SECTION G TRANSPORTATION

G.1 INTENT

G.1.1 This section is intended to provide guidelines to assist the County and/or Developer in the design of road sidewalk and trail improvements that will meet the servicing requirements for commercial, industrial and residential development within Lamont County.

G.1.2 The servicing standards have been developed with goals in mind:

1.2.1 To ensure that the County is provided with a quality product that will meet an acceptable long-term life expectancy while maintaining cost efficiency and practicality so as not to prohibit land development.

1.2.2 To minimize the maintenance requirements associated with roads and subdivisions.

G.1.3 The guidelines and standards presented in this section should only be considered as minimum requirements. The Developer remains fully responsible for the design and construction of municipal improvements according to accepted engineering practice and standards that address and meet the specific needs and site conditions of the development. Certain site-specific conditions may warrant more stringent standards are met.

G.1.4 **It is the Developer's responsibility to satisfy, in addition to these requirements,** all regulations and conditions required by the following:

Pubic Lands Act,
Municipal Government Act,
Water Act,
Environment & Enhancement Act,
Provincial Wetlands Policy,
Alberta Environment, Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems
Lamont County General Municipal Servicing Standards
Alberta Highway Design Guide
Transportation Association of Canada (TAC) Geometric Design Guidelines
TAC Uniform Traffic Control Devices for Canadian Roads
TAC Highway Lighting Design Guide
Municipal Bylaws
Fisheries Act,
Species at Risk Act,
Navigable Water Protection Act, other

G.2 LEVEL OF SERVICE ROADWAYS

G.2.1 The Developer's Engineer shall be responsible for determining an estimated annual average daily traffic (AADT) generated by the development in order to determine the required cross sectional elements and pavement structure.

G.2.2 Generally local roads with an AADT of 200 or less are built as if the gravel surface is the final surface finish, Lamont County may require provision for a wider subgrade to allow for future base paving.

G.3 GENERAL

G.3.1 For each new development, the appropriate roadway classifications and design designation shall be determined during the planning stages in consultation with County officials. A general guideline identifying the minimum applicable roadway designation for each type of Land Use Districts is provided in Section C.

G.3.2 Where conflicts or inconsistencies with the General Municipal Servicing Standards arise due to adoption of other transportation planning documents, the Developer shall be responsible for satisfying the more stringent requirement.

G.3.3 Should the need arise that any of the standards cannot be met; a written request outlining the variance is to be forwarded to the Municipal Engineer. The request will be reviewed and a written response will be returned.

G.3.4 The Developer shall be responsible for quality control testing related to the roadway construction including but not necessarily limited to sieve analysis, densities, mix design, core sampling and concrete testing. Quality control shall be performed by an independent party and certified by a professional engineer licensed to practice in the province of Alberta.

G.4 DESIGN CRITERIA

G.4.1 It is the Developer's responsibility to assess the traffic impacts associated with a proposed land development. This assessment must include a projection of the average annual daily traffic (AADT) over a 20-year design life for the internal

subdivision roads as well as any adjacent provincial highways or municipal roadways.

G.4.2 All off-site road improvements required as a result of land development must be identified in the design stage by the Developer. An off-site levy will be assessed and charged to the developer.

G.4.3 The trip generation rate for single detached housing in Lamont County shall be 9 one–way trips per household. Trip generation rates for other types of development shall be justified by the Developer or the Developer's Engineer and approved by the Municipal Engineer.

G.5. DESIGN DESIGNATIONS

G.5.1 The County uses the following design designations for rural and urban roads. The cross section elements for each of these design designations are shown in drawings G-01 to G-014 at the back of this section.

G.5.2 For the purpose of these servicing standards, all roadways within the County other than primary and secondary highways and some major grid roads will be considered local roads. Although some may perform minor collector functions, the above design designations should apply to most roadways.

G.5.3 The roadway design shall be prepared considering the future requirements, economic factors, safety considerations, staging, and other road users not associated with the development.

G.5.4 The design speed selected should relate to the expected operating speed on the road after improvement. It should reflect public expectations and include an allowance for safety. The design speed is typically 10 km/hr higher than the anticipated posted speed limit.

Table 1 – Geometric Design Requirements

Designation	Surface	AADT*	Truck Traffic	Min. ROW** (m)	Preferred ROW** (m)	Design Speed (km/h)	Posted Speed (km/h)	SSD† (m)	Crest k (m)	Sag k (m)	Min. Horiz. Radius (m)
Access Road	Gravel	< 25	None	20	30	60	50	85	15	20	120
(new) Rural 8.0m Gravel	Gravel	< 100	Minimal	30	30	90	80	170	55	40	300
Standard Local Road	Gravel	< 200	Minimal	30	30	100	80	200	75	50	390
Collector Road 13.0m	ACP	< 200	Minimal	60	60	100	80	200	75	50	440
Collector Road 11.0m	ACP	< 200	Minimal	30	40	100	80	200	75	50	440
Collector Road 11m	Cold Mix	> 200	Significant	30	40	100	80	200	75	50	440
Paved Local Paved 8.0m	Cold Mix	< 200	Minimal	30	40	100	80	200	75	50	440
Paved Local Road 9.0m	ACP	< 200		30	40	100	80	200	75	50	440
(existing) Arterial 9.0m	Cold Mix	< 500	Minimal	30	40	100	80	200	75	50	440
(proposed) Arterial 9.0m	ACP	< 500		40	40		80	200	75	50	440
Arterial 10m	ACP	< 2000		40	40	100	80	200	75	50	440
Arterial 11m	ACP	> 2000	Significant	40	40	70	60	110	25	25	190
Urban 9.0m	ACP	< 2000		20	30	60	50	85	15	20	130
Urban 11.5m	ACP	> 2000	Significant	30	30	70	60	110	25	25	190
Urban 14.5m	ACP	> 2000	Significant	33	33	70	60	110	25	25	190

* AADT = Average Annual Daily Traffic
** ROW = Right-of-Way
† SSD = Stopping Sight Distance

Note: The recommended design speeds are for internal roadway systems only. Geometric standards are from Alberta Transportation's Highway Geometric Design Guide. It has been assumed that the maximum superelevation rate will be 0.08 m/m for gravel surfaced roads and 0.06 m/m for asphalt surfaced roads.

G.6 STRIPPING TOPSOIL

G.6.1 Topsoil shall be stripped of road right-of-way and trenching areas to its fill depth. Topsoil form these areas shall be used on Public Lands or boulevards as required. Any remaining topsoil shall be stockpiled at approved locations and shall become the property of the County. The topsoil, when used as fill shall be placed such as to add to existing topsoil, thereby utilizing it for landscaping purposes. Surplus topsoil is to be stockpiled for use in final grading of parks, boulevards, buffer strips, and developed lots. (10 mil topsoil for ditch final grading)

G.7 PAVEMENT STRUCTURE

G.7.1 Roadway subgrade and pavement structures shall be based on results of a geotechnical investigation. A report shall be submitted specifying the required structure and all design factors including design traffic loading and the pavement design life. The pavement structures indicated on the cross sections are intended as minimum standards only. It is the Developer's responsibility to design the subdivision roadways to meet or exceed these standards in accordance with good engineering practices and specific site conditions (Min 120 mil pavement ACP).

G.8 SUBGRADE PREPARATION

G.8.1 The subgrade shall be prepared by compacting the soil below the subgrade to an average of 100% Standard Proctor Density, with no test result being less than 97% Standard Proctor Density. The soil below the subgrade shall be compacted in layers not exceeding 150 mm. Each compacted layer shall be accurately shaped and graded parallel to the design grades and cross-sections. If compaction range cannot be met then the subgrade is to receive cement stabilization treatment as determined by a qualified geotechnical engineer.

G.8.2 During compaction, the soil shall be at its optimum moisture content as determined by a qualified geotechnical engineer. When a deficiency in moisture content exists, the soil shall be watered and thoroughly mixed until optimum moisture content is uniformly attained. When there is an excess of moisture the soil shall be worked and aerated until the optimum moisture content is reached. One-mould proctor density testing will not be permitted as an alternate testing procedure due to wet soil conditions. The Developer's Engineer will be required

to suggest appropriate measures such as drying in-site material or importing suitable material in order to meet the required Standard Proctor Densities.

G.9 PIT-RUN MATERIAL

G.9.1 Pit-run shall be used to stabilize the sub-base in areas where silty in-situ materials exist. The minimum structure requirements are listed on the standard cross section drawings. Filter cloth or geogrid or proven engineered method can be utilized as alternative to pit run.

G.9.2 After over-excavation of any unsuitable sub-base material, pit-run shall be placed in the excavation and compacted to 100% of Standard Proctor Density. Additional layers of pit-run required to bring the sub-base elevation to the bottom of the base course shall be placed in layers not exceeding 150 mm in depth and compacted to 100% of Standard Proctor Density. Water shall be applied and mixed uniformly with the crushed gravel until the final moisture content is at least the optimum moisture for the mixture, and preferably from 1% to 2% above the optimum moisture. The optimum moisture content for the mixture shall be determined by a qualified geotechnical engineer or firm. If necessary, water shall be added or applied to the material during compaction to maintain the required uniform moisture content.

G.10 BASE COURSE

County uses 1.5". AT standards can be adopted. Crush design statement sieve table to be referenced from Definitions.

G.10.1 Each lift shall be compacted to 100% Standard Proctor Density. Water shall be applied and mixed uniformly with the crushed gravel until the final moisture content is at least the optimum moisture for the mixture, and preferably from 1% to 2% above the optimum moisture. The optimum moisture content for the mixture shall be determined by a qualified geotechnical engineer or firm. If necessary, water shall be added or applied to the material during compaction to maintain the required uniform moisture content.

G.10.2 Base course material shall be laid and compacted in a single layer when the compacted thickness specified does not exceed 150 mm. When a thickness in

excess of 150 mm is specified the material shall be laid and compacted in layers not exceeding 150 mm.

G.11 CUL-DE-SACS

G.11.1 The maximum length for any cul-de-sac without a Public Utility Lot (PUL) is 120 m from the centreline of the intersecting street to the start of the bulb. Cul-de-sacs in excess of 120m shall require a 6.0 m wide PUL allowing emergency vehicle access and watermain looping. See drawing G-14 at the back of this section.

G.11.2 PUL's provided to allow for emergency access shall not be utilized for stormwater storage. The PUL shall be properly graded to ensure positive drainage toward the road and seeded or sodded to prevent erosion.

G.11.3 Cul-de-sacs should be graded to drain towards the intersection unless a PUL is provided to allow drainage to escape.

G.11.4 The minimum cul-de-sac bulb radius for residential areas is 18 meters measured to the face of curb or shoulder. Industrial radius for bulbs is minimum 24m.

G.12 INTERSECTIONS

G.2.1 Intersections shall be designed at 90° wherever possible. The minimum angle of intersection for two roadways shall be 75 ° unless otherwise approved by the Municipal Engineer. Sight distances 300 m.

G.12.2 Intersection design shall incorporate accepted sight distances based on the roadway classification and good engineering practice minimum 300 m.

G.12.4 Minimum intersection spacing shall be 60 m measured from centreline to centreline.

G.12.5 Intersectional treatments shall be designed based on estimated 20-year traffic volumes. All necessary widenings of existing right-of-ways shall be provided by the Developer. Sight distance shall be minimum 300 m both directions.

G.13 CONCRETE CURB AND GUTTER

G.13.1 Concrete curb and gutter shall be constructed on all urban cross sections according to the typical cross sections shown in drawings G-12 and G-13.

G.13.2 The vertical face curb and gutter cross section shall be used on all roads fronting public lands such as parks and public utility lots. Vertical face curbs shall also be used within the right-of-way when crossing pipelines unless separate vehicle barriers are provided to prevent unauthorized access.

G.13.3 The rolled face curb and gutter cross section may be used on all local/residential roadways allowing driveway access.

G.13.4 Curb returns on all residential street intersections shall have a minimum radius of 9.0 m.

G.13.5 Curb returns on all commercial/industrial intersections shall have a minimum radius of 15.0 m and shall be designed to accommodate truck turning movements.

G.13.6 The minimum gutter grade shall be 0.5% except for cul-de-sac bulbs, curb returns and catch basin approaches, which shall be 0.8%. The 0.5% minimum grade shall be maintained throughout sag vertical curves to avoid the short length at near horizontal grade.

G.13.7 Curbs shall be constructed using Portland Cement to CSA A3000. Materials, production, delivery, placement and finishing shall conform to CSA A23.1.

G.13.8 The minimum 28 day compressive strength of concrete shall be 25 MPa. Air entrainment shall be within 5 – 8 % by volume. Concrete testing is required for every 60 m^3 of cast in place concrete.

G.13.9 Curbs shall be constructed on prepared subgrade, cement stabilized subgrade, granular base course, soil cement or asphalt concrete.

G.13.10 For all urban cross sections, wick drains shall be placed below the curb, between the subgrade and granular base course. The wick drain shall be connected to the nearest catch basin.

G.13.11 Curbs must be backfilled with suitable clay within 7 days of concrete placement and prior to placement of the roadway structure. The clay material

shall be backfilled to within 100 mm of the top of curb to allow for the placement of topsoil material.

G.13.12 The use of swale gutters shall be limited to minor and residential streets. Swale gutter cross section shall be a minimum of 1.0 m wide and 200 mm thick with steel reinforcing.

G.13.13 All driveways crossing a swale shall be reinforced with a minimum of two No. 4 rebars.

G.14 SIDEWALKS AND PAVED STRUCTURES

G.14.1 Sidewalks shall be accessible to all persons as well as being safe, functional and aesthetically pleasing.

G.14.2 Sidewalks installed for new subdivisions shall integrate with the existing walkway system on intersecting roadways.

G.14.3 Separate sidewalks shall be a minimum of 1.5 m wide.

G.14.4 The requirements for sidewalks in commercial and industrial areas shall be reviewed on a site-specific basis in conjunction with the proposed use and other required services.

G.14.5 Curb ramps shall be used at all curbed intersections.

G.14.6 All sidewalks shall be imprinted with the Contractor's stamp indicating year of construction every 200 m.

G.14.7 Sidewalks shall be imprinted with a "CC" at all cub cock locations.

G.14.8 Minimum 28-day compressive strength shall be 30 MPa. Air entrainment shall be within 6 – 8%. All sidewalks are to be adequately reinforced as per drawing G-20.

G.14.9 The granular base course shall consist of 150 mm compacted thickness of Designation 3 Class 20A aggregate. The subgrade and gravel base course under the sidewalk shall be compacted to 100% Standard Proctor Density.

G.14.10 Horizontal sidewalk alignment for separate sidewalks shall be at a constant offset from the adjacent roadway centreline.

G.14.11 Sidewalks shall be graded to facilitate positive drainage flow. The minimum grade is 0.5%. Wick drains shall be provided under monolithic sidewalk, curb and gutter structures.

G.14.12 Cold weather concrete pouring below 5° C shall require prior approval by the Municipal Engineer and shall be placed according to CSA A23.1.

G.15 GRANULAR WALKWAYS AND WOOD MULCH HIKING TRAILS

G.15.1 The Developer shall be responsible for the design and construction of walkways or trails as required by the Development agreement. Rest areas are to be incorporated into the right-of-way width every 800 m.

G.15.2 Where a walkway/trail is required to be incorporated into a development the alignments and locations within the development must allow for adequate public access to parks, recreational areas and environmental and municipal reserves.

G.15.3 Top of bank walkways/trails shall be designed and constructed so as not to impede natural and post development drainage down the embankment. Grading is to ensure that concentrated overland flows are not generated any where along the bank unless an engineered outlet structures are present.

G.15.4 Where walkways/trails cross drainage swales, ditches or natural drainage courses, culverts or footbridges shall be designed to accommodate a 1:25 year storm without overtopping. Culverts and footbridges will require approval by Alberta Environment and Water and applicable Federal Agencies. Design of footbridges will be in accordance with Part 4 of the Alberta Building Code.

G.15.5 Wherever possible, walkways/trails should be centred within the right-of-way. Walkways/trails may be offset from the centreline in situations where this will prevent conflicts with utilities sharing the same right-of-way.

G.15.6 Walkway/trail grading shall ensure positive drainage with a minimum grade of 2.0%. Grading shall be designed in order to incorporate the overall drainage pattern of the development.

G.15.7 Where the walkway/trail is located within an existing utility right-of-way, the Developer shall be responsible for obtaining necessary agreements from the proper authority.

G.15.8 Where the walkway/trial right-of-way is not shared with other utilities, it shall be a minimum of 6 m wide with a minimum clearance of 2 m from the edge of the walkway/trail to the property line.

G.15.9 The subgrade must be compacted to a minimum 95% Standard Proctor Density (SPD) for a depth of 150 mm.

G.15.10 For granular walkways, the excavation is to be lined with a geotextile fabric liner prior to placement of the granular material. The edge return for the geotextile fabric is to be anchored 0.06 m below excavation depth. The granular material shall be spread uniformly and compacted to 95% SPD.

G.15.11 For woodchip mulch hiking trails, the excavation is to be lined with a geotextile fabric liner prior to placement of the woodchip mulch. The edge return for the geotextile fabric is to be anchored 0.06 m below excavation depth. The woodchip mulch shall be spread uniformly with a minimum 2% crown/cross fall and roller compacted in-place ensuring a uniform depth and surface appearance.

G.15.12 Where walkways/trails are planned through wooded areas the minimum width is to be 1.5 m or as specified by the Development Authority. The minimum headroom clearance at the center line of the walkway/trail is to be 3.0 m. Vegetation is to be cleared a minimum of 0.6 m from the edge of the walkway/trail edge.

G.15.13 Surfacing material must be approved by the County prior to installation. Materials shall be selected to minimize the maintenance and replacement costs.

G.15.14 Rest areas are to incorporate a bench and waste receptacle as approved by the County.

G.16 APPROACHES

G.16.1 Approaches shall be situated such that they do not access directly onto a roadway with an estimated AADT of greater than 4000.

G.16.2 Approaches shall have a minimum clearance of 1.5 metres from any surface feature such as hydrants, power poles, and curb cocks.

G.16.3 Approaches shall not be situated on a curb return.

G.16.4 For corner lots, the approaches should access the road with a lesser traffic volume wherever possible. Wherever possible, approaches should not be located within 100 m of an intersection with the exception of multi-lot subdivisions.

G.16.5 For industrial lots, the selection of the approach location may be delayed until parking lot configurations are determined. A caveat on title will be required to inform future owners of their responsibility to pay for the installation while adhering to design recommendations.

G.16.6 Residential approaches shall be 7.5 metres in width. Industrial approaches shall be 10.0 metres in width subject to review for specific vehicle movements anticipated with the development.

G.16.7 All approaches shall have the same structure as the adjoining roadway and be constructed up to the property line.

G.17 SIGNAGE

G.17.1 The supply and installation of a traffic control and street identification signs as per Drawing G-31 is the responsibility of the Developer.

G.17.2 Traffic control signs shall be manufactured and installed in accordance with the latest edition of "Uniform Traffic Control Devices for Canada".

G.17.3 Street addressing signs shall be located within 10.0 m of the intersection in the direction of the near-side approaching traffic. Signs shall be offset at least 1.0 m from the edge of the road and mounted 3.0 m to 3.5 m above the finished road surface. Street addressing signs shall be a minimum size of 15 cm x 60 cm and a maximum of 15 cm x 90 cm. The lettering shall be 10 cm high. If the address does not fit on the maximum size, two signs may be joined with an end bracket and H-clip. Signs shall have silver lettering with a blue background. Street name sign locations shall be approved by Lamont County.

Except in urban areas, a clearly visible panel containing the proper number of the parcel of land accompanied by the proper road number or number which complies with the following specifications; numbers and letters are not to be less than 10 cm (4 inches) in height, light reflective, white in color, mounted on a light reflective green panel, and the sign is to be posted 1.8 m (6 feet) to the

left of the access/entrance of the parcel of land, and 0.3 meters (1 foot) inside the property line and a minimum of 1.22 m (4 feet) above the natural ground level so as to be clearly visible from the road.

In urban areas, the proper number for the parcel of land such numbers being not less than 10cm (4 inches) in height.

G.17.4 Street names shall be approved by Lamont County and included in the Development Agreement.

G.17.5 All signs shall be placed so as not to obstruct the view of oncoming vehicles.

G.17.6 Permanent subdivision identification signs located at the entrance shall:

G.17.6.1 be designed to be maintenance free for a minimum of 15 years;

G.17.6.2 be constructed and installed to hold signs rigidly in their proper and permanent position;

G.17.6.3 be constructed of concrete, masonry, stone, non-ferrous metal or a combination thereof. No permanent wood signage will be permitted.

