

TRENT-SEVERN CANAL

KAWARTHA LAKES - BOUNDARY ROAD

SWING BRIDGE No. 44

LIST of DRAWINGS:

STRUCTURAL:

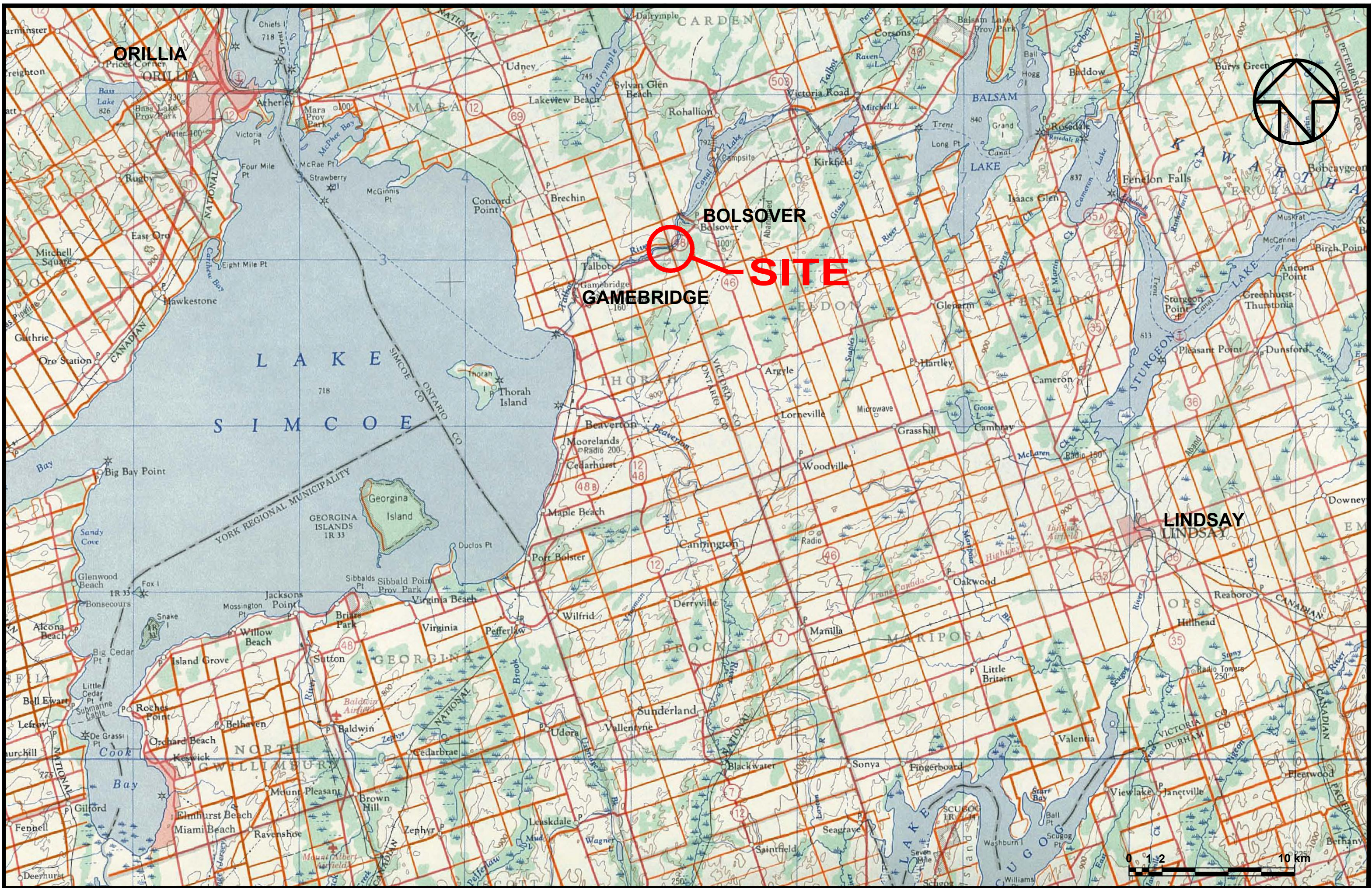
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- S3 - DETOUR
- S4 - SILTATION PREVENTION
- S5 - ROAD WORK c/w SIGNAGE and GUIDERAIL
- S6 - CONCRETE REPAIR OF ABUTMENTS and CENTRE PIER
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- 09 - STRUCTURAL STEEL FLOOR DETAILS
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- S11 - STRUCTURAL STEEL TRUSS END ELEVATION and DETAILS
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- S13 - STRUCTURAL STEEL and WOOD DECK, PLAN and DETAILS
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- B1 to B4
- C1 to C10
- D1 to D3
- E1 to E15
- F1 to F48

MECHANICAL:

- 200 - 01
- 201 - 01 to 06
- 202 - 01 to 03
- 203 - 01 to 26
- 204 - 01
- M-15
- M-16



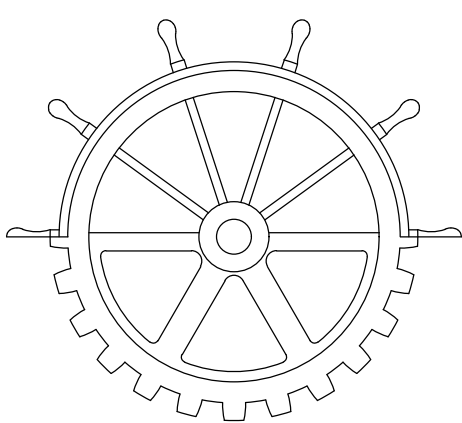
KEY PLAN



PARKS CANADA Project No. 341
WSP Project No. 15M-00675-01
JULY 15, 2022



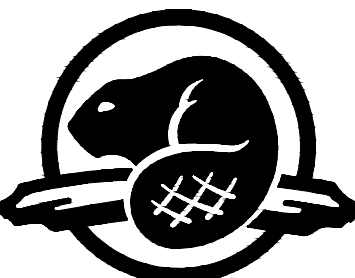
Public Services and Procurement Canada
Services publics et Approvisionnement Canada

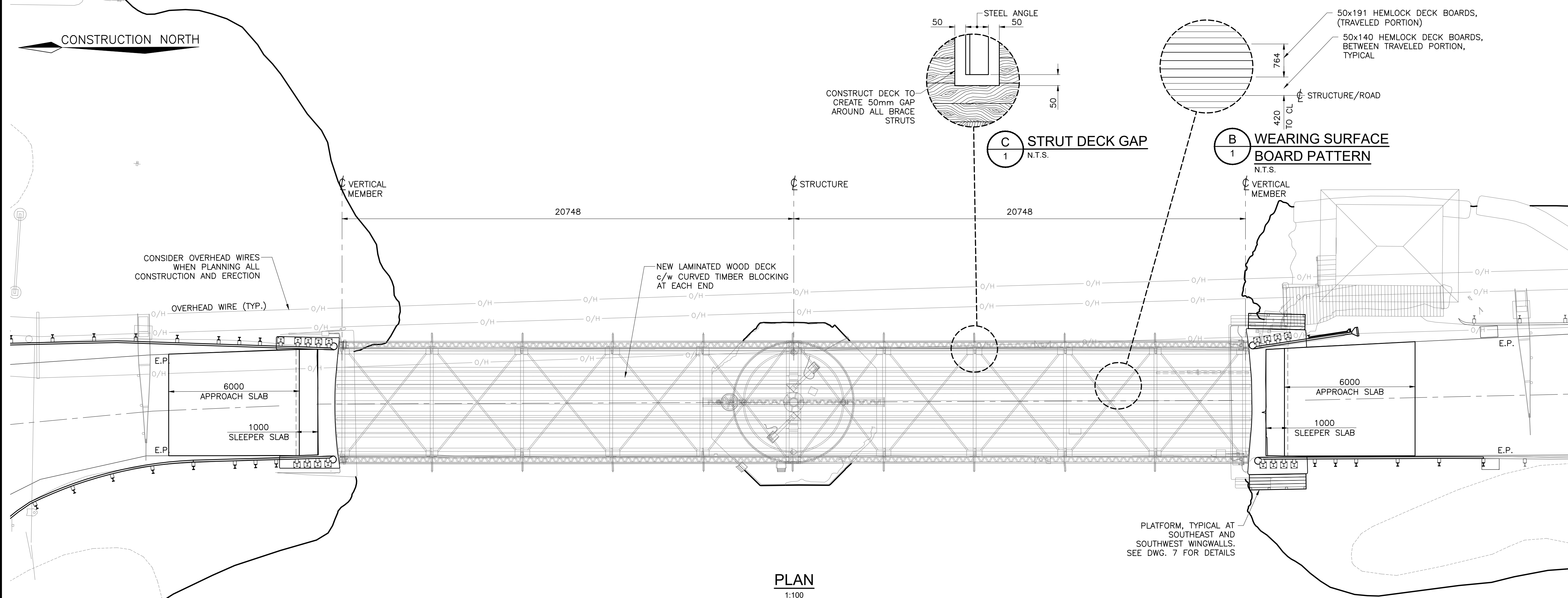


Ontario Region
Parks Canada Infrastructure Directorate
Heritage Canals and Engineering Works

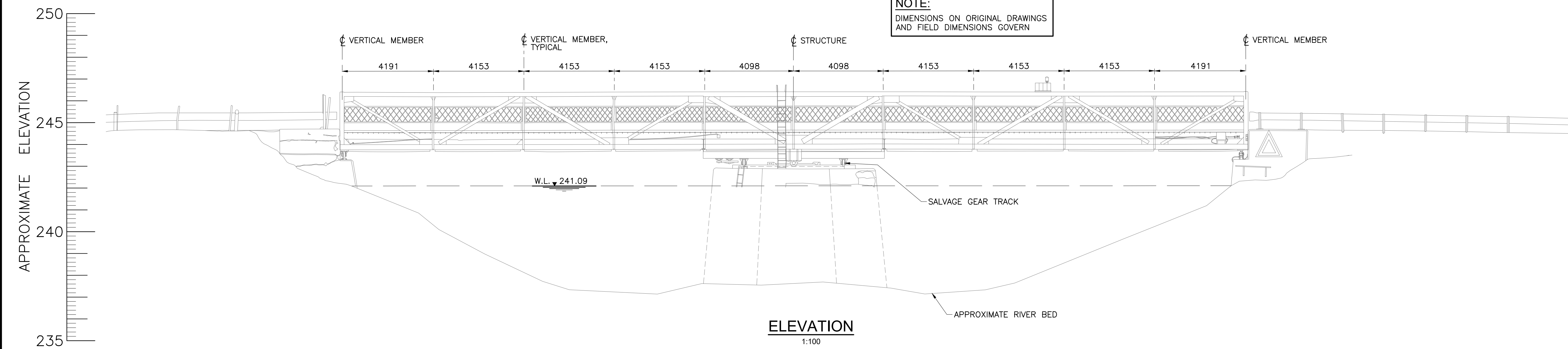


Parks Canada
Parcs Canada

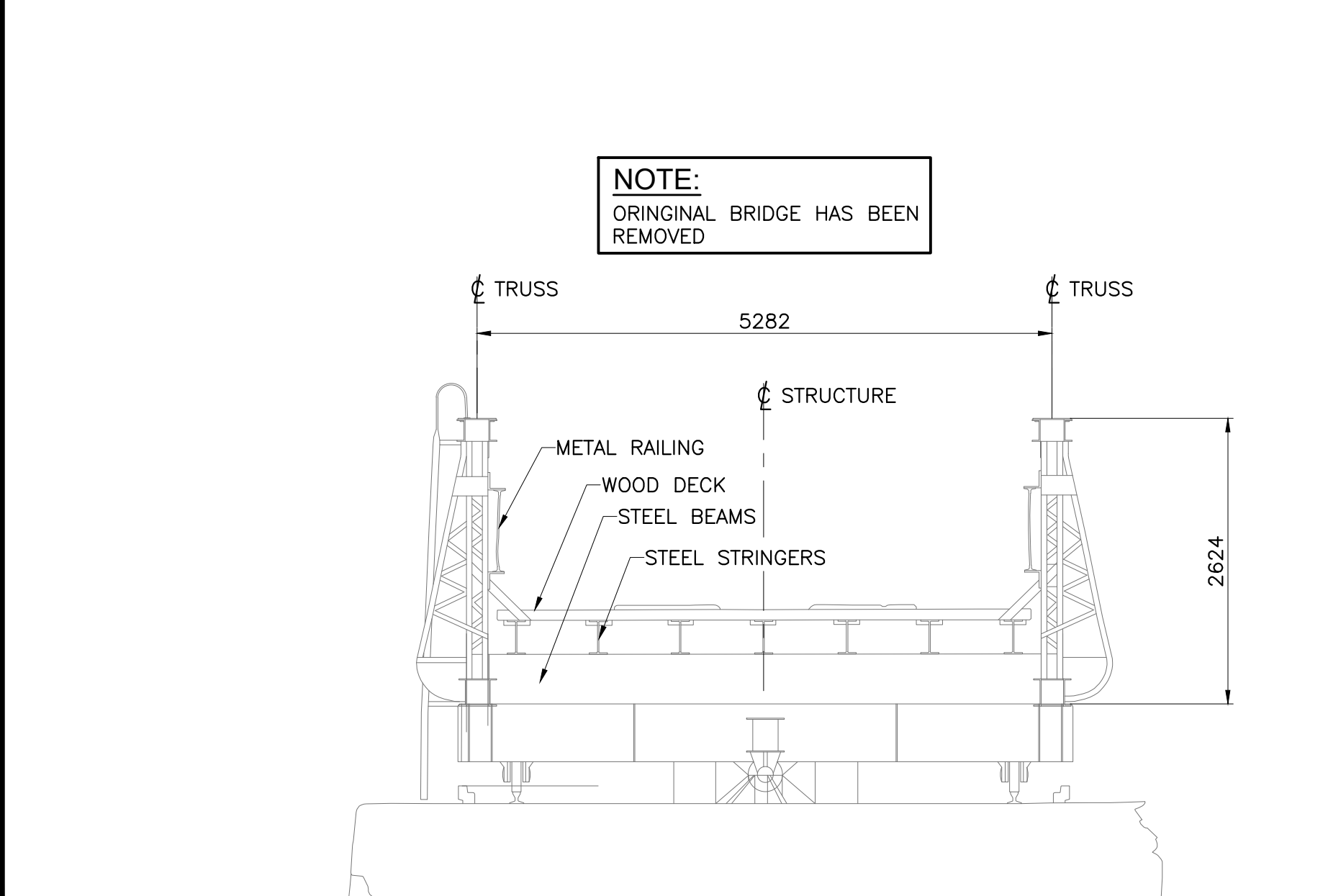




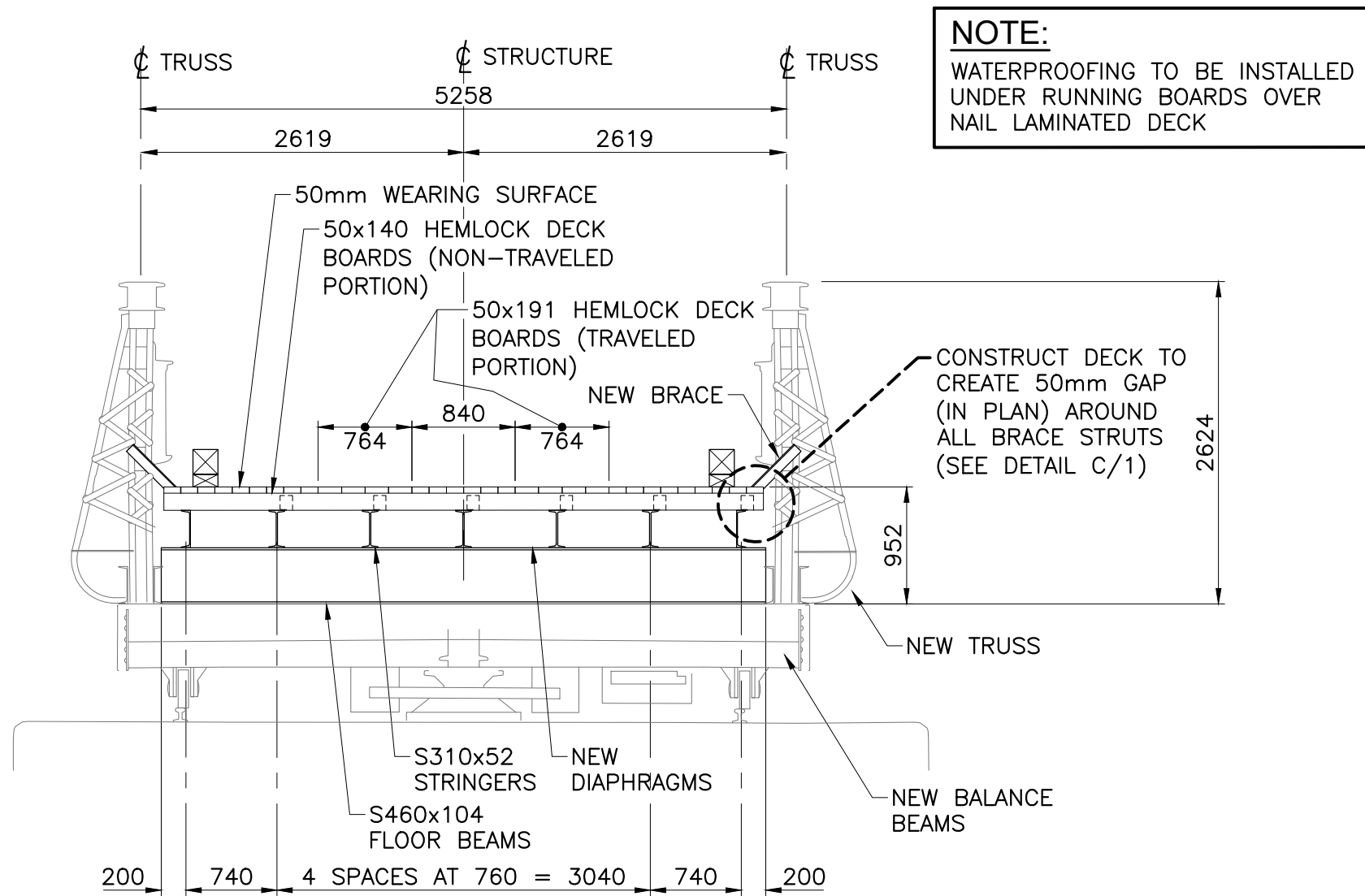
PLAN
1:100



ELEVATION
1:100



1
1
1:50



2
1
1:50

NOTES:

GENERAL:

- DO NOT SCALE DRAWINGS
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- THE LATEST VERSION OF ALL REFERENCED DOCUMENTS AND STANDARDS SHALL APPLY.
- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CHBDC AND OPSS STANDARDS.
- DIMENSIONS RELATING TO EXISTING CONSTRUCTION MUST BE FIELD VERIFIED BY CONTRACTOR BEFORE STARTING ANY WORK OR FABRICATION.
- THE CONTRACTOR SHALL EXAMINE THE SITE AND SATISFY HIMSELF OF THE ACTUAL CONDITIONS AND REQUIREMENTS OF THE WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR SAFETY ON THE JOB SITE AND DESIGN, INSTALLATION, AND SUPERVISION OF ALL TEMPORARY BRACING, LOADS, AND SUPPORTS.
- FEATURES OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME CHARACTER AS SHOWN FOR SIMILAR CONDITIONS.
- INSTALL ALL NECESSARY SCAFFOLDING, HOARDING, ETC. TO COMPLETE THE WORK, ALL IN ACCORDANCE WITH MINISTRY OF LABOUR REQUIREMENTS.
- ACCESS, WORK AND STORAGE AREAS SHALL BE LIMITED TO THOSE AREAS DELINEATED ON THE DRAWINGS.
- PROVIDE PROTECTION TO FEATURES TO REMAIN TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE.
- MINIMIZE DUST AND NOISE.
- MAINTAIN WORK SITE IN A NEAT AND ORDERLY MANNER TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE.
- ALL DEBRIS SHALL BE REMOVED FROM THE WORK SITE ON A DAILY BASIS THROUGHOUT THE DURATION OF THE PROJECT.
- ALL DISPOSALS SHALL BE IN ACCORDANCE WITH THE RELEVANT SECTIONS OF THE SPECIFICATIONS.
- REINSTATE AND MAKE GOOD ALL DISRUPTED AREAS TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE AFTER COMPLETION OF THE WORK.
- DESIGN LOAD: CHBDC-CL625 TRUCK.
- BASED ON PAST EXPERIENCE THE WATER ELEVATIONS HAVE GENERALLY BEEN APPROXIMATELY 240.7 AND FLUCTUATED BETWEEN 240.4± AND 241.1 BETWEEN THE MONTHS OF OCTOBER AND MAY. REVIEW AND ASSESS WATER CHARTS ON DRAWING S4.

STRUCTURAL STEEL:

- STEEL SHALL CONFORM TO CAN/CSA G40.20-04/G40.21-13 (R2018) GRADE 350W AND GRADE 350 WT WHERE SPECIFIED.
- STEEL IS DESIGNED TO AND SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE CHBDC SE-19 AND CISC "CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL" AND CAN/CSA S16.1 WHERE CONFLICTS EXIST CHBDC SHALL GOVERN.
- TENSION CONTROL BOLTS WITH HEADS RESEMBLING RIVETS CONFORMING TO ASTM F1852 SHALL BE USED FOR ALL VISIBLE CONNECTIONS IN HIDDEN AREAS OF THE STRINGER CONNECTIONS. BOLTS SHALL CONFORM TO ASTM STANDARD A325 OR A325M, AND SHALL MATCH THE SIZE OF THE RIVETS SPECIFIED OR SHALL BE AS SHOWN. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.
- WELDING SHALL BE MADE WITH E480xx ELECTRODES IN ACCORDANCE WITH CSA W59-18, AND SHALL BE PERFORMED BY A WELDER QUALIFIED UNDER CSA W47.1-03. SURFACES TO BE WELDED SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATERIAL.
- THE FABRICATOR SHALL BE CERTIFIED TO THE REQUIREMENTS OF CSA STANDARD W47.1 (DIVISION 1 or 2)
- ALL NEW STRUCTURAL STEEL COMPONENTS DESIGNATED FOR GALVANIZING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH CAN/CSA G164-18
- UNLESS OTHERWISE NOTED, THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

MATERIAL THICKNESS OF THICKER PART JOINED (mm)	MINIMUM SIZE OF FILLET WELD (mm)
TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12
- THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING HANDLING, TRANSPORTATION AND ERECTION AND UNTIL THE STRUCTURAL STEEL IS IN ITS FINAL LOCATION WITH ALL PERTINENT BRACING, CONNECTIONS AND SUPPORTS IN PLACE AND THE GOOD OPERATION OF THE BRIDGE IS CONFIRMED.

SCOPE OF WORK:

- INVENTORY SALVAGED PARTS.
- COMPLETE CONCRETE REPAIRS ON PIERS AND ABUTMENTS.
- BUILD NEW REPLICA BRIDGE, SALVAGING PARTS DESIGNATED FOR SALVAGE ON DRAWINGS 8, 9, 13 15 & 18. REPLACE ALL OTHERS.
- REPLACE HYDRAULICS AND ELECTRICAL SYSTEMS.
- PAINT ALL STEEL IN STRICT CONFORMANCE WITH SPECIFICATION.
- INSTALL NEW LAMINATED WOOD DECK, WATERPROOFING, AND RUNNING BOARDS.
- COMMISSION BRIDGE AND MAKE ADJUSTMENTS SUCH THAT BRIDGE OPERATES SMOOTHLY AND AS INTENDED IN THE SPECIFICATION.
- REBUILD ROADWAY, FULL DEPTH.

NOTE:

- THE ABOVE IS NOT INTENDED TO BE AN EXHAUSTIVE LIST OF ALL ITEMS REQUIRED TO COMPLETE THE WORK, NOR IS IT INTENDED TO BE A SEQUENCE OF WORK.
- IT IS INTENDED THAT THE WORK OF THIS CONTRACT WILL BE DONE PRIMARILY WITH THE BRIDGE IN THE OPEN POSITION IN ORDER TO FACILITATE HOUSING AND HEATING, ACCESS TO THE SITE, ENVIRONMENTAL IMPACT CONTROL, ETC.

NOTE:

THE LOCATIONS OF UTILITES ARE APPROXIMATE ONLY AND THE EXACT LOCATIONS SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR SHALL PROVE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION FROM DAMAGE DURING CONSTRUCTION.

BENCHMARKS:

B.M. No.1

SWING BRIDGE OVER TRENT CANAL 500± EAST LOCK No 37, TABLET IN TOP OF SOUTH ABUTMENT - TABLET No U3197.

B.M. No.2

CONCRETE CULVERT UNDER HWY 48, 0.4 KM WEST OF THE JCT OF HWY 48, AND ON EAST SIDE IN BOLSOVER, 2.0 KM EAST OF ELDON-THORAH TOWN LINE RD, AND 18.4m SOUTH OF CENTRELINE OF HWY 48. TABLET IS SET VERTICALLY IN TOP OF CULVERT, 1.05m WEST OF EAST FACE, AND 94cm NORTH OF SOUTH END OF CULVERT. (ELEV. 245.786m)

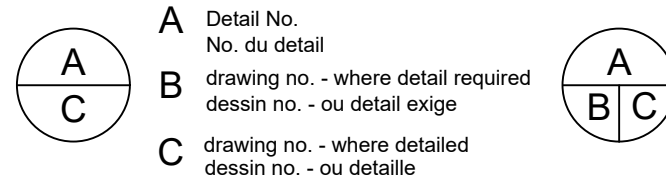
B.M. No.3

STEEL ROD WITH BRASS CAP BENCH MARK ON SOUTH SIDE OF HWY 48, AND ON EAST SIDE OF HWY 46, 0.6 KM EAST OF THE JCT OF HWY 48 AND KING ST IN BOLSOVER, AND 84.5m SOUTH OF CENTRELINE OF HWY 48. BENCH MARK IS SET 21.6m EAST OF CENTRELINE OF HWY 46, 17.2m S.E. OF A METAL LIGHT STANDARD, 83cm WEST OF EAST RIGHT-OF-WAY FENCE OF HWY 46, AND IS MARKED BY A STEEL MARKER, 50cm NORTH OF BENCH MARK. (ELEV. 251.958m)



04		
03		
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01	ISSUED FOR TENDER	07/15/2022
revision		date

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



project title
titre du projet
KAWARTHA LAKES Ontario

BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin

GENERAL ARRANGEMENT

drawn by
dessiné par
G. MOTA / P.C. MASON

designed by
conçu par
D.A. HUCTWITH

approved by
approuvé par

bid
offre

project manager
administrateur
de projets

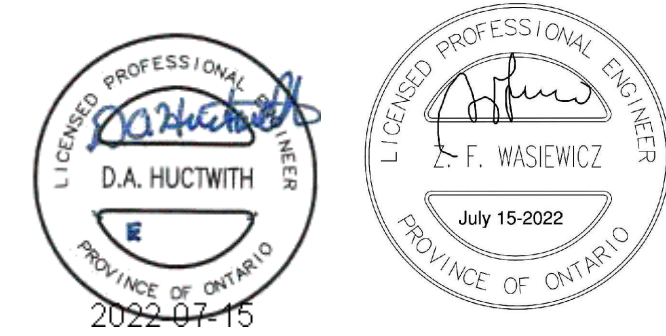
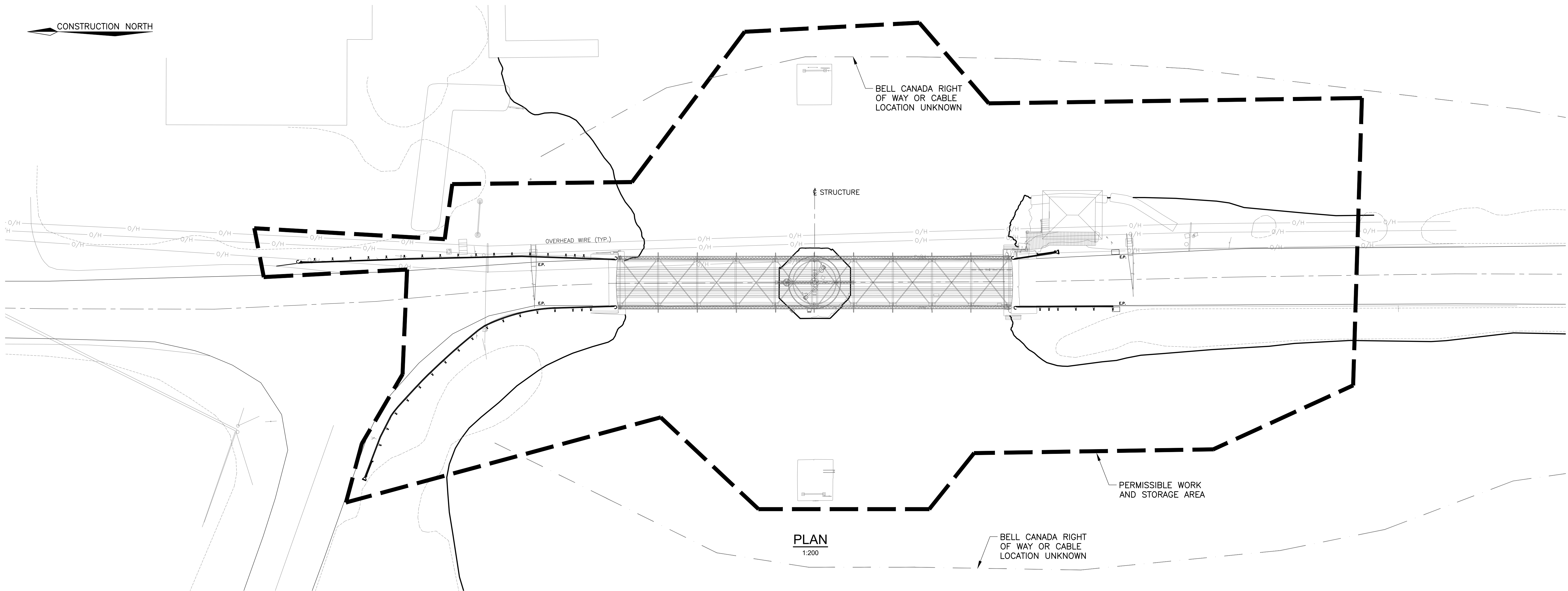
project date
date du projet
2022-07-15

project no.
no. du projet
341

drawing no.
dessiné no.
S1

NOTES:

- THE GROUNDS OF THE SITE ARE PART OF A HERITAGE SITE AND ARE TO BE DISTURBED AS LITTLE AS POSSIBLE.
- LIMIT AREAS WHERE THE SURFACE OF THE EARTH IS DISTURBED.
- IF ANY ARTIFACT IS UNCOVERED, STOP WORK IN THE AREA AND CONTACT DEPARTMENTAL REPRESENTATIVE.
- SECURE THE SITE WHENEVER WORKERS ARE NOT PRESENT ON THE SITE.
- VISIT THE SITE, OR ARRANGE FOR THE SITE TO BE CHECKED AT A MINIMUM OF ONE-WEEK INTERVALS, OR MORE FREQUENTLY AS APPROPRIATE BASED ON CONDITIONS OF THE SITE.
- BASED ON PAST EXPERIENCE THE WATER ELEVATIONS HAVE GENERALLY BEEN APPROXIMATELY 240.7 AND FLUCTUATED BETWEEN 240.4± AND 241.1 BETWEEN THE MONTHS OF OCTOBER AND MAY. REVIEW AND ASSESS WATER CHARTS ON DRAWING S4.



04		
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01	ISSUED FOR TENDER	07/15/2022
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A	Detail No.	A
B	No. du detail	B
C	drawing no. - where detail required	C
	dessin no. - ou detail exige	
	drawing no. - where detailed	
	dessin no. - ou detaille	

project title
titre du projet
KAWARTHA LAKES Ontario
**BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY**

drawing title
titre du dessin
**PERMISSIBLE WORK
and STORAGE AREA**

drawn by
dessine par
G. MOTA / P.C. MASON

designed by
conc par
D.A. HUCTWITH

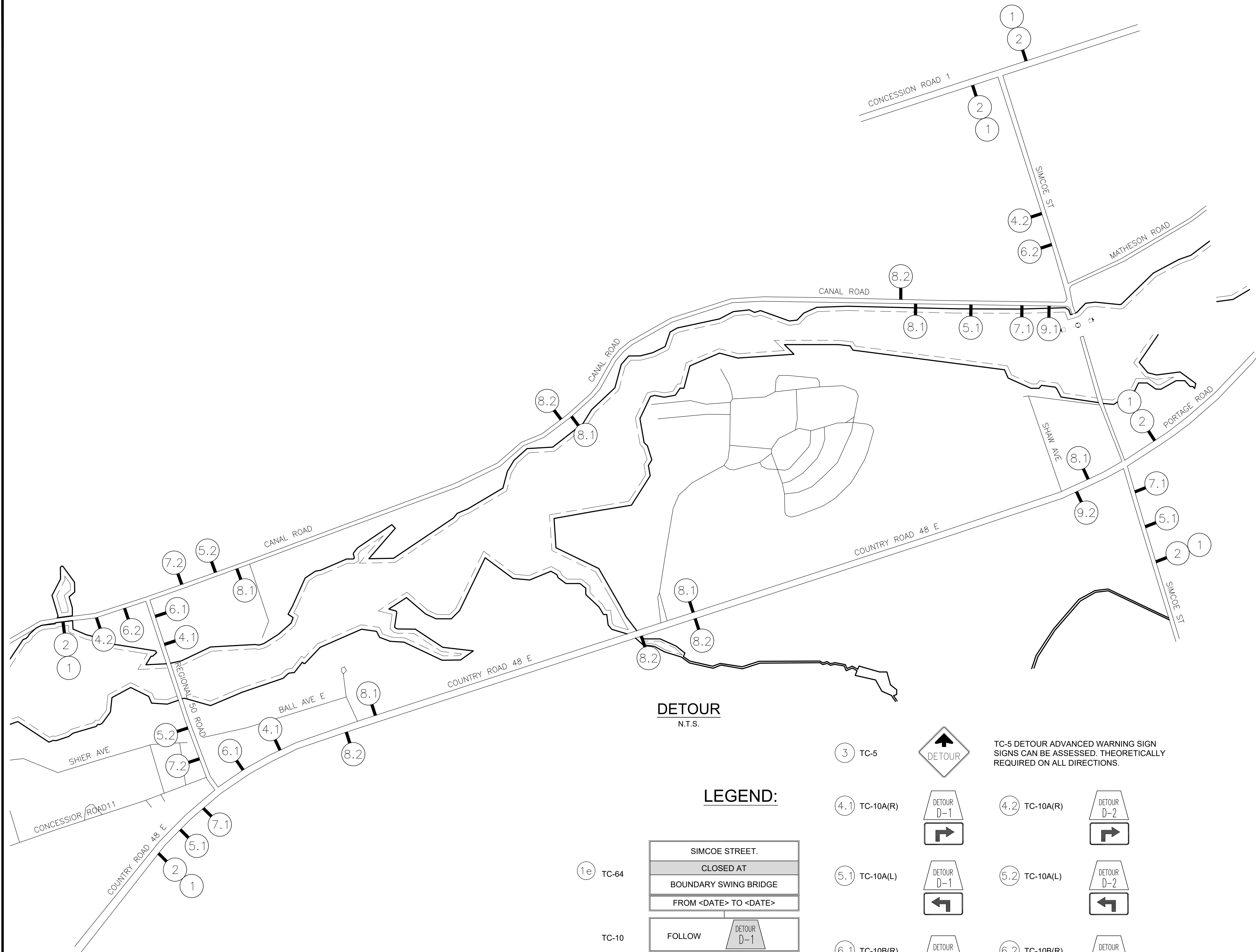
approved by
approuve par

bid
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de projets

project date
date du projet
2022-07-15

project no.
no. du projet
341

drawing no.
dessine no.
S2



DETOUR
N.T.S.

LEGEND:

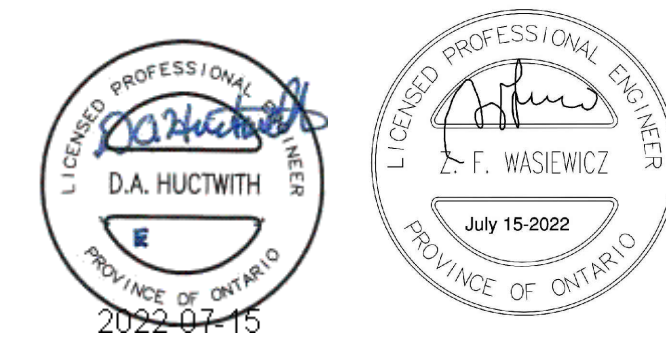
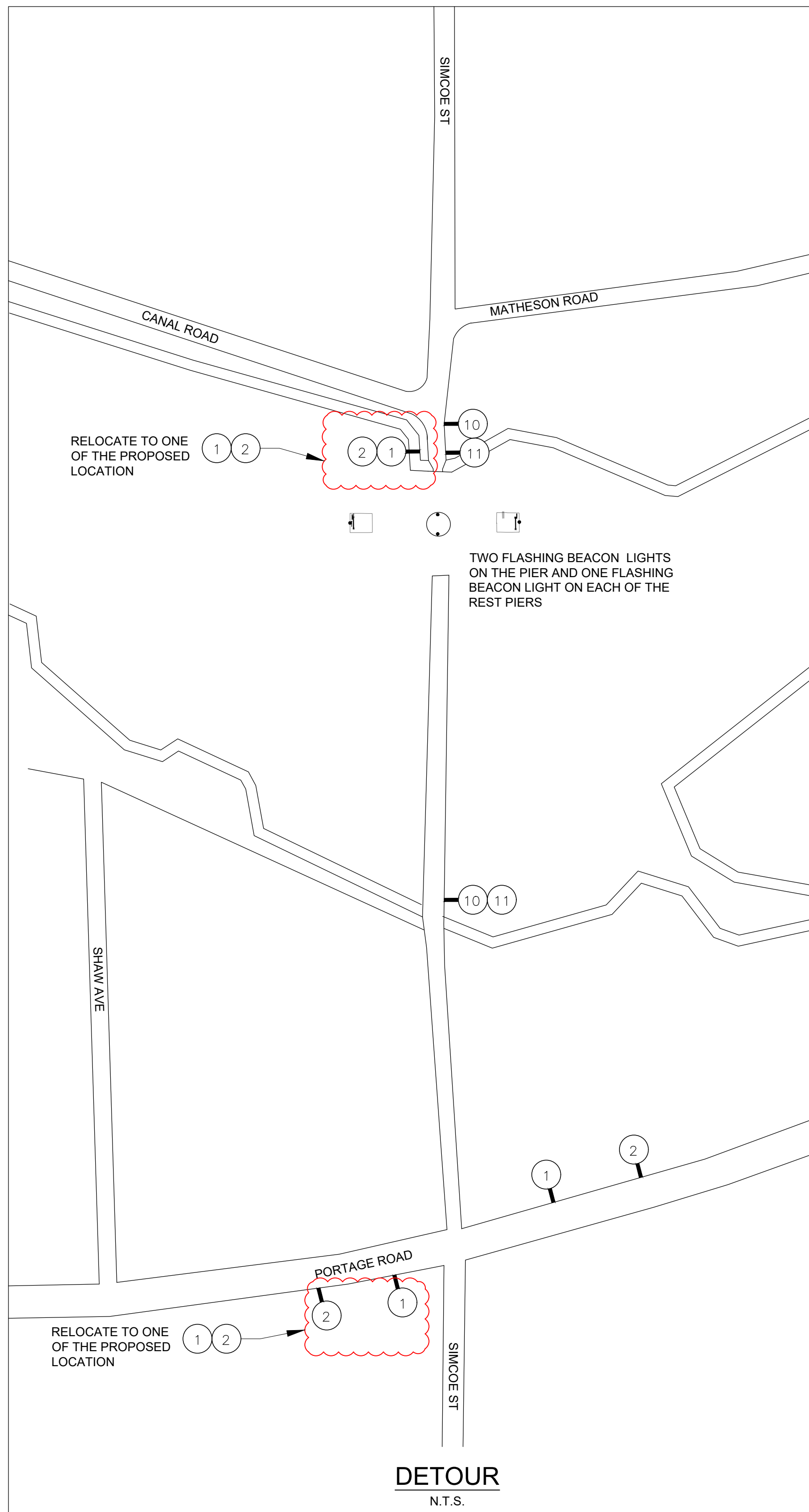
		SIMCOE STREET. CLOSED AT BOUNDARY SWING BRIDGE FROM <DATE> TO <DATE>
1e TC-64		
TC-10	FOLLOW	DETOUR D-1
TC-10	FOLLOW	DETOUR D-2
1e TC-64		TO BE CLOSED AT (ADVANCE NOTICE TAB)
2f TC-64F		RUE SIMCOE. FERMÉ À PONT BATTANT DE BOUNDARY DE <DATE> À <DATE>
TC-10F	SUIVRE	DETOUR D-1
TC-10F	SUIVRE	DETOUR D-2
2f TC-10F		SERA FERMÉ À (ADVANCE NOTICE TAB)

3 TC-5	DETOUR	TC-5 DETOUR ADVANCED WARNING SIGN SIGNS CAN BE ASSESSED. THEORETICALLY REQUIRED ON ALL DIRECTIONS.
4.1 TC-10A(R)	DETOUR D-1	
4.2 TC-10A(R)	DETOUR D-2	
5.1 TC-10A(L)	DETOUR D-1	
5.2 TC-10A(L)	DETOUR D-2	
6.1 TC-10B(R)	DETOUR D-1	
6.2 TC-10B(R)	DETOUR D-2	
7.1 TC-10B(L)	DETOUR D-1	
7.2 TC-10B(L)	DETOUR D-2	
8.1 TC-10C	DETOUR D-1	
8.2 TC-10C	DETOUR D-2	
9.1 TC-10D	DETOUR D-1	ENDS
9.2 TC-10D	DETOUR D-2	ENDS

10	FLASHING BEACON TC-7 1200X1200 TC-7A 250X1200	ROAD CLOSED
11	TCB	RB-92 ROAD CLOSED
	TEMPORARY CONCRETE BARRIERS	

NOTES:

- BARRIERS TO BE INSTALLED ACROSS ROAD AT BOTH ENDS OF JOB SITE.
- ALL DELINEATORS AND SIGNAGE/FLAGGING SHALL BE PROVIDED BY THE CONTRACTOR IN ACCOROADANCE WITH THE ONTARIO TRAFFIC MANUAL, BOOK 7, TEMPORARY CONDITIONS. DETOUR SIGNING, ADVISORY SPEED AND LANE CLOSURE SIGNS (INCLUDING ADVANCE WARNING or CLOSURE SIGNS) SHALL BE PROVIDED, INSTALLED, MAINTAINED AND REMOVED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL ENSURE THAT PEDESTRIAN ACCESS WITHIN THE PROJECT LIMITS IS MONITORED AT ALL TIMES



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

project title
titre du projet
KAWARTHA LAKES Ontario
**BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY**

drawing title
titre du dessin
DETOUR

drawn by
dessiné par
G. MOTA / P.C. MASON

designed by
conc par
D.A. HUCTWITH

approved by
approuvé par

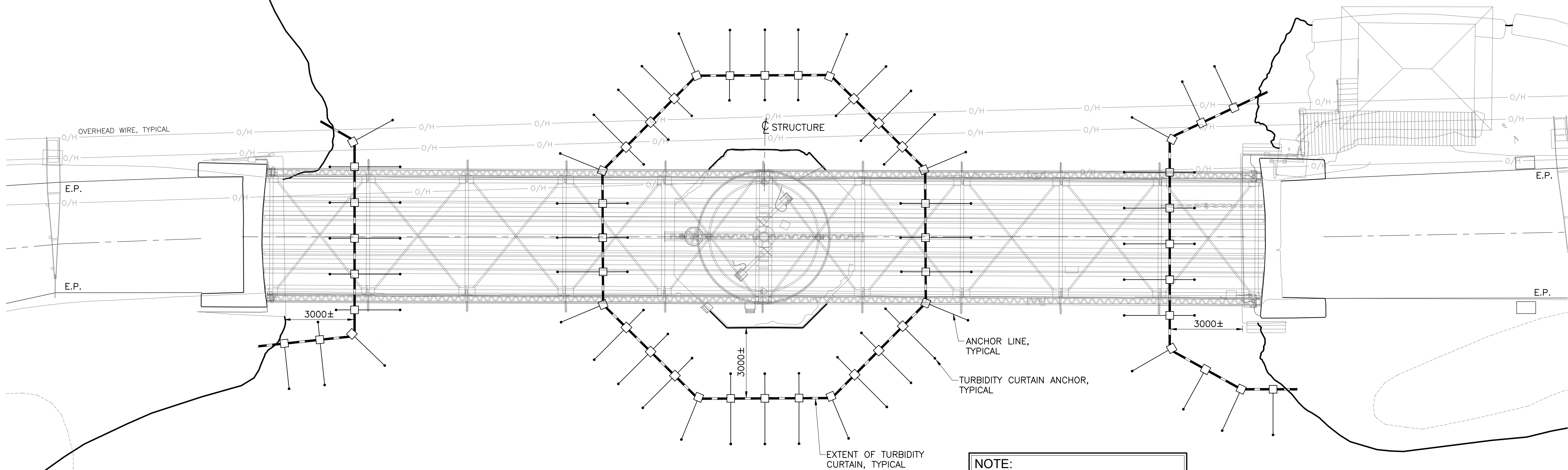
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administrateur
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date du projet
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drawing no.
dessiné no.
S3

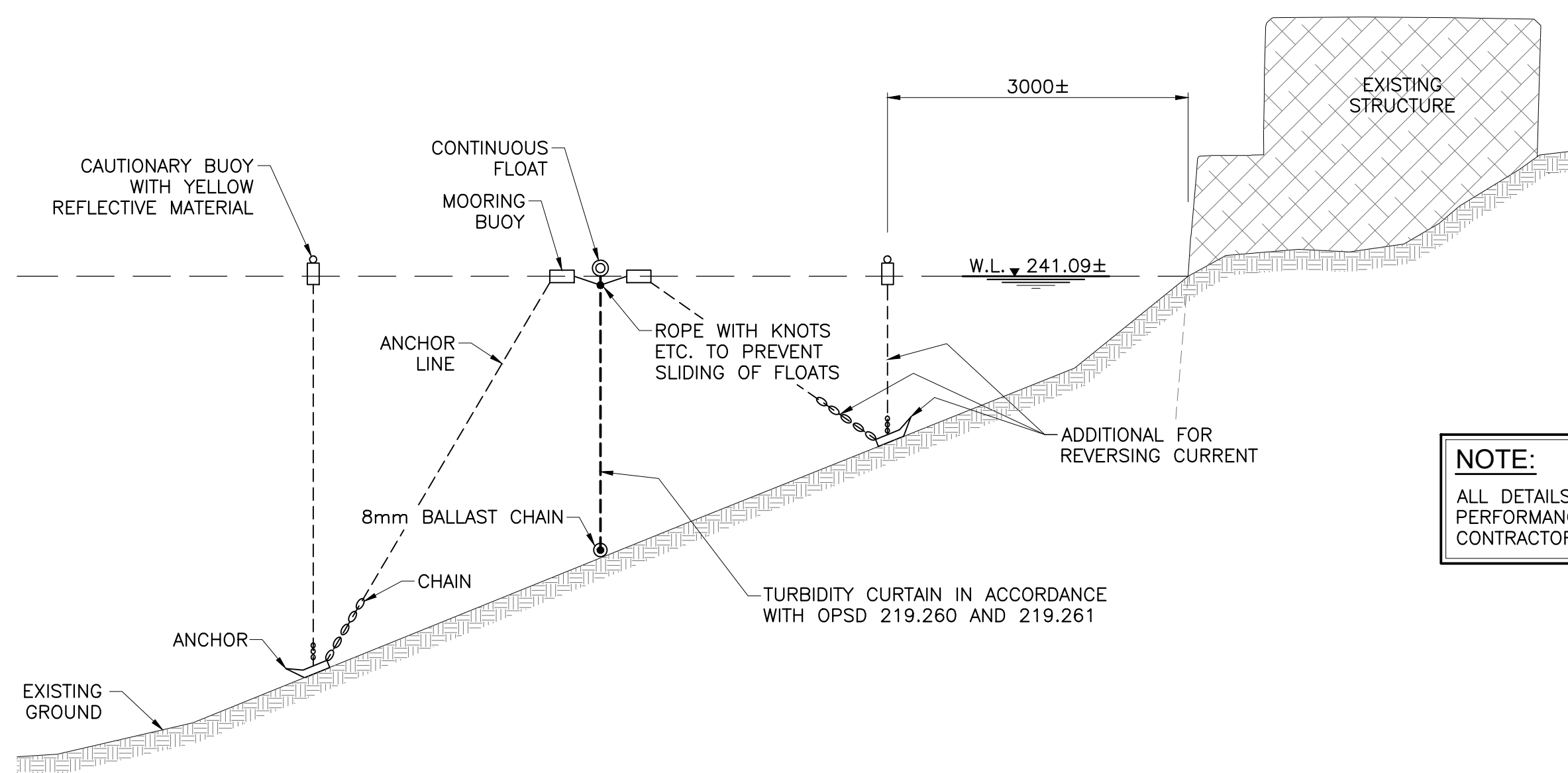
CONSTRUCTION NORTH



PLAN
1:100

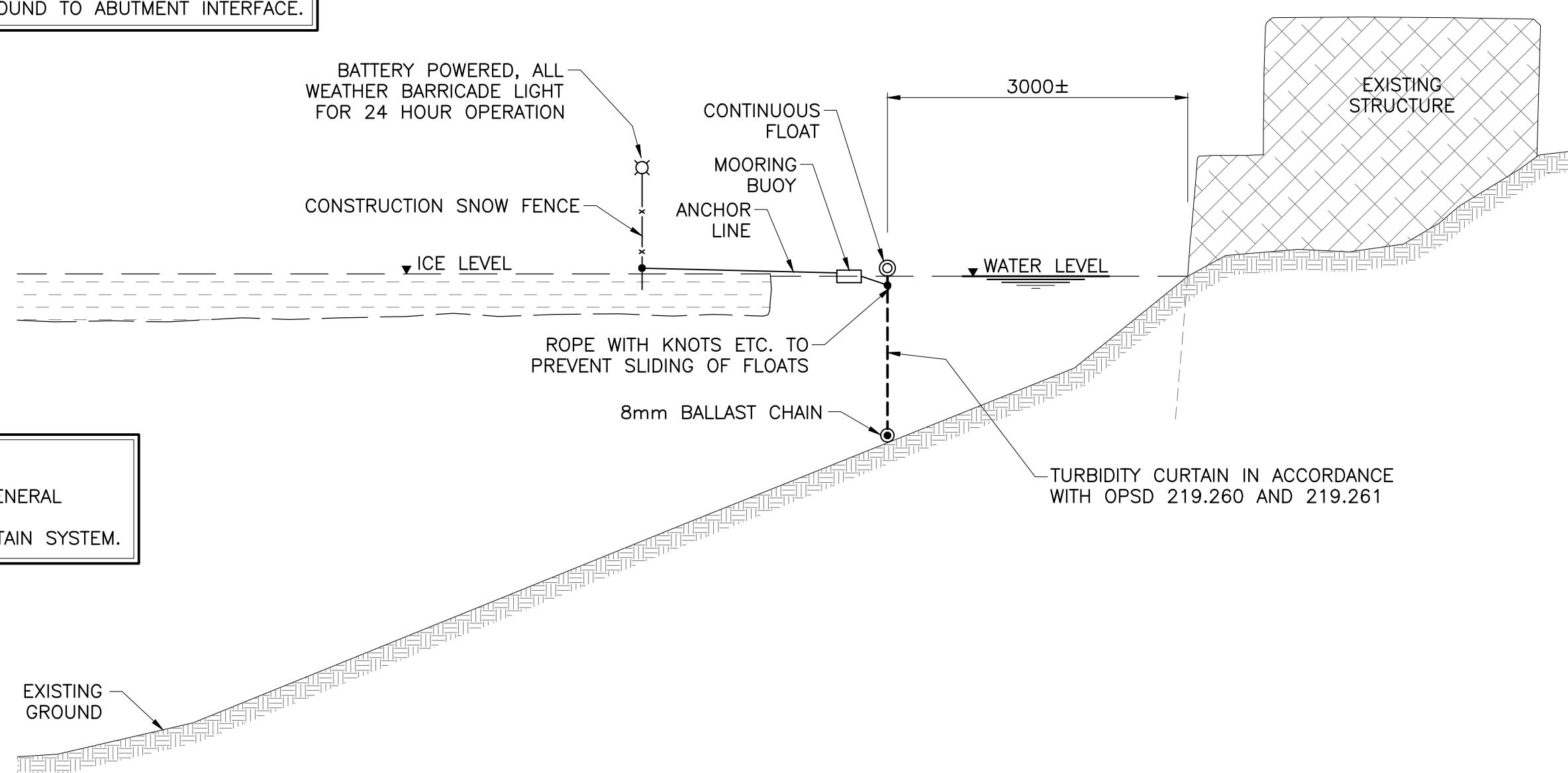
NOTE:
ADJUST TURBIDITY CURTAIN AND ANCHORS
AND PROVIDE COUNTER ANCHORS TO RESIST
ANY CURRENTS AND MAINTAIN POSITION.

NOTE:
WATER OR ICE LEVEL CAN ABOVE OR
BELOW THE GROUND TO ABUTMENT INTERFACE.



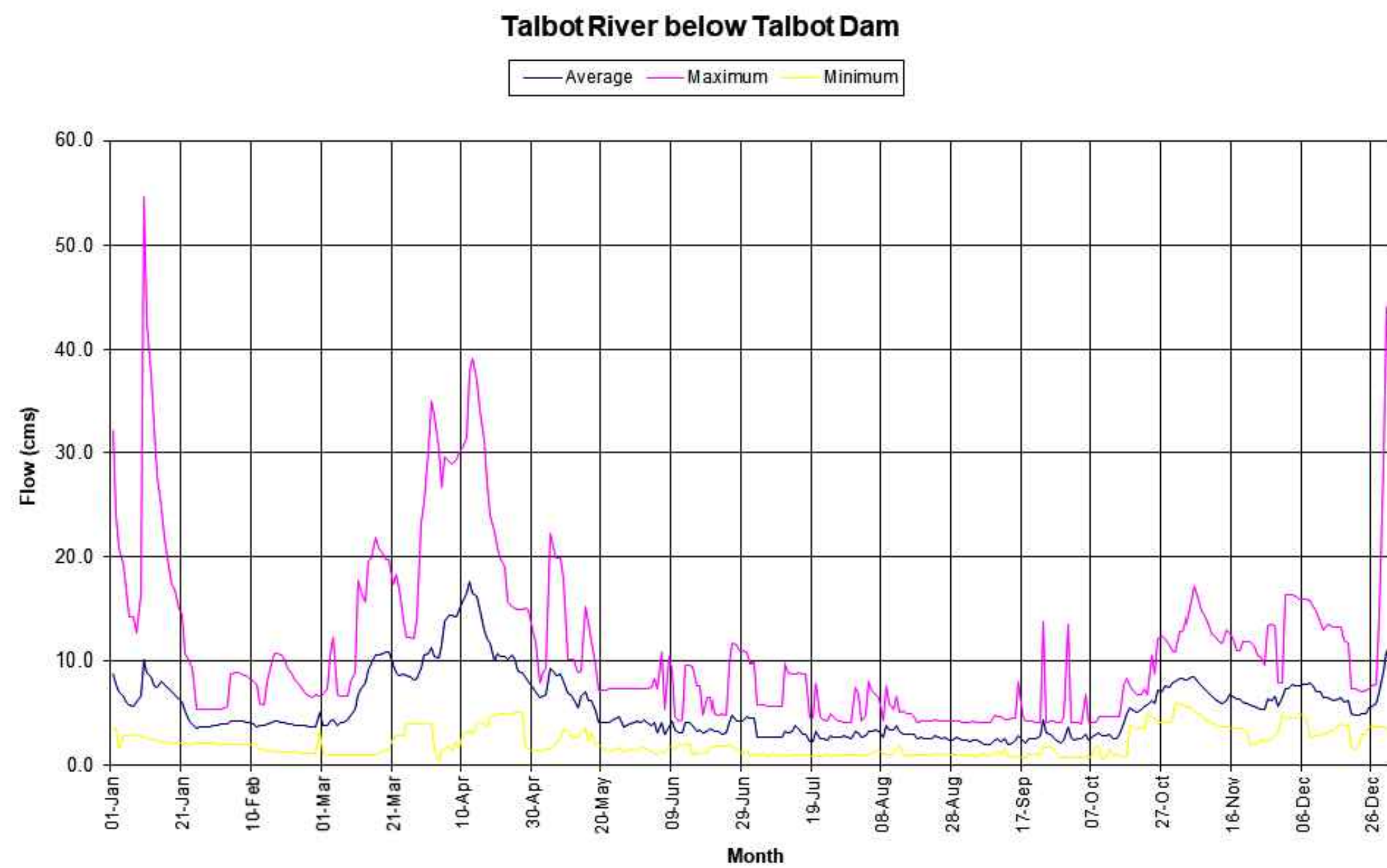
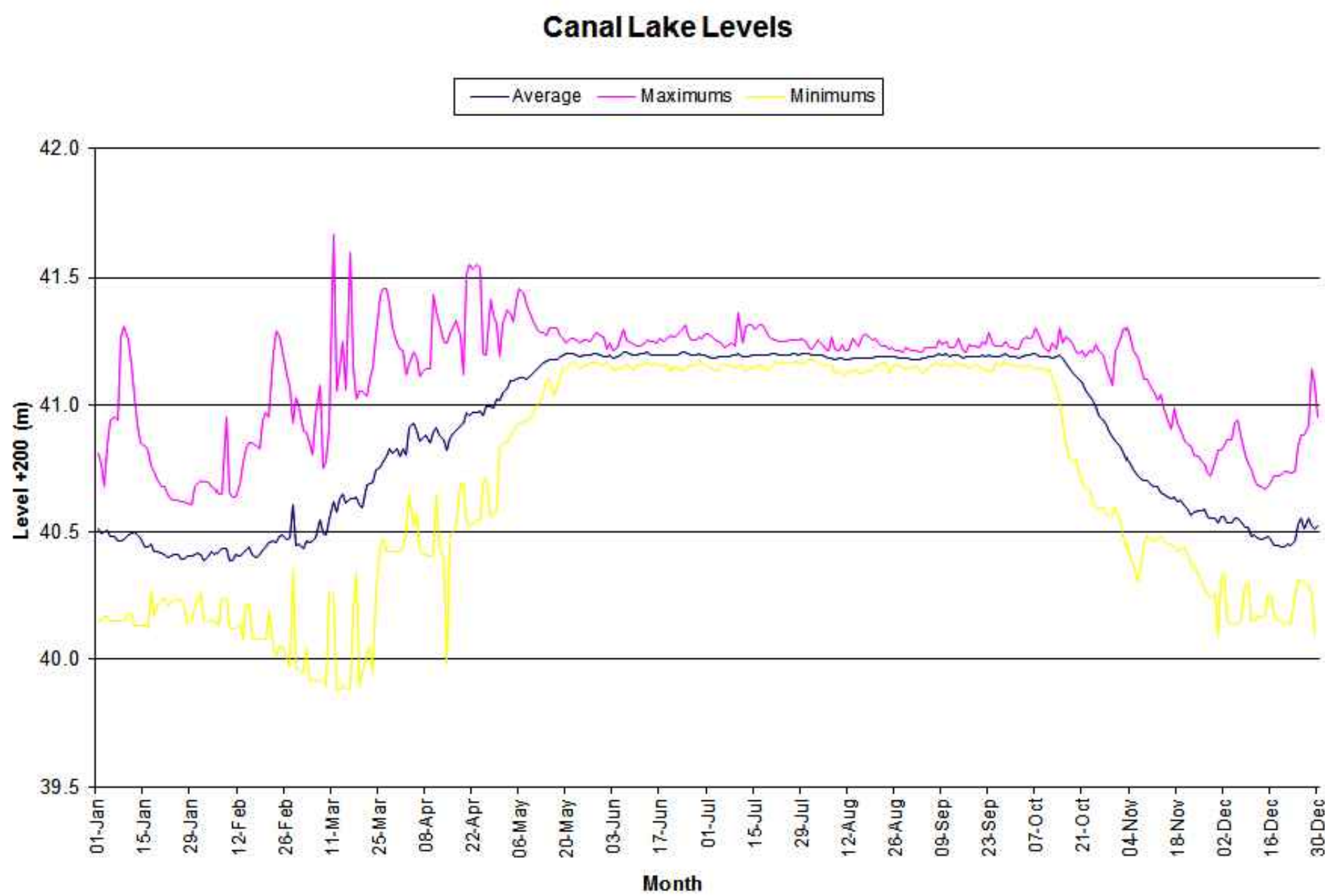
TYPICAL TURBIDITY CURTAIN ANCHORAGE SYSTEM
USING MARINE ANCHORS

1:50



TYPICAL TURBIDITY CURTAIN ANCHORAGE SYSTEM
FOR ICE CONDITIONS

1:50



GENERAL NOTES:

- TURBIDITY CURTAINS UTILIZED SHOULD BE U.S. DEPARTMENT OF TRANSPORTATION, U.S. D.O.T. TYPE II MARINE GRADE TURBIDITY CURTAINS.
- TURBIDITY CURTAINS TO BE IN ACCORDANCE WITH OPSS 805.
- MINIMUM DEPTH OF TURBIDITY CURTAIN TO BE 1.8m.
- FLOTATION DEVICES SHALL BE CLEAN STEEL DRUMS, STYROFOAM OR OTHER SUITABLE MATERIAL AND OF SUFFICIENT SIZE AND SPACING TO PROVIDE CONTINUOUS SUPPORT TO THE NETTING AT THE WATER SURFACE.
- ANCHORS AT BASE OF CURTAINS SHALL BE OF SUFFICIENT SIZE AND SPACING TO PROVIDE CONTINUOUS CONTACT OF TURBIDITY CURTAIN WITH RIVER BOTTOM.
- FLOTATION AND ANCHOR DEVICES TO FOLLOW GUIDELINES IN M.T.O. DRAINAGE MANAGEMENT MANUAL, PARTS 1 and 2, CHAPTER 6.
- IN-RIVER WORK SHALL BE PROHIBITED BETWEEN MARCH 1 AND JULY 15, ASSESS AFFECTS OF CURRENT AND ADJUST TO MAINTAIN PROTECTION.

**SCHEME FOR LAKE SILTATION PROTECTION
DURING CONSTRUCTION:**

- CAREFULLY REMOVE DETERIORATED CONCRETE AND ASSOCIATED MATERIALS. NO CONCRETE OR OTHER DETERIORATED MATERIAL IS TO BE ALLOWED TO ENTER WATER. PROVIDE NECESSARY PRECAUTIONS AND CATCHMENTS SYSTEM TO ENSURE NO CONTAMINATION OF WATER ENVIRONMENT.
- INSTALL TURBIDITY CURTAINS c/w FLOATS AND ANCHORS TO THE EXTREMITIES INDICATED. (2m MIN. CLEAR OF ALL IN-WATER COMPLETED WORK) MAINTAIN CURTAIN THROUGHOUT THE DURATION OF THE WORK TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE. DEPLOY TURBIDITY CURTAINS IN A MANNER (i.e. MOVE IN A DIRECTION FROM CLOSE TO SHORE/STRUCTURES OUTWARD) THAT PREVENT ENTRAPMENT OF FISH INSIDE THE CURTAIN.
- PROCEED WITH IN-WATER WORK ONLY AFTER TURBIDITY CURTAINS ARE INSTALLED AND INSTALLATION IS APPROVED.
- TURBIDITY CURTAINS ARE ONLY TO BE REMOVED AFTER ALL IN-WATER WORKS ARE COMPLETE AND APPROVAL HAS BEEN GIVEN BY THE DEPARTMENTAL OR ENVIRONMENTAL REPRESENTATIVE.
- CONTRACTOR SHALL SUPPLY AND MAINTAIN M.O.E.-APPROVED "SPILLS KIT" ON SITE AT ALL TIMES.

Public Services and Procurement Canada
Services publics et Approvisionnement Canada

Ontario Region
Parcs Canada Infrastructure Directorate
Heritage Canada and Engineering Works
Région de l'Ontario
Direction de l'infrastructure de Parcs Canada
Canaux historiques et travaux d'ingénierie

Parcs Canada



wsp



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02		
01	ISSUED FOR TENDER	07/15/2022
revision		date

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

project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin
SILTATION PROTECTION

drawn by
dessiné par
P.C. MASON

designed by
conçu par
D.A. HUCTWITH

approved by
approuvé par

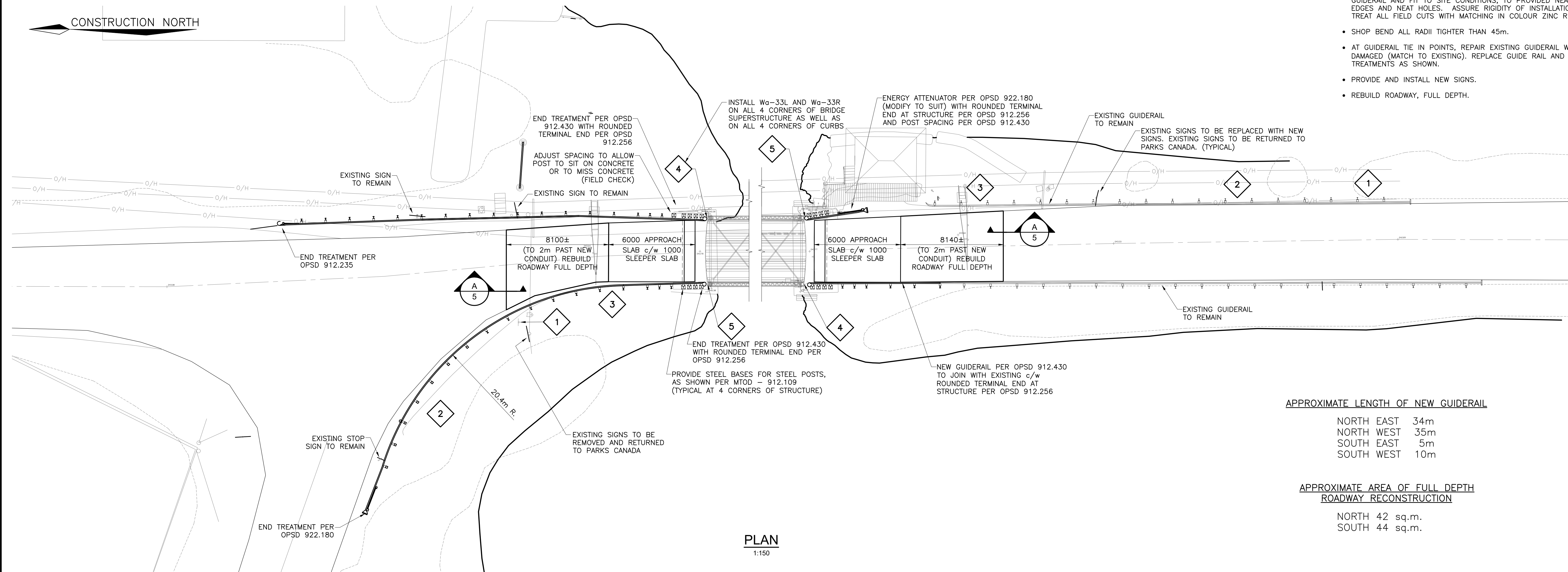
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project date
date du projet
2022-07-15

project no.
no. du projet
341

drawing no.
dessiné no.
S4

CONSTRUCTION NORTH



NOTES:

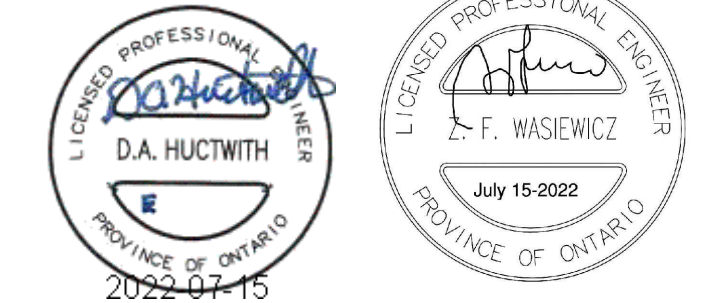
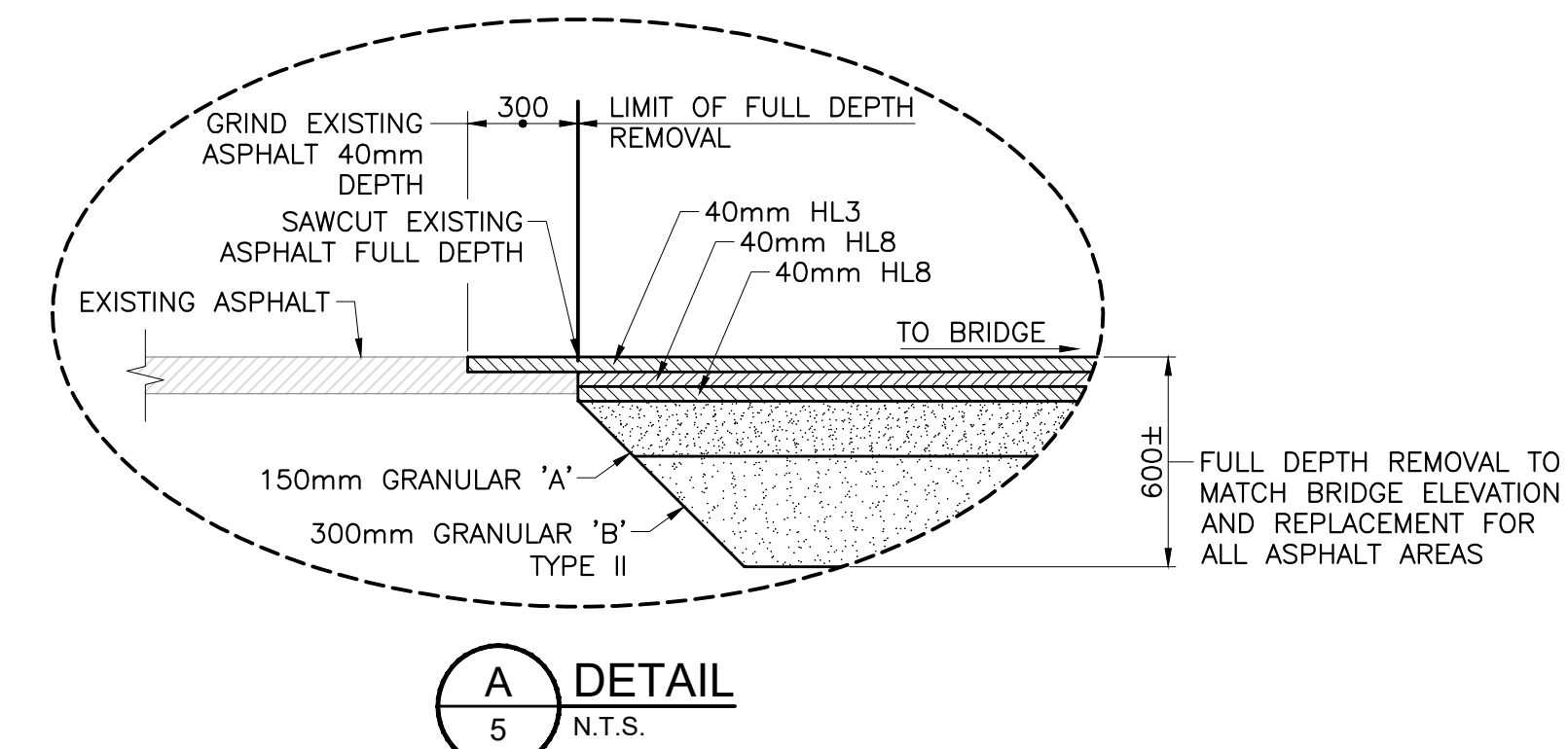
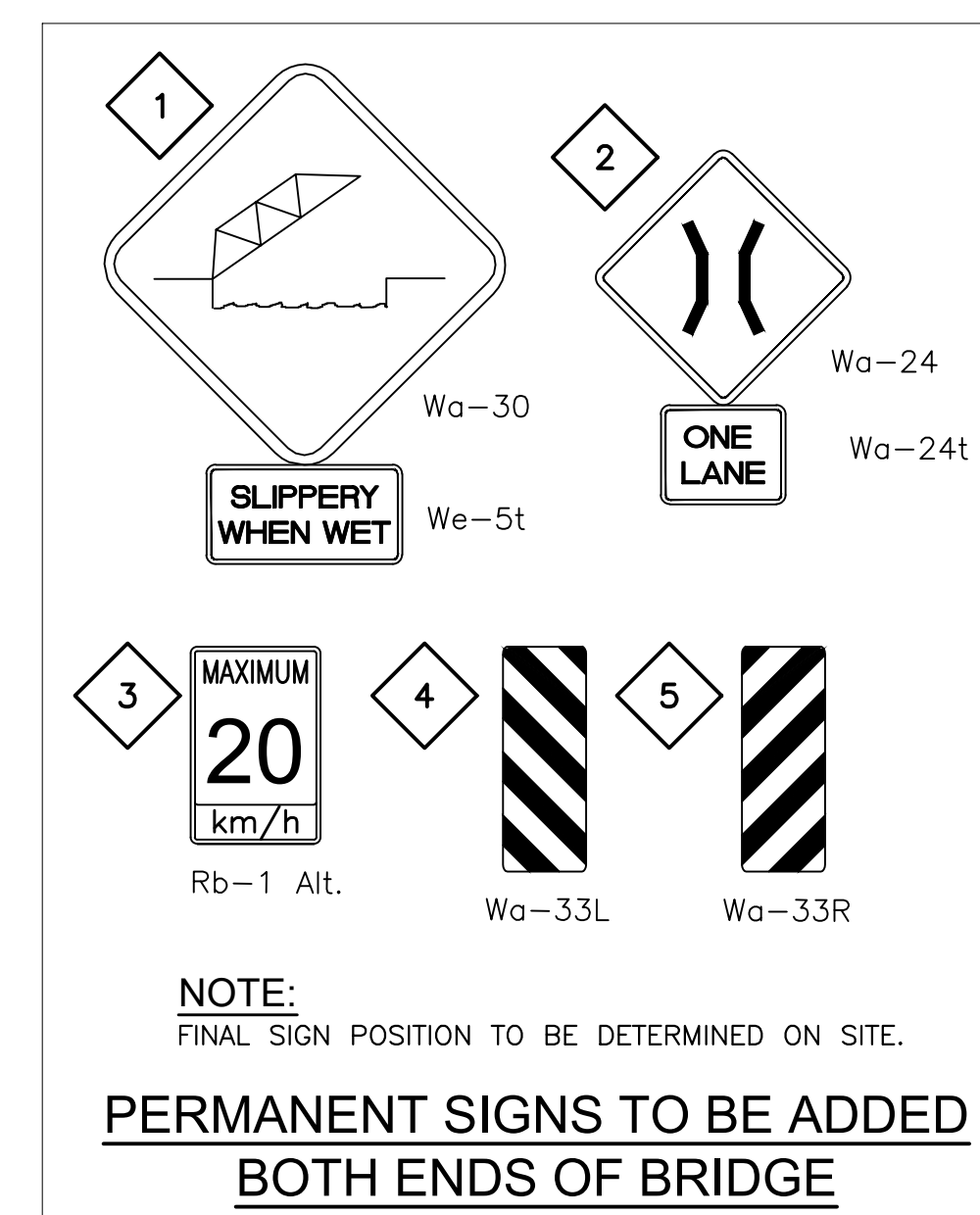
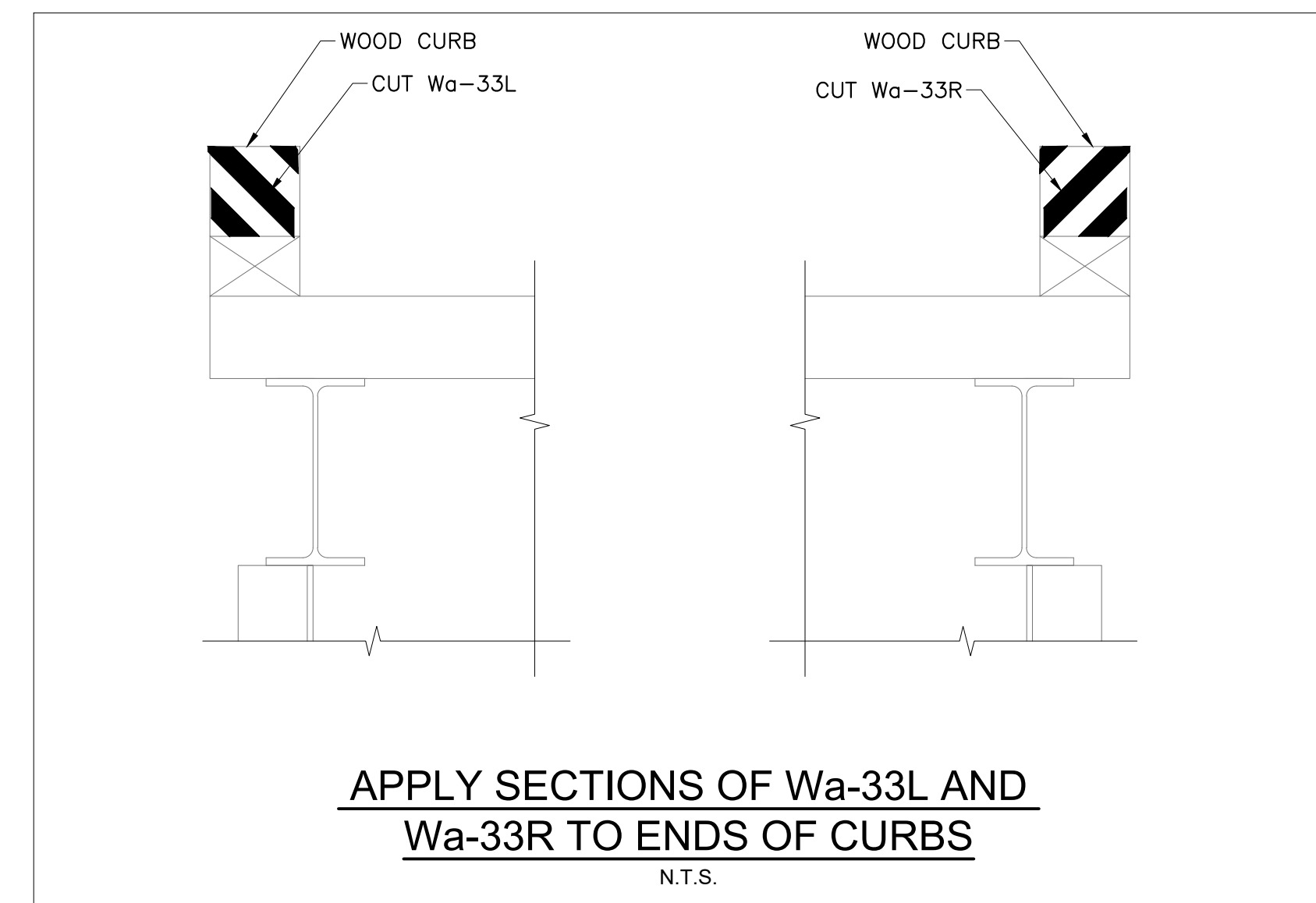
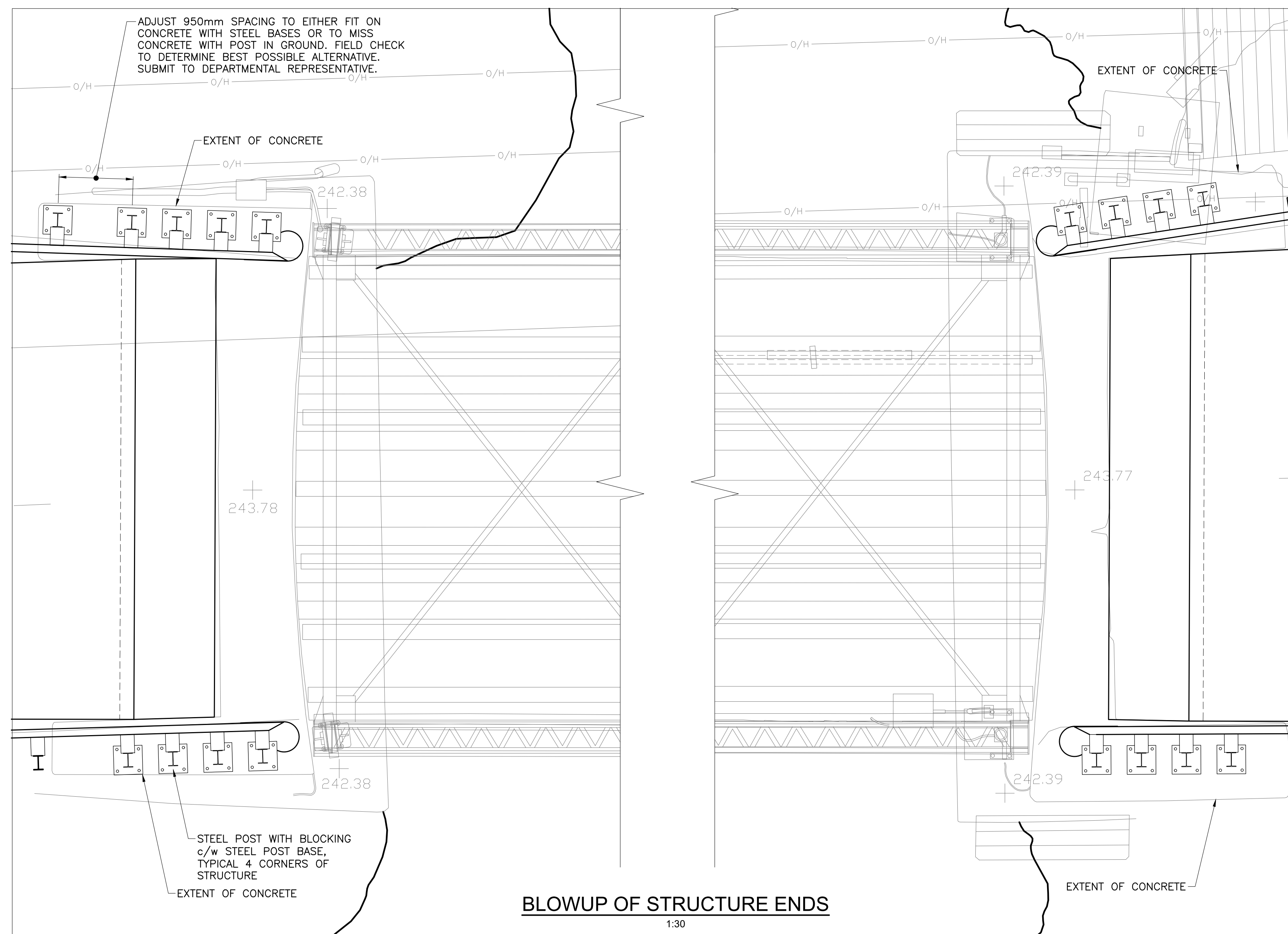
- DRILL AND CUT GUIDERAIL AS REQUIRED FOR INSTALLATION OF GUIDERAIL AND FIT TO SITE. CONDITIONS, TO PROVIDED NEAT, CLEAN EDGES AND NEAT HOLES. ASSURE RIGIDITY OF INSTALLATION. TREAT ALL FIELD CUTS WITH MATCHING IN COLOUR ZINC RICH PAINT.
- SHOP BEND ALL RADII TIGHTER THAN 45m.
- AT GUIDERAIL TIE IN POINTS, REPAIR EXISTING GUIDERAIL WHERE DAMAGED (MATCH TO EXISTING). REPLACE GUIDE RAIL AND END TREATMENTS AS SHOWN.
- PROVIDE AND INSTALL NEW SIGNS.
- REBUILD ROADWAY, FULL DEPTH.

APPROXIMATE LENGTH OF NEW GUIDERAIL

NORTH EAST	34m
NORTH WEST	35m
SOUTH EAST	5m
SOUTH WEST	10m

APPROXIMATE AREA OF FULL DEPTH ROADWAY RECONSTRUCTION

NORTH	42 sq.m.
SOUTH	44 sq.m.



04		
03		
02		
01	ISSUED FOR TENDER	07/15/2022
revision		date

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A	Detail No.	A
B	No. du detail	B
C	drawing no. - where detail required	C
	dessin no. - ou detail exige	
	drawing no. - where detailed	
	dessin no. - ou detaille	

project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD SWING BRIDGE REPLACEMENT TRENT-SEVERN WATERWAY

drawing title
titre du dessin
ROAD WORK c/w SIGNAGE and GUIDERAIL

drawn by
dessiné par
G. MOTA / P.C. MASON

designed by
conçu par
D.A. HUCTWITH

approved by
approuvé par

bid
offre
project manager
administrateur de projets

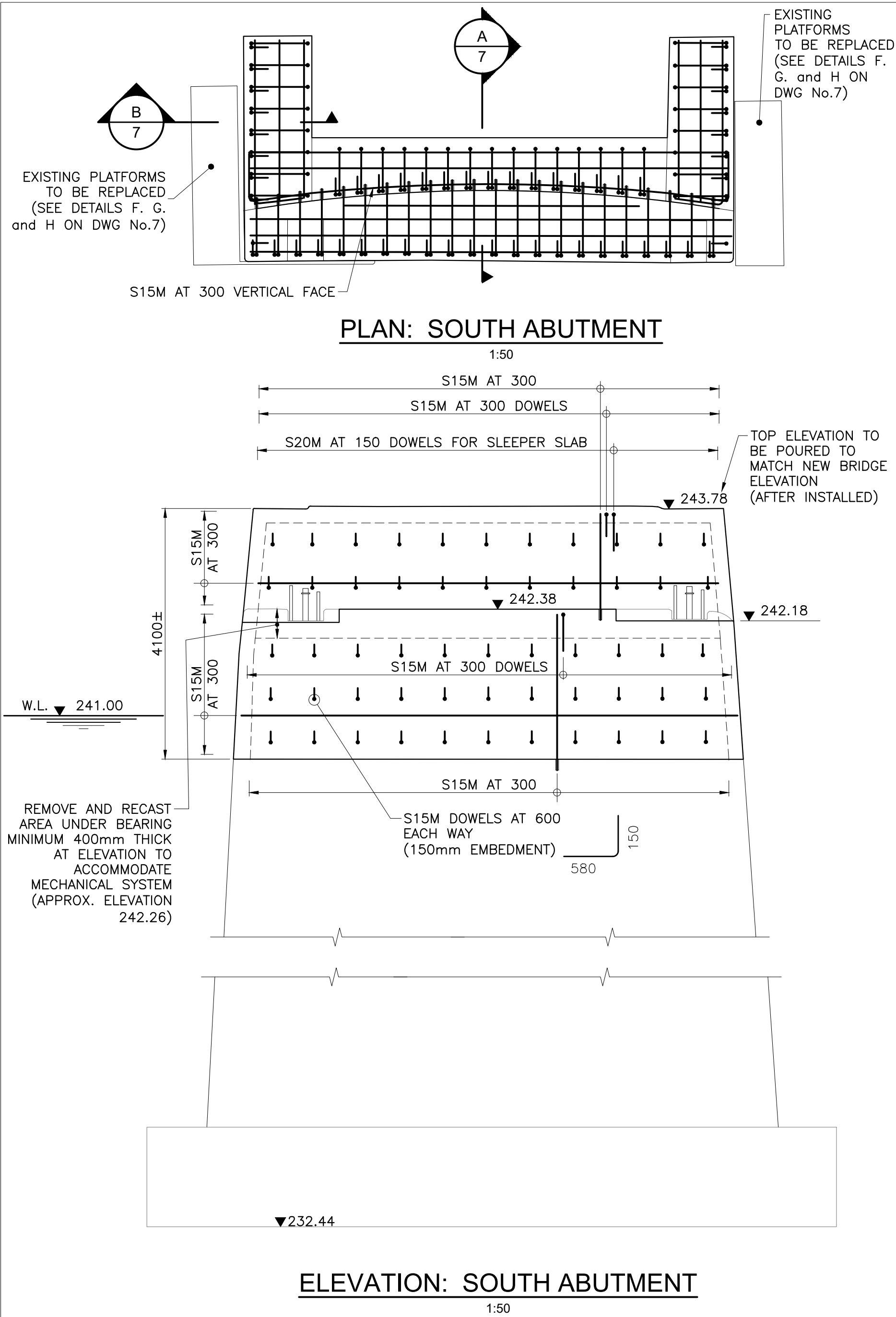
project date
date du projet
2022-07-15

project no.
no. du projet
341

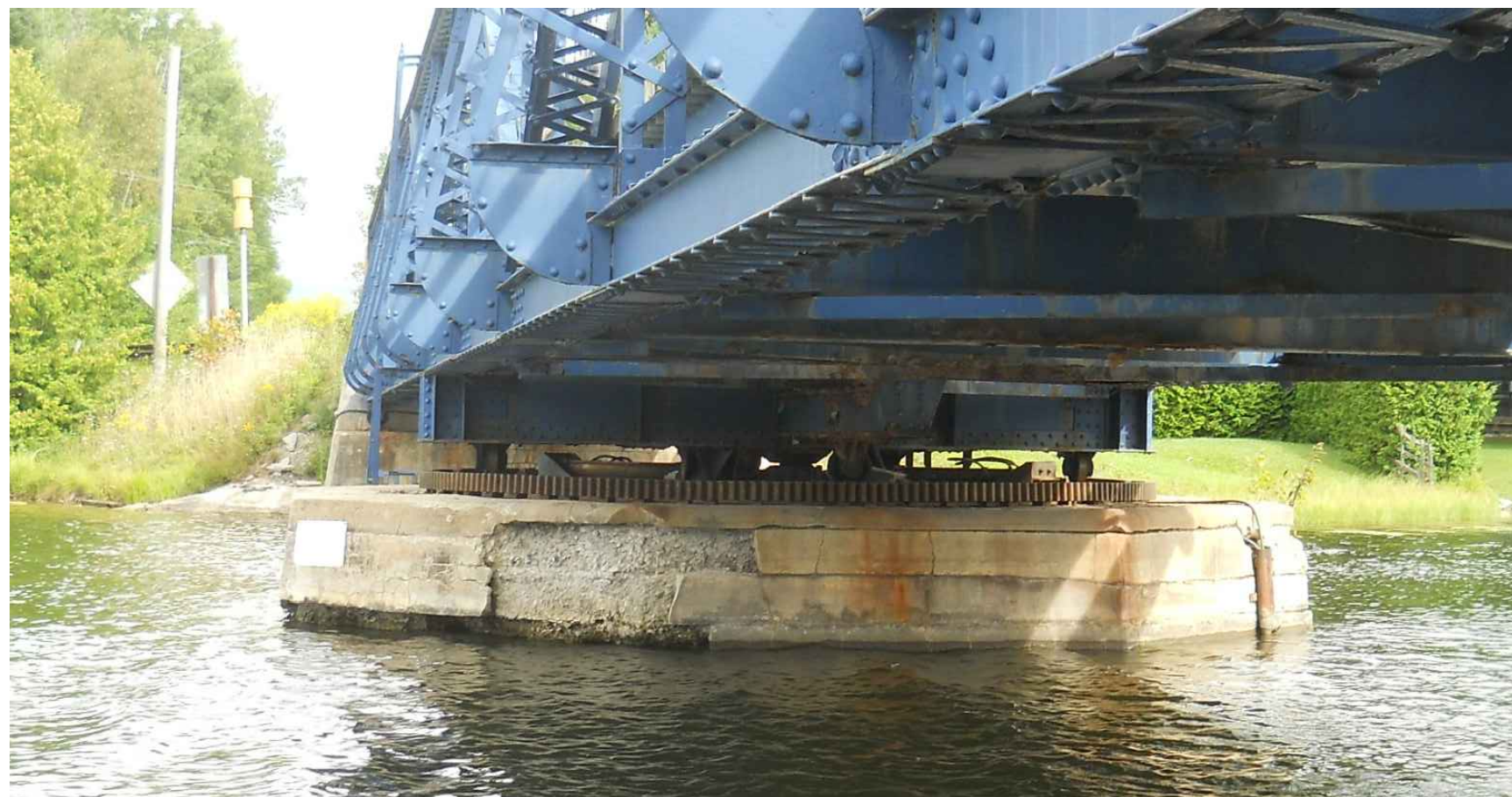
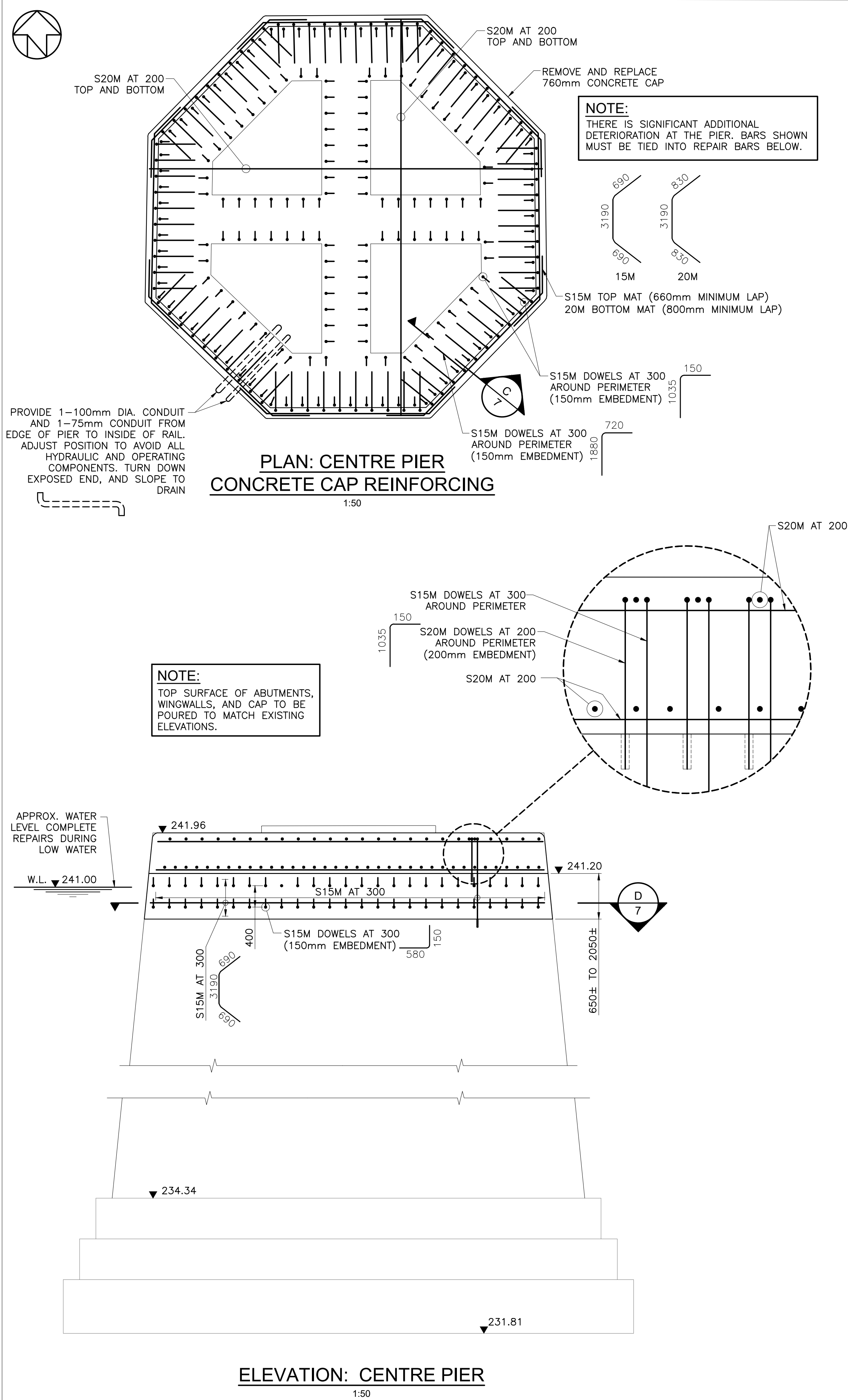
drawing no.
dessiné no.
S5



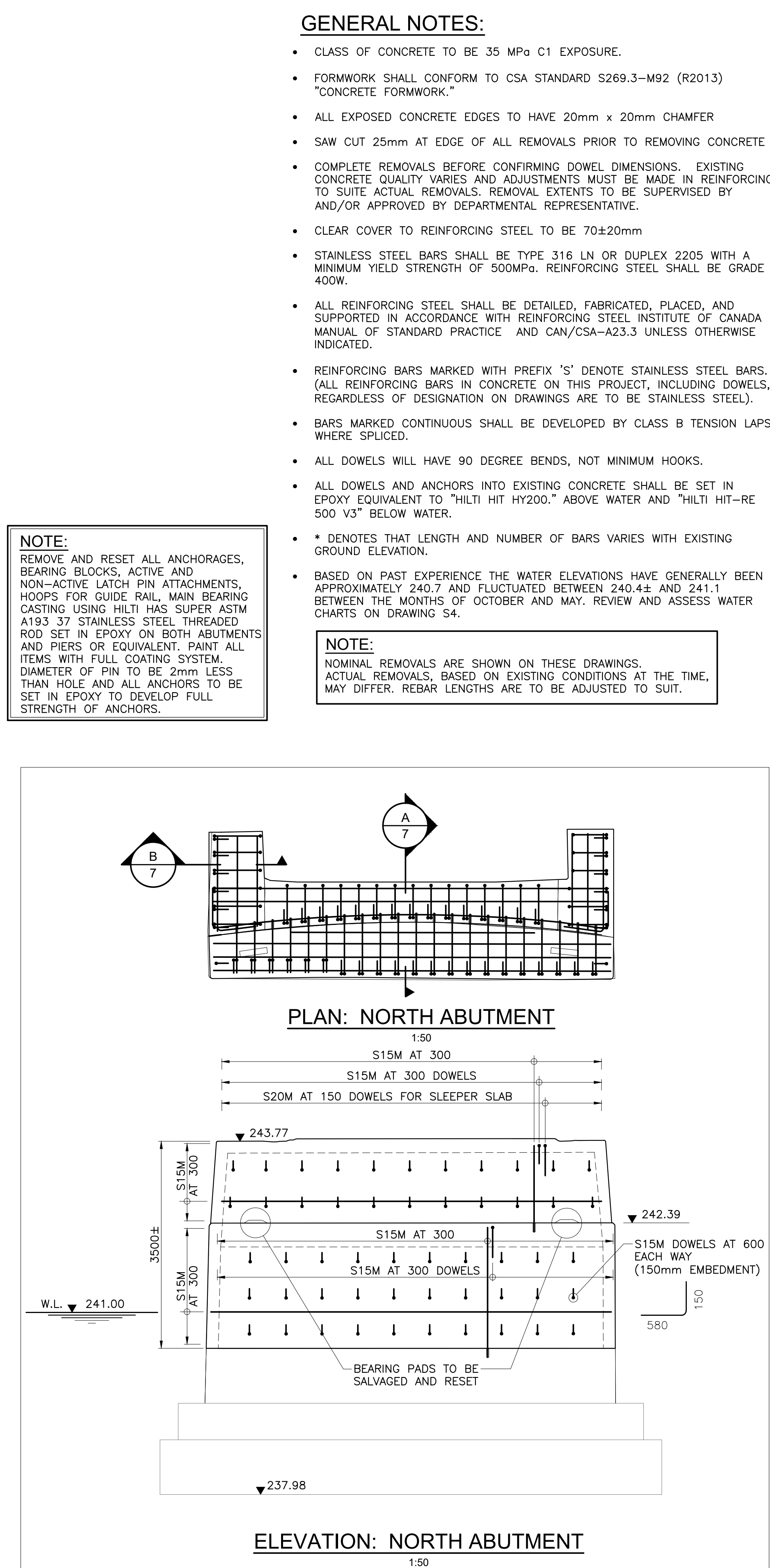
ELECTRICAL PANEL
SOUTH ABUTMENT
N.T.S.



SOUTH ABUTMENT (PHOTO)
N.T.S.



CENTRE PIER (PHOTO)
N.T.S.



NORTH ABUTMENT (PHOTO)
N.T.S.

Public Services and Procurement Canada
Services publics et Approvisionnement Canada

Ontario Region
Parcs Canada Infrastructure Directorate
Heritage Canadas and Engineering Works
Région de l'Ontario
Direction de l'infrastructure de Parcs Canada
Canaux historiques et travaux d'ingénierie

Parcs Canada

WSP

LICENCED PROFESSIONAL ENGINEER
D.A. HUCTION
PROVINCE OF ONTARIO
2022-07-15

LICENCED PROFESSIONAL ENGINEER
Z. F. WASIEWICZ
PROVINCE OF ONTARIO
July 15 2022

04		
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02		
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revision		date

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

project title
titre du projet
KAWARTHA LAKES Ontario

BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin
CONCRETE REPAIR OF
ABUTMENTS and CENTRE PIER

drawn by
dessine par
G. MOTA / P.C. MASON

designed by
conc par
D.A. HUCTION

approved by
approuve par

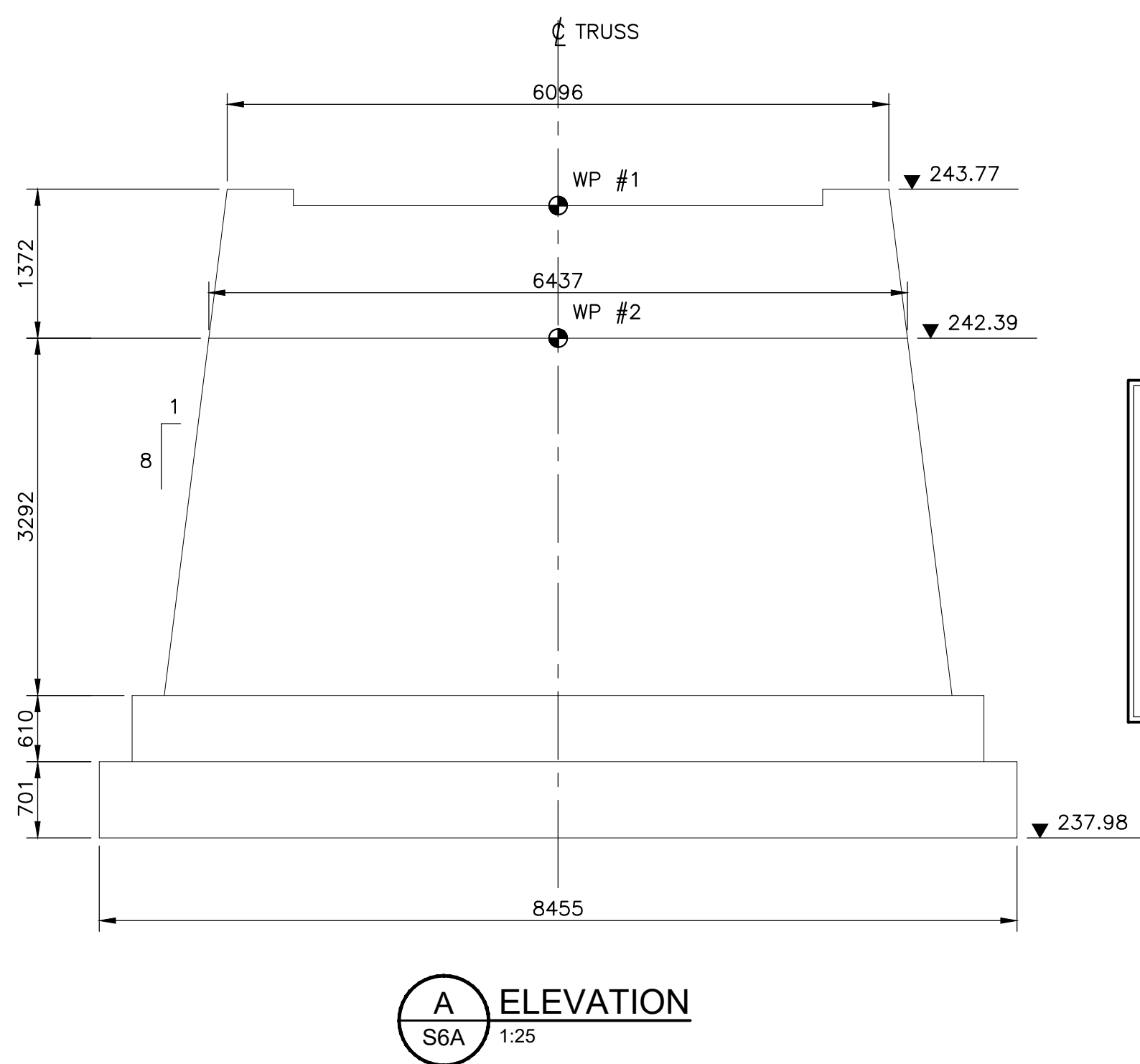
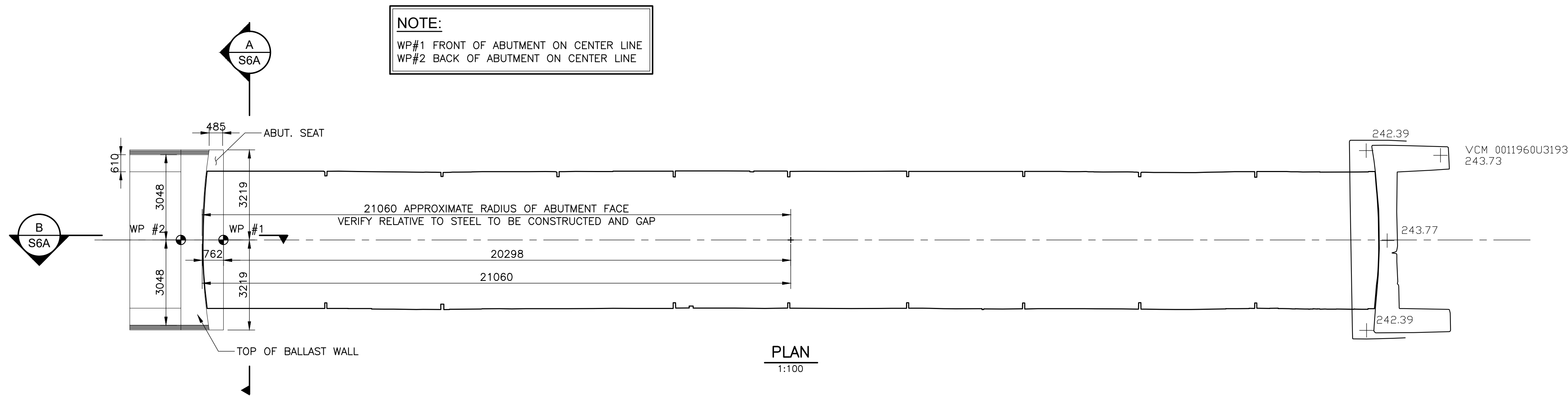
bid
offre
project manager
administrateur
de projets

project date
date du projet
2022-07-15

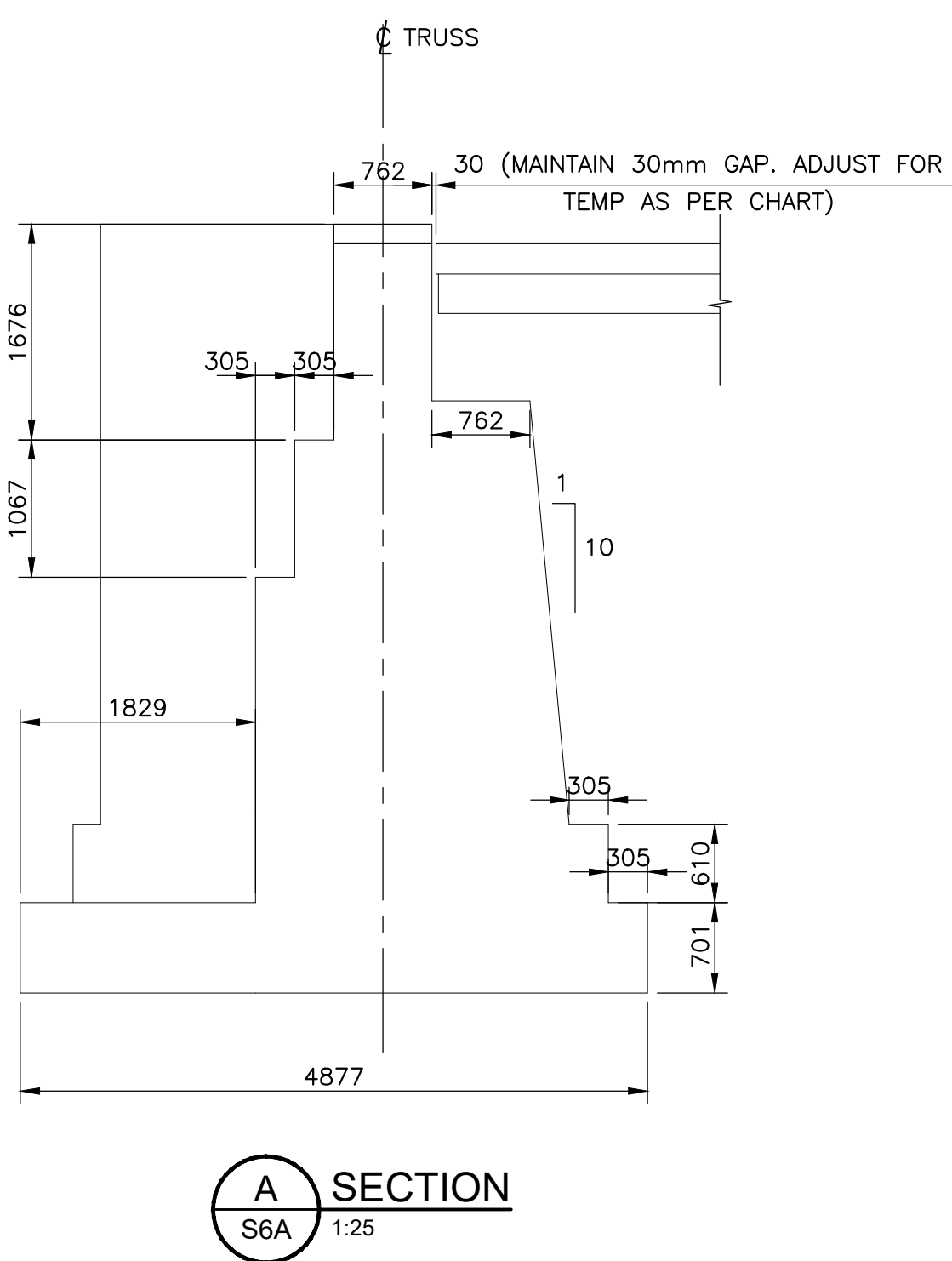
project no.
no. du projet
341

drawing no.
dessine no.
S6

CONSTRUCTION NORTH



NOTE:
REMOVALS HAVE OCCURRED ON THE NORTH ABUTMENT. CONFIRM THAT NO ADDITIONAL REMOVALS ARE REQUIRED AND REBUILD EXISTING PORTION OF ABUTMENT TO MATCH ORIGINAL GEOMETRY. THE ABOVE DIMENSIONS ARE BELIEVED TO REFLECT THE ORIGINAL GEOMETRY BASED ON SURVEY BUT WILL HAVE TO BE VERIFIED IN THE FIELD. THE CENTER POINT OF THE BRIDGE SHALL BE DETERMINED AND MARKED AND SUBMITTED TO THE DEPARTMENTAL REPRESENTATIVE. CHECK BOTH THE RELATIONSHIP TO THE SOUTH AND NORTH ABUTMENT AND COMPARE TO THE DIMENSIONS OF THE BRIDGE ON THE SHOP DRAWINGS TO BE SUBMITTED. INCLUDE AN ALLOWANCE FOR THE GAP DIMENSIONS TO ENSURE THE BRIDGE SWINGS CLEAR OF ALL OBSTRUCTIONS.



GENERAL NOTES:

- CLASS OF CONCRETE TO BE 35 MPa C1 EXPOSURE.
- FORMWORK SHALL CONFORM TO CSA STANDARD S269.3-M92 (R2013) "CONCRETE FORMWORK."
- ALL EXPOSED CONCRETE EDGES TO HAVE 20mm x 20mm CHAMFER
- SAW CUT 25mm AT EDGE OF ALL REMOVALS PRIOR TO REMOVING CONCRETE
- COMPLETE REMOVALS BEFORE CONFIRMING DOWEL DIMENSIONS. EXISTING CONCRETE QUALITY VARIES AND ADJUSTMENTS MUST BE MADE IN REINFORCING TO SUITE ACTUAL REMOVALS. REMOVAL EXTENTS TO BE SUPERVISED BY AND/OR APPROVED BY DEPARTMENTAL REPRESENTATIVE.
- CLEAR COVER TO REINFORCING STEEL TO BE 70±20mm
- STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500MPa. REINFORCING STEEL SHALL BE GRADE 400W.
- ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED, PLACED, AND SUPPORTED IN ACCORDANCE WITH REINFORCING STEEL INSTITUTE OF CANADA MANUAL OF STANDARD PRACTICE AND CAN/CSA-A23.3 UNLESS OTHERWISE INDICATED.
- REINFORCING BARS MARKED WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS. (ALL REINFORCING BARS IN CONCRETE ON THIS PROJECT, INCLUDING DOWELS, REGARDLESS OF DESIGNATION ON DRAWINGS ARE TO BE STAINLESS STEEL).
- BARS MARKED CONTINUOUS SHALL BE DEVELOPED BY CLASS B TENSION LAPS WHERE SPLICED.
- ALL DOWELS WILL HAVE 90 DEGREE BENDS, NOT MINIMUM HOOKS.
- ALL DOWELS AND ANCHORS INTO EXISTING CONCRETE SHALL BE SET IN EPOXY EQUIVALENT TO "HILTI HIT HY200." ABOVE WATER AND "HILTI HIT-RE 500 V3" BELOW WATER.
- * DENOTES THAT LENGTH AND NUMBER OF BARS VARIES WITH EXISTING GROUND ELEVATION.
- BASED ON PAST EXPERIENCE THE WATER ELEVATIONS HAVE GENERALLY BEEN APPROXIMATELY 240.7 AND FLUCTUATED BETWEEN 240.4± AND 241.1 BETWEEN THE MONTHS OF OCTOBER AND MAY. REVIEW AND ASSESS WATER CHARTS ON DRAWING S4.

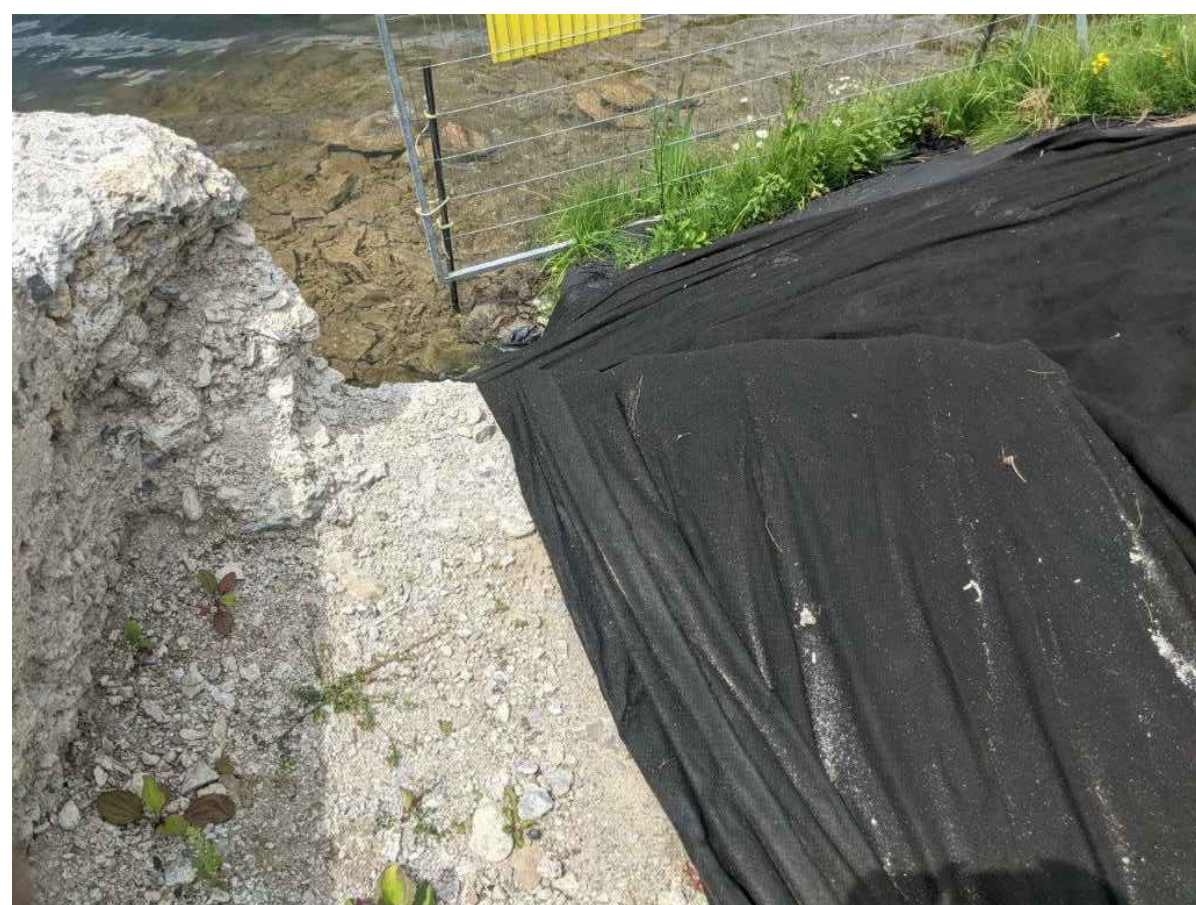
NOTE:
NOMINAL REMOVALS ARE SHOWN ON THESE DRAWINGS. ACTUAL REMOVALS, BASED ON EXISTING CONDITIONS AT THE TIME, MAY DIFFER. REBAR LENGTHS ARE TO BE ADJUSTED TO SUIT.

NOTE:
REMOVE AND RESET ALL ANCHORAGES, BEARING BLOCKS, ACTIVE AND NON-ACTIVE LATCH PIN ATTACHMENTS, HOOPS FOR GUIDE RAIL, MAIN BEARING CASTING USING HILTI HAS SUPER ASTM A193 37 STAINLESS STEEL THREADED ROD SET IN EPOXY ON BOTH ABUTMENTS AND PIERS OR EQUIVALENT. PAINT ALL ITEMS WITH FULL COATING SYSTEM. DIAMETER OF PIN TO BE 2mm LESS THAN HOLE AND ALL ANCHORS TO BE SET IN EPOXY TO DEVELOP FULL STRENGTH OF ANCHORS.

