LIST OF DRAWINGS

STRUCTURAL

S1 GENERAL ARRANGEMENT - EXISTING STRUCTURE
S2 GENERAL ARRANGEMENT - REHABILITATED STRUCTURE
S3 CONSTRUCTION STAGING
S4 STRUCTURAL STEEL - NOTES
S5 STRUCTURAL STEEL - DECK PLAN VIEW, STRINGER AND FLOOR BEAM REPAIRS
S6 STRUCTURAL STEEL - WEST GIRDER REPAIRS
S7 STRUCTURAL STEEL - EAST GIRDER REPAIRS
S8 STRUCTURAL STEEL - PIVOT GIRDER REPAIRS
S9 STRUCTURAL STEEL - SIDEWALK AND GUIDE RAIL REPAIR DETAILS
S10 STRUCTURAL STEEL - COUNTERWEIGHT DETAILS
S11 DECK - ENLARGED PLAN VIEW & DETAILS
S12 DECK - CURB DETAILS
S13 SUBSTRUCTURE REPAIR DETAILS - NORTH ABUTMENT
S14 SUBSTRUCTURE REPAIR DETAILS - SOUTH ABUTMENT
S15 BRIDGE ALIGNMENT CORRECTION
1 S16 UTILITY TRENCH DETAILS
S17 PIVOT PIER REPAIRS

MECHANICAL

M0 MECHANICAL SCOPE OF WORK AND GENERAL NOTES
M1 MECHANICAL SITE PLAN
M2 PLAN & ELEVATION
M3 SECTION I-I, SECTION J-J
M4 SECTION A-A, SECTION B-B, SECTION C-C, SECTION D-D
M5 SECTION F-F, SECTION G-G
M6 HYDRAULIC SCHEMATIC AND COMMISSIONING NOTES
M7 BALANCE WHEEL ASSEMBLY
M8 BALANCE WHEEL DETAILS 1
M9 BALANCE WHEEL DETAILS 2
M10 LIVE LOAD AND END SUPPORT WHEEL ASSEMBLY
M11 LIVE LOAD AND END SUPPORT WHEEL DETAILS 1
M12 LIVE LOAD AND END SUPPORT WHEEL DETAILS 2
M13 LIVE LOAD AND END SUPPORT RAMP DETAILS
M14 BALANCE RAIL BEARING PLATES ASSEMBLY AND DETAILS
M15 BRIDGE LOCKING PIN ASSEMBLY
1 M16 BRIDGE LOCKING PIN DETAILS 1
M17 BRIDGE LOCKING PIN DETAILS 2
M18 ~~BRIDGE PIVOT PIN ASSEMBLY AND DETAILS~~ (SUPERSEDED)
M19 LIVE LOAD AND END SUPPORT WHEEL DETAILS 3
1 M20 LIVE LOAD AND END SUPPORT WHEEL DETAILS 4
M21 ~~ROTATION CYLINDER MOUNTING BRACKETS~~ (SUPERSEDED)
M22 ~~ROD CLEVIS BRACKET MOUNTING PLATE~~ (SUPERSEDED)
M23 BRIDGE CENTER PIVOT ASSEMBLY
M24 BRIDGE CENTER PIVOT SHOE AND BOX DETAILS
M25 BRIDGE CENTER PIVOT COMPONENT DETAILS
M26 PIER CYLINDER BRACKET ASSEMBLY
M27 PIER CYLINDER BRACKET DETAILS
M28 PIER CYLINDER DETAILS

ELECTRICAL

E0.1 DRAWING LIST
E0.2 SCOPE OF WORK, GENERAL NOTES AND SYMBOLS

E1.1 SINGLE LINE DIAGRAM
E1.2 GENERAL ARRANGEMENT - LOCK AND BRIDGE AREA
E1.3 LOCK HOUSE ELECTRICAL EQUIPMENT LAYOUT
E1.4 BRIDGE EQUIPMENT LAYOUT
E1.5 (NOT USED)
E1.6 600V SERVICE AND DISTRIBUTION - ELEVATION
E1.7 PANEL SCHEDULE - LOCK DISTRIBUTION
E1.8 PANEL SCHEDULE - LOCK GATE GATE CONTROLS
E1.9 PANEL SCHEDULE - BRIDGE DISTRIBUTION
E1.10 CABLE SCHEDULE
E1.11 (NOT USED)
E1.12 (NOT USED)
E1.13 LOCK DISTRIBUTION GROUNDING DETAILS
E1.14 BRIDGE GROUNDING DETAILS

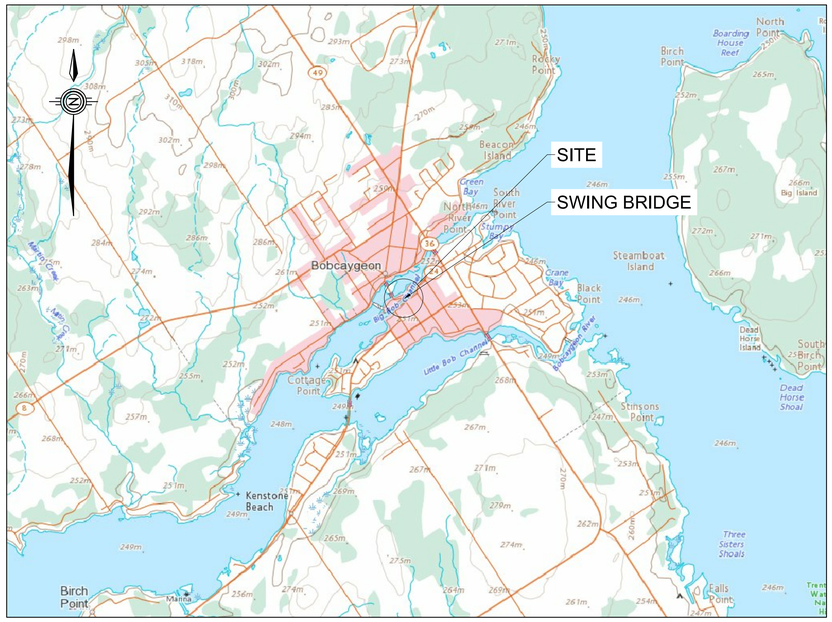
E2.1 BRIDGE CONTROL PANEL - POWER DISTRIBUTION
E2.2 BRIDGE CONTROL PANEL - OPEN AND CLOSE
E2.3 BRIDGE CONTROL PANEL - BRIDGE POSITION INDICATION
E2.4 (NOT USED)
E2.5 BRIDGE CONTROL PANEL - LOCKING PIN
E2.6 BRIDGE CONTROL PANEL - TRAFFIC GATES
E2.7 BRIDGE CONTROL PANEL - TRAFFIC LIGHTS
E2.8 PROPORTIONAL DRIVER SCHEMATIC - SWING OPEN
E2.9 PROPORTIONAL DRIVER SCHEMATIC - SWING CLOSED
E2.10 HPU STATUS INDICATOR SCHEMATIC - BRIDGE
E2.11 HPU CONTROL SCHEMATIC - BRIDGE
E2.12 BRIDGE TRAFFIC GATE SCHEMATIC - NORTH EAST
E2.13 BRIDGE TRAFFIC GATE SCHEMATIC - SOUTH WEST
E2.14 BRIDGE NAVIGATION LIGHTS
E2.15 BRIDGE CONTROL PANEL LAYOUT AND BOM
E2.16 BRIDGE OPERATOR CONTROL CONSOLE ELEVATION
E2.17 BRIDGE OPERATOR CONTROL CONSOLE LAYOUT

E3.1 LOCK GATE CONTROL PANEL WIRING - POWER DISTRIBUTION
E3.2-1 LOCK GATE CONTROL PANEL WIRING - PUMP CONTROL
E3.2-2 LOCK GATE CONTROL PANEL WIRING - PUMP CONTROL CONTINUED
E3.3 LOCK GATE CONTROL PANEL WIRING - UPPER LOCK NAVIGATION SIGNALS
E3.4 LOCK GATE CONTROL PANEL WIRING - UPPER LOCK GATES AND VALVE CONTROL
E3.5 LOCK GATE CONTROL PANEL WIRING - LOWER LOCK GATES AND VALVE CONTROL
E3.6 LOCK GATE CONTROL PANEL WIRING - LOWER LOCK NAVIGATION SIGNALS
E3.7 HPU PUMP #1 SCHEMATIC
E3.8 HPU PUMP #2 SCHEMATIC
E3.9 LOCK GATE HPU INDICATOR SCHEMATIC
E3.10 HPU TERMINATION WIRING DIAGRAM
E3.11 SAFETY CIRCUITS
E3.12 LOCK GATE CONTROL PANEL LAYOUT AND BOM - EXTERIOR
E3.13-1 LOCK GATE CONTROL PANEL LAYOUT AND BOM - INTERIOR
E3.13-2 LOCK GATE CONTROL PANEL LAYOUT AND BOM - INTERIOR (SIDES)

CAD FILE LOCATION AND NAME: \\costt1data01\projects\Jobs2016\151-06165-11 Bobcaygeon Swing Bridge Rehab\3.0 Technical (by Discipline)\3.7 Dwg-Fig\SHEETS\151-06165-11_S0.dwg
MODIFIED: 12/6/2019 4:09:09 PM BY: CARP069785
DATE PLOTTED: 12/6/2019 4:09:12 PM BY: CARP069785

2019

BOBCAYGEON, ONTARIO



KEY PLAN

0 1km

Parks Canada
Parcs Canada

Canada

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING BRIDGE (#35)
REHABILITATION

PROJECT #: 1356-30030321

ISSUED FOR TENDER
(ADDENDUM 3)
2019/12/04

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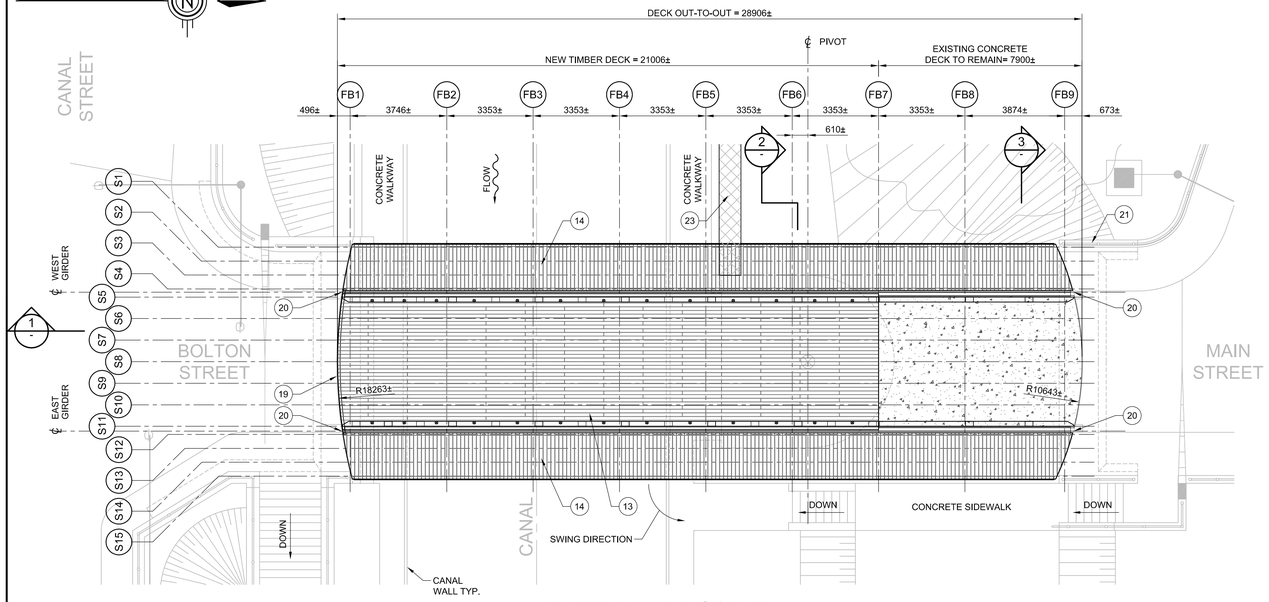
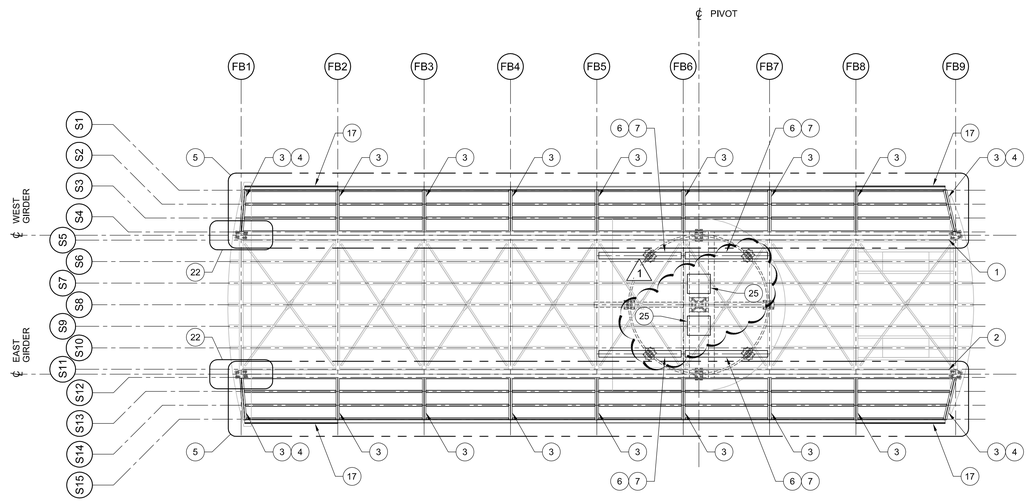
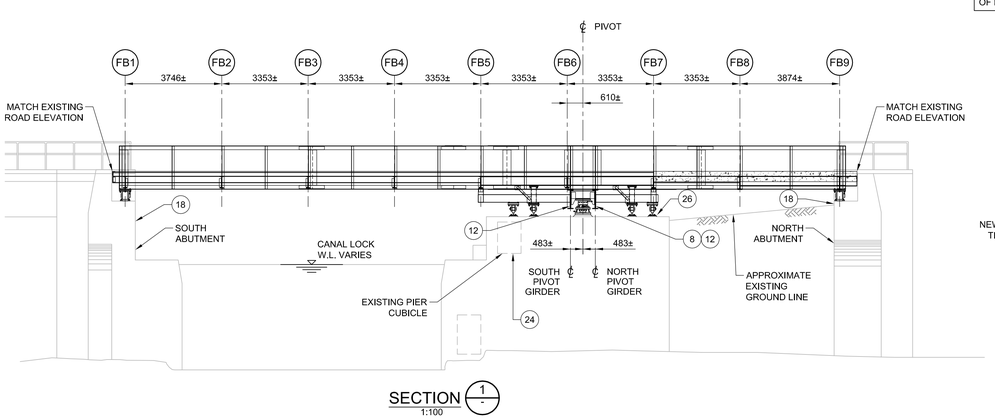
NORTH FOR CONSTRUCTION



REHABILITATED DECK PLAN
1:100



REHABILITATED STEEL PLAN
1:100



SECTION 1/-
1:100

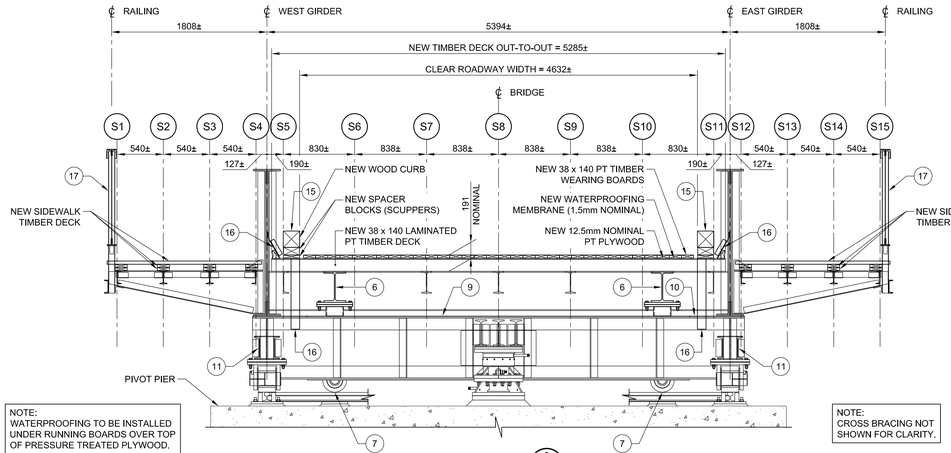
1 NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS S5 TO S17 TO DETERMINE QUANTITY AND LOCATION OF EACH REPAIR TYPE.
2. SEE MECHANICAL DRAWINGS FOR REPLACEMENT OF END SUPPORTS, CENTRE-PIVOT BEARING, SWING CYLINDERS, RAILS AND LIVE LOAD/BALANCE WHEELS.

MASTER LIST OF STRUCTURAL COMPONENT REPAIRS

REPAIR LEGEND NO.	STRUCTURAL COMPONENT	LOCATION	STRUCTURAL ELEMENT REPAIR	DRAWING No.
1	MAIN GIRDERS	WEST	END AND FLOOR BEAM STIFFENER REPLACEMENT	S6
			INTERMEDIATE VERTICAL STIFFENER REPLACEMENT	
			ADDITIONAL RIVET REPLACEMENT	
2		EAST	INNER BOTTOM FLANGE ANGLE REPLACEMENT	S7
			WEB REINFORCEMENT AT FLOOR BEAM CONNECTION	
			END AND FLOOR BEAM STIFFENER REPLACEMENT	
			INTERMEDIATE VERTICAL STIFFENER REPLACEMENT	
			ADDITIONAL RIVET REPLACEMENT	
3	FLOOR BEAMS	WEST & EAST SIDEWALK	TOP FLANGE ANGLE REPLACEMENT FROM FB1 TO FB9	S5
4			BOTTOM FLANGE ANGLE REPLACEMENT AT FB1 AND FB9	
5	STRINGERS	WEST & EAST SIDEWALK	STRINGER REPLACEMENT AT S1 TO S4 AND S12 TO S15 BETWEEN FB1 TO FB 9	
6	BALANCE WHEEL STRINGERS	CENTER	STRINGER REPLACEMENT TO SUPPORT FOUR ADDITIONAL BALANCE WHEELS	
7	BALANCE WHEEL SUPPORT	CENTER	NEW STEEL STRUCTURE TO SUPPORT FOUR ADDITIONAL BALANCE WHEELS	
8	PIVOT GIRDERS	NORTH	BOTTOM FLANGE ANGLE REPLACEMENT	S8
9		NORTH & SOUTH	TOP REINFORCEMENT PLATE REPLACEMENT	
10			TOP CONNECTION PLATE REPLACEMENT AT EAST END OF GIRDER	
11			BUILT-UP BEAM REPLACEMENT TO SUPPORT NEW LIVE LOAD / BALANCE WHEEL BELOW MAIN GIRDERS	
12			END BEARING STIFFENER REPLACEMENT	
-			ADDITIONAL RIVET REPLACEMENT	
13	DECK	CENTER	OPEN GRID STEEL DECK REPLACEMENT WITH LAMINATED TIMBER DECK, PLYWOOD, WATERPROOFING AND WEARING BOARDS	S11 & S12
			NEW NOSING ANGLE AT SOUTH END OF TIMBER DECK	
14		WEST & EAST	SIDEWALK TIMBER DECK (TRANSVERSE AND RUNNING BOARDS) REPLACEMENT	
15	CURBS	CENTER	TIMBER CURB REPLACEMENT	
16	DECK DRAINAGE	CENTER	NEW DECK DRAINS AND SPLASH GUARDS	
17	PEDESTRIAN BARRIERS	WEST & EAST	POST, LATTICE AND FASCIA BEAM REPAIRS	S9
18	ABUTMENTS	NORTH & SOUTH	ABUTMENT WALL, BALLAST WALL AND BEARING SEAT REPAIRS	S13 & S14
19	ARMOURING ANGLE	SOUTH ABUTMENT	ARMOURING ANGLE REPLACEMENT AT BALLAST WALL	S14
20	MAIN GIRDER	NORTH & SOUTH	REPLACE DAMAGED HAZARD MARKERS	S15
21	APPROACH BARRIERS	NORTH WEST	REPLACE DETERIORATED STEEL BEAM GUIDERAIL	S9
22	COUNTERWEIGHTS	NORTH & SOUTH	REMOVE EXISTING STEEL COUNTERWEIGHT BASKETS & INSTALL NEW COUNTERWEIGHT STEEL BLOCKS AND SUPPORTS	S10
23	CONCRETE TRENCHES	ALONG CANAL	NEW HYDRAULIC AND ELECTRICAL TRENCHES	S16
24	PIER CUBICLE	PIER	REHABILITATE CUBICLE	S16
25	PIVOT GIRDER	NORTH & SOUTH	REPLACE SWING CYLINDER CLEVIS AND MOUNTING BRACKETS	S17
26	PIVOT PIER	PIER	REMOVE CONCRETE RAIL SUPPORTS	S17
-	COATINGS	SUPERSTRUCTURE	ABRASIVE BLAST CLEAN AND APPLY 3-COAT PAINT SYSTEM	NA

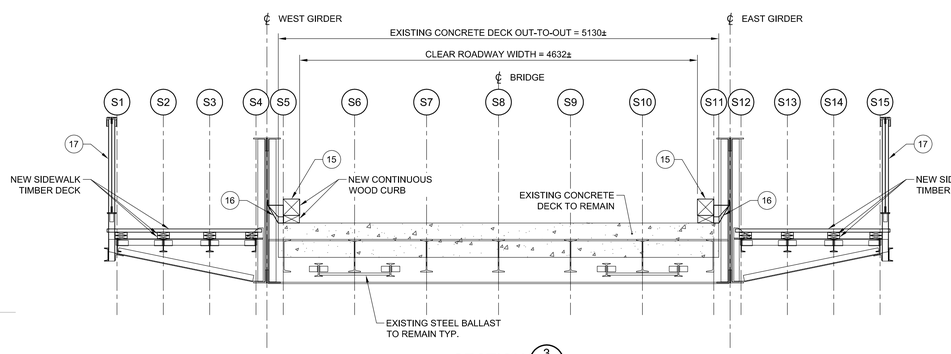
THE ABOVE TABLE IS NOT AN EXHAUSTIVE LIST OF ALL ITEMS REQUIRED TO COMPLETE THIS REHABILITATION. IT IS INTENDED TO LIST THE GENERAL REPAIR TYPE AND LOCATION. SEE NOTES.



NOTE:
WATERPROOFING TO BE INSTALLED UNDER RUNNING BOARDS OVER TOP OF PRESSURE TREATED PLYWOOD.

NOTE:
CROSS BRACING NOT SHOWN FOR CLARITY.

SECTION 2/- TIMBER DECK
1:30



SECTION 3/- CONCRETE DECK
1:30

Parks Canada
Parcs Canada
Canada

WSP
300-2611 QUEENSVIEW DRIVE
OTTAWA (ONTARIO)
CANADA K2B 8K2
TELEPHONE: 613-829-2800 FAX: 613-829-8299
WWW.WSPGROUP.COM

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No.	Description	Dwn.By Des.Par	Date
1	ADDENDUM 3	RSP	2019/12/04
0	ISSUED FOR TENDER	RSP	2019/11/07

Revision / Révision

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

A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY BOBCAYGEON SWING BRIDGE REHABILITATION

CITY PROV.

Drawing title / Titre du dessin

GENERAL ARRANGEMENT REHABILITATED STRUCTURE

Drawn by / Dessiné par	Designed by / Conçu par
R. PETRUNGARO	R. MOREAU
Approved by / Approuvé par	Drawing Date / Date du dessin
F. WASIEWICZ	2019/09/27
Project manager / Administrateur de projet	Drawing Number/ Numéro du Dessin
W. LITTLE	S2
Project Number / Numéro du projet	Sheet / Feuille X of / du X
1356-30030321	

CAD FILE LOCATION AND NAME: \\cnott1dst01\project\voba2016\151-06165-11 Bobcaygeon Swing Bridge Rehab\3.0 Technical (by Discipline)\3.7 Dwg-Fig\SHEETS\151-06165-11_S2.dwg
MODIFIED: 12/4/2019 10:05:26 AM BY: CARP069785
DATE PLOTTED: 12/4/2019 10:05:28 AM BY: CARP069785

PWGSC-B1 (1000 x 707) PLOTTED BY: CARP069785 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: S2 FILE NAME: 151-06165-11_S2.dwg

NORTH FOR CONSTRUCTION

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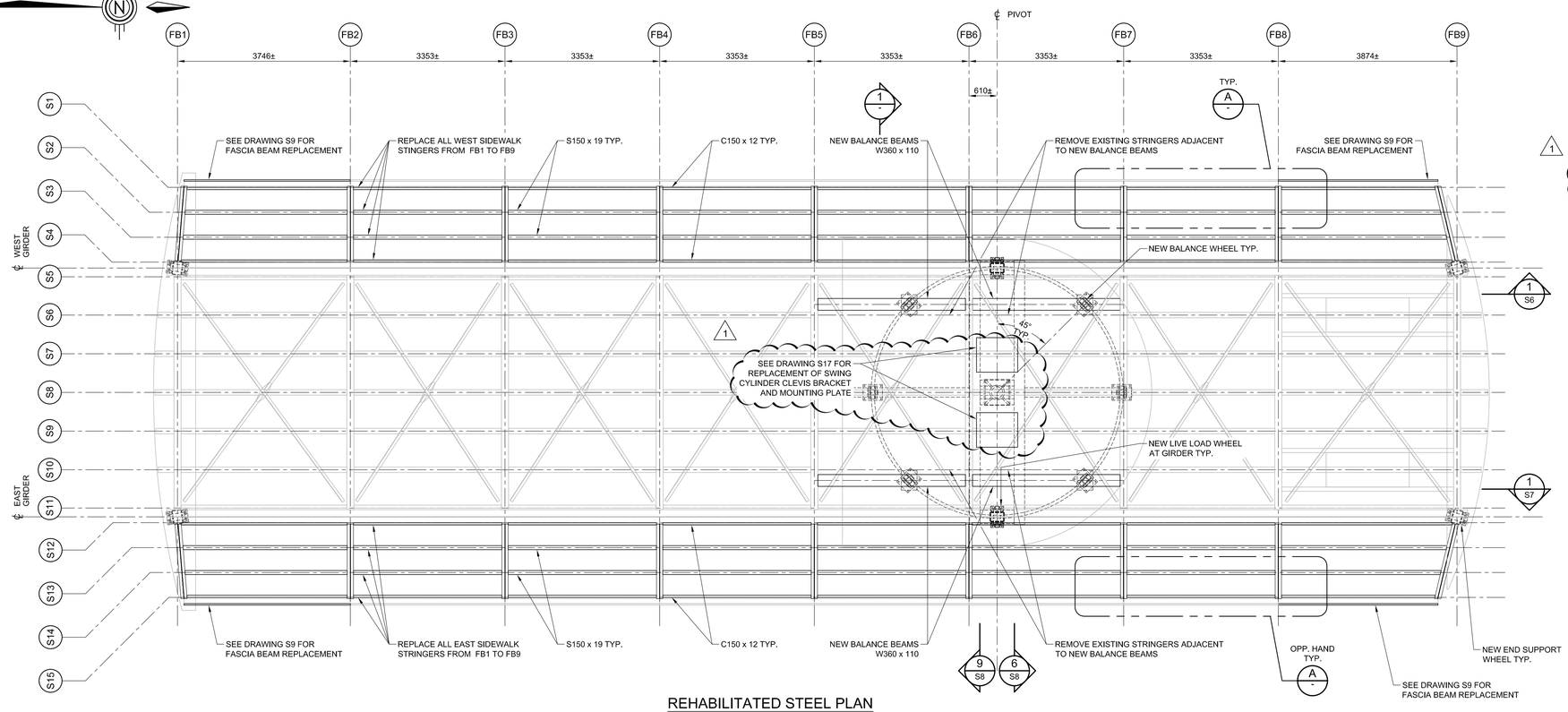


REHABILITATED STEEL PLAN
1:50

LEGEND

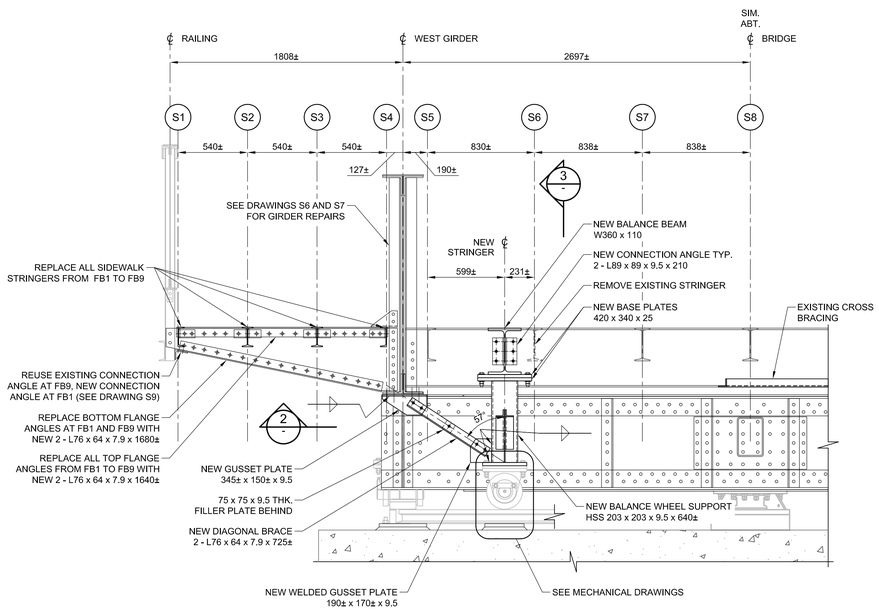
- DENOTES ANGLE TO BE REMOVED AND REPLACED.
- DENOTES EXISTING RIVET LOCATION.
- DENOTES EXISTING RIVET OR BOLT TO BE REMOVED AND REPLACED WITH NEW 3/4" TC BOLT.
- DENOTES NEW 3/4" TC BOLT LOCATION.

NOTES

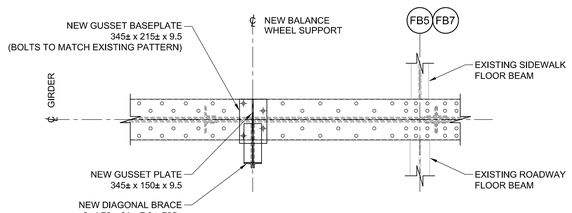
1. SEE DRAWING S4 FOR GENERAL STRUCTURAL STEEL NOTES.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS S1, S2 S6 TO S12 AND S17.
3. SEE MECHANICAL DRAWINGS FOR REPLACEMENT OF END SUPPORTS, CENTRE-PIVOT BEARING, SWING CYLINDERS, RAILS AND LIVE LOAD/BALANCE WHEELS.

STEEL REPAIRS TO SIDEWALKS AND ADDITION OF NEW BALANCE BEAMS AND SUPPORTS

LOCATION	DESCRIPTION OF WORK
WEST & EAST SIDEWALK FB1 TO FB9	REPLACE ALL SIDEWALK STRINGERS
WEST & EAST SIDEWALK FB1 TO FB9	REPLACE ALL SIDEWALK TOP FLANGE ANGLES
WEST & EAST SIDEWALK FB1 AND FB9	REPLACE SIDEWALK BOTTOM FLANGE ANGLES
STRINGERS S6 AND S10 BETWEEN FB5 AND FB7	REMOVE CENTER STRINGERS
ADJACENT TO S6 AND S10 BETWEEN FB5 AND FB7	INSTALL NEW CENTER STRINGERS, BALANCE WHEEL SUPPORTS & LATERAL BRACING

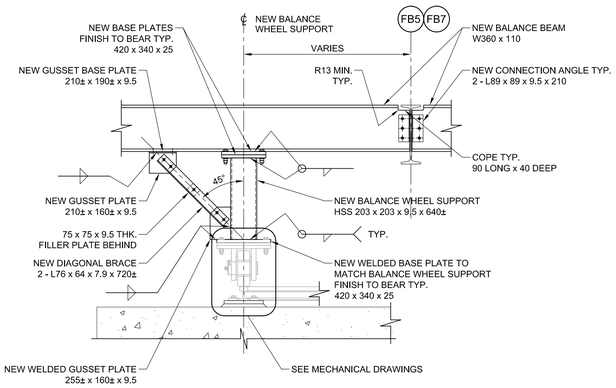


SECTION 1 - (1:20) WEST SIDE SHOWN EAST SIDE SIMILAR



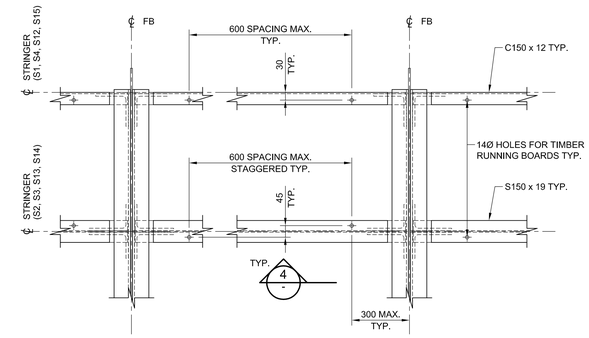
SECTION 2 - (1:20)

NOTE: STRINGERS NOT SHOWN FOR CLARITY.



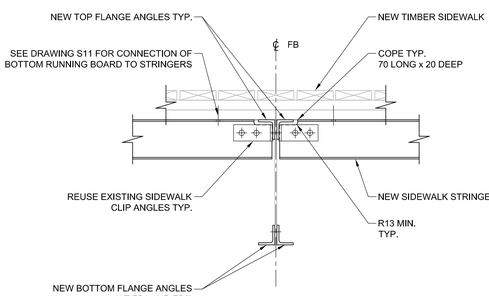
SECTION 3 - (1:20)

NOTE: PIVOT ASSEMBLY NOT SHOWN FOR CLARITY.



DETAIL A - (1:10)

NOTE: RAILING ASSEMBLY NOT SHOWN FOR CLARITY.



SECTION 4 - (1:10)

Parks Canada
Parcs Canada
Canada

WSP
300-2611 QUEENSVIEW DRIVE
OTTAWA (ONTARIO)
CANADA K2B 8K2
TELEPHONE: 613-829-2800 FAX: 613-829-8299
WWW.WSPGROUP.COM

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No.	Description	Dwn.By Des.Par	Date
1	ADDENDUM 3	RSP	2019/12/04
0	ISSUED FOR TENDER	RSP	2019/11/07

Revision / Révision

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A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY BOBCAYGEON SWING BRIDGE REHABILITATION

CITY PROV.

Drawing title / Titre du dessin

STRUCTURAL STEEL DECK PLAN VIEW STRINGER AND FLOOR BEAM REPAIRS

Drawn by / Dessiné par	Designed by / Conçu par
R. PETRUNGARO	R. MOREAU
Approved by / Approuvé par	Drawing Date / Date du dessin
F. WASIEWICZ	2019/09/27
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	S5
Project Number / Numéro du projet	Sheet / Feuille X of / du X
1356-30030321	

CAD FILE LOCATION AND NAME: \\cott1dst01\projects\obs2016\151-06165-11 Bobcaygeon Swing Bridge Rehab\3.0 Technical (by Discipline)\3.7 Dwg-Fig\SHEETS\151-06165-11_S5.dwg
MODIFIED: 12/4/2019 10:13:17 AM BY: CARP069785
DATE PLOTTED: 12/4/2019 10:13:18 AM BY: CARP069785

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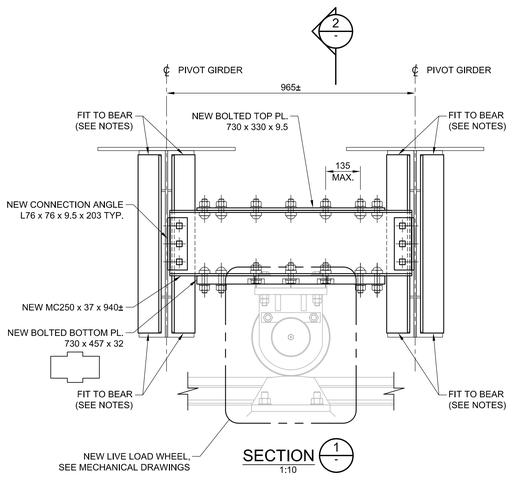
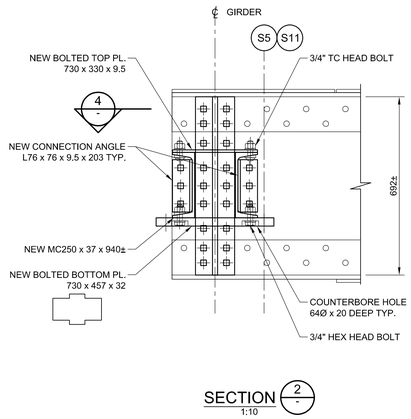
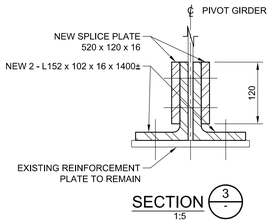
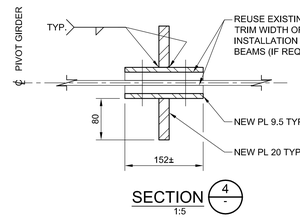
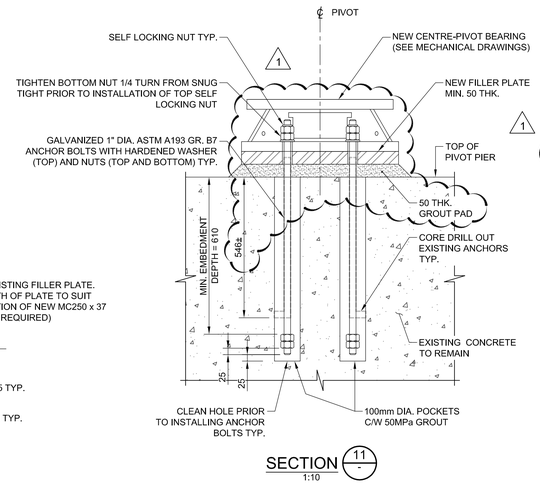










LEGEND

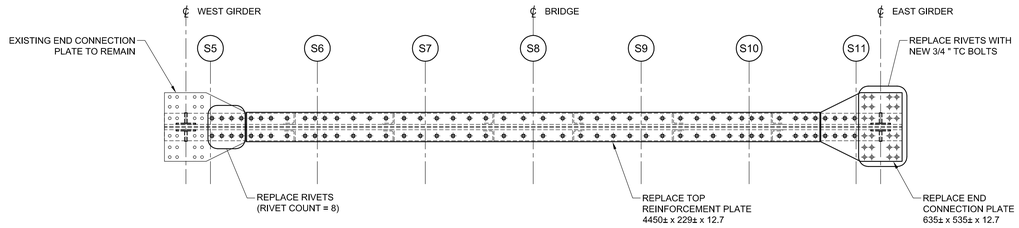
- DENOTES ANGLE TO BE REMOVED AND REPLACED.
- DENOTES EXISTING RIVET LOCATION.
- DENOTES EXISTING RIVET OR BOLT TO BE REMOVED AND REPLACED WITH NEW 3/4" TC BOLT.
- DENOTES EXISTING RIVET OR BOLT TO BE REMOVED AND REPLACED WITH NEW 7/8" TC BOLT.