G.17.6.4 be maintained by the Developer to the end of the maintenance period

G.17.7 Material for temporary signs, such as subdivision layout signs, shall be approved by the County prior to installation. Removal of temporary signs shall be the responsibility of the Developer prior to the end of the maintenance period.

G.17.8 The Developer shall install a County prepared Municipal Address Sign within the road right-of-way, adjacent to the first lot on the right hand side at the main subdivision entrance. The sign design and location shall be submitted to the County for approval. The developer will be responsible for supply of the post and sign installation. The Municipal Address Sign shall be in compliance with Rural Addressing Bylaw No. 710/11.

G.17.9 All parcels of land in Lamont County fronting upon a road, which are occupied by a structure, shall be assigned a municipal address by the County.

G.18 DRAINAGE AND CULVERTS

G.18.1 It is the Developers responsibility to construct a drainage system that will meet the flow requirements outlined in Section F for both rural and urban cross sections.

G.18.2 Ditches for rural roadways shall have backslopes no steeper than 2H:1V.

G.18.3 Ditch grades shall match the road grades wherever possible.

G.18.4 Ditch grades shall have a minimum grade of 0.5% wherever possible. Grades less than 0.5% shall be subject to review and approval by the Municipal Engineer.

G.18.5 Drainage channels shall be provided with ditch checks and/or other means of erosion control as necessary. All drainages shall be seeded. See Section H for seed mixture.

G.18.6 Ditches shall have a flat bottom, width as per applicable design standard.

G.18.7 Culvert sizing is the responsibility of the Developer's Engineer. Culverts and ditches shall be designed to accommodate a 1:25 year rainfall event. Ditches shall be allowed to back up during such an event to the height of the subgrade.

G.18.8 Culverts shall be new galvanized corrugated steel pipe with a minimum wall thickness of 1.6 mm or as required to meet the loading criteria.

G.18.9 Minimum pipe sizes for various uses are as follows:

Residential Approach Culvert	500 mm diameter
Industrial Approach Culvert	600 mm diameter
Roadway Centreline Culverts	600 mm diameter

G.18.10 All culverts shall have appropriate end treatments depending on application. Inverts shall be extended to the toe of the side slope.

G.18.11 The culvert grade shall not be less than the ditch grades at the inlet and outlet.

G.18.12 Culverts shall have a sufficient amount of cover to protect against damage from the expected traffic loading. Minimum cover shall be 300 mm or one-half the

diameter of the culvert, whichever is greater as measured from the finished shoulder grade to the top of the culvert.

G.19 Road Gravelling (Rural Roads)

G.19.1 The roadway gravelling application rate shall be determined by the municipal engineer based on the roadway use and soil conditions.

G.19.2 All rural residential driveways shall be gravelled at a minimum rate of 8 cubic metres per approach, from the roadway shoulder to the property line.

G.19.3 Gradation of surface gravel shall be approved by the Municipal Engineer.

G.20 Pavement Payment Penalties

G.20.1 If the average core thickness does not meet specifications, at the discretion of the County, the asphalt may be assigned a pay factor according to the design specs of material, Hot-Mix Asphalt Paving, Table 02741.1 Asphalt Thickness Pay Factors.

G.20.2 If the average core density does not meet specifications, at the discretion of the County, the asphalt may be assigned a pay factor according to the Hot-Mix Asphalt Paving, Table 02741.2, Asphalt Density Pay Factors.

G.20.3 It shall be the responsibility of the Developer's Engineer to submit the pay factor calculations as applied to the contract price to the County for approval prior to acceptance of the Construction Completion Certificate.

G.21 Parking Facilities

G.21.1 Off-Street Vehicular Parking

G.21.1.1 When any new development is proposed, including a change of use of existing development, or when any existing development is, in the opinion of the Development Authority, substantially enlarged or increased in capacity, off-street vehicular parking or garage spaces shall be provided in accordance with the Standards of Off-Street Vehicular Parking.

G.21.1.2 All off-street vehicular parking spaces shall conform to the requirements outlined in the Table 1 below.

Table 1: Minimum Parking Standards

a Parking Angle in Degrees	b Width of Space	c Depth of Space Perpendicular to Aisle	d Width of Space Parallel to Aisle	e Overall Depth	f Width of Maneuvering Aisle
0	2.8m	2.8m	7.0m	9m	One Way 4m
30	2.8m	5.2m	5.5m	14m	One Way 4m
45	2.8m	5.8m	4.0m	15m	One Way 4m
60	2.8m	6.1m	3.2m	18m	One Way 6m
90	2.8m	6.1m	2.8m	18m	One Way 7m

G.21.1.3 For other requirements for Off-Street Vehicular Parking see Land Use Bylaw 07-005.

G.21.2 Handicapped Spaces are to be provided as per the building code.

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CUT SECTION

- WIDTH OF DITCH – 2.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD IS INTENDED FOR LOW VOLUME ROADS THAT WILL BE GRAVEL SURFACED ONLY AND WILL HAVE LITTLE OR NO TRUCK TRAFFIC. TYPICALLY THIS 7.0m ROADWAY IS USED ON ROADS WITH AADTS < 25.

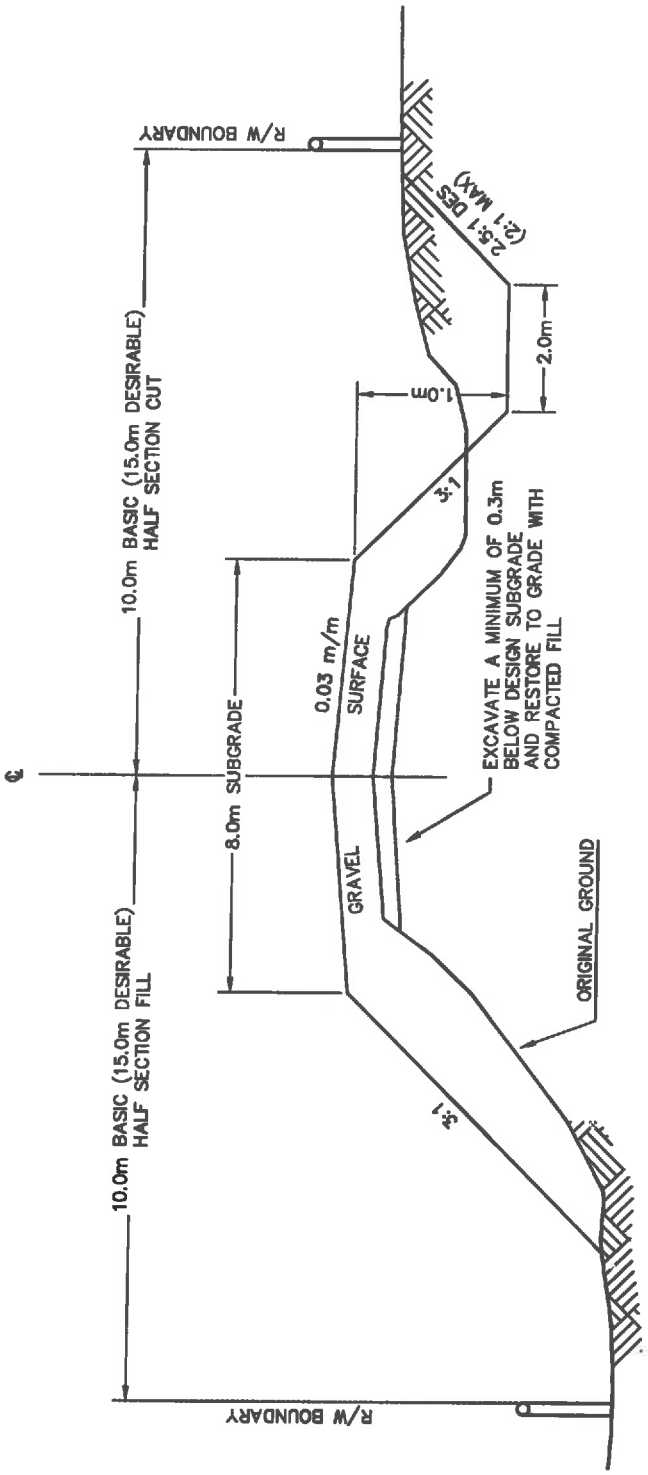
FILL SECTION

- 3:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR GRADING & GRAVEL SURFACING ACCESS ROAD	RLU-207G
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-01
Date: APRIL 2013	Drawn: JIM	Scale NTS		



CUT SECTION

- WIDTH OF DITCH – 2.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD IS INTENDED FOR LOW VOLUME LOCAL ROADS WHICH WILL BE GRAVEL SURFACED ONLY. TYPICALLY THIS 8.0m ROADWAY IS IS FOR ROADS WITH AN AADTS < 100.

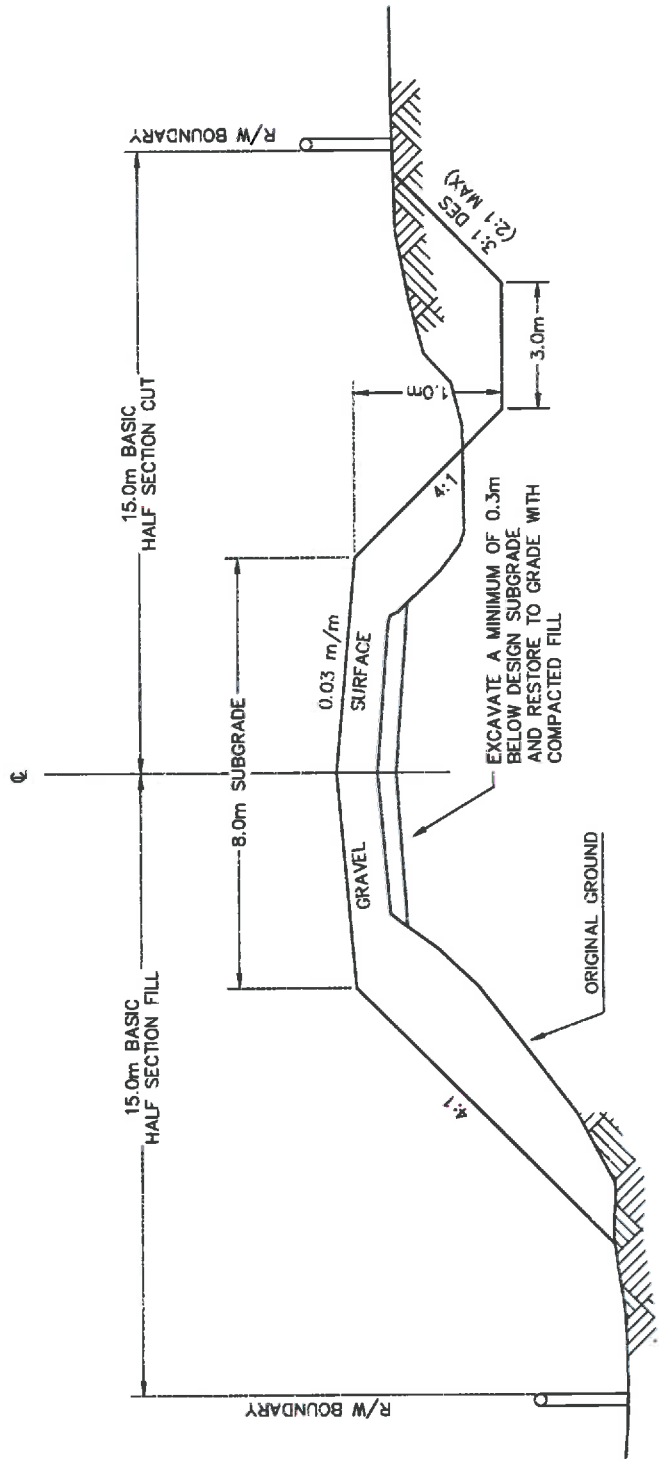
FILL SECTION

- 3:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR GRADING & GRAVEL SURFACING (NEW) RURAL 8.0m GRAVEL	RLU–208G(a)
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G–02
Date: APRIL 2013	Drawn: JIM	Scale NTS		



CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD IS INTENDED FOR LOW VOLUME LOCAL ROADS WHICH WILL BE GRAVEL SURFACED ONLY. THIS 8.0m ROADWAY IS TYPICALLY USED FOR AADTS < 200.

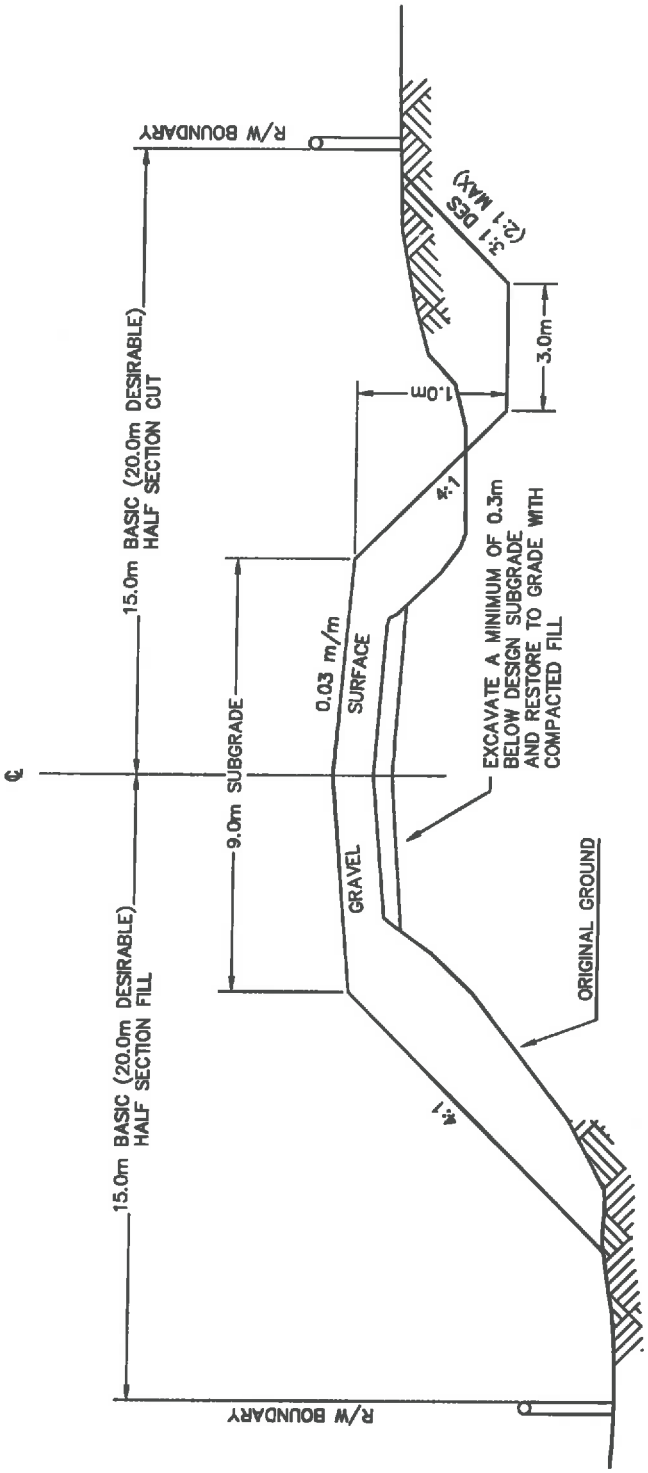
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR GRADING & GRAVEL SURFACING STANDARD LOCAL ROAD	RLU-208G(b)
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-03
Date: APRIL 2013	Drawn: JIM	Scale NTS		



CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD IS INTENDED FOR LOW VOLUME LOCAL ROADS WHICH WILL BE GRAVEL SURFACED ONLY. THIS 9.0m ROADWAY IS TYPICALLY USED FOR AADTS > 200.

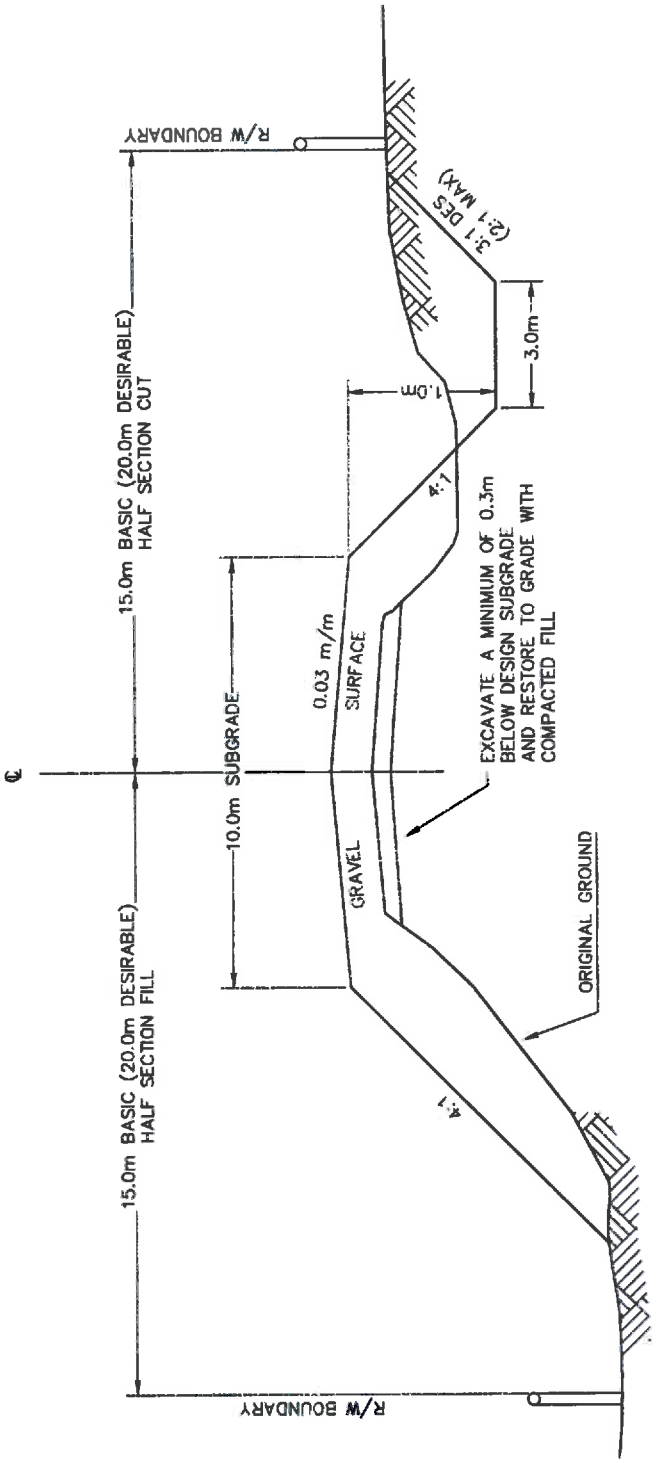
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR GRADING & GRAVEL SURFACING COLLECTOR ROAD 9.0m	RLU-209G
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-04
Date: APRIL 2013	Drawn: JIM	Scale NTS		



CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD IS INTENDED FOR LOW VOLUME LOCAL ROADS WHICH WILL BE GRAVEL SURFACED ONLY. THIS 10.0m ROADWAY IS TYPICALLY USED FOR AADTS > 200 WHERE TRUCK VOLUMES WARRANT ADDITIONAL SUBGRADE WIDTH.

