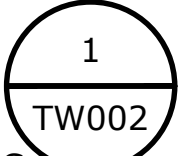


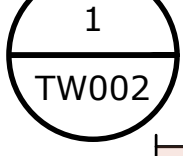
ELEVATION

SCALE: 1:10

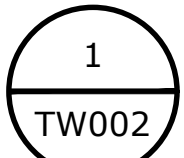


PROFILE

SCALE: 1:10



ELEVATION



SCALE: 1:10

REFERENCE INDICATOR

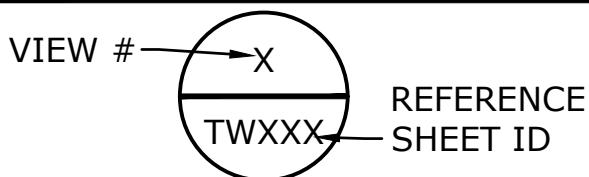


TABLE 1 - DESIGN WIND SPEEDS

TABLE 2 - HANDRAIL SCHEDULE

* - INDICATES THAT LOAD IS APPLIED TO FAILURE (ULTIMATE)

DEBRIS NETS WITH A MAXIMUM SOLIDITY RATIO OF 75% MAY BE INSTALLED ALONG THE ENTIRE HEIGHT OF THE HANDRAIL FOR THE WIND SPEEDS SHOWN IN TABLE 1. FOR HIGHER WIND SPEEDS AND/OR SMALLER MESH, CONTACT KIE.

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DRAWING SHALL EXPIRE ON 12-31-2029.
CONTACT ENGINEER OF RECORD TO UPDATE.



PROJECT: KIE STANDARD DESIGNS

LOCATION: KIEWIT PROJECTS U.S.A. & CANADA

PROJECT TASK:
STANDARD HANDRAIL (USA & CANADA)

SHEET TITLE:
WOODEN HANDRAIL DETAILS - 1 OF 2

TSCD RISK:
SEE GENERAL NOTE
10A

JOB-TASK NO:
21-131-510.01.03

SHEET ID:
TW001

TOTAL SHEETS ISSUED: 03
DRAWING SCALES SHOWN:

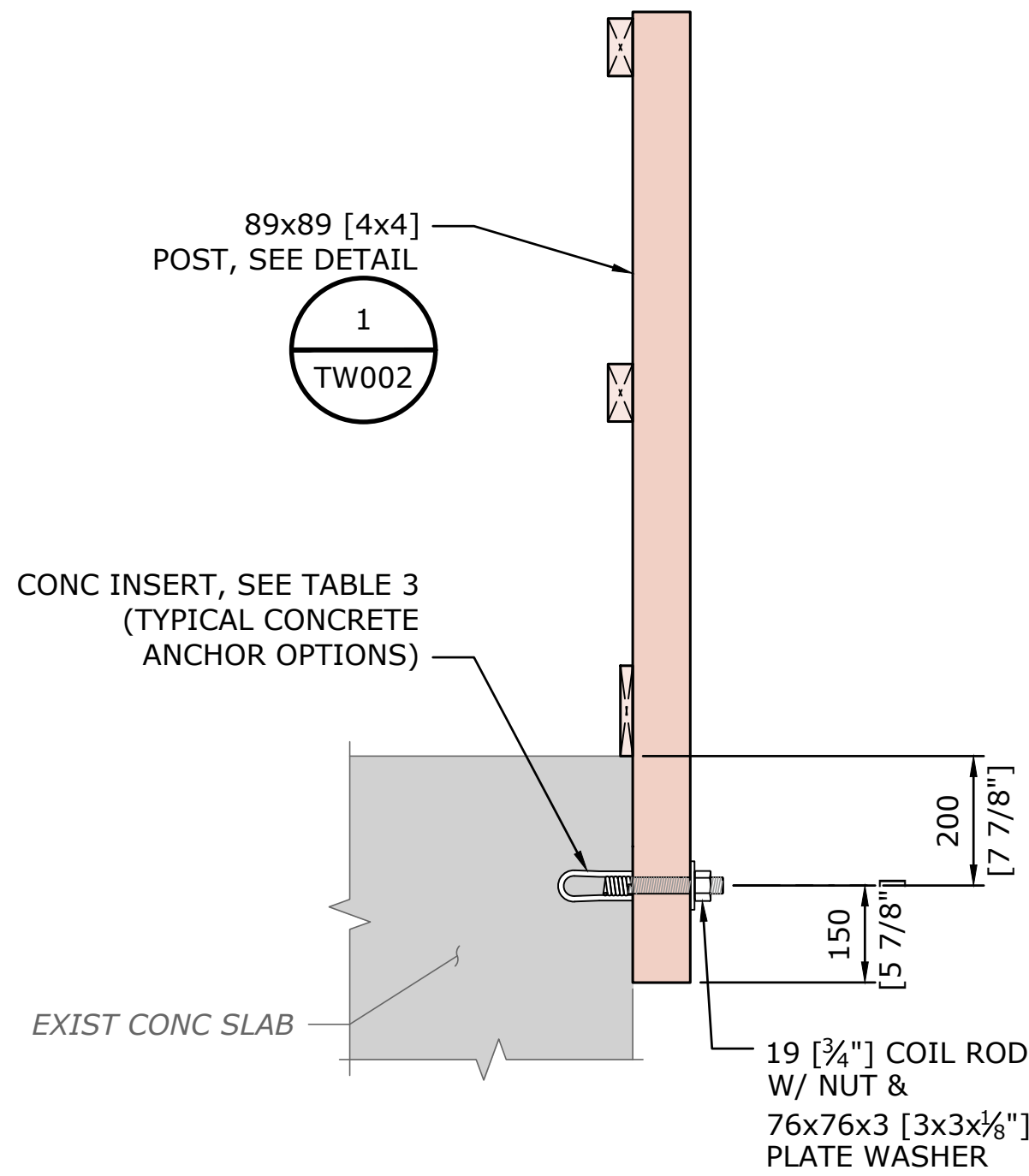
DRAWING SCALES SHOWN ARE BASED ON A 22"x34" SHEET.
ABBREVIATIONS PER US NATIONAL CAD STANDARD

C:\USERS\VINITA.PATEL\APPDATA\LOCAL\BENTLEY\

ABBREVIATIONS PER US NATIONAL CAD STANDARD
C:\USERS\VINITA.PATEL\APPPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\KIEWIT-US-PW.BENTLEY.COM_KIEWIT-US-PW-01\DWG510.01.05.DWG

