



**APPENDIX B**  
**QUALITY CONTROL CHECK LISTS**

**INSPECTION TEST PLAN - PRIMARY CLARIFIER TRAVELLING BRIDGE COLLECTOR DRIVE SYSTEM**

<b>Project:</b>	CITY OF WINNIPEG BID OPPORTUNITY 682-2018	
	SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) PRIMARY CLARIFIER TRAVELLING BRIDGES - REFURBISHMENT	

	TASK	APPLICABLE QC DOCUMENTS/DWGS/STANDARDS	HOLD/WITNESS	SIGNOFF & DATE		
				CONTRACTOR	OEM	CONTRACT ADMIN
1	Contractor accepts City supplied materials. Equipment has been inspected for defects and deficiencies.	<ul style="list-style-type: none"> <li>- CD-PM-TO-13: CERTIFICATE OF EQUIPMENT DELIVERY FORM 100</li> <li>- CD-PM-TO-14: CERTIFICATE OF READINESS TO INSTALL FORM 101</li> <li>- List of owner supplied equipment contained in Mechanical Specification</li> </ul>	N/A			
2	<p>All disassembled parts have been inspected, photographed, marked/tagged, packaged, and stored.</p> <p>Contractor accepts disassembled equipment.</p>	<ul style="list-style-type: none"> <li>- Electronic file structure containing list of stored equipment, photos, and other records to be provided by the contractor</li> </ul>	N/A			
3	Dimensional check of main drive shaft sections, check for runout on all mating surfaces is completed.	<ul style="list-style-type: none"> <li>- Contractor to supply shop drawing of drive shaft sections meeting the requirements of               <ul style="list-style-type: none"> <li>1) ASME Y.14.5-2009</li> <li>2)WWD CAD/GIS Standard</li> </ul> </li> <li>-OEM Shaft tolerance +0.000" - 0.003"</li> </ul>	N/A			
4	<p>Levelness measurement of pillow block mounting surfaces is completed.</p> <p>Alignment of couplings on 4 sections of main drive shaft is completed and meets the requirements of the QC Checklist provided.</p>	<ul style="list-style-type: none"> <li>- Measurements and shim sizes on marked up GL&amp;V DWG L-33033 (incl. date/ time/ make/ model/ calibration)</li> <li>- Travelling Bridge Drive and Wheel Alignment QC Checklist provided in Contract Specification Appendix B</li> <li>- Amerigear FS203 Datasheet</li> <li>- Angular 0.5° Max per Flex coupling</li> </ul>	N/A			
5	<p>Alignment of cogwheels to cog track is complete and meets the requirements of the QC Checklist provided.</p> <p>Alignment of the cogwheel axle to main drive shaft is complete meets to the requirements of the QC Checklist provided.</p>	<ul style="list-style-type: none"> <li>- Travelling Bridge Drive and Wheel Alignment QC Checklist provided in Contract Specification Appendix B</li> <li>- Amerigear FS203 Datasheet</li> <li>- DWG L-33105</li> <li>- ISO 12488-1:2012</li> </ul>	N/A			

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TASK	APPLICABLE QC DOCUMENTS/DWGS/STANDARDS	HOLD/WITNESS	SIGNOFF & DATE		
			CONTRACTOR	OEM	CONTRACT ADMIN
6 Alignment of flanged and flat faced running wheel to ASCE 40AS rail alignment is complete and meets the requirements of the QC Checklist provided.	- Travelling Bridge Drive and Wheel Alignment QC Checklist provided in Contract Specification Appendix B  - DWG L-33105  - ISO 12488-1:2012	N/A			
7 All newly installed, aligned, or adjusted parts are marked and tagged.  Follow up check on all marked or tagged equipment to confirm they have been installed, aligned, or torqued adequately has been completed.		N/A			
8 Installation of all equipment is complete and satisfactory.	- CD-PM-TO-15: CERTIFICATE OF SATISFACTORY INSTALLATION FORM 102	N/A			

I confirm that to the best of my knowledge the information contained in this document is accurate and reflects the current state of the equipment, parts, materials, etc. described herein.

