

Appendix O

Structural Memo

- Inspection Reports
- 407 ETR and Culvert General Arrangements

Region of Halton

OSIM Inspection Forms


For the Bridge on Winston Churchill Blvd
Located 2.70 km North of Steeles Avenue
Structure No. 19-1196390 BR01

Prepared by:

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Project Number: 336921

	Name, Title	Signature	Date
Prepared By	J.Hallett, E.I.T.		MAY 27/15
Reviewed By	J.Luckai, P.Eng		MAY 27/15
Approved By	C.Pasqualino, P.Eng		MAY 28/15

Inventory Data

Structure Name	Winston Churchill Blvd, Lot 5, Conc XI		Hwy No.	19	Key Photo 			
Cross. Type Over	<input checked="" type="checkbox"/> Road	<input type="checkbox"/> Rail	<input type="checkbox"/> Ped	<input type="checkbox"/> Nav.		<input type="checkbox"/> Non-Nav.	<input type="checkbox"/> Other	
Cross. Type Under	<input type="checkbox"/> Road	<input type="checkbox"/> Rail	<input type="checkbox"/> Ped	<input type="checkbox"/> Nav.		<input checked="" type="checkbox"/> Non-Nav.	<input type="checkbox"/> Other	
Road Name	Winston Churchill Blvd							
Structure Location	2.70 km North of Steeles Avenue							
Northing	595206.0	Easting	4830795.0	Cur.Rep.Value		*		
Owner(s) / % Shared	Region of Halton		50%			Heritage Status	Not Considered for Designation	
	Regional Municipality of Peel		50%				Road Side Env.	Rural
MTO Region	Central					Road Class	Arterial	
MTO District	Central					Lane Type		
County	Halton					Posted Speed	80	
Geographic Twp.						No. of Lanes	2	
Structure Category	Bridge					AADT	12,625	
Struct.SubCategory	Frame					Pct. Trucks	0	
Structure Type	Rigid Frame, Vertical Legs					Interchange Number		
Structure Material	Reinforced Precast Concrete					Design Load Code	CHBDC	
Total Deck Length	11.90 m	Road Width	17.70 m	Interchange Structure Number				
Overall Width	25.0 m	Vert. Clear	0.00 m	Detour Length	0 km	Skew Angle	0°	
Total Deck Area	297.50 m ²	No. of Spans	1	Fill on Structure	0 m	Struct. Dir.	North/South	
Special Routes	<input type="checkbox"/> Transit <input checked="" type="checkbox"/> School		<input type="checkbox"/> Truck <input type="checkbox"/> Bicycle		Insp. Duration	1 hr		

*Current Replacement Value is based on in kind replacement of the existing structure and calculated using benchmark costs. Capital planning should consider site specific cost factors and requirements for widening or lengthening of the structure

Spans

Span Name	Span Lengths	Span Name	Span Lengths
Span 1	11.0 m		

Historical Data

Year Built	2011	yyyy	Year of Last Major Rehab		yyyy
Last OSIM Inspection	10/09/2012	mm/dd/yyyy	Contract No. When Built		
Last Enhanced OSIM		mm/dd/yyyy	Last Evaluation		mm/dd/yyyy
Last Enhanced Access		mm/dd/yyyy	Current Load Limit		t
Last Underwater Insp.		mm/dd/yyyy	Load Limit By-Law No.		mm/dd/yyyy
Last Condition Survey		mm/dd/yyyy	By-Law Expiry Date		mm/dd/yyyy

Rehab History

Rehab Date	Rehab Description
2011	Replacement of structure.

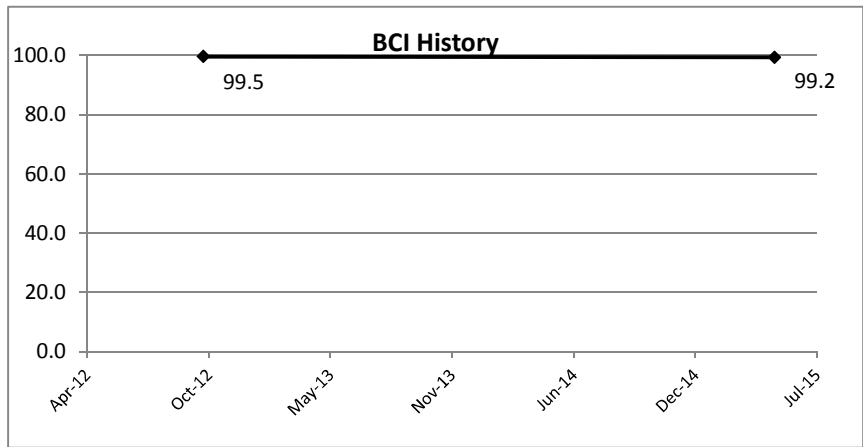
Field Inspection Information			
Inspection Date	<input type="text" value="05/06/2015"/> mm/dd/yyyy	<input type="checkbox"/> Multi Day Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector	<input type="text" value="C.Chan, E.I.T."/>	Eng. Responsible	<input type="text" value="J.Luckai, P.Eng"/>
Others in Party	<input type="text" value="J.Hallett, E.I.T."/>		
Access Equip.	<input type="checkbox"/> Lift <input type="checkbox"/> Ladder <input type="checkbox"/> Boat <input type="checkbox"/> Bridge Master <input type="checkbox"/> Other <input type="text"/>		
Other Equip.	<input type="text" value="Hammer, Camera, Measuring Tape"/>		
Weather	<input type="text" value="Sunny"/>	Temperature	<input type="text" value="20"/> °C

Investigation	Priority			Estimated Cost
	None	Normal	Urgent	
Detailed Deck Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Delamination Survey of Asphalt-Covered Deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Concrete Substructure Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Detailed Coating Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Post-Tensioned Strand Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Monitoring of Deformation, Movements and Settlements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Monitoring of Crack Widths				<input type="text" value="\$0"/>
Investigation Notes				Total Cost <input type="text" value="\$0"/>

Overall Structure Notes:					
Recommended Work on Structure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Timing of Recommended Work	<input checked="" type="checkbox"/>	s	<input checked="" type="checkbox"/>	s	
Overall Comments	<input type="text" value="- Seal wide cracks in barrier wall
- Patch repair concrete on soffit"/>				
BCI Change Justification	<input type="text"/>				
Next Inspection	<input type="text" value="05/06/2017"/> mm/dd/yyyy	Estimated Load Limit	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t

BCI History

Inspection Date	BCI	Inspector
9-Oct-12	99.5	D.Kelly
6-May-15	99.2	J.Luckai



All Bci values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated

Standard Codes

Suspected Performance Deficiencies

- | | | |
|---|--|------------------------------|
| 01 Load carrying capacity | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 02 Excessive deformations (deflections & rotations) | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 03 Continuing settlement | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 04 Continuing movements | 09 Rough riding surface | 15 Unstable embankments |
| 05 Seized bearings | 10 Surface ponding | 16 Other |
| | 11 Deck drainage | |

Maintenance Needs

- | | | |
|--------------------------------------|---------------------------------|--|
| 01 Lift and Swing Bridge Maintenance | 07 Repair to Structural Steel | 13 Erosion Control at Bridges |
| 02 Bridge Cleaning | 08 Repair of Bridge Concrete | 14 Concrete Sealing |
| 03 Bridge Handrail Maintenance | 09 Repair of Bridge Timber | 15 Rout and Seal |
| 04 Painting Steel Bridge Structures | 10 Bailey bridges - Maintenance | 16 Bridge Deck Drainage |
| 05 Bridge Deck Joint Repair | 11 Animal/Pest Control | 17 Scaling (Loose Concrete or ACR Steel) |
| 06 Bridge Bearing Maintenance | 12 Bridge Surface Repair | |

Approaches - Wearing Surface (Approach)

Element Group	Approaches				Length	6.00	Width	17.70
Element Name	Wearing Surface (Approach)				Height	0.00	Count	2.00
Location	Above structure				Total Quantity			
Material	Asphalt				<input checked="" type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	166.40	45.00	1.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

- Crack along both approach joints

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Barriers - Barrier/Parapet Wall

Element Group	Barriers				Length	23.90	Width	0.00
Element Name	Barrier/Parapet Wall		Interior		Height	0.95	Count	2.00
Location	Both Sides				Total Quantity			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Safety Shape without railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	26.41	15.00	3.00	1.00	<input checked="" type="checkbox"/> Severe		

Comments

- Wide crack on west barrier - 10.5m and 16.7m from South end of barrier
 - Wide crack on east barrier - 10.5m and 16.5m from south end of barrier
 - Light/medium scaling, more concentrated on bottom leg of barrier

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
Minor Rehabilitation	6-10 yrs.	\$2,500	Seal cracks

Barriers - Barrier/Parapet Wall

Element Group	Barriers				Length	23.90	Width	0.00
Element Name	Barrier/Parapet Wall	Exterior			Height	0.80	Count	2.00
Location	Both Ends				Total Quantity 38.24			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Safety Shape without railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	31.24	5.00	1.00	1.00	<input type="checkbox"/> Severe		

Comments
 - Wide crack on west barrier - 10.5m and 16.7m from South end of barrier
 - Wide crack on east barrier East - 10.5m and 16.5m from south end of barrier
 - Light scaling

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
Minor Rehabilitation	6-10 yrs.	\$2,500	Seal cracks.

Abutments - Abutment Walls

Element Group	Abutments				Length		Width	25.00
Element Name	Abutment Walls				Height	1.45	Count	2.00
Location	North and South sides				Total Quantity 72.50			
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Legs of rigid frame				Environment			
Protection System	None				<input checked="" type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	72.50	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Foundation - Foundation (below ground level)

Element Group	Foundation				Length		Width	
Element Name	Foundation (below ground level)				Height		Count	
Location	Below Structure				Total Quantity 0.00			
Material					<input checked="" type="checkbox"/> Limited Inspection			
Element Type					Environment <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor			
		0.00	0.00	0.00	0.00			

Comments
Limit Inspection.

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Approaches - Approach Slab

Element Group	Approaches				Length	6.00	Width	17.70
Element Name	Approach Slab				Height	0.00	Count	2.00
Location	Both Ends				Total Quantity 212.40			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment <input type="checkbox"/> Benign <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	Hot rubberized asphalt membrane							
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	212.40	0.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Decks - Deck Top (with Thick Slab)

Element Group	Decks				Length	11.90	Width	25.00
Element Name	Deck Top (with Thick Slab)				Height	0.00	Count	
Location	Above structure				Total Quantity		297.50	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Precast solid or void without concrete topping				Environment <input type="checkbox"/> Benign <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	Hot Rubberized asphalt membrane							
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	297.50	0.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Decks - Soffit - Thick Slab

Element Group	Decks				Length	11.00	Width	3.70
Element Name	Soffit - Thick Slab		Exterior		Height		Count	
Location	Underside of deck				Total Quantity		40.70	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment <input type="checkbox"/> Benign <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	38.70	1.00	1.00	0.00			

Comments

Medium scaling along edge (west side)

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Decks - Soffit - Thick Slab

Element Group	Decks				Length	11.00	Width	23.00
Element Name	Soffit - Thick Slab		Interior		Height		Count	
Location	Underside of deck							
Material	Precast Concrete							
Element Type								
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor	Total Quantity		
	sq.m	248.00	3.00	1.00	1.00	253.00		

- Limited Inspection
- Environment**
- Benign
- Moderate
- Severe

Comments

- 3rd box from West End, 2.5 m from South Abutment Wall: 300mmx500mm delaminated piece of concrete
 - Some joints have light spalling and light scaling
 - foam has been forced out from between some joints (East Side)

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
Minor Rehabilitation	1-5 yrs	\$3,500	Removal and patch repair concrete

Decks - Wearing Surface

Element Group	Decks				Length	11.90	Width	17.70
Element Name	Wearing Surface				Height	0.00	Count	
Location	Above structure							
Material	Asphalt							
Element Type								
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor	Total Quantity		
	sq.m	160.63	50.00	0.00	0.00	210.63		

- Limited Inspection
- Environment**
- Benign
- Moderate
- Severe

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Embankments & Streams - Embankments

Element Group	Embankments & Streams				Length		Width	
Element Name	Embankments				Height		Count	4.00
Location	All Quadrants						Total Quantity	4.00
Material	Other				<input type="checkbox"/> Limited Inspection			
Element Type					Environment <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor			
	Each	0.00	4.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Embankments & Streams - Slope Protection

Element Group	Embankments & Streams				Length		Width	
Element Name	Slope Protection				Height		Count	4.00
Location	All Quadrants						Total Quantity	4.00
Material	Vegetation				<input type="checkbox"/> Limited Inspection			
Element Type					Environment <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor			
	Each	0.00	4.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Sidewalks/Curbs - Curbs

Element Group	Sidewalks/Curbs				Length	11.90	Width	0.55
Element Name	Curbs	Headwalls			Height	0.20	Count	2.00
Location	East and West Sides				Total Quantity			
Material	Cast-in-place Concrete				17.85			
Element Type					<input type="checkbox"/> Limited Inspection			
Protection System	None				Environment <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Severe			
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	17.85	0.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Embankments & Streams - Streams & Waterways

Element Group	Embankments & Streams				Length		Width	
Element Name	Streams & Waterways				Height		Count	1.00
Location	Through structure				Total Quantity			
Material					1.00			
Element Type					<input type="checkbox"/> Limited Inspection			
Protection System	None				Environment <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Condition Data	Units	Excell.	Good	Fair	Poor			
	All	0.00	1.00	0.00	0.00			

Comments

-Ponding at east corners of structure - Regrade to provide positive drainage

Performance Deficiencies	Maintenance Needs	Priority	Comments
	Bridge Deck Drainage	1-5 years	Drainage through structure needs to be regraded
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Abutments - Wingwalls

Element Group	Abutments				Length	1.15	Width	
Element Name	Wingwalls				Height	1.78	Count	2.00
Location	East Side				Total Quantity		4.09	
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Reinforced Concrete				Environment <input type="checkbox"/> Benign <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	4.09	0.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Retaining Walls - Walls

