PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises the outside asphalt and concrete paving, parking lot grading, catch basin installation, and repairs to an existing concrete slab at Pickering Fire Hall #2, 553 Kingston Road, Pickering, Ontario.

1.2 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Consultant.

.2 Co-ordinate work with that of other Contractors.

1.3 WORK SEQUENCE

.1 Construct Work in stages to accommodate Owner's continued use of premises during construction.

.2 Co-ordinate Progress Schedule and co-ordinate with Owner Occupancy during construction.

.3 Required stages:

.1 Phase 1 – work outside east bay doors including asphalt removal, concrete placement, asphalt paving, and pipe break-in to the existing catch basin.

.2 Phase 2 – work outside west bay doors including asphalt removal, concrete placement, asphalt paving, new catch basin installation and drainage pipe connection.

.4 Maintain fire access/control.

1.4 CONTRACTOR USE OF PREMISES

.1 Limit use of premises for Work, for storage and for access.

.2 Co-ordinate use of premises under direction of the Consultant.

.3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.5 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations.

.2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.6 EXISTING SERVICES

.1 Provide alternative routes for personnel, pedestrian, and

vehicular traffic.

.2 Establish location and extent of service lines in area of work before starting Work. Notify the Consultant of findings.

.3 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.

.4 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.5 Record locations of maintained, re-routed and abandoned service lines.

1.7 ITEM DESCRIPTIONS

.1 Bonding and Insurance

.2 Mobilization and Demobilization: all labour, materials, tools and equipment required and from the job site, including for specific construction activities and those related to construction phases.

.3 Erosion and Sediment Control: all labour, materials, tools and equipment required to install, inspect, maintain and remove sediment and erosion control measures in accordance with the contract documents and Toronto and Region Conservation Authority (TRCA) requirements.

.4 Excavation: to include the cost of all labour, materials and equipment to excavate and haul excess material to the City of Pickering's transfer station at 2065 Highway 7, Pickering.

.5 Adjust Catchbasin: adjusting and/ or rebuilding the existing catchbasin to accommodate the new site grading and paving.

.6 600 mm x 600 mm Catchbasin: all labour, materials and equipment to install a new 600mm x 600mm precast catchbasin, including frame and grate installation, and related bedding, backfill, compaction and new storm pipe connection. Excavation for this item will be paid under Item 4.

.7 200mm Storm Pipe: all labour, materials and equipment to install a new 200mm storm pipe sewer between the new and

existing catch basins, excluding connections.

.8 Break-in to Existing Catch Basin: all labour, materials and equipment required to break-in to the existing catch basin to connect the new storm pipe sewer.

.9 Remove and Dispose of Existing Asphalt: all labour, materials, tools and equipment required to remove the existing parking lot asphalt (full depth), and haul it away for recycling.

.10 Granular A: all labour, materials, tools and equipment required to regrade and fine grade the parking lot prior to paving, and for new granular for under the new concrete pad. This item will be paid in tonnes of material placed on site.
.1 Granular associated with the new storm pipe and catch basin installations will be included with the appropriate item.

.11 HL3 HS – all labour, materials, tools and equipment required to pave 40mm of hot laid surface asphalt over the parking lot.

.12 HDBC – all labour, materials, tools and equipment required to pave 50mm of high density binder course asphalt over the parking lot.

.13 Reinforced Concrete Slab – all labour, materials, tools, products and equipment required to cast in place the new concrete slabs out front of the fire bay doors, including installation of four new bollards.

.14 Rehabilitate Existing Concrete Slab – all labour, materials, tools and equipment required to rehabilitate the existing training pad at the south-west corner of the parking lot. This item will be paid in lump sum.

.15 Pavement Markings – all labour, materials, tools and equipment required to reinstate pavement markings. This item will be paid in lump sum.

.16 Precast Parking Curbs: all labour, materials, tools and equipment required to remove and replace the existing parking curbs on the site.

.17 Topsoil: all labour, materials, tools and equipment required to

reinstate disturbed topsoil during construction activities, including decompaction and grading.

.18 Sod: all labour, materials, tools and equipment required to install sod over disturbed areas.

1.8 PROVISIONAL ITEM DESCRIPTIONS

.1 Granular A Contingency for Soft Spots: all labour, materials, tools and equipment required to rectify soft spots, should they be encountered, including the removal of the affected material and subsequent placement and compaction of new granular. This item will be paid in tonnes of material placed on site.

.2 Re-sleeve Bollards: all labour, materials, tools and equipment required to re-sleeve the three existing bollards at the generator pad at the back of the fire hall.

.3 Contingency

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

## PART 1 - GENERAL

### 1.1 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Fire Chief(s) to facilitate work.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Sanitary facilities will be the responsibility of the Contractor.

### 1.2 EXISTING SERVICES

.1 Notify Consultant and utility companies of intended interruption of services and obtain required permission.

.2 Provide for personnel and pedestrian and vehicular traffic.

.3 The existing services feeding the fire station facility cannot be shut down throughout the project duration. If there is any reason to shut down any services, the contractor must provide 48-hour notice and submit a schedule to and obtain approval from the City of Pickering for any shut-down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.

.4 The contractor shall be responsible for the protection of all utilities. No claims will be considered which are based on delays or inconvenience resulting from relocation or repair due to the Contractor failing to provide adequate protection.

.5 The Contractor shall report existing unknown services encountered during excavation to the Consultant for instructions; cut back and cap or plug unused services in accordance with approved practices of the affected utility provider. Be responsible for the protection of all active services encountered and for repair of such services if damaged.

.6 The Contractor is responsible for obtaining all private and public utility locates and providing them to the Consultant and the City of Pickering prior to commencing.

### 1.3 SPECIAL REQUIREMENTS

.1 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic, and security regulations.

.2 All work is to be completed in 2023. Any delays will have no cost increase.

.3 The phasing of the project is required to be clearly outlined in the Contractor’s schedule and work plan. At all times the Fire Trucks are to have access to leave the apparatus bay to answer an emergency. The City has the right to adjust the phasing of work and schedule as required for Fire Services to fully function and operate as an emergency service.

.4 The Contractor shall always maintain clear exiting and access to the apparatus bay and training pad. Fire Trucks are to have the ability to always exit the apparatus bay to the main road.

## PART 2 - PRODUCTS

### 2.1 NOT USED

.1 Not Used.

## PART 3 - EXECUTION

### 3.1 NOT USED

.1 Not Used.

## PART 1 - GENERAL

**1.1 REFERENCES**

.1 Owner/Contractor Agreement.

.2 Canadian Construction Documents Committee (CCDC)
- .1 CCDC 2-2020, Stipulated Price Contract.

**1.2 APPLICATIONS FOR PROGRESS PAYMENT**

.1 Refer to CCDC 2.

**1.3 SCHEDULE OF VALUES**

.1 Refer to CCDC 2.

**1.4 PREPARING SCHEDULE OF UNIT PRICE TABLE ITEMS**

.1 Submit separate schedule of unit price items of Work requested in Bid form.

