

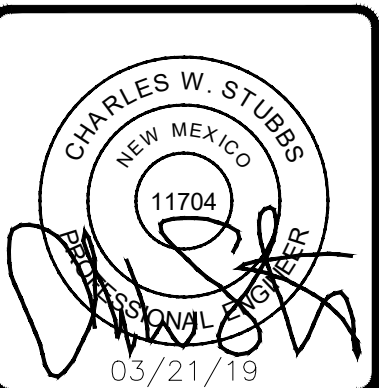
# PORTED RISER PRINCIPAL SPILLWAYS

## NOTES:

1. ALL INDIVIDUAL DESIGNS ARE TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
2. SEE INDIVIDUAL DESIGNS FOR ESTIMATED QUANTITIES.

## TYPICAL SHEET INDEX:

|                             |        |
|-----------------------------|--------|
| COVER SHEET                 | COVER  |
| G.S.N. / TYPICAL DETAILS    | G.S.N. |
| GRATING PLANS / DETAILS     | GRATES |
| ELEVATION / DISCHARGE TABLE | TABLE  |



COVER SHEET

| NO. | REVISION | DESCRIPTION             | DATE    | BY |
|-----|----------|-------------------------|---------|----|
| 1   |          | ISSUED FOR CONSTRUCTION | 3/26/19 | CS |
| 2   |          |                         |         |    |
| 3   |          |                         |         |    |
| 4   |          |                         |         |    |
| 5   |          |                         |         |    |

## TYPE 1 SHEET INDEX:

|                             |        |
|-----------------------------|--------|
| TYPE 1 - DESIGN 1           | 1-1A   |
| TYPE 1 - DESIGN 1 DETAILS   | 1-1B   |
| TYPE 1 - DESIGN 2           | 1-2A   |
| TYPE 1 - DESIGN 2 DETAILS   | 1-2B   |
| TYPE 1 - DESIGN 3           | 1-3A   |
| TYPE 1 - DESIGN 3 DETAILS   | 1-3B   |
| TYPE 1 - DESIGN 4           | 1-4A   |
| TYPE 1 - DESIGN 4 DETAILS   | 1-4B   |
| TYPE 1 - DESIGN 5           | 1-5A   |
| TYPE 1 - DESIGN 5 DETAILS   | 1-5B   |
| TYPE 1 - DESIGN 6.1         | 1-6.1A |
| TYPE 1 - DESIGN 6.1 DETAILS | 1-6.1B |
| TYPE 1 - DESIGN 6.2         | 1-6.2A |
| TYPE 1 - DESIGN 6.2 DETAILS | 1-6.2B |

TYPE #1  
HORIZONTAL PIPE - CONCRETE BOX  
WITH WINGWALLS

## TYPE 2 SHEET INDEX:

|                      |        |
|----------------------|--------|
| TYPE 2 - DESIGN 7    | 2-7    |
| TYPE 2 - DESIGN 8    | 2-8    |
| TYPE 2 - DESIGN 9    | 2-9    |
| TYPE 2 - DESIGN 10   | 2-10   |
| TYPE 2 - DESIGN 11   | 2-11   |
| TYPE 2 - DESIGN 12.1 | 2-12.1 |
| TYPE 2 - DESIGN 12.2 | 2-12.2 |

TYPE #2  
HORIZONTAL PIPE - CONCRETE BOX  
WITHOUT WINGWALLS

## TYPE 3 SHEET INDEX:

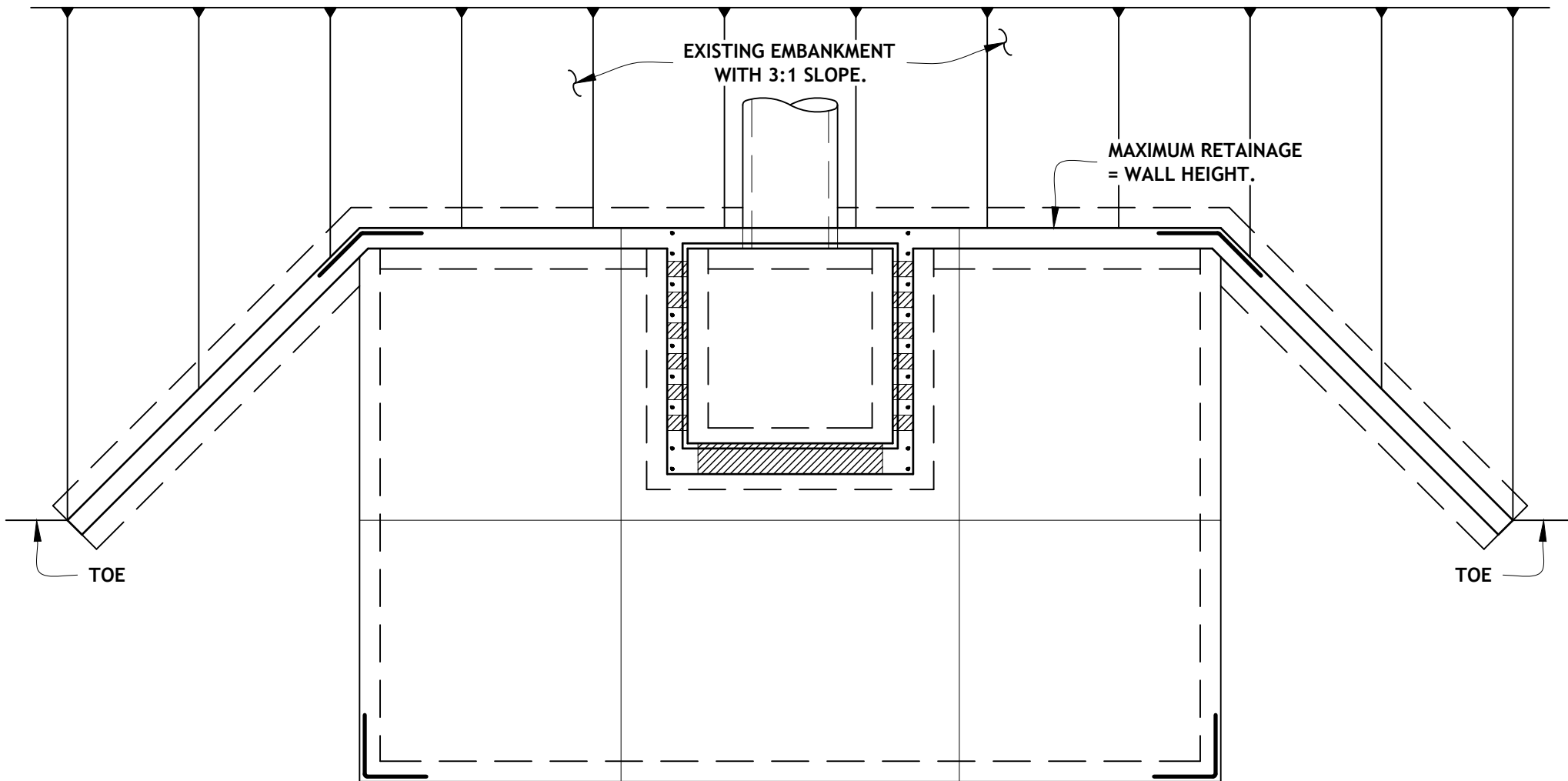
|                      |        |
|----------------------|--------|
| TYPE 3 - DESIGN 13   | 3-13   |
| TYPE 3 - DESIGN 14   | 3-14   |
| TYPE 3 - DESIGN 15   | 3-15   |
| TYPE 3 - DESIGN 16   | 3-16   |
| TYPE 3 - DESIGN 17   | 3-17   |
| TYPE 3 - DESIGN 18.1 | 3-18.1 |
| TYPE 3 - DESIGN 18.2 | 3-18.2 |

TYPE #3  
VERTICAL PIPE - CONCRETE BOX  
WITHOUT WINGWALLS

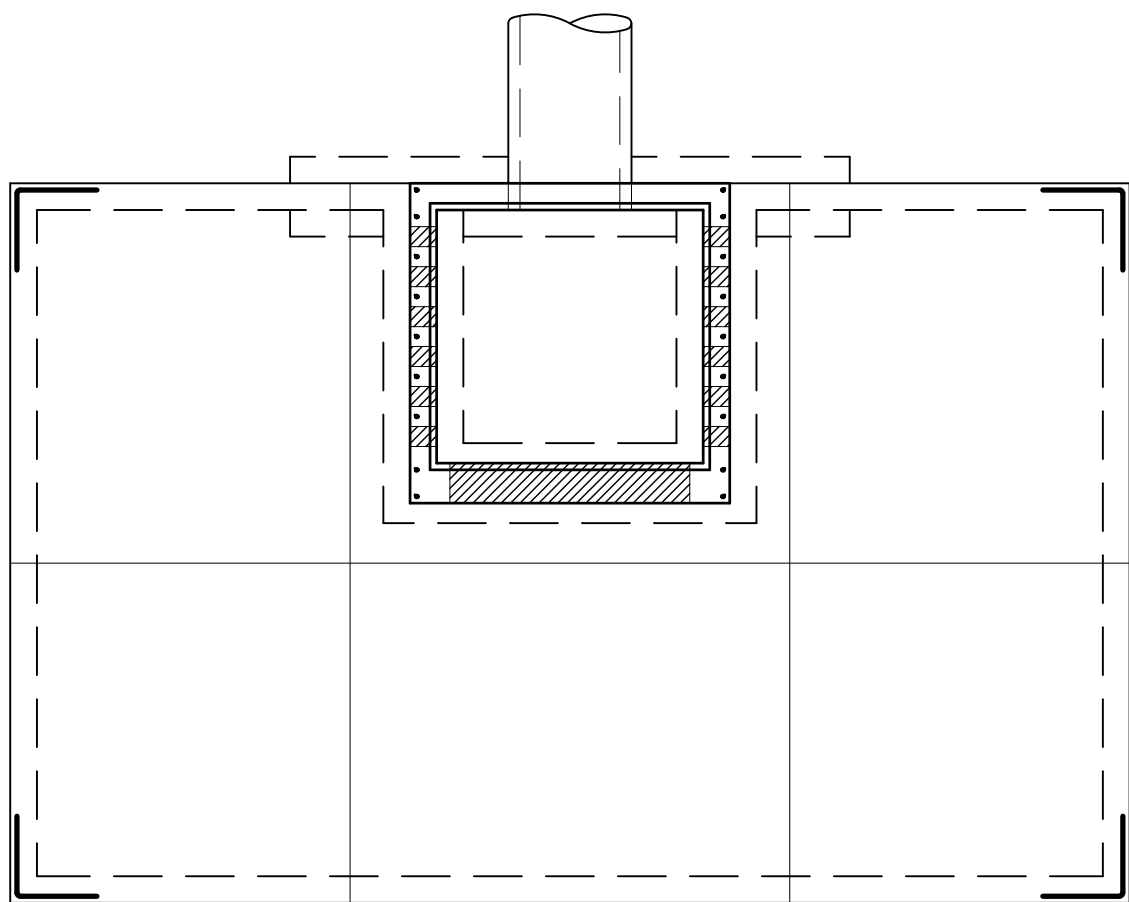
## TYPE 4 SHEET INDEX:

|                    |      |
|--------------------|------|
| TYPE 4 - DESIGN 19 | 4-19 |
| TYPE 4 - DESIGN 20 | 4-20 |
| TYPE 4 - DESIGN 21 | 4-21 |
| TYPE 4 - DESIGN 22 | 4-22 |
| TYPE 4 - DESIGN 23 | 4-23 |
| TYPE 4 - DESIGN 24 | 4-24 |

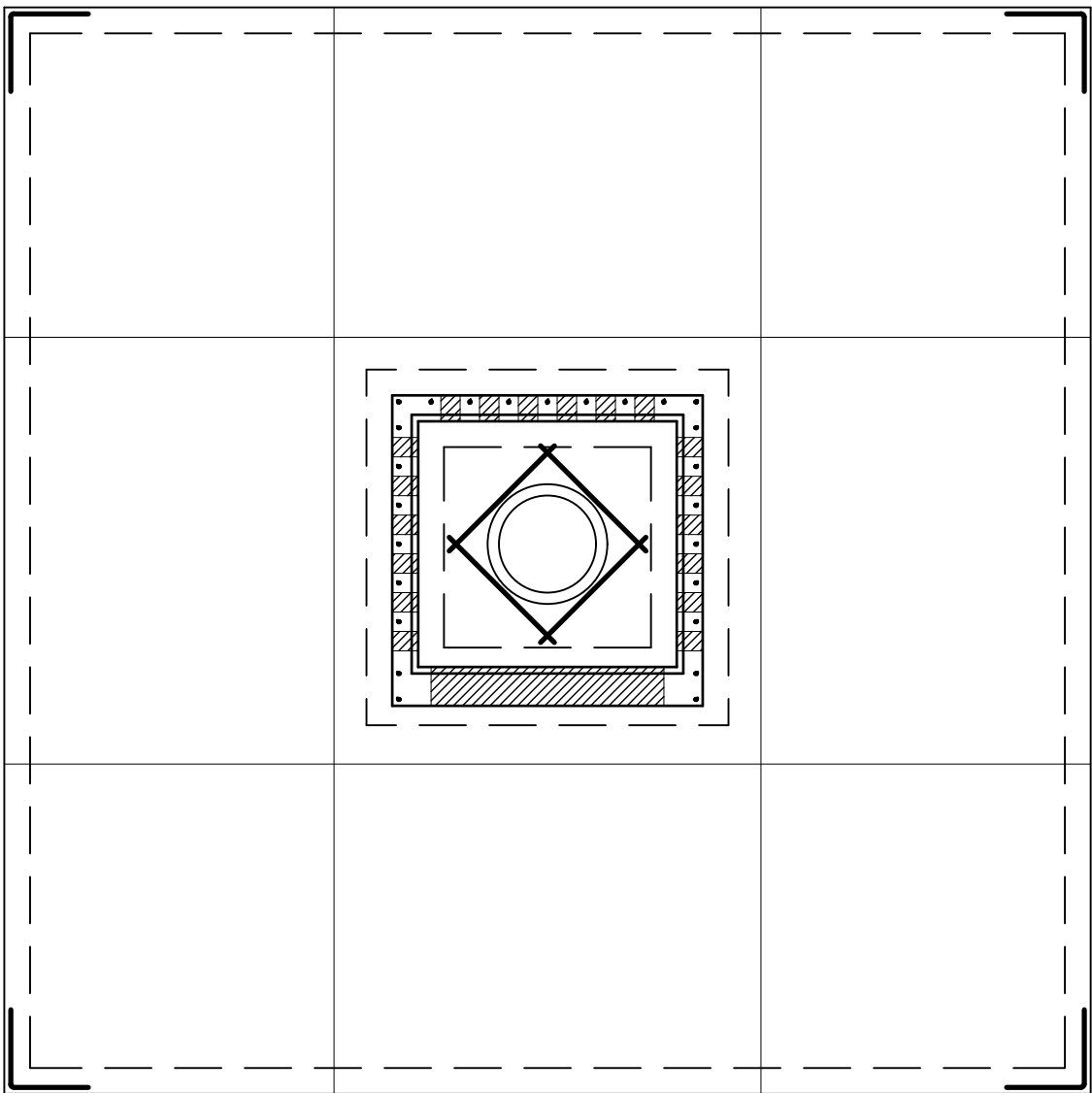
TYPE #4  
HORIZONTAL PIPE - DOUBLE CMP  
WITHOUT WINGWALLS



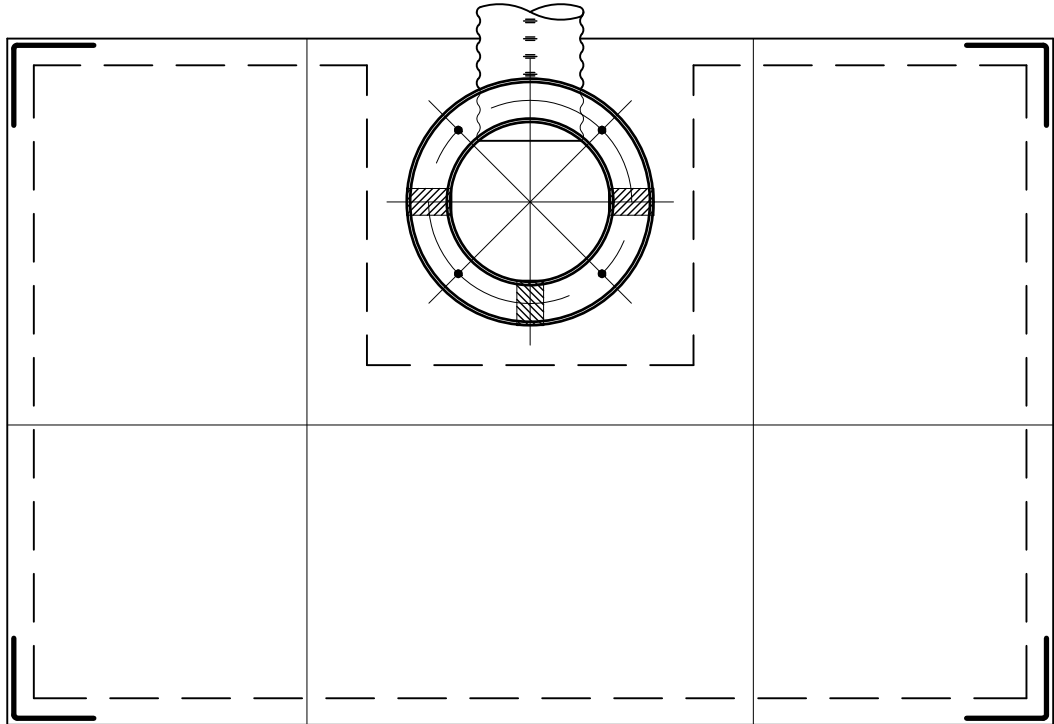
| DESIGN # | ENCLOSURE SIZE | CULVERT Ø | WALL HEIGHT | ROWS OF PORTS |
|----------|----------------|-----------|-------------|---------------|
| 1        | 8'x8'          | 30"       | 3'-2"       | 2             |
| 2        | 8'x8'          | 36"       | 3'-9"       | 2             |
| 3        | 8'x8'          | 42"       | 4'-3"       | 3             |
| 4        | 10'x10'        | 36"       | 3'-9"       | 2             |
| 5        | 10'x10'        | 42"       | 4'-3"       | 3             |
| 6.1      | 10'x10'        | 48"       | 4'-10"      | 3             |
| 6.2      | 10'x10'        | 48"       | 5'-6"       | 4             |



| DESIGN # | ENCLOSURE SIZE | CULVERT Ø | WALL HEIGHT | ROWS OF PORTS |
|----------|----------------|-----------|-------------|---------------|
| 7        | 8'x8'          | 30"       | 3'-2"       | 2             |
| 8        | 8'x8'          | 36"       | 3'-9"       | 2             |
| 9        | 8'x8'          | 42"       | 4'-3"       | 3             |
| 10       | 10'x10'        | 36"       | 3'-9"       | 2             |
| 11       | 10'x10'        | 42"       | 4'-3"       | 3             |
| 12.1     | 10'x10'        | 48"       | 4'-10"      | 3             |
| 12.2     | 10'x10'        | 48"       | 5'-6"       | 4             |



| DESIGN # | ENCLOSURE SIZE | CULVERT Ø | WALL HEIGHT | ROWS OF PORTS |
|----------|----------------|-----------|-------------|---------------|
| 13       | 8'x8'          | 30"       | 3'-2"       | 2             |
| 14       | 8'x8'          | 36"       | 3'-9"       | 2             |
| 15       | 8'x8'          | 42"       | 4'-3"       | 3             |
| 16       | 10'x10'        | 36"       | 3'-9"       | 2             |
| 17       | 10'x10'        | 42"       | 4'-3"       | 3             |
| 18.1     | 10'x10'        | 48"       | 4'-10"      | 3             |
| 18.2     | 10'x10'        | 48"       | 5'-6"       | 4             |



| DESIGN # | ENCLOSURE SIZE | CULVERT Ø | WALL HEIGHT | ROWS OF PORTS |
|----------|----------------|-----------|-------------|---------------|
| 19       | 48"/66"        | 30" MAX.  | 3'-0"       | 3             |
| 20       | 48"/66"        | 36" MAX.  | 4'-0"       | 4             |
| 21       | 48"/66"        | 36" MAX.  | 5'-0"       | 5             |
| 22       | 48"/72"        | 30" MAX.  | 3'-0"       | 2             |
| 23       | 48"/72"        | 36" MAX.  | 4'-0"       | 3             |
| 24       | 48"/72"        | 36" MAX.  | 5'-2"       | 4             |

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

COVER SHEET

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



PROJECT NO:  
117106-07

DATE:  
MARCH 2019

SHEET NO:

COVER

GENERAL STRUCTURAL NOTES

APPLY UNLESS NOTED ON STRUCTURAL DRAWINGS. IN CASE OF CONFLICT BETWEEN GSN, DETAILS AND PLANS, THE GREATER REQUIREMENTS GOVERN.

CODE:

ALL CONSTRUCTION SHALL CONFORM TO "CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION". DESIGN IS IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE (IBC) 2015.

DESIGN LOADS:

GRATE LIVE LOADS: 100 PSF

FOUNDATIONS:

FOOTINGS SHALL BEAR ON A MINIMUM OF 12 INCHES OF ADEQUATELY PLACED AND COMPACTED STRUCTURAL FILL. SOIL BENEATH FOOTINGS SHALL BE SCARIFIED TO A DEPTH OF 12 INCHES, MOISTURE CONDITIONED TO OPTIMUM MOISTURE CONTENT  $\pm 2\%$  AND COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM-D-698. ALL STRUCTURAL FILL SHALL BE CLASS I OR II SOILS IN ACCORDANCE WITH STD. SPEC. SEC. 501.

ALL EARTHWORK, FOOTING DEPTHS, AND EXCAVATIONS FOR FOUNDATIONS SHALL BE INSPECTED TO VERIFY ASSUMED ALLOWABLE SOIL BEARING AND LOW SETTLEMENT AND SWELL POTENTIAL. ASSUMED ALLOWABLE BEARING = 2000 PSF.

