

SPECIFICATIONS
FOR
GRADING, LANDSCAPING & TRAFFIC CONTROL
CITY OF MAPLE GROVE, MINNESOTA

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**SPECIFICATIONS
FOR
GRADING AND LANDSCAPING
CITY OF MAPLE GROVE, MINNESOTA**

1. DESCRIPTION

This work shall consist of the excavation, backfilling, and restoration of existing surface improvements for the purposes of installing new and/or relocating or adjusting existing underground utilities.

Use of the term "Plans, Specifications and Special Provisions" within this specification shall be construed to mean those documents which compliment, modify, or clarify these specifications and are accepted as an enforceable component of the Contract or Contract Documents. All references to MnDOT Specifications shall mean the latest published edition of the Minnesota Department of Transportation Standard Specifications for Construction, as modified by any MnDOT Supplemental Specification edition published prior to the date of advertisement for bids. All reference to other Specifications of AASHTO, ASTM, ANSI, AWWA, etc. shall mean the latest published edition available on the date of advertisement for bids.

2. MATERIALS

a. SELECT GRANULAR MATERIAL

Use MnDOT Specification 3149.2B aggregate for select granular material and specified under the pipe bedding classification or an equivalent natural granular soil.

b. FINE GRANULAR FILL MATERIAL

Material shall consist of sound durable particles without cohesion of clean sand and/or well rounded gravel. The largest size of gravel used shall depend upon the size of the pipe used. Use a maximum of three-eighths inch (3/8") gravel when the pipe diameter exceeds 24".

c. CLASS 4 AND CLASS 5 SAND AND GRAVEL

Class 4 and Class 5 sand and gravel shall be in conformance with MnDOT Specification 3138.

d. CRUSHED ROCK

The material shall consist of durable crushed quarry rock which 100% passes a two inch (2") sieve and which 95% is retained on a #4 sieve size. It shall not contain soil overburden, sod, roots, plants, and other organic matter, or other materials considered objectionable by the Engineer.

e. AGGREGATE BACKFILL

Aggregate backfill shall conform to MnDOT Specification 3149.

f. CRUSHED ROCK OR PEA GRAVEL

Coarse granular pipe bedding material shall be a well graded crushed rock or pea gravel which 100% passes a three-eighth inch (3/8") sieve and a maximum of 5% passes a #10 sieve. It shall not contain sod, roots, plants and other organic matter, or other objectionable materials.

g. ROCK STABILIZATION

Rock placed shall meet the requirements of MN/Dot 3137. The rock specified shall conform to the gradation CA-1 in Table 3137-1. Install rock used to stabilize the trench foundation installed at the discretion of the Engineer.

h. LIGHTWEIGHT AGGREGATE

Lightweight aggregate shall consist of aggregate having a density of 48 to 54 pounds per cubic foot installed in the trench bottom at the direction of the Engineer.

i. TREATED TIMBER PILING

Treated timber piling shall conform to MnDOT Specification 3471.

j. GRANULAR MATERIALS

Granular materials furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified shall consist of any natural or synthetic mineral aggregate such as sand, gravel, crushed rock, crushed stone, or slag, that shall be so graded as to meet the gradation requirements specified herein for each particular use by the material manufacturer or as indicated in the Plans, Specifications, or Special Provisions.

k. GRANULAR MATERIAL GRADATION CLASSIFICATION

Granular materials furnished for use in Foundation, Bedding, Encasement, or Backfill construction shall conform to the following requirements:

Foundation materials shall have 100 percent by weight passing the 1-1/2 inch sieve and a maximum of 10 percent by weight passing the No. 4 sieve.

Backfill materials shall consist of existing trench materials, except as otherwise specified in this specification or in the Special Provisions.

Bedding and encasement materials for flexible pipe, where improved pipe foundation is not required, shall meet the requirements of MnDOT Specification 3149.2B.1, Granular Borrow, except that 100 percent by weight shall pass the one-inch sieve.

A gradation report from an approved Independent Testing laboratory of the proposed granular materials shall be furnished to the Engineer before any of the granular materials are delivered to the project.

l. GRANULAR MATERIAL USE DESIGNATION

Granular materials provided for Foundation, Bedding, Encasement, or Backfill use as required by the Plans, Specifications, and Special Provisions, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

Material Use Designation Zone Designation

- i. Granular Foundation --- Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.
- ii. Granular Bedding --- Placed below the pipe midpoint, prior to pipe installation, to facilitate proper shaping and to achieve uniform pipe support.
- iii. Granular Encasement --- Placed below an elevation one foot above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids or thorough consolidation of backfill.
- iv. Granular Backfill --- Placed below the surface base course, if any, as the second stage of backfill, to minimize trench settlement and provide support for surface improvements.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

m. 3" MINUS STABILIZATION AGGREGATE

3-inch minus aggregate material shall meet the gradation as shown in the table below. The material shall consist of crushed limestone aggregate, crushed granite aggregate or recycled concrete but not bituminous asphalt.