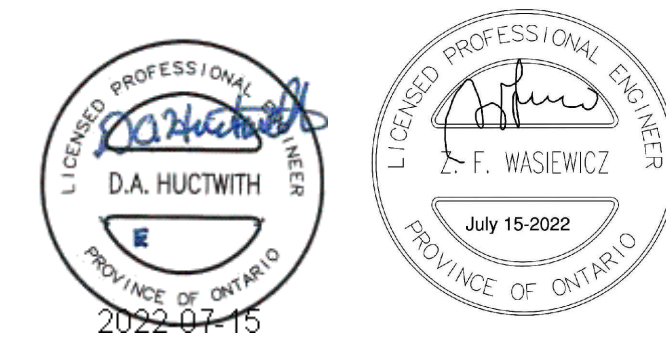
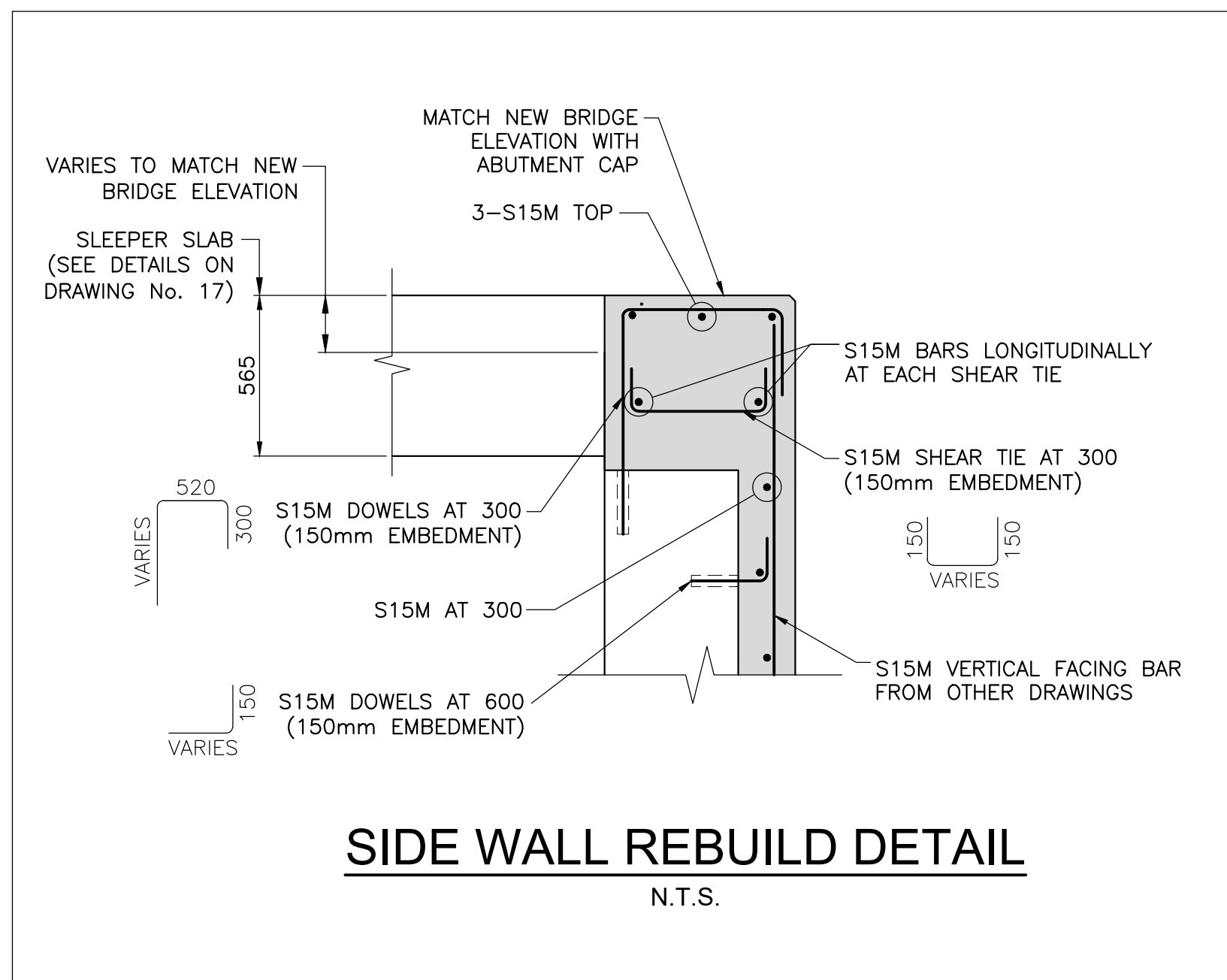
NOTE:
THE TOP OF THE SIDE WALLS OF THE NORTH ABUTMENT HAVE BEEN REMOVED DOWN APPROXIMATELY 400mm. REBUILD THE TOP OF THE WALLS USING THE WALL REBUILD DETAIL.



EAST SIDE WALL
N.T.S.



WEST SIDE WALL
N.T.S.



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03		
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A Detail No. No. du détail	A drawing no. - where detail required dessin no. - où détail exigé
B drawing no. - where detailed dessin no. - où détaillé	B drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin
**CONCRETE REPAIR OF
NORTH ABUTMENT**

drawn by
dessiné par
G. MOTA / P.C. MASON

designed by
conçu par
D.A. HUCTWITH

approved by
approuvé par

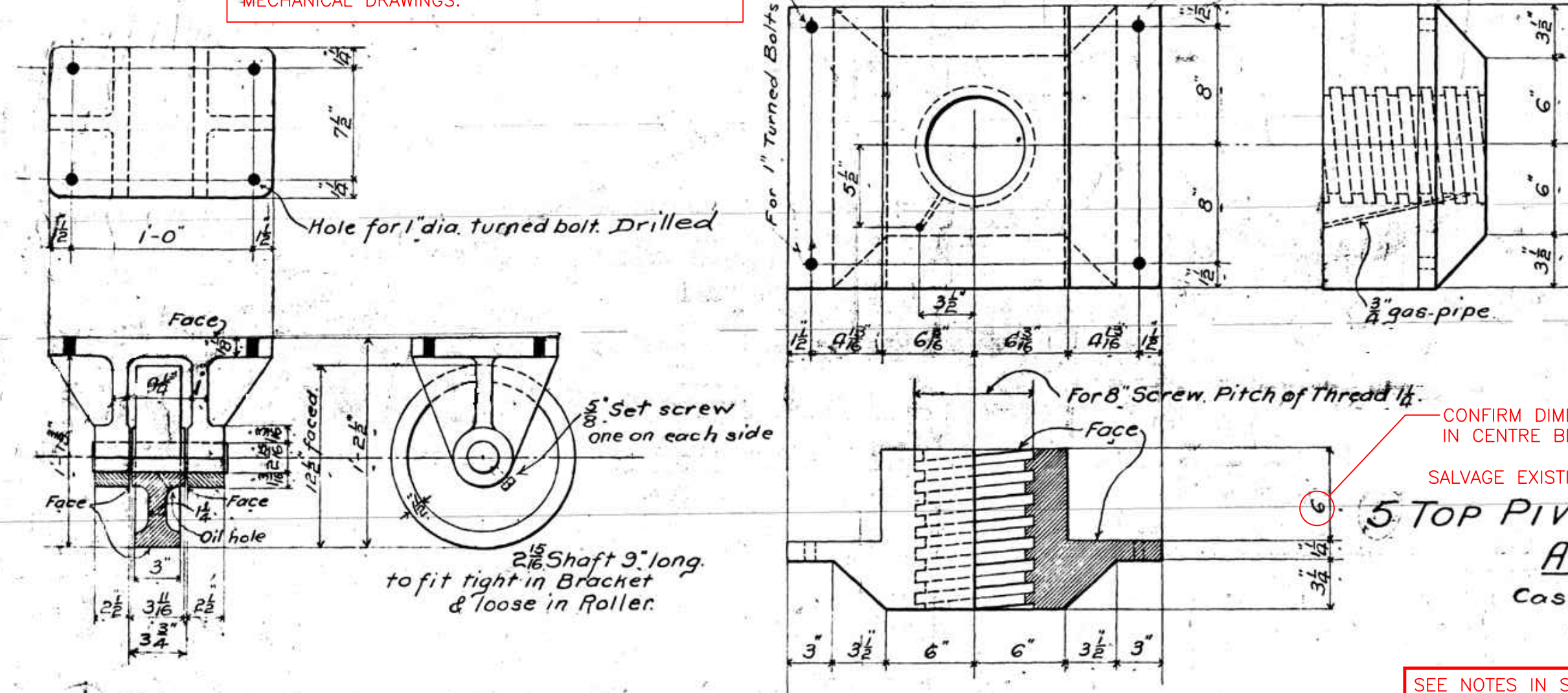
bid
offre
project manager
administrateur
de projets

project date
date du projet
2022-07-15

project no.
no. du projet
341

drawing no.
dessiné no.
S6A

NOTE:
NEW WHEELS AND CASTER FRAMES ARE TO BE
MANUFACTURED AND USED ON THE BRIDGE AS PER
MECHANICAL DRAWINGS.



CONFIRM DIMENSION AND GRIND ANGLES
IN CENTRE BEAM TO BEAR ON CASTING

SALVAGE EXISTING PIVOT CASTING

SEE NOTES IN SPECIFICATION REGARDING
SALVAGE AND DELIVERY OF PIVOT CASTINGS
AND BEARING COMPONENTS.

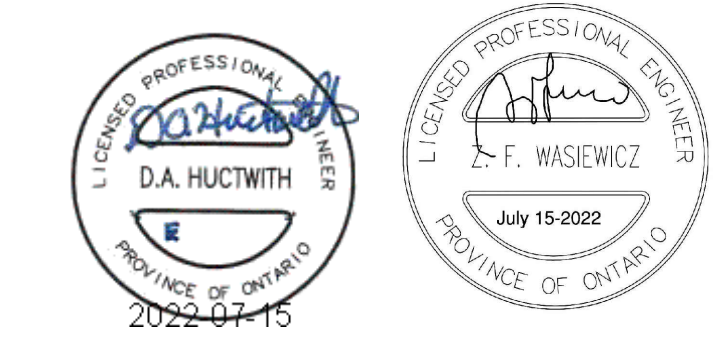
SALVAGE EXISTING
LOCK CASTING

SALVAGE EXISTING PIN DO NOT
FOR FROM PIVOT CASTING.

CENTRE BEAM SPLICE
ADDITIONAL BATTEN PLATE
TO ATTACH PROJECTION OF
STRINGER FROM ADJACENT
BAY BOTH ENDS OF
DOUBLE STRINGER

NOTE: REHANG EXISTING
GEARS (SALVAGE GEARS
AND COLLAR BEARINGS)

CUT OFF PROJECTION
OF GEAR SHAFT
INTO DECK



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project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

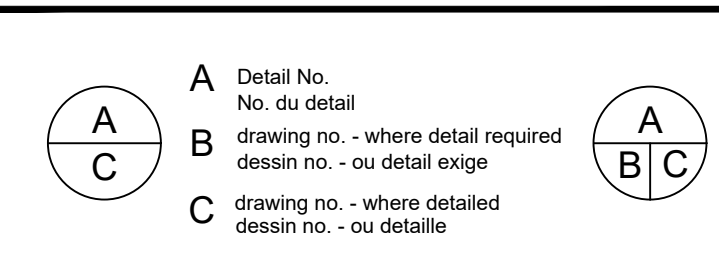
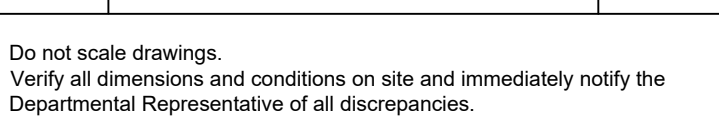
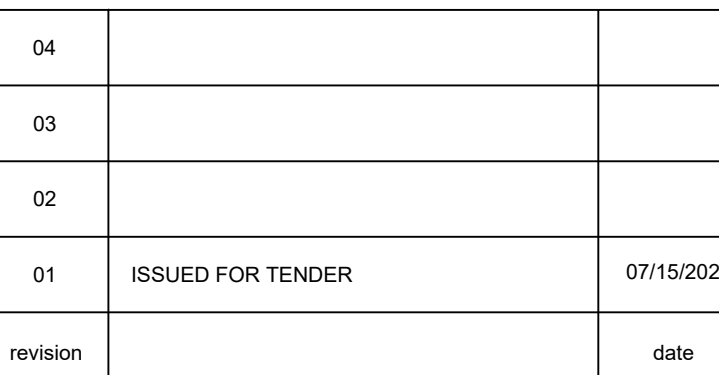
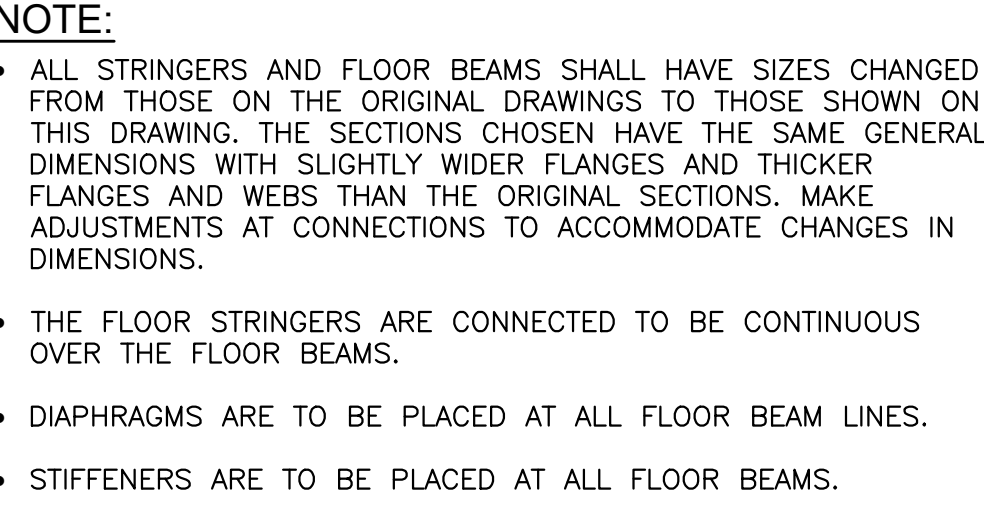
drawing title
titre du dessin
**STRUCTURAL STEEL
CASTING and TURNING GEAR**

drawn by dessiné par	G. MOTA
designed by conçu par	D.A. HUCTWITH
approved by approuvé par	
bid offre	
project manager administrateur de projets	
project date date du projet	2022-07-15
project no. no. du projet	341
drawing no. dessiné no.	S8

DIAGONAL CROSS BRACING OVER CROSS BEAM (BALANCE BEAM)
REQUIRED TO ELIMINATE INTERFERENCE DETAIL COPE IN SHOP
DRAWINGS WITH MINIMUM 2" RADIUS.

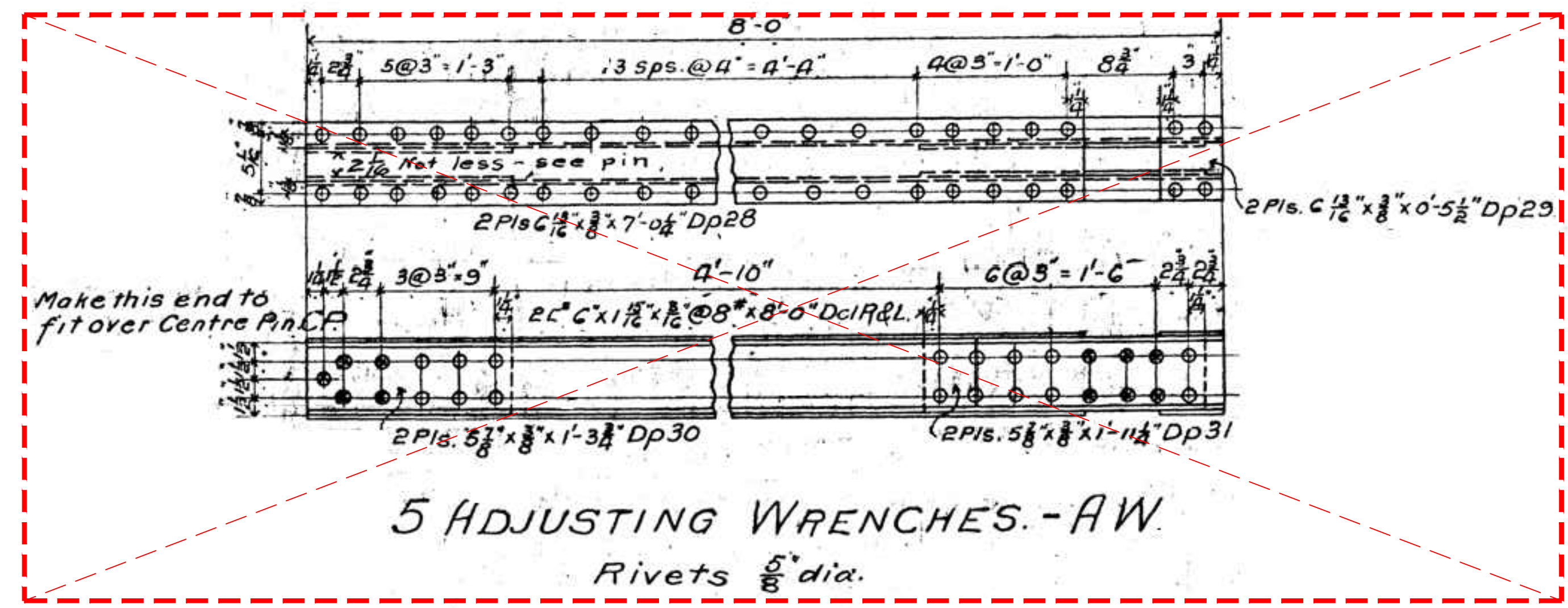
NOTE:
• DIAMETER OF ALL ANCHORAGE BOLTS TO BE 2mm
LESS THAN HOLE AND ALL ANCHORS TO BE SET
IN EPOXY TO DEVELOP FULL STRENGTH OF
ANCHORS.
• RIVET PATTERNS TO BE DUPLICATED EVEN THOUGH
SOME ARE NOT THE MOST EFFICIENT PATTERN IN
AN ATTEMPT TO BE FAITHFUL TO HERITAGE
STRUCTURE. WHERE THERE IS INTERFERENCE
SHOW INTERFERENCE AND PROPOSE NEW PATTERN
TO DEPARTMENTAL REPRESENTATIVE.

The Hamilton Bridge Works Co. Ltd.
Hamilton, Ont. Apr 29th 1902.
See Shop Bill 1424-19



project title titre du projet		Ontario
KAWARTHA LAKES		
BOUNDARY ROAD SWING BRIDGE REPLACEMENT TRENT-SEVERN WATERWAY		
drawing title titre du dessin		
STRUCTURAL STEEL FLOOR DETAILS		
drawn by dessiné par		G. MOTA
designed by conçu par		D.A. HUCTION
approved by approuvé par		
bid offre		project manager administrateur de projets
project date date du projet		2022-07-15
project no. no. du projet		341
drawing no. dessiné no.		





- NOTE:
- REPLACE CENTRE BEAM TO MATCH ORIGINAL CONFIGURATION AND AS MODIFIED BY THESE DRAWINGS INCLUDING ALL CONNECTIONS, WHEEL SUPPORTS, ETC. THIS IS A REPRODUCTION OF THE ORIGINAL DRAWING.
 - FIELD MEASURE AND VERIFY EXISTING CONNECTIONS AND DIMENSIONS.
 - WHERE RIVETS ARE INDICATED, TENSION CONTROL BOLTS SHALL BE SUBSTITUTED WITH THE MATCHING DIAMETER AND A RIVET HEAD.
 - REPLACE 3 TOP BATTEN PLATES WITH 12mm THICK PLATES BETWEEN EACH STRINGER AND BETWEEN THE C CHANNEL STRINGERS AND STRINGERS FOR THE FULL WIDTH OF BRIDGE. MAXIMUM BOLT SPACING 150mm. PROVIDE BOLT PATTERN OF BATTEN PLATE PLUS ADDITIONAL BOLTS TO MEET MAXIMUM SPACING.
 - RIVET PATTERNS TO BE DUPLICATED EVEN THOUGH SOME ARE NOT THE MOST EFFICIENT PATTERN IN AN ATTEMPT TO BE FAITHFUL TO HERITAGE STRUCTURE. WHERE THERE IS INTERFERENCE SHOW INTERFERENCE AND PROPOSE NEW PATTERN TO DEPARTMENTAL REPRESENTATIVE.

REVIEW BOLT HOLE REQUIREMENT WITH CROSS BRACE LOCATION. LIKELY ONLY ONE SET OF THREE HOLES WILL BE REQUIRED AT EACH END OF MAIN BEAM.

ADJUSTING WRENCHES NOT REQUIRED

BATTEN PLATES TO BE REPLACED WITH INTERMITTENT COVER PLATE BETWEEN STRINGERS. BATTEN PLATES TO BE WITHIN 2mm OF STRINGER FLANGES BOTH SIDES

NOTE: ACCESS AT SPACE AT PIVOT LIMITED 3 BOLTS IN THIS AREA. MAY REQUIRE THREADED HOLES ON EACH SIDE AS NUTS WILL NOT FIT.

This box to be riveted up and bottom faced before assembling the girder.

5. CENTRE GIRDERS - CG

Symmetrical about C.L.
Rivets - 7/8" Open holes 15/16" unless otherwise marked
Flatten these rivets if over 5/8" high.

ANGLES AND PLATES TO BE GRIND TO BEAR ON CASTING. CAREFULLY REVIEW CASTING DIMENSIONS AND USE COMBINATION OF GRINDING AND POSITIONING NEW ANGLES AND PLATES TO GET FULL BEARING ON INTERIOR BOX ASSEMBLY.

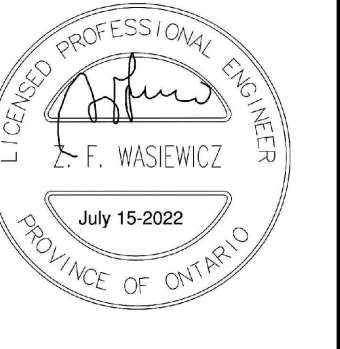
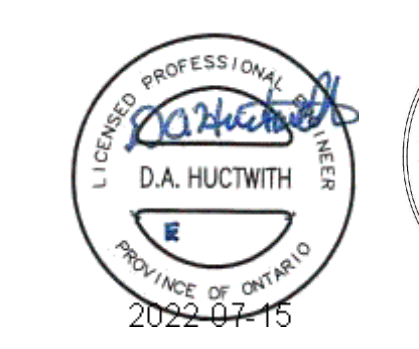
CENTRE GIRDERS.

FIVE SWING SPANS TRENT CANAL.

The Hamilton Bridge Works Co. Limited
Hamilton, Ont. Apr 30th, 1902

Drawn by E.H.D.
Traced by C.M. & J.M.P.
Checked by

CON. 1424
DRAW #4
Shop Bills 19-20-21



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revision		date

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titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin
**STRUCTURAL STEEL
CENTRE GIRDER**

drawn by
dessiné par
G. MOTA

designed by
conçu par
D.A. HUCTWITH

approved by
approuvé par

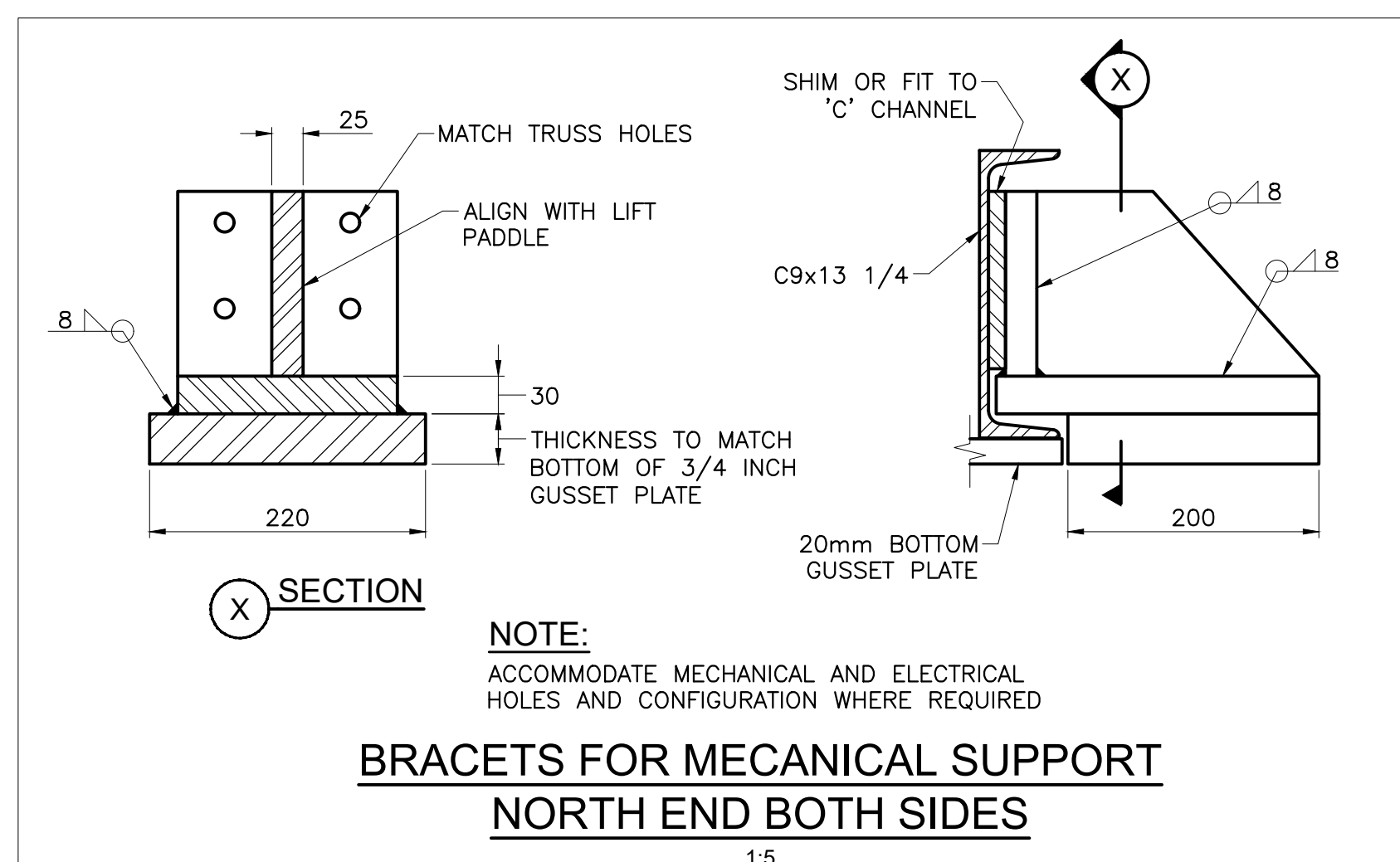
bid
offre

project manager
administrateur de projets

project date
date du projet
2022-07-15

project no.
no. du projet
341

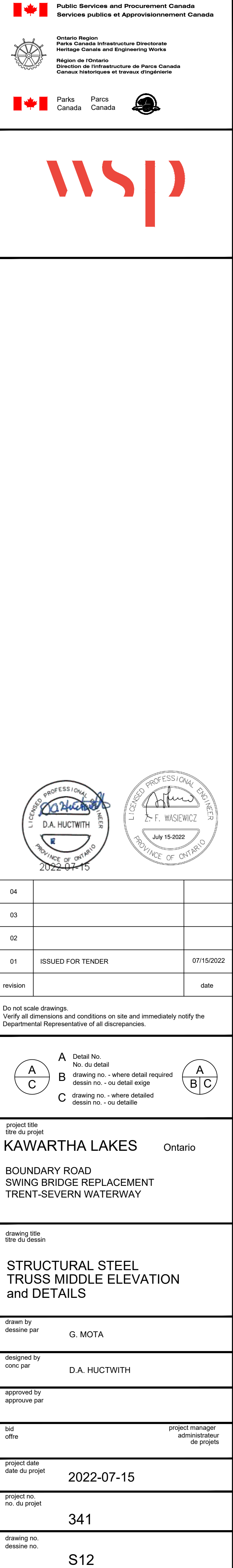
drawing no.
dessiné no.
S10



N.T.S.			
ALL LACING WITH 5/8" BOLTS	MINIMUM	57mm	WIDE
ALL LACING WITH 3/4" BOLTS	MINIMUM	64mm	WIDE

INCREASE ALL OFFSET ANGLES SUPPORTING
HANDRAIL TO ELIMINATE
NOTCHES IN HANDRAIL.

L5 $\frac{1}{4}$ "x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	→	L178x102x13
L5 $\frac{1}{4}$ "x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	→	L203x152x13

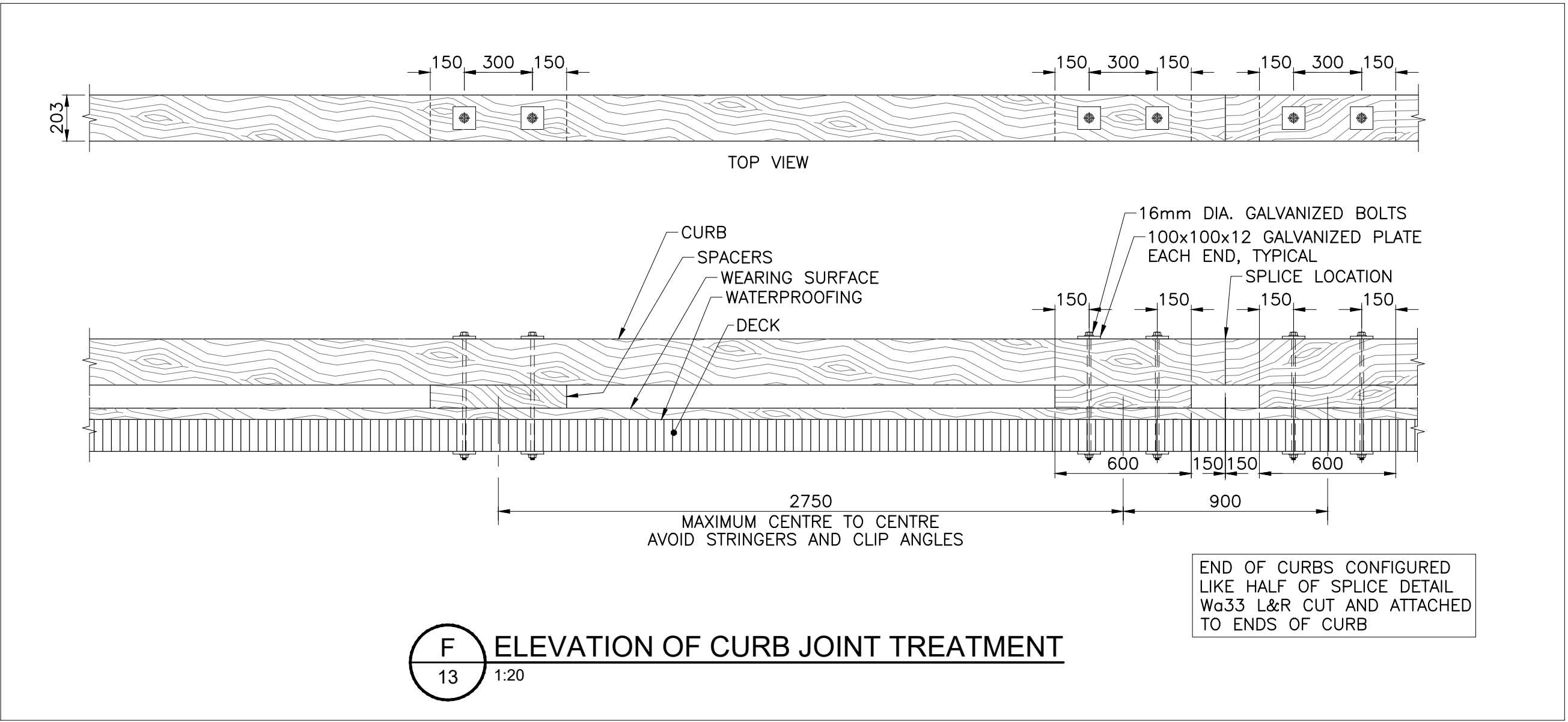
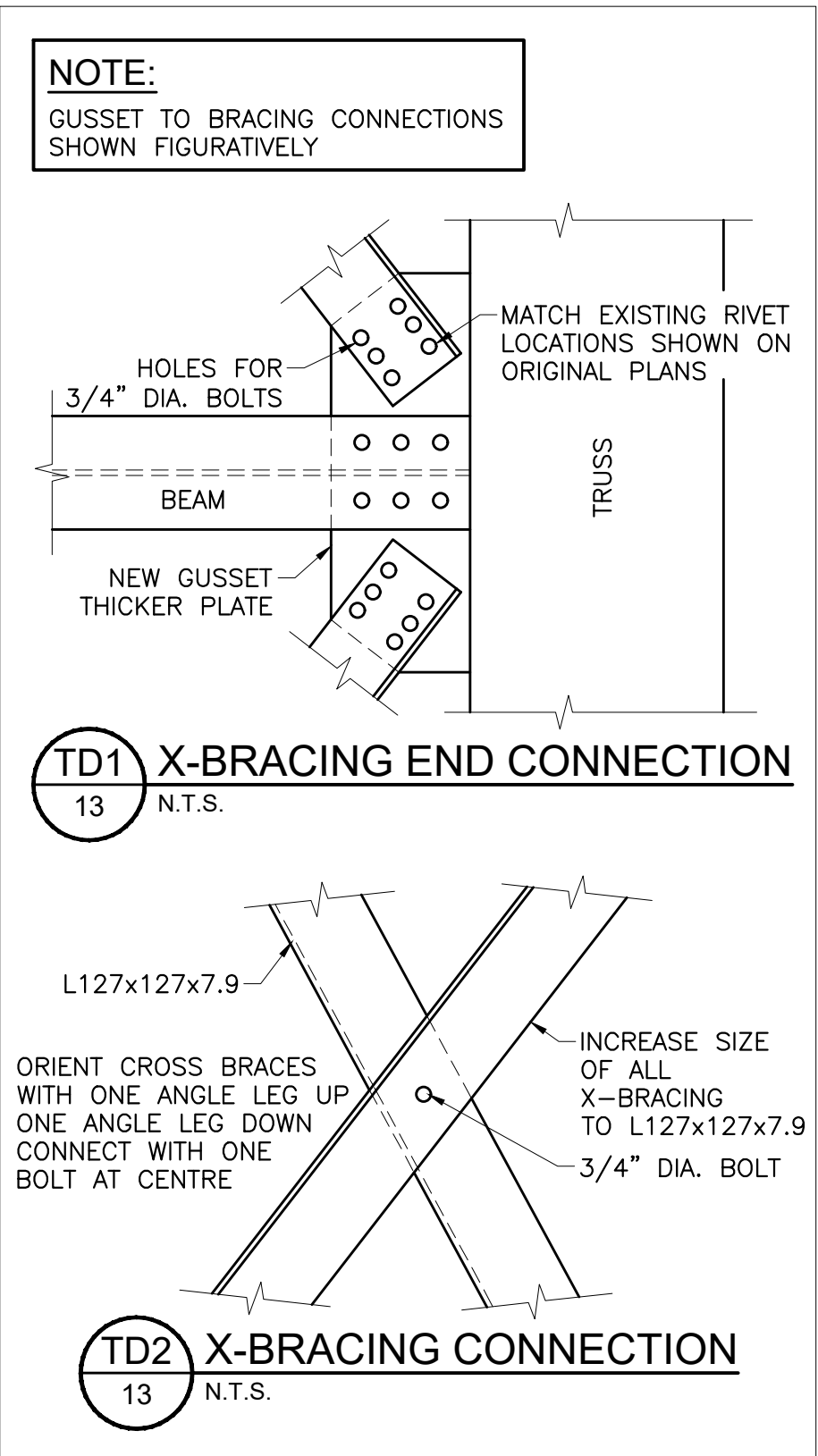
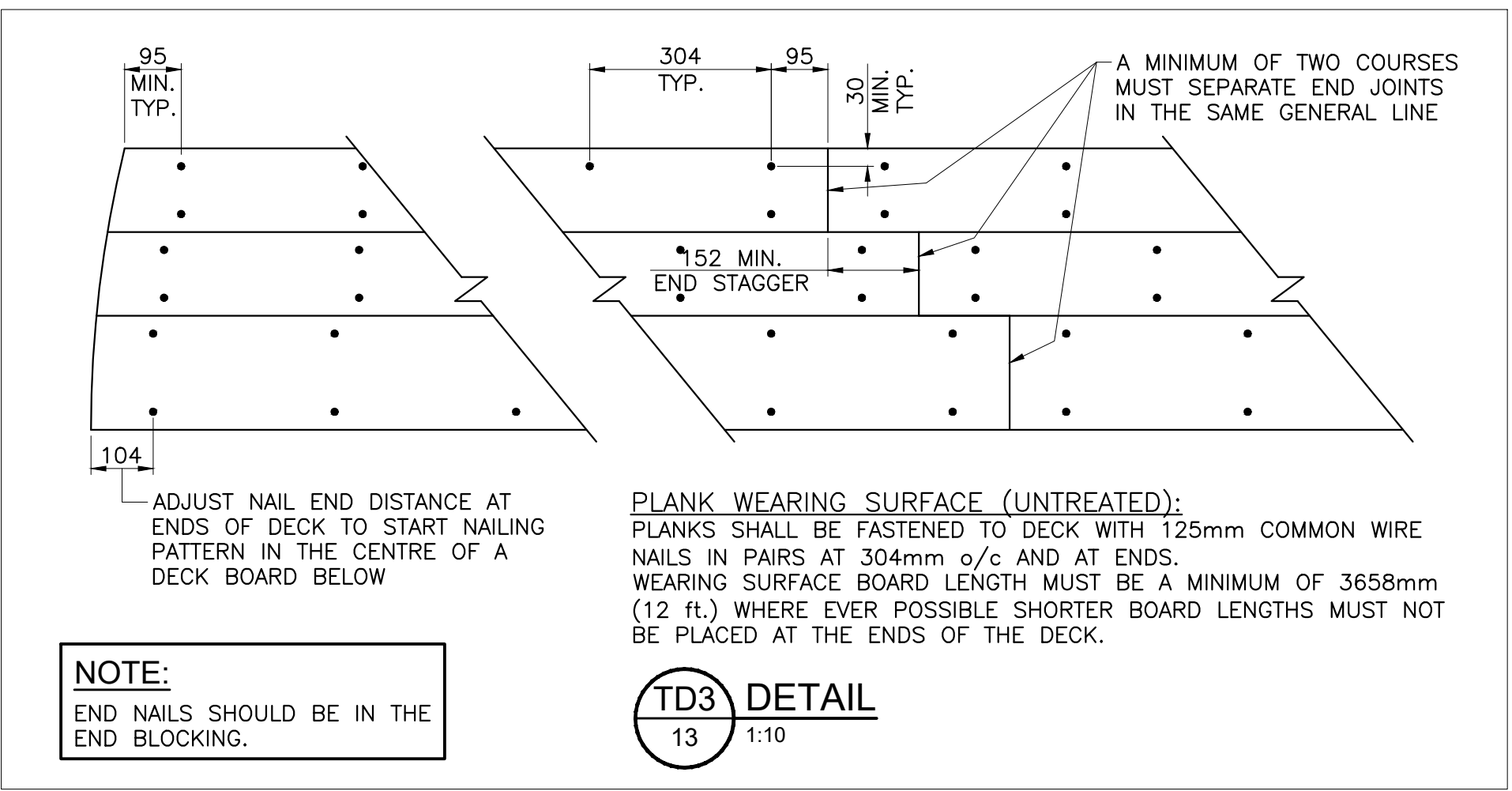


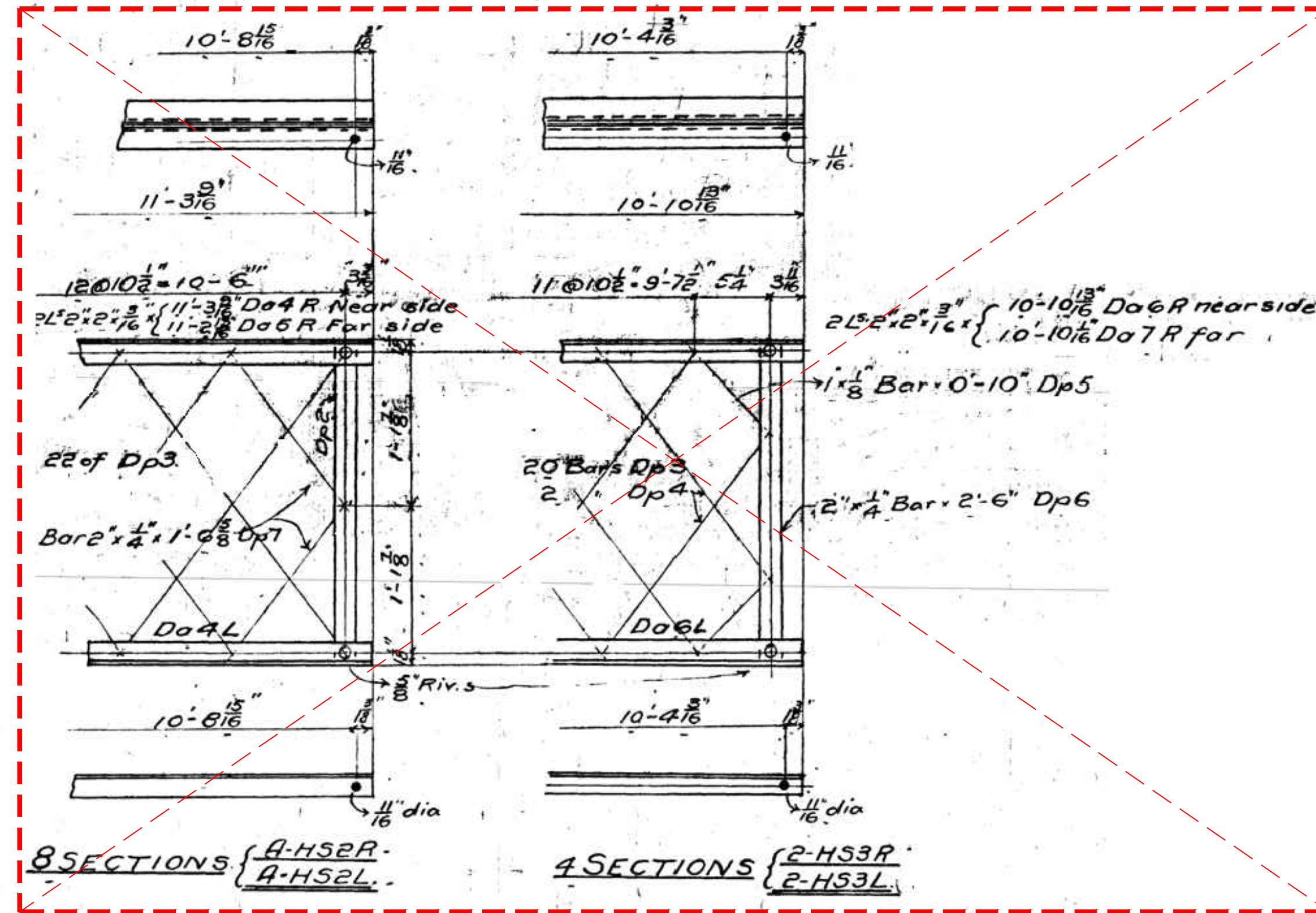
INCREASE ALL OFFSET ANGLES SUPPORTING HANDRAIL TO ELIMINATE NOTCHES IN HANDRAIL.

L5 $\frac{1}{4}$ "x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	→	L178x102x13
L5 $\frac{1}{4}$ "x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	→	L203x152x13

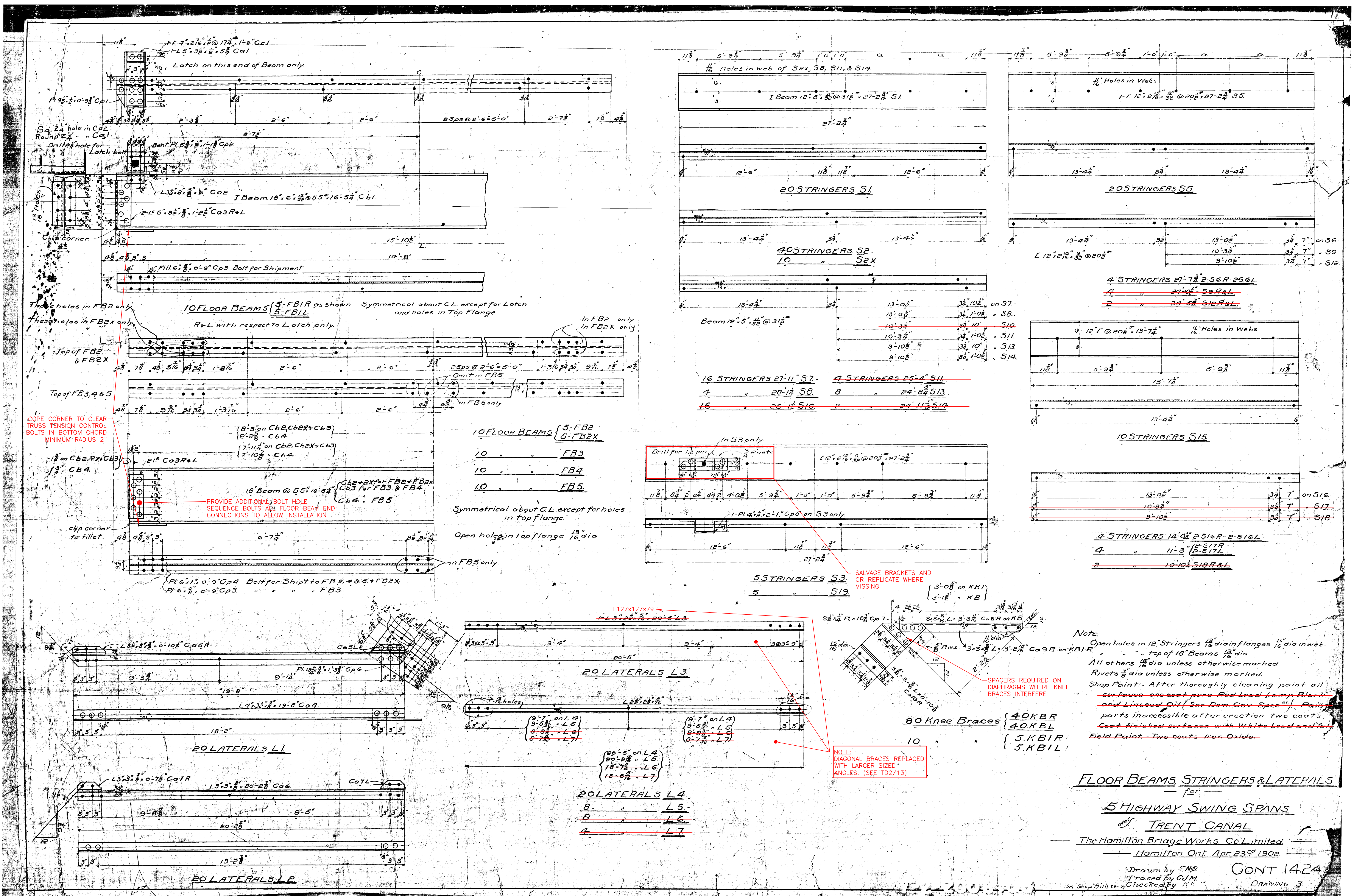


GEAR TRACK DETAIL





- ALL RAILINGS TO BE REPLICATED, HOWEVER CROSSING OF LACING TO BE SEAL WELDED.
- RAILINGS TO BE FULLY PRIMED THEN ASSEMBLED PRIOR TO MID COAT AND TOP COAT APPLICATIONS.
- BOLT LACING INTO RAILING FRAMES AND BOLT COMPLETED ASSEMBLY ONTO BRIDGE.
- RAILING FRAMES MUST BE STRAIGHT PRIOR TO APPLICATION OF MID COAT AND TOP COAT
- INCREASE SIZE OF ALL CLIP ANGLES SUPPORTING RAILING TO ELIMINATE NOTCHES IN RAILING.



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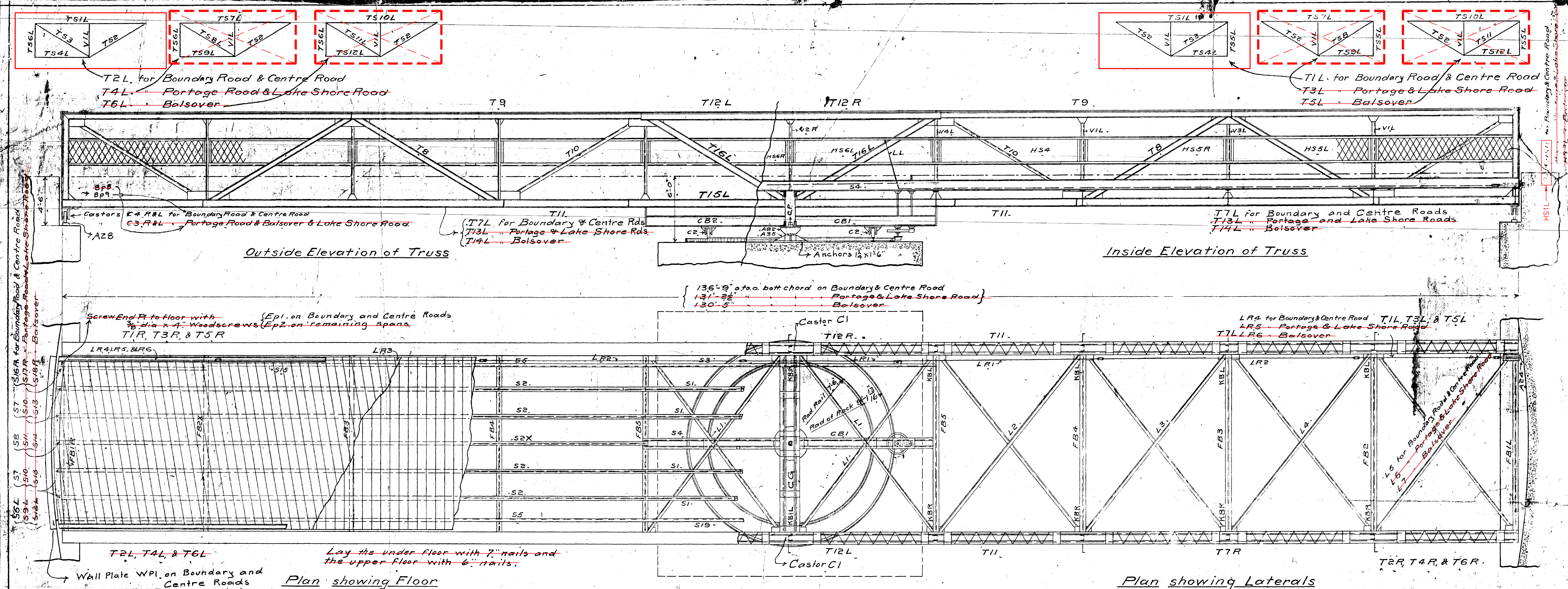
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project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin
**STRUCTURAL STEEL
FLOOR BEAMS, STRINGERS
and LATERALS**

drawn by dessiné par	G. MOTA
designed by conçu par	D.A. HUCTWITH
approved by approuvé par	
bid offre	project manager administrateur de projets
project date date du projet	2022-07-15
project no. no. du projet	341
drawing no. dessiné no.	S15

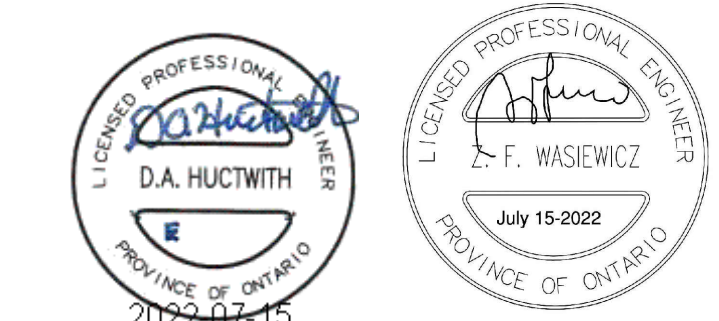
NOTE: STRINGER AND FLOOR BEAM SIZES AS PER NEW DRAWING WITH DIAPHRAGMS
AND CONTINUOUS DECK STRINGERS. DETAILS AS PER THIS DRAWING WHERE NEW
DRAWINGS DO NOT CHANGE DETAILS.



Erector will adjust the pivot so that the castor wheels have a slight clearance above the rail, the pivot carrying the entire load. The casting A35 should have a steel disc in the bottom, then a bronze disc and a concave steel disc on top. A plate 12" sq. is provided to cover hole in floor over shaft. This is to be set in a recess. Paint two coats after erection.

Note:-
For Strains, Sections, Dimensions and such additional information see Diag. A.
Field Paint - Two coats Iron Oxide.

ERECTION DIAGRAM - SWING BRIDGES
OVER
THE TRENT CANAL
AT BOUNDARY ROAD, CENTRE ROAD,
LAKE SHORE ROAD, PORTAGE ROAD, AND BALSOVER
Submitted by - The Hamilton Bridge Works Co. Limited
Hamilton Ont
Jan. 25th 1902
Altered from Design 29th April 1902
Marks Revised 21st July 1902
Con. 1424
Diag. B.



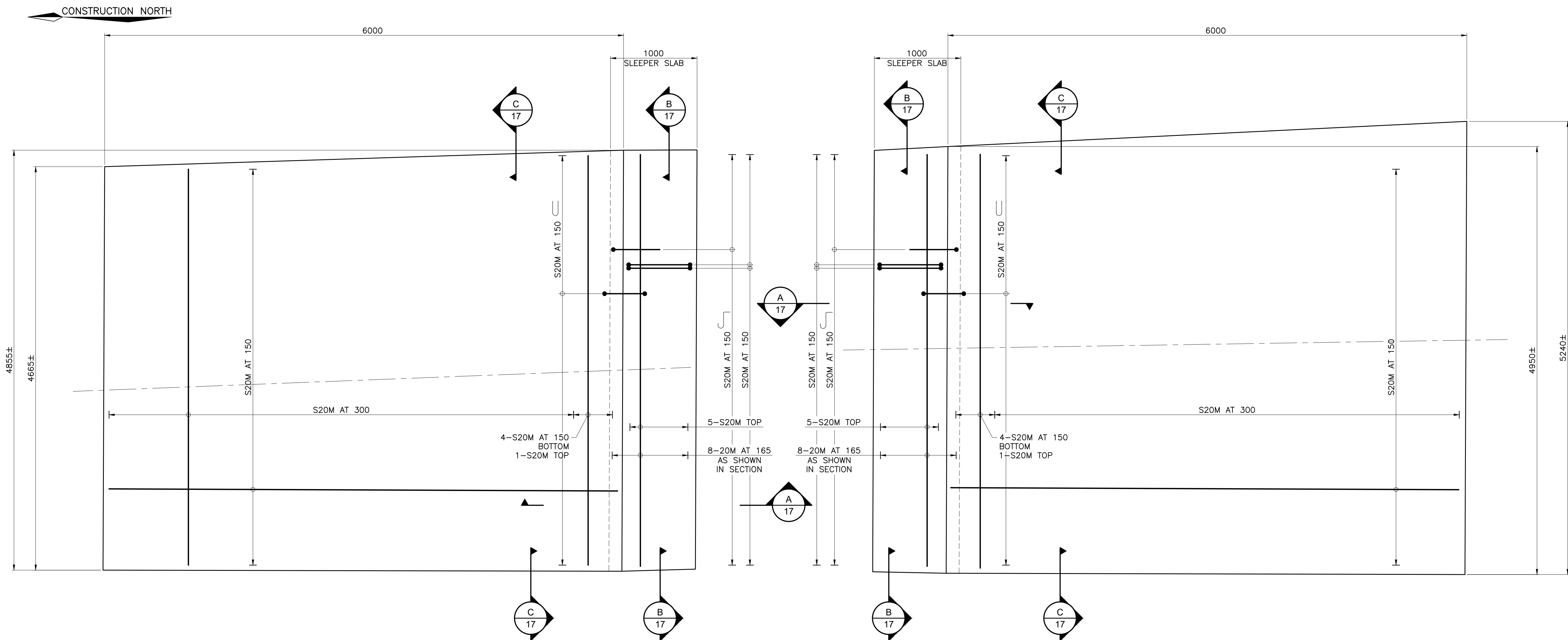
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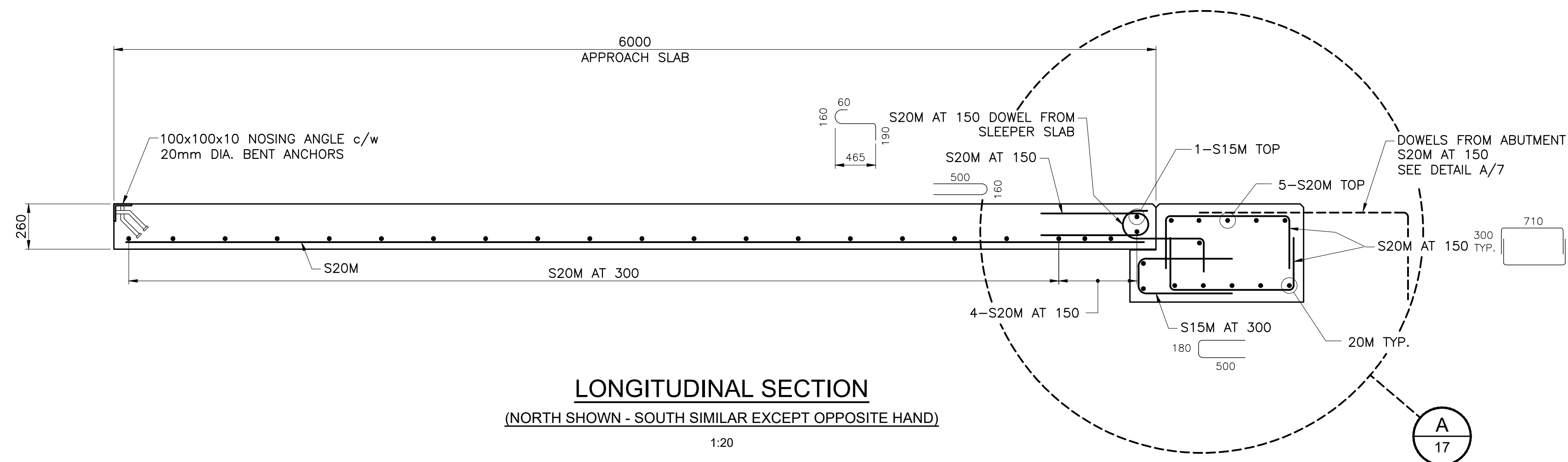
project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title titre du dessin STRUCTURAL STEEL ERECTION DIAGRAM	drawn by dessiné par G. MOTA	designed by conçu par D.A. HUCTWITH	approved by approuvé par	bid offre	project manager administrateur de projets
project date date du projet 2022-07-15	project no. no. du projet 341	drawing no. dessiné no. S16			

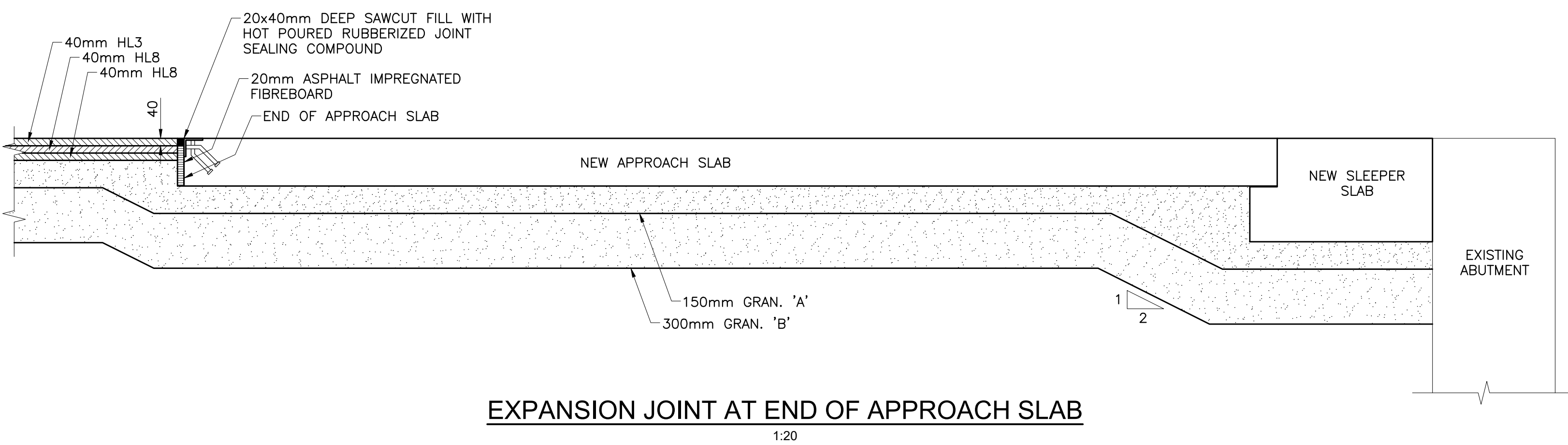


NOTE:
FOR ANGLE AND ORIENTATION OF APPROACH SLABS, SEE
GENERAL ARRANGEMENT DRAWING. APPROACH SLABS TO
MATCH EXISTING ROADWAY ASPHALT LIMITS.

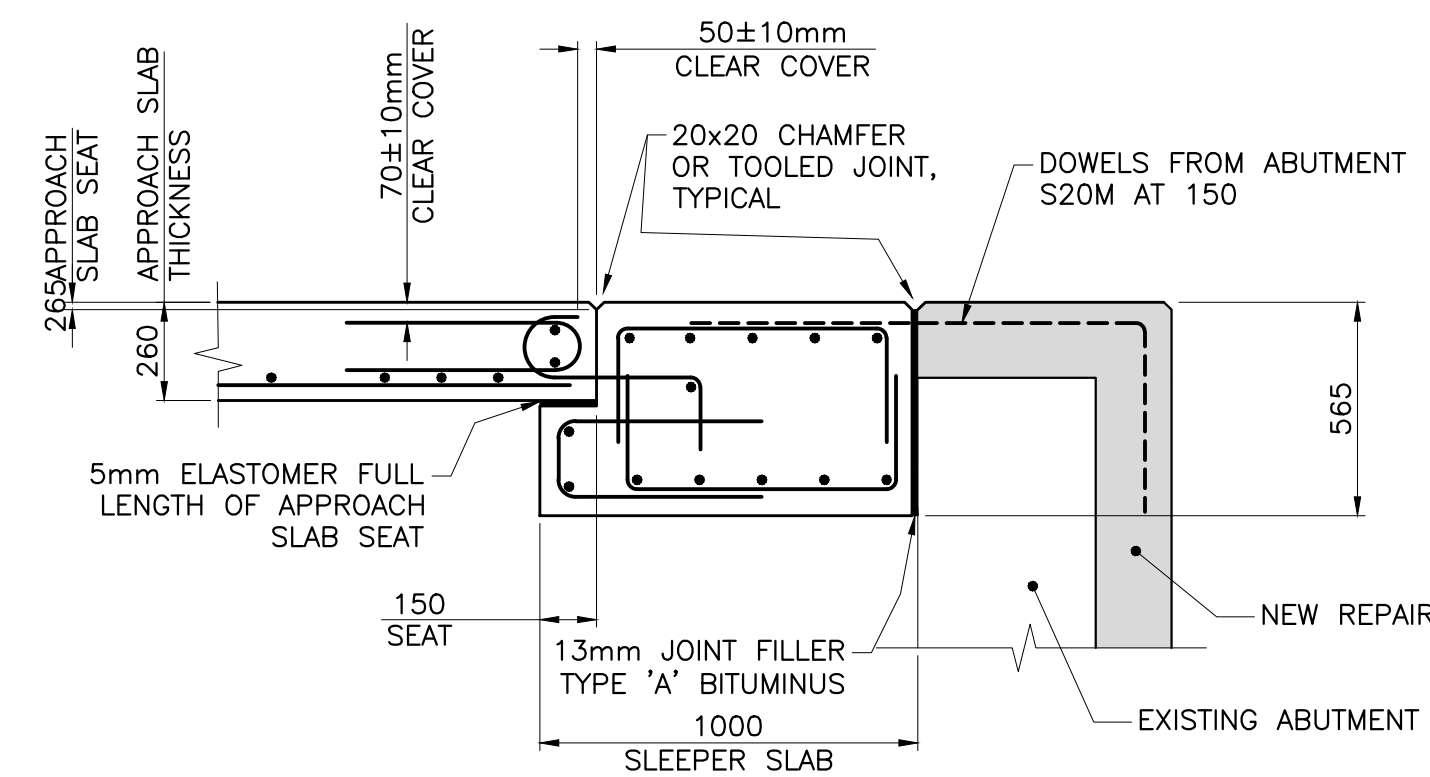
PLAN
1:25



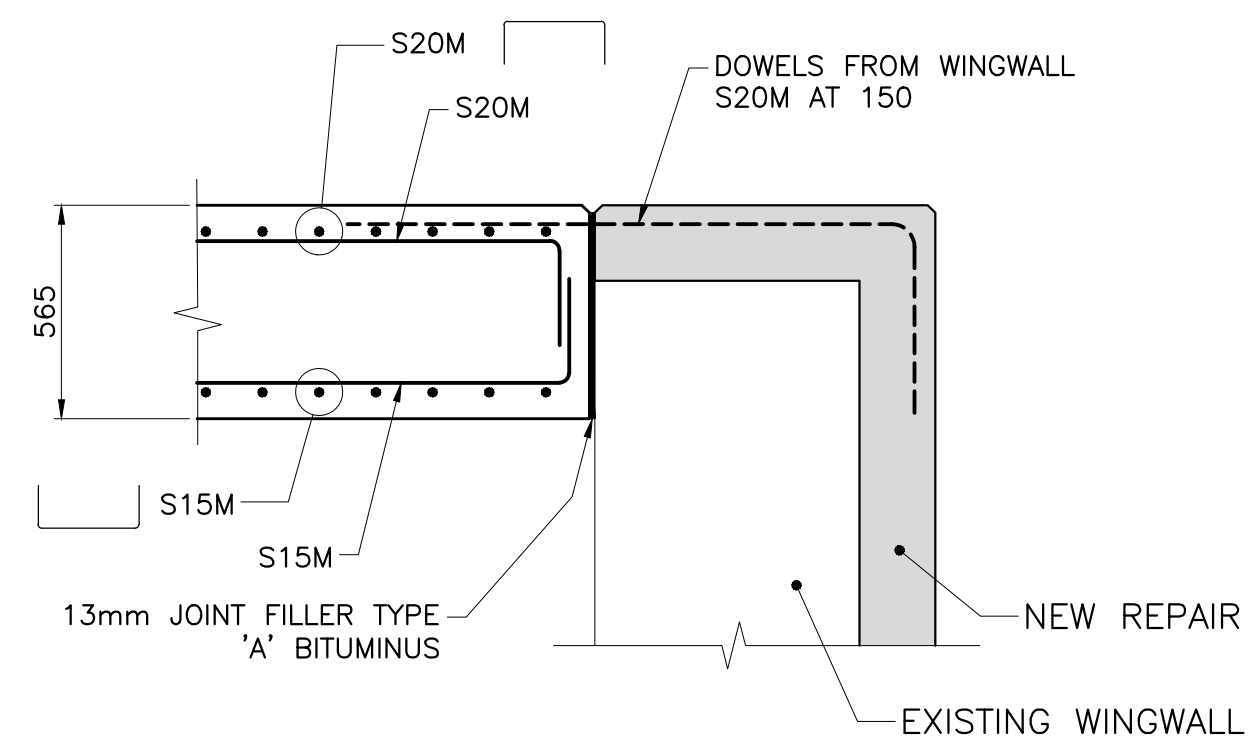
LONGITUDINAL SECTION
(NORTH SHOWN - SOUTH SIMILAR EXCEPT OPPOSITE HAND)
1:20



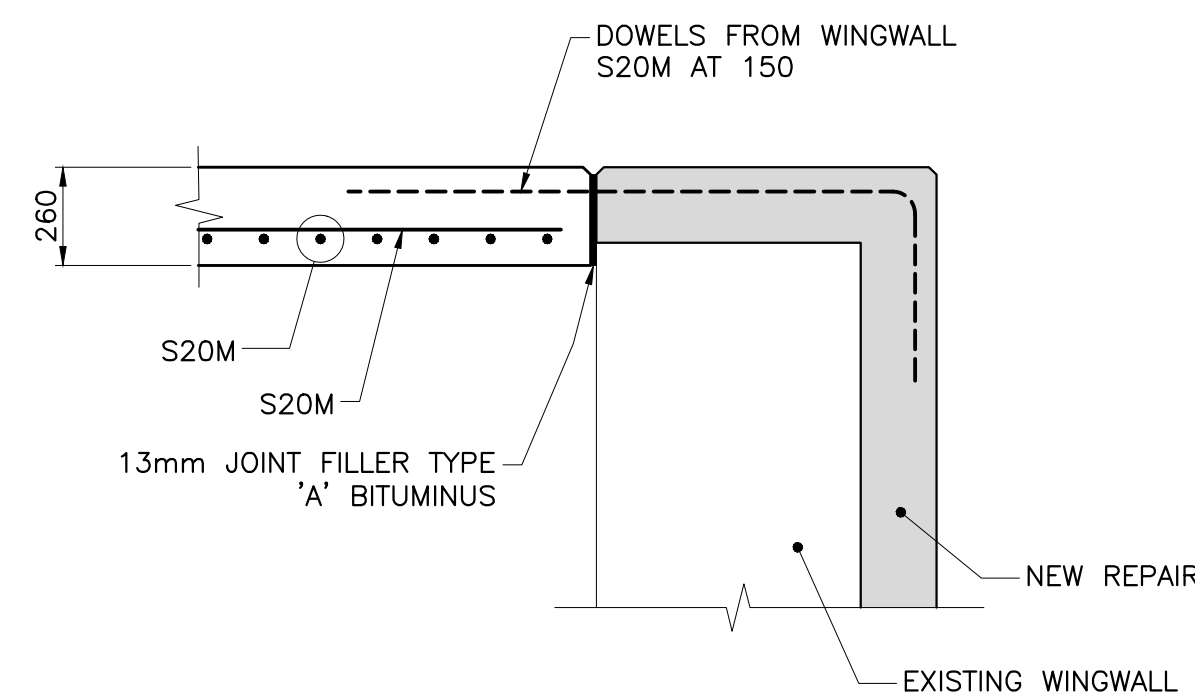
EXPANSION JOINT AT END OF APPROACH SLAB
1:20



A AT BRIDGE ABUTMENT
1:20



B AT WINGWALL
1:20



C AT WINGWALL
1:20

NOTES:

1. CLEAR COVER TO REINFORCING STEEL 70±20mm EXCEPT AS NOTED.
2. LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
3. BARS MARKED WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
4. STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500MPa. REINFORCING STEEL SHALL BE GRADE 400W.



04		
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02		
01	ISSUED FOR TENDER	07/15/2022
revision		date

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

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

project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin
**SLEEPER SLAB and
APPROACH SLAB**

drawn by
dessiné par
P.C. MASON

designed by
conçu par
D.A. HUCTWITH

approved by
approuvé par

bid
offre
project manager
administrateur
de projets

project date
date du projet
2022-07-15

project no.
no. du projet
341

drawing no.
dessiné no.
S17

REPLACE THE EXISTING HOUSING SUPPORT BRACKETS ETC. SUCH THAT THE NEW MECHANISM CAN BE SUPPORTED, CONFIGURE TO SUIT NEW LATCH MECHANISM. COAT ALL STEEL PORTIONS OF BRACKETS, ETC. WITH FULL COATING SYSTEM AND CONSTRUCT THE HOUSING FROM ASTM GRADE 316 STAINLESS STEEL



PHOTO 1

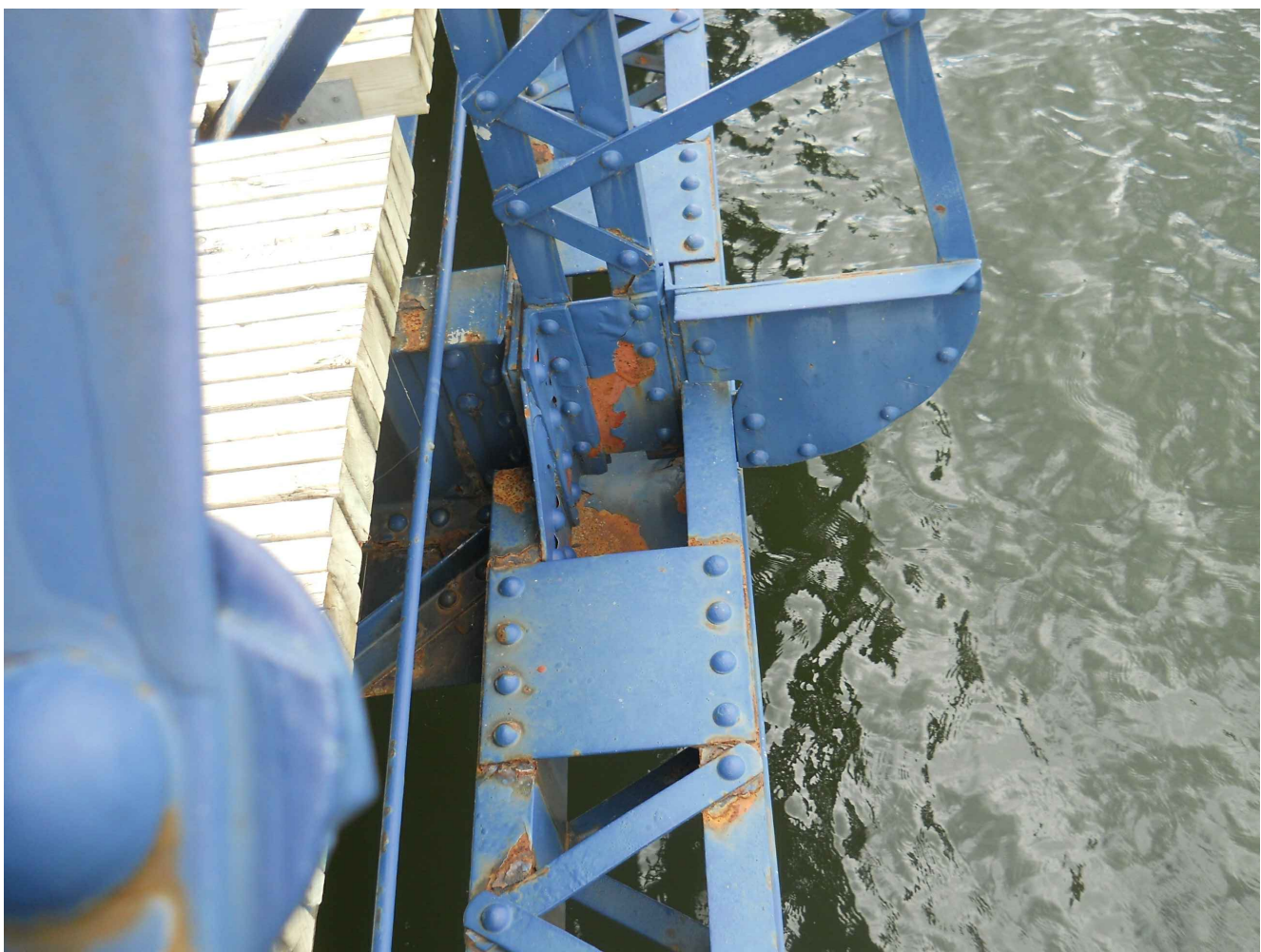


PHOTO 2



PHOTO 3



PHOTO 4



PHOTO 5



PHOTO 6

REMOVE EXISTING LADDER AND REPLACE WITH NEW LADDER MATCHING EXISTING CONDITIONS. (THE LADDER AT BOLSOVER BRIDGE CAN BE USED FOR COMPARISON)



PHOTO 7

REPLACE DAMAGED END STOP- ON REST PIER WITH NEW MATCHING CURRENT DESIGN

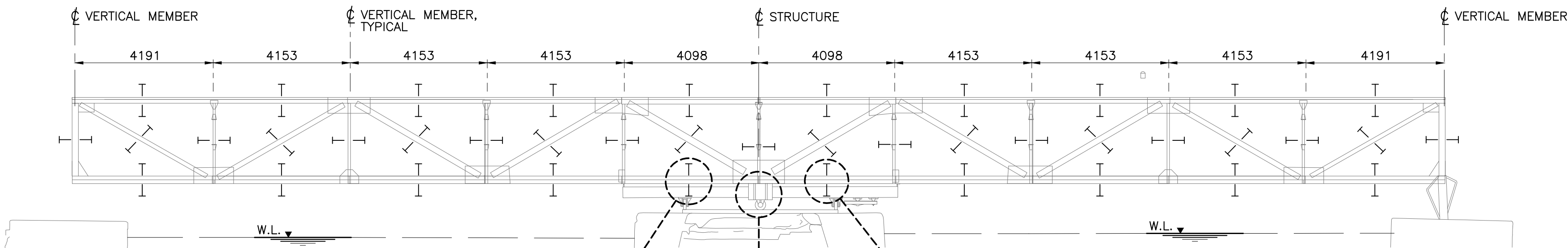


PHOTO 8



PHOTO 9

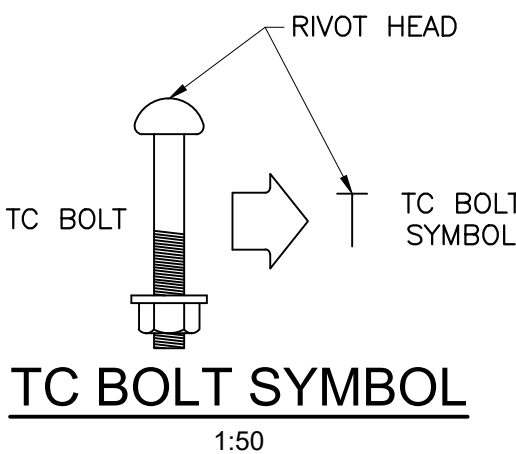
CONTRACTOR TO NOTE POSITION OF LIGHTING AND APPROXIMATE GEOMETRY OF SHIELDING. ALL NAVIGATION LIGHT HOUSING, WIRING AND LIGHTS WILL BE REPLACED WITH THE HOUSING MODIFIED SO THAT THEY ARE BOLTED AND NOT WELDED TO THE TRUSS AND THE LIGHTS ARE CAGED LED LIGHTS INTENDED FOR A MARINE ENVIRONMENT. MOUNTING POSITION AND HEIGHT TO REMAIN THE SAME. (LIGHTING SYSTEM FROM BOLSOVER BRIDGE CAN BE USED FOR COMPARISON)



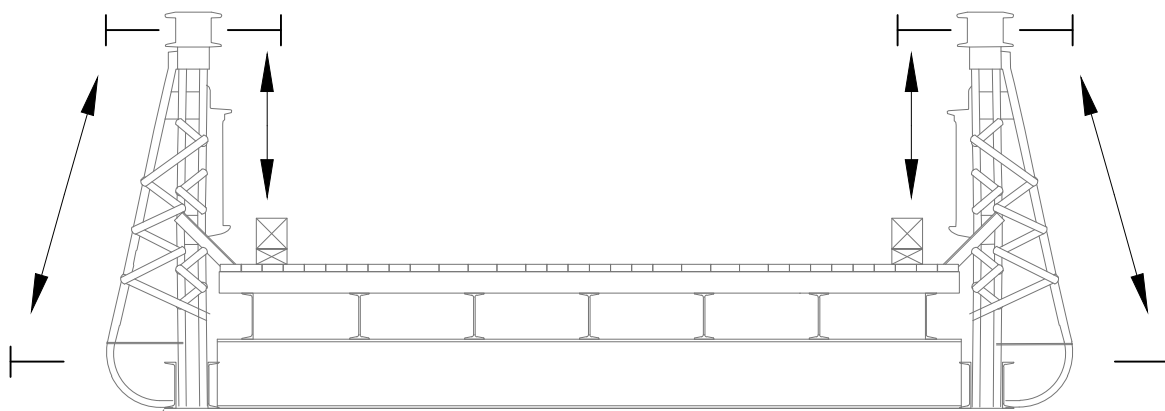
TC BOLT ORIENTATION: ELEVATION
N.T.S.

NOTE:

- THE DIMENSION OF THE C CHANNELS DICTATE THAT SPECIAL TOOLS FOR SMALL SECTIONS WILL BE REQUIRED TO CLEAR THE NUTS ON THE OTHER SIDE OF EACH CHANNEL AND INSTALL THE TENSION CONTROL BOLTS IN THE CORRECT ORIENTATION.
- ON C CHANNELS AND ALL SECTIONS WITH TAPERED OR SLOPED FLANGES TAPERED WASHERS ARE REQUIRED.



NOTE:
ORIENTATION OF BOLTS SHOWN WITH SYMBOL



TC BOLT ORIENTATION: SECTION
1:50

NOTES:

- BOLSOVER BRIDGE PROVIDES A GENERAL GUIDE FOR THE ORIENTATION AND WASHERS FOR THE BRIDGE. THE BRIDGE WILL BE SIMILAR WITH NOTED CHANGES IN PLATE THICKNESS AND END PANELS.

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revision		date

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

project title titre du projet	KAWARTHA LAKES	Ontario
drawing title titre du dessin	BOUNDARY ROAD SWING BRIDGE REPLACEMENT TRENT-SEVERN WATERWAY	

drawing title titre du dessin	MISCELLANEOUS
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drawn by dessiné par	G. MOTA
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designed by conçu par	D.A. HUCTWITH
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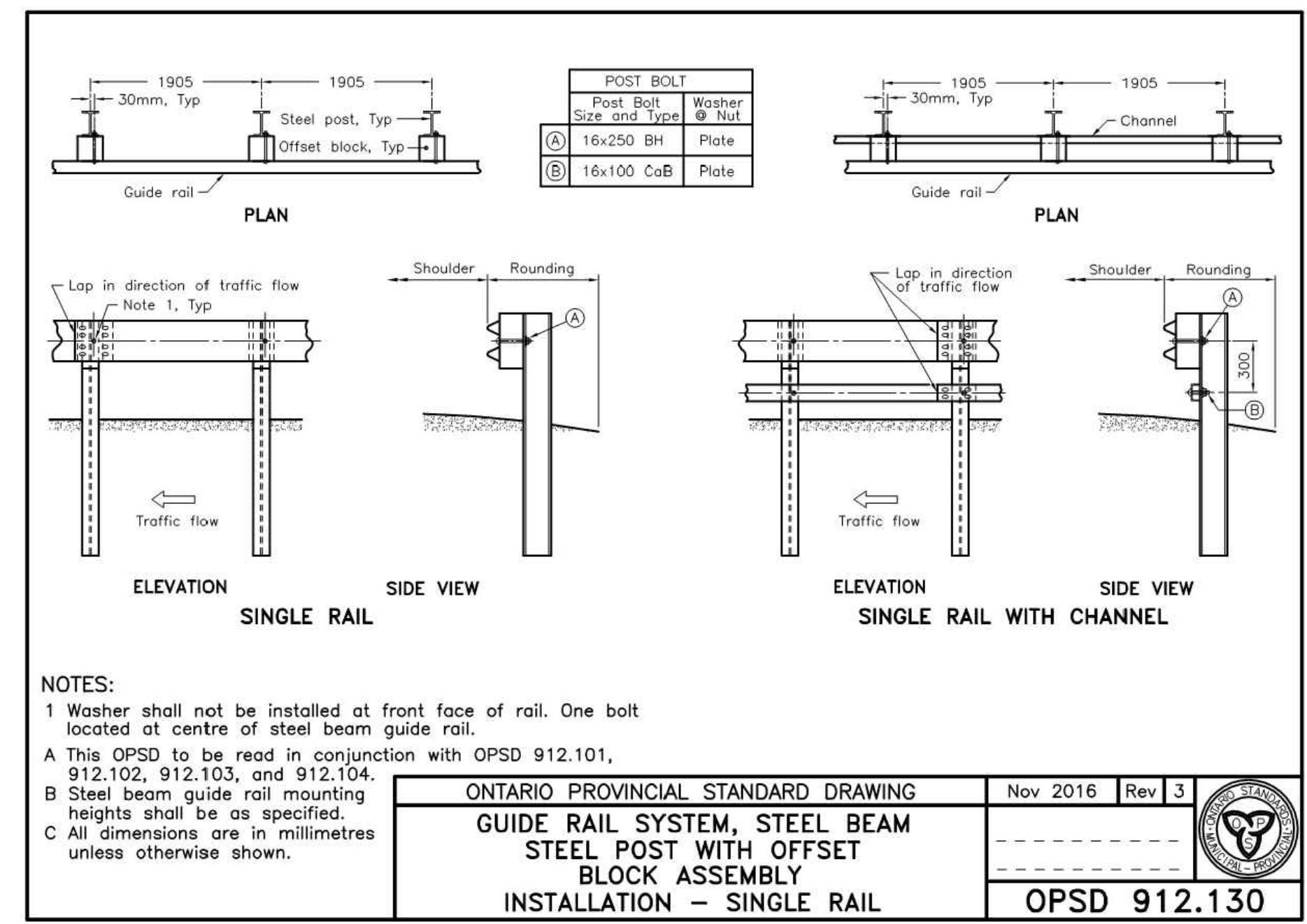
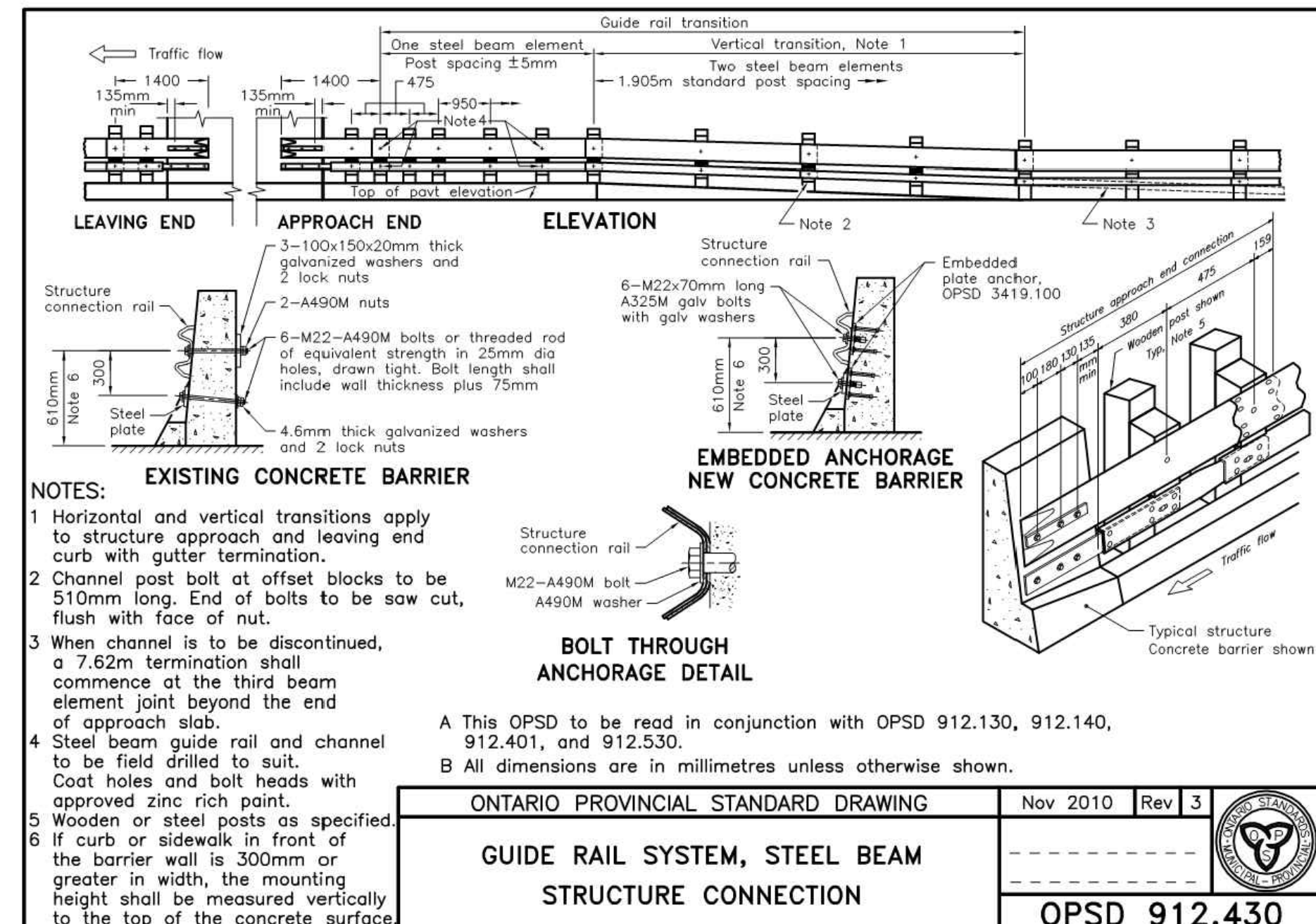
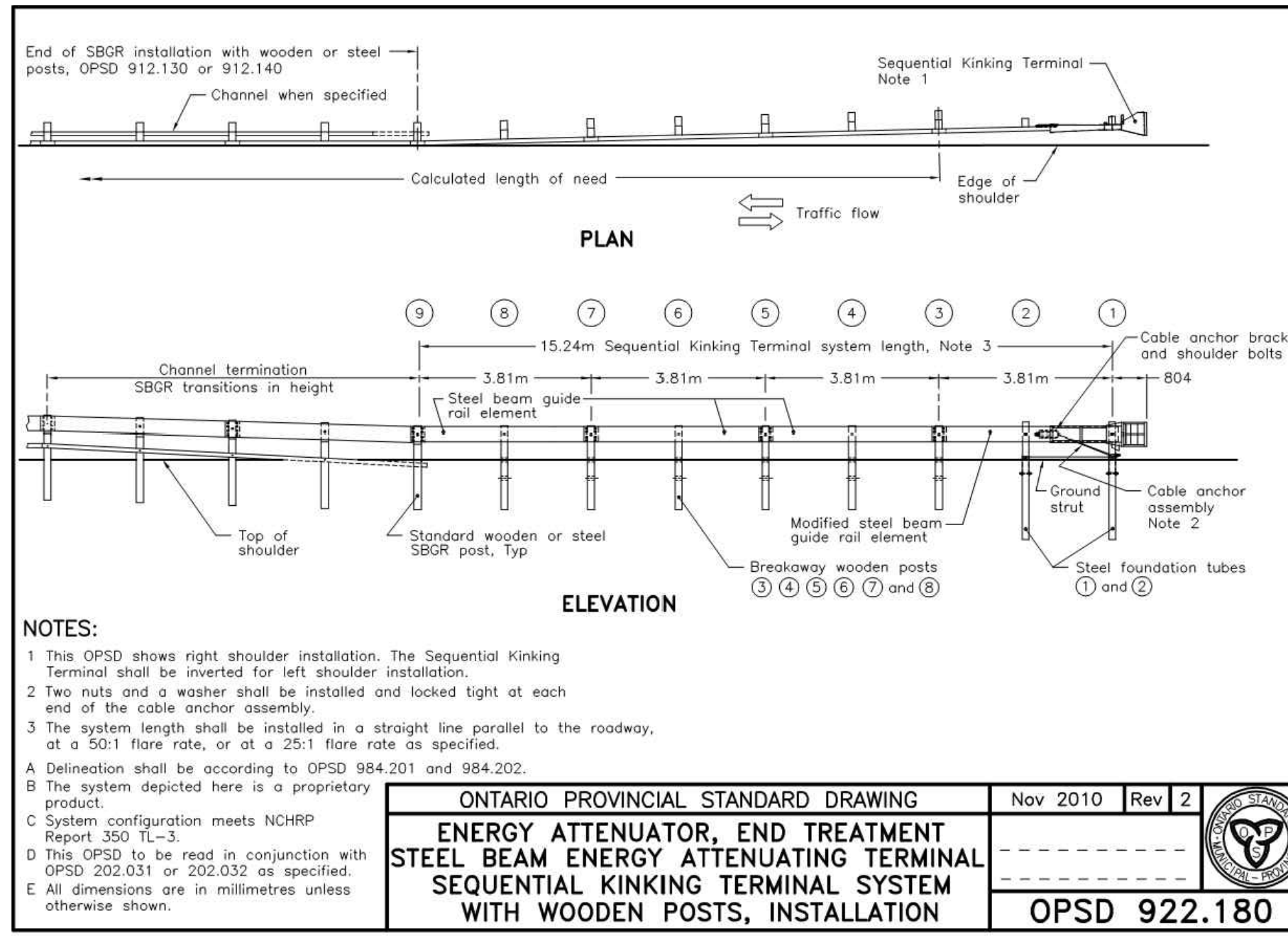
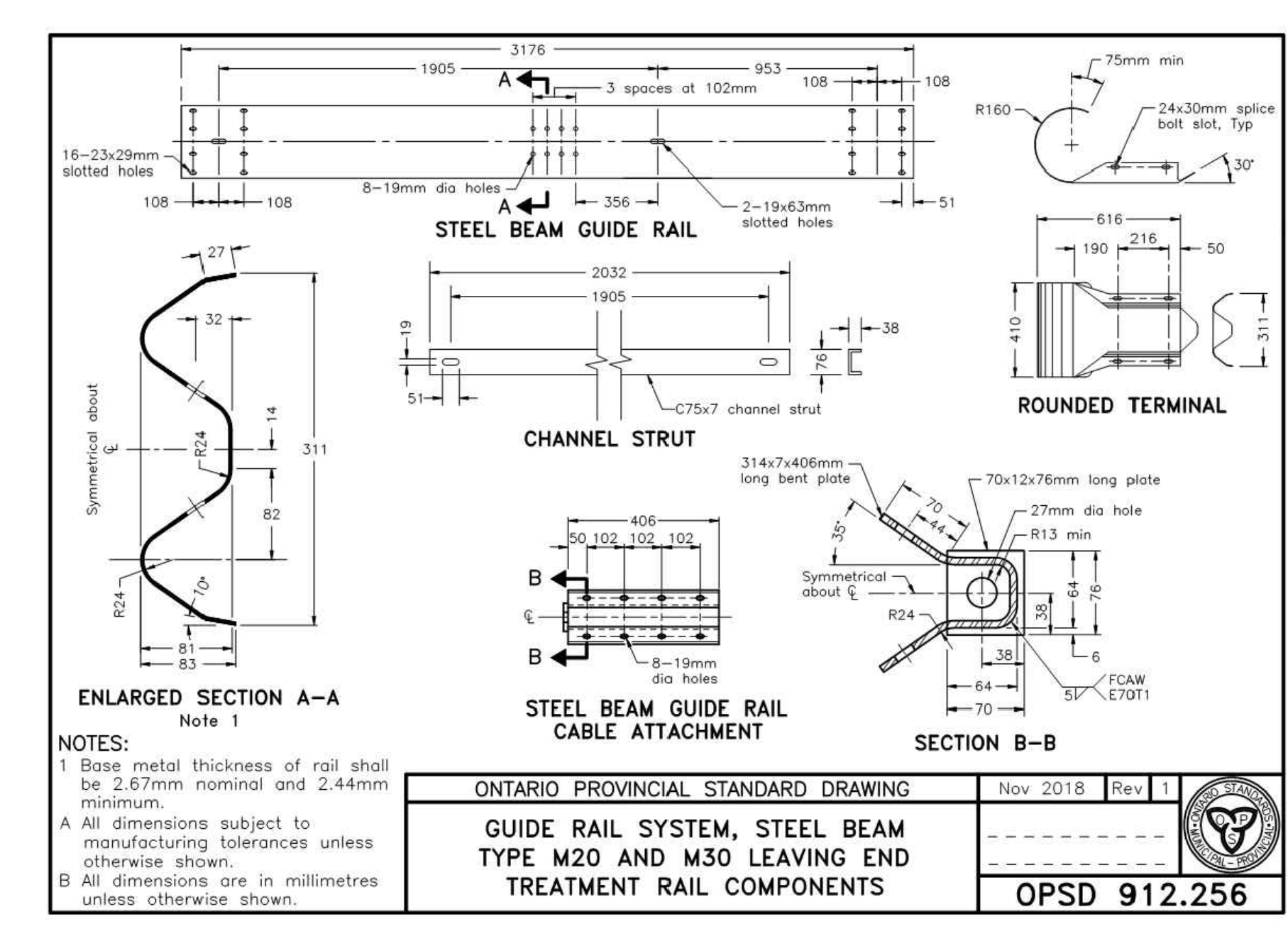
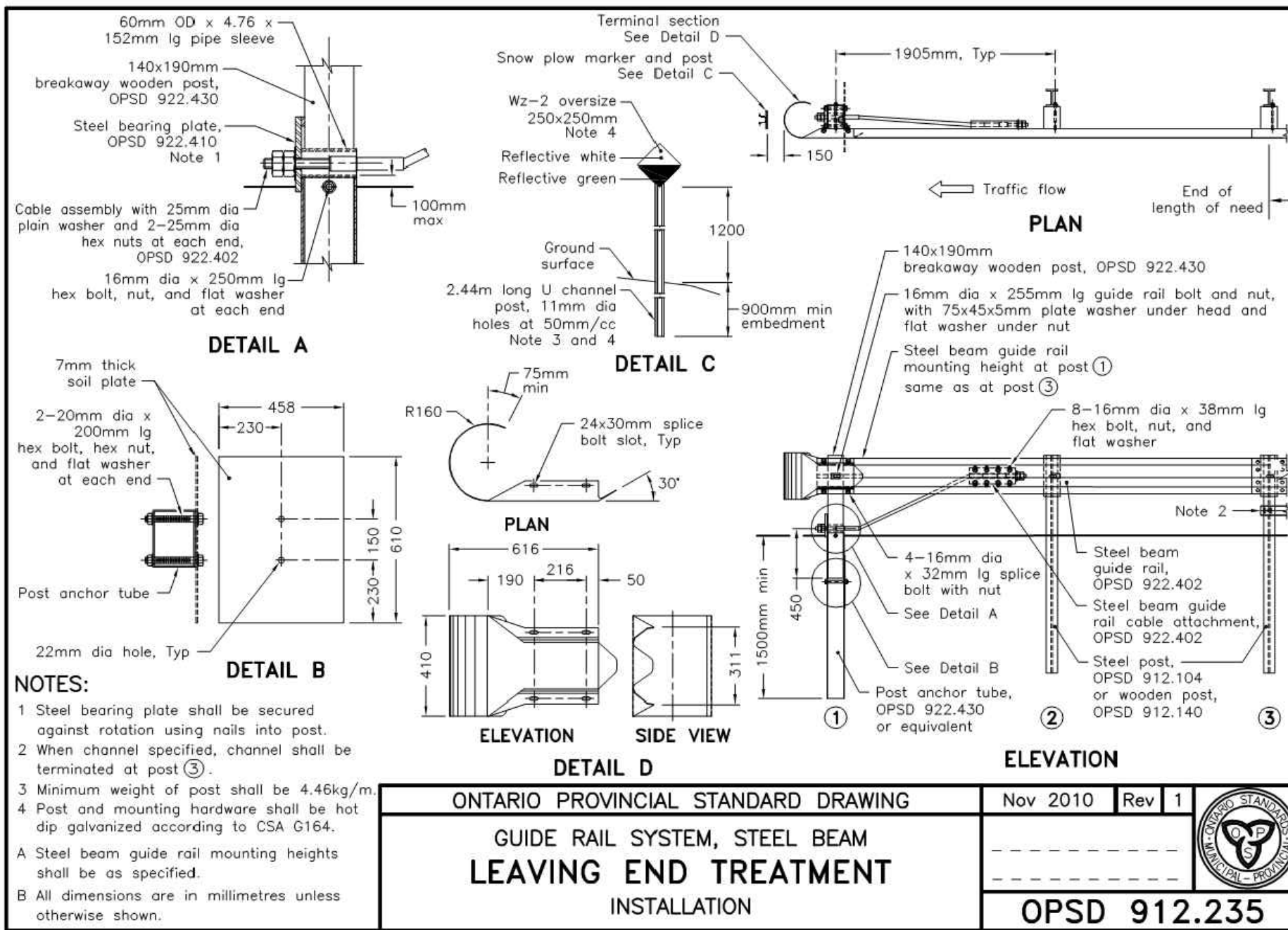
approved by approuvé par	
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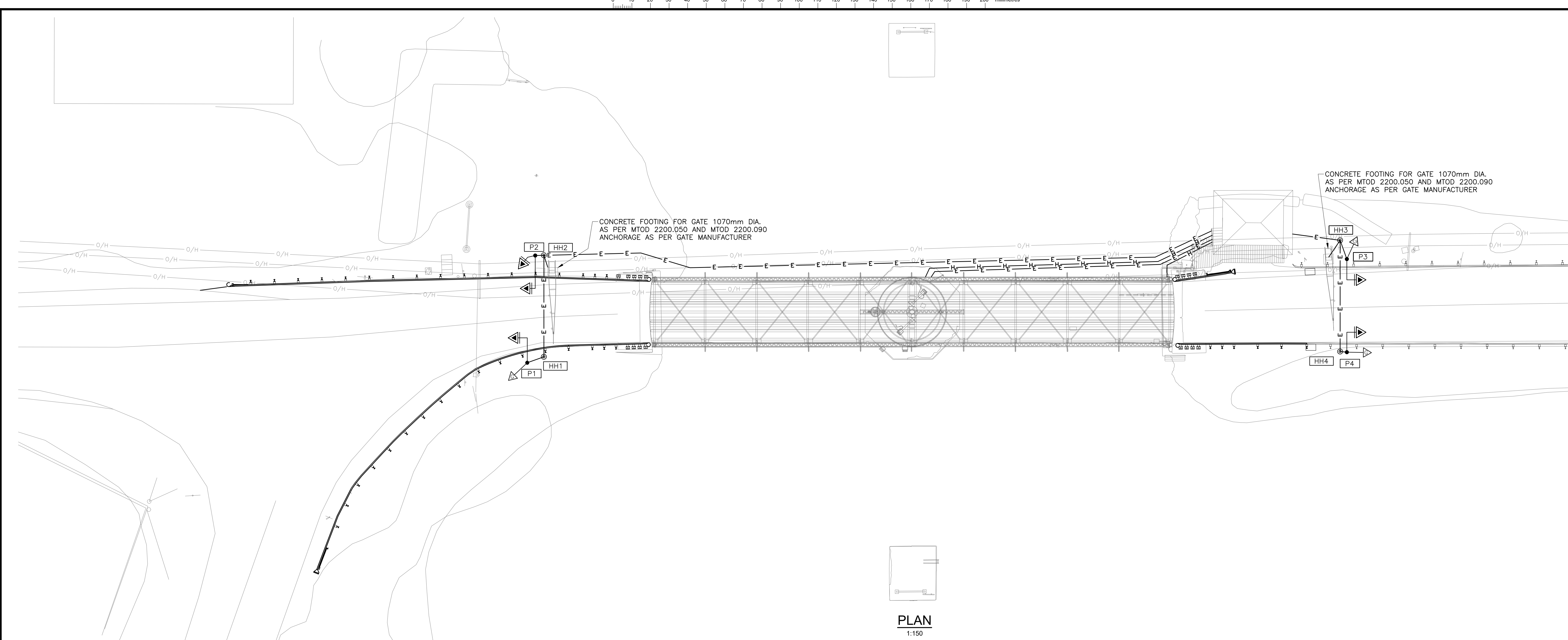
bid offre	project manager administrateur de projets
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project date date du projet	2022-07-15
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project no. no. du projet	341
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drawing no. dessiné no.	S18
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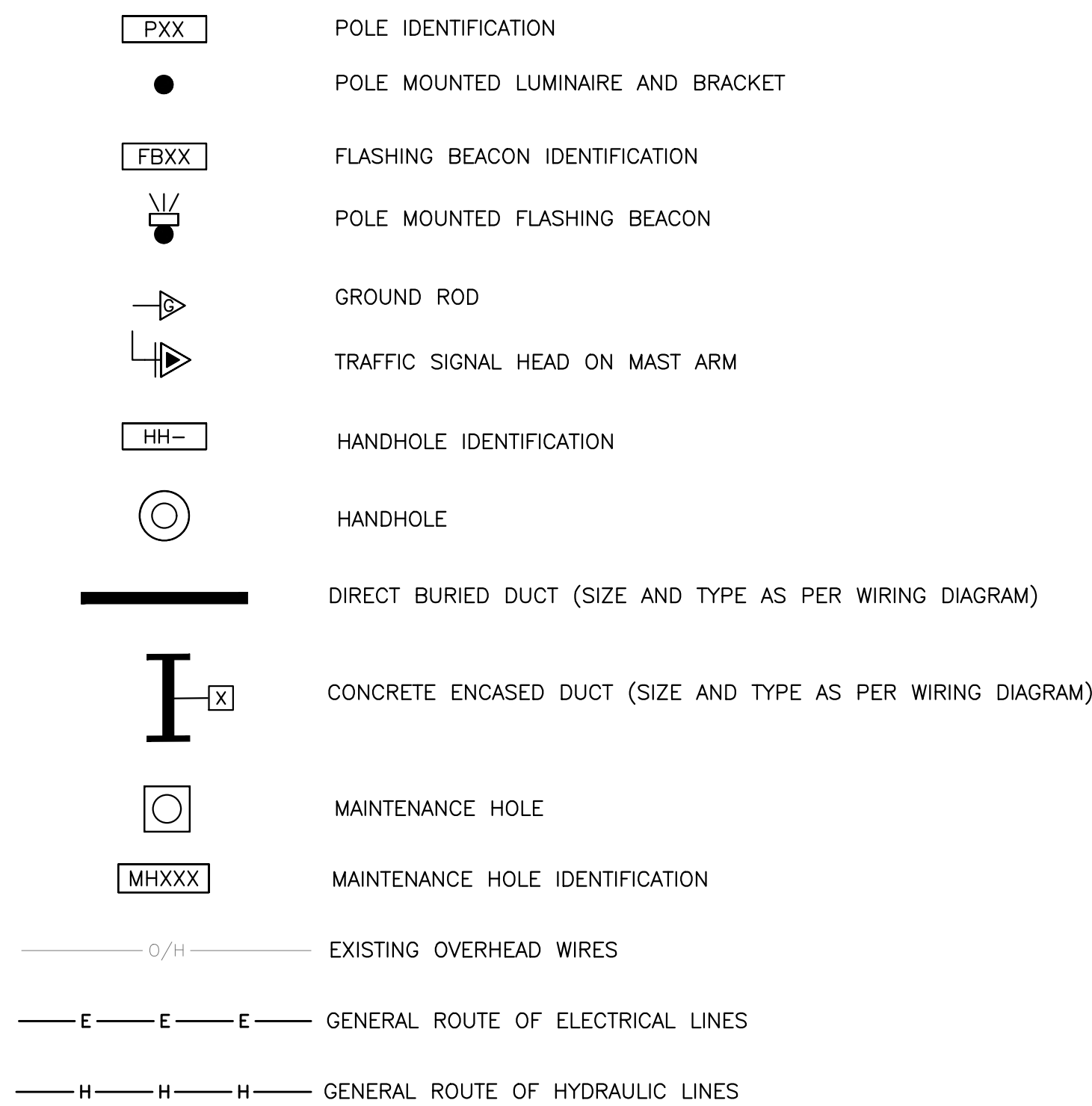




PLAN
1:150

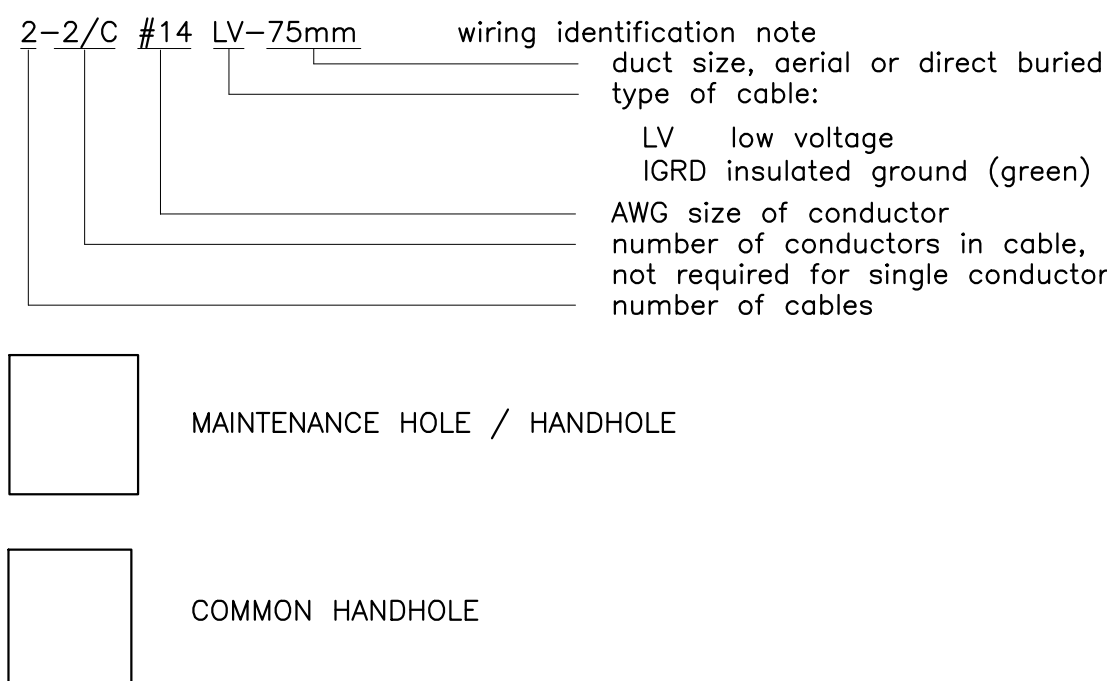
ELECTRICAL LEGEND:

ALL EQUIPMENT ARE NEW, UNLESS SHOWN IN THINNER LINE (EXISTING)



WIRING AND CONDUIT IDENTIFICATION:

ALL EQUIPMENT ARE NEW, UNLESS SHOWN IN THINNER LINE (EXISTING)



ABBREVIATION LIST:

DWG - DRAWING	OPSD - ONTARIO PROVINCIAL STANDARD DRAWINGS
IGRD - INSULATED GROUND WIRE	E/P - EDGE OF PAVEMENT
LV - LOW VOLTAGE	BHG - BEHIND GUIDE RAIL
P - POLE	E/S - EDGE OF SHOULDER
LED - LIGHT EMITTING DIODE	TS - TRAFFIC SIGNAL

CHARTS:

POLE SCHEDULE						
ID	POLE HEIGHT	POLE TYPE	TRAFFIC SIGNAL HEAD ON MAST ARM	LUMINAIRE WITH BRACKET	STATION	OFFSET (m)
P1	10.5 m	SECTIONAL STEEL	1 - 2.0m ARM	-	-	1.7m BHG
P2	7.5 m	SECTIONAL STEEL (HEAVY CLASS)	2 - 0.6m ARM	-	-	1.0m BHG
P3	10.5 m	SECTIONAL STEEL	1 - 2.0m ARM	-	-	0.6m BHG
P4	7.0 m	SECTIONAL STEEL	1 - 0.6m ARM	-	-	0.6m BHG

HANDHOLE SCHEDULE				
ID	DESCRIPTION	STANDARD	STATION	OFFSET (m)
HH1	HANDHOLE	OPSD 2112.04	-	1.7m BHG
HH2	HANDHOLE	OPSD 2112.04	-	1.0m BHG
HH3	HANDHOLE	OPSD 2112.04	-	2.1m BHG
HH4	HANDHOLE	OPSD 2112.04	-	0.6m BHG

NOTE:
AT HANDHOLES, POLES, TRAFFIC GENERAL LAYOUT SIGNAL HEADS, ARMS, ATTACHMENT AND ASSOCIATED WORK, THE STANDARDS AND DRAWINGS OF THE OPS, OPSD, AND MTOD SHALL BE USED AS DETAILS.