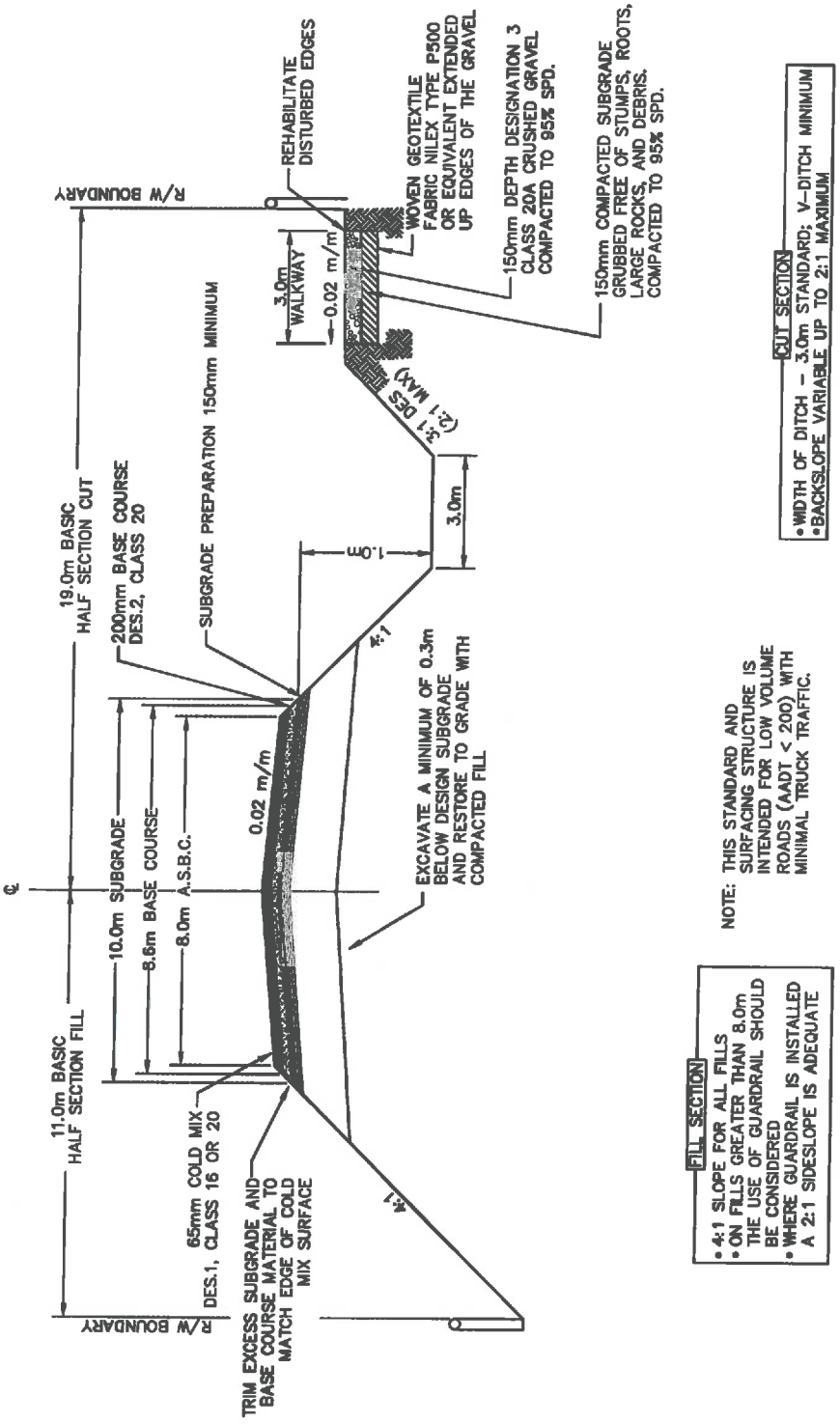
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR GRADING & GRAVEL SURFACING COLLECTOR ROAD 10m	RLU-210G(a)
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-05
Date: APRIL 2013	Drawn: JIM	Scale NTS		



Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir	TYPICAL CROSS SECTION FOR ASPHALT STABILIZED BASE COURSE SURFACING PAVED LOCAL ROAD 8.0m WITH 3.0m GRANULAR WALKWAY	RLU–208(a)
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved:
Date: APRIL 2013	Drawn: JIM	Scale NTS	Drawing G–06a

CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOW VOLUME ROADS (AADT < 200) WITH MINIMAL TRUCK TRAFFIC.

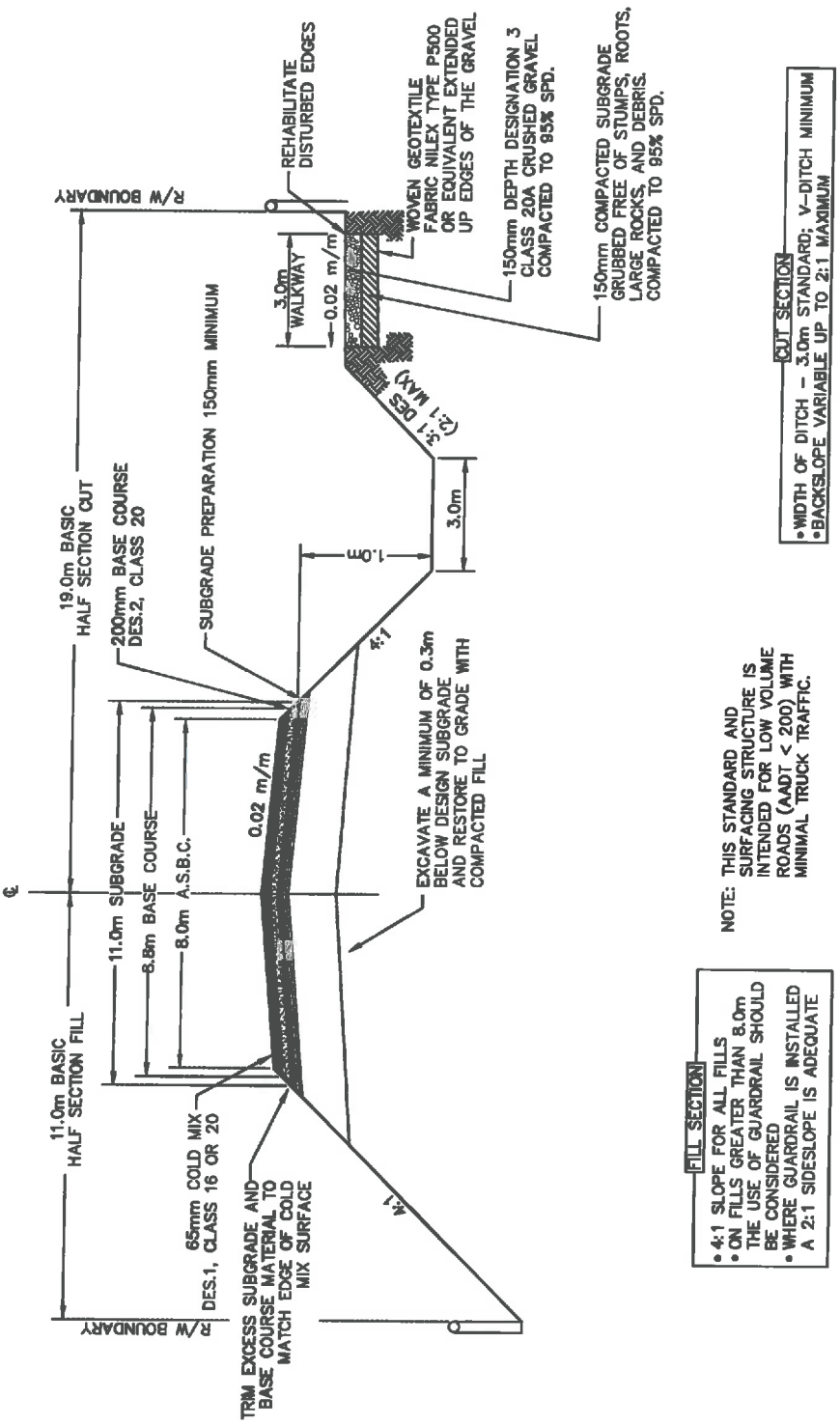
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

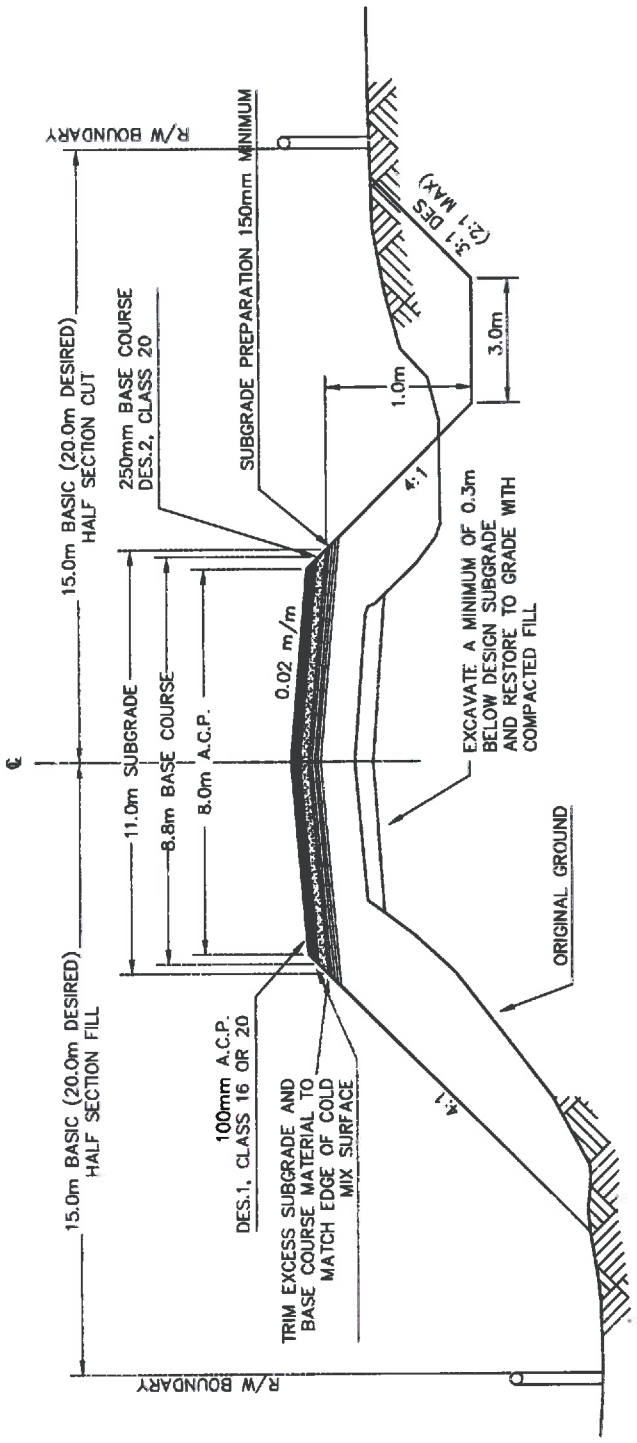
Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR ASPHALT STABILIZED BASE COURSE SURFACING PAVED LOCAL ROAD 8.0m	RLU-208(a)
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-06
Date: APRIL 2013	Drawn: JIM	Scale NTS		



Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir	TYPICAL CROSS SECTION FOR ASPHALT CONCRETE PAVEMENT SURFACING PAVED LOCAL ROAD 8.0m WITH 3.0m GRANULAR WALKWAY	RLU–208(b)
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved:
Date: APRIL 2013	Drawn: JIM	Scale NTS	Drawing G–07a



CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOW VOLUME ROADS (AADT < 200)

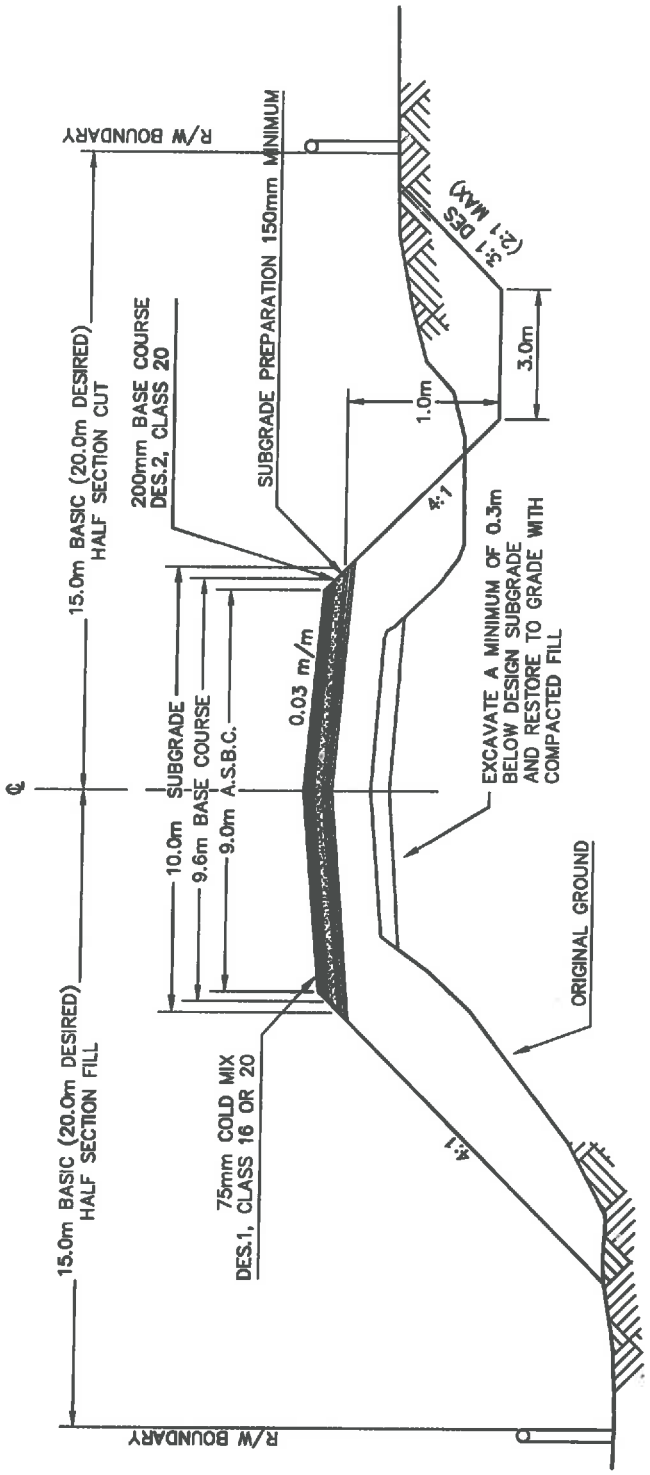
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		RLU-208(
Rev.			TYPICAL CROSS SECTION FOR ASPHALT CONCRETE PAVEMENT SURFACING PAVED LOCAL ROAD 8.0m
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved:
Date: APRIL 2013	Drawn: JIM	Scale NTS	Drawing G-07



CUT SECTION

- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT < 500.

FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir	TYPICAL CROSS SECTION FOR ASPHALT STABILIZED BASE COURSE SURFACING (EXISTING) ARTERIAL 9.0m RLU-209(a)	
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved:
Date: APRIL 2013	Drawn: JIM	Scale NTS	Drawing G-08

CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT < 500.

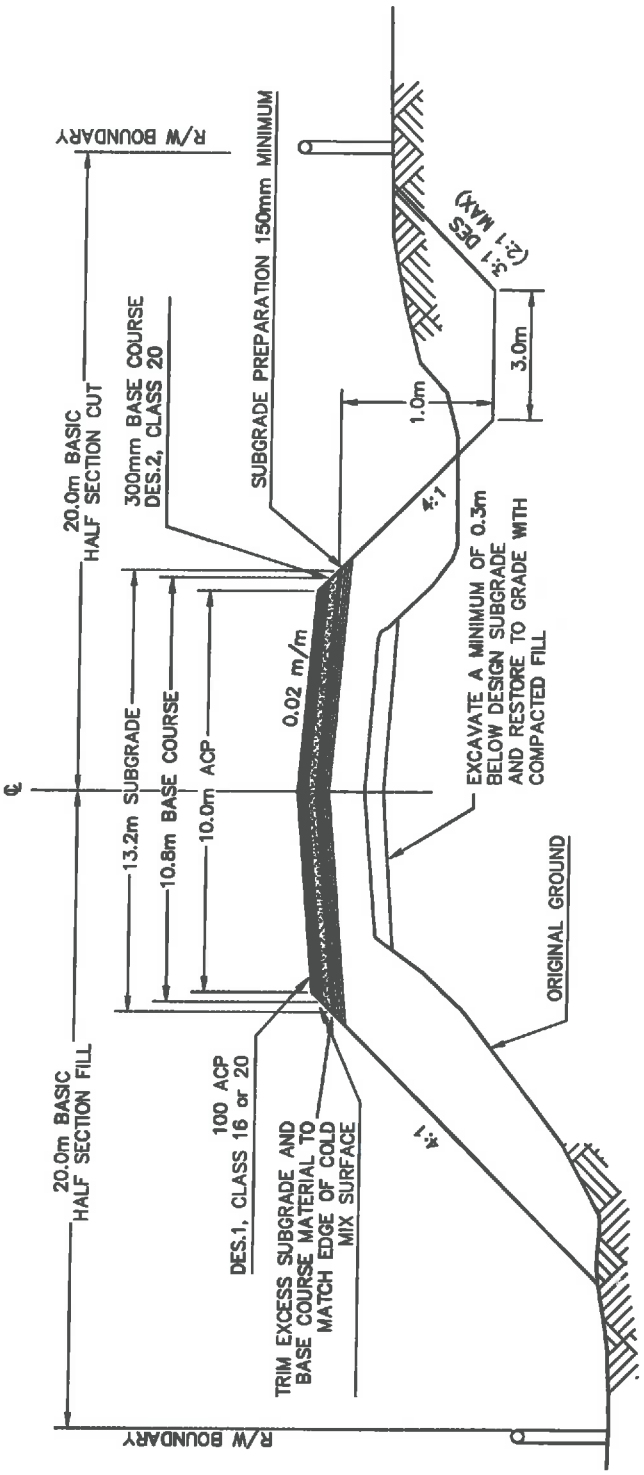
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR ASPHALT CONCRETE PAVEMENT SURFACING (PROPOSED) ARTERIAL 9.0m RLU--209(b)
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved: Drawing G–09
Date: APRIL 2013	Drawn: JIM	Scale NTS	



CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT < 2000.

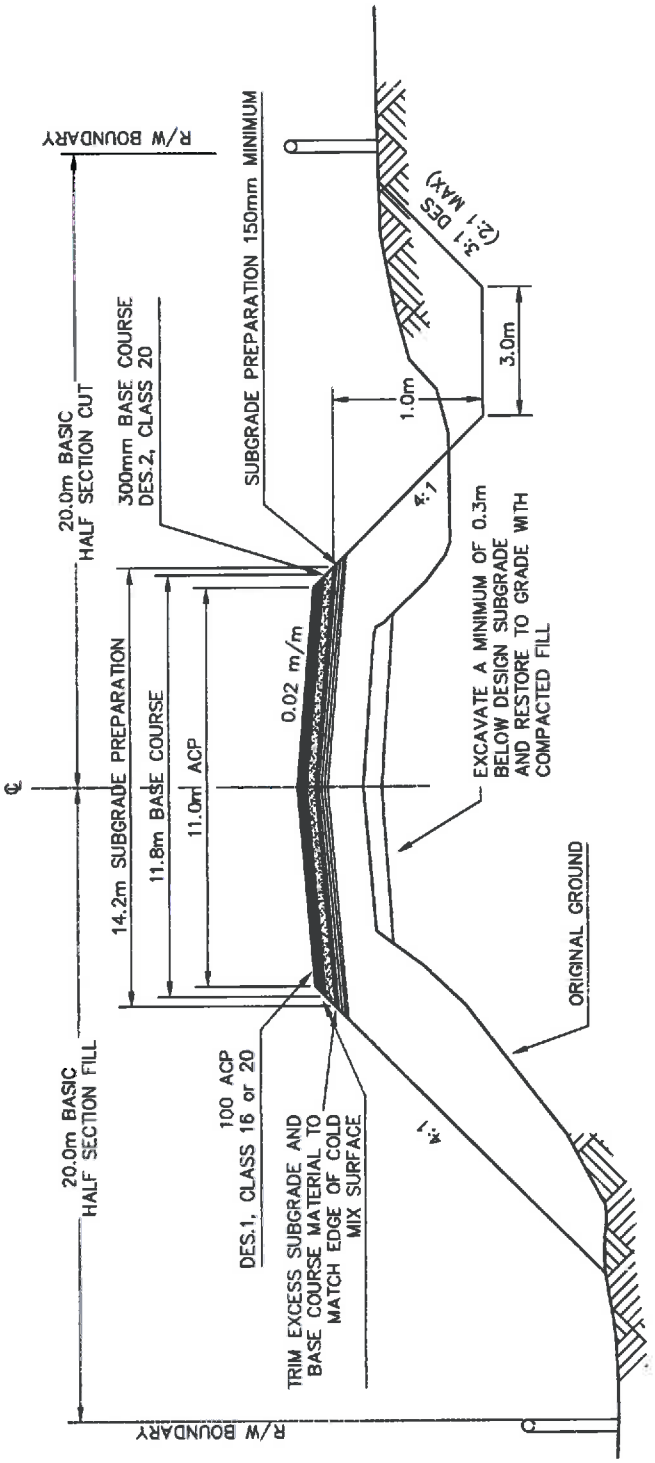
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR ASPHALT CONCRETE PAVEMENT SURFACING ARTERIAL 10m	RLU–210
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G–10
Date: APRIL 2013	Drawn: JIM	Scale NTS		



CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT > 2000.

