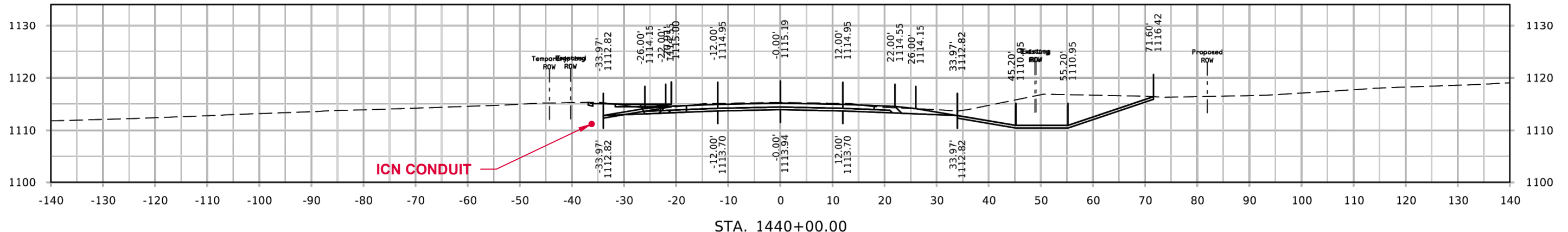
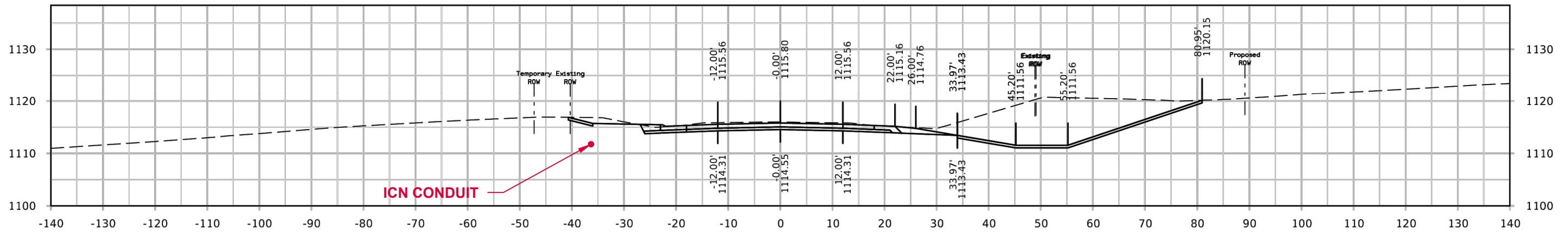
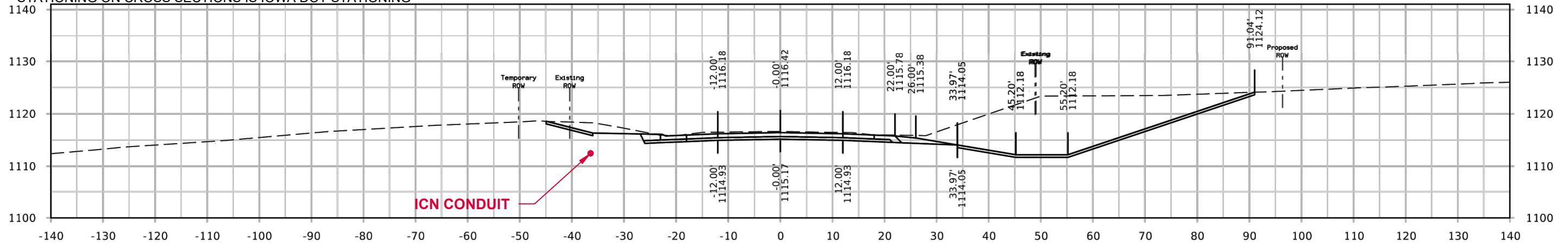


CROSS SECTION

NOTES:

1. ICN TO BE 36" OR MORE BELOW EXISTING GRADE OR NEW GRADE AT DITCH CUTS
2. STATIONING ON CROSS SECTIONS IS IOWA DOT STATIONING



\* CONDUIT NOT TO SCALE

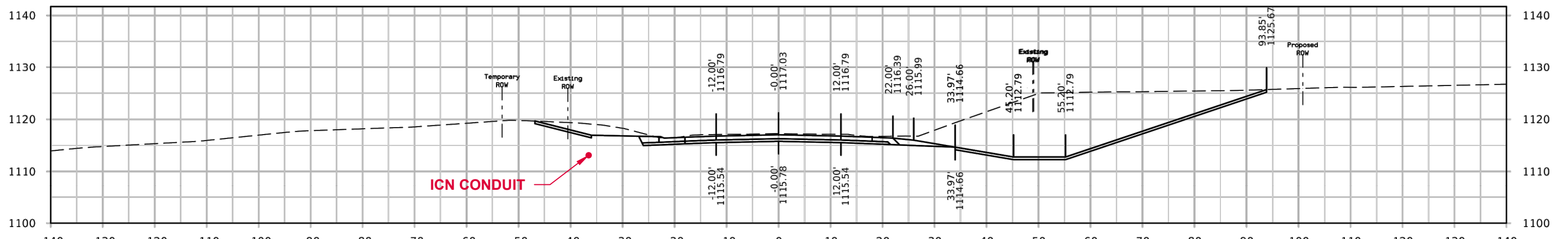
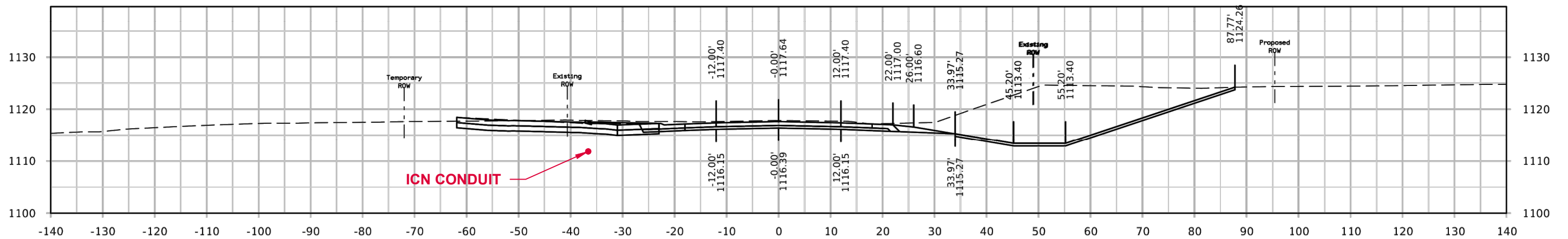
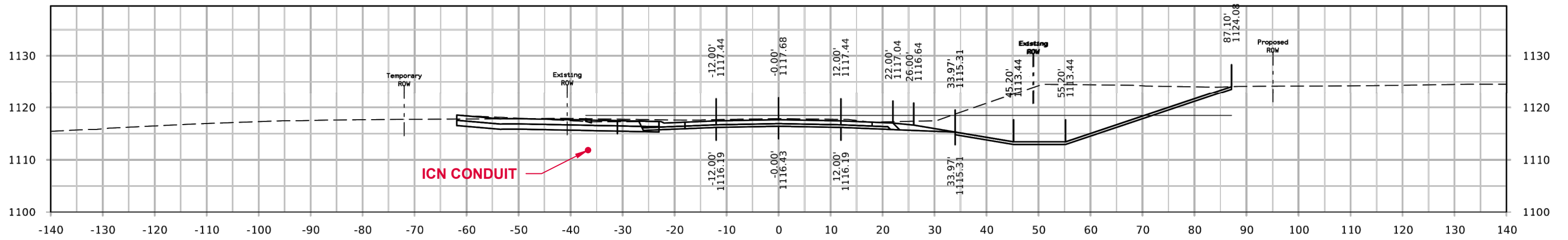


GRAPHIC SCALE

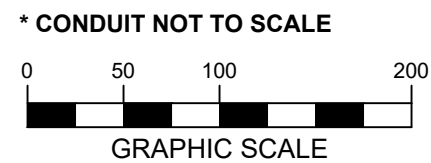


MANCHESTER — DOT HWY 13 RELOCATION FIBER INSTALLATION			<p><b>IOWA COMMUNICATIONS NETWORK</b> 400 EAST 14TH STREET GRIMES STATE OFFICE BUILDING DES MOINES, IOWA 50319 ICN © 2021, COPY WITH PERMISSION</p>
1	FOR 60% REVIEW	09/25/2023	
2	FOR 90% REVIEW	10/12/2023	
3	FOR PERMIT PLANS	10/24/2023	
4			

