CITY OF ANN ARBOR
PROJECT MANAGEMENT

COLONY RD, ESSEX RD, AND MANCHESTER RD CONCRETE PAVEMENT REPAIRS

BID No. 4396, FILE No. 2015024

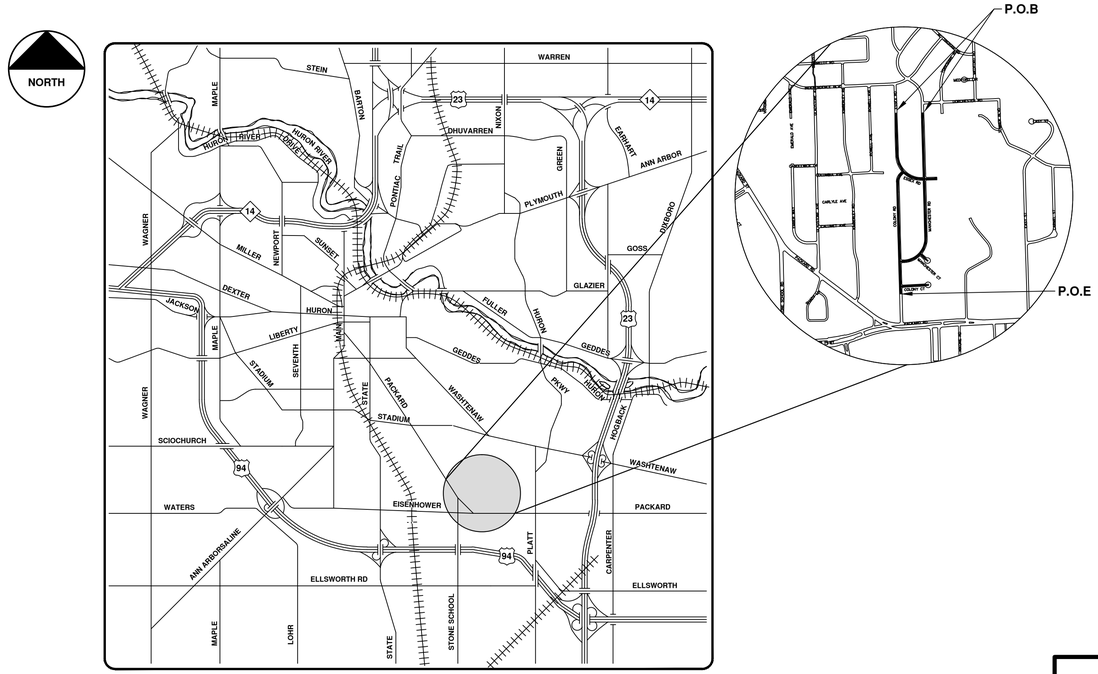
NOTES:

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE PERFORMED IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION (INCLUDING REFERENCED M.D.O.T. PUBLICATIONS) AND THIS PROJECT'S CONTRACT DOCUMENTS.

SHEET LIST TABLE



VICINITY MAP

PROJECT MANAGEMENT SERVICE UNIT

PREPARED UNDER THE SUPERVISION OF

DAVID ARTHUR DYKMAN, P.E. - MI LICENSE No. 52912
PROJECT MANAGER

6 / 18 / 2015
DATE

DAVID ARTHUR DYKMAN ENGINEER No. 52912 STATE OF MICHIGAN REGISTERED PROFESSIONAL ENGINEER

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

CONCRETE PAVEMENT REPAIRS

SCALE

DRAWING No. 2015024-1

SHEET No. 1 OF 27

CONSTRUCTION NOTES:

1. Driveways and entrances to buildings, real property, and the like shall not be blocked unless approved by the Engineer. Vehicular and pedestrian access shall be maintained at all times. It shall be the Contractor's responsibility to coordinate all necessary driveway closures with the property owner(s) and resident(s) in the areas of construction.

2. The location and depth of all existing utilities and service leads are to be field verified by the Contractor prior to construction.

3. Location and depth of utilities as depicted on the plans is approximate and shown according to the best information available. It is the Contractor's responsibility to excavate ahead and adjust depth of conflict utilities accordingly. Any damage to utilities is the Contractor's responsibility to avoid and/or repair as necessary.

4. "No Parking" signs shall be installed by the Contractor at locations as approved or directed by the Engineer. All signs shall be installed in accordance with the detailed specification.

5. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.

6. All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.

7. The location of material stock piles and on-site staging areas to be approved by the Engineer.

8. All structures within concrete pavement repairs areas shall receive new castings as directed by the Engineer, as specified on the standard casting schedule. The existing castings are the property of the City of Ann Arbor. The Contractor shall deliver to City of Ann Arbor Field Operations and Maintenance Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.

9. Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.

10. Where sewer pipes of different sizes or materials are joined, Fernco flexible couplings with stainless steel shear rings shall be used. The Contractor's purchase price for these devices, including shipping, shall be paid as an extra. Prior to payment for this item, the Contractor shall submit receipts for the Engineer's review and approval. All other costs associated with the installation of these devices shall be included in the payment for the sewer.

11. Existing street name, guide, and regulatory signs, and mailboxes which conflict with the proposed construction shall be removed prior to construction, stored in a manner which will prevent damage, and re-set in locations as directed by the Engineer. This work will not be paid for separately, but shall be included in "General Conditions."

SOIL EROSION & SEDIMENT CONTROL GENERAL NOTES:

NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

1. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN SOIL EROSION CONTROL MEASURES AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.

2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CITY ORDINANCE CHAPTER 63, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

3. DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.

4. EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.

5. ALL MUD/DIRT TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR, WITHIN FOUR (4) HOURS OF BEING SO ORDERED.

6. RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADE.

7. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.

8. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.

9. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLATIVE AS REQUIRED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.

11. THE CONTRACTOR SHALL NOT GRADE INTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.

12. TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.

SEQUENCE OF EROSION CONTROL MEASURES:

1. THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER, A SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES FOR REVIEW, COMMENT AND APPROVAL. THIS SCHEDULE IS TO INCLUDE INSPECTION AND REPAIR OF ALL TEMPORARY EROSION CONTROL MEASURES DAILY AND WITHIN 24 HOURS OF A STORM EVENT.

SAMPLE SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:

1.1. INSTALL SILT FENCE, TREE PROTECTION FENCING, AND INLET FILTERS ON EXISTING DRAINAGE FEATURES PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.

1.2. STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE AS REQUIRED.

1.3. INSTALL WATER MAINS, STORM AND SANITARY SEWERS, AND OTHER ENCLOSED DRAINAGE FEATURES. NEW INLET FILTERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF NEW DRAINAGE INLETS.

1.4. PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.).

1.5. CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.

1.6. COMPLETE ALL GRADING AND FINE GRADING.

1.7. TEMPORARY SEED AND INSTALL EROSION CONTROL BLANKET IN ALL DISTURBED AREAS.

1.8. CLEAN OUT STORM SEWER SYSTEMS.

1.9. REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES UPON FINAL INSPECTION AND APPROVAL BY THE ENGINEER.

1.10. REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.

NOTE: THIS SEQUENCE IS FOR INFORMATION ONLY. IT IS INTENDED TO SHOW THE SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THEIR OWN DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE TO THE ENGINEER FOR REVIEW, COMMENT, AND APPROVAL.

TEMPORARY SEEDING:

1. SEED IN ACCORDANCE WITH PROJECT DRAWINGS AND SPECIFICATIONS.

2. ANY DISTURBED AREA NOT PAVED, SEEDED, MULCHED, SODDED OR BUILT UPON BY NOVEMBER 15TH OR JUNE 30TH IS TO BE TEMPORARILY STABILIZED PER SPECIFICATIONS.

TREE PROTECTION

1. CONTRACTOR SHALL NOT STORE OR PLACE EQUIPMENT AND/OR MATERIALS INSIDE DRIP LINE OF ANY CITY TREE. MECHANICAL DAMAGE TO CITY OWNED TREES (I.E. BARK DAMAGE, BRANCH BREAKAGE) IS NOT PERMITTED. CONTRACTOR IS RESPONSIBLE FOR PROPERLY PRUNING TREES TO PREVENT DAMAGE. IF BRANCHES GREATER THAN 2" IN DIAMETER REQUIRE PRUNING, CONTRACTOR TO CONTACT FORESTRY FOR CONSULTATION AND EVALUATION AT (734) 794-6350. NO ROOTS OF CITY-OWNED TREES GREATER THAN 2 INCHES IN DIAMETER ARE TO BE CUT. IF CONTRACTOR ENCOUNTERS CITY-OWNED TREES WITH ROOTS GREATER THAN 2 INCHES IN DIAMETER THAT THEY DETERMINE NEED TO BE CUT, CONTACT FORESTRY IMMEDIATELY FOR EVALUATION. ALL TRENCHING AND BORE PITS OF ANY KIND SHALL BE CLEAR OF TREE DRIP LINES. IF ANY CITY-OWNED STREET TREES ARE DAMAGED BY THIS WORK, THE CONTRACTOR MUST CONTACT FORESTRY AS SOON AS POSSIBLE SO THAT THE DAMAGE CAN BE ASSESSED. CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH DAMAGE REMEDIATION.

EXISTING LEGEND

- FIRE HYDRANT
- GATE VALVE IN BOX
- GATE VALVE IN WELL
- STOP BOX
- WATER VAULT
- WELL
- CATCH BASIN (SQ)
- CATCH BASIN (RD)
- STORM MANHOLE
- NON-CURB CATCH BASIN (SQ)
- SANITARY MANHOLE
- CLEAN-OUT
- POST
- PEDESTRIAN SIGNAL
- SIGN
- HAND HOLE
- ORNAMENTAL LIGHT
- FLOOD LIGHT
- UNKNOWN MANHOLE
- TELEPHONE MANHOLE
- TELEPHONE RISER
- GAS VALVE
- GAS VENT
- GAS BOX
- ELECTRICAL RISER
- TRANSFORMER
- UTILITY POLE
- LAMP POLE
- GUY ANCHOR
- GUY POLE
- MONITORING WELL
- MAILBOX
- SOIL BORING
- TRAVERSE POINT
- BENCH MARK
- IRON PIPE
- MON BOX

- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- GAS MAIN
- ELECTRICAL OVER HEAD
- ELECTRICAL UNDER GROUND
- BOUNDARY
- BUILDING
- CENTERLINE OF DITCH
- CENTERLINE/CROWN OF ROAD
- EDGE OF WATER
- FENCE
- GRAVEL
- STONE WALL
- R.O.W.
- TREELINE
- WETLAND
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- STUMP
- SHRUB (DECIDUOUS)

PROPOSED LEGEND

- HYDRANT (PLAN)
- WATER GATE WELL
- REDUCER
- WATER GATE VALVE
- WATER STOP BOX
- WATER VAULT
- INLET
- DOUBLE INLET
- INLET JUNCTION CHAMBER
- ROUND CATCH BASIN
- STORM MANHOLE
- DRAIN ARROW
- FLARED END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- BARREL
- SIGN
- PUSH BUTTON

- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- CENTERLINE OF DITCH
- CENTERLINE OF ROAD
- FENCE
- SILT FENCE
- LOT/UNIT
- CURB
- TEMPORARY GRADING PERMIT
- WATER EASMENT
- STORM EASEMENT
- SANITARY EASEMENT
- R.O.W.
- LIMITS OF CONSTRUCTION
- STONE WALL
- DETECTABLE WARNING
- ASPHALT
- CONCRETE
- SIDEWALK
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

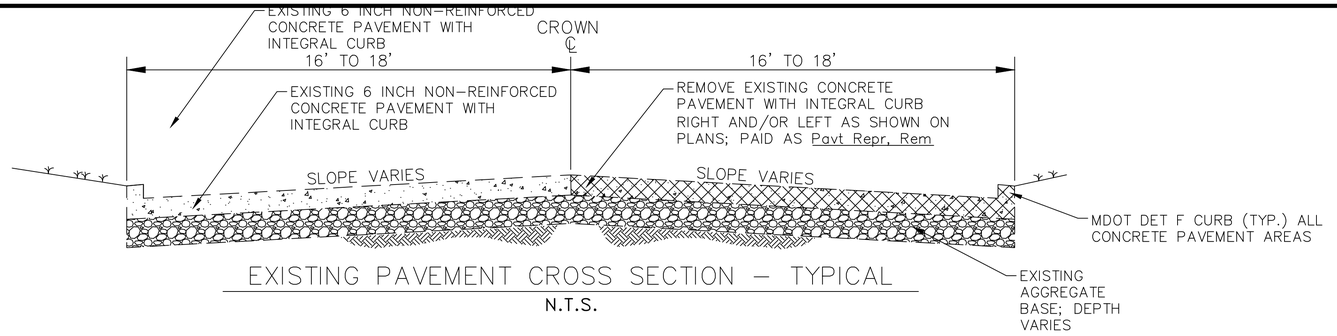
COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR

NOTES AND LEGEND

SCALE PLAN: ########

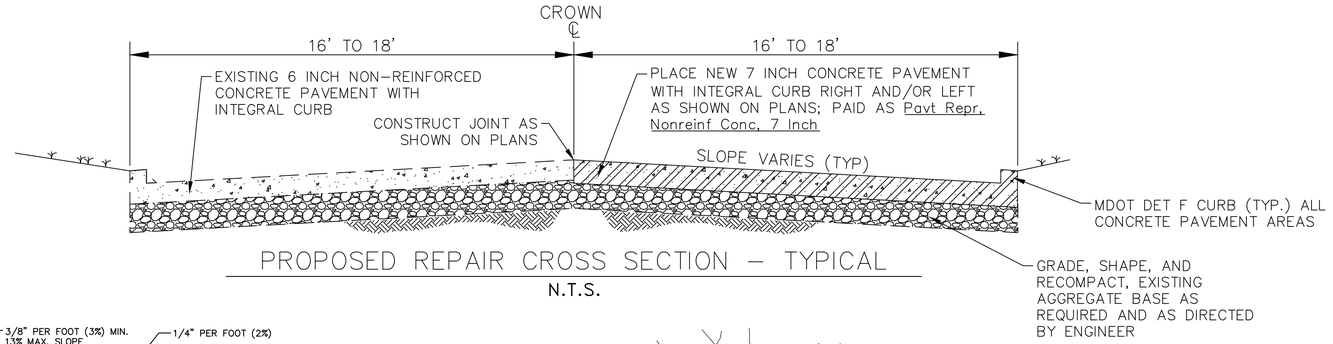
DRAWING No. 2015024-2

SHEET No. 2 OF 27



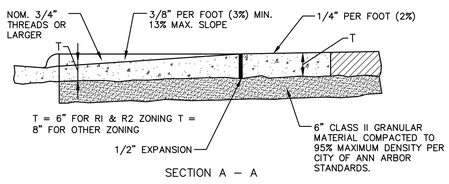
EXISTING PAVEMENT CROSS SECTION – TYPICAL

N.T.S.

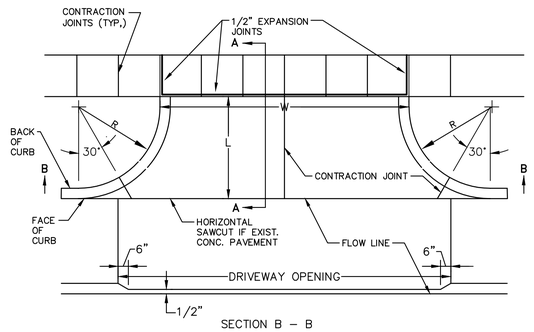


PROPOSED REPAIR CROSS SECTION – TYPICAL

N.T.S.



SECTION A – A



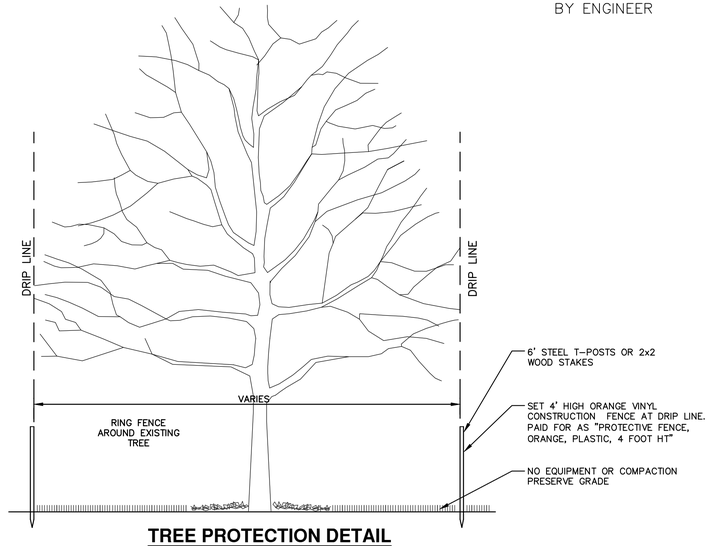
SECTION B – B

MEASUREMENT OF AREA:
W x L = AREA

NOTE: R(RADIUS) AND W(DRIVE WIDTH) AS REQUIRED FOR ZONING BY CITY CODE.

NOTE: DRIVE APPROACH TO BE CLASS 'A' CONCRETE.

DRIVEWAY OPENING/APPROACH DETAIL



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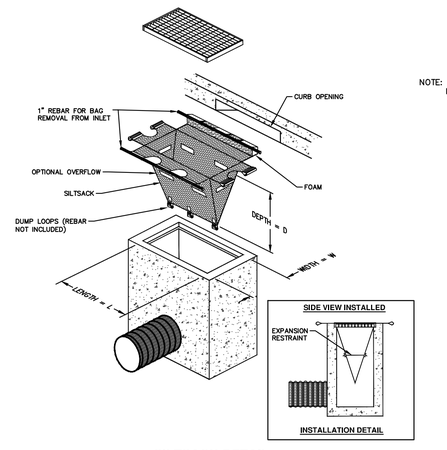

SILTSACK DETAIL

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.

REGULAR FLOW SILTSACK

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

HI-FLOW SILTSACK

(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90%
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC-1

OIL-ABSORBANT SILTSACK

(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS THAT THE CONTRACTOR INSTALL THE REBAR AS SHOWN IN THIS DETAIL TO PROVIDE A FULLY FUNCTIONING UNIT. ALL COSTS ASSOCIATED WITH FURNISHING, CLEANING AS MANY TIMES AS REQUIRED, DISPOSAL OF SEDIMENT, AND REMOVING THE INLET FILTER WHEN NO LONGER NEEDED IS INCLUDED IN THE ITEM OF WORK AND WILL NOT BE PAID FOR SEPARATELY.

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT	CITY OF ANN ARBOR PROJECT MANAGEMENT UNIT
"NO PARKING" SIGNS PERMIT	CITY OF ANN ARBOR PROJECT MANAGEMENT UNIT
RIGHT-OF-WAY PERMIT	CITY OF ANN ARBOR CUSTOMER SERVICE
* NO COST TO CONTRACTOR	

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER		DAN WOODEN (734) 794-6350
SANITARY		MARK COZART (734) 794-6350
STORM	CITY OF ANN ARBOR FIELD OPERATIONS SERVICE UNIT W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	KEVIN ERNST (734) 794-6350
FORESTRY		STEVEN GOEBEL (734) 794-6350
SIGNS SIGNALS STREET LIGHTS		CHUCK FOJTIK (734) 794-6361

PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	CLAY COMBEE (734) 397-4112
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	(734) 996-2135
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016

811 Know what's below. Call before you dig.

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR
TYPICAL SECTIONS AND DETAILS

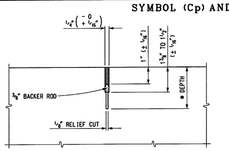
SCALE PLAN: ########

DRAWING No.
2015024-3

SHEET No.
3 OF 27

S:\Project Management\Design\2015024 Colony Essex Manchester\Plan Production\Primary\2015024COV.dwg - _a2 standard bw.stb - Plot Date: 6/18/2015 9:17:15 AM

SYMBOL (Cp) AND (C3p)



SYMBOL	LOAD TRANSFER	JOINT USE
(Cp)	YES	PAVEMENT
(C3p)	NO	SHOULDER

SAWED JOINT DETAIL

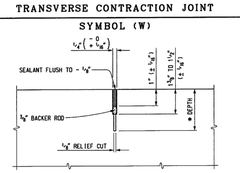
SAWED JOINT SEALED WITH LOW MODULUS HOT-POURED RUBBER-ASPHALT TYPE JOINT SEALING COMPOUND.

* DEPTH OF RELIEF CUT FOR JOINT (Cp) AND (C3p) SHALL BE 1/4 THE SLAB THICKNESS FOR PAVEMENTS LESS THAN OR EQUAL TO 7" IN THICKNESS AND 1/3 THE SLAB THICKNESS FOR PAVEMENTS GREATER THAN 7" THICK.

LOAD TRANSFER ASSEMBLY METHOD — DOWEL BAR INSERTER METHOD

TRANSVERSE CONTRACTION JOINT

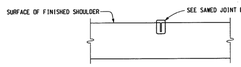
SYMBOL (W)



SAWED JOINT DETAIL

SAWED JOINT SEALED WITH LOW MODULUS HOT-POURED RUBBER-ASPHALT TYPE JOINT SEALING COMPOUND.

* DEPTH OF RELIEF CUT FOR JOINT 1/4 THE SLAB THICKNESS.



TRANSVERSE AND INTERSECTION PLANE OF WEAKNESS JOINTS

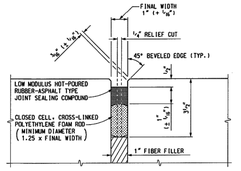
DEPARTMENT DIRECTOR Kirk T. Steudle
PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: W.K.P.
APPROVED BY: John C. Friend — ENGINEER OF DELIVERY
APPROVED BY: Mark A. VanPortfleet — ENGINEER OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

TRANSVERSE PAVEMENT JOINTS
(PLAIN CONCRETE PAVEMENT)

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-39-I	SHEET 1 OF 4

SYMBOL (E2), (E3) AND (E4)

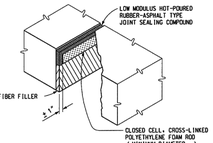


NOTE:
THE FINAL WIDTH OF THE GROOVE SHALL BE 1" + 1/8" PLUS ANY INCREASE OR MINUS ANY DECREASE IN THE WIDTH OF THE RELIEF CUT. THE FINAL SAW CUT SHALL BE TO THE TOP OF THE FIBER FILLER WITH A MINIMUM DEPTH AS SHOWN AND SHALL BE CENTERED OVER THE FIBER FILLER WITH A HORIZONTAL TOLERANCE OF 1/4". FIBER FILLER FOR EXPANSION JOINTS IN CONCRETE SHOULDERS SHALL BE FREE OF HOLES OR OTHER DEFECTS AND TRIMMED TO FIT SHOULDER CONFIGURATIONS.

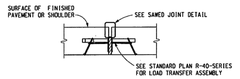
SYMBOL	LOAD TRANSFER ASSEMBLY	JOINT USE
(E2)	YES	PAVEMENT
(E3)	NO	PAVEMENT & SHOULDER
(E4)	NO	SHOULDER

SAWED JOINT DETAIL

SAWED JOINT SEALED WITH LOW MODULUS HOT-POURED RUBBER-ASPHALT TYPE JOINT SEALING COMPOUND.