Element Group	Retaining Walls				Length	6.00	Width	
Element Name	Walls				Height	1.00	Count	2.00
Location	East Side				Total Quantity		12.00	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Retained soil systems				Environment <input type="checkbox"/> Benign <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	12.00	0.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Approaches - Approach Guiderail

Element Group	Approaches				Length		Width	
Element Name	Approach Guiderail	Extruder End			Height		Count	4.00
Location	All Quadrants						Total Quantity	4.00
Material	Steel				<input type="checkbox"/> Limited Inspection			
Element Type					Environment <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Severe			
Protection System	Hot dip galvanized							
Condition Data	Units	Excell.	Good	Fair	Poor			
	Each	0.00	4.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments



East Elevation



West Elevation



Looking East (Note Scaling on Exterior Soffit)



Typical Joint



Form at Joint (several joints near East End)



Spall at Second Joint from East End



Delamination in third panel from West End



Wide Crack and Scaling on Barrier Wall (typical both sides)



Typical Wingwall / Retaining Wall



Typical RSS



Extension and Header Wall on West Side



Crack on Approach Wearing Surface



Looking North at Bridge



Looking South at Bridge



Hatch Mott
MacDonald

Region of Halton

OSIM Inspection Forms


For the Bridge on Winston Churchill Blvd
Located 1.7 km North of Steeles Avenue
Structure No. 19-1196390 BR03

Prepared by:

Hatch Mott MacDonald
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Mississauga, ON, Canada L5K 2R7
T: 905 403 4455 F: 905 855 2607
Project Number: 336921

	Name, Title	Signature	Date
Prepared By	J.Hallett, E.I.T.		MAY 27/15
Reviewed By	J.Luckai, P.Eng		MAY 27/15
Approved By	C.Pasqualino, P.Eng		MAY 28/15

Inventory Data

Structure Name	Winston Churchill Blvd, Lot 3, Conc XI		Hwy No.	19	Key Photo		
Cross. Type Over	<input checked="" type="checkbox"/> Road	<input type="checkbox"/> Ra	<input type="checkbox"/> Ped	<input type="checkbox"/> Nav. Water	<input type="checkbox"/> Non-Nav. Water		<input type="checkbox"/> Other
Cross. Type Under	<input type="checkbox"/> Road	<input type="checkbox"/> Ra	<input type="checkbox"/> Ped	<input type="checkbox"/> Nav. Water	<input checked="" type="checkbox"/> Non-Nav. Water		<input type="checkbox"/> Other
Road Name	Winston Churchill Blvd						
Structure Location	1.7 km North of Steeles Avenue						
Northing	595918.0	Easting	4830092.0	Cur.Rep.Value	*		
Owner(s) / % Shared	Region of Halton		50%				
	Regional Municipality of Peel		50%				
MTO Region	Central						
MTO District	Central						
County	Halton						
Geographic Twp.							
Structure Category	Bridge						
Struct.SubCategory	Frame						
Structure Type	Rigid Frame, Vertical Legs						
Structure Material	Reinforced Precast Concrete						
Total Deck Length	6.11 m	Road Width	16.57 m	Heritage Status	Not Considered for Designation		
Overall Width	25.0 m	Vert. Clear	0.00 m	Road Side Env.	Rural		
Total Deck Area	152.75 m ²	No. of Spans	1	Road Class	Arterial		
Special Routes	<input type="checkbox"/> Transit	<input checked="" type="checkbox"/> School	<input type="checkbox"/> Truck	<input type="checkbox"/> Bicycle	Lane Type		
					Posted Speed	80	
					No. of Lanes	2	
					AADT	12,625	
					Pct. Trucks	2	
					Interchange Number		
					Design Load Code	CHBDC	
					Interchange Structure Number		
					Detour Length	0 km	
					Skew Angle	0°	
					Fill on Structure	0.4 m	
					Struct. Dir.	North/South	
					Insp. Duration	1 hr	

*Current Replacement Value is based on in kind replacement of the existing structure and calculated using benchmark costs. Capital planning should consider site specific cost factors and requirements for widening or lengthening of the structure

Spans

Span Name	Span Lengths	Span Name	Span Lengths
Span 1	5.2 m		

Historical Data

Year Built	2011	yyyy	Year of Last Major Rehab		yyyy
Last OSIM Inspection	10/09/2012	mm/dd/yyyy	Contract No. When Built		
Last Enhanced OSIM		mm/dd/yyyy	Last Evaluation		mm/dd/yyyy
Last Enhanced Access		mm/dd/yyyy	Current Load Limit		t
Last Underwater Insp.		mm/dd/yyyy	Load Limit By-Law No.		mm/dd/yyyy
Last Condition Survey		mm/dd/yyyy	By-Law Expiry Date		mm/dd/yyyy

Rehab History

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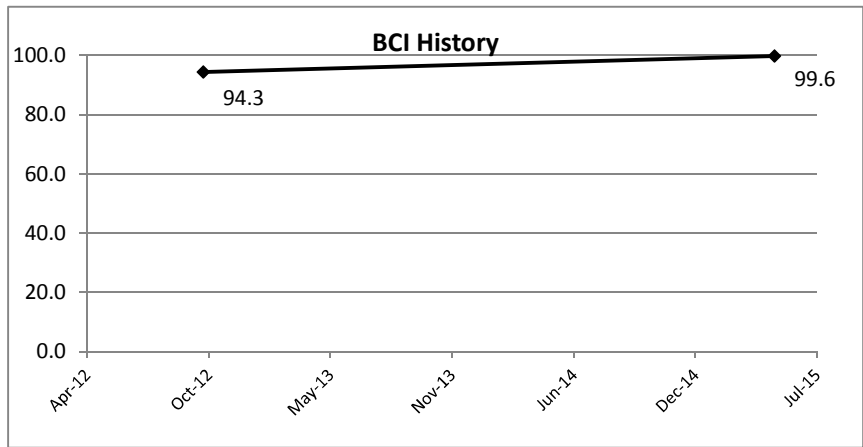
Field Inspection Information					
Inspection Date	<input type="text" value="05/06/2015"/> mm/dd/yyyy	<input type="checkbox"/> Multi Day Inspection	<input checked="" type="checkbox"/> OSIM	<input type="checkbox"/> Enhanced OSIM	BCI <input type="text" value="99.6"/>
Inspector	<input type="text" value="C.Chan, E.I.T."/>	Eng. Responsible	<input type="text" value="J.Luckai, P.Eng"/>		
Others in Party	<input type="text" value="J.Hallett, E.I.T."/>				
Access Equip.	<input type="checkbox"/> Lift <input type="checkbox"/> Ladder <input type="checkbox"/> Boat <input type="checkbox"/> Bridge Master <input type="checkbox"/> Other <input type="text"/>				
Other Equip.	<input type="text" value="Hammer, Camera, Measuring Tape"/>				
Weather	<input type="text" value="Sunny"/>	Temperature	<input type="text" value="20"/> °C		

Investigation	Priority			Estimated Cost
	None	Normal	Urgent	
Detailed Deck Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Delamination Survey of Asphalt-Covered Deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Concrete Substructure Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Detailed Coating Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Post-Tensioned Strand Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Monitoring of Deformation, Movements and Settlements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Monitoring of Crack Widths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Investigation Notes				Total Cost <input type="text" value="\$0"/>

Overall Structure Notes:					
Recommended Work on Structure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	: <input type="checkbox"/>
Timing of Recommended Work	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Overall Comments					
BCI Change Justification	<input type="text" value="Erroneous input on 9-Oct-12 Inspection Report"/>				
Next Inspection	<input type="text" value="05/06/2017"/> mm/dd/yyyy	Estimated Load Limit	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t

BCI History

Inspection Date	BCI	Inspector
9-Oct-12	94.3	D.Kelly
6-May-15	99.6	J.Luckai



All Bci values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated

Standard Codes

Suspected Performance Deficiencies

- | | | |
|---|--|------------------------------|
| 01 Load carrying capacity | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 02 Excessive deformations (deflections & rotations) | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 03 Continuing settlement | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 04 Continuing movements | 09 Rough riding surface | 15 Unstable embankments |
| 05 Seized bearings | 10 Surface ponding | 16 Other |
| | 11 Deck drainage | |

Maintenance Needs

- | | | |
|--------------------------------------|---------------------------------|--|
| 01 Lift and Swing Bridge Maintenance | 07 Repair to Structural Steel | 13 Erosion Control at Bridges |
| 02 Bridge Cleaning | 08 Repair of Bridge Concrete | 14 Concrete Sealing |
| 03 Bridge Handrail Maintenance | 09 Repair of Bridge Timber | 15 Rout and Seal |
| 04 Painting Steel Bridge Structures | 10 Bailey bridges - Maintenance | 16 Bridge Deck Drainage |
| 05 Bridge Deck Joint Repair | 11 Animal/Pest Control | 17 Scaling (Loose Concrete or ACR Steel) |
| 06 Bridge Bearing Maintenance | 12 Bridge Surface Repair | |

Approaches - Wearing Surface (Approach)

Element Group	Approaches				Length	6.00	Width	16.57
Element Name	Wearing Surface (Approach)				Height	0.00	Count	2.00
Location	Both Ends				Total Quantity			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	Hot rubberized asphalt membrane				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	198.84	0.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Barriers - Barrier/Parapet Wall

Element Group	Barriers				Length	18.11	Width	0.00
Element Name	Barrier/Parapet Wall		Interior		Height	0.95	Count	2.00
Location	Both Sides				Total Quantity			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Safety Shape without railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	24.41	9.00	1.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

- Light scaling

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Barriers - Barrier/Parapet Wall

Element Group	Barriers				Length	18.11	Width	0.00
Element Name	Barrier/Parapet Wall	Exterior		Height	0.80	Count	2.00	
Location	Both Ends				Total Quantity		28.98	
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Safety Shape without railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	25.98	2.00	1.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments
- Light scaling

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Abutments - Abutment Walls

Element Group	Abutments				Length		Width	25.00
Element Name	Abutment Walls			Height	1.50	Count	2.00	
Location	North and South Sides				Total Quantity		75.00	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Legs of rigid frame				Environment			
Protection System	None				<input checked="" type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	75.00	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Foundation - Foundation (below ground level)

Element Group	Foundation				Length		Width	
Element Name	Foundation (below ground level)				Height		Count	
Location	Below Structure				Total Quantity 0.00			
Material					<input checked="" type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
		0.00	0.00	0.00	0.00	<input type="checkbox"/> Severe		
Comments	Limited Inspection							

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None			

Approaches - Approach Slab

Element Group	Approaches				Length	6.00	Width	16.57
Element Name	Approach Slab				Height	0.95	Count	2.00
Location	Both Ends				Total Quantity 198.84			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	Hot Rubberized asphalt membrane				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	198.84	0.00	0.00	0.00	<input type="checkbox"/> Severe		
Comments								

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None			

Decks - Deck Top (with Thick Slab)

Element Group	Decks				Length	6.11	Width	25.00
Element Name	Deck Top (with Thick Slab)				Height	0.00	Count	
Location	Above structure				Total Quantity		152.75	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Precast solid or void without concrete topping				Environment			
Protection System	Hot Rubberized asphalt membrane				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	152.75	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Decks - Soffit - Thick Slab

Element Group	Decks				Length	5.20	Width	3.80
Element Name	Soffit - Thick Slab		Exterior		Height		Count	
Location	Underside of Deck				Total Quantity		19.76	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	19.76	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Decks - Soffit - Thick Slab

Element Group	Decks				Length	5.20	Width	23.00
Element Name	Soffit - Thick Slab		Interior		Height		Count	
Location	Underside of deck							
Material	Precast Concrete							
Element Type								
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor	Environment		
	sq.m	119.60	0.00	0.00	0.00	<input type="checkbox"/> Limited Inspection <input checked="" type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe		
Total Quantity 119.60								

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None			

Decks - Wearing Surface

Element Group	Decks				Length	18.10	Width	16.57
Element Name	Wearing Surface				Height	0.00	Count	
Location	Above structure							
Material	Asphalt							
Element Type								
Protection System	None							
Condition Data	Units	Excell.	Good	Fair	Poor	Environment		
	sq.m	274.92	25.00	0.00	0.00	<input type="checkbox"/> Limited Inspection <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Severe		
Total Quantity 299.92								

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Embankments & Streams - Embankments

Element Group	Embankments & Streams				Length		Width	
Element Name	Embankments				Height		Count	4.00
Location	All Quadrants						Total Quantity	4.00
Material	Vegetation				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Condition Data	Units	Excell.	Good	Fair	Poor			
	Each	0.00	4.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Embankments & Streams - Slope Protection

Element Group	Embankments & Streams				Length		Width	
Element Name	Slope Protection				Height		Count	4.00
Location	All Quadrants						Total Quantity	4.00
Material	Vegetation				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Condition Data	Units	Excell.	Good	Fair	Poor			
	Each	0.00	4.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Sidewalks/Curbs - Curbs

Element Group	Sidewalks/Curbs				Length	18.10	Width	0.55
Element Name	Curbs	Headwalls			Height	0.20	Count	1.00
Location	East and West sides				Total Quantity			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	0.00	13.58	0.00	0.00	<input type="checkbox"/> Severe		

Comments
- Light abrasions

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Embankments & Streams - Streams & Waterways

Element Group	Embankments & Streams				Length		Width	
Element Name	Streams & Waterways				Height		Count	1.00
Location	Through Structure				Total Quantity			
Material					<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	All	0.00	1.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments
-Ponding at east corners of structure - Regrade to provide positive drainage

Performance Deficiencies	Maintenance Needs	Priority	Comments
	Bridge Deck Drainage	1-5 years	Drainage through structure needs to be regraded
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Abutments - Wingwalls

Element Group	Abutments				Length	1.10	Width	
Element Name	Wingwalls				Height	2.30	Count	2.00
Location	East Side				Total Quantity		5.06	
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	5.06	0.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Retaining Walls - Walls

Element Group	Retaining Walls				Length	6.20	Width	
Element Name	Walls				Height	1.40	Count	2.00
Location	East Side				Total Quantity		17.40	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Retained soil systems				Environment			
Protection System	None				<input type="checkbox"/> Benign <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Severe			
Condition Data	Units	Excell.	Good	Fair	Poor			
	sq.m	17.40	0.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments

Approaches - Approach Guiderail

Element Group	Approaches				Length		Width	
Element Name	Approach Guiderail	Extruder End			Height		Count	4.00
Location	All Quadrants						Total Quantity	4.00
Material	Steel				<input type="checkbox"/> Limited Inspection			
Element Type					Environment <input type="checkbox"/> Benign <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Severe			
Protection System	Hot dip galvanized							
Condition Data	Units	Excell.	Good	Fair	Poor			
	Each	0.00	4.00	0.00	0.00			

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		
Rehab/Rehabilitation Recommendations	Priority	Cost	Comments



East Elevation



West Elevation



Looking North at Bridge



Looking South



South East Abutment



North East Abutment



Typical Soffit



Typical Joint and South Abutment Wall



Pounding (Typical on East Side)



Looking East Through the Structure



Deck Slab Joint (Typical)



Extension on West Side



Disintegrated Concrete at RSS Connection



Looking Downstream



Typical Joint on Barrier Wall



Typical Scaling on Barrier Wall

Region of Halton

OSIM Inspection Forms


For the Bridge on Winston Churchill Blvd
Located 0.5 km North of Steeles Avenue
Structure No. 19-1196390 BR05

Prepared by:

Hatch Mott MacDonald
2800 Speakman Drive
Mississauga, ON, Canada L5K 2R7
T: 905 403 4455 F: 905 855 2607
Project Number: 336921

	Name, Title	Signature	Date
Prepared By	J.Hallett, E.I.T.		MAY 27/15
Reviewed By	J.Luckai, P.Eng		MAY 27/15
Approved By	C.Pasqualino, P.Eng		MAY 28/15

Inventory Data

Structure Name	Winston Churchill Blvd, Lot 1, Conc XI		Hwy No.	19	Key Photo	
Cross. Type Over	<input checked="" type="checkbox"/> Road	<input type="checkbox"/> Rail	<input type="checkbox"/> Ped	<input type="checkbox"/> Nav. Water	<input type="checkbox"/> Non-Nav. Water	
Cross. Type Under	<input type="checkbox"/> Road	<input type="checkbox"/> Rail	<input type="checkbox"/> Ped	<input type="checkbox"/> Nav. Water	<input checked="" type="checkbox"/> Non-Nav. Water	
Road Name	Winston Churchill Blvd					
Structure Location	0.5 km North of Steeles Avenue					
Northing	596708.0	Eastings	4829286.0	Cur.Rep.Value	*	
Owner(s) / % Shared	Region of Halton		50%		Heritage Status	
	Regional Municipality of Peel		50%		Not Considered for Designation	
MTO Region	Central		Road Side Env.		Rural	
MTO District	Central		Road Class		Arterial	
County	Halton		Lane Type			
Geographic Twp.			Posted Speed		60	No. of Lanes
Structure Category	Bridge		AADT		12,625	Pct. Trucks
Struct.SubCategory	Frame		Interchange Number			
Structure Type	Rigid Frame, Vertical Legs		Design Load Code		CHBDC	
Structure Material	Reinforced Precast Concrete		Interchange Structure Number			
Total Deck Length	11.30 m	Road Width	17.80 m	Detour Length	0 km	Skew Angle
Overall Width	25.14 m	Vert. Clear	0.00 m	Fill on Structure	0 m	Struct. Dir.
Total Deck Area	284.08 m ²	No. of Spans	1	Insp. Duration	1 hr	North/South
Special Routes	<input type="checkbox"/> Transit <input checked="" type="checkbox"/> School <input type="checkbox"/> Truck <input type="checkbox"/> Bicycle					

*Current Replacement Value is based on in kind replacement of the existing structure and calculated using benchmark costs. Capital planning should consider site specific cost factors and requirements for widening or lengthening of the structure

Spans

Span Name	Span Lengths	Span Name	Span Lengths
Span 1	10.4 m		

Historical Data

Year Built	2011	yyyy	Year of Last Major Rehab		yyyy
Last OSIM Inspection	10/09/2012	mm/dd/yyyy	Contract No. When Built		
Last Enhanced OSIM		mm/dd/yyyy	Last Evaluation		
Last Enhanced Access		mm/dd/yyyy	Current Load Limit		t
Last Underwater Insp.		mm/dd/yyyy	Load Limit By-Law No.		mm/dd/yyyy
Last Condition Survey		mm/dd/yyyy	By-Law Expiry Date		mm/dd/yyyy

Rehab History

--

Field Inspection Information

Inspection Date mm/dd/yyyy Multi Day Inspection OSIM Enhanced OSIM **BCI**

Inspector **Eng. Responsible**

Others in Party

Access Equip. Lift Ladder Boat Bridge Master Other

Other Equip.

Weather **Temperature** °C

Additional Investigation Required:

Investigation	Priority			Estimated Cost
	None	Normal	Urgent	
Detailed Deck Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Delamination Survey of Asphalt-Covered Deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Concrete Substructure Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Detailed Coating Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Post-Tensioned Strand Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Monitoring of Deformation, Movements and Settlements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Monitoring of Crack Widths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="\$0"/>
Investigation Notes				Total Cost <input type="text" value="\$0"/>

Overall Structure Notes:

Recommended Work on Structure :

Timing of Recommended Work

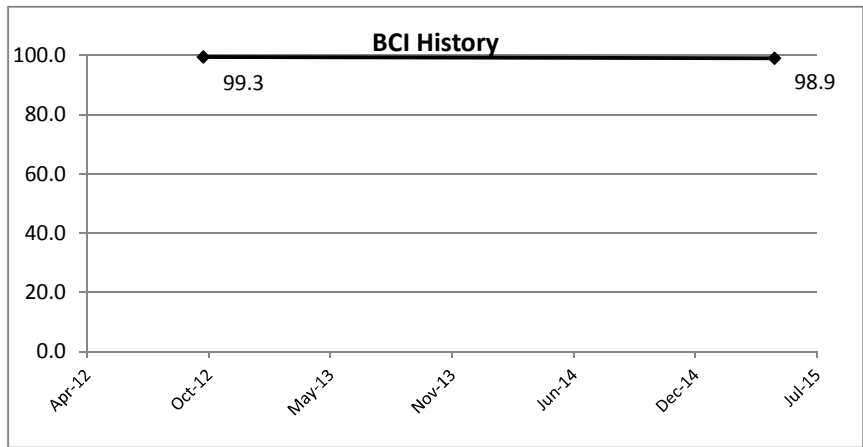
Overall Comments

BCI Change Justification

Next Inspection mm/dd/yyyy **Estimated Load Limit** t t t

BCI History

Inspection Date	BCI	Inspector
9-Oct-12	99.3	D.Kelly
6-May-15	98.9	J.Luckai



All Bci values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated

Standard Codes

Suspected Performance Deficiencies

- | | | |
|---|--|------------------------------|
| 01 Load carrying capacity | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 02 Excessive deformations (deflections & rotations) | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 03 Continuing settlement | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 04 Continuing movements | 09 Rough riding surface | 15 Unstable embankments |
| 05 Seized bearings | 10 Surface ponding | 16 Other |
| | 11 Deck drainage | |

Maintenance Needs

- | | | |
|--------------------------------------|---------------------------------|--|
| 01 Lift and Swing Bridge Maintenance | 07 Repair to Structural Steel | 13 Erosion Control at Bridges |
| 02 Bridge Cleaning | 08 Repair of Bridge Concrete | 14 Concrete Sealing |
| 03 Bridge Handrail Maintenance | 09 Repair of Bridge Timber | 15 Rout and Seal |
| 04 Painting Steel Bridge Structures | 10 Bailey bridges - Maintenance | 16 Bridge Deck Drainage |
| 05 Bridge Deck Joint Repair | 11 Animal/Pest Control | 17 Scaling (Loose Concrete or ACR Steel) |
| 06 Bridge Bearing Maintenance | 12 Bridge Surface Repair | |

Approaches - Wearing Surface (Approach)

Element Group	Approaches				Length	6.00	Width	17.80
Element Name	Wearing Surface (Approach)				Height	0.00	Count	2.00
Location	Both Sides				Total Quantity			
Material	Asphalt				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	174.60	39.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
Minor Rehabilitation	1-5 yrs.	\$1,000	Patch repair at round PVC outlet

Barriers - Barrier/Parapet Wall

Element Group	Barriers				Length	23.24	Width	0.00
Element Name	Barrier/Parapet Wall		Interior		Height	1.10	Count	2.00
Location	Both sides				Total Quantity			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Parapet Wall with single railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	33.13	17.00	1.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

- Medium spall on North side --> 75mm dia., 30.7 m from NE corner of barrier
- Light scaling elsewhere
- Light hairline cracking

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Barriers - Barrier/Parapet Wall

Element Group	Barriers				Length	23.24	Width	0.00
Element Name	Barrier/Parapet Wall	Exterior			Height	0.83	Count	2.00
Location	Both Sides				Total Quantity		38.58	
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Parapet Wall with single railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	36.58	2.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

- Some light scaling

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	1-5 yrs.	\$0	

Abutments - Abutment Walls

Element Group	Abutments				Length	6.00	Width	25.14
Element Name	Abutment Walls				Height	1.50	Count	2.00
Location	North and south sides				Total Quantity		75.42	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Legs of rigid frame				Environment			
Protection System	None				<input checked="" type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	73.42	2.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

- Spalling around PVC outlet on South Wall
 - Staining on some joints

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
Minor Rehabilitation	1-5 yrs.	\$1,000	Patch repair at round PVC outlet

Foundation - Foundation (below ground level)

Element Group	Foundation				Length	0.00	Width	0.00
Element Name	Foundation (below ground level)				Height	0.00	Count	0.00
Location	Below structure				Total Quantity 0.00			
Material					<input checked="" type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	0	0.00	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments
 Limited inspection.

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Approaches - Approach Slab

Element Group	Approaches				Length	6.00	Width	17.80
Element Name	Approach Slab				Height	0.00	Count	2.00
Location	Both ends				Total Quantity 213.60			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	Hot rubberized asphalt membrane				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	213.60	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Decks - Deck Top (with Thick Slab)

Element Group	Decks				Length	11.30	Width	25.14
Element Name	Deck Top (with Thick Slab)				Height	0.00	Count	2.00
Location	Above structure				Total Quantity 284.08			
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Precast solid or void without concrete topping				Environment			
Protection System	Hot rubberized asphalt membrane				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	284.08	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Decks - Soffit - Thick Slab

Element Group	Decks				Length	10.40	Width	3.80
Element Name	Soffit - Thick Slab		Exterior		Height	0.00	Count	0.00
Location	Underside of Deck				Total Quantity 39.52			
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	37.02	2.50	0.00	0.00	<input type="checkbox"/> Severe		

Comments

- Honeycombing along edge
- Hairline cracks on vertical face
- Lighr scaling on vertical face

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Decks - Soffit - Thick Slab

Element Group	Decks				Length	11.30	Width	23.14
Element Name	Soffit - Thick Slab	Interior		Height	0.00	Count	0.00	
Location	Underside of deck				Total Quantity		261.48	
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input checked="" type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	256.48	3.00	1.00	1.00	<input type="checkbox"/> Severe		

Comments

- Some joints with light honeycombing, scalling, spalling, and/or staining

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Decks - Wearing Surface

Element Group	Decks				Length	11.30	Width	17.80
Element Name	Wearing Surface			Height	0.00	Count	1.00	
Location	Above structure				Total Quantity		201.14	
Material	Asphalt				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	161.14	40.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Embankments & Streams - Embankments

Element Group	Embankments & Streams				Length	0.00	Width	0.00
Element Name	Embankments				Height	0.00	Count	4.00
Location	All Quadrants				Total Quantity			
Material	Vegetation				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	Vegetation				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	Each	0.00	4.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Embankments & Streams - Slope Protection

Element Group	Embankments & Streams				Length	23.24	Width	0.00
Element Name	Slope Protection				Height	1.10	Count	4.00
Location	All Quadrants				Total Quantity			
Material	Vegetation				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	Each	0.00	4.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Sidewalks/Curbs - Curbs

Element Group	Sidewalks/Curbs				Length	6.00	Width	0.15
Element Name	Curbs		Height	0.15	Count	2.00		
Location	Both Sides				Total Quantity		3.60	
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	2.60	1.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Embankments & Streams - Streams & Waterways

Element Group	Embankments & Streams				Length	0.00	Width	0.00
Element Name	Streams & Waterways		Height	0.00	Count	1.00		
Location	Through Structure				Total Quantity		1.00	
Material					<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	All	0.00	1.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

- Ponding at east corners of structure - regrade to provide positive drainage

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	Bridge Deck Drainage	1- 5 yrs	Drainage through structure needs to be regraded

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Abutments - Wingwalls

Element Group	Abutments				Length	1.60	Width	3.80
Element Name	Wingwalls				Height	3.10	Count	4.00
Location	All Quadrants						Total Quantity	19.84
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Reinforced Concrete				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	17.84	1.00	1.00	0.00	<input type="checkbox"/> Severe		

Comments
 - Hairline cracks
 - Medium / Light scaling

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Retaining Walls - Walls

Element Group	Retaining Walls				Length	6.00	Width	23.14
Element Name	Walls				Height	0.83	Count	4.00
Location	All Quadrants						Total Quantity	19.92
Material	Precast Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Retained soil systems				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	19.92	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Approaches - Approach Guiderail

Element Group	Approaches				Length	6.00	Width	0.00
Element Name	Approach Guiderail	Extruder End			Height	0.83	Count	1.00
Location	South East Quadrant				Total Quantity		1.00	
Material	Steel				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	Hot dip Galvanized				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	Each	0.00	1.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Sidewalks/Curbs - Sidewalk and medians

Element Group	Sidewalks/Curbs				Length	11.24	Width	3.20
Element Name	Sidewalk and medians	Sidewalk			Height	0.15	Count	2.00
Location	Both sides				Total Quantity		75.31	
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	60.31	15.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Retaining Walls - Barrier Systems on Walls