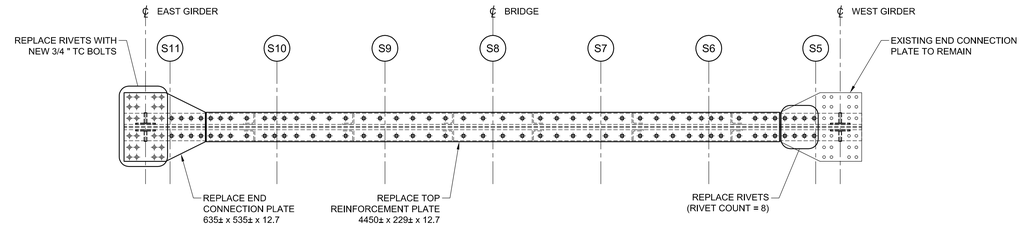
NOTES

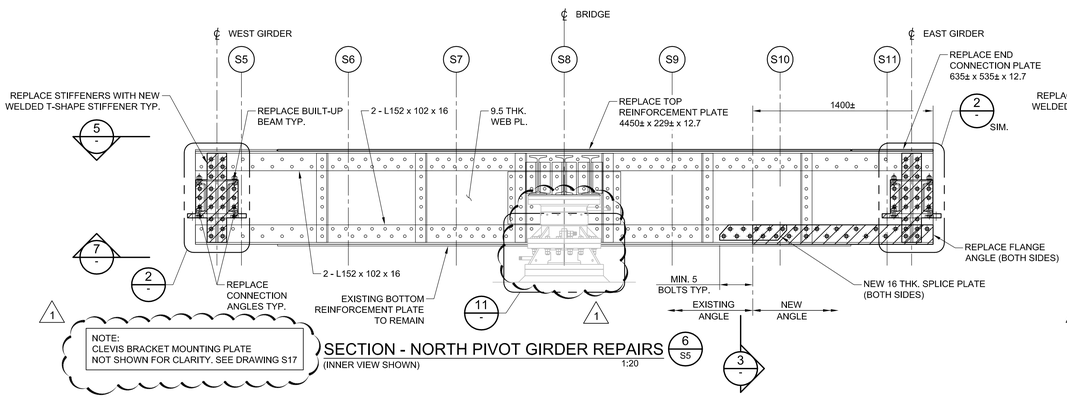
1. SEE DRAWING S4 FOR GENERAL STRUCTURAL STEEL NOTES.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS S1, S2, S4, S5, S15 AND S17.
3. SEE MECHANICAL DRAWINGS FOR DETAILS ON REPLACEMENT OF CENTRE-PIVOT BEARING, SWING CYLINDERS, RAILS AND LIVE LOAD/BALANCE WHEELS.
4. FLANGE AREAS IN CONTACT WITH FIT TO BEAR SHALL BE MINIMALLY GROUND SMOOTH AS REQUIRED TO ACHIEVE A MINIMUM BEARING CONTACT AREA OF 75%.

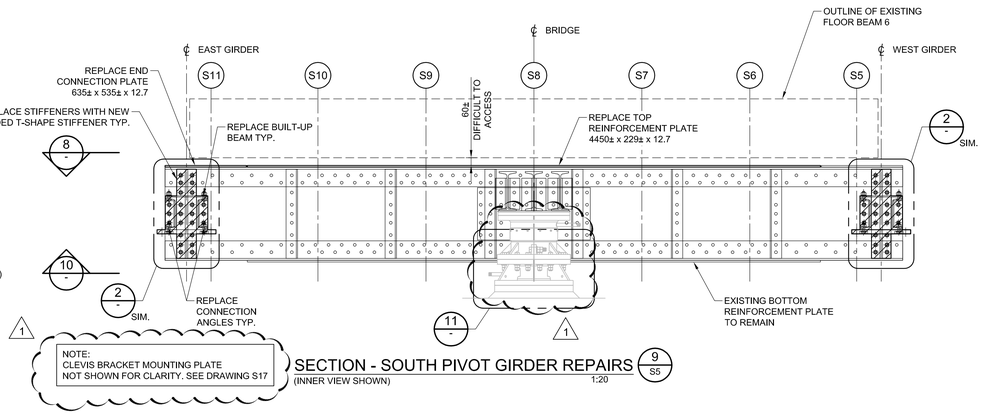
CENTRE-PIVOT BEARING NOTES

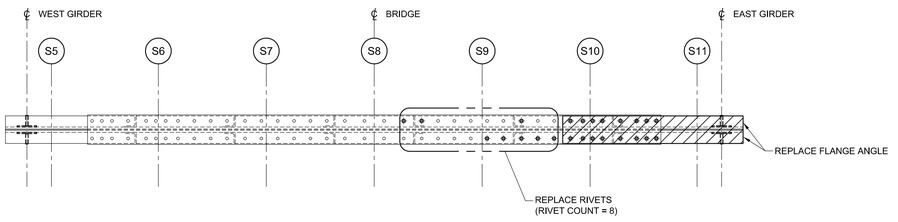
1. CONTRACTOR TO SURVEY LOCATION OF EXISTING PIVOT BEARING AS PER S15 PRIOR TO CARRYING OUT ANY REHABILITATION WORK (TAKING BRIDGE OUT OF SERVICE).
2. COORDINATE THE WORK OF RELOCATING THE BRIDGE FROM ITS SHIFTED POSITION WITH WORK ON THE PIVOT BEARING AND ALL OTHER AFFECTED MECHANICAL AND STRUCTURAL COMPONENTS.
3. GROUT ANCHORAGES FOR PIVOT BEARING ONLY WHEN BRIDGE IS IN ITS PROPER CONFIRMED AND FINAL RE-ALIGNED AND BALANCED POSITION.

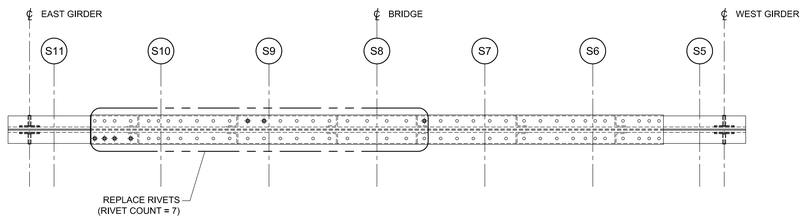












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1	ADDENDUM 3	RSP	2019/12/04
0	ISSUED FOR TENDER	RSP	2019/11/07

Revision / Révision

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A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY BOBCAYGEON SWING BRIDGE REHABILITATION

CITY PROV.

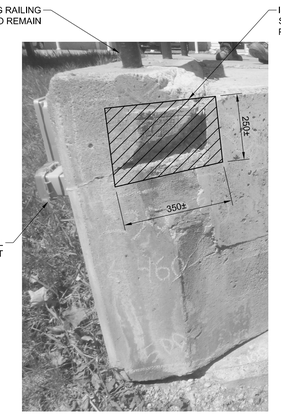
Drawing title / Titre du dessin

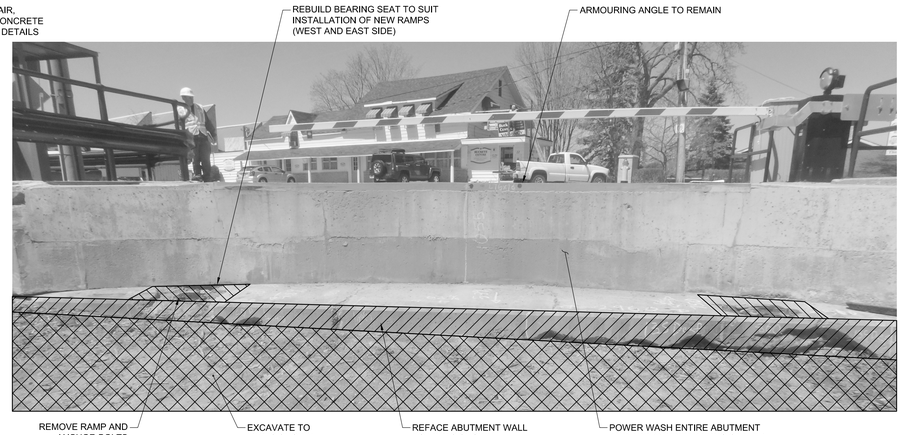
STRUCTURAL STEEL PIVOT GIRDER REPAIRS

Drawn by / Dessiné par: R. PETRUNGARO	Designed by / Conçu par: R. MOREAU
Approved by / Approuvé par: F. WASIEWICZ	Drawing Date / Date du dessin: 2019/09/27
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: S8
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille X of / du X

CAD FILE LOCATION AND NAME: \\cott1dst01\projects\obs2016\151-06165-11 Bobcaygeon Swing Bridge Rehab\3.0 Technical (by Discipline)\3.7 Dwg-Fig\SHEETS\151-06165-11_S8.dwg
MODIFIED: 12/4/2019 10:27:12 AM BY: CARP069785
DATE PLOTTED: 12/4/2019 10:27:14 AM BY: CARP069785

PWGSC-B1 (1000 x 707) PLOTTED BY: CARP069785 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: S8 FILE NAME: 151-06165-11_S8.dwg





NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS S1 AND S2.
2. PRIOR TO FABRICATION OF THE REINFORCING STEEL BARS, THE CONTRACTOR SHALL COMPLETE FIELD MEASUREMENTS TO VALIDATE EXISTING STRUCTURE DIMENSIONS AND DETAILING DIMENSIONS PROVIDED FOR THE REINFORCING STEEL.
3. REINFORCING BARS MARKED WITH PREFIX 'G' SHALL BE GALVANIZED BARS.
4. ALL REINFORCEMENT TO BE INSPECTED BY THE DEPARTMENTAL REPRESENTATIVE PRIOR TO PLACING CONCRETE.
5. ALL DOWELS AND ANCHORS INTO CONCRETE SHALL BE SET IN EPOXY EQUIVALENT TO 'HILTI HIT-HY 200-A'.
6. SAW CUT EDGES OF REMOVAL AREAS IN NEAT STRAIGHT LINES.
7. ALL EXPOSED CONCRETE EDGES TO HAVE 20mm x 20mm CHAMFER.
8. ALL NEW AND EXISTING CONCRETE ABUTMENT SURFACES TO BE TREATED WITH TWO COATS OF PENETRATING SEALER.
9. REFER TO MECHANICAL DRAWINGS FOR DETAILS OF RAMPS, AND END LOCKING DEVICE. CONTRACTOR IS RESPONSIBLE TO COORDINATE WORK WITH MECHANICAL ITEMS.

REFACING BALLAST AND ABUTMENT WALL NOTES:

1. REMOVE CONCRETE TO LIMITS AS INDICATED.
2. INSTALL NEW DOWELS AND REINFORCING AS INDICATED.
3. CAST NEW CONCRETE FACING.

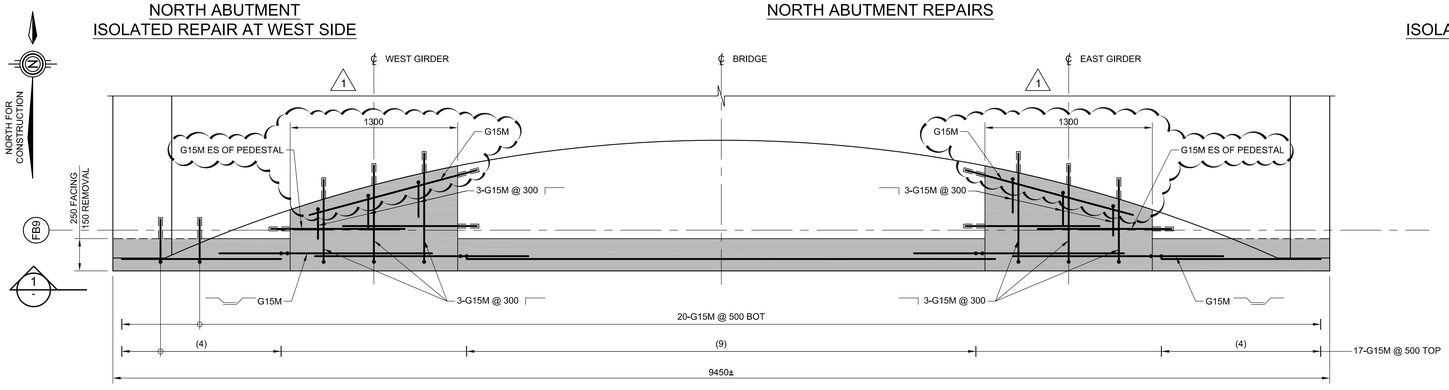
ISOLATED REPAIR NOTES:

1. SAWCUT AT LIMITS OF REMOVAL SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICHEVER IS LESS U.N.O. OR AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
2. REMOVE DELAMINATED, LOOSE OR DETERIORATED CONCRETE AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
3. WHERE THE BOND BETWEEN CONCRETE AND REINFORCING STEEL IS BROKEN, OR WHERE MORE THAN HALF OF THE PERIMETER OF THE BAR IS EXPOSED, THE CONCRETE SURROUNDING THE BARS SHALL BE LOCALLY REMOVED TO A DEPTH OF 25mm BEHIND THE BAR.
4. ABRASIVE BLAST CLEAN CONCRETE AND REINFORCING STEEL BARS.
5. RE-TIE EXPOSED REINFORCING STEEL BARS AT ALL INTERSECTIONS.

NORTH ABUTMENT ISOLATED REPAIR AT WEST SIDE

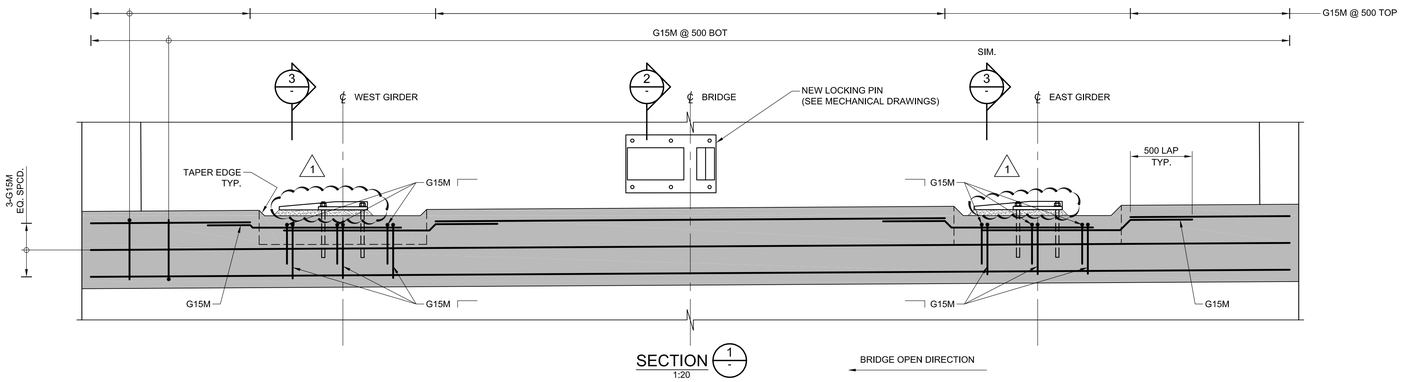
NORTH ABUTMENT REPAIRS

NORTH ABUTMENT ISOLATED REPAIR AT EAST SIDE

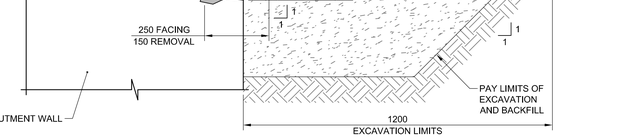


REHABILITATED ABUTMENT PLAN

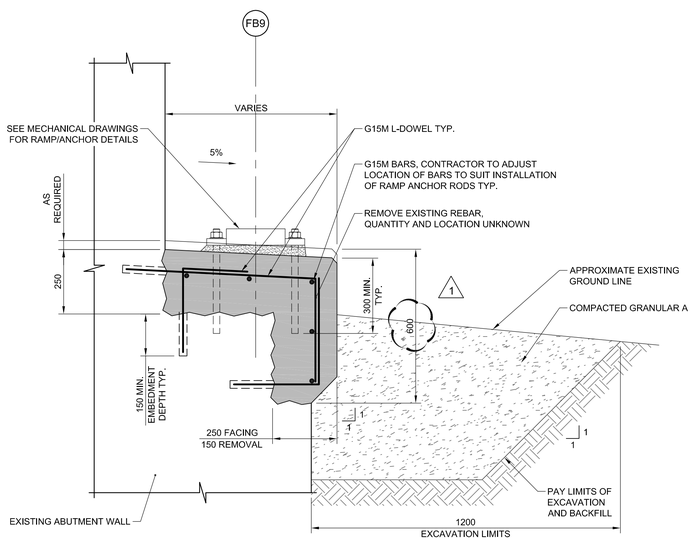
1:20



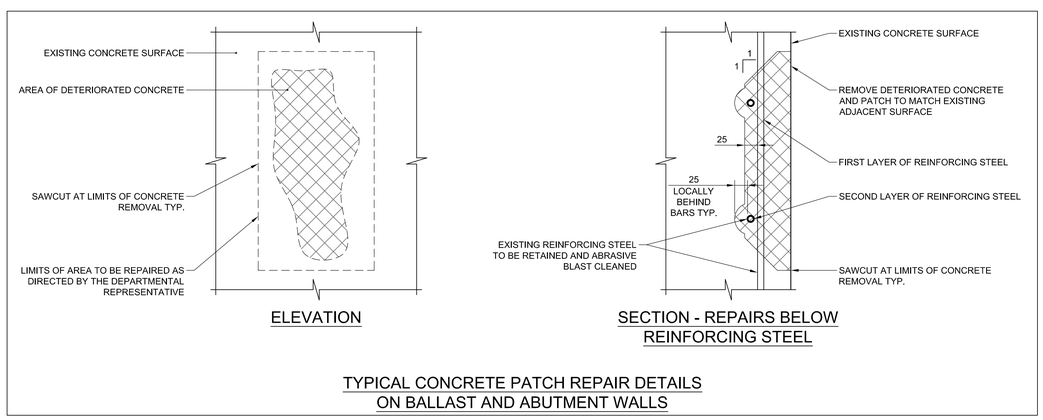
SECTION 1 / 1:20



SECTION 2 / 1:10



SECTION 3 / 1:10



TYPICAL CONCRETE PATCH REPAIR DETAILS ON BALLAST AND ABUTMENT WALLS

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Project title / Titre du projet

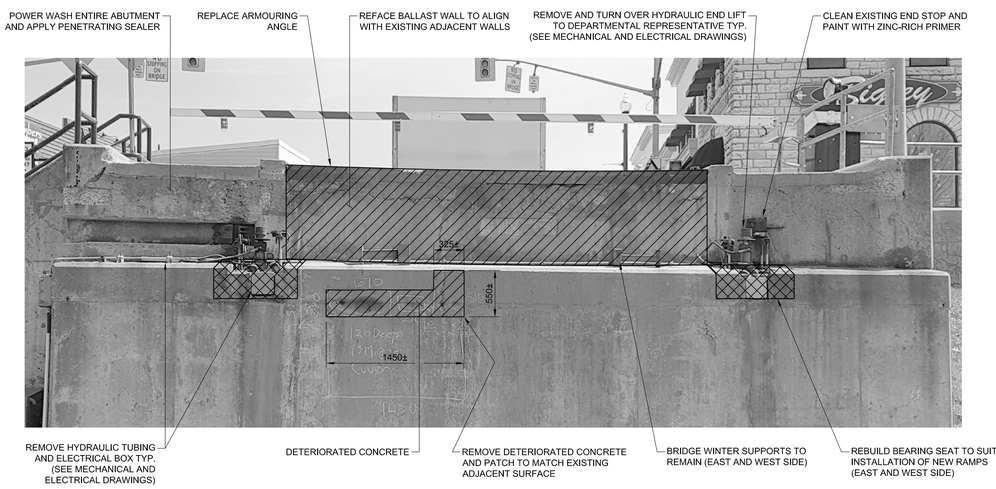
TRENT-SEVERN WATERWAY BOBCAYGEON SWING BRIDGE REHABILITATION

CITY PROV.

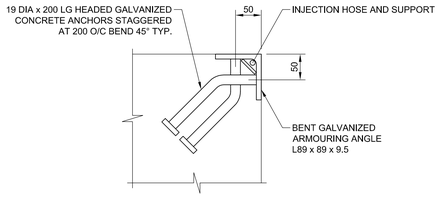
Drawing title / Titre du dessin

SUBSTRUCTURE REPAIR DETAILS NORTH ABUTMENT

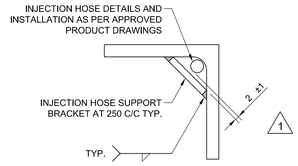
Drawn by / Dessiné par	Designed by / Conçu par
R. PETRUNGARO	R. MOREAU
Approved by / Approuvé par	Drawing Date / Date du dessin
F. WASIEWICZ	2019/09/27
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	S13
Project Number / Numéro du projet	Sheet / Feuille X of / du X
1356-30030321	



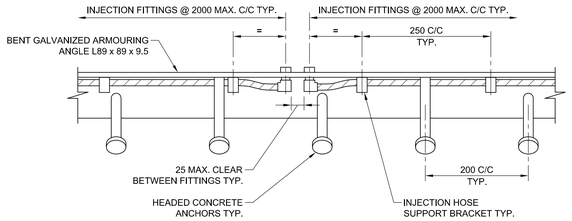
SOUTH ABUTMENT REPAIRS



DETAIL A 1:5



INJECTION HOSE SUPPORT BRACKET DETAIL



DETAILS OF HEADED CONCRETE ANCHORS AND INJECTION HOSE FOR ARMOURING ANGLE

NOTES:

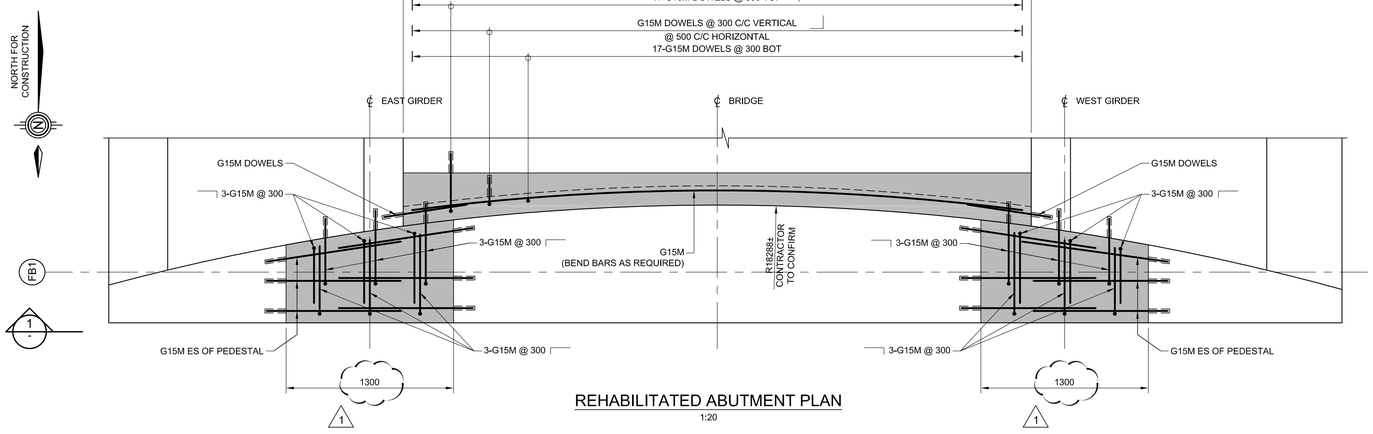
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS S1, S2 AND S13.
2. PRIOR TO FABRICATION OF THE REINFORCING STEEL BARS, THE CONTRACTOR SHALL COMPLETE FIELD MEASUREMENTS TO VALIDATE EXISTING STRUCTURE DIMENSIONS AND DETAILING DIMENSIONS PROVIDED FOR THE REINFORCING STEEL.
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE ARMOURING ANGLE ASSEMBLY SHOWING ALL MEASUREMENTS AND DETAILS.
4. REINFORCING BARS MARKED WITH PREFIX 'G' SHALL BE GALVANIZED BARS.
5. ALL REINFORCEMENT TO BE INSPECTED BY THE DEPARTMENTAL REPRESENTATIVE PRIOR TO PLACING CONCRETE.
6. ALL DOWELS AND ANCHORS INTO CONCRETE SHALL BE SET IN EPOXY EQUIVALENT TO 'HILTI HIT-HY 200-A'.
7. SAW CUT EDGES OF REMOVAL AREAS IN NEAT STRAIGHT LINES.
8. ALL EXPOSED CONCRETE EDGES TO HAVE 20mm x 20mm CHAMFER.
9. ALL NEW AND EXISTING CONCRETE TO SURFACES OF ABUTMENTS TO BE TREATED WITH TWO COATS OF PENETRATING SEALER.
10. REFER TO MECHANICAL DRAWINGS FOR DETAILS OF RAMPS AND END STOP. CONTRACTOR IS RESPONSIBLE TO COORDINATE WORK WITH MECHANICAL ITEMS.

REFACING BALLAST AND ABUTMENT WALL NOTES:

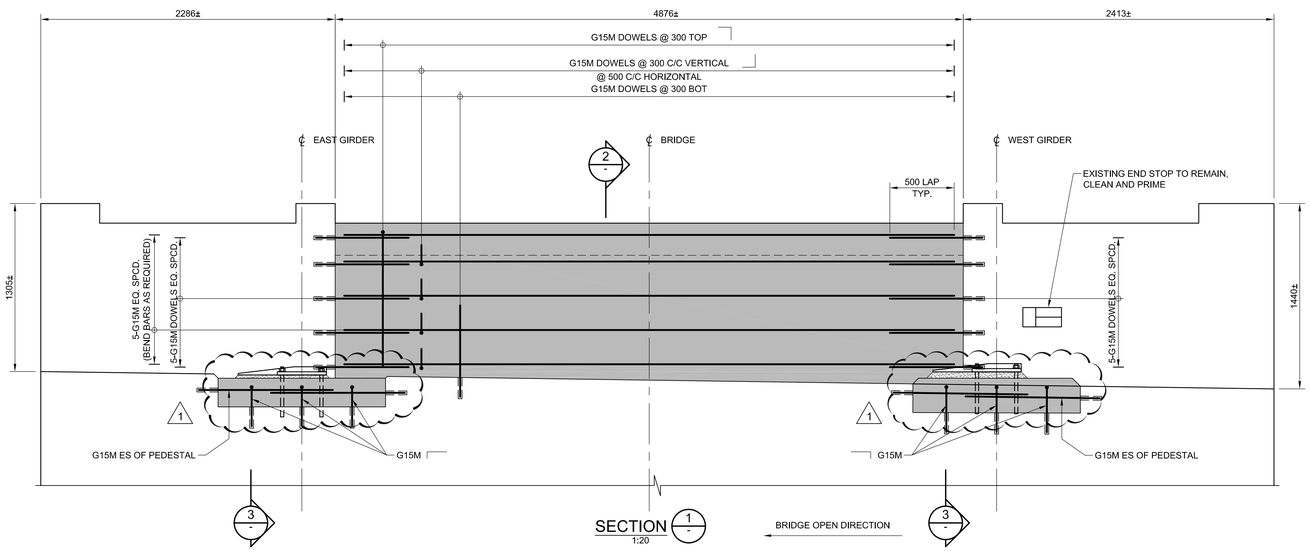
1. REMOVE CONCRETE TO LIMITS AS INDICATED.
2. INSTALL NEW DOWELS AND REINFORCING AS INDICATED.
3. CAST NEW CONCRETE FACING.
4. CAST TOP CAP BEAM WITH NEW ARMOURING ANGLE ON SOUTH ABUTMENT ONLY AFTER BRIDGE CONSTRUCTION IS COMPLETE, BALANCED, OPERATIONAL AND APPROVAL BEEN GIVEN BY DEPARTMENTAL REPRESENTATIVE. ELEVATIONS OF CAPPING BEAM AND BRIDGE ENDS TO MATCH TO PROVIDE SMOOTH TRANSITION ON RUNNING SURFACE.

ISOLATED REPAIR NOTES:

1. SAWCUT AT LIMITS OF REMOVAL SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICHEVER IS LESS U.N.O. OR AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
2. REMOVE DELAMINATED, LOOSE OR DETERIORATED CONCRETE AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
3. WHERE THE BOND BETWEEN CONCRETE AND REINFORCING STEEL IS BROKEN, OR WHERE MORE THAN HALF OF THE PERIMETER OF THE BAR IS EXPOSED, THE CONCRETE SURROUNDING THE BARS SHALL BE LOCALLY REMOVED TO A DEPTH OF 25mm BEHIND THE BAR.
4. ABRASIVE BLAST CLEAN CONCRETE AND REINFORCING STEEL BARS.
5. RE-TIE EXPOSED REINFORCING STEEL BARS AT ALL INTERSECTIONS.

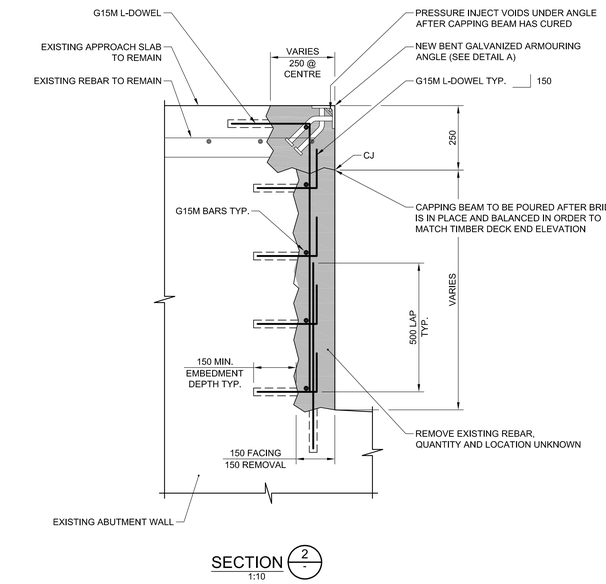


REHABILITATED ABUTMENT PLAN 1:20

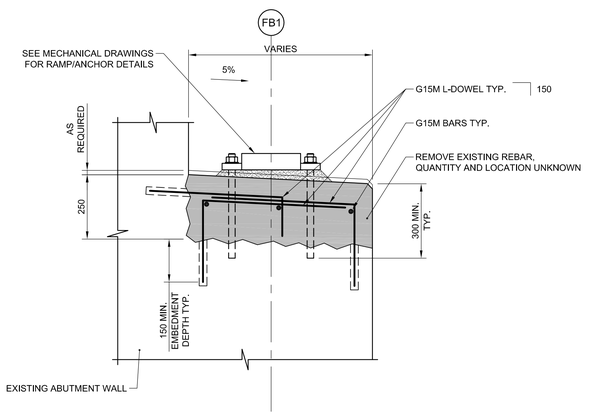


SECTION 1 1:20

SIM.



SECTION 2 1:10



SECTION 3 1:10

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TRENT-SEVERN WATERWAY BOBCAYGEON SWING BRIDGE REHABILITATION

CITY PROV.

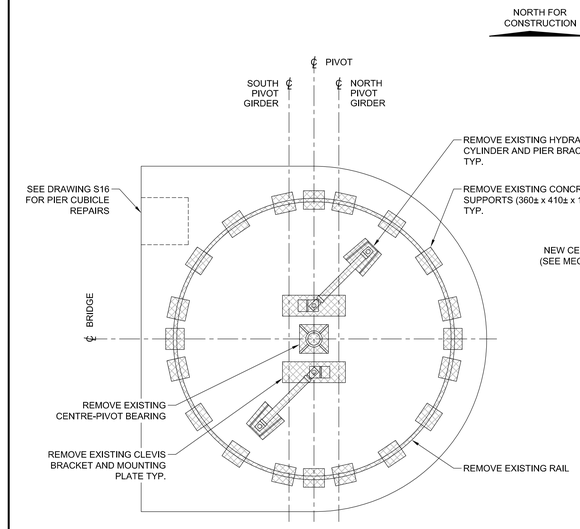
Drawing title / Titre du dessin

SUBSTRUCTURE REPAIR DETAILS SOUTH ABUTMENT

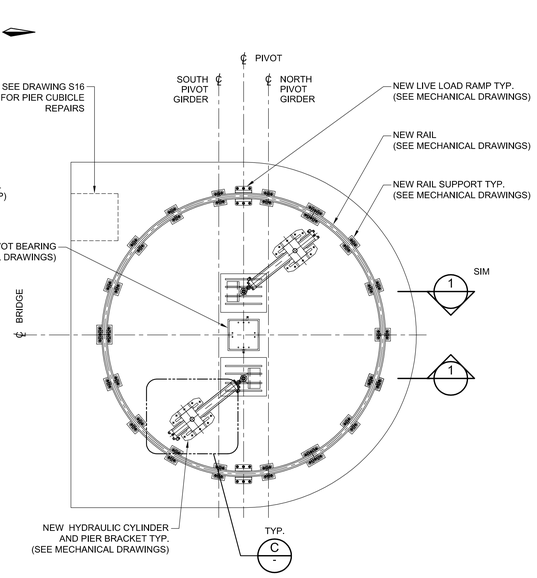
Drawn by / Dessiné par: R. PETRUNGARO	Designed by / Conçu par: R. MOREAU
Approved by / Approuvé par: F. WASIEWICZ	Drawing Date / Date du dessin: 2019/09/27
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: S14
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille X of / du X

CAD FILE LOCATION AND NAME: \\cootl1dsd01\projects\Jobs2016\151-06165-11 Bobcaygeon Swing Bridge Rehab\3.0 Technical (by Discipline)\3.7 Dwg-Fig\SHEETS\151-06165-11_S14.dwg
MODIFIED: 12/4/2019 10:14:50 AM BY: CARP069785
DATE PLOTTED: 12/4/2019 10:14:51 AM BY: CARP069785

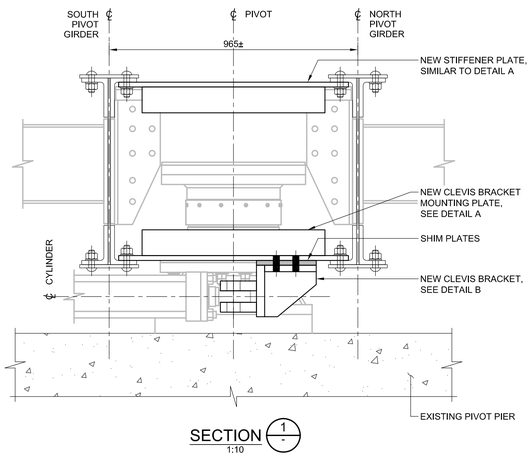
PWGSC-B1 (1000 x 707) PLOTTED BY: CARP069785 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: S14 FILE NAME: 151-06165-11_S14.dwg



REMOVALS
1:50



REHABILITATED
1:50



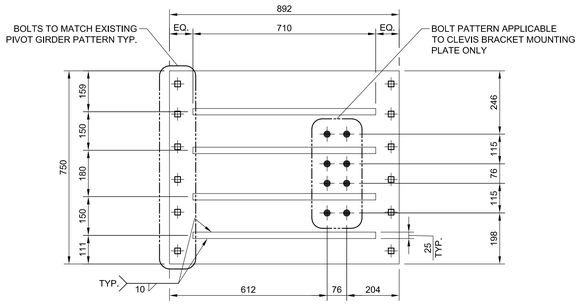
SECTION 1
1:10

LEGEND

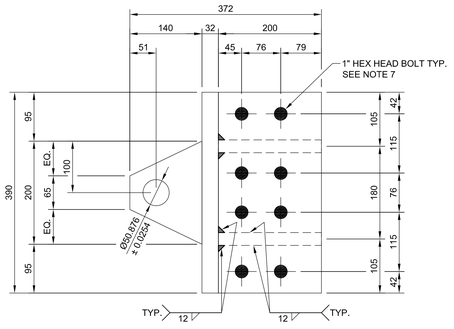
- DENOTES REMOVAL.
- DENOTES EXISTING RIVET LOCATION.
- DENOTES EXISTING RIVET OR BOLT TO BE REMOVED AND REPLACED WITH NEW 7/8" TC BOLT.
- DENOTES NEW 1" HEX HEAD BOLT LOCATION.

NOTES

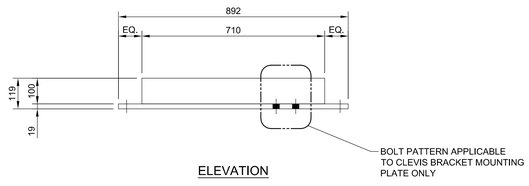
1. SEE DRAWING S4 FOR GENERAL STRUCTURAL STEEL NOTES.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWINGS S1, S2, S5, S8, S15 AND S16.
3. SEE MECHANICAL DRAWINGS FOR REPLACEMENT OF CENTRE-PIVOT BEARING, SWING CYLINDERS, RAILS AND LIVE LOAD/BALANCE WHEELS.
4. COORDINATE FABRICATION OF NEW CLEVIS BRACKET WITH NEW SPHERICAL ROD EYE AND PIN. SEE MECHANICAL DRAWINGS.
5. TURN OVER CENTRE-PIVOT BEARING AND SWING CYLINDERS TO DEPARTMENTAL REPRESENTATIVE. SEE MECHANICAL DRAWINGS.
6. CONTRACTOR IS RESPONSIBLE FOR FINAL COORDINATION OF ANCHOR BOLT LOCATIONS AND MECHANICAL ITEMS.
7. ALL NEW 1"DIA. HEX HEAD BOLTS FOR CLEVIS BRACKET SHALL BE TO ASTM F3125 GRADE A490. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.
8. ALL ANCHORS INTO EXISTING PIVOT PIER SHALL BE SET IN EPOXY EQUIVALENT TO 'HILTI HIT-HY 200-A'.
9. ALL EXISTING CONCRETE PIVOT PIER SURFACES TO BE TREATED WITH TWO COATS OF PENETRATING SEALER.



PLAN VIEW

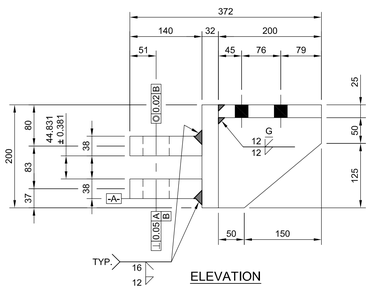


PLAN VIEW



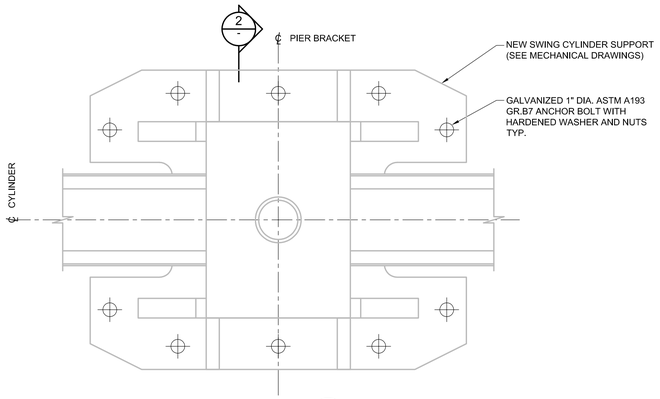
ELEVATION

DETAIL A
1:10

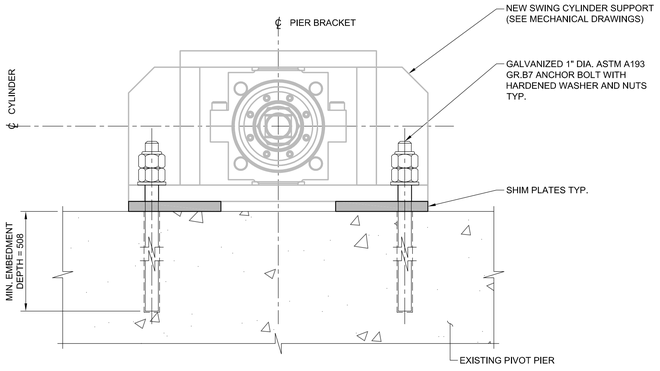


ELEVATION

DETAIL B
1:5



DETAIL C
1:5



SECTION 2
1:5

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TRENT-SEVERN WATERWAY BOBCAYGEON SWING BRIDGE REHABILITATION

CITY PROV.