.2 Make form of submittal parallel to Schedule of Values, with each line item identified same as line item in Schedule of Values. Include in unit prices only:
- .1 Cost of material.
- .2 Delivery and unloading at site.
- .3 Sales taxes.
- .4 Installation, overhead and profit.

.3 Ensure unit prices multiplied by quantities given equal material cost of that item in Schedule of Values.

**1.5 PROGRESS PAYMENT**

.1 Refer to CCDC 2.

**1.6 SUBSTANTIAL PERFORMANCE OF WORK**

.1 Refer to CCDC 2.

**1.7 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK**

.1 Refer to CCDC 2.

1.8 PROGRESSIVE RELEASE OF HOLDBACK .1 Refer to CCDC 2.

1.9 FINAL PAYMENT .1 Refer to CCDC 2, GC 5.7.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

## PART 1 - GENERAL

### 1.1 APPOINTMENT AND PAYMENT

.1 The City of Pickering will appoint and pay for services of testing laboratory except follows:

.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.

.2 Inspection and testing performed exclusively for Contractor's convenience.

.3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.

.4 Mill tests and certificates of compliance.

.5 Tests specified to be carried out by Contractor under supervision of Consultant.

.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, the City of Pickering will pay costs for additional tests or inspections, as required by Consultant, to verify acceptability of corrected work.

.3 A $5000.00 cash allowance will be made available to the Contractor for testing and inspection.

.4 The Contractor is to use the City of Pickering’s preferred testing and inspection company and will have to organize and confirm with Consultant and the City of Pickering that testing has been scheduled accordingly.

### 1.2 CONTRACTOR'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to:

.1 Provide access to Work for inspection and testing.

.2 Facilitate inspections and tests.

.3 Make good Work disturbed by inspection and test.

.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

.2 Notify Consultant 48 hours minimum sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

.3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Consultant.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

1.1 REFERENCES

.1 Canadian Construction Documents Committee (CCDC).

1.2 ADMINISTRATIVE

.1 Submit to the Consultant submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated, and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Consultant, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are coordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Consultant's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Consultant review.

.10 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Allow 10 days for Consultant's review of each submission.

.3 Adjustments made on shop drawings by Consultant are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Consultant prior to proceeding with Work.

.4 Make changes in shop drawings as Consultant may require, consistent with Contract Documents. When resubmitting, notify Consultant in writing of revisions other than those requested.

.5 Accompany submissions with transmittal letter,, containing:
- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.6 Submissions include:
- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

.7 After Consultant's review, distribute copies.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of

Contract.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

## PART 1 - GENERAL

### 1.1 REFERENCES

.1 Ministry of Transportation, Ontario (MTO)
.1 Ontario Traffic Manual, Book 7: Temporary Conditions.

### 1.2 PROTECTION OF PUBLIC TRAFFIC

.1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.

.2 When working on travelled way:
.1 Place equipment in position to minimize interference and hazard to travelling public.
.2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
.3 Do not leave equipment on travelled way overnight.

.3 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated.

.4 The Contractor shall provide all necessary protection, including access routes for the public and fire services, to existing facilities at all times.

.5 The Contractor shall always maintain clear exiting and fire routes and provide flagmen where required.

### 1.3 INFORMATIONAL AND WARNING DEVICES

.1 Provide and maintain signs, and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.

.2 Supply and erect signs, delineators, barricades and miscellaneous warning devices to Ontario Traffic Manual, Book 7: Temporary Conditions.

.3 Place signs and other devices in locations recommended in Ontario Traffic Manual, Book 7: Temporary Conditions

.4 Continually maintain traffic control devices in use:
.1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

.2 Remove or cover signs which do not apply to conditions existing from day to day.

### 1.4 CONTROL OF PUBLIC TRAFFIC

.1 Provide competent flag personnel, trained in accordance with, and properly equipped to Ontario Traffic Manual, Book 7: Temporary Conditions for situations as follows:
.1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
.2 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

1.5 OPERATIONAL REQUIREMENTS

.1 Maintain existing conditions for traffic crossing right-of-way.

.2 The Contractor is responsible for any flagmen, road closures and lane closures if they are necessary.

.3 The Contractor will be responsible for obtaining any Road Occupancy Permits if they are necessary. Examples include:

.1 Construction on the road or boulevard
.2 Temporary or partial road closures
.3 Utility repairs or installations
.4 Placement of moving containers, dumpsters or storage bins on the road or the boulevard
.5 Crossing municipal boulevards with heavy construction equipment to gain site access
.6 Sidewalk obstructions which impact pedestrian traffic.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

## PART 1 - GENERAL

### 1.1 REFERENCES

.1 Federal regulations, latest edition including all amendments up to project date:
- .1 Fire Commissioners of Canada, FC 301, Standard for Construction Operations

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Safety Data Sheets (SDS).

.3 Province of Ontario
- .1 Occupational Health and Safety Act, R.S.O. 1990 Updated 2005.

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
- .1 Results of site-specific safety hazard assessment.
- .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Consultant and authority having jurisdiction monthly.

.4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS SDS - Safety Data Sheets for Hazardous Materials.

.7 Consultant will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Consultant within 5 days after receipt of comments from Consultant.

.8 Consultant's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Consultant.

.10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.4 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.5 MEETINGS

.1 Schedule and administer Health and Safety meeting with Consultant prior to commencement of Work.

1.6 REGULATORY REQUIREMENTS

.1 Do Work in accordance with all regulatory requirements.

1.7 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Consultant may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.8 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9 COMPLIANCE REQUIREMENTS

.1 Comply with Ontario Health and Safety Act, R.S.O.

1.10 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Consultant verbally and in writing.

1.11 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Consultant.

1.12 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Consultant.

.2 Provide Consultant with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Consultant may stop Work if non-compliance of health and safety regulations is not corrected.

1.13 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.

## PART 1 - GENERAL

### 1.1 REFERENCES

.1 Definitions:

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Consultant.

.3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.

.4 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.5 Include in Environmental Protection Plan:

.1 Names of person(s) responsible for ensuring adherence to Environmental Protection Plan.

.2 Names and qualifications of person(s) responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of person(s) responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Erosion and sediment control plan identifying type and

location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.

.8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

.9 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.

.12 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.13 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

.14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for

identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

.15 Pesticide treatment plan to be included and updated, as required.

1.3 DRAINAGE

.1 Ensure that erosion and sediment control plan is adhered to and that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sediment control plan.

.3 Provide temporary drainage and pumping required to keep excavations and site free from water.

.4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.4 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties as indicated.

.2 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.3 Minimize stripping of topsoil and vegetation.

1.5 WORK ADJACENT TO WATERWAYS

.1 Construction equipment to be operated on land only.

.2 Do not use waterway beds for borrow material.

.3 Waterways to be free of excavated fill, waste material and debris.

1.6 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
.1 Provide temporary enclosures where indicated.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

## PART 2 – PRODUCTS

2.1 NOT USED .1 Not Used.

## PART 3 - EXECUTION

3.1 CLEANING .1 Remove rubbish and waste materials on site and dispose of materials at the appropriate facility.

.2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

3.2 COMPLIANCE .1 The Contractor shall comply with Federal, Provincial and Municipal regulations pertaining to waste, air, solid waste, chemical waste, sanitary waste, sediment and noise pollution.

