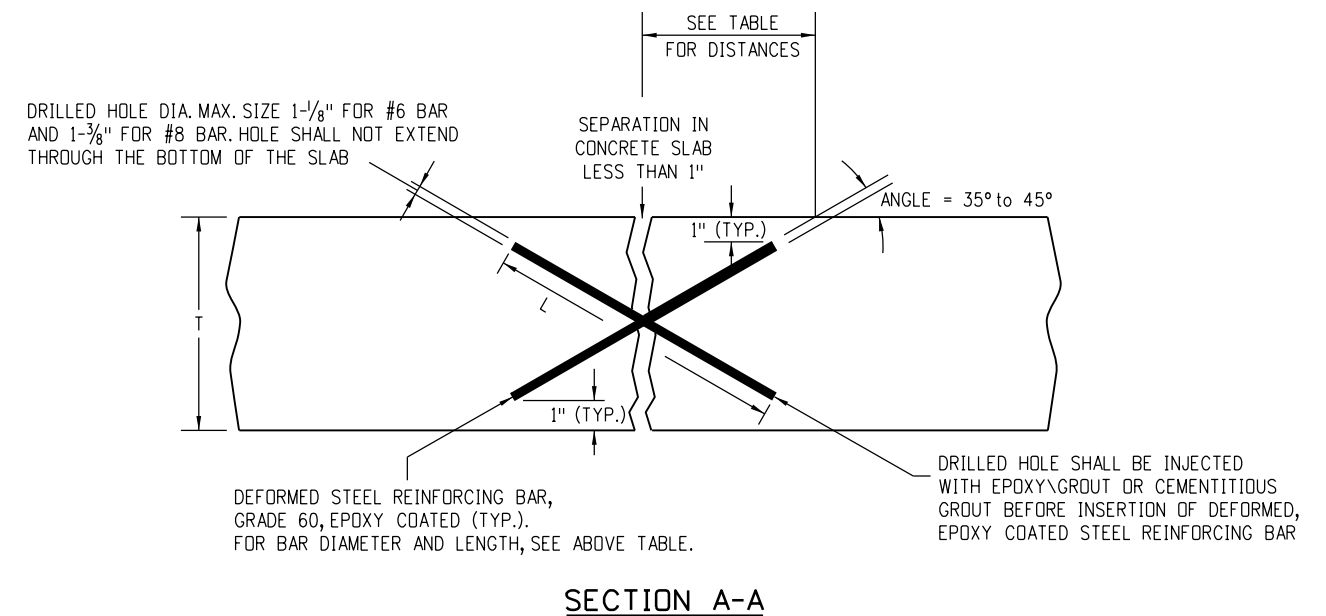
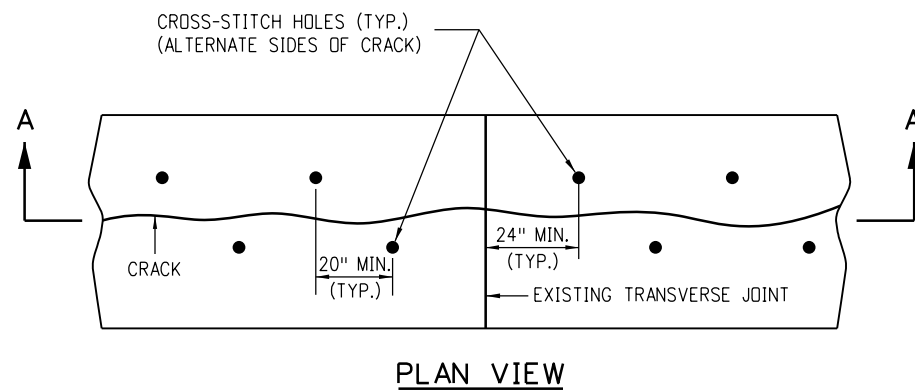


ANGLE	SLAB THICKNESS (T) (IN.)							
	8	9	10	11	12	13	14	15≥
	DISTANCE TO HOLE (IN.)							
35	5.75	6.50	7.25	7.75	8.50	-	-	-
40	-	-	-	6.50	7.25	7.75	8.25	-
45	-	-	-	-	6.00	6.50	7.00	7.50
	LENGTH OF BAR (L) (IN.)							
35	9.50	11.00	12.50	14.50	16.00	-	-	-
40	-	-	-	12.50	14.00	16.00	18.50	-
45	-	-	-	-	12.00	14.00	16.50	18.00
	EPOXY COATED BAR NUMBER (#)							
	6	6	6	6	6	8	8	8

GENERAL NOTES

1. THERE SHALL BE A MINIMUM 1 INCH GAP FROM THE ENDS OF THE DEFORMED REBARS TO THE TOP OR BOTTOM OF THE CONCRETE SLAB.
2. DO NOT DRILL HOLE COMPLETELY THROUGH THE SLAB, SO THAT THE EPOXY/GROUT WILL BE CONTAINED IN THE HOLE WHILE BACK FILLING.

