

Supplementary Specifications

July 2026



Engineering Department

This document contains the Supplementary Specifications prepared by the City of Burnaby, based on the Master Municipal Construction Documents (MMCD), 2019 Edition. The Professional of Record's Seal applies only to those Sections of the Specifications and Standard Payment Clauses that are specific to the project. Such sections, if any, are clearly identified in **shaded text**.



© 2026 City of Burnaby
All Rights Reserved

The information contained in this document is the exclusive property of the City of Burnaby, except otherwise indicated, and shall not be disclosed or reproduced in whole or in part, without prior written permission of the City of Burnaby.

As the City continually updates its *Supplementary Specifications*, the information in this document is subject to change without notice.

For the most current information, please contact the Engineering Department, Projects Division, at 604-294-7479, or visit the webpage [City of Burnaby Engineering Publications](#).

Publisher: City of Burnaby, Engineering Department
Revised: July 2026

Supplementary Specifications

MMCD Section 01 55 00	Traffic Control, Vehicle Access and Parking.....	1
MMCD Section 03 30 20	Concrete Walks, Curbs and Gutters.....	4
MMCD Section 03 30 53	Cast-In-Place Concrete.....	5
MMCD Section 26 56 01	Roadway Lighting.....	6
MMCD Section 26 56 02S	Conduit for Communication Network.....	8
MMCD Section 31 05 17	Aggregates and Granular Materials.....	9
MMCD Section 31 11 41	Shrub and Tree Preservation	10
MMCD Section 31 23 01	Excavating, Trenching and Backfilling.....	11
MMCD Section 31 24 13	Roadway Excavation, Embankment and Compaction	13
MMCD Section 32 01 11	Pavement Surface Cleaning and Removal of Pavement Markings.....	14
MMCD Section 32 11 16.1	Granular Subbase	15
MMCD Section 32 11 23	Granular Base	16
MMCD Section 32 12 16S	Warm-Mix Asphalt Concrete	17
MMCD Section 32 12 16	Hot-Mix Asphalt Concrete Paving.....	18
MMCD Section 32 12 17	Superpave Hot-Mix Asphalt Paving	20
MMCD Section 32 13 13	Portland Cement Concrete Paving.....	22
MMCD Section 32 17 23	Painted Pavement Markings.....	23
MMCD Section 32 31 13	Chain Link Fences and Gates	25
MMCD Section 32 91 21	Topsoil and Finish Grading.....	26
MMCD Section 32 93 01	Planting of Trees, Shrubs and Ground Covers	28
MMCD Section 33 01 30.1	CCTV Inspection of Pipelines	30
MMCD Section 33 11 01	Waterworks	32
MMCD Section 33 30 01	Sanitary Sewers.....	35
MMCD Section 33 40 01	Storm Sewers.....	36
MMCD Section 33 44 01	Manholes and Catchbasins	38
MMCD Section 34 41 13	Traffic Signals	41
LIST OF APPROVED MATERIALS AND PRODUCTS		43
MATERIALS TESTING REQUIREMENTS		53

MMCD Section 01 55 00

Traffic Control, Vehicle Access and Parking

1.0 GENERAL

Delete 1.0.6
and Replace
with

- 1.0.6 .1 Provide temporary traffic control on all affected roads, lanes, sidewalks, bicycle lanes, and multi-use pathways meeting all the standards and conditions of the Owner's Transportation Division.
- .2 A Traffic Control Permit (TCP) application with supporting documentation and a computer drafted Traffic Management Plan (TMP) for each affected road, lane, sidewalk, bicycle lane, or multi-use pathway shall be submitted to the Owner's Transportation Division a minimum of fifteen (15) business days prior to construction. The Contractor must start TCP applications immediately upon Notice of Award. A minimum fifteen (15) business days is required for the Owner to review the Contractor's TCP application. The Owner's fifteen (15) business day review period will begin after all required documents are submitted to the Owner. If the Owner requires revisions to the Contractor's TCP application, then the Owner may require additional review time. The Contractor shall update the permit application, supporting documentation, and TMP as required for re-submission. No work that affects roads, lanes, sidewalks, bicycle lanes, or multi-use pathways will be permitted until TCP is issued and approved by the Owner's Transportation Division. It is the Contractor's responsibility to contact and distribute approved TMPs to emergency services and Translink.
- .3 Comply with the TCP requirements found on the Owner's website: [Traffic Control Permit | City of Burnaby](#)
- .4 The TMP shall be developed to facilitate the Work. The TMP shall accommodate pedestrian and bicycle traffic at all times. The TMP shall be based on the latest edition of Ministry of Transportation and Infrastructure (MoTI) standard, "Traffic Management Manual for Work on Roadways (TMM)". The Contractor must take full responsibility for its implementation, complying with the above noted specifications. Any changes

to the TMP during construction must be submitted in detail to the Owner's Transportation Division for review and approval.

- .5 Construction shall be scheduled to minimize impacts to the traveling public. This may require work to be scheduled between rush hours (9am-3pm) on weekdays, on weekends, or during nighttime. The final decision on the allowable duration and extent of closures permissible will be at the discretion of the Owner's Transportation Division.

- .6 The Contractor shall comply with the Owner's noise bylaw (Burnaby Noise or Sound Abatement Bylaw). Noise bylaw allowable impact hours are between:

- Monday-Friday from 7am to 8pm
- Saturday from 9am to 8pm

A Noise Variance Permit is required for any Work outside of the above noted impact hours. A minimum seven (7) full business days is required for the Owner to review the application once the requirements are fulfilled. The Contractor shall notify residents minimum seventy-two (72) hours before work commencement.

- .7 Approved TCP is circulated through the Owner's Engineering Department and to all emergency services. For any Work that impacts transit services or bus stops, the Contractor shall coordinate with Coast Mountain Bus Company (CMBC) and TransLink. Failure to notify CMBC may result in call out charge(s) or additional fees from CMBC. The Contractor is responsible for covering all CMBC/TransLink fees and costs associated with changes to transit services, call out charges, and any delays caused by CMBC/TransLink's review process.

- .8 Five (5) business days notification is required to install parking restriction signs by the Owner. Once a TCP is issued, the Contractor shall immediately contact parking services to request temporary sign installation.

- .9 The Contractor is responsible for all costs and fees required for obtaining and maintaining TCP.

- .10 In the event the Owner at any time finds it necessary to correct any problem with or deficiency in the traffic control equipment used by the Contractor in the performance of the Work, the Contractor will reimburse the Owner for all costs the Owner reasonably incurs in carrying out such corrections and the Owner may set-off such amounts against payments owing to the Contractor hereunder.
- .11 Where the Contractor obstructs more of any street, roadway or place than is permitted by the TCP, then the Owner may cause such obstructions to be removed at the expense of the Contractor.

END OF SECTION

MMCD Section 03 30 20

Concrete Walks, Curbs and Gutters

1.0 GENERAL

- | | | | |
|-----------------------------------|-----------|-------|--|
| 1.5 Inspection and Testing | Add 1.5.2 | 1.5.2 | One (1) compressive strength test (3 field-cured cylinders to <u>CSA A23.2</u>) shall be made for each 150 square meters of concrete work. In no case, however, shall there be less than one (1) strength test for concrete placed in one (1) day. The <u>Contractor</u> is to protect cylinders on <u>Site</u> for minimum forty eight (48) hours after which they can be sent to laboratory. One (1) cylinder shall be tested at seven (7) days, two (2) cylinders shall be tested at twenty eight (28) days. |
| | Add 1.5.3 | 1.5.3 | In addition to field cured cylinders, one (1) compressive strength test (3 laboratory cured cylinders to <u>CSA A23.2</u>) shall be made for each 300 square metres of concrete work. |

3.0 EXECUTION

- | | | | |
|------------------------|------------|--------|---|
| 3.17 Acceptance | Add 3.17.5 | 3.17.5 | Concrete not meeting the minimum compressive strength criteria shall be rejected and must be removed and replaced at the <u>Contractor's</u> expense. |
|------------------------|------------|--------|---|

END OF SECTION

MMCD Section 03 30 53

Cast-In-Place Concrete

- | | | | | |
|------------|---------------------|--------------------|--------|--|
| 1.0 | GENERAL | Append to
1.0.1 | | Street light and traffic signal bases, controller bases,
concrete junction bases and concrete vaults. |
| 1.1 | Related Work | Add 1.1.10 | 1.1.10 | Roadway Lighting <u>Section 26 56 01</u> . |
| | | Add 1.1.11 | 1.1.11 | Traffic Signals <u>Section 34 41 13</u> . |

END OF SECTION

MMCD Section 26 56 01 Roadway Lighting

3.0 EXECUTION

3.1 General	Add 3.1.5	3.1.5	For tie-into or upgrading an existing installation, maintain the existing lighting system during hours of darkness.
3.3 Concrete Bases	Delete 3.3.6 and Replace with	3.3.6	Remove and dispose excavated material, backfill with granular base material. Compact around bases in layers not exceeding 300 mm to 95% Modified Proctor density.
3.5 Underground Conduit	Delete 3.5.1 and Replace with	3.5.1	Install RPVC underground conduits by excavating, trenching, and backfilling as shown on <u>Supplementary Detail Drawing BBY-E102</u> unless shown otherwise on the <u>Contract Drawings</u> . For installing street light conduits in boulevards, hoe hog / ploughing methods may be used.
	Delete 3.5.2 and Replace with	3.5.2	Minimum cover over conduits to be 600 mm in boulevard areas and 900 mm for conduits in roadways.
	Delete 3.5.3 and Replace with	3.5.3	Place trench marker tape 300 mm above conduits when installing by excavating, trenching, and backfilling.
	Delete 3.5.4 and Replace with	3.5.4	Where specified on the <u>Contract Drawings</u> , install conduits under roadways to the alignment and elevations specified using fully directional drilling equipment. For street light conduits, tunnel/auger/drill conduits under roadways, lanes, driveways, or other specified locations.
3.7 Electrical	Add 3.7.3	3.7.3	Ballast circuits for HPS and MV luminaires to be constant wattage isolated (CWI).
3.8 Wiring	Delete 3.8.3 and Replace with	3.8.3	Make conductor splices in pole hand holds or in junction boxes.
	Delete 3.8.11 and Replace with	3.8.11	Bond all luminaires, receptacles, steel junction box lids and vault lids with a No. 12 RW90 conductor or sized as shown on <u>Supplementary Detail Drawing BBY-E116</u> .
3.10 Luminaires and Photocells	Add 3.10.4	3.10.4	Double door for Cobra head roadway luminaires not required.

