PAVING NOTES

GENERAL NOTES

1. EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS. TREE ROOTS SHALL BE COMPLETELY REMOVED.
2. EXCAVATE TO THE DEPTH OF THE FINAL SUBGRADE ELEVATION TO ALLOW FOR GRADE CHANGES AND THE PLACEMENT OF THE RECOMMENDED PAVEMENT SYSTEM.
3. THE PAVEMENT SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. THE FINAL SUBGRADE SHALL BE THOROUGHLY PROOF-ROLLED IN THE PRESENCE OF A GEOTECHNICAL/PAVEMENT ENGINEER TO DETERMINE STABILITY. LOOSE OR YIELDING AREAS WHICH CANNOT BE MECHANICALLY STABILIZED SHALL BE REMOVED AND REPLACED WITH CLASS II SAND OR AS DIRECTED BY THE ENGINEER. ALL FILL MATERIAL AND BASE MATERIAL SHALL BE TESTED AND ITS COMPACTION AND SUITABILITY FOR ACCEPTANCE OF THE BASE MATERIAL AND PAVEMENT SHALL BE CERTIFIED BY SAID TESTING FIRM. THE OWNER SHALL SUPPLY THREE COPIES OF GEOTECHNICAL REPORTS TO MACOMB TOWNSHIP.
4. IF IN THE OPINION OF THE INSPECTOR/ENGINEER, FIELD CONDITIONS WARRANT ADDITIONAL TESTING, THE DEVELOPER SHALL ARRANGE FOR AND PAY FOR ALL REQUIRED ADDITIONAL TESTING.
5. 21AA AGGREGATE BASE SHALL BE COMPACTED TO ACHIEVE A 95% COMPACTION LEVEL (MODIFIED PROCTOR – ASTM D 1557-91) (98% COMPACTION REQUIRED BELOW HMA PAVEMENTS). THE BASE SHALL EXTEND A MINIMUM OF 2 FEET BEYOND THE BACK OF CURB OR THE PAVED EDGE.
6. CONCRETE AND ASPHALT PAVEMENT TESTING SHALL BE REQUIRED FOR ALL PROJECTS.
7. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF MACOMB TOWNSHIP, THE MACOMB COUNTY DEPARTMENT OF ROADS (MCDOR), AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION.
8. FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LIKEWISE ARRANGE FOR ALL INSPECTION.
9. 1.0 INCH AND 2.0 INCH EXPANSION JOINTS SHALL BE INSTALLED PER MCDOR STANDARDS.
10. FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 95% OF THE MAXIMUM DRY DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.
11. 6" UNDER DRAIN WRAPPED IN GEOTEXTILE FABRIC FILTER SHALL BE INSTALLED ON BOTH SIDES OF ALL ROADWAYS. ALSO, PLACE UNDER DRAINS AT ALL DRAINAGE STRUCTURES WITHIN PARKING AREAS (SEE UNDERDRAIN DETAILS SHEET 2 OF 2).
12. CONSTRUCTION TRAFFIC SHALL BE MINIMIZED ON THE NEW BITUMINOUS PAVEMENT. IF CONSTRUCTION TRAFFIC IS ANTICIPATED ON THE PAVEMENT STRUCTURE, SUBJECT TO MACOMB TOWNSHIP AND MCDOR APPROVAL, THE PLACEMENT OF THE FINAL LIFT SHALL BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED BY THE DEVELOPER. PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE PLANS.
13. THESE DETAILS ARE SUPPLEMENTAL TO THE MACOMB COUNTY DEPARTMENT OF ROADS (MCDOR) ROAD PAVING STANDARD DETAILS SHEETS 1 & 2.
14. ALL ROAD PAVING WITHIN THE TOWNSHIP SHALL COMPLY WITH THE MCDOR PAVING STANDARD DETAILS UNLESS OTHERWISE NOTED ON THE PLANS OR ON THIS SUPPLEMENTAL DETAIL SHEET.
15. NO BITUMINOUS PAVEMENT IS PERMITTED FOR ROADS WITHIN PLATTED SUBDIVISIONS OR SITE CONDOMINIUMS (MCDOR PAVING STANDARD DETAILS 1B & 2B).