CONCRETE:

UNLESS NOTED OTHERWISE, CONCRETE SHALL BE IN ACCORDANCE WITH STD. SPEC. SEC. 510 AND SEC. 101 FOR HYDRAULIC CONCRETE WITH MIN. COMP. STRENGTH  $F_c=4000$  PSI AT 28 DAYS. ALL REINFORCING STEEL SHALL BE BLACK, GRADE 60 CONFORMING TO ASTM A615.

MAXIMUM SLUMP:.....4" - 7"  
MAXIMUM AGGREGATE SIZE:.....1"  
AIR CONTENT:..... $6\% \pm 1\frac{1}{2}\%$   
MAXIMUM W/C RATIO:.....0.45

FINISH SHALL BE ORDINARY SURFACE FINISH IN ACCORDANCE WITH STD. SPEC. SEC. 510.

MINIMUM STRENGTH FOR REMOVAL OF FORMS AND SHORING SHALL BE 75% OF SPECIFIED STRENGTH AT 28 DAYS.

BACKFILL (WHERE OCCURS) SHALL NOT BE PLACED BEHIND HEADWALLS UNTIL CONCRETE HAS ATTAINED 100% OF DESIGN STRENGTH.

REINFORCING:

LATEST ACI CODE AND DETAILING MANUAL APPLY. ALL REINFORCING BARS DEFORMED.

ALL REINFORCING SHALL BE ASTM A-615 GRADE 60.

CLEAR CONCRETE COVER TO REINFORCING ARE AS FOLLOWS, UNLESS NOTED OTHERWISE:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"

EXPOSED TO EARTH OR WEATHER:  
#6 THROUGH #18.....2"  
#5 AND SMALLER.....1 1/2"

LAP SPLICES IN CONCRETE SHALL BE CLASS B TENSION LAPS PER DETAIL 1 THIS SHEET. SPLICE BOTTOM BAR OVER SUPPORTS AND TOP BAR AT MIDSPAN ONLY.

FOR TYPICAL BAR BENDS, SEE DETAIL 2 THIS SHEET.

PROVIDE SHOP DRAWINGS AND FABRICATE AFTER REVIEW. PLACE REBAR PER CRSI STANDARDS.

REBAR SPACING GIVEN IS MAXIMUM ON CENTER AND ALL REBAR IS CONTINUOUS UNLESS OTHERWISE NOTED. PROVIDE BENT CORNER REBAR TO MATCH AND LAP WITH HORIZONTAL REBARS AT CORNERS AND INTERSECTIONS OF WALLS. DOWEL ALL VERTICAL WALL REBAR TO FOUNDATIONS. SECURELY TIE ALL REBAR, INCLUDING DOWELS, IN LOCATION BEFORE PLACING CONCRETE.

STRUCTURAL STEEL:

FOR ALL STRUCTURAL STEEL FABRICATION AND CONSTRUCTION, STD. SPEC. SEC. 520, LATEST AISC HANDBOOKS AND CODES SHALL APPLY. ALL STEEL FABRICATION IS REQUIRED TO BE COMPLETED BY AN APPROVED STEEL FABRICATOR RECOGNIZED BY THE BUILDING DEPARTMENT.

ASTM A-36, EXCEPT AS FOLLOWS: WIDE FLANGE SECTIONS, ASTM A992 GRADE 50.

HIGH STRENGTH BOLTS, A-325-X OR A-325-SC.

WELDING:

ALL CONSTRUCTION AND TESTING PER AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS. ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN TYPE OF WELD CALLED FOR. WELDING RODS SHALL BE LOW HYDROGEN TYPE, E70.

ALL WELDING OF STRUCTURAL STEEL SHALL CONFORM TO THE "STRUCTURAL WELDING CODES-STEEL" AWS D1.1, CURRENT EDITION.

RECTANGULAR BAR GRATING:

MATERIAL DESIGN AND MANUFACTURE SHALL BE BY McNICHOLS OR APPROVED EQUAL.

PREFABRICATED RECTANGULAR BAR PANELS AS FOLLOWS:

MATERIAL: HOT-DIPPED GALVANIZED STEEL BEARING BARS AND 1/4" SQUARE GALVANIZED STEEL TWISTED CROSS BARS.

BEARING BAR SIZE: 3/16"x1 3/4"  
BAR SPACING: 1 3/16" BEARING BAR CENTERS AND 4" CROSS BAR CENTERS.

NUMBER OF PANELS: 8'-0"x8'-0" = 3, 10'-0"x10'-0" = 4  
PANEL LENGTH: 8'-0"x8'-0" = 6'-11", 10'-0"x10'-0" = 8'-11" (a)  
PANEL WIDTHS: 8'-0"x8'-0" = (1) PANEL 32 1/4", (2) PANELS 25 1/8" (a)  
10'-0"x10'-0" = (1) PANEL 32 1/4", (2) PANELS 25 1/8", (1) PANEL 23 15/16" (a)  
WEIGHT: 12.5 LBS./SQ. FT. (a)  
TOTAL WEIGHT: 8'-0"x8'-0" = 583.3 LBS., 10'-0"x10'-0" = 975.0 LBS. (a)

(a) CONTRACTOR TO VERIFY PANEL LENGTHS, WIDTHS AND WEIGHTS WITH ACTUAL FIELD MEASUREMENTS AND MANUFACTURER.

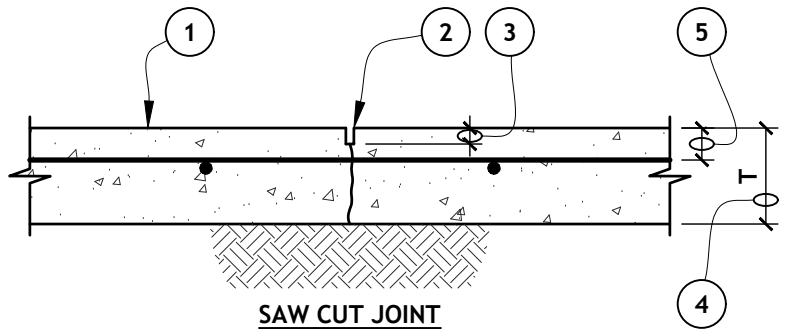
1. CONCRETE SLAB OVER STRUCTURAL FILL PER THE G.S.N.

2. SAWCUT SLAB AFTER CONCRETE IS HARD ENOUGH TO AVOID SPALLING AND DAMAGE BUT NOT LATER THAN 12 HOURS AFTER CONCRETE PLACEMENT.

3. DEPTH OF CUT=T/4.

4. SEE PLANS FOR (T) SLAB THICKNESS.

5. 2" MINIMUM COVER.



7 TYPICAL CONTRACTION JOINT IN SLAB

FN100

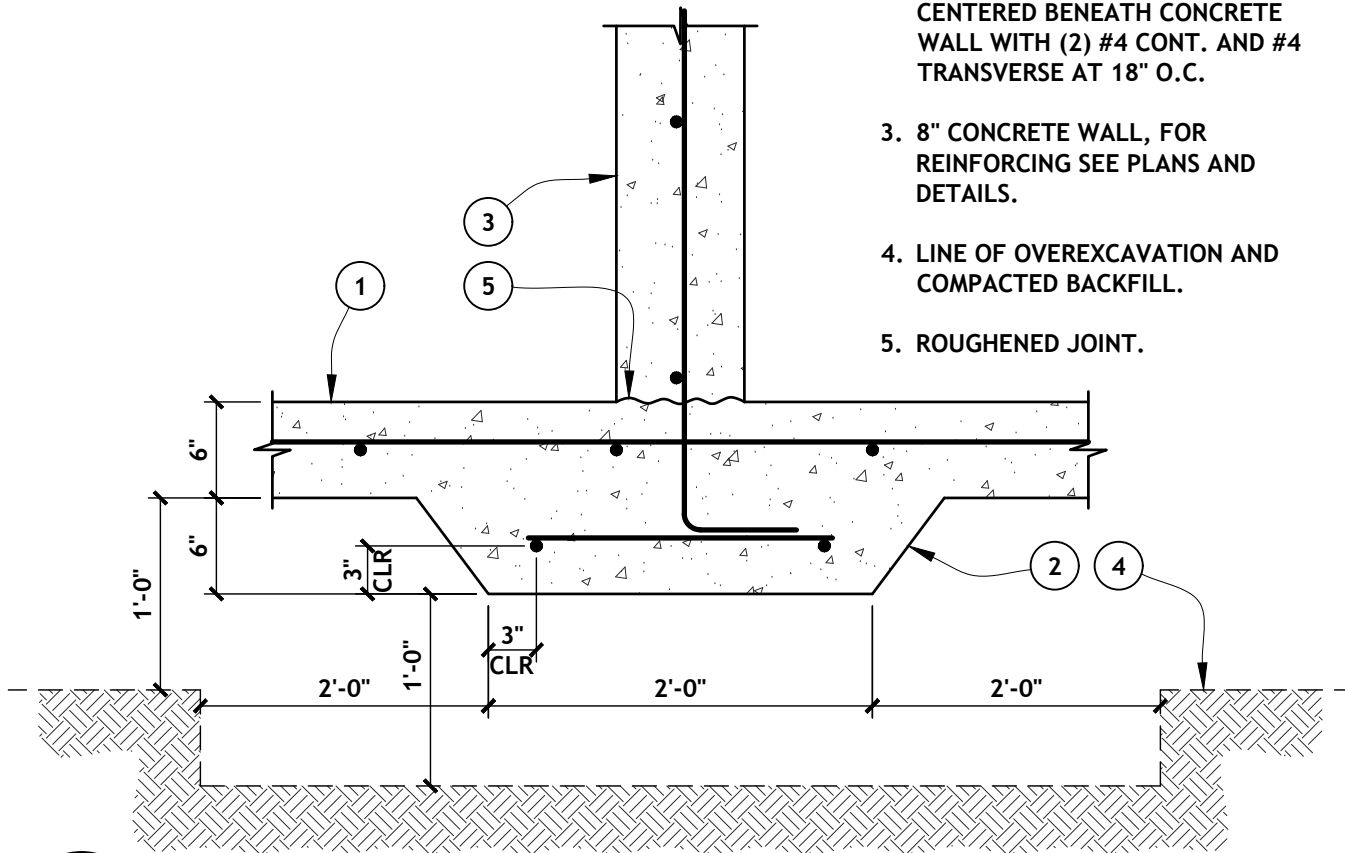
1. 6" CONCRETE SLAB ON GRADE.

2. THICKENED CONCRETE SLAB CENTERED BENEATH CONCRETE WALL WITH (2) #4 CONT. AND #4 TRANSVERSE AT 18" O.C.

3. 8" CONCRETE WALL, FOR REINFORCING SEE PLANS AND DETAILS.

4. LINE OF OVEREXCAVATION AND COMPACTED BACKFILL.

5. ROUGHENED JOINT.



4 TYPICAL THICKENED SLAB AT WALL

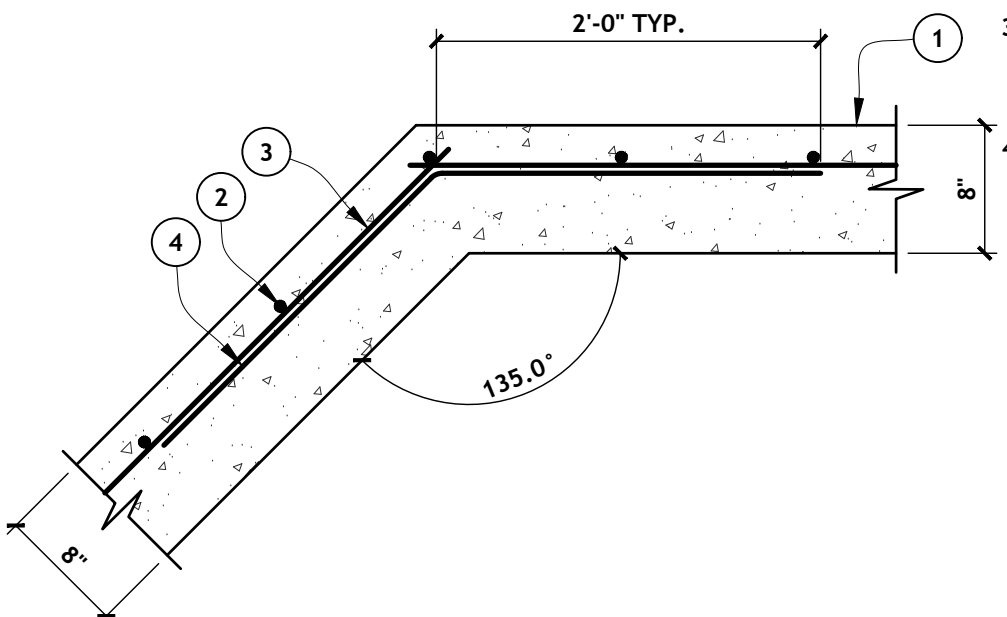
M124

1. CONCRETE WALL, SEE PLAN.

2. VERTICAL REINFORCING, SEE PLANS AND DETAILS FOR SIZE AND SPACING.

3. HORIZONTAL REINFORCING, SEE PLANS AND DETAILS FOR SIZE AND SPACING.

4. PROVIDE CORNER BARS AT OUTSIDE FACE. MATCH HORIZONTAL REINFORCING SIZE AND SPACING.



8 TYPICAL WALL CORNER DETAIL

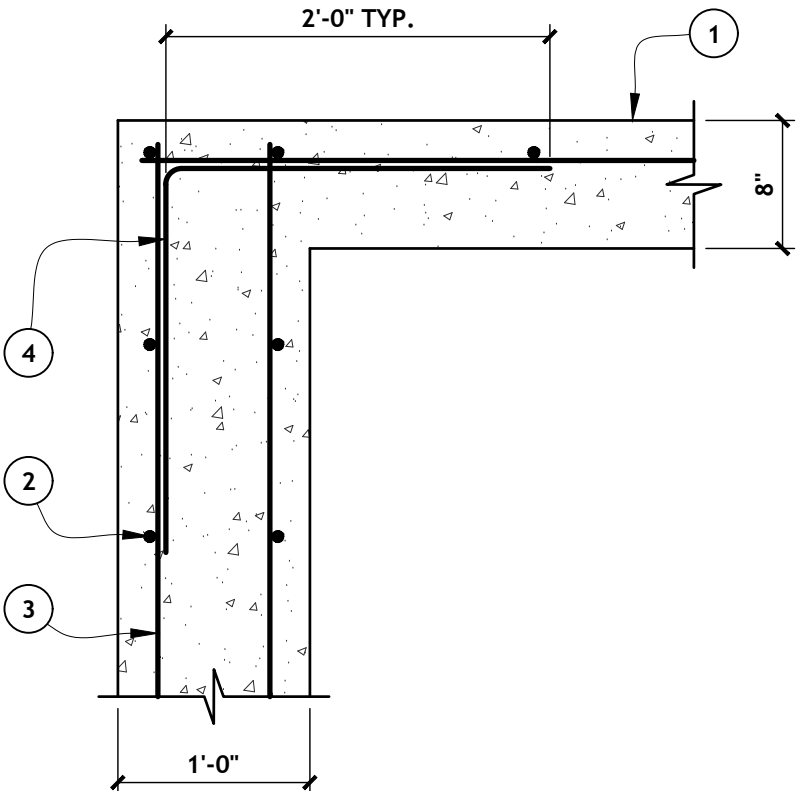
117106-07D3

1. CONCRETE WALL, SEE PLAN.

2. VERTICAL REINFORCING, SEE PLANS AND DETAILS FOR SIZE AND SPACING.

3. HORIZONTAL REINFORCING, SEE PLANS AND DETAILS FOR SIZE AND SPACING.

4. PROVIDE CORNER BARS AT OUTSIDE FACE. MATCH HORIZONTAL REINFORCING SIZE AND SPACING.



5 TYPICAL WALL CORNER DETAIL

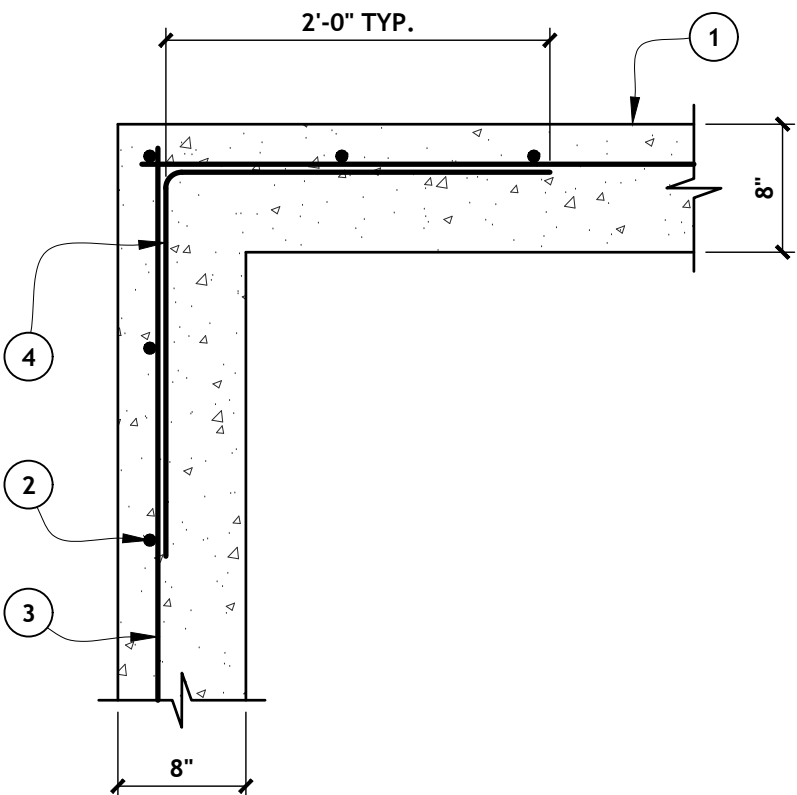
117106-07D1

1. CONCRETE WALL, SEE PLAN.

2. VERTICAL REINFORCING, SEE PLANS AND DETAILS FOR SIZE AND SPACING.

3. HORIZONTAL REINFORCING, SEE PLANS AND DETAILS FOR SIZE AND SPACING.

4. PROVIDE CORNER BARS AT OUTSIDE FACE. MATCH HORIZONTAL REINFORCING SIZE AND SPACING.



6 TYPICAL WALL CORNER DETAIL

117106-07D2

1. TABULATED VALUES ARE BASED ON GRADE 60 UNCOATED REINFORCING BARS, NORMAL WEIGHT CONCRETE AND MIN. COVER OF  $d_b$  WITH MIN. CLEAR SPACING OF  $2d_b$ .

2. TENSION LAP SPLICES ARE CALCULATED PER ACI 318 SECTIONS 12.2 AND 12.15.

3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.

4. FOR GRADE 40 REINFORCING BARS MULTIPLY THE TABULATED VALUES BY 0.67 (12" MIN. LAP).

5. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.

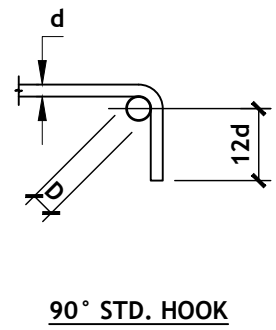
6. ALL LAP SPLICES ARE CLASS B SPLICES PER ACI 318 SECTION 12.15.

LAP SPLICE LENGTHS (IN.)

| BAR SIZE | LENGTHS (IN.)         |            |                       |            |                       |            |
|----------|-----------------------|------------|-----------------------|------------|-----------------------|------------|
|          | 3000 PSI              |            | 4000 PSI              |            | 5000 PSI              |            |
|          | TOP BARS <sup>1</sup> | OTHER BARS | TOP BARS <sup>1</sup> | OTHER BARS | TOP BARS <sup>1</sup> | OTHER BARS |
| #3       | 28                    | 21         | 24                    | 18         | 22                    | 17         |
| #4       | 37                    | 28         | 32                    | 25         | 29                    | 22         |
| #5       | 46                    | 36         | 40                    | 31         | 36                    | 28         |
| #6       | 56                    | 43         | 48                    | 37         | 43                    | 33         |
| #7       | 81                    | 62         | 70                    | 54         | 63                    | 48         |
| #8       | 93                    | 71         | 80                    | 62         | 72                    | 55         |
| #9       | 104                   | 80         | 90                    | 70         | 81                    | 62         |
| #10      | 118                   | 90         | 102                   | 78         | 91                    | 70         |
| #11      | 131                   | 100        | 113                   | 87         | 101                   | 78         |

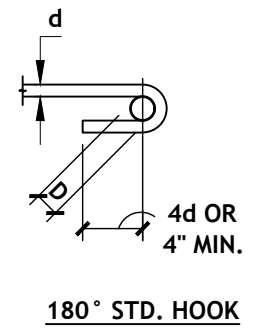
LAP-SPLICE SCHEDULE FOR CONC. REINF'G

C2



90° STD. HOOK

D=6d FOR #3 TO #8  
D=8d FOR #9 TO #11  
D=12d FOR #14 AND #18

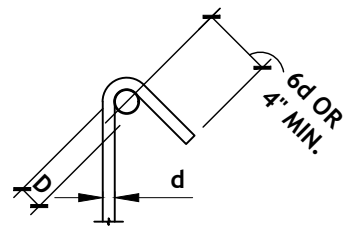


180° STD. HOOK



MAX. OFFSET BEND

PRINCIPAL REINFORCING



135° STD. HOOK

STIRRUP AND TIES

NOTE:  
A. ALL BENDS SHALL BE MADE COLD.

