP BEARING ELEVATIONS. IF THICKNESSES ARE DIFFERENT FROM THOSE GIVEN BY THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL AT THE ABUTMENT TO SUIT.
3. BEARING PEDESTAL ELEVATIONS ARE BASED ON THE ASSUMED BEARING THICKNESS SHOWN ON THE SHEET.
4. DIAMETER OF GROUT POCKET SHALL BE AT LEAST 20mm GREATER THAN THE DIAMETER OF THE ANCHOR ROD.

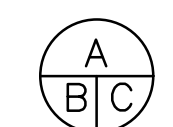
LIST OF ABBREVIATIONS:

|    |                      |
|----|----------------------|
| BC | DENOTES BOTTOM CHORD |
| V  | DENOTES VERTICLE     |
| D  | DENOTES DIAGONAL     |
| S  | DENOTES STRINGER     |
| LG | DENOTES LONG         |



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
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Do not scale drawings.  
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A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

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| project title   |
| titre du projet |

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |  |
|-----------------|--|
| drawing title   |  |
| titre du dessin |  |

## BEARINGS DETAILS

drawn by  
dessine par

designed by  
conc par

approved by  
approuvé par KAREN LIU

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

|                |            |
|----------------|------------|
| project date   | 2018-07-20 |
| date du projet |            |

project no.  
no. du projet

|             |
|-------------|
| drawing no. |
| dessine no. |

B-49



STANDARD 90°HOOK

STANDARD 180°HOOK

MINIMUM BENDING PIN DIAMETER, D, mm

| BAR SIZE | STEEL GRADE |      |
|----------|-------------|------|
|          | 400R (2)    | 400W |
| 10M      | 70          | 60   |
| 15M      | 100         | 90   |
| 20M      | 120         | 100  |
| 25M      | 150         | 150  |
| 30M      | 250         | 200  |
| 35M      | 300         | 250  |
| 45M      | 450 (1)     | 400  |
| 55M      | 600 (1)     | 550  |

(1) Special fabrication is required for bends exceeding 90° for bars of these sizes and grade.

(2) For stainless steel, with Fy = 420, use the same D as for 400R.

STANDARD HOOK DIMENSIONS

| BAR SIZE | 90°HOOKS    |      | 180°HOOKS   |      |        |      |
|----------|-------------|------|-------------|------|--------|------|
|          | A OR G (mm) |      | A OR G (mm) |      | J (mm) |      |
|          | 400R        | 400W | 400R        | 400W | 400R   | 400W |
| 10M      | 180         | 180  | 140         | 130  | 90     | 80   |
| 15M      | 260         | 250  | 180         | 170  | 130    | 120  |
| 20M      | 310         | 300  | 220         | 200  | 160    | 140  |
| 25M      | 400         | 400  | 280         | 280  | 200    | 200  |
| 30M      | 510         | 490  | 400         | 350  | 310    | 260  |
| 35M      | 610         | 590  | 480         | 430  | 370    | 320  |
| 45M      | 790         | 770  | 680         | 630  | 540    | 490  |

MINIMUM STIRRUP AND TIE HOOK DIMENSIONS

| BAR SIZE | BAR DIAM. db (mm) | PIN DIAM. D(mm) | 90 °        |             | 135 °            |  |
|----------|-------------------|-----------------|-------------|-------------|------------------|--|
|          |                   |                 | A OR G (mm) | A OR G (mm) | H (approx.) (mm) |  |
| 10M      | 11.3              | 45              | 100         | 100         | 70               |  |
| 15M      | 16.0              | 65              | 140         | 140         | 100              |  |
| 20M      | 19.5              | 80              | 180         | 175         | 115              |  |
| 25M      | 25.2              | 100             | 230         |             |                  |  |

MIN. 90°HOOK

MIN. 135°HOOK

HOOK DIMENSIONS  
FOR REINFORCING STEEL BARS

DETAIL 1

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
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| revision | description       | date       |

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A

B

C

Detail No.  
No. du détail

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dessin no. — où détail exigé

drawing no. — where detailed  
dessin no. — où détaillé

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

MISCELLANEOUS DETAILS I

drawn by  
dessine par

ANTHONY LEE

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuve par

KAREN LIU

bid  
soumission

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

drawing no.  
dessine no.

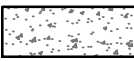

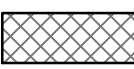
B-50

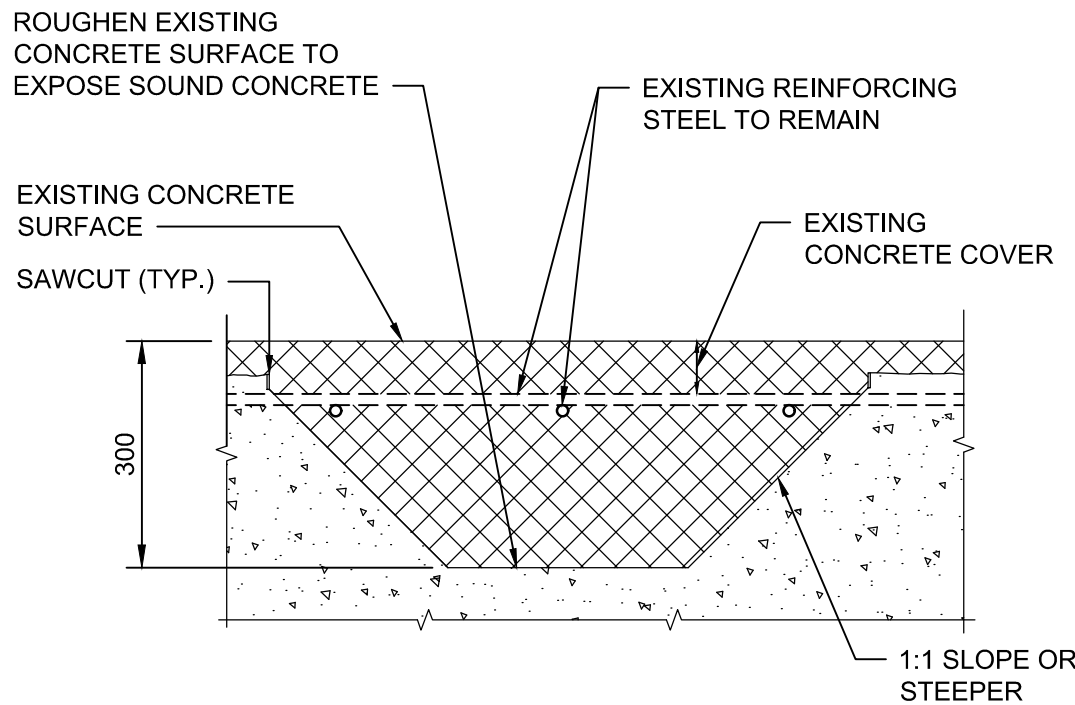


NOTES:

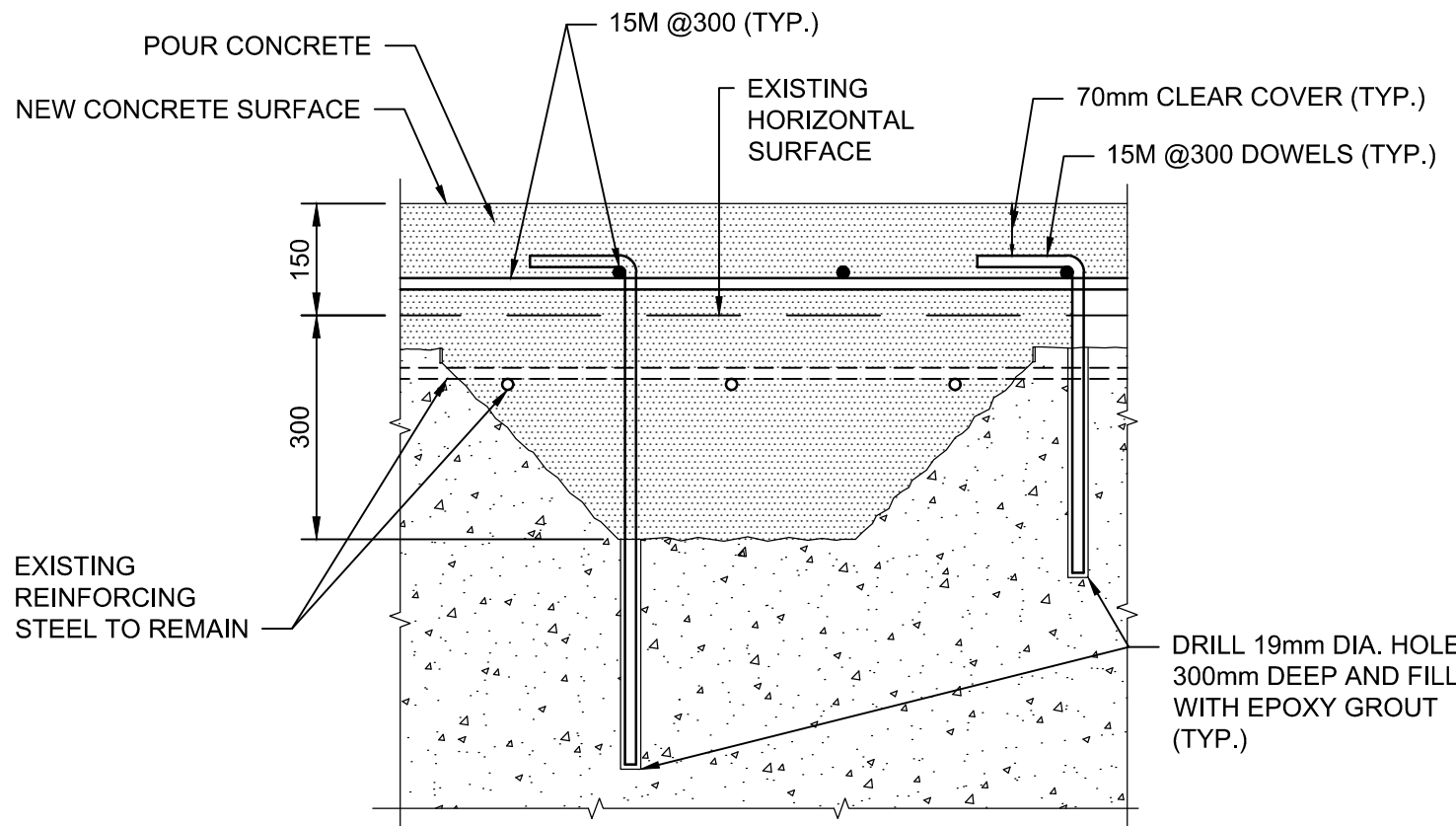
1. TYPICAL AREAS OF REPAIR ARE INDICATED ON DRAWINGS. WHERE REPAIR LIMITS ARE NOT SHOWN, LIMITS SHALL BE IDENTIFIED BY DEPARTMENTAL REPRESENTATIVE.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF PROPOSED WORK AND ALL DETAILS ON SITE AND REPORT ANY DISCREPANCIES TO DEPARTMENTAL REPRESENTATIVE.
3. SAWCUT SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF EXISTING REINFORCING STEEL WHICHEVER IS LESS UNLESS NOTED AS SAWCUT FULL DEPTH.
4. ABRASIVE BLAST CLEAN ALL EXISTING REINFORCING STEEL TO REMAIN.
5. CONCRETE SURFACE TO BE ABRASIVE BLAST CLEANED AND A BONDING AGENT SHALL BE APPLIED BEFORE CASTING NEW CONCRETE.
6. CONTRACTOR SHALL ISOLATE WORK AREA FROM THE FLOW AND COMPLETE ALL WORK IN DRY CONDITION.
7. CONTRACTOR SHALL USE SMALL SIZE HAMMER (5-7kg.) FOR PARTIAL DEPTH REMOVALS, NO JACK HAMMER IS ALLOWED.

LEGEND:

-  EXISTING CONCRETE TO REMAIN
-  NEW CONCRETE
-  CONCRETE REMOVAL

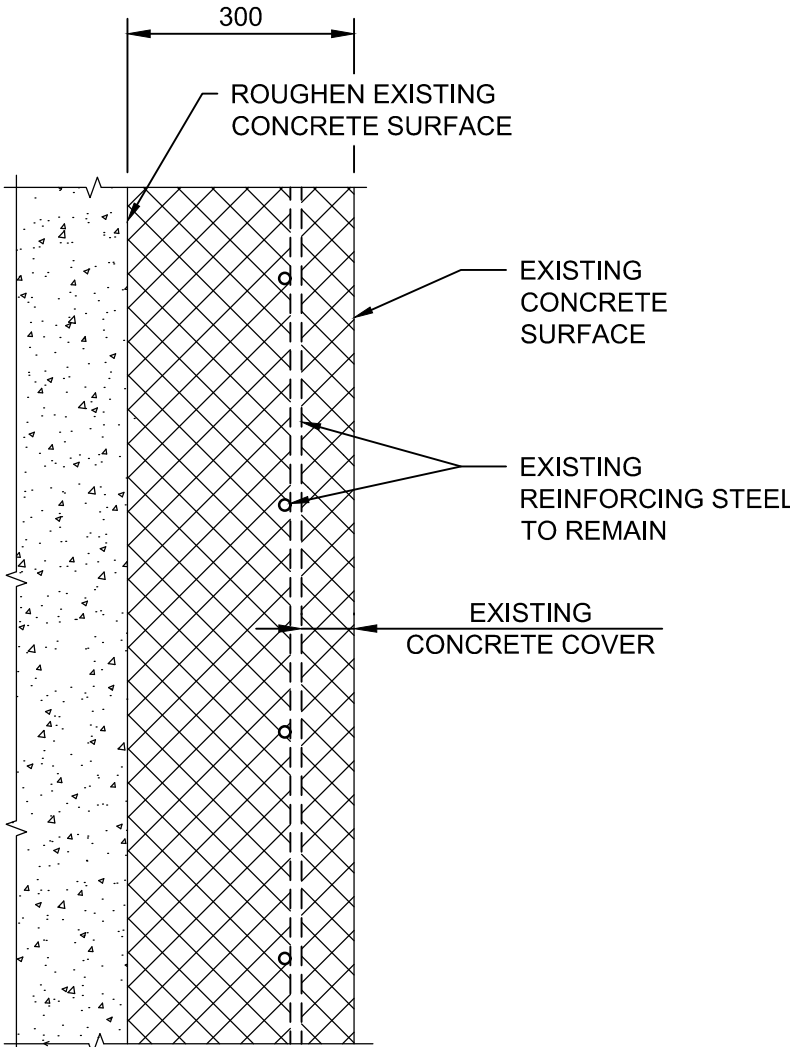


EXISTING AND REMOVAL  
N.T.S.

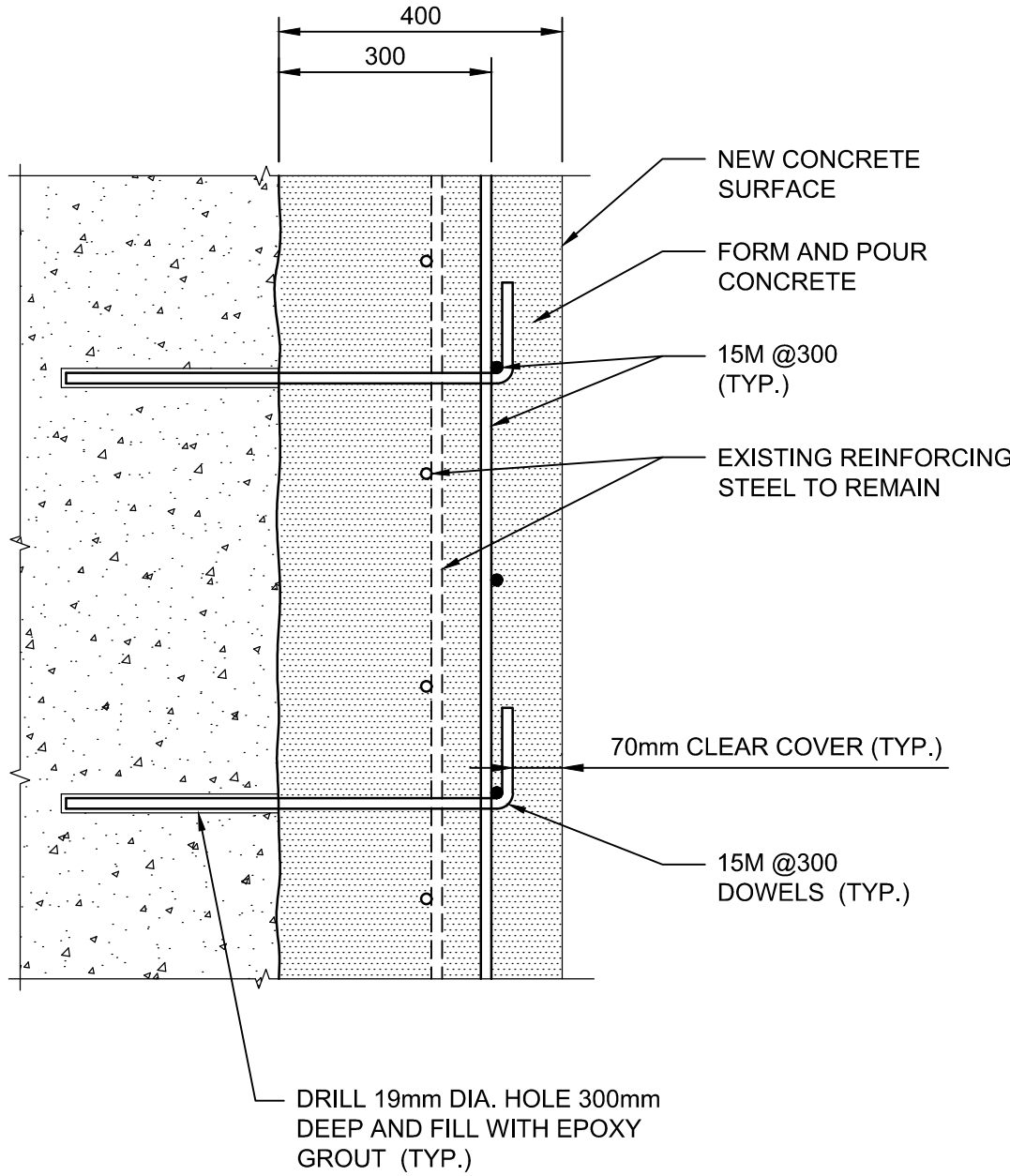


REHABILITATED  
N.T.S.

REST PIER CONCRETE REFACING DETAILS  
(HORIZONTAL SURFACE SHOWN, VERTICAL SURFACE SIMILAR)



EXISTING AND REMOVAL  
N.T.S.



REHABILITATION  
N.T.S.


PIVOT PIER CONCRETE REFACING DETAILS  
(VERTICAL SURFACE SHOWN, HORIZONTAL SURFACE SIMILAR)

PARSONS



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|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
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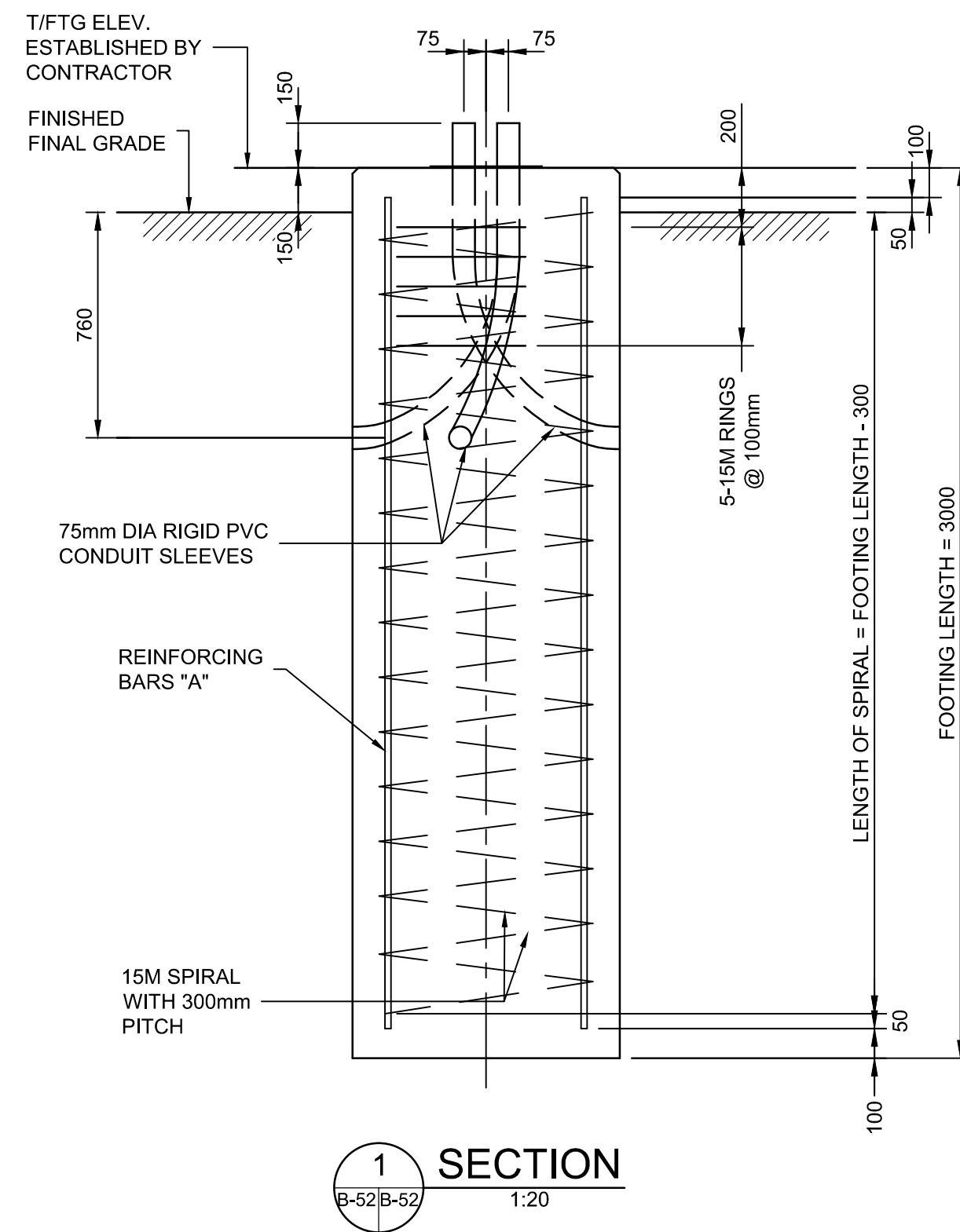
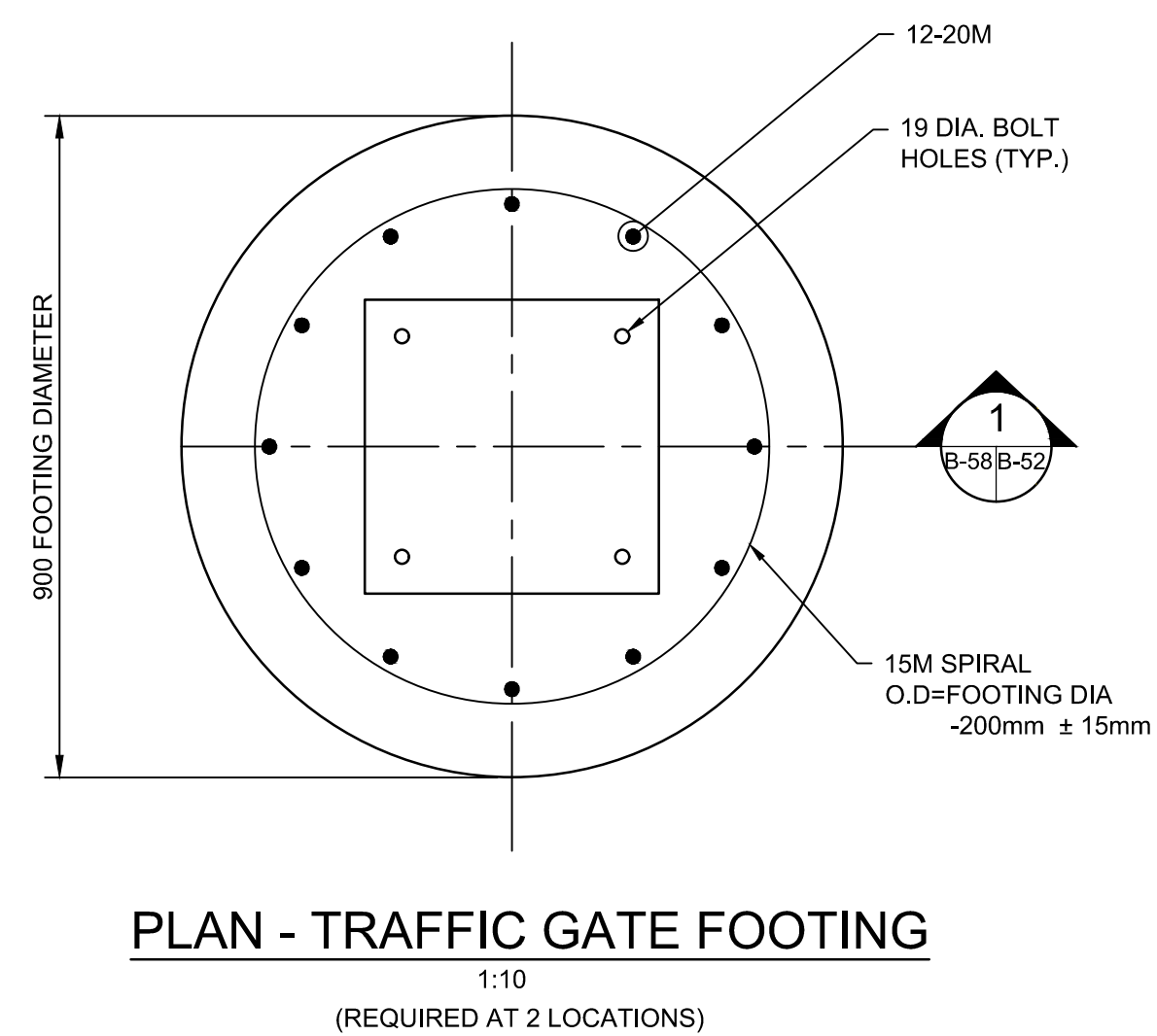
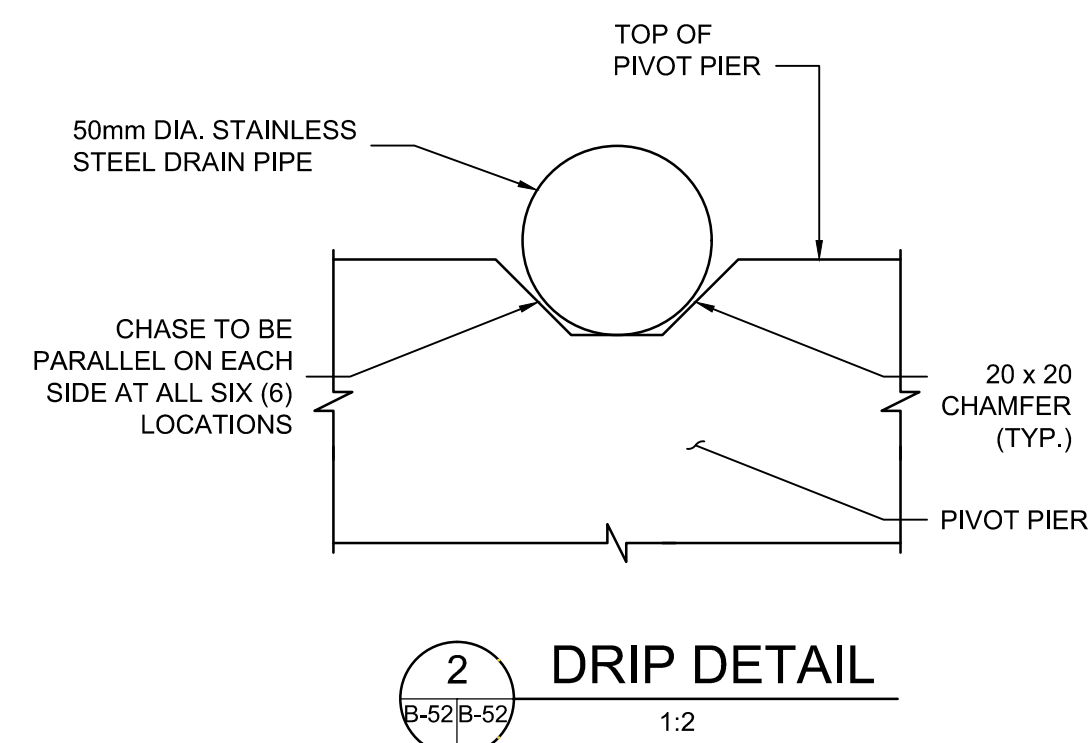
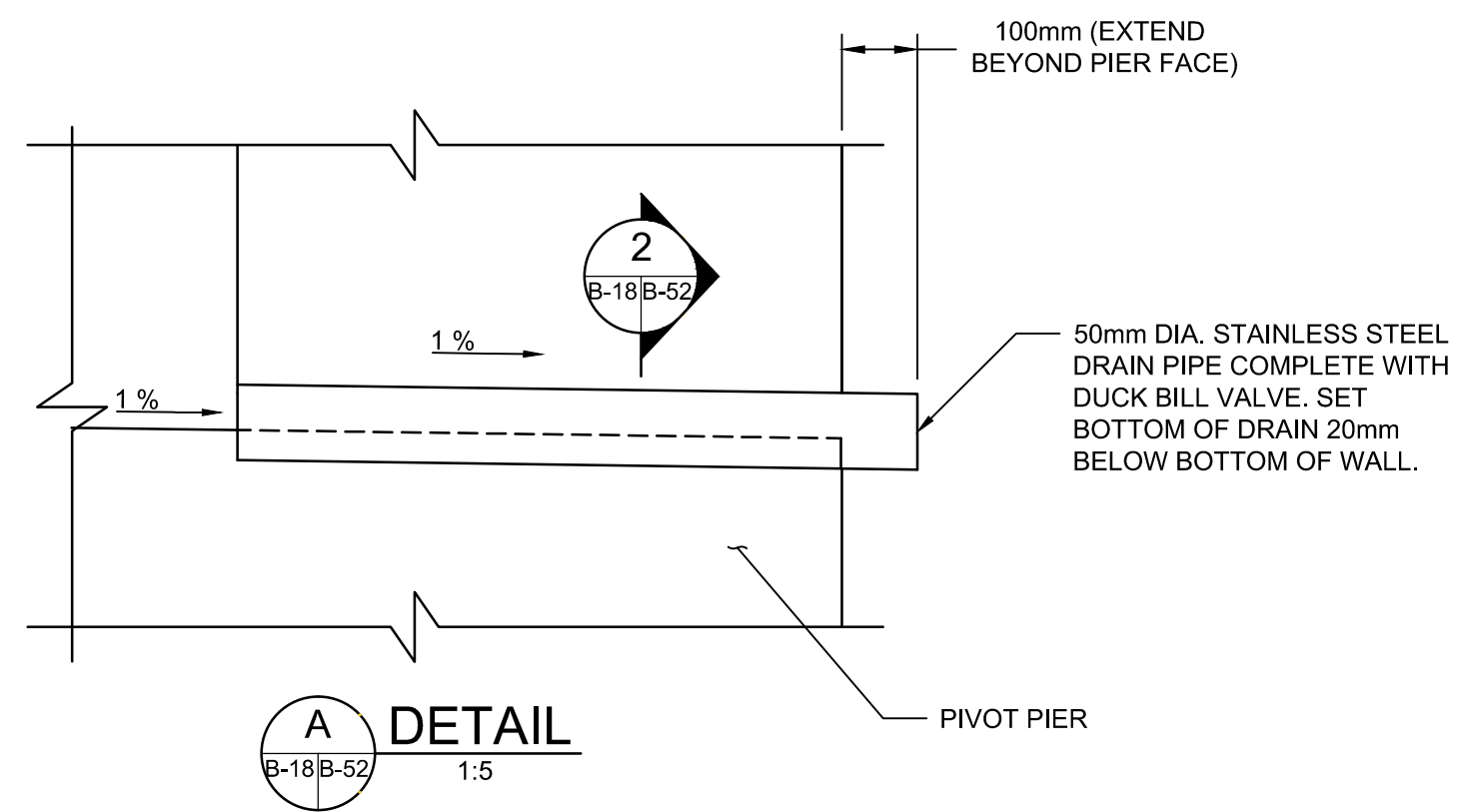
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|  | A Detail No.<br>No. du détail   |
|   | B drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | C drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet  
  
Ontario  
  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
  
MISCELLANEOUS DETAIL II

|                                |                 |
|--------------------------------|-----------------|
| drawn by<br>dessine par        | ANTHONY LEE     |
| designed by<br>conc par        | ABOUBAKER FARAH |
| approved by<br>approuve par    | KAREN LIU       |
| bid<br>offre                   | JULIO LEON      |
| project date<br>date du projet | 2018-07-20      |
| project no.<br>no. du projet   | R.073593.001    |
| drawing no.<br>dessine no.     | B-51            |





Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

**PARSONS**

LIST OF ABBREVIATIONS:

|       |                          |
|-------|--------------------------|
| O.D.  | DENOTES OUTSIDE DIAMETER |
| SP    | DENOTES DIAMETER         |
| FTG   | DENOTES FOOTING          |
| ELEV. | DENOTES ELEVATION        |



|          |                   |            |
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dessin no. — où détaillé

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| titre du projet |  |

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

MISCELLANEOUS DETAILS III

drawn by  
dessine par **FAHAD ANSARI**

designed by  
conc par

|                             |           |
|-----------------------------|-----------|
| approved by<br>approuvé par | KAREN LIU |
|-----------------------------|-----------|

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

|                                |            |
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| project date<br>date du projet | 2018-07-20 |
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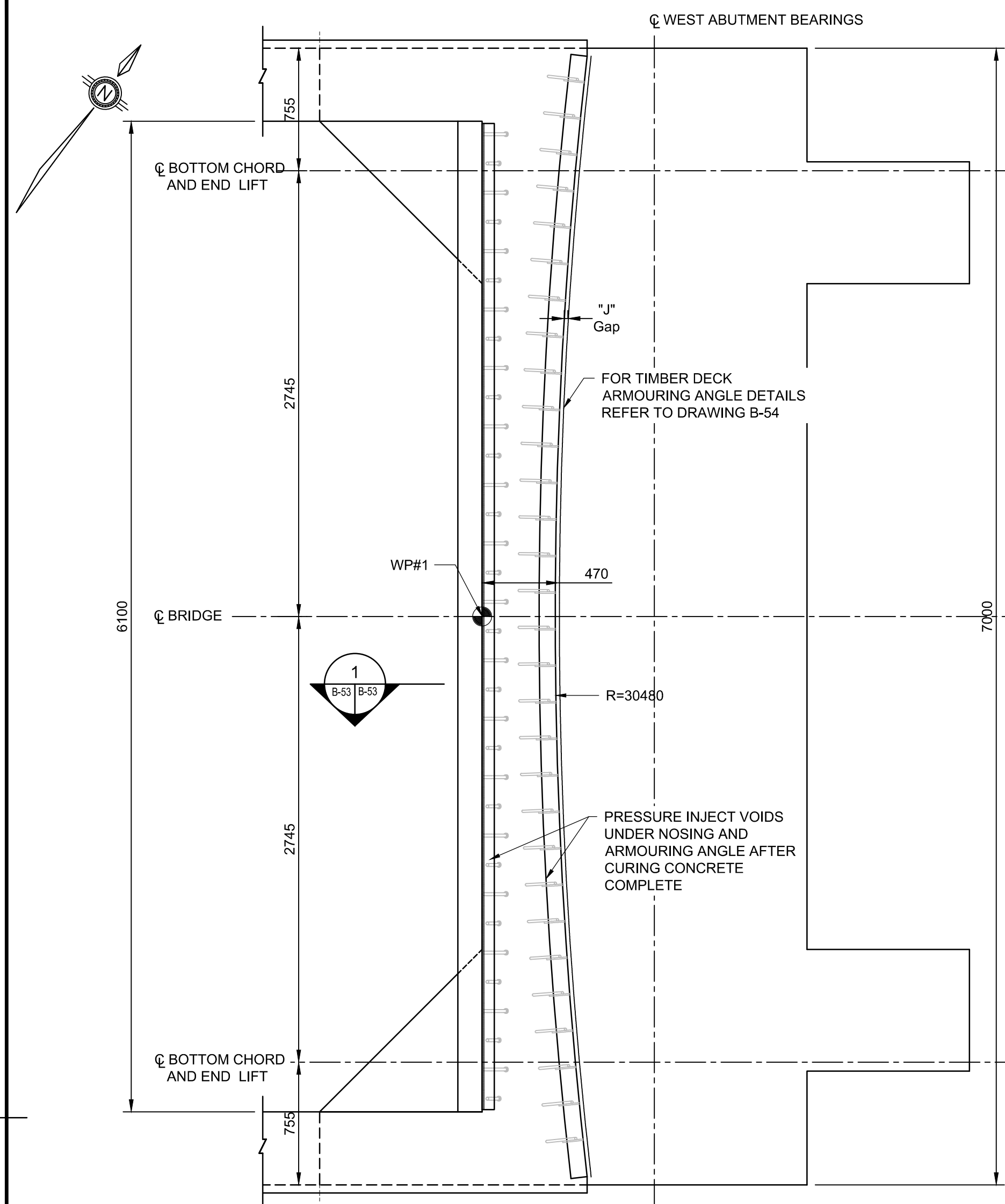
project no.  
no. du projet

R.073593.001

drawing no.  
dessine no.

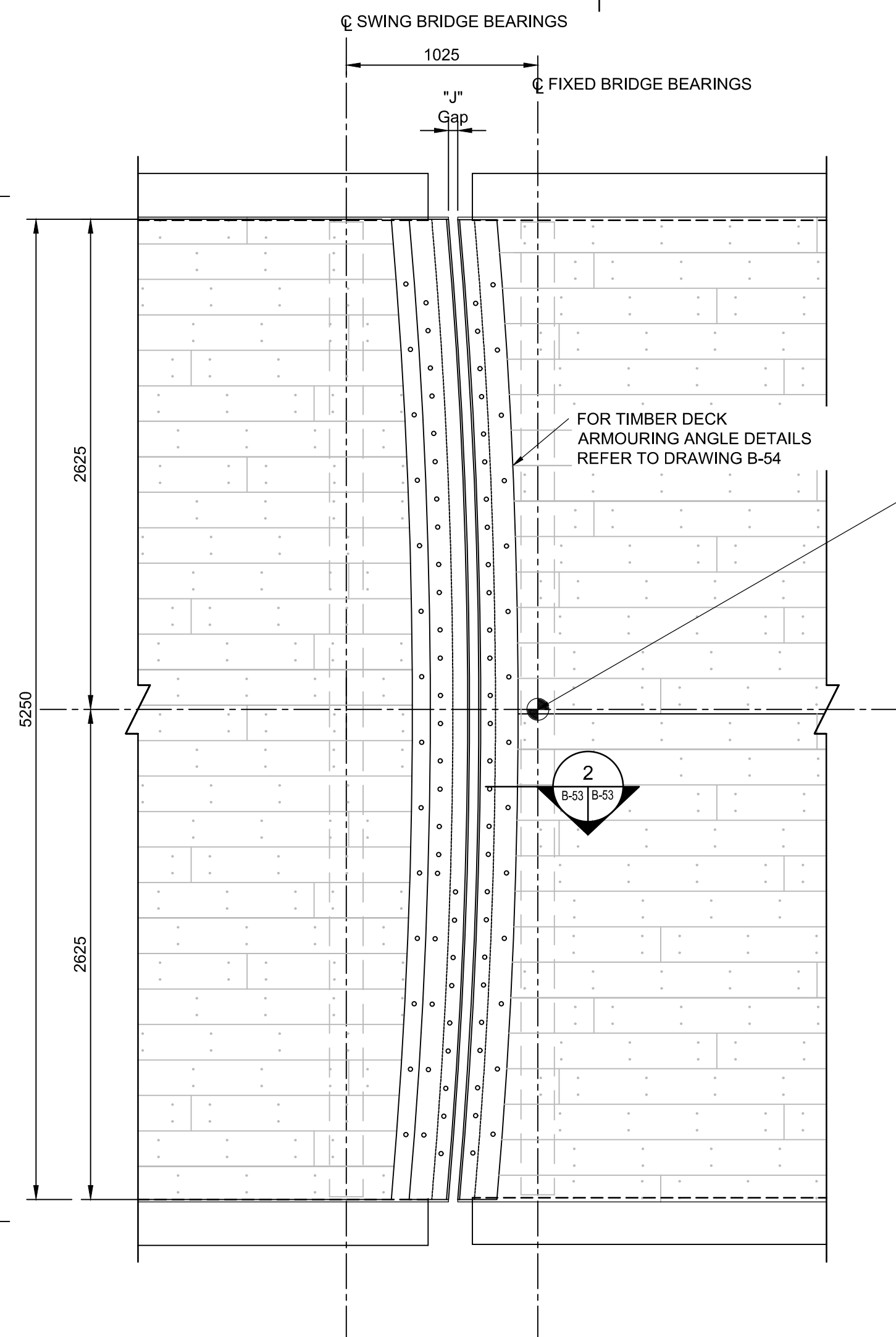
B-52





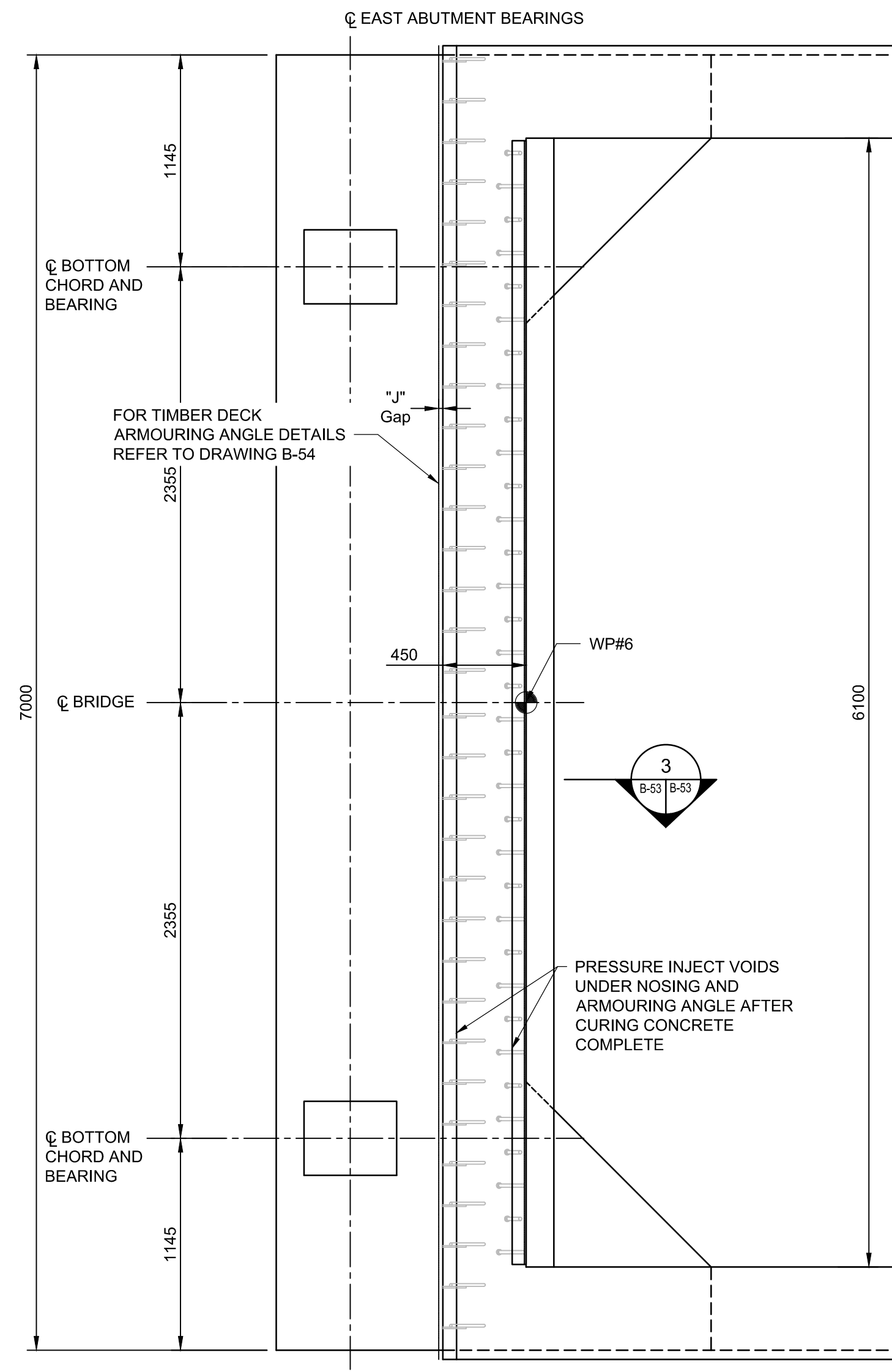
PLAN - WEST ABUTMENT EXPANSION JOINT

1:25



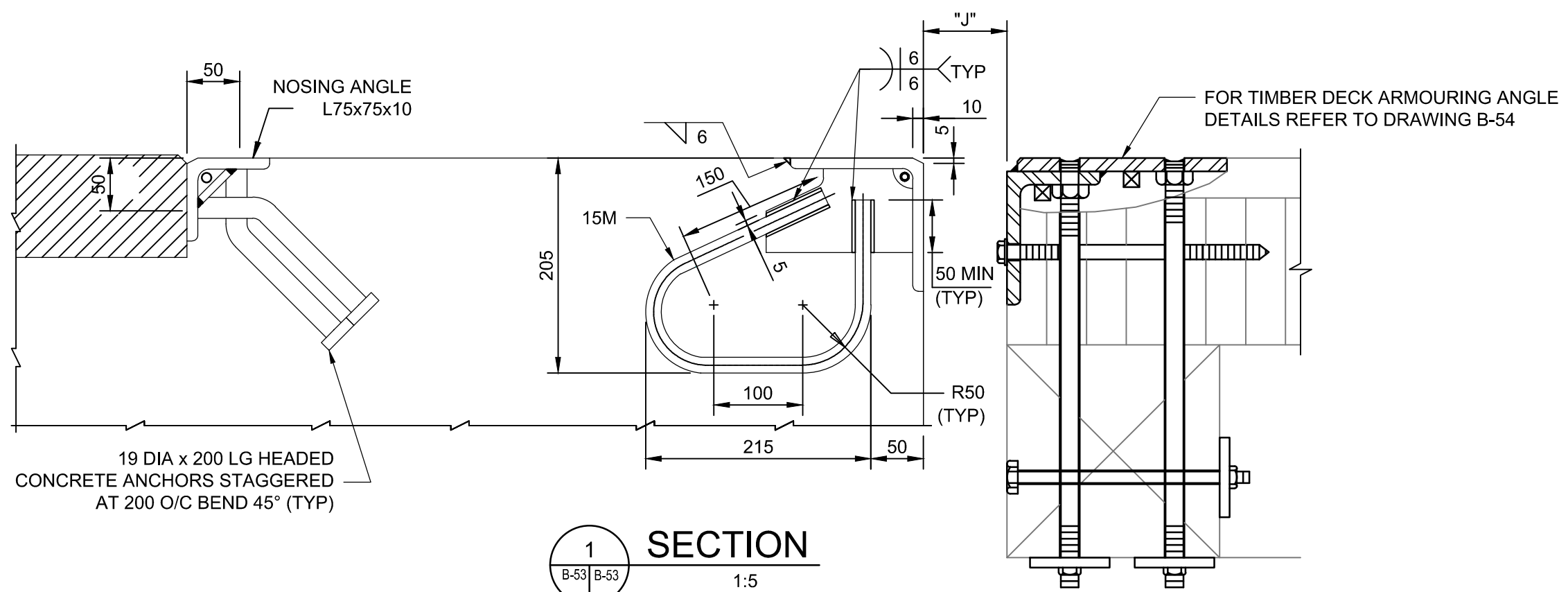
PLAN - EAST PIER SWING BRIDGE EXPANSION JOINT

1:25



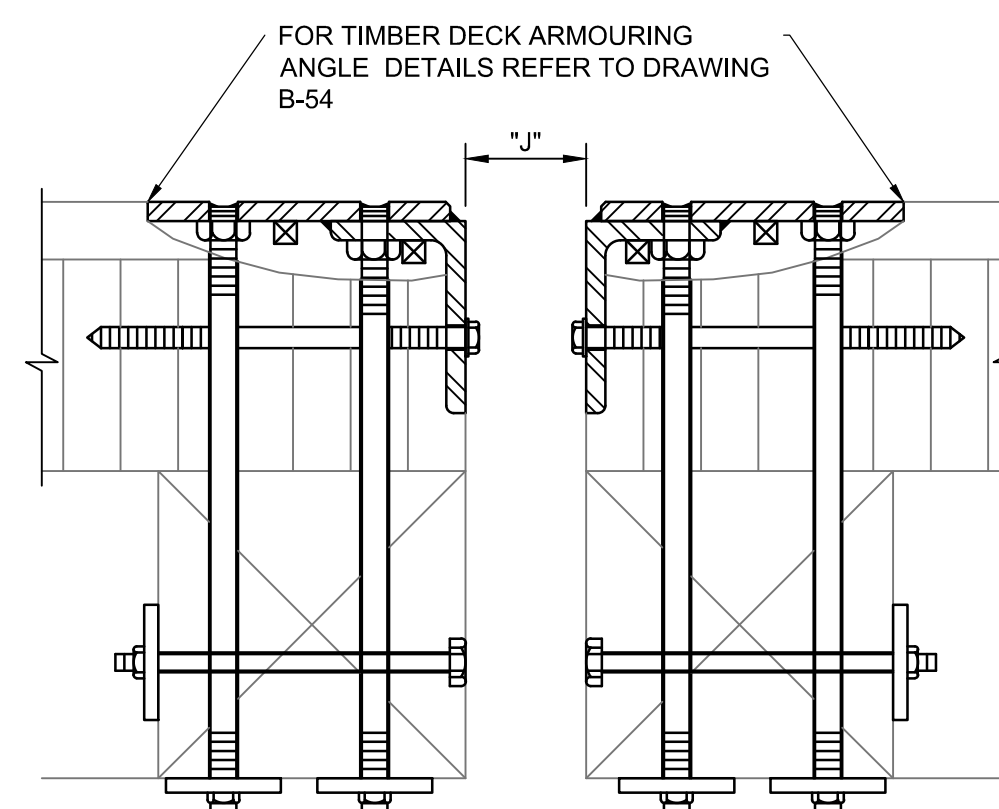
PLAN - EAST ABUTMENT EXPANSION JOINT

1:25



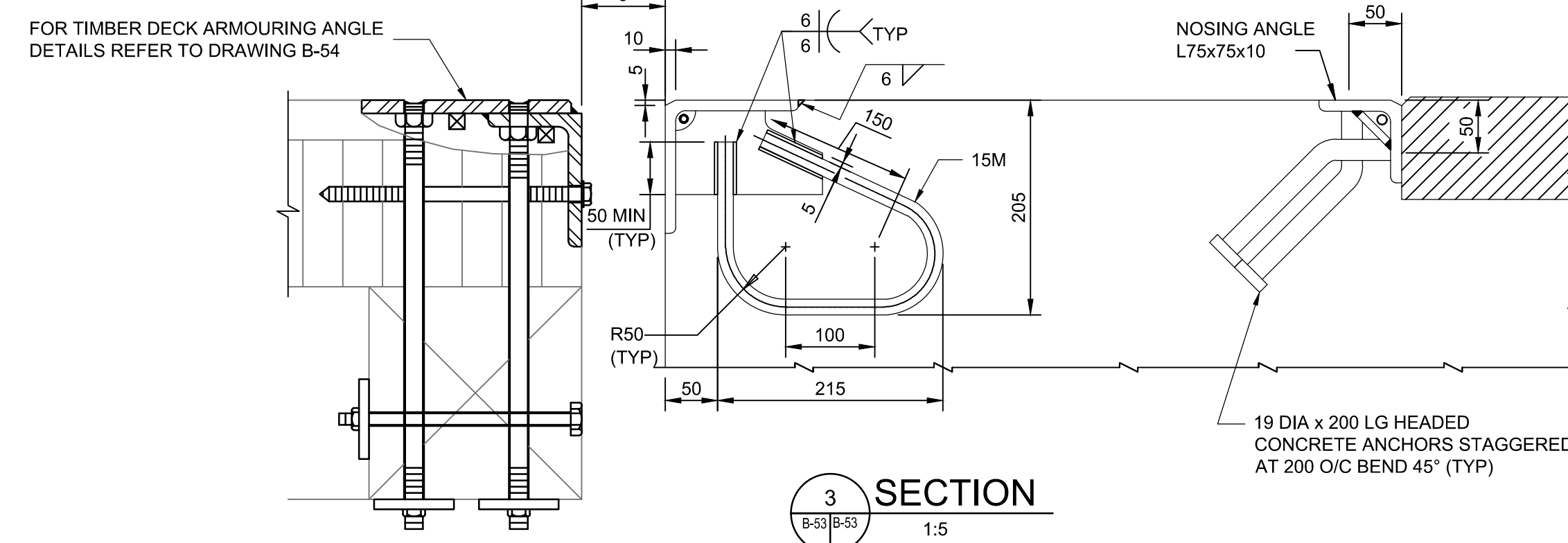
SECTION 1

1:5



SECTION 2

1:5



SECTION 3

1:5

## NOTES:

- FOR REINFORCING DETAILS IN EXPANSION JOINT, SEE ABUTMENT REINFORCING DRAWINGS.
- STEEL PLATE 10mm THICK UNLESS OTHERWISE NOTED.
- JOINT ASSEMBLIES SHALL BE ADJUSTED IN THE FIELD TO SUIT INSTALLATION TEMPERATURE (SEE TABLE).
- JOINT ASSEMBLIES INSTALLATION TEMPERATURE SHALL BE TAKEN AS MEAN SHADE AIR TEMPERATURE AT STRUCTURE 24 HOURS PRIOR TO JOINT INSTALLATION.
- FIELD SPLICES IN JOINT ASSEMBLY ARE NOT PERMITTED.
- SETTING DEVICE SHALL BE DESIGNED BY CONTRACTOR. SETTING DEVICE SHALL BE FLAME CUT ACCORDING TO OPSS PROV 920. BUT IN NO CASE PRIOR TO CONCRETE REACHING INITIAL SET.
- AFTER CURING OF THE CONCRETE HAS BEEN COMPLETED, THE SETTING DEVICES MAY BE REMOVED. THE VOIDS UNDER THE ARMORING ANGLE AND NOSING ANGLE SHALL THEN BE PRESSURE INJECTED.

TABLE OF DESIGN REQUIREMENTS

| EXP. JOINT LOCATION | DESIGN ** MOVEMENT | * "J" AT INSTALLATION TEMPERATURE (C) (mm) |      |      |     |    |    |     |     |     |     |     |     |
|---------------------|--------------------|--|------|------|-----|----|----|-----|-----|-----|-----|-----|-----|
|                     |                    | -20°                                       | -15° | -10° | -5° | 0° | 5° | 10° | 15° | 20° | 25° | 30° | 35° |
| WEST ABUT.          | 31                 | 63   | 61   | 60   | 58  | 56 | 54 | 52  | 50  | 48  | 46  | 44  | 42  |
| EAST PIER           | 29                 | 63   | 61   | 60   | 58  | 56 | 54 | 52  | 50  | 48  | 46  | 44  | 42  |
| EAST ABUT.          | 29                 | 63   | 61   | 59   | 57  | 55 | 54 | 52  | 50  | 48  | 46  | 45  | 43  |

\* DIMENSION "J" MEASURED PERPENDICULAR TO CENTRELINE OF EXPANSION JOINT. WHERE MIN. AND MAX. FOR JOINT SUPPLIED DIFFER FROM THOSE SHOWN IN TABLE, "J" DIMENSIONS SHALL BE REVISED BY CONTRACTOR AND SHOWN ON SHOP DRAWINGS.

\*\* CALCULATED TOTAL MOVEMENT AT SLS OCCURRING AFTER TIME OF JOINT INSTALLATION. (MEASURED PARALLEL TO CENTRELINE OF STRUCTURE)

## ADDITIONAL NOTES FOR BOLTS:

- 16 [ 5/8 ] DIAMETER FLAT COUNTERSUNK HEAD CAP BOLTS SHALL BE IN ACCORDANCE WITH ASTM F835.
- ALL BOLTS SHALL BE INSTALLED USING MOLY50 LUBRICANT.
- ALL BOLTS SHALL BE TENSIONED USING THE TURN-OF-NUT TIGHTENING METHOD IN ACCORDANCE WITH CAN/CSA S6-14.



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**PARSONS**

|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
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| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
| C | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

EXPANSION JOINT DETAILS

drawn by  
dessiné par

ANTHONY LEE

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

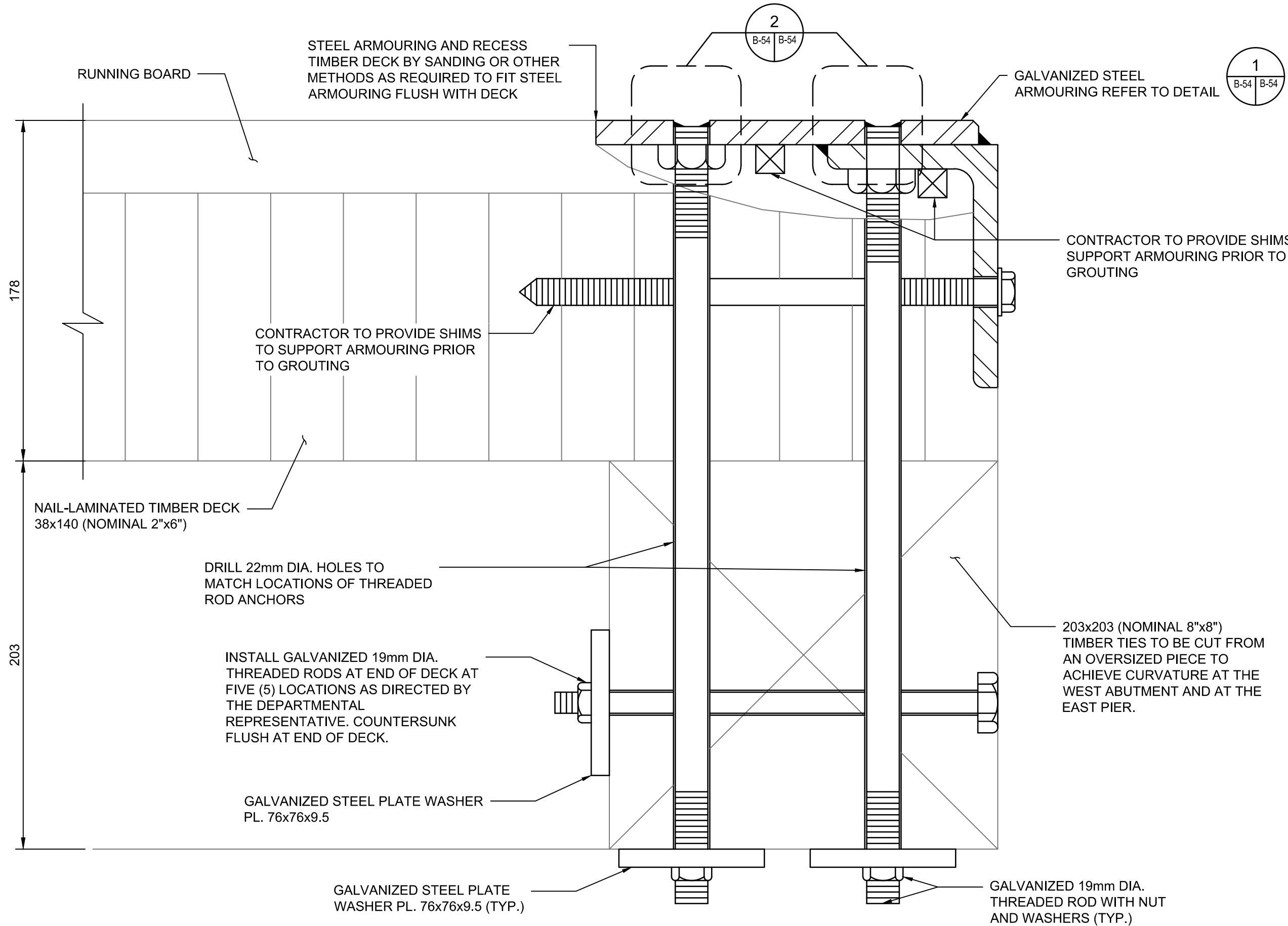
project no.  
no. du projet

R.073593.001

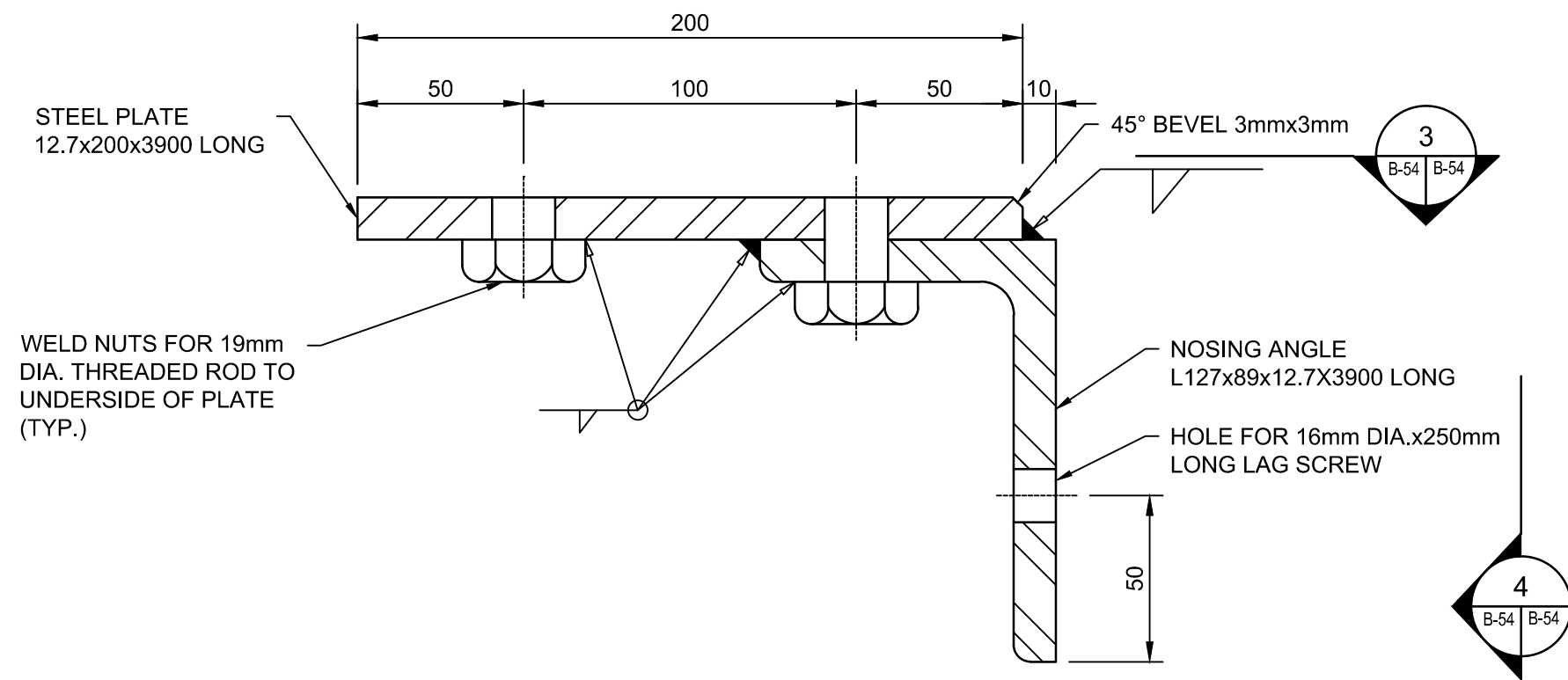
drawing no.  
dessiné no.

B-53

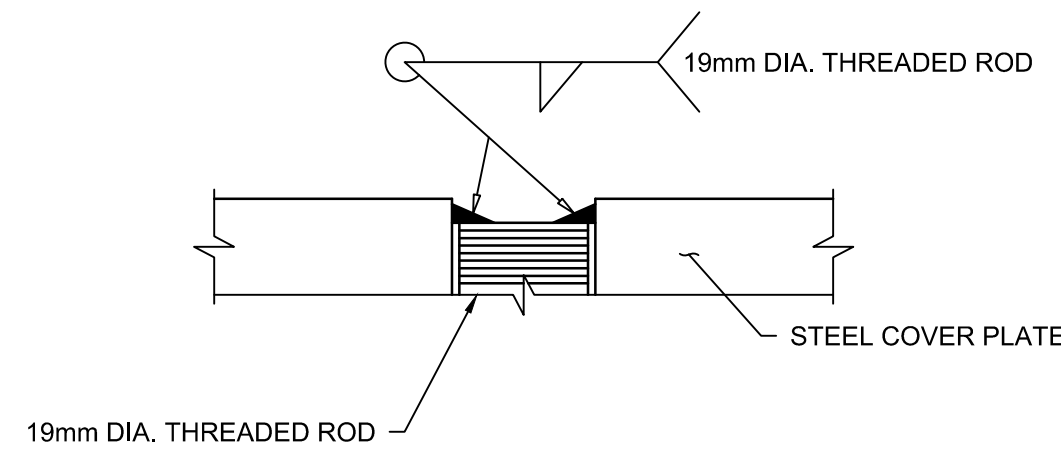




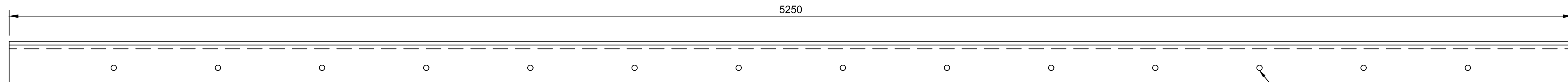
STEEL ARMOURING AT THE END OF SWING AND FIXED SPANS



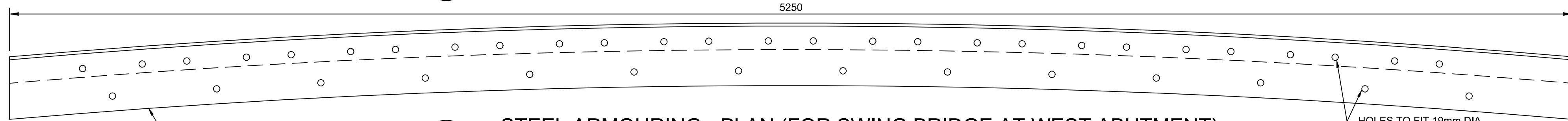
STEEL ARMOURING DETAIL



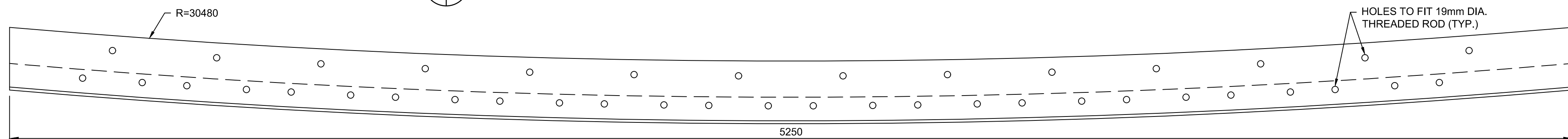
PLUG WELD DETAIL



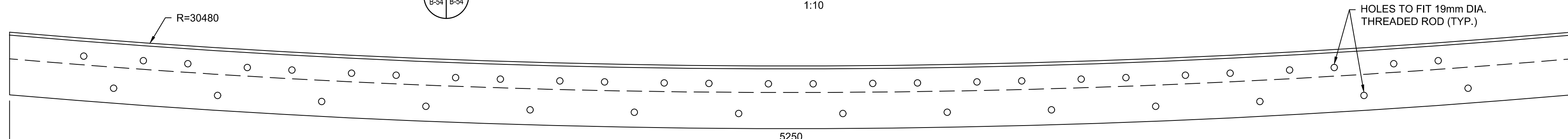
STEEL ARMOURING - ELEVATION (FOR SWING AND FIXED BRIDGES)



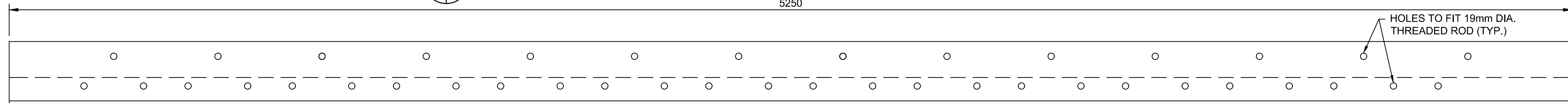
STEEL ARMOURING - PLAN (FOR SWING BRIDGE AT WEST ABUTMENT)



STEEL ARMOURING - PLAN (FOR SWING BRIDGE AT EAST PIER)



STEEL ARMOURING - PLAN (FOR FIXED BRIDGE AT EAST PIER)



STEEL ARMOURING - PLAN (FOR FIXED BRIDGE AT EAST ABUTMENT)

NOTE

1. SPACING FOR 19mm DIA. THREADED RODS AND LAG SCREWS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO PREPARATION OF SHOP DRAWINGS. CONTRACTOR SHALL PROPOSE MODIFICATIONS TO THE SPACING SHOWN ON THIS DRAWING AS REQUIRED TO AVOID CONFLICTS BETWEEN THE THREADED RODS AND LONGITUDINAL STRINGERS OR ANY OTHER OBSTRUCTIONS.
2. CONTRACTOR TO ADJUST STEEL ARMOURING TO SUIT THE SWING AND FIXED BRIDGE DECK RADIUS AT WEST ABUTMENT AND EAST PIER.



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| 04       |                   |            |
| 03       |                   |            |
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project title  
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Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
TIMBER DECK PANEL  
ARMOURING ANGLES

drawn by  
dessiné par  
FAHAD ANSARI

designed by  
conç par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

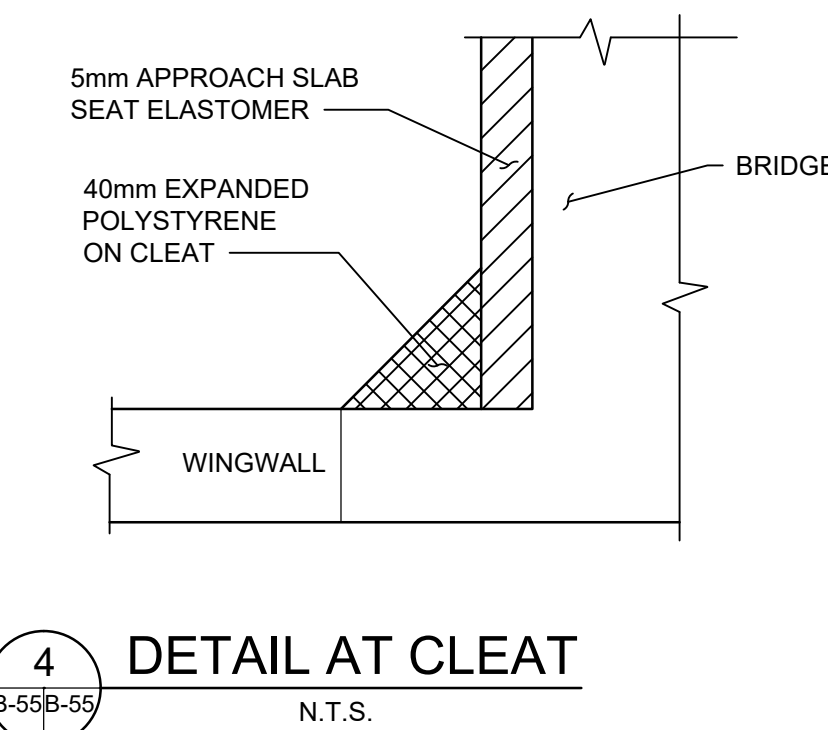
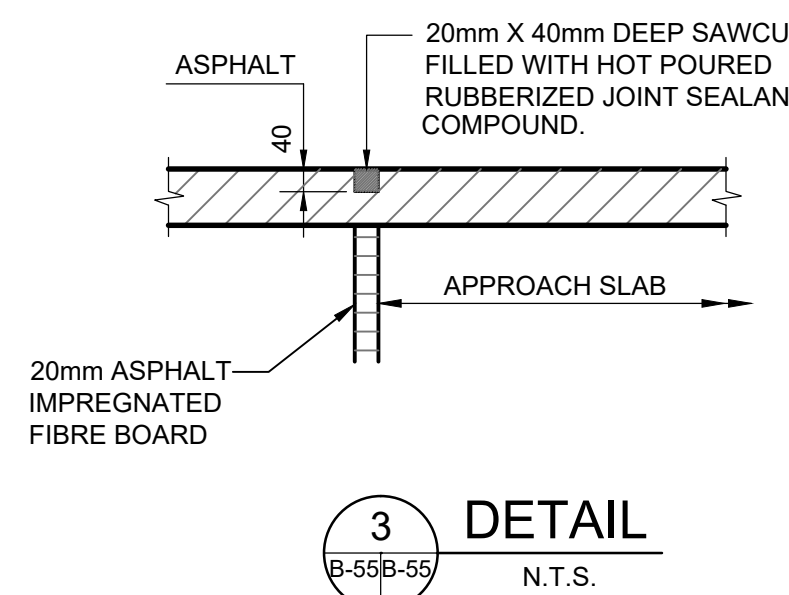
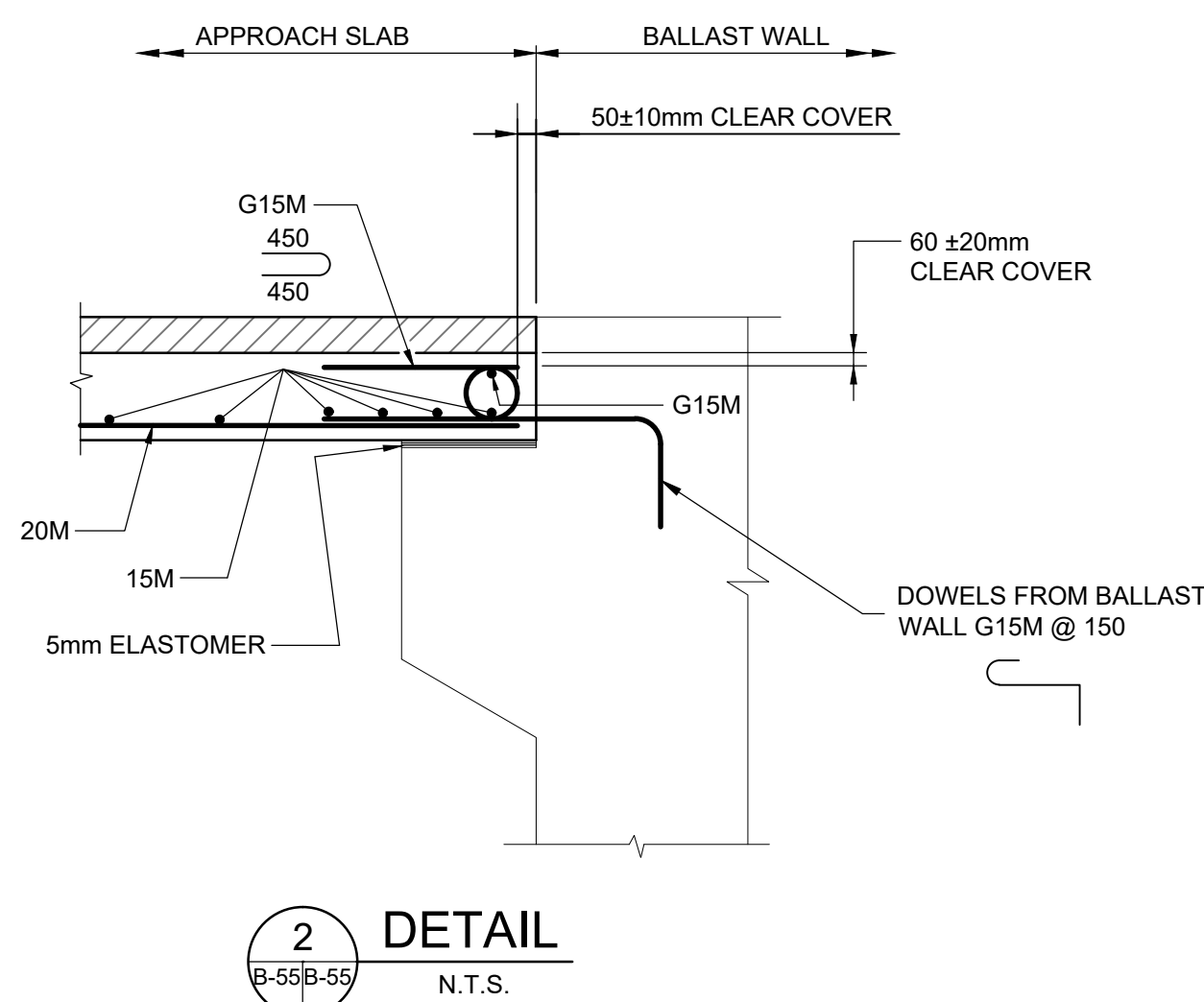
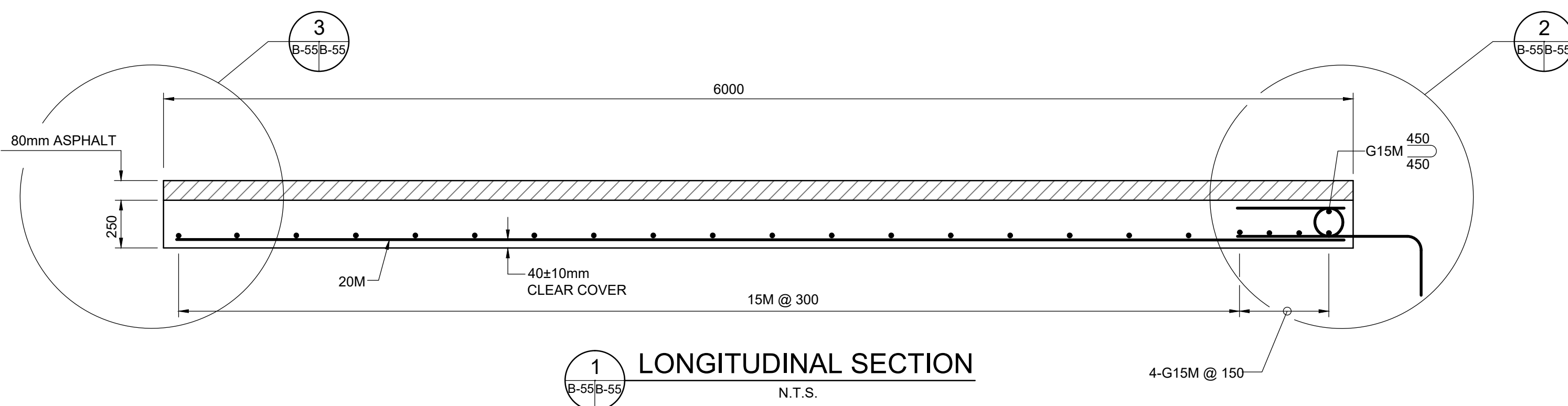
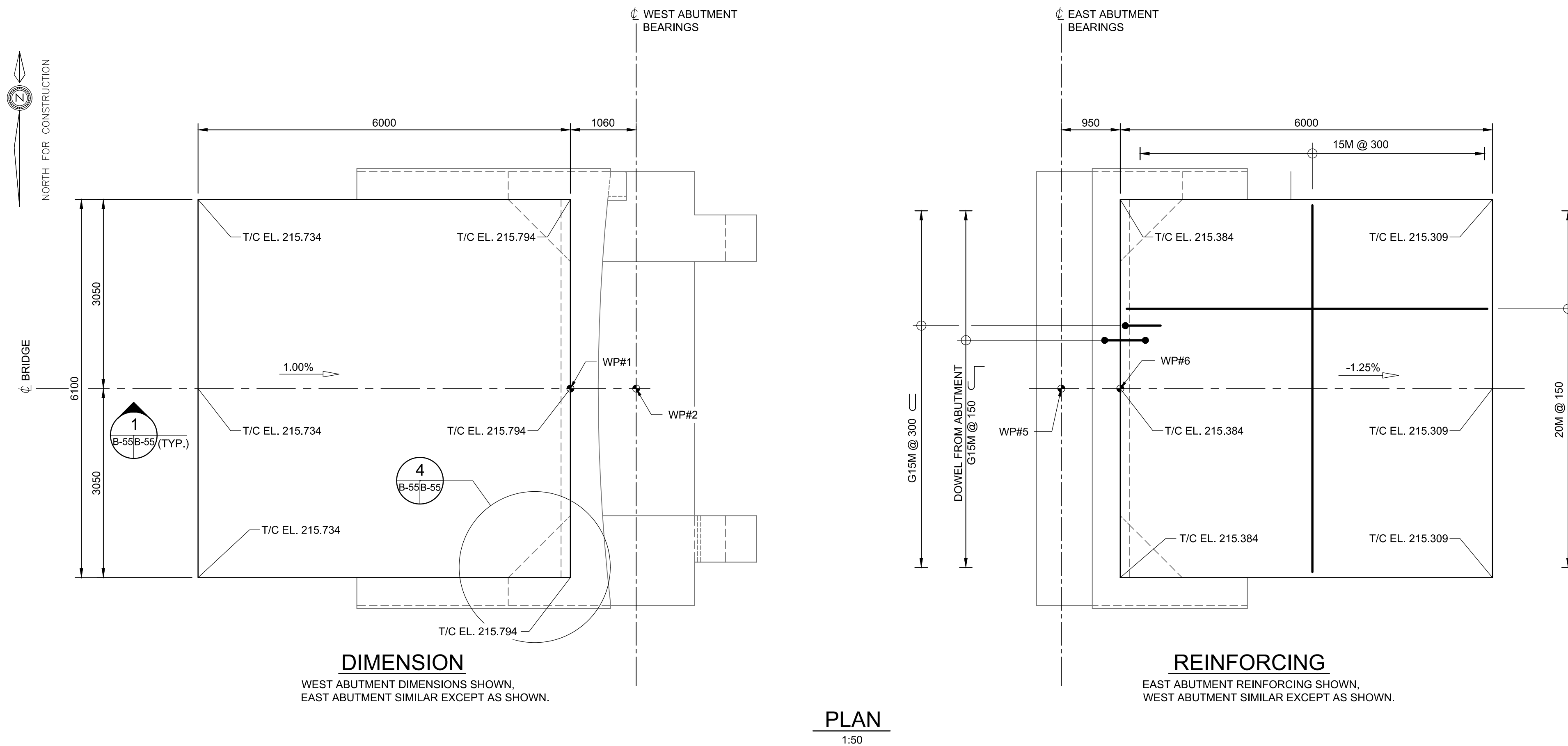
bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
B-54





## NOTES:

- CLEAR COVER TO REINFORCING STEEL 70 ± 20 mm EXCEPT AS NOTED.
- LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
- STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500MPa. REINFORCING STEEL SHALL BE GRADE 400W.
- WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSPD-3370.100.
- EXPANSION JOINT ASSEMBLY CONSTRUCTION AND MATERIALS SHALL BE ACCORDING TO OPSS. PROV 920 AND OPSS-1210.
- BAR MARKS WITH PREFIX 'G' DENOTE HOT-DIPPED GALVANIZED BARS. BEND BARS AFTER GALVANIZING AND TOUCH-UP WITH TWO COATS OF ZINC-RICH PAINT.

