

CHAPTER F ROADSIDE FACILITIES

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CHAPTER F ROADSIDE FACILITIES

F.1 VEHICLE INSPECTION STATIONS

F.1.1 Introduction

Vehicle inspection stations are checkpoints established at locations throughout the highway system. Their primary purpose is to facilitate enforcement of regulations governing the trucking industry. The stations located near provincial boundaries are initial contact points for incoming vehicles. Those near major urban centres provide service to the trucking industry by issuing permits, and checking weights prior to vehicle departure from point of origin.

The vehicle inspection station (VIS) standards used in the province can be divided into three general classes: A, B and C. Standard site layout plans for class A, B and C, including details of access geometrics, are provided in Figures F-1.2, F-1.3, F-1.4a and F-1.4b. Although these plans show a standard, details of a vehicle inspection station, such as scales, buildings and parking areas, are designed to suit each location. Although the on-site details are customized, the acceleration/deceleration lanes, tapers and turning roadways will have an impact on the level of service on the adjacent highway. They should be designed based on standard highway geometric design considerations (functional classification, design speed, divided/undivided, gradient, traffic volume, etc.). Vehicle inspections are also sometimes undertaken at truck turnouts which serve as spot check sites. These are described in Section F.2.4.

F.1.2 Class A VIS

Class A is the standard vehicle inspection station for divided highways. This layout provides a high speed off-ramp and on-ramp, which ensures minimal impact

on through traffic operations under normal conditions. The standard treatment also includes 600m of acceleration distance, including ramp and parallel lane. Depending on the level of service on the highway and highway grades, the designer may extend or shorten the parallel lane.

The standard treatment includes a satellite site on the opposite side of the highway, which may allow vehicles travelling in the opposite direction to be checked also. A median cross-over is generally not provided, due to the operational problems that can occur where large vehicles have to cross a busy divided highway.

Generally, if the level of service on the divided highway is A, or in the lower half of B (that is, up to 21,000 AADT on a typical rural four-lane divided highway), the standard acceleration and deceleration lanes are adequate. For higher volumes and/or uphill gradients, longer acceleration lanes may be used. A set of performance curves for the Alberta design truck 180 g/w (which is about the 85th percentile mass:power ratio for loaded trucks in the province) is provided. It enables the designer to gauge the impact of gradients and estimate the approximate merge speed for heavy trucks. Although 80 km/h is considered a desirable merge speed, it is frequently not practical to provide a sufficiently long acceleration lane to achieve that speed, considering that 1200m would be needed on a level grade. A merge speed of 70 km/h is considered adequate in general for this type of facility.

Bearing in mind the advantages for truck deceleration and acceleration, it is preferable to locate major VISs near the top of smooth crest curves, where possible, especially on busy divided highways. The location of the access and egress should have good sight distance (decision sight distance is desirable) to facilitate safe merge and diverge manoeuvres.

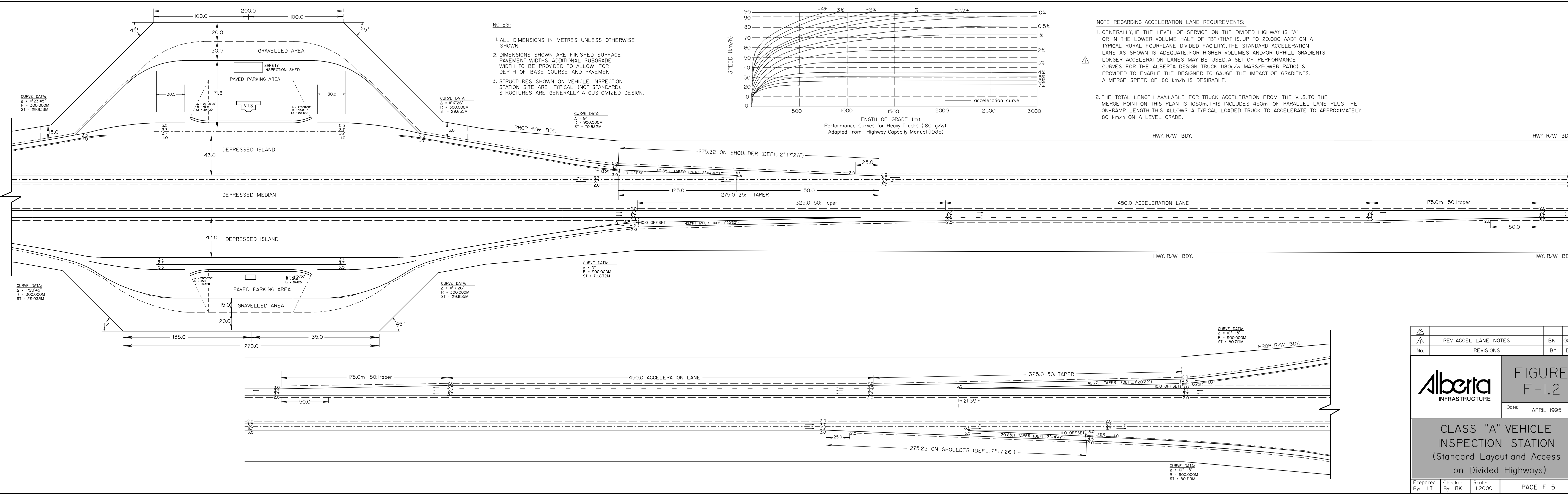
F.1.3 Class B VIS

Class B is the standard vehicle inspection station for permanent, manned stations on two-lane undivided highways. This layout provides for some deceleration and acceleration of vehicles using the station, and it also provides a bypass lane for through traffic. The length of the parallel acceleration lane may be varied, depending on the level of service on the highway, and a range of lengths is suggested on the figure. The truck performance curves are also included for the designer's use.

F.1.4 Class C Mobile VIS

The Class C VIS is the standard layout for portable or mobile vehicle inspection stations. In recent years, some of these sites have been equipped with automatic weigh scales, which are normally unmanned and may be used by the public.

The layout includes acceleration, deceleration and bypass lanes, the length of which depend on the traffic volume on the highway. Notes are included on Figures F-1.4a and F-1.4b as a guideline for provision of auxiliary lanes.



REV ACCEL LANE NOTES		BK	08/99
No.	REVISIONS	BY	DATE

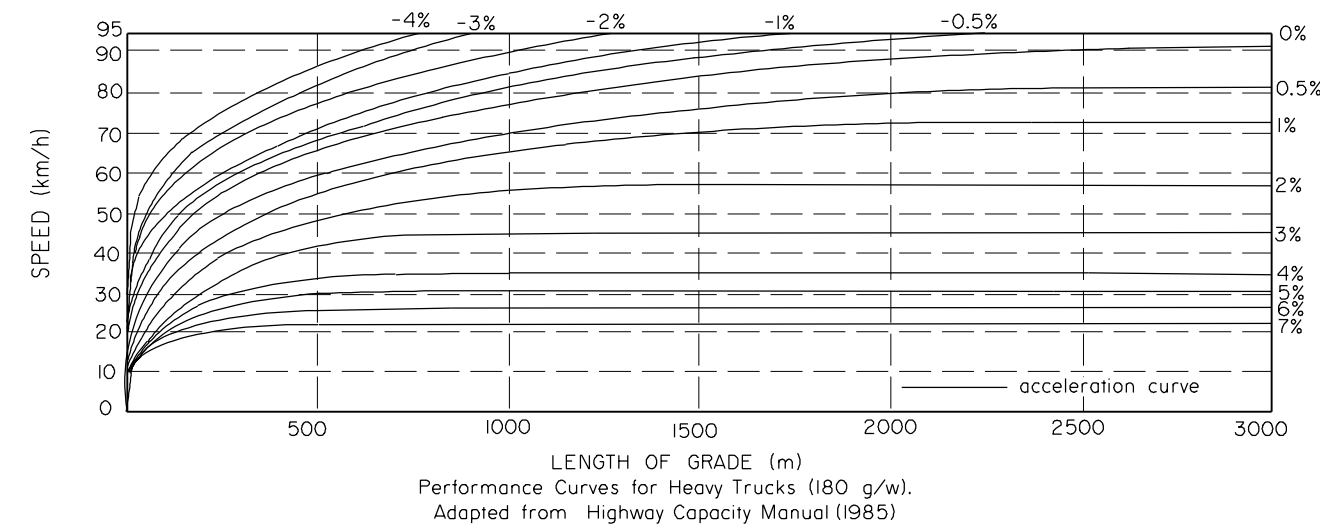
Alberta INFRASTRUCTURE

FIGURE F-1.2

Date: APRIL 1995

CLASS "A" VEHICLE INSPECTION STATION
(Standard Layout and Access on Divided Highways)

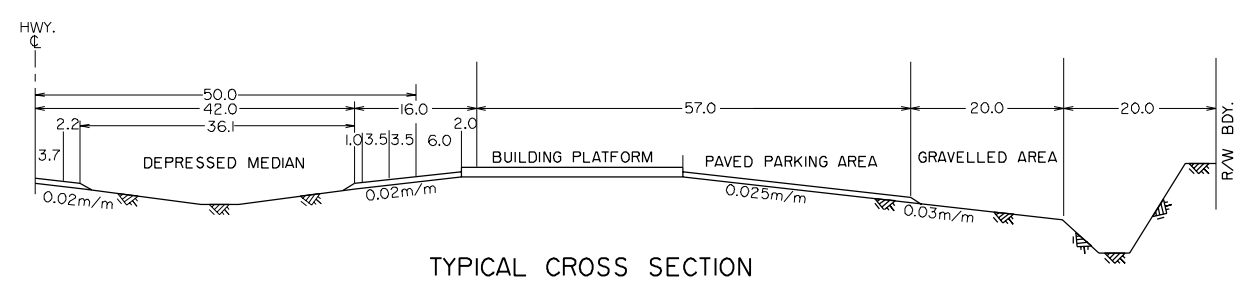
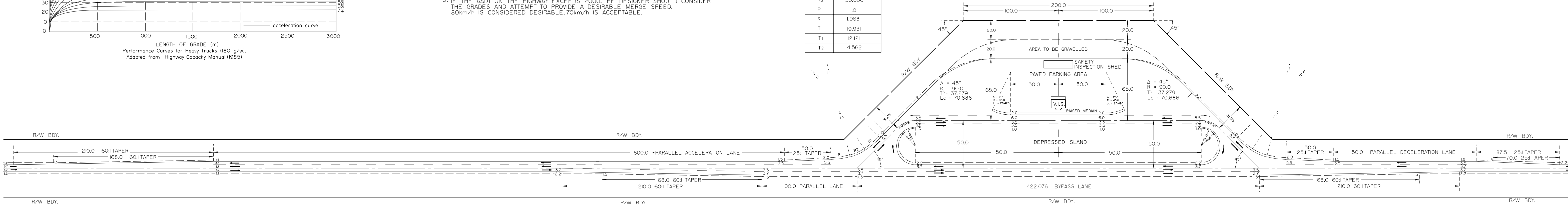
Prepared By: LT	Checked By: BK	Scale: 1:2000	PAGE F-5
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NOTES REGARDING ACCELERATION/DECELERATION LANES:

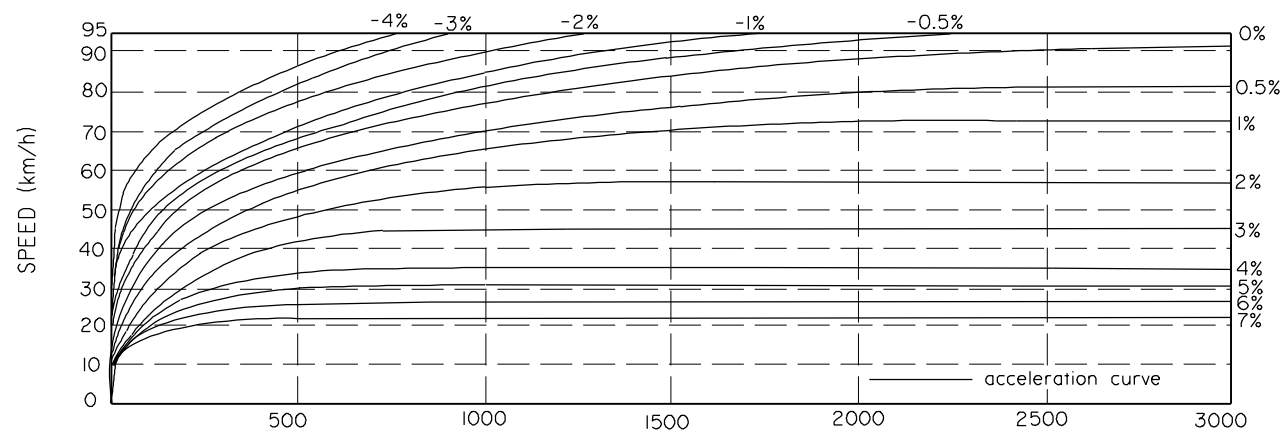
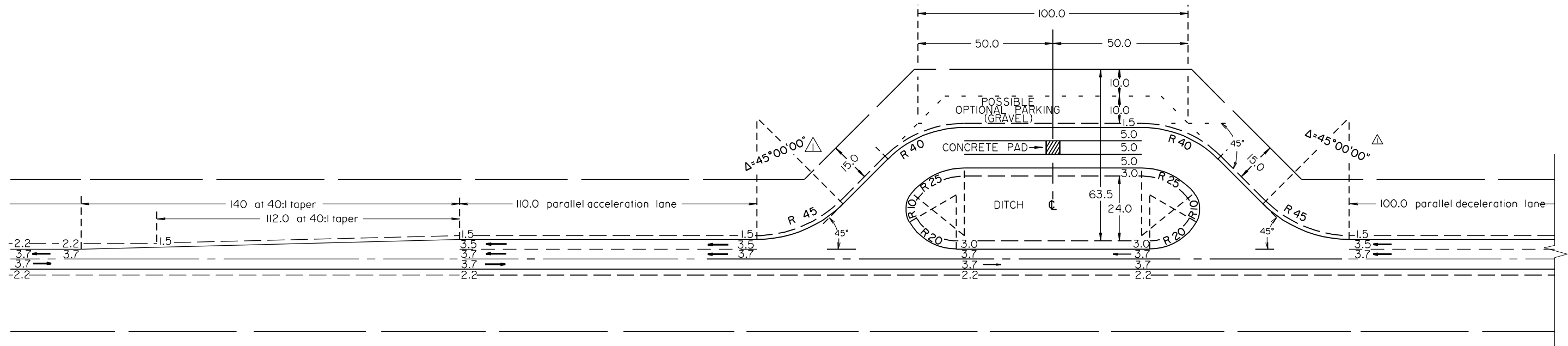
1. IF THE AADT ON THE HIGHWAY IS LESS THAN 1000, PARALLEL ACCELERATION AND DECELERATION LANES ARE NOT REQUIRED.
2. IF THE AADT ON THE HIGHWAY IS BETWEEN 1000 AND 2000, PARALLEL ACCELERATION AND DECELERATION LANES AS SHOWN ON THIS FIGURE ARE ADEQUATE.
3. IF THE AADT ON THE HIGHWAY EXCEEDS 2000, THE DESIGNER SHOULD CONSIDER THE GRADES AND ATTEMPT TO PROVIDE A DESIRABLE MERGE SPEED. 80km/h IS CONSIDERED DESIRABLE, 70km/h IS ACCEPTABLE.

3-CENTRE CURVE DATA (REFER TO FIGURE D-5.1a) SYMMETRIC	
Δ	42° 42' 34"
Δ_1	14° 35' 33"
Δ_2	13° 31' 27"
R ₁	61.0
R ₂	30.000
P	1.0
X	1.968
T	19.931
T ₁	12.121
T ₂	4.562

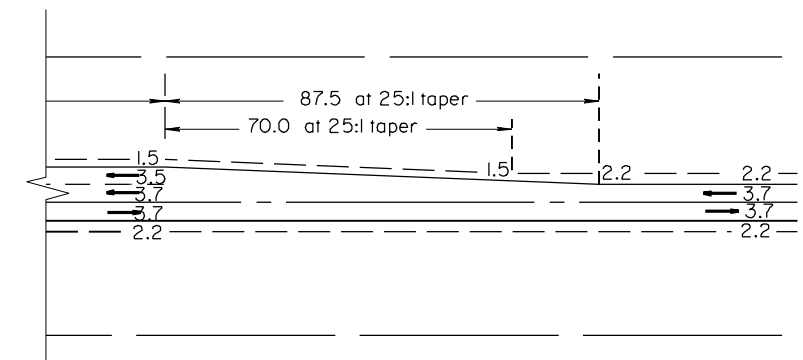


- NOTES:
1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN.
 2. DIMENSIONS SHOWN ARE FINISHED SURFACE PAVEMENT WIDTHS. ADDITIONAL SUBGRADE WIDTH TO BE PROVIDED TO ALLOW FOR DEPTH OF BASE COURSE AND PAVEMENT.
 3. STRUCTURES SHOWN ON VEHICLE INSPECTION STATION SITE ARE "TYPICAL" (NOT STANDARD). STRUCTURES ARE GENERALLY A CUSTOMIZED DESIGN.

