

**OF THE**

## HANOVER, NEW HAMPSHIRE

**JUNE 10, 2025**

OWNER: TOWN OF HANOVER  
46 LYME ROAD  
HANOVER, NEW HAMPSHIRE 03755

ENGINEER: DESMAN  
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DESIGNMAN  
Design Management

REPAIR AND PREVENTIVE MAINTENANCE  
OF THE  
7 LEBANON STREET PARKING GARAGE  
HANOVER, NEW HAMPSHIRE

[illegible]

ISSUE		

NO.	DESCRIPTION	DATE
DRAWING TITLE		
7 LEBANON STREET GARAGE - ROOF LEVEL FLOOR PLAN		

DRAWING NO.

R-2

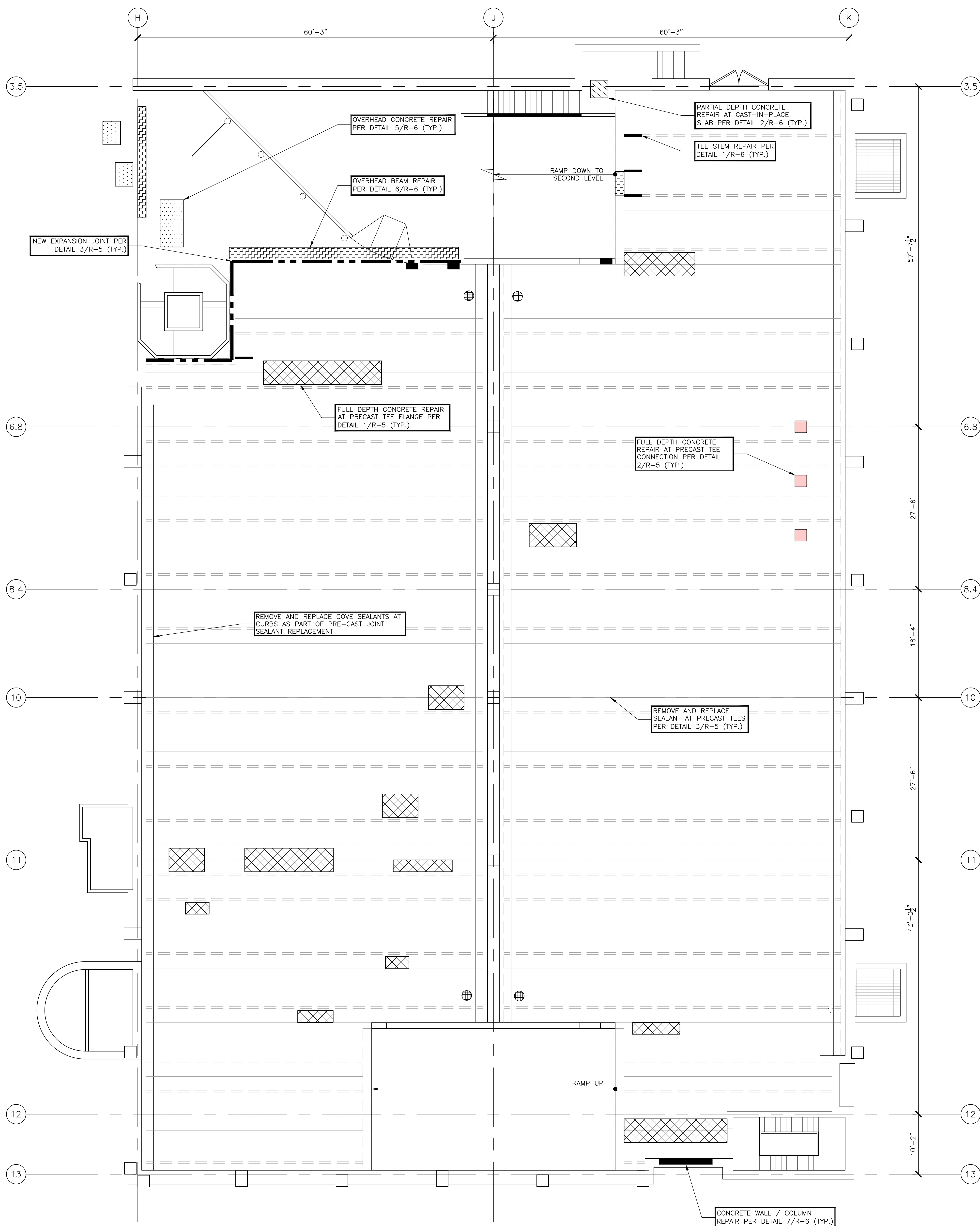
SCALE: AS NOTED

DATE: JUNE 10, 2025

PROJECT NO. 20-25120-00-2

DESIGN	DRAWN	CHKD.
AC	ND	MG

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LEGEND			
	LARGE AREA FULL DEPTH CONCRETE REPAIR AT PRECAST TEES PER DETAILS 1/R-5 (TYP.)		NEW EXPANSION JOINT PER DETAILS 4/R-6 (TYP.)
	SMALL AREA FULL DEPTH CONCRETE REPAIR AT PRECAST TEES PER DETAILS 2/R-5 (TYP.)		OVERHEAD CONCRETE REPAIR PER DETAIL 5/R-6 (TYP.)
	OVERHEAD TEE STEM REPAIR PER DETAIL 1/R-6 (TYP.)		OVERHEAD BEAM REPAIR PER DETAIL 6/R-6 (TYP.)
	PARTIAL DEPTH CONCRETE REPAIR AT CAST-IN-PLACE SLAB PER DETAIL 2/R-6 (TYP.)		CONCRETE WALL / COLUMN REPAIR PER DETAIL 7/R-6 (TYP.)
	CONCRETE STAIR TREAD REPAIR PER DETAIL 3/R-6 (TYP.)		EXISTING FLOOR DRAIN

NOTES:

- ALL REPAIR LOCATIONS AND QUANTITIES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR IN THE PRESENCE OF THE ENGINEER.
- FOR TYPICAL REPAIR DETAILS SEE DRAWINGS R-5 AND R-6.
- ALL NEW CONCRETE SHALL BE 5,000 PSI. CONCRETE DESIGN SHALL BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING REPAIRS.
- REMOVE EXISTING WATERPROOFING MEMBRANE AT ROOF LEVEL.
- REMOVE AND REPLACE ALL SEALANT AT ROOF LEVEL T-JOINTS AND COVE JOINTS. RE-WELD TEE CONNECTIONS AS DIRECTED BY THE ENGINEER IN THE FIELD. WORK AS PER DETAIL 3/R-5 (TYP.)
- PHASING: CONTRACTORS WILL BE ALLOWED TO CLOSE APPROXIMATELY HALF OF THE GARAGE AT ONE TIME IN ORDER TO PERFORM THEIR WORK. IT IS ANTICIPATED THAT THE CURRIER PLACE EXIT CAN BE USED FOR ENTERING AND EXITING THE VEHICLES AND WILL CONSTITUTE THE BREAK BETWEEN TWO WORK PHASES.

7 LEBANON STREET GARAGE - ROOF LEVEL FLOOR PLAN

SCALE: 1/8"=1'-0"



REPAIR AND PREVENTIVE MAINTENANCE  
OF THE  
7 LEBANON STREET PARKING GARAGE  
HANOVER, NEW HAMPSHIRE

ISSUE		

NO.	DESCRIPTION	DATE

DRAWING NO.

