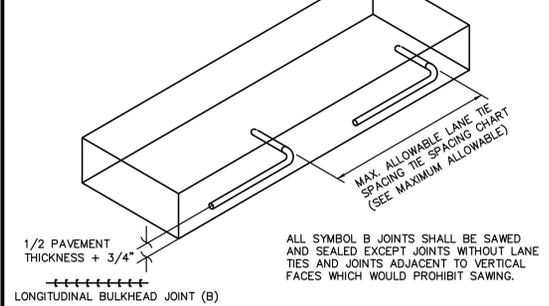
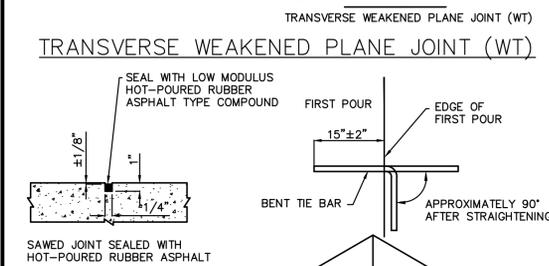
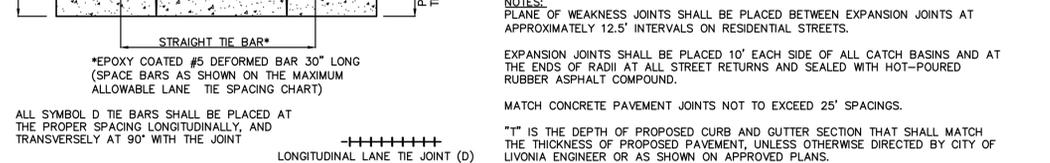
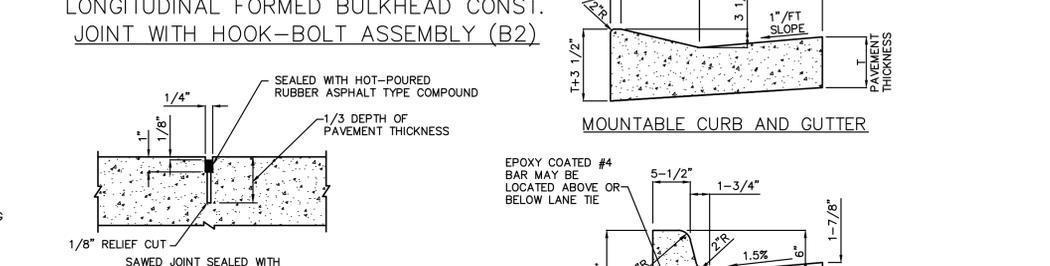
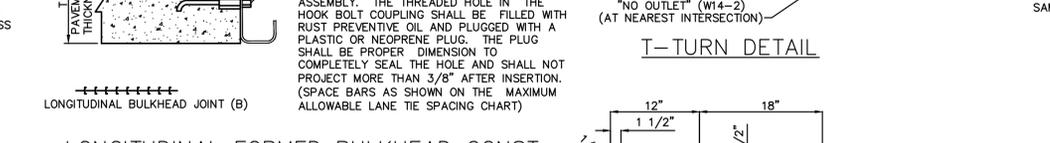
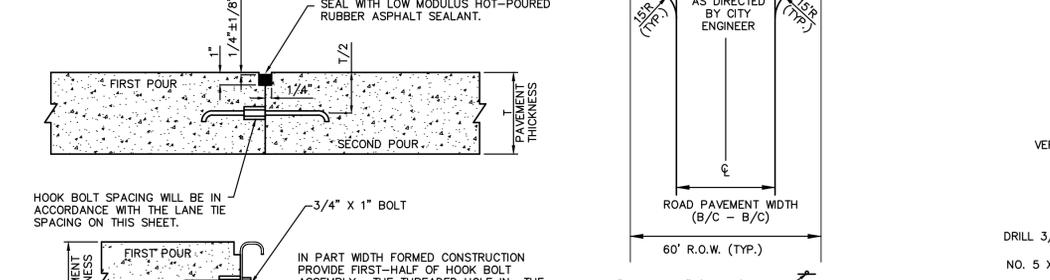
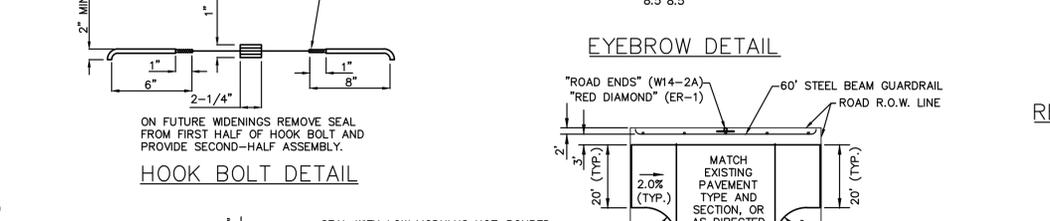
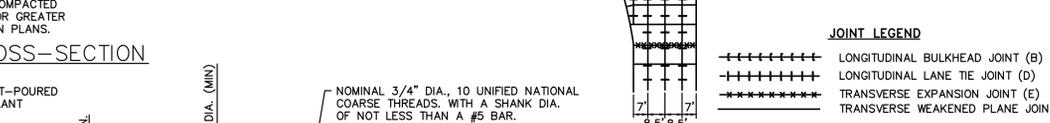
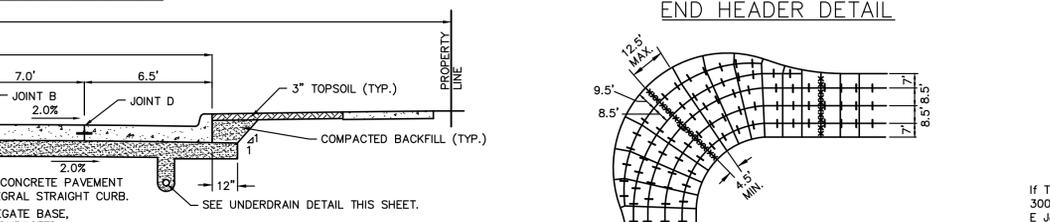
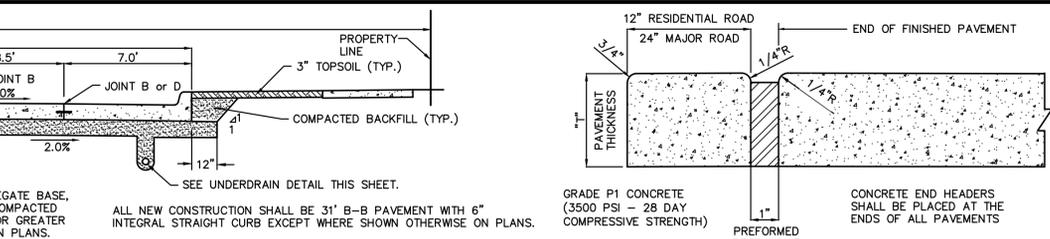