Sieve	Percent Passing (%)
3 inch	100
2 inch	90-60
1 inch	80-45
3/4 inch	55-30
#200	3-12

n. PILING

Piling shall be constructed in accordance with the provisions of MnDOT Specification 2452 and special plan details relating to piling.

o. INSULATION

Main Insulation shall be extruded rigid board material having a thermal conductivity of 0.23 BTU/hour/square foot/degree Fahrenheit/per inch thickness, maximum, at 40°F mean, a comprehensive strength of 35 psi minimum, and water absorption of 0.25 percent by volume minimum. Unless otherwise specified in the Plans, specifications, or Special Provisions, board dimensions shall measure 8 feet long, 2 or 4 feet wide, and 1, 1-1/2, 2, or 3 inches thick. See Maple Grove Standard Plate WM-11 for more details.

p. GEOTEXTILE FABRIC

This work shall consist of furnishing all, equipment, labor, and materials required to complete the work as specified. Geotextile Fabric is included to expedite street construction if, in the opinion of the Engineer, conditions warrant its use. The geotextile fabric shall be non-woven and comply with MnDOT Standard Specification 3733 Type V.

The fabric shall be overlapped a minimum of 600 millimeters (2 feet). In areas where the subgrade is not uniform with regard to density, the Engineer may require overlap greater than 600 millimeters (2 feet). If the overlap required by the Engineer is greater than this, the measured area will include the overlap less the minimum 600-millimeter (2 feet) overlap.

Geotextile Fabric will be measured by the area placed, excluding overlap.

Payment will be made under Item No. 2105.604 "Geotextile Fabric Type V" at the Contract unit price per square meter (yard) that shall be compensation in full for all costs of performing the work as specified. Construction of the street without this item will not be justification for a change in the Contract unit prices.

3. SAMPLES, TESTING AND ACCEPTANCE

Compaction testing will be performed for the Owner by an independent testing laboratory. The cost of passing tests will be paid

by the Owner and the Contractor shall pay for all failing test and the retest.

The provisions of MnDOT 1603 and the most current version of the MnDOT Schedule of Materials Control will be the basis for all Quality Control testing performed by the Contractor as part of the Contract Work. In addition, the following testing rates and requirements will be utilized for street and utility construction work as part of Quality Assurance testing by the Owner and shall be performed by Owner's Testing Representative.

Trench Backfill Density				
Location / Depth	Proctor Type	Min % Compaction	QA Testing Frequency	Reference Specification
Outside Road Core	Standard	95%	1 per 500' of Trench	MnDOT 2106.3
Road Core ≤ 3' below grading grade (bottom of aggregate base)	Standard	100%	1 per 250' of Trench	MnDOT 2106.3
Road Core, > 3' below grading grade	Standard	95%	1 per 500' of Trench	MnDOT 2106.3

Select Granular / Stabilizing Aggregate / Aggregate Base					
Location / Use	Gradation	Test Type	Min % Compaction	QA Compaction Testing Frequency	Reference Specification
Select Granular Embankment	1 per Source	Specified Density	100%	1 per 250' of Roadway	MnDOT 2106.3
Aggregate Base	1/12,000 yd ²	DCP – Penetration Index Method	See Specification	1 per 250' of roadway / trail/ sidewalk	MnDOT 2211.3
Full Depth Reclamation	1/12,000 yd ²	DCP for FDR	See Specification	1 per 250' of roadway / trail / sidewalk	MnDOT 2215

4. (2211) AGGREGATE BASE

The provisions of MnDOT 2211 are supplemented and/or modified with the following:

Salvaged crushed concrete aggregate or crushed bituminous/concrete mixture meeting the Class 5 aggregate gradation as per Section 3138 of the current Minnesota Department of Transportation Standard Specification and as approved by the Engineer must be used in lieu of Class 5 aggregate for the street base material.

Add the following at the end of Section 2211.3C, Spreading and Compacting:

In conjunction with the construction, blade-mixing the material shall be required as necessary to produce a substantially uniform gradation and moisture content.

The method of compaction for Aggregate Base shall be the Quality Compaction Method.

The Contractor shall produce a reclaimed aggregate base by pulverizing the existing bituminous pavement utilizing machine (cold) process to provide a blended aggregate mixture of existing bituminous and aggregate and/or approved granular subgrade material. The pulverizing operation shall produce an aggregate base Class 5 material meeting the provisions of MnDOT Table 3138-4. A Class 5 specifications with maximum bitumen content of 3.5 percent by mass (weight) shall be allowed per Table 3138-2. The pulverizing operation shall be performed to the thickness through the entire depth of bituminous and gravel base. The Contractor will need to make judgment on what that depth should be as field conditions may vary from soil boring reports. The machine speed shall be controlled to produce the required aggregate blend. Excessive oversized particles shall be removed by the Contractor. The line and grade shall be controlled to minimize incorporating undesirable sub grade materials into the reclaim aggregate base. The reclaimed material shall be compacted to provide a temporary driving surface.