Element Group	Retaining Walls				Length	6.00	Width	0.15
Element Name	Barrier Systems on Walls	Exterior			Height	0.83	Count	4.00
Location	All Quadrants				Total Quantity 19.92			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Parapet Wall with single railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq.m	19.92	0.00	0.00	0.00	<input type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Retaining Walls - Barrier Systems on Walls

Element Group	Retaining Walls				Length	6.00	Width	3.20
Element Name	Barrier Systems on Walls	Interior			Height	1.10	Count	4.00
Location	All Quadrants				Total Quantity 26.40			
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type	Parapet Wall with single railing				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq.m	21.40	5.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Barriers - Hand Railings

Element Group	Barriers				Length	23.24	Width	0.00
Element Name	Hand Railings				Height	0.00	Count	2.00
Location	Both Sides				Total Quantity			
Material	Steel				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	Hot dip galvanized				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	m	37.28	9.20	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Coatings - Barrier Systems / Hand Railings

Element Group	Coatings				Length	6.00	Width	0.00
Element Name	Barrier Systems / Hand Railings				Height	1.10	Count	1.00
Location	Both sides				Total Quantity			
Material					<input type="checkbox"/> Limited Inspection			
Element Type	Hot dip galvanized				Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	m	11.60	3.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	

Approaches - Curbs and gutters

Element Group	Approaches				Length	6.00	Width	3.20
Element Name	Curbs and gutters				Height	0.15	Count	4.00
Location	All Quadrants				Total Quantity		24.00	
Material	Cast-in-place Concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System	None				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	m	17.50	6.50	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	None		

Rehab/Rehabilitation Recommendations	Priority	Cost	Comments
None	yrs.	\$0	



East Elevation



West Elevation



Looking South at Bridge



Looking North at Bridge



Looking West Under Structure



Typical Ponding at Abutment Corners



Typical Soffit



Typical Soffit Edge



Honeycombing at Soffit



Typical Wingwall



Typical Joint



Joint with Staining and Scaling



Spall at Soffit Joint



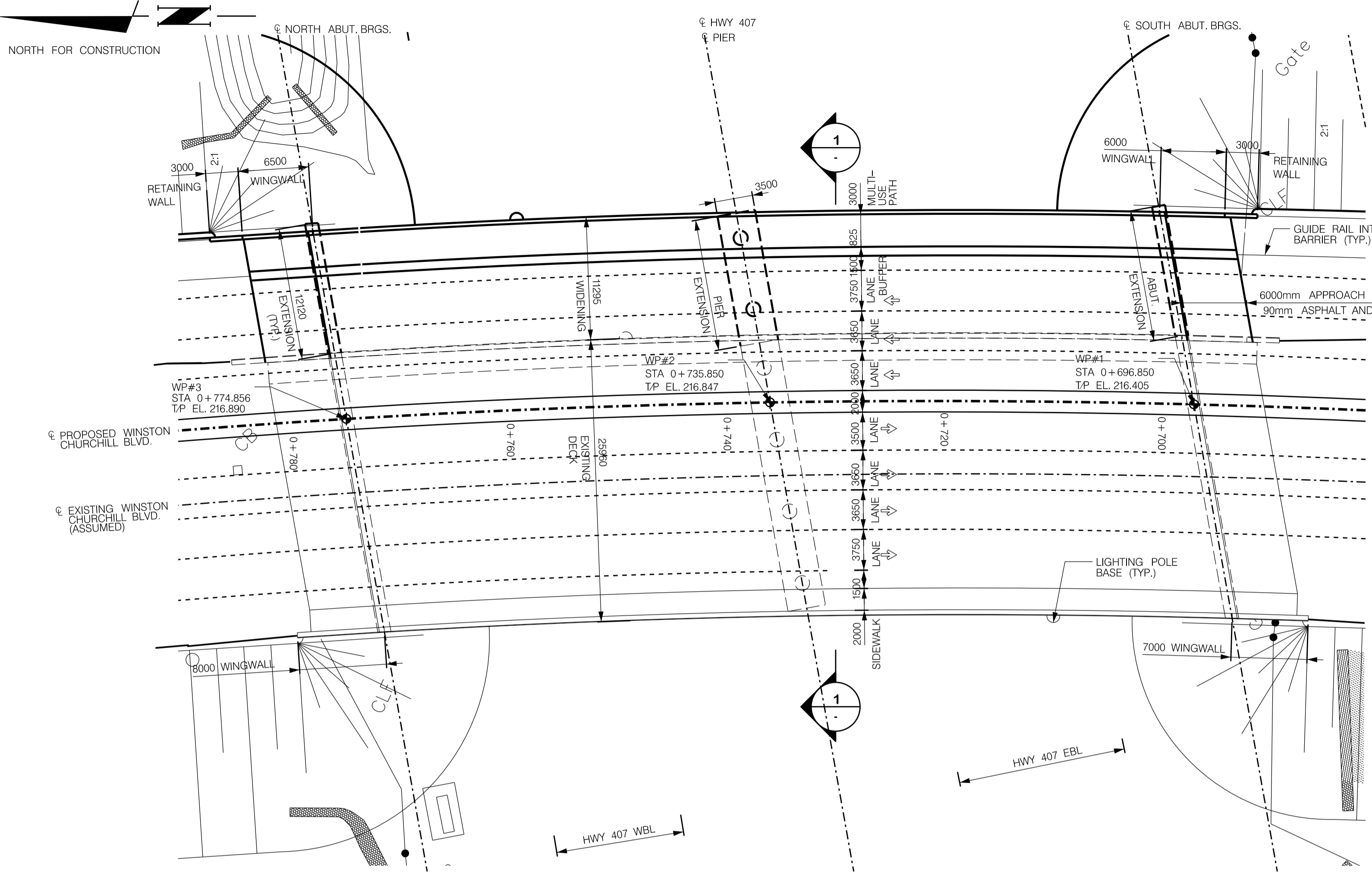
Spalling around PVC Inlet



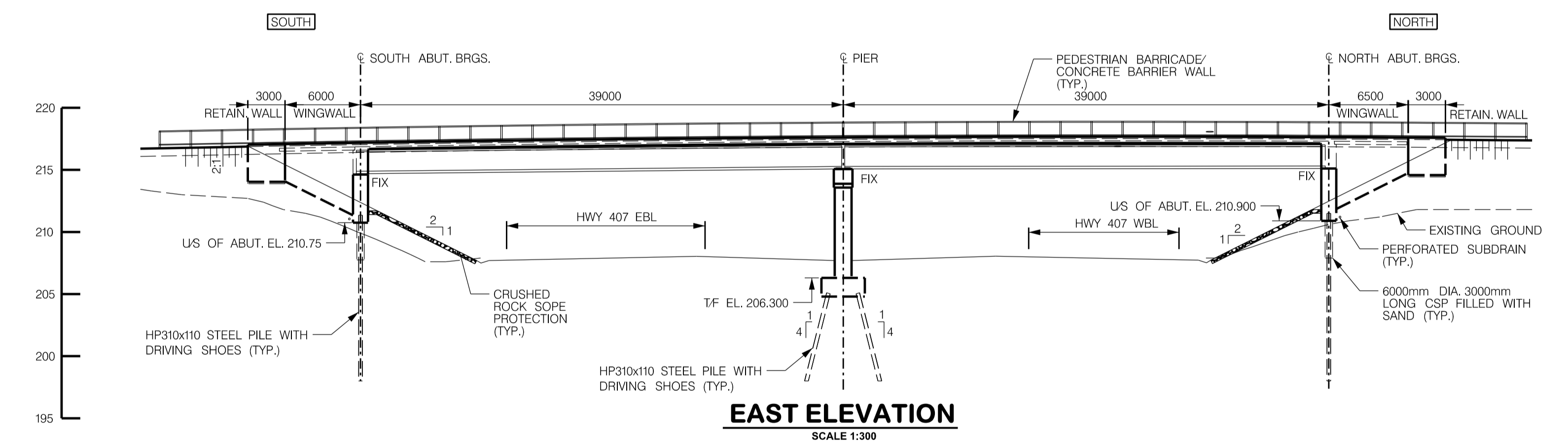
Narrow Crack on Interior Parapet Wall



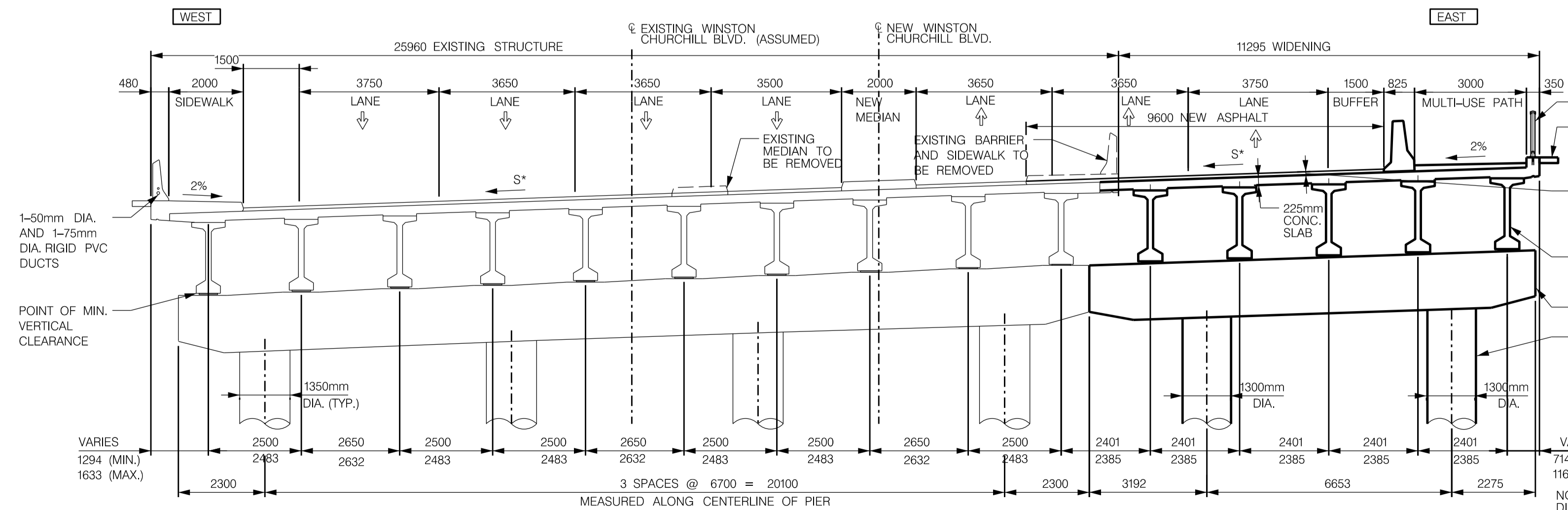
Spall on Interior Parapet Wall



PLAN
SCALE 1:300



EAST ELEVATION
SCALE 1:300



SECTION 1
SCALE 1:100

* FOR CROSS FALL SEE TABLE.

METRIC DIMENSIONS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

CROSS-FALL AT WINSTON CHURCHILL BLVD.		
STATION	NORTH BOUND LANE	SOUTH BOUND LANE
0+679.370	+2%	-2.4%
0+701.945	+3.4%	-3.4%
0+870.000	+3.4%	-3.4%

LIST OF ABBREVIATIONS:

- ABUT. - DENOTES ABUTMENT
- BRGS - DENOTES BEARINGS
- BVC - DENOTES BEGINNING VERTICAL CURVE
- CONC. - DENOTES CONCRETE
- CONST. - DENOTES CONSTRUCTION
- DIA - DENOTES DIAMETER
- EL. - DENOTES ELEVATION
- ELEV. - DENOTES ELEVATION
- EVC - DENOTES END VERTICAL CURVE
- FIX. - DENOTES FIXED
- HWY - DENOTES HIGHWAY
- N.T.S. - DENOTES NOT TO SCALE
- P.C.L. - DENOTES PROFILE CONTROL LINE
- P.V.V.P.I. - DENOTES POINT OF VERTICAL INTERSECTION
- SHLD. - DENOTES SHOULDER
- STA. - DENOTES STATION
- SW - DENOTES SIDEWALK
- T.F. - DENOTES TOP OF FOOTING
- T.P. - DENOTES TOP OF PAVEMENT
- TYP. - DENOTES TYPICAL
- US - DENOTES UNDERSIDE
- WP - DENOTES WORKING POINT

APPLICABLE STANDARD DRAWINGS:

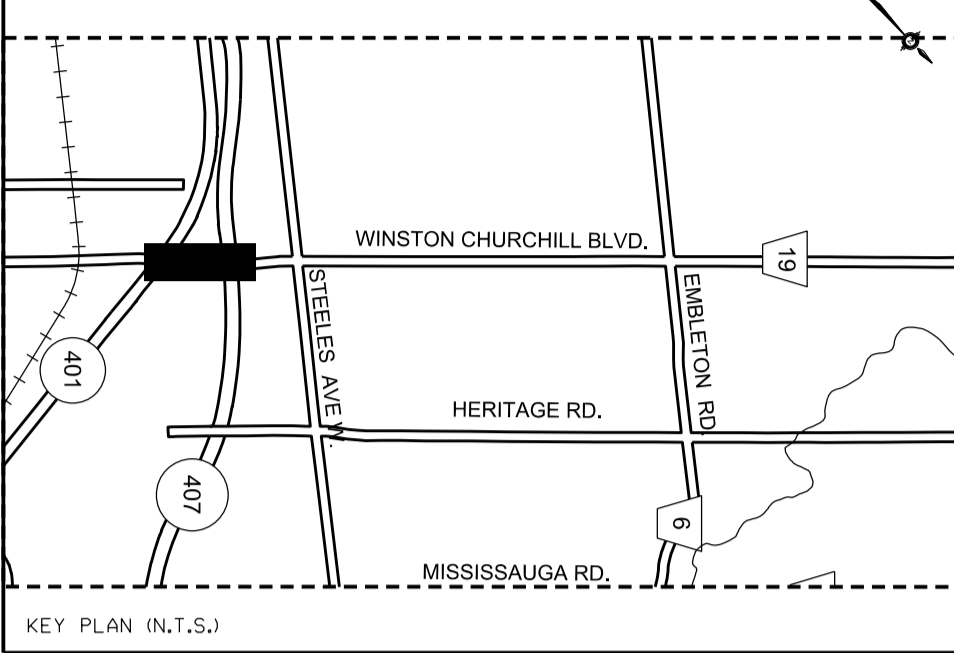
- OPSD 3101.150 - WALLS ABUTMENT BACKFILL MINIMUM GRANULAR REQUIREMENT
- OPSD 3370.100 - DECK WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3419.100 - BARRICADES AND RAILINGS-STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- SS116-1 - 6000mm APPROACH SLAB
- SS116-21 - ROCK SLOPE PROTECTION WITHOUT BEAM

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.