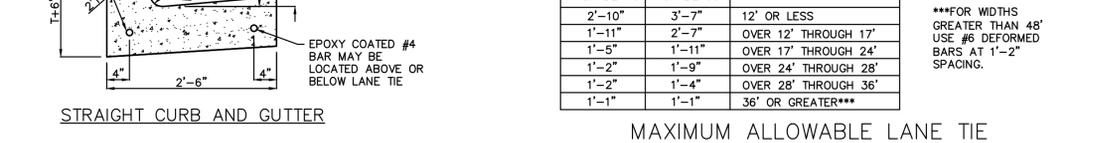
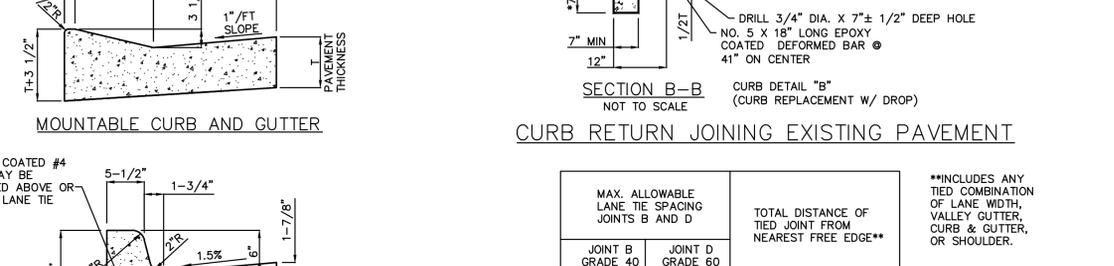
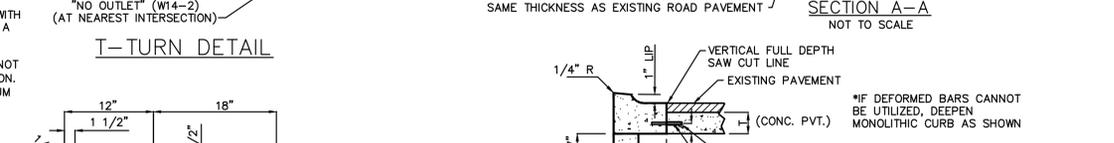
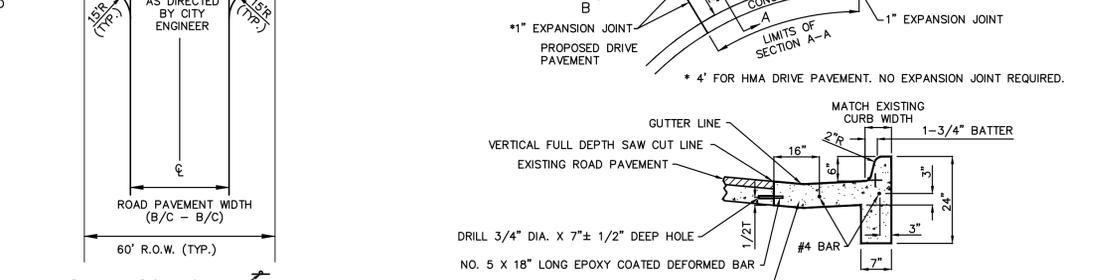
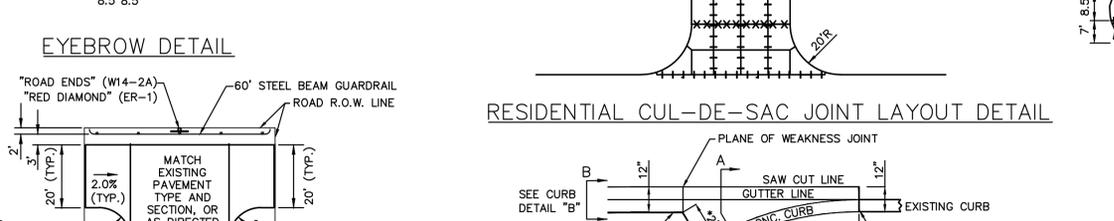
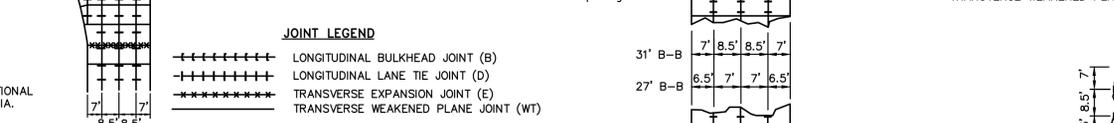
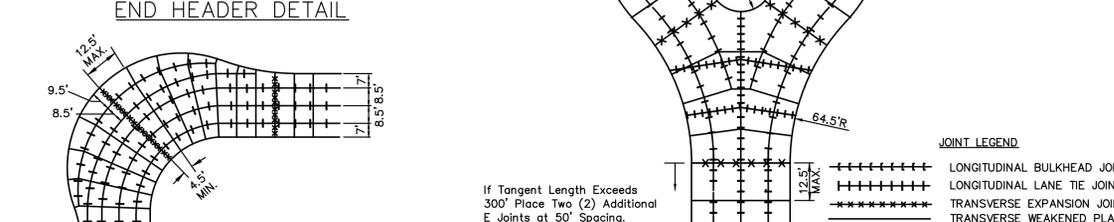
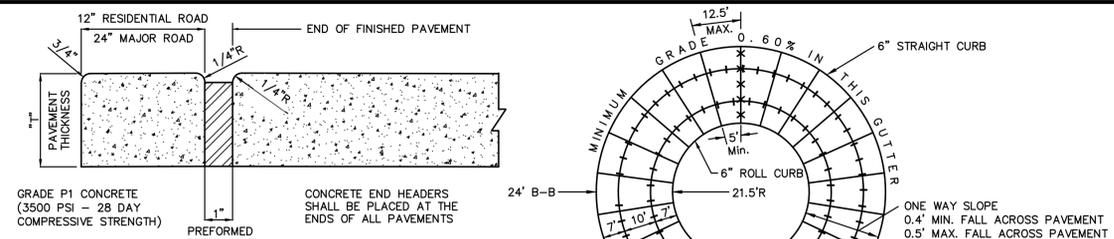
1. TRANSVERSE PLANE OF WEAKNESS JOINTS SHALL BE CONSTRUCTED IMMEDIATELY AFTER THE FINISHING OPERATION HAS BEEN COMPLETED. THE TRANSVERSE PLANE OF WEAKNESS JOINTS SHALL BE PLACED AT 12.5 FOOT INTERVALS BETWEEN TRANSVERSE EXPANSION JOINTS.
2. TRANSVERSE PLANE OF WEAKNESS JOINTS SHALL BE SEALED WITH LOW MODULUS HOT-POURED RUBBER-ASPHALT TYPE JOINT SEALING COMPOUND EXCEPT FOR IN CONCRETE BASE COURSE.
3. WHEN A JOINT FALLS WITHIN 5 FT. OF OR CONTACTS BASINS, MANHOLES, OR OTHER STRUCTURES, SHORTEN ONE OR MORE PANELS EITHER SIDE OF THE STRUCTURE TO PERMIT JOINT TO FALL ON CENTERLINE OF ROUND STRUCTURES AND AT CORNER OF RECTANGULAR STRUCTURES, OR AS DIRECTED BY THE ENGINEER.