.2 The Contractor shall prevent oily or other hazardous substances from entering the ground, drainage areas, drainage systems, or other local bodies of water.

## PART 1 - GENERAL

### 1.1 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)
.1 CCDC 2, Stipulated Price Contract.

### 1.2 INSPECTION

.1 Refer to CCDC 2, GC 2.3.

### 1.3 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged for purpose of inspecting and/or testing portions of Work.

.2 Allocated costs: $5000.00 will be allocated by the City of Pickering to the Contractor to cover all testing and laboratory costs. This is described in Section 01 29 83 for Payment Procedures for Testing Laboratory Services.

.3 Provide equipment required for executing inspection and testing by appointed agencies.

.4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by [Consultant] at no additional cost to the Consultant or the City of Pickering. Pay costs for retesting and reinspection.

### 1.4 PROCEDURES

.1 Notify appropriate agency in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

### 1.5 REJECTED WORK

.1 Refer to CCDC, GC 2.4.

.2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by [Consultant] as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.3 Make good other Contractor's work damaged by such removals or replacements promptly.

.4 If in opinion of consultant it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Consultant.

1.9 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Consultant and may be authorized as recoverable.

## PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

## PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

## PART 1 - GENERAL

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.2 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.3 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.4 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.5 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling.

## PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

## PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

PART 1 - GENERAL

1.1 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:
- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:
- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.2 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of

project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Remove samples of installed Work for testing.

.6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.9 Restore work with new products in accordance with requirements of Contract Documents.

.10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.11 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and/ or recycling.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Consultant in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Consultant's inspection.

.2 Consultant's Inspection:

.1 Consultant and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.8 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Consultant, and Contractor.

.2 When Work incomplete according to Owner and Consultant, complete outstanding items and request re-inspection.

1.2 FINAL CLEANING

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

.2 Waste Management: separate waste materials for reuse and recycling.

1.1 WARRANTY INFORMATION

.1 All labour, materials and workmanship shall be warrantied for at least two years from substantial completion.

1.2 CCTV INSPECTION

.1 Contractor is to complete a CCTV inspection at the end of the project to ensure no damage to sanitary or storm sewers in the parking lot.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

## PART 1 - GENERAL

1.1 MEASUREMENT AND PAYMENT

.1 Removal of existing asphalt pavement will be measured in square metres of surface actually removed regardless of depth removed or number of operations required.

.2 Payment under this item will include operations involved in removing, hauling and stockpiling designated pavement.

1.2 REFERENCES

.3 Ontario Provincial Standard Specifications (OPSS)

.1 OPSS MUNI 180 – Municipal Construction Specifications for The Management of Excess Materials.

.2 OPSS 510 – Construction Specifications for Removal.

## PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

## PART 3 - EXECUTION

3.1 PREPARATION

.1 Temporary Erosion and Sedimentation Control:

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, as indicated on the sediment and erosion control plan specific to the site and according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

.2 Prior to beginning removal operation, inspect and verify with Consultant areas, depths and lines of asphalt pavement to be removed.

.3 Protection: protect existing pavement not designated for

removal, light units and structures from damage. In event of damage, immediately replace or make repairs to approval of Consultant at no additional cost.

3.2 REMOVAL

.1 Remove existing asphalt pavement to lines and grades in accordance with OPSS 510 and OPSS.MUNI 180.

.2 Use equipment and methods of removal and hauling which do not damage or disturb underlying pavement.

.3 Prevent contamination of removed asphalt pavement by topsoil, underlying gravel or other materials.

.4 Suppress dust generated by removal process.

3.3 CLEANING

.1 Progress Cleaning: Leave Work area clean at end of each day.

.2 Waste Management: separate waste materials for reuse and recycling.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

.2 Removed asphalt pavement is to be recycled at an appropriate asphalt facility.

## PART 1 - GENERAL

**1.1 MEASUREMENT AND PAYMENT**

.1 Measure supply and installation of precast parking curbs in units of each type and size installed.

**1.2 REFERENCES**

.1 Ontario Provincial Standard Drawings (OPSD)
- .1 OPSD 603.020 – Standard Precast Parking Curb.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for concrete curbs and include product characteristics, performance criteria, physical size, mix design, finish and limitations.

.3 Shop Drawings:
- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

**1.4 DELIVERY, STORAGE AND HANDLING**

.1 Deliver, store and handle materials in accordance with with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
- .1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect concrete curbs from damage.
- .3 Replace defective or damaged materials with new.

## PART 2 - PRODUCTS

**2.1 MATERIALS**

.1 Precast curbs: refer to OPSD 603.020

## PART 3 - EXECUTION

**3.1 EXAMINATION**

.1 Verification of Conditions: verify conditions of substrates

previously installed under other Sections or Contracts are acceptable for precast concrete installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Consultant.

.2 Inform Consultant of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

.1 Install curbs as indicated.

.2 Secure curbs in position by driving curb anchors into pavement with top of anchor no higher than top of curb.

.3 Replace damaged and defective units as directed by Consultant.

3.3 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by precast concrete specialties installation.

## PART 1 - GENERAL

### 1.1 REFERENCES

.1 ASTM International

.1 ASTM D 698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).

.2 Ontario Provincial Standard Specifications (OPSS)/Ontario Ministry of Transportation

.2 OPSS 1010, Material Specification for Aggregates - Base, Subbase, Select Subgrade, and Backfill Material.

.3 Terraspec pavement report, dated July 26, 2021

### 1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

.1 Granular A, new and existing, according to OPSS 1010.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

.1 Evaluation and Assessment:

.1 Examine the Terraspec pavement report that was provided in the tender package.

.2 Before commencing work establish locations of buried services on and adjacent to site.

### 3.2 PREPARATION

.1 Temporary erosion and sedimentation control:

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, as indicated on the sediment and erosion control plan specific to the site and according to requirements of authorities having jurisdiction.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

.2 Protection of in-place conditions:

.1 Protect excavations from freezing.

.2 Keep excavations clean, free of standing water, and loose soil.

.3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Consultant's approval.

.4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.

.5 Protect buried services that are required to remain undisturbed.

3.3 EXCAVATION

.1 Shore and brace excavations, protect slopes and banks and perform work in accordance with Provincial and Municipal regulations whichever is more stringent.

.2 Design and construct formwork and falsework in accordance with Ministry of Labour regulations. Where they are required by the regulations or other applicable legislation, obtain stamped engineering drawings from a licensed engineer in good standing with the Professional Engineers Ontario (PEO). Promptly forward copies of stamped drawings and field reviews to the City of Pickering and the Consultant.

.2 Strip topsoil over areas to be covered by new construction, over areas where grade changes are required, and so that excavated material may be stockpiled without covering topsoil.

.1 Stockpile topsoil on site for later use.

.3 Excavate as required to carry out work.

.1 Do not disturb soil or rock below bearing surfaces.