- | | | |
|------------|--------|---|
| Add 3.10.5 | 3.10.5 | Pedestrian/ decorative luminaires to be as specified on the <u>Contract Drawings</u> . |
| Add 3.10.6 | 3.10.6 | Luminaire voltage, wattage and distribution type to be as specified on the <u>Contract Drawings</u> . |
| Add 3.10.7 | 3.10.7 | Confirm service voltage prior to ordering luminaires. |

END OF SECTION

MMCD Section 26 56 02S

Conduit for Communication Network

1.0 GENERAL

1.0.1 Section 26 56 02S refers to those portions of the Work that are unique to the supply and placement of conduit, junction boxes and splice vaults for communication network.

1.1 Related Work

1.1.1 Except as noted in this section, supply and installation requirements of Section 26 56 01 Roadway Lighting shall apply to conduit for communication network.

2.0 PRODUCTS

2.1 Rigid PVC Conduit (RPVC)

2.1.1 Conduit - DB2 Rigid polyvinyl chloride to CSA C22.2 No. 211.1.

2.1.2 Couplings, adaptors, bends and fittings - Rigid polyvinyl chloride to CSA C22.2 No. 85.

2.3.3 Cement – CSA certified as recommended by RPVC manufacturer.

2.2 Junction Boxes and Splice Vaults

2.2.1 Where approved by Contract Administrator, Precast Concrete Junction Box to CSA A23.4-16 with galvanized steel lid.

2.2.2 Composite or lightweight polymer concrete Junction Box to ANSI/SCTE-77 Tier 22, WUC 3.6, ASTM C857 A-16 with composite lid.

2.2.3 Splice vault 1520 mm x 1520 mm per Drawings.

2.2.4 Lids to be labeled with 100 mm high letters “COB COMM”.

3.0 EXECUTION

3.1 Underground Conduit

1.1.1 Install RPVC conduits in 100 mm sand surround with warning tape installed 300 mm below finished surface. Minimum cover 1070 mm in roadways. Minimum 900 mm depth for laterals.

3.2 Junction Boxes and Vaults

3.2.1 Install junction boxes and vaults on a 300 mm thick granular base of 19 mm crushed rock.

END OF SECTION

MMCD Section 31 05 17

Aggregates and Granular Materials

2.0 PRODUCTS

- | | | | |
|--|--|--------|--|
| 2.7 Granular Pipe Bedding and Surround Material | Delete 2.7.2

Add 2.7.4 | 2.7.4 | Pipe bedding and surround material for poly-encased watermain to be clean, high electrical resistivity sand pipe bedding material (with less than 50 ppm chloride ions and less than 50 ppm sulfite ions), wash coarse natural or manufactured sand with 100% passing 6.00 mm sieve, 2.0% to 8.0% passing 0.150 mm sieve, and less than 5.0% passing 0.075 mm sieve. |
| 2.9 Crushed Granular Sub-base | Replace the first line of 2.9.1 with: | 2.9.1 | To be 75 mm crushed rock (100% fractured with no natural fines or sands conforming to the following gradations: |
| 2.10 Granular Base | Replace the first line of 2.10.1 with: | 2.10.1 | To be 19 mm crushed rock (100% fractured with no natural fines or sands conforming to the following gradations: |
| 2.11 Recycled Aggregate Material | Add to 2.11.1 | | Recycled Concrete and Asphalt material may only be considered for Sidewalk and Multi-Use Pathway granular base and granular subbase . Do not use Recycled Concrete and Asphalt material where leachates could result in harm to environment. |

END OF SECTION

MMCD Section 31 11 41

Shrub and Tree Preservation

3.0 EXECUTION

- | | | | |
|---|-------------------------------|-------|--|
| 3.1 Existing Trees | Add 3.1.7 | 3.1.7 | The <u>Contractor</u> is to arrange for an arborist approved by the <u>Owner</u> to determine construction and maintenance techniques when proposed work could disturb roots, trunks, or branches of existing trees. |
| 3.3 Lowering Grade Around Existing Trees | Delete 3.3.2 and Replace with | 3.3.2 | If excavation through roots is required, excavate by hand or hydro vac and cut roots with sharp axe, tree lopper or saw. Seal cut edges 10 mm in diameter and larger with wound dressing. |
| 3.4 Pruning | Delete 3.4.1 and Replace with | 3.4.1 | If required, selectively remove 1/3 of tree branches to reduce transpiration and compensate for dieback of roots in fill conditions and damage to root system in cut conditions. |

END OF SECTION

MMCD Section 31 23 01

Excavating, Trenching and Backfilling

2.0 PRODUCTS

- | | | | |
|---------------------------------------|-------------------------------|-------|--|
| 2.2 Use of Specified Materials | Delete 2.2.1 and Replace with | 2.2.1 | Backfill for over-excavated trench or structure excavations to be one of the following: <ul style="list-style-type: none"> .1 Type 1 granular pipe bedding and surround material; .2 Type 3 granular pipe bedding or Drain rock (only where approved by the <u>Contract Administrator</u>); .3 Concrete; .4 Controlled density fill. |
|---------------------------------------|-------------------------------|-------|--|

- | | | | |
|---------------------------------------|-------------------------------|-------|--|
| 2.2 Use of Specified Materials | Delete 2.2.3 and Replace with | 2.2.3 | Trench and excavation backfill to be one of the following: <ul style="list-style-type: none"> .1 Approved native material; .2 Pit run gravel; .3 Controlled density fill. |
|---------------------------------------|-------------------------------|-------|--|

3.0 EXECUTION

- | | | | |
|-----------------------------|-----------|-------|--|
| 3.1 Site Preparation | Add 3.1.5 | 3.1.5 | Identify any survey monuments, iron pins and lead plugs that may be disturbed and arrange with the <u>Owner's</u> Survey Department five (5) <u>Days</u> prior to construction to reference locations before work commences. |
|-----------------------------|-----------|-------|--|

- | | | | |
|--|-----------|-------|---|
| | Add 3.1.6 | 3.1.6 | Notify <u>Owner's</u> Survey Department within two (2) <u>Days</u> after construction is complete to initiate replacement of destroyed survey monuments, iron pins, and lead plugs. |
|--|-----------|-------|---|

- | | | | |
|-----------------------|---------------------------------|-------|--|
| 3.3 Excavation | Delete 3.3.1.3 and Replace with | 3.3.1 | .3 Connections to existing sanitary and storm sewer systems to be made by <u>Owner</u> crews unless otherwise approved by the <u>Owner</u> . |
|-----------------------|---------------------------------|-------|--|

- | | | | |
|--|-------------------------------|-------|--|
| | Delete 3.3.6 and Replace with | 3.3.6 | Hand excavation – excavate by hand if necessary to preserve or minimize damage to existing trees, shrubs, buildings and all similar existing features. If tree roots are encountered during excavation, <u>Contractor</u> to notify <u>Owner's</u> arborist for an inspection to determine if hand or vacuum truck excavation is required. |
|--|-------------------------------|-------|--|

- | | | | |
|------------------------------|--------------|-------|---|
| 3.4 Pipe Installation | Modify 3.4.2 | 3.4.2 | Delete reference to Standard Detail <u>Drawing G6</u> . |
|------------------------------|--------------|-------|---|

- | | | | |
|------------------------------------|-------------|-------|---|
| 3.5 Backfill and Compaction | Add 3.5.4.4 | 3.5.4 | .4 The frequency of density tests shall be one test per lesser of: <ul style="list-style-type: none"> .1 100 lineal metres of trench line per 300 mm layer; or |
|------------------------------------|-------------|-------|---|

.2 100 cubic metres of backfill material.

- | | | | | |
|------------|---|---------------------------------------|-----------|---|
| 3.6 | Surface
Restoration | Delete
3.6.6.5 and
Replace with | 3.6.6 .5 | Maintain temporary patch to ensure safe and smooth conditions to the satisfaction of the <u>Contract Administrator</u> . |
| 3.7 | Permanent
Pavement
Restoration | Delete
3.6.7.1 and
Replace with | 3.6..7 .1 | Unless otherwise approved by the <u>Contract Administrator</u> for climatic conditions, temporary patches to be removed within ninety (90) days and replaced with permanent patch, asphalt or concrete surface. |

END OF SECTION

MMCD Section 31 24 13

Roadway Excavation, Embankment and Compaction

2.0 PRODUCTS

2.2 Specified Materials

Delete 2.2.1
and Replace
with

2.2.1

Backfill for embankment fill (subgrade fill) to be:

- .1 Approved native or imported granular material;
- .2 Pit run gravel.
- .3 Recycled concrete and asphalt (RCA) where specified by Contract Administrator.