CROSS SECTION



- NOTES:
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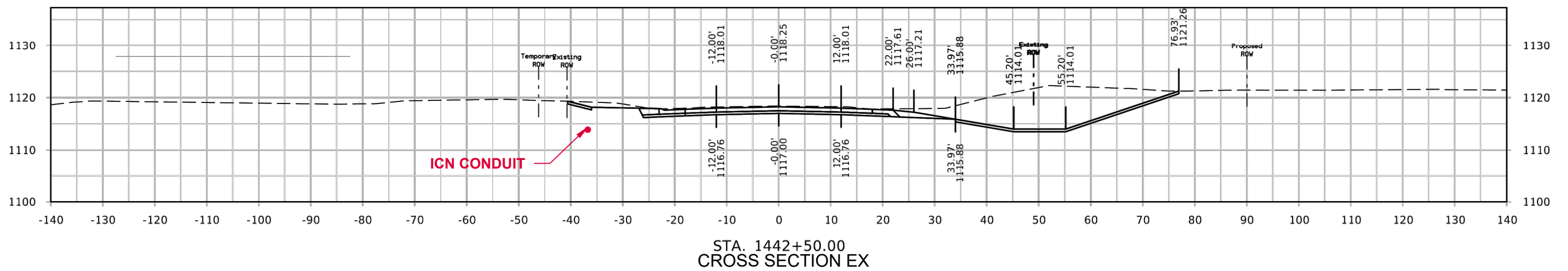
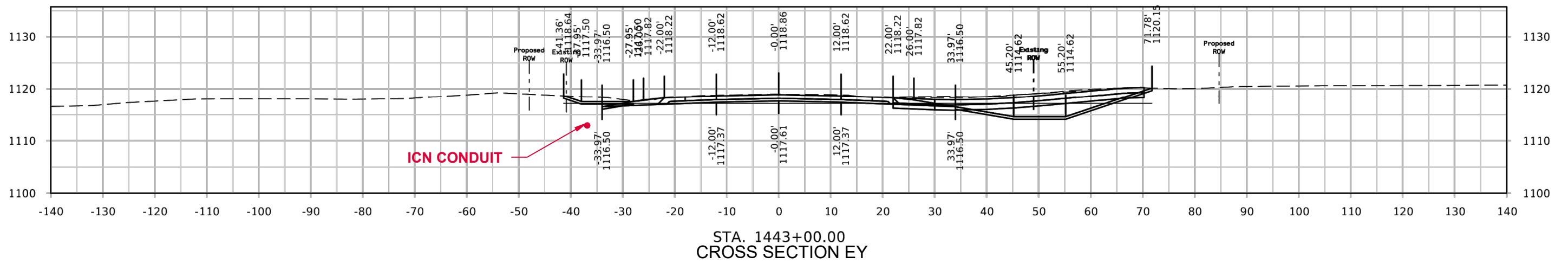
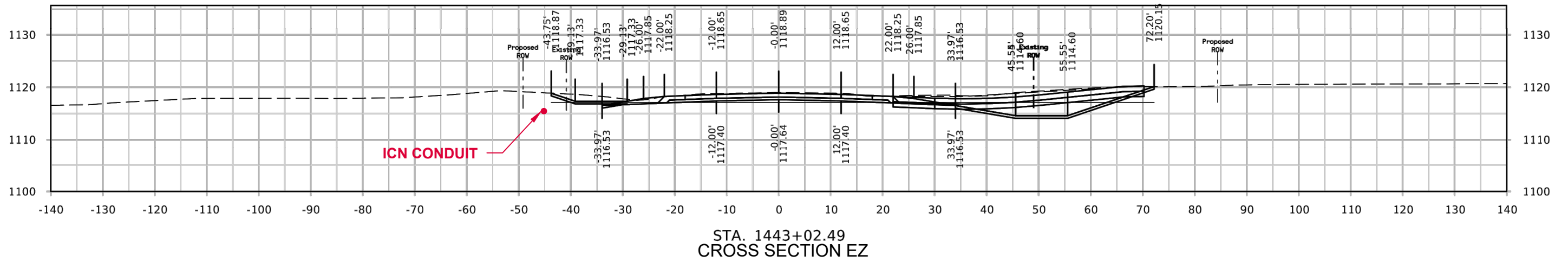


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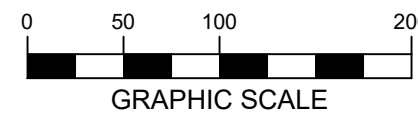
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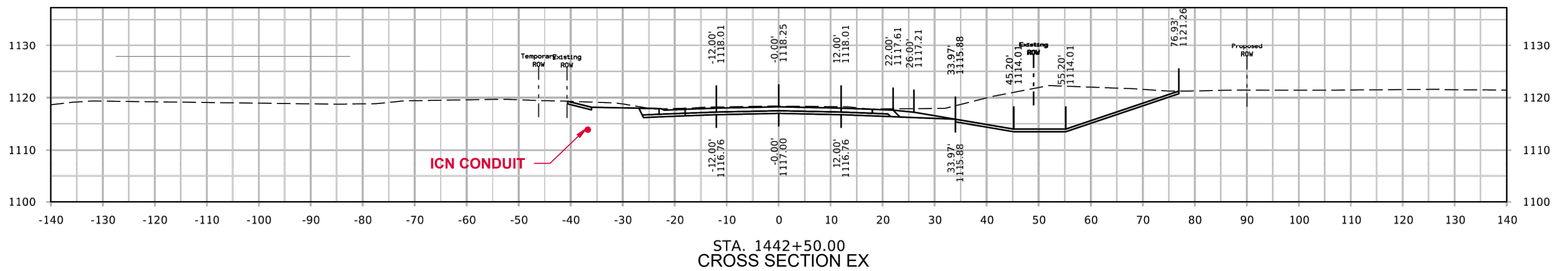
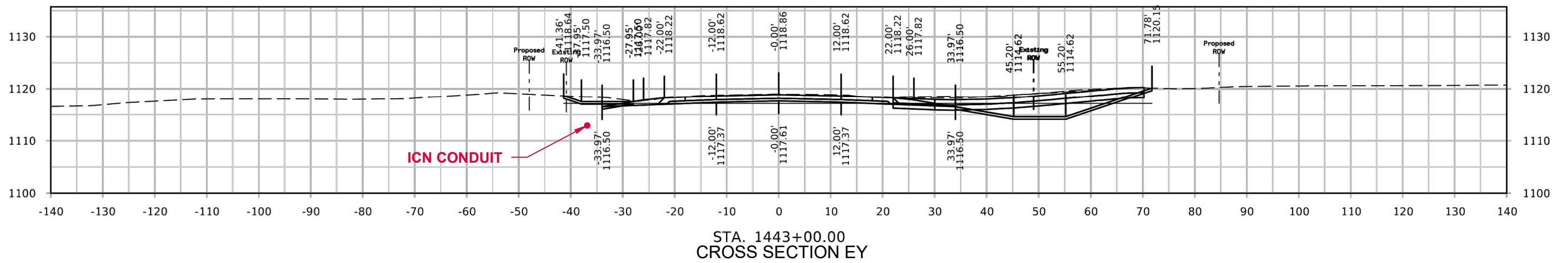
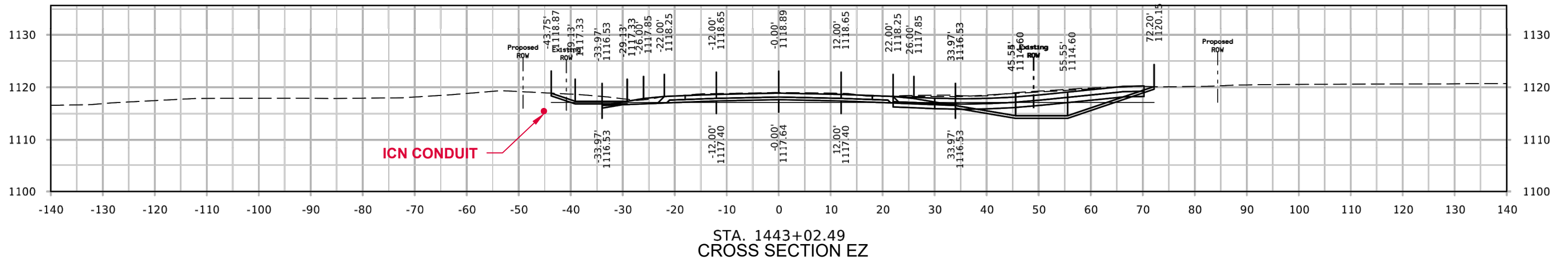


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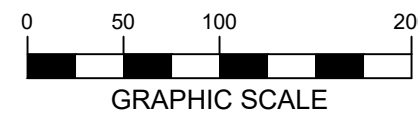
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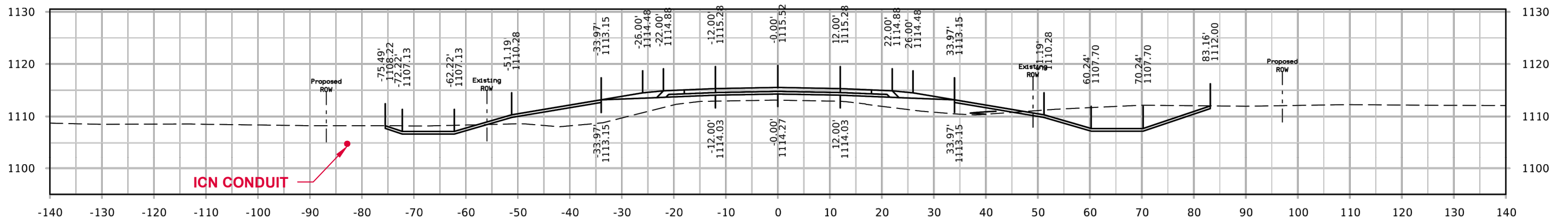
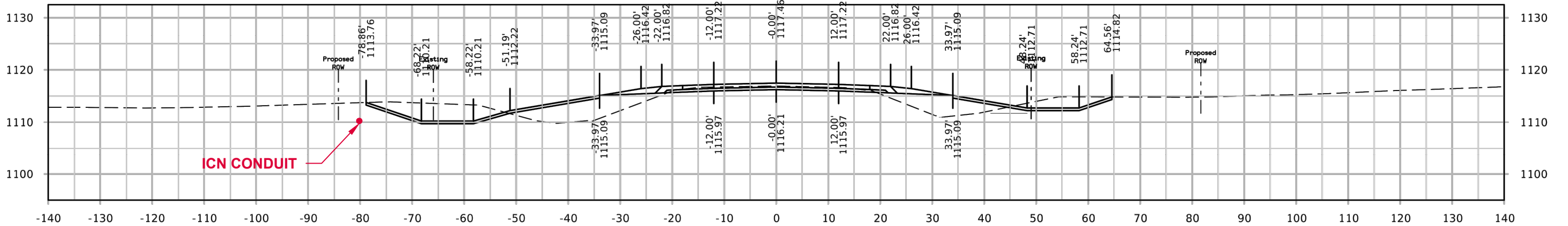
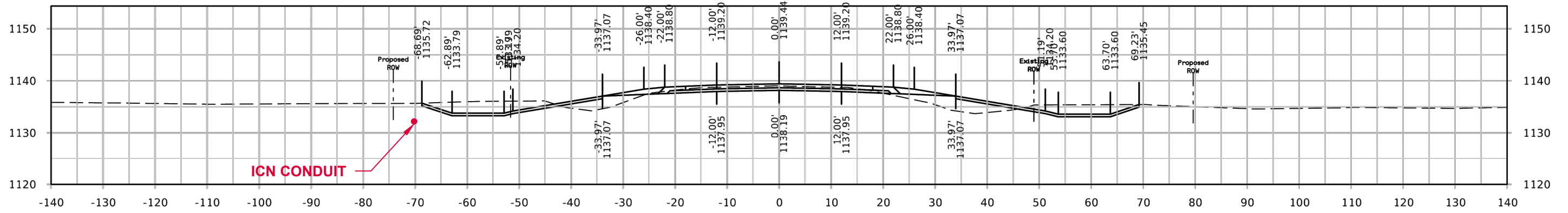