## LIST OF ABBREVIATIONS

- EL DENOTES ELEVATION  
TYP DENOTES TYPICAL  
T/C DENOTES TOP OF CONCRETE  
WP DENOTES WORKING POINT

PARSONS



|          |                   |            |
|----------|-------------------|------------|
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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

6000mm APPROACH SLABS

drawn by  
dessiné par

RADU STANCIU

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

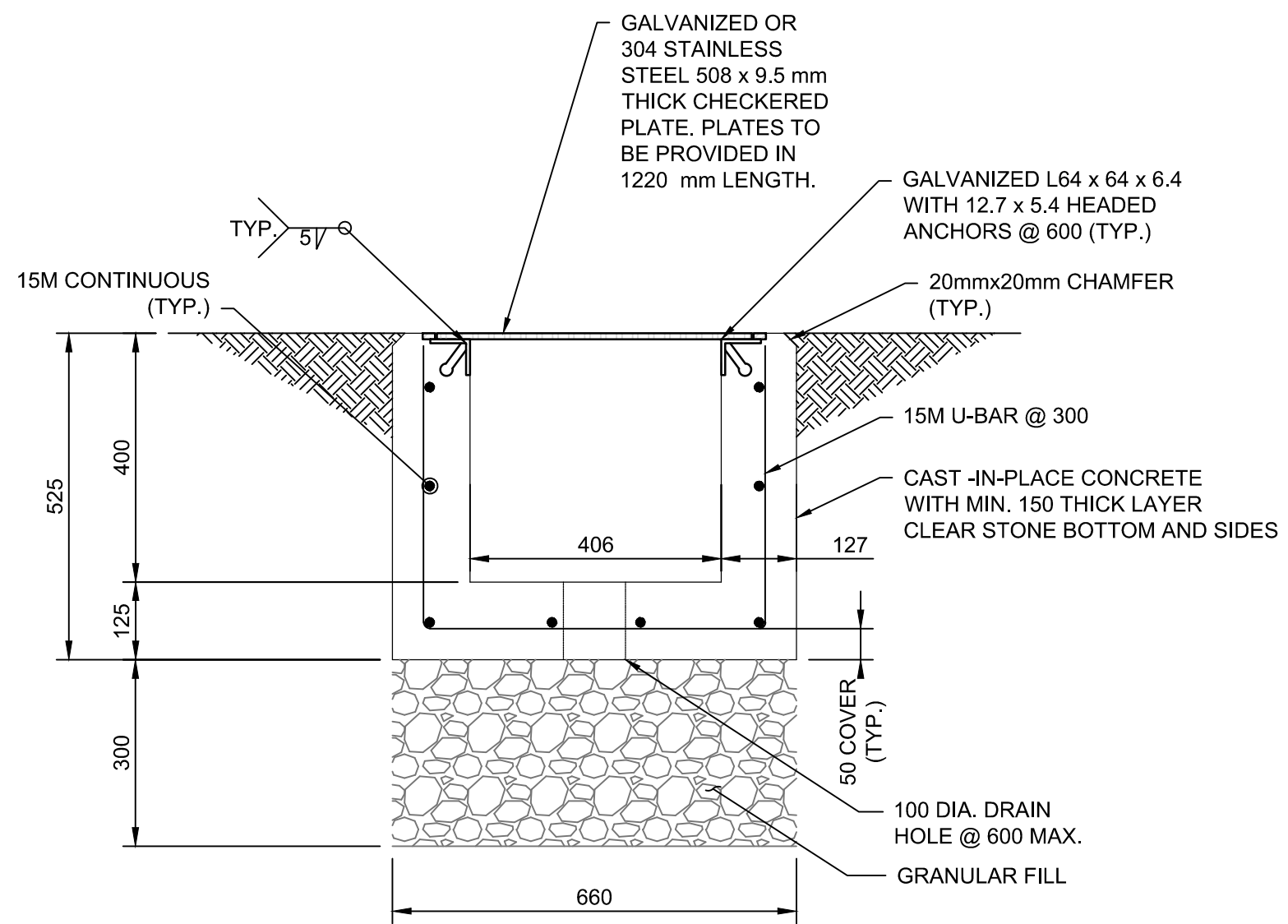
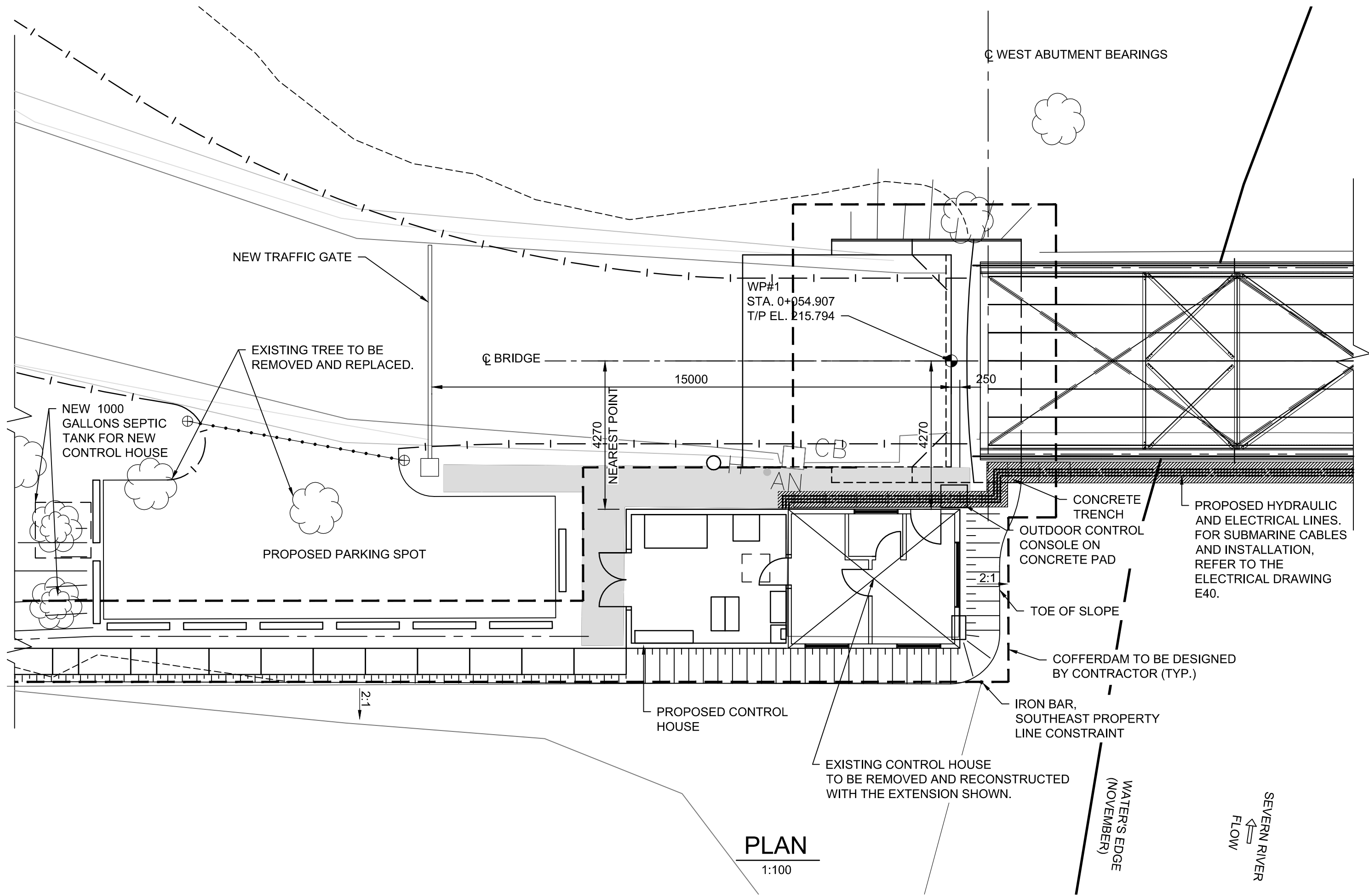
project no.  
no. du projet

R.073593.001

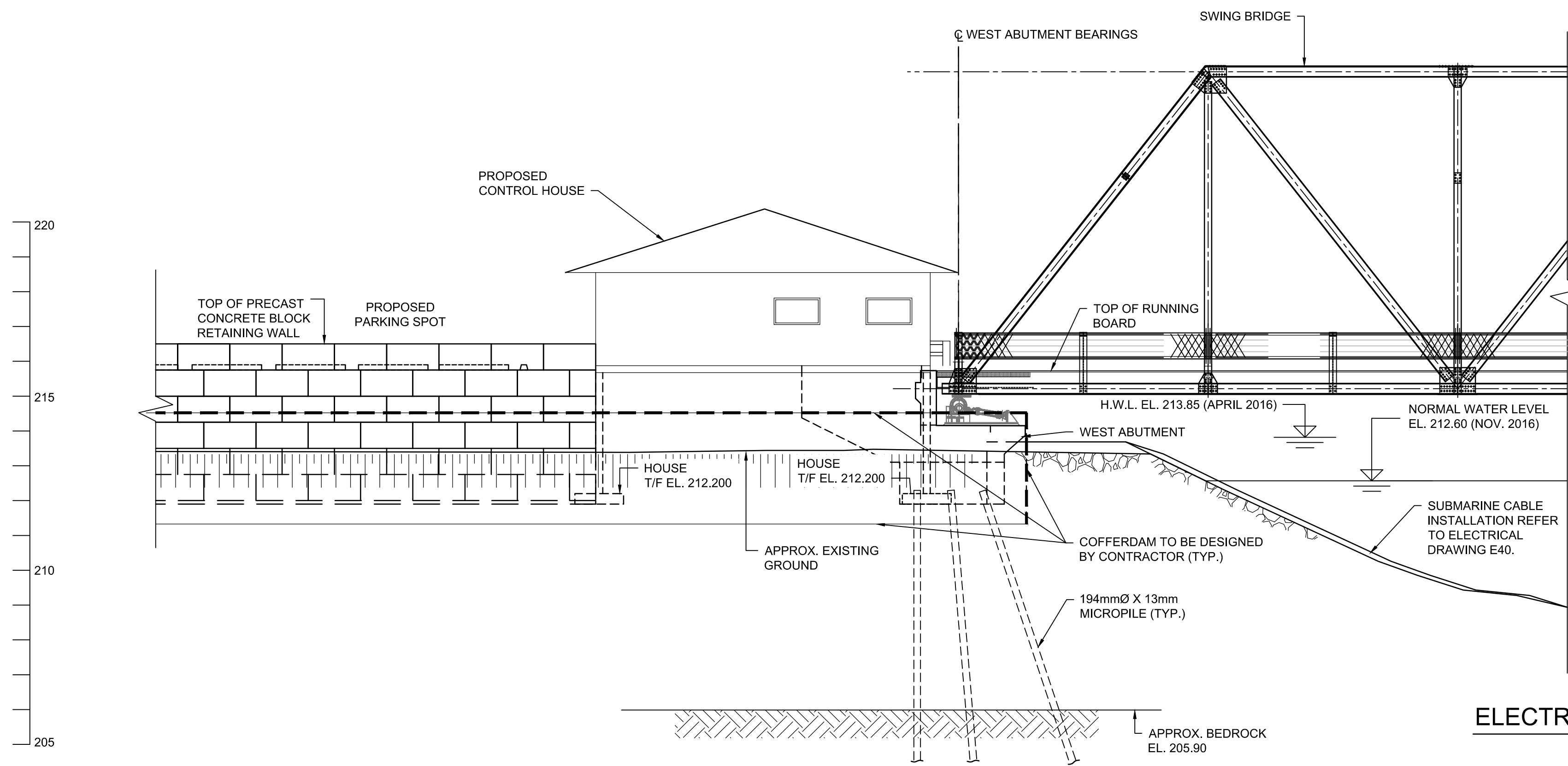
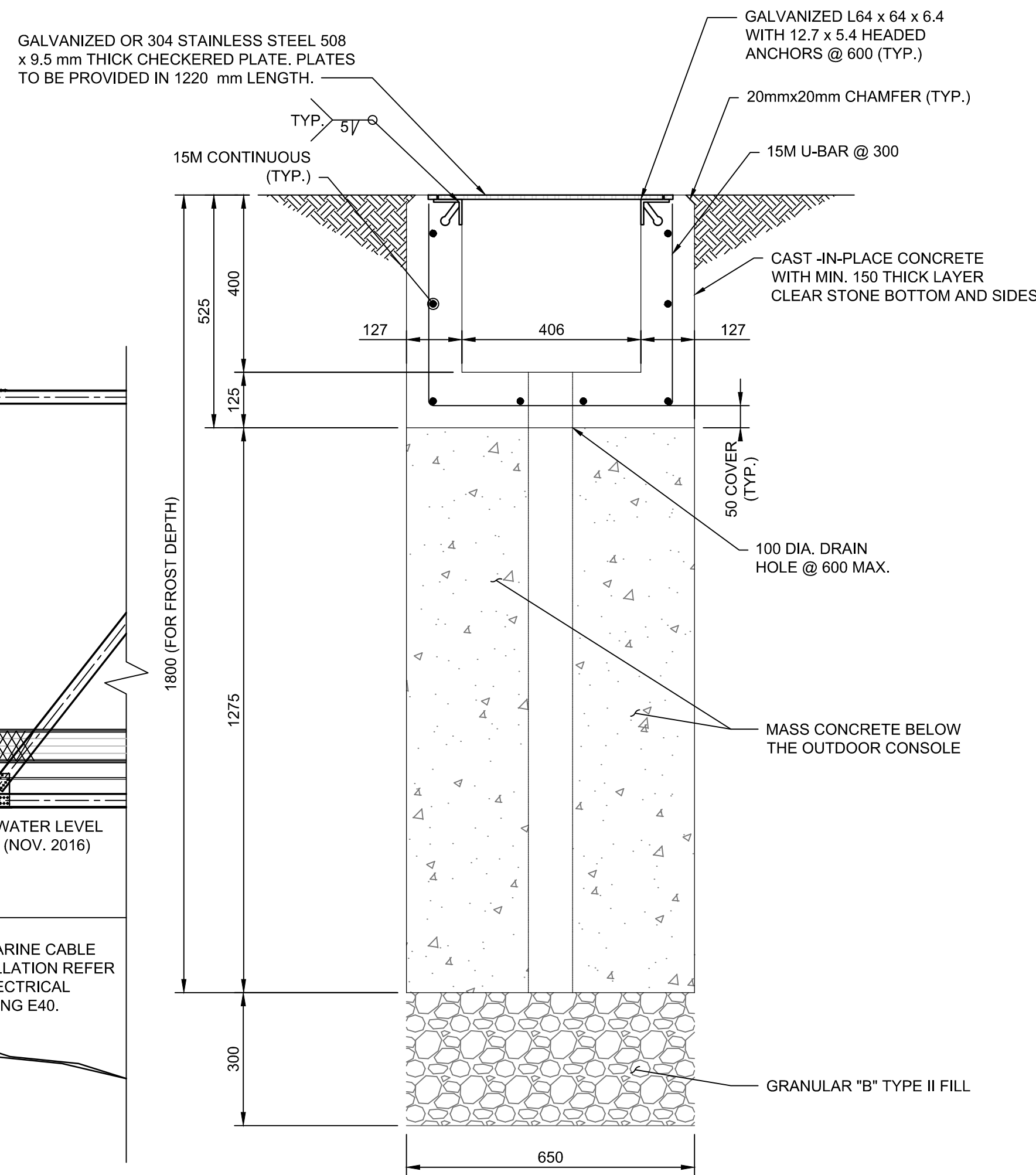
drawing no.  
dessiné no.

B-55





(REFER TO THE ELECTRICAL DRAWING E40 FOR THE SUBMARINE CABLE INSTALLATION AT THE BOTTOM OF THE CHANNEL)



LEGEND:  
CONCRETE SIDEWALK  
ELECTRICAL CONCRETE TRENCH



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| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
CONTROL HOUSE LOCATION

drawn by  
dessiné par  
FAHAD ANSARI

designed by  
conc par  
ABOUBAKER FARAH

approved by  
approuvé par  
KAREN LIU

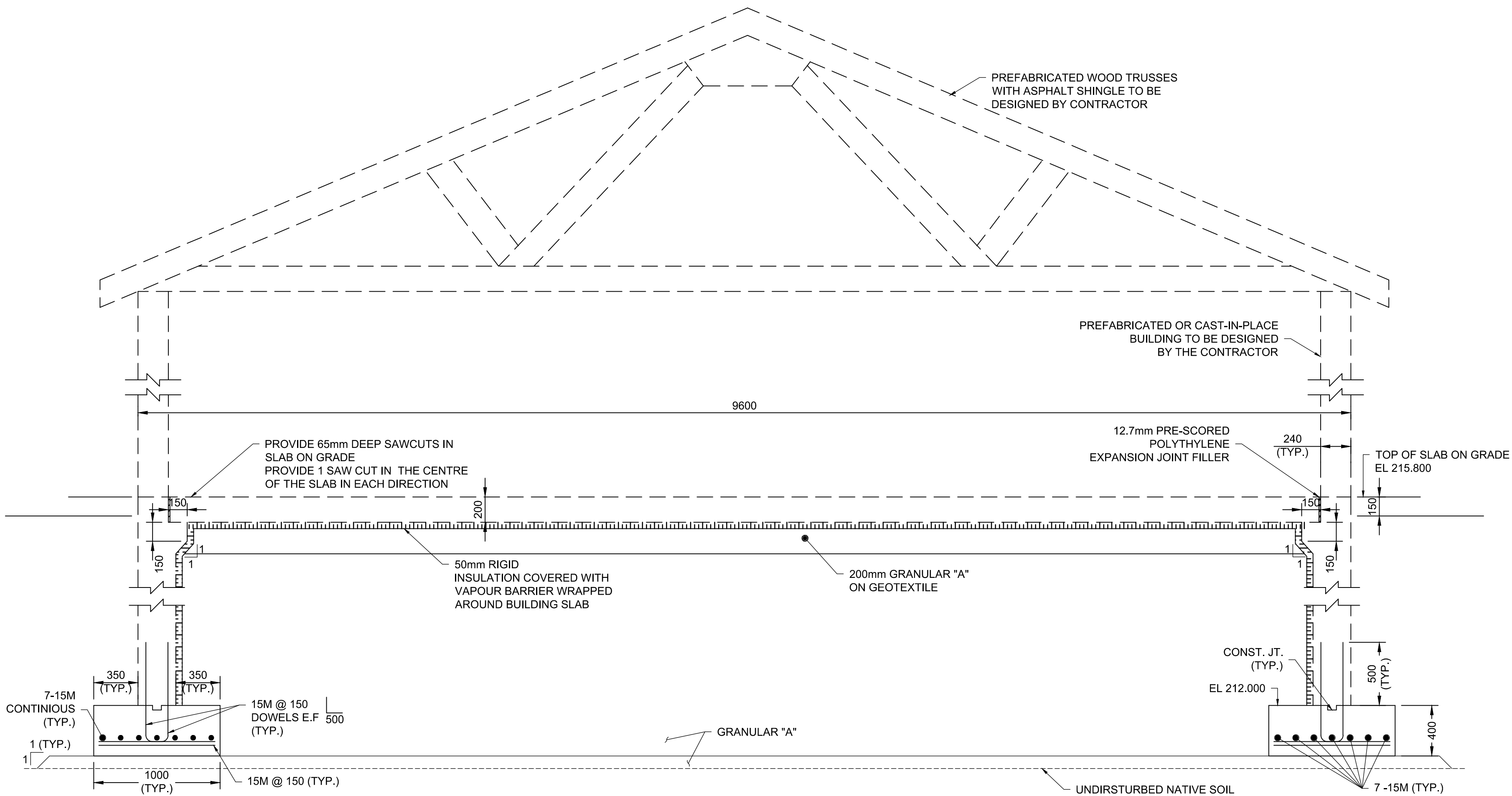
bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

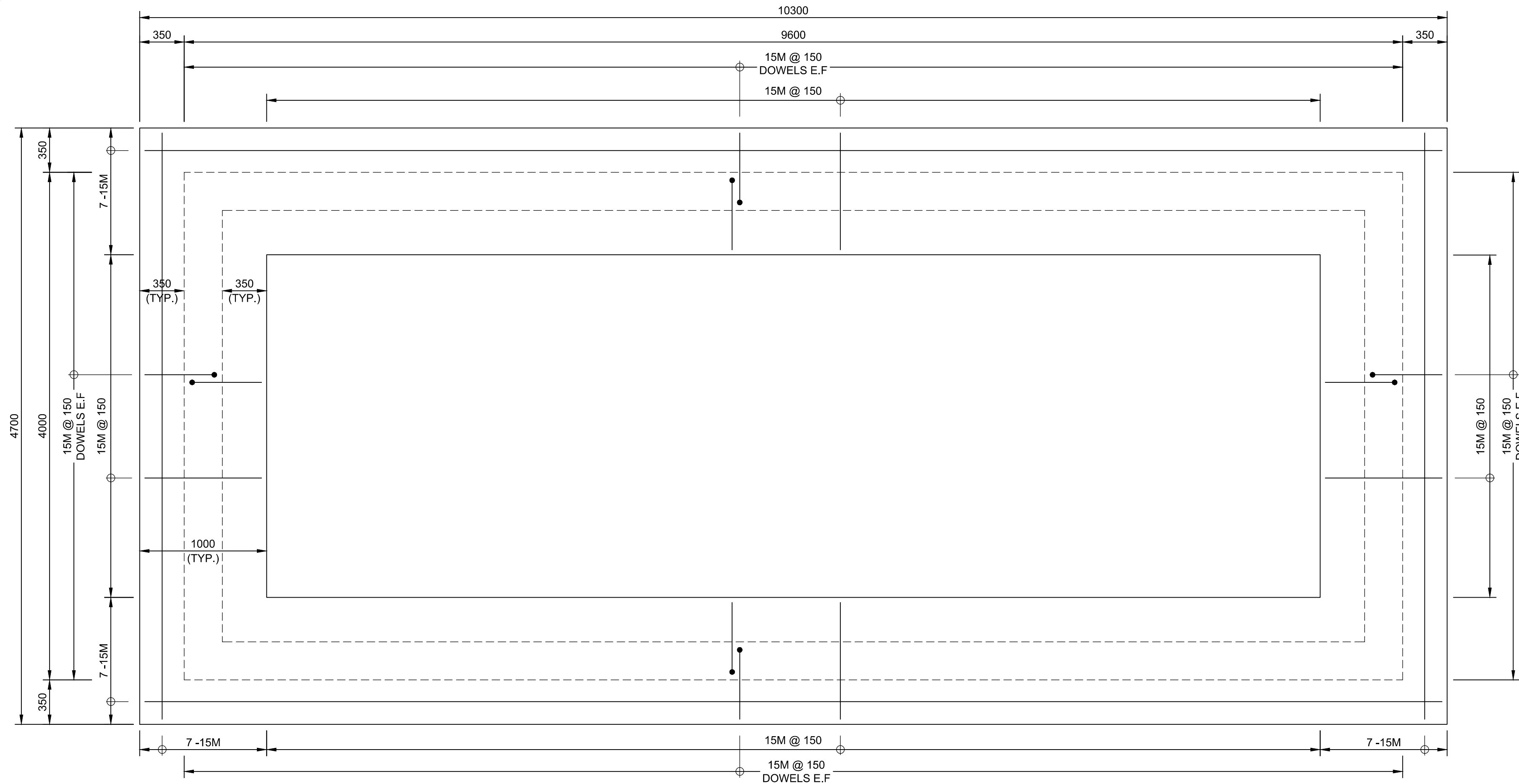
drawing no.  
dessiné no.  
B-56





TYPICAL SECTION

1:25



FOOTING PLAN

1:25

DESIGN

CLASS OF CONCRETE

FOOTING, FOUNDATION WALLS AND SLAB ON GRADE..... f'c = 35 MPa.

CLEAR COVER TO REINFORCING STEEL

|           |                              |
|-----------|------------------------------|
| FOOTING   | 100±25                       |
| REMAINDER | 70±20 UNLESS OTHERWISE NOTED |

CONCRETE GENERAL

- CONCRETE MATERIALS AND METHODS OF CONSTRUCTION TO CSA-A23.1 AND METHODS OF TEST FOR CONCRETE TO CSA-A23.1/A23.2.
- CONTRACTOR TO SUBMIT, FOR REVIEW, MIX DESIGN FOR EACH CLASS OF CONCRETE TO BE USED.
- PROVIDE 20mm CHAMFER ON ALL EXPOSED CORNERS.

ASSUMED LOADS FOR FOUNDATION DESIGN (UNFACTORED)

IMPORTANCE FACTOR = 1.0 (NORMAL OCCUPANCY)

ROOF LOADS

DEAD LOADS:

|                        |         |
|------------------------|---------|
| ROOF TRUSS             | 1.0 kPa |
| CEILING AND MECHANICAL | 0.5 kPa |
| 200mm CONCRETE SLAB    | 4.8 kPa |

SNOW LOADS:

|      |          |
|------|----------|
| SNOW | 2.44 kPa |
|------|----------|

FLOOR LOADS

DEAD LOADS:

|                         |         |
|-------------------------|---------|
| PARTITIONS              | 1.0 kPa |
| 150mm HOUSE KEEPING PAD | 3.6 kPa |
| 200mm CONCRETE SLAB     | 4.8 kPa |

LIVE LOADS:

|           |         |
|-----------|---------|
| LIVE LOAD | 3.6 kPa |
|-----------|---------|

EXTERIOR WALL LOADS

DEAD LOADS:

|                      |         |
|----------------------|---------|
| 300mm CONCRETE WALLS | 1.0 kPa |
|----------------------|---------|

GEOTECHNICAL BEARING RESISTANCE

|     |         |
|-----|---------|
| ULS | 125 kPa |
| SLS | 75 kPa  |

GENERAL NOTES

- DESIGN AND CONSTRUCTION TO COMPLY WITH 2015 NATIONAL BUILDING CODE OF CANADA (NBCC).
- CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS, PROVIDE ALL NECESSARY NOTES AND PAY ALL FEES AND TESTING CHARGES IN ORDER THAT SPECIFIED WORK MAY BE CARRIED OUT.
- ALL DIMENSIONS, ELEVATIONS, GRADES AND EXISTING CONDITIONS TO BE CONFIRMED BEFORE COMMENCEMENT OF WORK.
- CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY SUPPORT OF ALL ELEMENTS DURING CONSTRUCTION.
- DESIGNER OF THE PREFABRICATED BUILDING TO BE RESPONSIBLE FOR THE CONNECTIONS BETWEEN THE BUILDING AND THE FOUNDATION WALLS, AND BETWEEN THE BUILDING AND THE PREFABRICATED ROOF TRUSSES.
- REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF CONDUITS THROUGH THE FOUNDATION WALL AND SLAB-ON-GRADE. CONTRACTOR TO ACCOMMODATE WATER SERVICE IN THROUGH THE FOUNDATION WALL AND SLAB-ON-GRADE AND OUT THROUGH THE BUILDING WALL.
- REFER TO SPECIFICATION 13.34.23 FOR BUILDING INTERIOR AND EXTERIOR FINISH AND OTHER DESIGN REQUIREMENTS.
- FOR FLOOR PLAN LAYOUT REFER TO ELECTRICAL DRAWINGS.

EXCAVATION AND BACKFILL

- FOOTING TO BE FOUNDED ON GRANULAR "A" MATERIAL TO BE COMPACTED IN MAXIMUM 200 MILLIMETER THICK LIFTS TO AT LEAST 95% OF THE STANDARD PROCTOR DRY DENSITY VALUE.
- FOUNDATIONS TO BE BACKFILLED WITH GRANULAR "A" BACKFILL TO BE PLACED IN MAXIMUM 200 MILLIMETER THICK LIFTS AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR DRY DENSITY VALUE. USE LIGHT WALK BEHIND COMPACTION EQUIPMENT NEXT TO THE FOUNDATION WALLS TO AVOID EXCESSIVE COMPACTION INDUCED STRESS ON THE FOUNDATION WALLS. DIFFERENCE IN BACKFILL HEIGHT ON OPPOSITE SIDES OF FOUNDATION WALLS NOT TO EXCEED 200mm.
- PROVIDE MINIMUM 1800mm FROST COVER FROM FINISHED GRADE TO UNDERSIDE OF FOOTINGS.

REINFORCING STEEL

- REINFORCING STEEL TO BE GRADE 400 MPa AND CONFIRM TO CSA G30.18.
- ALL TENSION LAP SPLICES TO BE CLASS "B" UNLESS SHOWN OTHERWISE.

PREFABRICATED BUILDING

- PREFABRICATED BUILDING TO BE CONSTRUCTED OF MASONRY BLOCK OR CONCRETE.
- PREFABRICATED BUILDING TO BE DESIGNED FOR THE LOADS INDICATED IN THE NBCC 2015.

ROOF TRUSSES

- ROOF TRUSSES TO BE PREFABRICATED WOOD TRUSSES
- TRUSSES TO BE DESIGNED FOR THE LOADS INDICATED IN THE NBCC 2015.
- ROOF TRUSSES TO BE DESIGNED, MANUFACTURED AND INSTALLED AS PER CSA 086.
- ALL EQUIPMENT SUSPENDED FROM TRUSS MEMBER INCLUDING CEILING AND MECHANICAL AND ELECTRICAL EQUIPMENT TO BE APPROVED BY THE MANUFACTURER. DO NOT ALTER ROOF TRUSSES WITHOUT APPROVAL FROM THE TRUSS MANUFACTURER.

ABBREVIATIONS

|      |                   |
|------|-------------------|
| E.F. | DENOTES EACH FACE |
| E.W. | DENOTES EACH WALL |

PARSONS



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| C | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

CONTROL HOUSE  
STRUCTURAL DETAILS

drawn by  
dessiné par

FAHAD ANSARI

designed by  
conc par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

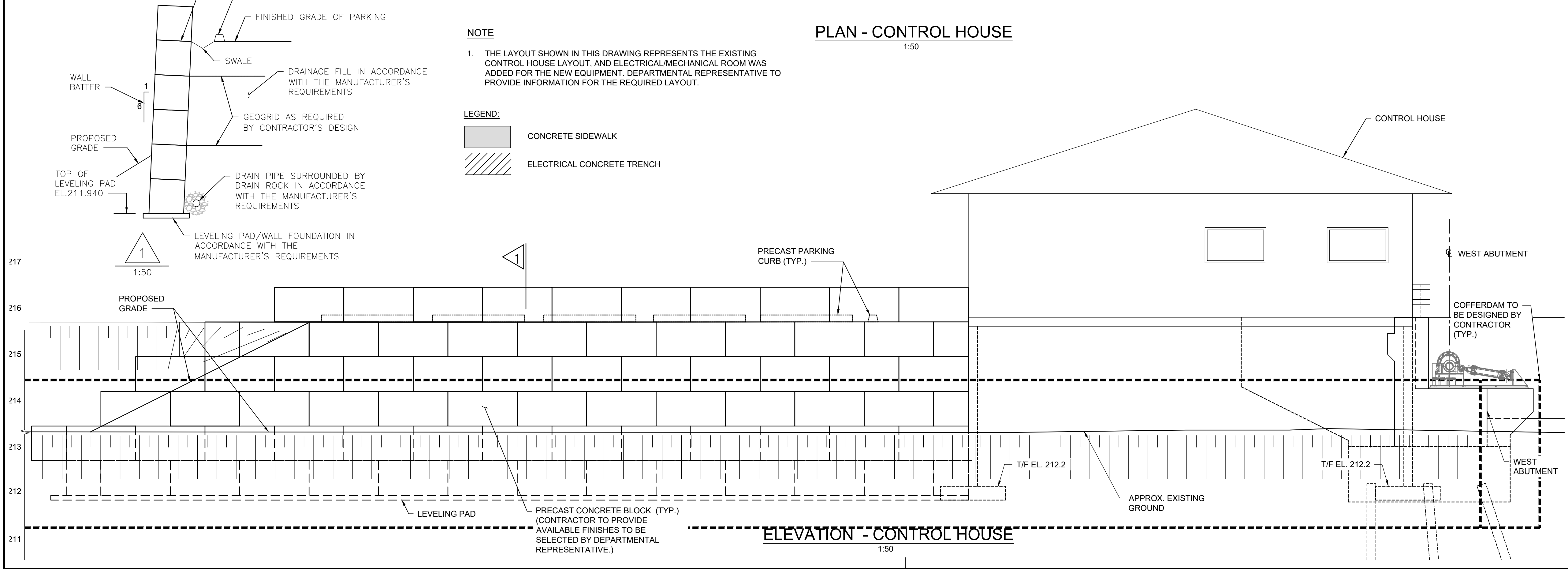
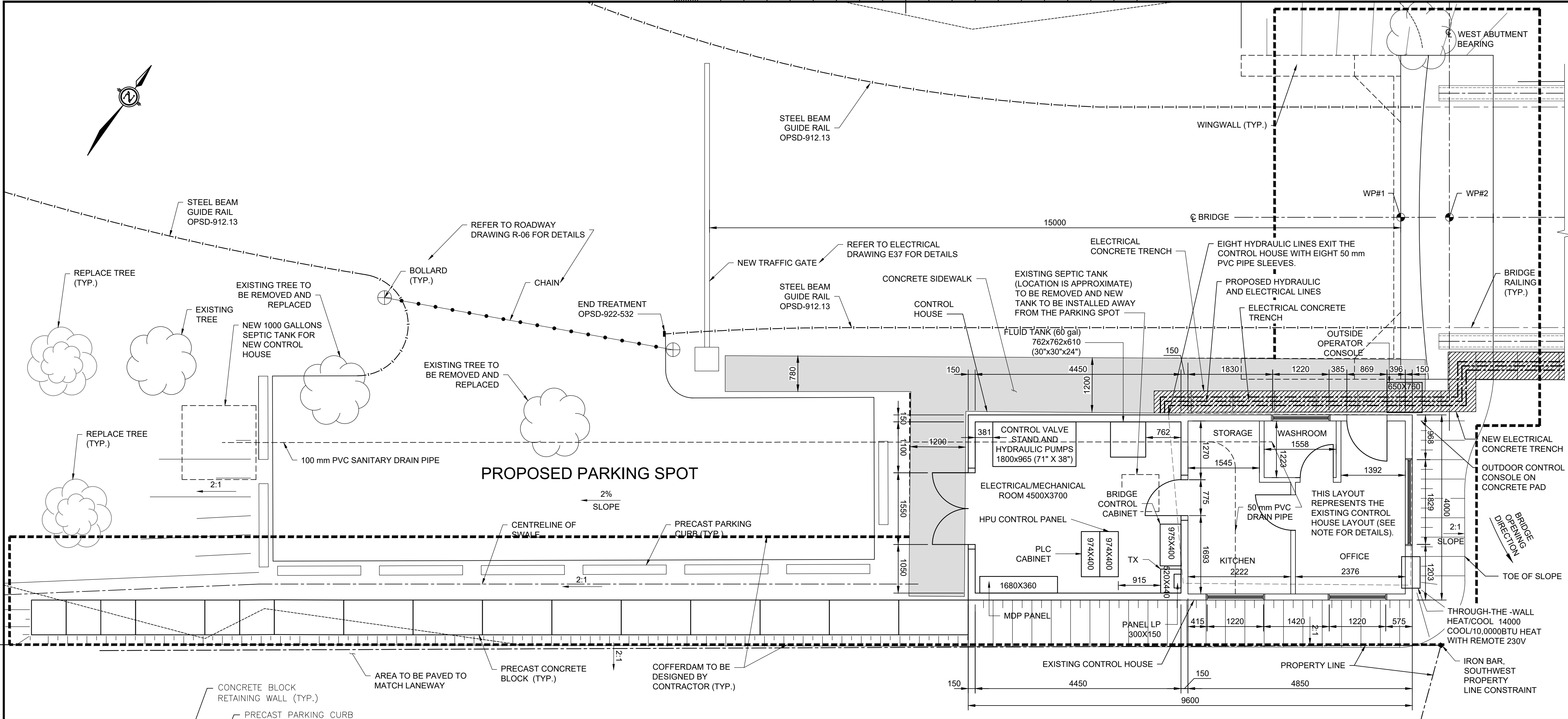
project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.

B-57





**NOTE**

1. THE LAYOUT SHOWN IN THIS DRAWING REPRESENTS THE EXISTING CONTROL HOUSE LAYOUT, AND ELECTRICAL/MECHANICAL ROOM WAS ADDED FOR THE NEW EQUIPMENT. DEPARTMENTAL REPRESENTATIVE TO PROVIDE INFORMATION FOR THE REQUIRED LAYOUT.

**LEGEND:**

CONCRETE SIDEWALK

ELECTRICAL CONCRETE TRENCH

PLAN - CONTROL HOUSE

ELEVATION - CONTROL HOUSE



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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

CONTROL HOUSE LAYOUT

drawn by  
dessiné par

ANTHONY LEE

designed by  
conçu par

ABOUBAKER FARAH

approved by  
approuvé par

KAREN LIU

bid  
offre

JULIO LEON

project date  
date du projet

2018-07-20

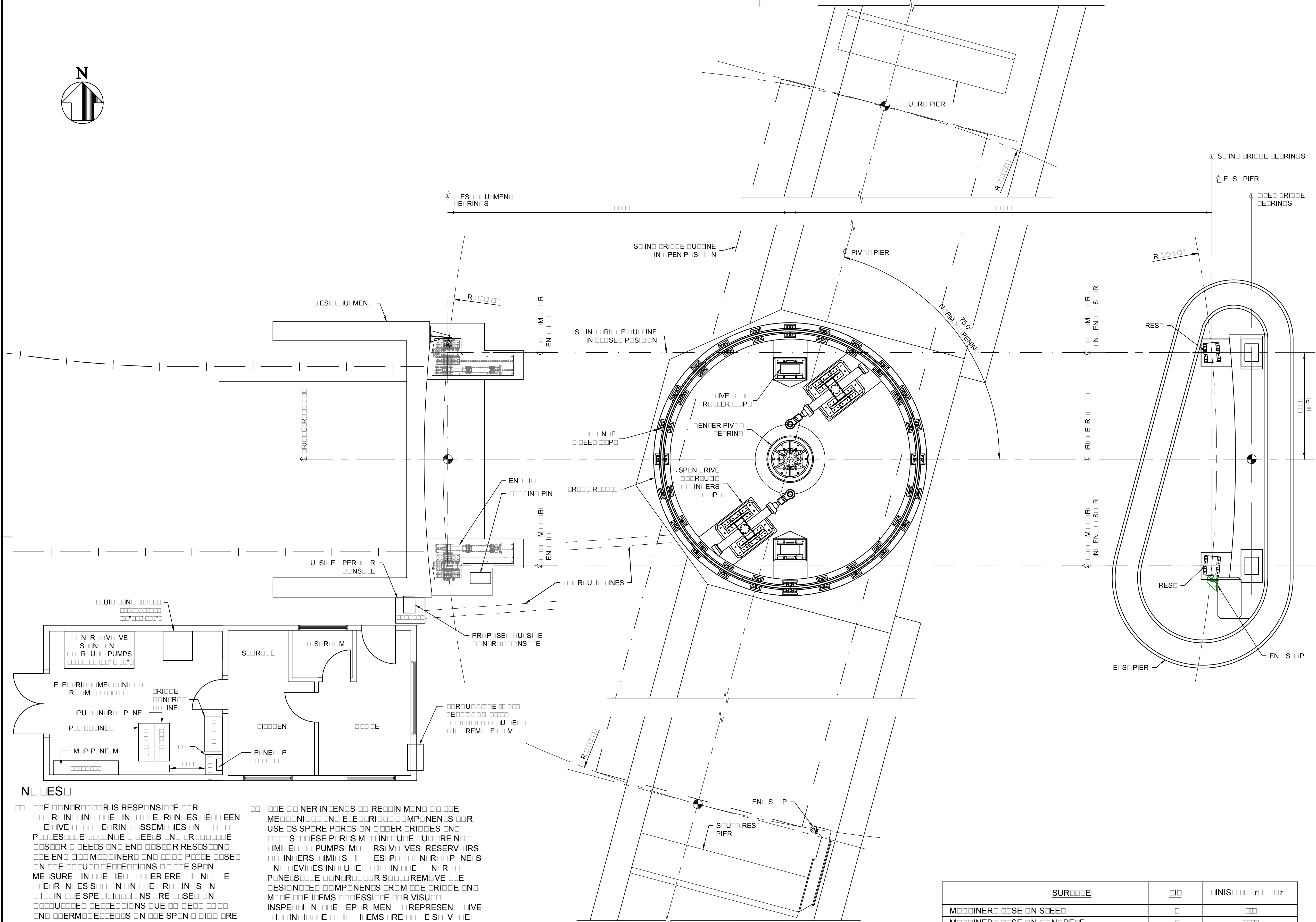
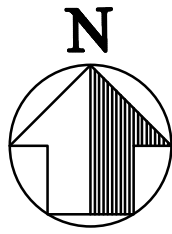
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drawing no.  
dessiné no.

B-58





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| SORIN USIN IN CE UP 00 000 0 000 | IN  | 00            |
| SORIN USIN IN CE OVER 000 0 000  | IN  | 00            |
| USIN SORIN UP 00 000 0 00 RE     | IN  | 00            |
| USIN SORIN OVER 000 0 00 RE      | IN  | 00            |
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| ES N E 00 S                      | 000 | 00            |
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Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

# PARSONS



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No. du détail

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dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

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| project title   |  |
| titre du projet |  |

Ontario

HAMLET BRIDGE  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|          |        |
|----------|--------|
| drawing  | title  |
| titre du | dessin |

### MACHINERY LOCATION PLAN AND NOTES

drawn by  
dessine par

GREG TAYLOR

designed by  
cong par

JEFF KEYT

|             |              |
|-------------|--------------|
| approved by | approuvé par |
|-------------|--------------|

JEFF KEYT

|       |  |
|-------|--|
| bid   |  |
| offre |  |

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• • • • •

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

date du projet

2018-07-20

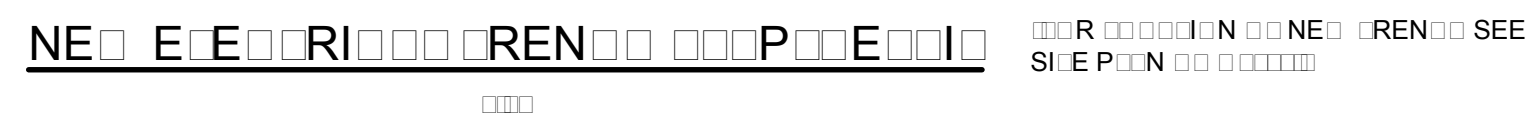
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drawing no.  
dessine no.

M-01






**REPRESENTATIVE BUSINESS SECTOR**



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No. du detail

B drawing no. — where detail required  
dessin no. — ou detail exige

C drawing no. — where detailed  
dessin no. — ou detaillé

Ontario

HAMLET BRIDGE  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

## MECHANICAL NOTES

drawn by  
dessine par

THOMAS NIEDZWIADK

designed by  
conc par

JEFF KEYT

approved by  
approuvé par **JEFF KEYT**

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

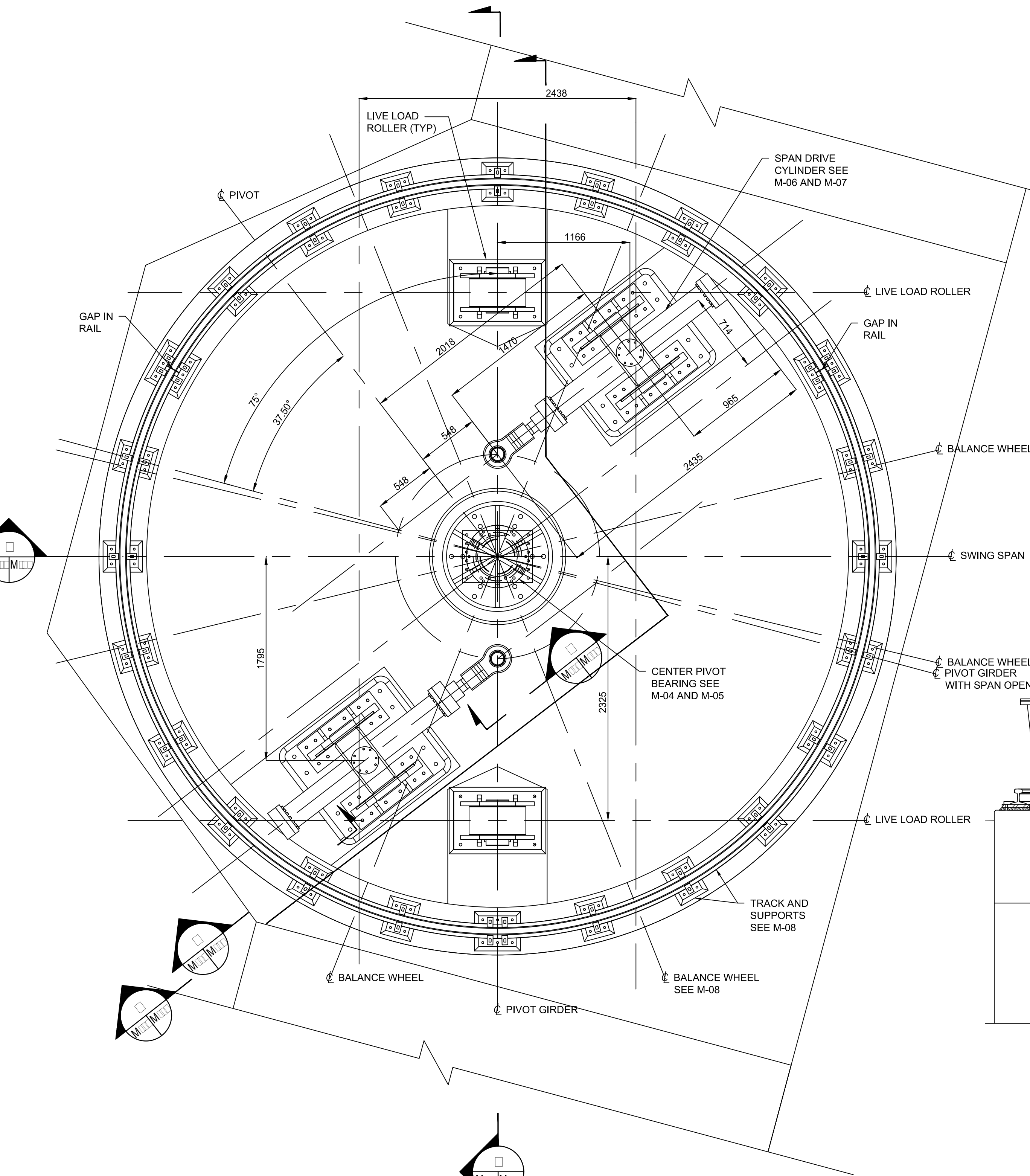
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| project date<br>date du projet | 2018-07-20 |
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dessine no.

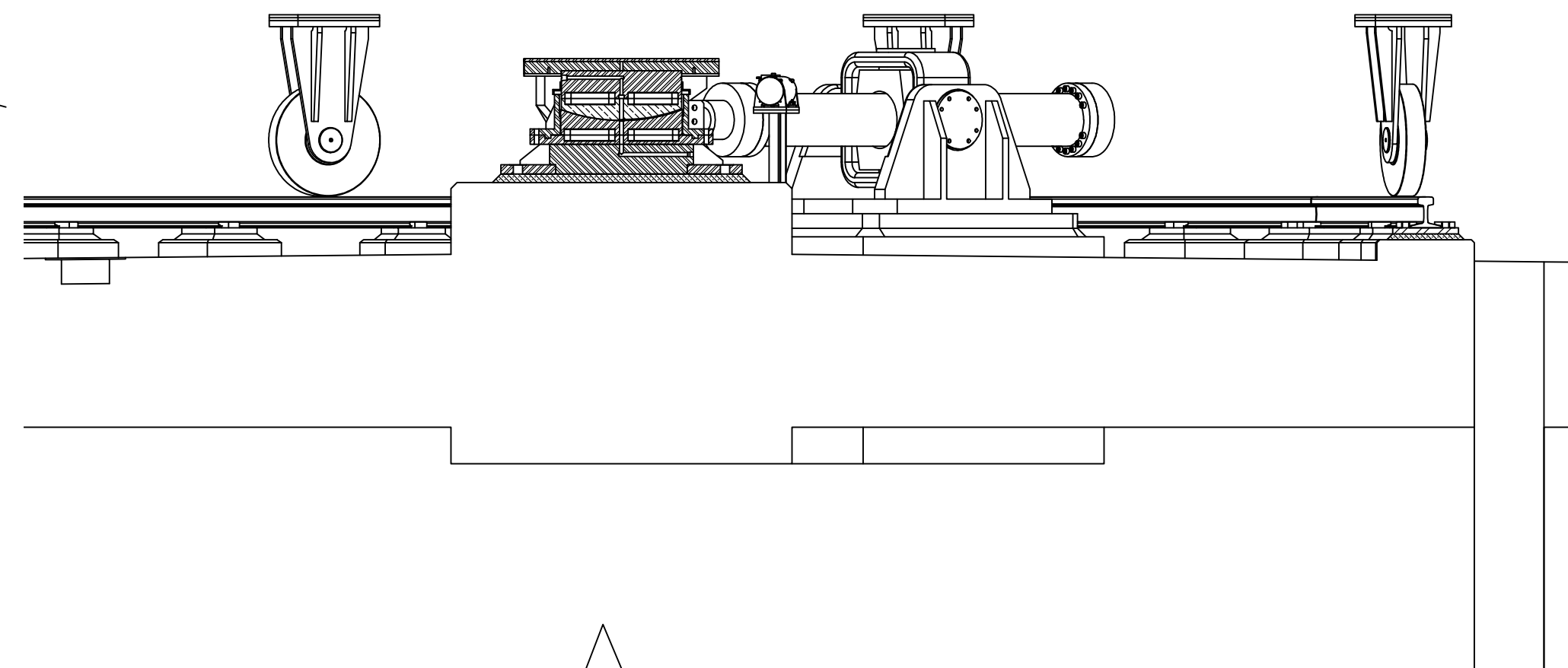
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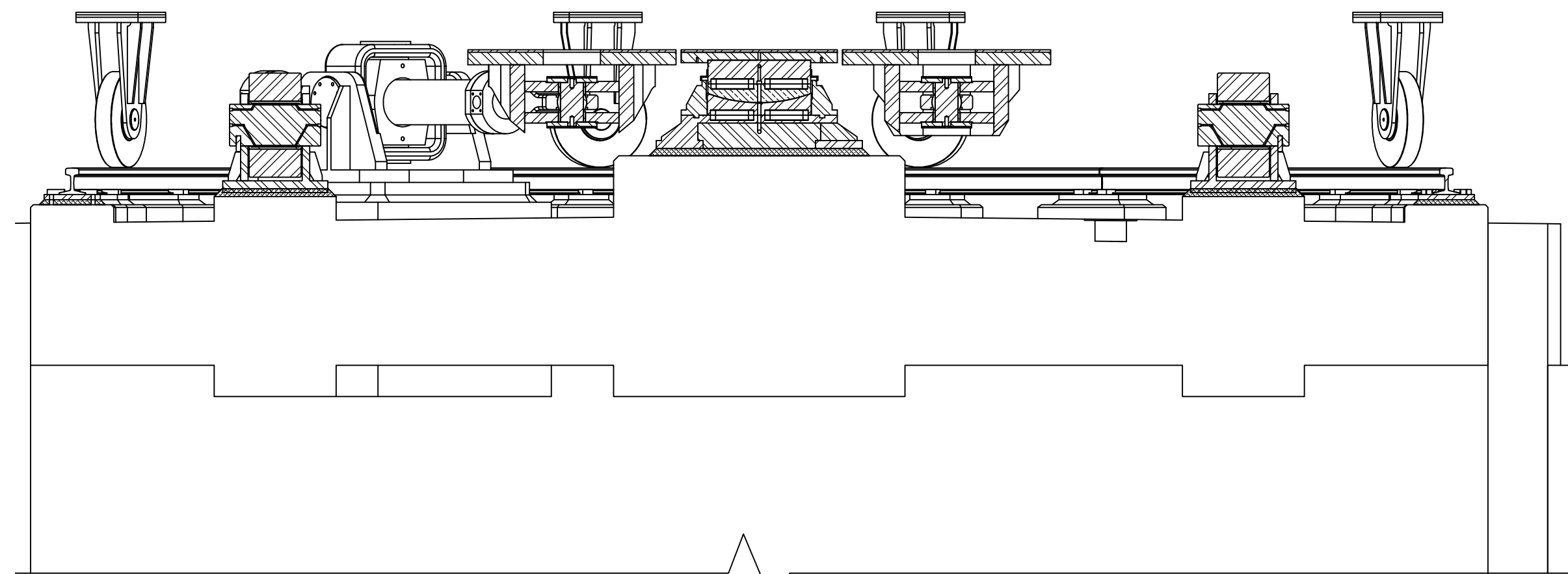


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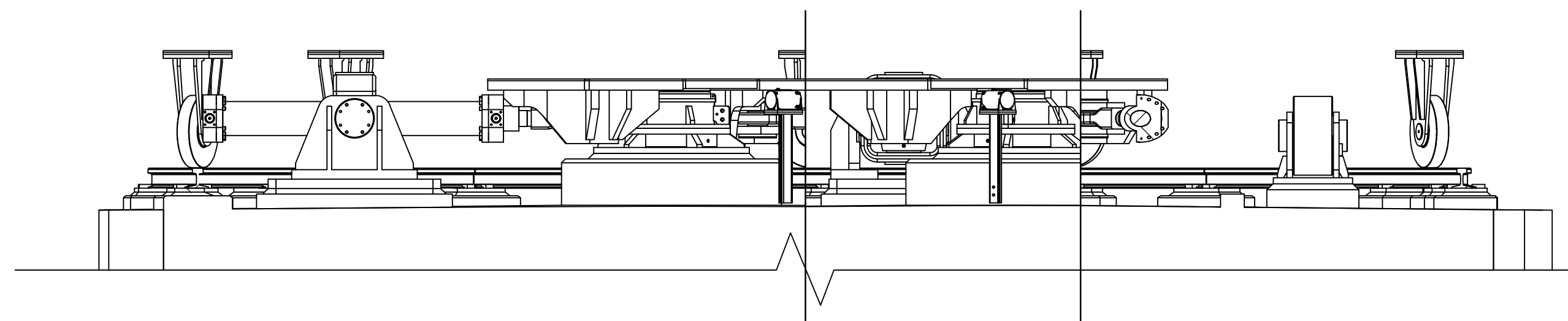
REFER TO STRUCTURAL INSTRUCTIONS



SECTION



SECTION



SECTION

PLAN

Public Works and Government Services Canada  
Travaux publics et Services gouvernementaux Canada

PARSONS



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titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
PIVOT PIER PLAN  
AND SECTIONS

drawn by  
dessiné par  
GREG TAYLOR

designed by  
conçu par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

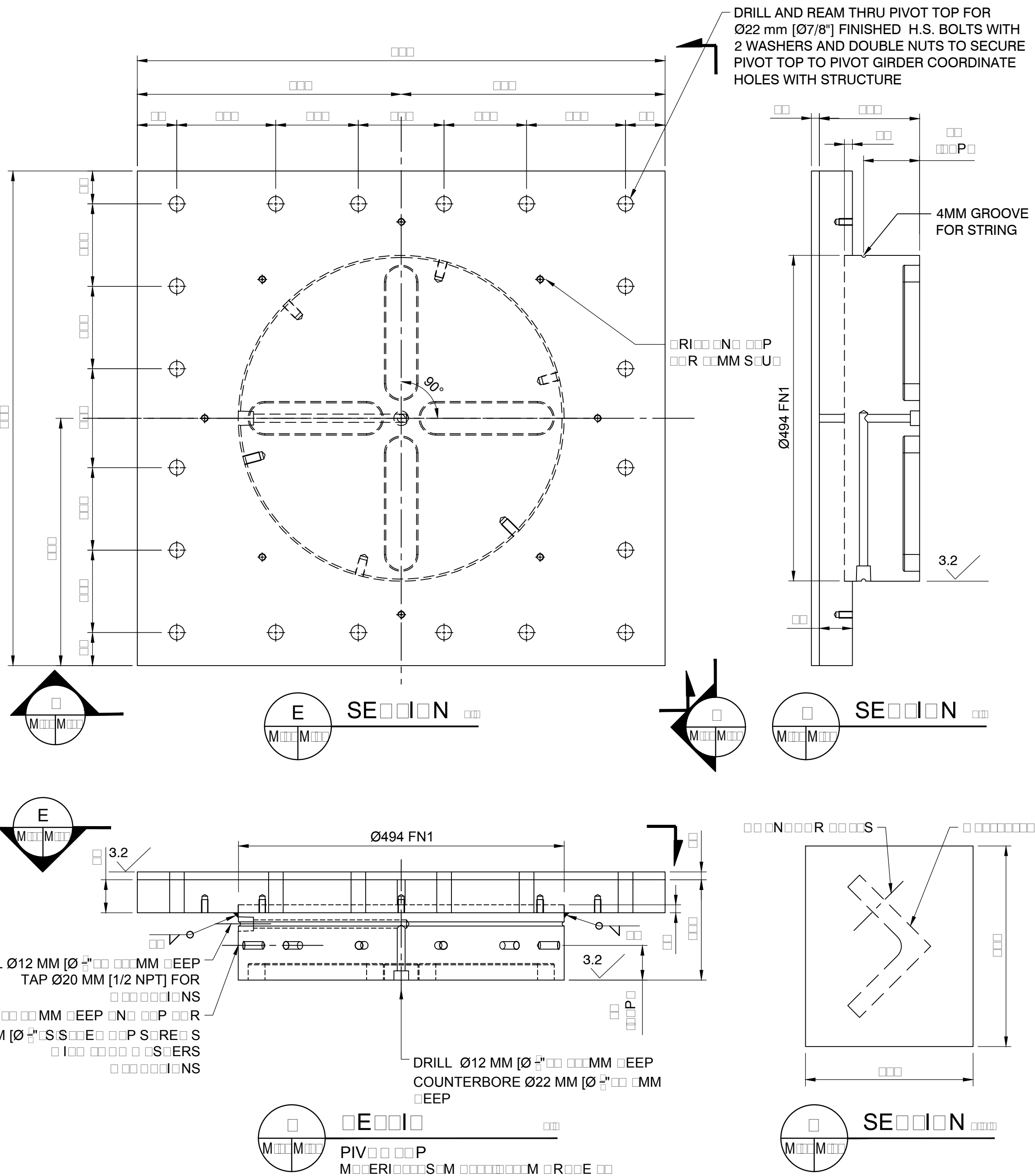
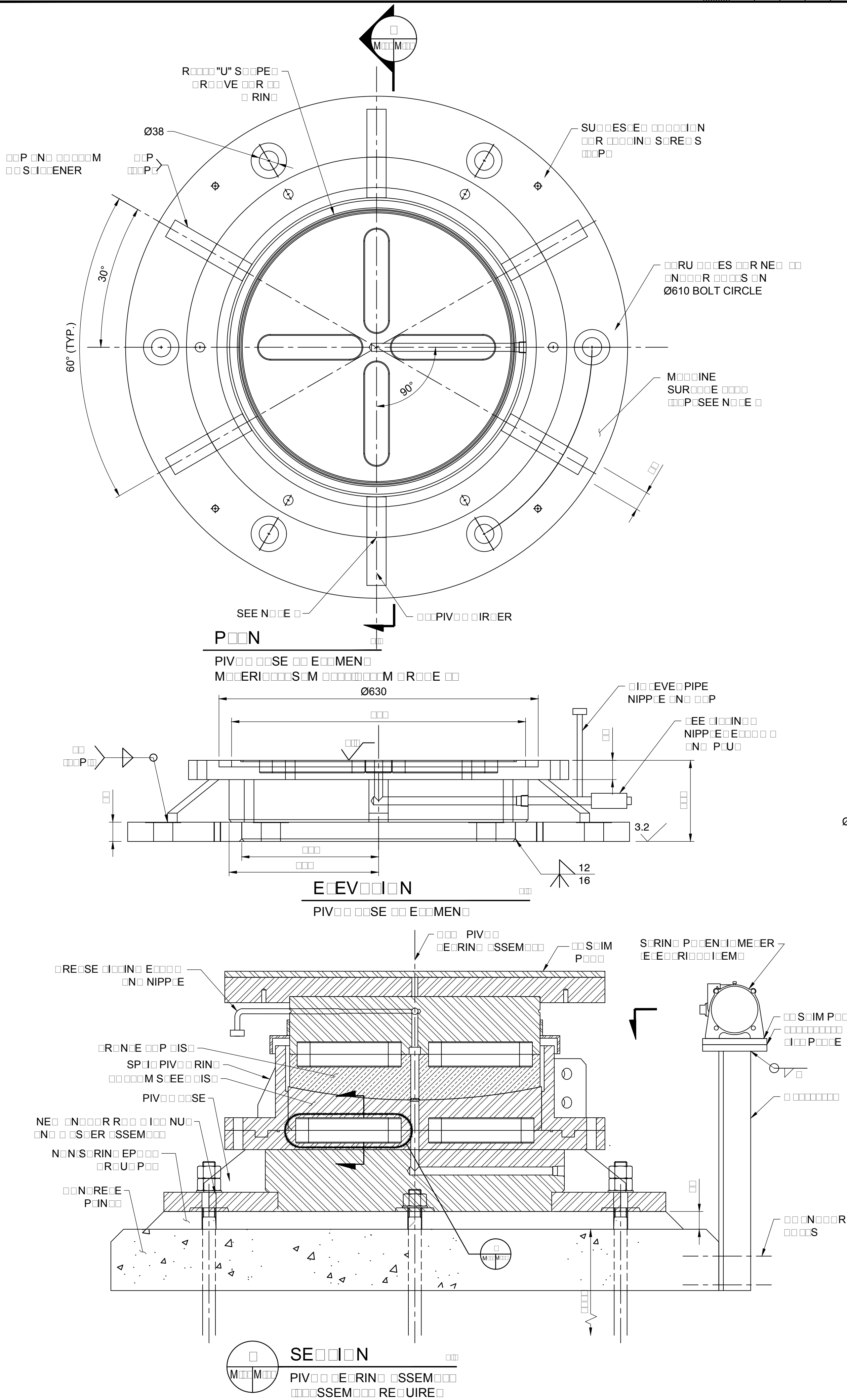
bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
M-03





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project title  
titre du projet

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
CENTER PIVOT  
ASSEMBLY

drawn by  
dessiné par  
THOMAS NIEDZWIADK

designed by  
conçue par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

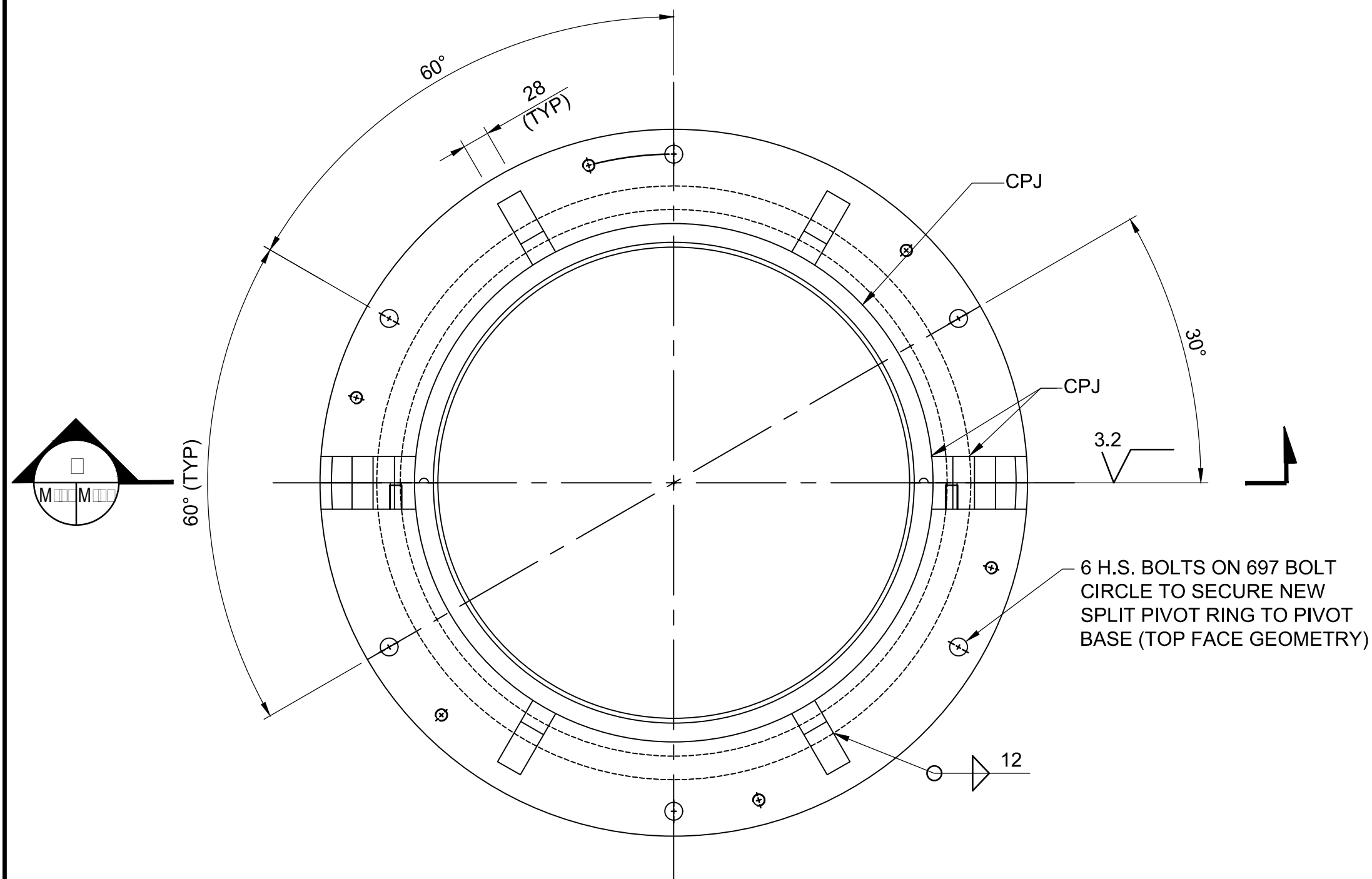
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offre  
JULIO LEON

project date  
date du projet  
2018-07-20

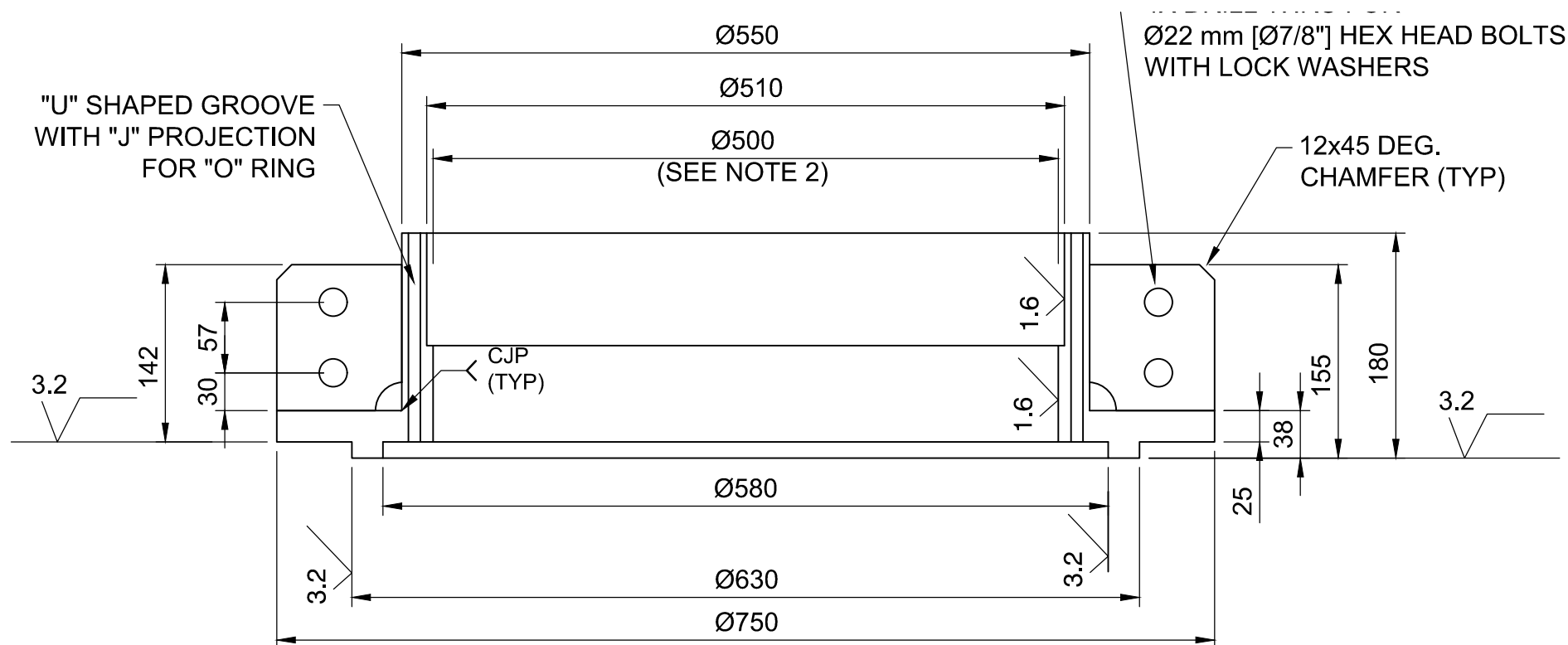
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no. du projet  
R.073593.001

drawing no.  
dessiné no.  
M-04

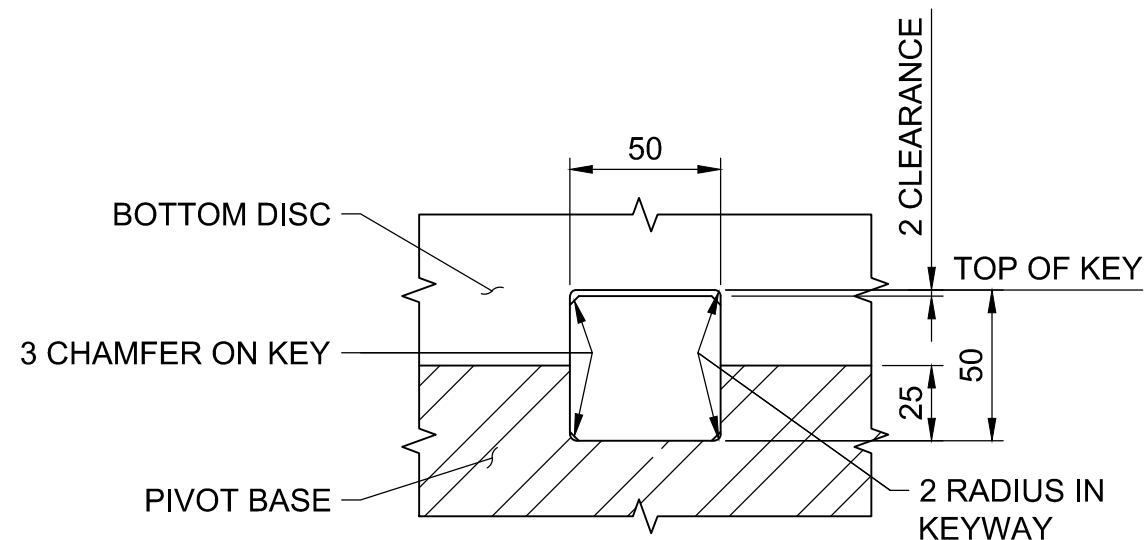




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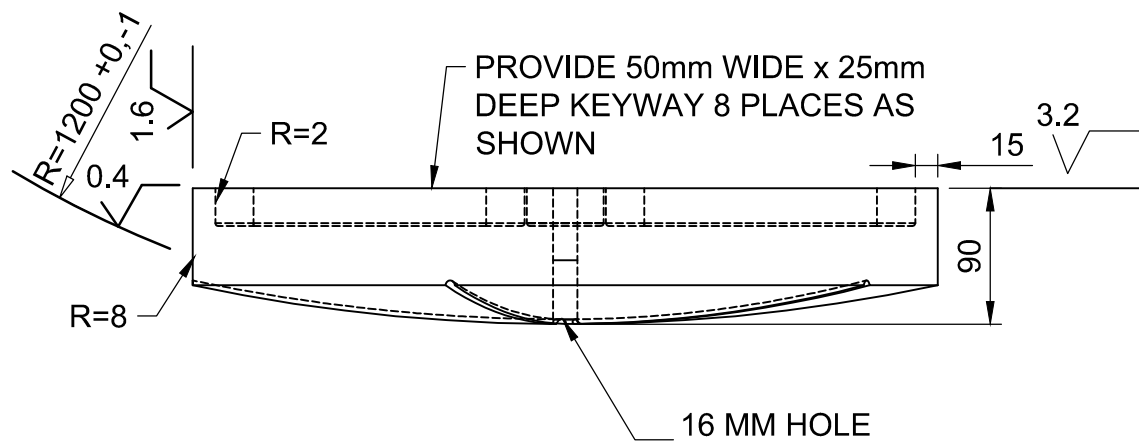


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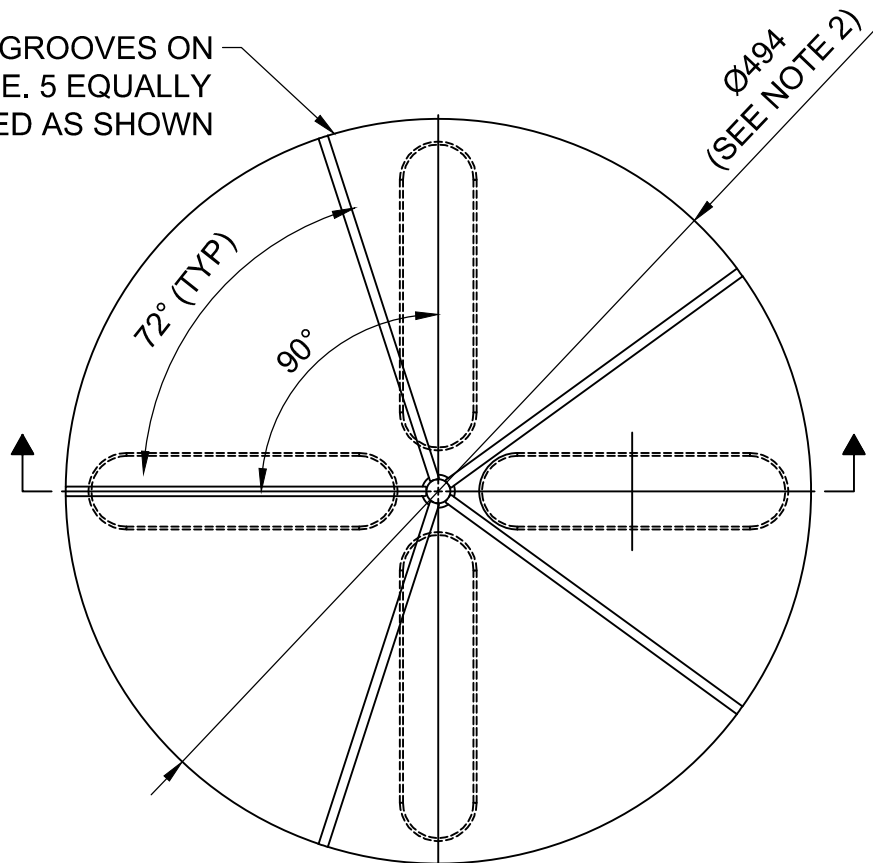


