

**ITEM 451 – REINFORCED CONCRETE PAVEMENT, AS PER PLAN**

WHEN THE ABOVE ITEM IS CALLED FOR ON THE PLANS, ALL APPLICABLE PROVISIONS OF ITEM 451, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN.

**451.02 – MATERIAL.**

THE "CLASS C" CONCRETE USED SHALL CONFORM TO THE REQUIREMENTS OF "ITEM 499 CONCRETE-GENERAL, AS PER PLAN". CURING MATERIAL SHALL BE 705.07 (TYPE 2). THE REINFORCING MESH FABRIC SHALL BE 6" x 12" (W5 x W4) OR 6" x 6" (W4 x W4) FOR RESIDENTIAL STREETS AND 6" x 12" (W8.5 x W4) FOR COMMERCIAL STREETS; ALL CONFORMING TO 709.10 AND BP-1.1.

**451.08 – JOINTS.**

(A) LONGITUDINAL JOINT. A 5/16 ± 1/16 INCH JOINT WIDTH SHALL BE PROVIDED IN ALL CASES.

LONGITUDINAL BUTT (CONSTRUCTION) JOINTS SHALL BE TIED AS FOLLOWS:

- (1) FOR FORMED CONSTRUCTION, SECURELY FASTEN HOOK BOLTS (OR WIGGLE BOLT ALTERNATES) WITH COUPLINGS TO THE FORM AT THE LONGITUDINAL CONSTRUCTION JOINT AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-2.1.
- (2) FOR SLIP FORMED CONSTRUCTION, THE METHODS DETAILED/DESCRIBED ON BP-2.1 (TYPE D JOINT) SHALL BE USED UNLESS OTHERWISE DIRECTED/APPROVED BY THE ENGINEER.

(B) IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE DOWEL BASKET ASSEMBLIES ARE STABLE AND HELD FIRMLY IN PLACE.

(C) EXPANSION JOINT IN ADDITION TO THE INTERSECTION AND CUL-DE-SAC LOCATIONS DETAILED ON SHEET 2 OF 4, EXPANSION JOINTS SHALL BE PROVIDED AT THE PC AND/OR PT LOCATION OF HORIZONTAL CURVES WITH RADII LESS THAN FIVE HUNDRED (500) FEET; ALL AS SHOWN IN THE PLANS AND/OR DIRECTED BY THE ENGINEER.

(D) CONTRACTION JOINT. UNLESS OTHERWISE SHOWN ON THE PLANS, CONTRACTION JOINTS SHALL BE TYPICALLY SPACED AT 20'-0" CENTERS. MINOR ADJUSTMENTS IN JOINT SPACING MAY BE REQUIRED TO MEET DRAINAGE STRUCTURE BLOCKOUTS, OTHER SIMILAR PAVEMENT BLOCKOUTS, INTERSECTION JOINT SPACING, ETC. HOWEVER, IN NO CASE SHALL THE SPACING EXCEED 21'-0" OR TYPICALLY BE LESS THAN 15'-0" (10'-0" MINIMUM). A 5/16 ± 1/16 INCH JOINT WIDTH SHALL BE PROVIDED IN ALL CASES.

(E) CONSTRUCTION JOINT. PROVIDE A 5/16 ± 1/16 INCH WIDE BY 1-5/8 INCH DEEP KERFED JOINT OPENING FOR ALL CONSTRUCTION JOINTS.

**451.09 – FINISHING.**

THE SURFACE SHALL BE CONTINUALLY CHECKED FOR TRUENESS WITH LONG-HANDLED TEN (10) FOOT STRAIGHTEDGES TO ENSURE A SMOOTH RIDING SURFACE. THE STRAIGHTEDGE SHALL BE OPERATED PARALLEL TO THE CENTERLINE AND SHALL BE MOVED FORWARD NO MORE THAN ONE-HALF ITS LENGTH AFTER EACH PASS. IRREGULARITIES SHALL BE CORRECTED BY USING THE STRAIGHTEDGE WITH A SCRAPING MOTION TO REMOVE BUMPS AND EXCESS MORTAR FROM THE SURFACE WHILE THE CONCRETE IS PLASTIC. ALL DISTURBED AREAS SHALL BE STRAIGHTEDGED AGAIN. IF NOT SUITABLY CORRECTED AT THIS TIME (WHILE THE CONCRETE IS PLASTIC), THE CONTRACTOR WILL BE REQUIRED TO SUBSEQUENTLY CORRECT ALL REMAINING SURFACE VARIATIONS FOUND TO BE OUT OF TOLERANCE PER 451.12 AND 451.13, AS DIRECTED BY THE ENGINEER.