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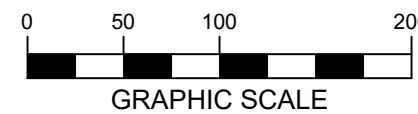
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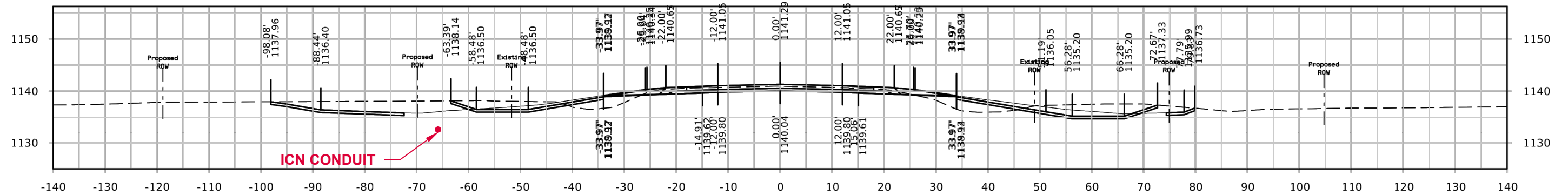
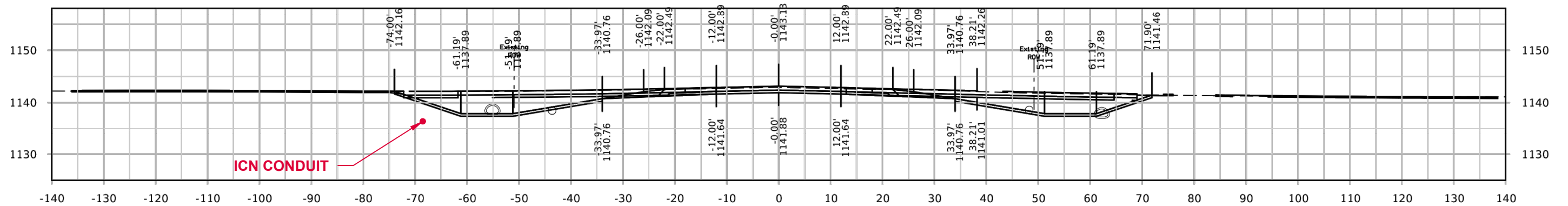
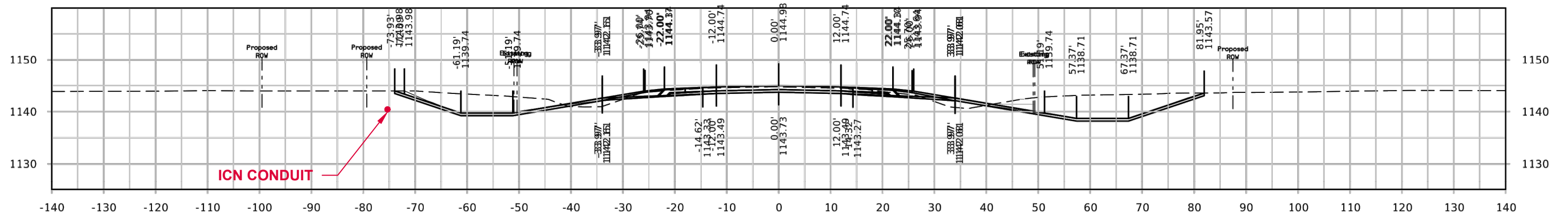


MANCHESTER — DOT HWY 13 RELOCATION			<b>hbk</b>
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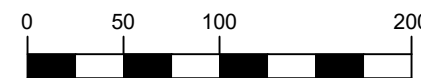
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GRAPHIC SCALE



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FIBER INSTALLATION

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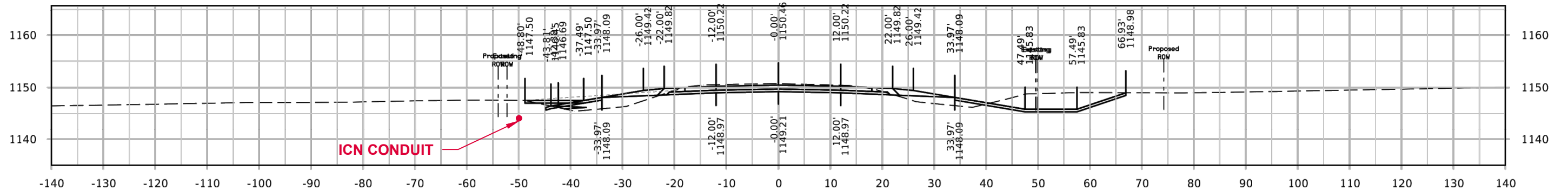
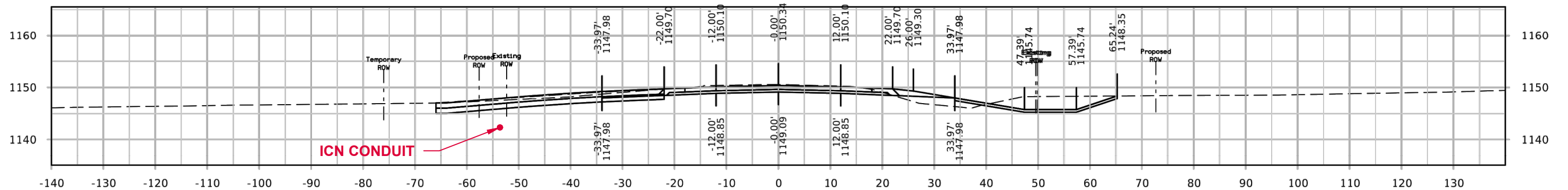
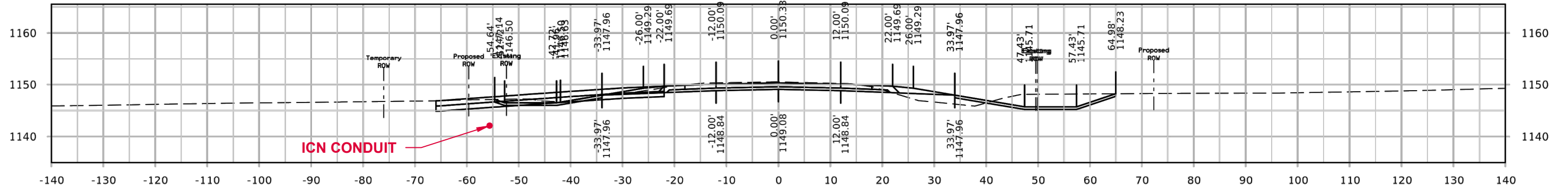
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GRAPHIC SCALE



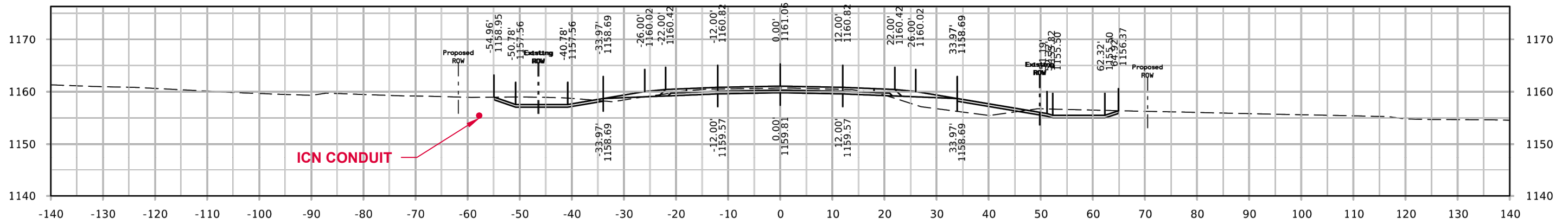
MANCHESTER – DOT HWY 13 RELOCATION		
FIBER INSTALLATION		
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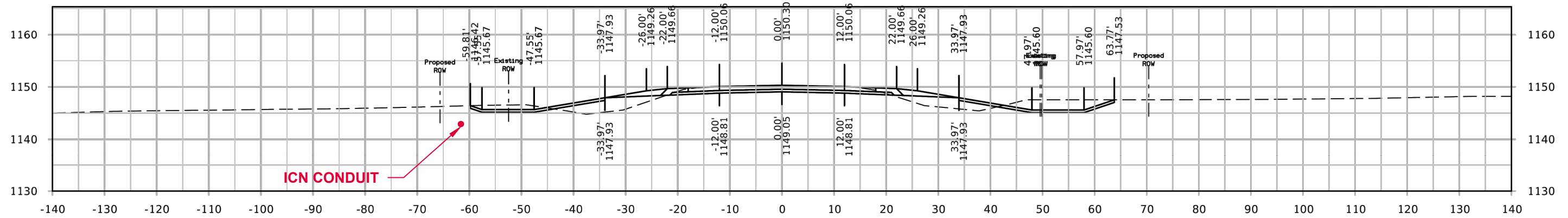
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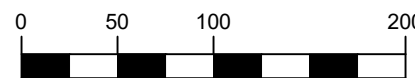