GENERAL NOTES:

LOCATION OF EXISTING CENTERLINES OF WINSTON CHURCHILL BLVD. AND HWY 407 DRAWN ARE ESTIMATED FROM RECORD DRAWINGS. LOCATION OF HWY 407 LANES ESTIMATED FROM RECORD DRAWINGS

CLASS OF CONCRETE:

PRESTRESSED GIRDERS - 45MPa
REMAINDER - 30MPa

CLEAR COVER TO REINFORCING STEEL:

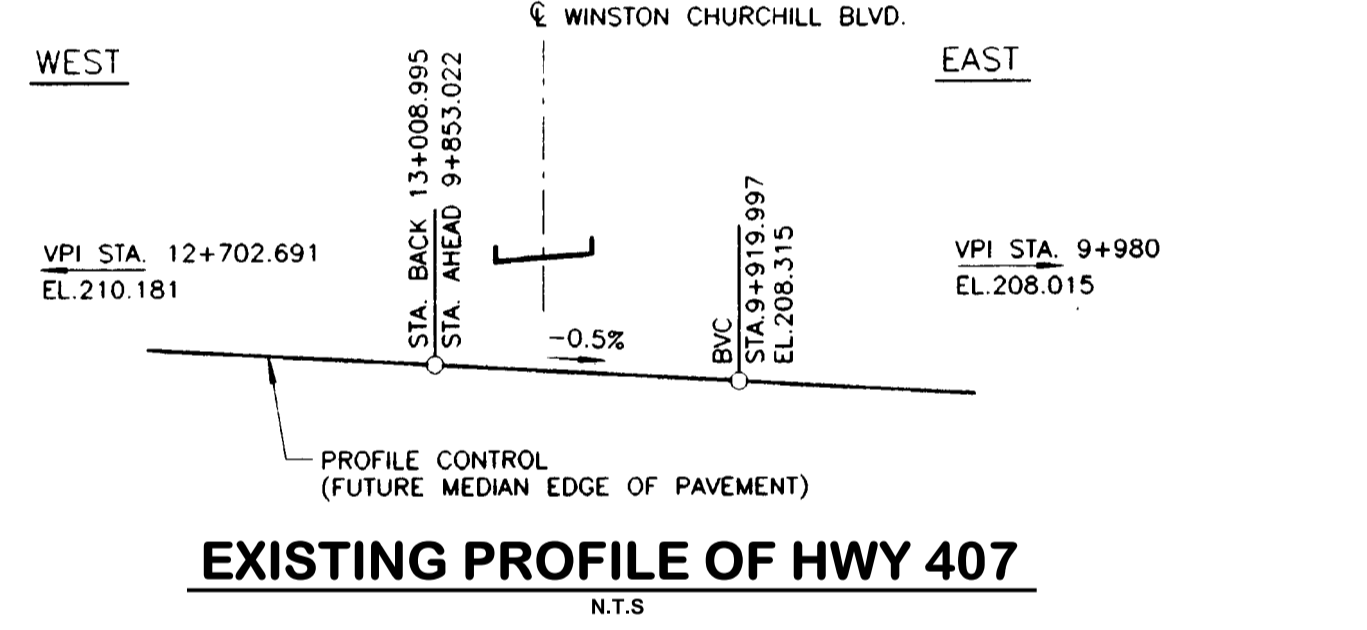
FOOTINGS - 100 ± 25mm
DECK - TOP - 70 ± 20mm
 BOTTOM - 40 ± 10mm
REMAINDER UNLESS OTHERWISE NOTED - 70 ± 20mm

REINFORCING STEEL:

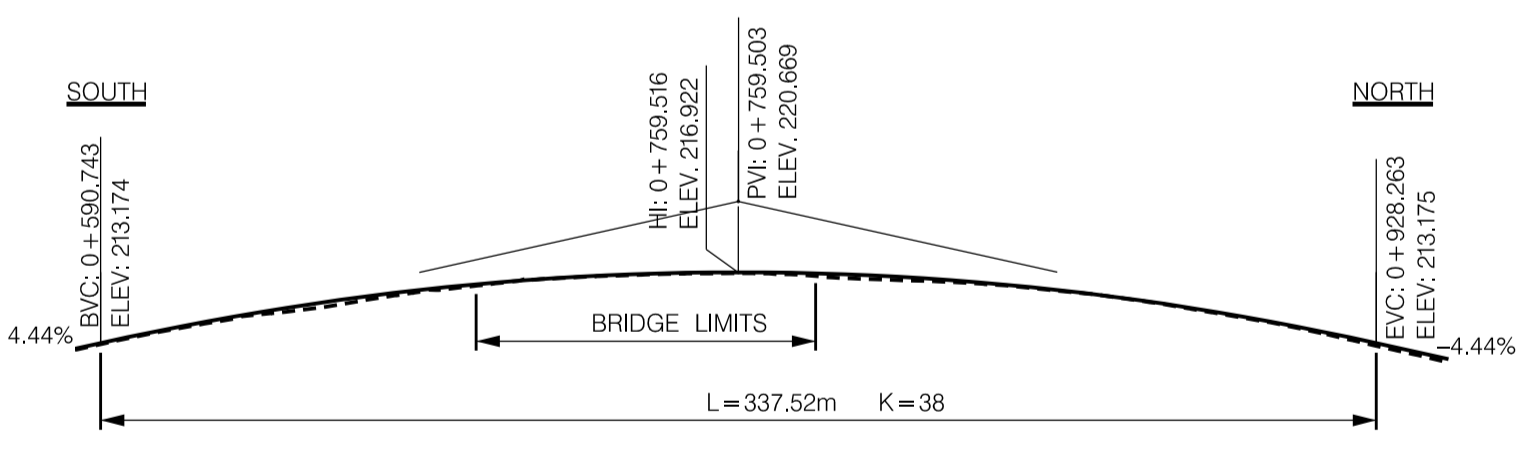
- REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.
- BAR MARKS WITH PREFIX 'C' DENOTE COATED BARS.

CONSTRUCTION NOTES:

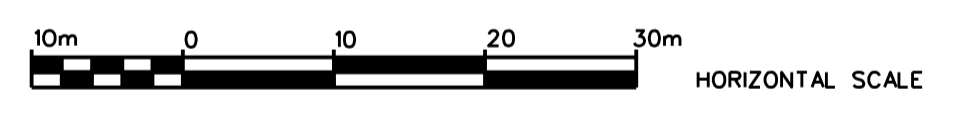
- THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESS FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESS ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
- CONSTRUCT ABUTMENT AND WINGWALL TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BEARING FOR THE ABUTMENTS, FORMWORK AND LATERAL BRACING SHALL NOT BE REMOVED UNTIL THE CONCRETE DECK HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
- COMPACTED FILL MAXIMUM GRAIN SIZE 75mm SHALL BE PLACED UP TO THE BOTTOM OF FOOTING ELEVATION PRIOR TO DRIVING PILES.
- NO BACKFILL SHALL BE PLACED BEHIND ABUTMENTS UNTIL DECK CONCRETE HAS REACHED 70% OF ITS SPECIFIED 28-DAY STRENGTH.
- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 0.5m.



EXISTING PROFILE OF HWY 407
N.T.S.



NEW PROFILE OF WINSTON CHURCHILL BLVD.
N.T.S.



HATCH

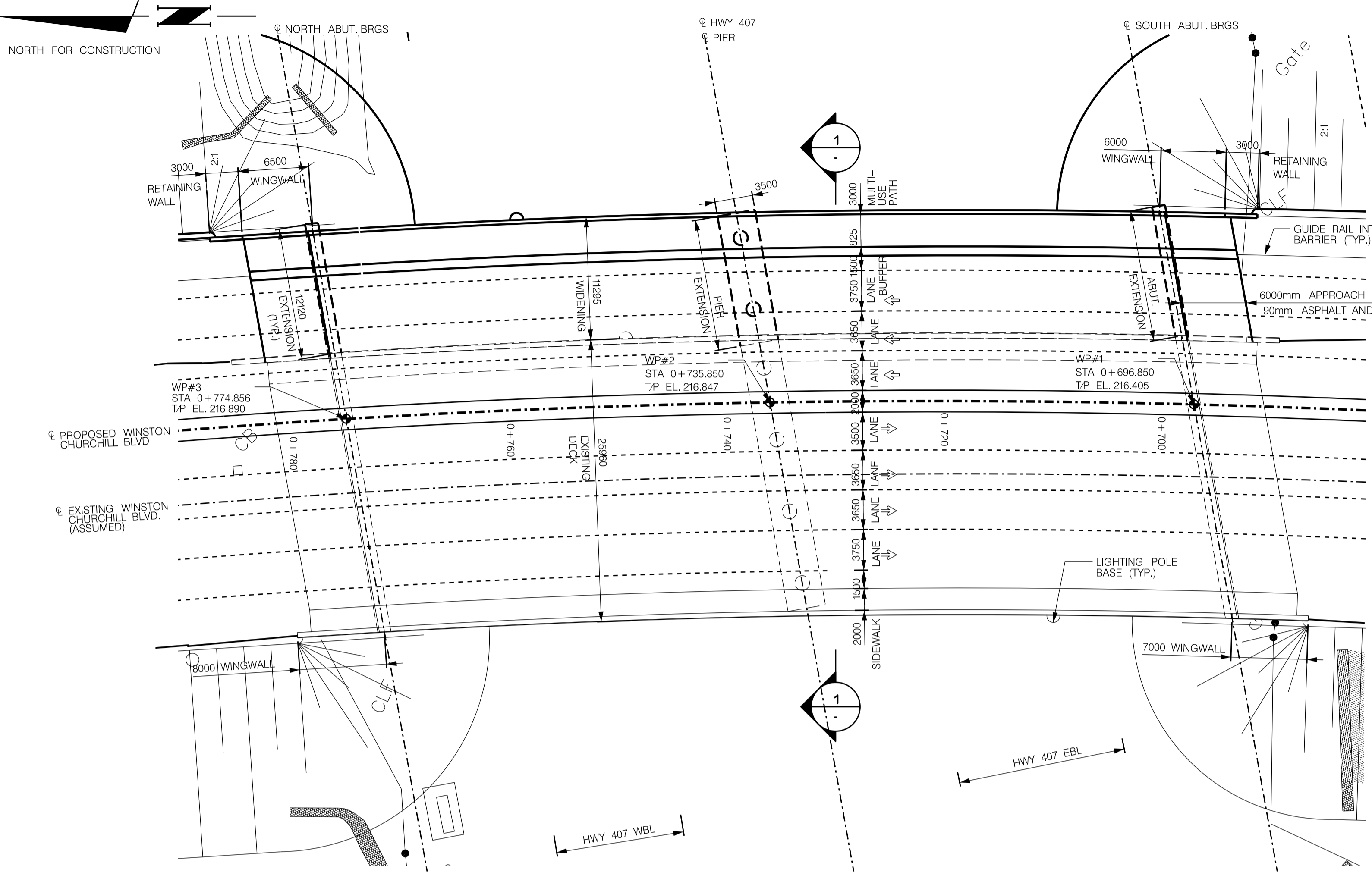
Designed by _____ Chkd. _____ Approved by _____

Region of Peel
Working for you

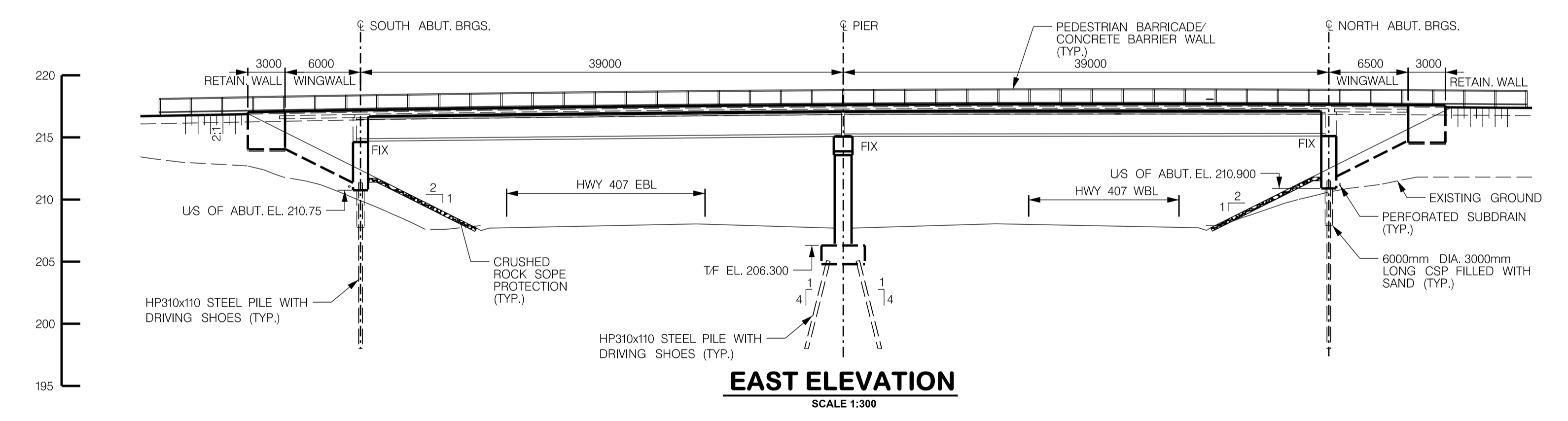
WINSTON CHURCHILL BLVD.
(FROM HIGHWAY 401 TO EMBLETON ROAD)