R-3

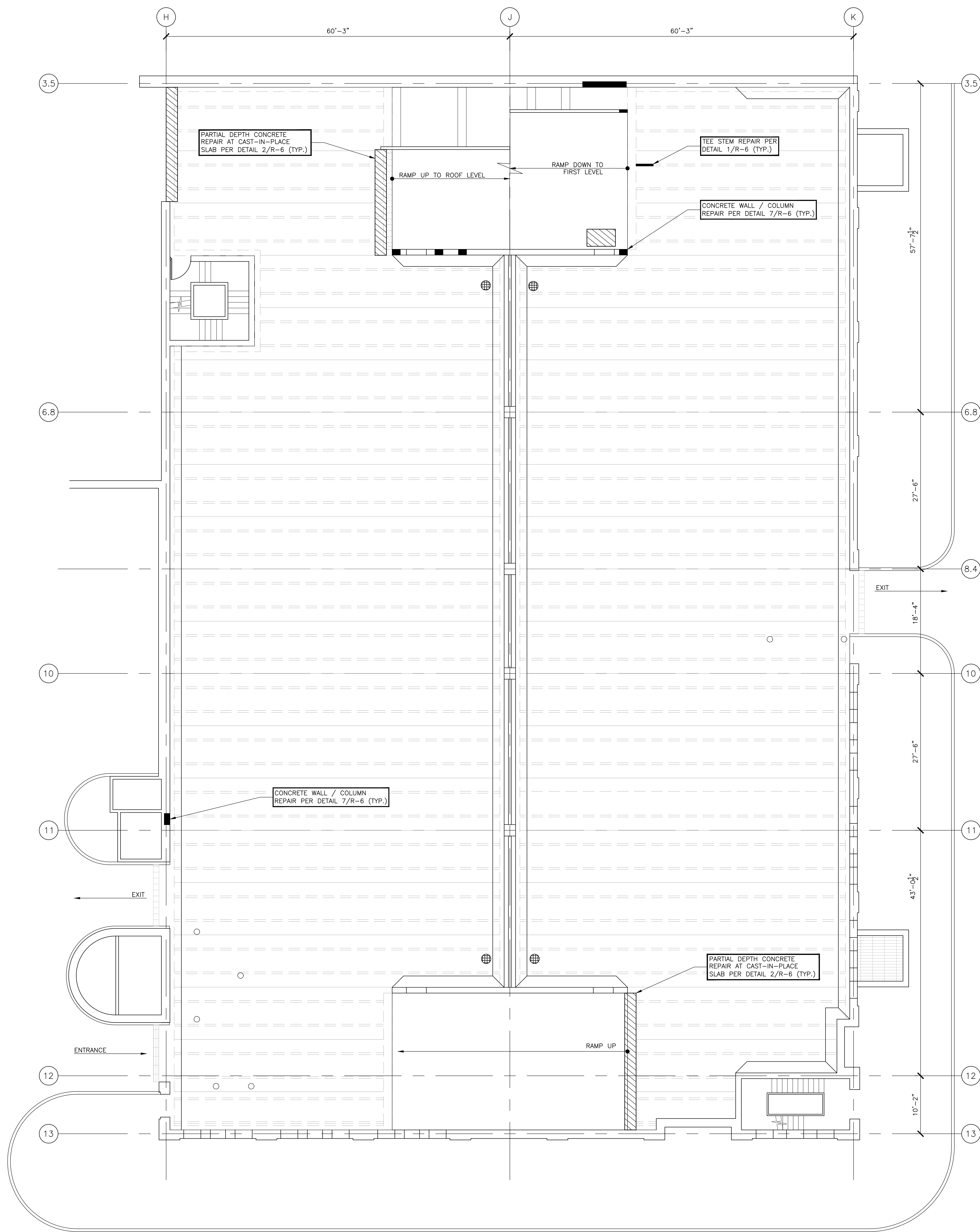
SCALE: AS NOTED

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DESIGN	DRAWN	CHKD.
AC	ND	MG

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LEGEND			
	LARGE AREA FULL DEPTH CONCRETE REPAIR AT PRECAST TEES PER DETAILS 1/R-5 (TYP.)		NEW EXPANSION JOINT PER DETAILS 4/R-6 (TYP.)
	SMALL AREA FULL DEPTH CONCRETE REPAIR AT PRECAST TEES PER DETAILS 2/R-5 (TYP.)		OVERHEAD CONCRETE REPAIR PER DETAIL 5/R-6 (TYP.)
	OVERHEAD TEE STEM REPAIR PER DETAIL 1/R-6 (TYP.)		OVERHEAD BEAM REPAIR PER DETAIL 6/R-6 (TYP.)
	PARTIAL DEPTH CONCRETE REPAIR AT CAST-IN-PLACE SLAB PER DETAIL 2/R-6 (TYP.)		CONCRETE WALL / COLUMN REPAIR PER DETAIL 7/R-6 (TYP.)
	CONCRETE STAIR TREAD REPAIR PER DETAIL 3/R-6 (TYP.)		EXISTING FLOOR DRAIN

NOTES:

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- FOR TYPICAL REPAIR DETAILS SEE DRAWINGS R-5 AND R-6.
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- REMOVE EXISTING WATERPROOFING MEMBRANE AT ROOF LEVEL.
- REMOVE AND REPLACE ALL SEALANT AT ROOF LEVEL T-JOINTS AND COVE JOINTS. RE-WELD TEE CONNECTIONS AS DIRECTED BY THE ENGINEER IN THE FIELD. WORK AS PER DETAIL 3/R-5 (TYP.)
- PHASING: CONTRACTORS WILL BE ALLOWED TO CLOSE APPROXIMATELY HALF OF HTE GARAGE AT ONE TIME IN ORDER TO PERFORM THEIR WORK. IT IS ANTICIPATED THAT THE CURRIER PLACE EXIT CAN BE USED FOR ENTERING AND EXITING THE VEHICLES AND WILL CONSTITUTE THE BREAK BETWEEN TWO WORK PHASES.

7 LEBANON STREET GARAGE - MID LEVEL FLOOR PLAN

SCALE: 1/8"=1'-0"

## ISSUE

NO.	DESCRIPTION	D
DRAWING TITLE		
7	LEBANON STREET GARAGE - FIRST LEVEL FLOOR PLAN	

DRAWING NO.

R-4

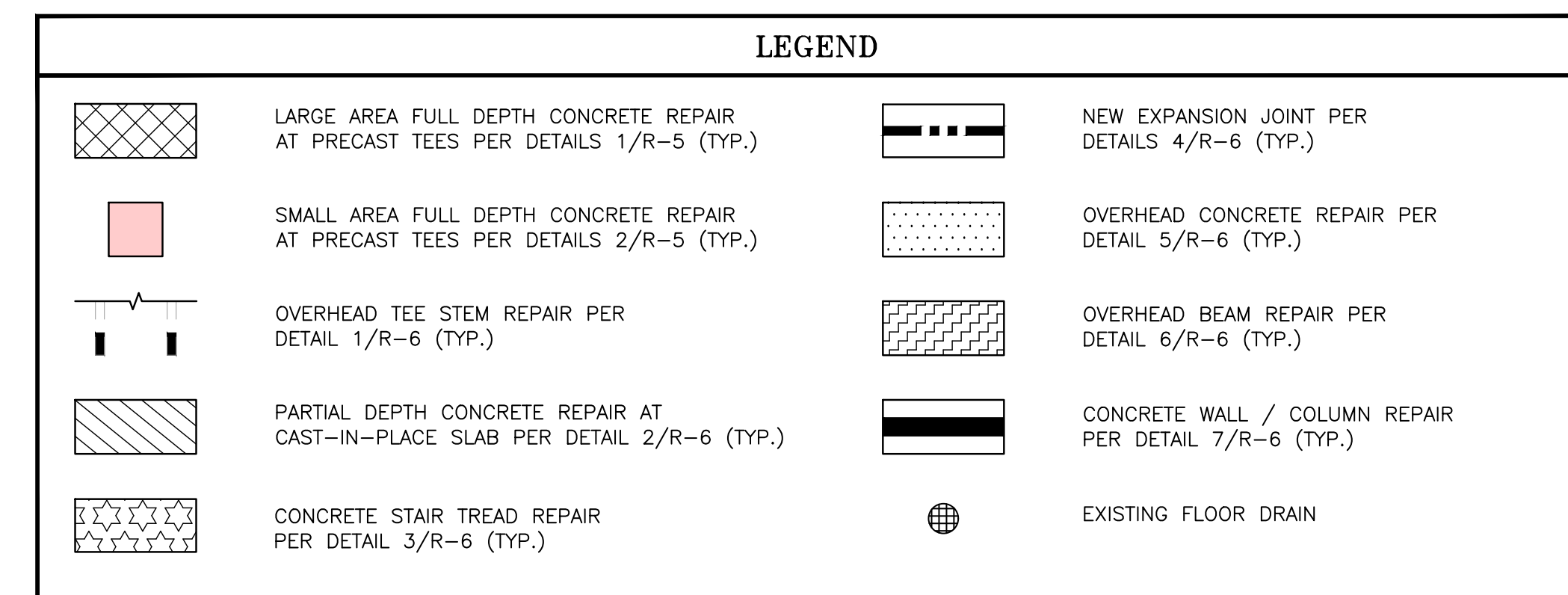
SCALE: AS NOTED

DATE: JUNE 10, 2025

PROJECT NO. 20-25120

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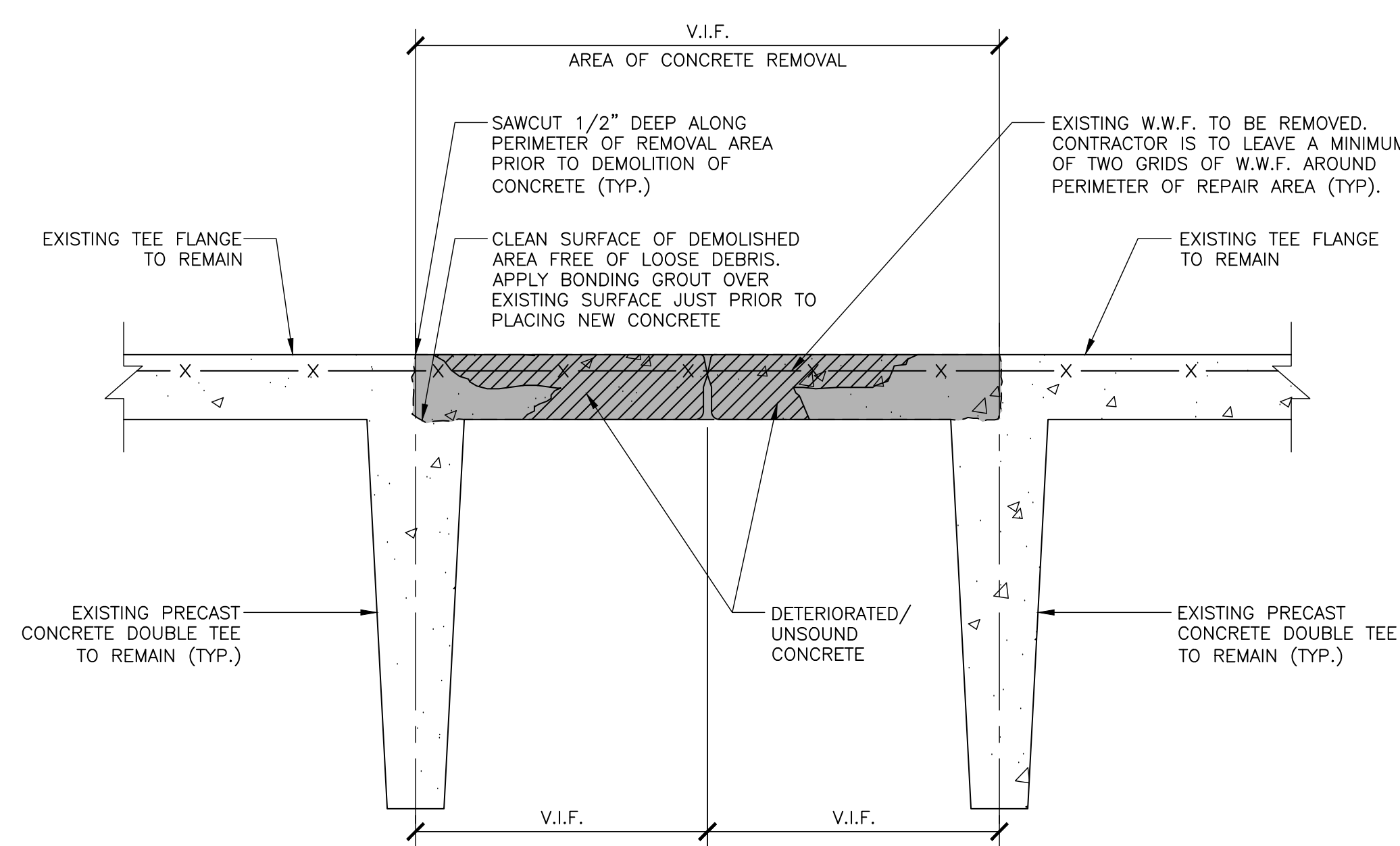


