

Request for Information (RFI) For Rail Milling Services RFI No. R31CA15135

REQUIREMENTS OF THE RFI

This Request for Information (RFI) is being issued by The Toronto Transit Commission (TTC) to identify potential organizations with expertise in rail milling services that are able to supply the labour, material and equipment for continuous milling of running rails on the TTC's Subway, Scarborough Rapid Transit (SRT) and Streetcar tracks in accordance with the attached document entitled Scope of Services.

Interested organizations are requested to submit an expression of interest by completing and submitting the attached Appendix A to the TTC contact person named below along with providing information regarding the organization's history, capabilities and other information as set out in this RFI.

Although it is not a mandatory requirement, the submitting organization may, at its option, submit any additional information as they see fit. The organization shall not include any pricing information with their submission for this RFI.

Expressions of interest should be submitted no later than Tuesday, April 28, 2015 at 4:00 p.m.

TTC CONTACT PERSON

Submissions and any inquiries must be directed to:

Mrs. Monica Tudoran

Buyer

PH: (416) 393-4721

FAX: (416) 537-0385

e-mail: monica.tudoran@ttc.ca

COMPANIES TO RESPOND TO THE FOLLOWING:

Interested organizations are requested to submit the following information:

1. General Company Profile:

- brief history and description of the business
- year the business was established
- year of offering rail milling services
- how your services differentiate your organization in the marketplace.

2. Equipment and Services

- a) Proposed work flowchart with all key parameters of the operation: milling machine (equipment) dimensions, weight, milling speed, travel speed, stopping distance, metal particles (debris) removal method, possibility of milling moving forward and backwards, fuel type, fuel consumption, anticipated maintenance schedule, consumables replacement frequency, speed of replacement of milling wheels at the track level, speed of replacement of necessary filters and other consumables, etc.
- b) Documentation showing the rail milling methods used in previous projects, type of rail that was milled, photo documentation, progress charts, etc.
- c) Information regarding any emissions created by the milling machine, exhaust, noise and vibration, sparks, smoke, possible fluid leaks.
- d) Specify type of proposed milling machine (hi rail or rail bound) and include high level drawings with main dimensions, axle load, etc.
- e) Specify if modifications to the machine are acceptable to make it compatible with the TTC safety system by installing trip valve. Trip valve will cut off the propulsion and apply full brakes in case it violates the track signalling due to operator error.
- f) Information on the level of education i.e. certificates / diplomas / degrees necessary to provide milling services and operate required equipment.
- g) Approximate amount of time required to begin milling services on TTC property once TTC requests the service.
- h) Current availability of resources / services.

3. Clients and References

- a) Client history, including locations and identifying those currently served.
- b) Provide at least 3 client references or short testimonials including company name, contact, title, address, phone number, email address.

4. Interest in Bidding

Please indicate whether the organization will have an interest to submit a bid for procurement of milling services for TTC in the future.

APPENDIX A
RFI No. R31CA15135

CORPORATE INFORMATION FORM

NAME OF ORGANIZATION: _____

ADDRESS: _____

KEY CONTACT: _____
(Name, Title Tel, E-Mail) _____

WEBSITE: _____

MAIN BUSINESS ACTIVITY: _____
(BRIEF DESCRIPTION AND
YEAR ESTABLISHED) _____

ADDITIONAL INFORMATION: _____

The organization is requested to submit their answers to the questions included in this RFI and attach this Appendix A with their submission.

SCOPE OF SERVICES

FOR

RAIL MILLING SERVICES

RFI NO. R31CA15135

INDEX:

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1.0 BACKGROUND

SUBWAY

Toronto Transit Commission (TTC) operates a Subway System on a 7-day per week basis generally from 6:00 a.m. to 1:30 a.m. This system consists of approximately 80 single-track miles of wide gauge (4'- 10 7/8"), with unidirectional traffic. The construction is a combination of open sections, and tunnels comprised of box section and circular tunnels with a concrete slab, timber and concrete ties on ballast and bridge track work. Power is drawn from a 600 VDC positioned about 22 inches from the gauge line of either of the running rails.

The rail is comprised of 100 lb. ARA-A and 115 RE sections with a variety of chemistries ranging from original 1950's manufacture, up to modern head hardened rail. The rail has flash butt welds, thermite welds, insulated joints and a small quantity of old standard bolted joints.

SCARBOROUGH RAPID TRANSIT (SRT)

The TTC operates the SRT line 7-day per week from 6:00 a.m. until 1:30 a.m. This system consists of approximately 8 miles of standard gauge (4'-8 1/2"), single track (one direction) mainline. The line is made up of at-grade construction on a continuous concrete slab and an elevated guide way with one short underground section. Track is the 5 rail system on direct fixation and car is powered by an induction or "reaction rail" situated between the running rails at the same top of rail elevation. There are two side contacting power rails +300V and -300V respectively situated a distance of about 14 in. from the closest gauge line of one running rail.

The rail is 115 RE standard carbon which is original (1985 installation), and is subjected to relatively light loading and limited wear. The vehicles on the system are (34,000 lbs.) with a small diameter wheel (18 in.), which makes them sensitive to surface rail conditions. There is short pitch, generally low amplitude corrugations, which occur typically on curves and the areas in and near the crossovers.

STREETCAR WAY

The system consists of approximately 304 single-track kilometres of wide gauge (4'- 10 7/8") main line. The construction is predominantly concrete embedded track with a 4.8 km section of ballast & timber tie track. Power is derived from an Overhead Contact Line (OCL), installed on OCL masts.

The rail is mostly comprised of 115 RE and HH sections with NP4aMOD girder guard rail used on curves and switch closures. In some limited areas there is also 100 lb. ARA-A on tangent track, and 118 lb. and IC girder guard rails on curves. The rail has flash butt welds, thermite welds, a small quantity of old standard bolted joints, mainly within special track work areas.

2.0 PURPOSE

The purpose of this Request for Information (RFI) is to solicit input and identify organizations with expertise in rail milling able to supply labour, material and equipment for Continuous milling of running rails on the TTC's Subway, SRT and Streetcar tracks. All Designated parts of the transit system are to be milled on frequency between once to twice per year, depending of TTC's needs.

Organizations shall note, the information supplied in this documents by the TTC will be undertaken on the basis that it is the best information currently available.

GENERAL SCOPE:

The organizations shall provide:

2.1. Mobilization and demobilization of the rail milling machine which consists of the transport of organization's vehicle from external location to one of TTC's yards accessible to the Subway track system including labour and supervision for offloading and setup for rail milling process.

2.2. Gauge conversion of the Rail milling machine which means the conversion of existing gauge and all other parts and assemblies to the TTC gauge (4'10-7/8") applied in TTC's Subway.

2.3. Rail milling as follows:

2.3.1. Subway

TTC's Subway System as shown on W8RT-981-1 is non-standard, wide gauge, 4' 10 7/8, with a minimum curvature radius of 230 feet in the yard and 380 feet on mainline. On the TTC's Subway System the rail to be milled will be 115 lb. RE and 100 lb. ARA-A sections (varying from 1970 standard carbon chemistry on tangent to newer 3HB and head hardened chemistry on curves). There is a 600-volt power

rail adjacent, a horizontally mounted restraining rail on tight curves (below 2,600' radius or 2°) and various cables, etc. as shown on the enclosed drawings. TTC's Subway system uses various wayside equipment such as: signal boxes, trip arms, paper catchers, heaters, hot air blowers and lubricators. Strict adherence to the dynamic clearance envelope is observed. Grade of track is maximum 3%.

2.3.2. SRT

Rail milling is required on the SRT System as shown on drawing W2SRT-1070. The SRT is a standard gauge system, 4' 8 1/2", with a minimum curvature radius of 70 feet in the yard loop, with clearance restrictions imposed by the two power rails, the reaction rail and other associated cables, etc. as shown on the drawings enclosed. The type of rail is 115 lb. RE 1985 rolled, standard carbon chemistry but there is a small quantity of fully heat treated Bethlehem steel rail in one curve. Rail surface rail milling and re-profiling may be required on any of 18 curves which vary in radius from 85 ft. to 1,800 ft. and in length from 200 ft. to 900 ft. The total length of curved track is about 1.6 miles. In addition, there is a double crossover and a single turnout/tail track at the terminals to be milled to the greatest extent possible. Minor surface roughness rail milling and re-profiling of tangent tracks and stations may also be required. Grade of track is maximum 5.33%

2.3.3. Streetcar Way

Streetcar milling would take place during night shift on the public right of way under protection of the traffic control and pay-duty police officers. The entire streetcar track is embedded girder rail or special track work castings. Minimum curvature 40' and maximum expected grade is 7%.

2.3.4. Milling of rail sticks to desired profile

TTC would be also interested to explore the possibility of milling individual rails (maximum length 39 feet). Rails would be either brand new section (115 lb. RE and 100 lb. ARA-A), or used. TTC would be supplying the desired rail profiles. This type of work would be done in the yard on a specially designed track location where individual rail sticks would be inserted and replaced after milling.

2.3.5. General Requirements

The organization will be required to provide:

- a. Self-propelled rail milling machine, capable of efficient corrugation removal and rail re-profiling in a timely and cost effective manner and to the highest industry standards for surface finish and profile accuracy. The machine must be capable of rail milling within the specified clearance envelopes and on the different track gauge systems with minimum changeover and setup time.

- b. Technical expertise, management of the operation and the means of measuring and verifying the results during the rail milling operations. The requirements include familiarization with the TTC's desired rail profiles and finish levels, determining the appropriate method of rail milling, developing a plan for rail milling and monitoring the rail on an on-going basis to achieve the highest level of finish and most efficient operation.
- c. Proposed work flowchart with all key parameters of the operation: milling machine (equipment) dimensions, weight, milling speed, travel speed, stopping distance, metal particles (debris) removal process, possibility of milling moving forward and backwards, fuel type, fuel consumption, anticipated maintenance schedule, consumables replacement frequency etc.
- d. Crew of minimum two (2) full time employees (in case of weekend closure, 2 crews would be required), with sufficient technical proficiency and experience.
- e. Daily reporting of rail milling activities for TTC's direction and monitoring of the program.
- f. All additional quantities of consumables required for the rail milling including fuel, cutting tools and spare parts, as well as labour and supervision necessary for the operation of the rail milling machine and maintenance of the machine, including replacement of cutting tools, fuelling and removal of all debris (metal chips & dust).
- g. Workers who are fully trained in the operation and maintenance of the rail milling machine and are qualified and competent in the safe operation of all equipment.
- h. Time for training of all organization's workers who must be at TTC track level.
- i. Labour and supervision associated with breakdown, on loading, securing, transportation, delivery and offloading of the rail milling machine within TTC's Subway system including the TTC's McCowan Yard (SRT system) as required.

3.0 REFERENCE DRAWINGS AND SPECIFICATIONS

3.1 Reference Drawings and Specifications - Subway

Item	TITLE	DRAWING NO.
1	Subway/SRT System Mileage Chart	W8RT-981-1
	SUBWAY	
2	New Structure Track Equipment Gauge line	FIG.1.2.3
3	Car Clearance Diagram	W8RT-529
4	Track Clearance Diagram	W8RT-529/1
5	Curved Track 85 lb. Restraining Rail – 100 lb. Running Rail	W2RT-1008
6	Restraining Rail Brace 100 lb. – 115 RE Running Rail	W8RT-1185
	SRT	
7	Scarborough SRT System General Layout	W2SRT-1070
8	SRT Design Vehicle – New Structure Car Body Profile	FIG.1.1.C
9	Elevated Section Tangent Track	FIG.2.6.1
10	Typical Cross Section of Tangent Track on Aerial Structure	W8SRT-1016
11	Typical Track Cross Section on Concrete Slab at Grade	W8SRT-1015
12	Typical Double Loop Cable Installation	200-90005-15
13	Axle Unit and Detection Set Trackside Installation Typical	200-90043-09
14	Typical Axle Counter Loop Cable Layout	J70-1-44
15	Ericsson ATS 4 Installation Detail	200-90047-15
16	Guide way HWIIZZ Switch Machine General Arrangement	200-90049-15

3.2 Reference Drawings and Specifications – Streetcar Way

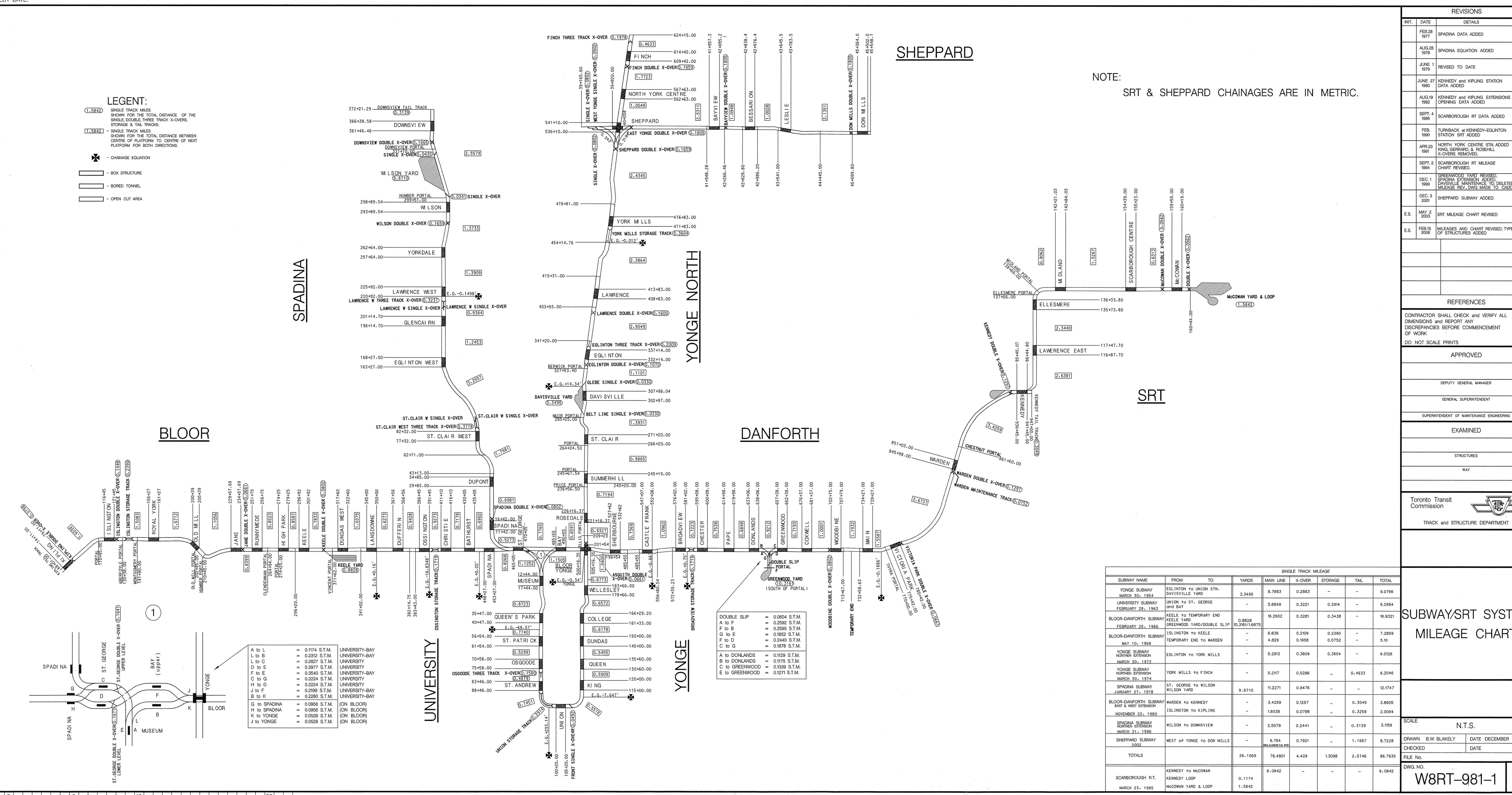
Item	Title	DRAWING NO.
1	STREET CAR WAY TRACK DIAGRAM	W2M-1649
2	STANDARD 115 lb. RE RAIL	TM-0085-X
3	NP4aMOD (SOGERAIL) GIRDER GUARD RAIL	TM-0144-X
4	TYPE 115 RE RAIL ENCLOSURE	W2T-654 F
5	TYPE NP4aMOD (SOGERAIL) GIRDER GUARD RAIL ENCLOSURE	W2T-705 C
6	RESILIENT EMBEDDED STREETCAR TRACK - TYPICAL DESIGN	W2T-872-1
7	PAVING / CONCRETE CONTOUR FOR SURFACE TRACK INSTALLATION	W2T - 903
8	LF LRV INTERFACE TO PLATFORM SPECIFICATION	26444
9	EXPANSION JOINT INSTALLATION DETAILS FOR DUNDAS ST. BRIDGE AND PETER SLIP BRIDGE	W8T - 902

10	"TYPE 1S" NP4aM GGR EXPANSION JOINT ASSEMBLY	TM - 0349 - X
11	DUPONT ST. TO 132 + 20	W6P - 656
12	132 + 20 TO AUSTIN TERRACE	W6P - 656
13	CLEARANCE COVER - LRT DYNAMIC PROFILE	0205-03.01
14	STATIC AND DYNAMIC DIMENSIONS	0205-03.02
15	SURFACE CUT SECTION	0205-03.03
16	BOX STRUCTURE	0205-03.04
17	RIGHT OF WAY REQUIREMENTS FOR CLRV TRACK LOCATED ON STREET	0205-03.07
18	RIGHT OF WAY REQUIREMENTS FOR CLRV TRACK LOCATED ON STREET	0205-03.08

LEGENT:

- 1.5842 SINGLE TRACK MILES SHOWN FOR THE TOTAL DISTANCE OF THE SINGLE DOUBLE THREE TRACK X-OVERS, STORAGE & TAIL TRACKS.
- 1.5822 SINGLE TRACK MILES SHOWN FOR THE TOTAL DISTANCE BETWEEN CENTRE OF PLATFORM TO CENTRE OF NEXT PLATFORM FOR BOTH DIRECTIONS.

- ✕ CHAINAGE EQUATION
- ▭ BOX STRUCTURE
- ▭ BORED TUNNEL
- ▭ OPEN CUT AREA



NOTE:
SRT & SHEPPARD CHAINAGES ARE IN METRIC.

REVISIONS			
INT.	DATE	DETAILS	NO.
	FEB-28 1977	SPADINA DATA ADDED	A
	AUG-28 1978	SPADINA EQUATION ADDED	B
	JUNE 1 1979	REVISED TO DATE	C
	JUNE 27 1980	KENNEDY AND KIPLING STATION DATA ADDED	D
	AUG-19 1982	KENNEDY AND KIPLING EXTENSIONS OPENING DATA ADDED	E
	SEPT. 4 1986	SCARBOROUGH RT DATA ADDED	F
	FEB. 1990	TURNBACK AT KENNEDY-EGLETON STATION SRT ADDED	G
	APR-23 1991	NORTH YORK CENTRE STN. ADDED KING GERRARD & ROBERTS X-OVERS REMOVED.	H
	SEPT. 2 1994	SCARBOROUGH RT MILEAGE CHART REVISED.	I
	DEC. 1 1999	GREENWOOD YARD REVISED SPADINA EXTENSION ADDED DAVISVILLE MAINTENANCE TO DELETED MILEAGE REV. DWS MADE TO CAD.	J
	DEC. 3 2001	SHEPPARD SUBWAY ADDED.	K
	E.S. MAY 2 2003	SRT MILEAGE CHART REVISED	L
	E.S. FEB-15 2008	MILEAGES AND CHART REVISED; TYPE OF STRUCTURES ADDED	M

REFERENCES	
CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK	
DO NOT SCALE PRINTS	
APPROVED	
DEPUTY GENERAL MANAGER	
GENERAL SUPERINTENDENT	
SUPERINTENDENT OF MAINTENANCE ENGINEERING	
EXAMINED	
STRUCTURES	
WAY	

Toronto Transit Commission
TRACK and STRUCTURE DEPARTMENT

SUBWAY/SRT SYSTEM MILEAGE CHART

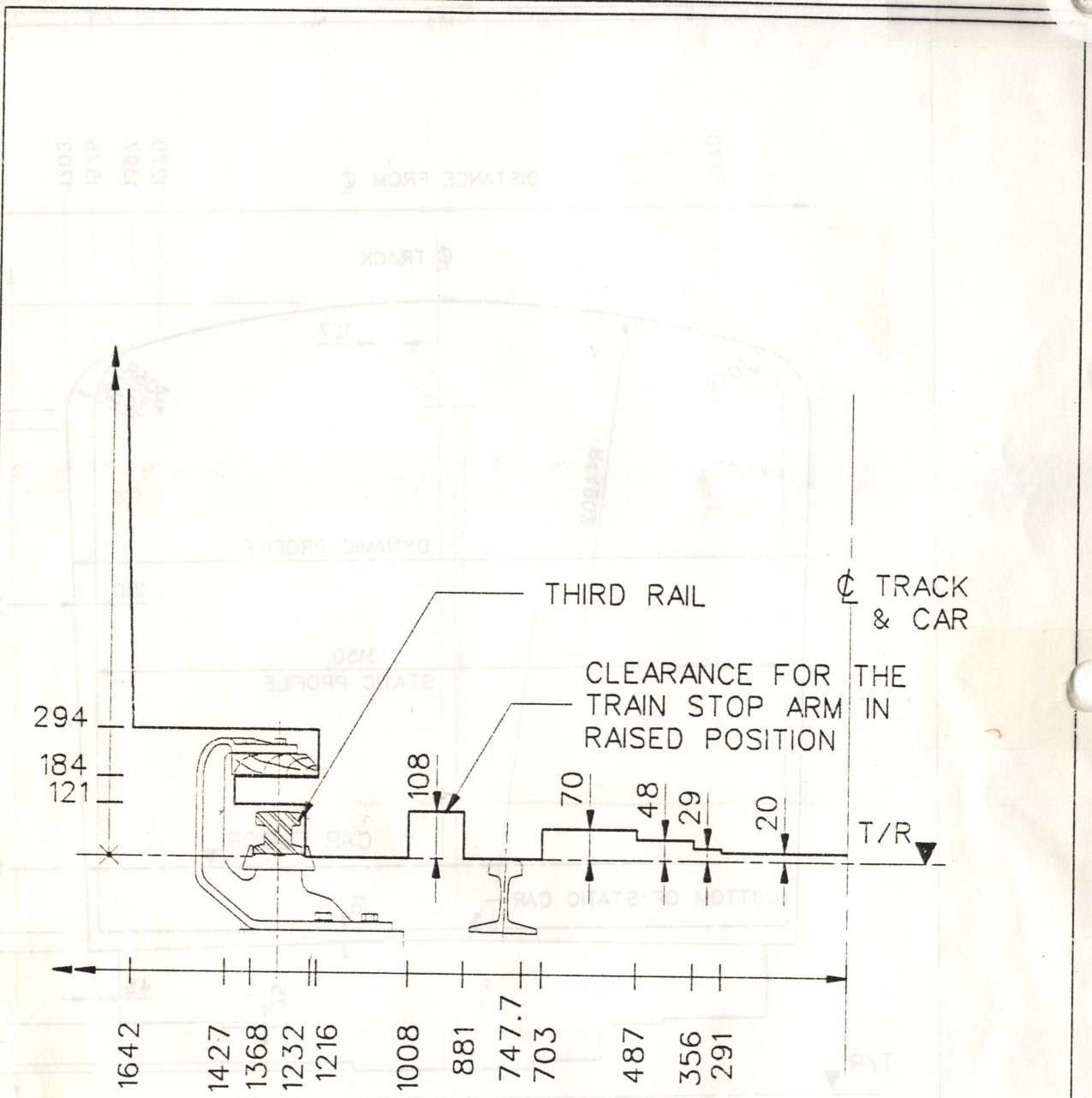
SUBWAY NAME	FROM	TO	SINGLE TRACK MILEAGE					
			YARDS	MAIN LINE	X-OVER	STORAGE	TAIL	TOTAL
YONGE SUBWAY MARCH 30, 1954	EGLINTON to UNION STN. DAVISVILLE YARD		3,349.5	8,786.3	0.286.3	-	-	9,076.6
UNIVERSITY SUBWAY FEBRUARY 28, 1963	UNION to ST. GEORGE ONE BAY		-	5,684.9	0.322.1	0.291.4	-	6,298.4
BLOOR-DANFORTH SUBWAY FEBRUARY 25, 1966	KEELE to TEMPORARY END KEELE YARD GREENWOOD YARD/DOUBLE SLIP		0.882.8	16,260.2	0.328.1	0.343.8	-	16,952.1
BLOOR-DANFORTH SUBWAY MAY 10, 1968	ISLINGTON to KEELE		-	6,836	0.210.9	0.239.0	-	7,285.9
	TEMPORARY END to WARDEN		-	4,829	0.195.8	0.075.2	-	5,100
YONGE SUBWAY NORTHERN EXTENSION MARCH 30, 1973	EGLINTON to YORK MILLS		-	5,291.3	0.360.9	0.360.4	-	6,012.6
YONGE SUBWAY NORTHERN EXTENSION MARCH 30, 1974	YORK MILLS to FINCH		-	5,217	0.529.6	-	0.463.3	6,204.6
SPADINA SUBWAY JANUARY 27, 1978	ST. GEORGE to WILSON WILSON YARD		9,871.0	11,227.1	0.947.6	-	-	12,174.7
BLOOR-DANFORTH SUBWAY EAST & WEST EXTENSION NOVEMBER 22, 1980	WARDEN to KENNEDY		-	3,425.9	0.129.7	-	0.304.9	3,860.5
	ISLINGTON to KIPLING		-	1,603.8	0.079.8	-	0.325.8	2,009.4
SPADINA SUBWAY NORTHERN EXTENSION MARCH 31, 1986	WILSON to DOWNSVIEW		-	2,557.9	0.244.1	-	0.313.9	3,115.9
SHEPPARD SUBWAY 2002	WEST OF YONGE to DON MILLS		-	6,764	0.792.1	-	1,166.7	8,722.8
TOTALS			26,110.5	78,480.1	4,42.9	1,308.8	2,574.6	86,793.5
SCARBOROUGH R.T. MARCH 23, 1985	KENNEDY to MCCOWAN		-	8,084.2	-	-	-	8,084.2
	KENNEDY LOOP		-	0.117.4	-	-	-	0.117.4
	MCCOWAN YARD & LOOP		-	1,584.2	-	-	-	1,584.2

SCALE	N.T.S.	
DRAWN	B.W. BLAKELY	DATE DECEMBER 1, 1999.
CHECKED		DATE
FILE NO.		
DWG. NO.	W8RT-981-1	REV. M

2	9	16	30
41	42	50	51
52	55	56	57
58	59	60	63



Page	APPROVED	Section	Subject
14	95-03-01	CLEARANCE / COVER	Subway



NOTE:

ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.