3.0 EXECUTION

3.5.7 Compaction

Add 3.5.7

3.5.7

The frequency of density tests shall be at least one (1) test per 400 square metres of surface area of each (maximum 300 mm thick) granular layer.

END OF SECTION

MMCD Section 32 01 11

Pavement Surface Cleaning and Removal of Pavement Markings

3.0 EXECUTION

3.1 Removals

Delete 3.1.1
and Replace
with

3.1.1 In areas designated by the Contract Administrator,
remove rubber tire deposits and paint markings by water
blasting, rotary grinding, heater planning or other
method approved by the Contract Administrator. Sand
blasting not permitted.

END OF SECTION

MMCD Section 32 11 16.1 Granular Subbase

2.0 PRODUCTS

- | | | | |
|---------------------------------------|-------------------------------|-------|---|
| 2.1 Specified Materials | Delete 2.1.1 and Replace with | 2.1.1 | Material for road subbase to be:
.1 75 mm minus crushed rock;
.2 Other materials when approved by the <u>Contract Administrator</u> . |
|---------------------------------------|-------------------------------|-------|---|

3.0 EXECUTION

- | | | | |
|---------------------------------|-------------------------------|-------|---|
| 3.3 Compaction | Add 3.3.6 | 3.3.6 | The frequency of density tests shall be at least one (1) test per 150 square metres placed. |
| 3.5 Proof Rolling | Delete 3.5.1 and Replace with | 3.5.1 | For proof rolling use fully loaded single axle dump truck to 80kN (18,000 lb) minimum. |

END OF SECTION

MMCD Section 32 11 23

Granular Base

3.0 EXECUTION

3.3 Compaction

Add 3.3.6

3.3.6 The frequency of density tests shall be at least one (1) test per 150 square meters placed.

Add 3.5.7

.7 At the discretion of the Contract Administrator and the Owner, the Contractor may be required to engage a Geotechnical Engineer to test the base surface for structural adequacy of the granular layers. The Geotechnical Engineer shall provide tests as necessary to confirm that the final Benkelman Beam test rebound requirements can be obtained with the designed thickness of asphalt pavement.

Allowable deflections of paved roads are as follows:

Road Classification	Maximum Allowable Deflection (mm)
Arterial	1.0
Collector	1.3
Local	1.7
Lane	1.7

In the event that the structure is deemed inadequate by the Geotechnical Engineer, the pavement and/or pavement structure shall be adequately strengthened to insure that the final deflections are not exceeded.

END OF SECTION

MMCD Section 32 12 16S

Warm-Mix Asphalt Concrete

1.0 GENERAL

1.0.1 Section 32 12 16S refers to those portions of the Work that are unique to the supply and placement of warm-mix asphalt concrete paving.

1.0.2 Warm-Mix Asphalt (WMA) refers to asphalt mixtures produced at lower temperatures than Hot-Mix Asphalt (HMA). Temperature reductions may be achieved through proprietary system additives and/or water injection systems. Maximum WMA production temperature should be 135°C.

1.1 Related Work

1.1.1 Specification requirements for Section 32 12 16 Hot-Mix Asphalt Concrete Paving and Section 32 12 17 Superpave Hot-Mix Asphalt Concrete Paving shall apply to Warm-Mix Asphalt except as noted in this section.

1.6 Inspections and Testing

1.6.1 For arterial class roadways, the Contractor shall conduct Hamburg Wheel Tests (AASHTO T-324-16 standard test method) to determine rut resistance and moisture sensitivity. The following criteria will be used for acceptance:

Rut Resistance: < 7 mm at 10,000 passes;
Moisture Sensitivity: <12.5 mm at 20,000 passes.

2.0 PRODUCTS

2.1 Mix Design

2.1.1 An approved Hot-Mix Asphalt or Superpave Hot-Mix Asphalt mix design may be used for the Warm-Mix Asphalt mix design.

2.1.2 The WMA mix design submitted by the contractor shall include the name of the WMA technology, dosage rate, plant mixing temperature, and laboratory compaction temperature.

2.1.3 Mix design for Hot-mix asphalt to include AASHTO T283 to detect moisture damage potential of asphalt mix.

3.0 Execution

3.0.1 The plant discharge temperature of Warm-Mix Asphalt shall be within 7°C of the temperature designated on the Warm-Mix Asphalt mix design.

END OF SECTION

MMCD Section 32 12 16

Hot-Mix Asphalt Concrete Paving

1.0 GENERAL

- | | | |
|-----------------------------------|-------------------------------|--|
| 1.1 Related Work | Add 1.1.8 | 1.0.8 Warm-Mix Asphalt Concrete <u>Section 32 12 16S.</u> |
| 1.6 Inspection and Testing | Add 1.6.3 | 1.6.3 The <u>Contractor</u> shall submit a <u>Quality Control Plan (QCP)</u> for review and acceptance. As a minimum, the QCP will identify the testing laboratory undertaking the work, each of the specific testing methods that will be used for each specific product, and the frequency of all sampling and test methods to be used. |
| | Add 1.6.4 | 1.6.4 For each 400 tonnes of production or portion thereof for of Hot Mix Asphalt Concrete mixtures, the <u>Contractor</u> shall submit to the <u>Contract Administrator</u> within seventy two (72) hours, one (1) set of Marshall mix properties.

Where asphalt mixture production is less than 400 tonnes in a single day, a minimum one (1) set of Marshall mix properties shall be provided for each day of production or portion thereof. |
| | Add 1.6.5 | 1.6.5 <u>Quality Assurance</u> testing ordered by the <u>Contract Administrator</u> may include but not be limited to:
.1 Theoretical Maximum Specific Gravity, Asphalt Mix – <u>ASTM D2041</u> ;
.2 Marshall Mix Density and Air Voids – <u>ASTM D1559, D2726, D2712</u> ;
.3 Aggregate Gradation – <u>ASTM C136</u> Field Density – <u>ASTM D2726</u> ;
.4 Pavement Thickness and density by Cores;
.5 Density in Place by Nuclear Methods: <u>ASTM D – 2950 – 91</u> ;
.6 Density in Place by the Electromagnetic Surface Contact Methods: <u>ASTM 7113</u> ;
.7 Rut resistance and Moisture Sensitivity: Hamburg Wheel Tests <u>AASHTO T-324-16</u> ;
.8 Tensile Strength Ratio <u>AASHTO T283</u> . |
| 2.0 PRODUCTS | | |
| 2.1 Materials | Delete 2.1.1 and Replace with | 2.1.1 Asphalt cement: to <u>CGSB-16.3-M90</u> Group A, grade 80-100. |

		Delete 2.1.3(12) First paragraph	2.1.3 (12)	Crushed fragments: at least 85% of particles by mass within each of following sieve designations ranges to have at least two (2) freshly fractured faces. Material to be tested according to <u>ASTM C136</u> and <u>ASTM C117</u> .
2.2	Mix Design	Delete 2.2.1 and Replace with	2.2.1	Submit a current job mix formula to the <u>Contract Administrator</u> for review and approval. The mix design shall identify HMA or WMA with the respective mixing and compaction temperatures. The <u>Contractor</u> is encouraged to use up to 15% RAP in asphalt base course mixes and up to 10% RAP in asphalt surface course.
3.0	EXECUTION			
3.5	Placing	Delete 3.5.4(3) and Replace with	3.5.4 (3)	Surface course in layers of maximum 60mm each except for local residential streets where the maximum lift thickness for asphalt paving is 75 mm. Minimum lift thickness for surface course shall not be less than 40mm for local residential streets and 50 mm for other classes of roads.
3.6	Compaction	Add 3.6.6	3.6.6 (1)	Compaction to be checked by non-destructive testing techniques at 100 metre intervals along length of road for each lane, or, at least one (1) test for each 300 square meters of paving.
			(2)	In addition, one core required every 1,500 square meters for thickness and density and to calibrate non-destructive testing equipment. Minimum one (1) test for areas smaller than 1,500 square meters.
3.10	Finished Tolerances	Delete 3.10.4 and Replace with	3.10.4	In areas of standard concrete gutter, finished asphalt surface to be 10 mm higher than face of gutter at the discretion of the <u>Contract Administrator</u> . In areas of reverse gutter, finished asphalt surface to be flush with face of gutter.
		Add 3.10.5	3.10.5	The <u>Contractor</u> shall ensure all manhole, water valve and third party utility boxes adjustments are completed using string lines and that all utilities match the road finished grade and crossfall.