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01	ISSUED FOR TENDER	07/15/2022
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A C	A Detail No. No. du détail drawing no. - where detail required dessin no. - où détail exigé	A B C
C	C drawing no. - where detailed dessin no. - où détaillé	

project title
titre du projet
KAWARTHA LAKES Ontario
BOUNDARY ROAD
SWING BRIDGE REPLACEMENT
TRENT-SEVERN WATERWAY

drawing title
titre du dessin
ELECTRICAL GENERAL LAYOUT

drawn by
dessiné par
P.C. MASON

designed by
conçu par
D.A. HUCTWITH

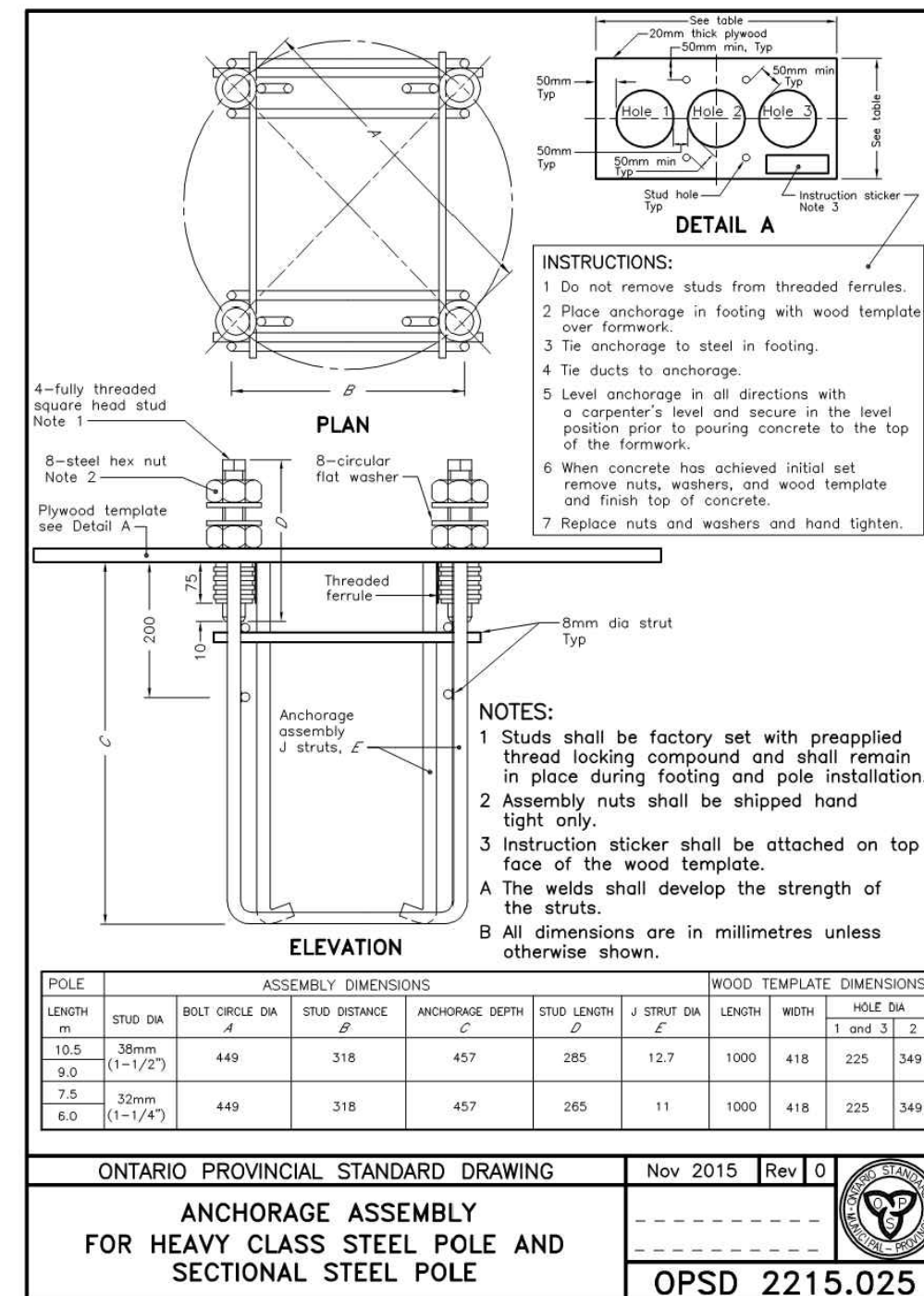
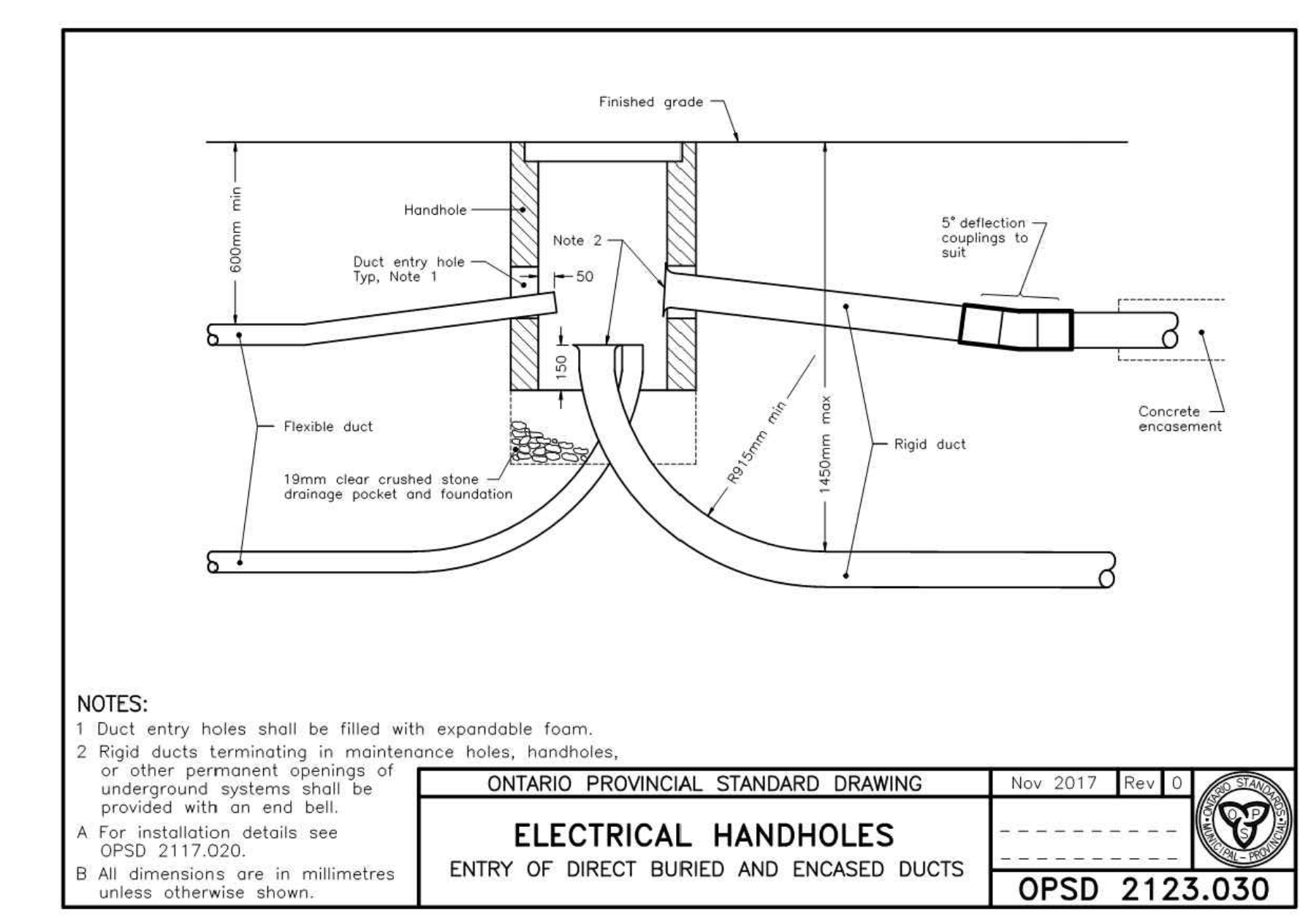
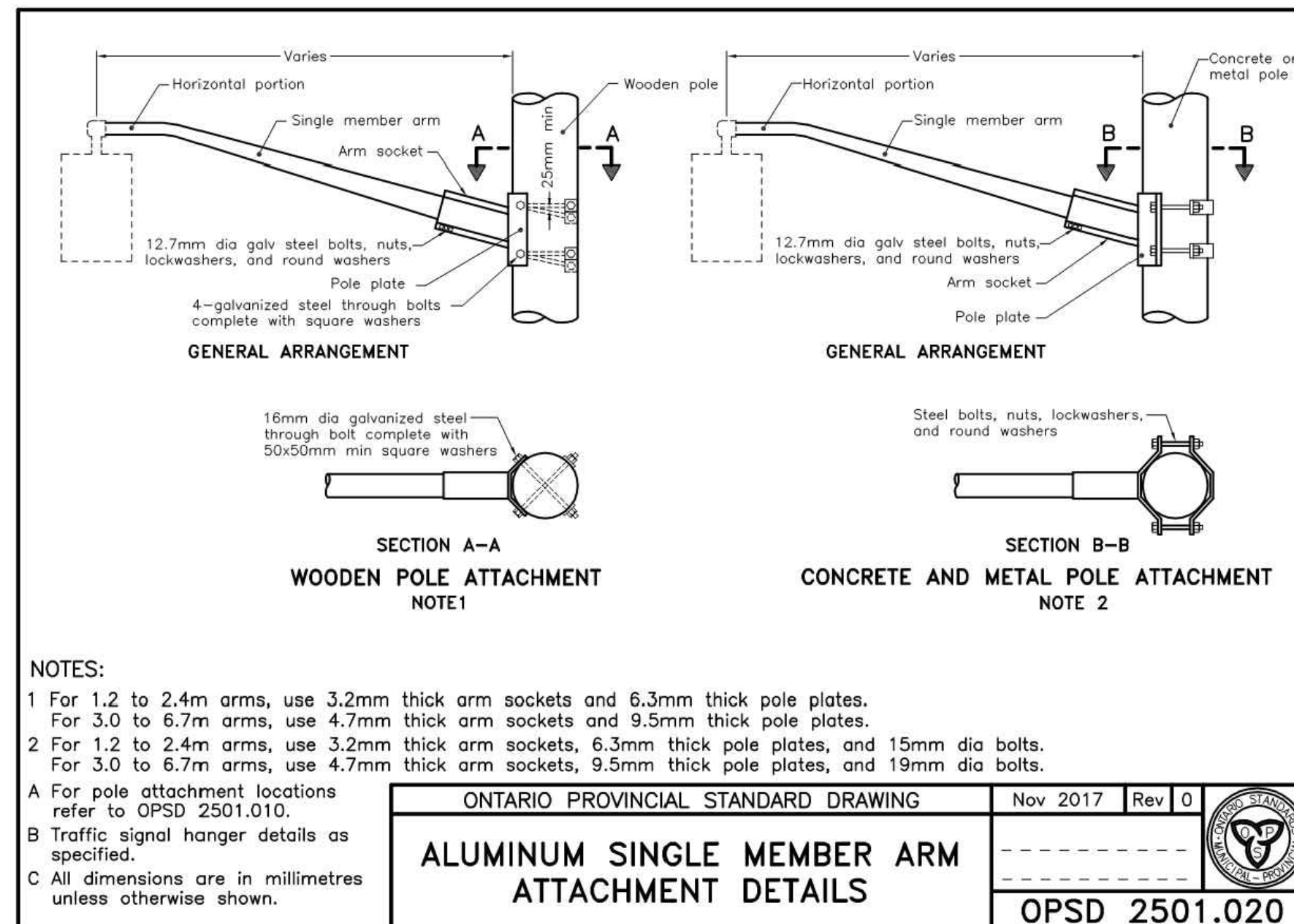
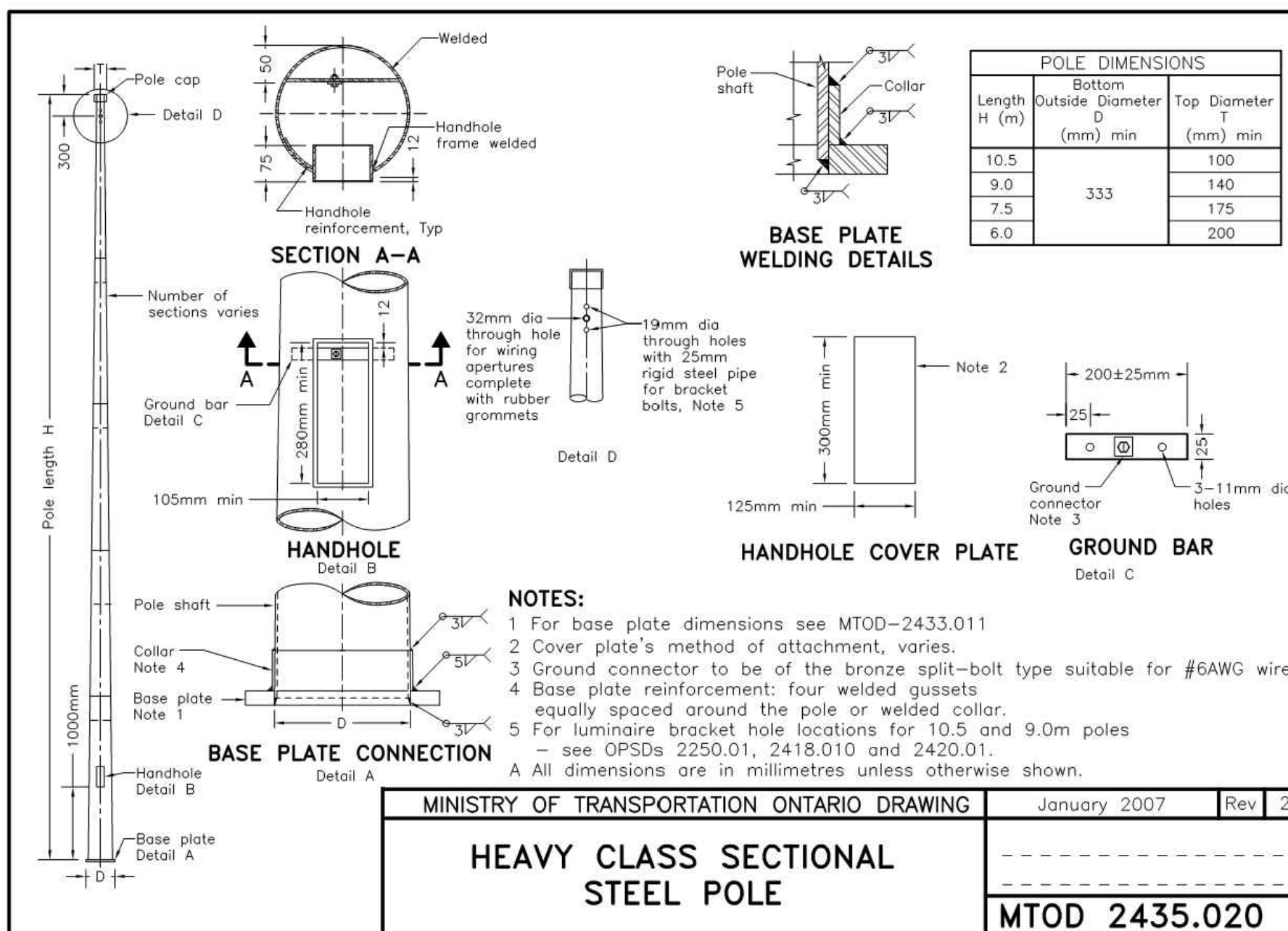
approved by
approuvé par

bid
offre
project manager
administrateur
de projets

project date
date du projet
2022-07-15

project no.
no. du projet
341

drawing no.
dessiné no.
S20





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Kingston, ON, Canada
K7P 2R9
+01 (613) 384-2866
www.chadwickengineering.com





Job number	Project No. R.030025.844	 <div>Public Works and Government Services Canada</div> <div>Travaux publics et Services gouvernementaux Canada</div> <div>Client Service Team for Parks Canada Ontario Region</div> <div>Équipe des services à la clientèle pour Parcs Canada Région de l'Ontario</div> 
Customer	PARKS CANADA	
Place of Installation	TRENT-SEVERN WATERWAY	
Location	CANADA	
Commission	2019	
Design (company)	Chadwick Engineering Ltd.	Client Acceptance / Acceptation du client Signature _____ Date _____ File No./No. de dossier _____
Project name	1911-1 Boundry Rd Swing Bridge	
Path	S:\EPLAN\Master Data\Projects\Chadwick	
Project Description	Boundary Road Swing Bridge #44 Rehabilitation	
Customer	PARKS CANADA	
Project lead		
Responsible for project		
<div>Project Start 2018-09-21</div> <div>Project Finish 2018-09-21 by JRobinson</div> <div>Last Modification 2019-10-04 by jrobinson</div> <div>Number of pages 83</div>		



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A_PREFACE		A1	Title page / cover sheet		2019-05-23	jrobinson
		A2	Table of contents : =A_PREFACE/A1 - =E_CONTROL+CP1/E6		2019-10-04	jrobinson
		A3	Table of contents : =E_CONTROL+CP1/E7 - =F_LAYOUTS+MS2/F21		2019-10-04	jrobinson
		A4	Table of contents : =F_LAYOUTS+MS2/F22 - =F_LAYOUTS+JB4/F48		2019-10-04	jrobinson
		A5	Structure identifier overview		2019-09-13	jrobinson
B_SPECS		B1	TAG FORMATS		2019-05-23	jrobinson
		B2	WIRE & CABLE SPECIFICATION		2019-05-23	jrobinson
		B3	CONDUCTOR SIZE CONVERSION CHART		2019-05-23	jrobinson
		B4	FIELD DEVICE SPECIFICATIONS		2019-09-18	jrobinson
C_INSTALL		C1	EXISTING SITE ARRANGEMENT		2019-08-08	jrobinson
		C2	EXISTING SITE VIEW - NORTH APPROACH		2019-09-19	jrobinson
		C3	EXISTING SITE VIEW - SOUTH APPROACH		2019-09-19	jrobinson
		C4	ELECTRICAL INSTALLATION		2019-09-19	jrobinson
		C5	SUBMARINE CABLE ARRANGEMENT		2019-09-09	jrobinson
		C6	CABLE AND TRENCH ROUTING		2019-09-13	jrobinson
		C7	Cable overview : -C-GEN1 - -C47		2019-09-12	jrobinson
		C8	Cable overview : -C48 - -C71		2019-10-04	jrobinson
		C9	Cable overview : -C72 - -C121		2019-09-18	jrobinson
		C10	Cable overview : -C121 - -C143		2019-09-18	jrobinson
D_POWER	F	D1	INCOMING 120VAC/240VAC DISTRIBUTION		2019-10-04	jrobinson
	F	D2	+LP1 - 120VAC/240VAC DISTRIBUTION (CIRCUITS 1-16)		2019-10-04	jrobinson
	F	D3	+LP1 - 120VAC/240VAC DISTRIBUTION (CIRCUITS 17-32)		2019-09-19	jrobinson
E_CONTROL	CP1	E1	240V/1Φ/60HZ HYDRAULIC POWER (PUMPS & HEATER)		2019-09-09	jrobinson
	CP1	E2	120VAC/24VDC - POWER DISTRIBUTION		2019-09-18	jrobinson
	CP1	E3	PROPORTIONAL VALVE CONTROL (SWING ONLY)		2019-10-04	jrobinson
	CP1	E4	DIRECTIONAL VALVE CONTROL		2019-10-04	jrobinson
	CP1	E5	BRIDGE POSITION STATUS		2019-10-04	jrobinson
	CP1	E6	END LIFT & LOCK POSITION STATUS		2019-10-04	jrobinson



HIGHER LEVEL
=A_PREFACE
MOUNTING LOCATION

A2

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E_CONTROL	CP1	E7	HYDRAULIC POWER UNIT STATUS		2019-09-05	jrobinson
	CP1	E8	HYDRAULIC PUMP CONTROL		2019-10-04	jrobinson
	CP1	E9	TRAFFIC GATES CONTROL		2019-10-04	jrobinson
	CP1	E10	TRAFFIC GATES STATUS		2019-10-04	jrobinson
	CP1	E11	SOUTH TRAFFIC LIGHTS		2019-10-04	jrobinson
	CP1	E12	NORTH TRAFFIC LIGHTS - SIMCOE APPROACH		2019-10-04	jrobinson
	CP1	E13	NORTH SIDE TRAFFIC LIGHTS - CANAL RD APPROACH		2019-09-18	jrobinson
	CP1	E14	NAVIGATION LIGHTS		2019-08-09	jrobinson
	CP1	E15	BYPASS STATUS		2019-09-19	jrobinson
F_LAYOUTS	CP1	F1	+CP1 ENCLOSURE DETAIL		2019-05-23	jrobinson
	CP1	F2	+CP1 DEVICE LAYOUT		2019-10-04	jrobinson
	CP1	F3	+CP1 LEGEND DETAILS		2019-05-23	jrobinson
	CP1	F4	Device Legend Plates		2019-09-05	jrobinson
	CP1	F5	Enclosure legend : +CP1-DSC21 - +CP1-PL51		2019-10-04	jrobinson
	CP1	F6	Enclosure legend : +CP1-DSC21 - +CP1-TB151		2019-10-04	jrobinson
	CP1	F7	Mounting Panel Hardware		2019-05-23	jrobinson
	OS1	F8	+OS1 ENCLOSURE DETAIL		2019-05-23	jrobinson
	OS1	F9	+OS1 PLINTH DETAIL		2019-05-23	jrobinson
	OS1	F10	+OS1 STATION DETAIL		2019-05-23	jrobinson
	OS1	F11	+OS1 DEVICE LAYOUT		2019-10-04	jrobinson
	OS1	F12	+OS1 ENCLOSURE PANEL DETAIL		2019-09-05	jrobinson
	OS1	F13	+OS1 LEGEND PLATE DETAIL		2019-09-05	jrobinson
	OS1	F14	Device Legend Plates		2019-09-05	jrobinson
	OS1	F15	Enclosure legend : +OS1-PL71 - +OS1-PL151		2019-10-04	jrobinson
	OS1	F16	Enclosure legend : +OS1-TB41 - +OS1-TB151		2019-09-05	jrobinson
	OS1	F17	Mounting Panel Hardware		2019-09-13	jrobinson
	MS2	F20	+MS2 ENCLOSURE DETAIL		2019-05-23	jrobinson
	MS2	F21	+MS2 JUNCTION BOX DETAIL		2019-05-23	jrobinson



HIGHER LEVEL
=A PREFACE
MOUNTING LOCATION

A3

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F_LAYOUTS	MS2	F22	+MS2 DEVICE LAYOUT		2019-05-23	jrobinson
	MS2	F23	+MS2 ENCLOSURE LAYOUT		2019-09-06	jrobinson
	MS2	F24	+MS2 LEGEND DETAILS		2019-05-23	jrobinson
	MS2	F25	Device Legend Plates		2019-05-23	jrobinson
	MS2	F26	Enclosure legend : +MS2-CLS-HI - +MS2-OPN-LO		2019-05-23	jrobinson
	MS2	F27	Enclosure legend : +MS2-TB31 - +MS2-TB32		2019-05-23	jrobinson
	MS2	F28	Mounting Panel Hardware		2019-05-23	jrobinson
	JB1	F29	+JB1 JUNCTION BOX DETAIL		2019-05-23	jrobinson
	JB1	F30	+JB1 INNER PANEL LAYOUT/LEGEND DETAILS		2019-09-19	jrobinson
	JB1	F31	Device Legend Plates		2019-09-13	jrobinson
	JB1	F32	Enclosure legend : +JB1-TB101 - +JB1-PE		2019-05-23	jrobinson
	JB1	F33	Mounting Panel Hardware		2019-05-23	jrobinson
	JB2	F34	+JB2 JUNCTION BOX DETAIL		2019-05-23	jrobinson
	JB2	F35	+JB2 INNER PANEL LAYOUT/LEGEND DETAILS		2019-05-23	jrobinson
	JB2	F36	Device Legend Plates		2019-05-23	jrobinson
	JB2	F37	Enclosure legend : +JB2-TB41 - +JB2-PE		2019-05-23	jrobinson
	JB2	F38	Mounting Panel Hardware		2019-05-23	jrobinson
	JB3	F39	+JB3 JUNCTION BOX DETAIL		2019-05-23	jrobinson
	JB3	F40	+JB3 INNER PANEL LAYOUT/LEGEND DETAILS		2019-05-23	jrobinson
	JB3	F41	Device Legend Plates		2019-05-23	jrobinson
	JB3	F42	Enclosure legend : +JB3-TB61 - +JB3-TB61		2019-05-23	jrobinson
	JB3	F43	Mounting Panel Hardware		2019-05-23	jrobinson
	JB4	F44	+JB4 JUNCTION BOX DETAIL		2019-05-23	jrobinson
	JB4	F45	+JB4 INNER PANEL LAYOUT/LEGEND DETAILS		2019-05-23	jrobinson
	JB4	F46	Device Legend Plates		2019-05-23	jrobinson
	JB4	F47	Enclosure legend : +JB4-TB61 - +JB4-TB61		2019-05-23	jrobinson
	JB4	F48	Mounting Panel Hardware		2019-05-23	jrobinson



HIGHER LEVEL
=A PREFACE
MOUNTING LOCATION

A4

Structure identifier overview : IDENTIFIES TEXT AND SYMBOLS UTILIZED TO ORGANIZE ELECTRICAL EQUIPMENT, DEVICES AND DOCUMENTATION.

CE_F24_002

Full designation	Type of Designation	Description Specific	Description General (Description2)
=A_PREFACE	Higher-level function	Table of Contents	
=B_SPECS	Higher-level function	Specifications	
=C_INSTALL	Higher-level function	Installation Drawings	
=D_POWER	Higher-level function	Power Drawings	
=E_CONTROL	Higher-level function	Elementary Drawings	
=F_LAYOUTS	Higher-level function	Equipment Layout Drawings	
+LP1	Mounting location	120/240VAC Distribution Panel	
+F	Mounting location	Field Devices	
+CP1	Mounting location	Main Control Panel	
+OS1	Mounting location	Main Operator Station	
+MS2	Mounting location	Speed Control Setup	
+JB1	Mounting location	North Side Traffic Control	
+JB2	Mounting location	Centre Pier Junction Box	
+JB3	Mounting location	Locking Pin Junction Box	
+JB4	Mounting location	End Lifts Junction Box	
+STR1	Mounting location	Hydraulic Pump 1 Starter	
+STR2	Mounting location	Hydraulic Pump 2 Starter	
+F.F	Mounting location		
+OS1.JB2	Mounting location		

= PREFIX IDENTIFIES A "HIGHER LEVEL FUNCTION". IT REPRESENTS A PHYSICAL AREA SUCH AS A MACHINE CENTRE OR PLANT AREA OR CAN BE USED BY THE DESIGNER TO ORGANIZE PROJECT DOCUMENTS.

+ PREFIX IDENTIFIES A "MOUNTING LOCATION" SUCH AS AN ELECTRICAL ENCLOSURE, JUNCTION BOX, MOTOR CONTROL CENTER ETC....

- PREFIX IDENTIFIES A "DEVICE" SUCH AS A PROXIMITY SWITCH, MOTOR, PUSH BUTTON ETC....

/ PREFIX IDENTIFIES A PAGE REFERENCE

& PREFIX IDENTIFIES A DOCUMENT TYPE SUCH AS PREFACE, STRUCTURE, SCHEMATICS, CONSTRUCTION, REPORTS ETC...



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DEVICE TAG FORMAT			
IDENTIFIERCOUNTER	IDENTIFIER	PAGE	COUNTER
	NFPA STANDARD DESIGNATION	PAGE ID	PROJECT COUNTER
	Example: PB21PB	2	1

TERMINAL STRIP LABELING
TERMINALS WITHIN THE SAME VERTICAL LINE ARE ASSUMED TO BE IN THE SAME TERMINAL STRIP. THE UPPERMOST TERMINAL WILL HAVE A TERMINAL STRIP DEVICE TAG. AN EFFORT WAS MADE TO MAKE THE TERMINAL STRIP NUMBER THE PAGE NUMBER ON THE ELECTRICAL SCHEMATICS.

WIRE LABEL FORMAT			
PAGECOLUMNROW	IDENTIFIER	PAGE	COUNTER
	NFPA STANDARD DESIGNATION	PAGE ID	PROJECT COUNTER
	Example: TB21TB	2	1

CABLE DEFINITION LABELING
CABLE DEFINITONS WITHIN THE SAME VERTICAL LINE ARE ASSUMED TO BE IN THE SAME CABLE. THE UPPERMOST CABLE DEFINITION WILL HAVE A CABLE DEVICE TAG. AN EFFORT WAS MADE TO MAKE THE CABLE NUMBER THE PAGE NUMBER ON THE ELECTRICAL SCHEMATICS.

CABLE LABEL FORMAT			
IDENTIFIERPAGECOLUMNROW	IDENTIFIER	PAGE	COUNTER
	NFPA STANDARD DESIGNATION	PAGE ID	PROJECT COUNTER
	Example: C21C	2	1

SYMBOL SET
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GENERIC WIRE SPECIFICATION

UNLESS OTHERWISE SPECIFIED, CONDUCTORS ARE DEFINED AS FOLLOWS:

WIRES CONNECTED TO PLC MODULES SHALL BE TEW, 18AWG, STRANDED
GENERAL CONTROL PANEL WIRING SHALL BE TEW, 16AWG, STRANDED
MINIMUM SIZE OF WIRES PULLED IN CONDUIT SHALL BE T90, 14AWG, STRANDED

CONDUCTOR COLOURS
BLACK --> UNGROUNDED CONDUCTORS WITH VOLTAGE GREATER THAN 120VAC
RED --> UNGROUNDED CONDUCTORS WITH VOLTAGE EQUAL TO 120VAC
WHITE --> GROUNDED CURRENT CARRYING CONDUCTOR (NEUTRAL)
GREEN --> GROUND CONDUCTOR
BLUE --> CONDUCTOR WITH VOLTAGE LESS THAN OR EQUAL TO 24VDC
YELLOW --> UNGROUNDED CONDUCTOR THAT REMAINS ENERGIZED, WHEN THE SUPPLY DISCONNECTION MEANS, IS IN THE OFF POSITION

PAIRED COLOUR CODE
WHITE --> POSITIVE POTENTIAL CONDUCTOR
BLACK--> NEGATIVE POTENTIAL CONDUCTOR

TRIAD COLOUR CODE
WHITE --> POSITIVE POTENTIAL CONDUCTOR (SUPPLY)
RED --> SIGNAL CONDUCTOR
BLACK--> NEGATIVE POTENTIAL CONDUCTOR (COMMON)

CABLE SPECIFICATIONS

UNLESS OTHERWISE SPECIFIED, CABLES ARE DEFINED AS FOLLOWS:

1. ALL CABLES AS PER CABLE SCHEDULE OR EQUIVALENT. EQUIVALENT SPECIFIED CABLES MUST BE APPROVED BY DEPARTMENTAL REPRESENTATIVE.
2. SUBMARINE CABLES TO BE ARMoured TYPE MADE BY ELECTRO-CABLES AS NOTED IN ELECTRICAL SPECIFICATION SECTION 26 05 17.
3. MULTICONDUCTOR CABLES ARE 300V, PVC, STRANDED, 16 AWG MINIMUM,CSA
4. PROPORTIONAL VALVE CABLES ARE 300V, PVC, OIL RESISTANT, 18AWG, TWISTED PAIR, 2 PAIR, SHIELDED, STRANDED, CSA AS PER CABLE SCHEDULE.
5. DIRECTIONAL VALVE CABLES ARE 300V, PVC, OIL RESISTANT, 18AWG, 3 CONDUCTOR, STRANDED, CSA.



AWG to mm ² CONVERSION TABLE	
AWG/kcmil	[mm ²]*
20	0.52
18	0.82
16	1.31
14	2.08
12	3.31
10	5.26
8	8.36
6	13.3
4	21.2
2	33.6
1	42.4
1/0	53.5
2/0	67.4
3/0	85.0
4/0	107
250	127
300	152
350	177
400	203
450	228
500	253
600	304
750	380
800	405
1000	507

* Equivalent mm² cross-sectional area

mm ² to AWG CONVERSION TABLE		
mm ²	[mm ²] *	AWG/kcmil
0.5	0.52	20
0.75	0.82	18
1.5	1.31	16
2.5	2.08	14
2.5	3.31	12
4	3.31	12
6	5.26	10
10	8.36	8
16	13.3	6
25	21.2	4
35	33.6	2
35	42.4	1
50	53.5	1/0
70	67.4	2/0
95	85.0	3/0
95	107	4/0
120	107	4/0
120	127	250
150	152	300
185	177	350
185	203	400
240	228	450
240	253	500
300	304	600
400	380	750
400	405	800
500	507	1000

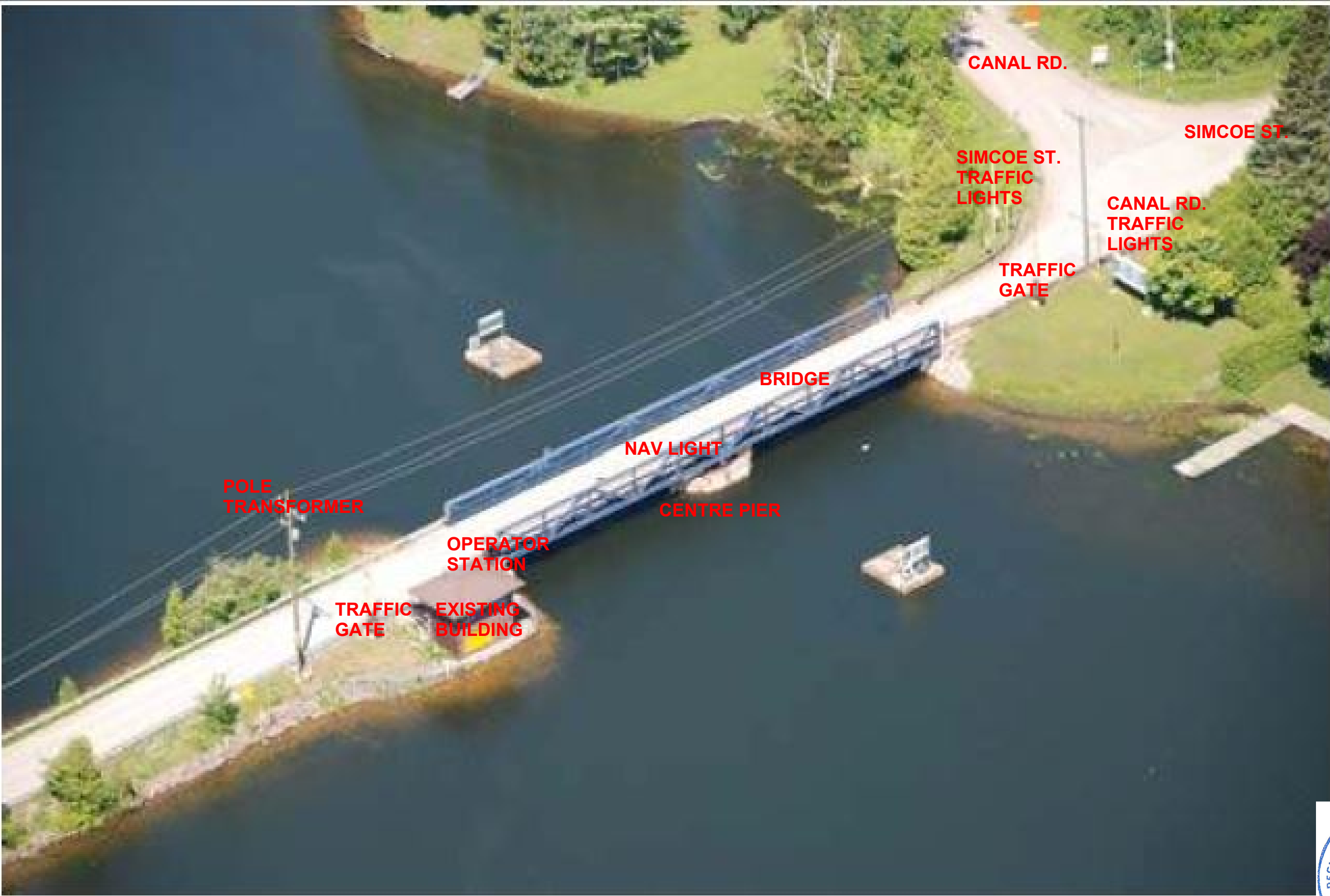
Multiple AWG choices — consult responsible engineer for required ampacity



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REVISION Revision D		CLIENT PARKS CANADA PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	DATE 2019-05-21	TITLE TRENT-SEVERN WATERWAY BOUNDARY ROAD #44 SWING BRIDGE EXISTING SITE ARRANGEMENT	FULL PAGE ID =C_INSTALL/C1	PAGE <div>C1</div>
NOTES			DRAWN BY jrobinson		DRAWING NO. 1911-1-003	
			ALTERNATE DWG. NO.			
<div>Chadwick Engineering Ltd.</div>		594 Norris Crt. Kingston, Ontario Canada K7P 2R9 www.chadwickengineering.com				
TOTAL PAGES: 83		2019-10-04 :LAST PAGE MODIFICATION DATE			C2 :NEXT PAGE	

PREVIOUS PAGE: =B_SPECS/B4

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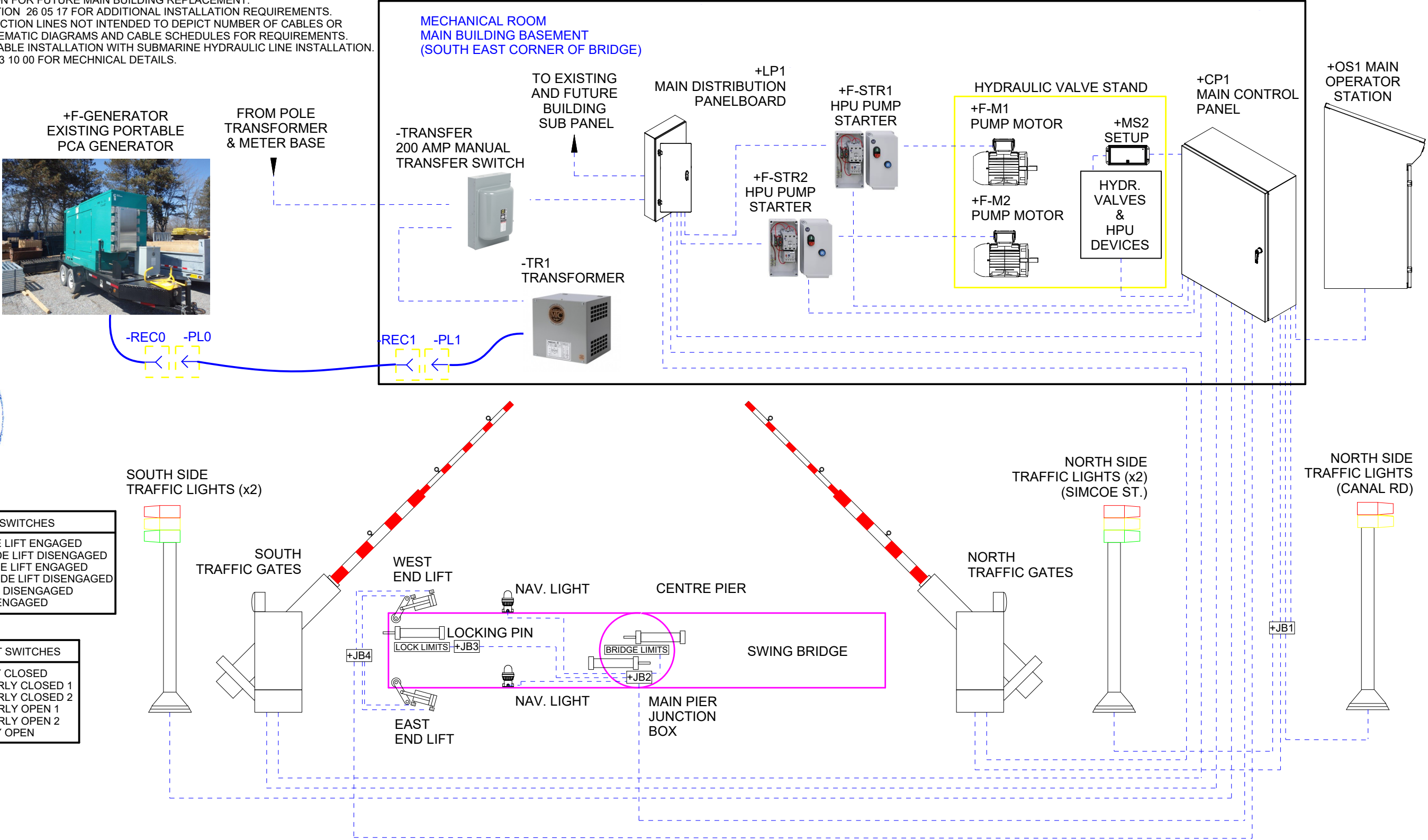


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REVISION			CLIENT		DATE	TITLE		FULL PAGE ID	PAGE
Revision D			PARKS CANADA PUBLIC WORKS AND GOVERNMENT SERVICES CANADA		2019-05-21	TRENT-SEVERN WATERWAY BOUNDARY ROAD #44 SWING BRIDGE EXISTING SITE VIEW - SOUTH APPROACH		=C_INSTALL/C3	
<div>Chadwick Engineering Ltd.</div> <div>594 Norris Crt. Kingston, Ontario Canada K7P 2R9 www.chadwickengineering.com</div> <div>NOTES</div>			ALTERNATE DWG. NO.		DRAWN BY	DRAWING NO.		C3	
					CHECKED				
TOTAL PAGES: 83			2019-10-04 :LAST PAGE MODIFICATION DATE				1911-1-003		C4 :NEXT PAGE

- WORKMANSHIP:
1. ALL RACEWAY, FITTINGS, FASTENERS, HARDWARE TO BE STAINLESS STEEL .
2. INSTALLATION TO CONFORM WITH ONTARIO ELECTRICAL SAFETY CODE.
- CABLE TYPES:
1. SEE WIRE AND CABLE SPECIFICATION SHEET B2 FOR DETAILS.
- GENERAL INSTALLATION NOTES:
1. REDUNDANT "NEARLY LIMITS" (i.e.BNC1 AND BNC2 OR BNO1 AND BNO2) TO BE INSTALLED ON INDEPENDENTLY MOUNTED BRACKETRY AND INDEPENDENTLY MOUNTED TARGETS.
2. ALL CONDUIT AND CABLE CONNECTIONS IN MECHANICAL ROOM (i.e. +TRANSFER, +LP1, +CP1, +STR(X), AND HPU FIELD DEVICES) TO BE MOUNTED TO INDEPENDENT STRUCTURE(S) TO FACILITATE REMOVAL AND RE-INSTALLATION FOR FUTURE MAIN BUILDING REPLACEMENT.
3. SEE ELECTRICAL SPECIFICATION 26 05 17 FOR ADDITIONAL INSTALLATION REQUIREMENTS.
4. DASHED ELECTRICAL CONNECTION LINES NOT INTENDED TO DEPICT NUMBER OF CABLES OR CONNECTIONS, REFER TO SCHEMATIC DIAGRAMS AND CABLE SCHEDULES FOR REQUIREMENTS.
5. CO-ORDINATE SUBMARINE CABLE INSTALLATION WITH SUBMARINE HYDRAULIC LINE INSTALLATION. SEE SPECIFICATION SECTION 13 10 00 FOR MECHNICAL DETAILS.



END LIFT & LOCK LIMIT SWITCHES
(+F-LIFT-E-ENG) - EAST SIDE LIFT ENGAGED
(+F-LIFT-E-DENG) - EAST SIDE LIFT DISENGAGED
(+F-LIFT-W-ENG) - WEST SIDE LIFT ENGAGED
(+F-LIFT-W-DENG) - WEST SIDE LIFT DISENGAGED
(+F-LOCK-DENG) - LOCK PIN DISENGAGED
(+F-LOCK-ENG) - LOCK PIN ENGAGED

BRIDGE POSITION LIMIT SWITCHES
(+F-BFC) - BRIDGE FULLY CLOSED
(+F-BNC1) - BRIDGE NEARLY CLOSED 1
(+F-BNC2) - BRIDGE NEARLY CLOSED 2
(+F-BNO1) - BRIDGE NEARLY OPEN 1
(+F-BNO2) - BRIDGE NEARLY OPEN 2
(+F-BFO) - BRIDGE FULLY OPEN

REVISION
Revision D

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Kingston, Ontario
Canada K7P 2R9
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NOTES

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2018-09-26

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ALTERNATE DWG. NO.

TITLE
TRENT-SEVERN WATERWAY
BOUNDARY ROAD #44 SWING BRIDGE
ELECTRICAL INSTALLATION

FULL PAGE ID
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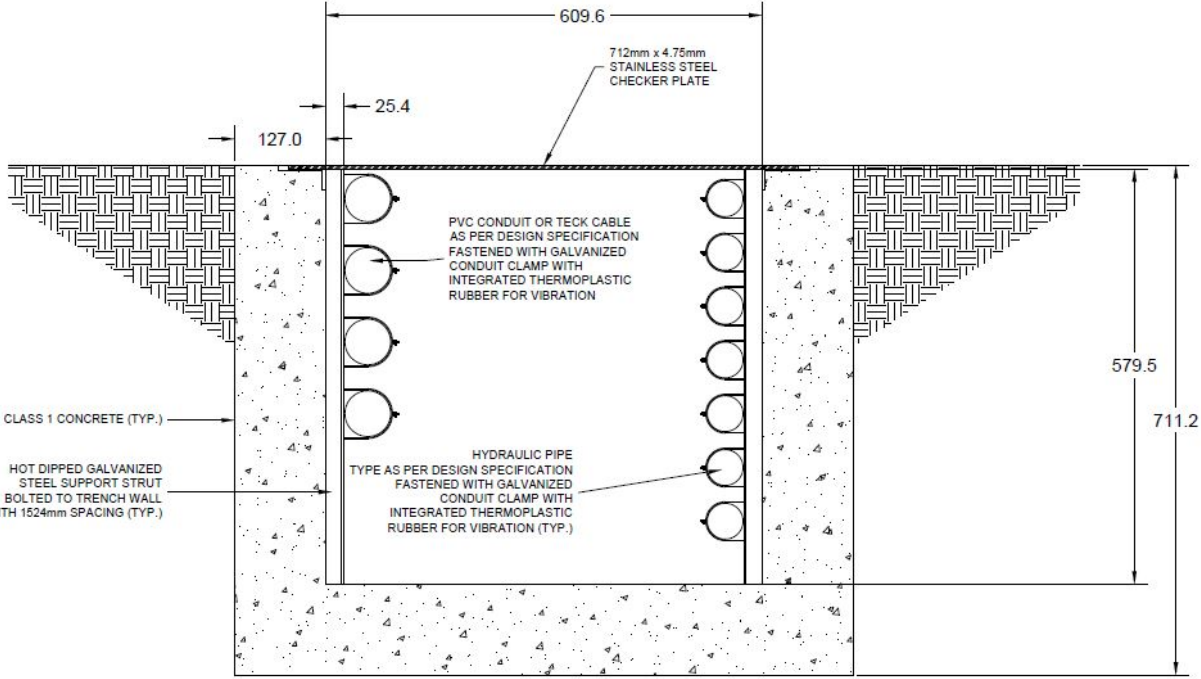
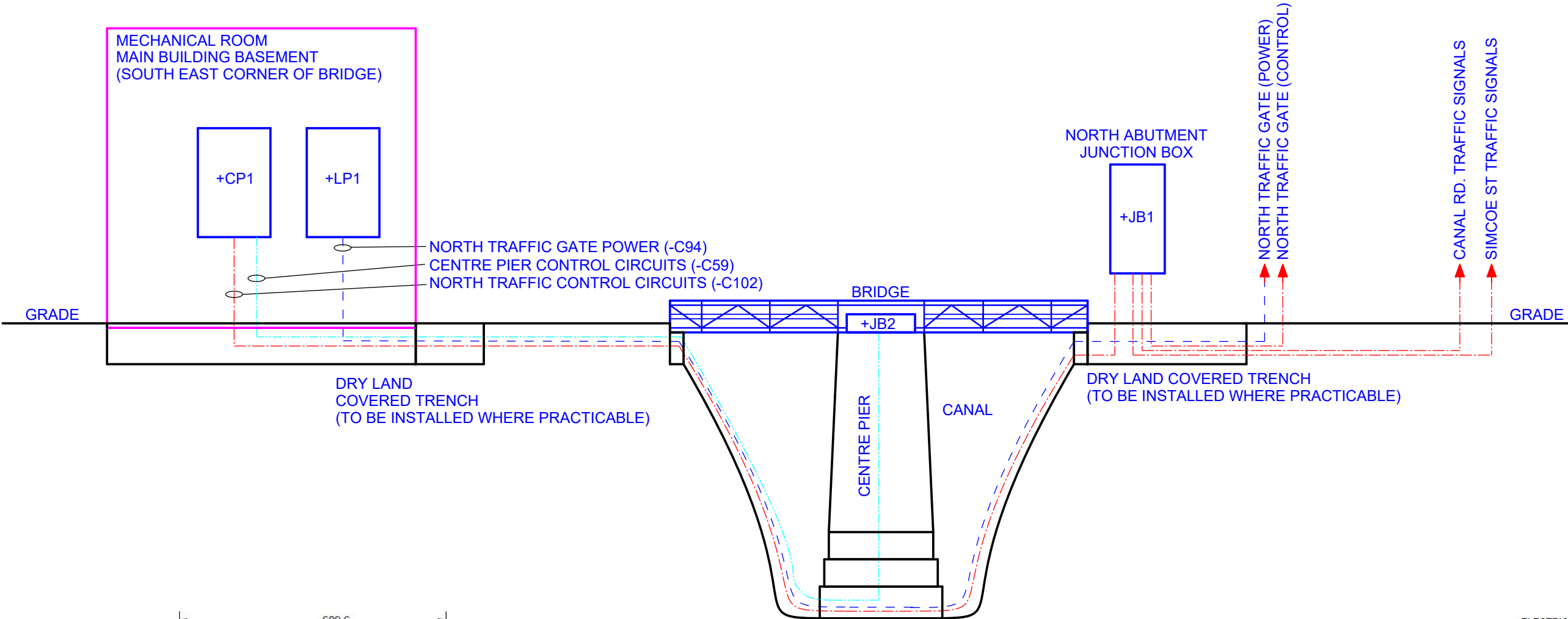
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HIGHER LEVEL
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MOUNTING LOCATION

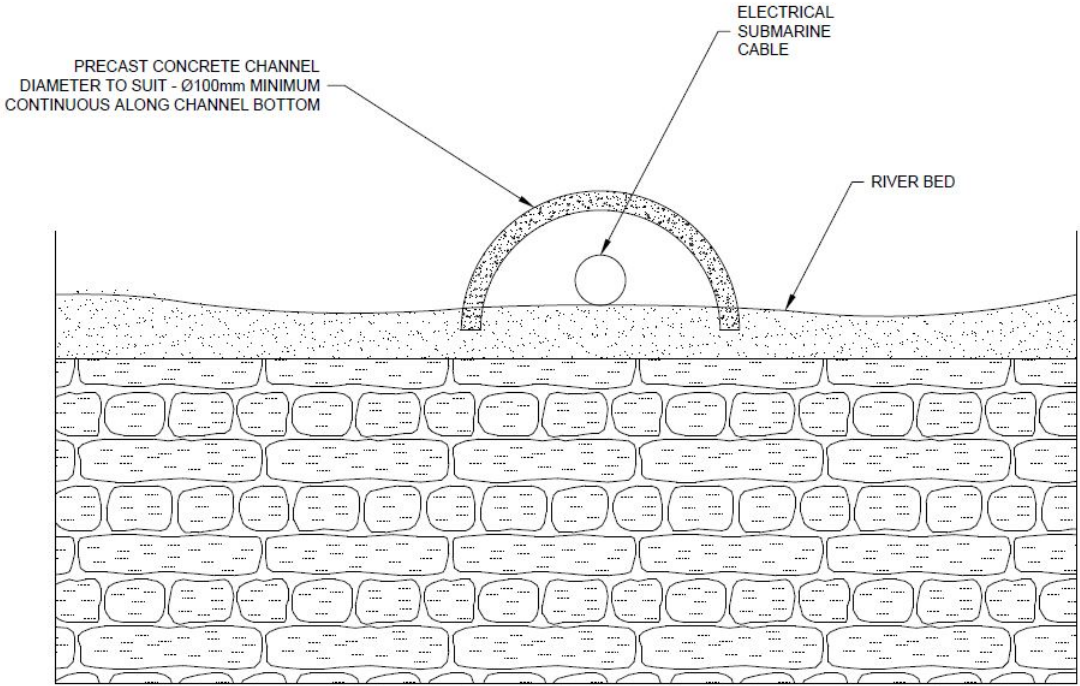
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DRY LAND TRENCH DETAIL



SUBMARINE CABLE PROTECTION DETAIL

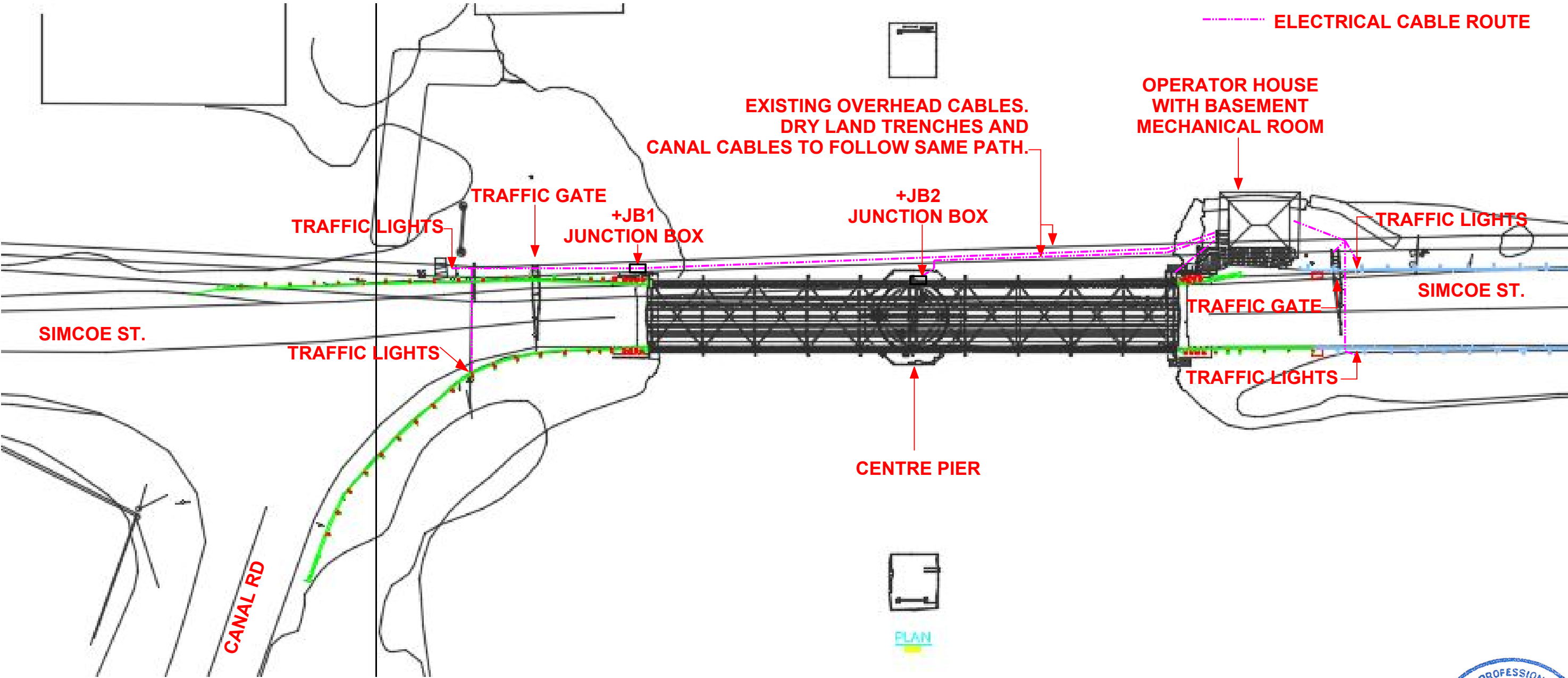
REVISION	NOTES
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PARKS CANADA PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	2019-01-11
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TITLE	FULL PAGE ID
TRENT-SEVERN WATERWAY BOUNDARY ROAD #44 SWING BRIDGE SUBMARINE CABLE ARRANGEMENT	=C_INSTALL/C5
	DRAWING NO.
	1911-1-003

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C5

HIGHER LEVEL =C_INSTALL MOUNTING LOCATION
PAGE
C5



- NOTES:
1. SEE WSP DRAWING NO. 18, 19 AND 20 FOR ADDITIONAL TRAFFIC CONTROL EQUIPMENT INSTALLATION LOCATION DETAILS AND REQUIREMENTS.



Cable overview

: Intended for installation of cables between enclosures and devices. Cable installer to mark each end of the cable with the "Cable Name".

CE_F10_001

Cable name	Source (from)	Target (to)	Cable Specification Manufacturer/Part number/Description	Number of Cond.	Cond. used	Cable OD: mm	Cross- section	Estimate Length m	Remark	Functional Descripton	Graphical page of cable diagram
-C-GEN1	+F-REC0	+F-GENERATOR	SWI / 55809102 / • ICEA where applicable	4	4	1.08	6	3.048			
-C-GEN2	+F-PL0	+F-REC1	SWI / 55809102 / • ICEA where applicable	4	4	1.08	6	15.24			
-C-GEN3	+F-PL1	+F-TR1	SWI / 55809102 / • ICEA where applicable	4	3	1.08	6	3.048			
		+F-GENERATOR-T1									
-C-SRVC			GC / 11288.015300 / TECK90 Cable, 1000 V, CSA Type, -40°C to	4	0		10			+MAIN SERVICE FEEDER	
-C10	+F-GENERATOR-T1	+LP1-PE	GC / 11288.015300 / TECK90 Cable, 1000 V, CSA Type, -40°C to	4	4		10			+LP1 POWER SUPPLY (OR CONDUIT AND SINGLE CONDUCTOR)	
	+LP1-CBMAIN	+F-TRANSFER									
	+LP1-BB-N										
-C11	+LP1-CB2	+STR1-A1-C	ECI / T6XAAUS08-2C-BFT4-HL / Conductor: Bare 7 stranded annealed	2	3		8			HYDRAULIC PUMP 1 STARTER SUPPLY	
	+LP1-PE	+F-M1									
-C12	+F-M1	+STR1-A1-OL	ECI / T6XAAUS08-2C-BFT4-HL / Conductor: Bare 7 stranded annealed	2	2		8			HYDRAULIC PUMP 1 MOTOR FEED	
-C13	+LP1-CB6	+STR2-A2-C	ECI / T6XAAUS08-2C-BFT4-HL / Conductor: Bare 7 stranded annealed	2	3		8			HYDRAULIC PUMP 2 STARTER SUPPLY	
	+LP1-PE	+F-M2									
-C14	+F-M2	+STR2-A2-OL	ECI / T6XAAUS08-2C-BFT4-HL / Conductor: Bare 7 stranded annealed	2	2		8			HYDRAULIC PUMP 2 MOTOR FEED	
-C15	+LP1-CB11	+F-TS11	ECI / T6XAAUS14-2C-BFT4-HL / Conductor: Bare 7 stranded annealed	2	3		14				
	+LP1-PE	+F-HTR									
-C21	+CP1-TB22	+LP1-N1	ECI / T6XAAUS12-4C-BFT4-HL / Conductor: Bare 7 stranded annealed	4	5		12			CONTROL PANEL +CP1 POWER SUPPLY	
	+LP1-PE	+CP1-PE1									
	+LP1-CB5	+CP1-DSC21									
	+LP1-CB7										
	+LP1-CB9										
-C31	+CP1-TB31	+MS2-TB31	LAPP / 2221293 / I 304	2x3	6	11.4	0,82			BRIDGE SWING OPEN PROPORTIONAL DRIVER	
-C32	+CP1-TB32	+MS2-TB32	LAPP / 2221293 / I 304	2x3	6	11.4	0,82			BRIDGE SWING CLOSE PROPORTIONAL DRIVER	
-C33	+MS2-TB31	+F-PCV_OPN	LAPP / 2221286 / I 304	2x2	4	10,4mm	0,82			BRIDGE SWING OPEN PROPORTIONAL DRIVER	
-C34	+MS2-TB32	+F-PCV_CLS	LAPP / 2221286 / I 304	2x2	4	10,4mm	0,82			BRIDGE SWING CLOSE PROPORTIONAL DRIVER	
-C41	+CP1-TB41	+OS1-TB42	LAPP / 221641 / Power and control cables / Wide range use / PVC	41G	39	25 mm	1.5			OPERATOR STATION (+OS1) CONTROL CIRCUITS	
	+CP1-TB42	+OS1-TB41									
	+CP1-TB43	+OS1-TB43									
	+CP1-TB61	+OS1-TB61									
	+CP1-TB71	+OS1-TB71									
	+CP1-TB81	+OS1-TB81									
	+CP1-TB151	+OS1-TB151									
	+OS1-TB51	+CP1-TB51									
		+CP1-PE1									
-C42	+CP1-TB41	+F-SOL1	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			HYDRAULIC FIELD LINE WARMUP VALVE	
	+CP1-PE2										
-C43	+CP1-TB41	+F-SOL2	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			EMERGENCY CLOSE VALVE	
	+CP1-PE2										
-C44	+CP1-TB42	+F-SOL5	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			SWING CLOSE	
	+CP1-PE2										
-C45	+CP1-TB42	+F-SOL3	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			LOCKING PIN EXTEND (ENGAGE)	
	+CP1-PE2										
-C46	+CP1-TB42	+F-SOL4	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			END LIFTS EXTEND (ENGAGE)	
	+CP1-PE2										
-C47	+CP1-TB43	+F-SOL6	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			LOCKING PIN RETRACT (DISENGAGE)	
	+CP1-PE2										



Cable overview

: Intended for installation of cables between enclosures and devices. Cable installer to mark each end of the cable with the "Cable Name".

CE_F10_001

Cable name	Source (from)	Target (to)	Cable Specification Manufacturer/Part number/Description	Number of Cond.	Cond. used	Cable OD. mm	Cross- section	Estimate Length m	Remark	Functional Descripton	Graphical page of cable diagram
-C48	+CP1-TB43	+F-SOL7	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			END LIFTS RETRACT (DISENGAGE)	
	+CP1-PE2										
-C49	+CP1-TB43	+F-SOL8	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			SWING OPEN	
	+CP1-PE2										
-C51	+JB2-TB41	+F-BFC	LAPP / 221612 / ÖLFLEX® TRAY II	12	9	14,4	1,31			BRIDGE FULLY CLOSED LIMIT (-BFC)	
	+JB2-TB51										
	+JB2-TB111										
	+JB2-TB121										
	+JB2-PE										
-C52	+JB2-TB51	+F-BFO	LAPP / 221607 / ÖLFLEX® TRAY II		6	10,5	1,31			BRIDGE FULLY OPEN LIMIT (+BFO)	
	+JB2-TB141										
	+JB2-PE										
-C53	+JB2-TB51	+F-BNC1	LAPP / 221604 / Power and control cables / Wide range use / PVC	4G	4	8,9 mm	1,5			BRIDGE NEARLY CLOSED LIMIT (-BNC1)	
	+JB2-PE										
-C54	+JB2-TB51	+F-BNC2	LAPP / 221605 / ÖLFLEX® TRAY II	5	5	9,7	1,31			BRIDGE NEARLY CLOSED LIMIT (-BNC2)	
	+JB2-PE										
-C55	+JB2-TB51	+F-BNO1	LAPP / 221605 / ÖLFLEX® TRAY II	5	4	9,7	1,31			BRIDGE NEARLY OPEN LIMIT (-BNO1)	
	+JB2-PE										
-C56	+JB2-TB51	+F-BNO2	LAPP / 221605 / ÖLFLEX® TRAY II	5	5	9,7	1,31			BRIDGE NEARLY OPEN LIMIT (-BNO2)	
	+JB2-PE										
-C59	+CP1-TB41	+JB2-TB41	ECI / 6PES AUS14-30C-V / 600V SIA POWER CABLE	25	25		0,82			CENTRE PIER CONTROL CIRCUITS (+JB2)	
	+CP1-TB42	+JB2-TB51									
	+CP1-TB51	+JB2-TB61									
	+CP1-TB61	+JB2-TB111									
	+CP1-TB111	+JB2-TB121									
	+CP1-TB121	+JB2-TB141									
	+CP1-TB141	+JB2-PE									
	+CP1-PE1										
-C61	+JB4-TB61	+F-LIFT-E-ENG D-(1)	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			LIFT ENGAGED LIMIT (EAST)	
		+F-LIFT-E-ENG D									
-C62	+JB4-TB61	+F-LIFT-W-ENG D-(1)	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			LIFT ENGAGED LIMIT (WEST)	
		+F-LIFT-W-ENG D									
-C63	+JB4-TB61	+F-LIFT-E-DENG D-(2)	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			LIFT DISENGAGED LIMIT (EAST)	
		+F-LIFT-E-DENG D									
-C64	+JB4-TB61	+F-LIFT-W-DENG D-(2)	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			LIFT DISENGAGED LIMIT (WEST)	
		+F-LIFT-W-DENG D									
-C65	+JB4-TB61	+CP1-TB61	ECI / 6PES AUS14-5C-V / 600V SIA POWER CABLE	5	4		1,5			LOCKING PIN DISENGAGED LIMIT	
		+CP1-PE1	ECI / 6PES AUS14-5C-V / 600V SIA POWER CABLE								
-C66	+JB2-TB61	+JB3-TB61	ECI / 6PES AUS14-5C-V / 600V SIA POWER CABLE	5	5		1,5			LOCKING PIN DISENGAGED LIMIT	
	+JB2-PE										
-C67	+JB3-TB61	+F-LOCK-DENG D-(1)	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			LOCKING PIN EXTENDED LIMIT (DISENGAGED)	
		+F-LOCK-DENG D									
-C68	+JB3-TB61	+F-LOCK-ENG D-(2)	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			LOCKING PIN RETRACTED LIMIT (ENGAGED)	
		+F-LOCK-ENG D									
-C71	+CP1-TB71	+F-PSL	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			HYDRAULIC SUPPLY FILTER PRESSURE	
	+CP1-PE3										



Cable overview

: Intended for installation of cables between enclosures and devices. Cable installer to mark each end of the cable with the "Cable Name".

CE_F10_001

Cable name	Source (from)	Target (to)	Cable Specification Manufacturer/Part number/Description	Number of Cond.	Cond. used	Cable OD: mm	Cross- section	Estimate Length m	Remark	Functional Descripton	Graphical page of cable diagram
-C72	+CP1-TB71	+F-PSH-SUP	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			HYDRAULIC SUPPLY FILTER PRESSURE	
	+CP1-PE3										
-C73	+CP1-TB71	+F-PSH-RTN	LAPP / 311803 / ÖLFLEX® POWER QUAD II is a PVC cordage with	3	3	7,2	0,82			HYDRAULIC RETURN FILTER PRESSURE	
	+CP1-PE3										
-C74	+CP1-TB71	+F-TSH	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			HI OIL TEMPERATURE SWITCH	
	+CP1-PE3										
-C75	+CP1-TB71	+F-LSL	LAPP / 221603 / ÖLFLEX TRAY II 16/3c, Power and control cables /	3	3	8,3	1,5			LOW OIL LEVEL SWITCH	
	+CP1-PE3										
-C76	+CP1-TB71	+F-LSLL	LAPP / 221604 / Power and control cables / Wide range use / PVC	4G	4	8,9 mm	1,5			LOW OIL SHUT DOWN SWITCH	
	+CP1-PE3										
-C79	+CP1-TB51	+OS1-TB51	LAPP / 221625 / ÖLFLEX® TRAY II	25	24	18,8mm	1,31			OPERATOR STATION (+OS1) CONTROL CIRCUITS	
	+CP1-TB71	+OS1-TB71									
	+CP1-TB91	+OS1-TB91									
	+CP1-TB92	+OS1-TB92									
	+CP1-TB101	+OS1-TB101									
	+CP1-TB111	+OS1-TB111									
	+CP1-TB121	+OS1-TB121									
-C81	+CP1-TB71	+F-STR1-OL	LAPP / 221609 / ÖLFLEX® TRAY II	9	8	12,1	1,31			HYDRAULIC PUMP NO. 1 CONTROL	
	+CP1-TB81	+F-STR1-C									
	+F-STR1-PE	+CP1-PE1									
-C82	+CP1-TB71	+F-STR2-OL	LAPP / 221609 / ÖLFLEX® TRAY II	9	8	12,1	1,31			HYDRAULIC PUMP NO. 2 CONTROL	
	+CP1-TB81	+F-STR2-C									
	+F-STR2-PE	+CP1-PE1									
-C91	+F-SGATE-TB1	+CP1-TB91	LAPP / 221412 / ÖLFLEX TRAY II 14/12c, Power and control cables /	12	3	16,2	2,5			SOUTH TRAFFIC GATE CONTROL	
	+F-SGATE		LAPP / 221412 / ÖLFLEX TRAY II 14/12c, Power and control cables /			16,2					
-C92	+F-NGATE-TB1	+CP1-TB92	LAPP / 221412 / ÖLFLEX TRAY II 14/12c, Power and control cables /	12	3	16,2	2,5			NORTH TRAFFIC GATE CONTROL	
	+F-NGATE		LAPP / 221412 / ÖLFLEX TRAY II 14/12c, Power and control cables /			16,2					
-C93	+F-SGATE	+LP1-N2	ECI / T6XAAUS12-3C-BFT4-HL / Conductor: Bare 7 stranded annealed	3	4		12			SOUTH TRAFFIC GATE POWER	
	+F-SGATE-TB1	+LP1-CB14									
-C94	+F-NGATE	+LP1-CB10	ECI / T6XAAUS12-3C-BFT4-HL / Conductor: Bare 7 stranded annealed	3	4		12			NORTH TRAFFIC GATE POWER	
	+F-NGATE-TB1	+LP1-N2									
-C101	+F-SGATE	+CP1-TB101	ECI / 6PESAUS14-5C-V / 600V SIA POWER CABLE	5	5		14			SOUTH TRAFFIC GATE LIMITS	
		+CP1-PE1									
-C102	+CP1-TB101	+JB1-TB101	ECI / 6PESAUS14-18C-V / 600V SIA POWER CABLE	18	8		14			NORTH SIDE TRAFFIC CONTROL (+JB1)	
	+CP1-TB121	+JB1-TB121									
	+CP1-PE1	+JB1-PE									
-C103	+F-NGATE	+JB1-TB101	ECI / 6PESAUS14-5C-V / 600V SIA POWER CABLE	5	5		14			NORTH TRAFFIC GATE LIMITS	
		+JB1-PE									
-C111	+CP1-TB111	+F-S-LTS-E-GREEN	ECI / 6PESAUS14-5C-V / 600V SIA POWER CABLE	5	5		10			SOUTH TRAFFIC LIGHTS	
	+F-S-LTS-E	+F-S-LTS-E-RED									
		+F-S-LTS-E-YELLOW									
		+CP1-PE1									
-C112	+F-S-LTS-E-RED	+F-S-LTS-W-RED	ECI / 6PESAUS14-5C-V / 600V SIA POWER CABLE	5	4		10			SOUTH TRAFFIC LIGHTS	
	+F-S-LTS-E-YELLOW	+F-S-LTS-W-YELLOW									
	+F-S-LTS-E	+F-S-LTS-W									
-C121	+JB1-TB121	+F-N-LTS-E-RED	ECI / 6PESAUS14-5C-V / 600V SIA POWER CABLE	5	5		10			NORTH TRAFFIC LIGHTS	

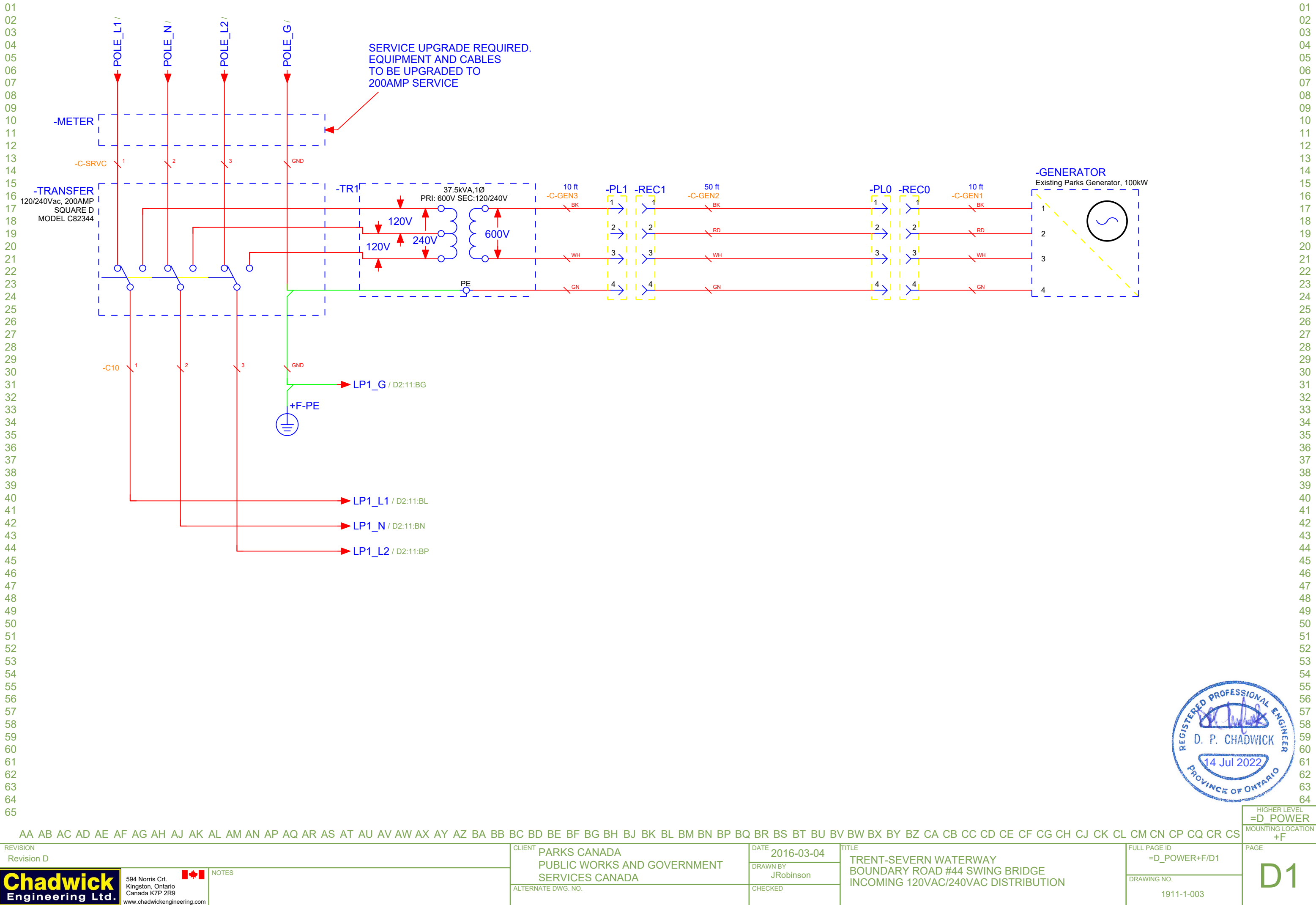


: Intended for installation of cables between enclosures and devices. Cable installer to mark each end of the cable with the "Cable Name".

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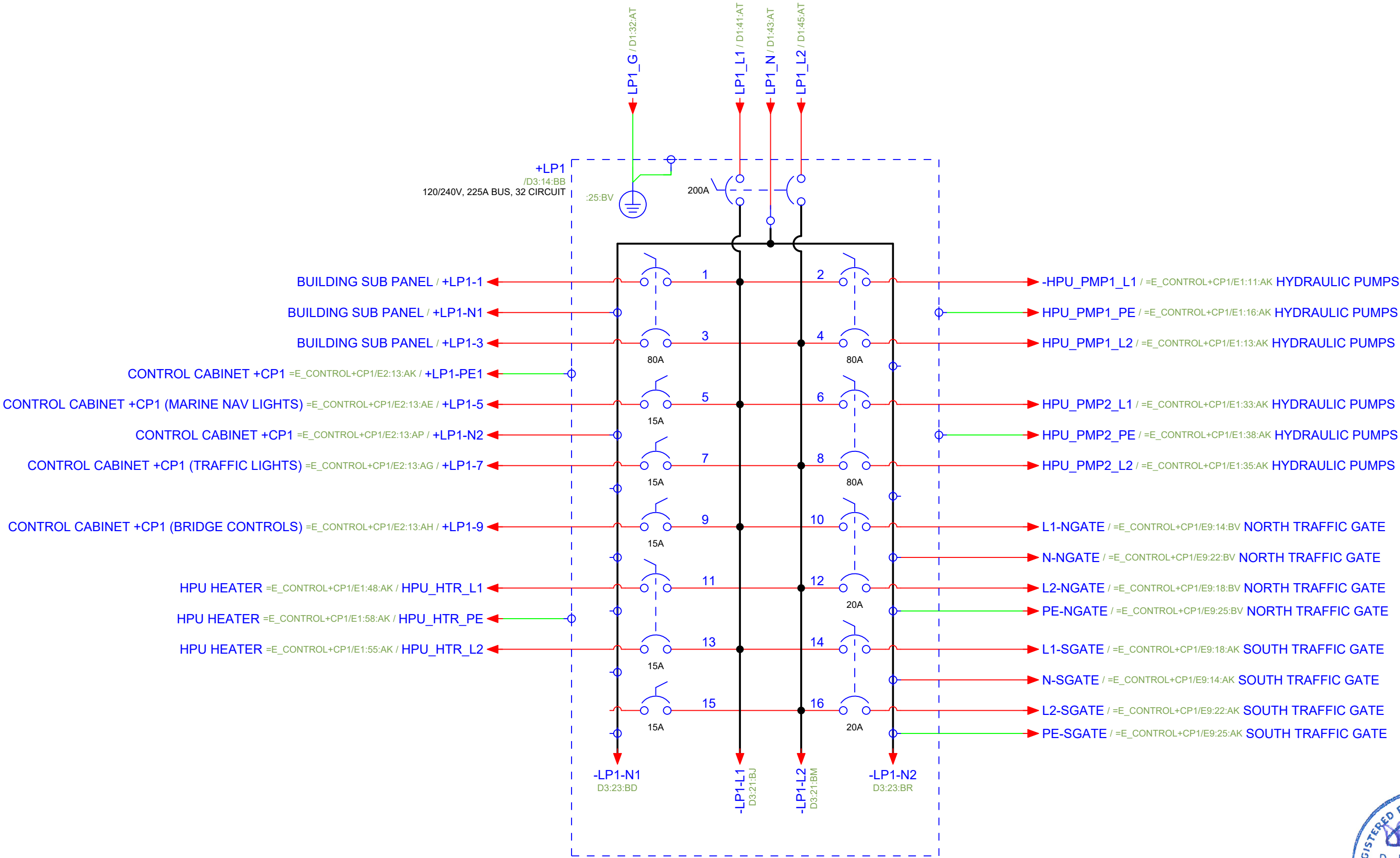
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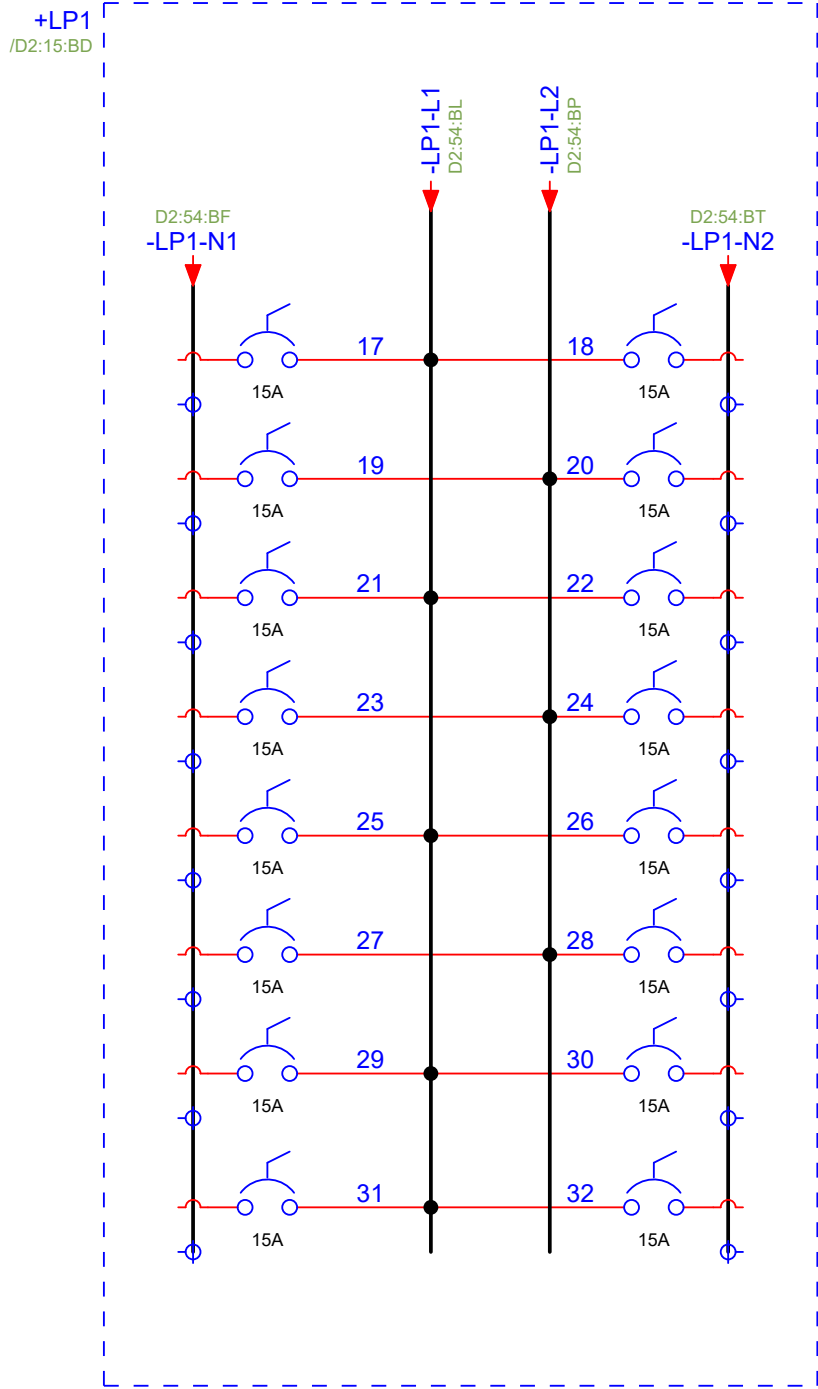
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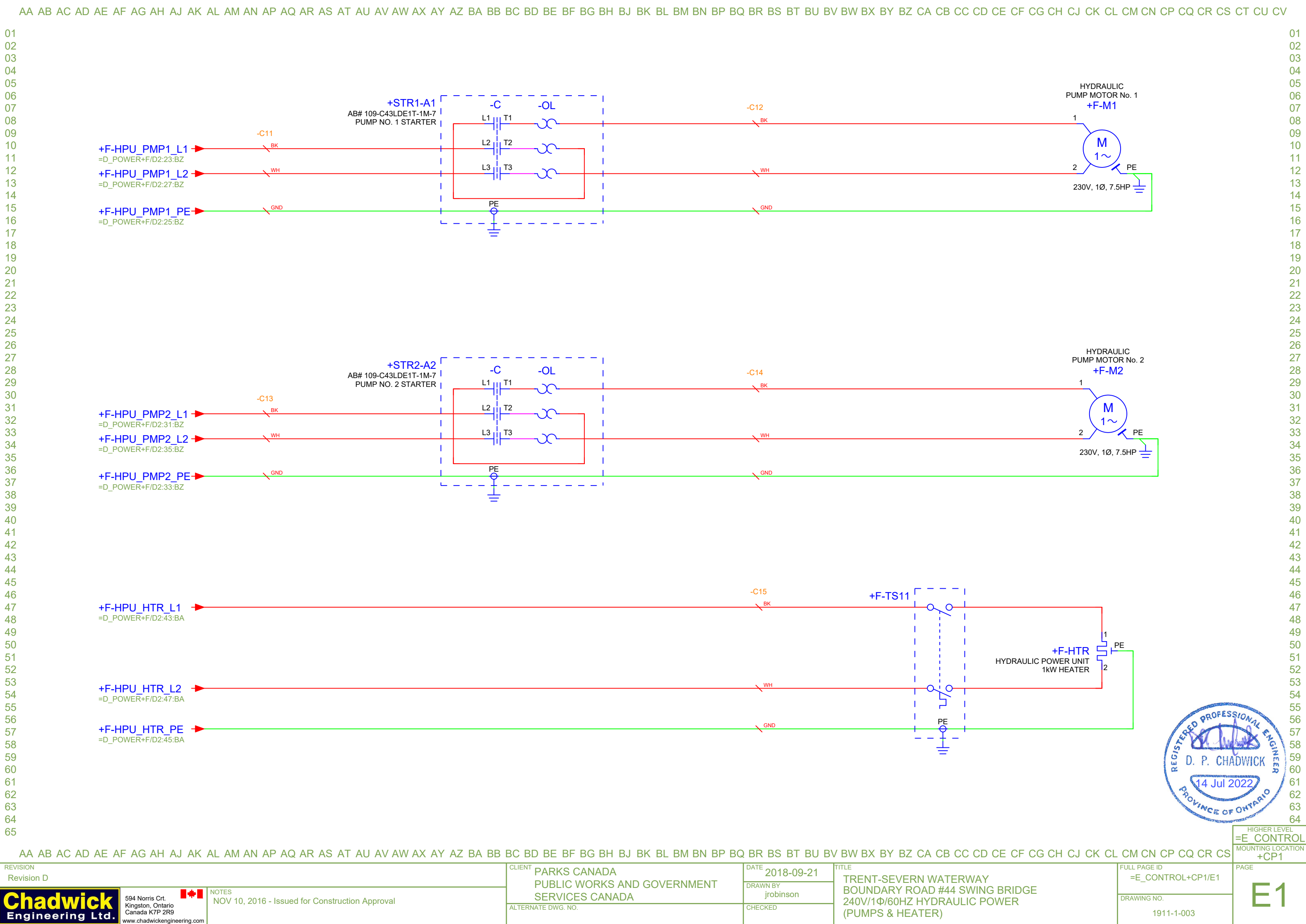
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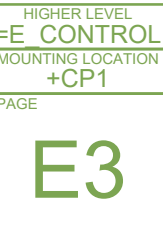
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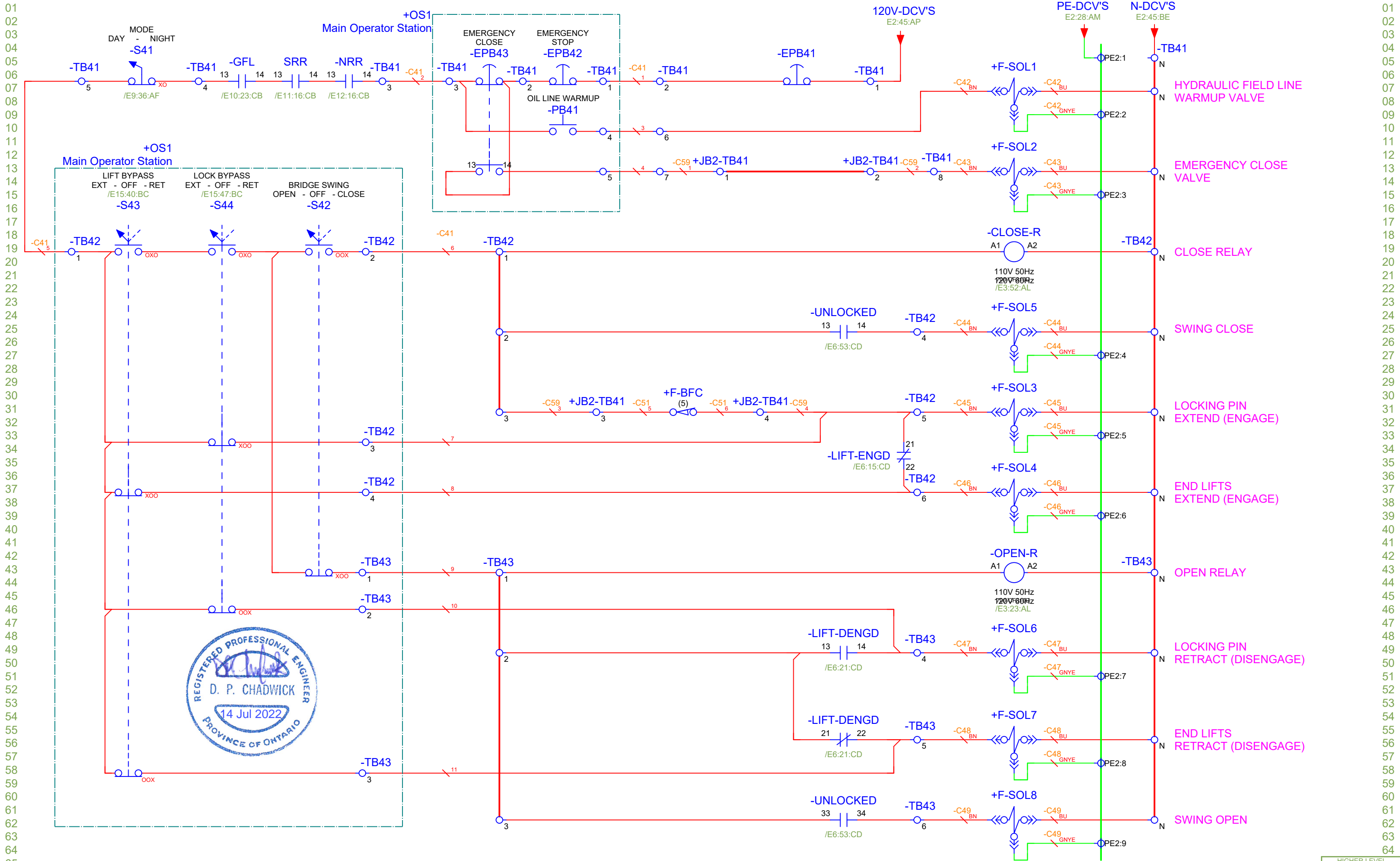






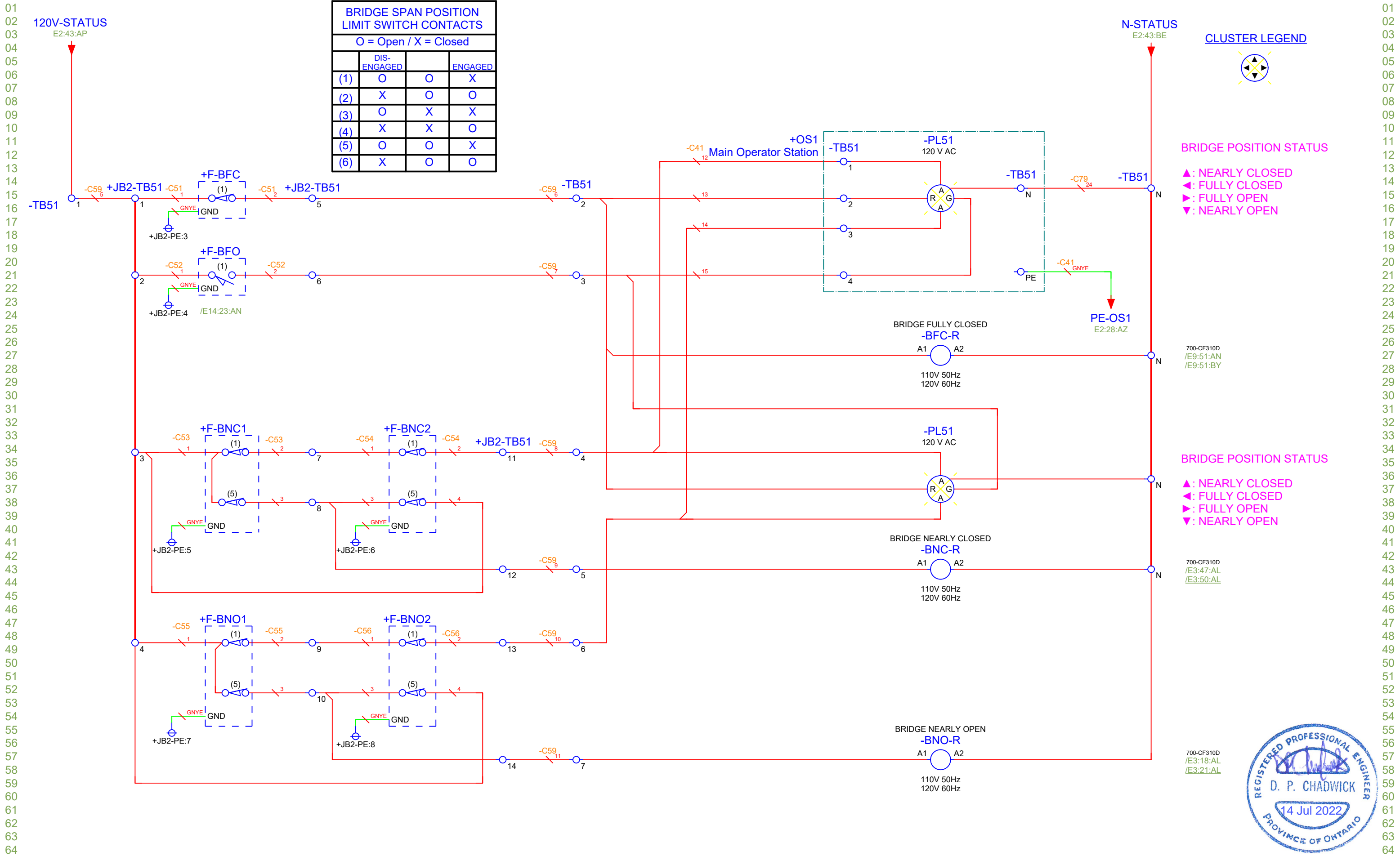


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120V-LIFT
E2:47:AP

N-LIFT
E2:47:BE

END LIFT CYLINDERS LIMIT SWITCH CONTACTS		
	DIS- ENGAGED	ENGAGED
(1)	X	O
(2)	O	X

CLUSTER LEGEND



END LIFTS
EXTENDED (ENGAGED)

END LIFTS
RETRACTED (DISENGAGED)

◀: END LIFTS ENGAGED
▶: END LIFTS DISENGAGED

◀: LOCKING PIN ENGAGED
▶: LOCKING PIN DISENGAGED

LOCKING PIN
EXTENDED (DISENGAGED)

LOCKING PIN
RETRACTED (ENGAGED)

LOCKING PIN LIMIT SWITCH CONTACTS		
	DIS- ENGAGED	ENGAGED
(1)	O	X
(2)	X	O



REVISION
Revision D

594 Norris Crt.
Kingston, Ontario
Canada K7P 2R9
www.chadwickengineering.com

NOTES

CLIENT
PARKS CANADA
PUBLIC WORKS AND GOVERNMENT
SERVICES CANADA

ALTERNATE DWG. NO.

DATE
2018-12-13

DRAWN BY
jrobinson

CHECKED

TITLE
TRENT-SEVERN WATERWAY
BOUNDARY ROAD #44 SWING BRIDGE

END LIFT & LOCK POSITION STATUS

FULL PAGE ID
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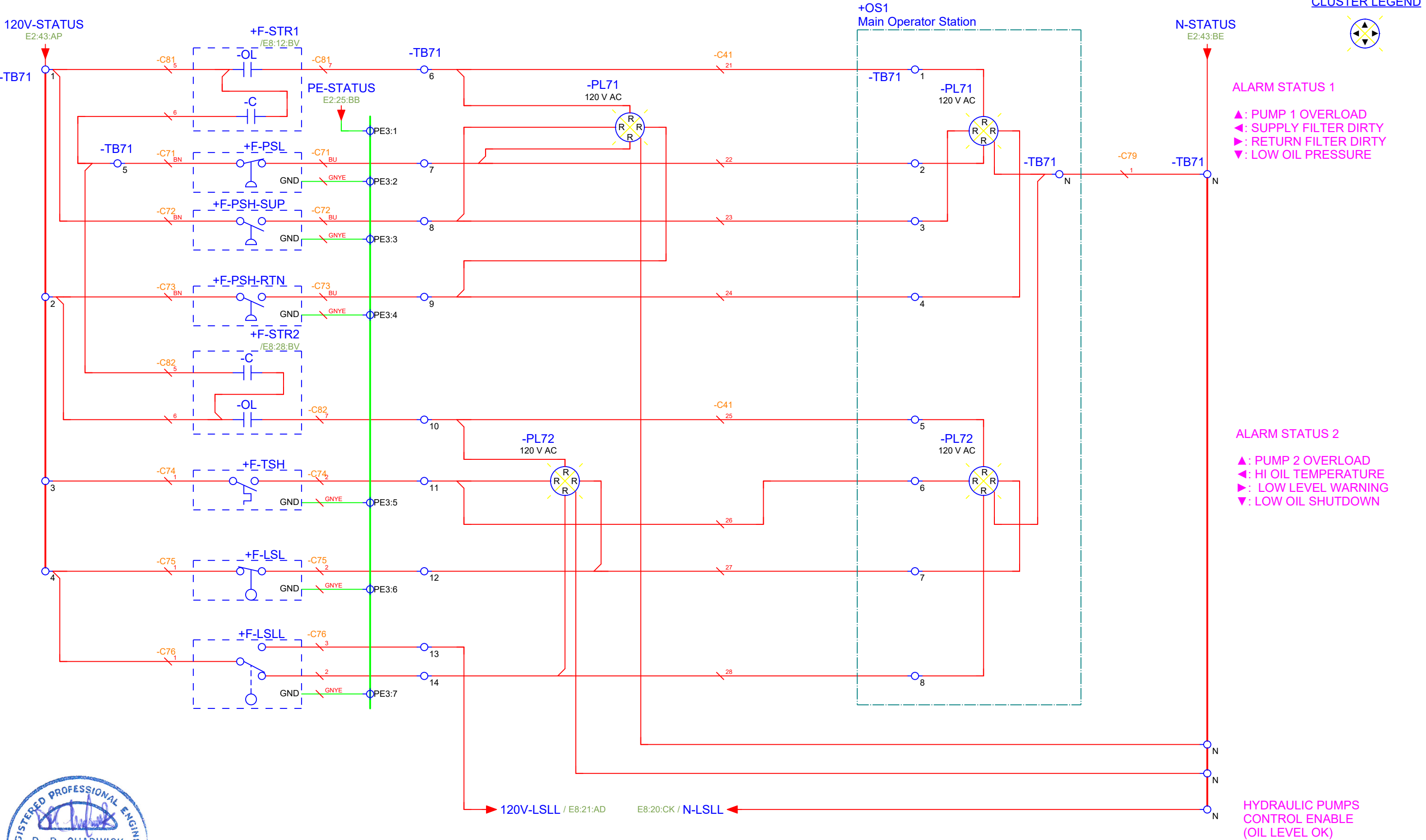
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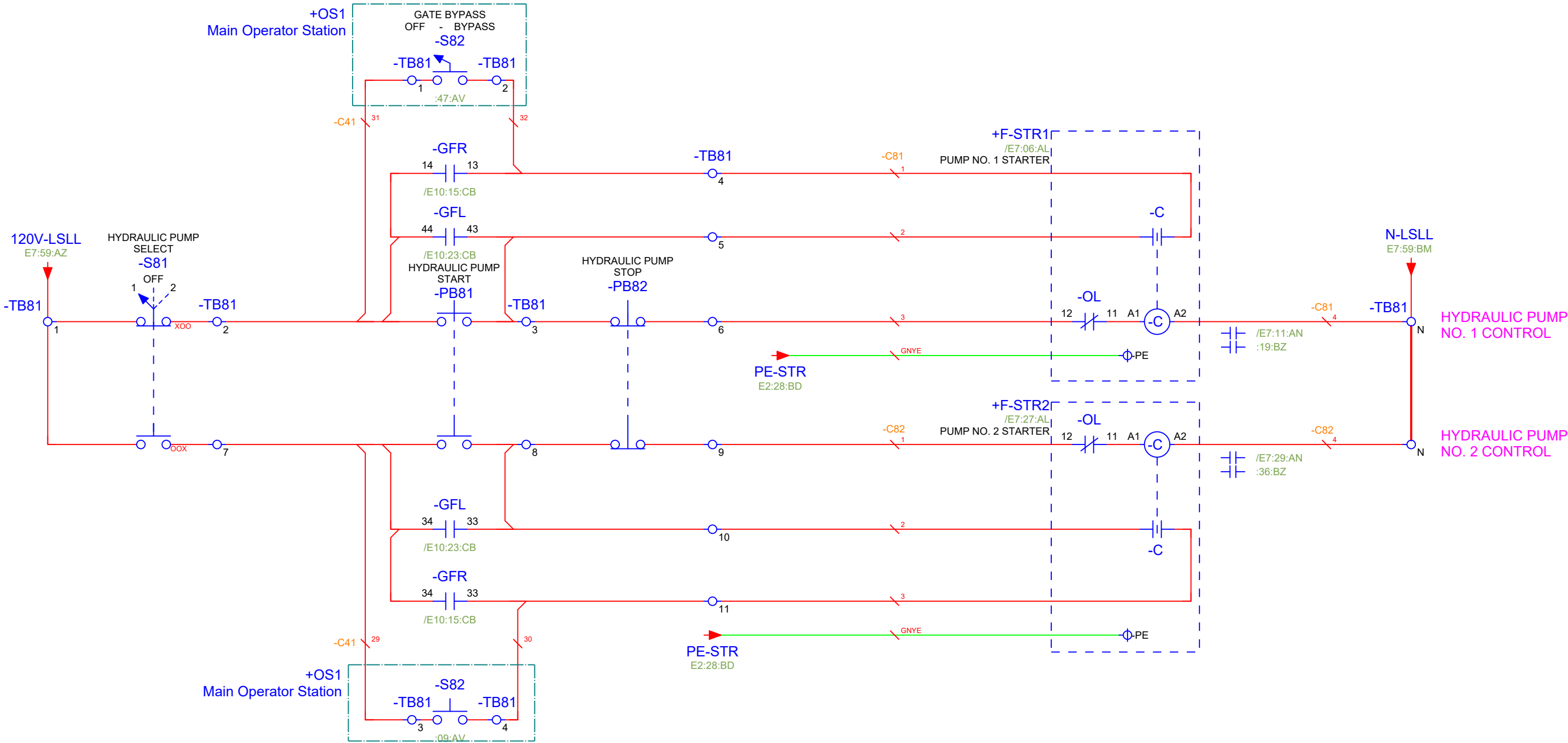
HIGHER LEVEL
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E6

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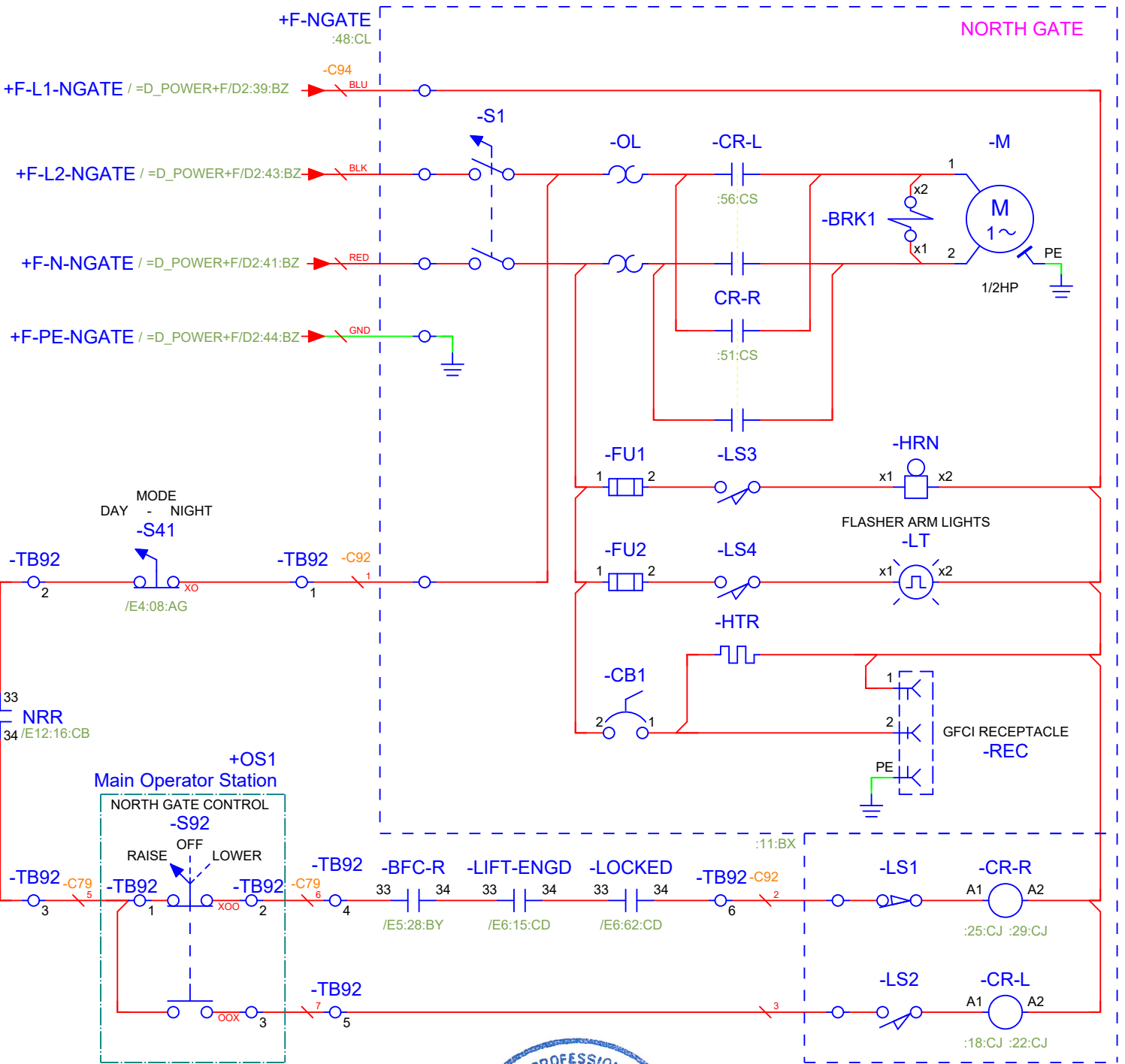
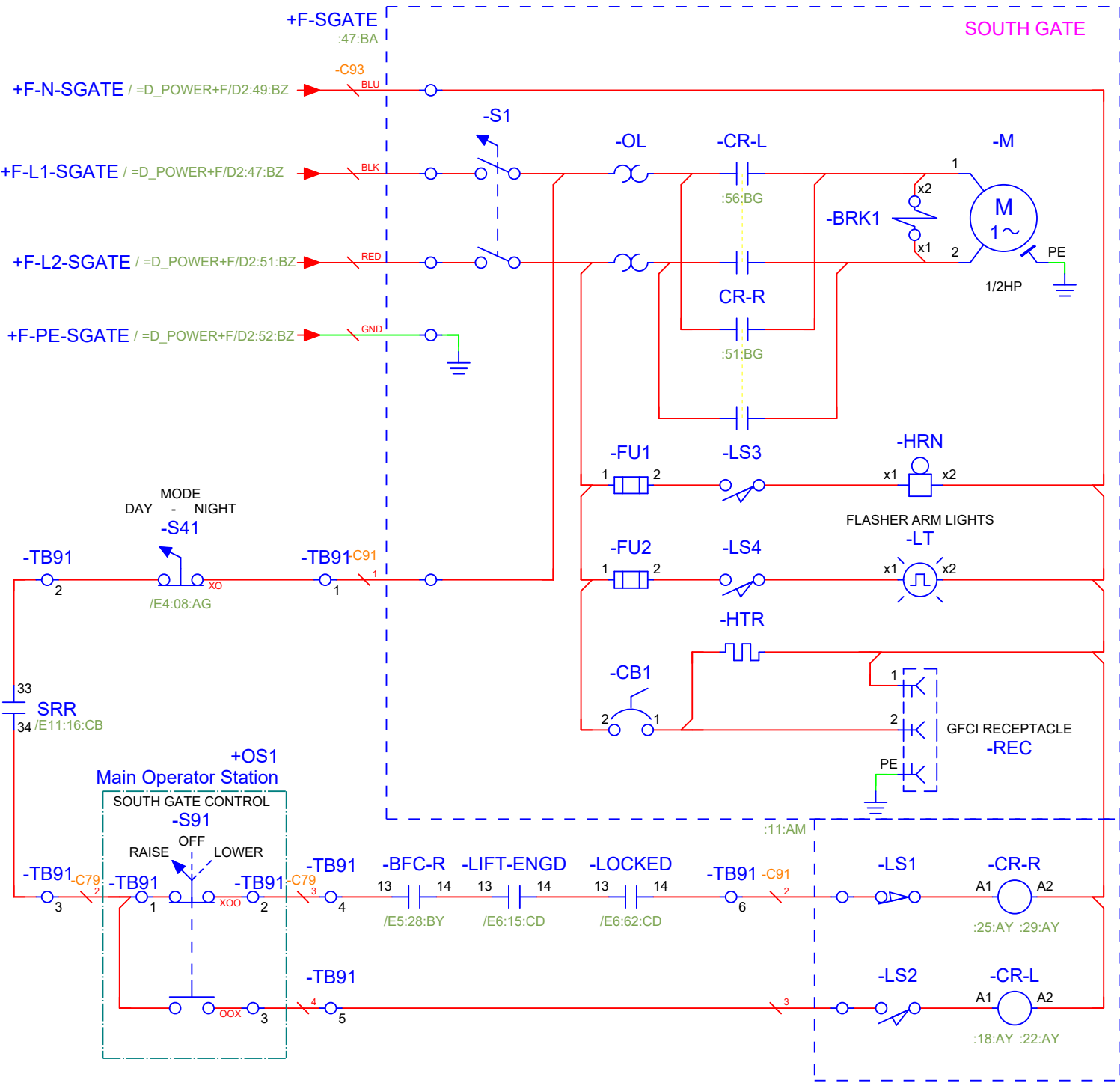
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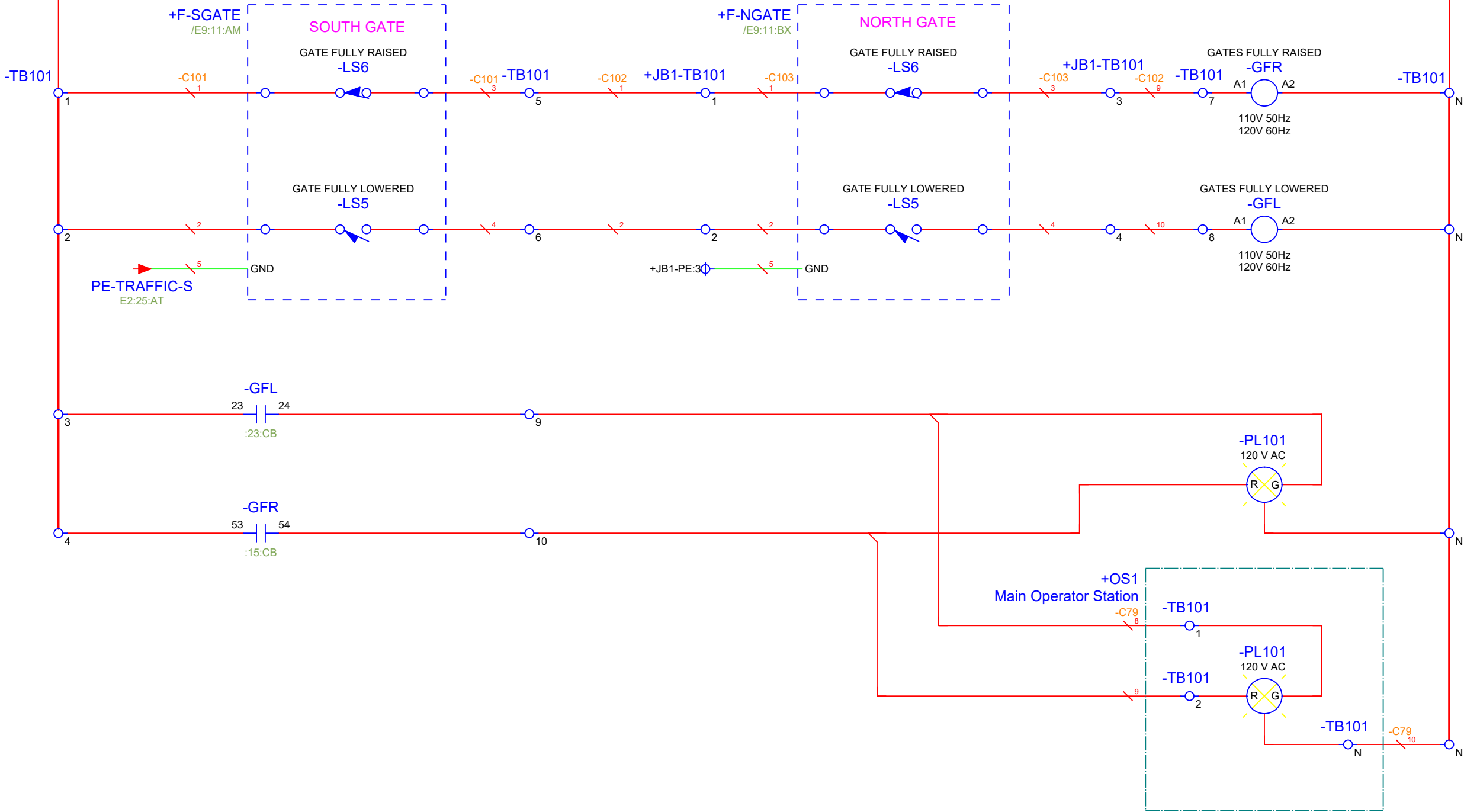


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120V-GATES
E2:51:AP

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E2:51:BE



TRAFFIC GATES
FULLY RAISED

TRAFFICS GATES
FULLY LOWERED

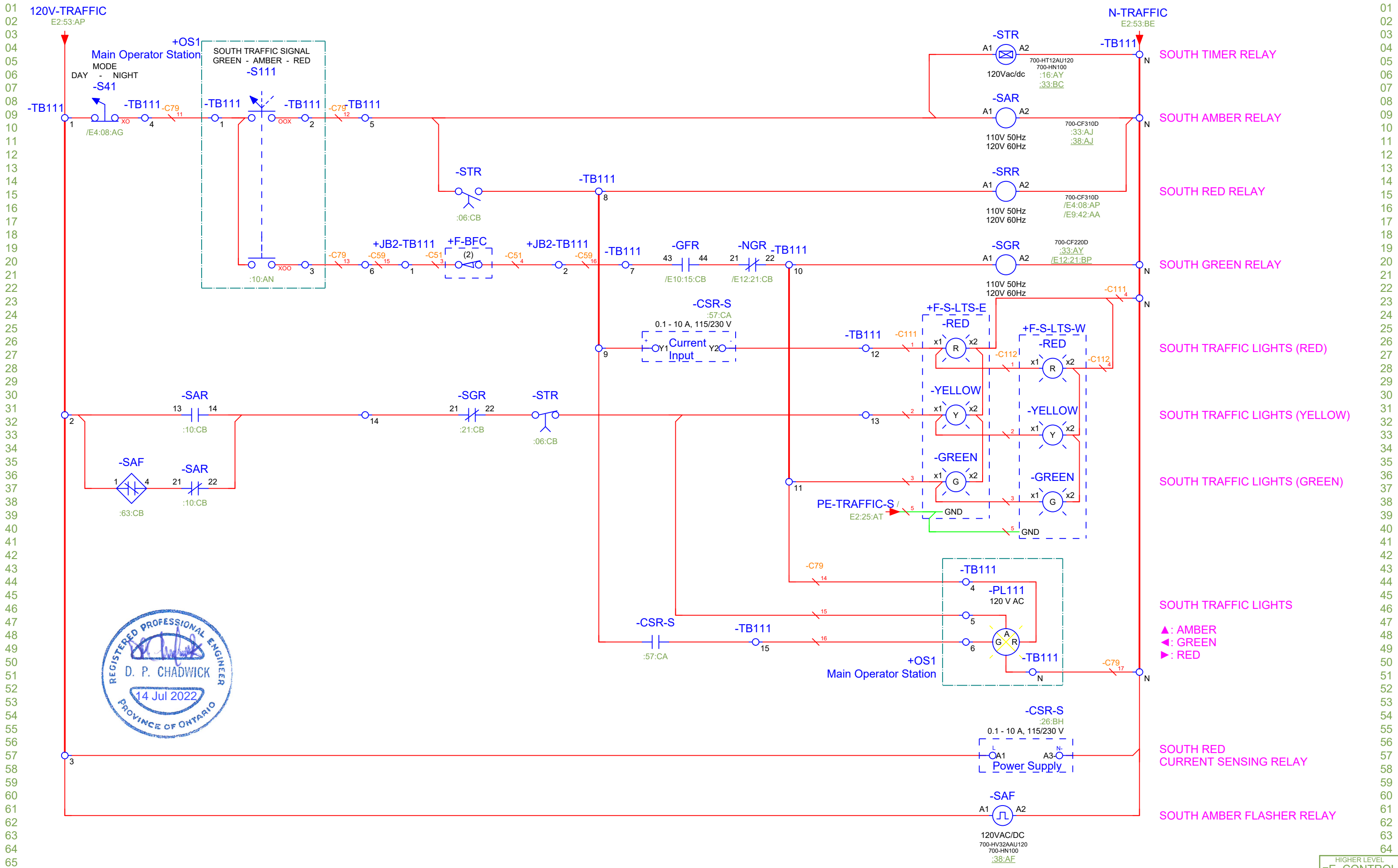
TRAFFIC GATES STATUS

TRAFFIC GATES STATUS

◀: FULLY UP
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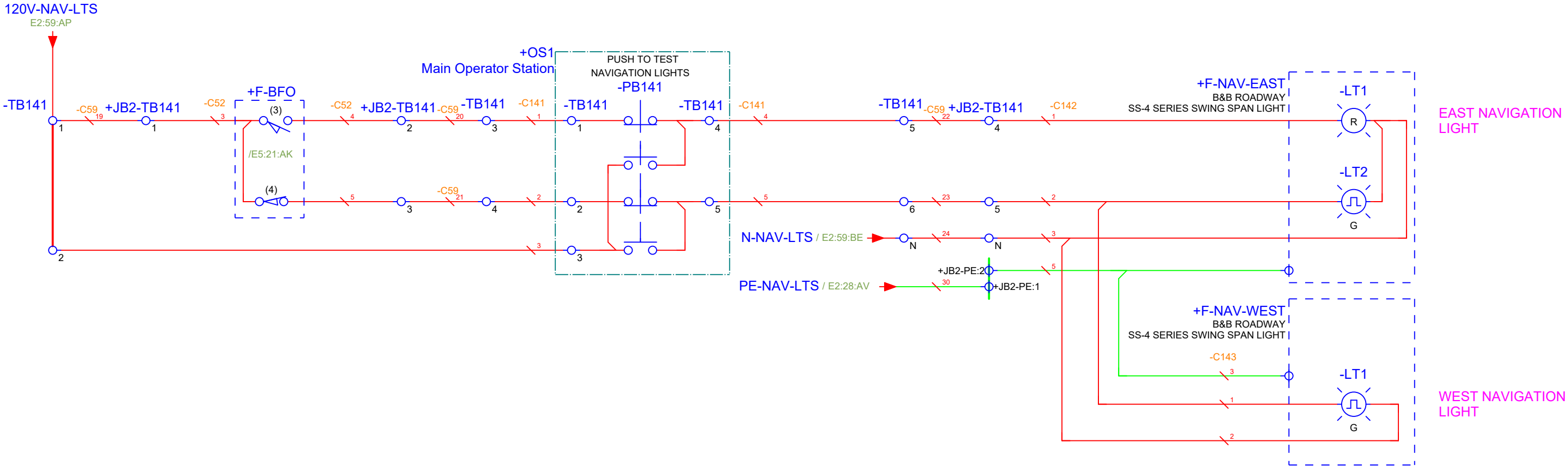




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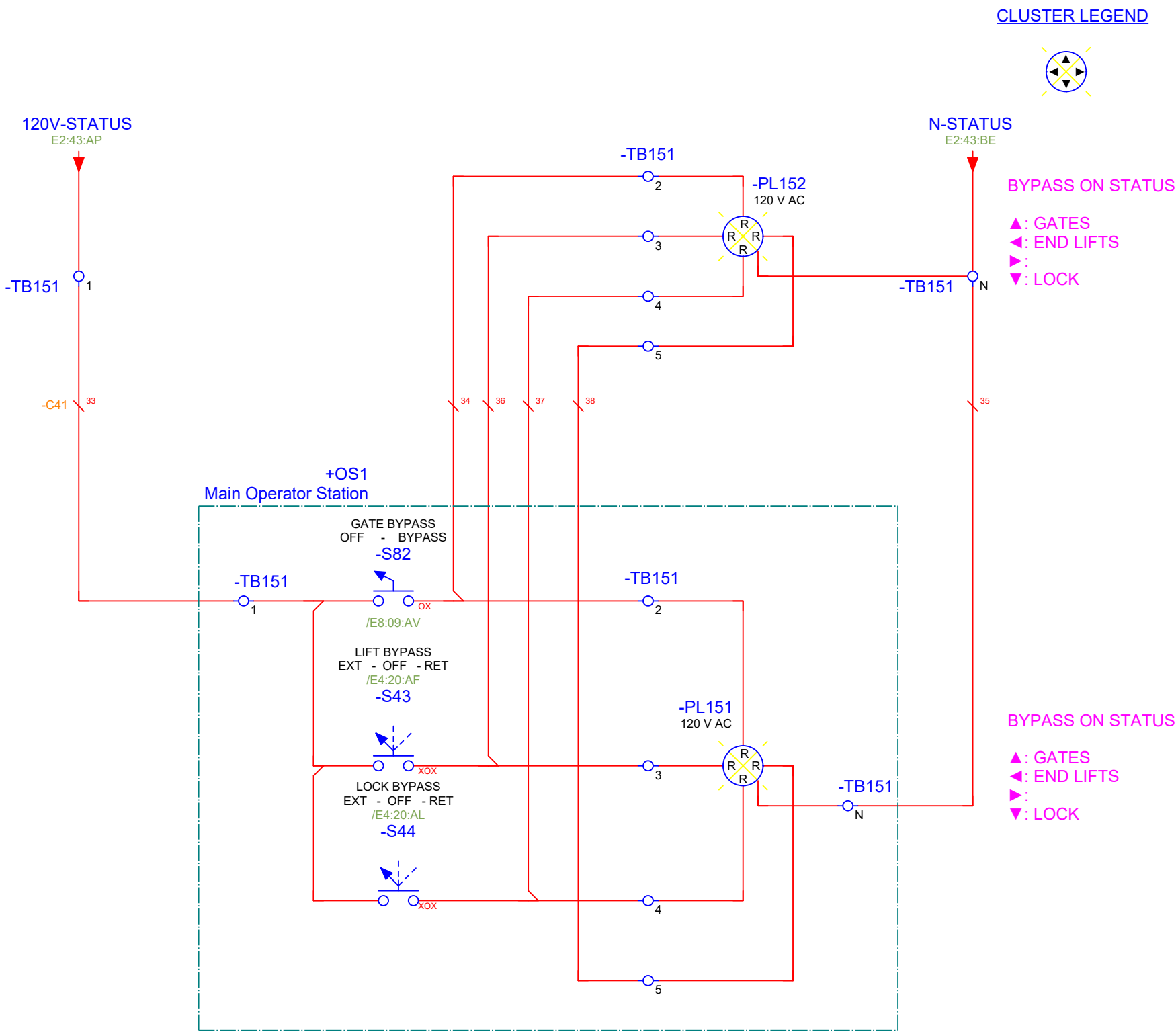
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-ENC_EXT_1



ENCLOSURE
PART No. HW48368GYHK
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



INNER PANEL
PART No. 18P4533
for more information visit
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Isometric drawing Not to Scale

TOP VIEW

BOTTOM VIEW

ISOMETRIC VIEW

INNER PANEL

SIDE VIEW

SIDE VIEW

FRONT VIEW

SIDE VIEW

REAR VIEW

AA AB AC AD AE AF AG AH AJ AK AL AM AN AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BJ BK BL BM BN BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CJ CK CL CM CN CP CQ CR CS

REVISION
Revision D



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Canada K7P 2R9
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NOTES

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ALTERNATE DWG. NO.

DATE
2019-01-15

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TCampbell

CHECKED

TITLE
TRENT-SEVERN WATERWAY
BOUNDARY ROAD #44 SWING BRIDGE
+CP1 ENCLOSURE DETAIL

FULL PAGE ID
=F_LAYOUTS+CP1/F1

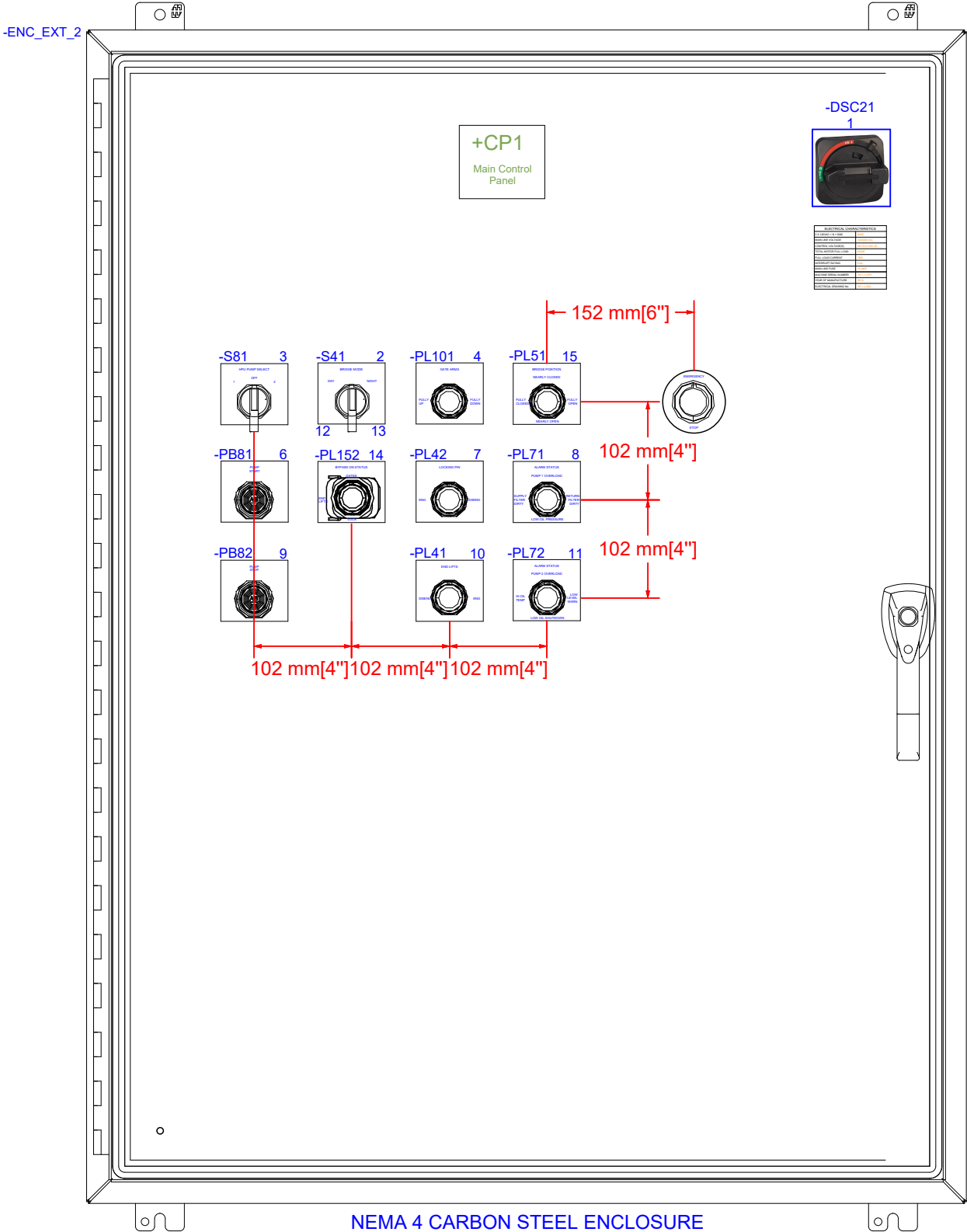
DRAWING NO.
1911-1-003

HIGHER LEVEL
=F_LAYOUTS
MOUNTING LOCATION
+CP1

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PREVIOUS PAGE: =E_CONTROL/E15
F2 :NEXT PAGE

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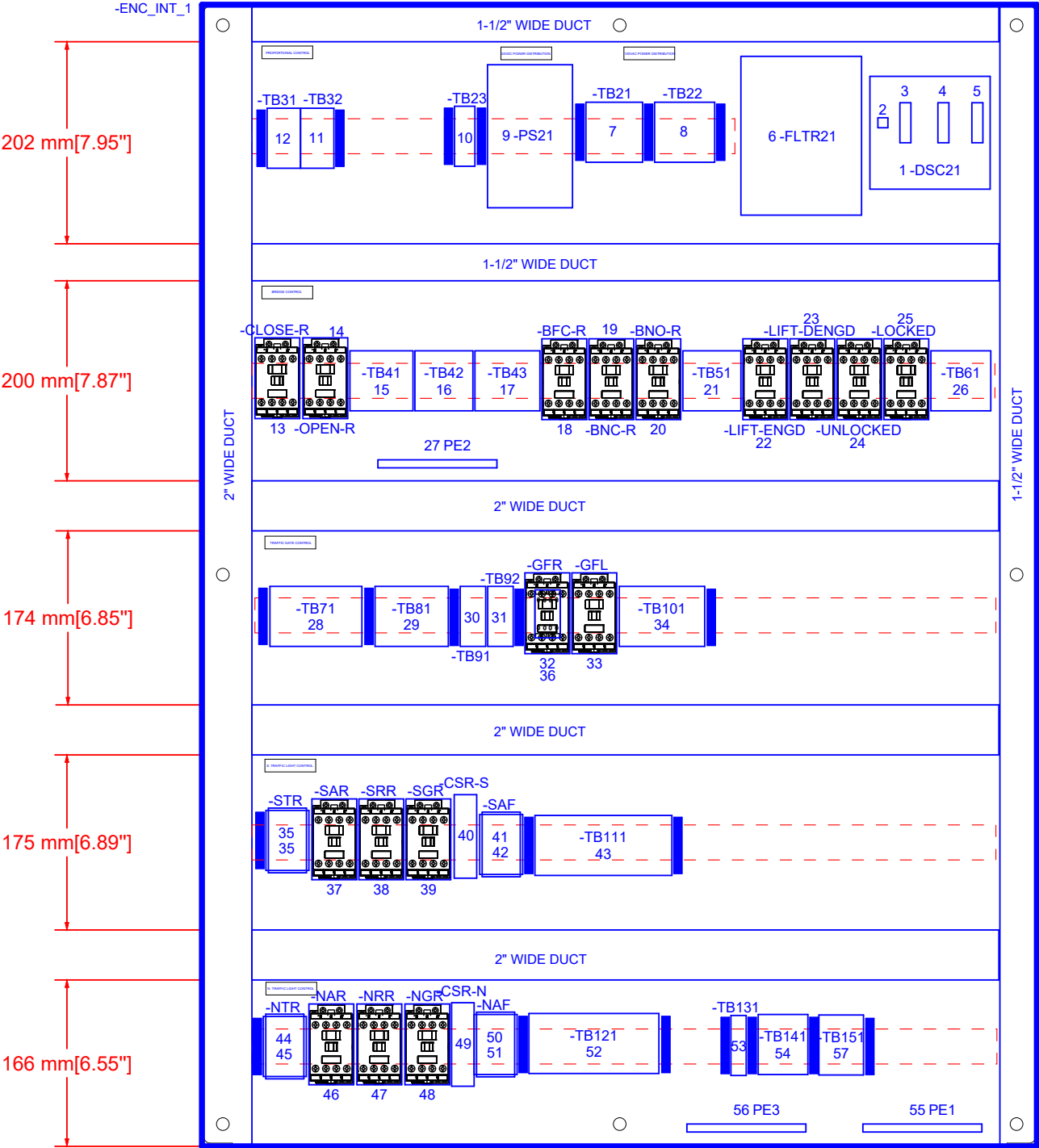


NEMA 4 CARBON STEEL ENCLOSURE
48" HIGH X 36" WIDE X 8" DEEP

GENERAL PANEL BUILD NOTES:

1. REPLACE ENTIRE CONTROL PANEL WITH ENCLOSURE AND MATERIALS AS DETAILED IN THIS DRAWING.
2. FOLLOW WIRING SPECIFICATIONS DETAILED ON SHEET B3.
3. EACH DEVICE REQUIRES A DEVICE IDENTIFICATION LEGEND PLATE.