DESIGN VEHICLE - NEW STRUCTURE
TRACK EQUIPMENT GAUGE LINE

Fig. 1.2.3

HORIZONTAL MOVEMENT AT TOP OF CAR

RESULT OF - OSCILLATION	= 2.625"
- BOLSTER SIDE MOVEMENT	= 1.000"
- JOURNAL SIDE MOVEMENT	= 0.125"
- RAIL CLEARANCE	= 0.438"
- RAIL WEAR	= 0.500"
- CENTRE BEARING WEAR	= 0.187"

TOTAL ACTUAL MOVEMENT = 4.875" = 4 7/8"
 DESIGN FIGURE MOVEMENT = 5.0"

HORIZONTAL MOVEMENT AT BOTTOM OF CAR

RESULT OF MOVEMENT AT TOP OF CAR	= 1.6875" = 1 11/16"
DESIGN FIGURE MOVEMENT	= 1 3/4"

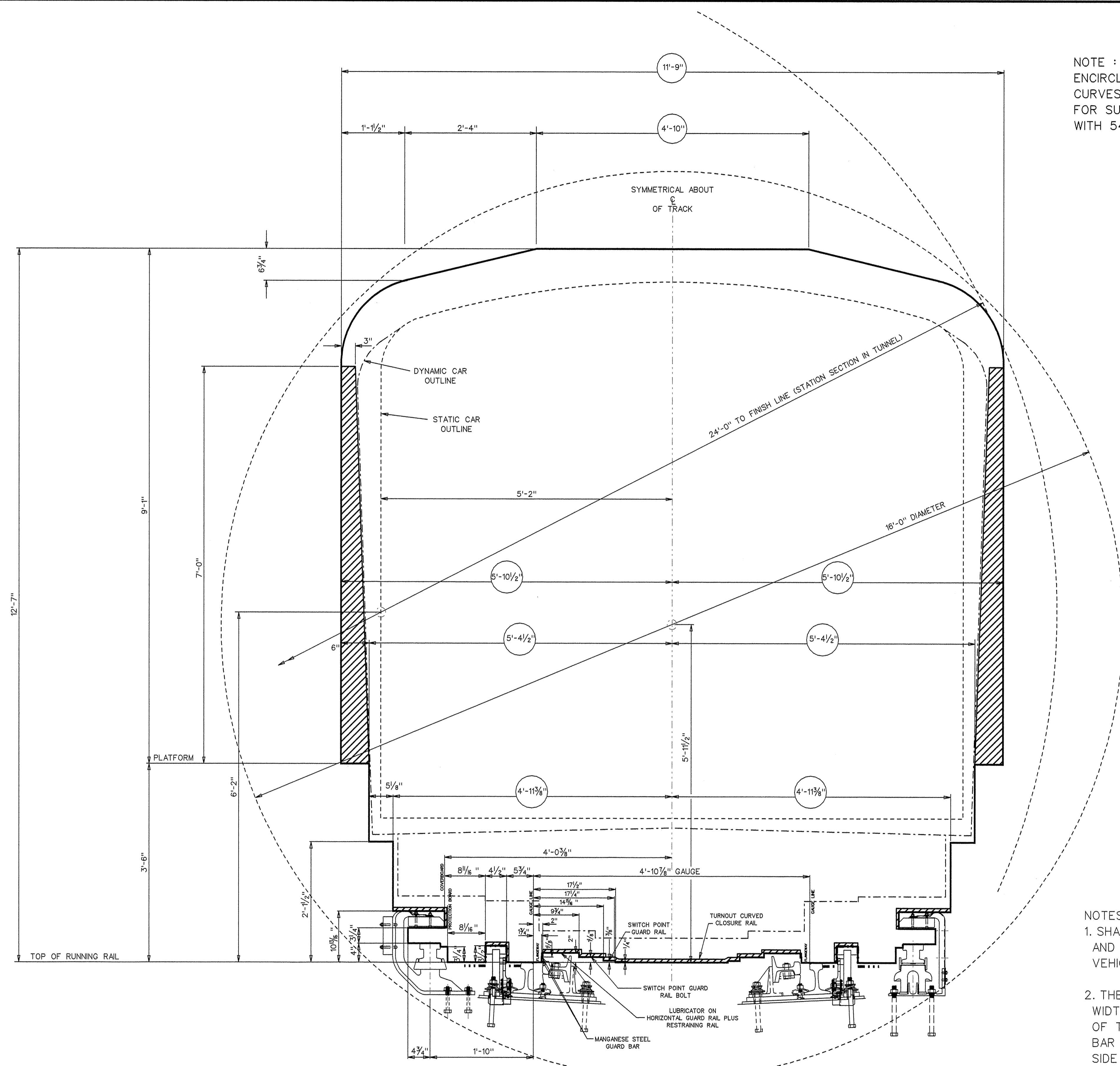
VERTICAL MOVEMENT AT SIDE OF CAR

RESULT OF - OSCILLATION	= 1.250"
- RAIL WEAR	= 0.750"
- WHEEL WEAR	= 0.750"
- BODY SAG	= 0.250"
- JOURNAL SPRING DEFLECTION	= 0.500"
	= 3.5" = 3 1/2"

VERTICAL MOVEMENT AT C OF CAR

RESULT OF - RAIL WEAR	= 0.750"
- WHEEL WEAR	= 0.750"
- JOURNAL SPRING DEFLECTION	= 0.500"
	= 2.000" = 2"

ABOVE DATA FROM SUBWAY DESIGN STANDARDS



NOTE :
 ENCIRCLED DIMENSIONS INCREASE AT CURVES TO MAINTAIN PROPER CLEARANCE. FOR SUBWAY CAR 10'-4" WIDE, 74'-5 5/8" LONG, WITH 54'-0" TRUCK CENTRES.

- NOTES :
1. SHADED AREA DUE TO 1/2" LATERAL WEAR or WIDE GAUGE AND 3/4" VERTICAL RAIL WEAR TO BE APPLIED TO ALL REVENUE VEHICLES EXCEPT AS NOTED. (e.g. RAIL GRINDING CAR)
 2. THE FLANGEWAY ACCOMMODATES THE WHEEL FLANGE AND IT'S WIDTH CAN NOT BE DECREASED. IT IS INTENDED THAT THE BACK OF THE WHEEL FLANGE CONTACT THE MANGANESE STEEL GUARD BAR or THE GUARD/RESTRAINING RAIL TO PROTECT THE OPPOSITE SIDE RAIL/SWITCH POINT.
 3. SEE W8RT-472 FOR WHEEL/RAIL/GUARD/SWITCH POINT RELATIONSHIP.
 4. SEE W8RT-1782 FOR RAIL/ADJOINING COMPONENT RELATIONSHIP DUE TO RAIL HEAD WEAR.
 5. RUNNING and CONTACT RAIL COMPONENTS MAY NOT BE EXACTLY AS SHOWN.

REVISIONS			
INT.	DATE	DETAILS	NO.
	08/02 1963	CAR LENGTHS AND TRUCK CENTRES REV.	A
	FEB.26 1976	STATIC AND DYNAMIC CAR OUTLINES ADDED	B
	05/30 1978	DYNAMIC CL LINE, TRACK SHADED AREA & CAR MOVEMENT ADDED	C
	06/19 1978	PROTECTION BRD ADDED 4'-0 3/8" WAS 4'-0 1/2", 5 3/4" WAS 6", 4 1/2" WAS 4", 8 1/8" WAS 9 1/8", 4 1/8" WAS 4 1/8".	D
	02/06 1980	RUNNING RAIL WEAR ADDED TO COVERBOARD AND THIRD RAIL OUTLINE.	E
	09/12 1991	FLANGEWAY SHADED AREA REMOVED.	F
	03/27 1996	NOTES REVISED, DWG. REDRAWN.	G

WBRT-529/1 TRACK CLEARANCE DIAGRAM

REFERENCES

SURVEY BOOK NO.	PAGE
LEVEL BOOK NO.	PAGE
CONTRACTOR SHALL CHECK and VERIFY ALL DIMENSIONS and REPORT ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK.	
DO NOT SCALE PRINTS	

APPROVED

MANAGER
 ASSISTANT MANAGER
 SIGNED ORIGINAL IN FILE
 SUPERINTENDENT OF WAY TECHNICAL SERVICES

EXAMINED

STRUCTURES
 WAY
 ELECTRICAL

Toronto Transit Commission
 MAINTENANCE ENGINEERING DEPARTMENT

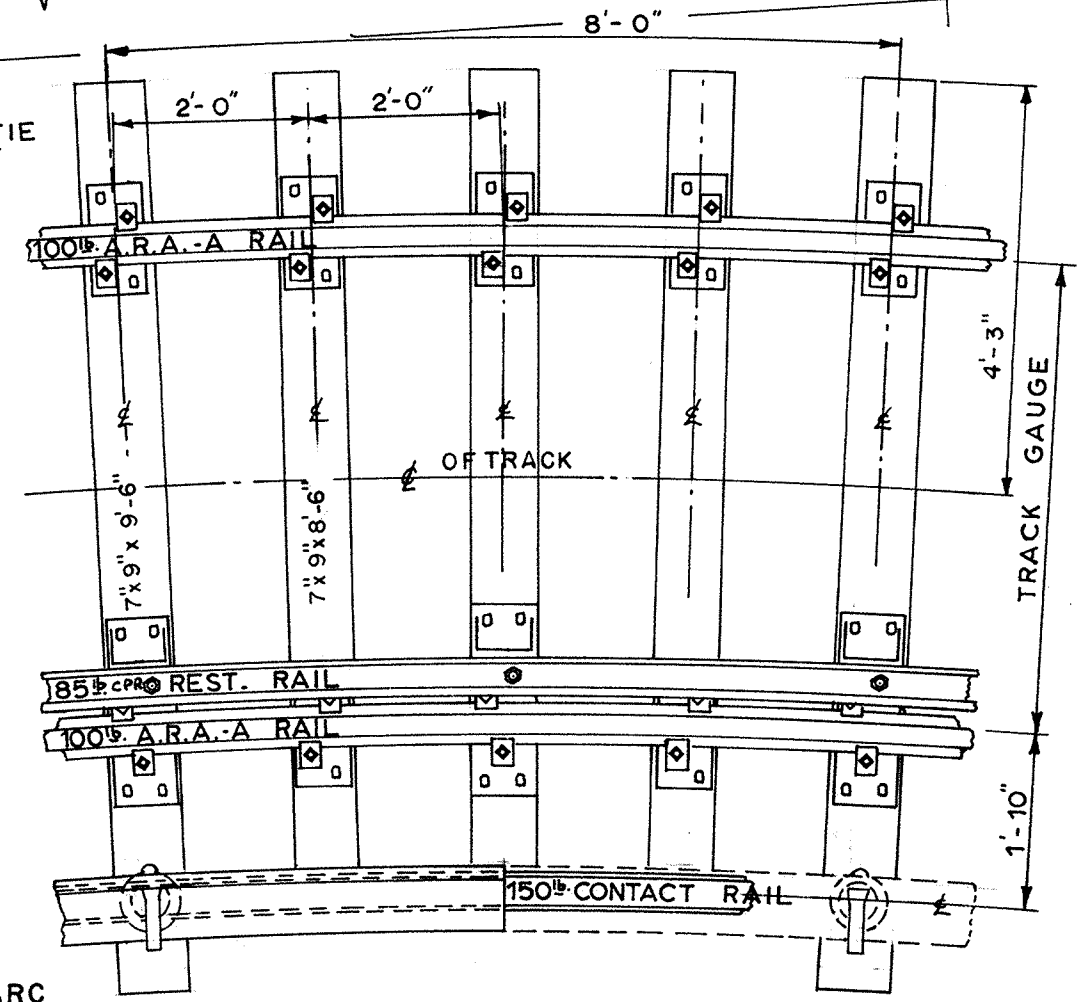
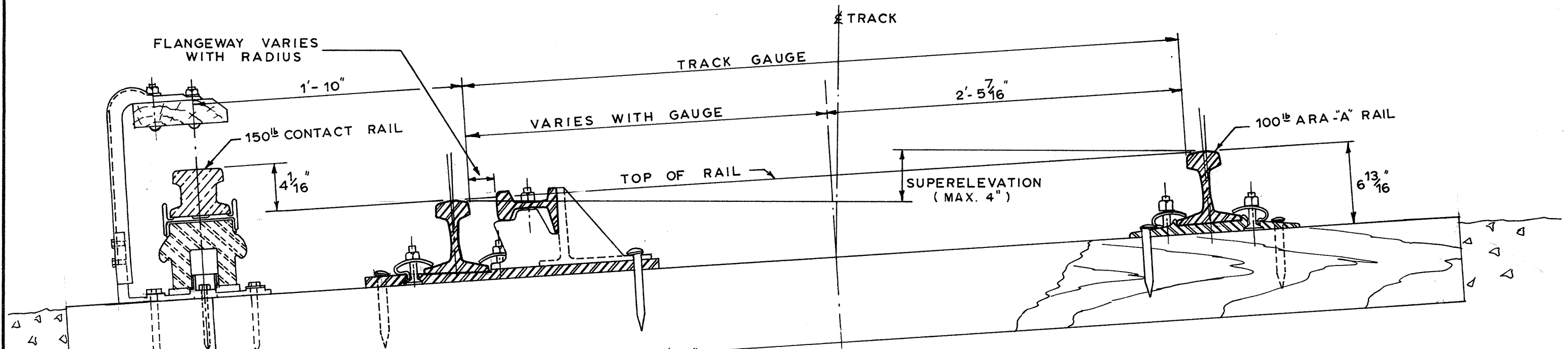
TRACK DESIGN STANDARD

CAR CLEARANCE DIAGRAM

SCALE	1" = 1'-0"
DRAWN	B. W. BLAKELY
TRACED	
CHECKED	
DATE	MARCH 27, 1996.
BUILDING INDEX	FILE NO.
DWG. NO.	REV.
W8RT-529	G

CAD FILE NO. I:\user\usr\w_s\141529.dgn

TYPICAL CROSSECTION OF TYPE IV C TRACK

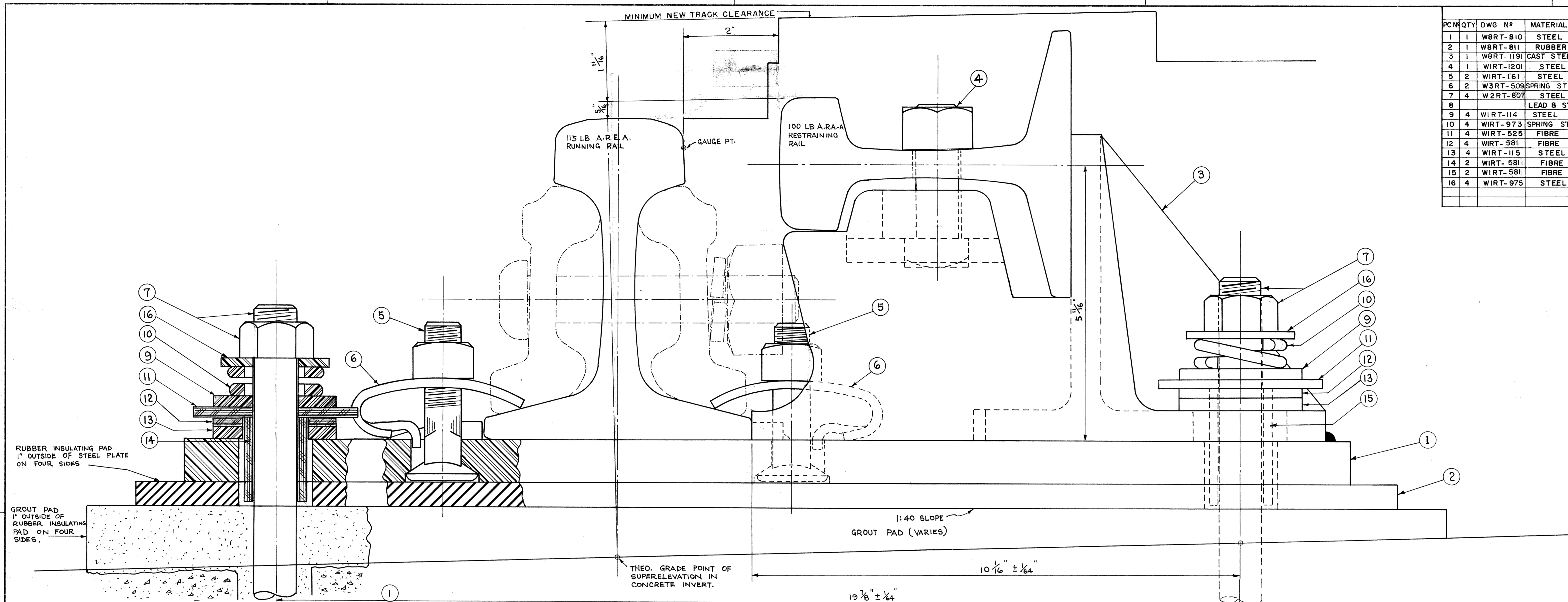


RADIUS	GAUGE	FLGWY
LESS THAN 500'R.	4'-11 ¹ / ₈ "	2 ¹ / ₈ "
500'R TO 3000'R.	4'-11"	2"
3000'R. TO TAN	4'-10 ⁷ / ₈ "	1 ⁷ / ₈ "

NOTE:
 FOR 2600'R. OR GREATER ON CENTRAL ARC
 SEE DWG. NO. W2RT-1009

PLAN
 1/2" = 1'-0"

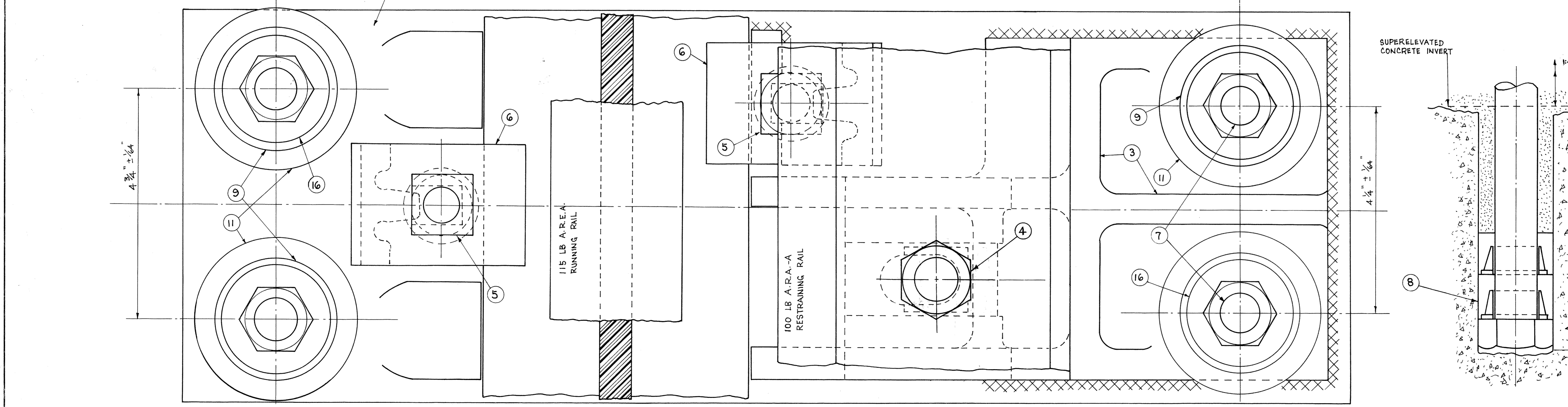
TORONTO TRANSIT COMMISSION			
DEPARTMENT			
RAPID TRANSIT			
CURVED TRACK - TYPE IV C			
SCALE 1/2" = 1'-0"	DRAWN EJT	TRACED EJT	CHECKED
REVISED	APPROVED		
	ASST. ENG. WAY & STRUCTURES		
	SUPERINTENDENT OF PLANT		
DATE JULY 19 1965	REFERENCE	DRAWING No.	W2 RT-1008



BILL OF MATERIAL				REVISIONS			
PC	QTY	DWG N°	MATERIAL	REMARKS	DATE	DESCRIPTION	NO
1	1	WBRT-810	STEEL	TYPE "H-2" PLATE			
2	1	WBRT-811	RUBBER	TYPE "Z-2" RUBBER PAD			
3	1	WBRT-1191	CAST STEEL	TYPE "A-2" RESTRAINING RAIL BRACE			
4	1	WIRT-1201	STEEL	TYPE "R" BOLT AND NUT			
5	2	WIRT-161	STEEL	TYPE "J" BOLT & NUT (HEAT TREATED)			
6	2	W3RT-609	SPRING STEEL	COMPRESSION RAIL CLIP			
7	4	W2RT-807	STEEL	TYPE "H-1" ANCHOR BOLT & NUT			
8	4	WIRT-114	STEEL	TYPE "A" STEEL WASHER			
9	4	WIRT-973	SPRING STEEL	DOUBLE COIL LOCK WASHER			
10	4	WIRT-525	FIBRE	TYPE "X-W" INSULATING WASHER			
11	4	WIRT-581	FIBRE	TYPE "Z-W-1" INSULATING WASHER			
12	4	WIRT-581	FIBRE	TYPE "Y-S" WASHER			
13	4	WIRT-581	FIBRE	TYPE "V-S" INSULATING SLEEVE(BOLT)			
14	2	WIRT-581	FIBRE	TYPE "V-S" INSULATING SLEEVE(BOLT)			
15	2	WIRT-581	FIBRE	TYPE "V-S" INSULATING SLEEVE(BOLT)			
16	4	WIRT-975	STEEL	STD. PLATE WASHER			