UNLESS OTHERWISE SPECIFIED, THE FINAL (TRANSVERSE) SURFACE TEXTURE OF THE PAVEMENT SHALL BE BROOM FINISHED, USING A BROOM OF APPROVED TYPE, NOT LESS THAN EIGHTEEN (18) INCHES IN WIDTH OF BASS OR BASSINE FIBER, NOT MORE THAN FIVE (5) INCHES IN LENGTH. THE STROKES SHALL BE EDGE TO EDGE OF THE SLAB, ONE STROKE PER WIDTH OF BROOM, WITH ADJACENT STROKES SLIGHTLY OVERLAPPED AND CORRUGATIONS APPROXIMATELY 1/16" IN DEPTH. BROOMS SHALL BE WASHED THOROUGHLY AT FREQUENT INTERVALS DURING EACH DAY. ANY COARSE OR LONG BRISTLES THAT CAUSE IRREGULARITIES SHALL BE TRIMMED OR REMOVED.

**451.101 – PROTECTION AGAINST RAIN.**

IN ORDER THAT THE CONCRETE MAY BE PROPERLY PROTECTED AGAINST THE EFFECTS OF RAIN BEFORE THE CONCRETE IS SUFFICIENTLY HARDENED, THE CONTRACTOR WILL BE REQUIRED TO HAVE AVAILABLE AT ALL TIMES MATERIALS FOR THE PROTECTION OF THE UNHARDENED CONCRETE SURFACE. SUCH PROTECTIVE MATERIALS SHALL CONSIST OF STANDARD COVERING MATERIAL SUCH AS BURLAP OR COTTON MATS, CURING PAPER OR PLASTIC SHEETING FOR THE PROTECTION OF THE PAVEMENT SURFACE. WHEN RAIN APPEARS IMMINENT, ALL PAVING OPERATIONS SHALL STOP, AND

ALL AVAILABLE PERSONNEL SHALL BEGIN COVERING THE SURFACE OF UNHARDENED CONCRETE WITH THE PROTECTIVE COVERING.

**451.12 – SURFACE SMOOTHNESS**

PAVEMENT SURFACE VARIATIONS SHALL NOT EXCEED 1/4 INCH IN TEN (10) FEET.

**451.151 – SEALING CONTRACTION, CONSTRUCTION AND LONGITUDINAL JOINTS.**

AS SOON AS FEASIBLE AFTER COMPLETING SAWING, BUT BEFORE THE PAVEMENT IS OPEN TO CONSTRUCTION EQUIPMENT AND TRAFFIC, SEAL ALL CONTRACTION, CONSTRUCTION AND LONGITUDINAL JOINTS. JUST BEFORE SEALING, THOROUGHLY CLEAN EACH JOINT OF ALL FOREIGN MATERIAL, USING APPROVED EQUIPMENT. ENSURE THE JOINT FACES ARE CLEAN AND DRY WHEN THE SEAL IS INSTALLED.

(A) CONTRACTION JOINTS AND CONSTRUCTION JOINTS. CONTRACTION AND CONSTRUCTION JOINTS SHALL BE SEALED WITH 705.04 JOINT SEALER IN AN ACCEPTABLY NEAT MANNER TO APPROXIMATELY 1/8" TO 1/4" BELOW THE PAVEMENT SURFACE. PLACE THE JOINT SEALER WITH PROPER EQUIPMENT TO OBTAIN A NEAT WORKMANLIKE JOINT, FREE FROM EXCESS AND UNSIGHTLY FILLER.

(B) LONGITUDINAL JOINTS LONGITUDINAL JOINTS SHALL BE NEATLY FILLED FLUSH TO THE SURFACE USING 705.04 JOINT SEALER. PLACE THE JOINT SEALER WITH PROPER EQUIPMENT TO OBTAIN A NEAT WORKMANLIKE JOINT, FREE FROM EXCESS AND UNSIGHTLY FILLER.

**ITEM 499 CONCRETE-GENERAL, AS PER PLAN**

**499.01 DESCRIPTION.**

THESE MODIFICATIONS PERTAIN TO THE PROPORTIONING AND MIXING OF PORTLAND CEMENT CONCRETE FOR ALL PAVEMENT (451), CURB (609) AND SIDEWALK (608) USED.

**499.02 – MATERIAL.**

USE OF SLAG MODIFIED PORTLAND CEMENT (701.09), GROUND GRANULATED BLAST FURNACE SLAG (701.11) OR FLY ASH (701.13) IS NOT PERMITTED.