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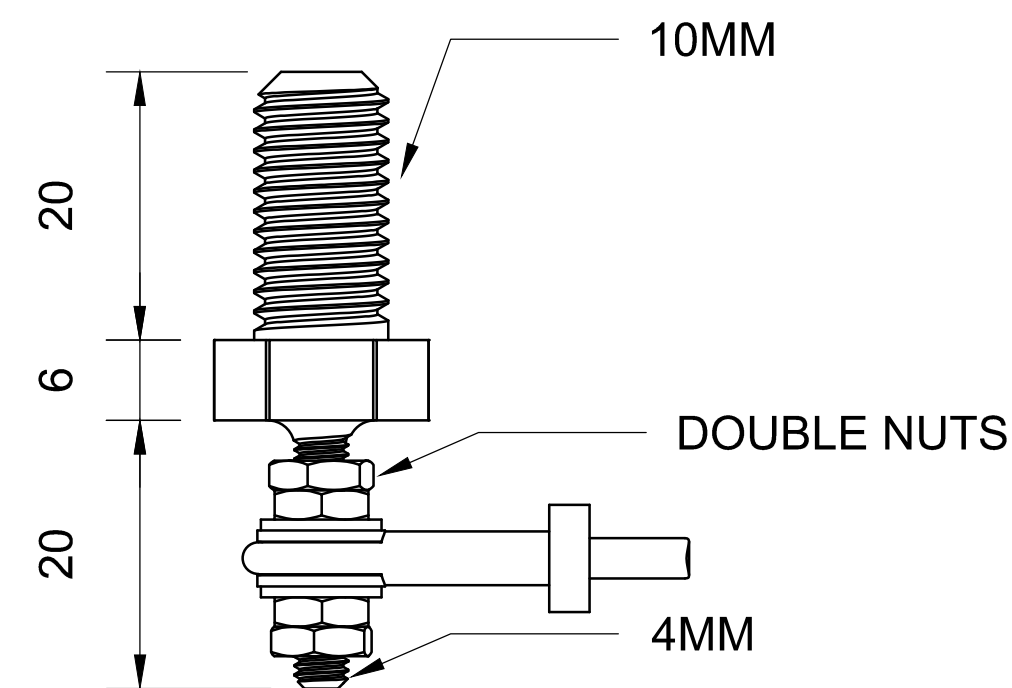
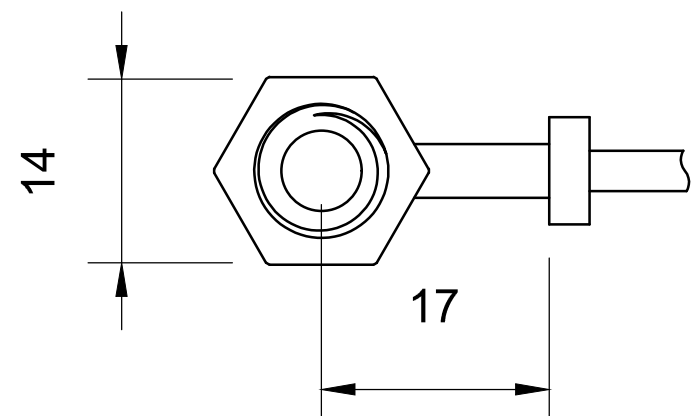
PIV P N P IS SIMI R



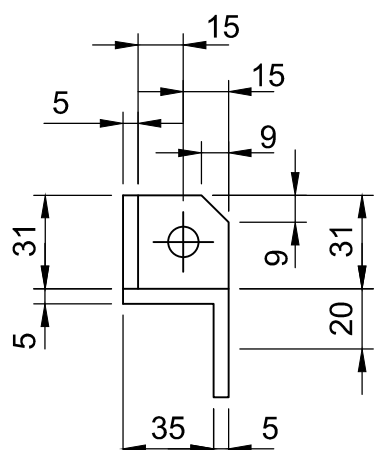
PROVIDE OIL GROOVES ON SPHERICAL SURFACE. 5 EQUALLY SPACED AS SHOWN



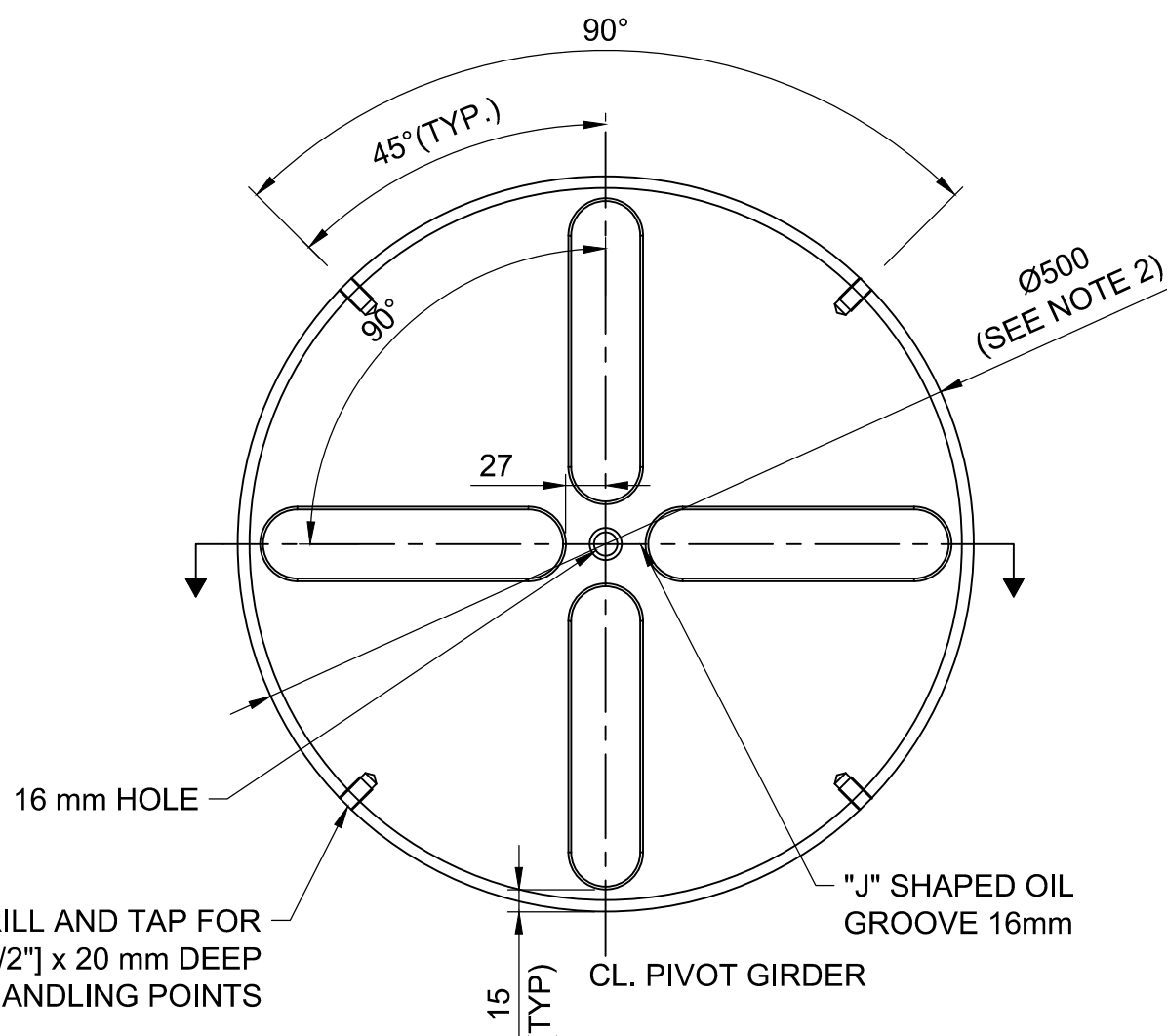
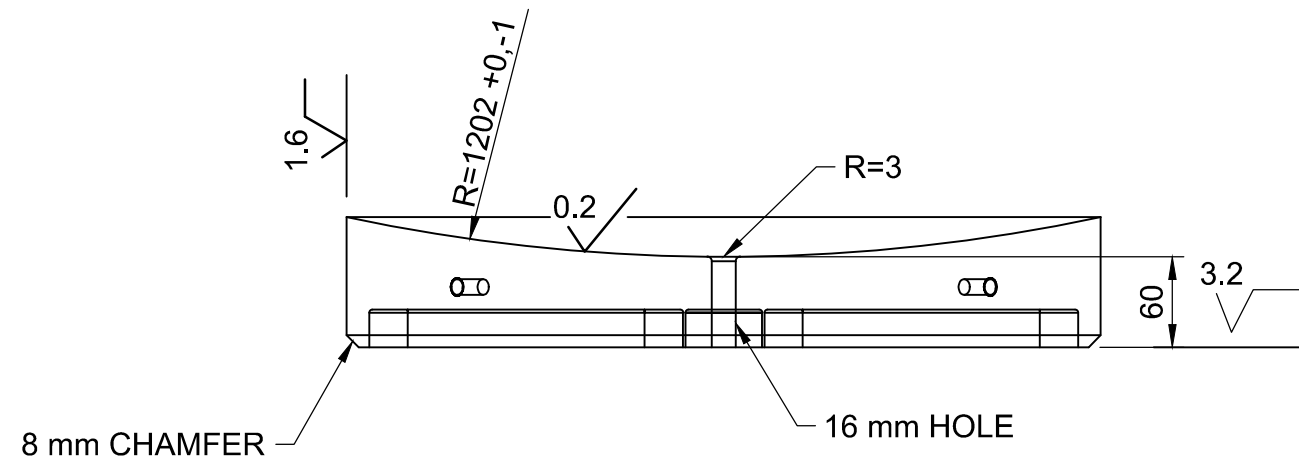
SECTION  
P IS  
MATERIAL: ASTM B148 C95800 SELF LUBRICATING WITH TREEPANED LUBRICANT INSERTS COMPATIBLE WITH GREASE



SECTION  
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SECTION  
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MATERIAL: S.S. ASTM A564M, TYPE 630 CONDITION A



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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
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| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. - where detail required<br>dessin no. - où détail exigé |
| C | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
CENTER PIVOT  
DETAILS

drawn by  
dessiné par  
THOMAS NIEDZWIADK

designed by  
conç par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

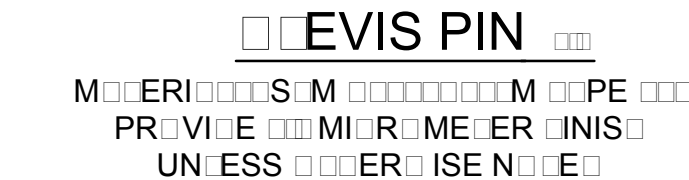
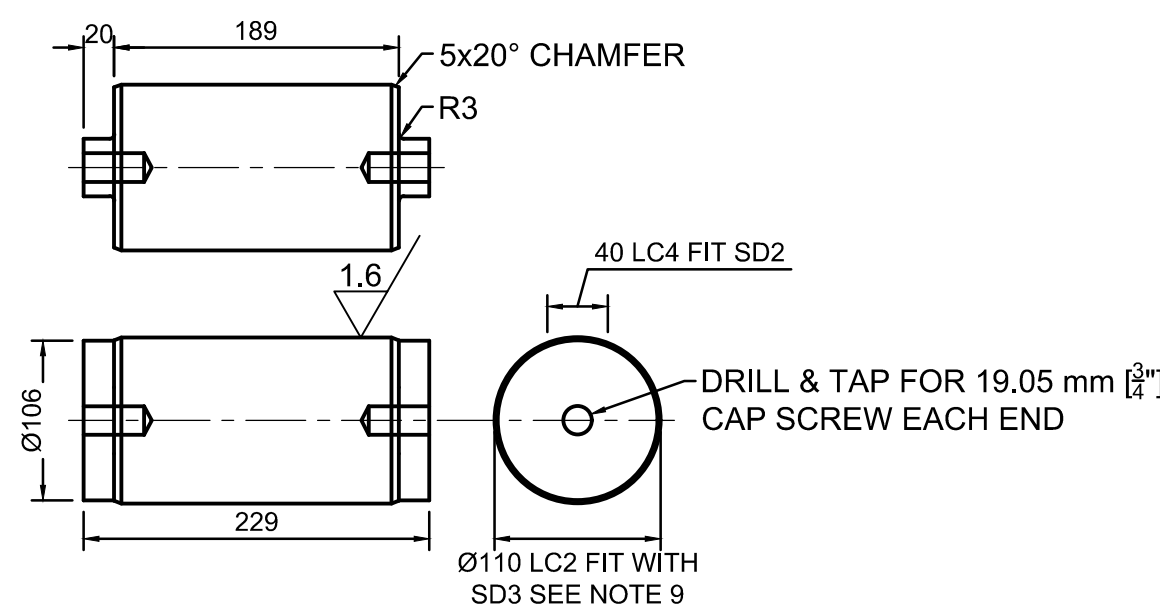
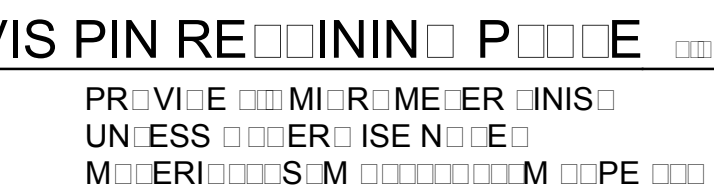
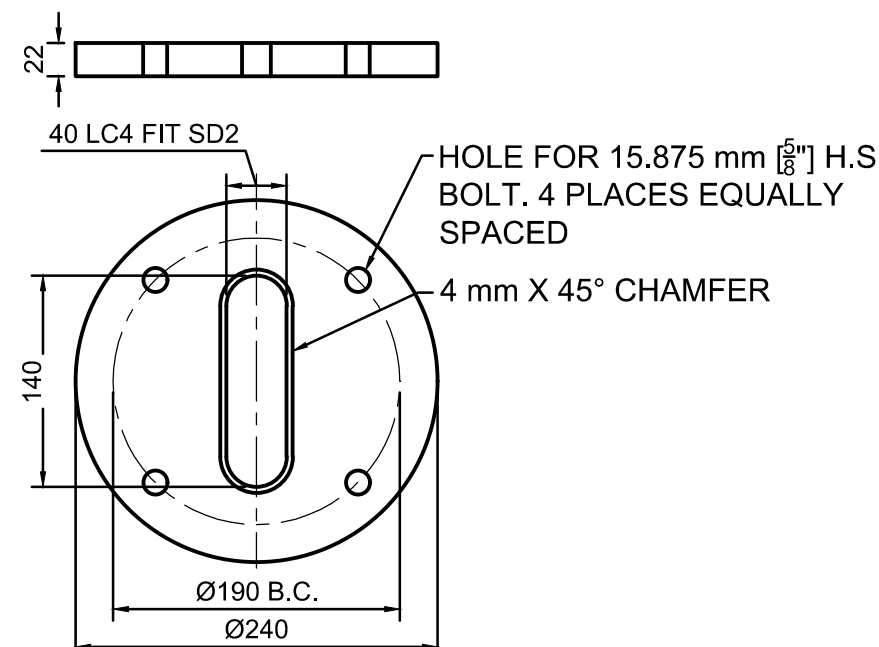
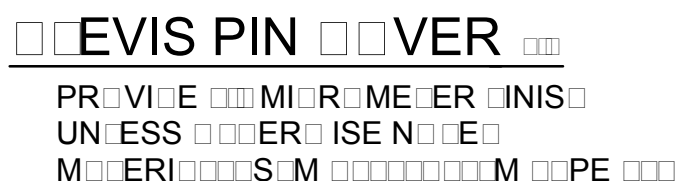
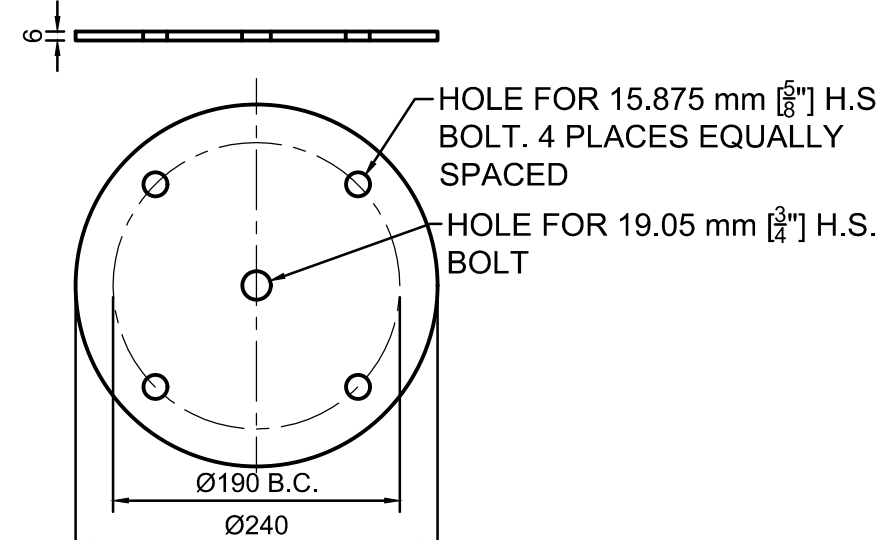
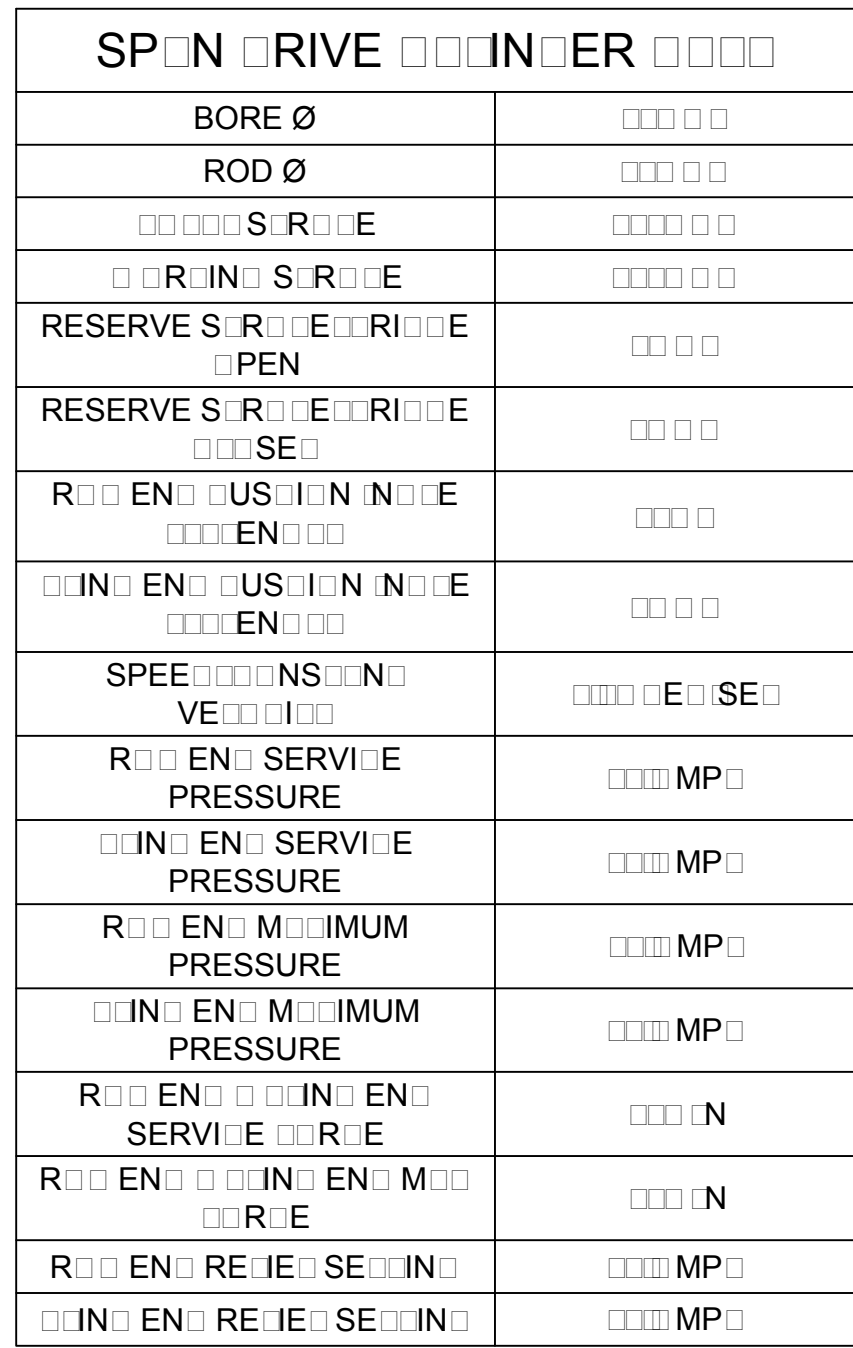
bid  
offre  
JULIO LEON  
project manager  
administrateur de projets

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
M-05





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MANUFACTURERS REQUIREMENTS. NRIE PIN PROVIDE  
MINIMUM SURVEY RESPONSE


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| revision |                   | date       |

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**A** Detail No.  
No. du detail  
**B** drawing no. — where detail required  
dessin no. — ou detail exige  
**C** drawing no. — where detailed  
dessin no. — ou detaillé

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| project title<br>titre du projet | Ontario |
|----------------------------------|---------|

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

CYLINDER TRUNNIONS  
AND ROD END  
CONNECTIONS - 1 OF 2

drawn by  
dessine par

THOMAS NIEDZWIADK

designed by  
conc par

JEFF KEYS

approved by  
approuvé par

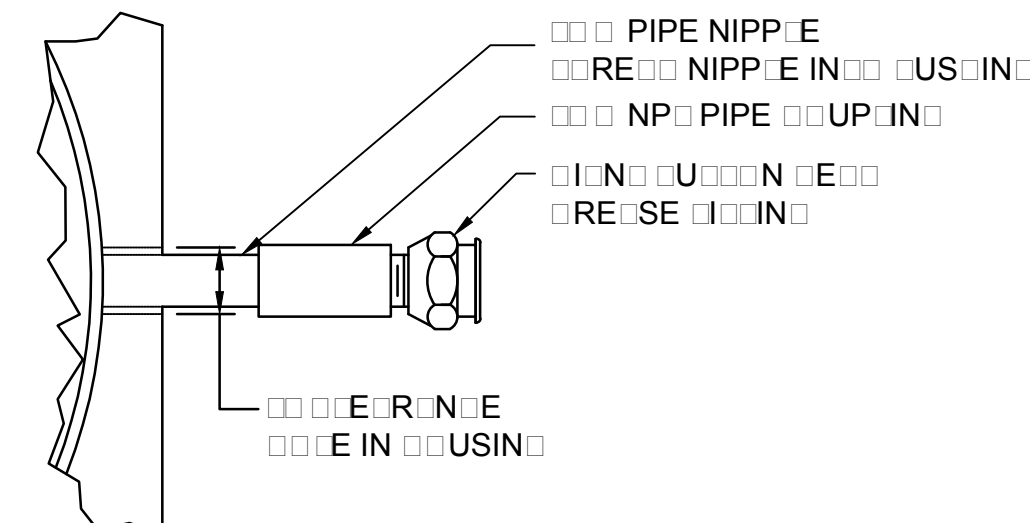
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|------------|------------------------------|
| bid        | project manager              |
| offre      | administrateur<br>de projets |
| JULIO LEON |                              |

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| project date<br>date du projet | 2018-07-20 |
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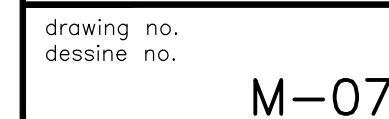
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drawing no.  
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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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 No. du détail  
 B drawing no. — where detail required  
 dessin no. — où détail exigé  
 C drawing no. — where detailed  
 dessin no. — où détaillé

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| project title<br>titre du projet | Ontario |
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HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

# TRACK AND BALANCE WHEELS

drawn by  
dessine par

THOMAS NIEDZWIADK

designed by  
conc par

approved by  
approuvé par

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

project date  
date du projet 2018-07-20

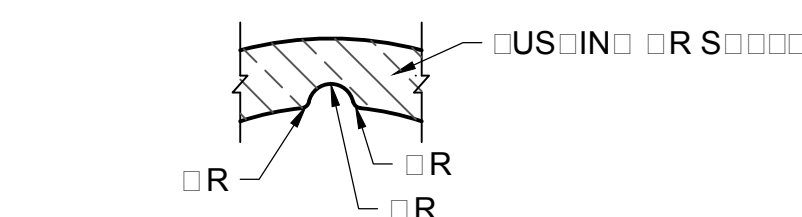
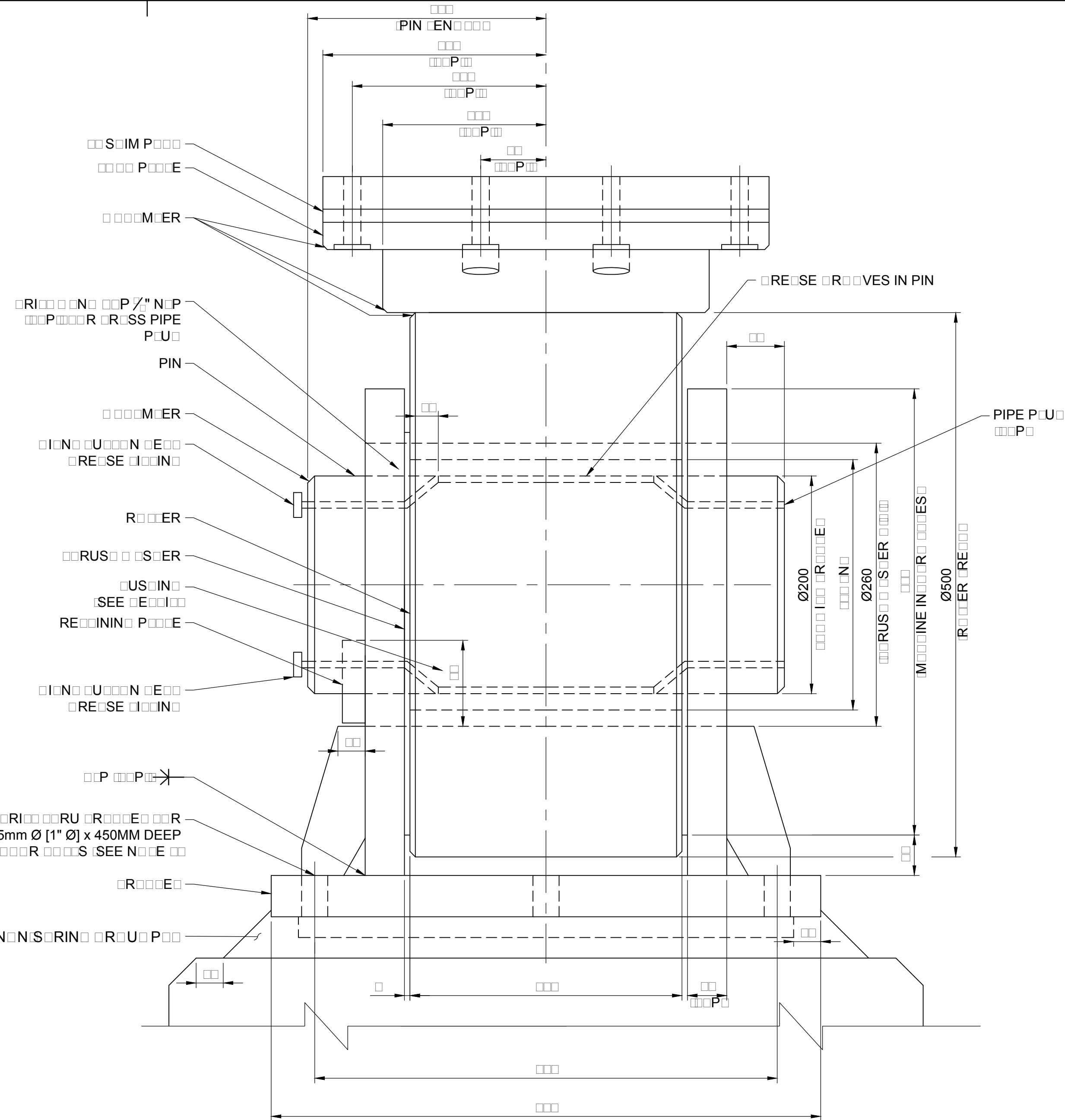
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no. du projet

R.073593.001






drawing no.  
dessine no.

M-08

























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









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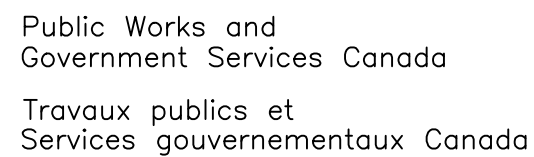
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# PARSONS



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| 01       | ISSUED FOR TENDER | 2018-07-20 |
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No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

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| project title<br>titre du projet | Ontario |
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HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

|                 |
|-----------------|
| drawing title   |
| titre du dessin |

## LIVE LOAD ROLLERS

drawn by  
dessine par

THOMAS NIEDZWIADEK

designed by  
conc par

JEFF KEYT

approved by  
approuvé par

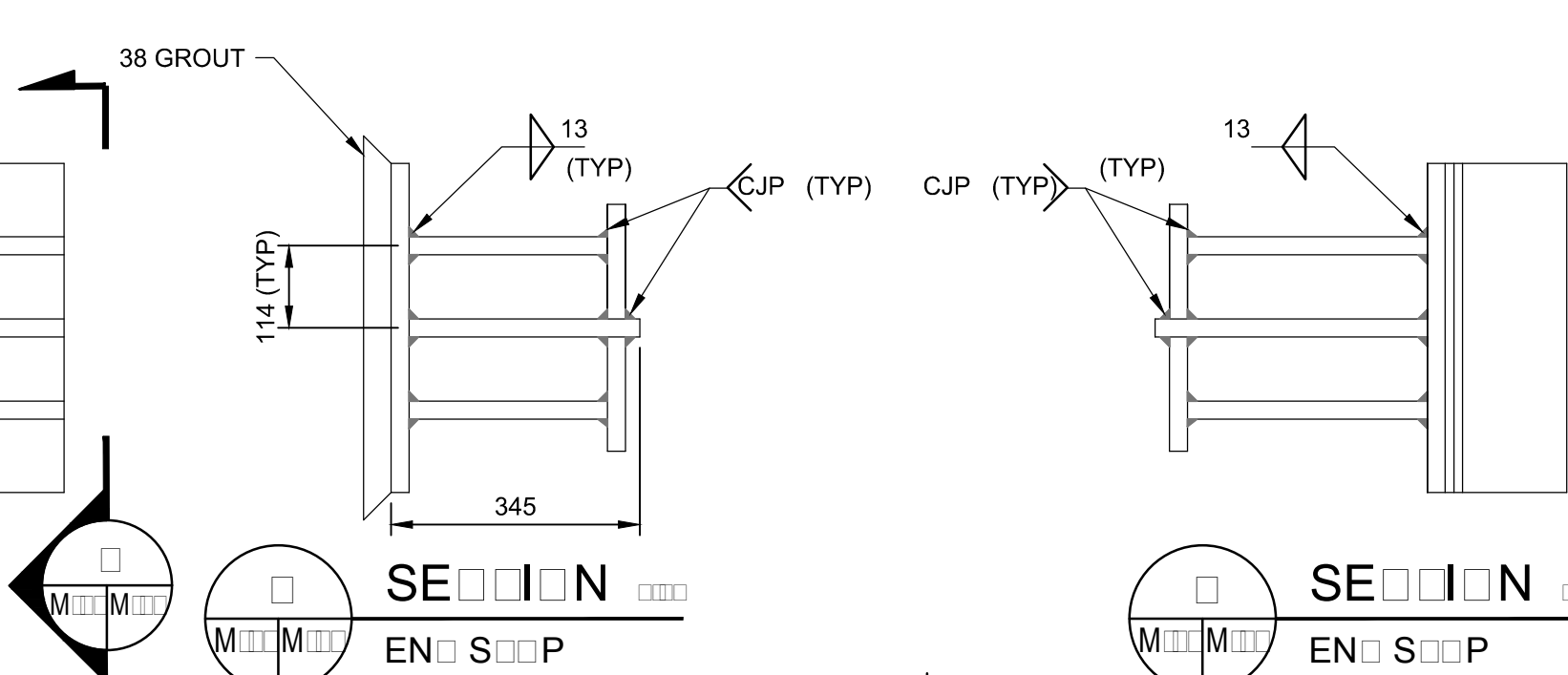
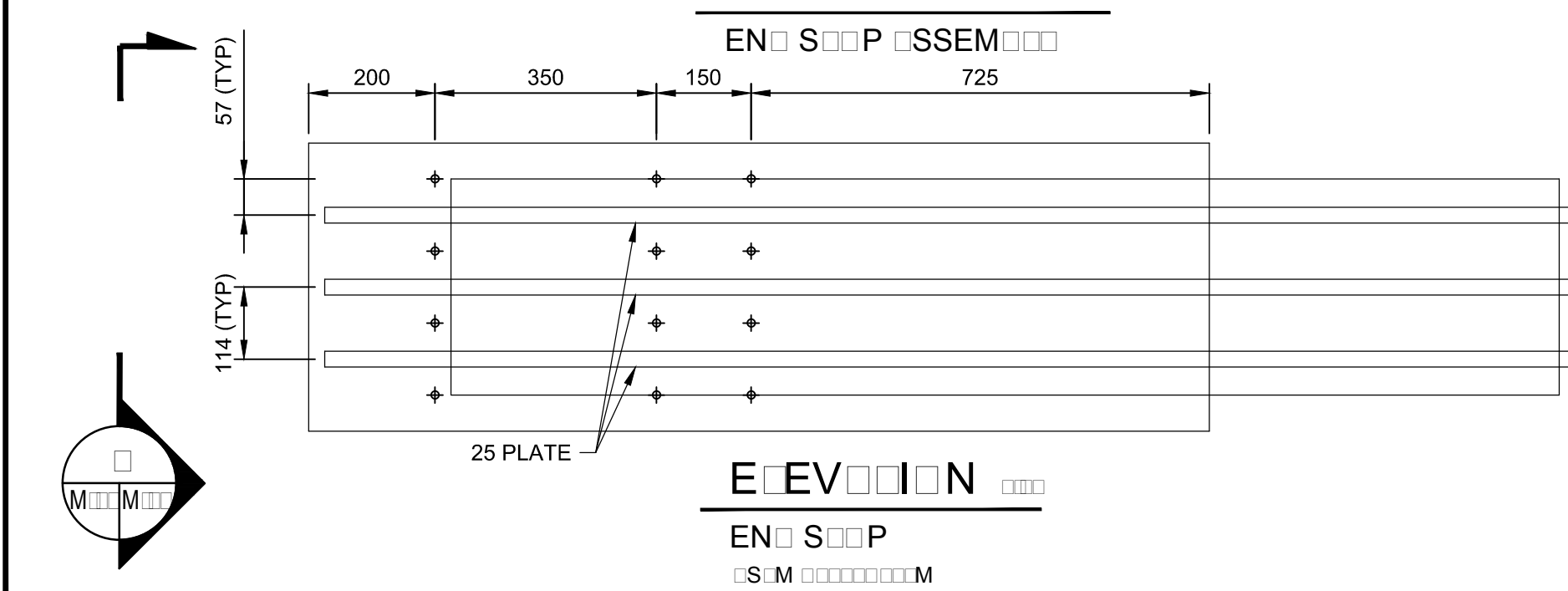
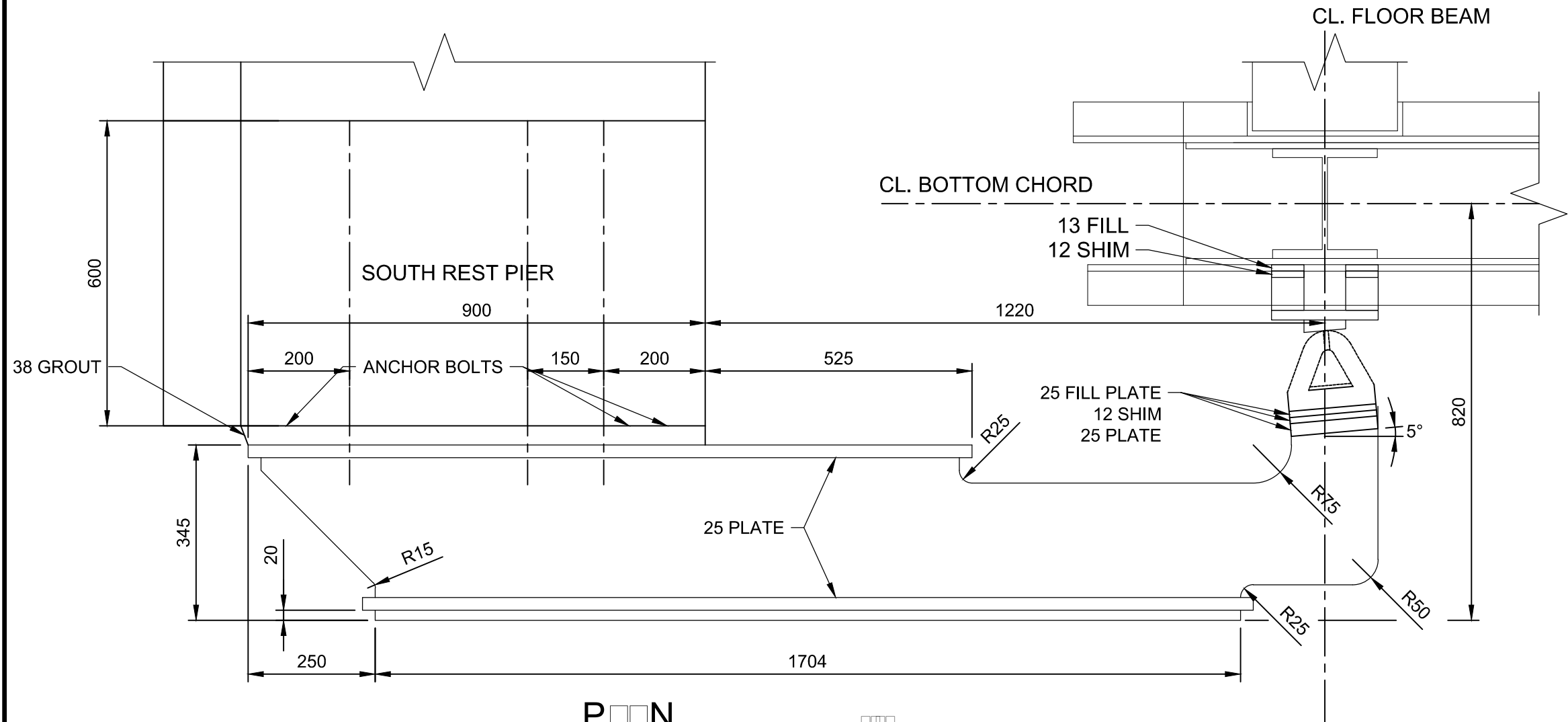
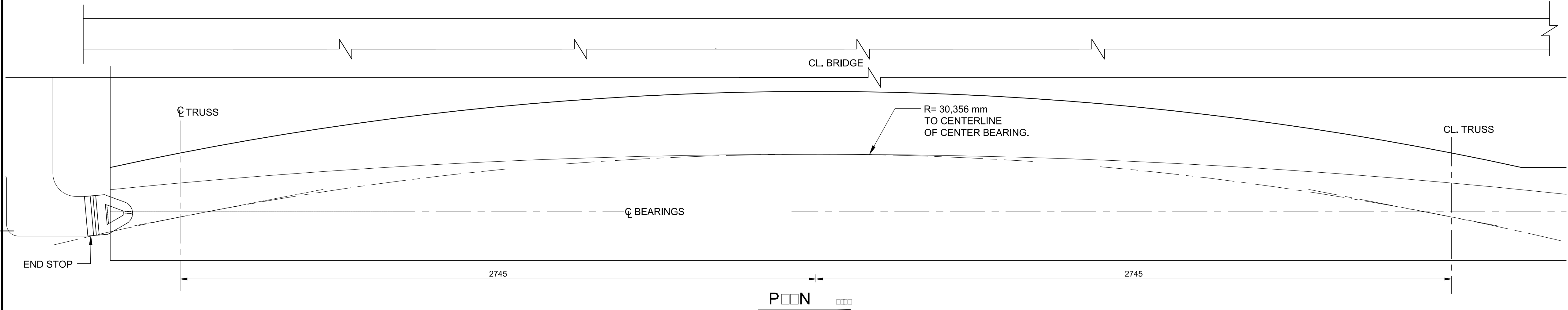
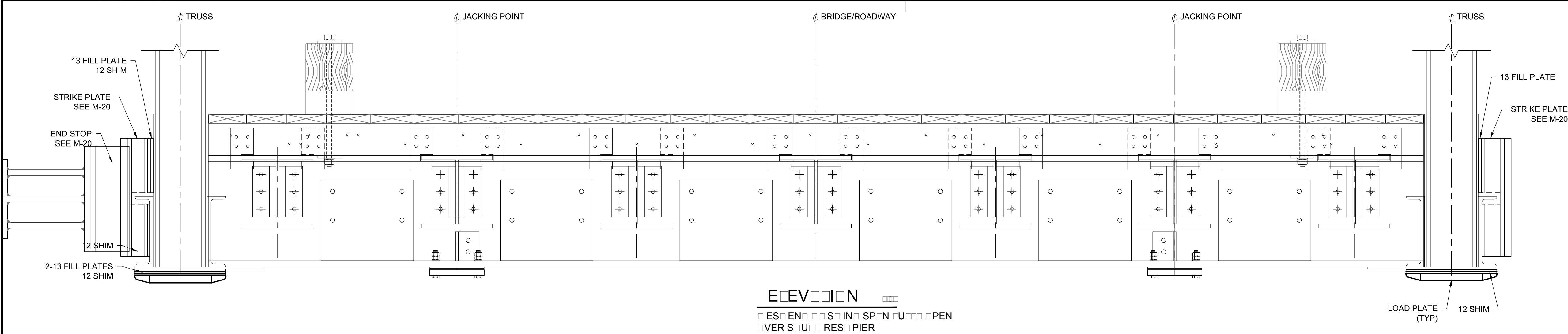
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| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
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| project date<br>date du projet | 2018-07-20 |
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| project no.<br>no. du projet | R.073593.001 |
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drawing no.  
dessine no. M-09





**NOTES**

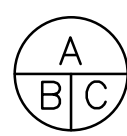
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**PARSONS**



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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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- A Detail No.  
No. du détail
- B drawing no. - where detail required  
dessin no. - où détail exigé
- C drawing no. - where detailed  
dessin no. - où détaillé

project title  
titre du projet

Ontario

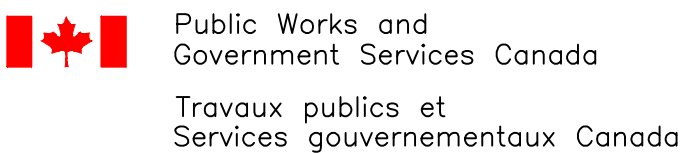
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

**SOUTH REST PIER PLAN  
AND SECTION**

|                                |              |
|--------------------------------|--------------|
| drawn by<br>dessine par        | GREG TAYLOR  |
| designed by<br>conc par        | JEFF KEYT    |
| approved by<br>approuve par    | JEFF KEYT    |
| bid<br>offre                   | JULIO LEON   |
| project date<br>date du projet | 2018-07-20   |
| project no.<br>no. du projet   | R.073593.001 |
| drawing no.<br>dessine no.     | M-10         |






# PARSONS



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|  | <b>A</b> | Detail No.<br>No. du détail   |
|   | <b>B</b> | drawing no. — where detail required<br>dessin no. — où détail exigé |
|   | <b>C</b> | drawing no. — where detailed<br>dessin no. — où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)

SWING AND FIXED BRIDGES

drawing title  
titre du dessin

EAST PIER PLAN  
AND SECTION

drawn by  
dessine par

GREG TAYLOR

designed by  
conc par

approved by  
approuvé par

|       |                 |
|-------|-----------------|
| bid   | project manager |
| offre | administrateur  |
|       | de projets      |

project date  
date du projet 2018-07-20

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| drawing no. |  |
| dessine no. |  |





# PARSONS

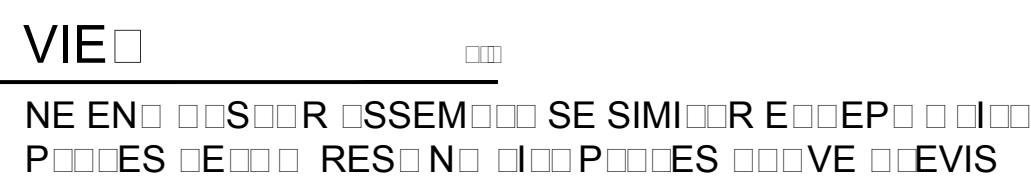
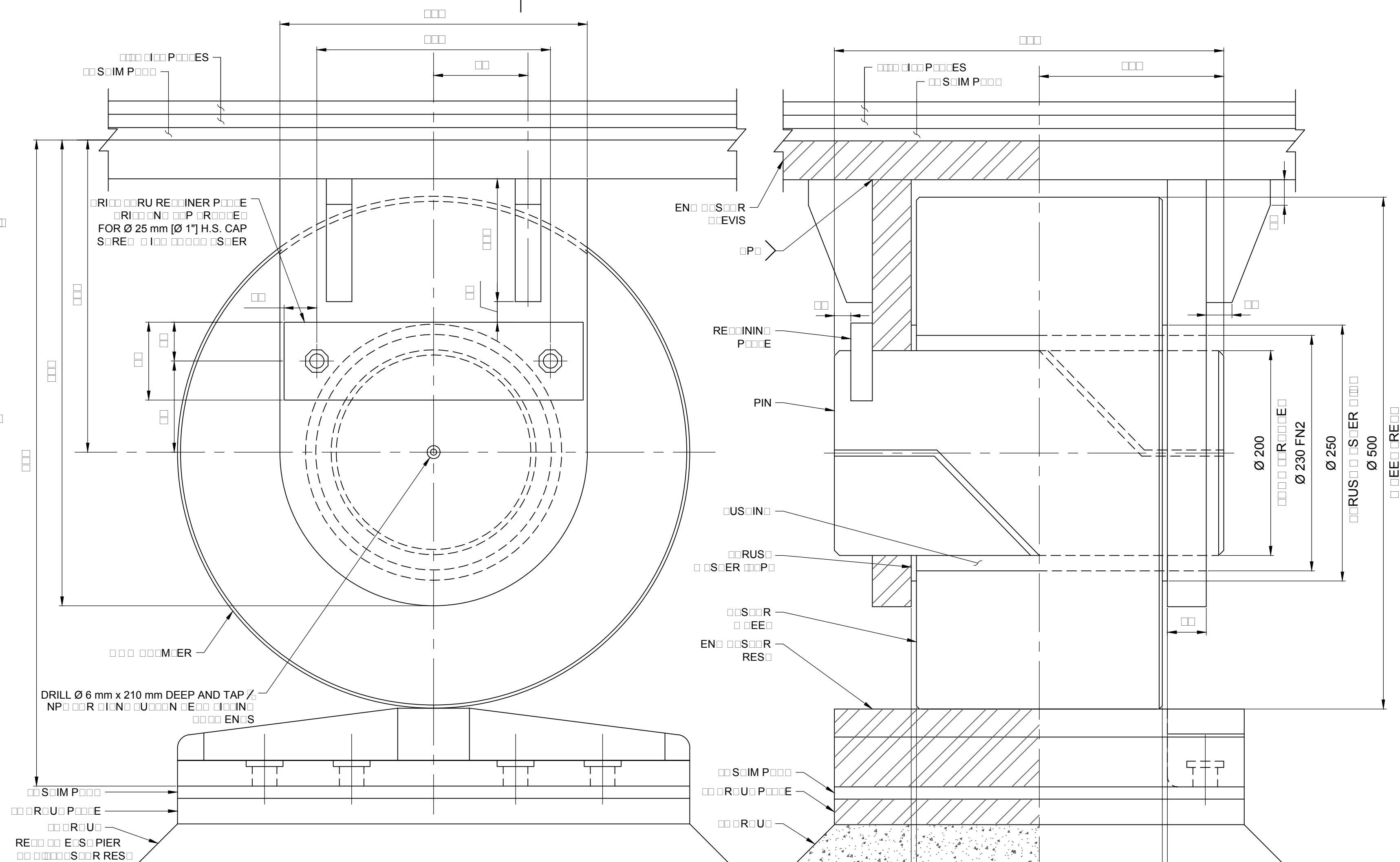
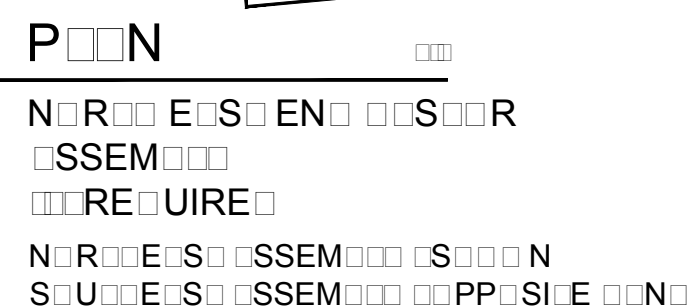
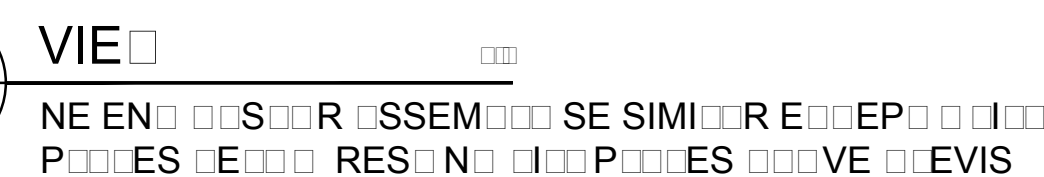


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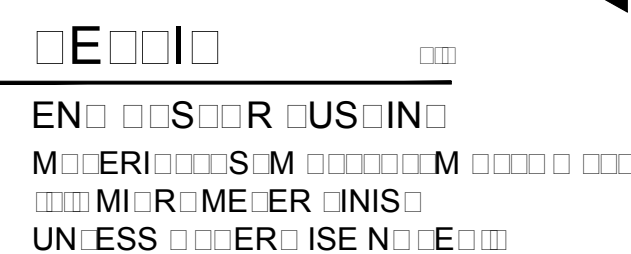
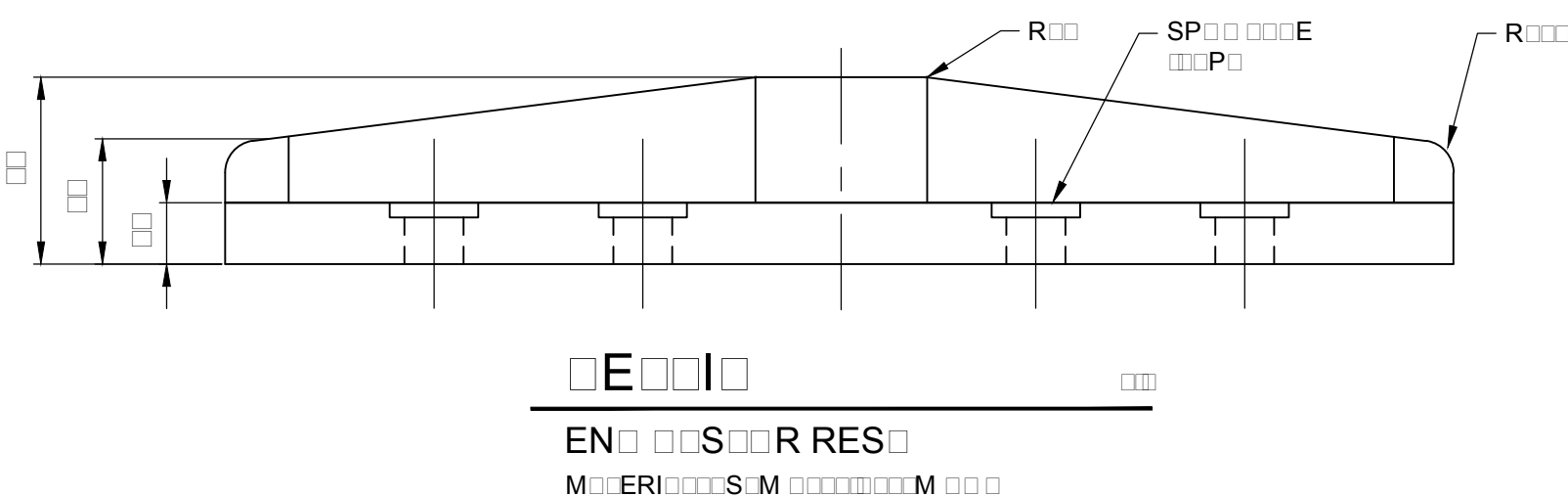
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| project title<br>titre du projet | Ontario |
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drawing title  
titre du dessin

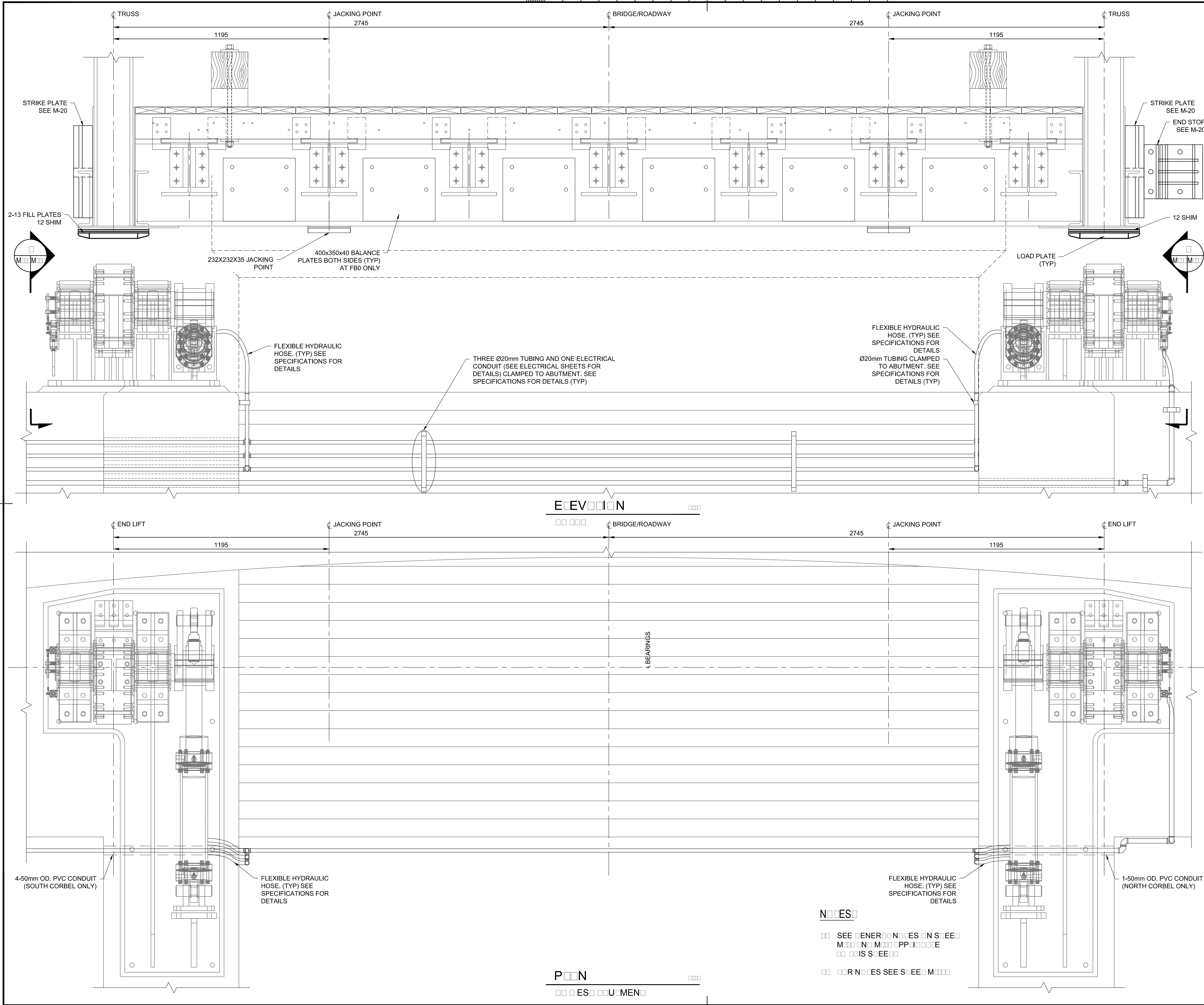
END CASTORS  
AND REST PLATES

drawing no.  
dessine no.[illegible]

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PIN S M M  
RUS S ER S M M  
S R E E S M M







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|   |                                     |
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| B | drawing no. — where detail required |
| C | drawing no. — where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
WEST ABUTMENT  
PLAN AND SECTION

drawn by  
dessiné par  
THOMAS NIEDZWIADK

designed by  
conç par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

bid  
offre  
JULIO LEON  
project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

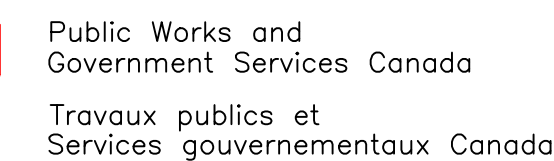
project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
M-13





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**PARSONS**



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| 01       | ISSUED FOR TENDER | 2018-07- |
| revision |                   | date     |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
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| A | Detail No.<br>No. du détail   |
| B | drawing no. — where detail required<br>dessin no. — où détail exigé |
| C | drawing no. — where detailed<br>dessin no. — où détaillé            |

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| project title   |  |
| titre du projet |  |

Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

**WEST ABUTMENT  
ELEVATIONS**

drawn by  
dessine par

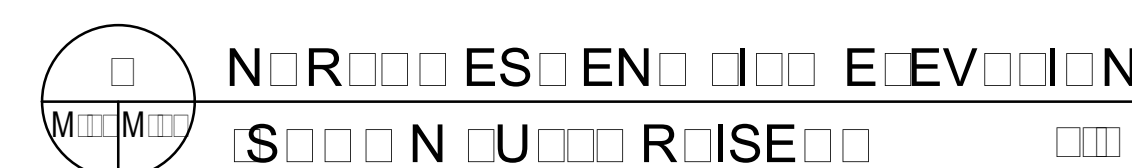
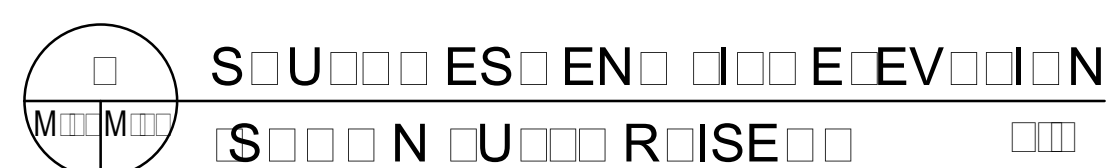
designed by  
conc par

approved by  
approuvé par

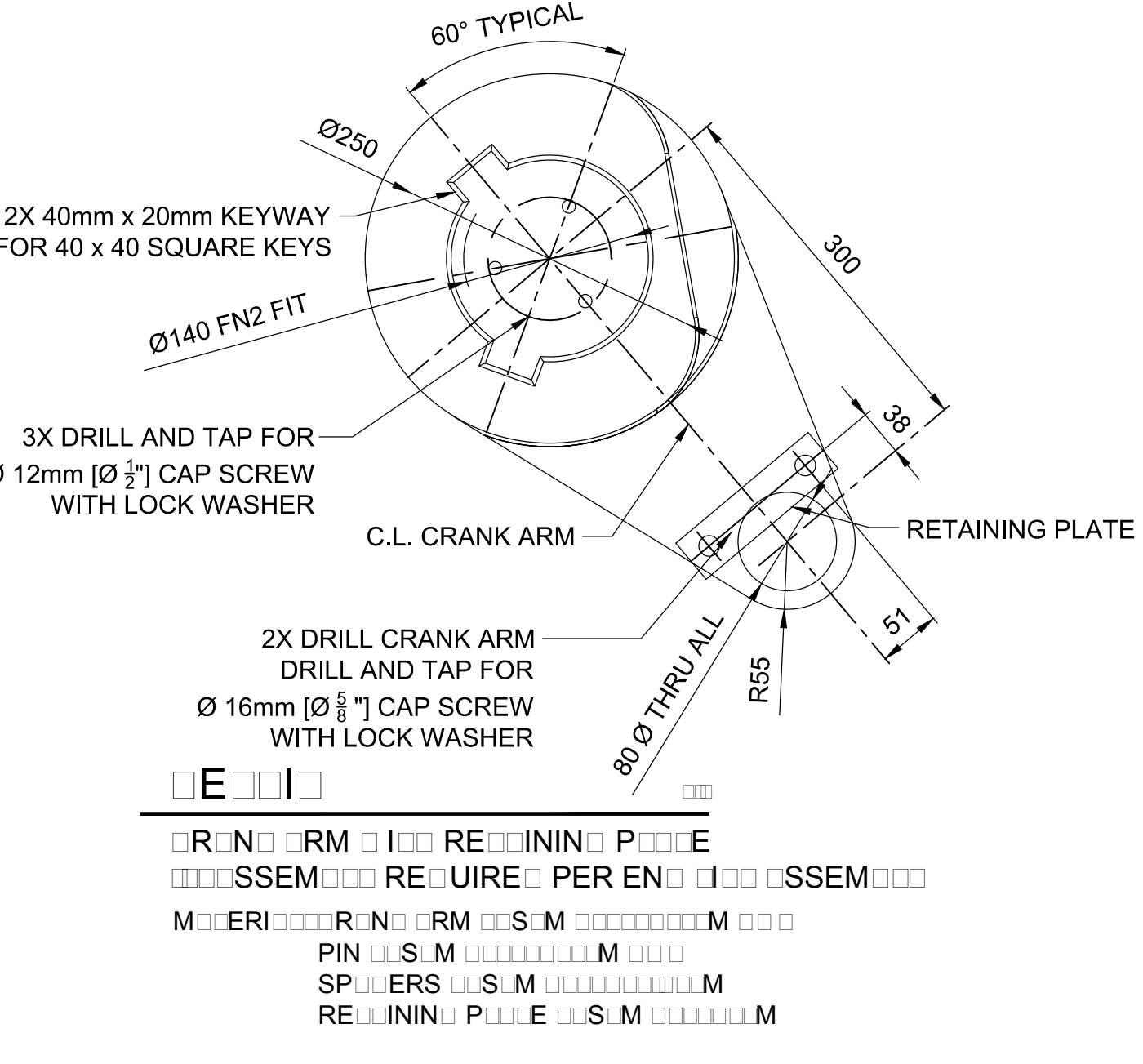
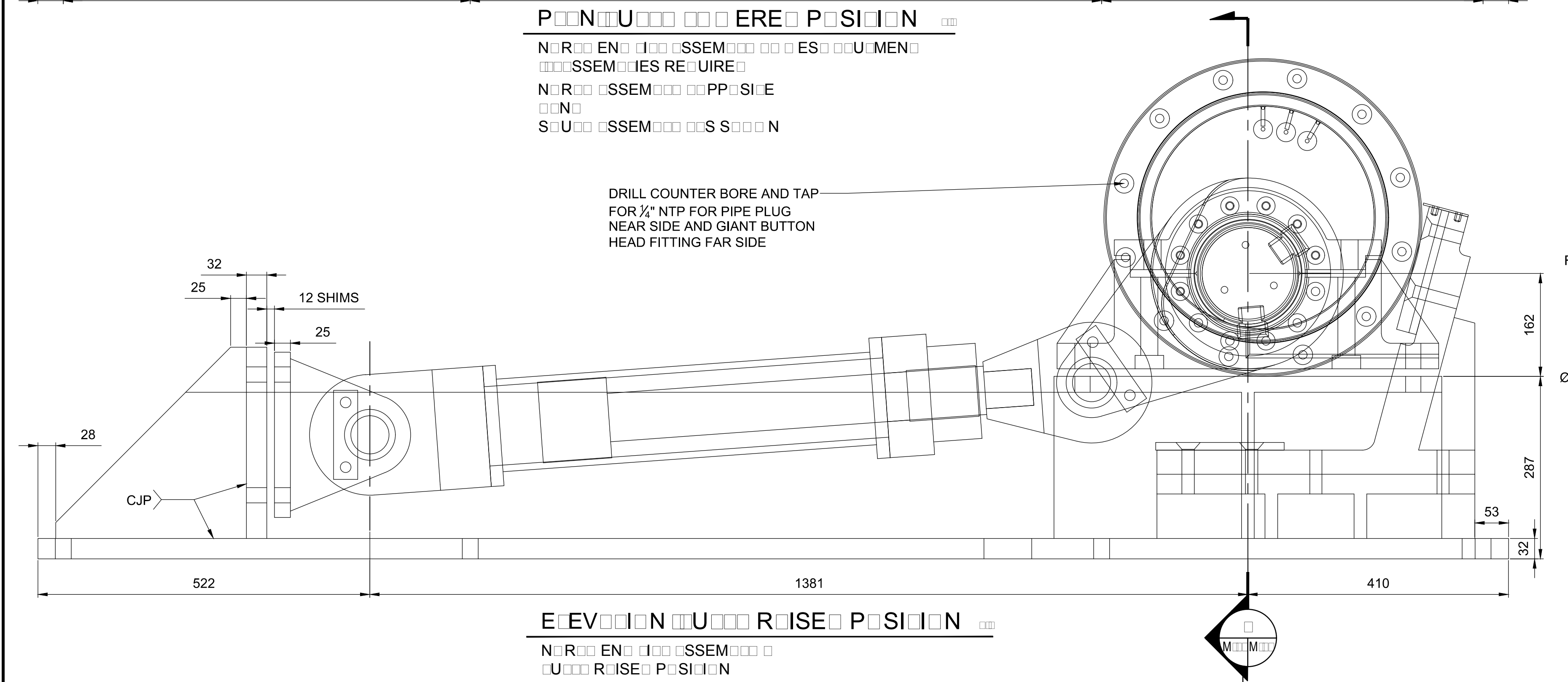
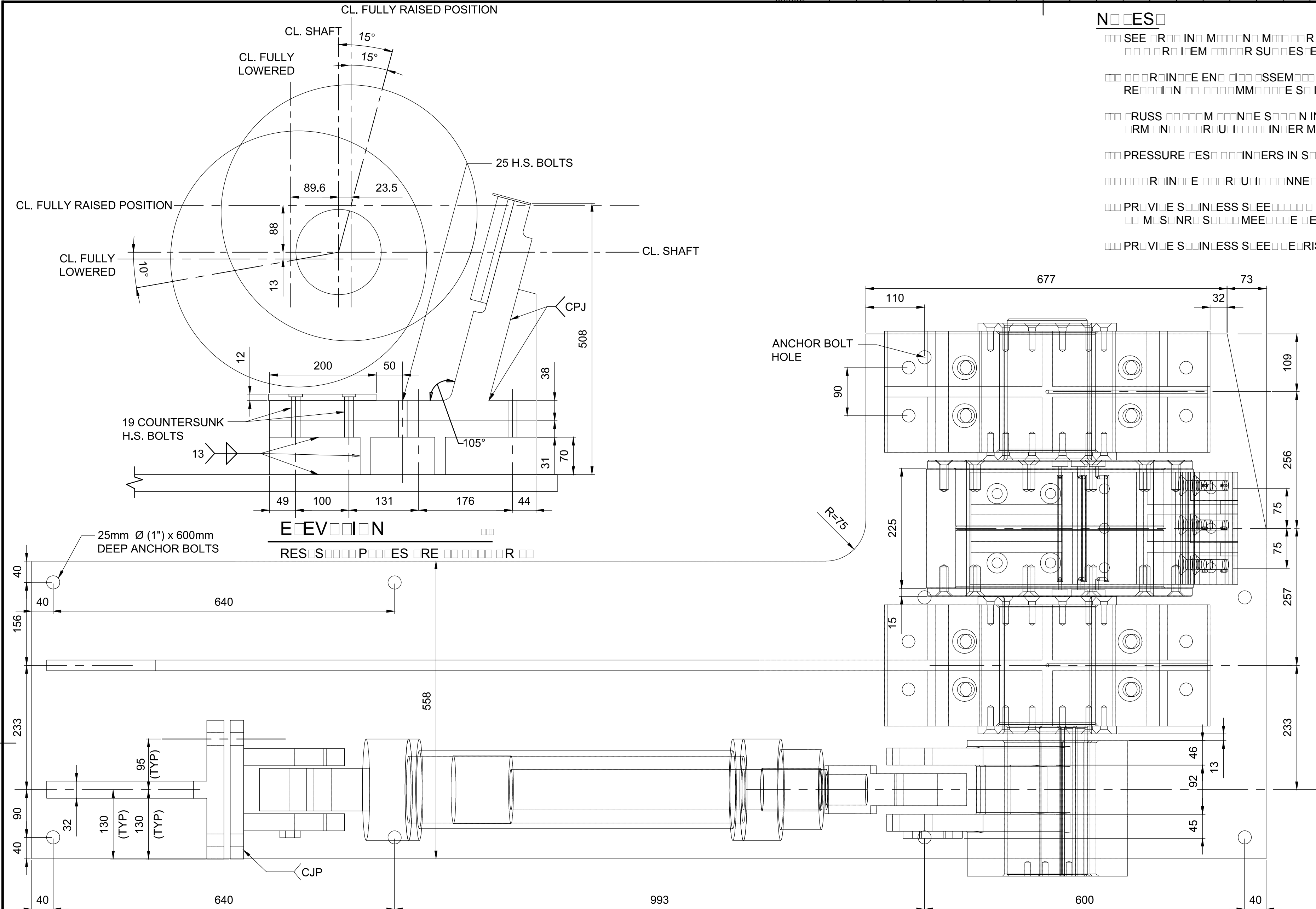
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| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projet |
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| project date   | 2018-07-20 |
| date du projet |            |

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| project no.<br>no. du projet | R.073593.001 |
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drawing no.  
dessine no.





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| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

END LIFT ASSEMBLY

drawn by  
dessine par

GREG TAYLOR

designed by  
conc par

JEFF KEYT

approved by  
approuve par

JEFF KEYT

bid  
offre

JULIO LEON

project manager  
administrateur de projets

project date  
date du projet

2018-07-20

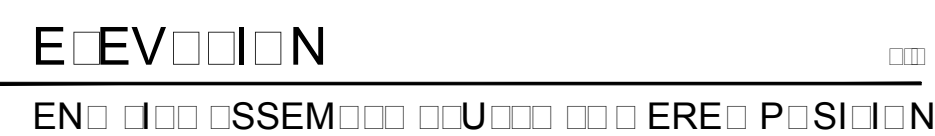
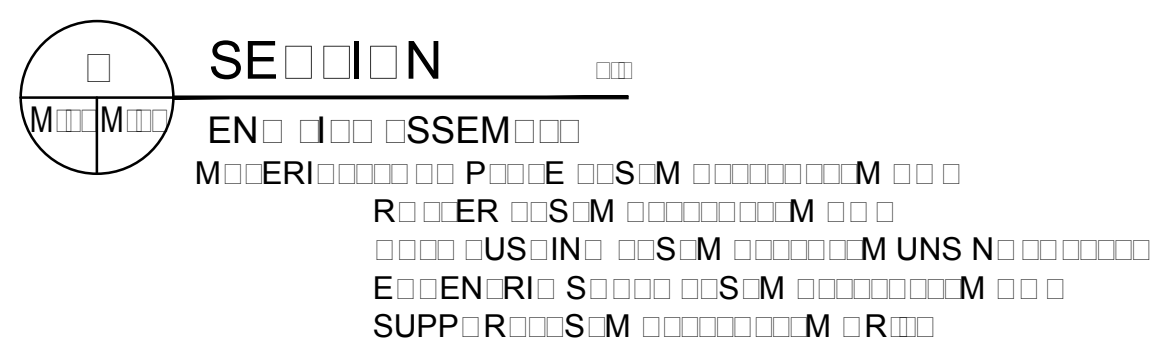
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dessine no.

M-15






## SEE E I N M R R EN

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 **A** Detail No.  
No. du détail

**B** drawing no. — where detail required  
dessin no. — où détail exigé

**C** drawing no. — where detailed  
dessin no. — où détaillé

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| project title<br>titre du projet | Ontario |
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HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
END LIFT DETAILS I

drawn by  
dessine par

designed by  
conc par

approved by  
approuvé par

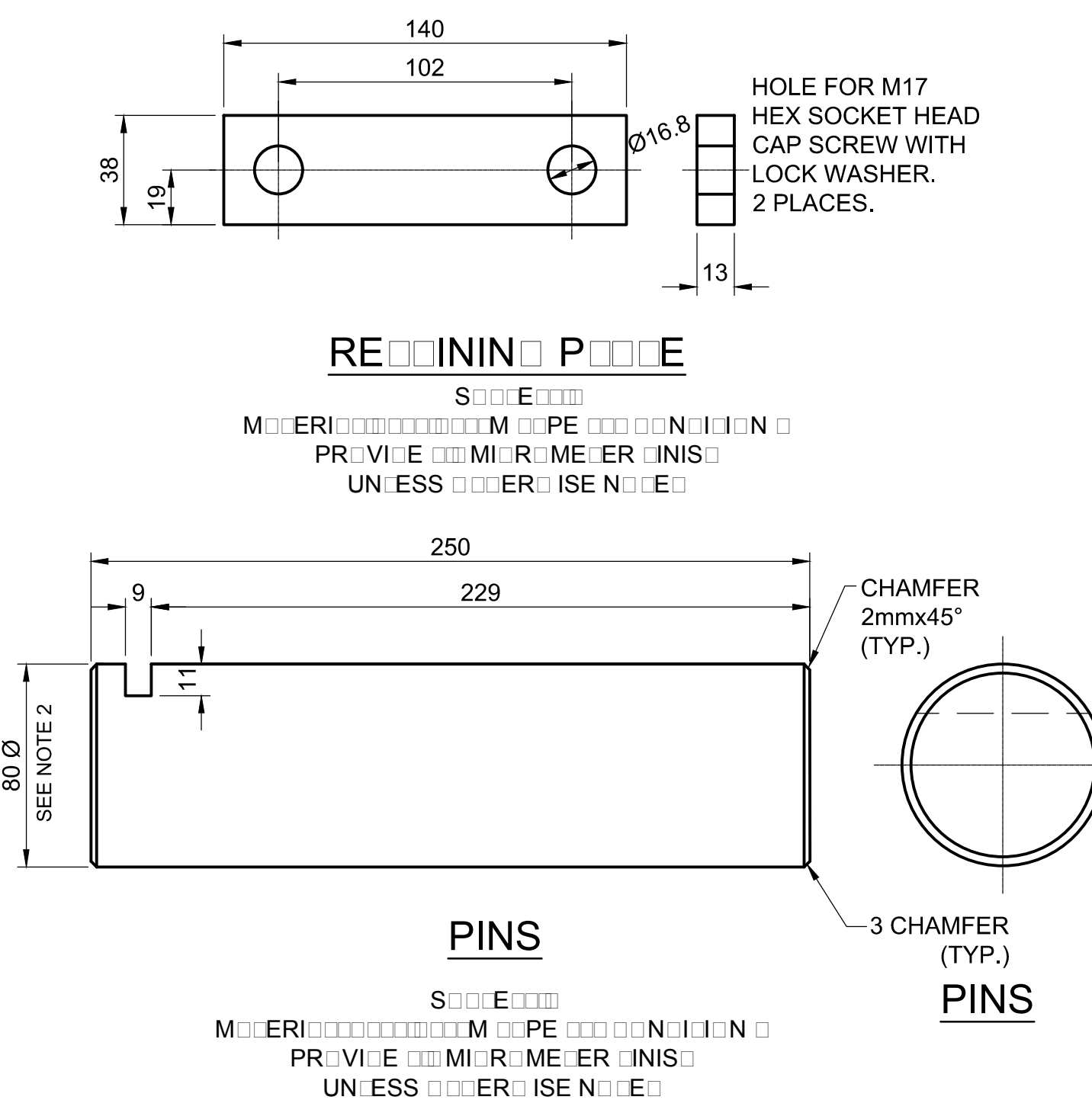
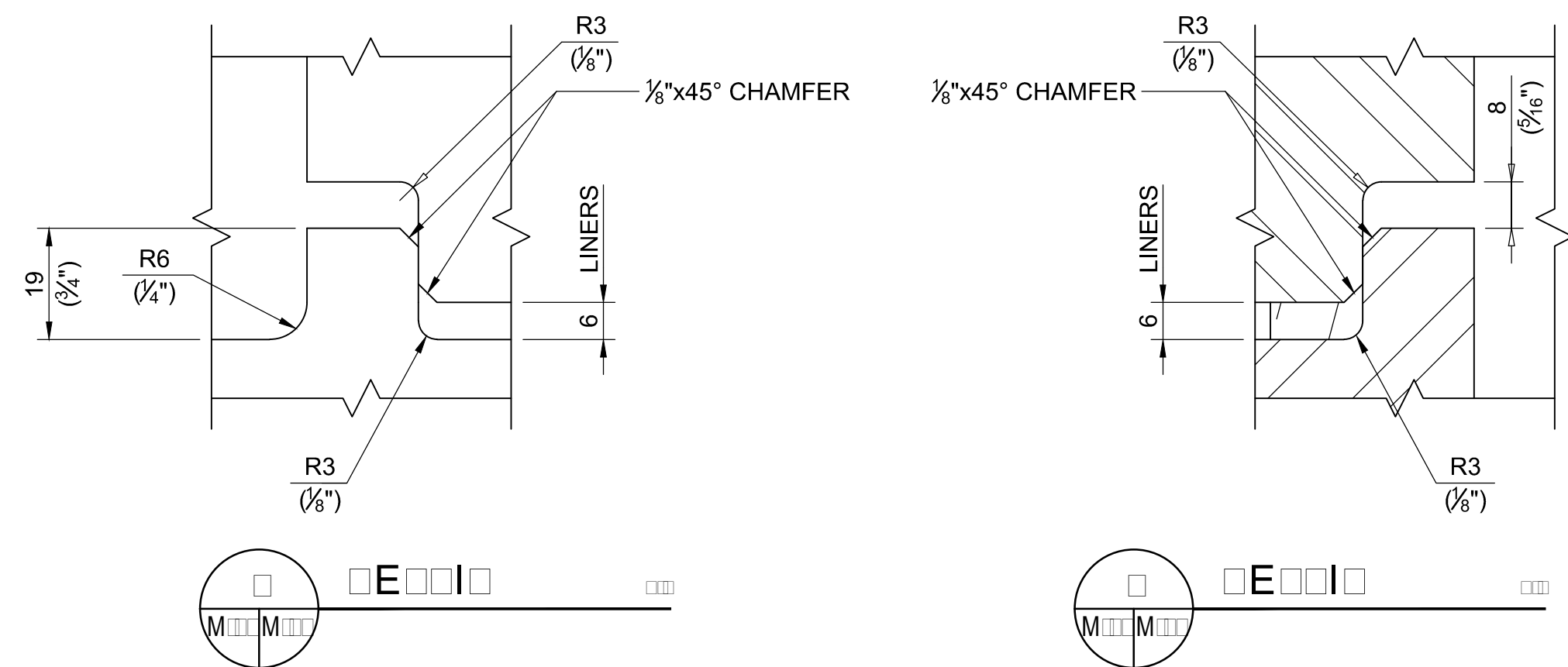
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| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
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| project date   | 2018-07-20 |
| date du projet | 2018-07-20 |

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| project no.<br>no. du projet | R.073593.001 |
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drawing no.  
dessine no. M-16






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Do not scale drawings.  
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|   | C | drawing no. — where detailed<br>dessin no. — où détaillé            |

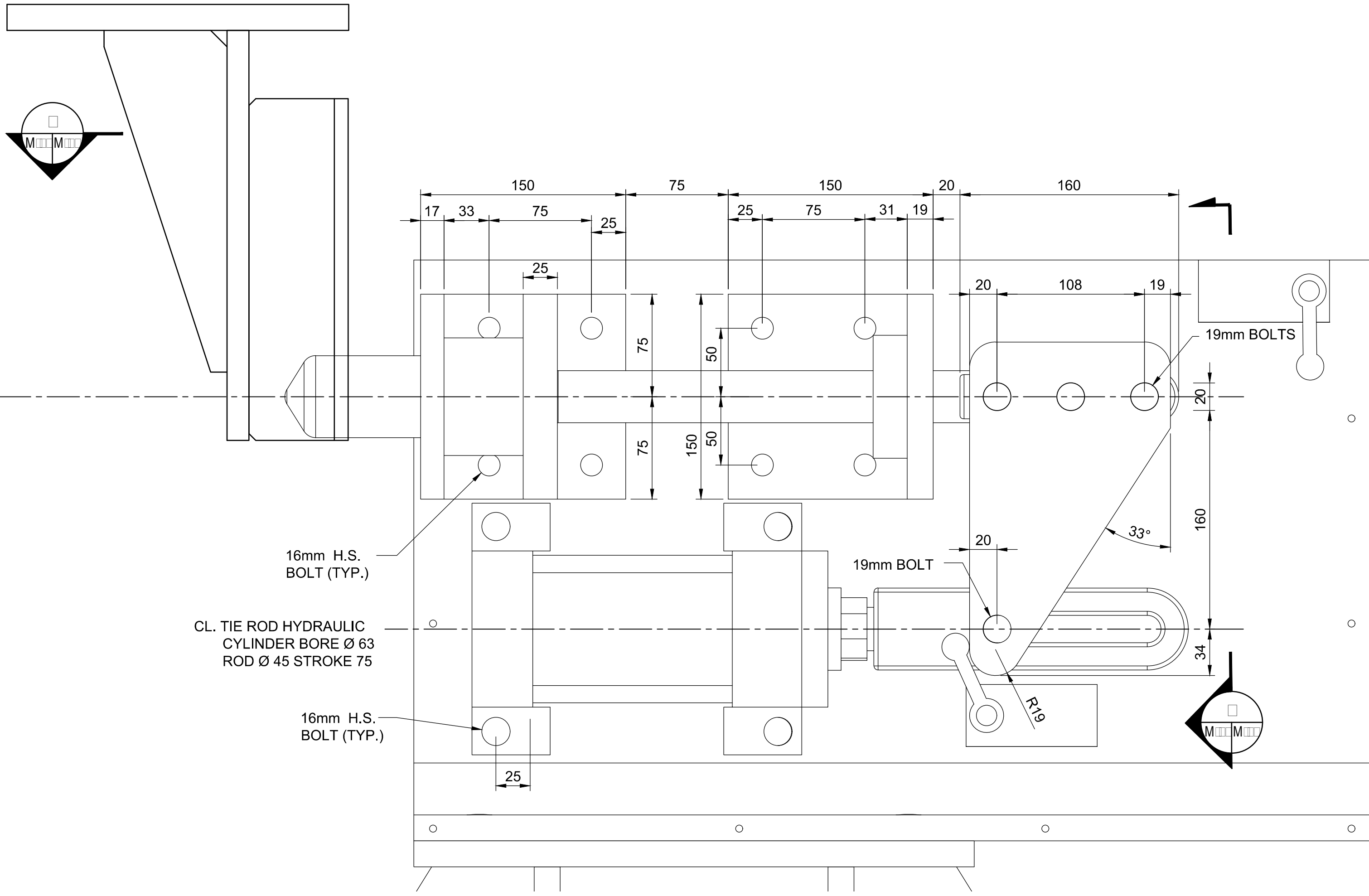
Ontario

drawing title  
titre du dessin

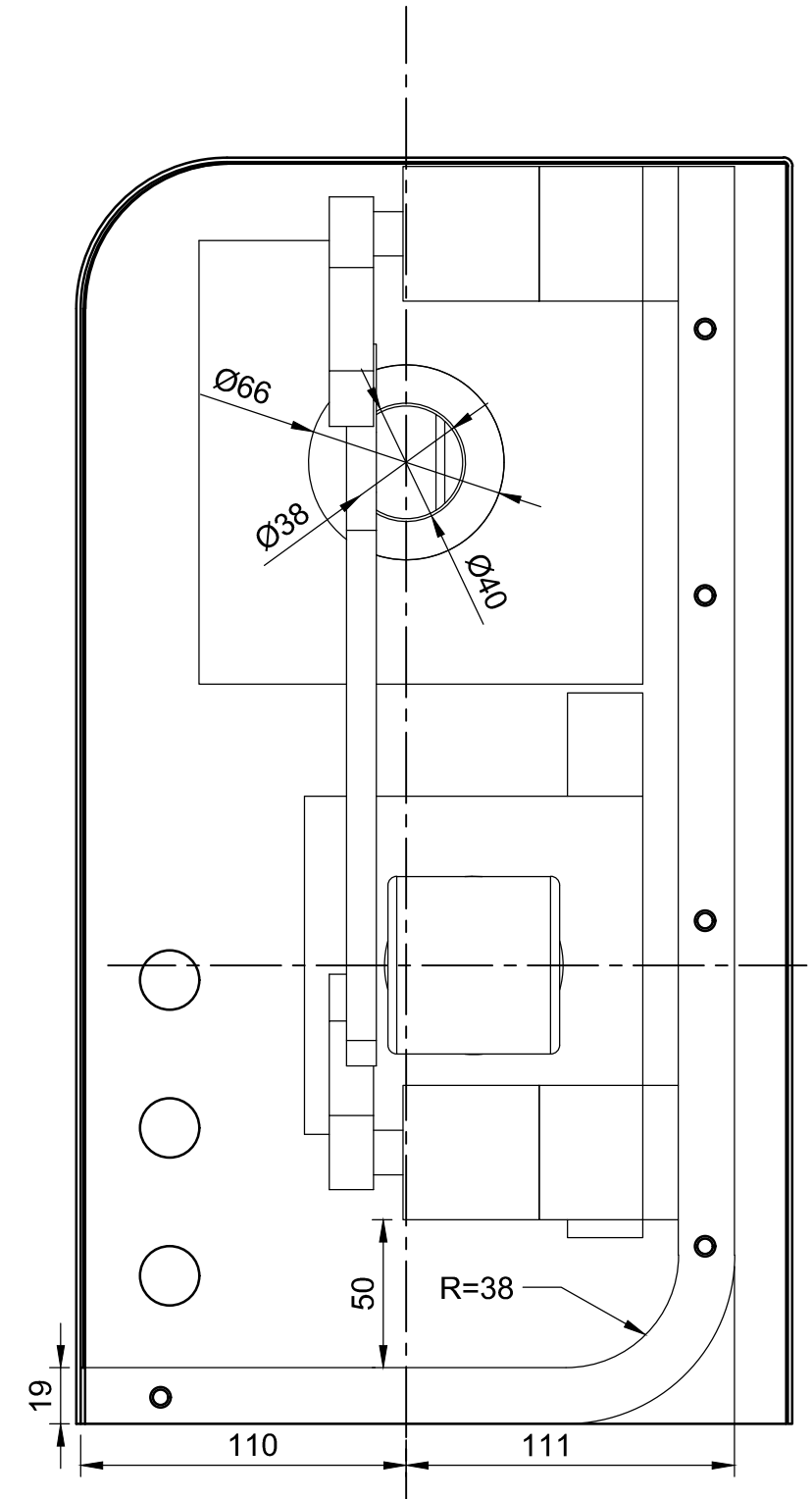
END LIFT DETAILS II

drawing no.  
dessine no.