Base material under bituminous trails, bituminous driveways, concrete driveways, under concrete sidewalks, or other concrete flatwork is considered incidental to the contract and is included with the unit price of the item.

5. Full Depth Reclamation (FDR)

“Full Depth Reclamation (various depths),” per square yard (S.Y.) shall include all labor and equipment to pulverize together the existing bituminous and gravel base in a single operation in place. When reclaiming operations are not feasible as determined by the Engineer due to a lack of existing gravel base or other suitable sub grade material, the Contractor shall suspend reclaiming operations and remove and salvage the existing pavement by milling. Whichever method is used, the work shall be measured on the square yard basis and paid for at the bid unit price for reclaimed aggregate base production. All associated work items shall be considered incidental. Contractor shall provide for periodic gradation testing of reclaimed aggregate base material as directed by the Engineer at the sole expense of the Contractor. Removal or reclaiming of bituminous curbing if present, shall be considered incidental to this item

“Reclaim Aggregate Base Class 5 Salvaged and Placed (CV)” per cubic yard (C.Y.) shall include all labor and equipment for excavating, handling, transporting, stockpiling, placing, shaping, necessary compacting operations, and aggregate base placement. All work shall be considered a single operation and incidental.

Excess reclaimed aggregate base not incorporated with the project as indicated in other sections shall become the property of the Contractor and be disposed of offsite. All excess reclaim material shall be used before importing Class 5 material to the project.

Aggregate base, Class 5, required to be imported to the project shall be recycled aggregate base that meets the Class 5 specification indicated in MnDOT Table 3138-4, or as approved by the Engineer.

Priorities for the use of reclaimed aggregate material shall be determined in the field by the engineer. In order of precedent, typical priorities include:

1. Roadway Aggregate Base
2. Subgrade correction
3. Driveway aggregate base
4. Maintenance of roadway during construction

Reclaimed aggregate material shall only be used for aggregate base if it has been strictly verified to meet the Class 5 specification indicated in MnDOT Table 3138-4 gradation.

6. EXCAVATION AND EMBANKMENT

Section 2106 is hereby supplemented to include the following:

Grading of the developer graded streets will be completed by the developer to the grading "grade" or the top of the subgrade as shown on the Plans to within a tolerance of 0.1 feet. There may be segments of the project where existing grading falls outside of the 0.1-foot tolerance. Any material encountered above this shall be excavated by the Contractor, when requested, and will be measured by the Engineer as actual excavated volume and paid for as "Subgrade Excavation".

The "Specified Density Method" shall apply to the compaction of all embankments and backfills.

Material that is excavated and determined by the Engineer or the Engineer's representative to be suitable material shall be used for embankment construction or backfill. The suitable material shall not be mixed with or contaminated with unsuitable soil in any amounts. Selection of suitable materials shall be considered to be incidental to the Contract, with no direct compensation therefor.

All excess material generated from operations under this contract in areas of the development (graded under a separate contract) shall be stockpiled at a site determined by the developer.

If in the opinion of the Engineer, excess material generated from operations under this contract is not to be stockpiled at the designated disposal site location or within the roadway embankment, the Contractor shall haul the material off the project site. This work will be classified as "Haul Excess Material".

Any cost of stockpiling and re-handling of excess material caused by inaccessibility of a disposal site at the time of the excavation shall be considered incidental to the Contract with no direct compensation therefor. All excavations for this project must be adequately sloped, or sheeted and braced, in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations. It is the sole responsibility of the Contractor to provide safe working conditions during all phases of construction on this project.

Extra depth subgrade excavation as ordered by the Engineer shall be paid for based on the actual quantity of material excavated as measured by the Engineer.

The Contractor shall follow any special placement procedures required by the Engineer.

Any stockpiling or re-handling of these materials shall be considered incidental to the Contract with no direct compensation therefor.

a. DISPOSITION OF EXCAVATED MATERIAL

Topsoil shall be stripped, stockpiled and used as slope dressing to the minimum depths as shown on the plans and as directed by the Engineer.

The Contractor shall dispose of all excess excavated material at the disposal areas as designated on the plans. The disposal areas shall be kept leveled and suitable for dumping by the Contractor. If no disposal area is indicated on the plans, the excavated material shall become the property of the Contractor and removed from the project limits. Any stockpiling or re-handling of these materials shall be considered incidental to the Contract with no direct compensation therefore.

Excess excavation shall not be deposited on private property without the permission of the Engineer and until a Permission to Fill form has been executed by the property owner. The Contractor shall not be expected to finish grade material dumped on private property as part of this Contract.

b. EXCAVATION MATERIAL

No payment shall be made for embankment construction behind the curb. Only the excavated material that is cut to line and grade shall be considered for payment. For payment by loose volume (LV) measure, each truck shall be measured by the Engineer and no payment shall be made if the Engineer does not receive a load count each day. All embankments shall be completed before any excess suitable material is disposed of.

