

**SPECIFICATIONS
FOR
CONCRETE CURB AND FLATWORK
CITY OF MAPLE GROVE, MINNESOTA**

**TABLE OF CONTENTS
JANUARY 2021**

<i>TABLE OF CONTENTS</i>	<i>PAGE #</i>
SECTION 1 - GENERAL	1
SECTION 2 - LOCATION	1
SECTION 3 - SCOPE OF WORK	1
SECTION 4 - CONCRETE.....	1
SECTION 5 - AGGREGATE BASE MATERIAL.....	2
SECTION 6 - FORMS	2
SECTION 7 - CONCRETE FLATWORK.....	3
SECTION 8 - PEDESTRIAN CURB RAMPS.....	3
SECTION 9 - CONCRETE PLACEMENT.....	4
SECTION 10 - JOINTS.....	5
SECTION 11 - FINISHING	6
SECTION 12 - CURING	6
SECTION 13 - REMOVE CURB AND GUTTER	7
SECTION 14 - CONCRETE SAWING.....	7
SECTION 15 - MECHANICAL CURB MACHINES.....	7
SECTION 16 - BASIS OF PAYMENT.....	8

- this page left intentionally blank -

**SPECIFICATIONS
FOR
CONCRETE CURB AND FLATWORK
CITY OF MAPLE GROVE, MINNESOTA**

1) GENERAL

The General Conditions and the Special Provisions and Conditions as embodied in these Contract Documents shall be applied to all work and materials to be furnished and installed under these specifications.

2) LOCATION

The concrete shall be constructed and installed under this contract located in the City of Maple Grove, Hennepin County, Minnesota, as shown on the drawings.

3) SCOPE OF WORK

This work includes the furnishing of all labor, material, tools and equipment to construct cast-in-place portland cement concrete as shown on the drawings and as specified herein.

Use of the term "Plans, Specifications and Special Provisions" within this specification will 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 will 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. will mean the latest published edition available on the date of advertisement for bids.

4) CONCRETE

Concrete will conform to the requirements of Minnesota Department of Transportation Specification 2301, 2461, 2521 and 2531, latest edition, subject to the mix design requirements. The Contractor will

provide concrete mix designs for its intended use according to MnDOT 2461.

The word City shall be substituted for the word State wherever it appears and shall mean the City of Maple Grove, Minnesota.

5) AGGREGATE BASE MATERIAL

The base for concrete will be constructed of material as shown on the plans and will be well drained, compacted with an approved vibratory compactor to a firm surface with a uniform bearing power, and pass all roll tests prior to concrete placement. Moisture content of the base will be obtained and maintained as specified. The surface of the base will be in a moist condition when the concrete is placed.

Base material under concrete driveway pavement, or under concrete sidewalks, or other concrete flatwork is considered incidental to the contract and is included with the unit price of the item. This includes, but is not limited to; Aggregate Base Class 5, and select granular borrow as called out in the typical section.

6) FORMS

Metal benders rather than a series of straight forms will be used for concrete sidewalk and curb and gutter on street returns, cul-de-sacs and/or where horizontal radii are prescribed. Ensure that forms used to shape back of curbs at returns have height at least equal to design thickness of pavement and curb height. Rigid forms will not be used on a radius of less than 150 feet.

Before placing the concrete, the inside of the forms will be clean and coated with an approved form coating material in accordance with MnDOT 3902. All forms will be set true to line and grade and securely braced prior to placing concrete.

The Contractor will adjust all catch basin castings which require adjustment (no wood shims, plastic shims, or rocks allowed). Payment for such adjustment will be at the contract unit price, which will be compensation in full for all costs incidental to the adjustment. When installing a new catch basin and/or casting assembly, the adjustment will be incidental.

The curb and gutter will be built to fit around any drainage structures which may be encountered. Normally, final adjustment of structures

will be made at the time the forms are set. The transitions from the regular curb and gutter sections will be constructed as directed by the Engineer. The exposed surface will be finished in the same manner as the regular curb and gutter sections.

7) CONCRETE FLATWORK

The Contractor shall provide 24 hour notice to the property owner before any driveway is blocked and give them sufficient time to move their vehicles. No driveway shall be blocked longer than necessary for construction and only as approved by the Owner.

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.

All driveways removed for construction purposes will be replaced to the pre-removal limits and will match the existing driveway material and finish. Unless a specific bid item is included in the contract, no extra payment will be made for matching the existing finish of a concrete driveway.

This work will consist of the construction of driveway pavement and aprons 6-inches in depth for residential driveways and 8-inches in depth for commercial driveways. Sidewalks through driveways shall be 6-inches.

Concrete driveway pavement will be poured within twelve (12) hours of the time the driveway apron is poured. This shall include any sidewalk panels and other concrete flatwork within the driveway footprint.

If an existing curb stop, new curb stop or sump drain clean out falls in a driveway, sidewalk or street, furnish and install a meter box consisting of a locking iron 8" lid over the cap.