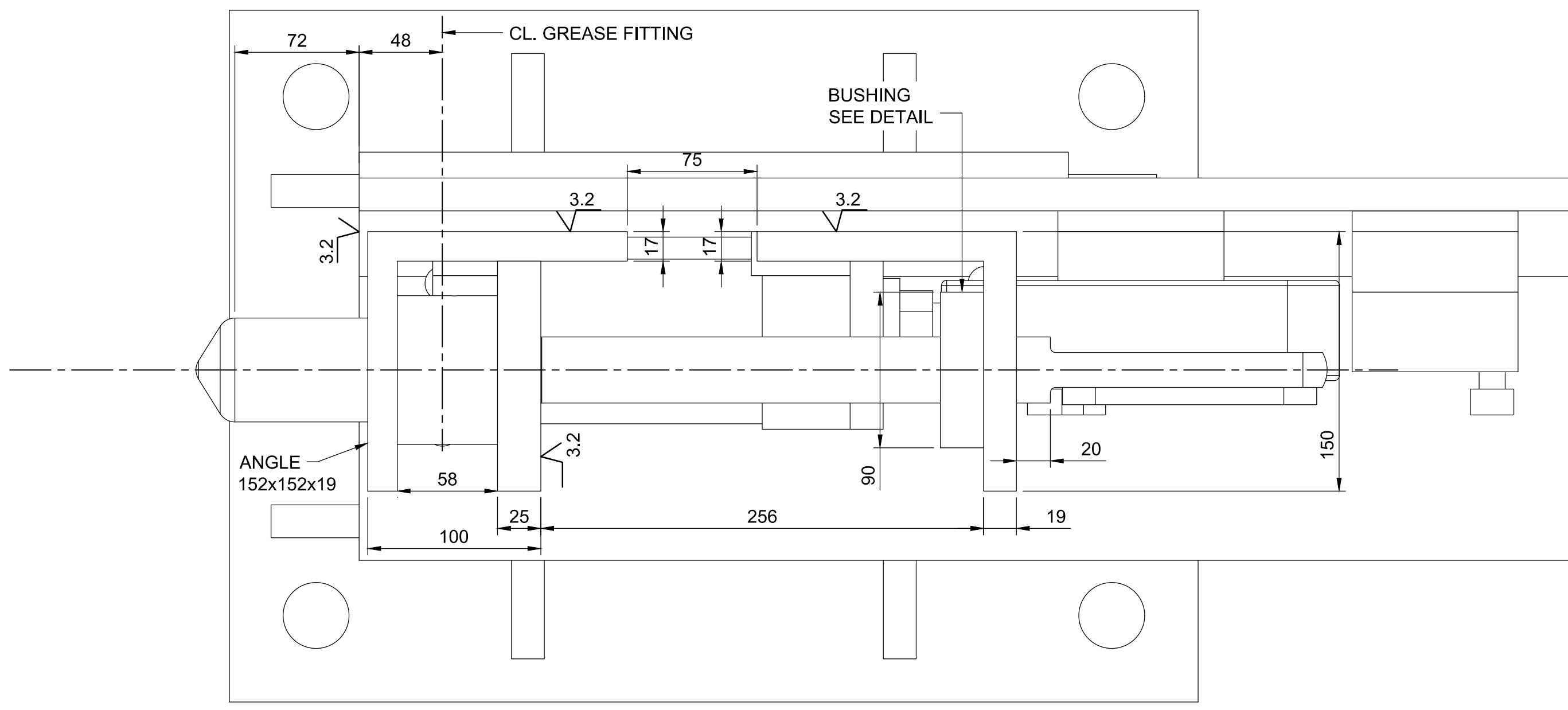


SECTION PIN ASSEMBLY PIN END

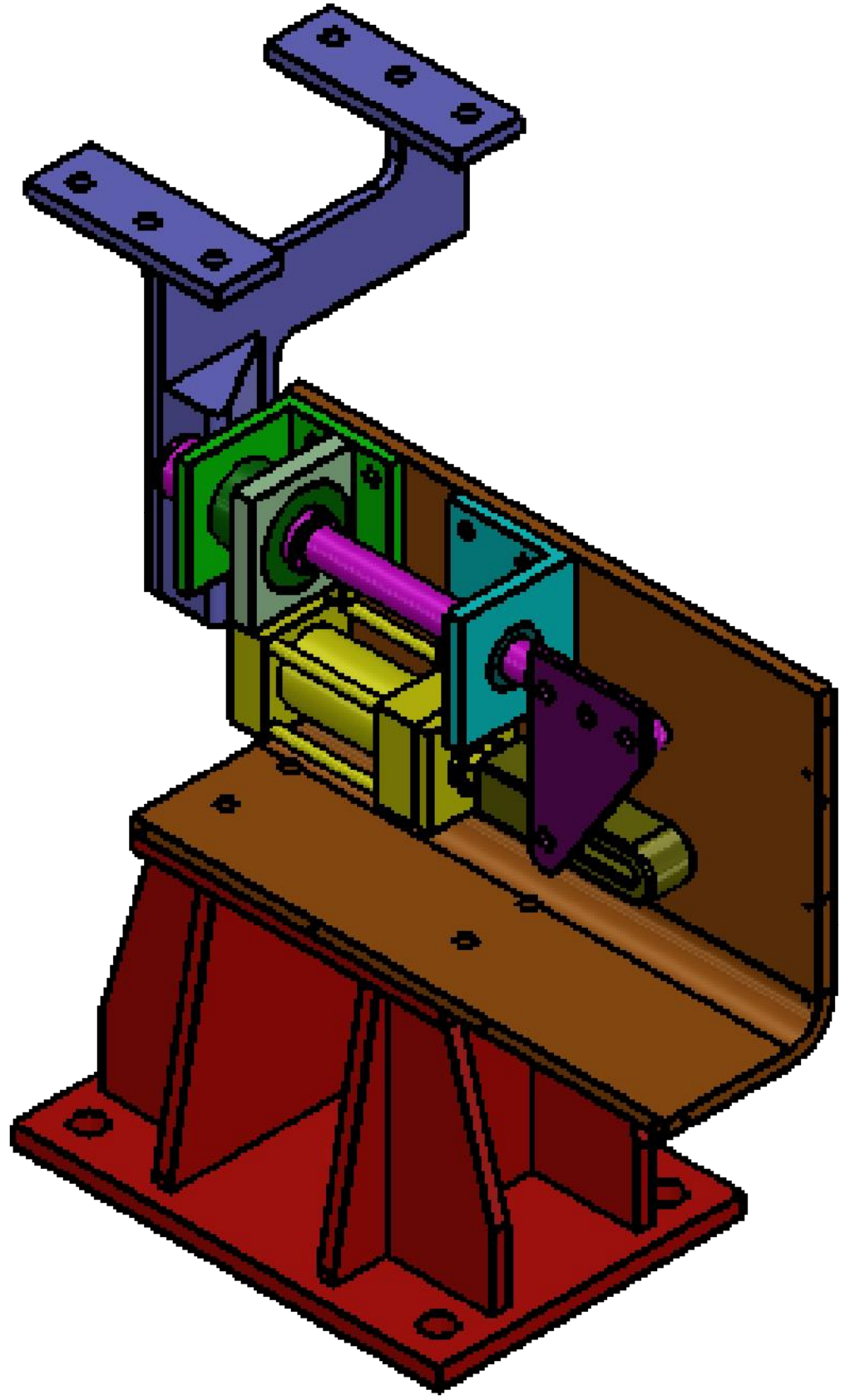


SECTION PIN ASSEMBLY

- SEE GENERAL NOTES ON SHEETS M-18
- PROVIDE 3.2mm SLOTTED SLEEVE OVER ON OUR SIDE OR ENDER PROVIDE 3.2mm SLOTTED SLEEVE OVER ON OUR SIDE OR ENDER
- SEE MATERIAL RELEASE PIN END



SECTION PIN ASSEMBLY



VIEW



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| 04       |                   |            |
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|   | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
LOCKING PIN ASSEMBLY

drawn by  
dessiné par  
GREG TAYLOR

designed by  
conçu par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

bid  
offre  
JULIO LEON

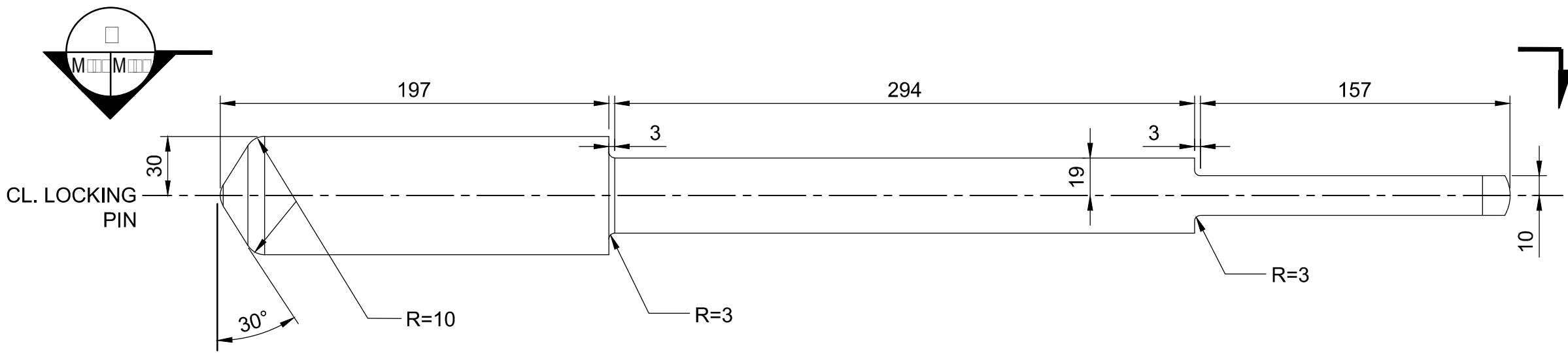
project manager  
administrateur de projets

project date  
date du projet  
2018-07-20

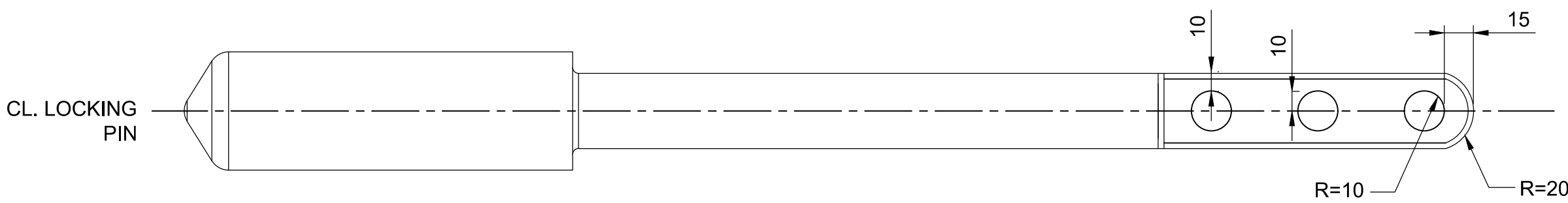
project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
M-18

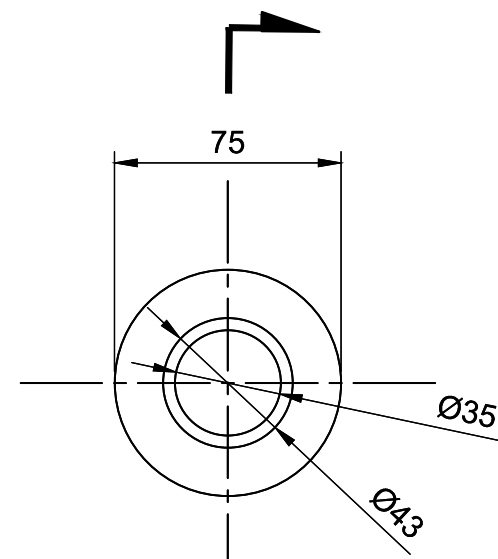




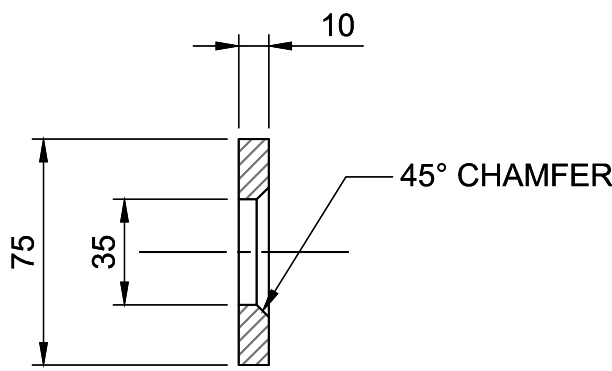
LOCKING PIN  
STEEL



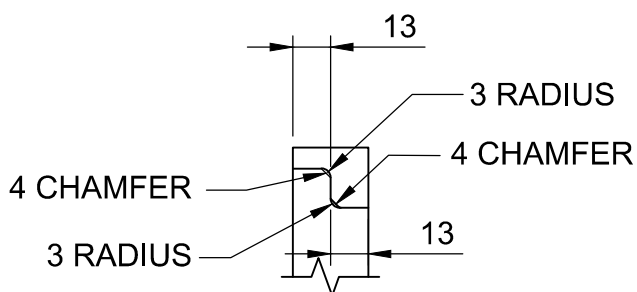
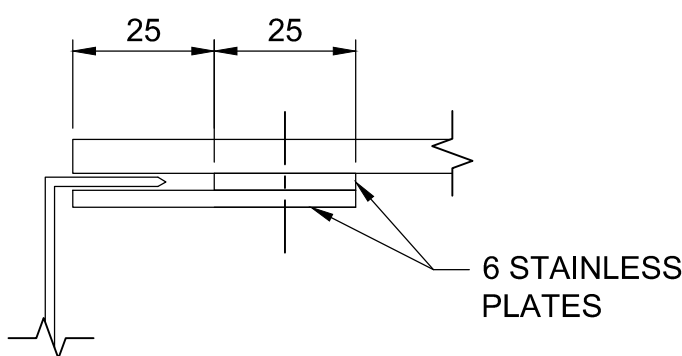
SECTION



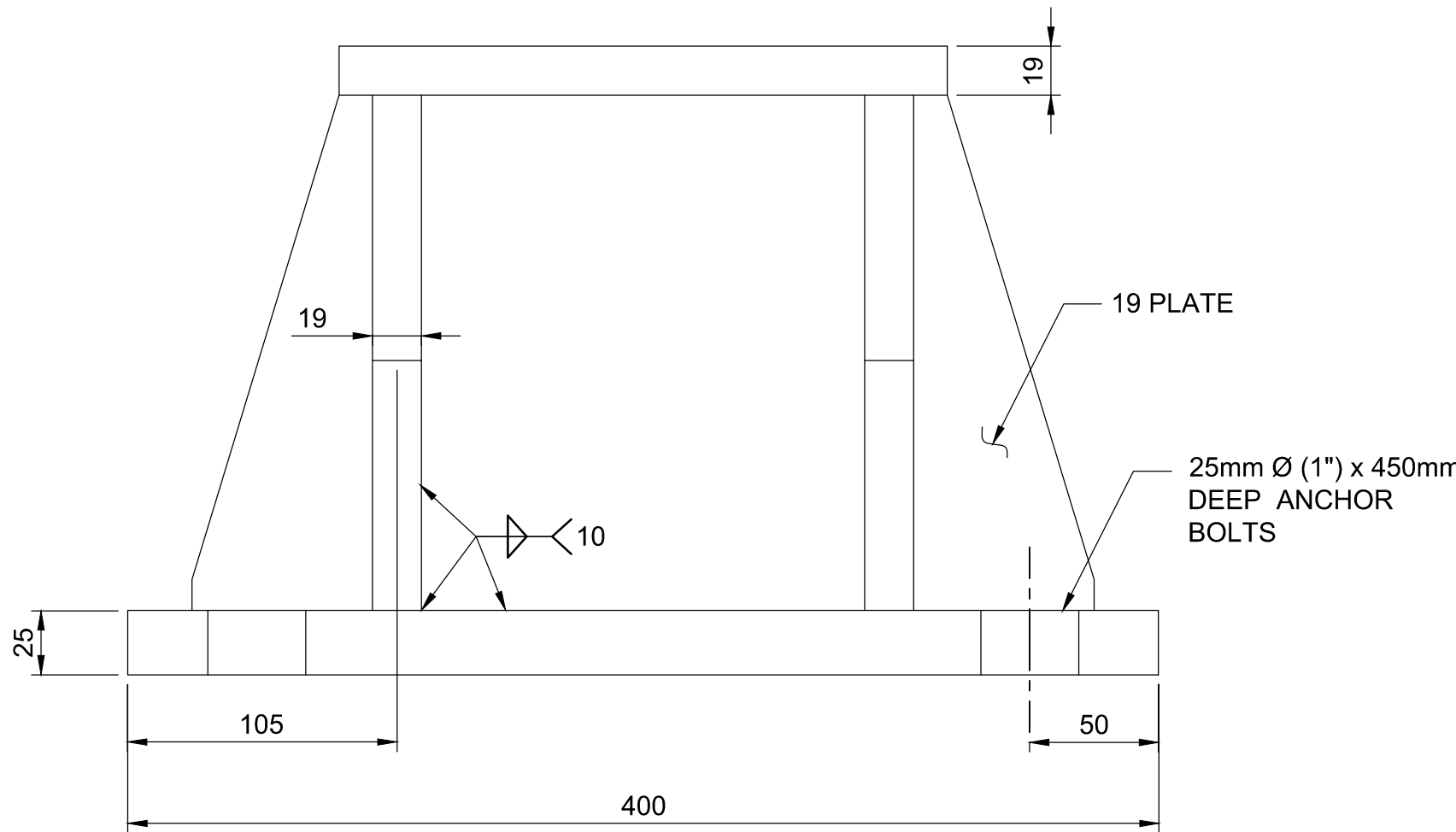
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SECTION



SECTION  
STEEL



SECTION

NOTES

- SEE ENERGY NOTES IN SECTIONS
- SPRING MATERIAL SPRING EMPEROR
- SEE
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PARSONS



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|   | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
LOCKING PIN DETAILS

drawn by  
dessiné par  
GREG TAYLOR

designed by  
conçu par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

bid  
offre  
JULIO LEON

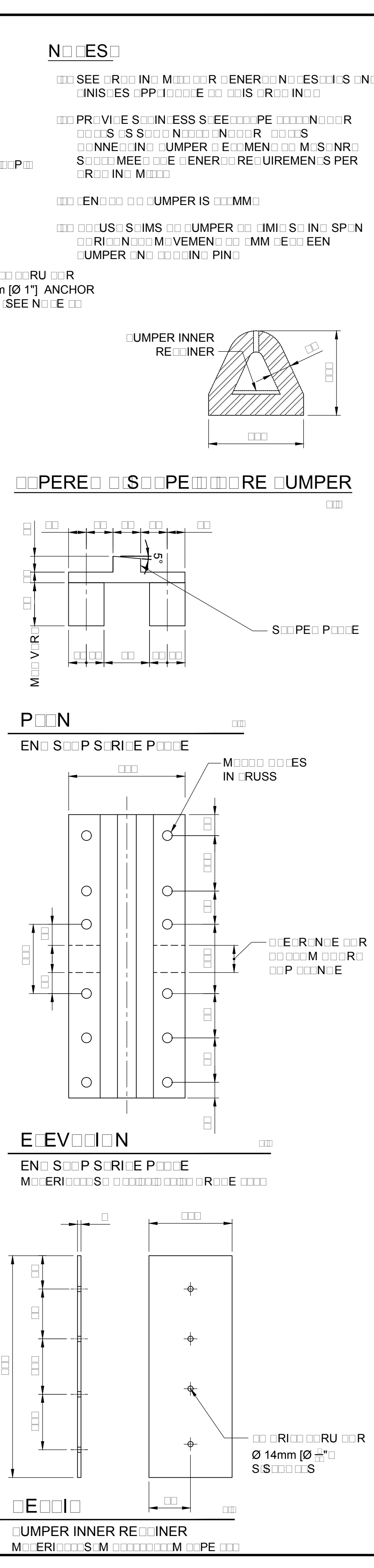
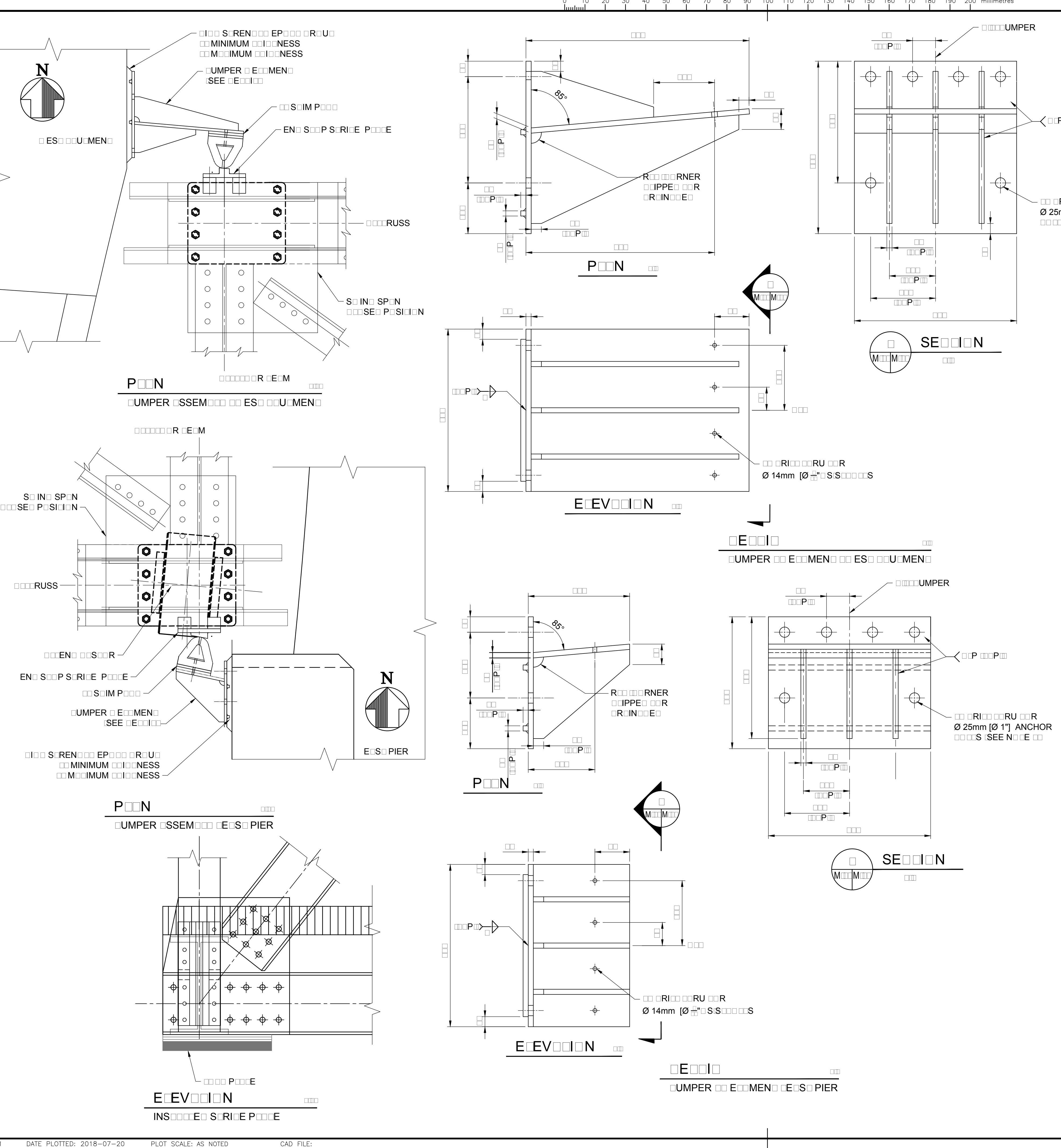
project date  
date du projet  
2018-07-20


project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
M-19




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REVISED BY:  
GSC-A1  
DATE PLOTTED: 2018-07-20  
PLOT SCALE: AS NOTED  
CAD FILE:





Public Works and  
Government Services Canada  
Travaux publics et  
Services gouvernementaux Canada

# PARSONS



LICENCED PROFESSIONAL ENGINEER  
J.D. KEYT  
100215529  
PROVINCE OF ONTARIO

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A

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C

A

B

C

Detail No.  
No. du détail  
drawing no. - where detail required  
dessin no. - où détail exigé  
drawing no. - where detailed  
dessin no. - où détaillé

project title  
titre du projet  

Ontario

HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  

END STOP

drawn by  
dessiné par  
GREG TAYLOR

designed by  
conc par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

bid  
offre  
JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

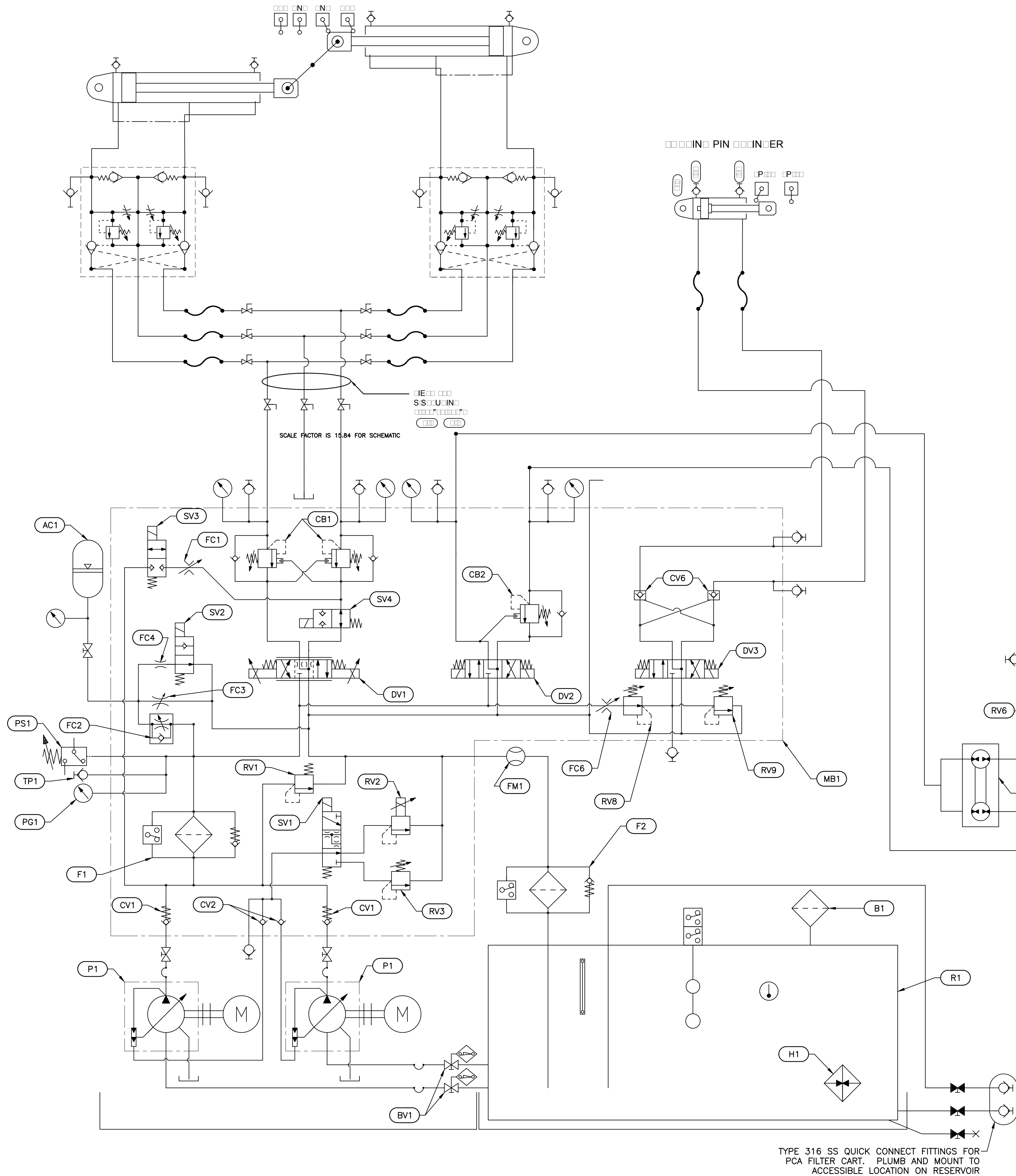
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drawing no.  
dessiné no.  
M-20



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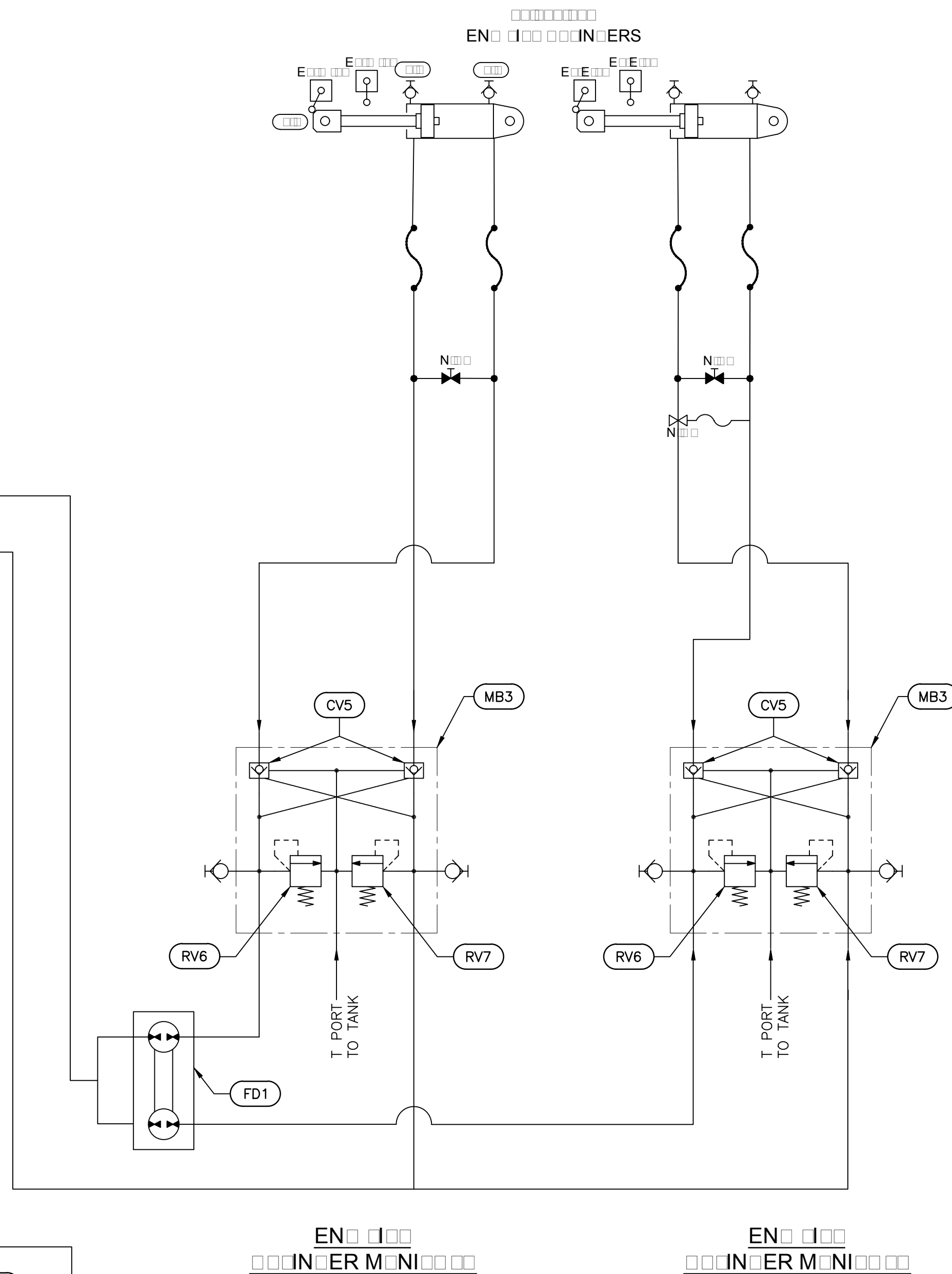


### NOTES

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PARSONS



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project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
HYDRAULIC POWER UNIT

drawn by  
dessine par  
IMRAN SIDDIQUI

designed by  
conc par  
JEFF KEYT

approved by  
approuve par  
JEFF KEYT

bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

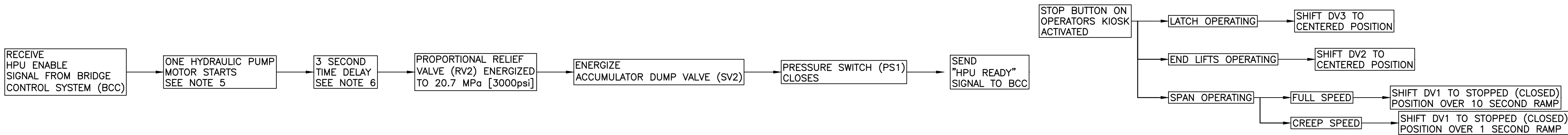
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no. du projet  
R.073593.001

drawing no.  
dessine no.  
M-21

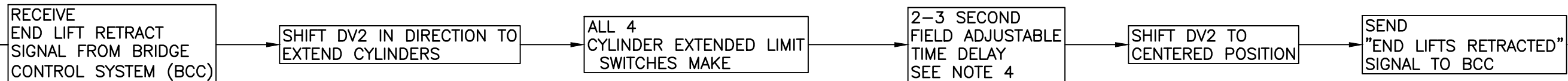
project manager  
administrateur  
de projets



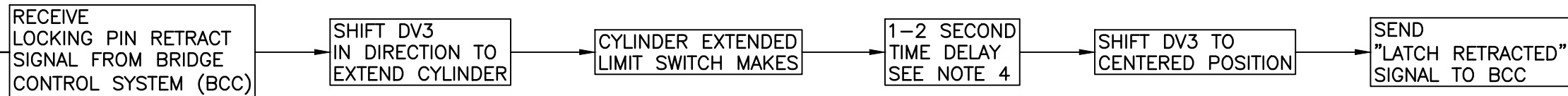
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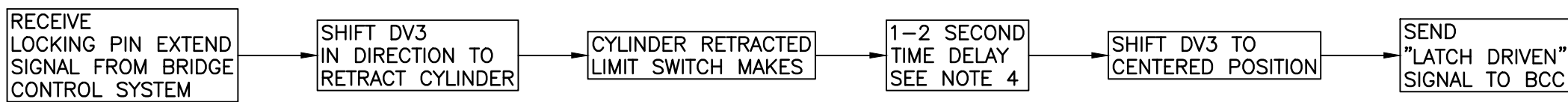
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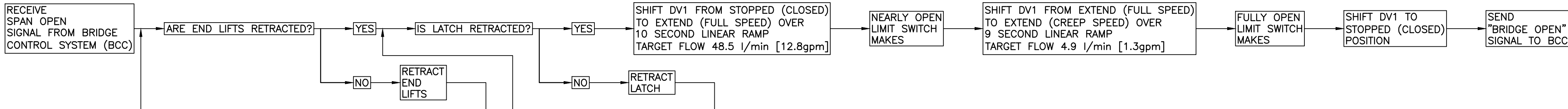
LOCKING PIN RETRACT SEQUENCE



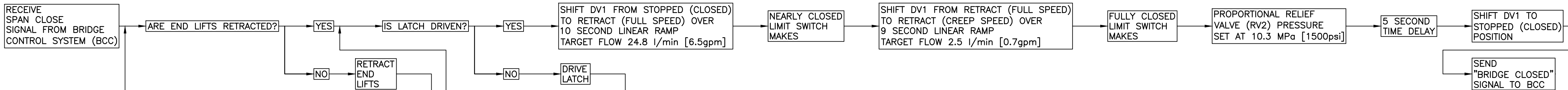
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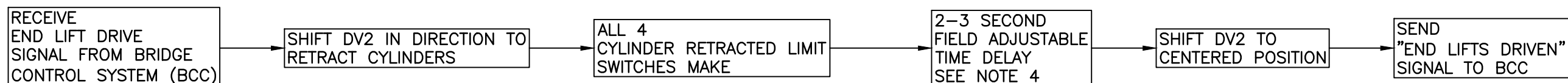
SPAN OPEN SEQUENCE



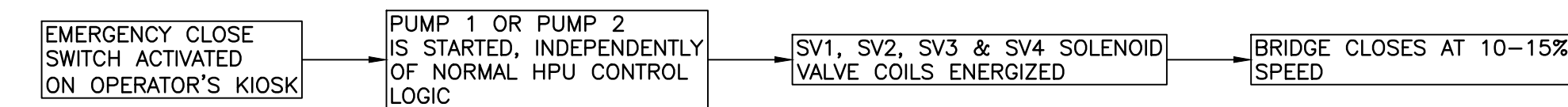
SPAN CLOSE SEQUENCE



END LIFT DRIVE SEQUENCE



EMERGENCY CLOSE SEQUENCE



NOTES

1. PUMP OPERATING SEQUENCE: IN THE EVENT OF A SUDDEN VALVE LIMIT SWITCHES AND "HPU READY" SIGNALS ARE REQUIRED.
2. END LIFT OPERATING SEQUENCE: IN THE EVENT OF A "HPU READY" SIGNAL, THE LATCH OPERATING SEQUENCE IS REQUIRED.
3. DURING AN EMERGENCY STOP, THE PUMP MOTOR SHOULD BE STOPPED IMMEDIATELY BY THE PROPORTIONAL RELIEF VALVE (RV2) REMAINING ENERGIZED TO OPEN THE PROPORTIONAL RELIEF VALVE (RV2) TO THE STOPPED POSITION OVER 10 SECONDS.
4. TIME DELAYS ARE TO ENSURE CYLINDERS ARE SUFFICIENTLY POSITIONED BEFORE MOVING IN EITHER DIRECTION.
5. PUMP MOTOR IS TO BE IN THE STOPPED POSITION BEFORE MOVING IN EITHER DIRECTION.
6. PUMP MOTOR IS TO BE IN THE STOPPED POSITION BEFORE MOVING IN EITHER DIRECTION.
7. PUMP MOTOR IS TO BE IN THE STOPPED POSITION BEFORE MOVING IN EITHER DIRECTION.
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| C | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(BRIDGE 57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
HYDRAULIC SYSTEM  
OPERATING SEQUENCE

|                                |                |   |
|--------------------------------|----------------|---|
| drawn by<br>dessine par        | IMRAN SIDDIQUI |   |
| designed by<br>conc par        | JEFF KEYT      |   |
| approved by<br>approve par     | JEFF KEYT      |   |
| bid<br>offre                   | JULIO LEON     | project manager<br>administrateur<br>de projets |
| project date<br>date du projet | 2018-07-20     |   |
| project no.<br>no. du projet   | R.073593.001   |   |
| drawing no.<br>dessine no.     | M-22           |   |



NOTES

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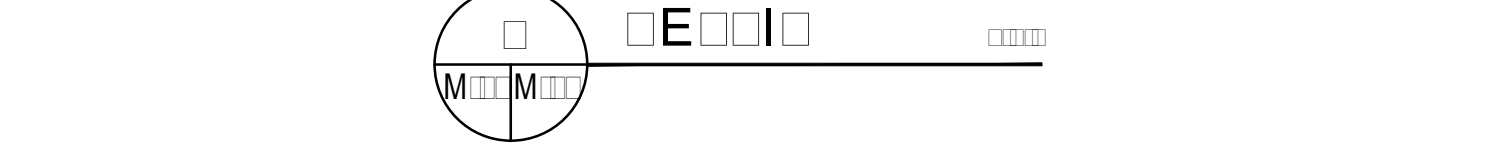
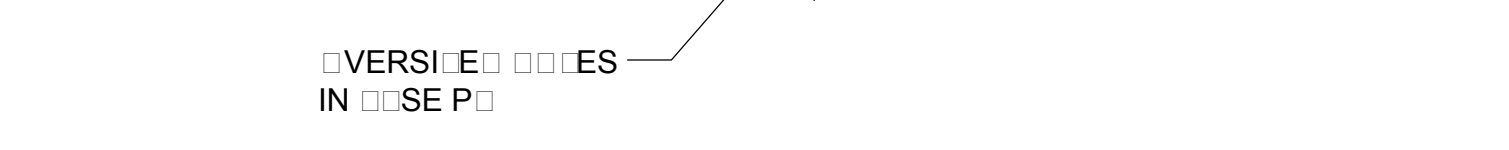
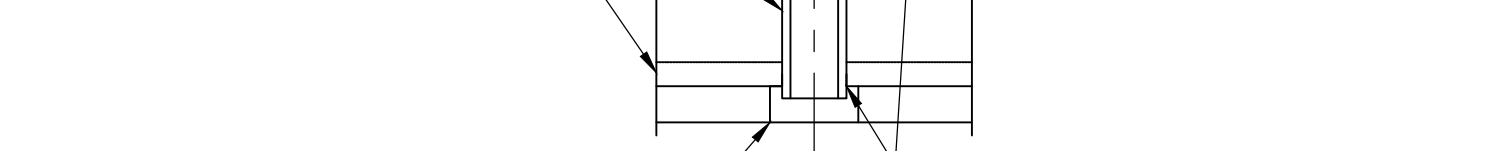
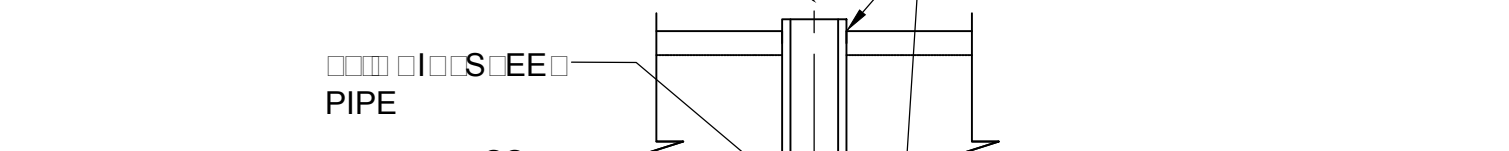
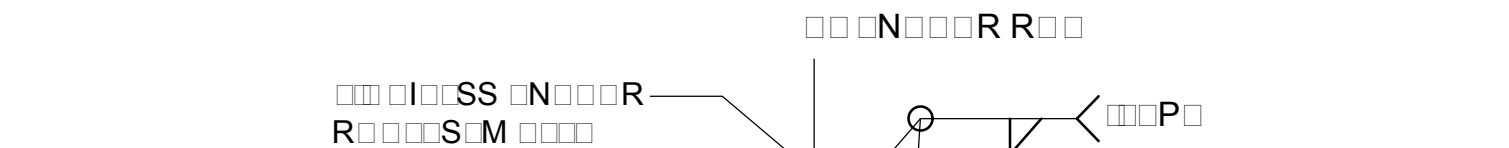
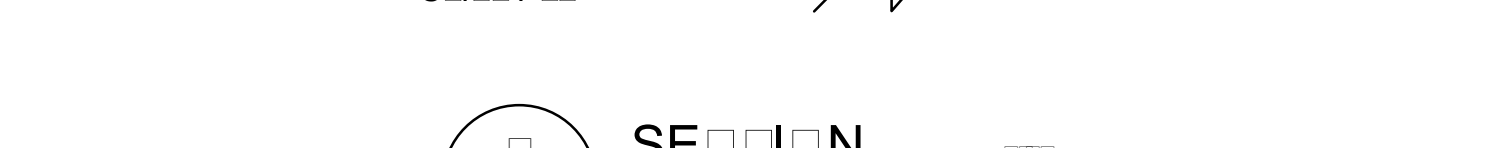
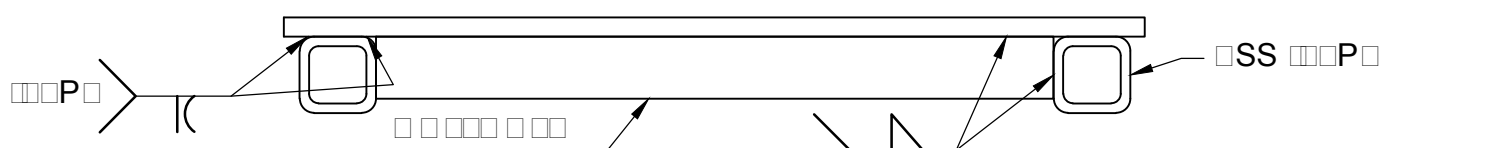
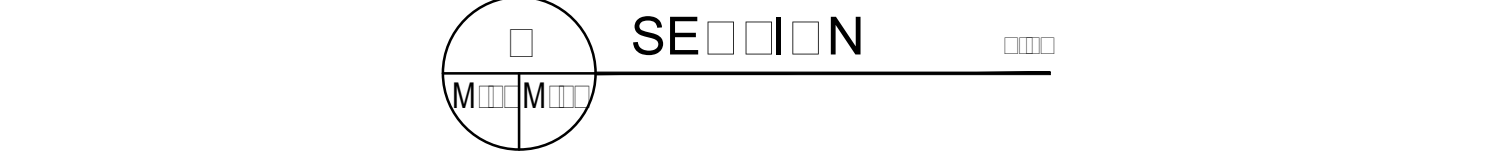
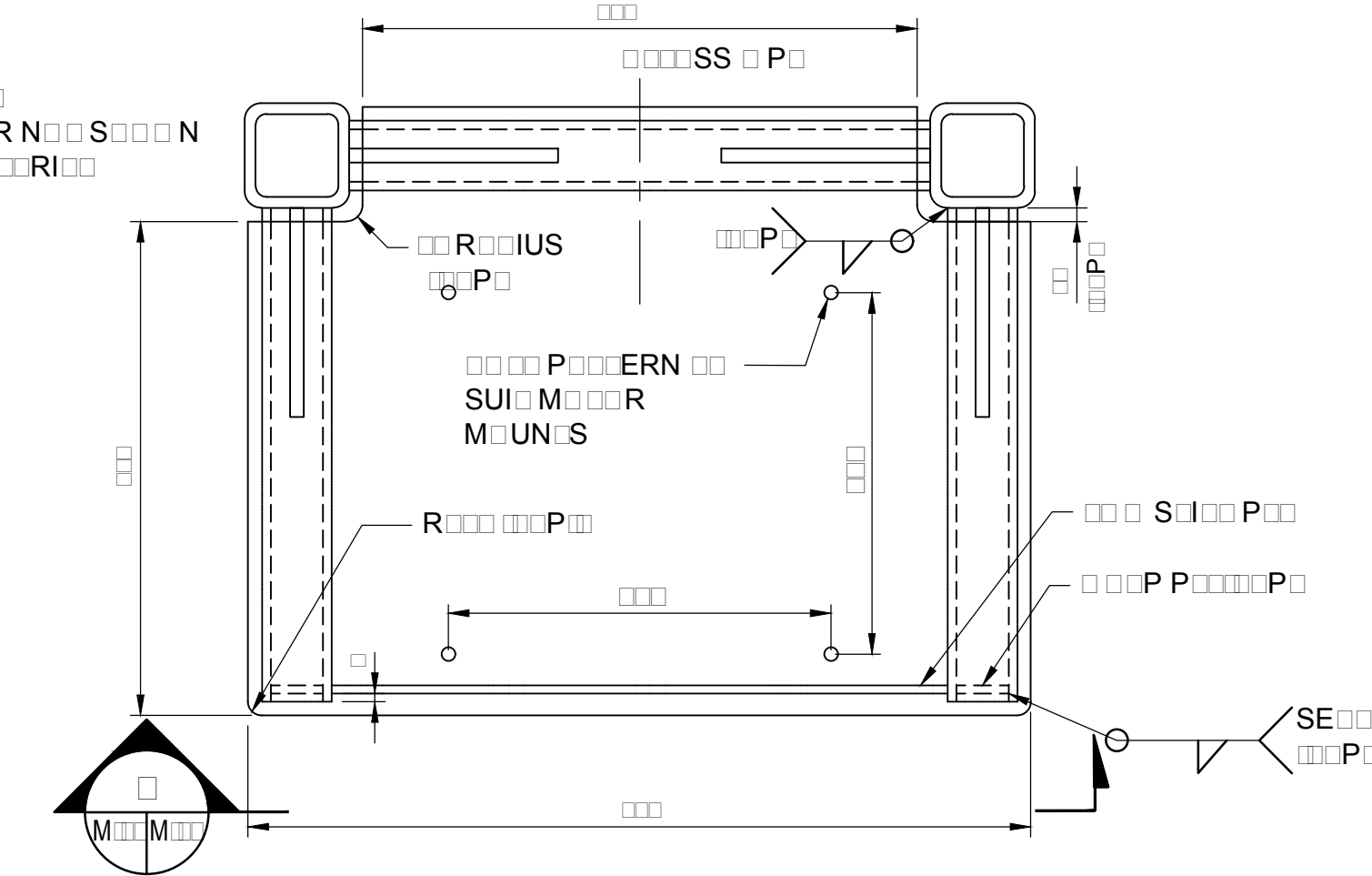
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SWING AND FIXED BRIDGES

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titre du dessin  
HYDRAULIC DETAILS

drawn by  
dessiné par  
GREG TAYLOR

designed by  
conçu par  
JEFF KEYT

approved by  
approuvé par  
JEFF KEYT

bid  
offre  
JULIO LEON

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
M-23

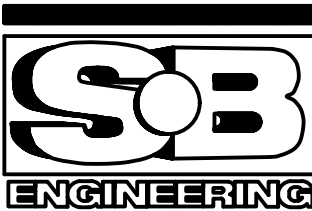


| INDEX OF DRAWINGS |   |
|-------------------|---|
| DRAWING           | TITLE   |
| E01               | ELECTRICAL NOTES AND INDEX OF DRAWINGS                      |
| E02               | ELECTRICAL SYMBOLS AND ABBREVIATIONS SHEET 1 OF 2           |
| E03               | ELECTRICAL SYMBOLS AND ABBREVIATIONS SHEET 2 OF 2           |
| E04               | ELECTRICAL SITE DEMOLITION PLAN                             |
| E05               | EXISTING ONE LINE DEMOLITION PLAN                           |
| E06               | SITE ELECTRICAL DISTRIBUTION PLAN                           |
| E07               | FLEXIBLE CABLE AND SPAN LIMIT SWITCH DETAILS                |
| E08               | END LIFT AND LOCKING PIN LIMIT SWITCHES                     |
| E09               | OPERATOR HOUSE ELECTRICAL EQUIPMENT LAYOUT                  |
| E10               | ELECTRICAL ONE LINE DIAGRAM                                 |
| E11               | POWER AND CONTROL BLOCK DIAGRAM                             |
| E12               | POWER PANEL SCHEDULE  |
| E13               | CONTROL CABLE SCHEDULE SHEET 1 OF 2                         |
| E14               | CONTROL CABLE SCHEDULE SHEET 2 OF 2                         |
| E15               | LIGHTING FIXTURE SCHEDULE                                   |
| E16               | OPERATOR CONTROL CONSOLE AND BCC ELEVATION                  |
| E17               | BCC DEVICE LAYOUT AND SCHEDULE                              |
| E18               | OUTDOOR OPERATOR CONTROL CONSOLE DEVICE LAYOUT AND SCHEDULE |
| E19               | BRIDGE CONTROL SYSTEM SEQUENCE OF OPERATION- OPENING        |
| E20               | BRIDGE CONTROL SYSTEM SEQUENCE OF OPERATION- CLOSING        |
| E21               | BRIDGE OPERATION CONTROL DIAGRAM                            |
| E22               | CONTROL LOGIC DIAGRAM SHEET 1 OF 6                          |
| E23               | CONTROL LOGIC DIAGRAM SHEET 2 OF 6                          |
| E24               | CONTROL LOGIC DIAGRAM SHEET 3 OF 6                          |
| E25               | CONTROL LOGIC DIAGRAM SHEET 4 OF 6                          |
| E26               | CONTROL LOGIC DIAGRAM SHEET 5 OF 6                          |
| E27               | CONTROL LOGIC DIAGRAM SHEET 6 OF 6                          |
| E28               | HPU CONTROL SYSTEM INTERFACE SHEET 1 OF 3                   |
| E29               | HPU CONTROL SYSTEM INTERFACE SHEET 2 OF 3                   |
| E30               | HPU CONTROL SYSTEM INTERFACE SHEET 3 OF 3                   |
| E31               | NAVIGATION LIGHTING CONTROL                                 |
| E32               | LIMIT SWITCH DEVELOPMENT                                    |
| E33               | CCTV AND PUBLIC ADDRESS SYSTEM PLAN AND ELEVATION LAYOUT    |
| E34               | PUBLIC ADDRESS SYSTEM AND CCTV SYSTEM DIAGRAMS              |
| E35               | NAVIGATION LIGHTING LAYOUT PLAN                             |
| E36               | NAVIGATION LIGHT INSTALLATION DETAILS                       |
| E37               | WARNING GATE AND TRAFFIC LIGHT INSTALLATION DETAILS         |
| E38               | BRIDGE GROUNDING AND BONDING                                |
| E39               | MISCELLANEOUS ELECTRICAL INSTALLATION DETAILS SHEET 1 OF 2  |
| E40               | MISCELLANEOUS ELECTRICAL INSTALLATION DETAILS SHEET 2 OF 2  |

GENERAL SCOPE OF THE ELECTRICAL WORK:

- DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT ON BRIDGE STRUCTURE - CONTRACTOR SHALL DE-ENERGIZE ALL POWER SOURCES SERVING THE ELECTRICAL MACHINERY, EQUIPMENT AND ELECTRICAL DISTRIBUTION SYSTEM ON THE EXISTING BRIDGE STRUCTURES AND FACILITIES TO BE DEMOLISHED. CONTRACTOR SHALL REMOVE ALL CIRCUIT WIRING CABLES BACK TO SOURCE POWER PANEL LOCATED IN THE BRIDGE OPERATOR HOUSE ELECTRICAL ROOM. THE CONTRACTOR SHALL REMOVE AND DISPOSE THE ELECTRICAL MACHINERY, EQUIPMENT AND ELECTRICAL DISTRIBUTION SYSTEM ON THE EXISTING BRIDGE STRUCTURES AND FACILITIES TO BE DEMOLISHED.
- CONTRACTOR SHALL FURNISH AND INSTALL, TEST AND COMMISSION ELECTRICAL POWER AND CONTROL SYSTEMS, EQUIPMENT, APPARATUS, APPLIANCES, MATERIALS, AND ACCESSORIES REQUIRED FOR THE CONSTRUCTION OF THE REPLACEMENT MOVABLE BRIDGE. THE CONTRACTOR SHALL PERFORM THE WORK AS INDICATED ON DRAWINGS AND SHALL COMPLY WITH PROJECT SPECIFICATIONS AND CONTRACTUAL REQUIREMENTS.
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERALLY THE LOCATIONS OF MATERIAL AND EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD AND PREPARING SCALED SHOP DRAWINGS .THE ELECTRICAL DIVISIONS SHALL COORDINATE THE WORK WITH EXISTING CONDITIONS AND SHALL COOPERATE WITH OTHER TRADES IN MAKING MINOR FIELD ADJUSTMENT NECESSARY FOR WORK COMPLETION. THE CONTRACTOR SHALL DETERMINE, VERIFY, AND COORDINATE THE CONSTRUCTION REQUIREMENTS WITH THE EXISTING CONDITIONS. THE CONTRACTOR SHALL ALSO COORDINATE WITH EXISTING UTILITY SERVICE PROVIDER AND TRADES FOR THE CONSTRUCTION OF THE SITE ELECTRICAL DISTRIBUTION SYSTEM.
- MATERIALS AND WORKMANSHIP SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES, SPECIFICATIONS, LOCAL ORDINANCES, AND INDUSTRIAL STANDARDS. IN CASE OF DIFFERENCES, MOST STRINGENT SHALL GOVERN. APPLICABLE BUILDING CODES AND STANDARDS SHALL INCLUDE PROVINCIAL AND/OR FEDERAL LAWS, LOCAL ORDINANCES, LOCAL UTILITY REGULATIONS AND THE APPLICABLE REQUIREMENTS OF THE FOLLOWING NATIONALLY ACCEPTED LATEST VERSION OF CODES AND STANDARDS: NATIONAL BUILDING CODE, CANADIAN ELECTRICAL CODE (CEC), CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBC) AND APPLICABLE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
- CONTRACTOR SHALL FIELD LOCATE ELECTRICAL EQUIPMENT SUCH THAT ACCESS AND WORK SPACE ARE MAINTAINED TO PERMIT SAFE OPERATION AND MAINTENANCE OF EQUIPMENT PER THE REQUIREMENTS OF THE CANADIAN ELECTRICAL CODE.
- DIMENSIONS OF EXISTING CONSTRUCTION ARE APPROXIMATE; CONTRACTOR SHALL MAKE NECESSARY FIELD MEASUREMENTS OF EXISTING STRUCTURES AND EQUIPMENT AND VERIFY DIMENSIONS PRIOR TO FABRICATION AND CONSTRUCTION. EXACT LOCATIONS ARE TO BE DETERMINED IN THE FIELD TO AVOID CONFLICTS WITH EXISTING STRUCTURE, EQUIPMENT, AND UTILITIES.
- SIZING OF CIRCUIT WIRING AND PROTECTION DEVICES FOR THE EQUIPMENT ARE BASED UPON DESIGN LOADS. UNLESS OTHERWISE NOTED, THE MINIMUM WIRE SIZE IN CONDUIT AND MULTI-CONDUCTOR CABLES SHOULD BE #12 AWG. PRIOR TO INSTALLATION, CONTRACTOR SHALL CONFIRM THE ACTUAL EQUIPMENT LOADS USING NAMEPLATE DATA OR CERTIFIED SHOP DRAWINGS. IF EQUIPMENT PROVIDED IS DIFFERENT THAN THE BASIS OF DESIGN, THEN THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE DEPARTMENTAL REPRESENTATIVE AND PROVIDE ELECTRICAL REQUIREMENTS FOR CHANGES AT NO ADDITIONAL COST TO DEPARTMENTAL REPRESENTATIVE.
- QUANTITY OF CONTROL SYSTEM CIRCUIT CABLES/CONDUCTORS SHOWN ON DRAWINGS MAY NOT REFLECT THE ACTUAL NUMBER OF CONDUCTORS REQUIRED. THE CONTRACTOR SHALL PROVIDE THE QUANTITY AS NECESSARY TO PROVIDE A COMPLETE OPERATIONAL CONTROL SYSTEM.
- ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES AND SHALL BE SCHEDULED CONSISTENT WITH THE OVERALL CONSTRUCTION STAGING SEQUENCE.
- ALL NEW CONDUITS AND FITTINGS INSTALLED ON THE BRIDGE STRUCTURE, PIER, OR EQUIPMENT PITS SHALL BE PVC COATED HOT DIPPED GALVANIZED RIGID STEEL (20mm MINIMUM) UNLESS OTHERWISE NOTED, AND SHALL MEET ALL THE ADDITIONAL REQUIREMENTS FOR MATERIAL, CONSTRUCTION, AND INSTALLATION CONTAINED IN THE SPECIFICATION.
- THE LOCATION AND NUMBER OF RACEWAYS AND JUNCTION BOXES SHOWN ON THE PLANS ARE OF SCHEMATIC TYPE AND DO NOT REPRESENT EXACT LOCATIONS OR QUANTITY REQUIRED. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED RACEWAYS, JUNCTION BOXES, CONDUIT FITTINGS, ELBOWS, AND HARDWARE FOR A COMPLETE INSTALLATION IN ACCORDANCE WITH THE ELECTRICAL CODE WHETHER OR NOT THEY ARE EXPLICITLY SHOWN OR INDICATED ON THE CONTRACT DRAWINGS. EXACT CONDUIT STUB-UP AND ENTRANCE LOCATIONS ARE TO BE DETERMINED BY THE CONTRACTOR BASED ON SUPPLIED MANUFACTURERS' SHOP DRAWINGS OF THE RESPECTIVE EQUIPMENT
- THE CONTRACTOR SHALL FURNISH AND INSTALL EXPANSION FITTINGS OF THE APPROVED TYPE WHEREVER CONDUITS PASS THROUGH STRUCTURAL EXPANSION JOINTS. DEFLECTION FITTINGS SHALL ALSO BE FURNISHED AND INSTALLED AS NECESSARY.
- THE CONTRACTOR SHALL PROVIDE SERVICE OF A QUALIFIED SYSTEM INTEGRATION COMPANY TO DEVELOP AND PRODUCE SUBSTANTIALLY COMPLETED ELECTRICAL INSTALLATION SHOP DRAWINGS AS INTEGRATED SYSTEM FOR DEPARTMENTAL REPRESENTATIVE'S REVIEW, AND FOR CONSTRUCTION.

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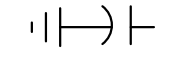
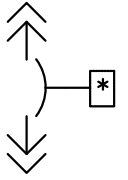
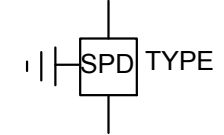
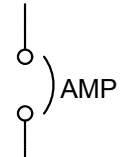

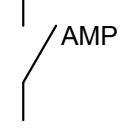

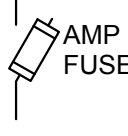

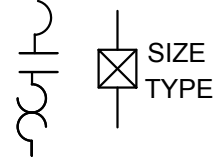
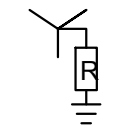
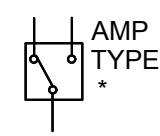

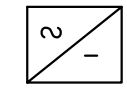
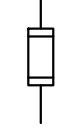
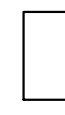







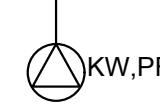

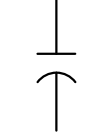

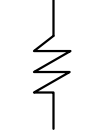
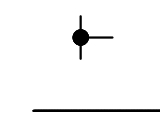
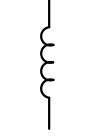

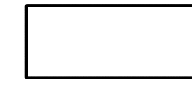
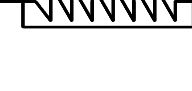



Detail No.  
No. du détail

drawing no. – where detail required  
dessin no. – où détail exigé

drawing no. – where detailed  
dessin no. – où détaillé

|  |                      |  |
|--|----------------------|--|
| project title<br>titre du projet                       |                      | Ontario                                      |
| HAMLET BRIDGES<br>(57 & 58)<br>SWING AND FIXED BRIDGES |                      |  |
| drawing title<br>titre du dessin                       |                      |  |
| ELECTRICAL NOTES AND<br>INDEX OF DRAWINGS              |                      |  |
| drawn by<br>dessiné par                                | P. KUMARI            |  |
| designed by<br>conçue par                              | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par                            | G. REES              |  |
| bid<br>offre   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet                         | 2018–07–20           |  |
| project no.<br>no. du projet                           | R.073593.001         |  |
| drawing no.<br>dessiné no.                             | E01                  |  |

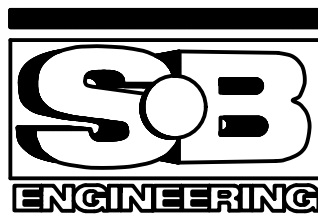


|   |  |   |   |
|---|--|---|---|
|    | UTILITY<br>SOURCE  |    | SURGE ARRESTOR  |
|    | POWER TRANSFORMER  |    | SURGE<br>CAPACITOR  |
|    | LV CIRCUIT BREAKER<br>WITH: * K = KEY INTERLOCK<br>* S = SHUNT TRIP  |    | SURGE PROTECTION DEVICE<br>TYPE<br>:  |
|    | MINIATURE CIRCUIT BREAKER  |    | DELTA CONNECTION  |
|    | NON-FUSED DISCONNECT SWITCH  |    | WYE CONNECTION  |
|    | FUSED DISCONNECT SWITCH  |    | SOLIDLY GROUNDED WYE  |
|    | COMBINATION MOTOR STARTER<br>TYPE : FVNR = FULL VOLTAGE NON-REVERSING<br>FVR = FULL VOLTAGE REVERSING<br>2S = TWO SPEED                                  |    | RESISTIVELY GROUNDED WYE  |
|   | TRANSFER SWITCH<br>(AUTOMATIC MANUAL)<br>TYPE: M = MANUAL<br>A = AUTO<br>*BP= WITH BYPASS  |    | GROUND  |
|  | CONVERTER  |    | FUSE  |
|  | PANELBOARD   |    | BIMETALLIC THERMAL OVERLOAD   |
|  | CONTROL PANEL<br>TYPE: LC = LIGHTING CONTACTOR<br>CP = CONTROL PANEL   |  | CONTACT N.O. (NORMALLY OPEN)  |
|  | GENERATOR<br>DUTY:<br>ESP = EMERGENCY STANDBY POWER<br>LTP = LIMITED TIME RUNNING POWER<br>PRP = PRIME RUNNING POWER<br>COP = CONTINUOUS OPERATING POWER |  | CONTACT N.C. (NORMALLY CLOSED)  |
|  | MOTOR  |  | BATTERY   |
|  | ELECTRICAL<br>LUMP<br>LOAD   |  | MULTIFUNCTION METER WITH<br>METERING PARAMETERS: (KVA, KW, KVAR, PF, V, I, F)<br>* INDICATE HARMONIC & WAVEFORM CAPTURE<br>CAPABILITY   |
|  | CAPACITOR(S)   |  | SINGLE FUNCTION METERING:<br>A = AMMETER<br>D = DEMAND METER<br>ET = ELAPSED TIME METER<br>F = FREQUENCY METER<br>PF = POWER FACTOR METER<br>V = VOLTAGE METER<br>VA = VOLTAMPERE METER<br>VAR = VAR METER<br>W = WATT METER<br>WH = WATTHOUR METER |
|  | RESISTOR(S)  |  | MULTIFUNCTION PROTECTIVE RELAY<br>(PROTECTIVE FUNCTIONS AS INDICATED)   |
|  | REACTOR(S)   |  | ELECTRICAL NODE<br>MULTIPLE CONDUCTOR CONNECTION  |
|   |  |  | EQUIPMENT BOUNDARY  |
|   |  |  | INFRARED HEATER   |
|   |  |  | BASEBOARD SPACE HEATER  |
|   |  |  | INSTANTANEOUS WATER HEATER  |
|   |  |  | THERMOSTAT  |

ABBREVIATIONS

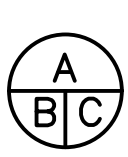


|        |  |
|--------|--|
| A, AMP | AMPERE   |
| AF     | AMP FRAME                                      |
| AT     | AMP TRIP                                       |
| AM     | AMMETER  |
| ATS    | AUTOMATIC TRANSFER SWITCH                      |
| AUX    | AUXILIARY                                      |
| BP     | BYPASS   |
| BCC    | BRIDGE CONTROL CABINET                         |
| C      | CONDUIT  |
| CB     | CIRCUIT BREAKER                                |
| CCTV   | CLOSED CIRCUIT TELEVISION                      |
| CKT    | CIRCUIT  |
| CP     | CONTROL PANEL                                  |
| CR     | CONTROL RELAY                                  |
| CT     | CURRENT TRANSFORMER                            |
| DISC   | DISCONNECT                                     |
| DWG    | DRAWING  |
| EM     | EMERGENCY                                      |
| ENC    | ENCODER  |
| EOT    | END OF TRAVEL                                  |
| ESTOP  | EMERGENCY STOP                                 |
| F.C.   | FULLY CLOSED                                   |
| FO     | FIBER OPTIC                                    |
| F.O.   | FULLY OPEN                                     |
| FPR    | FEEDER PROTECTION RELAY                        |
| FRE    | FIBERGLASS REINFORCED EPOXY                    |
| FU     | FUSE   |
| FVR    | FULL VOLTAGE REVERSING                         |
| FVNR   | FULL VOLTAGE NON REVERSING                     |
| GEN    | GENERATOR                                      |
| GND    | GROUND   |
| HP     | HORSE POWER                                    |
| HPU    | HYDRAULIC POWER UNIT                           |
| HMI    | HUMAN MACHINE INTERFACE                        |
| IL     | INDICATOR LIGHTS                               |
| I/O    | INPUT / OUTPUT                                 |
| JB     | JUNCTION BOX                                   |
| KAIC   | INTERRUPT CURRENT                              |
| KW     | KILOWATT                                       |
| KVA    | KILOVOLT-AMPERES                               |
| LA     | LIGHTING ARRESTOR                              |
| LGT    | LIGHT  |
| LP     | LIGHTING PANEL                                 |
| LS     | LIMIT SWITCH                                   |
| M      | MOTOR STARTER                                  |
| MAB    | MACHINERY BRAKE                                |
| MCCB   | MOLDED CASE CIRCUIT BREAKER                    |
| MCC    | MOTOR CONTROL CABINET                          |
| MPCB   | MOTOR PROTECTION CIRCUIT BREAKER               |
| MCP    | MOTOR CIRCUIT PROTECTOR                        |
| MLO    | MAIN LUG ONLY                                  |
| MOB    | MOTOR BRAKE                                    |
| N      | NORTH  |
| NAV.   | NAVIGATION                                     |
| N.C.   | NORMALLY CLOSED / NEARLY CLOSED                |
| NE     | NORTHEAST                                      |
| N      | NEUTRAL  |
| N.O.   | NORMALLY OPEN / NEARLY OPEN                    |
| NOC    | NORTH ON-COMING                                |
| NOG    | NORTH OFF-GOING                                |
| NTS    | NOT TO SCALE                                   |
| NW     | NORTHWEST                                      |
| OC     | OVERCURRENT                                    |
| OL     | OVERLOAD                                       |
| OT     | OVER TRAVEL                                    |
| P      | POLE   |
| PA     | PUBLIC ADDRESS                                 |
| PE     | PROTECTIVE EARTH CONDUCTOR OR PROTECTIVE EARTH |
| PB     | PUSH BUTTON / PULL BOX                         |
| PLC    | PROGRAMMABLE LOGIC CONTROLLER                  |
| PM     | POWER MONITOR                                  |
| PP     | POWER PANEL                                    |
| RECPT  | RECEPTACLE                                     |
| RES    | RESISTOR                                       |
| RGS    | RIGID GALVANIZED STEEL                         |
| S      | SOUTH  |
| SE     | SOUTHEAST                                      |
| SL     | SPAN LOCK                                      |
| SP     | SPAN   |
| SPD    | SURGE PROTECTION DEVICE                        |
| SW     | SWITCH/SOUTHWEST                               |
| TD     | TIME DELAY                                     |
| TG     | TRAFFIC GATE                                   |
| THERMO | THERMOSTAT                                     |
| T      | EARTH  |
| TS     | THERMOSTAT SWITCH                              |
| IT     | EARTHING SYSTEM                                |
| TYP    | TYPICAL  |
| UPS    | UNINTERRUPTIBLE POWER SUPPLY                   |
| V      | VOLTAGE  |
| VM     | VOLTMETER                                      |
| WG     | WEDGE  |
| WM     | WATTMETER                                      |
| WP     | WEATHERPROOF                                   |
| XMFR   | TRANSFORMER                                    |

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |   |
|---|---|
|  | A Detail No.<br>No. du détail   |
|  | B drawing no. - where detail required<br>dessin no. - où détail exigé |
|  | C drawing no. - where detailed<br>dessin no. - où détaillé            |














|  |         |
|--|---------|
| project title<br>titre du projet                       | Ontario |
| HAMLET BRIDGES<br>(57 & 58)<br>SWING AND FIXED BRIDGES |         |

|                                  |   |
|----------------------------------|---|
| drawing title<br>titre du dessin | ELECTRICAL SYMBOLS AND<br>ABBREVIATIONS SHEET 1<br>OF 2 |
|----------------------------------|---|

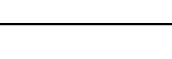
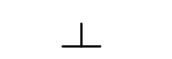

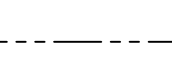
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|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E02                  |  |



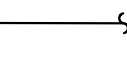


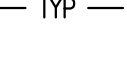



POWER

|   |  |
|---|--|
|  | TRANSFORMER  |
|  | NON-FUSED DISCONNECT SWITCH  |
|  | COMBINATION DISCONNECT WITH STARTER  |
|  | MOTOR  |
|  | GENERATOR  |
|  | CONTROL PANEL  |
|  | MANHOLE  |
|  | HANDHOLE   |
|  | SINGLE RECEPTACLE  |
|  | DUPLEX RECEPTACLE  |
|  | SPECIAL PURPOSE RCPT OR CONNECTION,<br>RATING AS INDICATED   |
|  | FLOOR RECEPTACLE<br>RECEPTACLE OPTIONS, IF REQ'D, (TYP):<br>GFI = GROUND FAULT INTERRUPTING<br>IG = ISOLATED GROUND<br>S = SWITCH AND OUTLET<br>WP = WEATHERPROOF<br>XP = EXPLOSIONPROOF |
|  | FLOOR MOUNTED SPECIAL PURPOSE RCPT OR CONNECTION,<br>RATING AS INDICATED   |












GROUNDING

|   |                                |
|---|--------------------------------|
|    | GROUND CONDUCTOR               |
|    | LIGHTNING PROTECTION CONDUCTOR |
|    | GROUND                         |
|  | GROUND BONDING CONNECTION      |

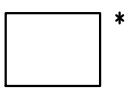
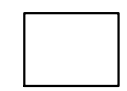
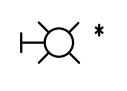
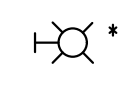
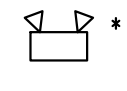
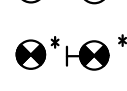
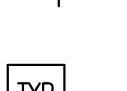

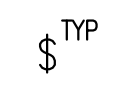


RACEWAY

|   |   |
|---|---|
|  | RIGID CONDUIT   |
|  | FLEXIBLE CONDUIT  |
|  | CONDUIT HOMERUN<br># OF ARROWS INDICATES # OF CKTS<br>* SOURCE, CKT#                        |
|  | CONDUIT<br>DB = DUCTBANK<br>EM = EMBEDDED<br>EX = EXPOSED<br>UG = UNDERGROUND DIRECT BURIAL |
|  | POWER CABLE   |
|  | CONTROL CABLE   |
|  | SUBMARINE CABLE   |

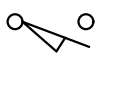
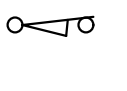
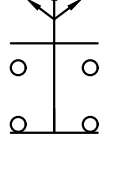
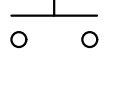
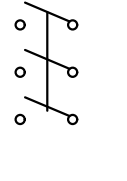
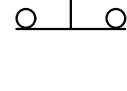
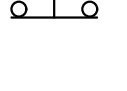
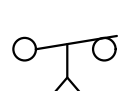
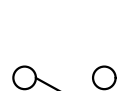
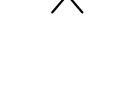
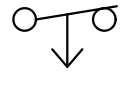
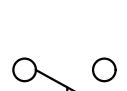



