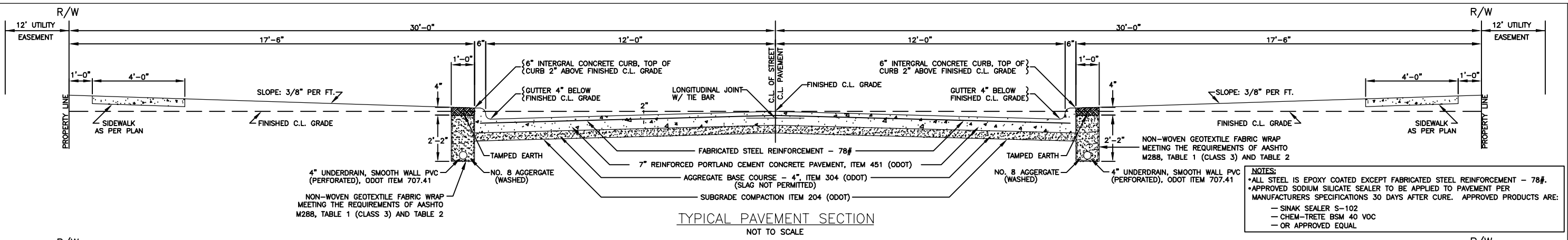


CITY OF NORTH ROYALTON – STANDARD CONCRETE NOTES

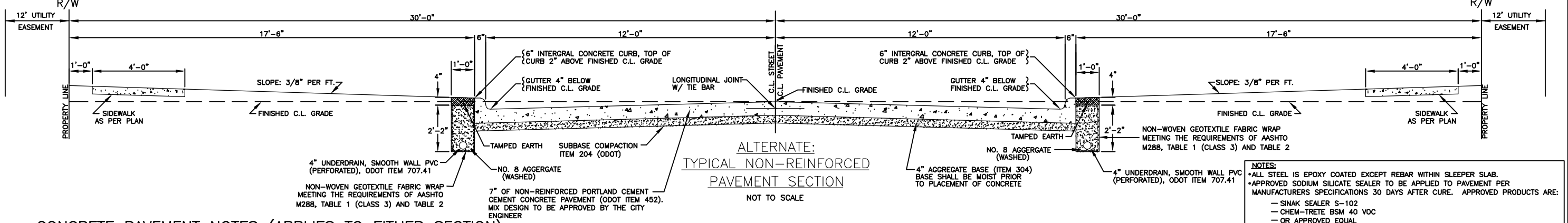
All materials and workmanship shall conform to the latest State of Ohio Department of Transportation (ODOT) Construction and Materials Specifications as well as the Codified Ordinances of North Royalton, Ohio. If there is a discrepancy between the two, the City Engineer of North Royalton shall make a final ruling.

A copy of concrete mix designs must be submitted for approval to the City Engineer forty-eight (48) hours prior to commencement of ANY concrete installation. The concrete mix designs submitted for approval must include, but are not limited to the following: sleeper slab concrete, slip form paver concrete, and any handwork concrete.