.2 If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional work.

.3 Excavation taken below depths shown without Consultant's written authorization to be filled with Granular A and compacted at Contractor's expense.

.4 Excavate trenches to provide uniform continuous bearing and support for 150 mm thickness of pipe bedding material on solid

and undisturbed ground.

.1 Trench widths below point 150 mm above pipe not to exceed diameter of pipe plus 600 mm.

.5 Excavate for slabs and paving to subgrade levels.

.1 In addition, remove all topsoil, organic matter, debris and other loose and harmful matter encountered at subgrade level.

3.4 FIELD QUALITY CONTROL

.1 Testing of materials and compaction of backfill and fill will be carried out by testing and inspection company designated by the contractor.

3.6 GRADING

.1 Grade so that water will drain away from buildings, walls and paved areas, to catch basins and other disposal areas approved by Consultant.

.1 Grade to be gradual between finished spot elevations shown on drawings.

3.7 REUSE OF EXISTING GRANULAR A ON-SITE

.1 Existing Granular A on site can be re-used if it is kept clean and separate from other excavated materials to the satisfaction of the Consultant, except for the following applications where only new Granular A can be used:

.1 Bedding for new concrete slab.

3.8 EXCESS MATERIAL

.1 Excavated material that is not suitable for re-use on site may be hauled directly to the City of Pickering's transfer station for chemical testing at 2065 Highway 7, Pickering.

## PART 1 – GENERAL

| | | |
|---|---|---|
| 1.1 MEASUREMENT PROCEDURES | .1 | Measure pavement crack filling by litres of grout used. |
| 1.2 REFERENCES | .1 | OPSS.MUNI 932 Construction Specification for Crack Repair – Concrete (November 2020) |
| 1.3 WASTE MANAGEMENT AND DISPOSAL | .1 | Do not dispose of unused sealing mix into the sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard. |

## PART 2 - PRODUCTS

| | | |
|---|---|---|
| 2.1 MATERIALS | .1 | Refer to OPSS.MUNI 932.05. |
| 2.2 EQUIPMENT | .1 | Refer to OPSS.MUNI 932.06. |

## PART 3 - EXECUTION

| | | |
|---|---|---|
| 3.1 CONSTRUCTION | .1 | Refer to OPSS.MUNI 932.07. |

## PART 1 - GENERAL

1.1 MEASUREMENT AND PAYMENT

.1 Measure granular in tonnes of material incorporated into Work and accepted by Consultant.

1.2 REFERENCES

.1 Ontario Provincial Standard Specifications (OPSS)
- .1 OPSS 1010 – Aggregates – Base, Subbase, Select Subgrade, and Backfill Material
- .2 OPSS.MUNI 501 – Compacting

.2 LS-706 Moisture-Density Relationship of Soils Using 2.5km Rammer and 305mm Drop

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit Field Compaction Reports in accordance with Section 01 33 00 - Submittal Procedures.

.2 An original copy of each weigh ticket shall be submitted to the consultant.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Overnight stockpiling is not allowed due to space limitations on the site. Granular is to be delivered to the site and used immediately where it is required.

## PART 2 - PRODUCTS

2.1 MATERIALS

.1 Granular A in accordance with OPSS 1010 – Aggregates – Base, Subbase, Select Subgrade, and Backfill Material.

## PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify subgrade conditions are acceptable for granular placement.
- .1 Visually inspect and proof-roll subgrade and existing granular surfaces in presence of Consultant.
- .2 Inform Consultant of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

3.2 PLACING

.1 Place new granular only after subgrade/ existing granular surfaces have been inspected and approved by the Consultant.

.2 Construct granular base to depth and grade in areas indicated.

.3 Ensure no frozen material is placed.

.4 Place material only on clean unfrozen surface, free from snow or ice.

.5 Place granular materials using methods which do not lead to segregation or degradation.

**.6 Place material to full width in uniform layers not exceeding 150 mm compacted thickness.**

.1 Consultant may authorize thicker lifts if specified compaction can be achieved (max. up to 300mm)

.7 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.

.8 Remove and replace portion of layer in which material has become segregated during spreading.

3.3 COMPACTION

.1 Compaction equipment to be capable of obtaining required material densities.

**.2 Compact according to OPSS 501, Method A: Granular materials shall be compacted to a density of 100% of the maximum dry density as determined by LS-706.**

.3 Shape and roll alternately to obtain smooth, even and uniformly compacted sub-base.

.4 Apply water as necessary during compaction to obtain specified density.

.5 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Consultant.

.6 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.4 SITE TOLERANCES .1 Finished surface to be within 10 mm of elevation as indicated but not uniformly high or low.

3.5 PROTECTION .1 Maintain finished surfaces in condition conforming to this section until succeeding lift or surface is constructed.

## PART 1 – GENERAL

1.1 MEASUREMENT AND PAYMENT

.1 Measure asphalt concrete paving in square meters of asphalt concrete incorporated into Work.

1.2 REFERENCES

.1 Ontario Provincial Standard Specifications (OPSS)
- .1 OPSS 310 – Construction Specification for Hot Mix Asphalt.
- .1 OPSS 1150/1151 – Material Specifications for Hot Mix Asphalt / Superpave and Stone Mastic Asphalt Mixtures.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit asphalt cement mix design to Consultant for review at least 2 weeks prior to beginning Work.

.3 Contractor is required to provide notice to the consultant and the City of Pickering at least 48 hours before any paving operations and ensure the Fire Department is aware of the contractor's planned schedule.

.4 An original copy of each ticket shall be submitted to the consultant.

## PART 2 - PRODUCTS

2.1 MATERIALS

.1 Marshall Mixes: refer to OPSS 1150
- .1 Hot Laid 3 High Stability (HL3 HS) surface course
- .2 Heavy Duty Binder Course (HDBC)

.2 SuperPave Mixes: refer to OPSS 1151
- .1 SuperPave 12.5 FC1
- .2 SuperPave 19

.3 Asphalt cement for hot mix shall have a minimum rating of PGAC 58-28.

.4 Tack Coat: according to OPSS 310.05.02

2.1 EQUIPMENT

.1 Equipment: according to OPSS 310.06

2.3 MIX DESIGN

.1 Mix design to be approved in writing by Consultant.

.2 Mix design to be developed by testing laboratory approved in writing by Consultant.

.3 Design of mix: to requirements of article 2.1.1 or 2.1.2, above.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that granular base conditions are acceptable for asphalt paving in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Consultant.
.2 Inform Consultant of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied.

.2 Preparation of granular grade: according to OPSS 310.07.02.01.

.3 Preparation of Existing Pavement: according to OPSS 310.07.02.02

3.2 CONSTRUCTION

.1 Quality Control will be the responsibility of the contractor and be done in accordance with OPSS 310.07.01.

.2 Tack Coat: according to OPSS 310.07.03.