B. #14 AND #18 BARS SHALL BE BEND TESTED AND LAB APPROVED PRIOR TO BENDING.

2 TYPICAL BAR BENDS

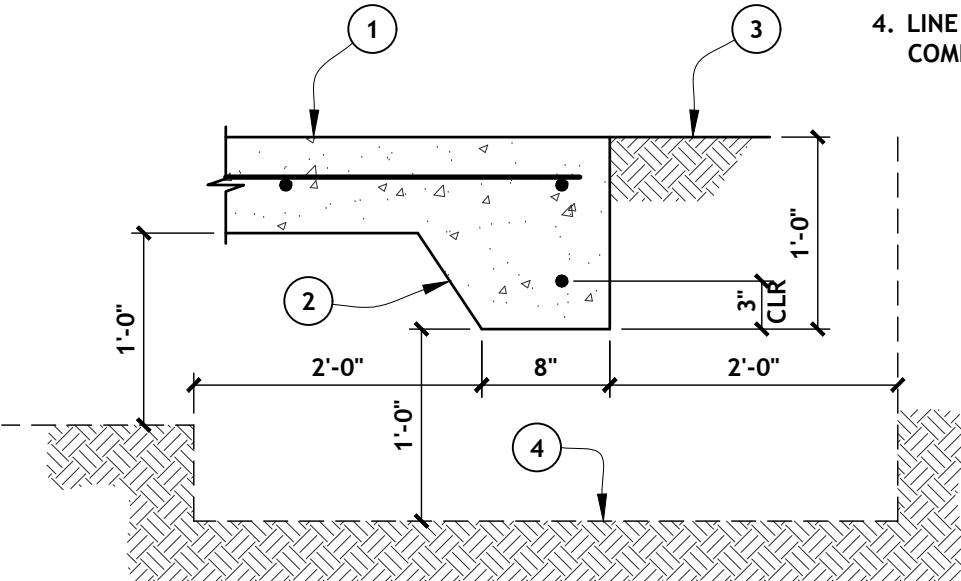
S1

1. 6" CONCRETE SLAB ON GRADE.

2. CONTINUOUS THICKENED EDGE AS SHOWN WITH (1) #4 CONT.

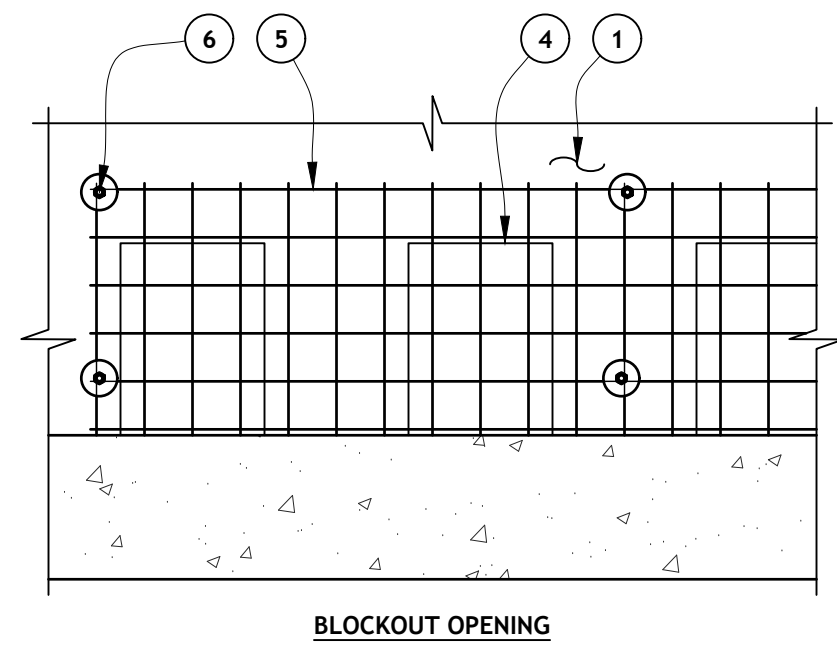
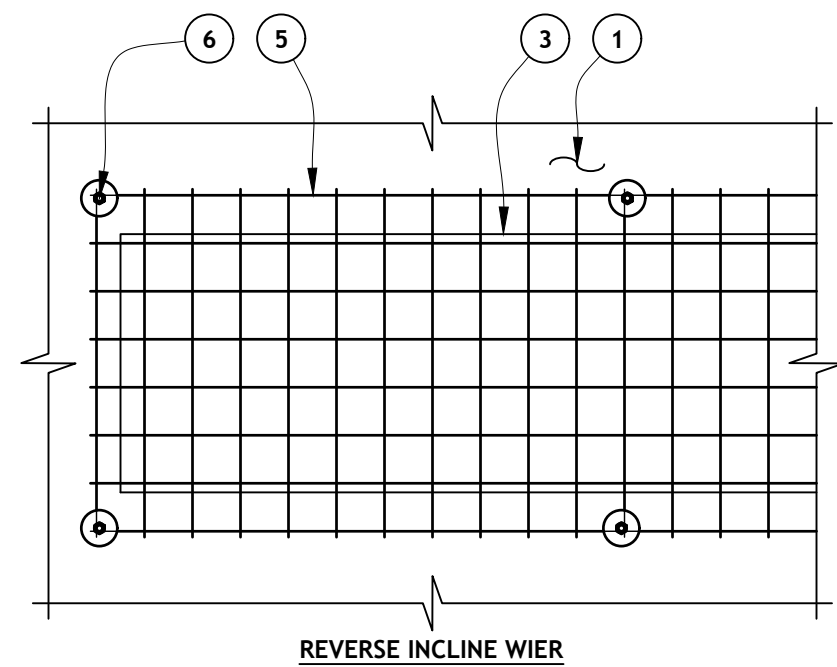
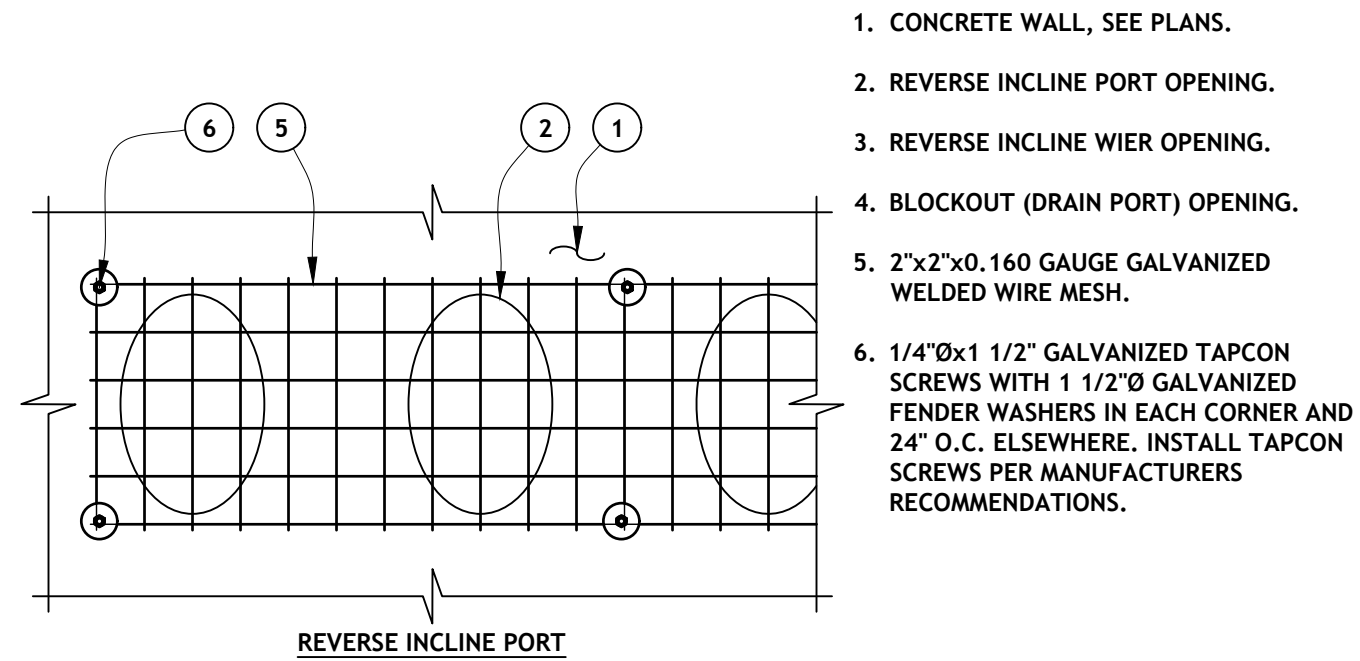
3. FINISH GRADE AS OCCURS.

4. LINE OF OVEREXCAVATION AND COMPACTED FILL.

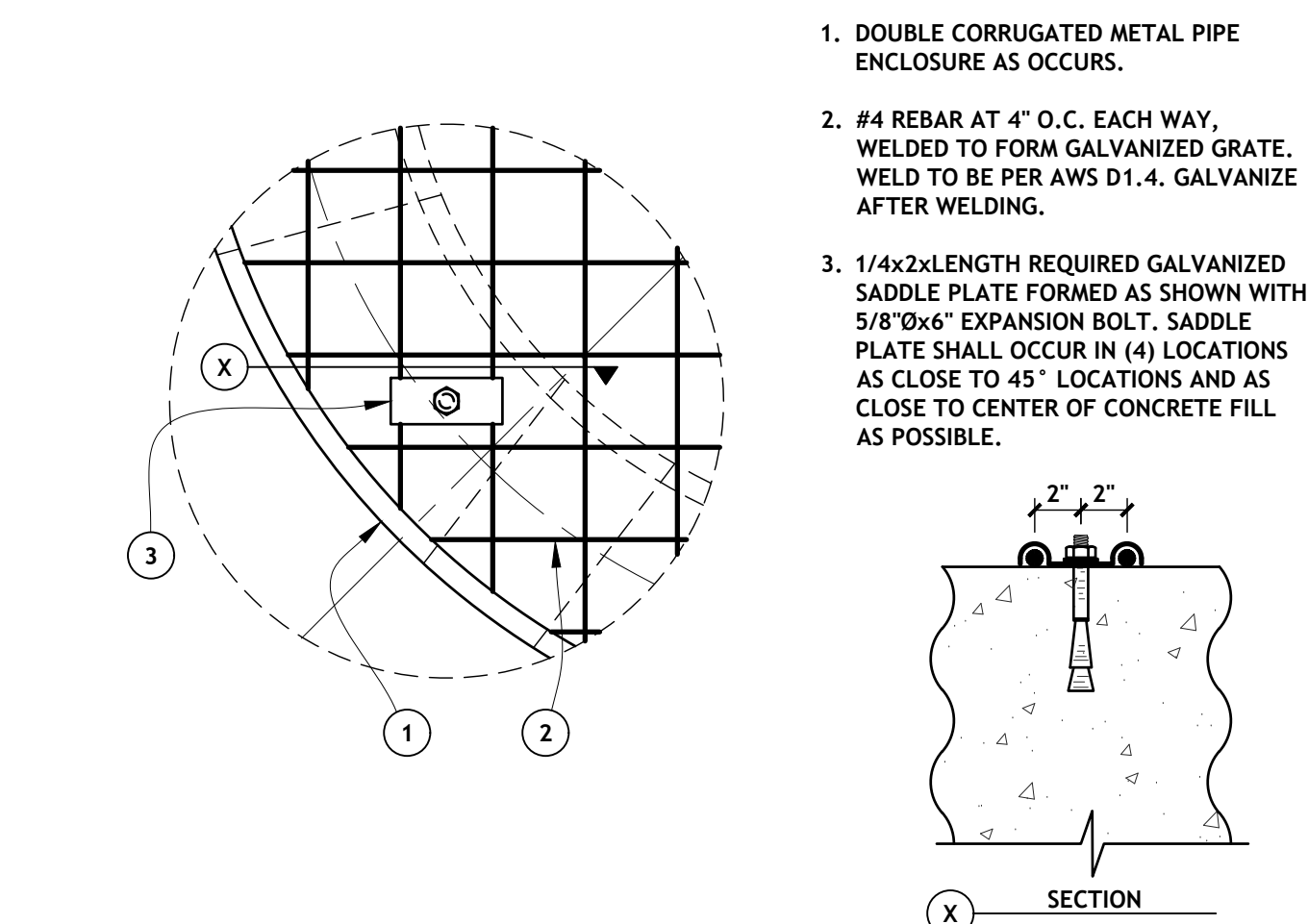


3 TYPICAL SLAB EDGE

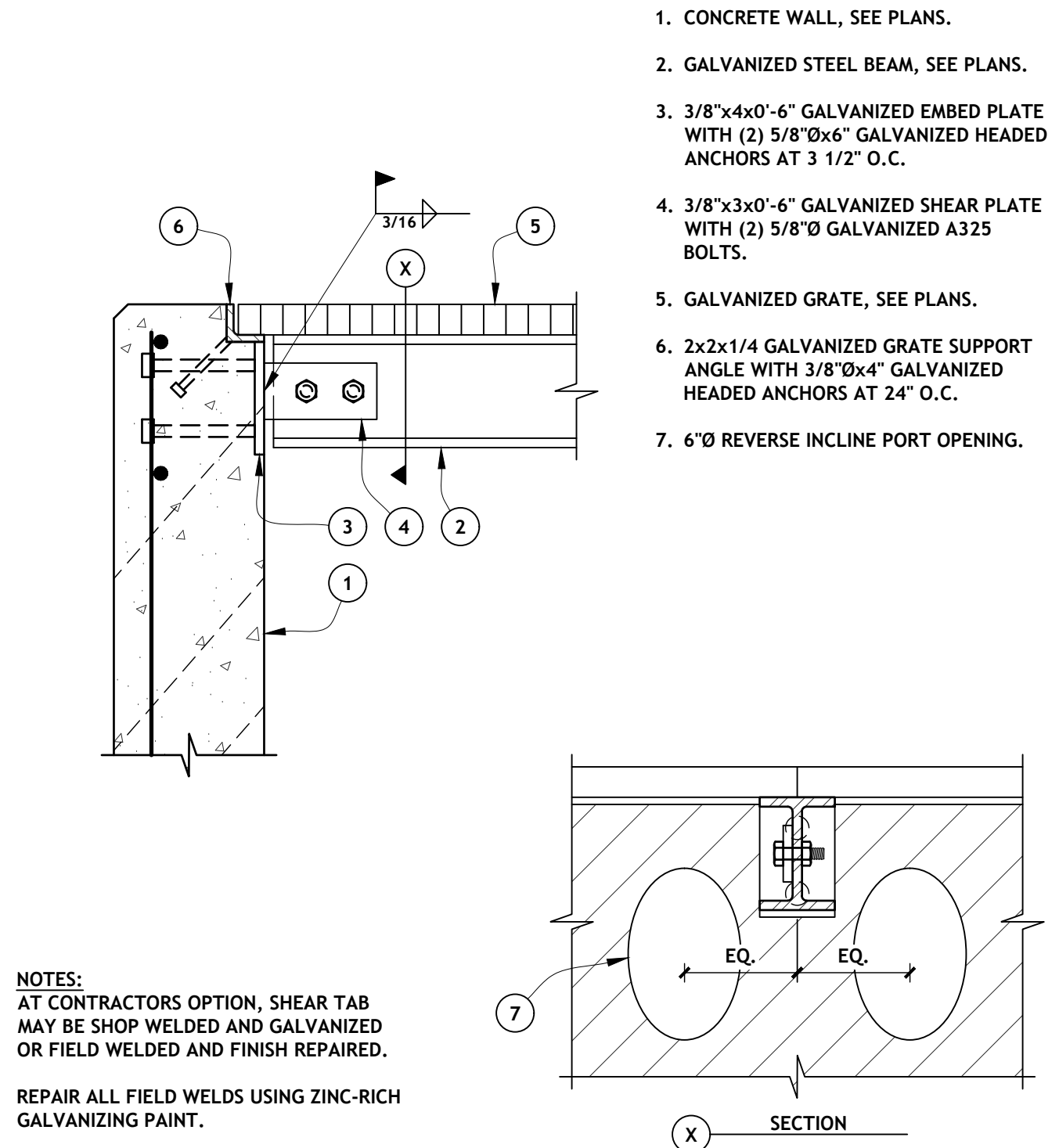
FN118



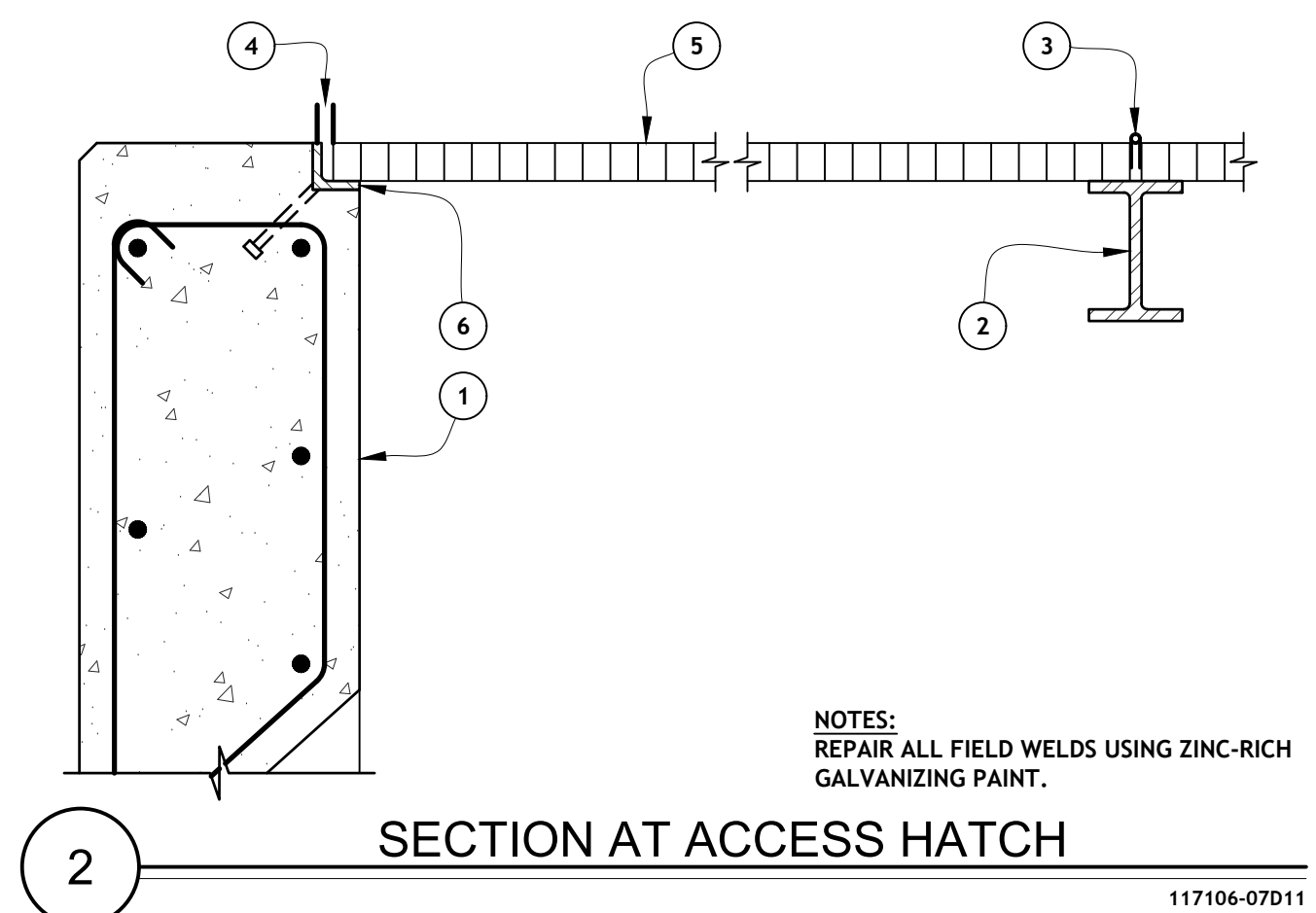
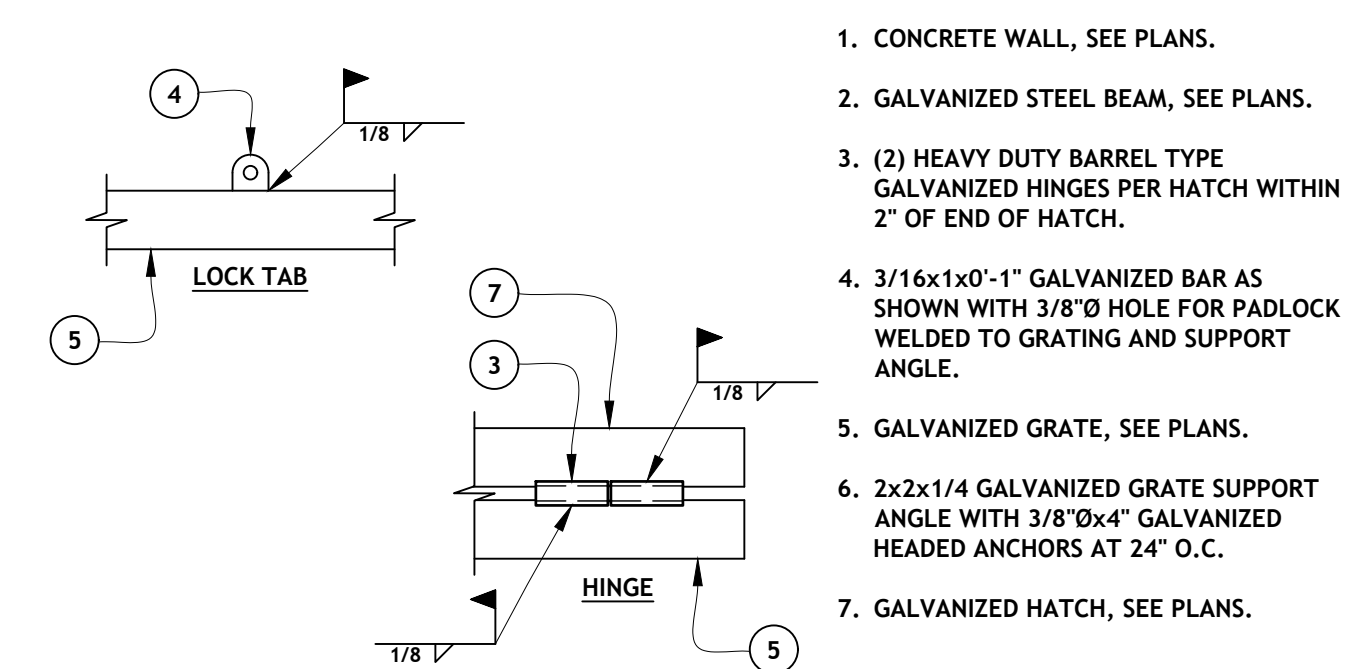
117106-07D12