Drawing title / Titre du dessin

PIVOT PIER REPAIRS

Drawn by / Dessiné par	Designed by / Conçu par
R. PETRUNGARO	R. MOREAU
Approved by / Approuvé par	Drawing Date / Date du dessin
F. WASIEWICZ	2019/11/27
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	S17
Project Number / Numéro du projet	Sheet / Feuille X of / du X
1356-30030321	

CAD FILE LOCATION AND NAME: \\cootl1ota01\projects\Jobs2016\151-06165-11 Bobcaygeon Swing Bridge Rehab\3.0 Technical (by Discipline)\3.7 Dwg-Fig\SHEETS\151-06165-11_S17.dwg
MODIFIED: 12/4/2019 3:15:54 PM BY: CARP069785
DATE PLOTTED: 12/4/2019 3:15:55 PM BY: CARP069785

PWGSC-B1 (1000 x 707) PLOTTED BY: CARP069785 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: S17 FILE NAME: 151-06165-11_S17.dwg

MECHANICAL SCOPE OF WORK:

THE FOLLOWING LIST IS INTENDED TO BE A GUIDELINE

1. DEMOLITION;
 1.1. REMOVE THE EXISTING HYDRAULIC POWER UNIT IN THE CENTRAL PIER VAULT, RETAIN FOR PCA.
 1.2. REMOVE ALL EXISTING HYDRAULIC LINES.
 1.3. REMOVE ALL HYDRAULIC CYLINDERS, COMPONENTS, ETC. FOR THE SWING BRIDGE, RETAIN FOR PCA.
 1.4. REMOVE EXISTING ROTATION CYLINDER MOUNTING BRACKETS, RETAIN FOR PCA.
 1.5. REMOVE EXISTING LEVELING JACKS AND ALL ASSOCIATED EQUIPMENT.
 1.6. REMOVE THE EXISTING CENTER PIVOT BEARING, RETAIN FOR PCA.
 1.7. REMOVE AND DISPOSE ALL EXISTING END SUPPORT WHEELS, MOUNTING PLATES AND BEARING PADS.
 1.8. REMOVE AND DISPOSE ALL EXISTING BALANCE WHEELS AND MOUNTING PLATES.
 1.9. REMOVE AND DISPOSE THE EXISTING BALANCE RAIL AND ASSOCIATED ANCHOR PADS.
 1.10. REMOVE AND DISPOSE OF EXISTING LOCKING PIN AND ALL ASSOCIATED EQUIPMENT.
 1.11. REMOVE THE EXISTING HYDRAULIC POWER UNIT IN THE LOCK BUILDING, RETAIN FOR PCA.

2. INSTALLATION;
 2.1. INSTALL NEW HYDRAULIC POWER UNIT IN LOCK BUILDING.
 2.2. CLEAN AND REPAIR AS REQUIRED THE EXISTING CENTER PIER HYDRAULIC VAULT.
 2.3. INSTALL NEW HYDRAULIC BRIDGE CONTROL MANIFOLD IN EXISTING CENTER PIER HYDRAULIC VAULT.
 2.4. INSTALL NEW BRIDGE ROTATION HYDRAULIC CYLINDERS, HOSES, LINES, CYLINDER PIER BRACKET, CYLINDER BRIDGE BRACKET AND CYLINDER MANIFOLD.
 2.5. INSTALL NEW CENTER PIVOT BEARING, PROVIDE SEAL OR COVER TO PREVENT WATER AND DEBRIS FROM ENTERING BEARING.
 2.6. INSTALL NEW LIVE LOAD/END SUPPORT WHEELS AND ASSOCIATED EQUIPMENT.
 2.7. INSTALL NEW CENTER PIER BALANCE RAIL.
 2.8. INSTALL NEW BALANCE WHEELS AND ASSOCIATED EQUIPMENT.
 2.9. INSTALL NEW LOCKING PIN AND ASSOCIATED EQUIPMENT.
 2.10. REFURBISH EXISTING END STOP. INSTALL NEW BEARING PADS.

3. BRIDGE ADJUSTMENT;
 3.1. BALANCE AND LEVEL BRIDGE SPAN SO THAT THE BRIDGE IS SUPPORTED IN THE OPEN POSITION BY THE CENTER PIVOT BEARING ONLY, AND THAT THE BRIDGE DECK AT EACH END IS EQUAL DIFFERENCE WITH THE ROAD APPROACHES. IF REQUIRED THE DIFFERENCE OF THE BRIDGE DECK ELEVATIONS AND THE ABUTMENT APPROACHES' ELEVATION IS THE REQUIRED SHIMMING REQUIRED AT THE CENTER PIVOT MINUS 1/4".
 3.2. ADJUST THE LIVE LOAD WHEELS/RAMPS AND SUPPORT WHEELS/RAMPS SO THAT THEY ARE IN FULL BEARING. TOP OF CENTER LIVE LOAD WHEEL RAMP TO BE 3mm ABOVE RAIL.
 3.3. ADJUST THE BALANCE WHEELS SO AS A GAP OF 3mm IS BETWEEN WHEEL AND RAIL.

HYDRAULIC SYSTEM C0MMISSIONING NOTES:

THE FOLLOWING LIST IS INTENDED TO BE A GUIDELINE. THE SPECIFIC PROCEDURES FOR ALL HYDRAULICS IN SCOPE (WHETHER OR NOT THEY ARE NOTED COMPLETELY HERE) MUST BE PERFORMED BY A QUALIFIED HYDRAULICS TEAM. WHERE INDUSTRY BEST PRACTICES DIFFER FROM THE INSTRUCTIONS BELOW, CONSULT A DEPARTMENTAL REPRESENTATIVE BEFORE COMMISSIONING.

1. FOLLOWING ASSEMBLY, HYDRAULIC SYSTEM TO BE CLEANED, PRIMED, CYCLED TO REMOVE AIR AND PRESSURE TESTED (PER SPECIFICATIONS)
2. SET THE PRESSURE RELIEF AS NOTED ON DWG M6, WHERE ADJUSTABLE.
3. EACH HYDRAULIC CONTROL CHANNEL TO BE SET UP AS FOLLOWS:
 3.1. OPEN NEEDLE VALVES (OR FLOW CONTROLS) COMPLETELY ON THE CHANNEL TO ALLOW FULL FLOW.
 3.2. SET THE ADJUSTABLE PRESSURE RELIEF(S) ON THE CHANNEL TO A MINIMUM PRESSURE.
 3.3. WITH ADEQUATE PERSONNEL AVAILABLE FOR OBSERVATION AND TESTING, CYCLE THE CHANNEL. INCREASE THE PRESSURE SETTING ON THE RELIEF SO THAT THE CYLINDER STARTS TO MOVE. (PERFORM THIS OPERATION FOR EXTEND AND RETRACT) UNDER THE DIRECTION OF DEPARTMENTAL REPRESENTATIVE, INCREASE THE PRESSURE SETTING SLIGHTLY TO ALLOW FOR FRICTION. THE PRESSURE SHOULD BE SET AS HIGH AS REQUIRED FOR OPERATION, NO HIGHER.
 3.4. ONCE THE PRESSURE IS SET, ADJUST THE NEEDLE VALVES (OR FLOW CONTROLS) TO ACHIEVE THE DESIRED SPEED.
 3.5. IF ADDITIONAL ADJUSTMENT IS REQUIRED FOR PRESSURE, FIRST OPEN THE NEEDLE VALVES (OR FLOW CONTROLS). A FLOW RESTRICTION CAUSED BY A PARTIALLY CLOSED NEEDLE VALVE (OR FLOW CONTROL VALVE) MAY CAUSE THE OPERATOR TO BELIEVE THAT THE CHANNEL PRESSURE IS PROPERLY CONTROLLED. HOWEVER, NEEDLE VALVES (AND FLOW CONTROLS) ONLY DECREASES DYNAMIC PRESSURE DOWNSTREAM; THEY DO NOT LIMIT STATIC PRESSURE ONCE THE CYLINDER REACHES THE END OF STROKE. AN IMPROPER ADJUSTMENT COULD CAUSE RISK TO EQUIPMENT AND/OR THE PUBLIC.
 3.6. ONCE CHANNELS ARE PROPERLY ADJUSTED, DOCUMENT THE SETTINGS FOR ALL PRESSURE RELIEF VALVES, NEEDLE VALVES, FLOW CONTROL AND OTHER ADJUSTMENT POINTS. EXPRESS THE POSITION AS A FUNCTION OF NUMBER OF TURNS (OR FRACTION OF TURNS) FROM COMPLETELY CLOSED OR COMPLETELY OPEN. BE SURE TO SPECIFY DIRECTION OF ROTATION (CLOCKWISE OR COUNTER-CLOCKWISE). PROVIDE DOCUMENTATION TO PUBLIC WORKS/PARKS CANADA FOR POSTING AND FILING.
 3.7. IF APPLICABLE, LOCK THE ADJUSTERS IN PLACE USING SUPPLIED LOCK NUTS, CAPS ETC.

GENERAL MACHINING NOTES:

1. ALL EXISTING DIMENSIONS ARE TAKEN FROM EXISTING BRIDGE PLANS. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ALL DEVIATIONS, IF ANY, BEFORE WORK BEGINS.
2. PROVIDE ASTM A449 H,S, (HIGH STRENGTH TURNED BOLTS AS REQUIRED TO CONNECT MACHINERY SUPPORTS TO STRUCTURAL STEEL. ALL ASTM A449 H.S.BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE REAMED TO PROVIDE CLEARANCE OF NOT MORE THAN 0.010 INCH BETWEEN THE BODY OF THE BOLT AND THE HOLE. TURNED BOLTS SHALL BE FITTED IN REAMED HOLES, TO AN LC6 FIT UNLESS NOTED OTHERWISE.
3. ALL H.S. FASTENERS SHALL HAVE NUTS CONFORMING TO ASTM A563. ALL NUTS SHALL BE SECURED BY EFFECTIVE LOCKS. IF DOUBLE NUTS ARE USED, BOTH NUTS SHALL BE OF THE SAME THICKNESS. ALL HIGH STRENGTH FASTENERS SHALL HAVE HARDENED PLAIN WASHERS UNDER THER THE HEAD OF THE NUT. ALL HARDENED STEEL PLAIN WASHERS SHALL CONFORM TO ASTM F436, NEW ASTM A449 BOLTS THAT HAVE BEEN TORQUED SHALL NOT BE REUSED.
4. MACHINERY DIMENSIONS SHOWN ON DRAWINGS ARE DIMENSIONS AFTER MACHINING.
5. UNLESS NOTED OTHERWISE, FITS AND FINISHES FOR MACHINING SHALL BE AS FOLLOWS:

		FINISH	
SURFACE	FIT	MICRO-INCHES	MICRONS
MACHINERY BASE ON STEEL	-	250	6.3
MACHINERY BASE ON CONCRETE	-	500	12.7
SHAFT JOURNALS	RC6	8	0.2
JOURNAL BUSHINGS	RC6	16	0.4
SPLIT BUSHINGS IN BASE	LC1	125	3.2
SOLID BUSHING IN BASE (TO 6.4mm WALL)	FN1	63	1.6
SOLID BUSHING IN BASE (OVER 6.4mm WALL)	FN2	63	1.6
HUBS ON SHAFT (TO 50.8mm BORE)	FN2	32	0.8
HUBS ON SHAFT (OVER 50.8mm BORE)	FN2	63	1.6
HUBS ON MAIN TRUNNIONS	FN2	32	0.8
TURNED BOLTS IN FINISHED HOLES	LC6	63	1.6
SLIDING BEARINGS	RC6	32	0.8
KEYS AND KEYWAYS	LC4	63	1.6
MACHINERY PARTS IN FIXED CONTACT	-	125	3.2

6. THE ABOVE FITS FOR CYLINDRICAL PARTS SHALL ALSO APPLY TO THE DIMENSIONS OF NON CYLINDRICAL PARTS.
7. GENERAL MACHINED FINISH, UNLESS NOTED IS 125 MICROINCHES.
8. ALL WELDING AND STRESS RELIEVING SHALL CONFORM TO CSA W59 STANDARDS.
9. CONTRACTOR TO VERIFY DIMENSIONS FOR LOCATION AND SIZING WHERE MACHINERY FASTENS TO EXISTING STRUCTURAL ELEMENTS.

MECHANICAL EQUIPMENT SPECIFICATIONS:

SEE MECHANICAL EQUIPMENT SPECIFICATION DOCUMENT IN TENDER PACKAGE
1. DIVISION 11- EQUIPMENT
 1.1. 11 99 01 GREASE SYSTEM
 1.2. 11 99 02 OIL REMOVAL
 1.3. 11 99 03 FASTENERS AND HARDWARE
 1.4. 11 99 04 CABLE AND TUBE SUPPORTS
 1.5. 11 99 05 LINES, FITTING AND HOSES
 1.6. 11 99 06 HYDRAULIC OIL
 1.7. 11 99 07 HYDRAULIC SKID AND COMPONENTS
 1.8. 11-99-08 HYDRAULIC CYLINDERS

GENERAL PAINT SPECIFICATIONS:

THE FOLLOWING LIST IS INTENDED TO BE A GUIDELINE
1. STEEL TO BE ABRASIVE BLAST CLEANED, PRIMED AND PAINTED WITH ZINC RICH PRIMER.
2. FINAL COATING TO MATCH BRIDGE STRUCTURE.
3. ALL MACHINED SURFACES TO TO BE TREATED WITH RUST INHIBITOR.

DIMENSIONS AND TOLERANCES

1. DIMENSIONS ARE IN MILLIMETERS (UNLESS NOTED OTHERWISE).
2. TOLERANCES (UNLESS NOTED OTHERWISE):

X.	DECIMALS	±0.5
.X	DECIMAL	±0.1
.XX	DECIMAL	±0.05
	ANGLES	±0.5 DEG
	HOLE SIZES	±1mm
	SURFACES	3.2 MICROMETERS

2

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No.	Description	Dwn.By Des.Par	Date
02	ADDENDUM 3	DP	04/12/19
01	FOR TENDER	DD	11/07/19

Revision / Révision

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

A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

MECHANICAL
SCOPE OF WORK
AND GENERAL
NOTES

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number/ Numéro du Dessin
W. LITTLE	M0
Project Number / Numéro du projet	Sheet Feuille 0 of du 28
1356-30030321	

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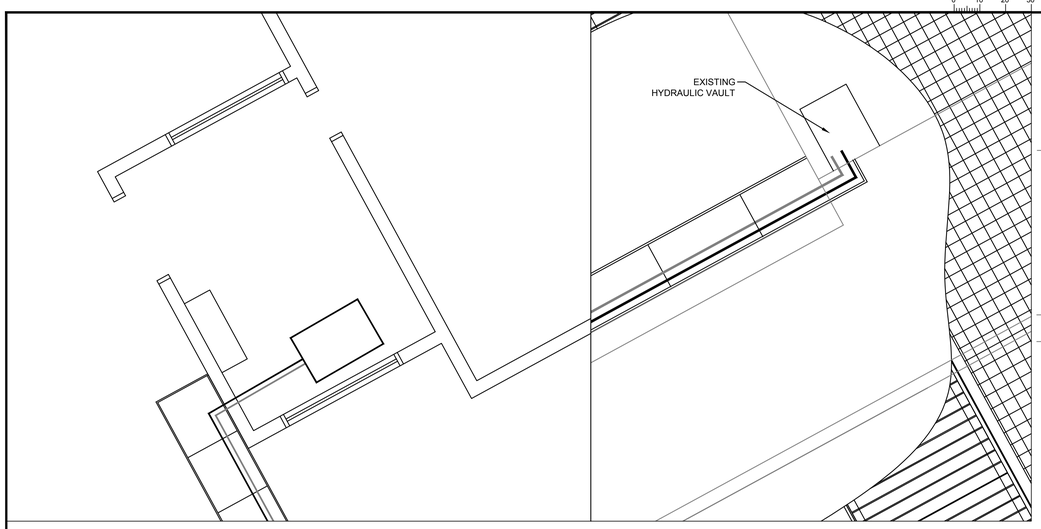

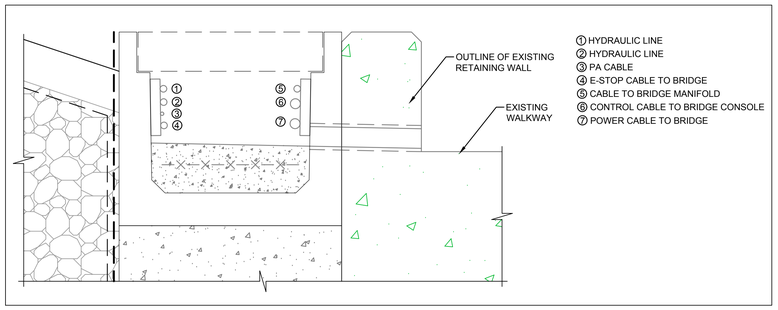

1. HYDRAULIC LINE
2. HYDRAULIC LINE
3. PA CABLE
4. E-STOP CABLE TO BRIDGE
5. CABLE TO BRIDGE MANIFOLD
6. CONTROL CABLE TO BRIDGE CONSOLE
7. POWER CABLE TO BRIDGE

PLAN
SCALE: 1:150

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No.	Description	Dwn.By Des.Par	Date
03	ADDENDUM 3	DP	12/04/2019
02	FOR TENDER	DD	11/07/2019
01	90% APPROVAL	DD	09/07/2019

Revision / Révision

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Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

MECHANICAL SITE
PLAN

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M1
Project Number / Numéro du projet	Sheet / Feuille 01 of / du 28
1356-30030321	

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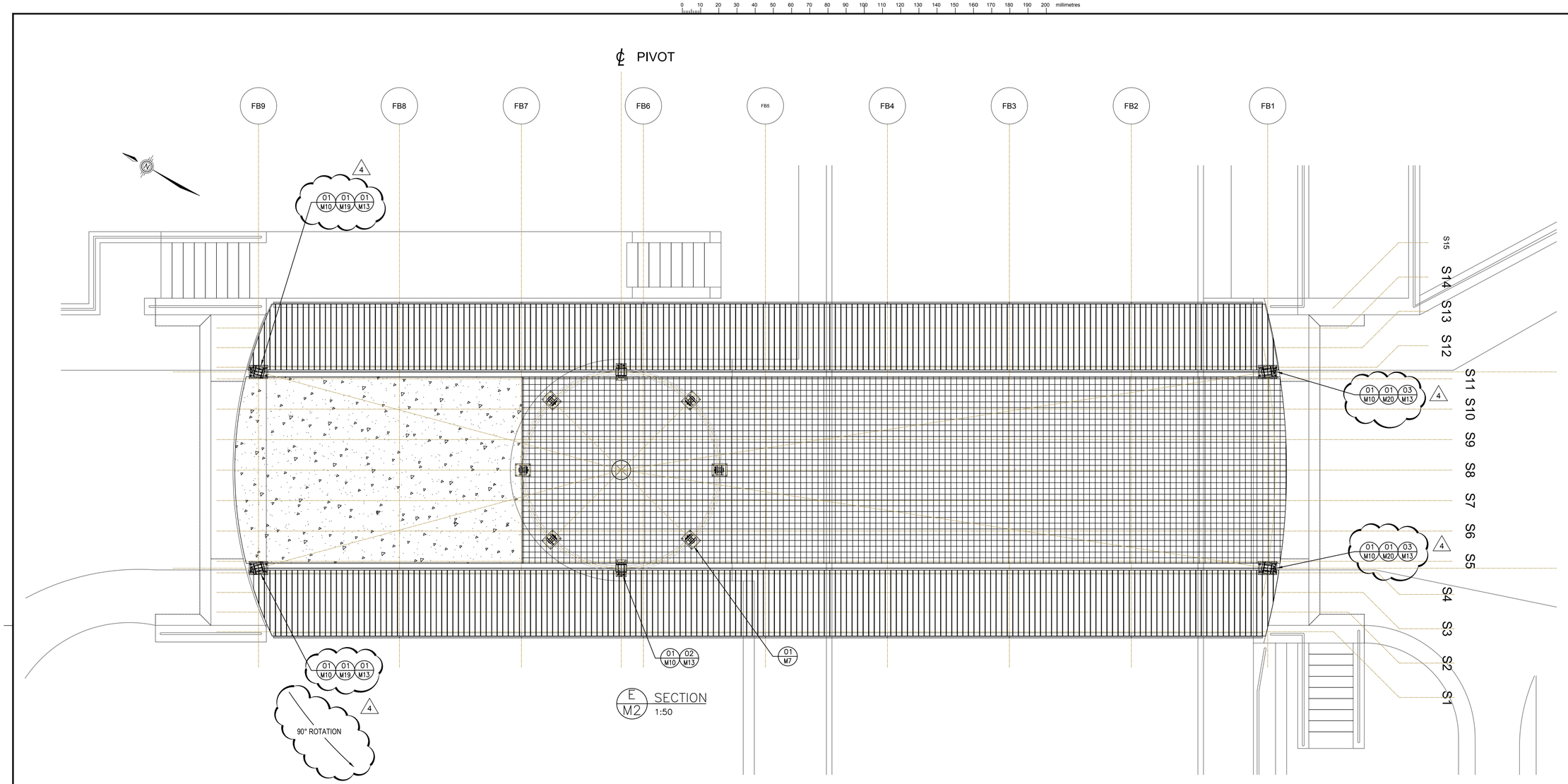

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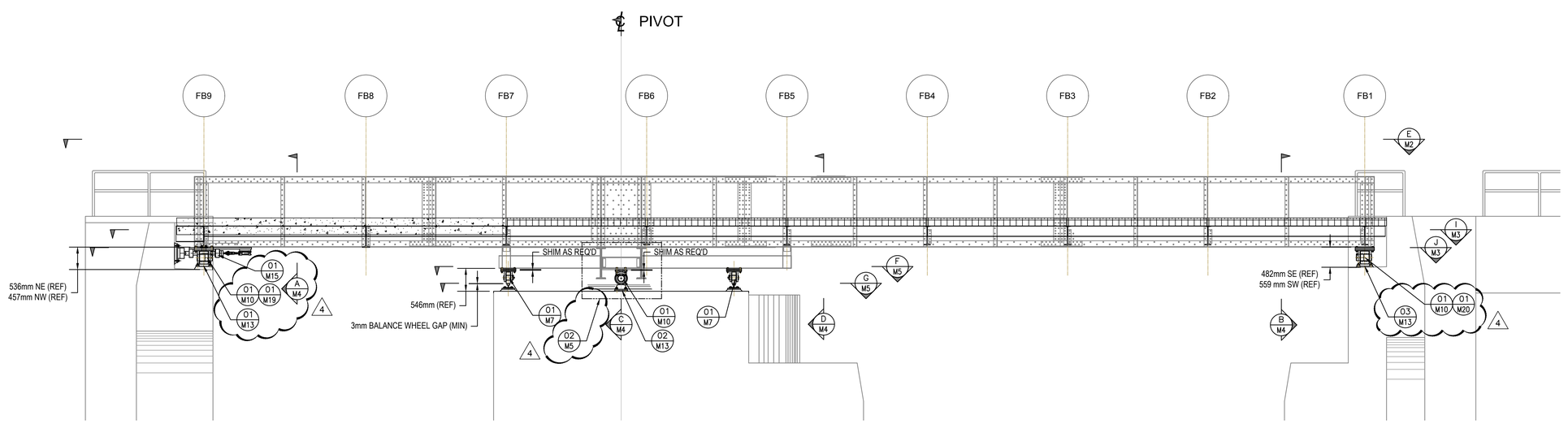

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* CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS

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No.	Description	Dwn.By Des.Par	Date
	Revision / Révision		
04	ADDENDUM 3	DP	12/04/2019
03	FOR TENDER	DD	11/07/2019
02	FOR TENDER	DD	09/25/2019
01	90% APPROVAL	DD	07/19/2019

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Project title / Titre du projet

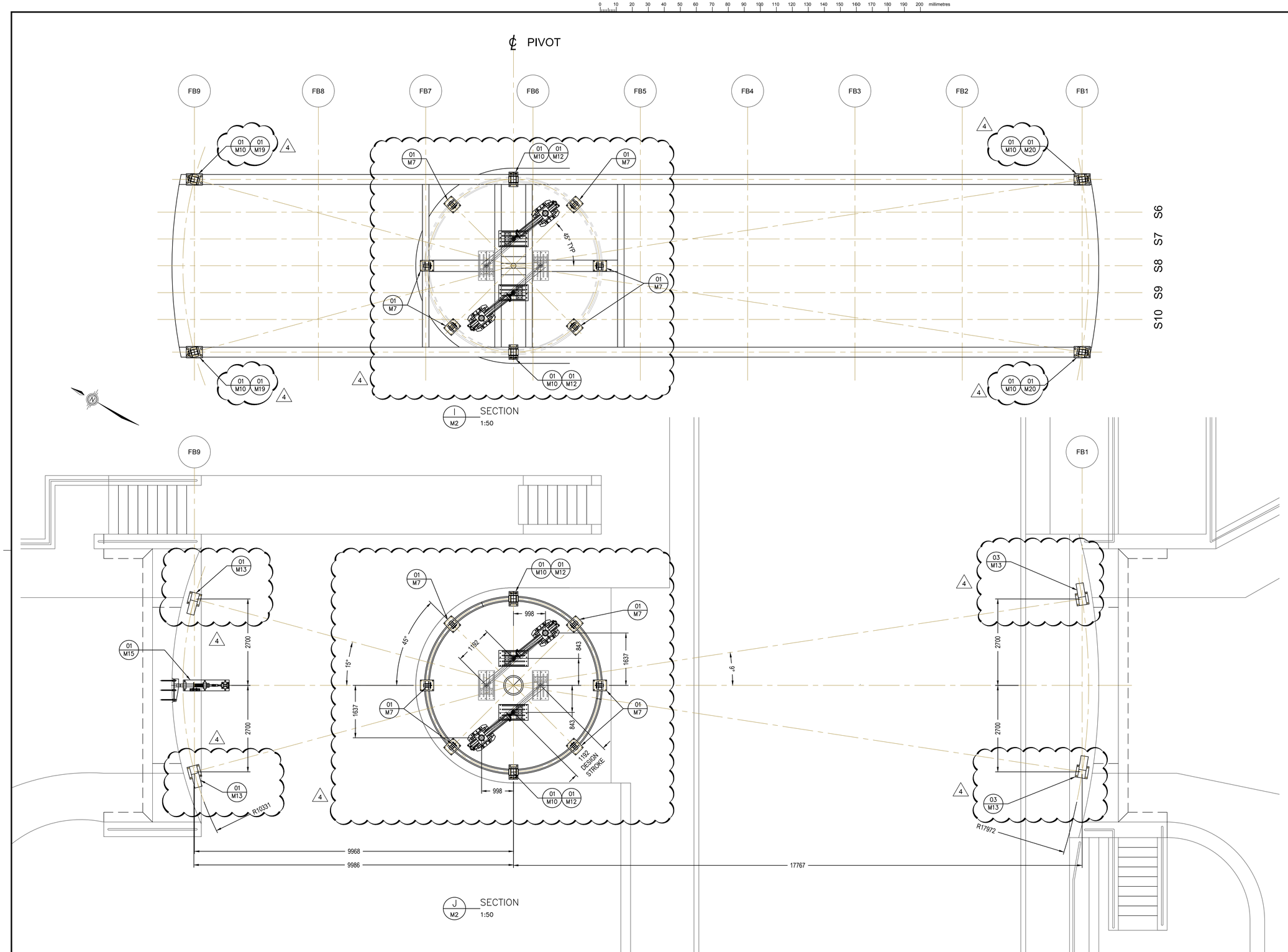
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

PLAN & ELEVATION

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/05/06
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M2
Project Number / Numéro du projet	Sheet / Feuille 02 of / du 28
1356-30030321	



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Revision / Révision

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Project title / Titre du projet

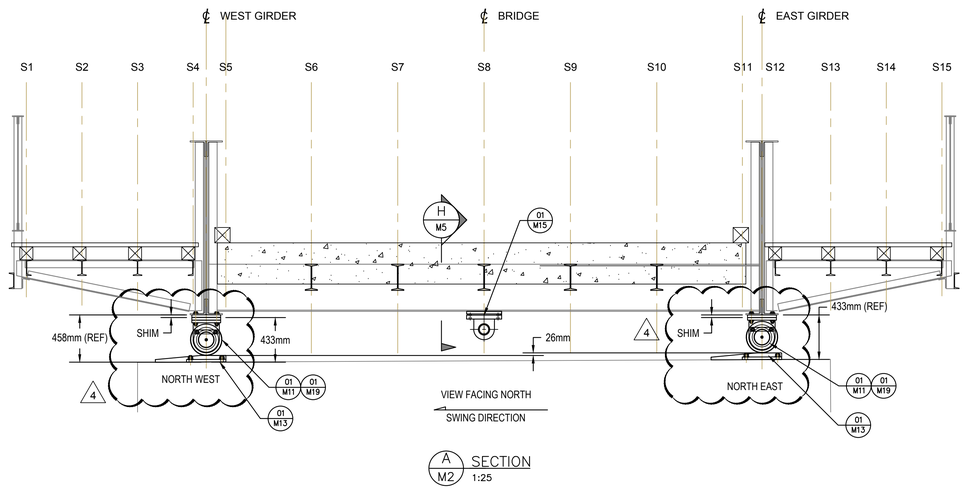
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION
-
ONTARIO

Drawing title / Titre du dessin

SECTION I-I
SECTION J-J

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M3
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 03 of / du 28

PWGSC-B1 (1000 x 707) PLOTTED BY: DOUG.PETTEM DATE PLOTTED: Dec 06, 2019 LAYOUT NAME: M3 FILE NAME: M3.dwg



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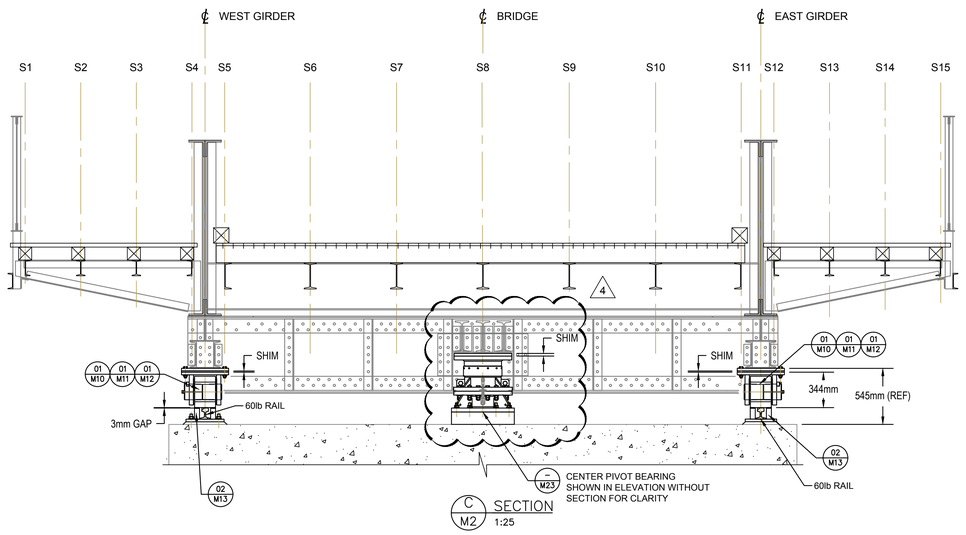

C M2 SECTION 1:25

B M2 SECTION 1:25

D M2 SECTION 1:25

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01	FOR APPROVAL, 90%	DD	07/19/2019

Revision / Révision

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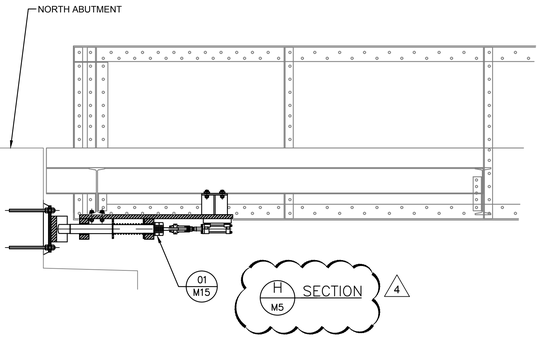
Project title / Titre du projet

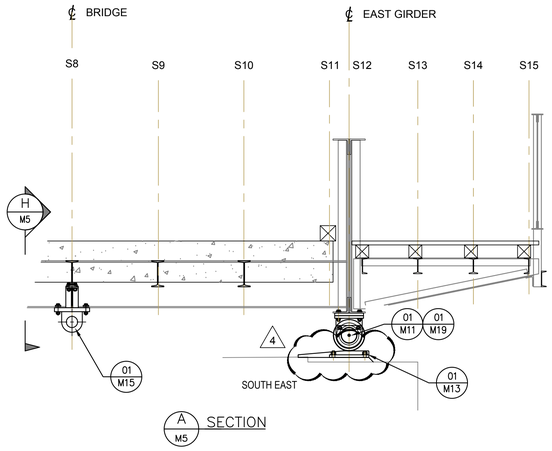
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION
-
ONTARIO

Drawing title / Titre du dessin

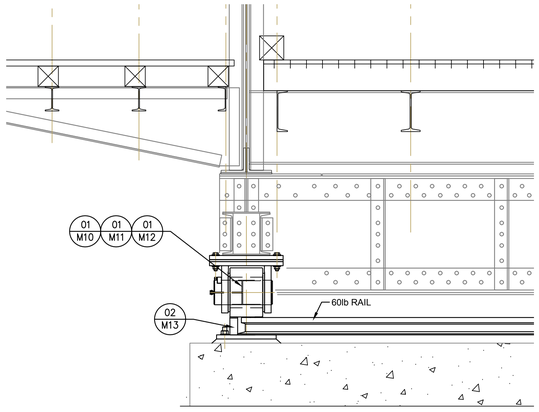
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D

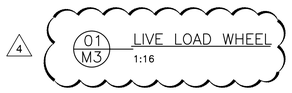
Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M4
Project Number / Numéro du projet	Sheet / Feuille 04 of / du 28
1356-30030321	

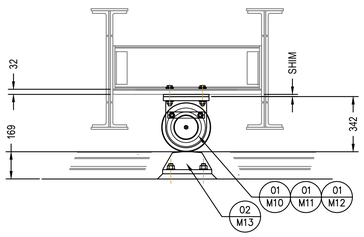


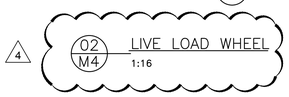


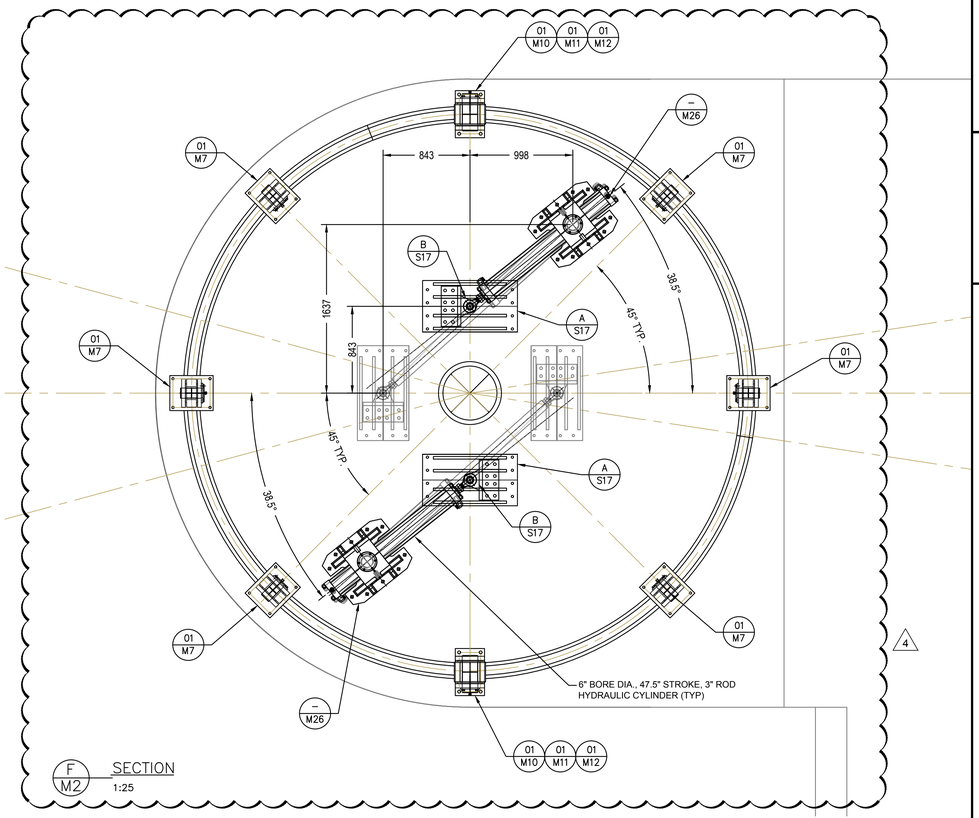
LOCKING PIN
1:25

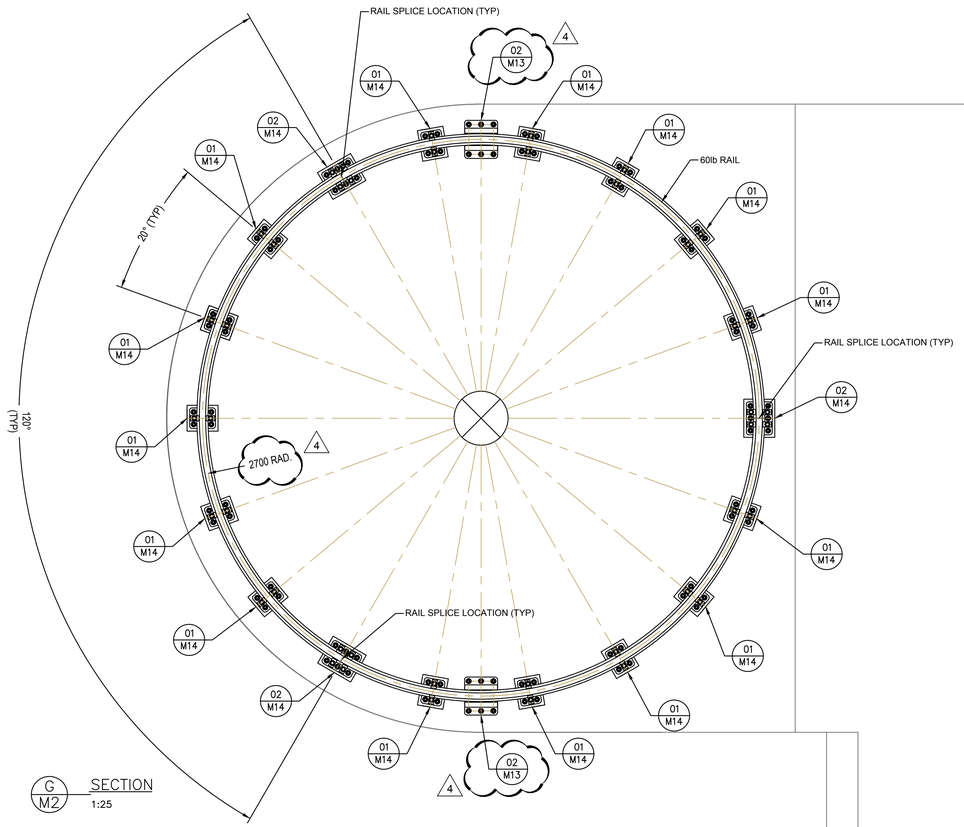












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CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS

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04	ADDENDUM 3	DP	12/04/2019
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01	90% APPROVAL	DD	07/19/2019

Revision / Révision

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A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

-

Project title / Titre du projet

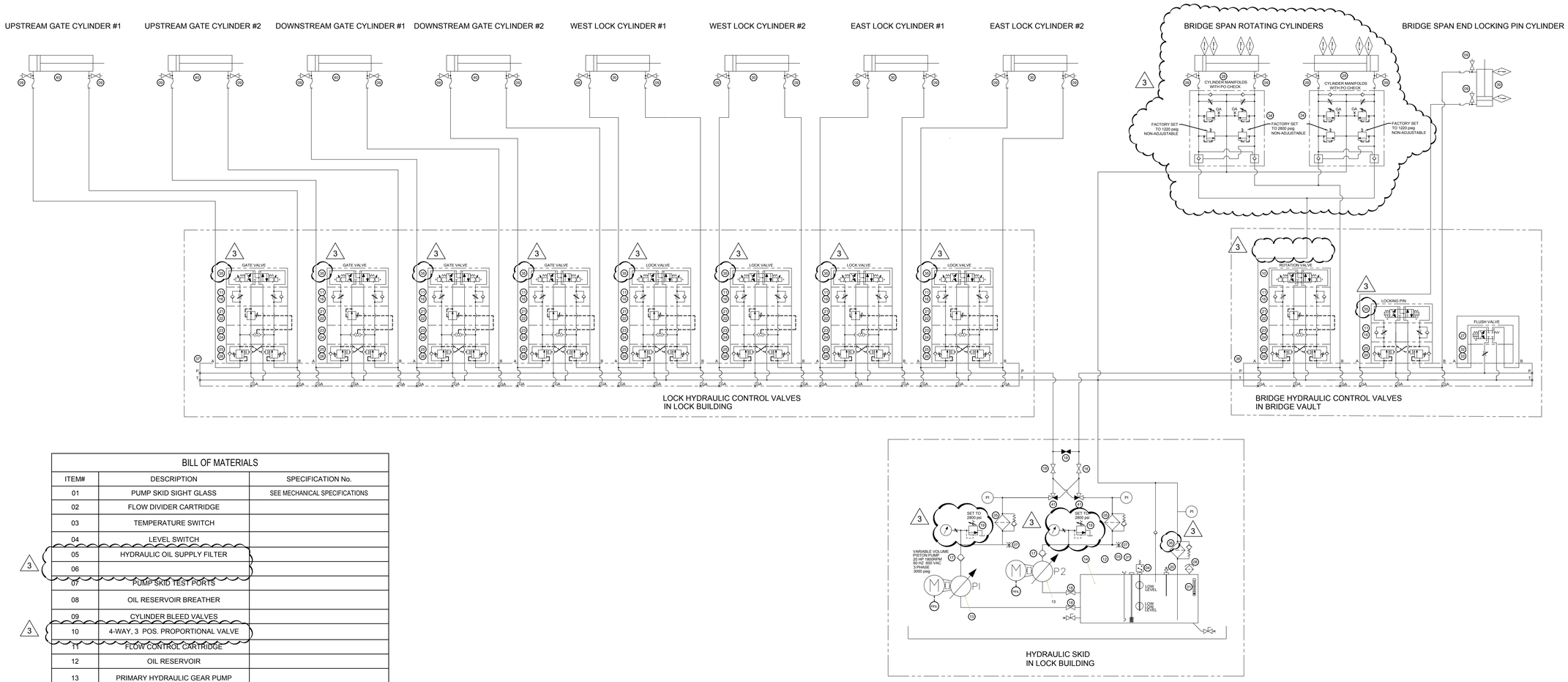
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

SECTION F-F
SECTION G-G

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M5
Project Number / Numéro du projet	Sheet / Feuille 05 of / du 28
1356-30030321	



BILL OF MATERIALS

ITEM#	DESCRIPTION	SPECIFICATION No.
01	PUMP SKID SIGHT GLASS	SEE MECHANICAL SPECIFICATIONS
02	FLOW DIVIDER CARTRIDGE	
03	TEMPERATURE SWITCH	
04	LEVEL SWITCH	
3 05	HYDRAULIC OIL SUPPLY FILTER	
06		
07	PUMP SKID TEST PORTS	
08	OIL RESERVOIR BREATHER	
09	CYLINDER BLEED VALVES	
3 10	4-WAY, 3 POS. PROPORTIONAL VALVE	
11	FLOW CONTROL CARTRIDGE	
12	OIL RESERVOIR	
13	PRIMARY HYDRAULIC GEAR PUMP	
14	HYDRAULIC FLUID	
3 15		
16	FLOW CONTROL SANDWICH METER IN BODY	
17	CHECK VALVE	
18	BALL VALVE	
19	PRESSURE RELIEF CARTRIDGE VALVE	
20	SAMPLING PORT	
21	PRESSURE REDUCING VALVE CARTRIDGE	
22	PRESSURE REDUCING VALVE BODY	
23	SHUTTLE VALVE CARTRIDGE	
24	SHUTTLE VALVE BODY	
25	DUAL COUNTERBALANCE VALVE CARTRIDGE	
26	DUAL COUNTERBALANCE VALVE BODY	
27	DIRECTIONAL CONTROL VALVE	
28	BRIDGE SWING CYLINDER	
3 29		
30	LOCK CYLINDERS	
31	TANK MAGNET	
32	NEEDLE VALVE CARTRIDGE	
33	NEEDLE VALVE BODY	
34	CYLINDER MANIFOLD WITH PO CHECK	LYNCH E17-0949-51
35	4-WAY, 3 POSITION CONTROL VALVE	
3 36	HYDRAULIC OIL RETURN FILTER	
37	MANIFOLD, 8 STATIONS	
38	MANIFOLD, 3 STATIONS	
39	BRIDGE LOCK CYLINDER	
40	SLUICE GATE CYLINDERS	
41	3 WAY VALVE	
3 42		

HYDRAULIC SYSTEM COMMISSIONING NOTES:

THE FOLLOWING LIST IS INTENDED TO BE A GUIDELINE. THE SPECIFIC PROCEDURES FOR ALL HYDRAULICS IN SCOPE (WHETHER OR NOT THEY ARE NOTED COMPLETELY HERE) MUST BE PERFORMED BY A QUALIFIED HYDRAULICS TEAM. WHERE INDUSTRY BEST PRACTICES DIFFER FROM THE INSTRUCTIONS BELOW, CONSULT A DEPARTMENTAL REPRESENTATIVE BEFORE COMMISSIONING.