STRUCTURE No. B10
GENERAL ARRANGEMENT

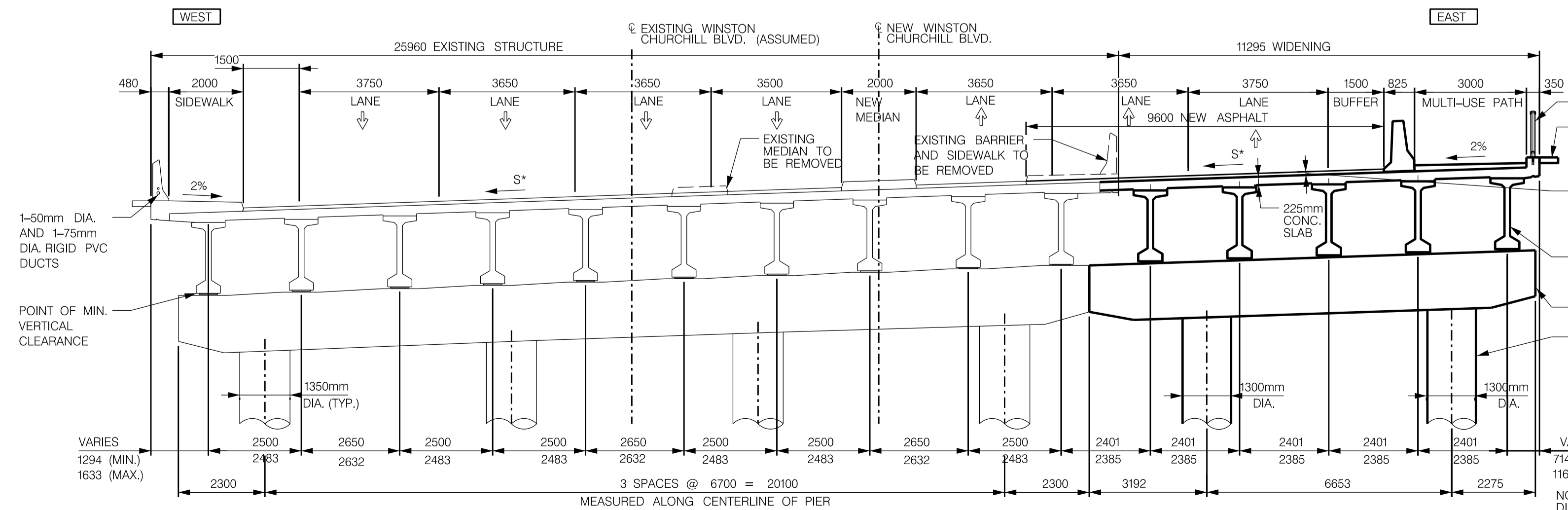
CAD Area	-	Area	-	Project No.	XX-XXXX
Checked by		Drawn by		Plan No.	14-4380
Date		Sheet	of		



PLAN
SCALE 1:300



EAST ELEVATION
SCALE 1:300



SECTION 1
SCALE 1:100

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- HWY - DENOTES HIGHWAY
- N.T.S. - DENOTES NOT TO SCALE
- P.C.L. - DENOTES PROFILE CONTROL LINE
- PV/VP1 - DENOTES POINT OF VERTICAL INTERSECTION
- SHLD - DENOTES SHOULDER
- STA. - DENOTES STATION
- SW - DENOTES SIDEWALK
- T.F - DENOTES TOP OF FOOTING
- T.P - DENOTES TOP OF PAVEMENT
- TYP. - DENOTES TYPICAL
- US - DENOTES UNDERSIDE
- WP - DENOTES WORKING POINT

APPLICABLE STANDARD DRAWINGS:

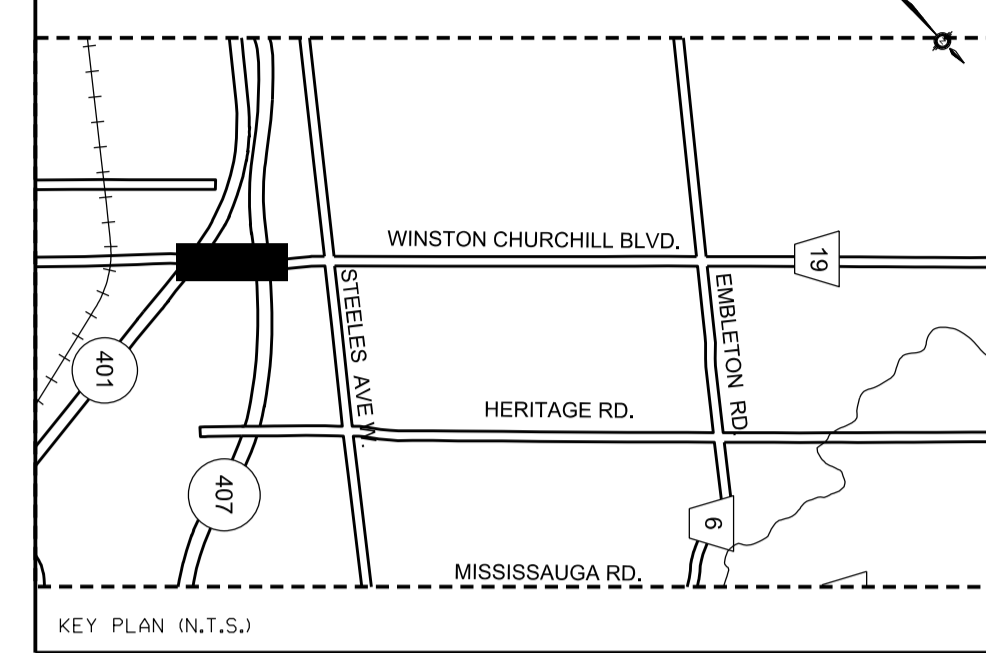
- OPSD 3101.150 - WALLS ABUTMENT BACKFILL MINIMUM GRANULAR REQUIREMENT
- OPSD 3370.100 - DECK WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD 3419.100 - BARRICADES AND RAILINGS-STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
- SS116-1 - 6000mm APPROACH SLAB
- SS116-21 - ROCK SLOPE PROTECTION WITHOUT BEAM

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STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS

DATE	DETAILS	INIT.



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REMAINDER - 30MPa

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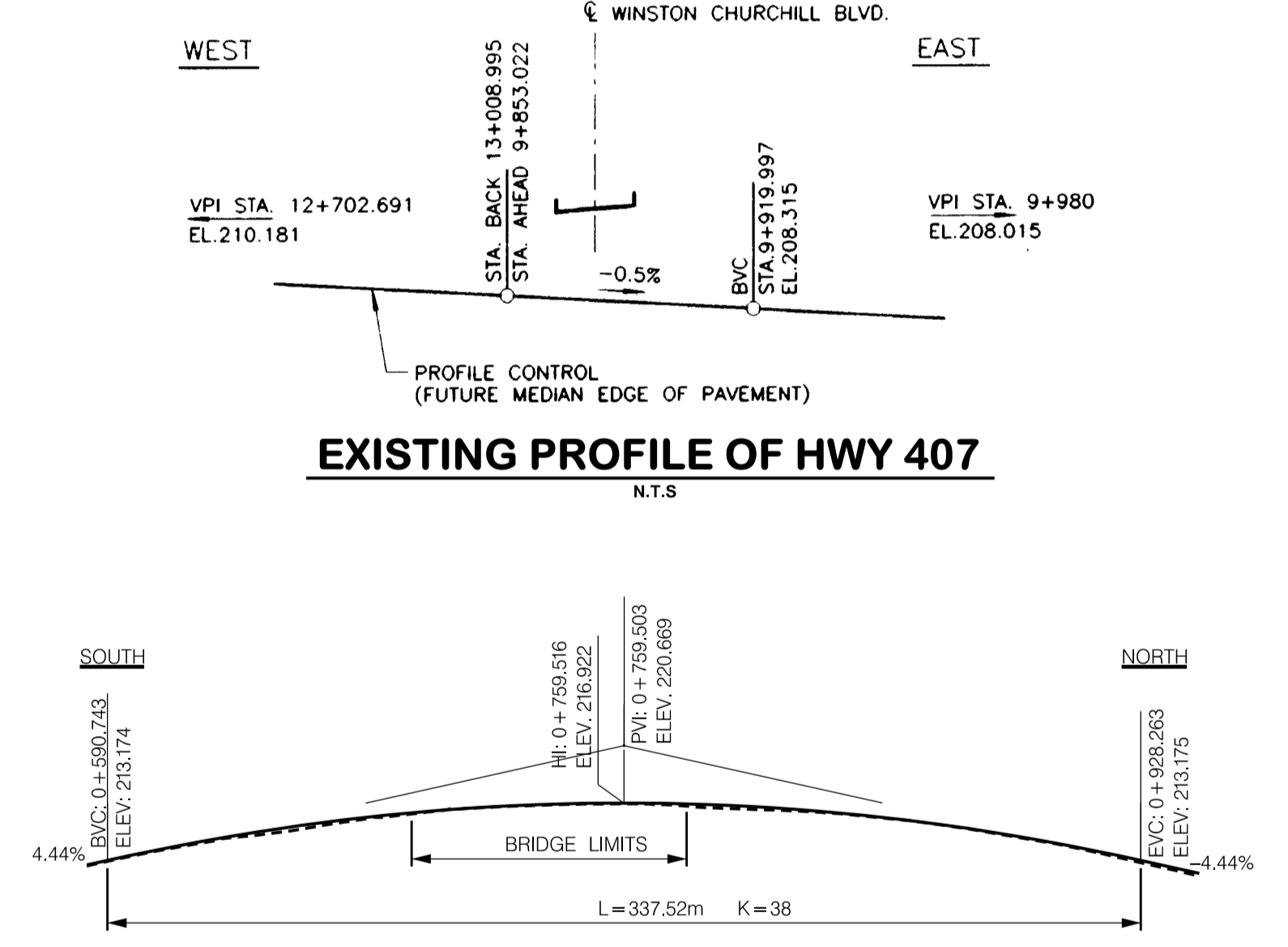
FOOTINGS - 100 ± 25mm
DECK - TOP - 70 ± 20mm
BOTTOM - 40 ± 10mm
REMAINDER UNLESS OTHERWISE NOTED - 70 ± 20mm

REINFORCING STEEL:

- REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.
- BAR MARKS WITH PREFIX 'C' DENOTE COATED BARS.

CONSTRUCTION NOTES:

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- BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 0.5m.



EXISTING PROFILE OF HWY 407
N.T.S.

NEW PROFILE OF WINSTON CHURCHILL BLVD.
N.T.S.



HATCH

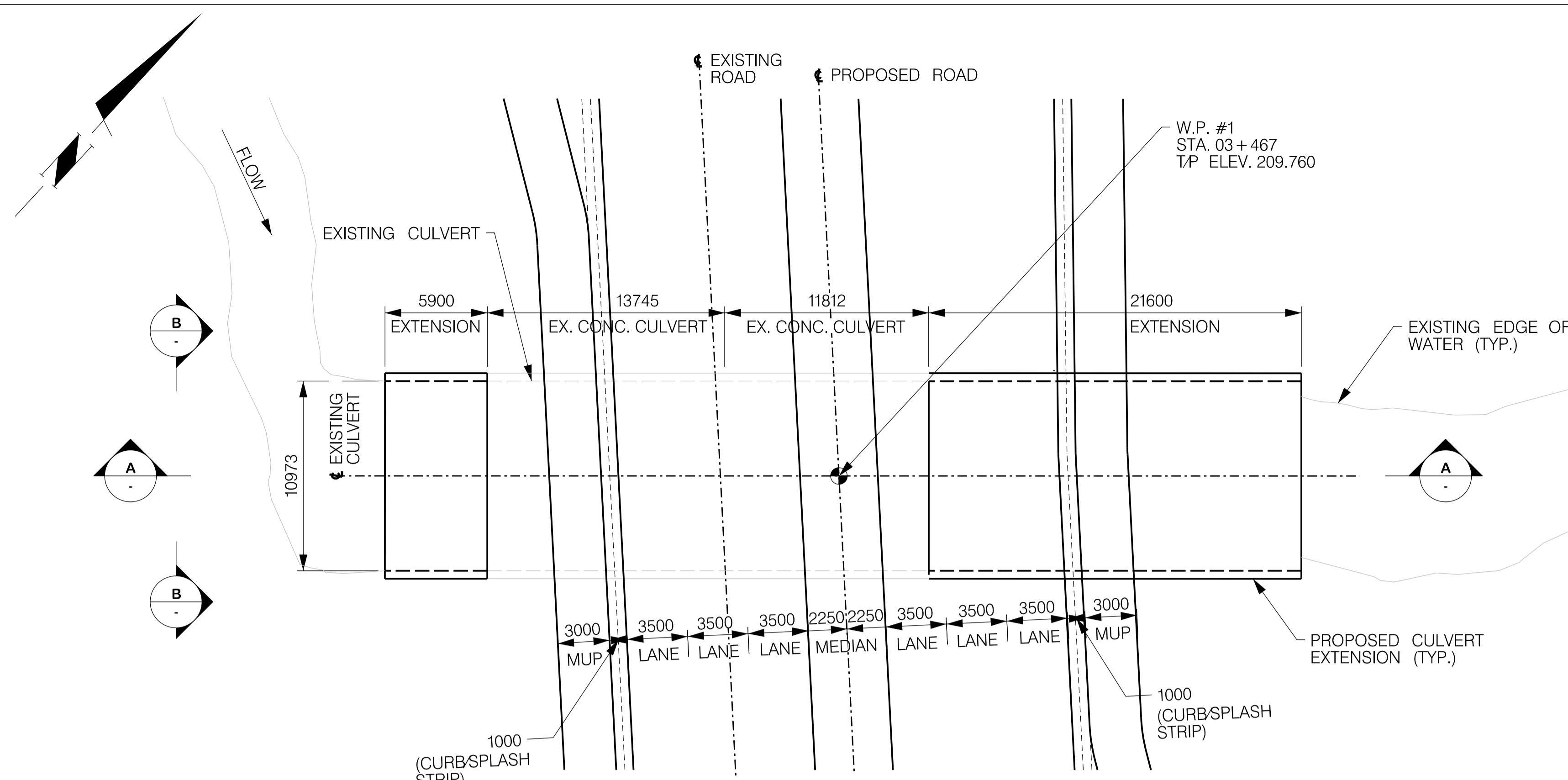
Designed by _____ Chkd. _____ Approved by _____