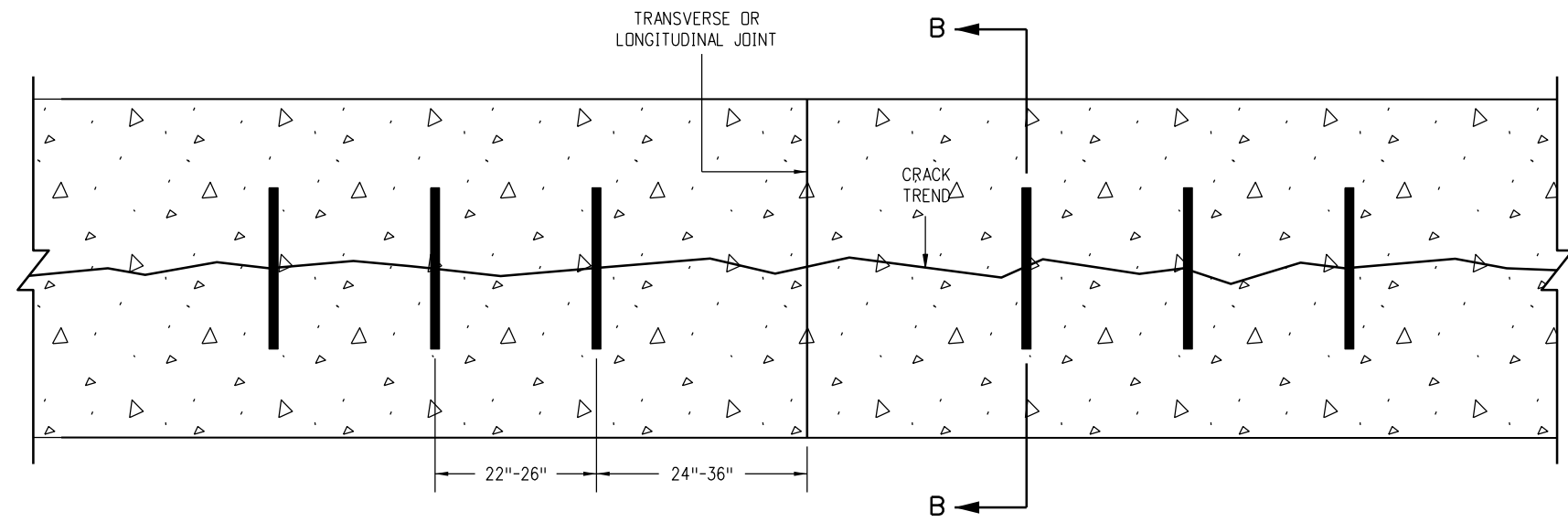
CROSS STITCHING BAR DIMENSIONS AND LOCATION OF DRILL HOLES



CROSS STITCHING DETAILS

FOR PCCP 8" OR MORE IN THICKNESS

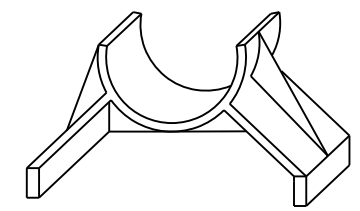
Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 	CONCRETE PAVEMENT CRACK REPAIR	STANDARD PLAN NO.	
Creation Date: 10/07/19		Date:	Comments			M-412-2	
Designer Initials: JBK		(R-X)				Standard Sheet No. 1 of 6	
Last Modification Date: 09/06/22		(R-X)					
Detailer Initials: LTA		(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		Project Development Branch	JBK	Issued by the Project Development Branch: July 31, 2019	
						Project Sheet Number:	



PLAN VIEW

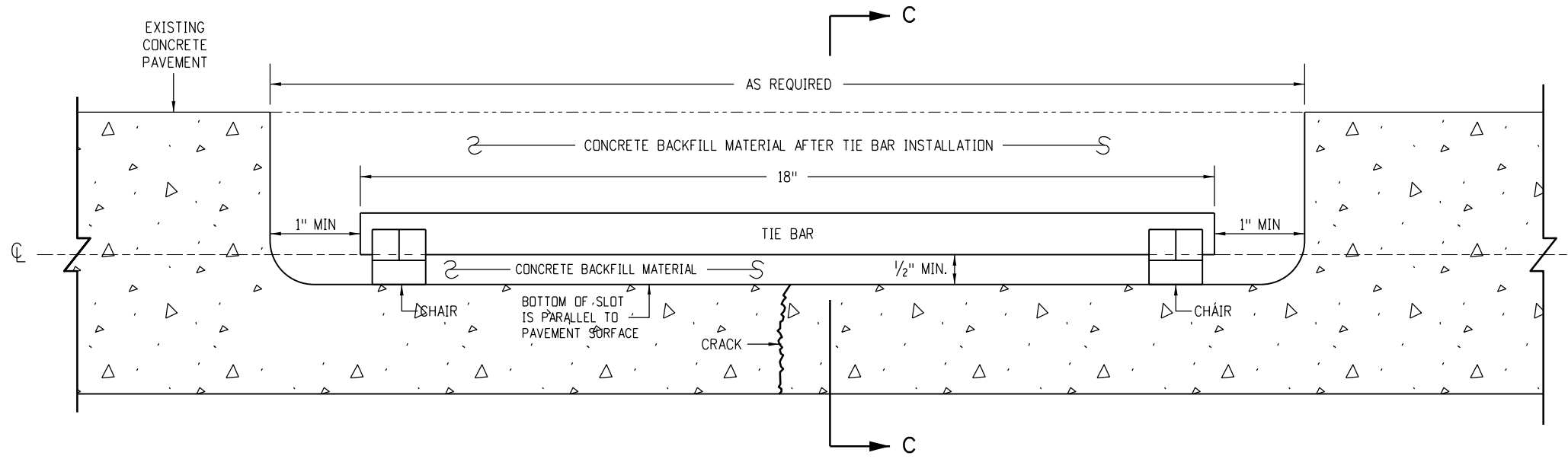
PAVEMENT THICKNESS (T)	TIE BAR SIZE
T ≤ 6 INCHES	#4
6 INCHES < T < 8 INCHES ON UNBOUNDED BASE	#5
6 INCHES < T < 8 INCHES ON LIME TREATED, ASPHALT OR CEMENT TREATED, MILLED ASPHALT OR RECYCLED ASPHALT BASES	#6

TIE BARS SHOULD BE PLACED APPROXIMATELY PERPENDICULAR TO THE GENERAL TREND OF THE CRACK.

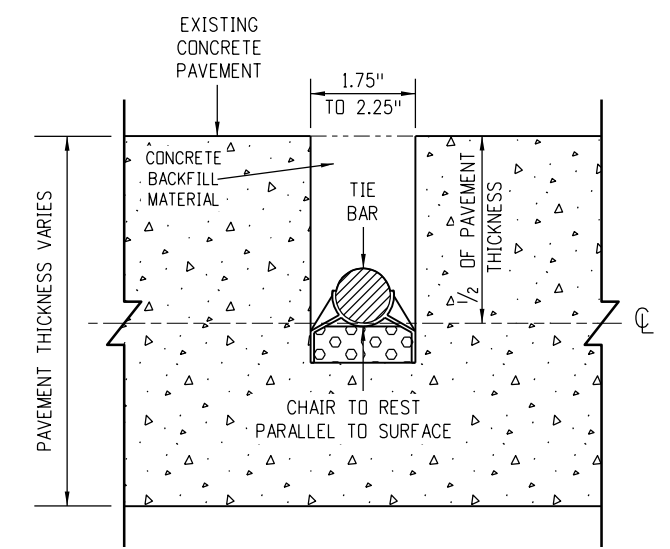


TYPICAL CHAIR DETAIL

ONE REQUIRED UNDER EACH END OF TIE BAR



SECTION B-B



SECTION C-C

SLOT STITCHING DETAILS

FOR PCCP LESS THAN 8" IN THICKNESS

Computer File Information	
Creation Date: 10/07/19	
Designer Initials: JBK	(R-X)
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Detailer Initials: LTA	(R-X)
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)