1. All work to be performed under FULL TIME inspection by the City of North Royalton or its designated representative.
2. Opening of pavement to traffic to be determined by 600 P.S.I. beam test (for early opening due to additional construction traffic) and 4,000 P.S.I. cylinder test (7 days and 28 days breaks) for all other traffic.
3. All concrete delivery tickets must identify the batch weights and contents and must conform to the specifications as outlined in ODOT 499.08, EXCEPT; the City of North Royalton will only accept concrete delivery batch tickets which have been generated from an automated and computerized concrete batching system. Hand written, computer typed or computer printed delivery tickets will not be accepted.
4. Air entrainment shall be 5.5% to 8% (Increased from the ODOT 6% +/- 2%).
5. The testing of concrete slump, air entrainment and temperature is to be executed on three of the first six trucks to establish that the concrete is within the required specifications. Thereafter, in addition to the required testing increments, random slump, entrained air content and temperature testing will be executed to confirm continual compliance of the specifications.
6. Four (4) sample cylinders are to be cast for each twenty-five cubic yards (25 CY) of concrete installed, (two-7 day breaks and two-28 day breaks).
7. At all intersections and apron areas, a beam will be cast in addition to the cylinders every twenty-five cubic yards (25 CY) installed in addition to any beams that plan to be cast by the contractor.
8. There is to be NO WATER ADDED ON-SITE to the concrete. One person, the Paving Company's authority on site, in the presence of the City's observer may direct water to be added and mixed, if determined necessary (not to exceed maximum water-cement ratio, air entrainment and slump). This will be noted in the inspection report and additional testing may be performed on the water added truck.
9. If a concrete truck arrives or becomes "out-of-spec", (for whatever reason), and would require rejection, the City of North Royalton Engineer will direct. If the City Engineering Office is closed or in unavailable, it will be the inspection representative's decision to reject, after all efforts have been attempted to bring the concrete within specifications.
10. All concrete trucks are required to "wash-out" in the approved concrete wash-out pit or suitable self-contained container.
11. Sub grade to be compacted and tested to 98% to 100% of Dry Density Proctor. Moisture content to be optimum +/- 2.
12. When a joint fails within five (5) feet or, or contacts basins, manholes or other structures, shorten one or more slabs either side of opening to permit the joint to fall on round structures and at or between corners of rectangular structures, NOTE: All steels is epoxy coated.
13. All soft and yielding material and other portions of the subgrade which will not compact readily when rolled or tamped shall be removed as directed by the City Engineer and replaced with suitable material placed and compacted.
14. Sawed or hand formed joints to be sealed with ODOT Item 705.04, hot applied joint sealer.
15. If an existing underdrain (curb drain) is removed or disturbed, replacement shall conform to the following: 4" underdrain, solid wall PVC (perforated), ASTM F-758. Non-woven geotextile fabric wrap meeting the requirements of AASHTO M288, Table 1 (class 3) and Table 2. 8" aggregate washed.



NOTES:
 • ALL STEEL IS EPOXY COATED EXCEPT FABRICATED STEEL REINFORCEMENT - 78#.
 • APPROVED SODIUM SILICATE SEALER TO BE APPLIED TO PAVEMENT PER MANUFACTURERS SPECIFICATIONS 30 DAYS AFTER CURE. APPROVED PRODUCTS ARE:
 - SINAK SEALER S-102
 - CHEM-TRETE BSM 40 VOC
 - OR APPROVED EQUAL



NOTES:
 • ALL STEEL IS EPOXY COATED EXCEPT REBAR WITHIN SLEEPER SLAB.
 • APPROVED SODIUM SILICATE SEALER TO BE APPLIED TO PAVEMENT PER MANUFACTURERS SPECIFICATIONS 30 DAYS AFTER CURE. APPROVED PRODUCTS ARE:
 - SINAK SEALER S-102
 - CHEM-TRETE BSM 40 VOC
 - OR APPROVED EQUAL

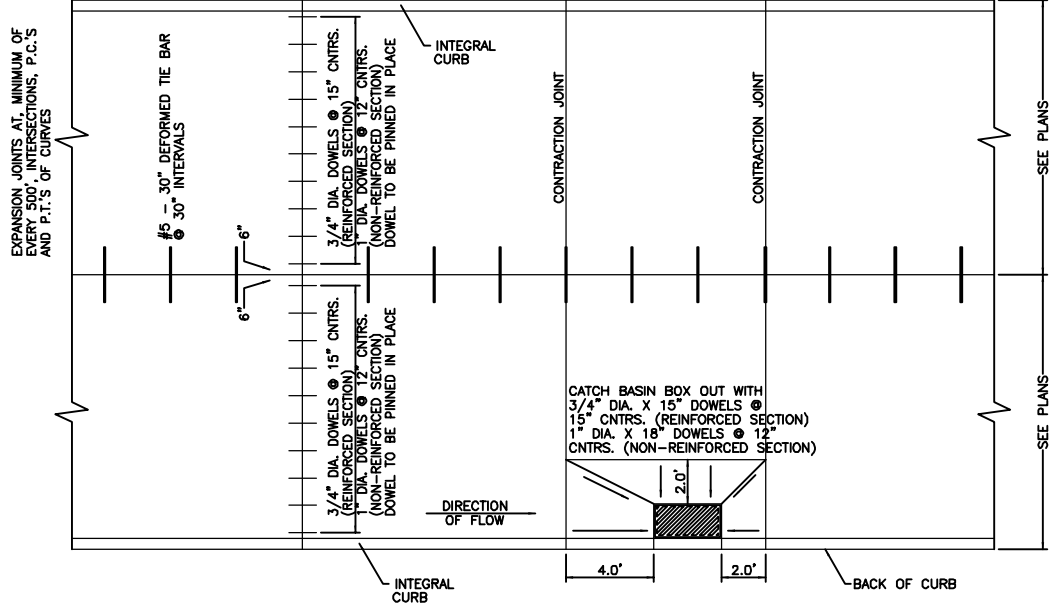
CONCRETE PAVEMENT NOTES (APPLIES TO EITHER SECTION):

ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIALS SPECIFICATIONS (CMS) AS WELL AS THE CODIFIED ORDINANCES OF NORTH ROYALTON, OHIO. IF THERE IS A DISCREPANCY BETWEEN THE TWO, THEN THE STRICTEST REQUIREMENT SHALL TAKE PRECEDENT. THE CITY ENGINEER OF NORTH ROYALTON SHALL MAKE THE FINAL RULING.