1. FOLLOWING ASSEMBLY, HYDRAULIC SYSTEM TO BE CLEANED, PRIMED, CYCLED TO REMOVE AIR AND PRESSURE TESTED (PER SPECIFICATIONS)
2. SET THE PRESSURE RELIEF AS NOTED ON DWG M6, WHERE ADJUSTABLE.
3. EACH HYDRAULIC CONTROL CHANNEL TO BE SET UP AS FOLLOWS:
   - 3.1. OPEN NEEDLE VALVES (OR FLOW CONTROLS) COMPLETELY ON THE CHANNEL TO ALLOW FULL FLOW.
   - 3.2. SET THE ADJUSTABLE PRESSURE RELIEF(S) ON THE CHANNEL TO A MINIMUM PRESSURE.
   - 3.3. WITH ADEQUATE PERSONNEL AVAILABLE FOR OBSERVATION AND TESTING, CYCLE THE CHANNEL. INCREASE THE PRESSURE SETTING ON THE RELIEF SO THAT THE CYLINDER STARTS TO MOVE. (PERFORM THIS OPERATION FOR EXTEND AND RETRACT) UNDER THE DIRECTION OF DEPARTMENTAL REPRESENTATIVE, INCREASE THE PRESSURE SETTING SLIGHTLY TO ALLOW FOR FRICTION. THE PRESSURE SHOULD BE SET AS HIGH AS REQUIRED FOR OPERATION, NO HIGHER.
   - 3.4. ONCE THE PRESSURE IS SET, ADJUST THE NEEDLE VALVES (OR FLOW CONTROLS) TO ACHIEVE THE DESIRED SPEED.
   - 3.5. IF ADDITIONAL ADJUSTMENT IS REQUIRED FOR PRESSURE, FIRST OPEN THE NEEDLE VALVES (OR FLOW CONTROLS). A FLOW RESTRICTION CAUSED BY A PARTIALLY CLOSED NEEDLE VALVE (OR FLOW CONTROL VALVE) MAY CAUSE THE OPERATOR TO BELIEVE THAT THE CHANNEL PRESSURE IS PROPERLY CONTROLLED. HOWEVER, NEEDLE VALVES (AND FLOW CONTROLS) ONLY DECREASES DYNAMIC PRESSURE DOWNSTREAM; THEY DO NOT LIMIT STATIC PRESSURE ONCE THE CYLINDER REACHES THE END OF STROKE. AN IMPROPER ADJUSTMENT COULD CAUSE RISK TO EQUIPMENT AND/OR THE PUBLIC.
   - 3.6. ONCE CHANNELS ARE PROPERLY ADJUSTED, DOCUMENT THE SETTINGS FOR ALL PRESSURE RELIEF VALVES, NEEDLE VALVES, FLOW CONTROL AND OTHER ADJUSTMENT POINTS. EXPRESS THE POSITION AS A FUNCTION OF NUMBER OF TURNS (OR FRACTION OF TURNS) FROM COMPLETELY CLOSED OR COMPLETELY OPEN. BE SURE TO SPECIFY DIRECTION OF ROTATION (CLOCKWISE OR COUNTER-CLOCKWISE). PROVIDE DOCUMENTATION TO PUBLIC WORKS/PARKS CANADA FOR POSTING AND FILING.
   - 3.7. IF APPLICABLE, LOCK THE ADJUSTERS IN PLACE USING SUPPLIED LOCK NUTS, CAPS ETC.

3

TUBING SIZES

DESCRIPTION	O.D.	THICKNESS
• TANK TO PUMP INLET	1-1/2"	0.134"
• PUMP TO MANIFOLD	1-1/4"	0.095"
• CONTROL VALVE MANIFOLD TO CYLINDER	1"	0.095"
• CYLINDER TO CONTROL VALVE MANIFOLD	1"	0.095"
• CONTROL VALVE MANIFOLD TO TANK	1-1/4"	0.095"

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CONSTRUCTION

No.	Description	Dwn.By Des.Par	Date
03	ADDENDUM 3	DP	12/04/19
02	FOR TENDER	DD	09/26/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

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A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

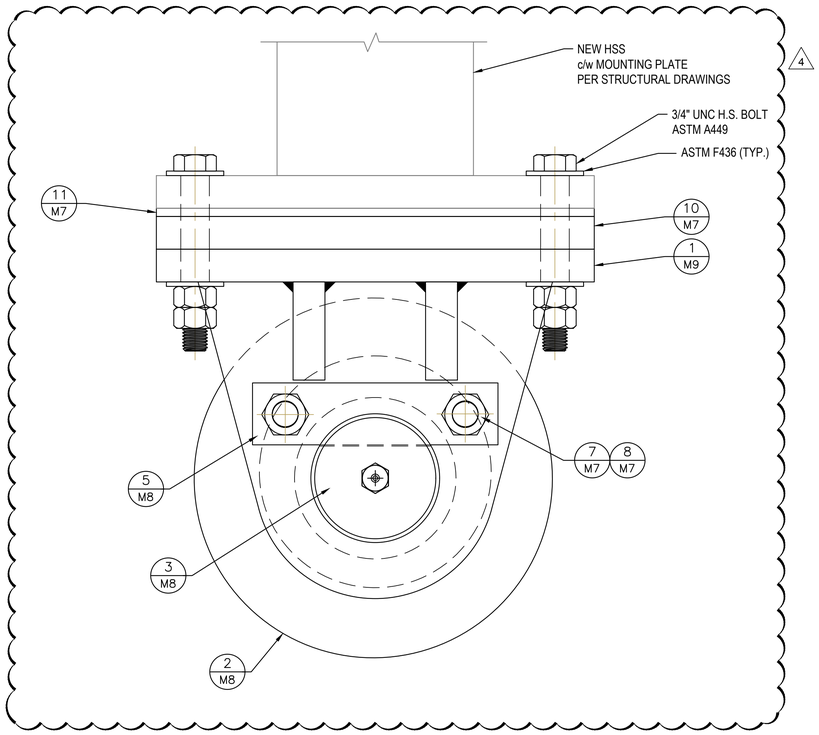
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

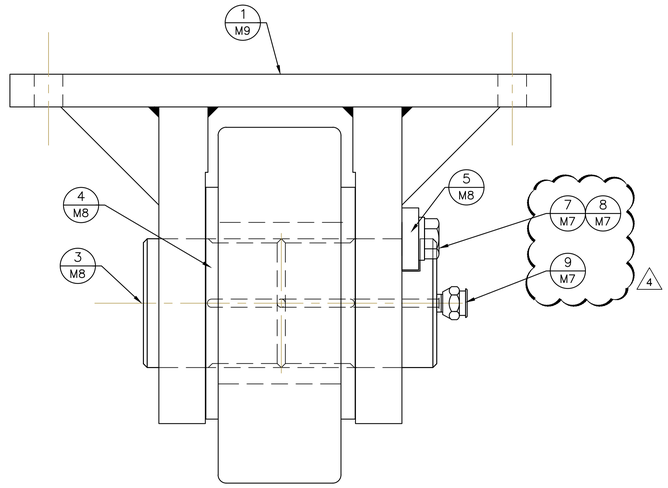
ONTARIO

Drawing title / Titre du dessin

HYDRAULIC SCHEMATIC
AND
COMMISIONING
NOTES

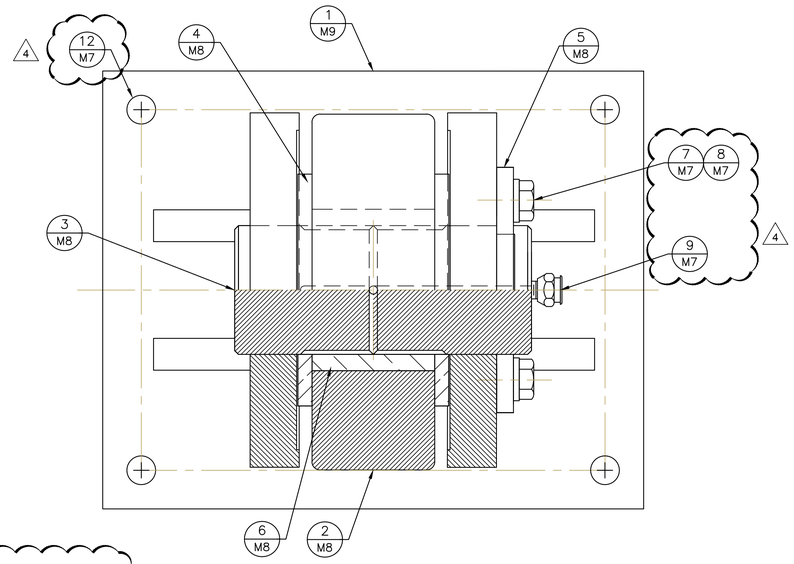
Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M6
Project Number / Numéro du projet	Sheet / Feuille 6 of / du 28
1356-30030321	





ITEM	REQ'D	DESCRIPTION
1	6	BALANCE WHEEL MOUNTING BRACKET
2	6	BALANCE WHEEL
3	6	AXLE
4	12	THRUST WASHER
5	6	KEEPER PLATE
6	6	BUSHING
7	12	M20 x 2.5 x 40Lg CLASS 10.9 - YELLOW ZINC PLATED HEXAGON CAP SCREW
8	12	20 mm SPLIT TYPE HELICAL LOCKWASHERS DIN 7980 ZINC PLATED
9	6	M12 x 1.5 GREASE NIPPLE, GIANT BUTTON HEAD PRESSURE TYPE WITH BUILT IN CHECK VALVE
10	6	BALANCE WHEEL MOUNTING PLATE
11	SEE TABLE 1	MOUNTING SHIMS (SEE DWG M9)
12		DRILL FOR 3/4" Ø HIGH STRENGTH BOLTS

4



1 M2 BALANCE WHEEL

REQ'D: 6
SCALE: 1:2

4

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04	ADDENDUM 3	DP	12/04/19
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TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

BALANCE
WHEEL
ASSEMBLY

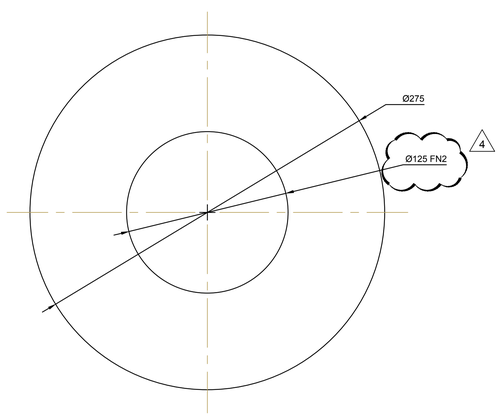
Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	**Drawing Date / Date du dessin**
K SMITH	2019/09/20

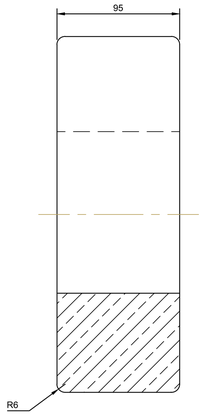
Project manager / Administrateur de projet: W. LITTLE

Project Number / Numéro du projet: 1356-30030321

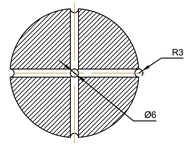
Drawing Number / Numéro du Dessin: M7

Sheet / Feuille 07 of / du 28

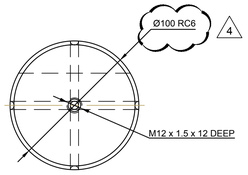


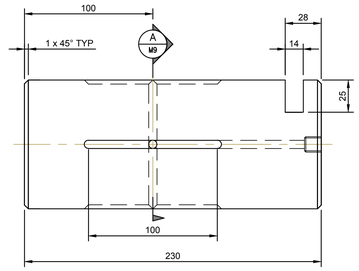


2 / M7 BALANCE WHEEL
REQ'D: 6
MATERIAL: ASTM A668 CLASS G
SCALE: 1:2

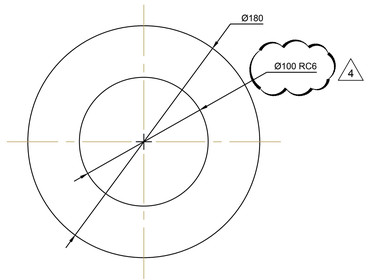


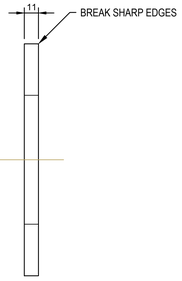
A / M8 SECTION
1:2
4



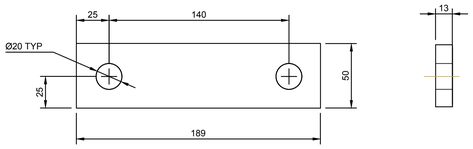


3 / M7 AXLE
REQ'D: 6
MATERIAL: ASTMA668 CLASS D
SCALE: 1:2
4

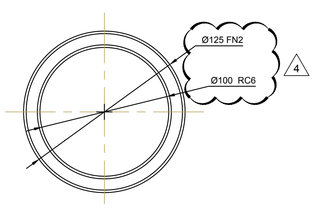


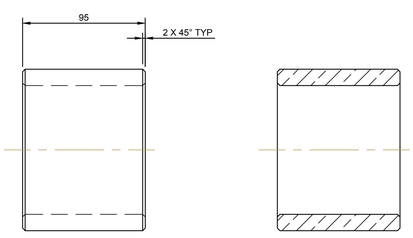


4 / M7 THRUST WASHER
REQ'D: 12
MATERIAL: ASTM B22 ALLOY C91300
SCALE: 1:2



5 / M7 KEEPER PLATE
REQ'D: 6
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2
4





6 / M7 BUSHING
REQ'D: 6
MATERIAL: ASTM B22 ALLOY C91300
SCALE: 1:2
4

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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No.	Description	Dwn.By Des.Par	Date
04	ADDENDUM 3	DP	12/04/19
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02	FOR TENDER	DD	09/25/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

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A Detail number
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B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

BALANCE
WHEEL
DETAILS 1

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M8
Project Number / Numéro du projet	Sheet / Feuille 08 of / du 28
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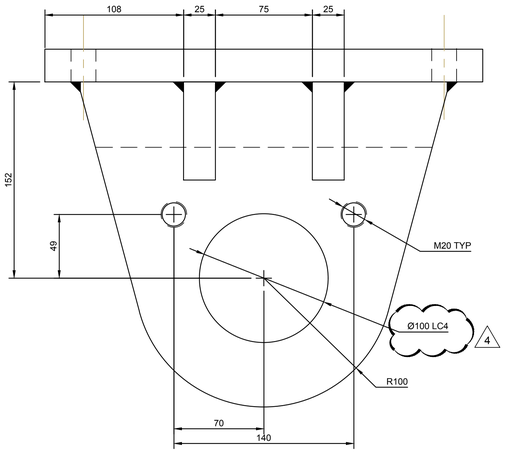
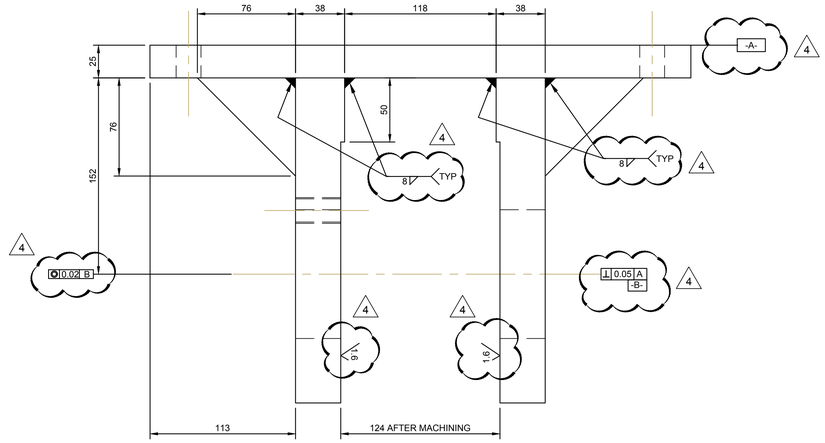
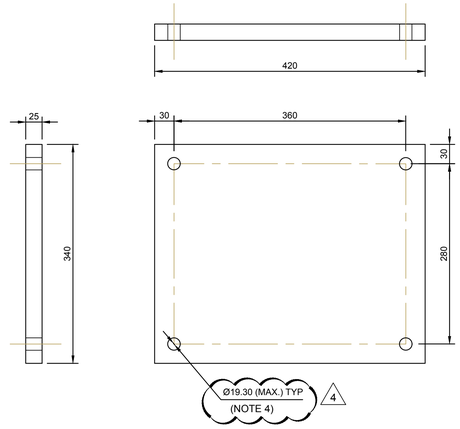
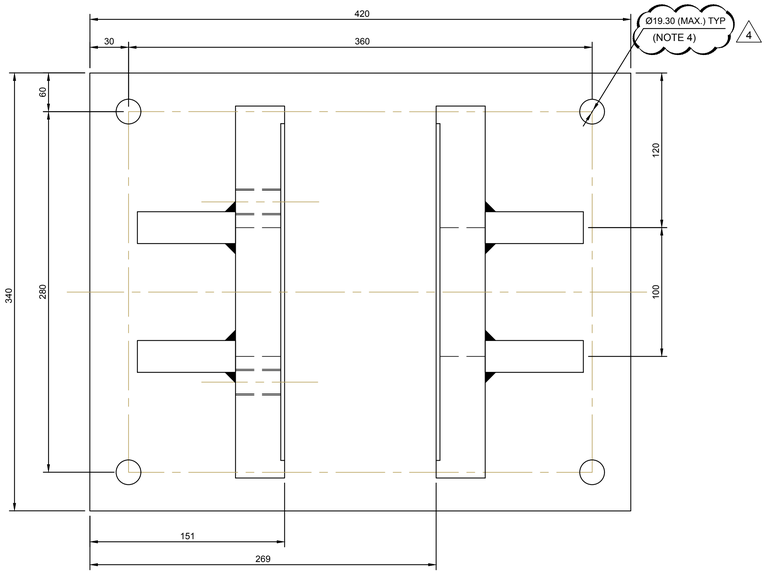


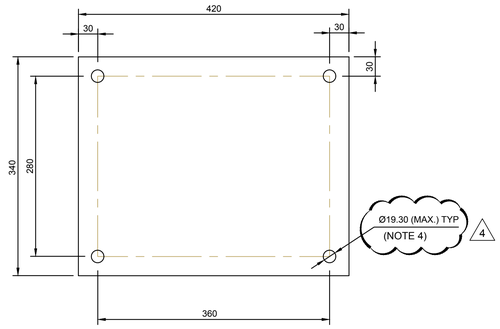




10 / M7 BALANCE WHEEL MOUNTING PLATE

REQ'D: 6
MATERIAL: ASTM A709 Gr 50
SCALE: 1:4





11 / M7 BALANCE WHEEL SHIMS

REQ'D: SEE TABLE 1
MATERIAL: 304 STAINLESS STEEL
SCALE: 1:4

TABLE 1	
REQ'D	
6	1″
6	1/2″
6	1/4″
6	1/8″
6	1/16″
12	1/32″

1 / M7 BALANCE WHEEL MOUNTING BRACKET

REQ'D: 6
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON
4. DRILL FOR 3/4"Ø HIGH STRENGTH BOLTS

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04	ADDENDUM 3	DP	12/04/19
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01	FOR 90% APPROVAL	DD	07/19/19

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A / B — A Detail number / Numéro du détail; B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

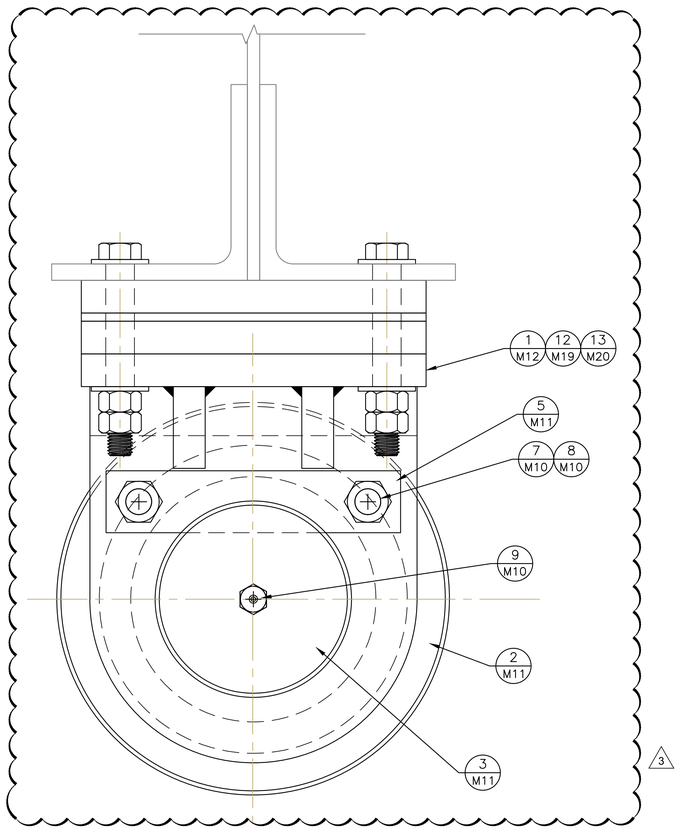
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

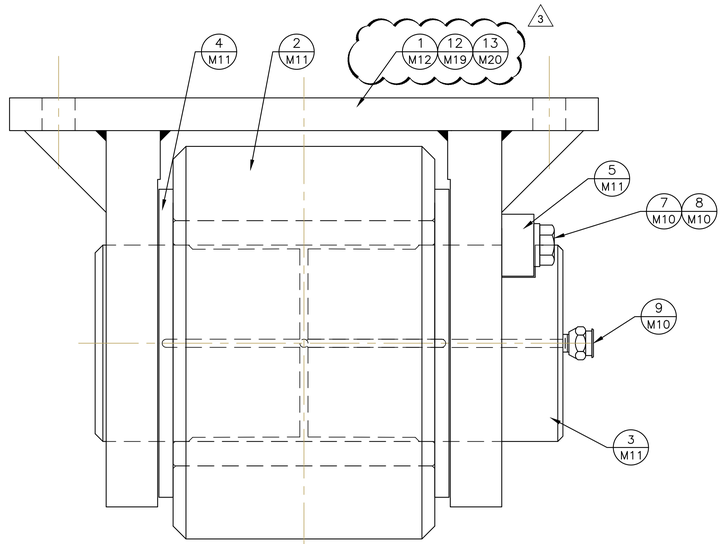
ONTARIO

Drawing title / Titre du dessin

BALANCE WHEEL
DETAILS 2

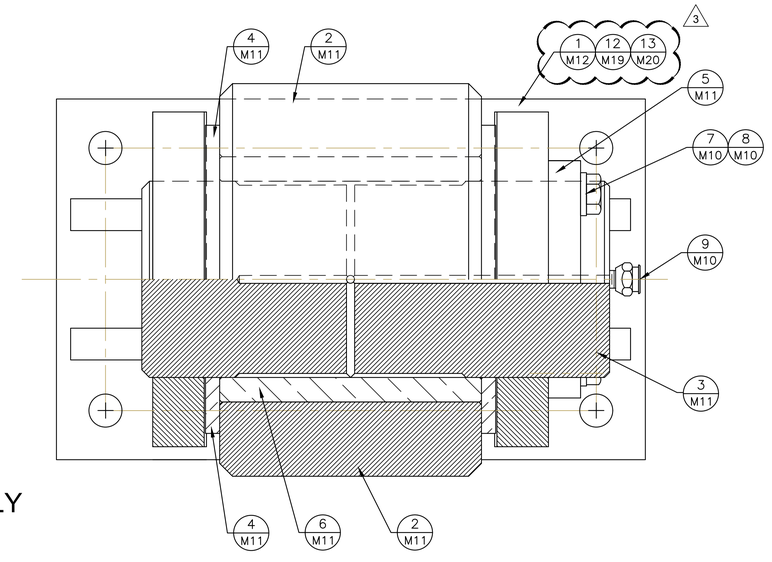
Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M9
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 09 of / du 28





ITEM	REQ'D	DESCRIPTION
1	2	LIVE LOAD WHEEL MOUNTING BRACKET #1 (SHOWN)
2	6	LIVE LOAD WHEEL
3	6	AXLE
4	12	THRUST WASHER
5	6	KEEPER PLATE
6	6	BUSHING
7	12	M20 x 2.5 x 40Lg CLASS 10.9 - YELLOW ZINC PLATED HEXAGON CAP SCREW
8	12	20mm SPLIT TYPE HELICAL LOCKWASHERS DIN 7980 PLATED
9	6	M12 x 1.5 GREASE NIPPLE, GIANT BUTTON HEAD PRESSURE TYPE WITH BUILT IN CHECK VALVE
10	6	LIVE LOAD MOUNTING PLATE
11	SEE TABLE 2, M12	MOUNTING SHIMS
12	2	LIVE LOAD WHEEL MOUNTING BRACKET #2 (NOT SHOWN)
13	2	LIVE LOAD WHEEL MOUNTING BRACKET #3 (NOT SHOWN)

3



LIVE LOAD & END SUPPORT WHEEL ASSEMBLY

REQ'D: 6
SCALE: 1:4

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03	ADDENDUM 3	DP	12/04/19
02	FOR TENDER	DD	11/07/19
01	FOR 90% APPROVAL	DD	07/19/19

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Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

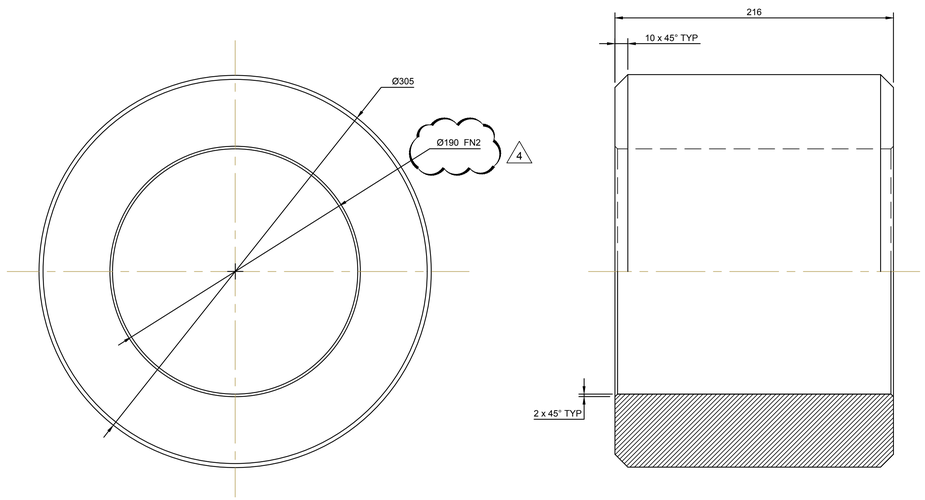
ONTARIO

Drawing title / Titre du dessin

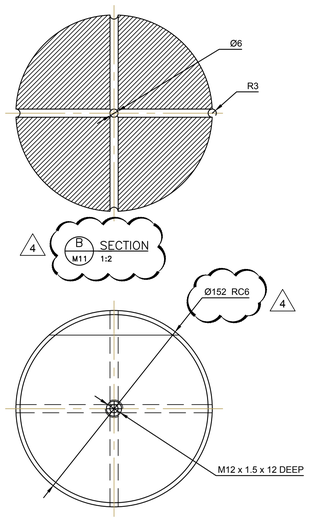
LIVE LOAD
AND
END SUPPORT
WHEEL ASSEMBLY

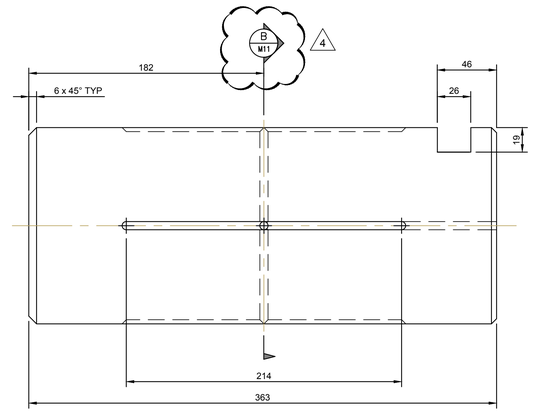
Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20

Project manager / Administrateur de projet: W. LITTLE
Project Number / Numéro du projet: 1356-30030321
Drawing Number / Numéro du Dessin: M10
Sheet / Feuille 10 of / du 28

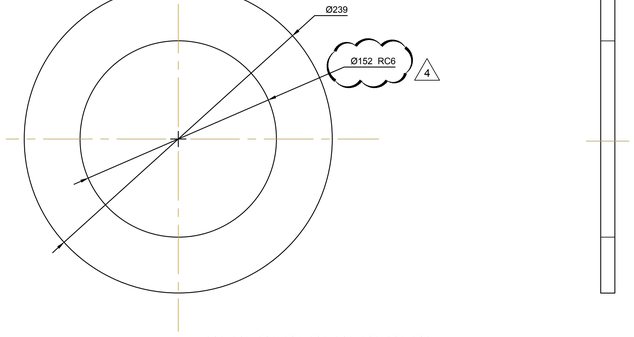


2 M10 **LIVE LOAD WHEEL**
REQ'D: 6
MATERIAL: ASTM A668 CLASS M
SCALE: 1:2

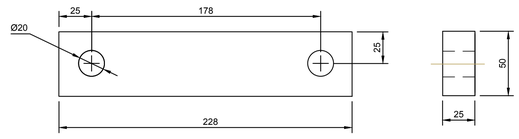




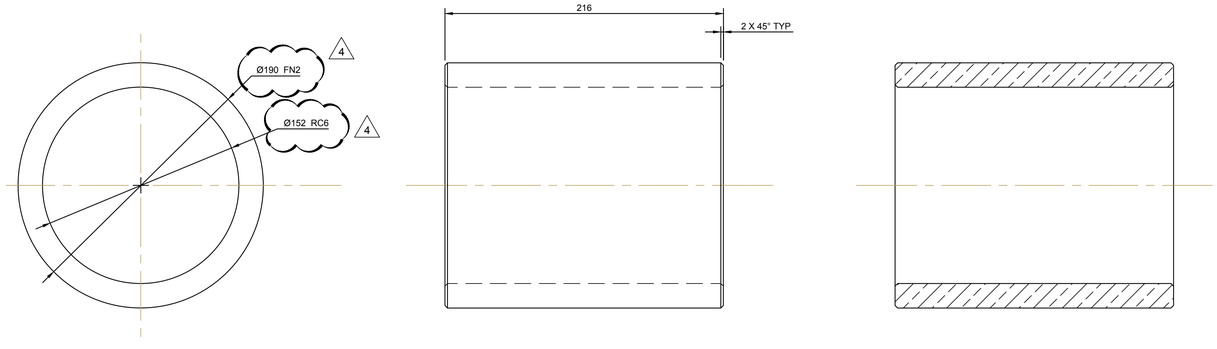
3 M10 **AXLE**
REQ'D: 6
MATERIAL: ASTM A668 CLASS G
SCALE: 1:2
4



4 M10 **THRUST WASHER**
REQ'D: 12
MATERIAL: ASTM B22 ALLOY C91300
SCALE: 1:2
4



5 M10 **KEEPER PLATE**
REQ'D: 6
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2



6 M10 **BUSHING**
REQ'D: 6
MATERIAL: ASTM B22 ALLOY C91300
SCALE: 1:2

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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CONSTRUCTION

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02	FOR TENDER	DD	09/25/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

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A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

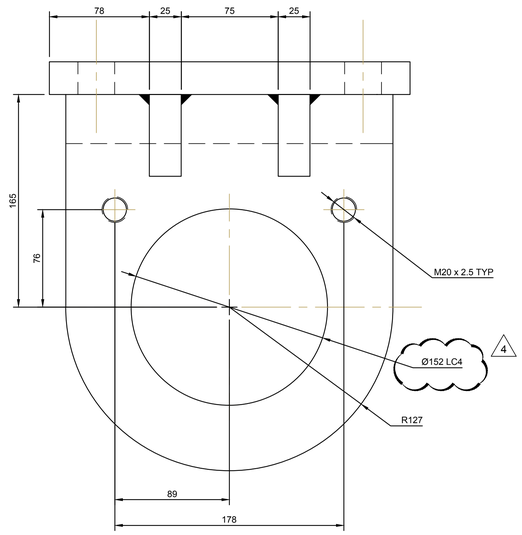
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

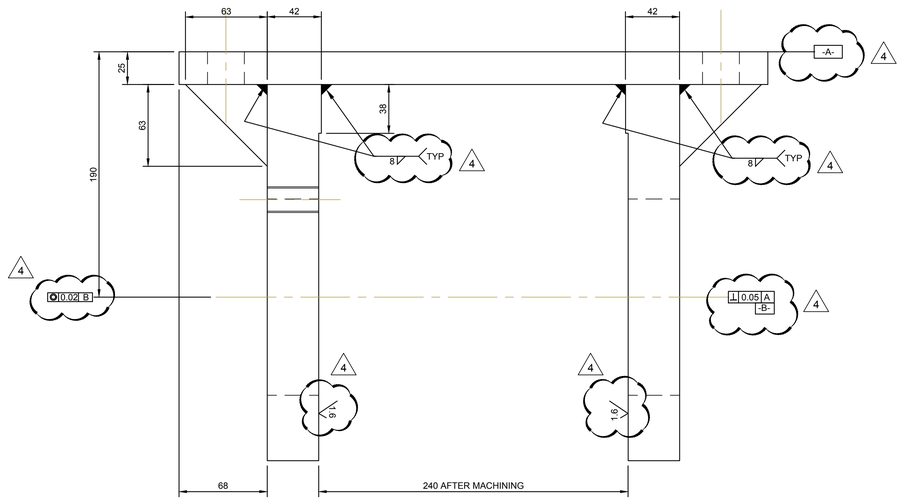
ONTARIO

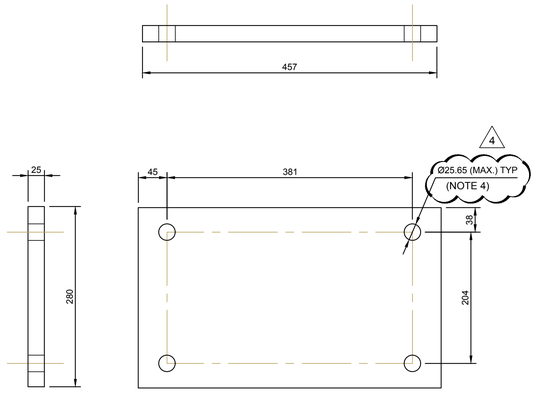
Drawing title / Titre du dessin

LIVE LOAD
AND
END SUPPORT WHEEL
DETAILS 1

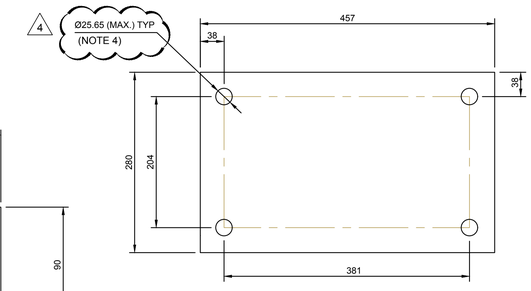
Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M11
Project Number / Numéro du projet	Sheet / Feuille 11 of / du 28
1356-30030321	



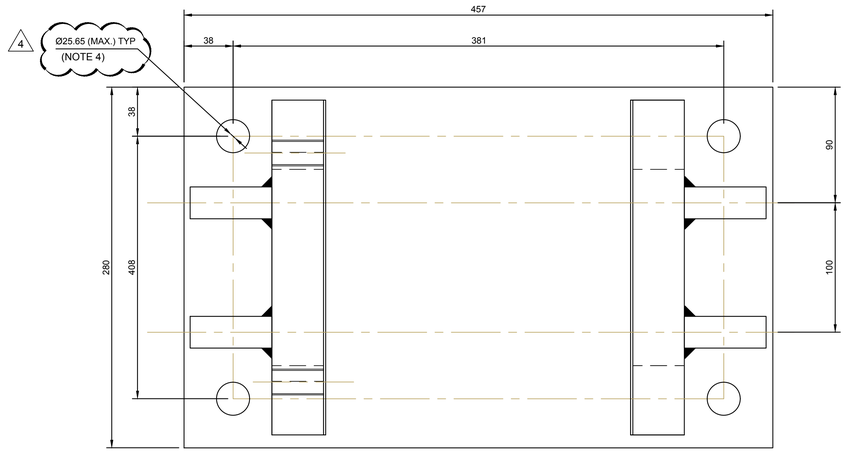




10/M10 LIVE LOAD WHEEL MOUNTING PLATE
REQ'D: 6
MATERIAL: ASTM A36
SCALE: 1:2



11/M10 LIVE LOAD WHEEL SHIMS
REQ'D: 6
MATERIAL: 304 STAINLESS STEEL
SCALE: 1:2



1/M10 LIVE LOAD WHEEL MOUNTING BRACKET #1 4
REQ'D: 6
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2