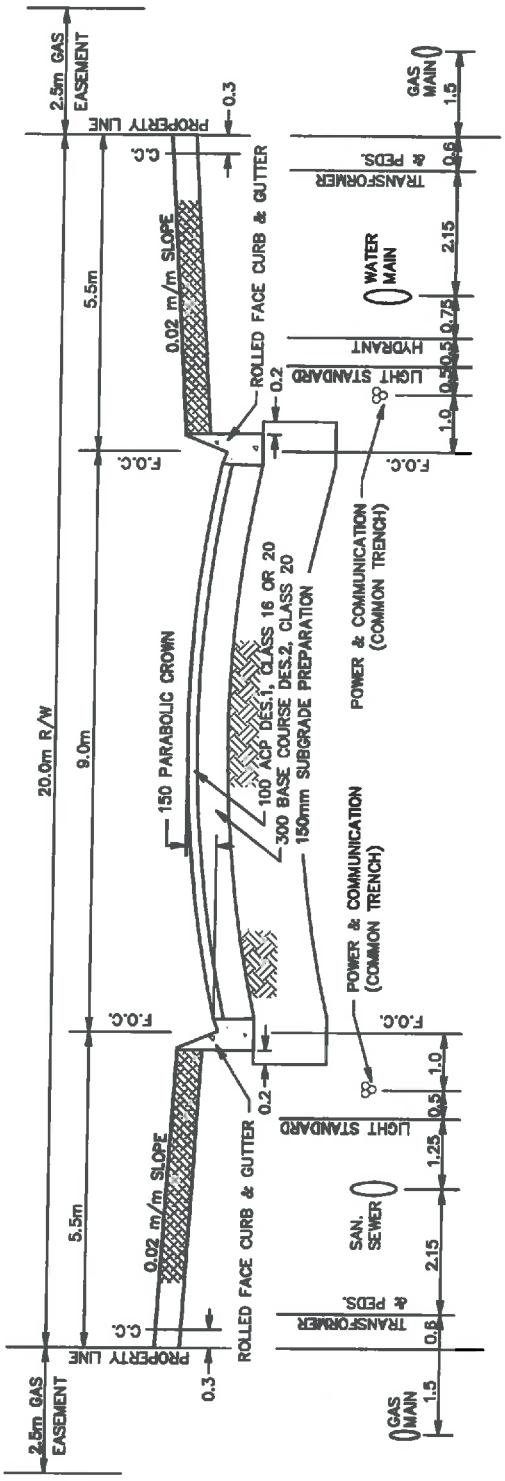
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR ASPHALT CONCRETE PAVEMENT SURFACING ARTERIAL 11m	RLU-211
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-11
Date: APRIL 2013	Drawn: JIM	Scale NTS		



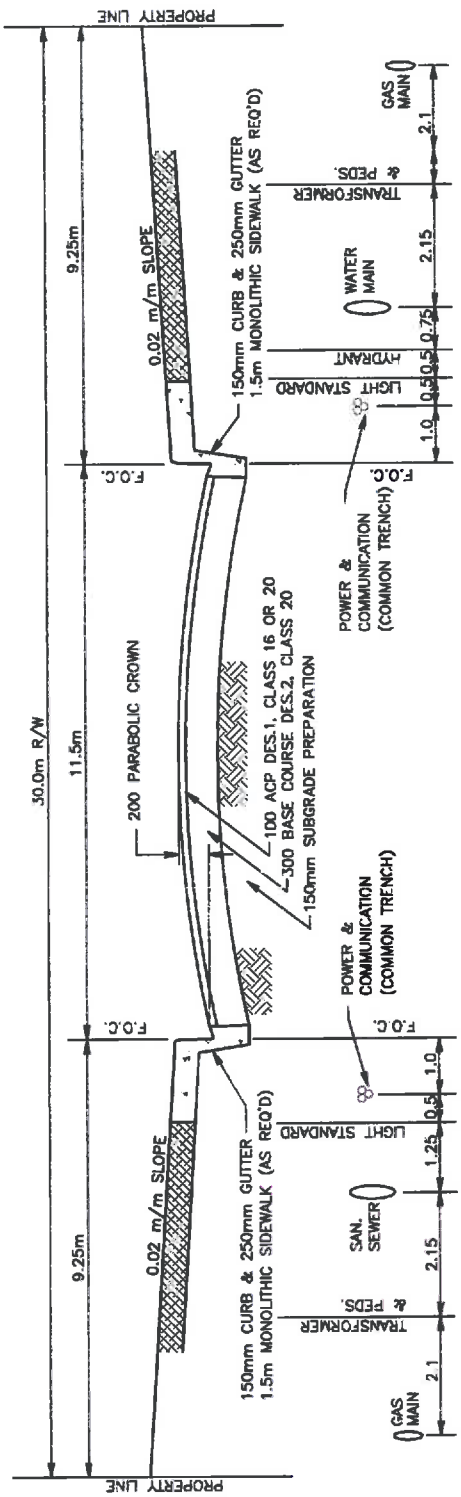
NOTES: 1. THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT < 2000

2. WICK DRAIN SHALL BE PLACED BELOW THE CURB BETWEEN THE SUBGRADE AMD BASE COURSE AND CONNECTED TO THE NEAREST CATCH BASIN.

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION & UTILITIES LAYOUT URBAN 9.0m	ULU–209
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G–12
Date: APRIL 2013	Drawn: JIM	Scale NTS		



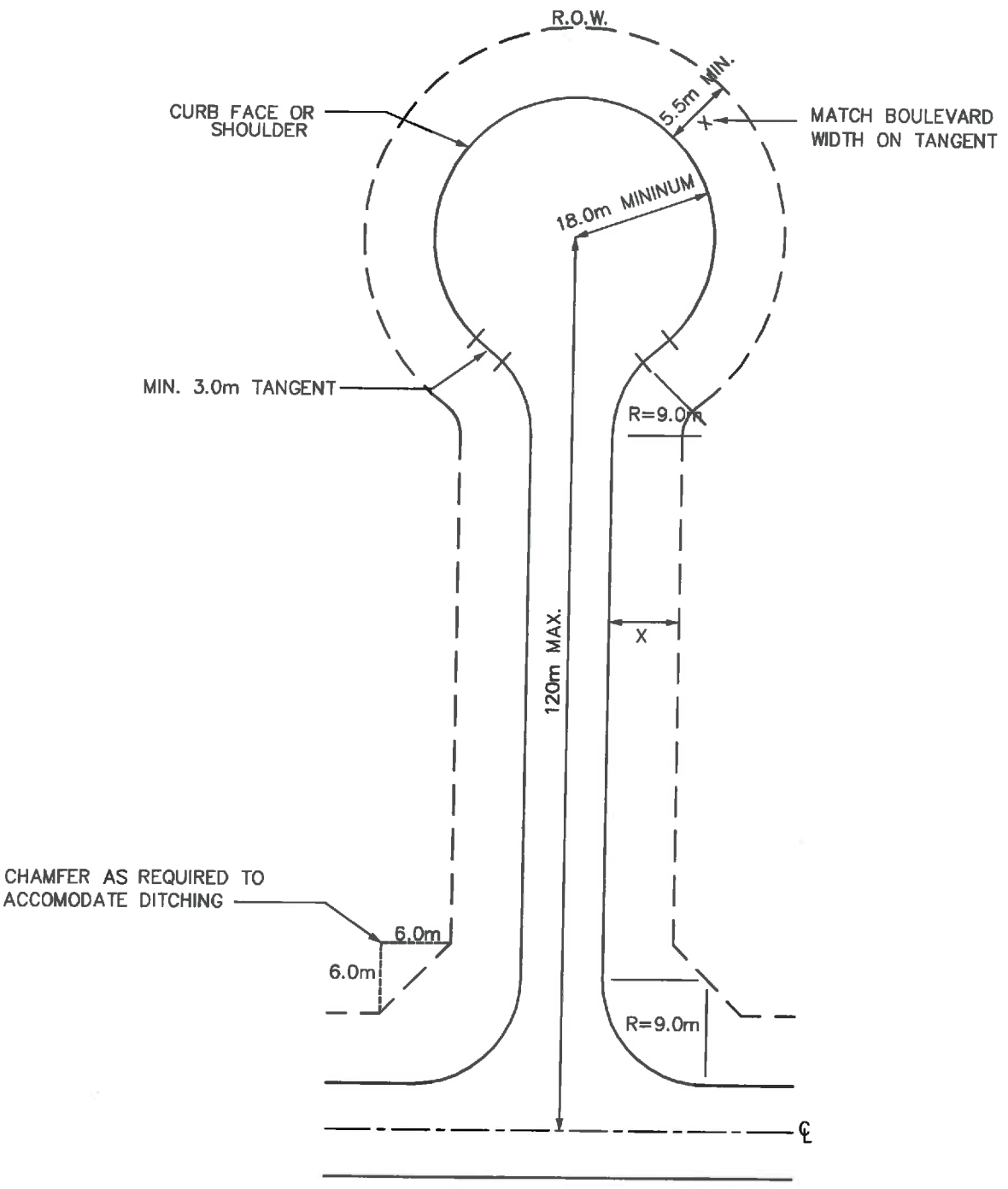
NOTES: 1. THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT > 2000

2. WICK DRAIN SHALL BE PLACED BELOW THE CURB BETWEEN THE SUBGRADE AMD BASE COURSE AND CONNECTED TO THE NEAREST CATCH BASIN.

Lamont County

General Municipal Servicing Standards

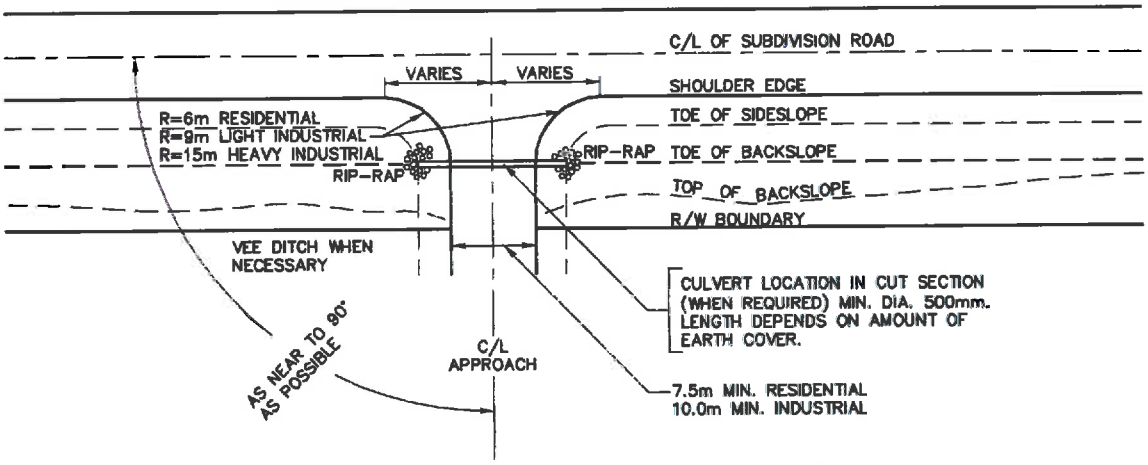
Rev.	Stewart Weir		TYPICAL CROSS SECTION & UTILITIES LAYOUT URBAN 11.5m	ULU-211.5
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-13
Date: APRIL 2013	Drawn: JIM	Scale NTS		

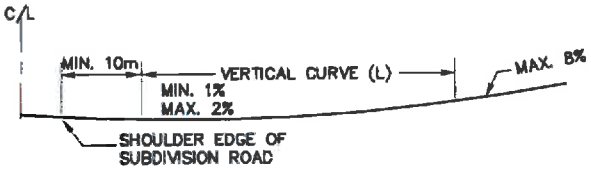


Lamont County

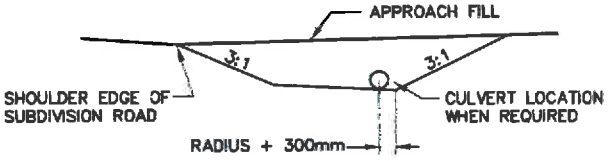
General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CUL-DE-SAC DETAIL URBAN AND RURAL STANDARD	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-14
Date: APRIL 2013	Drawn: JIM	Scale NTS		

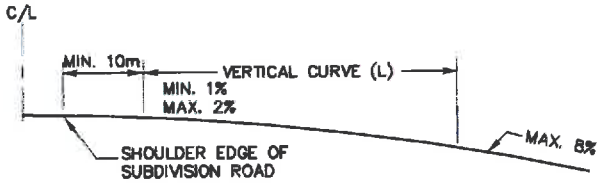




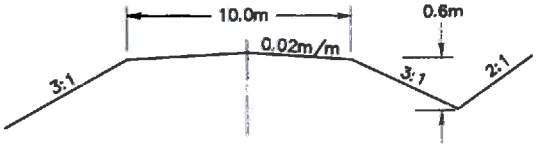
PROFILE – APPROACH IN CUT



DETAIL OF DITCH & CULVERT LOCATION

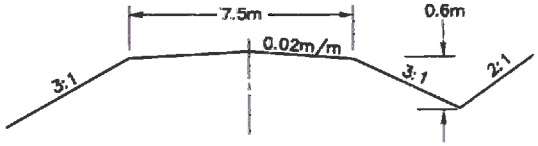


PROFILE – APPROACH IN FILL



MINIMUM INDUSTRIAL APPROACH CROSS SECTION

MINIMUM LENGTH OF VERTICAL CURVE		
ALGEBRAIC DIFFERENCE IN GRADIENT (%)	LENGTH L (METRES)	
	CREST	SAG
1	5	7.5
2	12	15
3	18	23
4	25	30
5	30	38
6	37	46
7		46
8		46
9		46



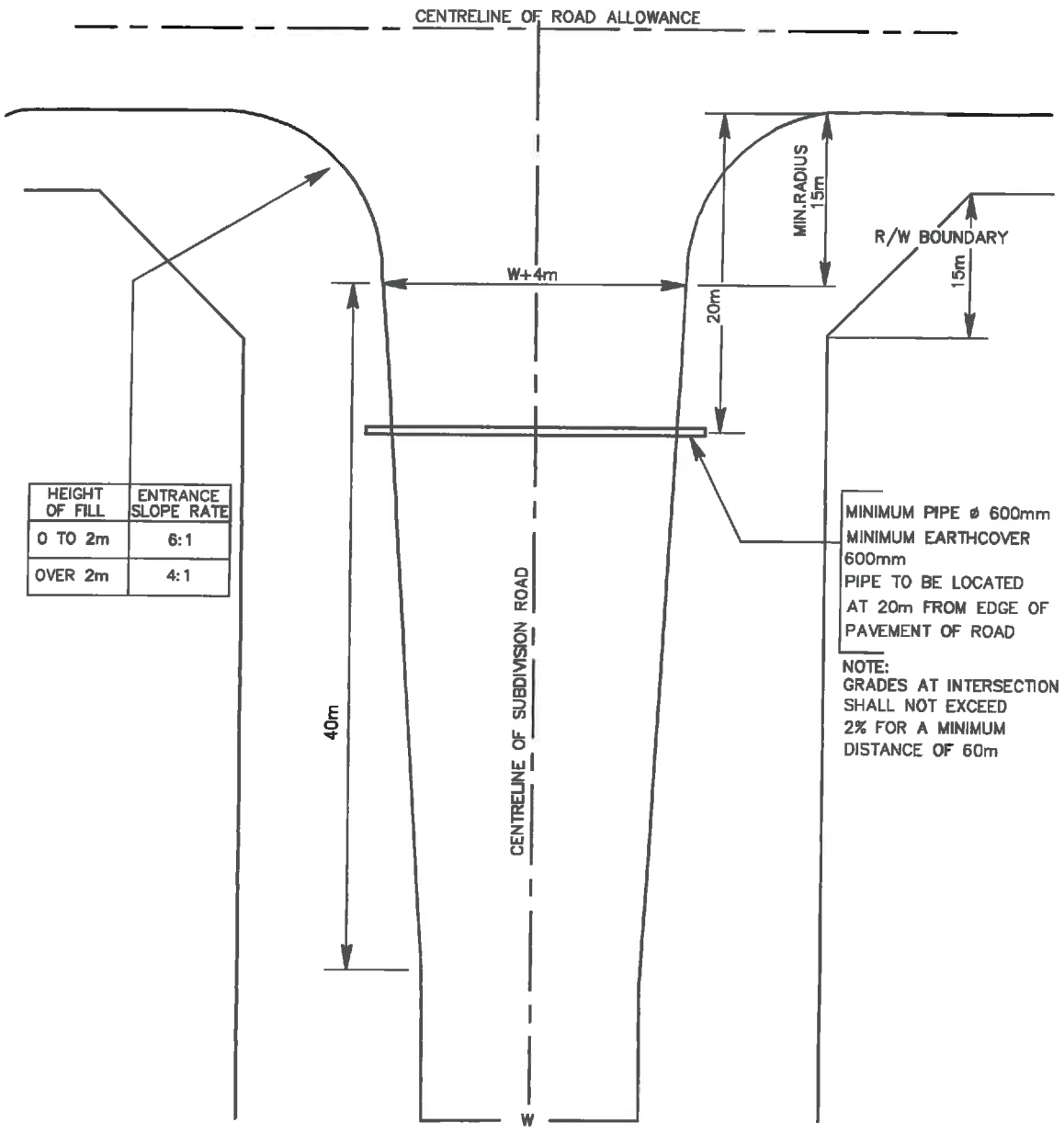
MINIMUM RESIDENTIAL APPROACH CROSS SECTION

NOTE
ALL ENTRANCES ARE TO BE FROM THE INTERNAL ROAD SYSTEM AND ARE TO PROVIDE REASONABLE ACCESS TO THE LOTS, EACH LOT IS TO HAVE A PRIVATE APPROACH.