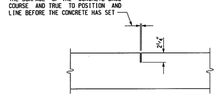


OUTSIDE EDGE TREATMENT



TRANSVERSE EXPANSION JOINT

SYMBOL (U)



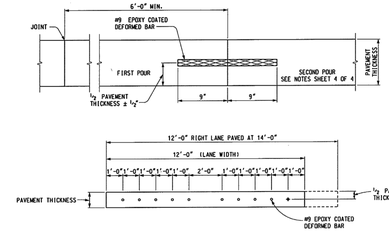
TRANSVERSE PLANE OF WEAKNESS JOINTS IN CONCRETE BASE COURSE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

TRANSVERSE PAVEMENT JOINTS
(PLAIN CONCRETE PAVEMENT)

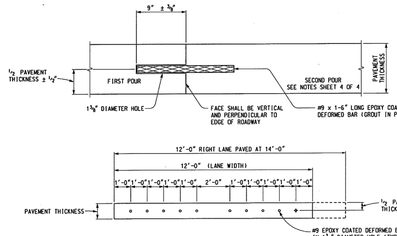
9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-39-I	SHEET 2 OF 4

SYMBOL (H)



DEFORMED BAR SPACING

TRANSVERSE END OF POUR JOINT (SPLIT HEADER METHOD)



DEFORMED BAR SPACING

NOTE: THE HOLE SPACING MAY BE ADJUSTED 1" HORIZONTALLY, RAISED 1/2", OR LOWERED 1" FROM THE ABOVE LOCATIONS TO AVOID DRILLING INTO THE REINFORCEMENT.

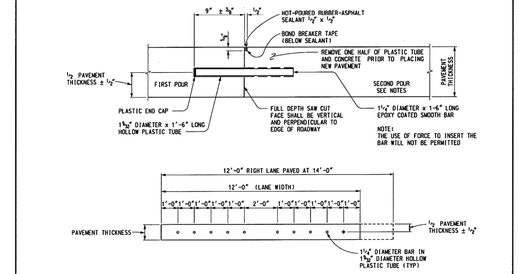
TRANSVERSE END OF POUR JOINT (DRILLED IN METHOD)

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

TRANSVERSE PAVEMENT JOINTS
(PLAIN CONCRETE PAVEMENT)

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-39-I	SHEET 3 OF 4

SYMBOL (H)



DEFORMED BAR SPACING

TRANSVERSE END OF POUR JOINT (PLASTIC TUBE METHOD)

NOTES:

LOAD TRANSFER ASSEMBLIES ARE DETAILED ON THE CURRENT STANDARD PLAN R-40-SERIES.

TRANSVERSE JOINTS SHALL BE SPACED ACCORDING TO THE CURRENT STANDARD PLAN R-49-SERIES.

A TRANSVERSE END OF POUR JOINT (DRILLED IN METHOD) SYMBOL (H), SHALL BE CONSTRUCTED WHEN IT IS ANTICIPATED THAT THE SECOND POUR WILL BE DELAYED 7 DAYS OR LONGER.

A TRANSVERSE END OF POUR JOINT (SPLIT HEADER METHOD) OR (PLASTIC TUBE METHOD) SHALL BE USED AT THE END OF THE DAY'S POUR OR WHEN THERE IS AN UNAVOIDABLE INTERRUPTION OF THE WORK FOR MORE THAN ONE-HALF HOUR AND LESS THAN 7 DAYS. THE JOINT SHALL BE CONSTRUCTED ACCORDING TO TRANSVERSE END OF POUR JOINT (SPLIT HEADER METHOD) OR (PLASTIC TUBE METHOD)- SYMBOL (H).

NEOPRENE JOINT SEAL CROSS-SECTION SHALL BE APPROVED BY THE ENGINEER.

THE EXPANSION JOINT MATERIAL IN THE SHOULDERS SHALL BE SUPPORTED BY ONE OF THE FOLLOWING METHODS:

1. A CONTINUOUS SUPPORT WIRE, AS SPECIFIED FOR EXPANSION LOAD TRANSFER ASSEMBLIES, AS DETAILED ON STANDARD PLAN R-40-SERIES. SHALL BE USED ON EACH SIDE OF EXPANSION MATERIAL. THIS WIRE SHALL BE EQUIPPED WITH STAKES AND STAKE POCKETS TO RIGIDLY HOLD THE EXPANSION MATERIAL IN PLACE DURING CONCRETE PLACEMENT. STAKES SHALL BE AS SPECIFIED ON STANDARD PLAN R-40-SERIES. SPACED NOT MORE THAN 2'-0" APART.
2. "U" OR "J" SHAPE STAPLES OF W8 WIRE (0.319" NOMINAL DIAMETER) SHALL BE SPACED ON 2'-0" CENTERS EACH SIDE OF THE EXPANSION MATERIAL. EACH VERTICAL LEG OF THE STAPLE SHALL BE AT LEAST 1'-3" LONG.
3. OTHER EQUIVALENT METHODS MAY BE USED WHEN APPROVED BY THE ENGINEER.

JOINTS SHALL NOT BE SEALED IN CONCRETE BASE COURSE.

WHEN CONCRETE SHOULDERS ARE CAST SEPARATELY FROM MAINLINE CONCRETE PAVEMENT, A KEYWAY MAY BE USED TO FACILITATE THE PLACING OF LANE TIES. WHEN A KEYWAY GROOVE IS USED, IT SHALL BE CONTINUOUS AND UNIFORM.

THE LOCATION OF TRANSVERSE JOINTS IN CONCRETE SHOULDERS SHALL MATCH THE LOCATION OF ADJACENT TRANSVERSE PAVEMENT JOINTS. CORRESPONDING TRANSVERSE CONCRETE SHOULDER AND PAVEMENT JOINTS SHALL BE (C3p) SHOULDER WITH (Cp) PAVEMENT, (E4) SHOULDER WITH (E2) PAVEMENT, AND (E3) BEING THE SAME IN BOTH SHOULDER AND PAVEMENT.

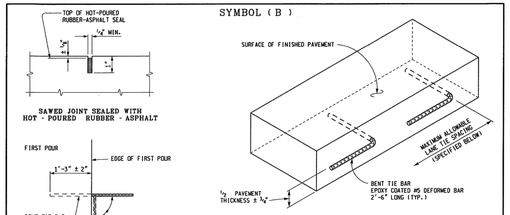
DEFORMED BARS FOR TRANSVERSE END OF POUR JOINTS (DRILLED IN METHOD) SHALL BE GROUTED INTO EXISTING PAVEMENT WITH A GROUT SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SOURCE GUIDE" UNDER ADHESIVE SYSTEMS FOR GROUTING DOWEL BARS AND TIE BARS FOR FULL-DEPTH PAVEMENT REPAIRS.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

TRANSVERSE PAVEMENT JOINTS
(PLAIN CONCRETE PAVEMENT)

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-39-I	SHEET 4 OF 4

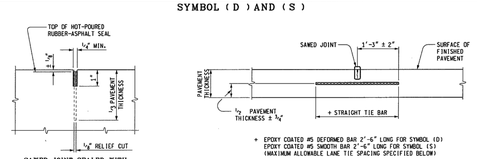
SYMBOL (B)



LONGITUDINAL BULKHEAD JOINT - SYMBOL (B)

ALL SYMBOL (B) JOINTS SHALL BE SAWED AND SEALED EXCEPT JOINTS WITHOUT LANE TIES AND JOINTS ADJACENT TO VERTICAL FACES WHICH WOULD PROHIBIT SAWING.

SYMBOL (D) AND (S)



LONGITUDINAL LANE TIE JOINT - SYMBOL (D)
LONGITUDINAL SMOOTH LANE TIE JOINT - SYMBOL (S)

SYMBOL (D) AND SYMBOL (S) TIE BARS SHALL BE PLACED AT THE PROPER SPACING LONGITUDINALLY, AND TRANSVERSELY AT 90° WITH THE JOINT.

MAXIMUM ALLOWABLE LANE TIE SPACING SYMBOLS (D)-, (L2)-, AND (S)		* TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE
(D) GRADE 40	(D)-, (L2)- AND (S) GRADE 60	
2'-10"	3'-7"	12' OR LESS
1'-11"	2'-7"	OVER 12' THROUGH 17'
1'-5"	1'-11"	OVER 17' THROUGH 24'
1'-2"	1'-9"	OVER 24' THROUGH 28'
1'-0"	1'-4"	OVER 28' THROUGH 36'
1'-1"	1'-1"	36' OR GREATER **

* INCLUDES ANY TIED COMBINATION OF LANE WIDTH, VALLEY GUTTER, CURB & GUTTER, OR SHOULDER

** FOR WIDTHS GREATER THAN 48' USE #6 DEFORMED BARS AT 1'-2" SPACING.

MAXIMUM ALLOWABLE LANE TIE SPACING

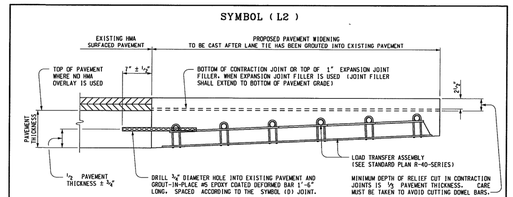
DEPARTMENT DIRECTOR Kirk T. Steudle
PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: W.K.P.
APPROVED BY: Randy V. Riddle — DIRECTOR, BUREAU OF FIELD SERVICES
APPROVED BY: Mark A. VanPortfleet — DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

LONGITUDINAL PAVEMENT JOINTS

9-30-2010 F.H.W.A. APPROVAL	4-22-2013 PLAN DATE	R-41-H	SHEET 1 OF 2

SYMBOL (L2)



NOTE:
SYMBOL (L2) JOINT USED FOR WIDENING CONCRETE PAVEMENTS WITHOUT HMA OVERLAYS SHALL BE SAWED AND SEALED ACCORDING TO THE SYMBOL (B) JOINT.

THE LONGITUDINAL JOINT USED FOR WIDENING EXISTING CONCRETE BASE COURSE OR CONCRETE PAVEMENT HAVING A HMA SURFACE SHALL HAVE EPOXY ANCHORED LANE TIES PLACED AS SPECIFIED.

TAPERED PAVEMENT THICKNESS OVER THE DISTANCE OF PAVEMENT WIDENING OR IN ONE LANE WIDTH WHEN WIDENING IS FOR TWO OR MORE LANES.

LONGITUDINAL BULKHEAD JOINT

FOR WIDENING EXISTING CONCRETE PAVEMENT OR CONCRETE BASE COURSE (USING EPOXY ANCHORED LANE TIES)

METHOD OF EDGING

NOTES:

ALL LANE TIE BARS SHALL BE DEFORMED EXCEPT SYMBOL (S) WHICH WILL BE SMOOTH.

THE EPOXY COATED S BARS ARE TO BE FACTORY COATED WITH AN APPROVED BOND RELEASE AGENT, UNIFORMLY APPLIED BY DIPPING AND WITHOUT EXCESSIVE DRIPS OR THICKNESS.

THE INSTALLATION OF LANE TIE BARS AND THE SAWING OF LONGITUDINAL JOINTS WILL NOT BE REQUIRED FOR TEMPORARY CONCRETE PAVEMENT UNLESS SPECIFIED ON PLANS OR IN THE PROPOSAL. THE EDGING OF TEMPORARY CONCRETE PAVEMENT WILL NOT BE REQUIRED.

FOR JOINT LAYOUT DETAILS, SEE STANDARD PLAN R-42-SERIES.

SAWING PROCEDURES AND RELATED OPERATIONS ARE DESCRIBED IN THE CURRENT STANDARD SPECIFICATIONS.

NO SAWED OR SEALED JOINT SHALL BE CONSTRUCTED BETWEEN THE PAVEMENT AND CURB OR PAVEMENT AND CURB AND GUTTER, WHERE THESE ITEMS ARE CAST INTEGRALLY.

WHEN JOINTED PLAIN CONCRETE IS SPECIFIED AT INTERSECTIONS SYMBOL (S) JOINTS ARE TO BE USED FOR THE LONGITUDINAL JOINT BETWEEN THE E2 JOINT AT THE SPRINGPOINT OF THE SIDE STREET AND THE THROUGH LANE GUTTER PAN LINE. WHEN THE E2 JOINT IS MOVED TO THE THROUGH LANE GUTTER PAN LINE USE SYMBOL (D) JOINT AS NORMALLY REQUIRED.

ALL STRAIGHT TIE BARS SHALL BE EPOXY COATED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR EPOXY COATED STEEL REINFORCEMENT FOR STRUCTURES.

WHEN LANE TIES ARE GROUTED INTO AN EXISTING PAVEMENT, THE GROUT SHALL BE SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SAMPLING GUIDE" FOR LANE TIES.

IN ORDER TO AVOID CONFLICT WITH THE LOAD TRANSFER ASSEMBLY, THE PLACEMENT OF THE END LANE TIE ADJACENT TO ANY TRANSVERSE JOINT SHALL BE AS FOLLOWS:

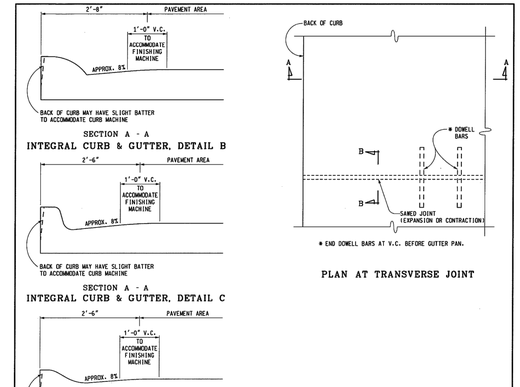
1. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING EXCEEDS 3'-4", PLACE FIRST AND LAST LANE TIE HALF THE MAXIMUM ALLOWABLE LANE TIE SPACING FROM JOINT.
2. WHEN MAXIMUM ALLOWABLE LANE TIE SPACING IS LESS THAN 3'-4", PLACE FIRST AND LAST LANE TIE A MINIMUM OF 1'-8" FROM JOINT.

IT MAY BE NECESSARY TO ADJUST THE LAST THREE LANE TIE SPACINGS TO ENSURE UNIFORM LOADING RESISTANCE ALONG THE LONGITUDINAL JOINT.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

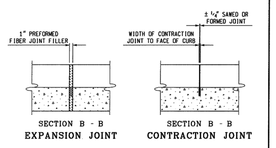
LONGITUDINAL PAVEMENT JOINTS

9-30-2014 F.H.W.A. APPROVAL	4-22-2013 PLAN DATE	R-41-H	SHEET 2 OF 2



* END DOWELL BARS AT V.C. BEFORE GUTTER PAN.

PLAN AT TRANSVERSE JOINT



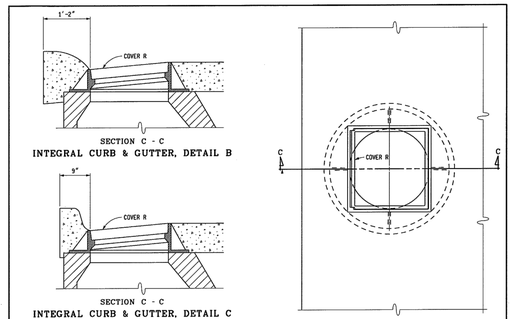
SECTION B - B EXPANSION JOINT — SECTION B - B CONTRACTION JOINT

DEPARTMENT DIRECTOR Kirk T. Steudle
PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: W.K.P.
APPROVED BY: Randy V. Riddle — DIRECTOR, BUREAU OF FIELD SERVICES
APPROVED BY: Mark A. VanPortfleet — DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

INTEGRAL CURB AND INTEGRAL CURB & GUTTER

1-25-2013 F.H.W.A. APPROVAL	10-22-2012 PLAN DATE	R-31-F	SHEET 1 OF 2



PLAN IN CATCH BASIN AREA
SEE STANDARD PLAN R-31-SERIES FOR REINFORCING DETAILS

NOTES:

DETAILS OF CURB FACES ARE SPECIFIED ON STANDARD PLAN R-30-SERIES.

WHEN THE CURB PORTION IS POURED SEPARATE FROM THE INTEGRAL PAVEMENT AND GUTTER, AND DELAY EXCEEDS 30 MINUTES, EPOXY COATED #4 VERTICAL BARS SPACED AT 1'-0" CENTER TO CENTER SHALL BE USED TO TIE CURB AND UNDERLYING CONCRETE.

AGGREGATE BASE, WHEN SPECIFIED ON TYPICAL CROSS SECTIONS, SHALL EXTEND 2'-0" BEYOND THE BACK OF INTEGRAL CURB AND GUTTER, EVEN IF THE GRADING SECTION MUST BE WIDENED TO DO SO. NO PAYMENT WILL BE MADE FOR THE ADDITIONAL AGGREGATE BASE THAT IS REQUIRED TO CONSTRUCT THE INTEGRAL CURB AND GUTTER ALTERNATE.

TRANSVERSE JOINTS IN THE INTEGRAL CURB SHALL BE AS SPECIFIED ON THIS STANDARD PLAN.

FIBER FILLER USED FOR PAVEMENT EXPANSION JOINTS SHALL EXTEND TO BACK OF CURB.

CATCH BASIN "COVER R" OR OTHER APPROVED COVERS SHALL BE SUBSTITUTED FOR COVERS SPECIFIED ON THE PLANS ONLY WHEN THE INTEGRAL CURB AND GUTTER ALTERNATE IS USED.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

INTEGRAL CURB AND INTEGRAL CURB & GUTTER

1-25-2013 F.H.W.A. APPROVAL	10-22-2012 PLAN DATE	R-31-F	SHEET 2 OF 2

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
(734) 794-6410
www.a2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

SCALE PLAN: ##########

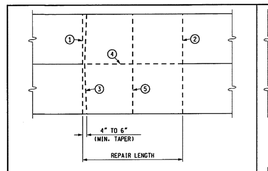
COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR

DETAILS

DRAWING No. 20150224-4

SHEET No. 4 OF 27

S:\Project Management\Design\2015024 Colony Essex Manchester\Plan Production\Primary\MDOT Details.dwg Dwg Created: 25-Mar-15 — _a2 standard bw.stb — Plot Date: 18-Jun-15



PLAN OF SAWING DIAGRAM

THIS METHOD OF REMOVING DISTRESSED CONCRETE SHALL BE USED IN CONJUNCTION WITH FULL DEPTH CAST-IN-PLACE REPAIRS LESS THAN 50'-0" LONG AND IS OPTIONAL FOR REPAIRS OVER 50'-0" IN LENGTH.

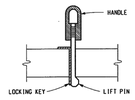
① & ② THESE SAW CUTS SHALL BE FULL DEPTH AND PERPENDICULAR TO THE EDGE OF THE ROADWAY, WITHIN A TOLERANCE OF 1". NO OVERCUTTING INTO ADJACENT LANES SHALL BE MADE UNLESS THE OVERCUT IS WITHIN THE LIMITS OF A SUBSEQUENT REPAIR TO THE ADJACENT LANE. SHOULDER OVERCUTS WILL BE ALLOWED.

③ THIS FULL DEPTH SAW CUT IS MADE TO FACILITATE OPENING A TRENCH ACROSS THE SLAB TO RELIEVE COMPRESSION IN THE PAVEMENT PRIOR TO LIFTING OUT THE FAILED AREA. THIS SAW CUT MAY BE OMITTED PROVIDED NO SPALLING OF THE REMAINING CONCRETE OCCURS. IF SPALLING DOES OCCUR, THE CONTRACTOR WILL BE REQUIRED TO MAKE THIS SAW CUT ON SUBSEQUENT REPAIRS. WHEN THIS SAW CUT IS USED AND THE ADJACENT LANE IS NOT REPAIRED, NO OVERCUTTING INTO THAT LANE SHALL BE MADE.

④ THIS LONGITUDINAL FULL DEPTH SAW CUT IS MADE BETWEEN LANES OR BETWEEN ANY COMBINATION OF THE FOLLOWING: LANE, RAMP, CURB, CONCRETE SHOULDER, OR PARTIAL LANE WIDTH REPAIR.

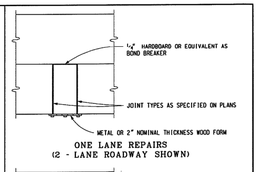
⑤ IF REQUIRED, INTERMEDIATE SAW CUTS MAY BE MADE TO REMOVE A SECTION OF PAVEMENT LANE WHICH IS OVER 6'-0" IN LENGTH, TO PERMIT LOADING INTO THE HAULING UNITS.

ADDITIONAL SAW CUTS, AT CONTRACTOR'S EXPENSE, MAY BE MADE INSIDE THE REPAIR LIMITS TO REDUCE 6'-0" BY 12'-0" OR LESS SLABS INTO SMALLER PIECES TO FACILITATE REMOVAL.

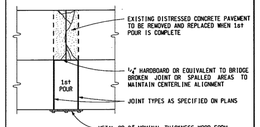


SCHEMATIC OF TYPICAL LIFT PIN ASSEMBLY

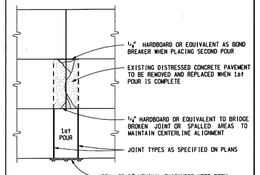
SAWING DIAGRAM & LIFT PIN FOR REMOVING OLD SLAB



ONE LANE REPAIRS
(2 - LANE ROADWAY SHOWN)



ALL LANES REPAIRED
(2 - LANE ROADWAY SHOWN)



MORE THAN ONE LANE REPAIRED
BUT REPAIR LESS THAN FULL WIDTH
(3 - LANE ROADWAY SHOWN)

FORMING NOTES:

STAKES USED TO HOLD HMA FILLER OR HARDBOARD IN PLACE DURING CONCRETE PLACEMENT SHALL BE REMOVED BEFORE SCREEDING THE CONCRETE.

ADJACENT LANE REPAIRS MAY BE CAST INTEGRALLY. WHEN APPROVED BY THE ENGINEER.

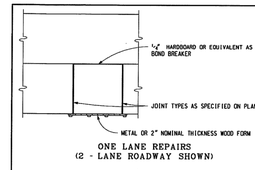
FORMING REQUIREMENTS FOR CAST-IN-PLACE REPAIRS 12'-0" OR LESS

PREPARED BY DESIGN DIVISION
DRAWN BY: D.L.F.
CHECKED BY: K.K.F.