LONGITUDINAL FORMED BULKHEAD CONSTRUCTION JOINT WITH LANE TIES (B1)

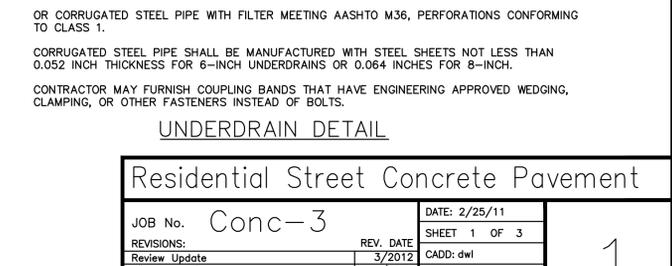
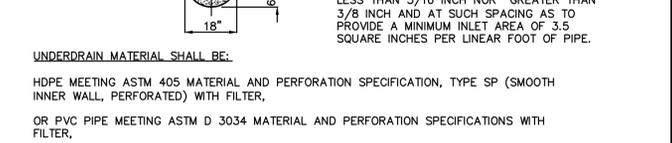
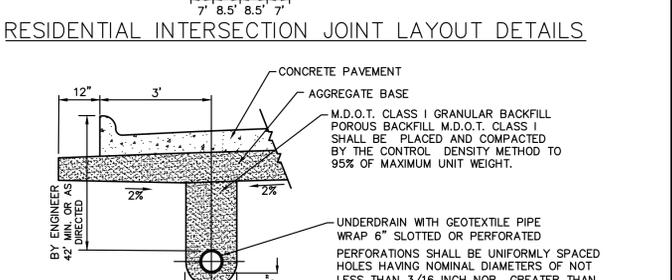
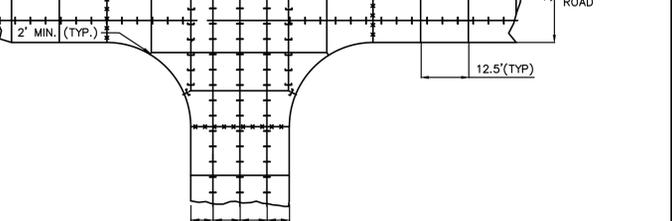
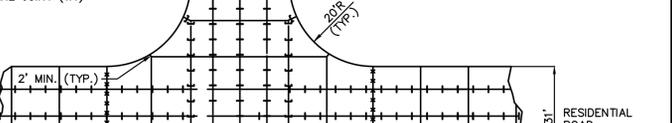
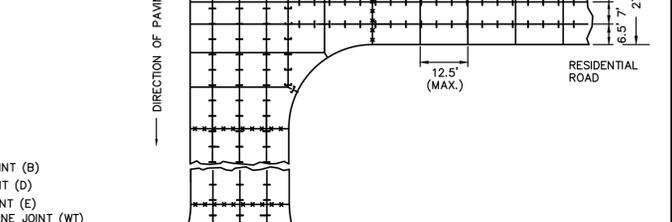
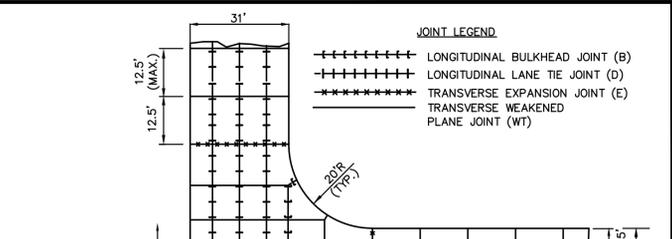


LONGITUDINAL LANE TIE JOINT (D)