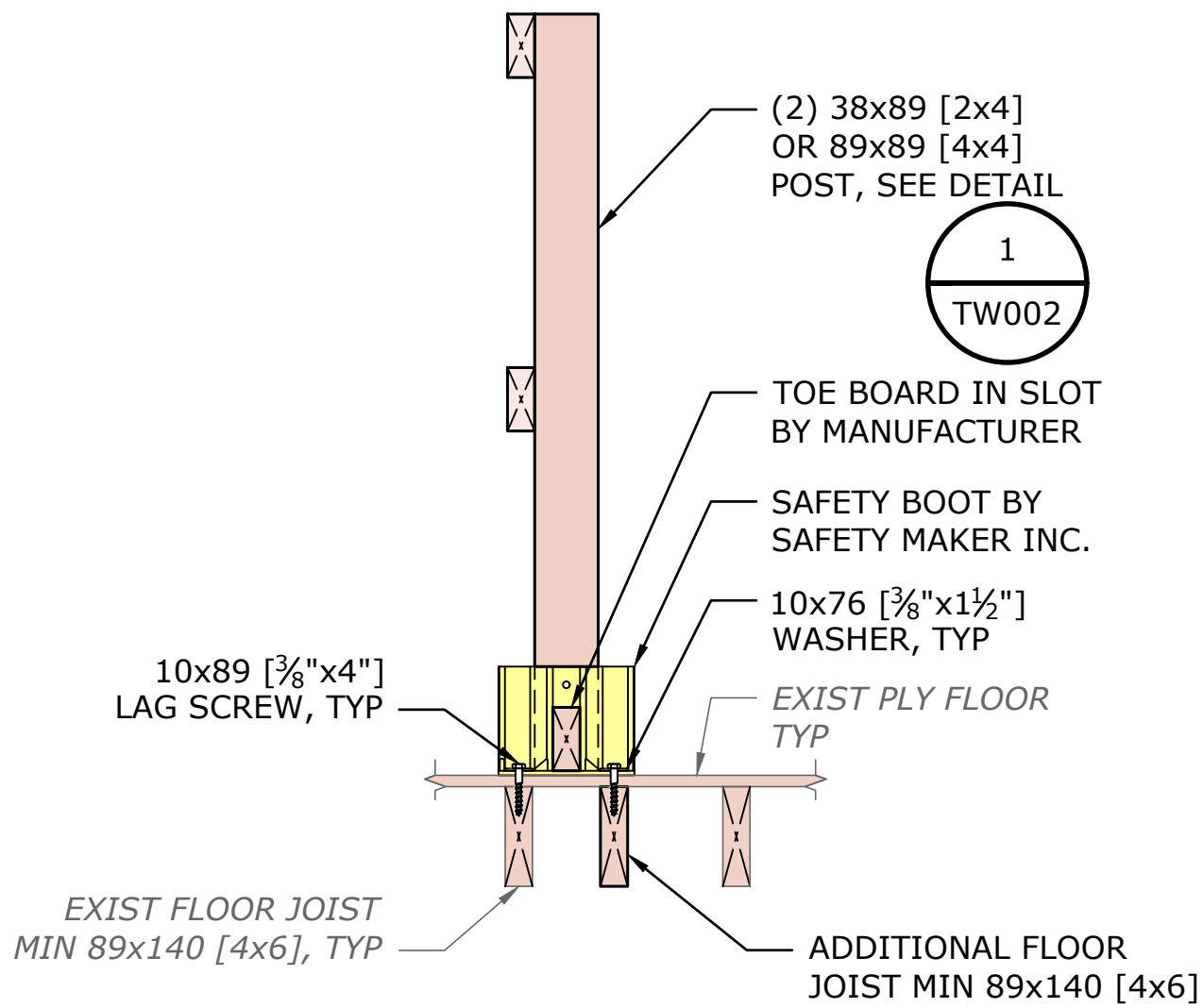
TOTAL SHEETS ISSUED: 03

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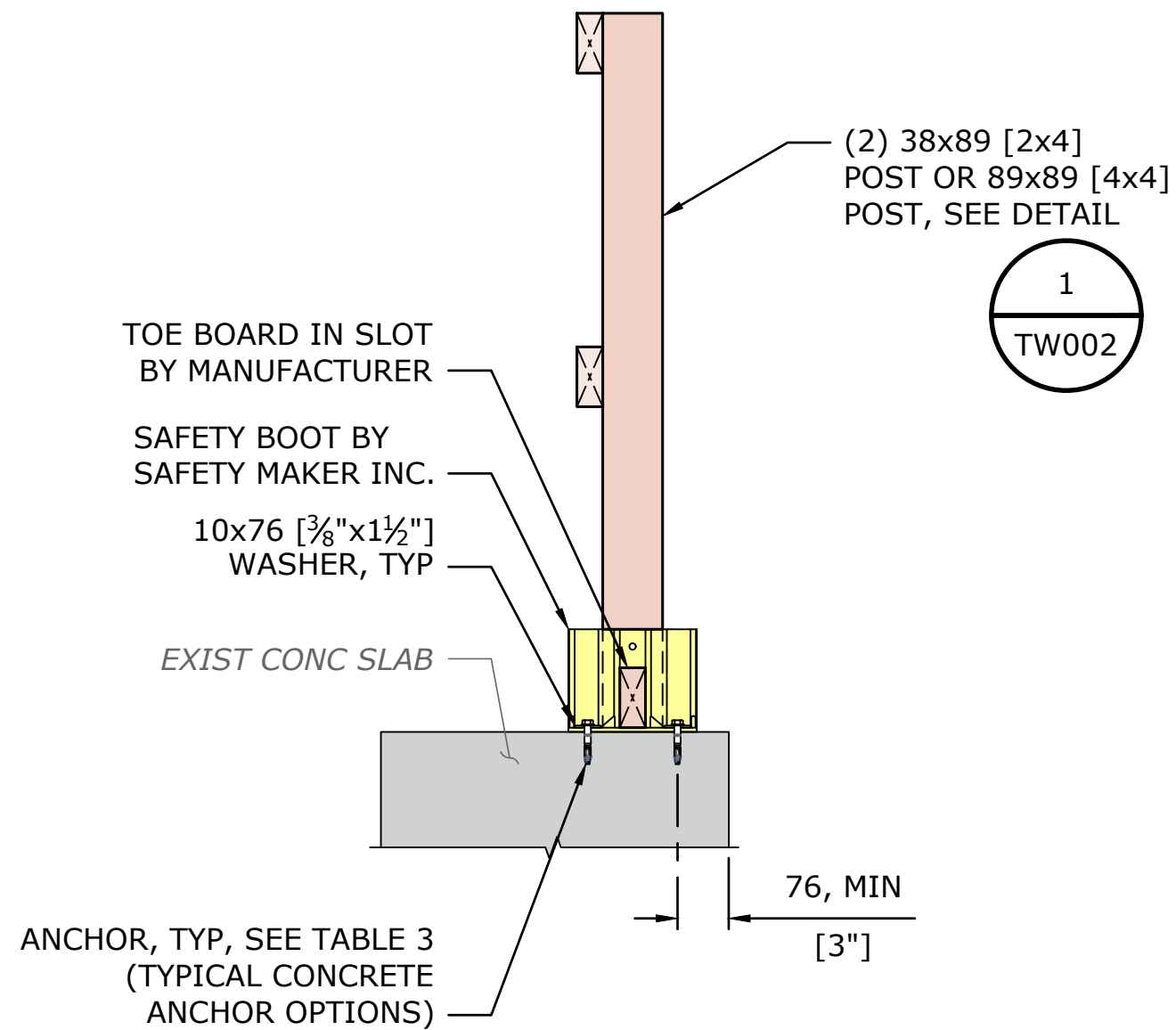