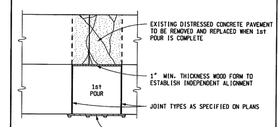
DEPARTMENT DIRECTOR
Kirk T. Steudle
APPROVED BY: John C. Friend — ENGINEER OF DELIVERY
APPROVED BY: Mark A. Van Port Fliet — ENGINEER OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
CONCRETE PAVEMENT REPAIR

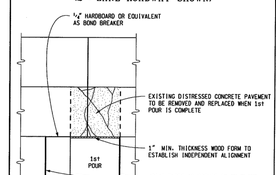
9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 1 OF 6



ONE LANE REPAIRS
(2 - LANE ROADWAY SHOWN)



ALL LANES REPAIRED
(2 - LANE ROADWAY SHOWN)



MORE THAN ONE LANE REPAIRED
BUT REPAIRS ARE OFFSET
(3 - LANE ROADWAY SHOWN)

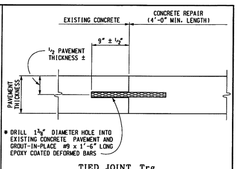
FORMING NOTES:

WHERE REPAIRS LONGER THAN 12'-0" ARE REQUIRED, A NEW GRADE MUST BE ESTABLISHED ALONG THE OLD PAVEMENT INNER JOINT LINE INDEPENDENT OF THE OLD PAVEMENT SURFACE, SO THAT SCREEDING MAY BE DONE PERPENDICULAR TO THE CENTERLINE AND INDEPENDENT OF THE OLD PAVEMENT GRADE.

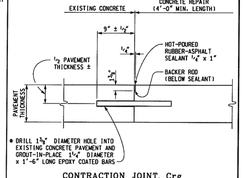
STAKES USED TO HOLD HMA FILLER OR HARDBOARD IN PLACE DURING CONCRETE PLACEMENT SHALL BE REMOVED BEFORE SCREEDING THE CONCRETE.

ADJACENT LANE REPAIRS MAY BE CAST INTEGRALLY. WHEN APPROVED BY THE ENGINEER.

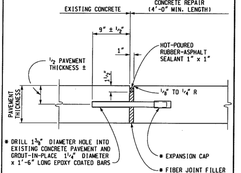
FORMING REQUIREMENTS FOR CAST-IN-PLACE REPAIRS GREATER THAN 12'-0"



TIED JOINT, Trg



CONTRACTION JOINT, Crg



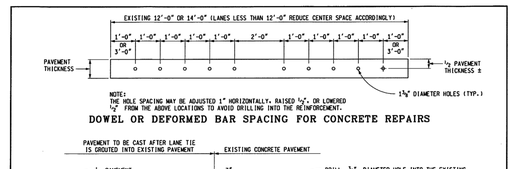
EXPANSION JOINT, Erg

* SEE SHEET 3 OF 6 FOR BAR SPACING AND SHEET 6 OF 6 FOR NOTES.

CAST-IN-PLACE REPAIR JOINTS USING GROUTED DOWEL OR DEFORMED BARS

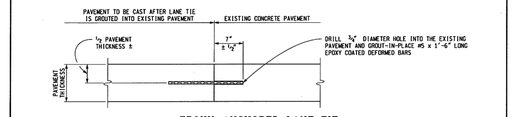
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
CONCRETE PAVEMENT REPAIR

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 2 OF 6

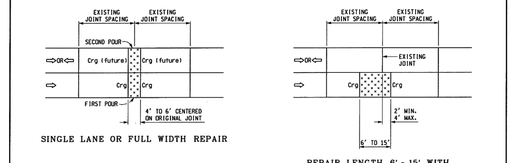


NOTE:
THE HOLE SPACING MAY BE ADJUSTED 1" HORIZONTALLY, RAISED ½", OR LOWERED ½" FROM THE ABOVE LOCATIONS TO AVOID DRILLING INTO THE REINFORCEMENT.

DOWEL OR DEFORMED BAR SPACING FOR CONCRETE REPAIRS

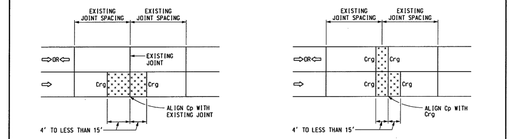


EPOXY ANCHORED LANE TIE



SINGLE LANE OR FULL WIDTH REPAIR

REPAIR LENGTH 6' - 15' WITH ONE JOINT NEAR AN EXISTING JOINT
(SINGLE LANE REPAIR)



REPAIR LENGTHS OVER 15' WITH Cp JOINT
(SINGLE LANE REPAIR)

OFFSETTING LANE REPAIRS WITH Cp JOINT

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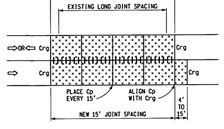
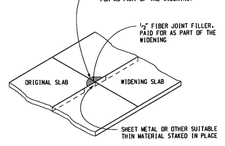
CONCRETE PAVEMENT REPAIR

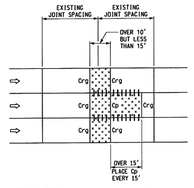
9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 3 OF 6



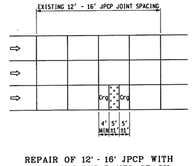
LONG REPAIR SHOWING Cp JOINT ALIGNMENTS AND LANE TIES



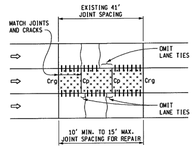
JOINT PATCH ADJACENT TO WIDENING SLAB



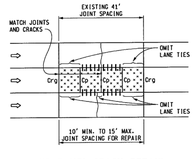
FULL WIDTH MULTI-LANE REPAIRS WITH OFFSET IN ONE LANE



REPAIR OF 12' - 16' JPCP WITH ONLY ONE MID-PANEL CRACK
(IF THE PANEL HAS MORE THAN ONE MID-PANEL CRACK REPLACE ENTIRE PANEL)
(SINGLE LANE OR FULL WIDTH REPAIR)



TWO CRACK PANEL REPAIR



MID PANEL CRACK REPAIR

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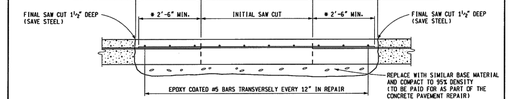
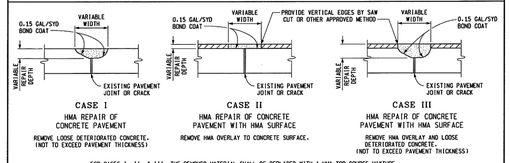
CONCRETE PAVEMENT REPAIR

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 4 OF 6



* NOTE: IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 2'-6" LAP OF PAVEMENT REINFORCEMENT.

REPAIRING CONTINUOUSLY REINFORCED CONCRETE



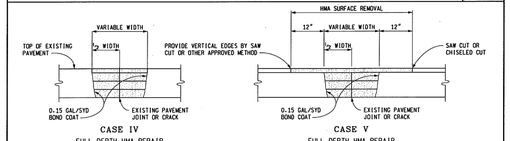
CASE I
HMA REPAIR OF CONCRETE PAVEMENT
REMOVE LOOSE DETERIORATED CONCRETE. (NOT TO EXCEED PAVEMENT THICKNESS)

CASE II
HMA REPAIR OF CONCRETE PAVEMENT WITH HMA SURFACE
REMOVE HMA OVERLAY TO CONCRETE SURFACE.

CASE III
HMA REPAIR OF CONCRETE PAVEMENT WITH HMA SURFACE
REMOVE HMA OVERLAY AND LOOSE DETERIORATED CONCRETE. (NOT TO EXCEED PAVEMENT THICKNESS)

FOR CASES I, II, & III: THE REMOVED MATERIAL SHALL BE REPLACED WITH A HMA TOP COURSE MIXTURE. THE HMA SHALL BE COMPACTED WITH A MACHINE VIBRATOR OR APPROVED ROLLER WITH BASE LIFT THICKNESSES NOT TO EXCEED 3" AND WITH THE TOP LIFT THICKNESS NOT TO EXCEED 2". THE FINAL SURFACE OF THE REPAIR SHALL BE FLUSH WITH THE EXISTING PAVEMENT SURFACE.

SURFACE REPAIR FOR JOINT OR CRACK (TRANSVERSE OR LONGITUDINAL) DETAIL 7



CASE IV
FULL DEPTH HMA REPAIR OF CONCRETE PAVEMENT
REMOVE THE DETERIORATED CONCRETE FULL DEPTH. COMPACT LOOSE EXISTING BASE. REPLACE AND COMPACT WITH HMA ANY LOST BASE.

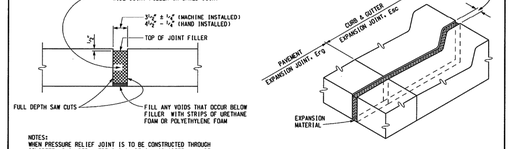
CASE V
FULL DEPTH HMA REPAIR OF CONCRETE PAVEMENT WITH HMA SURFACE
REMOVE EXISTING HMA DETERIORATED CONCRETE PAVEMENT FULL DEPTH. COMPACT LOOSE EXISTING BASE. REPLACE AND COMPACT WITH HMA ANY LOST BASE.

FOR CASES IV, & V: THE REMOVED MATERIAL SHALL BE REPLACED WITH A HMA TOP COURSE MIXTURE. THE HMA SHALL BE COMPACTED WITH A MACHINE VIBRATOR OR APPROVED ROLLER WITH BASE LIFT THICKNESSES NOT TO EXCEED 3" AND WITH THE TOP LIFT THICKNESS NOT TO EXCEED 2". THE FINAL SURFACE OF THE REPAIR SHALL BE FLUSH WITH THE EXISTING PAVEMENT SURFACE.

FULL DEPTH REPAIR FOR JOINT OR CRACK (TRANSVERSE OR LONGITUDINAL) DETAIL B

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
CONCRETE PAVEMENT REPAIR

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 5 OF 6



NOTES:
WHEN PRESSURE RELIEF JOINT IS TO BE CONSTRUCTED THROUGH CONCRETE SHOULDER, TRENCHING BELOW CONCRETE MAY BE NECESSARY TO ALLOW ROOM FOR 1¾" FILLER.

PRESSURE RELIEF JOINT

THIS DETAIL ALSO APPLIES TO HMA SURFACED CONCRETE PAVEMENT REQUIRING PRESSURE RELIEF JOINTS

CURB, GUTTER, AND CURB FACE SHALL BE SAWED AS DEEP AS THE EXISTING PAVEMENT THICKNESS. THE REMAINING CONCRETE SHALL BE CHIPPED OUT AND EXPANSION MATERIAL OF SUFFICIENT THICKNESS SHALL BE PLACED IN SAWED JOINT TO FILL THE GAP AS DIRECTED BY THE ENGINEER.

EXPANSION JOINT, Eac

NOTES:

CONCRETE PAVEMENT REPAIRS (INCLUDING JOINT TYPES) OR PRESSURE RELIEF DETAILS SHALL BE AS SPECIFIED ON THE PLANS OR IN THE LOG OF PROJECT.

IF THE EXISTING PAVEMENT HAS A HMA SURFACE, THE SAW CUTS SHALL EXTEND THROUGH THE UNDERLYING PORTLAND CEMENT CONCRETE.

SAW OVERCUTS IN ADJACENT LANE-, SHOULDER, RAMP-, AND GUTTERS THAT WILL REMAIN IN PLACE, SHALL BE CLEANED AND THEN SEALED WITH HOT-POURED RUBBER-ASPHALT.

WHEN THE CONCRETE PAVEMENT REPAIR IS CONSTRUCTED IN PREPARATION FOR AN OVERLAY, Crg JOINT RESERVOIRS AND SEALANTS SHALL BE OMITTED AND EXPANSION JOINTS (Erg) SHALL HAVE THE FIBER JOINT FILLER KEPT FLUSH TO THE PAVEMENT SURFACE.

EXPANSION CAPS SHALL BE ACCORDING TO STANDARD PLAN R-40-SERIES.

TRANSVERSE CONTRACTION Cp AND EXPANSION Ep JOINTS SHALL BE ACCORDING TO STANDARD PLAN R-39P-SERIES.

DOWEL AND DEFORMED BARS USED IN Trg, Crg, AND Erg JOINTS SHALL BE EPOXY COATED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS.

DOWEL BARS AND DEFORMED BARS FOR TIED JOINTS SHALL BE GROUTED INTO EXISTING PAVEMENT WITH A GROUT SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SOURCE GUIDE" UNDER ADHESIVE SYSTEMS FOR GROUTING DOWEL BARS AND TIE BARS FOR FULL-DEPTH CONCRETE PAVEMENT REPAIRS.

THE BACKER ROD SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THE SAME TYPE JOINT SHALL EXTEND ACROSS ADJACENT LANE REPAIRS.

AFTER GROUTING IN-PLACE, RC-250 OR AN APPROVED BOND BREAKER SHALL BE APPLIED TO THAT PORTION OF Crg AND Erg DOWEL BARS THAT EXTEND INTO THE CAST CONCRETE.

REPAIRED CONCRETE PAVEMENTS REQUIRE THAT 1" OF Erg EXPANSION JOINTS BE DISTRIBUTED THROUGHOUT A GIVEN 1000' SECTION.

WHERE THERE ARE NO REPAIR LOCATIONS WITHIN A 1000' LENGTH, NO EXPANSION SPACE WILL BE PROVIDED.

EXPANSION JOINT FILLER SHALL EXTEND THE FULL DEPTH OF THE REPAIR AND BE FLUSH WITH THE EXISTING PAVEMENT SURFACE. PRIOR TO SEALING, THE JOINT FIBER FILLER AT THE PAVEMENT SURFACE SHALL BE REMOVED BY CUTTING 1" WIDE AND 1½" DEEP TO PERMIT THE PLACEMENT OF THE HOT-POURED RUBBER ASPHALT SEALANT. HOLES IN EXPANSION JOINT FILLER SHALL BE 1¾" MAXIMUM DIAMETER AND SHALL BE ALIGNED TO FIT DRILLED HOLES IN CONCRETE.

Erg JOINTS SHALL BE CONSTRUCTED ONLY WHEN THEY EXTEND ACROSS ALL LANES, RAMPS, OR SHOULDERS.

WHEN Erg JOINTS ARE PLACED ADJACENT TO CONCRETE CURB AND GUTTER THAT IS NOT REQUIRED TO BE REMOVED, AN Eac JOINT SHALL BE CONSTRUCTED IN THE CURB AND GUTTER.

JOINT RESERVOIRS FOR THE HOT-POURED RUBBER-ASPHALT SEALANT SHALL BE ABRASIVE BLAST CLEANED, FOLLOWED BY A FINAL CLEANING OF OIL-FREE COMPRESSED AIR PRIOR TO SEALING.

LANE TIES (TO ADJACENT PAVEMENT LANE, WHEN REQUIRED) SHALL BE SPACED ACCORDING TO STANDARD PLAN R-41-SERIES, EXCEPT THAT THE FIRST LANE TIE ADJACENT TO A TRANSVERSE JOINT SHALL BE INSTALLED AT A DISTANCE OF 1'-6" FROM THE JOINT. WHEN BOTH SIDES OF A LONGITUDINAL JOINT ARE POURED INTEGRALLY, LANE TIES SHALL BE STRAIGHT DEFORMED EPOXY COATED BARS CAST-IN-PLACE AS SPECIFIED ON STANDARD PLAN R-41-SERIES. WHEN ADJACENT LANES ARE CAST SEPARATELY, LANE TIES SHALL BE GROUTED-IN-PLACE AS SPECIFIED ON THIS PLAN. THE GROUT SHALL BE SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SOURCE GUIDE", UNDER LANE TIES.

THE MONTH AND YEAR OF CASTING AND STATION NUMBER (IF REMOVED) SHALL BE STENCILED ON EACH CONCRETE REPAIR.

ALL REPAIRS WILL BE JOINTED PLAIN CONCRETE PAVEMENT.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR
CONCRETE PAVEMENT REPAIR

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 6 OF 6

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR

DETAILS

SCALE PLAN: ########

DRAWING No. 2015024-5

SHEET No. 5 OF 27

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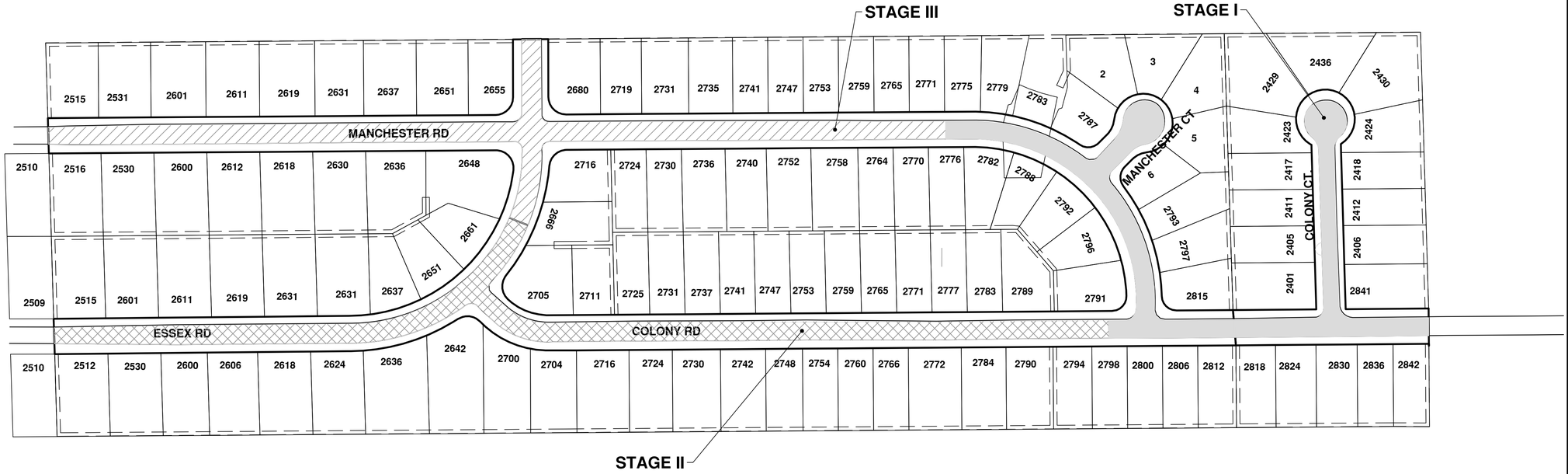


CONSTRUCTION SEQUENCE

THE CONTRACTOR SHALL REVIEW THE TRAFFIC MAINTENANCE PLANS, DETOUR PLANS, AND THE CONTRACT DOCUMENTS AND NOTE THAT EACH OF THE MAJOR STAGES OF CONSTRUCTION (STAGES 1 THROUGH 3) ARE SHOWN FOR THE PURPOSE OF COMPLETING THE CONCRETE PAVEMENT REPAIRS AND SIDEWALK WHILE MAINTAINING ACCESS TO ALL RESIDENCES SOLELY ACCESSED OFF OF COLONY RD, MANCHESTER RD., ESSEX RD. AND COLONY COURT. EACH CONSTRUCTION STAGE SHOWN ON SHEET 4 WILL BE BUILT CONSTRUCTING ONE SIDE OF ROAD AT A TIME. CONTRACTOR WILL BE REQUIRED TO KEEP ONE SIDE OF ROAD OPEN AT ALL TIMES FOR RESIDENTS AND EMERGENCY VEHICLES. CONTRACTOR WILL BE REQUIRED TO REMOVE ONLY ENOUGH OF CONCRETE PAVEMENT THAT CAN BE PLACED BACK IN SAME DAY; 25 FEET OF REMOVAL PROPERLY SECURED IS ALL THAT CAN BE LEFT OPEN AT END OF EACH DAY. WERE STORM SEWER STRUCTURES TO BE REPLACED ARE IN FRONT OF DRIVES, CONTRACTOR TO SCHEDULE REMOVAL, REPLACEMENT, BACKFILL, CONCRETE PLACEMENT, AND CURE TIME TO BE COMPLETED IN NO MORE THAN 5 DAYS FROM START TO FINISH. THE INTENT IS TO HAVE CONTRACTOR ALSO WORKING ON RESTORING LAWN AREAS AS SOON AS POSSIBLE AND COMPLETE WORK IN EACH STAGE BEFORE MOVING ON TO NEXT STAGE. WHEN CONTRACTOR NEEDS TO UTILIZE BOTH LANES TO PLACE CONCRETE REPAIRS FLAG CONTROL WILL BE REQUIRED TO BE USED TO CONTROL ACCESS. CONTRACTOR WILL SUBMIT DETAILED SCHEDULE OF WORK ITEMS AND PROPOSED COMPLETION DATES ON WEEKLY BASIS. THESE WORK ITEMS AND DATES WILL BE DISCUSSED AND ADJUSTED AS NEEDED AT WEEKLY PROGRESS MEETING. THE CONTRACTOR MAY CHOOSE TO ADJUST THE LIMITS OR SEQUENCING OF CONSTRUCTION IN ORDER TO COMPLETE THE WORK MORE EFFICIENTLY. HOWEVER, CHANGES TO THE RECOMMENDED STAGES MUST BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO CONSTRUCTION AND MUST ASSURE THAT ACCESS IS MAINTAINED AS DESCRIBED ABOVE.

STAGE I

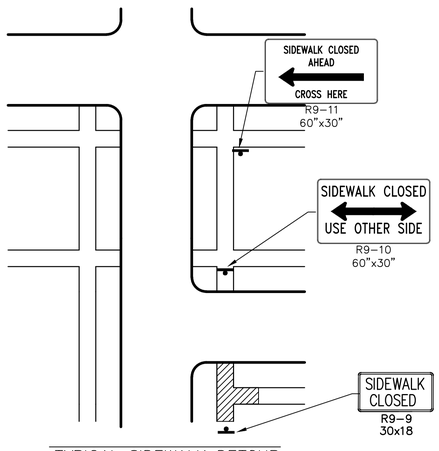
1. PLACE MESSAGE BOARDS 1 WEEK PRIOR TO START OF CONSTRUCTION. PLACE MESSAGE PER ENGINEER.
2. INSTALL TRAFFIC CONTROL DEVICES FOR DETOUR AND MAINTENANCE OF TRAFFIC PER STAGE I.
3. PLACE NO PARKING SIGNS.
4. PLACE SOIL EROSION CONTROL ITEMS AND TREE PROTECTION.
5. CONSTRUCT STORM SEWER INLETS ON COLONY AND MANCHESTER COURT.
6. REMOVE AND REPLACE CONCRETE PAVEMENT AND SIDEWALK.
7. FINISH RESTORATION, CLEAN STREET, AND COMPLETE PRELIMINARY PUNCH LIST FOR STAGE I.
8. REMOVE SOIL EROSION CONTROL MEASURES AND TREE PROTECTION.
9. REMOVE NO PARKING SIGNS, DETOUR AND CONSTRUCTION SIGNAGE.

STAGE II

1. ADJUST MESSAGE ON MESSAGE BOARDS, PLACE MESSAGE PER ENGINEER.
2. INSTALL TRAFFIC CONTROL DEVICES FOR DETOUR AND MAINTENANCE OF TRAFFIC PER STAGE II.
3. PLACE NO PARKING SIGNS.
4. PLACE SOIL EROSION CONTROL ITEMS AND TREE PROTECTION.
5. CONSTRUCT STORM SEWER FRONT OF 2724 AND 2731 COLONY COURT.
6. REMOVE AND REPLACE CONCRETE PAVEMENT AND SIDEWALK.
7. FINISH RESTORATION, CLEAN STREET, AND COMPLETE PRELIMINARY PUNCH LIST FOR STAGE II.
8. REMOVE SOIL EROSION CONTROL MEASURES AND TREE PROTECTION.
9. REMOVE NO PARKING SIGNS, DETOUR AND CONSTRUCTION SIGNAGE.