Sheet Revisions	
Date:	Comments

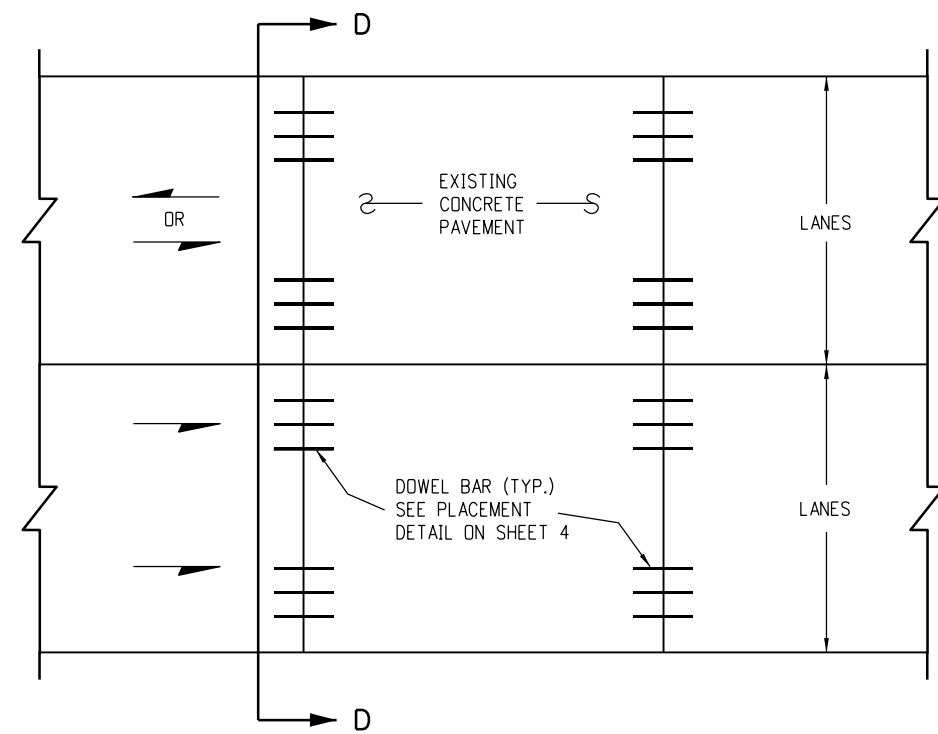
Colorado Department of Transportation
 2829 West Howard Place
 CDDT HQ, 3rd Floor
 Denver, CO 80204
 Phone: 303-757-9021 FAX: 303-757-9868
 Project Development Branch JBK

**CONCRETE PAVEMENT
 CRACK REPAIR**
 Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
 M-412-2
 Standard Sheet No. 2 of 6
 Project Sheet Number:

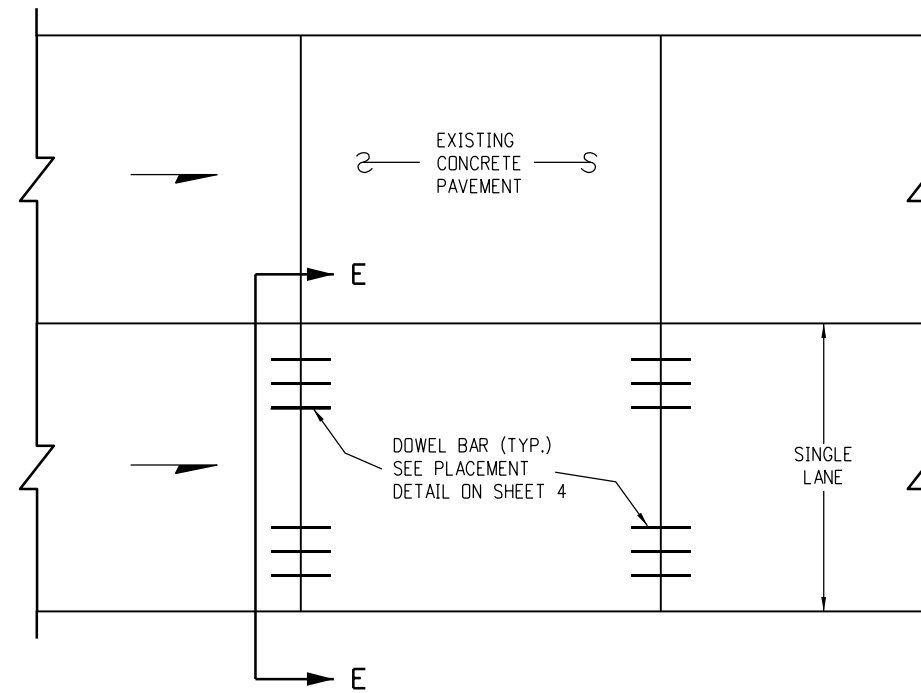
NOTES

1. IF A LONGITUDINAL JOINT IS PRESENT IN THE WHEEL PATH OR AT THE MIDDLE OF THE SLAB, CONTACT THE ENGINEER.
2. DOWELS SHALL BE A MINIMUM OF 1 FT. - 6 INCHES AWAY FROM ANY LONGITUDINAL JOINT.



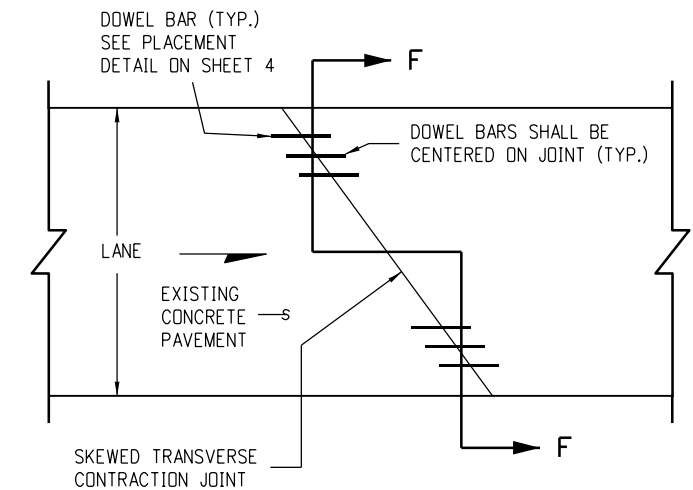
**PLAN VIEW
DOWEL BAR RETROFIT**

FOR EACH LANE IN UNDIVIDED HIGHWAY (TWO WAY TRAFFIC)
OR FOR MULTI-LANE DIVIDED HIGHWAY (ONE WAY TRAFFIC)