REFERENCES	
SURVEY BOOK NO.	PAGE
LEVEL BOOK NO.	PAGE

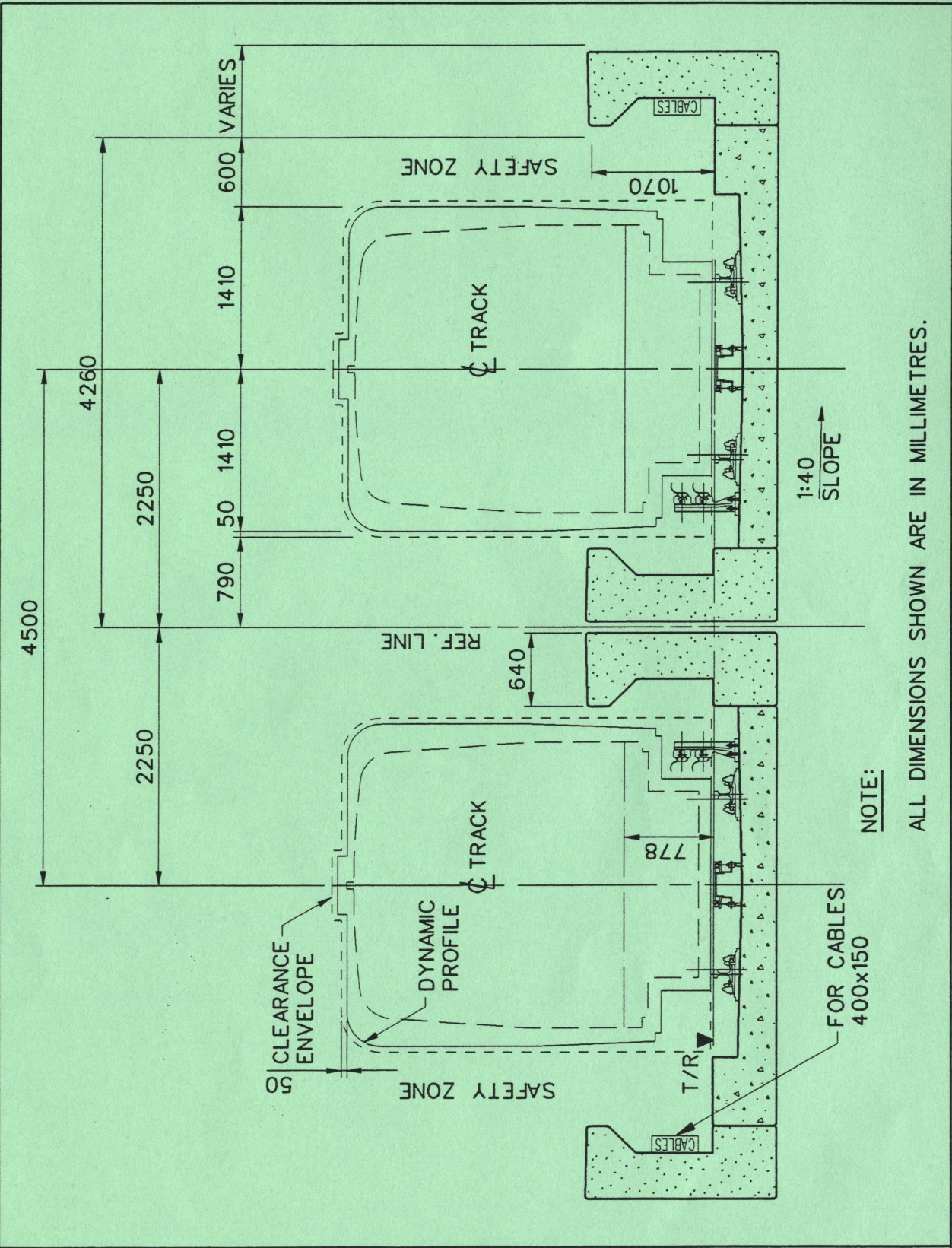
NOTE
DO NOT USE THIS DRAWING FOR WELDING PURPOSES.
SEE WBRT-1576 (WELDING DETAIL)



APPROVED		
MANAGER		
GENERAL SUPERINTENDENT		
ELECTRICAL ENGINEER		
EXAMINED		
STRUCTURES		
WAY	<i>M. Brookfield</i>	
ELECTRICAL		
TORONTO TRANSIT COMMISSION PLANT ENGINEERING		
SPADINA SUBWAY TYPE "H-2" PLATE ASSEMBLY		
FOR 100 LB A.R.A.-A RESTRAINING RAIL BRACE ON CONCRETE 115 LB A.R.E.A. RAIL ON FLAT PLATE		
SCALE	FULL SIZE	
DRAWN D.Y.L.	TRACED	CHECKED
STOCK NO.	DATE	OCT. 2, 1974
BUILDING INDEX	FILE NO.	
DWG. NO.	W8RT-1185	



Section CLEARANCE/COVER	Subject ICTS	DRAFT 93-06-30	Page 21
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NOTE:

ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.

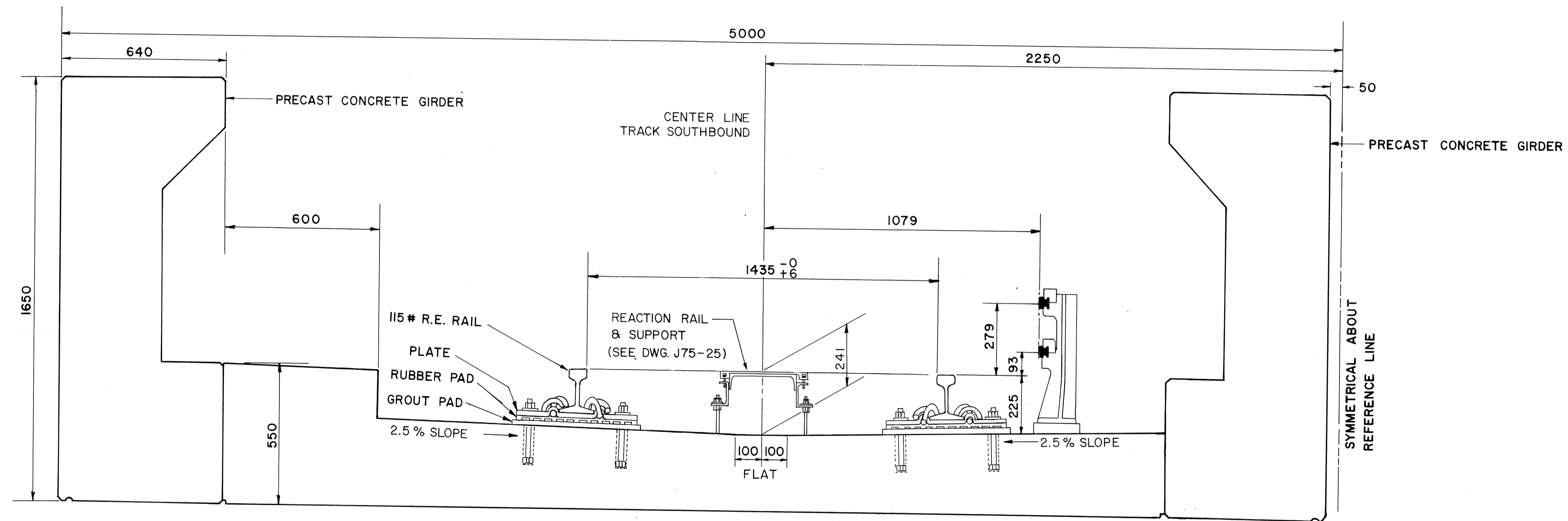
**ELEVATED SECTION
TANGENT TRACK**

Fig. 2.6.1

END OF SECTION

FILE:205/2610.dgn

DRAWING No. J65-23-45 SHEET No. 48



NOTE

FOR PLATE SPACING SEE DWGS.
J65-23-46, 46/1, 47, 48, 49, 50, 51, & 52.

REVISIONS	
C.O.	FORMERLY J65-23-45 SHEET 48
C.O.	
C.O.	
C.O.	
C.O.	
C.O.	

REFERENCE DRAWINGS

APPROVED

TORONTO TRANSIT COMMISSION
ENGINEERING AND CONSTRUCTION

MANAGER OF ENGINEERING

GENERAL MANAGER

UNTIL SIGNED ABOVE THIS DRAWING MUST BE
CONSIDERED PRELIMINARY

DRAWN A. CHOI, SEPT, 10, 82

CHECKED

CORRECT

SCALE 1:10 0 100 200 300 400 mm

DIMENSIONS ARE IN mm

TORONTO TRANSIT
COMMISSION

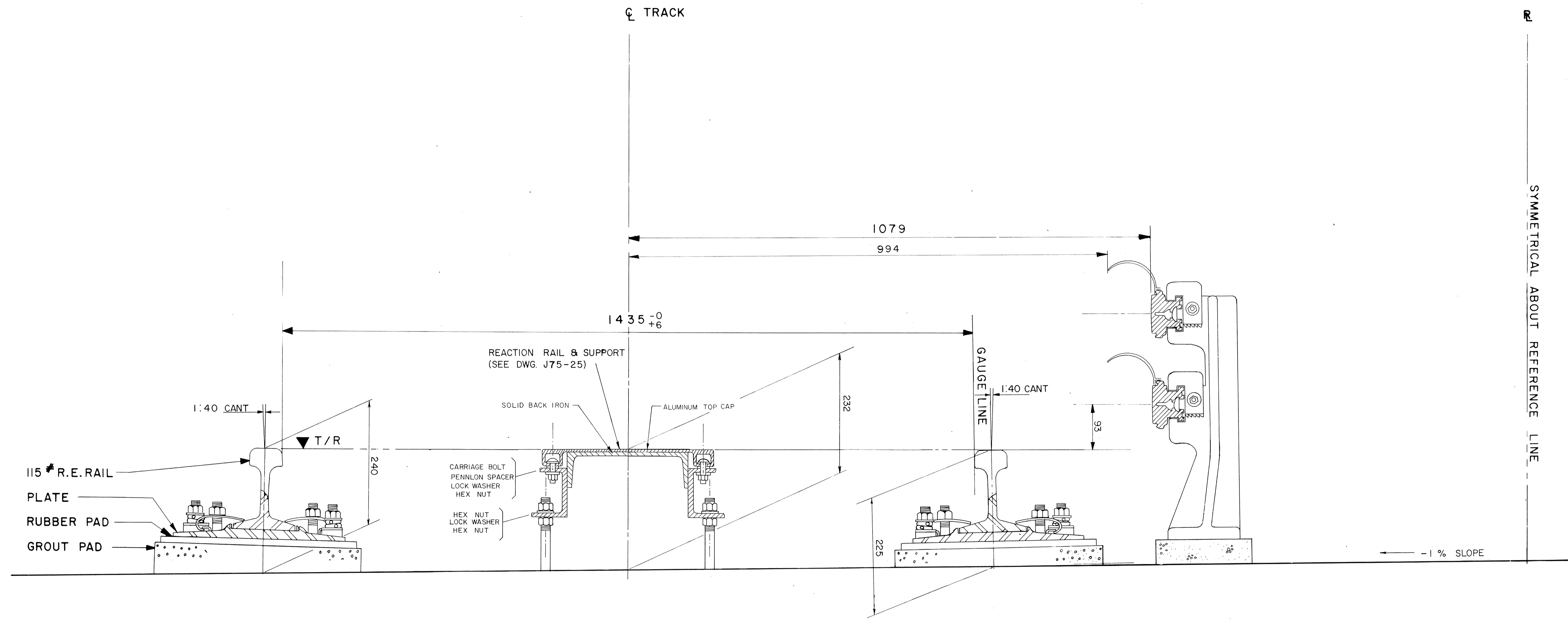
ENGINEERING DEPARTMENT

**Scarborough Town Centre
Light Rail Transit**

TYPICAL CROSS SECTION
OF
TANGENT TRACK
ON
AERIAL STRUCTURE

DWG. NO.
W8SRT-1016

DRAWING No. JLS-57-44 SHEET No. 47



NOTE
 STANDARD FASTENER (PLATE) SPACING
 750 mm ϕ OF PLATE TO ϕ OF PLATE

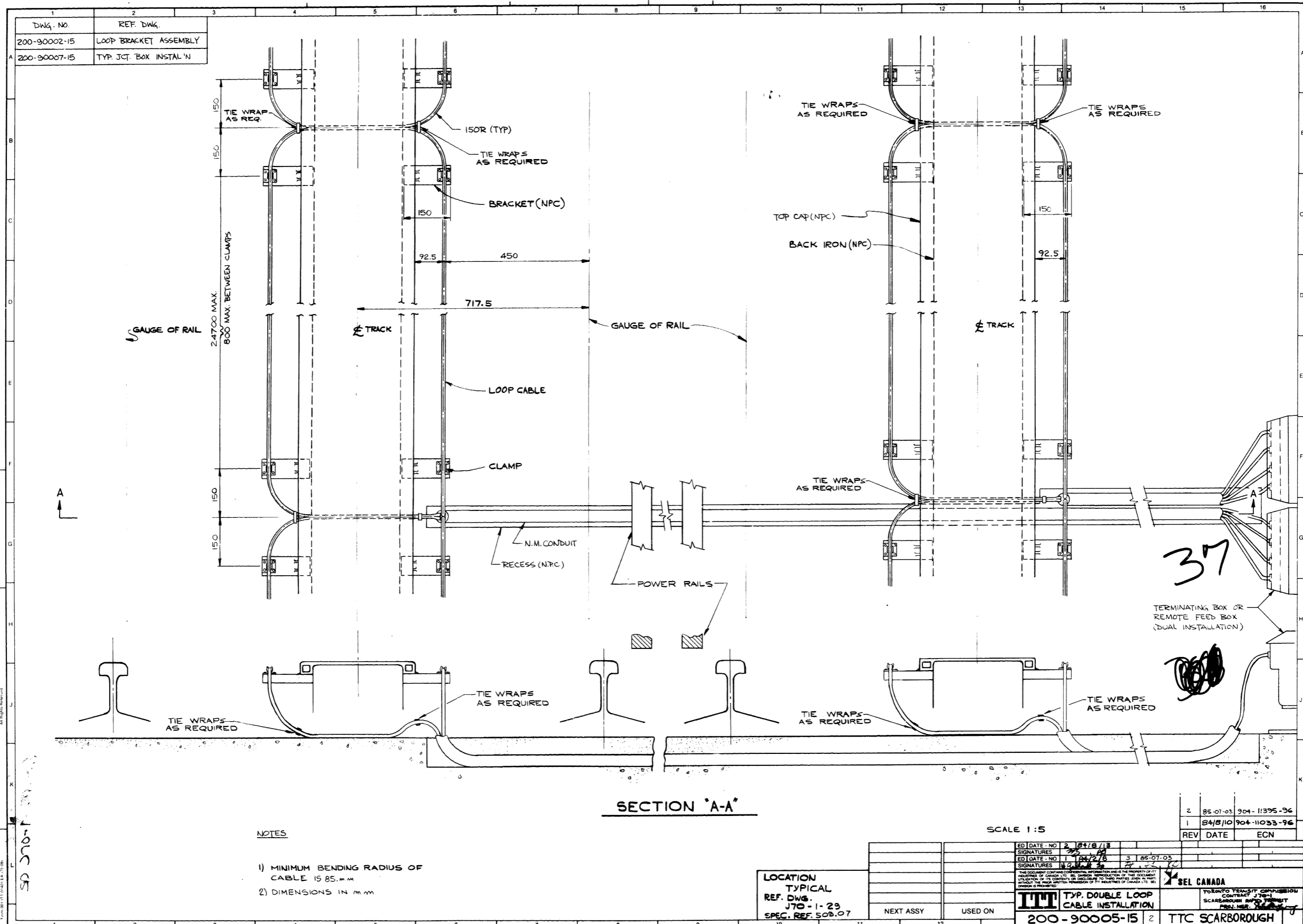
REVISIONS	
C.O.	FORMERLY J65-23-44 SHEET 47
C.O.	
C.O.	
C.O.	
C.O.	
C.O.	
C.O.	

REFERENCE DRAWINGS	
APPROVED	
TORONTO TRANSIT COMMISSION	
ENGINEERING AND CONSTRUCTION	
MANAGER OF ENGINEERING	
GENERAL MANAGER	
UNTIL SIGNED ABOVE THIS DRAWING MUST BE	
CONSIDERED PRELIMINARY	

DRAWN *P. LANDRY* Apr. '83
 CHECKED
 CORRECT
 SCALE 1 : 4
 DIMENSIONS ARE IN mm

TORONTO TRANSIT COMMISSION
 ENGINEERING DEPARTMENT
Scarborough Town Centre Light Rail Transit
 TYPICAL TRACK CROSS SECTION ON CONCRETE SLAB AT GRADE

DWG. No. W8SRT-1015



DWG. NO.	REF. DWG.
200-90002-15	LOOP BRACKET ASSEMBLY
200-90007-15	TYP. JCT. BOX INSTAL'N

NOTES

- 1) MINIMUM BENDING RADIUS OF CABLE IS 85. mm
- 2) DIMENSIONS IN mm

SECTION 'A-A'