STAGE III

1. ADJUST MESSAGE ON MESSAGE BOARDS, PLACE MESSAGE PER ENGINEER.
2. INSTALL TRAFFIC CONTROL DEVICES FOR DETOUR AND MAINTENANCE OF TRAFFIC PER STAGE III.
3. PLACE NO PARKING SIGNS.
4. PLACE SOIL EROSION CONTROL ITEMS AND TREE PROTECTION.
5. CONSTRUCT STORM SEWER FRONT OF 2611, 2612, 2636, 2637, 2648, 2735 AND 2736 MANCHESTER RD.
6. REMOVE AND REPLACE CONCRETE PAVEMENT AND SIDEWALK.
7. FINISH RESTORATION, CLEAN STREET, AND COMPLETE PRELIMINARY PUNCH LIST FOR STAGE III AND OVERALL PROJECT PUNCH LIST.
8. REMOVE SOIL EROSION CONTROL MEASURES AND TREE PROTECTION.
9. REMOVE NO PARKING SIGNS, DETOUR AND CONSTRUCTION SIGNAGE.



TYPICAL SIDEWALK DETOUR
N.T.S.

PEDESTRIAN TRAFFIC CONTROL SIGNS			
SIGN	NUMBER	QUANTITY	TOTAL SFT
SIDEWALK CLOSED / USE OTHER SIDE	R9-10 60X30	3	38
SIDEWALK CLOSED / CROSS HERE	R9-11 60X30	3	38
SIDEWALK CLOSED	R9-9 30x18	3	14
SIDEWALK CLOSED AHEAD / CROSS HERE	R9-11 48x36	3	36

SIDEWALK DETOUR

1. SIGNS PROVIDED AS NEEDED. PEDESTRIAN DETOUR PLACED AS DIRECTED BY ENGINEER

TRAFFIC NOTES FOR STAGE 1, 2, AND 3

1. CONTRACTOR SHALL PLACE PORTABLE, CHANGEABLE MESSAGE SIGNS A MINIMUM OF ONE (1) WEEK PRIOR TO THE START OF CONSTRUCTION IN LOCATIONS INDICATED BY ENGINEER. MESSAGE TO BE PROVIDED BY THE ENGINEER.
2. SIGN SPACING PER MMUTCD 6C-4 OR AS DIRECTED BY ENGINEER.
3. ONE SIDE OF SIDEWALK TO BE OPEN FOR USE AT ALL TIMES.
4. ALL TRAFFIC CONTROL DEVICES TO MEET CURRENT MMUTCD PART 6 STANDARDS.
5. MAINTAIN ACCESS TO PROPERTIES AND EMERGENCY VEHICLES AT ALL TIMES.
6. CONTRACTOR TO PROVIDE TRAFFIC REGULATORS AS NEEDED AND AS DIRECTED BY ENGINEER.
7. COVER CONFLICTING SIGNS AS NEEDED OR AS DIRECTED BY ENGINEER, PAID AS PART OF MINOR TRAFFIC CONTROL.

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301 EAST HURON STREET
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734-794-6410
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR

PROJECT LAYOUT

SCALE PLAN: 1" = 100'

DRAWING No.
2015024-6

SHEET No.
6 OF 27

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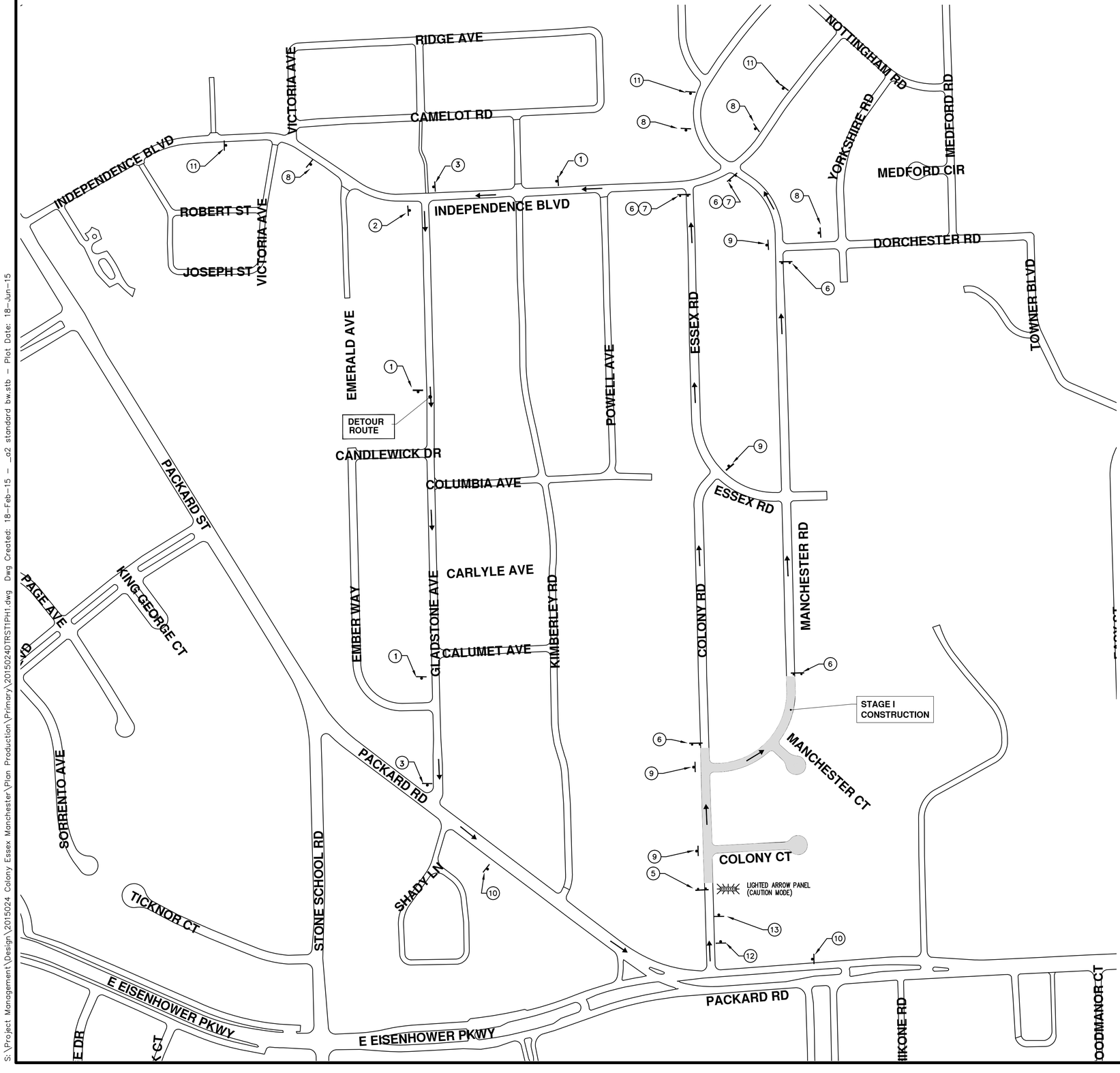

TRAFFIC CONTROL SIGN				
	SIGN	NUMBER	QUANTITY	TOTAL AREA (SFT)
1	ESSEX/COLONY	D3-1	3	6
	DETOUR	M4-9S 30x30	3	19
2	ESSEX/COLONY	D3-1	1	2
	DETOUR	M4-9R 30x24	1	5
3	ESSEX/COLONY	D3-1	2	4
	DETOUR	M4-9L 30x24	2	10
5	TYPE III BARRICADE WITH ROAD CLOSED LOCAL TRAFFIC ONLY	R11-3 60x30	1	13
6	TYPE III BARRICADE WITH ROAD CLOSED	R11-2 48x30	5	50
7	DETOUR	M4-10R 30"x24"	2	10
8	SOUTH BOUND ESSEX AND MANCHESTER ROADS CLOSED FOLLOW DETOUR	SPECIAL 48x60	4	80
9	ONE WAY	R6-1R 36x12	4	12
10	ROAD WORK AHEAD	W20-1 48 X 48	2	32
	COLONY RD.	D3-1	2	4
11	ROAD WORK AHEAD	W20-1 48 X 48	3	48
	ESSEX RD	D3-1	3	6
12	ONE LANE ROAD AHEAD	W20-4 48 X 48	1	16
13	WORK ZONE BEGINS	R5-18c 36 x 30	1	8

Know what's below. Call before you dig. 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
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301 EAST HURON STREET
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734.794.6410
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR

TRAFFIC AND DETOUR STAGE I

SCALE PLAN: 1" = 200'

DRAWING No.
20150224-7

SHEET No.
7 OF 27

S:\Project Management\Design\20150224 Colony Essex Manchester\Plan Production\Primary\20150224DTRST1PH1.dwg Dwg Created: 18-Feb-15 - _a2 standard bw.stb - Plot Date: 18-Jun-15

TRAFFIC CONTROL SIGN				
	SIGN	NUMBER	QUANTITY	TOTAL AREA (SFT)
1	ESSEX/COLONY DETOUR	D3-1	1	2
		M4-9S 30x30	1	7
2	ESSEX/COLONY DETOUR	D3-1	1	2
		M4-9R 30x24	1	5
3	ESSEX/COLONY DETOUR	D3-1	1	2
		M4-9L 30x24	1	5
5	TYPE III BARRICADE WITH ROAD CLOSED LOCAL TRAFFIC ONLY	R11-3 60x30	2	13
6	TYPE III BARRICADE WITH ROAD CLOSED	R11-2 48x30	2	20
9	ONE WAY	R6-1R 36x12	1	3
10	ROAD WORK AHEAD	W20-1 48 X 48	2	32
	COLONY RD.	D3-1	2	4
11	ROAD WORK AHEAD	W20-1 48 X 48	3	16
	ESSEX RD	D3-1	3	6
12	ONE LANE ROAD AHEAD	W20-4 48 X 48	1	16
13	WORK ZONE BEGINS	R5-18c 36 x 30	1	8
14	SOUTHBOUND ESSEX RD CLOSED FOLLOW DETOUR	SPECIAL 48x60	3	60
15	DETOUR	M4-10L 30"x24"	1	5

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CITY OF ANN ARBOR MICHIGAN

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR

TRAFFIC AND DETOUR STAGE II

SCALE PLAN: 1" = 200'

DRAWING No. 2015024-8

SHEET No. 8 OF 27

RIDGE AVE
VICTORIA AVE
CAMELOT RD
JAMES ST
ROBERT ST
VICTORIA AVE
MULBERRY CT
JOSEPH ST
INDEPENDENCE BLVD
NOTTINGHAM RD
YORKSHIRE RD
MEDFORD RD
MEDFORD CIR
DORCHESTER RD
TOWNER BLVD
EMERALD AVE
POWELL AVE
ESSEX RD
DETOUR ROUTE
STAGE III CONSTRUCTION
CANDLEWICK DR
COLUMBIA AVE
ESSEX RD
MANCHESTER RD
CARLYLE AVE
EMBER WAY
GLADSTONE AVE
KIMBERLEY RD
COLONY RD
CALUMET AVE
LIGHTED ARROW PANEL (CAUTION MODE)
PAGE AVE
KING GEORGE CT
SORRENTO AVE
PACKARD RD
SHADY LN
STONE SCHOOL RD
MANCHESTER CT
COLONY CT
TICKNOR CT
PACKARD RD
E EISENHOWER PKWY

TRAFFIC CONTROL SIGN				
	SIGN	NUMBER	QUANTITY	TOTAL AREA (SFT)
5	TYPE III BARRICADE WITH ROAD CLOSED LOCAL TRAFFIC ONLY	R11–3 60x30	2	25
6	TYPE III BARRICADE WITH ROAD CLOSED	R11–2 48"x30"	2	20
7	DETOUR	M4–10R 30"x24"	3	15
12	ONE LANE ROAD AHEAD	W20–4 48 X 48	1	16
13	WORK ZONE BEGINS	R5–18c 36 x 30	1	8
17	MANCHESTER RD / DETOUR	D3–1 M4–9R 30x24	2 2	4 10
18	MANCHESTER RD / DETOUR	D3–1 M4–9L 30x24	2 2	4 10
19	ONE WAY	R6–1L 36x12	1	3
20	ROAD WORK AHEAD MANCHESTER RD	W20–1 48 X 48 D3–1	6 6	96 12
21	SOUTH BOUND MANCHESTER ROAD CLOSED FOLLOW DETOUR	SPECIAL 48x60	4	80

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR

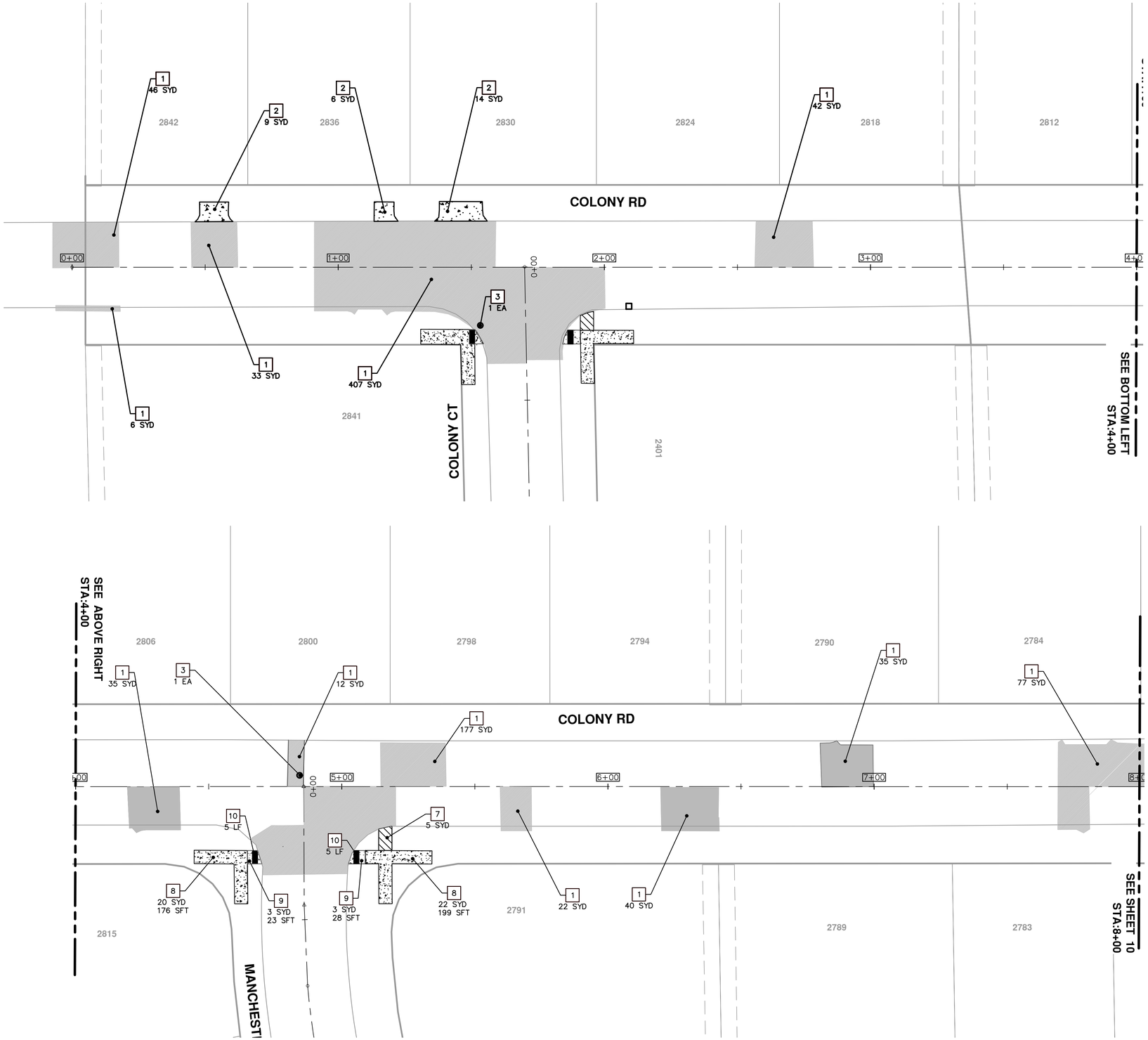
TRAFFIC AND DETOUR STAGE III

SCALE PLAN: 1" = 200'

DRAWING No.
2015024-9

SHEET No.
9 OF 27

S:\Project Management\Design\2015024 Colony Essex Manchester\Plan Production\Primary\20150240TRST3.dwg Dwg Created: 19-Feb-15 — _a2 standard bw.stb — Plot Date: 18-Jun-15



PROJECT CONSTRUCTION INCLUDES THE REMOVAL AND REPLACEMENT OF SIDEWALK AT VARIOUS ADDRESSES WITHIN THE PROJECT LIMITS THAT IS NOT SHOWN ON THE PLANS. THE QUNATITES FOR THIS WORK ARE REFLECTED IN THE OVERALL PROJECT QUANTITIES, AND SPECIFICALLY SHOWN BELOW.

SIDEWALK, REM = 795 SYD
GRADING, SIDEWALK = 795 SYD
SIDEWALK, CONC, 4 INCH, MODIFIED = 6,800 SFT
SIDEWALK. CONC. 6 INCH. MODIFIED = 350 SFT

CONSTRUCTION KEY	
KEY	DESCRIPTION
1	PAVT REMOVE AND CONC. PAVT. NONREINF. 6 INCH
2	PAVT REMOVE AND DRIVEWAY NONREINF CONC 6 INCH
3	DR. STR. COVER ADJ. CASE 1 AND DR. COVER TYPE B MODIFIED
4	DR. STRUCTURE REMOVE, DR. STRUCTURE 24 INCH, AND DR. COVER TYPE K MODIFIED
5	DR. STRUCTURE REMOVE, DR. STRUCTURE DOUBLE INLET, AND DR. COVER TYPE K MODIFIED
6	GATE BOX ADJ. CASE 1, AND MONUMENT BOX, OR GAS BOX
7	SIDEWALK REMOVAL
8	SIDEWALK REMOVAL, SIDEWALK CONC. 4 INCH
9	SIDEWALK REMOVAL, SIDEWALK RAMP CONC 6 INCH
10	DETECTABLE WARNING SURFACE

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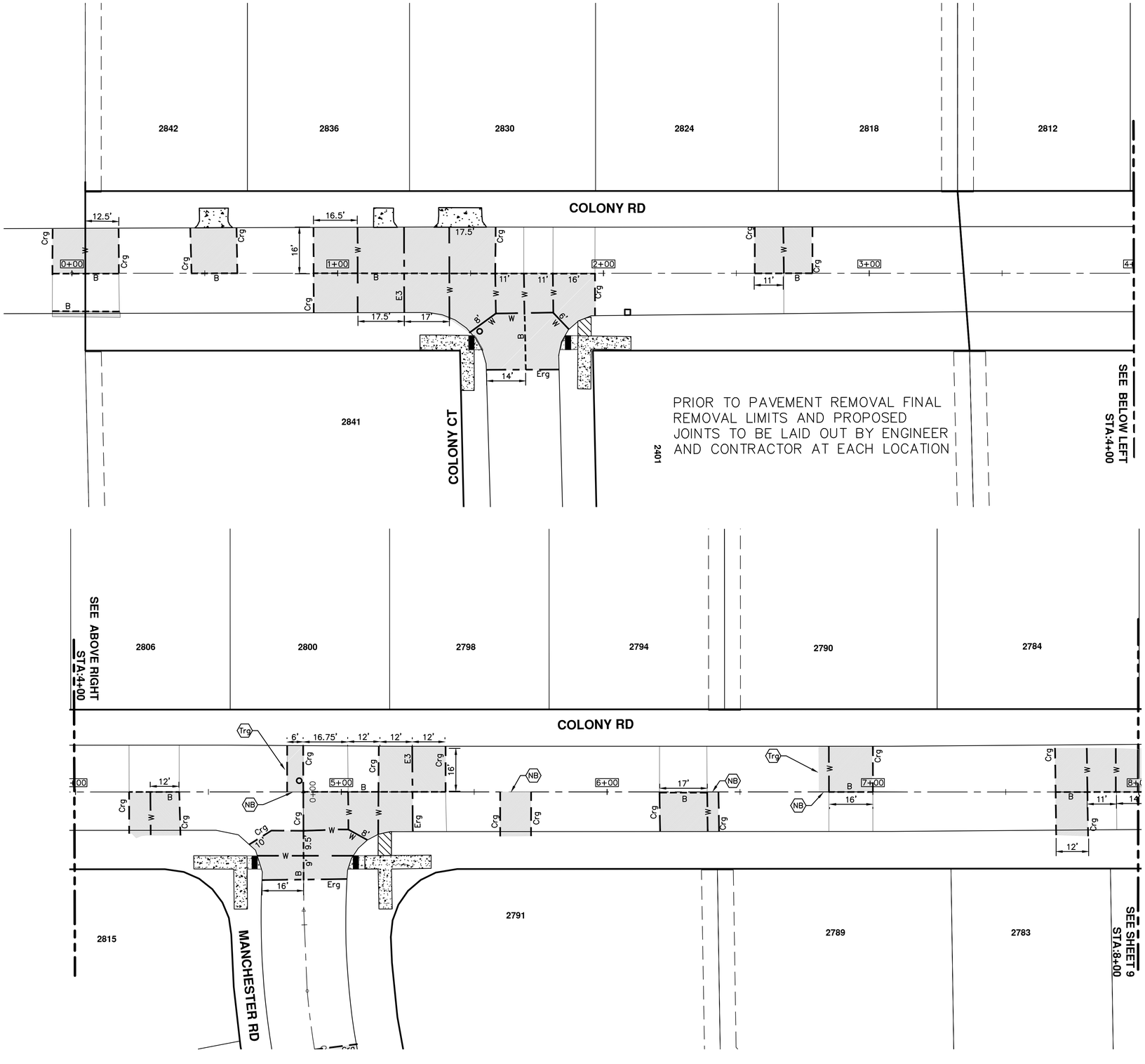
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR
COLONY RD
STA 0+00 TO 8+00 REMOVAL AND CONSTRUCTION PLAN

SCALE: 1" = 20'
DRAWING No. 2015024-10
SHEET No. 10 OF 27

S:\Project Management\Design\2015024 Colony Essex Manchester\Plan Production\Primary\2015024RESF1.dwg Dwg Created: 18-Dec-14 -- _a2 standard bw.stb -- Plot Date: 18-Jun-15