STA. 1511+00.00  
CROSS SECTION FK



STA. 1497+50.00  
CROSS SECTION FJ

\* CONDUIT NOT TO SCALE



GRAPHIC SCALE

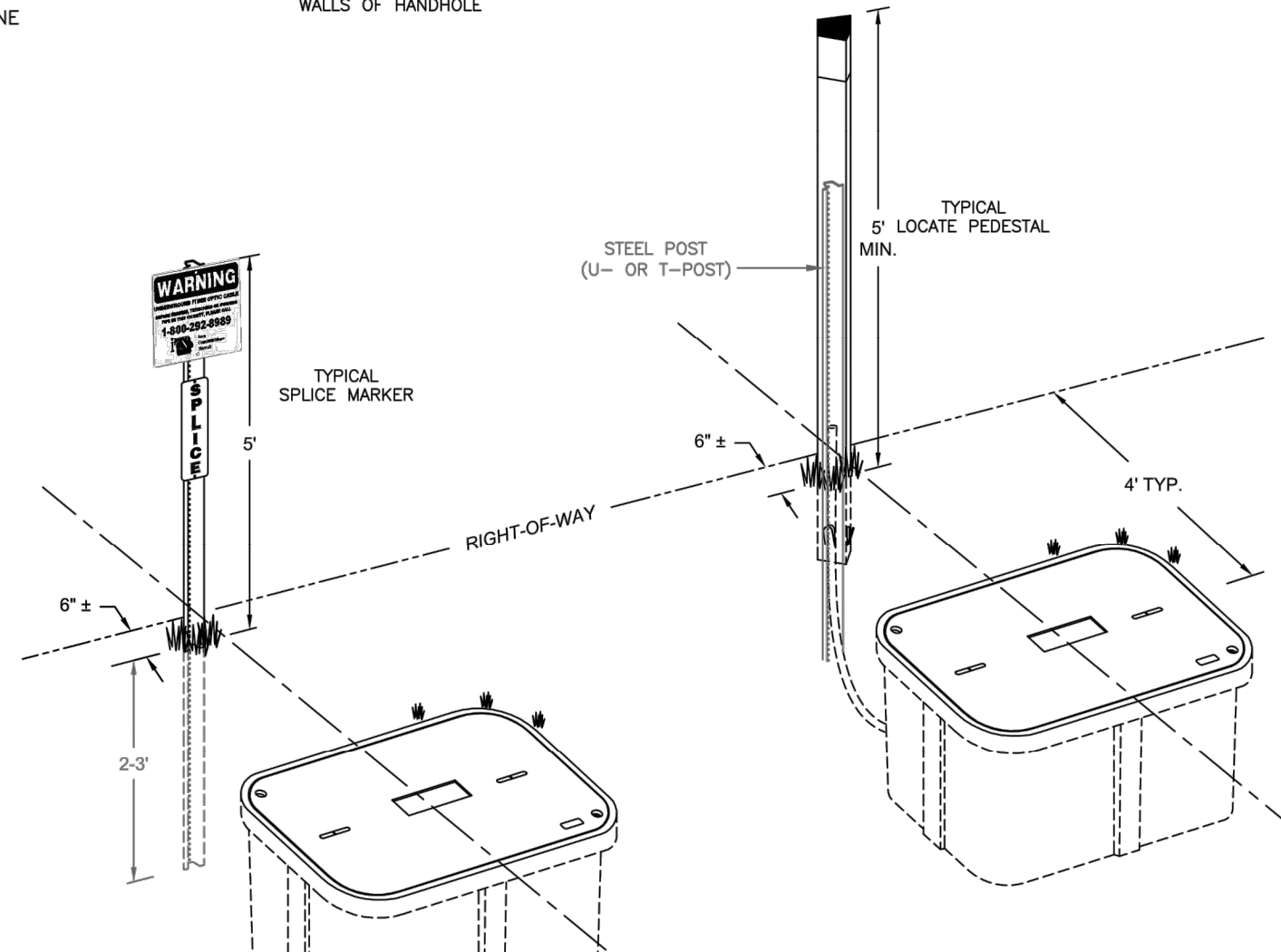
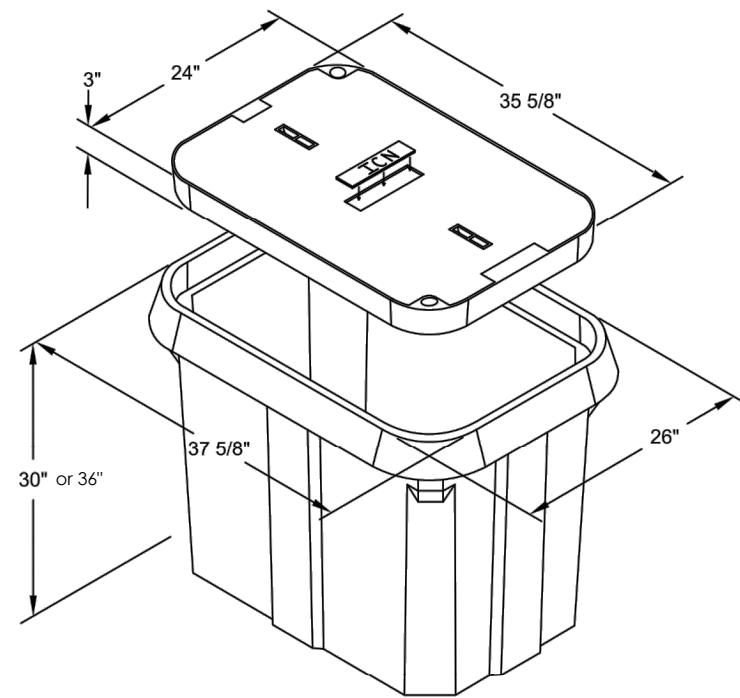
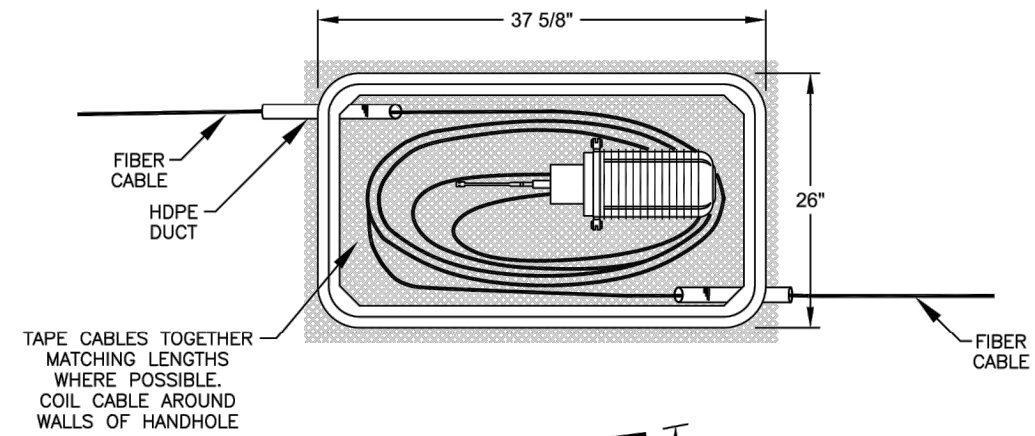
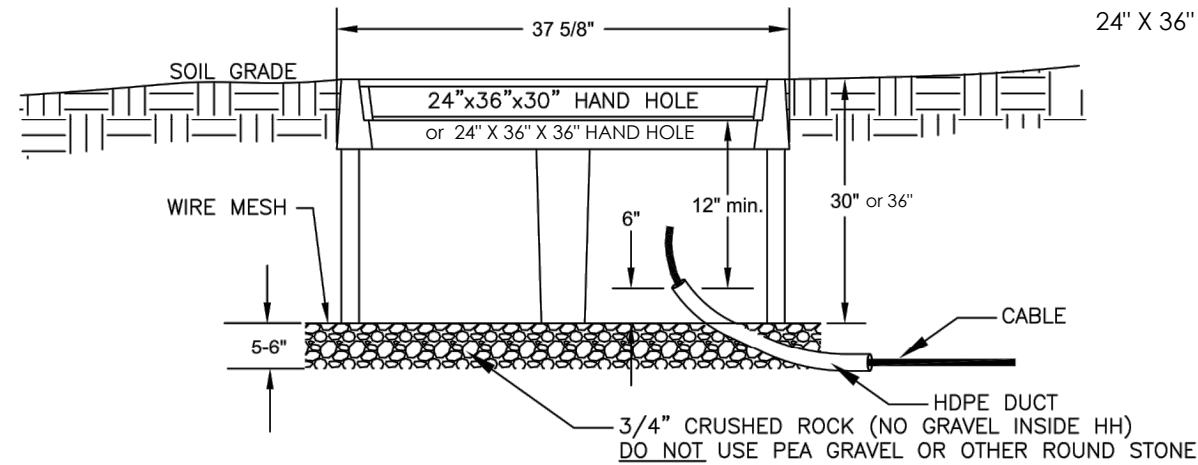