CONCRETE PAVEMENT

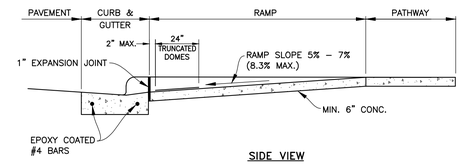
1. CONCRETE SHALL CONSIST OF:
   PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MAXIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI AND A SLUMP OF 1½ TO 3 INCHES. PAVEMENT SHALL CONFORM TO M.D.O.T. GRADE P1. CONCRETE MIXES SHALL BE DESIGNED TO MITIGATE ASR IN ACCORDANCE WITH ASTM 1260, ASTM 1293, OR ASTM 1567.
2. ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION.
3. THE CONCRETE BATCH PLANT SHALL BE M.D.O.T. CERTIFIED WITH LOCATION APPROVED BY THE TOWNSHIP BOARD AND MCDOR.
4. NO CONCRETE PAVING SHALL BE ALLOWED PRIOR TO MAY 1, OR AFTER NOVEMBER 1 (UNLESS APPROVED BY MDOT, MCDOR OR MACOMB TOWNSHIP).
5. AIR TEMPERATURE AT POINT OF PLACEMENT, AWAY FROM ARTIFICIAL HEAT SHALL BE MINIMUM 25° F AND RISING.
6. TEMPERATURE OF CONCRETE AT TIME OF PLACEMENT SHALL BE BETWEEN 45° F AND 90° F.

BITUMINOUS PAVEMENT

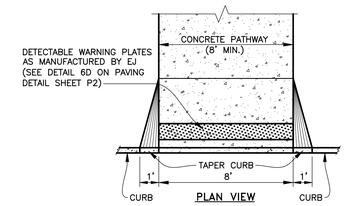
1. BITUMINOUS MIXTURE FOR INDUSTRIAL PARKING LOTS SHALL CONSIST OF: BASE COURSE – MDOT BITUMINOUS MIXTURE NO. 2C; LEVELING COURSE – MDOT BITUMINOUS MIXTURE NO. 3C OR 4E1; WEARING COURSE – MDOT BITUMINOUS MIXTURE NO. 4C OR 5E1; ASPHALT PERFORMANCE GRADE PG 64-22 RECLAIMED ASPHALT PAVEMENT (RAP) SHALL NOT BE ALLOWED IN THE TOP COURSE.
2. FOR PRIVATE RESIDENTIAL ROADWAYS MDOT BITUMINOUS MIXTURE 5E1/4E1, AND/OR 36A/13A MAY BE USED, WITH APPROVAL FROM THE TOWNSHIP ENGINEER.
3. ALL BITUMINOUS MATERIAL SHALL BE COMPACTED TO A DENSITY OF 97% OF THE FIELD CONTROL DENSITY AS DETERMINED BY THE MARSHALL METHOD.
4. A BOND COAT OF SS-1H EMULSION IS REQUIRED BETWEEN THE BASE COURSE AND LEVELING COURSE AND BETWEEN THE LEVELING COURSE AND WEARING COURSE WHEN EITHER 48 HOURS HAVE ELAPSED BETWEEN PLACEMENT OF THE BITUMINOUS COURSES OR THE SURFACE OF THE PAVEMENT HAS BEEN CONTAMINATED WITH DIRT, DUST, OR FOREIGN MATERIAL. THE BOND COAT SHALL BE APPLIED IN A UNIFORM MANNER OVER THE SURFACE AT A RATE OF 0.10 GALLON/S.Y. (BETWEEN LEVELING COURSE AND BASE COURSE & 0.05 GALLON/SY BETWEEN WEARING COURSE AND LEVELING COURSE) THE COATS MAY DIFFER. IN THE EVENT A BOND COAT IS NOT REQUIRED, THE LEVELING COURSE MAY REQUIRE LOCALIZED BROOM CLEANING.
5. DO NOT PLACE HMA OR APPLY BOND COAT WHEN PRECIPITATION IS IMMINENT OR WHEN MOISTURE ON THE EXISTING SURFACE WILL PREVENT SATISFACTORY CURING. UNLESS OTHERWISE APPROVED BY THE ENGINEER IN WRITING, TEMPERATURE AND SEASONAL REQUIREMENTS FOR PLACING HMA WILL BE ACCORDING TO SECTION 5.01.03.I OF THE CURRENT MDOT SPECIFICATIONS. PAVING WILL NOT BE ALLOWED BELOW THESE MINIMUM TEMPERATURES, NOR WHEN FROST IS ON OR IN THE GRADE OR ON THE EXISTING SURFACE.