Region of Peel
Working for you

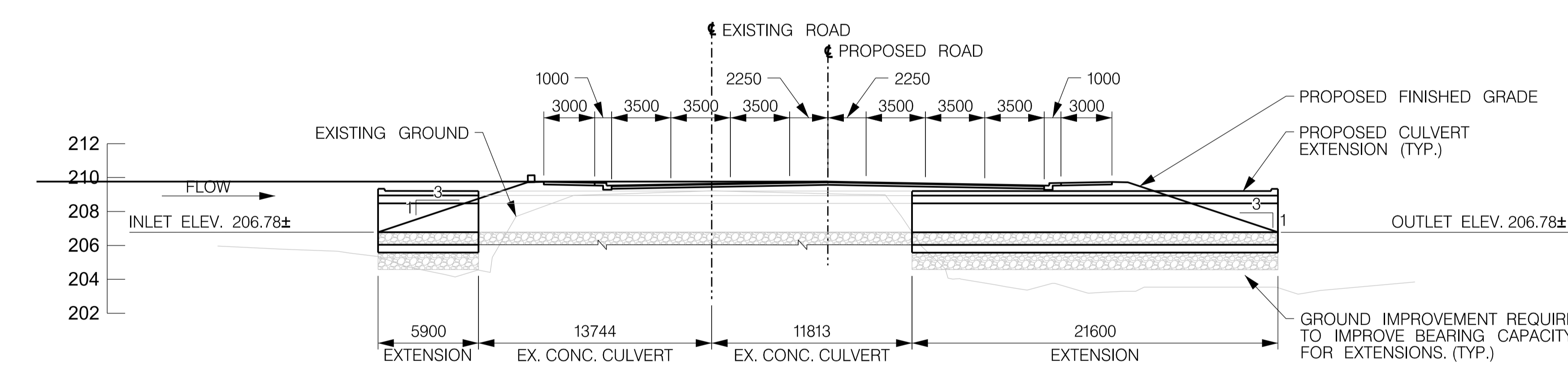
WINSTON CHURCHILL BLVD.
(FROM HIGHWAY 401 TO EMBLETON ROAD)

STRUCTURE No. B10
GENERAL ARRANGEMENT

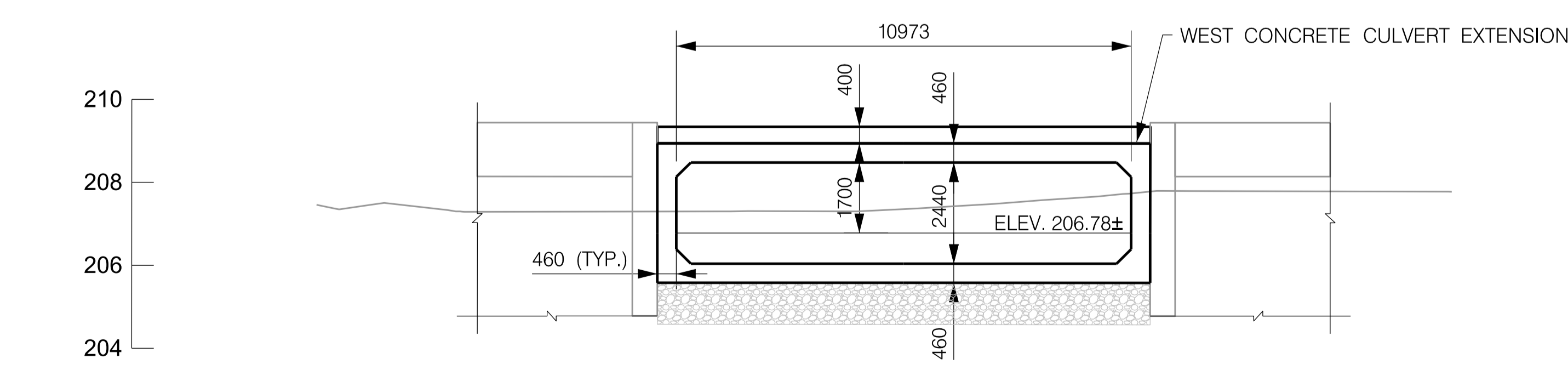
CAD Area	Area	Project No.	XX-XXXX
Checked by	Drawn by	Plan No.	14-4380
Date	Sheet of		



PLAN VIEW - CULVERT C3
SCALE: 1:200



SECTION A-A
SCALE: 1:200



SECTION B-B
SCALE: 1:100

GENERAL NOTES

1. REFERENCE GEOTECHNICAL AXIAL RESISTANCE AT ULS: 225 kPa
 GEOTECHNICAL REACTION AT SLS FOR 25 MM OF SETTLEMENT: 150 kPa. SITE GEOTECHNICAL CONDITIONS TO BE CONFIRMED BY A QUALIFIED GEO-TECHNICAL ENGINEER, INCLUDING REQUIRED GROUND IMPROVEMENT MEASURES, IF APPLICABLE.

CLASS OF CONCRETE

CAST-IN-PLACE CONCRETE.....35 MPa

CLEAR COVER TO REINFORCEMENT

CLEAR COVER TO REINFORCING STEEL SHALL BE 60 ± 10 mm UNLESS OTHERWISE NOTED.

REINFORCEMENT

1. REINFORCING STEEL TO BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
2. LAPS NOT INDICATED ON DRAWING SHALL BE CLASS B.
3. BAR HOOKS, WHERE REQUIRED, SHALL BE MINIMUM LENGTH AND STIRRUPS SHALL HAVE MINIMUM HOOKS AS PER MANUFACTURER'S SPECIFICATIONS.

CONSTRUCTION NOTES

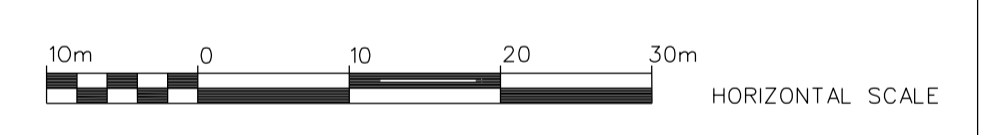
1. THE CONTRACTOR IS ADVISED NOT TO RELY ON THE WATER LEVEL SHOWN ON THE DRAWINGS. THE WATER LEVEL IS SUBJECT TO VARIATIONS.
2. CULVERT GEOMETRY SHOWN IS PRELIMINARY AND SUBJECT TO CHANGE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF THE PROPOSED WORK AND ALL DETAILS ON SITE AND REPORT AND DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL ALSO CONFIRM UTILITY LOCATIONS IN THE FIELD BEFORE PROCEEDING WITH THE WORK. PROTECTION AND TEMPORARY RELOCATION OF UTILITIES, IF REQUIRED IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. ALL DISTURBED EARTH SLOPES SHALL BE TREATED WITH TOP SOIL COVER, AND SEED, IN ACCORDANCE WITH OPSS MUNI 802 AND OPSS MUNI 804.
4. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE DESIGN, CONSTRUCTION METHODS AND PERFORMANCE OF THE TEMPORARY SLOPES, PROTECTION SYSTEM, AND WORKS.
5. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH SIDES OF CULVERT, KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500 MM.
6. BEDDING MATERIAL SHALL NOT BE PLACED ON A DISTURBED OR FROZEN EARTH GRADE.
7. CULVERT SUBGRADE TO BE INSPECTED BY CONTRACT ADMINISTRATOR FOLLOWING SUB-EXCAVATION TO ENSURE THAT ALL ORGANICS AND OTHER UNSUITABLE MATERIALS HAVE BEEN REMOVED.
8. THE CONTRACTOR IS TO DETERMINE THE SIZE OF THE TEMPORARY DIVERSION CHANNEL/PIPE BASED ON 2 YEAR STORM EVENT.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE EXISTING STRUCTURES AT ALL TIMES INCLUDING EXCAVATION, BACKFILL, REMOVALS, INSTALLATIONS, ETC. CONTRACTOR TO DESIGN AND PROVIDE ANY TEMPORARY SUPPORT SYSTEMS FOR EXISTING AND NEW STRUCTURES AS REQUIRED TO SUIT THEIR METHOD OF CONSTRUCTION.
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11. CULVERT CONNECTIONS TO BE SEALED WITH SELF-ADHESIVE WATERPROOFING MEMBRANE.
12. TEMPORARY DIVERSION CHANNEL ROUTE TO BE CONFIRMED IN FIELD. TEMPORARY ENCROACHMENT BEYOND CONSTRUCTION LIMIT MAY BE REQUIRED.

SERVICE DATA					
SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMANS			HYDRO U/G CABLE		
TRANSIT			HYDRO ONE		
PARKS & REC.			CTV		
ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

KEY PLAN (N.T.S.)

NOT FOR CONSTRUCTION



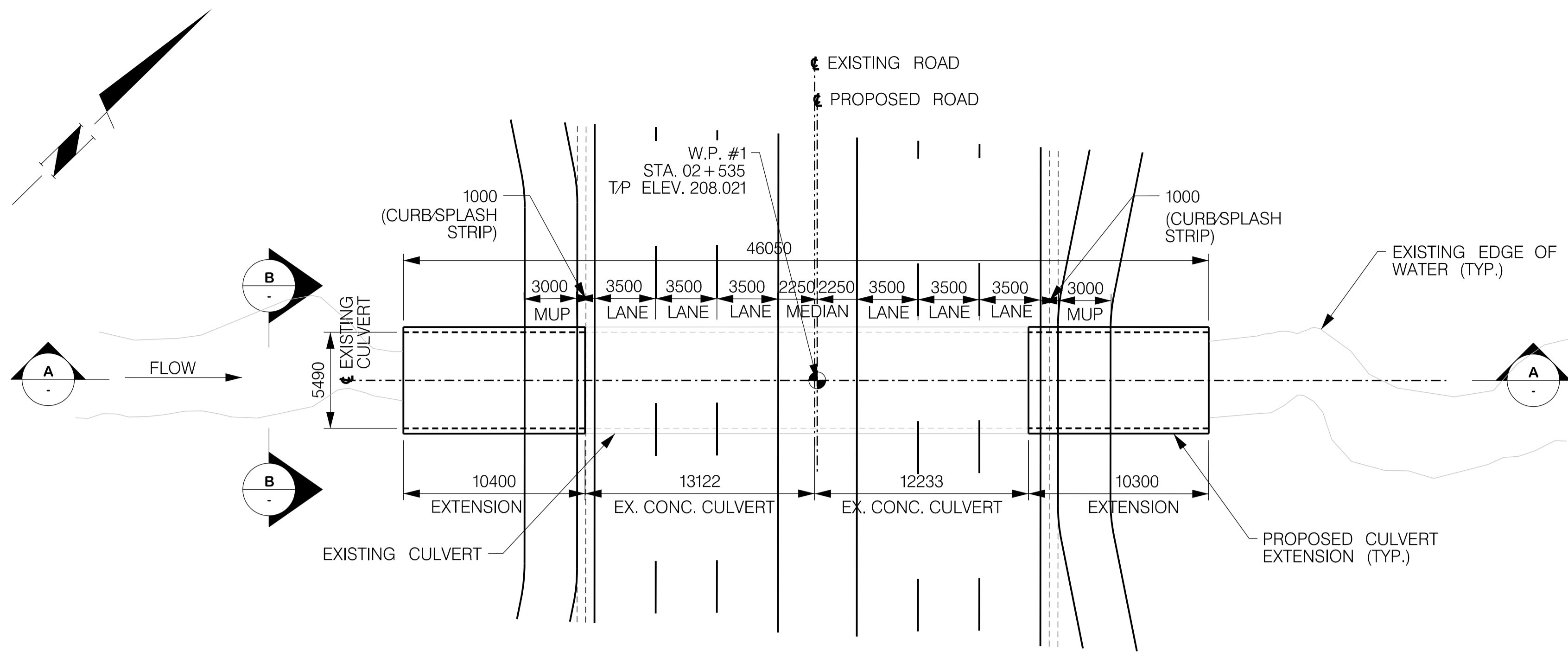
HATCH

Designed by J. GILHAM Chkd. R.S. Approved by R. SHORT

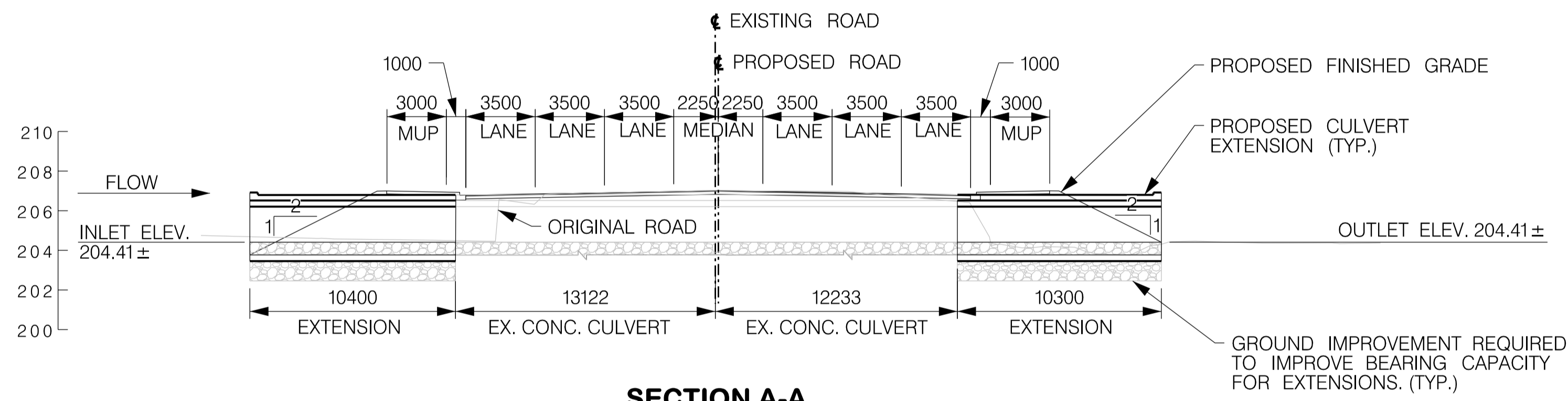
Region of Peel
Working for you

WINSTON CHURCHILL BLVD.
(FROM HIGHWAY 401 TO EMBLETON ROAD)
PROPOSED CULVERT EXTENSION
CULVERT C3
PLAN, PROFILE & SECTION