MDOT JOINT TYPE

- E3 or Erg
- Crg
- B
- W
- Trg
- NB NO TIE BARS

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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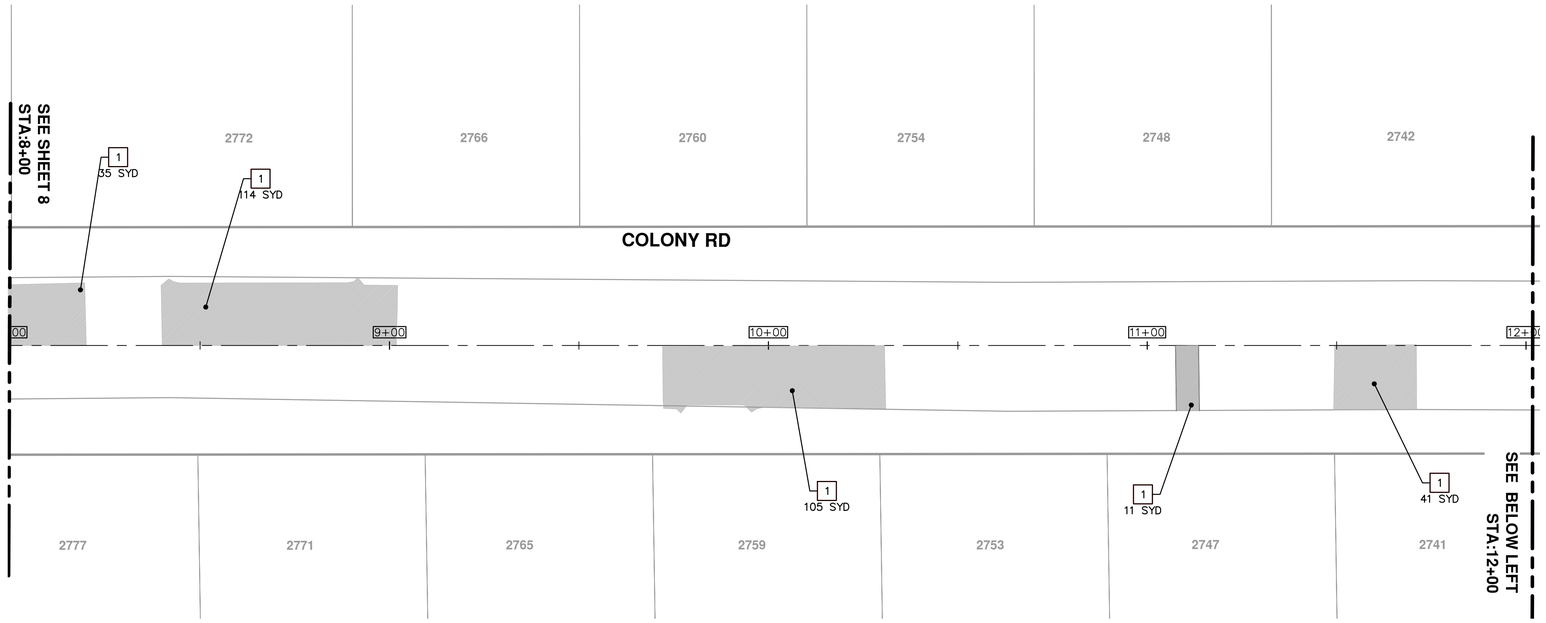
COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR

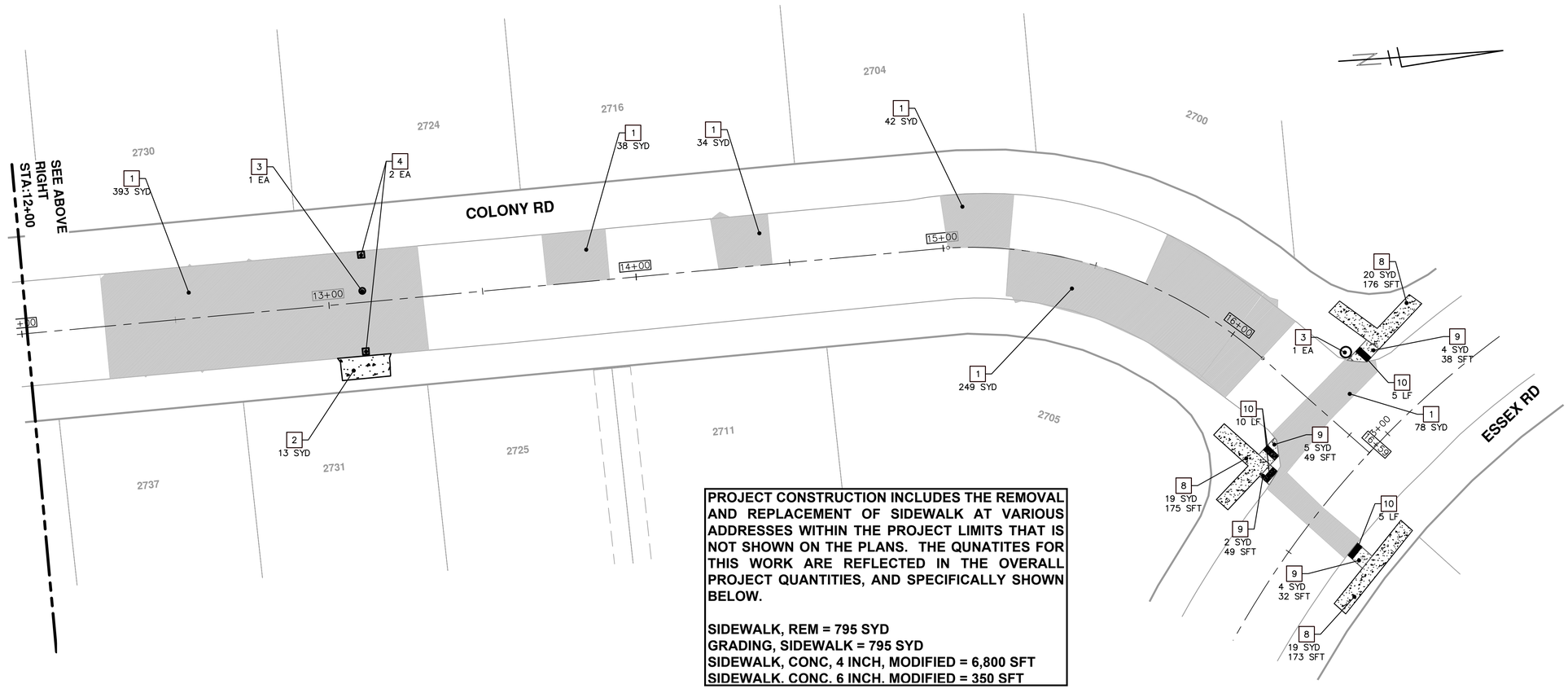
COLONY RD
STA 0+00 TO 8+00 JOINTING PLAN

SCALE PLAN: 1" = 20'

DRAWING No.
2015024-11

SHEET No.
11 OF 27





CONSTRUCTION KEY

KEY	DESCRIPTION
1	PAVT REMOVE AND CONC. PAVT. NONREINF. 6 INCH
2	PAVT REMOVE AND DRIVEWAY NONREINF CONC 6 INCH
3	DR. STR. COVER ADJ. CASE 1 AND DR. COVER TYPE B MODIFIED
4	DR. STRUCTURE REMOVE, DR. STRUCTURE 24 INCH, AND DR. COVER TYPE K MODIFIED
5	DR. STRUCTURE REMOVE, DR. STRUCTURE DOUBLE INLET, AND DR. COVER TYPE K MODIFIED
6	GATE BOX ADJ. CASE 1, AND MONUMENT BOX, OR GAS BOX
7	SIDEWALK REMOVAL
8	SIDEWALK REMOVAL, SIDEWALK CONC. 4 INCH
9	SIDEWALK REMOVAL, SIDEWALK RAMP CONC 6 INCH
10	DETECTABLE WARNING SURFACE

PROJECT CONSTRUCTION INCLUDES THE REMOVAL AND REPLACEMENT OF SIDEWALK AT VARIOUS ADDRESSES WITHIN THE PROJECT LIMITS THAT IS NOT SHOWN ON THE PLANS. THE QUNATITES FOR THIS WORK ARE REFLECTED IN THE OVERALL PROJECT QUANTITIES, AND SPECIFICALLY SHOWN BELOW.

SIDEWALK, REM = 795 SYD
GRADING, SIDEWALK = 795 SYD
SIDEWALK, CONC, 4 INCH, MODIFIED = 6,800 SFT
SIDEWALK. CONC. 6 INCH. MODIFIED = 350 SFT

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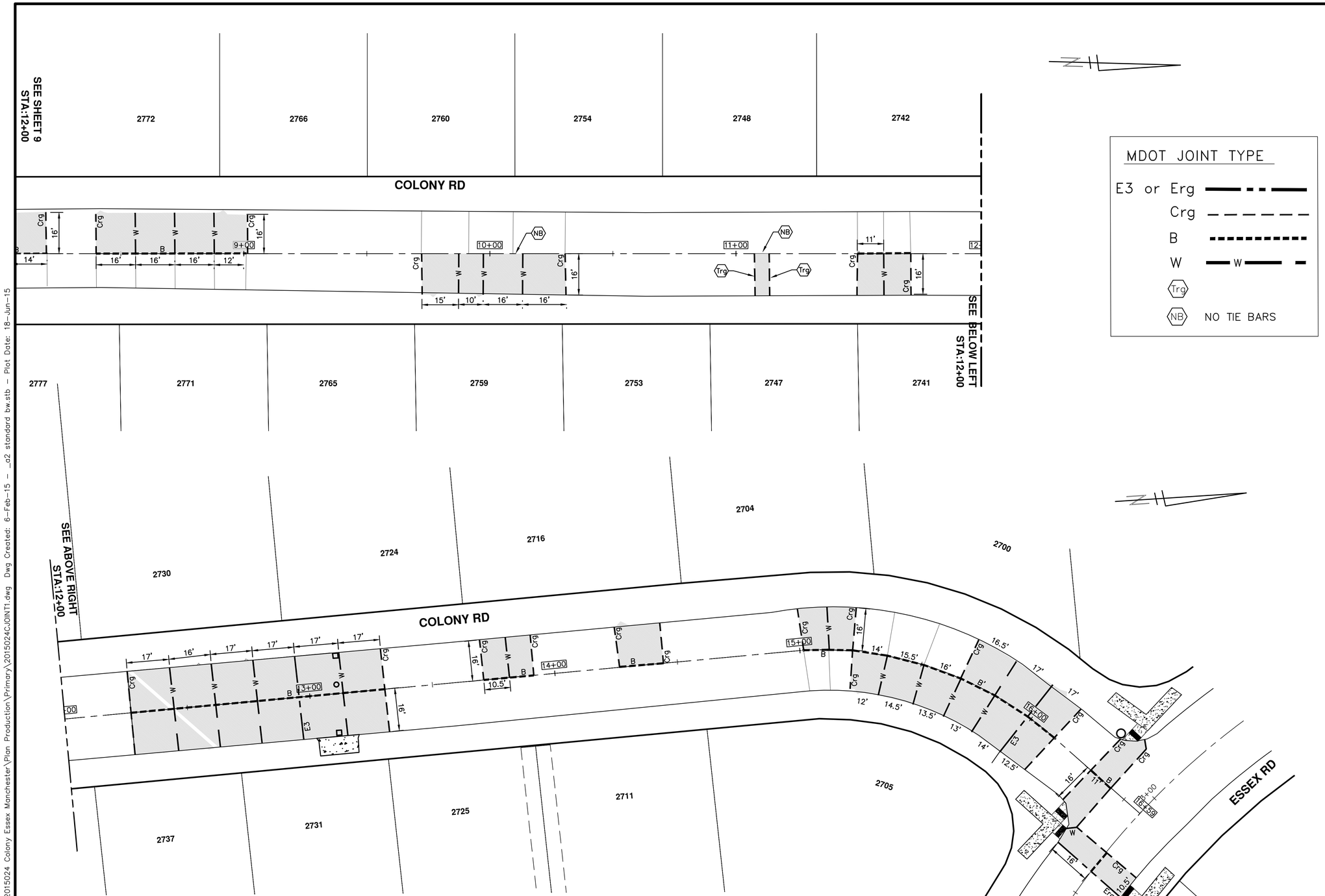
COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR
COLONY RD
STA 8+00 TO 16+00 REMOVAL AND CONSTRUCTION PLAN

SCALE PLAN: 1" = 20'

DRAWING No.
2015024-12

SHEET No.
12 OF 27

S:\Project Management\Design\2015024 Colony Essex Manchester\Plan Production\Primary\2015024RESF1.dwg Dwg Created: 18-Dec-14 - _a2 standard bw.stb - Plot Date: 18-Jun-15



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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR

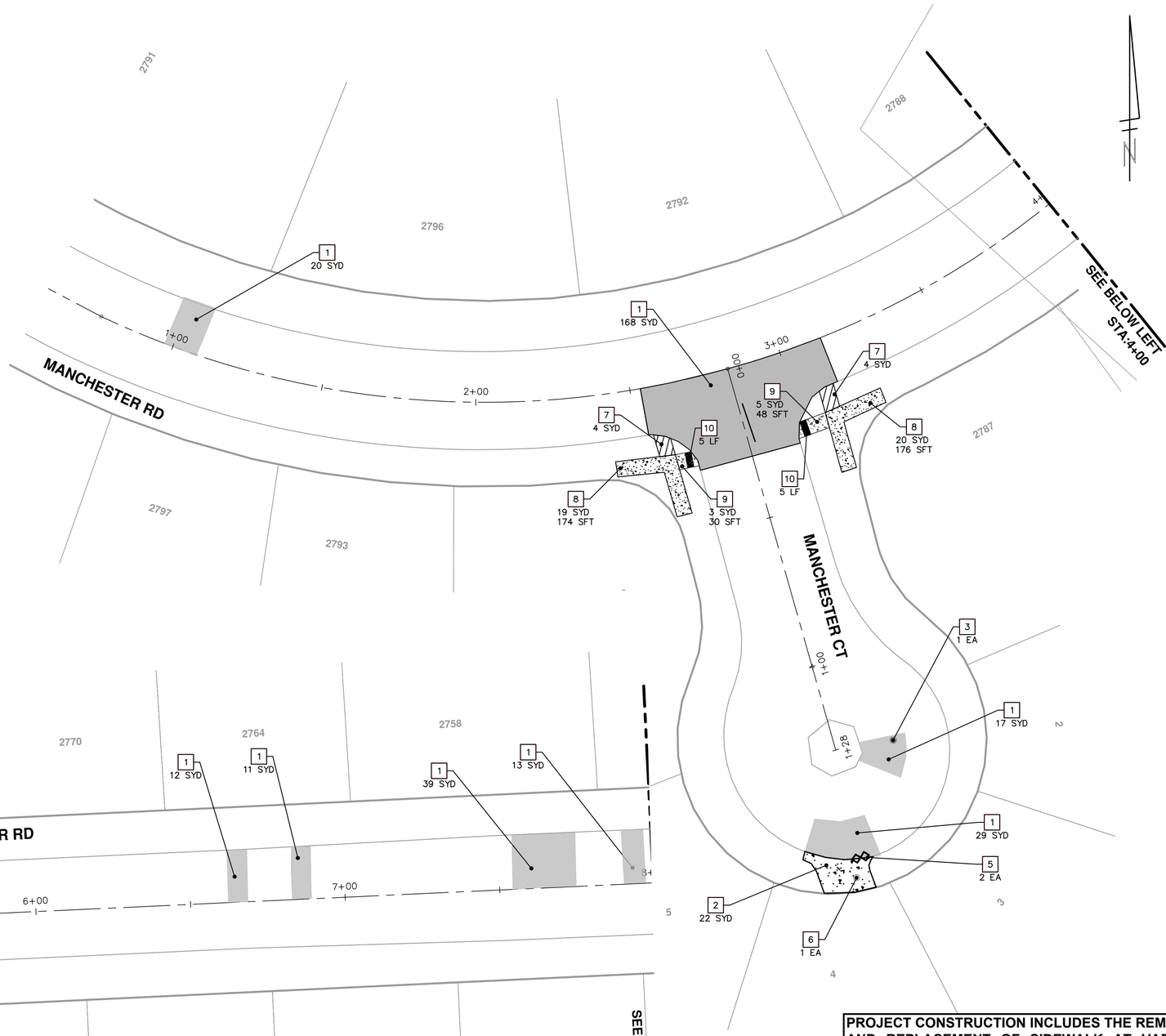
COLONY RD
STA 8+00 TO 16+00 JOINTING PLAN

SCALE/PLAN: 1" = 20'

DRAWING No.
2015024-13

SHEET No.
13 OF 27

CONSTRUCTION KEY	
KEY	**DESCRIPTION**
1	PAVT REMOVE AND CONC. PAVT. NONREINF. 6 INCH
2	PAVT REMOVE AND DRIVEWAY NONREINF CONC 6 INCH
3	DR. STR. COVER ADJ. CASE 1 AND DR. COVER TYPE B MODIFIED
4	DR. STRUCTURE REMOVE, DR. STRUCTURE 24 INCH, AND DR. COVER TYPE K MODIFIED
5	DR. STRUCTURE REMOVE, DR. STRUCTURE DOUBLE INLET, AND DR. COVER TYPE K MODIFIED
6	GATE BOX ADJ. CASE 1, AND MONUMENT BOX, OR GAS BOX
7	SIDEWALK REMOVAL
8	SIDEWALK REMOVAL, SIDEWALK CONC. 4 INCH
9	SIDEWALK REMOVAL, SIDEWALK RAMP CONC 6 INCH
10	DETECTABLE WARNING SURFACE



PROJECT CONSTRUCTION INCLUDES THE REMOVAL AND REPLACEMENT OF SIDEWALK AT VARIOUS ADDRESSES WITHIN THE PROJECT LIMITS THAT IS NOT SHOWN ON THE PLANS. THE QUNATITES FOR THIS WORK ARE REFLECTED IN THE OVERALL PROJECT QUANTITIES, AND SPECIFICALLY SHOWN BELOW.

SIDEWALK, REM = 795 SYD
GRADING, SIDEWALK = 795 SYD
SIDEWALK, CONC, 4 INCH, MODIFIED = 6,800 SFT
SIDEWALK. CONC. 6 INCH. MODIFIED = 350 SFT

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR
MANCHESTER RD
STA 0+00 TO 8+00 AND MANCHESTER CT REMOVAL AND CONSTRUCTION

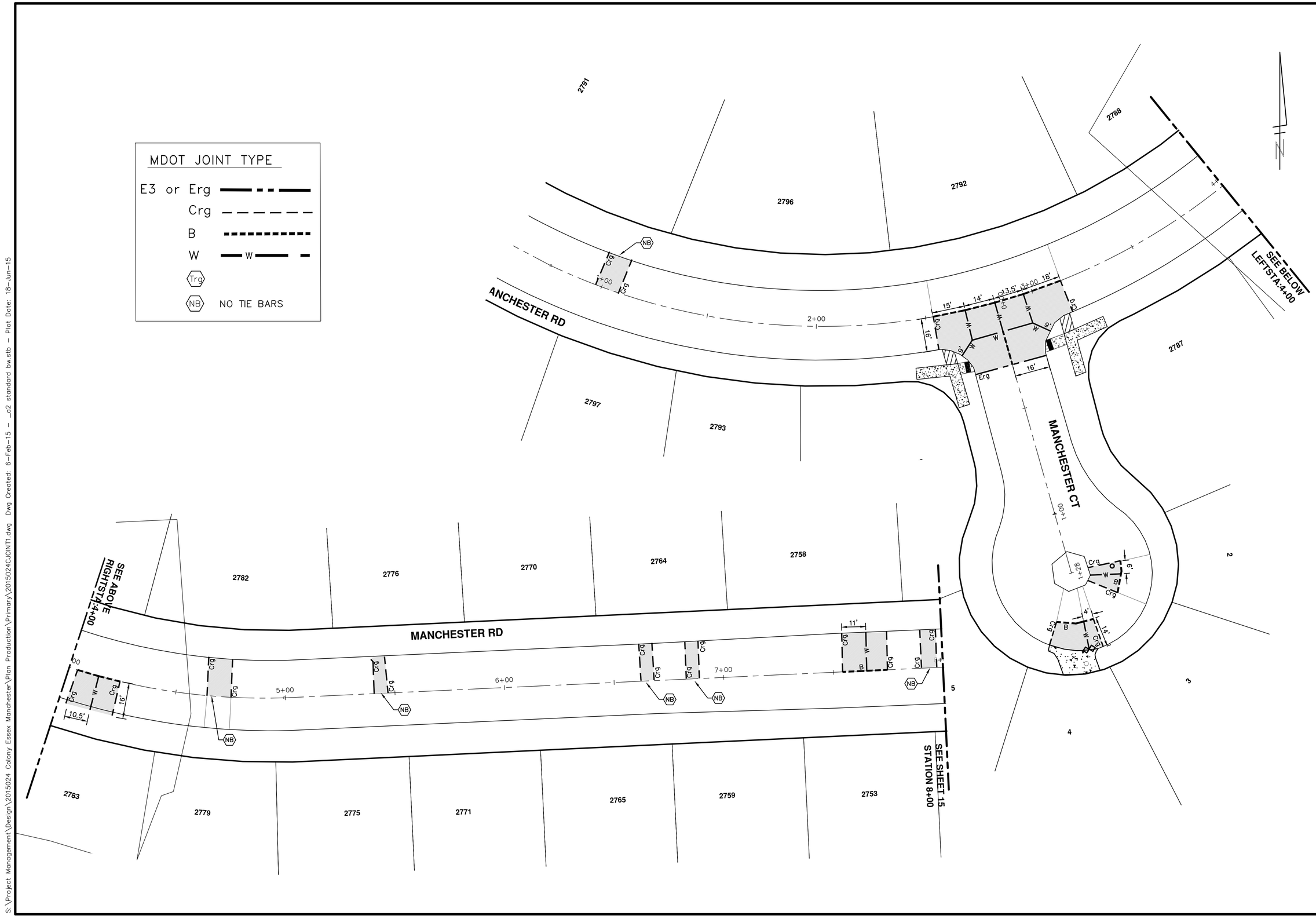
SCALE PLAN: 1" = 20'

DRAWING No. **2015024-14**

SHEET No. **14 OF 27**

MDOT JOINT TYPE

E3 or Erg	
Crg	
B	
W	W
Trg	
NB	NO TIE BARS



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

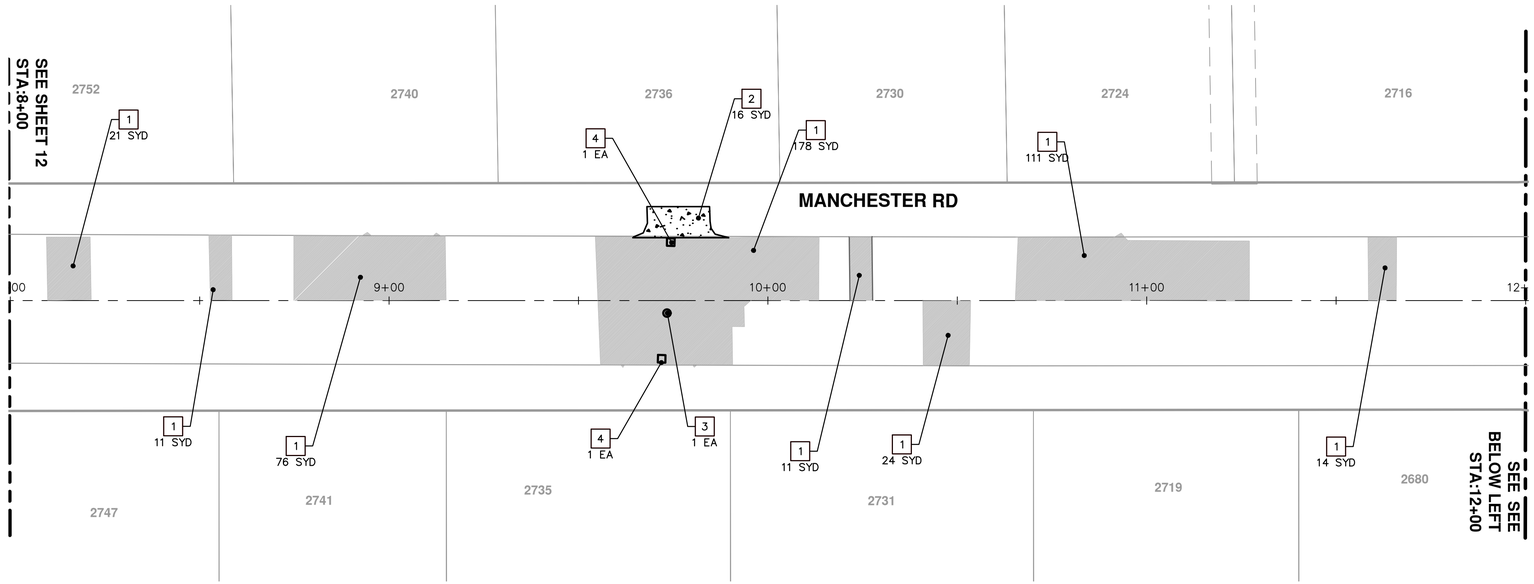
COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR

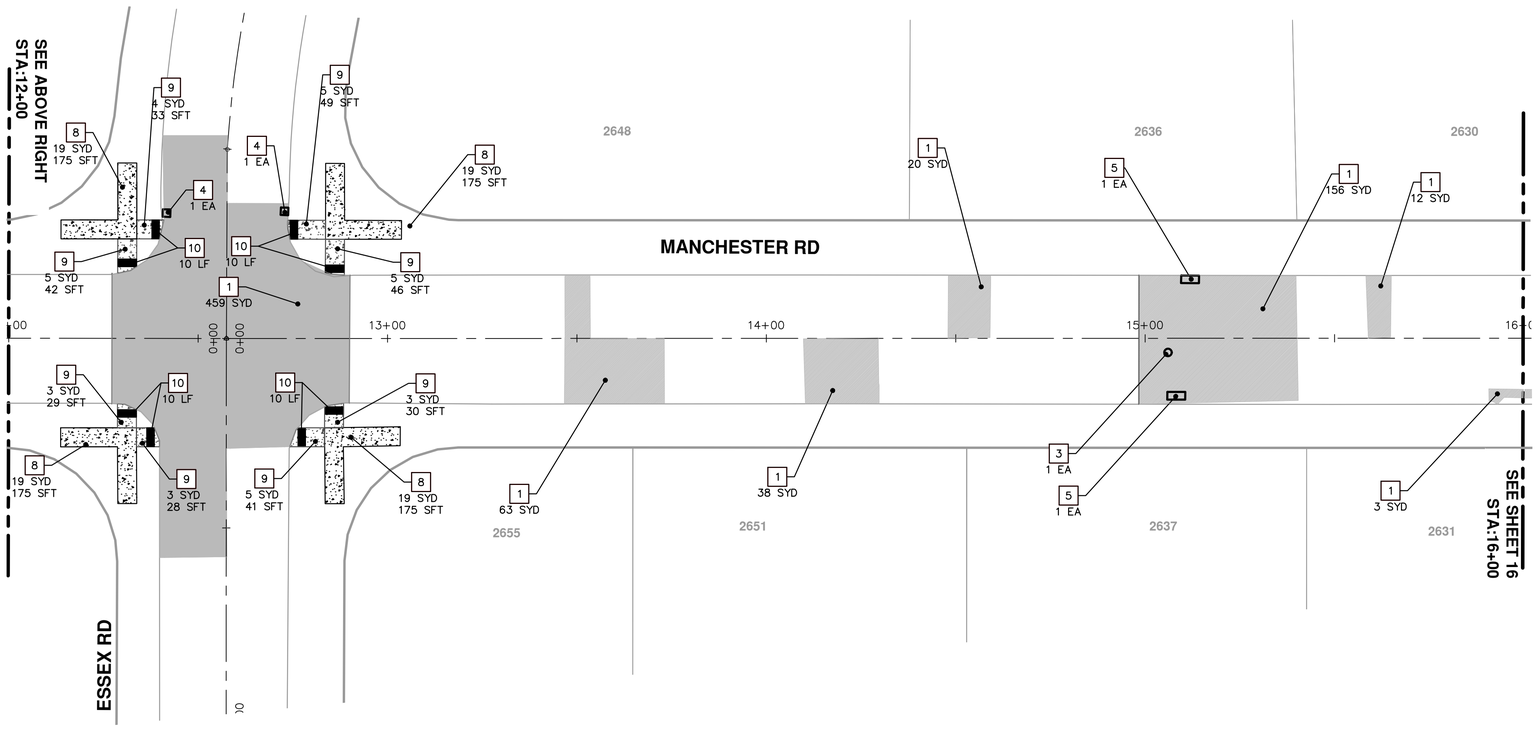
MANCHESTER RD
STA 0+00 TO 8+00 AND MANCHESTER CT JOINTING PLAN

SCALE PLAN: 1" = 20'

DRAWING No.
2015024-15

SHEET No.
15 OF 27





PROJECT CONSTRUCTION INCLUDES THE REMOVAL AND REPLACEMENT OF SIDEWALK AT VARIOUS ADDRESSES WITHIN THE PROJECT LIMITS THAT IS NOT SHOWN ON THE PLANS. THE QUNATITES FOR THIS WORK ARE REFLECTED IN THE OVERALL PROJECT QUANTITIES, AND SPECIFICALLY SHOWN BELOW.

SIDEWALK, REM = 795 SYD
GRADING, SIDEWALK = 795 SYD
SIDEWALK, CONC, 4 INCH, MODIFIED = 6,800 SFT
SIDEWALK. CONC. 6 INCH. MODIFIED = 350 SFT

CONSTRUCTION KEY	
KEY	DESCRIPTION
1	PAVT REMOVE AND CONC. PAVT. NONREINF. 6 INCH
2	PAVT REMOVE AND DRIVEWAY NONREINF CONC 6 INCH
3	DR. STR. COVER ADJ. CASE 1 AND DR. COVER TYPE B MODIFIED
4	DR. STRUCTURE REMOVE, DR. STRUCTURE 24 INCH, AND DR. COVER TYPE K MODIFIED
5	DR. STRUCTURE REMOVE, DR. STRUCTURE DOUBLE INLET, AND DR. COVER TYPE K MODIFIED
6	GATE BOX ADJ. CASE 1, AND MONUMENT BOX, OR GAS BOX
7	SIDEWALK REMOVAL
8	SIDEWALK REMOVAL, SIDEWALK CONC. 4 INCH
9	SIDEWALK REMOVAL, SIDEWALK RAMP CONC 6 INCH
10	DETECTABLE WARNING SURFACE

Know what's below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

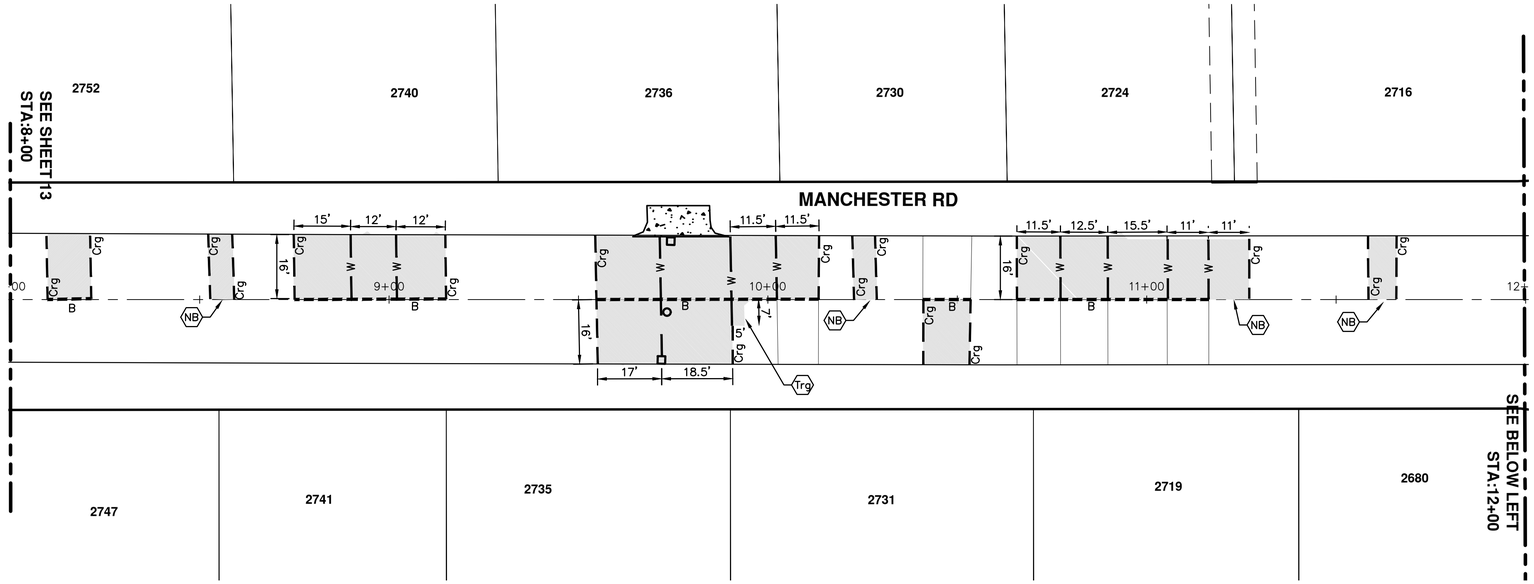
COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR

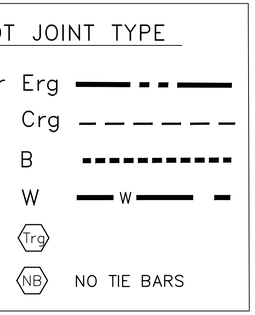
MANCHESTER RD
STA 8+00 TO 16+00 REMOVAL AND CONSTRUCTION PLAN

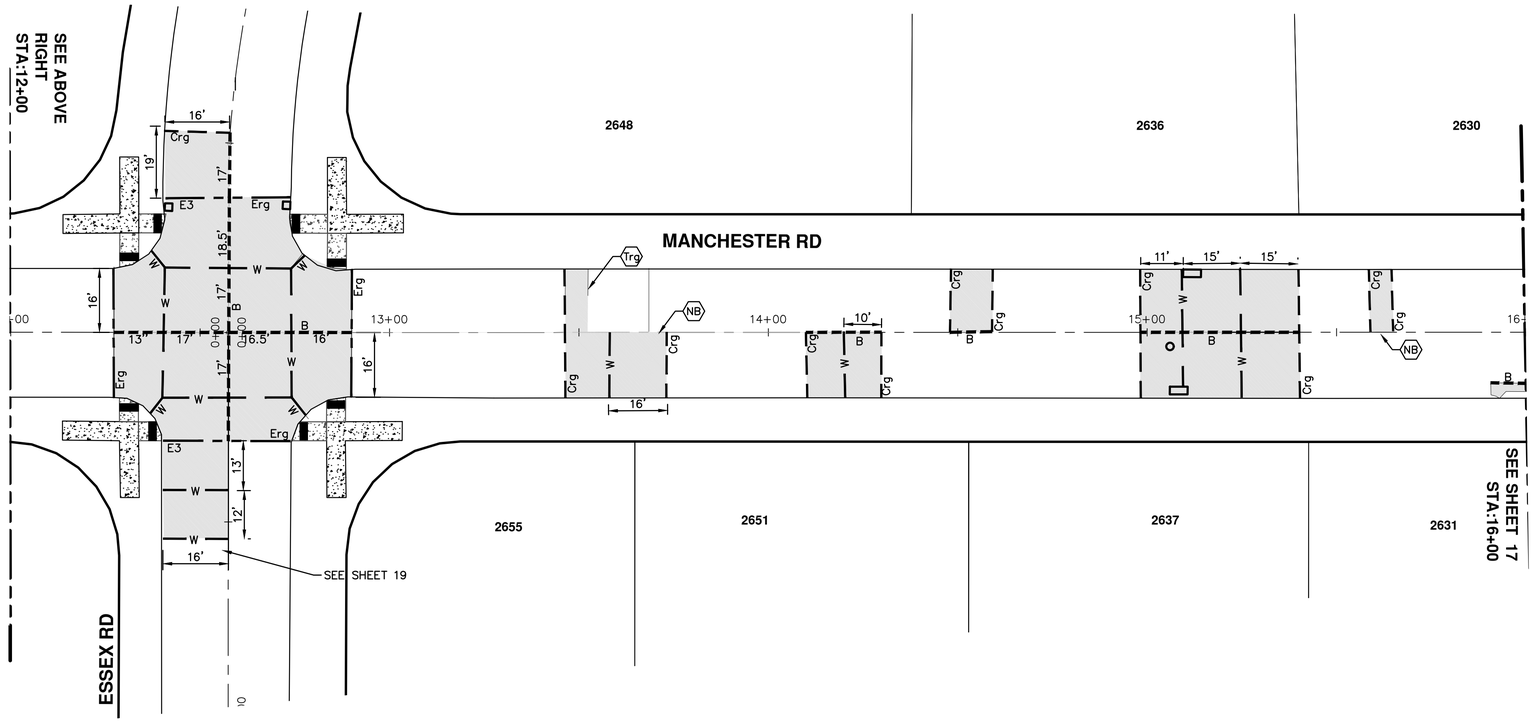
SCALE PLAN: 1" = 20'

DRAWING No.
2015024-16

SHEET No.
16 OF 27







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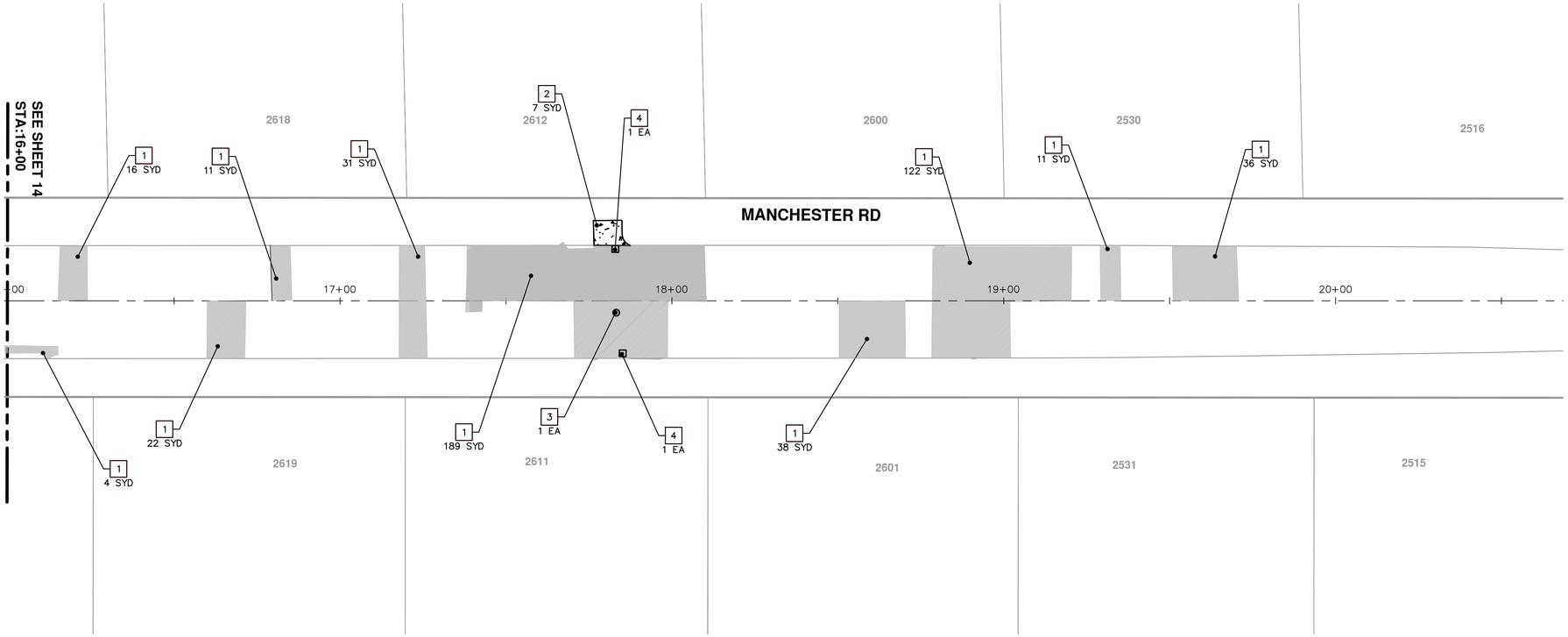
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

SCALE PLAN: 1" = 20'

DRAWING No.
2015024-17

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR
MANCHESTER RD
STA 8+00 TO 16+00 JOINTING PLAN

SHEET No.
17 OF 27



PROJECT CONSTRUCTION INCLUDES THE REMOVAL AND REPLACEMENT OF SIDEWALK AT VARIOUS ADDRESSES WITHIN THE PROJECT LIMITS THAT IS NOT SHOWN ON THE PLANS. THE QUNATITES FOR THIS WORK ARE REFLECTED IN THE OVERALL PROJECT QUANTITIES, AND SPECIFICALLY SHOWN BELOW.

SIDEWALK, REM = 795 SYD
GRADING, SIDEWALK = 795 SYD
SIDEWALK, CONC, 4 INCH, MODIFIED = 6,800 SFT
SIDEWALK. CONC. 6 INCH. MODIFIED = 350 SFT

CONSTRUCTION KEY

KEY	DESCRIPTION
1	PAVT REMOVE AND CONC. PAVT. NONREINF. 6 INCH
2	PAVT REMOVE AND DRIVEWAY NONREINF CONC 6 INCH
3	DR. STR. COVER ADJ. CASE 1 AND DR. COVER TYPE B MODIFIED
4	DR. STRUCTURE REMOVE, DR. STRUCTURE 24 INCH, AND DR. COVER TYPE K MODIFIED
5	DR. STRUCTURE REMOVE, DR. STRUCTURE DOUBLE INLET, AND DR. COVER TYPE K MODIFIED
6	GATE BOX ADJ. CASE 1, AND MONUMENT BOX, OR GAS BOX
7	SIDEWALK REMOVAL
8	SIDEWALK REMOVAL, SIDEWALK CONC. 4 INCH
9	SIDEWALK REMOVAL, SIDEWALK RAMP CONC 6 INCH
10	DETECTABLE WARNING SURFACE

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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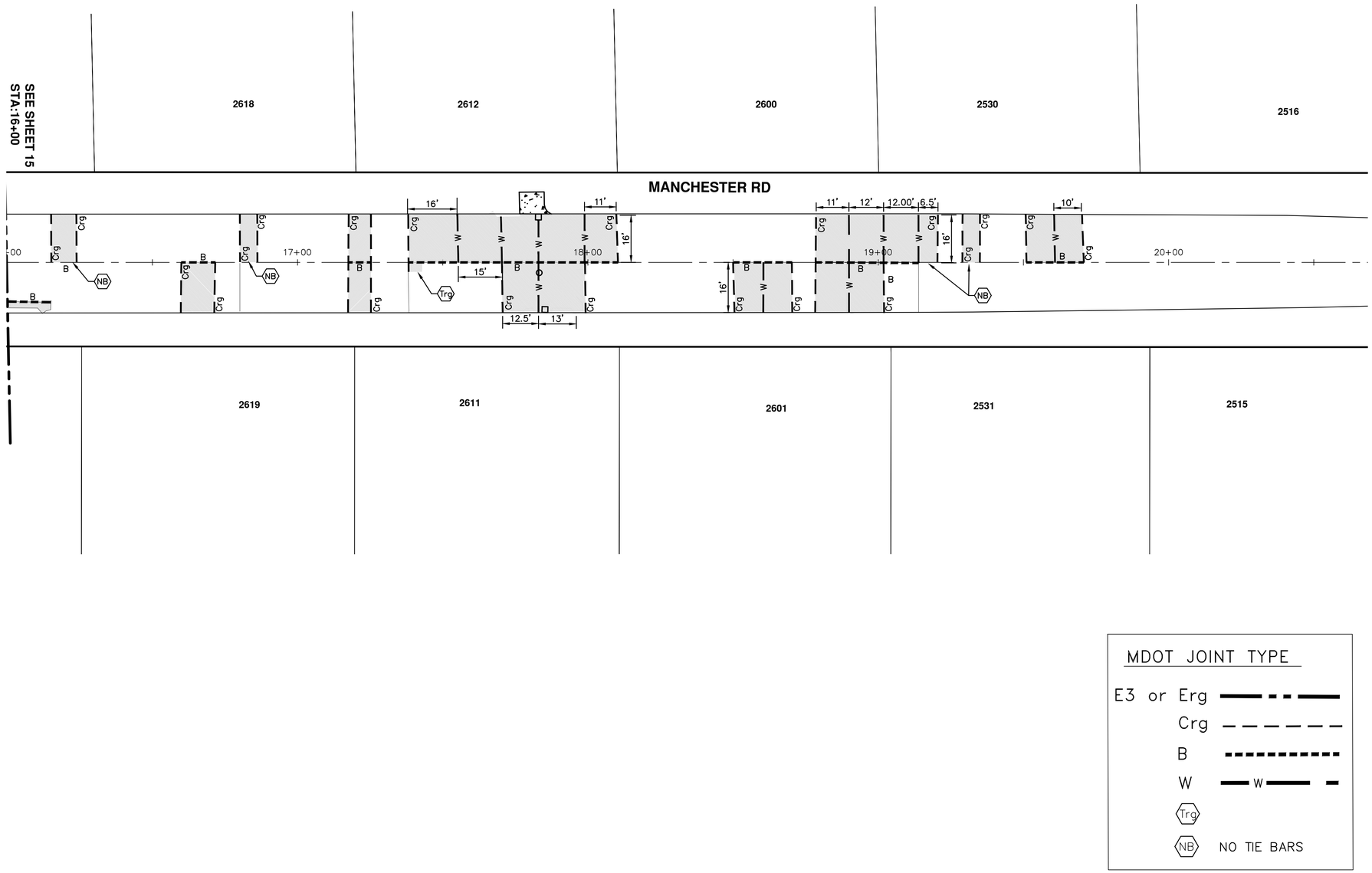
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR
MANCHESTER RD
STA 16+00 TO 20+00 REMOVAL AND CONSTRUCTION PLAN