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		RESIDENTIAL / INDUSTRIAL APPROACH STANDARD	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-15
Date: APRIL 2013	Drawn: JIM	Scale NTS		

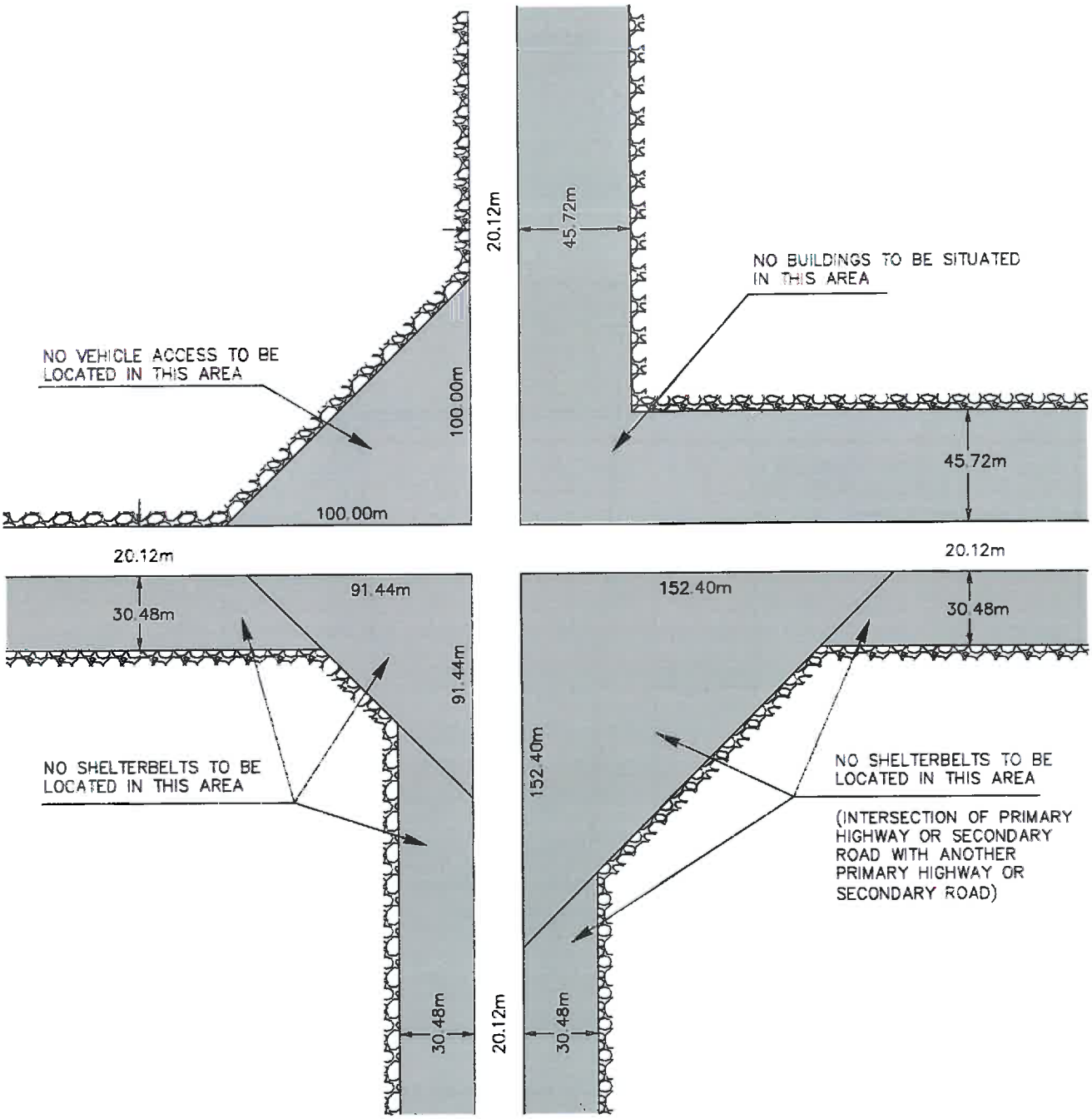


W = FINISHED PAVED WIDTH

Lamont County

General Municipal Servicing Standards

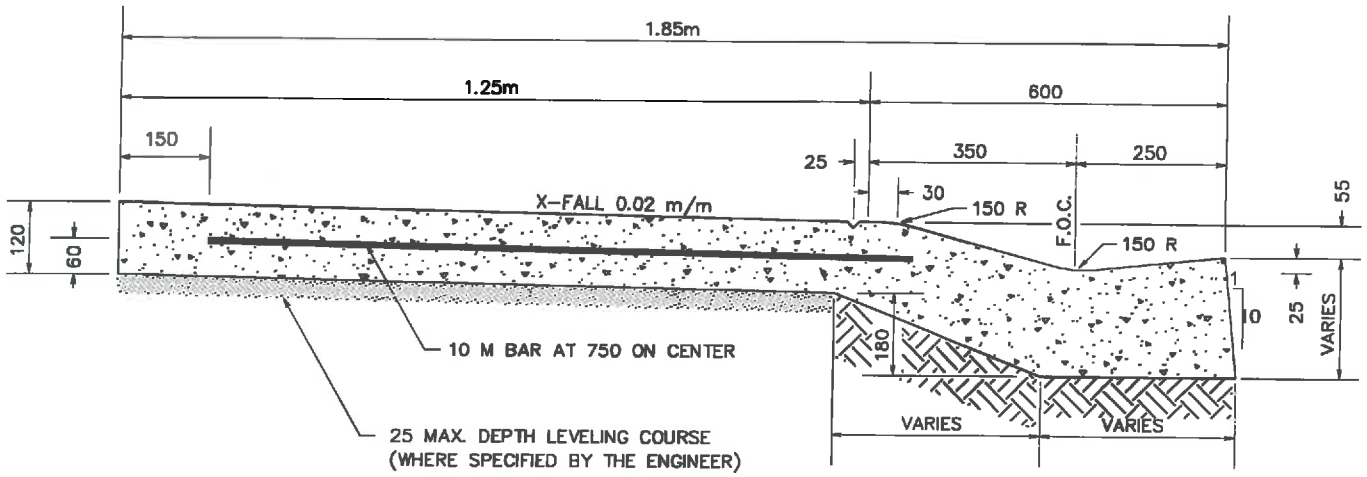
Rev.	Stewart Weir		MAJOR INTERSECTION LAYOUT INDUSTRIAL – RURAL STANDARD	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G–16
Date: APRIL 2013	Drawn: JIM	Scale NTS		



Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		ACCESS & DEVELOPMENT CONTROL MUNICIPAL GRID ROAD INTERSECTION	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-17
Date: APRIL 2013	Drawn: JIM	Scale NTS		



ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

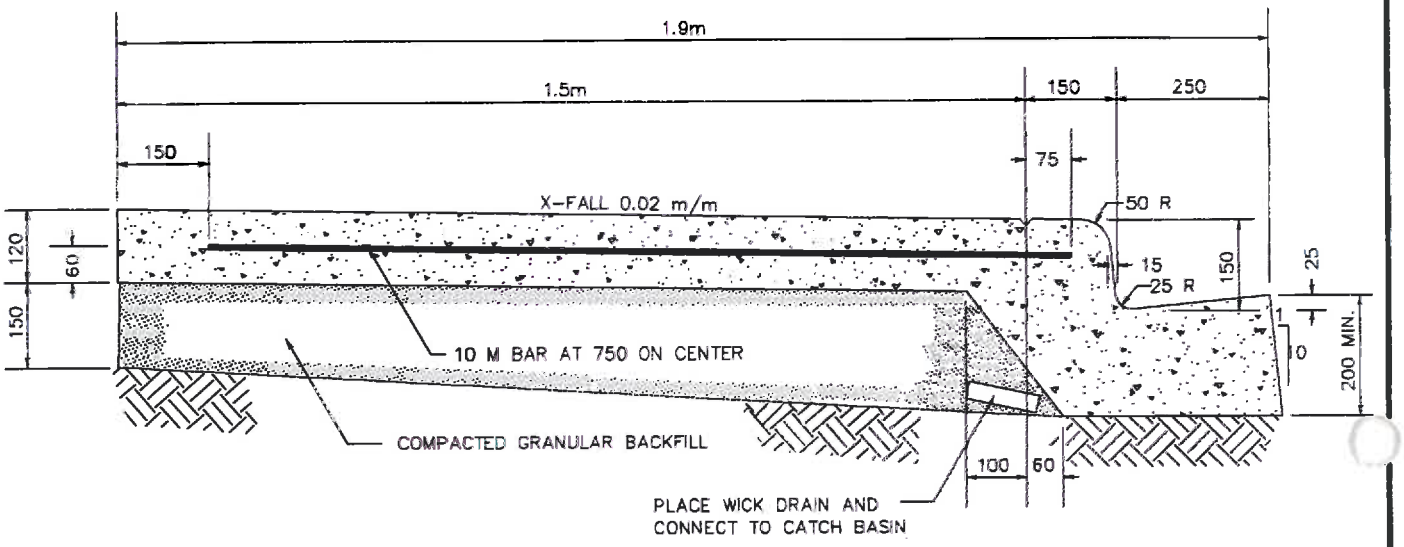
NOTES:

1. DEPTH OF GUTTER FACE TO MATCH ROAD STRUCTURE.

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		ROLL FACE MONOLITHIC WALK & GUTTER	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-18
Date: APRIL 2013	Drawn: JIM	Scale NTS		



NOTES:

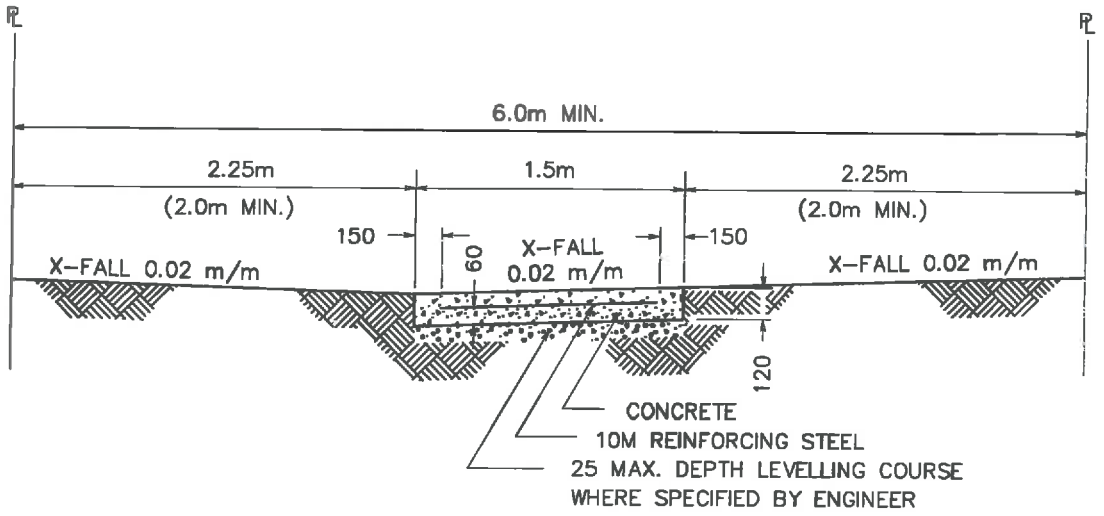
1. DEPTH OF GUTTER FACE TO MATCH ROAD STRUCTURE.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

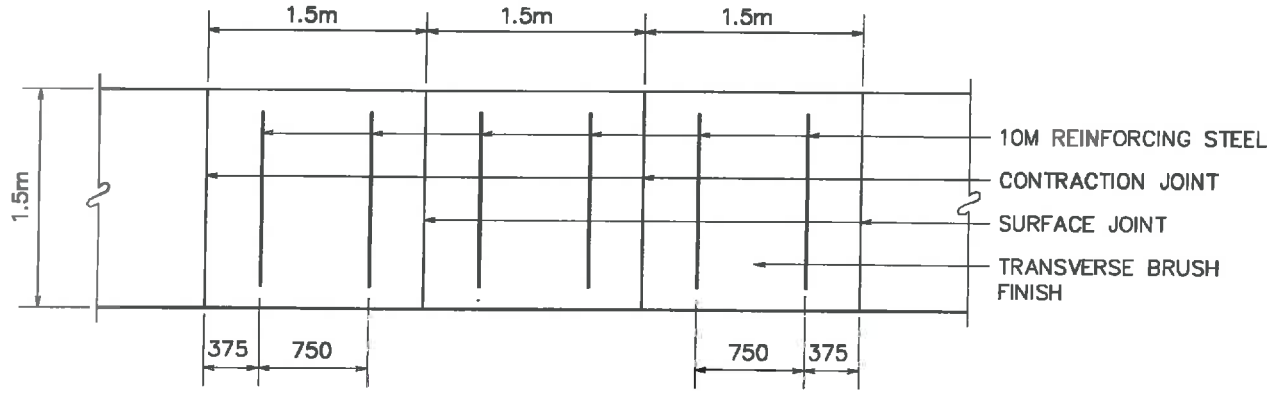
Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		1.5m MONOLITHIC WALK WITH 150 CURB & GUTTER	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-19
Date: APRIL 2013	Drawn: JIM	Scale NTS		



TYPICAL SECTION



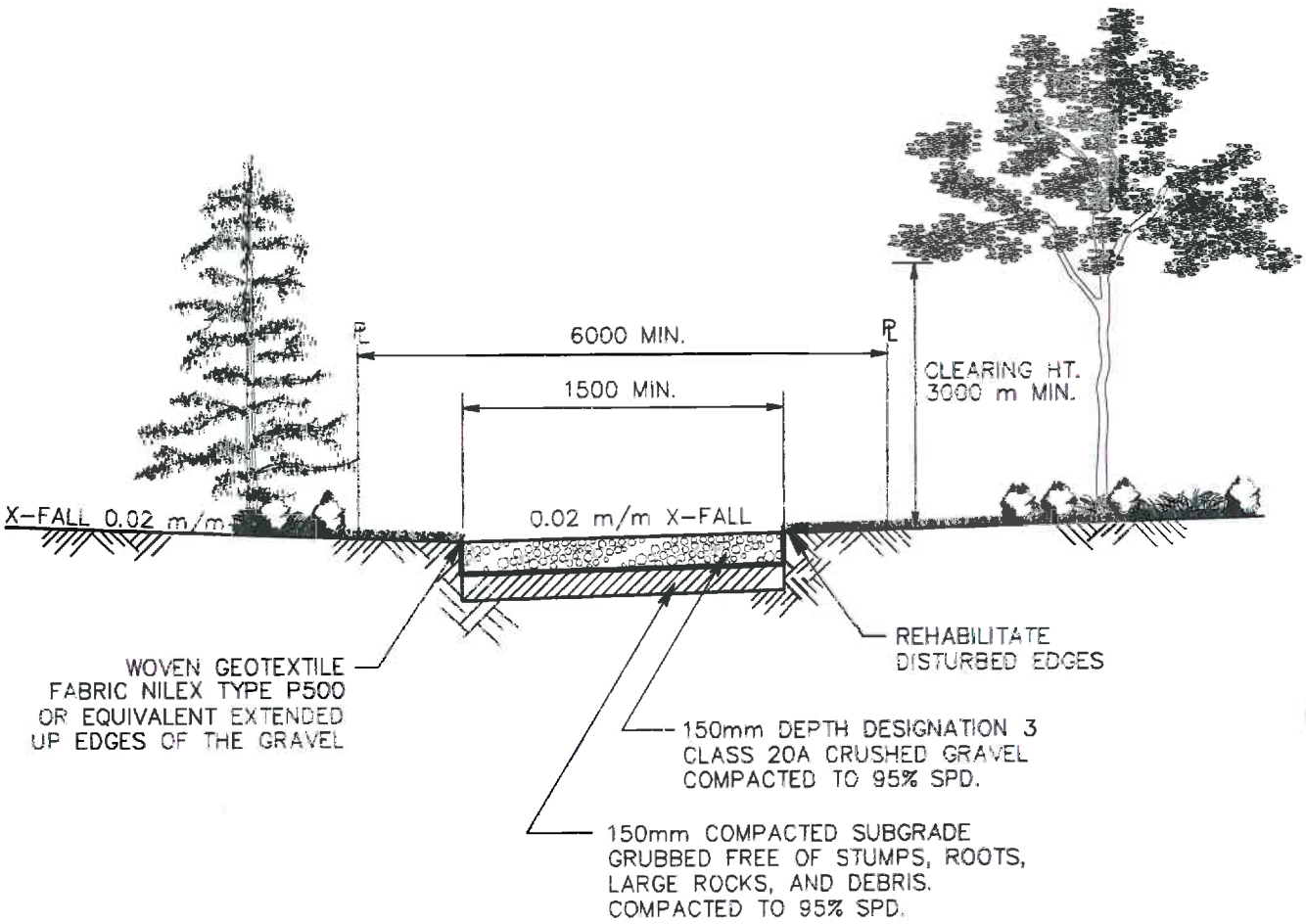
PLAN VIEW

ALL DIMENSIONS
IN MILLIMETRES UNLESS
OTHERWISE NOTED

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		CONCRETE WALKWAY	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-20
Date: APRIL 2013	Drawn: JIM	Scale NTS		

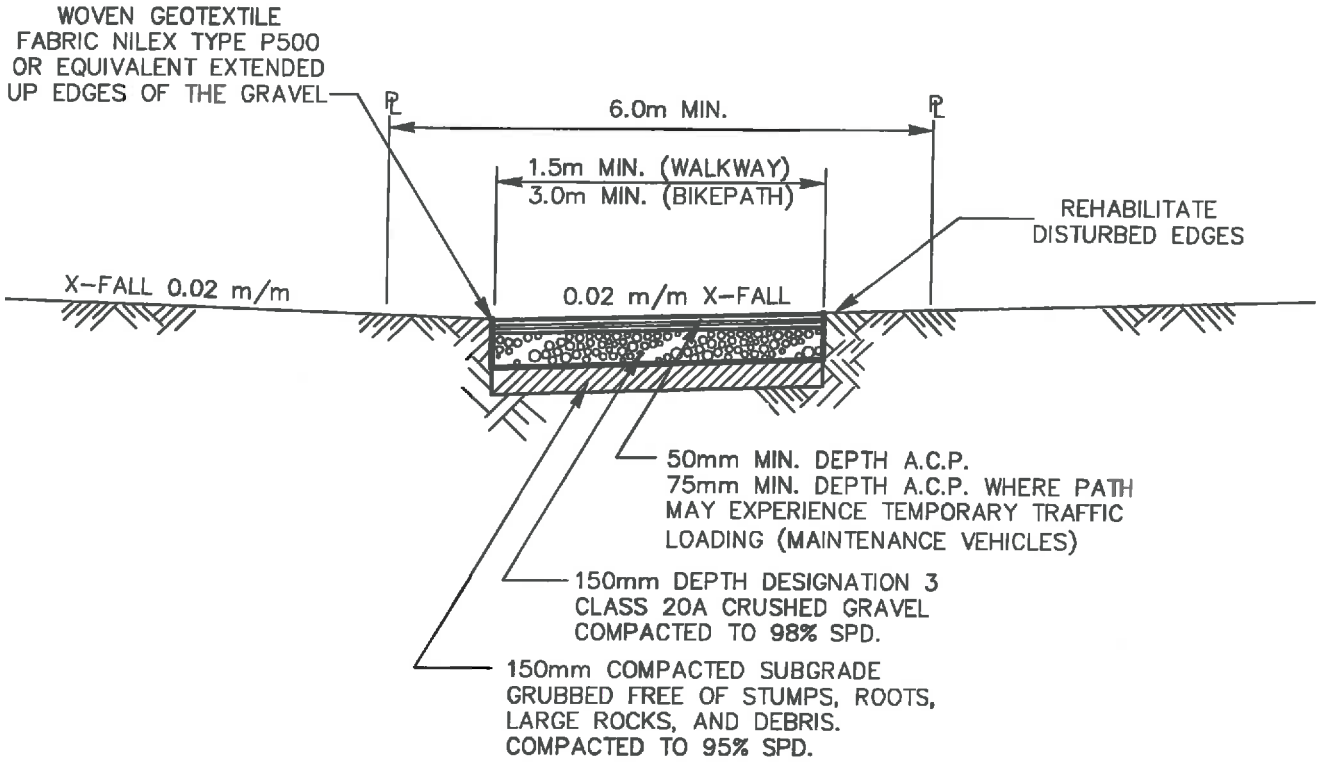


ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		GRANULAR WALKWAY	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-21
Date: APRIL 2013	Drawn: JIM	Scale NTS		

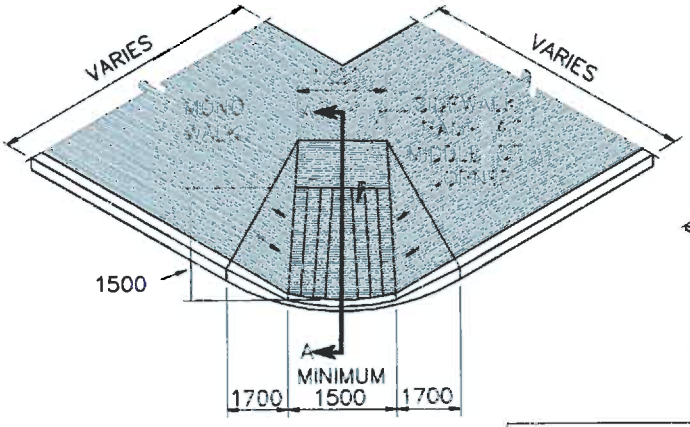


TYPICAL SECTION

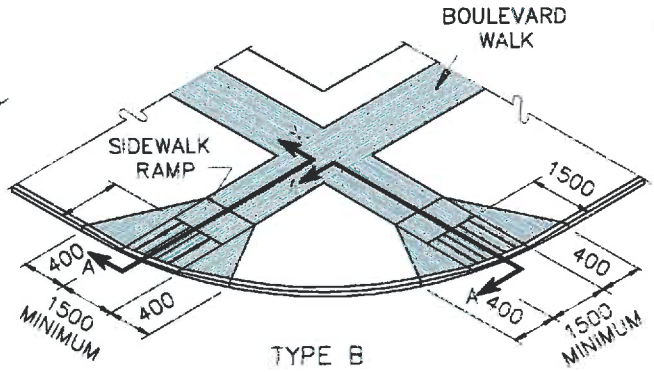
Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		PAVED WALKWAY / BIKE PATH	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-22
Date: APRIL 2013	Drawn: JIM	Scale NTS		

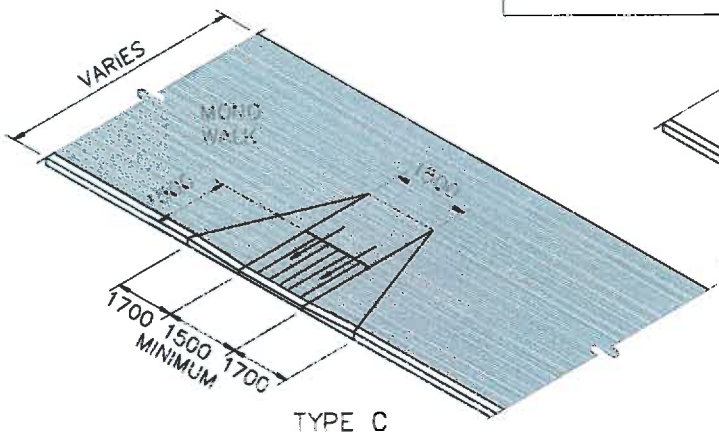


TYPE A

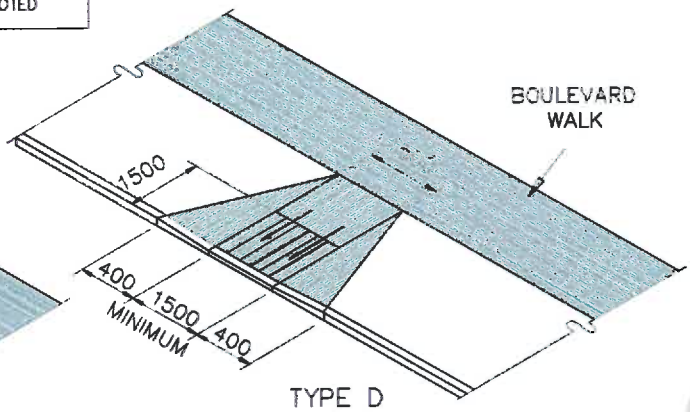


TYPE B

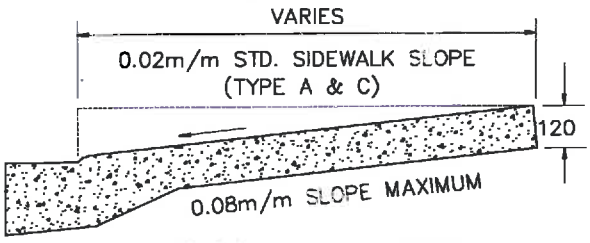
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED



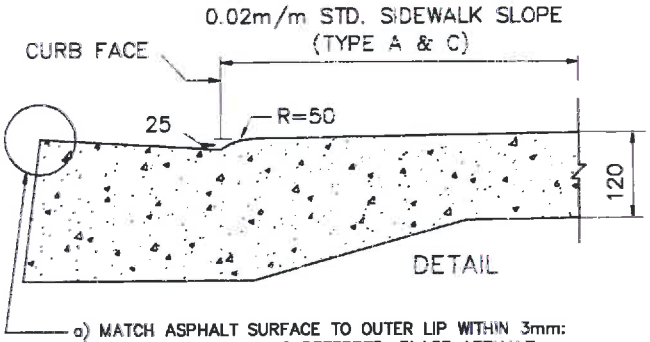
TYPE C



TYPE D



TYPICAL CROSS SECTION A–A



DETAIL

a) MATCH ASPHALT SURFACE TO OUTER LIP WITHIN 3mm:
b) IF ASPHALT TOPLIFT IS DEFERRED, PLACE ASPHALT RAMP FOR THE WIDTH OF PARARAMP, AND EXTEND MINIMUM 1.0m INTO ROAD.