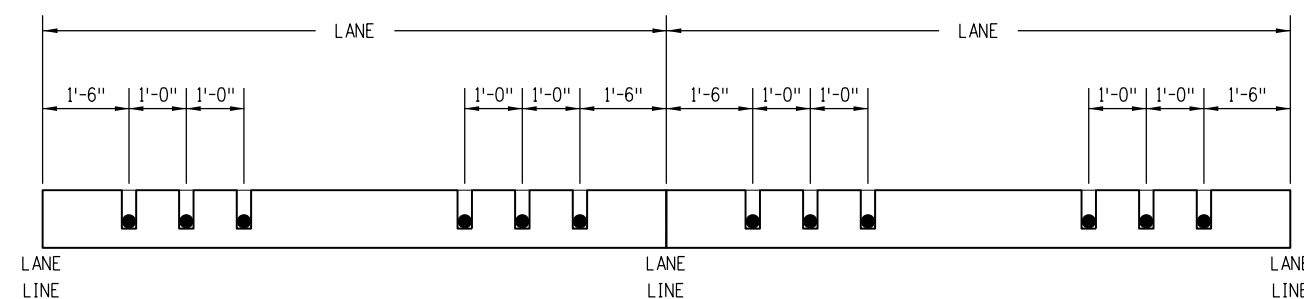


**PLAN VIEW
DOWEL BAR RETROFIT**

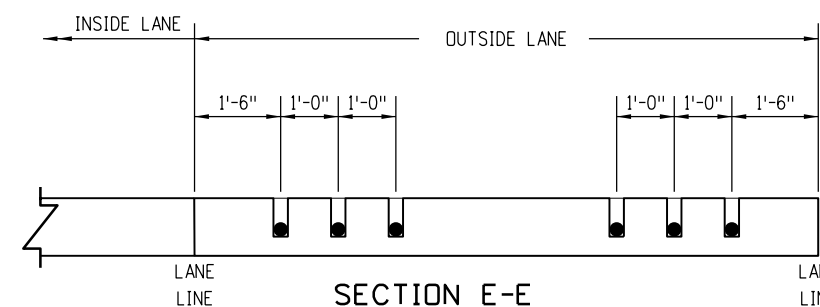
FOR SINGLE LANE RETROFIT



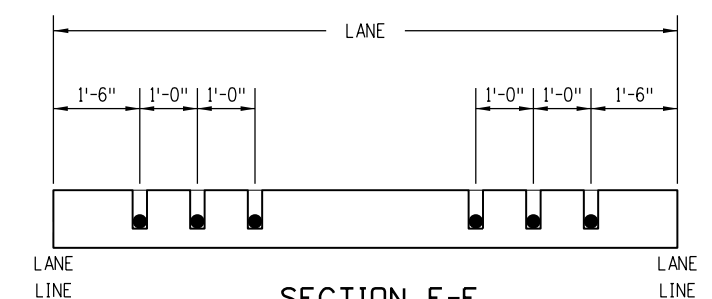
**PLAN VIEW
SKEWED JOINT DETAIL**



SECTION D-D



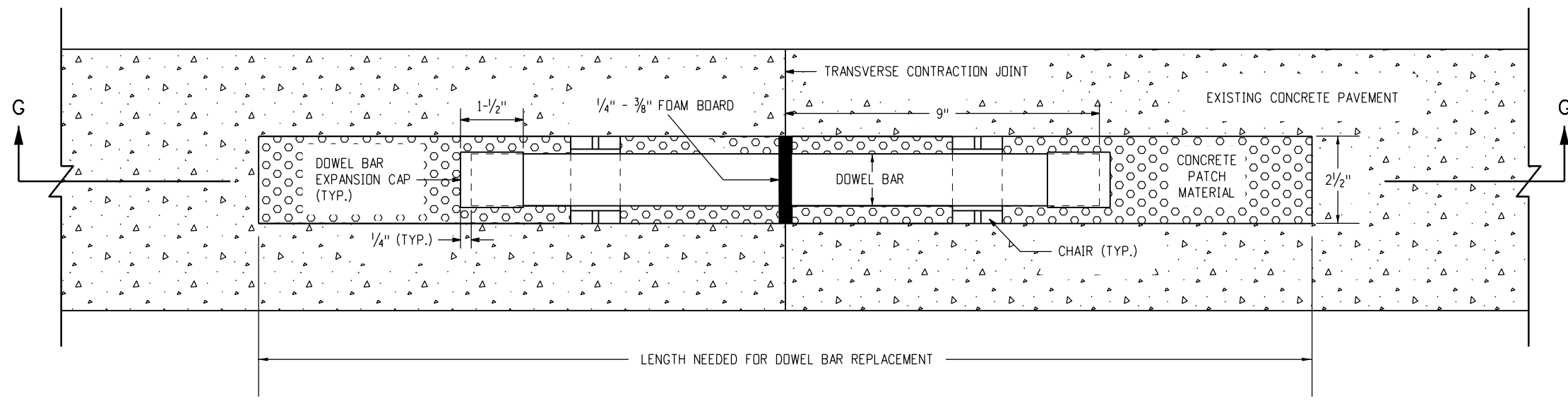
SECTION E-E



SECTION F-F

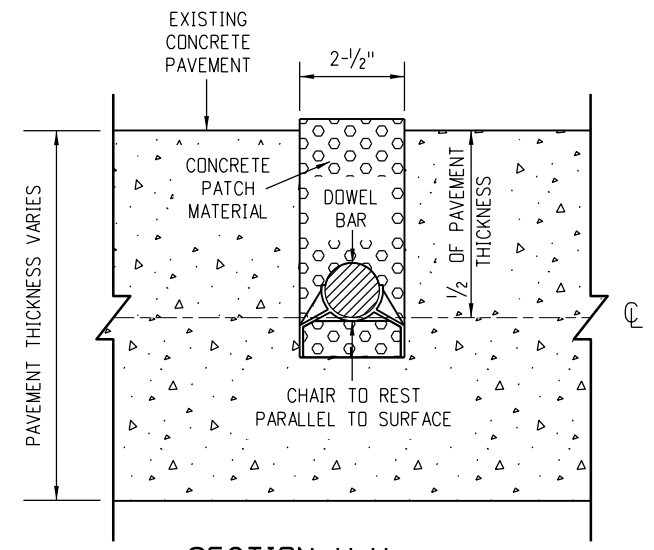
DOWEL BAR RETROFIT DETAILS

Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch	CONCRETE PAVEMENT CRACK REPAIR	STANDARD PLAN NO.	
Creation Date: 10/07/19		Date:	Comments			M-412-2	
Designer Initials: JBK		(R-X)				Standard Sheet No. 3 of 6	
Last Modification Date: 09/06/22		(R-X)				Project Sheet Number:	
Detailer Initials: LTA		(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		Issued by the Project Development Branch: July 31, 2019			