8) PEDESTRIAN CURB RAMPS

This work consists of constructing 6" thick concrete pedestrian curb ramps with Truncated Dome Systems (detectable warning surfaces) in compliance with the Public Rights-of-Way Accessibility Guidelines (PROWAG). This work will be performed in accordance with the

applicable MnDOT Standard Specifications, the details in the Appendix, and the following:

The entire truncated dome area, typically 2 feet x 4 feet, will contrast visually from the adjacent walking surfaces. The truncated dome area will be a cast iron material, as manufactured by Neenah Foundry or approved from the MnDOT approved products list at <http://www.mnr.dot.state.mn.us/materials/materials.asp>.

Only approved products are allowed. Stamped concrete is not allowed. Detectable warning surfaces will be performed in accordance with MnDOT Standard Plate 7038A.

All truncated dome systems will be installed in strict accordance with the recommendations of the manufacturer. The installation protocol will include details regarding product specific construction requirements and how the system will be sealed to mitigate freeze/thaw damage through moisture intrusion. The Contractor will provide this information to the Engineer for approval two weeks prior to commencement of work.

No cutting of truncated domes will be allowed unless approved by the Engineer. No more than one cut dome per pedestrian ramp is allowed and any cut sections used shall not be less than 2 sq. ft of surface area. All cut edges shall be ground to a smooth surface leaving no sharp edges or burrs. If using coated colored truncated domes, they shall not be cut. Any swelling of the concrete that occurs around the truncated domes must be screeded off and the surrounding concrete shall be finished flush with the truncated dome plate edge. The finished installation of the truncated domes plates and the ramp surface plan shall have no surface deviations over 3/16 in. To ensure that the truncated domes are well seated in concrete, the Contractor should provide a 3 in minimum border around the edges of the truncated domes.

At the time of construction, all Truncated Dome Systems are specified to be in dimensional and alignment compliance with the requirements of the ADAAG as detailed in the Plan.

9) CONCRETE PLACEMENT

Concrete will be constructed in accordance with the provisions of MnDOT Specifications and as modified below:

The concrete will be placed promptly after mixing, and in a manner which will prevent any segregation of the mix. Concrete will be tamped and spaded or vibrated sufficiently to bring some mortar to the surface and until all voids are filled inside the concrete and no honeycombs will be evident upon removal of the forms. If honeycombs appear when forms are removed, it will be the decision of the Engineer if the concrete must be removed and replaced. Such removal and replacement will be at the Contractor's expense.

10) JOINTS

Contraction joints will be provided at eight (8) foot intervals on straight curb and at five (5) foot intervals on radius curb. All divided forms for contraction joints will be installed in curb forms so that the bottom of the divider plate is three (3) inches up from the bottom of the curb and gutter.

Joint sealing as specified in Minnesota Department of Transportation 2531 will not be required.

The Contractor will provide a half inch wide expansion joint at intervals not exceeding one hundred and fifty (150) feet. All expansion joint material will extend through the entire thickness of the curb and gutter and will be cut true to the shape of the section as shown in the detail drawing.

Expansion joints will be placed in curb and gutter at the beginning and end of all road and valley gutter radii, at catch basins, where curb and gutter abuts a stationary object, and at the back of the apron if the driveway material is concrete.

Align joints with adjoining work joints unless a ½-inch preformed isolation/expansion joint isolates the work. Place transverse joints at right angles to the centerline of the pavement unless otherwise required by the contract. Align joints with joints on the other side of the road where feasible.

Sidewalk joints will match existing sidewalk joint spacing. New sidewalk panel joints will be 5' apart and not to exceed 36 square feet (SF) per panel. All sidewalk joints will be saw cut to a depth of 1/3 of the slab thickness. Saw cutting of sidewalk contraction joints will be incidental.

When replacing a concrete driveway, the new construction joints in the apron will be of the hand tooled joint method. Any concrete

joints cut in a driveway or sidewalk, besides the apron, will match the existing joints prior to removal. This can include, but is not limited to equipment and labor for hand tooled joints and saw cut joints which will be considered incidental.

11) FINISHING

The Concrete Contractor, or Subcontractor, will have at least two people with a current ACI concrete flatwork technician or flatwork finisher certification, and at least one of them must be onsite for all concrete pours. The entire exposed surface of walks and curb and gutter will be finished smooth and even. The final product will be uniform and all joints and edges will be rounded with a suitable edging tool. No tool marks will be left on the exposed concrete. After the exposed concrete has been finished smooth and even with a trowel, it will then be followed by a light broom finish at right angle to the centerline of the street or match existing finish. Contractor will finish exposed aggregate surface concrete in accordance with MnDOT specifications.