TABLE 2	
REQ'D	
6	1″
6	1/2″
6	1/4″
6	1/8″
6	1/16″
12	1/32″

4

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON
4. DRILL FOR 1" HIGH STRENGTH BOLTS

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02	FOR TENDER	DD	09/25/19
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Revision / Révision

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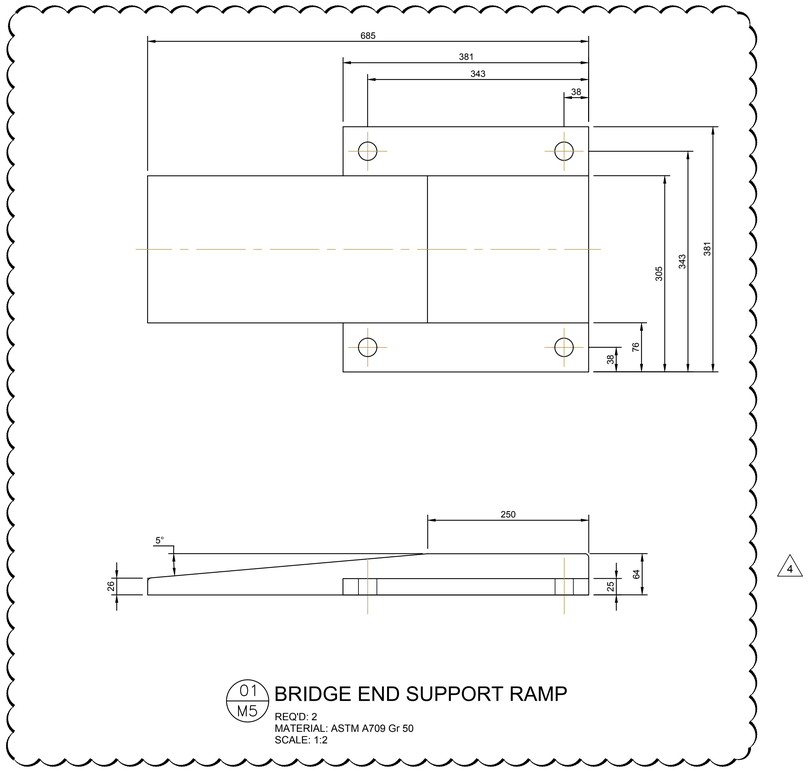
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

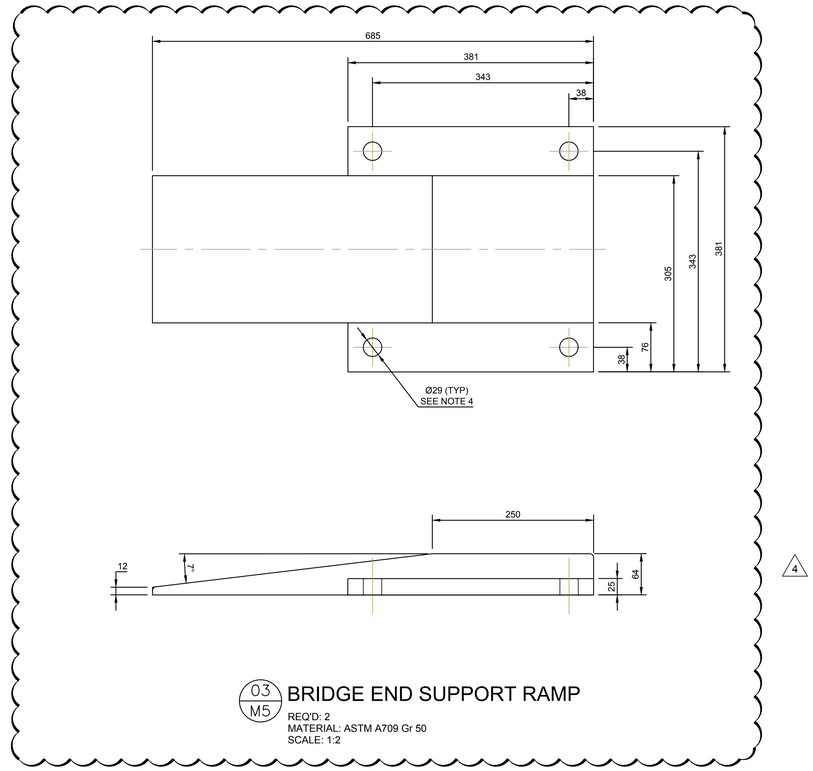
LIVE LOAD
AND
END SUPPORT WHEEL
DETAILS 2

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M12
Project Number / Numéro du projet	Sheet / Feuille 12 of / du 28
1356-30030321	



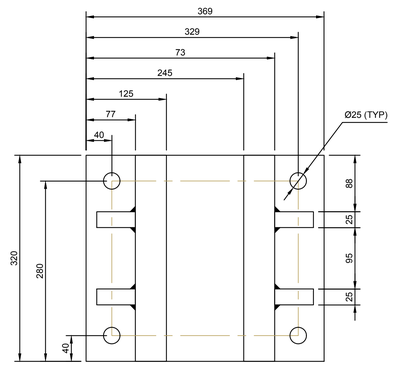
01 / M5 BRIDGE END SUPPORT RAMP

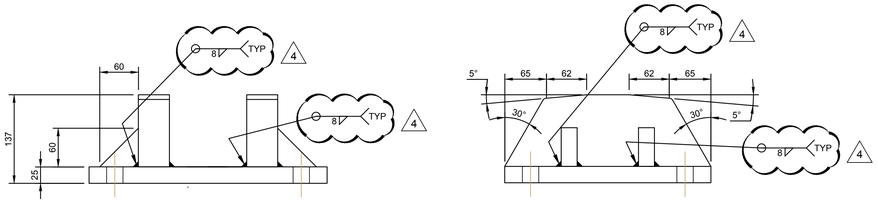
REQ'D: 2
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2



03 / M5 BRIDGE END SUPPORT RAMP

REQ'D: 2
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2





02 / M5 LIVE LOAD RAMP

REQ'D: 2
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON
4. DRILL FOR 1"Ø HIGH STRENGTH BOLTS

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TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

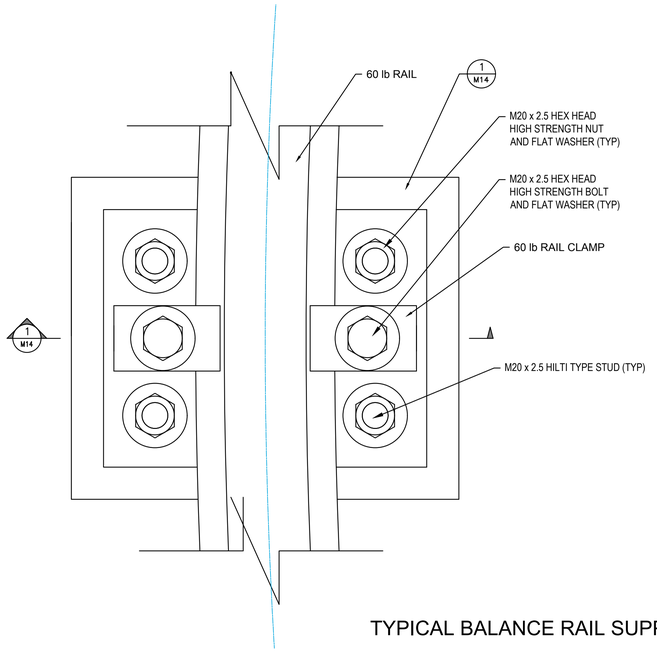
ONTARIO

Drawing title / Titre du dessin

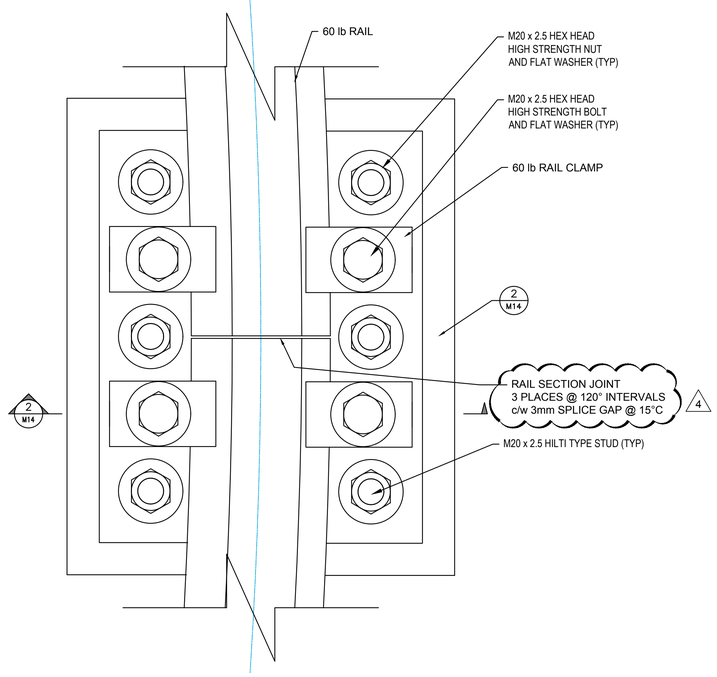
LIVE LOAD
AND
END SUPPORT
RAMP DETAILS

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M13
Project Number / Numéro du projet	Sheet / Feuille 13 of / du 28
1356-30030321	

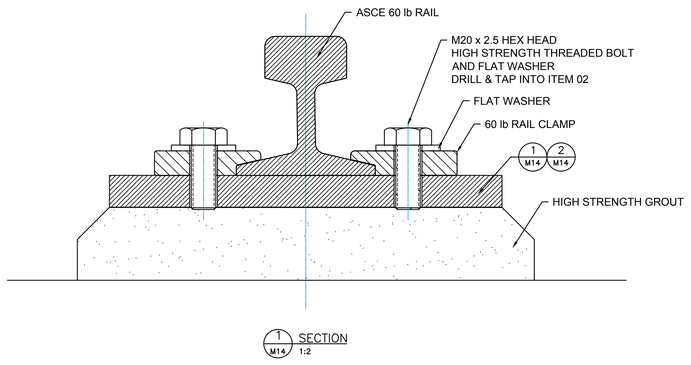
PWGSC-B1 (1000 x 707) PLOTTED BY: DOUG.PETTEM DATE PLOTTED: Dec 06, 2019 LAYOUT NAME: M13 FILE NAME: M13.dwg



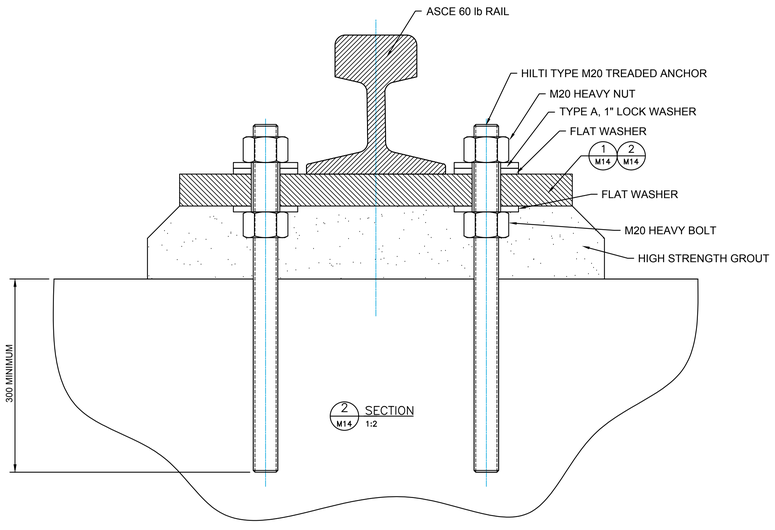
TYPICAL BALANCE RAIL SUPPORT DETAIL



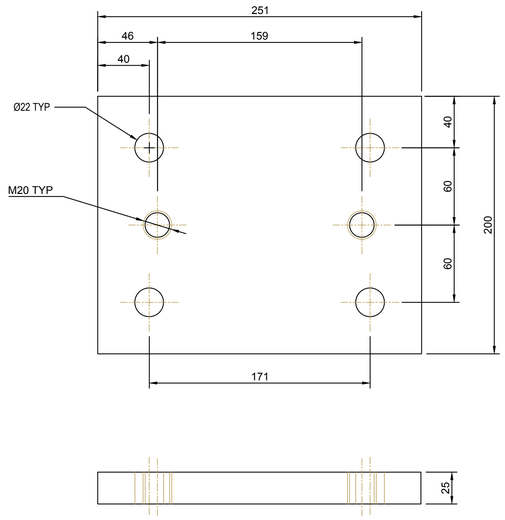
NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON



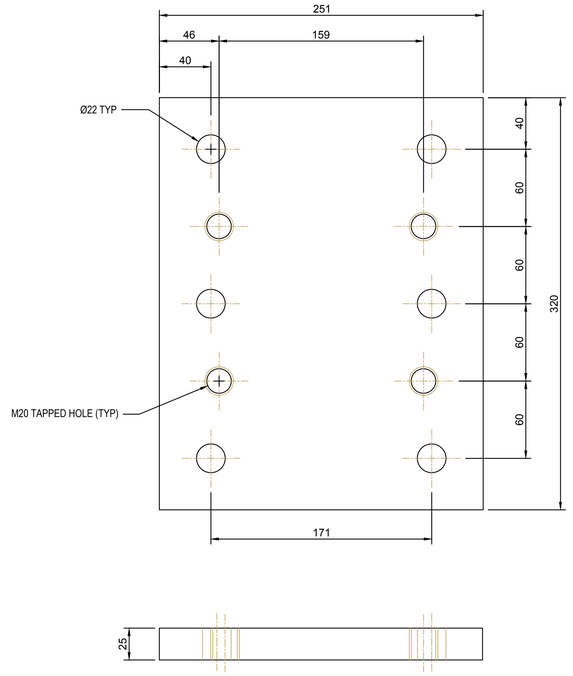
1 M14 SECTION 1:2



2 M14 SECTION 1:2



01 M14 BALANCE RAIL SUPPORT PLATE
REQ'D: 15
MATERIAL: ASTM A36
SCALE: 1:2



02 M14 BALANCE RAIL SPLICE PLATE
REQ'D: 3
MATERIAL: ASTM A36
SCALE: 1:2

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BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

BALANCE RAIL
BEARING PLATES
ASSEMBLY
& DETAILS

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M14
Project Number / Numéro du projet	Sheet / Feuille 14 of / du 28
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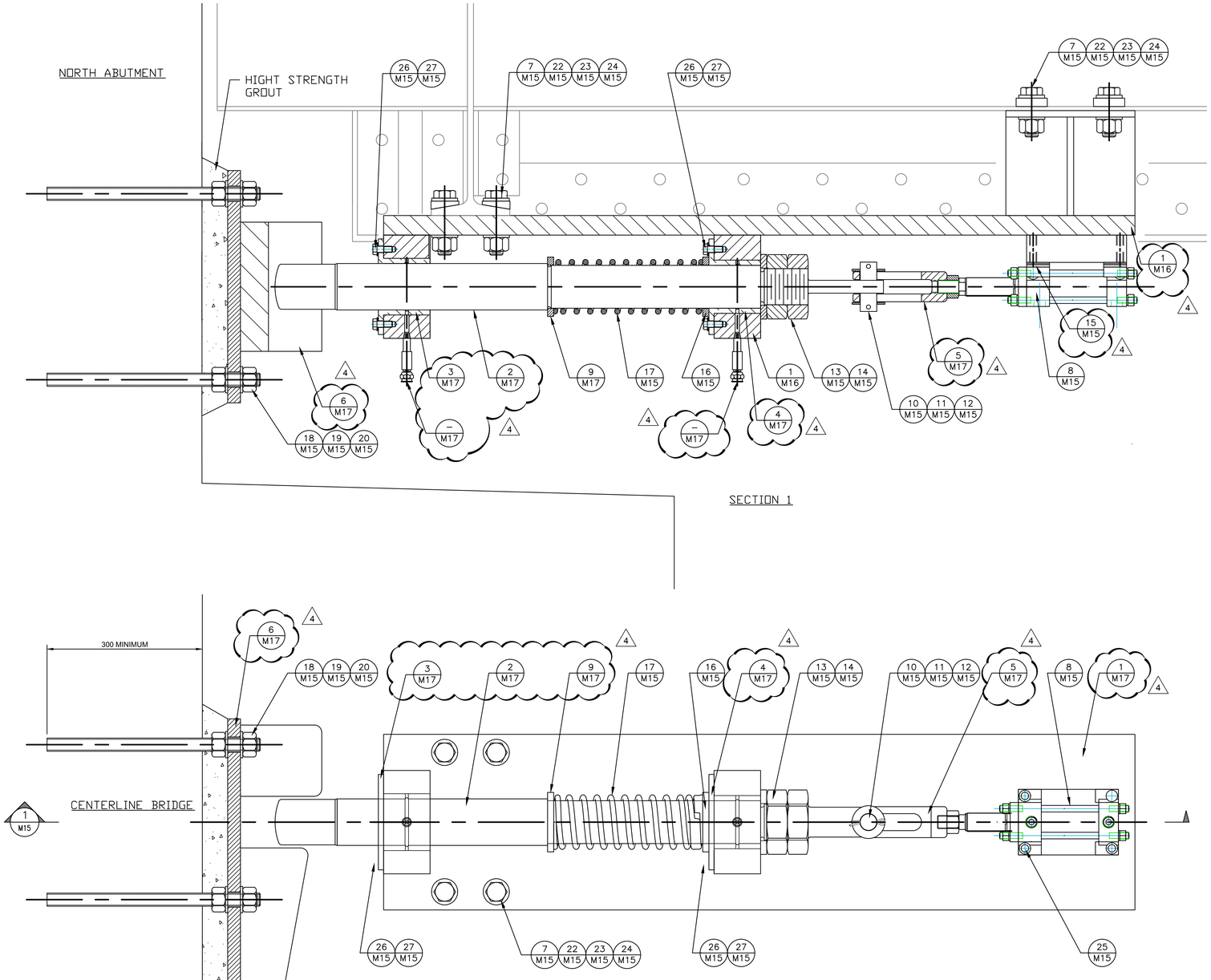

BRIDGE LOCK PIN

REQ'D: 1
SCALE: 1:4

BILL OF MATERIALS				
ITEM	REQ'D	COMPONENT	DESCRIPTION	REF. DWG.
1	1	LATCH PIN GUIDE WELDMENT	STEEL PLATE, CSA G40.21.04 GRADE 350W	M17
2	1	LATCH PIN	STEEL FORGING, ASTM A668 CLASS K	M17
3	1	GUIDE BUSHING 1	BRONZE BUSHING ASTM B22 ALLOY C90500	M17
4	1	GUIDE BUSHING 2	BRONZE BUSHING ASTM B22 ALLOY C90500	M17
5	1	CLEVIS	STEEL PLATE, CSA G40.21.04 GRADE 350W	M17
6	1	LATCH PLATE	STEEL PLATE, CSA G40.21.04 GRADE 350W, SEE NOTE 7	M17
7	8	LEVELING WASHER	¾" HOT DIPPED GALV. LEVELING WASHER	M15
8	1	HYDRAULIC CYLINDER	Ø52.8 mm (2.00") BORE, Ø35.8 mm (1.37) ROD, 76.2mm (3.00) STROKE, TIE ROD CYLINDER, C/W MAGNETIC PISTON & 2 ADJUSTABLE REED SWITCHES, PROTECTIVE ROD BOOT.	M15
9	1	WASHER 1	O.D. 115mm, I.D. 84mm, THICKNESS 12mm, BRONZE PLATE ASTM B505 ALLOW 932	M17
10	1	PIN	STEEL FORGING, ASTM A668 CLASS K,	M17
11	2	COTTER PIN	6.4mm Ø x 2" Lg.	M15
12	2	WASHER	M33 FLAT WASHER	M15
13	1	WASHER	2 1/4 FLAT WASHER	
14	2	JAM NUT	2 1/4 - 4 JAM NUT	
15	AS REQ'D	SHIM		
16	1	WASHER 2	O.D. 115mm, I.D. 72mm, THICKNESS 12mm, BRONZE PLATE ASTM B505 ALLOW 932	M17
17	1	SPRING	STEEL COMPRESSION SPRING, SEE NOTE 1	
18	12	NUT	1 - 8 UNC HEAVY NUT GRADE 8	
19	12	WASHER	1" FLAT WASHER	
20	6	THREADED ANCHOR	1 - 8 UNC HILTI TYPE TREADED ANCHORS	
21	6	SPACER		M17
22	8	NUT	3/4-10 UNC HEAVY NUT	
23	8	WASHER	3/4" FLAT WASHER	
24	8	BOLT	3/4-10 UNC x 5" Lg. H.S. FINISHED BOLT	
25	4	1/2" TURNED BOLT	1/2-13 UNC LC4 FIT	
26	8	BOLT	1/2-13 UNC x 3/4 Lg. GRADE 8	
27	8	WASHER	1/2" FLAT WASHER	

NOTES:

1. SPRING DATA:
   MATERIAL - SPRING TEMPERED STEEL
   END TYPE - CLOSED AND FLAT
   OVERALL LENGTH - 304.8mm (12")
   OD - 105.6mm (4.156")
   ID - 84.9mm (3.344")
   WIRE DIAMETER - 10.3mm (0.406")
   WIRE SHAPE - ROUND
   COMPRESSED LENGTH - 121.2mm (4.77")
   MAXIMUM LOAD - 2.46kN (553.00 LBS)
   RATE - 13.3 N/mm (76 LBS/IN)

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Project title / Titre du projet

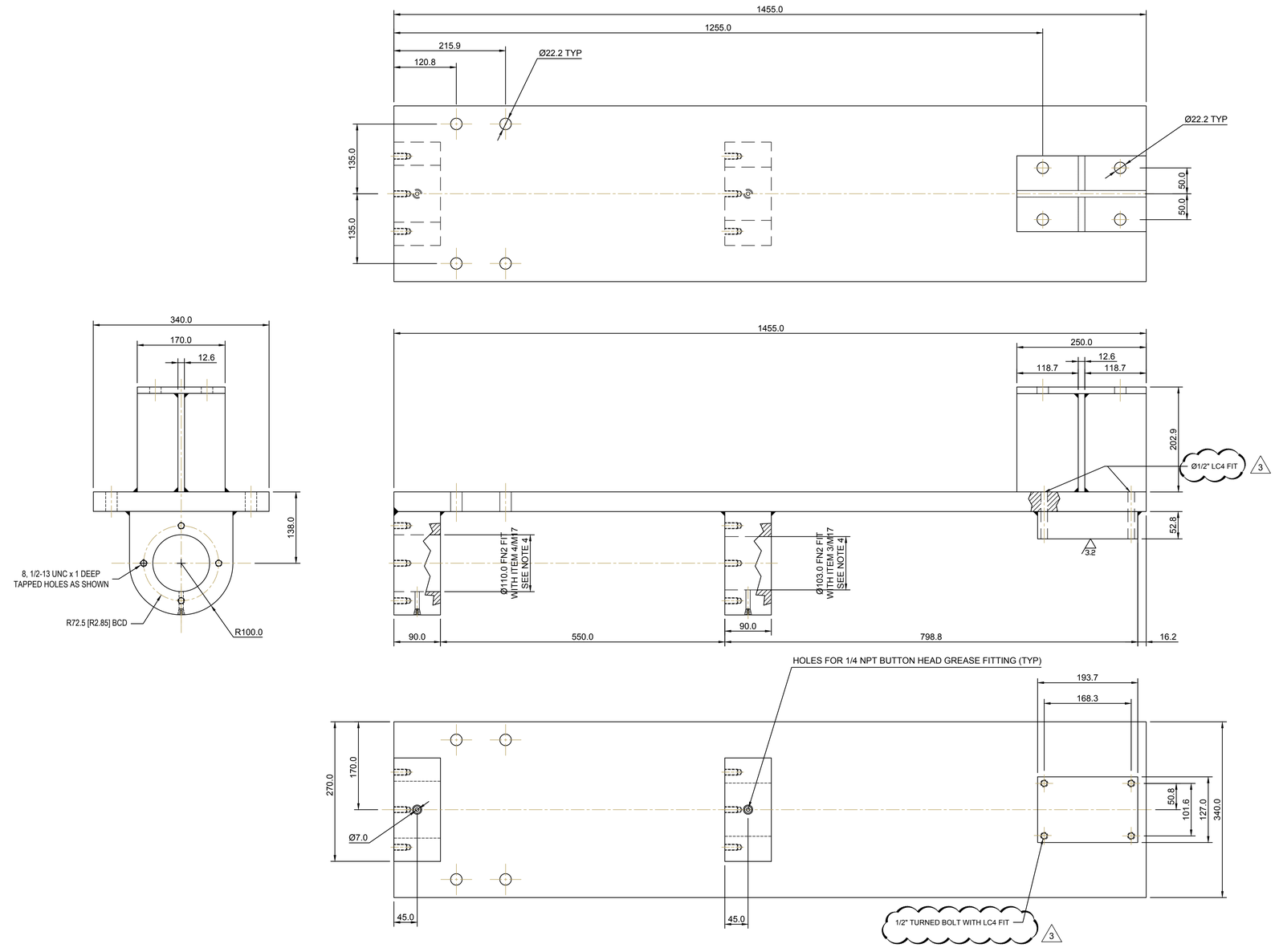
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

BRIDGE LOCKING PIN ASSEMBLY

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M15
Project Number / Numéro du projet	Sheet / Feuille 15 of / du 28
1356-30030321	



1 / M15 BRIDGE LOCK GUIDE WELDMENT

REQ'D: 1
MATERIAL: ASTM A709 GR50
SCALE: 1:4

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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Project title / Titre du projet

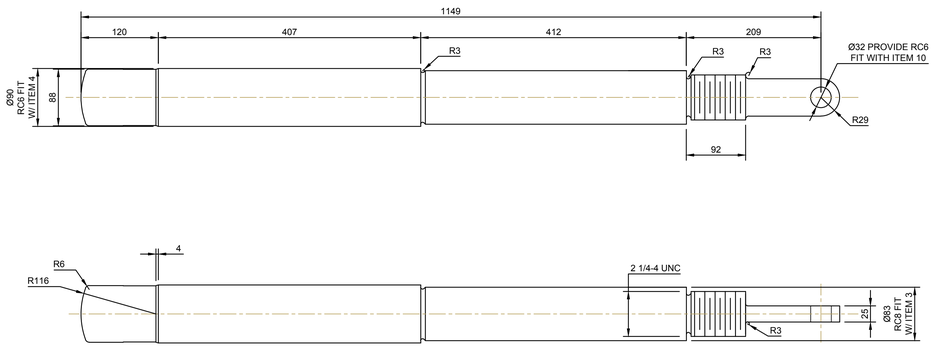
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

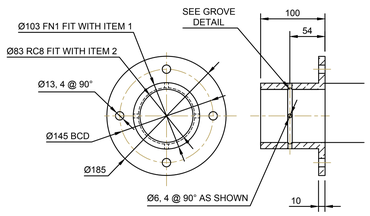
BRIDGE LOCKING PIN
DETAILS 1

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/09/20
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M16
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 16 of / du 28



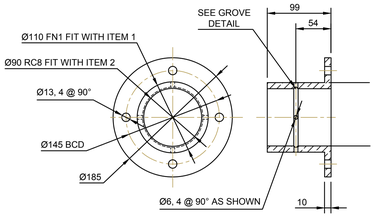
2 / M15 BRIDGE LATCH PIN

REQ'D: 1
MATERIAL: ASTM A668 CLASS M
SCALE: 1:4



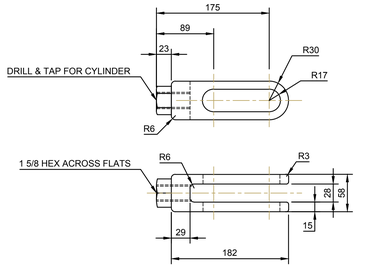
3 / M15 BRIDGE LOCK PIN BUSHING

REQ'D: 1
MATERIAL: ASTM B22 ALLOY C91300
SCALE: 1:4



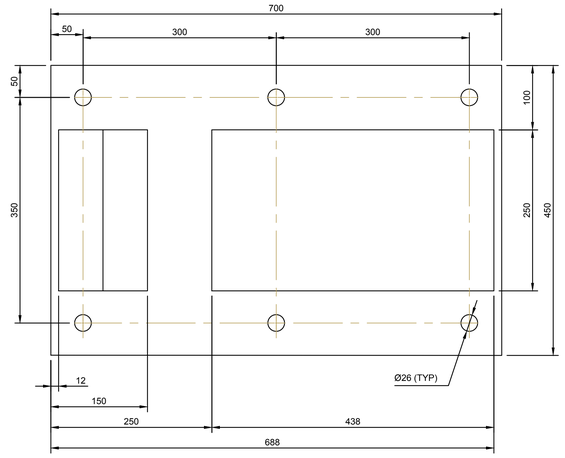
4 / M15 BRIDGE LOCK GUIDE BUSHING

REQ'D: 1
MATERIAL: ASTM B22 ALLOY C91300
SCALE: 1:4



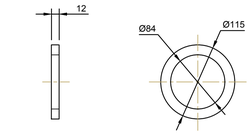
5 / M15 BRIDGE LATCH CLEVIS

REQ'D: 1
MATERIAL: C1045 STEEL
SCALE: 1:4



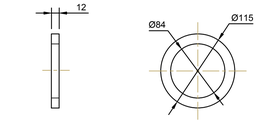
6 / M15 BRIDGE LATCH PLATE

REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4



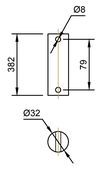
9 / M15 BRIDGE LATCH WASHER

REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4



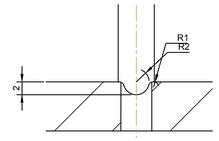
16 / M15 BRIDGE LATCH WASHER

REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4

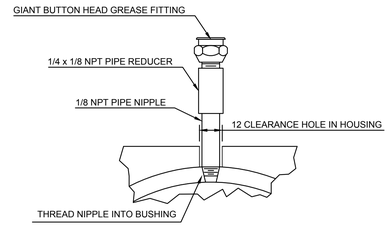


10 / M15 BRIDGE LOCK CLEVIS PIN

REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4



GREASE GROVE DETAIL



GREASE FITTING DETAIL

— / M15 BRIDGE LOCK CLEVIS PIN

REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4

△3

NOTE:

1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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No.	Description	Dwn.By Des.Par	Date
03	ADDENDUM 3	DD	12/04/19
02	FOR TENDER	DD	09/25/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

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

A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

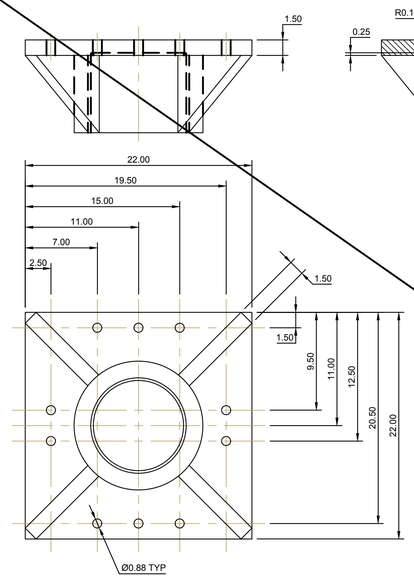
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

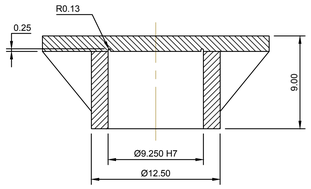
Drawing title / Titre du dessin

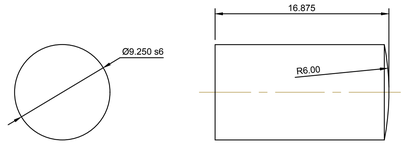
BRIDGE LOCKING PIN
DETAILS 2

Drawn by / Dessiné par: D. DAIGLE	Designed by / Conçu par: D. DAIGLE
Approved by / Approuvé par: K SMITH	Drawing Date / Date du dessin: 2019/09/20
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M17
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 17 of / du 28

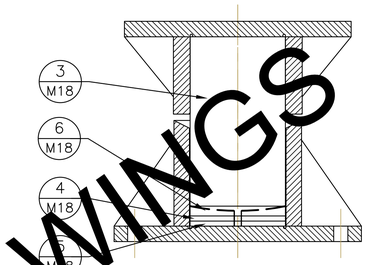


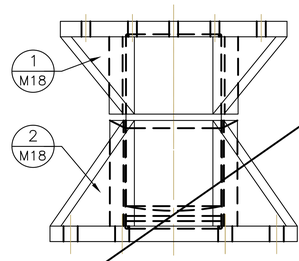
1 / M18 PIVOT UPPER SHOE
REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4



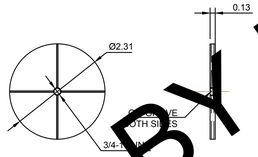


3 / M18 PIVOT PIN
REQ'D: 1
MATERIAL: ASTM A668 CLASS G
SCALE: 1:4

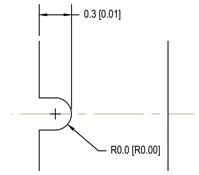




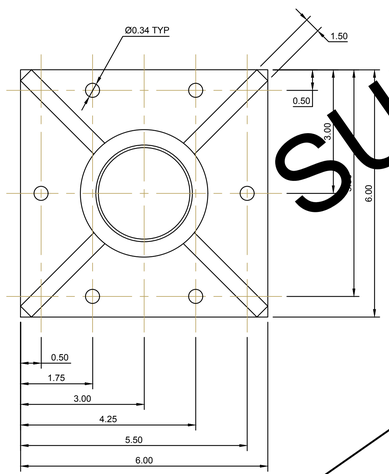
PIVOT ASSEMBLY

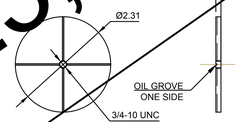


4 / M18 PIVOT BEARING
REQ'D: 1
MATERIAL: ASTM B22 ALLOY C9
SCALE: 1:4

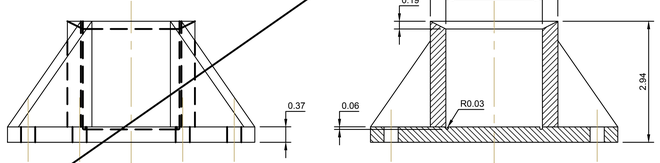


OIL GROVE DETAIL TYP

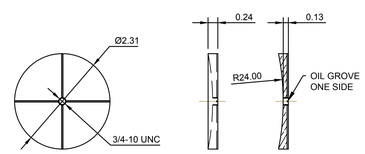




5 / M18 PIVOT SPACER
REQ'D: 1
MATERIAL: ASTM A668 CLASS G
SCALE: 1:4



2 / M18 PIVOT LOWER SHOE
REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4



6 / M18 PIVOT SEAT
REQ'D: 1
MATERIAL: ASTM A668 CLASS G
SCALE: 1:4

DRAWINGS ARE IN IMPERIAL UNITS
AND ARE BASED ON ORIGINAL 1921 DRAWINGS

FOR RECORD
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NOTE:
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03	FOR TENDER	DD	11/07/19
02	FOR TENDER	DD	09/25/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

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

A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

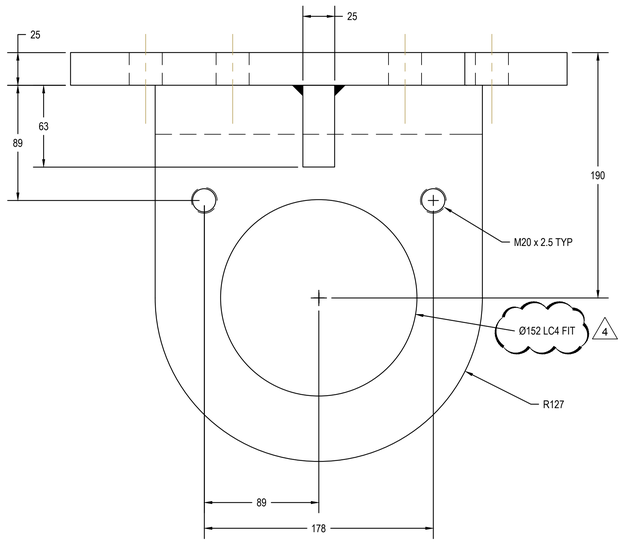
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

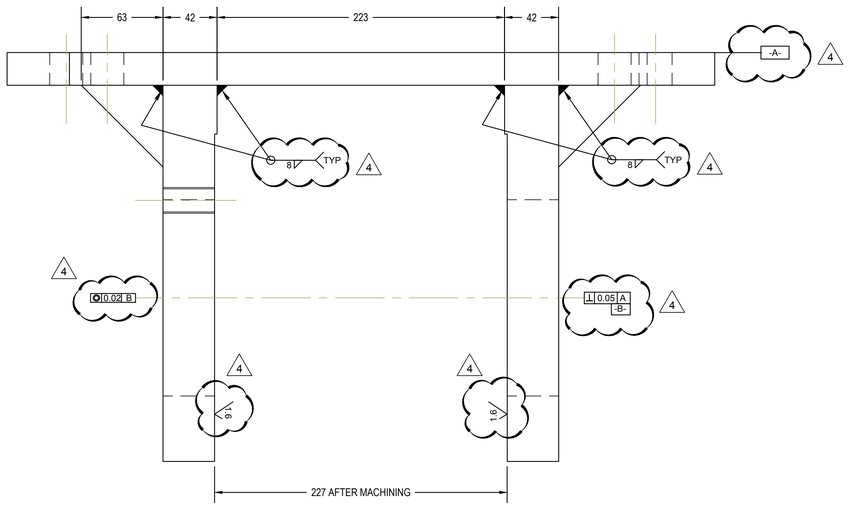
ONTARIO

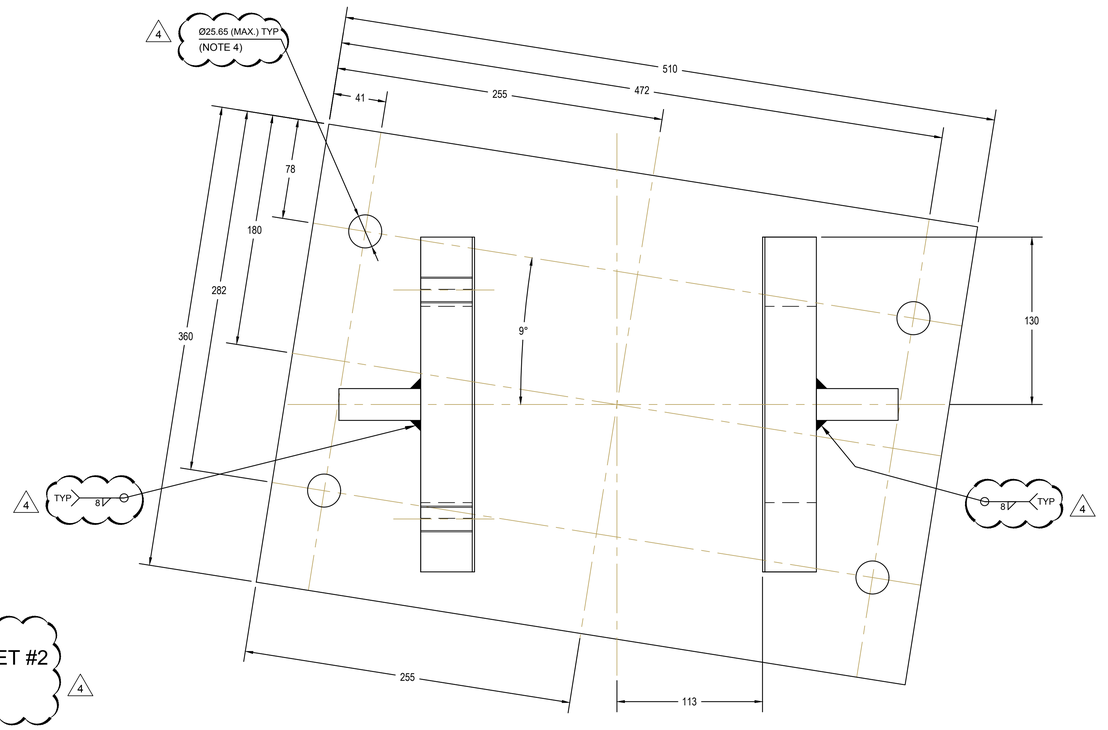
Drawing title / Titre du dessin

BRIDGE PIVOT PIN
ASSEMBLY
& DETAILS

Drawn by / Dessiné par: D. DAIGLE	Designed by / Conçu par: D. DAIGLE
Approved by / Approuvé par: K. SMITH	Drawing Date / Date du dessin: 2019/09/20
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M18
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 18 of / de 28