All sub-cuts shall be backfilled as indicated on the plans. The backfill shall be placed in accordance with the "Quality Compaction" as specified in MnDOT 2211.

Excavation shall be paid for at the bid price per cubic yard (cross section measure) for sub grade excavation.

All necessary excavation required for the placement of a uniform depth of slope dressing and sod shall be paid for at the unit price per cubic yard of excavation, which includes bank sloping.

During construction, all excavations shall be maintained in such a condition that they will be well drained at all times. Temporary ditches or gutters shall be constructed when necessary to maintain drainage and avoid damage to the roadway. No excavated materials shall be placed or stockpiled in such a manner as to restrict free surface drainage of the sub grade or base courses.

7. PROOF ROLLING

The provisions of MnDOT 2111 are supplemented and/or modified with the following:

Prior to the placement of any geotextile fabric, sub-base material, or aggregate base material, the Engineer will require a proof roll of the existing sub-grade. Proof rolling shall consist of driving a fully loaded dump truck, capable of delivering a minimum 9-ton axle load, over the existing in place sub-grade. This procedure shall be observed by the Project Engineer. The sub-grade shall be considered unstable if any deflection or rutting exceeds set limits defined within the provisions of MnDOT 2111.

All unstable areas shall be corrected by any appropriate means of drying, disking, harrowing, blading, and/or compacting required to adjust moisture content and to provide the specified density and stability. This correction shall be considered incidental to the Project with no direct compensation made therefor. Corrected areas shall be test rolled until the sub-grade meets the requirements or as directed by the Engineer. If there is any measurable precipitation between the original test roll and before any geotextile fabric or aggregate base is placed, if requested by the Engineer, the contractor will be required to re-test roll the sub-grade and make any corrections needed prior to placement of geotextile fabric or aggregate base. All test rolling is considered incidental and no direct compensation shall be made.

Test rolling will be performed no more than 24 hours prior to pavement being placed. If within that time the project receives any measurable precipitation, the contractor will need to conduct another test roll at no extra cost to the Owner, if requested by the Project Engineer. Any additional corrections will need to be corrected and test rolled prior to bituminous being placed.

8. NOTIFICATION TO PROPERTY OWNER

The Contractor shall provide 24 hour notice to the property owner before any driveway is blocked, mailboxes being removed, pavement being

placed or any utility work that would disrupt their day to day lives. The contractor shall give the homeowner sufficient time to move their vehicles out of the driveway and park in a location determined by the contractor. No driveway shall be blocked longer than necessary for construction and only as approved by Engineer.

Access to existing businesses shall be maintained at all times. When construction is directly impacting business driveways and entrances, work shall be done continuously and as promptly as possible to return the driveway entrance to a finished surface. The contractor shall exercise care to minimize impacts to business parking facilities.

9. PROTECTION OF UTILITIES

The Contractor is required to protect all Utilities per the General Conditions. Special care shall be taken in crossing of underground gas, electric and telephone conduits.

The Contractor shall cooperate with the private utility company concerned in protecting and supporting conduits for uninterrupted service. The utility company shall be notified immediately of any damage to conduits.

In the event it is necessary to cut any gas line to perform the necessary grading, such cutting shall be performed by the utility company, at no expense to the Contractor. Any accidental breakage of gas lines shall be the responsibility of the Contractor; such breakage shall be repaired by the utility company. The Contractor shall contact the utility company prior to excavating in any street.

10. PROTECTION OF EXISTING DRIVEWAYS, CURBS AND SIDEWALKS

Any concrete, blacktop, crushed rock, or other type of driveway material carelessly disturbed by the Contractor during construction shall be replaced or rebuilt to a condition at least equal to its condition at time of removal. There shall be no compensation allowed for this item.

Existing concrete curb or sidewalk not scheduled for removal and replacement that is carelessly damaged by the Contractor during any construction activities will be replaced at no cost to the City.

11. PROTECTION OF IRRIGATION AND PET CONTAINMENT SYSTEMS

Care must be taken to ensure that existing irrigation and underground pet containment systems in place at start of construction are protected from unnecessary damage. The Contractor shall provide irrigation and pet

containment system repairs to systems that were damaged during normal construction operations.

This work includes removing existing pipe, irrigation heads, valves, tees, valve boxes, pet containment wiring, conduit, blowing out the system prior to winter freeze up, verifying the system functions the following spring if repairs occurred late in the construction season, etc. related to these systems and reinstalling salvaged items or installing new items such that the system is returned to its pre-construction condition. All wiring and piping shall be made water tight with industry approved materials. Irrigation heads shall match the style of the existing systems unless otherwise approved by the Engineer.

The Contractor shall verify all irrigation head and line locations prior to construction operations so as to protect the portions of the systems that will not be affected by construction. Unnecessary damage caused to the existing system inside or outside the construction limits shall be repaired at the Contractor's expense.

Damage occurring to systems as approved by the Engineer during normal construction activities shall be paid at the contract unit price for irrigation system repair and pet containment system repair and shall include all labor, equipment, and materials associated with these repairs.