.3 Transportation of Hot Mix Asphalt: according to OPSS 310.07.04

.4 Placing Hot Mix Asphalt: according to OPSS 310.07.06:
.1 Paving shall not be carried out if the roadbed is frozen.
.2 The granular grade shall be free of standing water at the time of HMA placement.
.3 The surface of a pavement upon which HMA is to be placed shall be dry at the time of HMA placement. An HMA course shall not be placed on a previously laid course until a minimum 4 hours have elapsed, following final compaction of the previous course, and the temperature of the previous course is 60 °C or less.
.4 Binder courses shall not be placed unless the air

temperature at the surface of the road is a minimum of 2 °C and rising.

.5 For surface course, the air temperature at the surface of the road shall be at least 7 °C, except for SMA and Superpave 12.5 FC2, the air temperature at the surface of the road shall be at least 12 °C.

.6 Traffic shall be kept off the SMA surface until it has cooled below 60 °C.

.5 Binder and surface courses shall be laid by means of mechanical self-propelled pavers.

.1 When it is necessary to hand-spread the HMA in sections adjacent to machine laid areas, such hand-spreading shall be carried out concurrently with machine-laying operations.

3.3 STAGING

.1 The contractor must account for the phased construction staging when placing asphalt. At no point shall paving operations interrupt the full operation of the fire hall or the ability for vehicles to enter the site.

3.4 PROTECTION

.1 Once surface asphalt is laid, the contractor is responsible for protecting it from construction debris and damage from construction activities.

## PART 1 - GENERAL

**1.1 RELATED REQUIREMENTS**

.1 Section 32 11 16.01 Granular Materials.

**1.2 MEASUREMENT PROCEDURES**

.1 Measure cement concrete pavement in square metres of indicated thickness in place.

**1.3 REFERENCES**

1 ASTM International

.1 ASTM D 698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600kN-m/m³).

.2 Canadian Standards Association (CSA International)

.1 CAN/CSA A23.1-A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices For Concrete (Latest Edition)

.3 Concrete Slab and Typical Details Drawing #S1

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data: submit WHMIS SDS for Hazardous Materials.

.3 Provide certification that plant, equipment, and materials to be used in concrete production comply with requirements of CSA-A23.1/A23.2 and Section 2.1 of this specification, and that concrete mix is designed to prevent alkali aggregate reactivity problems in accordance with CSA-A23.1/A23.2 Appendix B.

.4 Contractor will be required to prepare and submit their proposed methodology for placing and curing concrete to the consultant for review and approval.

.5 Contractor is required to provide notice of placement to the consultant and the City of Pickering at least 48 hours before any concrete pours and ensure the Fire Department is aware of any concrete placement activities.

.6 The Contractor shall allow for two on-site meetings (one for

each pour) with subcontractors (if applicable), the City of Pickering, and the design engineer to go over the concrete pour, and to review and inspect the rebar placement, before concrete is placed.

.7 An original copy of each ticket shall be submitted to the consultant.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:
.1 Separate waste materials for reuse and recycling.
.2 Divert unused concrete materials from landfill to local facility for recycling.
.3 Unused materials must not be disposed of into sewer systems, into lakes, streams, onto ground or in location where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Water: to CSA-A23.1.

.2 Reinforcing Steel: 13M Glass Fibre Reinforcing Polymer (GFRP) bars per CSA S806 & S807.
.1 Diameter: 13mm
.2 Tensile Modulus of Elasticity: 60 GPa

.3 Preformed joint fillers:
.1 W.R. Meadows Asphalt Expansion Joint, SAKRETE Concrete Expansion Joint or approved equivalent

.4 Joint sealant:
.1 Sika DuoFlex or approved equivalent flexible joint sealer
.2 Sika LoadFlex 524 LV or approved equivalent semi-rigid polyurea joint sealer

.5 Granular A:
.1 According to Section 32 11 16.01 Granular Sub-Base.

.6 Dowels: Smooth Glass Fibre Reinforcing Polymer (GFRP) bars
.1 Diameter: 32mm
.2 Length: 380mm
.3 Owens Corning 32M Glass Fibre Reinforced Polymer (GFRP) Fiberglas Dowel Bars or approved equivalent

.7 Bonding Agent:
.1 W.R. Meadows INTRALOK Bonding Agent or approved equivalent

.8 Bollards:
.1 Ontario Bollards 6.625" OD x 42" high steel bolt-down bollard or approved equivalent.
.2 Anchor bolts and hardware shall be galvanized steel

2.2 MIXES

.1 Concrete mixes: to CSA-A23.1/A23.2
.1 24-Hour Strength: 35 MPa
.2 Cement Type: GU
.3 Maximum Aggregate Size: 20mm
.4 Slump: 100mm +/- 20mm
.5 Total Air: 5-8 %
.6 Exposure Class: C-1
.7 Minimum Cover: 51mm
.8 Maximum Water/Cement Ratio: 0.40

.2 Job mix formula to be reviewed and approved by Consultant.

PART 3 - EXECUTION

3.1 SUBGRADE INSPECTION

.1 Remove soft, yielding material or other portions of subgrade that will not compact to specification; replace with suitable material.

.2 Bring subgrade to firm unyielding condition with uniform density.

.3 Check finished subgrade for conformity with elevations and sections and obtain approval from Consultant before placing granular base material.

3.2 GRANULAR BASE

.1 Place granular base to compacted thickness as identified.

.2 Place in layers not exceeding 150 mm compacted thickness.
.1 Compact each layer to 100% Maximum Dry Density in accordance with ASTM D 698 to ensure elimination of voids.

.3 Finished granular base surface: not to deviate more than 0 mm above and 20 mm below specified grade.

.1 Finished granular base surface: not to deviate more than 10 mm at any location on 3 m long straight edge template.

3.3 CONCRETE

.1 Install formwork in accordance with CSA-A23.1/A23.2.
.1 Secure forms to resist pressure of wet concrete, impact and vibration of construction equipment without springing or movement.
.2 Tolerance: 6 mm in 3 m horizontal alignment, 3 mm in 3 m vertical alignment.

.2 Mix and place concrete in accordance with CSA-A23.1/A23.2.
.1 Ensure that the maximum time limit of 120 min from the time of initial mixing to complete discharge is observed.

.3 Maintain accurate records of poured concrete items to indicate date, location of pour, concrete source, air temperature, air content and test samples taken.

.4 For ready-mix concrete, provide duplicate delivery slips listing following with each load delivered to site:
.1 Name of ready-mix batch plant.
.2 Serial number of ticket.
.3 Date and truck number.
.4 Name or number of project.
.5 Class of concrete or mix.
.6 Amount of concrete in cubic metres.
.7 Time of loading or first mixing of aggregate, cement and water.
.8 Arrival and waiting time at site.
.9 Air content.

.5 Ensure that reinforcement, dowels and inserts are not disturbed during concrete placement.

.6 Cure and protect concrete in accordance with CSA-A23.1/A23.2. Curing compounds shall not be used.
.1 Continue curing for an additional minimum of 12 hours after the initial 24-hour period following placement (note that trucks may use the slab during this additional curing period)

.7 Install anchor for bollards prior to pouring concrete according to CSA-A23.1/ A23.2 (Section 13.2 Placing of Hardware).