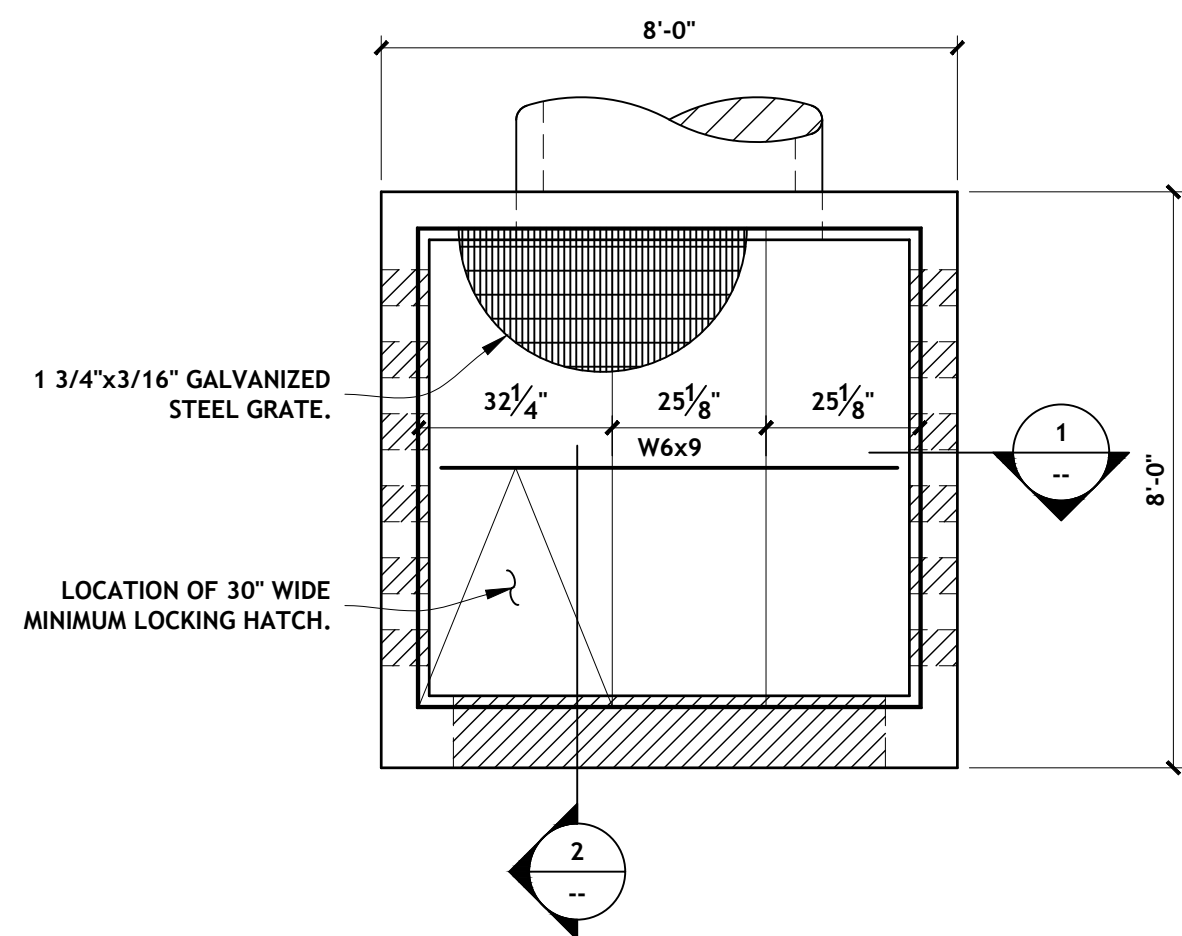
117106-07D13



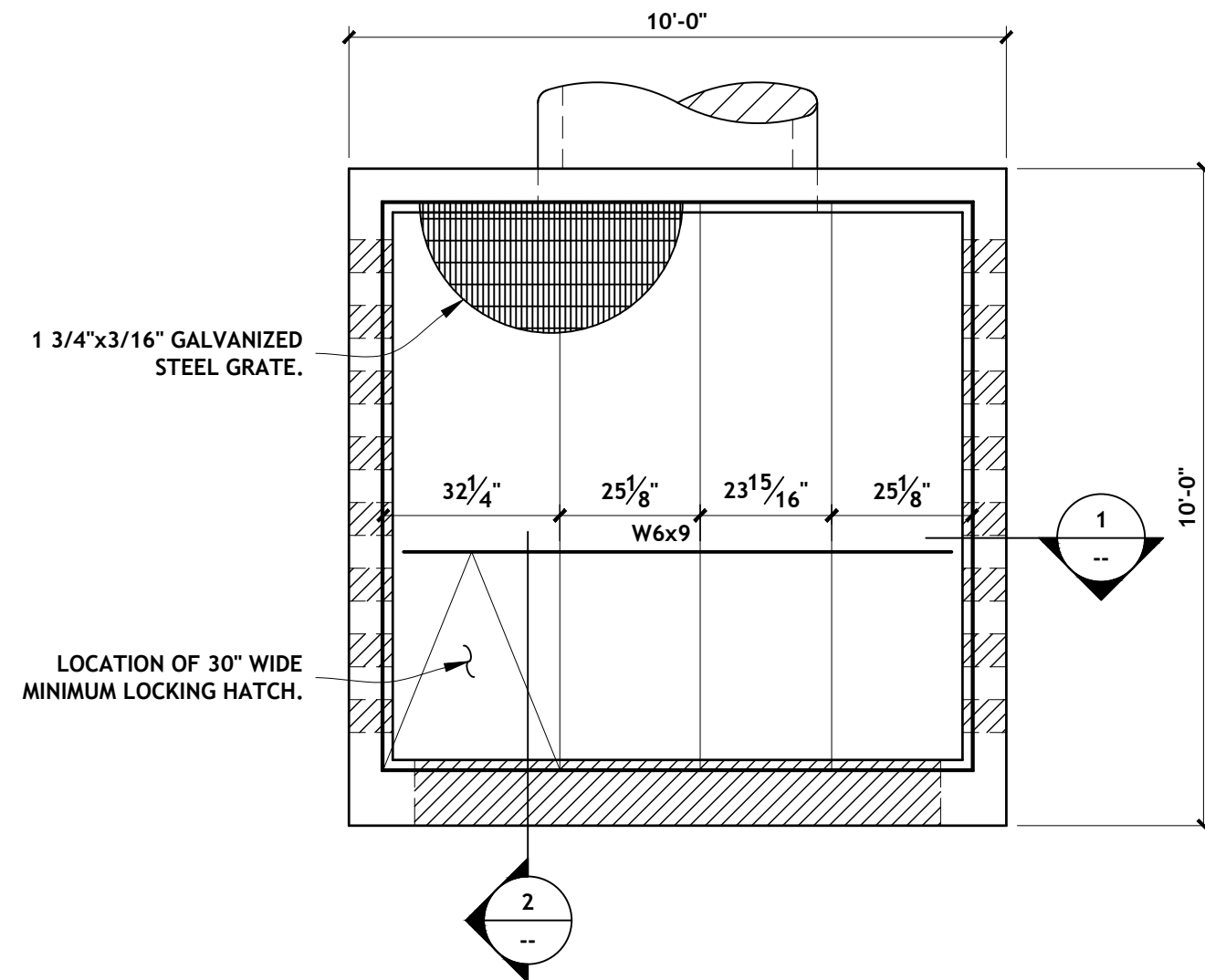
117106-07D10



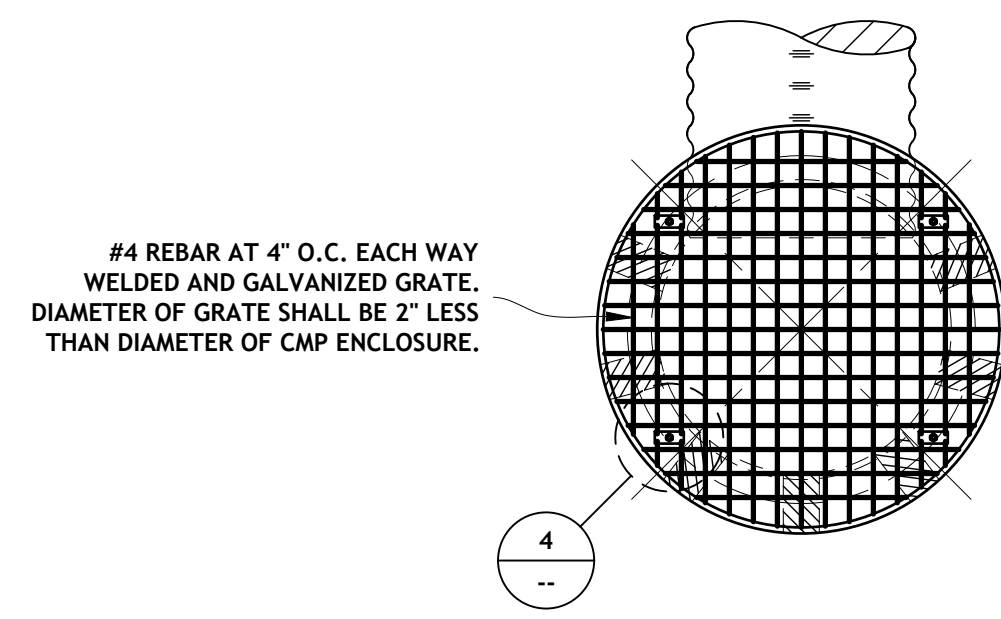
117106-07D11



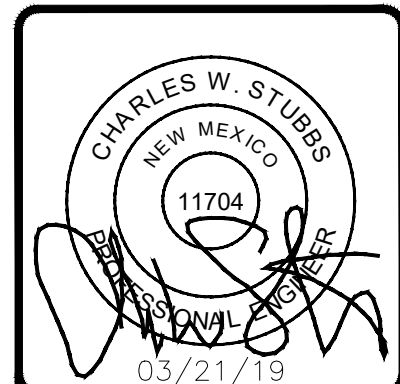
SCALE: 3/8"=1'-0"



SCALE: 3/8"=1'-0"



SCALE: 3/8"=1'-0"



| NO. | REVISION | DESCRIPTION             | DATE    | BY |
|-----|----------|-------------------------|---------|----|
| 1   |          | ISSUED FOR CONSTRUCTION | 5/26/19 | CS |
| 2   |          |                         |         |    |
| 3   |          |                         |         |    |
| 4   |          |                         |         |    |
| 5   |          |                         |         |    |

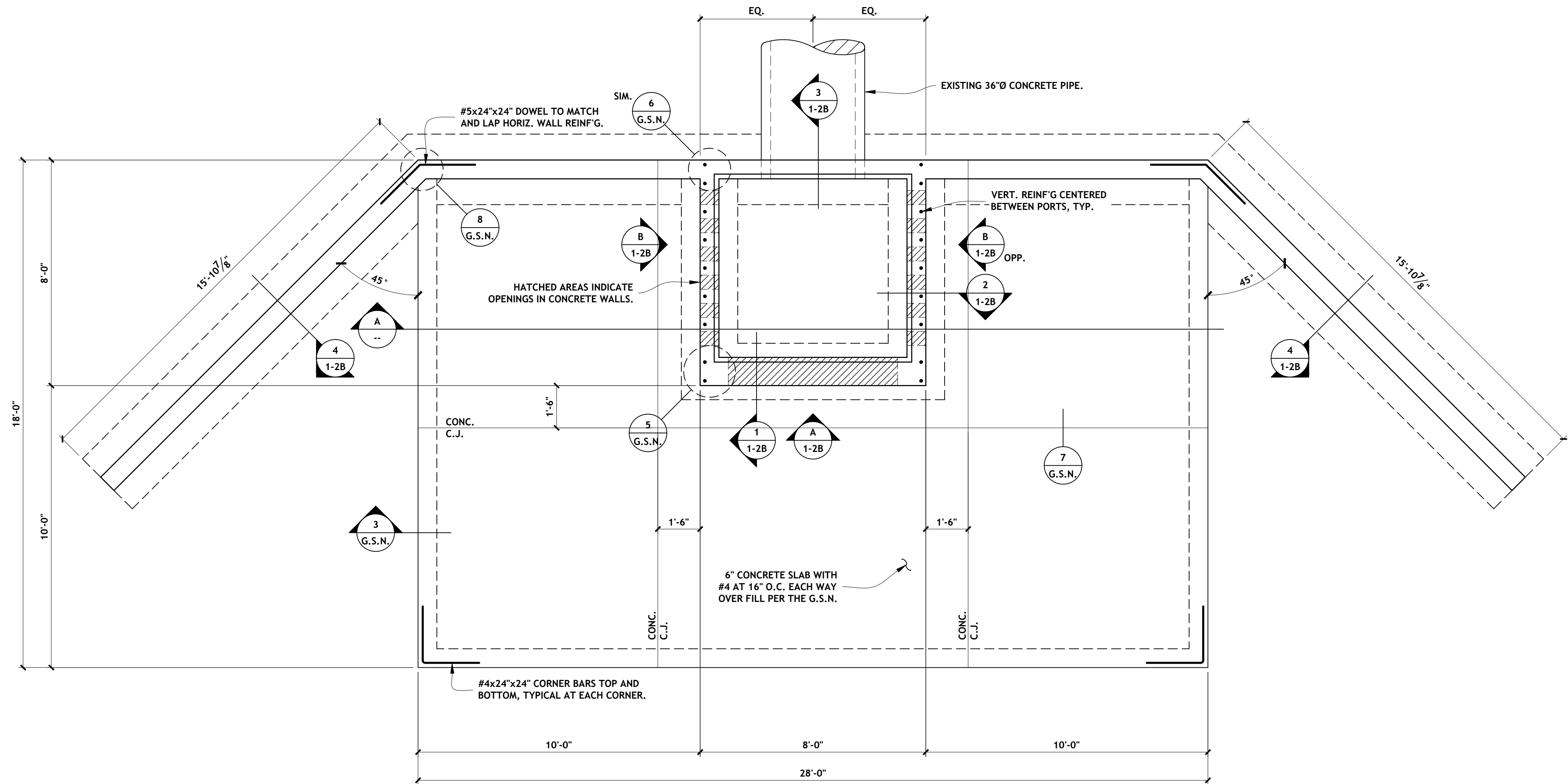
CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS  
GRATING PLAN VIEWS / DETAILS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



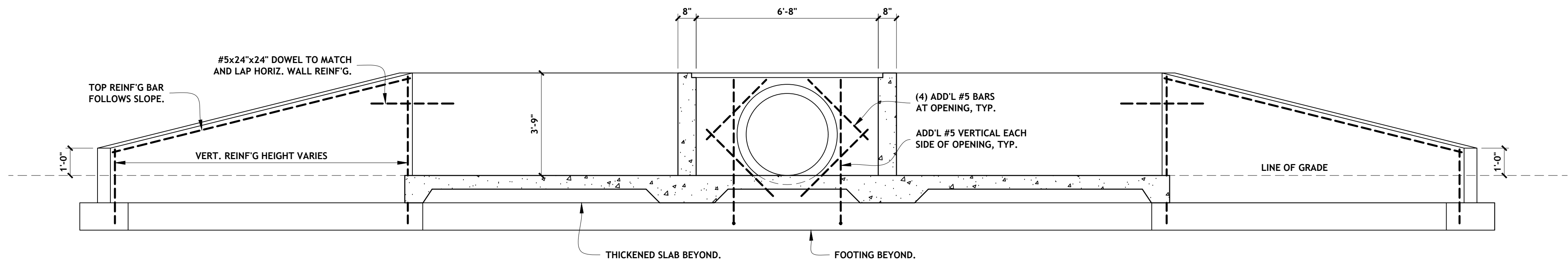






PLAN VIEW

SCALE: 3/8"=1'-0"



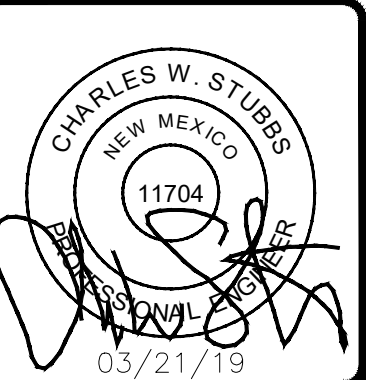
SECTION A

SCALE: 3/8"=1'-0"

NOTES:

1. THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET, GRATES SHEET AND SHEET 1-2B.
2. SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
3. THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
4. THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 23.7 CU.YD. |
| GRATES              | 583.3 LBS.  |
| STRUCTURAL STEEL    | 160.0 LBS.  |
| REBAR               | 1594.0 LBS. |



TYPE #1  
DESIGN #2 (1 OF 2)

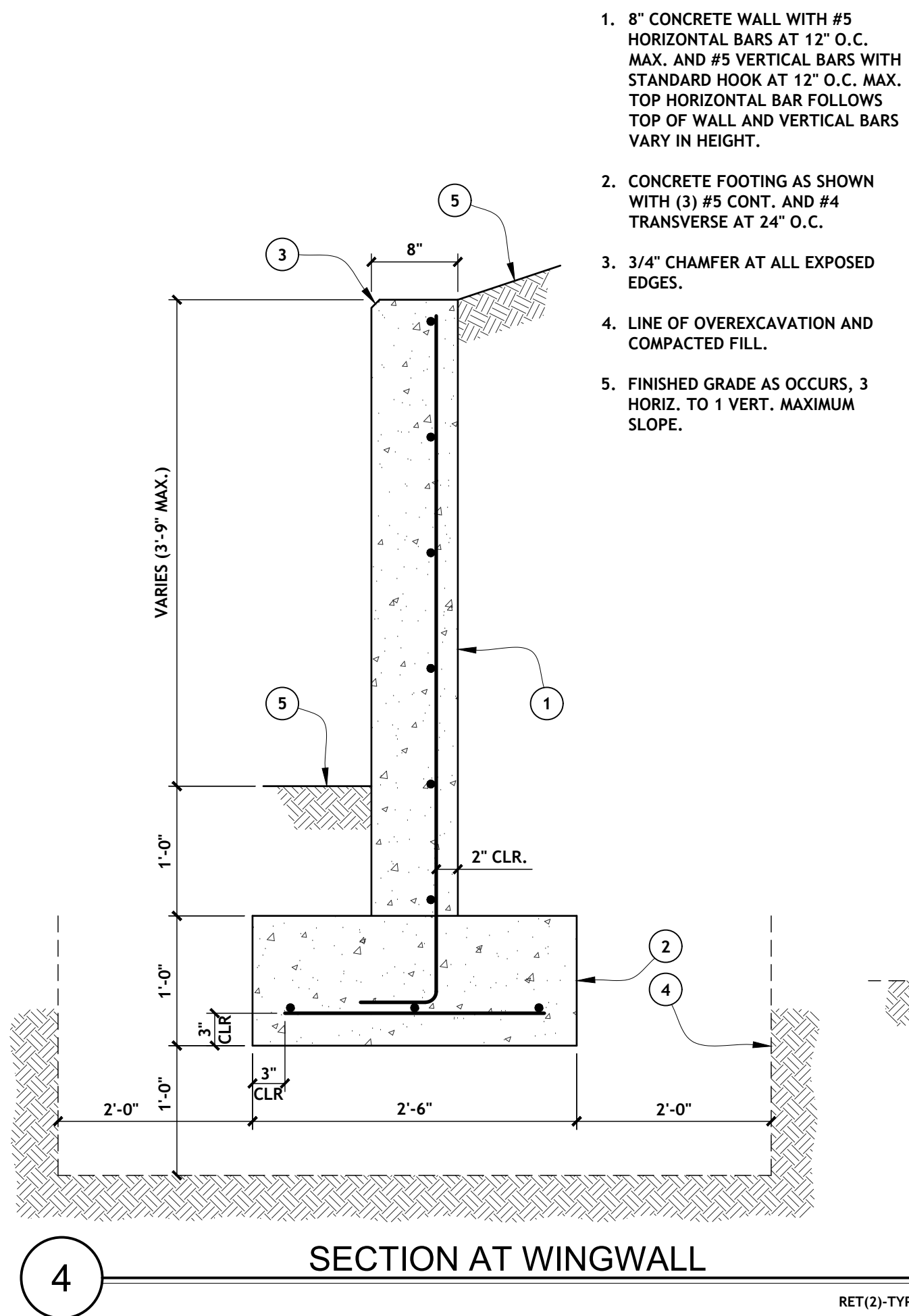
CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