4. ENCLOSURE REQUIRES IDENTIFICATION AND ELECTRICAL CHARACTERISTICS LEGEND PLATES SIMILAR TO LABELS DEPICTED ON THIS DRAWING.
5. ENCLOSURE BILLS OF MATERIAL IS NOT INTENDED TO BE A COMPLETE LISTING OF ALL REQUIRED PARTS. SEE PANEL LEGEND FOR BILLS OF MATERIAL.
6. ALL CONDUIT/CABLE TO ENTER/EXIT AT BOTTOM OF ENCLOSURE. NO TOP ENTRY PERMITTED.

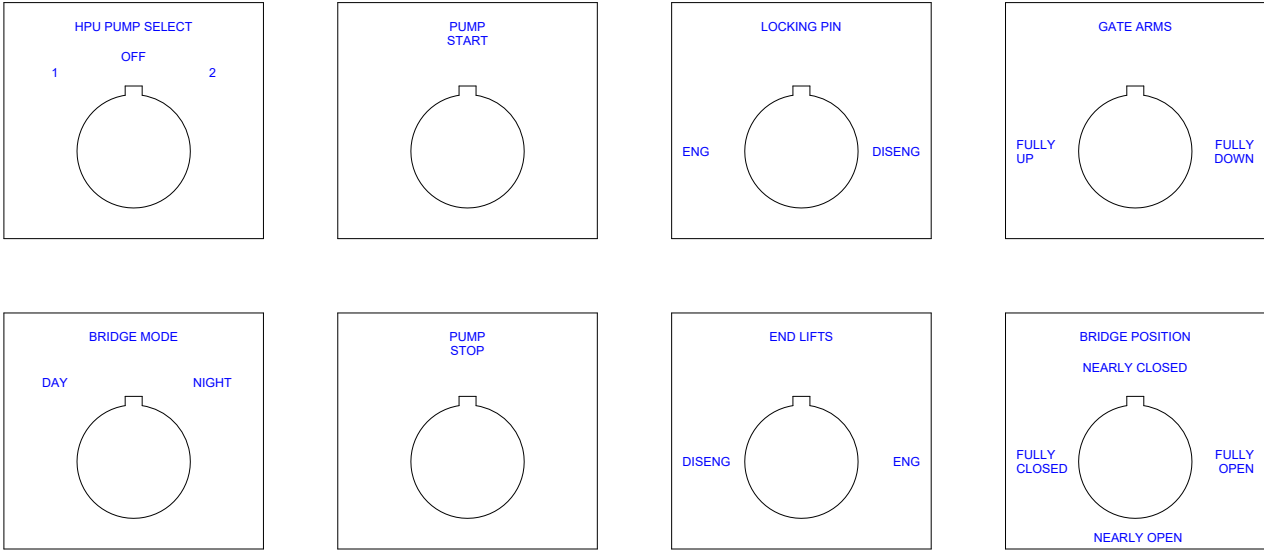
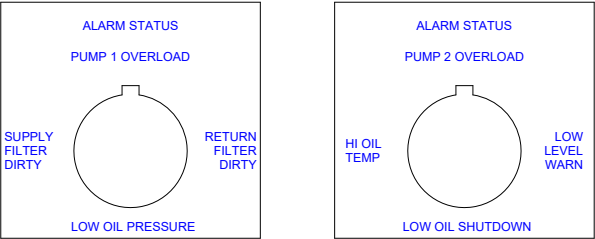
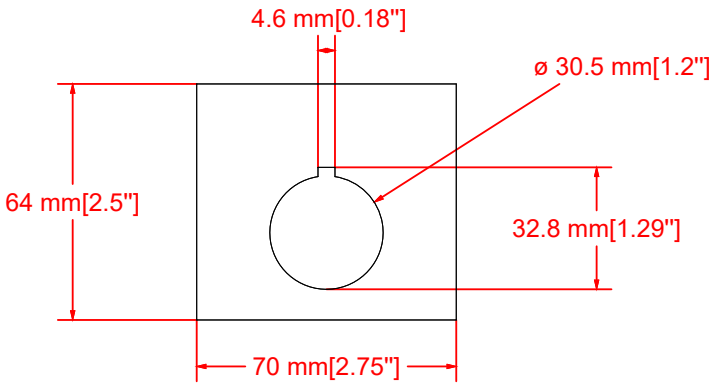


LEGEND

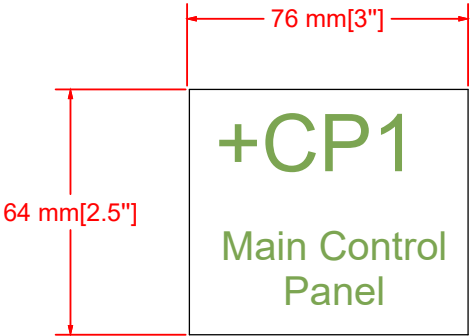
WIRING DUCT DIN RAIL END BRACKET



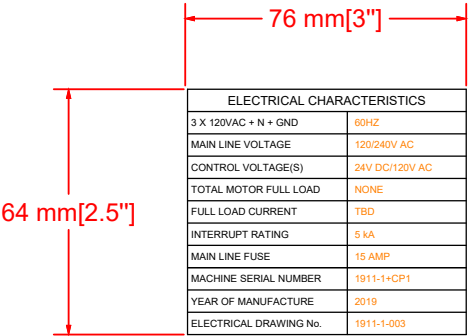
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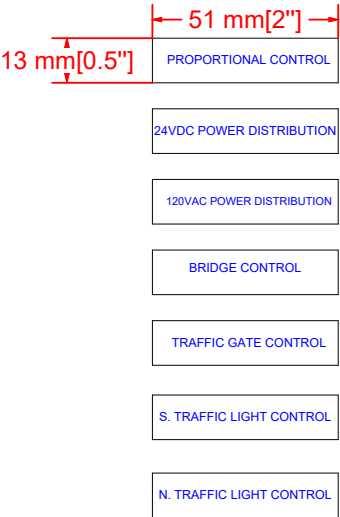
DEVICE IDENTIFICATION
LEGEND PLATES



ENCLOSURE IDENTIFICATION
LEGEND PLATE



ELECTRICAL CHARACTERISTICS
LEGEND PLATE



INNER PANEL
IDENTIFICATION
LEGEND PLATES



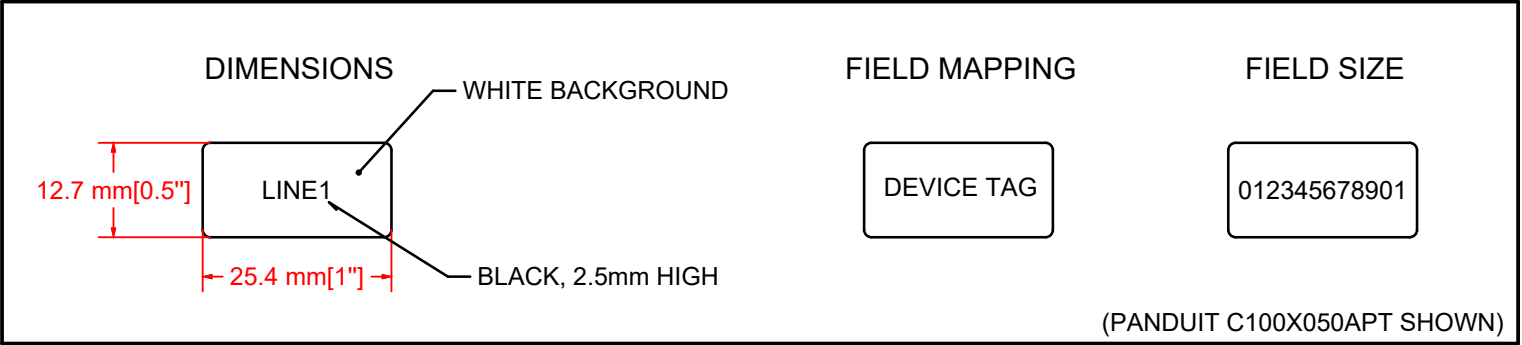
Device Tag List

: Enclosure Backpanel Labels ie. relays, push buttons, disconnects, fuses etc...

CE_F03_000 Enclosure Backpanel Labels

Backpanel labels for enclosure

+CP1



BFC-R	GFL	PB81	PL152	TB23	TB92
BNC-R	GFR	PB82	PS21	TB31	TB101
BNO-R	LIFT-DENG D	PE1	S41	TB32	TB111
CLOSE-R	LIFT-ENG D	PE2	S81	TB41	TB121
CSR-N	LOCKED	PE3	SAF	TB42	TB141
CSR-S	NAF	PL41	SAR	TB43	TB151
DSC21	NAR	PL42	SGR	TB51	UNLOCKED
ENC_EXT_1	NGR	PL51	SRR	TB61	
ENC_INT_1	NRR	PL71	STR	TB71	
EPB41	NTR	PL72	TB21	TB81	
FLTR21	OPEN-R	PL101	TB22	TB91	



Mounting Panel: +CP1-ENC_EXT_2

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HIGHER LEVEL = E LAYOUTS

4 LATCOSTS
MOUNTING LOCATION
+CP1

PREVIOUS PAGE: F4

Enclosure legend

Mounting Panel: +CP1-ENC_INT_1

CE_F18_001

Item number	Device tag	Manufacturer	Order number	Description	Placement	Function text
1	-DSC21	Allen-Bradley (IEC Data)	194R-C30-1753	194R NextGen Disconnect Switch, Open, CC fuse, 30 A, 3 Pole	=E_CONTROL/E2:31:AE	+CP1 MAIN
2	-DSC21	Allen-Bradley (IEC Data)	194R-R2	Operating Shaft, Extended Length, 457mm (18.0 in.)	=E_CONTROL/E2:31:AE	+CP1 MAIN
3	-DSC21	Littlefuse	CCMR015	FUSE, CLASS CC, TIME DELAY, 1 1/2" x 13/32" (10mm x 38mm), UL, CSA,	=E_CONTROL/E2:31:AE	+CP1 MAIN
4	-DSC21	Littlefuse	CCMR015	FUSE, CLASS CC, TIME DELAY, 1 1/2" x 13/32" (10mm x 38mm), UL, CSA,	=E_CONTROL/E2:31:AE	+CP1 MAIN
5	-DSC21	Littlefuse	CCMR015	FUSE, CLASS CC, TIME DELAY, 1 1/2" x 13/32" (10mm x 38mm), UL, CSA,	=E_CONTROL/E2:31:AE	+CP1 MAIN
6	-FLTR21	EMERSON	IC+115	Active Tracking Filter, 1 phase, 115V, 15A	=E_CONTROL/E2:37:BP	POWER FILTER
7	-TB21				=F_LAYOUTS/F2	
8	-TB22				=F_LAYOUTS/F2	
9	-PS21	Schneider Electric	ABL8RPS24100	ABL8RPS24100: Power Supply, 24V DC, 240 W, regulated SMPS - 3-phase -	=E_CONTROL/E2:35:CB	24VDC
10	-TB23				=F_LAYOUTS/F2	
11	-TB32				=F_LAYOUTS/F2	
12	-TB31				=F_LAYOUTS/F2	
13	-CLOSE-R	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E4:20:CB	CLOSE CONTROL RELAY
14	-OPEN-R	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E4:44:CB	OPEN CONTROL RELAY
15	-TB41				=F_LAYOUTS/F2	
16	-TB42				=F_LAYOUTS/F2	
17	-TB43				=F_LAYOUTS/F2	
18	-BFC-R	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E5:28:BY	BRIDGE FULLY CLOSED
19	-BNC-R	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E5:44:BY	BRIDGE NEARLY CLOSED
20	-BNO-R	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E5:58:BY	BRIDGE NEARLY OPEN
21	-TB51				=F_LAYOUTS/F2	
22	-LIFT-ENGD	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E6:15:CD	END LIFTS ENGAGED
23	-LIFT-DENGd	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E6:21:CD	END LIFTS DISENGAGED
24	-UNLOCKED	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E6:53:CD	LOCKING PIN ENGAGED
25	-LOCKED	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E6:62:CD	LOCKING PIN ENGAGED
26	-TB61				=F_LAYOUTS/F2	
27	-PE2	Schneider Electric	PK12GTA	Load Center Ground Bar Assembly, 12 connections, (1) #14–#4 or (2) #14 or #12	=E_CONTROL/E4:06:CG	
28	-TB71				=F_LAYOUTS/F2	
29	-TB81				=F_LAYOUTS/F2	
30	-TB91				=F_LAYOUTS/F2	
31	-TB92				=F_LAYOUTS/F2	
32	-GFR	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E10:15:CB	GATES FULLY RAISED
33	-GFL	Allen-Bradley (NFPA only)	700-CF400D	MCS-CF Control Relay, IEC, 4 N.O. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E10:23:CB	GATES FULLY LOWERED
34	-TB101				=F_LAYOUTS/F2	
35	-STR	Allen-Bradley (IEC Data)	700-HT12AU120	700-HT General Purpose Tube Base Timing Relay, On Delay Timer ,0.1 to 10	=E_CONTROL/E11:06:CB	SOUTH TIMER RELAY
36	-GFR	Allen-Bradley (NFPA only)	100-FA22	IEC Auxiliary Contact Block, Front Mounting, 2 N.O. 2 N.C.	=E_CONTROL/E10:15:CB	GATES FULLY RAISED
37	-SAR	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E11:10:CB	SOUTH AMBER RELAY
38	-SRR	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E11:16:CB	SOUTH RED RELAY
39	-SGR	Allen-Bradley (IEC Data)	700-CF220D	MCS-CF Control Relay, IEC, 2 N.O. / 2 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E11:21:CB	SOUTH GREEN RELAY
40	-CSR-S	Allen-Bradley (IEC Data)	809S-C1-10A-230	Single Phase Current Relay, 1...10A AC/DC max monitoring, 115/230V AC control	=E_CONTROL/E11:57:CA	SOUTH RED
41	-SAF	Allen-Bradley (IEC Data)	700-HV32AAU120	General Purpose Tube Base Repeat Cycle Timing Relay, Adjustable Timing Mode,	=E_CONTROL/E11:63:CB	SOUTH AMBER FLASHER RELAY
43	-TB111				=F_LAYOUTS/F2	
44	-NTR	Allen-Bradley (IEC Data)	700-HT12AU120	700-HT General Purpose Tube Base Timing Relay, On Delay Timer ,0.1 to 10	=E_CONTROL/E12:06:CB	NORTH TIMER RELAY
46	-NAR	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E12:10:CB	NORTH AMBER RELAY
47	-NRR	Allen-Bradley (NFPA only)	700-CF310D	MCS-CF Control Relay, IEC, 3 N.O. / 1 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E12:16:CB	NORTH RED RELAY
48	-NGR	Allen-Bradley (IEC Data)	700-CF220D	MCS-CF Control Relay, IEC, 2 N.O. / 2 N.C. Contacts, 110V 50Hz / 120V 60Hz	=E_CONTROL/E12:21:CB	NORTH GREEN RELAY
49	-CSR-N	Allen-Bradley (IEC Data)	809S-C1-10A-230	Single Phase Current Relay, 1...10A AC/DC max monitoring, 115/230V AC control	=E_CONTROL/E12:57:CA	NORTH RED
50	-NAF	Allen-Bradley (IEC Data)	700-HV32AAU120	General Purpose Tube Base Repeat Cycle Timing Relay, Adjustable Timing Mode,	=E_CONTROL/E12:63:CB	NORTH AMBER FLASHER RELAY
52	-TB121				=F_LAYOUTS/F2	
53	-TB131				=F_LAYOUTS/F2	
54	-TB141				=F_LAYOUTS/F2	
55	-PE1	Schneider Electric	PK12GTA	Load Center Ground Bar Assembly, 12 connections, (1) #14–#4 or (2) #14 or #12	=E_CONTROL/E2:21:AK	+CP1 MAIN GROUND BUS
56	-PE3	Schneider Electric	PK12GTA	Load Center Ground Bar Assembly, 12 connections, (1) #14–#4 or (2) #14 or #12	=E_CONTROL/E7:12:AU	
57	-TB151				=F_LAYOUTS/F2	

Terminal strip layouts and parts are detailed on the terminal line up diagrams.



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Parts list

; Project Bill of Material, by Device Tag

CE_F01_002

Device tag	Qty	Unit	Description	Order number	Manufacturer	Device Description
Schematic Reference						
-ENC_EXT_1 /F1	1		Formed 14 gauge steel bodies and doors. Continuously welded seams ground smooth. Formed lip on enclosure to exclude flowing liquids and contaminants. Powder coated black zinc diecast pad lockable handle with 3 point roller latching system secures door. Stainless steel continuous hinge	HW48368GYHK	Hammond Manufacturing	
-ENC_EXT_1 /F1	1		Steel panels are 12 gauge steel and are finished in white. Larger panels have two or four formed flanges. Some larger panels are 10 gauge. Panel mounting hardware not included (provided with enclosure).	18P4533	Hammond Manufacturing	
-ENC_INT_1 /F2	48	pcs	Accessories, End bracket, 100 pcs per package	1061200000	Weidmüller	
-ENC_INT_1 /F2	3600	mm	Mounting rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanized, chromium-plated, 2000 mm per length	0514500000	Weidmüller	
-ENC_INT_1 /F2	4	ft	Panduct® type F narrow slot wiring duct, 1" W x 3" H, 6' length, PVC, light gray.	F1X3LG6	Panduit	
-ENC_INT_1 /F2	4	ft	Duct cover, 1" W x 6' length, PVC, light gray.	C1LG6	Panduit	
-ENC_INT_1 /F2	6	ft	1.5"(38mm) x 3" (80mm) Narrow Finger Design Wire Duct, PVC, Light Gray. Cover sold separate.	F1.5X3LG6	Panduit	
-ENC_INT_1 /F2	6	ft	Duct cover, 1.5" W x 6' length, PVC, light gray.	C1.5LG6	Panduit	
-ENC_INT_1 /F2	10	ft	Panduct® type F narrow slot wiring duct, 2" W x 3" H, 6' length, PVC, light gray.	F2X3LG6	Panduit	
-ENC_INT_1 /F2	10	ft	Duct cover, 2" W x 6' length, PVC, light gray.	C2LG6	Panduit	

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TITLE
TRENT-SEVERN WATERWAY
BOUNDARY ROAD #44 SWING BRIDGE
Mounting Panel Hardware

FULL PAGE ID
=F_LAYOUTS+CP1/F7

DRAWING NO.

HIGHER LEVEL
=F_LAYOUTS

MOUNTING LOCATION
+CP1

PAGE
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TOTAL PAGES: 83

2019-10-04 :LAST PAGE MODIFICATION DATE

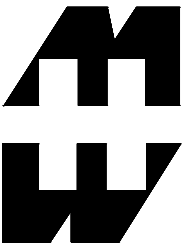
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REGISTERED PROFESSIONAL ENGINEER
D. P. CHADWICK
14 Jul 2022
PROVINCE OF ONTARIO

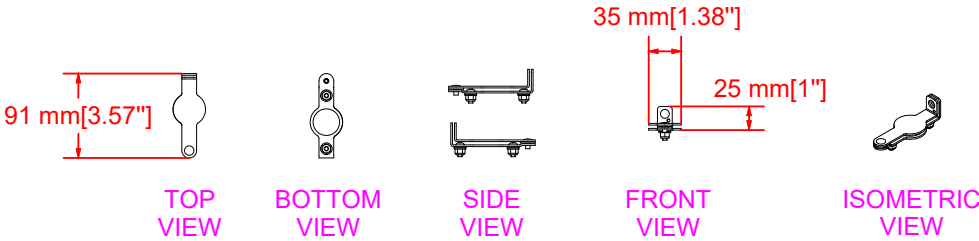
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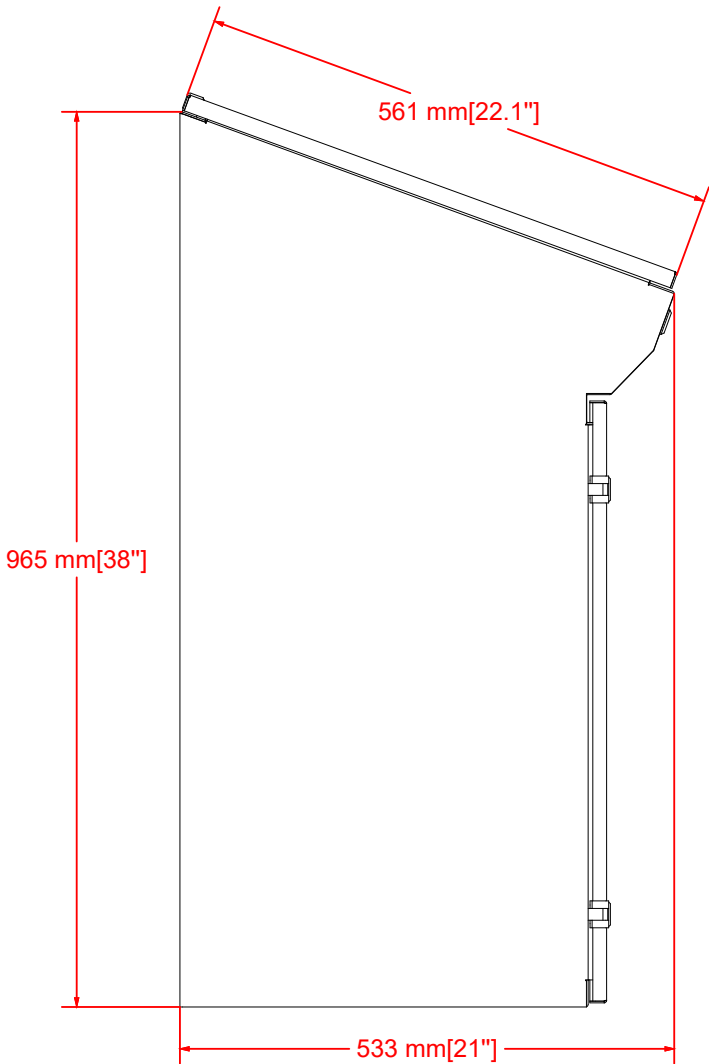


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Isometric drawing Not to Scale

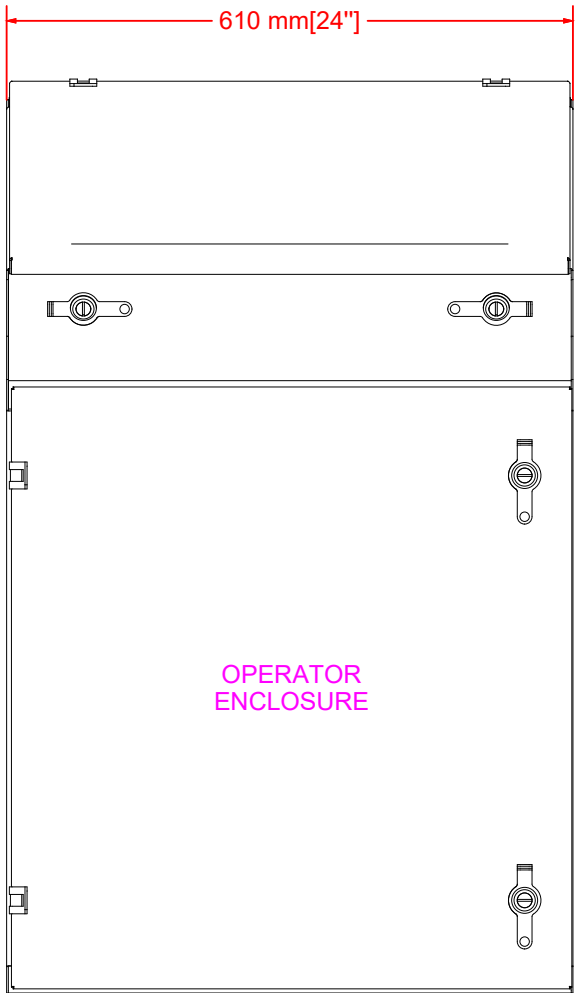
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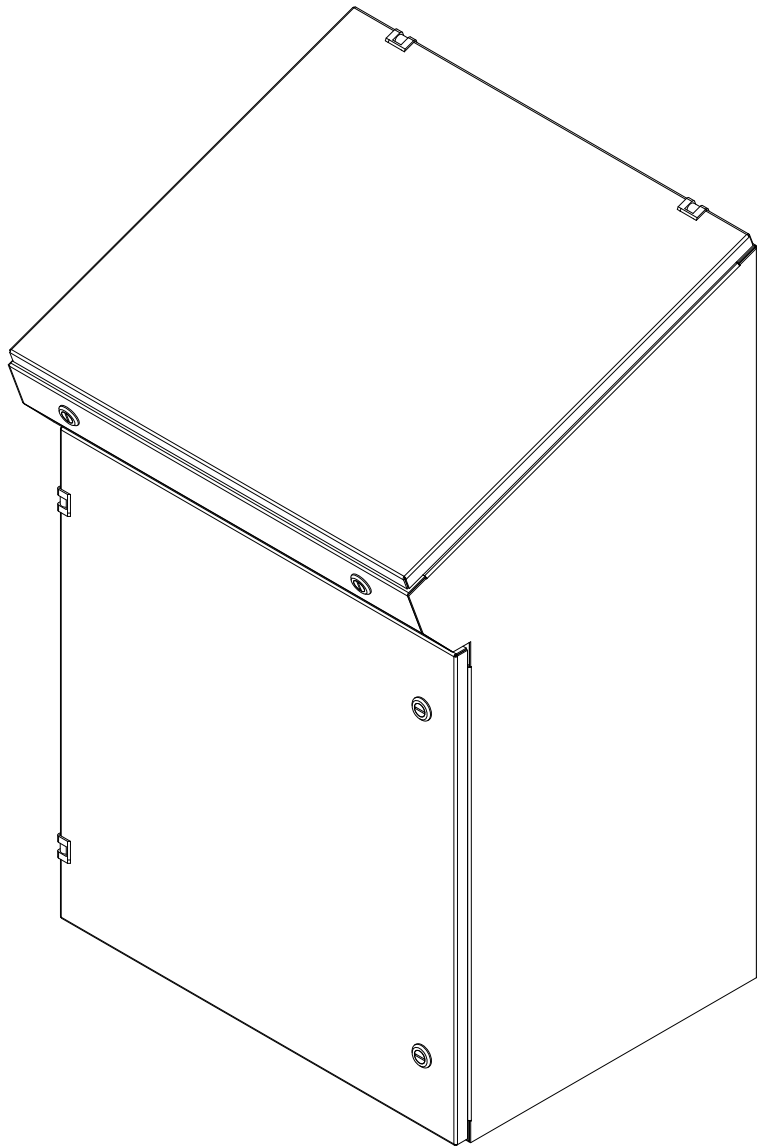
PADLOCK ADAPTOR
PART No. **EPA**
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Isometric drawing Not to Scale



LEFT SIDE VIEW



FRONT VIEW



ISOMETRIC VIEW



REVISION Revision D	NOTES
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CLIENT PARKS CANADA PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	DATE 2018-12-19
ALTERNATE DWG. NO.	DRAWN BY TCampbell
	CHECKED

TITLE TRENT-SEVERN WATERWAY BOUNDARY ROAD #44 SWING BRIDGE +OS1 ENCLOSURE DETAIL	FULL PAGE ID =F_LAYOUTS+OS1/F8
	DRAWING NO. 1911-1-003

HIGHER LEVEL =F_LAYOUTS MOUNTING LOCATION +OS1	PAGE F8
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-PLINTH_EXT_1

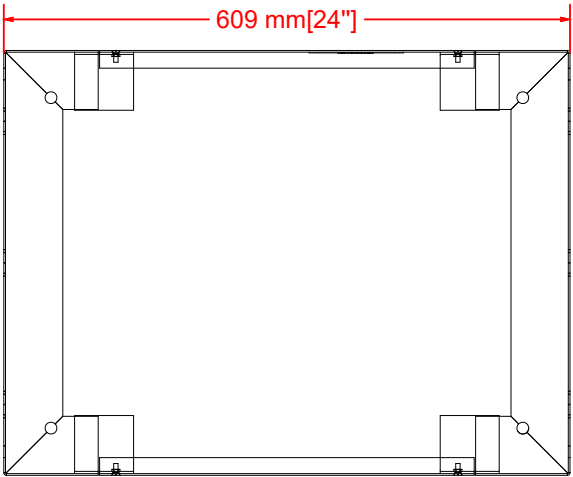


PLINTH

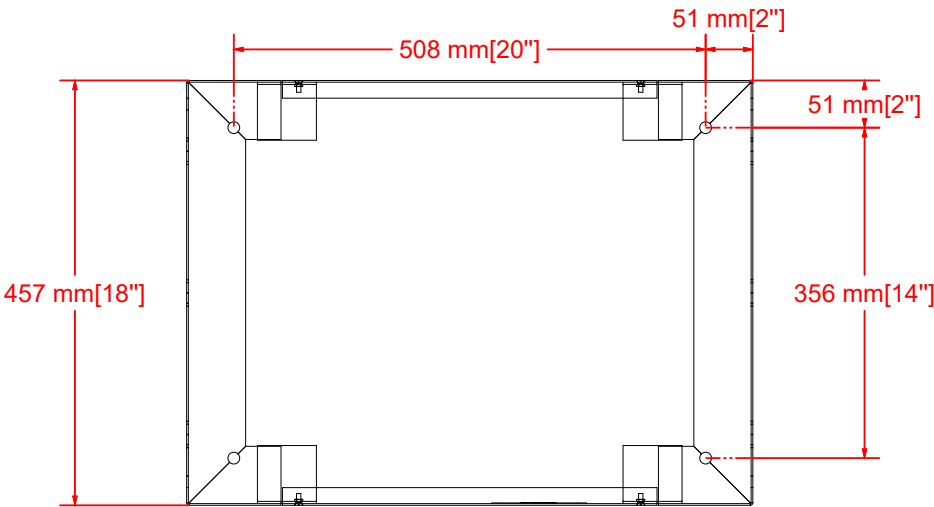
PART No. 2CSP82418

for more information visit
www.hammfg.com

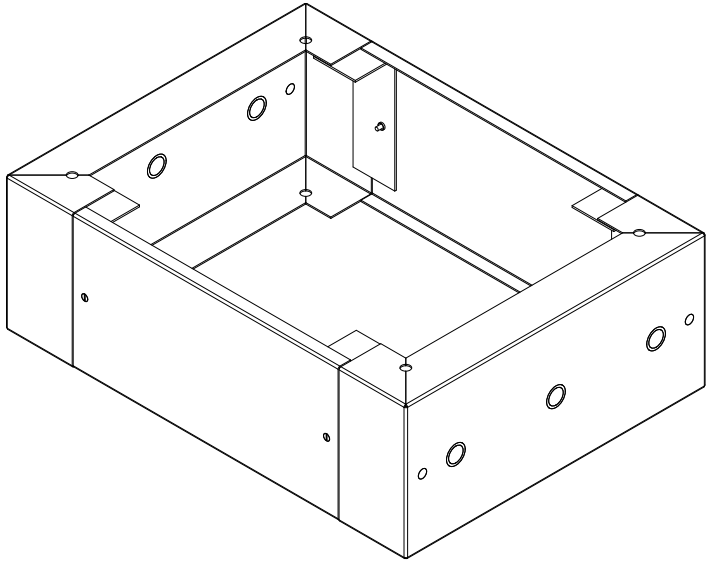
Data subject to change without notice



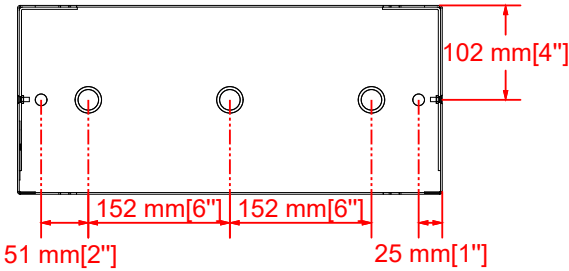
TOP VIEW



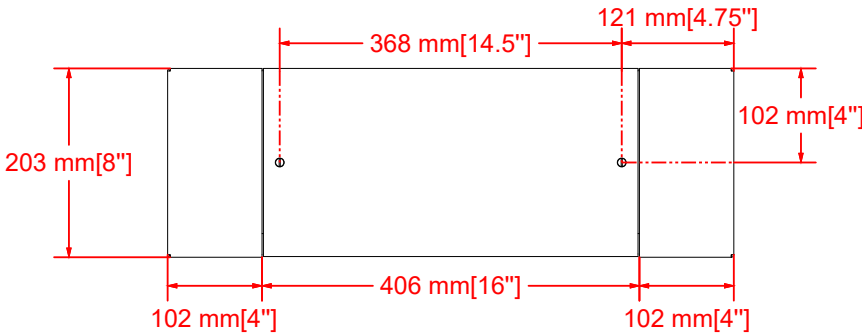
BOTTOM VIEW



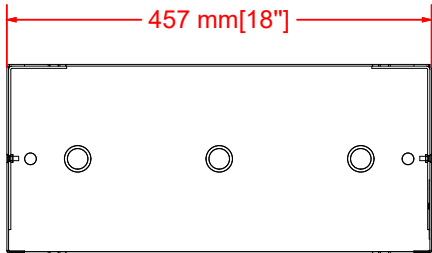
ISOMETRIC VIEW



SIDE VIEW



FRONT VIEW



SIDE VIEW



NOTES:

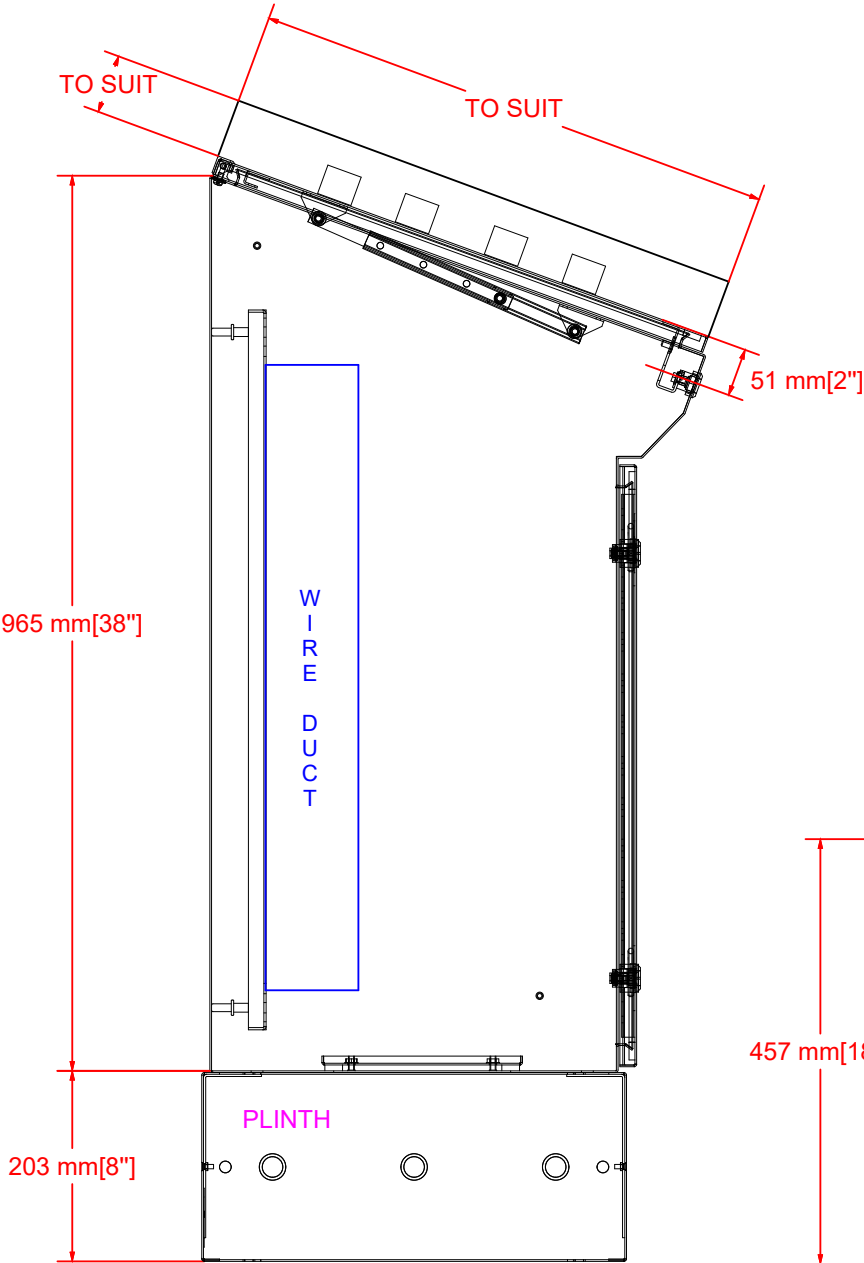
1. DRAIN HOLE REQUIRED FOR OUTER ENCLOSURE

2. OUTER ENCLOSURE/PLINTH WILL ANCHOR TO CONCRETE PAD.

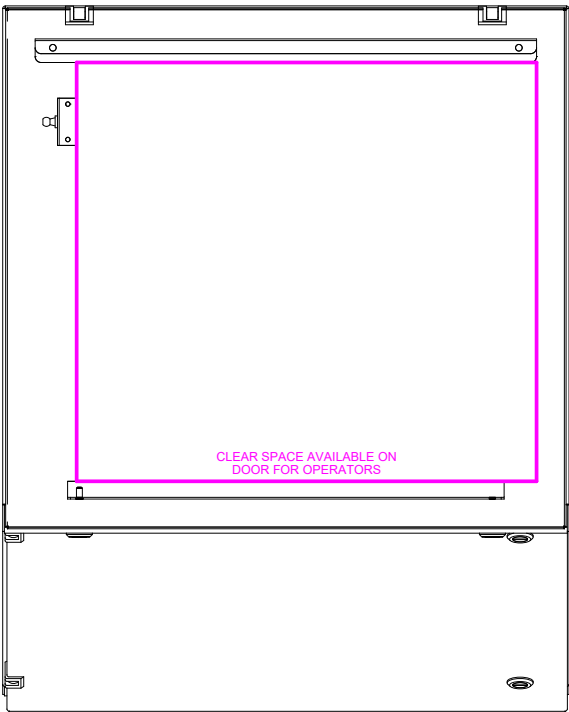
3. CREATE CUSTOM LID TO COVER OPERATORS. MUST BE STAINLESS STEEL, LOCKABLE AND HINGED. GAS STRUTS REQUIRED TO SUPPORT LID OPEN WHILE OPERATOR STATION IN USE.



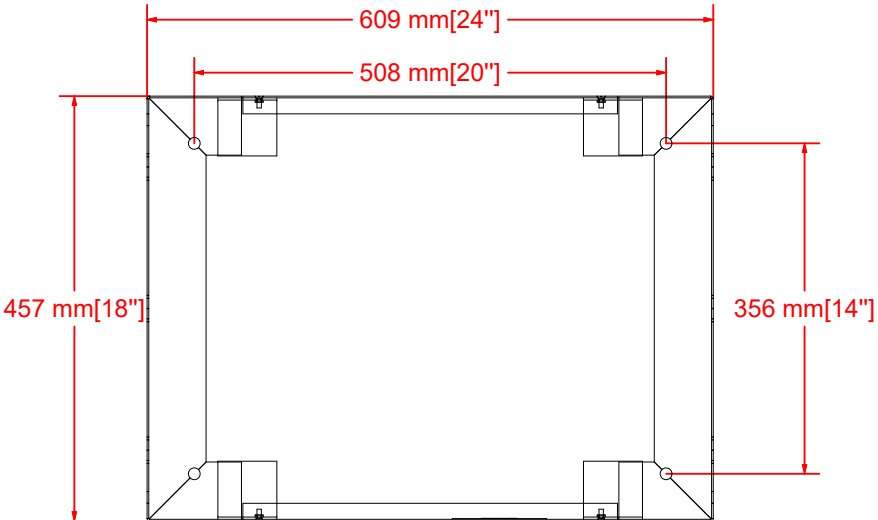
EXAMPLE OF CUSTOM COVER WITH GAS STRUTS



LEFT SIDE VIEW

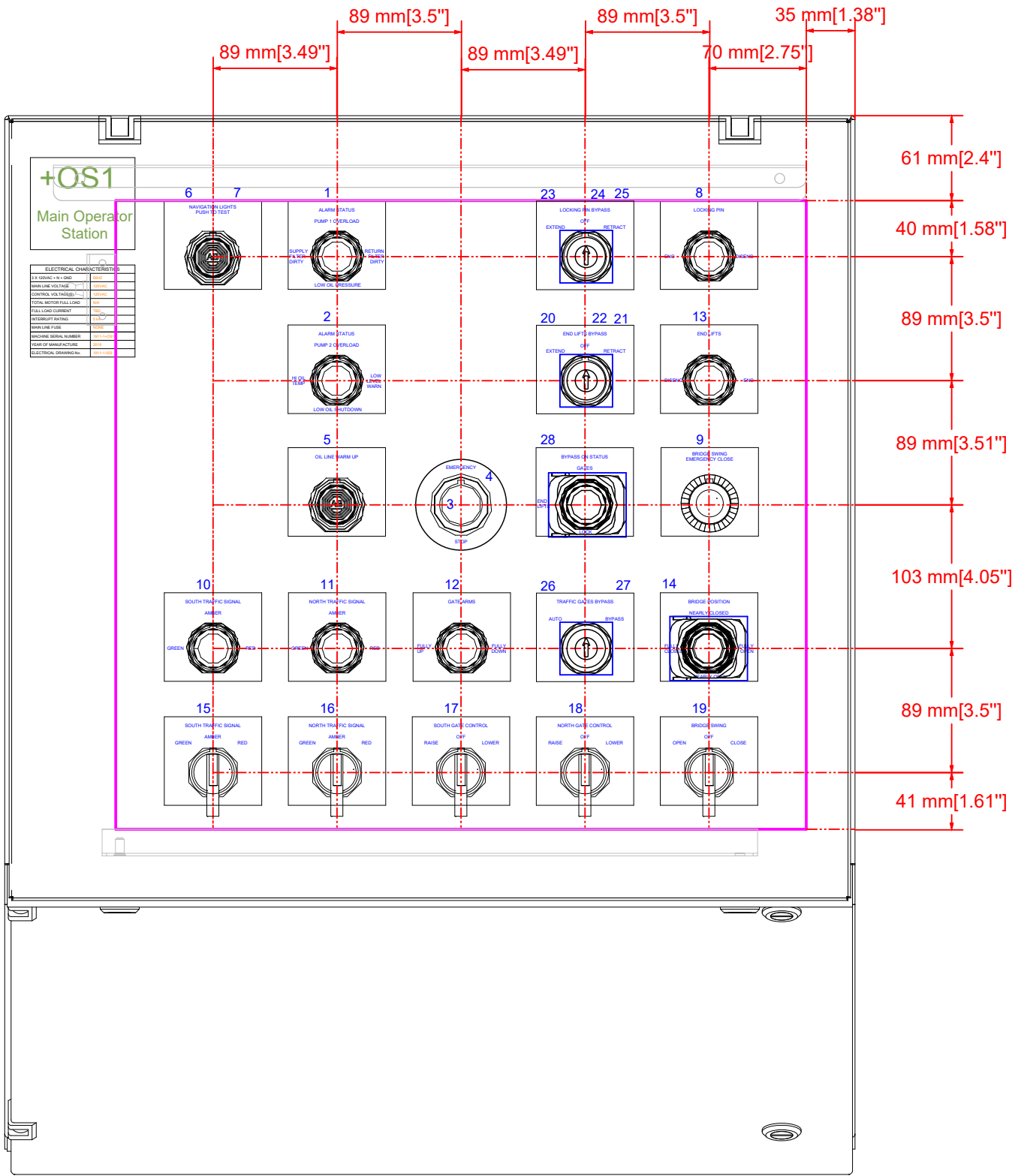


TOP VIEW
(ENCLOSURE)

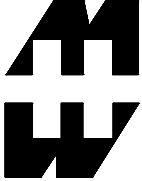


BOTTOM VIEW
(PLINTH)

-ENC_EXT_2



-ENC_INT_1



INNER PANEL

PART No. 2CWCP24

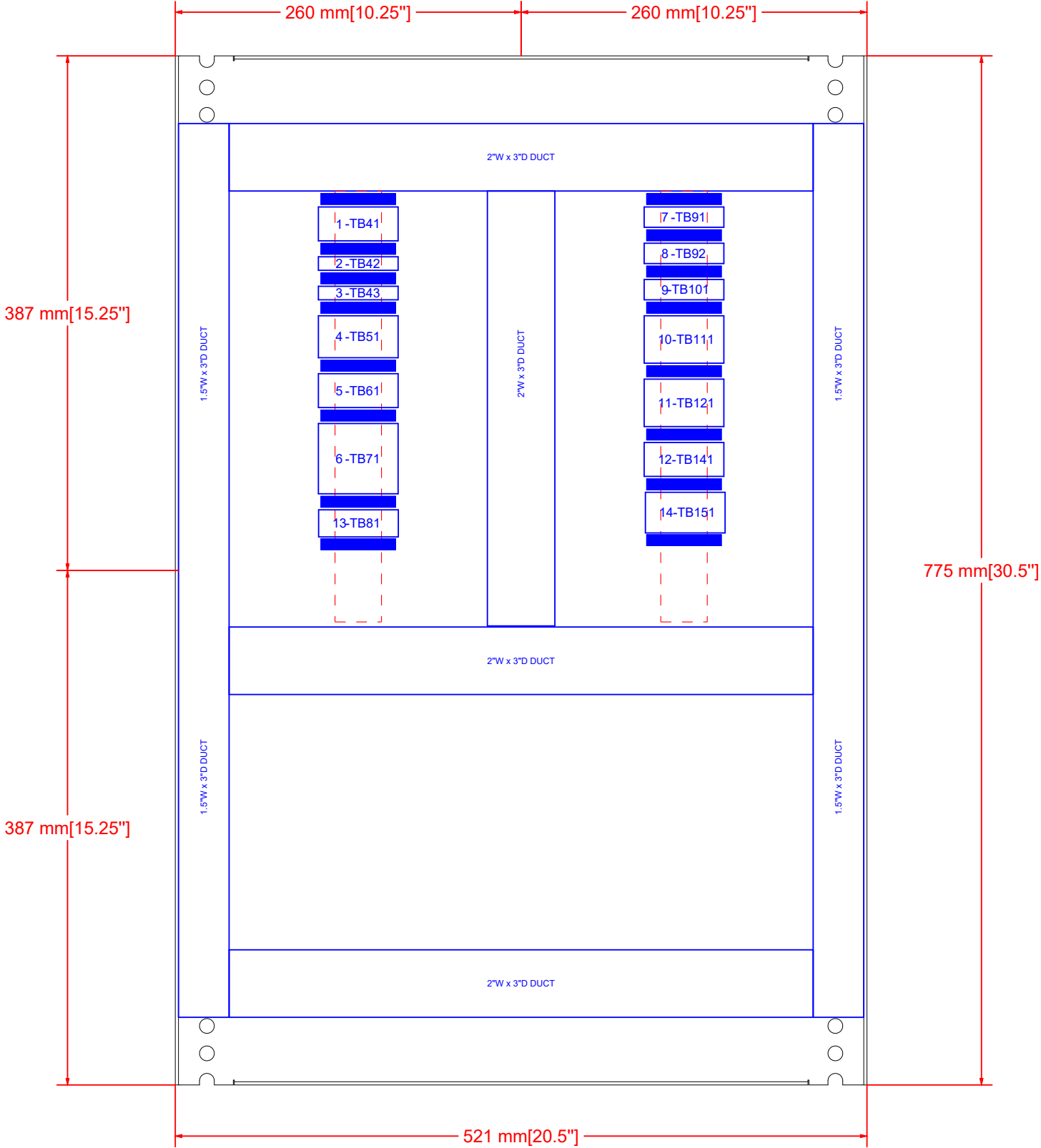
for more information visit
www.hammfg.com

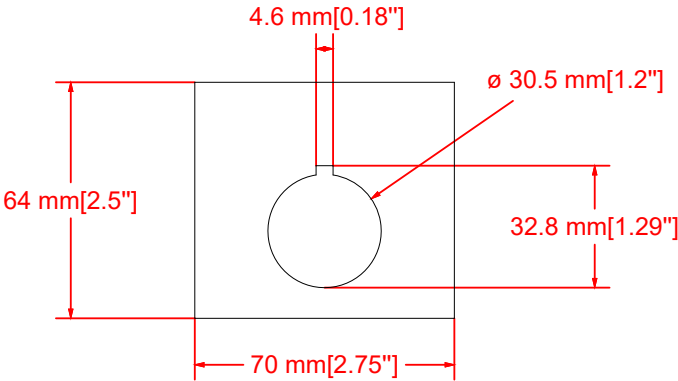
Data subject to change without notice

Isometric drawing Not to Scale

LEGEND

- WIRING DUCT
- DIN RAIL
- END BRACKET





OIL LINE WARM UP

BYPASS ON STATUS

GATES

END LIFTS

LOCK

SOUTH GATE CONTROL

RAISE

OFF

LOWER

NORTH GATE CONTROL

RAISE

OFF

LOWER

BRIDGE POSITION

NEARLY CLOSED

FULLY CLOSED

NEARLY OPEN

FULLY OPEN

BRIDGE SWING

OPEN

OFF

CLOSE

BRIDGE SWING EMERGENCY CLOSE

SOUTH TRAFFIC SIGNAL

GREEN

AMBER

RED

NORTH TRAFFIC SIGNAL

GREEN

AMBER

RED

ALARM STATUS

PUMP 1 OVERLOAD

SUPPLY FILTER DIRTY

LOW OIL PRESSURE

RETURN FILTER DIRTY

ALARM STATUS

PUMP 2 OVERLOAD

HI OIL TEMP

LOW OIL SHUTDOWN

LOW LEVEL WARN

NAVIGATION LIGHTS

PUSH TO TEST

SOUTH TRAFFIC SIGNAL

GREEN

AMBER

RED

NORTH TRAFFIC SIGNAL

GREEN

AMBER

RED

LOCKING PIN

ENG

DISENG

END LIFTS

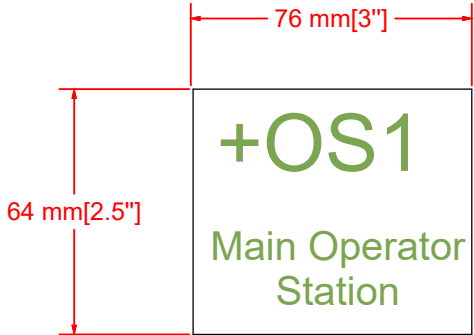
DISENG

ENG

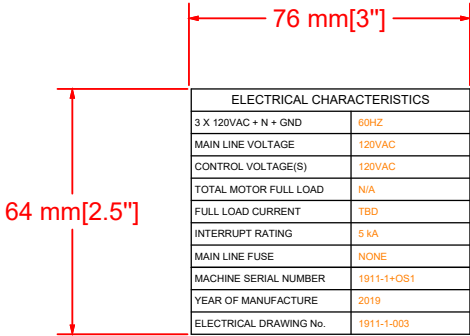
GATE ARMS

FULLY UP

FULLY DOWN



ENCLOSURE IDENTIFICATION
LEGEND PLATE



ELECTRICAL CHARACTERISTICS
LEGEND PLATE

DEVICE IDENTIFICATION
LEGEND PLATES

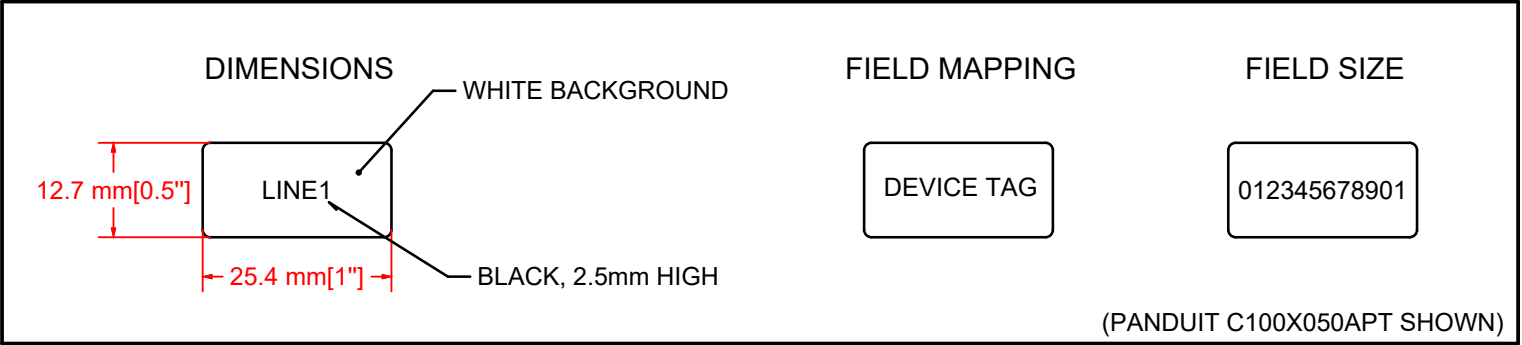
Device Tag List

: Enclosure Backpanel Labels ie. relays, push buttons, disconnects, fuses etc...

CE_F03_000 Enclosure Backpanel Labels

Backpanel labels for enclosure

+OS1



ENC_EXT_1	PL101	S111	TB111
ENC_INT_1	PL111	S121	TB121
EPB42	PL121	TB41	TB141
EPB43	PL151	TB42	TB151
PB41	PLINTH_EXT_1	TB51	
PB141	S42	TB61	
PL41	S43	TB71	
PL42	S44	TB81	
PL51	S82	TB91	
PL71	S91	TB92	
PL72	S92	TB101	



CE_F18_001

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Mounting Panel: +OS1-ENC_INT_1

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[L]

HIGHER LEVEL = E LAYOUTS

MOUNTING LOCATION

PREVIOUS PAGE: F15

Parts list

; Project Bill of Material, by Device Tag

CE_F01_002

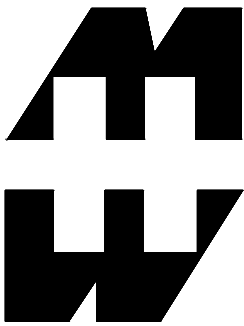
Device tag	Qty	Unit	Description	Order number	Manufacturer	Device Description
Schematic Reference						
-ENC_EXT_1 /F8	1		Formed 14 gauge steel bodies with 14 gauge steel door and lid. Also offered with formed 14 gauge 304 stainless steel bodies with 14 gauge 304 stainless steel door and lid. Smooth, continuously welded seams without knockouts or holes. Body stiffeners are provided where required for	2CSC2024	Hammond Manufacturing	
-ENC_EXT_1 /F8	4		For use with EN4SD /S2000 Series Enclosures. Padlock adaptor fits directly over the slotted quarter turn preventing access. 14 gauge 304 stainless steel. Stainless steel mounting hardware provided Once installed, the bolts cannot be removed without the door open. Easy installed in the	EPA	Hammond Manufacturing	
-ENC_INT_1 /F12	16	pcs	Accessories, End bracket, 100 pcs per package	1061200000	Weidmüller	
-ENC_INT_1 /F12	700	mm	Mounting rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanized, chromium-plated, 2000 mm per length	0514500000	Weidmüller	
-ENC_INT_1 /F12	1	ft	1.5"(38mm) x 3" (80mm) Narrow Finger Design Wire Duct, PVC, Light Gray. Cover sold separate.	F1.5X3LG6	Panduit	
-ENC_INT_1 /F12	1	ft	Duct cover, 1.5" W x 6' length, PVC, light gray.	C1.5LG6	Panduit	
-ENC_INT_1 /F12	1	ft	Panduct® type F narrow slot wiring duct, 2" W x 3" H, 6' length, PVC, light gray.	F2X3LG6	Panduit	
-ENC_INT_1 /F12	1	ft	Duct cover, 2" W x 6' length, PVC, light gray.	C2LG6	Panduit	
-ENC_INT_1 /F12	1		Fits 24" wide consoles 12 gauge steel panels. Available in 4 widths. Mounts onto panel mounting studs in consolet. Finished in white.	2CWCP24	Hammond Manufacturing	
-PLINTH_EXT_1 /F9	1		Features removable front and rear panels for easy access to bottom for cabling or transport by forklift. For cable access, features 3 double knockouts on each end. Available in 4" and 8" heights. Available in 24", 36", 48" and 60" widths. Maintains NEMA rating of system. Formed 14 gauge	2CSP82418	Hammond Manufacturing	



HIGHER LEVEL
=F LAYOUTS
MOUNTING LOCATION
+OS1

F17

-ENC_EXT_1

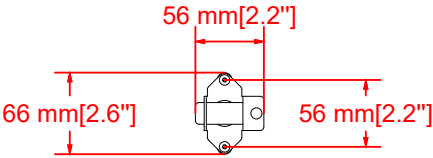
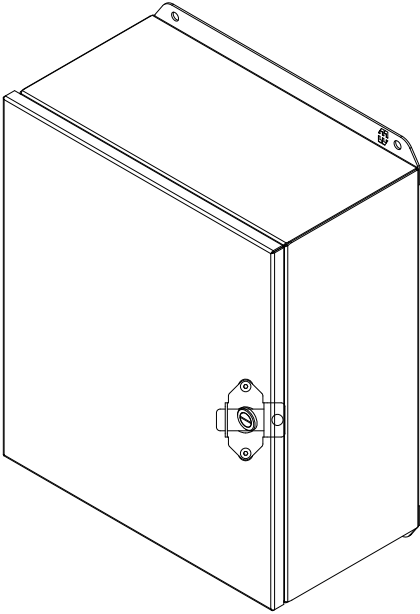


ENCLOSURE
PART No. **EJ14126**

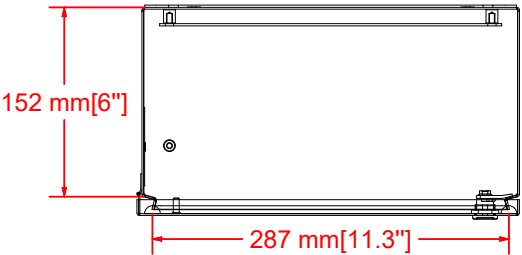
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



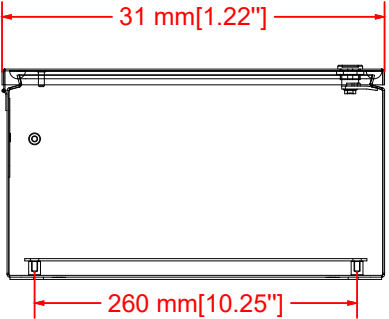
PADLOCK ADAPTER
PART No. EJPA
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



FRONT VIEW

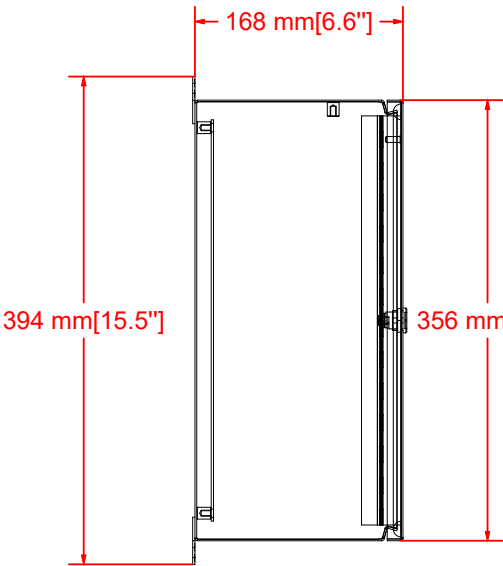


TOP VIEW

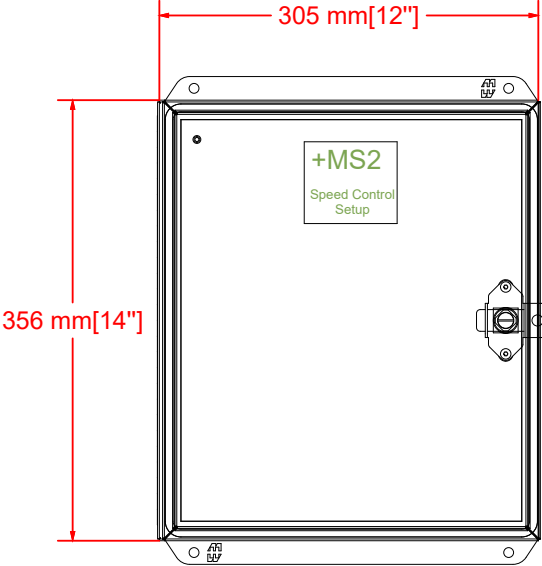


BOTTOM VIEW

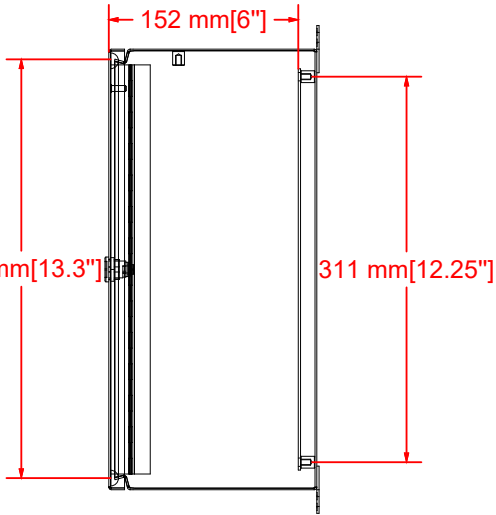
ISOMETRIC VIEWS



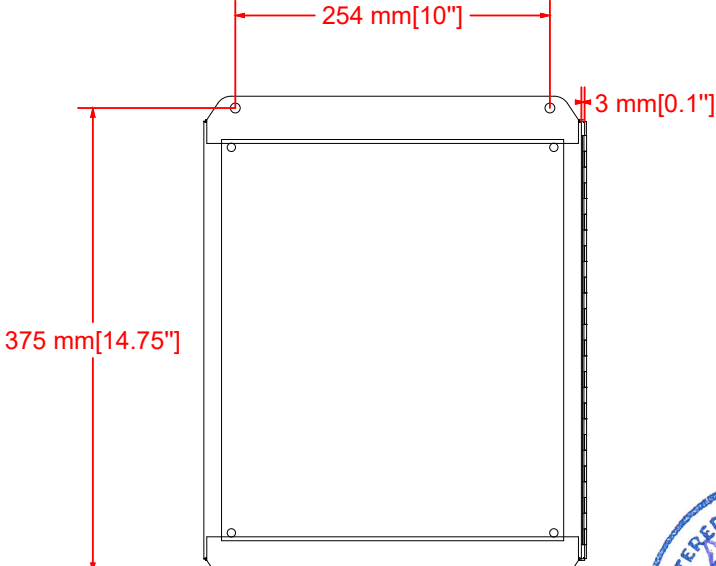
SIDE VIEW



FRONT VIEW



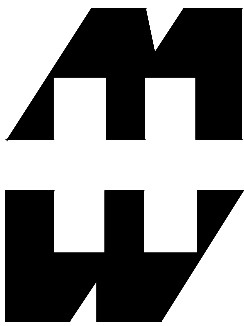
SIDE VIEW



REAR VIEW



-JB_EXT_1

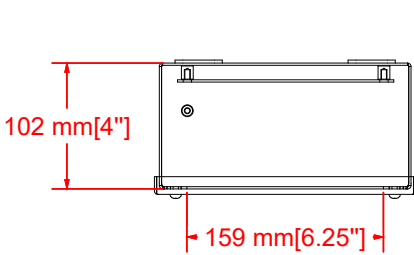


PART No. **1414SCI**

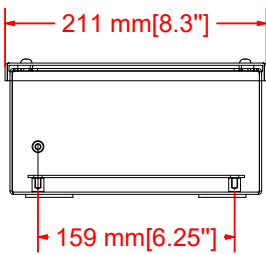
for more information visit
www.hammfg.com

Data subject to change without notice

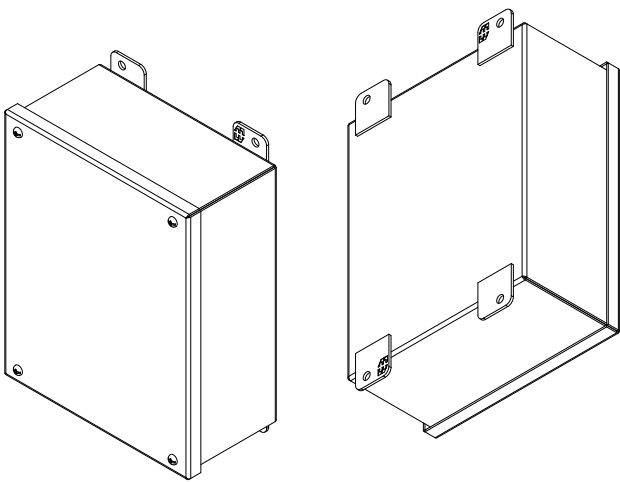
Isometric drawing Not to Scale



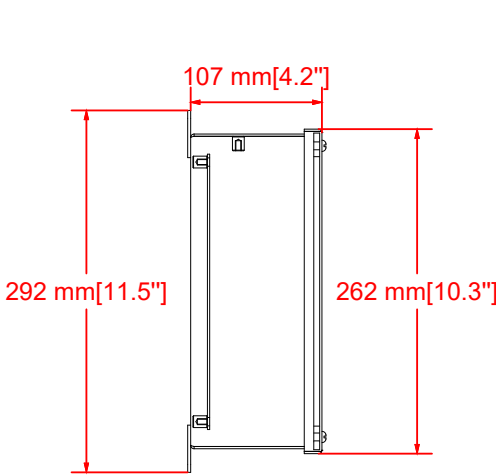
TOP VIEW



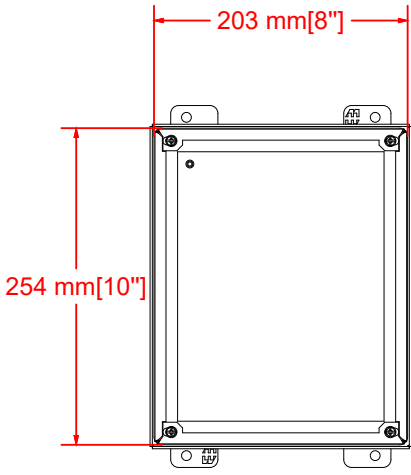
BOTTOM VIEW



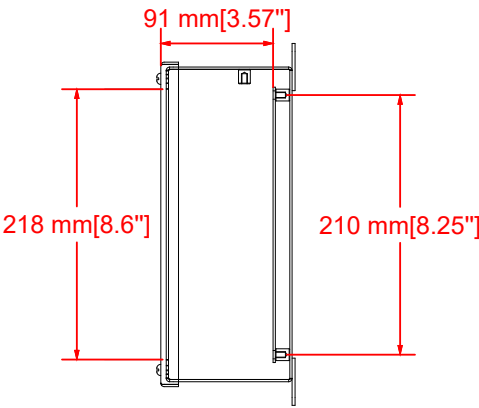
ISOMETRIC VIEWS



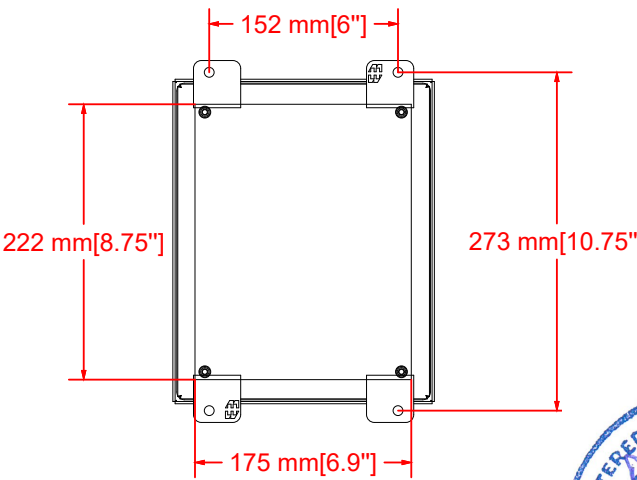
SIDE VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW



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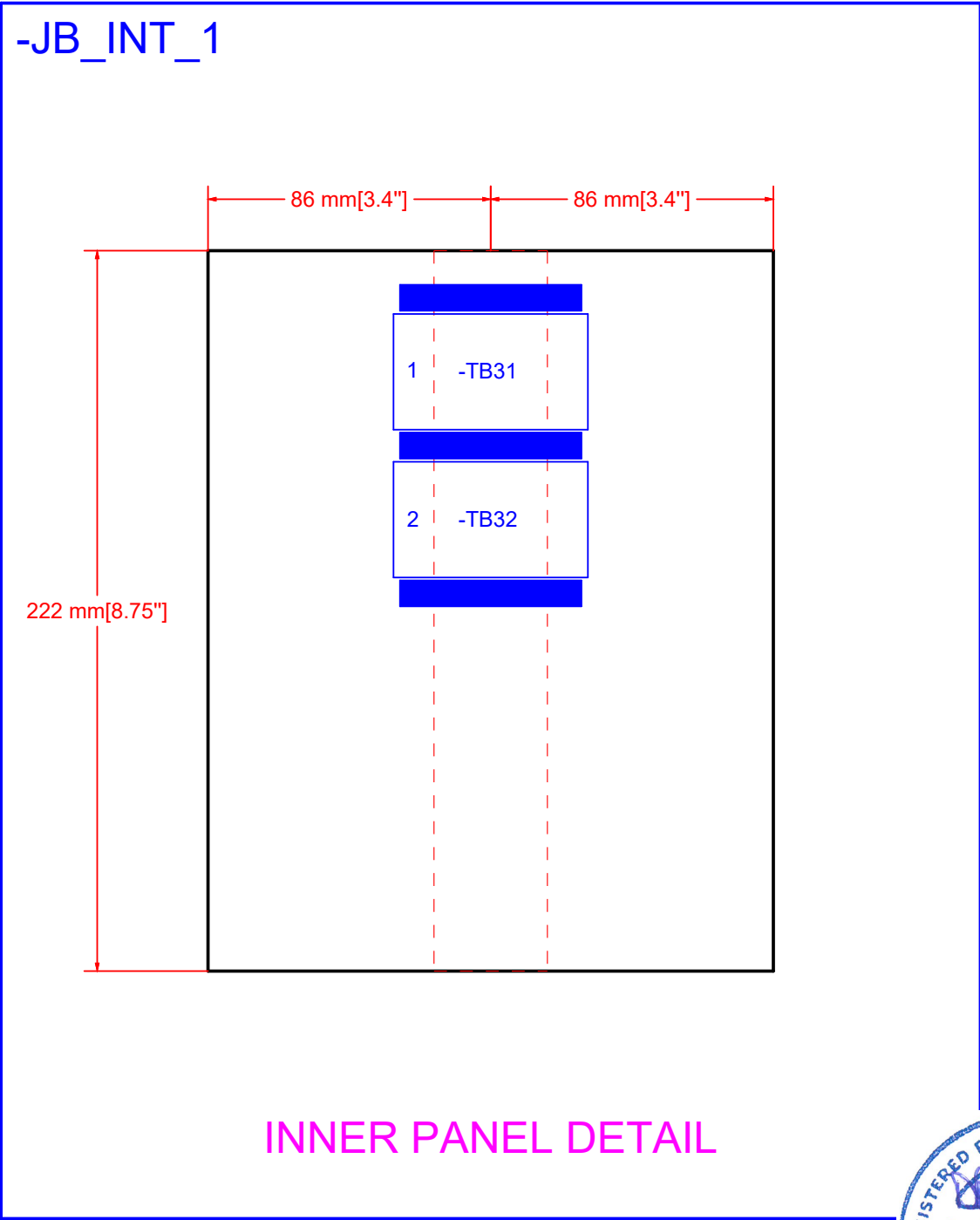
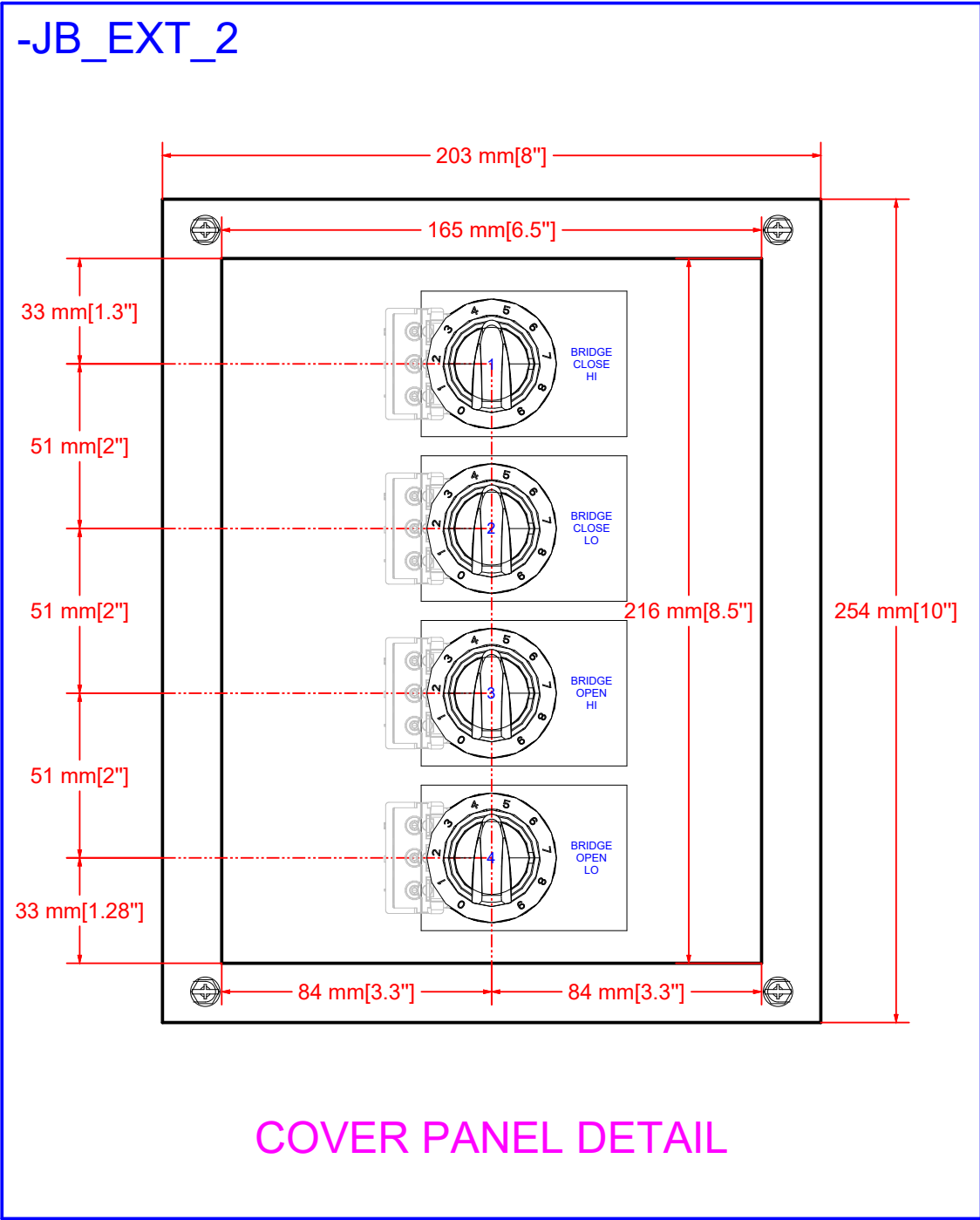
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LEGEND

WIRING DUCT

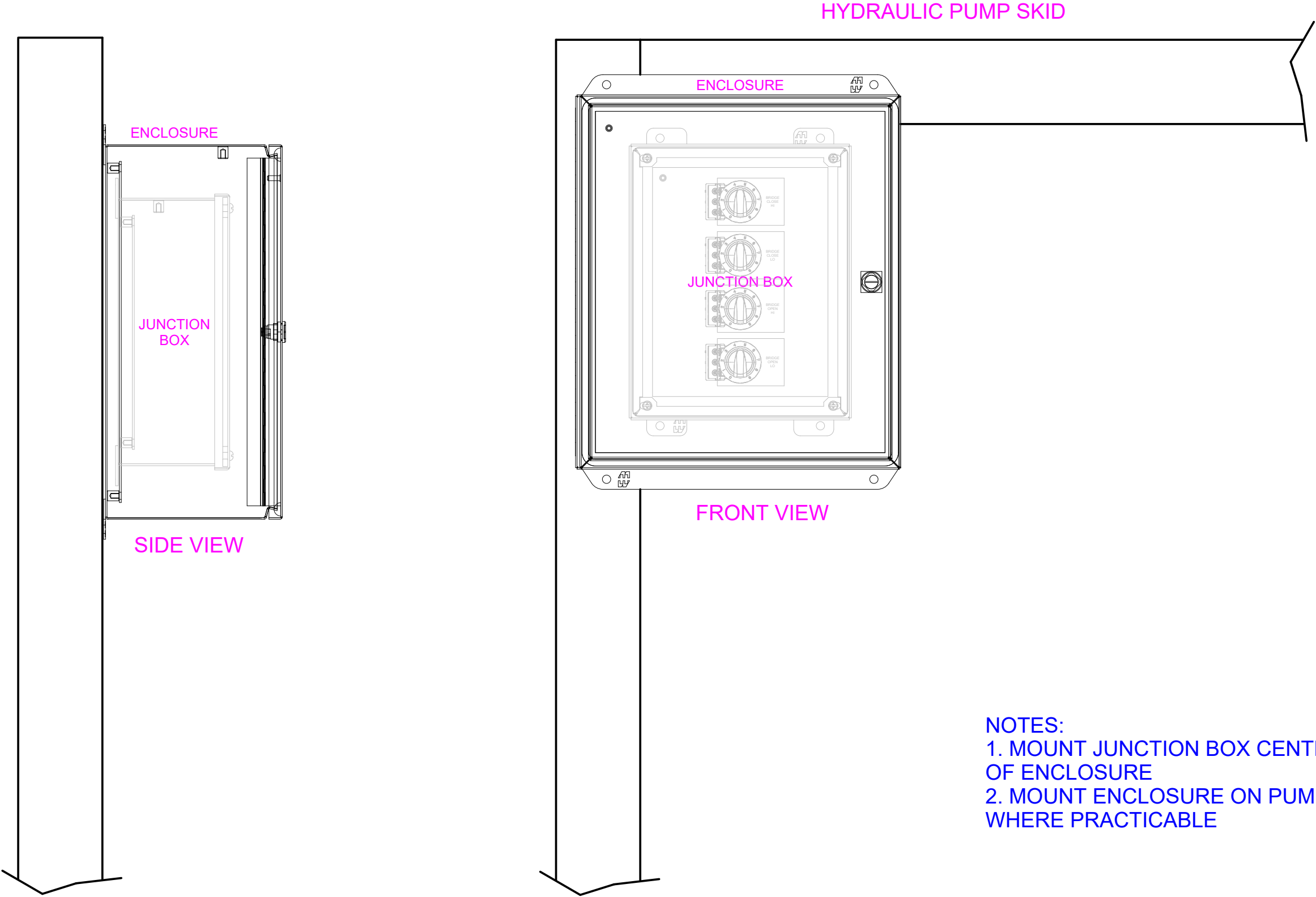
DIN RAIL

END BRACKET



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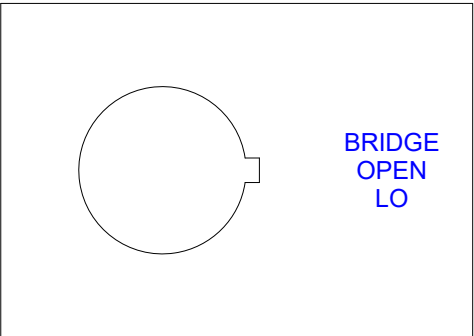
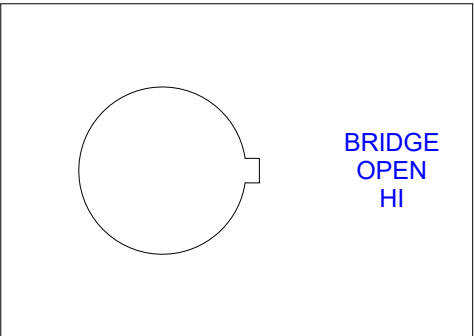
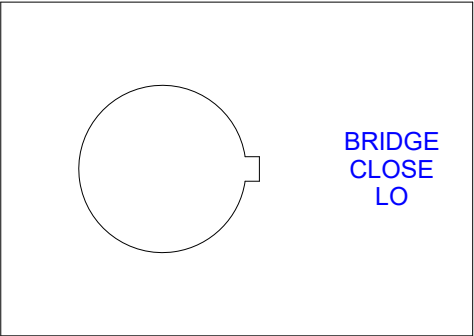
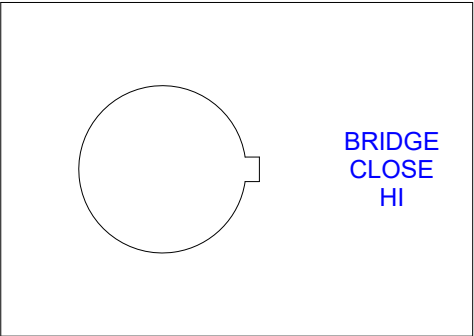


NOTES:
1. MOUNT JUNCTION BOX CENTERED INSIDE
OF ENCLOSURE
2. MOUNT ENCLOSURE ON PUMP SKID
WHERE PRACTICABLE

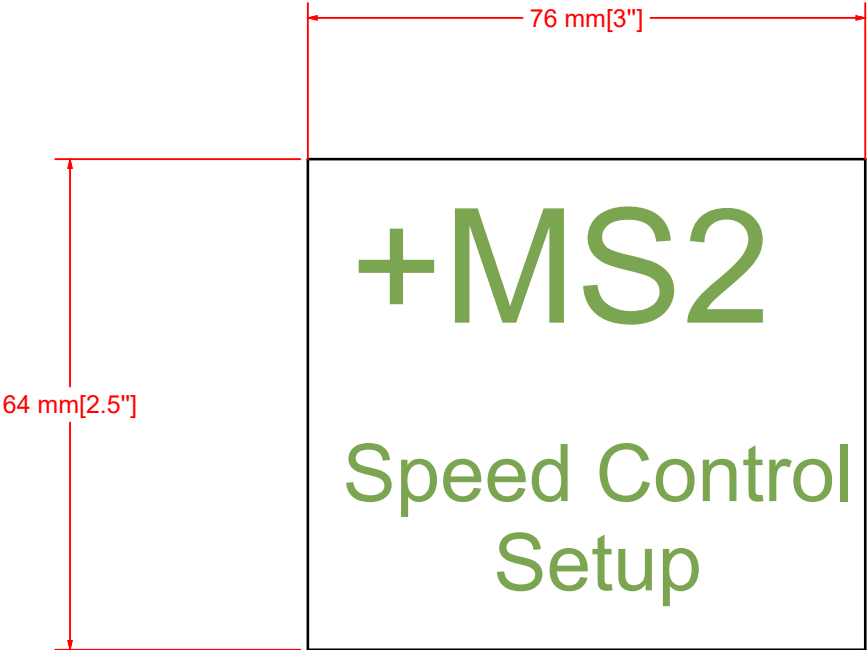
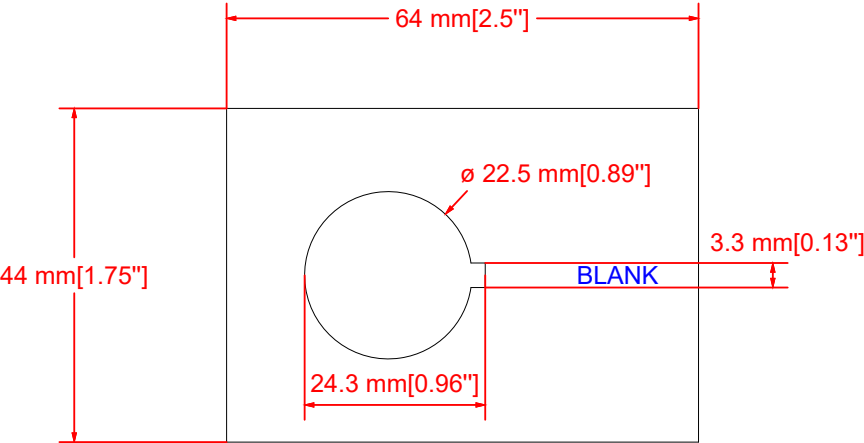


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DEVICE IDENTIFICATION
LEGEND PLATES



ENCLOSURE IDENTIFICATION
LEGEND PLATE



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Device Tag List

: Enclosure Backpanel Labels ie. relays, push buttons, disconnects, fuses etc...

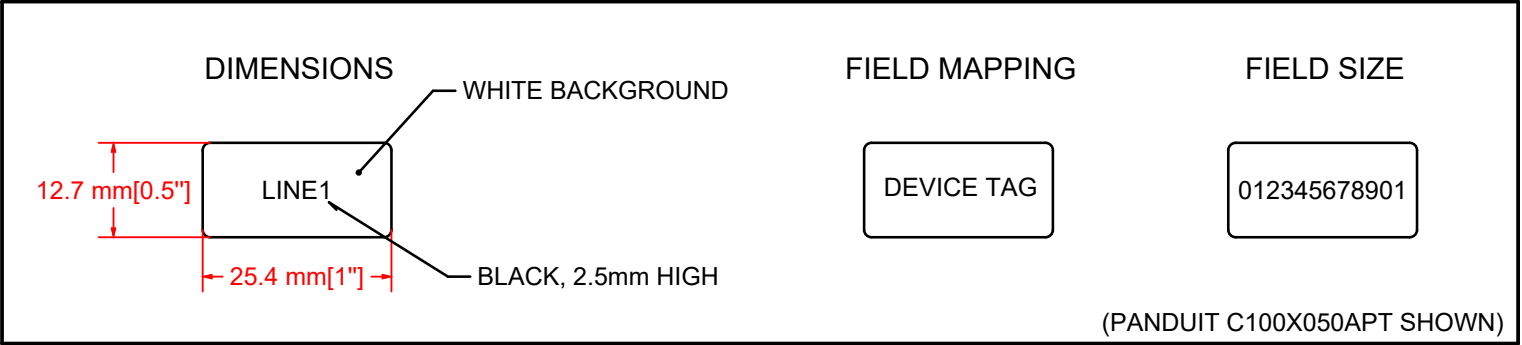
CE_F03_000 Enclosure Backpanel Labels

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Backpanel labels for enclosure

+MS2

CLS-HI	TB31
CLS-LO	TB31
ENC_EXT_1	TB31
JB_EXT_1	TB32
JB_INT_1	TB32
OPN-HI	TB32
OPN-LO	TB32
TB31	TB32
TB31	TB32
TB31	TB32
TB31	



HIGHER LEVEL
=F_LAYOUTS

MOUNTING LOCATION
+MS2

PAGE
F25

TOTAL PAGES: 83

2019-10-04 :LAST PAGE MODIFICATION DATE

F26 :NEXT PAGE

PREVIOUS PAGE: F24

Enclosure legend

Mounting Panel: +MS2-JB_EXT_2

CE_F18_001

[illegible]

Terminal strip layouts and parts are detailed on the terminal line up diagrams.

REVISION Revision D		CLIENT PARKS CANADA PUBLIC WORKS AND GOVERNMENT SERVICES CANADA		DATE 2019-01-16		TITLE TRENT-SEVERN WATERWAY BOUNDARY ROAD #44 SWING BRIDGE Enclosure legend : +MS2-CLS-HI - +MS2-OPN-LO		FULL PAGE ID =F_LAYOUTS+MS2/F26		PAGE F26	
 594 Norris Crt. Kingston, Ontario Canada K7P 2R9 www.chadwickengineering.com		NOTES		DRAWN BY TCampbell				DRAWING NO.			
		ALTERNATE DWG. NO.		CHECKED							

Mounting Panel: +MS2-JB_INT_1

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HIGHER LEVEL =E LAYOUTS

MOUNTING LOCATION
+MS2

PREVIOUS PAGE: F26

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Parts list

; Project Bill of Material, by Device Tag

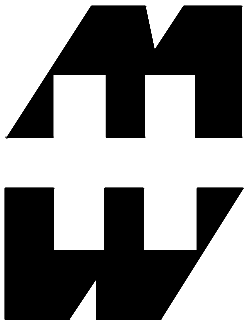
CE_F01_002

Device tag	Qty	Unit	Description	Order number	Manufacturer	Device Description
Schematic Reference						
-ENC_EXT_1 /F20	1		Body and cover are formed from 16 gauge steel. Smooth, continuously welded seams without knockouts, cutouts, or holes. Formed lip on enclosure to exclude flowing liquids and contaminants. 14 gauge welded brackets provide for enclosure mounting. Continuously hinged cover has 304	EJ14126	Hammond Manufacturing	
-ENC_EXT_1 /F20	1		Padlock adapter fits directly over the slotted quarter turn preventing access. 2mm thick 14 gauge stainless steel. Stainless steel mounting hardware provided. Once installed, the bolts cannot be removed without the door open. Easy installed in the field. Padlock not included. Maintains	EJPA	Hammond Manufacturing	
-JB_EXT_1 /F21	1		Body formed from 16 gauge or 14 gauge steel. Covers are formed from 14 gauge steel. Smooth, continuously welded seams without knockouts, cutouts or holes. Welded brackets provide for enclosure mounting. Cover is secured with captive, plated steel screws, threaded into sealed	1414SCI	Hammond Manufacturing	
-JB_INT_1 /F22	3	pcs	Accessories, End bracket, 100 pcs per package	1061200000	Weidmüller	
-JB_INT_1 /F22	250	mm	Mounting rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanized, chromium-plated, 2000 mm per length	0514500000	Weidmüller	

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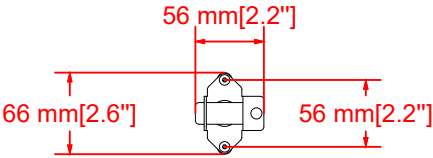
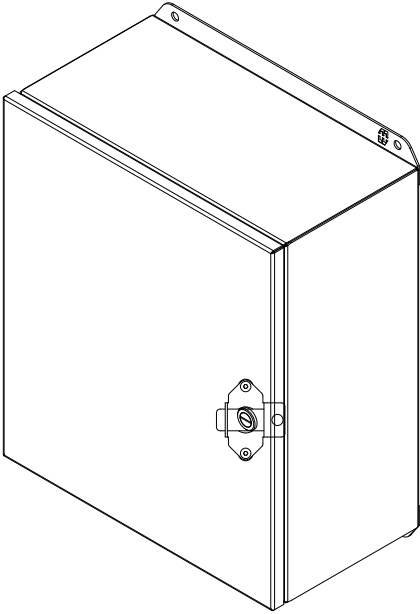
-JB_EXT_1



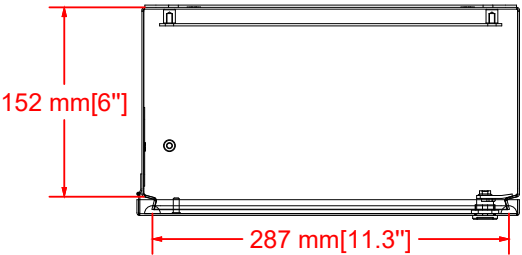
ENCLOSURE
PART No. **EJ14126SS**
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



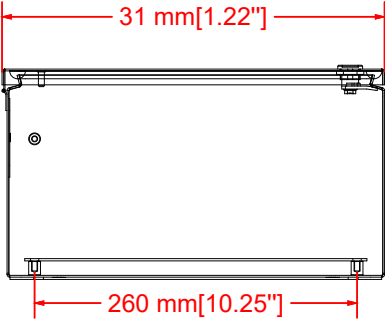
PADLOCK ADAPTER
PART No. EJPA
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



FRONT VIEW

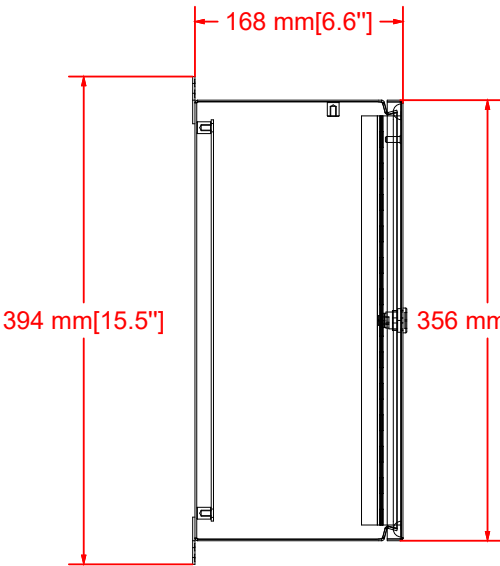


TOP VIEW

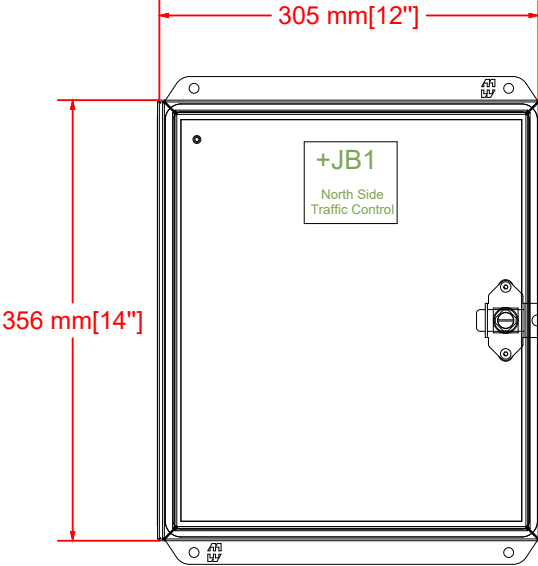


BOTTOM VIEW

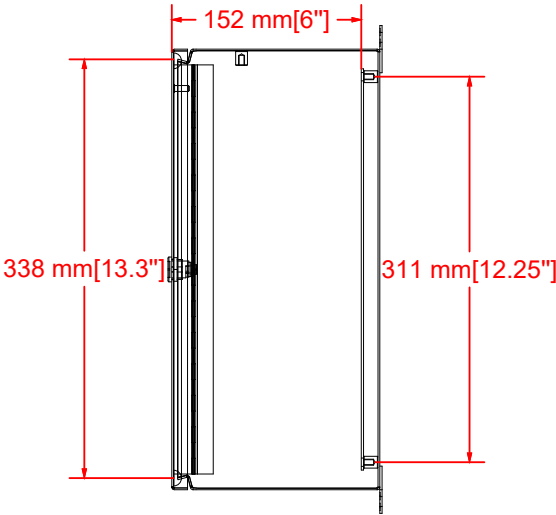
ISOMETRIC VIEWS



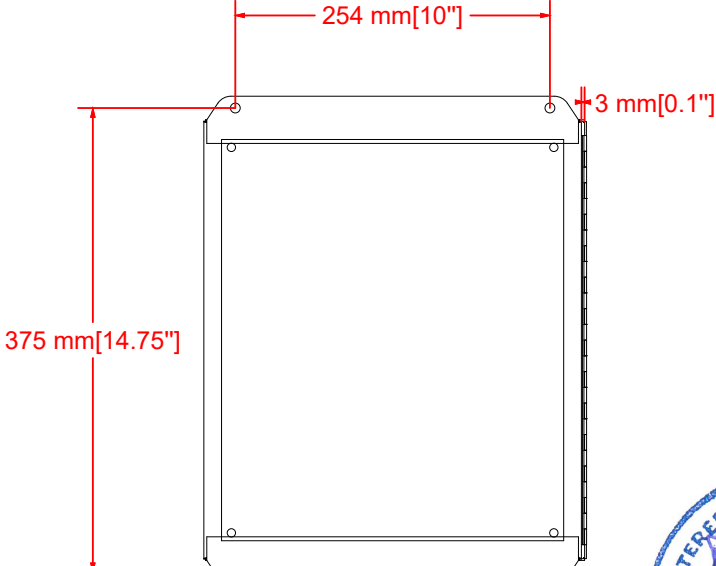
SIDE VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW



-JB_INT_1

LEGEND



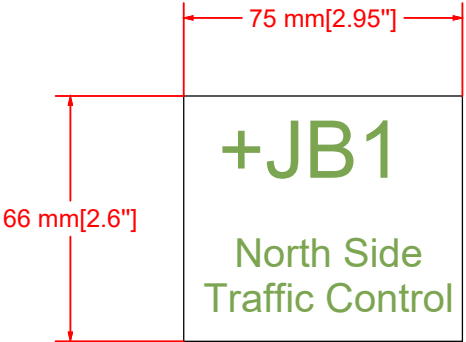
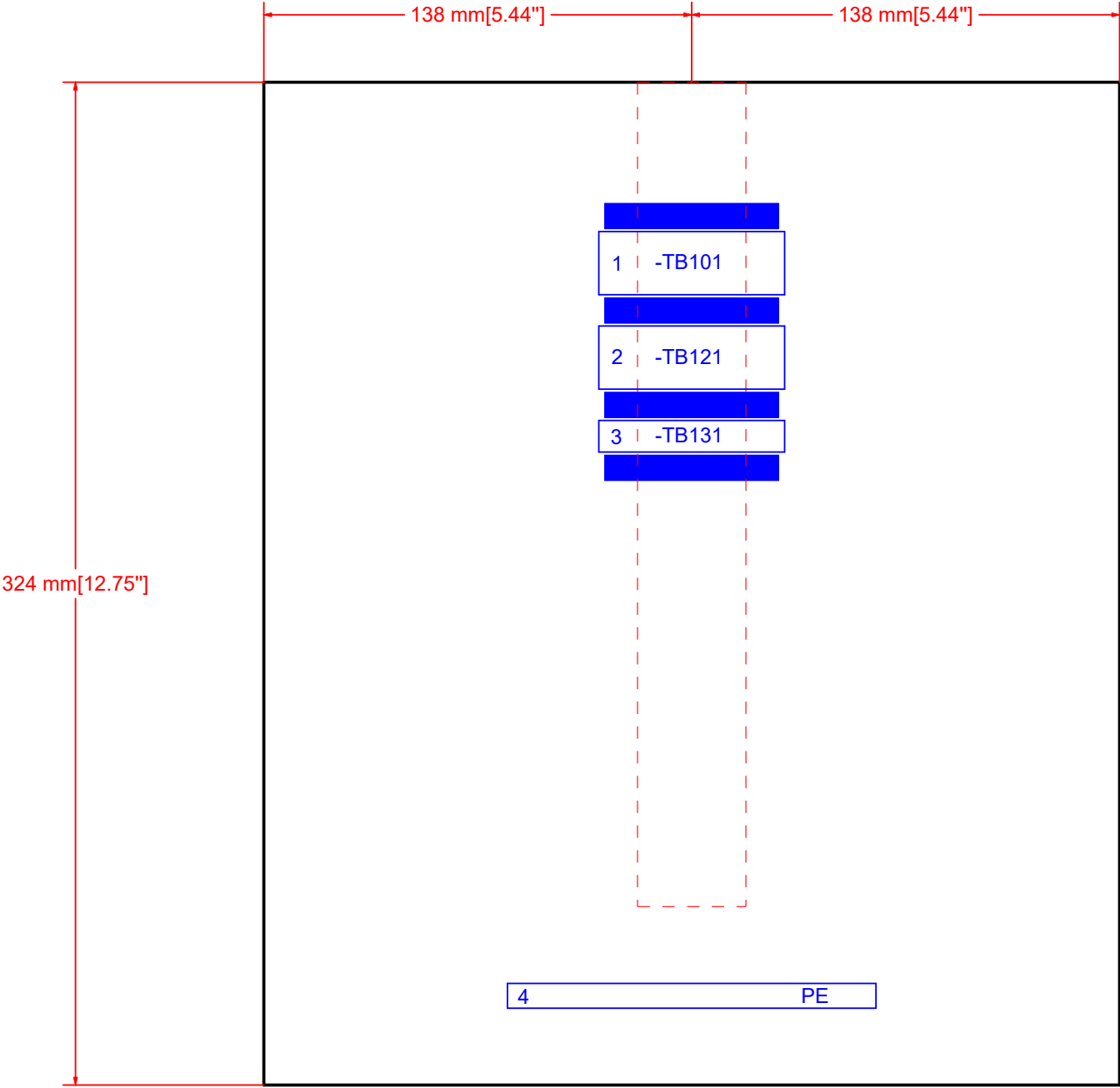
WIRING DUCT



DIN RAIL



END BRACKET



ENCLOSURE IDENTIFICATION
LEGEND PLATE

INNER PANEL DETAIL



REVISION	 <div>594 Norris Crt. Kingston, Ontario Canada K7P 2R9 www.chadwickengineering.com</div>	NOTES
Revision D		

CLIENT	PARKS CANADA PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
DATE	
DRAWN BY	

2019-01-16
TCampbell
CHECKED

TITLE	TRENT-SEVERN WATERWAY BOUNDARY ROAD #44 SWING BRIDGE +JB1 INNER PANEL LAYOUT/LEGEND DETAILS
FULL PAGE ID	
DRAWING NO.	

=F_LAYOUTS+JB1/F30
1911-1-003

HIGHER LEVEL	=F_LAYOUTS MOUNTING LOCATION +JB1
PAGE	
F30	

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Device Tag List

: Enclosure Backpanel Labels ie. relays, push buttons, disconnects, fuses etc...

CE_F03_000 Enclosure Backpanel Labels

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Backpanel labels for enclosure

+JB1

JB_EXT_1

JB_INT_1

TB101

TB101

TB101

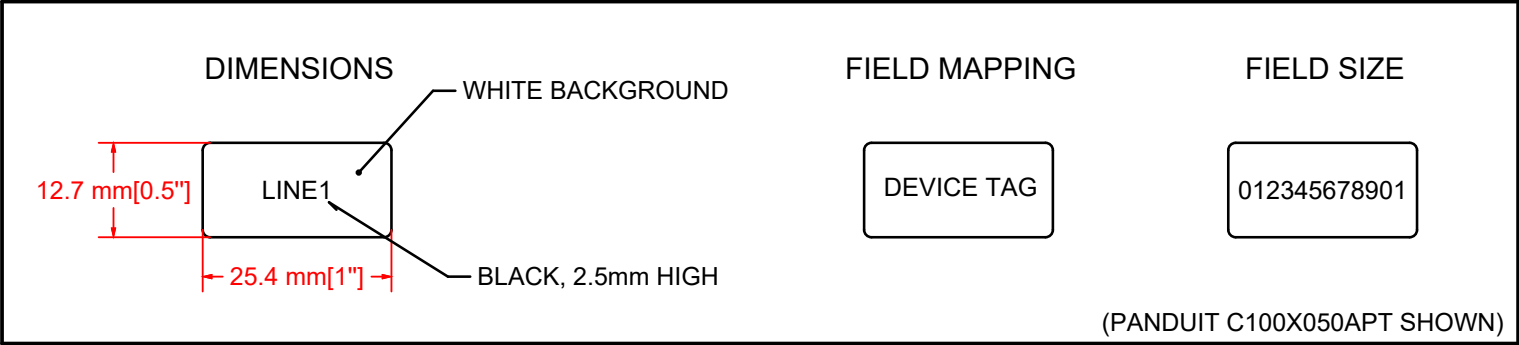
TB101

TB121

TB121

TB121

TB121



Mounting Panel: +JB1-JB_INT_1

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HIGHER LEVEL = E LAYOUTS

MOUNTING LOCATION

PREVIOUS PAGE: F31

Parts list

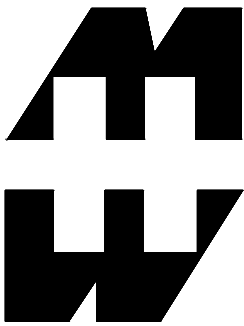
; Project Bill of Material, by Device Tag

CE_F01_002

Device tag	Qty	Unit	Description	Order number	Manufacturer	Device Description
Schematic Reference						
-JB_EXT_1 /F29	1		Body and cover are formed from 16 guage 304 or 316 stainless steel. Smooth, continuously welded seams without knockouts, cutouts, or holes. Formed lip on enclosure to exclude flowing liquids and contaminants. 14 gauge welded brackets provide for enclosure mounting. Continuously	EJ14126SS	Hammond Manufacturing	
-JB_EXT_1 /F29	1		Padlock adapter fits directly over the slotted quarter turn preventing access. 2mm thick 14 gauge stainless steel. Stainless steel mounting hardware provided. Once installed, the bolts cannot be removed without the door open. Easy installed in the field. Padlock not included. Maintains	EJPA	Hammond Manufacturing	
-JB_INT_1 /F30	4	pcs	Accessories, End bracket, 100 pcs per package	1061200000	Weidmüller	
-JB_INT_1 /F30	350	mm	Mounting rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanized, chromium-plated, 2000 mm per length	0514500000	Weidmüller	



-JB_EXT_1

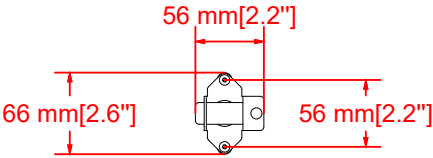
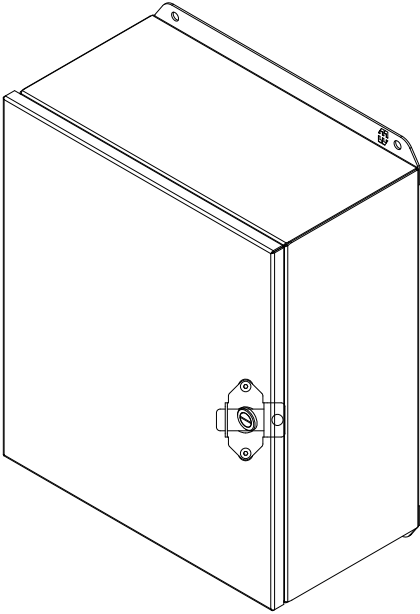


ENCLOSURE
PART No. **EJ14126SS**

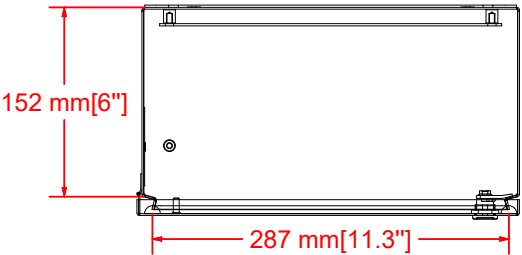
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



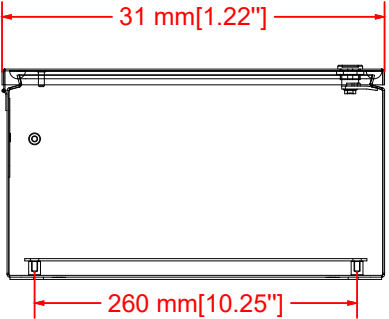
PADLOCK ADAPTER
PART No. EJPA
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



FRONT VIEW

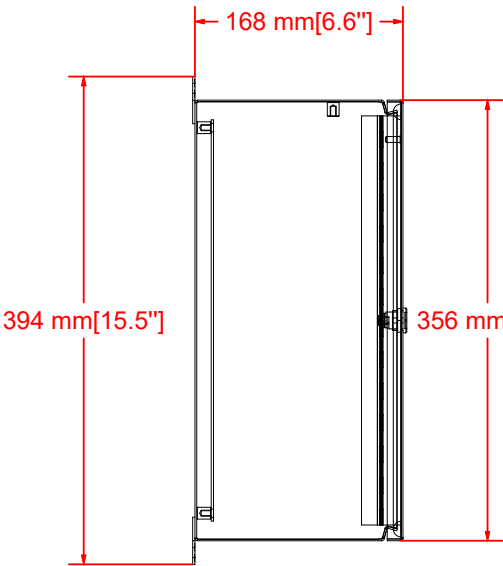


TOP VIEW

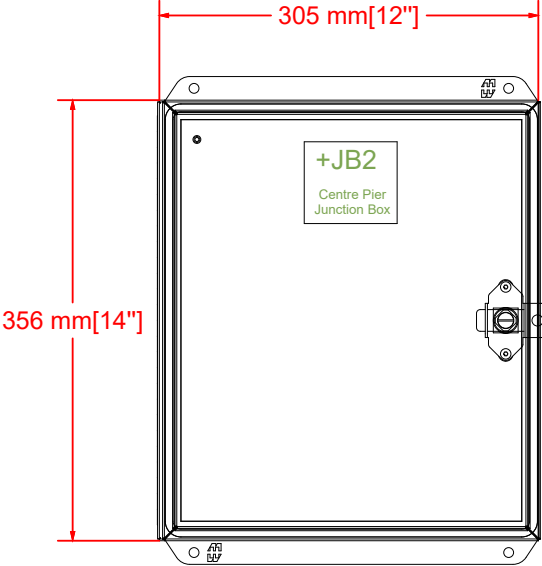


BOTTOM VIEW

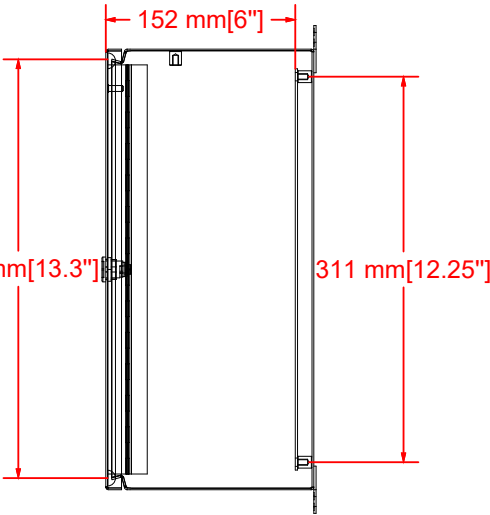
ISOMETRIC VIEWS



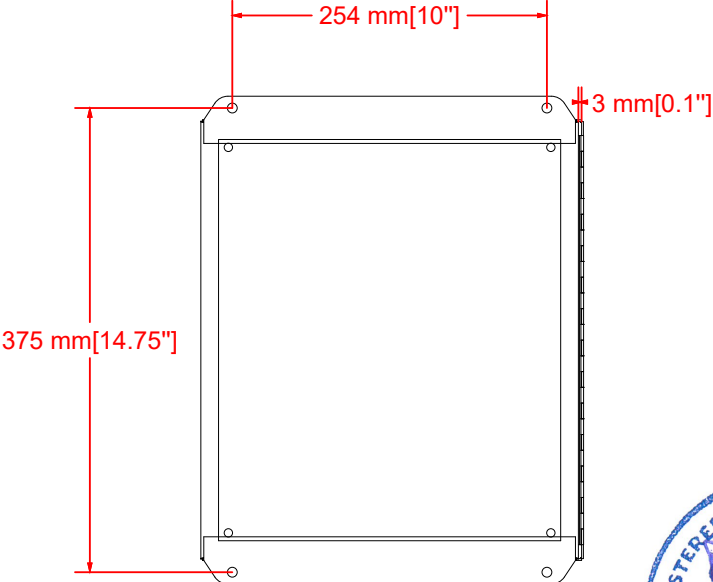
SIDE VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW



-JB_INT_1

LEGEND



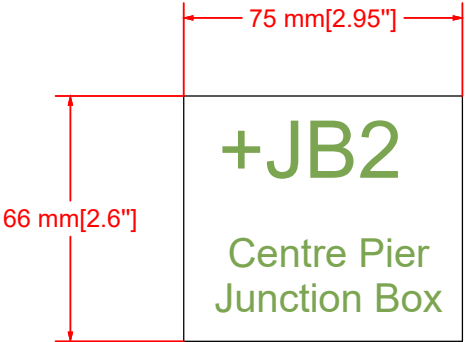
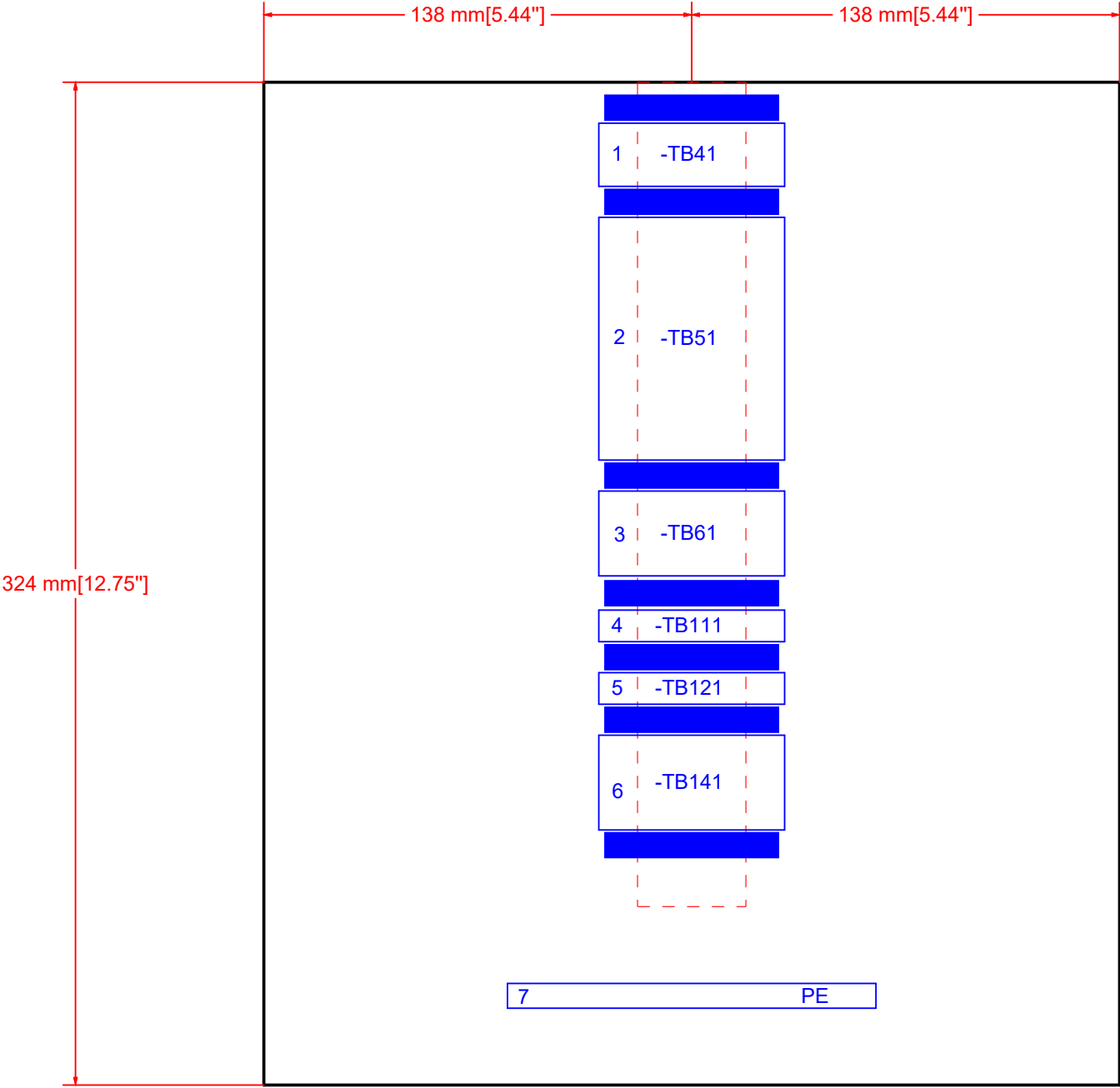
WIRING DUCT



DIN RAIL



END BRACKET



ENCLOSURE IDENTIFICATION
LEGEND PLATE

INNER PANEL DETAIL



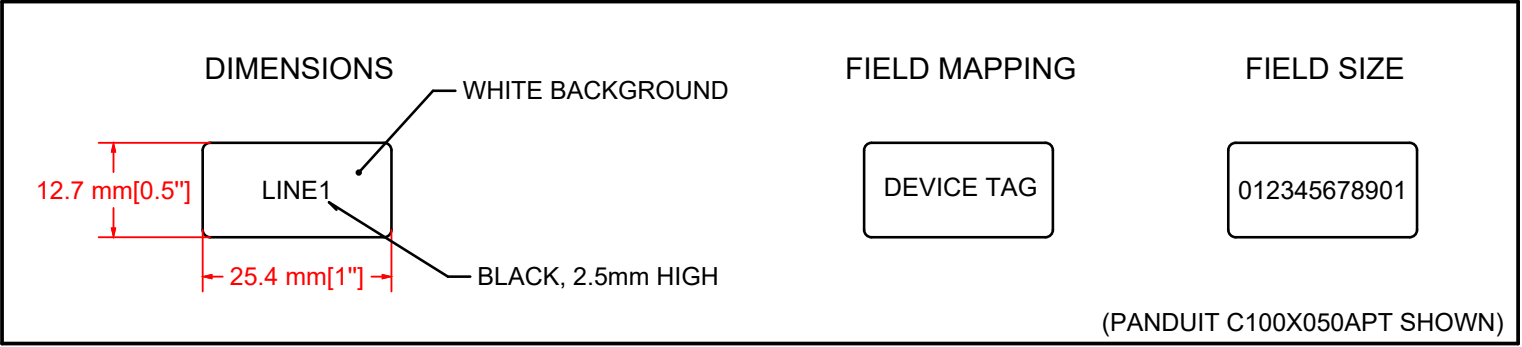
Device Tag List

: Enclosure Backpanel Labels ie. relays, push buttons, disconnects, fuses etc...