CONNECTION 4

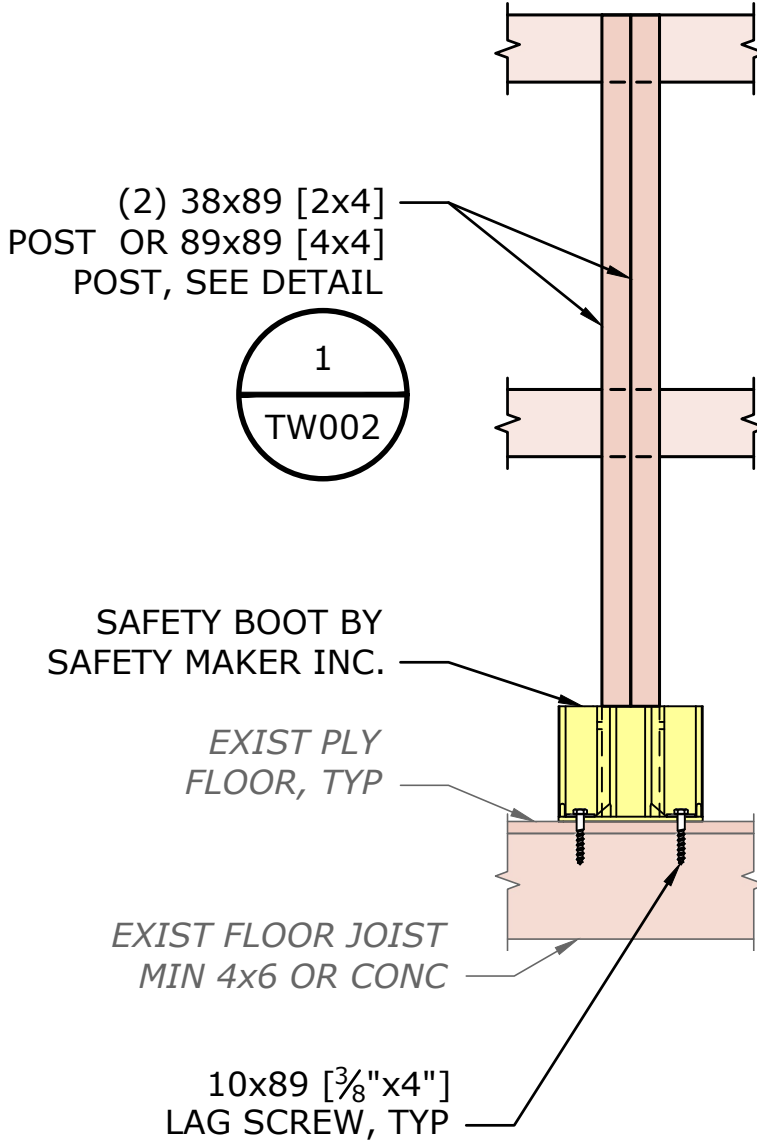
SCALE: 1:10



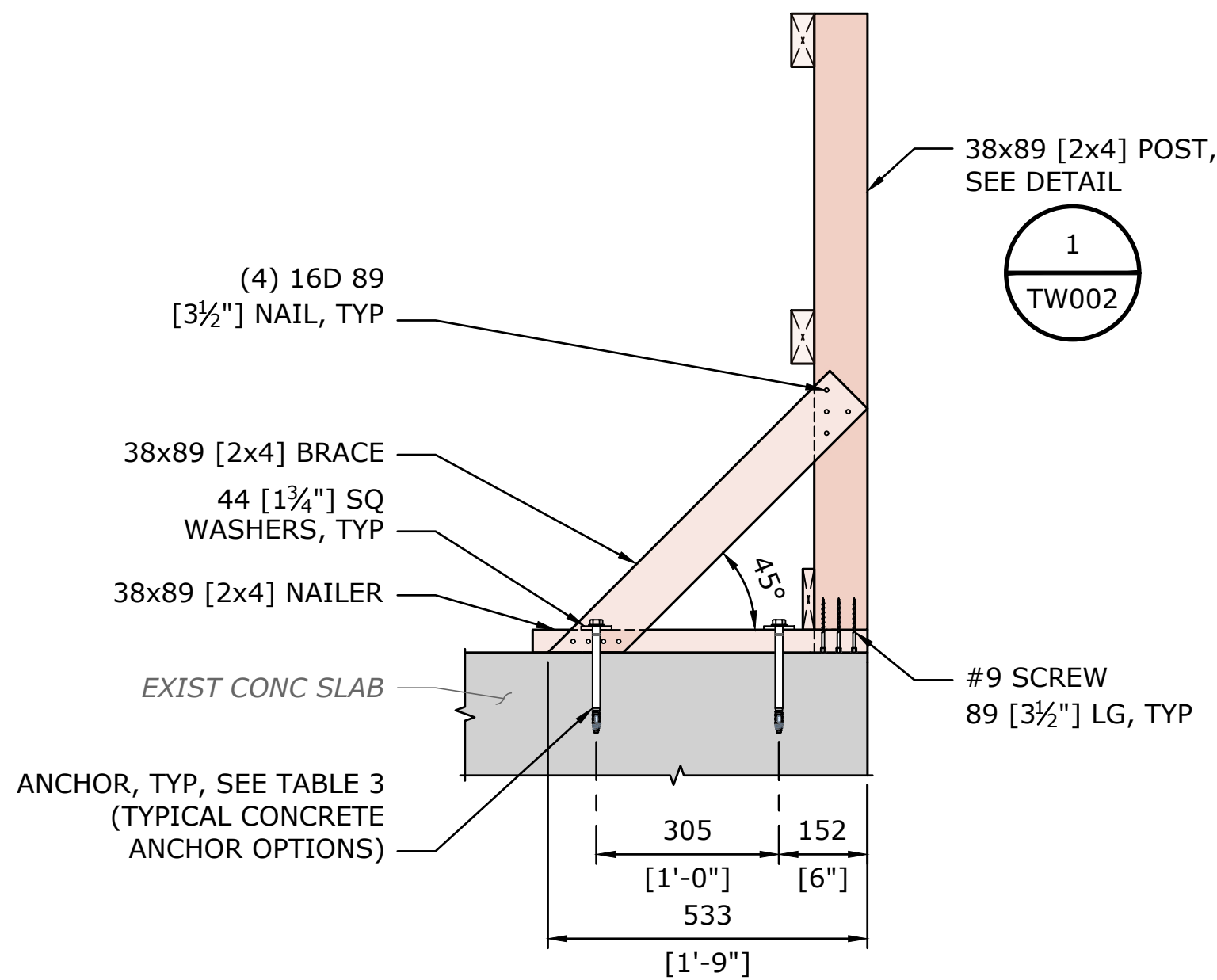
POST CONNECTION WITH WOODEN FLOOR



POST CONNECTION WITH CONCRETE FLOOR

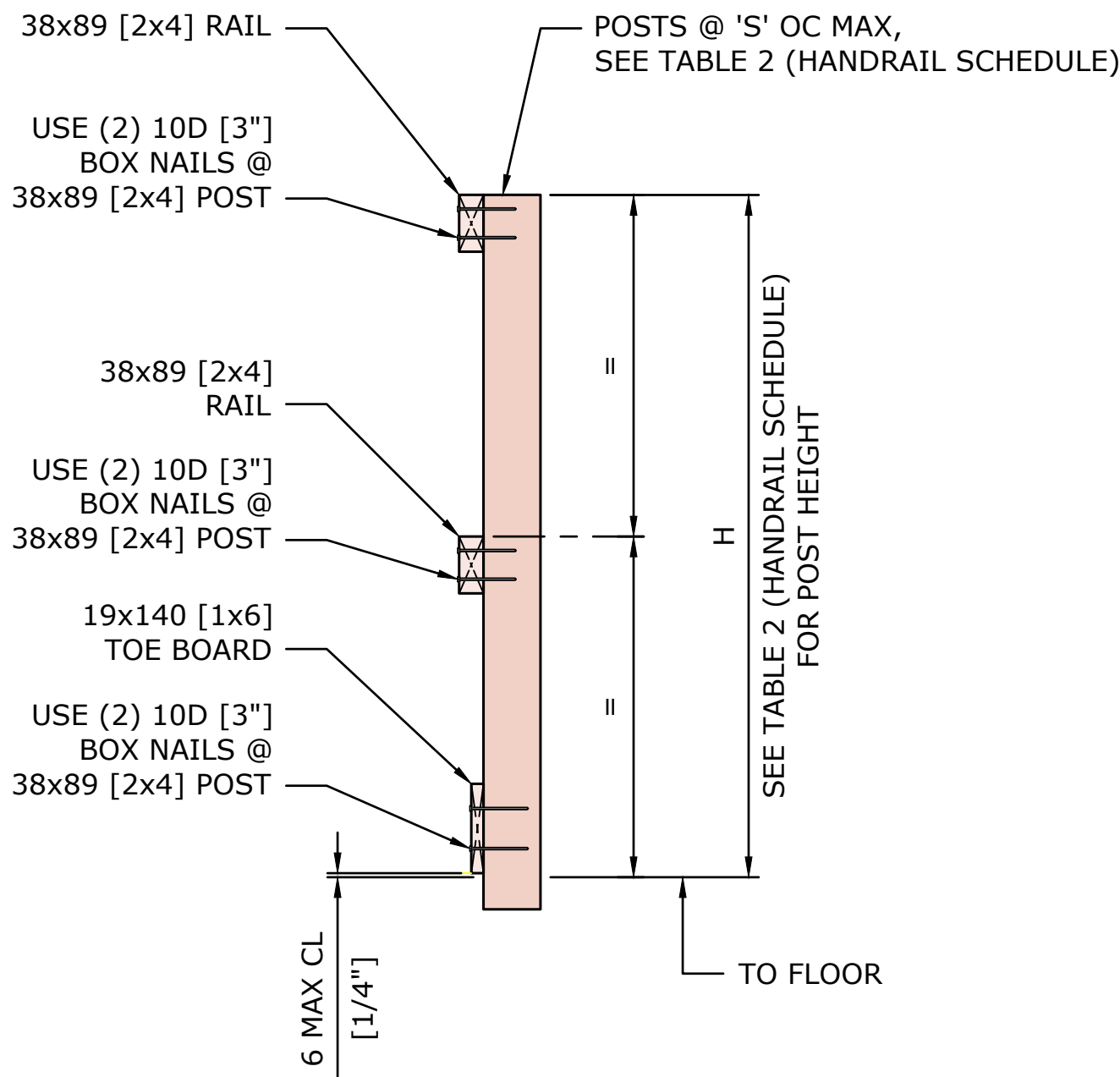


ELEVATION



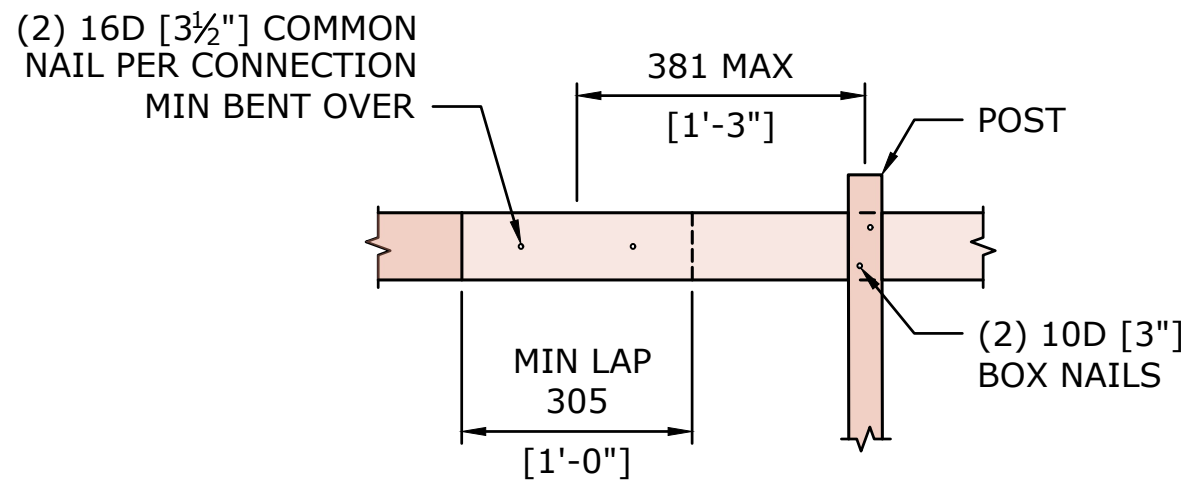
CONNECTION 6

SCALE: 1:10



NOTE: DO NOT USE DOUBLE-HEADED NAILS

TYPICAL RAIL CONNECTION & POST DETAIL
SCALE: 1:10



ELEVATION

TYPICAL RAIL SPLICE

SCALE: 1:10

STANDARD DESIGN

APPROVED FOR CONSTRUCTION ON KIEWIT PROJECTS WITHIN U.S.A. & CANADA
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| | | | | | |
|------|----------|-------------------------|------|------|------|
| | | | | | |
| | | | | | |
| | | | | | |
| 0 | 12-20-24 | ISSUED FOR CONSTRUCTION | V.P. | B.A. | F.P. |
| MARK | DATE | DESCRIPTION | DRWN | DESG | CHKD |

Kiewit

DRAWING SHALL EXPIRE ON 12-31-2029.
CONTACT ENGINEER OF RECORD TO UPDATE.