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4			



# HANDHOLE PLACEMENT TYPICAL

24" X 36" X 30" HAND HOLE  
OR  
24" X 36" X 36" HAND HOLE

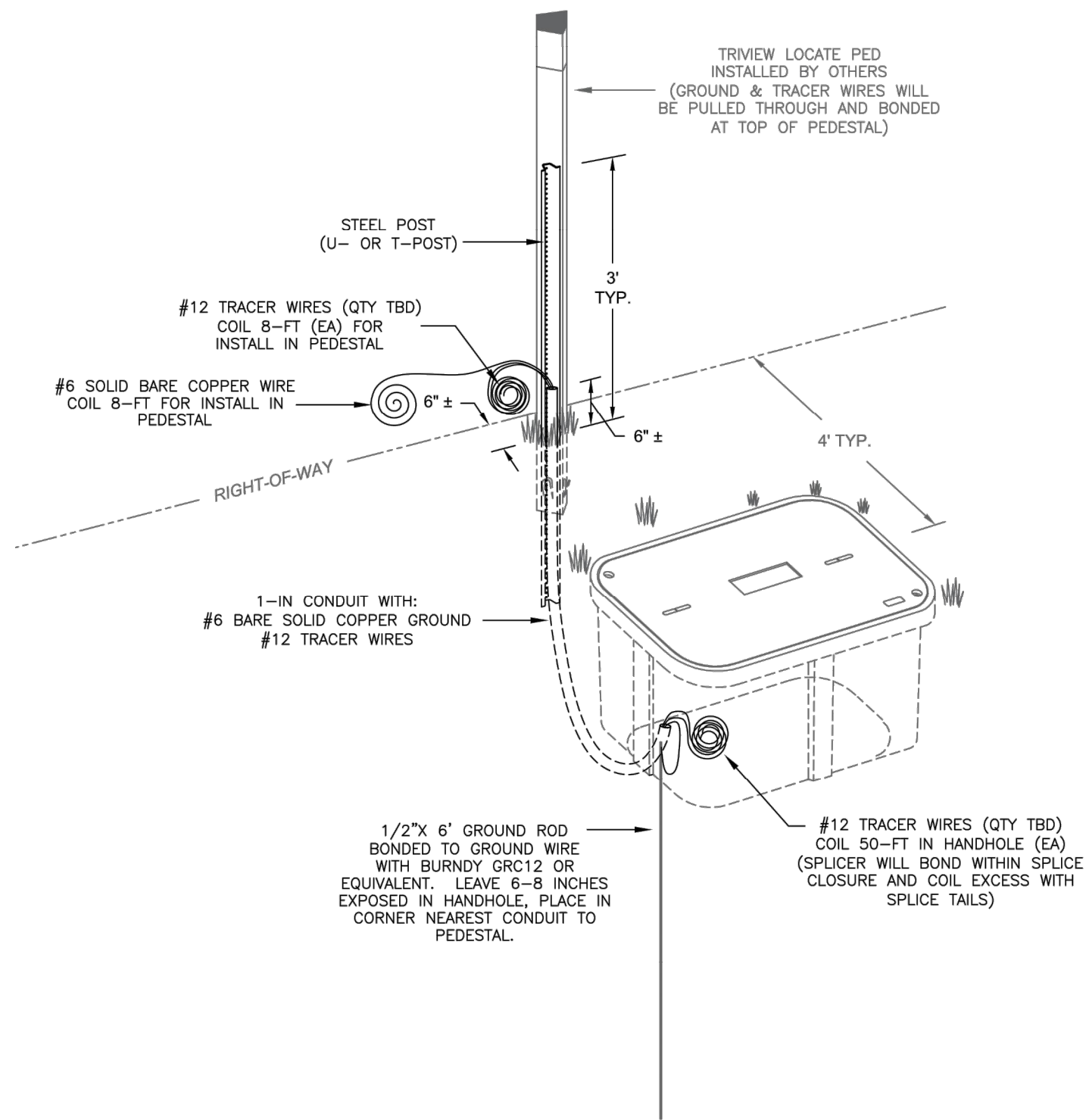


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FIBER INSTALLATION

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**hbk** **ICN**

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CONTRACTOR TO PROVIDE AND PLACE THE FOLLOWING MATERIALS IN PREPARATION FOR THE INSTALLATION OF A TRIVIEW LOCATE PEDESTAL (INSTALLED BY OTHERS):

**STEEL POST**

"U" OR "T" POST  
 LEAVE 3 FEET EXPOSED  
 BURY A MINIMUM OF 1 FEET  
 PLACE NEAR OR AT ROW UNLESS OTHERWISE DIRECTED

**GROUND ROD**

1/2-IN X 6-FT SOLID COPPER GROUND ROD  
 PLACE IN CORNER OF HANDHOLE NEAREST CONDUIT TO PEDESTAL  
 LEAVE 6-IN ± EXPOSED

**GROUND WIRE**

#6 BARE SOLID COPPER WIRE  
 BOND TO GROUND ROD WITH BURNDY GRC12 OR EQUIVALENT  
 ROUTE THROUGH CONDUIT TOWARDS PEDESTAL  
 COIL 8-FT AT CONDUIT EXIT TO BE BONDED TO PEDESTAL BY OTHERS

**CONDUIT**

1 INCH (MUST BE OF SUFFICIENTLY SMALL O.D. TO FIT INSIDE PEDESTAL)  
 CONDUIT MUST BE CONTINUOUS AND NON-CORROSIVE (HDPE OR PVC, E.G.)  
 ROUTE FROM BASE OF HANDHOLE TO BASE OF PEDESTAL  
 LEAVE 6-IN OF CONDUIT EXPOSED ABOVE GRADE (TO BE PLACED WITHIN PEDESTAL)

**TRACER WIRE**

#12 TRACER WIRES  
 TYPICALLY 2 OR 3 WIRES ARE REQUIRED\*  
 COIL 50-FT (EA) IN BASE OF HANDHOLE TO BE BONDED IN SPLICE CLOSURE BY OTHERS  
 COIL 8-FT AT CONDUIT EXIT TO BE BONDED TO PEDESTAL BY OTHERS  
 \*SEPARATE #12 TRACER WIRES ARE REQUIRED FOR EACH DIRECTION AND/OR CABLE.  
 QUANTITY OF TRACER WIRES SHALL BE PROJECT SPECIFIC AND DEFINED BY THE ICN  
 OSP ENGINEER WITHIN THE STATEMENT OF WORK, PLEASE VERIFY. AS A GENERAL  
 RULE, 150-FT OF #12 TRACER WIRE SHOULD BE SUFFICIENT FOR ANY PROJECT.

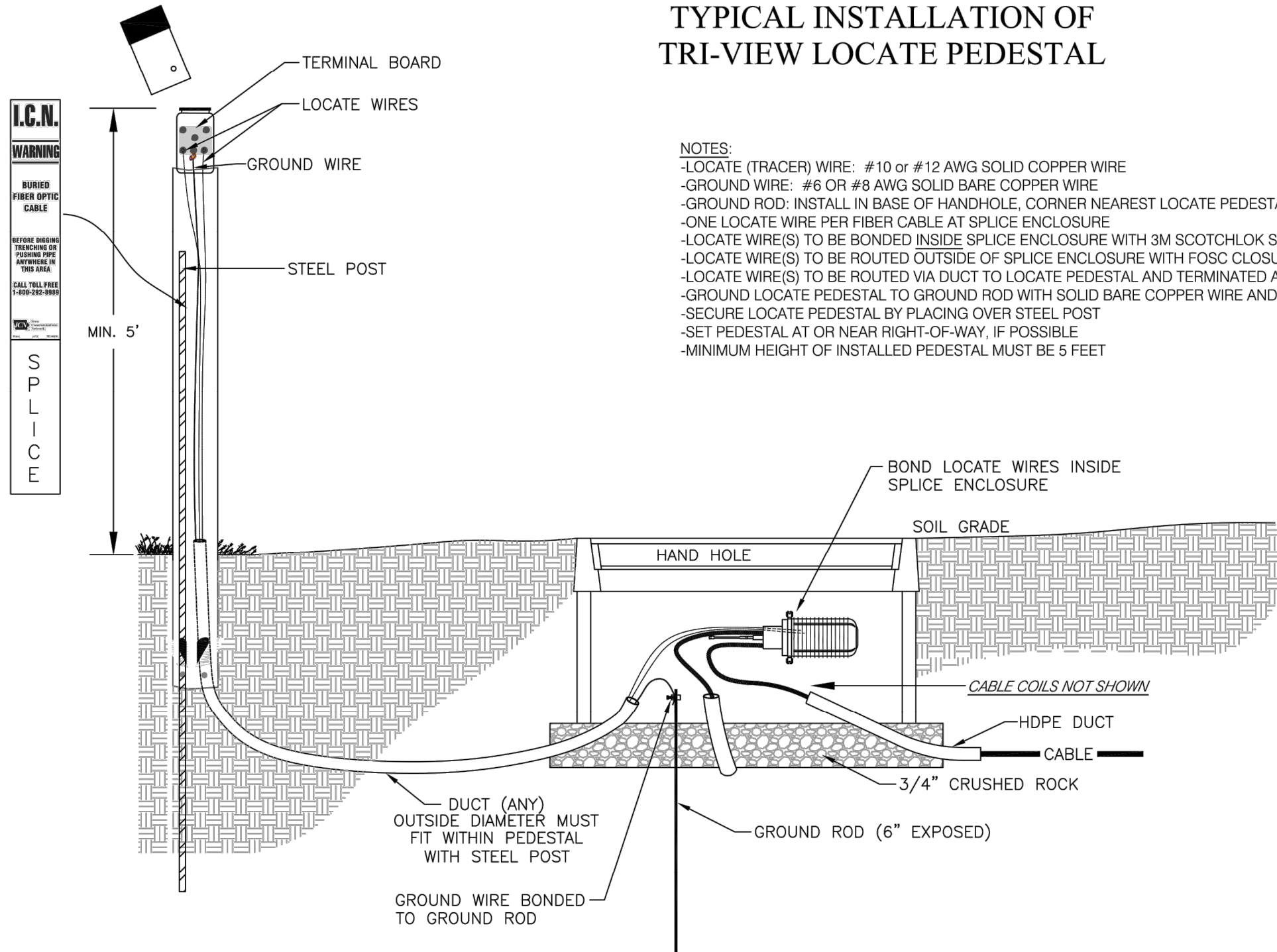
USE TRACER WIRE THAT IS RATED FOR DIRECT BURIAL WHERE REQUIRED. TRACER WIRE SHALL BE #12 AWG, SOLID HF CCS 30 MIL HDPE HIGH FLEX TRACER WIRE: EITHER SOLID COPPER OR COPPER CLAD STEEL.

**CONSTRUCTION DOCUMENT**



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FIBER INSTALLATION			
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# TYPICAL INSTALLATION OF TRI-VIEW LOCATE PEDESTAL

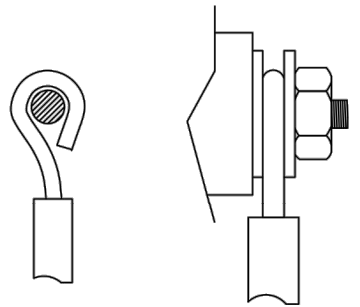


- NOTES:**
- LOCATE (TRACER) WIRE: #10 or #12 AWG SOLID COPPER WIRE
  - GROUND WIRE: #6 OR #8 AWG SOLID BARE COPPER WIRE
  - GROUND ROD: INSTALL IN BASE OF HANDHOLE, CORNER NEAREST LOCATE PEDESTAL, LEAVE ~6-IN EXPOSED ABOVE GRAVEL
  - ONE LOCATE WIRE PER FIBER CABLE AT SPLICE ENCLOSURE
  - LOCATE WIRE(S) TO BE BONDED INSIDE SPLICE ENCLOSURE WITH 3M SCOTCHLOK SHIELD BONDING KIT
  - LOCATE WIRE(S) TO BE ROUTED OUTSIDE OF SPLICE ENCLOSURE WITH FOSC CLOSURE SEALING KIT
  - LOCATE WIRE(S) TO BE ROUTED VIA DUCT TO LOCATE PEDESTAL AND TERMINATED AT TERMINAL BOARD
  - GROUND LOCATE PEDESTAL TO GROUND ROD WITH SOLID BARE COPPER WIRE AND GROUND CLAMP
  - SECURE LOCATE PEDESTAL BY PLACING OVER STEEL POST
  - SET PEDESTAL AT OR NEAR RIGHT-OF-WAY, IF POSSIBLE
  - MINIMUM HEIGHT OF INSTALLED PEDESTAL MUST BE 5 FEET

TRACER WIRE TERMINATION DETAIL

Termination of the locate wire at either a pedestal, puck, or in a splice case shall be made in the following fashion:

Strip off a minimum of 3/4" of insulation. Using a needle nose pliers bend a wire "eyelet" on the wire end in a clockwise manner. Use a flat washer on both sides of the wire eyelet when cinching it down on the stud. Flat washers shall be of appropriate size such that the hole matches the diameter of the stud and the outside diameter of the flat washer matches reasonably close to the eyelet diameter.