CE_F03_000 Enclosure Backpanel Labels

Backpanel labels for enclosure

+JB2



JB_EXT_1	TB51	TB61	TB141
JB_INT_1	TB51	TB61	
TB41	TB51	TB111	
TB41	TB51	TB111	
TB41	TB51	TB121	
TB41	TB51	TB121	
TB51	TB51	TB141	
TB51	TB51	TB141	
TB51	TB51	TB141	
TB51	TB61	TB141	
TB51	TB61	TB141	



Mounting Panel: +JB2-JB_INT_1

CE_F18_001

Terminal strip layouts and parts are detailed on the terminal line up diagrams.

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Parts list

; Project Bill of Material, by Device Tag

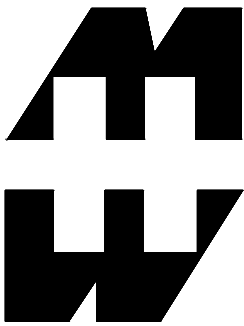
CE_F01_002

Device tag	Qty	Unit	Description	Order number	Manufacturer	Device Description
Schematic Reference						
-JB_EXT_1 /F34	1		Body and cover are formed from 16 guage 304 or 316 stainless steel. Smooth, continuously welded seams without knockouts, cutouts, or holes. Formed lip on enclosure to exclude flowing liquids and contaminants. 14 gauge welded brackets provide for enclosure mounting. Continuously	EJ14126SS	Hammond Manufacturing	
-JB_EXT_1 /F34	1		Padlock adapter fits directly over the slotted quarter turn preventing access. 2mm thick 14 gauge stainless steel. Stainless steel mounting hardware provided. Once installed, the bolts cannot be removed without the door open. Easy installed in the field. Padlock not included. Maintains	EJPA	Hammond Manufacturing	
-JB_INT_1 /F35	7	pcs	Accessories, End bracket, 100 pcs per package	1061200000	Weidmüller	
-JB_INT_1 /F35	350	mm	Mounting rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanized, chromium-plated, 2000 mm per length	0514500000	Weidmüller	

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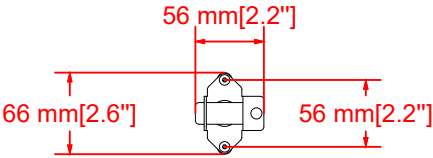
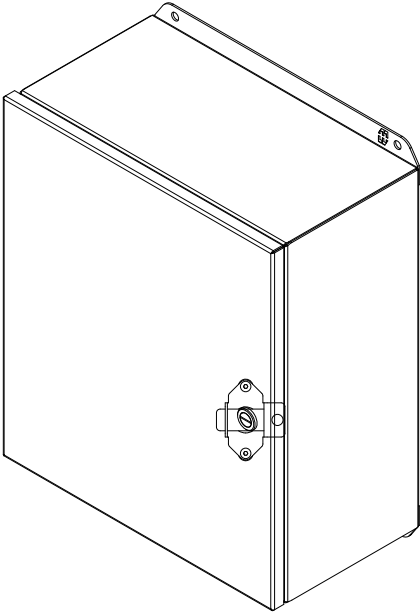
-JB_EXT_1



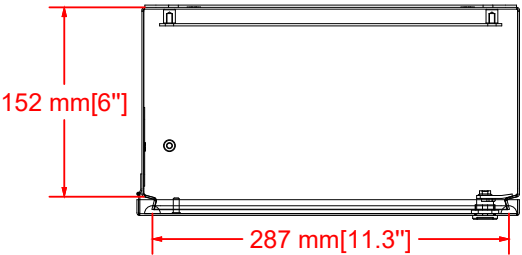
ENCLOSURE
PART No. **EJ14126SS**
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



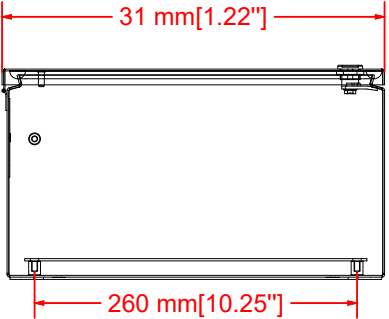
PADLOCK ADAPTER
PART No. EJPA
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



FRONT VIEW

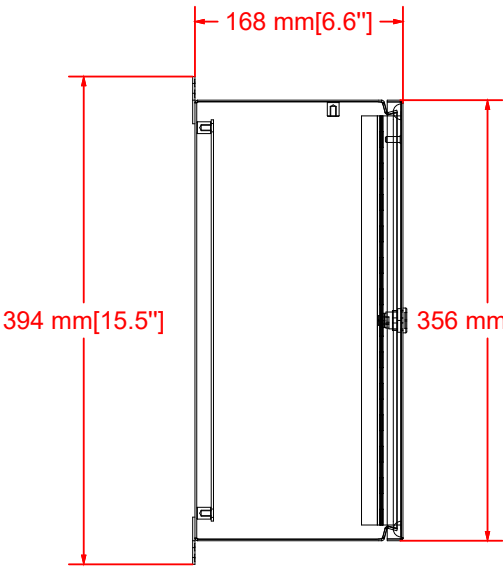


TOP VIEW

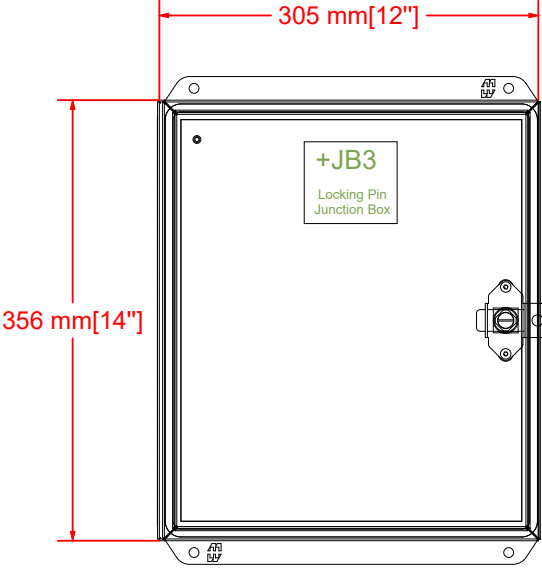


BOTTOM VIEW

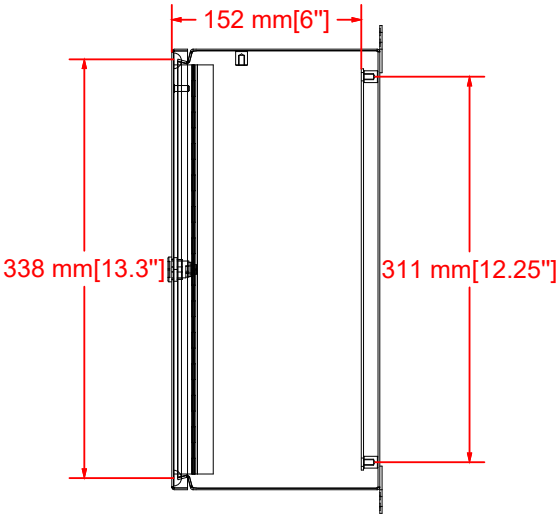
ISOMETRIC VIEWS



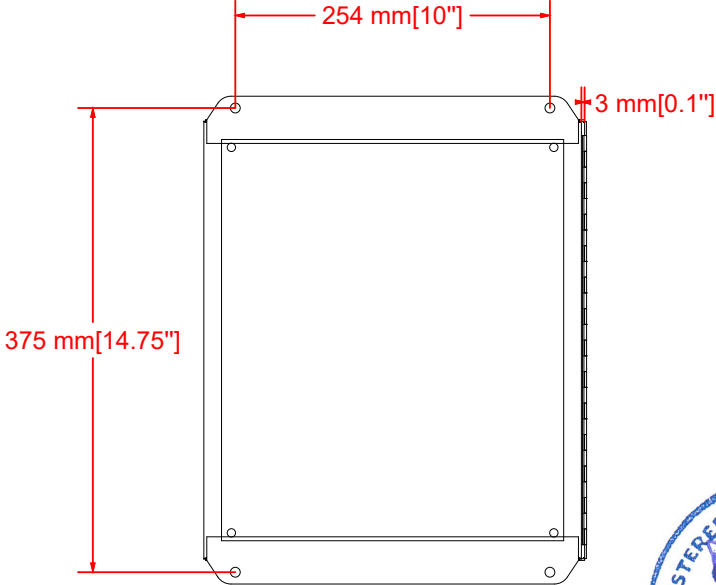
SIDE VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW



REVISION Revision D	NOTES
Chadwick Engineering Ltd.	594 Norris Crt. Kingston, Ontario Canada K7P 2R9 www.chadwickengineering.com

CLIENT PARKS CANADA PUBLIC WORKS AND GOVERNMENT SERVICES CANADA	DATE 2019-01-18
ALTERNATE DWG. NO.	DRAWN BY TCampbell
	CHECKED

TITLE TRENT-SEVERN WATERWAY BOUNDARY ROAD #44 SWING BRIDGE +JB3 JUNCTION BOX DETAIL	FULL PAGE ID =F_LAYOUTS+JB3/F39
	DRAWING NO. 1911-1-003

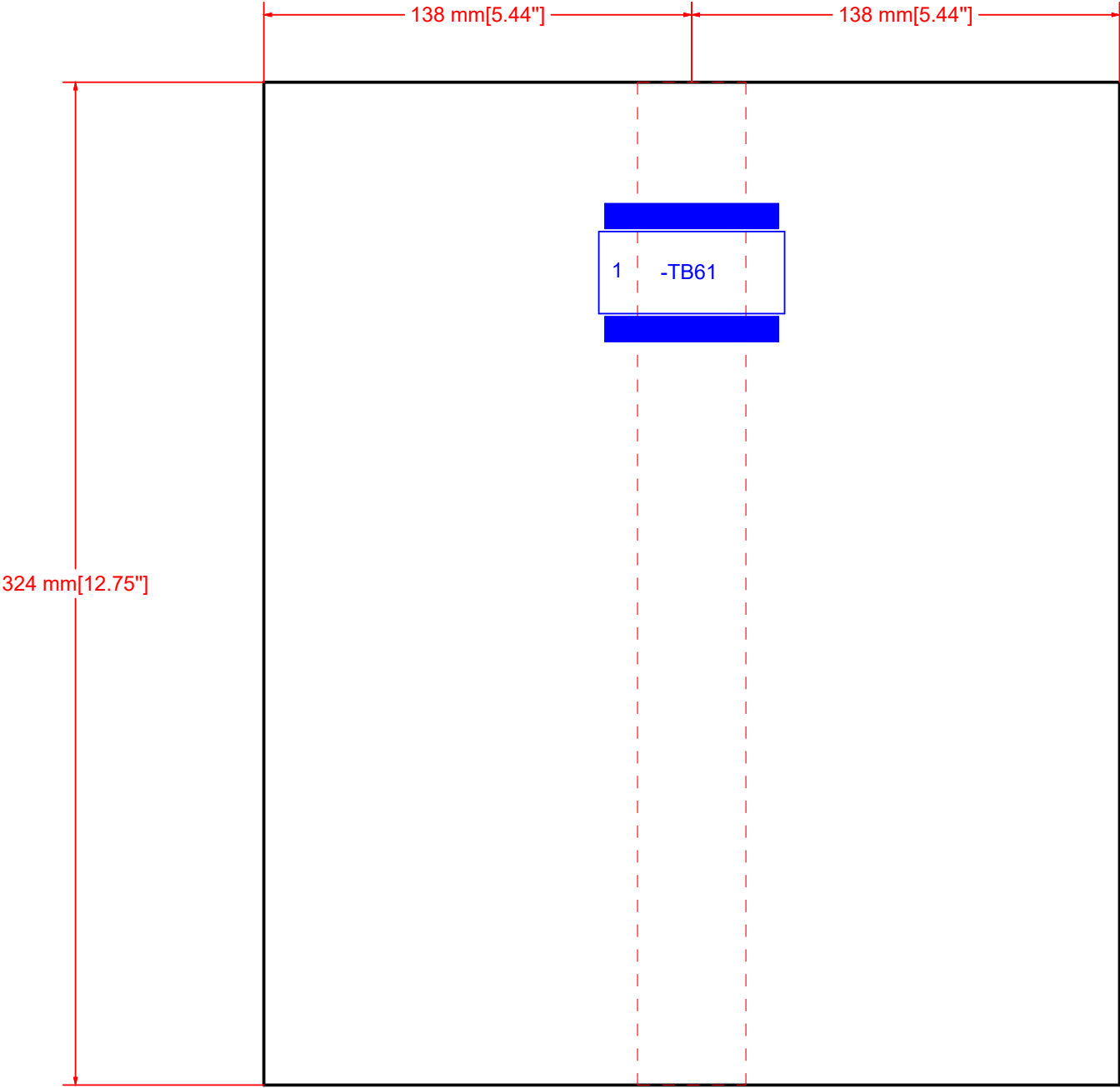
HIGHER LEVEL =F_LAYOUTS MOUNTING LOCATION +JB3	PAGE F39
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PREVIOUS PAGE: +JB2/F38	NEXT PAGE: F40
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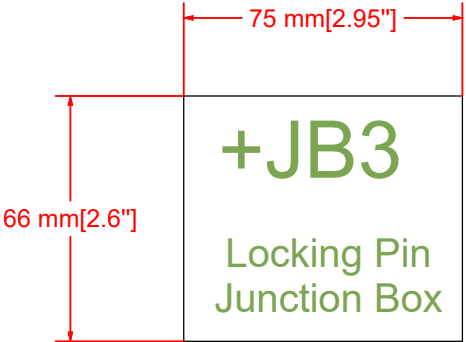
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-JB_INT_1

LEGEND



INNER PANEL DETAIL



ENCLOSURE IDENTIFICATION
LEGEND PLATE



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Device Tag List

: Enclosure Backpanel Labels ie. relays, push buttons, disconnects, fuses etc...

CE_F03_000 Enclosure Backpanel Labels

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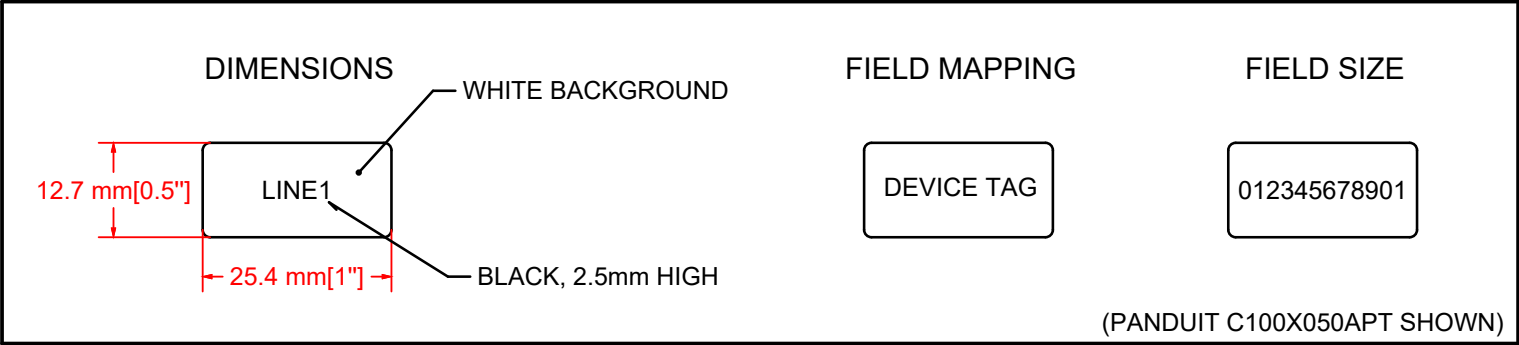
Backpanel labels for enclosure

+JB3

JB_EXT_1

JB_INT_1

TB61



Mounting Panel: +JB3-JB_INT_1

CE_F18_001

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Parts list

; Project Bill of Material, by Device Tag

CE_F01_002

Device tag	Qty	Unit	Description	Order number	Manufacturer	Device Description
Schematic Reference						
-JB_EXT_1 /F39	1		Body and cover are formed from 16 guage 304 or 316 stainless steel. Smooth, continuously welded seams without knockouts, cutouts, or holes. Formed lip on enclosure to exclude flowing liquids and contaminants. 14 gauge welded brackets provide for enclosure mounting. Continuously	EJ14126SS	Hammond Manufacturing	
-JB_EXT_1 /F39	1		Padlock adapter fits directly over the slotted quarter turn preventing access. 2mm thick 14 gauge stainless steel. Stainless steel mounting hardware provided. Once installed, the bolts cannot be removed without the door open. Easy installed in the field. Padlock not included. Maintains	EJPA	Hammond Manufacturing	
-JB_INT_1 /F40	2	pcs	Accessories, End bracket, 100 pcs per package	1061200000	Weidmüller	
-JB_INT_1 /F40	350	mm	Mounting rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanized, chromium-plated, 2000 mm per length	0514500000	Weidmüller	

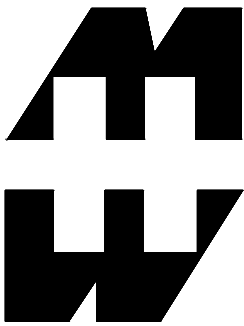


HIGHER LEVEL
=F LAYOUTS
MOUNTING LOCATION
+JB3

F43

PREVIOUS PAGE: F42

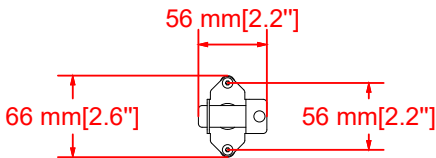
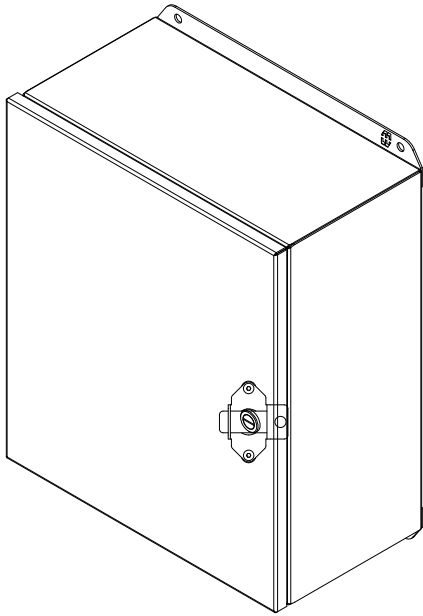
-JB_EXT_1



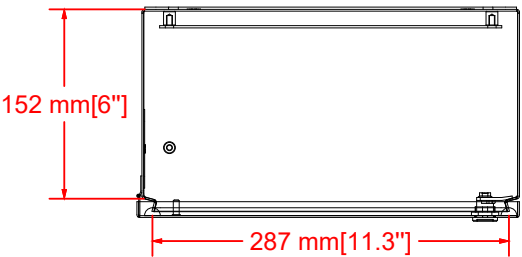
ENCLOSURE
PART No. **EJ14126SS**
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



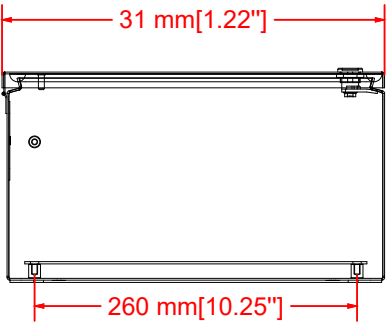
PADLOCK ADAPTER
PART No. EJPA
for more information visit
www.hammfg.com
Data subject to change without notice
Isometric drawing Not to Scale



FRONT VIEW

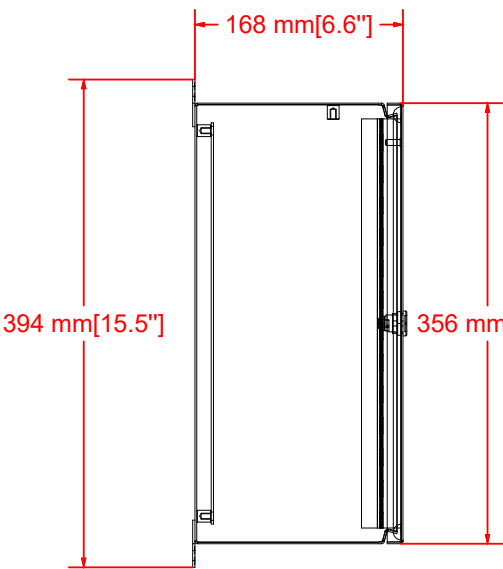


TOP VIEW

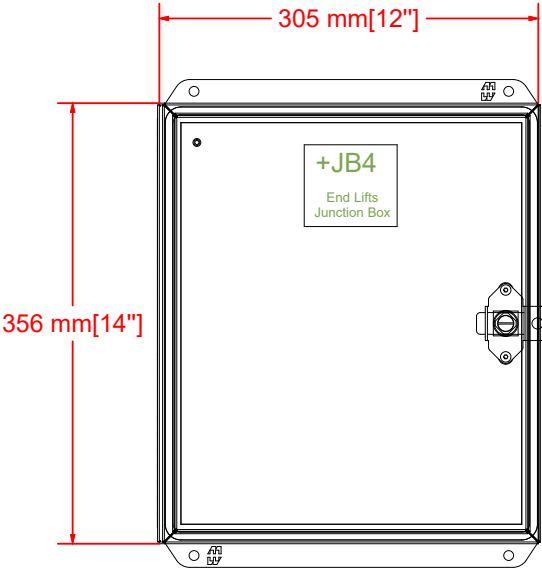


BOTTOM VIEW

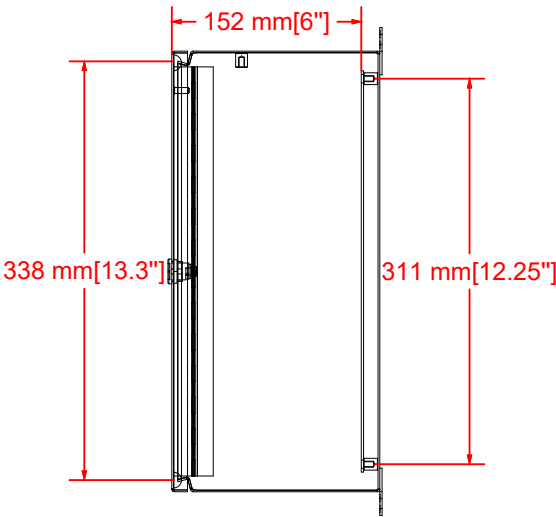
ISOMETRIC VIEWS



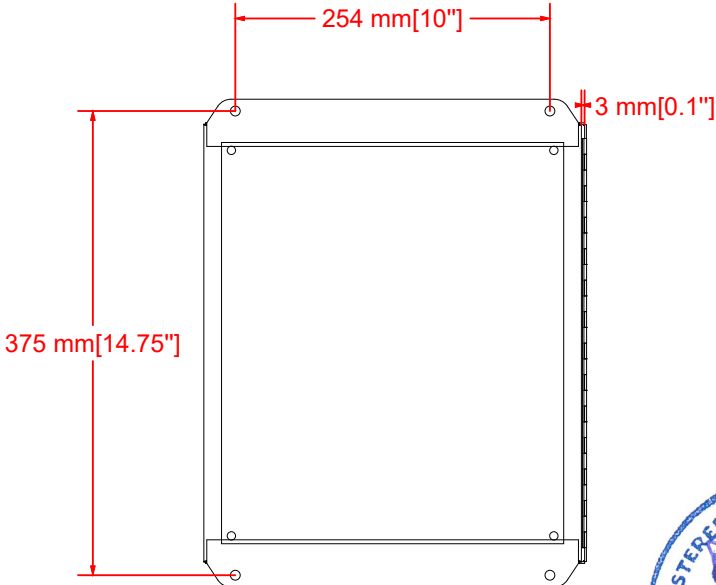
SIDE VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW



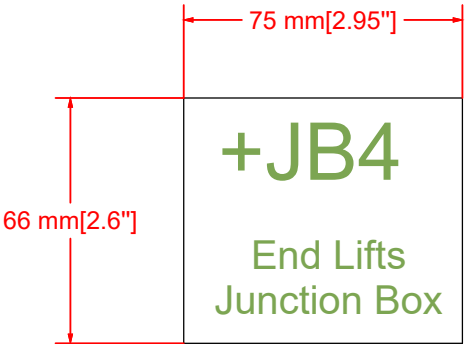
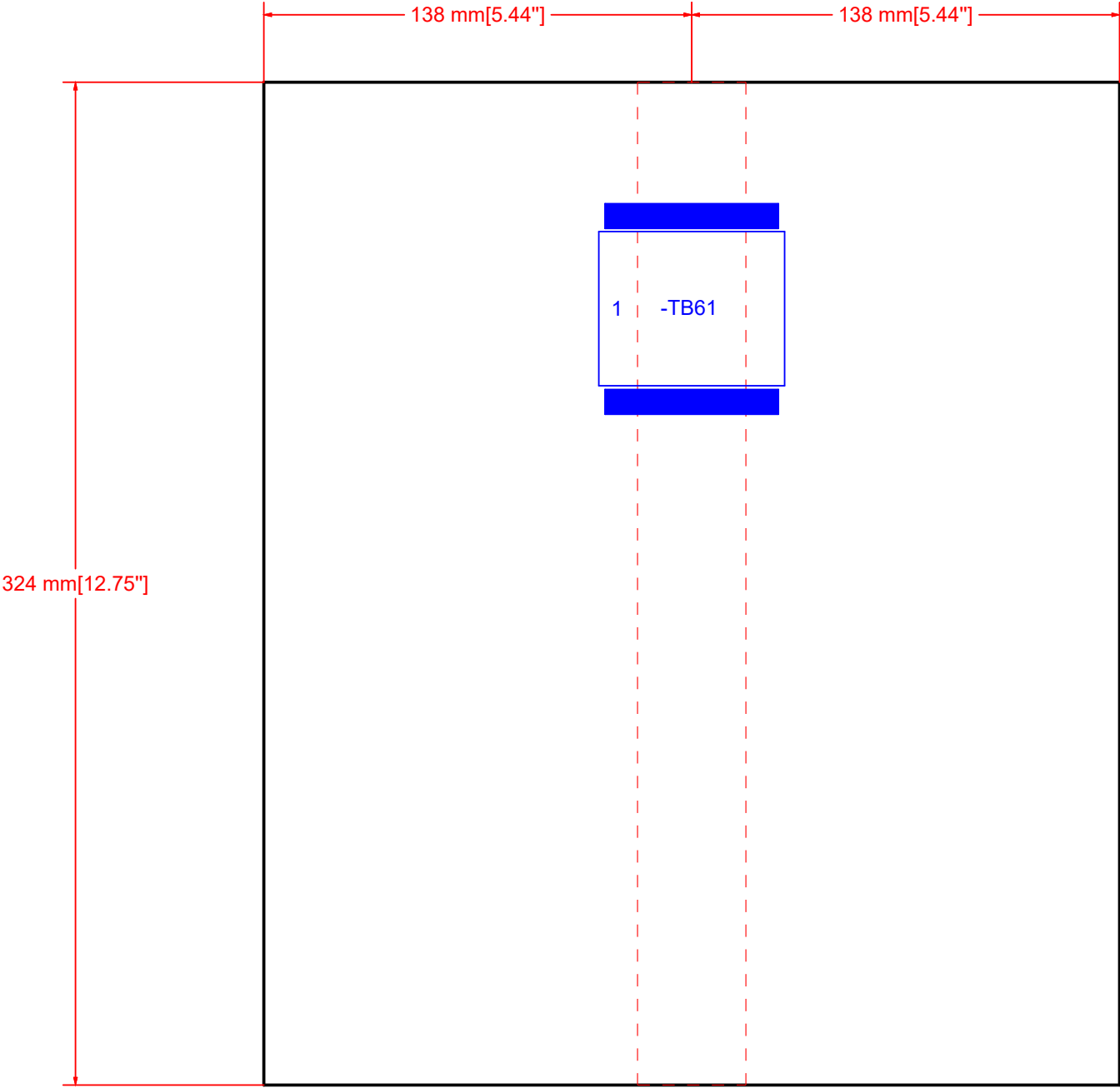
-JB_INT_1

LEGEND

WIRING DUCT

DIN RAIL

END BRACKET



ENCLOSURE IDENTIFICATION
LEGEND PLATE

INNER PANEL DETAIL



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Device Tag List

: Enclosure Backpanel Labels ie. relays, push buttons, disconnects, fuses etc...

CE_F03_000 Enclosure Backpanel Labels

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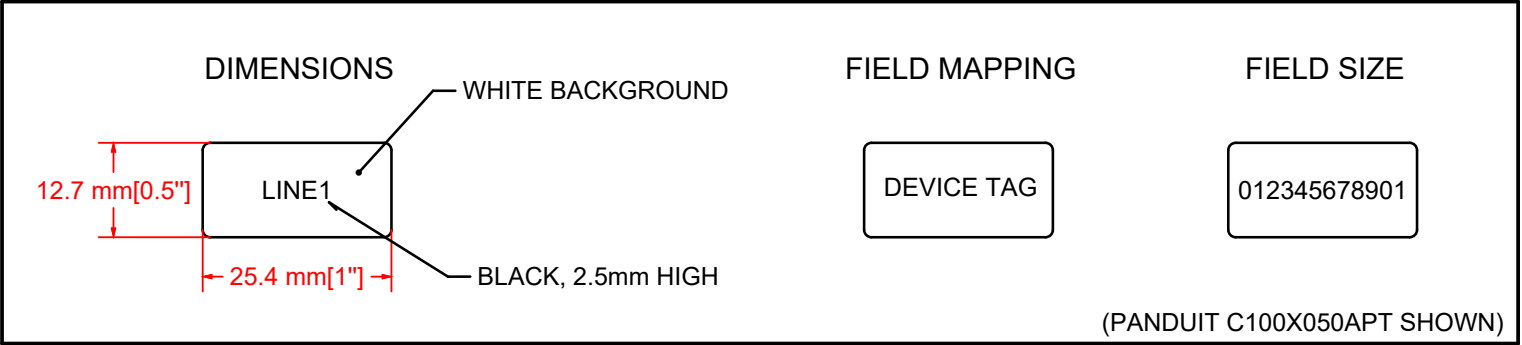
Backpanel labels for enclosure

+JB4

JB_EXT_1

JB_INT_1

TB61



Mounting Panel: +JB4-JB_INT_1

CE_F18_001

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Parts list ; Project Bill of Material, by Device Tag

CE_F01_002

Device tag Schematic Reference	Qty	Unit	Description	Order number	Manufacturer	Device Description
-JB_EXT_1 /F44	1		Body and cover are formed from 16 guage 304 or 316 stainless steel. Smooth, continuously welded seams without knockouts, cutouts, or holes. Formed lip on enclosure to exclude flowing liquids and contaminants. 14 gauge welded brackets provide for enclosure mounting. Continuously	EJ14126SS	Hammond Manufacturing	
-JB_EXT_1 /F44	1		Padlock adapter fits directly over the slotted quarter turn preventing access. 2mm thick 14 gauge stainless steel. Stainless steel mounting hardware provided. Once installed, the bolts cannot be removed without the door open. Easy installed in the field. Padlock not included. Maintains	EJPA	Hammond Manufacturing	
-JB_INT_1 /F45	2	pcs	Accessories, End bracket, 100 pcs per package	1061200000	Weidmüller	
-JB_INT_1 /F45	350	mm	Mounting rail, TS 35, TS 35 x 7.5, with slot, Steel, galvanized, chromium-plated, 2000 mm per length	0514500000	Weidmüller	



NOTES:
1. FLUID TO BE GREENPLUS HYDRAULIC FLUID ES.
2. ALL SEAL MATERIAL TO BE BUNA "N".
2. ALL DIRECTIONAL VALVE SOLENOIDS AND PROX/LIMIT SWITCHES TO BE 120 VAC.

BILL OF MATERIAL		
ITEM	QTY	DESCRIPTION
1	1	HYDRAULIC RESERVOIR – 40 GALLON – STAINLESS STEEL
2	1	RESERVOIR CONTAINMENT STAND (FULL CAPACITY OF RESERVOIR)
3	1	LEVEL/TEMPERATURE INDICATOR
4	1	LEVEL SWITCH – LOW LOW
5	1	LEVEL SWITCH – LOW
6	1	TANK FILLER CAP – VENTED
7	1	TEMPERATURE SWITCH
8	1	HEATER – 1 KW
9	1	BALL VALVE – 1/2"
10	2	MOTOR – 7.5 HP, HIGH EFF, 1750 RPM, 240 V, TEFC, SF 1.15
11	2	HYD. PUMP, 7.8 GPM, PRES. COMPENSATED – PARKER
12	4	CHECK VALVE ASSEMBLY
13	1	RELIEF VALVE ASSEMBLY
14	1	TEST HOSE C/W 0–3000 PSI GAUGE
15	1	PRESSURE FILTER, 3 MICRON ELEMENT, STAUFF SAE12
16	1	RETURN LINE FILTER, IN TANK, STAUFF, 10 MICRON ELEMENT
17	1	MANIFOLD, D03, 4 STN. PARALLEL, LYNCH
18A	1	PROPORTIONAL VALVE, D03, 24 VDC DIRECT SOLENOID, ATOS
18B	2	RAMP CONTROL SOLENOID CONNECTOR FOR ITEM 18A
19A	1	SANDWICH MANIFOLD, ISO 03: ON B – SUN
19B	1	2W2P VALVE w REVERSE CHECK & MANUAL OVERRIDE – SUN
20A	2	COUNTERBALANCE VALVE, 4 PORT VENTED, 3:1 PILOT – SUN
20B	2	DIRECT MOUNT MANIFOLD FOR ITEM 20A – STAINLESS STEEL
21	2	FULL TIME REGENERATION ASSEMBLY, D03 – SUN
22A	1	CROSS PORT RELIEF AND ANTICAVITATION CHECK MANIFOLD
		STAINLESS STEEL
22B	2	VENTED COUNTERBALANCE VALVE, 2:1 PILOT RATIO – SUN
22C	2	FREE FLOW NOSE TO SIDE CHECK VALVE – SUN
22D	2	FULLY ADJUSTABLE NEEDLE VALVE – SUN

ITEM	QTY	DESCRIPTION	PART NO.
			PVP1630RL
			SF030G10B–JBPT24
			RF014–G10B/U/G42/G
			BDO3GPSO4SDUAAAA
			DH20–A–073–D5
			LE PG X
			FB6
			DFBGMNH211
			CWCALHN/LH
			YDCF–XCN–AA
			CWELFN/LH
			CXDAXCN/LH
			NFCCLCN/LH

BILL OF MATERIAL		
ITEM	QTY	DESCRIPTION
23	2	DAMAN TAPPING PLATE 1/4 NPTF C/W
		HYDROTECHNIK TEST POINTS
24	1	DIREC. CONTROL VALVE, CLOSED NEUTRAL, 4/2, SINGLE SOLENOID
		120 VAC, CONTINENTAL c/w DIN 43650 CONNECTOR W RECTIFIER AND LED
25	1	NEEDLE VALVE SANDWICH, D03, METER-IN "P" – SUN
26	1	DIREC. CONTROL VALVE, FLOAT NEUTRAL, 4/3 DBL. SOL. D03
		120 VAC – CONTINENTAL
27	2	DUAL FLOW CONTROL, METER IN A AND B, D03 – SUN
28	20	BALL VALVE – 3/4" – STAINLESS STEEL
29	1	2–WAY, DIRECT ACTING, SOL. OPERATED DIRECT. BLOCKING
		POPPET VALVE, 120 VAC
30	2	CYLINDER – 5" BORE, 3.5" ROD, 40" STROKE C/W CUSHIONS
		STAINLESS ROD AND AIR BLEEDS
31	4	CYLINDER MOUNTED LIMIT SWITCH – END OF STROKE ACTUATION
32	1	SYNCHRONIZING FLOW DIVIDER/COMBINER VALVE ASSEMBLY – SUN
33	2	CYLINDER – 5" BORE, 3.5" ROD, 10" STROKE C/W CUSHIONS,
		STAINLESS ROD, AIR BLEEDS AND LIMIT SWITCHES.
34	1	CYLINDER, 63M BORE, 45MM ROD, 75MM STROKE, STAINLESS ROD
35	1	PRESSURE GAUGE AND GAUGE ISOLATOR
36	1	PRESURE SWITCH ASSEMBLY
37	1	QUICK CONNECT, 3/4" MALE – PARKER
38	1	QUICK CONNECT, 3/4" FEMALE – PARKER
39	1	DIREC. CONTROL VALVE, BLOCKED NEUTRAL, 4/3 DBL. SOL. D03
		120 VAC, CONTINENTAL

ITEM	QTY	DESCRIPTION	PART NO.
			DD03TPAB4P
			VSD03M–5AJ–AR–CSA–33L
			NFCC–LCN–GBP
			VSD03M–3F–A–CSA–33L
			NCCB LCN–GBY
			DTC–AXN211–A3K
			DWG #201–02
			FSCS–XAN/AP
			DWG #203–16
			6602–12–12
			6601–12–12
			VSD03M–3A–A–CSA–33L



01	2022/07/15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
Revision / Révision				
<div>A C</div>		<div>A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin</div> <div><div>A B C</div></div>		
Client Acceptance / Acception du client Signature _____ Date _____ File No./No. de dossier _____				



Canada



Chadwick
Engineering Ltd.

Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT–SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

HYDRAULIC SCHEMATIC

Scale / Échelle

NOT TO SCALE

Drawn by/ Dessiné par

Date

Designed by/ Conçu par

Date

DPC

JANUARY 2019

Checked by/ Vérifié par

Date

Approved by / Approuvé par

Date

DPC

JANUARY 2019

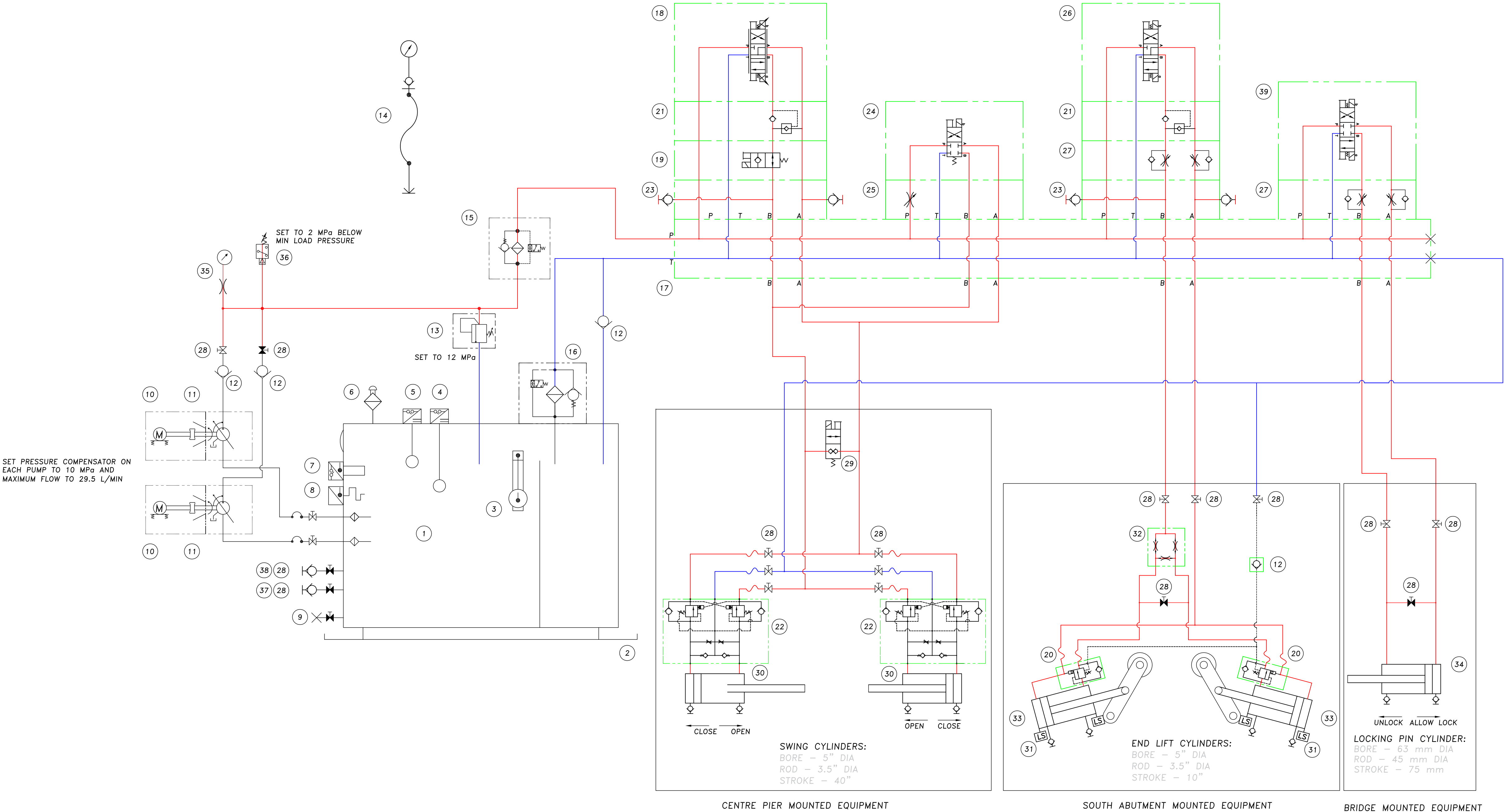
Project No./No. du projet

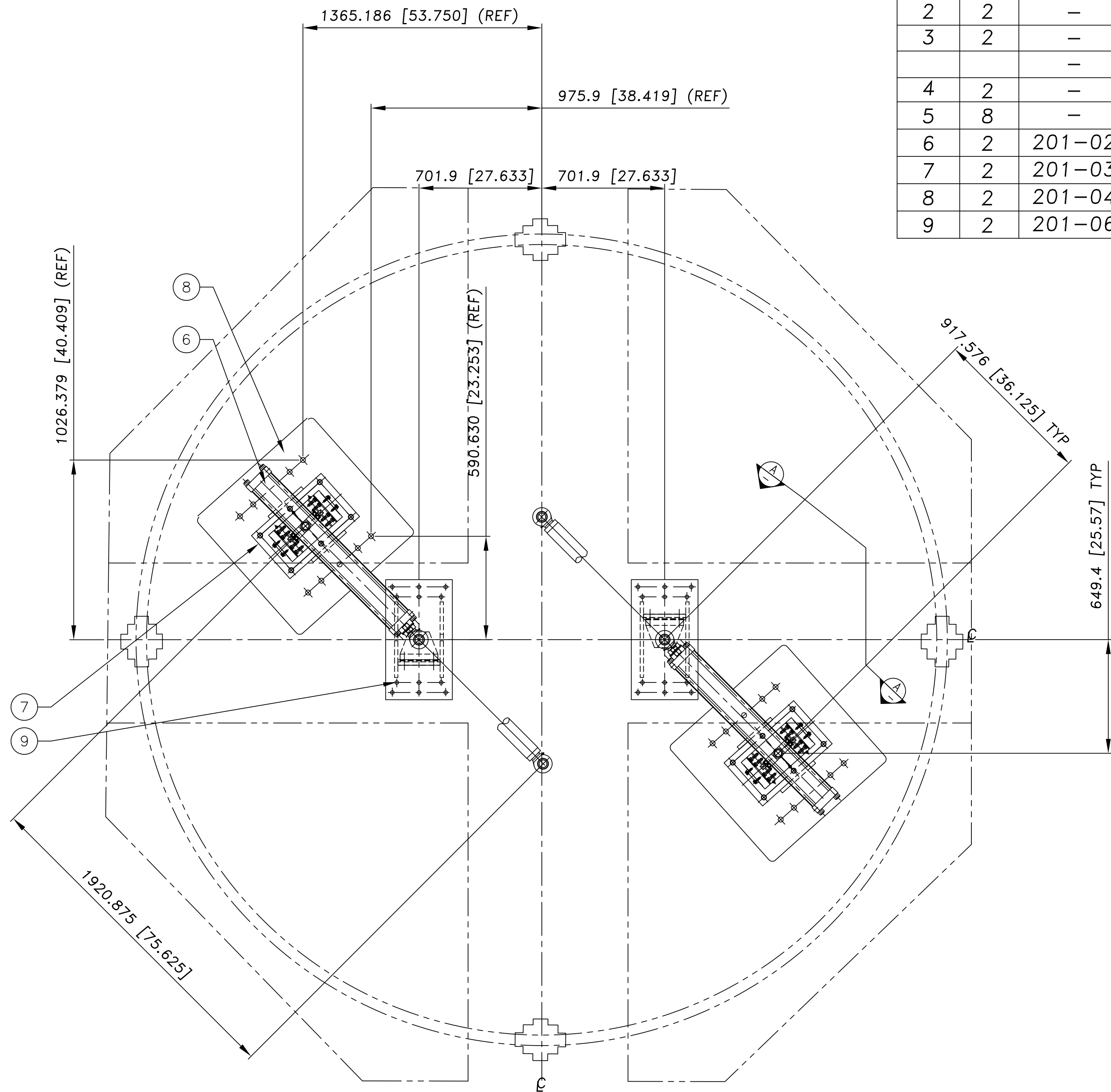
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Sheet No./
Feuille No.

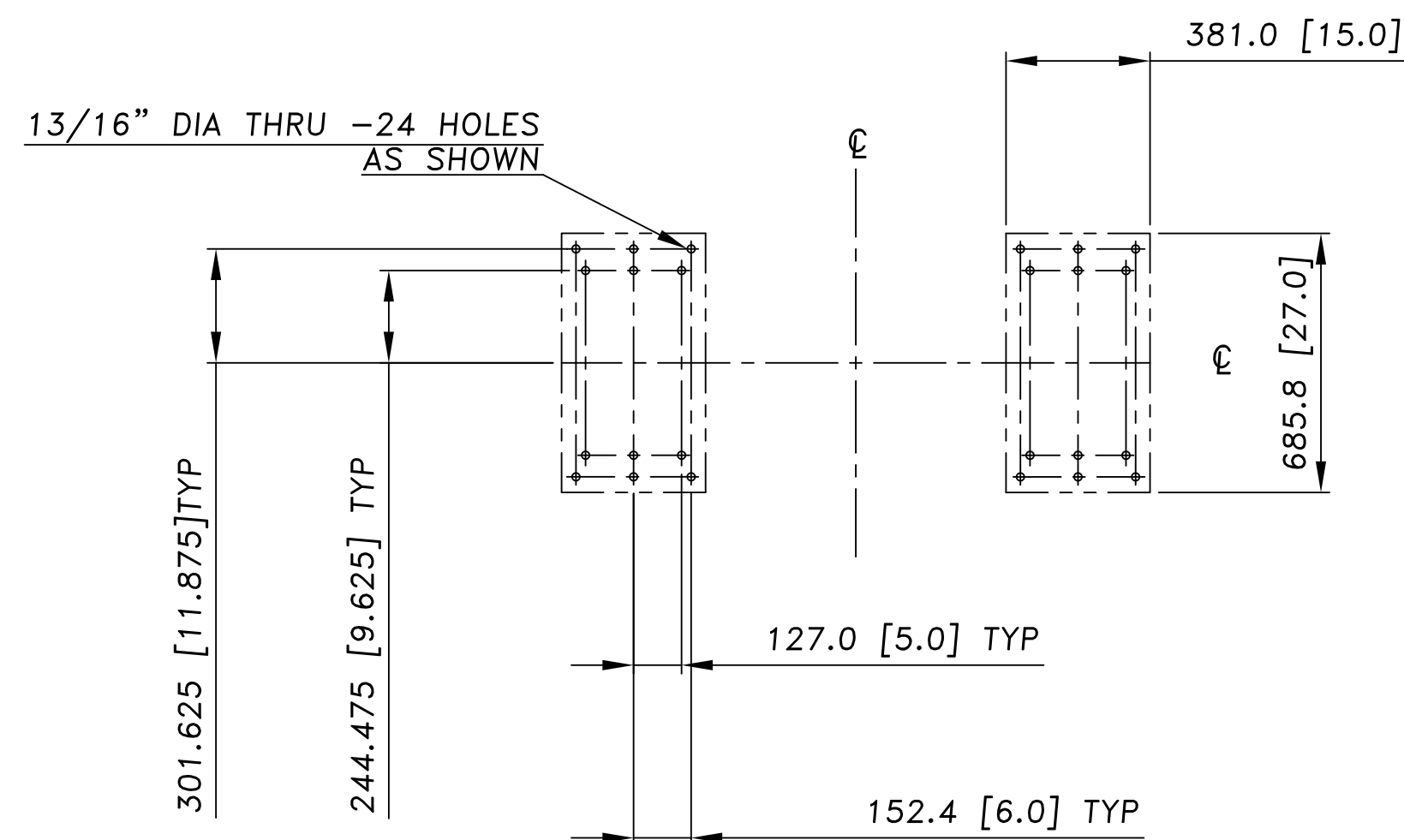
Drawing Reference No./Numéro de Référence du Dessin
200

01





GIMBAL MOUNTING GENERAL ARRANGEMENT – PLAN VIEW

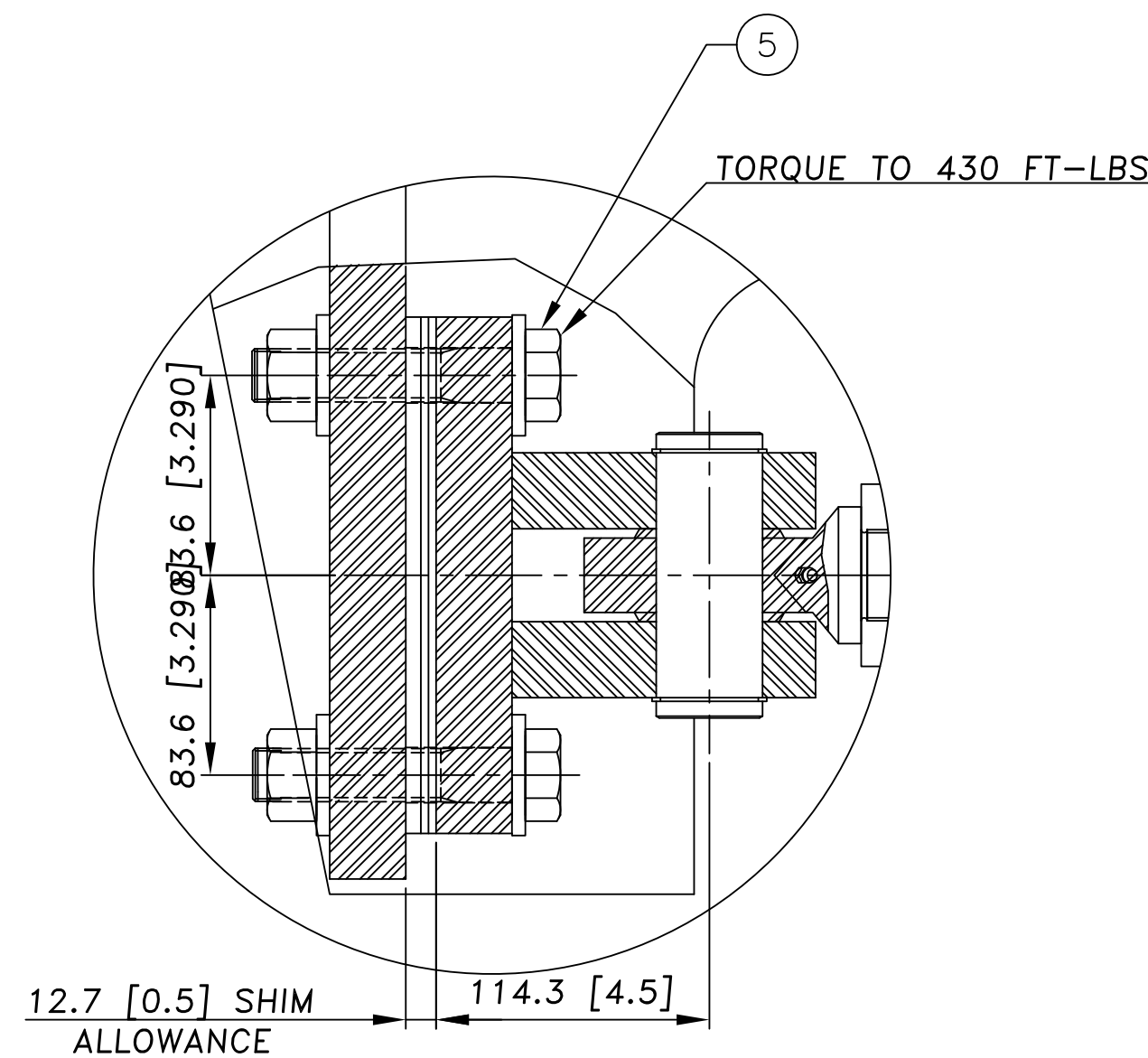
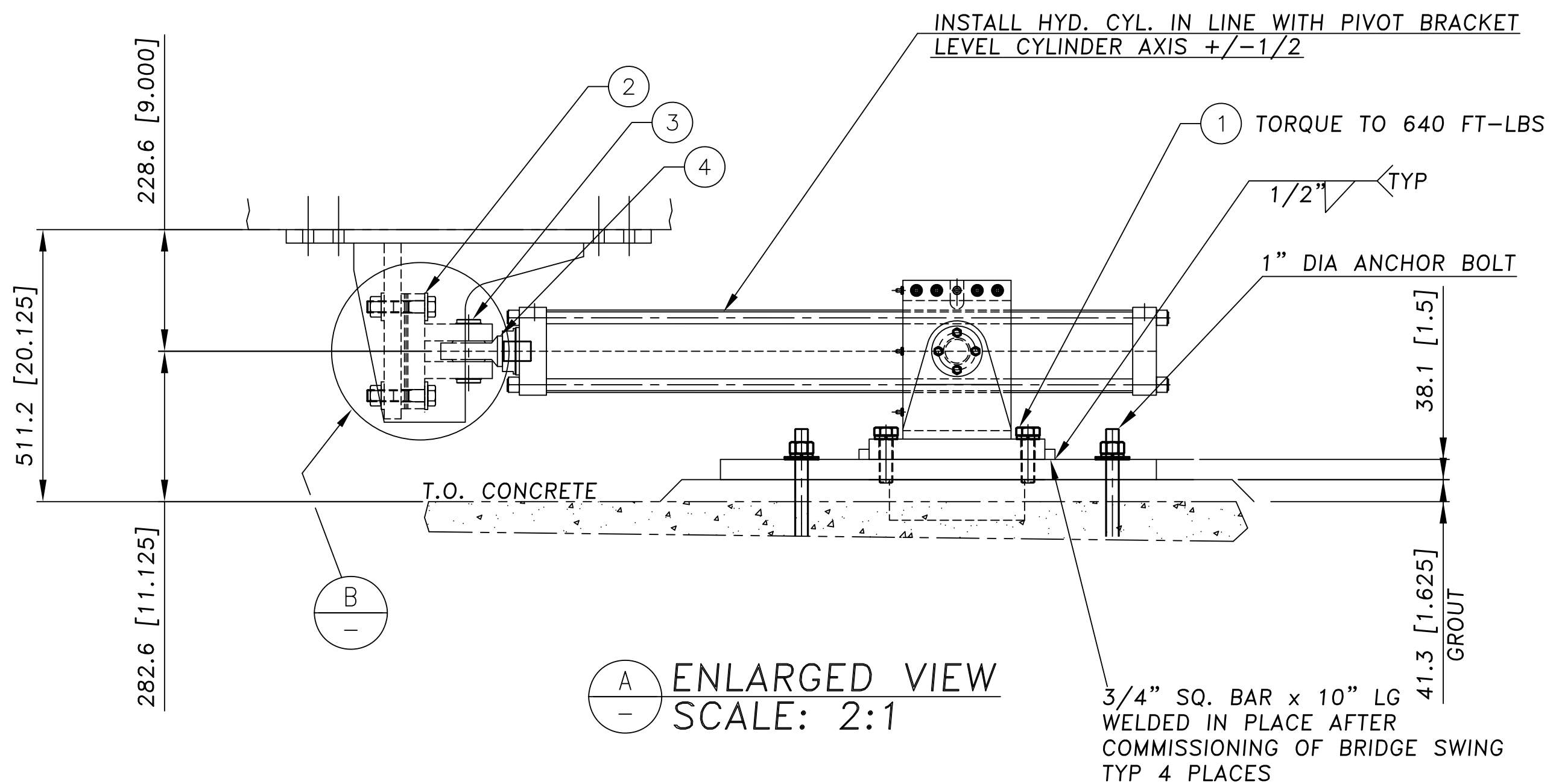


BOTTOM OF BRIDGE – PLAN VIEW

BILL OF MATERIAL

ITEM	QTY	DWG NO.	DESCRIPTION	MATERIAL
1	12	—	1–8 UNC X 3–1/4” LG HEX HD BOLT C/W HARDENED STEEL WASHER	A325 GALV.
2	2	—	PARKER CLEVIS BRACKET FOR 5” DIA BORE HYD CYL PART# 0839510000	—
3	2	—	PARKER PIVOT PIN C/W 2 RETAINING RINGS FOR 5”DIA BORE HYD CYL PART# 0839670000	—
4	2	—	PARKER SPHERICAL ROD EYE FOR 5” DIA BORE HYD CYL PART#0961000175	—
5	8	—	7/8–9 UNC X 4–1/4” LG HEX HD BOLT C/W NUTS AND HARDENED WASHERS	A325 GALV.
6	2	201–02	SWING CYLINDER	—
7	2	201–03	GIMBAL ASSEMBLY	—
8	2	201–04	GIMBAL BASE	—
9	2	201–06	CYLINDER BRACKET	—

PRODUCTS LISTED SET A STANDARD BY WHICH SUBSTITUTES WILL BE JUDGED

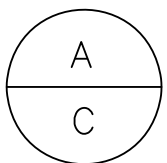


1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES
X. DECIMALS +/- 0.5
.X DECIMALS +/- 0.1
.XX DECIMALS +/- 0.05
ANGLES +/- 0.5 DEG
HOLE SIZES +/- 1mm
SURFACES 3.2 MICROMETER

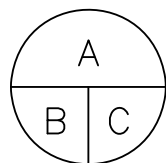


01	2022/07/15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé

Revision / Révision



A Detail number
No. du détail
B Location dwg. no.
No. sur dessin
C Drawing sheet no.
No. du dessin



Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Parks
Canada

Parcs
Canada



Canada

WSP

**Chadwick
Engineering Ltd.**

Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT–SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

SWING CYLINDER INSTALLATION

Scale / Échelle

NOT TO SCALE

Drawn by/ Dessiné par

Date

Designed by/ Conçu par

Date

Checked by/ Vérifié par

Date

Approved by / Approuvé par

Date

DPC

January 2019

Project No./No. du projet

Client No./No. du Client

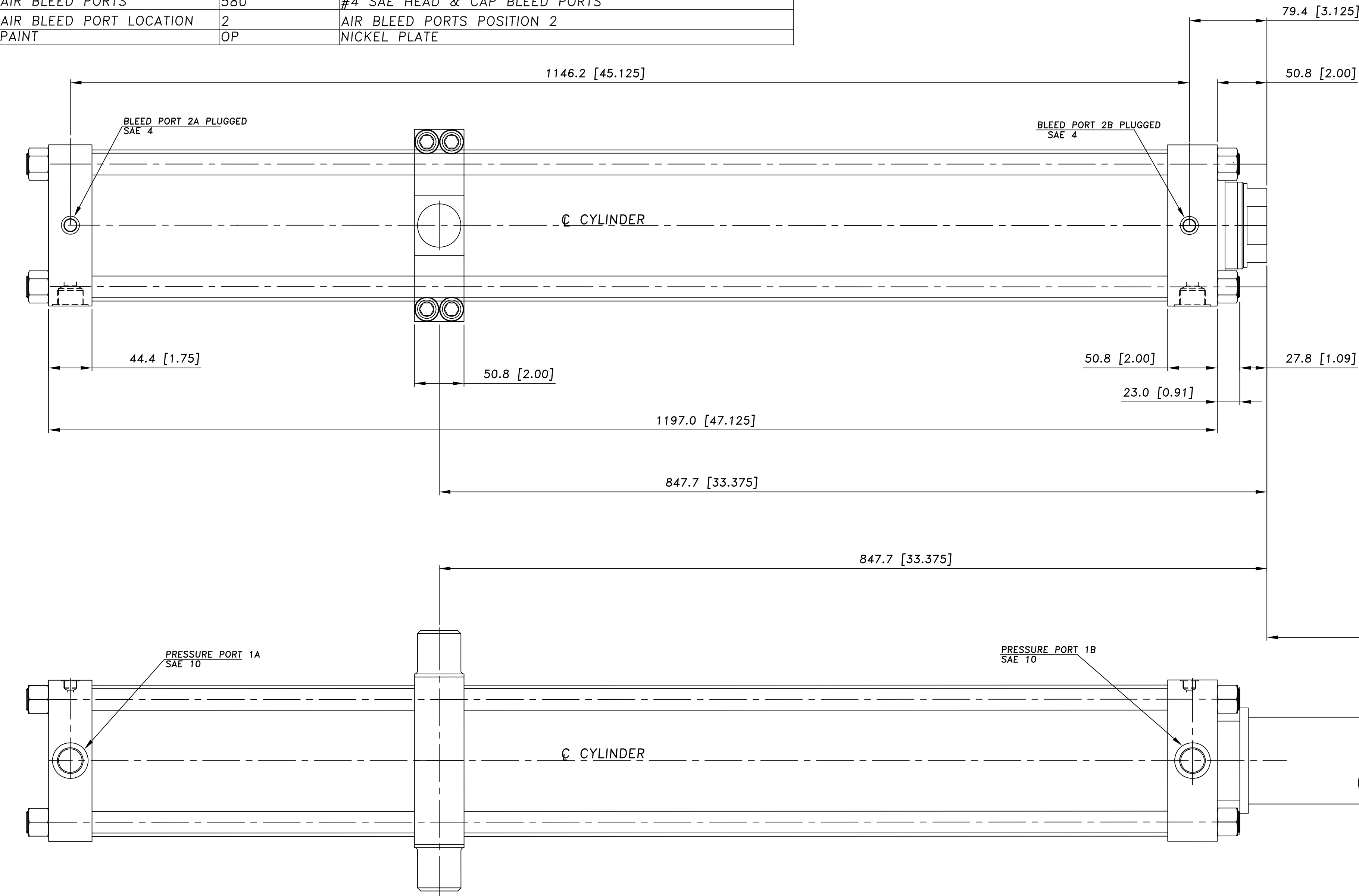
Sheet No./
Feuille No.

Drawing Reference No./Numéro de Référence du Dessin

201

01

PARKER CYLINDER SPECIFICATIONS		
COMPONENT	CODE	DESCRIPTION
BORE	5.00	INCH
CUSHION HEAD	C	CUSHION HEAD
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	STANDARD GLAND WITH LIPSEAL
PORT TYPE	T	SAE STRAIGHT THREAD O-RING
SEALS	1	STANDARD (CLASS 1)
SPECIAL	S	SPECIAL MODIFICATIONS
PISTON ROD NUMBER	C2D350	3.50 INCH
PISTON ROD END	3	STYLE 3 SPECIAL
PISTON ROD END THREAD	A	IMPERIAL INTEGRAL CUT THREADS
CUSHION CAP	C	CUSHION CAP
STROKE	40.000	INCH
XI DIMENSION	33.375	INCH
PORT SIZE – HEAD	SA10	#10 SAE
PORT LOCATION – HEAD	1	PORT POSITION 1 – HEAD
PORT SIZE – CAP	SA10	#10 SAE
PORT LOCATION – CAP	1	PORT POSITION 1 – CAP
NEEDLE LOCATION – HEAD	4	NEEDLE VALVE POSITION 4 – HEAD
NEEDLE LOCATION – CAP	4	NEEDLE VALVE POSITION 4 – CAP
PISTON ROD WIPER	EW	METALLIC ROD WIPER
PISTON ROD END THREAD	F	FEMALE PISTON ROD THREAD
PISTON ROD END THREAD	1.500-12	1 1/2-12 UNF
PISTON ROD END A DIM	2.250	INCH
PISTON ROD WRENCH FLATS	2F	STANDARD 2 WRENCH FLATS
PISTON ROD END EXTENSION	WF	WF DIMENSION
PISTON ROD END EXTENSION	2.250	INCH
PISTON ROD MATERIAL	0174	17-4 PH STAINLESS STEEL PISTON ROD MATERIAL
PISTON ROD PLATING	GB	GLOBAL SHIELD PISTON ROD PLATING .0010 INCH THICK
AIR BLEED PORTS	580	#4 SAE HEAD & CAP BLEED PORTS
AIR BLEED PORT LOCATION	2	AIR BLEED PORTS POSITION 2
PAINT	OP	NICKEL PLATE



5" DIA BORE HYDRAULIC CYLINDER

PART NUMBER: 203-16
DESCRIPTION: HYDRAULIC CYLINDER
(PARKER SERIES 2HD SPECIAL)
QUANTITY: 2

PRODUCTS LISTED SET A STANDARD BY WHICH SUBSTITUTES WILL BE JUDGED



01	2022/07/15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
Revision / Révision				
<div>A C</div>		<div>A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin</div> <div>B C</div>		
Client Acceptance / Acceptation du client Signature _____ Date _____ File No./No. de dossier _____				
<div><div>Parks Canada</div><div><div>Parcs Canada</div></div></div>				
				
				
<div></div>				
Project title / Titre du projet				
BOUNDARY ROAD SWING BRIDGE REHABILITATION				
TRENT-SEVERN WATERWAY				
ONTARIO				
Drawing title / Titre du dessin				
SWING CYLINDER DETAILS				
Scale / Échelle				
NOT TO SCALE				
Drawn by/ Dessiné par			Date	
Designed by/ Conçu par			Date	
Checked by/ Vérifié par			Date	
Approved by / Approuvé par			Date	
DPC			January 2019	
Project No./No. du projet		Client No./No du Client		Sheet No./ Feuille No.
Drawing Reference No./Numéro de Référence du Dessin				201

1. DIMENSIONS ARE IN MILLIMETERS

2. TOLERANCES

X. DECIMALS

+/- 0.5

.X DECIMALS

+/- 0.1

.XX DECIMALS

+/- 0.05

ANGLES

+/- 0.5 DEG

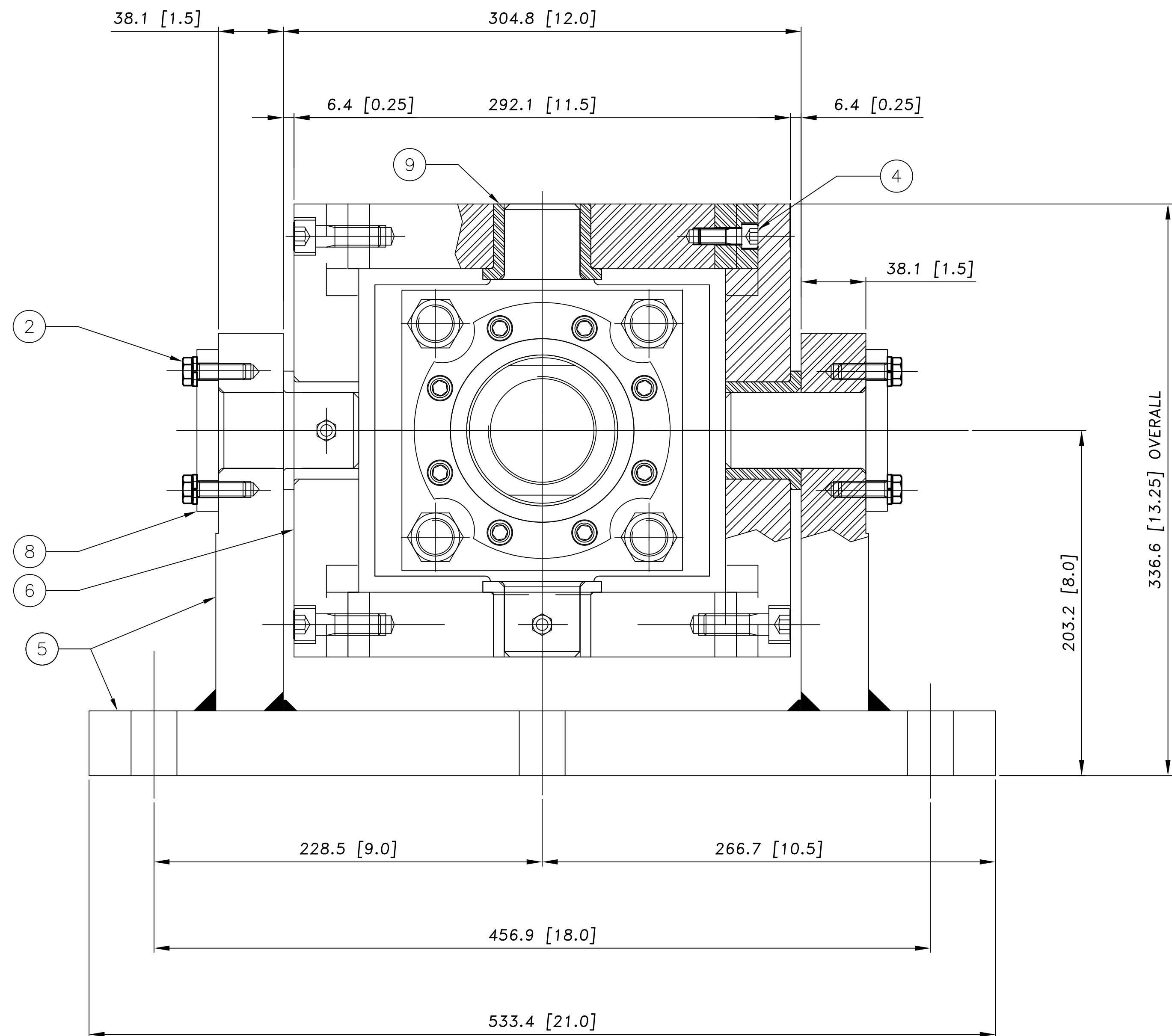
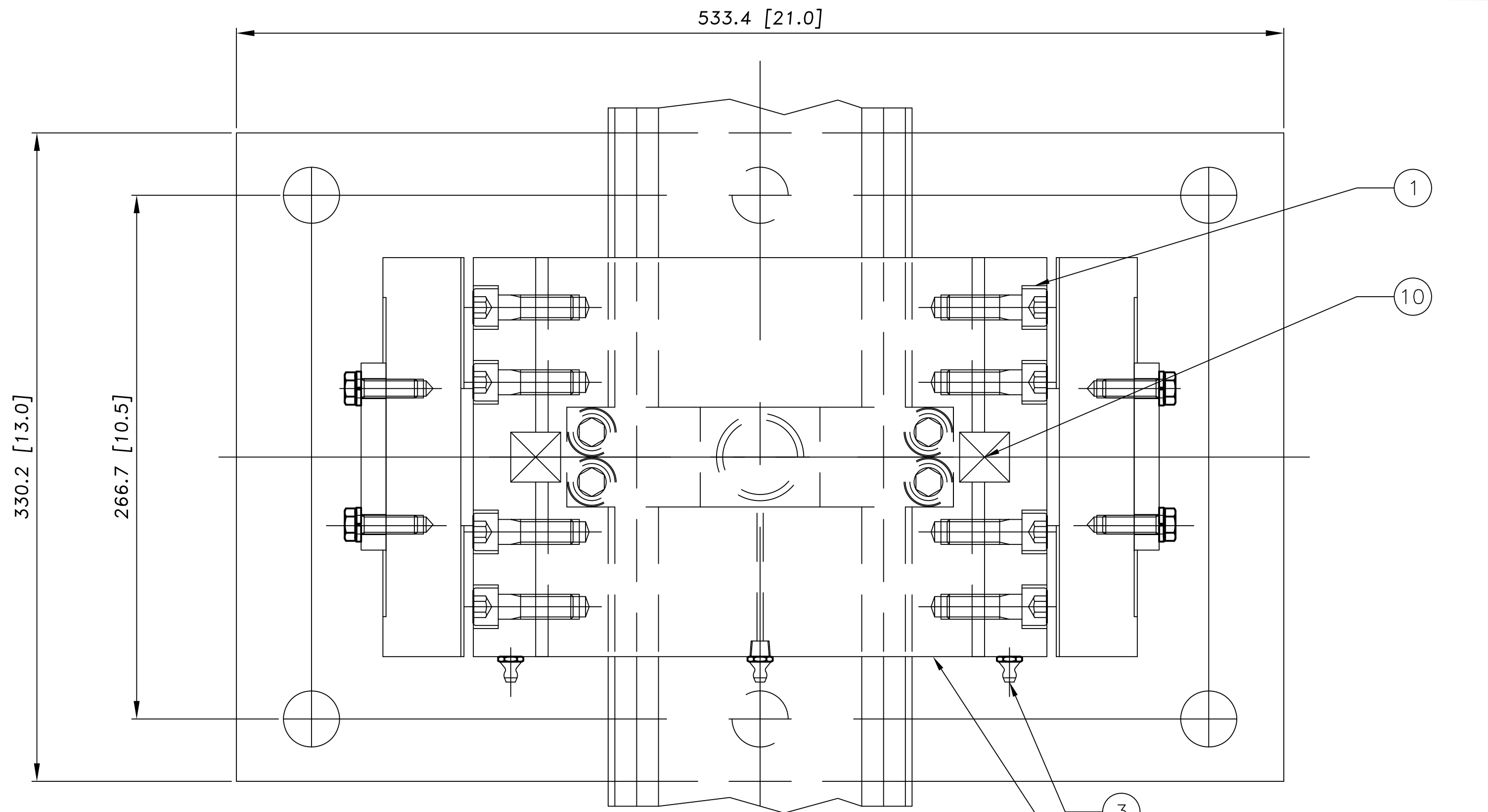
HOLE SIZES

+/- 1mm

SURFACES

3.2 MICROMETER

02

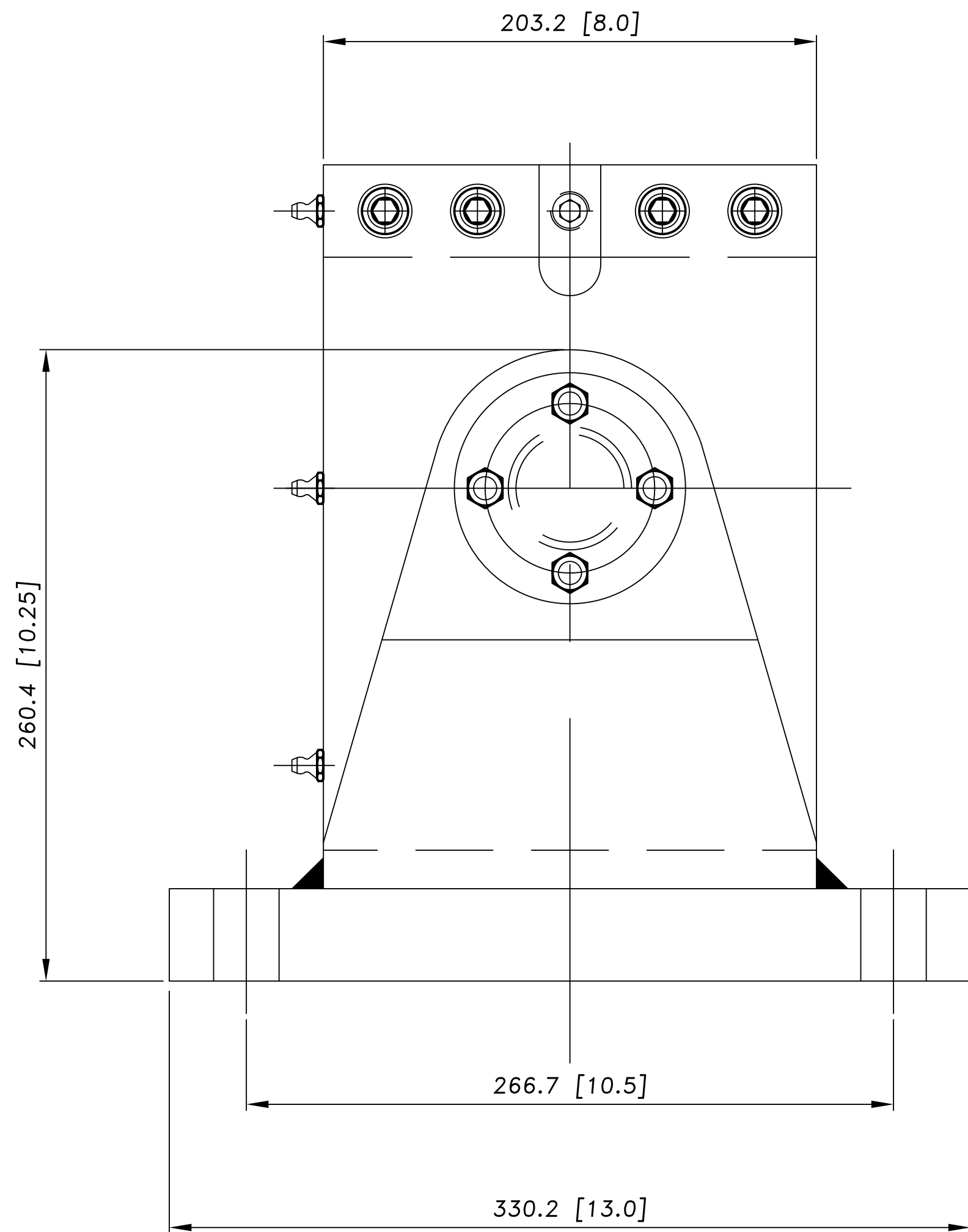


GIMBALL MOUNTING ASSEMBLY

BILL OF MATERIAL

ITEM	QTY	DWG	DESCRIPTION	MATERIAL
1	2		HEX SOCK HD CAP SCREW 1/2"–13 UNC X 1 1/2" LG	316SS
2	8		HEX SOCK HD CAP SCREW 3/8" UNC X 1" LG C/W L.W.	316SS
3	4		ALEMITE HYD LUB FITTING 1/8" NPTF	CAT#1669–B
4	4		HEX SOCK HD CAP SCREW 3/8" UNC X 1" LG	316SS
5	1	201–04	GIMBAL BASE	
6	2	201–05	GIMBAL SIDE PLATE – ITEM 1	
7	2	201–05	GIMBAL TOP/BOTTOM PLATE – ITEM 2	
8	2	201–05	GIMBAL PIN – ITEM 3	
9	4	201–05	GIMBAL BUSHING – ITEM 4	
10	4	201–05	GIMBAL KEY – ITEM 5	

PRODUCTS LISTED SET A STANDARD BY WHICH SUBSTITUTES WILL BE JUDGED



NOTES:

- ALL STEEL WORK TO BE THERMALLY STRESS RELIEVED, SAND BLASTED, PRIMED AND PAINTED AS PER CONTRACT PAINT SPECIFICATION.
- ALL WELDING AND THERMAL STRESS RELIEVING MUST CONFORM TO CSA W59 STANDARDS.
- ALL MACHINED SURFACES MUST BE COATED WITH LPS–3 OR EQUAL CORROSION INHIBITOR.

1. DIMENSIONS ARE IN MILLIMETERS

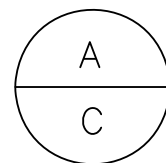
2. TOLERANCES

.X DECIMALS	+/- 0.5
.X DECIMALS	+/- 0.1
.XX DECIMALS	+/- 0.05
ANGLES	+/- 0.5 DEG
HOLE SIZES	+/- 1mm
SURFACES	3.2 MICROMETER



01	2022/07/15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé

Revision / Révision



A Detail number
No. du détail
B Location dwg. no.
No. sur dessin
C Drawing sheet no.
No. du dessin

Client Acceptance / Acceptation du client

Signature _____ Date _____

File No./No. de dossier _____



Parks
Canada

Parcs
Canada



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**Chadwick
Engineering Ltd.**

Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT–SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

GIMBAL ASSEMBLY

Scale / Échelle

NOT TO SCALE

Drawn by/ Dessiné par

Date

Designed by/ Conçu par

Date

Checked by/ Vérifié par

Date

Approved by / Approuvé par

Date

DPC

January 2019

Project No./No. du projet

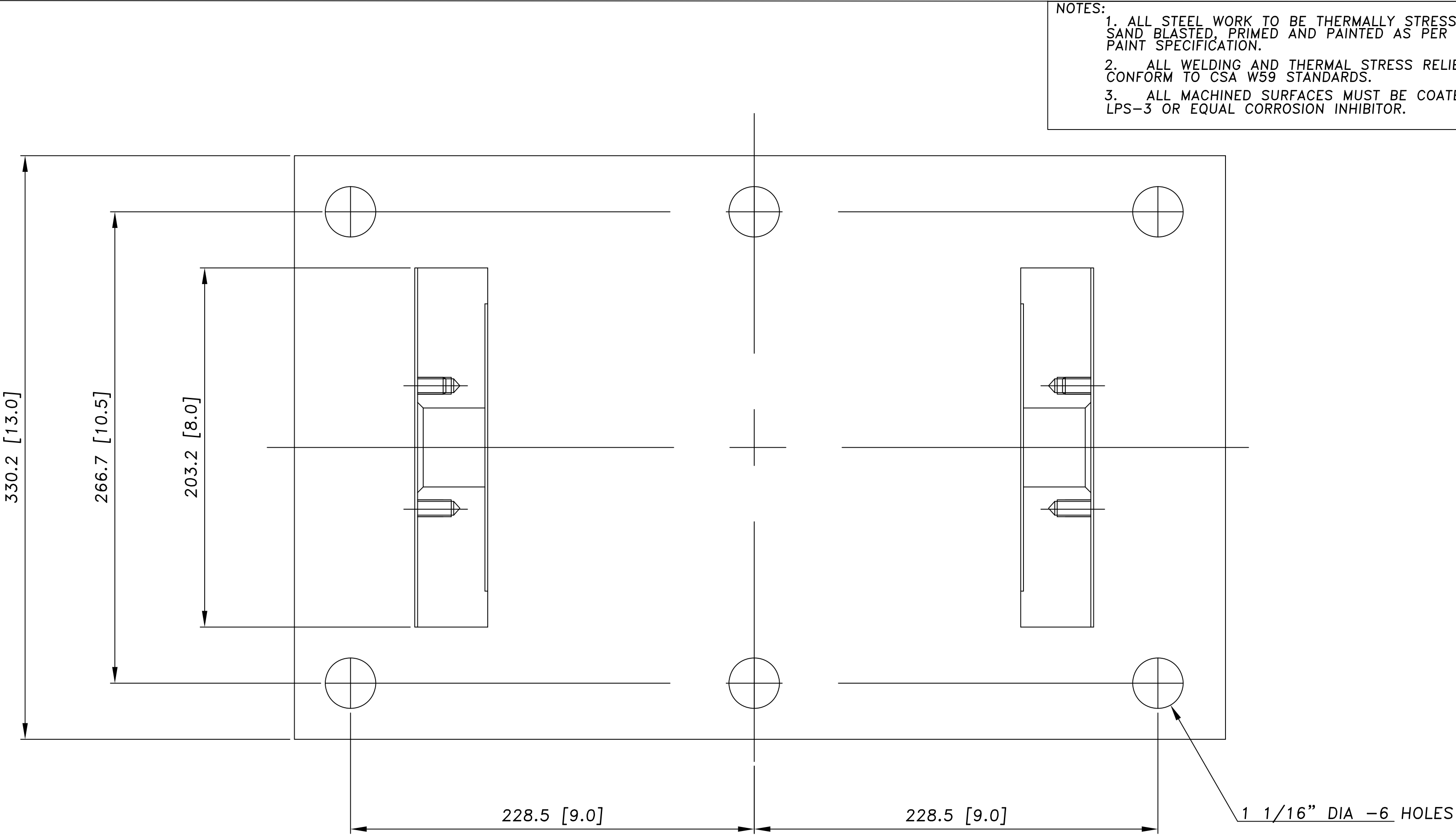
Client No./No du Client

Sheet No./
Feuille No.

Drawing Reference No./Numéro de Référence du Dessin

201

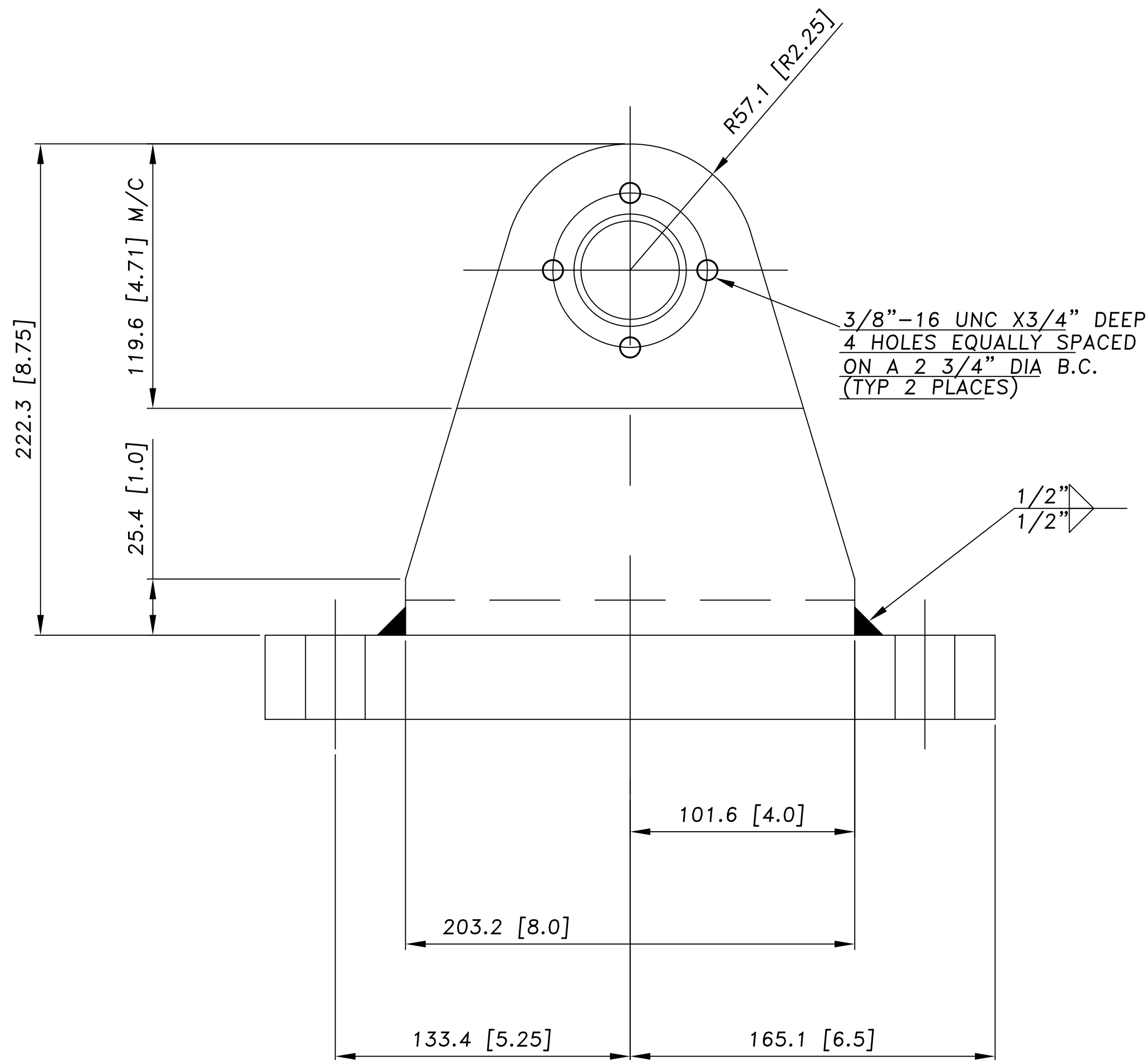
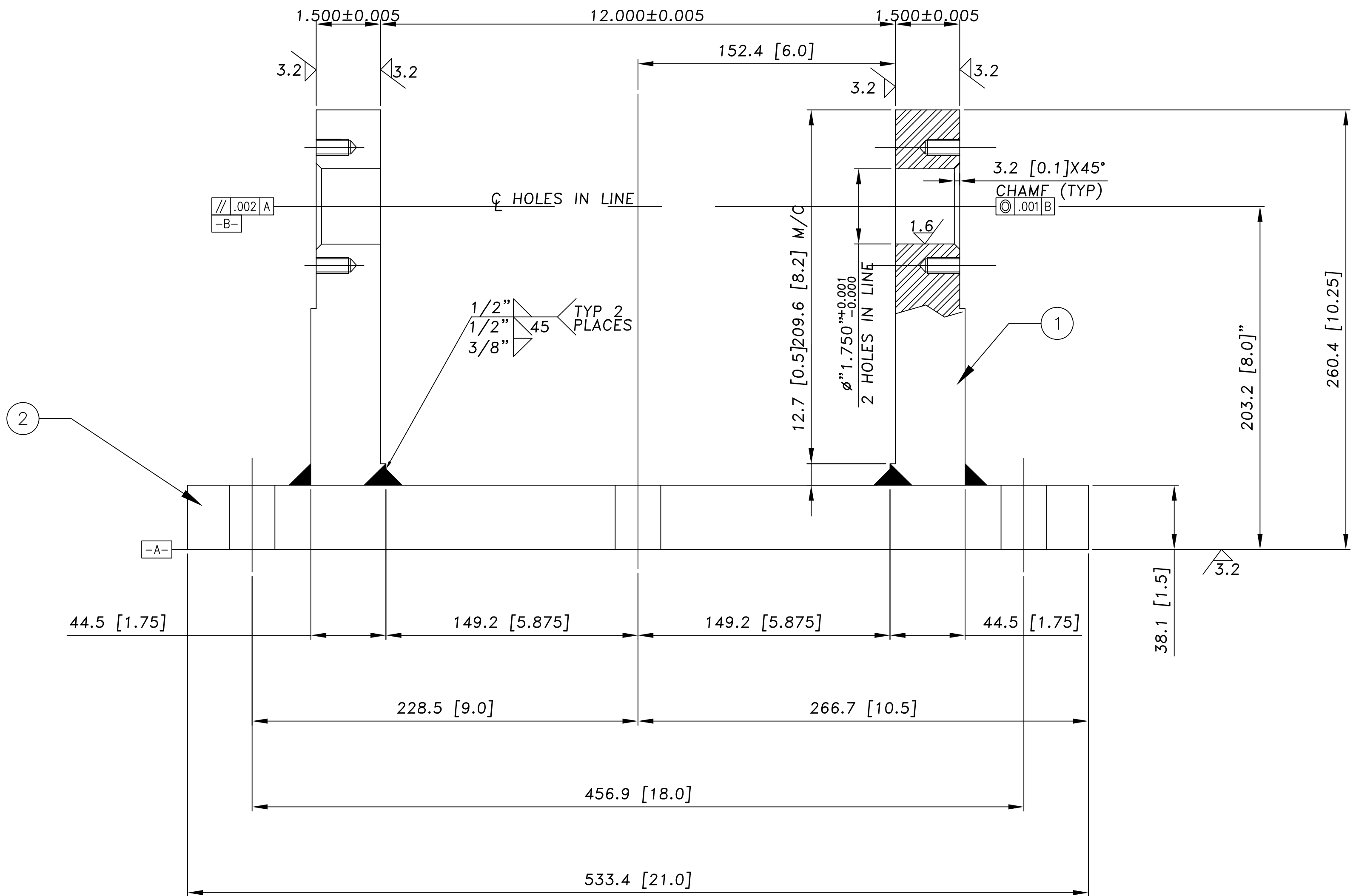
03



NOTES:
1. ALL STEEL WORK TO BE THERMALLY STRESS RELIEVED, SAND BLASTED, PRIMED AND PAINTED AS PER CONTRACT PAINT SPECIFICATION.
2. ALL WELDING AND THERMAL STRESS RELIEVING MUST CONFORM TO CSA W59 STANDARDS.
3. ALL MACHINED SURFACES MUST BE COATED WITH LPS-3 OR EQUAL CORROSION INHIBITOR.

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MATERIAL
1	2	PLATE 1 3/4" X 8 X 8 3/4"	CSA G40.21 -50W
2	1	PLATE 1 3/4" X 13 X 21"	CSA G40.21 -50W

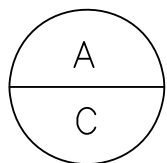


1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES
.X DECIMALS +/- 0.5
.XX DECIMALS +/- 0.1
ANGLES +/- 0.05 DEG
HOLE SIZES +/- 1mm
SURFACES 3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé

Revision / Révision



A Detail number
No. du détail
B Location dwg. no.
No. sur dessin
C Drawing sheet no.
No. du dessin

Client Acceptance / Acception du client
Signature _____ Date _____
File No./No. de dossier _____



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**Chadwick
Engineering Ltd.**

Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

GIMBAL BASE

Scale / Échelle

NOT TO SCALE

Drawn by/ Dessiné par

Date

Designed by/ Conçu par

Date

Checked by/ Vérifié par

Date

Approved by / Approuvé par

Date

DPC

January 2019

Project No./No. du projet

Client No./No du Client

Sheet No./
Feuille No.

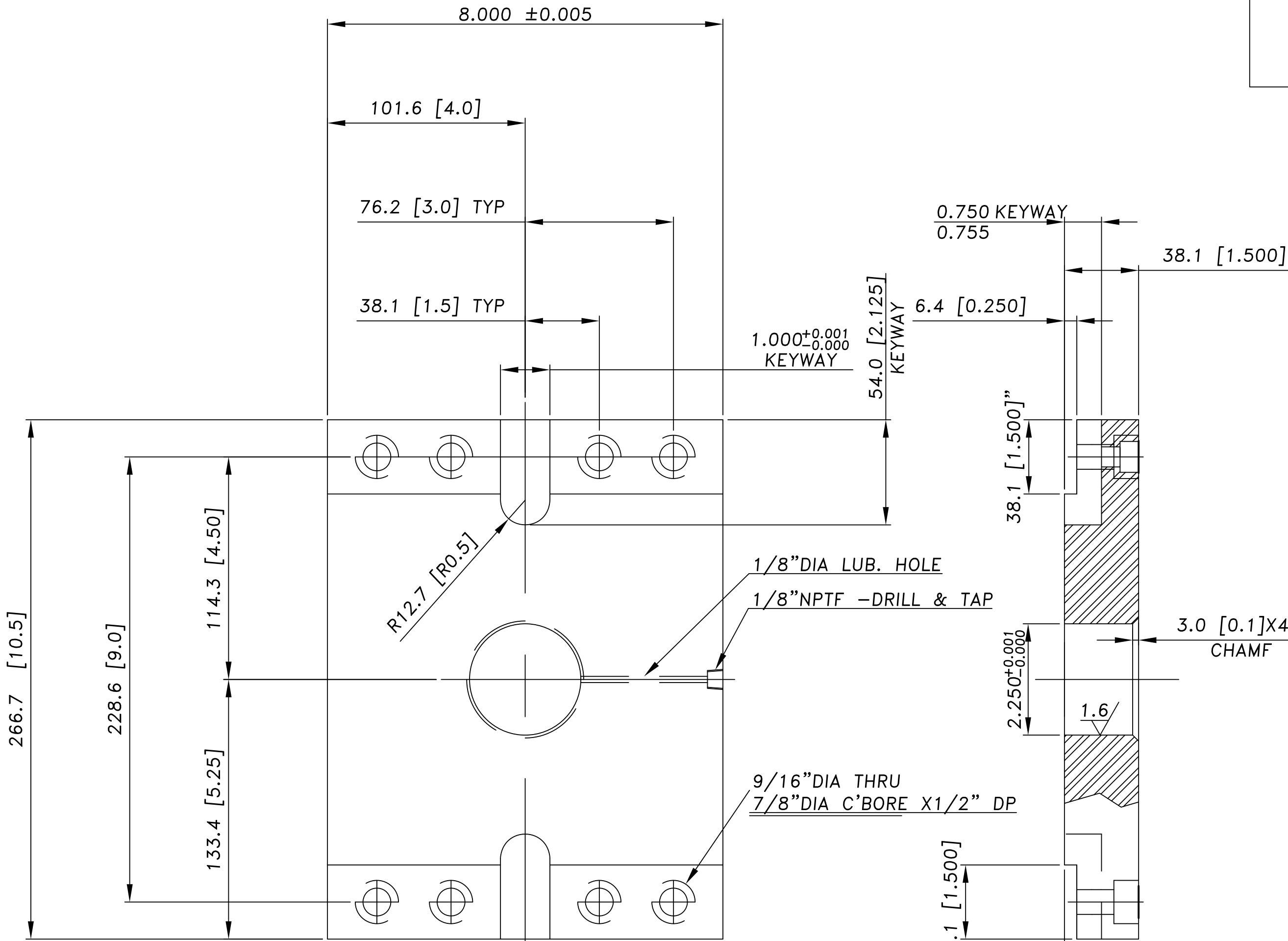
Drawing Reference No./Numéro de Référence du Dessin
201

04

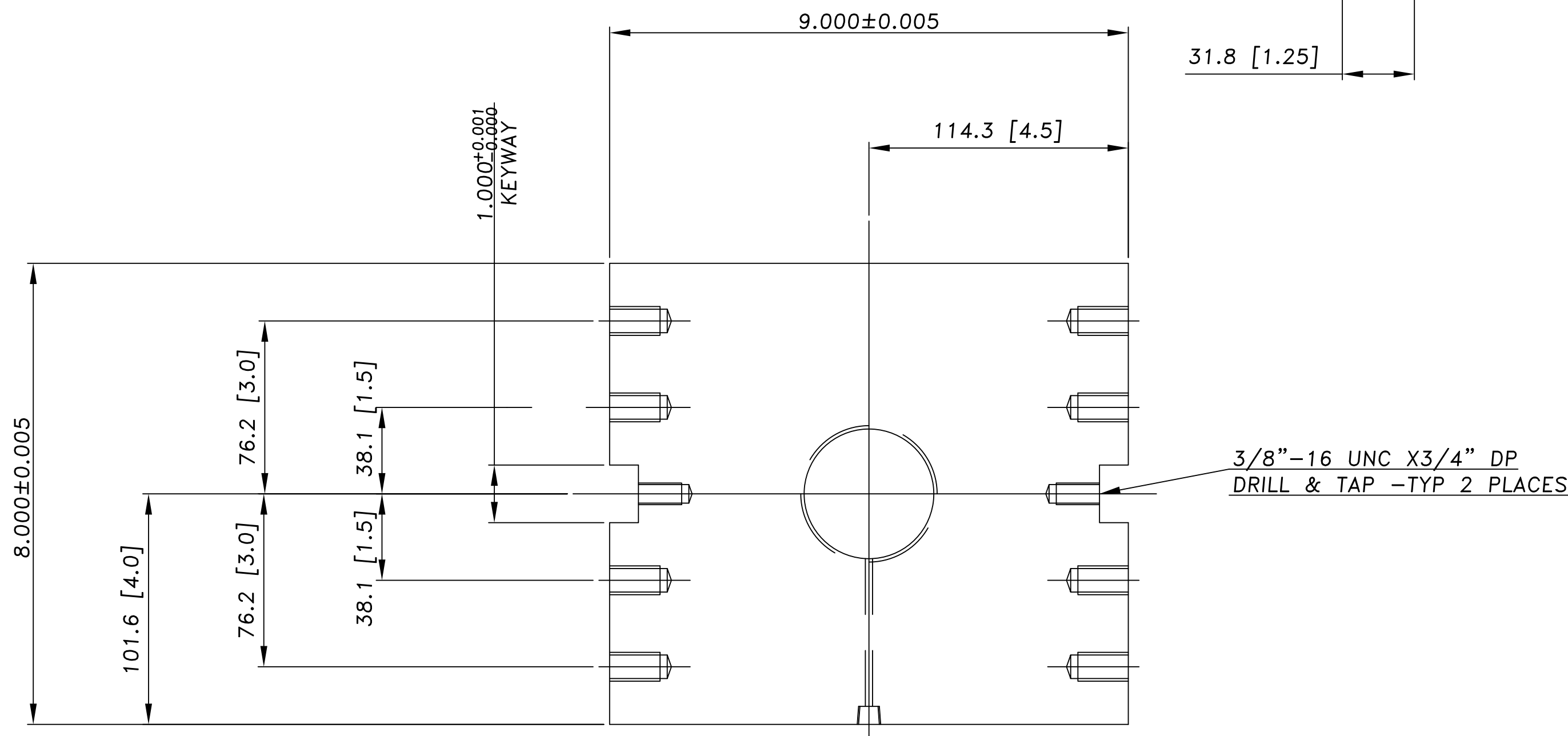
NOTES:
1. ALL STEEL WORK TO BE THERMALLY STRESS RELIEVED, SAND BLASTED, PRIMED AND PAINTED AS PER CONTRACT PAINT SPECIFICATION.
2. ALL WELDING AND THERMAL STRESS RELIEVING MUST CONFORM TO CSA W59 STANDARDS.
3. ALL MACHINED SURFACES MUST BE COATED WITH LPS-3 OR EQUAL CORROSION INHIBITOR.

BILL OF MATERIAL

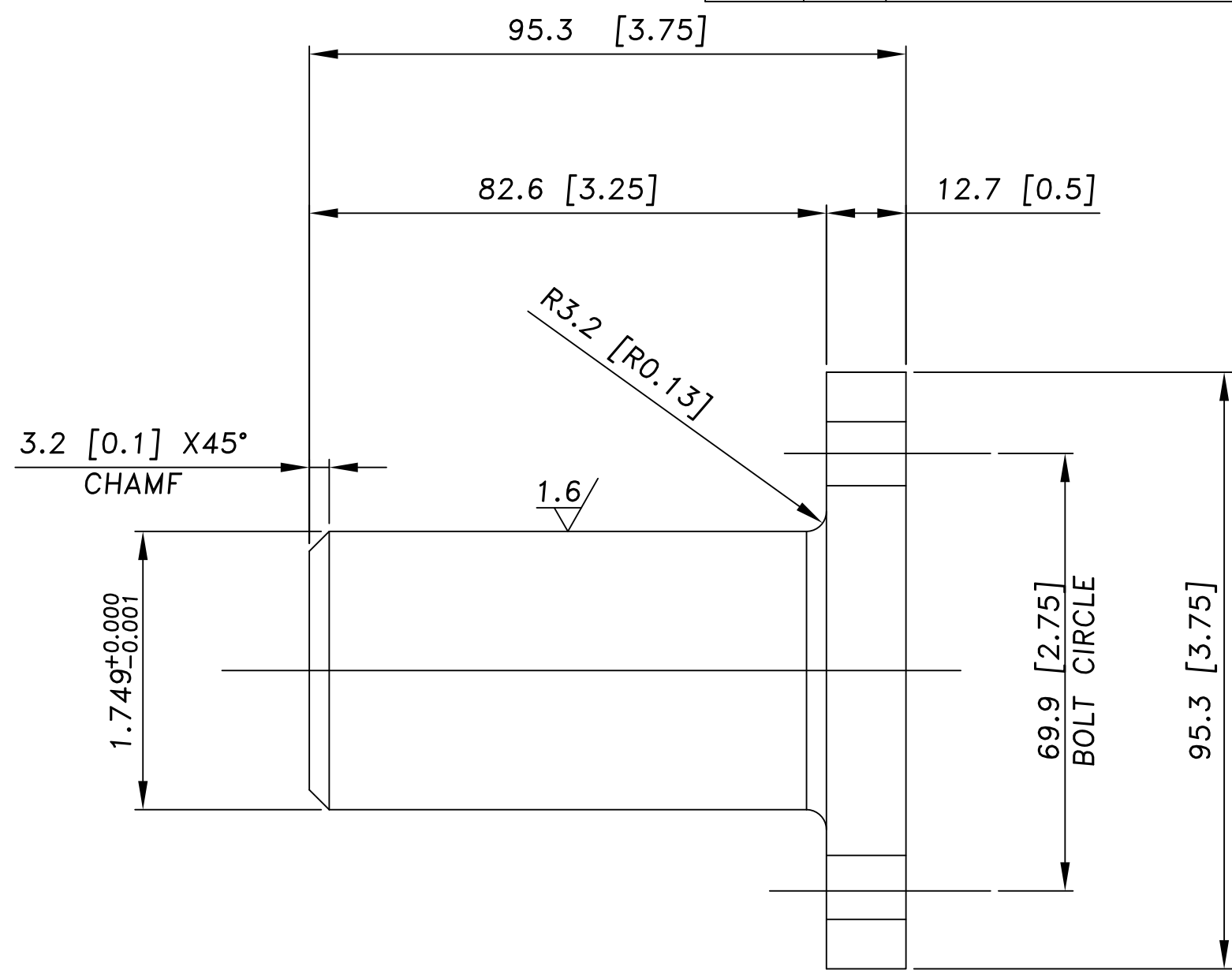
ITEM	QTY	DESCRIPTION	MATERIAL
1	2	PLATE 10-1/2" x 8" x 1-1/2" THK	CSA G40.21 -50W
2	2	PLATE 9" x 8" x 1-1/2" THK	CSA G40.21 -50W
3	2	RD BAR 3-3/4" DIA. x 3-3/4" LG	AISI PREHT 4140
4	4	RD BAR 2-3/4" DIA x 1-3/4" LG	AMPCO -18
5	4	RECT BAR 1" x 1" x 1-1/2" LG	AISI 1045



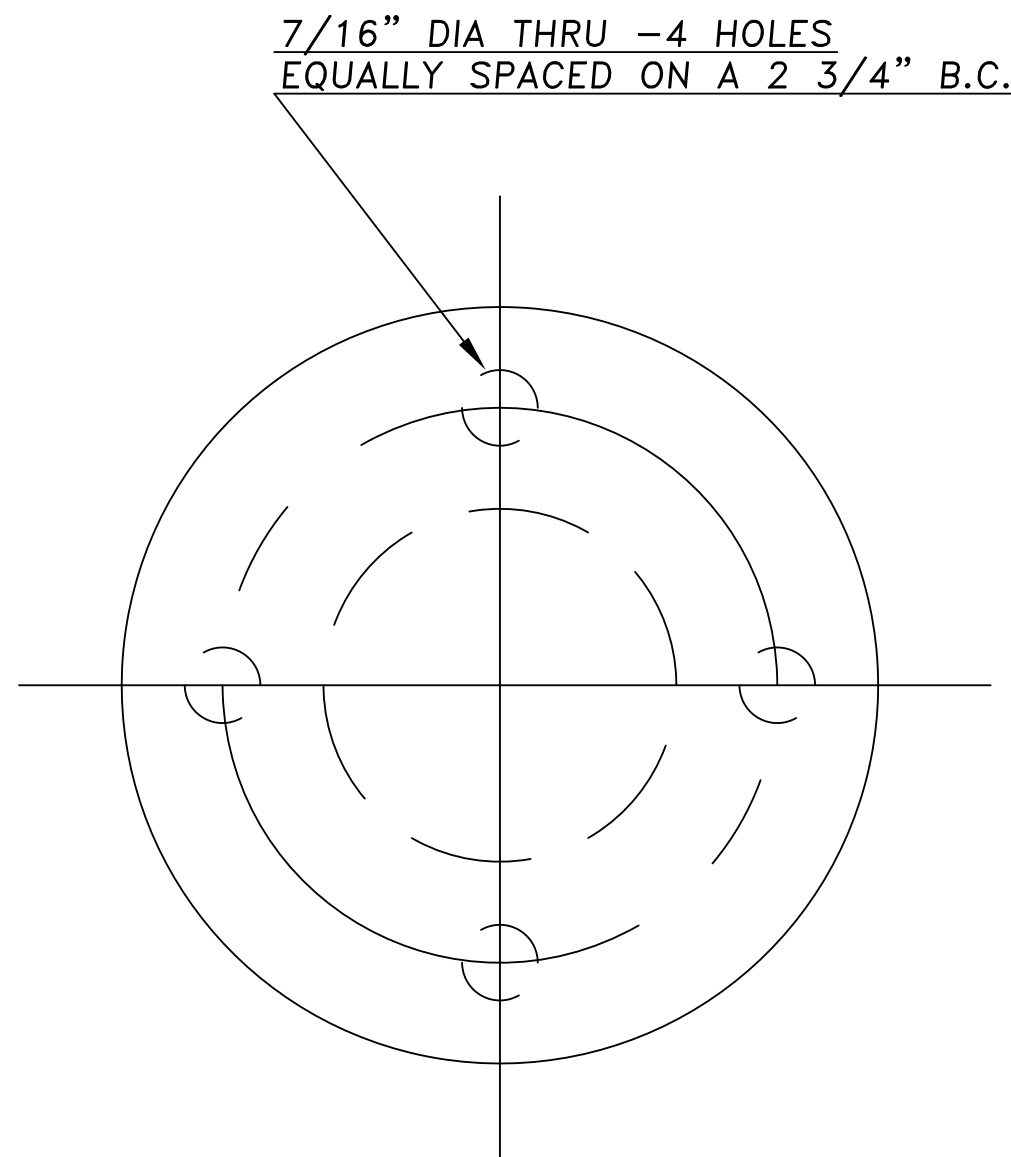
GIMBAL SIDE PLATE ITEM ①
F.A.O. 3.2/ OR AS SPECIFIED



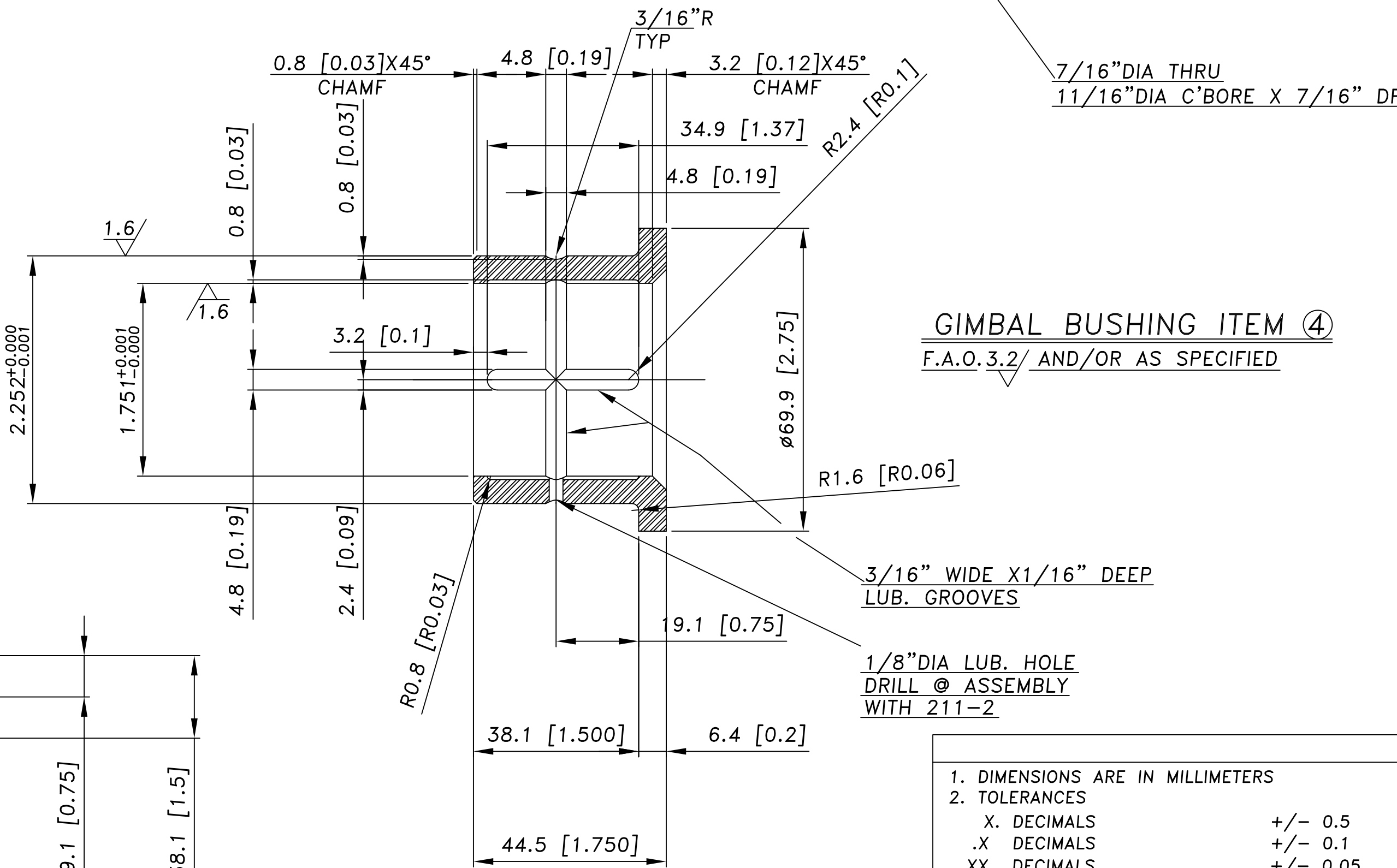
GIMBAL TOP/BOTTOM PLATE ITEM ②
F.A.O. 3.2/ OR AS SPECIFIED



GIMBAL PIN ITEM ③
F.A.O. 3.2/ AND/OR AS SPECIFIED



GIMBAL BUSHING ITEM ④
F.A.O. 3.2/ AND/OR AS SPECIFIED



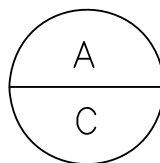
GIMBAL KEY ITEM ⑤
F.A.O. 1.6/AND/OR AS SPECIFIED

1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
X. DECIMALS	+/- 0.5
.X DECIMALS	+/- 0.1
.XX DECIMALS	+/- 0.05
ANGLES	+/- 0.5 DEG
HOLE SIZES	+/- 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
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A Detail number
No. du détail
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No. sur dessin
C Drawing sheet no.
No. du dessin

Client Acceptance / Acception du client
Signature _____ Date _____
File No./No. de dossier _____



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**Chadwick
Engineering Ltd.**

Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

GIMBAL PART DETAILS

Scale / Échelle

NOT TO SCALE

Drawn by/ Dessiné par

Date

Designed by/ Conçu par

Date

Checked by/ Vérifié par

Date

Approved by / Approuvé par

Date

Project No./No. du projet

Client No./No du Client

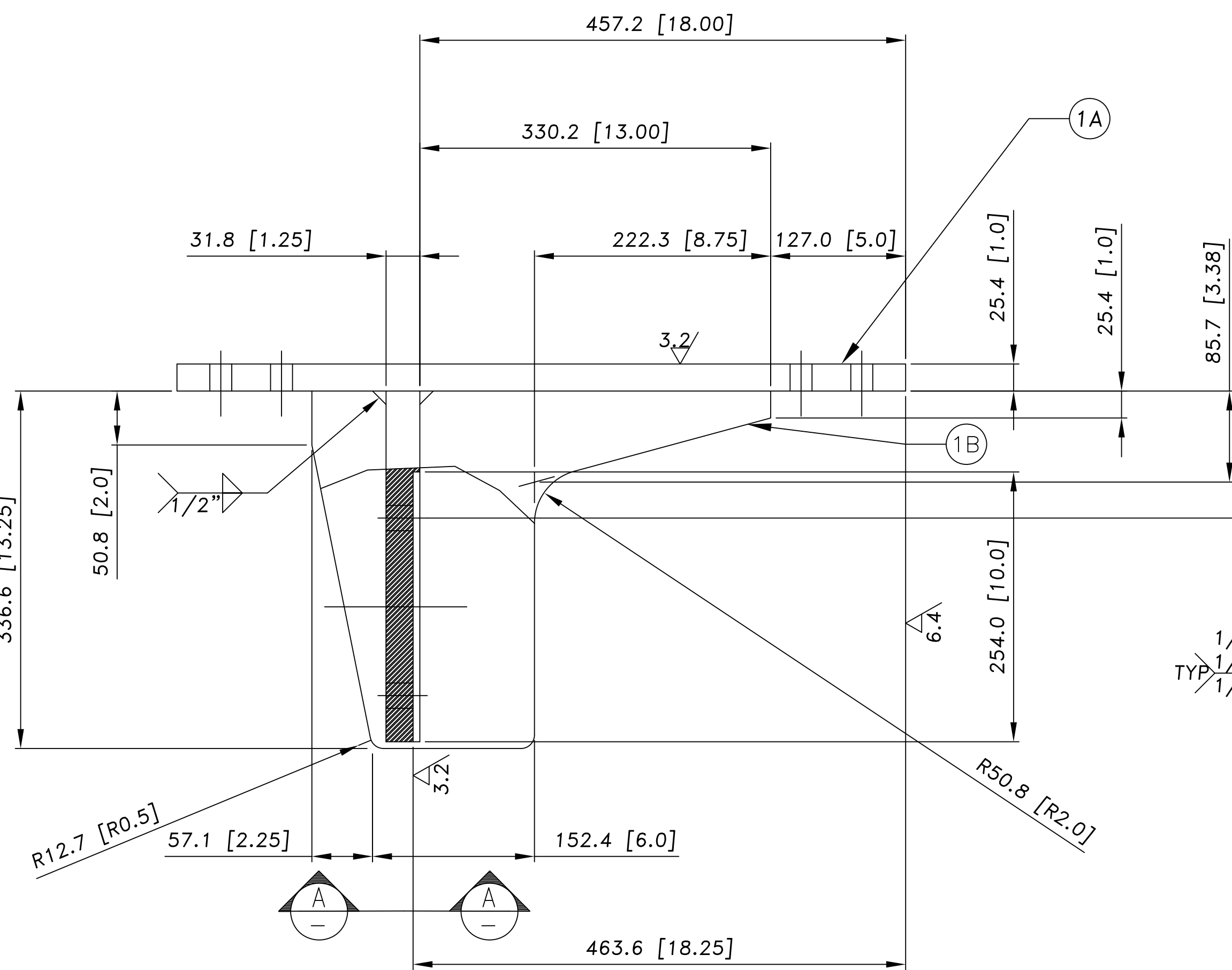
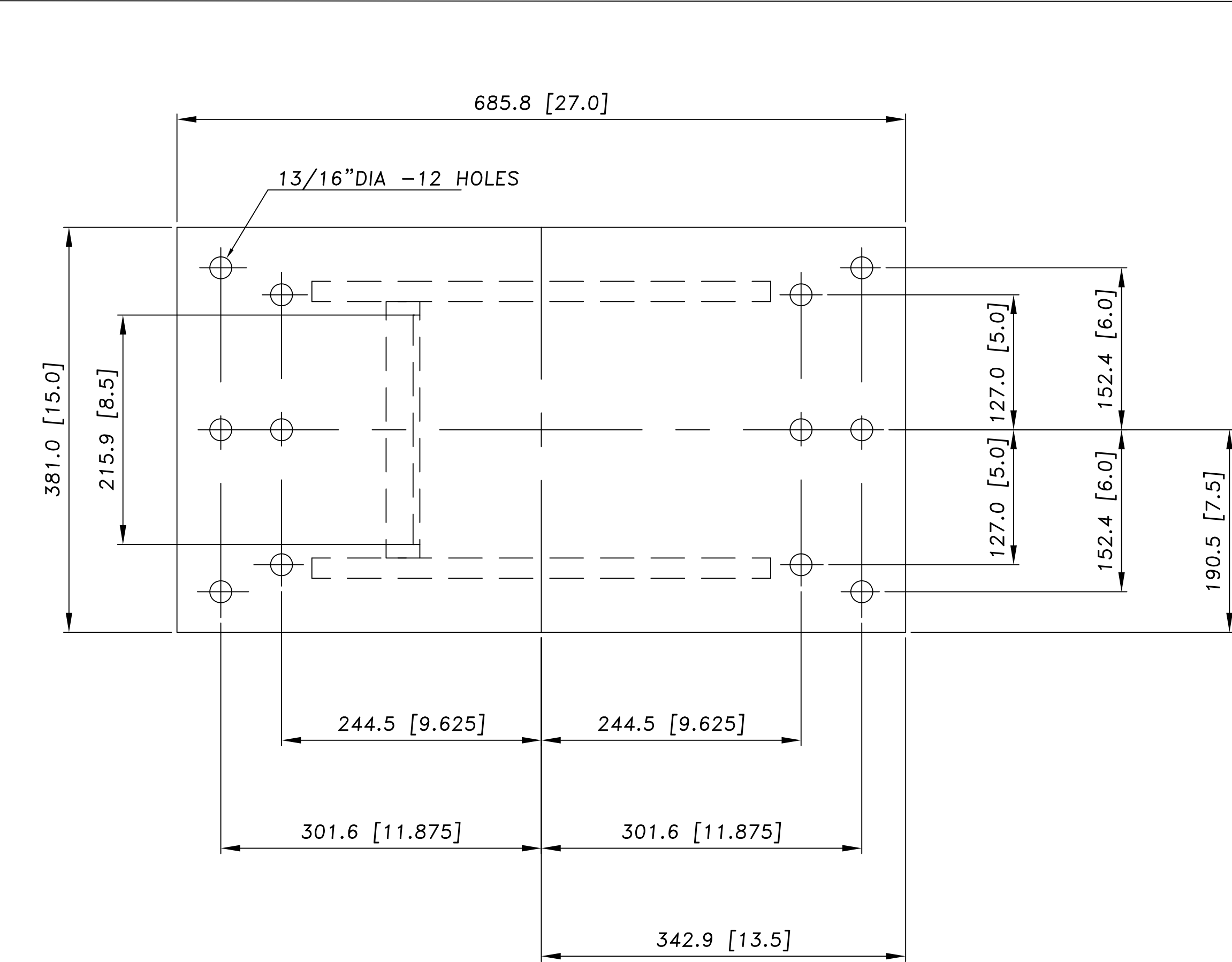
Sheet No./

Feuille No.