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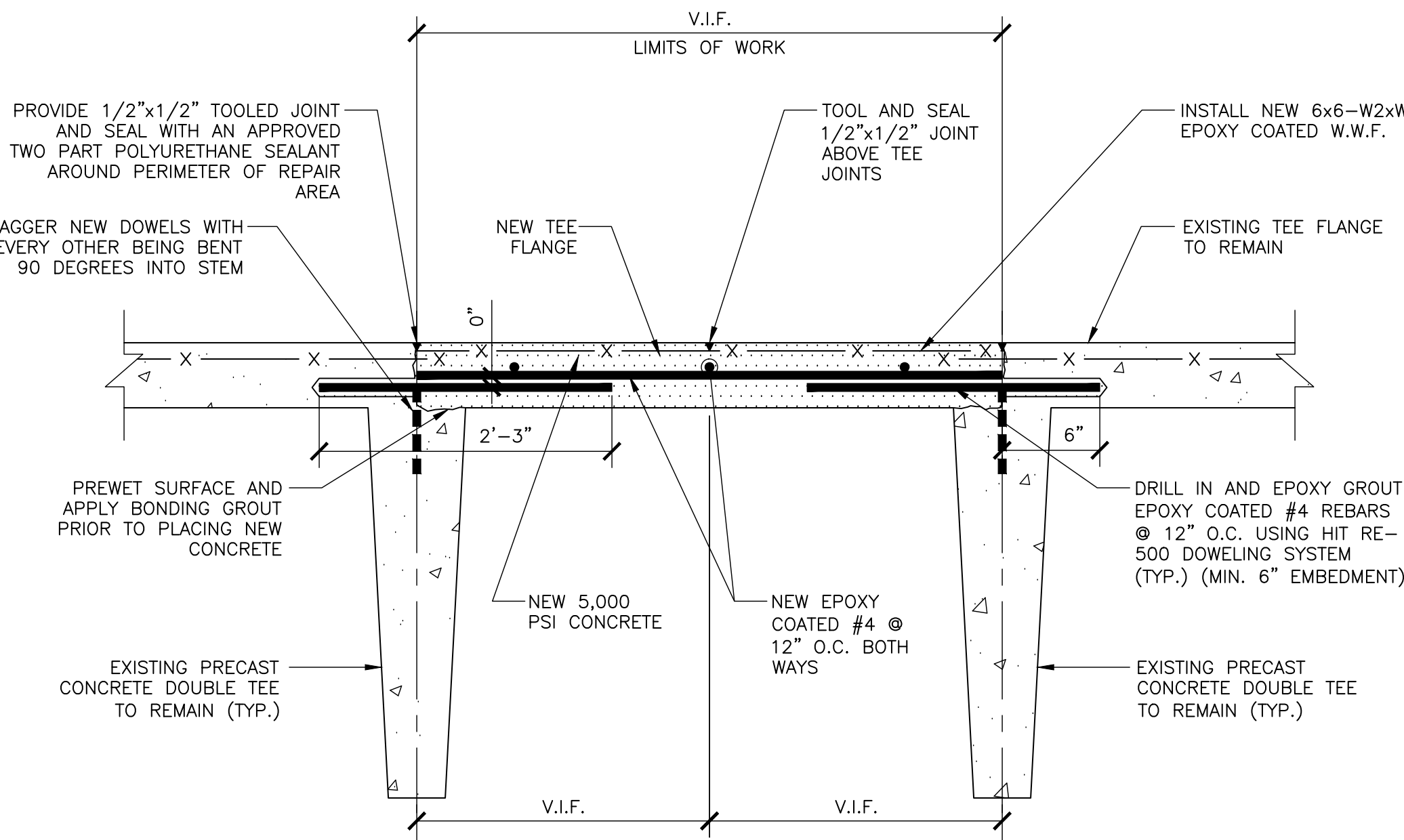
1. ALL REPAIR LOCATIONS AND QUANTITIES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR IN THE PRESENCE OF THE ENGINEER.
2. FOR TYPICAL REPAIR DETAILS SEE DRAWINGS R-5 AND R-6.
3. ALL NEW CONCRETE SHALL BE 5,000 PSI. CONCRETE DESIGN SHALL BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING REPAIRS.
4. REMOVE EXISTING WATERPROOFING MEMBRANE AT ROOF LEVEL.
5. REMOVE AND REPLACE ALL SEALANT AT ROOF LEVEL T-JOINTS AND COVE JOINTS. RE-WELD TEE CONNECTIONS AS DIRECTED BY THE ENGINEER IN THE FIELD. WORK AS PER DETAIL 3/R-5 (TYP.)
6. PHASING: CONTRACTORS WILL BE ALLOWED TO CLOSE APPROXIMATELY HALF OF HTE GARAGE AT ONE TIME IN ORDER TO PERFORM THEIR WORK. ACCESS IS REQUIRED TO THE CURRIER PLATE EXIT CAN BE USED FOR ENTERING AND EXITING THE VEHICLES AND WILL CONSTITUTE THE BREAK BETWEEN TWO WORK PHASES.

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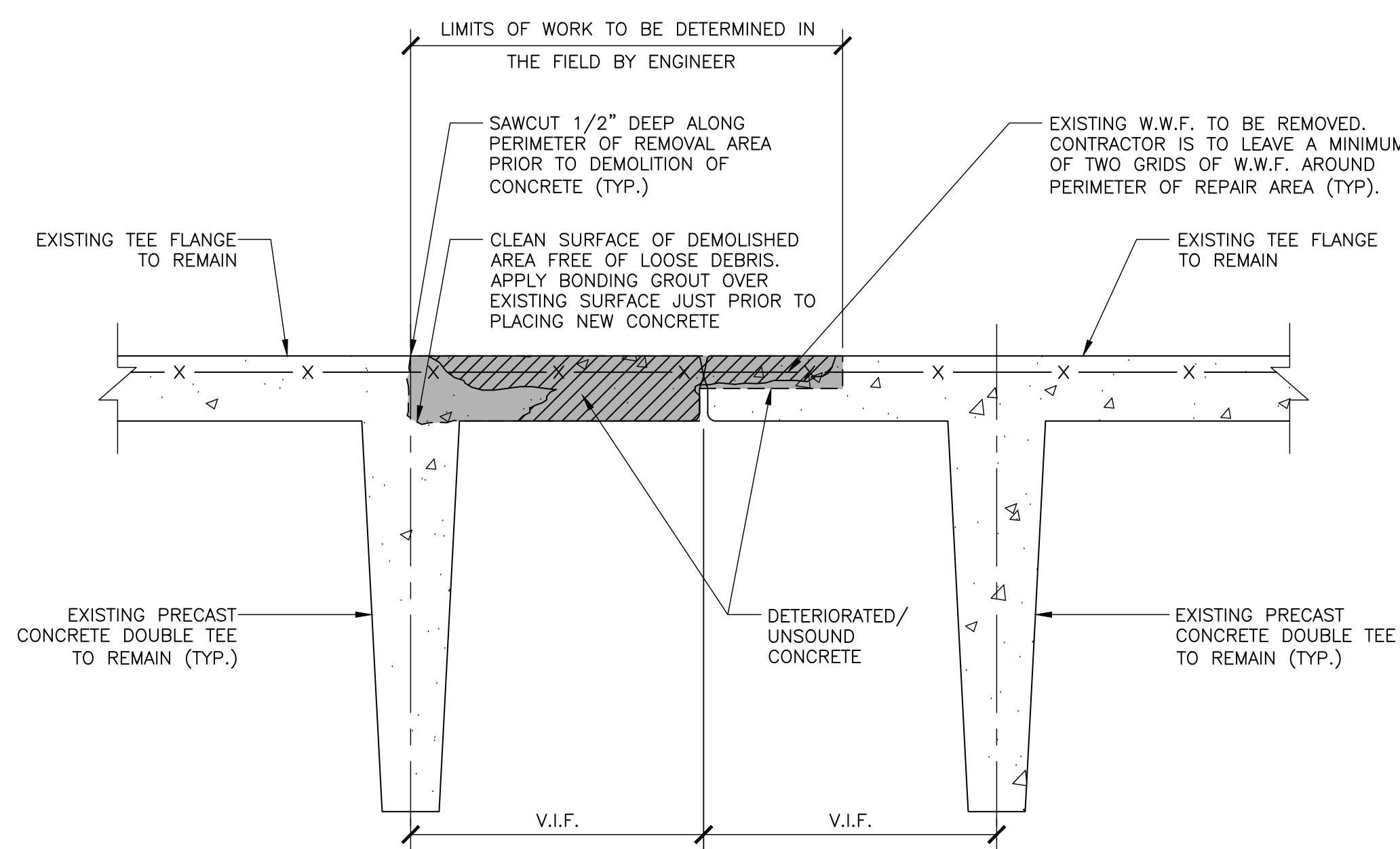