No.		REVISIONS		BY	DATE
No.		REVISIONS		BY	DATE
		FIGURE F-1.3 (UNDER REVIEW) Date: APRIL 1995			
		CLASS "B" VEHICLE INSPECTION STATION (Standard Layout and Access on Undivided Highways)			
Prepared By: LT	Checked By: BK	Scale: 1:2000	PAGE F-7		



Performance Curves for Heavy Trucks (180 g/w).
Adapted from Highway Capacity Manual (1985)



NOTES REGARDING AUXILIARY LANES:

- IF THE AADT ON THE HIGHWAY IS LESS THAN 1000, BYPASS LANES PARALLEL ACCELERATION AND DECELERATION LANES ARE NOT REQUIRED.
- IF THE AADT ON THE HIGHWAY IS BETWEEN 1000 AND 2000, THE PARALLEL ACCELERATION AND DECELERATION LANES AS SHOWN ON THIS FIGURE ARE ADEQUATE.
- IF THE AADT ON THE HIGHWAY EXCEEDS 2000, A DETAILED ANALYSIS SHOULD BE UNDERTAKEN TO DETERMINE IF AN EXCLUSIVE LEFT TURN LANE IS WARRANTED AS SHOWN IN SECTION D.6 BASED ON MAIN ROAD VOLUMES AND % LEFT TURN. THE DESIGNER SHOULD ALSO CONSIDER EXTENDING THE ACCELERATION LANE IF REQUIRED DUE TO GEOMETRICS TO PROVIDE A MERGE SPEED OF 80km/h (DESIRABLE) FOR THE DESIGN TRUCK. REFER TO TRUCK PERFORMANCE CURVES.

NOTES:

- ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN.
- DIMENSIONS SHOWN ARE FINISHED SURFACE PAVEMENT WIDTHS. ADDITIONAL SUBGRADE WIDTH TO BE PROVIDED TO ALLOW FOR DEPTH OF BASE COURSE AND PAVEMENT.
- STRUCTURES SHOWN ON VEHICLE INSPECTION STATION SITE ARE "TYPICAL" (NOT STANDARD). STRUCTURES ARE GENERALLY A CUSTOMIZED DESIGN.

△	REV AUXILIARY LANE NOTES	BK	08/99
△	△ CHANGED ON 3-CENTRE CURVES	R.M.	05/96
No.	REVISIONS	BY	DATE

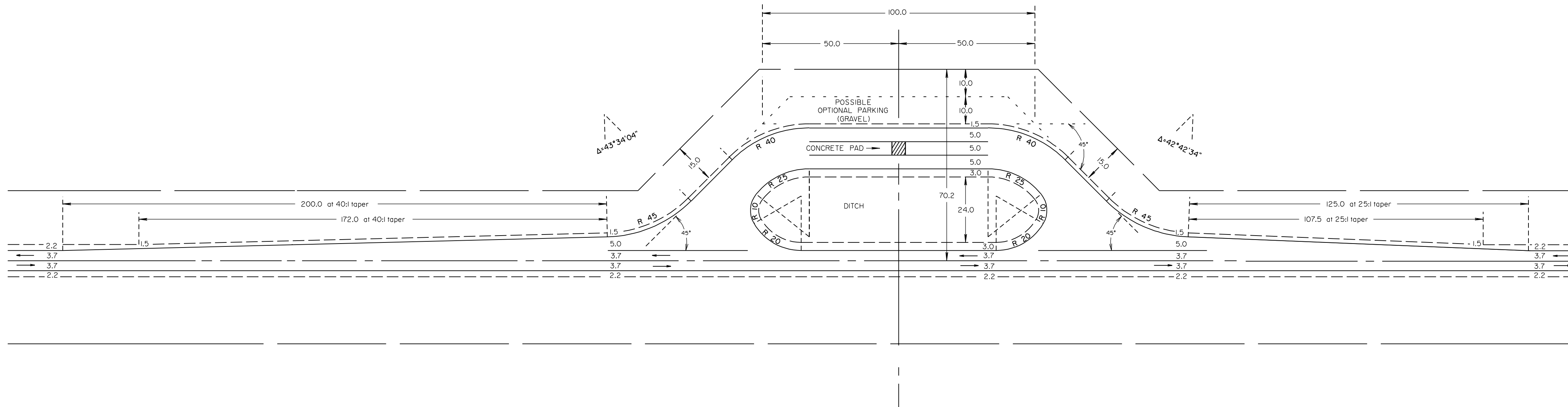


FIGURE
F-1.4a

Date: APRIL 1995

CLASS "C" VEHICLE
INSPECTION STATION
(Standard Layout and Access
on Undivided Highways)

Prepared By: LT	Checked By: BK	Scale: 1:1000	PAGE F-9
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NOTE REGARDING AUXILIARY LANES:
 IF THE AADT ON THE HIGHWAY EXCEEDS 1000, ADDITIONAL
 AUXILIARY LANES MAY BE REQUIRED. REFER TO FIGURE F-1.4a.

- NOTES:
1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN.
 2. DIMENSIONS SHOWN ARE FINISHED SURFACE PAVEMENT WIDTHS. ADDITIONAL SUBGRADE WIDTH TO BE PROVIDED TO ALLOW FOR DEPTH OF BASE COURSE AND PAVEMENT.
 3. STRUCTURES SHOWN ON VEHICLE INSPECTION STATION SITE ARE "TYPICAL" (NOT STANDARD). STRUCTURES ARE GENERALLY A CUSTOMIZED DESIGN.

△			
△			
No.	REVISIONS	BY	DATE



FIGURE
 F-1.4b
 Date: APRIL 1995

CLASS "C" MOBILE
 INSPECTION STATION (MIS)
 (For Undivided Highways with
 AADT Less than 1000.)

Prepared By: LT	Checked By: BK	Scale: 1:1000	PAGE F-II
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F.2 HIGHWAY SAFETY REST AREAS

F.2.1 Introduction

Highway Safety Rest Areas (SRAs) are considered an integral part of North American highway systems. Alberta's continuing priority of safe highways places emphasis on developing SRA networks to provide drivers safety, comfort and convenience. The concept of building a network of highway safety rest areas throughout the Alberta highway system is to address driver fatigue and reduce collisions.

SRAs serve three primary purposes:

1. Improve safety by providing places for travelers to periodically rest. For example, development of SRAs led to a 3.7% reduction in California collisions saving \$148 million to society⁸.
2. Provide suitable places for emergency stops and access to toilet facilities, telephones, etc., and
3. Satisfy the needs and operating legislated requirements of the trucking and logging industries.

F.2.2 Strategic Framework

F.2.2.1 Policy Document

SRA development is addressed in the INFTRA consolidated 2004 SRA Policy Framework and Implementation Strategy, *posted on the department webpage*. The Highway Geometric Design Guide addresses what is to be done and to what standard.

⁸ August 2001 AASHTO Conference; Enhancing Highway Safety & Serving the Public: A Recommendation for Improving California's Safety Roadside Rest Area System; Moore Iacofano Goltsman, Inc. Berkeley, CA; for CALTRANS; September 1999; P. 2.

The Framework is built around the historical research conducted by AASHTO⁹ and the resulting guidelines created by this organization.

The Framework expects SRAs to be a part of the annual department regional budgeting process, constructed as separate projects or to be undertaken in conjunction with other major highway work in the vicinity.

F.2.2.2 Location Specifications

SRAs are intended for use by all vehicles in one direction only and as such are built as couplets on both sides of designated highways and shall be offset by a minimum of one km. The near side access shall be located in advance of the far side SRA.

Ideally, SRAs should be located near the top of smooth crest curves, provided that sight distance restrictions do not occur. This will aid the deceleration and acceleration of trucks or large recreational vehicles using the facility.

F.2.2.3 Priority of Construction

Priorities are specified in the 2004 Strategic Framework. "A" priorities are to be built first, then "B", and finally "C". A new SRA must be prioritized and ranked pursuant to the 2004 criteria before being considered for funding and construction.

F.2.3 Categories

Alberta SRAs are divided into three categories based on the type and purpose of roadway served. 20-year projected AADT thresholds identify the typical SRA design. Where the addition of more through lanes to the highway is anticipated in less than 20-years, the access and egress layout to the SRA should be consistent with the future (wider) highway.

⁹ American Association of State Highway and Transportation Officials; Guide for Development of Rest Areas on Major Arterials and Freeways; Third Edition; ©2001; ISBN: 1-56051-151-6.

F.2.3.1 Existing Divided Highways

This SRA accommodates all vehicle types and provides an outer separation between the site and the travel lanes. The following typical designs apply:

Figure F-2.1.1: Stage I (Basic).

Figure F-2.1.2: Stage II.

Figure F-2.1.3: Stage III.

Figure F-2.1.4: Stage IV.

The Stage 1 (Basic) template Figure F-2.1.1 should be considered as the minimum layout on existing divided highways regardless if the initial parking area exceeds the projected 20 year AADT requirement.

SRA's are built in stages. The parking requirement determines the initial stage size of the SRA. The initial parking requirements are based on the projected 20 year AADT and type / number of anticipated design vehicles using the site. The Stage 1 (Basic) template allows for expansion if required to meet the future requirements. Refer to Section F.2.7 Parking Requirements for further details.

Stages 2, 3, and 4 are provided to show how additional parking, facilities and/or services can be accommodated.

SRA exit and entrance ramp configurations are based on 20 Year projected AADT AND highway classification. Refer to Section F.2.10 Exit and Entrance Requirements for further details.

F.2.3.2 Future Divided Highways

This SRA will accommodate all vehicle types and provide an outer separation between the site and the travel lanes. The design is configured to accommodate traffic from one travel direction only of an undivided highway, with provisions for easy modification when the highway is twinned into separate roadways in the future. Separate designs are provided to accommodate future expansion on either the same side or the opposite side of the existing undivided highway. The following typical designs apply:

Figure F-2.2.1: Future Twinning on Same Side.

Figure F-2.2.2: Future Twinning on Opposite Side.

The parking requirement determines the initial stage size of the SRA. The initial parking requirements are based on the projected 20 year AADT and type / number of anticipated design vehicles using the site.

The 20 Year projected AADT or highway classification determines the SRA exit and entrance ramp configurations also on future divided highways.

F.2.3.3 Two Lane Highways

SRA's on two lane undivided highways are intended for use by all vehicles in one direction only. Refer to Section F.2.2.2 Location Specification for details.

Accommodates basic parking located along undivided highways. Two typical layouts along with a design to accommodate log haul trucks are provided:

Figure F-2.3.1: 20-year AADT > 3,000.

Figure F-2.3.2: 20-year AADT < 3,000.

Figure F-2.3.3: Log Haul Routes, 20-year AADT < 3,000 .

F.2.4 Spacing

The spacing for SRAs is affected by traffic volume and the composition of the traffic stream. Ideally an *overall travel time of 60 minutes between SRAs* should be maintained with some concessions to topographical conditions and actual traffic mix /volumes along a particular route.

Location	Travel Time
Between SRAs	60 minutes
From Urban Areas	30 minutes

The spacing of SRAs must also account for the combination of urban stops and rural commercial areas, which also afford motorists the opportunity to stop and rest. In general, *approximately 30 minute travel time spacing from urban centres or previous stopping locations* should be maintained depending on actual volumes and traffic composition.

In log haul areas, a stop is required within 80 kilometres of accessing a highway, therefore, the travel time could be extended beyond 30 minutes to meet this criteria.

As SRAs are *not intended to compete* with existing highway services or commercial rest stops, *only basic travel activities* such as: driver fatigue break, checking loads and equipment, meeting trucking regulations, night time layovers, use of a toilet, making phone calls, picnic breaks, and litter disposal are to be accommodated at SRAs. Urban centres, commercial and private facilities meet higher levels of services and needs.

F.2.5 Site Evaluation Chart

The SRA Site Evaluation Chart (Tables F.2.5a and F.2.5b following) provides a field reference guide to assess a specific location for a proposed SRA location and evaluates the SRA strategies and technical design location requirements. The evaluation must be done on-site because most of the strategic locations identified in the report were selected by a time and distance calculation and not confirmed by field observation.

The site evaluator should review and comprehend the intent of how to locate SRAs, in accordance with the strategies identified, before undertaking the site evaluation work. Locating SRAs requires an assessment to ensure the best fit is achieved in relationship to the use of the highway, future interchanges, land acquisition potential, adjacent land uses and neighbouring communities.

The site evaluation is a hierarchical assessment of key elements to determine final design parameters. The Evaluation Chart prompts the site evaluator to consider the following hierarchy of decisions:

Level 1 – Strategic Location
<ul style="list-style-type: none"> • Determine spacing within the 60/30 minute travel times • 30 min. separation from urban centres • 30 min. spacing from private traveler services

Level II – Site Utilization
<ul style="list-style-type: none"> • Contemplate top of hill advantage • Utilize historic or scenic view advantages • Develop location relative to intersections or interchanges • Minimize adjacent neighbour conflicts • Minimize geotechnical & environmental issues (soil conditions) • Consider ability to purchase land
Level III – Site Details
<ul style="list-style-type: none"> • Applicable F.2 Design applied to site characteristics • Couplet construction and minimum one km stagger between SRAs on opposite sides of the highway • Correlate size of site to projected traffic volumes and characteristics i.e. exit/entrance ramp and parking requirements • Consider unique site construction challenges • Identify site servicing issues • Respect Municipal land development issues • Etc.

Use the checklist form following to conduct the specific site evaluations.

F.2.6 Typical Layout Design Formulas

Typical SRA layouts are intended to provide consistency in SRA designs across the province, minimize the number of different designs, recognize highway AADT variances and to establish typical footprints to acquire land for right-of-ways. Typical layouts also orientate the user to similar conditions throughout the province.

To develop typical designs, INFTRA has undertaken North American research over a number of years including AASHTO studies. To augment this research, INFTRA undertook a 24-hour vehicle parking count on March 27/28 2006 on Hwy #2 rest area and roadside turnouts south of Leduc (Control Sections 28 and 30).

Based on this data, Alberta AADT statistics, Alberta VIS truck traffic counts, AASHTO

formulas for parking and facility calculations were modified or calibrated to create the formulas to match observed data (where deemed to be appropriate at this time) and Alberta conditions.

F.2.7 Parking Requirements

Parking layout is important for efficient use of land area, maneuverability for large trucks, safety of pedestrians and ingress and egress of traffic. Truck parking stall designs and maneuverability are based on WB-36 design vehicle as indicated in the INFTRA design manual. If required, designers should modify for specific site conditions.

Additionally, SRAs are used as temporary vehicle inspection stations. Therefore, grading of the site needs to minimize truck-parking slopes to minimize trucks rolling backwards when brakes are released for inspection purposes. It is desirable that *at least two* of the truck parking stalls be constructed at 0% longitudinal slope (drainage is to be provided by transverse slope) to facilitate vehicle inspection.