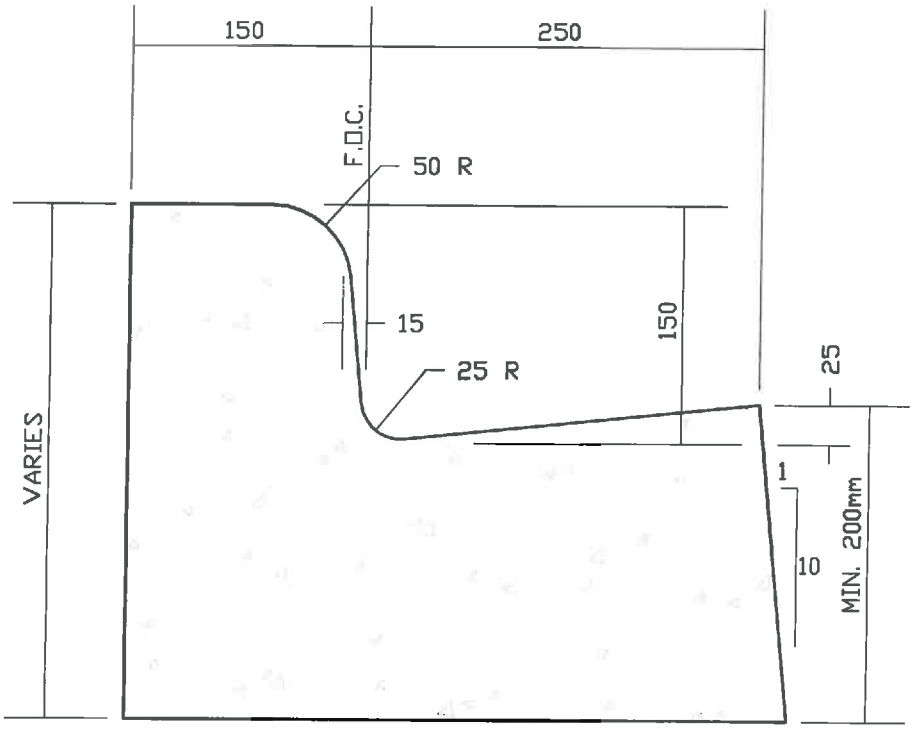
NOTES:

1. TOOLED GROOVES 5mm WIDE X 10mm DEEP, BROOM FINISH GROOVE SPACING 150mm o.c. ADJACENT TO CURB.
2. WHERE RAMP IS TO BE USED AS A TRANSITION, USE THE CENTER OF THE 1500mm RAMP AS THE CENTER OF THE TRANSITION.
3. CURBS AND RAMPS TO BE POURED MONOLITHICALLY.
4. IT MAY BE NECESSARY TO BUILD RAMPS WIDER AT HIGH VOLUME PEDESTRIAN TRAFFIC LOCATIONS.
5. WHEN THE CURB RETURN RADIUS IS LESS THAN 4.0m TWO RAMPS ARE REQUIRED.

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		WHEELCHAIR/BIKE RAMP	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G–23
Date: APRIL 2013	Drawn: JIM	Scale NTS		



ALL DIMENSIONS
IN MILLIMETRES UNLESS
OTHERWISE NOTED

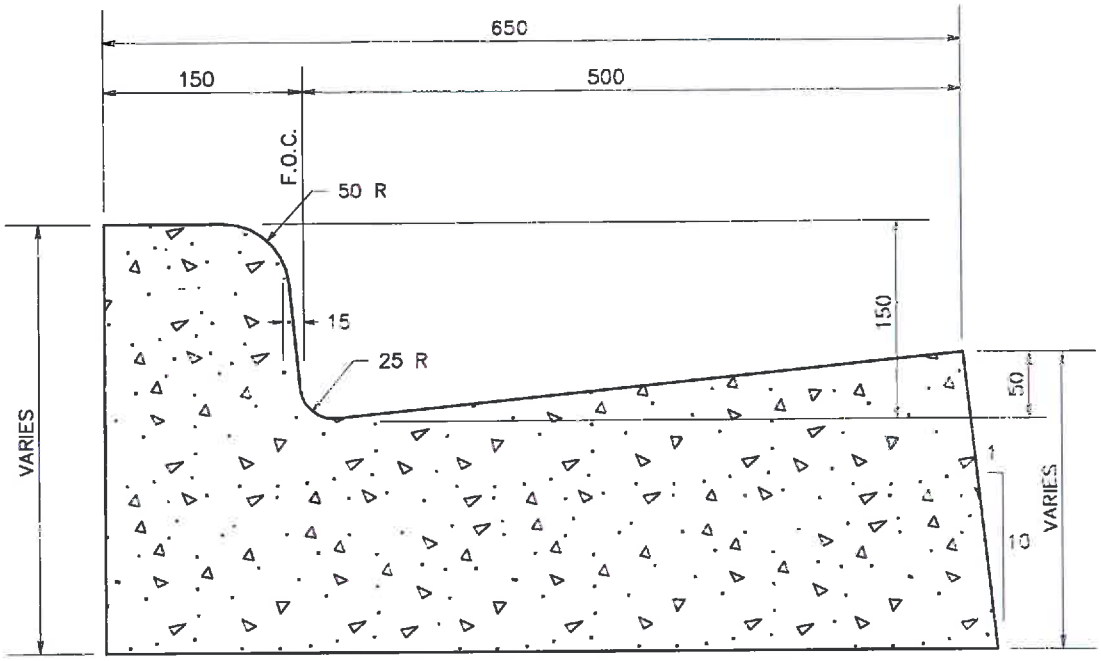
NOTES:

1. DEPTH OF GUTTER FACE TO MATCH DEPTH OF ROAD STRUCTURE.

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		150 CURB WITH 250 GUTTER	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-24
Date: APRIL 2013	Drawn: JIM	Scale NTS		



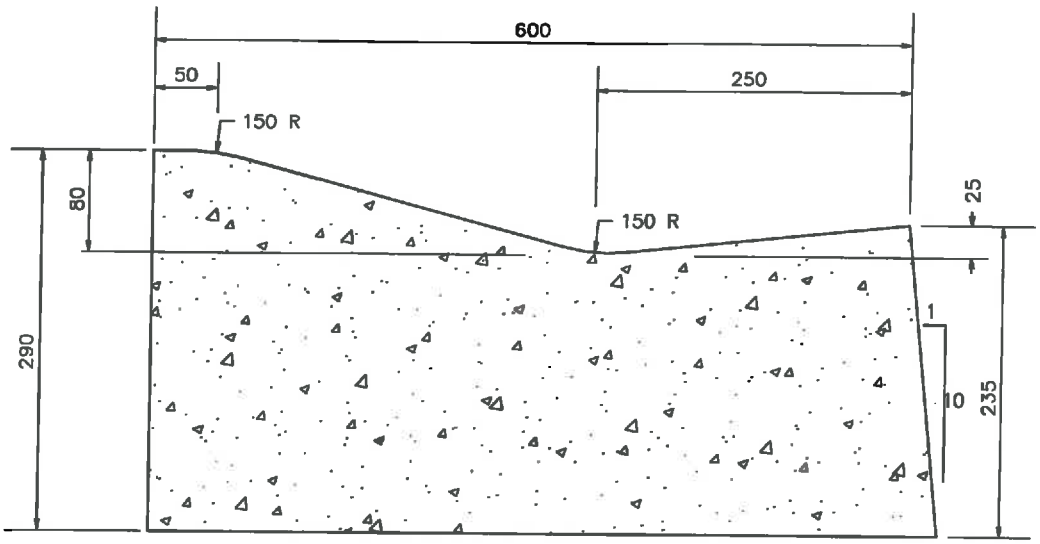
NOTES:
1. DEPTH OF GUTTER FACE TO MATCH DEPTH OF ROAD STRUCTURE.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		150 CURB WITH 500 GUTTER	
Rev.				
Rev.				
Rev.	File No.: ED60.35498	Design:	Approved:	Drawing G-25
Date: APRIL 2013	Drawn: JIM	Scale NTS		



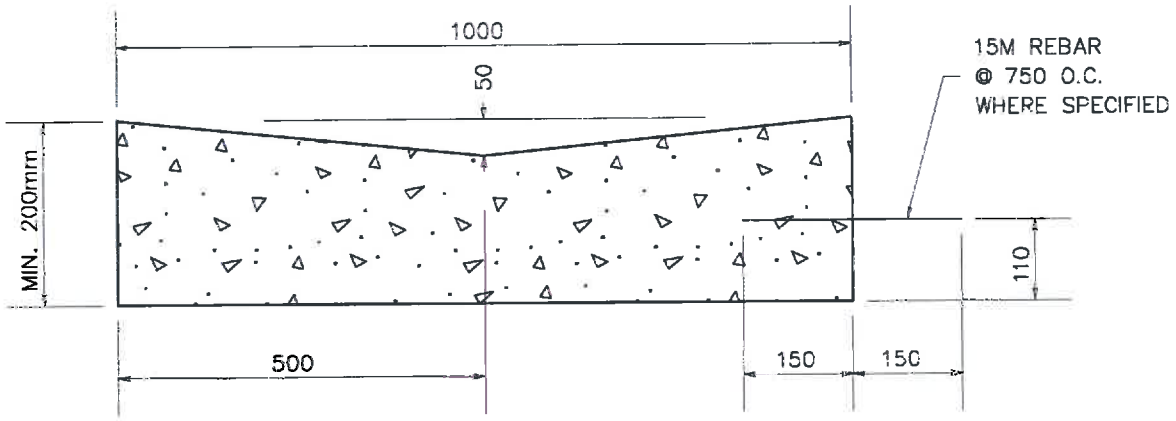
NOTES:
1. DEPTH OF GUTTER FACE TO MATCH DEPTH OF ROAD STRUCTURE.

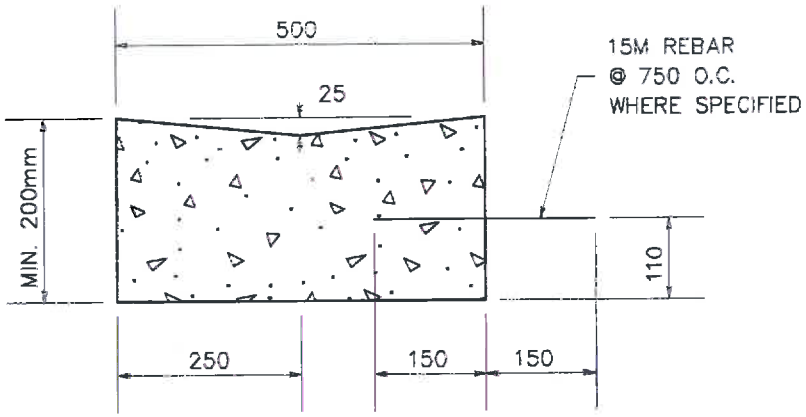
ALL DIMENSIONS
IN MILLIMETRES UNLESS
OTHERWISE NOTED

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		ROLL FACE CURB AND GUTTER	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G–26
Date: APRIL 2013	Drawn: JIM	Scale NTS		





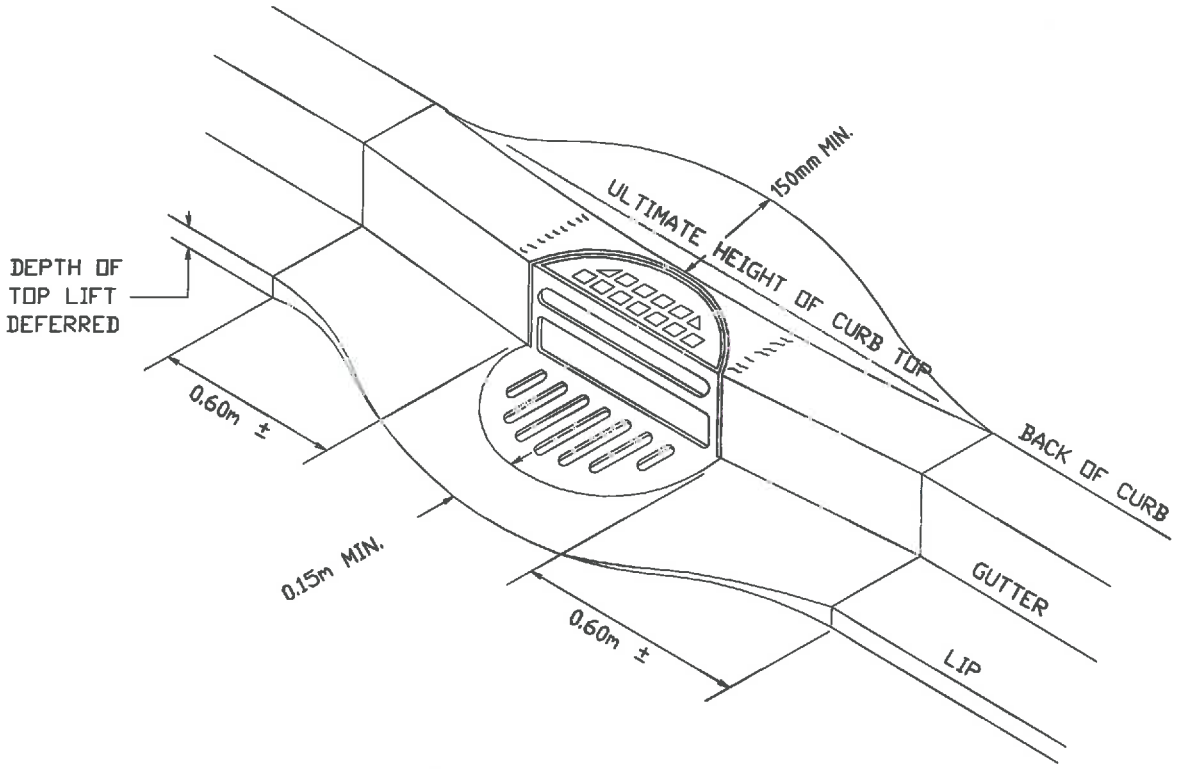
ALL DIMENSIONS
IN MILLIMETRES UNLESS
OTHERWISE NOTED

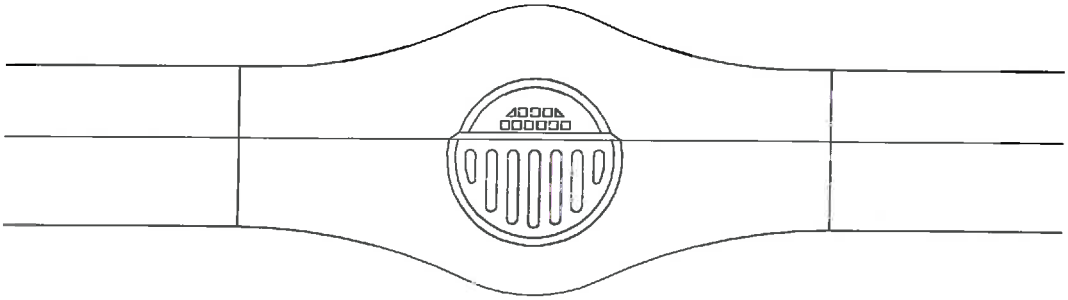
NOTES:
1. DEPTH OF GUTTER FACE TO MATCH ROAD STRUCTURE.

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		500 & 1000 CONCRETE GUTTER (SWALE)	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-27
Date: APRIL 2013	Drawn: JIM	Scale NTS		





PLAN VIEW

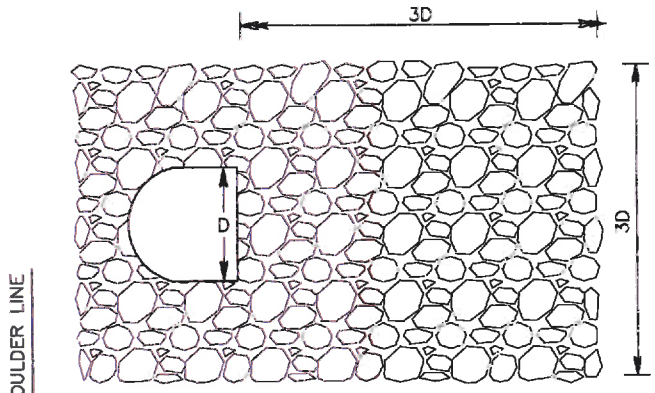
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

NOTES:

1. TYPICAL CURB & GUTTER TREATMENT AT CATCH BASIN WHEN ASPHALT TOP LIFT IS DEFERRED. LOCATION TO BE DETERMINED BY ENGINEER.