<b>CONTRACT ADMINISTRATOR</b>		KGS GROUP			
<b>Representative:</b>	<b>NAME</b>	<b>TITLE</b>	<b>CONTACT INFO</b>	<b>SIGNATURE</b>	<b>DATE</b>

<b>O.E.M.</b>		OVIVO INC			
<b>Representative:</b>	<b>NAME</b>	<b>TITLE</b>	<b>CONTACT INFO</b>	<b>SIGNATURE</b>	<b>DATE</b>

<b>CONTRACTOR</b>					
<b>Representative:</b>	<b>NAME</b>	<b>TITLE</b>	<b>CONTACT INFO</b>	<b>SIGNATURE</b>	<b>DATE</b>

### TRAVELING BRIDGE DRIVE AND WHEEL ALIGNMENT QC CHECKLIST

#	MEASUREMENT CRITERIA			MEASUREMENT RECORD				TOOL			
	Description	Range	Value	Source	Measurement	Units	Date & Time	Temp.	Make	Model	Calibration
F203S Flex-Rigid Coupling (Flex)											
1	Combined angular and parallel misalignment of coupling/shaft centrelines	MAX	0.5° Angular	Amerigear Datasheet							
Cogwheel / Cog Track											
2	Contact height of cogwheel rollers on the cog track pitch line		± 1/32in	OEM							
3	Angular position of rollers or "clocking" across the span of the clarifier (transverse)	Y/N	N/A	OEM							
4	Simultaneous contact of rollers on both wheels with cog track pitch line	Y/N	N/A	OEM							
5	Axle parallelism (plan view inclination of wheel) relative to opposite cogwheel	MAX	Slope = 0.005	ISO 12488-1							
6	Axle parallelism in elevation (wheel camber) relative to opposite cogwheel	MAX	Slope = 0.004	ISO 12488-1							


**TRAVELING BRIDGE DRIVE AND WHEEL ALIGNMENT QC CHECKLIST**

#	MEASUREMENT CRITERIA			MEASUREMENT RECORD				TOOL			
	Description	Range	Value	Source	Measurement	Units	Date & Time	Temp.	Make	Model	Calibration
Running Wheels											
7	Transverse elevation of wheel contact points on the rail/track		± 2mm	ISO 12488-1							
8	Elevation of wheel contact points on the rail/track measured along the length of the end trucks (longitudinal)		± 2mm	ISO 12488-1							
9	Transverse distance of centrelines of wheel contact area		± 3mm	ISO 12488-1							
10	Longitudinal distance between centrelines of wheel contact area		± 3mm	ISO 12488-1							

**TRAVELING BRIDGE DRIVE AND WHEEL ALIGNMENT QC CHECKLIST**


#	MEASUREMENT CRITERIA			MEASUREMENT RECORD				TOOL			
	Description	Range	Value	Source	Measurement	Units	Date & Time	Temp.	Make	Model	Calibration
11	Transverse parallel offset distance between centre of contact areas on opposite wheels on rail/track		± 2.5mm	ISO 12488-1							
12	Axle parallelism (plan view inclination of wheel) relative to rail	MAX	Slope = 0.005	ISO 12488-1							
13	Axle parallelism in elevation (wheel camber) relative to rail	MAX	Slope = 0.004	ISO 12488-1							

**INSPECTION TEST PLAN - PRIMARY CLARIFIER TRAVELLING BRIDGE COLLECTOR RAILS AND COG TRACK**

<b>Project:</b>	CITY OF WINNIPEG BID OPPORTUNITY 682-2018	
	SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) PRIMARY CLARIFIER TRAVELLING BRIDGES - REFURBISHMENT	

	TASK	APPLICABLE QC DOCUMENTS/DWGS/STANDARDS	HOLD/WITNESS	SIGNOFF & DATE		
				CONTRACTOR	OEM	CONTRACT ADMIN
1	Contractor accepts City supplied materials. Equipment has been inspected for defects and deficiencies.	- CD-PM-TO-13: CERTIFICATE OF EQUIPMENT DELIVERY FORM 100 - CD-PM-TO-14: CERTIFICATE OF READINESS TO INSTALL FORM 101 - List of owner supplied equipment contained in Mechanical Specification	N/A			
2	All disassembled parts have been inspected, photographed, marked/tagged, packaged, and stored.  Contractor accepts disassembled equipment.	- Electronic file structure containing list of stored equipment, photos, and other records to be provided by the contractor	N/A			
3	Anchor bolt locations have been surveyed, aligned, and marked out on concrete.	- Contractor supplied shop drawing of new anchor bolt layout that meets the requirements of: a) DWG L-32983 c) ASME Y.14.5-2009 d) WWD CAD/GIS Standard  - Contractor to mark up copy of the above shop drawing with the installed anchor bolt location measurements	HOLD			