12. CLEANING OF CATCH BASINS, MANHOLES AND GATE VALVES

The Contractor shall prevent dirt, concrete, or any other material from entering existing manholes, catch basins, or water valve boxes. All removal of such material from the sewers or repairs caused by such negligence shall be made at the expense of the Contractor.

13. DUST CONTROL

The Contractor shall be required to adequately control dust on the streets at all times. When directed by the Engineer, the Contractor shall provide one tank truck, adequate size, with spray bar or other suitable equipment for sprinkling streets, which shall be available at all times for dust control. It shall be the specific requirement that dust control measures are strictly adhered to and a regular watering schedule be implemented when directed by the Engineer (e.g. once in the morning, once mid-day and once late afternoon). The Owner shall furnish the water free of cost, but reserves the right to indicate the source of supply. The Contractor shall acquire one water meter per project from the Owner for use by the Contractor and all sub-contractors at a cost of \$1200. A pay item shall be designated for this item.

Saw cut operations shall utilize wet sawing techniques or approved equal to reduce the amount of dust created by sawing operations of both concrete and bituminous pavements.

The Contractor shall be required to respond to any verbal notice from the Engineer regarding dust control and respond appropriately within one (1) hour from the time of notification. If the Contractor fails to take appropriate action as indicated, the Engineer shall have corrections made and assess \$500.00 damage plus costs incurred in correcting the violation. Damages shall be assessed for each violation or repeat violation and appropriate deductions shall be made to the final Contract payment.

14. TURF ESTABLISHMENT

The contractor shall be responsible to distribute the "Caring for your new sod fact sheet" to all existing homes within the project during the installation of the sod or immediately upon completion of the sodding. This letter can be found as Exhibit J in the Conditions of the Contract or ask the City of Maple Grove for a copy.

a. SOD AND SEED

Unless specifically indicated in the Contract, the sod and seed provided for this project and the procedure for sodding shall conform to the requirements of MnDOT Specifications 2575, 3876, 3877 and 3878 and as modified herein:

Sod shall be level and blend into the existing sod smoothly. Where sod is blended into existing sod, this edge shall be cut with a sod cutter to a depth equal to the thickness of the new sod.

Determination of seed application during MnDOT blackout dates from June 1 to July 20 and after September 20 shall be as directed by the Engineer. This shall include watering and other maintenance items. In areas to be seeded, Mesic General Roadside Mix 25-141 and Low Maintenance Turf Mix 25-131 shall be installed.

All sod and seed areas shall be maintained for a period of 30 growing days from the date of installation. Maintenance includes watering, weeding, fertilizing and mowing to establish turf and create an adequate root system on the sod and seeded areas. The Engineer will then make the final inspection and consider acceptance of the sod and seed.

Apply fertilizer, analysis 22-5-10, to all sod areas at the rate of 200 lbs./acre. New development seed areas Apply fertilizer analysis 22-5-10, at a rate of 350 lbs./acre.

For seeded areas, bare spots which persist after three weeks of favorable growing weather shall be re-cultivated and re-seeded as many times as necessary until acceptable turf is established. Acceptable turf shall contain no erosion washes, no bare spots greater than 0.5 square foot, no bare areas comprising more than 0.5% of any given 1,000 square foot area, and no deformation of turf areas caused by mowing or other Contractor equipment.

b. LANDSCAPING

Landscaping shall be done in locations designated on the plans or at other locations as directed by the Engineer. The work shall include the replacement of all sod which has been disturbed or uprooted by other phases of the Contract.

c. HYDRO-SEEDING

Hydro-seeding application shall be completed from two different directions to ensure even application and reduce shadow areas. The Contractor shall protect existing driveways, curb and gutter, landscaping, plantings, walls, and all other in place items from hydro-seed overspray. Any overspray shall be removed by the Contractor within 24-hrs of receiving notice from the Engineer.

d. WATERING

Water use permits must be obtained from the Utility Department at 9030 Forestview Lane prior to using water. Draw water from hydrant designated by the Utility Department on that particular project only. Watering equipment shall be inspected by Utility Department personnel prior to issuing a permit. The permit will be issued at no cost to the Contractor. The Contractor shall provide all the labor and equipment for the application of water in turf restoration areas for the duration of the maintenance period. If no pay item is designated for watering for turf establishment then this shall be considered incidental.

Watering shall be required throughout the growing period/maintenance including the period from June 1 to July 20. A

growing day is any calendar day between April 15 to November 1. If the maintenance period does not conclude by Nov. 1, the remaining balance on the warranty will carry over to begin on April 15 of the following year.

e. TOPSOIL

The contractor is responsible for removing 6" of material in all areas needing topsoil to accommodate placement of the new topsoil that meets 3877.2.A for linear/rural projects or 3877.2.B for street reconstruction/boulevard placement unless otherwise noted in the plans or special provisions. Onsite material will only be allowed if it meets the requirements of the above mentioned specification, and must be tested prior to placement in the field.