COMMUNICATION

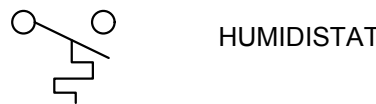
|   |   |
|---|---|
|  | PUBLIC ADDRESS SPEAKER                  |
|  | PUBLIC ADDRESS MICROPHONE OUTLET        |
|  | PUBLIC ADDRESS VOLUME CONTROL           |
|  | INTERCOM STATION, "M" INDICATES MASTER  |
|  | PUSH BUTTON                             |
|  | CCTV SURVEILLANCE CAMERA, FIXED         |
|  | CCTV SURVEILLANCE CAMERA, PAN/ZOOM/TILT |
|  | SMOKE DETECTOR                          |
|  | FIRE ALARM                              |
|  | MANUAL PULL STATION                     |
|  | FIRE ALARM CONTROL PANEL                |

LIGHTING

|   |   |   |
|---|---|---|
|  |  | SURFACE MOUNTED, SQUARE<br>(* FIXTURE TYPE, SHADED PORTION DENOTE EMERGENCY FIXTURE)                                      |
|  |  | WALL MOUNTED FIXTURE<br>(* FIXTURE TYPE, SHADED PORTION DENOTE EMERGENCY FIXTURE)   |
|  |   | EMERGENCY BATTERY OPERATED UNIT   |
|  |   | EXIT SIGN, SINGLE FACE, CEILING OR WALL MOUNTED   |
|  |   | EXIT SIGN, DOUBLE FACE, CEILING OR WALL MOUNTED   |
|  |   | EXIT SIGN, ARROW INDICATES DIRECTION  |
|  |   | LIGHTING CONTROL: LC = LIGHTING CONTACTOR<br>OC = OCCUPANCY SENSOR<br>PE = PHOTOELECTRIC CELL<br>TC = TIME CLOCK          |
|  |   | SWITCH, SINGLE POLE   |
|  |   | SWITCH: 3 = THREE-WAY<br>4 = FOUR-WAY<br>D = DIMMER<br>K = KEY OPERATED<br>P = PILOT<br>a,b,c = DENOTES SWITCHING CONTROL |

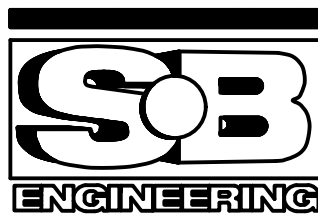
CONTROL SCHEMATIC

|   |   |
|---|---|
|    | NORMALLY OPEN LIMIT SWITCH, CONTACT<br>CLOSES ON REACHING LIMIT         |
|    | NORMALLY CLOSED LIMIT SWITCH, CONTACT<br>OPENS ON REACHING LIMIT        |
|   | SELECTOR SWITCH   |
|  | NORMALLY OPEN PUSHBUTTON, MOMENTARY CONTACT<br>UNLESS OTHERWISE NOTED   |
|  | DISCONNECT SWITCH   |
|  | EMERGENCY STOP  |
|  | NORMALLY CLOSED PUSHBUTTON, MOMENTARY<br>CONTACT UNLESS OTHERWISE NOTED |
|  | NORMALLY CLOSED TIME DELAY CONTACT - ON-DELAY                           |
|  | NORMALLY OPEN TIME DELAY CONTACT - ON-DELAY                             |
|  | NORMALLY CLOSED TIME DELAY CONTACT - OFF-DELAY                          |
|  | NORMALLY OPEN TIME DELAY CONTACT - OFF-DELAY                            |
|  | INDICATION LIGHTS<br>G - GREEN<br>A - AMBER<br>R - RED<br>W - WHITE     |
|  | TWO WIRES CROSSING AND CONNECTED  |
|  | TWO WIRES CROSSING AND NOT CONNECTED                                    |
|  | RELAY COIL<br>CR: CONTROL RELAY<br>TR: TIMING RELAY<br>M: MOTOR STARTER |



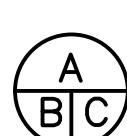


HUMIDISTAT

PARSONS



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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
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|  | A Detail No.<br>No. du détail   |
|  | B drawing no. - where detail required<br>dessin no. - où détail exigé |
|  | C drawing no. - where detailed<br>dessin no. - où détaillé            |

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| project title<br>titre du projet                       | Ontario |
| HAMLET BRIDGES<br>(57 & 58)<br>SWING AND FIXED BRIDGES |         |

|                                  |   |
|----------------------------------|---|
| drawing title<br>titre du dessin | ELECTRICAL SYMBOLS AND<br>ABBREVIATIONS SHEET 2<br>OF 2 |
|----------------------------------|---|

|                         |           |
|-------------------------|-----------|
| drawn by<br>dessiné par | P. KUMARI |
|-------------------------|-----------|

|                         |                      |
|-------------------------|----------------------|
| designed by<br>conç par | J. KOSCIL, K. WAGNER |
|-------------------------|----------------------|

|                             |         |
|-----------------------------|---------|
| approved by<br>approuvé par | G. REES |
|-----------------------------|---------|

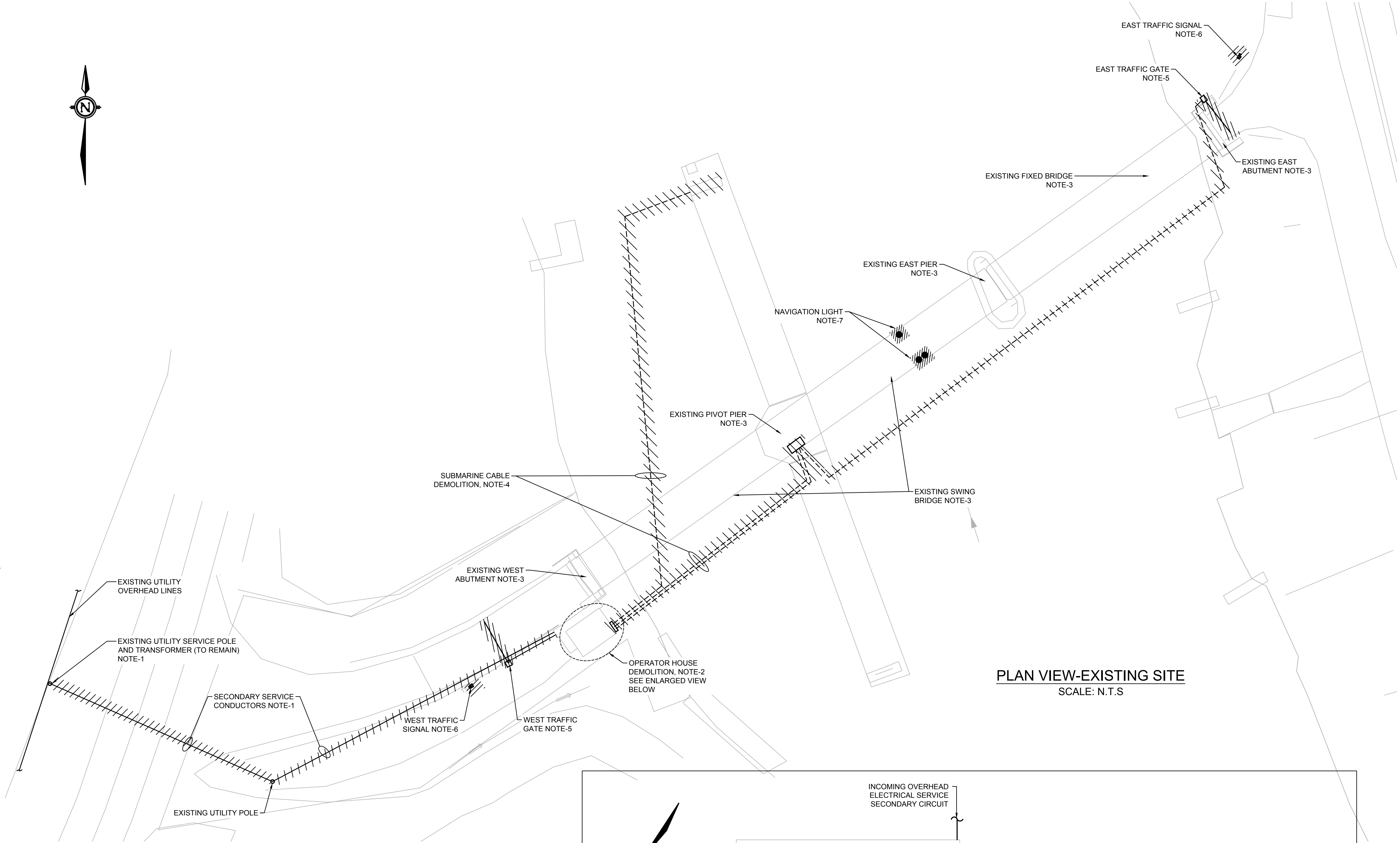
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| bid<br>offre | JULIO LEON | project manager<br>administrateur de projets |
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| project date<br>date du projet | 2018-07-20 |
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| project no.<br>no. du projet | R.073593.001 |
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| drawing no.<br>dessiné no. | E03 |
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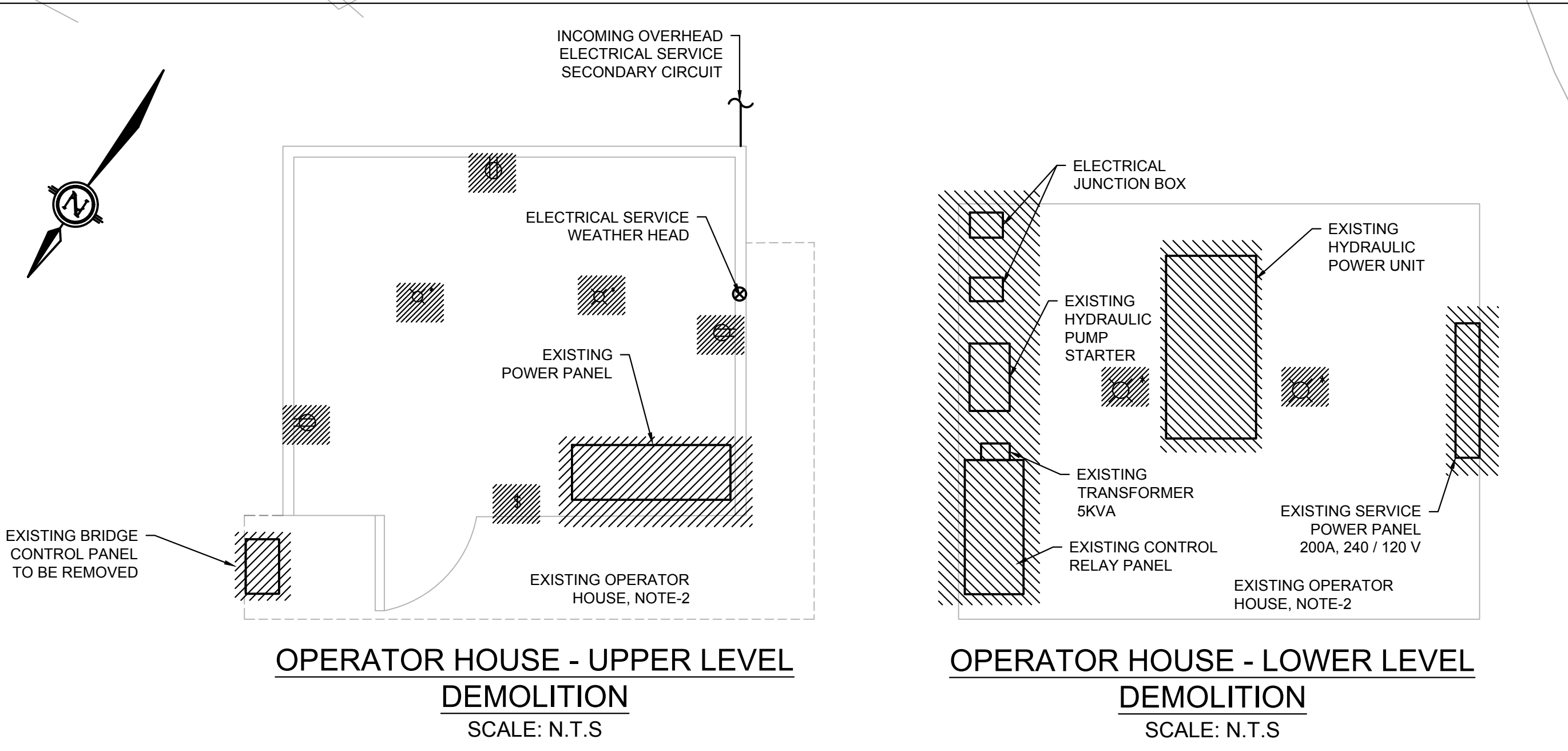




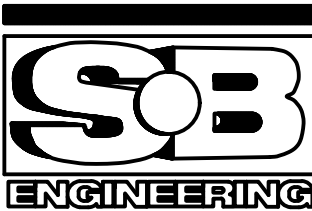
PLAN VIEW-EXISTING SITE  
SCALE: N.T.S

NOTES:

1. REMOVE EXISTING OVERHEAD SECONDARY ELECTRICAL SERVICE CONDUCTORS FROM THE EXISTING UTILITY SERVICE POLE TO THE EXISTING OPERATOR BUILDING. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL UTILITY COMPANY FOR THE REMOVAL OF THE EXISTING UTILITY SERVICE CONDUCTORS. THE CONTRACTOR IS RESPONSIBLE FOR ALL DEMOLITION WORK ON THE CUSTOMER SIDE OF THE UTILITY SERVICE METER. THE ELECTRICAL WORK ON THE UTILITY SERVICE SIDE OF THE SERVICE METER WILL BE BY THE UTILITY COMPANY, INCLUDING THE UTILITY METER.
2. CONTRACTOR SHALL DE-ENERGIZE ELECTRICAL SERVICE, REMOVE AND/OR DEMOLISH OPERATOR HOUSE ELECTRICAL DISTRIBUTION SYSTEM AS REQUIRED TO ACCOMMODATE THE DEMOLITION OF THE EXISTING OPERATOR HOUSE. THE CONTRACTOR MAY ABANDON IN PLACE EXISTING UNDERGROUND RACEWAY THAT WILL NOT INTERFERE WITH THE NEW CONSTRUCTION WORK. THE ABANDONED UNDERGROUND RACEWAY SHALL BE CAPPED.
3. CONTRACTOR SHALL DE-ENERGIZE ELECTRICAL SERVICE AND REMOVE AND/OR DEMOLISH THE ENTIRE BRIDGE ELECTRICAL DISTRIBUTION SYSTEM INCLUDING ON THE BRIDGE STRUCTURE AS REQUIRED TO ACCOMMODATE THE DEMOLITION OF THE EXISTING BRIDGE STRUCTURE.
4. REMOVE EXISTING SUBMARINE CABLES AND SUBMARINE CABLE TERMINATION BOXES. THE SUBMARINE CABLES PORTION THAT ARE BURIED BELOW RIVER BED MAY BE ABANDONED IN PLACE; CUT OFF THE BURIED SUBMARINE CABLE 1.5 METER BELOW MUD LINE.
5. REMOVE EXISTING TRAFFIC GATES, AND ACCESSORIES, AND ALL OF THE ASSOCIATED POWER AND CONTROL CIRCUIT WIRINGS AND RACEWAYS BACK TO SOURCE PANEL(S).
6. REMOVE EXISTING TRAFFIC LIGHTS, AND ACCESSORIES, AND ALL OF THE ASSOCIATED POWER AND CONTROL CIRCUIT WIRINGS AND RACEWAYS BACK TO SOURCE PANEL(S).
7. REMOVE EXISTING NAVIGATION LIGHT FIXTURE AND ASSOCIATED CIRCUIT WIRING AND RACEWAY BACK TO SOURCE PANEL LOCATED IN THE OPERATOR HOUSE.



PARSONS



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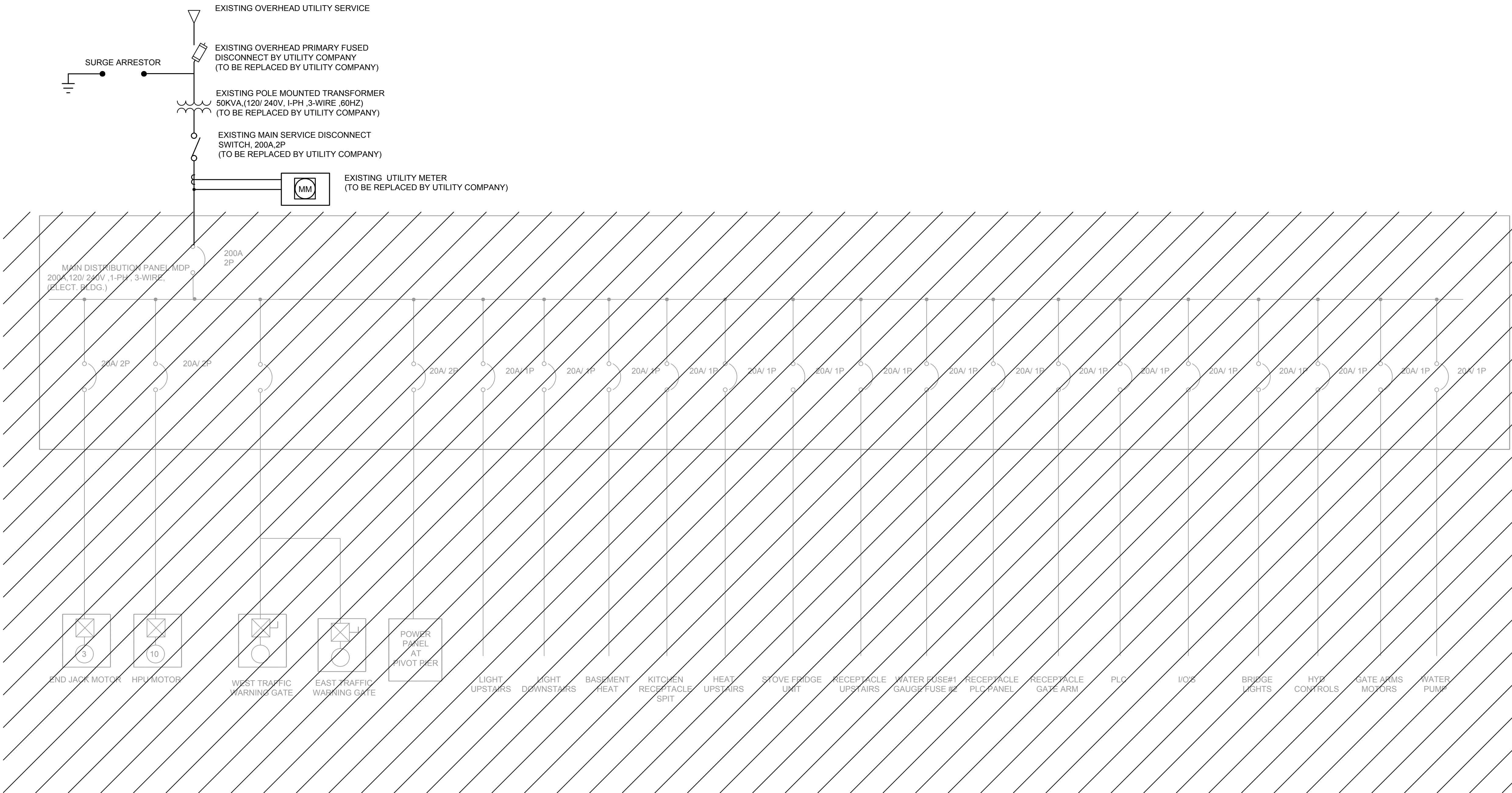
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| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

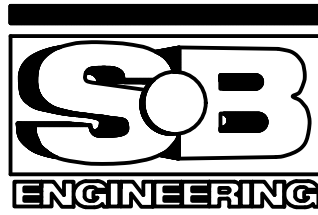
drawing title  
titre du dessin  
ELECTRICAL SITE  
DEMOLITION PLAN

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçue par      | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E04                  |  |





- NOTE:**
- DEMOLISH ALL ELECTRICAL EQUIPMENT, CIRCUIT WIRING AND CONDUIT AS INDICATED ON ONE-LINE DIAGRAM.
  - CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANY FOR THE DEMOLITION OF UTILITY OWNED EQUIPMENT.



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| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

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| project title<br>titre du projet                       | Ontario                              |
| HAMLET BRIDGES<br>(57 & 58)<br>SWING AND FIXED BRIDGES |                                      |
| drawing title<br>titre du dessin                       | EXISTING ONE LINE<br>DEMOLITION PLAN |
| drawn by<br>dessiné par                                | P. KUMARI                            |
| designed by<br>conçue par                              | J. KOSCIL, K. WAGNER                 |
| approved by<br>approuvé par                            | G. REES                              |
| bid<br>offre   | JULIO LEON                           |
| project manager<br>administrateur de projets           |                                      |
| project date<br>date du projet                         | 2018-07-20                           |
| project no.<br>no. du projet                           | R.073593.001                         |
| drawing no.<br>dessiné no.                             | E05                                  |





1. THE CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANY (HYDRO-ONE) TO PROVIDE FOR ELECTRICAL SERVICE TO THE BRIDGE OPERATOR HOUSE. THE UTILITY COMPANY WILL BE RESPONSIBLE FOR THE PRIMARY ELECTRICAL SERVICE WORK INCLUDING OVERHEAD SERVICE TRANSFORMER, UTILITY POWER POLES AND ASSOCIATED POLE ASSEMBLY, PRIMARY OVERHEAD FEEDER CIRCUIT, AND UTILITY METER AS DESCRIBED IN THE UTILITY SERVICE AGREEMENT BETWEEN TRENT SEVERN WATERWAY AND HYDRO-ONE SCHEDULE 'A' (SAP ORDER#: 61884180; CM #: 295937; CUSTOMER #:0100530175). THE NEW UTILITY POWER POLES LOCATIONS SHOWN ON PLAN DRAWING ARE APPROXIMATE. THE ACTUAL POWER POLE PLACEMENT LOCATIONS WILL BE AS DETERMINED BY HYDRO-ONE. HYDRO-ONE CONTACT NUMBER: 888-238-2398 ELECTRICAL SAFETY AUTHORITY CONTACT NUMBER:877-372-7233.
2. THE CONTRACTOR IS TO OBTAIN ELECTRICAL SAFETY PERMIT FROM THE ELECTRICAL SAFETY AUTHORITY SUPPLY AND INSTALL 200 AMP, 600V UNDERGROUND SERVICE COMPLETED WITH 7 JAW SOCKET TYPE METER BASE INSIDE WEATHERPROOF ENCLOSURE PER HYDRO-ONE STANDARDS. SUPPLY AND INSTALL SERVICE DISCONNECT SWITCH BEFORE THE METER.
3. PROVIDE UNDERGROUND DUCTBANK FROM THE UTILITY SERVICE POLE TO THE SERVICE DISCONNECT SWITCH LOCATED AT THE OUTSIDE WALL OF THE OPERATOR HOUSE. INSTALLATION OF THE UNDERGROUND SERVICE SHALL BE IN ACCORDANCE WITH ESA STANDARDS AND HYDRO-ONE STANDARDS.
4. PROVIDE SUBMARINE CABLES IN REINFORCED THERMOSETTING RESIN CONDUIT (RTRC) FROM THE OPERATOR HOUSE TO THE PIVOT PIER AND FROM THE PIVOT PIER TO THE EAST ABUTMENT STRUCTURE AS INDICATED ON THIS DRAWING SHEET E06.THE SUBMARINE CABLES SHALL BE INSTALL IN CONDUIT SLEEVE LAID 1200mm MIN. BELOW MUD LINE. THE CONTRACTOR SHALL ALSO PROVIDE BALLAST OR OTHER MEANS OF ANCHORING THE NON-BURIED PORTION OF THE RTRC TO THE BED OF THE CANAL. THE CONTRACTOR WILL CONDUCT AN INVESTIGATION OF UNDER WATER TERRAIN CONDITIONS ALONG THE SUBMARINE CABLE ROUTES AND THE IMPACTED VICINITY AND VERIFY THE LOCATION AND CHARACTERISTICS OF ALL EXISTING FEATURES AND POSSIBLE INTERFERENCES ABOVE GROUND, UNDERGROUND, AND BELOW WATER PRIOR TO CONSTRUCTION.
5. PROVIDE NEW FEEDER AND CONTROL WIRING INTERCONNECTION BETWEEN THE NEW TRAFFIC GATES AND THE BRIDGE CONTROL CABINET. THE CONTRACTOR MAY UTILIZE EXISTING UNDER ROADWAY CONDUITS FOR ROUTING OF NEW CIRCUIT WIRING CABLES TO THE EXISTING TRAFFIC GATES WHERE PRACTICAL; OTHERWISE PROVIDE NEW UNDERGROUND CONDUITS. SEE DRAWING SHEET E12, E13 AND E14 FOR TRAFFIC GATE WIRING REQUIREMENTS, AND DRAWING SHEET E37 FOR TRAFFIC GATE ARM AND LIGHT INSTALLATION DETAILS.
6. PROVIDE NEW FEEDER CONTROL WIRING AND INTERCONNECTION BETWEEN THE NEW TRAFFIC SIGNAL LIGHTS AND THE BRIDGE CONTROL CABINET. THE CONTRACTOR MAY UTILIZE EXISTING UNDER ROADWAY CONDUITS FOR ROUTING OF NEW CIRCUIT WIRING CABLES TO THE EXISTING TRAFFIC LIGHTS WHERE PRACTICAL; OTHERWISE PROVIDE NEW UNDERGROUND CONDUITS. PROVIDE NEW TRAFFIC LIGHT ARM AND WARNING LIGHTS. SEE DRAWING SHEET E12, E13 AND E14 FOR CIRCUIT WIRING REQUIREMENTS.
7. PROVIDE NEW POWER AND CONTROL CIRCUIT WIRING TO THE NEW AIR HORN FROM THE BRIDGE CONTROL CABINET. SEE DRAWING SHEET E13 AND E14 FOR CIRCUIT WIRING REQUIREMENTS.
8. SEE ELECTRICAL DRAWINGS E10 THROUGH E14 FOR CIRCUIT WIRING REQUIREMENTS.
9. PROVIDE 4X100mm CONDUIT FROM PB-1/CB-1 TO CONCRETE TRENCH.

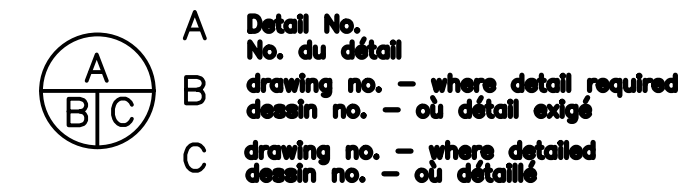


SCALE: N.T.S.



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| project title<br>titre du projet | Ontario |
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HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

**drawing title**  
**titre du dessin**

SITE ELECTRICAL  
DISTRIBUTION PLAN

drawn by  
dessine par P. KUMARI

|                         |                      |
|-------------------------|----------------------|
| designed by<br>conc par | J. KOSCIL, K. WAGNER |
|-------------------------|----------------------|

approved by  
approve par G. REES

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
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| project date<br>date du projet | 2018-07-20 |
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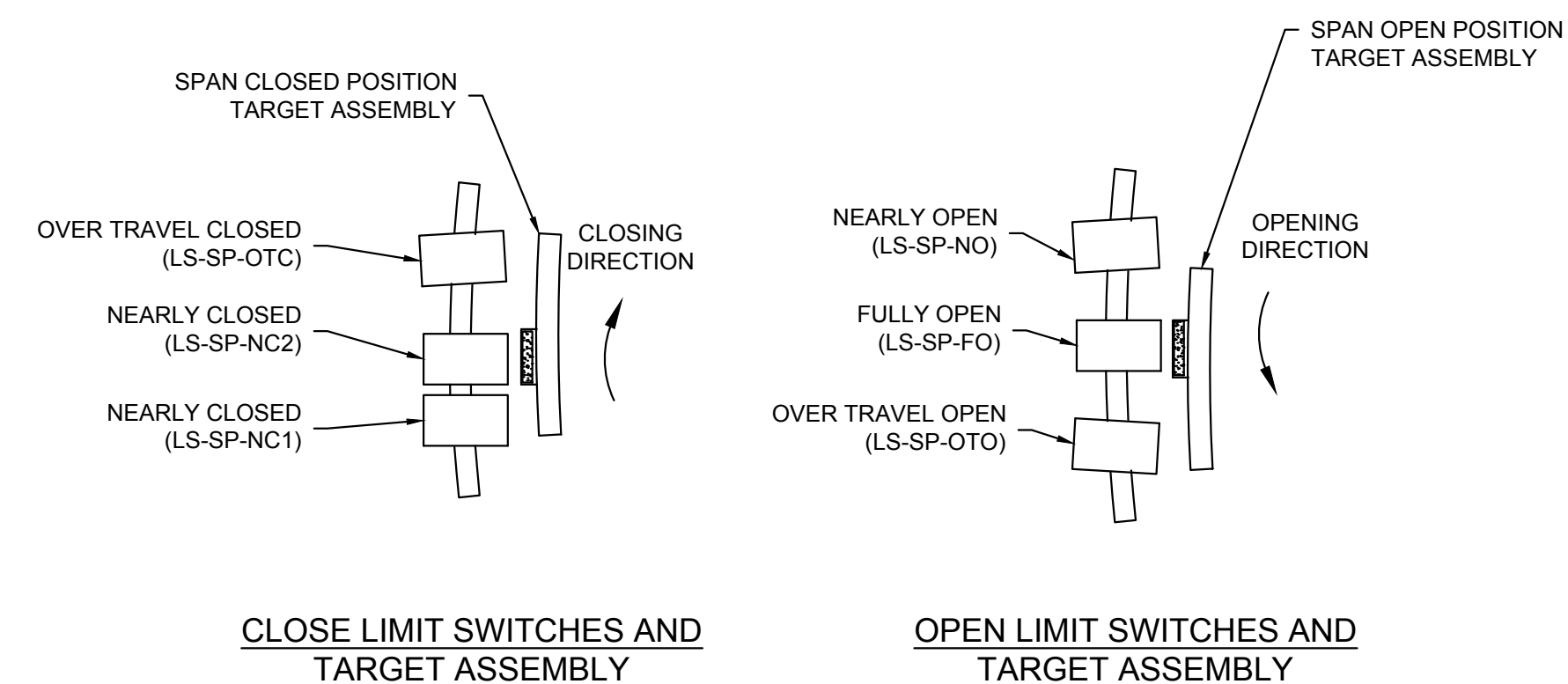
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drawing no.  
dessine no. E06

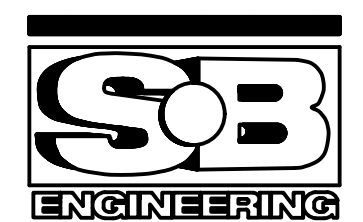




1. SEE NOTES ON SHEET E01 FOR GENERAL NOTES APPLICABLE TO THIS SHEET.
2. CONTRACTOR SHALL FIELD ROUTE FLEXIBLE CABLE AND PROVIDE CABLE SLACKS AND SUPPORTS AS REQUIRED TO AVOID INTERFERENCE DURING BRIDGE SPAN MOVEMENT.
3. CONTRACTOR WILL MAKE FIELD ADJUSTMENTS TO THE POSITIONING OF THE LIMIT SWITCH AND TARGET ALIGNMENT SUCH THAT THE FULLY CLOSE LIMIT SWITCH IS ALIGNED WITH THE TARGET WHEN THE SPAN IS IN FULLY CLOSED POSITION; THE FULLY OPEN LIMIT SWITCH IS ALIGNED WITH THE TARGET WHEN THE SPAN IS IN FULLY OPEN POSITION; AND THE NEAR OPEN AND NEARLY CLOSE LIMIT SWITCHES ARE TRIGGERED AT 5 DEGREES OUT FROM THEIR RESPECTIVE FULLY OPEN AND FULLY CLOSE POSITIONS. CONTRACTOR TO PROVIDE SUPPORT DETAILS. ENSURE A CLEAR PATH EXISTS FOR LIMIT SWITCH TARGET FOR 75" OF TRAVEL.
4. CONTRACTOR TO PROVIDE MOUNTING BRACKETS AND ATTACHMENT FOR THE LIMIT SWITCH AND TARGET AS REQUIRED.
5. THE CONDUIT SLEEVE SHALL TURN UP ALONG THE FACE OF PIVOT PIER WALL AND END JUST BELOW THE OPEN CONCRETE TRENCH AT THE EDGE OF PIER WALL.




DETAIL A -LIMIT SWITCH LAYOUT IDENTIFICATION  
SCALE: N.T.S



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 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

# drawing title titre du dessin

## FLEXIBLE CABLE AND SPAN LIMIT SWITCH DETAILS

drawn by  
dessine par P. KUMARI

|                         |                      |
|-------------------------|----------------------|
| designed by<br>conc par | J. KOSCIL, K. WAGNER |
|-------------------------|----------------------|

|                             |         |
|-----------------------------|---------|
| approved by<br>approuvé par | G. REES |
|-----------------------------|---------|

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| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
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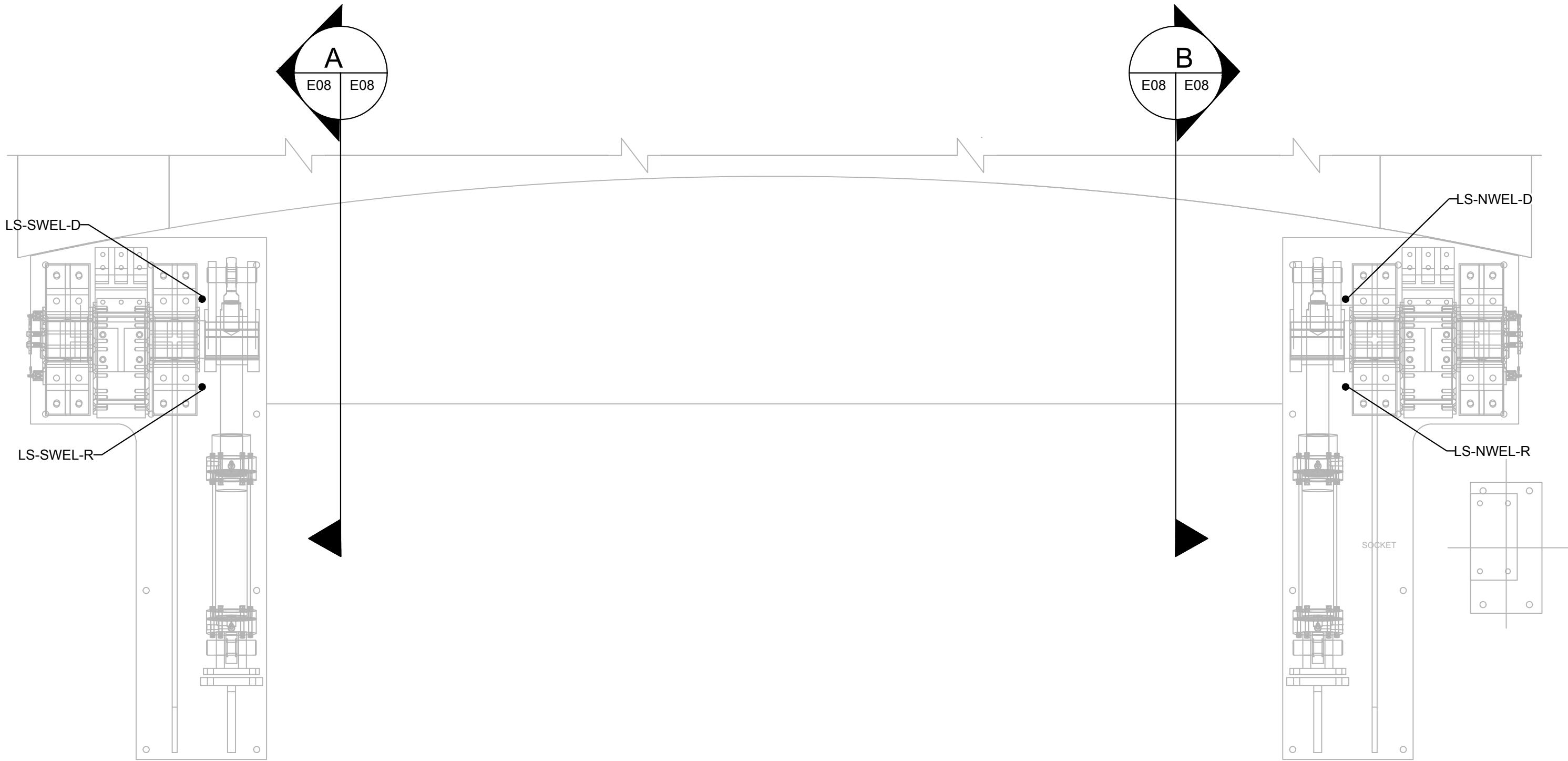
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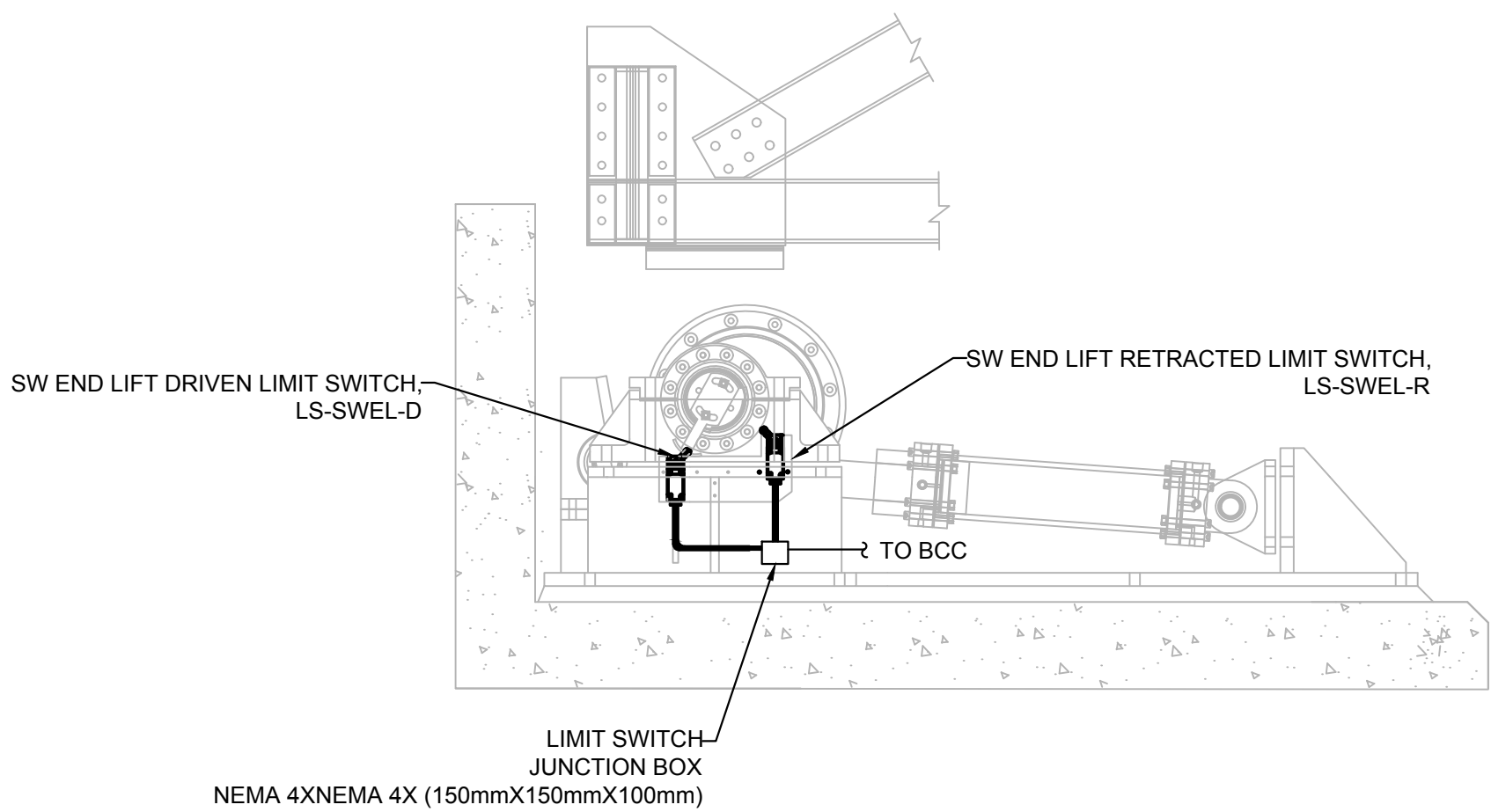
drawing no.  
dessins no. E07



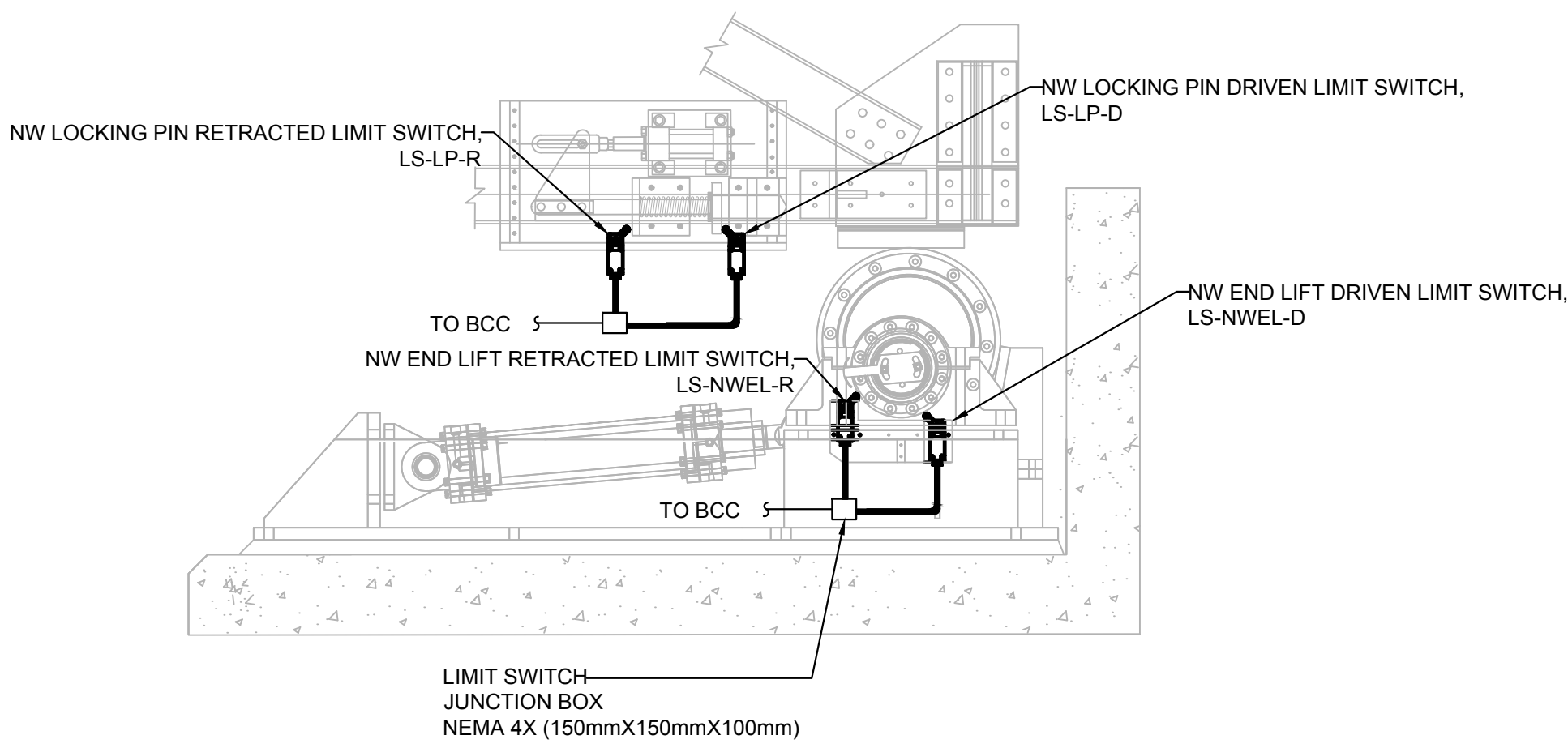
NOTE:  
1. CONTRACTOR SHALL FIELD LOCATE DEVICE  
JUNCTION BOX AT READILY ACCESSIBLE  
LOCATION.



PLAN VIEW - END LIFT  
SCALE: N.T.S

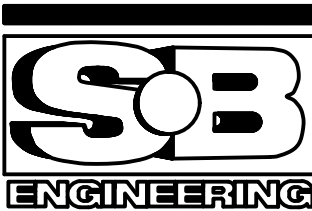


**A**  
E08 E08  
ELEVATION VIEW - SW END LIFT  
SCALE: N.T.S



**B**  
E08 E08  
ELEVATION VIEW - NW END LIFT AND LOCKING PIN  
SCALE: N.T.S

**PARSONS**



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| <b>C</b> | drawing no. - where detailed        |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
END LIFT AND LOCKING  
PIN LIMIT SWITCHES

drawn by  
dessiné par P. KUMARI

designed by  
conçue par J. KOSCIL, K. WAGNER

approved by  
approuvé par G. REES

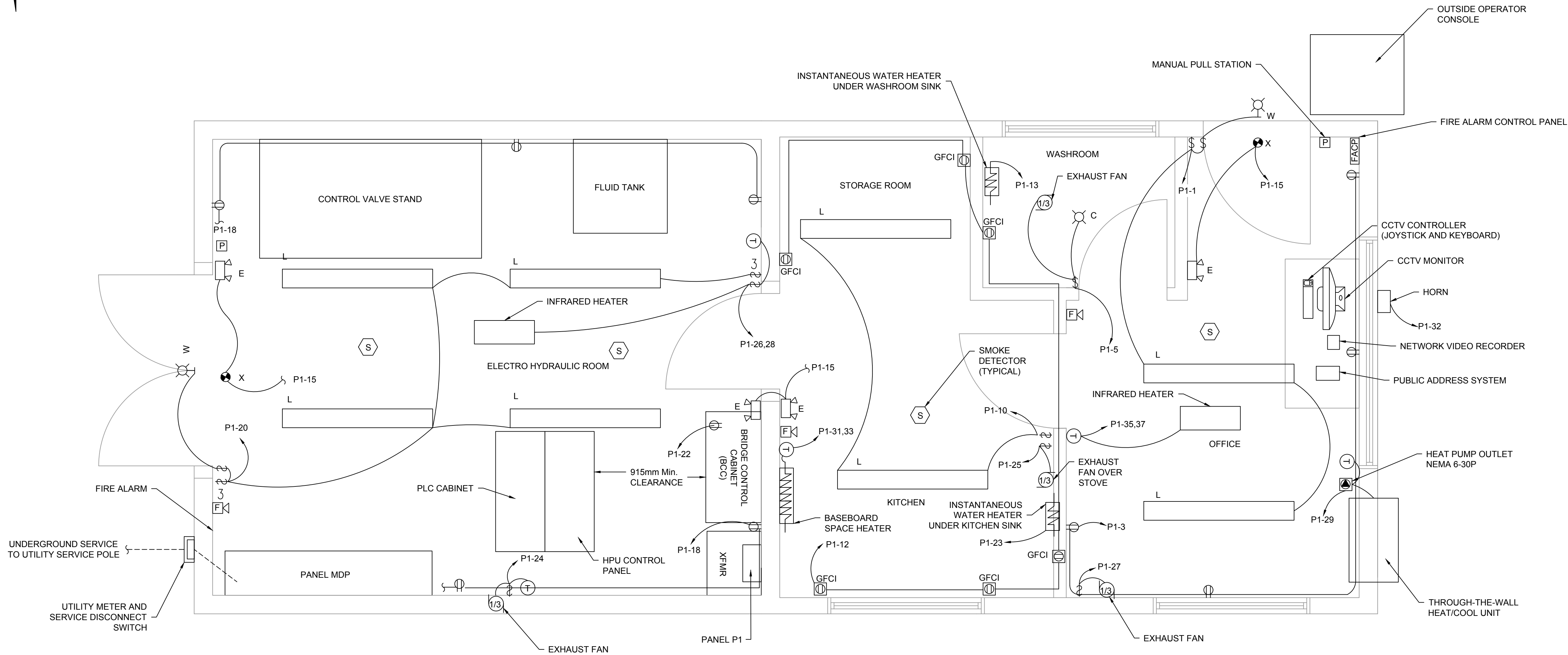
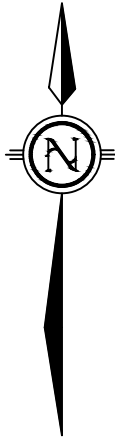
bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. E08

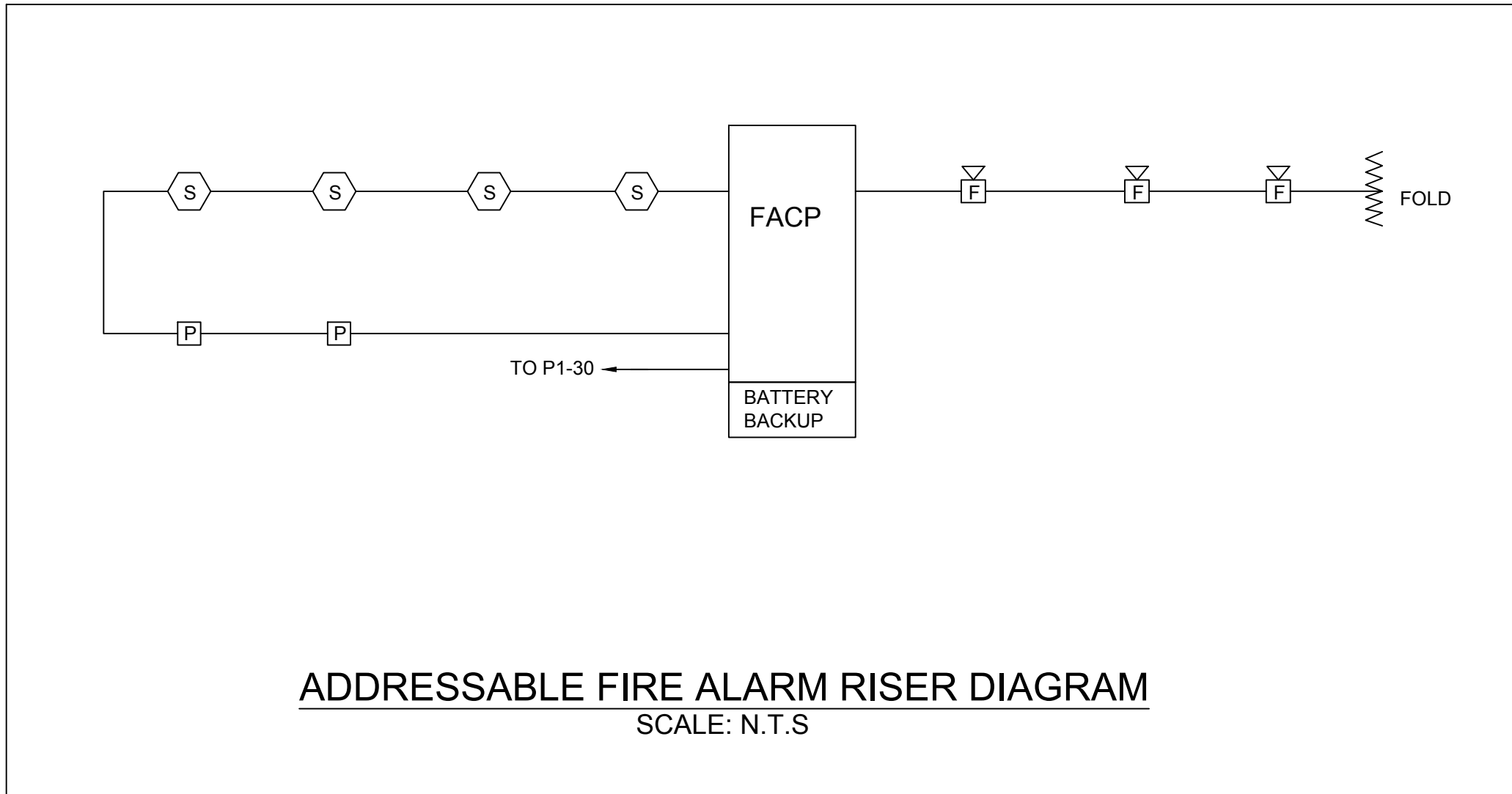




OPERATOR HOUSE LIGHTING AND POWER DISTRIBUTION  
SCALE: 1:20

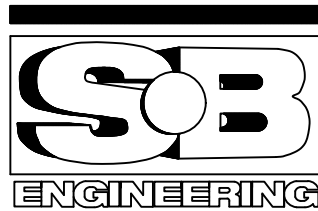
NOTES:

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED RACEWAYS, JUNCTION BOXES, CONDUIT FITTINGS, ELBOWS, AND HARDWARE FOR A COMPLETE INSTALLATION IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE WHETHER OR NOT THEY ARE EXPLICITLY SHOWN OR INDICATED ON THE CONTRACT DRAWINGS.
2. THE CONTRACTOR SHALL FIELD ROUTE CONDUIT RACEWAYS WITHIN THE OPERATOR BUILDING. CONDUITS IN THE CONTROL ROOM, BATH ROOM, KITCHEN, STORAGE ROOM SHALL BE RUN WITHIN WALL AND/OR CEILING. CONDUITS IN THE MECHANICAL/ELECTRICAL ROOM MAY BE RUN EXPOSED. WHERE EXPOSED, INSTALL RACEWAYS AND CABLES PARALLEL WITH BUILDING LINES AND GROUP NEATLY.
3. EXACT CONDUIT STUB-UP AND ENTRANCE LOCATIONS ARE TO BE DETERMINED BY THE CONTRACTOR BASED ON SUPPLIED MANUFACTURERS' SHOP DRAWINGS OF THE RESPECTIVE EQUIPMENT.
4. MAINTAIN THE INTEGRITY OF ALL FIRE SEPARATIONS BY SEALING AROUND ALL CABLES WHERE THEY PASS THROUGH ANY FIRE BARRIERS WITH AN APPROVED FIRED RATED SEALANT COMPOUND. GENERALLY, THIS INCLUDES ALL FLOORS CEILINGS AND CONCRETE AND MASONRY WALLS.
5. INSTALL INSTRUMENTATION SIGNAL AND CONTROL CABLES IN SEPARATE RACEWAYS FROM POWER WIRING.
6. FIRE ALARM SYSTEM CIRCUIT WIRING SHALL BE IN A DEDICATED RACEWAY. ALL FIRE ALARM SYSTEM RACEWAY SIZES AND CIRCUIT WIRING REQUIREMENTS SHALL BE IN ACCORDANCE WITH FIRE ALARM SYSTEM EQUIPMENT MANUFACTURER'S RECOMMENDATION AND APPLICABLE CODES.
7. EMERGENCY LIGHT AND EXIT LIGHT SHALL NOT BE CONNECTED TO SWITCHED CIRCUITS.



ADDRESSABLE FIRE ALARM RISER DIAGRAM  
SCALE: N.T.S.

PARSONS



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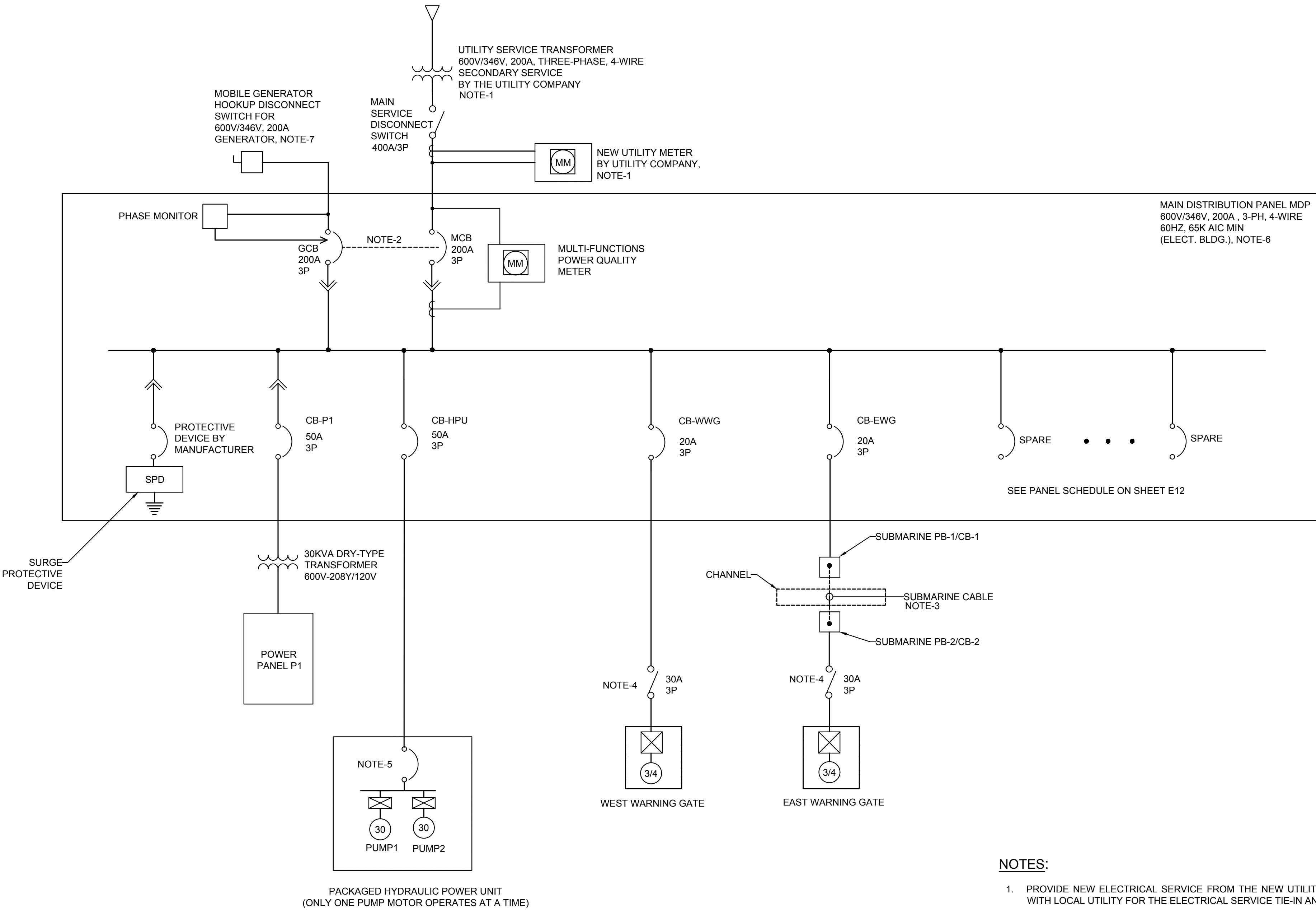
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| A | Detail No.<br>No. du détail   |
| B | drawing no. - where detail required<br>dessin no. - où détail exigé |
| C | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
OPERATOR HOUSE  
ELECTRICAL EQUIPMENT  
LAYOUT

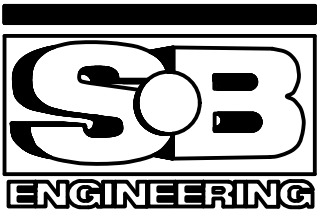
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| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conc par        | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E09                  |  |





NOTES:

1. PROVIDE NEW ELECTRICAL SERVICE FROM THE NEW UTILITY SERVICE POLE/TRANSFORMER(S). CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY FOR THE ELECTRICAL SERVICE TIE-IN AND METERING REQUIREMENTS.
2. CB-MAIN AND CB-GEN CIRCUIT BREAKERS SHALL BE PROVIDED WITH KIRK-KEY INTERLOCK TO PREVENT SIMULTANEOUS CLOSURE OF BOTH BREAKERS.
3. MULTI-CONDUCTOR SUBMARINE CABLES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE SUBMARINE CABLES SHALL BE INSTALL IN CONDUIT SLEEVE LAID 1200mm MIN. BELOW MUD LINE.
4. PROVIDE LOCKABLE LOCAL SAFETY DISCONNECT SWITCH, INTEGRAL TO THE GATE OPERATOR CABINET.
5. SPAN HPU LOCAL DISCONNECT SWITCHES SHALL BE PROVIDED INTEGRAL TO HPU CONTROL CABINET.
6. FOR CIRCUIT WIRING REQUIREMENTS, SEE PANEL SCHEDULES (DRAWINGS E12); ELECTRICAL POWER SYSTEM BLOCK DIAGRAM (DRAWING E11); SCHEMATIC DIAGRAMS (DRAWINGS: E22 THRU E23); AND CONTROL CABLE SCHEDULES (DRAWING E13 AND E14).
7. MOBILE GENERATOR WITH MINIMUM POWER OUTPUT RATING OF 200KVA, 600V/346V, 3-PHASE, 4-WIRE SHOULD BE USED.



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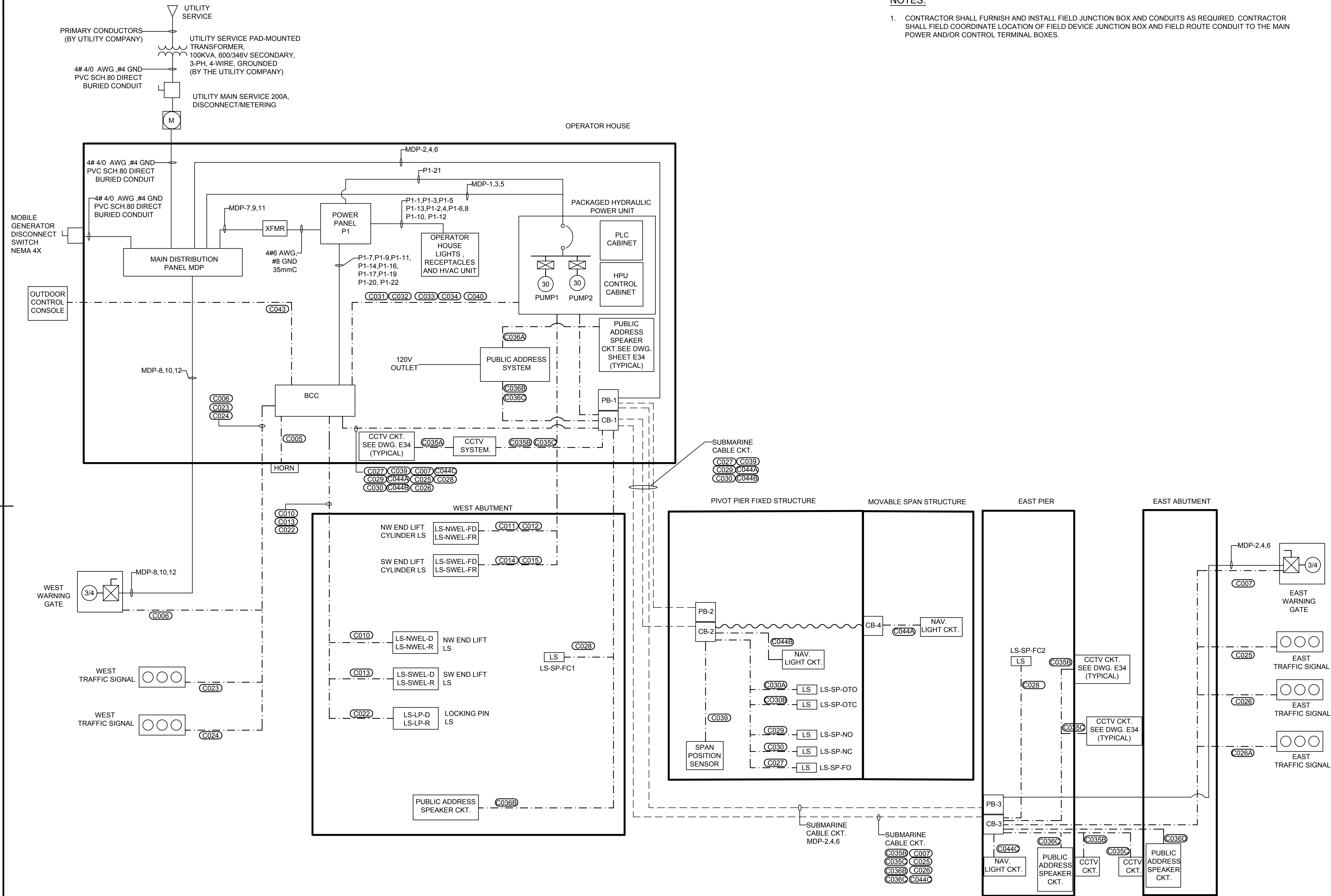
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| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
ELECTRICAL ONE LINE  
DIAGRAM

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçue par      | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           |  |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E10                  |  |





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| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
POWER AND CONTROL  
BLOCK DIAGRAM

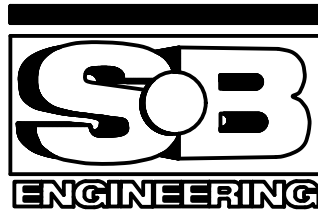
|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E11                  |  |



|       |   |   |           |                    |                 |               |   |    |                 |  |                            |                                 |                           |       |
|-------|---|---|-----------|--------------------|-----------------|---------------|---|----|-----------------|--|----------------------------|---------------------------------|---------------------------|-------|
|       | PANEL: MDP<br>SERVICE ENTRANCE RATED, 200A BUS, 600V/346 V THREE-PHASE,4-WIRE , 60 HZ, 65K AIC MIN.<br>MAIN BREAKER 1: 200A (MAIN CIRCUIT BREAKER)<br>MAIN BREAKER 2: 200A (MOBILE GEN. SOURCE) |   |           |                    |                 |               |   |    |                 | MULTI-FUNCTION, POWER QUALITY METERING<br>PHASE FAILUER/PHASE REVERSAL RELAY<br>SURGE PROTECTION DEVICE<br>LOCATION: ELECTRICAL SERVICE BUILDING |                            |                                 |                           |       |
| NOTES | WIRING REQUIREMENT  | BRANCH CIRCUIT LOAD DESCRIPTION             | LOAD (VA) | CIRCUIT CONNECTION | CIRCUIT BREAKER | SPACE #/PHASE |   |    | CIRCUIT BREAKER | CIRCUIT CONNECTION   | LOAD (VA)                  | BRANCH CIRCUIT LOAD DESCRIPTION | WIRING REQUIREMENT        | NOTES |
|       | 4# 6 AWG, 1# 8 GND, 35mm C  | HPU POWER UNIT (CB-HPU)                     | 12000     | 3-PH               | 50/3            | 1             | A | 2  | 20/3            | 3-PH   | 450                        | EAST WARNING GATE (CB-EWG)      | 3#10 AWG, 1#10 GND, 21mmC |       |
|       |   |   | 12000     | 3-PH               |                 | 3             | B | 4  |                 | 3-PH   | 450                        |                                 |                           |       |
|       |   |   | 12000     | 3-PH               |                 | 5             | C | 6  |                 | 3-PH   | 450                        |                                 |                           |       |
|       | 3# 6 AWG , 1# 8 GND, 35mm C   | PANEL P1 (STEP DOWN TRANSFORMER)<br>(CB-P1) | 5000      | 3-PH               | 50/3            | 7             | A | 8  | 20/3            | 3-PH   | 450                        | WEST WARNING GATE (CB-WWG)      | 3#10 AWG, 1#10 GND, 21mmC |       |
|       |   |   | 5000      | 3-PH               |                 | 9             | B | 10 |                 | 3-PH   | 450                        |                                 |                           |       |
|       |   |   | 5000      | 3-PH               |                 | 11            | C | 12 |                 | 3-PH   | 450                        |                                 |                           |       |
|       | BY MANUFACTURER   | SURGE PROTECTION DEVICE                     |           |                    |                 | 13            | A | 14 | 20/1            |  |                            | SPARE                           |                           |       |
|       |   |   |           |                    |                 | 15            | B | 16 | 20/1            |  |                            | SPARE                           |                           |       |
|       |   |   |           |                    |                 | 17            | C | 18 | 20/1            |  |                            | SPARE                           |                           |       |
|       |   |   |           |                    |                 | 19            | A | 20 | 20/1            |  |                            | SPARE                           |                           |       |
|       |   |   |           |                    |                 | 21            | B | 22 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 23            | C | 24 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 25            | A | 26 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 27            | B | 28 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 29            | C | 30 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 31            | A | 32 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 33            | B | 34 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 35            | C | 36 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 37            | A | 38 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 39            | B | 40 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | 41            | C | 42 |                 |  |                            |                                 |                           |       |
|       |   |   |           |                    |                 | TOTAL (KVA)   |   |    |                 |  |                            |                                 |                           |       |
|       | SUB-TOTAL LEFT SIDE (KVA)   |   |           | 51.00              |                 | 53.70         |   |    | 2.70            |  | SUB-TOTAL RIGHT SIDE (KVA) |                                 |                           |       |

|       |   |   |           |                    |                 |               |       |    |                          |                    |           |   |                            |       |  |
|-------|---|---|-----------|--------------------|-----------------|---------------|-------|----|--------------------------|--------------------|-----------|---|----------------------------|-------|--|
|       | PANEL: P1<br>125A BUS, 208Y/120 V THREE PHASE, 4-WIRE, 22K AIC MIN.<br>MAIN BREAKER: 100A |   |           |                    |                 |               |       |    | LOCATION: OPERATOR HOUSE |                    |           |   |                            |       |  |
| NOTES | WIRING REQUIREMENT  | BRANCH CIRCUIT LOAD DESCRIPTION   | LOAD (VA) | CIRCUIT CONNECTION | CIRCUIT BREAKER | SPACE #/PHASE |       |    | CIRCUIT BREAKER          | CIRCUIT CONNECTION | LOAD (VA) | BRANCH CIRCUIT LOAD DESCRIPTION                       | WIRING REQUIREMENT         | NOTES |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | OPERATOR OFFICE LIGHTING  | 200       | A-N                | 20/1            | 1             | A     | 2  | 20/2                     | A-B                | 2650      | HVAC OUTDOOR UNIT                                     | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | OPERATOR OFFICE RECEPTACLES   | 1500      | B-N                | 20/1            | 3             | B     | 4  |                          |                    | 2650      |   |                            |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | WASHROOM EXHAUST FAN AND LIGHTING   | 900       | C-N                | 20/1            | 5             | C     | 6  | 20/2                     | C-A                | 1760      | HVAC INDOOR UNIT                                      | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | BCC/EAST TRAFFIC SIGNAL   | 150       | A-N                | 20/1            | 7             | A     | 8  |                          |                    | 1760      |   |                            |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | BCC/WEST TRAFFIC SIGNAL   | 150       | B-N                | 20/1            | 9             | B     | 10 | 20/1                     | B-N                | 150       | KITCHEN AND STORAGE ROOM LIGHTING                     | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | UPS   | 1500      | C-N                | 20/1            | 11            | C     | 12 | 20/1                     | C-N                | 1800      | STORAGE ROOM, KITCHEN AND WASHROOM RECEPTACLES (GFCI) | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#10 AWG, 1#10 GND, 21mmC   | WASHROOM INSTANTANEOUS WATER HEATER (1GPM,TANKLESS WATER HEATER UNDER SINK) | 3500      | A-N                | 35/1            | 13            | A     | 14 | 20/1                     | A-N                | 50        | BCC/NAVIGATION LIGHT CONTROL RELAY                    | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | EMERGENCY LIGHT CKT.  | 500       | B-N                | 20/1            | 15            | B     | 16 | 20/1                     | B-N                | 340       | BCC/NAVIGATION NAVIGATION LIGHTS                      | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | EAST WARNING GATE GONG  | 150       | C-N                | 20/1            | 17            | C     | 18 | 20/1                     | C-N                | 1500      | ELECTRO HYDRAULIC ROOM RECEPTACLES                    | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | WEST WARNING GATE GONG  | 150       | A-N                | 20/1            | 19            | A     | 20 | 20/1                     | A-N                | 300       | ELECTRO HYDRAULIC ROOM LIGHTING                       | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | HPU TANK HEATER   | 500       | B-N                | 20/1            | 21            | B     | 22 | 20/1                     | B-N                | 600       | BCC RECEPTACLE  | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#10 AWG, 1#10 GND, 21mmC   | KITCHEN INSTANTANEOUS WATER HEATER (1GPM,TANKLESS WATER HEATER UNDER SINK)  | 3500      | C-N                | 35/1            | 23            | C     | 24 | 20/1                     | C-N                | 1175      | ELECTRO HYDRAULIC ROOM EXHAUST FAN                    | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | KITCHEN EXHAUST FAN   | 865       | A-N                | 20/1            | 25            | A     | 26 | 20/2                     | A-N                | 500       | ELECTRO HYDRAULIC ROOM INFRARED HEATER                | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | OFFICE EXHAUST FAN  | 1175      | B-N                | 20/1            | 27            | B     | 28 |                          | B-N                | 500       |   |                            |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | HEAT PUMP OUTLET, NEMA 6-30P  | 2160      | C-N                | 20/1            | 29            | C     | 30 | 20/1                     | C-N                | 500       | FIRE ALARM CKT.                                       | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | KITCHEN ELECTRIC BASEBOARD HEATING  | 500       | A-B                | 20/2            | 31            | A     | 32 | 20/1                     | A-N                | 200       | HORN  | 2#12 AWG, 1#12 GND, 21mmC  |       |  |
|       |   |   | 500       |                    |                 | 33            | B     | 34 | 20/1                     | B-N                |           | SPARE   |                            |       |  |
|       | 2#12 AWG, 1#12 GND, 21mmC   | OFFICE INFRARED HEATER  | 500       | B-C                | 20/2            | 35            | C     | 36 | 20/1                     | C-N                |           | SPARE   |                            |       |  |
|       |   |   | 500       |                    |                 | 37            | A     | 38 | 20/1                     | A-N                |           | SPARE   |                            |       |  |
|       |   | SPARE   |           | A-N                | 20/1            | 39            | B     | 40 | 20/1                     | B-N                |           | SPARE   |                            |       |  |
|       |   | SPARE   |           | B-N                | 20/1            | 41            | C     | 42 | 20/1                     | C-N                |           | SPARE   |                            |       |  |
|       |   |   |           |                    |                 | TOTAL (KVA)   |       |    |                          |                    |           |   |                            |       |  |
|       | SUB-TOTAL LEFT SIDE (KVA)   |   |           | 18.90              |                 |               | 35.34 |    |                          | 16.44              |           |   | SUB-TOTAL RIGHT SIDE (KVA) |       |  |

PARSONS



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A

B

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Detail No.  
No. du détail

drawing no. - where detail required  
dessin no. - où détail exigé

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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

POWER PANEL SCHEDULE

drawn by  
dessiné par

P. KUMARI

designed by  
conçu par

J. KOSCIL, K. WAGNER

approved by  
approuvé par

G. REES

bid  
offre

JULIO LEON

project manager  
administrateur de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

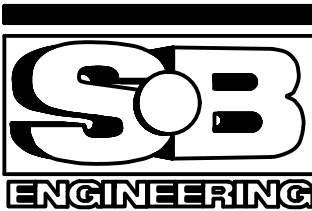
drawing no.  
dessiné no.