SCALE 1:5

2	85-07-03	904-11395-96
1	84/8/10	904-11033-96
REV	DATE	ECN

LOCATION
TYPICAL
REF. DWG.
J70-1-29
SPEC. REF. 509.07

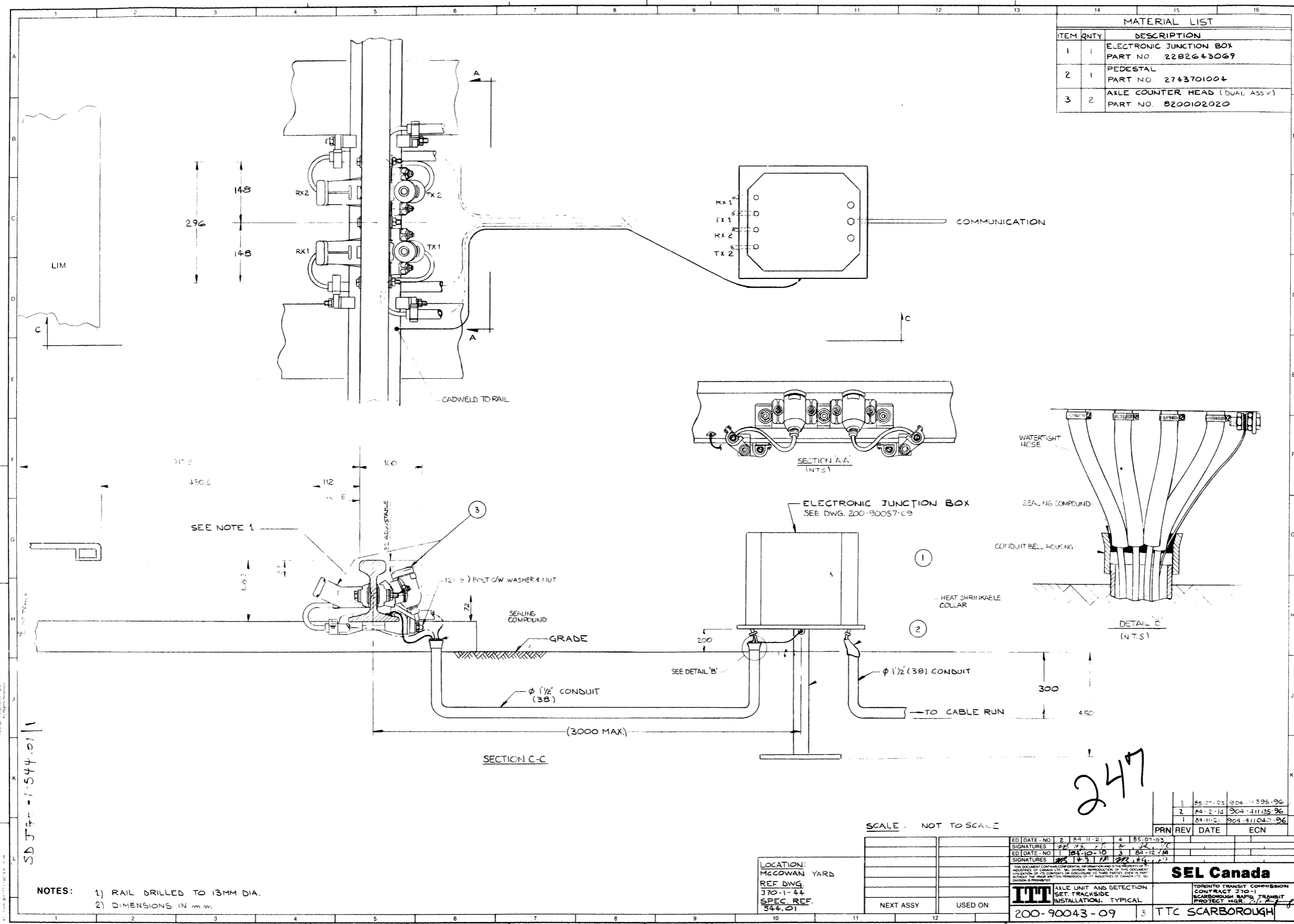
ED DATE	NO	BY	CHK
ED DATE	NO	BY	CHK
SIGNATURES			
SIGNATURES			

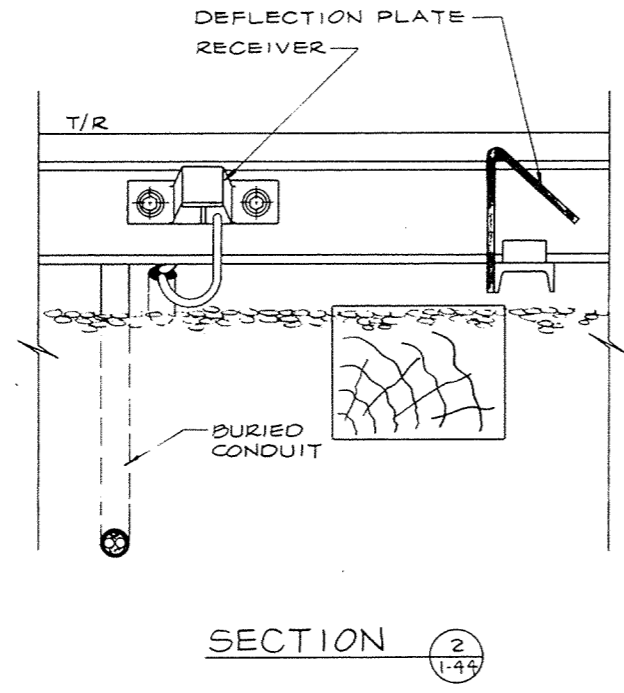
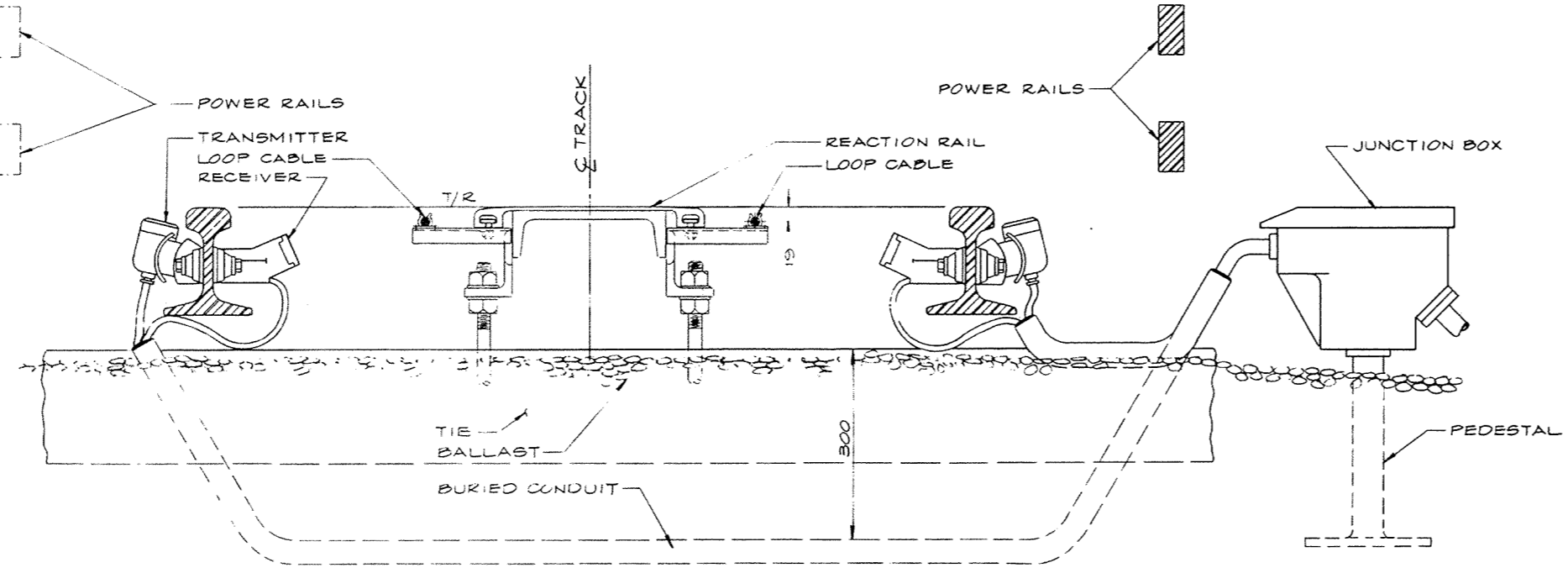
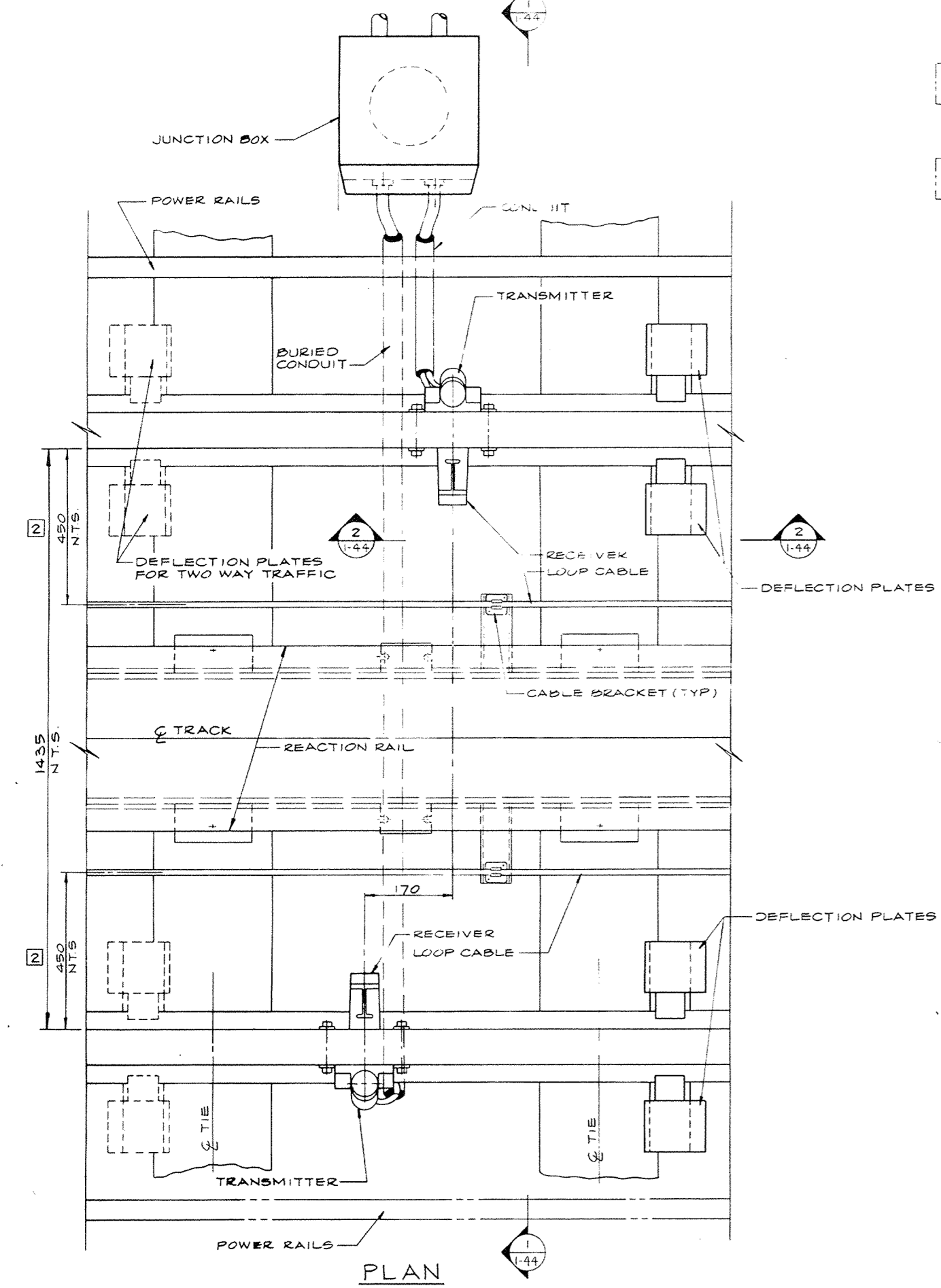
TYP. DOUBLE LOOP
CABLE INSTALLATION
200-90005-15

SEL CANADA
TORONTO TRANSIT COMMISSION
CONTRACT 7781
SCARBOROUGH INFRASTRUCTURE
PROJ. NO. 200007-15

SD J70-1-509 07/3

37





- NOTES:
- FOR LOCATION OF POWER RAILS SEE LOCATION PLAN DWGS.
 - TRACKPADS OMITTED FOR CLARITY.

REVISIONS	
1	NEW DRAWING
2	INDUCTIVE LOOP CABLE RELOCATED

CHANGE ORDER PENDING
 THIS DRAWING FOR INFORMATION ONLY.
 DO NOT USE FOR CONSTRUCTION.
 ISSUED Dec. 12-83



J70-1-43 33B INDUCTIVE LOOP CABLE INSTALLATION DETAILS

REFERENCE DRAWINGS

APPROVED

TORONTO TRANSIT COMMISSION
 ENGINEERING AND CONSTRUCTION

P. Lee
 MANAGER OF ENGINEERING

[Signature]
 GENERAL MANAGER

UNTIL SIGNED ABOVE THIS DRAWING MUST BE CONSIDERED PRELIMINARY

DRAWN: P. LEE 83-06-21

CHECKED: *[Signature]*

CORRECT: *[Signature]*

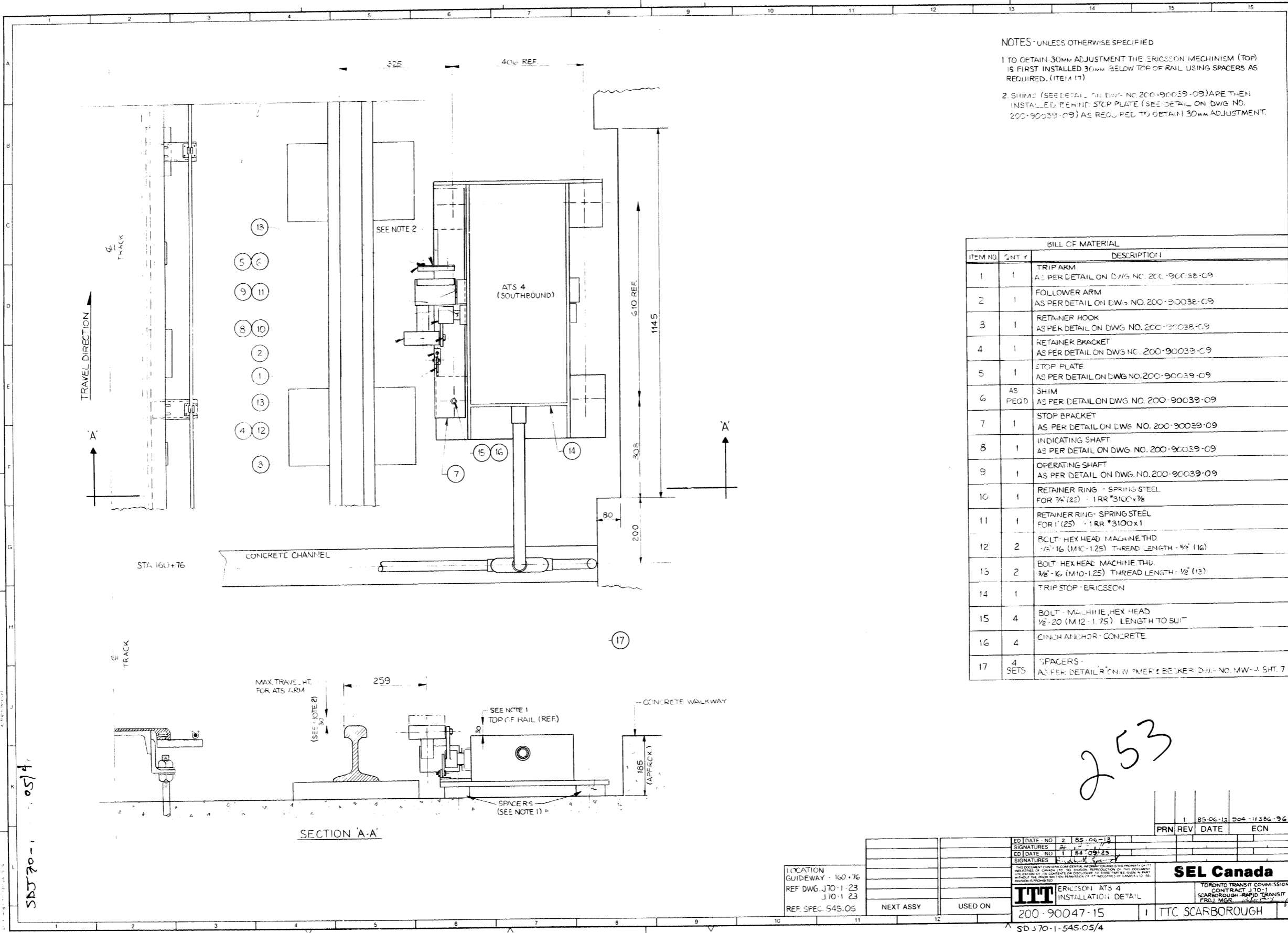
SCALE: 1:5
 DIMENSIONS ARE IN mm OR AS NOTED

TORONTO TRANSIT COMMISSION
 ENGINEERING DEPARTMENT

Scarborough Town Centre
 Light Rail Transit

TRAIN CONTROL SYSTEM
 TYPICAL AXLE COUNTER AND LOOP CABLE LAYOUT ON TIES & BALLAST

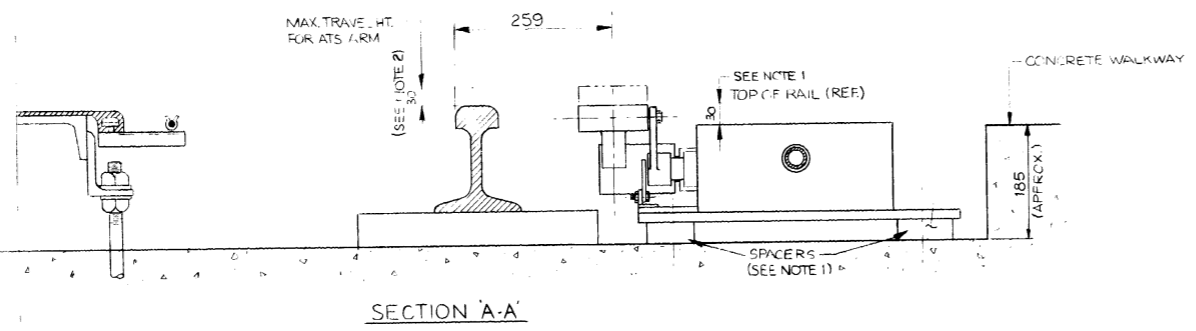
DWG. NO. J70-1-44 33A



NOTES - UNLESS OTHERWISE SPECIFIED

- 1 TO OBTAIN 30MM ADJUSTMENT THE ERICSSON MECHANISM (TOP) IS FIRST INSTALLED 30MM BELOW TOP OF RAIL USING SPACERS AS REQUIRED. (ITEM 17)
- 2 SHIMS (SEE DETAIL ON DWG NO 200-90039-09) ARE THEN INSTALLED PER HIT STOP PLATE (SEE DETAIL ON DWG NO. 200-90039-09) AS REQUIRED TO OBTAIN 30MM ADJUSTMENT.

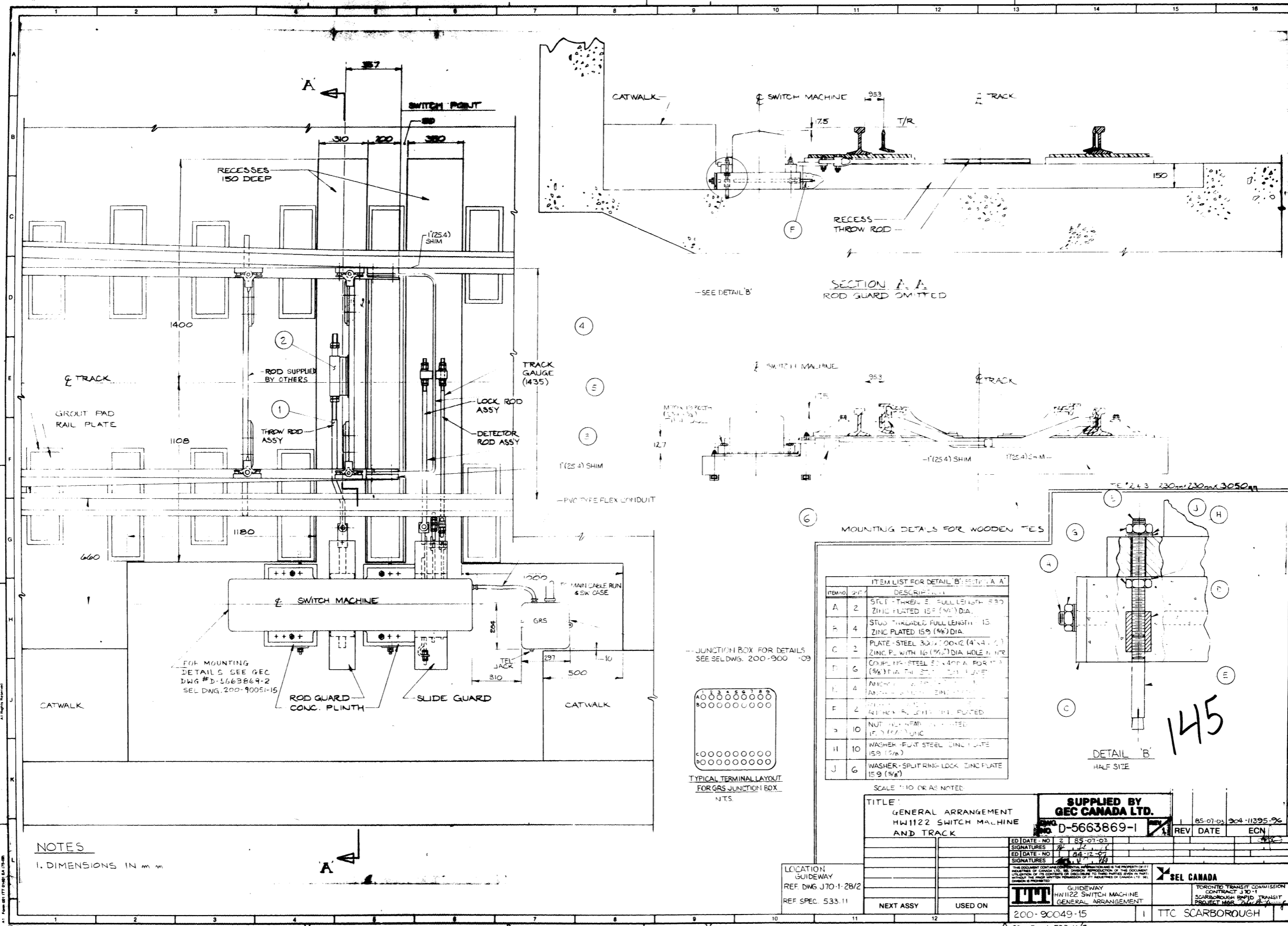
BILL OF MATERIAL		
ITEM NO.	QNTY	DESCRIPTION
1	1	TRIP ARM AS PER DETAIL ON DWG NO. 200-90038-09
2	1	FOLLOWER ARM AS PER DETAIL ON DWG NO. 200-90038-09
3	1	RETAINER HOOK AS PER DETAIL ON DWG NO. 200-90038-09
4	1	RETAINER BRACKET AS PER DETAIL ON DWG NO. 200-90039-09
5	1	STOP PLATE AS PER DETAIL ON DWG NO. 200-90039-09
6	AS REQD	SHIM AS PER DETAIL ON DWG NO. 200-90039-09
7	1	STOP BRACKET AS PER DETAIL ON DWG NO. 200-90039-09
8	1	INDICATING SHAFT AS PER DETAIL ON DWG NO. 200-90039-09
9	1	OPERATING SHAFT AS PER DETAIL ON DWG NO. 200-90039-09
10	1	RETAINER RING - SPRING STEEL FOR 7/8" (25) - 1 RR *3100x7/8
11	1	RETAINER RING - SPRING STEEL FOR 1" (25) - 1 RR *3100x1
12	2	BOLT - HEX HEAD - MACHINE THD 1/2" - 16 (M10-1.25) - THREAD LENGTH - 1/2" (16)
13	2	BOLT - HEX HEAD - MACHINE THD 3/8" - 16 (M10-1.25) - THREAD LENGTH - 1/2" (16)
14	1	TRIP STOP - ERICSSON
15	4	BOLT - MACHINE, HEX HEAD 1/2" - 20 (M12-1.75) - LENGTH TO SUIT
16	4	CINCH ANCHOR - CONCRETE
17	4 SETS	SPACERS AS PER DETAIL ON WALKER BRETHER DWG NO. MW-3 SHT. 7



253

SDJ 70-1-545-05/4

ED DATE NO 2 85-06-13	ED DATE NO 1 84-09-25	PRN REV DATE ECN
SIGNATURES	SIGNATURES	
LOCATION GUIDEWAY - 160+76 REF DWG. J70-1-23 J70-1-23 REF SPEC. S45.05		SEL Canada TORONTO TRANSIT COMMISSION CONTRACT TO-1 SCARBOROUGH RAPID TRANSIT PROJECT NO. 200-90047-15 TTC SCARBOROUGH
NEXT ASSY	USED ON	SDJ 70-1-545-05/4



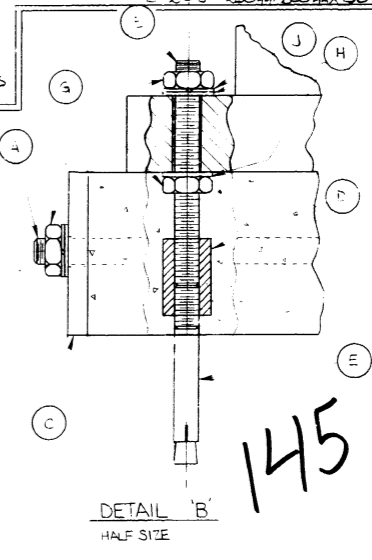
SD J70-1-533.11/7

NOTES
1. DIMENSIONS IN mm

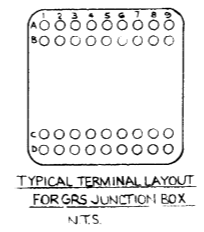
ITEM LIST FOR DETAIL B' SECTION A-A

ITEM NO.	QTY	DESCRIPTION
A	2	STU-THROW ROD FULL LENGTH 530 ZINC PLATED 15.2 (5/8") DIA.
B	4	STUD THREADED FULL LENGTH 15 ZINC PLATED 15.9 (5/8") DIA.
C	2	PLATE-STEEL 30.2 x 100.6 (4" x 4") ZINC PL. WITH 16 (1/2") DIA. HOLE IN TR
D	6	CONK. TH-STEEL 50.4 x 101.6 FOR 16 (1/2") DIA. TH-STEEL 50.4 x 101.6
E	4	ANCHOR BOLT 20.0 x 100.0 ZINC PLATED
F	2	WASHER-FLAT STEEL ZINC PLATED 15.9 (5/8") DIA.
G	10	NUT-HEX HEAD ZINC PLATED 15.9 (5/8") DIA.
H	10	WASHER-FLAT STEEL ZINC PLATE 15.9 (5/8") DIA.
J	6	WASHER-SPLIT RING-LOCK ZINC PLATE 15.9 (5/8") DIA.

SCALE: 1:10 OR AS NOTED



JUNCTION BOX FOR DETAILS SEE SEL DWG. 200-900-109



SUPPLIED BY GEC CANADA LTD.

D-5663869-1

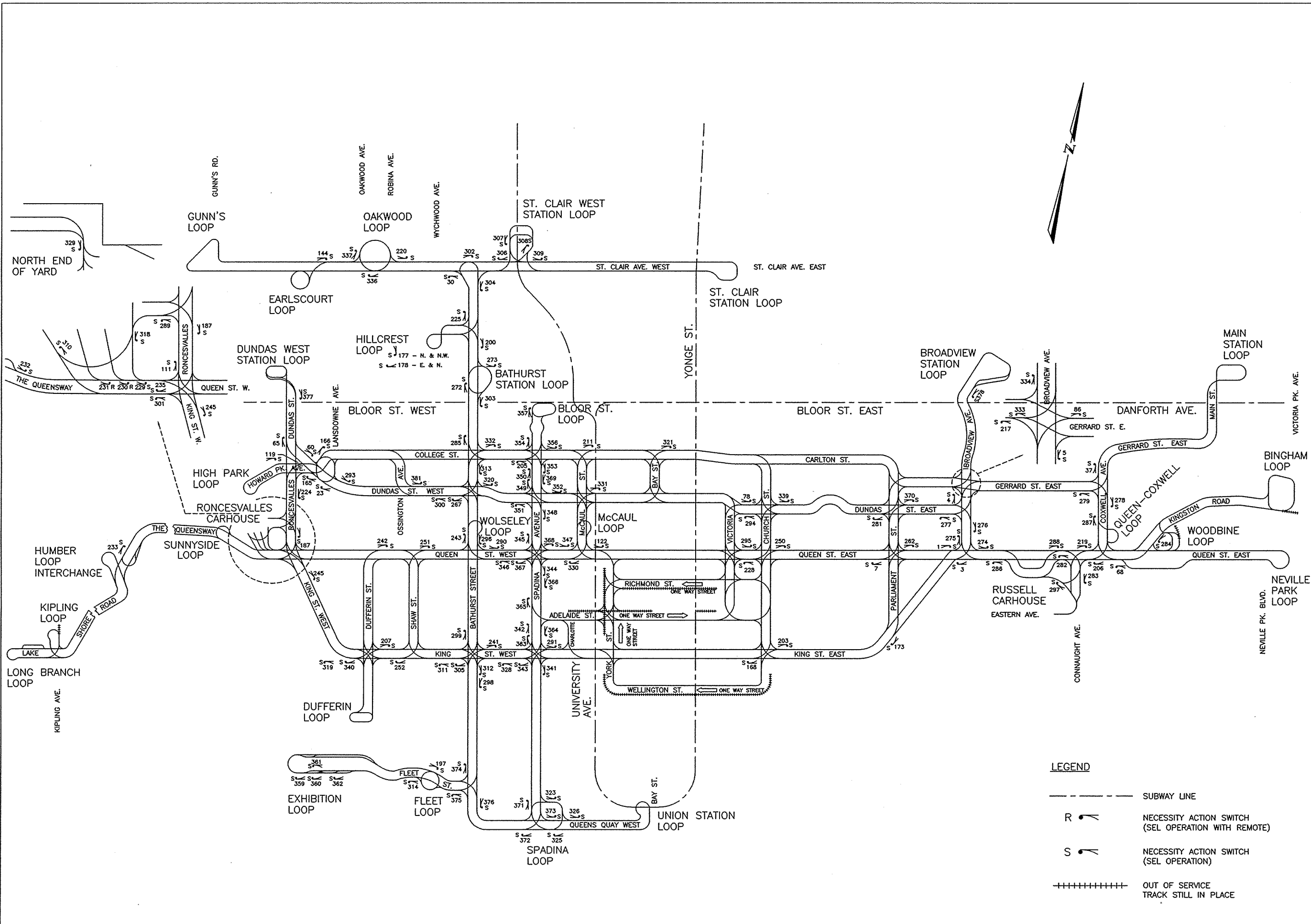
REV. DATE: 85-07-06
ECN: 304-11395-96

ED DATE: NO. 85-07-06	SIGNATURES: [Signature]
ED DATE: NO. 84-12-07	SIGNATURES: [Signature]

TTC GUIDEWAY HW1122 SWITCH MACHINE GENERAL ARRANGEMENT

200-90049-15 | TTC SCARBOROUGH

LOCATION: GUIDEWAY
REF. DWG. J70-1-2B/2
REF. SPEC. 533.11



- LEGEND**
- SUBWAY LINE
 - R [Symbol] NECESSITY ACTION SWITCH (SEL OPERATION WITH REMOTE)
 - S [Symbol] NECESSITY ACTION SWITCH (SEL OPERATION)
 - +++++ OUT OF SERVICE TRACK STILL IN PLACE

REVISIONS		
DATE	DETAILS	NO.