The number of parking stalls¹⁰ is determined by the 20-year AADT traffic projections divided by 2 (for one-way traffic), pursuant to the following formula:

			a.	b.	c.	d.	e.		
Cars	20 Yr AADT 2	X	0.07	X 0.12	X 0.75	X 1.8	X 15	=	No. Spaces Req.
			60						
Trucks	20 Yr AADT 2	X	0.07	X 0.12	X 0.25	X 1.2	X 45	=	No. Spaces Req.
			60						

- a. % Turn-in Ratio (% of mainline traffic stopping at an SRA)
- b. Ratio of Design Hourly Volume to AADT (AASHTO research applied to Alberta conditions; also Chapter A Highway Geometric Design Guide)
- c. Traffic Composition: % Cars or % Trucks/oversize vehicles (AASHTO 75/25 ratio)
- d. Peak Factor SRA usage: to allow for peaks within design hour (AASHTO - cars 1.8 value; Alberta - trucks 1.2 value)

¹⁰ Ibid

- e. Residence Time in Minutes (average time parked in a SRA)

Divide by 60 Minute Cycle

The SRA template footprint allows for future expansion for SRA's to be built in stages. The parking requirement determines the initial stage size of the SRA.

F.2.8 Facilities and Services

All SRAs must address the need for the following minimum facilities and services¹¹:

1. Public toilets
2. Picnic tables
3. Waste receptacles
4. Parking Area/Security lighting
5. Telephone service
6. Fencing, if required
7. Aesthetics/Landscaping

F.2.8.1 Public Toilets

All Public Toilets shall provide *barrier free* access and conform to the Alberta Building Code. A minimum of one dry-type double toilet structure shall be provided at each proposed or upgraded SRA with traffic volumes exceeding 3,000 AADT. Refer to typical design in the Highway Design Manual.

The toilet structure shall be barrier-free accessible and includes at least one stall for female and one for male. The toilet stalls for a specific site shall be determined with the following formula once the number of stalls exceeds the minimum one double structure:

			a.	b.	c.	d.		No. Stalls Req.		
20 Yr. AADT 2	X	.07	X 0.12	X 1.8	X 1.3	=	F 60%	M 40%		
		30								

- a. % Turn-in Ratio (% of mainline traffic stopping at an SRA)
- b. Ratio of Design Hourly Volume to AADT (AASHTO research applied to Alberta conditions; also Chapter A Highway Geometric Design Guide)
- c. Peak Factor SRA usage: to allow for peaks within design hour (AASHTO 1.8 value)

¹¹ Ibid

d. Users Per Vehicle (AASHTO guideline)

Divide by 30 Users Per Hour

The standard type of toilet to be installed throughout the province shall consist of a permanent pre-cast concrete, block and/or brick building over a concrete floor and holding tank along with adequate venting and pump-out connections. At SRA locations below 3,000 AADT vehicles, Regions may install portable toilets and evaluate suitability in terms of durability, resistance to damage and maintenance costs.

Where traffic volumes exceed 10,000 AADT, architecturally designed toilets with running water and heat are desirable. Refer to the design drawings included in the Highway Geometric Design Manual.

F.2.8.2 Picnic Tables

A minimum of one picnic table of durable quality shall be provided at each proposed or upgraded SRA with traffic volumes exceeding 2,000 AADT. The following formula provides for the number of tables to be installed:

$$\frac{20 \text{ Yr. AADT}}{2} \times \frac{a \times b \times c \times d}{30} = \text{No. Tables Req.}$$

- a. % Turn-in Ratio (% of mainline traffic stopping at an SRA)
- b. Ratio of Design Hourly Volume to AADT (AASHTO research applied to Alberta conditions; also Chapter A Highway Geometric Design Guide)
- c. Peak Factor SRA usage: to allow for peaks within design hour (AASHTO 1.8 value)
- d. Users Per Vehicle (AASHTO guideline)

Divide by 30 Users Per Hour

F.2.8.3 Waste Receptacles

A minimum of two animal/wildlife resistant waste receptacles shall be provided at each proposed or upgraded SRA with traffic volumes exceeding 2,000 AADT. The following formula provides for the number of receptacles to be installed:

$$\frac{20 \text{ Yr. AADT}}{2} \times \frac{a \times b \times c \times d}{30} = \text{No. Waste Req.}$$

- a. % Turn-in Ratio (% of mainline traffic stopping at an SRA)
- b. Ratio of Design Hourly Volume to AADT (AASHTO research applied to Alberta conditions; also Chapter A Highway Geometric Design Guide)
- c. Peak Factor SRA usage: to allow for peaks within design hour (AASHTO 1.8 value)
- d. Users Per Vehicle (AASHTO guideline)

Divide by 30 Users Per Hour

F.2.8.4 Parking Area/Security Lighting

Parking area/security lighting is required at all SRAs including the use of solar alternatives that function at an acceptable level where conventional power is not available.

Typically, a design standard based on one 13m steel pole per 50 m of site length should provide adequate light for parking and security. For ultimate design SRAs in excess of 10,000 AADT, the designer should consider the following standard for lighting:

Alberta 20 Yr. AADT	General Parking & Pedestrian Area		
	Lux (Minimum min. on Pav.)	Footcandles (min-on Pav.)	Uniformity ratio (aver./ Minimum)
30,000	10	0.9	1.1
14,000	6	0.8	4.1
6,000	2	0.2	4.1
2,000	2	0.2	4.1
Alberta 20 Yr. AADT	Vehicle Use Area (only)		
	Lux (average on Pavement)	Footcandles (average on Pavement)	Uniformity ratio (average minimum)
30,000	22	2	3:1
14,000	11	1	3:1
6,000	6	0.5	4:1
2,000	6	0.5	4:1

F.2.8.5 Telephones

Telephones may be installed.

F.2.8.6 Fencing

Refer to Chapter C of Highway Geometric Design Guide for fencing requirements. Fencing may not be required if the highway is not fenced in the vicinity. Where public safety is an issue, appropriate fencing may be provided. Site conditions will determine the type of fence that needs to be installed. In some instances, replacement fencing may need to match adjacent landowner fencing.

F.2.8.7 Aesthetics/Landscaping

The appearance of a Divided Highway or Future Divided Highway SRA should follow three objectives:

- a. Blend in with the environment in which it is located;
- b. Provide some shelter from sun and wind; and
- c. Have some historical or regional quality that will interest travelers.

These objectives make SRAs more inviting to stop at and to stay longer, thereby reducing driving fatigue factors.

It is suggested that a Landscape Architect be engaged to provide an appropriate design and to partner with other government departments (e.g. Agriculture, Community Development) to coordinate regional information points of interest, tourism, etc.

F.2.9 Signage

F.2.9.1 Safety Rest Areas

A combination of advance and onsite signage is required. An advance notification sign shall be posted two kms before the SRA, followed by the SRA entrance sign and directional arrow.

On-site signage shall include Cars, RV's and Trucks separation arrows along with interior parking symbols and services. On-site signage shall designate separate parking areas for Cars,

RV's and Trucks for all stages. For Stage 1, parking for Cars/RV's are typically accommodated in the area furthest from the highway exit ramp.

For signing details, refer to INFTRA Highway Guide & Information Sign Manual. Example only:



F.2.9.2 Roadside Turnouts

Advance notification sign shall be posted two kms before the Roadside Turnout (RST), followed by the turnout entrance sign and directional arrow. On-site signage is discretionary.

The following is provided as the guideline in applying the INFTRA Highway Guide & Information Sign Manual to RSTs:

- a) If the RST meets strategic criteria and meets current design standards, the signage would read "Roadside Turnout" in blue and white colours.
- b) If the RST is not strategic and does not meet current design standards, the signage would read "Roadside Turnout" in existing brown and white colours.

F.2.10 Exit and Entrance Ramp Requirements

On existing and future divided highways, the choice of SRA freeway or expressway style ramps is made based on the projected 20 year AADT and whether the existing highway operates as a freeway or expressway.

SRA freeway exit and entrance ramps should be considered on divided highways where the projected AADT > 15,000 (two-way traffic) OR where the highway is operating as a freeway.

SRA expressway exit and entrance ramps are acceptable on divided highways where the projected AADT is $\leq 15,000$ (two-way traffic) AND the highway is operating as an expressway.

Acceleration and deceleration lanes and tapers shown for the freeway and expressway style ramps are considered suitable on divided highways where the terrain is flat.

Deceleration requirements should be based on comfortable braking rate of 0.25g (2.45m/s²) after the vehicle has typically left the trough lane.

Where the acceleration lane/taper is on an upgrade, the need for longer parallel acceleration lane should be assessed. A merge speed based on performance curves for a heavy truck (180 g/W) as shown below is desirable:

- 70 to 80 km/hr on freeway entrance ramps or where the projected 20 year AADT > 15,000.
- 60 to 70 km/hr on expressway entrance ramps or where the projected 20 year AADT $\leq 15,000$.

The merge speed is calculated at a point where the merge taper has a width of 2 metres.

Adequate decision sight distance should also be provided at the SRA exit terminal.

End of Section.

**Table F.2.5a
Site Evaluation Chart (Blank)**

Hwy #		Control Section #	Km #	Site #
Region:		Direction of Travel:		
Pre-Design Evaluation				
Functional Factors		Yes	No	Comments/Variances (See Reverse)
1	Spacing			
1	1 60 min. SRA			
1	2 30 min. SRA			
2	Traffic Characteristics			
2	1 Traffic Composition			
2	2 Trip Purpose/Length			
2	3 Traffic Volume			
2	4 Design Type			
3	Location			
3	1 Environmental			
3	1 1 Natural conditions			
3	1 2 Water courses			
3	1 3 Scenic views			
3	1 4 Points of interest			
3	1 5 Winter storms			
3	2 Adjacent Services			
3	2 1 30 min. separation			
3	3 Urban Centres/Borders			
3	3 1 30 min. separation			
3	4 Neighbouring Develop.			
3	4 1 Land Use Bylaw			
3	4 2 Residences			
3	4 3 >1 km separation			
3	4 4 Utilities, Irrigation			
3	5 Right-of-way			
3	5 1 F.2. Highway Design Guide			
3	5 2 No. of Parking Stalls (P & E)			
3	5 3 Grades, Visibility			
3	5 4 Land ownership			
3	5 5 Interchanges (P & E)			
3	5 6 Intersections (P & E)			
4	Facilities			
4	1 Consult Highway Design Guide			
4	2 Architects Required			
4	3 Summer/Winter Maintenance			
4	4 24 hour access			
SRA — Safety Rest Area; P & E — Planned and Existing				
Inspected by _____		Reviewed by _____		
Date _____		Date _____		

**Table F.2.5a
Site Evaluation Chart (Example)**

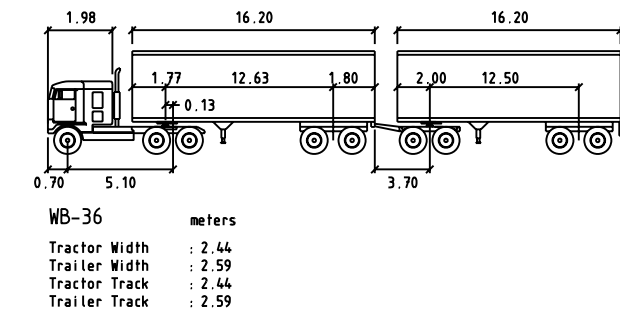
Hwy #	2	Control Section #2.:28	Km #10.06	Site # 3	
Region:	Central	Direction of Travel: Southbound			
Pre-Design Evaluation					
Functional Factors		Yes	No	Comments/Variations (See Reverse)	
1	Spacing	X		Meets spacing criteria	
1	1	60 min. SRA			
1	2	30 min. SRA	X	35 Minutes south of Leduc	
2	Traffic Characteristics		X	Freeway status	
2	1	Traffic Composition	X	70% cars; 30% Trucks/Oversize Veh.	
2	2	Trip Purpose/Length	X	North/South trade route, multiple uses	
2	3	Traffic Volume	X	22,000 AADT	
2	4	Design Type	X	F.2.1.2: Divided >30,000 AADT	
3	Location				
3	1	Environmental			
3	1	1	Natural conditions	X	Relatively flat. No impediments
3	1	2	Water courses	X	4 kms from no-name creek. No issues.
3	1	3	Scenic views		X None
3	1	4	Points of interest	X	Historical area. See notes page
3	1	5	Winter storms	X	Snow storms. See notes page.
3	2	Adjacent Services			
3	2	1	30 min. separation	X	Meets strategic guideline framework Site 25 minutes north of truck stop
3	3	Urban Centres/Borders			
3	3	1	30 min. separation	X	Meets strategic guideline framework Site in between Ponoka & Lacombe
3	4	Neighbouring Develop.			
3	4	1	Land Use Bylaw	X	See notes page.
3	4	2	Residences	X	Farmsites in the vicinity, but acceptable
3	4	3	>1 km separation	X	>2 km distance from nearest farmsite
3	4	4	Utilities, Irrigation	X	Call Alberta One-call for site assessment
3	5	Right-of-way			
3	5	1	F.2. Highway Design Guide	X	Apply F.2.2 >30,000 AADT
3	5	2	No. of Parking Stalls (P & E)	X	Minimum 34 Cars; 45 trucks/rvs
3	5	3	Grades, Visibility	X	Maximum 2% grade in the area
3	5	4	Land ownership	X	Conduct a title search
3	5	5	Interchanges (P & E)	X	Proposed at CS2:26. See notes page.
3	5	6	Intersections (P & E)		X None within the area
4	Facilities				
4	1	Consult Highway Design Guide		X	Addresses all facilities. See notes page.
4	2	Architects Required		X	Required. See notes page.
4	3	Summer/Winter Maintenance		X	Talked to CMA - address winter storms
4	4	24 hour access		X	Meets criteria.
SRA — Safety Rest Area; P & E — Planned and Existing					
Inspected by _____			Reviewed by _____		
Date _____			Date _____		

**Table 2.5b
Site Evaluation Chart Comments (Example)**

Function #	Observation and Site Comments
3. Location	
3.1.4 Points of Interest	Historical cairn within the proposed site. Contacted Alberta Community Development to relocate cairn, 05.10.20. Community Development will also add a Point of Interest sign to provide traveler historical information. Coordinate with Ms. XXXXXXXX at phone #
3.1.5 Winter Storms	Area know for winter storms and highway closure. Contacted CMA operator Mr. XXXXXXXX 05.10.21. Coordinate design for snow removal and additional signage related to "safe-haven" needs during snow storms. Signs with emergency phone numbers required.
3.4 Neighbouring Development	
3.4.1 Land Use Bylaw	Contacted County of xxxxx, Mr. XXXXXX, phone #xxxxxxx; Although development is planned in the vicinity, it is industrial zoning and no conflicting uses are foreseen in relationship to the proposed SRA. Farm sites in the area are over 2 km away, meeting criteria.
3.4.4 Utilities	Called Alberta One-call 05.10.22 with legal descriptions to obtain underground utility installations. Expect FAX responses within 10 days. When received, will provide to design consultant to note on drawings.
3.5 Right-of-way	
3.5.4 Ownership	Conducted title search to obtain owners names. Turned over to Property Land Agent to investigate land acquisition in accordance with land area of F.2.2 design. Initial reaction by Property Land Agent is that there will difficulty acquiring land for the site. If this proves to be the case, the SRA may need to shift 5 km north. To be determined in 4 weeks time.
3.5.5 Interchanges	Freeway Design Branch indicates a proposed interchange at CS2:26, xxxxxx. Proposed site for SRA is 6 kms north of the interchange, therefore does not conflict with the interchange.
4. Facilities	
4.1 Design Guide	Required: toilets with water; Picnic Tables; Waste Receptacles; Lighting; Fencing; and Landscaping. Telephone not required due to cell coverage.
4.2 Architects	Engage a Building/Landscaping Design Architect to design typical toilet building and to provide landscape recommendations to match the surrounding area.