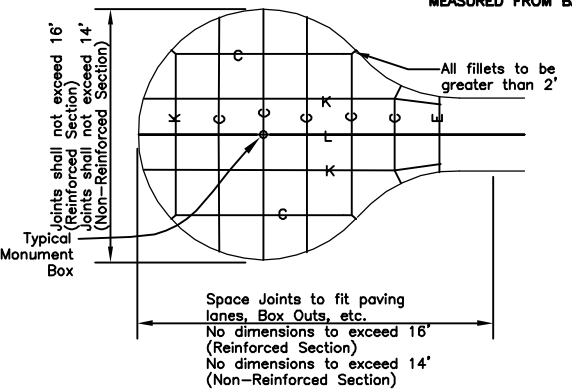
A COPY OF CONCRETE MIX DESIGNS MUST BE SUBMITTED FOR APPROVAL TO THE CITY ENGINEER FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY CONCRETE INSTALLATION. THE CONCRETE MIX DESIGNS SUBMITTED FOR APPROVAL MUST INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: SLEEPER SLAB CONCRETE, SLIP FORM PAVER CONCRETE, AND ANY HANDWORK CONCRETE.

1. ALL WORK TO BE PERFORMED UNDER FULL TIME INSPECTION BY THE CITY OF NORTH ROYALTON OR ITS DESIGNATED REPRESENTATIVE.
2. OPENING OF PAVEMENT TO TRAFFIC TO BE DETERMINED BY 600 P.S.I. BEAM TEST (FOR EARLY OPENING DUE TO ADDITIONAL CONSTRUCTION TRAFFIC) AND 4,000 P.S.I. CYLINDER TEST (7 DAY AND 28 DAY BREAKS) FOR ALL OTHER TRAFFIC.
3. AIR ENTRAINMENT SHALL BE 5.5% TO 8%, (INCREASED FROM THE ODOT 6% +/- 2%).
4. THE TESTING OF CONCRETE SLUMP, AIR ENTRAINMENT AND TEMPERATURE IS TO BE EXECUTED ON THREE OF THE FIRST SIX TRUCKS TO ESTABLISH THAT THE CONCRETE IS WITHIN THE REQUIRED SPECIFICATIONS. THEREAFTER, RANDOM SLUMP, AIR AND TEMPERATURE TESTING WILL BE EXECUTED TO CONFIRM CONTINUAL COMPLIANCE OF THE SPECIFICATIONS.
5. CONCRETE BATCH PLANT TICKETS SHALL CONFORM TO ODOT CMS 499.08, EXCEPT THAT ONLY COMPUTER GENERATED TICKETS SHALL BE PERMITTED.
6. FOUR (4) SAMPLE CYLINDERS ARE TO BE CAST FOR EACH TWENTY-FIVE CUBIC YARDS (25 CY) OF CONCRETE INSTALLED, (TWO-7 DAY BREAKS AND TWO -28 DAY BREAKS)
7. AT ALL INTERSECTIONS AND APRON AREAS, A BEAM WILL BE CAST IN ADDITION TO THE CYLINDERS AND IN ADDITION TO ANY BEAMS THAT PLAN TO BE CAST BY THE CONTRACTOR.