36"Ø HORIZONTAL CULVERT - 8'-0"x8'-0" - WITH WINGWALLS

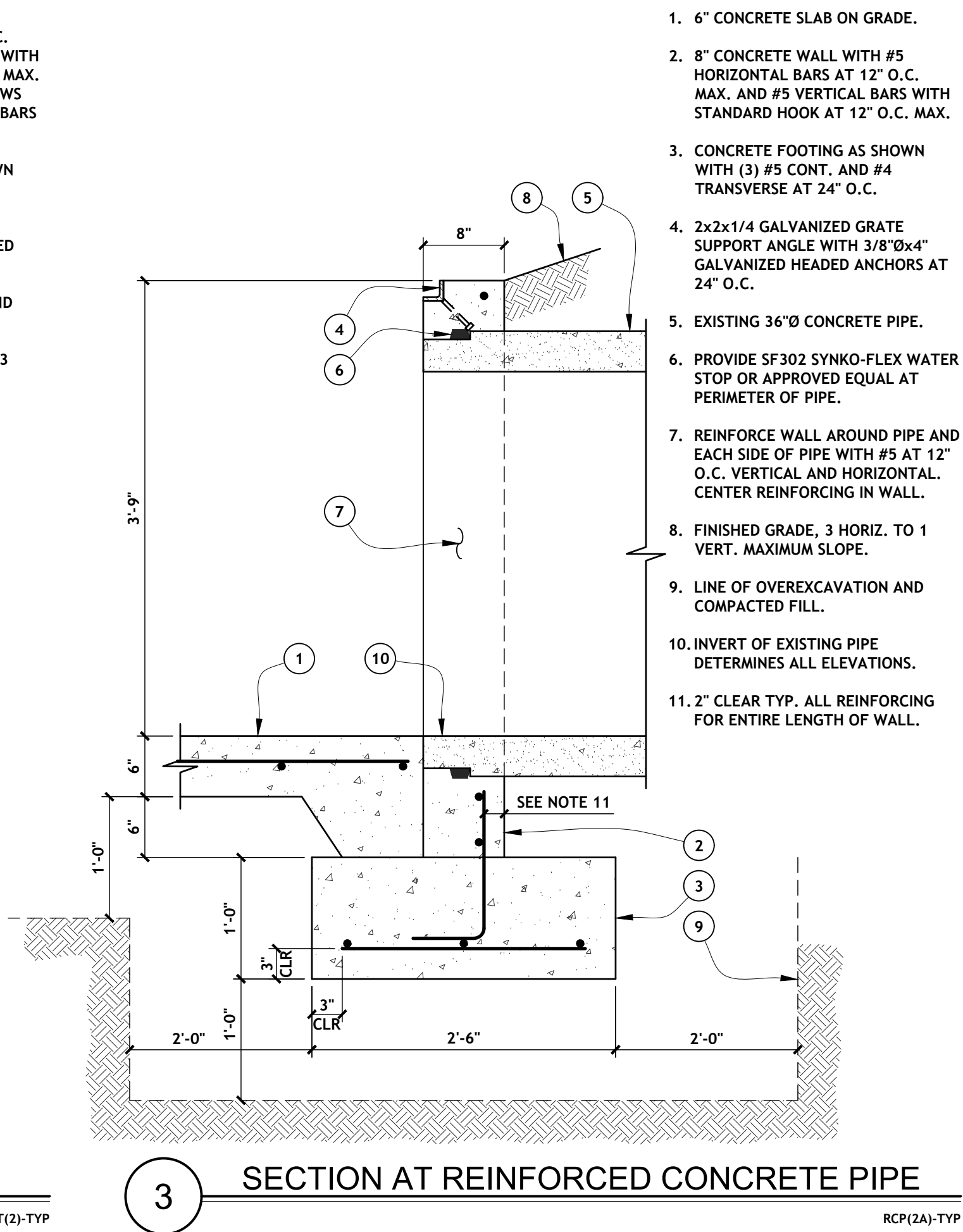
Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



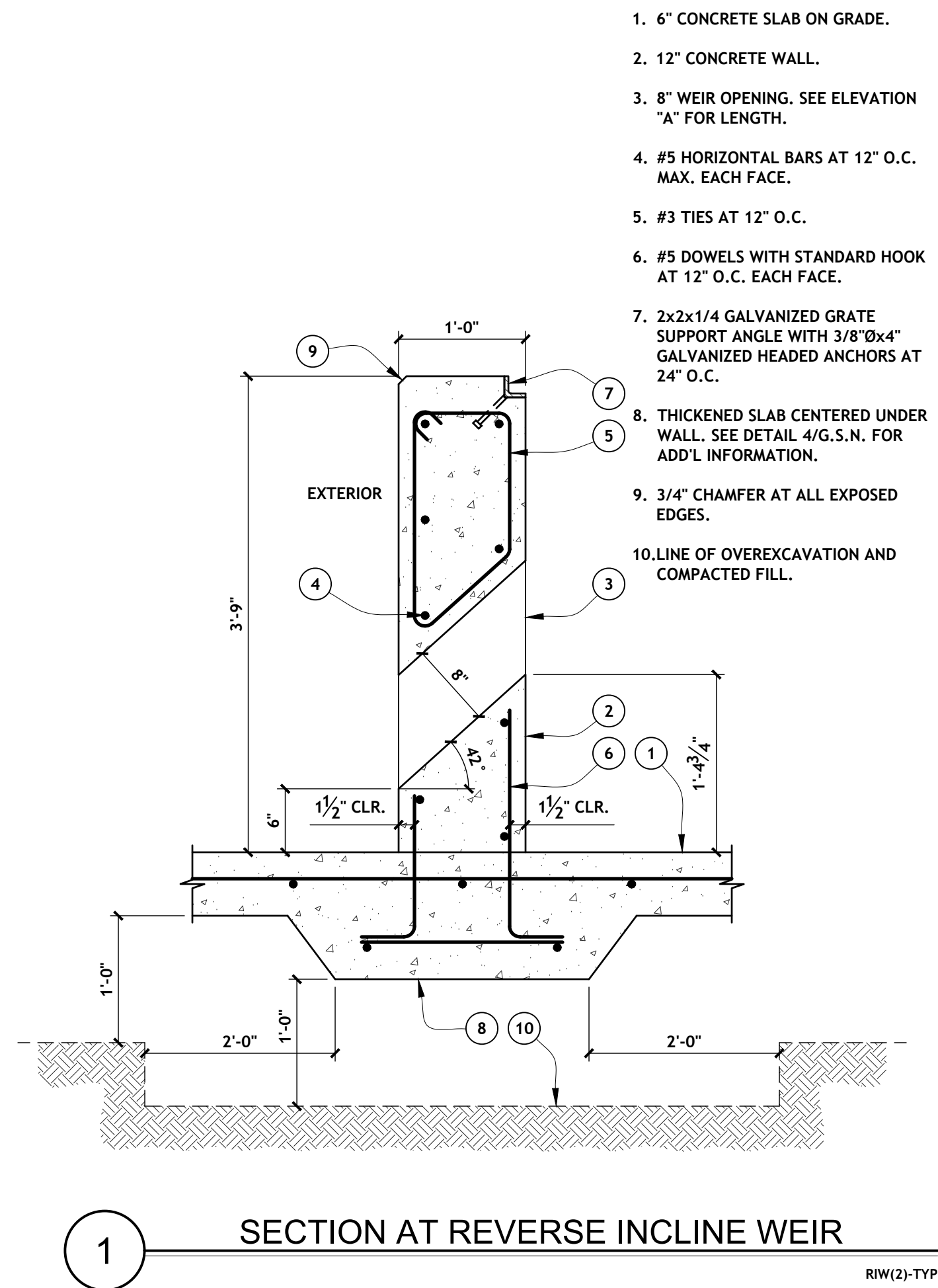
PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
1-2A



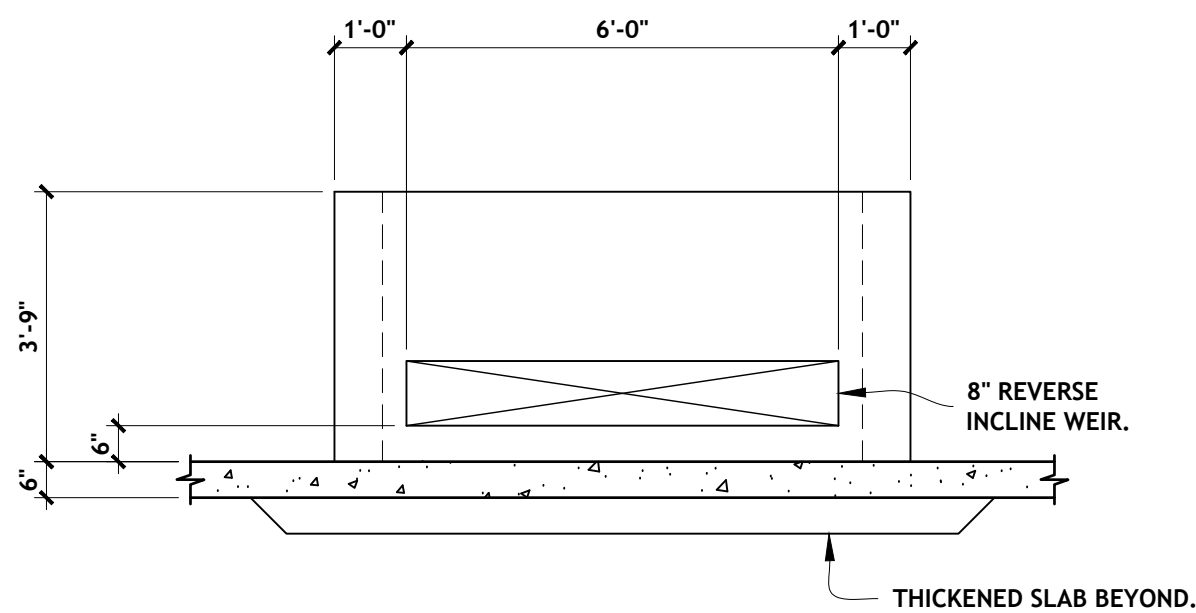
4 SECTION AT WINGWALL  
RET(2)-TYP



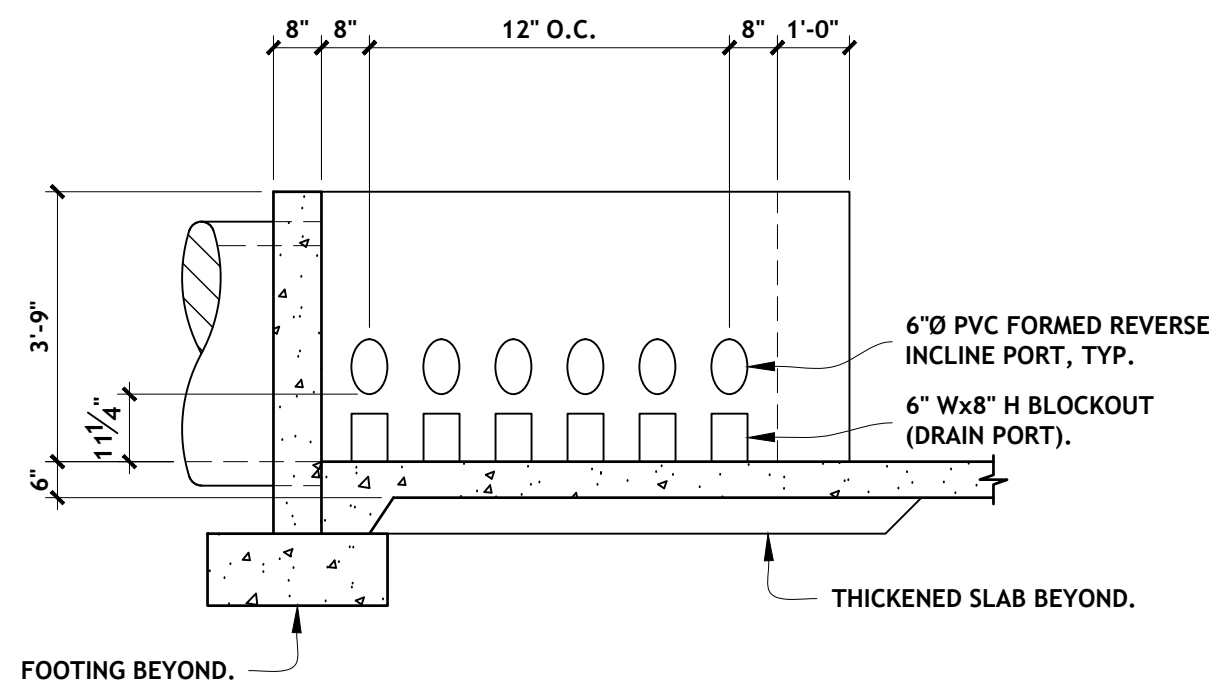
3 SECTION AT REINFORCED CONCRETE PIPE  
RCP(2A)-TYP



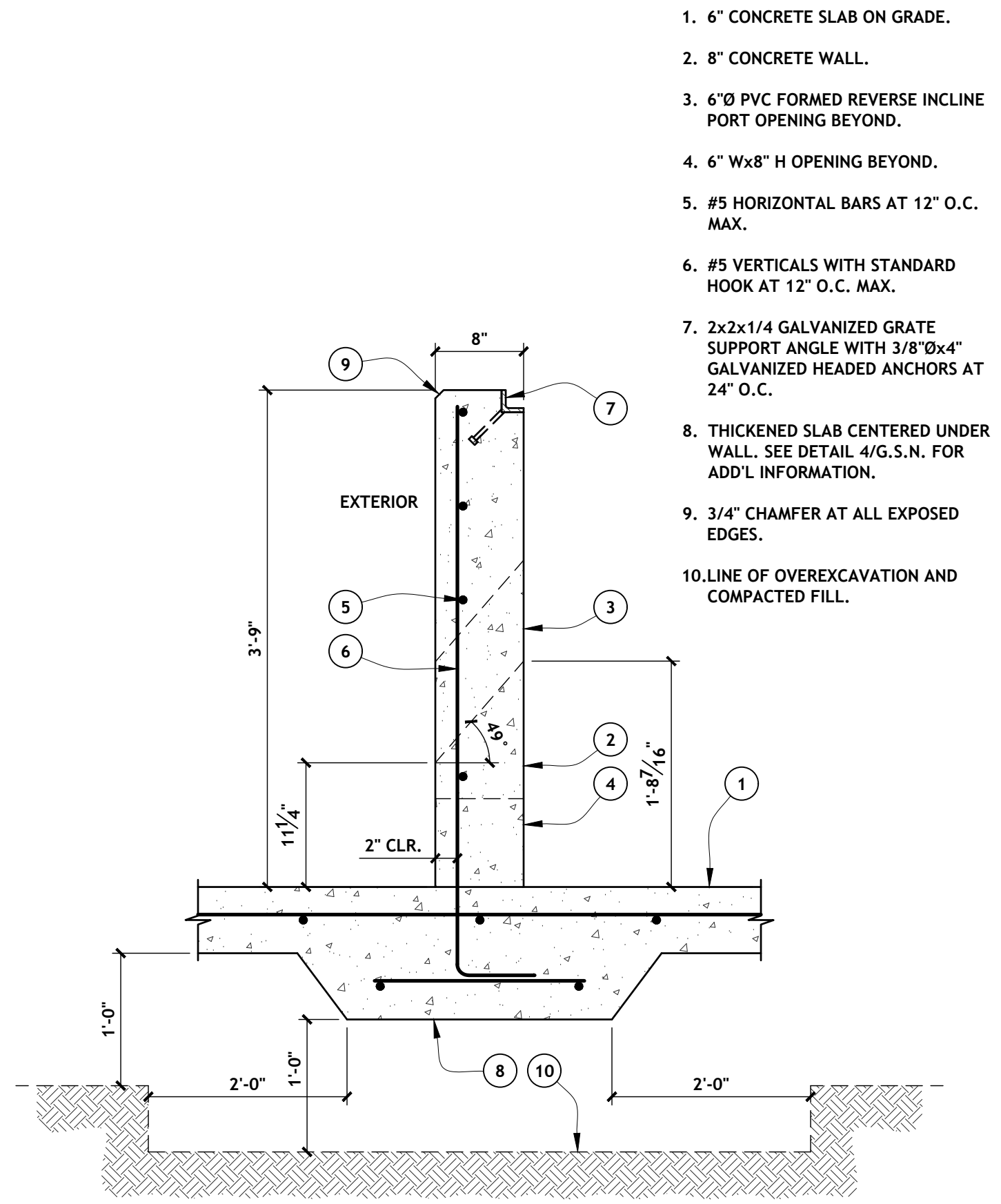
1 SECTION AT REVERSE INCLINE WEIR  
RIW(2)-TYP



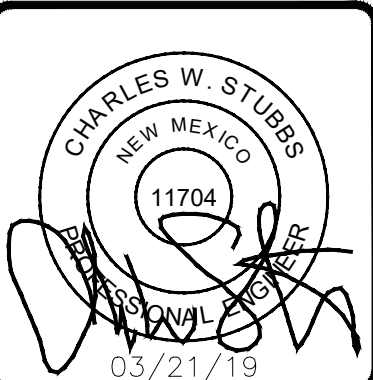
ELEVATION A  
SCALE: 3/8"=1'-0"



ELEVATION B  
SCALE: 3/8"=1'-0"



2 SECTION AT REVERSE INCLINE PORT  
PR(2)-TYP



| TYPE #1 |   | DESIGN #2 (2 OF 2) |   | ISSUED FOR CONSTRUCTION 5/26/19 |     | DATE     |             | BY   |    |
|---------|---|--------------------|---|---------------------------------|-----|----------|-------------|------|----|
| 5       | 4 | 3                  | 2 | 1                               | NO. | REVISION | DESCRIPTION | DATE | BY |

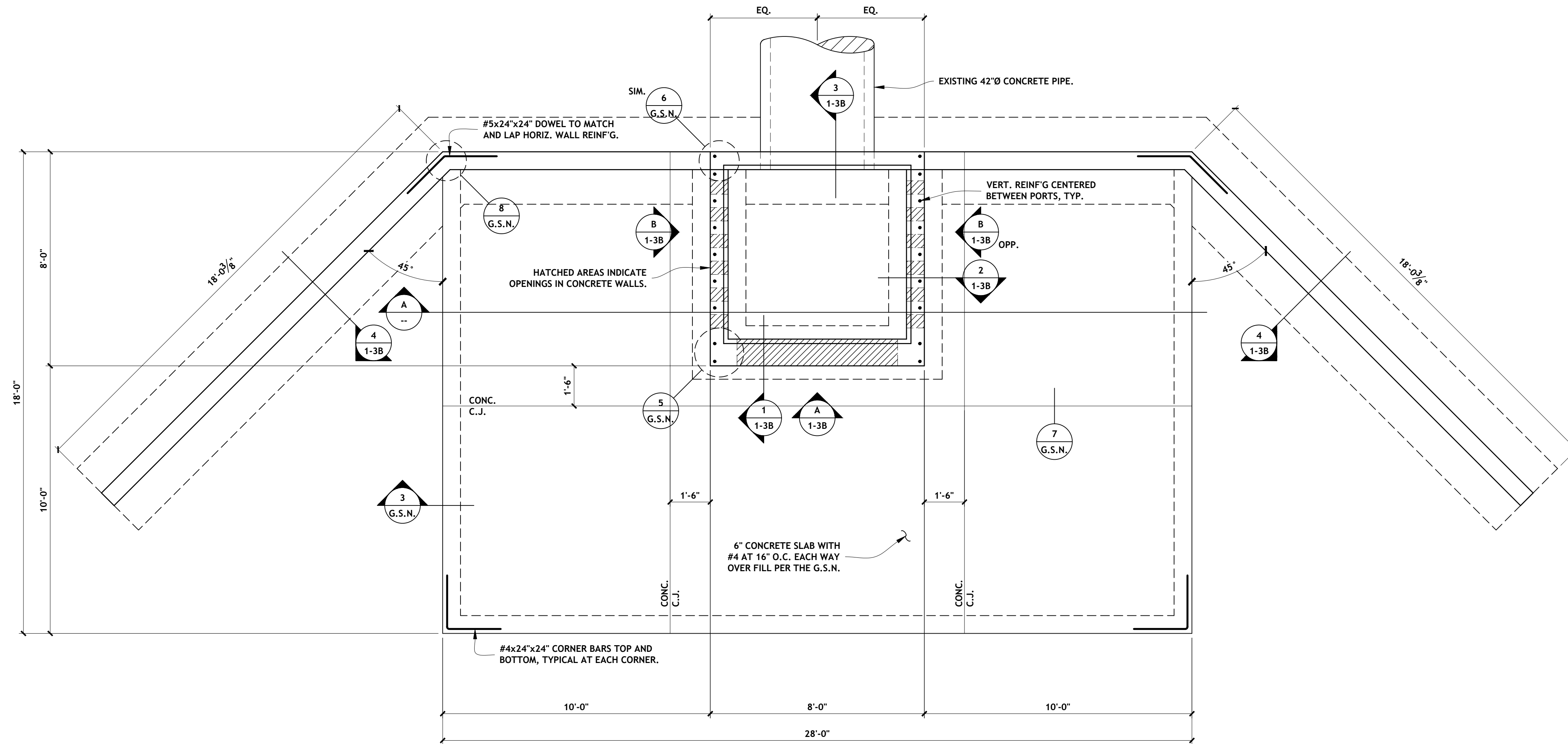
CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

36"Ø HORIZONTAL CULVERT - 8'-0"x8'-0" - WITH WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

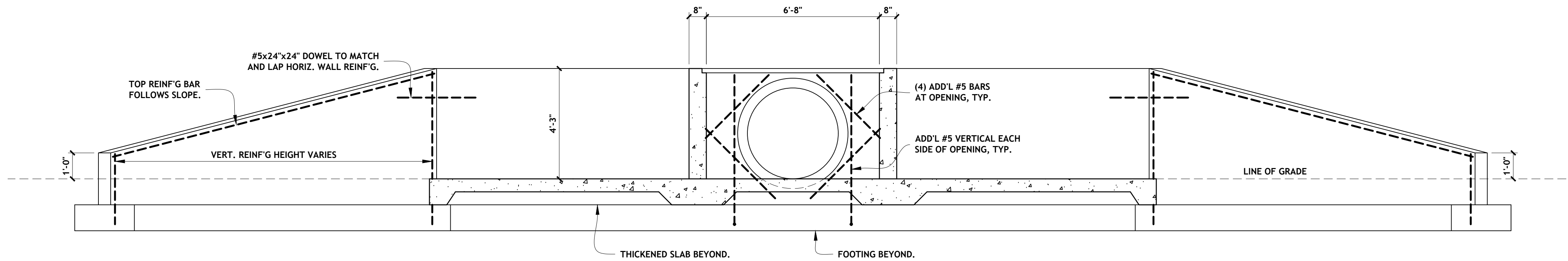


PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
1-2B



PLAN VIEW

SCALE: 3/8"=1'-0"



SECTION A

SCALE: 3/8"=1'-0"

- NOTES:
- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET, GRATES SHEET AND SHEET 1-3B.
  - SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
  - THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
  - THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 26.9 CU.YD. |
| GRATES              | 583.3 LBS.  |
| STRUCTURAL STEEL    | 160.0 LBS.  |
| REBAR               | 1679.0 LBS. |

CHARLES W. STUBBS  
NEW MEXICO  
11704  
03/21/19

TYPE #1  
DESIGN #3 (1 OF 2)