EXISTING CONDITION AND REMOVAL

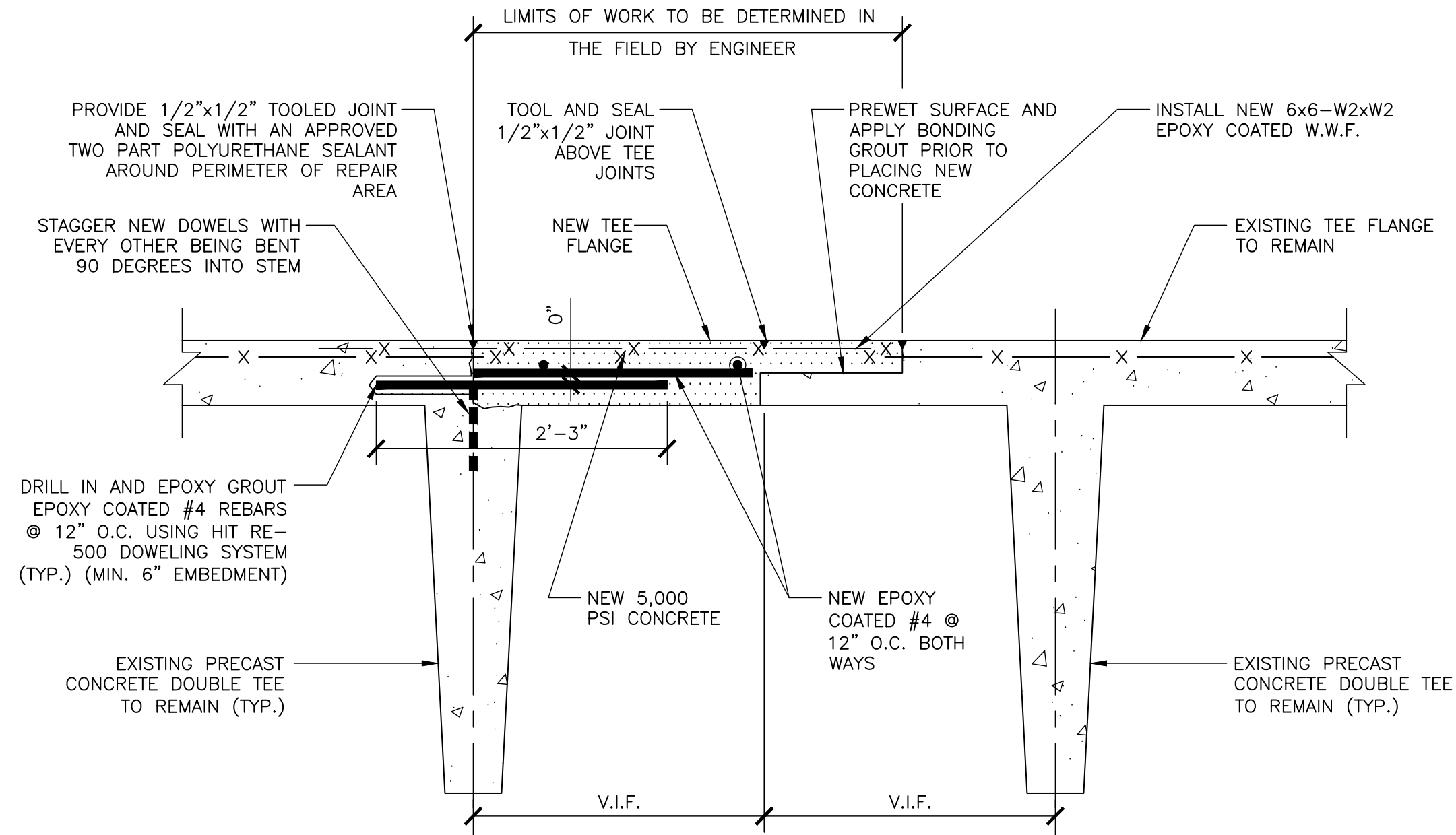


REPAIRED CONDITION

FULL DEPTH REPAIR AT ADJACENT TEE FLANGES

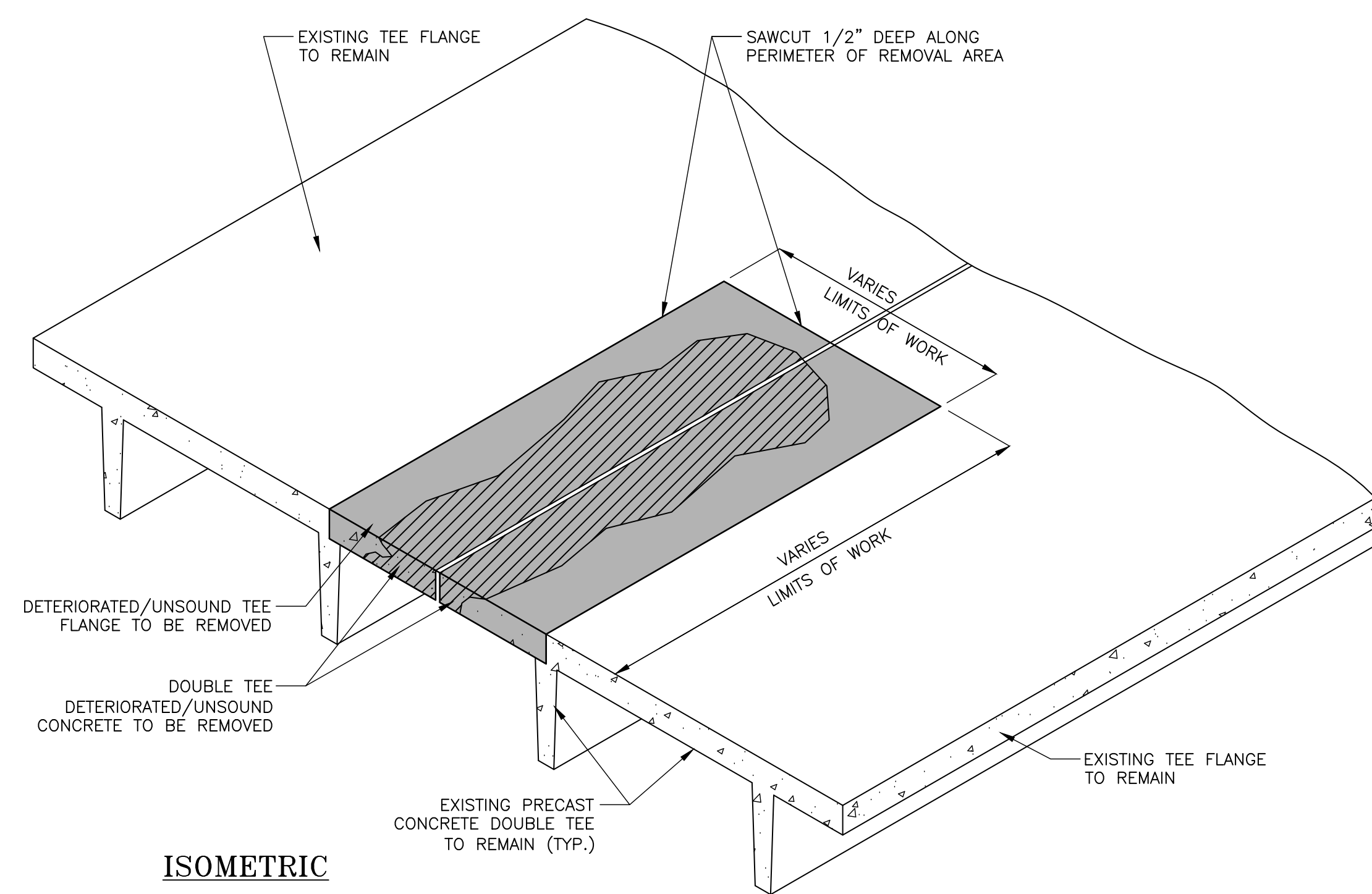


EXISTING CONDITION AND REMOVAL



REPAIRED CONDITION

FULL DEPTH REPAIR AT ONE TEE FLANGE



ISOMETRIC

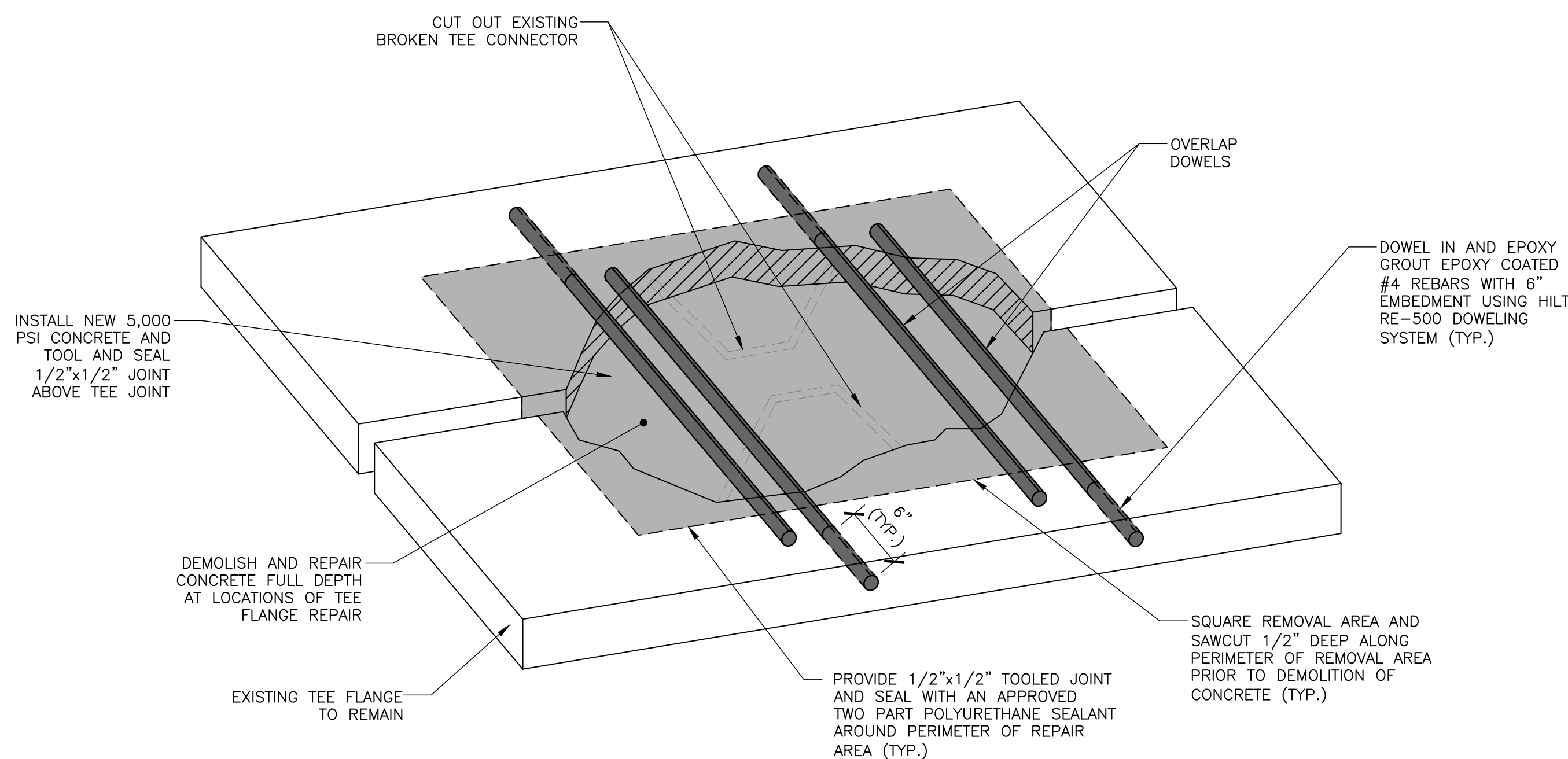
REPAIR PROCEDURE:

1. MARK OUT REPAIR AREA IN THE PRESENCE OF THE ENGINEER AND SAWCUT 1/2" DEEP ALONG PERIMETER OF REPAIR AREA.
2. REMOVE DELAMINATED AND SOUND CONCRETE AS SHOWN FULL DEPTH.
3. DRILL IN AND INSTALL EPOXY COATED #4 DOWELS AT 12" O.C. USING THE HILTI HIT RE 500 SYSTEM WITH A 6" MINIMUM EMBEDMENT.
4. REFER TO DETAIL 2/R-5 FOR TEE CONNECTION REPAIR AND DETAIL 3/R-5 FOR TEE CONNECTION RE-WELD, WHERE REQUIRED.
5. CLEAN SURFACE OF DEMOLISHED CONCRETE TEE FREE OF LOSE MATERIAL AND DEBRIS. APPLY BONDING GROUT OVER EXISTING SURFACE JUST PRIOR TO PLACING NEW CONCRETE.
6. FORM AND PLACE NEW 5,000 PSI, FIBER REINFORCED, CONCRETE AND WET CURE AS PER SPECIFICATIONS. TOOL 1/2"x1/2" JOINTS ALONG PERIPHERY OF REPAIR AREA AND ABOVE ORIGINAL TEE JOINTS AND SEAL THE SAME WITH AN APPROVED TWO PART URETHANE SEALANT.