12
M10

LIVE LOAD WHEEL MOUNTING BRACKET #2

4

REQ'D: 2, ONE AS SHOWN, ONE OPPOSITE HAND
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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No.	Description	Dwn.By Des.Par	Date
04	ADDENDUM 3	DP	12/04/19
03	FOR TENDER	DD	11/07/19
02	FOR TENDER	DD	10/09/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

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

A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

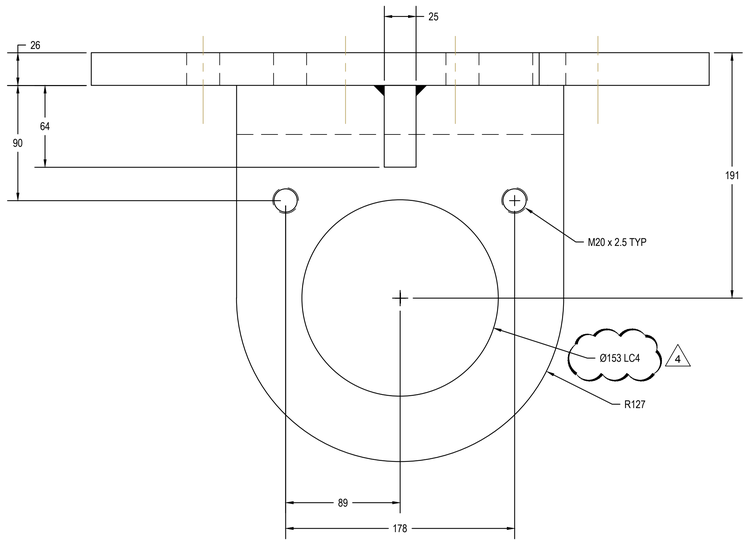
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

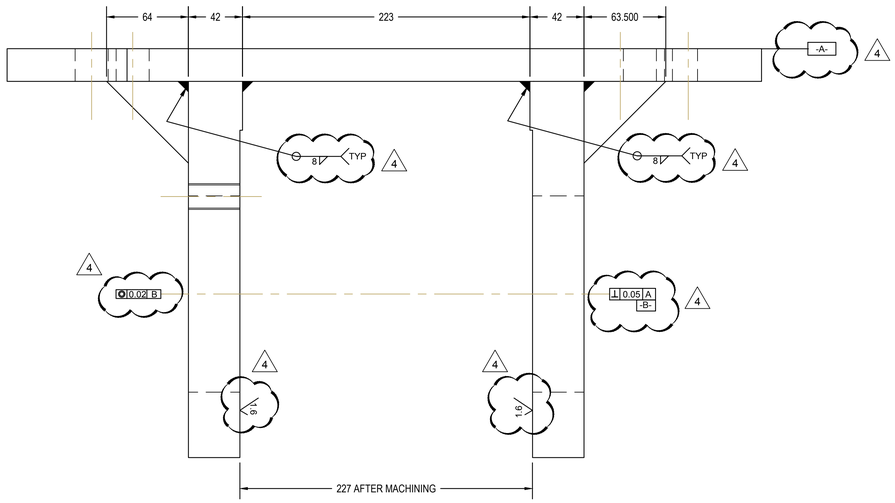
ONTARIO

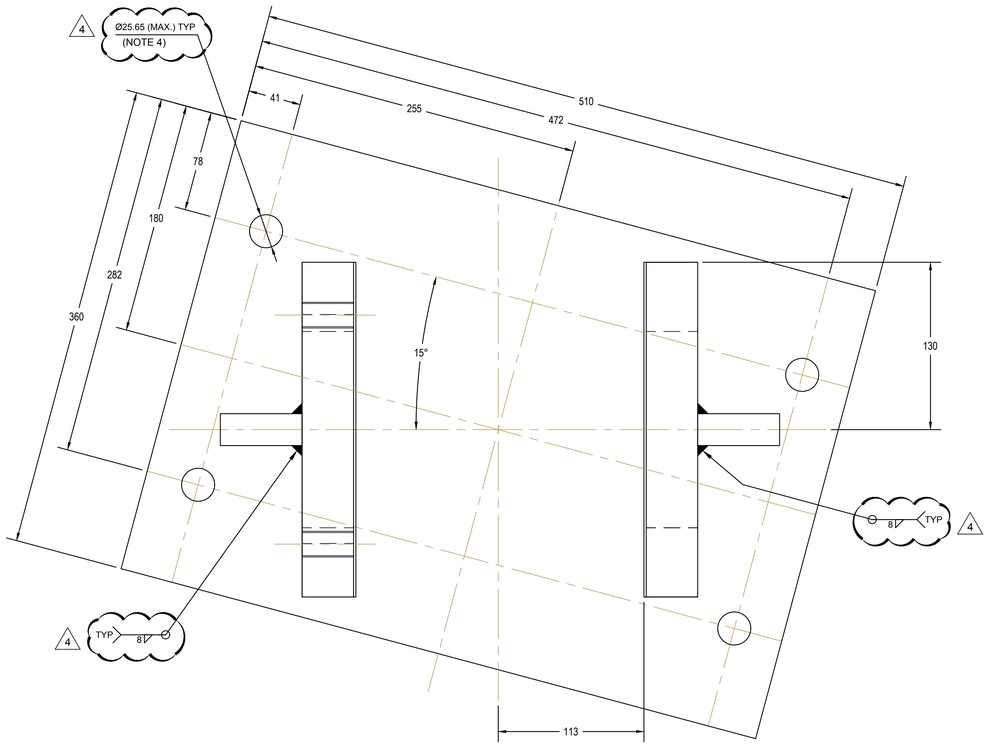
Drawing title / Titre du dessin

LIVE LOAD
AND
END SUPPORT WHEEL
DETAILS 3

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/10/09
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M19
Project Number / Numéro du projet	Sheet / Feuille 19 of / du 28
1356-30030321	







13 / M10 LIVE LOAD WHEEL MOUNTING BRACKET #3 4

REQ'D: 2, ONE AS SHOWN, ONE OPPOSITE HAND
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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No.	Description	Dwn.By Des.Par	Date
04	ADDENDUM 3	DP	12/04/19
03	FOR TENDER	DD	11/07/19
02	FOR TENDER	DD	10/09/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

Do not scale drawings.
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A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

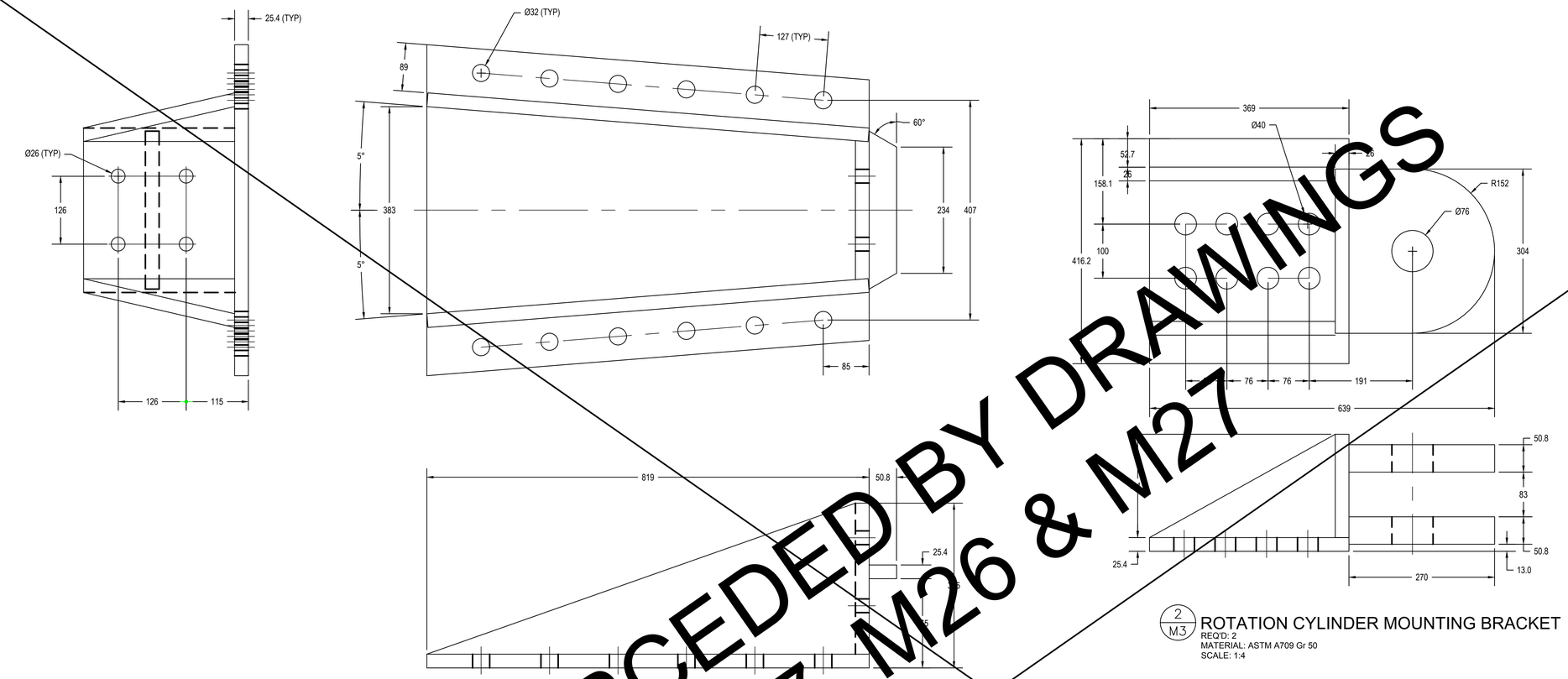
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

LIVE LOAD
AND
END SUPPORT WHEEL
DETAILS 4

Drawn by / Dessiné par	Designed by / Conçu par
D. DAIGLE	D. DAIGLE
Approved by / Approuvé par	Drawing Date / Date du dessin
K SMITH	2019/10/09
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M20
Project Number / Numéro du projet	Sheet / Feuille 20 of / du 28
1356-30030321	



2/M3 ROTATION CYLINDER MOUNTING BRACKET
REQ'D: 2
MATERIAL: ASTM A709 Gr 50
SCALE: 1:4

1/M3 ROTATION CYLINDER MOUNTING BRACKET
REQ'D: 2
MATERIAL: ASTM A709 Gr 50
SCALE: 1:4

SUPERCEDED BY DRAWINGS S17, M26 & M27

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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No.	Description	Dwn.By Des.Par	Date
04	ADDENDUM 3	DP	12/04/19
03	FOR TENDER	DD	11/07/19
02	FOR TENDER	DD	10/09/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

Do not scale drawings.
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A/B
A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

ROTATION CYLINDER
MOUNTING
BRACKETS

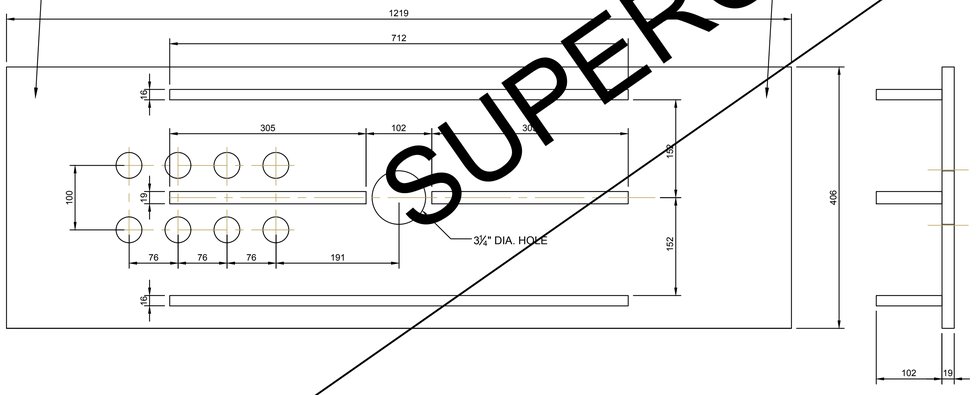
Drawn by / Dessiné par: D. DAIGLE	Designed by / Conçu par: D. DAIGLE
Approved by / Approuvé par: K SMITH	Drawing Date / Date du dessin: 2019/10/09
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M21
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 21 of / de 28

PWGSC-B1 (1000 x 707) PLOTTED BY: DOUG.PETTEM DATE PLOTTED: Dec 06, 2019 LAYOUT NAME: M21 FILE NAME: M21.dwg

SUPERCEDED BY DRAWING S17

BOLT HOLES TO MATCH GIRDER

BOLT HOLES TO MATCH GIRDER



1/M19 LIVE LOAD WHEEL MOUNTING BRACKET
REQ'D: 2, ONE AS SHOWN, ONE OPPOSITE HAND
MATERIAL: ASTM A709 Gr 50
SCALE: 1:2

NOTE:
1. SEE M0 FOR PAINT SPECIFICATIONS
2. REMOVE ALL SHARP EDGES
3. UNLESS OTHERWISE NOTED ALL FINISHES TO BE 3.2 MICRON

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No.	Description	Dwn.By Des.Par	Date
04	ADDENDUM 3	DP	12/04/19
03	FOR TENDER	DD	11/07/19
02	FOR TENDER	DD	10/09/19
01	FOR 90% APPROVAL	DD	07/19/19

Revision / Révision

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A Detail number / Numéro du détail
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Project title / Titre du projet

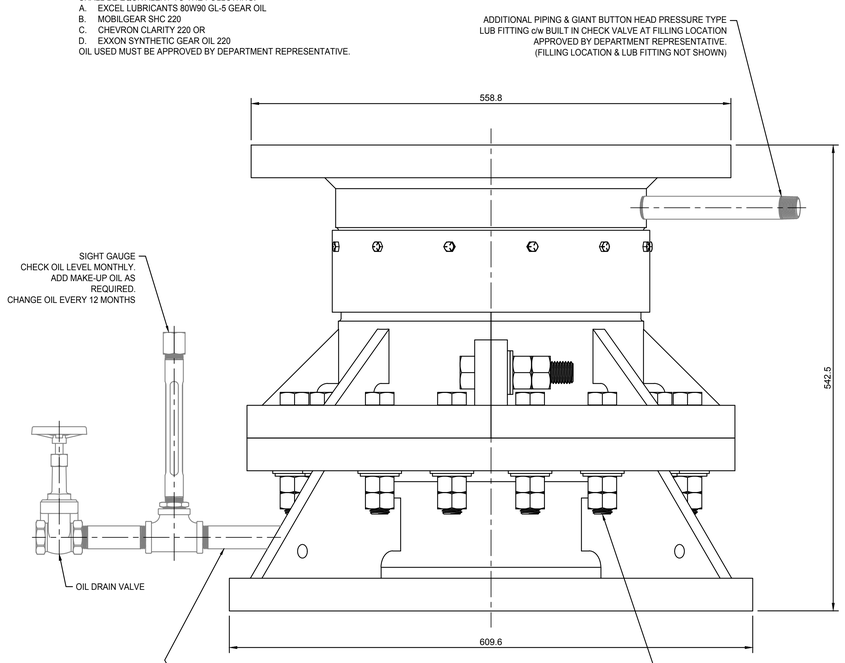
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

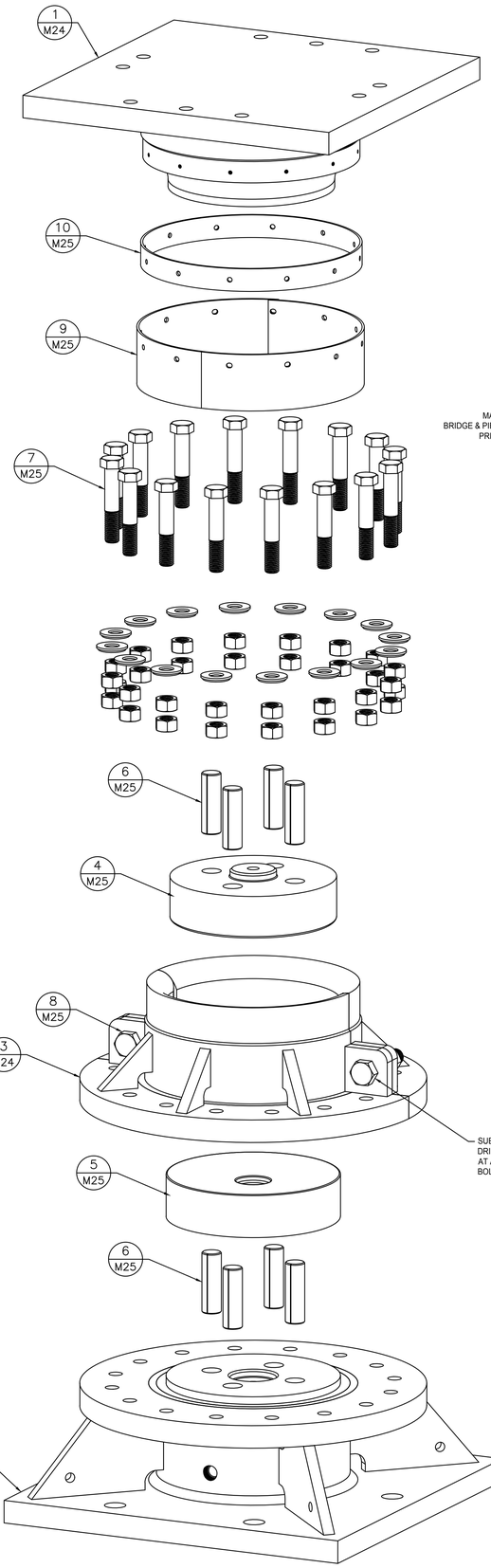
Drawing title / Titre du dessin

Drawn by / Dessiné par: D. DAIGLE	Designed by / Conçu par: D. DAIGLE
Approved by / Approuvé par: K SMITH	Drawing Date / Date du dessin: 2019/10/09
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M22
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 22 of / de 28

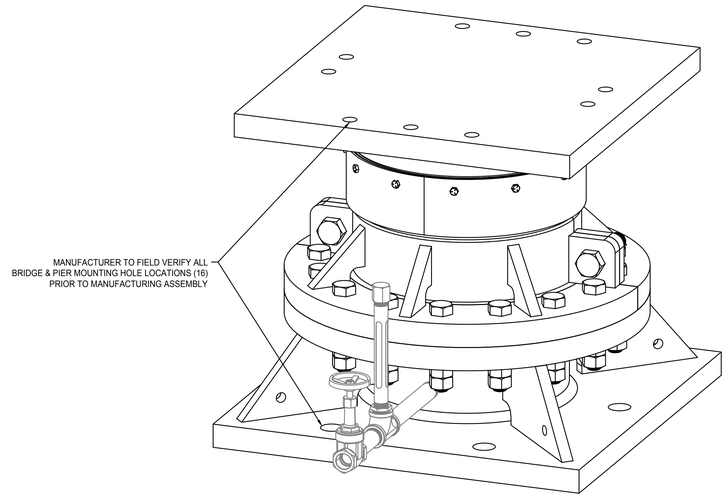
OIL TO BE USED IN THE CENTER BEARING
SHALL BE EQUIVALENT TO THE FOLLOWING:
A. EXCEL LUBRICANTS 80W90 GL-5 GEAR OIL
B. MOBILGEAR SHC 220
C. CHEVRON CLARITY 220 OR
D. EXXON SYNTHETIC GEAR OIL 220
OIL USED MUST BE APPROVED BY DEPARTMENT REPRESENTATIVE.



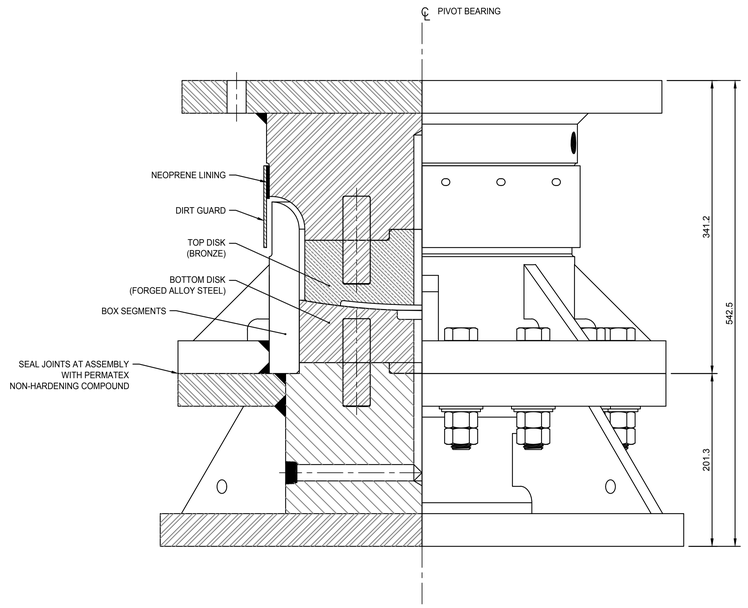
PIVOT ASSEMBLY



PIVOT ASSEMBLY - EXPLODED ISO VIEW



PIVOT ASSEMBLY - ISO VIEW



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CONSTRUCTION

No.	Description	Dwn.By Des.Par	Date
01	ADDENDUM #3	DP	04/12/19

Revision / Révision

Do not scale drawings.
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A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

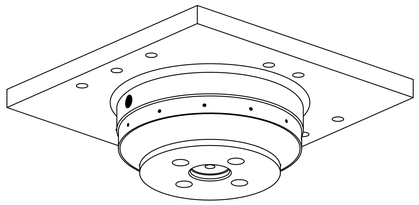
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

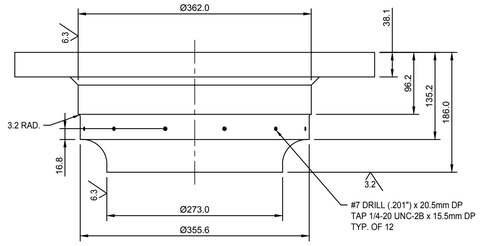
ONTARIO

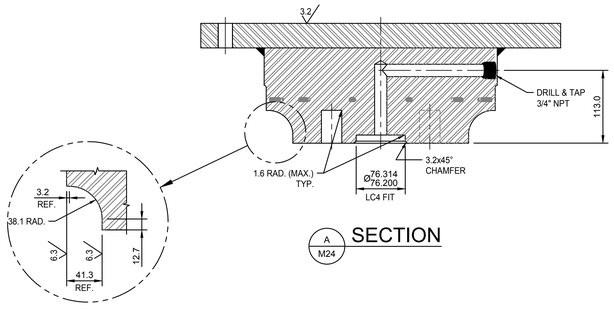
Drawing title / Titre du dessin

BRIDGE CENTER PIVOT ASSEMBLY

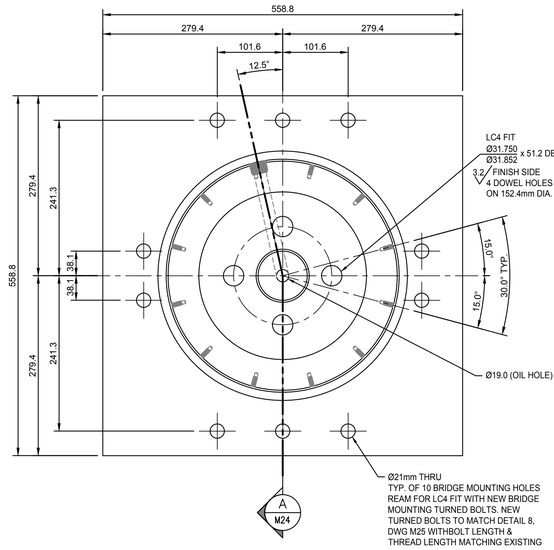
Drawn by / Dessiné par	Designed by / Conçu par
D. PETTEM	K. SMITH
Approved by / Approuvé par	Drawing Date / Date du dessin
K. SMITH	2019/11/12
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
W. LITTLE	M23
Project Number / Numéro du projet	Sheet / Feuille 23 of / du 28
1356-30030321	





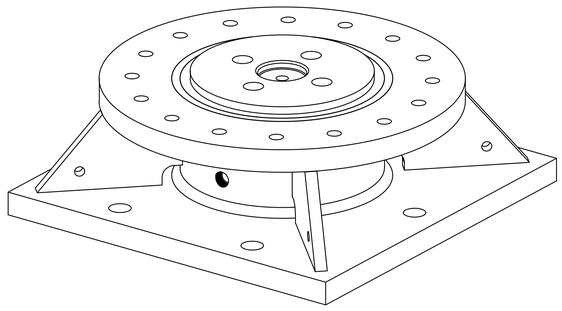


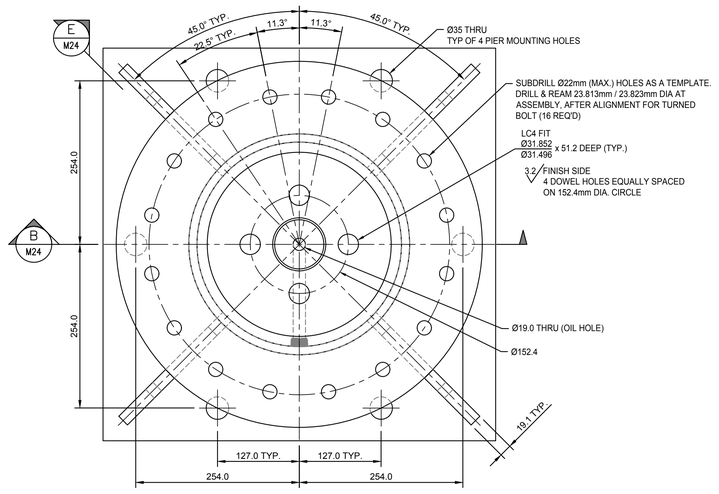
A M24 SECTION

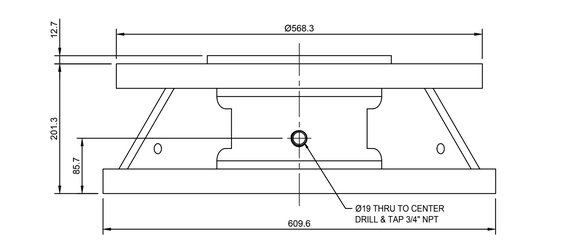


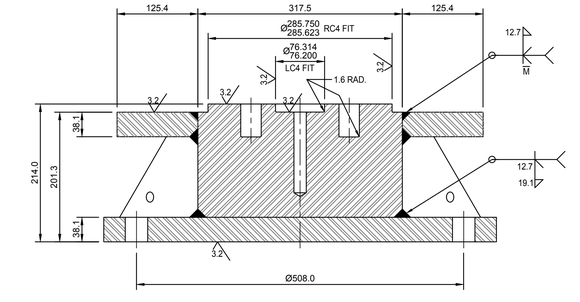
1 M24 PIVOT UPPER SHOE

REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4









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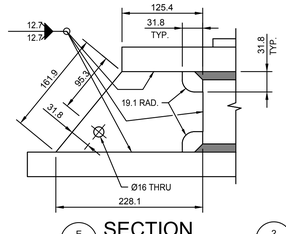
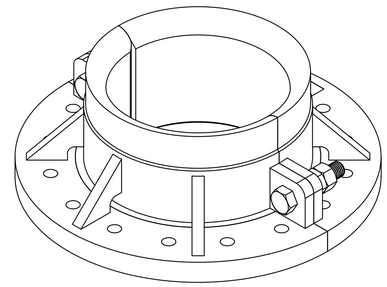
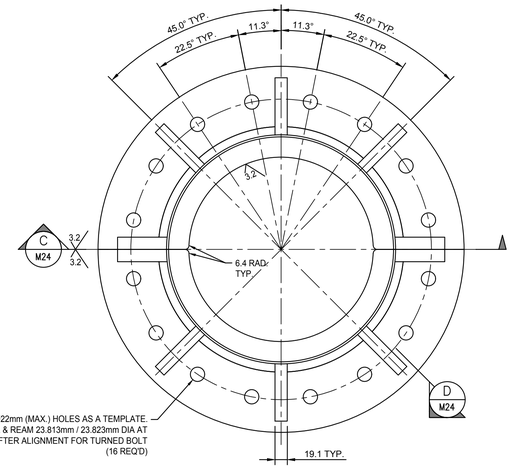


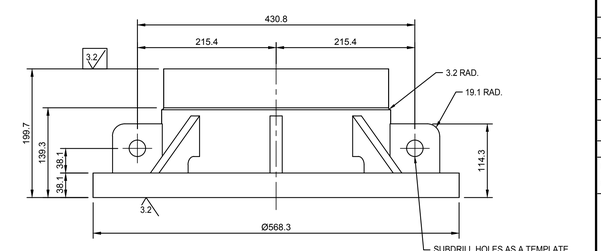
E M24 SECTION

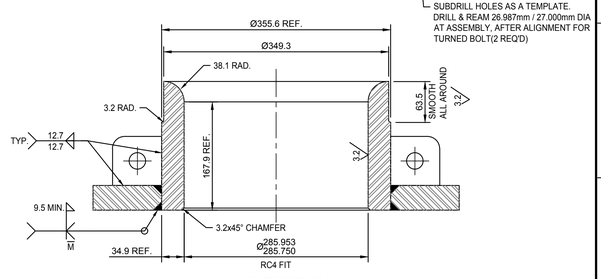
2 M24 PIVOT LOWER SHOE

REQ'D: 1
MATERIAL: ASTM A709 GR 50
SCALE: 1:4

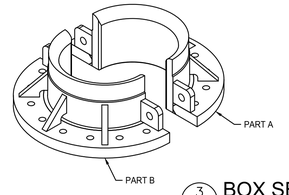






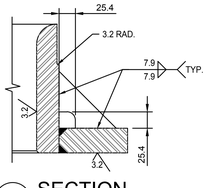


C M24 SECTION



3 M24 BOX SEGMENT

REQ'D: 1
MATERIAL: ASTM A668 CLASS G
SCALE: 1:5



D M24 SECTION

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Parcs Canada

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No.	Description	Dwn.By Des.Par	Date
01	ADDENDUM #3	DP	04/12/19

Revision / Révision

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

A/B — A Detail number / Numéro du détail; B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

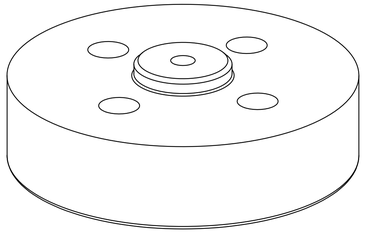
ONTARIO

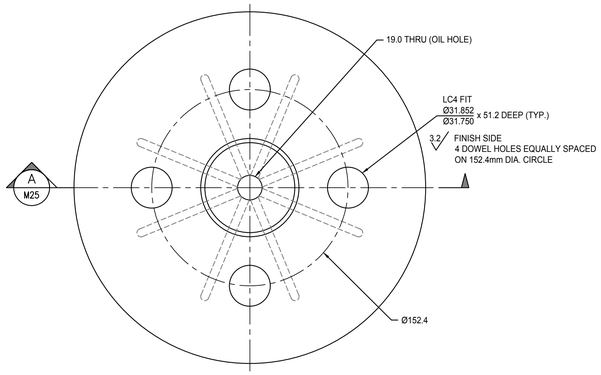
Drawing title / Titre du dessin

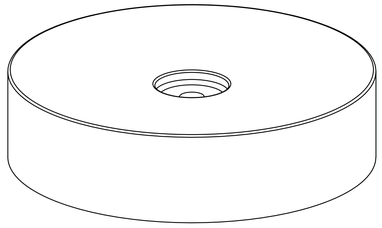
BRIDGE CENTER PIVOT
SHOE AND BOX DETAILS

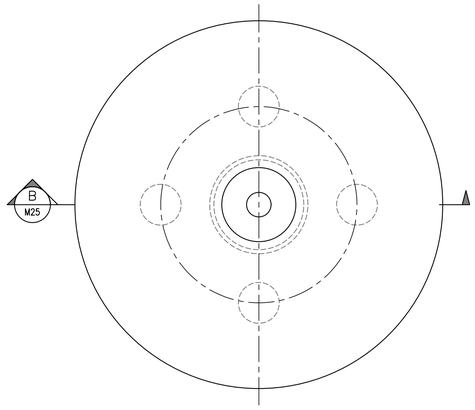
Drawn by / Dessiné par	Designed by / Conçu par
D. PETTEM	K. SMITH
Approved by / Approuvé par	**Drawing Date / Date du dessin**
K. SMITH	2019/11/12
Project manager / Administrateur de projet	**Drawing Number / Numéro du Dessin**
W. LITTLE	M24
Project Number / Numéro du projet	**Sheet / Feuille**
1356-30030321	24 of / du 28

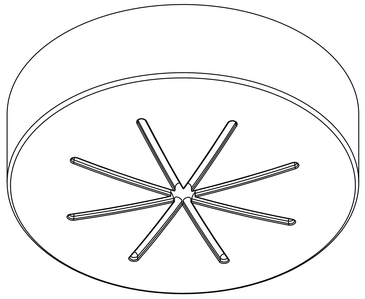
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 millimetres

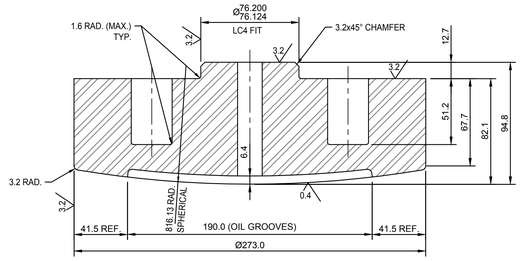




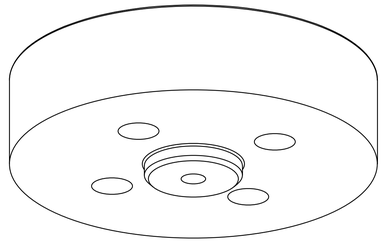


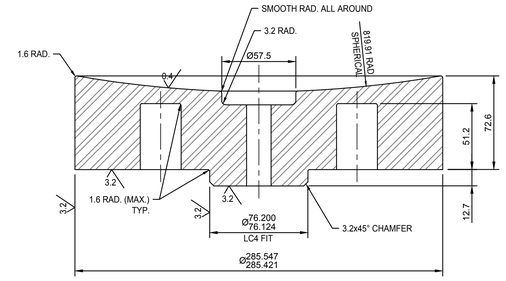




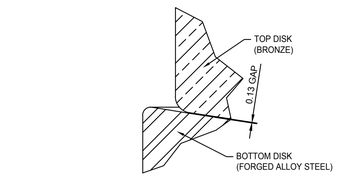


A M25 SECTION



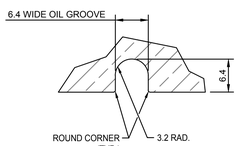


B M25 SECTION



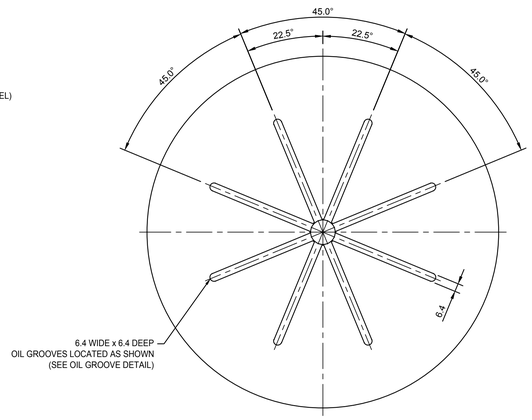
CLEARANCE DETAIL

SCALE: 2:1



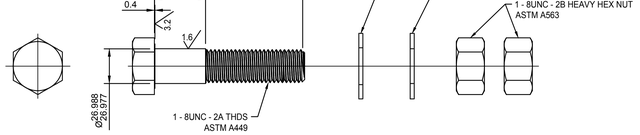
OIL GROOVE DETAIL

SCALE: 2:1



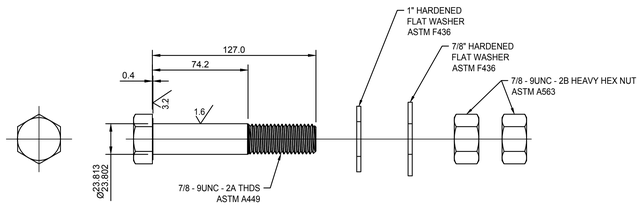
4 M25 **TOP DISK**

REQ'D: 1
MATERIAL: BRONZE, ASTM B22, UNS ALLOY No. C91300
SCALE: 1:2



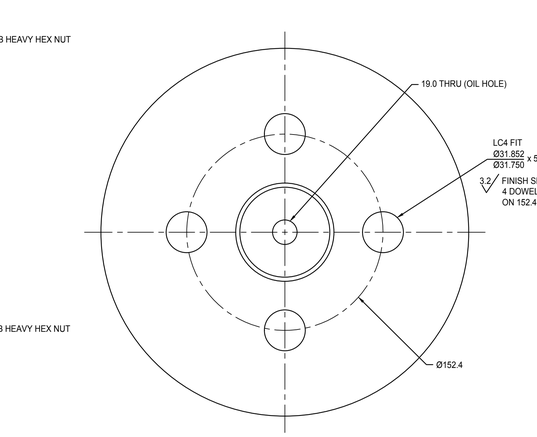
7 M25 **TURNED BOLT 1**

REQ'D: 2
SCALE: 1:2
(FOR DETAILS NOT SHOWN, SEE ANSI B18.2)



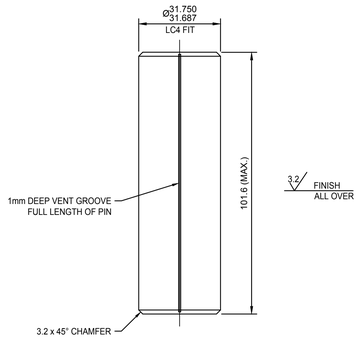
8 M25 **TURNED BOLT 2**

REQ'D: 16
SCALE: 1:2
(FOR DETAILS NOT SHOWN, SEE ANSI B18.2)



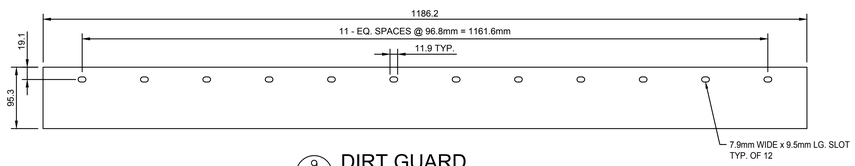
5 M25 **BOTTOM DISK**

REQ'D: 1
MATERIAL: FORGED ALLOY HARDENED STEEL, ASTM A668 CLASS G
SCALE: 1:2



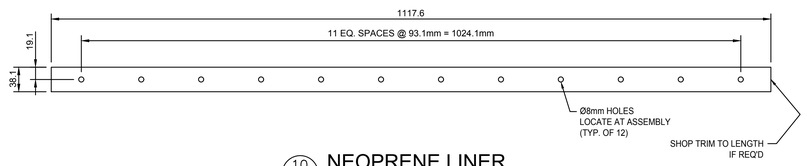
6 M25 **DOWEL PIN**

REQ'D: 8
MATERIAL: ASTM A668 CLASS G
SCALE: 1:1



9 M25 **DIRT GUARD**

REQ'D: 1
MATERIAL: 10 Ga. SHEET, COMMERCIAL STEEL (HOT DIP GALV.)
SCALE: 1:4



10 M25 **NEOPRENE LINER**

REQ'D: 1
MATERIAL: NEOPRENE 1/8" THK.
SCALE: 1:4

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No.	Description	Dwn.By Des.Par	Date
01	ADDENDUM #3	DP	04/12/19

Revision / Révision

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A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