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

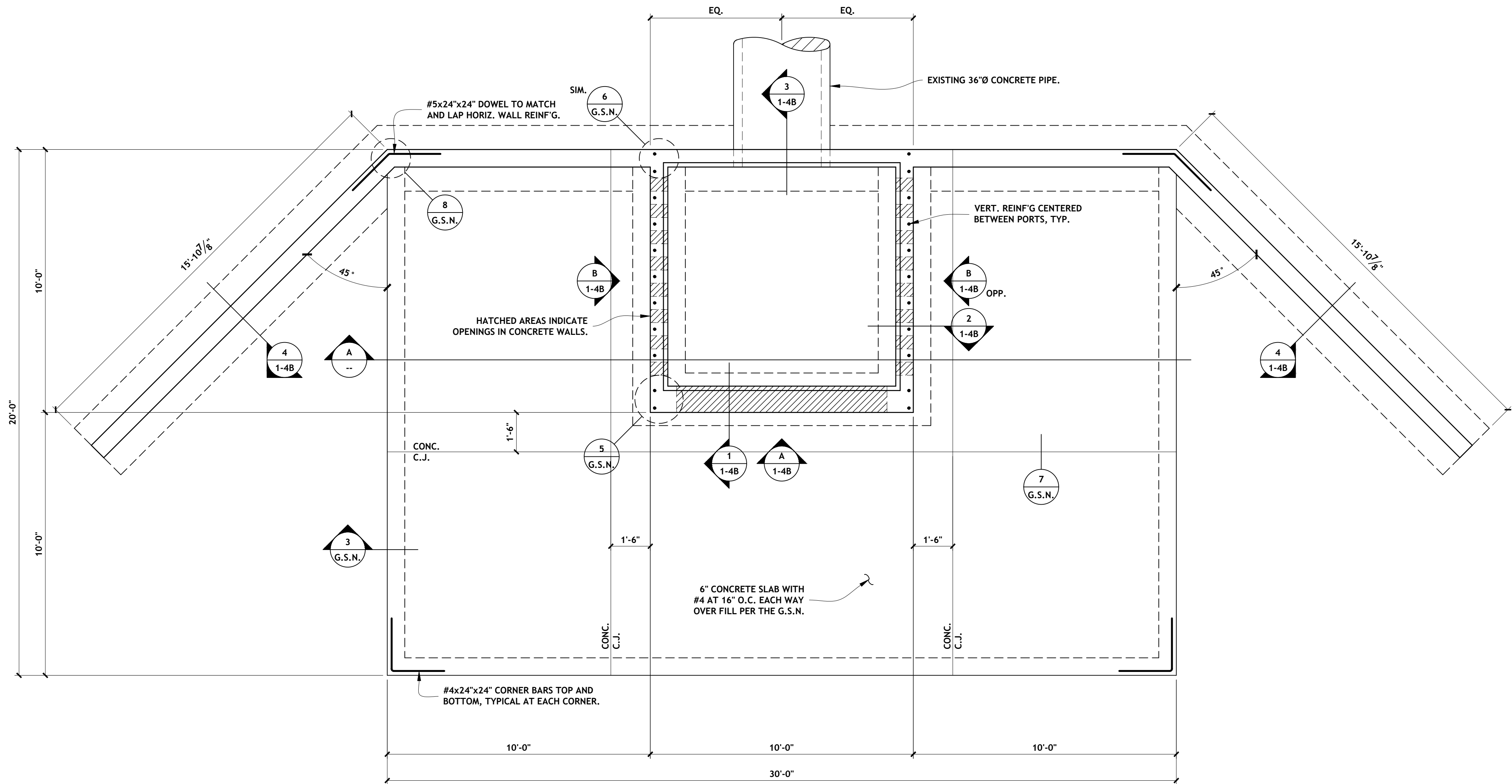
42"Ø HORIZONTAL CULVERT - 8'-0"x8'-0" - WITH WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

**SMITH**  
ENGINEERING

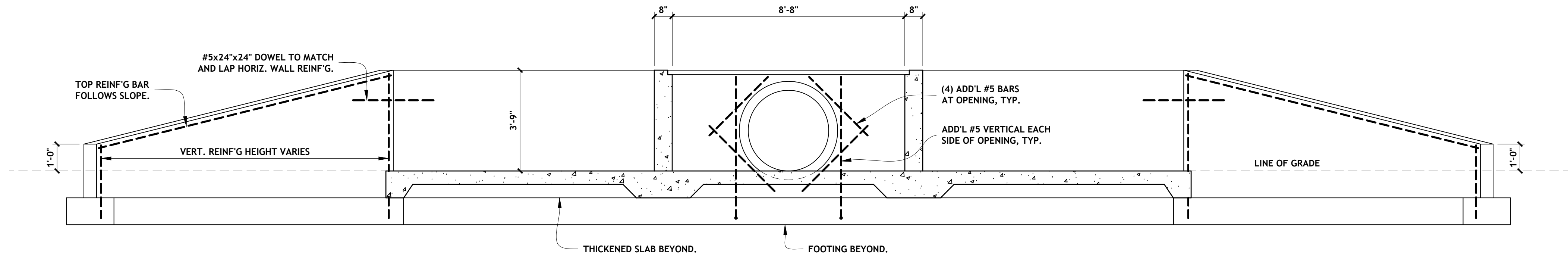
PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
1-3A





PLAN VIEW

SCALE: 3/8"=1'-0"



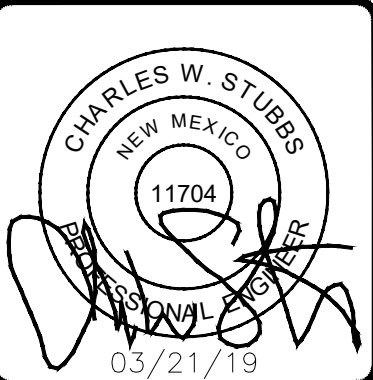
SECTION A

SCALE: 3/8"=1'-0"

NOTES:

1. THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET, GRATES SHEET AND SHEET 1-4B.
2. SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
3. THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
4. THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 26.6 CU.YD. |
| GRATES              | 975.0 LBS.  |
| STRUCTURAL STEEL    | 204.0 LBS.  |
| REBAR               | 1795.0 LBS. |



TYPE #1  
DESIGN #4 (1 OF 2)

| NO. | REVISION | DESCRIPTION             | DATE    | BY |
|-----|----------|-------------------------|---------|----|
| 1   |          | ISSUED FOR CONSTRUCTION | 3/26/19 | CS |
| 2   |          |                         |         |    |
| 3   |          |                         |         |    |
| 4   |          |                         |         |    |
| 5   |          |                         |         |    |

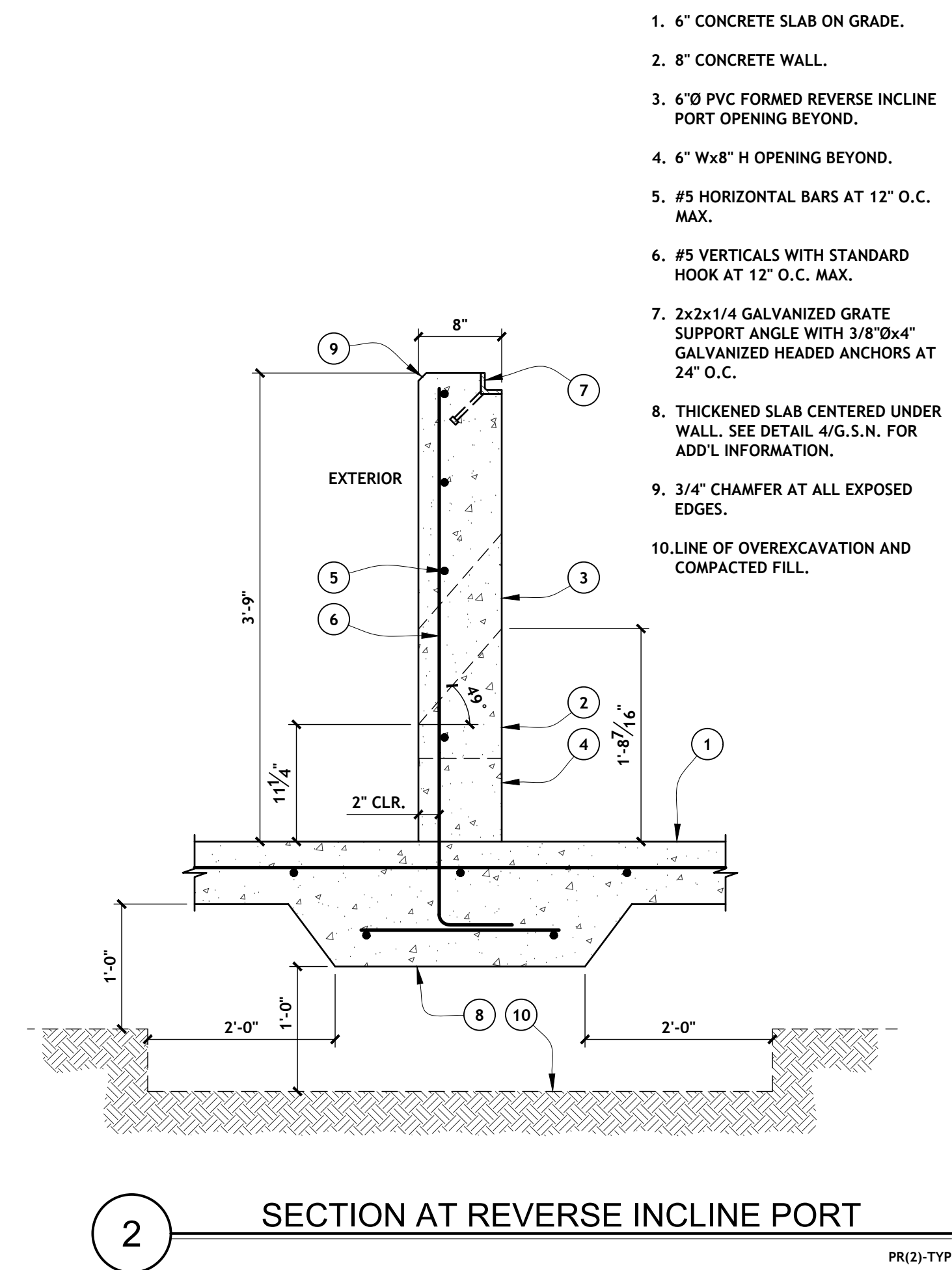
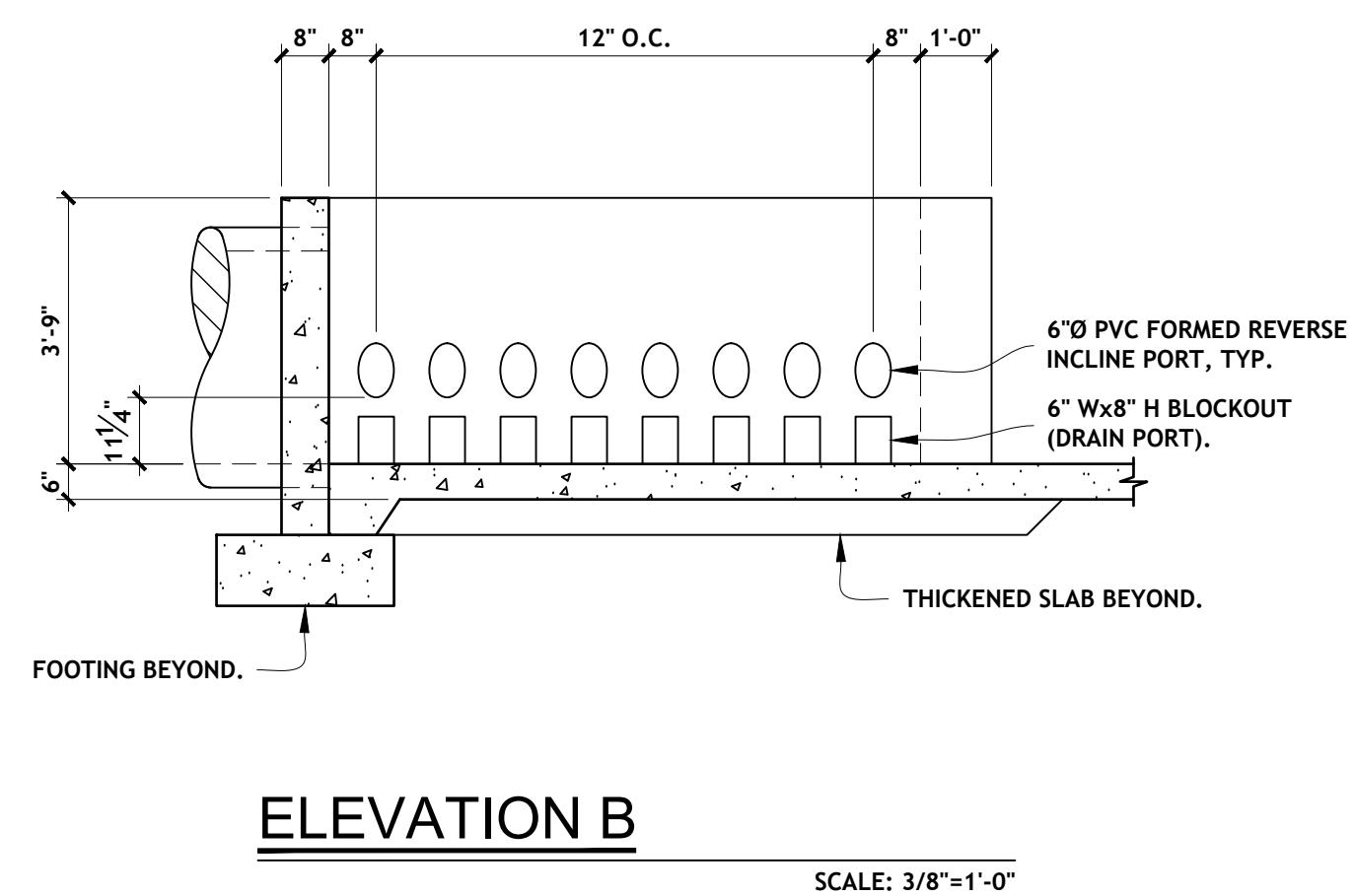
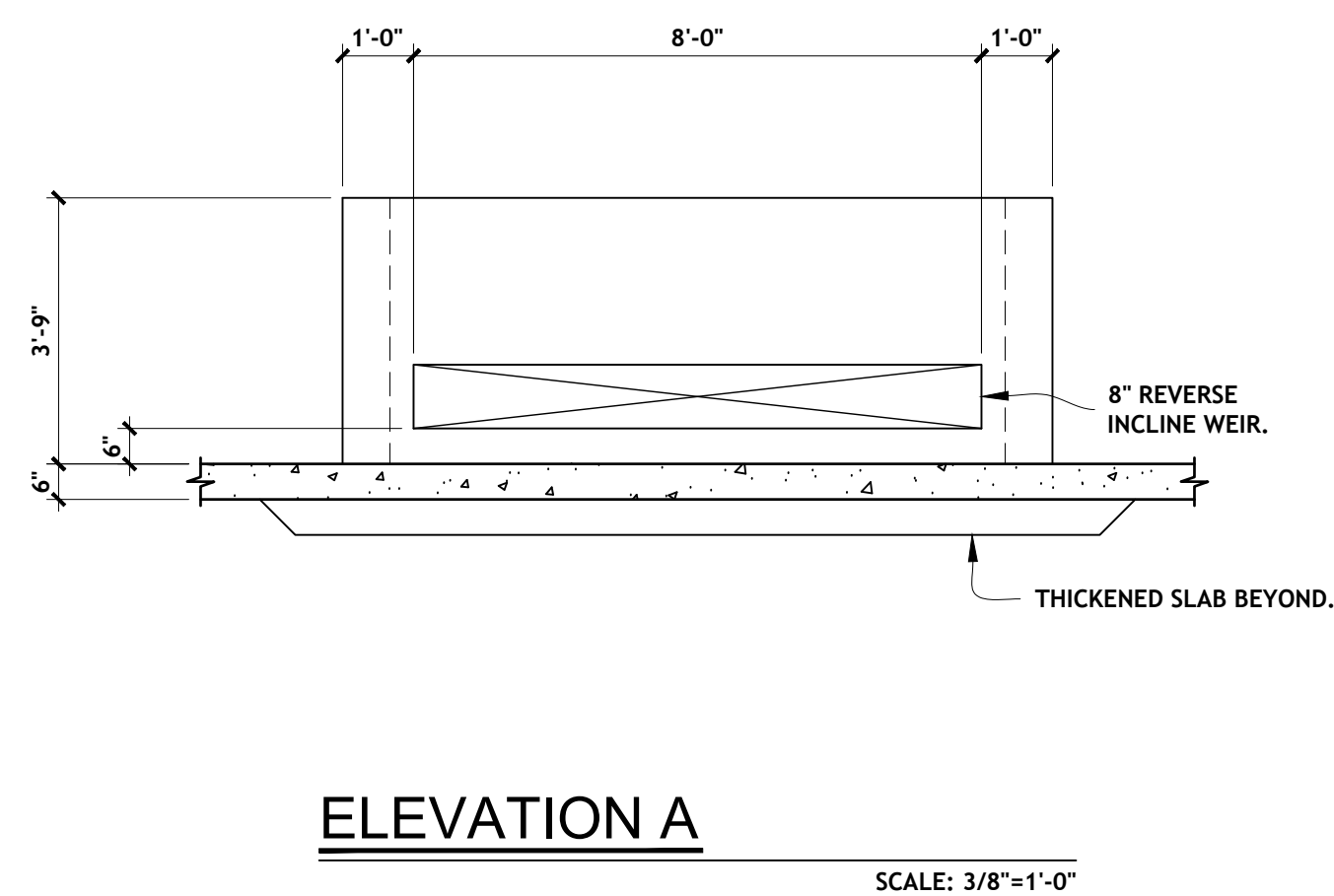
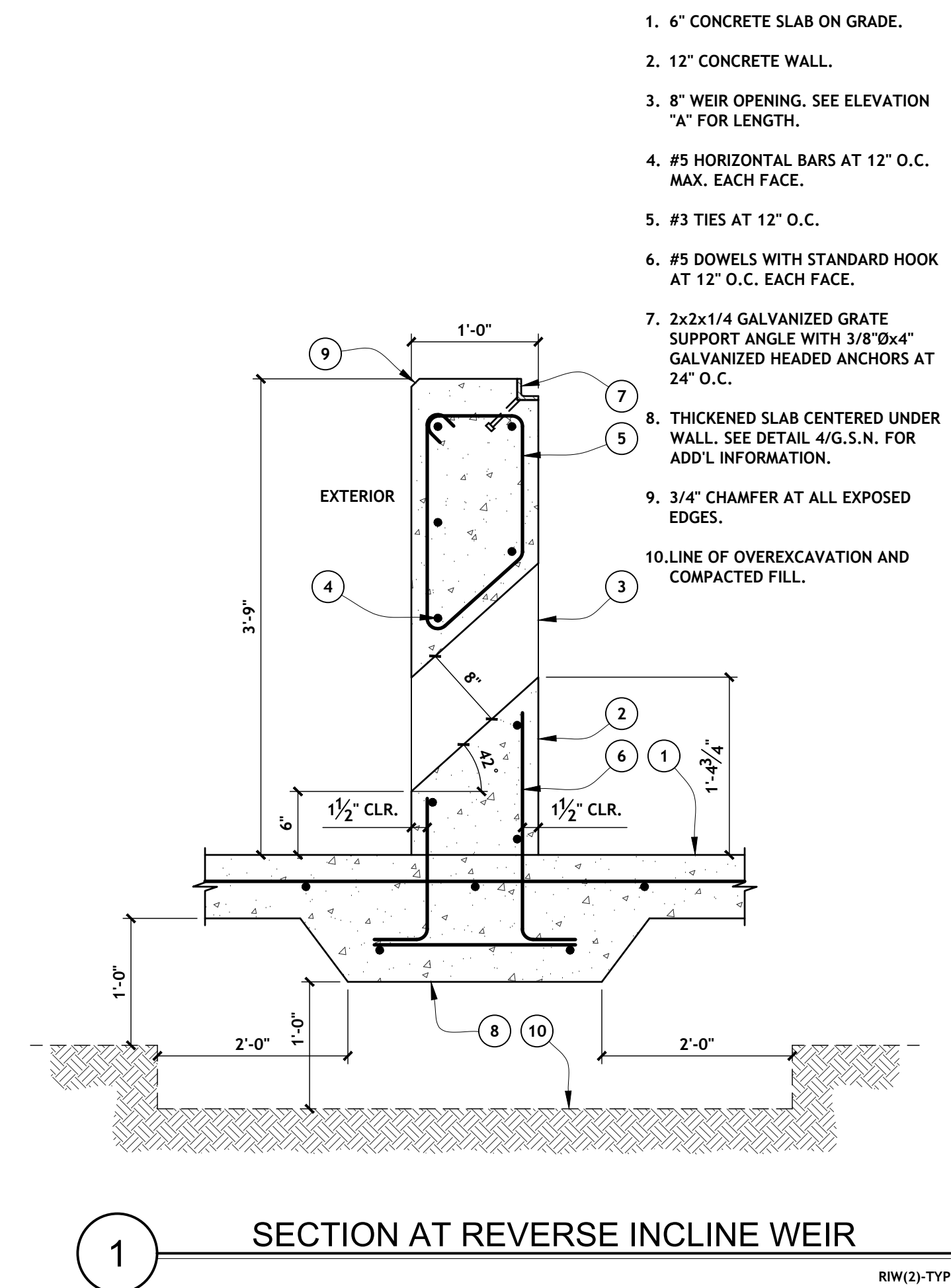
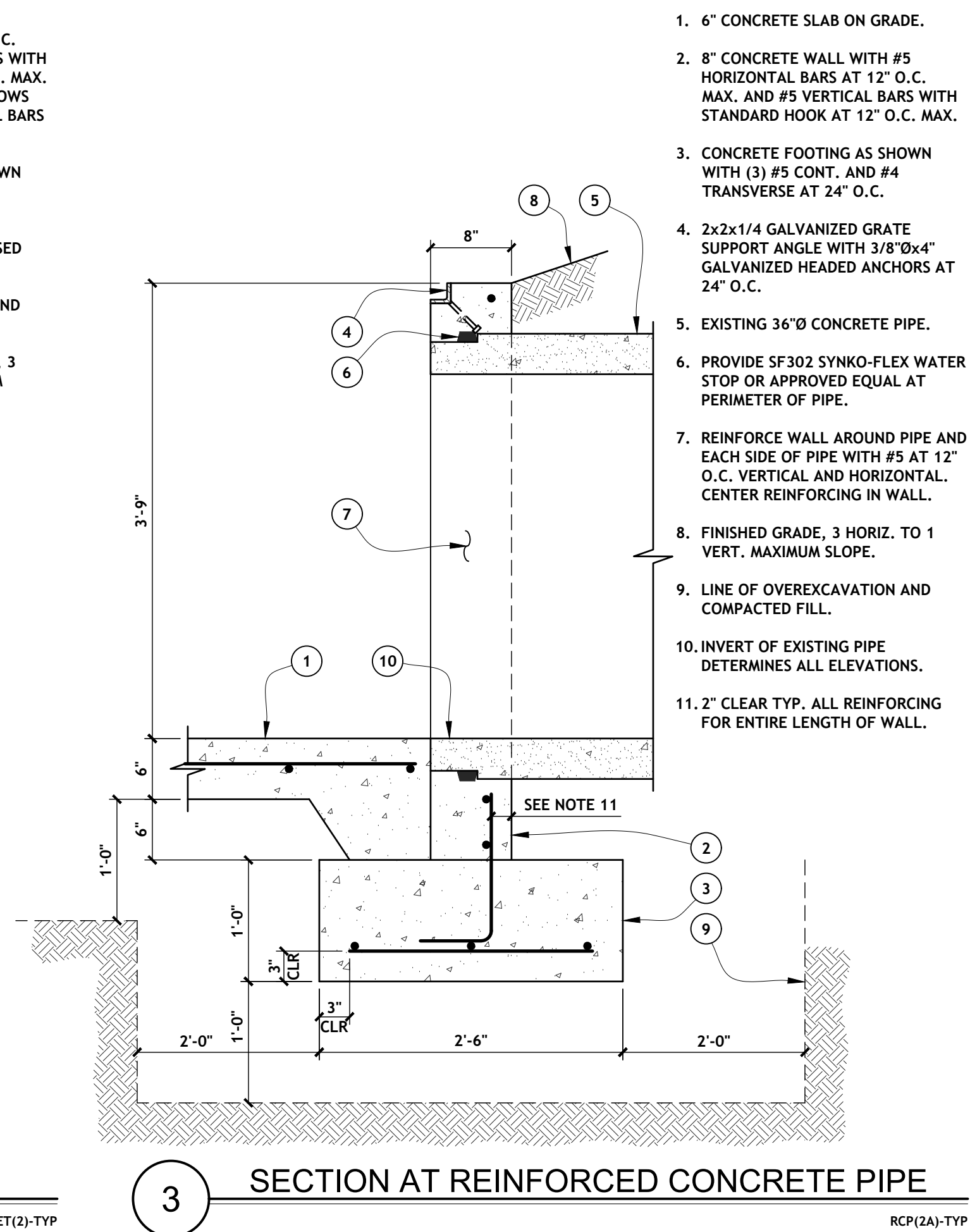
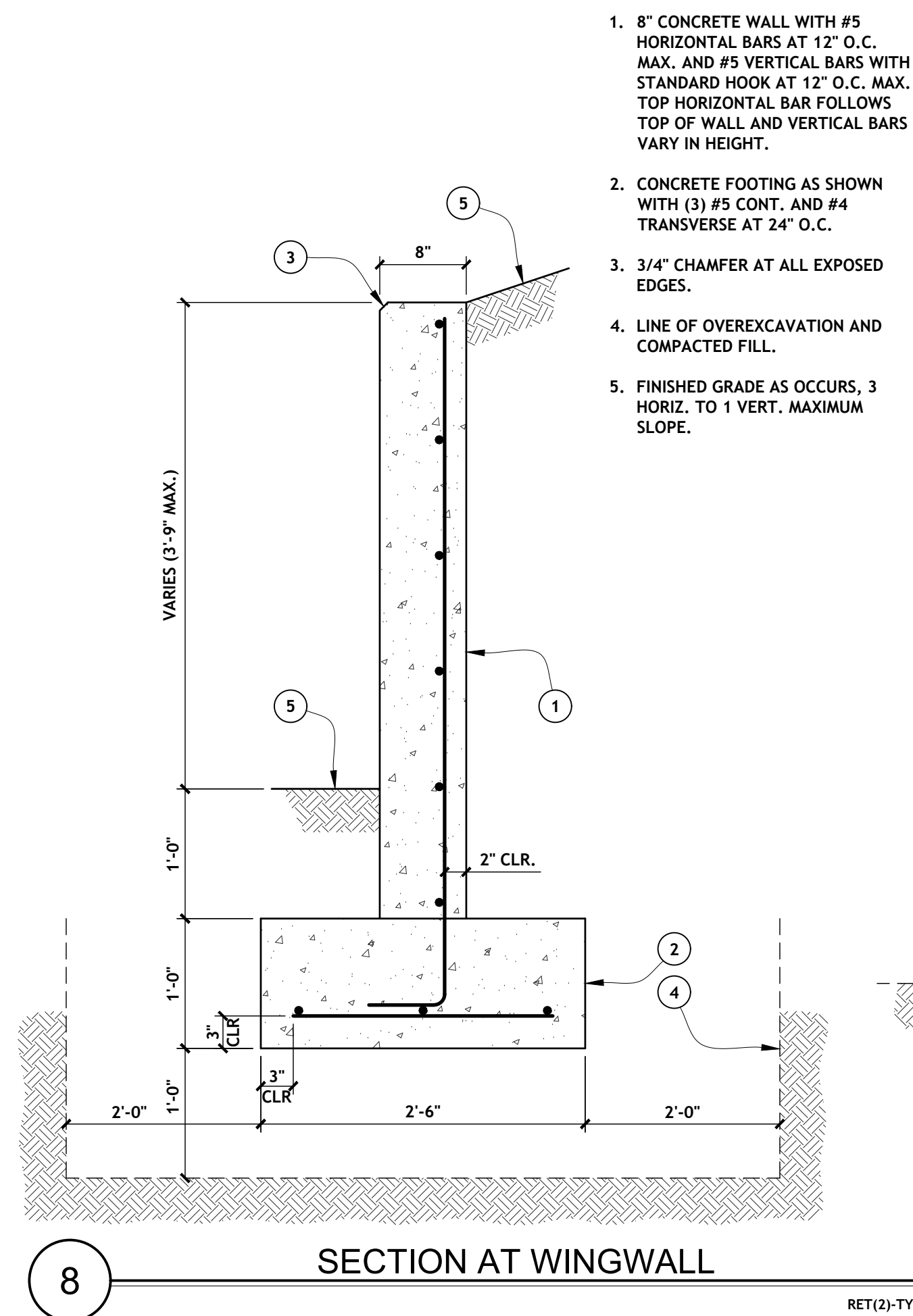
CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