3.4 CONCRETE TOLERANCE

.1 Finish concrete to required elevation, in accordance with CSA-A23.1/A23.2, such that:
.1 the average thickness is not more than 10mm less than the specified thickness,
.2 no individual measurement is more than 20mm less than the specified thickness, and
.3 there are no irregularities exceeding 5 mm in any 2 m length.

.2 In addition to meeting the above tolerances, there shall be no localized ponding anywhere on the completed slab.

3.5 CONCRETE FINISHING

.1 Finish concrete paving with swirl, broomed or tined non-skid finish according to CSA-A23.1/A23.2 (Section 22).

.2 If broomed finish specified use stiff coarse fibre broom to obtain desired texture.
.1 Prepare test section of sample of final surface texture for review by Consultant.

.3 If tined finish is specified use device having randomly spaced wire tines, varying from 10 to 40 mm with 50% of spacings less than 25 mm.
.1 Drag tines transversely across pavement to form grooves.
.2 Width of Grooves to be between 2 to 3 mm and depth to be from 3 to 5 mm.
.3 Texture only when concrete is sufficiently hard to retain ridges.
.4 Prepare test section of sample of final surface texture for review by Consultant.

3.7 CONSTRUCTION JOINTS

.1 Provide full depth joint at end of each day's construction or when concrete placement is interrupted for more than 30 minutes.
.1 Construct dowelled joints as indicated. Dimensions not to vary by more than 2 mm from indicated dimensions, and not more than 4 mm from mid-depth of pavement.
.2 Edge and texture joints to match adjacent surface.

.2 Saw cut construction joint between slabs to 6 mm width and to 25 mm depth within 6 – 18 hours of concrete placement of

second slab.

.1 Fill with semi-rigid polyurea sealant in accordance with manufacturer's recommendations at least 24 hours after second slab is poured and before the second slab on grade is put into service.

.3 Apply bonding agent in accordance with manufacturer's instructions to the vertical face of construction joints immediately after formwork along the joint is removed and before pouring second slab.

3.8 ISOLATION JOINTS

.1 Make isolation joint filler continuous from edge to edge.

.1 Extend joint material full depth of concrete, and finished joint not to deviate in horizontal alignment more than 6 mm from straight line.

.2 Match edge and texture joint to adjacent surface.

.2 Install isolation joints around along length adjacent to concrete curbs, building, or permanent structure.

.3 Fill with flexible sealant as indicated, in accordance with manufacturer's recommendations and before the slab on grade is in service.

3.9 JOINT SEALING

.1 Seal isolation joints with flexible sealant and construction joints with semi-rigid sealant as indicated on drawings.

.2 Prepare and clean joints in accordance with manufacturer's recommendations.

.3 Complete joint sealing prior to opening pavement to traffic and allow sufficient time for curing, in accordance with manufacturer's recommendations.

3.10 PROTECTION

.1 Keep all vehicular traffic off newly paved areas until pavement has properly cured, joints have been sealed and supplier has certified that concrete has reached its specified 24-hr strength.

3.11 TESTING AND INSPECTION

.1 The Consultant and City of Pickering shall verify that there are no areas of localized ponding of water on the completed slabs.

.2 Testing and inspection costs shall be paid under the testing allowance (described in Section 01 29 83 Payment Procedures

for Testing Laboratory Services).

.3 Testing and Inspection to be according to CSA-A23.1/A23.2 (Section 17).

.1 Lab testing shall include one set of three cylinders for each batch of concrete placed at the site.

.2 Field testing shall include one slump and one air content test for each batch placed.

.6 Granular base shall be tested with a nuclear densometer and the field-testing results submitted to the consultant.

## PART 1 - GENERAL

**1.1 MEASUREMENT FOR PAYMENT**

.1 Pavement marking: measured by lump sum.

**1.2 REFERENCES**

.1 Ontario Provincial Standard Specifications (OPSS)
- .1 OPSS 710 Construction Specification for Pavement Marking

.2 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- .1 Safety Data Sheets (SDS).

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data Submittals:

- .1 Submit manufacturer's printed product literature and data sheets for pavement markings and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit two copies of WHMIS SDS in accordance with Section 01 35 29.06 - Health and Safety Requirements 01 35 43 - Environmental Procedures.

**1.5 DELIVERY, STORAGE AND HANDLING**

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
- .1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Replace defective or damaged materials with new.

## PART 2 - PRODUCTS

**2.1 MATERIALS**

.1 Paint:

.1 Refer to OPSS 710.05.02 for Organic Solvent Based Traffic Paint, or OPSS 710.05.06 for Water-Borne Traffic Paint. Durable pavement marking is not required.
.2 Colour: yellow, except for symbols.
.3 Symbol colour: blue background with yellow lines for accessible parking space

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Prior to removing the existing asphalt, the Contractor is to record existing pavement markings and reinstate new markings to the same locations post-construction.

.2 Verification of Conditions: verify conditions of substrates and surfaces to receive pavement markings previously installed under other Sections or Contracts are acceptable for product installation prior to pavement markings installation.
.1 Visually inspect substrate in presence of Consultant.

.3 Pavement surface: dry, free from water, frost, ice, dust, oil, grease and other deleterious materials.

.4 Proceed with Work only after unacceptable conditions have been rectified.

3.2 EQUIPMENT REQUIREMENTS

.1 Refer to OPSS 710.06 for equipment requirements. The application of glass beads is not required.

3.3 APPLICATION

.1 Pavement markings to be laid out by Contractor and approved by the City of Pickering and the Consultant.

.2 Apply paint according to OPSS 710.07.09. Maintain the paint temperature between 40 and 70 degrees Celsius. Paint shall be applied when the pavement surface temperature is 5 degrees Celsius or above for Organic Solvent Based Traffic Paint, or 10 degrees Celsius or above for Water-Borne Traffic Paint.

.3 Do not thin paint unless approved by the Consultant.

.4 Symbols and letters to match existing dimensions.

.5 Paint lines: of uniform colour and density with sharp edges.

.6 Thoroughly clean distributor tank before refilling with paint of different colour.

3.7 PROTECTION OF COMPLETED WORK

.1 Protect pavement markings until dry.

.2 Repair damage to adjacent materials caused by pavement marking application.

## PART 1 - GENERAL

1.1 MEASUREMENT PROCEDURES

.1 Preparation of sub-grade for placing of topsoil will not be measured for payment.

.2 Topsoil stripping will not be measured.

.3 Measure supplying, placing and spreading topsoil in cubic metres as determined from actual surface area covered and depth of topsoil specified.

.4 Measure finish grading in square metres from actual surface measurements as determined by the Consultant.

## PART 2 - PRODUCTS

2.1 TOPSOIL

.1 Topsoil for seeded areas: native topsoil stripped from site.

## PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control plan, specific to site.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 STRIPPING OF TOPSOIL

.1 Strip topsoil to depths as indicated.

.1 Avoid mixing topsoil with subsoil where textural quality will be moved outside acceptable range of intended application.

.2 Stockpile in locations as indicated.

.1 Stockpile height not to exceed 2 m.