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1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. THIS IS A "TYPICAL" PLAN. DESIGNERS MAY CONSIDER OTHER LAYOUTS OR DIMENSIONS TO SUIT TOPOGRAPHY, TRAFFIC, OR PHYSICAL CONSTRAINTS AT THE SITE. REASONS/RATIONALE FOR MODIFICATIONS / CHANGES FROM THE "TYPICAL" PLAN SHOULD BE PROVIDED BY THE DESIGNER FOR THE DEPARTMENT'S CONSIDERATION.
3. THE STAGE 1 (BASIC) TEMPLATE FIGURE F-2.1.1 SHOULD BE CONSIDERED AS THE MINIMUM LAYOUT ON EXISTING DIVIDED HIGHWAYS REGARDLESS IF THE INITIAL PARKING AREA EXCEEDS THE PROJECTED 20 YEAR AADT REQUIREMENT.
4. SRA'S ARE TO BE BUILT IN STAGES. THE PARKING REQUIREMENT DETERMINES THE INITIAL STAGE SIZE OF THE SRA. THE INITIAL PARKING REQUIREMENTS ARE BASED ON THE PROJECTED 20 YEAR AADT AND TYPE / NUMBER OF ANTICIPATED DESIGN VEHICLES USING THE SITE. THE STAGE 1 (BASIC) TEMPLATE ALLOWS FOR EXPANSION IF REQUIRED TO MEET FUTURE REQUIREMENTS.
5. SEVERAL EXPANDED SRA'S LAYOUTS, FIGURES F-2.1.2, F-2.1.3 AND F-2.1.4 (STAGES 2, 3 AND 4), ARE PROVIDED TO SHOW HOW ADDITIONAL PARKING, FACILITIES AND/OR SERVICES CAN BE PROVIDED.
6. IT MAY BE COST-EFFECTIVE TO ADVANCE THE GRADING WORK AT AN EARLY STAGE TO ACCOMMODATE FUTURE STAGES.
7. SRA "FREEWAY" EXIT AND ENTRANCE RAMPS SHOULD BE CONSIDERED ON DIVIDED HIGHWAYS WHERE THE PROJECTED 20 YEAR AADT > 15,000 OR WHERE THE HIGHWAY IS OPERATING AS A FREEWAY.
8. SRA "EXPRESSWAY" EXIT AND ENTRANCE RAMPS ARE ACCEPTABLE ON DIVIDED HIGHWAYS OPERATING AS EXPRESSWAYS PROVIDED THAT THE PROJECTED 20 YEAR AADT \leq 15,000.
9. THE ACCELERATION AND DECELERATION LANES AND TAPERS AS SHOWN ARE CONSIDERED SUITABLE ON DIVIDED HIGHWAYS WHERE THE TERRAIN IS FLAT. WHERE THE ACCELERATION LANE/ TAPER IS ON AN UPGRADE, THE NEED FOR LONGER PARALLEL ACCELERATION LANE SHOULD BE ASSESSED. A MERGE SPEED, BASED ON PERFORMANCE CURVES FOR HEAVY TRUCKS (180 gW), AS SHOWN BELOW IS DESIRABLE:
 - 70 TO 80KM/HR ON FREEWAY ENTRANCE RAMPS OR WHERE THE PROJECTED 20 YEAR AADT > 15,000.
 - 60 TO 70KM/HR ON EXPRESSWAY ENTRANCE RAMPS OR WHERE THE PROJECTED 20 YEAR AADT \leq 15,000.
 THE MERGE SPEED IS CALCULATED AT A POINT WHERE THE MERGE TAPER HAS A WIDTH OF 2 METRES.
10. WHERE POSSIBLE, SITES SHOULD BE SELECTED SO THAT THE ACCELERATION TAPER IS LOCATED ON A DOWN GRADE AND THE DECELERATION TAPER IS LOCATED ON AN UPGRADE TO ENHANCE HIGHWAY OPERATIONS.
11. ADEQUATE DECISION SIGHT DISTANCE SHOULD BE PROVIDED AT EXIT TERMINALS.
12. REFER TO THE HIGHWAY GEOMETRIC DESIGN GUIDELINES FOR FURTHER DETAILS.



BARRIER FREE PARKING STALL CALCULATION

CARS	20 YR AADT	X	0.07 X 0.12 X 0.75 X 1.8 X 15	=	No. SPACES REQ.
	2		60		
TRUCKS	20 YR AADT	X	0.07 X 0.12 X 0.25 X 1.2 X 45	=	No. SPACES REQ.
	2		60		

NUMBER OF TOILETS CALCULATION

20 YR AADT	X	a	b	c	d	=	No. STALLS REQ.			
2		0.07	X	0.12	X	1.8	X	1.3	=	F 60% M 40%
								30		

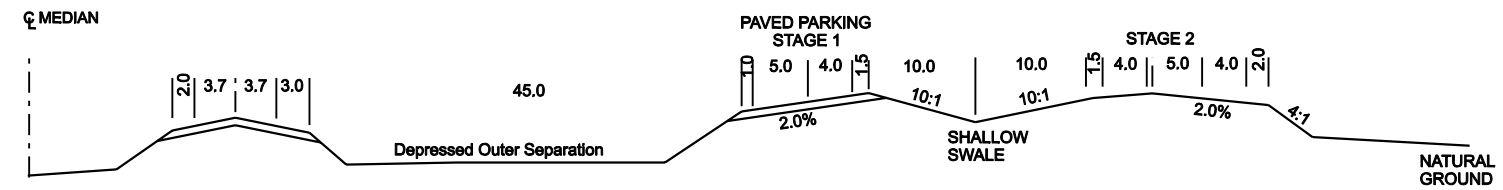
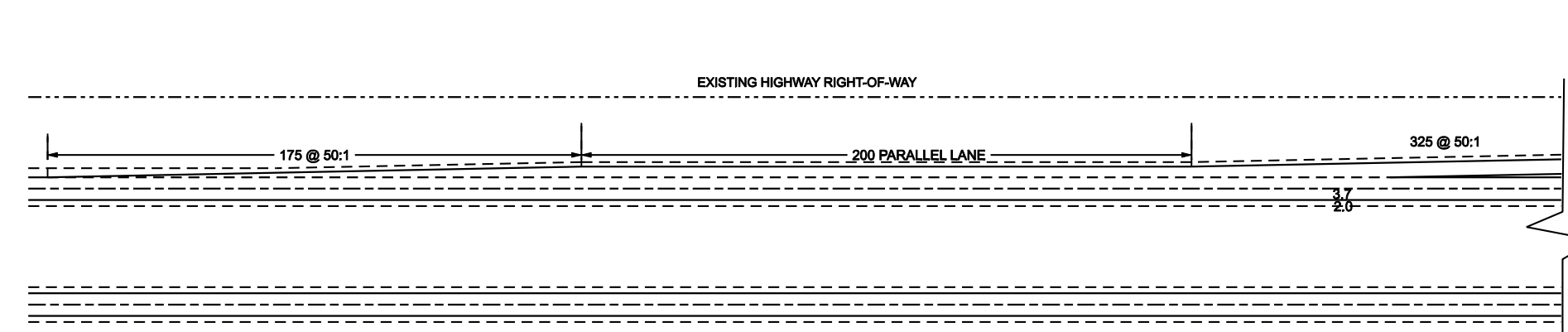
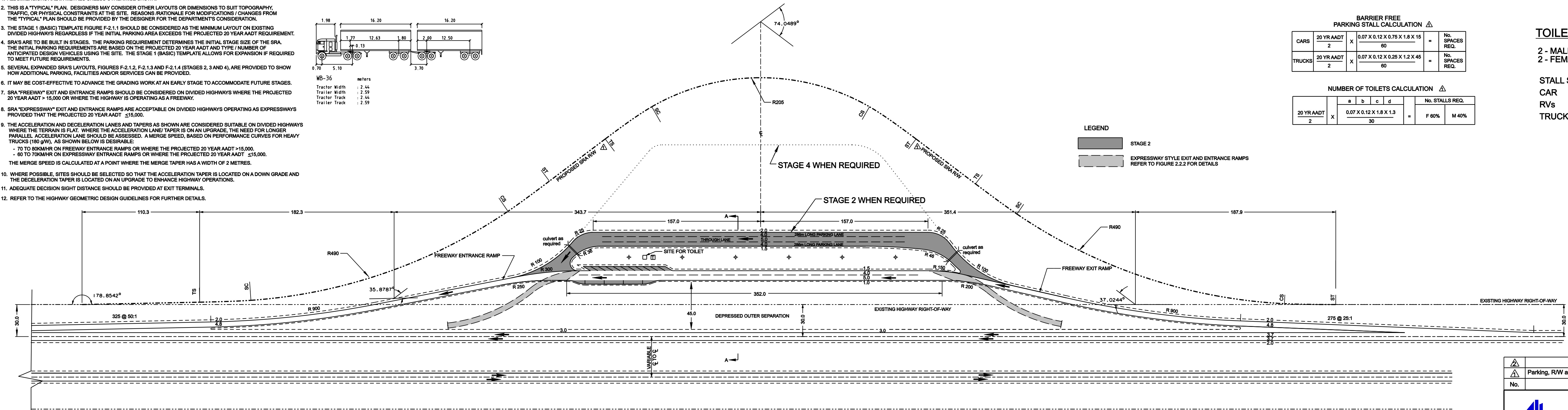
TOILET STALLS

2 - MALE
2 - FEMALE

STALL SIZES
 CAR 3.5 X 6.0
 RVs 3.5 X 15.0
 TRUCK 3.5 X 40.0

LEGEND

- STAGE 2
- EXPRESSWAY STYLE EXIT AND ENTRANCE RAMPS REFER TO FIGURE 2.2.2 FOR DETAILS



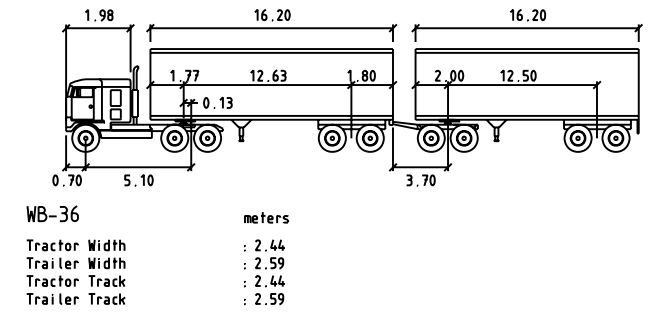
STAGE IV TOTAL AREA REQUIRED = 9.5ha
(IN ADDITION TO HIGHWAY RIGHT-OF-WAY)

NOTE:
 TRUCK TEMPLATE WB-36 USED AS TO DETERMINE MINIMUM TURNING RADIUS

- PROPOSED LIGHTING
- POSSIBLE TELEPHONE

		FIGURE F-2.1.1 Date: MARCH 2007	
TYPICAL SAFETY REST AREA ON EXISTING DIVIDED HIGHWAYS STAGE I (BASIC)			
Prepared By: RS	Checked By: WmK	Scale: 1:2000	Page F-25

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. THIS IS A "TYPICAL" PLAN. DESIGNERS MAY CONSIDER OTHER LAYOUTS OR DIMENSIONS TO SUIT TOPOGRAPHY, TRAFFIC, OR PHYSICAL CONSTRAINTS AT THE SITE. REASONS/RATIONALE FOR MODIFICATIONS / CHANGES FROM THE "TYPICAL" PLAN SHOULD BE PROVIDED BY THE DESIGNER FOR THE DEPARTMENT'S CONSIDERATION.
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5. SEVERAL EXPANDED SRA'S LAYOUTS, FIGURES F-2.1.2, F-2.1.3 AND F-2.1.4 (STAGES 2, 3 AND 4), ARE PROVIDED TO SHOW HOW ADDITIONAL PARKING, FACILITIES AND/OR SERVICES CAN BE PROVIDED.
6. IT MAY BE COST-EFFECTIVE TO ADVANCE THE GRADING WORK AT AN EARLY STAGE TO ACCOMMODATE FUTURE STAGES.
7. SRA "FREEWAY" EXIT AND ENTRANCE RAMP SHOULD BE CONSIDERED ON DIVIDED HIGHWAYS WHERE THE PROJECTED 20 YEAR AADT > 15,000 OR WHERE THE HIGHWAY IS OPERATING AS A FREEWAY, REFER TO FIGURE 2.1.1 FOR DETAILS.
8. SRA "EXPRESSWAY" EXIT AND ENTRANCE RAMP ARE ACCEPTABLE ON DIVIDED HIGHWAYS OPERATING AS EXPRESSWAYS PROVIDED THAT THE PROJECTED 20 YEAR AADT \leq 15,000, REFER TO FIGURE 2.2.2 FOR DETAILS.
9. THE ACCELERATION AND DECELERATION LANES AND TAPERS AS SHOWN ARE CONSIDERED SUITABLE ON DIVIDED HIGHWAYS WHERE THE TERRAIN IS FLAT. WHERE THE ACCELERATION LANE/ TAPER IS ON AN UPGRADE, THE NEED FOR LONGER PARALLEL ACCELERATION LANE SHOULD BE ASSESSED. A MERGE SPEED, BASED ON PERFORMANCE CURVES FOR HEAVY TRUCKS (180 g/W), AS SHOWN BELOW IS DESIRABLE:
 - 70 TO 80KM/HR ON FREEWAY ENTRANCE RAMP OR WHERE THE PROJECTED 20 YEAR AADT > 15,000.
 - 60 TO 70KM/HR ON EXPRESSWAY ENTRANCE RAMP OR WHERE THE PROJECTED 20 YEAR AADT \leq 15,000.
 THE MERGE SPEED IS CALCULATED AT A POINT WHERE THE MERGE TAPER HAS A WIDTH OF 2 METRES.
10. WHERE POSSIBLE, SITES SHOULD BE SELECTED SO THAT THE ACCELERATION TAPER IS LOCATED ON A DOWN GRADE AND THE DECELERATION TAPER IS LOCATED ON AN UPGRADE TO ENHANCE HIGHWAY OPERATIONS.
11. ADEQUATE DECISION SIGHT DISTANCE SHOULD BE PROVIDED AT EXIT TERMINALS.
12. REFER TO THE HIGHWAY GEOMETRIC DESIGN GUIDELINES FOR FURTHER DETAILS.



BARRIER FREE PARKING STALL CALCULATION

CARS	20 YR AADT	X	0.07 X 0.12 X 0.75 X 1.8 X 15	=	No. SPACES REQ.
	2		60		
TRUCKS	20 YR AADT	X	0.07 X 0.12 X 0.25 X 1.2 X 45	=	No. SPACES REQ.
	2		60		

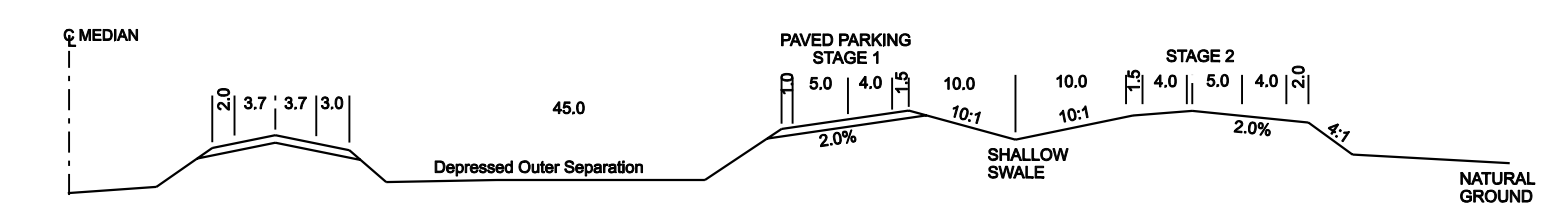
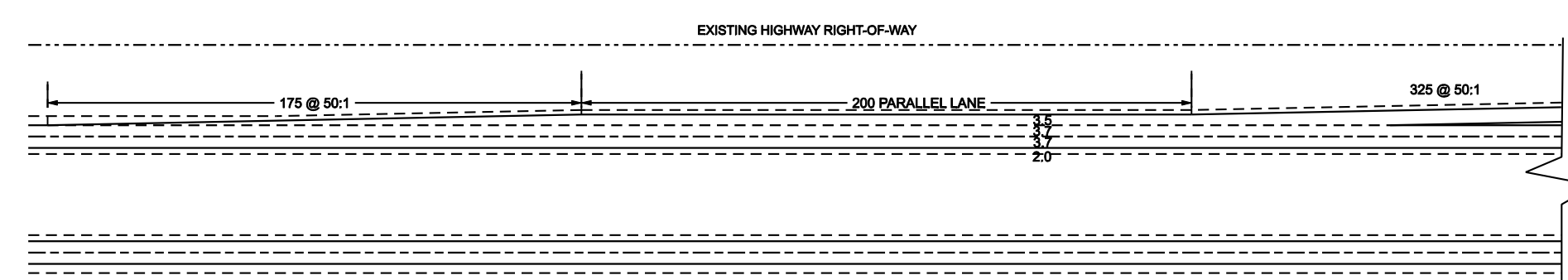
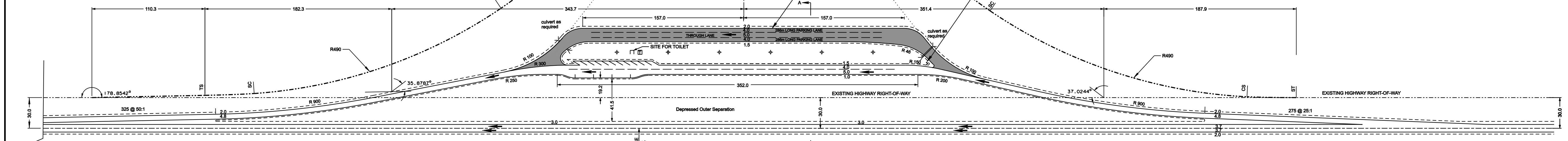
TOILET STALLS

2 - MALE
2 - FEMALE

STALL SIZES
 CAR 3.5 X 6.0
 RVs 3.5 X 15.0
 TRUCK 3.5 X 40.0

NUMBER OF TOILETS CALCULATION

20 YR AADT	X	a	b	c	d	=	No. STALLS REQ.			
2		0.07	X	0.12	X	1.8	X	1.3	=	F 60% M 40%
							30			



TYPICAL CROSS-SECTION A-A
N.T.S.