8. THERE IS TO BE NO WATER ADDED ON-SITE TO THE CONCRETE. ONE PERSON, THE PAVING COMPANY'S AUTHORITY ON SITE, IN THE PRESENCE OF THE CITY'S OBSERVER MAY DIRECT WATER TO BE ADDED AND MIXED, IF DETERMINED NECESSARY (NOT TO EXCEED MAXIMUM WATER-CEMENT RATION AND SLUMP). THIS WILL BE NOTED IN THE INSPECTION REPORT AND ADDITIONAL TESTING MAY BE PERFORMED ON THE WATER ADDED TRUCK.
9. IF A CONCRETE TRUCK ARRIVES OR BECOMES 'OUT OF SPEC' (FOR WHATEVER REASON), AND WOULD REQUIRE REJECTION, THE CITY OF NORTH ROYALTON WILL DIRECT. IF THE CITY ENGINEERING OFFICE IS CLOSED OR IS UNAVAILABLE, IT WILL BE THE INSPECTION REPRESENTATIVE'S DECISION TO REJECT, AFTER ALL EFFORTS HAVE BEEN ATTEMPTED TO BRING THE CONCRETE WITHIN SPECIFICATIONS.
10. ALL CONCRETE TRUCKS ARE REQUIRED TO 'WASH-OUT' IN THE APPROVED CONCRETE WASH-OUT PIT.
11. SUBGRADE TO BE COMPACTED AND TESTED TO 98% TO 100% OF DRY DENSITY PROCTOR. MOISTURE CONTENT TO BE OPTIMUM +/- 2.
12. PROOF ROLL TO TEST STABILITY AND UNIFORMITY OF THE SUBGRADE COMPACTION IN ACCORDANCE WITH ODOT 204.06.
13. ALL SOFT AND YIELDING MATERIAL AND OTHER PORTIONS OF THE SUBGRADE WHICH WILL NOT COMPACT READILY WHEN ROLLED OR TAMPED SHALL BE REMOVED AS DIRECTED BY THE CITY ENGINEER AND REPLACED WITH SUITABLE MATERIAL PLACED, COMPACTED AND RETESTED.
14. BASE MATERIAL SHALL BE COMPACTED PER ODOT ITEM 304-AGGREGATE BASE.
15. SAWED OR HAND FORMED JOINTS TO BE SEALED WITH ODOT ITEM HOT APPLIED JOINT SEALER.
16. REFER TO DETAILS AT STRUCTURES. GENERALLY, WHEN A JOINT FALLS WITHIN FIVE (5) FEET OF BASINS, MANHOLES OR OTHER STRUCTURES, SHORTEN ONE OR MORE SLABS EITHER SIDE OF OPENING TO PERMIT THE JOINT TO FALL ON ROUND STRUCTURES AND AT OR BETWEEN CORNERS OF RECTANGULAR STRUCTURES.
17. MONUMENT BOXES TO BE CORED INTO PAVEMENT AND BE INSTALLED PER THE MONUMENT BOX DETAIL.
18. WHEN THE ALTERNATE TYPICAL NON-REINFORCED PAVEMENT SECTION IS UTILIZED, 1" EPOXY COATED DOWEL BASKETS ARE TO BE PLACED AND PINNED AT A MAXIMUM 14' JOINT SPACING FOR LOAD TRANSFER.
19. IF SOIL CEMENT STABILIZATION IS TO BE USED ON THE PROJECT, IT SHALL BE PERFORMED PER ODOT ITEM 206 AND THE REQUIRED AGGREGATE BASE COURSE THICKNESS MAY BE DECREASED TO 3-INCHES OF ODOT ITEM 304.
20. ALL DIMENSIONS ON THIS STANDARD DETAIL SHEET ARE FOR RESIDENTIAL PAVEMENT. REVISIONS WILL BE REQUIRED FOR INDUSTRIAL PAVEMENT. EXAMPLES: 29' PAVEMENT WIDTH MEASURED FROM BACK OF CURB TO BACK OF CURB; 9" CONCRETE PAVEMENT THICKNESS; 1-1/8" DIA. DOWEL BASKETS; 70' RIGHT OF WAY WIDTH.



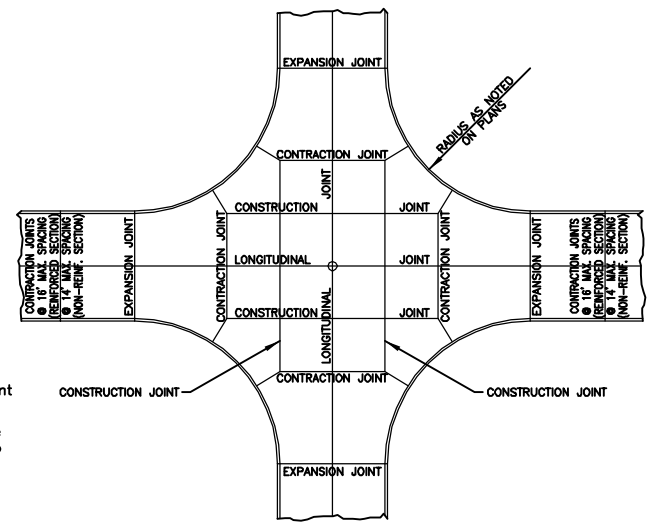
TYPICAL JOINT ARRANGEMENT FOR ROADWAYS
NOT TO SCALE



JOINT LEGEND
 C Contraction Joint
 E Expansion Joint
 L Longitudinal Joint
 K Construction Joint