12) CURING

Apply liquid curing compound in a fine spray to form a continuous, uniform film on the horizontal surface and vertical edges of pavement, walks, curbs, and back of curbs immediately after surface moisture has disappeared, but no later than 30 minutes after finishing. When forms are removed in less than 72 hours after placing the concrete, curing compound will be applied immediately or the trenches will be backfilled immediately with suitable materials. With approval of the engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties to ensure acceptable macro texture is achieved and bleed has evaporated.

Membrane curing compounds will be clear TK-DC WB 2519, AMS 3754 Clear or approved equal as directed by the Engineer. When tying into existing concrete surfaces, Contractor will use a curing compound that best matches existing coloration. Application rate will be 150 square feet (SF) per gallon. Apply homogeneously to provide uniform coverage on all exposed concrete surfaces. For full curb replacement, a white tinted cure shall be required.

The Contractor will protect the concrete from damage caused by inclement weather, vandalism, or freezing. Any replacement of

concrete damaged due to the negligence of the contractor for failure to protect the work will be considered incidental.

If the National Weather Service forecast for the construction area predicts air temperatures of 36 degrees Fahrenheit or less within the next 24 hours and the contractor wishes to place concrete, they will need to submit a cold weather protection plan.

Cold Weather Protection Plan will be submitted in writing to the engineer with a proposed time schedule and plans for cold weather concrete protection that provide provisions for adequately protecting the concrete during placement and curing. Do not place concrete until the engineer accepts the contractor's cold weather protection plans.

13) REMOVE CURB AND GUTTER

This work will consist of all labor, materials, and equipment necessary to remove existing concrete curb and gutter in areas shown in the plans or as directed by the Engineer. The dropping of concrete curb panels from removal equipment for the purposes of breaking the panels into smaller pieces is prohibited.

14) CONCRETE SAWING

The Contractor will saw cut at the marked location and remove the concrete. Initial saw cut operations per phase or project will utilize wet sawing techniques or approved equal to reduce the amount of dust created by sawing operations. Saw cut will be straight and cut full depth to provide easy removal and no damage to abutting concrete. Concrete sawing will be paid at the contract unit price per lineal foot. If damage is done to the abutting concrete it will be removed and replaced by the Contractor with no additional compensation.

15) MECHANICAL CURB MACHINE

Mechanical curb machines may be used to place curb and gutter by using an approved extrusion machine that will produce a finished curb meeting the standards, workmanship, and appearance that would be achieved by using metal forms. The same tolerances which apply using metal forms will apply to work done with curb machines.

When machine pouring curb, the termination point of a catch basin must have rebar inserted at least two-feet into the termination panel where the hand-formed curb panel is going to be poured against it.

16) BASIS OF PAYMENT

a. REMOVE CONCRETE CURB AND GUTTER

Payment will be by linear foot measured along the face of curb at the gutter line and will include all labor, materials and equipment required to remove concrete curb and gutter. Saw cutting required to remove concrete curb and gutter will be incidental to this item.

b. CONCRETE CURB AND GUTTER

Concrete curb and gutter will be paid for at the contract unit price per linear foot measured along the face of the curb at the gutter line including along the length of concrete driveway aprons. Payment will be compensation in full for all costs incidental to construction, including but not limited to: backfill, expansion fillers, and curing compound.

c. CONCRETE DRIVEWAY PAVEMENT/APRON

Concrete driveway pavement and aprons will be paid for at the contract unit price per square yard and will include final subgrade/subbase preparation, aggregate base, joints, surface curing, pavement protection, and boxout for fixtures. Measurement will be in square yards of concrete for each thickness of driveway: residential (6 inches) and commercial (8 inches). Aggregate base material required beneath concrete driveway pavement shall be considered in the cost of the concrete driveway pavement. Curb and gutter integral to concrete driveway aprons will be paid for under the appropriate concrete curb and gutter bid item. If required, the use of high-early concrete in the driveway pavement and apron will be considered incidental unless included as a separate bid item.

The concrete apron shall be paid as 6" concrete driveway pavement. This shall be measured from the back of the curb line.

d. SIDEWALK AND CONCRETE MEDIAN

Sidewalk and Concrete Median will be measured in square feet or square yards of concrete area per the proposal form and paid at the unit price per concrete area. Unit price includes, but not limited to,

final subgrade/subbase preparation, joints and sealing, surface curing and pavement protection, and boxouts for fixtures.

Sidewalk panels that go through a driveway shall be 6" thick for residential driveways, and 8" thick for commercial driveways.

e. PEDESTRIAN CURB RAMPS

Truncated domes shall be paid by the square foot. Square or rectangular truncated dome area will be measured by square foot. Radial truncated domes will be measured along the long chord and multiplied by two feet to compute square footage.

The portion of curb along the pedestrian ramp including the zero height shall be paid out of the associated concrete curb and gutter line item on a per linear foot basis. The concrete curb ramp including the landing shall be paid out of the 6" concrete sidewalk line item and paid out as a square foot or square yard as per the contract bid form.

[END CONCRETE CURB AND FLATWORK CONSTRUCTION]