END OF SECTION

MMCD Section 32 12 17

Superpave Hot-Mix Asphalt Paving

1.0 GENERAL

- | | | | | | |
|------------|--|---|--------|--|--------------------------|
| 1.1 | Related Work | Add 1.1.13 | 1.1.13 | Warm-Mix Asphalt Concrete | <u>Section 32 12 16S</u> |
| 1.4 | Submission of HMA Mix Design(s) | Delete first sentence of 1.4.1 and replace with | 1.4.1 | Submit current Superpave HMA or WMA mix design(s) and trial mix test(s) from qualified asphalt testing laboratory meeting the requirements of this section to the <u>Contract Administrator</u> at least five (5) <u>Days</u> prior to commencing any asphalt paving work. | |
| 1.6 | Inspection and Testing | Delete 1.6.2.2 and Replace with | 1.6.2 | <p>.2 For each 400 tonnes of production or portion thereof of Superpave Hot-Mix Asphalt Concrete mixtures, the <u>Contractor</u> shall submit to the <u>Contract Administrator</u> within seventy two (72) hours, one (1) set of Superpave mix properties.</p> <p>Where asphalt mixture production is less than 400 tonnes in a single day, a minimum one (1) set of Superpave mix properties shall be provided for each day of production or portion thereof.</p> | |
| | | Add 1.6.2.9 | 1.6.2 | <p>.9 For arterial class roadways, the <u>Contractor</u> shall conduct Hamburg Wheel Tests (<u>AASHTO T-324-16</u> standard test method) to determine rut resistance and moisture sensitivity. The following criteria will be used for acceptance:</p> <p>Rut Resistance: < 7 mm at 10,000 passes.
Moisture Sensitivity: <12.5 mm at 20,000 passes.</p> | |

2.0 PRODUCTS

- | | | |
|-------------------------------|-------|--|
| Delete 2.2.3 and Replace with | 2.2.3 | Where RAP will be incorporated in the mix, the mix design shall include RAP content. <u>Contractors</u> are encouraged to use up to 15% RAP in asphalt base course mixes and up to 10% RAP in asphalt surface course. Mix may contain up to 15% recycled asphalt cement replacement without changing binder grade. |
|-------------------------------|-------|--|

3.0 Execution

- | | | | | |
|------------|-------------------|-----------|-------|---|
| 3.6 | Compaction | Add 3.6.6 | 3.6.6 | (1) Compaction to be checked by non-destructive testing techniques at 100 metre intervals along length of road for each lane, or, at least one (1) test for each 300 square meters of paving. |
|------------|-------------------|-----------|-------|---|

- (2) In addition, one core required every 1,500 square meters for thickness and density and to calibrate non-destructive testing equipment. Minimum one (1) test for areas smaller than 1,500 square meters.

**3.10 Finished
Tolerances**

Delete 3.10.5
and Replace
with

3.10.5 In areas of standard concrete gutter, finished asphalt surface to be 10 mm higher than gutter pan at the discretion of the Contract Administrator. In areas of reverse gutter, finished asphalt surface to be flush with gutter pan.

END OF SECTION

MMCD Section 32 13 13

Portland Cement Concrete Paving

3.0 EXECUTION

3.4 Curbs and Gutters

Add 3.4.2

3.4.2 Drain tile is to be installed at a minimum depth of 500 mm below the gutter grade with drain rock placed for a minimum width of 150 mm greater than the drain tile diameter. See Burnaby Standard Detail Drawing BBY-C108 for details.

Add 3.4.3

3.4.3 Where there are street lighting bases behind the curb, the drain tile will pass behind the street light bases and street light ducting. Where drain tile and street lighting ducts and pole bases are to be installed behind the curb and gutter, the work must be coordinated in such a manner as to ensure that neither facility is damaged.

END OF SECTION

MMCD Section 32 17 23

Painted Pavement Markings

1.0 GENERAL

1.2 Scope

Add 1.2.2

1.2.2 Permanent paint lines must be reinstated to existing standards on the base lift of asphalt if there is significant time lag between base and top lifts on a street.

Add 1.2.3

1.2.3 Spray painted temporary markings will not be accepted.

2.0 PRODUCTS

2.1 Materials

2.1.6 Pavement Markings

Add
2.1.6(10)

2.1.6(10) Methyl Methacrylate (MMA)

(1) Field Reacted Polymeric Methyl Methacrylate (MMA) Skid Resistant Paint to be ISO certified durable road marking material conforming to the following:

- Ultra-violet (UV) stable
- Minimum skid resistance of 49 BPN
- Glass beads must conform to AASHTO M247 Type 1 (standard gradation) specifications.

(2) Symbols used on MMA coated surface must also be MMA material. Neither thermoplastic nor paint materials are permitted.

Add
2.1.6(11)

2.1.6(11) Raised Pavement Markings

Raised Pavement Markings (RPM) shall be listed on the current edition of the Ministry of Transportation and Infrastructure Recognized Product List under section "Raised Surface Reflectors" and shall be reflective glass faced. Adhesive material shall be as recommended by the RPM manufacturer.

Add
2.1.6(12)

2.1.6(12) Temporary pavement marking tape:

- (1) Self-adhesive temporary pavement marking tape designed to provide reflective delineation.
- (2) To consist of high quality optical glass spheres embedded into weather and traffic-resistant binder on conformable metallic backing pre-coated with pressure sensitive adhesive.
- (3) Colour as specified.
- (4) To be readily removable by methods not requiring sandblasting, solvents or grinding.

Add
2.1.6(13)

2.1.6(13) Temporary Raised Pavement Markers

- (1) Adhesive or Peel and Stick plastic tabs that are flexible enough to resist traffic impact with double sided built in reflective strips.

3.0 EXECUTION

3.1 Equipment Requirements

Add 3.1.3

3.1.3 The Contractor shall maintain sufficient traffic control to safely permit the installation of temporary and permanent pavement markings.

3.3 Application

Delete
3.3.2.1 and
Replace with

3.3.2.1 The Contractor is to lay out pavement markings within twenty four (24) hours of completion of paving. Permanent markings on arterial roadways to be completed within five (5) Days of completion of overlay.

END OF SECTION

MMCD Section 32 31 13 Chain Link Fences and Gates

2.0 PRODUCTS

- 2.1 Materials**
- Delete 2.1.4(1) and Replace with
- 2.1.4 (1) Top and bottom brace rails: 48 mm nominal outside diameter, wall thickness 3.55 mm.
- Delete 2.1.5
- Delete 2.1.10 and Replace with
- 2.1.10 All joints to be coped (saddle joints) and welded. No pinched joints or joint hardware permitted.

3.0 EXECUTION

- 3.2 Installation of Fence**
- Delete 3.2.12 and Replace with
- 3.2.12 Install top rail between posts. Fasten securely to terminal posts and secure waterproof caps and overhang tops.
- Delete 3.2.13 and Replace with
- 3.2.13 Top and bottom rail to be welded construction with all welds coated with corrosion resistant finish. All joints, top and bottom rails shall be coped (saddle joints) and fitted.
- Delete 3.2.15 and Replace with
- 3.2.15 Fabric to be secured to frame at maximum 100 mm intervals with 11 gauge core vinyl coated steel ties, double twisted.

END OF SECTION

MMCD Section 32 91 21

Topsoil and Finish Grading

2.0 PRODUCTS

2.11 Structural Growing Medium

Add 2.11

2.11

Structural growing medium composition shall conform to the specifications in the following **Table 2A** and related requirements specified in current Canadian Landscape Standards.

TABLE 2A: Properties of Structural Growing Medium

PARTICLE SIZE CLASS AND PROPERTIES	% Dry Weight and Composition
Acidity (pH)	5.5 – 6.5
Salinity (E.C) Maximum Saturation Extract Conductivity	3.0 millimhos / cm at 25 degrees C
Sand (Larger than 0.05mm and smaller than 2mm)	65 – 70%
Silt (larger than 0.002mm and smaller than 0.05mm)	5 – 15%
Clay (smaller than 0.002mm)	5 – 10%
Fines: Maximum Clay and Silt Combined	15%
Organic Content (OM)	10 – 15%
Carbon Nitrogen Ratio (C/N)	Maximum 33:1
Total Nitrogen (N)	0.2 – 0.5%
Available Phosphorus (P)	20 – 500ppm
Available Potassium (K)	50 – 1000ppm
Available Sodium (Na)(SAR)	(SAR) not to exceed 8.0

3.0 EXECUTION

3.4 Placing Growing Medium

Delete 3.4.5 and Replace with

.5

Table 3 sets out minimum depths of growing medium after settlement for various types of subgrade.

TABLE 3: Minimum Growing Medium Depths			
Application	Minimum Depths		
	Over Prepared Subsoil		Over Structures
	Where subsoil has medium (loamy) texture	Where subsoil has coarse (sandy) or fine (clay) texture	
Low traffic lawn areas:			
i) irrigated	100 mm	150 mm	150 mm
ii) not irrigated	100 mm	150 mm	300 mm
High traffic lawn areas	100 mm	150 mm	-----
Planting medium			
i) ground cover areas	150 mm	300 mm	300 mm
ii) shrub areas – small shrubs	300 mm	450 mm	300 – 500 mm
iii) shrub areas – large shrubs	450 mm	600 mm	500 – 900 mm
iv) tree pits	300 mm for 900 mm radius from the edge of the rootball	300 mm for 900 mm radius from the edge of the rootball	See Section 02950

END OF SECTION

MMCD Section 32 93 01

Planting of Trees, Shrubs and Ground Covers

2.0 PRODUCTS

2.1 Plant Material Append to 2.1.2(9) 2.1.2 (9) Boulevard shade trees to be 6 cm calliper not branching before 1.8 m from finished ground elevation and in conformance with the Canadian Landscape Standard.

2.4 Mulch Add 2.4.2 1.4.2 Mulch for tree bases to be biocycle composted bark mulch 19 mm minus.

2.5 Stakes Add 2.5.2 2.5.2 Tree ties are to be rubber fabric belting 38 mm wide.

3.0 EXECUTION

3.3 Planting Delete 3.3.2(1) and Replace with 3.3.2 (1) Complete planting work during normal planting season from October to May. Do not plant in frozen ground or with frozen root balls. Do not plant during extremely hot, dry weather or during heavy rain.

Delete 3.3.4(1) and Replace with 3.3.4 (1) .1 Plant all trees in holes large enough to accommodate entire rootball plus topsoil. See Supplementary Detail Drawing BBY-L101 and BBY-L102.

.2 Prepare tree planting area outside of tree pit to allow extended root growth. Area to extend 900 mm beyond the rootball to a depth of 300 mm. Apply 50-75 mm of tree base mulch.

.3 Plant to the top of the root zone level with existing grade. Plant trees so that after settlement they will be at original growing medium depth.