**499.03 – PROPORTIONING.**

FOR INTEGRAL CONCRETE CURB (609) AND FOR CONCRETE PAVEMENT (451), "CLASS C" CONCRETE USING NO. 7, NO. 78 OR NO. 8 SIZE (TABLE 499.03-3) COARSE AGGREGATE OR USING NO. 57 OR NO. 67 SIZE (TABLE 499.03-2) COARSE AGGREGATE IS REQUIRED.

FOR CONCRETE WALK ITEMS (608), "CLASS C" CONCRETE USING NO. 7, NO. 78 OR NO. 8 SIZE (TABLE 499.03-3) COARSE AGGREGATE IS REQUIRED.

ASSURE/CERTIFY THAT THE REQUIREMENTS OF 499.03 (C.2) ARE STRICTLY FOLLOWED. ADJUST THE CONCRETE TABLE DESIGN WEIGHTS TO COMPENSATE FOR THE MOISTURE CONTAINED IN THE COARSE AND FINE AGGREGATES AT THE TIME OF USE. ADJUST THE AMOUNT OF WATER USED BASED ON THE MOISTURE CONTAINED IN THE AGGREGATES AND THE MOISTURE THAT THE AGGREGATES WILL ABSORB.

**499.04 – PROPORTIONING OPTIONS.**

PROPORTIONING OPTIONS ARE NOT PERMITTED AND THEREFORE THIS SECTION (499.04) IS HEREBY DELETED IN ITS ENTIRETY.

**499.05 – ADDITIONAL CLASSES OF CONCRETE FOR RIGID REPLACEMENT.**

WHERE CLASS FS AND/OR CLASS MS CONCRETE IS APPROVED FOR USE, THE REQUIREMENTS STATED SHALL BE IN ADDITION TO THE MODIFIED REQUIREMENTS OF 499.03 ABOVE.

**499.08 – BATCH PLANT TICKETS**

IN ADDITION TO ALL REQUIREMENTS OF 499.08, THE BATCH PLANT TICKETS MUST DISTINCTLY REFLECT ALL REQUIREMENTS STATED ABOVE IN SECTIONS 499.02 AND 499.03.

**ITEM 608 – 4" CONCRETE WALK, AS PER PLAN**

THE "CLASS C" CONCRETE USED SHALL CONFORM TO THE REQUIREMENTS OF "ITEM 499 CONCRETE-GENERAL, AS PER PLAN". ALL CONCRETE WALK SHALL BE A MINIMUM OF FOUR (4) INCHES THICK AND HAVE A TWO (2) INCH COMPACTED SCREENINGS BED WHICH MEETS THE REQUIREMENTS OF 703.10 (LIMITED TO CRUSHED STONE). IN ADDITION TO THE LOCATIONS SPECIFIED UNDER 608.03(C), TRANSVERSE EXPANSION JOINT FILLER (705.03) SHALL BE CONSTRUCTED AT INTERVALS OF NOT MORE THAN TWENTY-FIVE (25) TO THIRTY (30) FEET. FILLER SHALL BE PLACED AT THE TRANSVERSE DIVISION JOINTS FOR THE FULL DEPTH/WIDTH OF THE CONCRETE WALK AND SHALL BE TRULY NORMAL TO GRADE. THE FINAL SURFACE SHOULD BE TEXTURED BY USE OF AN ACCEPTED BROOM SO AS TO PRODUCE A UNIFORM, GRITTY, TRANSVERSE TEXTURE, AFTER WHICH THE CONTRACTOR IS REQUIRED TO RETRACE THE PREVIOUSLY FORMED JOINTS AND OUTSIDE EDGES OF WALK.

**ITEM 608 – CURB RAMP, TYPE A1, AS PER PLAN**

THIS WORK SHALL CONSIST OF CONSTRUCTING "AMERICANS WITH DISABILITIES ACT (ADA)" COMPLIANT CURB RAMPS IN ACCORDANCE WITH ODOT'S STANDARD CONSTRUCTION DRAWING BP-7.1 (EXCEPT AS MODIFIED HEREIN), AT THE LOCATIONS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

TYPICALLY, SIDEWALKS ARE TO BE EXTENDED AT INTERSECTIONS TO ALLOW FOR THE INSTALLATION OF "TYPE A1 CURB RAMPS" WITH 3:1 "FLARED SIDES" PER BP-7.1. SEE PAVEMENT DETAILS, SHEET NO. 2 OF 4, FOR TYPICAL INSTALLATION LOCATIONS AT INTERSECTIONS.