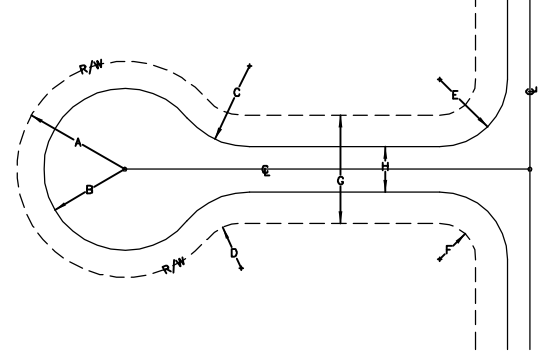
All Catch Basins and Manholes shall be separated from the pavement and curb by Boxing-Out. Joints to be dowelled, 3/4" x 15" dowels @ 15" centers (Reinforced Section)
 1" x 18" dowels @ 12" centers (Non-Reinforced Section)

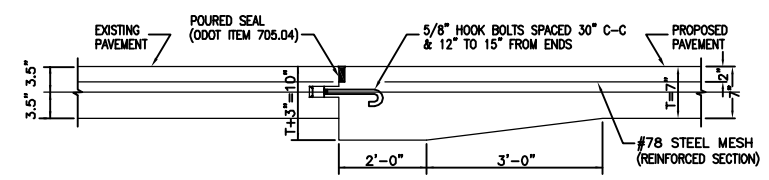
TYPICAL JOINT ARRANGEMENT FOR CUL-DE-SACS
NOT TO SCALE



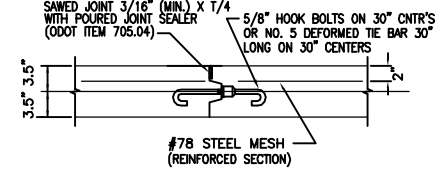
TYPICAL JOINT ARRANGEMENT FOR INTERSECTIONS
NOT TO SCALE

SCHEDULE OF DIMENSIONS		
	INDUSTRIAL	RESIDENTIAL
A	75.00'	60.00'
B	50.00'	45.00'
C	50.00'	45.00'
D	25.00'	25.00'
E	55.00'	37.50'
F	30.00'	20.00'
G	70.00'	60.00'
H	29.00'	25.00'

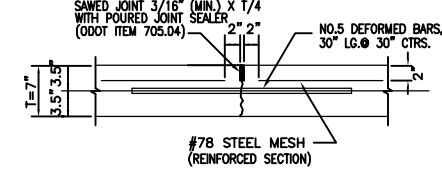




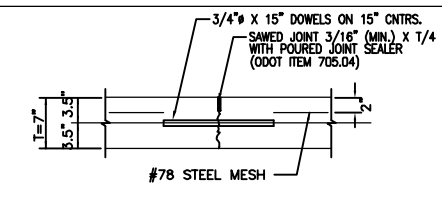
THICKENED EDGE JOINT WITH EXPANSION BOLTS
FOR JOINING NEW PAVEMENT TO EXISTING PAVEMENT
NOT TO SCALE