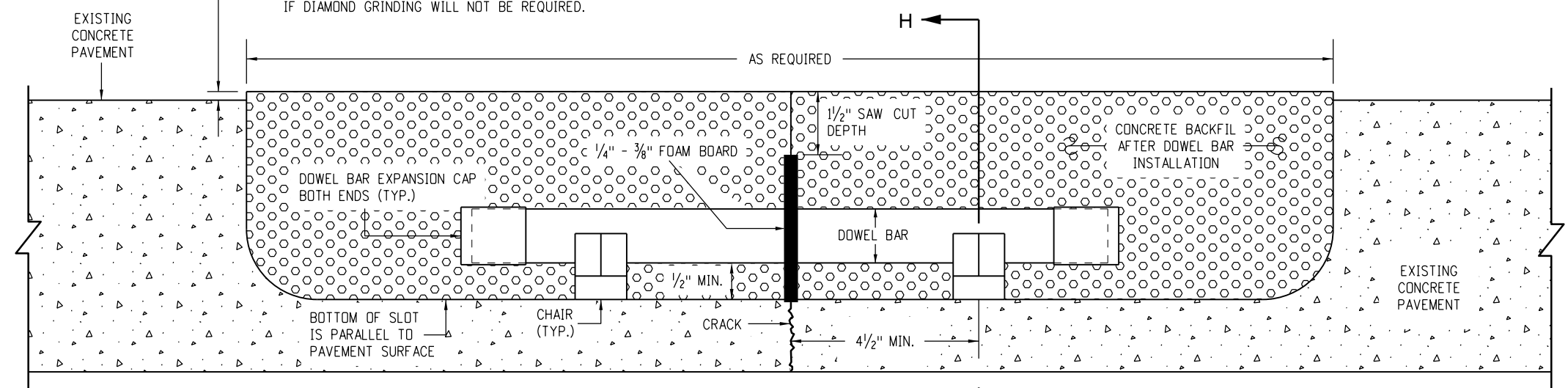
PLAN VIEW

PAVEMENT THICKNESS (T)	DOWEL BAR DIAMETER
7 INCHES ≤ T < 8 INCHES	1 INCH
8 INCHES ≤ T ≤ 10 INCHES	1.25 INCH
10 INCHES < T ≤ 15 INCHES	1.50 INCH

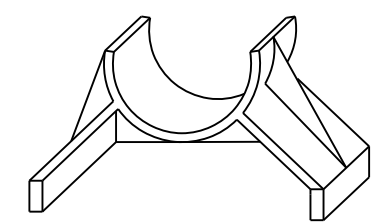


SECTION H-H

1/8" DEPTH OF CONCRETE PATCH MATERIAL ABOVE EXISTING CONCRETE SURFACE FOR PROJECTS THAT WILL BE DIAMOND GROUND. MAKE FLUSH WITH EXISTING PAVEMENT SURFACE IF DIAMOND GRINDING WILL NOT BE REQUIRED.



SECTION G-G



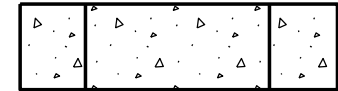
TYPICAL CHAIR DETAIL
ONE REQUIRED UNDER EACH END OF DOWEL BAR

DOWEL BAR RETROFIT DETAILS

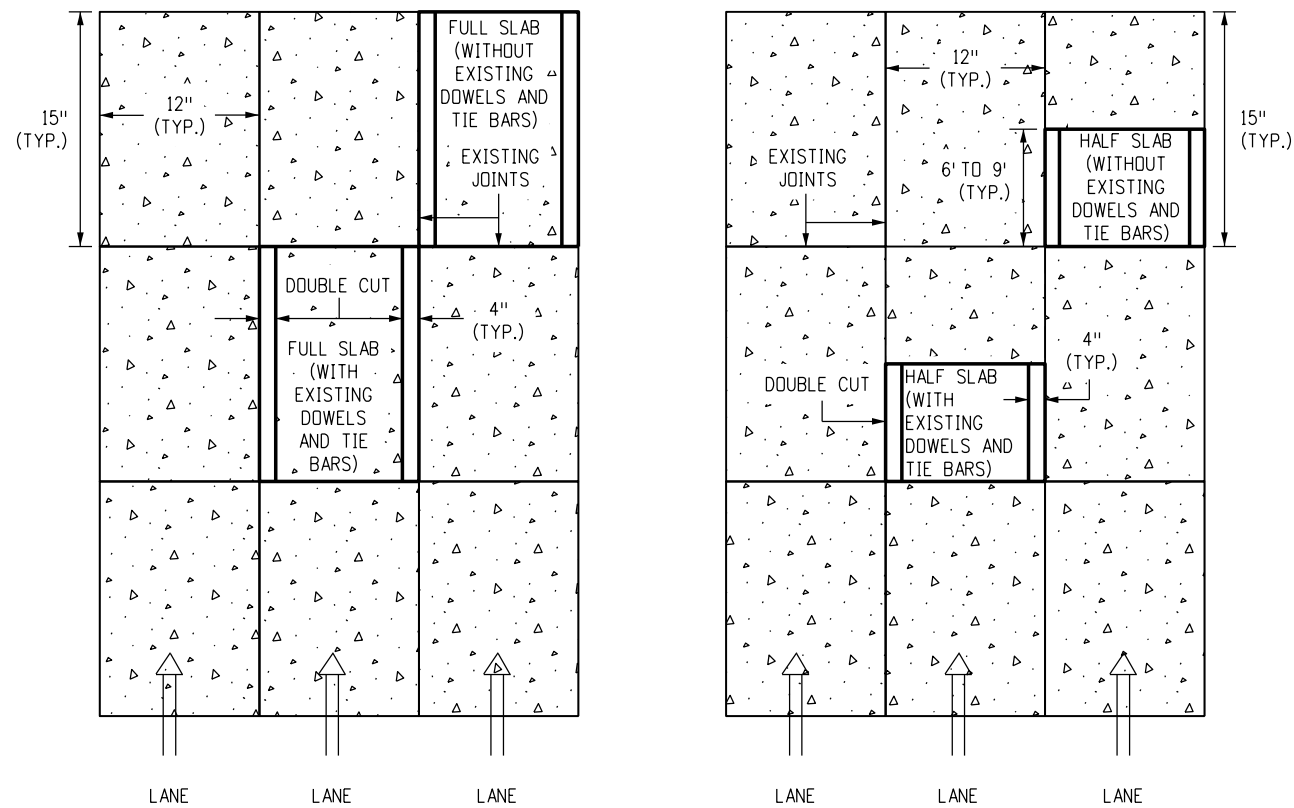
Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 Project Development Branch	CONCRETE PAVEMENT CRACK REPAIR	STANDARD PLAN NO.	
Creation Date: 10/07/19	(R-X)	Date:	Comments:				<p>Issued by the Project Development Branch: July 31, 2019</p>
Designer Initials: JBK	(R-X)			Standard Sheet No. 4 of 6			
Last Modification Date: 09/06/22	(R-X)					Project Sheet Number:	
Detailer Initials: LTA	(R-X)						
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	(R-X)						