.3 Protect stockpiles from contamination and compaction.

3.3 PREPARATION OF EXISTING GRADE

.1 Verify that grades are correct.
.1 If discrepancies occur, notify the Consultant and do not commence work until instructed by the Consultant.

.2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.

.3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials.
.1 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
.2 Remove debris which protrudes more than 75 mm above surface.
.3 Dispose of removed material off site.

3.4 PLACING AND SPREADING OF TOPSOIL/PLANTING SOIL

.1 Place topsoil after the Consultant has accepted subgrade.

.2 Spread topsoil in uniform layers not exceeding 150 mm.

.3 For sodded areas keep topsoil 15 mm below finished grade.

.4 Spread topsoil as indicated to following minimum depths after settlement.
.1 150 mm for seeded areas.
.2 135 mm for sodded areas.

.5 Manually spread topsoil/planting soil around trees, shrubs and obstacles.

3.5 FINISH GRADING

.1 Grade to eliminate rough spots and low areas and ensure positive drainage.

## PART 1 - GENERAL

### 1.1 RELATED REQUIREMENTS

.1 Section 32 91 19.13 – Topsoil Placement and Grading

### 1.2 MEASUREMENT AND PAYMENT

.1 Payment for seeding made at unit price bid of actual area surface measurements taken and computed by Consultant.

### 1.3 ADMINISTRATIVE REQUIREMENTS

.1 Scheduling:

.1 Schedule hydraulic seeding to coincide with preparation of soil surface.

.2 Schedule hydraulic seeding using grass mixtures and mixtures containing 40% OATS, 45% Barley and 15% Canadian Wild Rye between May to September Months and Winter Wheat between October to November Months.

### 1.4 REFERENCES

.1 TRCA Seed Mix Guideline V.2.0 January 2022. Seed Mix shall be TRCA Upland Slope Mix (TRCA-SD-3.

### 1.5 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for seed, mulch, tackifier, fertilizer, liquid soil amendments and micronutrients.
mixture per hectare.

.5 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.6 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

## 1.7 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements:
- .1 Labelled bags of fertilizer identifying mass in kg, mix components and percentages, date of bagging, supplier's name and lot number.
- .2 Inoculant containers to be tagged with expiry date.

.3 Storage and Handling Requirements:
- .1 Store fertilizer in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Replace defective or damaged materials with new.

## 1.8 WARRANTY

.1 End-of-warranty inspection will be conducted by Consultant.

# PART 2 - PRODUCTS

## 2.1 MATERIALS

SPEC NOTE: Consult landscape architect to determine specific application rates and requirements for seed selection and mixtures, mulch and fertilizer.

SPEC NOTE: Select seed types that are compatible with the regional average rainfall and with the lighting conditions of the specified area.

.1 Seed: TRCA Seed Mix shall be TRCA Upland Slope Mix (TRCA-SD-3).

.2 Mulch: specially manufactured for use in hydraulic seeding equipment, non-toxic, water activated, green colouring, free of germination and growth inhibiting factors with following properties:
- .1 Type I mulch:
  - .1 Made from wood cellulose fibre.
  - .2 Organic matter content: 95% plus or minus 0.5%.
  - .3 Value of pH: 6.0.
  - .4 Potential water absorption: 900%.
- .2 Type II mulch:
  - .1 Made from [newsprint], [raw cotton fibre] and [straw], processed to produce fibre lengths of 15 mm minimum and 25 mm maximum. Greater proportions of ingredients to be straw.

.3 Tackifier: [water dilutable, liquid dispersion] [water soluble vegetable carbohydrate powder].

.4 Water: free of impurities that would inhibit germination and growth.

.5 Fertilizer:
.1 To Canada "Fertilizers Act" and Regulations.
.2 Complete synthetic, slow release with 35% of nitrogen content in water-insoluble form.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for hydraulic seeding in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Consultant.
.2 Inform Consultant of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

### 3.3 PROTECTION OF EXISTING CONDITIONS

SPEC NOTE: If required, specify measures for protection of structures and surfaces against damage by spray.

.1 Protect structures, signs, guide rails, fences, plant material, utilities and other surfaces not intended for spray.

.2 Immediately remove any material sprayed where not intended as directed by Consultant.

### 3.4 PREPARATION OF SURFACES

.1 Do not perform work under adverse field conditions such as wind speeds over [10] km/h, frozen ground or ground covered with snow, ice or standing water.

.2 Fine grade areas to be seeded free of humps and hollows.
.1 Ensure areas are free of deleterious and refuse materials.

.3 Cultivated areas identified as requiring cultivation to depth of [25] mm.

.4 Ensure areas to be seeded are moist to depth of [150] mm before seeding.

## 3.6 PREPARATION OF SLURRY

.1 Measure quantities of materials by weight or weight-calibrated volume measurement satisfactory to Consultant. Supply equipment required for this work.

.2 Charge required water into seeder. Add material into hydraulic seeder under agitation. Pulverize mulch and charge slowly into seeder.

.3 After materials are in seeder and well mixed, charge tackifier into seeder and mix thoroughly to complete slurry.

## 3.7 SLURRY APPLICATION

.1 Ensure seed is placed under supervision of certified Landscape Planting Supervisor.

.2 Hydraulic seeding equipment:
- .1 Slurry tank.
- .2 Agitation system for slurry to be capable of operating during charging of tank and during seeding, consisting of recirculation of slurry and/or mechanical agitation method.
- .3 Capable of seeding by [50] m hand operated hoses and appropriate nozzles.

.4 Apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed.
- .1 Using correct nozzle for application.
- .2 Using hoses for surfaces difficult to reach and to control application.

.5 Blend application 300 mm into adjacent grass areas or sodded areas to form uniform surfaces.

.6 Re-apply where application is not uniform.

.7 Remove slurry from items and areas not designated to be sprayed.

## 3.9 PROTECTION

.1 Protect seeded areas from trespass until plants are established.

.2 Remove protection devices as directed by Consultant.

## 3.10 MAINTENANCE DURING ESTABLISHMENT PERIOD

.1 Ensure maintenance is curried out under supervision of certified Landscape Maintenance Supervisor.

.2 Perform following operations from time of seed application until acceptance by Consultant.

.3 Grass Mixture:

.1 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.

.2 Mow grass to 50]mm whenever it reaches height of 70 mm. Remove clippings which will smother grass Consultant.

.4 Control weeds by mechanical or chemical means utilizing acceptable integrated pest management practices.

.5 Water seeded areas to maintain optimum soil moisture level for germination and continued growth. Control watering to prevent washouts.

## 3.11 ACCEPTANCE

.1 Seeded areas will be accepted by Consultant provided that:

.1 Plants are uniformly established. Seeded areas are free of rutted, eroded, bare or dead spots.

.2 Areas have been mown at least twice.

.3 Areas have been fertilized.

.2 Areas seeded in fall will achieve final acceptance in following spring, one month after start of growing season provided acceptance conditions are fulfilled.