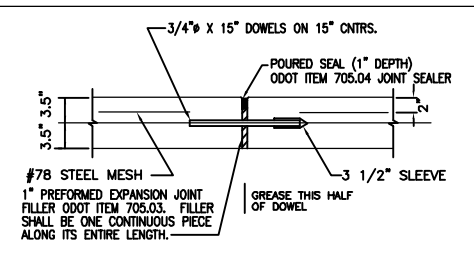
LONGITUDINAL KEY JOINT
NOT TO SCALE



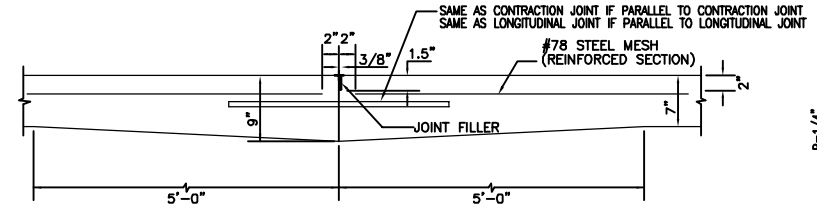
LONGITUDINAL JOINT
NOT TO SCALE



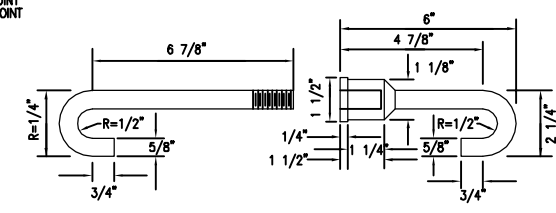
REINFORCED CONTRACTION JOINT
NOTE: DOWEL BASKETS SHALL BE PINNED IN PLACE
16" MAXIMUM SPACING
NOT TO SCALE



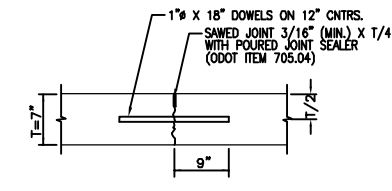
REINFORCED EXPANSION JOINT
NOT TO SCALE



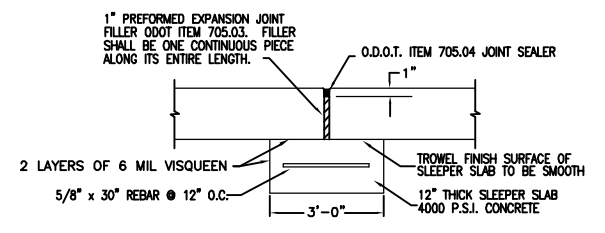
CONSTRUCTION JOINT
NOT TO SCALE



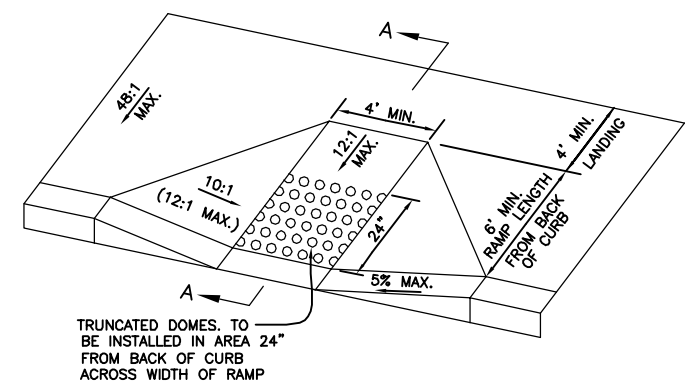
HOOK BOLT DETAIL
NOT TO SCALE



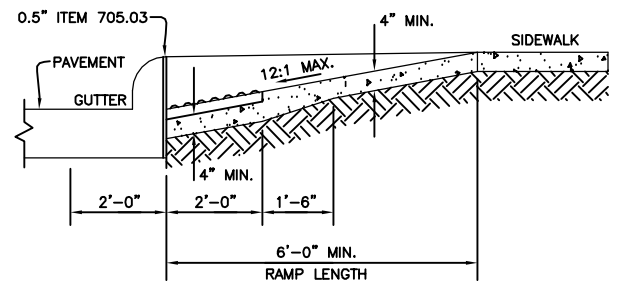
NON-REINFORCED CONTRACTION JOINT
NOTE: DOWEL BASKETS SHALL BE PINNED IN PLACE
14" MAXIMUM SPACING
NOT TO SCALE



NON-REINFORCED EXPANSION JOINT
NOT TO SCALE



PERPENDICULAR CURB RAMP DETAIL



SECTION A-A : NORMAL DETAIL

NOTES:
- CONTRACTOR IS TO ENSURE THE BASE OF EACH CONSTRUCTED CURB RAMP ALLOWS FOR PROPER DRAINAGE, WITHOUT EXCEEDING ALLOWABLE CROSS SECTION OR RAMP SLOPES. VERTICAL CHANGE IN LEVEL EXCEEDING 1/8" BETWEEN THE 1) PAVEMENT AND GUTTER, AND 2) GUTTER AND RAMP, ARE NOT ALLOWED.
- REFER TO ODOT DRAWING "BP-7.1" SHEETS 1, 2, & 3 LATEST EDITION FOR FURTHER REFERENCE DETAILS.

DETECTABLE WARNINGS (TRUNCATED DOMES) NOTES:
PAVERS SHALL MEET ASTM C 902 CLASS SX, TYPE 1, OR C 936, OR C 1272 TYPE R.

