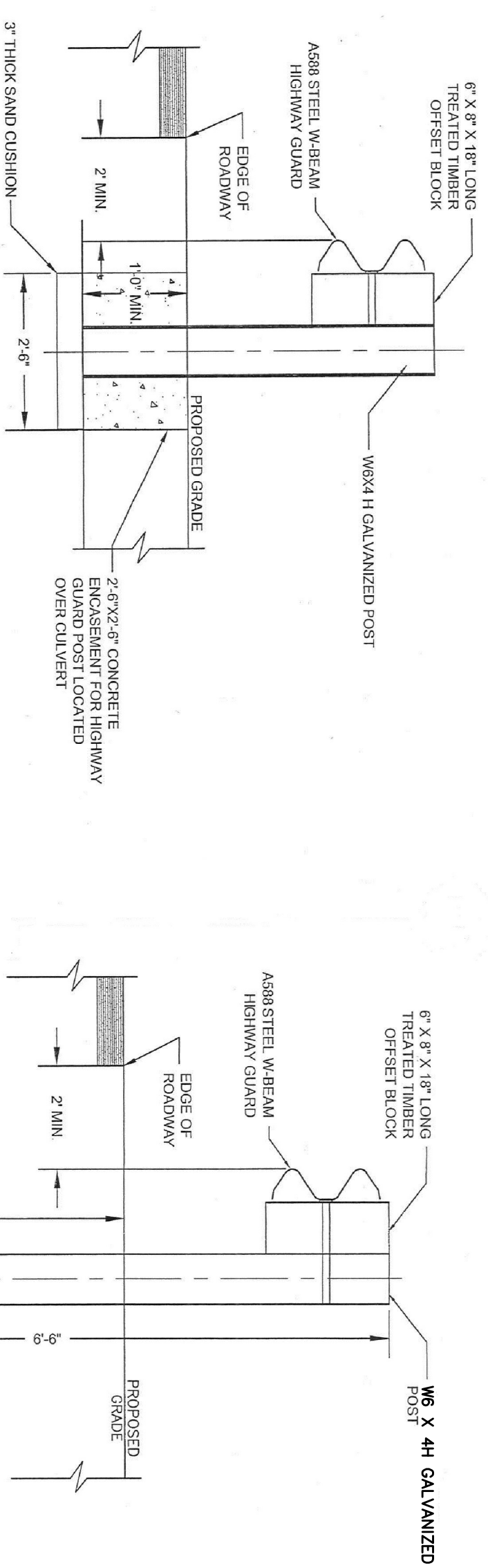
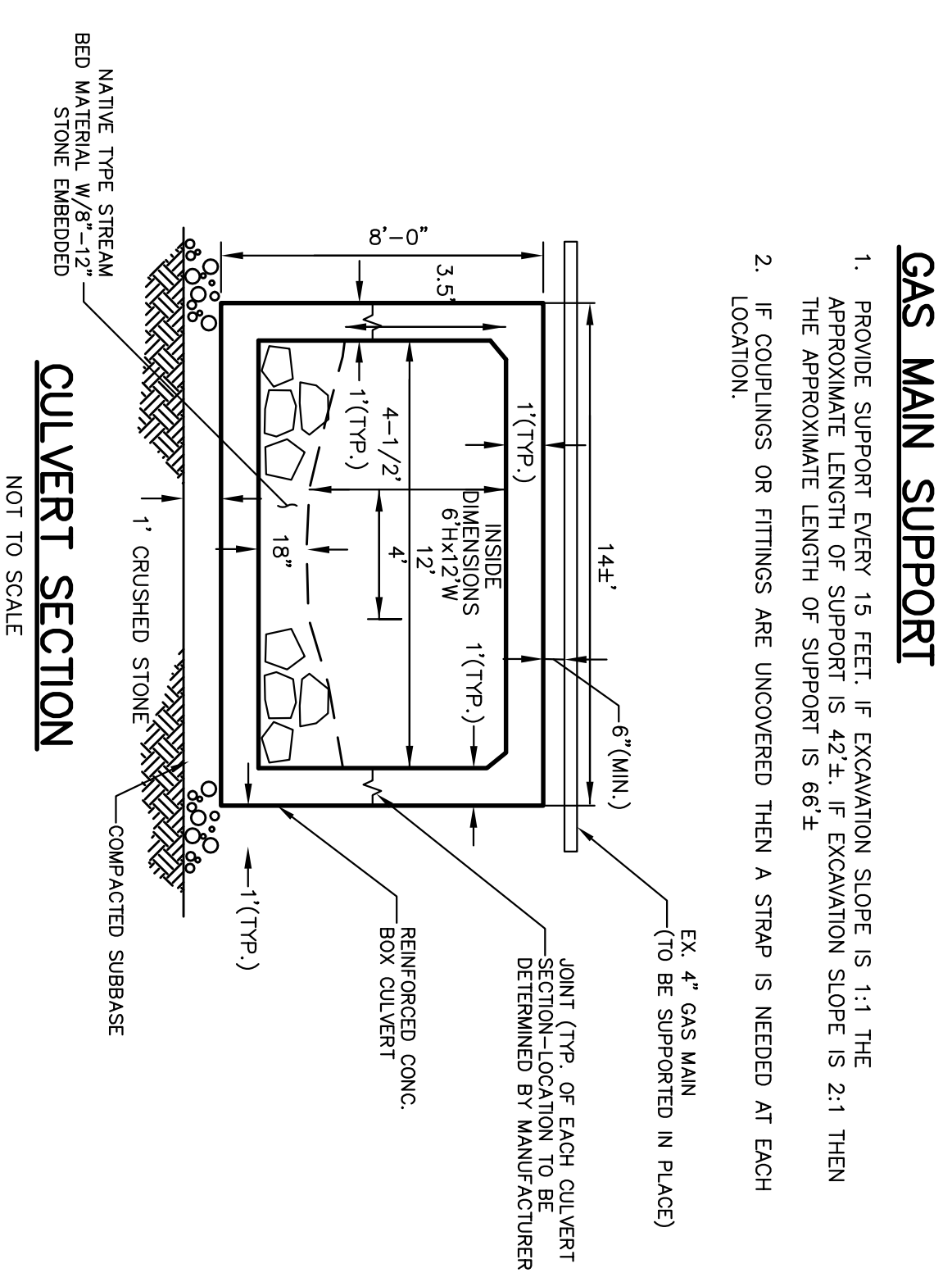