Topsoil shall be pulverized and free of heavy clay, peat, stones, plants, roots, sticks and other foreign materials. The topsoil borrow material shall be a light and friable loam, be black in color appearance and meet the requirements in accordance with the appropriate MnDOT Specification 3877.2 (3877.2.A for linear/rural, and 3877.2.B for street reconstruction/blvd), but shall have a minimum 6% organic content. The topsoil shall be tilled by disking, rototilling, or other approved method of tillage to a minimum average depth of 3.0 inches, and shall be leveled and raked to prepare a smooth and even seedbed with a loose and open surface. Stones and other debris over 1.5 inches in diameter shall be removed from the soil surface. A uniform grade shall be established so that no depressions or elevations are present, and so that the safe and effective operation of mowing equipment shall not be hindered after the turf grass is established.

Contractor shall furnish test results and samples prior to delivery of the material to the project.

Prior to placing any topsoil the slopes shall be cut uniformly such that the finished sodded slope shall conform to the designated section. Topsoil shall be placed to a minimum depth of 6" for both seeding and sodding operations. The topsoil shall be raked and all lumps and irregularities removed prior to placing the sod or seed. Operations to remove lumps or irregularities shall be incidental to topsoil placement. The topsoil shall not be too loose whereby footprints greater than 1.0 inches are observed, nor shall it be too dense whereby only footprints less than one-eighths of an inch are observed.

Care shall be taken to insure that the topsoil does not contaminate the subgrade or base of the roadway. Grading stakes, stones, trash, root masses, and other debris which may hinder the distribution of fertilizer, compost, seed, or seed mulch during seeding operations shall be removed from the site when seedbed preparation operations are completed. Soil, fertilizer, compost and seed shall be removed from paved areas as soon as possible after seedbed tilling, grading, and seeding operations are completed.

It shall be the responsibility of the contractor to ensure that the soil of the seedbed preparation area is not blown or washed from the site and that nearby areas are protected from soil, fertilizer, compost, etc. In the event of heavy rain or wind that causes damage to the site which may have been anticipated and prevented by the contractor, then the contractor shall repair the damaged areas so they are restored to a condition acceptable under the specifications; when soil or other material is moved from the site and deposited on nearby areas the contractor shall restore those areas to a condition substantially similar to that which prevailed before the damaging event. Watering of seeded areas shall be done with equipment necessary to prevent seed from being displaced from its original location.

Do not place topsoil until the Engineer has inspected the area and approved the subgrade preparation and topsoil materials.

Do not complete topsoil fine grading more than 24 hours prior to the sod laying operation. Remove topsoil placed on unapproved areas or topsoil which does not meet Mn/DOT Spec. No. 3877.2.D with removal being done at the Contractor's expense.

f. APPLICATION RATES

Seed Mixture 25-151: 120 lbs/AC

Fertilizer Type 3 (22-5-10): 350 lbs/AC (seeding areas only)

Fertilizer Type 3 (22-5-10): 200 lbs/AC (sod areas only)

Hydraulic Soil Stabilizer Type Fiber Reinforced Matrix (FRM) Flexterra HP-FGM by Profile Products LLC or approved equal as approved by the Engineer: 2,500 lbs/AC (100% Coverage)

g. STREET SWEEPING

Street Sweeping shall be required when excess dirt appears on the streets as a result of builders' or developers' operations, and compensation for same will be under this bid item. Compensation for

this work will be made only when ordered by the Engineer and written reporting of hours are presented at the time of the work.

Normal cleaning, or cleaning required due to Contractor's forces or prior to tack coat, will be incidental.

The Contractor shall be required to sweep the streets following the completion of the sodding and seeding operations. Completing this sweeping within seven (7) calendar days after completion of the sodding and seeding operation.

All sweeping shall be with a pick-up power sweeper and continue until loose material is cleaned up to the satisfaction of the City Engineer.

15. TREE REMOVAL

The trees encountered shall be cleared and grubbed as directed by the Owner and disposed of outside of the City of Maple Grove City limits.

Where trees are not marked for removal, the Contractor shall protect these trees in accordance with MnDOT Spec. 2572. The Contractor shall take special care to preserve existing trees and shrubs wherever possible. This may include careful grading operations, slight adjustments of slopes, and placing silt fence at tree drip lines. Protection of trees not identified to be removed shall be incidental.

Current and pertinent government regulations concerning disposal of elm trees or other types of trees shall be adhered to.

Cleared trees may be claimed by the abutting property owner, and if so, they shall be trimmed, cut into sixteen inch (16") lengths and piled on private property. All other material shall be disposed of by the contractor.

16. CLEAN ROOT CUTTING

Where trees are not marked for removal, but root systems interfere with the construction of curb and gutter or sump drain, Contractor shall clean cut the roots in accordance with MnDOT Spec 2572.3A.2.