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	TASK	APPLICABLE QC DOCUMENTS/DWGS/STANDARDS	HOLD/WITNESS	SIGNOFF & DATE		
				CONTRACTOR	OEM	CONTRACT ADMIN
4	Alignment and levelness record for the sole plates and for alignment of anchor bolts is completed and meets the requirements of the QC Checklist provided prior to grouting.	- Rail and Cog Track Alignment QC Checklist provided in Contract Specification Appendix B  - Electronic survey file/laser alignment tool output data  - OEM Drawings L-32918 and L-32983  - Standards CMAA 70/74 and ISO 12488-1:2012	N/A			
5	Alignment of the ASCE 40AS rails is completed and meets the requirements of the QC Checklist.	- Rail and Cog Track Alignment QC Checklist provided in Contract Specification Appendix B  - Electronic survey file/laser alignment tool output data  - OEM Drawings L-32918 and L-32983  - Standards CMAA 70/74 and ISO 12488-1:2012	N/A			
6	Alignment of the cog tracks is completed and meets the requirements of the QC Checklist.	- Rail and Cog Track Alignment QC Checklist provided in Contract Specification Appendix B  - Electronic survey file/laser alignment tool output data  - OEM Drawings L-32918 and L-32983  - Standards CMAA 70/74 and ISO 12488-1:2012	N/A			



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	TASK	APPLICABLE QC DOCUMENTS/DWGS/STANDARDS	HOLD/WITNESS	SIGNOFF & DATE		
				CONTRACTOR	OEM	CONTRACT ADMIN
7	Installation of all equipment is complete and satisfactory.	- CD-PM-TO-15: CERTIFICATE OF SATISFACTORY INSTALLATION FORM 102	N/A			

I confirm that to the best of my knowledge the information contained in this document is accurate and reflects the current state of the equipment, parts, materials, etc. described herein.

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**TRAVELING BRIDGE RAIL AND COG TRACK ALIGNMENT QC CHECKLIST**

#	MEASUREMENT CRITERIA			MEASUREMENT RECORD				TOOL			
	Description	Range	Value	Source	Measurement	Units	Date & Time	Temp.	Make	Model	Calibration
5/8"x8-1/2" Hilti Anchor Bolts											
1	Overall parallelism (transverse) of anchor bolt centrelines on opposite sides of the clarifier	± 3mm		DWG L-32918							
2	Rate of change of parallelism (transverse) of anchor bolt centrelines on opposite sides of the clarifier	MAX	Slope = 0.001	CISC Crane Steel							
3	Overall straightness (longitudinal) of individual anchor bolt centrelines	± 3mm		DWG L-32918							
4	Rate of change of straightness (longitudinal) of individual anchor bolt centrelines	MAX	Slope = 0.001	CISC Crane Steel							
5	Transverse distance between centers of adjacent anchor bolts (same side of clarifier)	± 1.6mm		DWG L-32983							

**TRAVELING BRIDGE RAIL AND COG TRACK ALIGNMENT QC CHECKLIST**

#	MEASUREMENT CRITERIA			MEASUREMENT RECORD				TOOL			
	Description	Range	Value	Source	Measurement	Units	Date & Time	Temp.	Make	Model	Calibration
ASCE 40AS Rail											
6	Overall longitudinal elevation change of top of individual rail/track for		± 3mm	DWG L-32918							
7	Rate of change of elevation change of top of individual rail/track longitudinal	MAX	Slope = 0.001	CISC Crane Steel							
8	Overall transverse elevation change of top of rail/track (rail to rail)		± 3mm	DWG L-32918							
9	Rate of change of transverse elevation change of top of rail/track (rail to rail)	MAX	Slope = 0.001	CISC Crane Steel							
10	Transverse distance between centroid of rail and cog track cross sections (same side of clarifier)		± 1.6mm	DWG L-32983							
11	Gap between rails at spliced rail joints		± 1.6mm	CMAA 70/74							

**TRAVELING BRIDGE RAIL AND COG TRACK ALIGNMENT QC CHECKLIST**

#	MEASUREMENT CRITERIA			MEASUREMENT RECORD				TOOL			
	Description	Range	Value	Source	Measurement	Units	Date & Time	Temp.	Make	Model	Calibration
3/4" MS Cog Track											
12	Overall longitudinal elevation change of top of individual rail/track for		± 3mm	DWG L-32918							
13	Rate of change of elevation change of top of individual rail/track longitudinal	MAX	Slope = 0.001	CISC Crane Steel							
14	Overall transverse elevation change of top of rail/track (rail to rail)		± 3mm	DWG L-32918							
15	Rate of change of transverse elevation change of top of rail/track (rail to rail)	MAX	Slope = 0.001	CISC Crane Steel							
16	Transverse distance between centroid of rail and cog track cross sections (same side of clarifier)		± 1.6mm	DWG L-32983							