E12



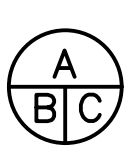
| CONTROL CABLE SCHEDULE |                                 |                                     |                               |                                 |             |                                  |                                     |                                  |             |
|------------------------|---------------------------------|-------------------------------------|-------------------------------|---------------------------------|-------------|----------------------------------|-------------------------------------|----------------------------------|-------------|
| CABLE TAG              | SOURCE                          | DESTINATION                         | CABLE VOLTAGE CLASS           | CONTROL VOLTAGE / ANALOG SIGNAL | SIGNAL TYPE | CONTROL FUNCTION                 | CIRCUIT CONDUCTOR                   | MULTI-CONDUCTOR CABLE ASSIGNMENT |             |
| C001                   | BRIDGE CONTROL CABINET (BCC)    | OPERATOR CONTROL CONSOLE            | 600V                          | 120V                            | DIGITAL     | CONTROL POWER ON/OFF             | 2-#12 AWG                           | 19/C #12 AWG                     |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | EMERGENCY STOP                   | 4-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | NORTH TRAFFIC GATEARMS CONTROL   | 3-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | SOUTH TRAFFIC GATEARMS CONTROL   | 3-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | SOUND HORN                       | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | OPERATOR/HPU LOCAL CONTROL       | 3-#12 AWG                           |                                  |             |
| C002                   | BRIDGE CONTROL CABINET (BCC)    | OPERATOR CONTROL CONSOLE            | 600V                          | 120V                            | DIGITAL     | SPAN CONTROL SYSTEM RESET        | 2-#12 AWG                           | 12/C #12 AWG                     |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | OPEN SPAN                        | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | CLOSE SPAN                       | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | STOP SPAN                        | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | END LIFTS LOWERED INDICATION     | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | END LIFTS RAISED INDICATION      | 2-#12 AWG                           |                                  |             |
| C003                   | BRIDGE CONTROL CABINET (BCC)    | OPERATOR CONTROL CONSOLE            | 600V                          | 120V                            | DIGITAL     | SPAN FULL OPEN INDICATION        | 2-#12 AWG                           | 12/C #12 AWG                     |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | SPAN FULL CLOSED INDICATION      | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | ALL GATES RAISED INDICATION      | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | ALL GATES LOWERED INDICATION     | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | LATCHING PIN LOCKED INDICATION   | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | LATCHING PIN UNLOCKED INDICATION | 2-#12 AWG                           |                                  |             |
| C004                   | BRIDGE CONTROL CABINET (BCC)    | OPERATOR CONTROL CONSOLE            | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNALS GREEN INDICATION | 2-#12 AWG                           | 9/C #12 AWG                      |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNALS AMBER INDICATION | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNALS RED INDICATION   | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNAL CONTROL           | 3-#12 AWG                           |                                  |             |
| C005                   | BRIDGE CONTROL CABINET (BCC)    | WARNING HORN                        | 600V                          | 120V                            | DIGITAL     | SOUND HORN                       | 2-#12 AWG                           | 2/C #12 AWG                      |             |
| C006                   | BRIDGE CONTROL CABINET (BCC)    | WEST WARNING GATE                   | 600V                          | 120V                            | DIGITAL     | RAISE COMMAND                    | 2-#12 AWG                           | 12/C #12 AWG                     |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | LOWER COMMAND                    | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | STOP COMMAND                     | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | GATE RAISED LIMIT SWITCH         | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | GATE LOWERED LIMIT SWITCH        | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | DOOR OPEN LIMIT SWITCH           | 2-#12 AWG                           |                                  |             |
| C007                   | BRIDGE CONTROL CABINET (BCC)    | EAST WARNING GATE                   | 600V                          | 120V                            | DIGITAL     | RAISE COMMAND                    | 2-#12 AWG                           | 12/C #12 AWG                     |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | LOWER COMMAND                    | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | STOP COMMAND                     | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | GATE RAISED LIMIT SWITCH         | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | GATE LOWERED LIMIT SWITCH        | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | DOOR OPEN LIMIT SWITCH           | 2-#12 AWG                           |                                  |             |
| C010                   | BRIDGE CONTROL CABINET (BCC)    | NORTHWEST END LIFT                  | 600V                          | 120V                            | DIGITAL     | END LIFT DRIVEN LIMIT SWITCH     | 2-#12 AWG                           | 4/C #12 AWG                      |             |
| C011                   | HPU CONTROL PANEL               |                                     | 600V                          | 120V                            | DIGITAL     | END LIFT RETRACTED LIMIT SWITCH  | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | END LIFT DRIVEN LIMIT SWITCH     | 2-#12 AWG                           | 4/C #12 AWG                      |             |
| C012                   | HPU CONTROL PANEL               |                                     | 600V                          | 120V                            | DIGITAL     | END LIFT RETRACTED LIMIT SWITCH  | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | END LIFT CYLINDER END OF TRAVEL  | 2-#12 AWG                           |                                  |             |
| C013                   | BRIDGE CONTROL CABINET (BCC)    |                                     | NORTHEAST END LIFT            | 600V                            | 120V        | DIGITAL                          | END LIFT DRIVEN LIMIT SWITCH        | 2-#12 AWG                        | 4/C #12 AWG |
| C014                   | HPU CONTROL PANEL               |                                     |                               | 600V                            | 120V        | DIGITAL                          | END LIFT RETRACTED LIMIT SWITCH     | 2-#12 AWG                        |             |
|                        |                                 | 600V                                |                               | 120V                            | DIGITAL     | END LIFT DRIVEN LIMIT SWITCH     | 2-#12 AWG                           | 4/C #12 AWG                      |             |
| C015                   | HPU CONTROL PANEL               | 600V                                |                               | 120V                            | DIGITAL     | END LIFT CYLINDER END OF TRAVEL  | 2-#12 AWG                           |                                  |             |
|                        |                                 | 600V                                |                               | 120V                            | DIGITAL     | END LIFT CYLINDER END OF TRAVEL  | 2-#12 AWG                           |                                  |             |
| C016                   | BRIDGE CONTROL CABINET (BCC)    | SOUTHWEST END LIFT                  |                               | 600V                            | 120V        | DIGITAL                          | END LIFT DRIVEN LIMIT SWITCH        | 2-#12 AWG                        | 4/C #12 AWG |
| C017                   | HPU CONTROL PANEL               |                                     |                               | 600V                            | 120V        | DIGITAL                          | END LIFT RETRACTED LIMIT SWITCH     | 2-#12 AWG                        |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | END LIFT DRIVEN LIMIT SWITCH     | 2-#12 AWG                           | 4/C #12 AWG                      |             |
| C018                   | HPU CONTROL PANEL               |                                     | 600V                          | 120V                            | DIGITAL     | END LIFT CYLINDER END OF TRAVEL  | 2-#12 AWG                           |                                  |             |
|                        |                                 |                                     | 600V                          | 120V                            | DIGITAL     | END LIFT CYLINDER END OF TRAVEL  | 2-#12 AWG                           |                                  |             |
| C019                   | BRIDGE CONTROL CABINET (BCC)    |                                     | SOUTHEAST END LIFT            | 600V                            | 120V        | DIGITAL                          | END LIFT DRIVEN LIMIT SWITCH        | 2-#12 AWG                        | 4/C #12 AWG |
| C020                   | HPU CONTROL PANEL               |                                     |                               | 600V                            | 120V        | DIGITAL                          | END LIFT RETRACTED LIMIT SWITCH     | 2-#12 AWG                        |             |
|                        |                                 | 600V                                |                               | 120V                            | DIGITAL     | END LIFT DRIVEN LIMIT SWITCH     | 2-#12 AWG                           | 4/C #12 AWG                      |             |
| C021                   | HPU CONTROL PANEL               | 600V                                |                               | 120V                            | DIGITAL     | END LIFT CYLINDER END OF TRAVEL  | 2-#12 AWG                           |                                  |             |
|                        |                                 | 600V                                |                               | 120V                            | DIGITAL     | END LIFT CYLINDER END OF TRAVEL  | 2-#12 AWG                           |                                  |             |
| C022                   | BRIDGE CONTROL CABINET (BCC)    | LOCKING PIN                         |                               | 600V                            | 120V        | DIGITAL                          | LATCHING PIN RETRACTED LIMIT SWITCH | 2-#12 AWG                        | 4/C #12 AWG |
|                        |                                 |                                     |                               | 600V                            | 120V        | DIGITAL                          | LATCHING PIN DRIVEN LIMIT SWITCH    | 2-#12 AWG                        |             |
| C023                   | BRIDGE CONTROL CABINET (BCC)    | NORTHWEST TRAFFIC SIGNAL            | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNAL CONTROL           | 3-#12 AWG                           | 3/C #12 AWG                      |             |
| C024                   |                                 | NORTHEAST TRAFFIC SIGNAL            | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNAL CONTROL           | 3-#12 AWG                           | 3/C #12 AWG                      |             |
| C025                   |                                 | SOUTHWEST TRAFFIC SIGNAL            | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNAL CONTROL           | 3-#12 AWG                           | 3/C #12 AWG                      |             |
| C026                   |                                 | SOUTHEAST TRAFFIC SIGNAL            | 600V                          | 120V                            | DIGITAL     | TRAFFIC SIGNAL CONTROL           | 3-#12 AWG                           | 3/C #12 AWG                      |             |
| C027                   |                                 | SPAN FULL OPEN LIMIT SWITCH         | 600V                          | 120V                            | DIGITAL     | SPAN POSITION INDICATION         | 2-#12 AWG                           | 2/C #12 AWG                      |             |
| C028                   |                                 | SPAN FULL CLOSED LIMIT SWITCH       | 600V                          | 120V                            | DIGITAL     | SPAN POSITION INDICATION         | 2-#12 AWG                           | 2/C #12 AWG                      |             |
| C029                   |                                 | HPU CONTROL PANEL                   | SPAN NEARLY OPEN LIMIT SWITCH | 600V                            | 120V        | DIGITAL                          | SPAN POSITION INDICATION            | 2-#12 AWG                        | 2/C #12 AWG |
| C030                   | SPAN NEARLY CLOSED LIMIT SWITCH |                                     | 600V                          | 120V                            | DIGITAL     | SPAN POSITION INDICATION         | 2-#12 AWG                           | 2/C #12 AWG                      |             |
| C030A                  | BRIDGE CONTROL CABINET (BCC)    | SPAN OVERTRAVEL OPEN LIMIT SWITCH   | 600V                          | 120V                            | DIGITAL     | SPAN POSITION INDICATION         | 2-#12 AWG                           | 2/C #12 AWG                      |             |
| C030B                  |                                 | SPAN OVERTRAVEL CLOSED LIMIT SWITCH | 600V                          | 120V                            | DIGITAL     | SPAN POSITION INDICATION         | 2-#12 AWG                           | 2/C #12 AWG                      |             |

PARSONS



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| 04       |                   |            |
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|  | A | Detail No.                          |
|   | B | drawing no. - where detail required |
|   | C | drawing no. - where detailed        |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

CONTROL CABLE SCHEDULE  
SHEET 1 OF 2

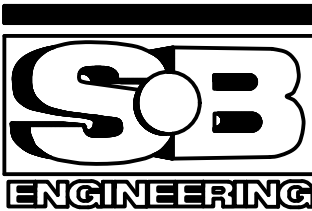
|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçue par      | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E13                  |  |



NOTES:  
1. PROVIDE 20% SPARE CONDUCTORS FOR FUTURE USE.

| CONTROL CABLE SCHEDULE |                               |  |                     |                                 |             |  |                                  |
|------------------------|-------------------------------|--|---------------------|---------------------------------|-------------|--|----------------------------------|
| CABLE TAG              | SOURCE                        | DESTINATION                                | CABLE VOLTAGE CLASS | CONTROL VOLTAGE / ANALOG SIGNAL | SIGNAL TYPE | CONTROL FUNCTION                         | MULTI-CONDUCTOR CABLE ASSIGNMENT |
| C031                   | BRIDGE CONTROL CABINET (BCC)  | HPU CONTROL PANEL                          | 600V                | 120V                            | DIGITAL     | OPEN SPAN                                | 16/C #12 AWG                     |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | CLOSE SPAN                               |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | EMERGENCY STOP                           |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | -  |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | -  |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | ENABLE HPU SYSTEM                        |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | BRIDGE EMERGENCY SWING CLOSE             |                                  |
| C032                   | BRIDGE CONTROL CABINET (BCC)  | HPU CONTROL PANEL                          | 600V                | 120V                            | DIGITAL     | DRIVE END LIFTS                          | 16/C #12 AWG                     |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | RETRACT END LIFTS                        |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | RETRACT LATCHING PIN                     |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | DRIVE LATCHING PIN                       |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | SPAN FULL OPEN                           |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | PUMP 1                                   |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | PUMP 2                                   |                                  |
| C033                   | HPU CONTROL PANEL             | BRIDGE CONTROL CABINET (BCC)               | 600V                | 120V                            | DIGITAL     | PUMP AUTO ALTERNATE                      | 14/C #12 AWG                     |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | COMMON TRIP                              |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | HPU ENABLED                              |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | EMERGENCY STOP                           |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | HPU SYSTEM IN LOCAL CONTROL NC           |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | HPU SYSTEM IN LOCAL CONTROL NO           |                                  |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | END LIFT CYLINDER FULLY RETRACTED        |                                  |
| C034                   | HPU CONTROL PANE              | CONTROL CONSOLE                            | 600V                | 120V                            | DIGITAL     | END LIFT CYLINDER FULLY EXTENDED         | 4/C #12 AWG                      |
|                        |                               |  | 600V                | 120V                            | DIGITAL     | COMMON TROUBLE ALARM                     |                                  |
| C035A                  | VIDEO SURVEILLANCE SYSTEM     | CCTV CAMERA OPERATOR HOUSE                 | 600V                | 120V                            | DIGITAL     | COMMON TRIP                              | 2-#12 AWG                        |
| C035B                  | VIDEO SURVEILLANCE SYSTEM     | CCTV CAMERA FIXED SPAN (EAST FIXED BRIDGE) | 600V                | 120V                            | DIGITAL     | VIDEO SURVEILLANCE                       | POWER OVER ETHERNET (POE)        |
| C035C                  | VIDEO SURVEILLANCE SYSTEM     | CCTV CAMERA FIXED SPAN (EAST FIXED BRIDGE) | 600V                | 120V                            | DIGITAL     | VIDEO SURVEILLANCE                       | POWER OVER ETHERNET (POE)        |
| C036A                  | PUBLIC ADDRESS SYSTEM         | PA SPEAKER OPERATOR HOUSE                  | 600V                | 120V                            | DIGITAL     | VIDEO SURVEILLANCE                       | POWER OVER ETHERNET (POE)        |
| C036B                  | PUBLIC ADDRESS SYSTEM         | PA SPEAKER FIXED SPAN (WEST ABUTMENT)      | 600V                | 120V                            | DIGITAL     | PUBLIC ADDRESS                           | SPEAKER WIRE                     |
| C036C                  | PUBLIC ADDRESS SYSTEM         | PA SPEAKER FIXED SPAN (EAST PIER)          | 600V                | 120V                            | DIGITAL     | PUBLIC ADDRESS                           | SPEAKER WIRE                     |
| C036D                  | PUBLIC ADDRESS SYSTEM         | PA SPEAKER FIXED SPAN (EAST ABUTMENT)      | 600V                | 120V                            | DIGITAL     | PUBLIC ADDRESS                           | SPEAKER WIRE                     |
| C037                   | SPAN FULL CLOSED LIMIT SWITCH | HPU CONTROL PANEL                          | 600V                | 120V                            | DIGITAL     | SPAN FULL CLOSED INDICATION              | 2-#12 AWG                        |
| C038                   | SPAN POSITION SENSOR          | HPU CONTROL PANEL                          | 600V                | 4-20 mA                         | ANALOG      | SPAN POSITION SIGNAL                     | SHIELDED TWIST PAIR              |
| C039                   | HPU CONTROL PANEL             | SPAN POSITION SENSOR                       | 600V                | 24VDC                           | DIGITAL     | SPAN POSITION SENSOR SUPPLY              | SHIELDED TWIST PAIR              |
| C040                   | HPU CONTROL PANEL             | CONTROL CONSOLE                            | 600V                | 4-20 mA                         | ANALOG      | SPAN POSITION SIGNAL                     | SHIELDED TWIST PAIR              |
| C041                   | HPU CONTROL PANEL             | SPAN FULL OPEN LIMIT SWITCH                | 600V                | 120V                            | DIGITAL     | SPAN FULL OPEN INDICATION                | 2-#12 AWG                        |
| C042                   | HPU CONTROL PANEL             | LATCHING PIN LIMIT SWITCHES                | 600V                | 120V                            | DIGITAL     | LATCHING PIN DRIVEN/RETRACTED INDICATION | 4-#12 AWG                        |
| C043                   | CONTROL CONSOLE               | OUTDOOR CONTROL CONSOLE                    | 600V                | 120V                            | DIGITAL     | SPAN OPERATION                           | 12-#12 AWG                       |
| C044A                  | BCC/NAVIGATION LIGHT CONTROL  | MOVABLE SPAN POSITION LIGHTS               | 600V                | 120V                            | DIGITAL     | SPAN OPERATION                           | 4-#12 AWG                        |
| C044B                  | BCC/NAVIGATION LIGHT CONTROL  | OBSTRUCTION LIGHT REST PIER                | 600V                | 120V                            | DIGITAL     | SPAN OPERATION                           | 2-#12 AWG                        |
| C044C                  | BCC/NAVIGATION LIGHT CONTROL  | OBSTRUCTION LIGHT EAST PIER                | 600V                | 120V                            | DIGITAL     | SPAN OPERATION                           | 2-#12 AWG                        |

PARSONS



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Detail No.  
No. du détail

drawing no. - where detail required  
dessin no. - où détail exigé

drawing no. - where detailed  
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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

CONTROL CABLE SCHEDULE  
SHEET 2 OF 2

drawn by  
dessiné par

P. KUMARI

designed by  
conçue par

J. KOSCIL, K. WAGNER

approved by  
approuvé par

G. REES

bid  
offre

project manager  
administrateur de projets

JULIO LEON

project date  
date du projet

2018-07-20

project no.  
no. du projet

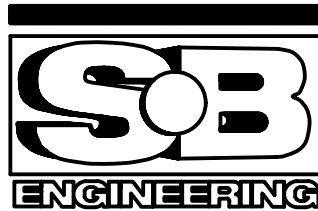
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drawing no.  
dessiné no.

E14



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dessin no. — où détail exigé

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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

LIGHTING FIXTURE  
SCHEDULE

drawn by  
dessiné par

P. KUMARI

designed by  
conçu par

J. KOSCIL, K. WAGNER

approved by  
approuvé par

G. REES

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.


E15

| LIGHTING FIXTURE SCHEDULE |                 |          |                 |                          |       |         |         |   |              |                     |         |
|---------------------------|-----------------|----------|-----------------|--------------------------|-------|---------|---------|---|--------------|---------------------|---------|
| TYPE                      |                 | QUANTITY | MOUNTING        |                          | LAMPS | FIXTURE |         |   | MANUFACTURER | CATALOG NUMBER      | REMARKS |
| CODE                      | DESCRIPTION     |          | TYPE            | LOCATION                 |       | VOLTAGE | WATTAGE | DESCRIPTION   |              |                     |         |
| W                         | ENTRANCE        | 2        | SURFACE MOUNTED | AS INDICATED ON DRAWINGS | LED   | 120-277 | 28      | LED FIXTURE, ENTRANCE APPLICATION, HIGH EFFICIENCY, CORROSION RESISTANT, IP66;CAST ALUMINUM HOUSING; INTEGRAL PHOTOCCELL, PROGRAMMABLE SENSOR, OPERATING TEMPERATURES : -20°C TO 40°C   | HUBBELL      | LNC2-9L-U-5K-4-1-PC |         |
| C                         | CEILING GENERAL | 1        | SURFACE MOUNTED | AS INDICATED ON DRAWINGS | LED   | 120     | 18      | LED FIXTURE, HIGH EFFICIENCY, CORROSION RESISTANT, IP66;CAST ALUMINUM HOUSING;UL1598 FOR USE IN WET LOCATIONS; OPERATING TEMPERATURES : -40°C TO 40°C   | LITHONIA     | OLCFM-15-DDB        |         |
| L                         | LINEAR FIXTURE  | 8        | SURFACE MOUNTED | AS INDICATED ON DRAWINGS | LED   | 120     | 30      | LED LINEAR FIXTURE (~1250mm), HIGH EFFICIENCY,NON-CORROSIVE POLYCARBONATE HOUSING, STAINLESS STEEL HASPS AND CLIPS, IP65 RATED  | MAXLITE      | LSV4U3050           |         |
| E                         | EMERGENCY LIGHT | 4        | SURFACE MOUNTED | AS INDICATED ON DRAWINGS | LED   | 120     | 36      | EMERGENCY LIGHT UNIT, RUGGED, HEAVY-DUTY, POLYCARBONATE HOUSING COMPLETELY SEALED, CORROSION-RESISTANT;LED LAMPS;DUAL VOLTAGE INPUT CAPACITY(120/ 277V);UL LISTED MEETS UL 924,UL50,NFPA101(CURRENT LIFE SAFETY CODE),NEMA 4X RATED;OPERATING TEMPERATURES:-40°C TO 55°C.   | LITHONIA     | INDX1236-ULT        |         |
| X                         | EXIT LIGHT      | 5        | SURFACE MOUNTED | AS INDICATED ON DRAWINGS | LED   | 120     |         | EXIT LIGHT UNIT, DIE-CAST ALUMINUM, TYPICAL LIFE OF THE EXIT LED LAMP IS 10 YEARS, DUAL-VOLTAGE INPUT CAPABILITY 120 OR 277 VAC; EMERGENCY MODELS PROVIDED WITH TEST SWITCH,STATUS INDICATOR AND A BATTERY THAT AUTOMATICALLY RECHARGES WHEN NORMAL POWER IS RESTORED EMERGENCY MODELS PROVIDED WITH MAINTENANCE-FREE, SEALED NICKEL-CADMIUM BATTERY WHICH PROVIDES 90 MINUTES OF EMERGENCY POWER, QUICK-MOUNT INSTALLATION— UL LISTED, DAMP LOCATION LISTING 50°F TO 104°F (10°C TO 40°C), MEETS UL 924, NFPA 101 (CURRENT LIFE SAFETY CODE), NFPA 70-NEC AND OSHA ILLUMINATION STANDARDS. NEMA PREMIUM CERTIFIED. 5-YEAR LIMITED WARRANTY | LITHONIA     | LQC W 1 R EL N      |         |

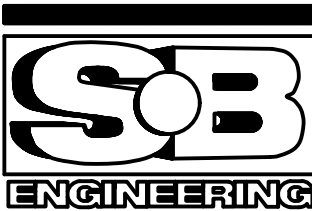
| NAVIGATION LIGHT FIXTURE SCHEDULE |                       |          |   |                          |                                      |         |         |  |              |                |   |
|-----------------------------------|-----------------------|----------|---|--------------------------|--------------------------------------|---------|---------|--|--------------|----------------|---|
| TYPE                              |                       | QUANTITY | MOUNTING                                  |                          | LAMPS                                | FIXTURE |         |  | MANUFACTURER | CATALOG NUMBER | REMARKS   |
| CODE                              | DESCRIPTION           |          | TYPE                                      | LOCATION                 |                                      | VOLTAGE | WATTAGE | DESCRIPTION  |              |                |   |
| A                                 | PIER FENDER LIGHT     | 6        | FIXED BRACKET MOUNTED ON STRUCTURAL STEEL | AS INDICATED ON DRAWINGS | LED [RED]<br>[100, 000 HOUR]         | 120     | 34.5    | THE NAVIGATION LIGHT DESIGNED FOR USE AS A MARINE SIGNAL LIGHT FOR MARKING STATIONARY PIERS AND FENDERS, PER COAST GUARD REQUIREMENTS; DIE-CASTALUMINUM HOUSING; HEAVY DUTY ALUMINUM MOUNTING BRACKETS;STAINLESS STEEL HARDWARE; ENCLOSURE RATING IP66 MINIMUM; OPERATING TEMPERATURES : -25°C TO 50°C | B&B ROADWAY  | MODEL PL-VR    | PIVOT PIER FENDER: 180 DEGREE RED   |
| B                                 | SPAN NAVIGATION LIGHT | 2        | BRACKET/STEM MOUNTED ON STRUCTURAL STEEL  | AS INDICATED ON DRAWINGS | LED [RED / GREEN]<br>[100, 000 HOUR] | 120     | 60      | THE NAVIGATION LIGHT DESIGNED FOR USE AS A MARINE SIGNAL LIGHT FOR MARKING OF MOVING BRIDGE SPAN, PER COAST GUARD REQUIREMENTS; DIE-CASTALUMINUM HOUSING; HEAVY DUTY ALUMINUM MOUNTING BRACKETS;STAINLESS STEEL HARDWARE; ENCLOSURE RATING IP66 MINIMUM; OPERATING TEMPERATURES : -25°C TO 50°C        | B&B ROADWAY  | MODEL SS       | SWING SPAN: 360 DEGREE GREEN WHEN SWING SPAN FULLY OPEN FOR NAVIGATION; 180 DEGREE RED FOR ALL OTHER POSITION OF OPENING. |



- NOTES:
- 1. SEE DRAWING E18 FOR OPERATOR CONTROL CONSOLE DEVICE LAYOUT.
  - 2. SEE DRAWING E17 FOR BRIDGE CONTROL CABINET DEVICE LAYOUT.

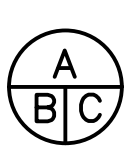
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Services gouvernementaux Canada

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HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
  
OPERATOR CONTROL  
CONSOLE AND BCC  
ELEVATION

drawn by  
dessiné par P. KUMARI

designed by  
conçue par J. KOSCIL, K. WAGNER

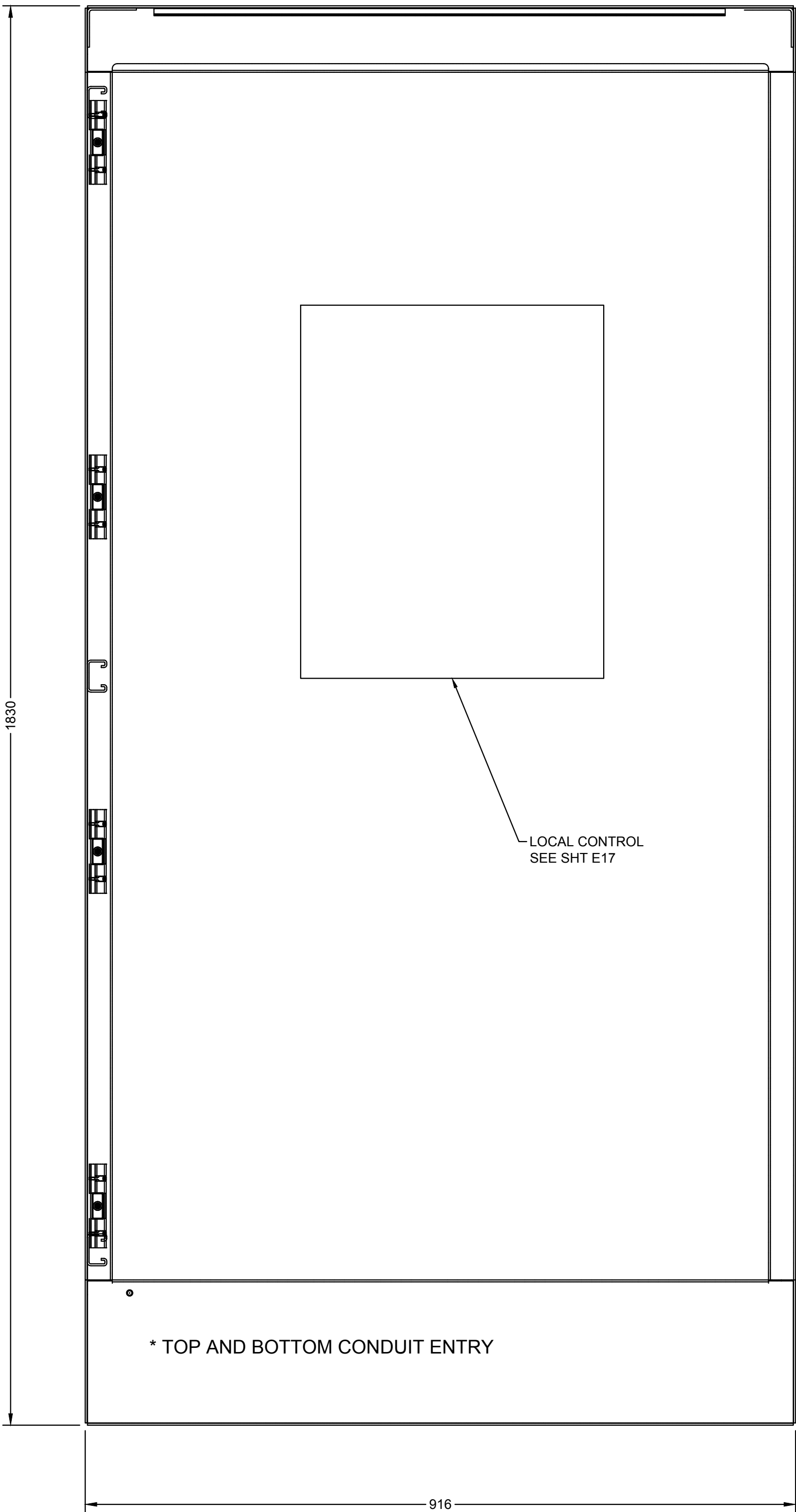
approved by  
approuvé par G. REES

bid  
offre JULIO LEON project manager  
administrateur de projets

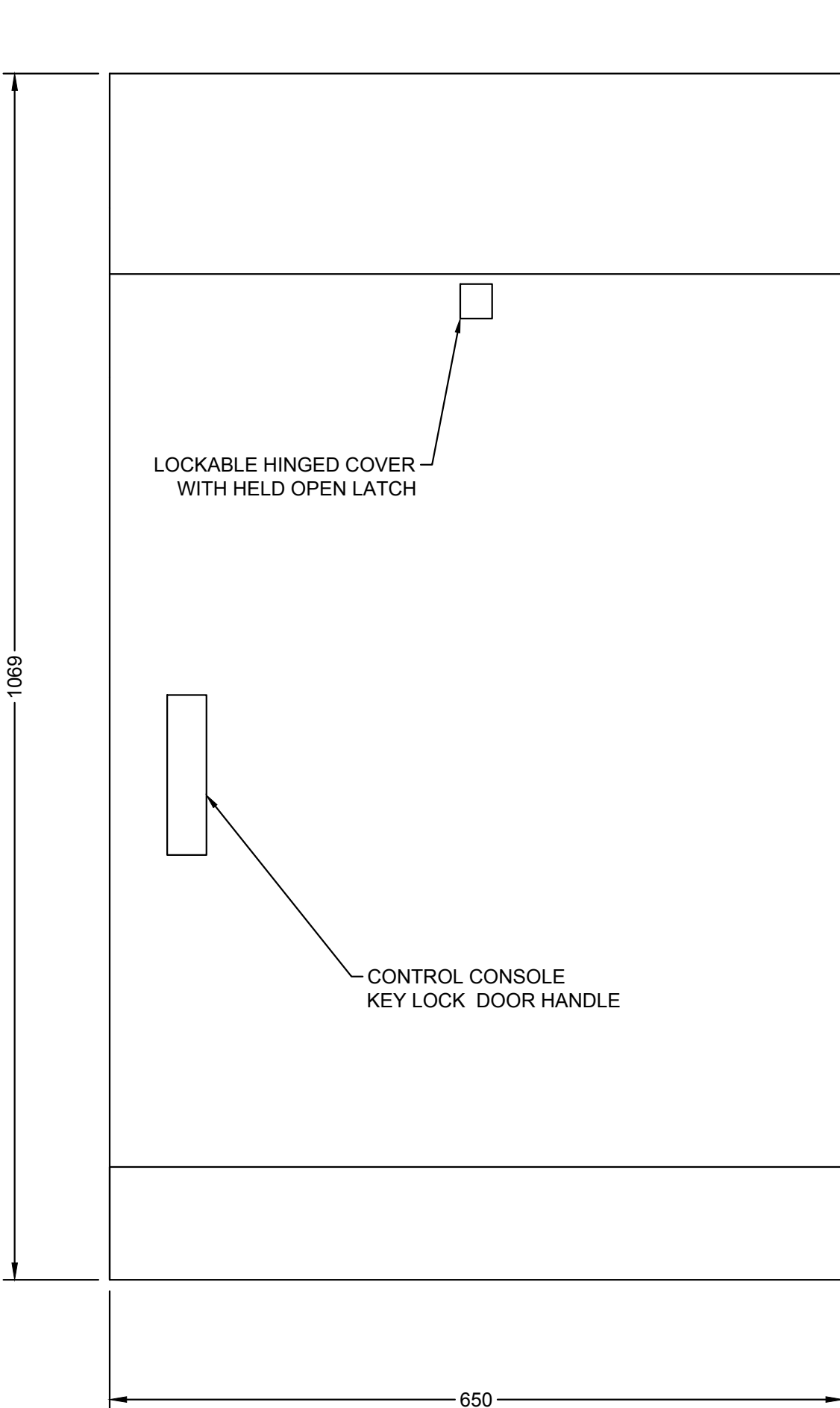
project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

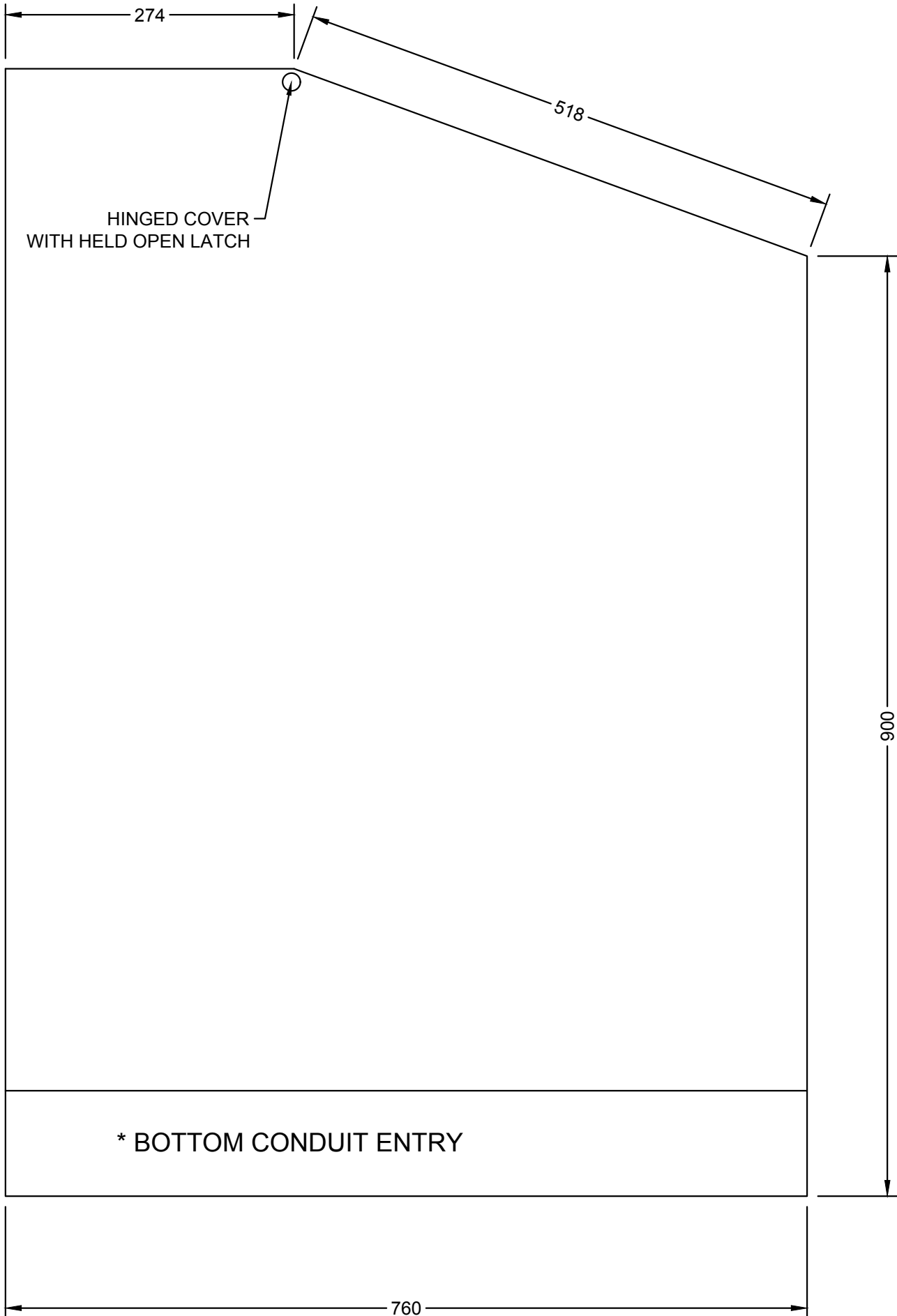
drawing no.  
dessiné no. E16



BRIDGE CONTROL CABINET (BCC) ELEVATION  
NTS

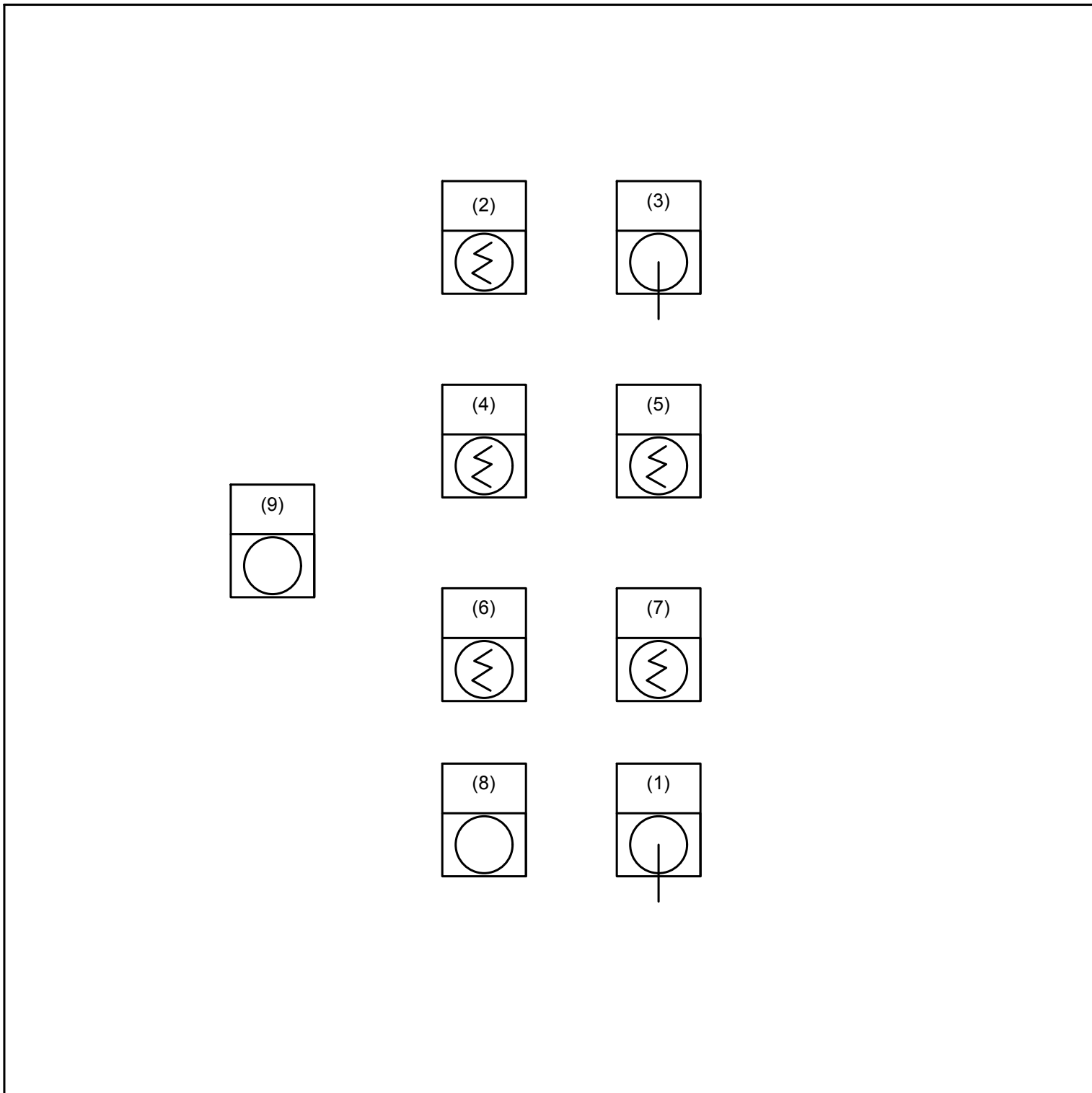
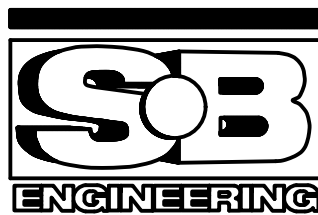


OUTDOOR CONTROL CONSOLE ELEVATION  
NTS





PARSONS

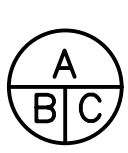


BCC DEVICE LAYOUT  
NTS

| BCC DEVICE SCHEDULE |                                       |  |
|---------------------|---------------------------------------|--|
| ITEM NO.            | DEVICE                                | ENGRAVING                              |
| 1                   | SELECTOR SWITCH (TWO POSITION)        | NAVIGATION LIGHTS<br>OFF - AUTO        |
| 2                   | SELECTOR SWITCH (TWO POSITION, KEYED) | CONTROL<br>OPERATOR - HPU LOCAL        |
| 3                   | SELECTOR SWITCH (THREE POSITION)      | PUMP CONTROL<br>PUMP 1 - AUTO - PUMP 2 |
| 4                   | SELECTOR SWITCH (TWO POSITION, KEYED) | EAST WARNING GATE<br>OFF - BYPASS      |
| 5                   | SELECTOR SWITCH (TWO POSITION, KEYED) | WEST WARNING GATE<br>OFF - BYPASS      |
| 6                   | SELECTOR SWITCH (TWO POSITION, KEYED) | LOCKING PIN<br>OFF - BYPASS            |
| 7                   | SELECTOR SWITCH (TWO POSITION, KEYED) | END LIFT<br>OFF - BYPASS               |
| 8                   | PUSHBUTTON (MOMENTARY)                | HPU STOP                               |
| 9                   | PUSHBUTTON (MUSHROOM PUSH-PULL TYPE)  | EMERGENCY STOP                         |

|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
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| revision |                   | date       |

Do not scale drawings.  
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A

Detail No.  
No. du détail

B

drawing no. - where detail required  
dessin no. - où détail exigé

C

drawing no. - where detailed  
dessin no. - où détaillé

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

BCC DEVICE LAYOUT AND  
SCHEDULE

drawn by  
dessiné par

P. KUMARI

designed by  
conçu par

J. KOSCIL, K. WAGNER

approved by  
approuvé par

G. REES

bid  
offre

JULIO LEON

project manager  
administrateur de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

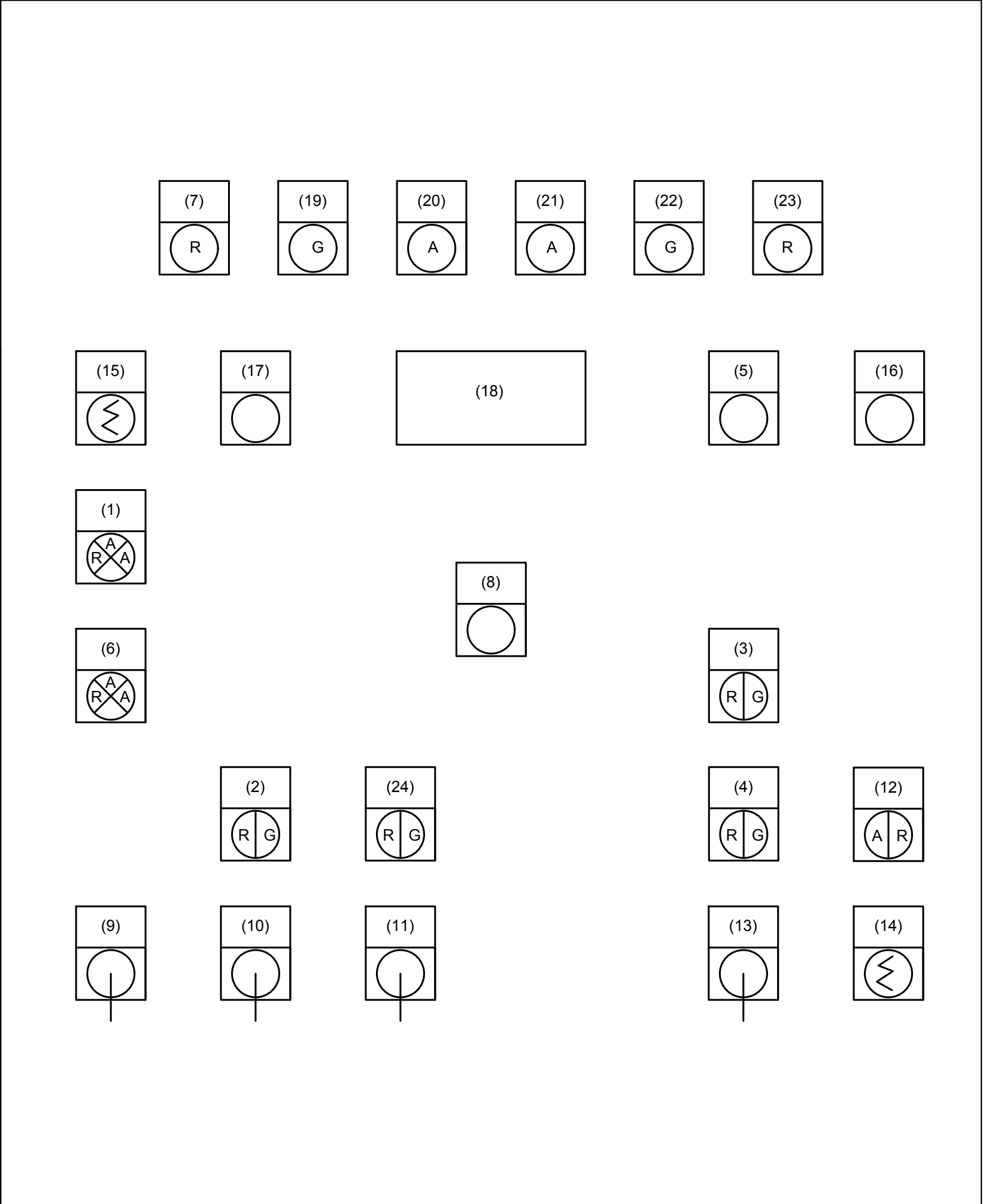
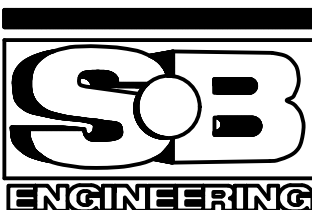
drawing no.  
dessiné no.

E17

NOTES:  
1. ALL SWITCHES AND LIGHTS ARE 30mm



PARSONS



OUTDOOR CONSOLE DEVICE LAYOUT  
NTS

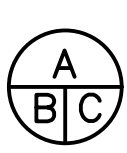
| OUTDOOR CONTROL CONSOLE DEVICE SCHEDULE |                                       |   |
|---|---------------------------------------|---|
| ITEM NO.                                | DEVICE                                | ENGRAVING                               |
| 1                                       | INDICATION LIGHT (RED-AMBER-AMBER)    | EAST TRAFFIC SIGNALS                    |
| 2                                       | INDICATION LIGHT (RED-GREEN)          | WEST GATE ARM FULLY<br>RAISED - LOWERED |
| 3                                       | INDICATION LIGHT (RED-GREEN)          | END LIFTS<br>DRIVEN - RETRACTED         |
| 4                                       | INDICATION LIGHT (RED-GREEN)          | LOCKING PIN<br>LOCK - UNLOCKED          |
| 5                                       | PUSHBUTTON (MOMENTARY)                | CONSOLE LIGHTS TEST PB                  |
| 6                                       | INDICATION LIGHT (RED-AMBER-AMBER)    | WEST TRAFFIC SIGNALS                    |
| 7                                       | INDICATION LIGHT (RED)                | BRIDGE OVERTRAVEL<br>CLOSED             |
| 8                                       | PUSHBUTTON (MUSHROOM PUSH-PULL TYPE)  | EMERGENCY STOP                          |
| 9                                       | SELECTOR SWITCH (TWO POSITION)        | TRAFFIC SIGNALS<br>FLASHING - RED       |
| 10                                      | SELECTOR SWITCH (TWO POSITION)        | WEST TRAFFIC GATE ARM<br>RAISE - LOWER  |
| 11                                      | SELECTOR SWITCH (TWO POSITION)        | EAST TRAFFIC GATE ARM<br>RAISE - LOWER  |
| 12                                      | INDICATION LIGHT (AMBER-RED)          | HPU TROUBLE<br>ALARM - TRIP             |
| 13                                      | SELECTOR SWITCH (THREE POSITION)      | BRIDGE SWING<br>CLOSE - OFF - OPEN      |
| 14                                      | SELECTOR SWITCH (TWO POSITION, KEYED) | BRIDGE EMERGENCY SWING<br>OFF - CLOSE   |
| 15                                      | SELECTOR SWITCH (TWO POSITION, KEYED) | CONTROL POWER<br>ON - OFF               |
| 16                                      | PUSHBUTTON (MOMENTARY)                | SOUND HORN                              |
| 17                                      | PUSHBUTTON (MOMENTARY)                | SYSTEM RESET                            |
| 18                                      | DIGITAL DISPLAY                       | SPAN POSITION INDICATION                |
| 19                                      | INDICATION LIGHT (GREEN)              | BRIDGE FULLY<br>CLOSED                  |
| 20                                      | INDICATION LIGHT (AMBER)              | BRIDGE NEARLY<br>CLOSED                 |
| 21                                      | INDICATION LIGHT (AMBER)              | BRIDGE NEARLY<br>OPEN                   |
| 22                                      | INDICATION LIGHT (GREEN)              | BRIDGE FULLY<br>OPEN                    |
| 23                                      | INDICATION LIGHT (RED)                | BRIDGE OVERTRAVEL<br>OPEN               |
| 24                                      | INDICATION LIGHT (RED-GREEN)          | EAST GATE ARM FULLY<br>RAISED - LOWERED |

NOTES:

1. TRAFFIC SIGNAL SWITCH IS MAINTAINED
2. GATE AND BRIDGE SWING SWITCHES ARE SPRING RETURN TO CENTER
3. ALL SWITCHES ARE 30MM

|          |                   |            |
|----------|-------------------|------------|
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A Detail No.  
No. du détail

B drawing no. - where detail required  
dessin no. - où détail exigé

C drawing no. - where detailed  
dessin no. - où détaillé

project title  
titre du projet  
  
Ontario  
  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
  
OUTDOOR OPERATOR  
CONTROL CONSOLE DEVICE  
LAYOUT AND SCHEDULE

drawn by  
dessiné par P. KUMARI

designed by  
conçu par J. KOSCIL, K. WAGNER

approved by  
approuvé par G. REES

bid  
offre JULIO LEON project manager  
administrateur de projets

project date  
date du projet 2018-07-20

project no.  
no. du projet R.073593.001

drawing no.  
dessiné no. E18



|          |                   |            |
|----------|-------------------|------------|
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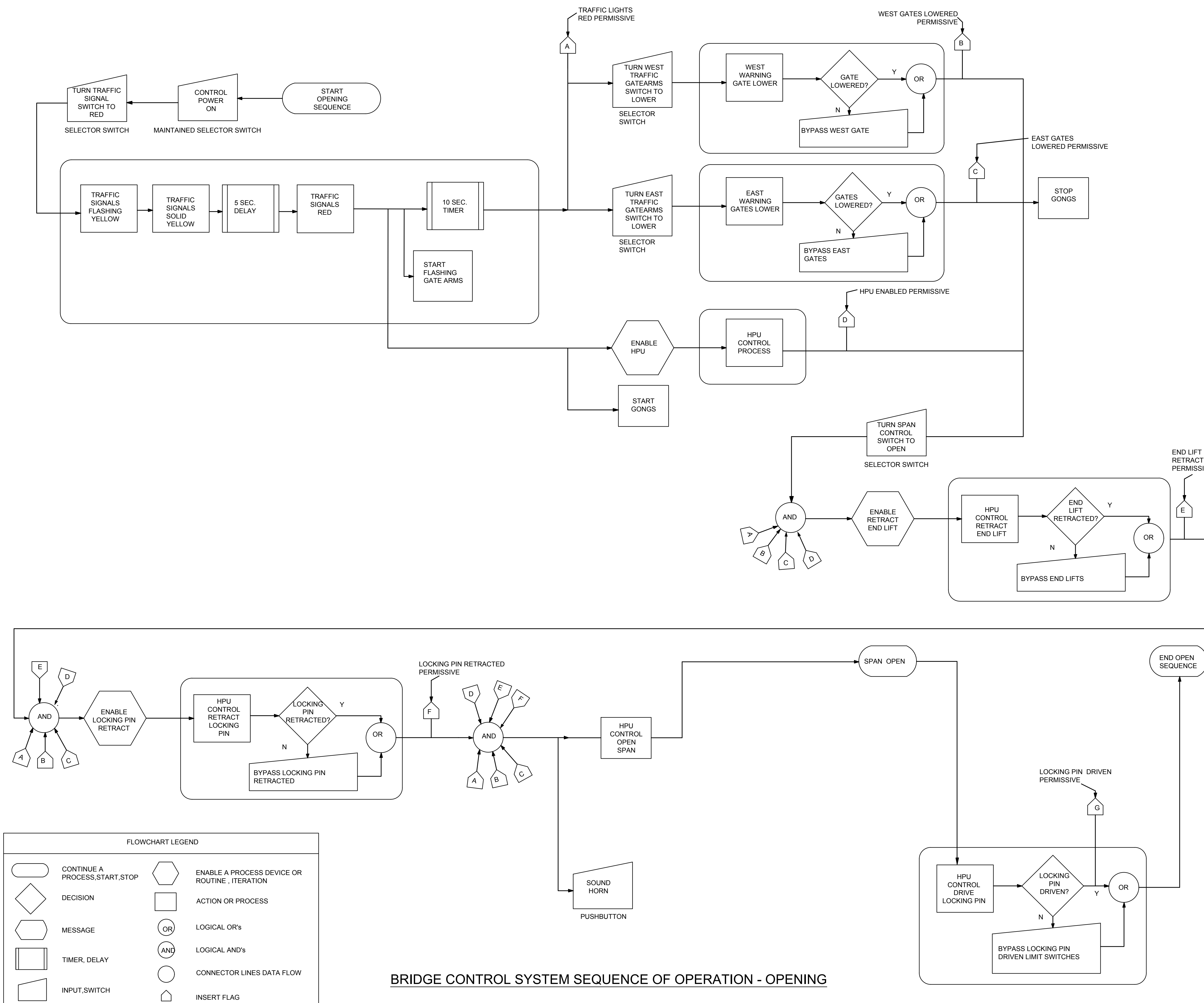
Do not scale drawings.  
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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. - where detail required<br>dessin no. - où détail esgée |
| C | drawing no. - where detailed<br>dessin no. - où détaillé            |

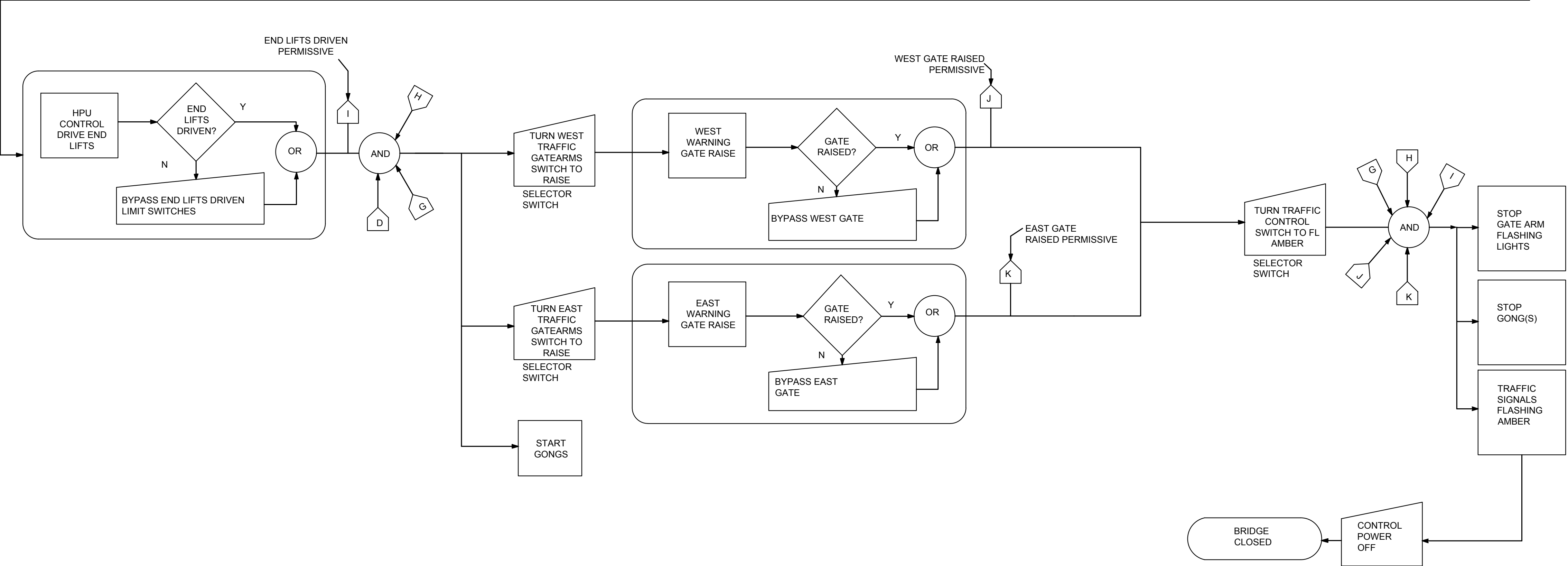
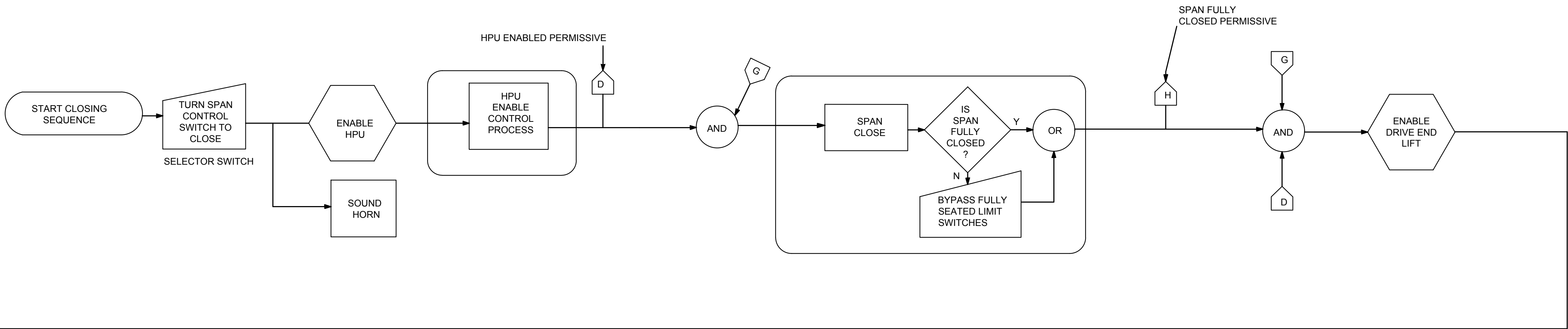
project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
BRIDGE CONTROL SYSTEM  
SEQUENCE OF OPERATION -  
OPENING

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçue par      | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E19                  |  |







BRIDGE CONTROL SYSTEM SEQUENCE OF OPERATION - CLOSING

| FLOWCHART LEGEND |                                 |  |   |
|------------------|---------------------------------|--|---|
|                  | CONTINUE A PROCESS, START, STOP |  | ENABLE A PROCESS DEVICE OR ROUTINE, ITERATION |
|                  | DECISION                        |  | ACTION OR PROCESS                             |
|                  | MESSAGE                         |  | LOGICAL OR's                                  |
|                  | TIMER, DELAY                    |  | LOGICAL AND's                                 |
|                  | INPUT, SWITCH                   |  | CONNECTOR LINES DATA FLOW                     |
|                  |                                 |  | INSERT FLAG                                   |

| revision | date                         |
|----------|------------------------------|
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| 02       |                              |
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|  |  |
|--|--|
|  | A Detail No.<br>No. du détail<br>B drawing no. - where detail required<br>dessin no. - où détail exigé<br>C drawing no. - where detailed<br>dessin no. - où détaillé |
|--|--|

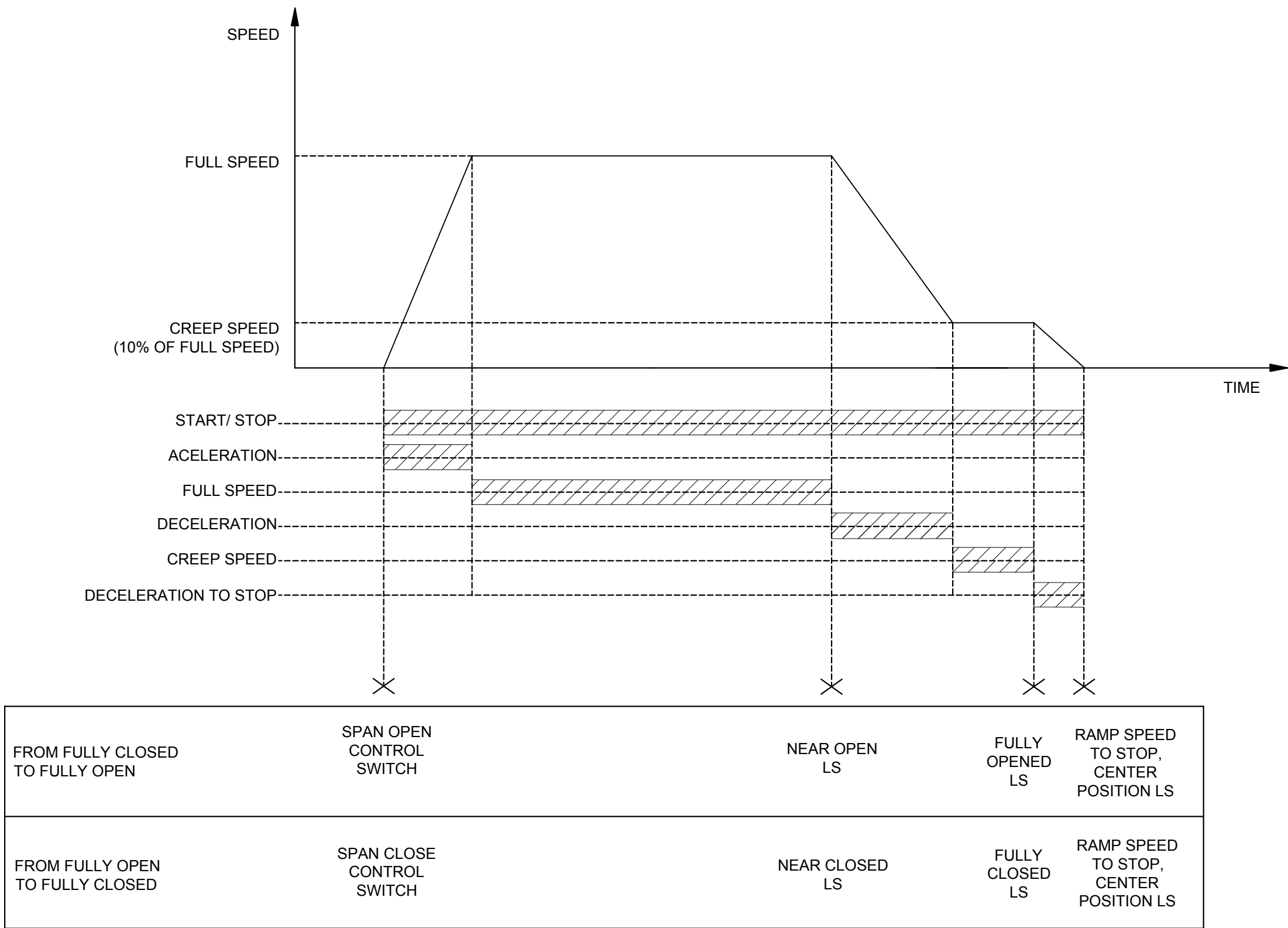
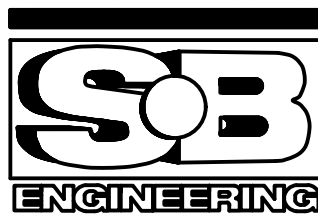
project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
BRIDGE CONTROL SYSTEM  
SEQUENCE OF OPERATION -  
CLOSING

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           |  |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E20                  |  |



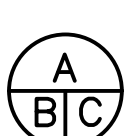
PARSONS



BRIDGE OPERATION CONTROL DIAGRAM (SPEED VS. TIME)

|          |                   |            |
|----------|-------------------|------------|
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| revision |                   | date       |

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- 

A

Detail No.  
No. du détail

B

drawing no. - where detail required  
dessin no. - où détail exigé

C

drawing no. - where detailed  
dessin no. - où détaillé

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin


BRIDGE OPERATION  
CONTROL DIAGRAM

|                                |                      |   |
|--------------------------------|----------------------|---|
| drawn by<br>dessiné par        | P. KUMARI            |   |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |   |
| approved by<br>approuvé par    | G. REES              |   |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur<br>de projets |
| project date<br>date du projet | 2018-07-20           |   |
| project no.<br>no. du projet   | R.073593.001         |   |
| drawing no.<br>dessiné no.     | E21                  |   |





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 A Detail No.  
No. du détail  
 B drawing no. — where detail required  
dessin no. — où détail exigé  
 C drawing no. — where detailed  
dessin no. — où détaillé

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

drawn by  
dessine par P. KUMARI

designed by  
conc par J. KOSCIL, K. WAGNER

approved by  
approve par G. REES

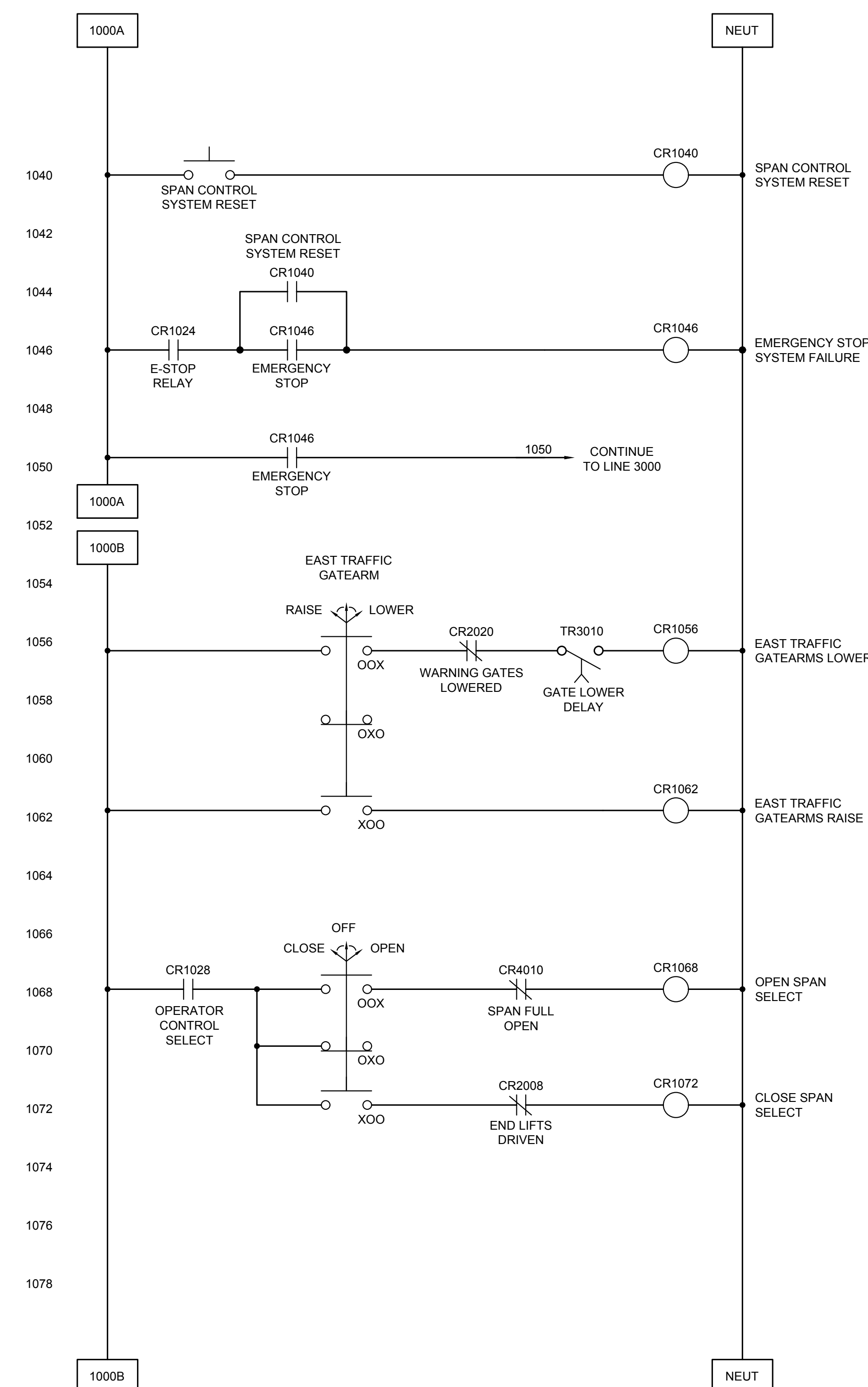
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| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
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| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

|                              |              |
|------------------------------|--------------|
| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

drawing no.  
dessin no. E22

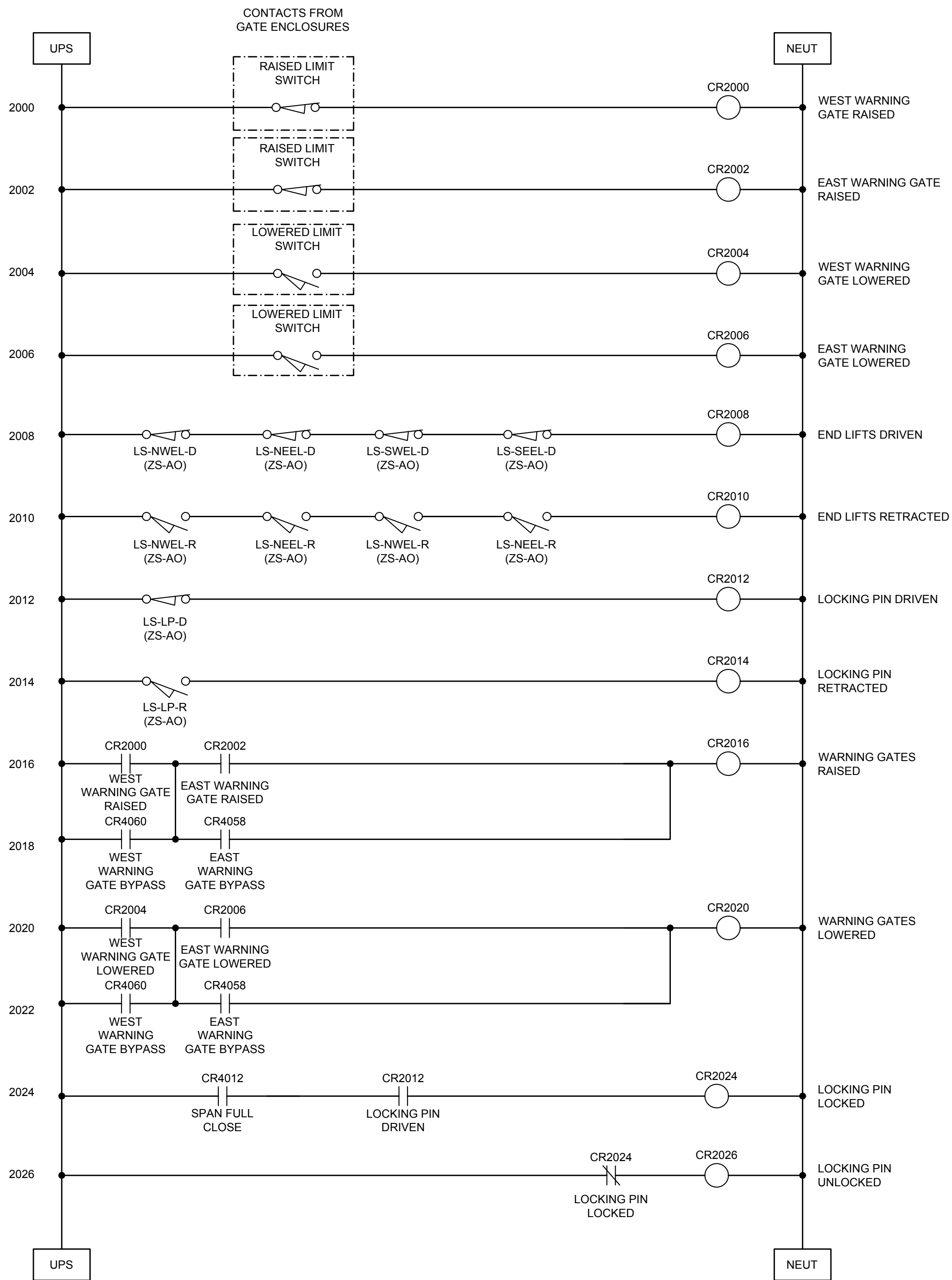
## CONTROL CONSOLE OPERATION



- NOTES:
1. UPS CKT CAN BE FOUND IN THE PANEL SCHEDULE ON DWG E12. IT IS PHYSICALLY LOCATED IN THE BRIDGE CONTROL CABINET (BCC).
  2. DASHED LINE BOXES DENOTE HPU CONTROL PANEL OR GATE ENCLOSURE OUTPUT TO CONTROL SYSTEM.

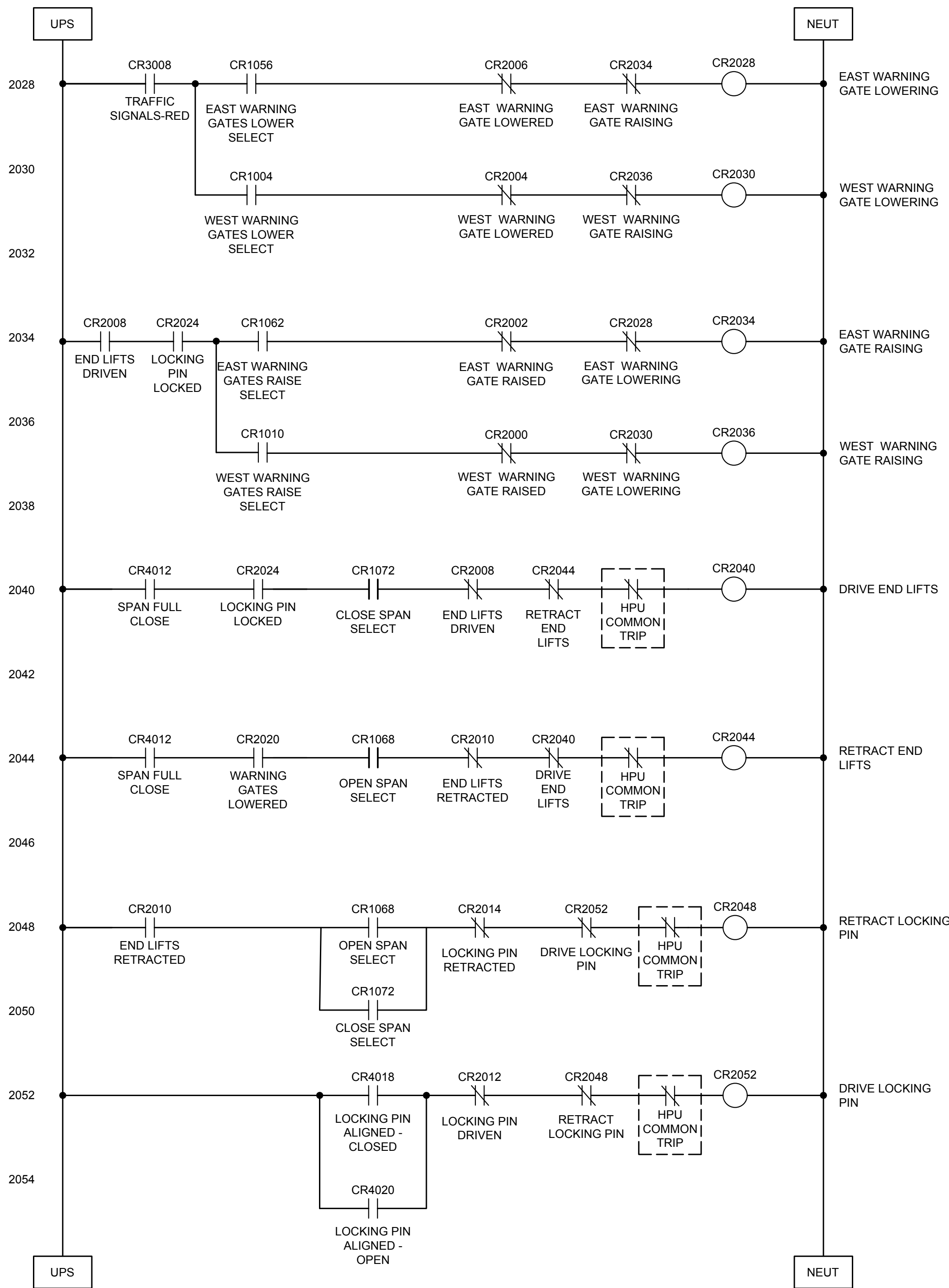


LIMIT SWITCHES



- NOTES:
1. UPS CKT CAN BE FOUND IN THE PANEL SCHEDULE ON DWG E12. IT IS PHYSICALLY LOCATED IN THE BRIDGE CONTROL CABINET (BCC).
  2. DASHED LINE BOXES DENOTE HPU CONTROL PANEL OR GATE ENCLOSURE OUTPUT TO CONTROL SYSTEM.