NOTE: DESIGNER MAY CHOOSE AN ALTERNATIVE CROSS-SECTION TO BETTER SUIT THE SITE TOPOGRAPHY.

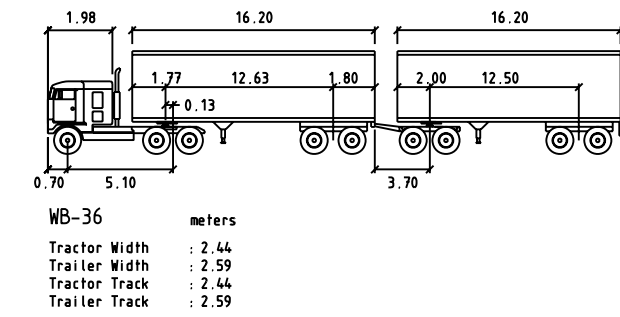
STAGE IV TOTAL AREA REQUIRED = 9.5ha
(IN ADDITION TO HIGHWAY RIGHT-OF-WAY)

NOTE:
TRUCK TEMPLATE WB-36 USED AS TO DETERMINE MINIMUM TURNING RADIUS

◆ PROPOSED LIGHTING
 □ POSSIBLE TELEPHONE

		FIGURE F-2.1.2 Date: MARCH 2007	
TYPICAL SAFETY REST AREA ON EXISTING DIVIDED HIGHWAYS STAGE II			
Prepared By: RS	Checked By: WmK	Scale: 1:2000	Page F-27

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
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3. THE STAGE 1 (BASIC) TEMPLATE FIGURE F-2.1.1 SHOULD BE CONSIDERED AS THE MINIMUM LAYOUT ON EXISTING DIVIDED HIGHWAYS REGARDLESS IF THE INITIAL PARKING AREA EXCEEDS THE PROJECTED 20 YEAR AADT REQUIREMENT.
4. SRA'S ARE TO BE BUILT IN STAGES. THE PARKING REQUIREMENT DETERMINES THE INITIAL STAGE SIZE OF THE SRA. THE INITIAL PARKING REQUIREMENTS ARE BASED ON THE PROJECTED 20 YEAR AADT AND TYPE / NUMBER OF ANTICIPATED DESIGN VEHICLES USING THE SITE. THE STAGE 1 (BASIC) TEMPLATE ALLOWS FOR EXPANSION IF REQUIRED TO MEET FUTURE REQUIREMENTS.
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7. SRA "FREEWAY" EXIT AND ENTRANCE RAMPS SHOULD BE CONSIDERED ON DIVIDED HIGHWAYS WHERE THE PROJECTED 20 YEAR AADT > 15,000 OR WHERE THE HIGHWAY IS OPERATING AS A FREEWAY, REFER TO FIGURE 2.1.1 FOR DETAILS.
8. SRA "EXPRESSWAY" EXIT AND ENTRANCE RAMPS ARE ACCEPTABLE ON DIVIDED HIGHWAYS OPERATING AS EXPRESSWAYS PROVIDED THAT THE PROJECTED 20 YEAR AADT ≤ 15,000, REFER TO FIGURE 2.2.2 FOR DETAILS.
9. THE ACCELERATION AND DECELERATION LANES AND TAPERS AS SHOWN ARE CONSIDERED SUITABLE ON DIVIDED HIGHWAYS WHERE THE TERRAIN IS FLAT. WHERE THE ACCELERATION LANE/TAPER IS ON AN UPGRADE, THE NEED FOR LONGER PARALLEL ACCELERATION LANE SHOULD BE ASSESSED. A MERGE SPEED, BASED ON PERFORMANCE CURVES FOR HEAVY TRUCKS (180 g/W), AS SHOWN BELOW IS DESIRABLE:
 - 70 TO 80KM/HR ON FREEWAY ENTRANCE RAMPS OR WHERE THE PROJECTED 20 YEAR AADT > 15,000.
 - 60 TO 70KM/HR ON EXPRESSWAY ENTRANCE RAMPS OR WHERE THE PROJECTED 20 YEAR AADT ≤ 15,000.
 THE MERGE SPEED IS CALCULATED AT A POINT WHERE THE MERGE TAPER HAS A WIDTH OF 2 METRES.
10. WHERE POSSIBLE, SITES SHOULD BE SELECTED SO THAT THE ACCELERATION TAPER IS LOCATED ON A DOWN GRADE AND THE DECELERATION TAPER IS LOCATED ON AN UPGRADE TO ENHANCE HIGHWAY OPERATIONS.
11. ADEQUATE DECISION SIGHT DISTANCE SHOULD BE PROVIDED AT EXIT TERMINALS.
12. REFER TO THE HIGHWAY GEOMETRIC DESIGN GUIDELINES FOR FURTHER DETAILS.



BARRIER FREE PARKING STALL CALCULATION

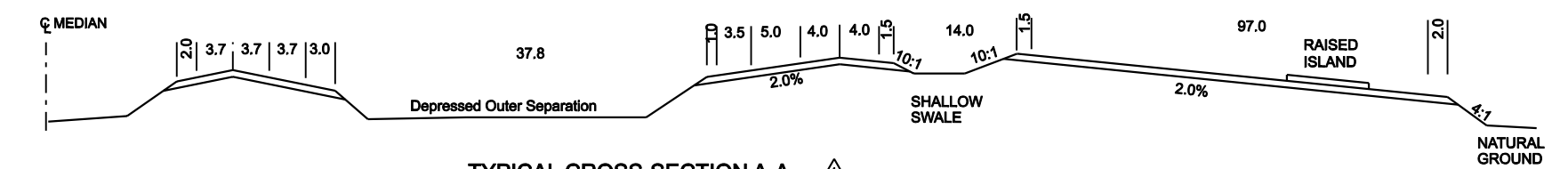
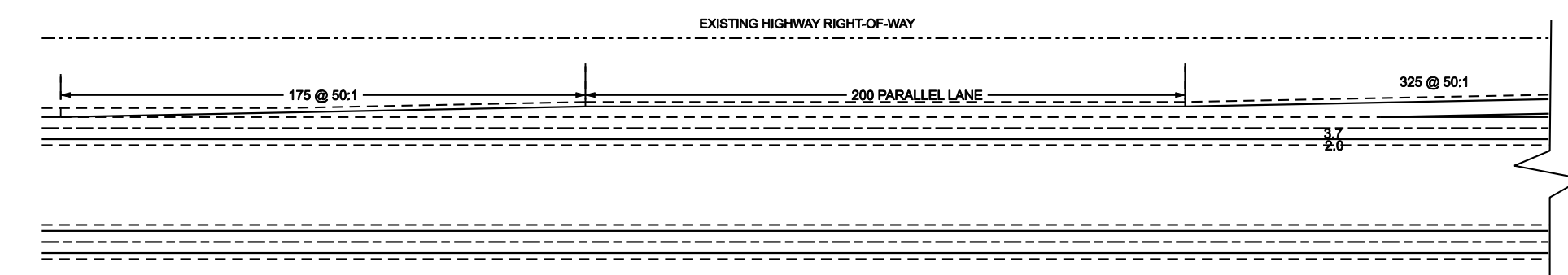
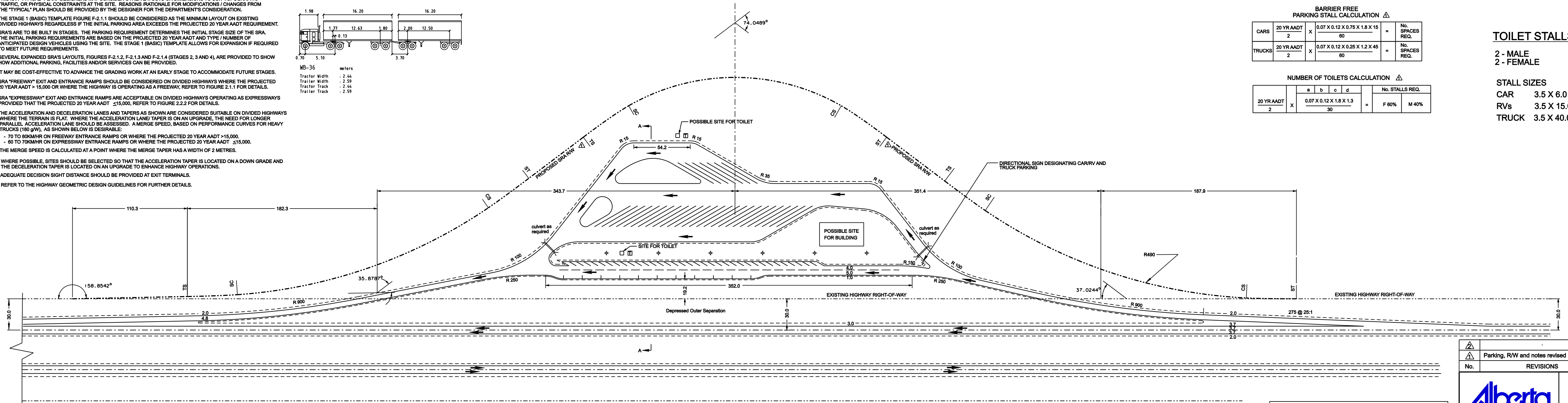
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	2		60		
TRUCKS	20 YR AADT	X	0.07 X 0.12 X 0.25 X 1.2 X 45	=	No. SPACES REQ.
	2		60		

TOILET STALLS
 2 - MALE
 2 - FEMALE

NUMBER OF TOILETS CALCULATION

20 YR AADT	X	a	b	c	d	=	No. STALLS REQ.
2		0.07	X	0.12	X	1.8 X 1.3	F 60% M 40%
						30	

STALL SIZES
 CAR 3.5 X 6.0
 RVs 3.5 X 15.0
 TRUCK 3.5 X 40.0



TYPICAL CROSS-SECTION A-A
 N.T.S.
 NOTE: DESIGNER MAY CHOOSE AN ALTERNATIVE CROSS-SECTION TO BETTER SUIT THE SITE TOPOGRAPHY.

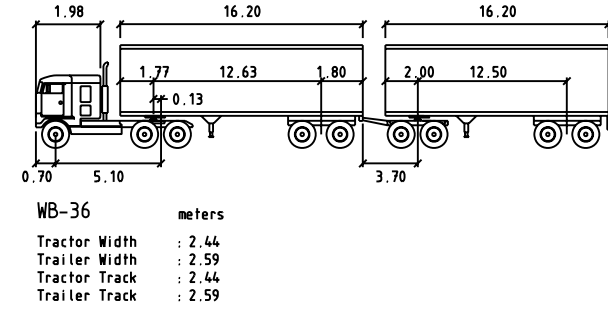
STAGE IV TOTAL AREA REQUIRED = 9.5ha
 (IN ADDITION TO HIGHWAY RIGHT-OF-WAY)

NOTE:
 TRUCK TEMPLATE WB-36 USED AS TO DETERMINE MINIMUM TURNING RADIUS

◆ PROPOSED LIGHTING
 □ POSSIBLE TELEPHONE

		FIGURE F-2.1.3 Date: MARCH 2007	
TYPICAL SAFETY REST AREA ON EXISTING DIVIDED HIGHWAYS STAGE III			
Prepared By: RS	Checked By: WmK	Scale: 1:2000	Page F-29

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. THIS IS A "TYPICAL" PLAN. DESIGNERS MAY CONSIDER OTHER LAYOUTS OR DIMENSIONS TO SUIT TOPOGRAPHY, TRAFFIC, OR PHYSICAL CONSTRAINTS AT THE SITE. REASONS/RATIONALE FOR MODIFICATIONS / CHANGES FROM THE "TYPICAL" PLAN SHOULD BE PROVIDED BY THE DESIGNER FOR THE DEPARTMENT'S CONSIDERATION.
3. THE STAGE 1 (BASIC) TEMPLATE FIGURE F-2.1.1 SHOULD BE CONSIDERED AS THE MINIMUM LAYOUT ON EXISTING DIVIDED HIGHWAYS REGARDLESS IF THE INITIAL PARKING AREA EXCEEDS THE PROJECTED 20 YEAR AADT REQUIREMENT.
4. SRA'S ARE TO BE BUILT IN STAGES. THE PARKING REQUIREMENT DETERMINES THE INITIAL STAGE SIZE OF THE SRA. THE INITIAL PARKING REQUIREMENTS ARE BASED ON THE PROJECTED 20 YEAR AADT AND TYPE / NUMBER OF ANTICIPATED DESIGN VEHICLES USING THE SITE. THE STAGE 1 (BASIC) TEMPLATE ALLOWS FOR EXPANSION IF REQUIRED TO MEET FUTURE REQUIREMENTS.
5. SEVERAL EXPANDED SRA'S LAYOUTS, FIGURES F-2.1.2, F-2.1.3 AND F-2.1.4 (STAGES 2, 3 AND 4), ARE PROVIDED TO SHOW HOW ADDITIONAL PARKING, FACILITIES AND/OR SERVICES CAN BE PROVIDED.
6. IT MAY BE COST-EFFECTIVE TO ADVANCE THE GRADING WORK AT AN EARLY STAGE TO ACCOMMODATE FUTURE STAGES.
7. SRA "FREEWAY" EXIT AND ENTRANCE RAMPS SHOULD BE CONSIDERED ON DIVIDED HIGHWAYS WHERE THE PROJECTED 20 YEAR AADT > 15,000 OR WHERE THE HIGHWAY IS OPERATING AS A FREEWAY, REFER TO FIGURE 2.1.1 FOR DETAILS.
8. SRA "EXPRESSWAY" EXIT AND ENTRANCE RAMPS ARE ACCEPTABLE ON DIVIDED HIGHWAYS OPERATING AS EXPRESSWAYS PROVIDED THAT THE PROJECTED 20 YEAR AADT \leq 15,000, REFER TO FIGURE 2.2.2 FOR DETAILS.
9. THE ACCELERATION AND DECELERATION LANES AND TAPERS AS SHOWN ARE CONSIDERED SUITABLE ON DIVIDED HIGHWAYS WHERE THE TERRAIN IS FLAT. WHERE THE ACCELERATION LANE/TAPER IS ON AN UPGRADE, THE NEED FOR LONGER PARALLEL ACCELERATION LANE SHOULD BE ASSESSED. A MERGE SPEED, BASED ON PERFORMANCE CURVES FOR HEAVY TRUCKS (180 gW), AS SHOWN BELOW IS DESIRABLE:
 - 70 TO 80KM/HR ON FREEWAY ENTRANCE RAMPS OR WHERE THE PROJECTED 20 YEAR AADT > 15,000.
 - 60 TO 70KM/HR ON EXPRESSWAY ENTRANCE RAMPS OR WHERE THE PROJECTED 20 YEAR AADT \leq 15,000.
 THE MERGE SPEED IS CALCULATED AT A POINT WHERE THE MERGE TAPER HAS A WIDTH OF 2 METRES.
10. WHERE POSSIBLE, SITES SHOULD BE SELECTED SO THAT THE ACCELERATION TAPER IS LOCATED ON A DOWN GRADE AND THE DECELERATION TAPER IS LOCATED ON AN UPGRADE TO ENHANCE HIGHWAY OPERATIONS.
11. ADEQUATE DECISION SIGHT DISTANCE SHOULD BE PROVIDED AT EXIT TERMINALS.
12. REFER TO THE HIGHWAY GEOMETRIC DESIGN GUIDELINES FOR FURTHER DETAILS.