1  
R-5

LARGE AREA FULL DEPTH REPAIR AT PRECAST CONCRETE TEES

SCALE: N.T.S.



REPAIR PROCEDURE:

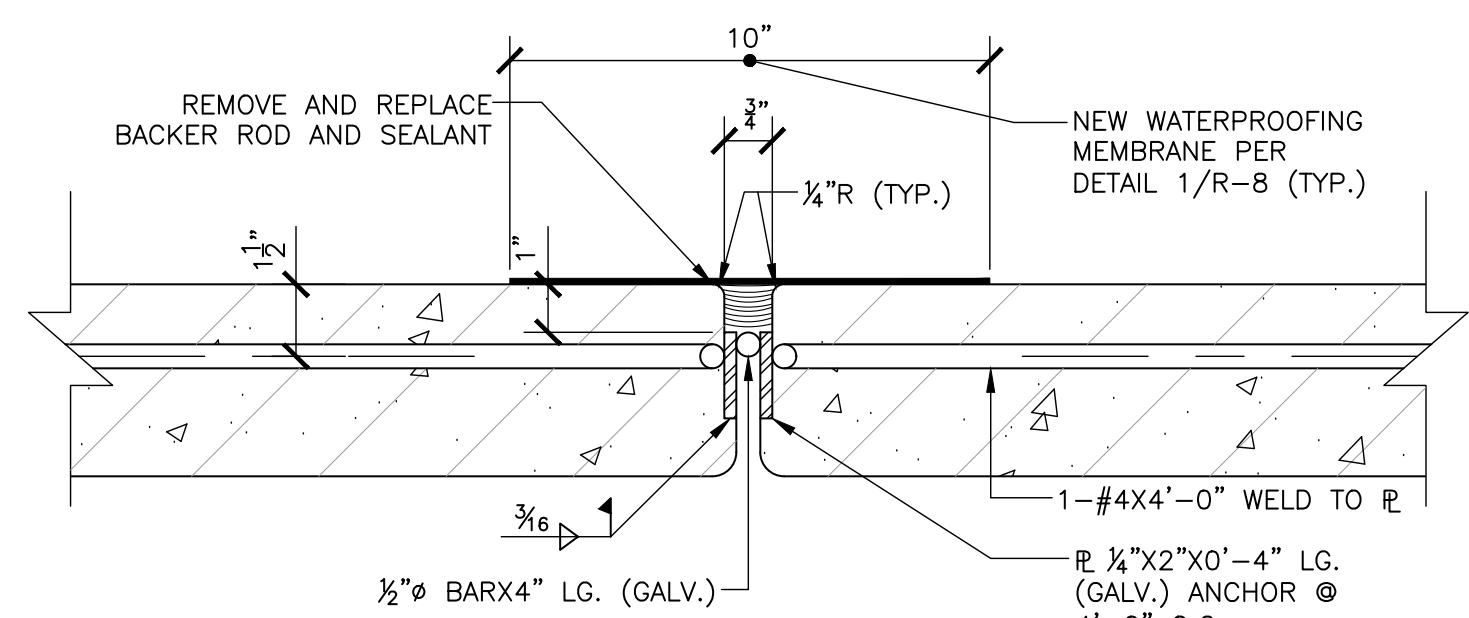
1. THIS REPAIR OCCURS WHEN SPALL REPAIR REQUIRES EXPOSING BAR ANCHORS DURING DEMOLITION.
2. REMOVAL WIDTH SHALL BE SUFFICIENT ENOUGH TO INSTALL OVERLAPPED DOWELS IN PLACE OF BROKEN CONNECTION.
3. EDGE OF PATCH TO BE CHAMFERED OR TOOLED TO MATCH ADJACENT EDGE OF EXISTING CONCRETE.
4. PATCH AREA WITH AN APPROVED 5,000 PSI REPAIR MATERIAL AS PER THE RECOMMENDATIONS OF THE MANUFACTURER.
5. PROVIDE 3/8" TOOLED JOINT AROUND PERIMETER OF REPAIR AND ABOVE THE TEE JOINT AND SEAL WITH AN APPROVED TWO-PART URETHANE SEALANT.
6. REFER TO DETAIL 3/R-5 FOR TEE CONNECTION RE-WELD, WHERE REQUIRED.

2

SMALL AREA FULL DEPTH REPAIR AT TEE CONNECTIONS

R-5

SCALE: N.T.S.



NOTES:

1. CLEAN AND EPOXY COAT EXPOSED STEEL CONNECTIONS.
2. REPAIR WELDS AS NOTED PER DIRECTION OF THE ENGINEER (IF REQUIRED).

3

REMOVE AND REPLACE SEALANT AT PRECAST JOINTS AND RE-WELD TEE CONNECTION

R-5

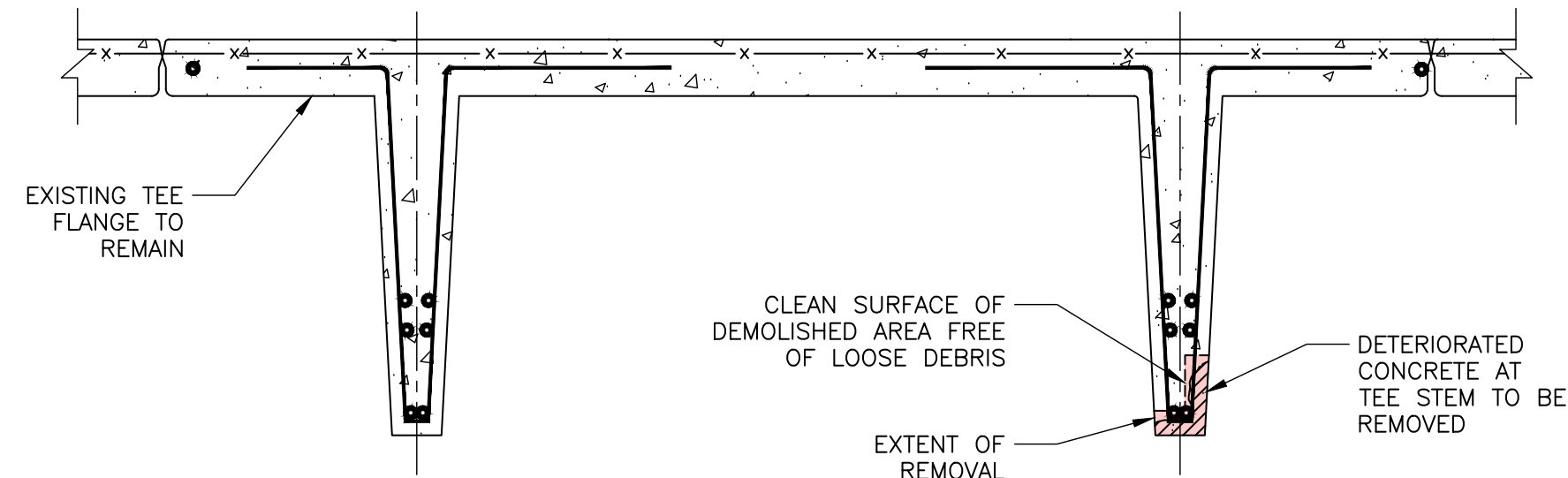
SCALE: N.T.S.

ISSUE		

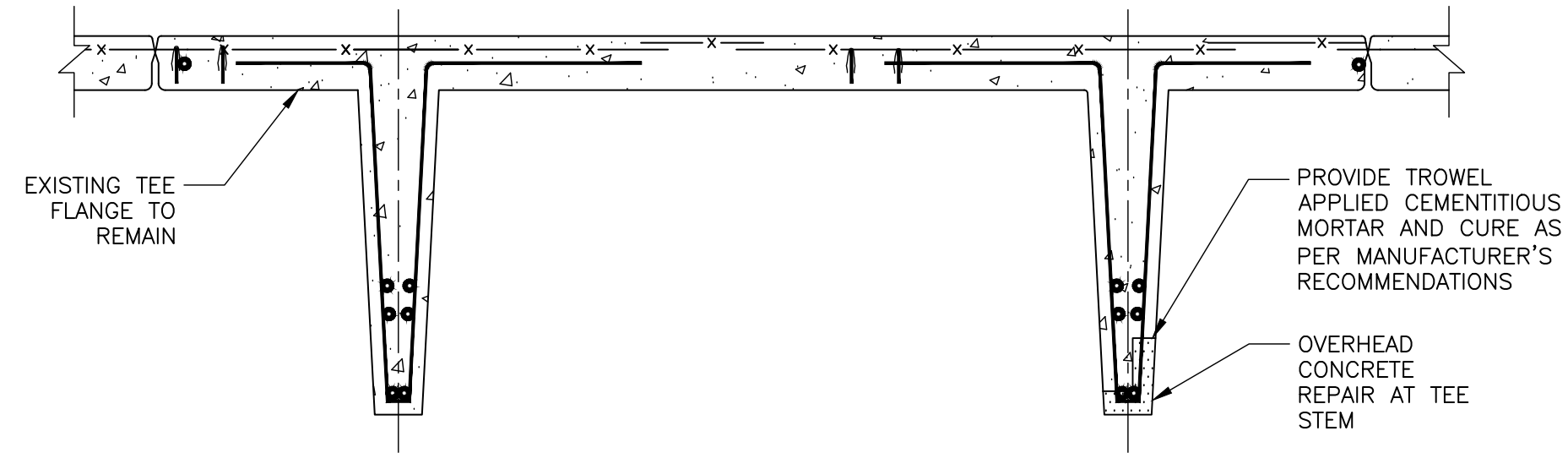
NO.	DESCRIPTION	DATE
1	7 LEBANON STREET GARAGE - TYPICAL REPAIR DETAILS	
2		
3		
4		
5		
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7		
8		
9		
10		