CONCRETE PATHWAY NOTES

1. FOR CONCRETE PATHWAY PROVIDE TRANSVERSE PLANE OF WEAKNESS SAW CUT JOINTS AT APPROXIMATELY 8' INTERVALS. SAW ⅛" WIDE x 1" DEEP JOINTS AND DO NOT SEAL THE JOINTS. TOOLED JOINTS ARE NOT ACCEPTABLE.
2. PROVIDE FULL DEPTH TRANSVERSE EXPANSION JOINTS, BY INSTALLING ½" THICK PREMOLDED JOINT FILLER SET ¼" BELOW THE SURFACE OF THE CONCRETE IN THE JOINTS AT 50' INTERVALS (MAX.).
3. PLACE ½" FIBER EXPANSION JOINT FILLERS AT EACH SIDE OF DRIVE.
4. PROVIDE 1" FIBER EXPANSION JOINT FILLERS AT CURB AND BUILDING OR R.O.W. LINE.
5. AT DRIVEWAYS WITH CURB & GUTTER, PROVIDE CURB DROP PER MDOT STANDARDS.
6. AT UNPAVED DRIVE OR PAVED DRIVE WITH POOR CONDITION, INCREASE THE SLAB THICKNESS TO 6" OR EXISTING SLAB THICKNESS WHICHEVER IS GREATER.
7. PROVIDE 10' BETWEEN EDGE OF PATHWAY TO TOP OF BANK FOR DETENTION BASINS, OPEN DRAINS, ETC.
8. ADJACENT FINISHED GRADE SHALL BE SET 2" BELOW TO ACCOMMODATE SOD.
9. THE MAXIMUM GRADE ALONG PATHWAY SHALL NOT EXCEED 1 ON 12.
10. PROVIDE 2% MAXIMUM CROSS SLOPE FOR DRAINAGE OFF AND AWAY FROM PATHWAY AND GRADED SHOULDERS.
11. PROVIDE 95' MINIMUM CENTER LINE RADII FOR PATHWAY HORIZONTAL ALIGNMENT.
12. PROVIDE A MINIMUM OF 3' HORIZONTAL CLEARANCE AND 10' VERTICAL CLEARANCE FROM ALL FIXED OBJECTS AND THE EDGE OF PATHWAY SURFACE. RELOCATE EXISTING OBJECTS (I.E. MAIL BOXES, SIGNS, ETC.), IF REQUIRED.
13. PROVIDE HANDICAP ACCESSIBLE RAMPS AT EXISTING PAVED DRIVEWAYS IN GOOD CONDITION AND AT STREET INTERSECTIONS.
14. PATHWAY RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDOT STANDARDS AND SHALL BE A MINIMUM OF 8' WIDE.
15. A CLEAN SAW CUT JOINT SHALL BE PROVIDED WHEREVER NEW PAVEMENT MATCHES EXISTING PAVEMENT.
16. UTILITY STRUCTURES SHALL BE ADJUSTED IN ACCORDANCE WITH MACOMB TOWNSHIP STANDARDS AND SHALL MATCH THE PROPOSED GRADE OF THE PATHWAY.



SIDE VIEW



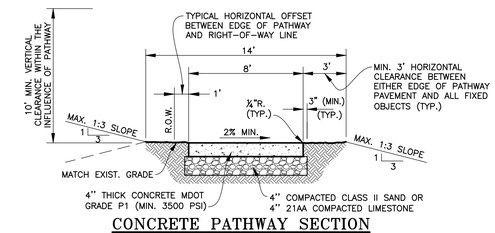
PLAN VIEW

FRONT VIEW

STREET/PATHWAY INTERSECTION DETAIL

DETAIL – 2A

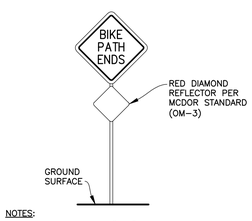
NOT TO SCALE



CONCRETE PATHWAY SECTION

DETAIL – 2B

NOT TO SCALE



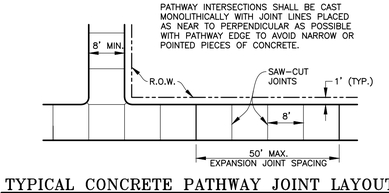
NOTES:

1. SIGNS SHALL BE 18"x18" AND CONSTRUCTED OF 0.63 ENGINEERING GRADE REFLECTIVE ALUMINUM WITH 1½" RADIUS AT CORNERS.
2. SIGNS SHALL HAVE A YELLOW BACKGROUND WITH BLACK COPY AND BLACK OUTLINE.
3. SIGN POST AND FASTENERS SHALL BE LOCATED PER M.M.U.T.C.D. (MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.