BARRIER FREE PARKING STALL CALCULATION

CARS	20 YR AADT 2	X	0.07 X 0.12 X 0.75 X 1.8 X 15 60	=	No. SPACES REQ.
TRUCKS	20 YR AADT 2	X	0.07 X 0.12 X 0.25 X 1.2 X 45 60	=	No. SPACES REQ.

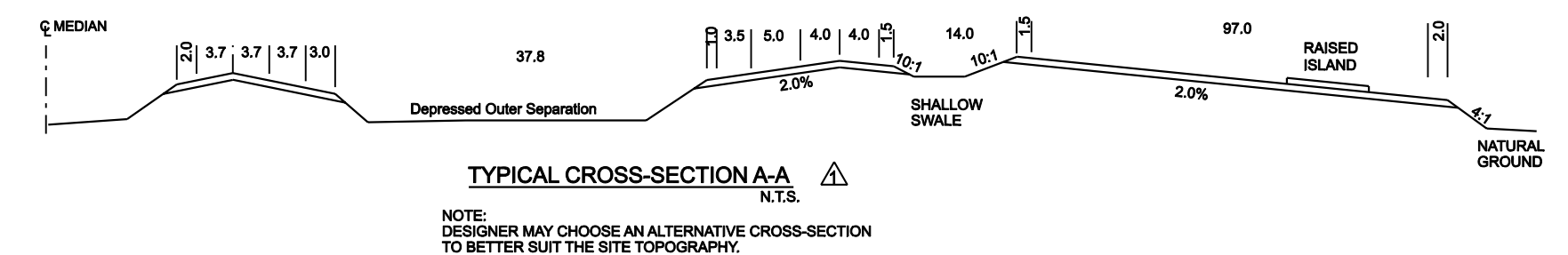
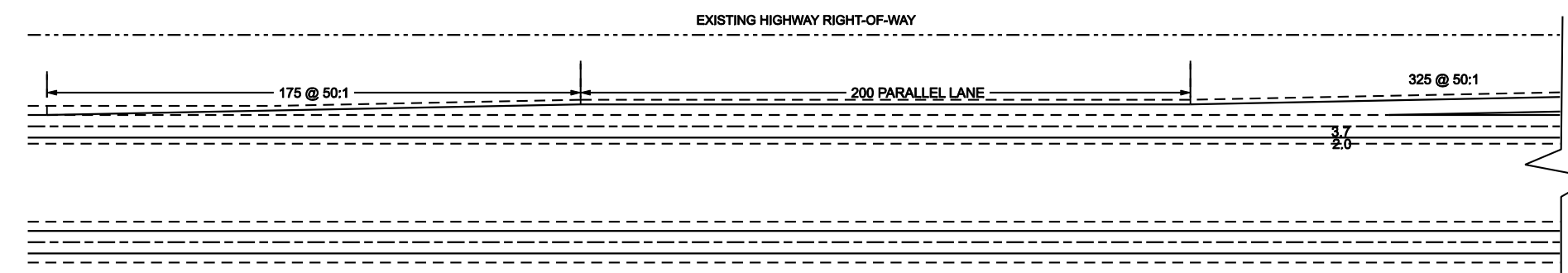
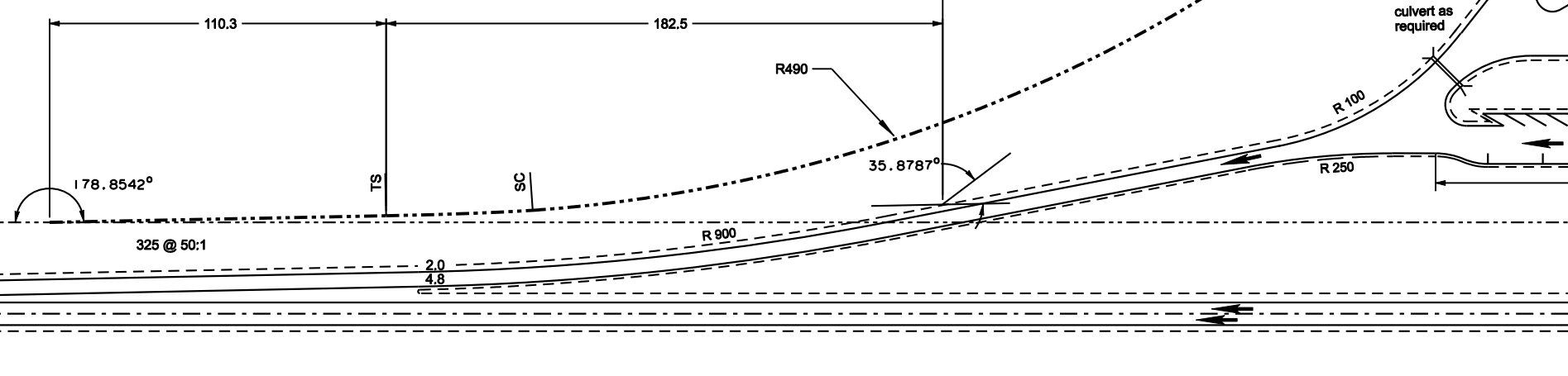
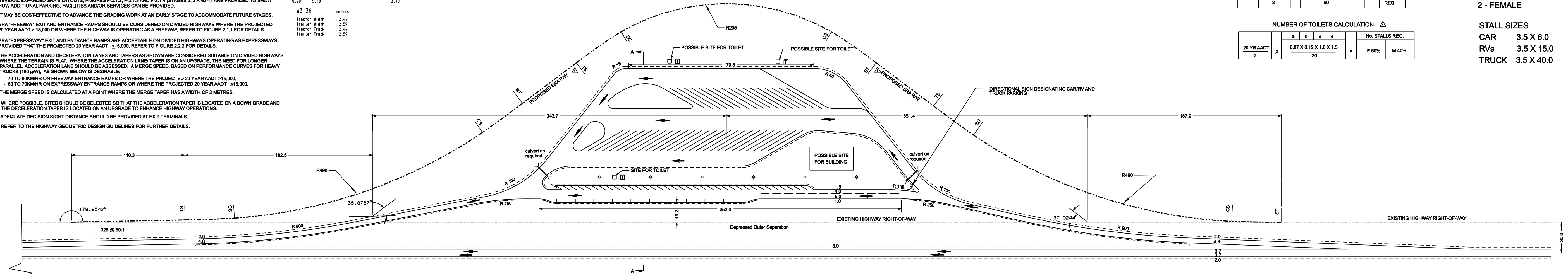
NUMBER OF TOILETS CALCULATION

20 YR AADT 2	X	a b c d 0.07 X 0.12 X 1.8 X 1.3 30	=	No. STALLS REQ.
				F 60% M 40%

TOILET STALLS

2 - MALE
2 - FEMALE

STALL SIZES
 CAR 3.5 X 6.0
 RVs 3.5 X 15.0
 TRUCK 3.5 X 40.0

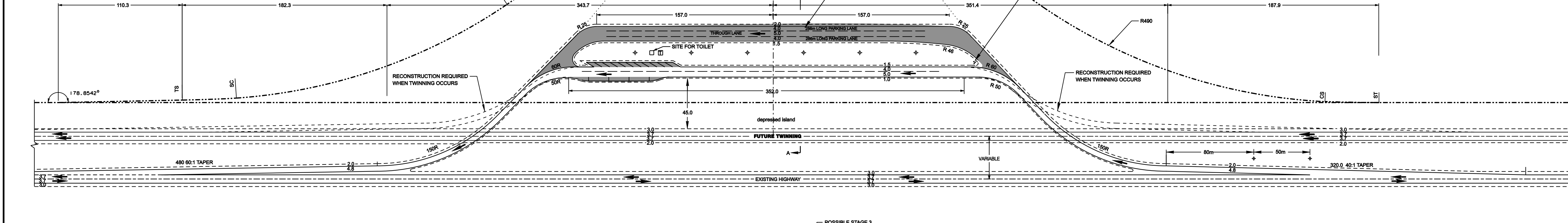


STAGE IV TOTAL AREA REQUIRED = 9.5ha
(IN ADDITION TO HIGHWAY RIGHT-OF-WAY)

NOTE:
 TRUCK TEMPLATE WB-36 USED AS TO DETERMINE MINIMUM TURNING RADIUS
 ♦ PROPOSED LIGHTING
 T POSSIBLE TELEPHONE

	<p>FIGURE F-2.1.4</p> <p>Date: MARCH 2007</p>
<p>TYPICAL SAFETY REST AREA ON EXISTING DIVIDED HIGHWAYS STAGE IV</p>	
<p>Prepared By: RS</p>	<p>Checked By: WmK</p>
<p>Scale: 1:2000</p>	<p>Page F-31</p>

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. THIS IS A "TYPICAL" PLAN. DESIGNERS MAY CONSIDER OTHER LAYOUTS OR DIMENSIONS TO SUIT TOPOGRAPHY, TRAFFIC, OR PHYSICAL CONSTRAINTS AT THE SITE. REASONS /RATIONALE FOR MODIFICATIONS / CHANGES FROM THE "TYPICAL" PLAN SHOULD BE PROVIDED BY THE DESIGNER FOR THE DEPARTMENT'S CONSIDERATION.
3. THE STAGE 1 (BASIC) TEMPLATE FIGURE F-2.1.1 SHOULD BE CONSIDERED AS THE MINIMUM LAYOUT ON EXISTING DIVIDED HIGHWAYS REGARDLESS IF THE INITIAL PARKING AREA EXCEEDS THE PROJECTED 20 YEAR AADT REQUIREMENT.
4. SRA'S ARE TO BE BUILT IN STAGES. THE PARKING REQUIREMENT DETERMINES THE INITIAL STAGE SIZE OF THE SRA. THE INITIAL PARKING REQUIREMENTS ARE BASED ON THE PROJECTED 20 YEAR AADT AND TYPE / NUMBER OF ANTICIPATED DESIGN VEHICLES USING THE SITE. THE STAGE 1 (BASIC) TEMPLATE ALLOWS FOR EXPANSION IF REQUIRED TO MEET FUTURE REQUIREMENTS.
5. SEVERAL EXPANDED SRA'S LAYOUTS, FIGURES F-2.1.2, F-2.1.3 AND F-2.1.4 (STAGES 2, 3 AND 4), ARE PROVIDED TO SHOW HOW ADDITIONAL PARKING, FACILITIES AND/OR SERVICES CAN BE PROVIDED.
6. IT MAY BE COST-EFFECTIVE TO ADVANCE THE GRADING WORK AT AN EARLY STAGE TO ACCOMMODATE FUTURE STAGES.
7. SRA "FREEWAY" EXIT AND ENTRANCE RAMP SHOULD BE CONSIDERED ON DIVIDED HIGHWAYS WHERE THE PROJECTED 20 YEAR AADT > 15,000 OR WHERE THE HIGHWAY IS OPERATING AS A FREEWAY, REFER TO FIGURE 2.1.1 FOR DETAILS.
8. SRA "EXPRESSWAY" EXIT AND ENTRANCE RAMP ARE ACCEPTABLE ON DIVIDED HIGHWAYS OPERATING AS EXPRESSWAYS PROVIDED THAT THE PROJECTED 20 YEAR AADT \leq 15,000, REFER TO FIGURE 2.2.2 FOR DETAILS.
9. THE ACCELERATION AND DECELERATION LANES AND TAPERS AS SHOWN ARE CONSIDERED SUITABLE ON DIVIDED HIGHWAYS WHERE THE TERRAIN IS FLAT. WHERE THE ACCELERATION LANE/ TAPER IS ON AN UPGRADE, THE NEED FOR LONGER PARALLEL ACCELERATION LANE SHOULD BE ASSESSED. A MERGE SPEED, BASED ON PERFORMANCE CURVES FOR HEAVY TRUCKS (180 g/W), AS SHOWN BELOW IS DESIRABLE:
 - 70 TO 80KM/HR ON FREEWAY ENTRANCE RAMP OR WHERE THE PROJECTED 20 YEAR AADT > 15,000.
 - 60 TO 70KM/HR ON EXPRESSWAY ENTRANCE RAMP OR WHERE THE PROJECTED 20 YEAR AADT \leq 15,000.
 THE MERGE SPEED IS CALCULATED AT A POINT WHERE THE MERGE TAPER HAS A WIDTH OF 2 METRES.
10. WHERE POSSIBLE, SITES SHOULD BE SELECTED SO THAT THE ACCELERATION TAPER IS LOCATED ON A DOWN GRADE AND THE DECELERATION TAPER IS LOCATED ON AN UPGRADE TO ENHANCE HIGHWAY OPERATIONS.
11. ADEQUATE DECISION SIGHT DISTANCE SHOULD BE PROVIDED AT EXIT TERMINALS.
12. REFER TO THE HIGHWAY GEOMETRIC DESIGN GUIDELINES FOR FURTHER DETAILS.



BARRIER FREE PARKING STALL CALCULATION

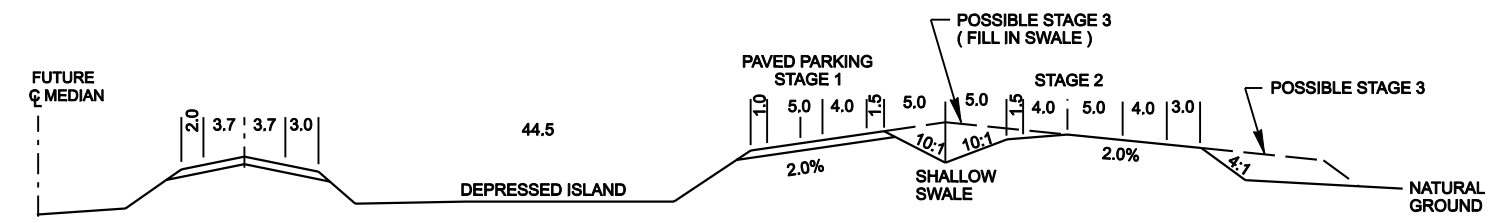
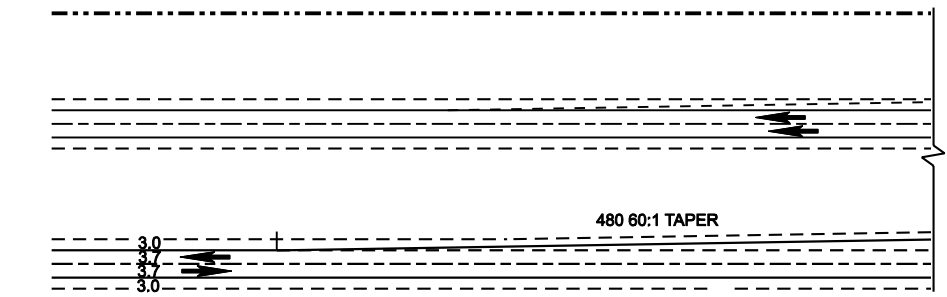
CARS	$\frac{20 \text{ YR AADT}}{2}$	X	$\frac{0.07 \times 0.12 \times 0.75 \times 1.8 \times 15}{60}$	=	No. SPACES REQ.
TRUCKS	$\frac{20 \text{ YR AADT}}{2}$	X	$\frac{0.07 \times 0.12 \times 0.25 \times 1.2 \times 45}{60}$	=	No. SPACES REQ.