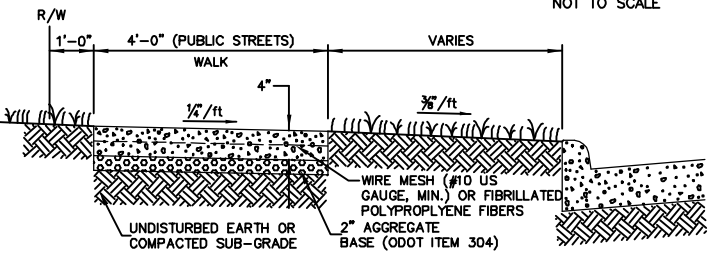
ACCEPTABLE MANUFACTURERS AND PRODUCTS ARE:
1) WHITACRE-GREER FIREPROOFING COMPANY, ADA PAVER, 4" x 8" x 2-1/4", CLEAR RED (RUSTIC) #30, OR EQUAL
2) HANOVER ARCHITECTURAL PRODUCTS, DETECTABLE WARNING PAVER, 12" x 12" x 2", OR 24" x 24" x 2", RED OR QUARRY RED, OR EQUAL
3) ENDICOTT CLAY PRODUCTS, HANDICAP DETECTABLE WARNING PAVER, 4" x 8" x 2-1/4", RED BLEND, OR EQUAL

PAVERS SHALL BE LAID ON TOP OF A 4" UNREINFORCED CONCRETE BASE. SETTING BED AND JOINTS TO BE MORTARED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, OR WITH A MAXIMUM 1/2" THICK BED OF LATEX MODIFIED CEMENT MORTAR. MORTAR JOINTS TO A WIDTH NOT GREATER THAN 5/32" AND NOT LESS THAN 1/16". PAVER SHALL NOT BE DIRECTLY TOUCHING EACH OTHER UNLESS THEY HAVE SPACING BARS.

MORTARED JOINTS ARE TO BE FLUSH WITH TOP SURFACE AND STRUCK SO AS TO GIVE A SMOOTH SURFACE. PAVERS SHALL BE LAID SUCH THAT JOINTS ARE LEVEL WITH ADJOINING JOINTS SO AS TO PROVIDE A SMOOTH TRANSITION FROM BRICK TO BRICK AND BRICK TO CONCRETE SURFACE.

THE SURFACE OF ANY TWO ADJACENT UNITS SHOULD NOT DIFFER BY MORE THAN 1/8" IN HEIGHT. BRICKS SHALL BE PLACED IN A RUNNING BOND PATTERN. FACE OF ALL BRICK SHALL BE CLEAN OF CEMENT AND PROTECTED AS TO AVOID CHIPPING DURING CONSTRUCTION.

CONCRETE CURB RAMP DETAIL
NOT TO SCALE



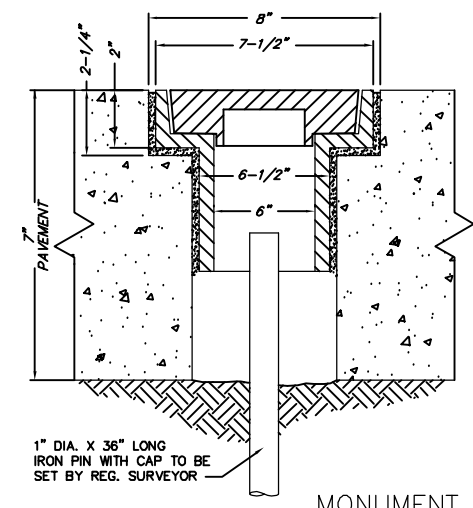
NOTES:
SIDEWALK SHALL BE CONSTRUCTED OF 4000 PSI CONCRETE AND HAVE A NON-SLIP BROOM FINISH SURFACE. FINISH SHALL BE PERPENDICULAR TO DIRECTION OF TRAFFIC.