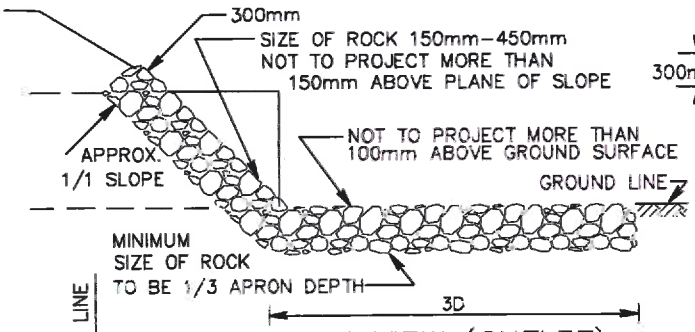
Lamont County — General Municipal Servicing Standards

Rev.	Stewart Weir		DEPRESSED CURB & GUTTER FOR CATCH BASIN	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-28
Date: APRIL 2013	Drawn: JiM	Scale NTS		

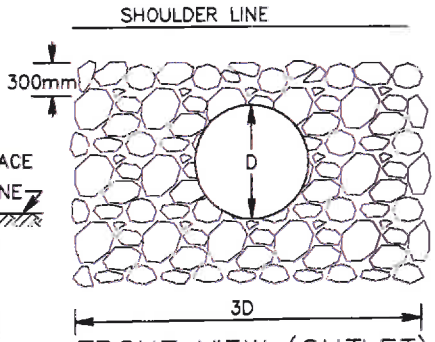


TOP VIEW (OUTLET)

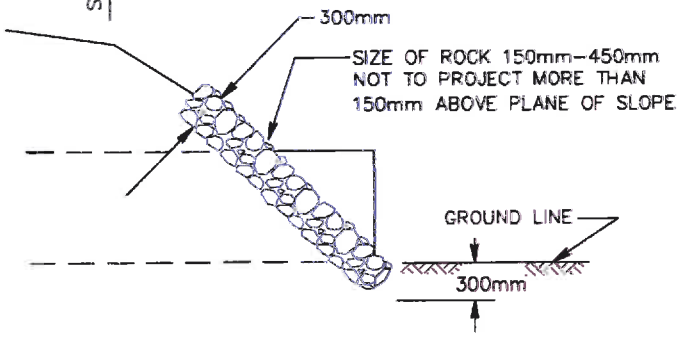
DIAMETER OF PIPE D	EQUIVALENT SIZE OF PIPE ARH
400mm	450mmX340mm
500mm	580mmX390mm
600mm	680mmX480mm
800mm	930mmX645mm
1000mm	1160mmX800mm
1200mm	1425mmX960mm
1400mm	1660mmX1090mm
1600mm	1870mmX1230mm
1800mm	2130mmX1400mm



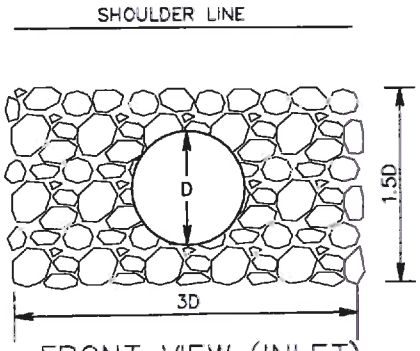
SIDE VIEW (OUTLET)



FRONT VIEW (OUTLET)



SIDE VIEW (INLET)



FRONT VIEW (INLET)

DIAMTER OF PIPE - D	300mm	500mm	600mm	800mm	100mm	1200mm	1400mm	1600mm	1700mm	1800mm
* QUANTITY	1	2	3	5	10	13	16	20	28	33
APRON DEPTH	300mm	500mm			600mm				750mm	

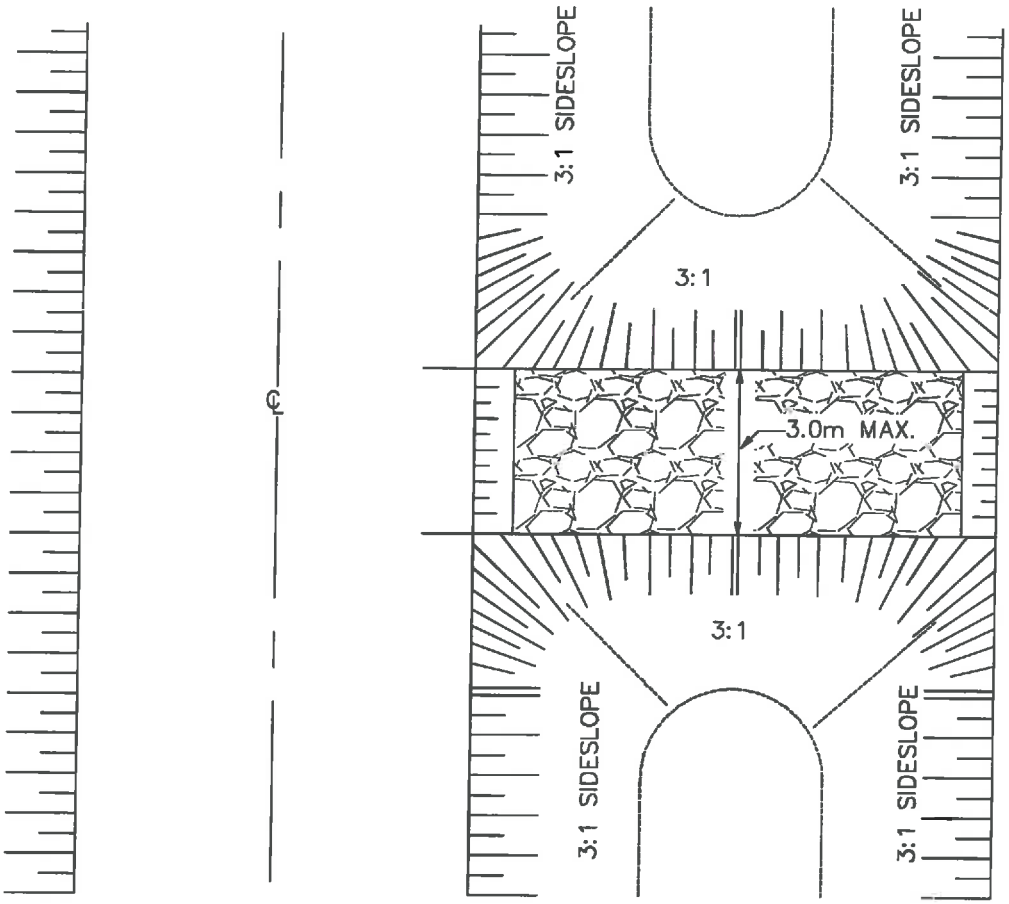
*TOTAL QUANTITY OF RIP-RAP IN CUBIC METRES

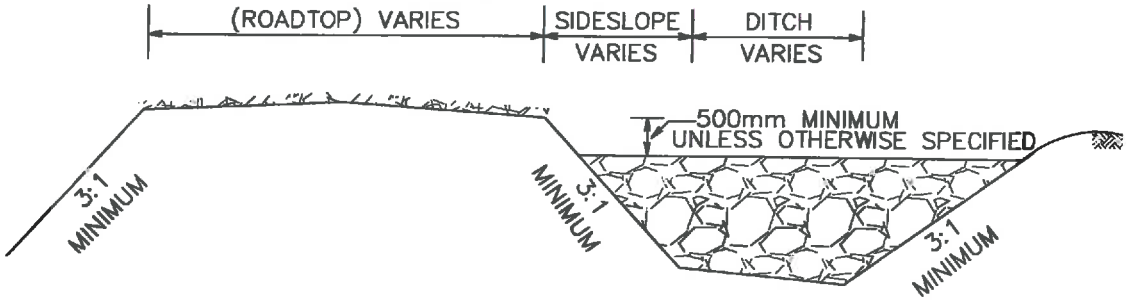
Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		HAND PLACED RIP-RAP FOR PIPE CULVERTS
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved:
Date: APRIL 2013	Drawn: JIM	Scale NTS	Drawing G-29

PLAN VIEW



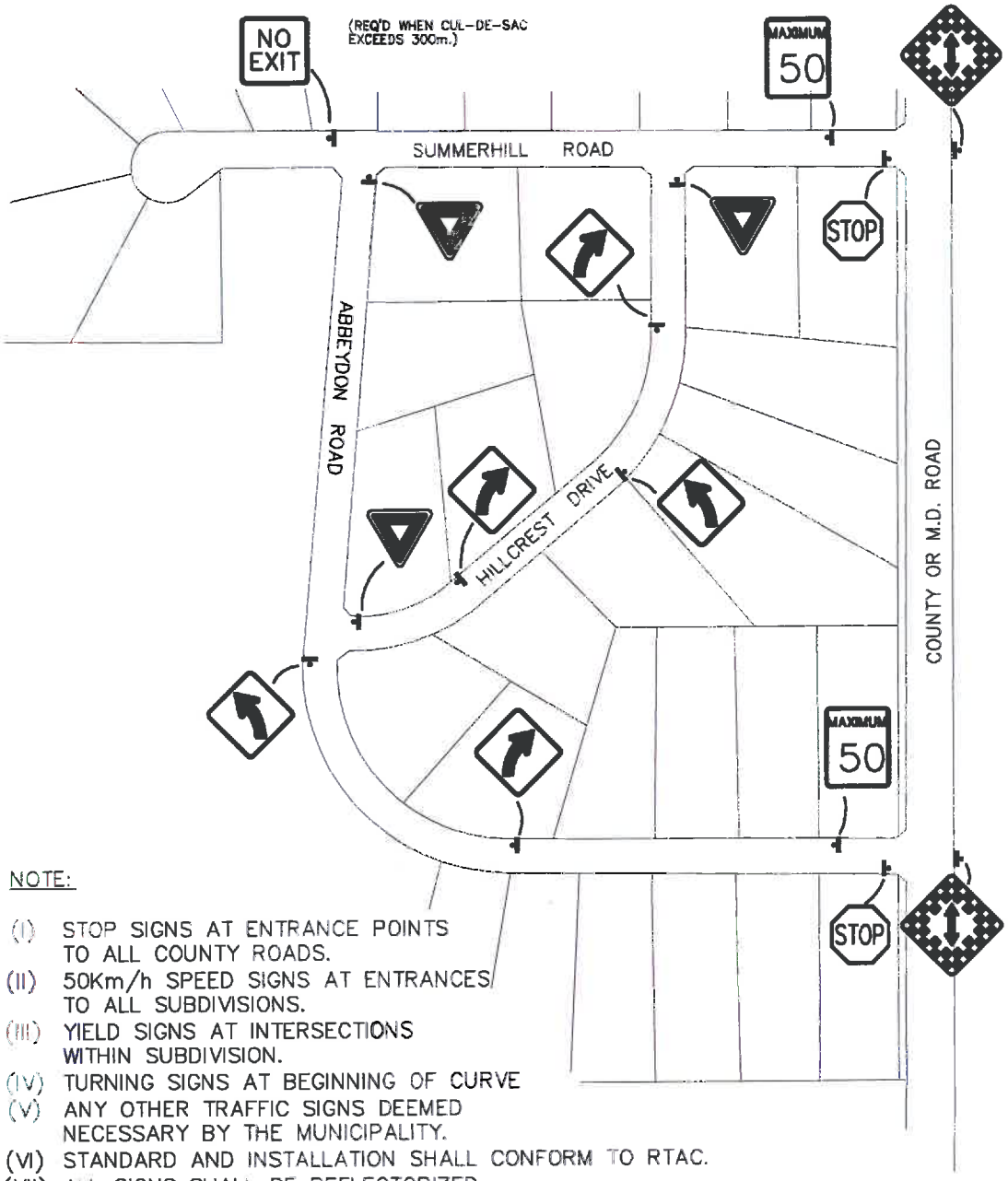


TYPICAL CROSS-SECTION

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL VIEWS OF A DITCH BLOCK	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-30
Date: APRIL 2013	Drawn: JIM	Scale NTS		



NOTE:

(I) STOP SIGNS AT ENTRANCE POINTS TO ALL COUNTY ROADS.
(II) 50Km/h SPEED SIGNS AT ENTRANCES TO ALL SUBDIVISIONS.
(III) YIELD SIGNS AT INTERSECTIONS WITHIN SUBDIVISION.
(IV) TURNING SIGNS AT BEGINNING OF CURVE
(V) ANY OTHER TRAFFIC SIGNS DEEMED NECESSARY BY THE MUNICIPALITY.
(VI) STANDARD AND INSTALLATION SHALL CONFORM TO RTAC.
(VII) ALL SIGNS SHALL BE REFLECTORIZED

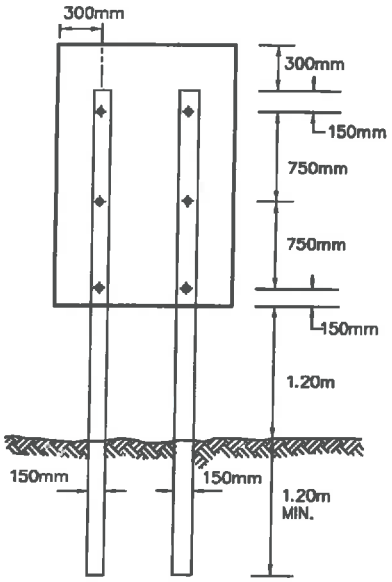
Lamont County

General Municipal Servicing Standards

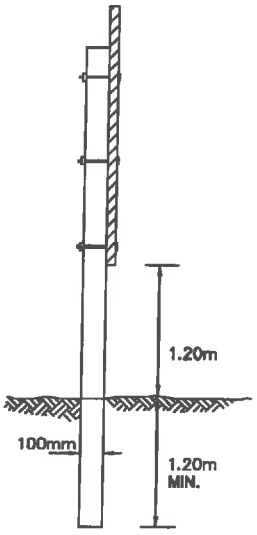
Rev.	Stewart Weir		TYPICAL TRAFFIC SIGN LAYOUT RURAL STANDARD	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-31
Date: APRIL 2013	Drawn: JIM	Scale NTS		

NOTES (MINIMUM REQUIREMENTS)

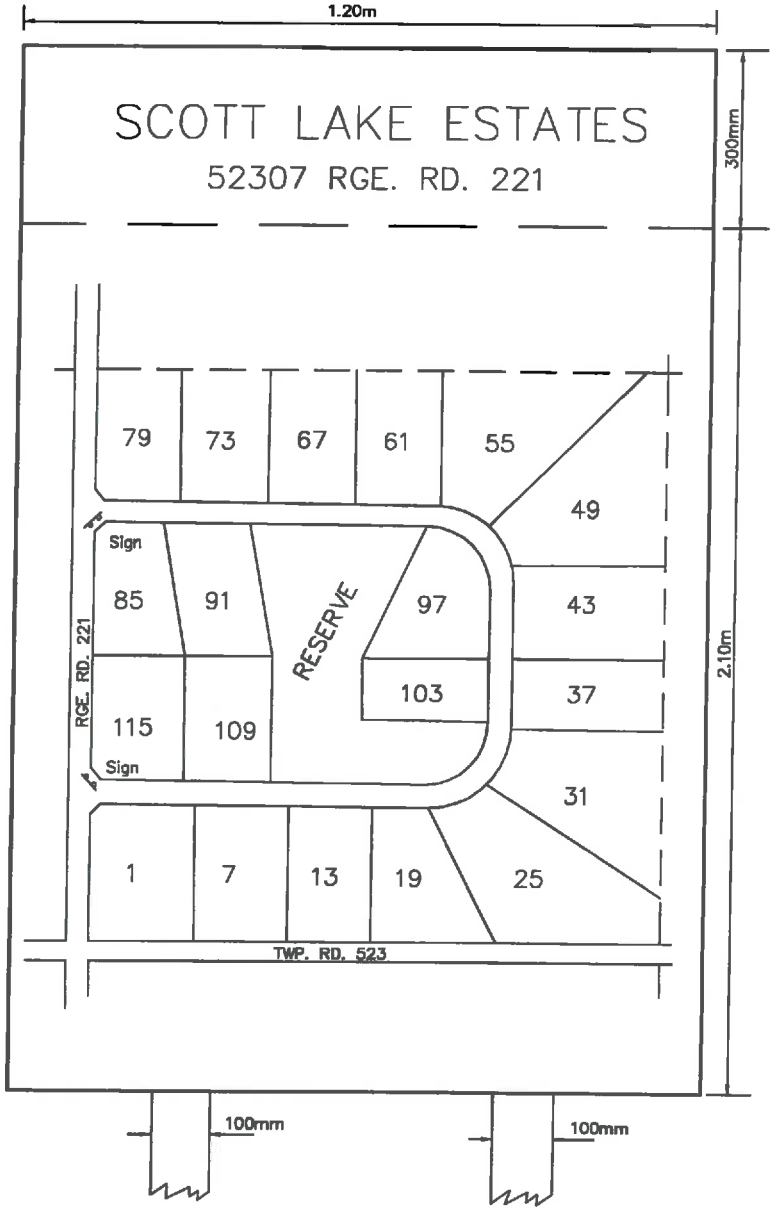
1. SIGN TO BE 1.20 m x 2.40m x 19mm FIR PLYWOOD.
2. SIGN POST TO BE 100mm x 150mm PRESSURE TREATED CEDAR–PAINTED WHITE.
3. POSTS TO BE A MINIMUM 1.20m IN GROUND.
4. 2 POSTS PER SIGN.
5. SIGN TO BE BOLTED TO EACH POST WITH 3 – 8" x 3/4" GALVANIZED BOLTS.
6. SIGN TO BE LOCATED AT EACH ENTRANCE AS SHOWN ON DRAWING.
7. LETTERS FOR NAME TO BE BLACK AND AS LARGE AS POSSIBLE.



BACK VIEW
N.T.S.



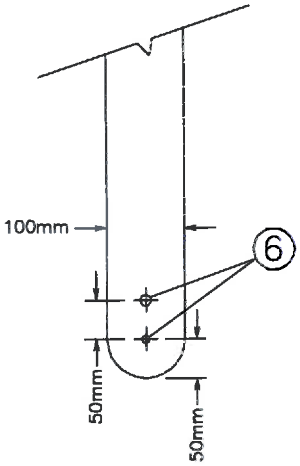
SIDE VIEW
N.T.S.



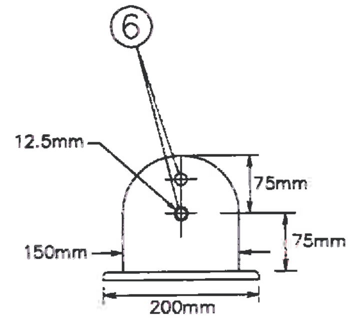
Lamont County

General Municipal Servicing Standards

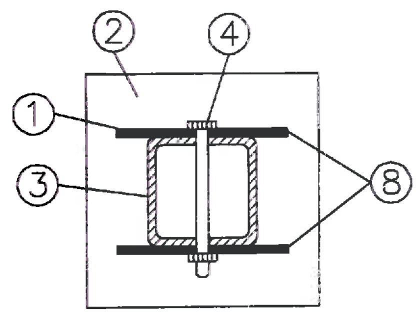
Rev.	Stewart Weir		SUBDIVISION SIGNS	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-32
Date: APRIL 2013	Drawn: JIM	Scale NTS		



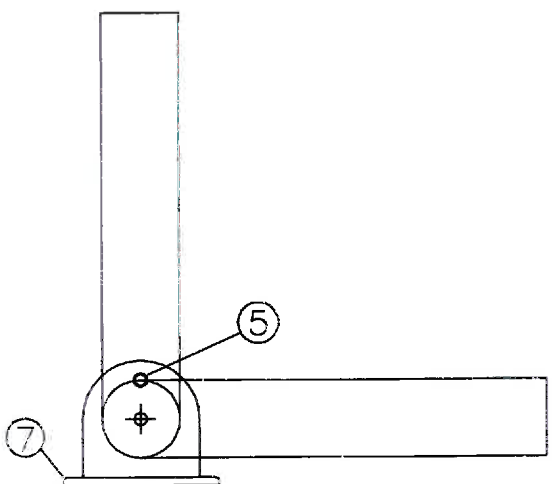
BOLLARD SECTION



BASE DETAIL



BASE CROSS SECTION



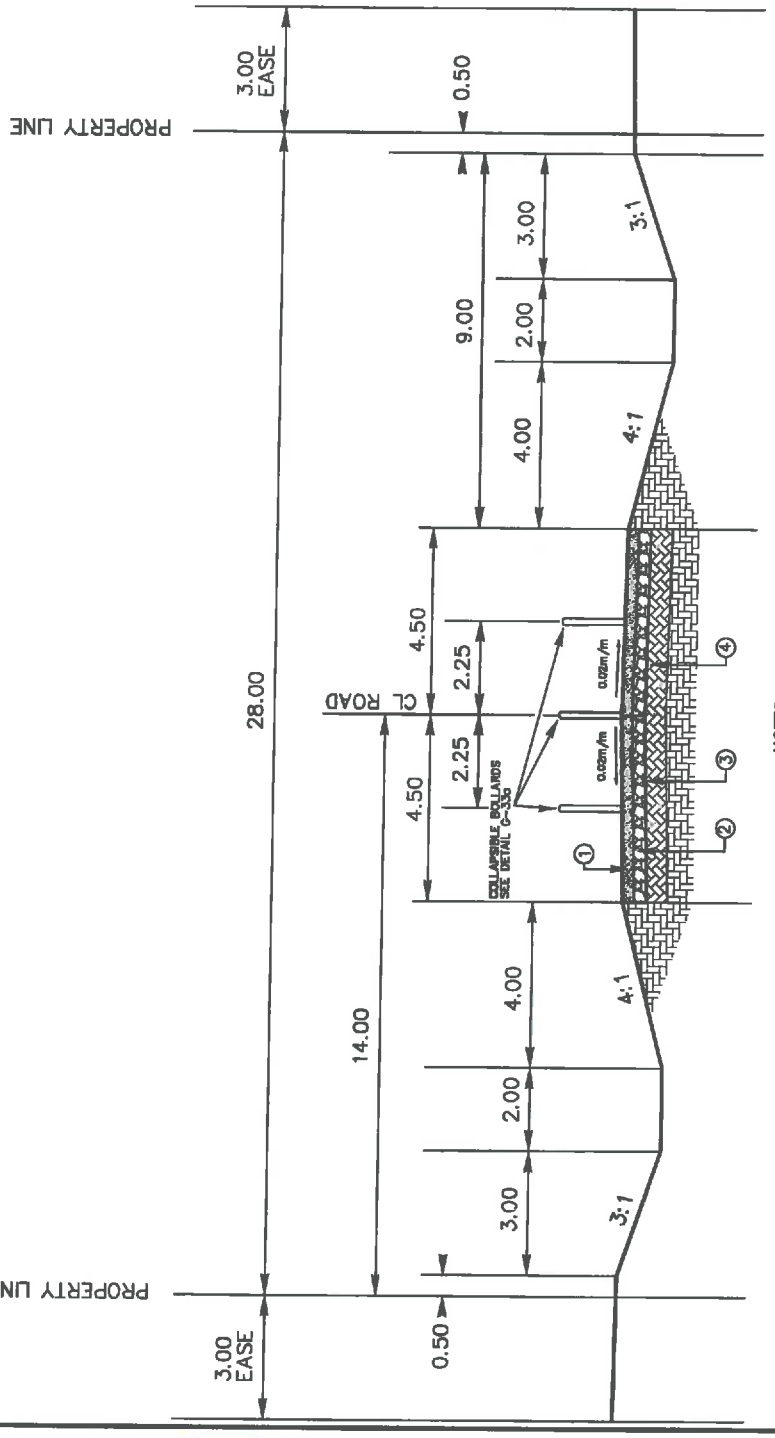
SIDE ELEVATION

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

NOTES:
1. 12mm STEEL FLANGES WELDED TO BASE PLATE.
2. 200mm x 200mm x 12mm STEEL BASE PLATE c/w 4–19mm x 250mm STEEL ANCHOR OR TUBE WELDED TO BOTTOM.
3. 100mm x 100mm STEEL BOLLARD c/w TOP PLATE. 760mm IN LENGTH (YELLOW IN COLOR).
4. 12mm x 150mm BOLT c/w WASHERS AND NYLON LOCKING NUT
5. 20mm x 150mm CLEVIS PIN.
6. HOLES DRILLED AS SHOWN.
7. CHAMFER TOP EDGES OF BASE PLATE.
8. TACK WELD.
9. SPECIFIC ANCHORING TO BE PRESCRIBED BY ENGINEER.