NUMBER OF TOILETS CALCULATION

$\frac{20 \text{ YR AADT}}{2}$	X	$\frac{0.07 \times 0.12 \times 1.8 \times 1.3}{30}$	=	F 60%	M 40%
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TOILET STALLS
 2 - MALE
 2 - FEMALE

STALL SIZES
 CAR 3.5 X 6.0
 RVs 3.5 X 15.0
 TRUCK 3.5 X 40.0



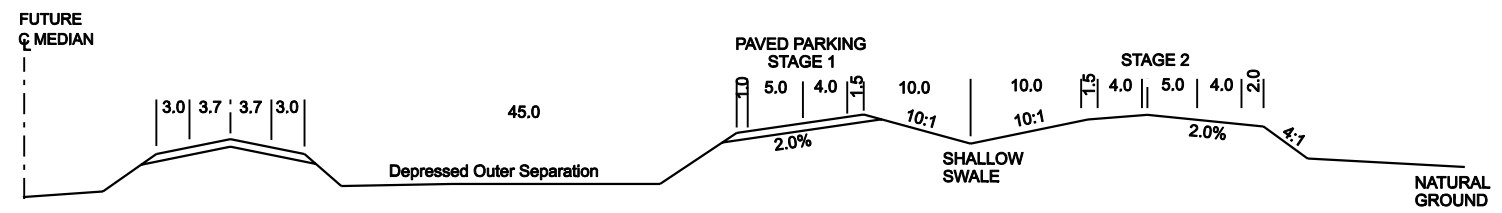
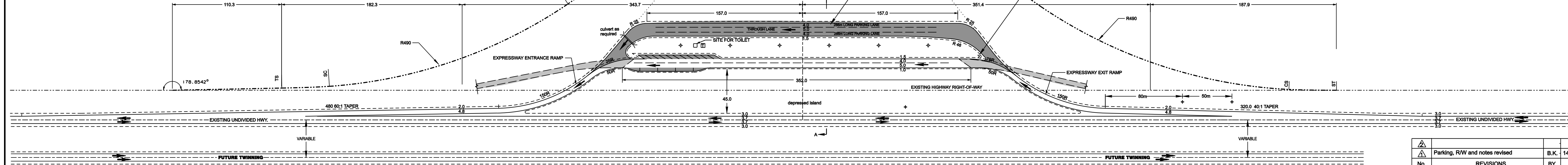
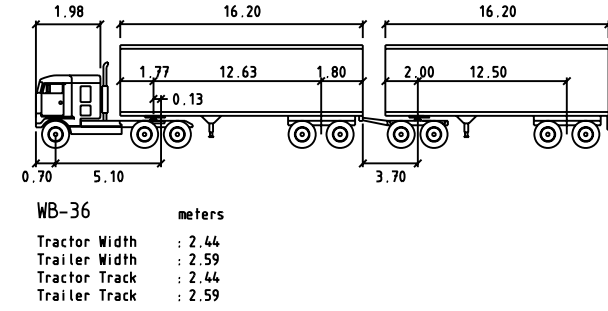
TYPICAL CROSS-SECTION A-A
 N.T.S.
 NOTE: DESIGNER MAY CHOOSE AN ALTERNATIVE CROSS-SECTION TO BETTER SUIT THE SITE TOPOGRAPHY.

STAGE IV
 TOTAL AREA REQUIRED = 9.5ha
 IN ADDITION TO HIGHWAY RIGHT-OF-WAY

- ◆ PROPOSED LIGHTING
- ⊠ POSSIBLE TELEPHONE

	FIGURE F-2.2.1 Date: MARCH 2007
TYPICAL SAFETY REST AREA ON UNDIVIDED HIGHWAYS FUTURE TWINNING ON SAME SIDE	
Prepared By: RS	Checked By: WmK
Scale: 1:2000	Page F-33

- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
- THIS IS A "TYPICAL" PLAN. DESIGNERS MAY CONSIDER OTHER LAYOUTS OR DIMENSIONS TO SUIT TOPOGRAPHY, TRAFFIC, OR PHYSICAL CONSTRAINTS AT THE SITE. REASONS/RATIONALE FOR MODIFICATIONS / CHANGES FROM THE "TYPICAL" PLAN SHOULD BE PROVIDED BY THE DESIGNER FOR THE DEPARTMENT'S CONSIDERATION.
- THE STAGE 1 (BASIC) TEMPLATE FIGURE F-2.1.1 SHOULD BE CONSIDERED AS THE MINIMUM LAYOUT ON EXISTING DIVIDED HIGHWAYS REGARDLESS IF THE INITIAL PARKING AREA EXCEEDS THE PROJECTED 20 YEAR AADT REQUIREMENT.
- SRA'S ARE TO BE BUILT IN STAGES. THE PARKING REQUIREMENT DETERMINES THE INITIAL STAGE SIZE OF THE SRA. THE INITIAL PARKING REQUIREMENTS ARE BASED ON THE PROJECTED 20 YEAR AADT AND TYPE / NUMBER OF ANTICIPATED DESIGN VEHICLES USING THE SITE. THE STAGE 1 (BASIC) TEMPLATE ALLOWS FOR EXPANSION IF REQUIRED TO MEET FUTURE REQUIREMENTS.
- SEVERAL EXPANDED SRA'S LAYOUTS, FIGURES F-2.1.2, F-2.1.3 AND F-2.1.4 (STAGES 2, 3 AND 4), ARE PROVIDED TO SHOW HOW ADDITIONAL PARKING, FACILITIES AND/OR SERVICES CAN BE PROVIDED.
- IT MAY BE COST-EFFECTIVE TO ADVANCE THE GRADING WORK AT AN EARLY STAGE TO ACCOMMODATE FUTURE STAGES.
- SRA "FREEWAY" EXIT AND ENTRANCE RAMP SHOULD BE CONSIDERED ON DIVIDED HIGHWAYS WHERE THE PROJECTED 20 YEAR AADT > 15,000 OR WHERE THE HIGHWAY IS OPERATING AS A FREEWAY.
- SRA "EXPRESSWAY" EXIT AND ENTRANCE RAMP ARE ACCEPTABLE ON DIVIDED HIGHWAYS OPERATING AS EXPRESSWAYS PROVIDED THAT THE PROJECTED 20 YEAR AADT ≤ 15,000.
- THE ACCELERATION AND DECELERATION LANES AND TAPERS AS SHOWN ARE CONSIDERED SUITABLE ON DIVIDED HIGHWAYS WHERE THE TERRAIN IS FLAT. WHERE THE ACCELERATION LANE/TAPER IS ON AN UPGRADE, THE NEED FOR LONGER PARALLEL ACCELERATION LANE SHOULD BE ASSESSED. A MERGE SPEED, BASED ON PERFORMANCE CURVES FOR HEAVY TRUCKS (180 g/W), AS SHOWN BELOW IS DESIRABLE:
 - 70 TO 80KM/HR ON FREEWAY ENTRANCE RAMP OR WHERE THE PROJECTED 20 YEAR AADT > 15,000.
 - 60 TO 70KM/HR ON EXPRESSWAY ENTRANCE RAMP OR WHERE THE PROJECTED 20 YEAR AADT ≤ 15,000.
 THE MERGE SPEED IS CALCULATED AT A POINT WHERE THE MERGE TAPER HAS A WIDTH OF 2 METRES.
- WHERE POSSIBLE, SITES SHOULD BE SELECTED SO THAT THE ACCELERATION TAPER IS LOCATED ON A DOWN GRADE AND THE DECELERATION TAPER IS LOCATED ON AN UPGRADE TO ENHANCE HIGHWAY OPERATIONS.
- ADEQUATE DECISION SIGHT DISTANCE SHOULD BE PROVIDED AT EXIT TERMINALS.
- REFER TO THE HIGHWAY GEOMETRIC DESIGN GUIDELINES FOR FURTHER DETAILS.



TYPICAL CROSS-SECTION A-A
N.T.S.
NOTE: DESIGNER MAY CHOOSE AN ALTERNATIVE CROSS-SECTION TO BETTER SUIT THE SITE TOPOGRAPHY.

STAGE IV
TOTAL AREA REQUIRED = 9.5ha
IN ADDITION TO HIGHWAY RIGHT-OF-WAY

◆ PROPOSED LIGHTING
□ POSSIBLE TELEPHONE

BARRIER FREE PARKING STALL CALCULATION

CARS	20 YR AADT	X	0.07 X 0.12 X 0.75 X 1.8 X 15	=	No. SPACES REQ.
	2		60		
TRUCKS	20 YR AADT	X	0.07 X 0.12 X 0.25 X 1.2 X 45	=	No. SPACES REQ.
	2		60		

NUMBER OF TOILETS CALCULATION

20 YR AADT	X	a	b	c	d	=	No. STALLS REQ.
2		0.07 X 0.12 X 1.8 X 1.3					F 60% M 40%
		30					

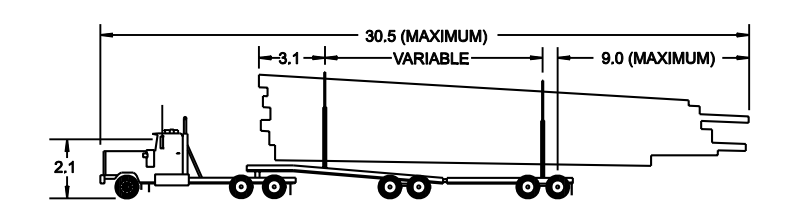
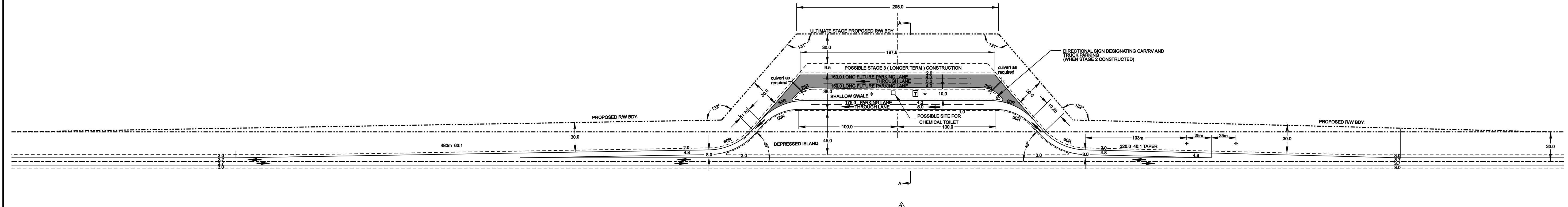
TOILET STALLS

2 - MALE
2 - FEMALE

STALL SIZES

CAR 3.5 X 6.0
RVs 3.5 X 15.0
TRUCK 3.5 X 40.0

		FIGURE F-2.2.2 Date: MARCH 2007	
TYPICAL SAFETY REST AREA ON UNDIVIDED HIGHWAYS FUTURE TWINNING ON OPPOSITE SIDE			
Prepared By: RS	Checked By: WmK	Scale: 1:2000	Page F-35

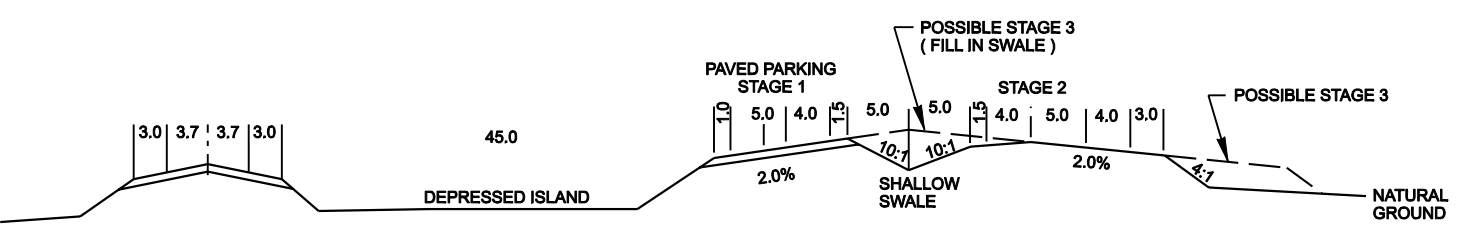


TANDEM-JEEP/POLE-TRAILER LOG HAUL TRUCK
N.T.S.

THE TEMPLATE USED FOR DESIGN OF THIS TURNOUT IS BASED ON A COMBINATION OF THE MAXIMUM OUTSWING AND OFF TRACKING THAT WOULD OCCUR WITH ANY OF THE TYPICAL LOG HAUL TRUCK-TRAILER CONFIGURATIONS WITH A 9M OVERHANG. THIS LAYOUT IS ALSO SUITABLE FOR A WB-36 TURNPIKE DOUBLE TRUCK AND OTHER SMALLER TRUCK UNITS.

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
2. THIS IS A "TYPICAL" PLAN. DESIGNERS MAY CONSIDER OTHER LAYOUTS OR DIMENSIONS TO SUIT TOPOGRAPHY, TRAFFIC, OR PHYSICAL CONSTRAINTS AT THE SITE. REASONS /RATIONALE FOR MODIFICATIONS / CHANGES FROM THE "TYPICAL" PLAN SHOULD BE PROVIDED BY THE DESIGNER FOR THE DEPARTMENT'S CONSIDERATION.
3. WHERE POSSIBLE, SITES SHOULD BE SELECTED SO THAT THE ACCELERATION TAPER IS LOCATED ON A DOWN GRADE SLOPE AND THE DECELERATION TAPER ON AN UPGRADE SLOPE TO ASSIST VEHICLE OPERATION.
4. ADDITIONAL PARALLEL LANE LENGTH MAY BE PROVIDED AS REQUIRED BASED ON TRAFFIC AND GRADIENT.
5. SRA'S ARE TO BE BUILT IN STAGES. STAGE 1 HAS ADEQUATE PARKING FOR MODERATE TRAFFIC VOLUMES. STAGE 2 MAY BE CONSTRUCTED IF REQUIRED TO MEET DEMANDS IN THE FUTURE. IN SOME CASES IT MAY BE COST-EFFECTIVE TO DO THE STAGE 2 GRADING AT THE SAME TIME AS THE STAGE 1 WORK.
6. THE ACCELERATION AND DECELERATION TAPERS AS SHOWN ARE CONSIDERED SUITABLE WHERE THE UNDIVIDED HIGHWAY IS OPERATING AT LEVEL-OF-SERVICE 'A' AND THE TERRAIN IS RELATIVELY FLAT. WHERE THE LEVEL-OF-SERVICE IS LOWER OR THE ACCELERATION TAPER IS ON AN UPGRADE, THE NEED FOR A LONGER ACCELERATION LANE SHOULD BE ASSESSED. A MERGE SPEED OF 70 km/hr IS DESIRABLE BASED ON PERFORMANCE CURVES FOR HEAVY TRUCKS (180 GV).
7. THIS SAFETY REST AREA IS INTENDED FOR USE BY ALL VEHICLES IN ONE DIRECTION ONLY.
8. ADEQUATE DECISION SIGHT DISTANCE SHOULD BE PROVIDED AT EXIT TERMINALS.
9. REFER TO CHAPTER F OF THE DESIGN GUIDE FOR NUMBER OF PARKING STALLS, TOILETS AND OTHER FEATURES.

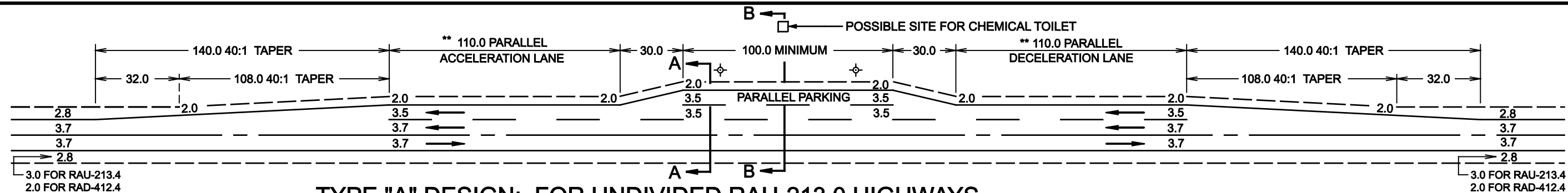


TYPICAL CROSS-SECTION A-A
N.T.S.