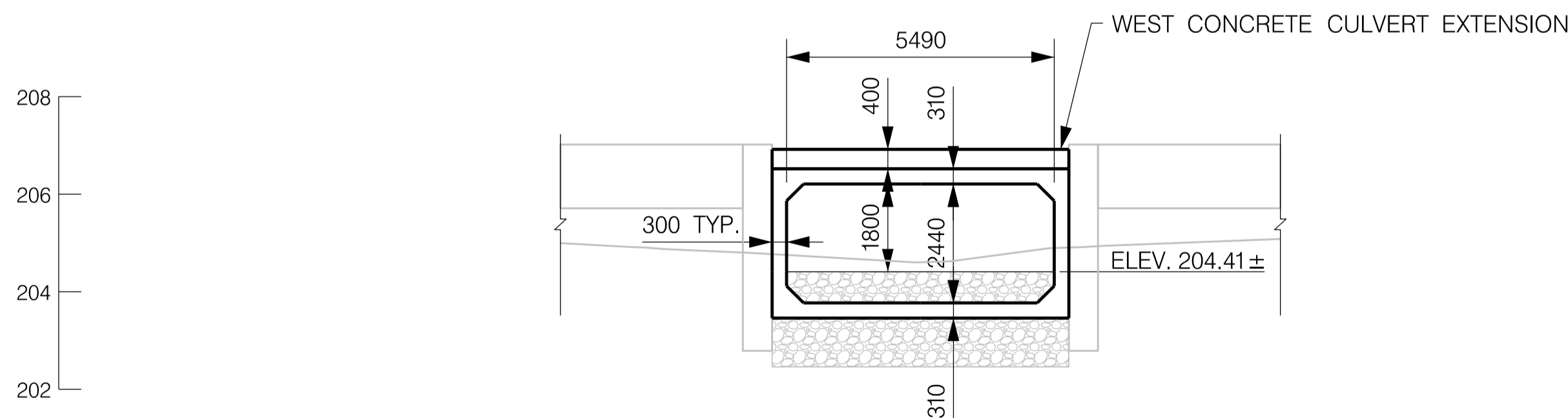
CAD Area	-	Area	-	Project No.	XX-XXXX
Checked by	J.G.	Drawn by	T.B.	Plan No.	
Date	2022-08-25	Sheet	of		4



PLAN VIEW - CULVERT C8
SCALE: 1:200



SECTION A-A
SCALE: 1:200



SECTION B-B
SCALE: 1:100

GENERAL NOTES

1. REFERENCE GEOTECHNICAL AXIAL RESISTANCE AT ULS: 225 kPa
 GEOTECHNICAL REACTION AT SLS FOR 25 MM OF SETTLEMENT: 150 kPa. SITE GEOTECHNICAL CONDITIONS TO BE CONFIRMED BY A QUALIFIED GEO-TECHNICAL ENGINEER, INCLUDING REQUIRED GROUND IMPROVEMENT MEASURES, IF APPLICABLE.

CLASS OF CONCRETE

CAST-IN-PLACE CONCRETE.....35 MPa

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CONSTRUCTION NOTES

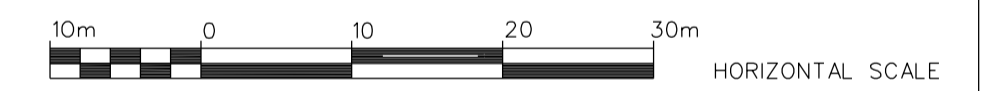
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REVISIONS		
DATE	DETAILS	INIT.

KEY PLAN (IN.T.S.)

NOT FOR CONSTRUCTION



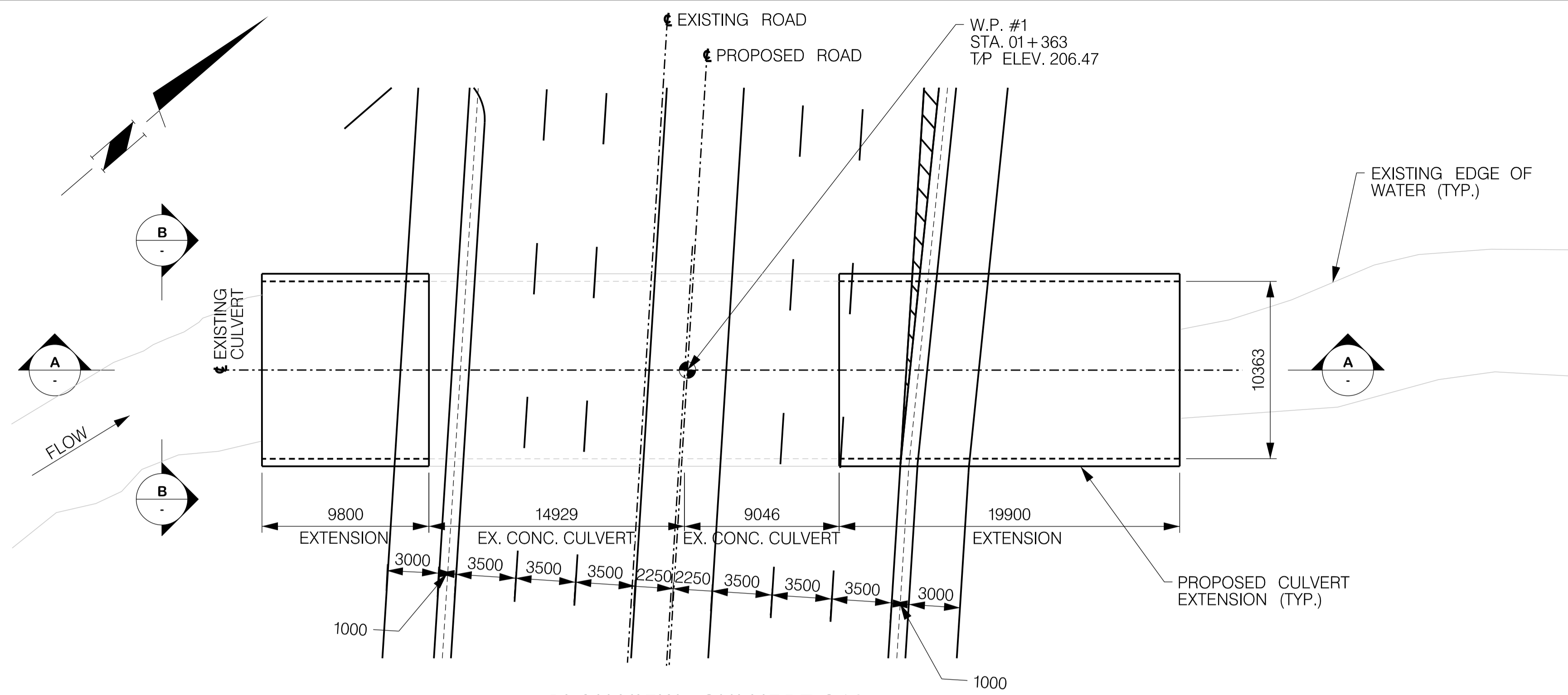
HATCH

Designed by J. GILHAM Chkd. R.S. Approved by R. SHORT

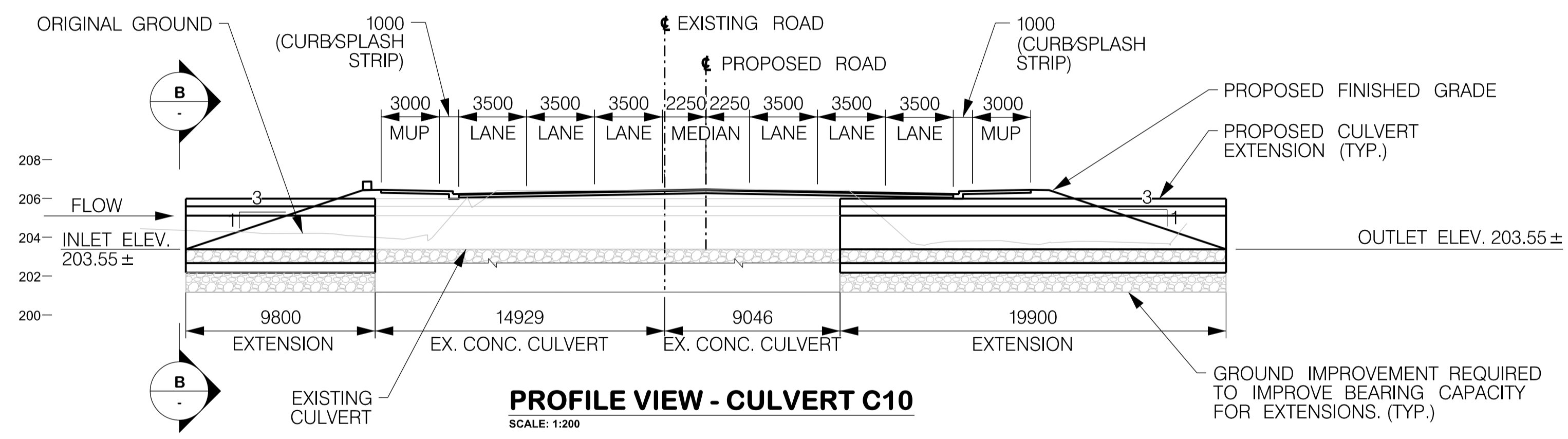
Region of Peel
Working for you

WINSTON CHURCHILL BLVD.
(FROM HIGHWAY 401 TO EMBLETON ROAD)
PROPOSED CULVERT EXTENSION
CULVERT C8
PLAN, PROFILE & SECTION

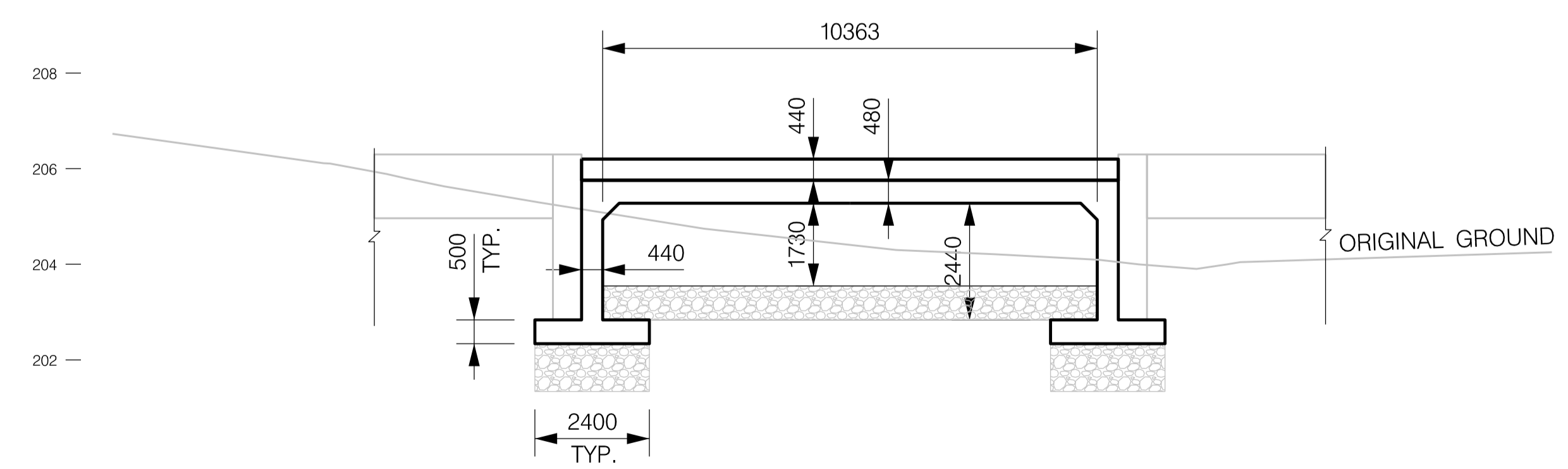
CAD Area	-	Area	-	Project No.	XX-XXXX
Checked by	J.G.	Drawn by	T.B.	Plan No.	
Date	2022-08-25	Sheet	of		



PLAN VIEW - CULVERT C10
SCALE: 1:200



PROFILE VIEW - CULVERT C10
SCALE: 1:200



SECTION A-A
SCALE: 1:100

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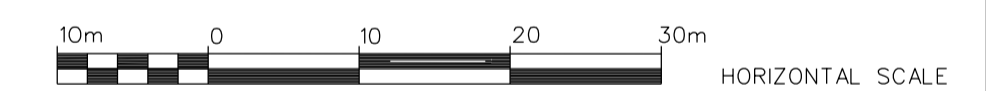
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ONT. CLEAN WATER			COMMUNIC. CABLES		

REVISIONS		
DATE	DETAILS	INIT.

NOT FOR CONSTRUCTION



HATCH

Designed by J. GILHAM Chkd. R.S. Approved by R. SHORT

Region of Peel
Working for you

WINSTON CHURCHILL BLVD.
(FROM HIGHWAY 401 TO EMBLETON ROAD)
PROPOSED CULVERT EXTENSION
CULVERT C10
PLAN, PROFILE & SECTION

CAD Area	-	Area	-	Project No.	XX-XXXX
Checked by	J.G.	Drawn by	R. SHORT	Plan No.	
Date	2022-08-25	Sheet	of		4