NOTES

1. DAMAGE TO THE CONCRETE RESULTING FROM THE CONTRACTOR'S DRILLING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. ALL FULL AND HALF SLABS TO BE REPLACED SHALL BE DOUBLE SAW CUT TO PROTECT THE ADJACENT SLABS FROM DAMAGE.
3. DOUBLE SAW CUTS SHALL BE THE FULL DEPTH OF CONCRETE SLAB.
4. THE INSIDE DOUBLE SAW CUT SHALL BE 4 INCHES MINIMUM IN FROM AREA TO BE REMOVED AS SHOWN IN THE DETAIL.
5. BOTH LONGITUDINAL AND TRANSVERSE DOUBLE SAW CUTS SHALL BE DONE PRIOR TO REMOVING SLAB.
6. ALL SAW CUTTING AND CONCRETE WASTE WATER RESIDUE SHALL BE CONTAINED AND NOT ALLOWED TO ENTER ANY STORM DRAIN OR SURFACE WATER.
7. PANELS SHALL BE REMOVED SO AS TO MINIMIZE DAMAGE TO THE SUBGRADE.
8. NO LARGE EQUIPMENT SHALL BE ALLOWED ON EXPOSED SUBGRADE.
9. ALL PARTIAL SLAB REPLACEMENTS SHALL BE FULL WIDTH WITH A LENGTH OF 6 FEET TO 9 FEET AS SHOWN IN THE DETAIL. SLAB SIZES LESS THAN THAT ARE NOT PERMITTED.
10. REMOVED SLABS MUST BE PLACED IN ONE POUR.
11. ALL TRANSVERSE JOINTS ARE DOWELED.
12. ALL LONGITUDINAL JOINTS ARE TIED.