**CONSTRUCTION DOCUMENT**



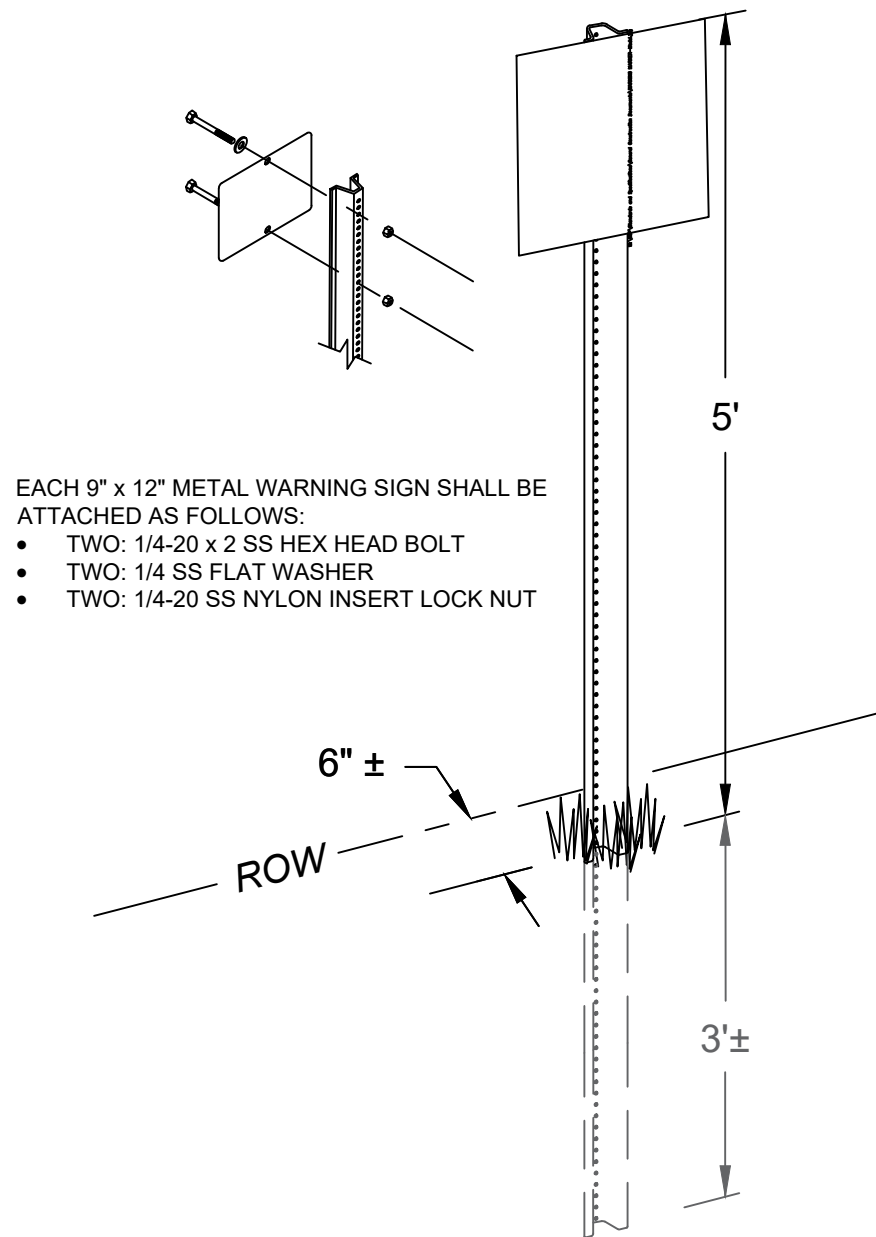
MANCHESTER – DOT HWY 13 RELOCATION			<b>hbk</b> <b>ICN</b>
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# WARNING MARKER INSTALLATION DETAIL

METAL SIGN & U-CHANNEL POST

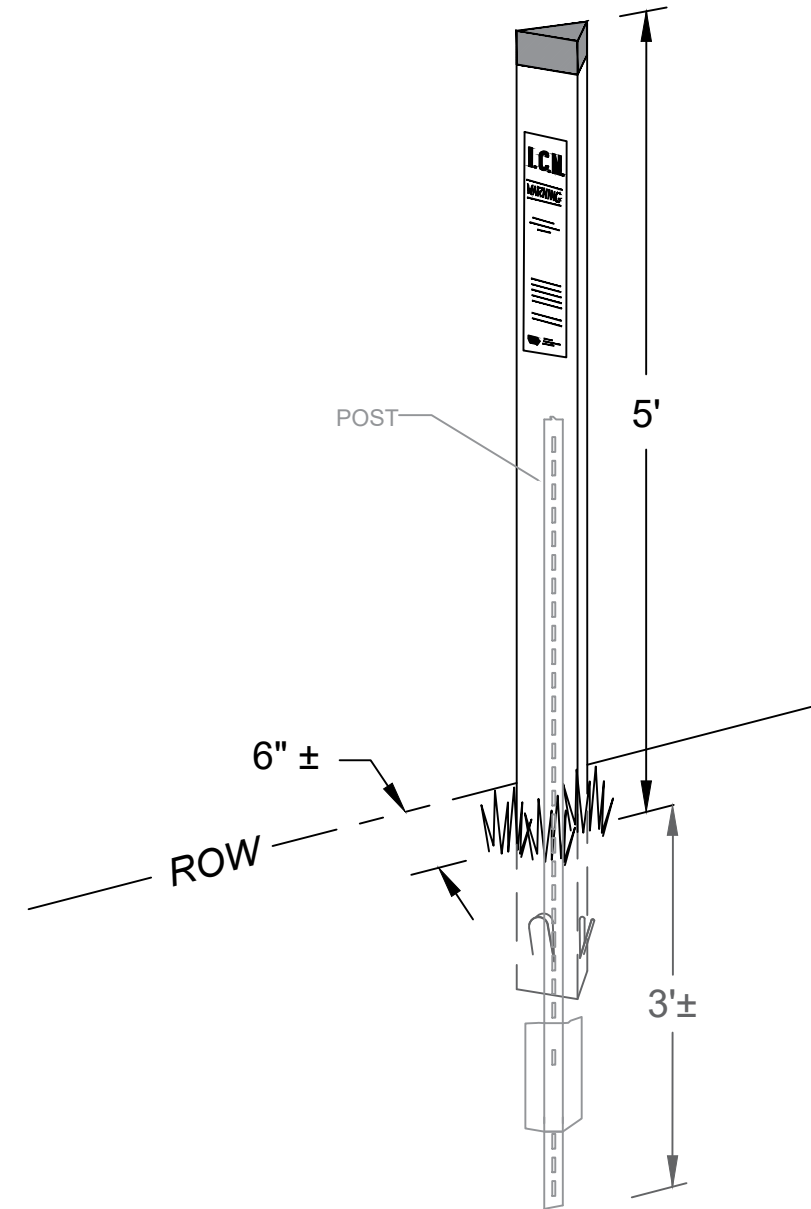
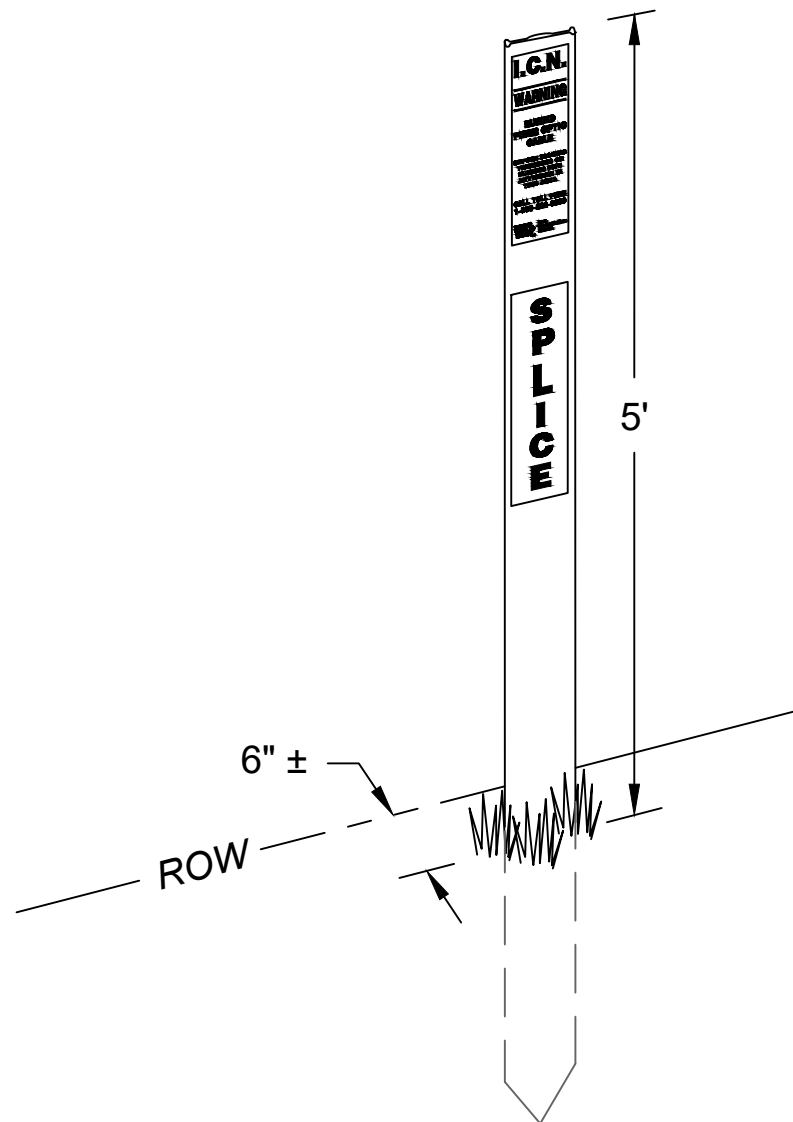
FIBERGLASS MARKER