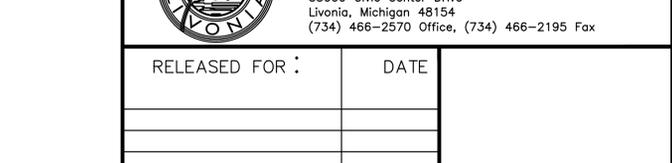


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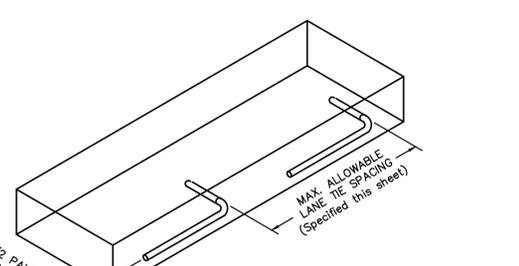
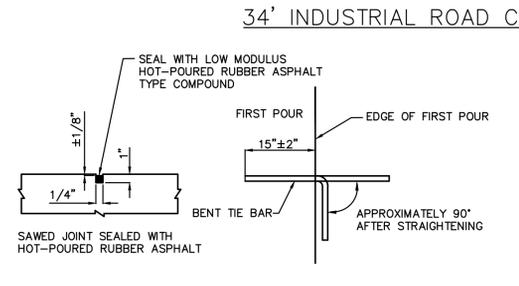
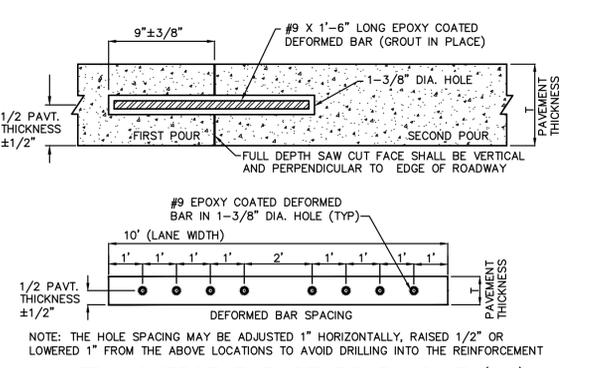
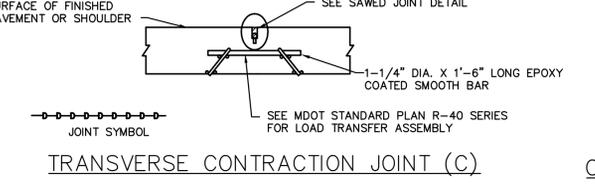
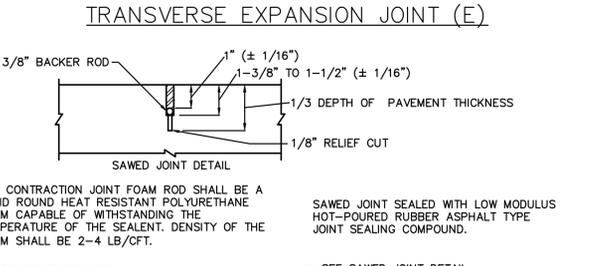
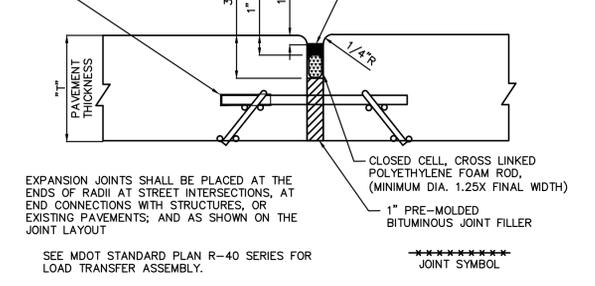
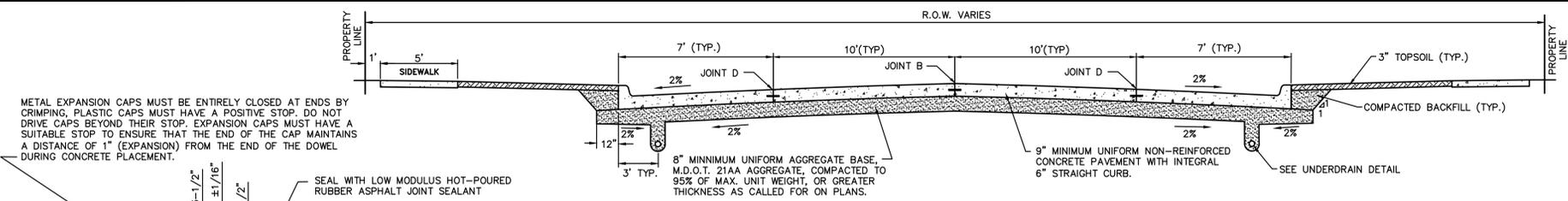
RESIDENTIAL STREET CONCRETE PAVEMENT



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RESIDENTIAL STREET CONCRETE PAVEMENT

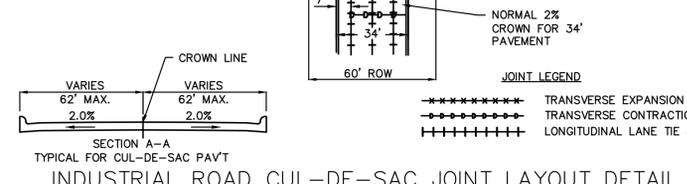
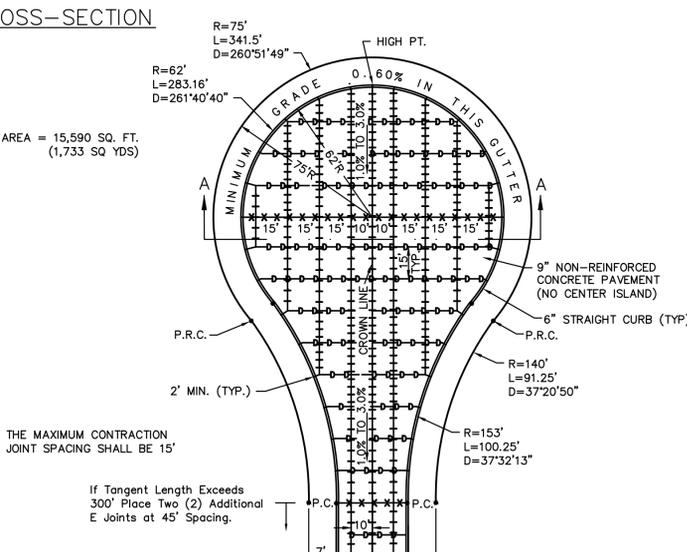


MAXIMUM ALLOWABLE LANE TIE SPACING

JOINT B GRADE 40	JOINT D GRADE 60	TOTAL DISTANCE OF TIED JOINT FROM NEAREST FREE EDGE**
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'-2"	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.



- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CITY OF LIVONIA SPECIFICATIONS WHICH ARE DEFINED AS THE CURRENT MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AS MODIFIED BY THE CITY ENGINEER.
- A TRANSVERSE END OF POUR JOINT, SYMBOL (H) SHALL BE CONSTRUCTED WHEN THERE IS AN INTERRUPTION IN CONCRETE PAVING FOR MORE THAN 1/2 HOUR. TRANSVERSE END OF POUR JOINT, SYMBOL (H), SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT MDOT STANDARD PLAN, R-39 SERIES. (PLAIN CONCRETE PAVEMENT) THIS NOTE APPLIES TO BOTH CONCRETE BASE AND FINISHED CONCRETE PAVEMENT.
- TRANSVERSE END OF POUR JOINT (H) PLASTIC TUBE METHOD SHALL BE USED AT THE END OF THE DAYS POUR OR WHEN THERE IS AN UNAVOIDABLE INTERRUPTION OF THE WORK FOR MORE THAN 1/2 HOUR AND LESS THAN 7 DAYS.
- A TRANSVERSE END OF POUR JOINT (H) DRILLED IN METHOD SHALL BE USED WHEN IT IS ANTICIPATED THAT THE SECOND POUR WILL BE DELAYED FOR 7 DAYS OR LONGER.
- WHEN IT IS ANTICIPATED THAT CONSTRUCTION TRAFFIC WILL BE USING THE PAVEMENT, ENDINGS WILL BE PROTECTED BY MEANS OF A TEMPORARY CONCRETE HEADER.
- EXISTING CONCRETE PAVEMENTS WITH HMA SURFACE REQUIRING SAW-CUTTING FOR REMOVAL SHALL HAVE THE SAW CUTS EXTEND COMPLETELY THRU THE CONCRETE PAVEMENT. SAWED OVER-CUTS OCCURRING IN ADJACENT SLAB, GUTTER, OR SHOULDER, WHICH WILL REMAIN IN PLACE SHALL BE SEALED.
- ALL CONCRETE SHALL BE M.D.O.T. MIX P1, WITH A 28 DAY COMPRESSIVE STRENGTH OF AT LEAST 3500 P.S.I. A MINIMUM CEMENT CONTENT OF 5.6 SACKS WITH WATER REDUCING AGENT OR 6 SACK. AIR ENTRAINMENT AT PLACEMENT SHALL BE 5% - 8% BY VOLUME, AND A SLUMP OF NOT MORE THAN 3-1/2" AND NOT LESS THAN 1-1/2".
- INDUSTRIAL STREET PAVEMENTS SHALL BE 34' WIDE (BACK OF CURB TO BACK OF CURB) AND SHALL BE CONSTRUCTED OF 9" UNIFORM CONCRETE WITH A 6" INTEGRAL STRAIGHT CURB, EXCEPT WHERE OTHERWISE SHOWN ON PLANS. ALL INTERSECTIONS SHALL HAVE A RADII OF 35 FEET AND BE CONSTRUCTED OF 10" UNIFORM CONCRETE.
- ELEVATIONS SHOWN ON THE PAVING PLAN ARE PROPOSED TOP OF CURB GRADES BASED ON THE CURRENT WAYNE COUNTY DATUM (U.S.G.S. DATUM).

GENERAL NOTES

Industrial Road Concrete Pavement

JOB No. Conc-3

DATE: 2/25/11

REVISIONS:

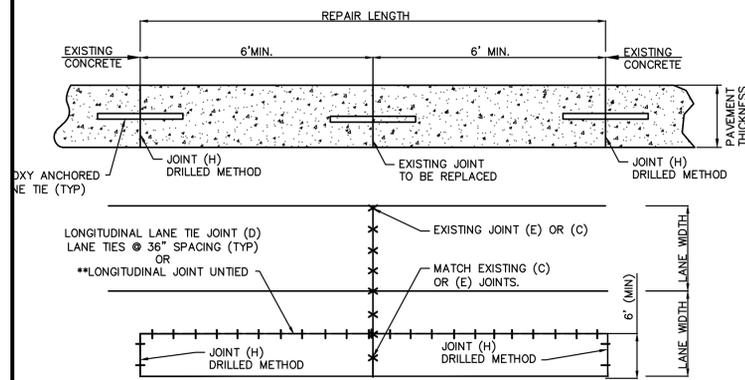
REVISIONS	REV. DATE	SHEET 2 OF 3
Review Update	3/2012	CADD: dwl
6" Integral Curb, 27' Pavement Details	1/2013	ENG: dwl
		PM: tz
		TECH: Concrete Paving Details.dwg
		FB#:

2

CITY OF LIVONIA

Department of Public Works - Engineering Division
33000 Civic Center Drive
Livonia, Michigan 48154
(734) 466-2570 Office, (734) 466-2195 Fax

RELEASED FOR: DATE



PAVEMENT REMOVAL SHALL BE IN ACCORDANCE WITH CURRENT MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THIS DETAIL IS FOR FINISHED CONCRETE REPAIRS ON CITY OF LIVONIA TRUCK ROUTE ROADS, AND INDUSTRIAL SUBDIVISIONS.

PAVEMENT THICKNESS SHALL MATCH THE EXISTING PAVEMENT THICKNESS WITH A MINIMUM SECTION OF 9 INCHES OF NON-REINFORCED CONCRETE. IF CONCRETE PAVEMENT HAS BEEN RESURFACED WITH HMA PAVEMENT THEN THE REPLACEMENT CONCRETE SHALL BE INSTALLED TO THE FINISHED HMA SURFACE, UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.

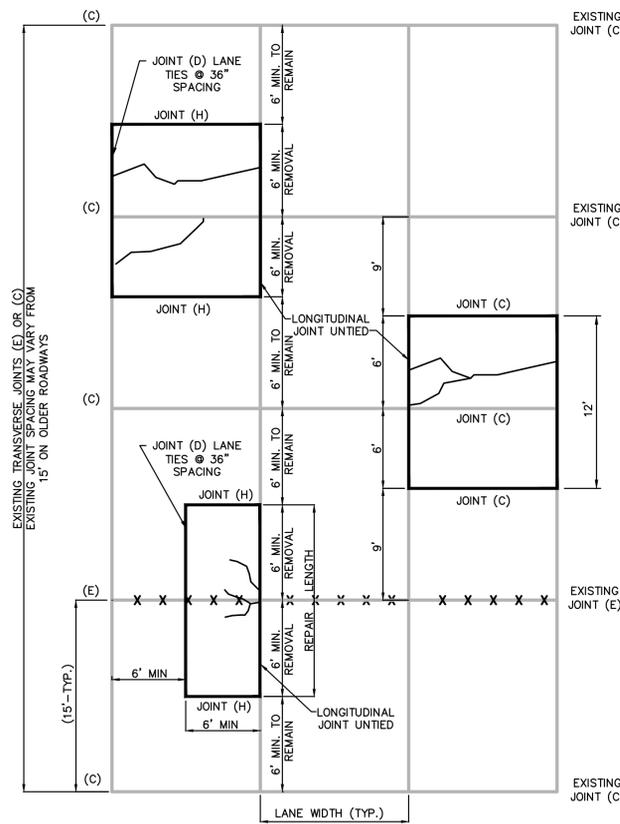
SEE CITY OF LIVONIA CONCRETE PAVEMENT JOINT DETAIL SHEET CONC-2 FOR JOINT DETAILS.