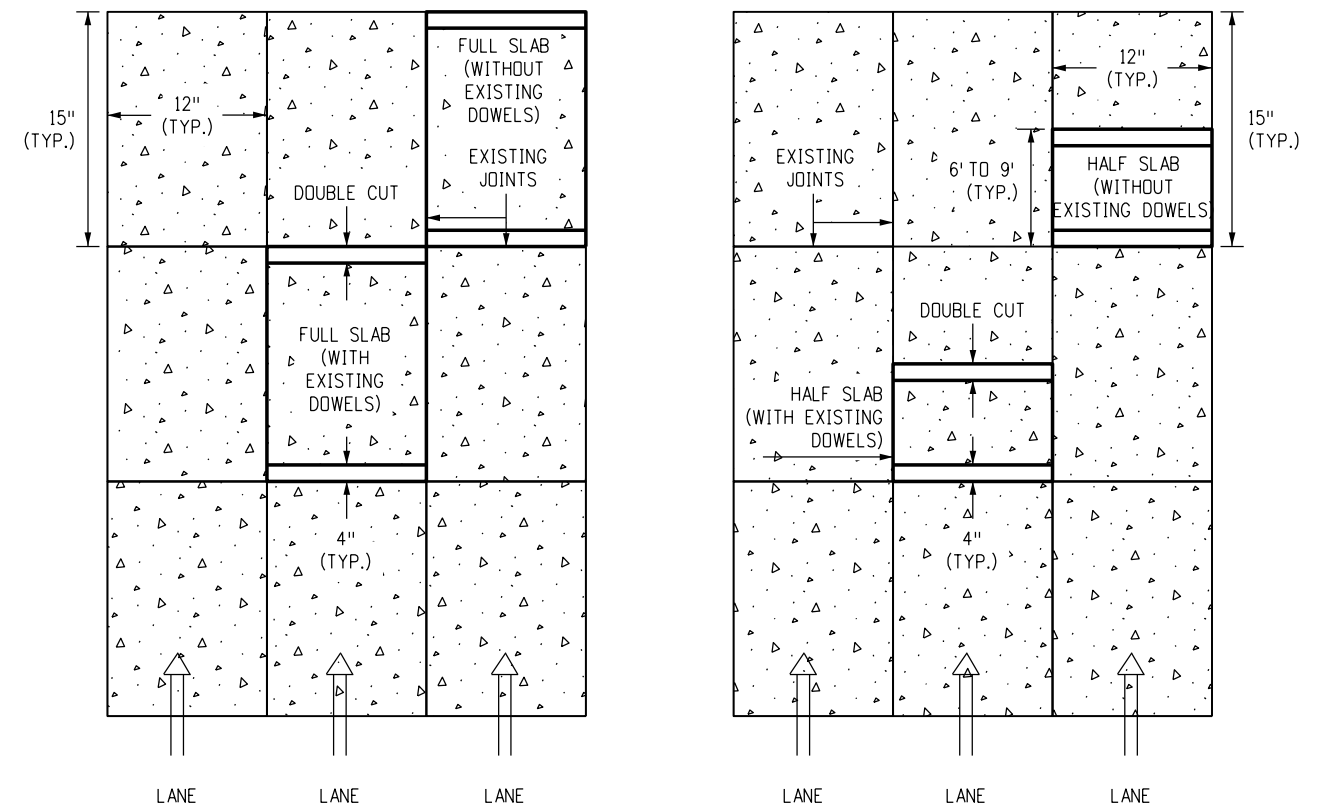
**DOUBLE SAW CUT
CROSS-SECTION VIEW**



FULL SLAB REPLACEMENT

HALF SLAB REPLACEMENT

**PLAN VIEW
LONGITUDINAL CUT DETAIL**



FULL SLAB REPLACEMENT

HALF SLAB REPLACEMENT

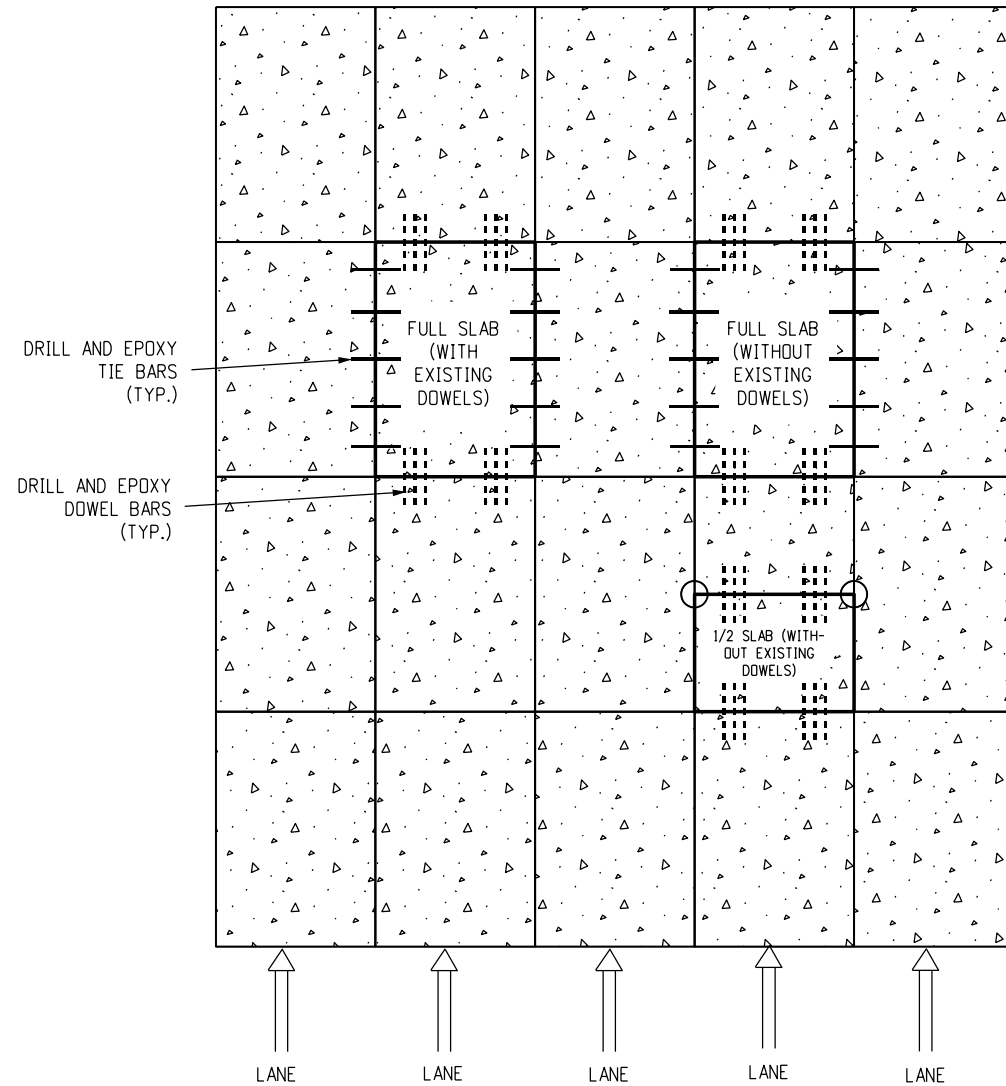
**PLAN VIEW
TRANSVERSE CUT DETAIL**

SLAB REMOVAL DETAILS

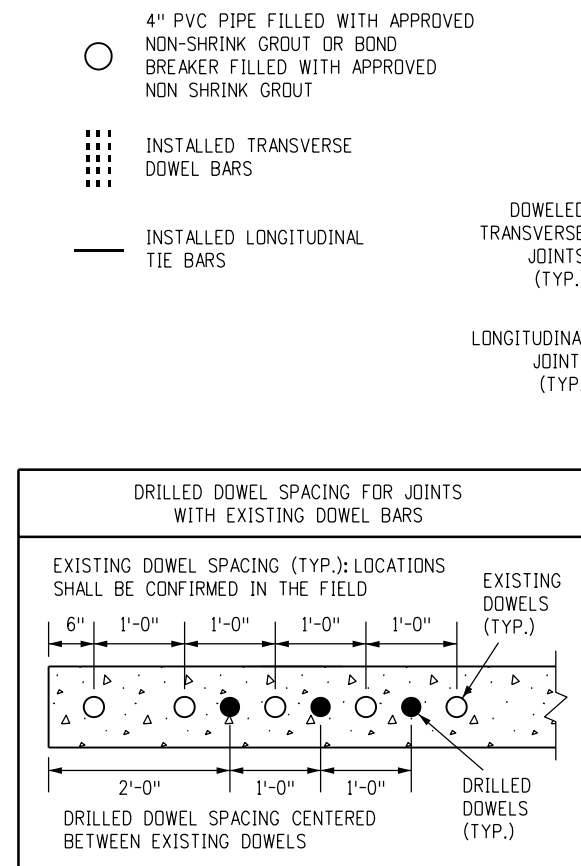
Computer File Information		Sheet Revisions		Colorado Department of Transportation 2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868 	CONCRETE PAVEMENT CRACK REPAIR	STANDARD PLAN NO.	
Creation Date: 10/07/19		Date:	Comments			M-412-2	
Designer Initials: JBK		(R-X) 09/06/22	Added this new sheet.			Standard Sheet No. 5 of 6	
Last Modification Date: 09/06/22		(R-X)					
Detailer Initials: LTA		(R-X)					
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English		(R-X)		Project Sheet Number:			
		Project Development Branch		JBK	Issued by the Project Development Branch: July 31, 2019		