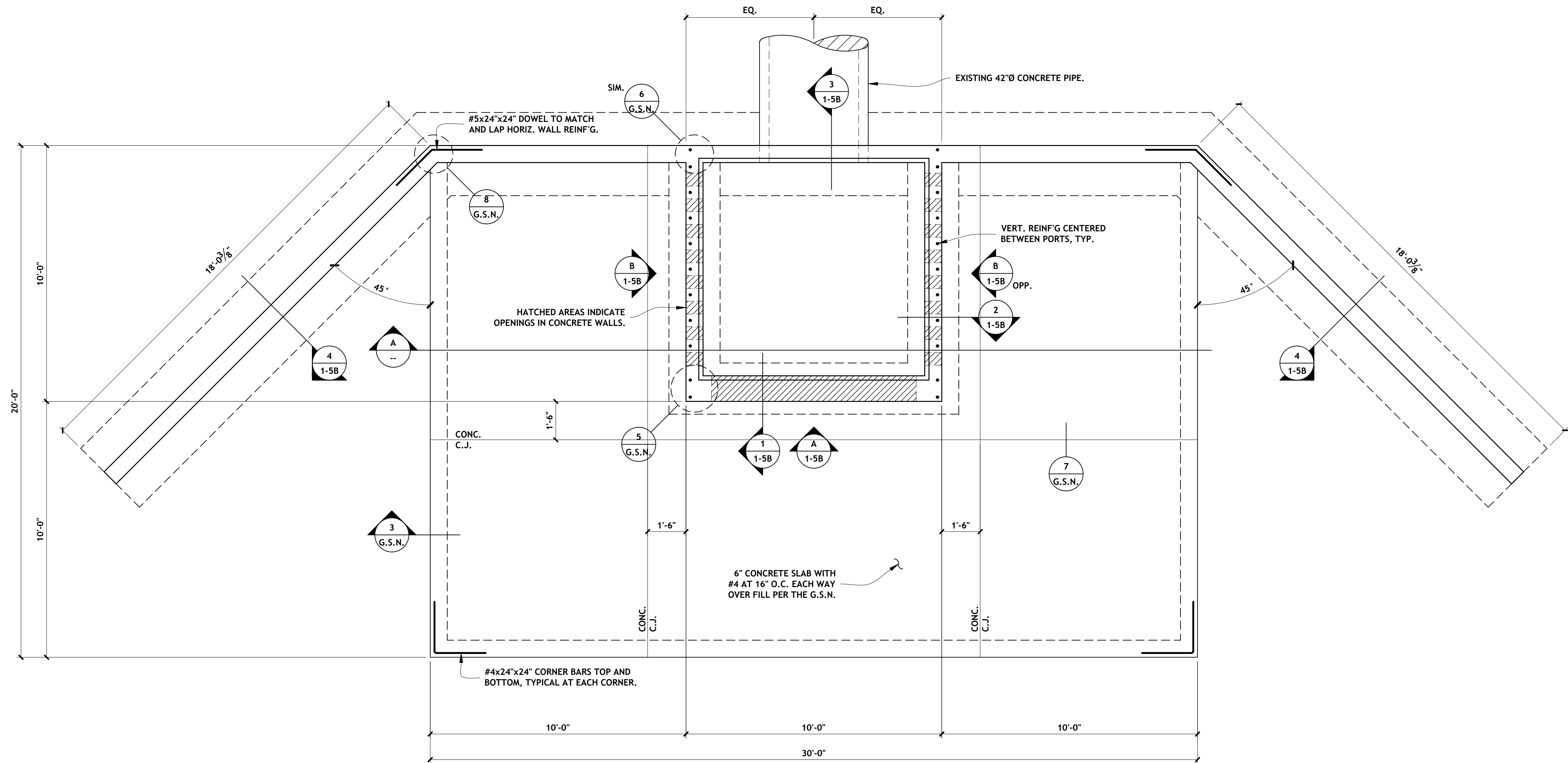
36"Ø HORIZONTAL CULVERT - 10'-0"x10'-0" - WITH WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



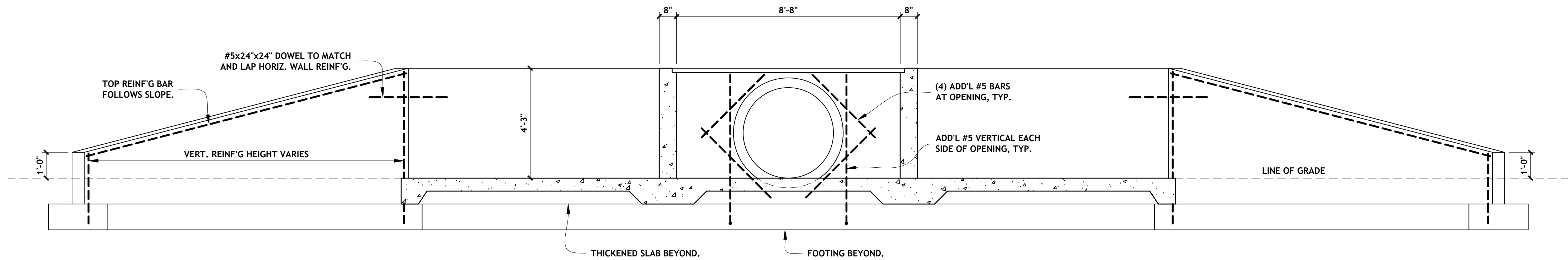
PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
1-4A





PLAN VIEW

SCALE: 3/8"=1'-0"



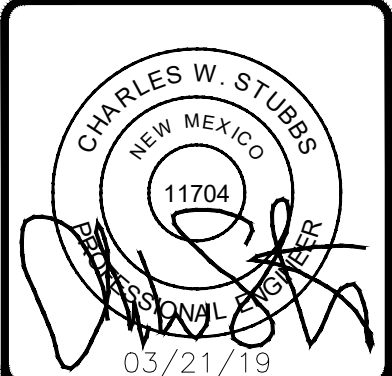
SECTION A

SCALE: 3/8"=1'-0"

NOTES:

1. THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET, GRATES SHEET AND SHEET 1-5B.
2. SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
3. THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
4. THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 30.0 CU.YD. |
| GRATES              | 975.0 LBS.  |
| STRUCTURAL STEEL    | 204.0 LBS.  |
| REBAR               | 1887.0 LBS. |



TYPE #1  
DESIGN #5 (1 OF 2)

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

42"Ø HORIZONTAL CULVERT - 10'-0"x10'-0" - WITH WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