TRIVIEW MARKER



EACH 9" x 12" METAL WARNING SIGN SHALL BE ATTACHED AS FOLLOWS:

- TWO: 1/4-20 x 2 SS HEX HEAD BOLT
- TWO: 1/4 SS FLAT WASHER
- TWO: 1/4-20 SS NYLON INSERT LOCK NUT



CONSTRUCTION DOCUMENT

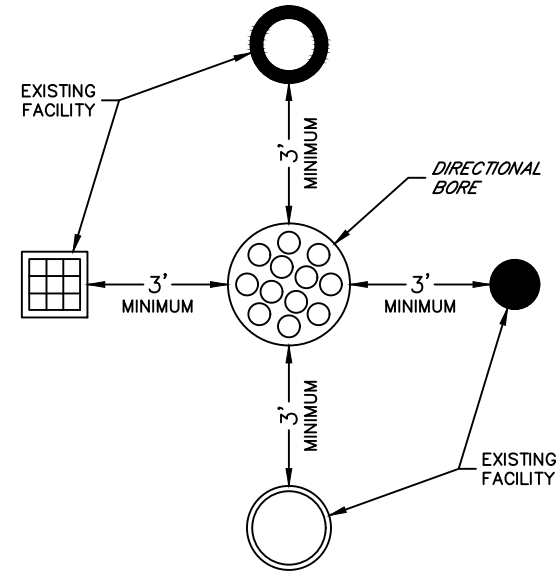


MANCHESTER – DOT HWY 13 RELOCATION  
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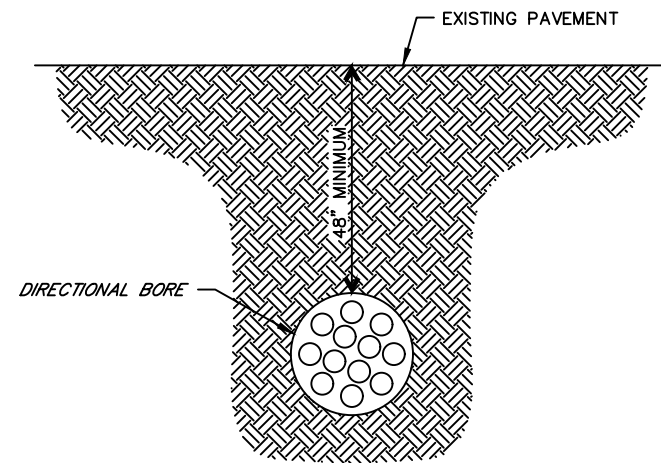
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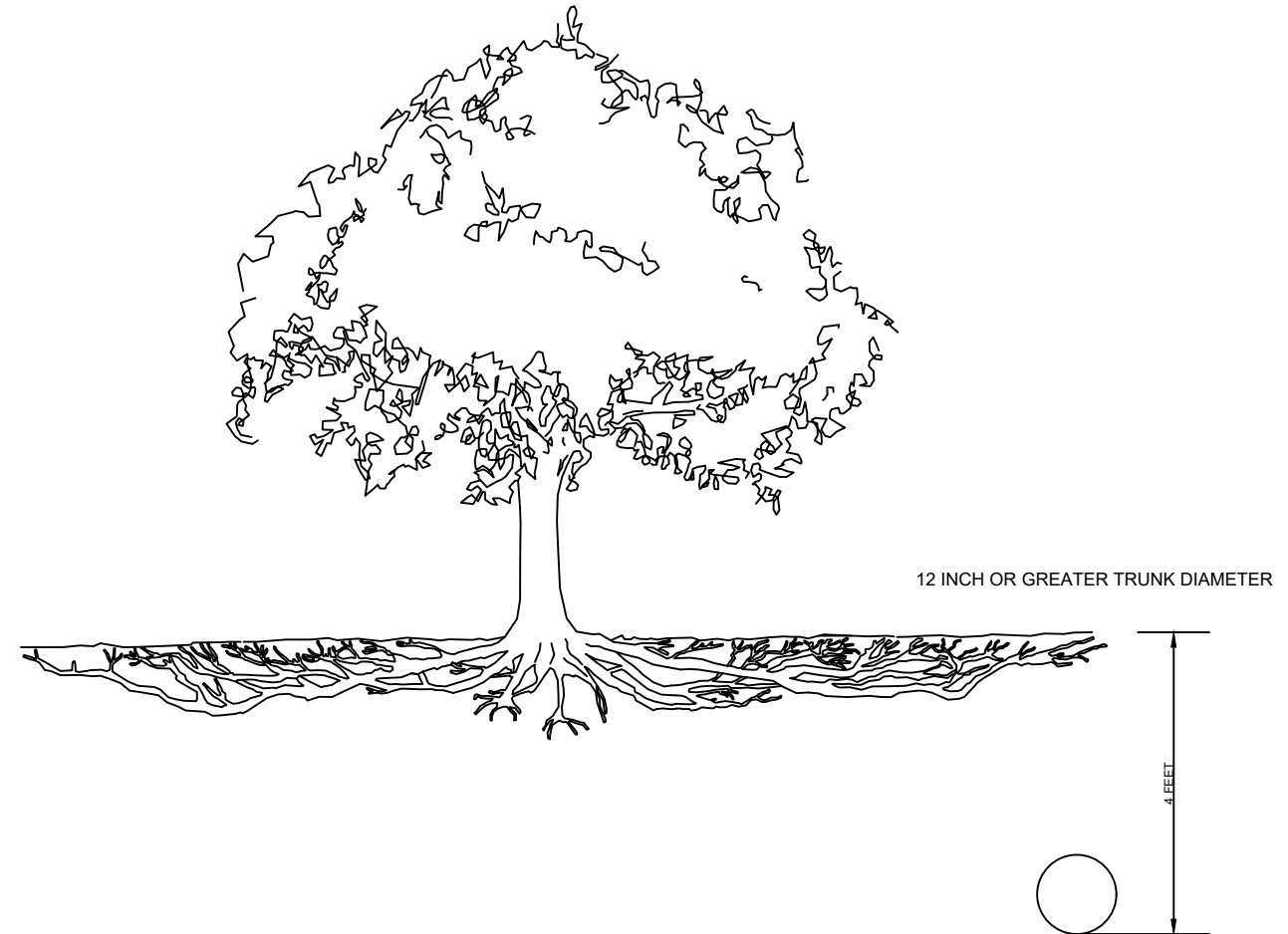


MAINTAIN A MINIMUM OF AT LEAST 3 FEET OF SEPARATION IN ANY DIRECTION BETWEEN DIRECTIONAL BORE AND ALL EXISTING FACILITIES.

UTILITY SEPARATION DETAIL



DIRECTIONAL BORING DETAIL



TREE PROTECTION - TUNNELING

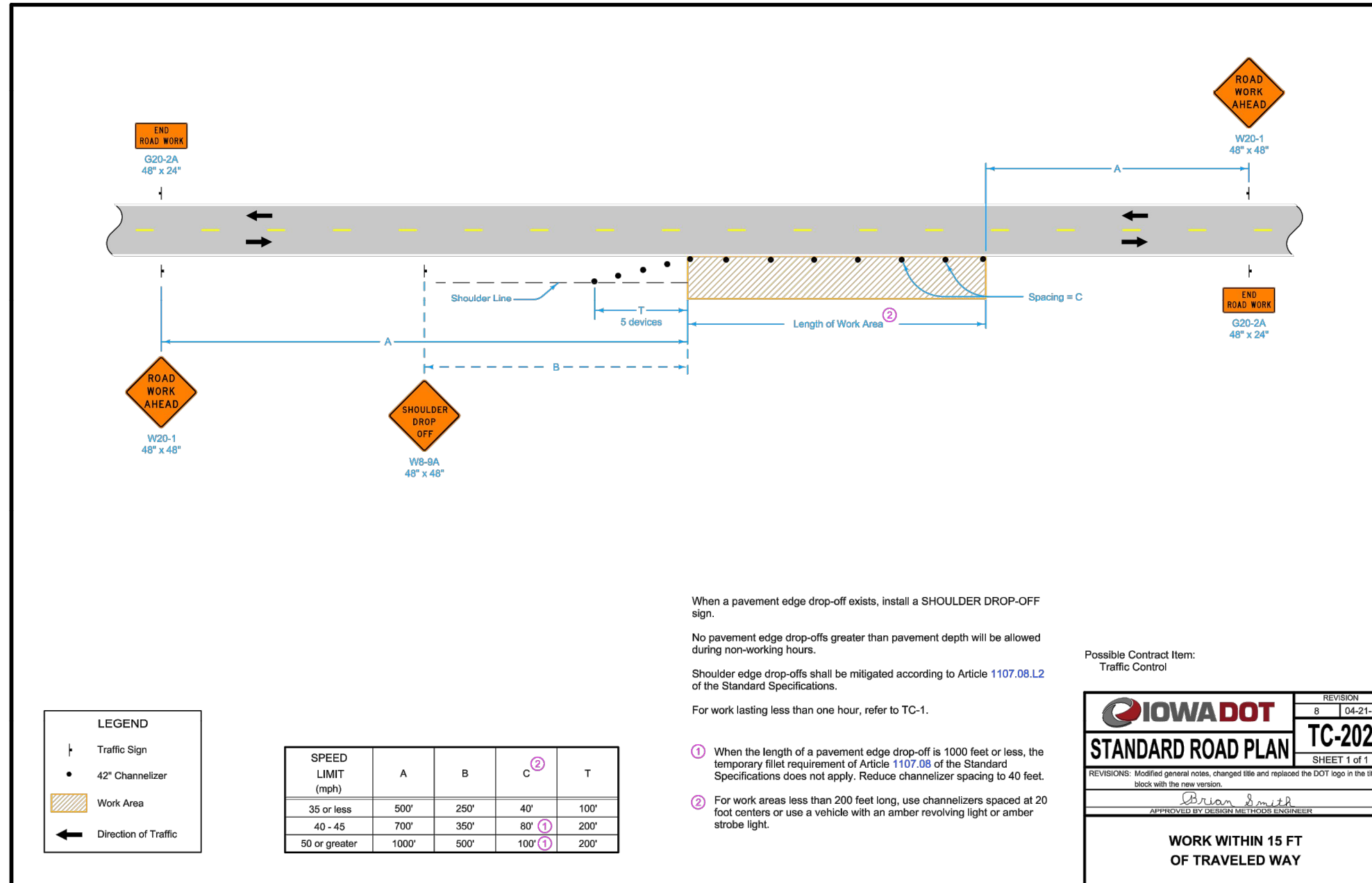


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**IOWA DOT**

**STANDARD ROAD PLAN**

TC-202

REVISIONS: Modified general notes, changed title and replaced the DOT logo in the title block with the new version.