**PROFILE**  
NOT TO SCALE



**NOTES:**

1. CONCRETE SHALL BE 3500 PSI 1-1/2" - 50 LB CEMENT CONCRETE MASSONET.
2. NOT TO BE USED ON MORE THAN 2 POSTS IN A ROW
3. OFFSET BRACKETS SHALL BE INSTALLED AND NAILS MOUNTED IN ACCORDANCE WITH THE DRAWING DETAILS

**GUARD RAIL DETAIL OVER PROPOSED CULVERT**  
SCALE: 1"=1'-0"

**PRECAST CONCRETE CULVERT NOTES:**

1. CONTRACTOR SHALL SUBMIT PRECAST CONCRETE CULVERT DESIGN CALCULATIONS AND SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS FOR APPROVAL PRIOR TO FABRICATION.
2. THE CONTRACTOR SHALL APPROVE ALL ELEVATIONS AND DIMENSIONS OF THE SHOP DRAWINGS PRIOR TO FABRICATION.
3. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI. CEMENT TO BE TYPE III CONFORMING TO ASTM C-150.
4. ALL REINFORCING STEEL SHALL BE GRADE 60 BARS AND CONFORM TO ASTM A615. ALL REINFORCING SHALL BE BENT COULD, UNLESS OTHERWISE NOTED. REINFORCING SPLICE LENGTHS SHALL BE AS FOLLOWS:  

BAR SIZE #6	SPLICE LENGTH (IN)
#6	24
#6	24
5. REINFORCEMENT SHALL BE PLACED WITH A MINIMUM OF 1 1/2" COVER FROM THE FACE OF CONCRETE.
6. THE LOADING FOR THE STRUCTURE IS HL-93 WITH 48" OF SOIL COVER AND 6-1/2" HOT MIX ASPHALT PAVEMENT.
7. A PRESUMPTIVE BEARING CAPACITY OF 2000 PSF SHALL BE USED IN THE DESIGN OF THE CULVERT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUBGRADE PREPARATION SUCH THAT THE DESIGN BEARING CAPACITY SHALL BE ACHIEVED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THIS BEARING CAPACITY CANNOT BE MET.
8. CONTRACTOR SHALL SUBMIT AN ERECTION PROCEDURE SHOP DRAWING FOR APPROVAL PRIOR TO STARTING ANY CONSTRUCTION.

REVISED: 12/30/16 CULVERT ELEVATION LOWERED  
 REVISED: 1/27/16 DEP COMMENTS ADDRESSSED

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**CULVERT REPLACEMENT**  
**CROOKED POND STREAM CROSSING**  
 MIDDLETON ROAD  
 BOXFORD, MASSACHUSETTS