Project title / Titre du projet

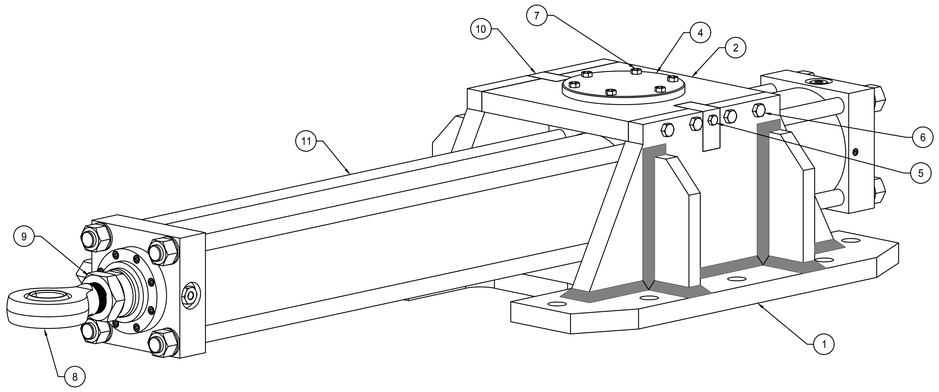
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

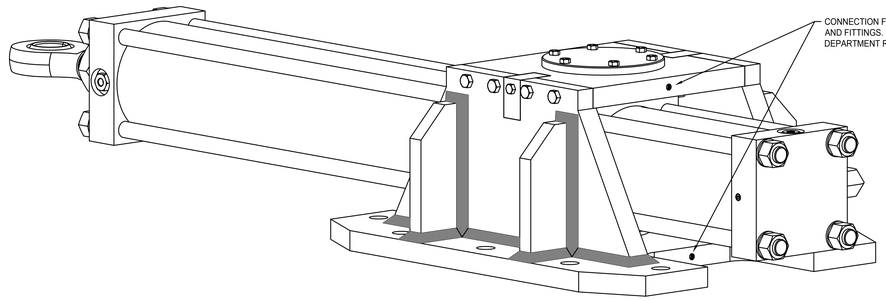
ONTARIO

Drawing title / Titre du dessin

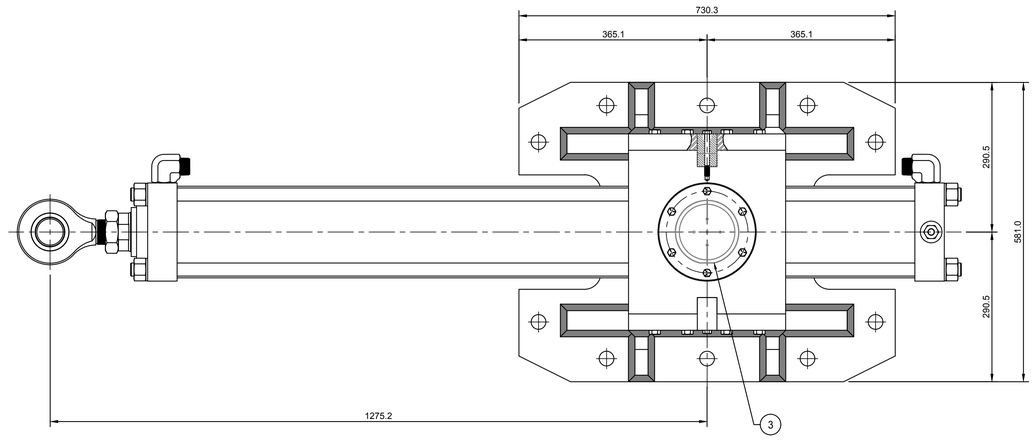
BRIDGE CENTER PIVOT
COMPONENT DETAILS

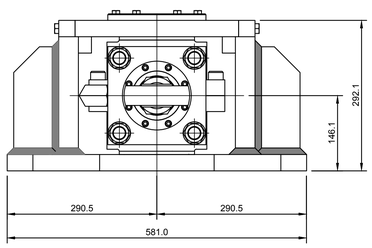
Drawn by / Dessiné par	Designed by / Conçu par
D. PETTEM	K. SMITH
Approved by / Approuvé par	**Drawing Date / Date du dessin**
K. SMITH	2019/11/12
Project manager / Administrateur de projet	**Drawing Number / Numéro du Dessin**
W. LITTLE	M25
Project Number / Numéro du projet	**Sheet / Feuille**
1356-30030321	25 of / du 28

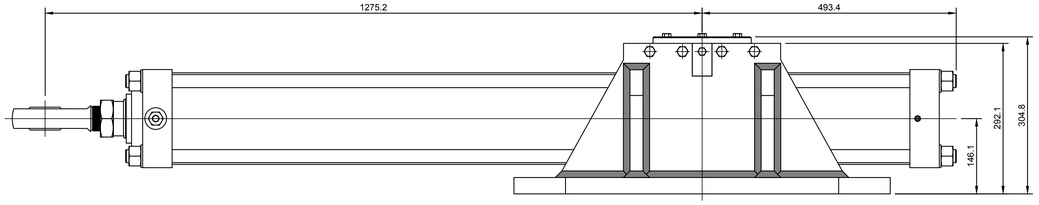


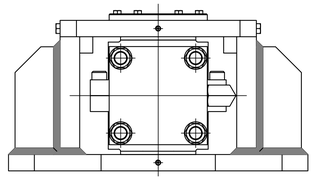


BILL OF MATERIALS		
ITEM	QTY	DESCRIPTION
1	1	BASE PLATE ASSEMBLY
2	1	TOP PLATE
3	2	BUSHING
4	1	CAP
5	2	3/8" UNC HHCS, 3-1/8" LONG, TURNED BOLT #2
6	8	1/2" UNC HHCS, 2-1/2" LONG, TURNED BOLT #1
7	6	3/8" UNC -2A HHCS, 1" LONG, ASTM A449
8	1	SPHERICAL ROD EYE
9	1	JAM NUT
10	2	KEY
11	1	HYDRAULIC CYLINDER









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Numéro sur dessin

Project title / Titre du projet

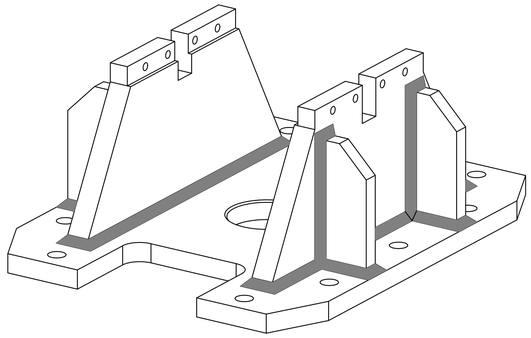
TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

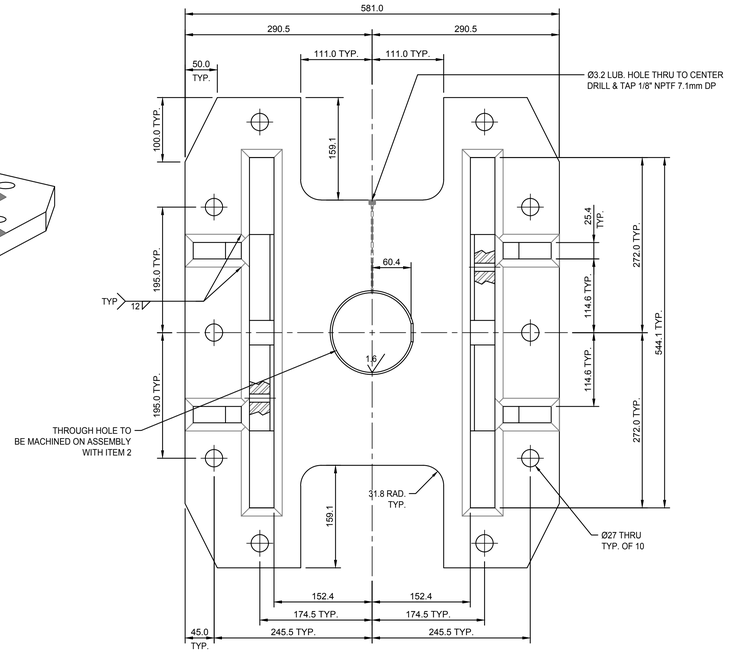
ONTARIO

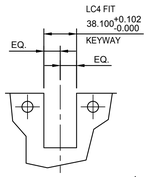
Drawing title / Titre du dessin

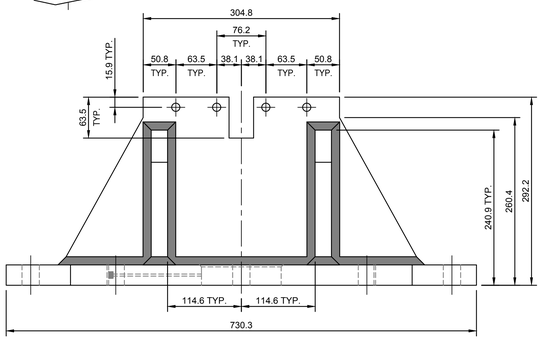
PIER CYLINDER BRACKET
ASSEMBLY

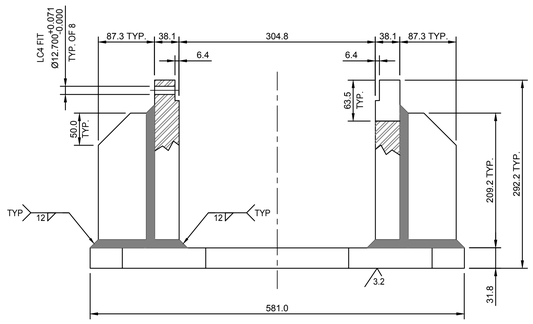
Drawn by / Dessiné par	Designed by / Conçu par
D. PETTEM	K. SMITH
Approved by / Approuvé par	Drawing Date / Date du dessin
K. SMITH	2019/11/19
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M26
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 26 of / du 28





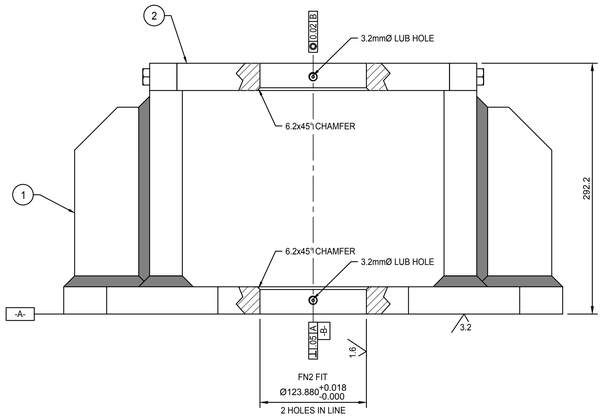


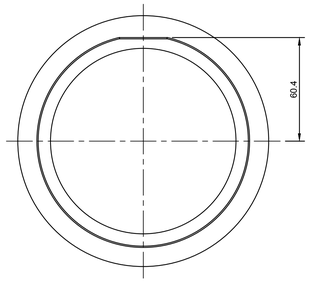


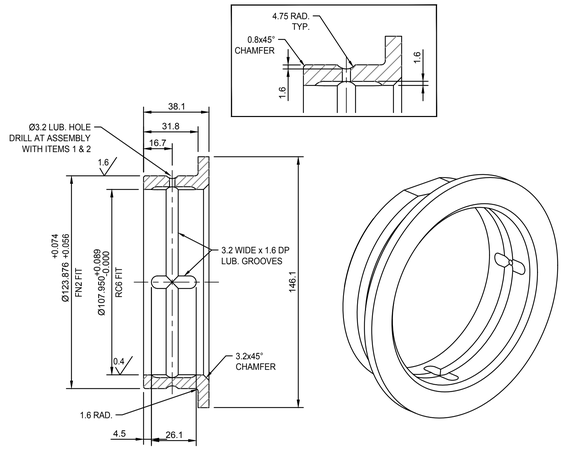


ITEM 1 - BASE PLATE

REQ'D: 1
MAT'L: G40.21-50W
SCALE: 1:4

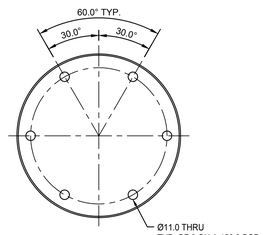


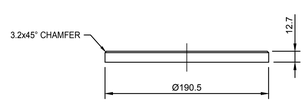




ITEM 3 - BUSHING

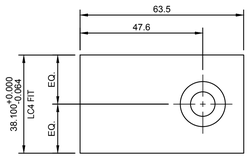
REQ'D: 2
MAT'L: C86300 MANGANESE BRONZE
SCALE: 1:1.5

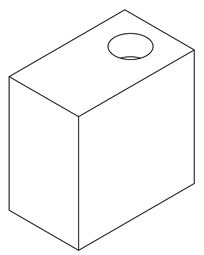


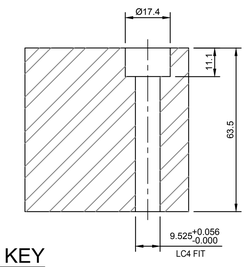


ITEM 4 - CAP

REQ'D: 1
MAT'L: G40.21-50W
SCALE: 1:3

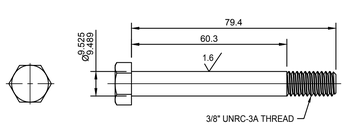






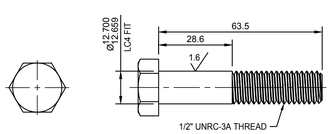
ITEM 9 - KEY

REQ'D: 2
MAT'L: AISI 1045
SCALE: 1:1



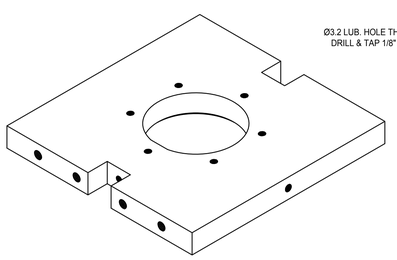
ITEM 5- TURNED BOLT #2

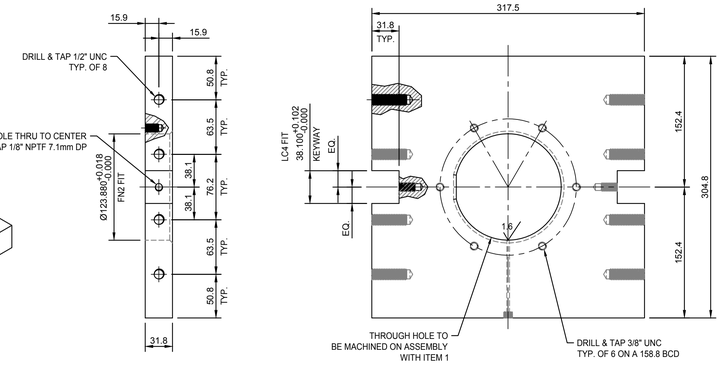
REQ'D: 2
MAT'L: SEE ANSI B18.3
SCALE: 1:1



ITEM 8 - TURNED BOLT #1

REQ'D: 8
MAT'L: SEE ANSI B18.3
SCALE: 1:1





ITEM 2 - TOP PLATE

REQ'D: 1
MAT'L: G40.21-50W
SCALE: 1:3

Canada
Parks Canada
Parcs Canada

WSP
300–2611 QUEENSVIEW DRIVE
OTTAWA (ONTARIO)
CANADA K2B 8K2
TELEPHONE: 613–829–2800 FAX: 613–829–8299
WWW.WSPGROUP.COM

FOR TENDER
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CONSTRUCTION

No.	Description	Dwn.By Des.Par	Date
01	ADDENDUM 3	DP	04/12/19

Revision / Révision

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

A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

PIER CYLINDER BRACKET
DETAILS

Drawn by / Dessiné par	Designed by / Conçu par
D. PETTEM	K. SMITH
Approved by / Approuvé par	Drawing Date / Date du dessin
K. SMITH	2019/11/19

Project manager / Administrateur de projet
W. LITTLE

Project Number / Numéro du projet
1356-30030321

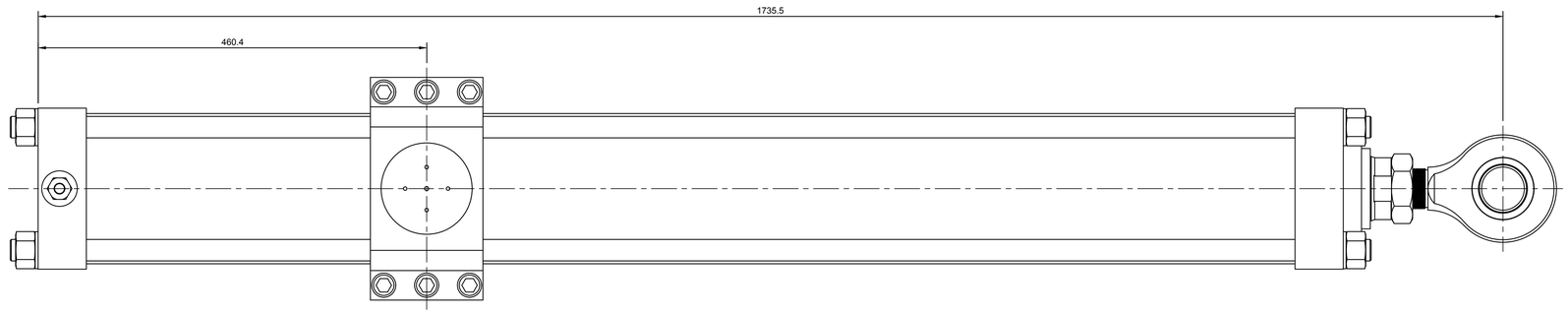
Drawing Number/ Numéro du Dessin
M27

Sheet Feuille 27 of du 28

Technical Data	
Part No.	6.00CDD2HDHNHT1S39AC53.500
Cylinder	Cylinder
Bore	6.00
Cushion Head	C - Cushion Head
Double	Single Rod
Mounting	DD - Intermediate Fixed Trunnion (NFPA MT4)
Series	2HD - Heavy Duty Hydraulic Tie Rod (Bolt-on Gland Style)
Piston Seal	H - HP Polyurethane Piston Seal
Piston Magnet	N - No Magnet
Gland and Seal	H - Bolt-on Gland Class 1 Service Standard; Additional Seal Classes per "Seals" Code
Port Type	T - SAE Straight Thread O-Ring
Seals	Standard (Class 1)
Special	S - Special Modification
Piston Rod Number	3 - 3.00 Inch INCH
Piston Rod End	9 - Style 9 Short Female
Piston Rod End Thread	A - Imperial Integral Cut Threads (UNF, UNC, UN, BSF)
Piston Rod End Thread - End 2	N/A
Cushion Cap (or Second Head)	C - Cushion Cap
Stroke	53.5 INCH
XI Dimension	45 INCH
Port Size - Head	#16 SAE
Port Location - Head	Position 1
Port Size - Cap (or Second Head)	#16 SAE
Port Location - Cap (or Second Head)	Position 1

Technical Data	
Needle Location - Head	Needle Valve Position 3 - Head
Needle Location - Cap (or Second Head)	Needle Valve Position 3 - Cap
Gland Drain	No Gland Drain
Gland Drain Position	N/A
Piston Rod Wiper	Metallic Rod Wiper
Piston Rod End Thread Type	Female Piston Rod Thread
Piston Rod End Thread (KK-CC)	Standard
Piston Rod End A Dimension	Standard
Piston Rod Wrench Flats	Standard 2 Wrench Flats
Piston Rod NA Turndown	Standard
Piston Rod End Extension Length	Standard
Piston Rod End Extension - Catalog Designation	Standard
Piston Rod End Extension - Catalog Designation - End 2	Standard
Piston Rod Material	17-4 PH Stainless Steel Piston Rod Material
Piston Rod Plating	Global Shield Piston Rod Plating 0.001" thk.
Piston-to-Rod Pinning	Standard Piston-To-Rod Connection
Stop Tube	Stop Tube
Stop Tube Length	6 INCH
Net Stroke	47.5 INCH
Air Bleed Ports	#4 SAE Head & Cap Bleed Ports
Air Bleed Port Location	Air Bleed Ports Position 2
Cylinder Body Material	Standard Steel Body Material
Paint	Nickel Plate
Spherical Rod Eye	PN 0961000200

PRODUCTS LISTED SET A STANDARD BY WHICH SUBSTITUTES WILL BE JUDGED



TRUNNION SHAFT

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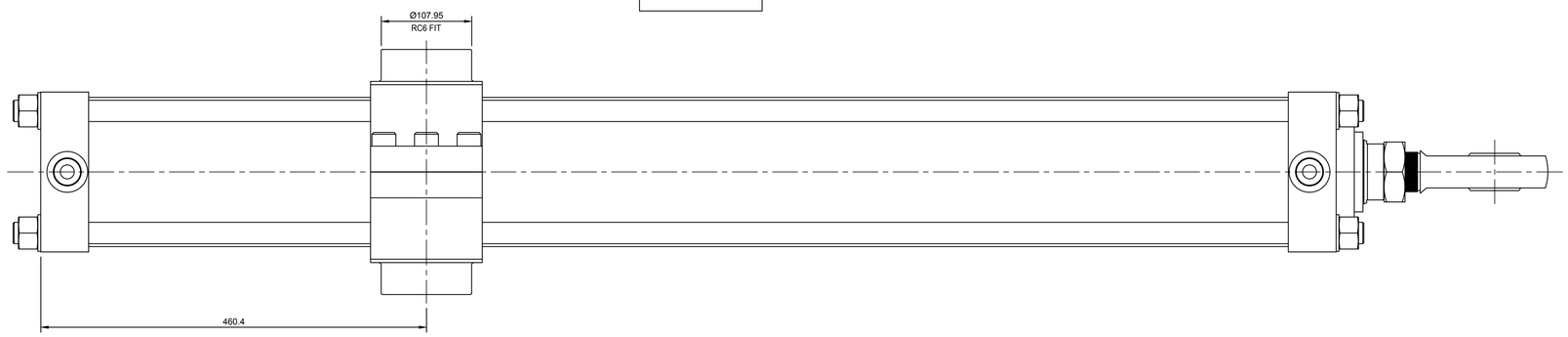
RC6 = 4.25" -0.0030"
-0.0052"
[-0.076mm]
[-0.132mm]



ITEM 11 - HYDRAULIC CYLINDER

REQ'D: 2
SCALE: 1:3

Canada
Parks Canada
Parcs Canada

WSP
300–2611 QUEENSVIEW DRIVE
OTTAWA (ONTARIO)
CANADA K2B 8K2
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No.	Description	Dwn.By Des.Par	Date
01	ADDENDUM 3	DP	04/12/19

Revision / Révision

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Numéro du détail

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Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

ONTARIO

Drawing title / Titre du dessin

PIER CYLINDER
DETAILS

Drawn by / Dessiné par	Designed by / Conçu par
D. PETTEM	K. SMITH
Approved by / Approuvé par	Drawing Date / Date du dessin
K. SMITH	2019/11/19
Project manager / Administrateur de projet: W. LITTLE	Drawing Number / Numéro du Dessin: M28
Project Number / Numéro du projet: 1356-30030321	Sheet / Feuille 28 of / du 28

DRAWING NUMBER	DRAWING NAME	REVISON	DATE	
E0.1	DRAWING LIST	2	DECEMBER 04, 2019	2
E0.2	SCOPE OF WORK, GENERAL NOTES AND SYMBOLS	2	DECEMBER 04, 2019	2
E1.1	SINGLE LINE DIAGRAM	2	DECEMBER 04, 2019	2
E1.2	GENERAL ARRANGEMENT - LOCK AND BRIDGE AREA	1	NOVEMBER 01, 2019	
E1.3	LOCK STATION ELECTRICAL EQUIPMENT LAYOUT	2	DECEMBER 04, 2019	2
E1.4	BRIDGE EQUIPMENT LAYOUT	1	NOVEMBER 01, 2019	
E1.5	(NOT USED)			
E1.6	600V SERVICE AND DISTRIBUTION - ELEVATION	1	NOVEMBER 01, 2019	
E1.7	PANEL SCHEDULE - LOCK DISTRIBUTION	0	SEPTEMBER 26, 2019	
E1.8	PANEL SCHEDULE - LOCK GATE CONTROLS	0	SEPTEMBER 26, 2019	
E1.9	PANEL SCHEDULE - BRIDGE DISTRIBUTION	0	SEPTEMBER 26, 2019	
E1.10	CABLE SCHEDULE	2	DECEMBER 04, 2019	2
E1.11	(NOT USED)			
E1.12	(NOT USED)			
E1.13	LOCK DISTRIBUTION GROUNDING DETAILS	1	NOVEMBER 01, 2019	
E1.14	BRIDGE GROUNDING DETAILS	1	NOVEMBER 01, 2019	
E2.1	BRIDGE CONTROL PANEL - POWER DISTRIBUTION	1	NOVEMBER 01, 2019	
E2.2	BRIDGE CONTROL PANEL - OPEN AND CLOSE	1	NOVEMBER 01, 2019	
E2.3	BRIDGE CONTROL PANEL - BRIDGE POSITION INDICATION	1	NOVEMBER 01, 2019	
E2.4	(NOT USED)			
E2.5	BRIDGE CONTROL PANEL - LOCKING PIN	1	NOVEMBER 01, 2019	
E2.6	BRIDGE CONTROL PANEL - TRAFFIC GATES	1	NOVEMBER 01, 2019	
E2.7	BRIDGE CONTROL PANEL - TRAFFIC LIGHTS	1	NOVEMBER 01, 2019	
E2.8	PROPORTIONAL DRIVER SCHEMATIC - SWING OPEN	1	NOVEMBER 01, 2019	
E2.9	PROPORTIONAL DRIVER SCHEMATIC - SWING CLOSED	1	NOVEMBER 01, 2019	
E2.10	HPU STATUS INDICATOR SCHEMATIC - BRIDGE	1	NOVEMBER 01, 2019	
E2.11	HPU CONTROL SCHEMATIC - BRIDGE	1	NOVEMBER 01, 2019	
E2.12	BRIDGE TRAFFIC GATE SCHEMATIC - NORTH EAST	1	NOVEMBER 01, 2019	
E2.13	BRIDGE TRAFFIC GATE SCHEMATIC - SOUTH WEST	1	NOVEMBER 01, 2019	
E2.14	BRIDGE NAVIGATION LIGHTS	1	NOVEMBER 01, 2019	
E2.15	BRIDGE CONTROL PANEL LAYOUT & BOM	1	NOVEMBER 01, 2019	
E2.16	BRIDGE OPERATOR CONTROL CONSOLE ELEVATION	1	NOVEMBER 01, 2019	
E2.17	BRIDGE OPERATOR CONTROL CONSOLE LAYOUT	1	NOVEMBER 01, 2019	
E3.1	LOCK GATE CONTROL PANEL WIRING - POWER DISTRIBUTION	1	NOVEMBER 01, 2019	
E3.2-1	LOCK GATE CONTROL PANEL WIRING - PUMP CONTROL	1	NOVEMBER 01, 2019	
E3.2-2	LOCK GATE CONTROL PANEL WIRING - PUMP CONTROL CONTINUED	1	NOVEMBER 01, 2019	
E3.3	LOCK GATE CONTROL PANEL WIRING - UPPER LOCK NAVIGATION SIGNALS	0	SEPTEMBER 26, 2019	
E3.4	LOCK GATE CONTROL PANEL WIRING - UPPER LOCK GATES AND VALVE CONTROL	0	SEPTEMBER 26, 2019	
E3.5	LOCK GATE CONTROL PANEL WIRING - LOWER LOCK GATES AND VALVE CONTROL	0	SEPTEMBER 26, 2019	
E3.6	LOCK GATE CONTROL PANEL WIRING - LOWER LOCK NAVIGATION SIGNALS	1	NOVEMBER 01, 2019	
E3.7	HPU PUMP#1 SCHEMATIC	2	DECEMBER 04, 2019	2
E3.8	HPU PUMP#2 SCHEMATIC	2	DECEMBER 04, 2019	2
E3.9	LOCK GATE HPU INDICATOR SCHEMATIC	1	NOVEMBER 01, 2019	
E3.10	HPU TERMINATION WIRING DIAGRAM	1	NOVEMBER 01, 2019	
E3.11	SAFETY CIRCUITS	1	NOVEMBER 01, 2019	
E3.12	LOCK GATE CONTROL PANEL LAYOUT & BOM - EXTERIOR	1	NOVEMBER 01, 2019	
E3.13-1	LOCK GATE CONTROL PANEL LAYOUT & BOM - INTERIOR	1	NOVEMBER 01, 2019	
E3.13-2	LOCK GATE CONTROL PANEL LAYOUT & BOM - INTERIOR (SIDES)	1	NOVEMBER 01, 2019	

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Public Services and Procurement Canada
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Heritage Canals and Engineering Works Group
Parks Canada Infrastructure Directorate

Groupe Canaux historiques et travaux d'ingénierie
Direction de l'infrastructure de Parcs Canada

Parks Canada
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No.	Description	Dwn By Des.Par	Date
2	ADDENDUM 3	MFF	2019-DEC-04
1	ISSUED FOR TENDER	RAN	2019-NOV-01
0	ISSUED FOR TENDER	MFF	2019-SEP-23
B	ISSUED FOR REVIEW	MFF	2019-SEP-05
A	ISSUED FOR REVIEW	MFF	2019-AUG-27

Revision / Révision

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A Detail number
Numéro du détail
B Location dwg. number
Numéro sur dessin

-

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION
-

CITY PROV.

Drawing title / Titre du dessin

DRAWING LIST

Drawn by / Dessiné par	Designed by / Conçu par
MFF	WDF
Approved by / Approuvé par	Drawing Date / Date du dessin
-	2019/08/27
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
-	E0.1
Project Number / Numéro du projet	Sheet / Feuille 1 of / du 1
151-06165-11	

PWGSC-B1 (1000 x 707) PLOTTED BY: CAMF071412 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: Layout1 FILE NAME: 151-06165-11-E0.1 Rev2 Drawing List.dwg

SCOPE OF WORK

THE SCOPE OF WORK IS THE REPLACEMENT/ RENOVATION OF THE ELECTRICAL SYSTEM FOR THE BOBCAYGEON BRIDGE. SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL FULLY REVIEW THE EXISTING DRAWINGS AND THE EXISTING SITE CONDITIONS TO BECOME FULLY ACQUAINTED WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL DEVELOP SHOP DRAWINGS AS REQUIRED TO PROCURE AND INSTALL ALL PORTIONS OF THE WORK.

2. DEMOLITION. THE EXISTING POWER DISTRIBUTION AND CONTROL SYSTEM AT THE BRIDGE SHALL BE REMOVED AND PROPERLY DISPOSED. THE EXISTING MOTOR CONTROL CENTER AT THE LOCK STATION SHALL BE REMOVED. THE EXISTING EQUIPMENT TO REMAIN IN SERVICE SHALL BE MAINTAINED AND MODIFIED. THE EXISTING OPERATORS HOUSE LOW VOLTAGE EQUIPMENT CIRCUITS SHALL BE MAINTAINED AND CONNECTED TO THE NEW 208/120V LIGHTING PANEL. THE EXISTING CABLING FROM THE OPERATOR STATIONS SHALL REMAIN. THE 600V FEEDS TO THE DAM AREA AND PIT RECEPTACLES SHALL BE REUSED. CONTRACTOR TO REMOVE ALL EQUIPMENT AS INDICATED IN THE SPECIFICATIONS. RETURN 600V BREAKERS, MOTOR STARTERS, HPU UNITS (BRIDGE AND LOCK HPU'S), LIMIT SWITCHES, ETC. TO THE DEPARTMENTAL REPRESENTATIVE FOR REUSE.

3. POWER DISTRIBUTION. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL UTILITY FOR A NEW 200 AMPERE , THREE PHASE, FOUR WIRE 600 VAC ELECTRICAL SERVICE, PROVIDE AND INSTALL NEW UNDERGROUND CABLING FROM THE POLE TO THE LOCK SYSTEM, A NEW INCOMING SERVICE DISCONNECT, UTILITY METERING ENCLOSURE, AND MANUAL TRANSFER SWITCH WITH GENERATOR RECEPTACLE, PROVIDE AND INSTALL A NEW THREE PHASE 600 VAC SPLITTER, PROVIDE A NEW 208/120 V DISTRIBUTION PANEL AND CIRCUIT BREAKERS. PROVIDE AND INSTALL A NEW 75 kVA TRANSFORMER, DISCONNECTS, AND PUMP MOTOR STARTERS.

4. ELECTRICAL MACHINERY. THE BRIDGE AND LOCK GATES SHALL BE HYDRAULICALLY OPERATED. THE HYDRAULIC POWER UNIT SHALL BE PROVIDED WITH REDUNDANT (20 HP) MOTORS . ONE MOTOR SHALL BE PRIMARILY RESPONSIBLE FOR THE LOCK GATE AND ONE PRIMARILY RESPONSIBLE FOR THE BRIDGE. THE HYDRAULIC POWER SYSTEM SHALL BE PROVIDED WITH SOLENOID AND PROPORTIONAL VALVES, OIL LEVEL, TEMPERATURE PRESSURE SENSORS AND MANIFOLDS.

5. CONTROL SYSTEM. PROVIDE AND INSTALL A NEW RELAY BASED CONTROL LOCK GATE SYSTEM AS SHOWN ON THE PLANS (DRAWING SERIES E3.X). PROVIDE AND INSTALL A NEW RELAY PANEL AND CONSOLE FOR THE BRIDGE AS SHOWN ON THE PLANS (DRAWING SERIES E2.X).

6. LIMIT SWITCHES. PROVIDE AND INSTALL NEW LEVER ARM LIMIT SWITCH AT CENTER PIER. ALTERNATIVELY, NEW HYDRAULIC CYLINDERS MAY BE PROVIDED WITH MAGNETIC REED SWITCHES. ENSURE CABLE FLEXIBILITY AT THE CENTER OF THE PIER. CONNECT AND INTERWIRE THESE SWITCHES INTO THE CONTROL SYSTEM.

7. TRAFFIC GATES. NEW TRAFFIC GATES SHALL BE FURNISHED AND INSTALLED, AND SHALL BE CONNECTED TO THE NEW CONTROL SYSTEM. THE EXISTING TRAFFIC GATES SHALL BE REMOVED AND PROVIDED TO PARKS CANADA. NEW TRAFFIC GATES SHALL BE 208 VAC AND SHALL BE FURNISHED WITH NEW ARMS WITH BREAKAWAY BASES AND SHALL BE PROVIDED WITH 12 VDC LED ARM LIGHTS. TECK CABLE SHALL BE WEIGHED DOWN TO THE BOTTOM OF THE CANAL FOR THE SOUTH TRAFFIC GATE. CONTRACTOR SHALL COORDINATE WITH THE TRAFFIC GATE MANUFACTURER DURING INSTALLATION AND COMMISSIONING OF BRIDGE CONTROL SYSTEM.

8. NAVIGATION LIGHTING. NEW FOUR QUADRANT RED/GREEN NAVIGATION LIGHTS SHALL BE INSTALLED ON THE EAST AND WEST SIDES OF THE SWING SPAN, LOCATED AS SHOWN ON DRAWINGS.

9. THE FUNCTIONALITY OF THE EXISTING PA SYSTEM AT THE BRIDGE SHALL BE MIGRATED TO THE NEW BRIDGE OPERATOR CONSOLE. CONTRACTOR TO CONSULT WITH DEPARTMENT REPRESENTATIVE AND EXISTING DRAWINGS TO DETERMINE EXACT REQUIREMENTS.

10. CONDUIT, CABLE, AND WIRING SHALL BE AS SHOWN ON THE PLANS. MINIMUM WIRE SIZE SHALL BE #12 AWG. ALL WIRING SHALL BE RATED FOR 600V.
    - A. PVC JACKETED TYPE MC CABLE SHALL BE TECK90 WITH XHHW COPPER CONDUCTORS.
    - B. SINGLE CONDUCTOR WIRING SHALL BE XHHW COPPER CONDUCTORS.
    - C. EMBEDDED CONDUIT SHALL BE POLYVINYL CHLORIDE SCHEDULE 40.
    - D. CONDUIT IN THE ELECTRICAL ROOMS SHALL BE EMT TYPE CONDUIT AND LFMC CONDUIT.
    - E. CONDUIT EXPOSED TO THE ELEMENTS SHALL BE RGS TYPE CONDUIT.
    - F. FLEXIBLE CABLING TO THE MOVABLE SPAN SHALL BE SOOW FLEXIBLE CABLES.

11. SURGE PROTECTION: PROVIDE A THREE-PHASE SURGE SUPPRESSOR ON THE LOAD SIDE OF THE MANUAL TRANSFER SWITCH. THE SURGE SUPPRESSOR SHALL BE IN A NEMA-12 ENCLOSURE.

12. THE FOLLOWING MODIFICATIONS AND EXCEPTIONS TO THE CSA CANADA HIGHWAY BRIDGE DESIGN CODE SHALL BE MADE AS FOLLOWS. EACH REQUIREMENT IS IDENTIFIED AND CLARIFIED BELOW.

    12.9.11.6.2 CONTROL CONSOLE DEVICES
    A LAMP TEST FUNCTION FOR THE PILOT LIGHTS IS REQUIRED BY CSA. THE QUAD LIGHTS AND RELAY CONTROL SYSTEM PREFERRED BY PARKS CANADA WOULD REQUIRE DIODES, EITHER INTERNAL TO THE PILOT LIGHTS IF AVAILABLE, OR BY CREATING OUR OWN NETWORK. EXPERIENCE INDICATED DIODES ARE NOT RELIABLE AND WILL EVENTUALLY SHORT, CAUSING A FEEDBACK THAT WILL ILLUMINATE ALL THE PILOTE LIGHTS. THE DESIGN DOES NOT PROVIDE THE LAMP TEST FUNCTION BUT DOES SUPPLY SPARE PARTS TO REPLACE PILOT LIGHT UNITS.

    12.9.11.1.5 AUDIBLE SIGNALS TO BOATS
    AUDIBLE SIGNALS TO BOATS ARE REQUIRED BY THE CSA. PARKS CANADA HAS REPORTED THAT RADIOS ARE USED TO COMMUNICATE TO WATERWAY TRAFFIC, NOT AUDIBLE SIGNAL HORNS OR SIMILAR.THEREFORE, NO AIR HORN OR SIMILAR DEVICE SHALL BE PROVIDED.

    12.9.11.5 POSITION INDICATOR SYSTEMS
    THE CODE REQUIRES INDICATION OF SPAN POSITION AND SKEW CONDITION TO THE OPERATOR, WITH THE PROXIMITY TO THE BRIDGE, A POSITION INDICATION SYSTEM WILL NOT BE INSTALLED.

    13.9.14.4 AUDIBLE SIGNAL WHILE SPAN OPERATES
    AN AUDIBLE SIGNAL WHILE THE SPAN OPERATES IS REQUIRED BY THE CSA. HOWEVER, PARKS CANADA HAS REQUESTED THIS NOT TO BE IMPLEMENTED.

    13.9.16 LIGHTNING AND SURGE PROTECTION
    THE CODE REQUIRES LIGHTNING AND SURGE PROTECTION FOR THE MOVABLE BRIDGE. WE ARE PROVIDING SURGE PROTECTION ON THE INCOMING SERVICE, BUT ARE NOT PROVIDING A LIGHTNING PROTECTION SYSTEM FOR THE BRIDGE IN ACCORDANCE WITH DISCUSSIONS WITH PARKS CANADA. THE LOW PROFILE OF THE BRIDGE DOES NOT TYPICALLY WARRANT PROTECTION.