*Brian Smith*  
APPROVED BY DESIGN METHODS ENGINEER

**WORK WITHIN 15 FT OF TRAVELED WAY**

REVISION	DATE
8	04-21-15

SHEET 1 of 1

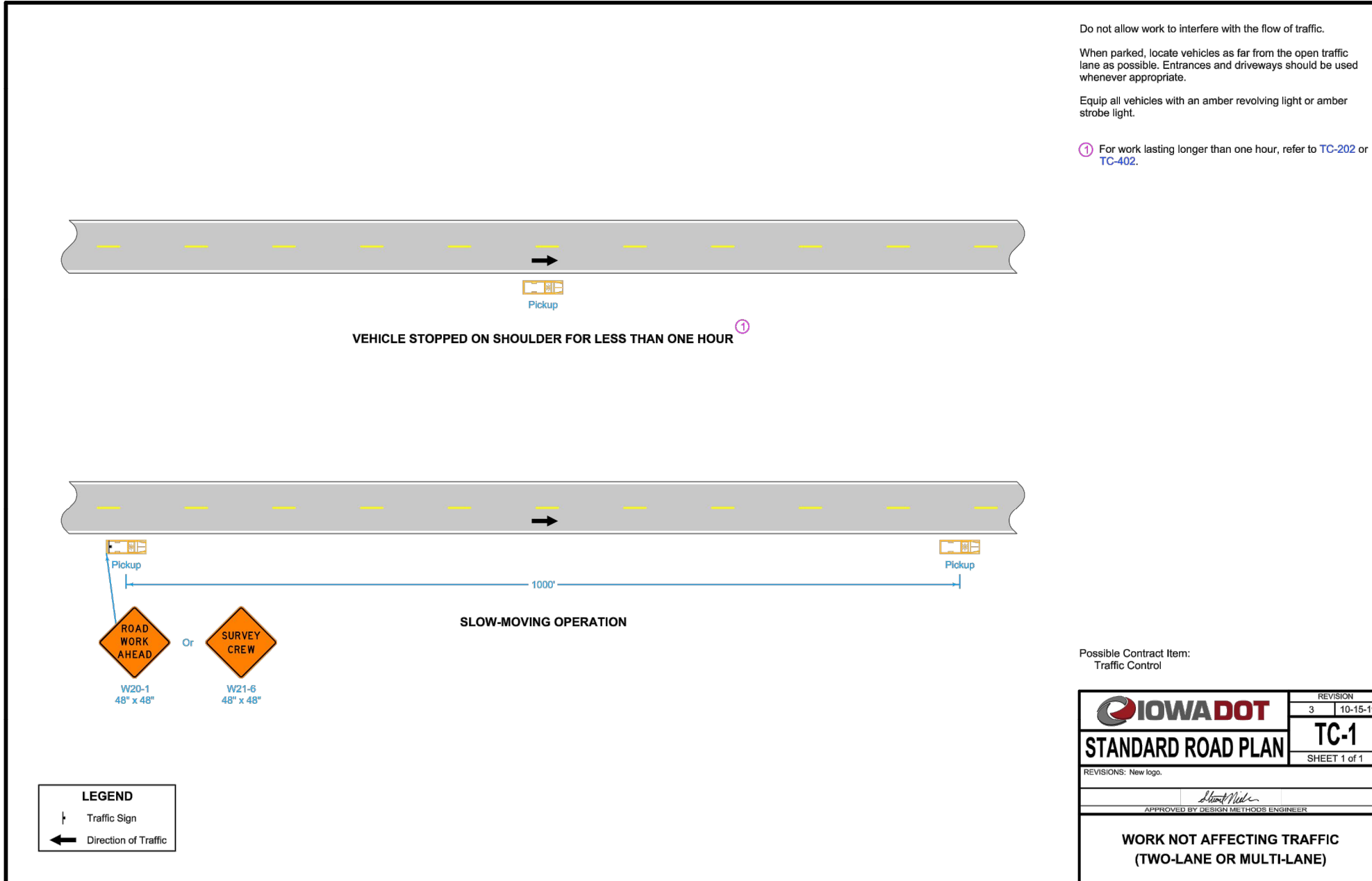
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**LEGEND**  
 ↑ Traffic Sign  
 ← Direction of Traffic

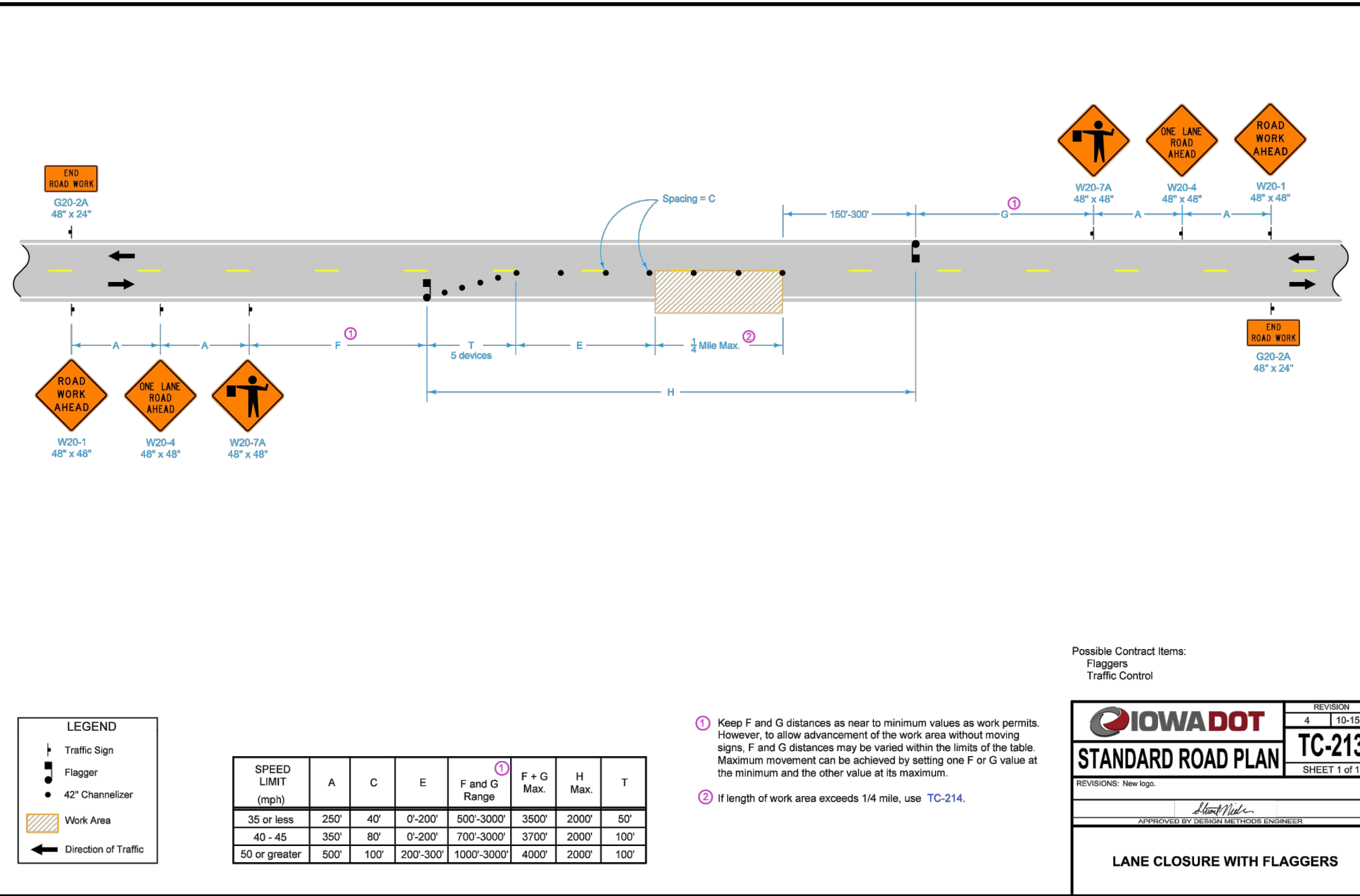
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**LEGEND**

- Traffic Sign
- Flagger
- 42" Channelizer
- Work Area
- Direction of Traffic

SPEED LIMIT (mph)	A	C	E	F and G Range	F + G Max.	H Max.	T
35 or less	250'	40'	0'-200'	500'-3000'	3500'	2000'	50'
40 - 45	350'	80'	0'-200'	700'-3000'	3700'	2000'	100'
50 or greater	500'	100'	200'-300'	1000'-3000'	4000'	2000'	100'

- ① Keep F and G distances as near to minimum values as work permits. However, to allow advancement of the work area without moving signs, F and G distances may be varied within the limits of the table. Maximum movement can be achieved by setting one F or G value at the minimum and the other value at its maximum.
- ② If length of work area exceeds 1/4 mile, use TC-214.

Possible Contract Items:  
 Flaggers  
 Traffic Control

**IOWA DOT**

**STANDARD ROAD PLAN**

REVISIONS: New logo.

APPROVED BY DESIGN METHODS ENGINEER

**LANE CLOSURE WITH FLAGGERS**

REVISION	DATE
4	10-15-19

TC-213  
SHEET 1 of 1

**CONSTRUCTION DOCUMENT**



MANCHESTER — DOT HWY 13 RELOCATION  
 FIBER INSTALLATION

1	FOR 60% REVIEW	09/25/2023
2	FOR 90% REVIEW	10/12/2023
3	FOR PERMIT PLANS	10/24/2023
4		

**IOWA COMMUNICATIONS NETWORK**  
 400 EAST 14TH STREET  
 GRIMES STATE OFFICE BUILDING  
 DES MOINES, IOWA 50319  
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