THE MINIMUM PATCH SIZE SHALL BE 6' X 6' WITH NO LESS THAN 6 FEET REMAINING TO ANY PAVEMENT JOINTS, EDGE OF PAVEMENT, OR CURB. (NOTE, IF THE DISTANCE BETWEEN THE FACE OF CURB AND THE PAVEMENT JOINT IS LESS THAN 6 FEET, THE CURB SHALL BE REMOVED AND REPLACED)

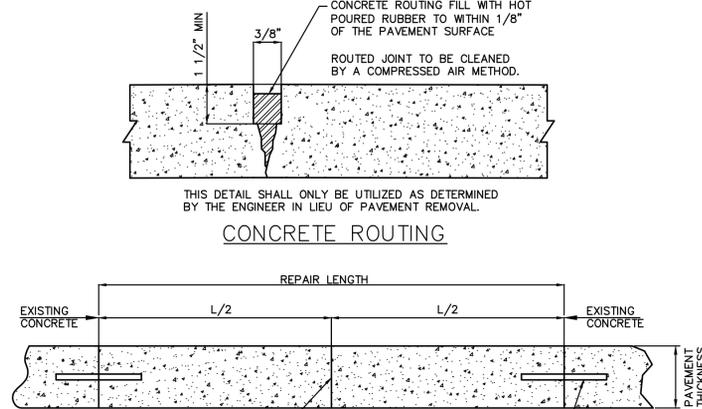
SAWCUT MUST EXTEND COMPLETELY THROUGH THE PAVEMENT SECTION. ANY OVER-CUTS EXCEPT AT THE OUTSIDE CORNERS OF THE PAVEMENT PATCH WILL BE REQUIRED TO BE REMOVED. (THIS WILL INCREASE THE SIZE OF THE PATCH)

ALL SAWED OVER-CUTS LOCATED AT THE OUTSIDE CORNERS OF THE PATCH LOCATION SHALL BE CLEANED AND SEALED WITH HOT-POURED RUBBER ASPHALT.

**WHEN CONSTRUCTING A LONGITUDINAL UNIATED JOINT APPLY A HEAVY COAT OF WHITE CURING COMPOUND ALONG THE EXISTING PAVEMENT VERTICAL EDGE TO PROVIDE A BOND BREAKER. IF VERTICAL EDGE IS NOT SMOOTH FROM SAW CUTTING, ADDITIONAL SURFACE GRINDING MAY BE REQUIRED. THE LONGITUDINAL JOINT UNIATED METHOD IS TO BE USED ONLY WHEN AN ADJACENT LANE IS LEFT OPEN TO TRAFFIC DURING CONSTRUCTION. THIS IS TO PREVENT VIBRATIONS FROM BEING TRANSMITTED INTO THE NEW PAVEMENT. LONGITUDINAL UNIATED JOINTS ARE ONLY TO BE USED AT THE DIRECTION OF THE ENGINEER.



CITY OF LIVONIA TRUCK ROUTE AND INDUSTRIAL SUBDIVISION ROADS
PAVEMENT REMOVAL AND REPAIR (PATCHING)



LOCATION OF EXISTING JOINT (WT) EPOXY COATED DEFORMED BARS (#5 X 18" LONG) @ 18" SPACING (TYP.)

PAVEMENT REMOVAL SHALL BE IN ACCORDANCE WITH CURRENT MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THIS DETAIL IS FOR FINISHED CONCRETE PAVEMENT REPAIR ON LIVONIA RESIDENTIAL ROADS. (TYPICALLY CONSTRUCTED WITH 7" NON-REINFORCED PAVEMENT)

PAVEMENT THICKNESS SHALL BE 7" NON-REINFORCED CONCRETE.

SEE CITY OF LIVONIA CONCRETE PAVEMENT JOINT DETAIL SHEET CONC-1 FOR JOINT DETAILS.

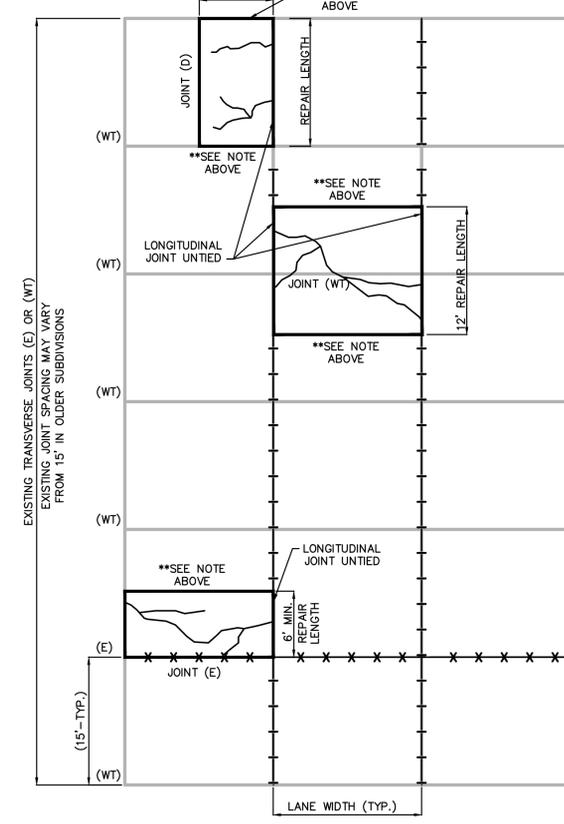
THE MINIMUM PATCH SIZE SHALL BE 6'X6' WITH NO LESS THAN 6' REMAINING TO ANY PAVEMENT JOINTS, EDGE OF PAVEMENT, OR TO THE FACE OF CURB. (NOTE, IF THE DISTANCE BETWEEN THE FACE OF CURB AND THE PAVEMENT JOINT IS LESS THAN 6 FEET, THE CURB SHALL BE REMOVED AND REPLACED)