Lamont County General Municipal Servicing Standards

Rev.	Stewart Weir		COLLAPSIBLE BOLLARD
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved: / Drawing G–33a
Date: APRIL 2013	Drawn: RJV	Scale NTS	



ALL DIMENSIONS IN METRES UNLESS OTHERWISE NOTED

NOTES

1. 50mm DEPTH COMPACTED GRAVEL/SHALE 10mm - 20mm DIAMETER
2. 75mm DEPTH 20mm DIAMETER CRUSHED GRAVEL BASE COMPACTED TO 98% S.P.D
3. WOVEN FABRIC UNDER GRAVEL (TENSAR SS1 GEOGRID/NILEX 2006 AMOCO GEOTEXTILE OR APPROVED EQUIVALENT)
4. 150mm DEPTH SUBGRADE COMPACTED TO 98% S.P.D. ON:
   A) NATIVE SUBGRADE - FREE OF TOPSOIL, ROOTS AND/OR DEBRIS
   B) COMMON FILL - CLEAN CLAY OR GRANULAR MATERIAL PLACED OVER APPROVED SUBGRADE AND COMPACTED TO 98% S.P.D.

Lamont County

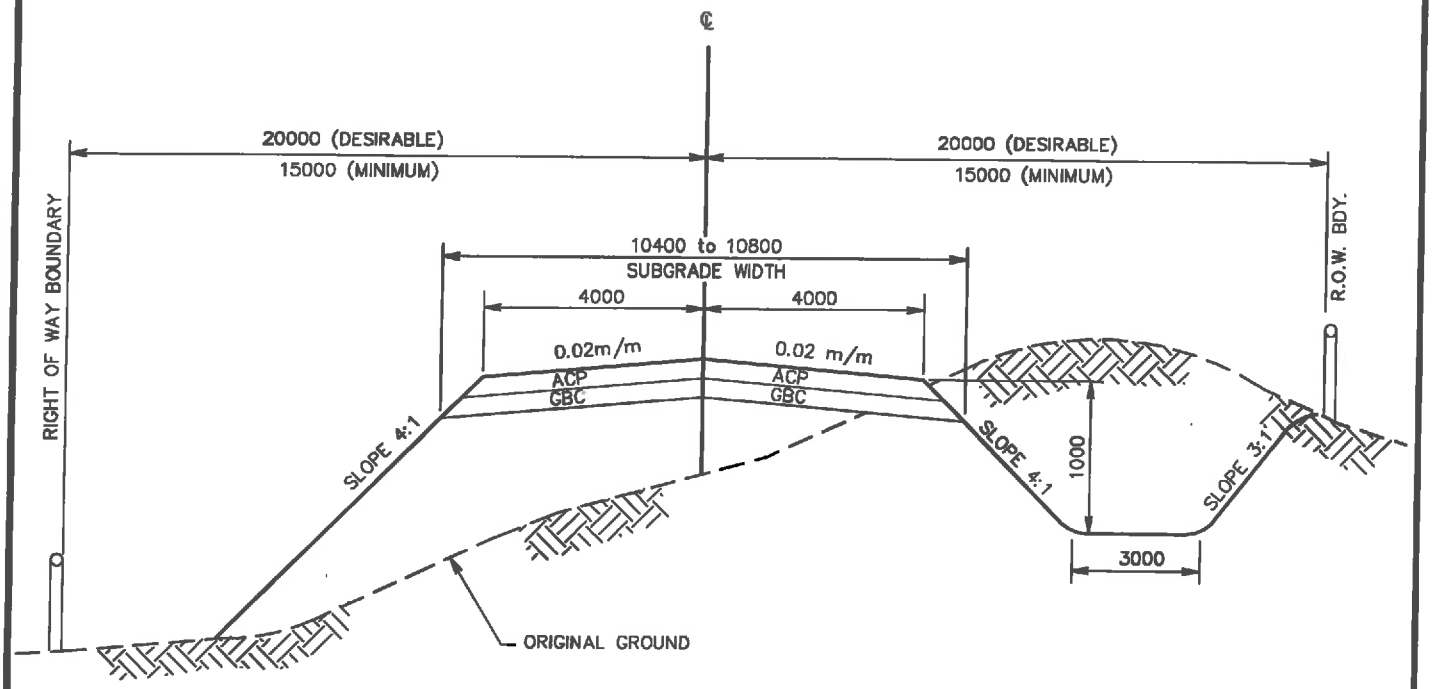
General Municipal Servicing Standards

Rev.	Stewart Weir	EMERGENCY LANE ACCESS DETAIL	
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved:
Date: APRIL 2013	Drawn: JIM	Scale NTS	Drawing G-33

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR ASPHALT STABILIZED BASE COURSE (NEW) RURAL 8.0m PAVED
Rev.			
Rev.			
Rev.	File No.: ED60.36498	Design:	Approved:
Date: APRIL 2013	Drawn: JIM	Scale NTS	Drawing G-34



SURFACE WIDTH (mm)	R.O.W. REQUIRED (mm)	NORMAL SIDE SLOPE	MAXIMUM SIDE SLOPE	NORMAL BACK SLOPE	MAXIMUM BACK SLOPE	MAXIMUM SUPER ELEVATION (m/m)
8000	40000	4:1	3:1	3:1	2:1	0.06

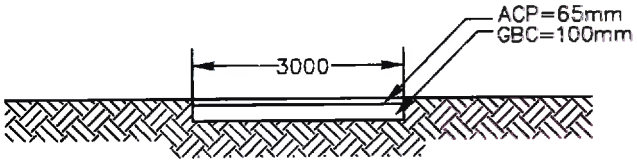
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

Lamont County

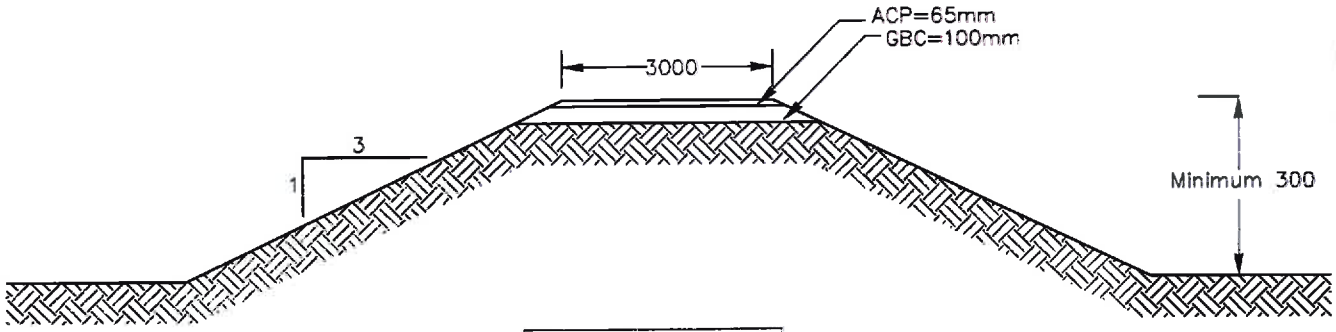
General Municipal Servicing Standards

Rev.	Stewart Weir		EXISTING ARTERIAL ROAD (PAVED)	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-35
Date: APRIL 2013	Drawn: JIM	Scale NTS		

INLAID CONSTRUCTION



GRADED CONSTRUCTION

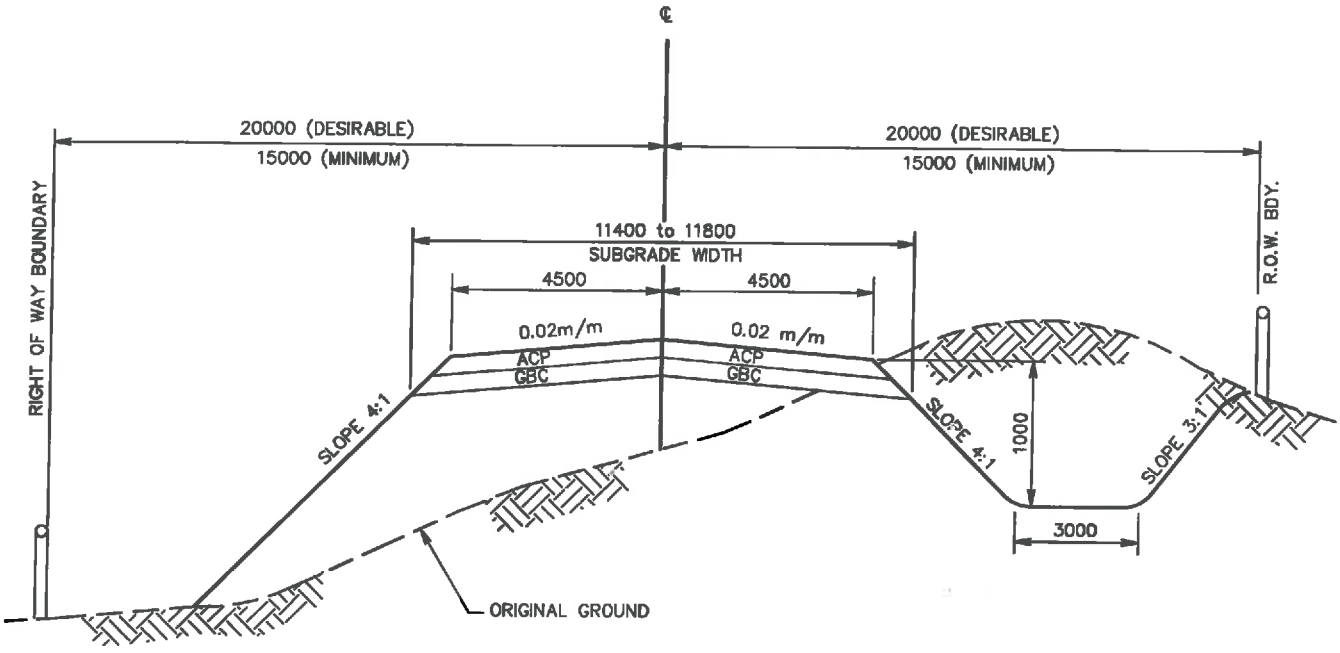


ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		WALKING TRAIL	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-36
Date: APRIL 2013	Drawn: JIM	Scale NTS		



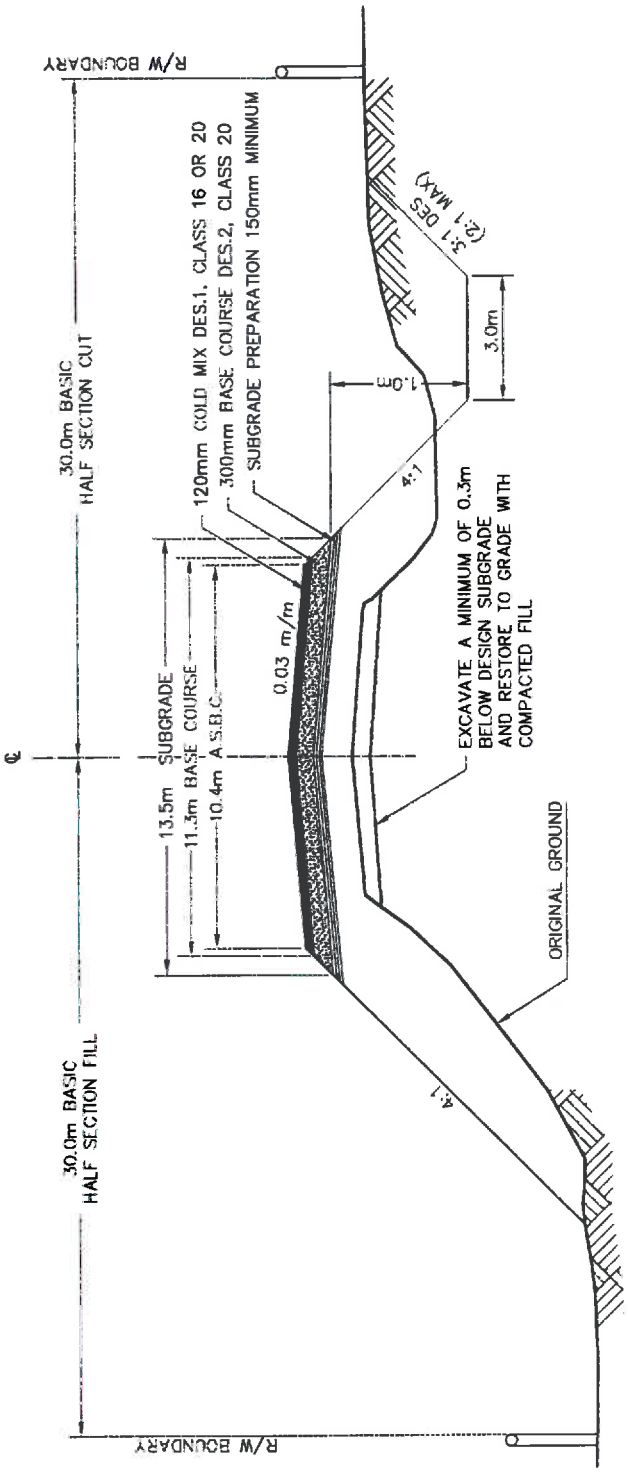
SURFACE WIDTH (mm)	R.O.W. REQUIRED (mm)	NORMAL SIDE SLOPE	MAXIMUM SIDE SLOPE	NORMAL BACK SLOPE	MAXIMUM BACK SLOPE	MAXIMUM SUPER ELEVATION (m/m)
9000	40000	4:1	3:1	3:1	2:1	0.06

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		FUTURE ARTERIAL ROAD (PAVED) STANDARD CROSS-SECTION	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-37
Date: APRIL 2013	Drawn: JiM	Scale NTS		



CUT SECTION

- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT < 500.

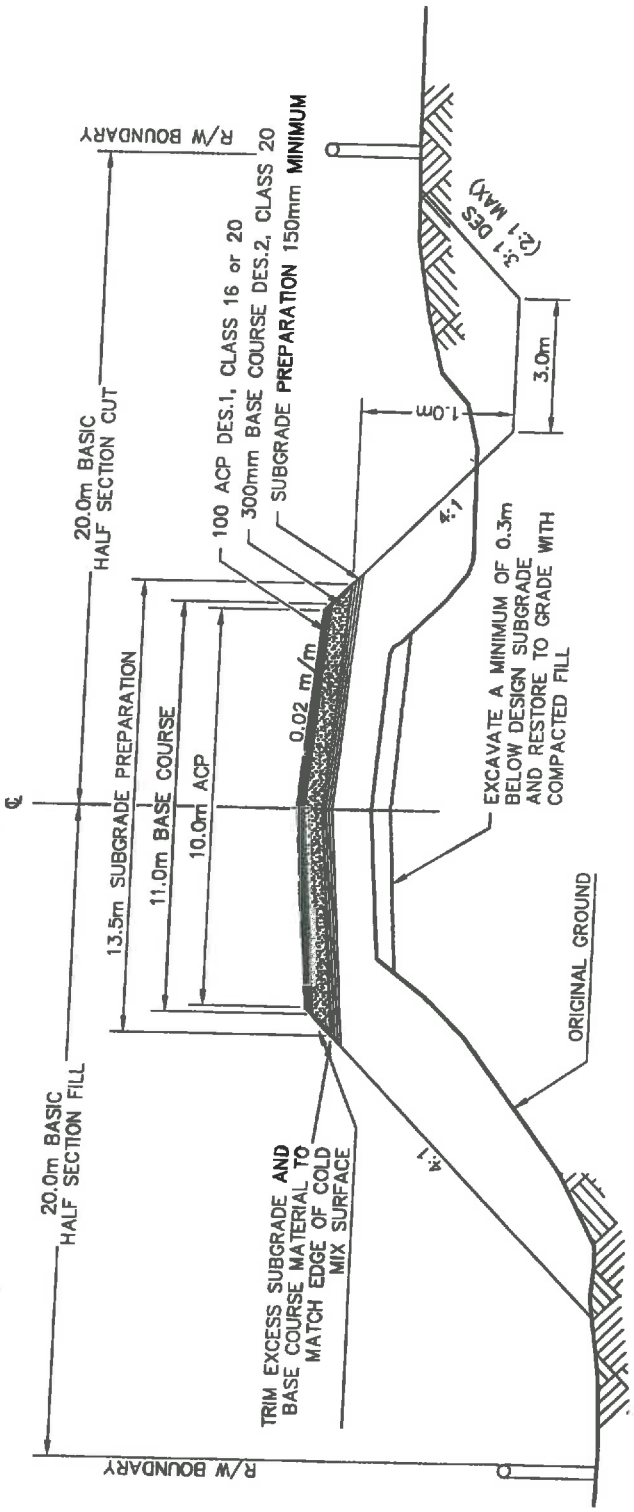
FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR ASPHALT STABILIZED BASE COURSE SURFACING INDUSTRIAL 10.4m	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-38
Date: APRIL 2013	Drawn: JM	Scale NTS		



CUT SECTION

- WIDTH OF DITCH – 3.0m STANDARD; V-DITCH MINIMUM
- BACKSLOPE VARIABLE UP TO 2:1 MAXIMUM

NOTE: THIS STANDARD AND SURFACING STRUCTURE IS INTENDED FOR LOCAL ROADS WITH AN AADT > 2000.

FILL SECTION

- 4:1 SLOPE FOR ALL FILLS
- ON FILLS GREATER THAN 8.0m THE USE OF GUARDRAIL SHOULD BE CONSIDERED
- WHERE GUARDRAIL IS INSTALLED A 2:1 SIDESLOPE IS ADEQUATE

Lamont County

General Municipal Servicing Standards

Rev.	Stewart Weir		TYPICAL CROSS SECTION FOR ASPHALT STABILIZED BASE COURSE SURFACING INDUSTRIAL 10m	
Rev.				
Rev.				
Rev.	File No.: ED60.36498	Design:	Approved:	Drawing G-39
Date: APRIL 2013	Drawn: JIM	Scale NTS		

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