GENERAL ELECTRICAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST VERSION OF THE CSA 22.2, CSA S6-14, AND ALL APPLICABLE LOCAL ORDINANCES AND REGULATIONS, COORDINATE ALL ELECTRICAL WORK WITH THE BRIDGE OWNERS AND OTHER TRADES ON THE SITE.
2. PROVIDE EQUIPMENT GROUNDING PER CSA REQUIREMENTS.
3. DISTRIBUTE ELECTRICAL LOAD AS EQUALLY AS POSSIBLE ON ALL THREE INCOMING ELECTRICAL SERVICE PHASES.
4. THE CONTRACTOR SHALL INSTALL AS MANY WIRES AS ARE NECESSARY FOR PROVIDING A COMPLETE ELECTRICAL SYSTEM.
5. INSTALL ALL CONDUIT SUPPORTS PER CSA S6-14 STANDARDS. LIMIT TOTAL ANGULAR CONDUIT BENDS BETWEEN PULL BOXES TO 270 DEGREES.
6. RUN ALL CONDUIT AT RIGHT ANGLES OR PARALLEL TO THE BRIDGE STRUCTURE. RACK NEATLY AND FASTEN SECURELY. USE INSULATED BUSHING AND DOUBLE NUTS AS SHOWN AND WHERE INDICATED IN THE SPECIFICATIONS. PROVIDE PULL/JUNCTION BOXES AS REQUIRED TO FACILITATE WIRING. LIQUID TIGHT CONDUIT HUBS SHALL BE USED AT ALL LOCATIONS WHERE CONDUITS ENTER BOXES OR ENCLOSURES. HUBS SHALL BE MALLEABLE IRON CONTRUCTION, HOT DIPPED GALVANIZED.
7. LAYOUT OF ELECTRICAL EQUIPMENT AND DEVICES IS SHOWN SCHEMATICALLY ONLY, EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR BASED ON HIS CHOSEN EQUIPMENT SUBJECT TO APPROVAL OF THE ENGINEER. CONTRACTOR SHALL SUBMIT INSTALLATION SHOP DRAWINGS FOR APPROVAL OF THE ENGINEER.
8. ELECTRICAL EQUIPMENT BEING REMOVED SHALL BE DISPOSED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
9. DRAIN/BREATHER FITTINGS SHALL BE PROVIDED IN ALL JUNCTION BOXES AT THE LOWEST POINT.
10. ALL EXPOSED ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE TYPE 316 STAINLESS STELL, DUST-TIGHT, RAIN-TIGHT, LIQUID TIGHT AND OIL-TIGHT, TYPE NEMA-4X. ALL EQUIPMENT LOCATED WHITHIN THE ELECTRICAL ROOM (LOCK STATION) SHALL BE NEMA-12.
11. UPON COMPLETETION OF ELECTRICAL INSTALLATION, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR ACCEPTANCE. PRIOR TO TESTING, THE CONTRACTOR SHALL SUBMIT A COMPLETE TESTING PROCEDURE TO THE ENGINEER FOR APPROVAL. THE SYSEM SHALL BE TESTED STEP BY STEP FOR SHORT CIRCUITS, GROUNDING, AND PROPER OPERATION IN THE PRESENCE OF THE ENGINEER. ALL FINDINGS SHALL BE RECORDED AND SUBMITTED FOR APPROVAL.
12. ALL ANCHORS, NUTS, WASHERS, BOLTS, AND THREADED ROD SHALL BE TYPE 316 STAINLESS STELL.
13. CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, THE DAMAGED MATERIALS SHALL BE REPLACED OR REPAIRED IN A MANNER SATISFACTORY TO THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
14. THE COST OF REPAIS OR REPLACEMENT OF ALL DAMAGE, DIRECT OR INDIRECT, OF ANY NATURE RESULTING FROM PERFORMANCE OF THE WORK OR RESULTING TO THE WORK DURING ITS PROGRESS FROM WHATEVER CAUSE SHALL BE BORNE AND SUSTAINED BY THE CONTRACTOR.
15. ALL CONTACTORS AND OVERLOADS SHALL BE PROVIDED WITH 2 NORMALLY OPEN AND 2 NORMALLY CLOSED AUXILIARY CONTACTS.
16. THE CONTRACTOR SHALL VISIT THE JOB SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITION PRIOR TO SUBMITTING THE BID. NO ADDITIONAL COMPENSATION WILL BE MADE FOR UNFORESEEN WORK OR DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS.
17. THE PLANS ARE DIAGRAMMATIC AND ARE NOT TO BE SCALED. THE LOCATIONS OF EQUIPMENT AND ROUTING OF CONDUITS SHOWN ON THE CONTRACT DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD.
18. ALL CONDUIT AND CABLES SHALL BE ROUTED SO AS NOT TO INTERFERE WITH THE OPERATION OF THE MACHINERY NOR SHALL IT RESTRIC THE REMOVAL OF THE MACHINERY INCLUDING ELECTRICAL EQUIPMENT. ALL CABLES SHALL BE PROPERLY SUPPORTED BY BRACKETS AND CABLE CLAMPS. ROPE, TWINE, PLASTIC TIES, OR TAPE WILL NOT BE PERMITTED.
19. THE CONTRACTOR SHALL PROVIDE AN ARC FLASH RISK ASSESSMENT FOR THE NEW BRIDGE EQUIPMENT BASED UPON THE EQUIPMENT SUPPLIED AND FINAL CIRCUIT BREAKER AND FUSE SETTINGS. PROVIDE ARC FLASH LABELING ON ALL EQUIPMENT RATED OVER 50V.
20. PROVIDE NAMEPLATES ON ALL PANELS. CONSOLES, AND BOXES IDENTIFYING THE EQUIPMENT POWER SOURCE DISCONNECT. FOR EQUIPMENT WITH MULTIPLE POWER SOURCES, IDENTIFY ALL SOURCES FEEDING THE EQUIPMENT TO SAFELY DISCONNECT AND DE-ENERGIZE THE EQUIPMENT.

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SYMBOLS

2 POSITION SWITCH

CIRCUIT BREAKER
POLE, AMP TRIP, FRAME
XP/YY/ZZZ

FUSE

N.O/N.C. CONTACTOR/CONTACT

TRANSFORMER

GROUND

SURGE PROTECTOR

MOTOR
XX HP

RELAY

TOGGLE SWITCH
KS-KEY
CS-CONTROL
BYP-BYPASS

N.C./N.O.
PROXIMITY SWITCH
N.C.
N.O.

N.C./N.O. LEVEL
SWITCH

N.C./N.O. LIMIT SWITCH

TEMPERATURE
SWITCH

INDICATOR LIGHT
R - RED
A - AMBER
G - GREEN
R

N.C./N.O. PUSH BUTTON

SOLENOID

CONNECTION

RESISTOR
RX

GENERATOR
RECEPTACLE

OVERLOAD

HEATER
HTR

FLASHER

CHANNEL

DISCONNECT

UTILITY
METER
M

TIMING CONTACT CLOSES
AFTER X SECONDS
X SEC

TIMING
RELAY
< NAME > - TD

TIMING CONTACT
OPENS AFTER X
SECONDS
X SEC

N.C./N.O.
PRESSURE SWITCH

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0	ISSUED FOR TENDER	MFF	2019-SEP-23
A	ISSUED FOR REVIEW	MFF	2019-SEP-19

Revision / Révision

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-

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION

-

CITY PROV.

Drawing title / Titre du dessin

SCOPE OF WORK,
GENERAL NOTES,
AND SYMBOLS

Drawn by / Dessiné par	Designed by / Conçu par
MFF	WDF
Approved by / Approuvé par	Drawing Date / Date du dessin
-	2019/09/19
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
-	E0.2
Project Number / Numéro du projet	Sheet / Feuille 1 of / du 1
151-06165-11	

NOTES:

1. METER BASE TO BE PROVIDED AND INSTALLED BY CONTRACTOR. USE HYDEL PART No. STC703RK OR MICROLECTRIC PART No. PL27-IN-TCV OR AS DIRECTED BY HYDRO ONE.
2. DSW-001 MUST BE SERVICE ENTRANCE RATED (I.E. IT MUST HAVE AN ISOLATED NEUTRAL KIT).
3. CONDUIT AND 1C #250MCM RWU90 MAY BE USED IN PLACE OF TECK90.

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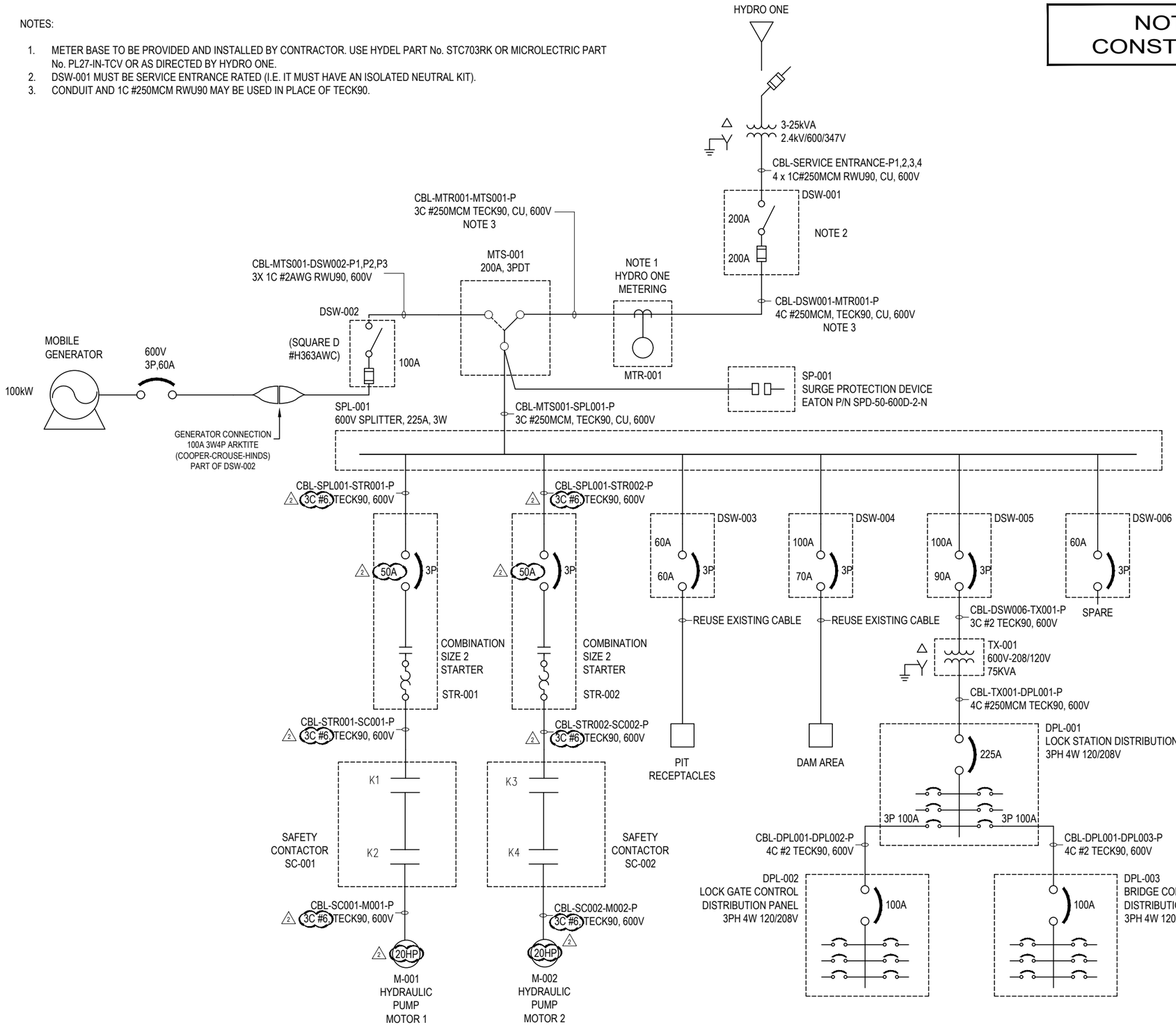

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0	ISSUED FOR TENDER	MFF	2019-SEP-23
C	ISSUED FOR REVIEW	MFF	2019-SEP-17
B	ISSUED FOR REVIEW	MFF	2019-AUG-26

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TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION
-

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LOCK 32
SINGLE LINE DIAGRAM

Drawn by / Dessiné par	Designed by / Conçu par
DD	WDF
Approved by / Approuvé par	Drawing Date / Date du dessin
-	2019/05/14

Project manager / Administrateur de projet
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E1.1

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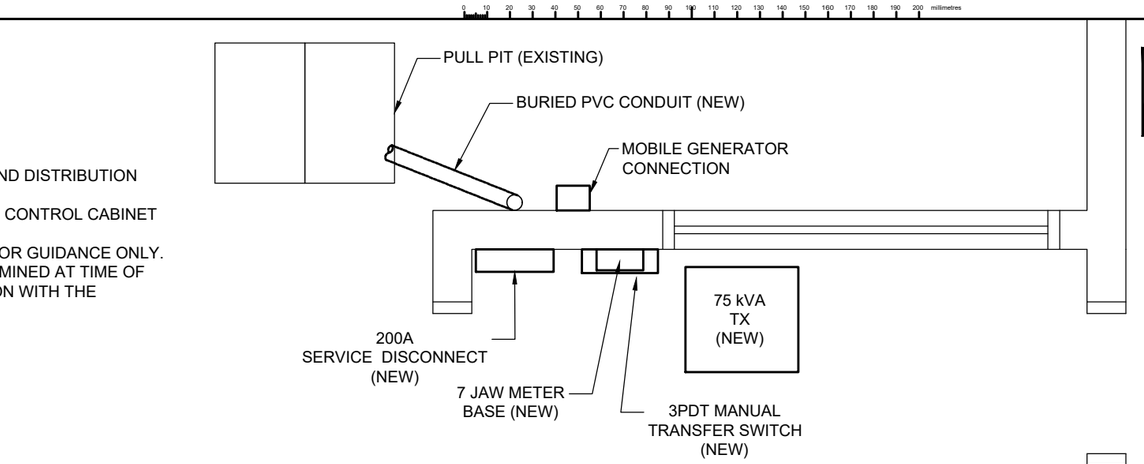
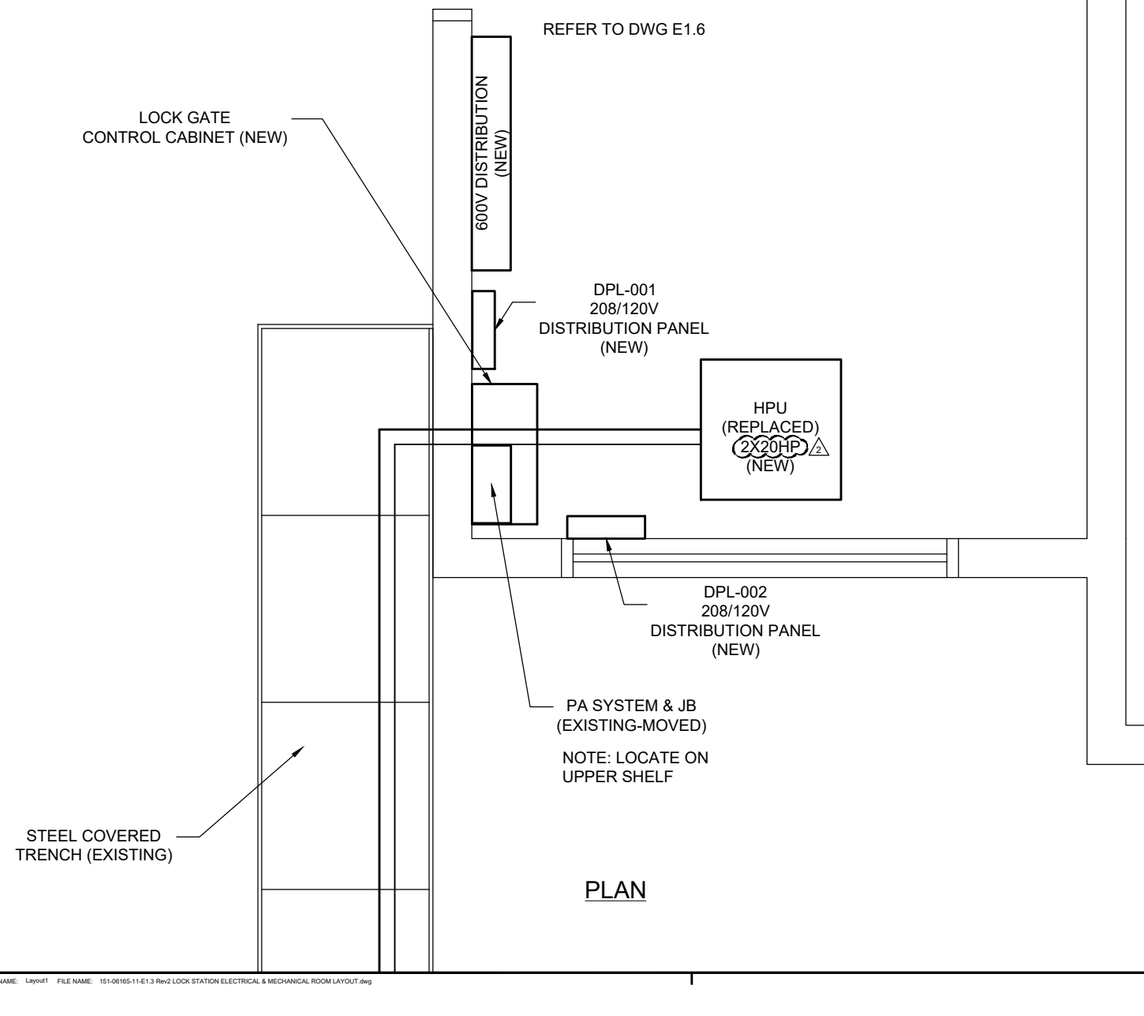
NOTES:

1. SEE DRAWING E1.6 FOR SERVICE AND DISTRIBUTION ELEVATION.
2. SEE DRAWING E3.X FOR LOCK GATE CONTROL CABINET DRAWINGS.
3. ARRANGEMENT OF EQUIPMENT IS FOR GUIDANCE ONLY. EXACT PLACEMENT IS TO BE DETERMINED AT TIME OF INSTALLATION AND IN CONSULTATION WITH THE DEPARTMENT REPRESENTATIVE.





PLAN

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TRENT-SEVERN WATERWAY
BOBCAYGEON SWING BRIDGE REHABILITATION
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LOCK STATION ELECTRICAL & MECHANICAL ROOM LAYOUT

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MFF	WDF
Approved by / Approuvé par	Drawing Date / Date du dessin
.	2019/08/19
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
.	E1.3
Project Number / Numéro du projet	Sheet / Feuille 1 of / du 1
151-06165-11	

PWGSC-B1 (1000 x 707) PLOTTED BY: CAMF071412 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: Layout1 FILE NAME: 151-06165-11-E1.3 Rev2 LOCK STATION ELECTRICAL & MECHANICAL ROOM LAYOUT.dwg

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CABLE No.	FROM	TO	SIZE	#OF COND	TYPE	INSUL. (V)	LENGTH (M)	ROUTE	REMARKS	Rev
CBL-SERVICEENTRANCE-P1,2,3,4	TRANSFORMER 3X25kVA	DSW001	250MCM	4	RWU90, CU	600	100	UNDERGROUND IN EXISTING 3" CONDUIT	CONTRACTOR TO VERIFY LENGTH	
CBL-DSW001-MTR001-P	DSW001	HYDRO ONE METERING	250 MCM	4	TECK 90, CU	600	2		VERIFY LENGTH; RWU90 MAY BE USED	
CBL-MTR001-MTS001-P	HYDRO ONE METERING	MTS-001	250 MCM	3	TECK 90, CU	600	2		VERIFY LENGTH	
CBL-MT3001-DSW002-P1,P2,P3	MTS-001	DSW002	#2	3	RWU90, CU	600	2		VERIFY LENGTH	
CBL-MTS001-SPL001-P	MTS-001	600V SPLITTER SPL-001	250 MCM	3	TECK 90, CU	600	5		VERIFY LENGTH	
CBL-SPL001-STR001-P	SPL-001	STARTER STR-001	2 #6	3	TECK 90, CU	600	2		VERIFY LENGTH	
CBL-SPL001-STR002-P	SPL-001	STARTER STR-002	#6	3	TECK 90, CU	600	2		VERIFY LENGTH	
CBL-STR001-SC001-P	STARTER STR-001	SAFETY CONTACTOR SC-001	#6	3	TECK 90, CU	600	1		VERIFY LENGTH	
CBL-STR002-SC002-P	STARTER STR-002	SAFETY CONTACTOR SC-002	#6	3	TECK 90, CU	600	1		VERIFY LENGTH	
CBL-SC001-M001-P	SAFETY CONTACTOR SC-001	HYDRAULIC PUMP MOTOR 1	#6	3	TECK 90, CU	600	5		VERIFY LENGTH	
CBL-SC002-M002-P	SAFETY CONTACTOR SC-002	HYDRAULIC PUMP MOTOR 2	#6	3	TECK 90, CU	600	5		VERIFY LENGTH	
CBL-DSW005-TX001-P	DSW-005	75kVA TRANSFORMER TX-001	#2	4	TECK 90, CU	600	8		VERIFY LENGTH	
CBL-TX001-DPL001-P	75kVA TRANSFORMER TX-001	LOCKHOUSE DISTRIBUTION PANEL	250 MCM	4	TECK 90, CU	600	8		VERIFY LENGTH	
CBL-DPL001-DPL002-P	LOCKHOUSE DISTRIBUTION PANEL	LOCK GATE CONTROL DISTRIBUTION PANEL	#2	4	TECK 90, CU	600	5		VERIFY LENGTH	
CBL-DPL001-DPL003-P	LOCKHOUSE DISTRIBUTION PANEL	BRIDGE CONTROL DISTRIBUTION PANEL	#2	4	TECK 90, CU	600	100	IN TRENCH ALONG CANAL	VERIFY LENGTH	
CBL-LOCKGATE-HPU-C01	LOCKGATE CONTROL PANEL	HPU JUNCTION BOX	#14	20	AIA, CU	600	5		VERIFY LENGTH	
CBL-BRIDGE-LOCKGATE-C01	BRIDGE CONTROL PANEL	LOCK GATE CONTROL PANEL	#14	40	AIA, CU	600	100	IN TRENCH ALONG CANAL	VERIFY LENGTH	
CBL-BRIDGE-ESTOP-C01	BRIDGE CONTROL PANEL	LOCK GATE CONTROL PANEL	#14	12	AIA, CU	600	100	IN TRENCH ALONG CANAL	VERIFY LENGTH	
CBL-BRIDGE-MANIFOLD-C01	BIDGE CONTROL PANEL	BRIDGE MANIFOLD	#14	10	AIA, CU	600	20	UNDERGROUND TO PIER	VERIFY LENGTH	
CBL-DPL003-CCT 1	DPL-003	BRIDGE CONTROLS	#12	2	RWU 90, CU	600	2	THROUGH CONSOLE	VERIFY LENGTH; ROUTE AS REQUIRED THROUGH CONSOLE AND INTO PANDUIT	
CBL-DPL003-CCT 2/4/6	DPL-003	NORTH TRAFFIC GATE	#12	3	TECK 90, CU	600	30	UNDERGROUND	VERIFY LENGTH; REUSE EXISTING CONDUIT IF POSSIBLE	
CBL-DPL003-CCT 3	DPL-003	NORTH TRAFFIC GATE	#12	2	TECK 90, CU	600	30	UNDERGROUND	VERIFY LENGTH; REUSE EXISTING CONDUIT IF FEASIBLE	
CBL-DPL003-CCT 5	DPL-003	NORTH TRAFFIC GATE	#12	2	TECK90, CU	600	30	UNDERGROUND	VERIFY LENGTH; REUSE EXISTING CONDUIT IF FEASIBLE	
CBL-DPL003-CCT 7	DPL-003	NORTH TRAFFIC GATE	#12	2	TECK 90, CU	600	30	UNDERGROUND	VERIFY LENGTH; REUSE EXISTING CONDUIT IF FEASIBLE	
CBL-DPL003-CCT 8/10/12	DPL-003	SOUTH TRAFFIC GATE	#12	2	TECK 90, CU	600	65	UNDERGROUND/ BOTTOM OF CANAL	VERIFY LENGTH; CONTRACTOR TO WEIGH DOWN CABLE TO BOTTOM OF CANAL	
CBL-DPL003-CCT9	DPL-003	SOUTH TRAFFIC GATE	#12	2	TECK 90, CU	600	65	UNDERGROUND/ BOTTOM OF CANAL	VERIFY LENGTH; CONTRACTOR TO WEIGH DOWN CABLE TO BOTTOM OF CANAL	
CBL-DPL003-CCT11	DPL-003	SOUTH TRAFFIC GATE	#12	2	TECK 90, CU	600	65	UNDERGROUND/ BOTTOM OF CANAL	VERIFY LENGTH; CONTRACTOR TO WEIGH DOWN CABLE TO BOTTOM OF CANAL	
CBL-DPL003-CCT13	DPL-003	SOUTH TRAFFIC GATE	#12	2	TECK 90, CU	600	65	UNDERGROUND/ BOTTOM OF CANAL	VERIFY LENGTH; CONTRACTOR TO WEIGH DOWN CABLE TO BOTTOM OF CANAL	
CBL-DPL003-CCT14	DPL-003	LOCK GATE NAV LIGHTS	#12	2	RWU 90, CU	600	2	INSIDE OPERATOR CONSOLE	VERIFY LENGTH	
CBL-DPL003-CCT15	DPL-003	WEST BRIDGE NAV LIGHTS	#12	2	RWU 90, CU	600	2	INSIDE OPERATOR CONSOLE	VERIFY LENGTH	
CBL-DPL003-CCT16	DPL-003	EAST BRIDGE NAV LIGHTS	#12	2	RWU 90, CU	600	2	INSIDE OPERATOR CONSOLE	VERIFY LENGTH	
CBL-DPL003-CCT17	DPL-003	NORTHWEST BRIDGE RECEPTACLES	#12	2	TECK 90, CU	600	8	UNDERGROUND	VERIFY LENGTH; REUSE CONDUIT AND RECEPTACLES IF FEASIBLE	
CBL-DPL003-CCT18	DPL-003	NORTHEAST BRIDGE RECEPTACLE	#12	2	TECK 90, CU	600	30	UNDERGROUND	VERIFY LENGTH; REUSE CONDUIT AND RECEPTACLES IF FEASIBLE	
CBL-DPL003-CCT19	DPL-003	BRIDGE PIER CUBICAL	#12	2	TECK 90, CU	600	20	UNDERGROUND	VERIFY LENGTH	
CBL-LOCKGATE-SC001-C01	LOCK GATE CONTROL PANEL	SAFETY CONTACTOR 1	#14	4	TECK 90, CU	600	4		VERIFY LENGTH	
CBL-LOCKGATE-SC002-C01	LOCK GATE CONTROL PANEL	SAFETY CONTACTOR 2	#14	4	TECK90, CU	600	4		VERIFY LENGTH	
CBL-LOCKGATE-STR001-C01	LOCK GATE CONTROL PANEL	STARTER STR001	#14	8	AIA, CU	600	4		VERIFY LENGTH	
CBL-LOCKGATE-STR002-C01	LOCK GATE CONTROL PANEL	STARTER STR-002	#14	8	AIA, CU	600	4		VERIFY LENGTH	
CBL-BRIDGE-SCJB-C01	BRIDGE CONTROL PANEL	SWING CLOSE JUNTION BOX	#16	4 PR	TWSH, AIA	600	20	UNDERGROUND TO PIER	VERIFY LENGTH	
CBL-BRIDGE-SOJB-C01	BRIDGE CONTROL PANEL	SWING OPEN JUNCTION BOX	#16	4 PR	TWSH, AIA	600	20	UNDERGROUND TO PIER	VERIFY LENGTH	
CBL-BRIDGE-LOCKINGPIN-C01	BRIDGE CONTROL PANEL	LOCKING PIN LIMIT SWITCHES	#14	4	AIA, CU	600	40	UNDERGROUND	VERIFY LENGTH; CONTRACTOR TO INSTALL JUNCTION BOX IF NECESSARY; ACCOUNT FOR SWING OF THE BRIDGE	
CBL-BRIDGE-POSITION-C01	BRIDGE CONTROL PANEL	BRIDGE POSITION SWITCHES	#14	10	AIA, CU	600	30	UNDERGROUND	VERIFY LENGTH; CONTRACTOR TO INSTALL JUNCTION BOX IF NECESSARY; ACCOUNT FOR SWING OF THE BRIDGE	
CBL-BRIDGE-NTG-C01	BRIDGE CONTROL PANEL	NORTH TRAFFIC GATE UNIT	#14	10	AIA, CU	600	30	UNDERGROUND	VERIFY LENGTH; REUSE EXISTING CONDUIT IF FEASIBLE	
CBL-BRIDGE-STG-C01	BRIDGE CONTROL PANEL	SOUTH TRAFFIC GATE UNIT	#14	10	AIA, CU	600	65	UNDERGROUND / BOTTOM OF CANAL	VERIFY LENGTH; CONTRACTOR TO WEIGH DOWN CABLE TO BOTTOM OF CANAL	
CBL-BRIDGE-WESTNAV-P01	BRIDGE CONTROL PANEL	WEST NAVIGATION LIGHTS	#12	3	TECK 90, CU	600	30	UNDERGROUND TO PIER	VERIFY LENGTH; ALLOW FOR FLEXING AS BRIDGE ROTATES	
CBL-BRIDGE-EASTNAV-P01	BRIDGE CONTROL PANEL	EAST NAVIGATION LIGHTS	#12	3	TECK 90, CU	600	30	UNDERGROUND TO PIER	VERIFY LENGTH; ALLOW FOR FLEXING AS BRIDGE ROTATES	
CBL-SOJB-PCV-C01	SWING OPEN JUNCTION BOX	SWING OPEN PROPORTIONAL VALVE CONTROLLER	#16	2 PR	AIA, CU	600	2	INSIDE PIER CUBICLE	VERIFY LENGTH; FASTEN TO TO UNISTRUT SUPPORTS	
CBL-SCJB-PCV-C01	SWING CLOSE JUNCTION BOX	SWING CLOSE PROPORTIONAL VALVE CONTROLLER	#16	2 PR	AIA, CU	600	2	INSIDE PIER CUBICLE	VERIFY LENGTH; FASTEN TO TO UNISTRUT SUPPORTS	

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A	ISSUED FOR REVIEW	MFF	2019-08-27

Revision / Révision

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A Detail number / Numéro du détail
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-

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION
-

CITY PROV.

Drawing title / Titre du dessin

CABLE SCHEDULE

Drawn by / Dessiné par	Designed by / Conçu par
MFF	WDF
Approved by / Approuvé par	Drawing Date / Date du dessin
	2019/08/27

Project manager / Administrateur de projet

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E1.10

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151-06165-11

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PWGSC-B1 (1000 x 707) PLOTTED BY: CAMF071412 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: Layout1 FILE NAME: 151-06165-11-E1.10 Rev2 CABLE SCHEDULE.dwg

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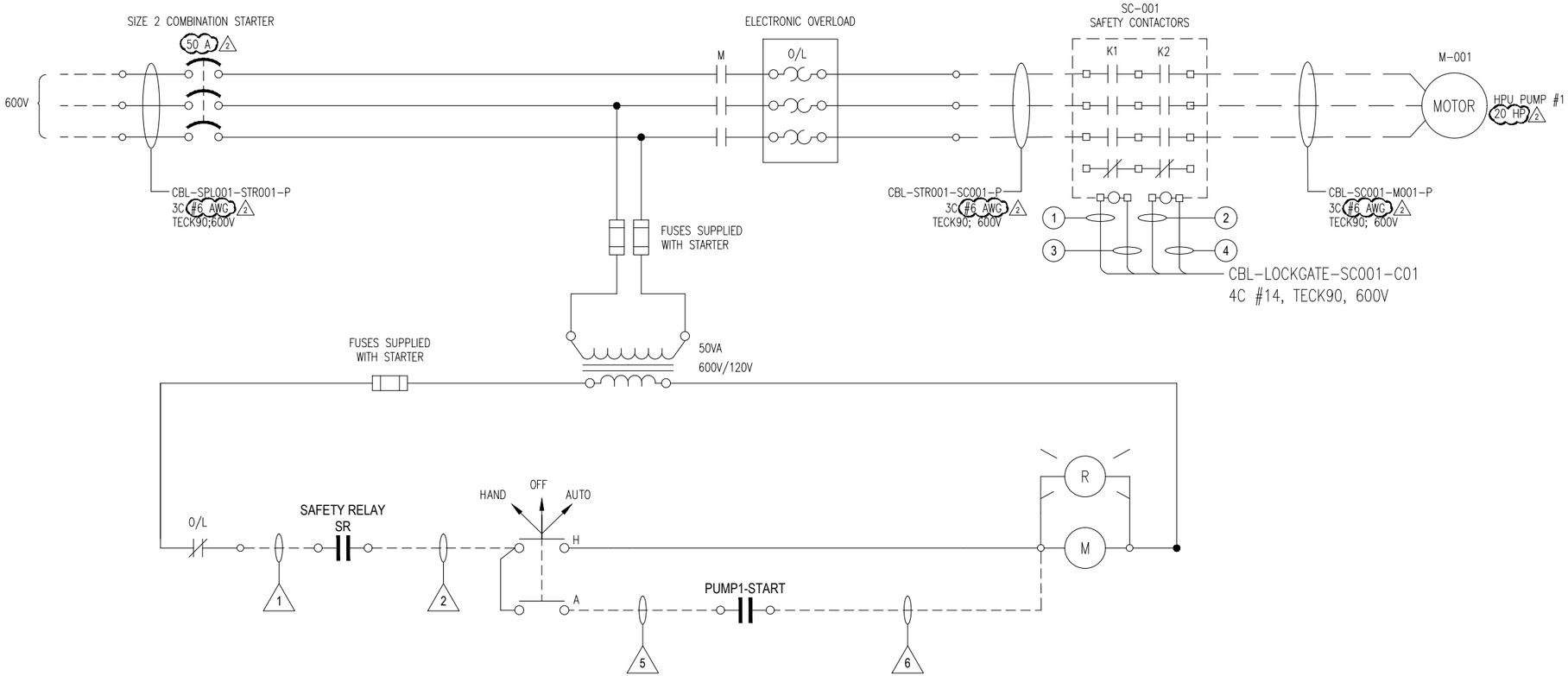

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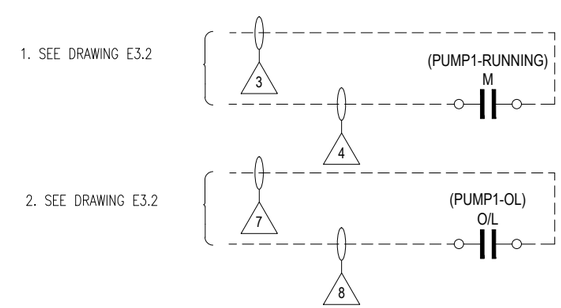

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LEGEND

X PART OF CBL-LOCKGATE-STR001-C01 SEE CABLE SCHEDULE ON DWG E1.10

X PART OF CBL-LOCKGATE-SC001-C01 SEE CABLE SCHEDULE ON DWG E1.10

No.	Description	Dwn By / Des.Par	Date
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TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION
-

CITY PROV.

Drawing title / Titre du dessin

LOCK GATE
HPU PUMP #1
SCHEMATIC DIAGRAM

Drawn by / Dessiné par	Designed by / Conçu par
DD	WF
Approved by / Approuvé par	Drawing Date / Date du dessin
-	2019-07-04
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
WF	E3.7
Project Number / Numéro du projet	Sheet / Feuille 1 of / du 1
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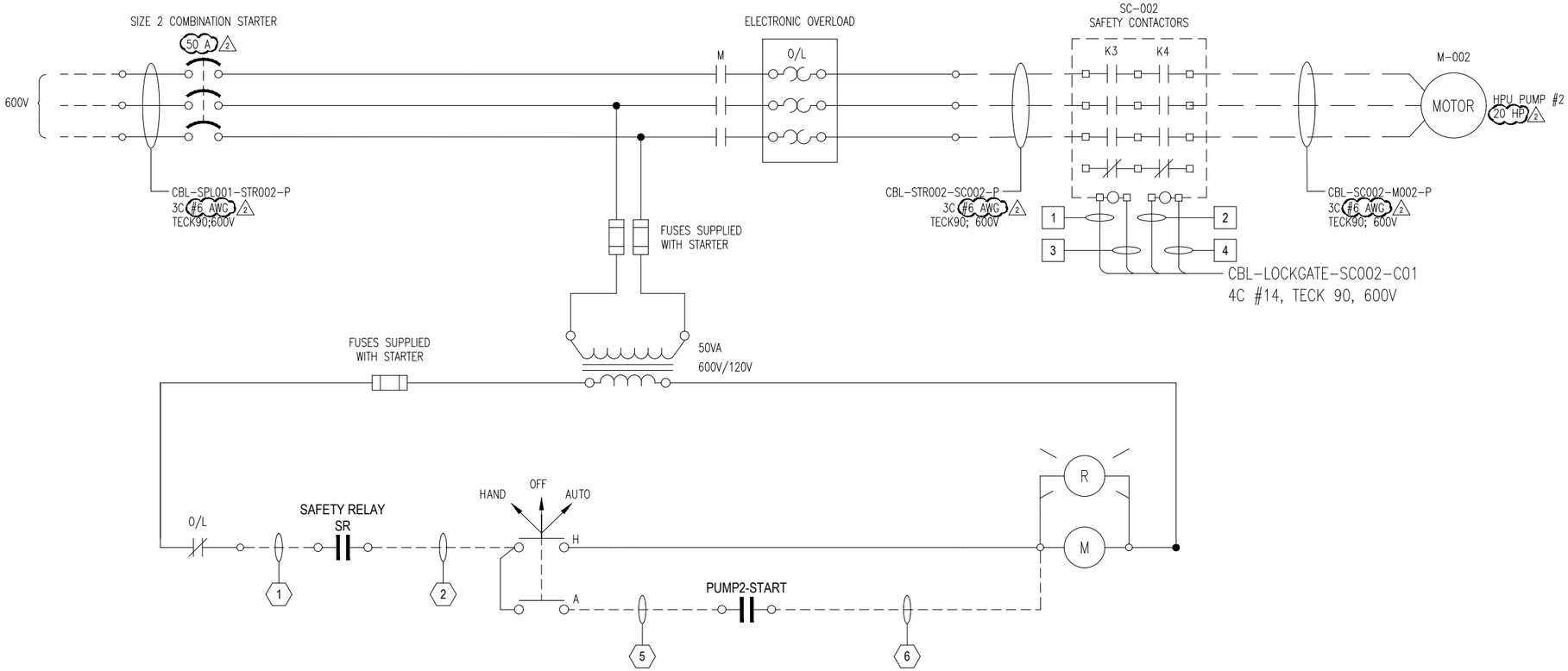
PWGSC-B1 (1000 x 707) PLOTTED BY: CAMF071412 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: E3.7 FILE NAME: 151-06165-11-E3.7 Rev2 Lock Gate HPU Pump#1 Schematic.dwg

NOT FOR CONSTRUCTION



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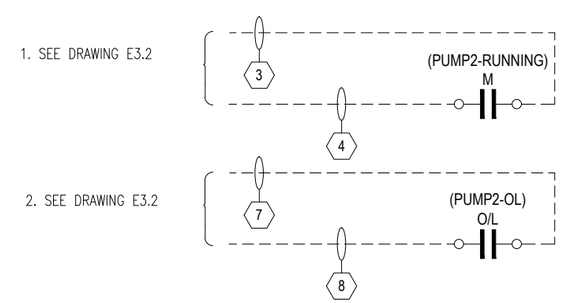

Public Services and Procurement Canada
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Direction de l'infrastructure de Parcs Canada
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WWW.WSPGROUP.COM

LEGEND

X PART OF CBL-LOCKGATE-STR002-C01 SEE CABLE SCHEDULE ON DWG E1.10

X PART OF CBL-LOCKGATE-SC002-C01 SEE CABLE SCHEDULE ON DWG E1.10

No.	Description	Dwn.By Des.Par	Date
2	ADDENDUM 3	MFF	2019-DEC-04
1	ISSUED FOR TENDER	RAN	2019-NOV-01
0	ISSUED FOR TENDER	MFF	2019-SEP-23
A	ISSUED FOR REVIEW	MFF	2019-AUG-27

Revision / Révision

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

A Detail number / Numéro du détail
B Location dwg. number / Numéro sur dessin

-

Project title / Titre du projet

TRENT-SEVERN WATERWAY
BOBCAYGEON SWING
BRIDGE REHABILITATION
-

CITY PROV.

Drawing title / Titre du dessin

LOCK GATE
HPU PUMP #2
SCHEMATIC DIAGRAM

Drawn by / Dessiné par	Designed by / Conçu par
DD	WF
Approved by / Approuvé par	Drawing Date / Date du dessin
-	2019-07-04
Project manager / Administrateur de projet	Drawing Number / Numéro du Dessin
WF	E3.8
Project Number / Numéro du projet	Sheet / Feuille 1 of / du 1
151-06165-11	

PWGSC-B1 (1000 x 707) PLOTTED BY: CAMF071412 DATE PLOTTED: Dec 04, 2019 LAYOUT NAME: E3.8 FILE NAME: 151-06165-11-E3.8 Rev2 Lock Gate HPU Pump#2 Schematic.dwg