CONCRETE PATHWAY SIGNAGE

DETAIL – 2C

NOT TO SCALE

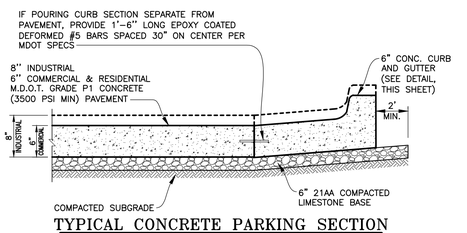


TYPICAL CONCRETE PATHWAY JOINT LAYOUTS

DETAIL – 2D

NOT TO SCALE

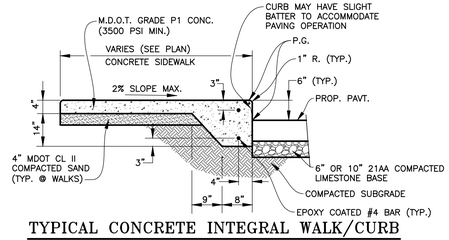
CONCRETE PATHWAY DETAILS – 2



TYPICAL CONCRETE PARKING SECTION

DETAIL – 1A

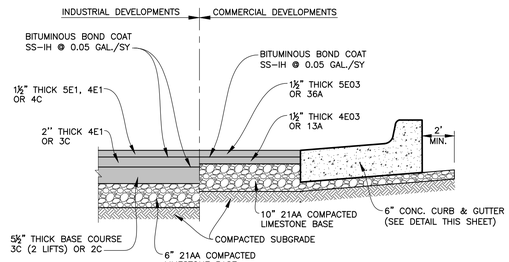
NOT TO SCALE



TYPICAL CONCRETE INTEGRAL WALK/CURB

DETAIL – 1B

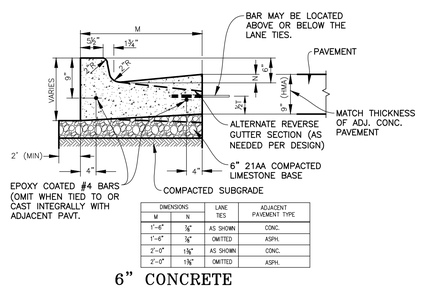
NOT TO SCALE



TYPICAL BITUMINOUS PARKING SECTION

DETAIL – 1C

NOT TO SCALE



DIMENSIONS		LANE TIES	ADJACENT PAVEMENT TYPE
M	N		
1'-6"	⅜"	AS SHOWN	CONC.
1'-6"	⅜"	OMITTED	ASPH.
2'-0"	1⅛"	AS SHOWN	CONC.
2'-0"	1⅛"	OMITTED	ASPH.

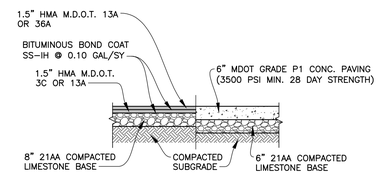
6" CONCRETE CURB & GUTTER DETAIL

(FOR RESIDENTIAL, COMMERCIAL & INDUSTRIAL PARKING AREAS)

DETAIL – 1D

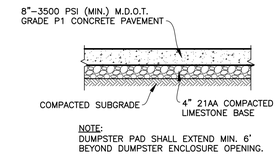
NOT TO SCALE

TYPICAL PARKING AREA PAVEMENT & CURB DETAILS – 1



16' WIDE MAINTENANCE DRIVEWAY DETAIL – 3

NOT TO SCALE



NOTE:
DUMPSTER PAD SHALL EXTEND MIN. 6' BEYOND DUMPSTER ENCLOSURE OPENING.

8" CONCRETE DUMPSTER PAD DETAIL – 4

NOT TO SCALE

MACOMB TOWNSHIP
54111 BROUGHTON ROAD
MACOMB, MI 48042

586-992-0710

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
For free location of public utility lines

NOTE: UTILITY INFORMATION ON THIS DRAWING MAY BE FROM INFORMATION DISCLOSED TO THIS FIRM BY THE VARIOUS UTILITY COMPANIES, CITY/COUNTY AGENCIES AND OTHER VARIOUS SOURCES. UNDERGROUND UTILITIES WHICH ARE ON PRIVATE PROPERTY ARE USUALLY NOT DELINEATED UPON A UTILITY COMPANY'S PUBLISHED PLANS. THEIR LOCATION, IF SHOWN UPON THIS SURVEY, ARE APPROXIMATED FROM FOUND PAINT MARKS/STAKES, ETC. AS LOCATED BY THIS FIRM FROM SOURCES WHICH ARE UNKNOWN. NO GUARANTEE IS GIVEN AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING UTILITIES (IN CONFLICT WITH PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. CALL MISS DIG 3 WORKING DAYS PRIOR TO CONSTRUCTION.

TOWNSHIP OF MACOMB

PAVING STANDARD DETAILS
(1 OF 2)

TOWN 3 NORTH RANGE 13 EAST
MACOMB TOWNSHIP
MACOMB COUNTY

NO.	DATE	REVISION
1	10-15-14	SHEET UPDATE
2	11-06-15	SHEET UPDATE
3	03-28-16	SHEET UPDATE
4	10-14-16	SHEET UPDATE
5	01-24-17	SHEET UPDATE
6	08-20-18	SHEET UPDATE

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.	DRAWING NO.
	MA-DET-PAV
SCALE: N.T.S.	SHEET NO. P1

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