DRAWING NO.	R-5
SCALE: AS NOTED	
DATE:	JUNE 10, 2025
PROJECT NO.	20-25120-00-2
DESIGN	AC
DRAWN	ND
CHKD.	MG





EXISTING CONDITION AND REMOVAL

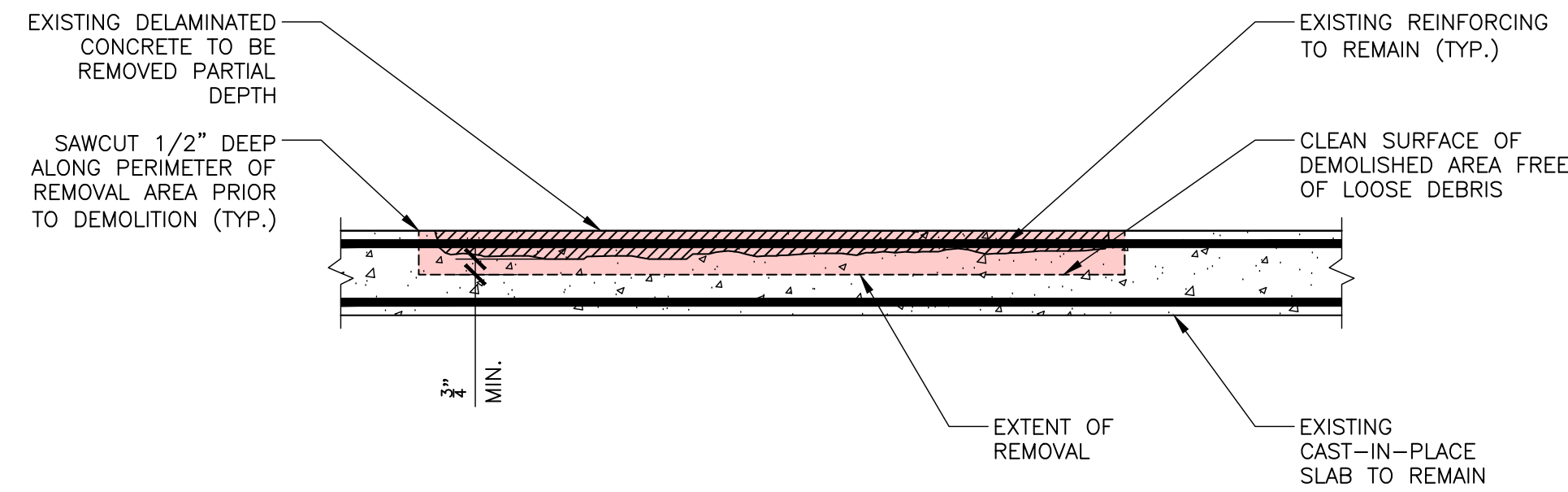


REPAIRED CONDITION

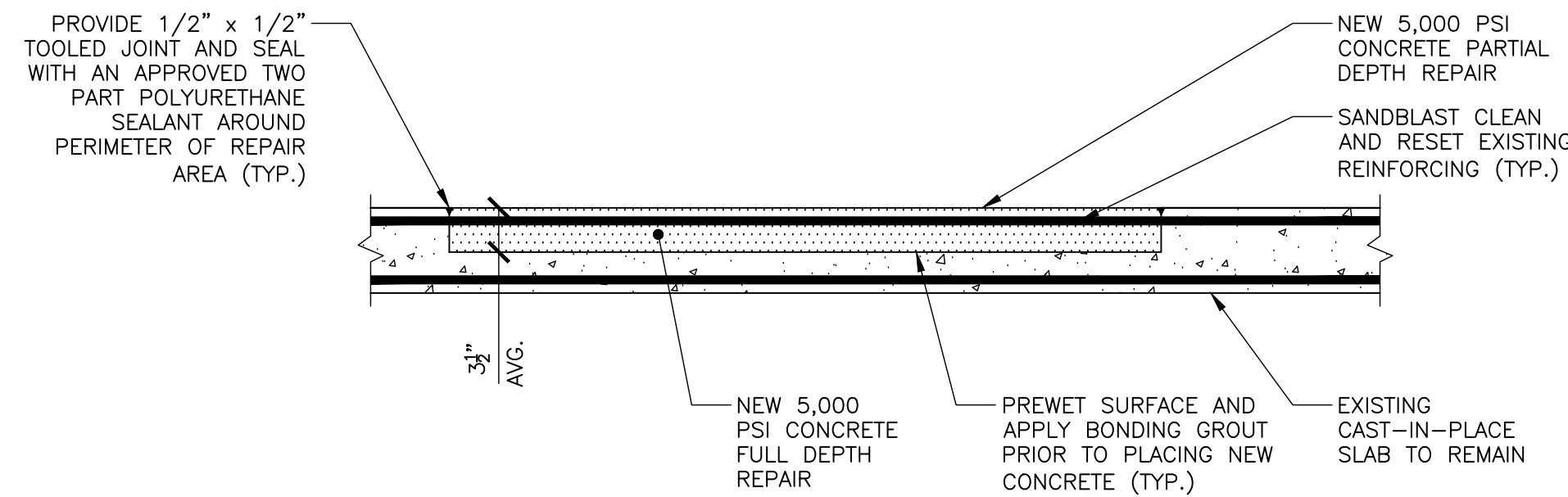
REPAIR PROCEDURE:

1. REMOVE UNSOUND AND SOUND CONCRETE AS DIRECTED BY THE ENGINEER TO A DEPTH OF  $\frac{3}{4}$ " BEHIND EXISTING REINFORCING USING CHIPPING HAMMERS AND SANDBLAST CLEAN EXPOSED STEEL.
2. SUPPLEMENT EXISTING REINFORCING BARS THAT HAVE LOST MORE THAN 20% OF THEIR ORIGINAL CROSS SECTION WITH NEW EPOXY COATED #4 BARS. NEW REINFORCING SHALL BE PROPERLY LAP SPLICED TO EXISTING.
3. APPLY NON SAG REPAIR MORTAR IN LAYERS AS PER MANUFACTURER'S REPAIR PROCEDURE. LAYERS SHALL BE LIMITED IN THICKNESS. EXISTING CONCRETE SURFACE SHALL BE PREWET PRIOR TO APPLICATION.
4. CURE AND PROTECT FINISHED REPAIR.

1 OVERHEAD TEE STEM REPAIR  
R-6 SCALE: N.T.S.



EXISTING CONDITION AND DEMOLITION

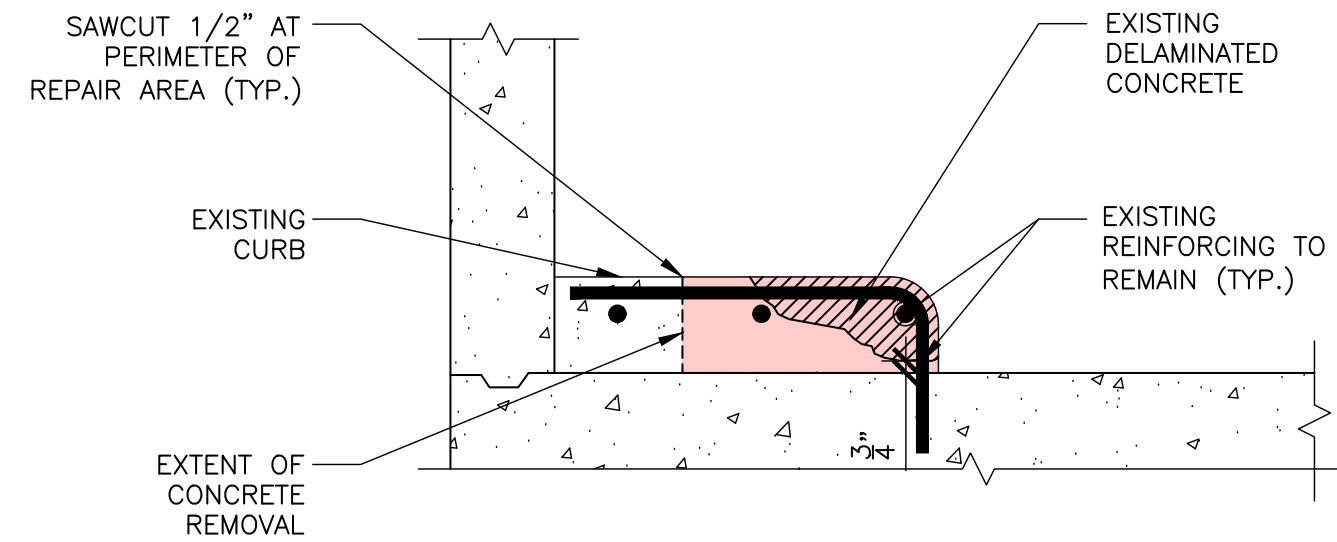


REPAIRED CONDITION

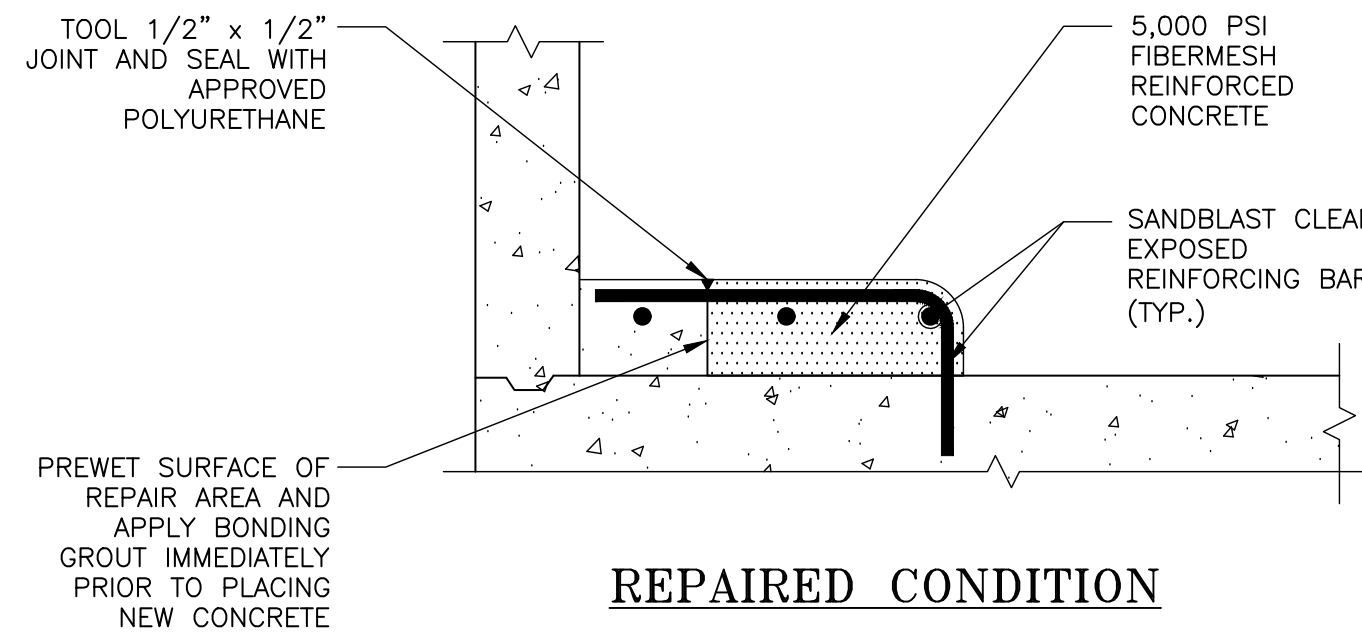
REPAIR PROCEDURE:

1. DETERMINE EXACT LOCATIONS OF DETERIORATED/UN SOUND CONCRETE BY SOUNDING FLOOR SLAB WITH THE USE OF HAMMERS/CHAINS, IN THE PRESENCE OF THE ENGINEER.
2. PROVIDE  $\frac{1}{2}$ " DEEP SAWCUT ALONG PERIMETER OF CONCRETE TO BE REMOVED.
3. REMOVE UNSOUND AND SOUND CONCRETE WITH CHIPPING HAMMERS (25 LBS) TO AN AVERAGE DEPTH OF  $\frac{3}{4}$ " BELOW THE REBAR. CONCRETE SHALL BE REMOVED TO A SUFFICIENT DEPTH ALONG PERIMETER TO FORM A BUTT JOINT.
4. SANDBLAST CLEAN EXISTING REINFORCING BARS TO REMOVE CORROSION DEPOSITS. SUPPLEMENT EXISTING REINFORCING THAT HAS LOST MORE THAN 20% OF ITS ORIGINAL CROSS SECTION.
5. POUR AND CURE NEW 5,000 PSI FIBER REINFORCED CONCRETE.

2 PARTIAL DEPTH CONCRETE CAST-IN-PLACE SLAB REPAIR  
R-6 SCALE: N.T.S.



EXISTING CONDITION AND DEMOLITION

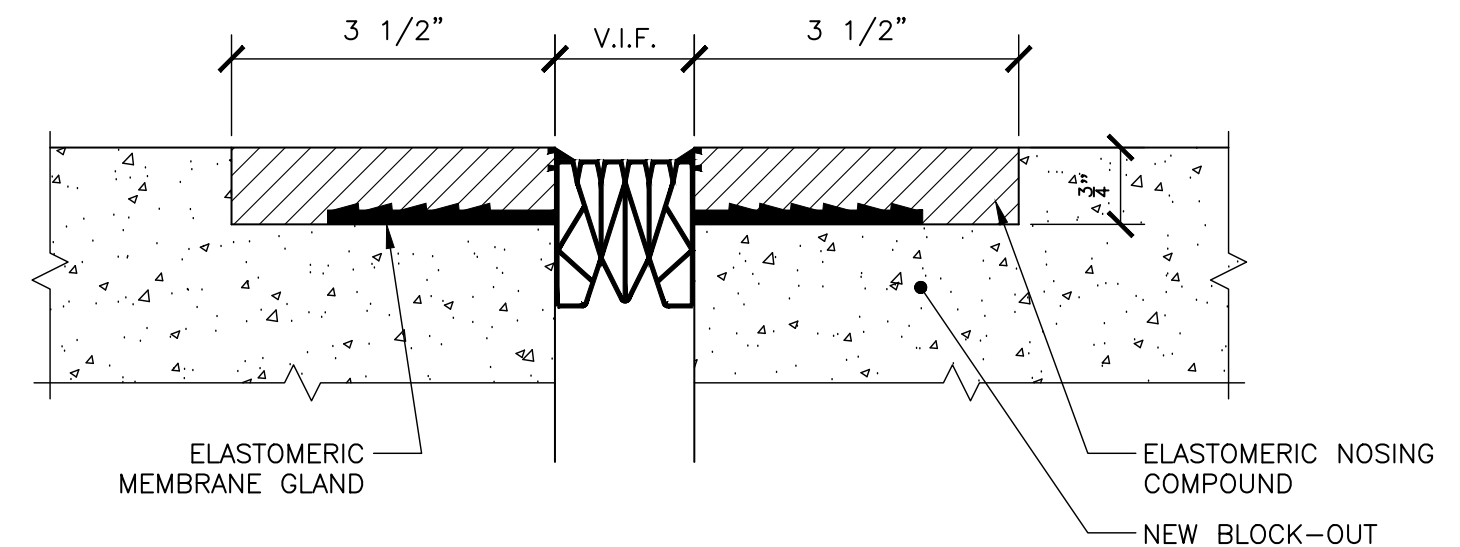


REPAIRED CONDITION

REPAIR PROCEDURE:

1. SANDBLAST CLEAN EXISTING REINFORCING BARS TO REMOVE CORROSION DEPOSITS. SUPPLEMENT EXISTING REINFORCING THAT HAS LOST MORE THAN 20% OF ITS ORIGINAL CROSS SECTION.

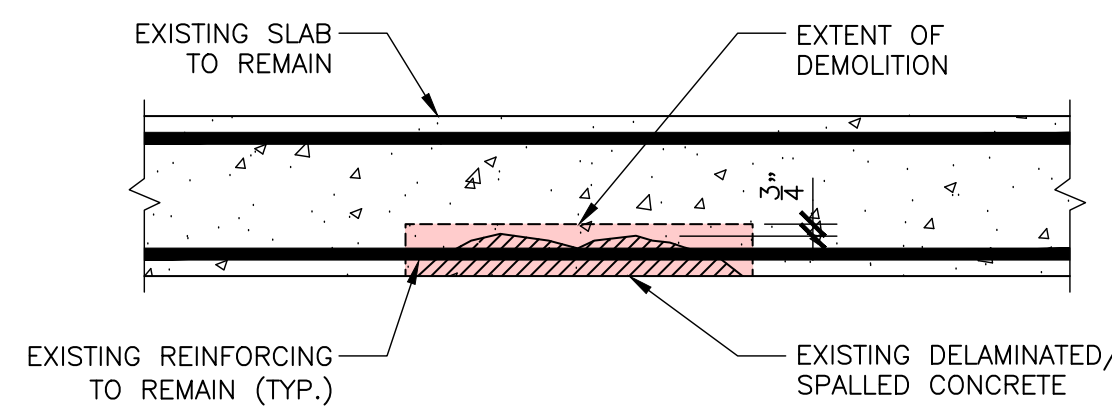
3 CONCRETE CURB REPAIR DETAIL  
R-6 SCALE: N.T.S.



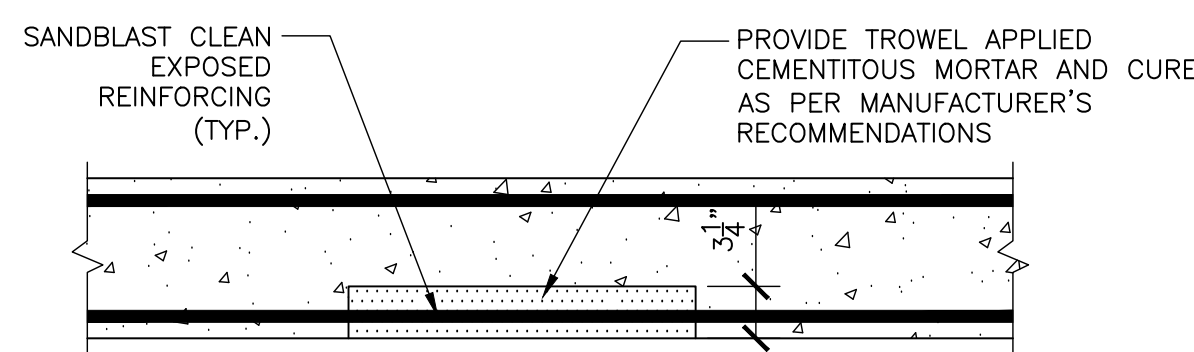
REPAIR PROCEDURE:

1. SAWCUT  $\frac{1}{2}$ " AT PERIMETER OF CONCRETE REMOVAL AREA AS SHOWN ON PLAN AND DETAILS.
2. REMOVE AND REPAIR CONCRETE AS MAY BE NECESSARY. CONTRACTOR SHALL EXERCISE CARE NOT TO DAMAGE THE EXISTING REINFORCING SCHEDULED TO REMAIN. ALL EXPOSED STEEL SHALL BE SANDBLAST CLEANED. CLEAN SURFACE FREE OF ALL DELETERIOUS MATERIALS.
3. APPLY BONDING GROUT AND PLACE NEW 5,000 PSI FIBER REINFORCED CONCRETE OR APPROVED REPAIR MATERIAL HEADER WITH BLOCK-OUT REQUIRED FOR THE NEW EXPANSION JOINT SEAL. CONCRETE SHALL BE PLACED AND CURED IN ACCORDANCE WITH DIVISION 3 OF THE SPECIFICATIONS.
4. TOOL  $\frac{1}{2}$ " x  $\frac{1}{2}$ " V-GROOVE ALONG PERIMETER OF THE REPAIR AREA AND SEAL THE SAME WITH AN APPROVED TWO-PART URETHANE CAULK.
5. ONCE THE CONCRETE HAS CURED, INSTALL THE NEW EXPANSION JOINT SEAL IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION PROCEDURES.