Drawing Reference No./Numéro de Référence du Dessin

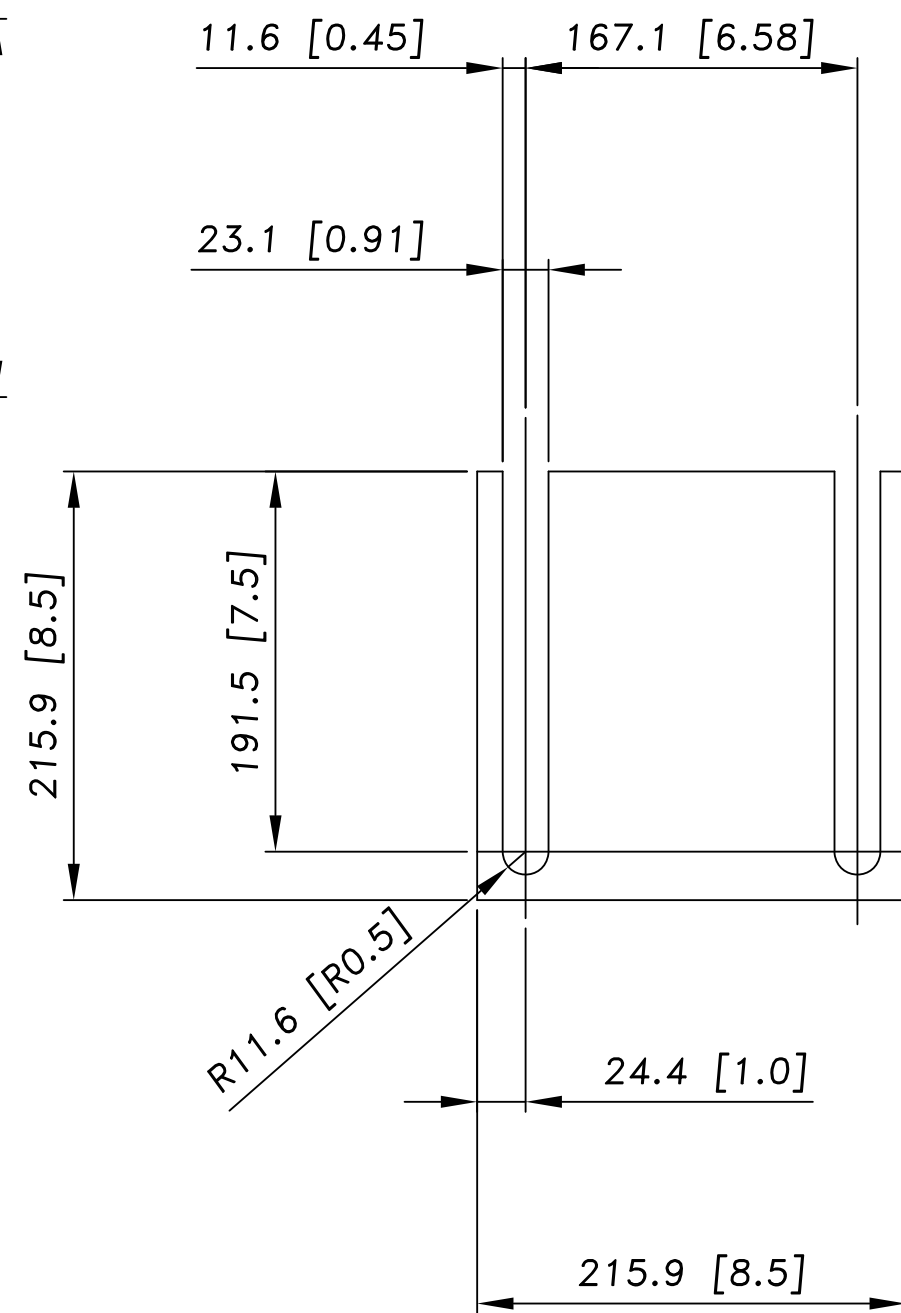
201

05

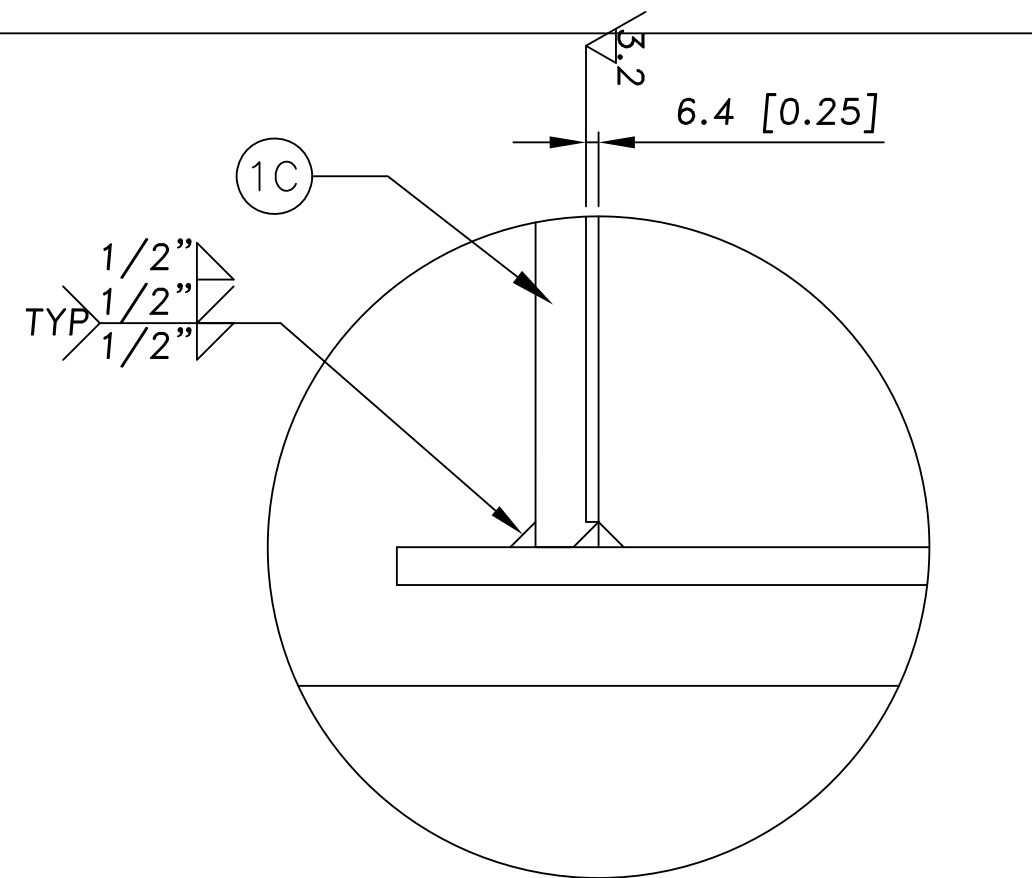


CYLINDER CLEVIS BRACKET ITEM ①
STEEL WELDED CONSTRUCTION

- NOTES:
1. ALL STEEL WORK TO BE THERMALLY STRESS RELIEVED, SAND BLASTED, PRIMED AND PAINTED AS PER CONTRACT PAINT SPECIFICATIONS.
 2. ALL WELDING AND THERMAL STRESS RELIEVING MUST CONFORM TO CSA W59 STANDARDS.
 3. ALL MACHINED SURFACES MUST BE COATED WITH LPS-3 OR EQUAL CORROSION INHIBITOR.

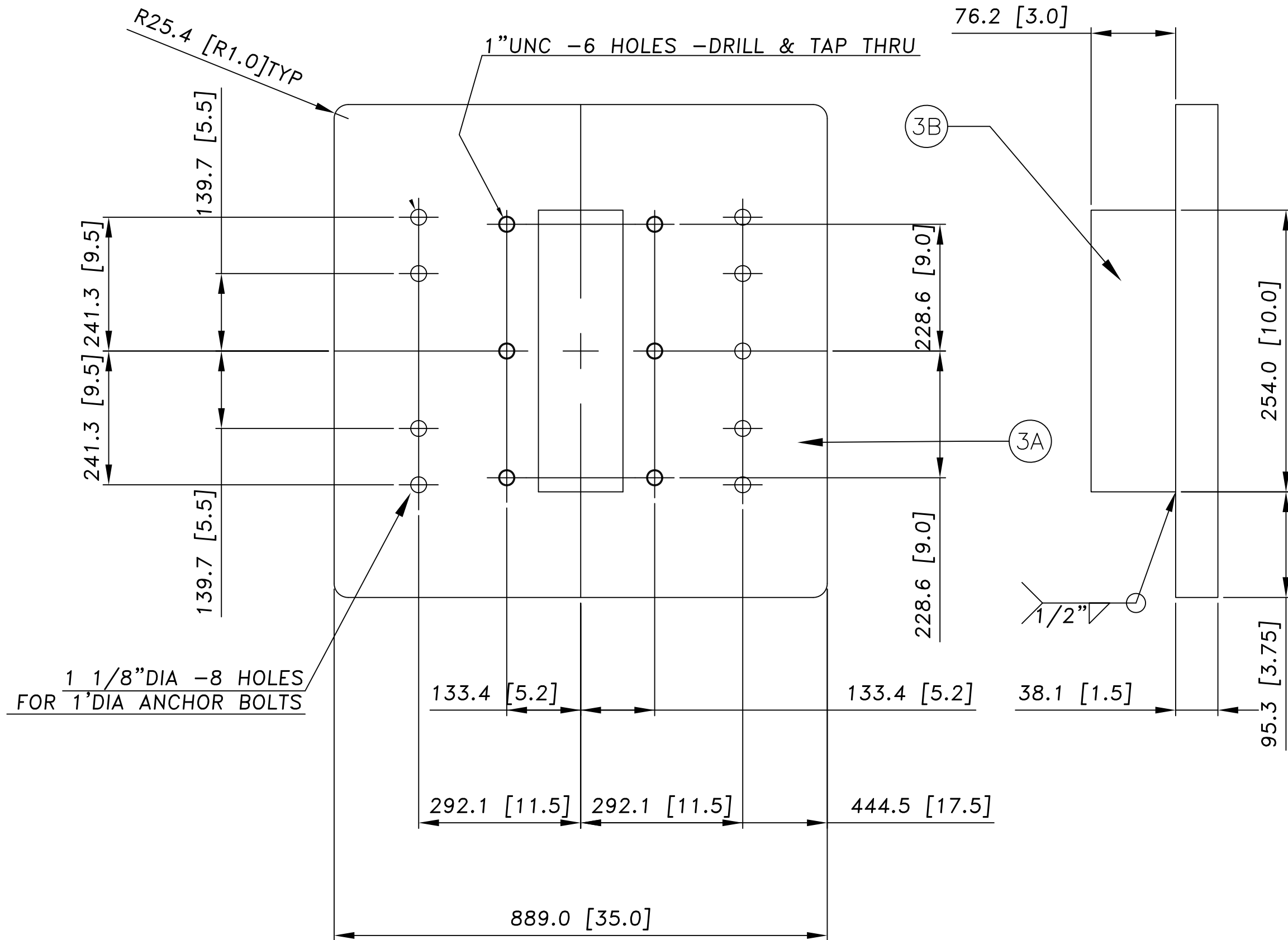


1/2" THICK SHIM PACK MADE UP OF:
1 - 1/4" THICK S.S.
1 - 1/8" THICK S.S.
2 - 1/16" THICK S.S.
CYLINDER CLEVIS SHIM PACK
ITEM ②

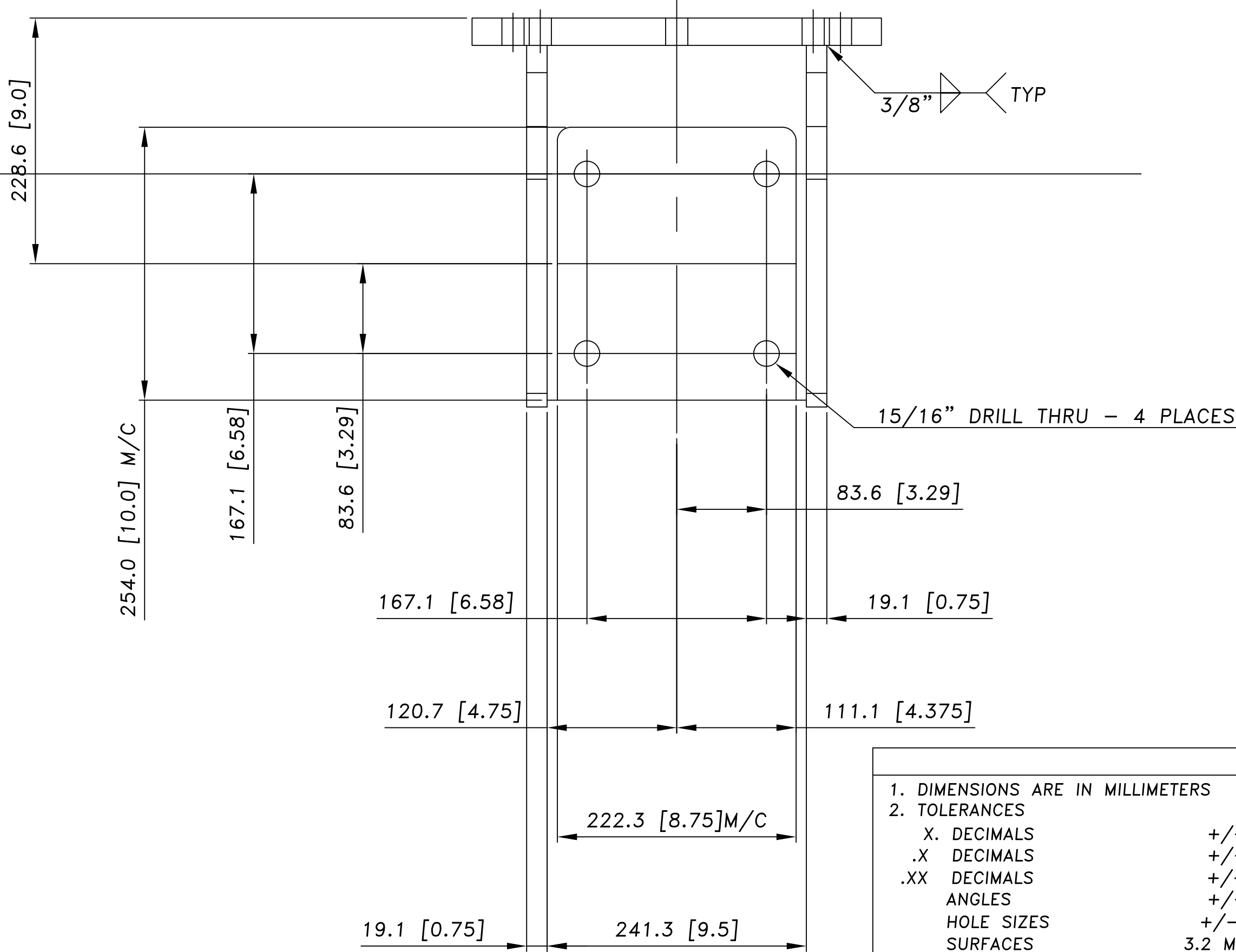


PARTIAL SECTION A-A

BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MATERIAL
1	2	CYLINDER CLEVIS BRACKET	
1A	1	PLATE 15" x 27" x 1-1/4" THK	CSA G40.21 -50W
1B	2	PLATE 13 1/4" x 17" x 3/4" THK	CSA G40.21 -50W
1C	1	PLATE 9 1/2" x 13 1/4" x 1-1/4" THK	CSA G40.21 -50W
2	2	CYLINDER CLEVIS SHIM PACK	316 S.S.
3	2	GIMBAL BASE PLATE	
3A	2	PLATE 35" x 35" x 1-1/2" THK	CSA G40.21 -50W
3B	2	RECT BAR 3" x 3" x 10" LG	CSA G40.21 -50W



GIMBAL ASSEMBLY BASE PLATE ITEM ③



1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES
- | | |
|--------------|----------------|
| X. DECIMALS | +/- 0.5 |
| .X DECIMALS | +/- 0.1 |
| .XX DECIMALS | +/- 0.05 |
| ANGLES | +/- 0.5 DEG |
| HOLE SIZES | +/- 1mm |
| SURFACES | 3.2 MICROMETER |



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
Revision / Révision				

A Detail number
No. du détail
B Location dwg. no.
No. sur dessin
C Drawing sheet no.
No. du dessin

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Canada



Chadwick
Engineering Ltd.

Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT-SEVERN WATERWAY
ONTARIO

Drawing title / Titre du dessin

CYLINDER CLEVIS BRACKET,
SHIM PACK & GIMBAL BASE

Scale / Échelle

NOT TO SCALE

Drawn by/ Dessiné par _____ Date _____

Designed by/ Conçu par _____ Date _____

Checked by/ Vérifié par _____ Date _____

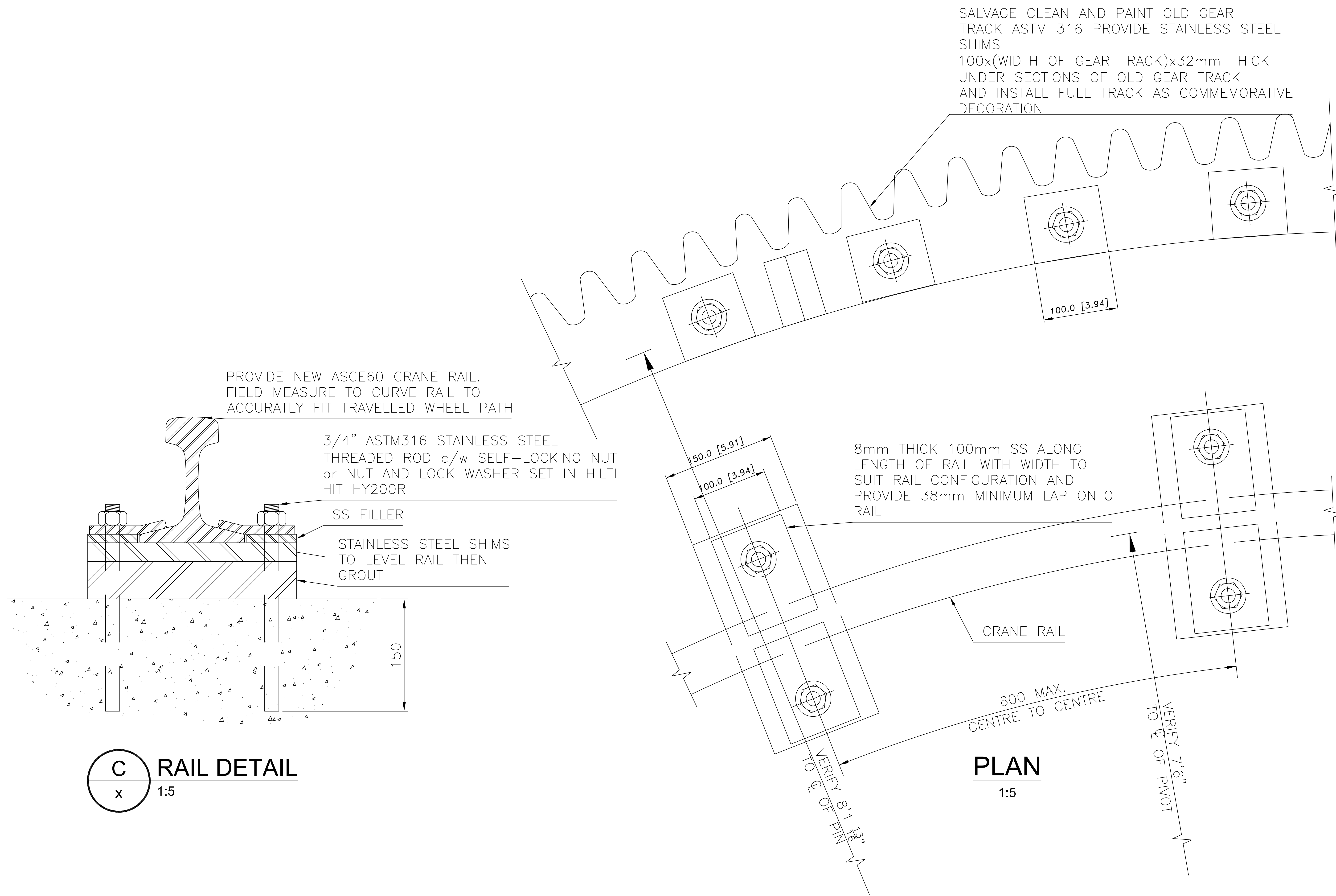
Approved by / Approuvé par _____ Date _____

DPC January 2019

Project No./No. du projet _____ Client No./No du Client _____ Sheet No./
Feuille No. _____

Drawing Reference No./Numéro de Référence du Dessin
201

06



C
x
RAIL DETAIL
1:5

1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	+/- 0.5
.X DECIMALS	+/- 0.1
.XX DECIMALS	+/- 0.05
ANGLES	+/- 0.5 DEG
HOLE SIZES	+/- 1mm
SURFACES	3.2 MICROMETER



01	2022/07/15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessine par	Approved Approuvé
Revision / Révision				
A	A Detail number No. du détail			A
B	B Location dwg. no. No. sur dessin			B C
C	C Drawing sheet no. No. du dessin			
Client Acceptance / Acceptation du client				
Signature _____			Date _____	
File No./No. de dossier _____				

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Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE REHABILITATION

TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

RAIL (BALANCE WHEEL) INSTALLATION

Scale / Échelle

NOT TO SCALE

Drawn by/ Dessiné par _____ Date _____

Designed by/ Conçu par _____ Date _____

Checked by/ Vérifié par _____ Date _____

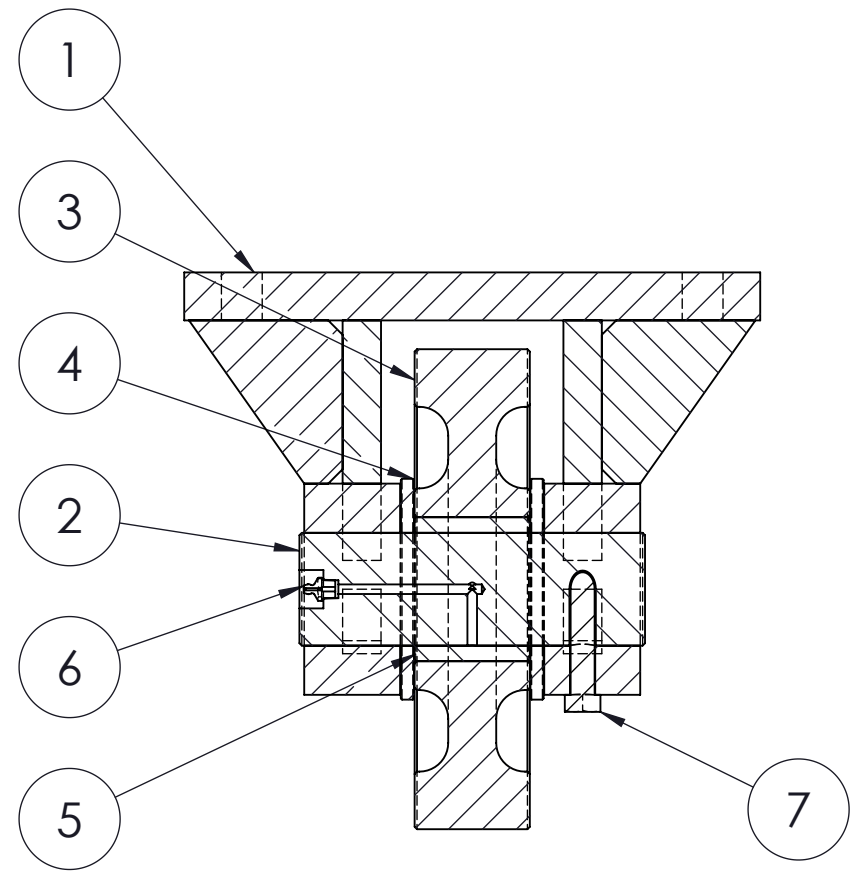
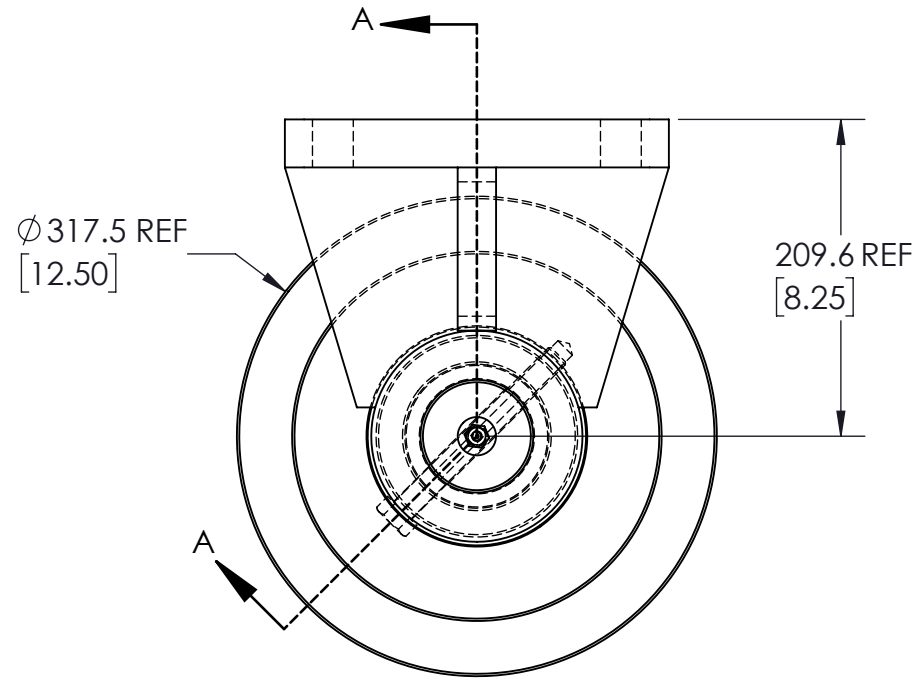
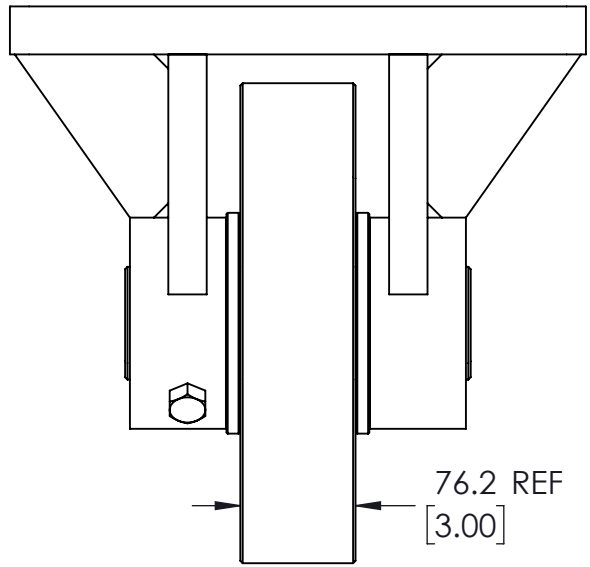
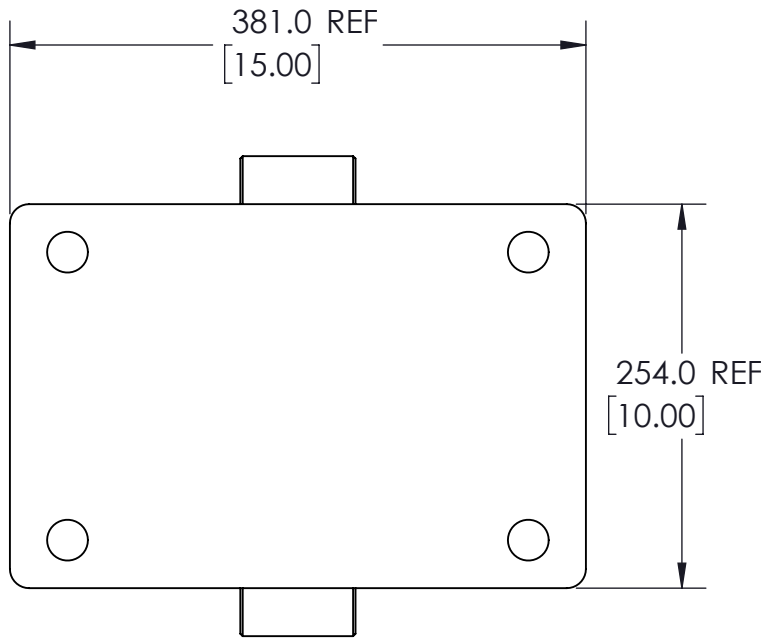
Approved by / Approuvé par _____ Date _____

DPC

January 2019

Project No./No. du projet	Client No./No. du Client	Sheet No./ Feuille No.
		202

202

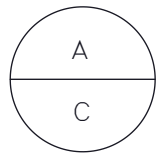


SECTION A-A
APPLY LOCTITE 243(BLUE)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SPEC
1	1	202-03-01	BRACKET	
2	1	202-03-02	SHAFT	
3	1	202-03-03	WHEEL	
4	2	202-03-04	THRUST WASHER	
5	1	202-03-05	BUSHING	
6	1	McMASTER-CARR #1293K32	303 STAINLESS STEEL GREASE FITTING STRAIGHT, 1/4 PTF MALE, 53/64" OVERALL LENGTH	
7	1		HEX HEAD CAP SCREW 5/8-11 UNC x 5.75" LG. PARTIAL THREAD	GR. 5 SAE J429



01	2022-07-15	ISSUED FOR TENDER	DAF	
No.	Date	Description	Drawn By Desine par	Approved Approuve
REVISION / REVISION				



A Detail number
No. du détail
B Location dwg. no.
No. sur dessin
C Drawing sheet no.
No. du dessin

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Parks
Canada



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Chadwick
Engineering Ltd.
www.chadwickengineering.com

Project title / Titre du projet

BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

BALANCE WHEEL ASSEMBLY

Scale / Echelle
1:5

Drawn by/ Dessiné par
DAF Date
2019-09-03

Designed by/ Conçu par
DAF Date
2019-09-03

Checked by/ Vérifié par
DAF Date
2020-03-06

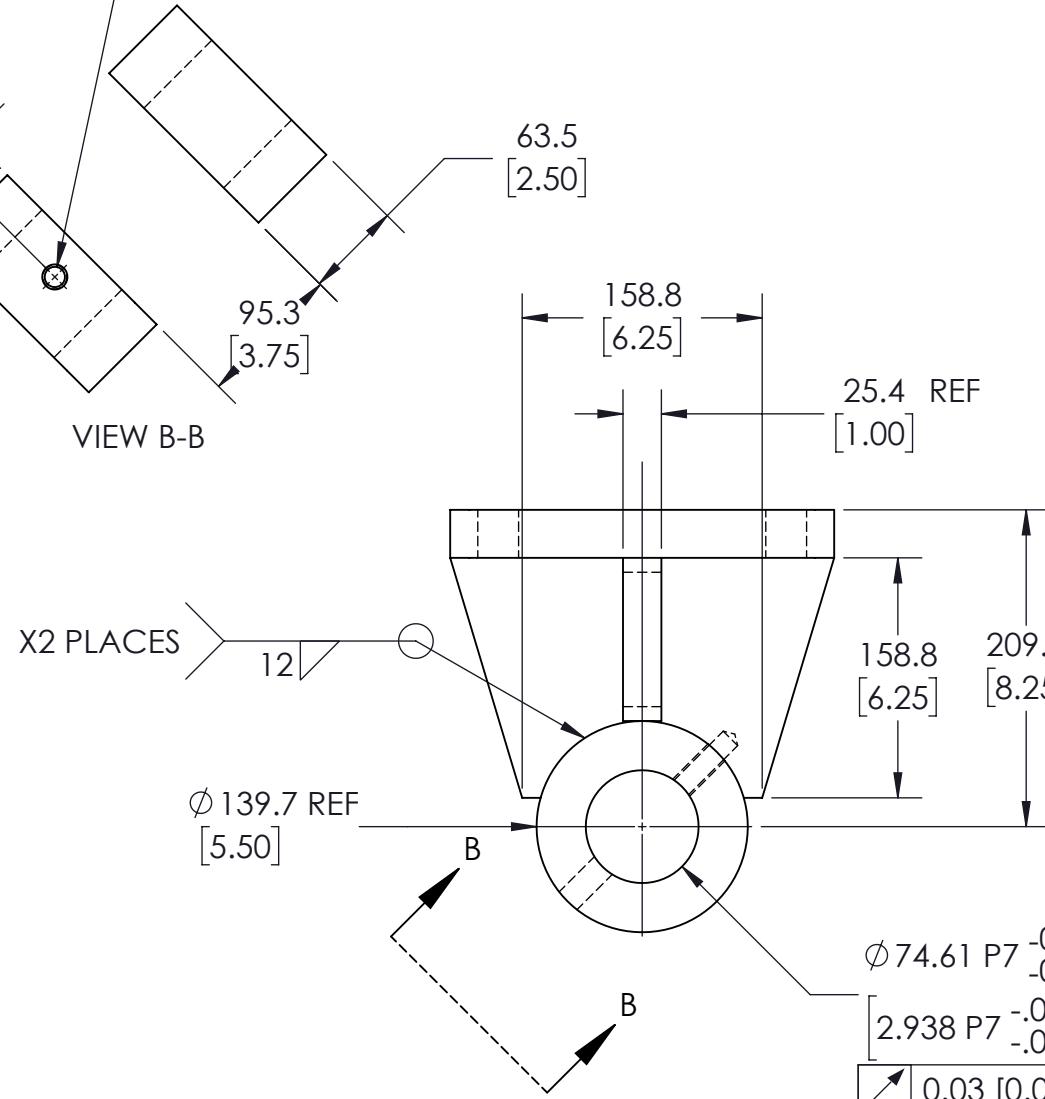
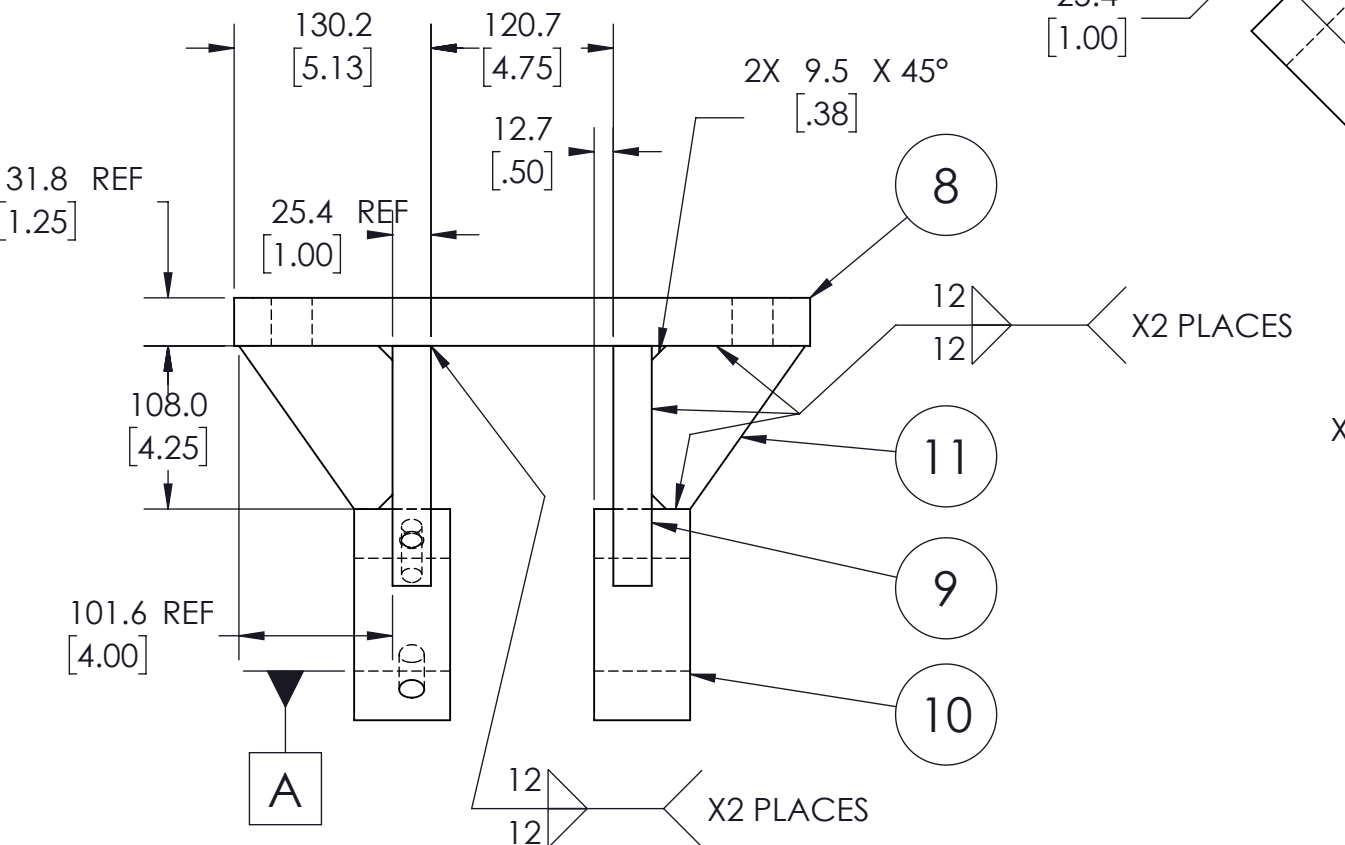
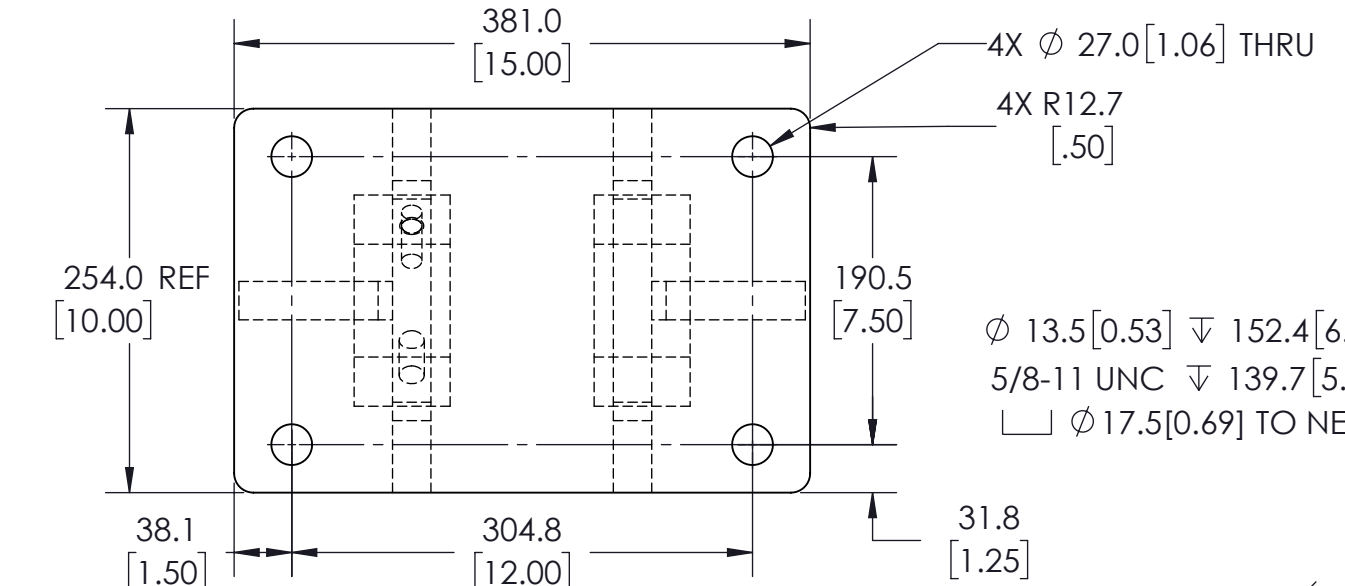
Approved by / Approuvé par
DPC Date
2019-09-19

Project No./No. du projet Client No./No du Client Sheet No./
Feuille No.

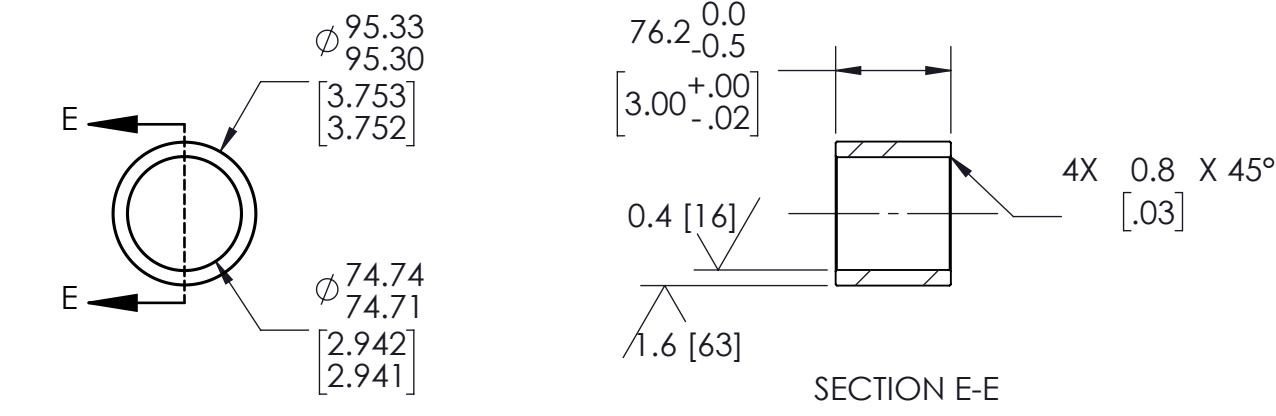
Drawing Reference No./Numéro de Référence du Dessin
202 03

ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH (MM)
8	1	HOT ROLLED FLAT BAR 31.8 X 254 [1.25" X 10"]	CSA G40.21 44W / 300W	381
9	1	HOT ROLLED FLAT BAR 25.4 X 254 [1" X 10"]	CSA G40.21 44W / 300W	158.75
10	1	HOT ROLLED ROUND BAR 139.7 [5.5"]	CSA G40.21 44W / 300W	63.5
11	2	HOT ROLLED FLAT BAR 25.4 X 101.6 [1" X 4"]	CSA G40.21 44W / 300W	107.95
12	1	HOT ROLLED ROUND BAR 139.7 [5.5"]	CSA G40.21 44W / 300W	63.5
13	1	HOT ROLLED FLAT BAR 25.4 X 254 [1" X 10"]	CSA G40.21 44W / 300W	158.75

202-03-01 - BRACKET
MATERIAL: CSA G40.21 44W / 300W



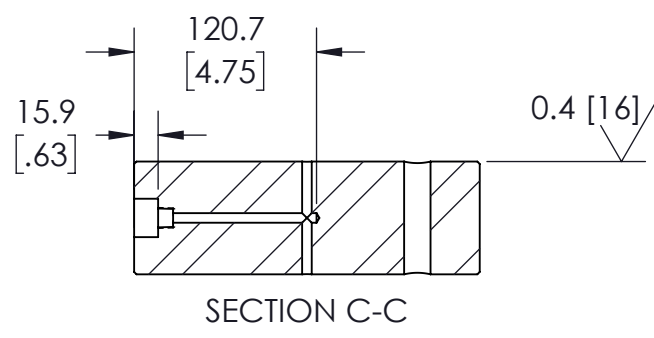
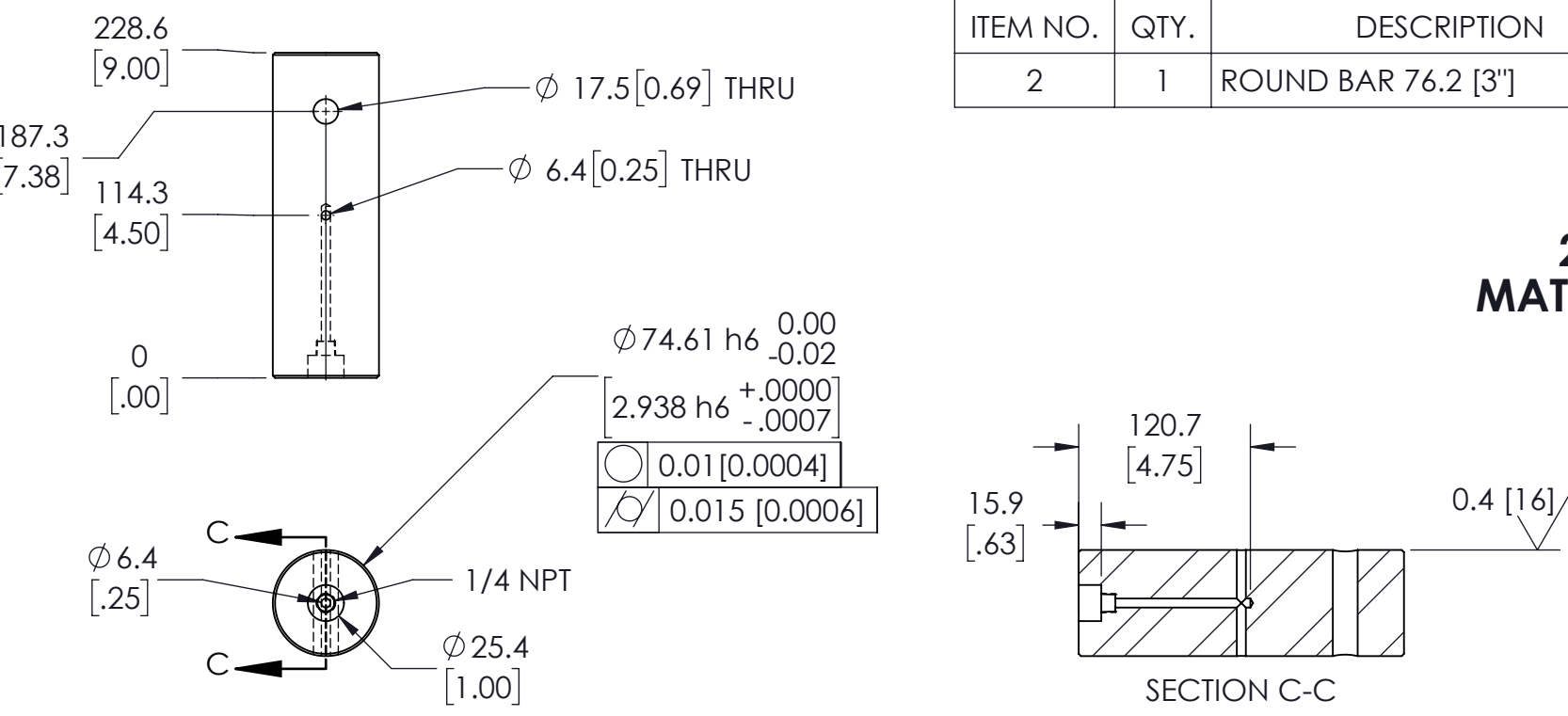
ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH (MM)
5	1	ROUND BAR 101.6 [4"]	AMPCO 18	82



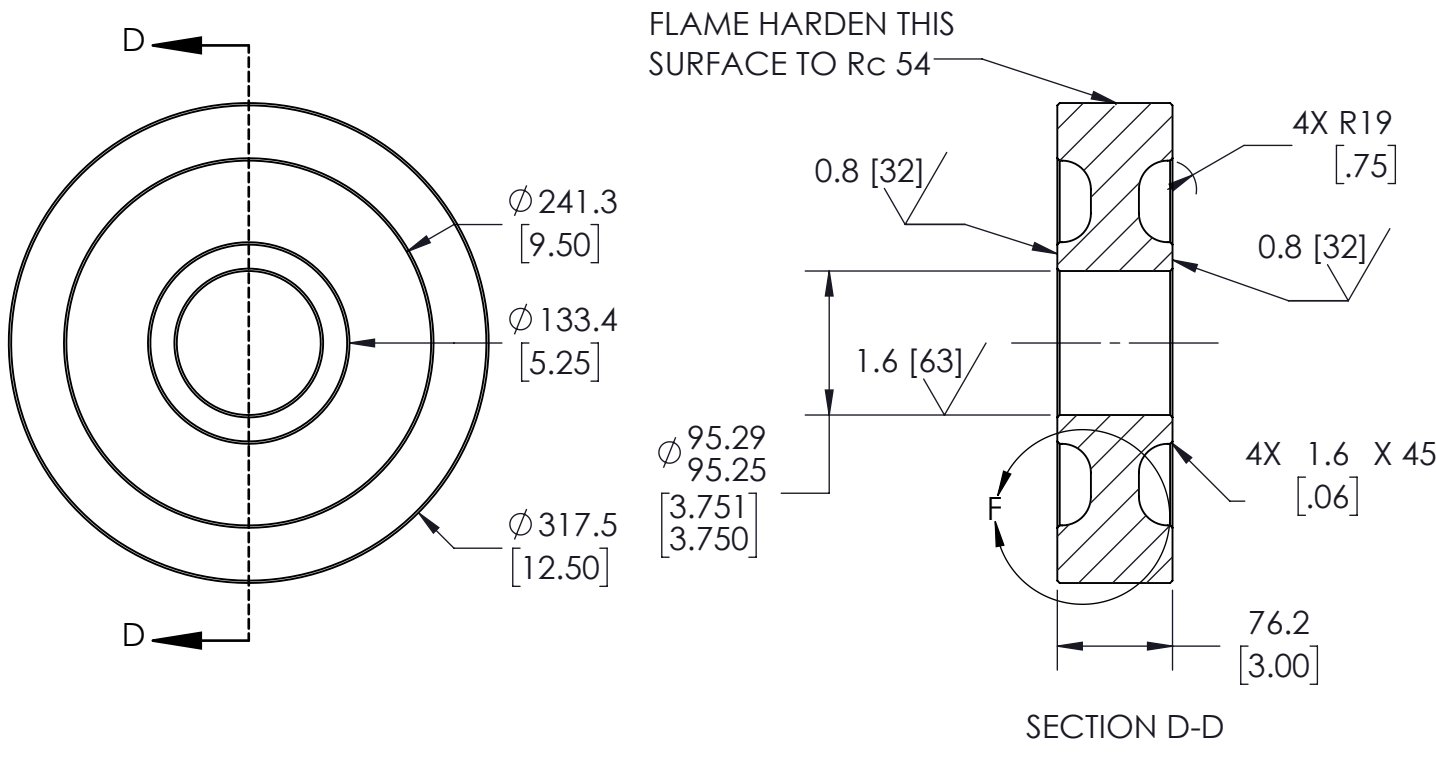
202-03-05 - BUSHING
MATERIAL: AMPCO 18

ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH (MM)
2	1	ROUND BAR 76.2 [3"]	AISI 630 C1150	235

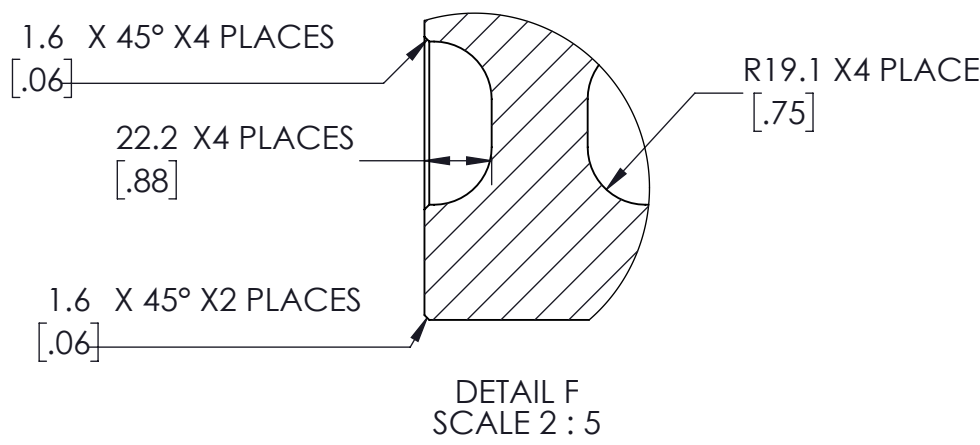
202-03-02 - SHAFT
MATERIAL: AISI 630 C1150



ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH (MM)
3	1	HOT ROLLED ROUND BAR 330.2 [13"]	AISI 4140	85

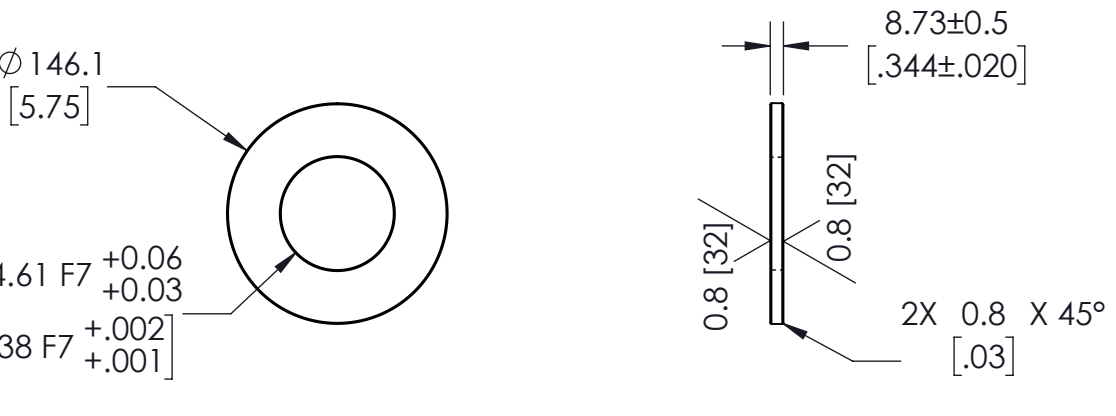


202-03-03 - WHEEL
MATERIAL: AISI 4140
FINISH: COAT ALL EXPOSED SURFACES
WITH LPS-3 OR EQUIVALENT



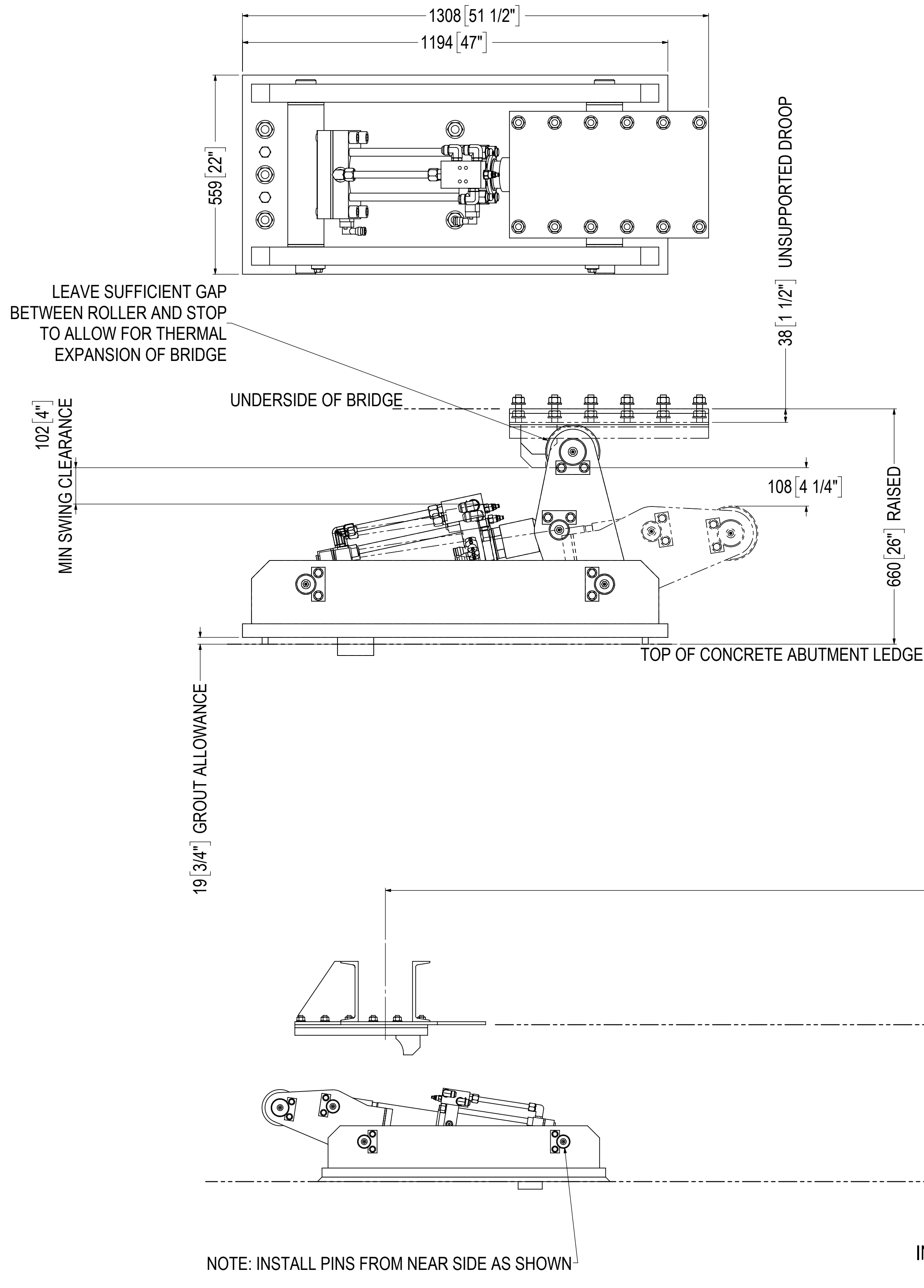
1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES
.X DECIMALS ± 0.5
.XX DECIMALS ± 0.1
.XXX DECIMALS ± 0.05
ANGLES ± 0.5 DEG
HOLE SIZES ± 1mm
SURFACES 3.2 MICROMETER

ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH (MM)
4	1	ROUND BAR 152.4 [6"]	AMPCO 18	15

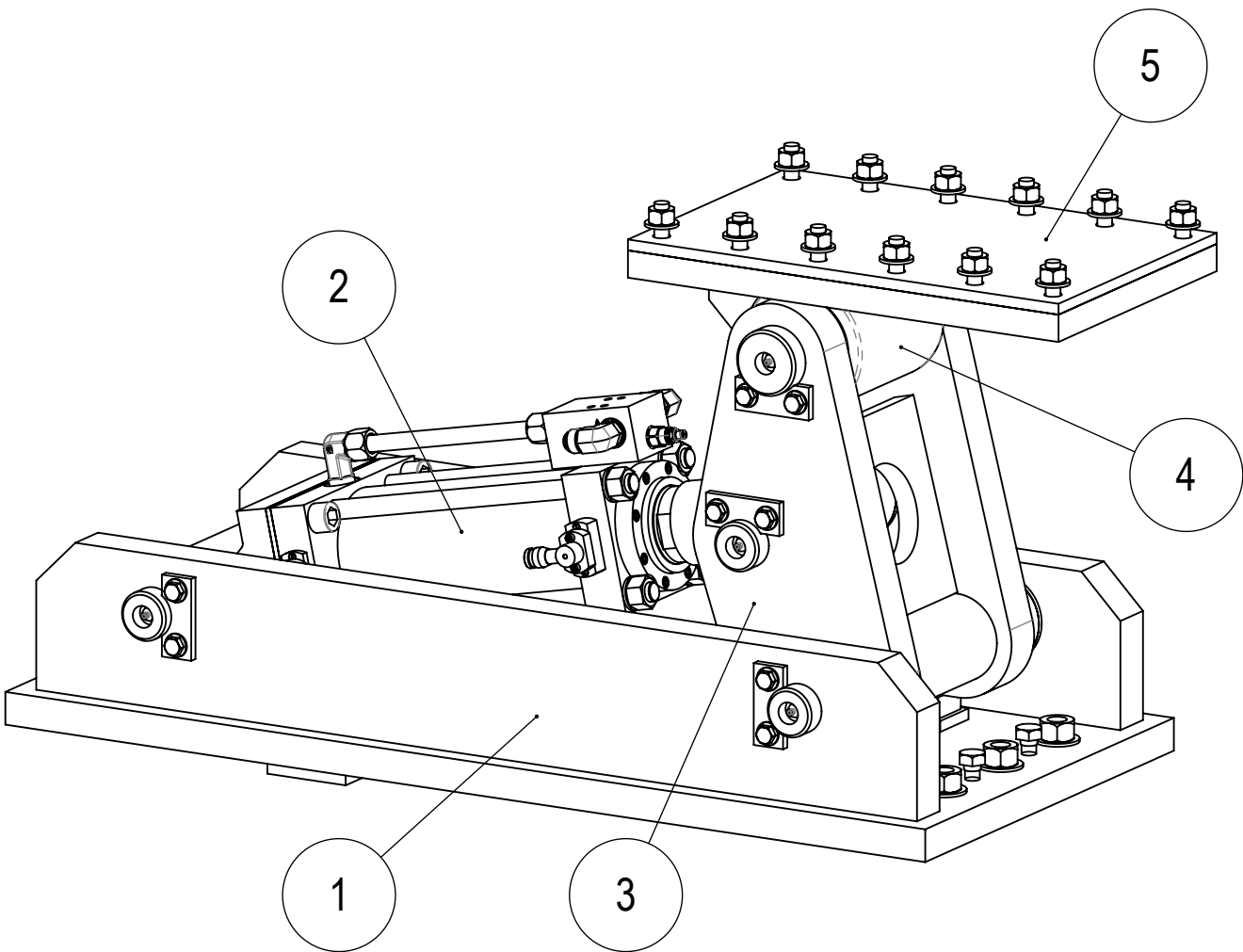


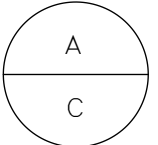
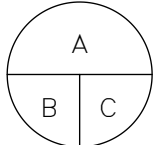
202-03-04 - THRUST WASHER
MATERIAL: AMPCO 18

PART NUMBER: 203-01
DESCRIPTION: LIFT ASSEMBLY
QUANTITY: 2



BILL OF MATERIALS			
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	203-02	BASE ASSEMBLY
2	1	203-03	CYLINDER ASSEMBLY
3	1	203-04	PIVOT ARM ASSEMBLY
4	1	203-05	ROLLER ASSEMBLY
5	1	203-06	ROLLER PLATE ASSEMBLY



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				
		A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin		
Client Acceptance / Acceptation du client				
Signature _____			Date _____	
File No./No. de dossier _____				



Canada



Project title / Titre du projet
BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

ONTARIO

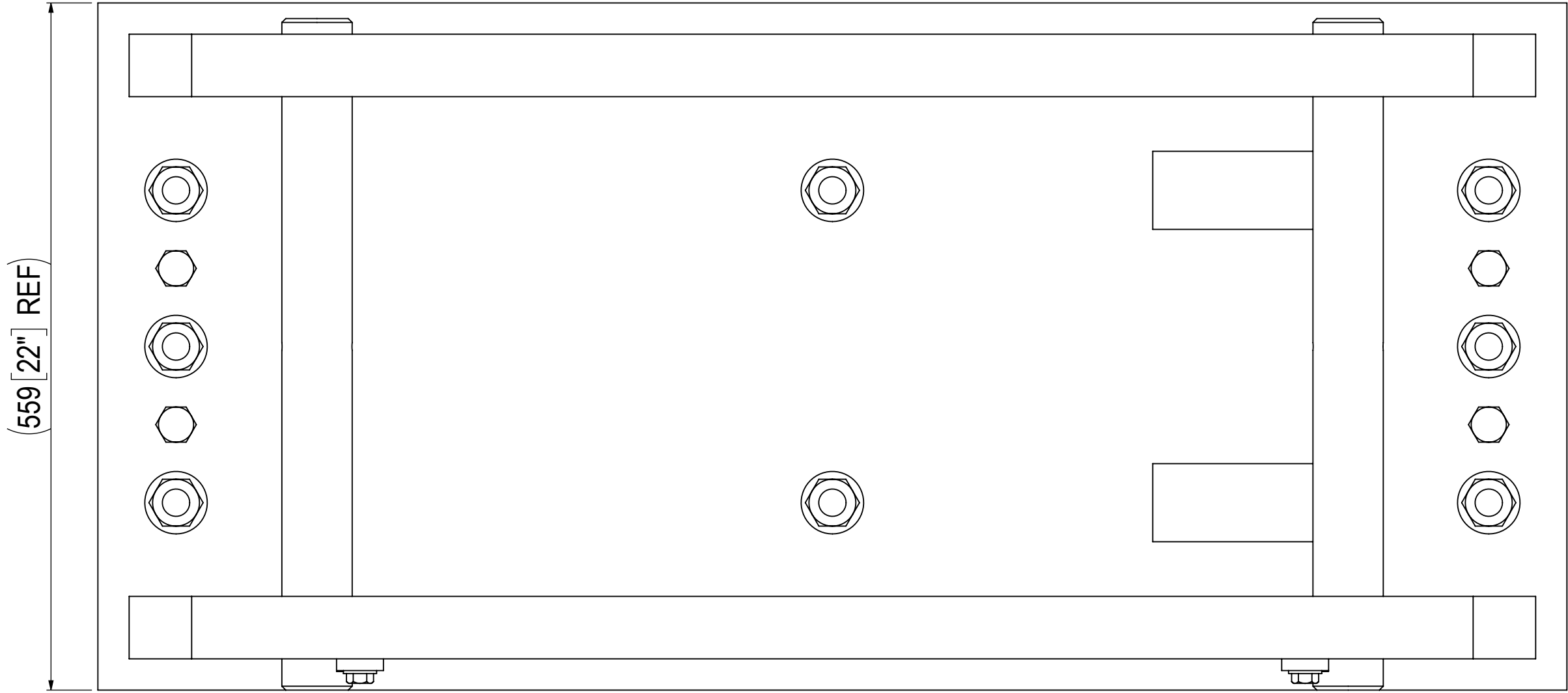
Drawing title / Titre du dessin
LIFT ASSEMBLY

Scale / Echelle 1:8		
Drawn by/ Dessiné par M_D	Date 2019-01-14	
Designed by/ Conçu par M_D	Date 2019-01-07	
Checked by/ Vérifié par DPC	Date 2019-01-28	
Approved by / Approuvé par DPC	Date 2019-01-28	
Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No. 01
Drawing Reference No./Numéro de Référence du Dessin 203		

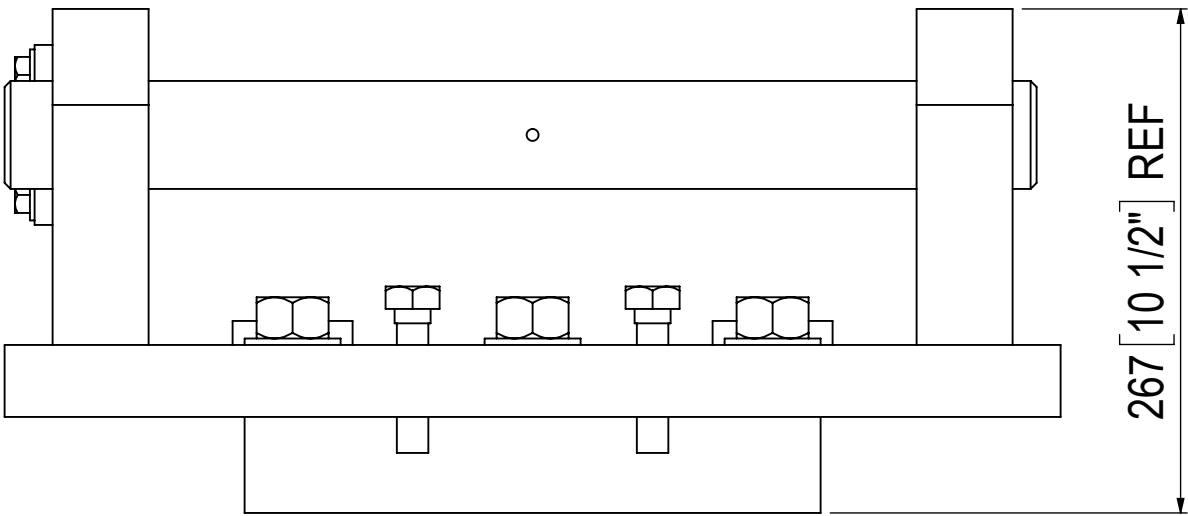
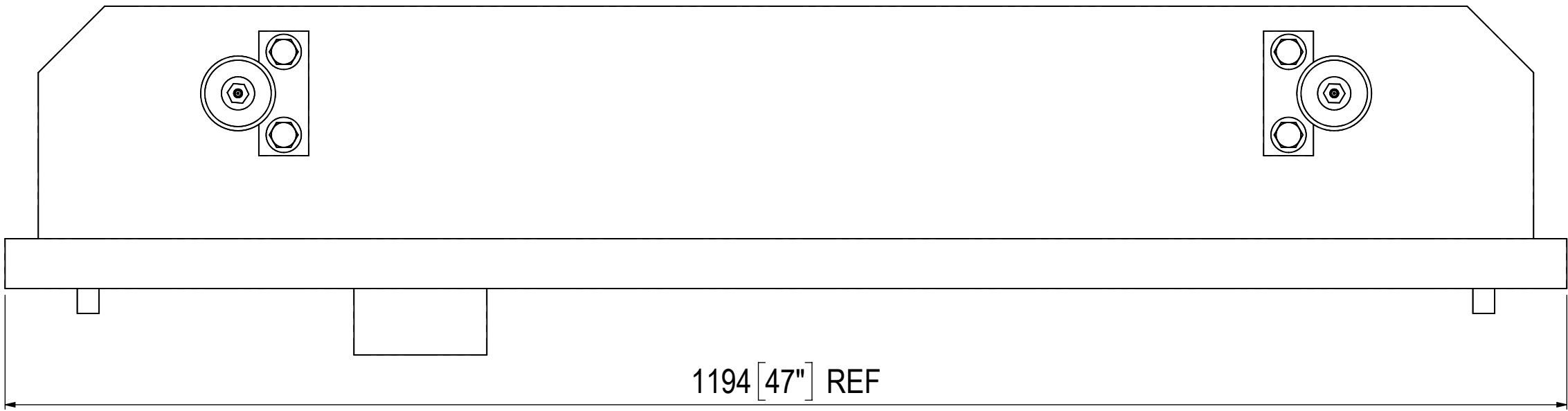
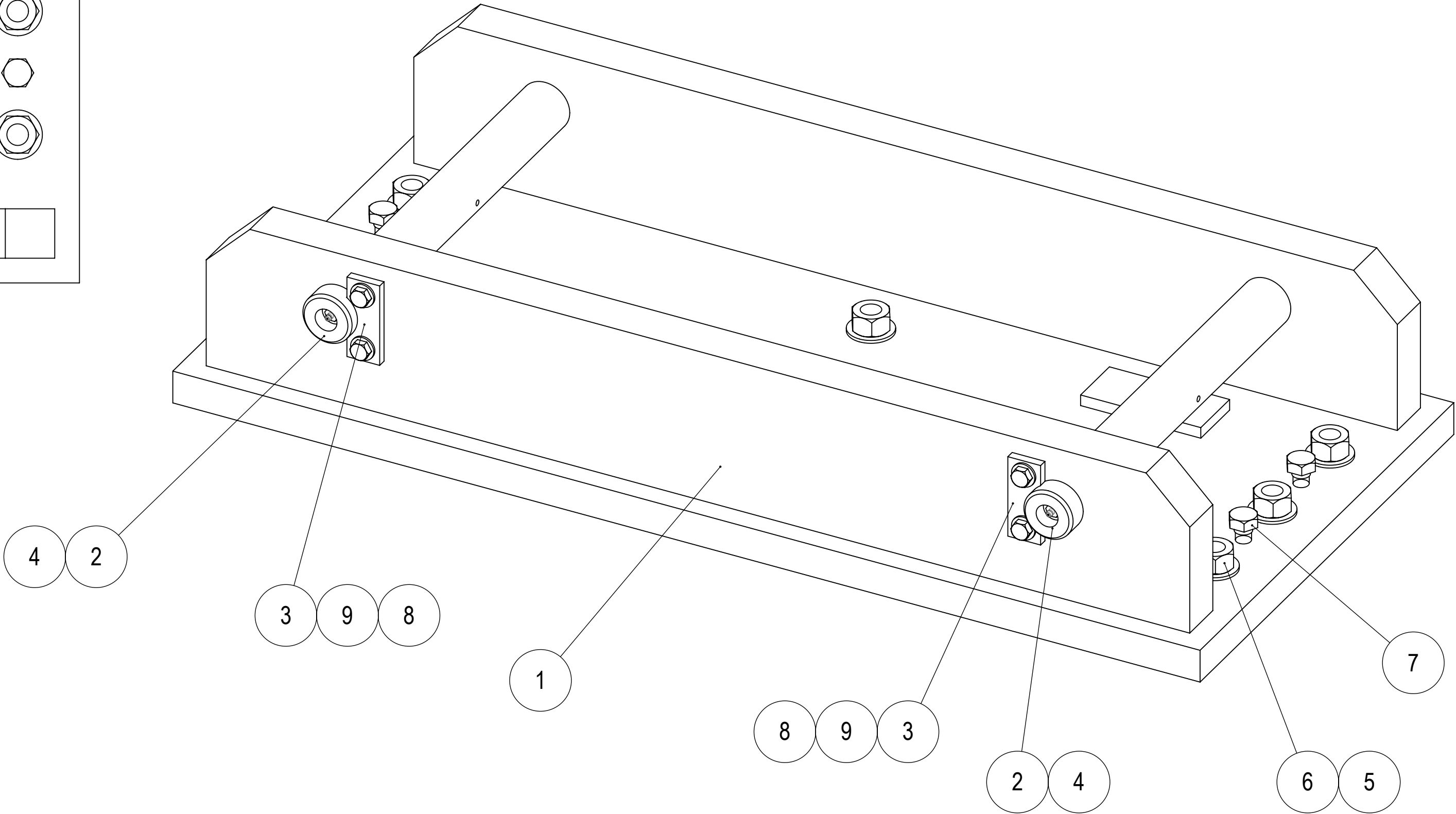
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.X DECIMALS	± 0.5	
.X DECIMALS	± 0.1	
.XX DECIMALS	± 0.05	
ANGLES	± 0.5 DEG	
HOLE SIZES	± 1mm	
SURFACES	3.2 MICROMETER	

NOTE: ALL DIMENSIONS ARE REFERENCE ONLY

PART NUMBER: 203-02
DESCRIPTION: BASE ASSEMBLY
QUANTITY: 2

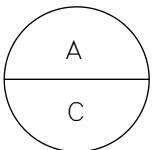
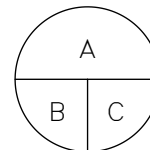


BILL OF MATERIALS			
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	203-07	BASE
2	2	203-08	PIVOT SHAFT
3	2	203-09	
4	2	MCMaster-CARR P/N 1293K32	GREASE FITTING, 303 SS
5	8	1"	SAE FLAT WASHER, 316 SS
6	8	1"-8	HEX NUT, 316 SS
7	4	3/4"-10 UNC X 3" LG	HEX HEAD CAP SCREW, 316 SS
8	4	1/2"	SAE FLAT WASHER, 316 SS
9	4	1/2"-13 UNC X 1 1/4" LG	HEX HEAD CAP SCREW, 316 SS



1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES
.X DECIMALS ± 0.5
.XX DECIMALS ± 0.1
.XXX DECIMALS ± 0.05
ANGLES ± 0.5 DEG
HOLE SIZES ± 1mm
SURFACES 3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				
		A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin		
Client Acceptance / Acceptation du client				
Signature _____			Date	_____
File No./No. de dossier _____				



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Project title / Titre du projet
**BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY**

ONTARIO

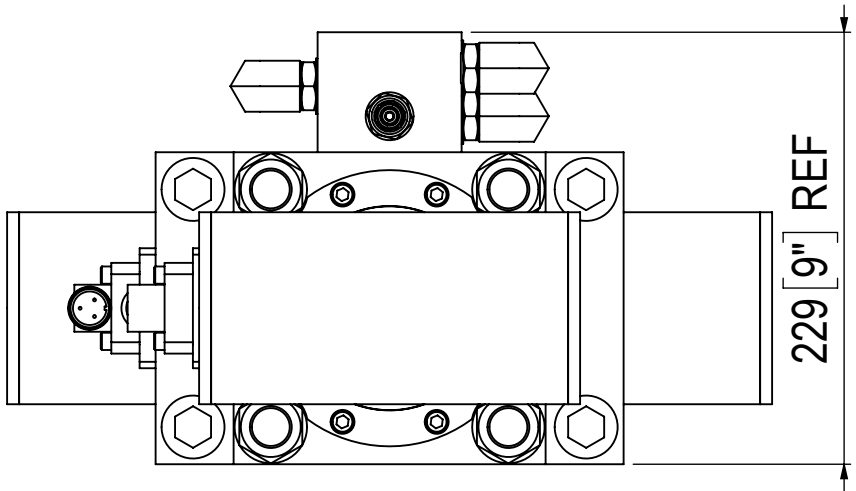
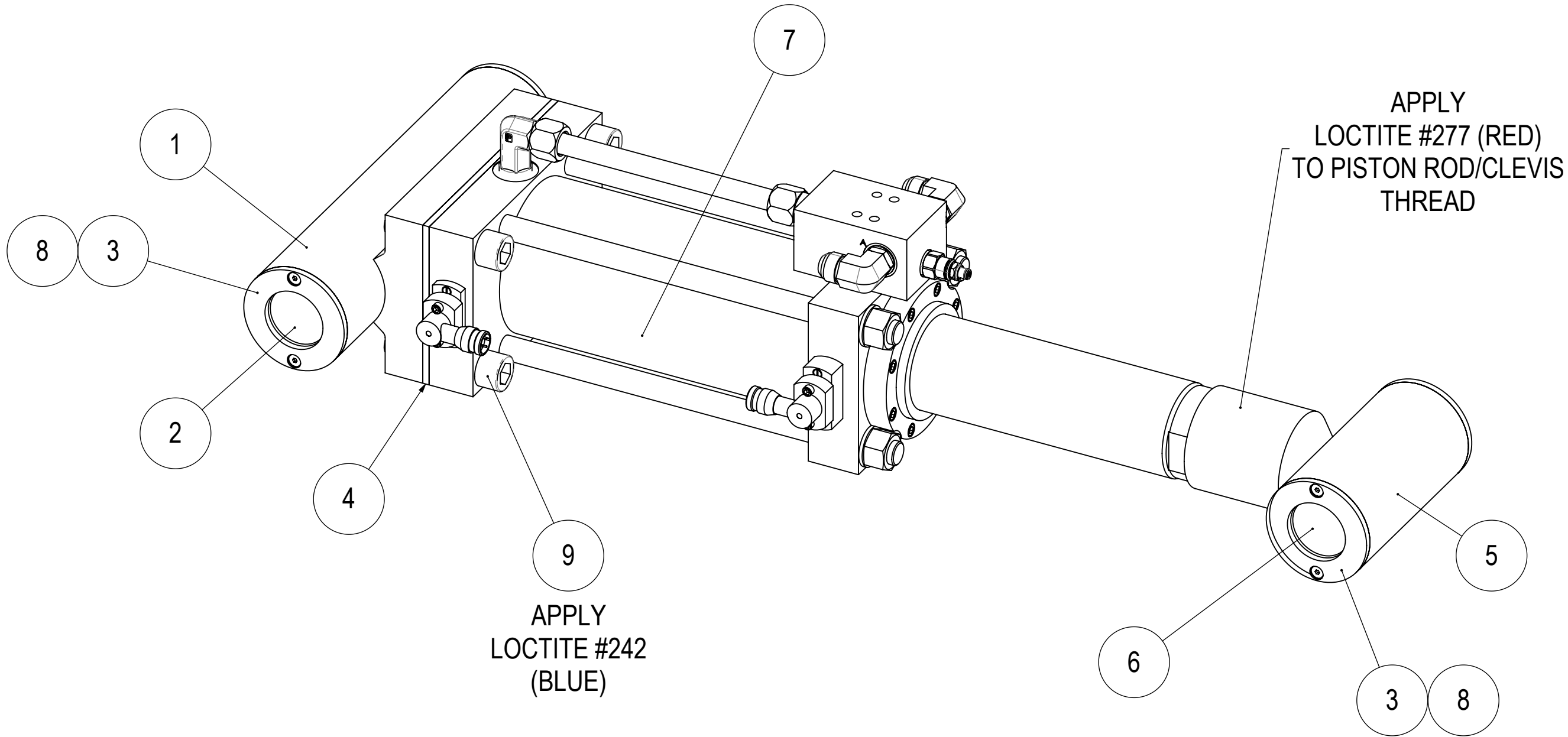
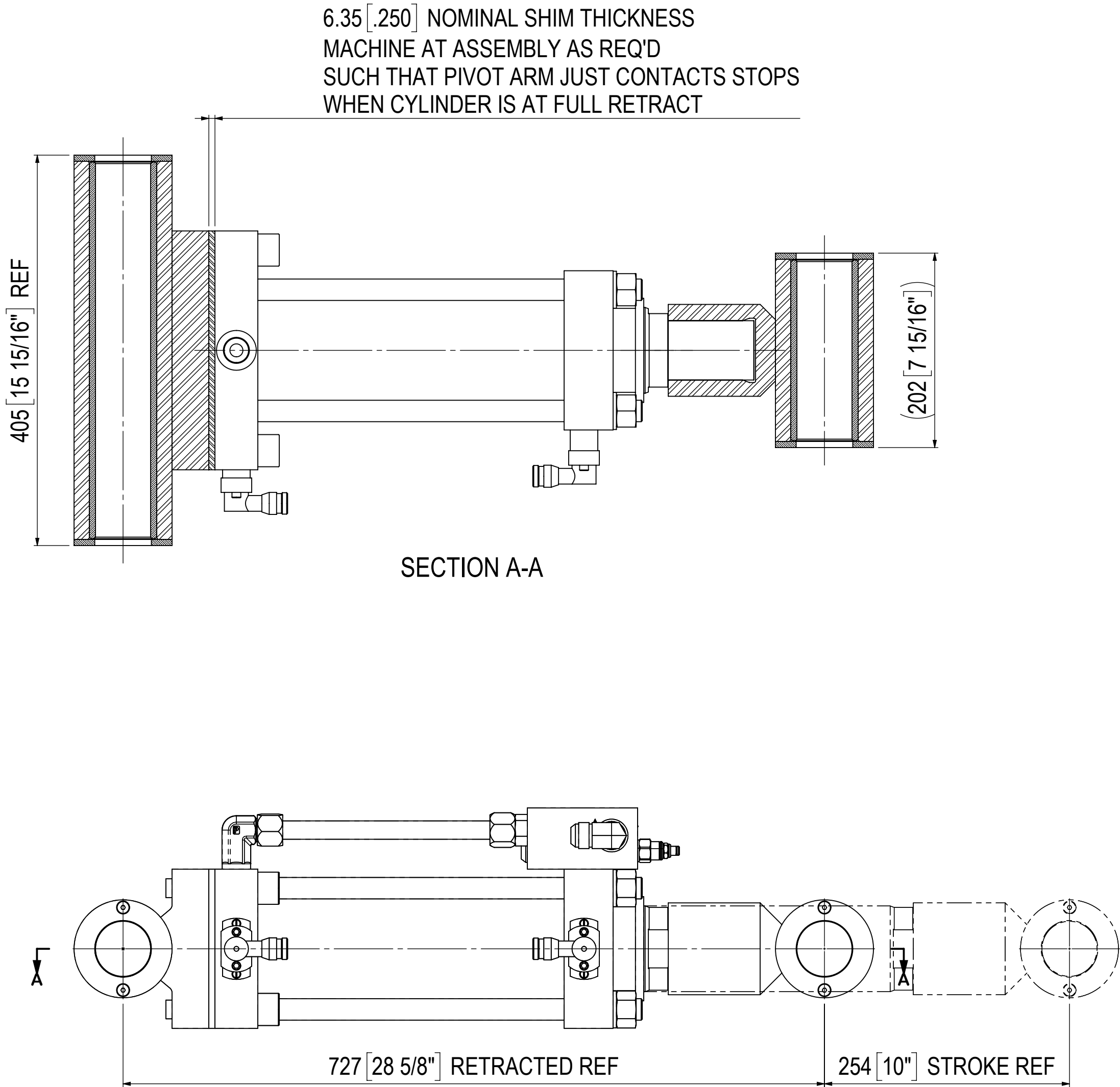
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BASE ASSEMBLY

Scale / Echelle 1:4	
Drawn by/ Dessiné par M_D	Date 2019-01-14
Designed by/ Conçu par M_D	Date 2019-01-07
Checked by/ Vérifié par DPC	Date 2019-01-21
Approved by / Approuvé par DPC	Date 2019-01-21

Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No. 02
Drawing Reference No./Numéro de Référence du Dessin 203		

PART NUMBER: 203-03
DESCRIPTION: CYLINDER ASSEMBLY
QUANTITY: 2

BILL OF MATERIALS			
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	203-10	
2	1	203-11	
3	4	203-12	
4	1	203-13	
5	1	203-14	
6	1	203-15	
7	1	203-16	
8	8	1/2"-13 UNC X 1 1/2" LG	FLAT HEAD CAP SCREW, 316 SS
9	4	7/8"-9 UNC X 3 3/4" LG	SOCKET HEAD CAP SCREW, STEEL, GR. 8, ZINC PL



1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X. DECIMALS	± 0.5
.X DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER

01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				
A Detail number No. du détail		A		
B Location dwg. no. No. sur dessin		B C		
C Drawing sheet no. No. du dessin				
Client Acceptance / Acceptation du client				
Signature		Date		
File No./No. de dossier				

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TRENT-SEVERN WATERWAY

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CYLINDER ASSEMBLY

Scale / Echelle

1:4

Drawn by/ Dessiné par

M_D

Date

2019-01-14

Designed by/ Conçu par

M_D

Date

2019-01-07

Checked by/ Vérifié par

DPC

Date

2019-01-21

Approved by / Approuvé par

DPC

Date

2019-01-21

Project No./No. du projet

Client No./No du Client

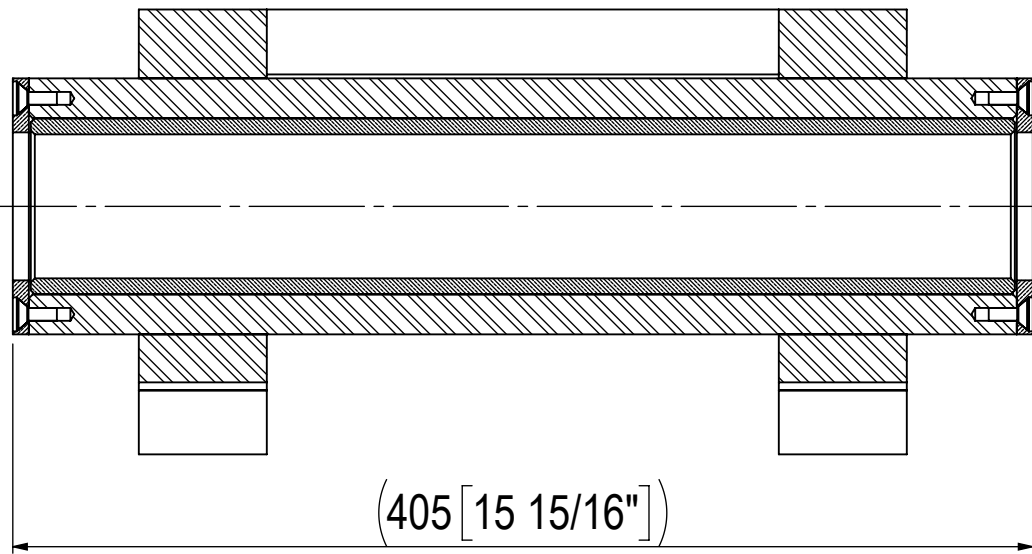
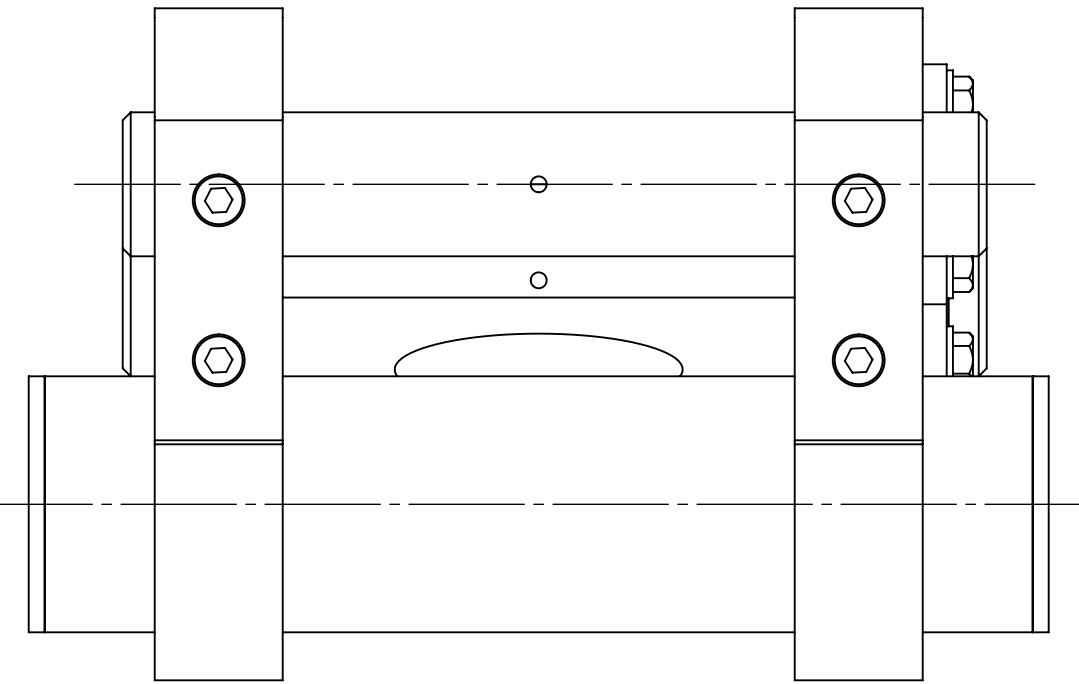
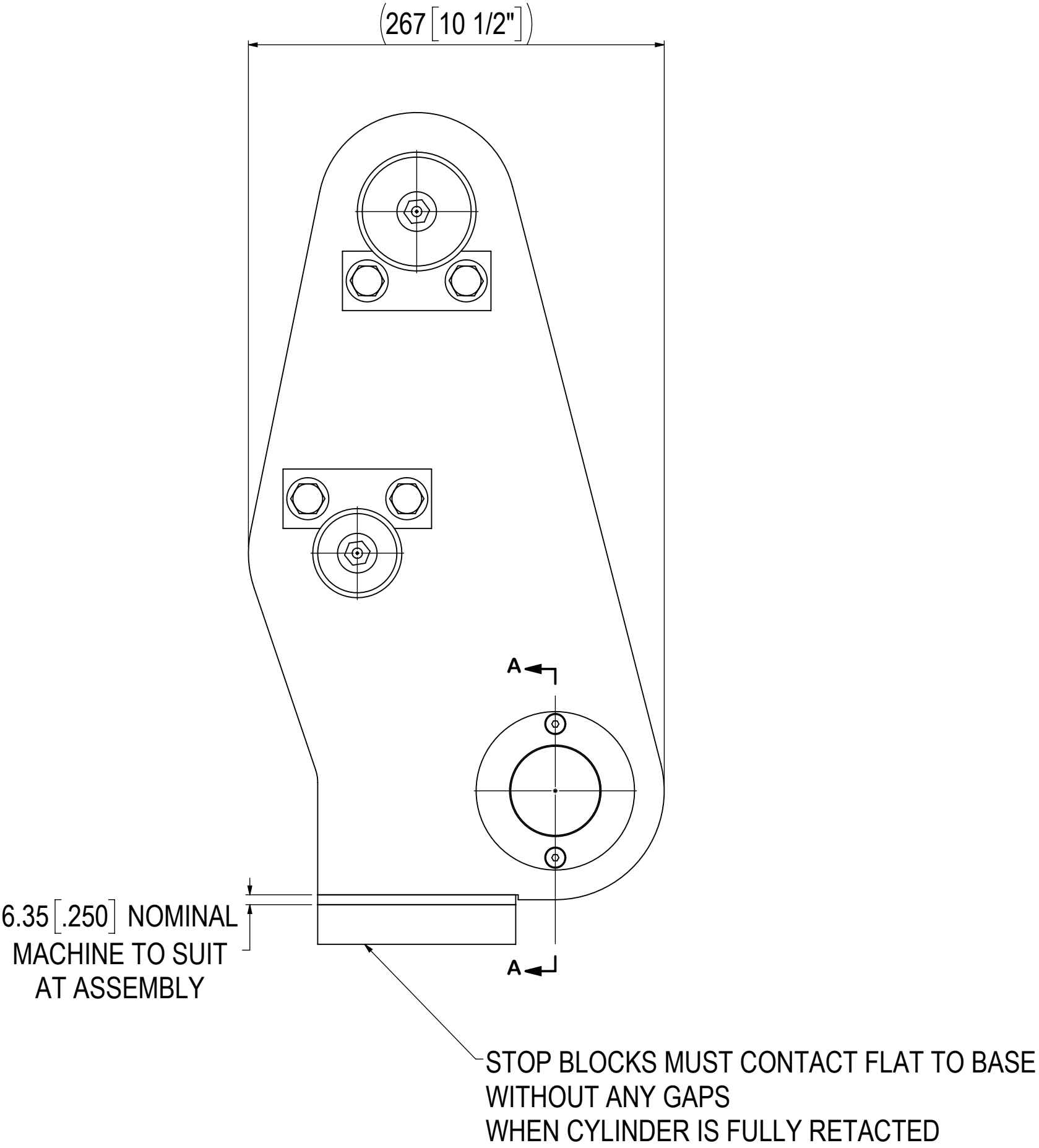
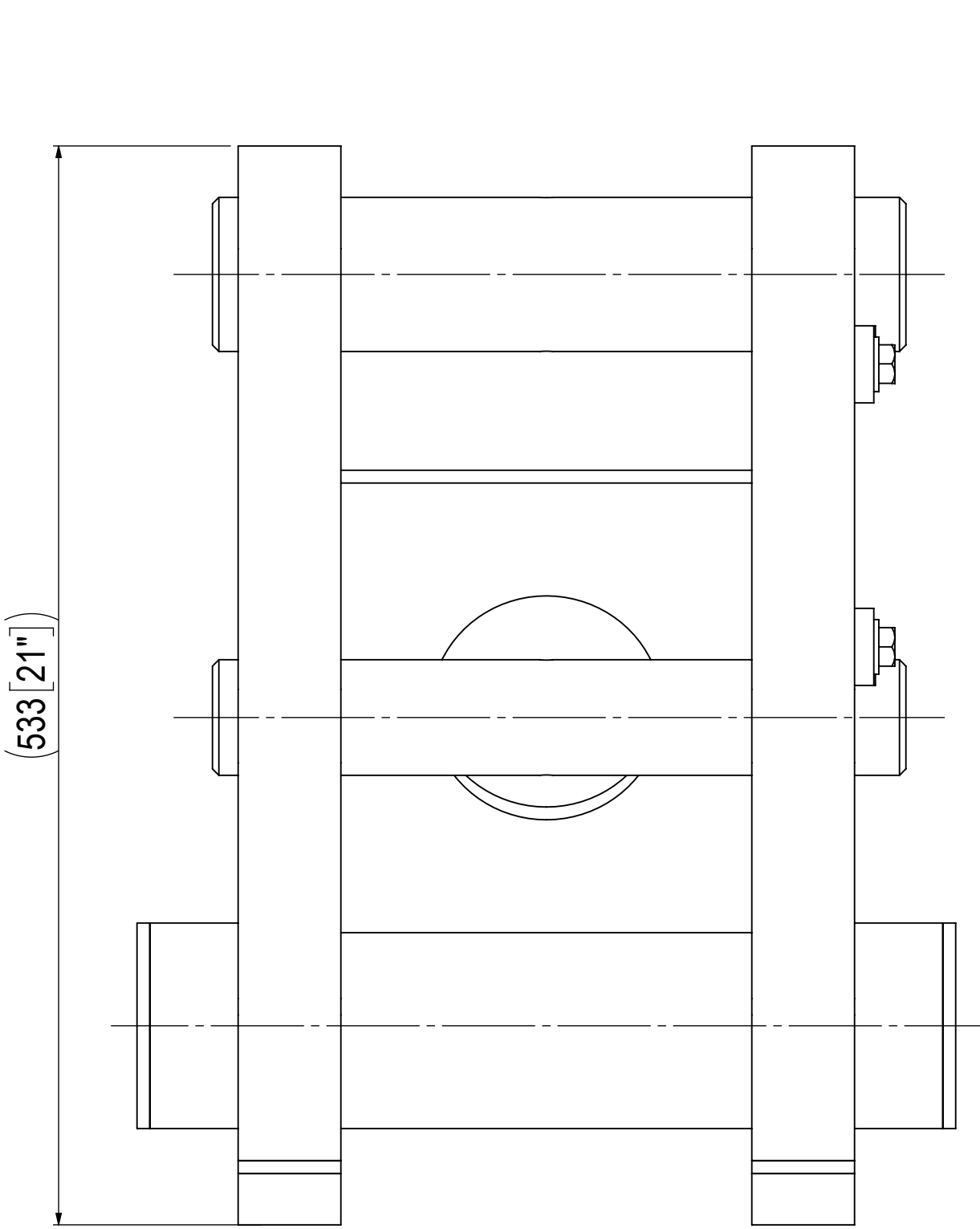
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Feuille No.

203

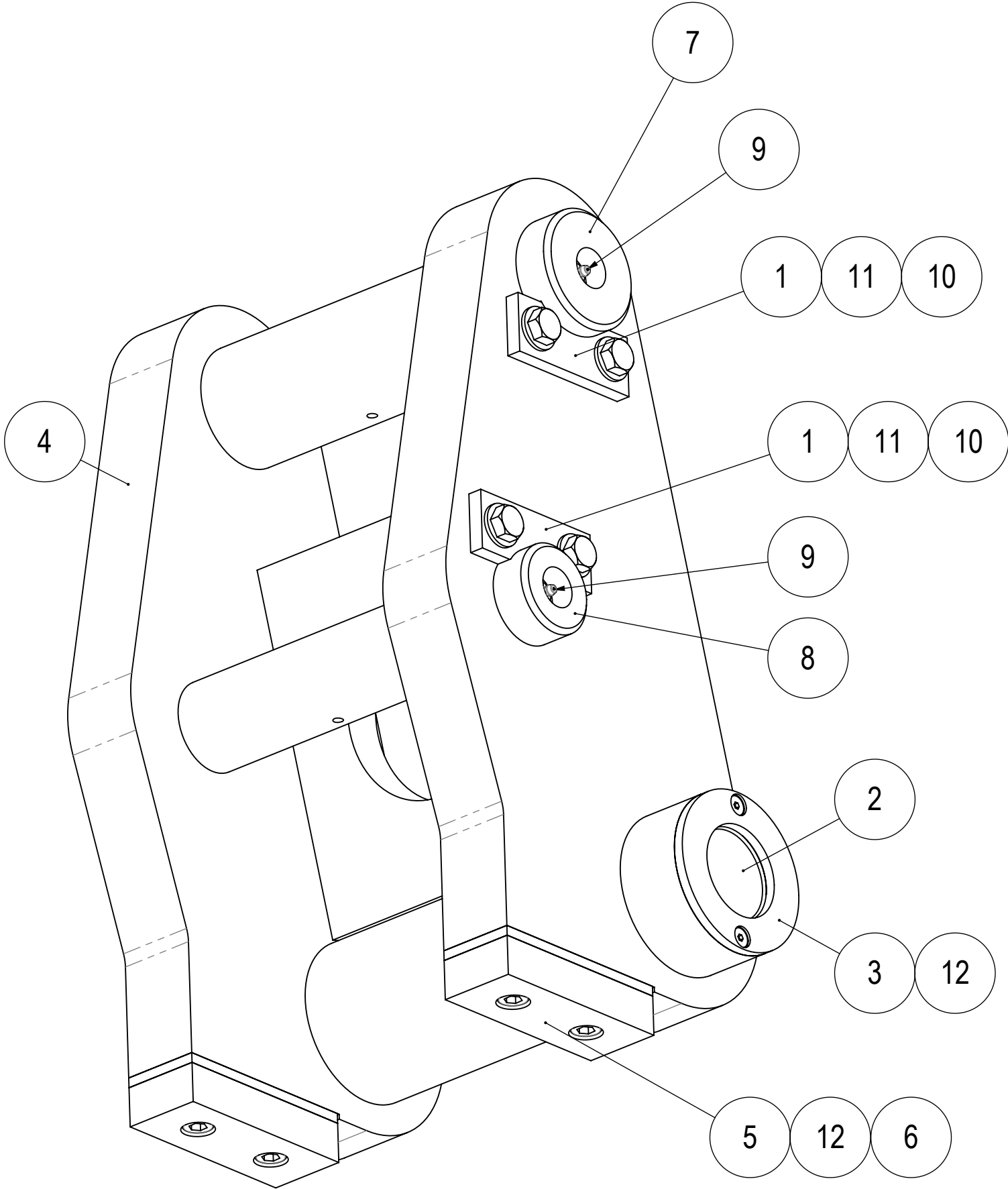
03

PART NUMBER: 203-04
DESCRIPTION: PIVOT ARM ASSEMBLY
QUANTITY: 2

BILL OF MATERIALS			
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	2	203-09	
2	1	203-11	
3	2	203-12	
4	1	203-17	
5	2	203-18	
6	2	203-19	
7	1	203-20	ROLLER SHAFT
8	1	203-21	
9	2	MCMASTER-CARR P/N 1293K32	GREASE FITTING, 303 SS
10	4	1/2"	SAE FLAT WASHER, 316 SS
11	4	1/2"-13 UNC X 1 1/4" LG	HEX HEAD CAP SCREW, 316 SS
12	8	1/2"-13 UNC X 1 1/2" LG	SOCKET HEAD CAP SCREW, 316 SS

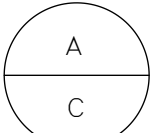
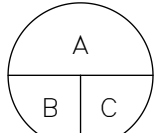


SECTION A-A



1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.X DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



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No.	Date	Description	Drawn By Desine par	Approved Approuve	
Revision / Révision					
		A Detail number No. du détail			
		B Location dwg. no. No. sur dessin			
		C Drawing sheet no. No. du dessin			
Client Acceptance / Acceptation du client					
Signature _____			Date _____		
File No./No. de dossier _____					



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BRIDGE**
TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin
PIVOT ARM ASSEMBLY

Scale / Échelle 1:3		
Drawn by/ Dessiné par M_D	Date 2019-01-14	
Designed by/ Conçu par M_D	Date 2019-01-07	
Checked by/ Vérifié par DPC	Date 2019-01-28	
Approved by / Approuvé par DPC	Date 2019-01-28	
Project No./No. du projet 203	Client No./No du Client	Sheet No./ Feuille No. 04
Drawing Reference No./Numéro de Référence du Dessin		

PART NUMBER: 203-05
DESCRIPTION: ROLLER ASSEMBLY
QUANTITY: 2

BILL OF MATERIALS			
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	203-22	
2	1	203-23	
3	2	203-24	
4	4	1/2"-13 UNC X 1 1/2" LG	FLAT HEAD CAP SCREW, 316 SS



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision			
A	A Detail number No. du détail		
	B Location dwg. no. No. sur dessin		
	C Drawing sheet no. No. du dessin		

Client Acceptance / Acceptation du client
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File No./No. de dossier _____



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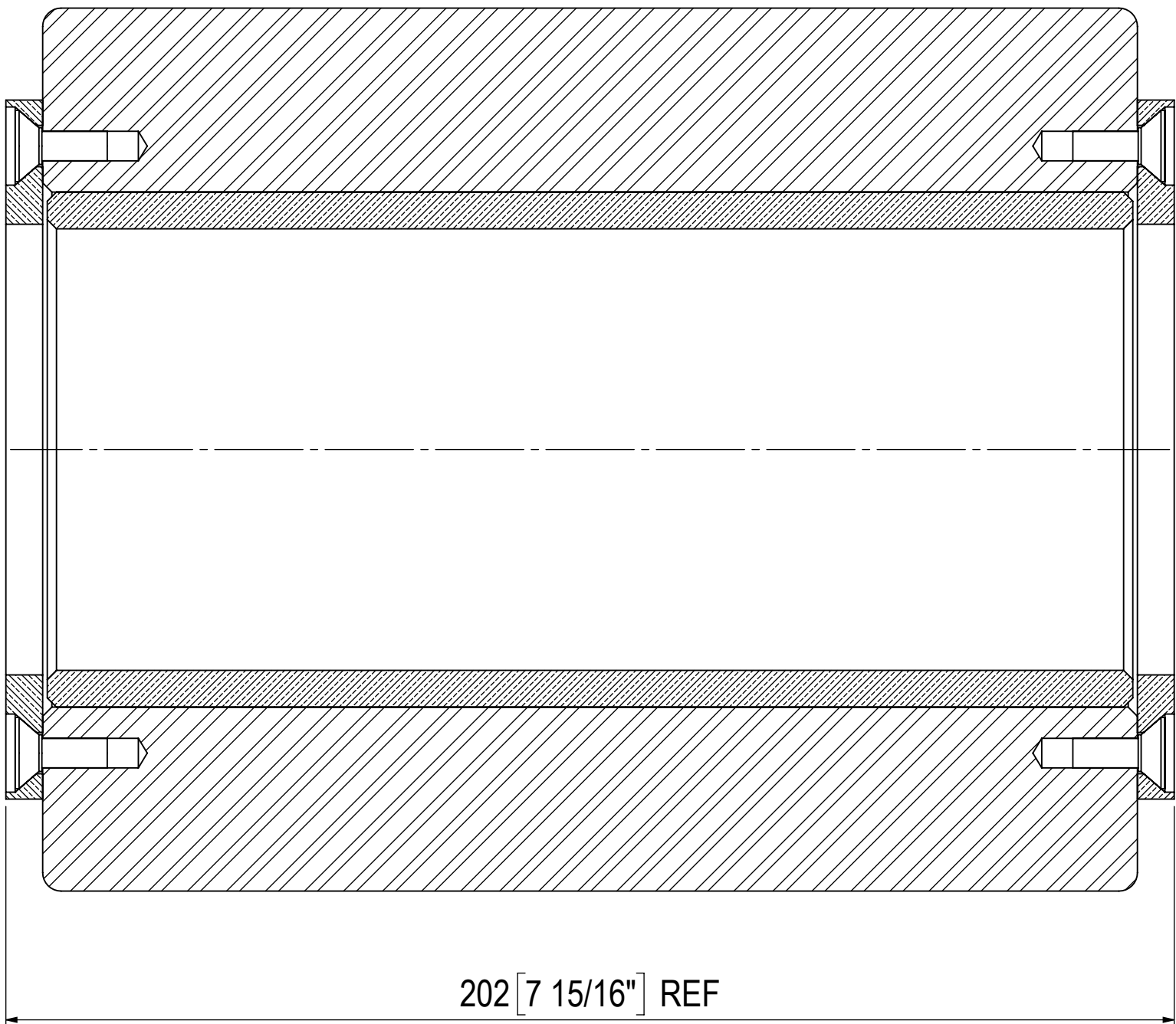
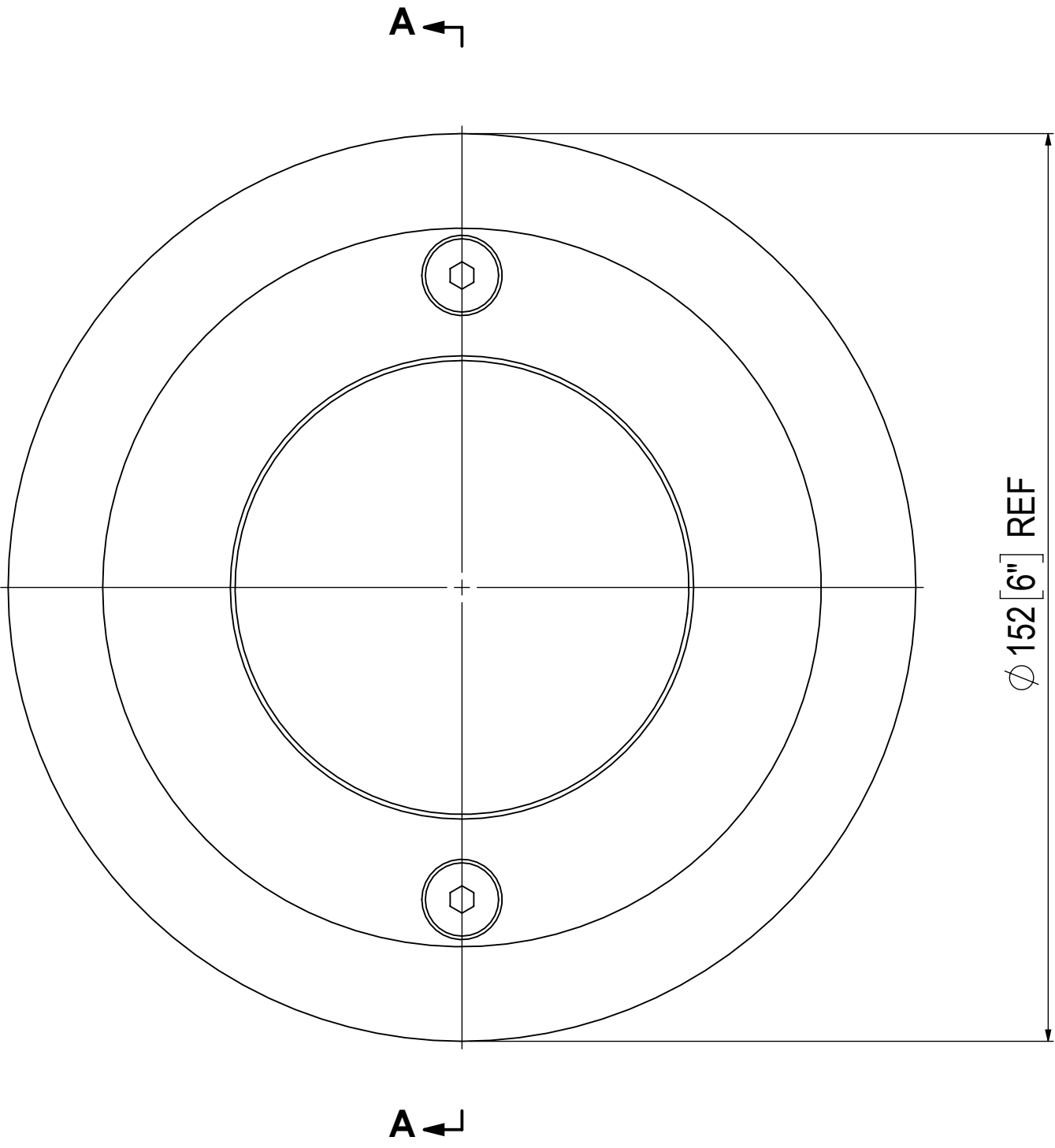
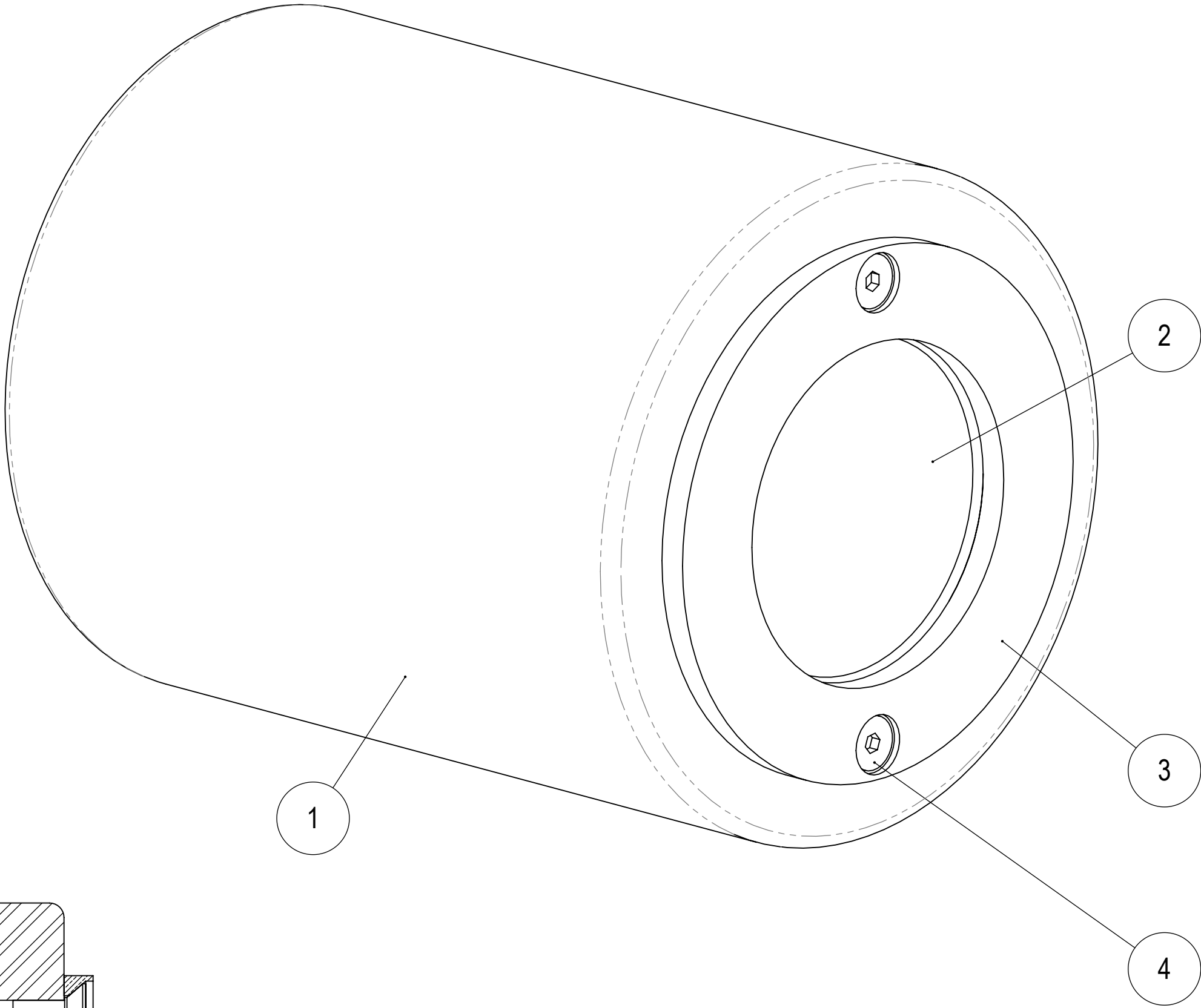
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BRIDGE REHABILITATION**
TRENT-SEVERN WATERWAY
ONTARIO

Drawing title / Titre du dessin
ROLLER ASSEMBLY

Scale / Echelle 1:1	
Drawn by/ Dessiné par M_D	Date 2019-01-14
Designed by/ Conçu par M_D	Date 2019-01-07
Checked by/ Vérifié par DPC	Date 2019-01-21
Approved by / Approuvé par DPC	Date 2019-01-21

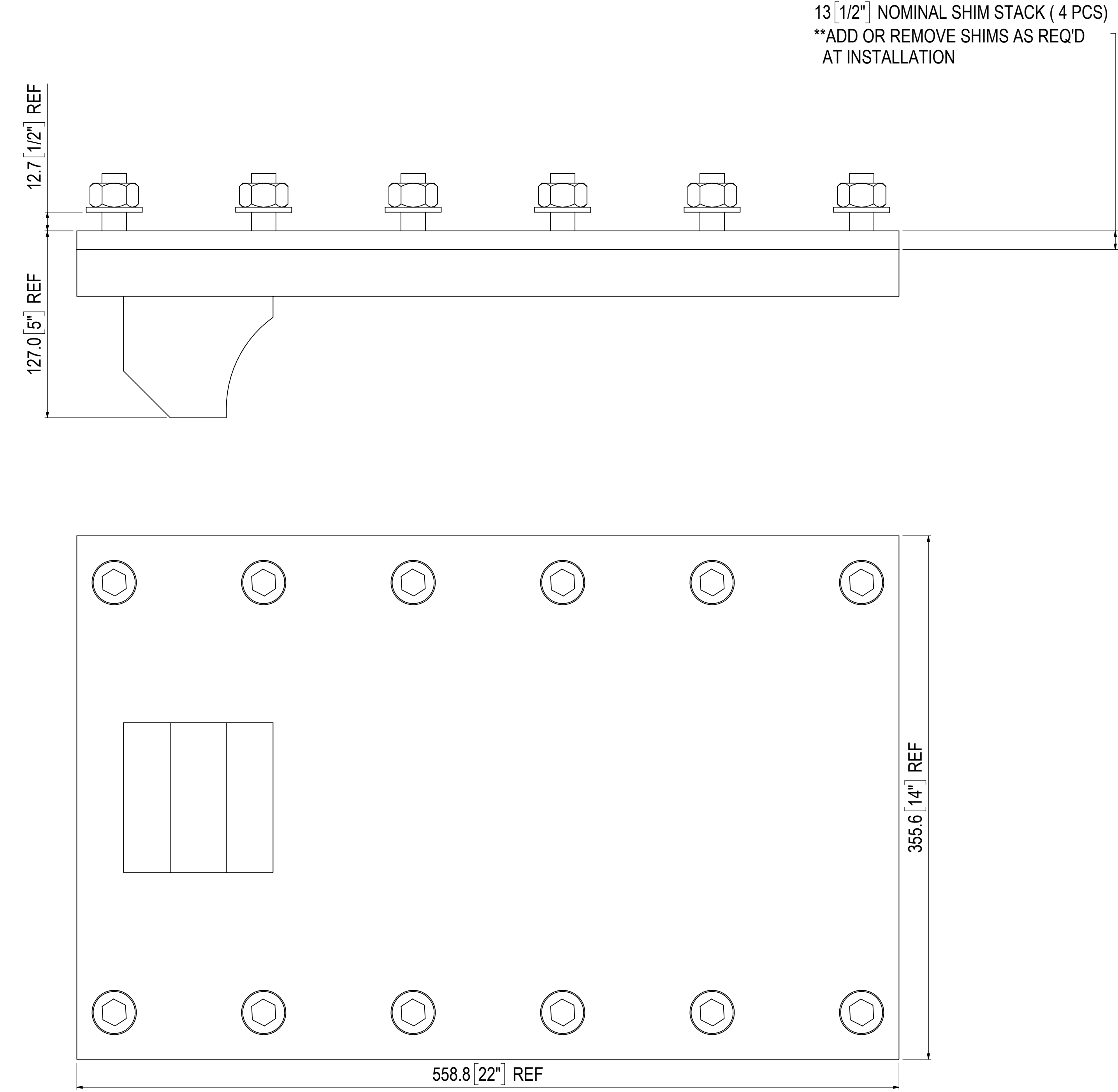
Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No. 05
Drawing Reference No./Numéro de Référence du Dessin 203		