SCALE **PLAN: 1" = 20'**

DRAWING No.
2015024-18

SHEET No.
18 OF 27



MDOT JOINT TYPE

E3 or Erg

Crg

B

W

Trg

NB NO TIE BARS

Know what's **below.** **Call before you dig.** 811

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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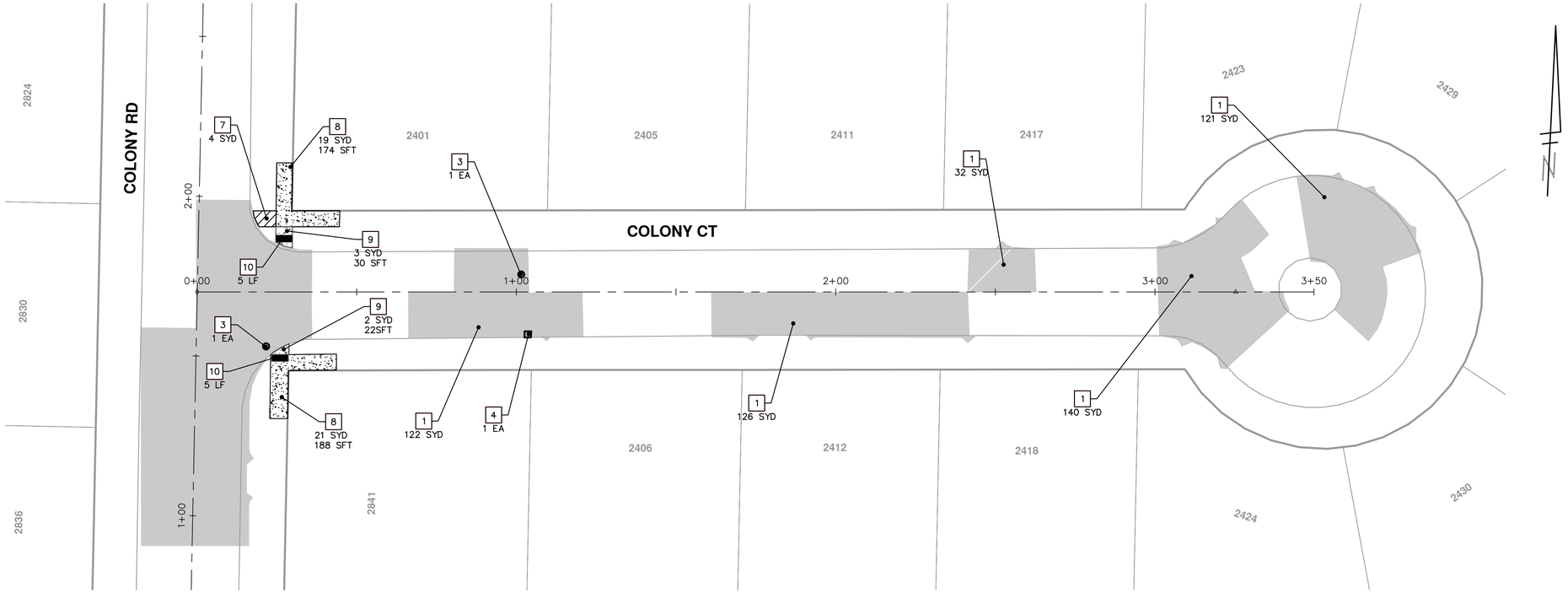
SCALE **PLAN: 1" = 20'**

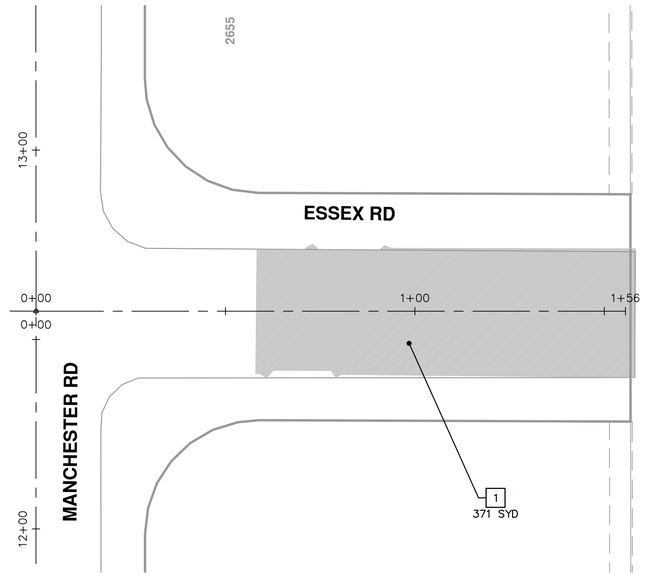
DRAWING No. **2015024-19**

SHEET No. **19 OF 27**

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR
MANCHESTER RD
STA 16+00 TO 20+00 JOINTING PLAN

S:\Project Management\Design\2015024 Colony Essex Manchester\Plan Production\Primary\2015024CJOINT1.dwg Dwg Created: 6-Feb-15 — _a2 standard bw.stb — Plot Date: 18-Jun-15





PROJECT CONSTRUCTION INCLUDES THE REMOVAL AND REPLACEMENT OF SIDEWALK AT VARIOUS ADDRESSES WITHIN THE PROJECT LIMITS THAT IS NOT SHOWN ON THE PLANS. THE QUNATITES FOR THIS WORK ARE REFLECTED IN THE OVERALL PROJECT QUANTITIES, AND SPECIFICALLY SHOWN BELOW.

SIDEWALK, REM = 795 SYD
GRADING, SIDEWALK = 795 SYD
SIDEWALK, CONC, 4 INCH, MODIFIED = 6,800 SFT
SIDEWALK. CONC. 6 INCH. MODIFIED = 350 SFT

CONSTRUCTION KEY

KEY	DESCRIPTION
1	PAVT REMOVE AND CONC. PAVT. NONREINF. 6 INCH
2	PAVT REMOVE AND DRIVEWAY NONREINF CONC 6 INCH
3	DR. STR. COVER ADJ. CASE 1 AND DR. COVER TYPE B MODIFIED
4	DR. STRUCTURE REMOVE, DR. STRUCTURE 24 INCH, AND DR. COVER TYPE K MODIFIED
5	DR. STRUCTURE REMOVE, DR. STRUCTURE DOUBLE INLET, AND DR. COVER TYPE K MODIFIED
6	GATE BOX ADJ. CASE 1, AND MONUMENT BOX, OR GAS BOX
7	SIDEWALK REMOVAL
8	SIDEWALK REMOVAL, SIDEWALK CONC. 4 INCH
9	SIDEWALK REMOVAL, SIDEWALK RAMP CONC 6 INCH
10	DETECTABLE WARNING SURFACE

Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
P.O. BOX 8647
ANN ARBOR, MI 48107-8647
734.794.6410
www.a2gov.org

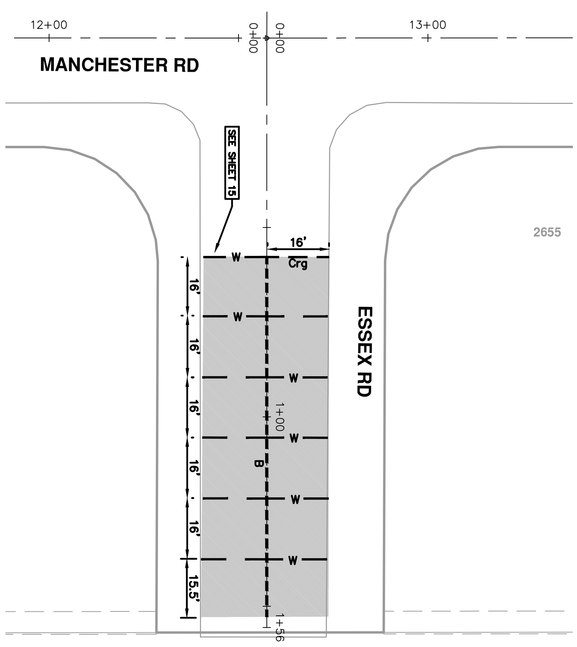
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

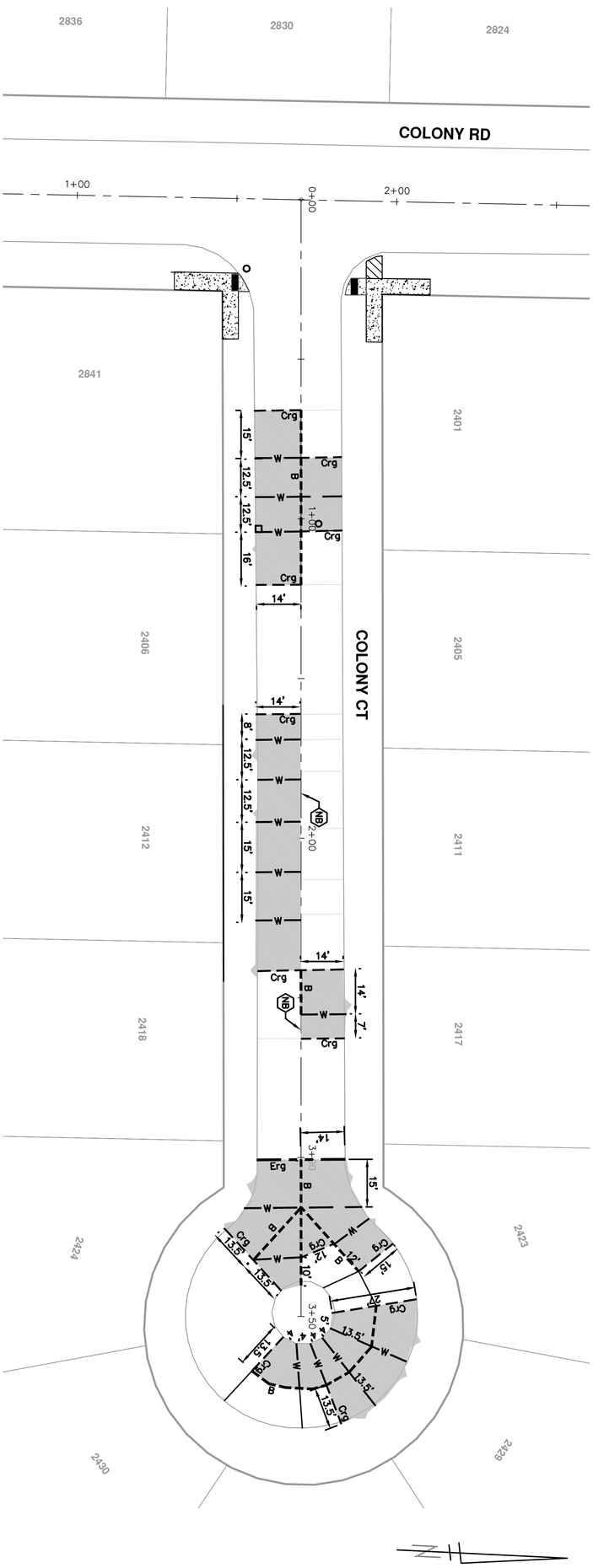
COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR
COLONY CT AND ESSEX EAST
STA 0+00 TO 1+55 REMOVAL AND CONSTRUCTION PLAN

SCALE **PLAN: 1" = 20'**

DRAWING No. **2015024-20**

SHEET No.





MDOT JOINT TYPE

E3 or Erg

Crg

B

W

Trg

NB NO TIE BARS

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

SCALE PLAN: 1" = 20'

DRAWING No. 2015024-21

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR

COLONY CT AND ESSEX EAST
STA 0+00 1+55 JOINTING PLAN

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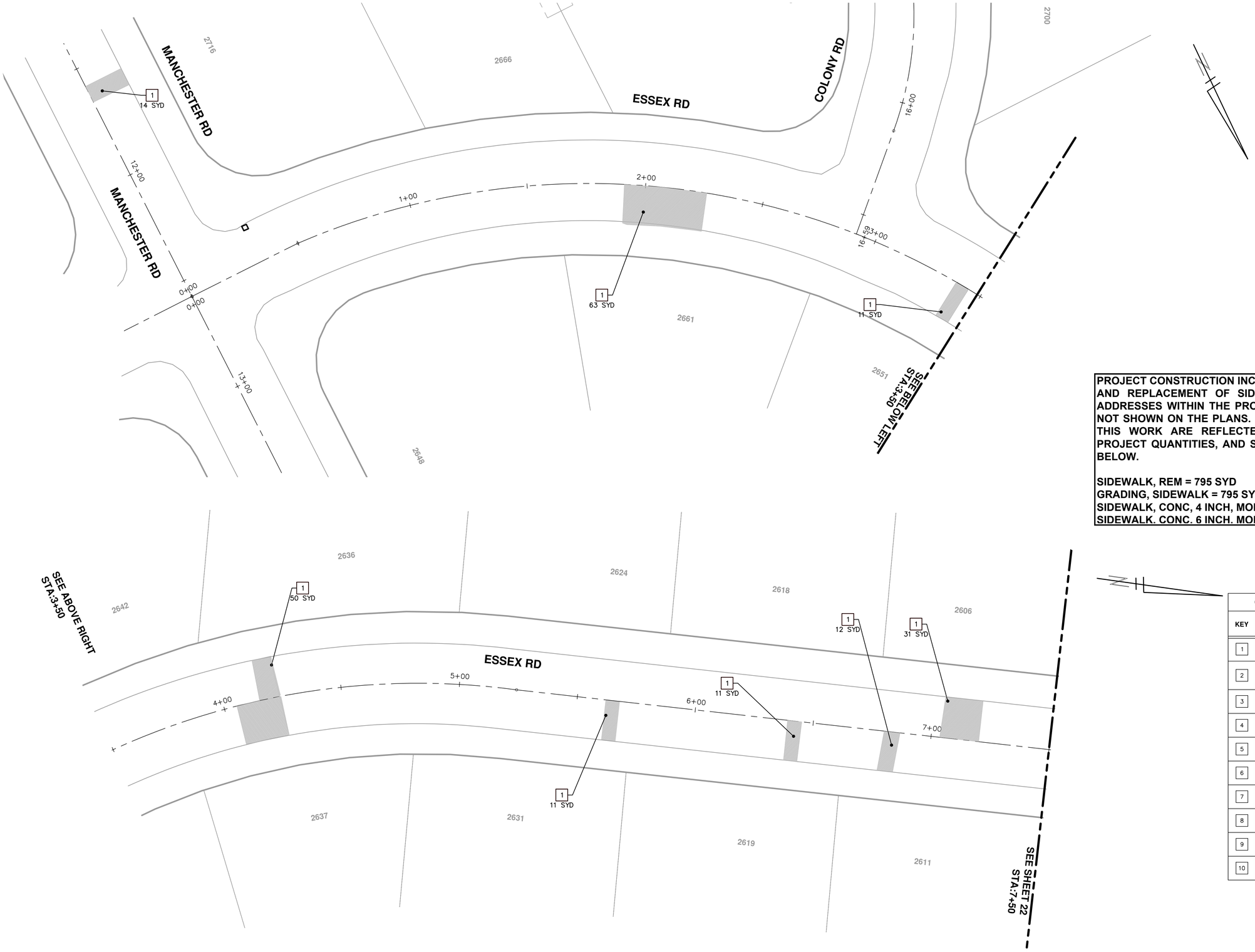
REV.	DESCRIPTION	DATE	DRAWN	CHECKED



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811 Know what's **below.** **Call before you dig.**

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

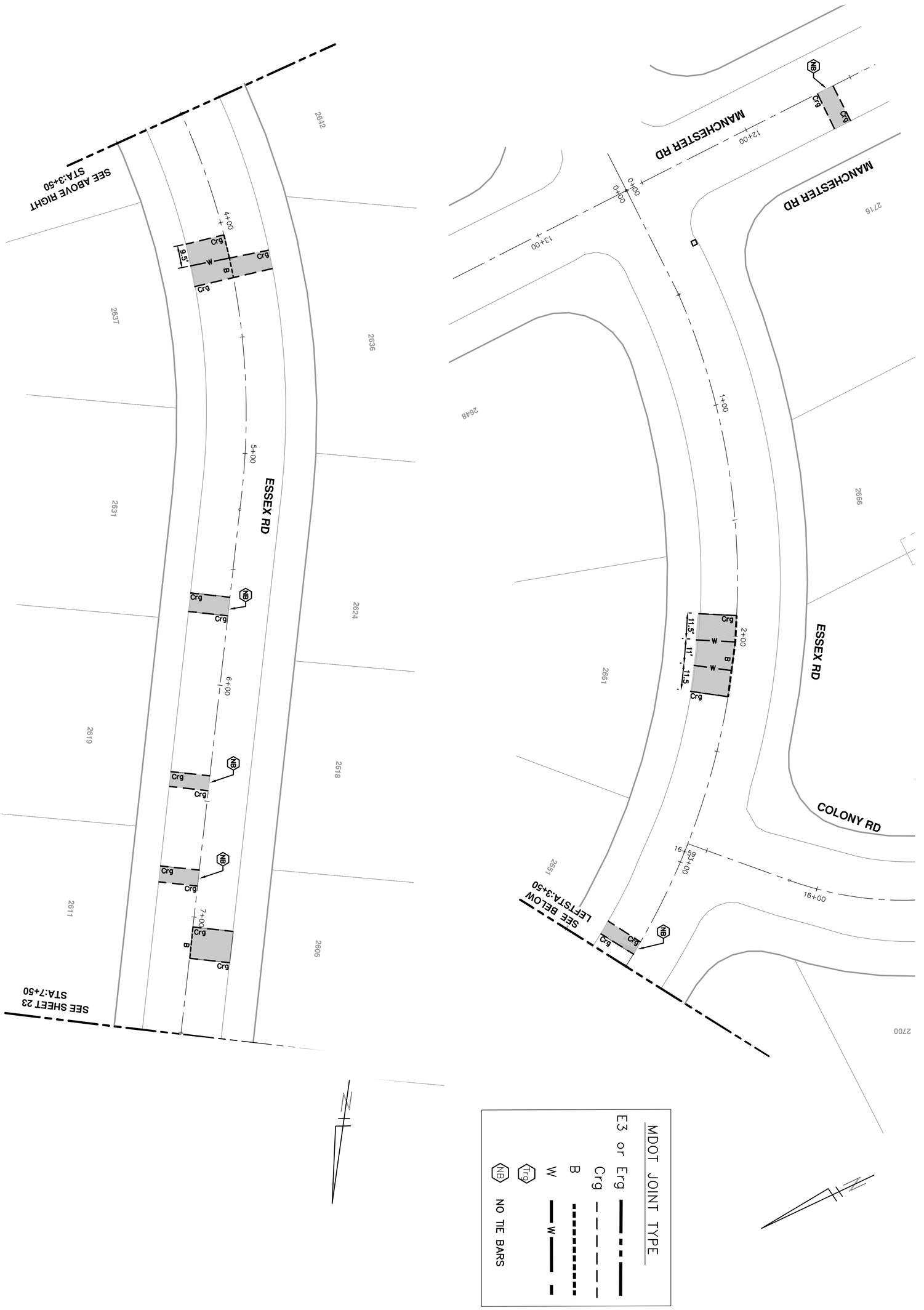
SCALE **PLAN: 1" = 20'**

DRAWING No.
2015024-22

SHEET No.
22 OF 27

COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR
ESSEX RD
STA 0+00 TO 7+50 REMOVAL AND CONSTRUCTION PLAN

S:\Project Management\Design\2015024 Colony Essex Manchester\Plan Production\Primary\2015024RESF.dwg Dwg Created: 18-Dec-14 -- _a2 standard bw.stb -- Plot Date: 18-Jun-15



SHEET No.	23 OF 27
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR	
SCALE PLAN: 1" = 20'	
DRAWING No.	2015024-23
COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR	
ESSEX RD	
STA 0+00 TO 7+50 JOINTING PLAN	

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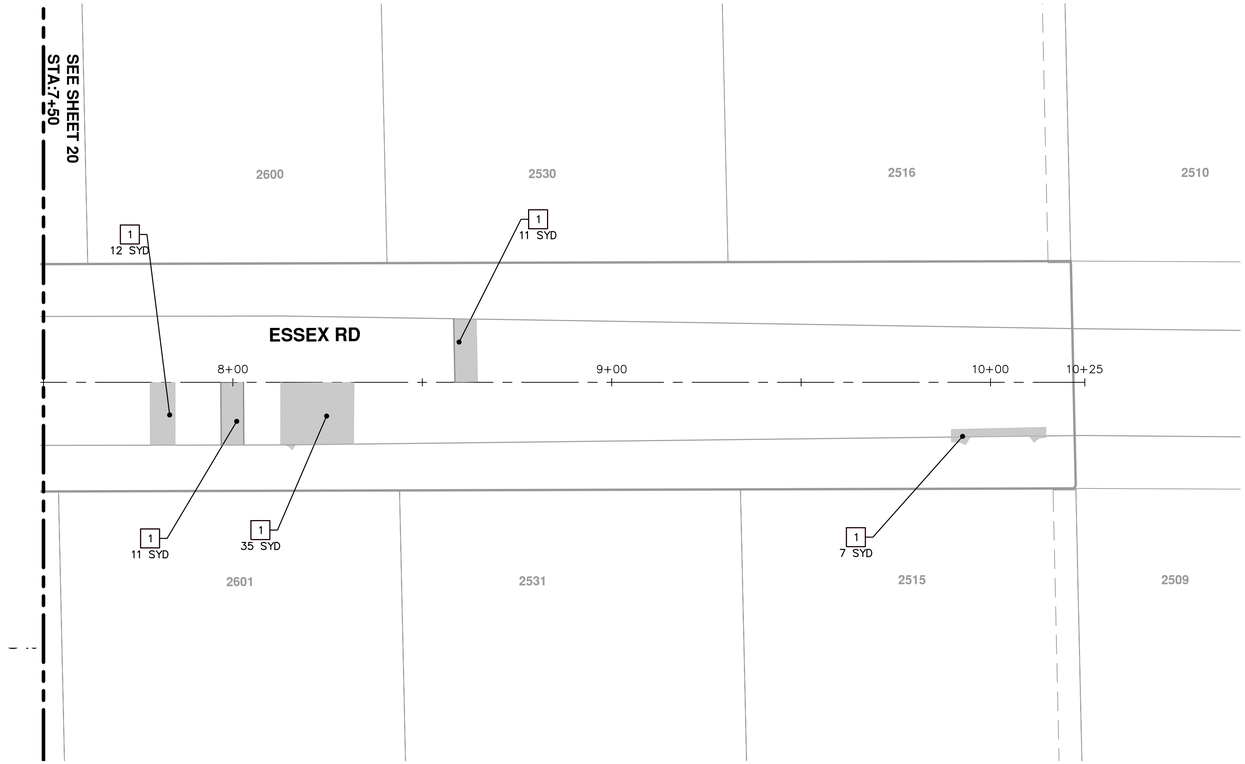
REV.	DESCRIPTION	DATE	DRAWN	CHECKED