SCAN OR CLICK QR CODE TO ENSURE
LATEST VERSION OF DRAWING



PROJECT: KIE STANDARD DESIGNS

LOCATION: KIEWIT PROJECTS U.S.A. & CANADA

PROJECT TASK: STANDARD HANDRAIL (USA & CANADA)

SHEET TITLE:
WOODEN HANDRAIL DETAILS - 2 OF 2

TSCD RISK:
SEE GENERAL NOTE
10A

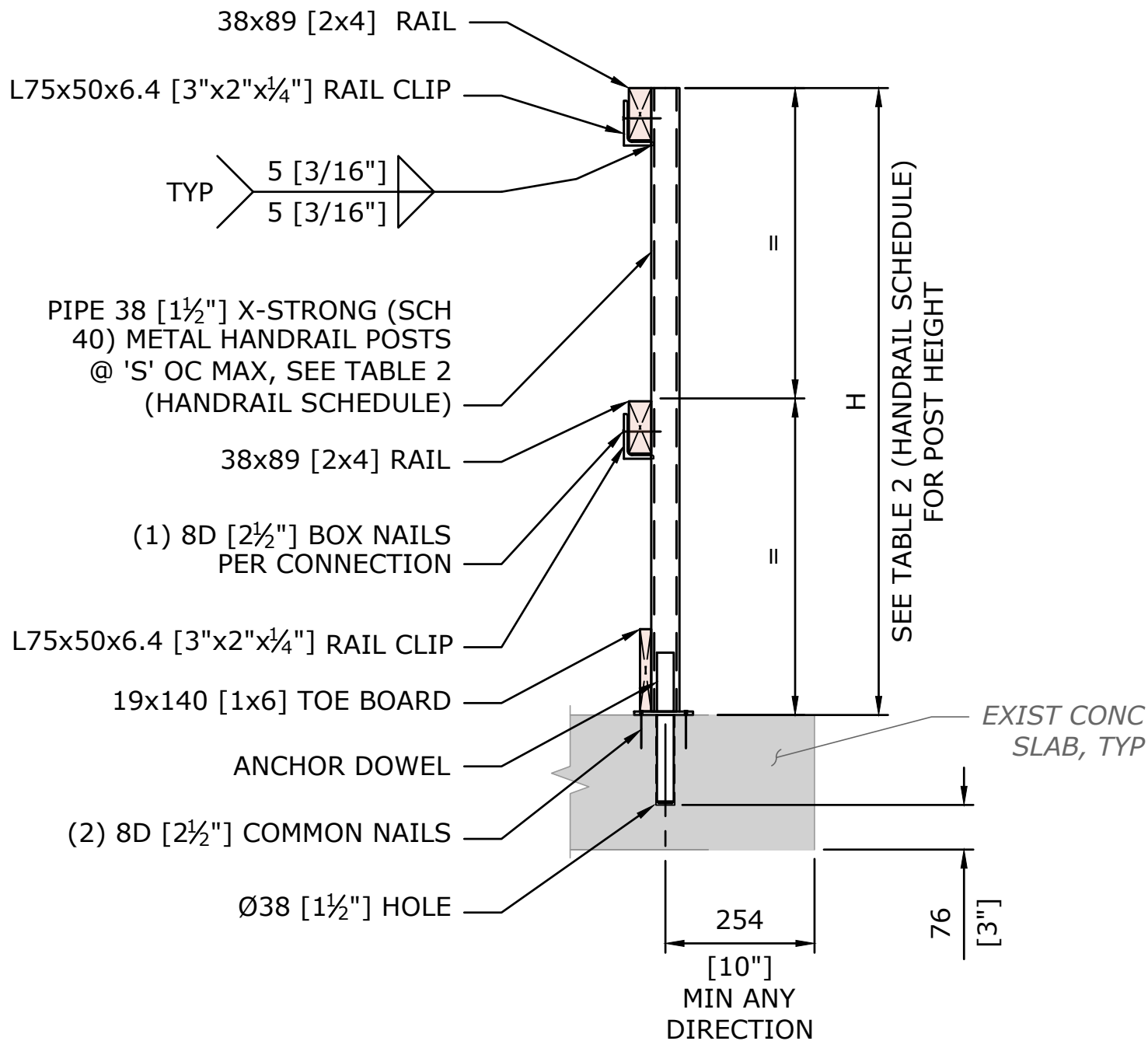
JOB-TASK NO:
21-131-510.01.05

SHEET ID:
TW002

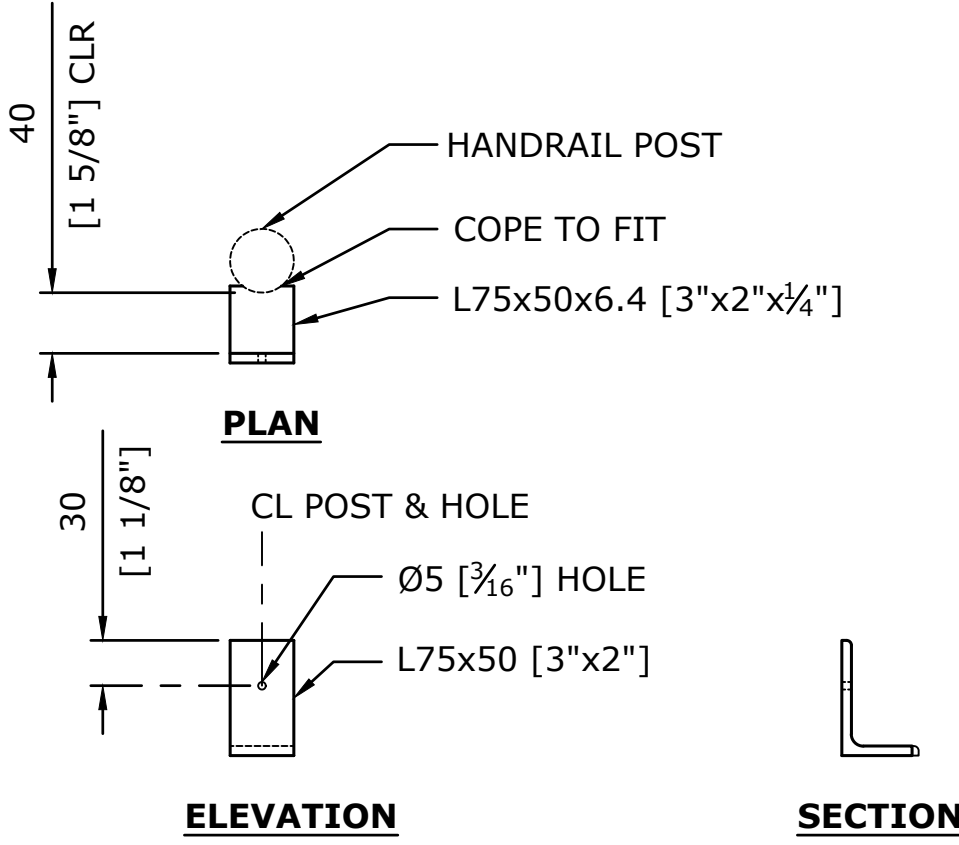
12/20/2024 1:41:33 PM
LAST SAVED BY: VINITA.PATEL