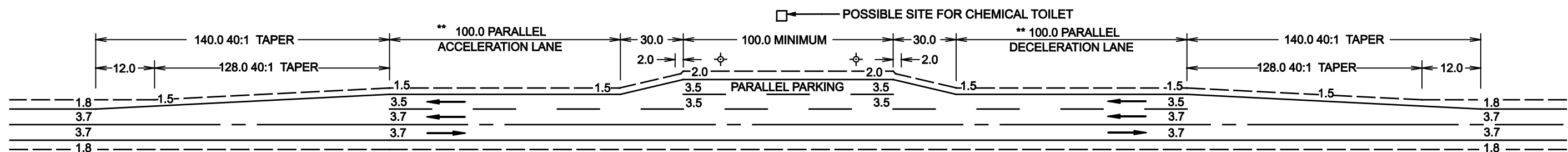
TOTAL AREA REQUIRED = 3.7ha
IN ADDITION TO HIGHWAY RIGHT-OF-WAY

- ✦ PROPOSED LIGHTING
- ☐ POSSIBLE TELEPHONE
- 2nd STAGE CONSTRUCTION

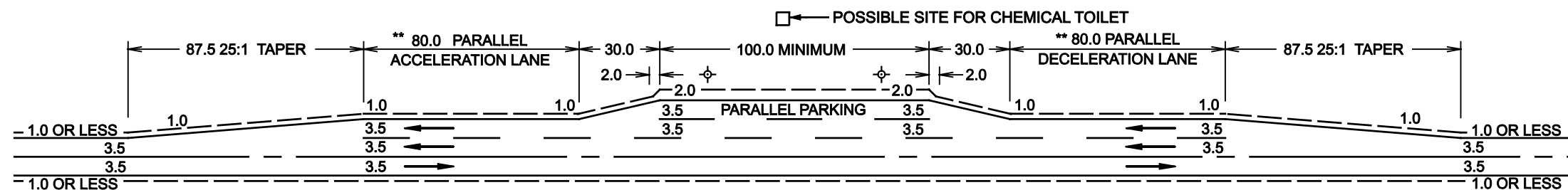
		FIGURE F-2.3.1 Date: MARCH 2007	
TYPICAL SAFETY REST AREA ON TWO LANE HIGHWAYS 20 YEAR AADT > 3000			
Prepared By: RS	Checked By: WmK	Scale: 1:2000	Page F-37



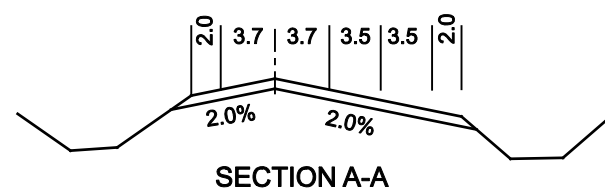
TYPE "A" DESIGN: FOR UNDIVIDED RAU-213.0 HIGHWAYS



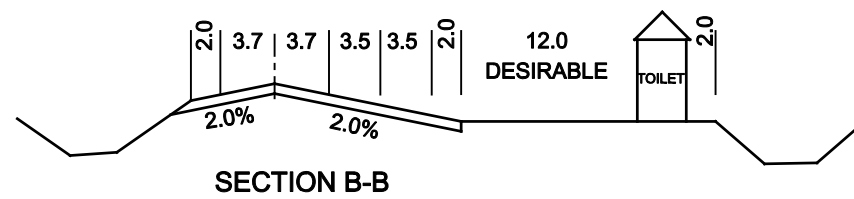
TYPE "B" DESIGN: FOR UNDIVIDED RAU-211.0 HIGHWAYS



TYPE "C" DESIGN: FOR UNDIVIDED RAU-209 OR LOWER STANDARD HIGHWAYS WITH SHOULDER WIDTHS ONE METRE OR LESS



SECTION A-A



SECTION B-B

NOTES:

- DIMENSIONS SHOWN ARE FINISHED SURFACE PAVEMENT WIDTHS. ADDITIONAL SUBGRADE WIDTHS TO BE PROVIDED TO ALLOW FOR DEPTH OF BASE COURSE AND PAVEMENT.
- ALL DIMENSIONS ARE EXPRESSED IN METRES UNLESS OTHERWISE NOTED.
- THIS SAFETY REST AREA IS INTENDED FOR BY ALL VEHICLES IN ONE DIRECTION ONLY.
- TOILET TO BE LOCATED APPROXIMATELY 12m FROM THE EDGE OF PAVEMENT AS PERMITTED BY RIGHT-OF-WAY LIMITS.

- THIS DRAWING IS TO BE USED FOR NON-LOG HAUL TWO LANE HIGHWAYS WITH AADT < 3000.
- FOR TYPICAL SAFETY REST AREAS WITH AADT > 3000 ON TWO LANE HIGHWAYS, INCLUDING LOG HAUL ROUTES, REFER TO FIGURE F-2.3.1.

**** NOTES REGARDING ACCELERATION/DECELERATION LANES:**

- WHERE THE AADT < 1000, THE PARALLEL LANE SECTIONS FOR ACCELERATION AND DECELERATION ARE NOT REQUIRED.
- WHERE 1000 < AADT < 3000 STANDARD ACCELERATION LANES AS SHOWN ON TYPE "A" OR "B" SHOULD BE USED.

⊕ PROPOSED LIGHTING

⚠			
⚠	Notes 5 and 6 Added	TS	2015-05-22
No.	REVISIONS	BY	DATE

Alberta
Infrastructure and
Transportation

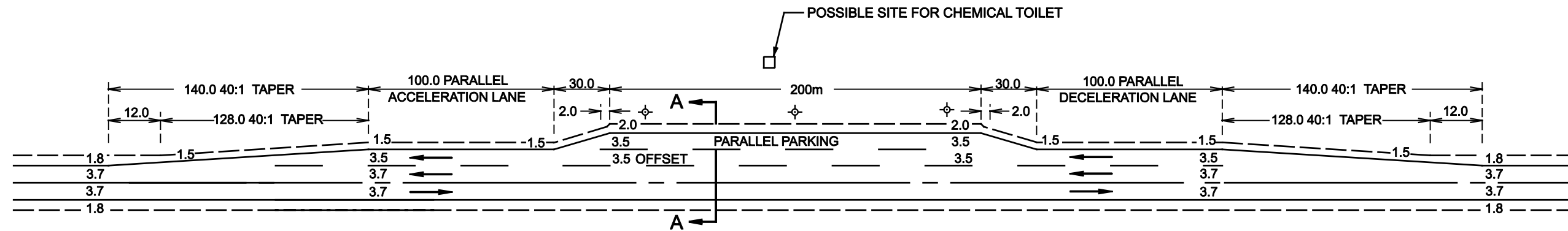
FIGURE
F-2.3.2

Date: MARCH 2007

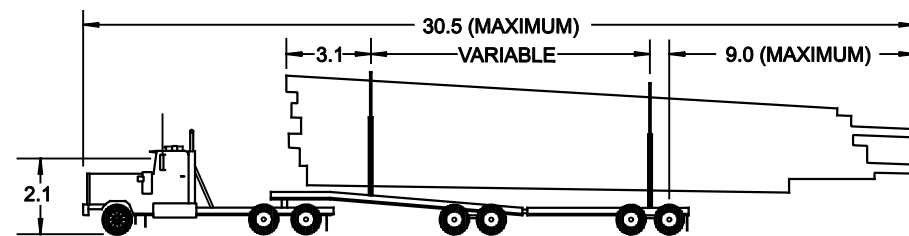
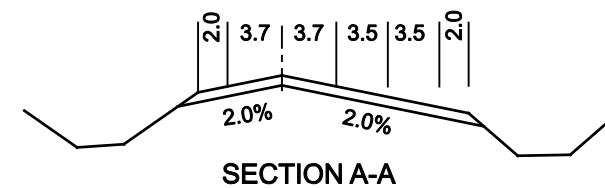
TYPICAL SAFETY REST AREA
ON TWO LANE HIGHWAYS

20 YEAR AADT < 3000

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TYPE "L" DESIGN: FOR LOG HAUL ROUTES WITH 20 YEAR AADT < 3000



TANDEM-JEEP/POLE-TRAILER LOG HAUL TRUCK

- NOTES:**
1. THIS SAFETY REST AREA IS INTENDED FOR USE BY LOG HAUL TRUCKS AND OTHER VEHICLES TRAVELLING IN ONE DIRECTION ONLY. THE DESIGN VEHICLE IS REPRESENTED BY THE ALBERTA LOG HAUL TRUCK AS DESCRIBED IN SECTION D.5 OF THIS GUIDE. THE MAXIMUM ALLOWABLE WIDTH (FROM BUNK TO BUNK) IS 3.2 m.
 2. IN CASES WHERE TYPE L(II) DESIGN IS USED, THE LENGTH OF THE ACCELERATION LANE MAY BE ADJUSTED ACCORDING TO THE GRADE.
 3. THE ACCELERATION CHARACTERISTICS OF THE TYPICAL LOG HAUL TRUCK CAN BE ESTIMATED FROM FIGURE 1.
 4. THE DESIRABLE MINIMUM MERGE SPEED AT THE END OF THE ACCELERATION LANE IS 70 km/h. HOWEVER, MERGE SPEED OF 60 km/h IS CONSIDERED ADEQUATE FOR THIS TYPE OF SAFETY REST AREA.
 5. THE LENGTH OF THE PARALLEL ACCELERATION LANE SHOULD NOT EXCEED 600 m FOR PRACTICAL REASONS.
 6. IDEALLY, TRUCK SAFETY REST AREAS SHOULD BE LOCATED NEAR THE TOP OF SMOOTH CREST CURVES PROVIDED THAT SIGHT DISTANCE RESTRICTIONS DO NOT EXIST. THIS WILL AID THE DECELERATION AND ACCELERATION OF TRUCKS USING THE FACILITY AND MAY ALLOW THE DESIGNER TO REDUCE THE LENGTH OF THE PARALLEL LANE. THE IDEAL LOCATION OF A TRUCK SAFETY REST AREA WOULD PROVIDE DECISION SIGHT DISTANCE AT THE BEGINNING OF TAPER AND NOT BE IN CLOSE PROXIMITY TO A HORIZONTAL CURVE.
 7. CHEMICAL TOILET SHOULD BE PROVIDED. CHEMICAL TOILET SHOULD BE LOCATED BEYOND CLEAR ZONE. REFER TO TABLE C5.2A.
 8. FOR TYPICAL SAFETY REST AREAS WITH AADT > 3000 ON TWO LANE HIGHWAYS, INCLUDING LOG HAUL ROUTES, REFER TO FIGURE F-2.3.1.

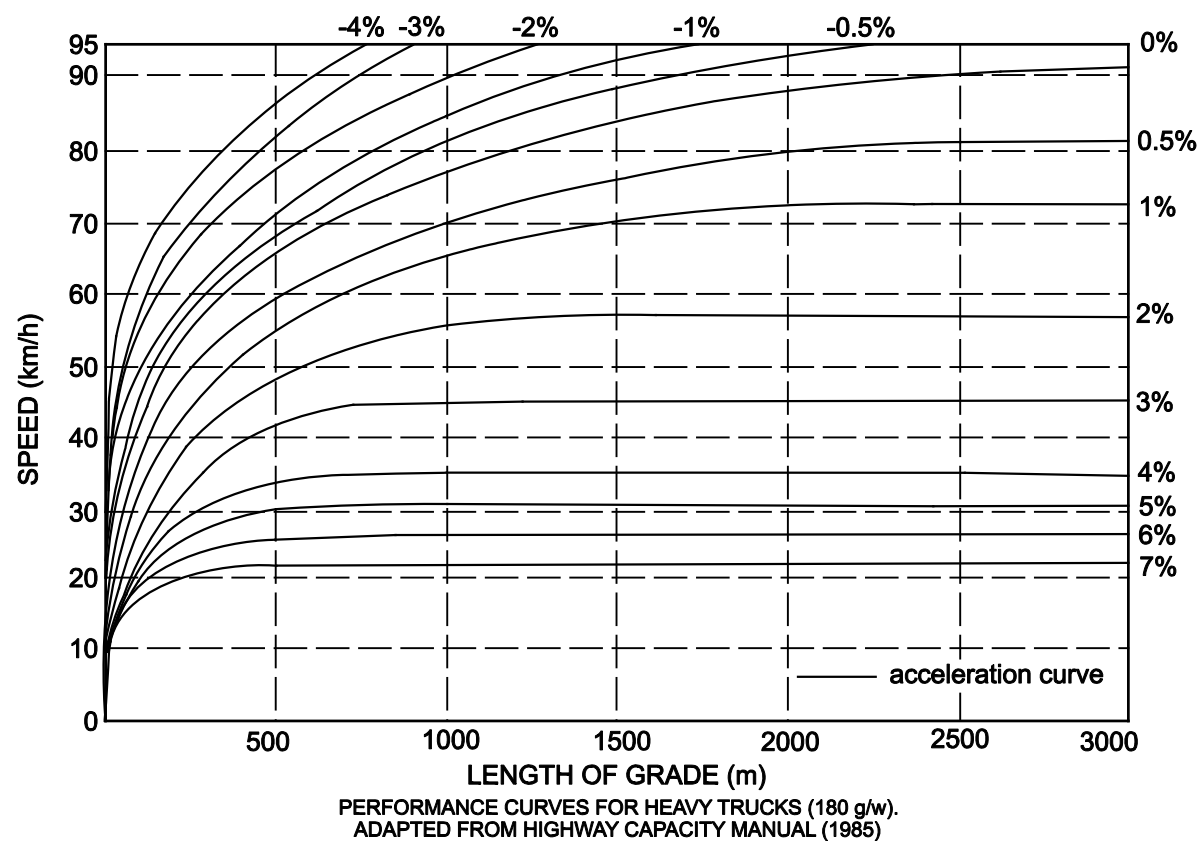


FIGURE 1

⊕ PROPOSED LIGHTING

⊕			
⊕	Note 4 revised and Note 8 added	TS	2015-06-22
No.	REVISIONS	BY	DATE

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FIGURE
F-2.3.3

Date: MARCH 2007

TYPICAL SAFETY REST AREA
ON TWO LANE HIGHWAYS
FOR LOG HAUL ROUTES
20 YEAR AADT < 3000

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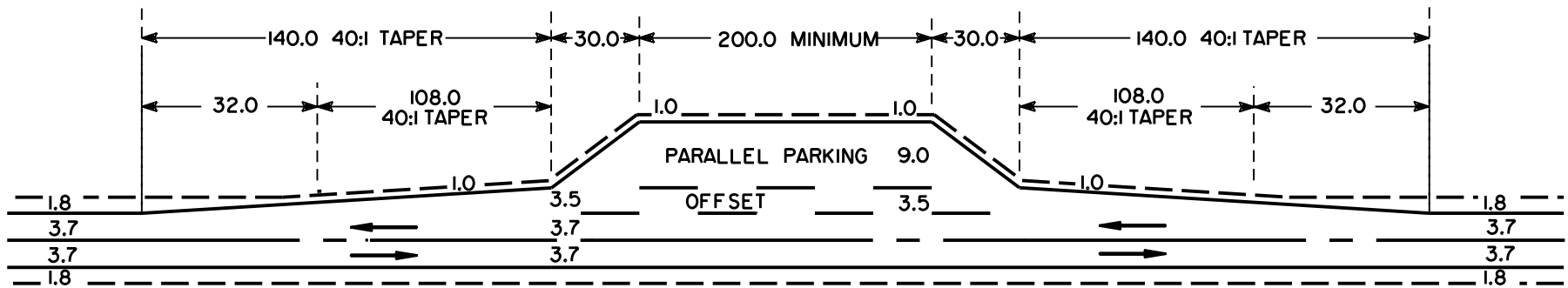
F.3 ROADSIDE TURNOUTS FOR HIGHLOAD / WIDELoad OVERSIZE USE

Figure 3.1 illustrates the typical design for roadside turnouts on Highload/Wideload Oversize Routes (near point of origin) on undivided highways.

While all vehicles are not prohibited from using these turnouts, they are a special layout and are only required at locations that are frequently used as “waiting areas” near the point of origin for trucks carrying high/wide oversized loads. These locations are generally outside of major urban and industrial centres.

Acceleration/deceleration lanes are not required for high/wide oversize loads due to the special traffic arrangements used for movement of these loads.

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NOTES:

1. This roadside turnout is intended for use by high/wide oversized loads. This special layout is only required at locations that are frequently used as "waiting areas" near the point of origin, generally outside of cities.
2. All vehicles are permitted to use these sites. This roadside turnout is intended for use by vehicles traveling in one direction only.
3. Acceleration/deceleration lanes are not required for high/wide oversized loads.

▲			
▲	Figure Number	PM	Mar/07
No.	REVISIONS	BY	DATE
		FIGURE ▲ F - 3.1 Date: DECEMBER 2001	
ROADSIDE TURNOUTS FOR HIGHLOAD/WIDELoad USE (NEAR POINT OF ORIGIN)			
Prepared By: LT	Checked By: BK	Scale: N.T.S.	PAGE F - 43