REFERENCES	
SURVEY BOOK NO.	PAGE
LEVEL BOOK NO.	PAGE
CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK	
DO NOT SCALE PRINTS	
APPROVED	
MANAGER	
ASSISTANT MANAGER	
SUPERINTENDENT	
EXAMINED	
STRUCTURES	
WAY	
ELECTRICAL	

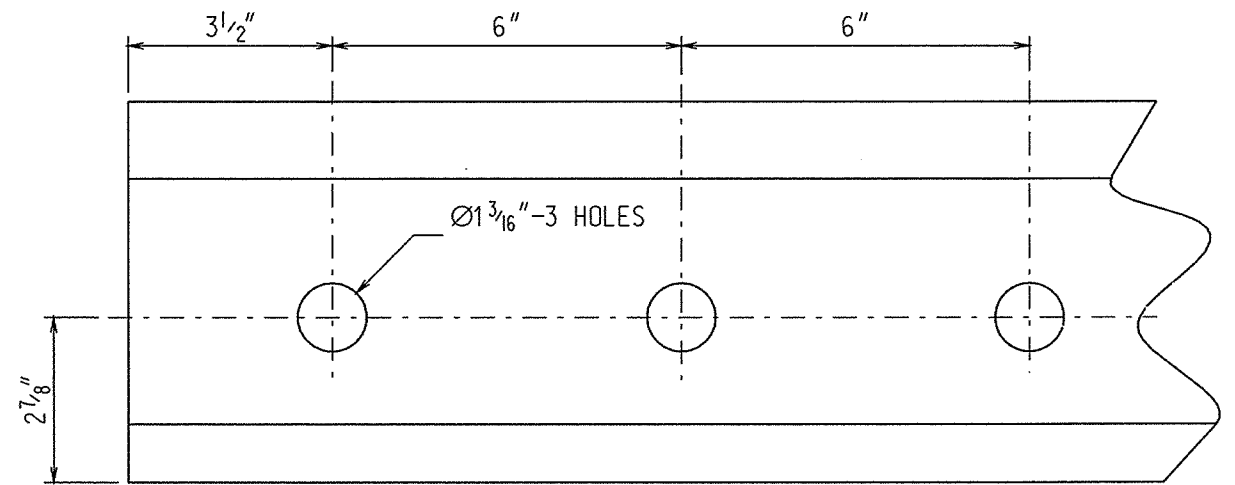
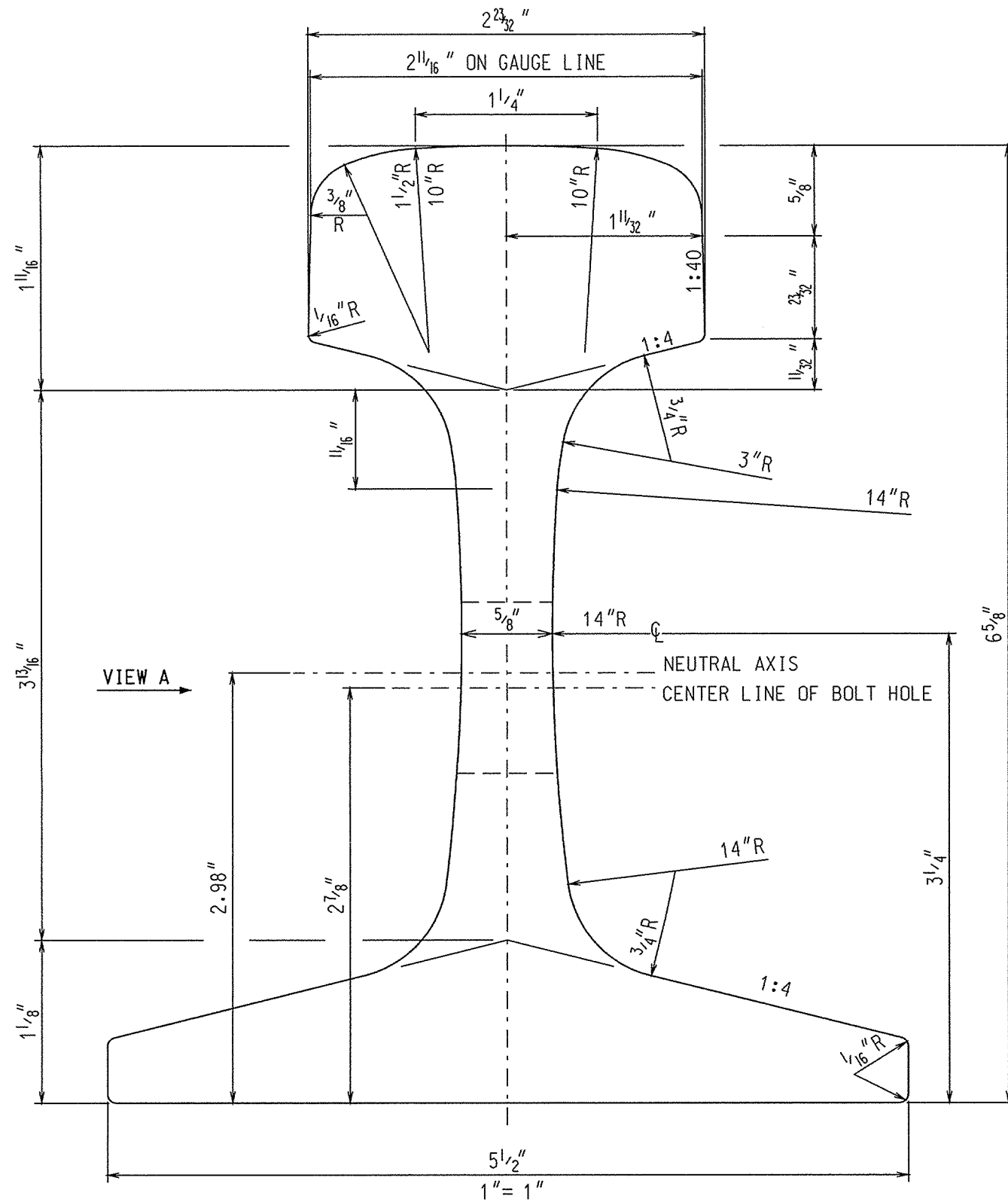
Toronto Transit Commission
 TRACK AND STRUCTURE DEPARTMENT

TRACK DIAGRAM

SHOWING
 ELECTRICAL SWITCHES
 AS OF
 SEPTEMBER 14, 2010

SCALE	NOT TO SCALE
DRAWN	
TRACED	
CHECKED	
DATE	
DWG. NO.	REV.
W2M-1649	

TYPE/SIZE	TTC S/C #	TTC PATT.#	TTC SPECIFICATIONS
			MAT'L/ QA/ SUBMITTALS/ COATINGS/ PACKAGING
39FT 3HB UNDRILLED	401690	N/A	TMS-RL-01
78FT 3HBDUNDRILLED	023390		
39FT HH UNDRILLED	002318		
78FT HH UNDRILLED	023389		



VIEW A (RAIL DRILLING)
1/4"=1"

NOTE:
1. RAIL ENDS SHALL BE DRILLED IN ACCORDANCE WITH THIS DRAWING, ONLY IF SPECIFIED.

REV.	DATE	DESCRIPTION	RELATED DWG'S REVISED PER THIS REVISION

SUPPLEMENTARY REFERENCES	
DIMENSIONAL TOLERANCES	PER AREMA 4-1-1
I.D. MARKING	N.A.
I.D. TAGS & LABELS	N/A
MISCELLANEOUS DWG'S	

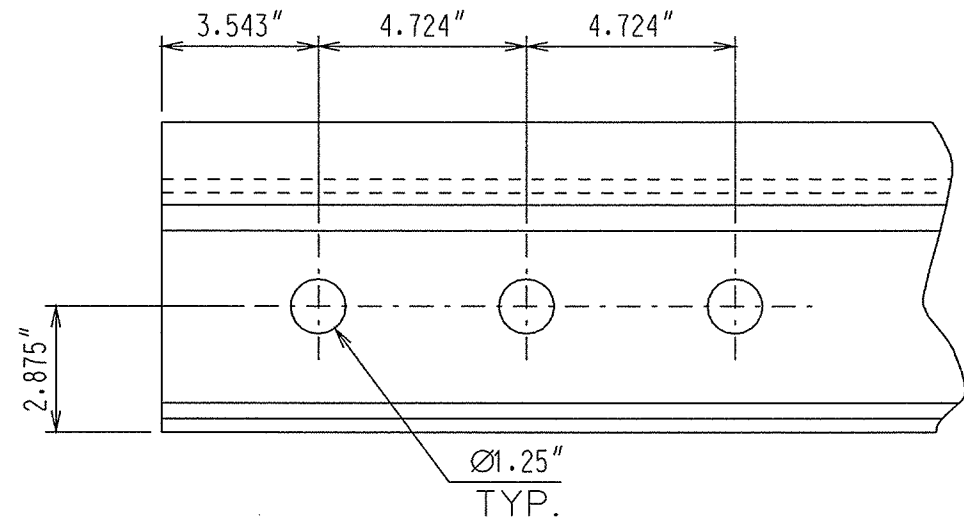
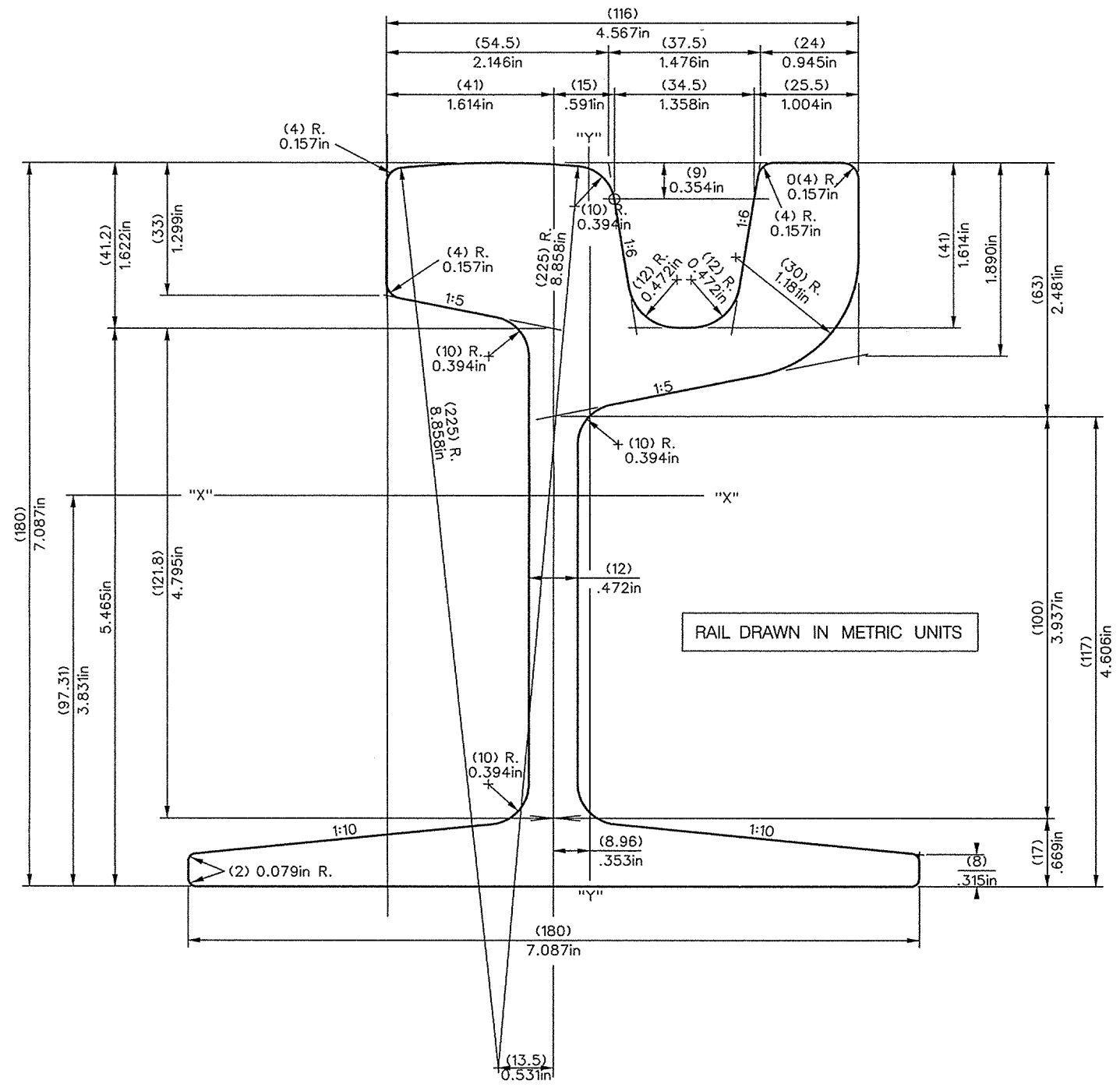
CHECKED (Of Ig./Rev.)	DATE: May 16.06
SPECIFICATION REVIEW	ADMINISTRATOR REVIEW
APPROVED (Supervisor)	
DRAWN: E. SOLDATENKO	SCALE: 1:1
SOURCE DWG'S: W1RT-1158 A	

TRACK MATERIAL, SINGLE PART DESCRIPTION	
STANDARD 115 lb. RE RAIL	
DWG. No. w/HAND DESIGNATION	REV.
TORONTO TRANSIT COMMISSION TRACK & STRUCTURE DEPARTMENT	TM-0085-X
SHEET 1 of 1	



CADD FILE NAME: User/gpa-track/TM-0085-X.dgn

TYPE/SIZE	TTC S/C #	TTC PATT.#	TTC SPECIFICATIONS
			MAT'L/ QA/ SUBMITTALS/ COATINGS/ PACKAGING
39FT GRADE 900 UNDRILLED	008164	N/A	TMS-RL-01
39FT HSH UNDRILLED	040522		



RAIL DRILLING
SCALE 1" = 3"

NOTES:

1. ALL "()" DIMENSIONS ARE REFERENCE DIMENSIONS EXPRESSED IN MILLIMETRES AS PER SOGERAIL DRAWING DATED 20.03.97.
2. ALL IMPERIAL DIMENSIONS ARE EXPRESSED TO THE NEAREST 1/1000TH OF AN INCH.
3. RAIL ENDS SHALL BE DRILLED IN ACCORDANCE WITH THIS DRAWING, ONLY IF SPECIFIED.
4. MATERIAL : GRADE 900 OR HSH TO VDV OR 8.1/13.1, AS SPECIFIED.

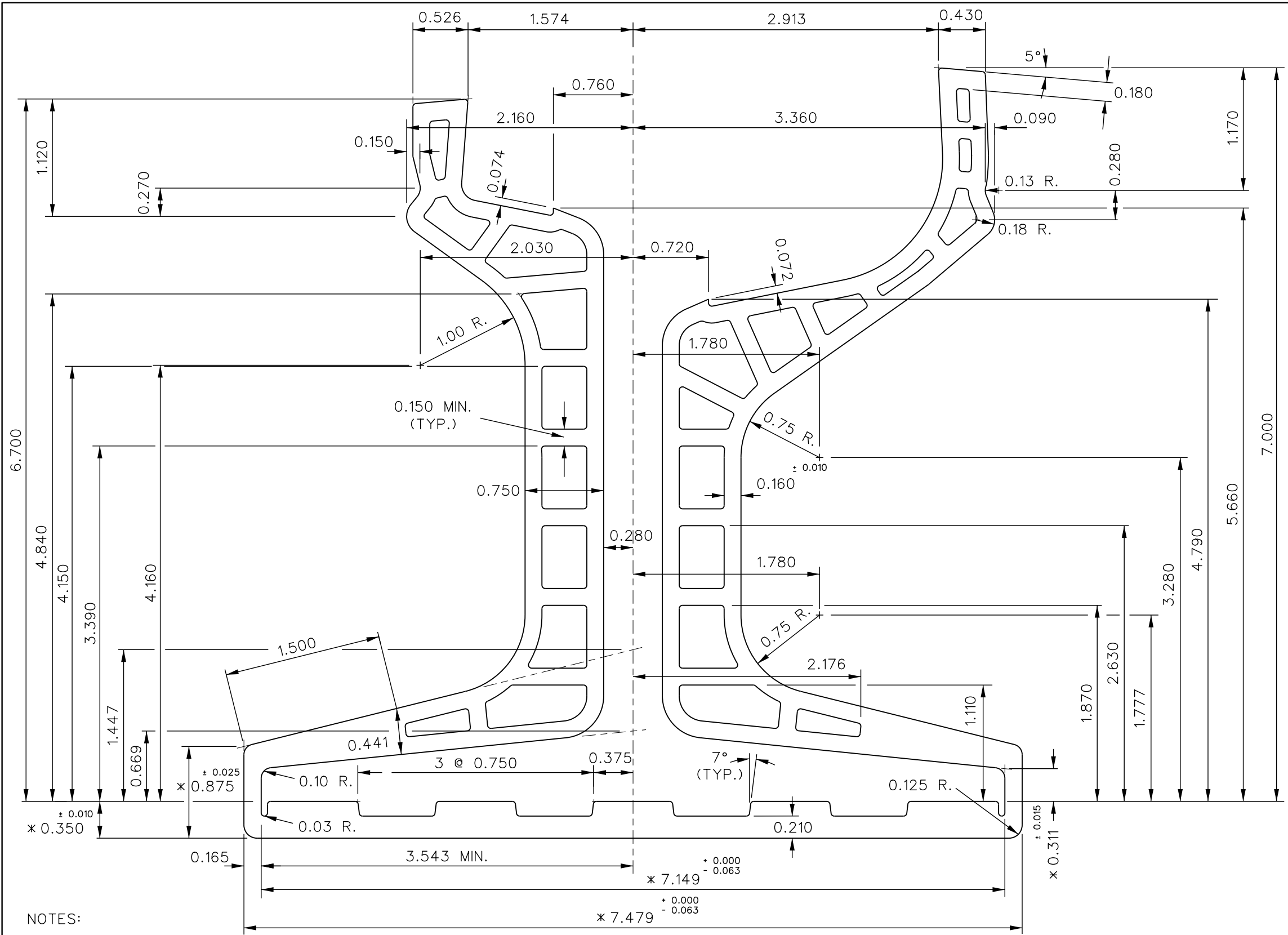
REV.	DATE	DESCRIPTION	RELATED DWG'S REVISED PER THIS REVISION
A	29/12/06	ALL "()" DIMENSIONS ARE CORRECTED; NOTE "3" REVISED	

SUPPLEMENTARY REFERENCES	
DIMENSIONAL TOLERANCES	N/A
I.D. MARKING	N.A.
I.D. TAGS & LABELS	N/A
MISCELLANEOUS DWG'S	

CHECKED (Dr'g./Rev.)	DATE: 29.12.06
SPECIFICATION REVIEW	ADMINISTRATOR/REVIEW
APPROVED (Supervisor)	
DRAWN: E. SOLDATENKO	SCALE: 1:1
SOURCE DWG'S: W21-704/1 C	

TRACK MATERIAL - SINGLE PART DESCRIPTION	
NP4aMOD (SOGERAIL) GIRDER GUARD RAIL (METRIC RAIL SECTION)	
DWG. No. / HAND DESIGNATION	REV.
TORONTO TRANSIT COMMISSION TRACK & STRUCTURE DEPARTMENT	TM-0144-X A
SHEET 1 of 1	

CAD FILE NAME: User\opn.Trash\TM-0144-X.dgn




NOTES:

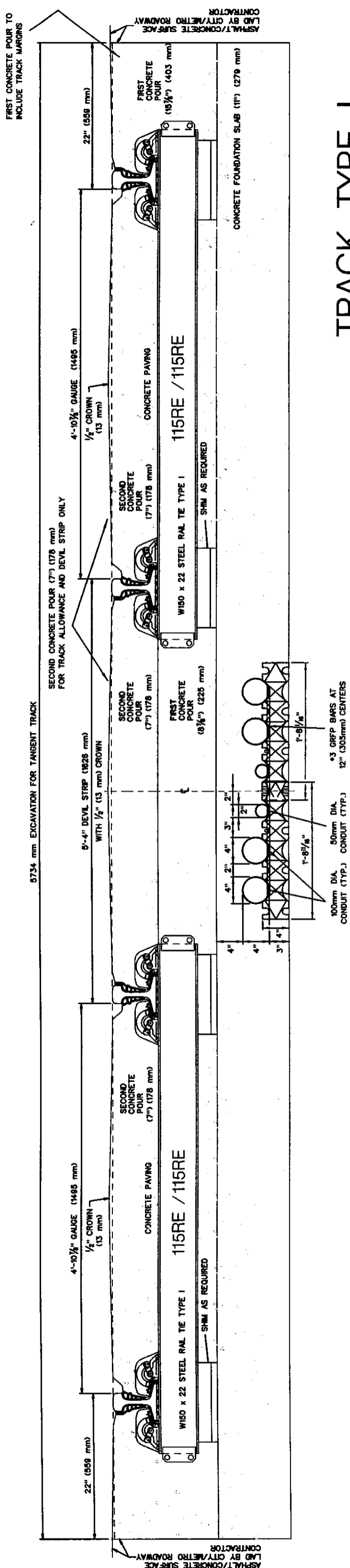
1. MATERIAL IN ACCORDANCE WITH REQUIREMENTS OF PART 3.8 OF ATTACHED SPECIFICATIONS.
2. DIMENSIONS TO FIT NP4aMOD GGR RAIL SECTION, EXCEPTING DETAILS AS REQUIRED IN NOTE 3. PROFILE MUST RETAIN SHAPE AND FIT RAIL SECTION WITHOUT FORCING, STRETCHING or BULGING. FAILURE TO DO SO WILL BE CAUSE FOR REJECTION OF THE MANUFACTURED PART.
3. SECTION TO BE DESIGNED FOR A "PRESS FIT" IN THE AREA UNDERNEATH THE GIRDER RAIL HEAD AND GUARD CORNER RADII. SUPPLIERS ARE TO PROPOSE CONFIGURATION DETAILS IN THIS AREA ONLY.
4. ALL DIMENSIONS ARE IN INCHES AND UNLESS OTHERWISE NOTED ARE SYMMETRICAL ABOUT CENTERLINE.
5. REMOVE FINs & FLASH TO WITHIN 0.040 OF SURFACE.
6. ALL TOOLING AND MANUFACTURE TO BE FROM APPROVED DRAWINGS AND SPECIFICATIONS ONLY.
7. PROFILE SHOULD HAVE A UNIFORM THICKNESS OF * 0.160 ± 0.010 INCHES. INTERNAL RIBS TO BE MINIMUM THICKNESS OF * 0.150 INCHES.
8. PART TO BE HANDLED, STORED, AND SHIPPED WITH CARE TO PREVENT DAMAGE OR PERMANENT DEFORMATION.