TOTAL SHEETS ISSUED: 03
DRAWING SCALES SHOWN ARE BASED ON A 22"x34" SHEET.
ABBREVIATIONS PER US NATIONAL CAD STANDARD
C:\USERS\VINITA.PATEL\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\KIEWIT-US-PW-01\DWG

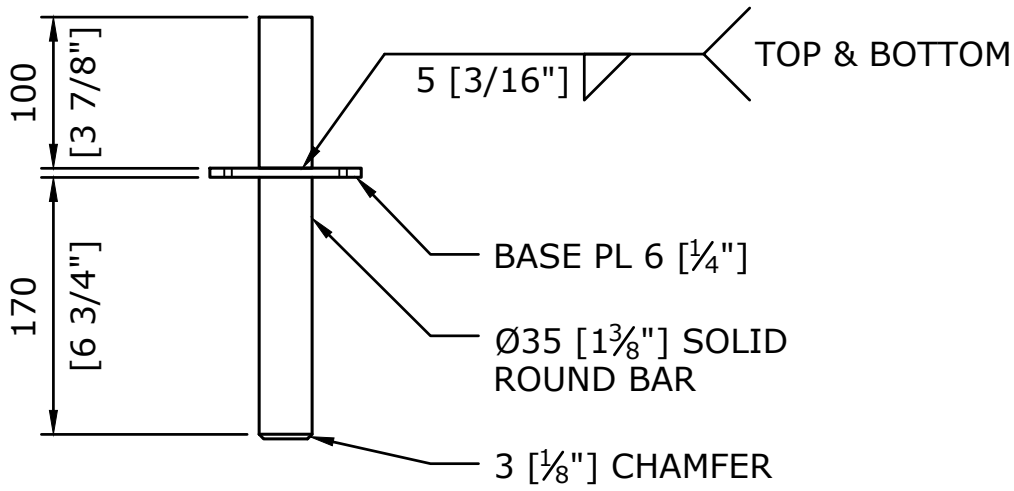
ONLY USE DIMENSIONS INDICATED ON DRAWINGS. DO NOT SCALE DRAWINGS.



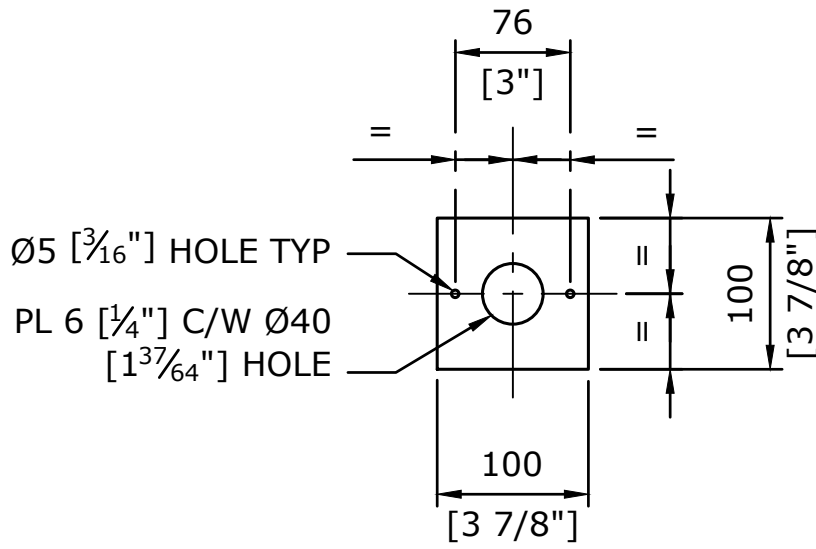
PROFILE
SCALE: 1:10



RAIL CLIP
SCALE: 1:5



ANCHOR DOWEL
SCALE: 1:5



BASE PLATE
SCALE: 1:5

CONNECTION 7
SCALE: AS SHOWN

DRAWING SHALL EXPIRE ON 12-31-2029.
CONTACT ENGINEER OF RECORD TO UPDATE.

Kiewit



SCAN OR CLICK QR CODE TO ENSURE
LATEST VERSION OF DRAWING



| MARK | DATE | DESCRIPTION | DRWN | DESG | CHKD |
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| 0 | 12-20-24 | ISSUED FOR CONSTRUCTION | V.P. | B.A. | F.P. |

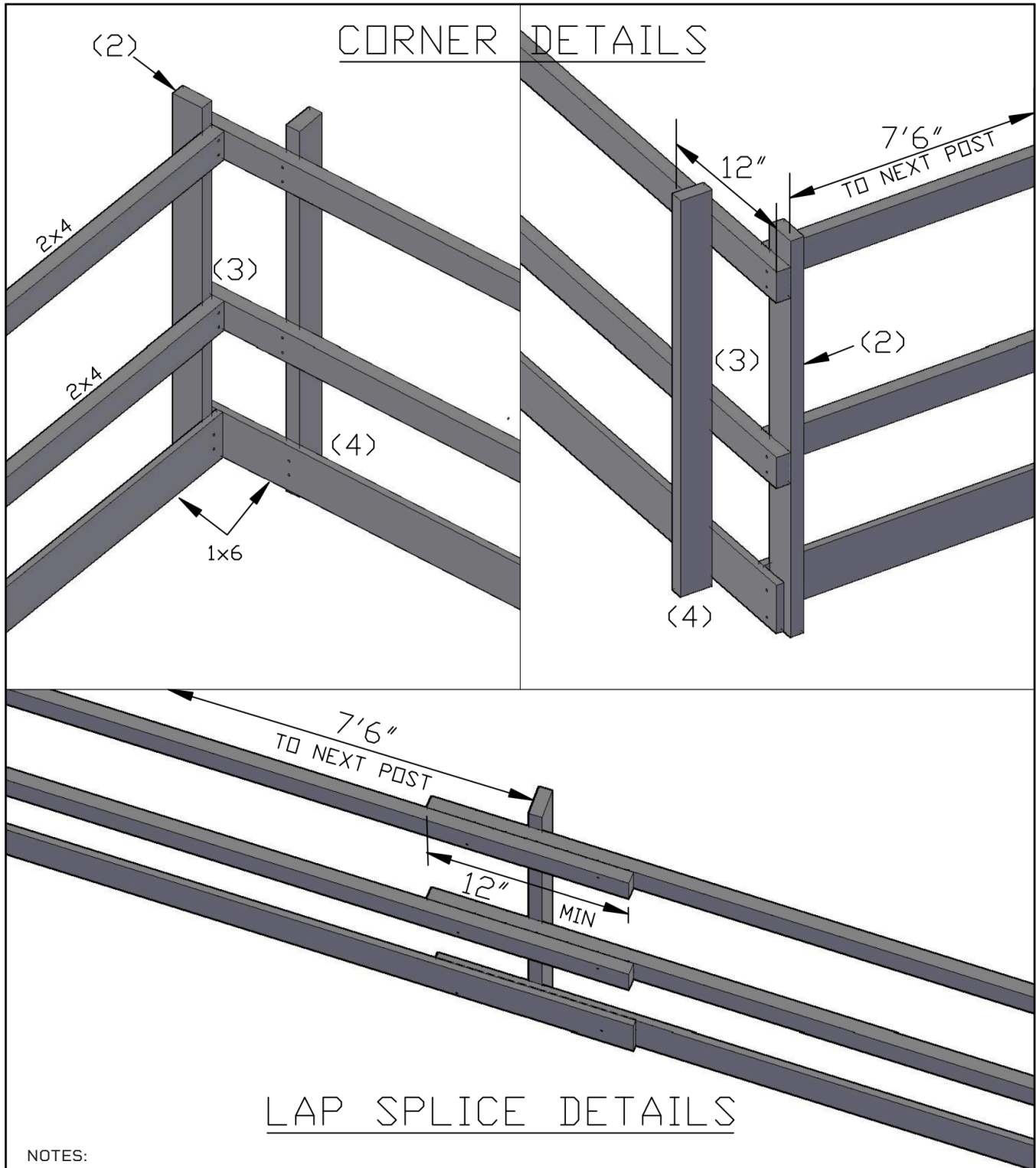
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|--|---------------------------------|
| PROJECT: KIE STANDARD DESIGNS | TSCD RISK: SEE GENERAL NOTE 10A |
| LOCATION: KIEWIT PROJECTS U.S.A. & CANADA | JOB-TASK NO: 21-131-510.01.05 |
| PROJECT TASK: STANDARD HANDRAIL (USA & CANADA) | SHEET ID: TW003 |
| SHEET TITLE: STEEL HANDRAIL DETAILS | |