Append to 3.3.4(2) 3.3.4 (2) Cut nylon rope.

Add 3.3.4(5) 3.3.4 (5) Apply stem guard.

		Append to 3.3.6(5)	3.3.6 (5)	Keep mulch 100 mm to 150 mm away from trunk. Mulch must not touch the tree stem.
		Add 3.3.6(7)	3.3.6 (7)	Apply stem guard.
3.5	Watering	Add 3.5.2	3.5.2	The <u>Contractor</u> is to water plants from installation to one year after <u>Total Performance</u> . The <u>Contractor</u> is to provide the <u>Contract Administrator</u> with watering and maintenance records prior to end of <u>Maintenance Period (GC 25.0)</u> .
3.6	Pruning	Delete 3.6.3 and Replace with	3.6.3	Use only clean, sharp tools. Disinfect tools after each use between trees.
3.7	Mulching	Delete 3.7.2 and Replace with	3.7.2	Ensure depth of bark mulch is minimum 50 mm and maximum 100 mm after settlement.
		Add 3.7.3	3.7.3	Keep mulch 100 mm to 150 mm away from trunk.
3.9	Maintenance	Append to first sentence of 3.9.1		except for watering to comply with 3.5.2 and continue for one year after <u>Total Performance</u> .
		Delete 3.9.1(5) and Replace with	3..9.1 (5)	Use of pesticides and herbicides not allowed.
3.10	Conditions for Total Performance	Delete 3.10.1(2) and Replace with	3.10.1 (2)	All plants are of species and varieties specified and planted in locations confirmed by the <u>Contract Administrator</u> .

END OF SECTION

MMCD Section 33 01 30.1 CCTV Inspection of Pipelines

1.0 GENERAL

- | | | | |
|-----------------------|----------------------------------|-----------|---|
| 1.2 References | Delete 1.2.2(1) and Replace with | 1.2.2 (1) | CSA publication NASSCO Pipeline Assessment Certification Program (PACP) – Canadian Edition (V6.0 or greater). |
|-----------------------|----------------------------------|-----------|---|

2.0 PRODUCTS

- | | | | |
|----------------------|-----------------------------|----------|--|
| 2.2 Materials | Delete 2.2 and Replace with | 2.2.2 .1 | Digital video and picture data storage and digital report storage to be flash drive or portable hard drive compatible with the Owner's computer systems. |
| | | .2 | Photographs to be colour, minimum image size 90 mm x 70 mm and stored as per clause 2.2.1. |

3.0 EXECUTION

- | | | | |
|--|--------------------------------|--------|---|
| 3.1 CCTV Inspection | Delete 3.1.8 and Replace with | 3.1.8 | Record all digital videos at MPEG-2 standard or better on flash drive or portable hard drive compatible with the Owner's computer systems. |
| | Delete 3.1.14 and Replace with | 3.1.14 | Stop camera at each defect, change of condition of pipe and service connection to record defect in accordance with CSA-PACP codes. |
| 3.2 Recording Resolution | Delete 3.2.1 and Replace with | 3.2.1 | At the beginning of each flash drive or when a substitute camera is introduced perform a recording resolution test with use of a Marconi or RETMA resolution chart. |
| 3.3 Site Coding Sheets | Delete 3.3 | | |
| 3.7 Photographs and/or Digital Images | Delete 3.7.1 and Replace with | 3.7.1 | Photograph all major structural and operational defects. (CSA-PACP defect codes B, C, D, F, H, J, R, K, L and F, R, I and OB). |
| 3.8 Inspection Reporting Hard Copies & Digital Format | Delete 3.8.2 and Replace with | 3.8.2 | Present machine printed (hard copy) and computer generated data base reports according to CSA-PACP format. |
| | | (1) | Each binder to commence with an index of all survey inspection reports contained within. |

- (2) Hard copy reports to be presented in tabular form in accordance with CSA-PACP.
- (3) Reports to be presented in sections or drainage areas and / or by pipeline type or as specified in the Contract Documents.
- (4) Computer database file to contain identical survey report information as printed report exclusive of photographs.
- (5) Digital information to be presented in tabular configuration in accordance with CSA-PACP in Microsoft Access ® (.MDB).
- (6) Include Owner supplied scale drawings showing highlighted inspected pipeline. Drawing to be attached to inspection condition report for each section of pipeline surveyed.

Delete 3.8.3
and Replace
with

3.8.3 Present report in 215 mm x 280 mm three ring (D type) binder.

Delete 3.8.4
and Replace
with

3.8.4 Flash drives and portable hard drives to be attached securely to the binder.

Delete 3.8.5
and Replace
with

3.8.5 Attach identical identification labels on three ring binder and flash drive.

Delete 3.8.8
and Replace
with

3.3.8 Each flash drive to include a digital index of all inspection reports and observations with a digital link to the video survey.

END OF SECTION

MMCD Section 33 11 01

Waterworks

2.0 PRODUCT

2.2.1 Ductile Iron Pipe	Append to 2.2.1(2)	2.2.1 (2)	Use nitrile (Acrylonitrile Butadiene) gaskets where hydrocarbons are present or otherwise specified.
	Add 2.2.1.3	2.2.1 (3)	All watermain and fittings to be encased with low density polyethylene film to per <u>ANSI/AWWA C105/A21.5</u> infused with anti-microbial compound and volatile corrosion inhibitor.
2.2.2 Polyvinyl Chloride (PVC) Pressure Pipe	Append to 2.2.2(2)	2.2.2 (2)	Use nitrile gaskets where hydrocarbons are present or otherwise specified.
2.2.3 High Density Polyethylene Pipe	Delete 2.2.3(1)(1) and Replace with	2.2.3 High Density Polyethylene Pipe: (1) Pipe: (1) Minimum DR11, blue stripe, ductile iron size outside diameter (DIOD) unless otherwise approved.	
	Add 2.2.3.(1)(4)	2.2.3(1) (4)	To be blue-striped or solid blue colour exterior.
2.2.4 Fittings	Append to 2.2.4(5)	2.2.4 (5)	Use nitrile gaskets where hydrocarbons are present or otherwise specified.
2.2.7 Oriented Polyvinyl Chloride (PVCO) Pressure Pipe	Delete 2.2.7(1) and Replace with	2.2.7 (1) Pipe: (1) Pipe to be manufactured to specifications as follows: .1 Pipes 100 mm to 300 mm diameter – <u>AWWA C909</u> rated to 235 psi minimum. .2 Pipes to be certified by <u>Canadian Standards Association</u> for pipe size ranges from 100mm to 600mm diameter – <u>CSA B137.3.1</u>	
2.5 Service Connections, Pipe, Joints and Fittings	Delete 2.5.4 and Replace with	2.5.4	For services 75 mm and larger, use fittings only to Clause 2.2.4 of this section.

2.8	Granular Pipe Bedding and Surround Material	Add 2.8.3	2.8.3	Polyethylene encased watermain shall be bedded in washed coarse sand per <u>Section 31.05.17</u> Clause 2.7.4.
3.0	EXECUTION			
3.1	General	Add 3.1.2	3.1.2	The <u>Contractor</u> is not to open or close any valves on <u>Owner</u> water system. All valve operations by <u>Owner</u> forces only.
3.6	Pipe Installation	Add to 3.6.4	3.5.4	For all water main pipe materials, do not bend individual pipes to achieve deflection.
		Add 3.6.15	3.6.15	Install joint restraint devices on all joints within 20 m of temporary end of main cap or where <u>Owner</u> forces will be performing tie-in to existing mains.
		Add 3.6.16	3.6.16	Prior to construction, the <u>Contractor</u> shall locate and expose all utilities crossing the proposed watermain, water services, tie in locations and any other proposed works.
		Add 3.6.17	3.6.17	When the watermain crosses a storm or sanitary sewer, the watermain shall be installed a minimum 0.5 m clear above the sewer. Where this is not possible, the watermain shall have a minimum 0.3 m clearance under the sewer with all joints within a 3.0 m horizontal distance from the sewer wrapped with heat shrink plastic or packed and wrapped with petrolatum tape in accordance to the following standards: - <u>ANSI/AWWA C214</u> (factory applied); - <u>ANSI/AWWA C209</u> (field applied); - <u>ANSI/AWWA C217-90</u> (petrolatum tape); - All materials used are to have zero health hazard. Installation shall be in accordance with the requirements of the Regional Health Engineer under the Health Act.
		Add 3.6.18	3.6.18	All tie-ins to existing watermains and service connections will be performed by <u>Owner</u> crews unless otherwise noted. Prior to construction, the Contractor shall expose the existing watermain at the tie-in point in the presence of the <u>Contract Administrator</u> for a minimum of 0.9 m along its length to ensure that the new watermain or water service will be properly aligned and at the correct elevation to facilitate the tie-

				in. If deemed necessary by the <u>Contract Administrator</u> , the <u>Contractor</u> shall also expose the existing watermain 3.0 m from the tie-in point to prove its line and grade. All utilities between the tie-in point and the end of the new watermain shall be exposed and documented by the <u>Contractor</u> . The <u>Contractor</u> shall supply a minimum of one 6.0 m length of appropriate diameter pipe to the Owner for each tie-in location.
3.10	Service Connection Installation	Delete 3.10.1 and Replace with	3.10.1	Install service connections to 3.6 of this section, as shown on <u>Supplementary Detail Drawings</u> BBY-W102 and BBY-W103, and as directed by the <u>Contract Administrator</u> , BBY-WM1, BBY-WM2a, BBY-WM2b, and BBY-WM3.
		Delete 3.10.7 and Replace with	3.10.7	Tap main as shown on <u>Supplementary Detail Drawings</u> BBY-W102 and BBY-W103, not closer to a joint nor closer to adjacent service connections than recommended by manufacturer, or 1.0 m, whichever is greater. No two adjacent connections on the same pipe length to be on the same plane of pipe.
3.12	Hydrants	Delete 3.12.6 and Replace with	3.12.6	For hydrants not in service, place an orange painted sign, 30 cm x 30 cm, lettered "Not in Service" on the main port. The "Not in Service" signs shall be removed by the Owner after the tie-ins have been completed.
3.21	Disinfection and Flushing Procedures	Append to 3.21.8	3.21.8	Chlorinated water to be flushed to sanitary sewer or dechlorinated prior to entry to storm sewers.