SAWCUT MUST EXTEND COMPLETELY THROUGH THE PAVEMENT SECTION. ANY OVER-CUTS EXPECTED AT THE OUTSIDE CORNERS OF THE PAVEMENT WILL BE REQUIRED TO BE REMOVED. (THIS WILL INCREASE THE SIZE OF THE PATCH)

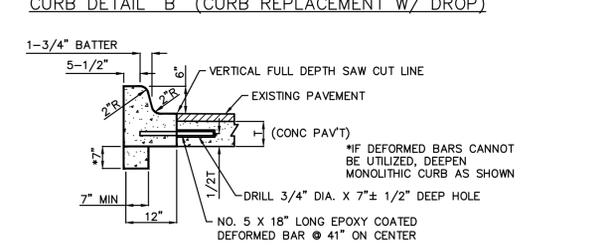
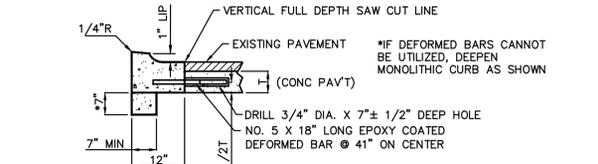
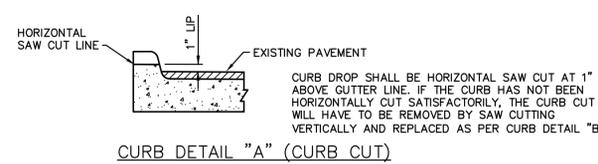
ALL SAWED OVER-CUTS LOCATED AT THE OUTSIDE CORNERS OF THE PATCH LOCATION SHALL BE CLEANED AND SEALED WITH HOT-POURED RUBBER ASPHALT.

WHEN CONSTRUCTING A LONGITUDINAL UNIATED JOINT APPLY A HEAVY COAT OF WHITE CURING COMPOUND ALONG THE EXISTING PAVEMENT VERTICAL EDGE TO PROVIDE A BOND BREAKER. IF VERTICAL EDGE IS NOT SMOOTH FROM SAW CUTTING, ADDITIONAL SURFACE GRINDING MAY BE REQUIRED. THE LONGITUDINAL JOINT UNIATED METHOD IS TO BE USED ONLY WHEN AN ADJACENT LANE IS LEFT OPEN TO TRAFFIC DURING CONSTRUCTION. THIS IS TO PREVENT VIBRATIONS FROM BEING TRANSMITTED INTO THE NEW PAVEMENT. LONGITUDINAL UNIATED JOINTS ARE ONLY TO BE USED AT THE DIRECTION OF THE ENGINEER.

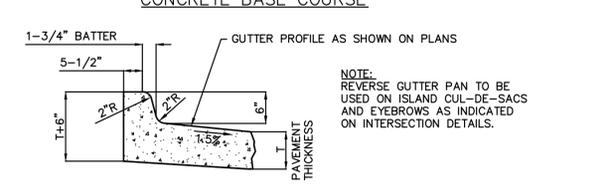
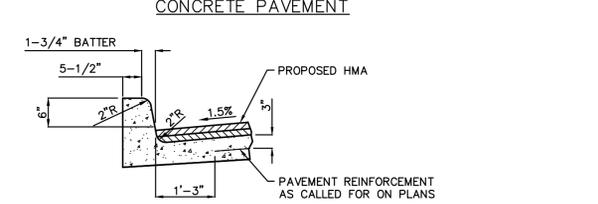
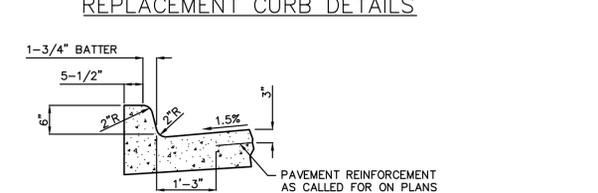
**TRANSVERSE JOINTS LOCATED AT END OF PATCH SHALL BE CONSTRUCTED WITH EPOXY COATED DEFORMED LANE BARS (#5 X 18" LONG) @ 18" SPACING.



RESIDENTIAL 7" NON-REINFORCED ROAD
PAVEMENT REMOVAL AND REPAIR (PATCHING)



REPLACEMENT CURB DETAILS



STRAIGHT CURB W/ REVERSE GUTTER PAN

ALL TRANSVERSE JOINTS IN THE CONCRETE PAVEMENT SHALL EXTEND ENTIRELY THROUGH THE INTEGRAL CURB AND BE OF THE SAME KIND AND THICKNESS AS PROVIDED FOR THE PAVEMENT.

THE JOINT MATERIAL SHALL BE PRE-CUT SO AS TO CONFORM TO THE GEOMETRIC SHAPE AND CROSS SECTIONAL AREA OF THE CURB, AND SHALL BE PLACED IN CONTACT WITH THE FILLER MATERIAL IN THE PAVEMENT.

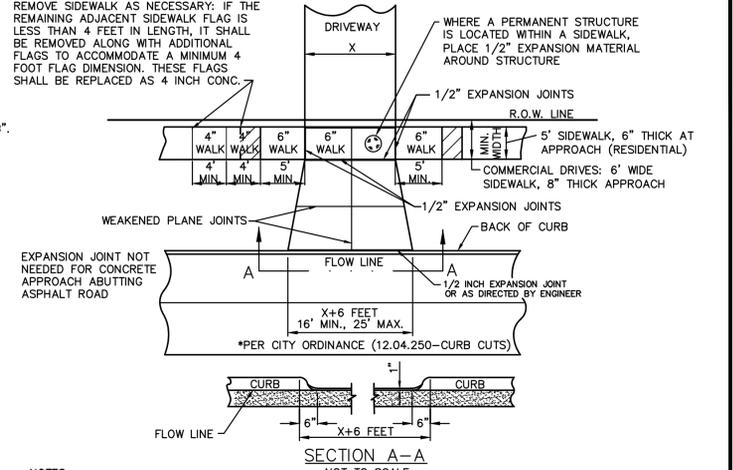
INTEGRAL CURBS WHICH ARE PLACED AS PART OF A CONCRETE BASE COURSE PAVEMENT SHALL HAVE TRANSVERSE PLANE OF WEAKNESS JOINTS, FORMED BY PLACING A PRE-MOLDED BITUMINOUS FILLER 1/4 INCH THICK, ENTIRELY THROUGH THE CURB IN EXACT ALIGNMENT WITH ALL JOINTS IN THE BASE COURSE PAVEMENT. THE JOINT MATERIAL SHALL BE PRE-CUT SO AS TO CONFORM TO THE GEOMETRIC SHAPE AND CROSS SECTIONAL AREA OF THE CURB.