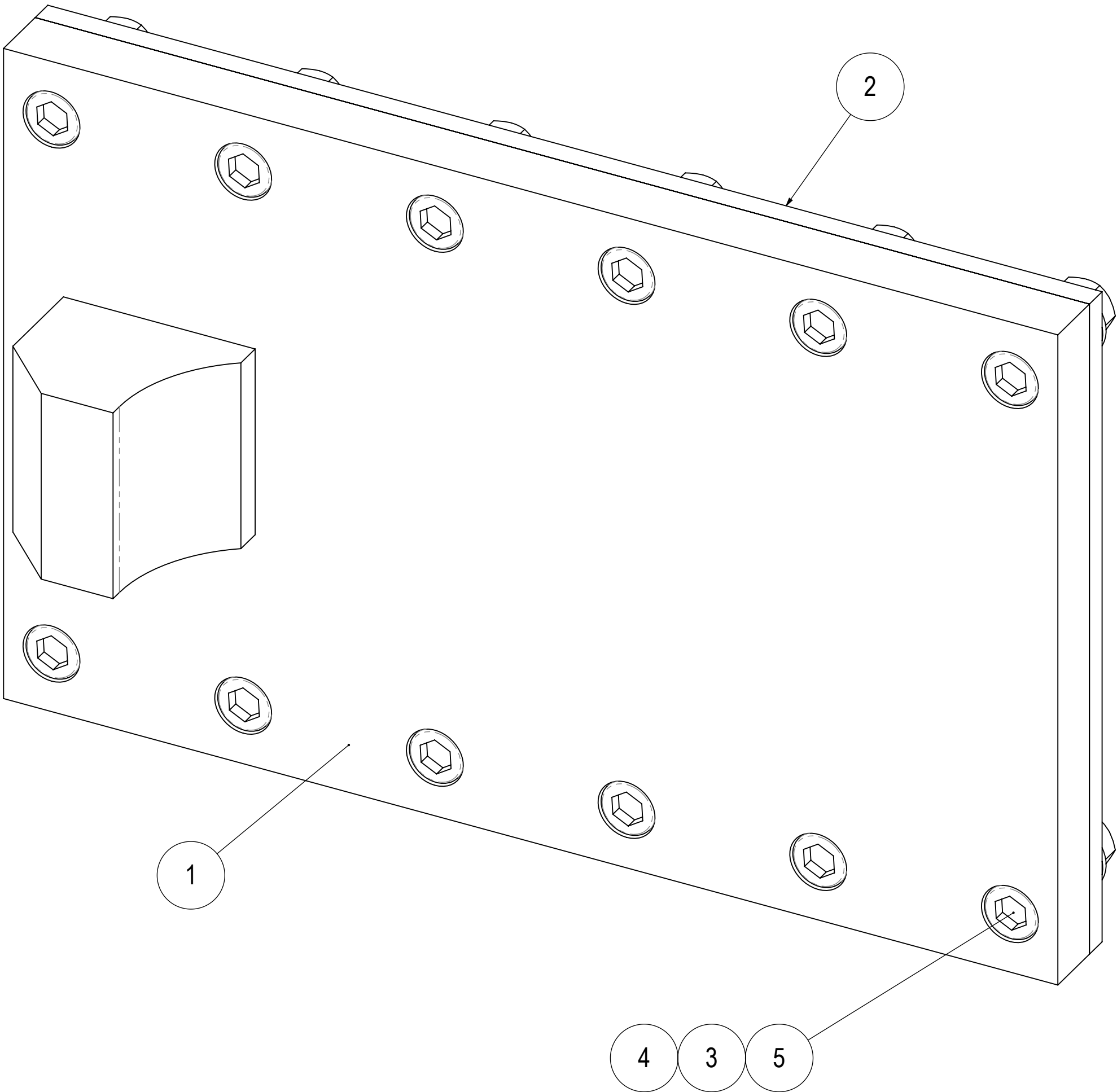
SECTION A-A

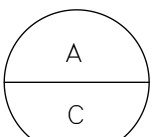
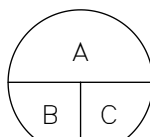
1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.X DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER

PART NUMBER: 203-06
DESCRIPTION: ROLLER PLATE ASSEMBLY
QUANTITY: 2



BILL OF MATERIALS			
ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	203-25	
2	**	203-26	
3	12	3/4"	SAE FLAT WASHER, 316 SS
4	12	3/4"-10 UNC	HEX NUT, 316 SS
5	12	3/4"-10 UNC X 2 1/2" LG	SOCKET HEAD CAP SCREW, 316 SS



01	2022-07-15	ISSUED FOR TENDER		DAF	DPC
No.	Date	Description		Drawn By Desine par	Approved Approuve
Revision / Révision					
		A Detail number No. du détail			
		B Location dwg. no. No. sur dessin			
		C Drawing sheet no. No. du dessin			
Client Acceptance / Acceptation du client					
Signature _____				Date _____	
File No./No. de dossier _____					



Parks
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Parcs
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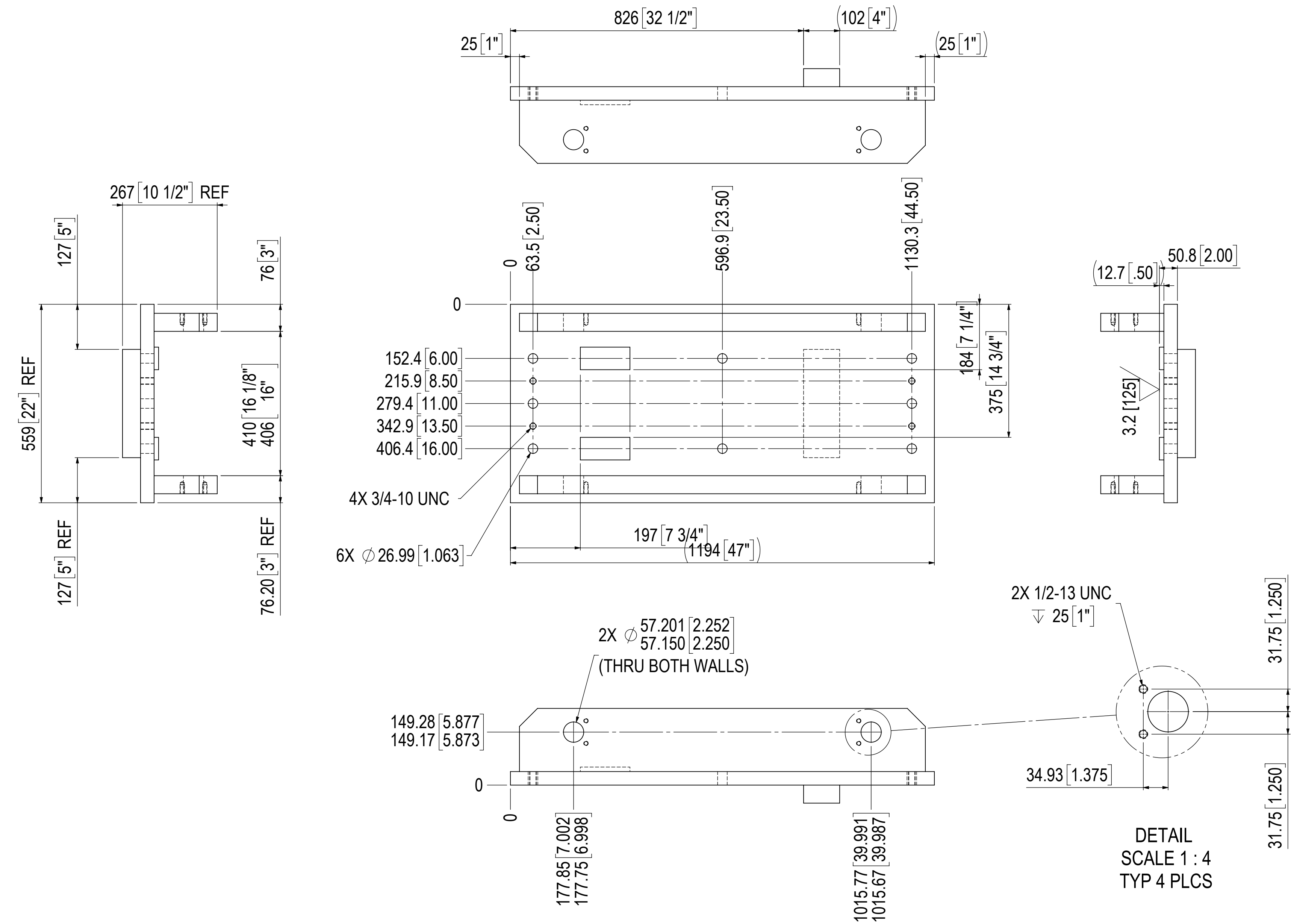
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BOUNDARY ROAD SWING BRIDGE REHABILITATION		
TRENT-SEVERN WATERWAY		
ONTARIO		
Drawing title / Titre du dessin		
ROLLER PLATE ASSEMBLY		
Scale / Echelle		
1:2		
Drawn by/ Dessiné par		Date
M_D		2019-01-14
Designed by/ Conçu par		Date
M_D		2019-01-07
Checked by/ Vérifié par		Date
DPC		2019-01-21
Approved by / Approuvé par		Date
DPC		2019-01-21
Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No.
203		06
Drawing Reference No./Numéro de Référence du Dessin		

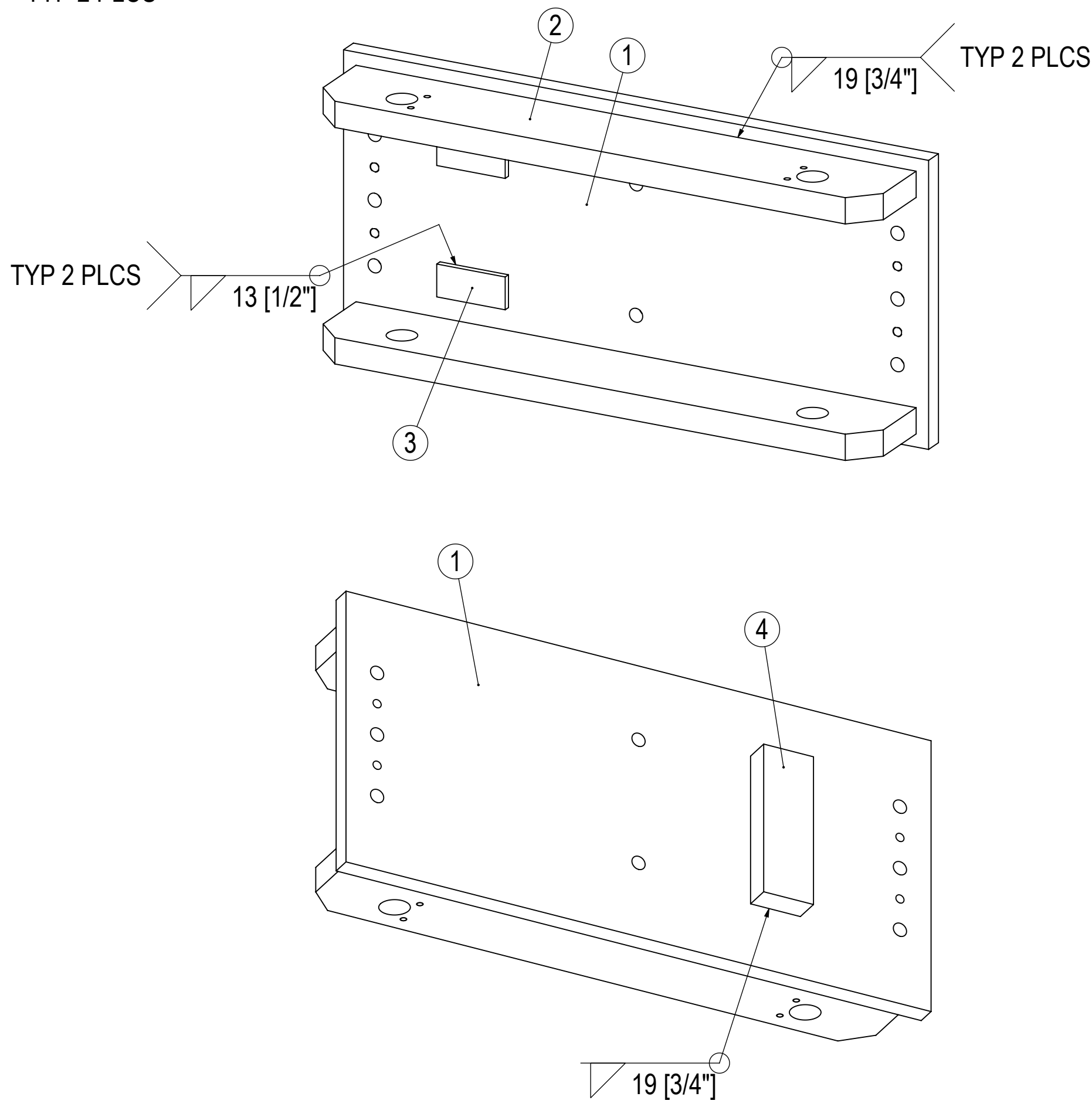
1. DIMENSIONS ARE IN MILLIMETERS		
2. TOLERANCES		
.X	DECIMALS	± 0.5
.X	DECIMALS	± 0.1
.XX	DECIMALS	± 0.05
	ANGLES	± 0.5 DEG
	HOLE SIZES	± 1mm
	SURFACES	3.2 MICROMETER

PART NUMBER: 203-07
DESCRIPTION: BASE
MATERIAL: SEE CUT LIST
FINISH: PAINT (DO NOT PAINT TAPPED HOLES OR PRECISION BORES)
QUANTITY: 2



WELDMENT CUT LIST			
ITEM	QTY.	MATERIAL	CUT LENGTH
1	1	CSA G40.21-44W HRS PL, 51 [2"] THK	178 X 1143 [7" X 45"]
2	1	CSA G40.21-44W HRS PL, 38 [1 1/2"] THK	559 X 1194 [22" X 47"]
3	2	CSA G40.21-44W HRS FB, 19 X 64 [3/4" X 2 1/2"]	140 [5 1/2"]
4	1	CSA G40.21-44W HRS FB, 51 X 102 [2" X 4"]	305 [12"]



NOTE:
CLAMP ITEM 3 TO ITEM 1
DURING WELDING
TO ELIMINATE ANY GAPS
TYP 2 PLCS



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approove

Revision / Révision	
	<p>A Detail number No. du détail</p> <p>B Location dwg. no. No. sur dessin</p> <p>C Drawing sheet no. No. du dessin</p>
	

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

BASE

Scale / Echelle
1:8

Drawn by/ Dessiné par M_D Date 2019-01-14

Designed by/ Conçu par	Date
M D	2019-01-07

Checked by/ Vérifié par **DPC** Date **2019-01-21**

Approved by / Approuvé par **DPC** Date **2019-01-21**

Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No.
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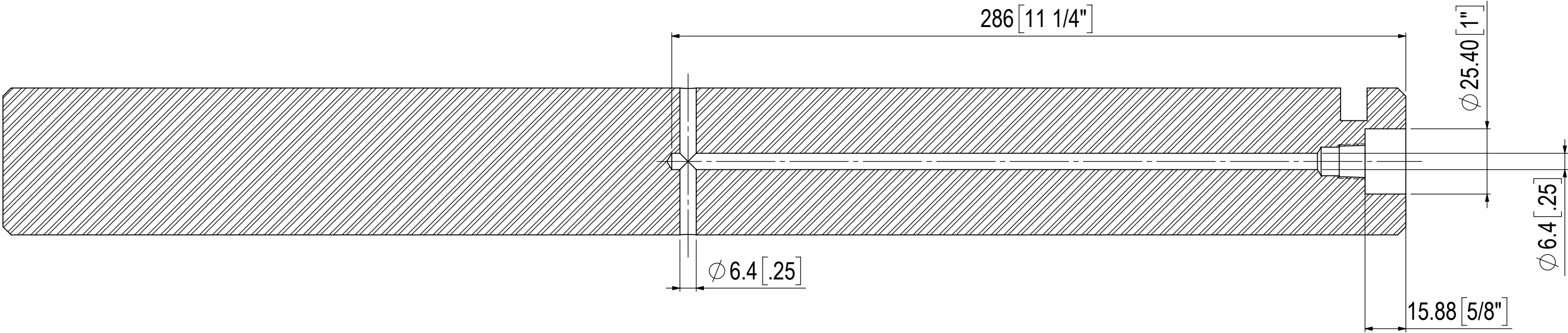
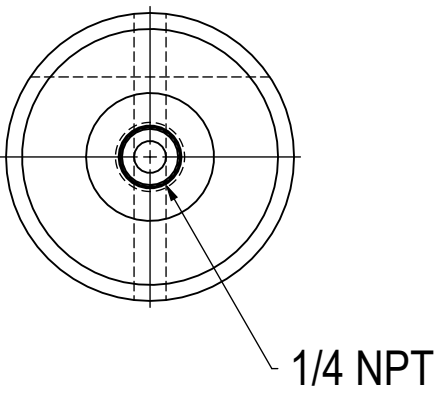
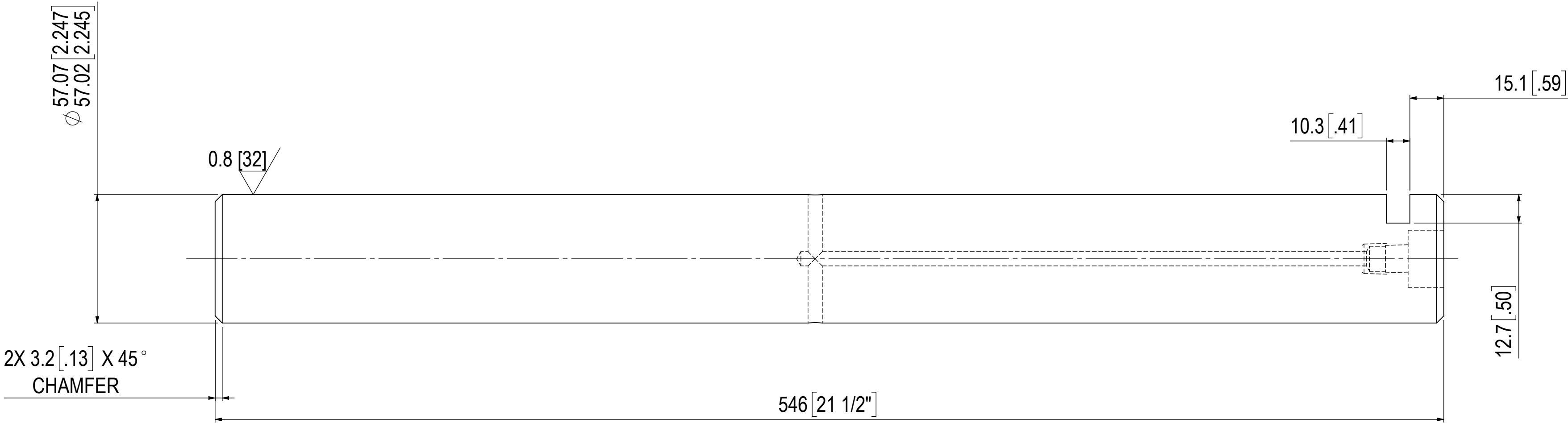
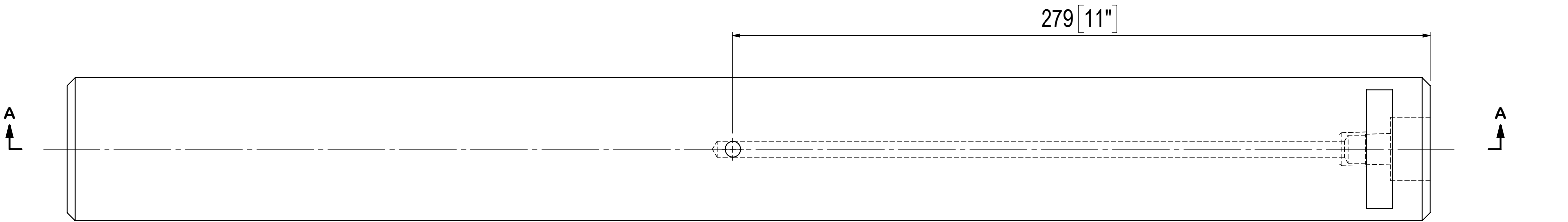
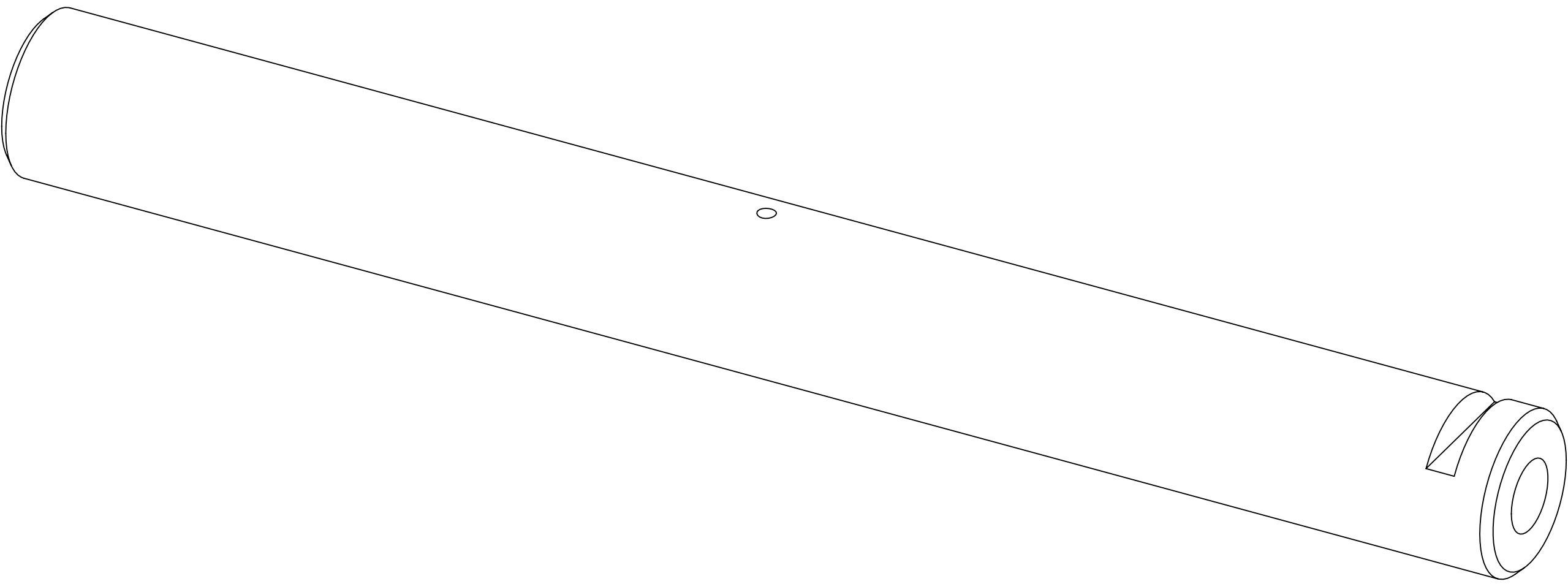
Drawing Reference No./Numéro de Référence du Dessin
203

07

1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES

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

PART NUMBER: 203-08
DESCRIPTION: PIVOT SHAFT
MATERIAL: 17-4 PH SS RND, CONDITION H1150
ø57 [2 1/4"] X 546 [21 1/2"] LG
FINISH: NONE
QUANTITY: 4



SECTION A-A

1. DIMENSIONS ARE IN MILLIMETERS		
2. TOLERANCES		
.X DECIMALS	±	0.5
.X DECIMALS	±	0.1
.XX DECIMALS	±	0.05
ANGLES	±	0.5 DEG
HOLE SIZES	±	1mm
SURFACES		3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision				
A	A Detail number No. du détail			
	B Location dwg. no. No. sur dessin			
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BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

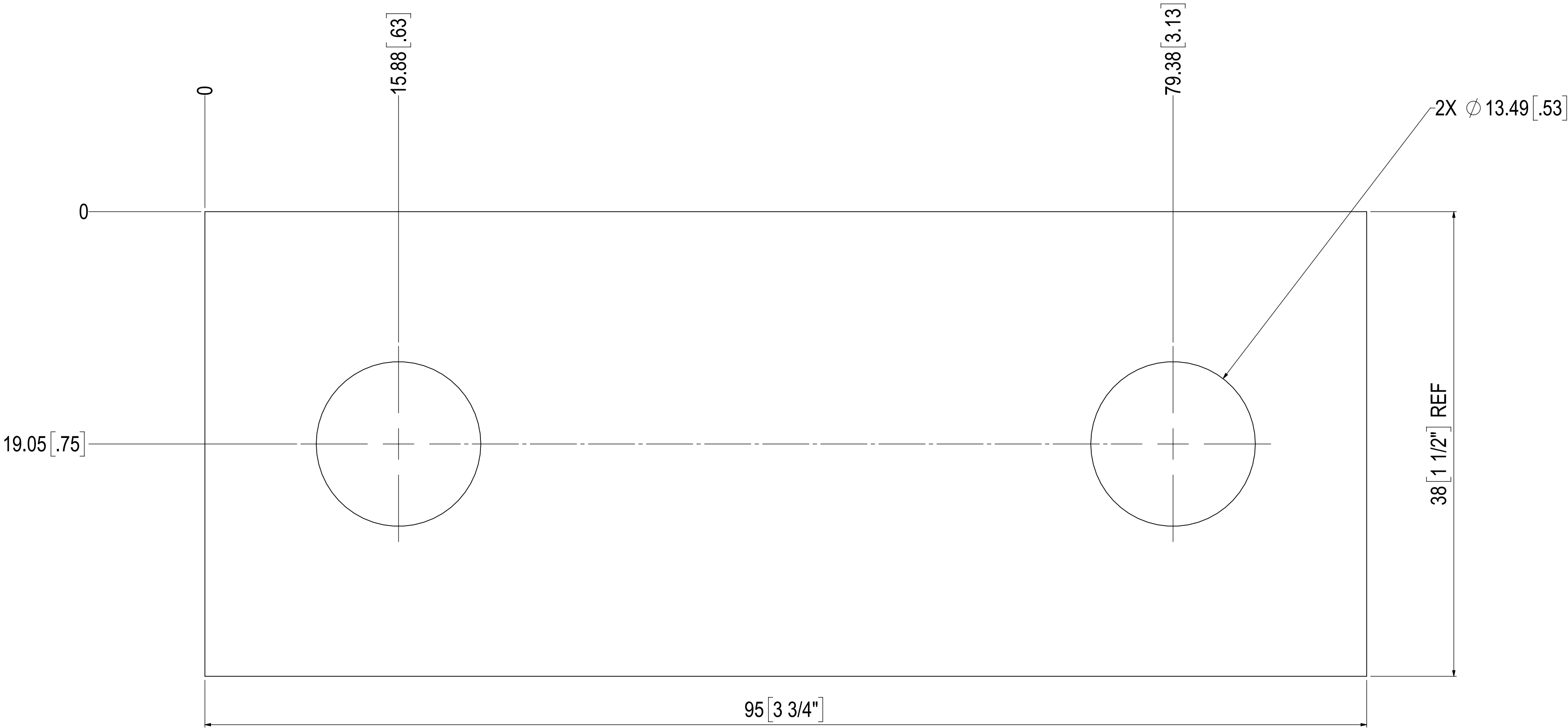
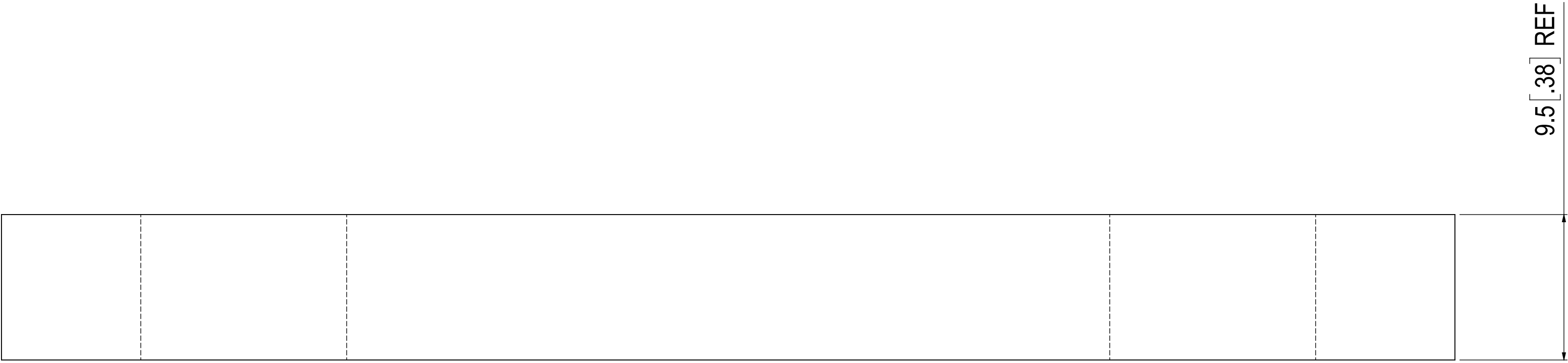
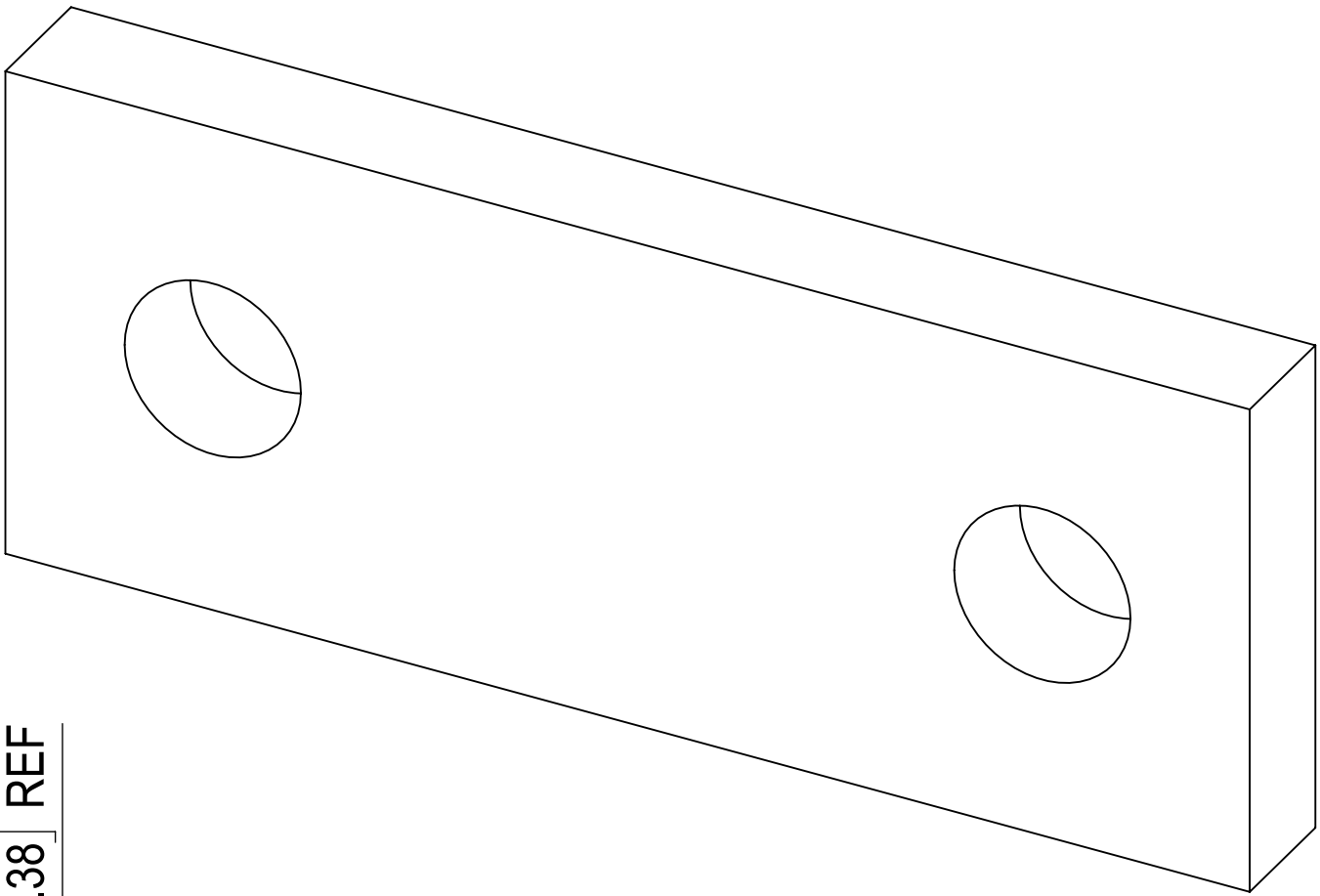
ONTARIO

Drawing title / Titre du dessin

PIVOT SHAFT

Scale / Échelle		
2:3		
Drawn by/ Dessiné par		Date
M_D		2019-01-14
Designed by/ Conçu par		Date
M_D		2019-01-08
Checked by/ Vérifié par		Date
DPC		2019-01-28
Approved by / Approuvé par		Date
DPC		2019-01-28
Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No.
203		8

PART NUMBER: 203-09
DESCRIPTION:
MATERIAL: AISI 316 SS FB
10 X 38 [3/8" X 1 1/2"] X 95 [3 3/4"] LG
FINISH: NONE
QUANTITY: 8



1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.XX DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision				
A	A Detail number No. du détail			
	B Location dwg. no. No. sur dessin			
	C Drawing sheet no. No. du dessin			

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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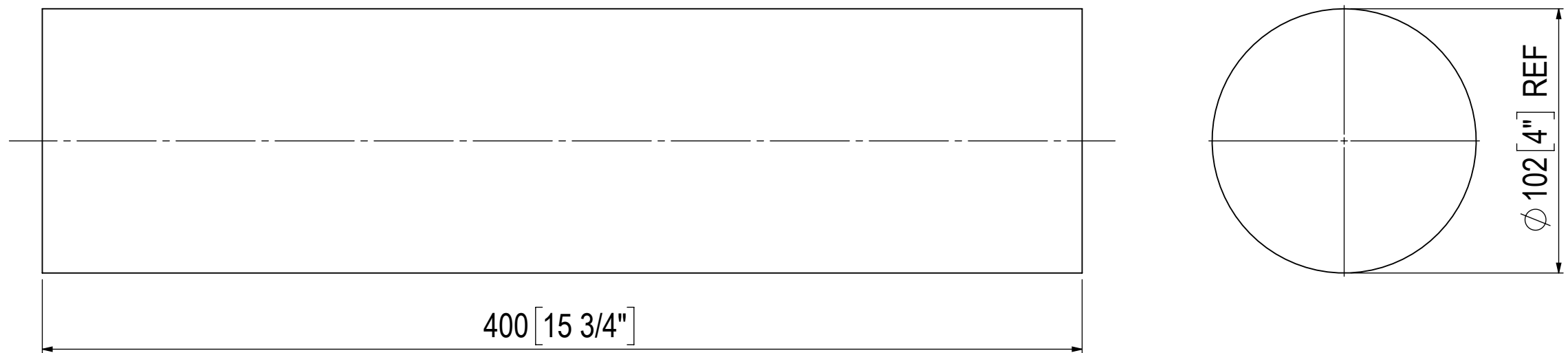
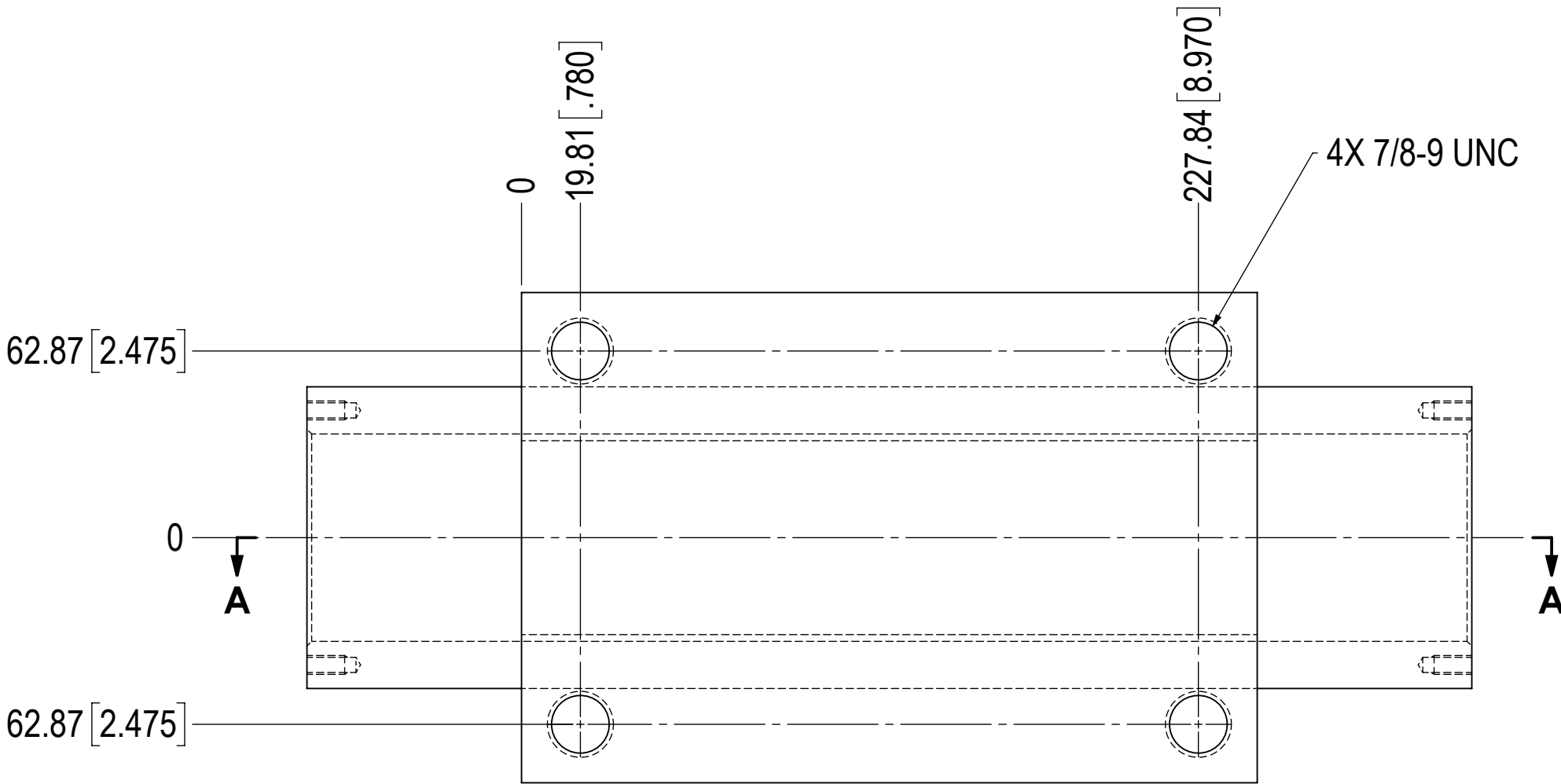
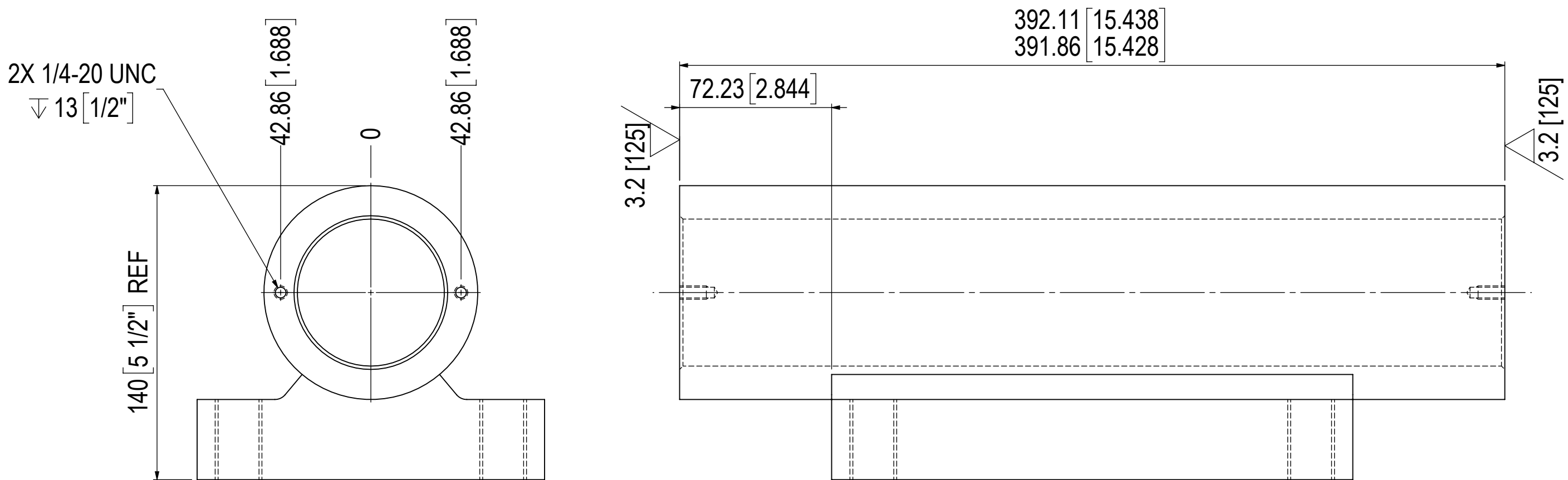
Project title / Titre du projet
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BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY
ONTARIO

Drawing title / Titre du dessin
SHAFT RETAINER

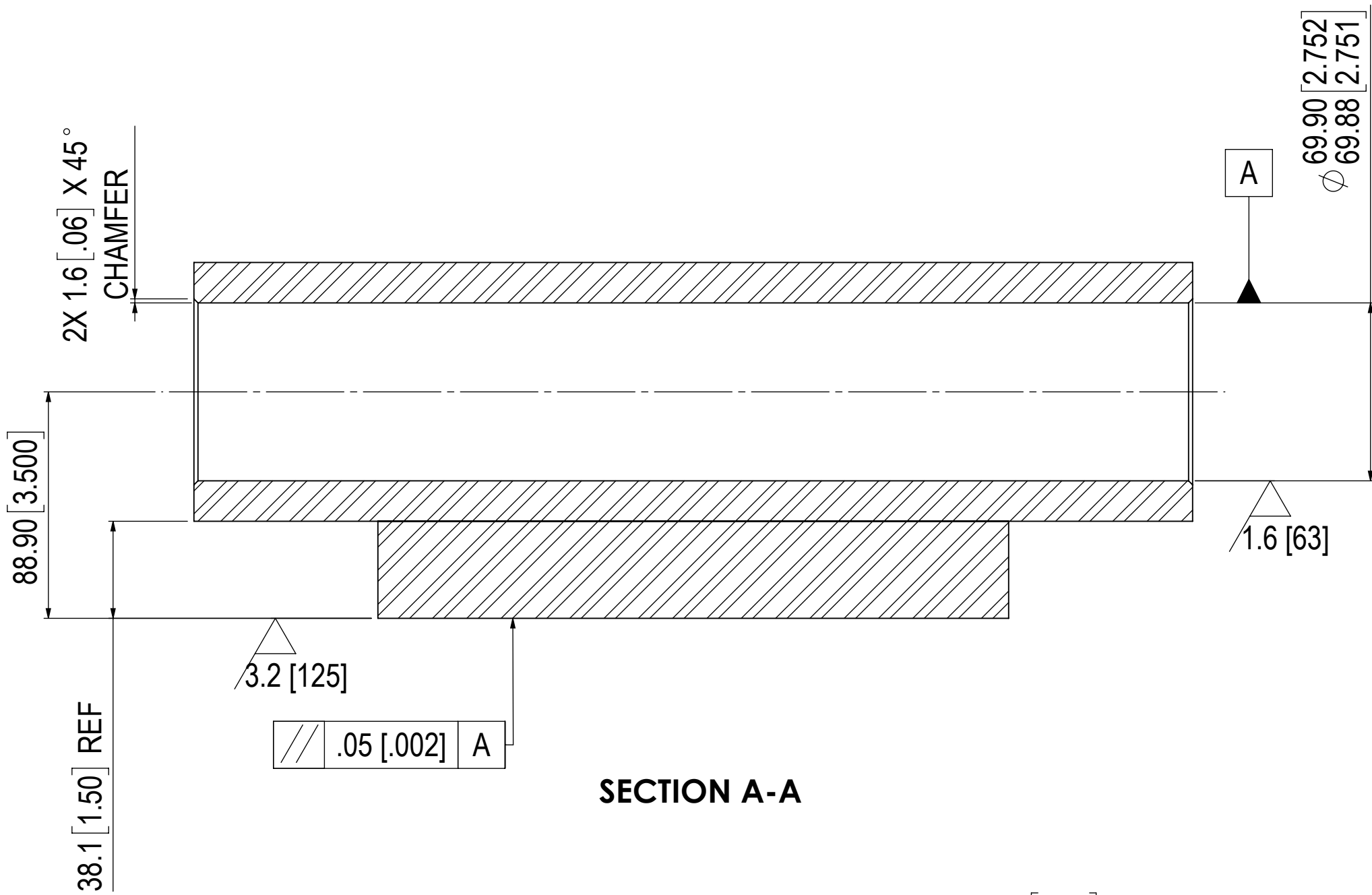
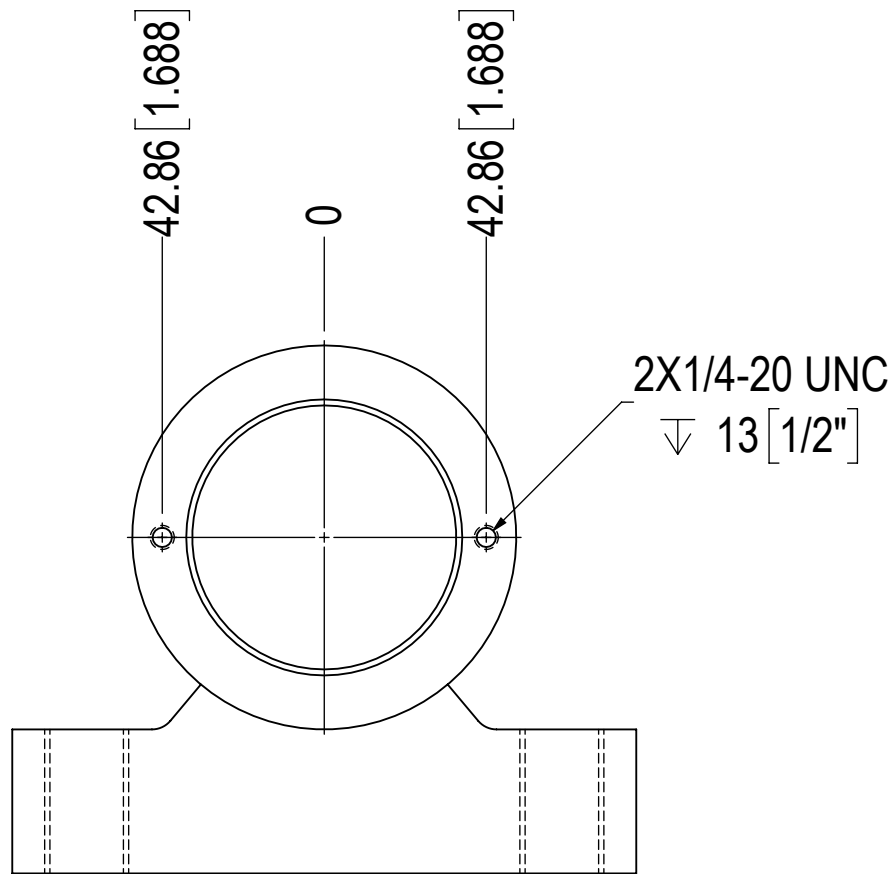
Scale / Echelle 4:1	
Drawn by/ Dessiné par M_D	Date 2019-01-14
Designed by/ Conçu par M_D	Date 2019-01-07
Checked by/ Vérifié par M_D	Date 2019-01-21
Approved by / Approuvé par DPC	Date 2019-01-21

Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No. 20309
Drawing Reference No./Numéro de Référence du Dessin		

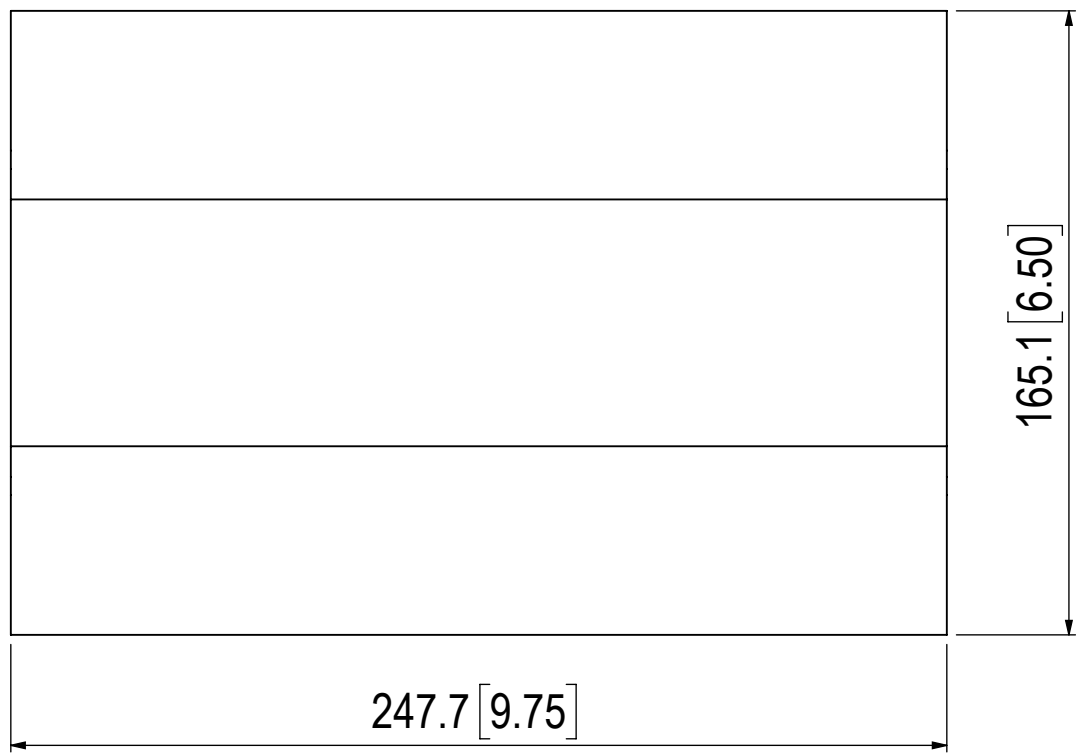
PART NUMBER: 203-10
DESCRIPTION:
MATERIAL: SEE CUT LIST
FINISH: PAINT (DO NOT PAINT MACHINED HOLES)
QUANTITY: 2



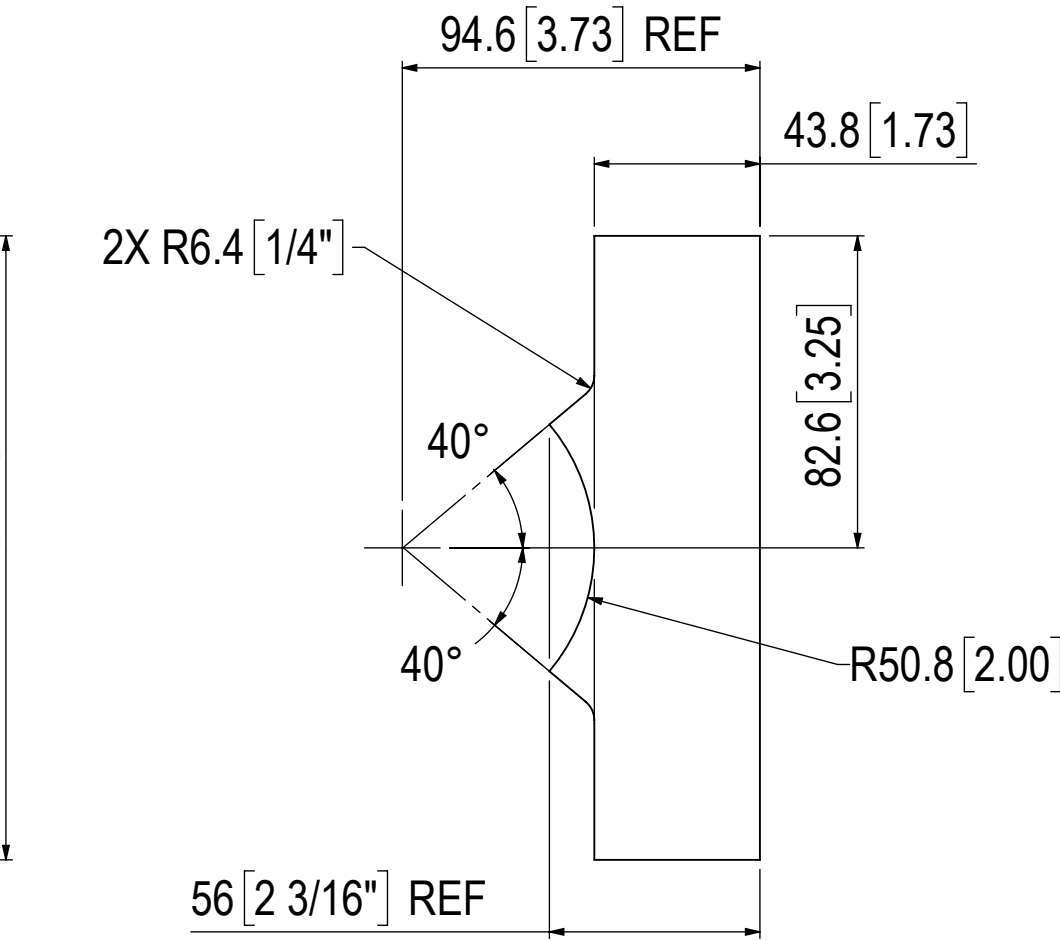
ITEM 1
DETAIL BEFORE WELDING



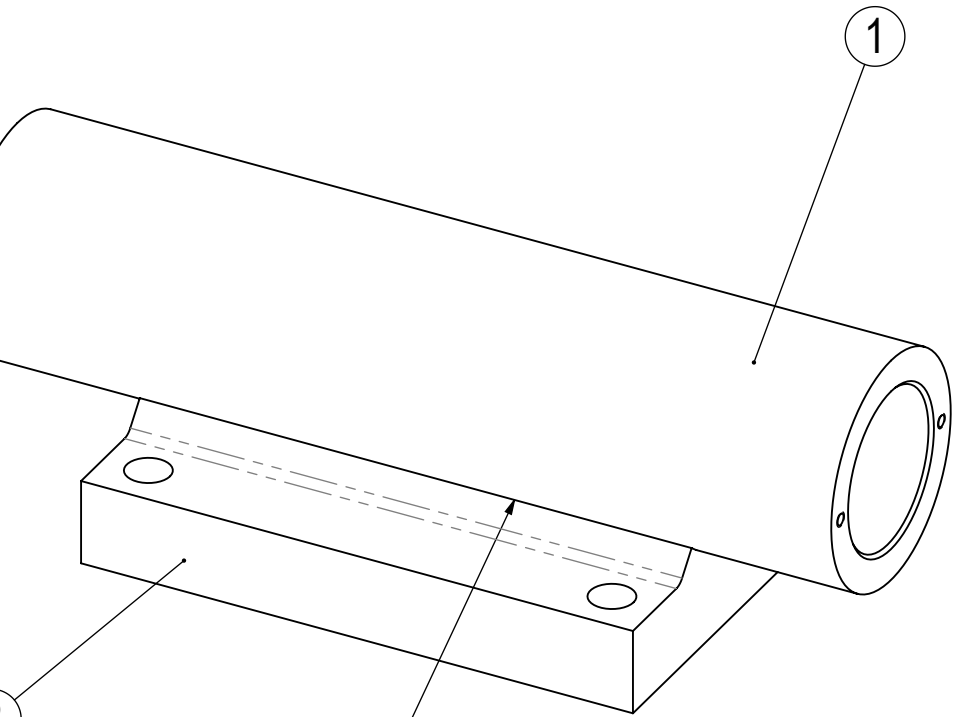
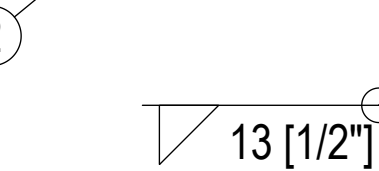
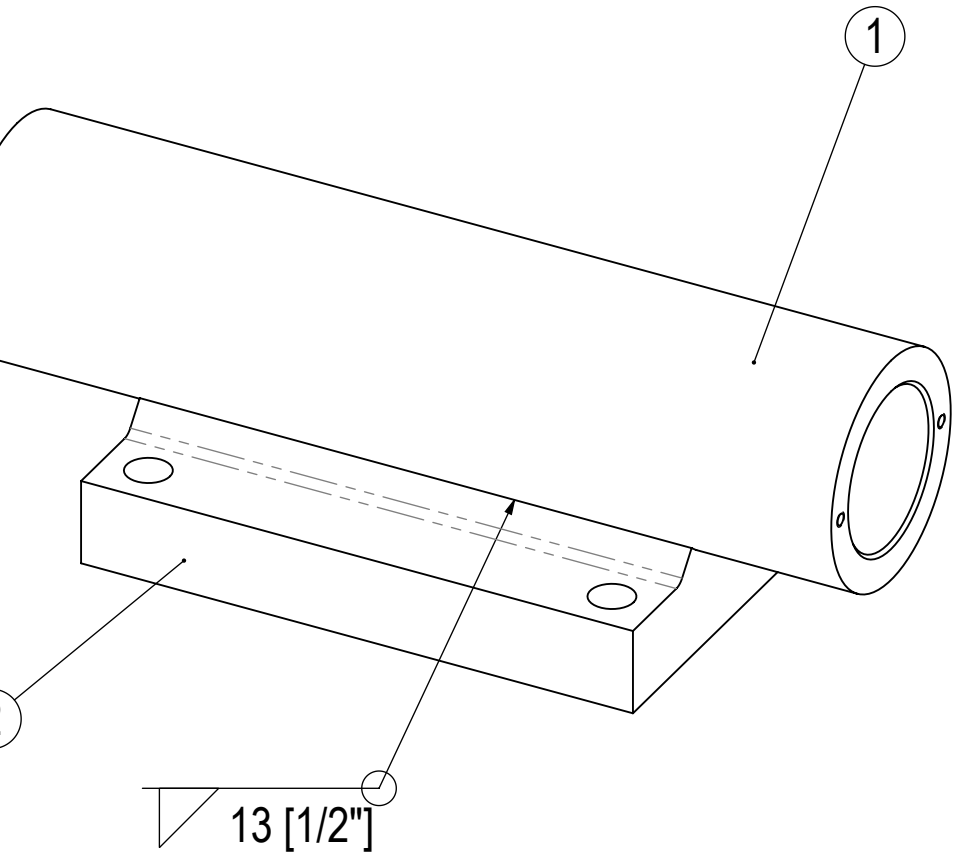
SECTION A-A





ITEM 2
DETAIL BEFORE WELDING



1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES
X. DECIMALS ± 0.5
.X DECIMALS ± 0.1
.XX DECIMALS ± 0.05
ANGLES ± 0.5 DEG
HOLE SIZES ± 1mm
SURFACES 3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision		
	A Detail number No. du détail	
	B Location dwg. no. No. sur dessin	
	C Drawing sheet no. No. du dessin	

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Canada



Chadwick
Engineering Ltd.
www.chadwickengineering.com

Project title / Titre du projet

BOUNDARY ROAD SWING
BRIDGE

TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

CYLINDER CLEVIS

Scale / Echelle
1:2

Drawn by/ Dessiné par
M_D 2019-01-14

Designed by/ Conçu par
M_D 2019-01-07

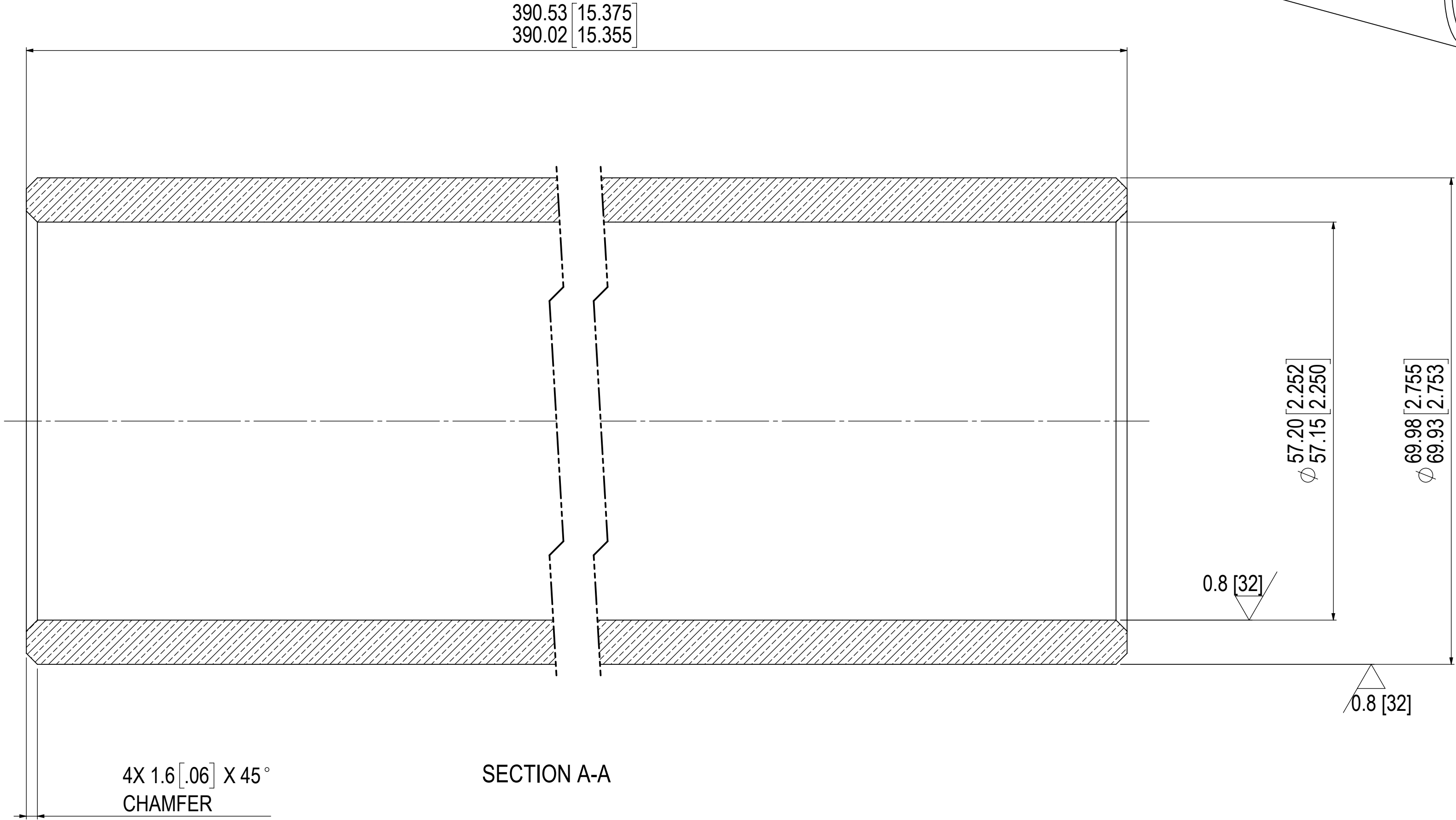
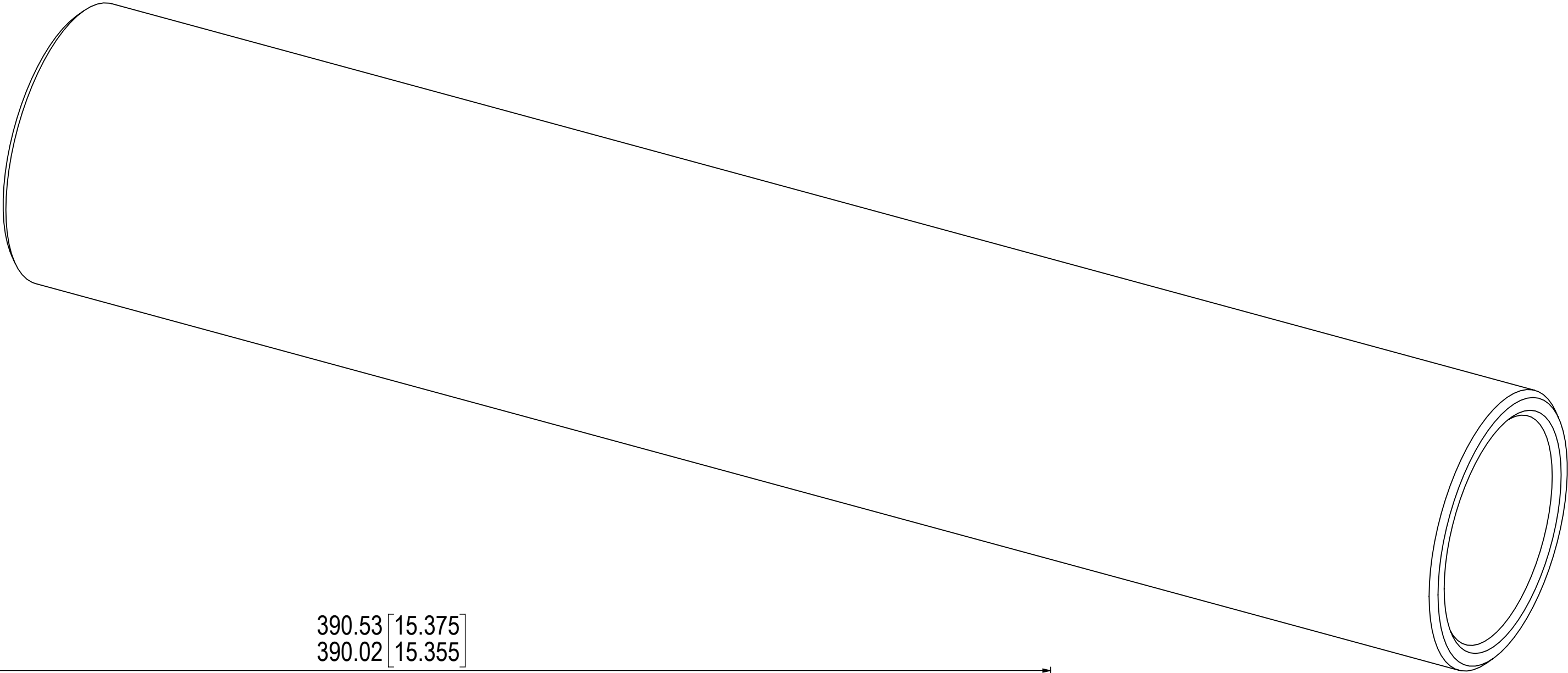
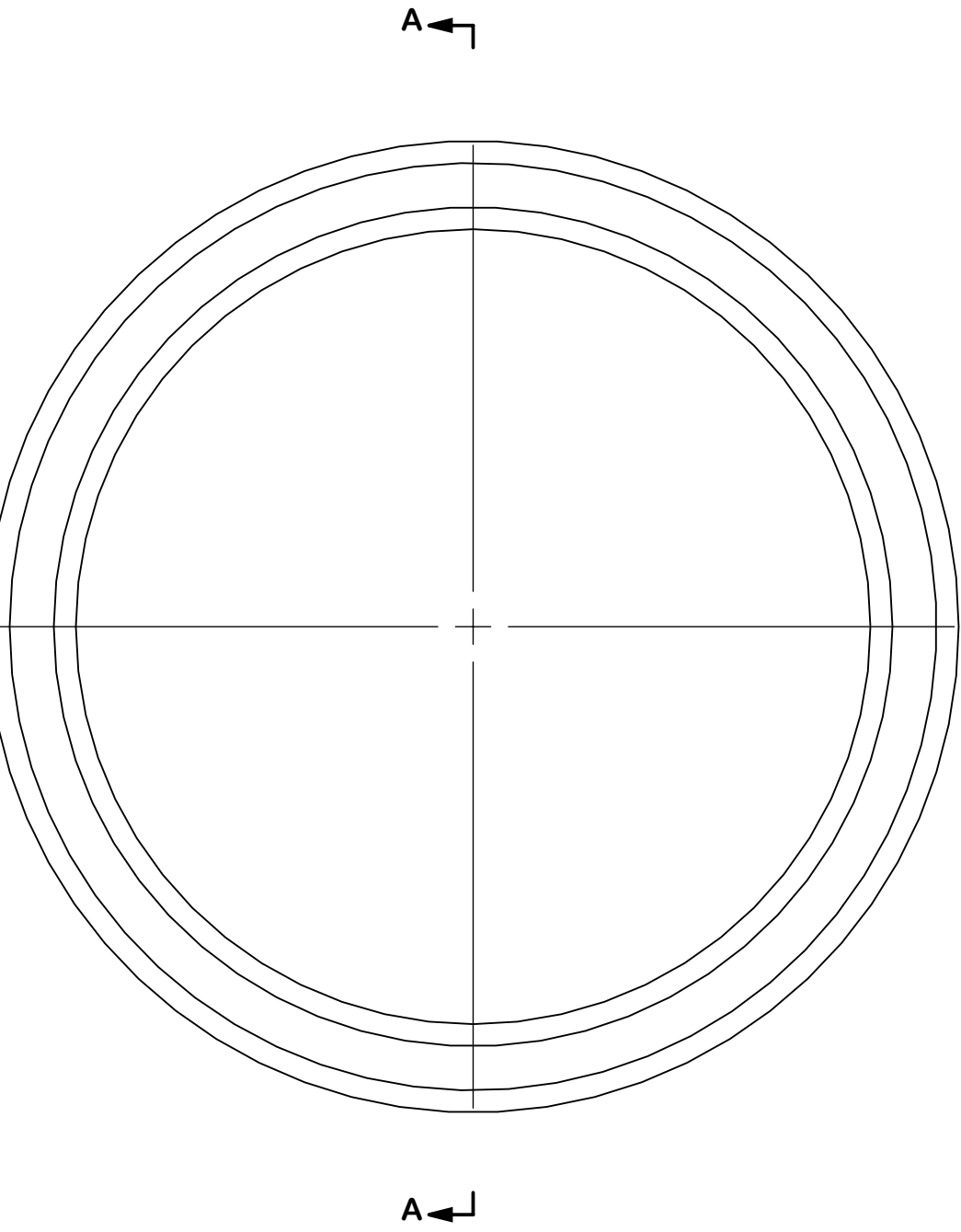
Checked by/ Vérifié par
DPC 2019-01-21

Approved by / Approuvé par
DPC 2019-01-21

Project No./No. du projet Client No./No du Client Sheet No./
Feuille No.

Drawing Reference No./Numéro de Référence du Dessin
203 10

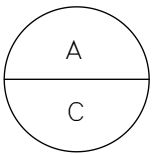
PART NUMBER: 203-11
DESCRIPTION:
MATERIAL: AMPCO 18 (AL BRNZ) TUBE
70 [2 3/4"] OD X 51 [2"] ID X 391 [15 3/8]" LG
FINISH: NONE
QUANTITY: 4



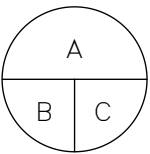
1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.X DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Dessine par	Approved Approuvé
Revision / Révision				



A Detail number
No. du détail
B Location dwg. no.
No. sur dessin
C Drawing sheet no.
No. du dessin



Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Canada



Project title / Titre du projet
BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin
PIVOT BUSHING

Scale / Echelle
2:1

Drawn by/ Dessiné par
M_D
Date
2019-01-14

Designed by/ Conçu par
M_D
Date
2019-01-07

Checked by/ Vérifié par
DPC
Date
2019-01-21

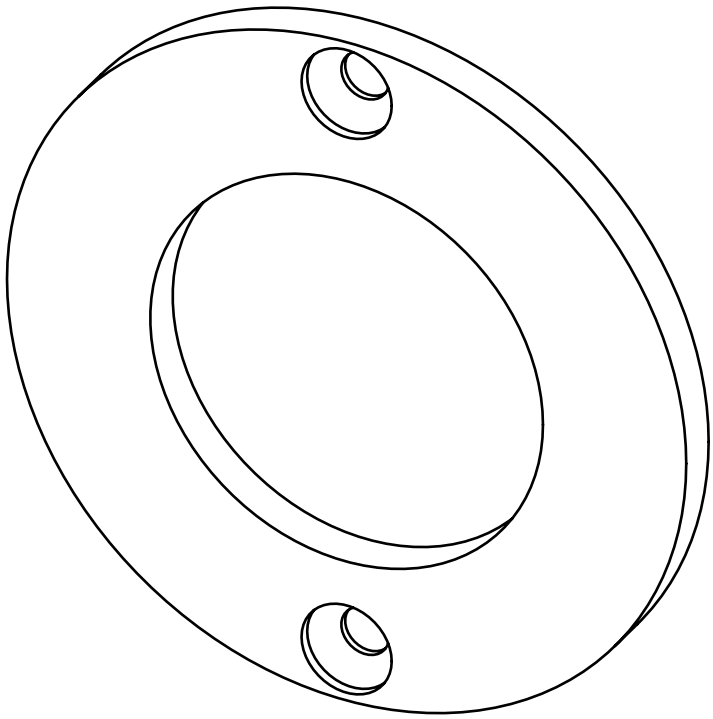
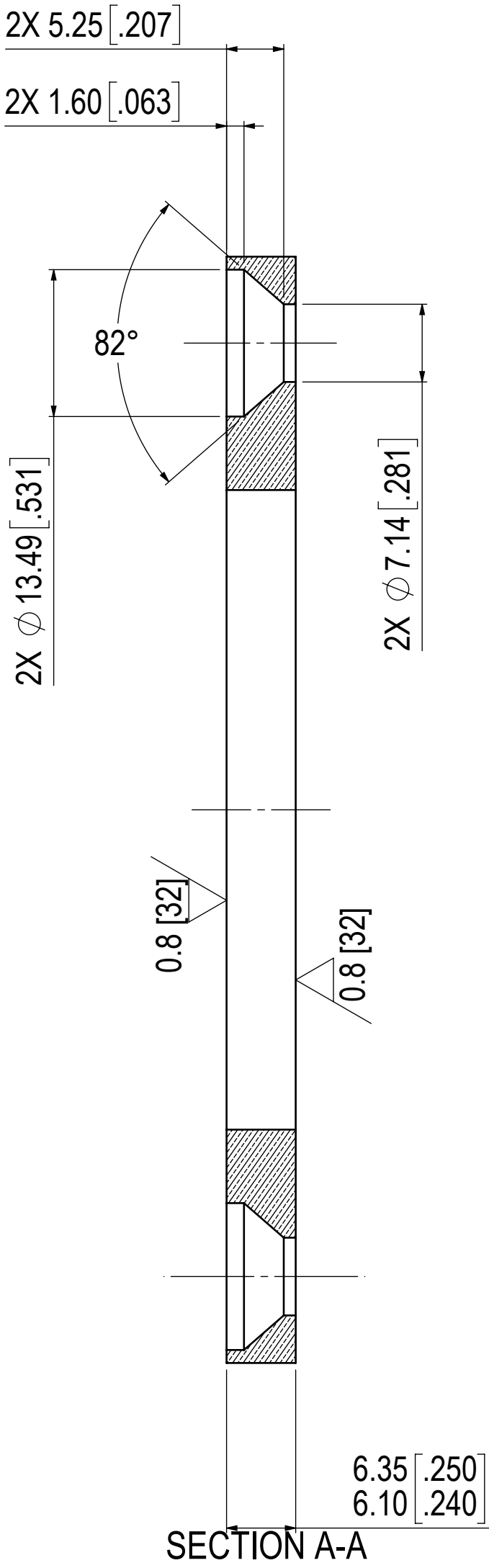
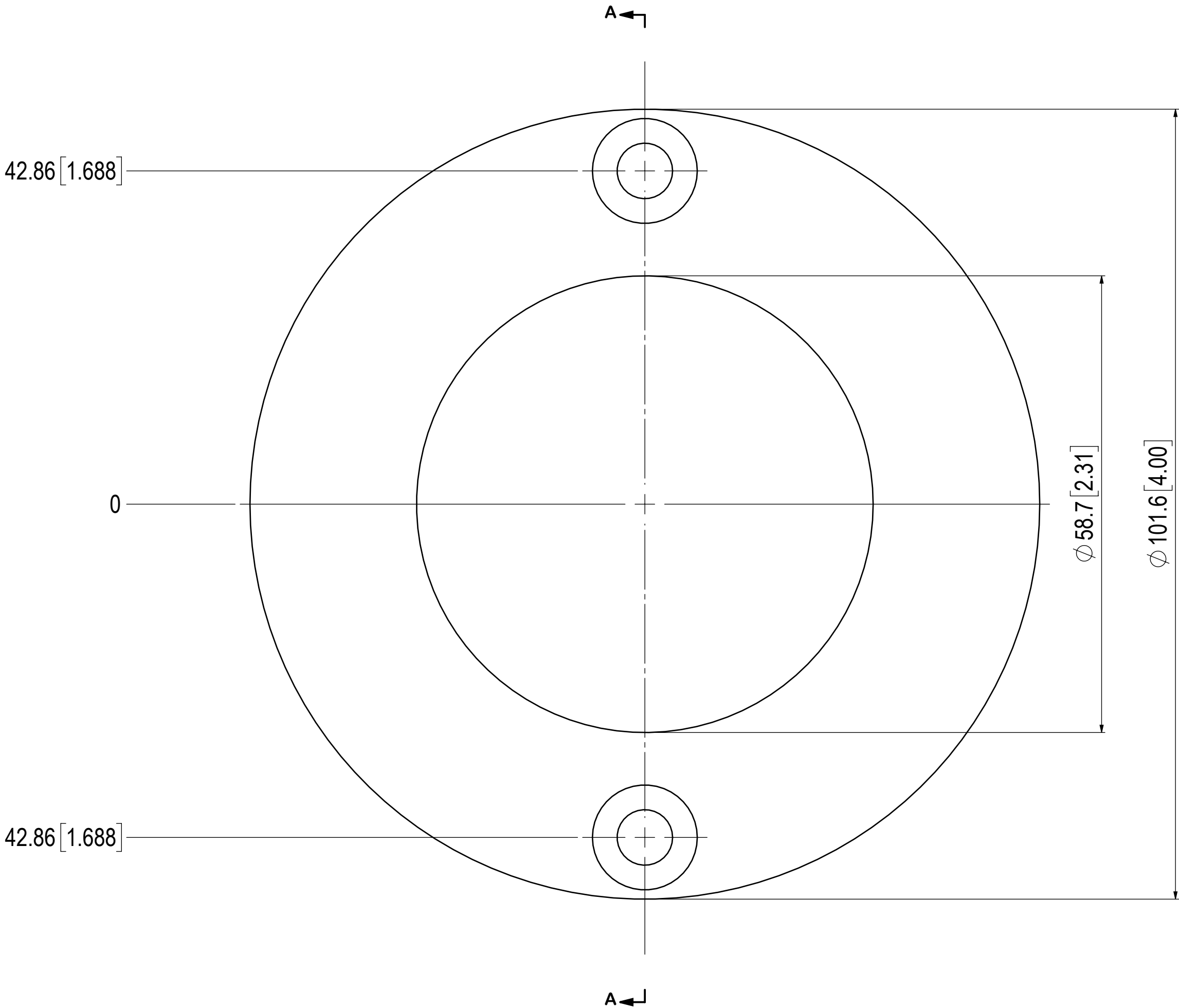
Approved by / Approuvé par
DPC
Date
2019-01-21

Project No./No. du projet
Client No./No du Client
Sheet No./
Feuille No.

Drawing Reference No./Numéro de Référence du Dessin
203

11

PART NUMBER: 203-12
DESCRIPTION:
MATERIAL: AMPCO 18 (AL BRNZ) PL
ø102 [ø4"] X 6 [1/4"] THK
FINISH: NONE
QUANTITY: 12

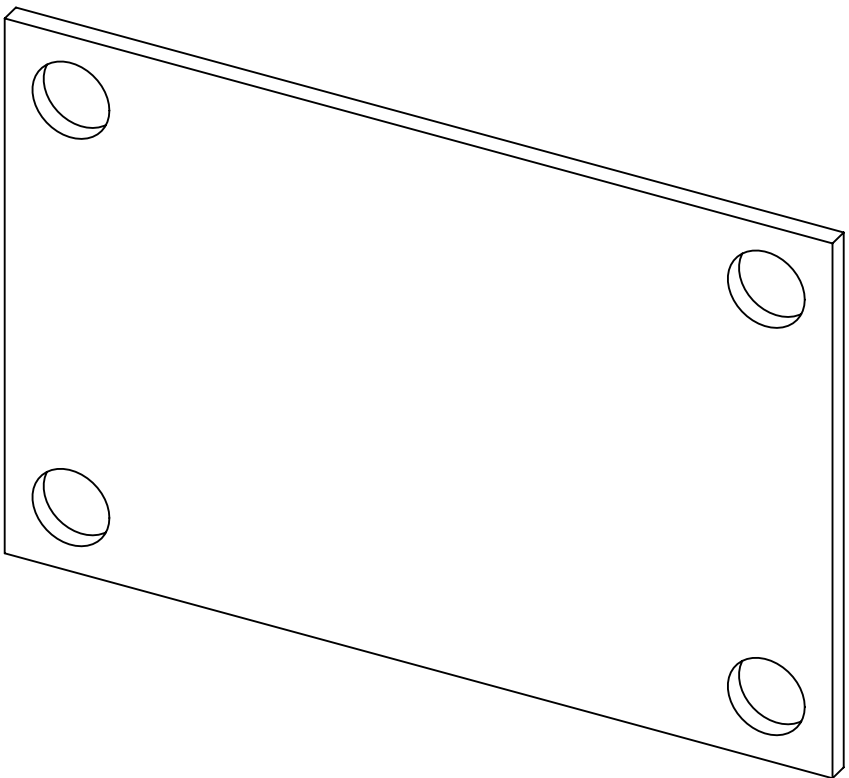
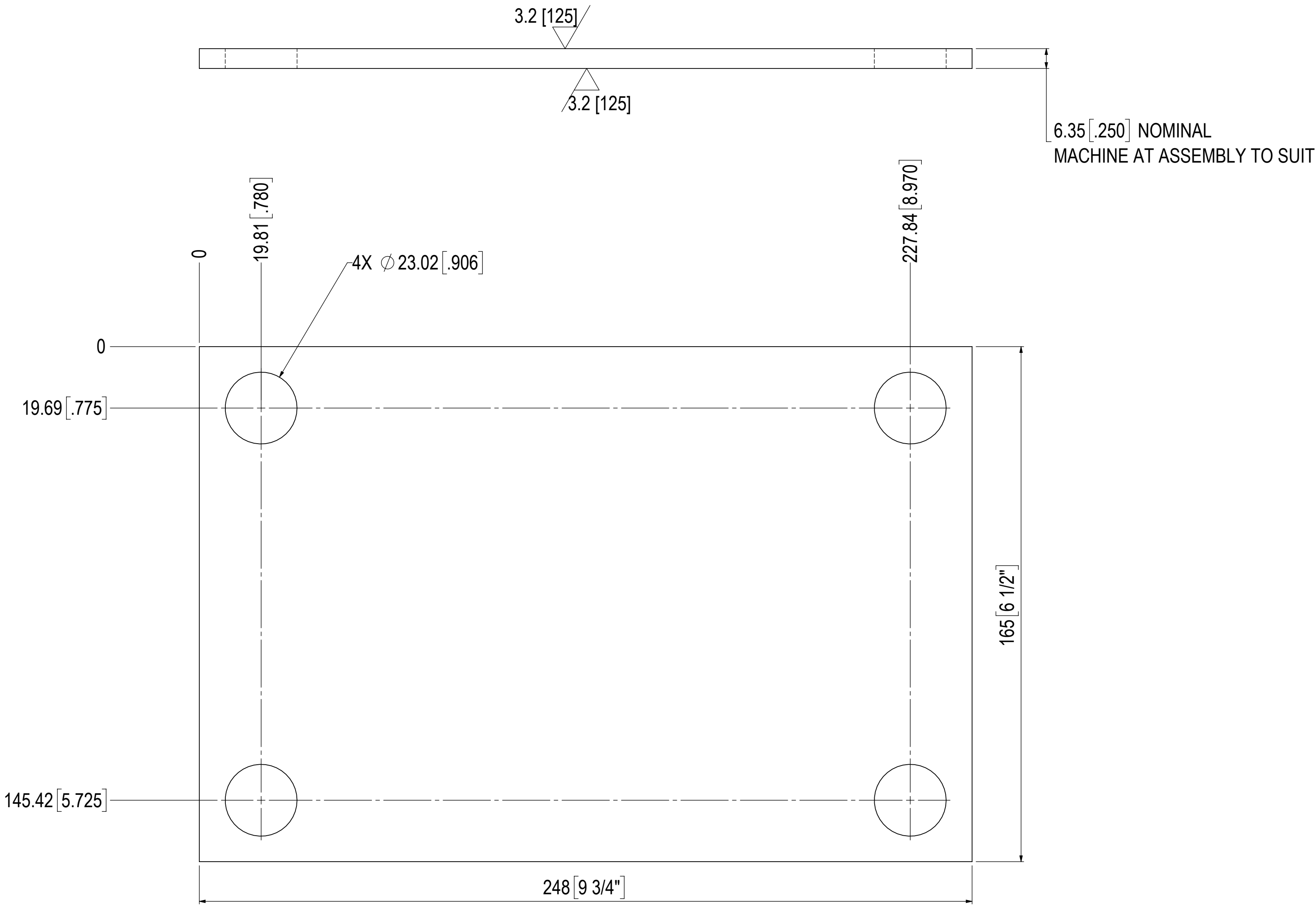


1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.X DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				
<div>A C</div>	A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin			<div>A B C</div>
Client Acceptance / Acceptation du client Signature _____ Date _____ File No./No. de dossier _____				
<div><div>Parks Canada</div><div><div>Parcs Canada</div></div><div></div></div>				
				
<div><div>Chadwick Engineering Ltd. www.chadwickengineering.com</div></div>				
Project title / Titre du projet <div>BOUNDARY ROAD SWING BRIDGE REHABILITATION TRENT-SEVERN WATERWAN</div>				
ONTARIO				
Drawing title / Titre du dessin <div>PIVOT THRUST WASHER</div>				
Scale / Echelle <div>2:1</div>				
Drawn by/ Dessiné par <div>M_D</div>		Date <div>2019-01-14</div>		
Designed by/ Conçu par <div>M_D</div>		Date <div>2019-01-07</div>		
Checked by/ Vérifié par <div>DPC</div>		Date <div>2019-01-21</div>		
Approved by / Approuvé par <div>DPC</div>		Date <div>2019-01-21</div>		
Project No./No. du projet		Client No./No du Client		Sheet No./ Feuille No. <div>12</div>
Drawing Reference No./Numéro de Référence du Dessin <div>203</div>				

PART NUMBER: 203-13
DESCRIPTION:
MATERIAL: AISI 316 SS PL
165 X 248 [6 1/2" X 9 3/4"] X 10 [3/8"] THK
FINISH: NONE
QUANTITY: 2



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision				
A	A Detail number No. du détail			
	B Location dwg. no. No. sur dessin			
	C Drawing sheet no. No. du dessin			

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Canada



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Project title / Titre du projet
**BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY**
ONTARIO

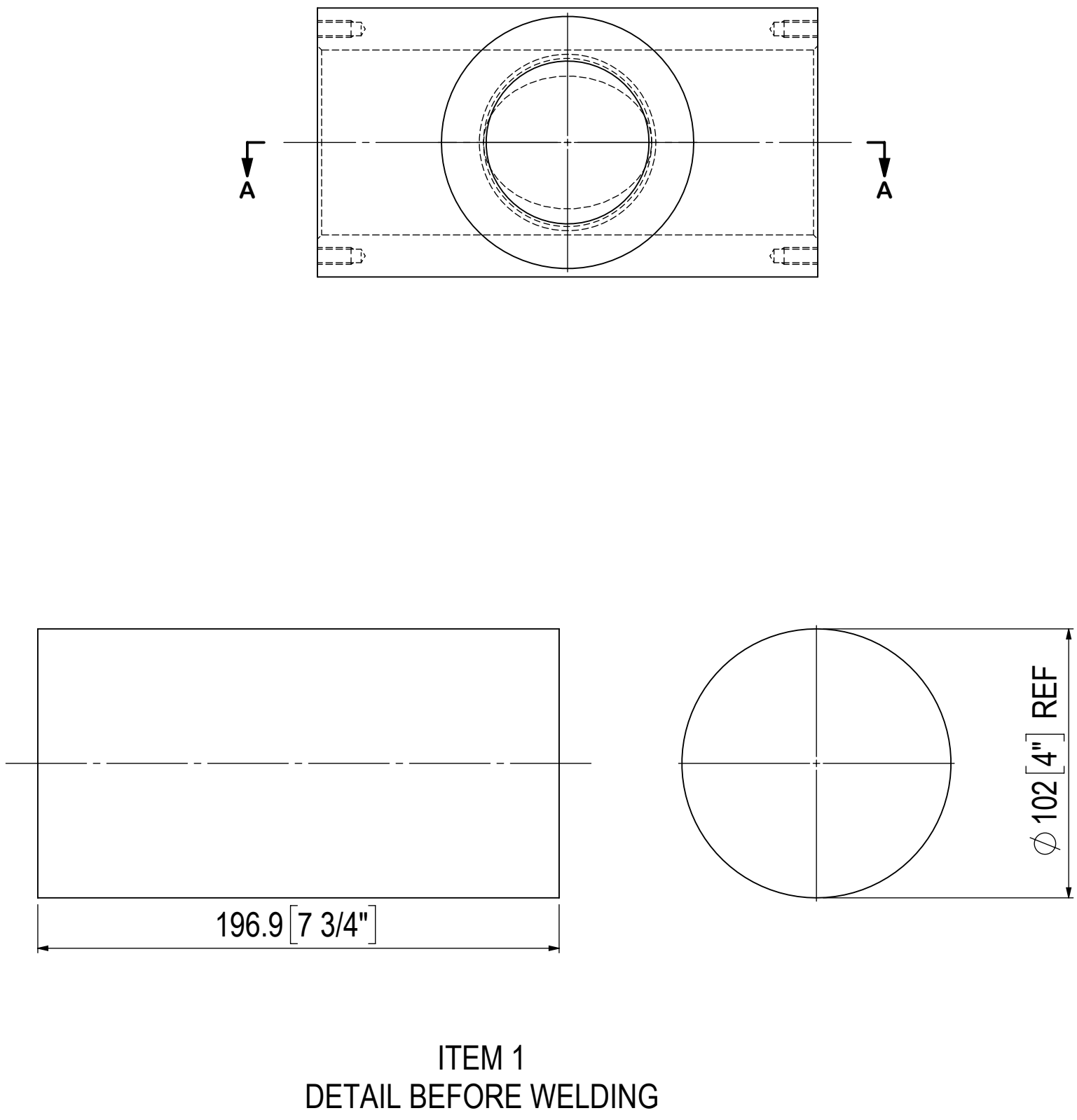
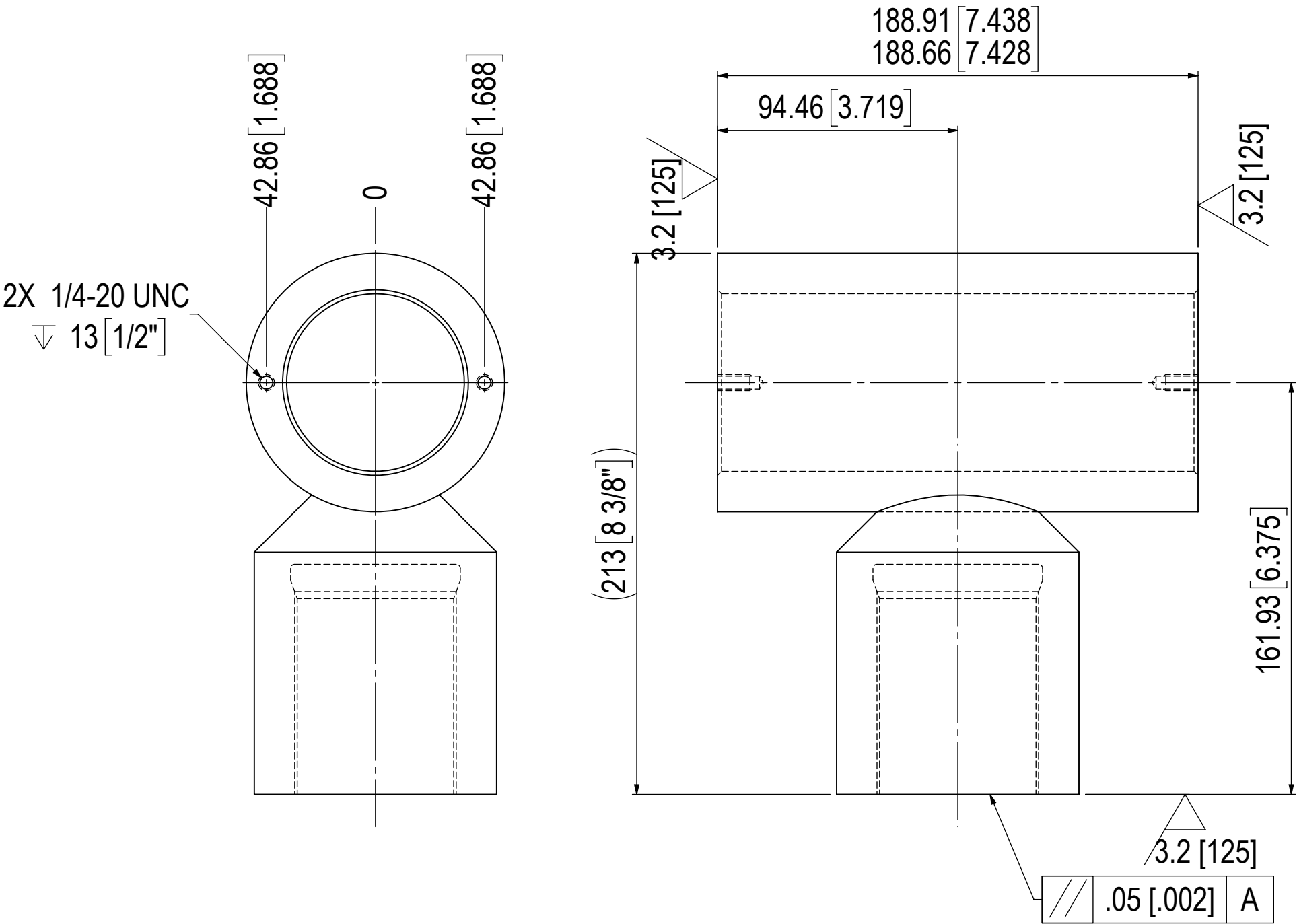
Drawing title / Titre du dessin
CLEVIS SHIM

Scale / Echelle 1:1		
Drawn by/ Dessiné par M_D		Date 2019-01-14
Designed by/ Conçu par M_D		Date 2019-01-07
Checked by/ Vérifié par DPC		Date 2019-01-21
Approved by / Approuvé par DPC		Date 2019-01-21
Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No. 13
Drawing Reference No./Numéro de Référence du Dessin 203		

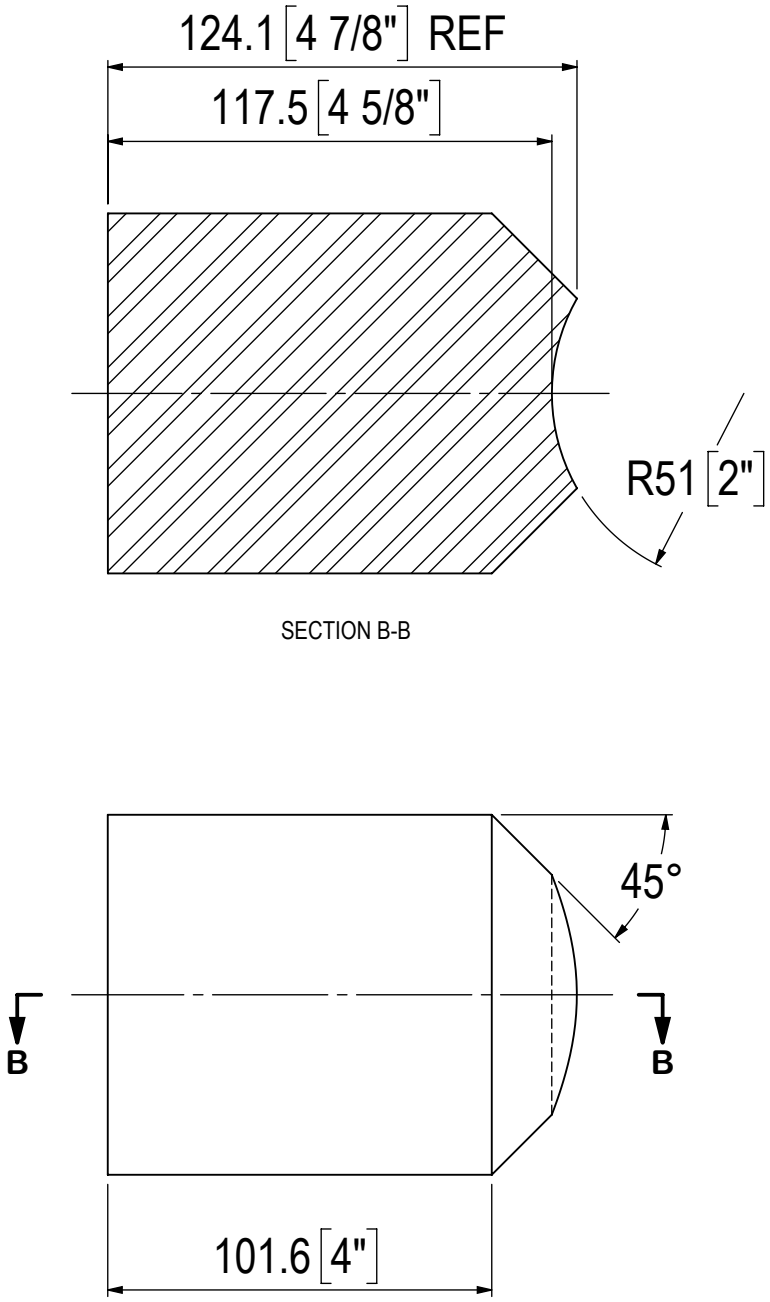
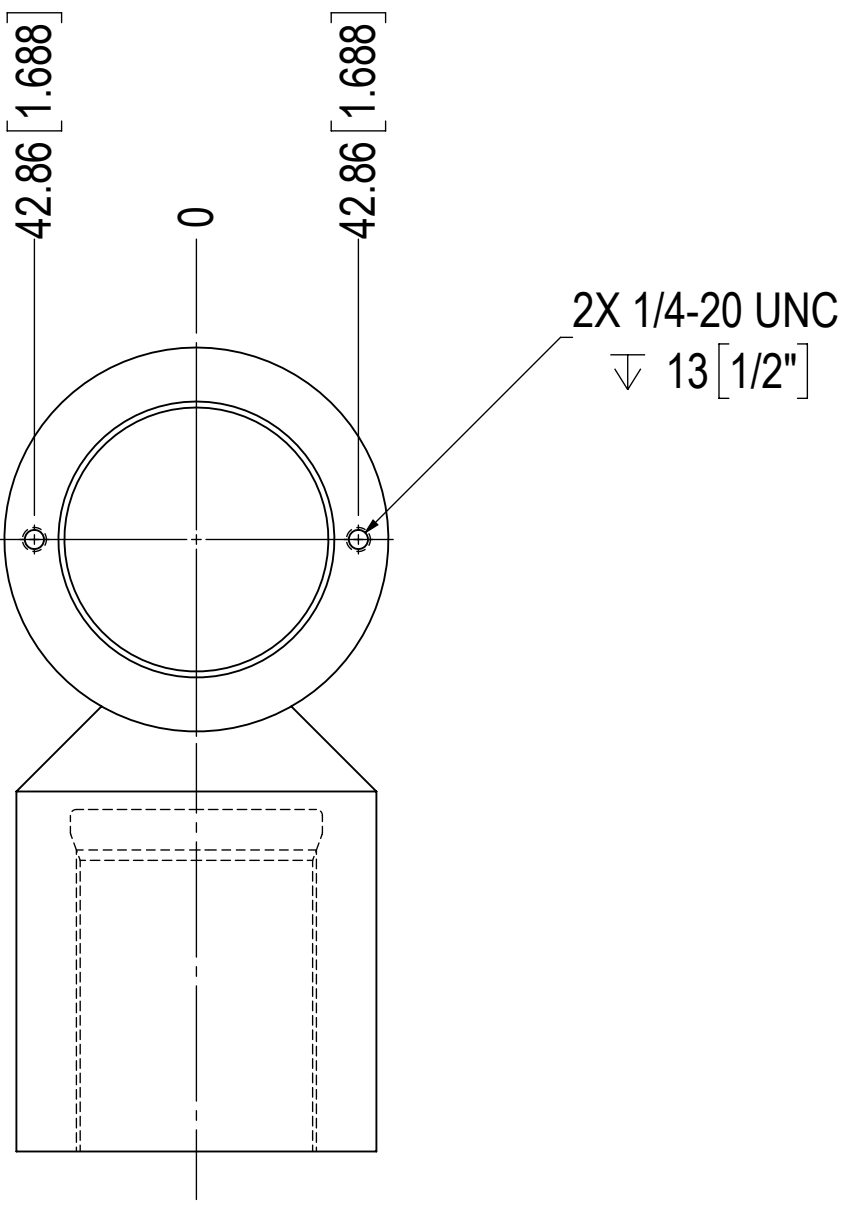
1. DIMENSIONS ARE IN MILLIMETERS
2. TOLERANCES
- | | | |
|-----|------------|----------------|
| X. | DECIMALS | ± 0.5 |
| .X | DECIMALS | ± 0.1 |
| .XX | DECIMALS | ± 0.05 |
| | ANGLES | ± 0.5 DEG |
| | HOLE SIZES | ± 1mm |
| | SURFACES | 3.2 MICROMETER |

PART NUMBER: 203-14
DESCRIPTION:
MATERIAL: SEE CUT LIST
FINISH: PAINT (DO NOT PAINT MACHINED HOLES)
QUANTITY: 2

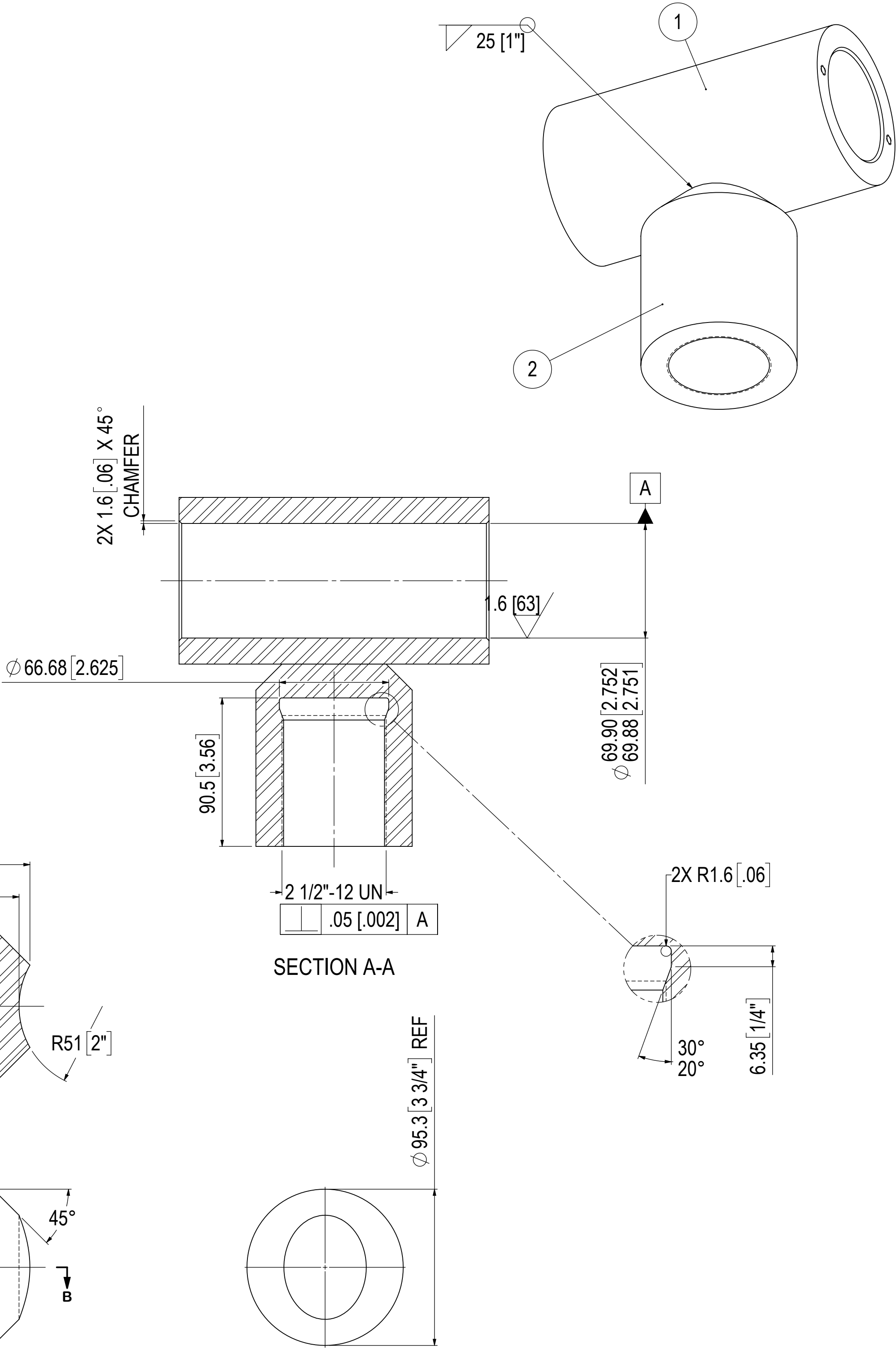
WELDMENT CUT LIST			
ITEM	QTY.	MATERIAL	CUT LENGTH
1	1	CSA G40.21-44W HRS RND, ø102 [4"]	197 [7 3/4"]
2	1	CSA G40.21-44W HRS RND, ø95 [3 3/4"]	124 [4 7/8"]



ITEM 1
DETAIL BEFORE WELDING



ITEM 2
DETAIL BEFORE WELDING



1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.XX DECIMALS	± 0.1
.XXX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desiné par	Approved Approuvé

Revision / Révision	
A	A Detail number No. du détail
B	B Location dwg. no. No. sur dessin
C	C Drawing sheet no. No. du dessin

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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Project title / Titre du projet
**BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY**

ONTARIO

Drawing title / Titre du dessin
ROD CLEVIS

Scale / Echelle
1:2

Drawn by/ Dessiné par
M_D Date
2019-01-14

Designed by/ Conçu par
M_D Date
2019-01-07

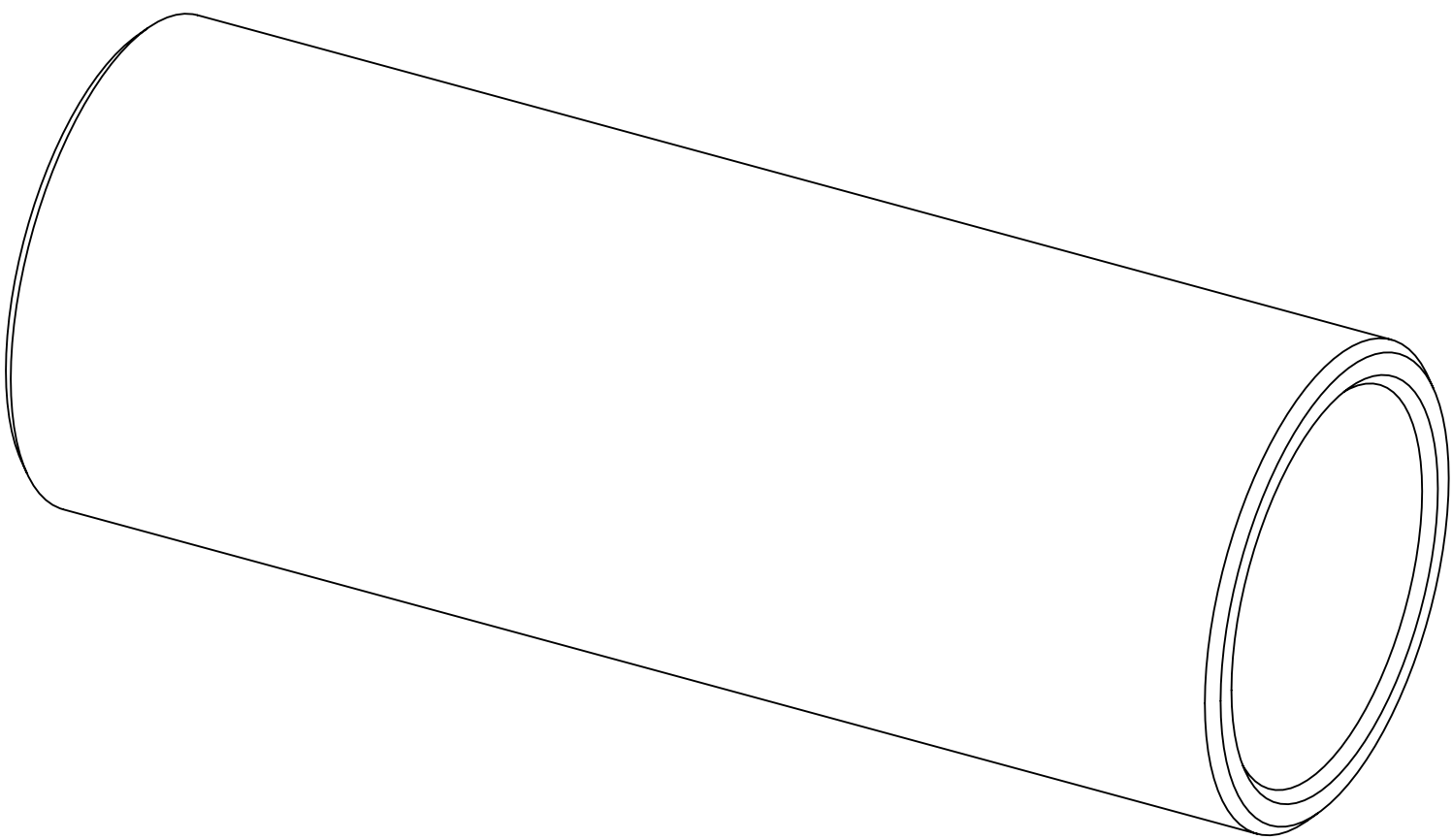
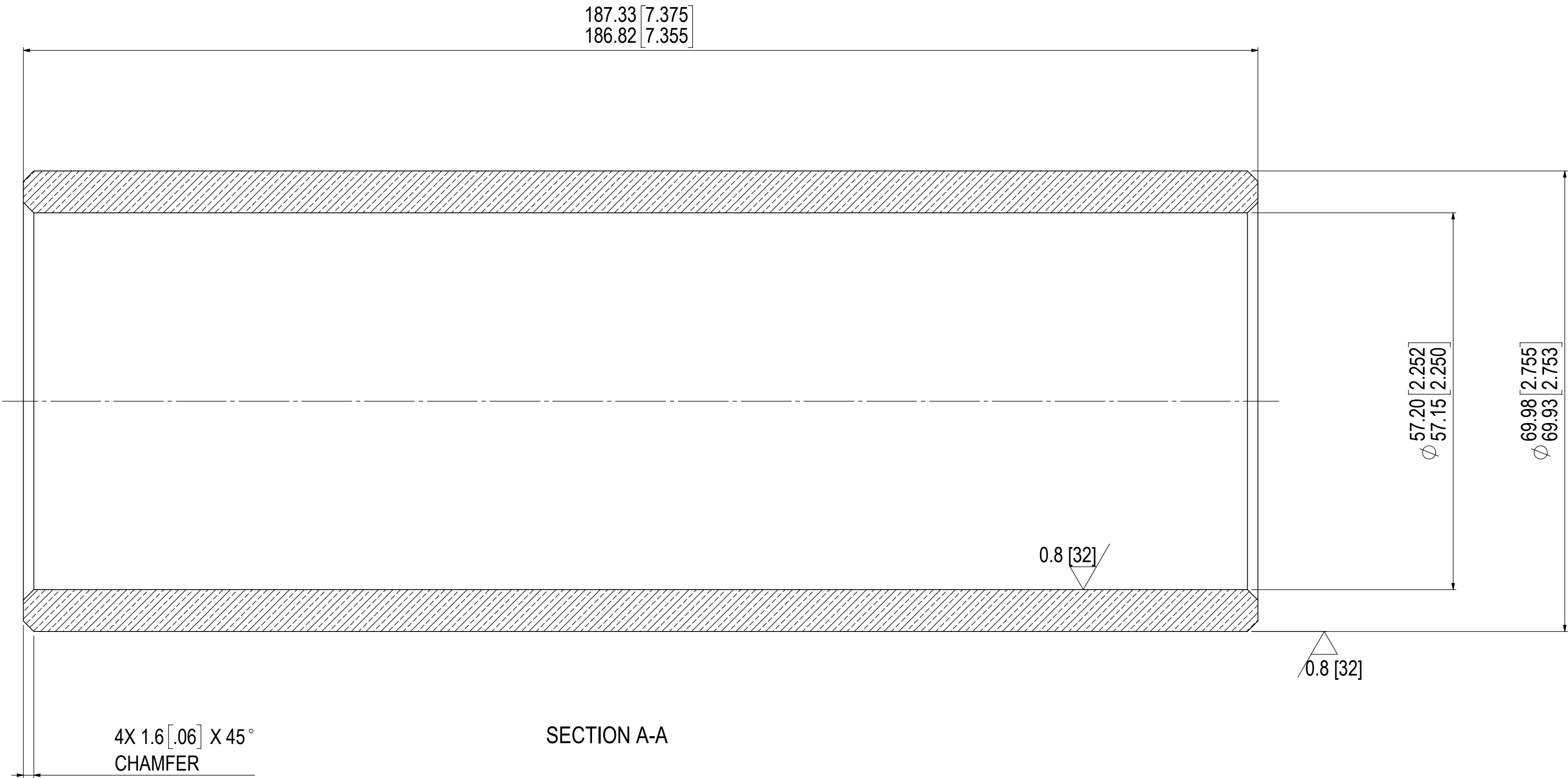
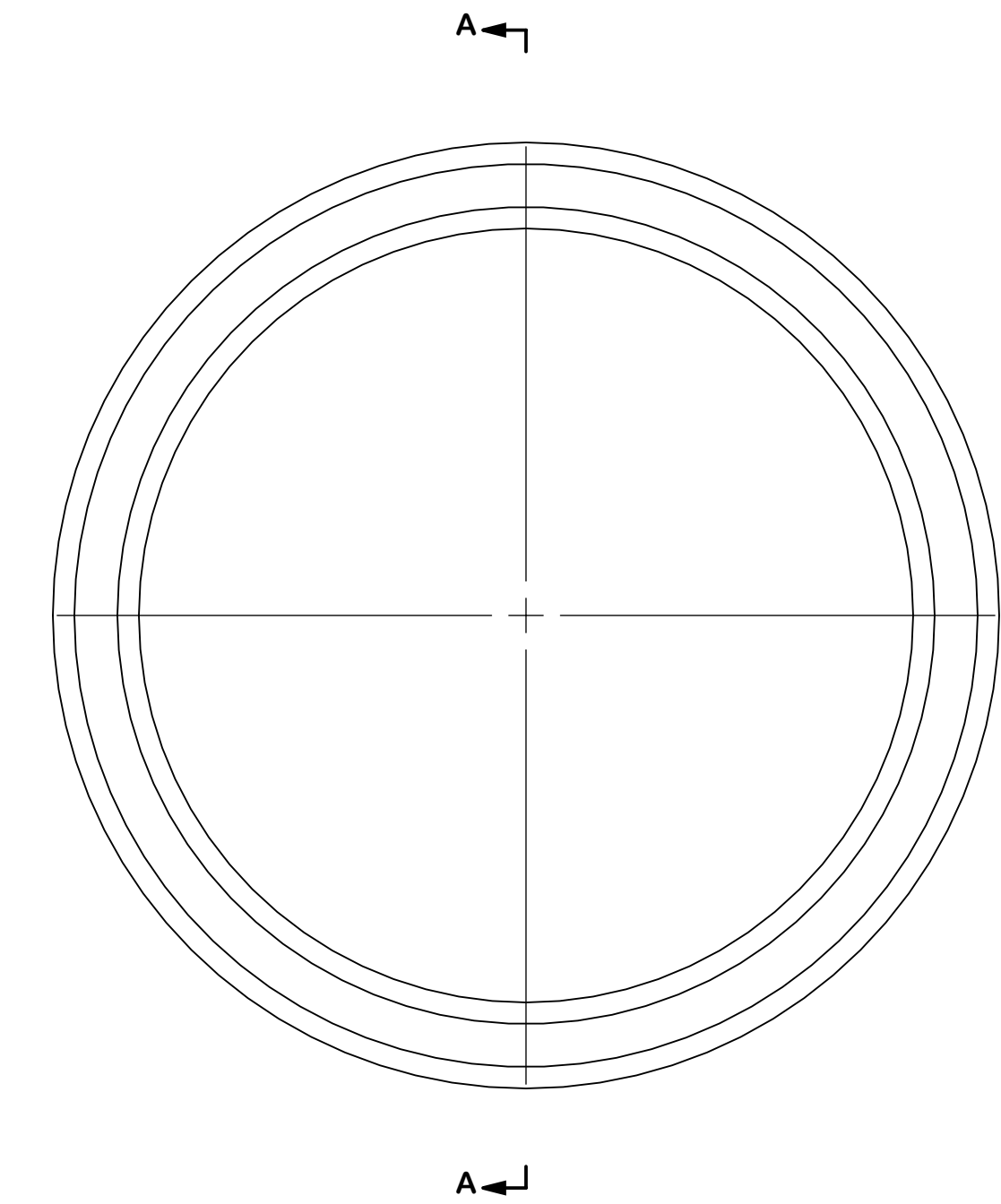
Checked by/ Vérifié par
DPC Date
2019-01-21

Approved by / Approuvé par
DPC Date
2019-01-21

Project No./No. du projet Client No./No du Client Sheet No./
Feuille No.