## 3.12 MAINTENANCE DURING WARRANTY PERIOD

.1 Perform following operations from time of acceptance until end of warranty period:

.1 Repair and reseed dead or bare spots to satisfaction of Consultant.

.2 Mow areas seeded, [remove clippings that will smother grassed areas, as directed by Consultant, and in accordance with following schedule:

## PART 1 - GENERAL

### 1.1 MEASUREMENT PROCEDURES

.1 Measure new catch basins in units of each installed, including frames, grates and necessary lid adjustments.

.2 Measure adjusting tops of existing catch basins in units adjusted.

### 1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CAN/CSA-A165 Series, CSA Standards on Concrete Masonry Units (Consists of A165.1, A165.2 and A165.3).

.2 Ontario Provincial Standard Specifications (OPSS)

.1 OPSS.MUNI 407 Construction Specification for Maintenance Hole, Catch Basin, Ditch Inlet and Valve Chamber Installation.

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies WHMIS SDS - Safety Data Sheets for Hazardous Materials.

.3 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

### 1.4 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

.1 Precast catch basin sections: to OPSS.MUNI 407.03.

.2 Joints: refer to OPSS.MUNI 407.09.

.3 Mortar: refer to OPSS.MUNI 407.06.

.4 Adjusting rings: refer to OPSS.MUNI 407.05.

.5 Concrete Brick: to CAN3-A165 Series.

.6 Frames, gratings, covers to dimensions as indicated and following requirements:

.1 Metal gratings and covers to bear evenly on frames.

.1 Frame with grating or cover to constitute one unit.

.2 Assemble and mark unit components before shipment.

.2 Catch basin frames and covers: to OPSS.MUNI 407.05.

.7 Granular bedding and backfill: in accordance with OPSS 1010. – Aggregates – Base, Subbase, Select Subgrade, and Backfill Material.

## PART 3 - EXECUTION

### 3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

### 3.2 EXCAVATION AND BACKFILL

.1 Excavate and backfill in accordance with OPSS 407.

.2 Obtain approval of Consultant before installing catch basins.

### 3.5 ADJUSTING TOPS OF EXISTING UNITS

.1 Remove existing gratings, frames and store for re-use at locations designated by Consultant.

.2 Sectional units:

.1 Raise or lower straight walled sectional units by adding or removing precast sections as required.

.2 Re-use existing gratings, frames.

.3 Re-set gratings and frames to required elevation on not more than 4 courses of brick.

.1 Make brick joints and join brick to frame with cement mortar, parge and trowel smooth.

.2 Re-set gratings and frames to required elevation on full bed of cement mortar, parge and trowel smooth.

## PART 1 - GENERAL

### 1.1 RELATED REQUIREMENTS

.1 Section 31 00 00.01 Earthworks Short Form

.2 Section 21 11 16.01 Granular Sub-Base

### 1.2 REFERENCES

.1 Ontario Provincial Standard Specifications (OPSS)/Ontario Ministry of Transportation

.1 OPSS.MUNI 1841 Material Specification for Non-Pressure Polyvinyl Chloride Pipe Products

.2 OPSS.MUNI 401 Construction Specification for Trenching, Backfilling and Compacting

### 1.3 PRICE AND PAYMENT PROCEDURES

.1 Measurement procedures:

.1 Measure supply and installation of storm sewer including testing, including excavation and backfilling and granular bedding and surround, horizontally from manhole face to manhole face in metres of each pipe size and depth class installed.

### 1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for pipes and include product characteristics, performance criteria, physical size, finish and limitations.

### 1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials in accordance with manufacturer's recommendations.

.2 Store and protect pipes from damage.

.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 PLASTIC PIPE

.1 Poly Vinyl Chloride (PVC) Pipe: to OPSS.MUNI 1841
- .1 Standard Dimensional Ratio (SDR): 35.
- .2 Bell and spigot joints with elastomeric gasket.
- .3 Nominal lengths: 6 m.
- .4 Inner Diameter: 200mm

2.2 BEDDING, BACKFILL AND COVER MATERIAL

.1 Refer to Section 31 00 00.01 Earthworks Short Form.

.2 Refer to Section 21 11 16.01 Granular Sub-Base.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Clean pipes and fittings of debris and water before installation, and remove defective materials from site to approval of Consultant.

3.2 TRENCHING

.1 Do trenching Work in accordance with OPSS.MUNI.401, except as modified herein.

.2 Protect trench from contents of sewer.

.3 Trench alignment and depth to approval of Consultant prior to placing bedding material and pipe.

3.3 GRANULAR BEDDING

.1 Place bedding in unfrozen condition.

.2 Place granular bedding material in one uniform layer to a compacted thickness of 150mm.

.3 Shape bed true to grade and to provide continuous, uniform bearing surface for pipe.
- .1 Do not use blocks when bedding pipes.

.4 Shape transverse depressions as required to suit joints.

.5 Compact each layer full width of bed to 98% of the maximum dry density.

.6 Fill excavation below bottom of specified bedding adjacent to manholes or catch basins with compacted bedding material.

3.4 INSTALLATION

.1 Lay and join pipe in accordance with manufacturer's

recommendations and to approval of Consultant.

.2 Lay pipes on prepared bed, true to line and grade with pipe inverts smooth and free of sags or high points.
.1 Ensure barrel of each pipe is in contact with shaped bed throughout its full length.

.3 Begin laying at outlet and proceed in upstream direction with socket ends of pipe facing upgrade.

.4 Joint deflection permitted within limits recommended by pipe manufacturer.

.5 Whenever Work is suspended, install removable watertight bulkhead at open end of last pipe laid to prevent entry of foreign materials.

.6 When any stoppage of Work occurs, restrain pipes as necessary to prevent "creep" during down time.

.7 Plug lifting holes with prefabricated plugs, set in shrinkage compensating grout.

.8 Cut pipes as required for special inserts, fittings or closure pieces, as recommended by pipe manufacturer, without damaging pipe or its coating and to leave smooth end at right angles to axis of pipe.

.9 Make watertight connections to manholes and catch basins.
.1 Use shrinkage compensating grout when suitable gaskets are not available.

.10 Temporarily plug open upstream ends of pipes with removable watertight concrete, steel or plastic bulkheads.

3.5 PIPE SURROUND

.1 Place surround material in unfrozen condition.

.2 Upon completion of pipe laying, and after Consultant has inspected pipe joints, surround and cover pipes as indicated.

.3 Hand place surround material in uniform layers not exceeding 150 mm compacted thickness as indicated.

.4 Place layers uniformly and simultaneously on each side of pipe.

.5 Compact pipe surround to 98% of the maximum dry density.

.6 When field test results are acceptable to Consultant, place surround material at pipe joints.

3.6 BACKFILL

.1 Place backfill material in unfrozen condition.

.2 Place backfill material, above pipe surround, in uniform layers not exceeding 150 mm compacted thickness up to grades as indicated.

.3 Compact backfill to 98% of the maximum dry density.

3.7 FIELD TESTS AND INSPECTIONS

.1 Repair or replace pipe, pipe joint or bedding found defective.

.2 Remove foreign material from sewers and related appurtenances by flushing with water.