END OF SECTION

MMCD Section 33 30 01 Sanitary Sewers

3.0 EXECUTION

- | | | |
|--|---|---|
| 3.6 Pipe Installation | Delete 3.6.6(2) and Replace with | 3.6.6 (2) No bending of pipe barrel allowed. |
| 3.10 Service Connection Installation | Delete 3.10.1 and Replace with

Delete 3.10.4 | 3.10.1 Install service connections to 3.6 of this section and as shown on applicable <u>Supplementary</u> Detail Drawing BBY-S120 or BBY-S113. |
| 3.12 Leakage Testing General | Add 3.12.4 | 3.12.4 Low Pressure Air Test as detailed in Clause <u>3.14</u> required. |
| 3.18 Video Inspection | Delete 3.18 and Replace with | 3.18.1 The <u>Contractor</u> is to video inspect all completed sanitary sewer mains and service connections at the <u>Contractor's</u> expense immediately following completion of installation.

3.18.2 The <u>Contractor</u> is to provide the <u>Contract Administrator</u> with report of inspection including video on flash drive conforming to <u>Section 33 01 30.1</u> CCTV Inspection of Pipelines. |
| 3.20 Connections to Existing Mains | Delete 3.20 and Replace with | 3.20 Connections to existing sanitary sewer system to be made by <u>Owner</u> crews unless otherwise approved. |

END OF SECTION

MMCD Section 33 40 01

Storm Sewers

2.0 PRODUCTS

- | | | | |
|--------------------------------|-------------------------------|--------|---|
| 2.6 Service Connections | Delete 2.6.1 and Replace with | 2.6.1 | Storm sewer service connections to be 150 mm minimum diameter, maximum diameter as specified on the <u>Contract Drawings</u> . |
| | Add 2.6.11 | 2.6.11 | Where required to add a service to existing pipe, all hubs to be of a type such that there is a stop that prevents hub from sliding into the pipe more than the thickness of the pipe wall. |

3.0 EXECUTION

- | | | | |
|---|--------------------------------|--------|---|
| 3.6 Pipe Installation | Delete 3.6.6(2) | 3.6.6 | (2) Smooth Profile PVC Pipe. No bending of pipe barrel allowed. |
| 3.10 Service Connection Installation | Delete 3.10.1 and Replace with | 3.10.1 | <p>(1) Install service connections to <u>3.6</u> of this section and as shown on applicable <u>Supplementary</u> Detail Drawing BBY-S114.</p> <p>(2) If connection cannot be installed at 2% grade (e.g. conflict with other utility) the record drawings must include a profile of the service including and utility crossings.</p> |
| | Delete 3.10.2 and Replace with | 3.10.2 | Install 40 x 90 mm marker stake at service terminus. Paint and mark as shown on <u>Supplementary</u> Detail Drawing BBY-S114 and BBY-S120. |
| | Delete 3.10.3 and Replace with | 3.10.3 | Where specified, install inspection chamber at specified location, set plumb and to specified elevation as shown on <u>Supplementary</u> Detail Drawing BBY-S122. If inspection chamber is in driveway, lane or paved surface install cover or lid as shown on <u>Supplementary</u> Detail Drawing BBY-S122. |
| | Delete 3.10.4 | | |
| 3.12 Inspection and Testing | Delete 3.12.1 and Replace with | 3.12.1 | The <u>Contractor</u> is to video inspect all completed storm sewer mains under 900mm in diameter, CB leads and service connections at the <u>Contractor's</u> expense immediately following completion of installation and cleaning. The <u>Contractor</u> is to provide the <u>Contract Administrator</u> with report of inspection including video |

on flash drive conforming to Section 33.01.30.1 CCTV Inspection of Pipelines.

- | | | | | |
|-------------|--------------------------------------|---|--------|--|
| 3.14 | Connections to Existing Mains | Delete 3.14.1 and Replace with

Delete 3.14.2 | 3.14.1 | Connections to existing storm sewers to be made by <u>Owner</u> crews unless otherwise approved by the <u>Owner</u> . |
| 3.15 | Perforated Drain Pipe | Delete 3.15.1 and Replace with | 3.15.1 | Where shown on <u>Contract Drawings</u> or where directed by the <u>Contract Administrator</u> install perforated drain pipe adjacent to sidewalk or curb and gutter as shown on <u>Supplementary Detail Drawing</u> BBY-C108. |

END OF SECTION

MMCD Section 33 44 01

Manholes and Catchbasins

2.0 PRODUCTS

2.1 Materials

2.1.7	Cast iron frame and cover	Delete 2.1.7 and Replace with	2.1.7	Cast Iron Frame and Cover: as shown on <u>Supplementary Detail Drawing BBY-S106</u> and indicated in <u>List of Approved Materials and Products</u> for this section.
			.1	Frame and cover must conform to <u>ASTM A48</u> and be designed to withstand H20 loading (H25 for arterial roadways).
			.2	Frame and cover must bear manufacturer identification. Do not mix frame and cover from different manufactures.
			.3	Any frame and cover assembly creating a point load on the concrete riser rings will not be permitted.
			.4	Do not install Self-Adjusting castings if:
			.1	there is less than 200 mm between top of concrete lid and finish grade for low profile unit; or
			.2	there is less than 300 mm between top of concrete lid and finish grade for standard profile unit; or
			.3	there is less than 110 mm thick pavement.
2.1.10	Precast catchbasin sections	Delete 2.1.10(1) and Replace with	2.1.10 (1)	As shown on <u>Supplementary Detail Drawing BBY-S107</u> .
2.1.11	Catchbasin leads	Delete 2.1.11 and Replace with	2.1.11	Catchbasin leads to be minimum 150mm diameter and of PVC DR28.
2.1.13	Cast iron catchbasin frame and grate	Delete 2.1.13 and Replace with	2.1.13	Cast iron catchbasin frame and grate: as shown on <u>Supplementary Detail Drawing BBY-S105</u> and indicated in <u>List of Approved Materials and Products</u> for this section.

2.1.16	Adjusting Rings	Add 2.1.16(3)	2.1.16	(3) Composite Rubber Expanded Polypropylene (EPP) rated to H25 loading.
		Add 2.1.16(4)	2.1.16	(4) Do not use Concrete or HDPE Rings with Self Adjusting Manhole Castings.
2.1.19	Lawn drains	Delete 2.1.18 and Replace with	2.1.18	Lawn drains to be as shown on <u>Supplementary Detail Drawing BBY-S112</u> .
2.1.25	Sealant	Add 2.1.25	2.1.25	Sealant: Sealant between manhole risers, and between grade rings and casting, shall be hydrophobic polyurethane sealant and adhesive to <u>ASTM D 2126</u> .
3.0	EXECUTION			
3.3	Manhole Installation			
		Delete 3.3.13 and replace with	.13	Installation of interlocking High Density Polyethylene or Composite Rubber Expanded Polypropylene Manhole Adjustment Riser Rings.
		Add 3.3.17(4)	3.3.17	(4) Use composite rubber expanded polypropylene riser rings with Self-Adjusting manhole frame and cover.
		Add 3.3.17(5)	3.3.17	(5) Use watertight sealant to fill gap between frame and adjustment ring or concrete lid, and between adjustment ring and concrete lid.
		Add 3.3.17(6)	3.3.17	(6) Low profile castings (less than 200 mm height) to be fixed to concrete lid with 4 – 16 mm galvanized anchor bolts.
3.4	Cleanout Installation	Delete 3.4.1 and Replace with	3.4.1	Install clean outs as shown on <u>Supplementary Detail Drawing BBY-S113</u> to standards and procedures described in <u>3.3</u> of this section.
3.5	Catchbasin Installation	Delete 3.5.1 and Replace with	3.5.1	Install catchbasins specified on the <u>Contract Drawings</u> as shown on <u>Supplementary Detail Drawings BBY-S107, BBY-S108, BBY-S109, BBY-S110, BBY-S111</u> to standards and procedures described in <u>3.3</u> of this section.
3.6	Lawn Drain Installation	Delete 3.6.1 and Replace with	3.6.1	Install lawn drains as shown on <u>Supplementary Detail Drawing BBY-S112</u> .

- | | | | | |
|------------|---|-------------------------------------|-------|--|
| 3.9 | Adjusting Tops
of Existing Units | Delete | 3.9.2 | (2) When amount of raise is less than 300 mm use riser rings or cast-in-place form system. |
| | | 3.9.2(2) and
Replace with | | |
| | | Delete 3.9.4
and Replace
with | 3.9.4 | Re-set gratings and frames to required elevation on not more than three (3) layers of (maximum 50 mm thick each) riser rings. Seal joints and make smooth. |

END OF SECTION

MMCD Section 34 41 13

Traffic Signals

1.0 GENERAL

2.0 PRODUCTS

2.1 General

Delete 2.1.3

2.6 Poles and Anchor Bolts

Add 2.6.7

2.6.7 Reinforcing steel to conform to CAN/CSA G30.18M 400R.

Add 2.6.8

2.6.8 Anchor bolts to be as shown on Standard Detail Drawings E1.1 to E1.7.

Add 2.6.9

2.6.9 Anchor bolts to be hot dip galvanized after fabrication.

Add 2.6.10

2.6.10 Generally, poles as shown on Standard Detail Drawings E4.1 to E4.25 to be cross referenced to MOTH Standards by type and name.