GATE, END LIFT, LOCKING PIN CONTROL



PARSONS



|          |                   |            |
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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
CONTROL LOGIC DIAGRAM  
SHEET 2 OF 6

|  |                      |
|--|----------------------|
| drawn by<br>dessiné par                      | P. KUMARI            |
| designed by<br>conçu par                     | J. KOSCIL, K. WAGNER |
| approved by<br>approuvé par                  | G. REES              |
| bid<br>offre                                 | JULIO LEON           |
| project manager<br>administrateur de projets |                      |

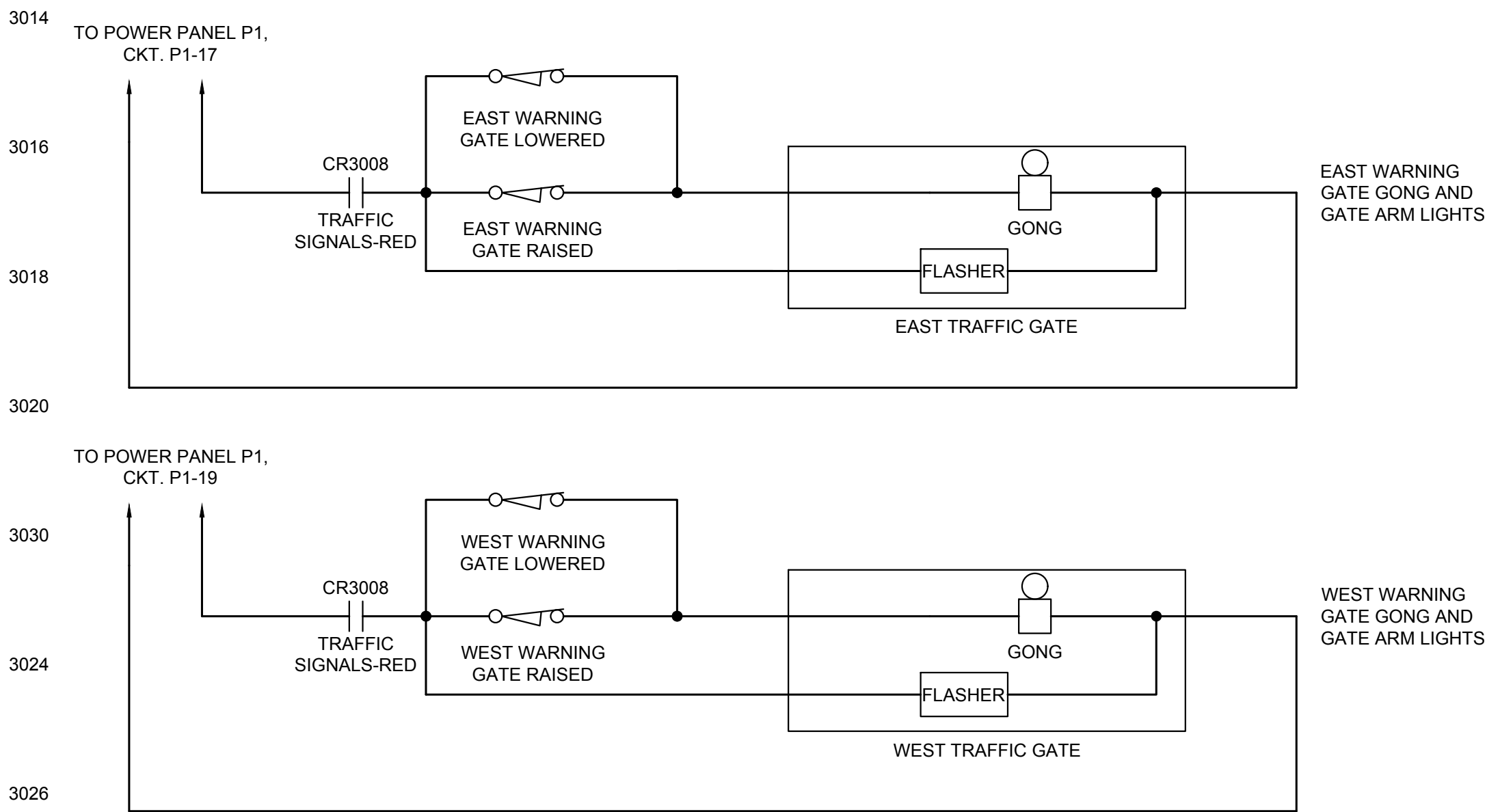
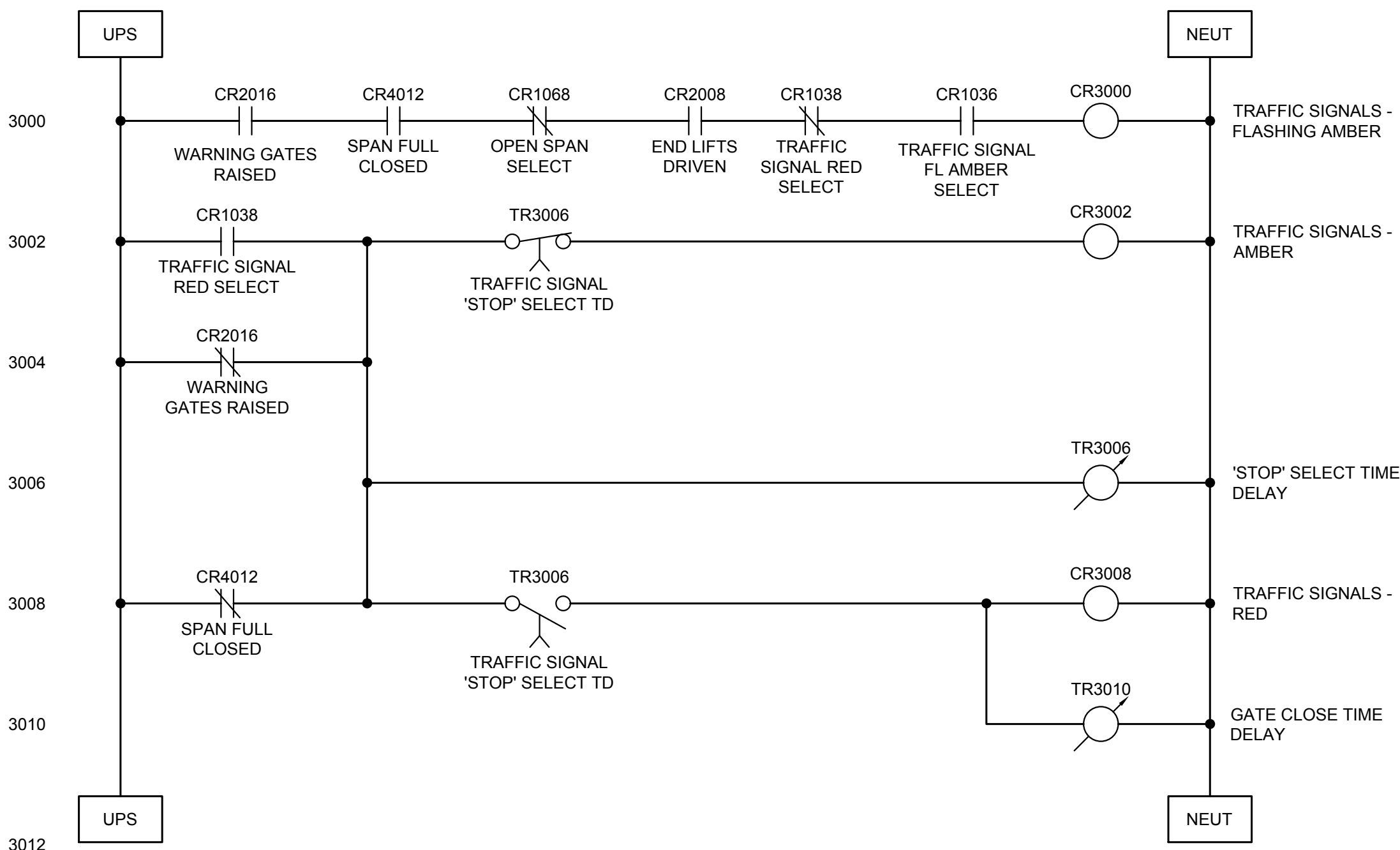
project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
E23

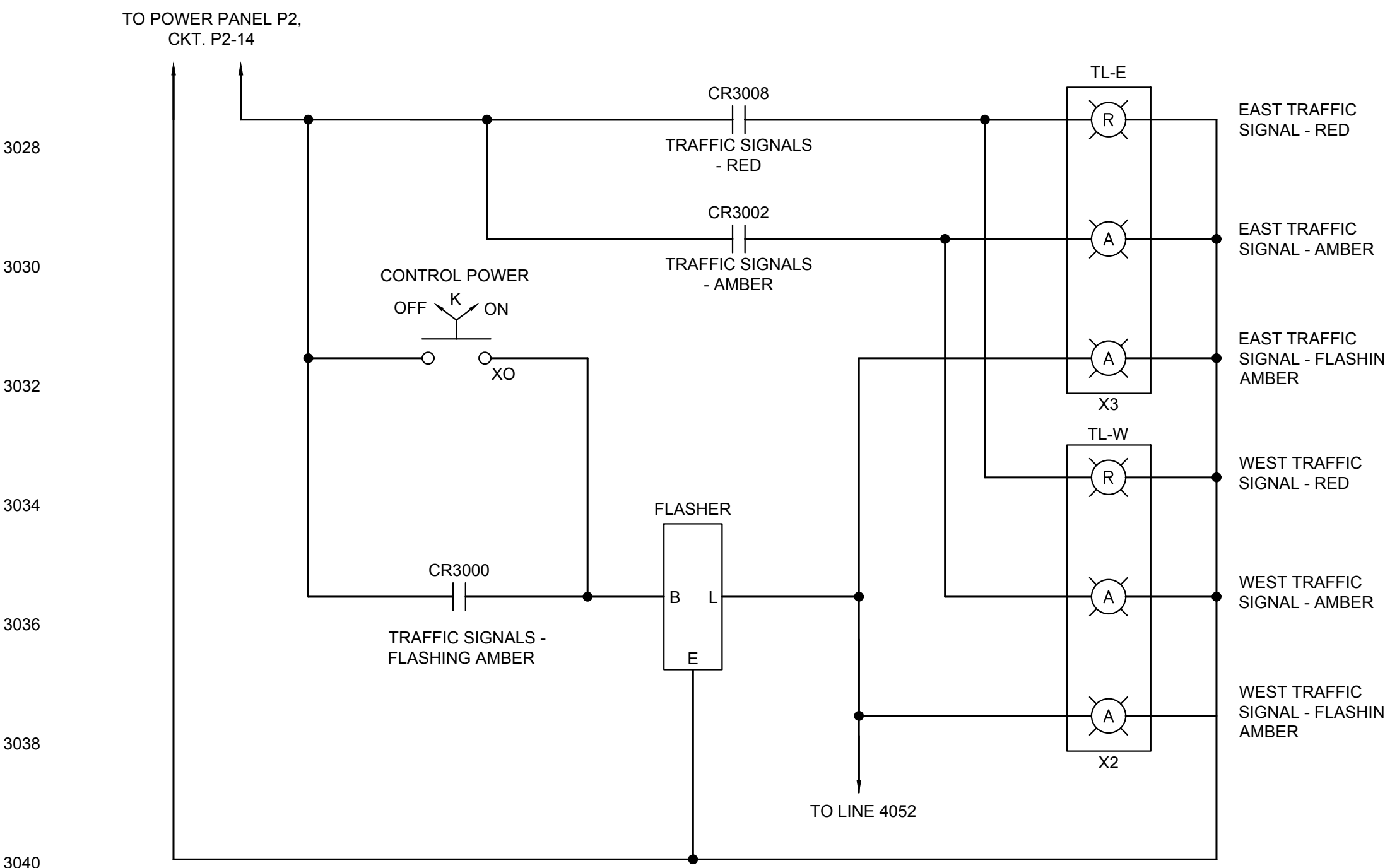


TRAFFIC SIGNAL CONTROL

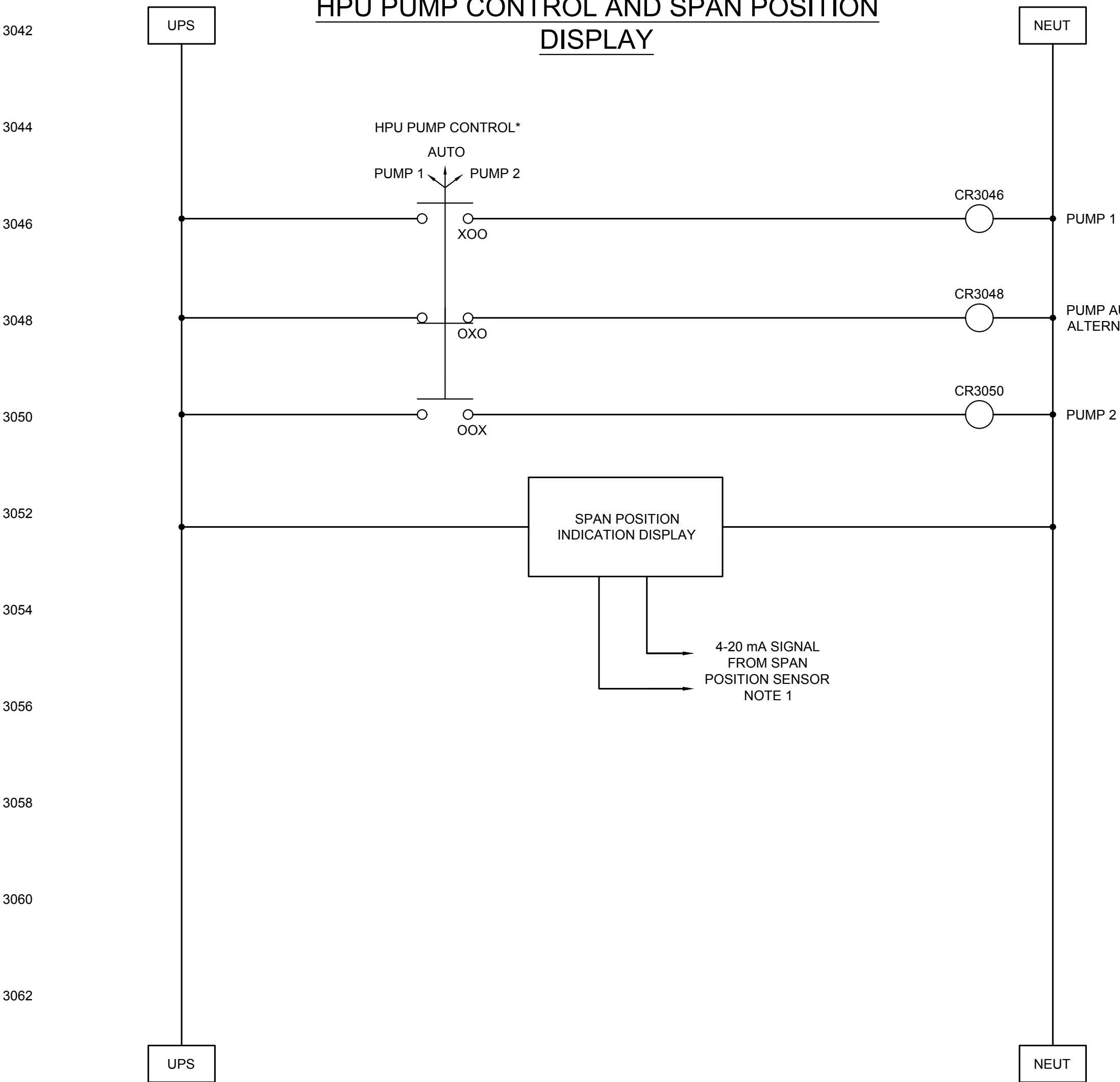


NOTE:  
1. REFER TO DWG. E07 AND M04 FOR LOCATION OF SPAN POSITION SENSOR.  
2. SELECTOR SWITCHES INDICATED WITH (\*) ARE LOCATED ON THE DOOR OF THE BCC.  
3. UPS CKT CAN BE FOUND IN THE PANEL SCHEDULE ON DWG E12. IT IS PHYSICALLY LOCATED IN THE BRIDGE CONTROL CABINET (BCC).

TRAFFIC SIGNAL CONTROL



HPU PUMP CONTROL AND SPAN POSITION DISPLAY



|          |                   |            |
|----------|-------------------|------------|
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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

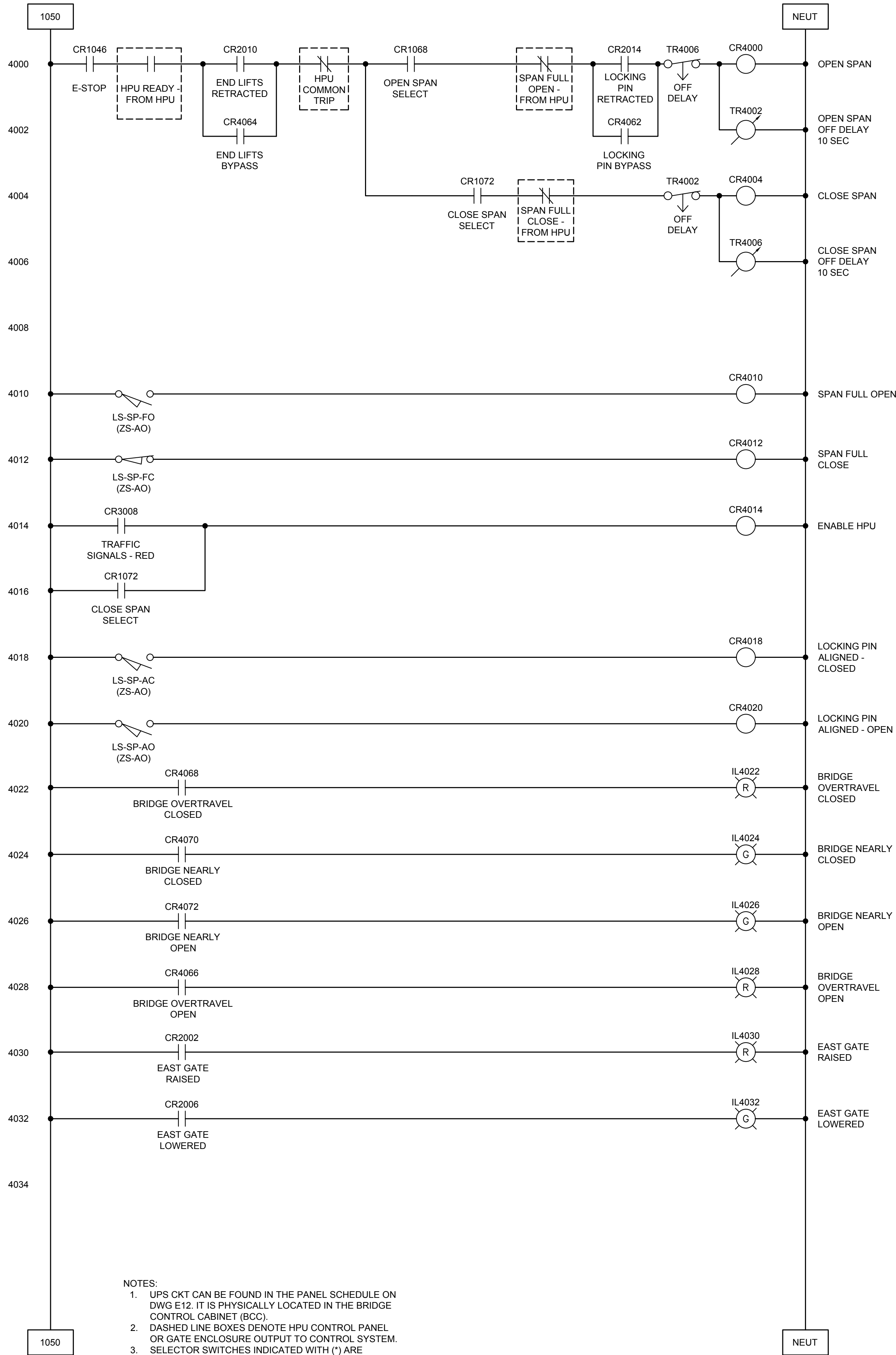
project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
CONTROL LOGIC DIAGRAM  
SHEET 3 OF 6

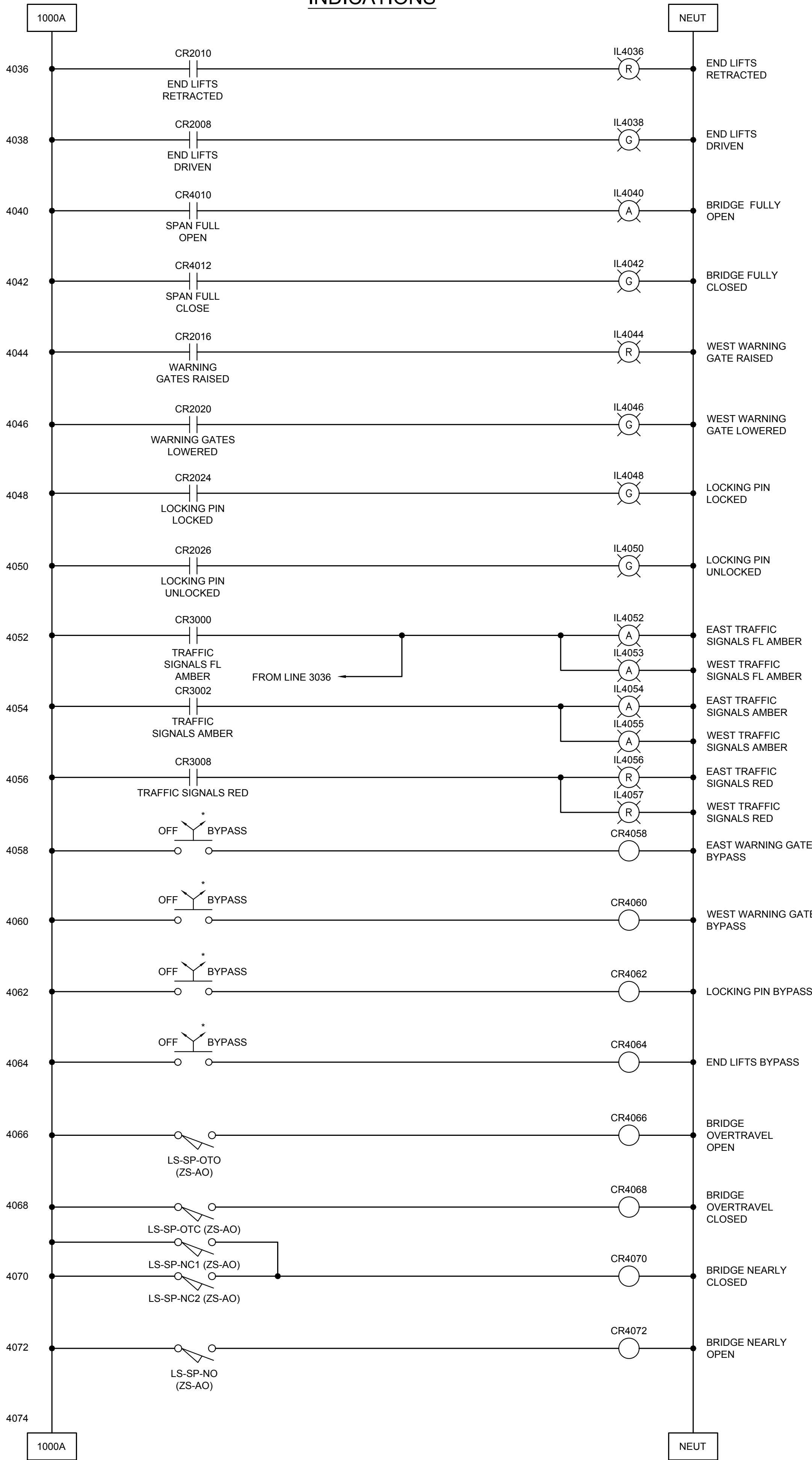
|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           |  |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E24                  |  |



SPAN OPERATION




SPAN OPERATION STATUS INDICATIONS

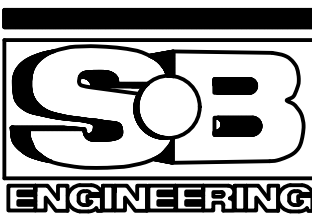




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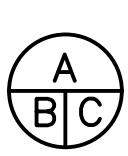
 Public Works and  
Government Services Canada  
  
Travaux publics et  
Services gouvernementaux Canada

**PARSONS**



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
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A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

CONTROL LOGIC DIAGRAM  
SHEET 5 OF 6

drawn by  
dessiné par

P. KUMARI

designed by  
conçu par

J. KOSCIL, K. WAGNER

approved by  
approuvé par

G. REES

bid  
offre

JULIO LEON

project manager  
administrateur  
de projets

project date  
date du projet

2018-07-20

project no.  
no. du projet

R.073593.001

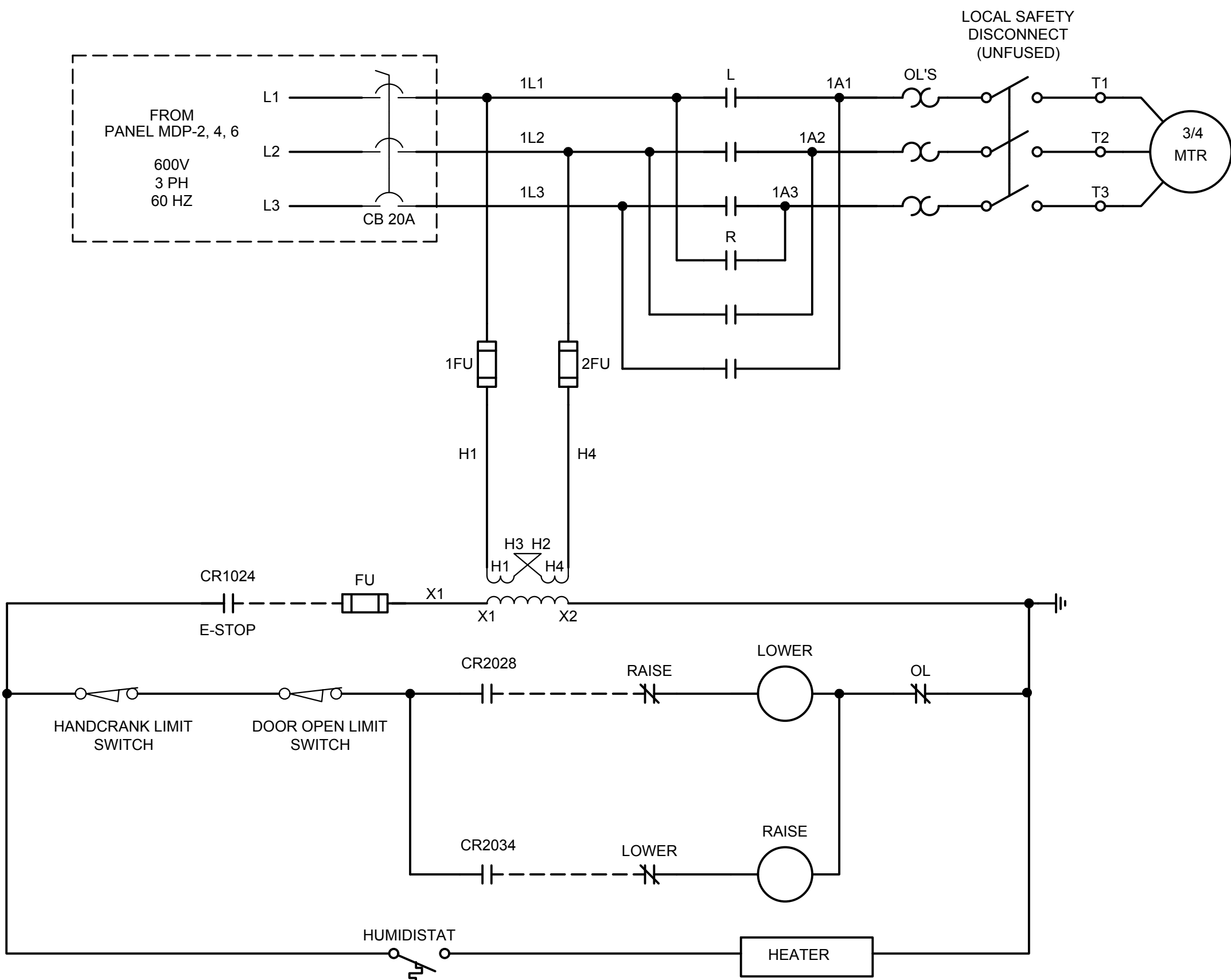
drawing no.  
dessiné no.

E26

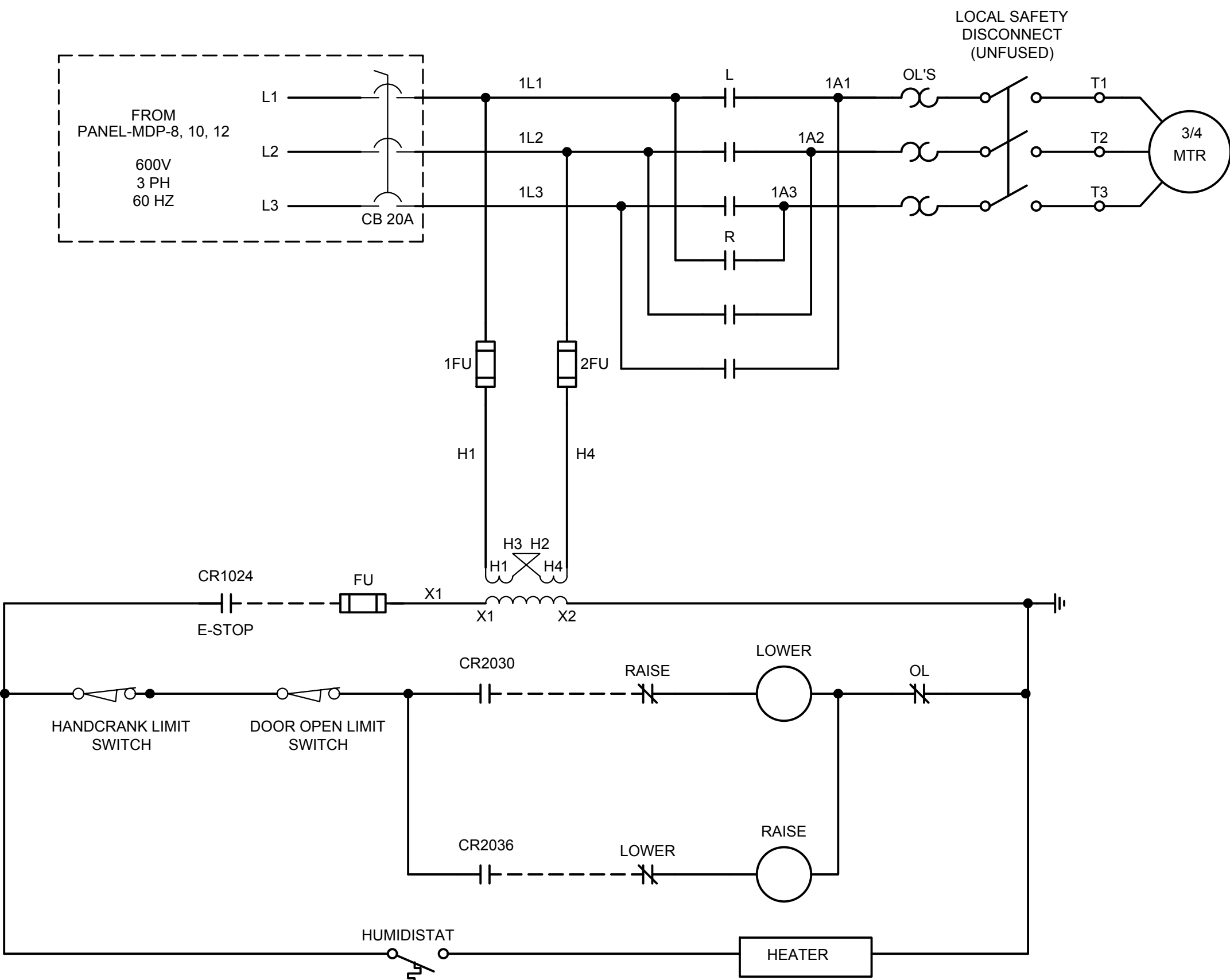


NOTES:

1. COMPLETE GATE SCHEMATIC DIAGRAM TO BE PROVIDED BY GATE MANUFACTURER WHICH INCLUDE ALL AUXILIARY DEVICES PROVIDED WITH THE GATE.

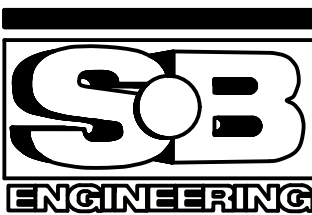


EAST GATE CONTROL



WEST GATE CONTROL

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

Do not scale drawings.  
Verify all dimensions and conditions on site and immediately  
notify the Departmental Representative of all discrepancies.

|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
CONTROL LOGIC DIAGRAM  
SHEET 6 OF 6

|                             |                      |  |
|-----------------------------|----------------------|--|
| drawn by<br>dessiné par     | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçu par    | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par | G. REES              |  |
| bid<br>offre                | JULIO LEON           |  |

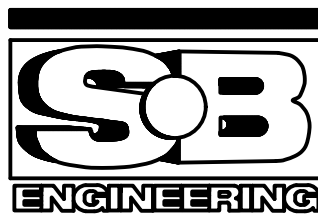
project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
E27



PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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notify the Departmental Representative of all discrepancies.

|   |  |
|---|--|
| <div><div>A</div><div>B</div><div>C</div></div> | <div>A Detail No.<br/>No. du détail</div> <div>B drawing no. - where detail required<br/>dessin no. - où détail exigé</div> <div>C drawing no. - where detailed<br/>dessin no. - où détaillé</div> |
|---|--|

project title  
titre du projet

Ontario

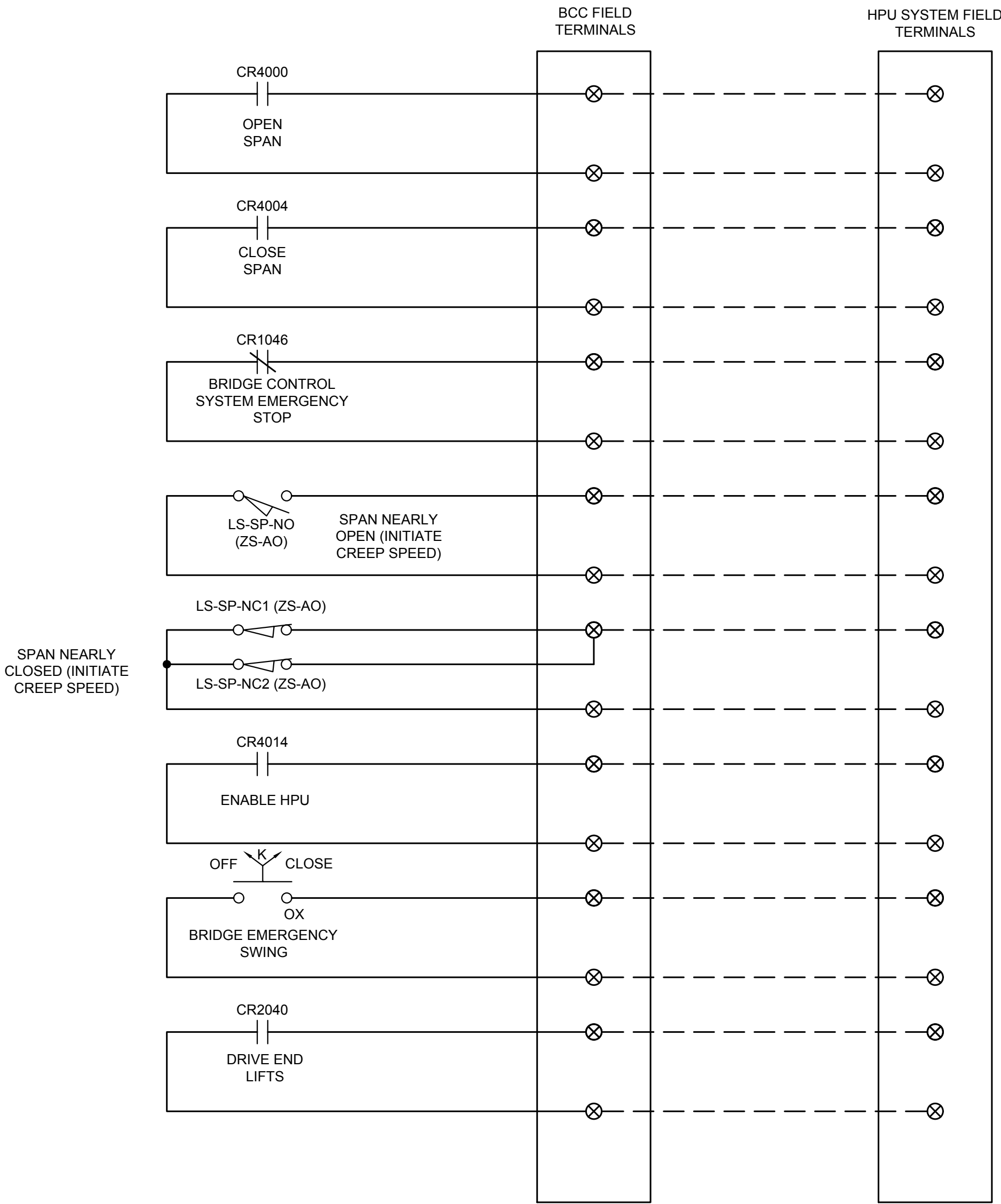
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

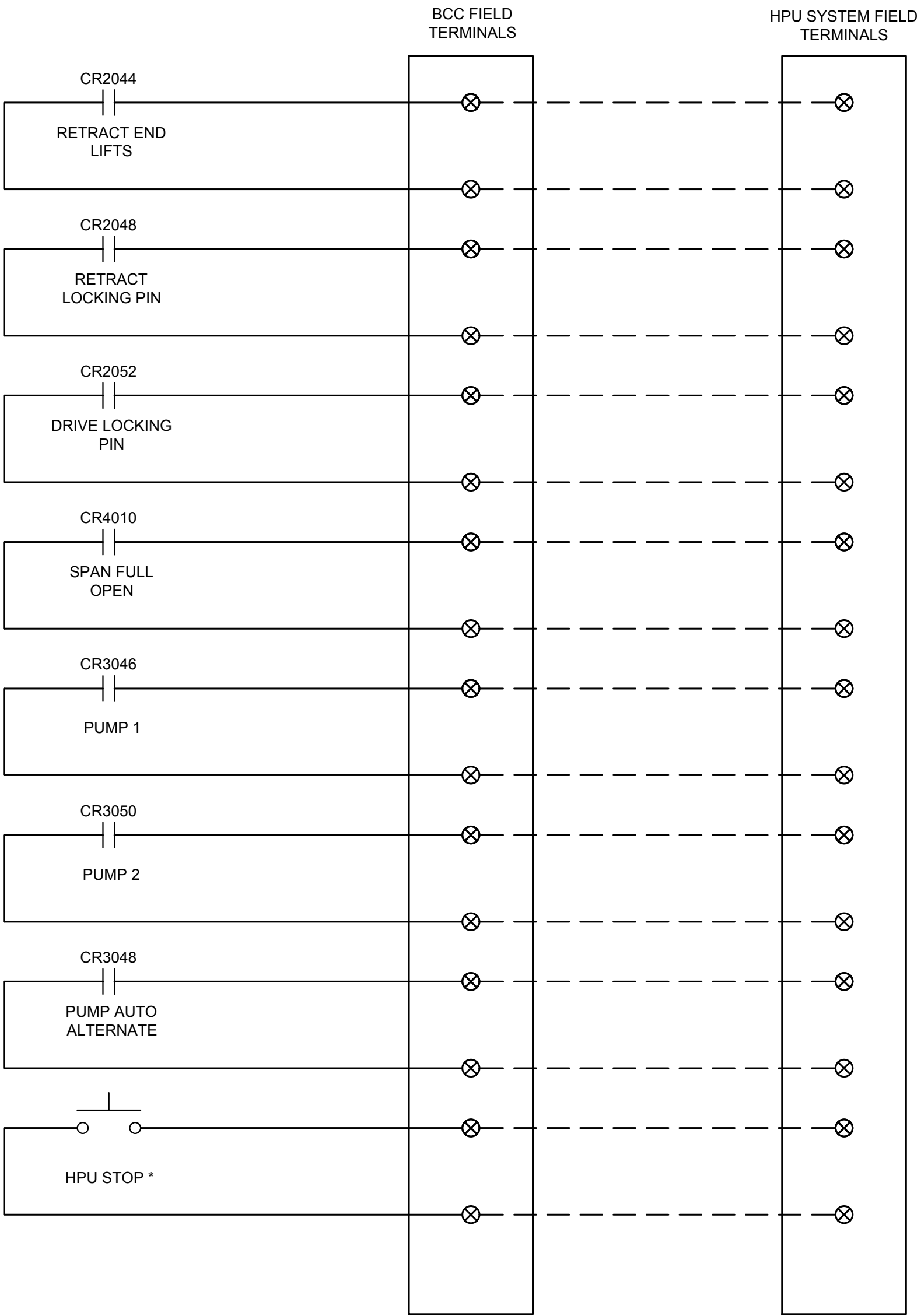
HPU CONTROL SYSTEM  
INTERFACE SHEET 1 OF 3

|  |                      |
|--|----------------------|
| drawn by<br>dessiné par                      | P. KUMARI            |
| designed by<br>conçu par                     | J. KOSCIL, K. WAGNER |
| approved by<br>approuvé par                  | G. REES              |
| bid<br>offre                                 | JULIO LEON           |
| project manager<br>administrateur de projets |                      |
| project date<br>date du projet               | 2018-07-20           |
| project no.<br>no. du projet                 | R.073593.001         |
| drawing no.<br>dessiné no.                   | E28                  |

FIELD WIRING FROM BCC  
TO HPU PACKAGE

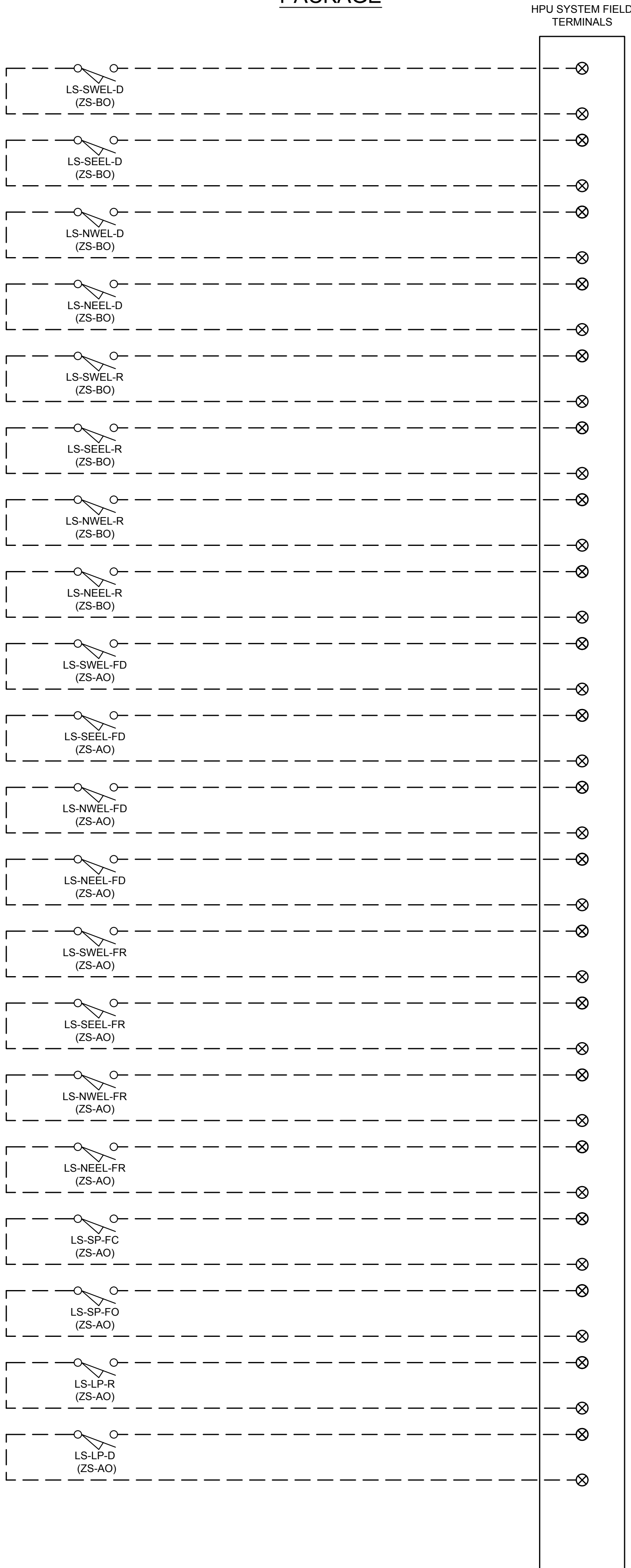


FIELD WIRING FROM BCC  
TO HPU PACKAGE

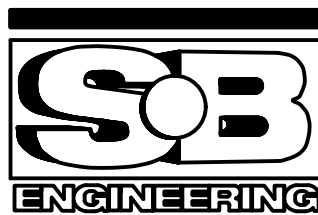




FIELD WIRING FROM LIMIT  
SWITCHES TO HPU  
PACKAGE

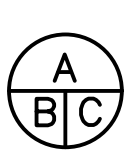


**PARSONS**



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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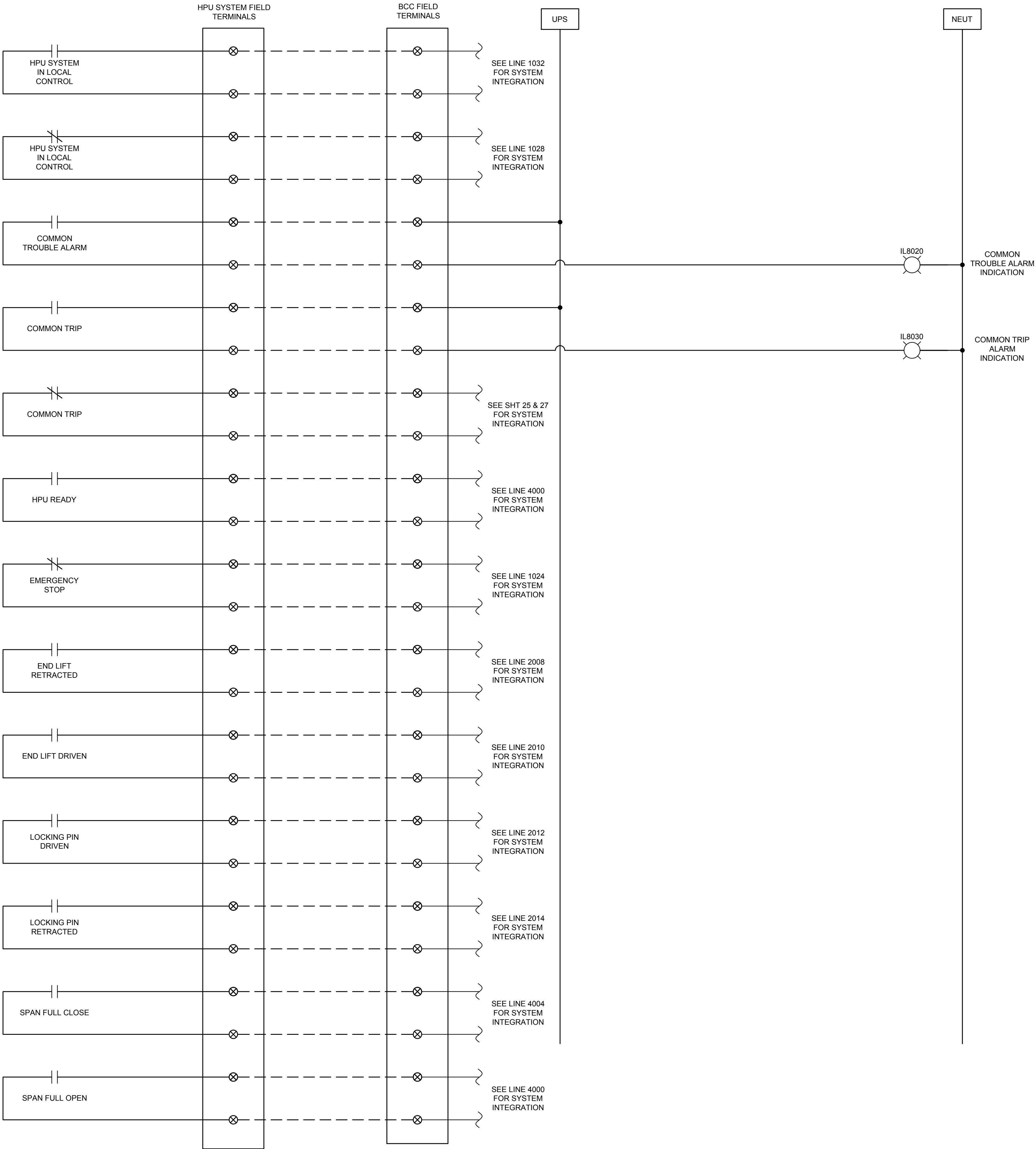
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|---|---|
|  | A Detail No.<br>No. du détail   |
|   | B drawing no. - where detail required<br>dessin no. - où détail exigé |
|   | C drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

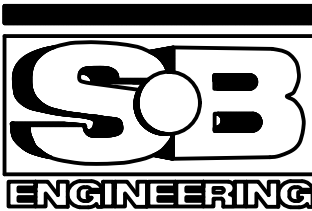
drawing title  
titre du dessin  
HPU CONTROL SYSTEM  
INTERFACE SHEET 2 OF 3

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E29                  |  |





PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |  |
|---|--|
| A | Detail No.<br>No. du détail  |
| B | drawing no. - where detail required<br>dessin no. - où détail requis |
| C | drawing no. - where detailed<br>dessin no. - où détaillé             |

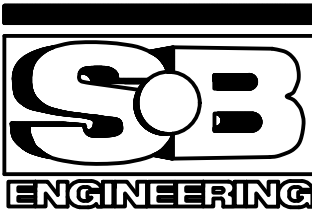
project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
HPU CONTROL SYSTEM  
INTERFACE SHEET 3 OF 3

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           |  |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E30                  |  |



PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
NAVIGATION LIGHTING  
CONTROL

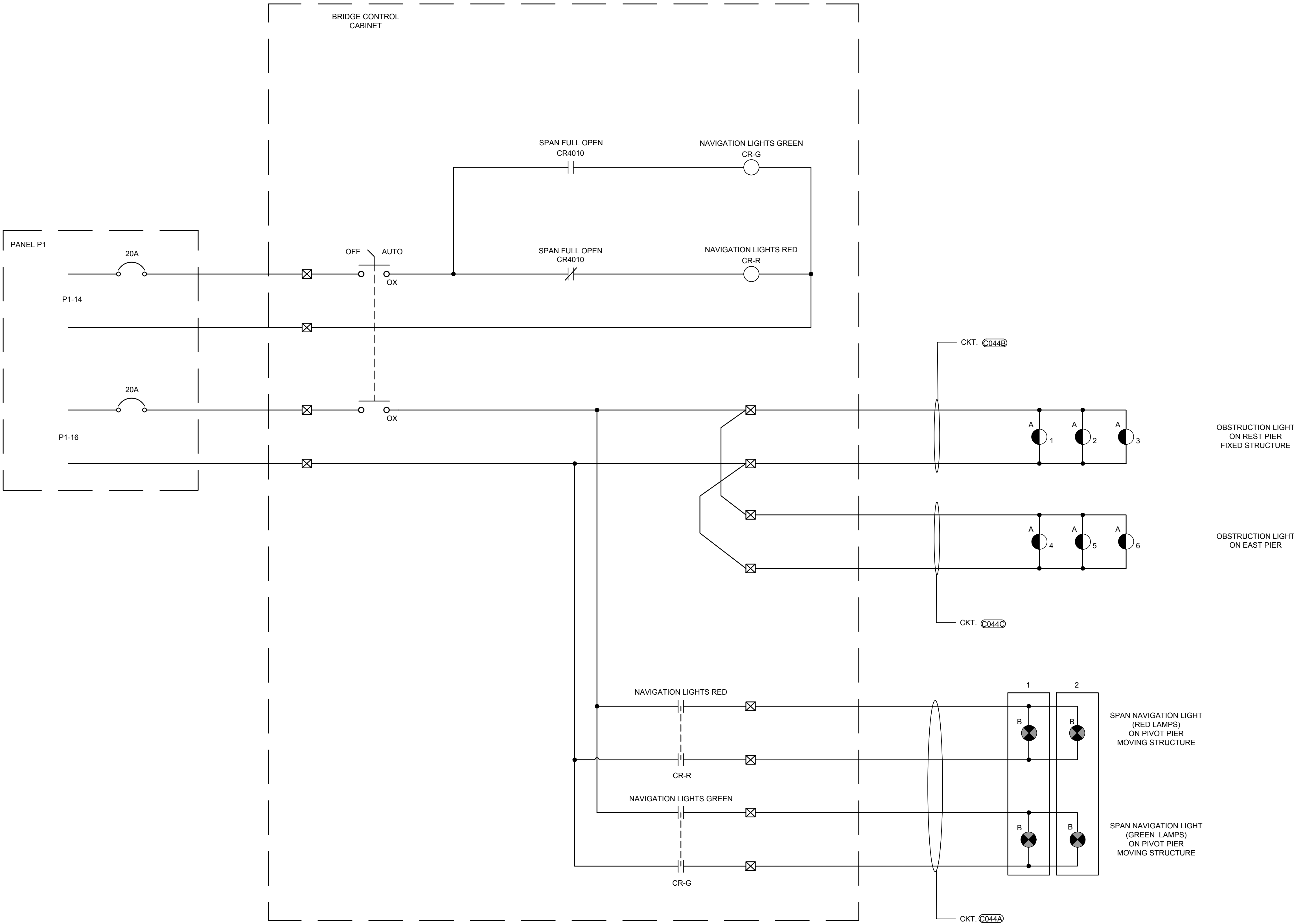
drawn by  
dessiné par  
P. KUMARI  
designed by  
conçu par  
J. KOSCIL, K. WAGNER  
approved by  
approuvé par  
G. REES

bid  
offre  
JULIO LEON  
project manager  
administrateur de projets

project date  
date du projet  
2018-07-20

project no.  
no. du projet  
R.073593.001

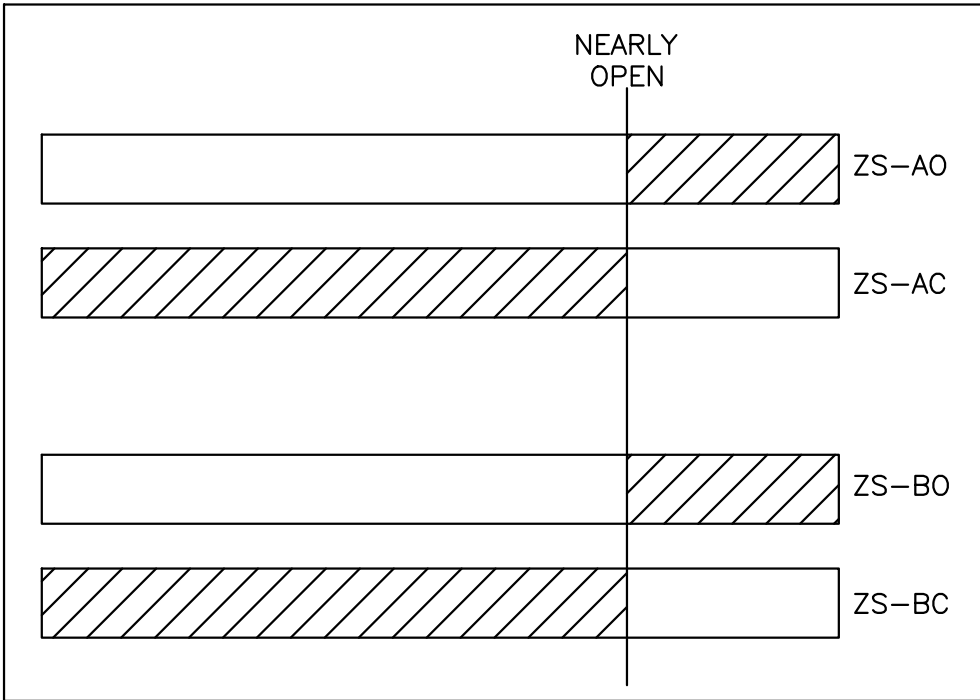
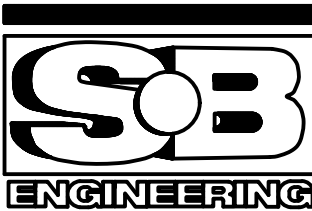
drawing no.  
dessiné no.  
E31



NAVIGATION AND PIER  
LIGHTING CIRCUIT

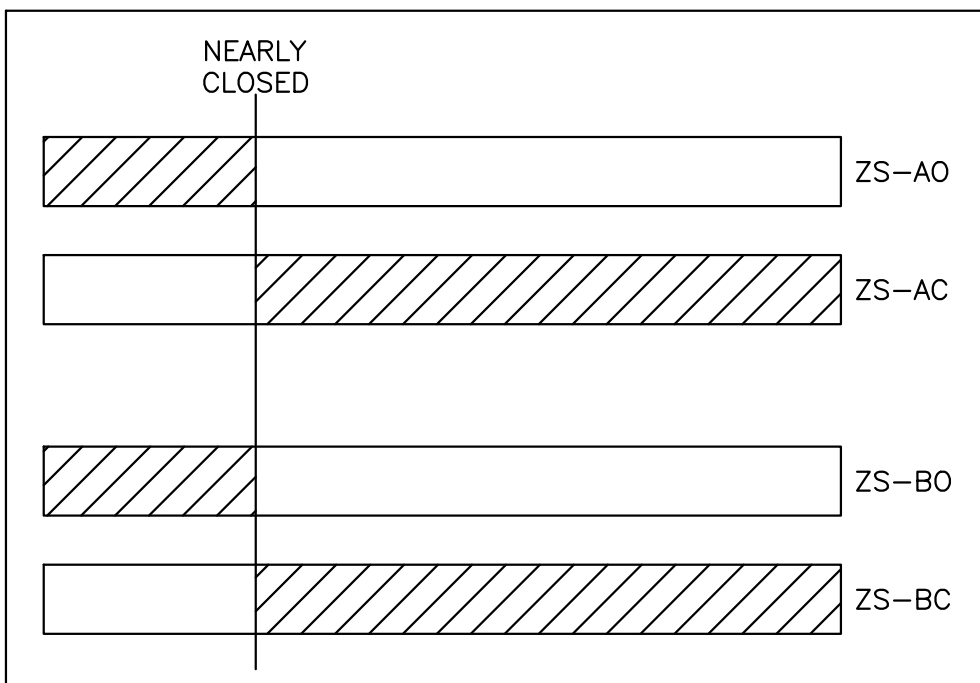


PARSONS



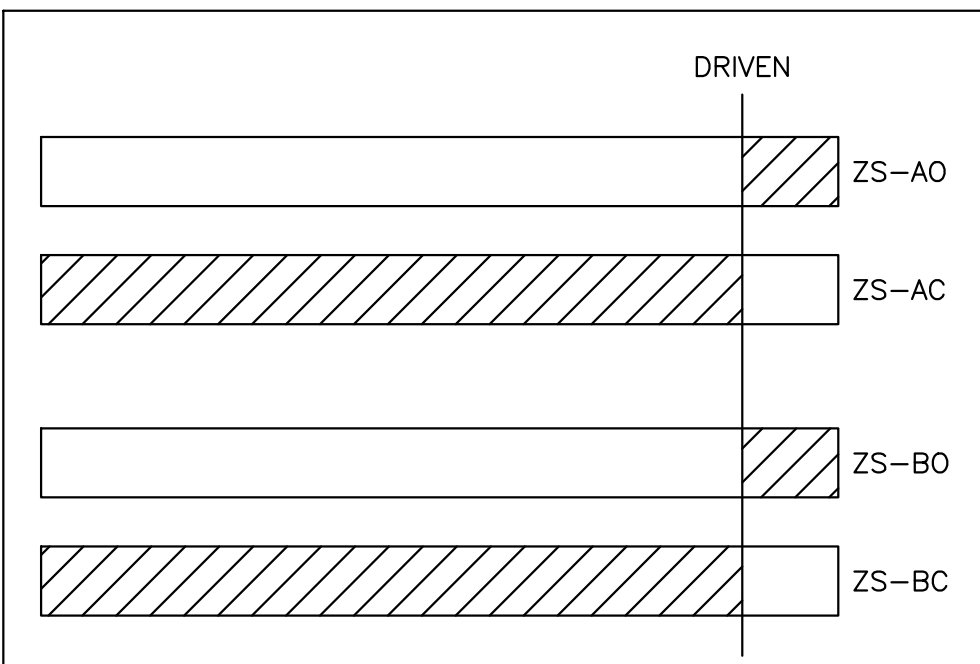
SPAN NEAR OPEN  
PROXIMITY LIMIT SWITCH

SPAN NEAR OPEN LS-SP-NO



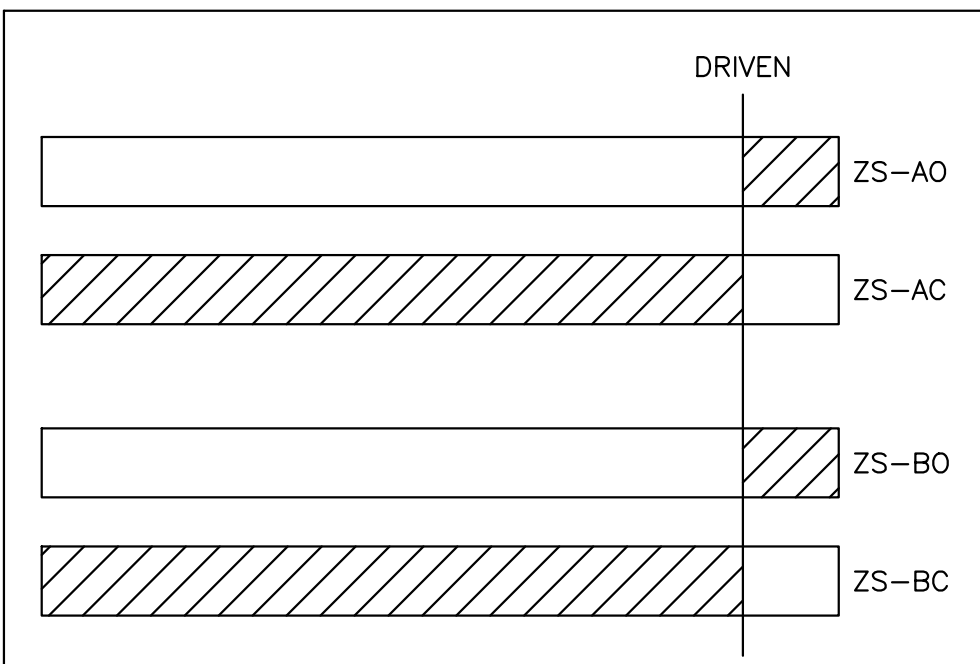
SPAN NEAR CLOSED  
PROXIMITY LIMIT SWITCH

SPAN NEAR CLOSED LS-SP-NC1  
SPAN NEAR CLOSED LS-SP-NC2



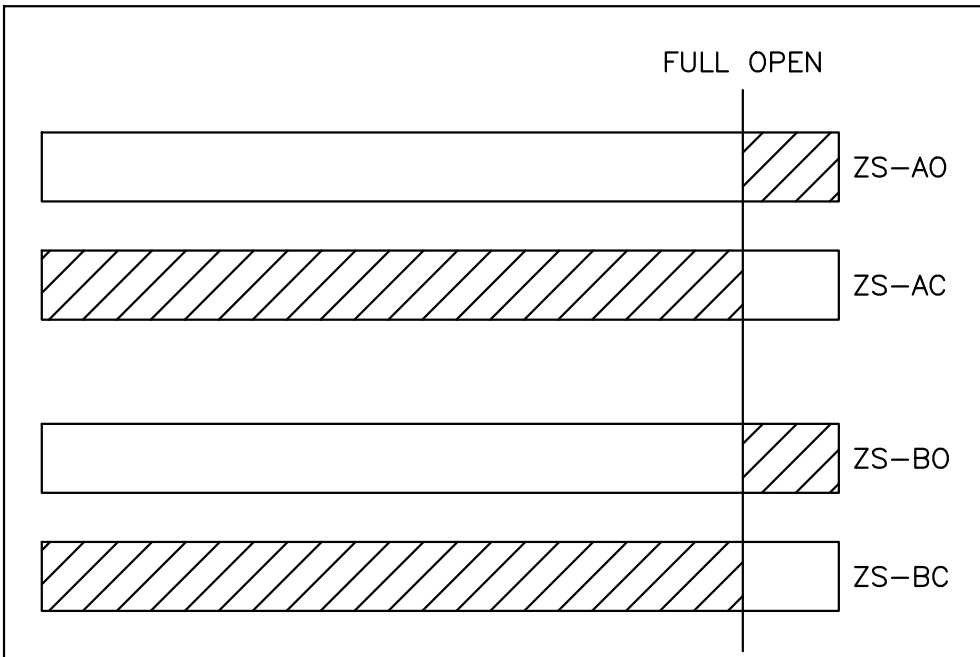
LOCKING PIN LEVER LIMIT  
SWITCHES

LOCKING PIN DRIVEN LS-LP-D



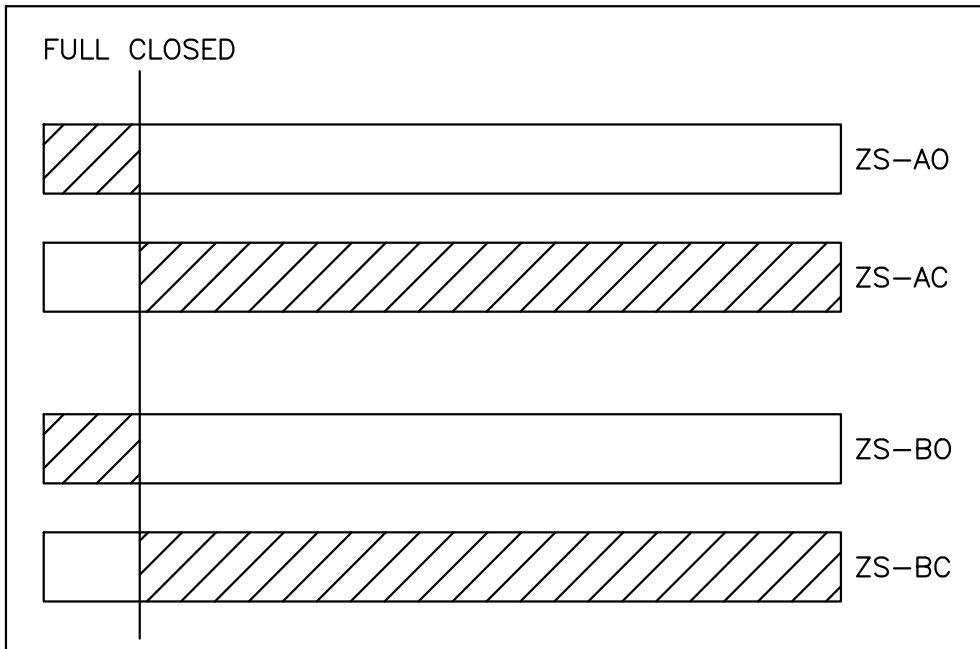
SPAN END LIFT  
LEVER LIMIT SWITCHES

SOUTHWEST END LIFT LS-SWEL-D  
SOUTHEAST END LIFT LS-SEEL-D  
NORTHWEST END LIFT LS-NWEL-D  
NORTHEAST END LIFT LS-NEEL-D



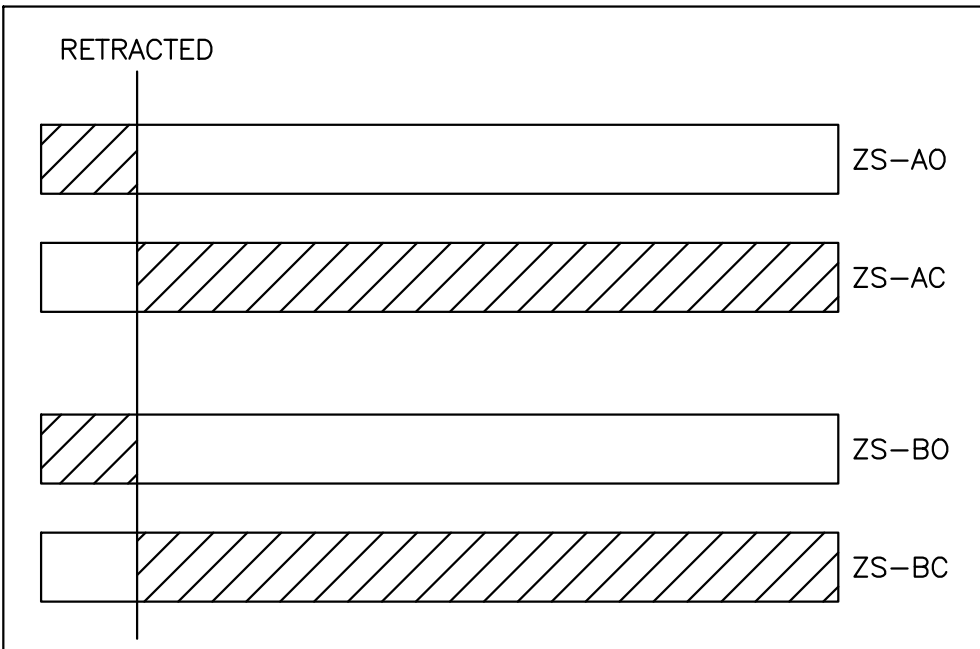
SPAN FULL OPEN  
PROXIMITY LIMIT SWITCHES

SPAN FULL OPEN LS-SP-FO



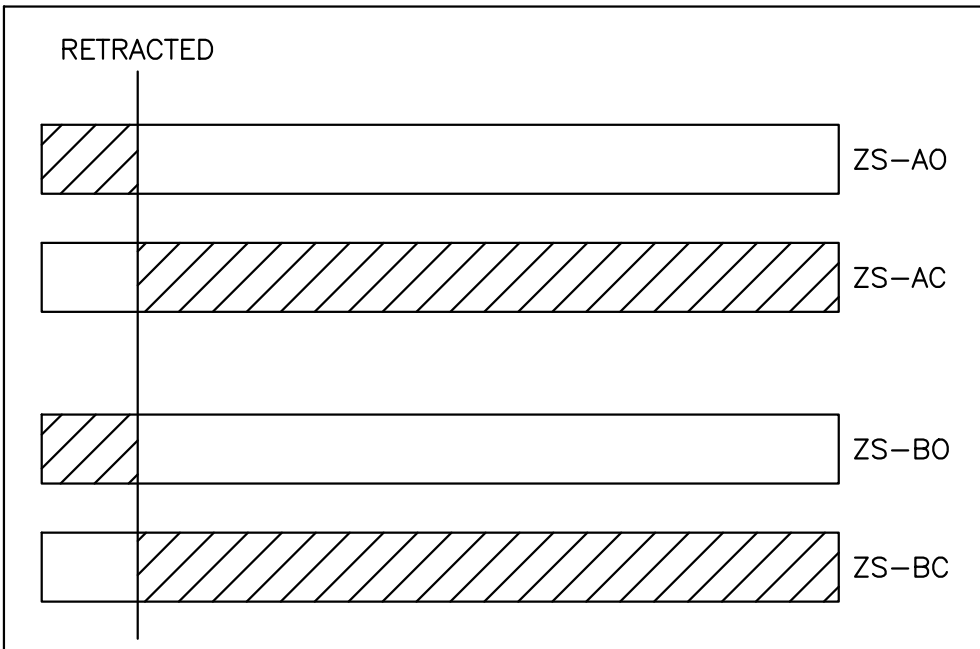
SPAN FULL CLOSE  
PROXIMITY LIMIT SWITCHES

SPAN FULL CLOSE LS-SP-FC



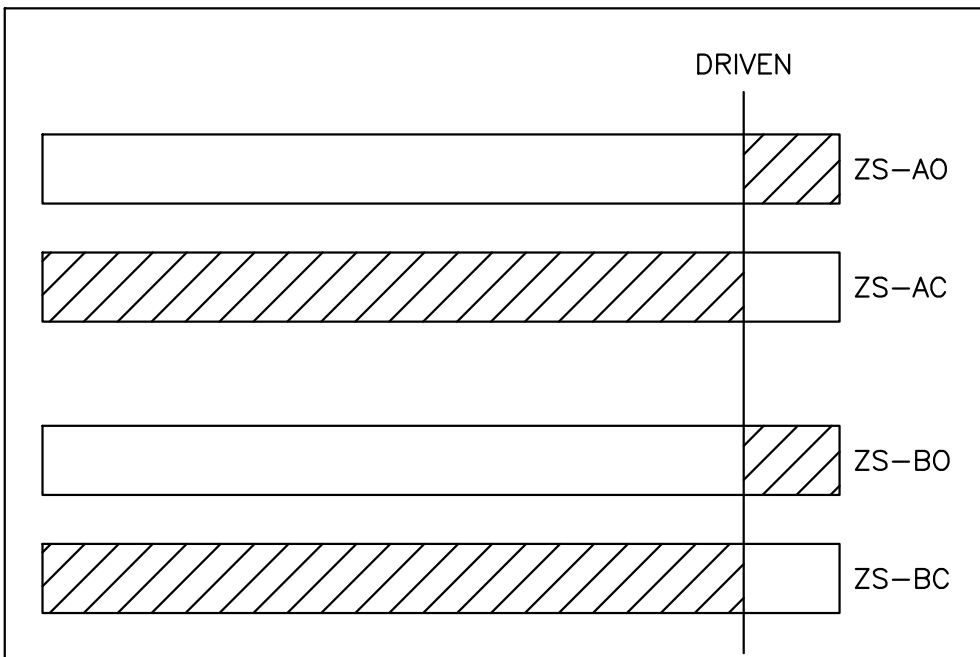
LOCKING PIN LEVER LIMIT  
SWITCHES

LOCKING PIN RETRACTED LS-LP-R



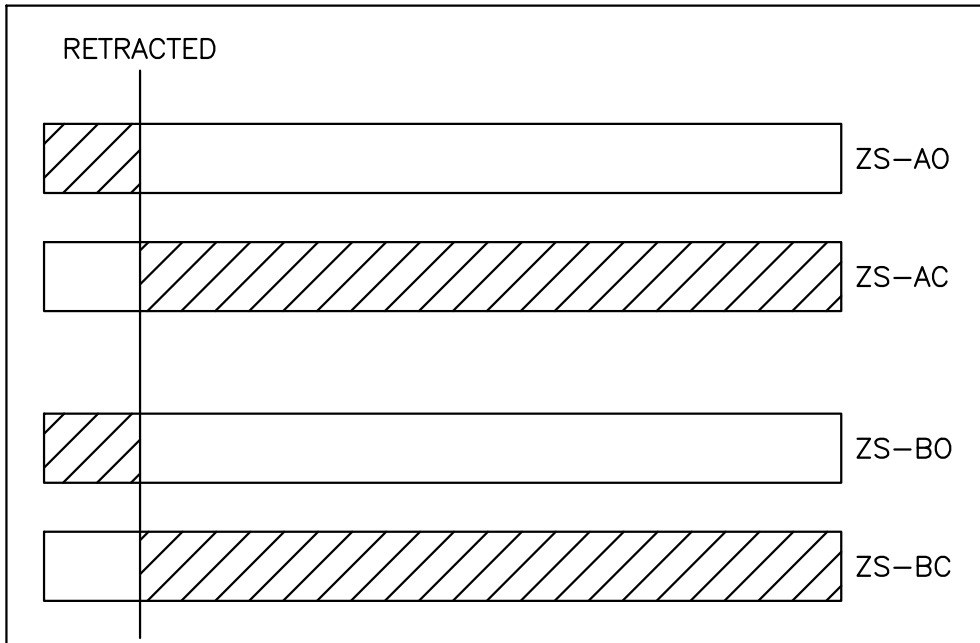
SPAN END LIFT  
LIMIT SWITCHES

SOUTHWEST END LIFT LS-SWEL-R  
SOUTHEAST END LIFT LS-SEEL-R  
NORTHWEST END LIFT LS-NWEL-R  
NORTHEAST END LIFT LS-NEEL-R



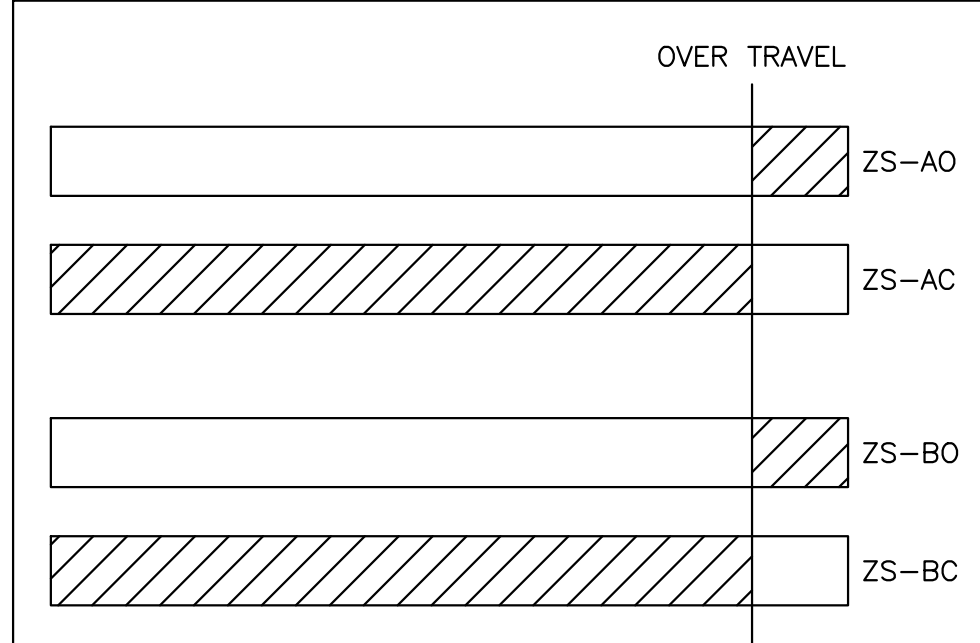
SPAN END LIFT  
LIMIT SWITCHES

SOUTHWEST END LIFT LS-SWEL-FD  
SOUTHEAST END LIFT LS-SEEL-FD  
NORTHWEST END LIFT LS-NWEL-FD  
NORTHEAST END LIFT LS-NEEL-FD



SPAN END LIFT  
LIMIT SWITCHES

SOUTHWEST END LIFT LS-SWEL-FR  
SOUTHEAST END LIFT LS-SEEL-FR  
NORTHWEST END LIFT LS-NWEL-FR  
NORTHEAST END LIFT LS-NEEL-FR



SPAN OVER TRAVEL  
PROXIMITY LIMIT SWITCHES

SPAN OVER TRAVEL OPEN LS-SP-OTO  
SPAN OVER TRAVEL CLOSE LS-SP-OTC

NOTES:

1. SEE DRAWING E07 AND E08 FOR FIELD DEVICES LOCATIONS AS WELL AS E22-E30 FOR USE IN CONTROL LOGIC.

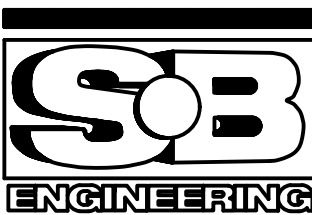
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|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. - where detail required<br>dessin no. - où détail exigé |
|   | drawing no. - where detailed<br>dessin no. - où détaillé            |

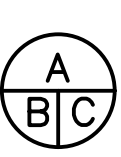
|  |                          |   |
|--|--------------------------|---|
| project title<br>titre du projet                       | Ontario                  |   |
| HAMLET BRIDGES<br>(57 & 58)<br>SWING AND FIXED BRIDGES |                          |   |
| drawing title<br>titre du dessin                       | LIMIT SWITCH DEVELOPMENT |   |
| drawn by<br>dessiné par                                | P. KUMARI                |   |
| designed by<br>conç par                                | J. KOSCIL, K. WAGNER     |   |
| approved by<br>approuvé par                            | G. REES                  |   |
| bid<br>offre   | JULIO LEON               | project manager<br>administrateur<br>de projets |
| project date<br>date du projet                         | 2018-07-20               |   |
| project no.<br>no. du projet                           | R.073593.001             |   |
| drawing no.<br>dessinée no.                            | E32                      |   |





|          |                   |            |
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| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

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|   |   |   |
|---|---|---|
|  | A | Detail No.  |
|   | B | No. du détail   |
|   | C | drawing no. - where detail required<br>dessin no. - où détail exigé |

project title  
titre du projet

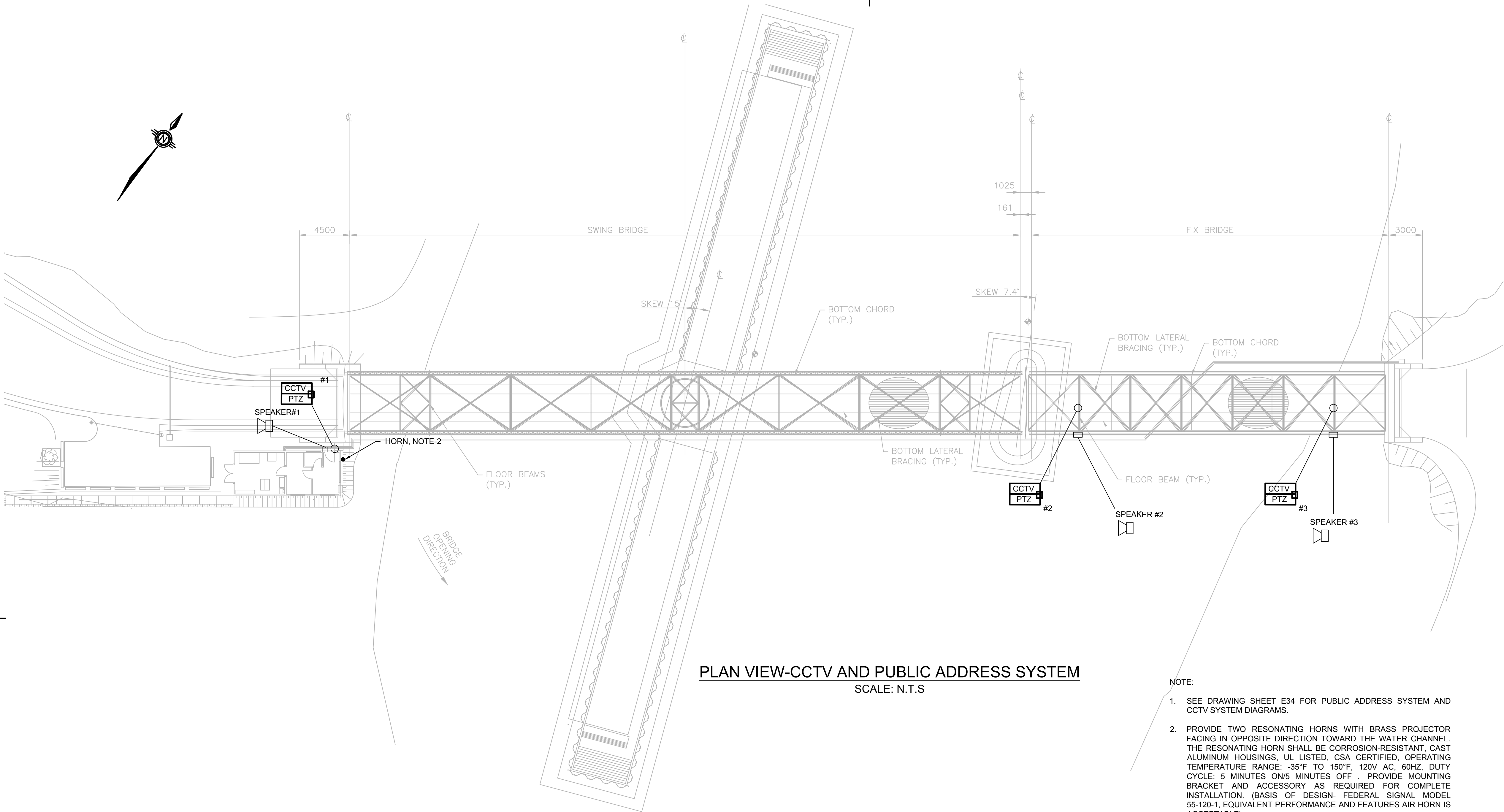
Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

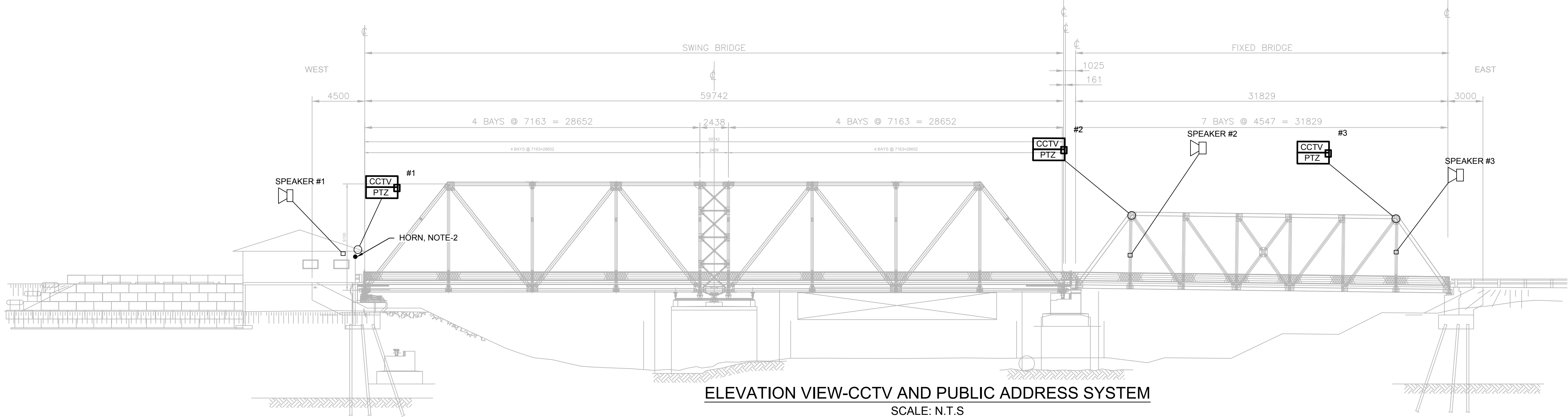
CCTV AND PUBLIC ADDRESS  
SYSTEM PLAN AND  
ELEVATION LAYOUT

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçu par       | J. KOSCIŁ, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           |  |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E33                  |  |



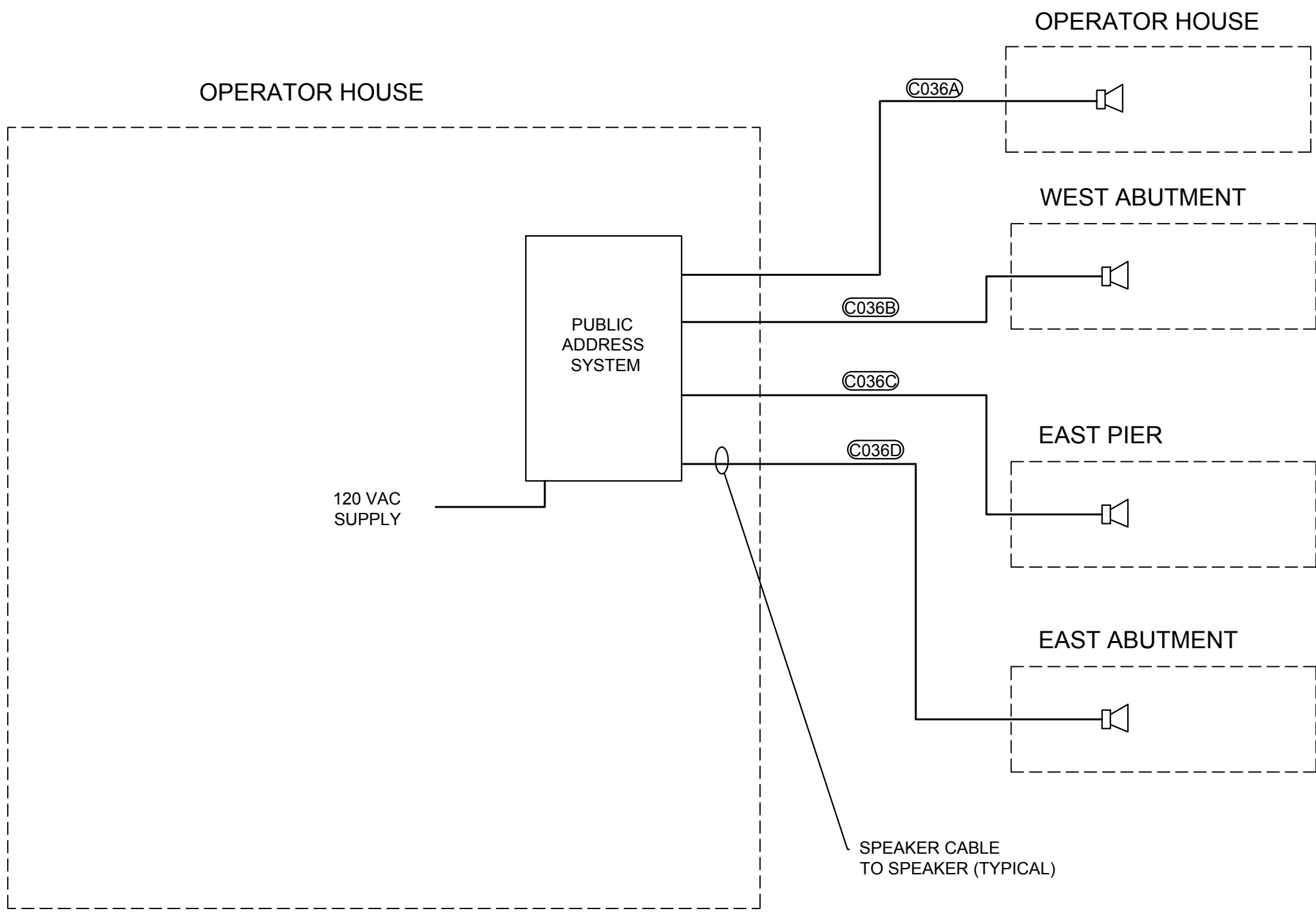
PLAN VIEW-CCTV AND PUBLIC ADDRESS SYSTEM  
SCALE: N.T.S

- NOTE:
- SEE DRAWING SHEET E34 FOR PUBLIC ADDRESS SYSTEM AND CCTV SYSTEM DIAGRAMS.
  - PROVIDE TWO RESONATING HORNS WITH BRASS PROJECTOR FACING IN OPPOSITE DIRECTION TOWARD THE WATER CHANNEL. THE RESONATING HORN SHALL BE CORROSION-RESISTANT, CAST ALUMINUM HOUSINGS, UL LISTED, CSA CERTIFIED, OPERATING TEMPERATURE RANGE: -35°F TO 150°F, 120V AC, 60HZ, DUTY CYCLE: 5 MINUTES ON/5 MINUTES OFF . PROVIDE MOUNTING BRACKET AND ACCESSORY AS REQUIRED FOR COMPLETE INSTALLATION. (BASIS OF DESIGN- FEDERAL SIGNAL MODEL 55-120-1, EQUIVALENT PERFORMANCE AND FEATURES AIR HORN IS ACCEPTABLE)

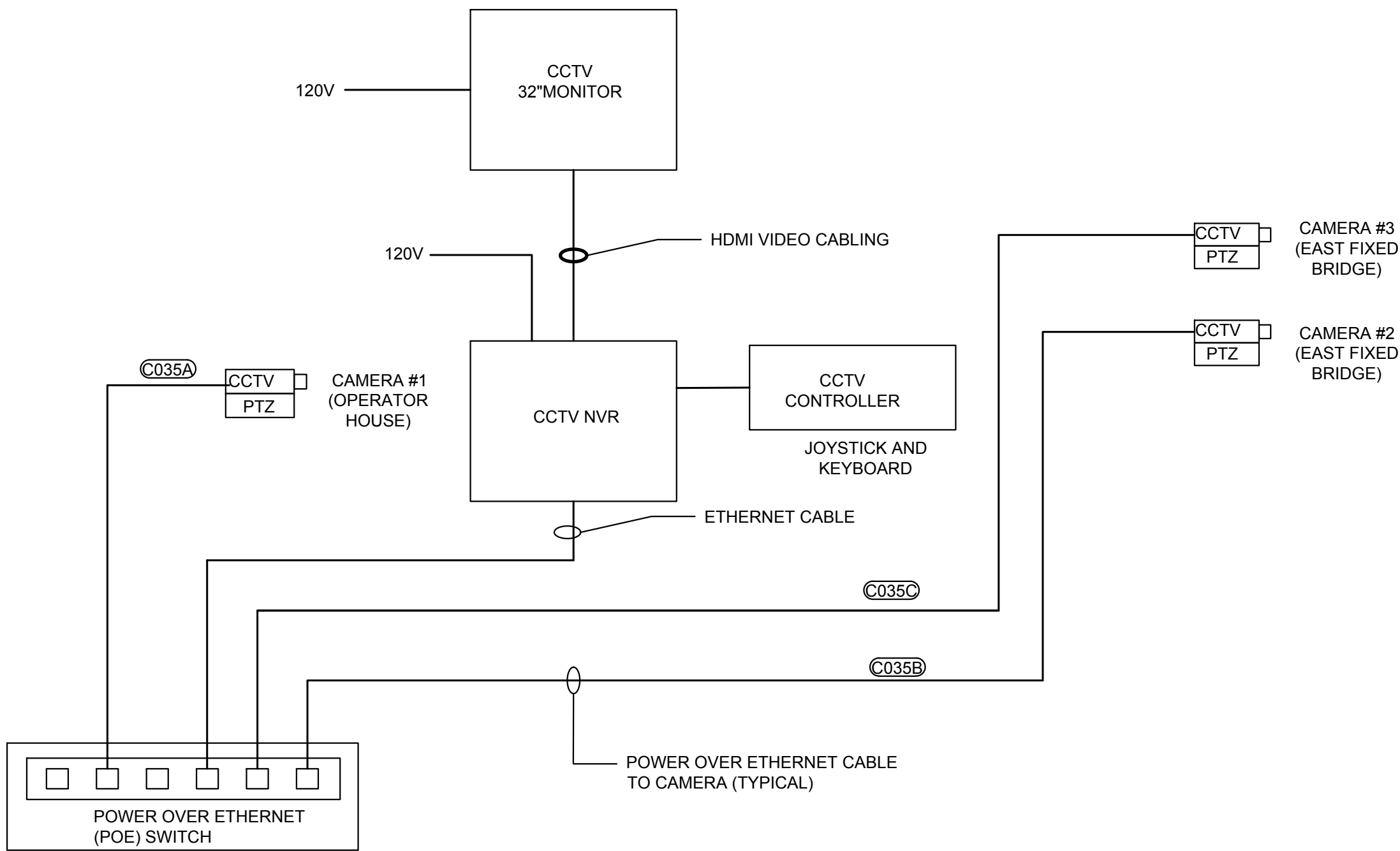


ELEVATION VIEW-CCTV AND PUBLIC ADDRESS SYSTEM  
SCALE: N.T.S





PUBLIC ADDRESS (PA) SYSTEM DIAGRAM  
SCALE: NTS

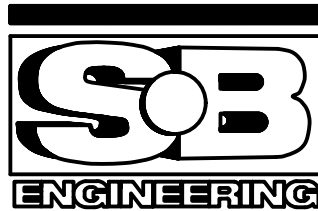


CCTV SYSTEM DIAGRAM  
SCALE: NTS

NOTES:

1. CONTRACTOR SHALL PROVIDE CIRCUIT WIRING AND CONDUIT RACEWAY FROM THE PUBLIC ADDRESS (PA) SYSTEM LOCATED IN THE OPERATOR BUILDING TO THE PUBLIC ADDRESS SPEAKERS AT LOCATION INDICATED ON DRAWING. PLACE SPEAKER AT ANGLE TO PROVIDE BEST COVERAGE TO ADDRESS PUBLIC AND BOATERS IN THE BRIDGE AREA. SEE DRAWING SHEET E33.
2. CONTRACTOR SHALL PROVIDE CIRCUIT WIRING AND CONDUIT RACEWAY FROM THE VIDEO SURVEILLANCE SYSTEM LOCATED IN THE OPERATOR BUILDING TO THE SECURITY CAMERAS AT LOCATIONS INDICATED ON DRAWING. PLACE CAMERAS AT ANGLE TO PROVIDE BEST COVERAGE TO VIEW VEHICLE TRAFFIC AND/OR MARINE VESSELS TRAFFIC. SEE DRAWING SHEET E33.