* IDENTIFIES CRITICAL DIMENSIONS

CODE No. : 007958

TORONTO TRANSIT COMMISSION		
		
TRACK and STRUCTURE DEPARTMENT		
TYPE NP4aMOD GIRDER GUARD RAIL ENCLOSURE		
SCALE: FULL	CAD DRAWN: B.W.BLAKEY	CHECKED:
REVISED:	APPROVED:	
(A) 30/11/99 DESIGN REVISED	----- SUPT. OF MAINTENANCE ENGINEERING	
(B) 27/08/01 DESIGN REVISED	----- ASSIST. MANAGER	
(C) 05/10/06 DIMENSIONS REV. TOLERANCES ADDED.	----- MANAGER	
DATE: 28 AUG. 1997	REFERENCE: POLYCORP RC-4NP4-2 B	DRAWING NO.: W2T-705 C

PLOT DATE: 26-APR-2013



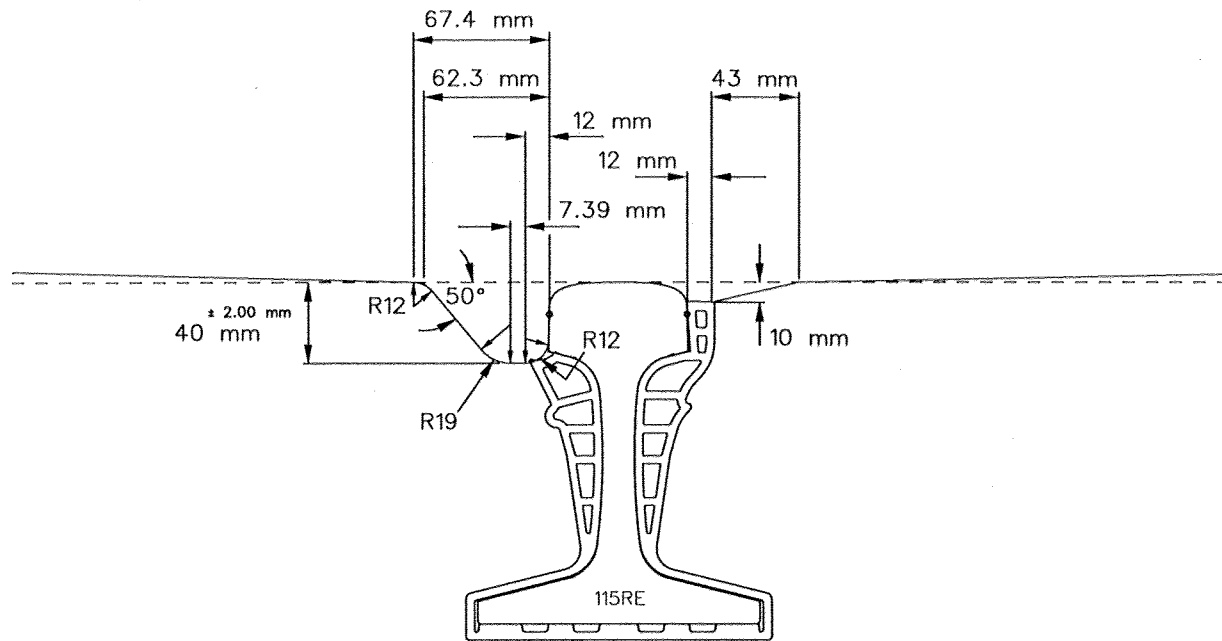
TRACK TYPE I

ISSUED FOR CONSTRUCTION

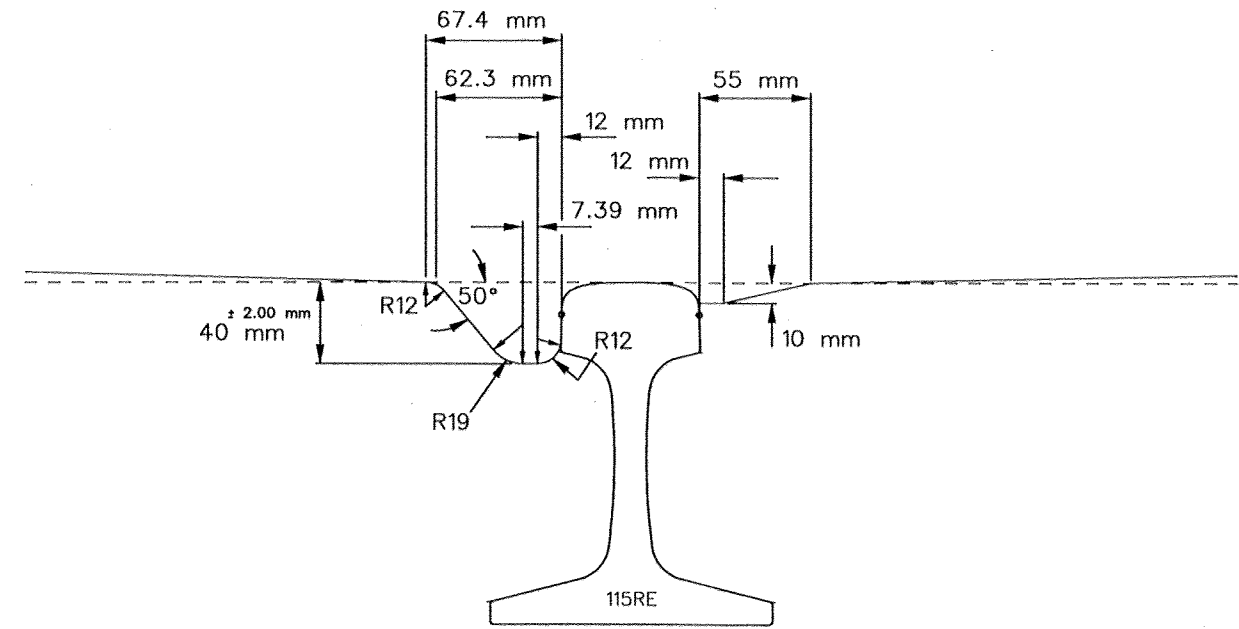
NOTE :

- CONSTRUCTION ALSO APPLIES TO TRACK TYPE IV and TYPE V.
- DUCTS and DUCT SPACERS ARE TO BE INSTALLED WHERE REQUIRED ONLY, CONCRETE DEPTHS TO BE MAINTAINED.

RESILIENTLY EMBEDDED STREETCAR TRACK		for TYPICAL DESIGN		TORONTO TRANSIT COMMISSION TRACK & STRUCTURE DEPARTMENT	W2T-872-1	C
SIGNED ORIGINAL IN FILE		DATE: JAN. 29, 2009.		TRACK MATERIAL		
SPECIFICATION REVIEW		ADMINISTRATOR REVIEW		APPROVED: [Signature]		
DRAWN: B. W. BLAKELY		SCALE: N.T.S.		REV.:		
SOURCE DWG 'S:						
SUPPLEMENTARY REFERENCES						
DIMENSIONAL TOLERANCES		PER ANSI/ASME/IEEE/TTC DWG./N.A.				
I.D. MARKING		PER THIS DWG./N.A.				
I.D. TAGS & LABELS		PER TTC DWG. TM-000-03				
MISCELLANEOUS DWG 'S		XXXXX				
<small>SPECIFICATIONS, DWG.'S, AND STANDARDS REFERENCED HEREIN SHALL BE USED TOGETHER WITH THIS DWG. THE SUPPLIER SHALL BE RESPONSIBLE FOR OBTAINING THE LATEST EDITIONS OF ALL REFERENCED REQUIREMENTS FROM PART OF THE WORK UNLESS OTHERWISE NOTED IN THIS DWG. IN ALL PARTS OF THIS DWG. THE SUPPLIER SHALL VERIFY ALL DETAIL & REPORT DISCREPANCIES BEFORE COMMENCEMENT OF THE WORK.</small>						
REV.	DATE	DESCRIPTION	RELATED DWG'S REVISED FOR THIS REVISION			
C	08/25/11	CONCRETE POUR DEPTHS REVISED				
B	02/25/09	DUCT #SIZES AND CONCRETE POUR DEPTHS REV.				
A	02/06/09	REP REBAR REQUIRED				

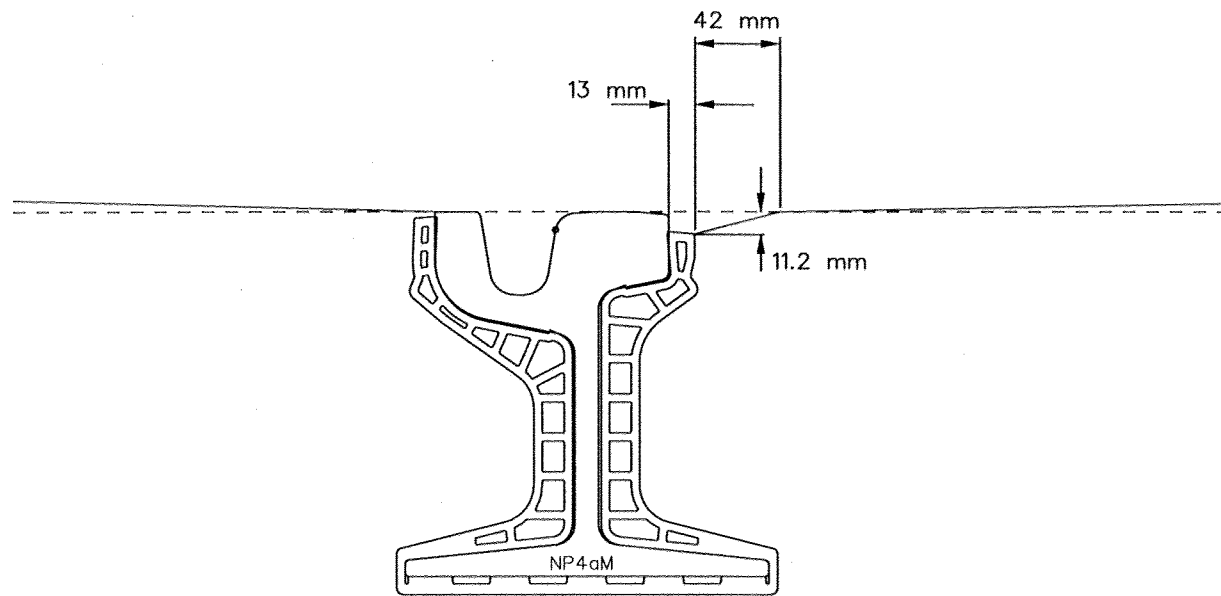


ENCLOSED RAIL

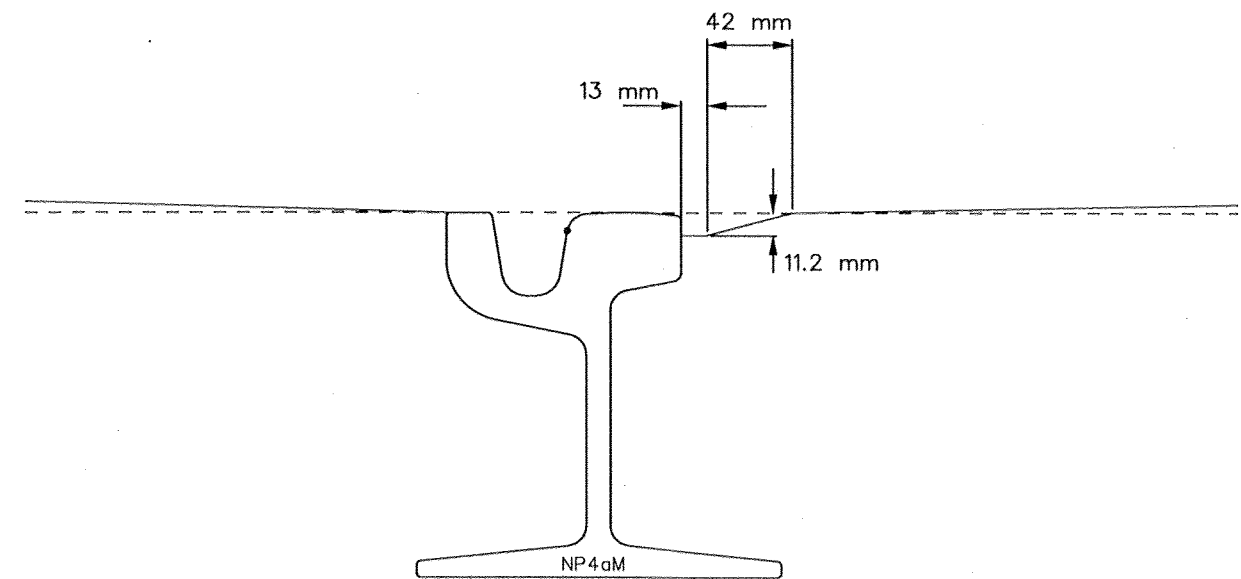


NON-ENCLOSED RAIL
(SPECIAL TRACKWORK ONLY)

PAVING /CONCRETE CONTOUR AT TEE RAIL HEAD



ENCLOSED RAIL



NON-ENCLOSED RAIL
(SPECIAL TRACKWORK ONLY)

PAVING /CONCRETE CONTOUR AT GIRDER RAIL HEAD

NOTE :
ALL DIMENSION TOLERANCES ARE ± 1.00 mm UNLESS OTHERWISE NOTED.

FOR SHARED RIGHT OF WAY

REV.	DATE	DESCRIPTION	RELATED DWG'S REVISED PER THIS REVISION	SUPPLEMENTARY REFERENCES	CHECKED (Dr./g./Rev.)	DATE
A	FEB. 14, 2013	TITLE BLOCK revised TO ADD "FOR SHARED RIGHT OF WAY"	MA	DIMENSIONAL TOLERANCES PER ANSI/ASME/AREMA/TTC DWG./N.A. I.D. MARKING PER THIS DWG./N.A. I.D. TAGS & LABELS PER TTC DWG. MISCELLANEOUS DWG'S XXXX	SIGNED ORIGINAL IN FILE	MAY 30, 2012.
					SPECIFICATION REVIEW	ADMINISTRATOR REVIEW
					APPROVED (Supervisor)	
					DRAWN: B.W. BLAKELY	SCALE: N.T.S.
					SOURCE DWG'S: W07-650/3	

PAVING /CONCRETE CONTOUR
for
SURFACE TRACK INSTALLATIONS



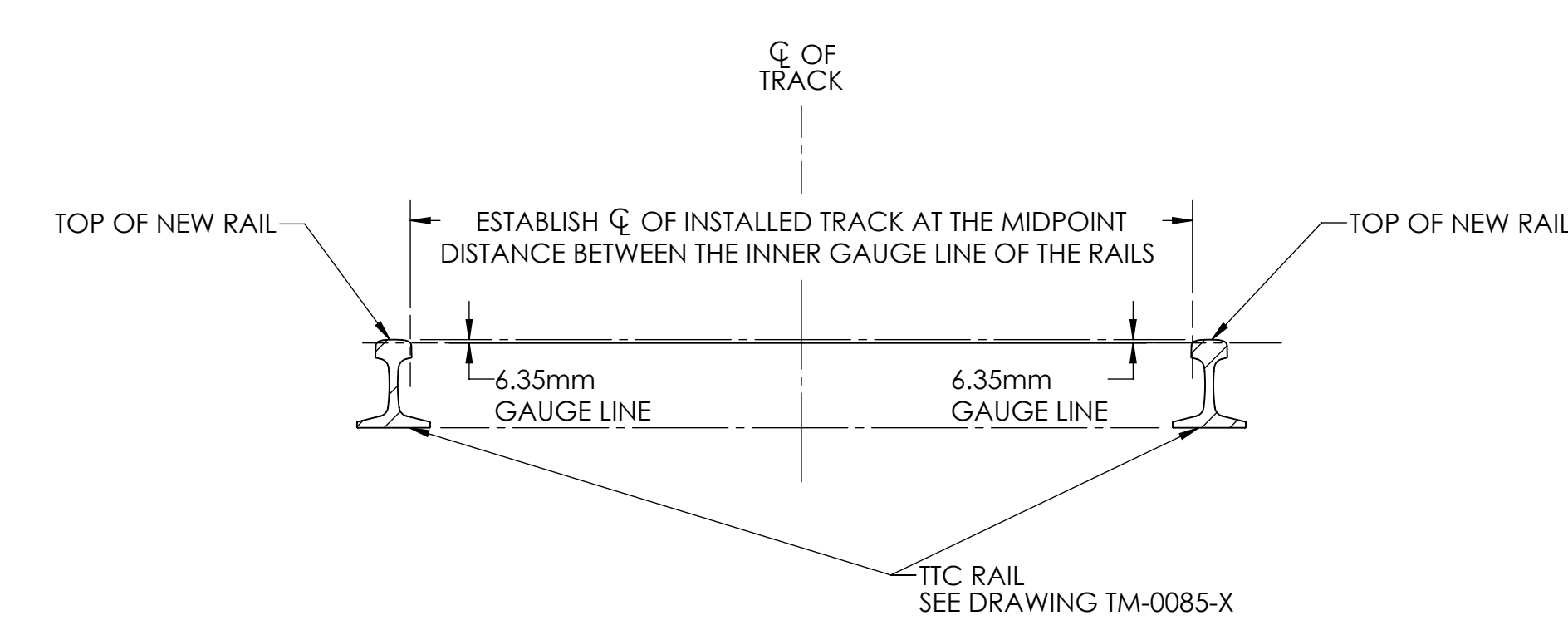
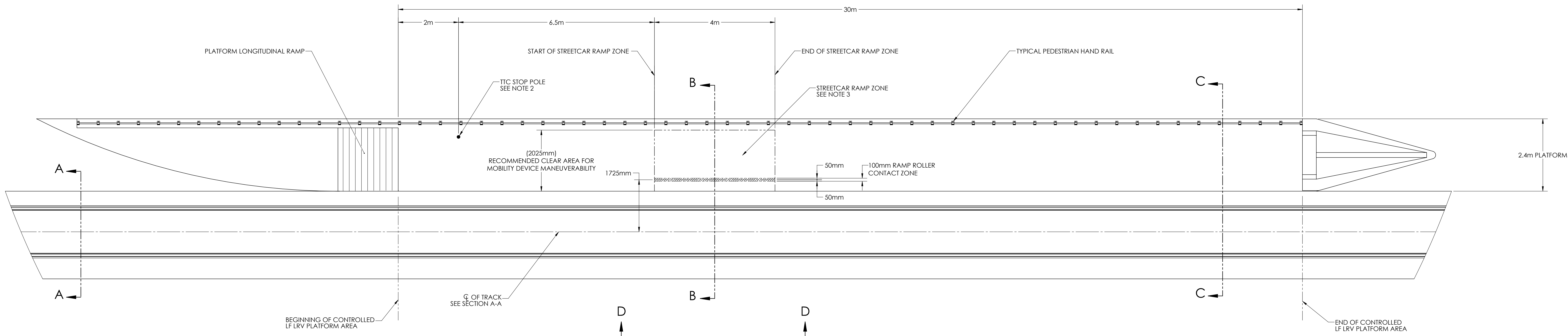
TORONTO TRANSIT COMMISSION
RAIL INFRASTRUCTURE DEPARTMENT