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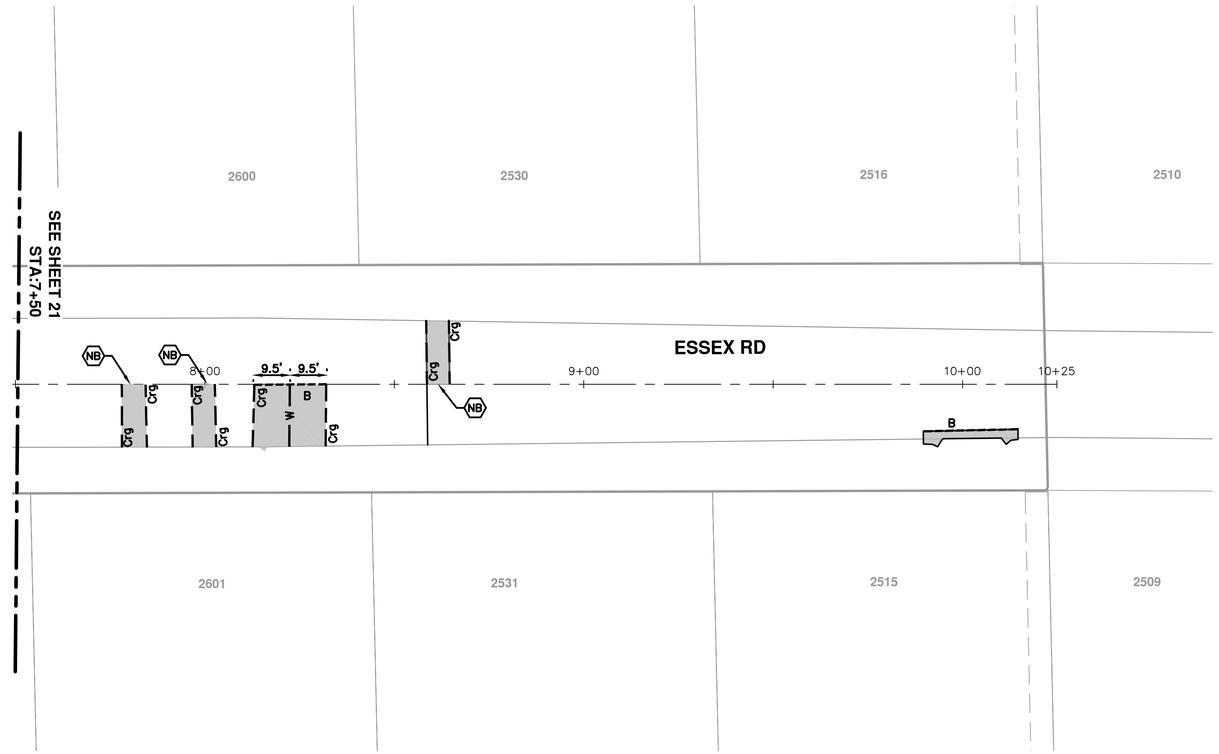
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

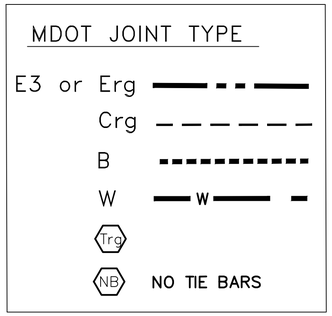
SCALE **PLAN: 1" = 20'**

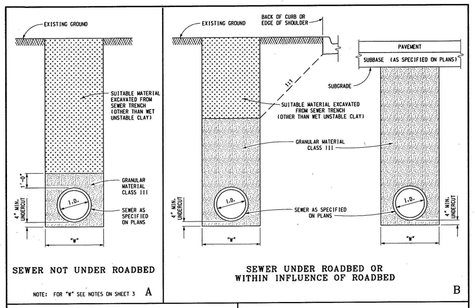
COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR
ESSEX RD
STA 7+50 TO 10+25 REMOVAL AND CONSTRUCTION PLAN

DRAWING No.
2015024-24

SHEET No.
24 OF 27



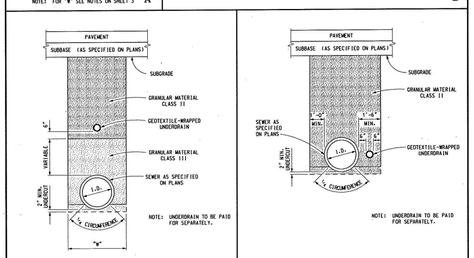




SEWER NOT UNDER ROADBED

NOTE: FOR "B" SEE NOTES ON SHEET 3 A

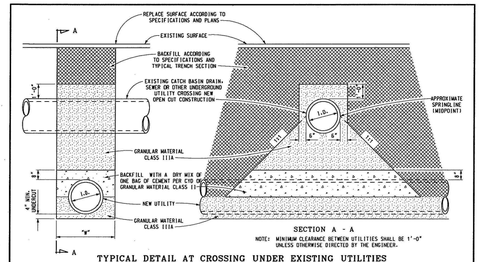
SEWER UNDER ROADBED OR WITHIN INFLUENCE OF ROADBED B



SEWER WITH UNDERDRAIN UNDER ROADBED C

SEWER WITH UNDERDRAIN UNDER ROADBED (FOR SHALLOW SEWERS) D

MDOT	ENGINEER OF CONSTRUCTION & TECHNOLOGY	ENGINEER - ROAD DESIGN	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR		
PREPARED BY DESIGN DIVISION	ENGINEER OF MAINTENANCE	ENGINEER OF DESIGN	UTILITY TRENCHES		
DRAWN BY: R.S.L.		DEPARTMENT DIRECTOR Gregory J. Rosine			
CHECKED BY: R.V.P.	ENGINEER OF TRAFFIC AND SAFETY	BY: CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES	9-14-2001 F.H.W.A. APPROVAL	2-28-2001 PLAN DATE	R-83-B SHEET 1 OF 3

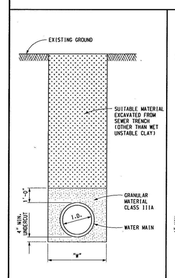


SECTION A - A

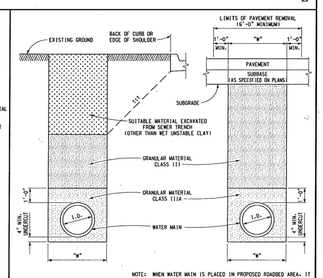
NOTE: MINIMUM CLEARANCE BETWEEN UTILITIES SHALL BE 1'-0" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TYPICAL DETAIL AT CROSSING UNDER EXISTING UTILITIES

PAYMENT FOR THIS TRENCH DETAIL WILL BE INCLUDED WITH THE ADJACENT TRENCH DETAILS E



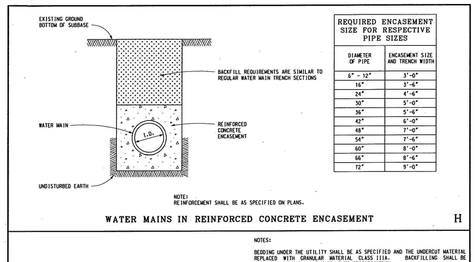
WATER MAINS NOT UNDER ROADBED F



NOTE: WHEN WATER MAIN IS PLACED IN PROPOSED ROADBED AREA, IT SHALL BE BACKFILLED WITH SELECTED EXCAVATION MATERIAL ABOVE FUTURE SUBGRADE TO EXISTING GROUND LINE.

WATER MAINS UNDER ROADBED OR WITHIN INFLUENCE OF ROADBED G

			MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR		
			UTILITY TRENCHES		
			9-14-2001 F.H.W.A. APPROVAL	2-28-2001 PLAN DATE	R-83-B SHEET 2 OF 3



NOTE: REINFORCEMENT SHALL BE AS SPECIFIED ON PLANS.

WATER MAINS IN REINFORCED CONCRETE ENCASEMENT H

REQUIRED ENCASEMENT SIZE FOR RESPECTIVE PIPE SIZES

DIAMETER OF PIPE	ENCASEMENT SIZE AND TRENCH WIDTH
6" – 12"	3'-0"
14"	3'-4"
24"	4'-8"
30"	5'-0"
36"	5'-4"
42"	6'-0"
48"	7'-0"
54"	7'-6"
60"	8'-0"
66"	8'-6"
72"	9'-0"

NOTES:

BEDDING UNDER THE UTILITY SHALL BE AS SPECIFIED AND THE UNDERCUT MATERIAL REPLACED WITH GRANULAR MATERIAL CLASS IIIA. BACKFILLING SHALL BE ACCORDING TO THE CURRENT STANDARD SPECIFICATION.

BACKFILL FOR UTILITY TRENCHES ABOVE GRANULAR MATERIAL CLASS IIIA SHALL BE PLACED AS FOLLOWS:

(A) GRANULAR MATERIAL, OF THE CLASS SPECIFIED ON DETAILS, SHALL BE USED TO BACKFILL TRENCHES UNDER THE ROADBED AND SHALL BE COMPACTED TO NOT LESS THAN 95% OF ITS MAXIMUM UNIT WEIGHT.

(B) GRANULAR MATERIAL, OF THE CLASS SPECIFIED ON DETAILS, SHALL BE USED TO BACKFILL UTILITY TRENCHES OUTSIDE THE ROADBED BUT WITHIN THE 1:1 ZONE OF INFLUENCE SHOWN. IT WILL ALSO BE USED AS BACKFILL UNDER SIDEWALKS, SURFACED AREAS, AND MISCELLANEOUS PAVED AREAS, AND COMPACTED TO NOT LESS THAN 95% OF ITS MAXIMUM UNIT WEIGHT.

(C) WHEN ACCEPTABLE, MATERIAL EXCAVATED FROM THE UTILITY TRENCHES SHALL BE USED TO BACKFILL UTILITY TRENCHES OUTSIDE THE LIMITS OF THE 1:1 ZONE OF INFLUENCE AND SHALL BE COMPACTED TO NOT LESS THAN 90% OF OF ITS MAXIMUM UNIT WEIGHT.

GRANULAR MATERIAL CLASS I, II, IIA, OR IIIA MAY BE USED WHERE GRANULAR MATERIAL CLASS III IS SPECIFIED ON THE PLANS.

SUFFICIENT TRENCH WIDTH SHALL BE PROVIDED TO ALLOW FREE WORKING SPACE AND TO PERMIT COMPACTING THE BACKFILL AROUND THE PIPE.

THE FOLLOWING ARE MINIMUM TRENCH WIDTHS:

I.D. PIPE SIZE (INCHES)	LESS THAN 18	21	24	30	36
"B" TRENCH WIDTH (FEET)	3.0	3.5	4.0	5.0	6.0
I.D. PIPE SIZE (INCHES)	42	48	54	60	66	72
"B" TRENCH WIDTH (FEET)	7.0	8.0	9.5	10.0	10.5	11.0
I.D. PIPE SIZE (INCHES)	78	84	90	96	102	108
TRENCH WIDTH (FEET)	11.5	12.0	12.5	13.0	13.5	14.0

ESTIMATED PAVEMENT REMOVAL WIDTH IS TO BE TRENCH WIDTH "B" PLUS 1'-0" EACH SIDE OF THE TRENCH (6'-0" MINIMUM).

			MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR		
			UTILITY TRENCHES		
			9-14-2001 F.H.W.A. APPROVAL	2-28-2001 PLAN DATE	R-83-B SHEET 3 OF 3

Know what's below. Call before you dig.

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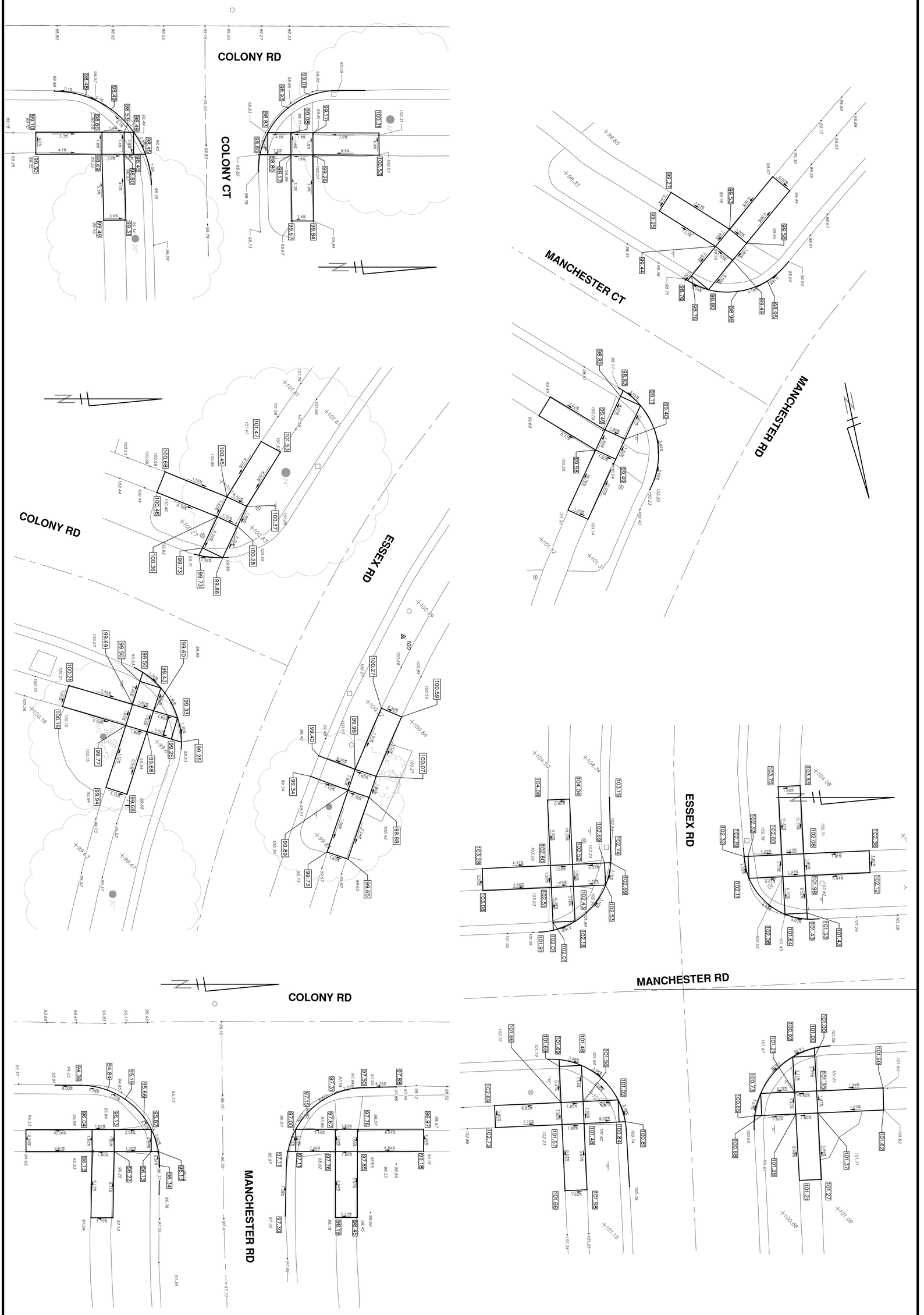
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR
ESSEX RD
STA 7+50 TO 10+25 JOINTING PLAN

SCALE PLAN: 1" = 20'

DRAWING No.
2015024-25

SHEET No.
25 OF 27



PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

SHEET No. 26 OF 27

SCALE PLAN: 1" = 10'

DRAWING No. 2015024-26

COLONY ESSEX MANCHESTER CONCRETE PAVEMENT REPAIR

SIDEWALK GRADES

CITY OF ANN ARBOR
PUBLIC SERVICE
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REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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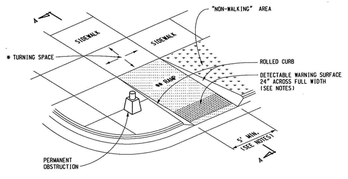
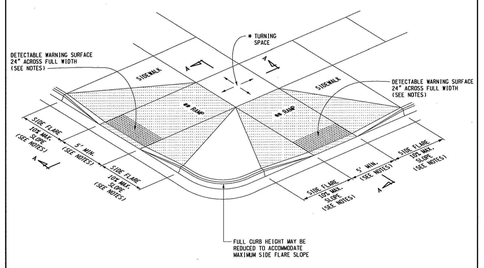
** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



SIDEWALK RAMP TYPE R

(ROLLED SIDES)



SIDEWALK RAMP TYPE F

(FLARED SIDES. TWO RAMPS SHOWN)

PREPARED BY DESIGN DIVISION

DRAWN BY: K.L.L.

CHECKED BY: K.K.P.

DEPARTMENT DIRECTOR Kirk T. Steudle

APPROVED BY: Randy V. Byrd — DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: Mark A. Van Port Fleet — DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

9-30-2014 F.H.W.A. APPROVAL	7-1-2014 PLAN DATE	R-28-I	SHEET 1 OF 7

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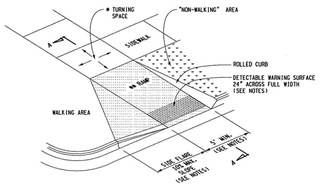
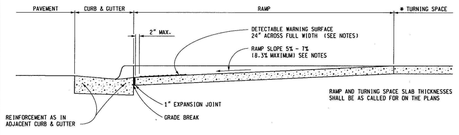
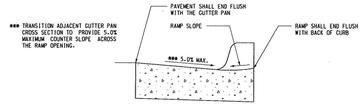


SIDEWALK RAMP TYPE RF

(ROLLED / FLARED SIDES)



SECTION A-A



SECTION THROUGH CURB CUT

(TYPICAL ALL RAMP TYPES)

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

9-30-2014 F.H.W.A. APPROVAL	7-1-2014 PLAN DATE	R-28-I	SHEET 2 OF 7

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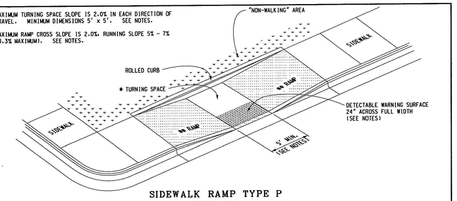
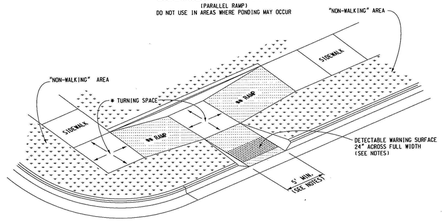


SIDEWALK RAMP TYPE P

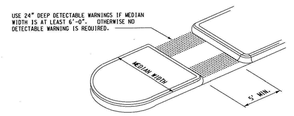
(PARALLEL RAMP)

DO NOT USE IN AREAS WHERE PONDING MAY OCCUR



SIDEWALK RAMP TYPE C

(COMBINATION RAMP)



SIDEWALK RAMP TYPE M

(MEDIAN ISLAND)

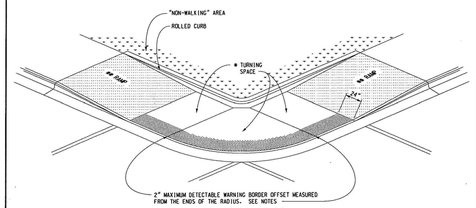
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

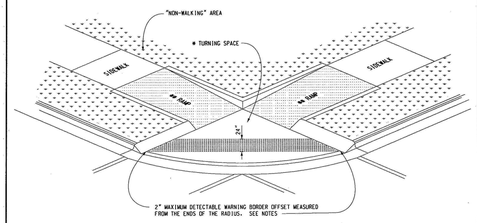
9-30-2014 F.H.W.A. APPROVAL	7-1-2014 PLAN DATE	R-28-I	SHEET 3 OF 7

* MAXIMUM TURNING SPACE SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%. RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



(RADIAL DETECTABLE WARNING SHOWN)



(TANGENT DETECTABLE WARNING SHOWN)

SIDEWALK RAMP TYPE D

(DEPRESSED CORNER)

USE ONLY WHEN INDEPENDENT DIRECTIONAL RAMPS CAN NOT BE CONSTRUCTED FOR EACH CROSSING DIRECTION

MICHIGAN DEPARTMENT OF TRANSPORTATION
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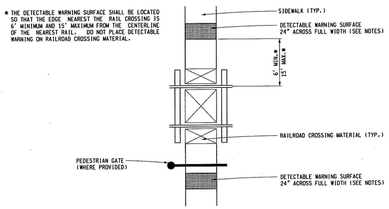
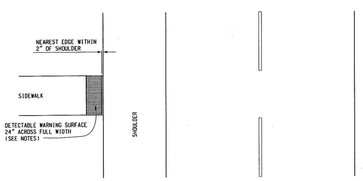
* THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE RAIL CROSSING IS 6' MINIMUM AND 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. DO NOT PLACE DETECTABLE WARNING ON RAILROAD CROSSING MATERIAL.



DETECTABLE WARNING AT RAILROAD CROSSING



DETECTABLE WARNING AT FLUSH SHOULDER OR ROADWAY

MICHIGAN DEPARTMENT OF TRANSPORTATION
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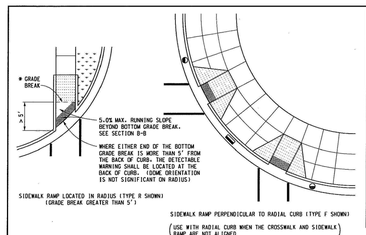
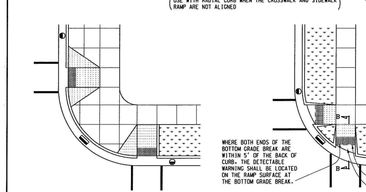
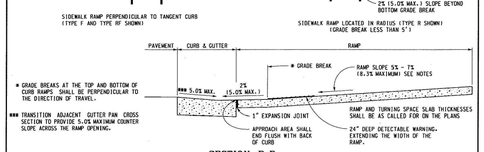


LEGEND

- SLOPED SURFACE
- DETECTABLE WARNING
- "NON-WALKING" AREA
- CROSSWALK MARKING
- PREFERRED LOCATION OF DRAINAGE INLET (TYP.)
- ALTERNATE LOCATION OF DRAINAGE INLET (TYP.)





* GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL.

*** TRANSITION ADJACENT GUTTER PAN CROSS SECTION TO PROVIDE 5.0% MAXIMUM COUNTER SLOPE ACROSS THE RAMP OPENING.

SECTION B-B

SIDEWALK RAMP ORIENTATION

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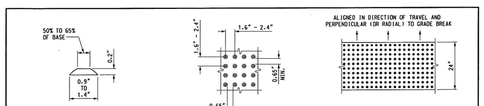

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

SIDEWALK RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP, WHERE CONDITIONS PERMIT. IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION. PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

PROVIDE TURNING SPACES WHERE PEDESTRIAN TURNING MOVEMENTS ARE REQUIRED.

WHEN 5' MINIMUM WIDTHS ARE NOT FEASIBLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND TURNING SPACES TO NOT LESS THAN 4' x 4'.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURBED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.0%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN ½". ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

TRANSITION THE GUTTER PAN CROSS SECTION SUCH THAT THE COUNTER SLOPE IN THE DIRECTION OF RAMP TRAVEL IS NOT GREATER THAN 5.0%. MAINTAIN THE NORMAL GUTTER PAN CROSS SECTION ACROSS DRAINAGE STRUCTURES.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE SIDEWALK RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS BORDERED BY LANDSCAPING, UNPAVED SURFACE OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING OR HEAVING.

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734.794.6410
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SCALE: PLAN: ########

COLONY ESSEX MANCHESTER
CONCRETE PAVEMENT REPAIR

SIDEWALK STANDARD PLAN DETAILS

DRAWING No. 20150224-27

SHEET No. 27 OF 27

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