THE EDGES OF ALL TRANSVERSE JOINTS IN THE INTEGRAL CURB SHALL BE ROUNDED WITH AN APPROVED FINISHING TOOL HAVING A RADIUS OF 1/4 INCH.

INTEGRAL CURB DETAILS

- ALL MATERIALS AND WORKMANSHIP FOR CONCRETE PAVEMENT CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT MICHIGAN DEPARTMENT OF TRANSPORTATION (M.D.O.T.) STANDARD SPECIFICATIONS FOR CONSTRUCTION AS MODIFIED BY THE CITY ENGINEER.
- WHEN CONCRETE PAVEMENT REPAIRS ARE LONGER THAN 20 FEET, TRANSVERSE PLANE OF WEAKNESS JOINTS (WT) SHALL BE PLACED IN-LINE WITH EXISTING TRANSVERSE JOINTS, WORKING CRACKS, OR AT 15 FEET MAXIMUM (12.5 FEET RESIDENTIAL) AND 6 FEET MINIMUM SPACINGS.
- EXISTING CONCRETE PAVEMENTS WITH HMA SURFACE REQUIRING SAW-CUTTING FOR REMOVAL SHALL HAVE THE SAW CUTS EXTEND COMPLETELY THRU THE CONCRETE PAVEMENT. SAWED OVER-CUTS OCCURRING IN ADJACENT SLAB, GUTTER, OR SHOULDER, WHICH WILL REMAIN IN PLACE SHALL BE SEALED.

CONCRETE PAVEMENT REPAIR NOTES



RESIDENTIAL DRIVE APPROACH DETAIL

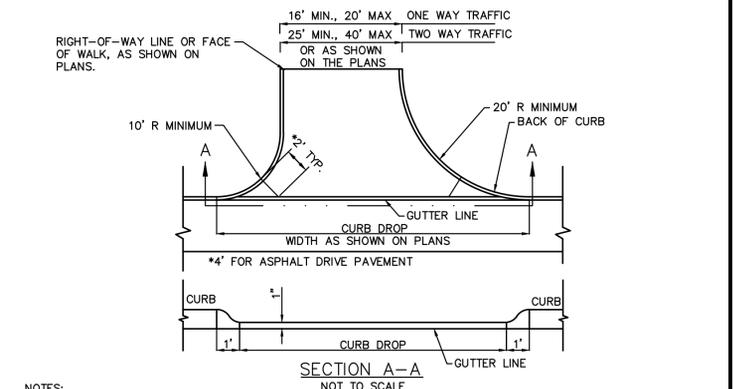
CONSTRUCT DRIVE APPROACH WITH 6 INCH NON-REINFORCED CONCRETE ON SUITABLE BASE OR 2 INCH HOT MIXED ASPHALT (HMA) ON A 6 INCH 21 AA LIMESTONE BASE, OR 6 INCH HMA (MIN. TWO LIFTS) ON SUITABLE BASE.

AT ALL CONCRETE DRIVES PLACE A 1/2 INCH EXPANSION JOINT AT BACK OF CURB AND 1/2 INCH EXPANSION JOINT AT FACE OF SIDEWALK OR RIGHT OF WAY LINE. MAINTAIN NORMAL SIDEWALK GRADE ACROSS DRIVE, NOT TO EXCEED 2.0 PERCENT CROSS SLOPE UP FROM FACE OF SIDEWALK.

*IF CURB CUTS EXCEEDS 25', PRIOR APPROVAL IS NEEDED.

IF STAMPED CONCRETE OR BRICK PAVERS ARE INSTALLED, THE PROPERTY OWNER ASSUMES ALL LIABILITY FOR MAINTENANCE. THE CITY WILL NOT REPLACE OR REPAIR STAMPED CONCRETE OR BRICK PAVERS WITH SAME DUE TO WATER MAIN BREAKS OR OTHER UTILITY WORK.

COMMERCIAL DRIVE APPROACH

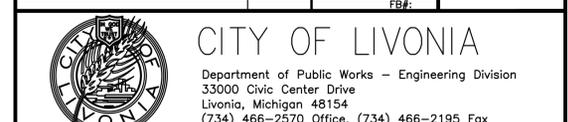


COMMERCIAL DRIVE APPROACH DETAIL

- CONSTRUCT THE DRIVE APPROACH WITH 8" NON-REINFORCED CONCRETE ON 6" OF 21AA AGGREGATE BASE COURSE COMPACTED IN PLACE (CIP) OR 6" HMA ON 9" OF 21AA AGGREGATE BASE COURSE. (CIP)
- CURBS SHALL BE CONSTRUCTED WITH HEIGHT VARYING FROM 6" AT BACK OF CURB TO 0" HEIGHT AT FACE OF SIDEWALK OR RIGHT-OF-WAY LINE.
- AT ALL CONCRETE DRIVES, PLACE A 1" EXPANSION JOINT AT BACK OF CURB AND 1/2" EXPANSION JOINT AT FACE OF SIDEWALK OR RIGHT-OF-WAY LINE.
- MAINTAIN NORMAL SIDEWALK GRADE ACROSS DRIVE, 2% SLOPE UP FROM FACE OF SIDEWALK. INBOUND OR OUTBOUND RADIUS SHALL BE REDUCED TO 5' FOR ONE-WAY TRAFFIC DRIVE APPROACH.
- DRIVE APPROACH SHALL NOT ENCRoACH ACROSS PROPERTY LINE EXTENDED WITHOUT WRITTEN APPROVAL FROM THE ADJOINING PROPERTY OWNER.

Concrete Pavement Repair Details

JOB No. Conc-3	DATE: 2/25/11
REVISIONS:	SHEET 3 OF 3
Review Update	3/2012
	CADD: dwl
	ENG: dwl
	PM: tz
	TECH: Concrete Paving Details.dwg
	FB#:



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