PARSONS



|          |                   |            |
|----------|-------------------|------------|
| 04       |                   |            |
| 03       |                   |            |
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| 01       | ISSUED FOR TENDER | 2018-07-20 |
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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet

Ontario

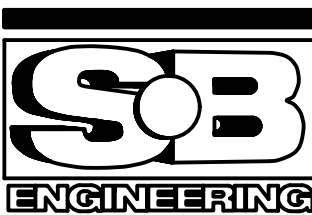
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

PUBLIC ADDRESS SYSTEM  
AND CCTV SYSTEM  
DIAGRAMS

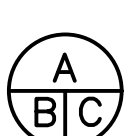
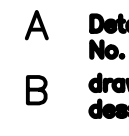
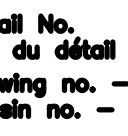
|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E34                  |  |





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| 04       |                   |            |
| 03       |                   |            |
| 02       |                   |            |
| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

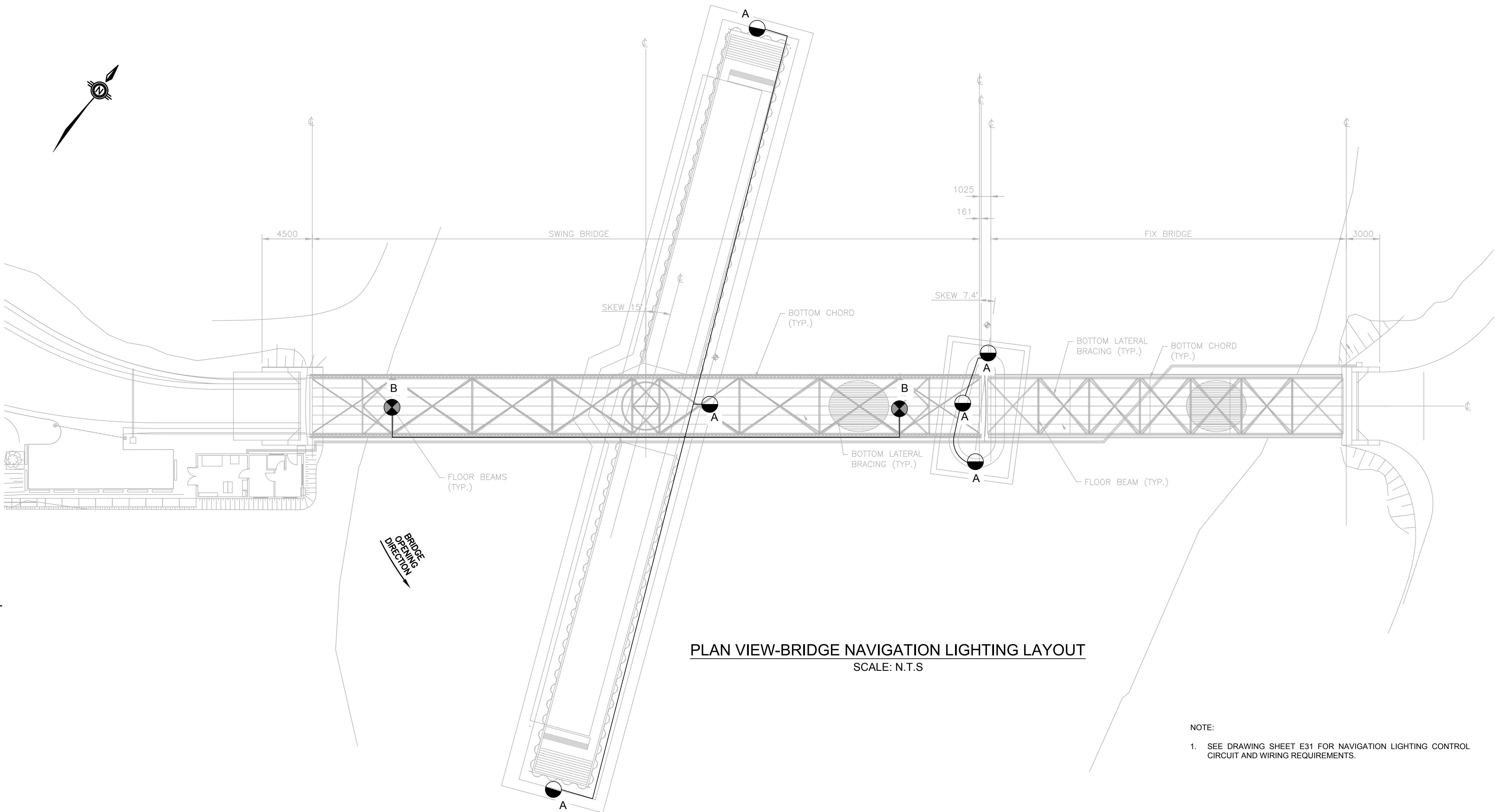
Do not scale drawings.  
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|   |   |
|---|---|
|  | A Detail No.<br>No. du détail   |
|  | B drawing no. - where detail required<br>dessin no. - où détail exigé |
|  | C drawing no. - where detailed<br>dessin no. - où détaillé            |

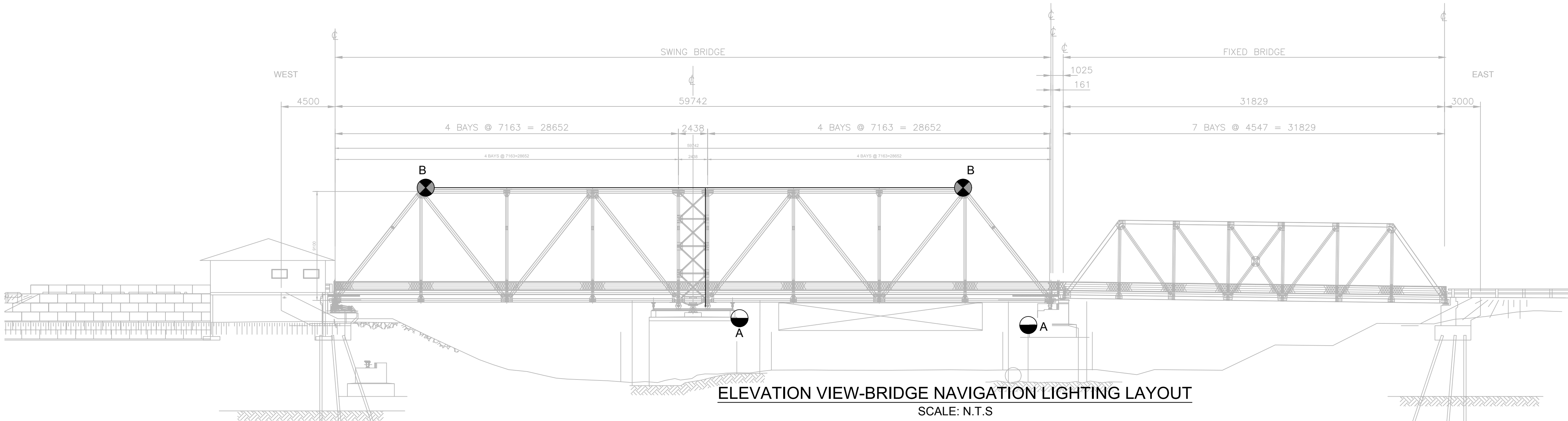
project title  
titre du projet  
  
Ontario  
  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
  
NAVIGATION LIGHTING  
LAYOUT PLAN

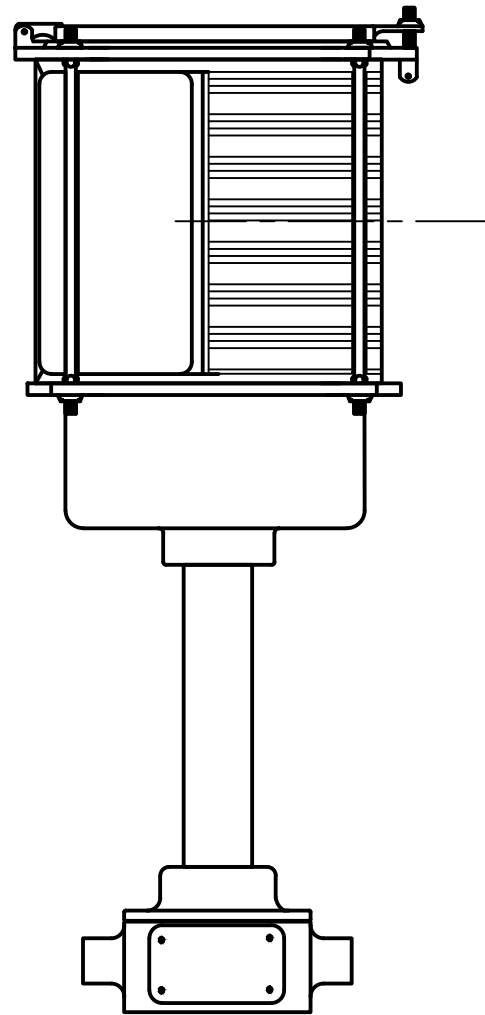
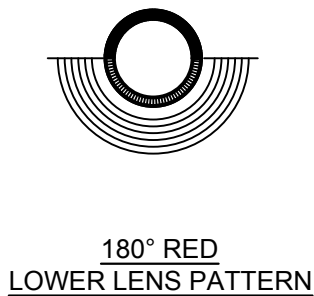
|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            |  |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           | project manager<br>administrateur de projets |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E35                  |  |



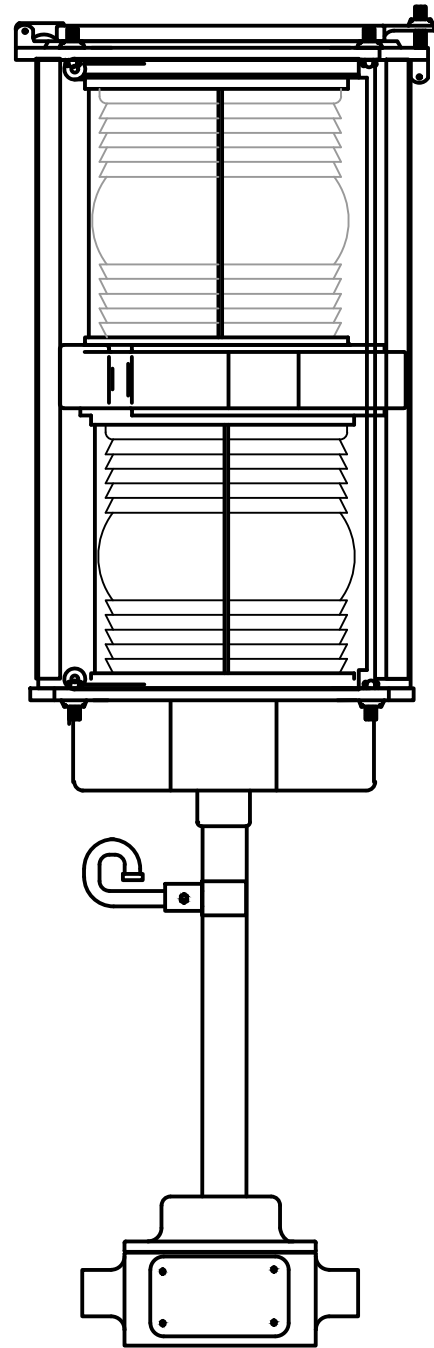
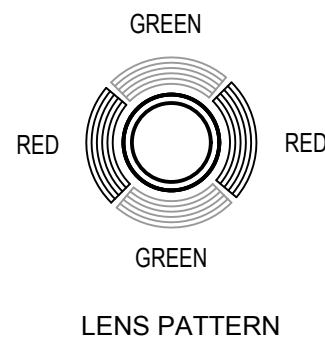
- NOTE:
- SEE DRAWING SHEET E31 FOR NAVIGATION LIGHTING CONTROL  
CIRCUIT AND WIRING REQUIREMENTS.



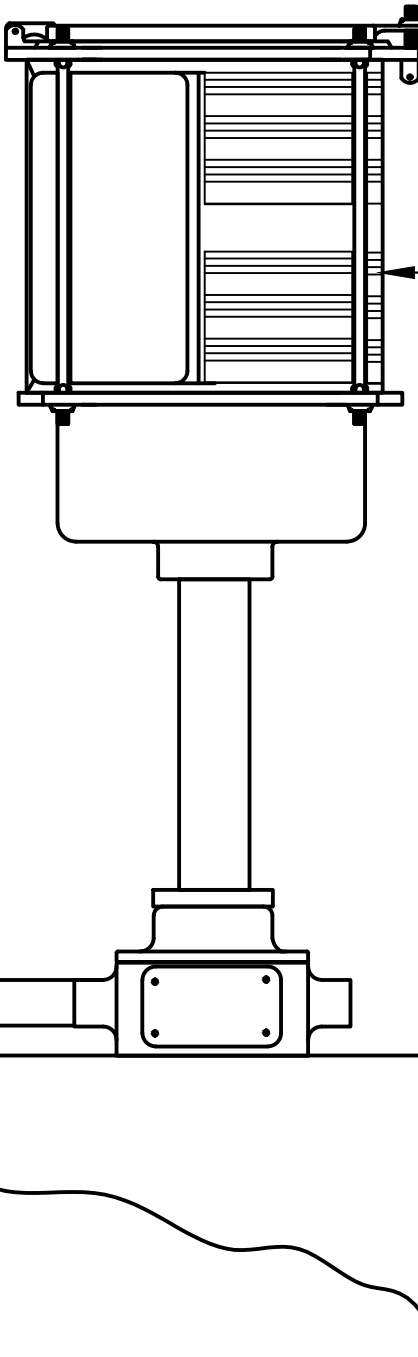




TYPICAL PIVOT PIER FENDER LIGHT: TYPE A  
SCALE: NTS



TYPICAL SWING SPAN NAVIGATION LIGHT: TYPE B  
SCALE: NTS



180° RED, PIER MOUNTED  
NAVIGATION LIGHT

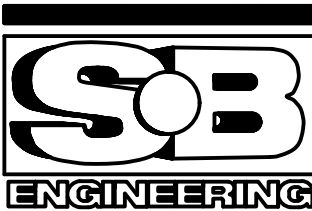
PIER TOP

PIVOT PIER FENDER LIGHT INSTALLATION : TYPE A  
SCALE: NTS

NOTES:

1. SEE DRAWING SHEET E31 FOR NAVIGATION LIGHT CONTROL CIRCUIT.

PARSONS



|          |                   |            |
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|   |                                     |
|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
INAVIGATION LIGHT  
INSTALLATION DETAILS

drawn by  
dessiné par  
P. KUMARI

designed by  
conçu par  
J. KOSCIL, K. WAGNER

approved by  
approuvé par  
G. REES

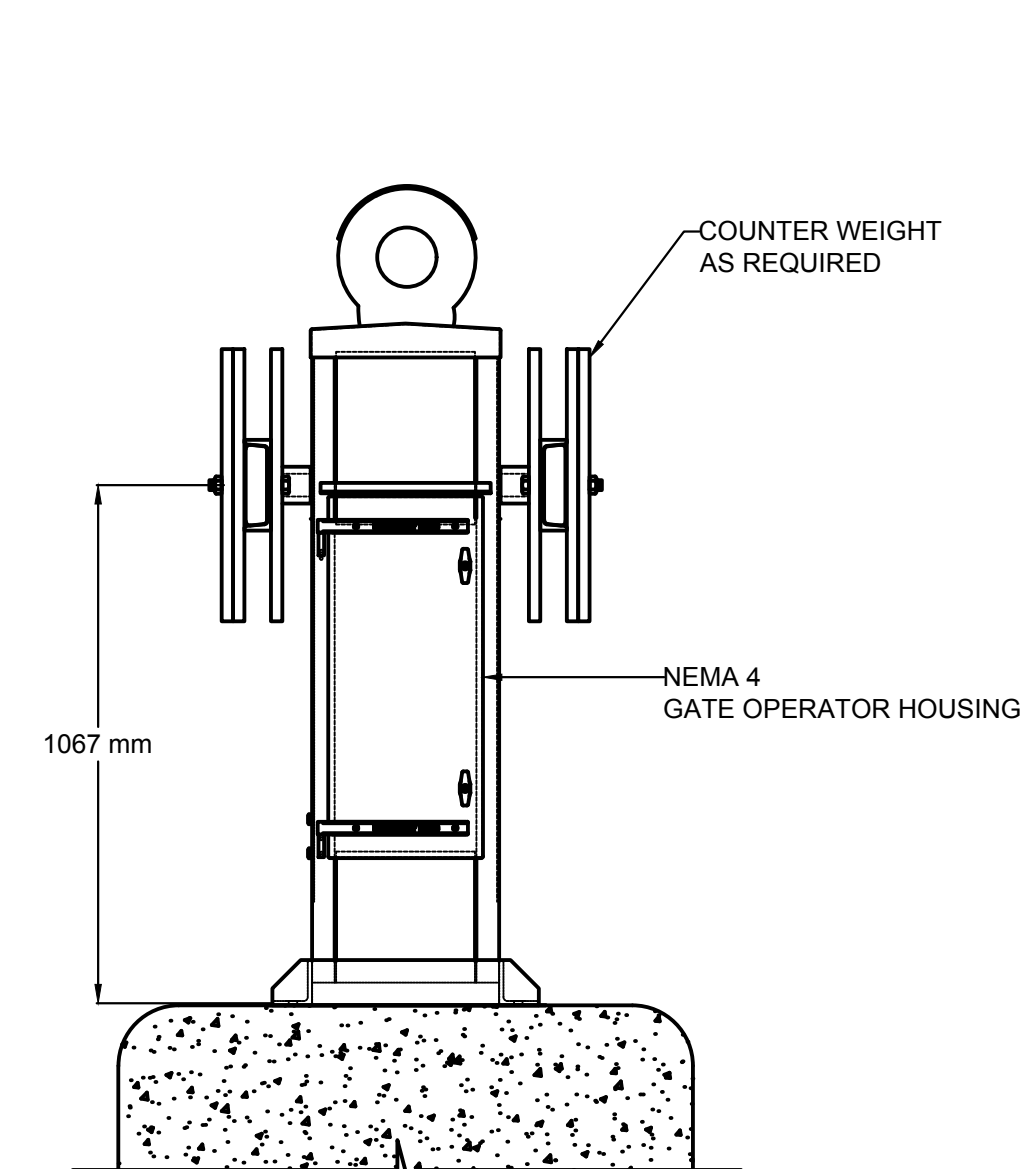
bid  
offre  
JULIO LEON  
project manager  
administrateur  
de projets

project date  
date du projet  
2018-07-20

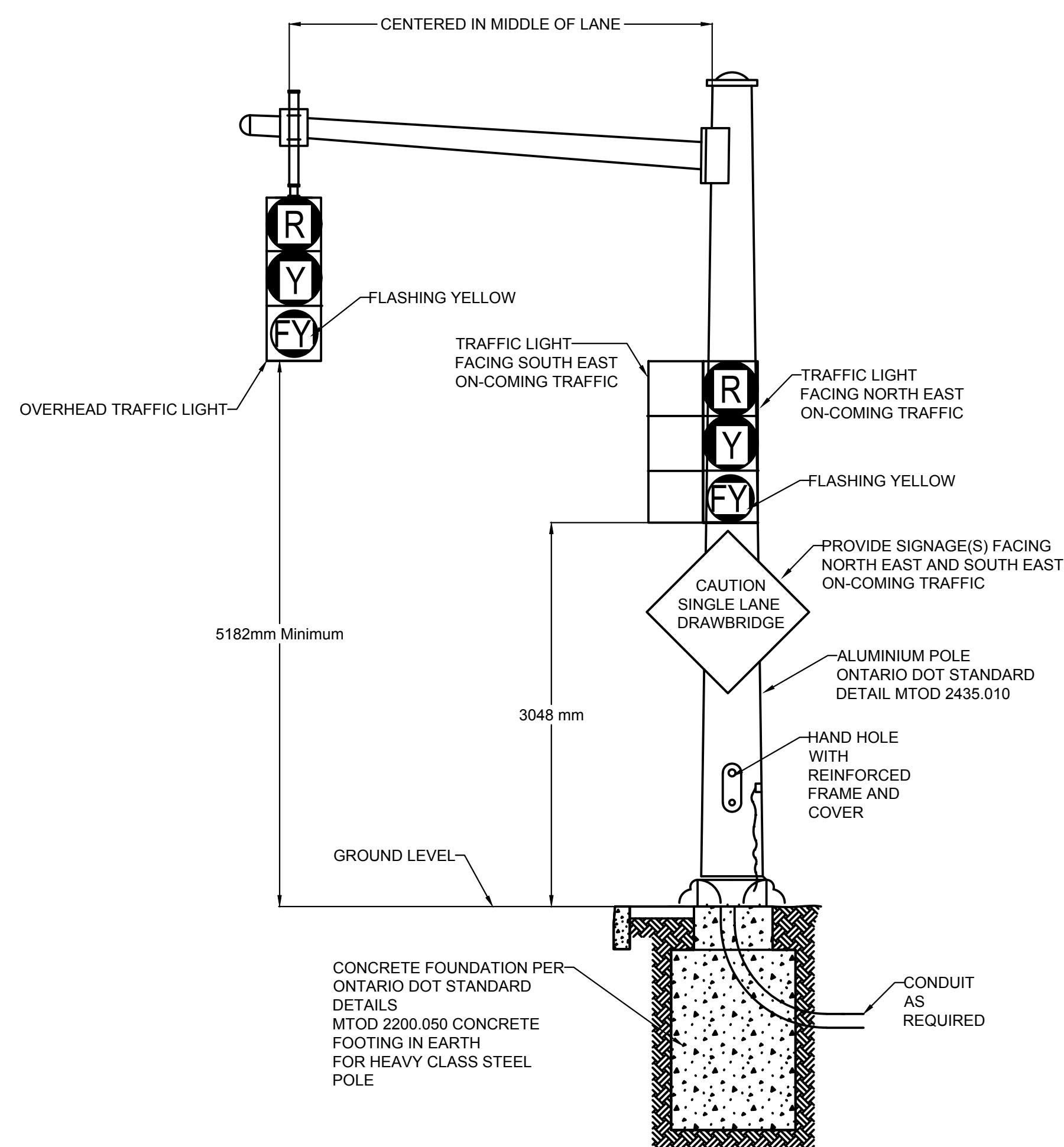
project no.  
no. du projet  
R.073593.001

drawing no.  
dessiné no.  
E36

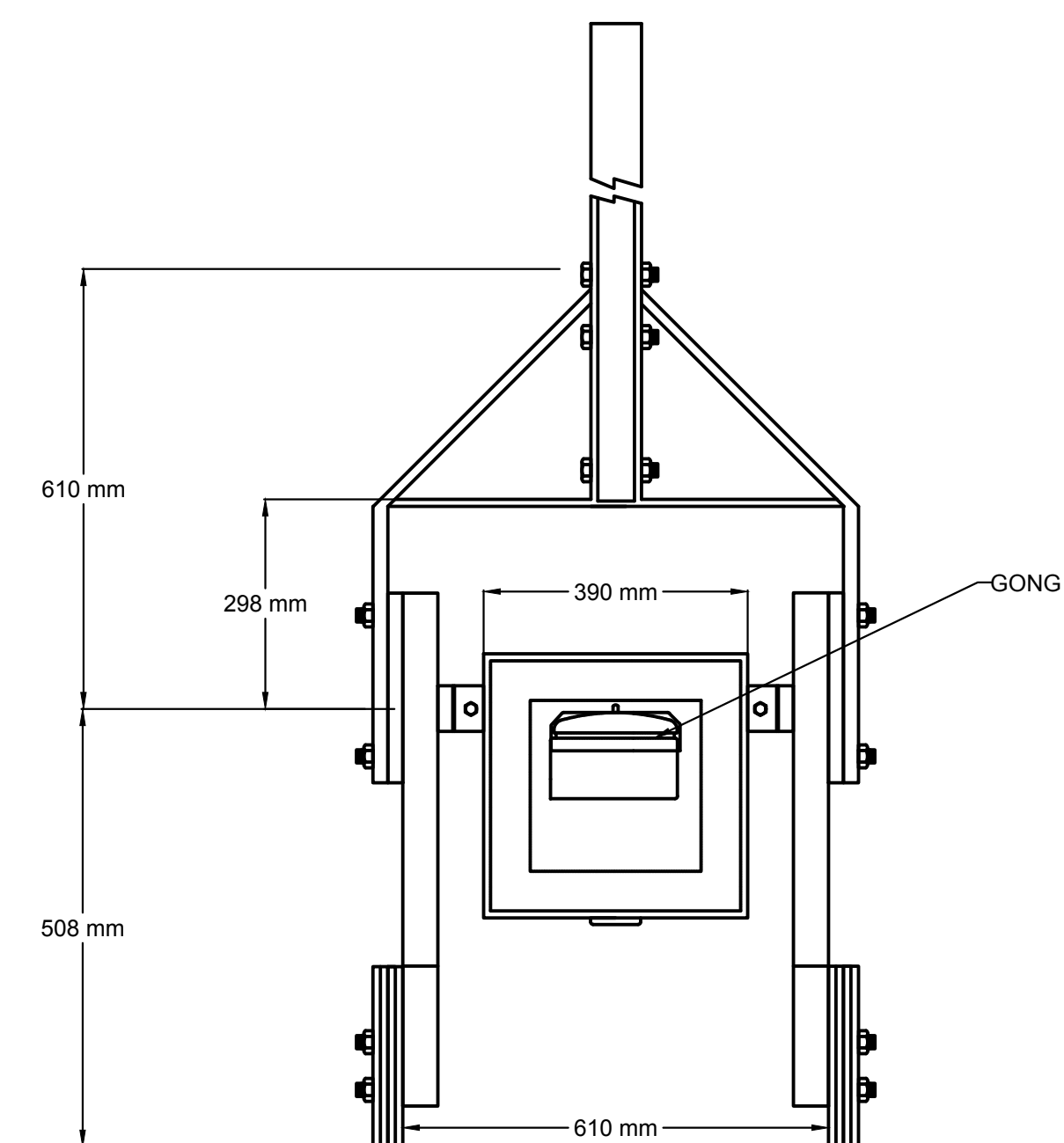




DOOR SIDE ELEVATION  
SCALE:NTS



## EAST TRAFFIC SIGNAL DETAIL



\* NOTE: TOTAL WIDTH IS 610 mm + 13mm  
FOR EACH COUNTERWEIGHT REQUIRED.


**PLAN VIEW DOOR SIDE (COVER IN PLACE)**

SCALE:NTS

1. THE TRAFFIC GATE BASE WILL BE MOUNTED TO A REINFORCED CONCRETE CAISSON. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF THE REINFORCED CONCRETE CAISSON. THE TOP OF CONCRETE ELEVATION FOR THE REINFORCED CONCRETE CAISSON SHOULD BE SET SO THAT THERE IS A CLEAR DISTANCE OF 100MM BETWEEN THE UNDERSIDE OF THE GATE ARM AND THE TOP OF THE TRAFFIC BARRIER.

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| revision |                   | date       |

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 A Detail No.  
No. du détail

B drawing no. — where detail required  
dessin no. — où détail exigé

C drawing no. — where detailed  
dessin no. — où détaillé

|                                  |         |
|----------------------------------|---------|
| project title<br>titre du projet | Ontario |
|----------------------------------|---------|

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

# drawing title titre du dessin

## WARNING GATE AND TRAFFIC LIGHT INSTALLATION DETAILS

drawn by  
dessine par P. KUMARI

|                         |                      |
|-------------------------|----------------------|
| designed by<br>conc par | J. KOSCIL, K. WAGNER |
|-------------------------|----------------------|

approved by  
approve par G. REES

|              |            |   |
|--------------|------------|---|
| bid<br>offre | JULIO LEON | project manager<br>administrateur<br>de projets |
|--------------|------------|---|

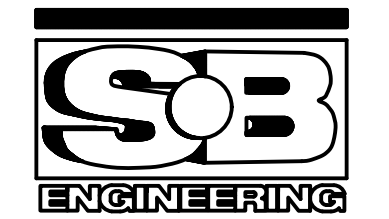
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|--------------------------------|------------|
| project date<br>date du projet | 2018-07-20 |
|--------------------------------|------------|

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| project no.<br>no. du projet | R.073593.001 |
|------------------------------|--------------|

drawing no.  
dessin no. E37



PARSONS



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| 01       | ISSUED FOR TENDER | 2018-07-20 |
| revision |                   | date       |

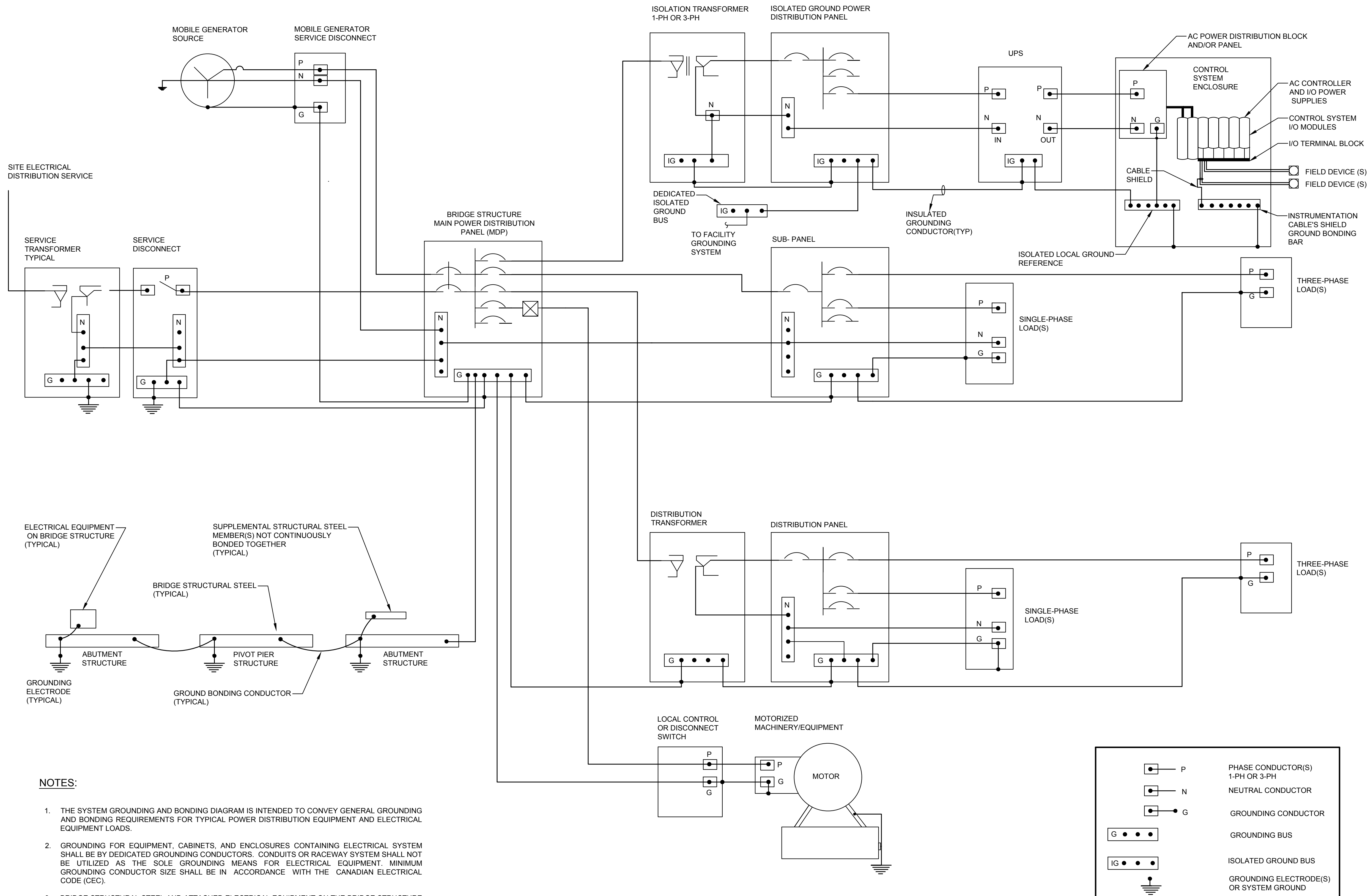
Do not scale drawings.  
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|---|-------------------------------------|
| A | Detail No.                          |
| B | drawing no. - where detail required |
| C | drawing no. - where detailed        |

project title  
titre du projet  
Ontario  
HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin  
BRIDGE GROUNDING AND  
BONDING

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçu par       | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           |  |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E38                  |  |

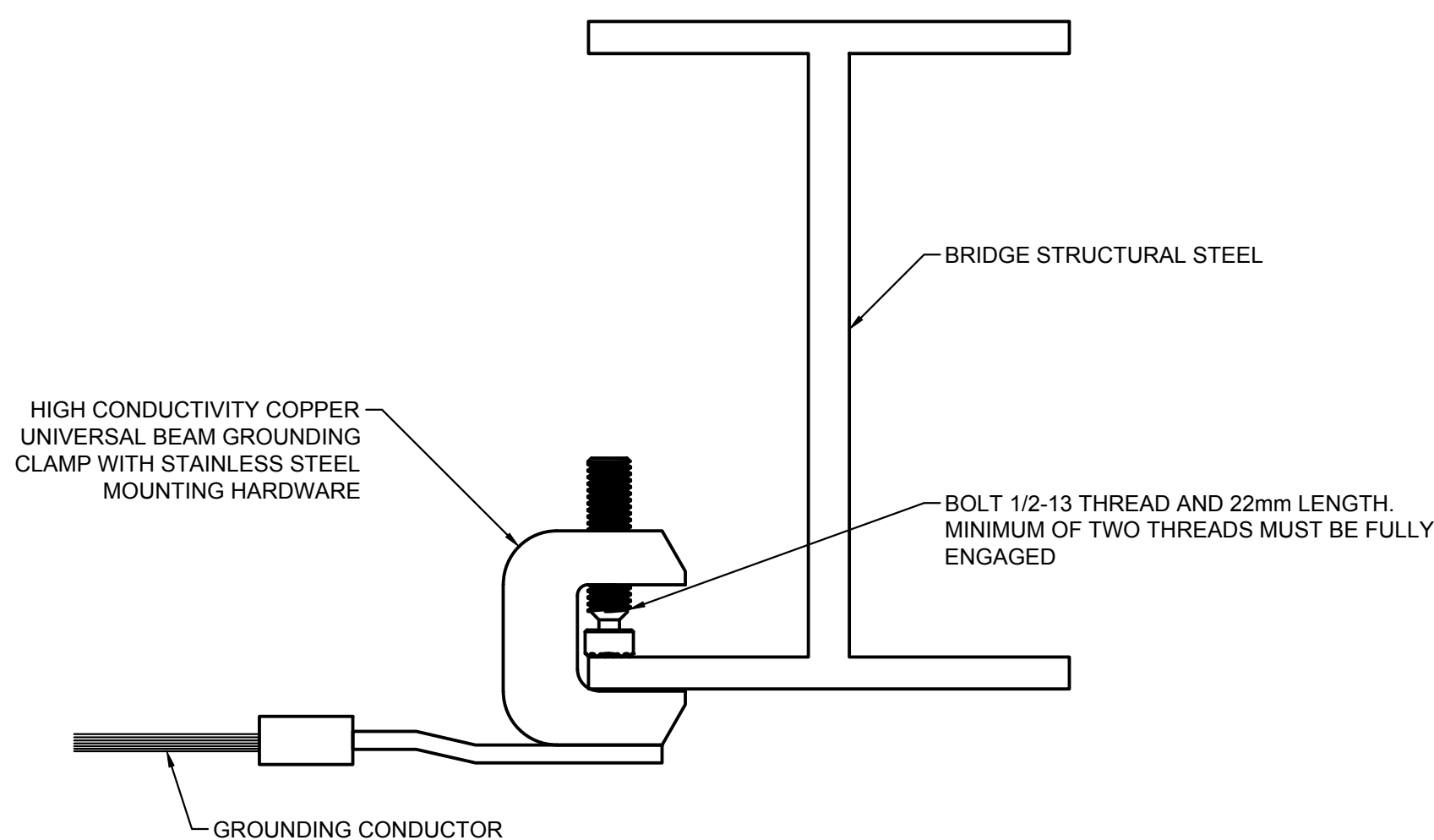


NOTES:

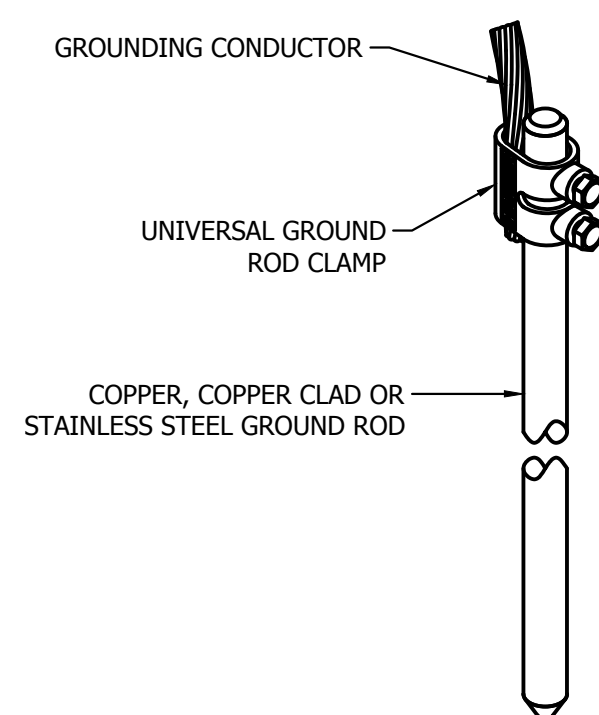
1. THE SYSTEM GROUNDING AND BONDING DIAGRAM IS INTENDED TO CONVEY GENERAL GROUNDING AND BONDING REQUIREMENTS FOR TYPICAL POWER DISTRIBUTION EQUIPMENT AND ELECTRICAL EQUIPMENT LOADS.
2. GROUNDING FOR EQUIPMENT, CABINETS, AND ENCLOSURES CONTAINING ELECTRICAL SYSTEM SHALL BE BY DEDICATED GROUNDING CONDUCTORS. CONDUITS OR RACEWAY SYSTEM SHALL NOT BE UTILIZED AS THE SOLE GROUNDING MEANS FOR ELECTRICAL EQUIPMENT. MINIMUM GROUNDING CONDUCTOR SIZE SHALL BE IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE (CEC).
3. BRIDGE STRUCTURAL STEEL AND ATTACHED ELECTRICAL EQUIPMENT ON THE BRIDGE STRUCTURE SHALL BE GROUNDED BY DIRECT CONNECTION TO A SUITABLE GROUNDING ELECTRODE OF ONE OF THE FOLLOWING TYPES: STRUCTURAL STEEL PIPE OR SHEET PILES, COPPER GROUND ROD DRIVEN AT LEAST 3-METER INTO THE GROUND IMMEDIATELY ADJACENT BRIDGE STRUCTURE, OR STAINLESS STEEL PLATE OF AT LEAST 1 METER SQUARE OF EXPOSED AREA SUBMERSED BELOW THE WATER LEVELS AT ALL TIMES. COPPER CONDUCTOR SIZE 1/0 AWG, MINIMUM SHALL BE USED TO CONNECT BRIDGE STRUCTURE TO GROUNDING ELECTRODE. GROUNDING RESISTANCE SHALL BE LESS THAN 10 OHMS.

BRIDGE GROUNDING AND BONDING

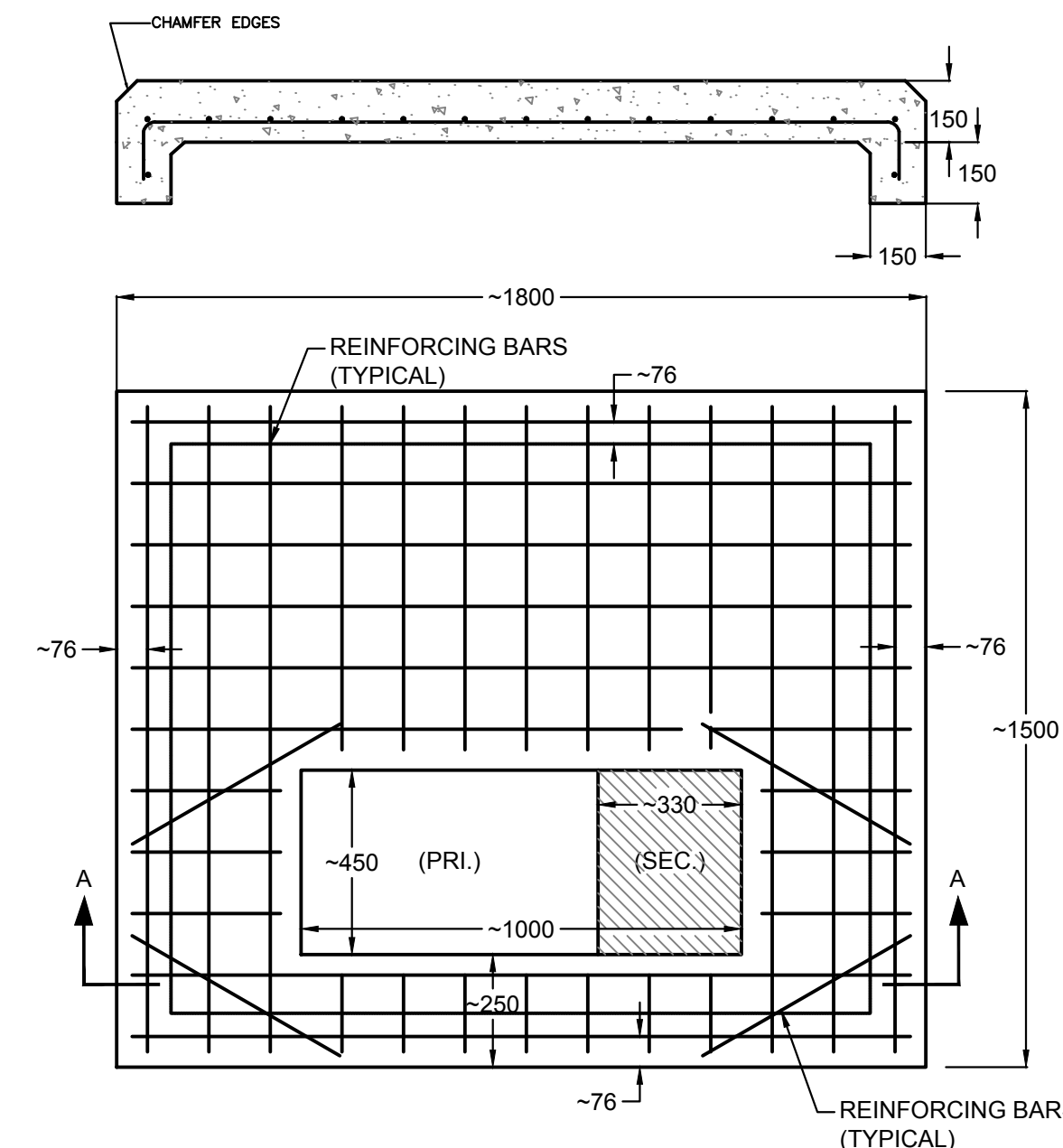




BRIDGE STRUCTURE  
GROUNDING ATTACHEMENT  
SCALE: N.T.S



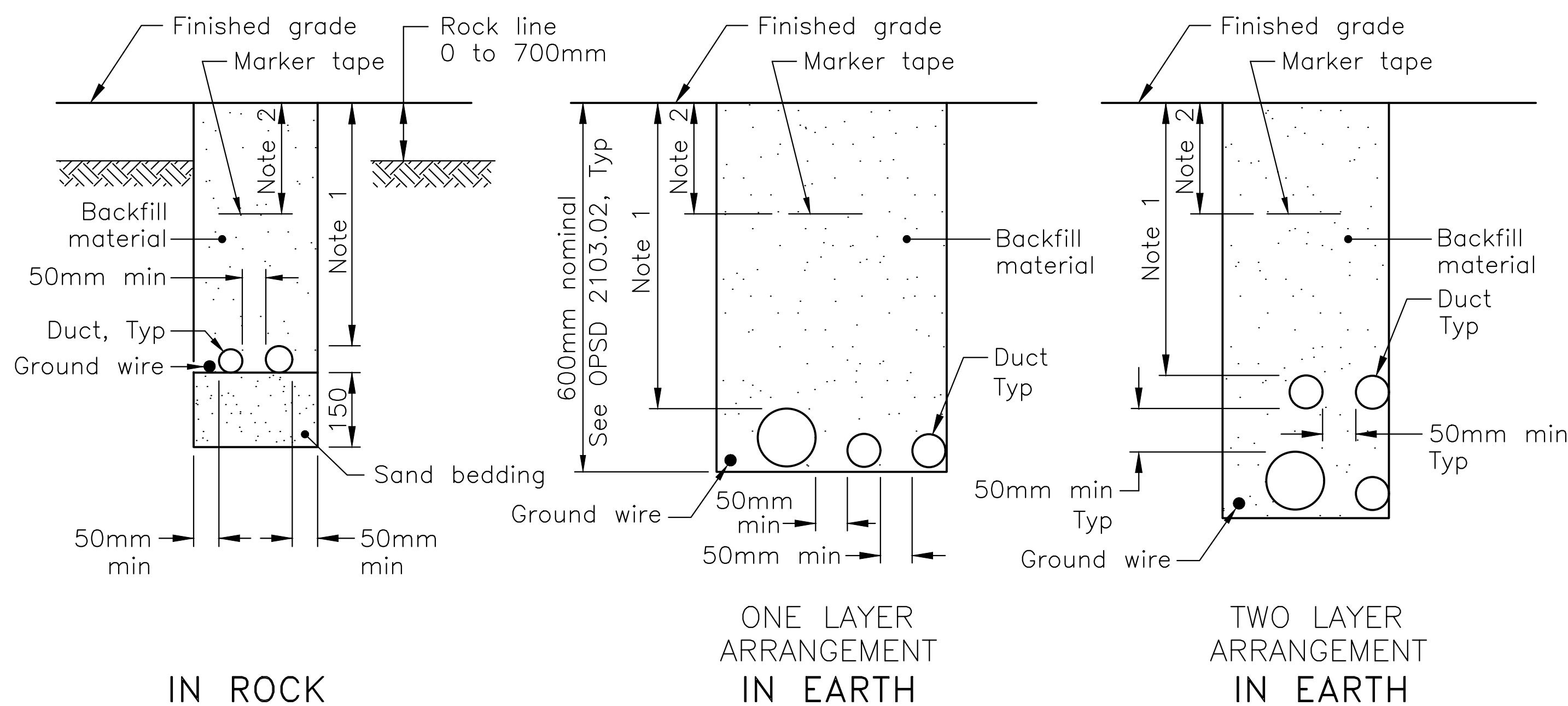
GROUND ROD DETAILS  
SCALE: N.T.S



GENERAL NOTES:

1. CONCRETE TESTING: 3000 PSI ; 4% TO 6% ENTRAINED AIR, 19mm MAXIMUM SIZE AGGREGATE.
2. REINFORCING STEEL: ASTM A615/A615M GRADE 60, PLACE APPROX. 150mm O.C.EACH WAY AND SECURELY TIED TOGETHER.
3. MINIMUM CONCRETE COVER OVER REINFORCING STEEL 50mm UNLESS OTHERWISE NOTED.
4. THE TRANSFORMER CONCRETE PAD SIZE IS APPROXIMATE AND IS PROVIDED TO FACILITATE BID PRICING ONLY. THE CONTRACTOR SHALL PROVIDE TRANSFORMER PAD AND COORDINATE WITH LOCAL UTILITY COMPANY FOR THE TRANSFORMER PAD REQUIREMENTS AND PROVIDE TRANSFORMER PAD THAT WILL ACCOMMODATE THE ACTUAL TRANSFORMER THAT WILL BE INSTALLED.

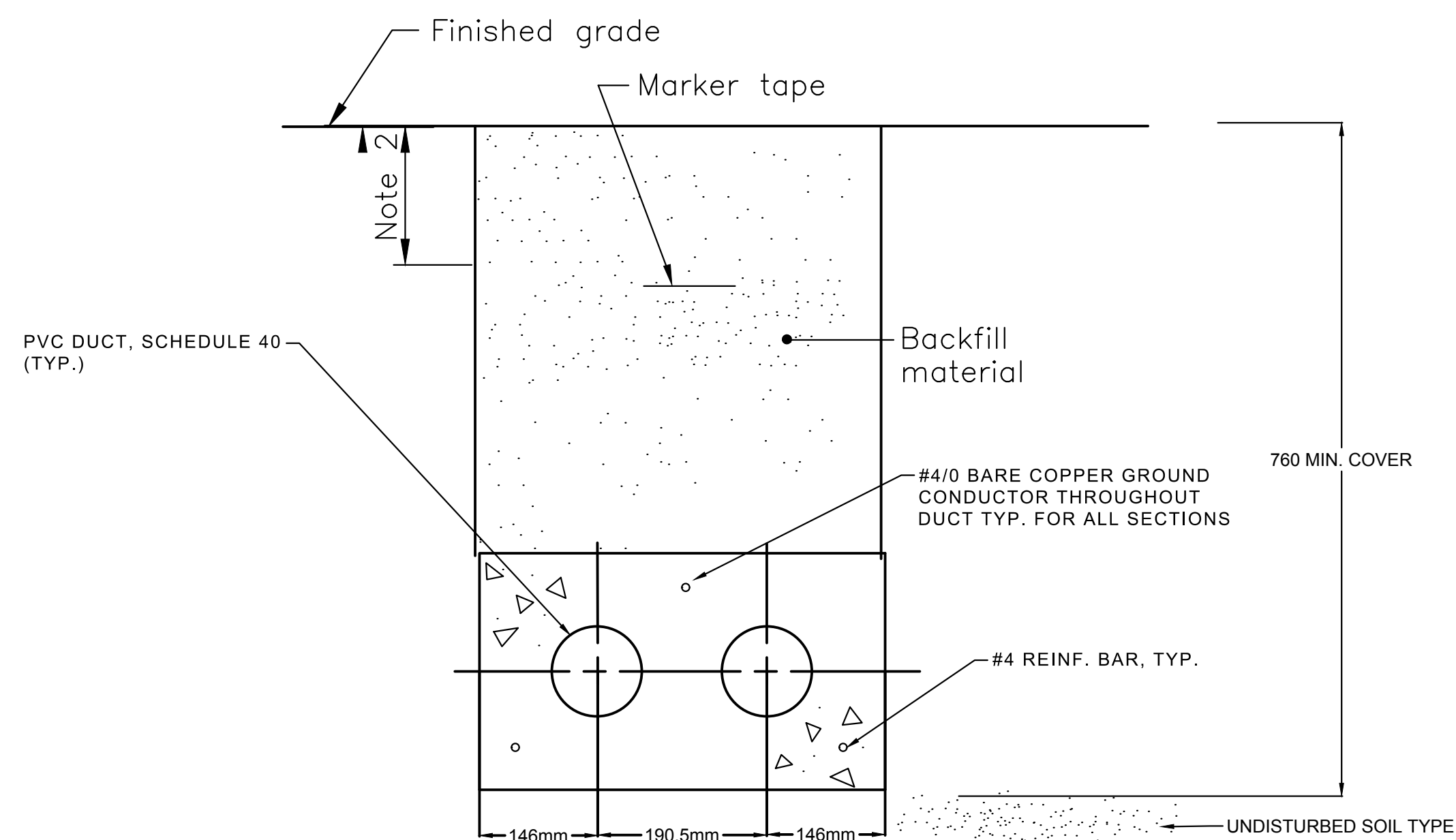
TRANSFORMER PAD DETAILS  
SCALE: N.T.S



DIRECT BURIED DUCTS (TYPICAL)  
SCALE: N.T.S

NOTES:

1. BURIAL DEPTH OF THE DIRECT BURIED DUCT PER CANADIAN ELECTRICAL SAFETY CODE.
2. BURIAL DEPTH OF THE MARKING TAPE PER CANADIAN ELECTRICAL SAFETY CODE.



CONCRETE ENCASED DUCT BANK (TYPICAL)  
SCALE: N.T.S

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| revision |                   | date       |

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|   |   |
|---|---|
| A | Detail No.  |
| B | No. du détail   |
| C | drawing no. - where detail required<br>dessin no. - où détail exigé |
|   | drawing no. - where detailed<br>dessin no. - où détaillé            |

project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

MISCELLANEOUS  
ELECTRICAL INSTALLATION  
DETAILS SHEET 1 OF 2

drawn by  
dessiné par

P. KUMARI

designed by  
conçue par

J. KOSCIL, K. WAGNER

approved by  
approuvé par

G. REES

bid  
offre

JULIO LEON

project manager  
administrateur de projets

project date  
date du projet

2018-07-20

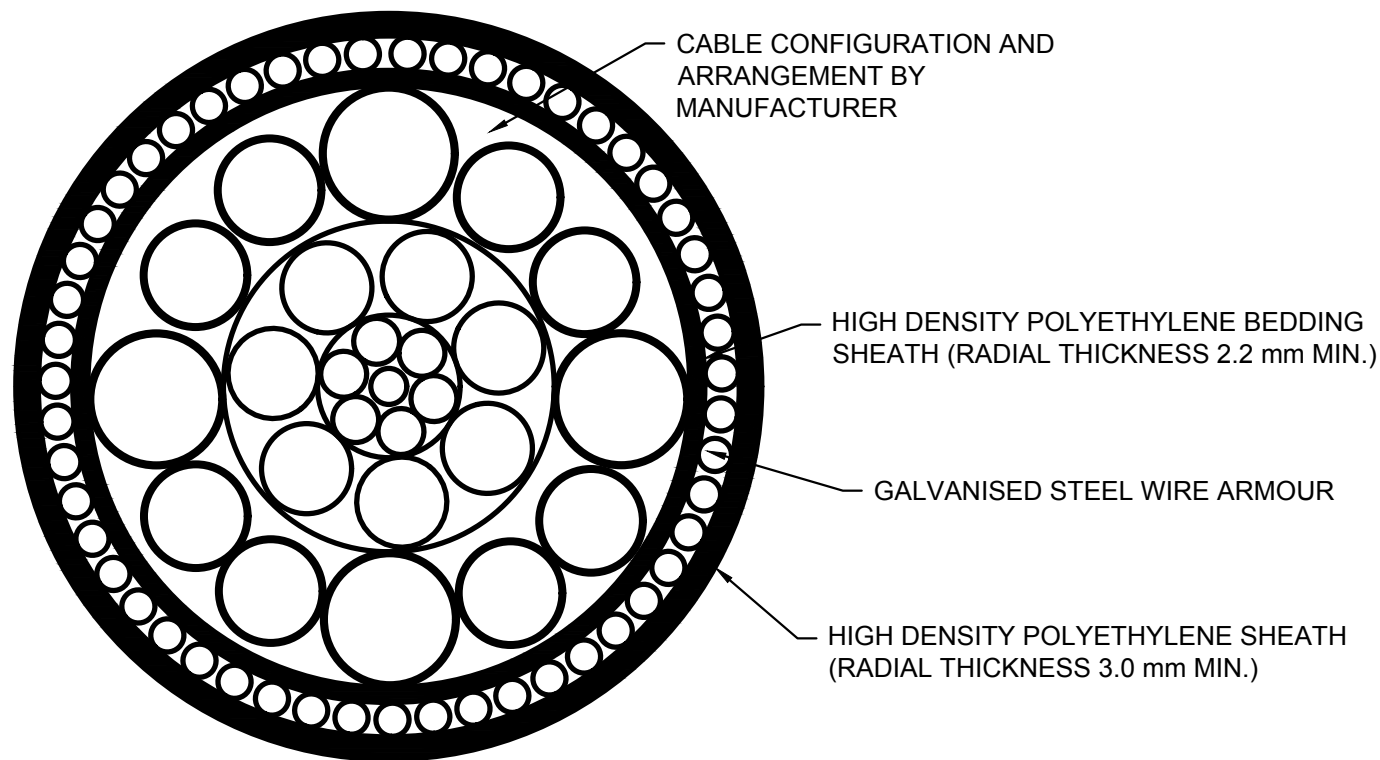
project no.  
no. du projet

R.073593.001

drawing no.  
dessiné no.

E39



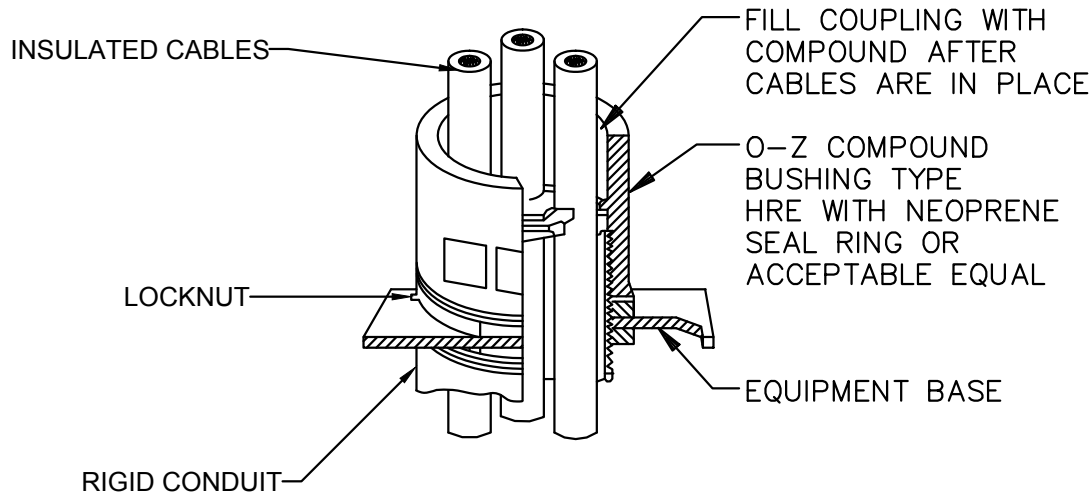


REQUIRED SUBMARING CABLE CONTENT:

1. 25 CORES(#12AWG, CLASS 5 TINNED COPPER, CROSS LINKED POLYETHYLENE INSULATION)
2. 8 CORES(#10AWG, CLASS 5 TINNED COPPER, CROSS LINKED POLYETHYLENE INSULATION)
3. 2 POE CABLES
4. 2 CORES(#12AWG, SHIELDED TWISTED PAIR CABLE)
5. GEL FILLED, STAINLESS STEEL TUBE CONTAINING 2-FIBRE OPTIC CABLES

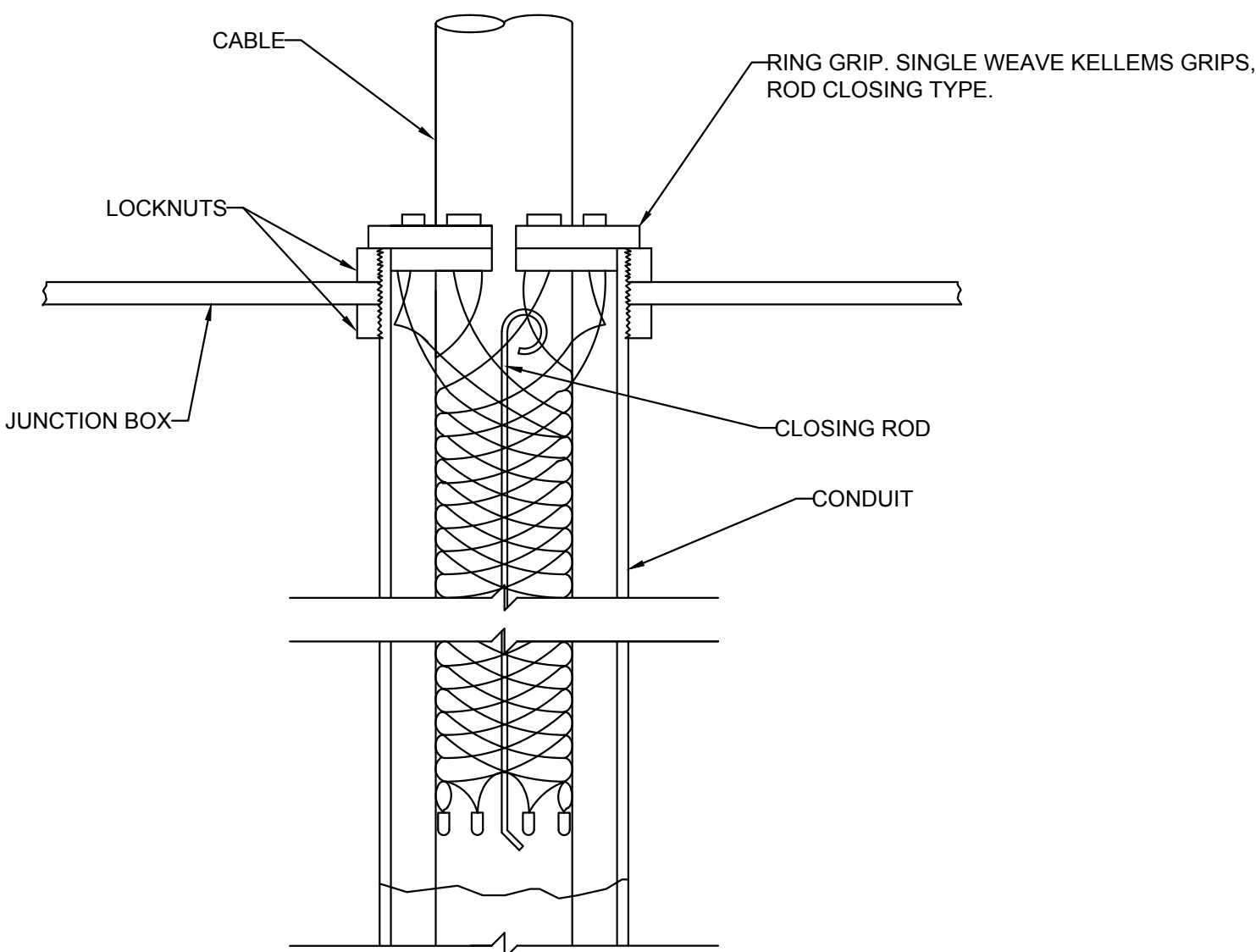
CONTRACTOR SHALL OPTIMIZE CABLE CONFIGURATION AND ARRANGEMENT TO MINIMIZE THE OVERALL DIAMETER OF THE CABLE.

CONTRACTOR SHALL DETERMINE TOTAL LENGTH OF THE CABLE REQUIRED FOR THE PROJECT. THE TOTAL LENGTH SHALL INCLUDE VERTICAL, HORIZONTAL, AND/OR DIAGONAL DISTANCE, BENDING RADIUS, CABLE SLACK AND 15% CONTINGENCY.



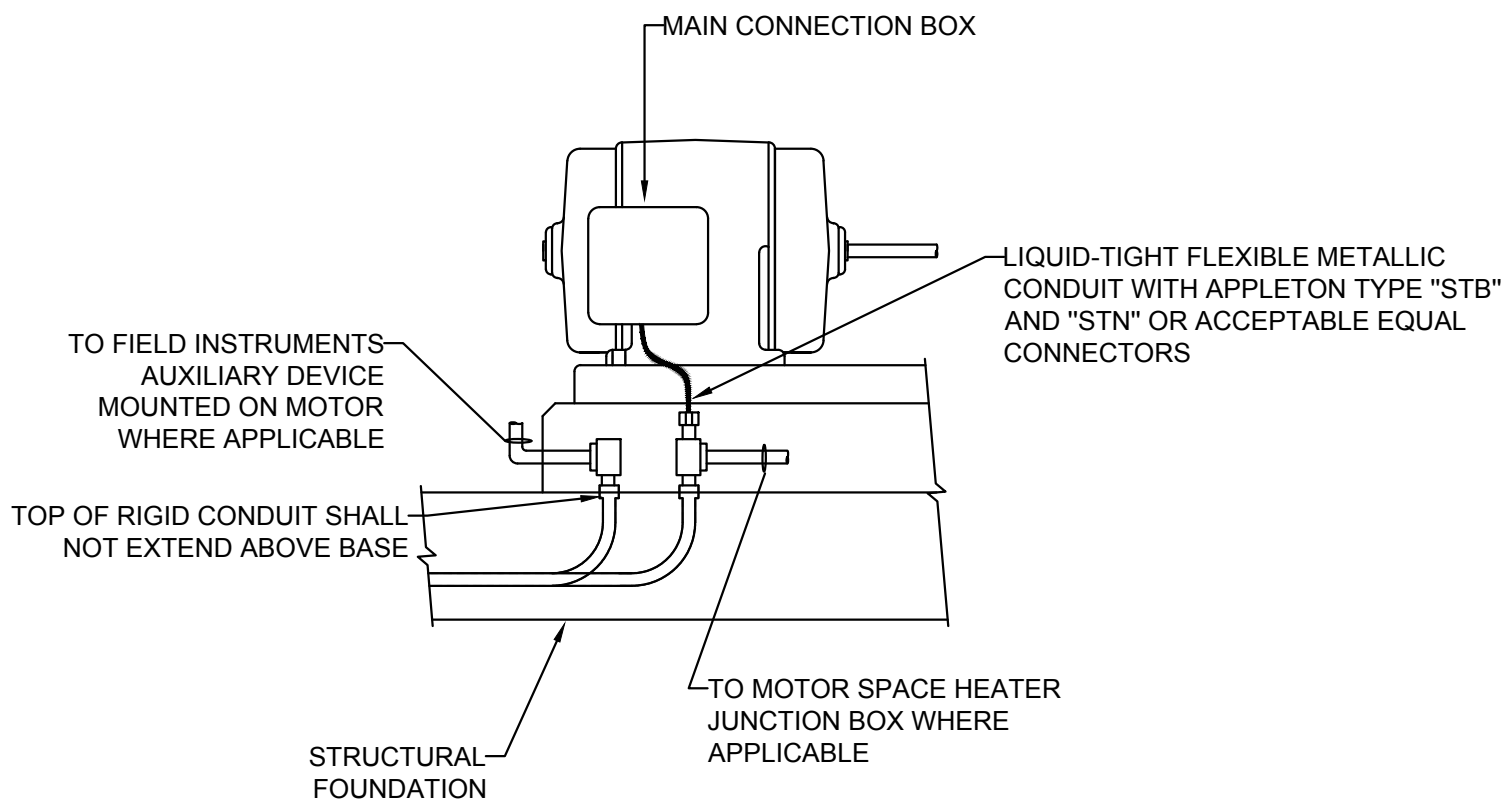
MOISTURE AND DUST SEAL BOTTOM ENTRANCE CABLE IN RIGID CONDUIT

SCALE: N.T.S



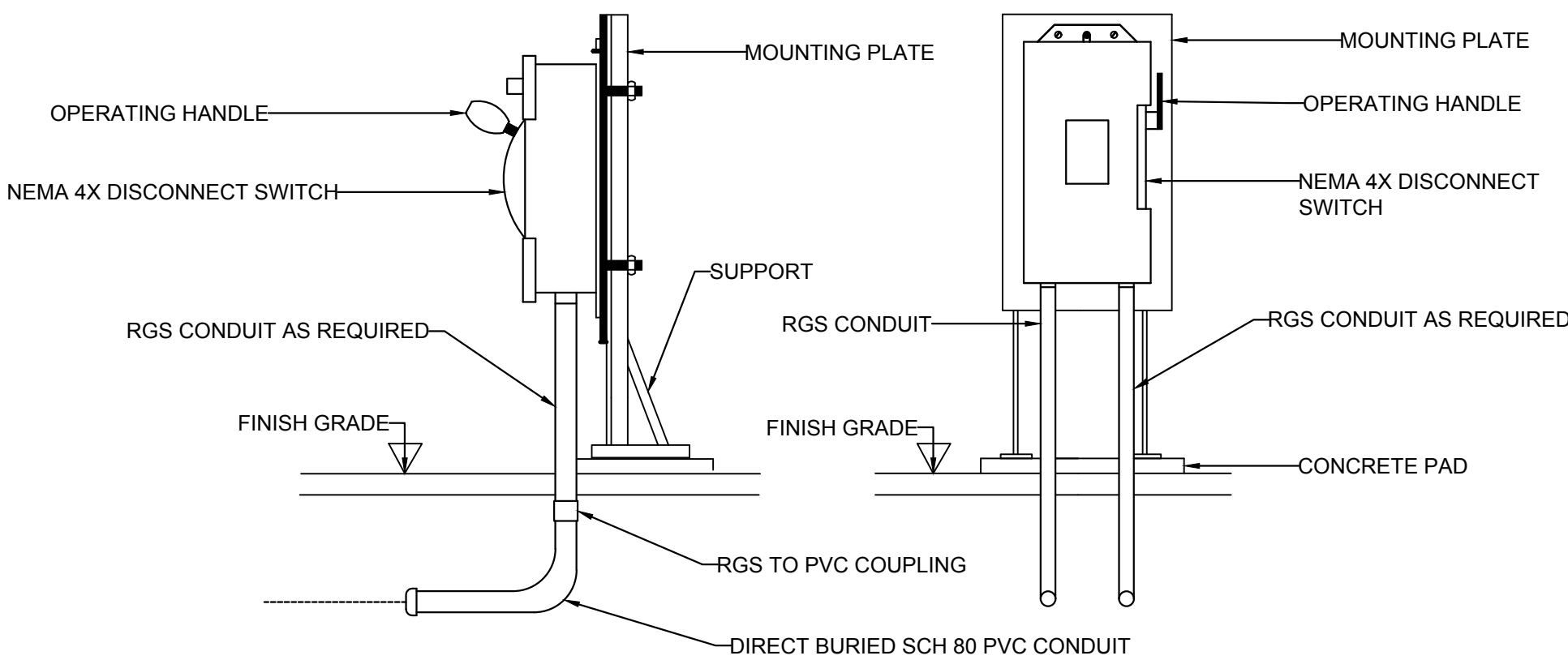
CABLE SUPPORT IN CONDUIT

SCALE: N.T.S



MOTOR RACEWAY INSTALLATION DETAILS (TYPICAL)

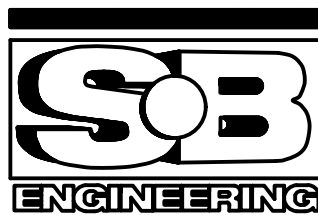
SCALE: N.T.S



TYPICAL LOCAL SAFETY DISCONNECT SWITCH INSTALLATION DETAILS

SCALE: N.T.S

PARSONS



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project title  
titre du projet

Ontario

HAMLET BRIDGES  
(57 & 58)  
SWING AND FIXED BRIDGES

drawing title  
titre du dessin

MISCELLANEOUS  
ELECTRICAL INSTALLATION  
DETAILS SHEET 2 OF 2

|                                |                      |  |
|--------------------------------|----------------------|--|
| drawn by<br>dessiné par        | P. KUMARI            | project manager<br>administrateur de projets |
| designed by<br>conçue par      | J. KOSCIL, K. WAGNER |  |
| approved by<br>approuvé par    | G. REES              |  |
| bid<br>offre                   | JULIO LEON           |  |
| project date<br>date du projet | 2018-07-20           |  |
| project no.<br>no. du projet   | R.073593.001         |  |
| drawing no.<br>dessiné no.     | E40                  |  |