Drawing Reference No./Numéro de Référence du Dessin
203 **14**

PART NUMBER: 203-15
DESCRIPTION:
MATERIAL: AMPCO 18 (AL BRNZ) TUBE
70 [2 3/4"] OD X 51 [2"] ID X 187 [7 3/8]" LG
FINISH: NONE
QUANTITY: 2



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				

A	A Detail number No. du détail	A
B	B Location dwg. no. No. sur dessin	B
C	C Drawing sheet no. No. du dessin	C

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Canada



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Project title / Titre du projet

BOUNDARY ROAD SWING
BRIDGE REHABILITATION

TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

CLEVIS BUSHING

Scale / Echelle

2:1

Drawn by/ Dessiné par
M_D 2019-01-14

Designed by/ Conçu par
M_D 2019-01-07

Checked by/ Vérifié par
DPC 2019-01-21

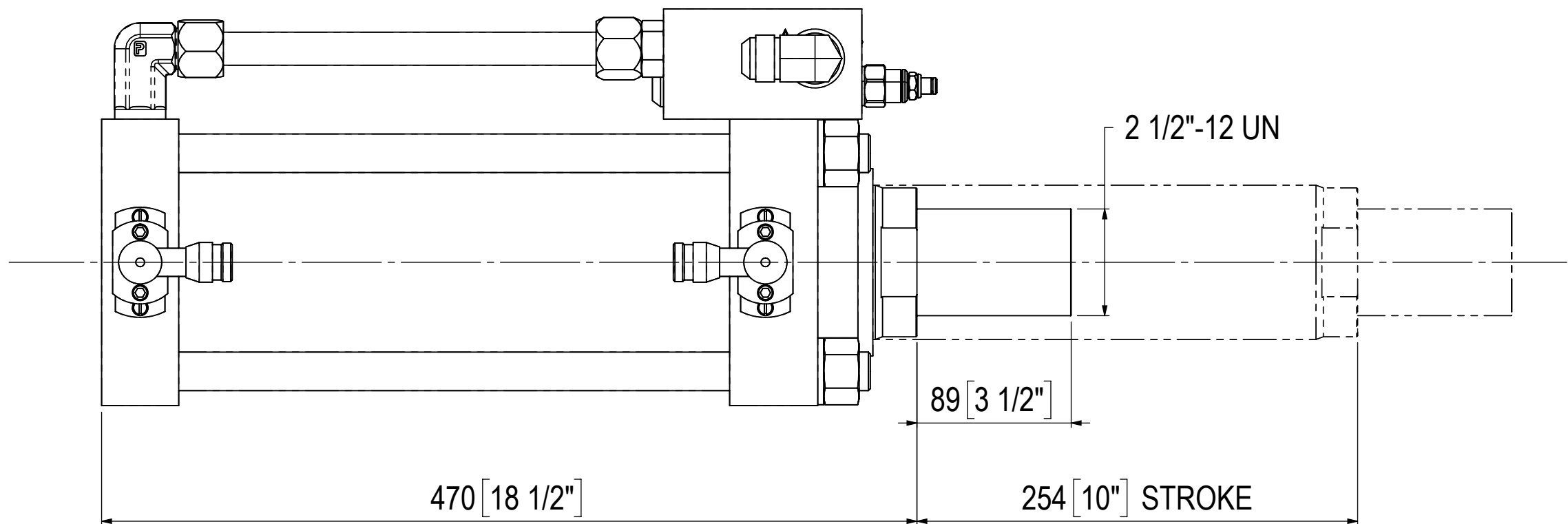
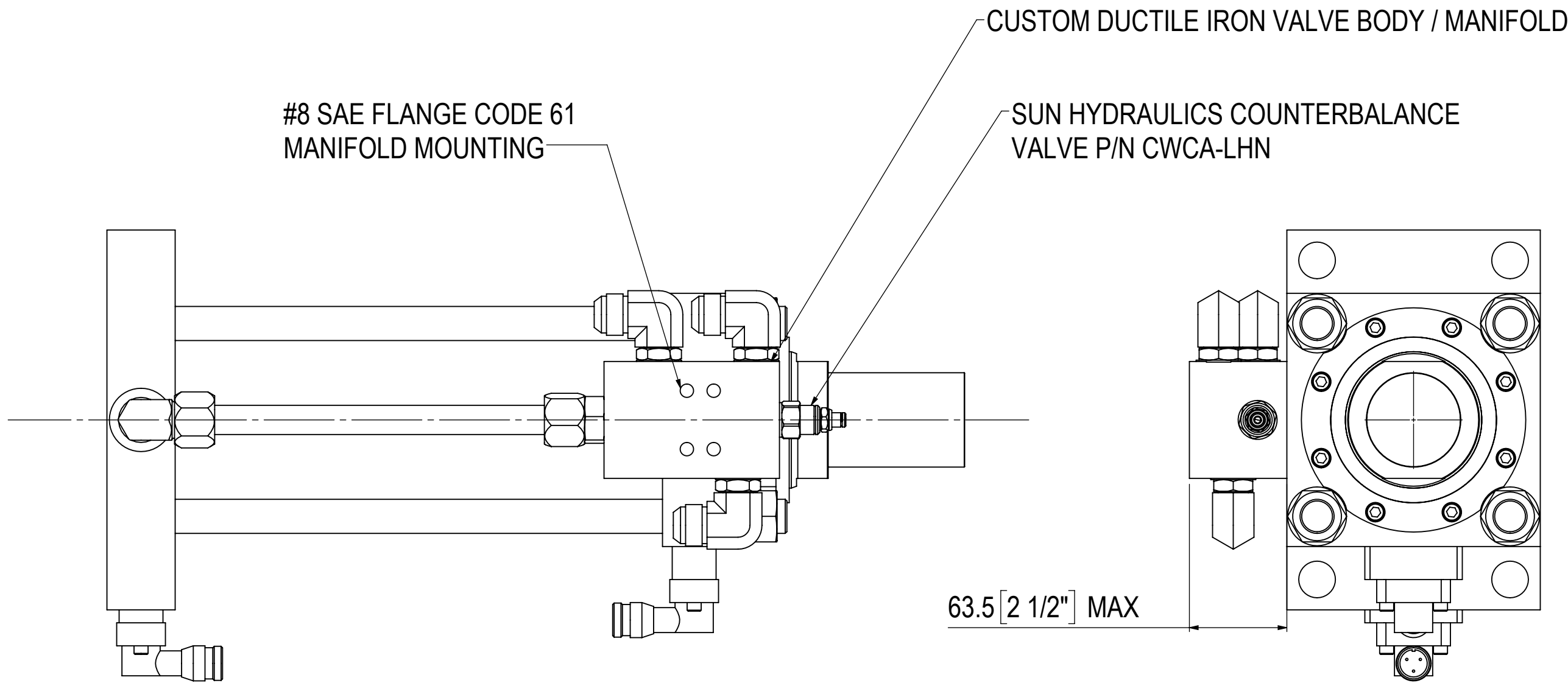
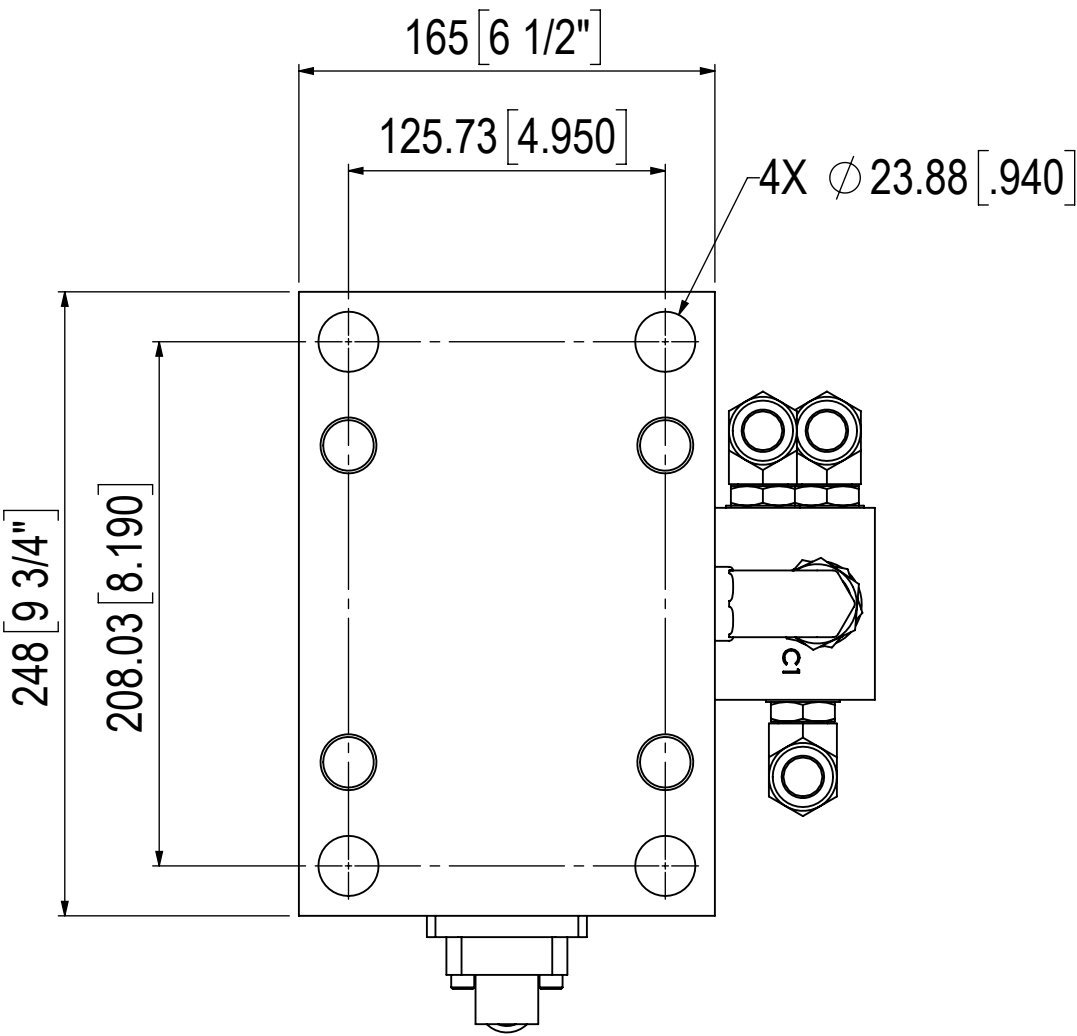
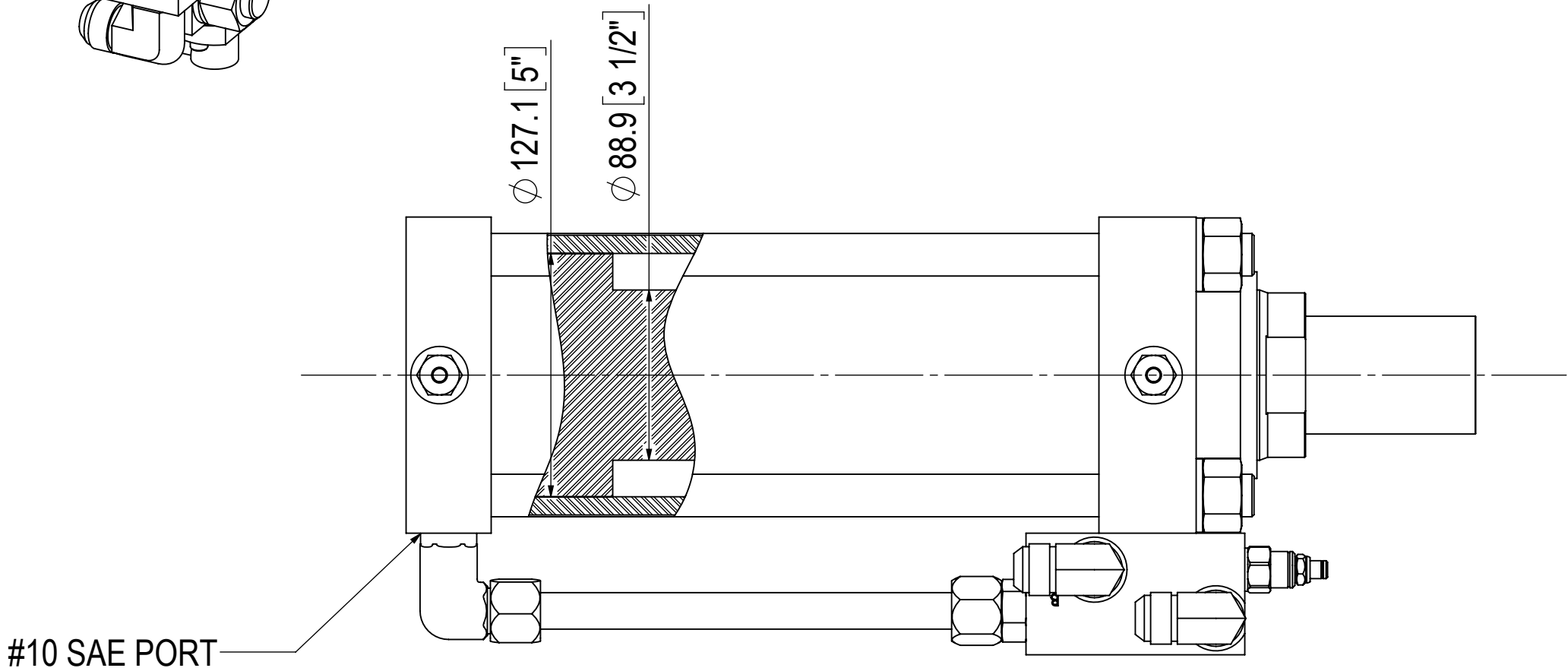
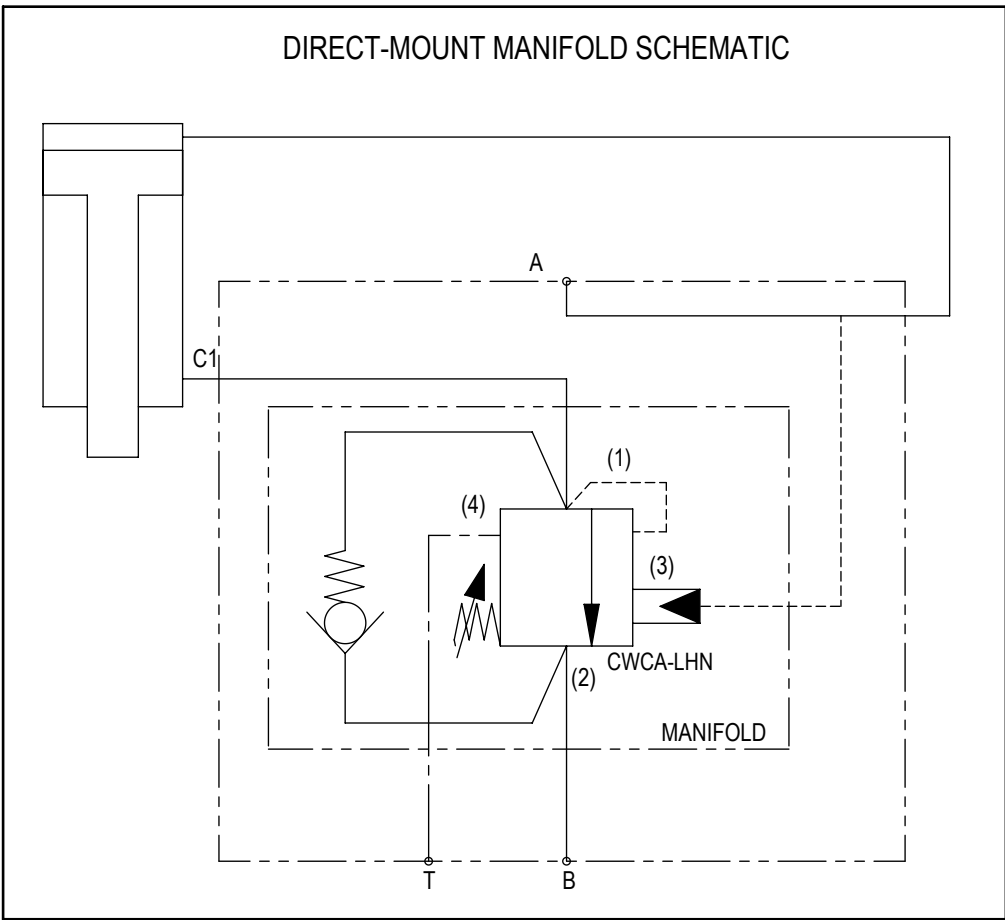
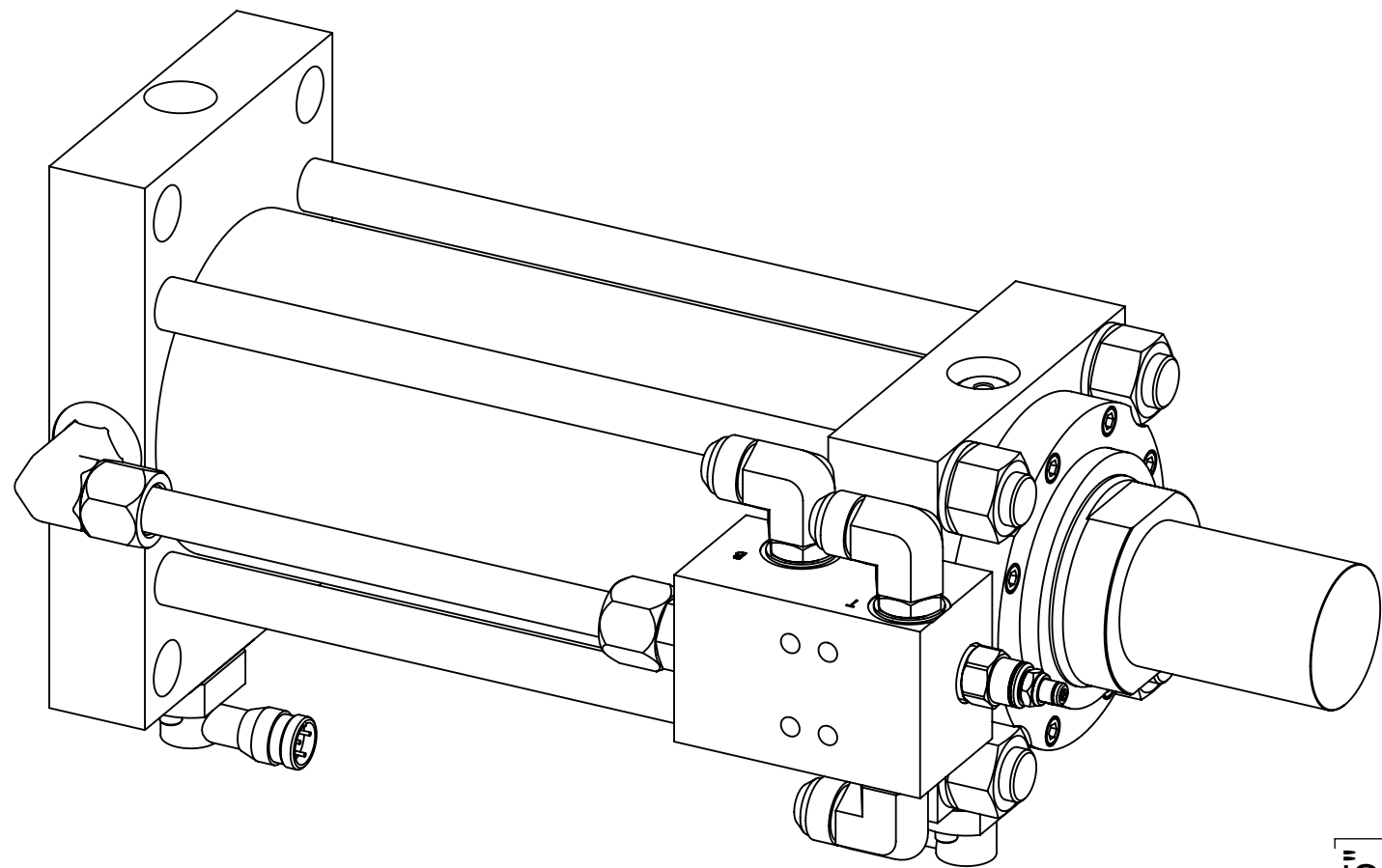
Approved by / Approuvé par
DPC 2019-01-21

Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No.
---------------------------	-------------------------	---------------------------

Drawing Reference No./Numéro de Référence du Dessin	203	15
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1. DIMENSIONS ARE IN MILLIMETERS		
2. TOLERANCES		
.X	DECIMALS	± 0.5
.X	DECIMALS	± 0.1
.XX	DECIMALS	± 0.05
	ANGLES	± 0.5 DEG
	HOLE SIZES	± 1mm
	SURFACES	3.2 MICROMETER

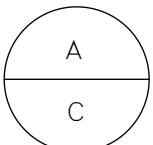
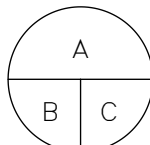
PART NUMBER: 203-16
DESCRIPTION:
QUANTITY: 2



NOTE: ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

PARKER CYLINDER SPECIFICATIONS		
COMPONENT	CODE	DESCRIPTION
BORE	5.00	INCH
CUSHION HEAD	C	CUSHION HEAD
MOUNTING	HH	CAP RECTANGULAR
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	STANDARD GLAND WITH LIPSEAL
PORT TYPE	MF	SPECIAL MANIFOLD PORTS
SEALS	1	STANDARD (CLASS 1)
SPECIAL	S	SPECIAL MODIFICATIONS
PISTON ROD NUMBER	C2D350	3.50 INCH
PISTON ROD END	4	STYLE 4 SMALL MALE
PISTON ROD END THREAD	A	IMPERIAL INTEGRAL CUT THREADS
CUSHION CAP	C	CUSHION CAP
STROKE	10.000	INCH
PORT SIZE - HEAD	SF8	1/2 INCH (#8) SAE FLANGE - CODE 61 - MANIFOLD MOUNT
PORT LOCATION - HEAD	1	
PORT SIZE - CAP	SA10	#10 SAE
PORT LOCATION - CAP	1	
PROXIMITY SWITCH - HEAD	ES7H	EPS7 - INDUCTIVE
SWITCH LOCATION - HEAD	4	
SWITCH ORIENTATION - HEAD	A	
ACTUATION POINT - HEAD	GG	END OF STROKE
PROXIMITY SWITCH - CAP	ES7H	EPS7 - INDUCTIVE
SWITCH LOCATION - CAP	4	
SWITCH ORIENTATION - CAP	A	
ACTUATION POINT - CAP	GG	END OF STROKE
SWITCH CODE	H14AGG-14AGG	
NEEDLE LOCATION - HEAD	2	
NEEDLE LOCATION - CAP	2	
PISTON ROD WIPER	EW	METALLIC ROD WIPER
PISTON ROD WRENCH FLATS	2F	STANDARD 2 WRENCH FLATS
PISTON ROD MATERIAL	0174	17-4 PH STAINLESS STEEL PISTON ROD MATERIAL
PISTON ROD PLATING	GB	GLOBAL SHIELD PISTON ROD PLATING .0010 INCH THICK
PAINT	OP	NICKEL PLATE
PART SPECIAL INSTRUCTIONS		DIRECT-MOUNT MANIFOLD VIA SAE FLANGE CODE 61 MOUNT. FOR SUN HYDRAULICS COUNTERBALANCE VALVE P/N CWCA-LHN PER DRAWING & SCHEMATIC **SUPPLIER TO PROVIDE FINAL DRAWING FOR APPROVAL BEFORE PROCEEDING WITH MANUFACTURE



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				
		A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin		
Client Acceptance / Acceptation du client				
Signature _____			Date _____	
File No./No. de dossier _____				



Canada



Project title / Titre du projet
BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

ONTARIO

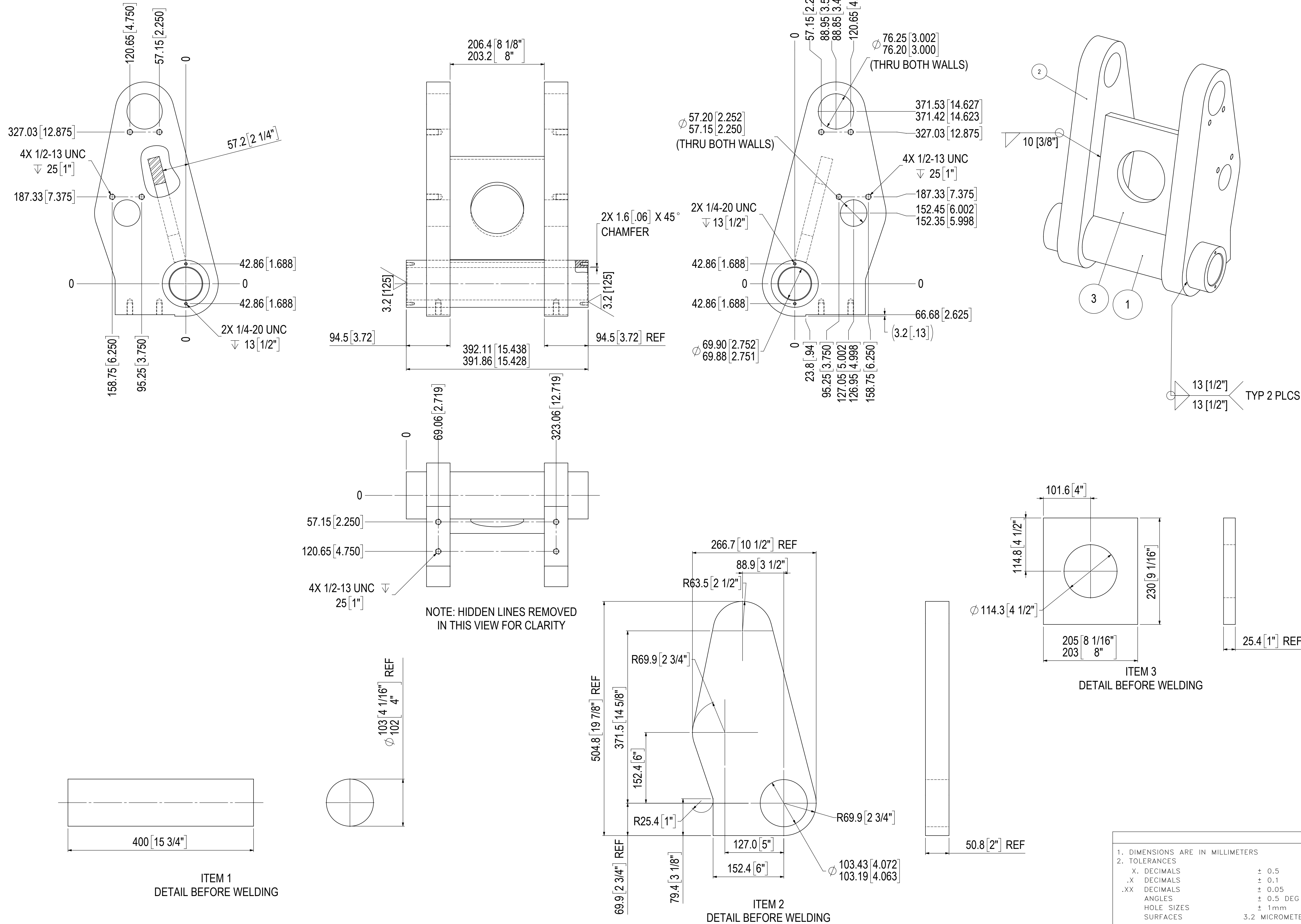
Drawing title / Titre du dessin
HYDRAULIC CYLINDER
PARKER 2HD SPECIAL

Scale / Echelle 1:3	
Drawn by/ Dessiné par M_D	Date 2019-01-14
Designed by/ Conçu par M_D	Date 2019-01-07
Checked by/ Vérifié par DPC	Date 2019-01-21
Approved by / Approuvé par DPC	Date 2019-01-21
Project No./No. du projet 1911-1	Client No./No du Client
Drawing Reference No./Numéro de Référence du Dessin 203	Sheet No./ Feuille No. 16

1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.X DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER

PART NUMBER: 203-17
DESCRIPTION:
MATERIAL: SEE CUT LIST
FINISH: PAINT (DO NOT PAINT TAPPED HOLES OR PRECISION BORES)
QUANTITY: 2

WELDMENT CUT LIST			
ITEM	QTY.	MATERIAL	CUT LENGTH
1	1	CSA G40.21-44W HRS RND, ø102 [4"]	400 [15 3/4"]
2	2	CSA G40.21-44W HRS PL, 51 [2"] THK	267 X 505 [10 1/2" X 14 5/8"]
3	1	CSA G40.21-44W HRS PL, 25 [1"] THK	203 X 230 [8" X 9 1/32"]



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				

A Detail number
No. du détail

B Location dwg. no.
No. sur dessin

C Drawing sheet no.
No. du dessin

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Canada



Project title / Titre du projet

BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

PIVOT ARM

Scale / Echelle
1:4

Drawn by/ Dessiné par M_D Date 2019-01-14

Designed by/ Conçu par	Date
M_D	2019-01-07

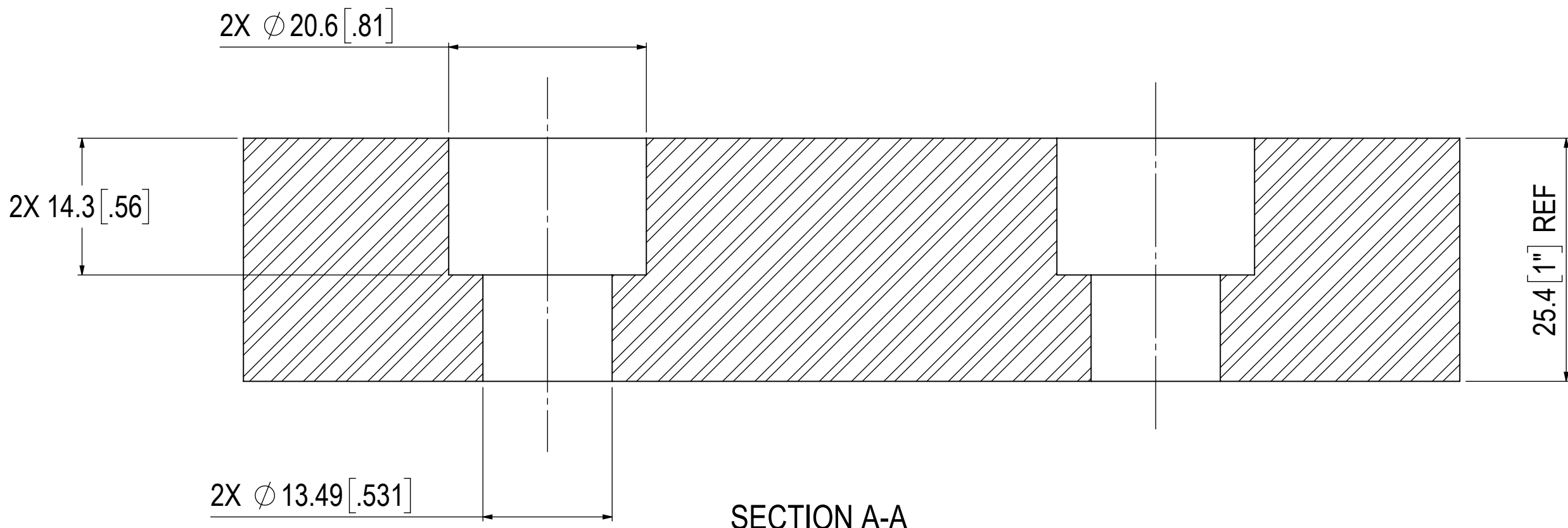
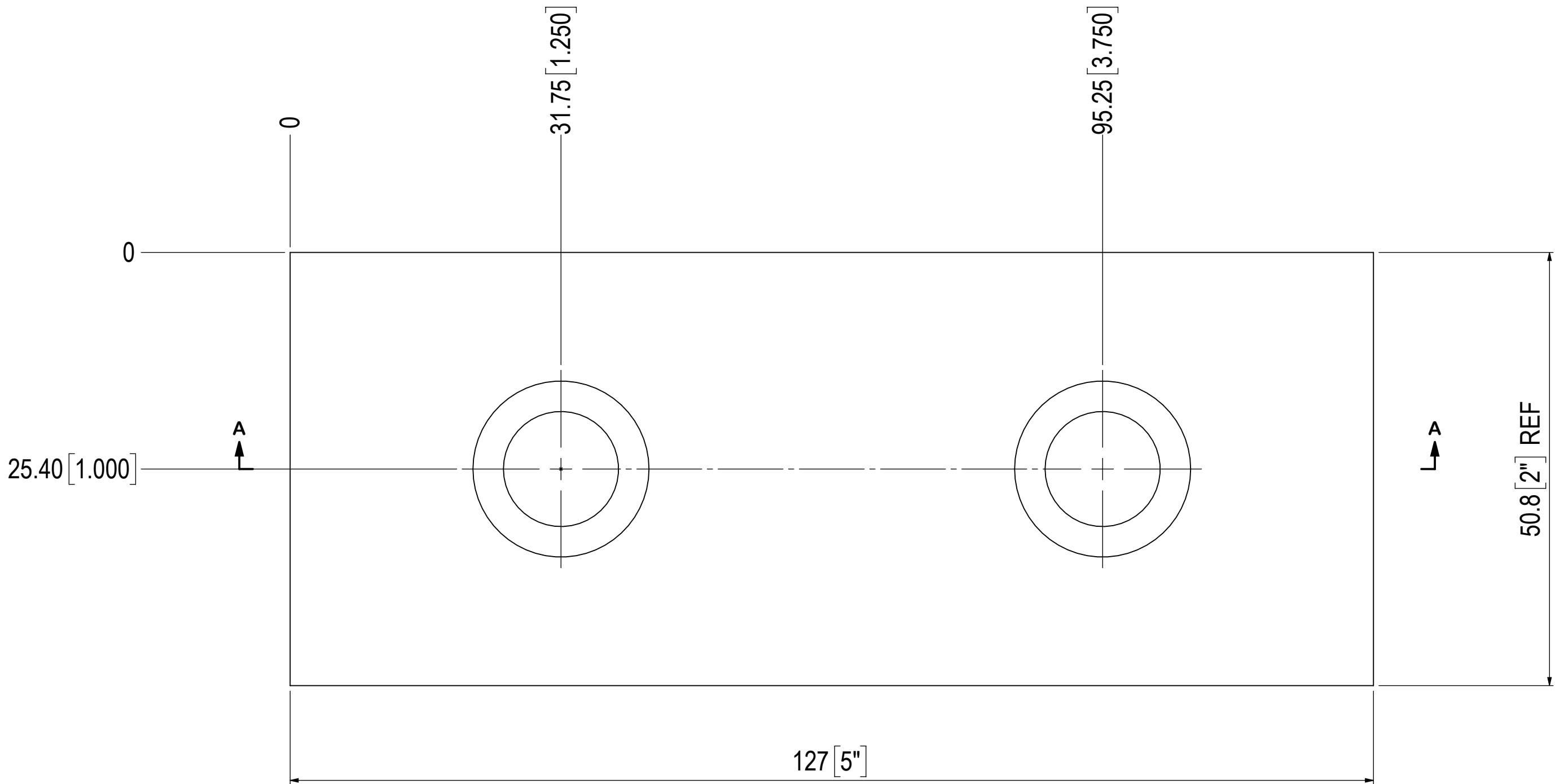
Checked by/ Vérifié par DPC	Date 2019-01-21
---------------------------------------	---------------------------

Approved by / Approuvé par	Date
DPC	2019-01-21

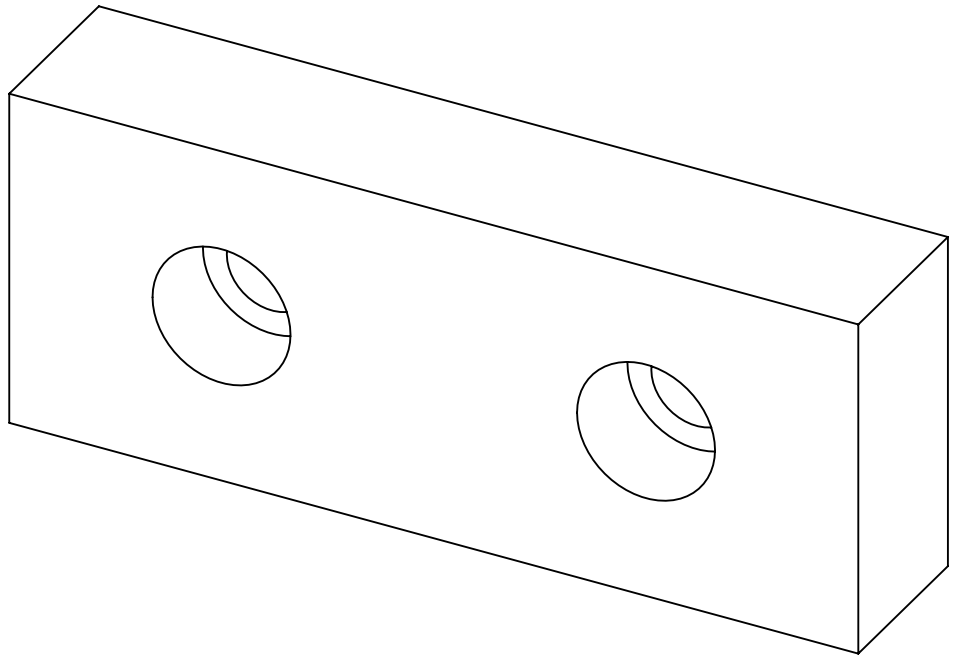
Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No.
		17

Drawing Reference No./Numéro de Référence du Dessin	203	1 /
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PART NUMBER: 203-18
DESCRIPTION:
MATERIAL: AISI 316 SS FB
25 X 51 [1" X 2"] X 127 [5]" LG
FINISH: NONE
QUANTITY: 4



SECTION A-A



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				

A	A
C	B C
A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin	

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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Project title / Titre du projet
**BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY**

ONTARIO

Drawing title / Titre du dessin
STOP BLOCK

Scale / Echelle
2:1

Drawn by/ Dessiné par
M_D Date
2019-01-14

Designed by/ Conçu par
M_D Date
2019-01-07

Checked by/ Vérifié par
DPC Date
2019-01-21

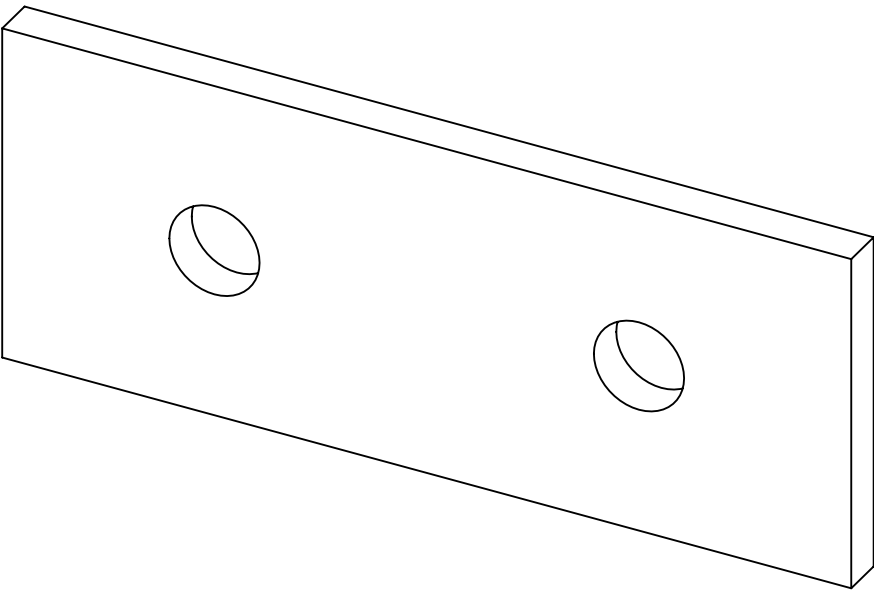
Approved by / Approuvé par
DPC Date
2019-01-21

Project No./No. du projet
1911-1 Client No./No du Client
Sheet No./
Feuille No.
18



Drawing Reference No./Numéro de Référence du Dessin
203

1. DIMENSIONS ARE IN MILLIMETERS 2. TOLERANCES		
X.	DECIMALS	± 0.5
.X	DECIMALS	± 0.1
.XX	DECIMALS	± 0.05
	ANGLES	± 0.5 DEG
	HOLE SIZES	± 1mm
	SURFACES	3.2 MICROMETER

PART NUMBER: 203-19
DESCRIPTION:
MATERIAL: AISI 316 SS FB
10 X 51 [3/8" X 2"] X 127 [5"] LG
FINISH: NONE
QUANTITY: 4



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision		
	A Detail number No. du détail	
	B Location dwg. no. No. sur dessin	
	C Drawing sheet no. No. du dessin	

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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BOUNDARY ROAD SWING
BRIDGE REHABILITATION

TRENT-SEVERN WATERWAY

ONTARIO

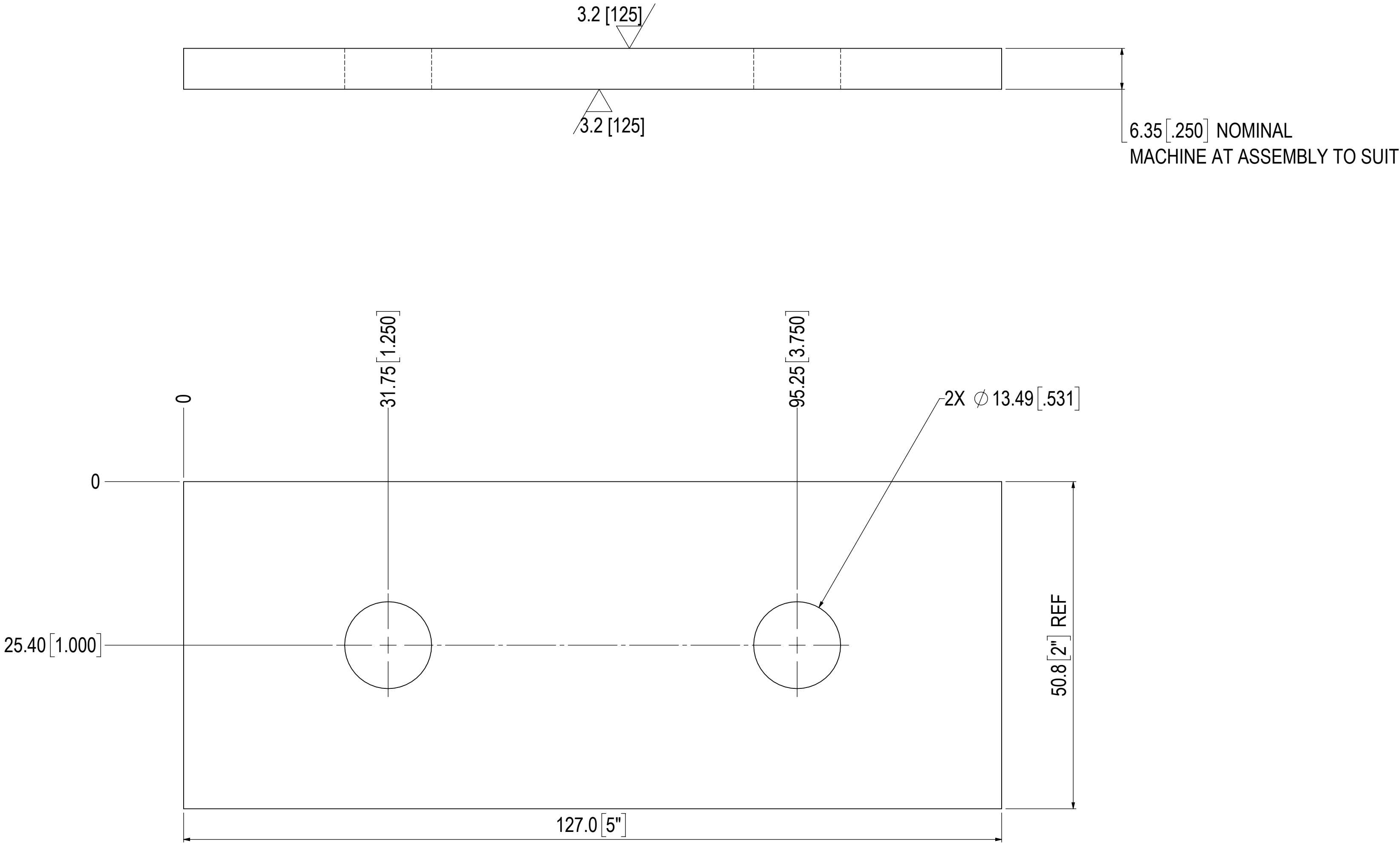
Drawing title / Titre du dessin

STOP SHIM

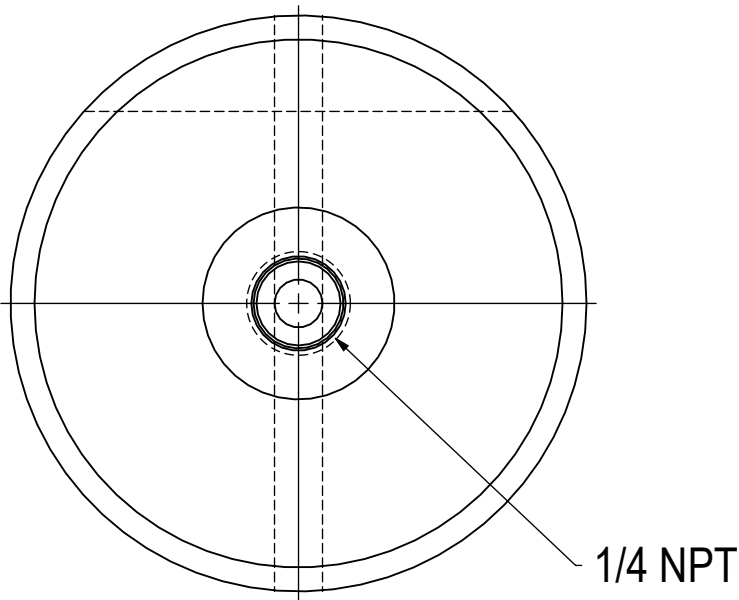
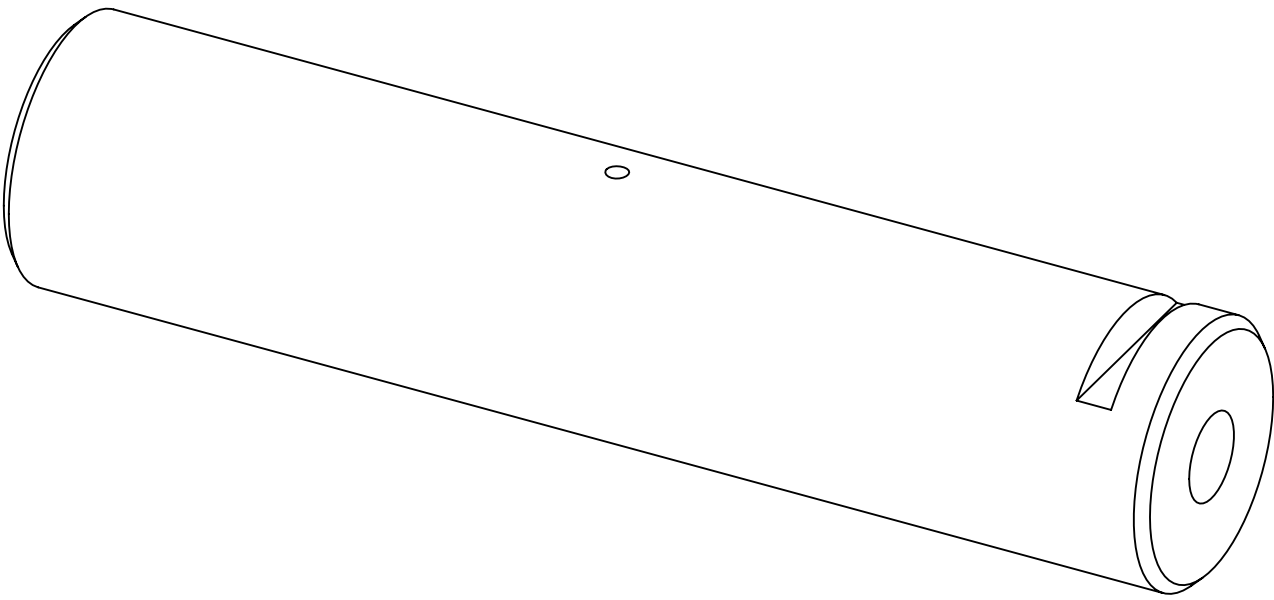
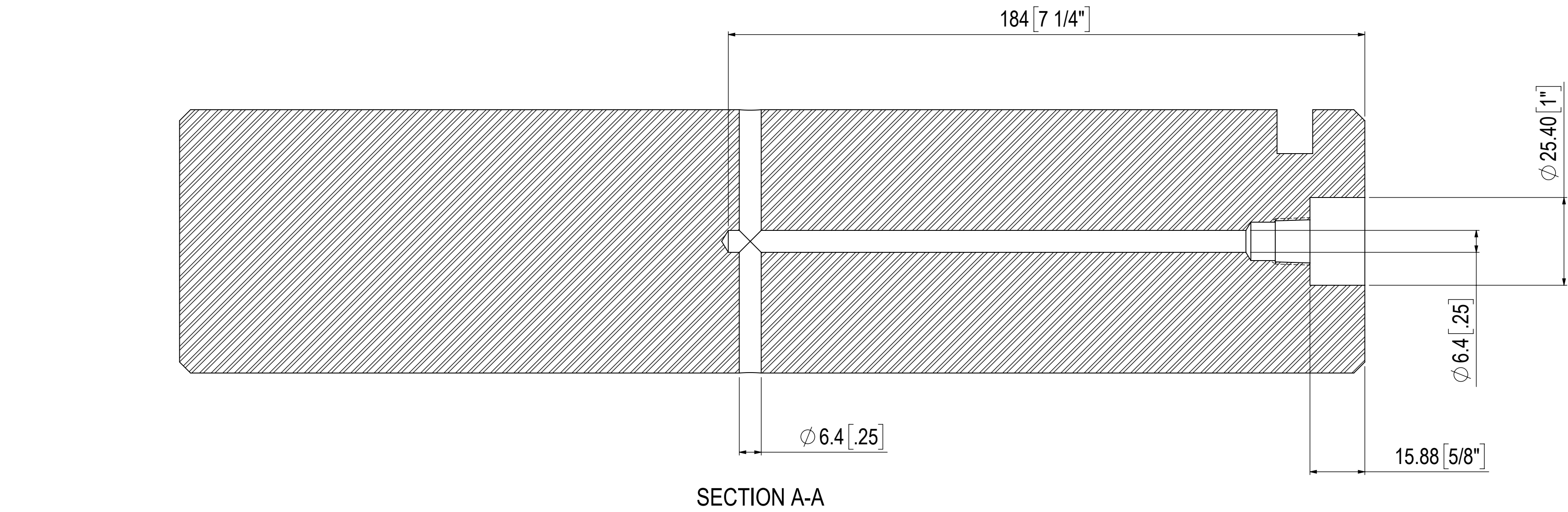
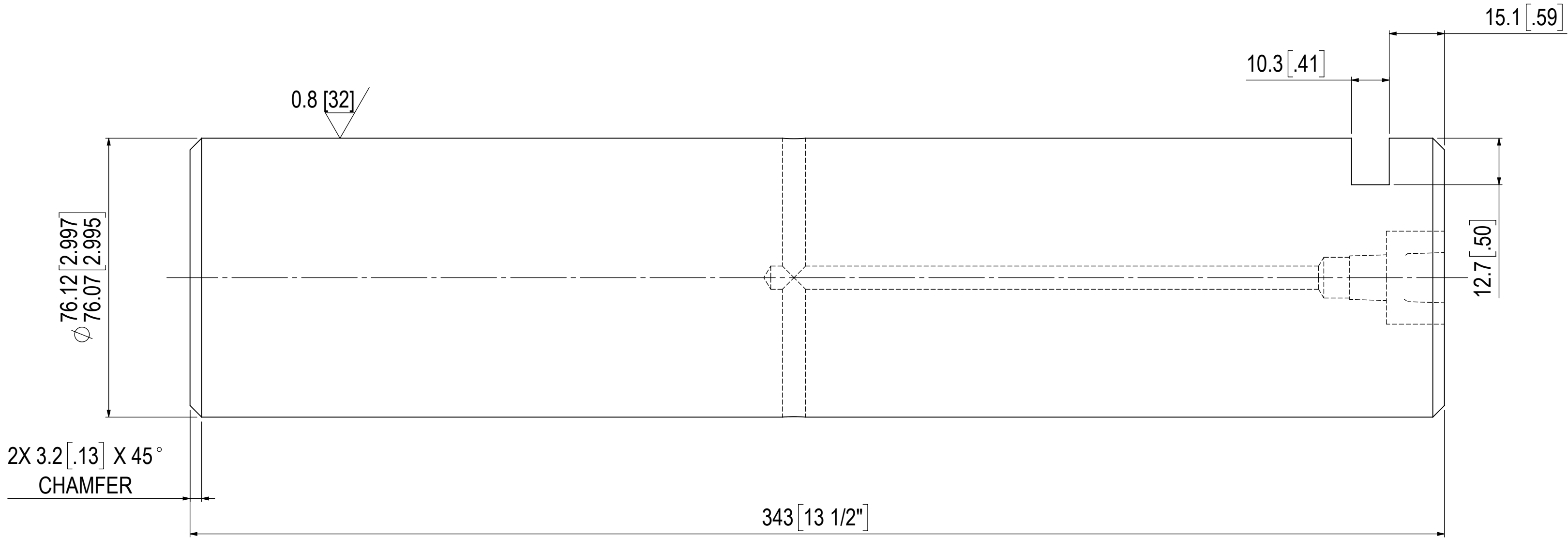
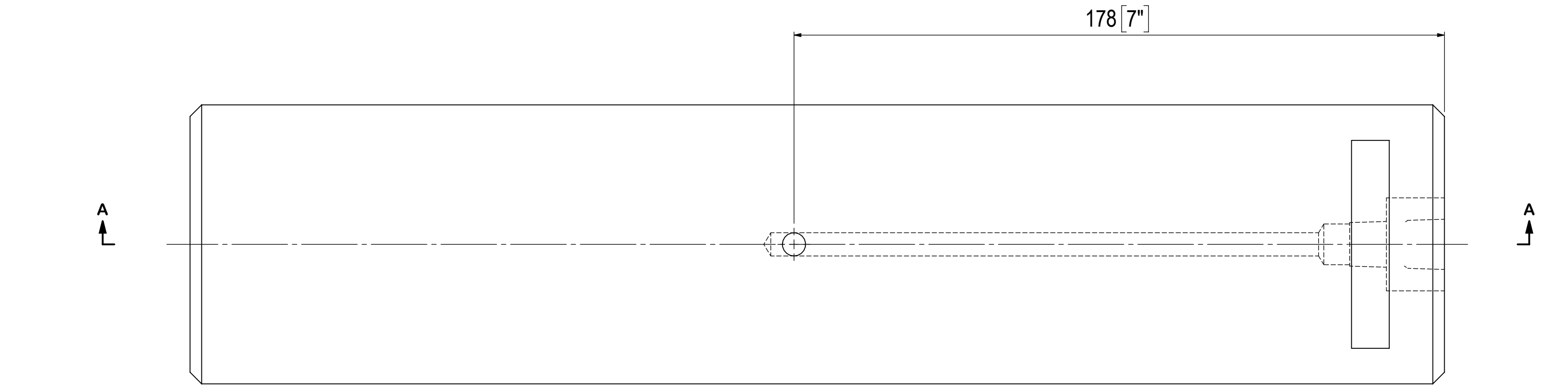
Scale / Echelle 2:1	
Drawn by/ Dessiné par M_D	Date 2019-01-14
Designed by/ Conçu par M_D	Date 2019-01-07
Checked by/ Vérifié par DPC	Date 2019-01-21
Approved by / Approuvé par DPC	Date 2019-01-21

Project No./No. du projet 1911-1	Client No./No du Client	Sheet No./ Feuille No. 19
Drawing Reference No./Numéro de Référence du Dessin 203		

1. DIMENSIONS ARE IN MILLIMETERS		
2. TOLERANCES		
.X	DECIMALS	± 0.5
.X	DECIMALS	± 0.1
.XX	DECIMALS	± 0.05
	ANGLES	± 0.5 DEG
	HOLE SIZES	± 1mm
	SURFACES	3.2 MICROMETER



PART NUMBER: 203-20
DESCRIPTION: ROLLER SHAFT
MATERIAL: 17-4 PH SS RND, CONDITION H1150
ø76 [3"] X 343 [13 1/2"] LG
FINISH: NONE
QUANTITY: 2



1. DIMENSIONS ARE IN MILLIMETERS		
2. TOLERANCES		
X.	DECIMALS	± 0.5
.X	DECIMALS	± 0.1
.XX	DECIMALS	± 0.05
	ANGLES	± 0.5 DEG
	HOLE SIZES	± 1mm
	SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision			
A	A Detail number No. du détail		
	B Location dwg. no. No. sur dessin		
	C Drawing sheet no. No. du dessin		

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Canada



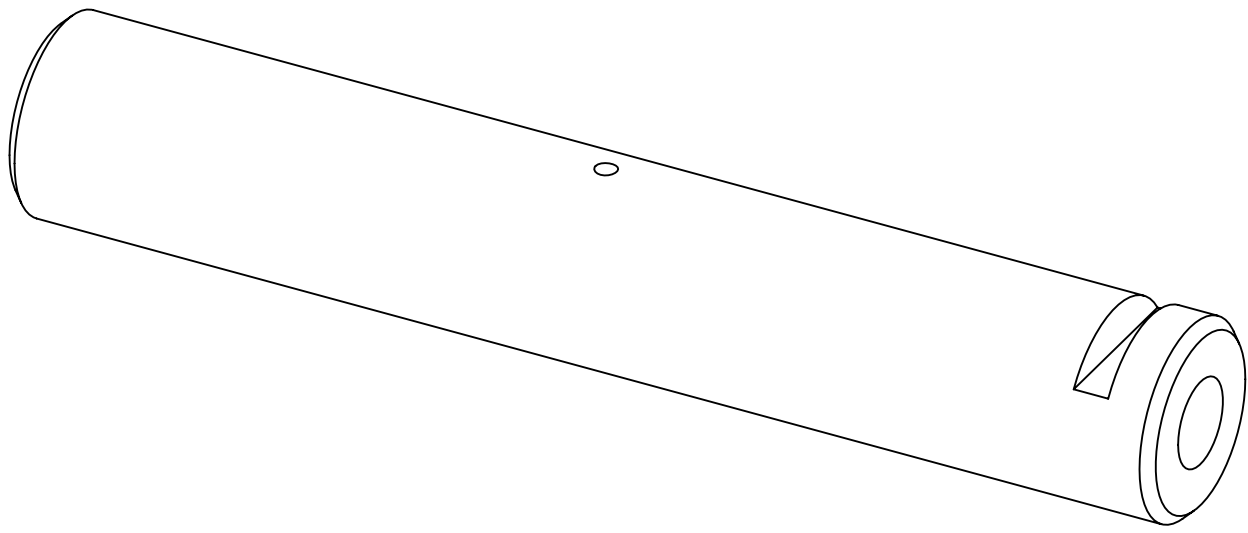
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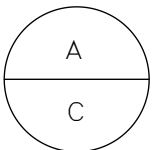
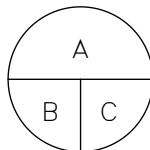
Project title / Titre du projet
**BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY**
ONTARIO

Drawing title / Titre du dessin
ROLLER SHAFT

Scale / Échelle 1:1		
Drawn by/ Dessiné par M_D		Date 2019-01-14
Designed by/ Conçu par M_D		Date 2019-01-07
Checked by/ Vérifié par DPC		Date 2019-01-28
Approved by / Approuvé par DPC		Date 2019-01-28
Project No./No. du projet	Client No./No du Client	Sheet No./ Feuille No. 20
Drawing Reference No./Numéro de Référence du Dessin 203		

PART NUMBER: 203-21
DESCRIPTION:
MATERIAL: 17-4 PH SS RND, CONDITION H1150
ø57 [2 1/4"] X 343 [13 1/2]" LG
FINISH: NONE
QUANTITY: 2



01	2022-07-15	ISSUED FOR TENDER		DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve	
Revision / Révision					
		A Detail number No. du détail B Location dwg. no. No. sur dessin C Drawing sheet no. No. du dessin			
Client Acceptance / Acceptation du client					
Signature _____			Date _____		
File No./No. de dossier _____					



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Project title / Titre du projet

BOUNDARY ROAD SWING
BRIDGE REHABILITATION

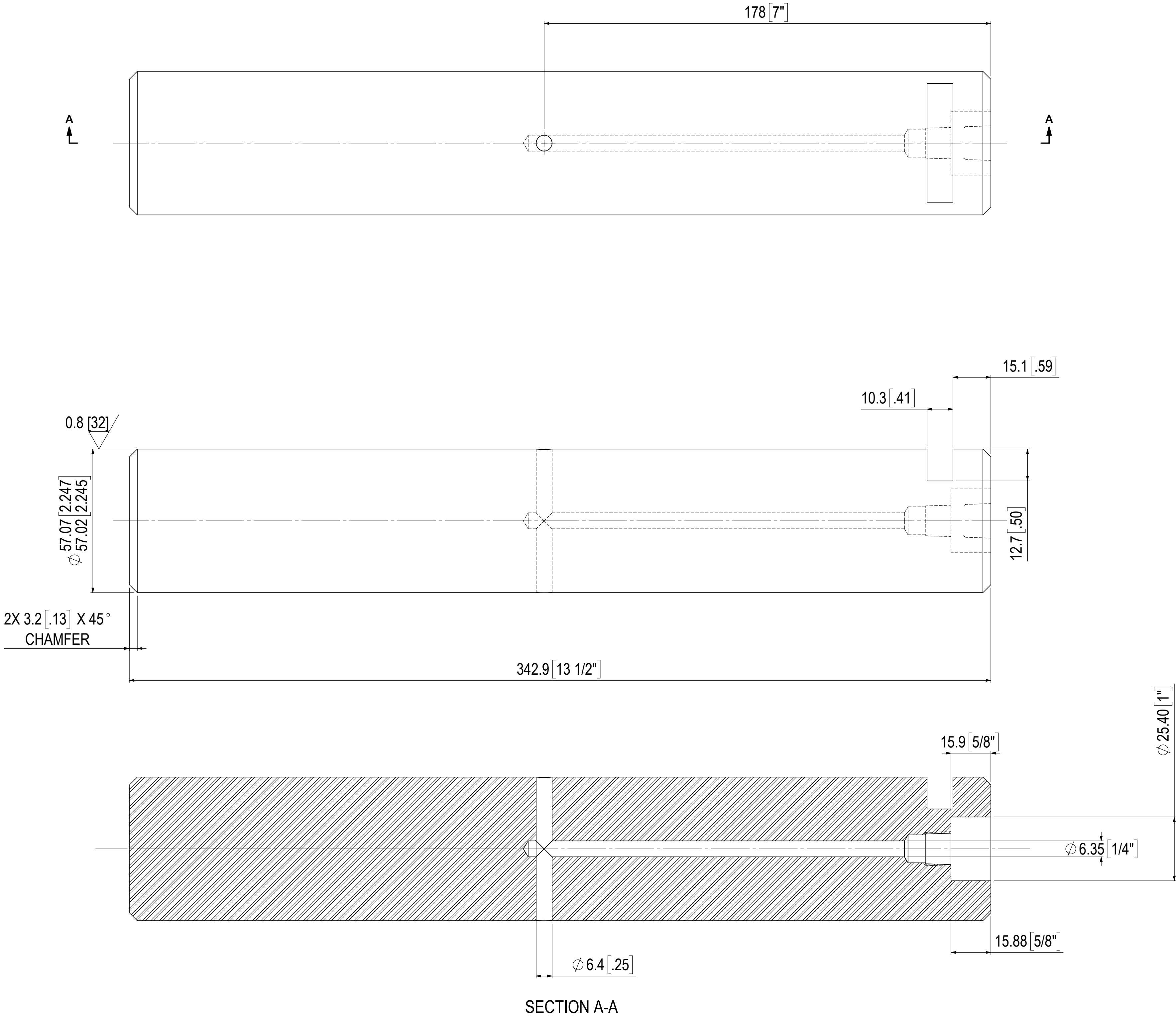
TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

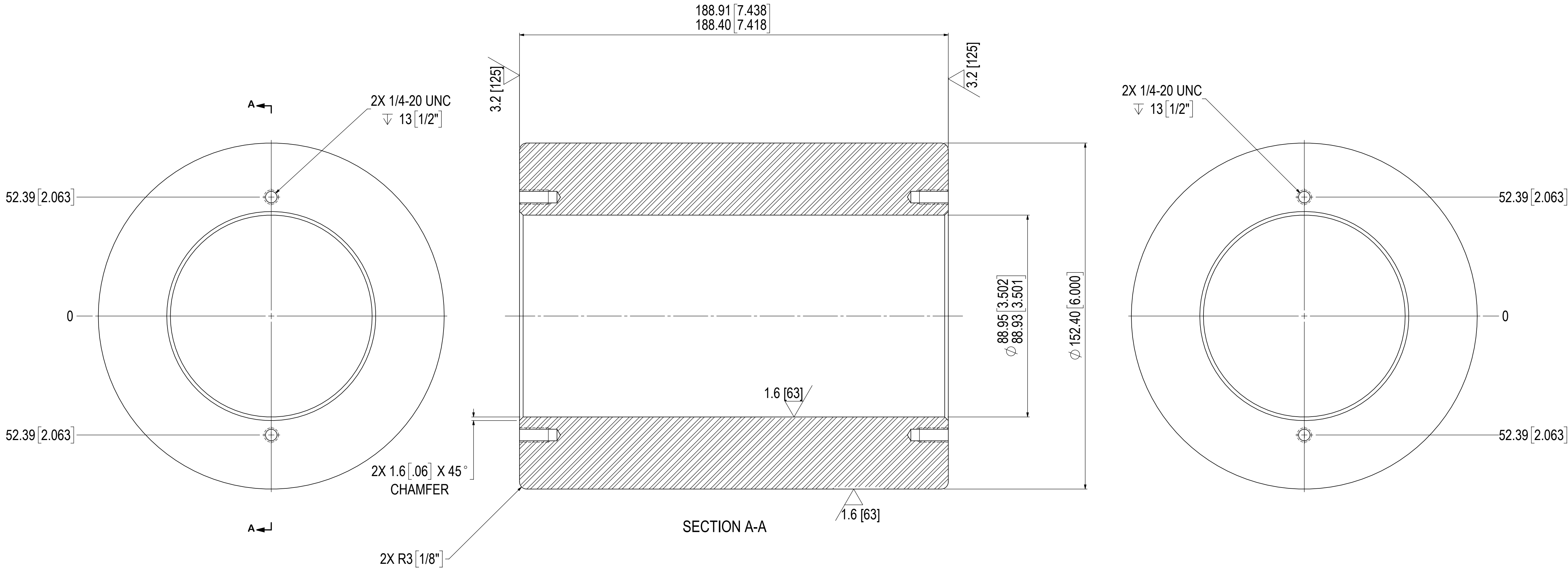
CLEVIS SHAFT

Scale / Echelle		1:1	
Drawn by/ Dessiné par		M_D	Date 2019-01-14
Designed by/ Conçu par		M_D	Date 2019-01-07
Checked by/ Vérifié par		DPC	Date 2019-01-21
Approved by / Approuvé par		DPC	Date 2019-01-21
Project No./No. du projet		Client No./No du Client	Sheet No./ Feuille No.
1911-1			21
Drawing Reference No./Numéro de Référence du Dessin			
203			



1. DIMENSIONS ARE IN MILLIMETERS		
2. TOLERANCES		
.X	DECIMALS	± 0.5
.X	DECIMALS	± 0.1
.XX	DECIMALS	± 0.05
	ANGLES	± 0.5 DEG
	HOLE SIZES	± 1mm
	SURFACES	3.2 MICROMETER

PART NUMBER: 203-22
DESCRIPTION:
MATERIAL: AISI 4140 HTSR RND
ø152 [6"] X 189 [7 7/16"] LG
HEAT TREAT: FLAME HARDEN TO 54 Rc ON O.D.
FINISH: ALL EXPOSED SURFACES MUST BE COATED
WITH LPS-3 OR EQUIVALENT
QUANTITY: 2



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision				
A		A Detail number No. du détail	A	
B		B Location dwg. no. No. sur dessin	B	C
C		C Drawing sheet no. No. du dessin		

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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Project title / Titre du projet
**BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY**

ONTARIO

Drawing title / Titre du dessin
ROLLER

Scale / Echelle
1:1

Drawn by/ Dessiné par
M_D 2019-01-14

Designed by/ Conçu par
M_D 2019-01-07

Checked by/ Vérifié par
DPC 2019-01-21

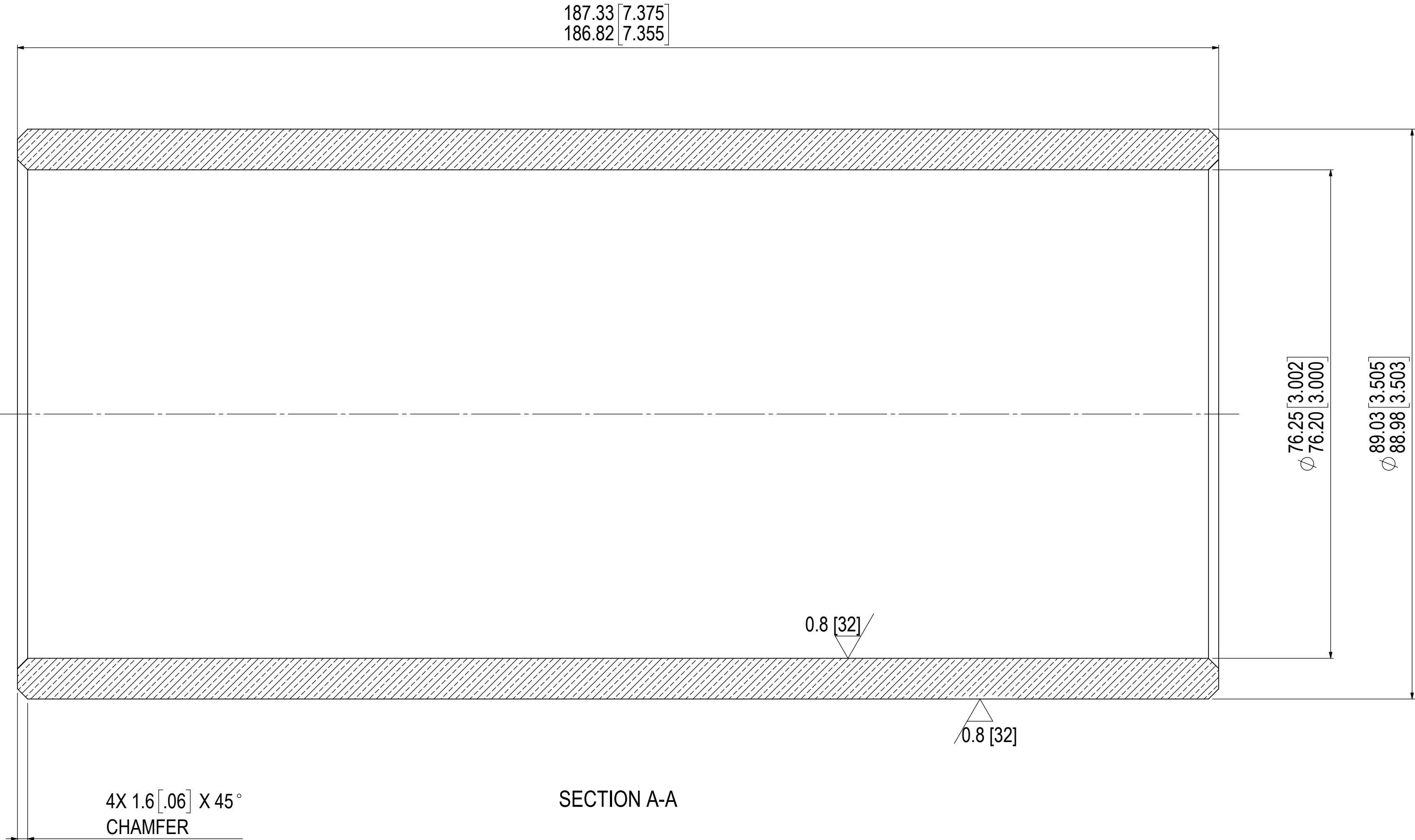
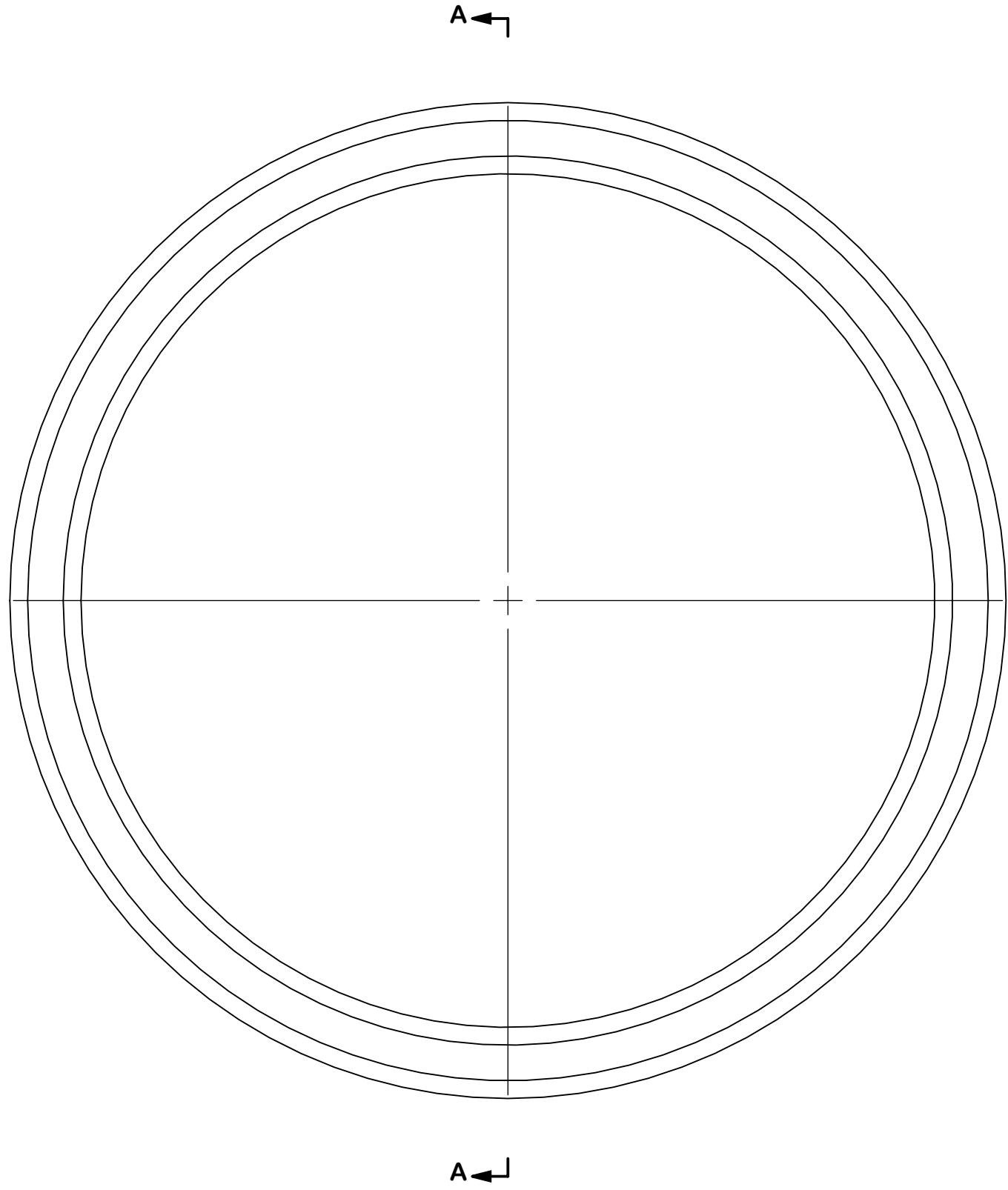
Approved by / Approuvé par
DPC 2019-01-21

Project No./No. du projet
1911-1

Client No./No du Client
Sheet No./
Feuille No.
22

1. DIMENSIONS ARE IN MILLIMETERS		
2. TOLERANCES		
.X	DECIMALS	± 0.5
.X	DECIMALS	± 0.1
.XX	DECIMALS	± 0.05
	ANGLES	± 0.5 DEG
	HOLE SIZES	± 1mm
	SURFACES	3.2 MICROMETER

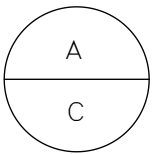
PART NUMBER: 203-23
DESCRIPTION:
MATERIAL: AMPCO 18 (AL BRNZ) TUBE
89 [3 1/2"] OD X 64 [2 1/2"] ID X 187 [7 3/8"] LG
FINISH: NONE
QUANTITY: 2



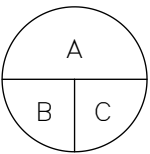
1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.X DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve
Revision / Révision				



A Detail number
No. du détail
B Location dwg. no.
No. sur dessin
C Drawing sheet no.
No. du dessin



Client Acceptance / Acceptation du client
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File No./No. de dossier _____



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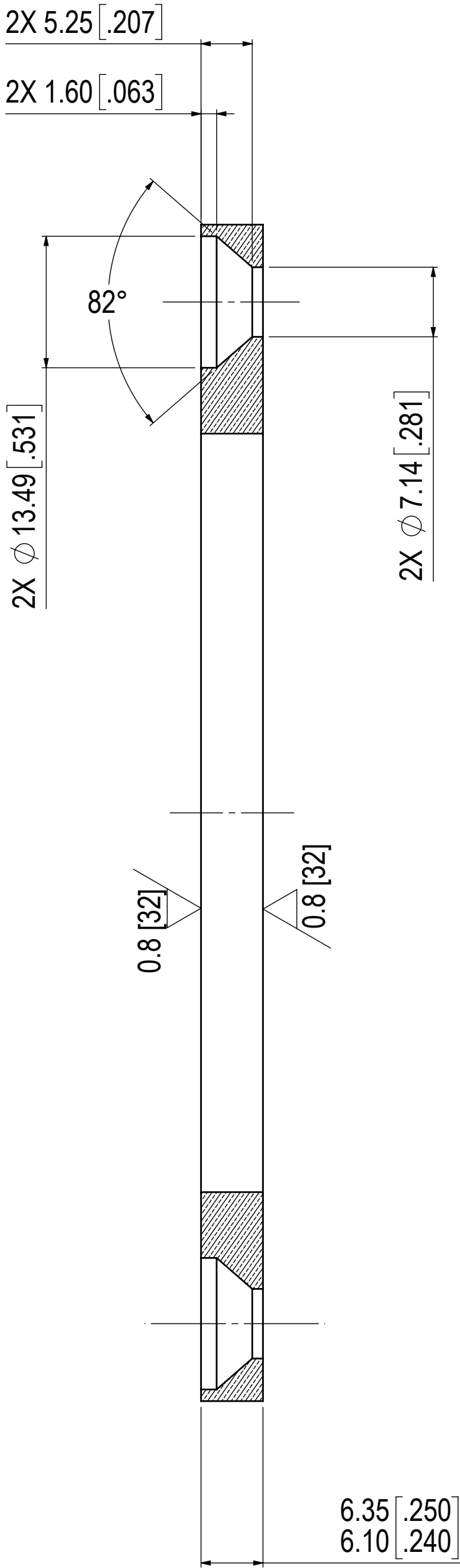
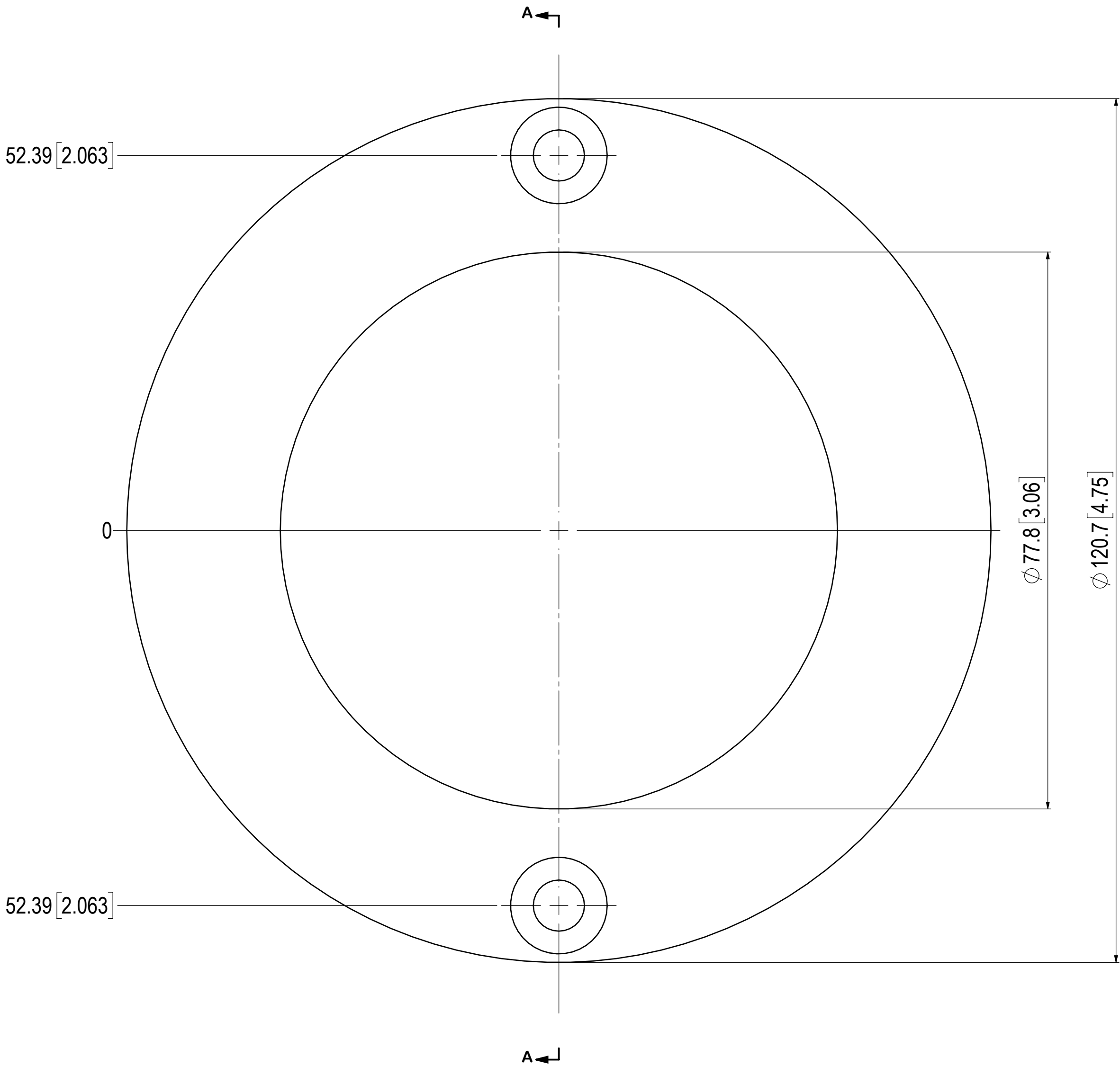
Project title / Titre du projet
BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

ONTARIO

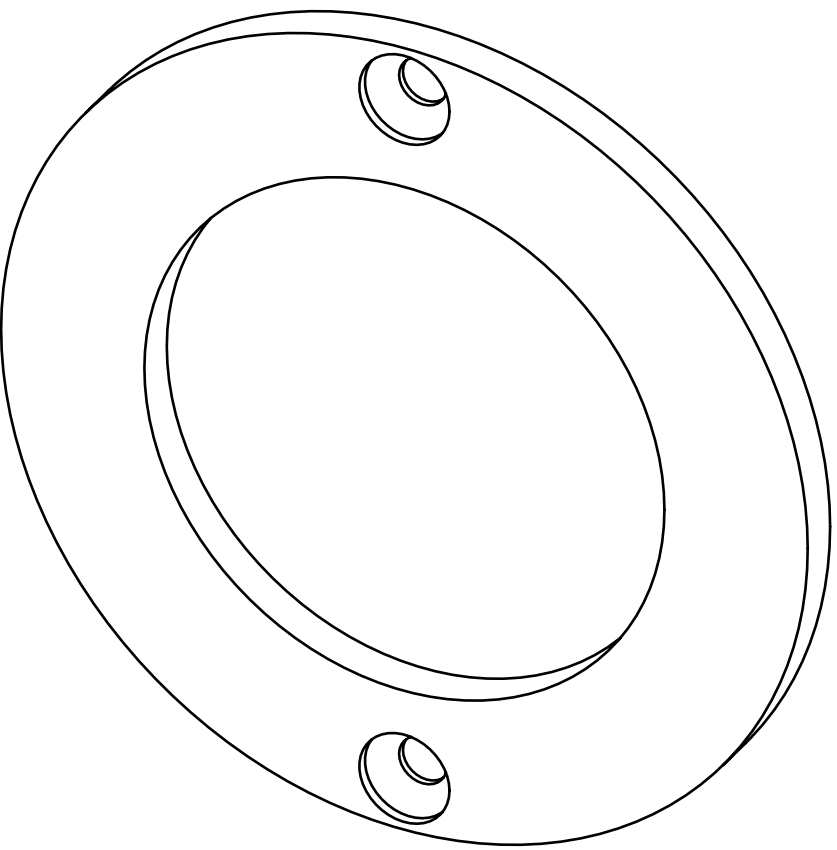
Drawing title / Titre du dessin
ROLLER SLEEVE BUSHING

Scale / Echelle 2:1		
Drawn by/ Dessiné par M_D		Date 2019-01-14
Designed by/ Conçu par M_D		Date 2019-01-07
Checked by/ Vérifié par DPC		Date 2019-01-21
Approved by / Approuvé par DPC		Date 2019-01-21
Project No./No. du projet 1911-1	Client No./No du Client	Sheet No./ Feuille No. 23
Drawing Reference No./Numéro de Référence du Dessin 203		

PART NUMBER: 203-24
DESCRIPTION:
MATERIAL: AMPCO 18 (AL BRNZ) PL
 Ø121 [Ø4 3/4"] X 6 [1/4"] THK
FINISH: NONE
QUANTITY: 4



SECTION A-A



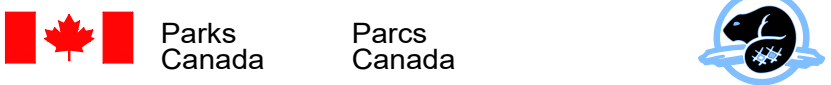
1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.XX DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision	
A	Detail number No. du détail
B	Location dwg. no. No. sur dessin
C	Drawing sheet no. No. du dessin

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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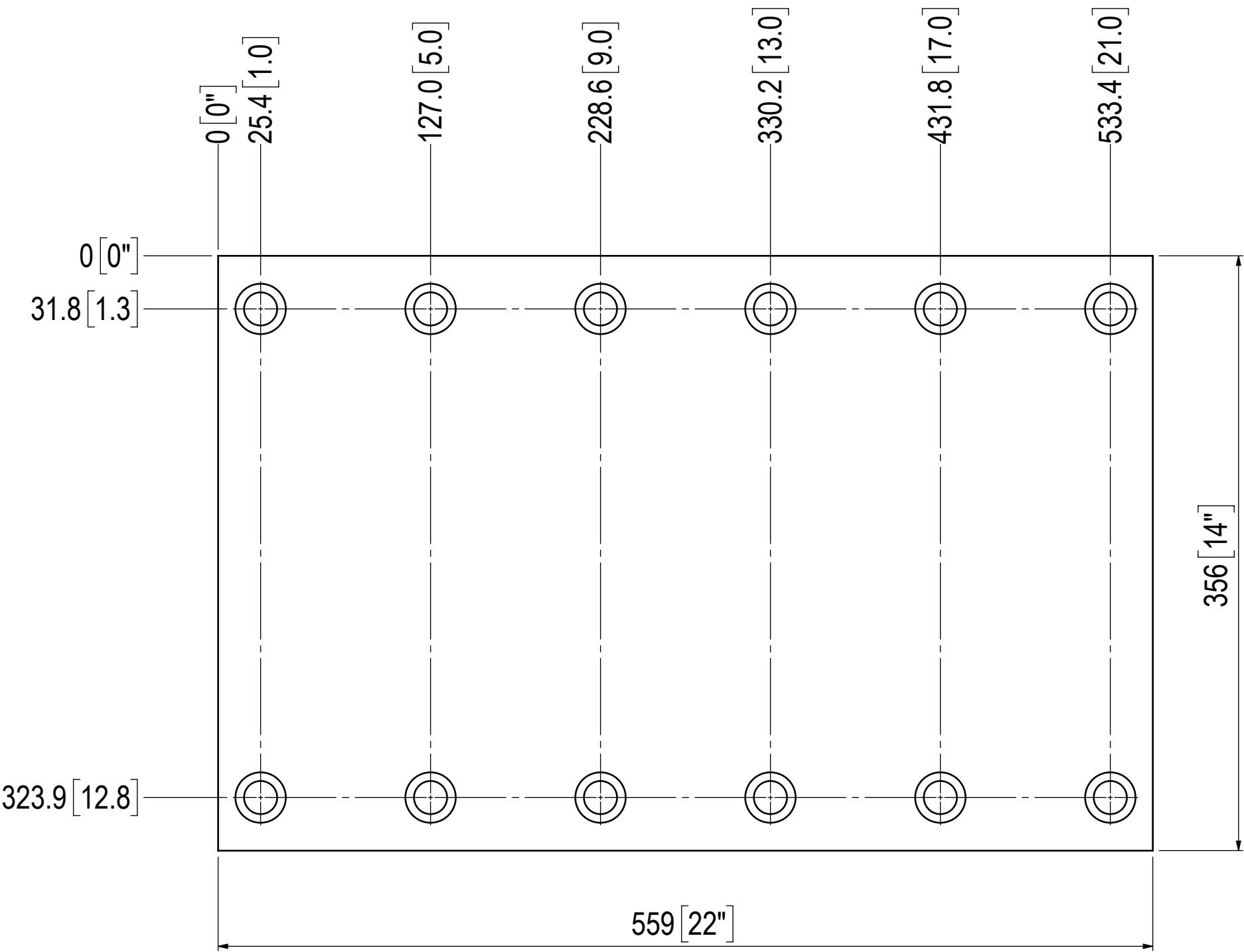
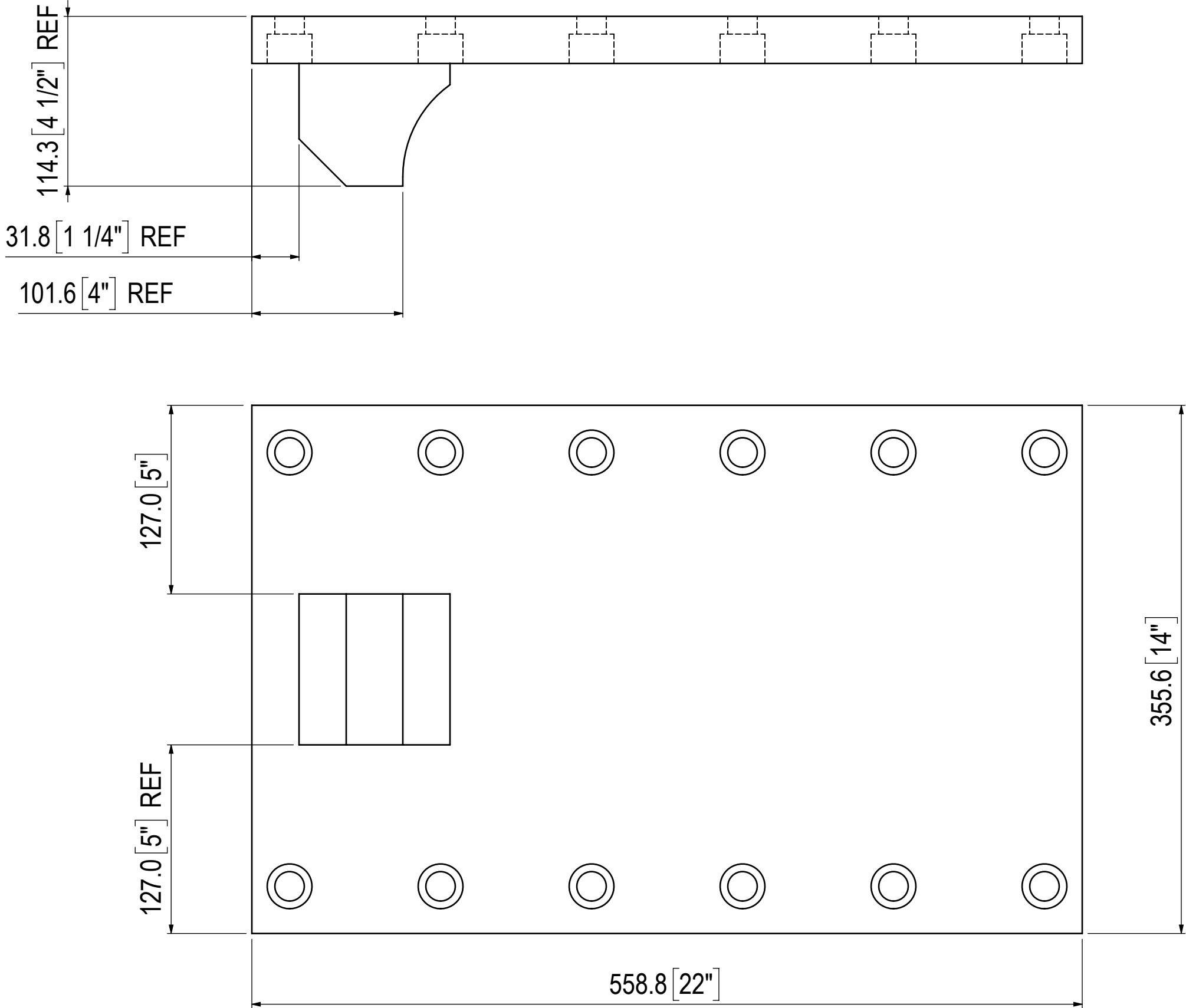
Project title / Titre du projet
**BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY**
ONTARIO

Drawing title / Titre du dessin
ROLLER THRUST BEARING

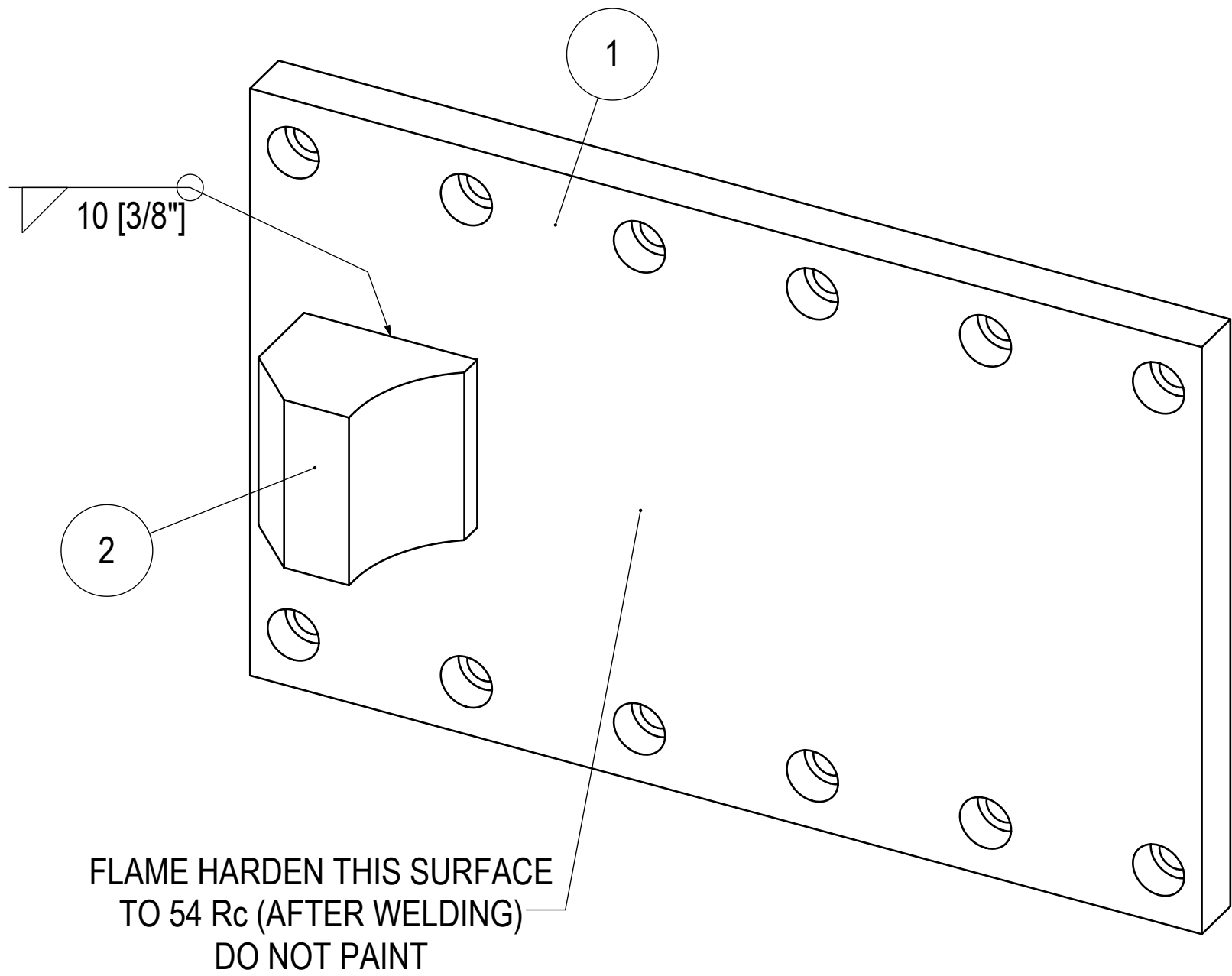
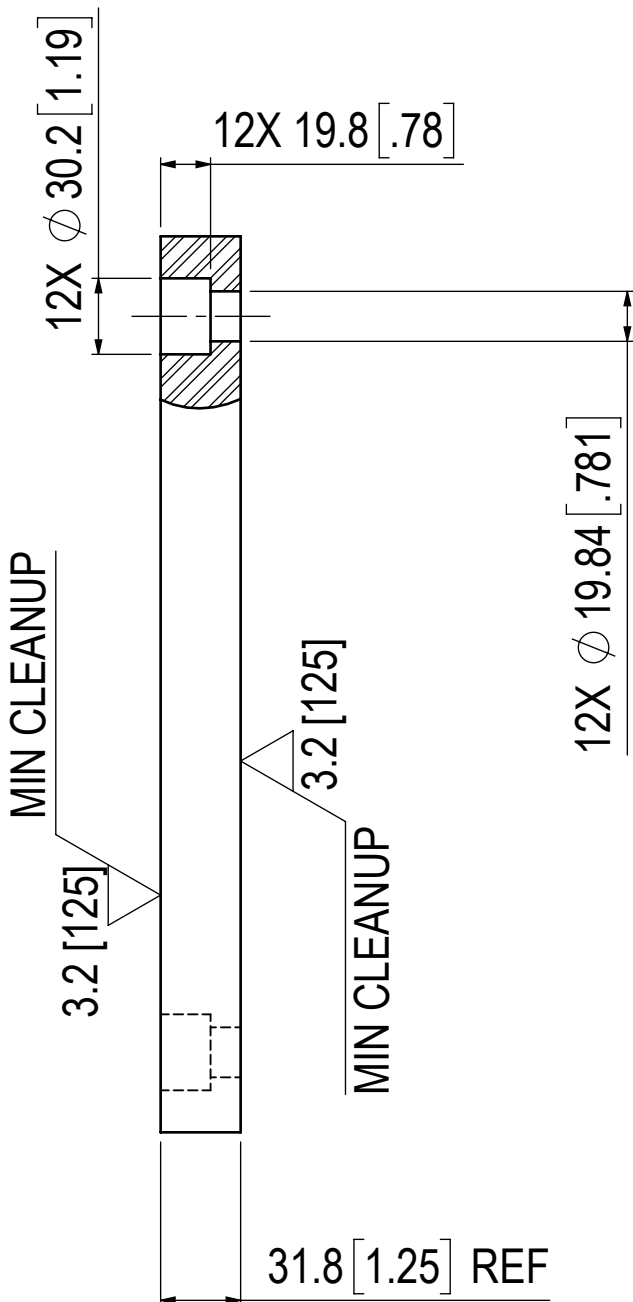
Scale / Echelle 2:1	
Drawn by/ Dessiné par M_D	Date 2019-01-14
Designed by/ Conçu par M_D	Date 2019-01-07
Checked by/ Vérifié par DPC	Date 2019-01-24
Approved by / Approuvé par DPC	Date 2019-01-21
Project No./No. du projet 1911-1	Client No./No du Client
Drawing Reference No./Numéro de Référence du Dessin 203	Sheet No./ Feuille No. 24

PART NUMBER: 203-25
DESCRIPTION:
MATERIAL: SEE CUT LIST
HEAT TREAT: FLAME HARDEN TO 54 Rc (SURFACE AS NOTED)
FINISH: PAINT (DO NOT PAINT HARDENED SURFACE)
ALL UNPAINTED SURFACES MUST BE COATED
WITH LPS-3 OR EQUIVALENT
QUANTITY: 2

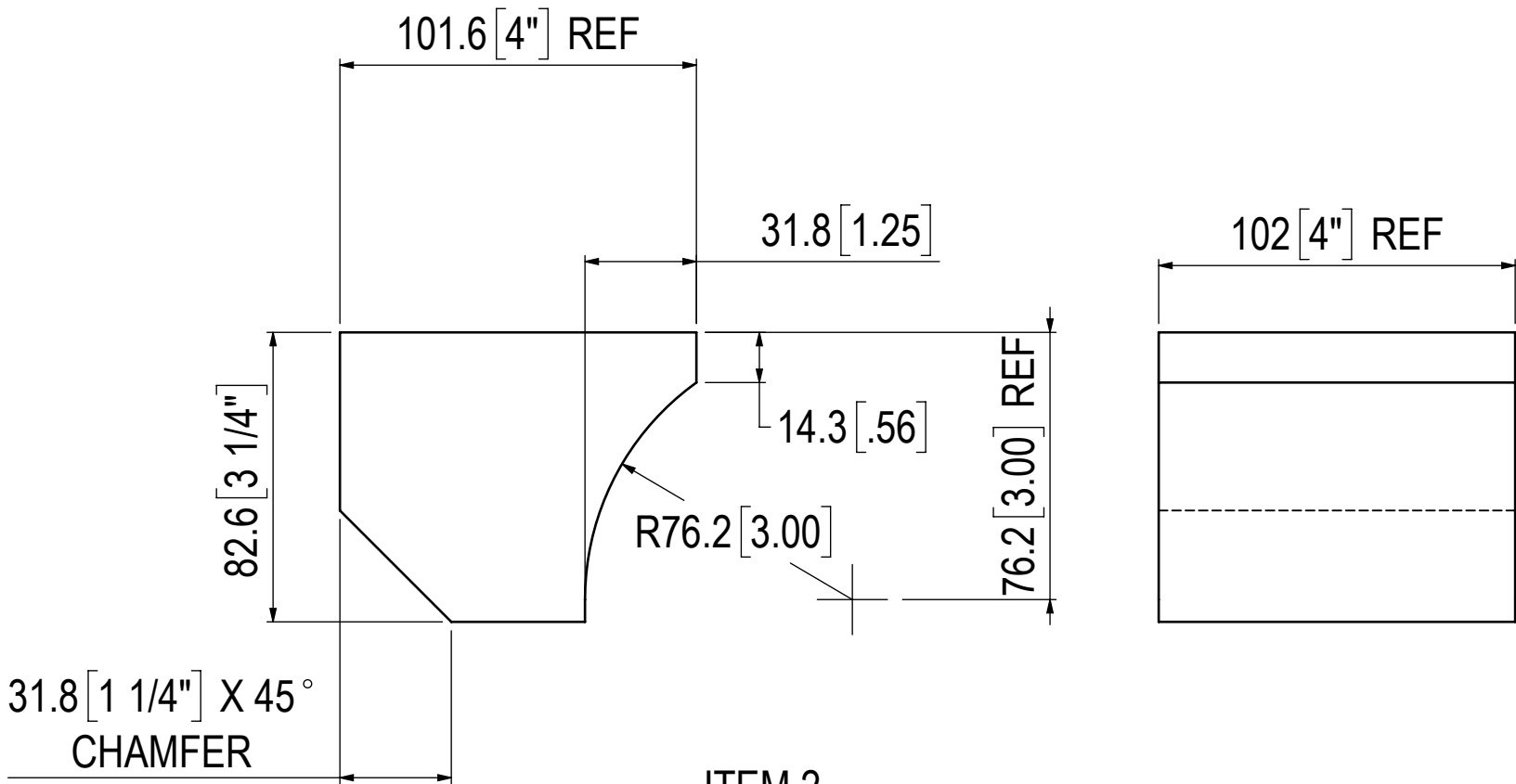
WELDMENT CUT LIST			
ITEM	QTY.	MATERIAL	CUT LENGTH
1	1	AISI 4140 HTSR PL, 32 [1 1/4"] THK	356 X 559 [14" X 22"]
2	1	AISI 4140 HTSR SQ, 102 X 102 [4" X 4"]	83 [3 1/4"]



ITEM 1
DETAIL BEFORE WELDING



FLAME HARDEN THIS SURFACE
TO 54 Rc (AFTER WELDING)
DO NOT PAINT



ITEM 2
DETAIL BEFORE WELDING
SCALE 1:2

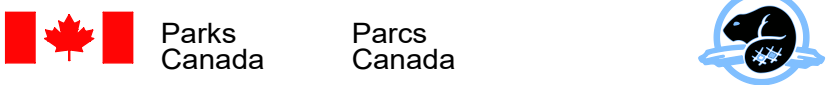
1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.XX DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn By Desine par	Approved Approuve

Revision / Révision				
A	A Detail number No. du détail			
B	B Location dwg. no. No. sur dessin			
C	C Drawing sheet no. No. du dessin			

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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Project title / Titre du projet

BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY

ONTARIO

Drawing title / Titre du dessin

ROLLER PLATE

Scale / Echelle
1:3

Drawn by/ Dessiné par
M_D 2019-01-14

Designed by/ Conçu par
M_D 2019-01-07

Checked by/ Vérifié par
DPC 2019-01-21

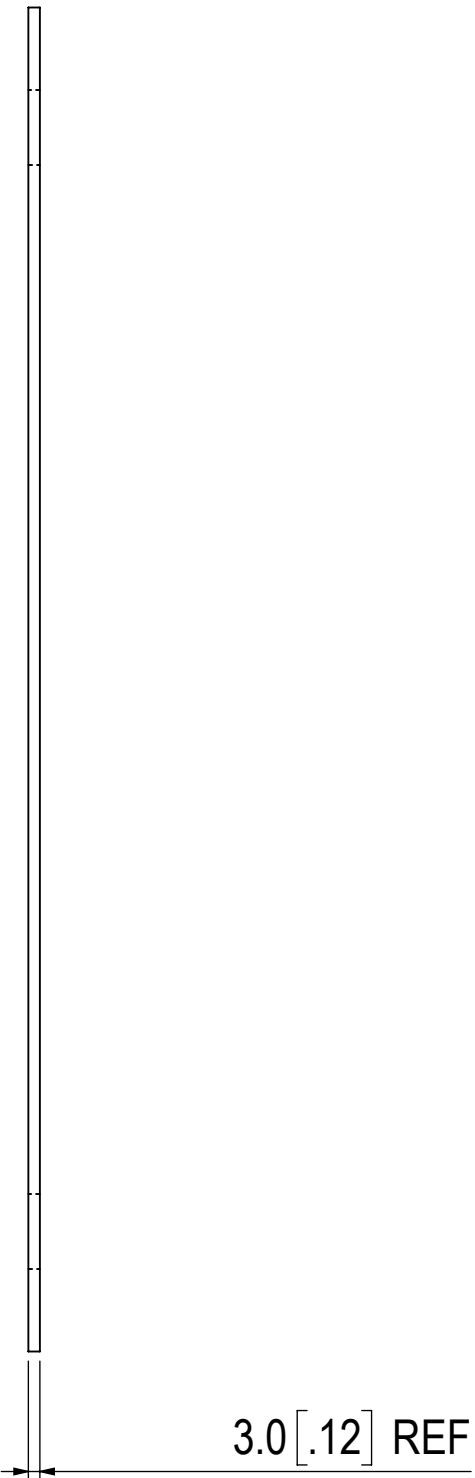
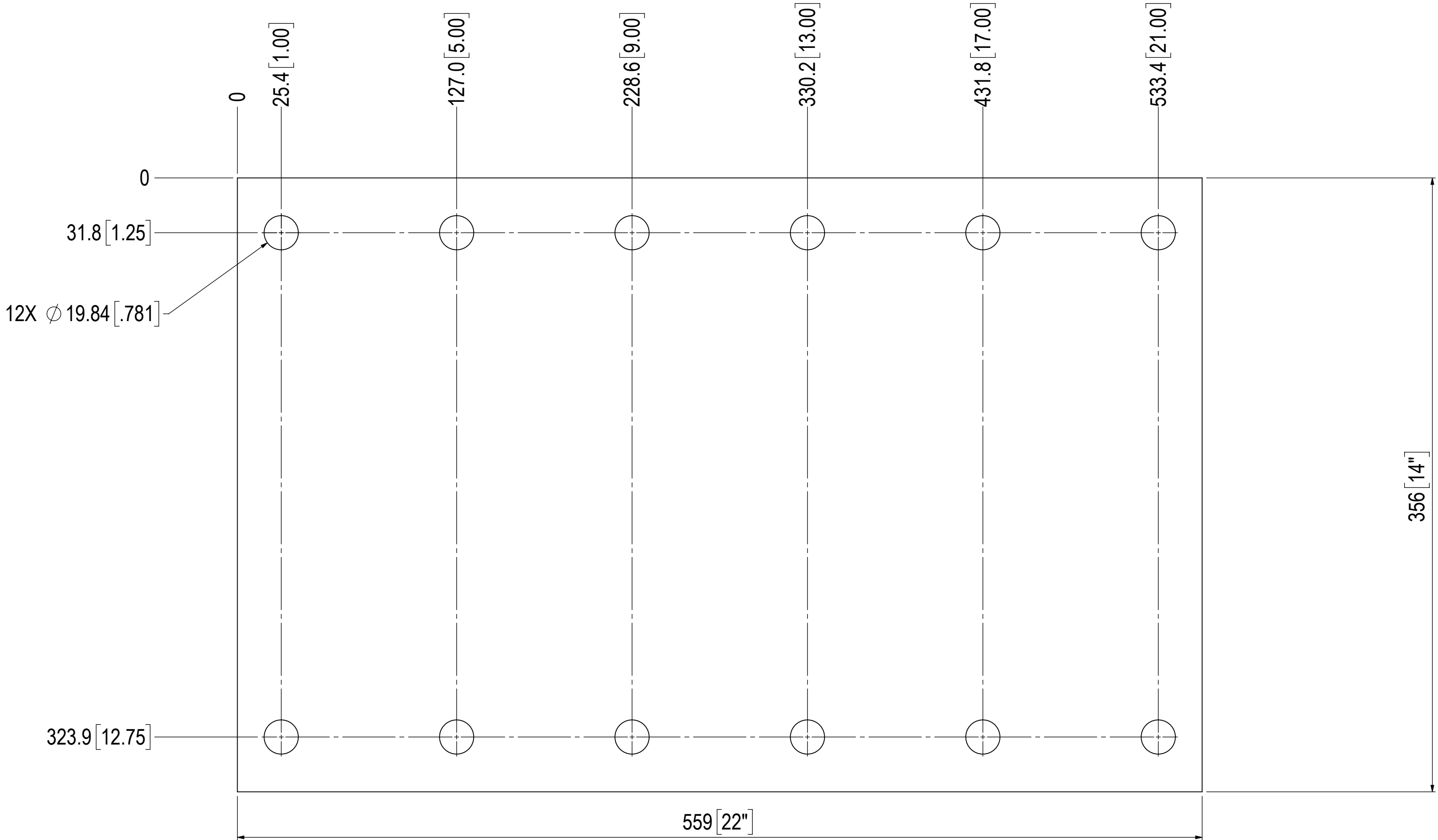
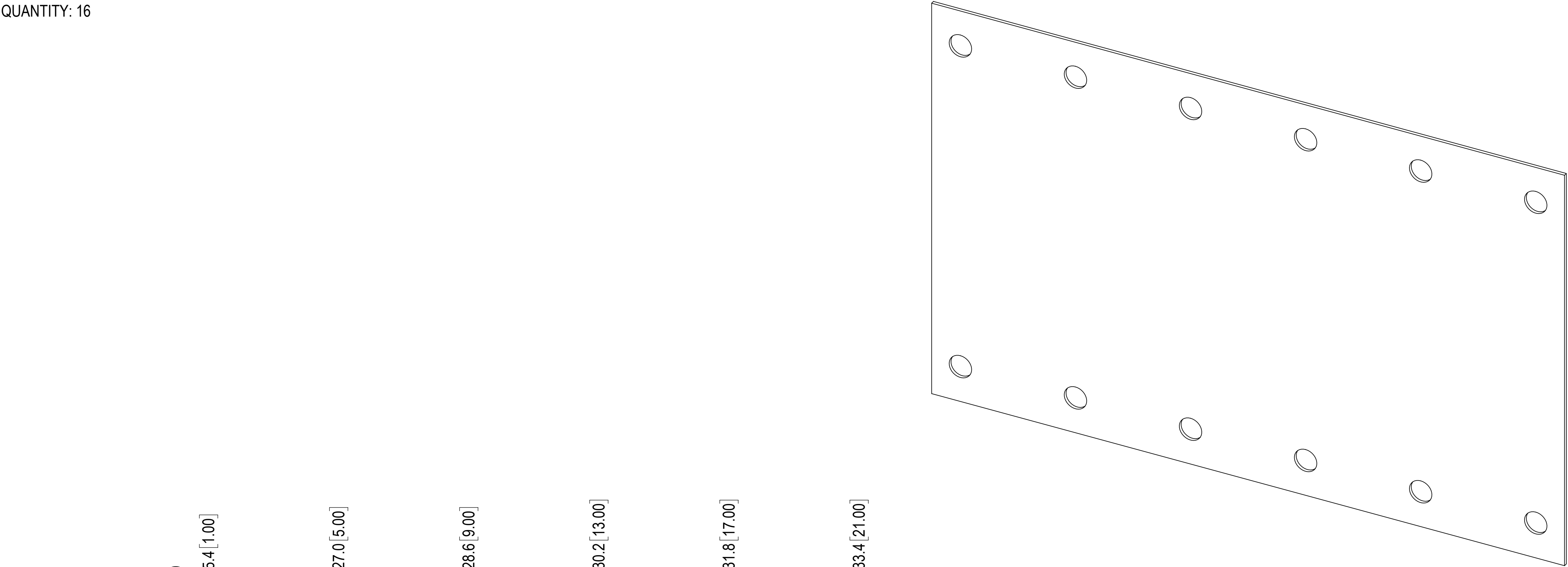
Approved by / Approuvé par
DPC 2019-01-21

Project No./No. du projet
1911-1

Client No./No du Client
Sheet No./
Feuille No.
25

Drawing Reference No./Numéro de Référence du Dessin
203

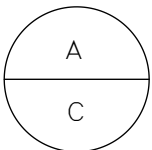
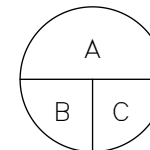
PART NUMBER: 203-26
DESCRIPTION:
MATERIAL: AISI 316 SS SHT
356 X 559 [14" X 22"] X 3 [1/8"] THK
FINISH: AS RECEIVED
QUANTITY: 16

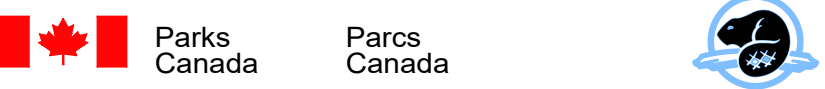


NOTE: NOMINAL SHIM STACK HEIGHT IS 1/2" PER SIDE

1. DIMENSIONS ARE IN MILLIMETERS	
2. TOLERANCES	
.X DECIMALS	± 0.5
.XX DECIMALS	± 0.1
.XX DECIMALS	± 0.05
ANGLES	± 0.5 DEG
HOLE SIZES	± 1mm
SURFACES	3.2 MICROMETER



01	2022-07-15	ISSUED FOR TENDER		DAF	2019-01-21
No.	Date	Description	Drawn By Desine par	Approved Approuve	
Revision / Révision					
		A Detail number No. du détail			
		B Location dwg. no. No. sur dessin			
		C Drawing sheet no. No. du dessin			
Client Acceptance / Acceptation du client					
Signature _____ Date _____					
File No./No. de dossier _____					



Canada



Project title / Titre du projet
BOUNDARY ROAD SWING
BRIDGE REHABILITATION
TRENT-SEVERN WATERWAY
ONTARIO

Drawing title / Titre du dessin
ROLLER SHIM PLATE

Scale / Echelle 1:2	
Drawn by/ Dessiné par M_D	Date 2019-01-14
Designed by/ Conçu par M_D	Date 2019-01-07
Checked by/ Vérifié par DPC	Date 2019-01-21
Approved by / Approuvé par 2019-01-21	
Project No./No. du projet 1911-1	Client No./No du Client
Drawing Reference No./Numéro de Référence du Dessin 203	Sheet No./ Feuille No. 26



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé

Revision / Révision				
<div><div>A</div><div>C</div></div>		A Detail number No. du détail		
		B Location dwg. no. No. sur dessin		
		C Drawing sheet no. No. du dessin		

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



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Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT-SEVERN WATERWAY
ONTARIO

Drawing title / Titre du dessin

SWING POSITION LIMIT SWITCH
INSTALLATION

Scale / Échelle
NOT TO SCALE

Drawn by/ Dessiné par _____ Date _____

Designed by/ Conçu par _____ Date _____

Checked by/ Vérifié par _____ Date _____

Approved by / Approuvé par _____ Date _____
DPC January 2019

Project No./No. du projet	Client No./No. du Client	Sheet No./ Feuille No.
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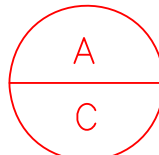
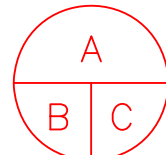
Drawing Reference No./Numéro de Référence du Dessin 204	01
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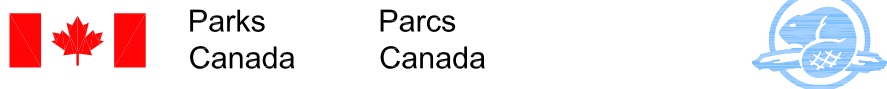
REPLACE OPERATOR WITH
HYDRAULIC CYLINDER

ORIGINAL LOCK DESIGN

REDESIGN AND REPLACE
LOCK, SPRING AND PIN



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
Revision / Révision				
		A Detail number No. du détail		
		B Location dwg. no. No. sur dessin		
		C Drawing sheet no. No. du dessin		
Client Acceptance / Acceptation du client				
Signature _____			Date _____	
File No./No. de dossier _____				



Canada



Chadwick
Engineering Ltd.

Project title / Titre du projet
BOUNDARY ROAD SWING BRIDGE
REHABILITATION
TRENT-SEVERN WATERWAY
ONTARIO

Drawing title / Titre du dessin
BRIDGE CLOSED LOCKING PIN
INSTALLATION

Scale / Échelle NOT TO SCALE		
Drawn by/ Dessiné par DAF		Date 13 July 2022
Designed by/ Conçu par		Date
Checked by/ Vérifié par -		Date
Approved by / Approuvé par DPC		Date 14 July 2022
Project No./No. du projet	Client No./No. du Client	Sheet No./ Feuille No.
Drawing Reference No./Numéro de Référence du Dessin 205		01



01	2022-07-15	ISSUED FOR TENDER	DAF	DPC
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé

Revision / Révision				
<div><div>A</div><div>C</div></div>		A Detail number No. du détail		
		B Location dwg. no. No. sur dessin		
		C Drawing sheet no. No. du dessin		
		<div><div>A</div><div>B</div><div>C</div></div>		

Client Acceptance / Acceptation du client
Signature _____ Date _____
File No./No. de dossier _____



Parks
Canada

Parcs
Canada



Canada



Chadwick
Engineering Ltd.

Project title / Titre du projet

BOUNDARY ROAD SWING BRIDGE
REHABILITATION

TRENT-SEVERN WATERWAY
ONTARIO

Drawing title / Titre du dessin

OPERATORS STATION SUNSHADE
INSTALLATION

Scale / Échelle
NOT TO SCALE

Drawn by/ Dessiné par
DAF

Date

13 July 2022

Designed by/ Conçu par

Date

Checked by/ Vérifié par
-

Date

Approved by / Approuvé par
DPC

Date

14 July 2022

Project No./No. du projet
Client No./No. du Client

Sheet No./
Feuille No.

Drawing Reference No./Numéro de Référence du Dessin
206

01