STANDARD DESIGN

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JOBSITE ACCESS - HANDRAIL



NOTES:

- (1) 7'6" OC PREFERRED SPACING USING 2X4X16' RAILING
- (2) VERTICAL 2X4 BACKING AT ALL CORNERS
- (3) 2X4 RAILS AT CORNER SHOULD INTERSECT WITHIN 12"
- (4) POST ANCHORAGE SHALL BE ENGINEERED BY A QUALIFIED INDIVIDUAL
- (5) TOP RAIL TO BE BETWEEN 39" TO 45"

| | | | |
|---|--------------|--------------|----------------|
|  Kiewit | | | |
| BRIDGE & MARINE 2215 E. 1st STREET VANCOUVER, WA | | | |
| SCALE: NTS | DATE: 3/1/10 | DRAWN BY: MW | CHECKED BY: TM |
| SUBJECT: 3-D HANDRAIL DETAILS | | | |
| PROJECT: FOREMAN BOOK | | DWG. NO.: 3 | REV: 3 |

DETAIL DRAWINGS

| | | | | | |
|--|-----|---------|------------------|----------|----|
| <small>THIS DRAWING IS THE PHYSICAL AND INTELLECTUAL PROPERTY OF GENERAL CONSTRUCTION COMPANY. THE INFORMATION SHOWN SHALL NOT BE USED OR REPRODUCED WITHOUT OUR WRITTEN PERMISSION NOR RELEASED UNDER THE FREEDOM OF INFORMATION ACT.</small> | REV | DATE | DESCRIPTION | APPROVED | |
| | 0 | 6/26/06 | APPROVED FOR USE | SM | RS |

DATA SHEET


USES
COMMON HANDRAIL FOR ATTACHMENT TO
TIMBER AND CONCRETE STRUCTURES.

DESIGN
CAPABLE OF SUPPORTING 200 LBS IN ANY
DIRECTION.

STANDARDS MET BY LATEST REVISION
OSHA 1926.502
WISHA WAC 296-155-505
CAL/OSHA 3209.STANDARD GUARDRAIL

SPECIFICATION
TOP RAILS - DF#2 2x4 W/O DEFECTS
MID RAILS - 2X4 OR 1x6
TOEBOARDS - 1x6 MINIMUM
POSTS - DF#2 2X4 MIN AT 8' O.C. MAX