17. LANDSCAPE ROCK

This work shall include all work necessary to furnish and install the landscape rock. The type and size of landscaping rock shall be of similar size, shape and color of the existing landscaping rock. The work shall include, but not

be limited to, all equipment, labor, fabric barrier between the sub grade soil and the landscape rock, backfilling, landscape edging and other materials necessary to complete the work. The work shall be coordinated with the Engineer and property owners prior to removal and installation.

18. MAIL BOXES

The Contractor shall relocate mailboxes as necessary. Mail boxes shall be set 41" to 45" up from top of curb to the bottom of box and front of mail box shall be 6" to 8" from back of curb. Mailbox relocations (both temporary and permanent) shall be accomplished so there will be no interruption of mail service. This work shall be considered incidental and no direct compensation shall be provided unless a specific bid item is included in the Contract for such work.

19. TRAFFIC SIGNS

Traffic Signs and Devices shall be paid for on a per each basis and constructed in accordance with MnDOT 2564, except as follows:

a. MATERIALS

i. Sign Panels:

Provide in accordance with the latest MnDOT Standard Signs Manual, the Minnesota Traffic Engineering Manual, the MMUTCD, the plans, MnDOT 2564, and as follows.

All Traffic signs will be Type C DG-3 Diamond Grade.

Fabricate in accordance with the following

- a. Sign base material: Sheet aluminum conforming to material requirements of MnDOT 3352.2A1a.
- b. Sign face material: Reflective sheeting conforming to MnDOT 3352.2A.2.a.
- c. Sign legend material: "Direct Applied" conforming to the requirements of MnDOT 3352.2A.5.c or 3352.2A.5.d.

ii. Traffic sign posts:

Provide 3.0 pounds/foot flanged channel Ribbed Back Galvanized sign posts conforming to MnDOT 3401.

Provide quantity of Galvanized sign posts at each installation in accordance with the Plans.

Provide sign structural components for mounting sign panels (including posts, knee braces, etc.) in accordance with the applicable provisions of the Plans, the Minnesota Traffic Engineering Manual and with the details enclosed in these Special Provisions/the Plans

Determine length of Galvanized sign posts in accordance with the following sign panel mounting height guidelines provided in these Specification. All Galvanized sign posts must be installed 4 feet below finished grade.

Where Type C Signs are to be installed on street name sign posts, permanent barricades, or on traffic signal poles, mounting hardware required to mount sign panels shall be approved by Engineer prior to installation.

iii. Fabrication Stickers

Screen a fabrication sticker and affix to backside of each new Type C sign panel in lower right-hand corner (when facing the back of the sign.)

Provide full size mock-up (minimum 1-1/2 inches by 3 inches) of sticker to Engineer for written approval prior to producing any stickers for the Project.

Produce fabrication sticker in accordance with the following:

Colors shall be black legend on white reflectorized background.

Month and year of fabrication of the sign panel shall be punched out prior to installation of sticker on sign panel.

Fabrication sticker shall be similar to example shown below, unless otherwise approved by the Engineer.

Sign Company Name

Address

Month 1 2 3 4 5 6 7 8 9 10 11 12

Year 14 15 16 17 18

iv. Street Name Signs:

The Owner will provide street name signs for the Contractor to pick up from Public works. Contractor must coordinate work with Engineer on site and give a minimum of a 72 hour notice before picking up.

Contractor will need to supply the 2 3/8" outside diameter galvanized steel post for all street name signs and all other materials need for installation. This includes but not limited to nuts, bolts, installing steel plate, rivet and all labor.

v. Post:

Provide round galvanized steel pipe as follows:

2-3/8-inch outside diameter

12 gauge minimum diameter

Tubular post to have hole drilled or blown through 8" from bottom for insertion of pin. Pin to be 10" x 1/2" or greater diameter rebar or similar material. Pin through post to prevent rotation of post in the event of cracked or failed footing.

vi. Mounting Hardware:

Provide steel assembly units as follows:

Post cap with 5/16-inch bolts and 3/16" Aluminum rivets and 1/4" Stainless Steel rivets to secure.

When only one street name is to be installed the Contractor will need to use a Lyle E-250 bracket. When there are 2 or more street signs, the Contractor must use a Lyle E-450 bracket for installation.

Bracket assembly shall be Lyle E-450 for post mounted assemblies, Lyle E-450 OLP for street light pole mounted assemblies, or Engineer approved equal. Street light pole assemblies shall be mounted using stainless steel straps.

All remounting hardware shall be galvanized or aluminum.

20. TRAFFIC CONTROL DEVICES

Section 1710 is hereby supplemented to include the following:

Traffic control devices shall be provided in accordance with the provisions of 1710 and the latest edition of the Minnesota Manual on Uniform Traffic Control Devices (MMUTCD), except as modified as herein:

The first paragraph of 1710.2 is revised to read as follows:

The Contractor shall furnish, install, maintain and remove all traffic control devices in accordance with these Special Provisions and the Minnesota Manual on Uniform Traffic Control Devices (MMUTCD) - including the Temporary Traffic Control Zone Layouts Field Manual, latest edition. The Engineer will have the right to modify the requirements for traffic control as deemed necessary due to existing field conditions. The Contractor's responsibilities under this section include, but are not limited to, the following:

Subparagraph (b) of the first paragraph of 1710.2 is revised to read as follows:

(b) To control and guide traffic through the project and over any temporary bypasses.