Add 2.6.11

2.6.11 I.D. label on pole to be "Type #" stamped on base plate or flange opposite manufactured year stamp.

Add 2.6.12

2.6.12 Poles to be supplied with galvanized finish.

Add 2.6.13

2.6.13 Poles requiring painting to be supplied by pole fabricator powder coat painted to the colour shown on the Contract Drawings.

3.0 EXECUTION

3.3 Concrete Bases

Delete 3.3.6 and Replace with

3.3.6 Remove and dispose excavated material, backfill with granular base material. Compact around bases in layers not exceeding 300 mm to 95% Modified Proctor density.

3.5 Underground Conduit

Delete 3.5.2 and Replace with

3.5.2 Minimum cover over conduits to be 600 mm in boulevard areas and 900 mm for conduits in roadways.

Delete 3.5.3 and Replace with

3.5.3 Place trench marker tape 300 mm above conduits when installing by excavating, trenching, and backfilling. Trench marker tape not required for conduits installed using a suitable trenchless technology.

		Delete 3.5.4 and Replace with	3.5.4	Where specified on the <u>Contract Drawings</u> , install conduits under roadways to the alignment and elevations specified using fully directional drilling equipment. For street light conduits, tunnel/auger/drill conduits under roadways, lanes, driveways, or other specified locations.
3.7	Traffic and Pedestrian Signal Head Mounting	Add 3.7.5	3.7.5	Polycarbonate housings and doors not acceptable.
		Add 3.7.6	3.7.6	Heads and associated products to be in accordance with the recognized product list as specified on the <u>Contract Drawings</u> .
3.14	Wiring	Append to 3.14.3	3.14.3	Street lighting conductor splices may be made in junction boxes.

END OF SECTION

LIST OF APPROVED MATERIALS AND PRODUCTS

MMCD Section 26 56 01 Roadway Lighting

Subsection	Item Description	Approved Product	Comments / Restrictions
2.9	Marrettes	DryConn King Model 5 or 9	For use in junction boxes. Split bolts are also acceptable.
		Ideal Model 454	For use in hand holes, Split bolts are also acceptable.
		Ideal Model 66	For use in junction boxes. Split bolts are also acceptable.
3.4	Junction Boxes and Vaults	Oldcastle Duralite	Must be paired with matching cover Tier 22 for traffic loading.
		Oldcastle Synertech	Must be paired with matching cover Tier 22 for traffic loading.
	Fixtures	CPLX-XXXXXXXXXX-XX-XXXX-XXX-XX	Decorative Pedestrian LED Luminaires, from Lumec. C/W Shoring Caps.
		NXT-XXX-X-X-XXX-X-XX-X-UL-X-XX (XXW)	NXT Fixtures from Liveable Cities - For Roadway Lighting, and selected Pedestrian Lighting. C/W Shoring Caps (Unless Otherwise Noted).
	Service panels	Valid Manufacturing	Per Burnaby DWG BBY-E118-A & -B and BBY-E120. C/W surge protection device.
	Step down transformer	Valid Manufacturing	PMC18A-180522x
	Davit Poles, and Anchor Bolts	Nova Pole	MoTT / MMCD. Galvanized and powder coated (color).
		Westcoast / Valmont	MoTT / MMCD. Galvanized and powder coated (color).
	Davit Poles, and Anchor Bolts	Lumec	SPR5J-15-BKTX C/W B105 Decorative base cover.
		Nova Pole	20-SL-015-01707-F C/W STAFFORD Decorative base cover.

END OF SECTION

MMCD Section 26 56 02S

Conduit for Communication Network

Subsection	Item Description	Approved Product	Comments / Restrictions
2.1	Warning Tape	T&B Part No NAF-0709 Foil Backed Detectable Tape	Similar alternatives to be submitted for approval.
2.2	Concrete Junction Box	A.E.Concrete, Armtec, Langley Concrete	Galvanized Steel Checker Plate Covers with "COB COMM". Only where requested. Use Composite or Lightweight Polymer Concrete when possible.
	Lightweight Polymer Concrete Junction Box	Oldcastle Synertech	Paired with Tier 22 Cover with "COB COMM".
	Composite Box	Oldcastle Duralite	Paired with Tier 22 Cover with "COB COMM".
	Splice Vault	AE Concrete or approved alternate	Designed for H20 Static Loading. Galvanized Steel Checker Plate Covers with "COB COMM".

END OF SECTION

MMCD Section 33 11 01

Waterworks

Subsection	Item Description	Approved Product	Comments / Restrictions
2.2.1	Ductile Iron Pipe	Canada Pipe Company Ltd., Pacific States, and U.S. Pipe, all to AWWA C151	Special Thickness Class 52 for 100 mm, Class 50 for 150 mm and larger, cement mortar lined to AWWA C104. TR Flex restrained joint pipe for 300 mm and larger or where specified.
	Metallic Zinc Coated Ductile Iron Pipe	U.S. Pipe, Canada Pipe Company Ltd	Pressure Class 350 for 150mm to 300mm Ductile Iron Pipe. External Zinc-based Coating-Part 1: Metallic Zinc with Finishing Layer (ISO 2004). Use with V-Bio Enhanced Polyethylene Encasement. Joint bonds may be required.
	Polyethylene Encasement	V-Bio Enhanced Polyethylene Encasement	or Approved Equal Encasement per AWWA C105 installed per DIPRA modified method A.
2.2.2	Polyvinyl Chloride (PVC) Pressure Pipe	IPEX, C900 PVC, Royal Pipe, C900 PVC	Approved on a case-by-case basis, for limited applications only. PVC or PVCO to AWWA C900, CIOD, for 100 mm to 300 mm, unless otherwise specified. C909 preferred.
2.2.3	High Density Polyethylene Pipe (HDPE)	SclairPipe	or Approved Equal Minimum DR11, blue stripe, ductile iron size outside diameter (DIOD) unless otherwise approved. DIPS pipe sizing.
2.2.4.2	Ductile Iron Fittings	Terminal City Iron Works	Ductile iron fittings to C153 & C110, cement mortar lined.
		Metalfit (flange only)	C110, cement mortar lined.
		Sigma	C153 & C110, cement mortar lined.
		Star Pipe Products	C153 & C110, cement mortar lined.
2.2.4.12	Mech Couplings	Robar 1596 Steel barrel, DI end rings, with fusion bonded epoxy coating	T304 stainless steel fasteners, 100 mm to 250 mm, rated to 175 psi.
		Smith-Blair Inc. Omni 400 series ductile iron with epoxy coating	T304 stainless steel fasteners and anti-galling coating.
		Romac Style 501 coupling, ductile iron with fusion bonded epoxy coating	T304 stainless steel fasteners and anti-galling coating.
		Romac ALPHA coupling, ductile iron with fusion bonded epoxy coating	T304 stainless steel fasteners and anti-galling coating.
		Hymax coupling (TPS) with fusion bonded epoxy coating	T304 stainless steel fasteners and anti-galling coating.

2.2.4.13	Joint Restraint Devices	Megalug Series 1100 & 1700 (EBBA Iron)	Ductile iron pipe up to 300 mm diameter.
		Uniflange Series 1309/1399	PVC/PVCO pipe up to 300 mm diameter.
		Uniflange Series 1400	Ductile iron pipe up to 300 mm diameter.
		Field Lok or Sure Stop 350 gaskets.	Not for use in casings. Match manufacturer to pipe selection.
		Stargrip Series 1000, 3000, 4000	1000 Series for PVC pipe to Ductile Iron Fittings; 3000 Series for Ductile Iron; 4000 Series for PVC/PVCO,
		Sigma One-LOK	Wedge Action Restraint for pipe up to 300 mm diameter.
		Sigma PV -LOK	Serrated Restraint for pipe up to 300 mm diameter.
2.2.7	Oriented Polyvinyl Chloride (PVCO) Pressure Pipe	IPEX, Bionax C909 PVCO Bionax SR PVCO Seismic Water Pipe	Approved on a case-by-case basis, for limited applications only. PVCO to AWWA C909, CIOD, for 100 mm to 300 mm, unless otherwise specified. PVCO rated to 235 psi minimum. Preferred over C900.
2.3.2	Mainline Gate Valves	Clow Resilient Wedge Valve, AWWA C509	100 to 300 mm diameter.
		Mueller A-2362 Resilient Wedge Valve, AWWA C509	50 to 300 mm diameter.
		Mueller A-2361 Resilient Wedge Valve, AWWA C515	350 mm and larger.
		Terminal City Resilient Wedge Valve, AWWA C509	50 to 300 mm diameter.
2.3.5	Air Release, Air/Vacuum and Combination Air Valves	A.R.I. Optimal Flow Solutions	or Approved Equivalent.
2.6	Hydrants	Clow Canada M93 Brigadier	One (1) pumper nozzle and two (2) hose nozzles. Minimum 1.2m bury depth. Painted white with red nozzle caps and dark green body cap 150 mm Tyton inlet. 1.07m bury depth 3'6".
		Mueller Super Centurion 250, A-423	One (1) pumper nozzle and two (2) hose nozzles. Minimum 1.2m bury depth. Painted white with red nozzle caps and dark green weather cap. 150 mm Tyton inlet. 1.07m bury depth 3'6".