THE "CLASS C" CONCRETE USED SHALL CONFORM TO THE REQUIREMENTS OF "ITEM 499 CONCRETE-GENERAL, AS PER PLAN". THE CURB RAMP WALK AND TRUNCATED DOME CONCRETE BASE SHALL BE A MINIMUM OF SIX (6) INCHES THICK AND A TWO (2) INCH COMPACTED SCREENINGS BED (AS SPECIFIED UNDER "ITEM 608-4" CONCRETE WALK, AS PER PLAN) SHALL BE FURNISHED AND PLACED BENEATH ALL CURB RAMP AREAS. O.D.O.T. APPROVED TRUNCATED DOME MATERIAL(S)/PRODUCT(S) MUST ALSO BE PRE-APPROVED BY THE TOWNSHIP.

**ITEM 660 – SODDING UNSTAKED, AS PER PLAN**

THE PREPARATION OF SODDED AREAS SHALL INCLUDE TWO (2) INCHES OF TOPSOIL FURNISHED AND PLACED BENEATH THE SOD IN ACCORDANCE WITH ITEM 659.

**ITEM 659 – SEEDING AND MULCHING, AS PER PLAN**

WHEN THE ABOVE ITEM IS CALLED FOR ON THE PLANS, ALL APPLICABLE PROVISIONS OF ITEM 659, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN.

**659.07 SEEDS.** UNLESS OTHERWISE DIRECTED/APPROVED BY THE ENGINEER, HIGH QUALITY GERMINATION RATES ARE REQUIRED.

**659.09 NATIVE GRASSES AND WILD FLOWERS.** UNLESS OTHERWISE DIRECTED/ APPROVED BY THE ENGINEER, CLASS 1-LAWN MIXTURE SHALL BE USED.

**659.10 SITE PREPARATION.** IN ADDITION TO "AREAS IN FRONT OF RESIDENCES, COMMERCIAL PROPERTIES, ETC." REFERRED TO IN 659.10(A), THE SPECIAL PREPARATION SHALL BE EXTENDED TO ENCOMPASS ALL LAWNS AND/OR LAWN-LIKE AREAS AS DETERMINED BY THE ENGINEER. REMOVE ALL STONES 1-INCH OR GREATER BY APPROVED METHODS/EQUIPMENT SUCH AS "ROCK HOUNDING", RAKING, ETC.

**659.11 PLACING TOPSOIL.** TOPSOIL SHALL BE PLACED AND SPREAD TO A MINIMUM COMPACTED DEPTH OF TWO (2) INCHES. THE FINISHED TOPSOIL SURFACES SHALL BE SEEDED AND MULCHED WITHIN SEVENTY-TWO (72) HOURS OF THEIR ACCEPTED COMPLETION.

**659.13 MULCHING OPERATION.** UNLESS OTHERWISE DIRECTED OR APPROVED BY THE ENGINEER, STRAW MULCH (PER 659.14) OR COMPOST MULCH (PER 659.16) SHALL BE USED.

**659.17 WATERING.** IN ADDITION TO THE REQUIREMENTS OF 659.17, THE SEED BED SHALL BE KEPT ACCEPTABLY MOIST UNTIL THE SEED HAS GERMINATED; ALL AT THE DIRECTION OR APPROVAL OF THE ENGINEER.

IN ADDITION TO THE "ITEM 659-SEEDING AND MULCHING, AS PER PLAN" AND THE "ITEM 659-TOPSOIL" WORK SPECIFIED ABOVE, THE FOLLOWING ITEMS/WORK SHALL BE PERFORMED, AS NECESSARY:

- ITEM 659 – SOIL ANALYSIS TEST, ITEM 659 – COMMERCIAL FERTILIZER, ITEM 659 – LIME, ITEM 659 – WATER, AND ITEM 659 – MOWING.

**DUST CONTROL**

THE CONTRACTOR SHALL FURNISH AND APPLY ITEM 616 WATER AND ITEM 616 CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.

**MONUMENT ASSEMBLIES**

AT THE LOCATIONS SHOWN ON THE PLANS, MONUMENT ASSEMBLIES CONFORMING TO THE CUYAHOGA COUNTY ENGINEER'S CONSTRUCTION DRAWING MB-2C SHALL BE ENTIRELY INSTALLED, INCLUDING THE "MONUMENT PIN", BY THE CONTRACTOR UNDER THE SUPERVISION OF A LICENSED SURVEYOR.

**CUYAHOGA COUNTY ENGINEER**

**MINIMUM CONSTRUCTION STANDARDS FOR TOWNSHIP SUBDIVISION STREETS (LOCAL) TYPE 451 PAVEMENT**

DATE
08-07-97
05-18-00
06-28-00
08-15-00
11-05-01
09-29-03
12-05-05
08-28-07
10-10-08

**STANDARD CONSTRUCTION DRAWING DWG. NO. 4 OF 4**