SIDEWALK THICKNESSES:
4" - TYPICAL
6" - RESIDENTIAL DRIVE APRONS (THRU DRIVEWAY)
8" - COMMERCIAL DRIVE APRONS (THRU DRIVEWAY)

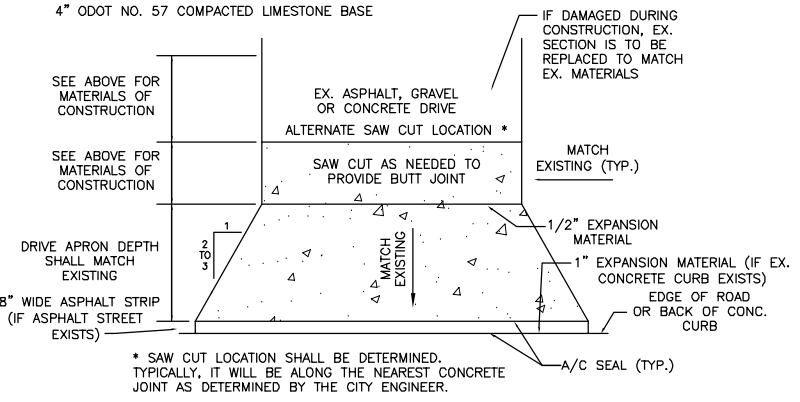
SIDEWALK SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 1462 - CONCRETE SURFACES AND CHAPTER 1480 - SIDEWALK CONSTRUCTION OF THE CODIFIED ORDINANCES OF NORTH ROYALTON, OHIO.

SEE CHAPTER 1246.03 FOR WIDTH OF SIDEWALKS LOCATED OTHER THAN PUBLIC STREETS (I.E. LOCAL COLLECTOR, MAJOR ARTERIAL...)

CONCRETE SIDEWALK DETAIL
NOT TO SCALE



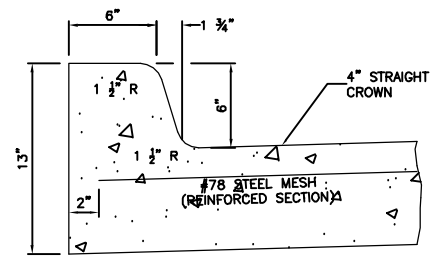
MONUMENT BOX DETAIL
NOT TO SCALE



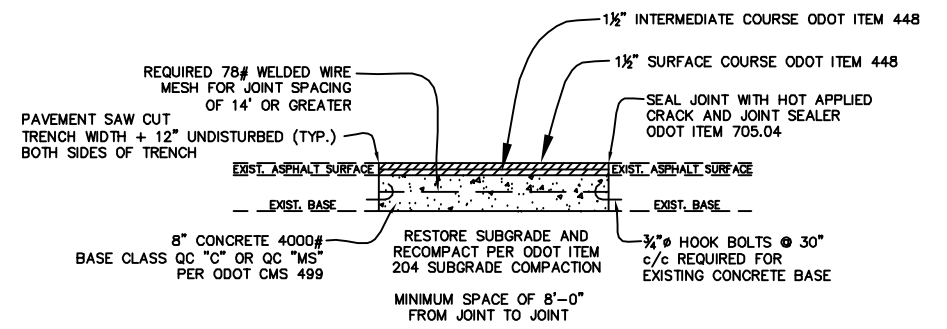
DRIVE APRON DETAIL
NOT TO SCALE

NOTES:
1. MONUMENT BOX CASTING TO BE E.J.W 2980 W/ SPECIAL ORDER LID.
2. ANNULAR SPACE BETWEEN CASTING & PAVEMENT TO BE FILLED WITH NON-SHRINK GROUT PER ODOT 705.20.

INSTALLATION:
1. CORE BOTH OPENINGS IN PAVEMENT.
2. REMOVE DEBRIS & PREPARE CONC. PER GROUT MANUFACTURER'S INSTRUCTIONS.
3. COAT PAVEMENT OPENING AND EXTERIOR OF CASTING WITH GROUT.
4. INSTALL CASTING & FINISH FLUSH WITH EXISTING PAVEMENT



BARRIER TYPE CURB DETAIL
NOT TO SCALE



NOTES:
1. WHEN ODOT ITEM 448 IS NOT APPLICABLE PER SPECIFICATION (FROM NOVEMBER 15TH TO APRIL 15TH), TEMPORARILY PLACE 2 LAYERS OF 6 MIL VISQUEEN AND 3" OF CONCRETE ODOT CLASS C 4000# (TEMPORARY WINTER PAVEMENT).
2. CONTRACTOR SHALL SECURELY PLATE ROAD DURING CONCRETE CURING.
3. CONTRACTOR SHALL REMOVE TEMPORARY WINTER PAVEMENT IN SPRING AND REPLACE WITH THE PERMANENT MATERIALS SHOWN IN THIS DETAIL.

TYPICAL PAVEMENT REPAIR DETAIL
NOT TO SCALE