DWG. No. / HAND DESIGNATION: **W2T-903**

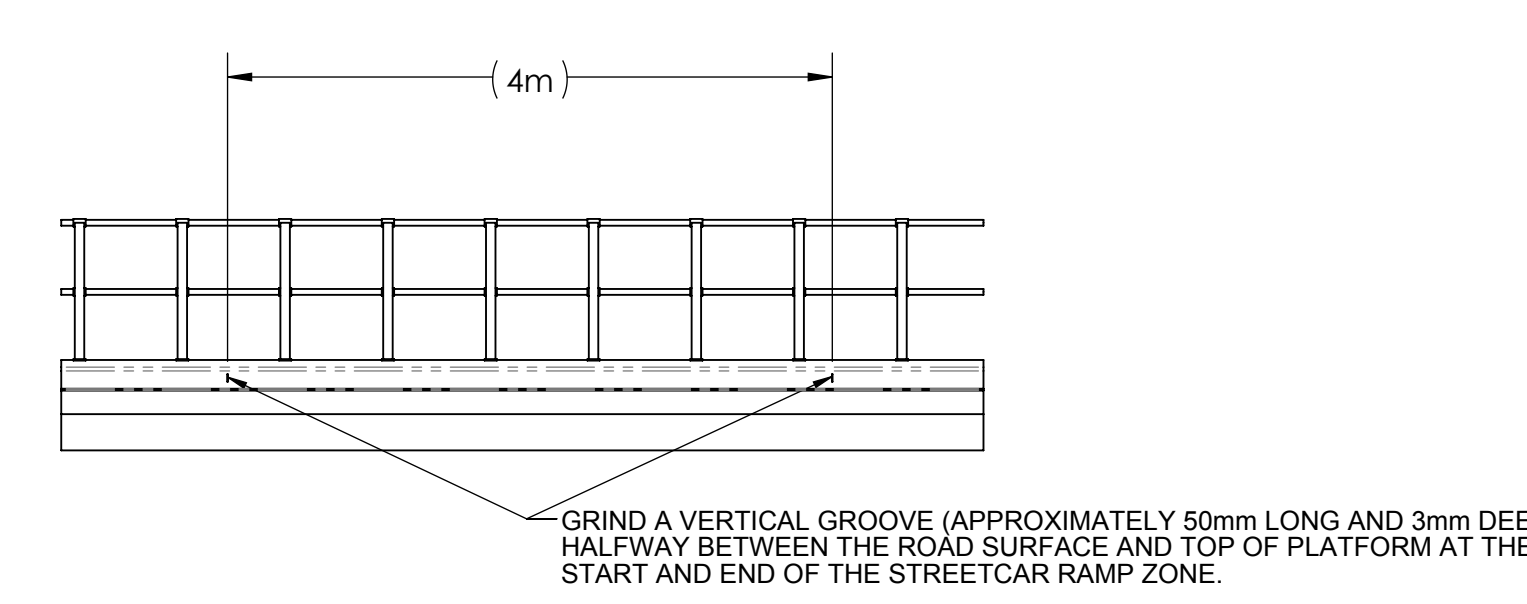
REV. **A**

SHEET 1 of 1

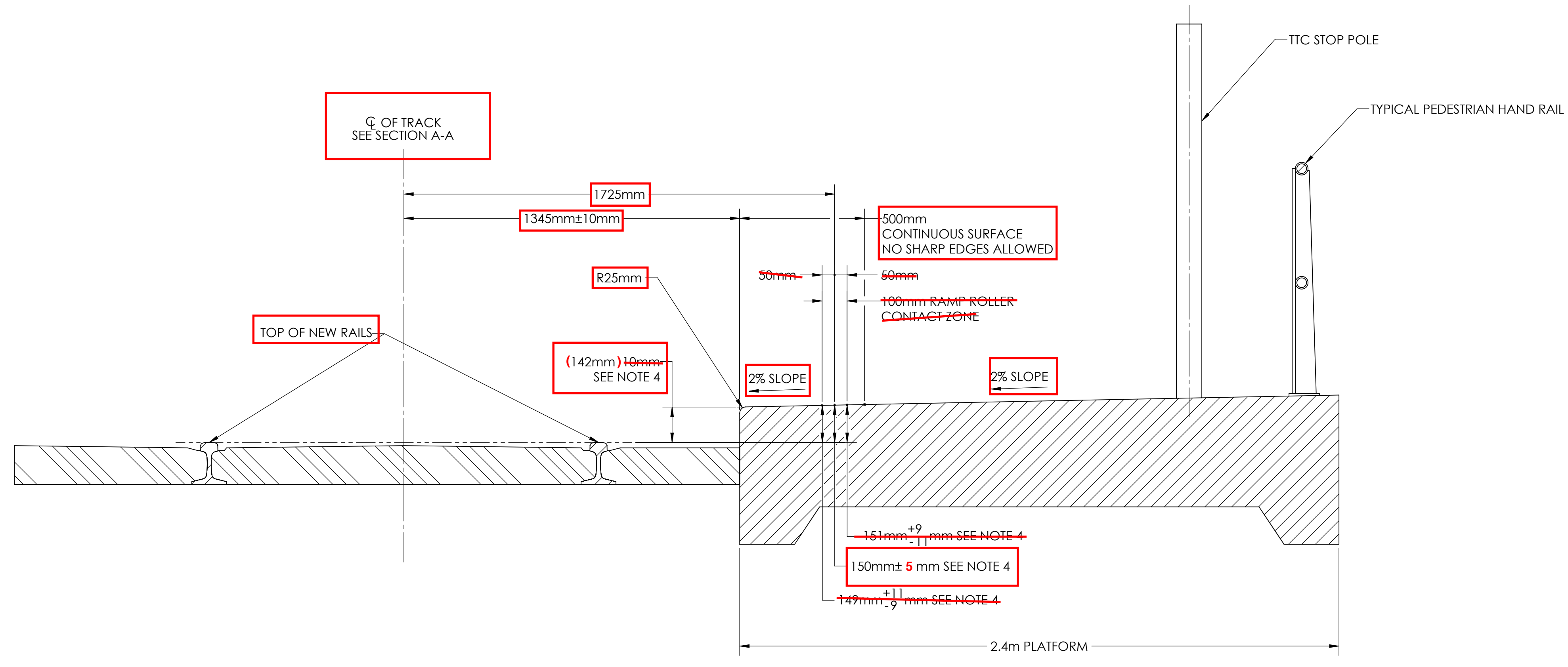
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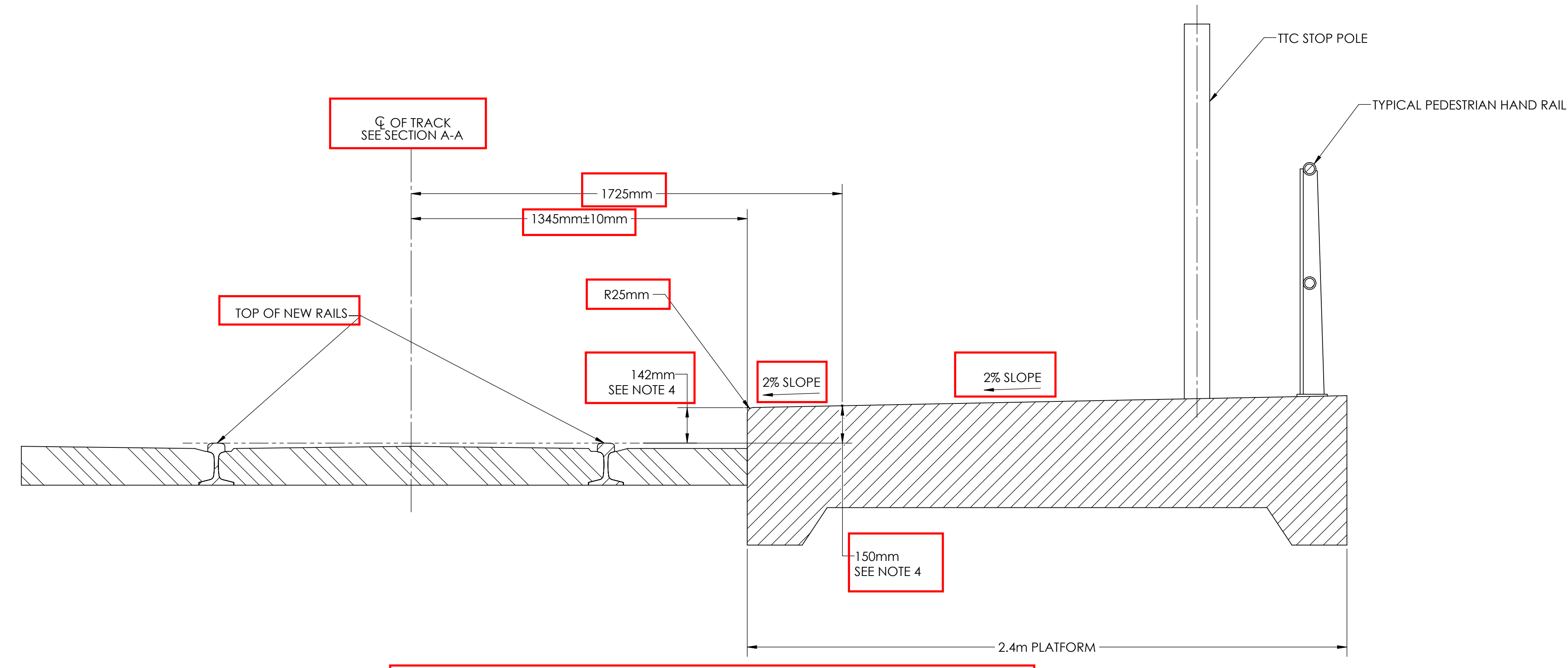
SECTION A-A
G.O.F. TRACK
DETAIL
(ONLY RAILS SHOWN FOR CLARITY)
SCALE 1:12



VIEW D-D
STREETCAR RAMP ZONE MARKING
SCALE 1:50



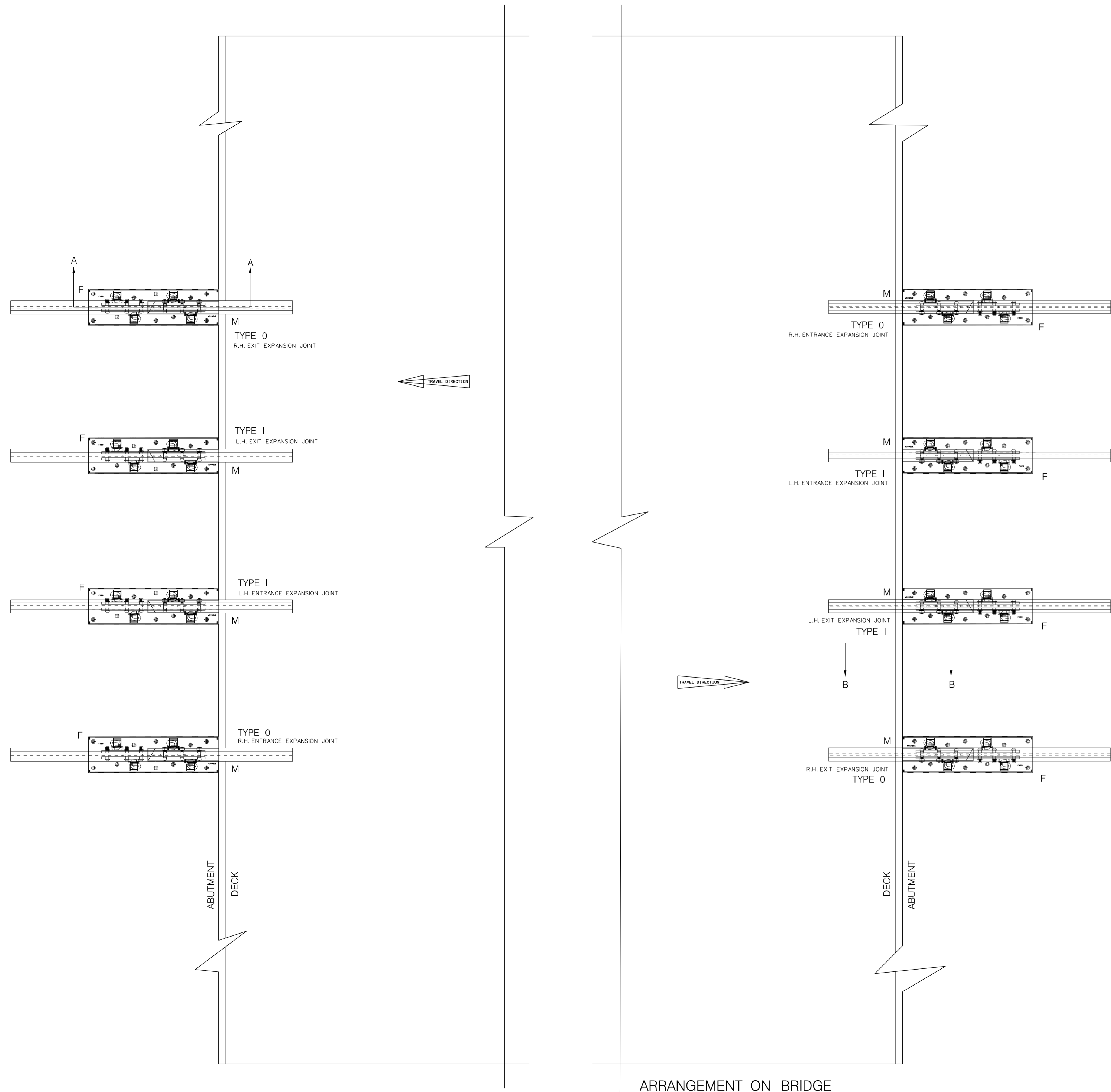
SECTION B-B
PLATFORM SURFACE PROFILE CONSTRUCTION
APPLIES TO STREETCAR RAMP ZONE ONLY
SCALE 1:12



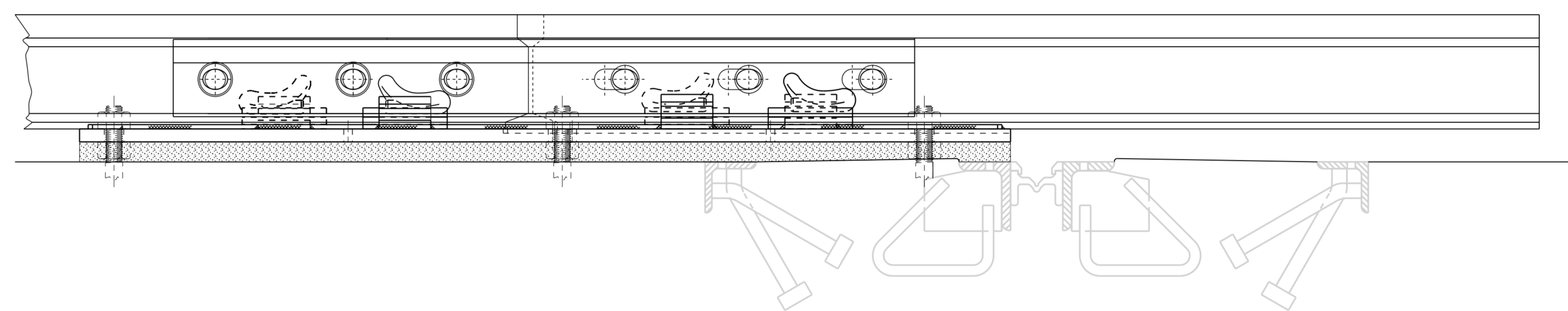
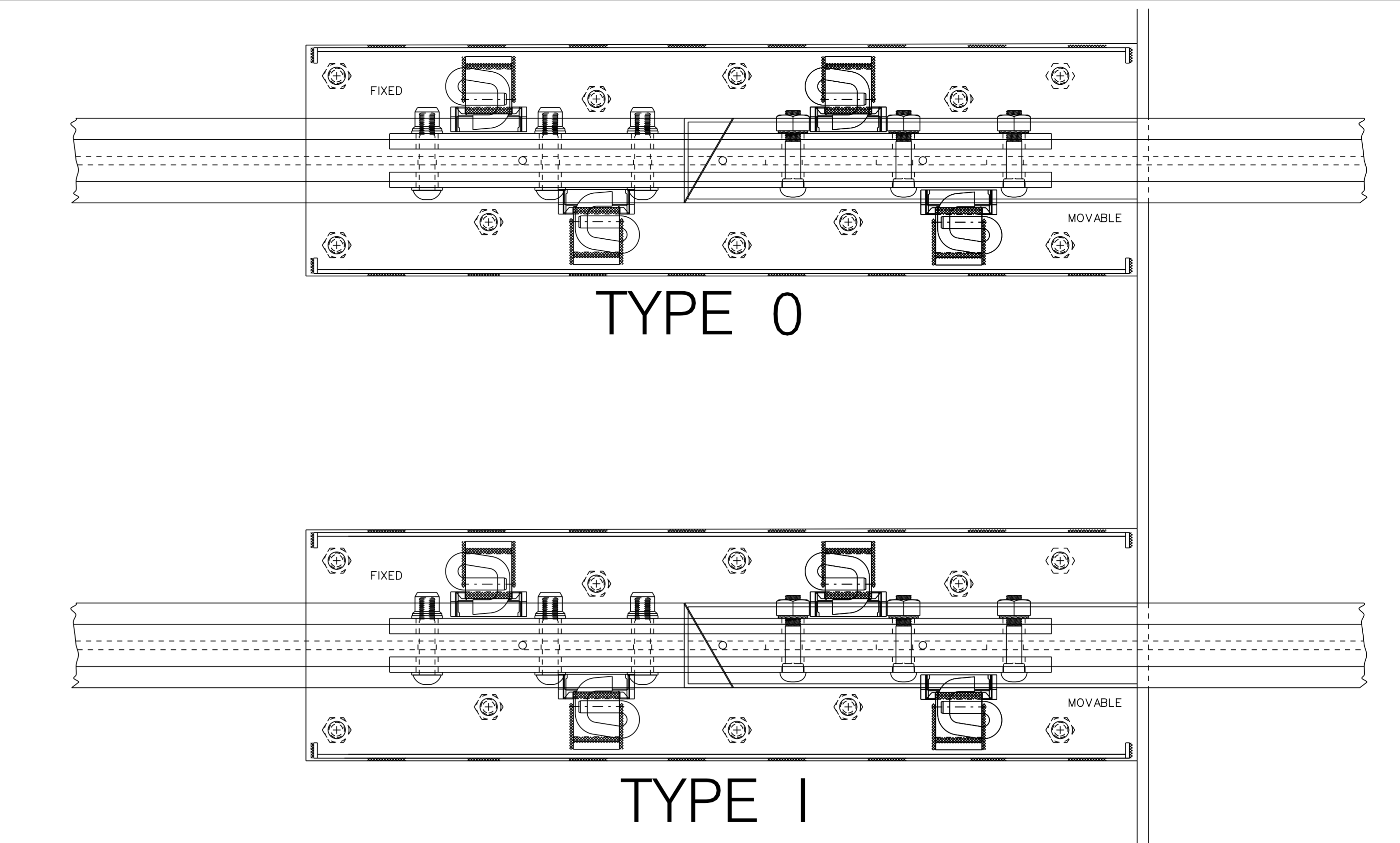
SECTION C-C
PLATFORM SURFACE PROFILE CONSTRUCTION
TYPICAL FOR ALL PLATFORM AREAS EXCEPT
STREETCAR RAMP ZONE
SCALE 1:12

- NOTES:
1. THIS SPECIFICATION APPLIES ONLY FOR PLATFORM DESIGNS BUILT ADJACENT TO TANGENT TRACK INSTALLATION WITHOUT VERTICAL CURVATURE. FOR ALL OTHER TRACK GEOMETRY INSTALLATIONS PLEASE CONTACT TTC RAIL VEHICLE ENGINEERING FOR GUIDANCE ON PLATFORM DESIGN.
 2. STOP POLE LOCATION USED TO LOCATE STREETCAR RELATIVE TO STREETCAR RAMP ZONE.
 3. STREETCAR RAMP ZONE MUST BE KEPT CLEAR OF STREET FURNITURE.
 4. PLATFORM HEIGHTS ARE DEFINED AND MEASURED WITH RESPECT TO A PLANE FORMED BY THE TOP SURFACE OF BOTH INSTALLED NEW RAILS.

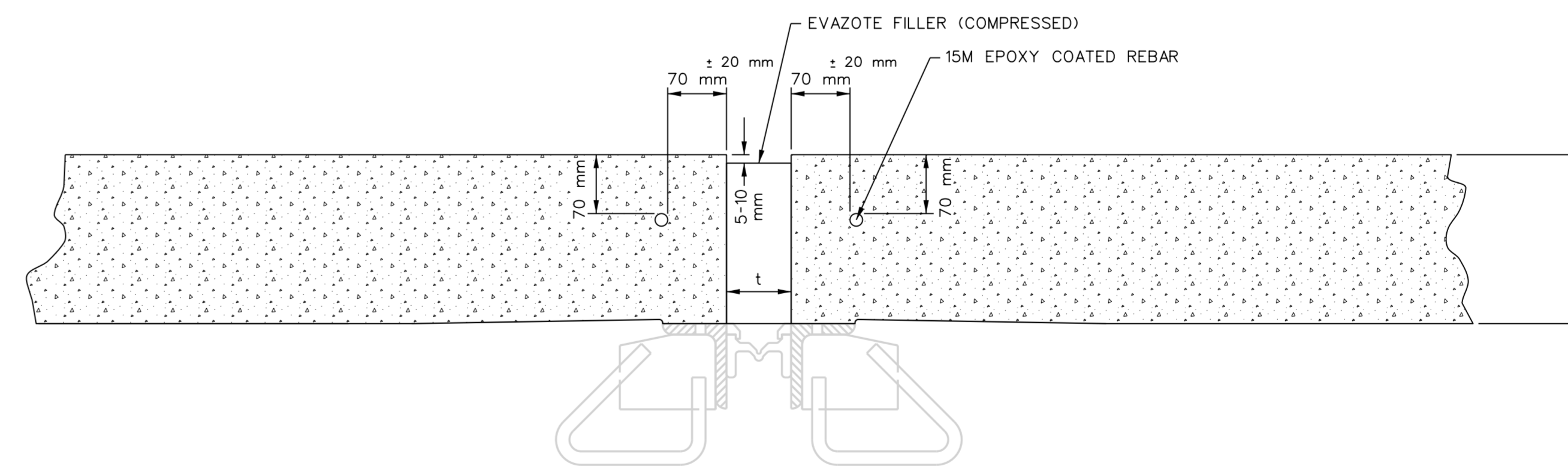
1 INITIAL RELEASE		DESCRIPTION	
ISS	DATE	BY	FOR
TORONTO TRANSIT COMMISSION			
L.F. LRV INTERFACE TO PLATFORM SPECIFICATION			
NO. OF SHEETS	1	TOTAL	1
DATE	2024-01-01	SCALE	AS SHOWN
PROJECT	26444	REV.	1



ARRANGEMENT ON BRIDGE



SECTION A-A
DETAIL OF RAIL ACROSS JOINT



SECTION B-B
TYPICAL STRUCTURAL DETAILS AT EXPANSION JOINT

		INSTALLATION TEMPERATURE (°C)							
		min.	max.	5	10	15	20	25	30
STRUCTURAL GAP	t (mm)	67	77	77	74	72	71	69	67
RAIL GAP		1	11	11	8	6	5	3	1

REVISIONS			
INIT.	DATE	DETAILS	NO.

REFERENCES
CONTRACTOR SHALL CHECK and VERIFY ALL DIMENSIONS and REPORT ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK
DO NOT SCALE PRINTS

APPROVED
DEPUTY CHIEF OPERATING OFFICER
HEAD RAIL INFRASTRUCTURE
MANAGER MAINTENANCE ENGINEERING

EXAMINED
STRUCTURES
WAY

Toronto Transit Commission
RAIL INFRASTRUCTURE DEPARTMENT

EXPANSION JOINT INSTALLATION DETAILS for DUNDAS ST. BRIDGE and PETER SLIP BRIDGE

2012
SCALE N.T.S.

DRAWN K.N.MADILL DATE FEB.01 2012
CHECKED DATE
FILE No.

DWG. NO. W8T-902 REV.

NO.	REVISIONS	DATE	DETAILS
A	Grade N/B revised by City	July 20, 2009	129+45 to 129+85.

NO.	REVISIONS	DATE	DETAILS
V.P. DATA			
115.425	122+39		
115.665	122+60		
117.720	124+22		
118.180	125+30		
118.505	126+50		
119.105	127+95		
120.690	129+54.705		
122.610	130+09.622		
119.205	130+59.854		
122.088	131+08.5		
124.015	132+32.5		
126.295	133+50		
132.410	134+13		
137.380	135+18.5		
145.280	136+96		
149.000	137+26		
151.260	137+35		
152.356	138+71.5		
156.205	139+33.5		
156.085	140+24		
157.300	140+36.5		
157.500			

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK
DO NOT SCALE PRINTS

APPROVED

DEPUTY GENERAL MANAGER

GENERAL SUPERINTENDENT

SIGNED ORIGINAL ON FILE
SUPERVISOR OF MAINTENANCE ENGINEERING

EXAMINED

SIGNED ORIGINAL ON FILE
TRACK

TORONTO TRANSIT COMMISSION
TRACK AND STRUCTURE DEPARTMENT

BATHURST ST.
DUPONT ST.
TO
132+20

REFERENCES

WBR-1089 Readway

SURVEY BOOK NO. _____

LEVEL BOOK NO. _____

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK
DO NOT SCALE PRINTS

APPROVED

DEPUTY GENERAL MANAGER

GENERAL SUPERINTENDENT

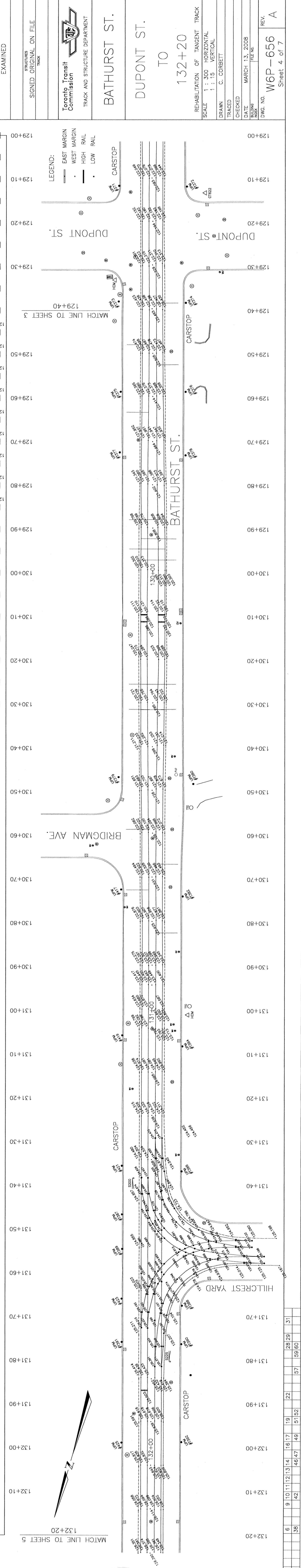
SIGNED ORIGINAL ON FILE
SUPERVISOR OF MAINTENANCE ENGINEERING

EXAMINED

SIGNED ORIGINAL ON FILE
TRACK

TORONTO TRANSIT COMMISSION
TRACK AND STRUCTURE DEPARTMENT

BATHURST ST.
DUPONT ST.
TO
132+20



33	38	6	9	10	11	12	13	14	16	17	19	22	28	29	31

REHABILITATION OF TANGENT TRACK
 SCALE 1 : 300 HORIZONTAL
 1 : 15 VERTICAL
 DRAWN C. CORBETT
 CHECKED _____
 DATE MARCH 13, 2008
 FILE NO. _____
 DWG. NO. W6P-656
 REV. A
 Sheet 4 of 7

REVISIONS	
DATE	DETAILS

V.P.I. DATA	
122+39	115.425
122+60	115.665
124+22	117.720
125+30	118.180
125+90	118.505
126+50	119.105
127+95	120.690
129+54.705	122.610
130+09.622	118.205
130+59.854	122.068
131+08.5	124.015
132+32.5	126.295
133+50	132.410
134+13	137.380
135+18.5	145.280
135+96	149.000
136+90	151.280
137+25	152.190
138+31.5	154.395
138+82.5	155.245
139+33	155.665
140+44	157.300
140+56.5	157.500

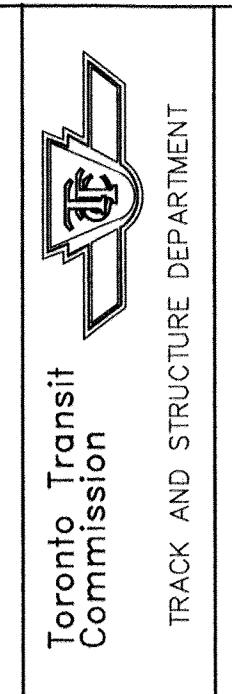
WRR-1089 Roadway

REFERENCES
 SURVEY BOOK NO.
 LEVEL BOOK NO.
 CONTRACTOR SHALL CHECK and VERIFY ALL DIMENSIONS and REPORT any DISCREPANCIES BEFORE COMMENCEMENT OF WORK
 DO NOT SCALE PRINTS

APPROVED

DEPUTY GENERAL MANAGER
 GENERAL SUPERVISOR
 SUPERVISOR OF MAINTENANCE ENGINEERING
 EXAMINED

STRUCTURES
 TRACK



BATHURST ST.