NOTES

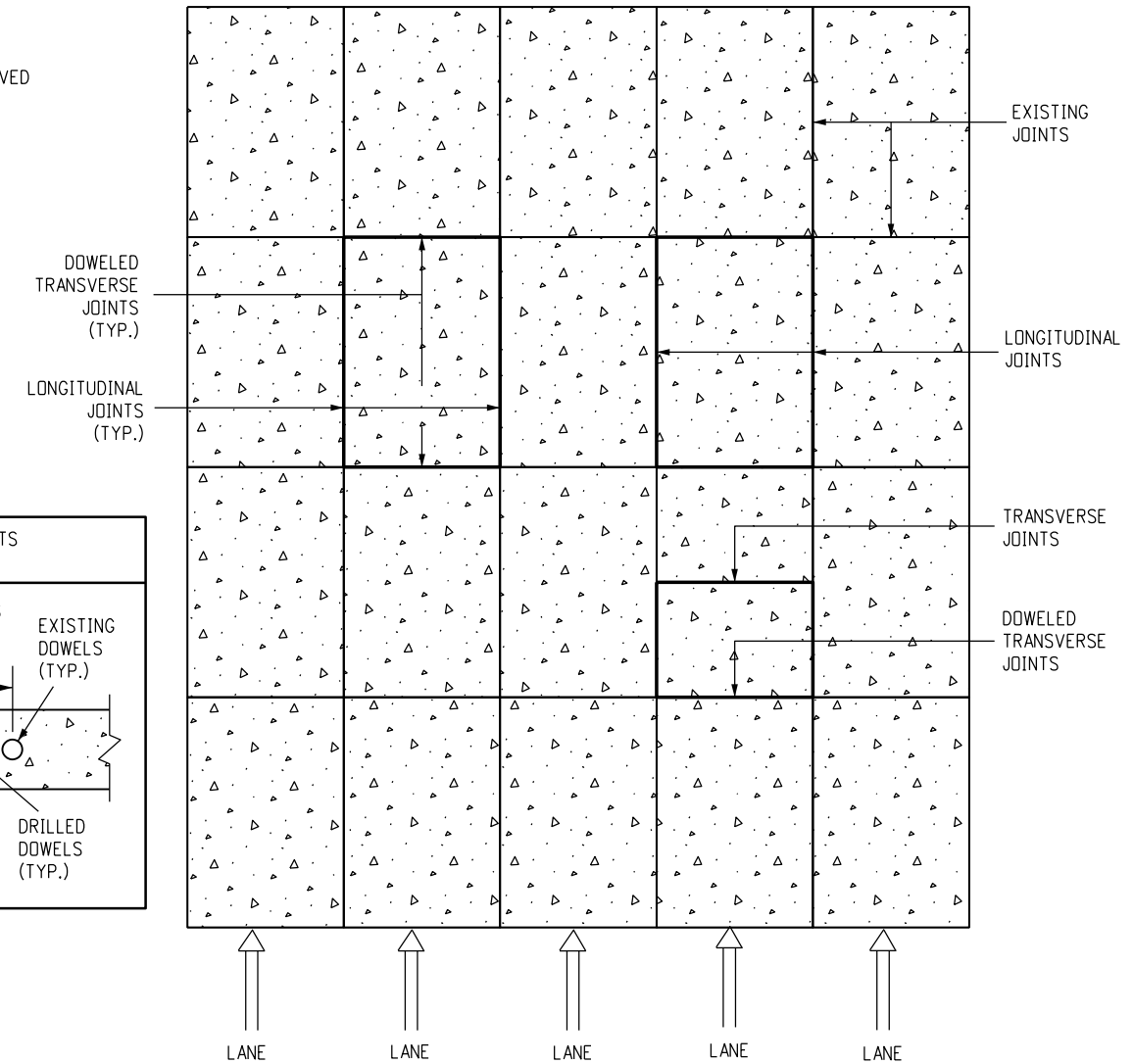
1. DAMAGE TO THE CONCRETE RESULTING FROM THE CONTRACTOR'S DRILLING OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. HOLES SHALL NOT BE DRILLED WITHIN 18 INCHES OF AN EXISTING LONGITUDINAL JOINT OR TRANSVERSE JOINT.
3. ALL SAW CUTTING AND CONCRETE WASTE WATER RESIDUE SHALL BE CONTAINED (OR AS DIRECTED BY THE ENGINEER).
4. CONCRETE SHALL BE CLASS P OR PRS AND SHALL ACHIEVE COMPRESSIVE STRENGTH OF 2500 PSI PRIOR TO OPENING TO TRAFFIC.
5. THICKNESS OF NEW CONCRETE PAVEMENT SECTION SHALL MATCH EXISTING CONCRETE PAVEMENT SECTION. THIS SHALL INCLUDE EXISTING CONCRETE DEPTH, EXISTING AGGREGATE BASE COURSE, AND REQUIRED SUBGRADE MATERIAL AS DETERMINED BY THE ENGINEER.
6. NEW DOWEL BARS SHALL BE CENTERED BETWEEN EXISTING DOWELS. NEW BARS SHALL BE A MINIMUM OF 3 INCHES FROM EXISTING BARS. THE ENGINEER MAY APPROVE CHANGES DUE TO MISALIGNED EXISTING DOWEL BARS.



**SLAB REPLACEMENT DETAIL
PLAN VIEW**



SLAB REPLACEMENT DETAILS



**FINAL SAWED JOINT DETAIL
PLAN VIEW**

Computer File Information		Sheet Revisions		Colorado Department of Transportation		CONCRETE PAVEMENT CRACK REPAIR		STANDARD PLAN NO. M-412-2			
Creation Date: 10/07/19		Date: 09/06/22		2829 West Howard Place CDDT HQ, 3rd Floor Denver, CO 80204 Phone: 303-757-9021 FAX: 303-757-9868		Issued by the Project Development Branch: July 31, 2019		Standard Sheet No. 6 of 6			
Designer Initials: JBK		Comments: Added this new sheet.						Project Development Branch JBK		Project Sheet Number:	
Last Modification Date: 09/06/22											
Detailer Initials: LTA											
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English											