The provisions of 1710.5 including all supplements thereto are hereby deleted from the Contract.

All signs and devices shall contain encapsulated lens (high intensity) reflective sheeting, MnDOT Specification 3352.2A2b "Standard No.2". The Contractor shall be responsible for the maintenance of all traffic control devices during the entire life of this Contract including any times of suspension for any reason whatsoever.

The Contractor shall furnish names, addresses, and telephone numbers of at least three (3) individuals responsible for the placement and maintenance of traffic control devices. At least one of those individuals shall be "on call" 24 hours per day, seven days per week, during the times any traffic control devices, furnished and installed by the Contractor, are in place.

The Contractor shall be required to respond to any call from the Engineer or the Engineer's designated representative concerning any request for improving or correcting traffic control devices including pavement marking tape within one (1) hour from the time of notification.

In addition to general maintenance requirements throughout the day, the Contractor shall relocate to proper location and realign all traffic control devices as necessary on a daily basis, including traffic control devices misplaced by subcontractor operations.

In the event of severe weather conditions, the Contractor shall provide additional personnel and equipment to maintain all traffic control devices.

Placement of all signs and barricades shall proceed in the direction of flow of traffic. Removal of all signs and barricades shall start at the end of the construction areas and proceed toward oncoming traffic unless otherwise directed by the Engineer. The Contractor shall be required to cover all traffic control devices that may be inconsistent with traffic patterns during all phase changes.

The Contractor shall furnish, install, maintain and remove all traffic control devices that are needed to guide, warn, control, protect or exclude traffic from and through the project. This includes painting, taping or affixing necessary pavement markings as required, and the removal of these markings along with any other conflicting markings.

The Contractor shall keep all traffic control signs and devices, furnished by the Contractor, in a legible condition. This shall include, but not be limited to, removing any grime deposited on any traffic control devices by traffic or natural causes.

Traffic Control conducted as shown in the Temporary Traffic Control Zone Layouts Field Manual will be considered as incidental to the project.

21. MAINTENANCE OF TRAFFIC

Section 1404 is hereby supplemented to include the following:

Except as specifically provided for in the Special Provisions, all streets shall be kept open to traffic at all times in accordance with the provisions of 1404, 1710, the "Minnesota Manual on Uniform Traffic Control Devices" (MMUTCD) and the following:

The Contractor shall be responsible for the immediate repair or replacement of all traffic control devices that have been stolen or

vandalized and those that become damaged, moved, destroyed, or cease to function properly; and for all stabilizing weights that are damaged, destroyed or otherwise fail to stabilize the traffic control devices.

The Contractor shall be responsible for proper relocation of traffic control devices misplaced by Contractor and subcontractor operations.

All Contractors' personnel working on or near the traveled roadway shall wear current OSHA required reflectorized safety vests at all times.

22. METHOD OF PAYMENT

a. Full Depth Reclamation

Full Depth Reclamation (various depths) shall be paid per square yard (S.Y.) and shall include all labor and equipment to pulverize together the existing bituminous and gravel base in a single operation in place.

“Reclaim Aggregate Base Class 5 Salvaged and Placed (CV)” per cubic yard (C.Y.) shall include all labor and equipment for excavating, handling, transporting, stockpiling, placing, shaping, necessary compacting operations, and aggregate base placement. All work shall be considered a single operation and incidental.

b. Excavation & Embankment

All work as designated in the Drawings and Specifications shall be paid for on the basis of unit prices as indicated on the Proposal. This shall be considered compensation in full for furnishing and installing all materials, equipment, and labor required to complete this project. The cost of any material, equipment, and labor required to complete the work, but not specifically included as a pay item shall be incidental to the Contract.

Subgrade Excavation shall be paid for at the Contract unit price per cubic yard excavated volume (EV) any sub-base grading as measured by cross-sectional area. Deletion or reduction of the quantity as shown in the plans shall not be cause for increase in unit prices or Contract amount.

Select Granular Borrow shall be paid for at the Contract unit price per cubic yard compacted (CV) volume for material placed as part of the pavement section and shown in the typical section, to complete the work as shown on the Plans or as ordered by the

Engineer. Deletion or reduction of the quantity as shown in the plans shall not be cause for increase in unit price or Contract amount.

c. Traffic Signs

Traffic Signs shall be paid for on a per each basis, and include all materials, and labor required to install as per Section 19 of Grading, Landscape and Traffic Control.

d. Traffic Control Devices

Traffic Control shall be paid for on a lump sum basis, and include all materials, and labor required to furnish, install, and maintain as per Section 20 of Grading, Landscape and Traffic Control for the duration of the projects or as required.

[END OF GRADING, LANDSCAPING & TRAFFIC CONTROL]