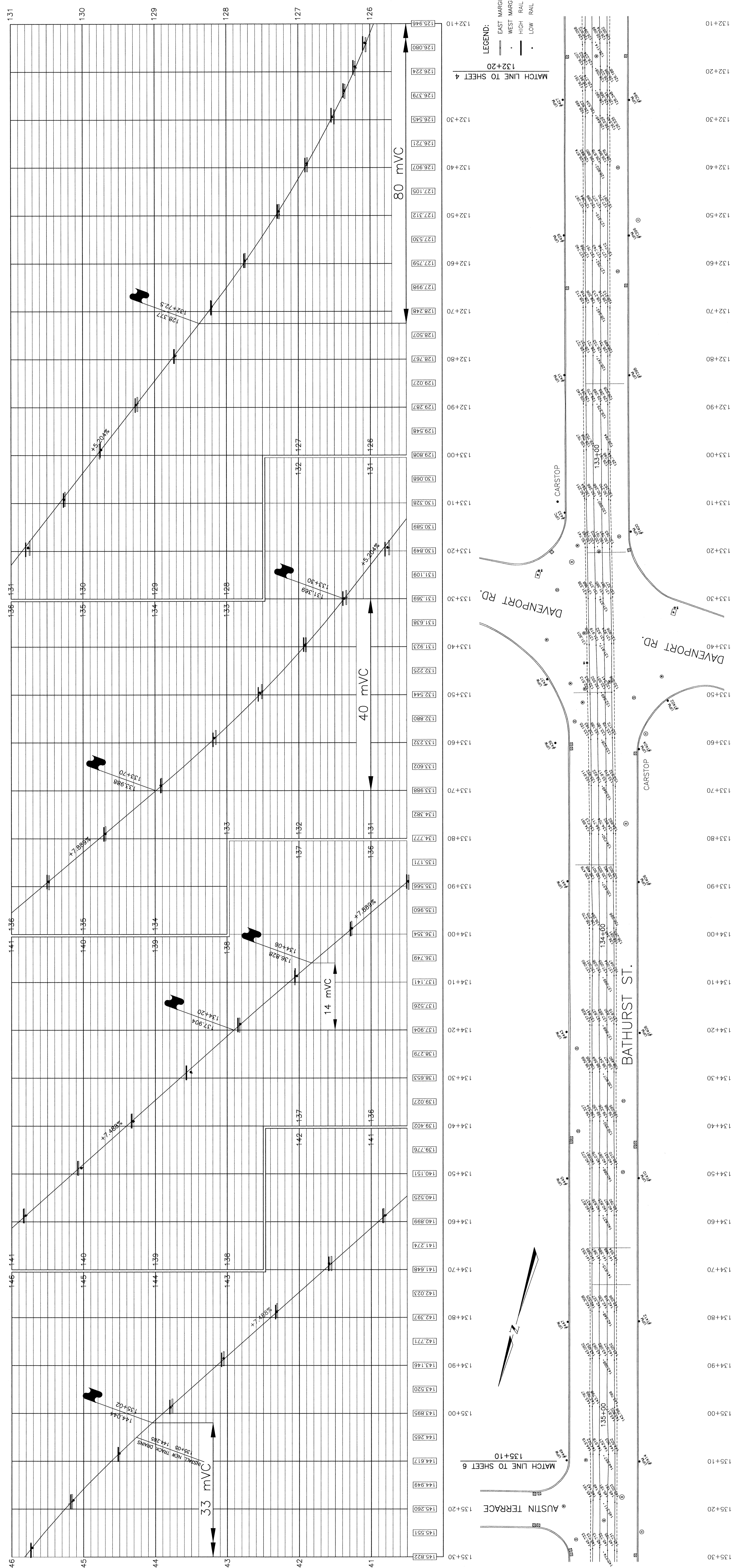
132+20 TO

AUSTIN TERRACE

REHABILITATION OF TANGENT TRACK
 SCALE 1 : 300 HORIZONTAL
 1 : 15 VERTICAL

DRAWN C. CORBETT
 CHECKED C.C. 7-Apr-2008
 DATE MARCH 13, 2008
 DWG. NO. W6P-656
 REV.

Sheet 5 of 7



135+30	145.822
135+20	145.260
135+10	144.617
135+00	144.265
134+90	143.520
134+80	142.771
134+70	141.648
134+60	140.999
134+50	140.151
134+40	139.776
134+30	138.799
134+20	137.904
134+10	137.141
134+00	136.749
133+90	135.960
133+80	134.777
133+70	133.988
133+60	133.232
133+50	132.544
133+40	131.923
133+30	131.369
133+20	130.849
133+10	130.328
133+00	129.808
132+90	129.287
132+80	128.767
132+70	128.248
132+60	127.799
132+50	127.312
132+40	126.907
132+30	126.545
132+20	126.379
132+10	126.224
132+00	126.080
131+90	125.946

6	9	10	11	13	14	16	17	19	22	28	29	31
38	42	46	49	51	57	59						



Section

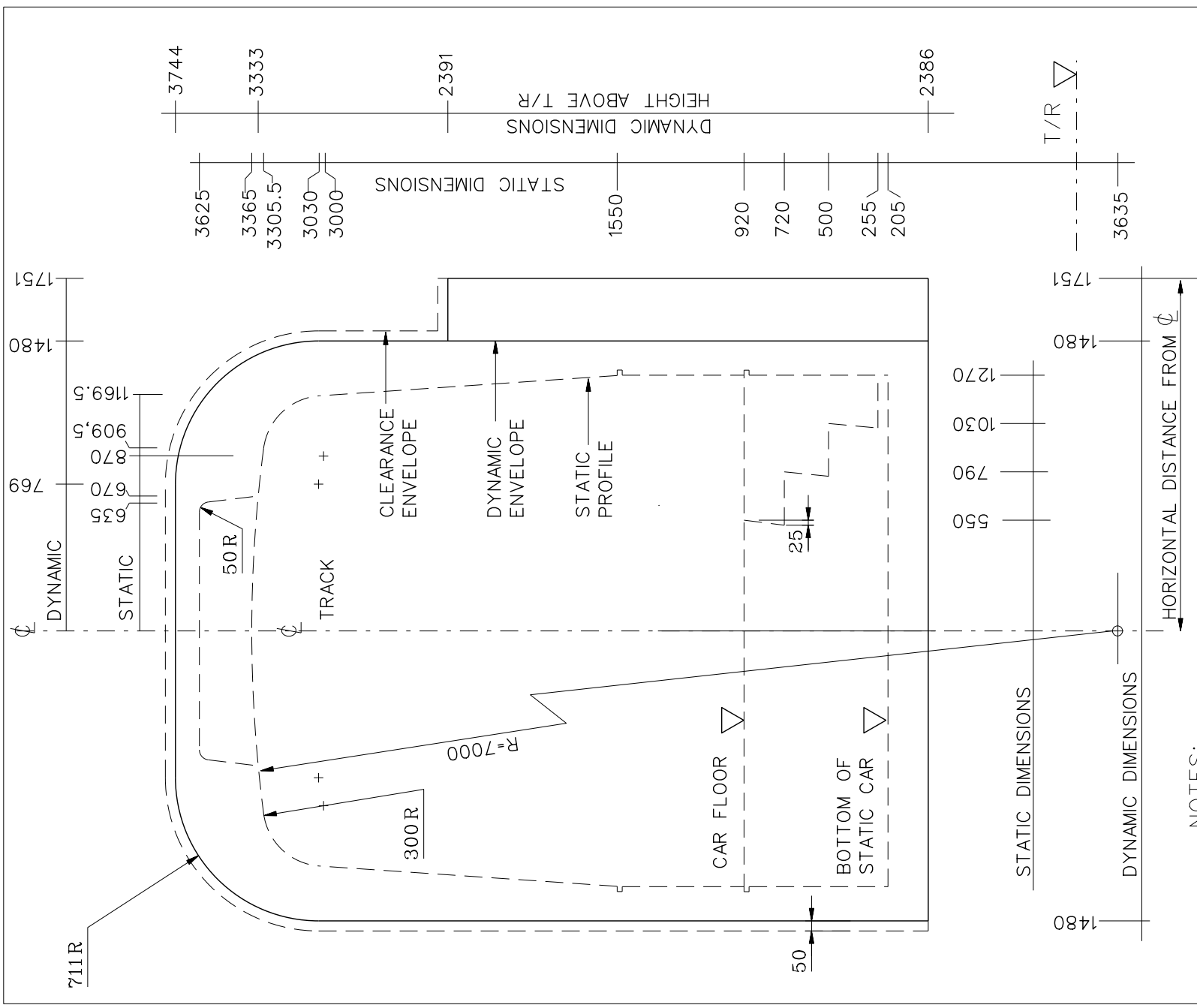
CLEARANCE / COVER

Subject

LRT Dynamic Profile

APPROVED

Page



NOTES:

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.
2. REFERENCE DRAWING: EQUIPMENT DEPARTMENT 11186-1 (DYNAMIC PROFILE)

DWG. # 0205-03.01

Clearance Cover
LRT Dynamic Profile

Fig.



Section

CLEARANCE / COVER

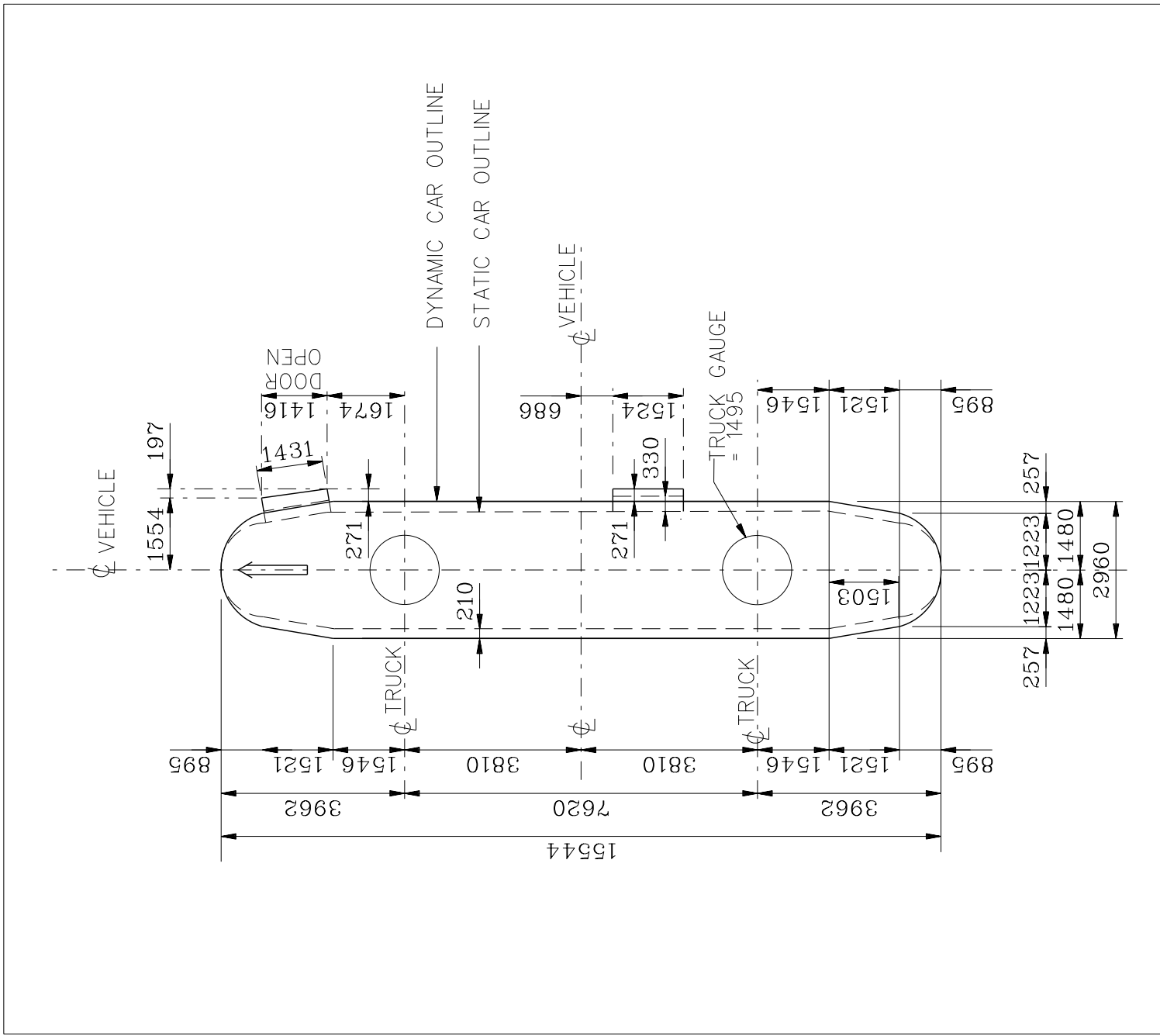
Subject

Static and Dynamic Dimensions

LRT

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Page



NOTES:

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.
2. REFERENCE DRAWINGS: EQUIPMENT DEPARTMENT 11186-2 REV.B AS 201



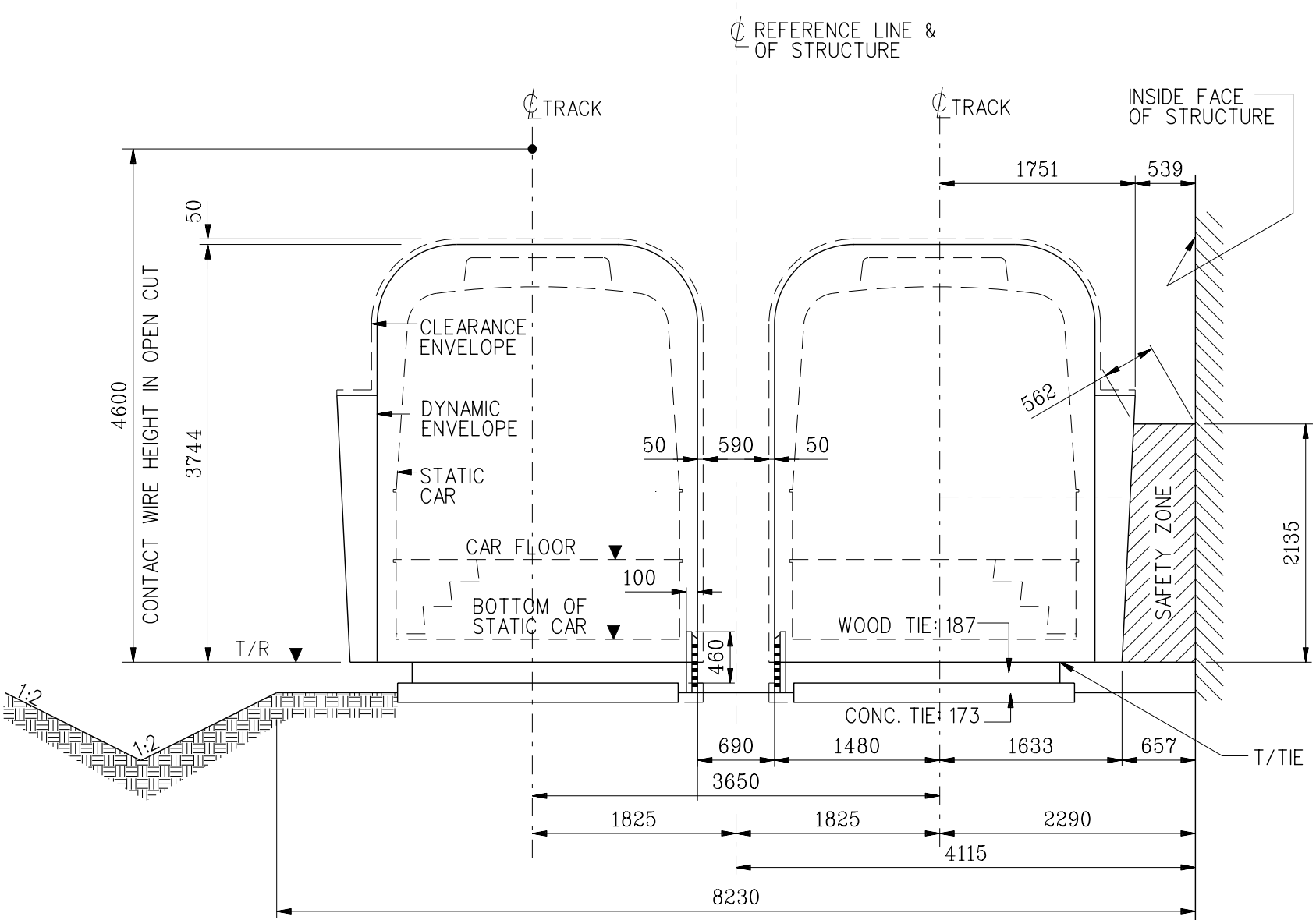
Section
CLEARANCE/COVER

Subject

Clearances at Surface

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Page



NOTE:

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.

SURFACE CUT SECTION

Fig.

Dwg. # 0205-03.03

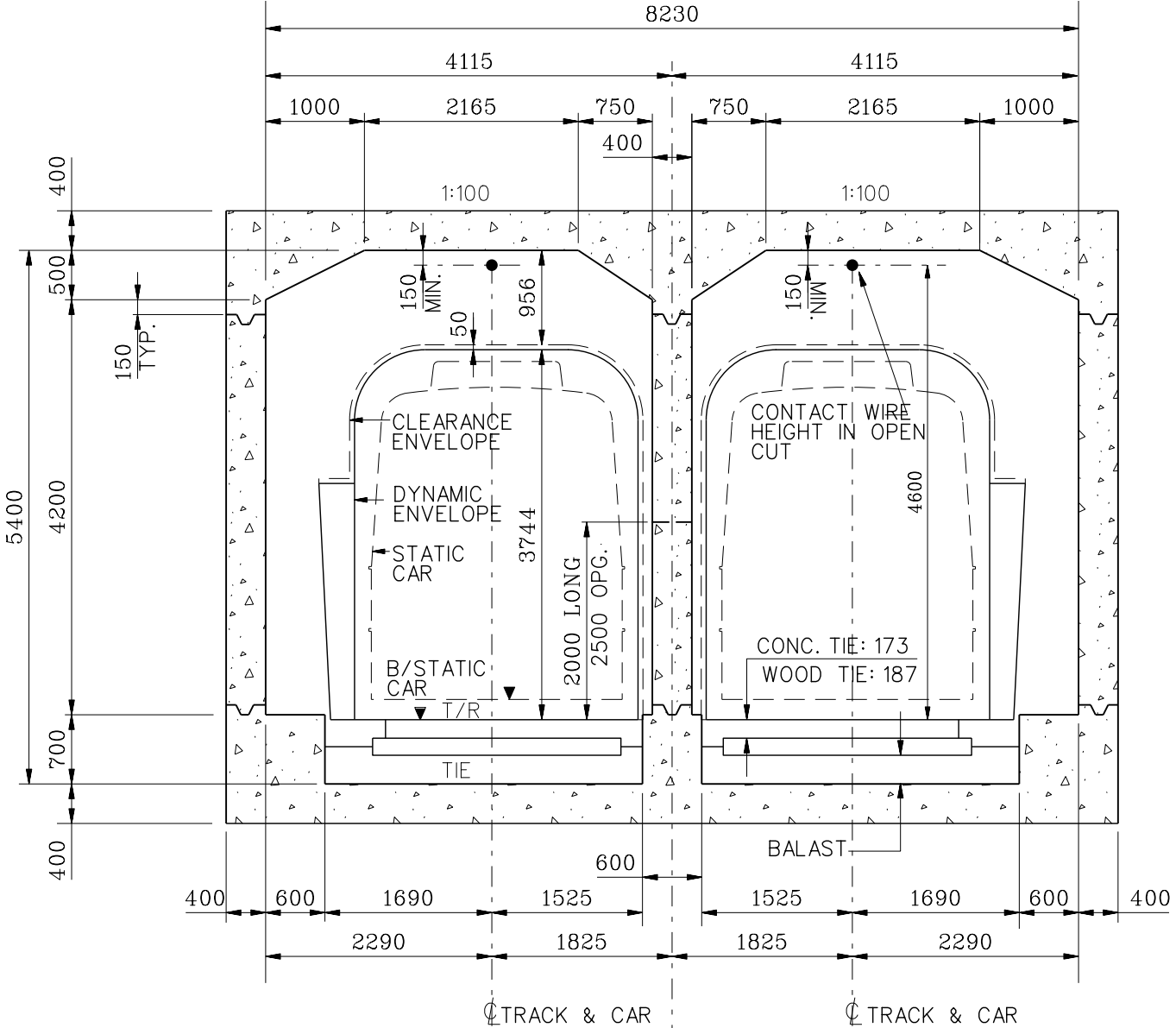


Section
CLEARANCE/COVER

Subject
Clearances – Box Structure

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Page



NOTE:

1. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES.

Dwg. # 0205-03.04

Box Structure

Fig.



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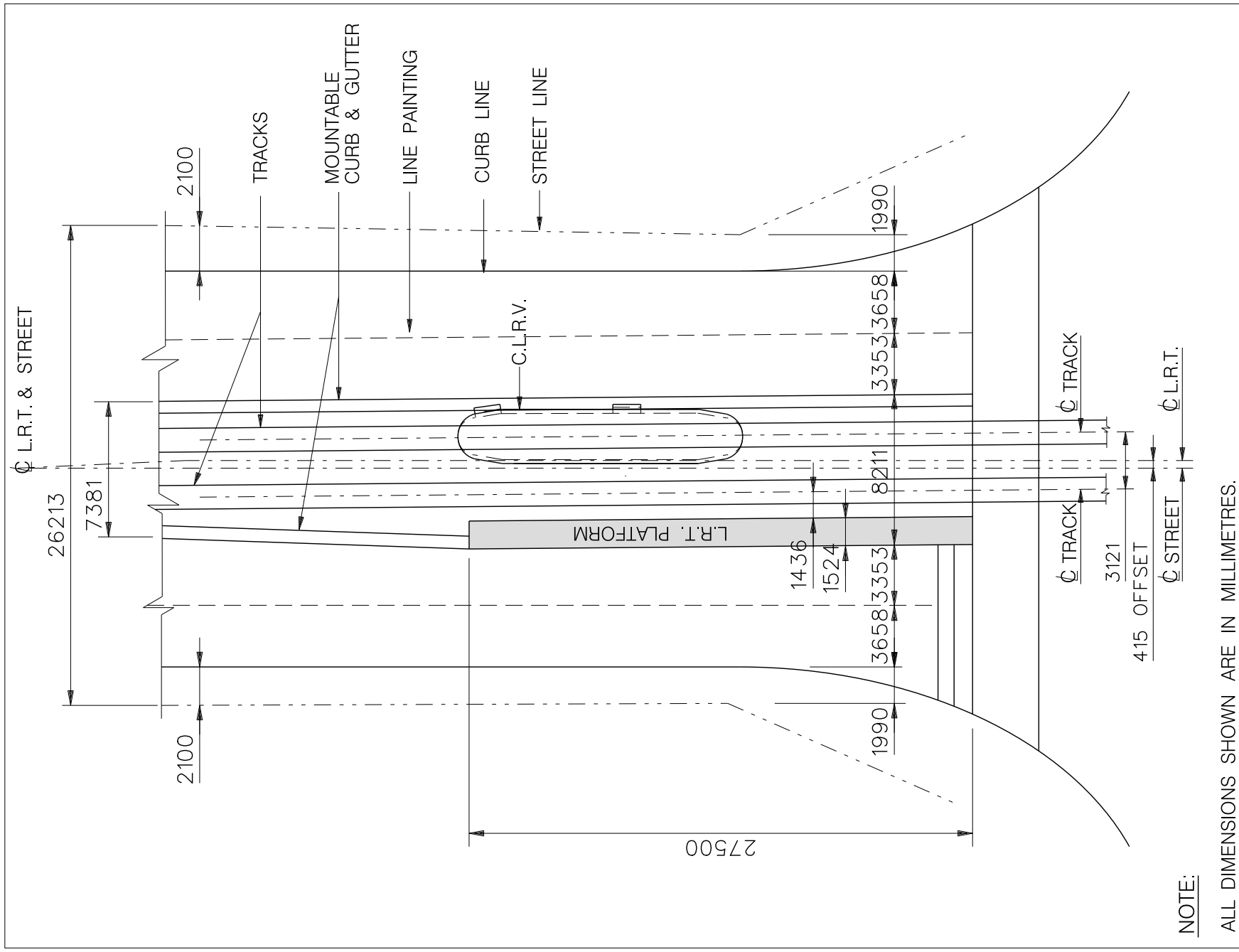
Page

Section

RIGHT OF WAY REQUIREMENTS FOR CLRV STATION LOCATED ON STREET

Subject

LRT CLEARANCE /COVER





Page

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Section
RIGHT OF WAY REQUIREMENTS FOR
CLR/V TRACK LOCATED ON STREET

Subject

LRT CLEARANCE /COVER