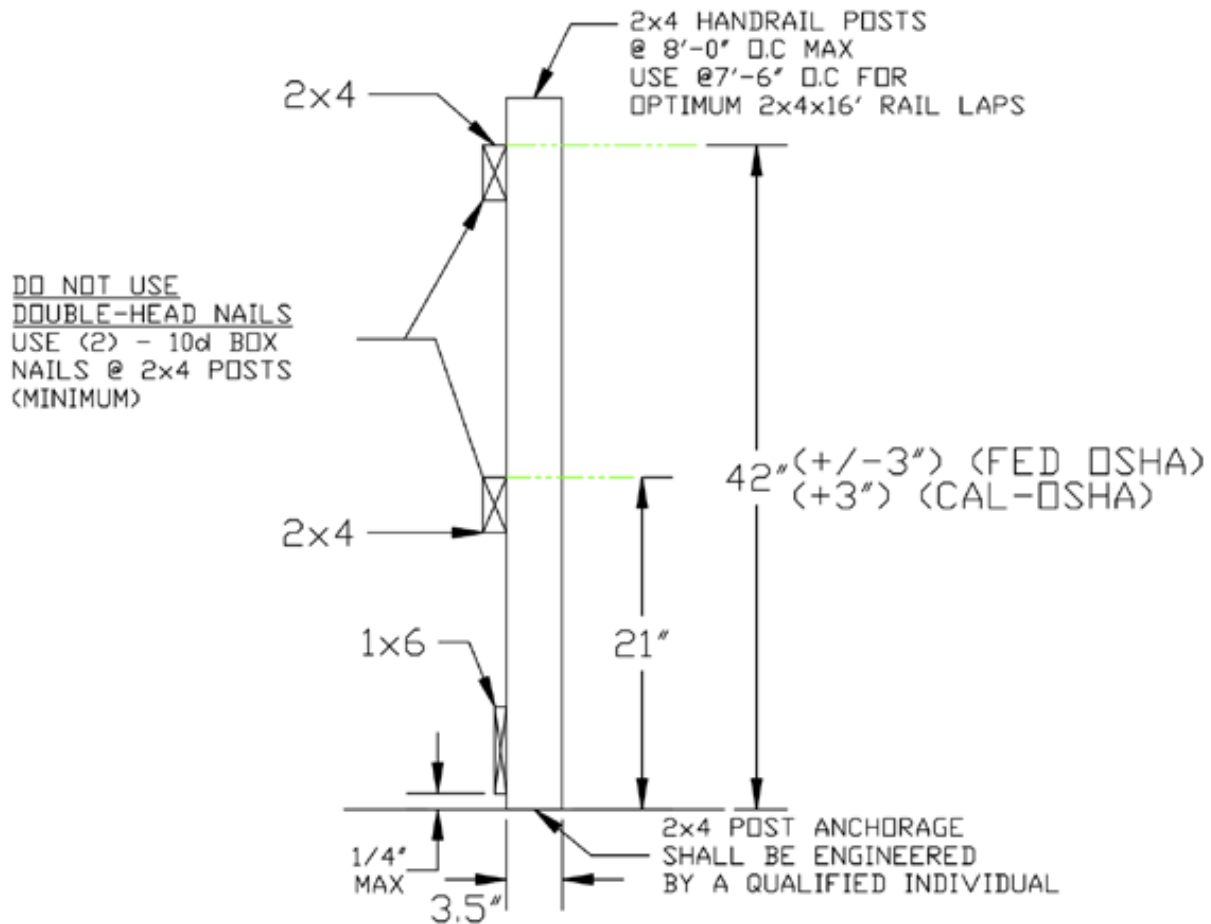
NOTES
SMOOTH SURFACES, NO SPLINTERS
NO DUPLEX OR BENT OVER NAILS



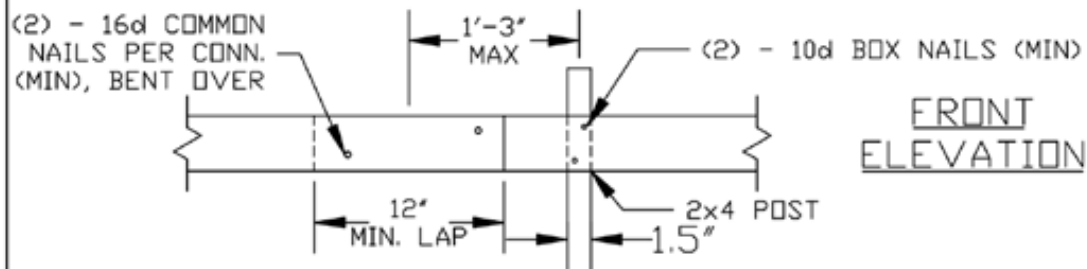
DETAIL DRAWINGS

HANDRAIL DETAILS

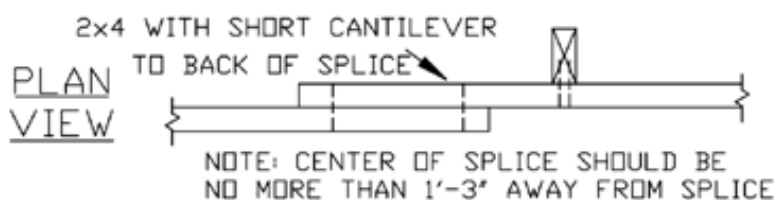
(FOR 2X4 POSTS)



SPLICE CONNECTION DETAILS



FRONT
ELEVATION



PKS Kiewit

BRIDGE & MARINE

2215 E. 1st STREET VANCOUVER, WA

DATE NTS 3/1/10 DATE MW DATE WTM

SUBJECT HANDRAIL DETAILS

PROJECT FOREMAN BOOK

DWG NO. 1

REV

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| REV | DATE | DESCRIPTION | APPROVED |
|-----|----------|------------------|----------|
| 0 | 12/20/06 | APPROVED FOR USE | SM RS |

DATA SHEET

USES

THIS IS A UNIVERSAL HANDRAIL POST THAT CAN BE INSERTED IN TO A 1" DIAMETER HOLE IN TIMBER OR CONCRETE OR A 1" STD PIPE SLEEVE WELDED TO A BEAM.

DESIGN

CAPABLE OF SUPPORTING 200 LBS IN ANY DIRECTION. MODIFIED FROM ORIGINAL KIEWIT POST TO MEET WISHA SPEC. OF 1½" PIPE.

STANDARDS MET BY LATEST REVISION

OSHA 1926.502

WISHA WAC 296-155-505

CAL/OSHA 3209.STANDARD GUARDRAIL

SPECIFICATIONS

RAILS - DF#2 2x4 W/O DEFECTS

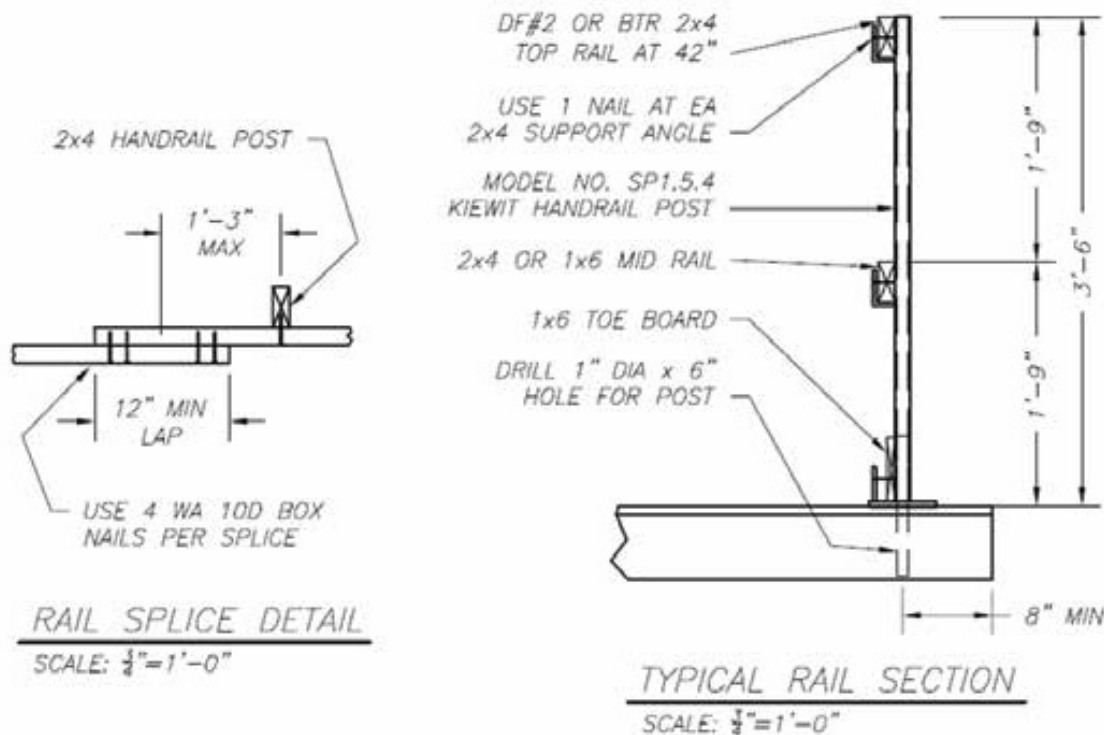
TOEBOARD - 1x6 MINIMUM

NOTES

SMOOTH SURFACES, WITH NO SPLINTERS, DUPLEX OR BENT OVER NAILS.



INSTALLATION DRAWING



DETAIL DRAWINGS