4 NEW WINGED EXPANSION JOINT SEAL  
R-6 SCALE: N.T.S.



EXISTING CONDITION AND DEMOLITION

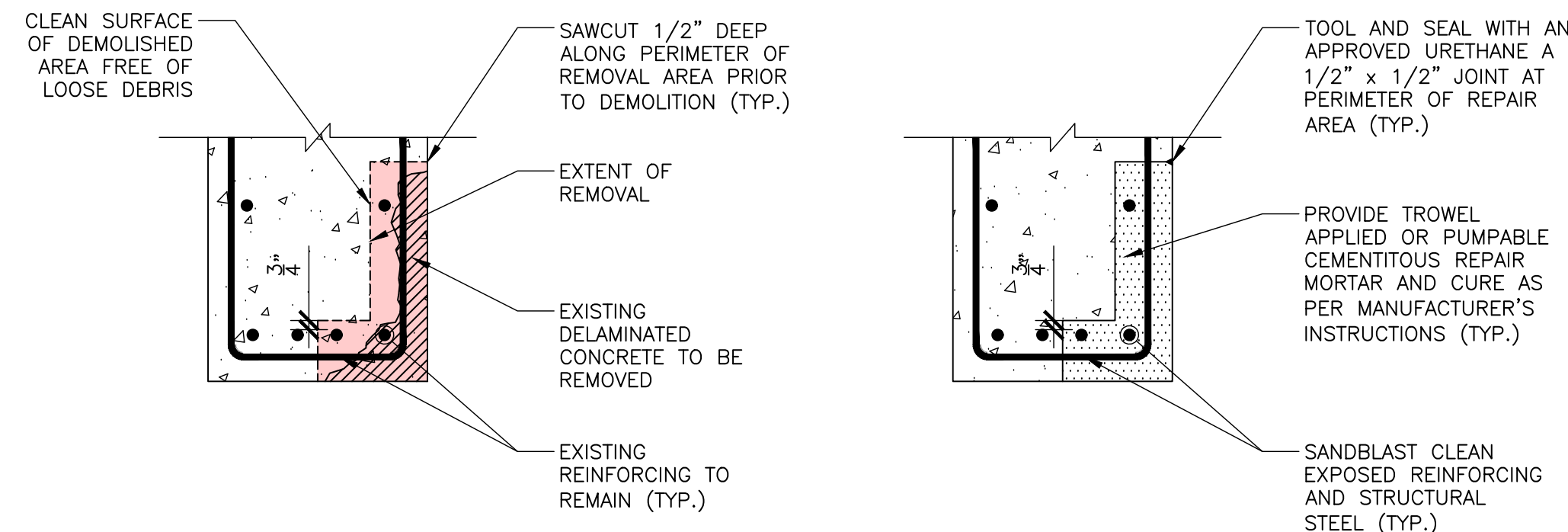


REPAIRED CONDITION

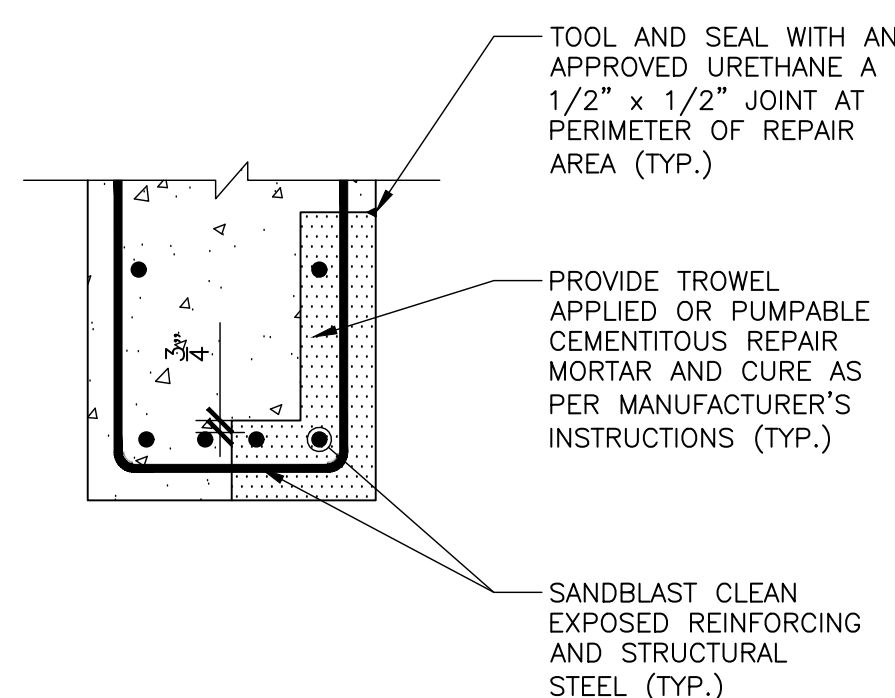
REPAIR PROCEDURE:

1. REMOVE UNSOUND AND SOUND CONCRETE AS DIRECTED BY THE ENGINEER TO A DEPTH OF  $\frac{3}{4}$ " BEHIND EXISTING REINFORCING USING CHIPPING HAMMERS AND SANDBLAST CLEAN EXPOSED STEEL.
2. SUPPLEMENT EXISTING REINFORCING BARS THAT HAVE LOST MORE THAN 20% OF THEIR ORIGINAL CROSS SECTION WITH NEW EPOXY COATED #4 BARS. NEW REINFORCING SHALL BE PROPERLY LAP SPLICED TO EXISTING.
3. APPLY NON SAG REPAIR MORTAR IN LAYERS AS PER MANUFACTURER'S REPAIR PROCEDURE. LAYERS SHALL BE LIMITED IN THICKNESS. EXISTING CONCRETE SURFACE SHALL BE PREWET PRIOR TO APPLICATION.
4. CURE AND PROTECT FINISHED REPAIR.

5 OVERHEAD CONCRETE REPAIR  
R-6 SCALE: N.T.S.



EXISTING CONDITION AND DEMOLITION

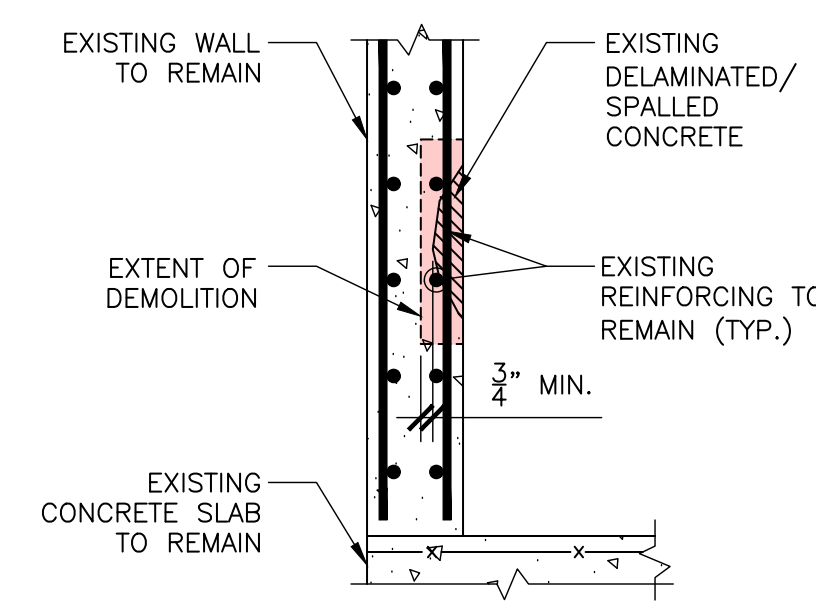


REPAIRED CONDITION

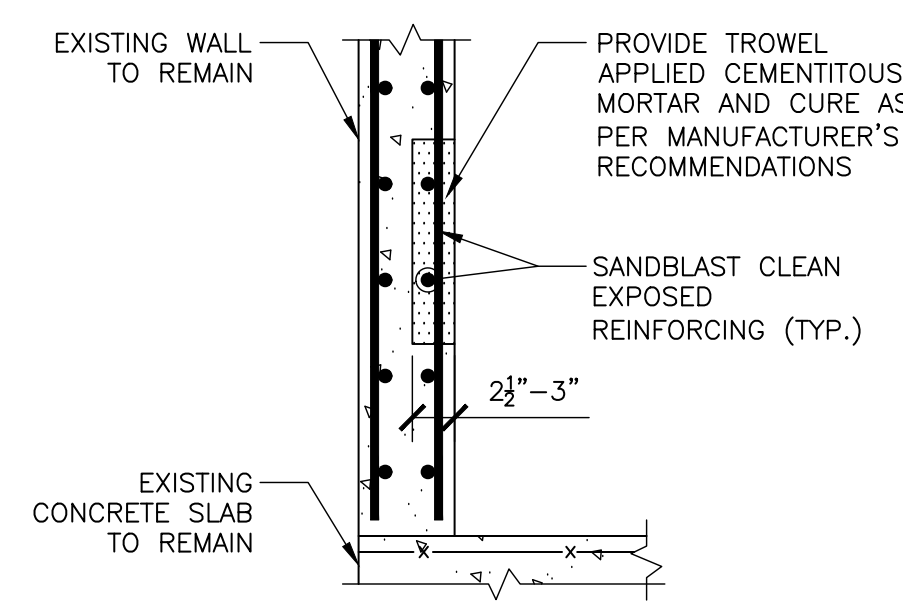
REPAIR PROCEDURE:

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3. APPLY NON SAG REPAIR MORTAR IN LAYERS AS PER MANUFACTURER'S REPAIR PROCEDURE. LAYERS SHALL BE LIMITED IN THICKNESS. EXISTING CONCRETE SURFACE SHALL BE PREWET PRIOR TO APPLICATION.
4. CURE AND PROTECT FINISHED REPAIR.

6 OVERHEAD BEAM REPAIR DETAIL  
R-6 SCALE: N.T.S.



EXISTING CONDITION AND DEMOLITION



REPAIRED CONDITION

REPAIR PROCEDURE:

1. REMOVE UNSOUND AND SOUND CONCRETE AS DIRECTED BY THE ENGINEER TO A DEPTH OF  $\frac{1}{2}$ " BEHIND EXISTING REINFORCING USING CHIPPING HAMMERS AND SANDBLAST CLEAN EXPOSED STEEL.
2. CLEAN SURFACE OF DEMOLITION AREA FREE OF LOOSE DEBRIS. SUPPLEMENT EXISTING REINFORCING BARS THAT HAVE LOST MORE THAN 20% OF THEIR ORIGINAL CROSS SECTION WITH NEW EPOXY COATED #4 BARS. NEW REINFORCING SHALL BE PROPERLY LAP SPLICED TO EXISTING.
3. APPLY NON SAG REPAIR MORTAR IN LAYERS AS PER MANUFACTURER'S REPAIR PROCEDURE OR FORM AND PUMP REPAIR. LAYERS SHALL BE LIMITED IN THICKNESS. EXISTING CONCRETE SURFACE SHALL BE PREWET PRIOR TO APPLICATION.
4. CURE AND PROTECT FINISHED REPAIR.

7 CONCRETE WALL REPAIR DETAIL  
R-6 SCALE: N.T.S.

ISSUE		

NO.	DESCRIPTION	DATE
DRAWING TITLE		
7 LEBANON STREET GARAGE - TYPICAL REPAIR DETAILS - SHEET 2		
DRAWING NO.		
R-6		
SCALE: AS NOTED		
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PROJECT NO. 20-25120-00-2		
DESIGN	DRAWN	CHKD.
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