		Terminal City C-71-P Compression Hydrant	One (1) pumper nozzle and two (2) hose nozzles. Minimum 1.2m bury depth. Painted white with red nozzle caps and dark green weather cap. 150 mm Tyton inlet. 1.07m bury depth 3'6".
2.7	Corporation Stops, Curb Stops, and Brass Fittings (Burnaby Supplementary Detail Drawings W102, W103)	Cambridge Brass Valves	Full port ball valves with compression inlet and outlet connections, 360 degree turn, C800 No Lead.
		Mueller 300 Ball Valves	Full port ball valves with compression inlet and outlet connections, 360 degree turn, C800 No Lead.
		AY McDonald Ball Valves	Full port ball valves with compression inlet and outlet connections, 360 degree turn, C800 No Lead.
		Ford Ball Valves	full port ball valves with compression inlet and outlet connections, 360 degree turn, C800 No Lead.
	Corporation Stops and Curb Stops – Insulating	Mueller 300 Insulated Ball Valves	Mueller N-35008 and Mueller N-35209-3.

END OF SECTION

MMCD Section 33 30 01 Sanitary Sewers

Subsection	Item Description	Approved Product	Comments / Restrictions
2.0	Sewer Couplings	Fernco	One (1) piece gasket and bushing, 300 series stainless steel clamps, with shear rings.
2.2	Plastic Pipe, Mainline Smooth Profile PVC Sewer Pipe	IPEX PVC Sewer Pipe	100 mm to 675 mm diameter, ring-tite gasket.
		West Lake Co. PVC Sewer Pipe	100 mm to 675 mm diameter, gasketed.

END OF SECTION

MMCD Section 33 34 01 Sewage Force mains

Subsection	Item Description	Approved Product	Comments / Restrictions
2.3.4	Air-release, Air/Vacuum and Combination Air Valves	A.R.I. Optimal Flow Solutions	or approved equivalent.

END OF SECTION

MMCD Section 33 44 01 Manholes and Catchbasins

Subsection	Item Description	Approved Product	Comments / Restrictions
2.1.7	Manhole and Catch Basin Frames and Covers (Burnaby Supplementary Detail Drawings S104, S105, S106) (ARTERIAL & COLLECTOR, Other Road Classes with more than 100mm thick asphalt)	Self -Level Castings	Individual responsible for installation must be able to show proof of attending manufacturer's "Self-Levelling Manhole Installation Certification" workshop.
		East Jordan Iron Works – 00302201 SELFLEVEL Assembly Frame - Q633018 Guide - Q633012	All applications where greater than 200 mm between finish grade and top on concrete lid. Minimum asphalt thickness 110 mm.
		East Jordan Iron Works – 00302211A01 SELFLEVEL low profile assembly Frame - Q633008. Guide - Q633015	Less than 300 mm requires low profile casting. Bolt down bottom section to concrete lid with 4 -16mm galvanized anchor bolts (through adjusting rings if necessary).
		East Jordan Iron Works – SELFLEVEL Assembly Covers Sanitary Cover NPR17-4633A. Storm Cover Q633054. Water Cover NPR17-4633B	All covers include 1/4" dia. neoprene gasket
	Manhole and Catch Basin Frames and Covers (Burnaby Supplementary Detail Drawings S104, S105, S106) (RESIDENTIAL)	East Jordan Iron Works 1147Z/AGS Assembly. Sanitary Cover 00114726 Storm Cover 00114721A01. Water Cover 00114725	Low profile castings to be bolted to concrete lid with 4 -16 mm galvanized anchor bolts (through adjusting rings if necessary). EJIW 00114710 may be used only when approved by the Contract Administrator.
2.1.16	Adjusting Rings	East Jordan Iron Works INFRA_RISER_ Circular or equal Composite Rubber Expanded Polypropylene (EPP) rated to H25 loading, free of cracks, voids or defects.	Maximum 3 grade rings per installation permitted.
2.1.17	Sealant	X-Seal from SealGuard Inc.	Seal all joints between EPP adjusting rings, concrete to casting or adjustment ring surfaces. Alternatives to be hydrophobic polyurethane sealant and adhesive to ASTM D 2126.

END OF SECTION

MMCD Section 34 41 13 Traffic Signals

Subsection	Item Description	Approved Product	Comments / Restrictions
2.5	Concrete Junction Box	SynerTech - Tier 22 for Traffic Areas	Composite combining high density polymer concrete and lightweight sheet molding compound.
2.9	Marrettes	Ideal Direct Burial Model 60	For use in junction boxes.
		Ideal 30-341, 30-454 or 30-342	For use in hand holes.
		Ideal Direct Burial Model 66	For use in junction boxes.
2.11	Service Panels	Valid Manufacturing	Per Burnaby DWG BBY-E118-A & -B and BBY-E120. C/W surge protection device.
2.16	Signal Head Housing - polycarbonate	Mobotrex 12"	Yellow
2.17	Signal Head LED	Dialight 12" XL 15	
2.19	Signal Mounting Hardware	Greenlite - all models, Pelco - models AS 0125-3-62-PNC / AS 0125-4-62-PNC	
2.20	APS Control Unit	Polara iCCU-S2	Shelf mount
2.21	Ped APS Pushbuttons	Polara iDS2	Yellow c/w 5x7" Pedestrian Sign Touchless (Wave)
2.26	Traffic Signal Cabinet	Econolite P44	
	Traffic Signal Controller	Econolite Cobalt	
	Traffic Signal Malfunction Management Unit (MMU)	Reno A&E 16 LEIP, Econolite 16LEIP	
2.27	Video Vehicle Detection	AutoScope Vision	
	Emergency Vehicle Pre-emption	GTT Opticom	
2.28	Service / UPS Combination Cabinet	Valid KSDA60-25-21-04	FXM HP 1100 IN A SE48-2216 enclosure, including automatic transfer switch and batteries. c/w ground mounting kit and battery slide out trays.
	Uninterrupted Power Supply (UPS)	Alpha Technologies FXM 1100 or FXM 1100 HP	
	Power Transfer Switch	Alpha Technologies (UATS)	
	Signal Comm, BB Radio	Encom E-Lite 5.8 GHz	
	Ethernet Switch	Cisco CX3650	

	Fibre-Comm, FPP, SFP	Corning	
	Bike Pushbuttons	Polara Bulldog	

END OF SECTION

MATERIALS TESTING REQUIREMENTS

Section and Description		Minimum Testing Required	Comments
MMCD Section 03 30 20	Concrete Walks, Curbs and Gutters	Three (3) Field Cured Cylinders for each 150 square meters of concrete plus three (3) Laboratory Cured Cylinders for each 300 square meters of concrete.	Field cured cylinder means cured on <u>Site</u> for minimum forty eight (48) hours before taken to lab. In extreme cold (<1° C) or heat (>30° C) field cure for seven (7) days.
MMCD Section 03 30 53	Cast-in-Place Concrete	Three (3) Field Cured Cylinders for each 100 square meters of concrete plus three (3) Laboratory Cured Cylinders for each 200 square meters of concrete.	Field cured cylinder means cured on <u>Site</u> for minimum forty eight (48) hours before taken to lab. In extreme cold (<1° C) or heat (>30° C) field cure for seven (7) days.
MMCD Section 31 05 17	Aggregates and Granular Materials	Sieve analysis and proctors are required for each type of material to be used prior to the commencement of <u>Work</u> and every 1,000 tonnes during the <u>Work</u> .	
MMCD Section 31 23 01	Excavating, Trenching and Backfilling	Density Test to confirm compaction minimum one (1) test for lesser of (a) 100 lineal meters of trench for each 300 mm lift, or (b) 100 cubic metres of backfill material.	
MMCD SECTION 32 11 16.1	Granular Subbase	The frequency of density tests shall be at least one test per 150 square metres placed.	
MMCD Section 32 11 23	Granular Base	The frequency of density tests shall be at least one test per 150 square metres placed.	Benkelman Beam Test at the discretion of the <u>Contract Administrator</u> and the Owner.
MMCD Section 32 12 16S	Warm-Mix Asphalt Concrete	Hamburg Wheel Test (AASHTO T-324-16 standard test method), minimum one (1) per mix design per project plus one (1) every 5,000 tonnes mix.	Only required for Arterial and Collector Roads. Additional tests and Local Roads per applicable MMCD Section 32 12 16 or 32 12 17.

MMCD Section 32 12 16	Hot-Mix Asphalt Concrete Paving	Marshall test for each 400 tonnes or portion thereof, minimum one test for each asphalt type, per day, per site/location.	
		Compaction to be checked by non-destructive testing techniques at 100 metre intervals along length of road for each lane, or, at least one test for each 300 square meters of paving.	
		In addition, one core required every 1,500 square meters for thickness and density and to calibrate non-destructive testing equipment. Minimum one test for areas smaller than 1,500 square meters.	
		Hamburg Wheel Test (AASHTO T-324-16 standard test method), minimum one (1) per mix design per project plus one (1) every 5,000 tonnes mix.	Arterial and Collector Roads.
MMCD Section 32 12 17	Superpave Hot-Mix Asphalt Paving	Superpave mix properties for each 400 tonnes of production or portion thereof. Minimum one test per day, per site/location.	
		Hamburg Wheel Test (AASHTO T-324-16 standard test method), minimum one (1) per mix design per project plus one (1) every 5,000 tonnes mix.	Arterial and Collector Roads.
		Compaction Testing and Asphalt core requirements are the same as Section 32 12 16	

END OF SECTION