PROJECT NO:  
117106-07

DATE:  
MARCH 2019

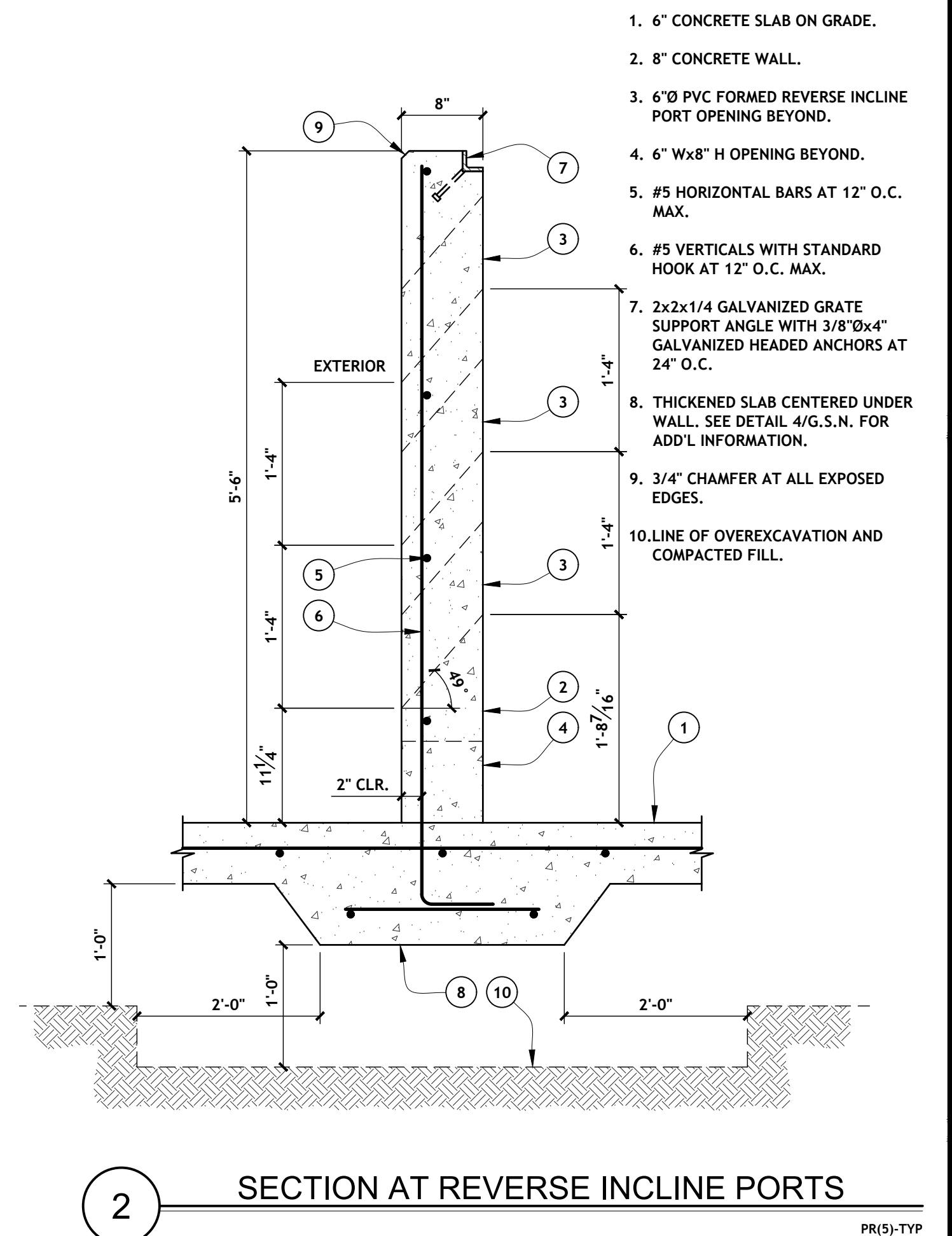
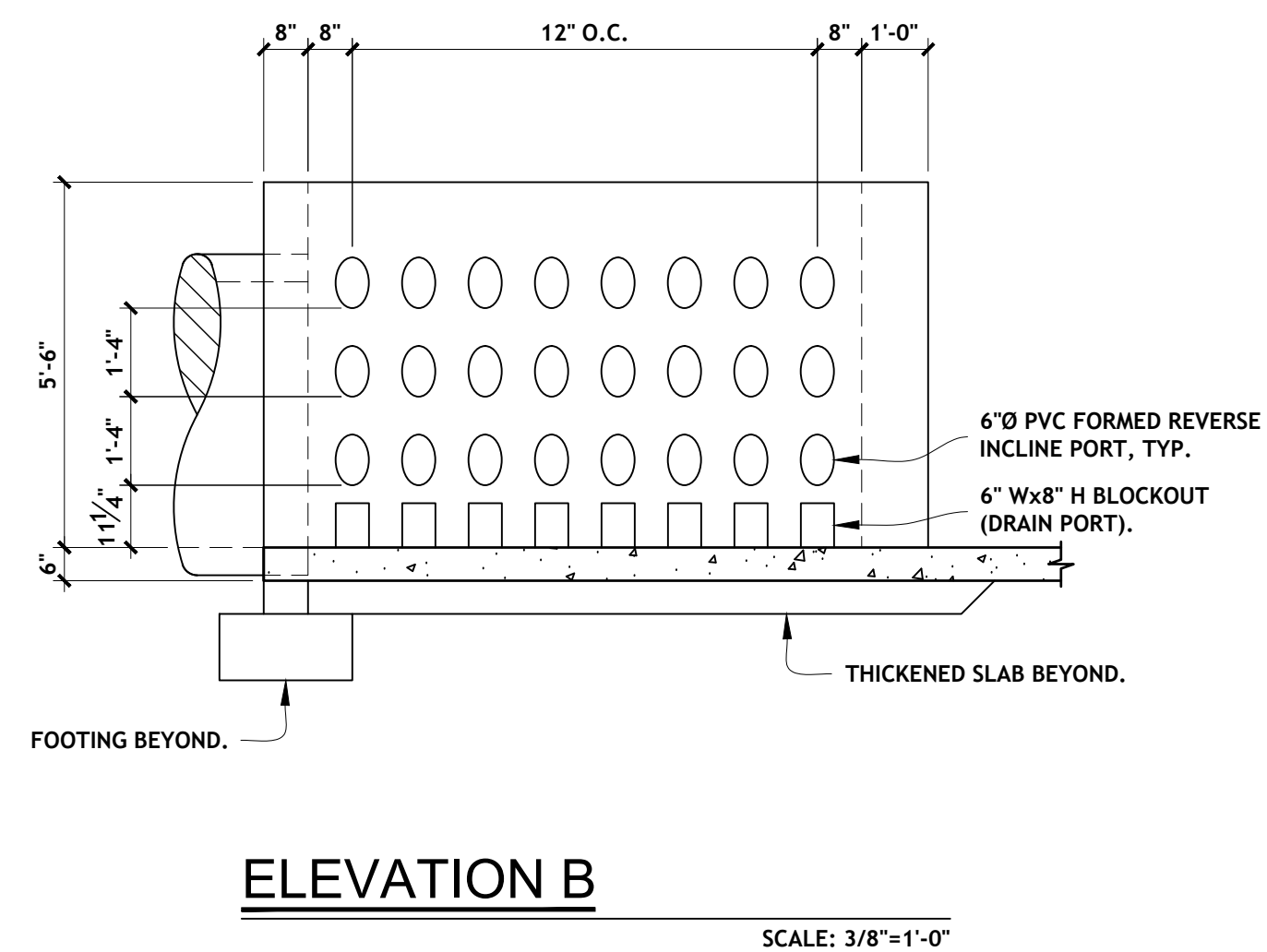
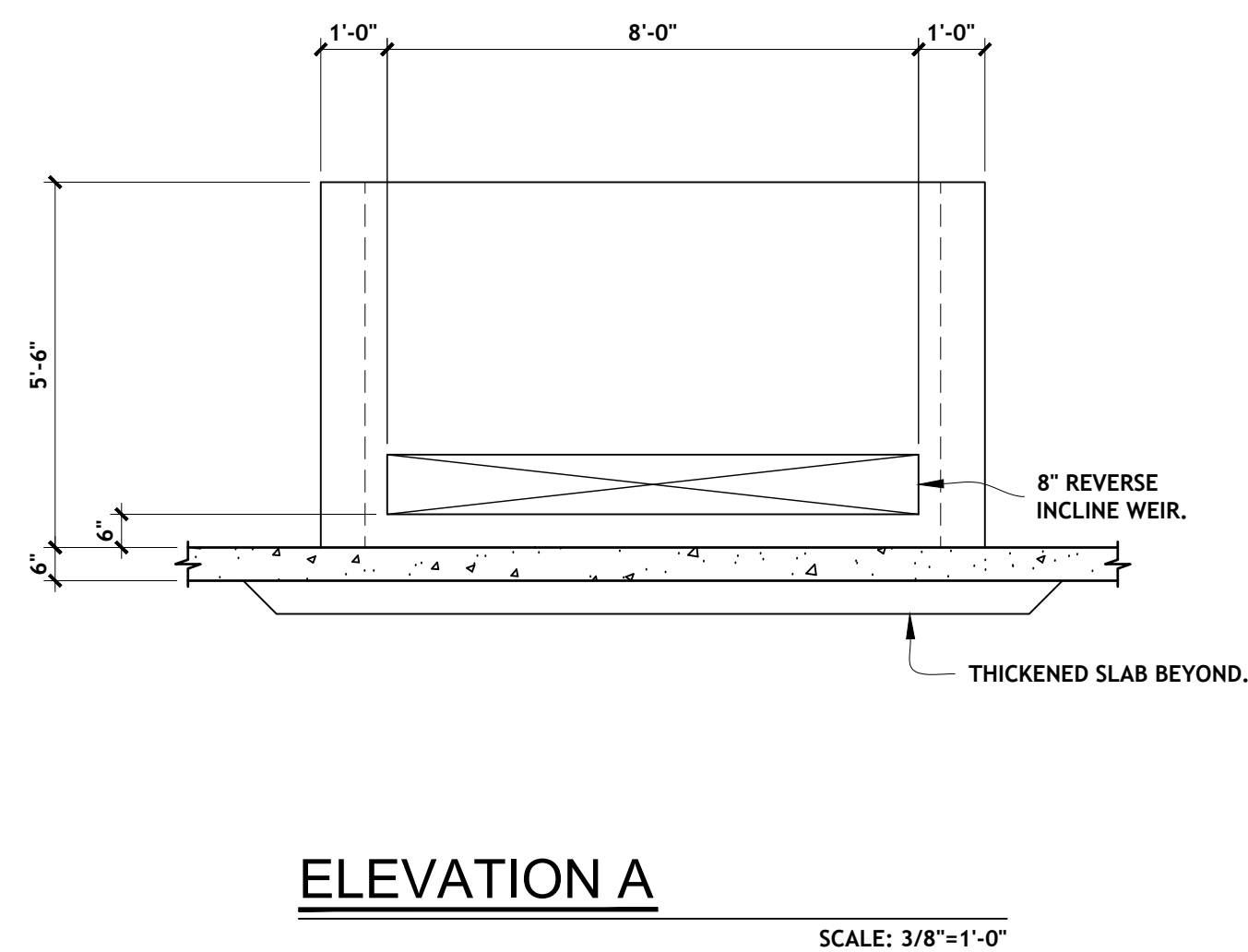
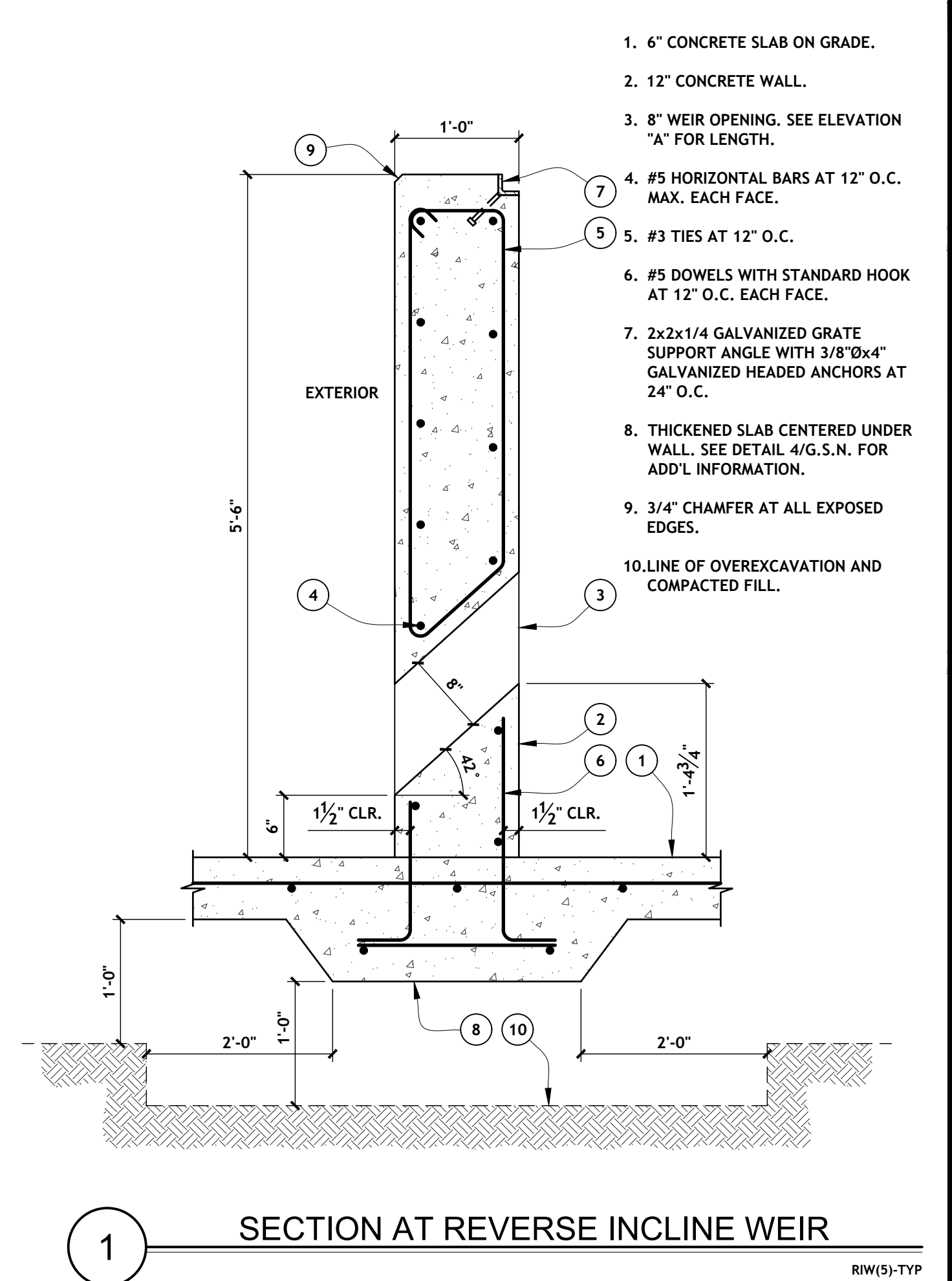
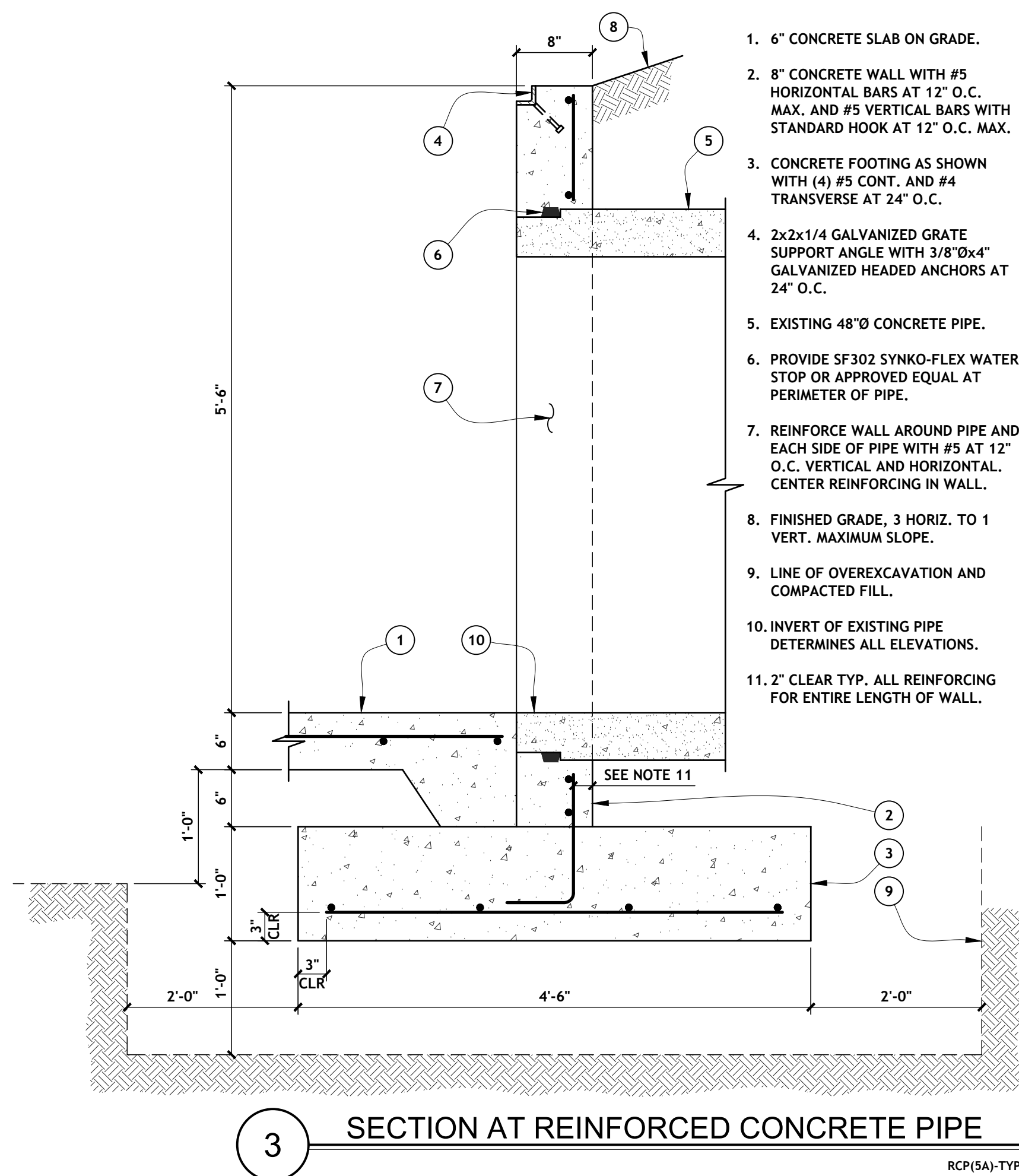
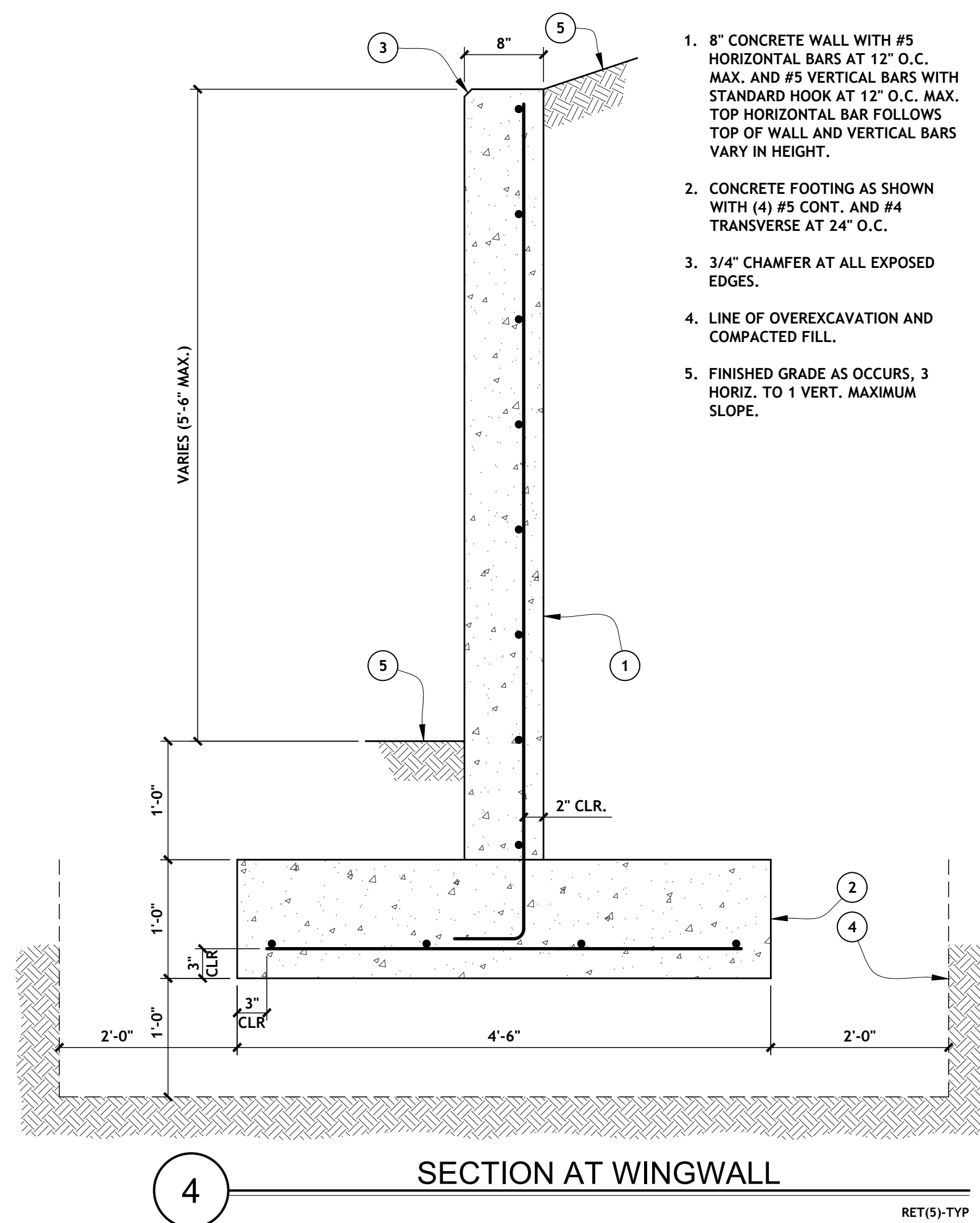
SHEET NO:  
1-5A

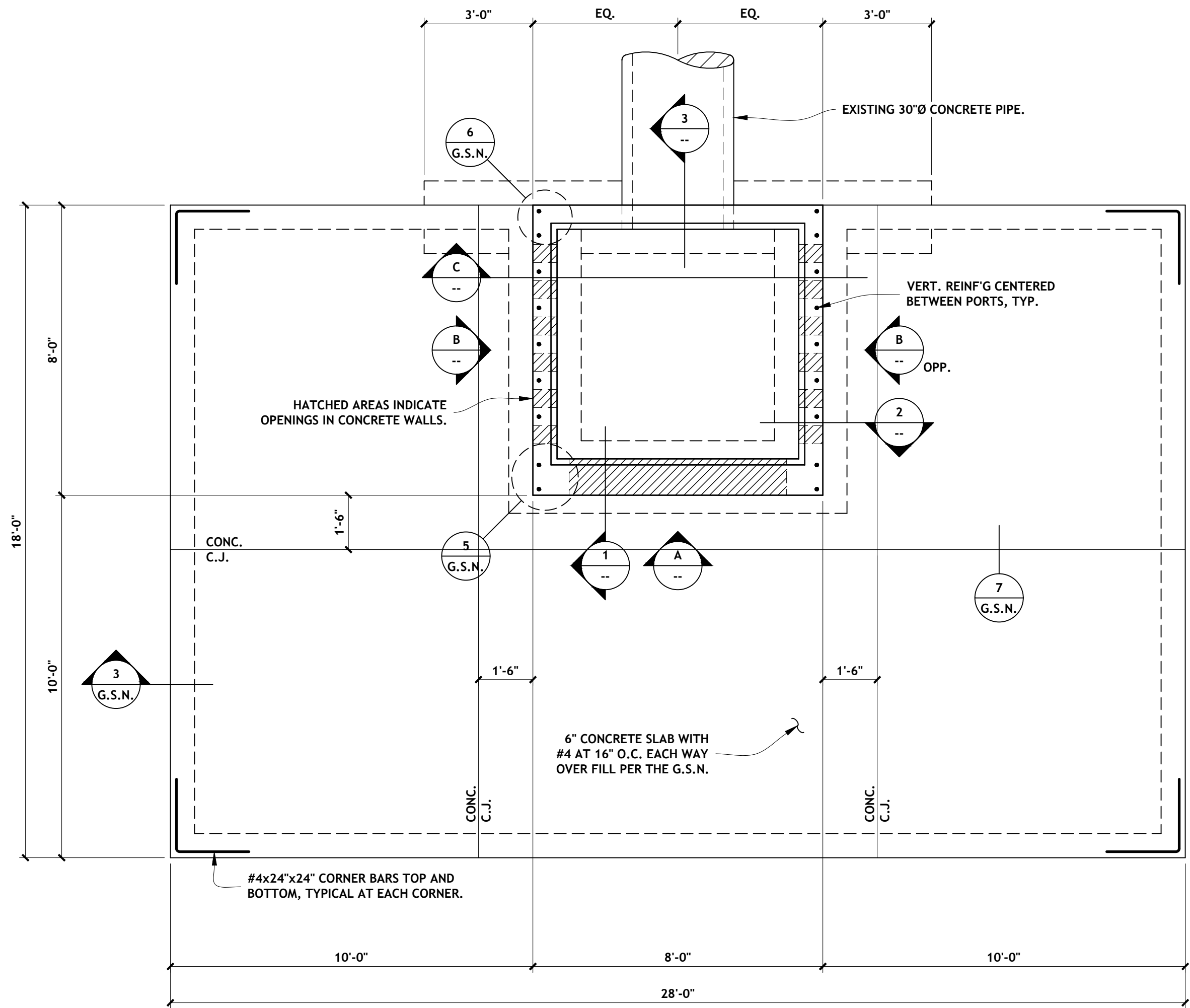






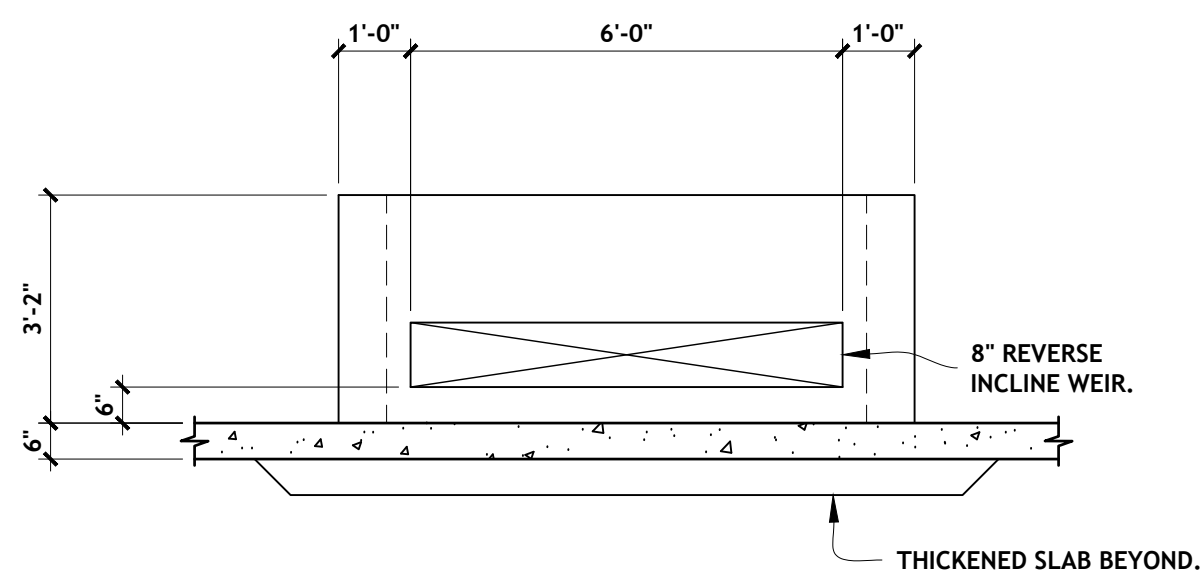






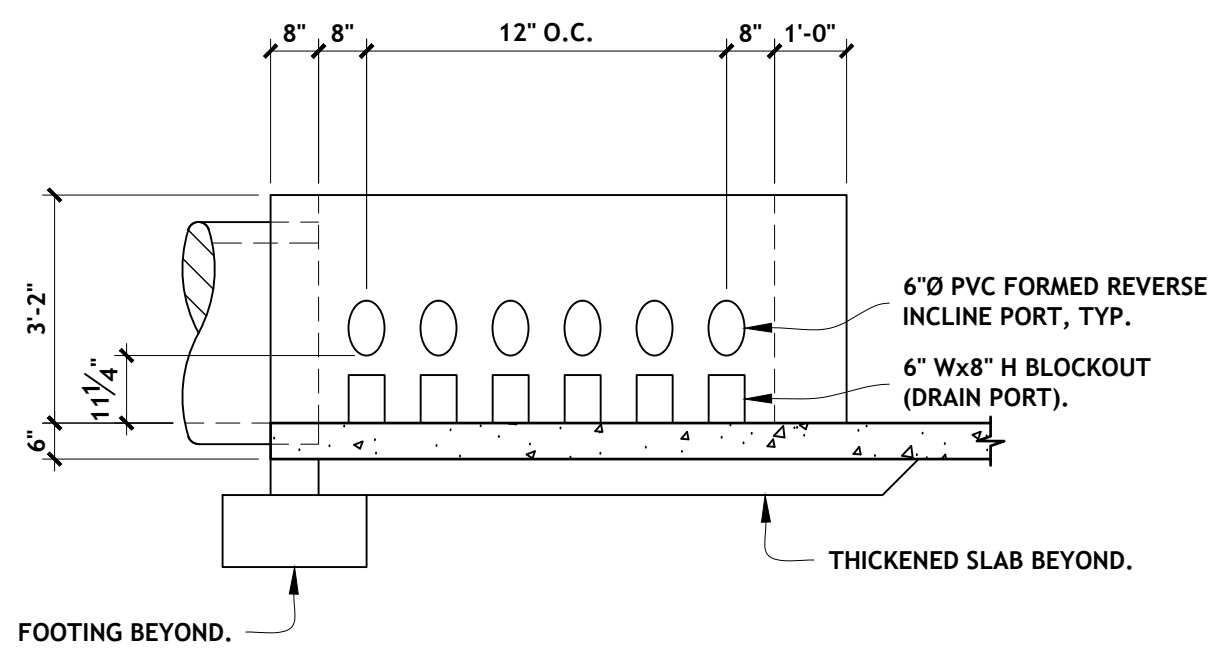
PLAN VIEW

SCALE: 3/8"=1'-0"



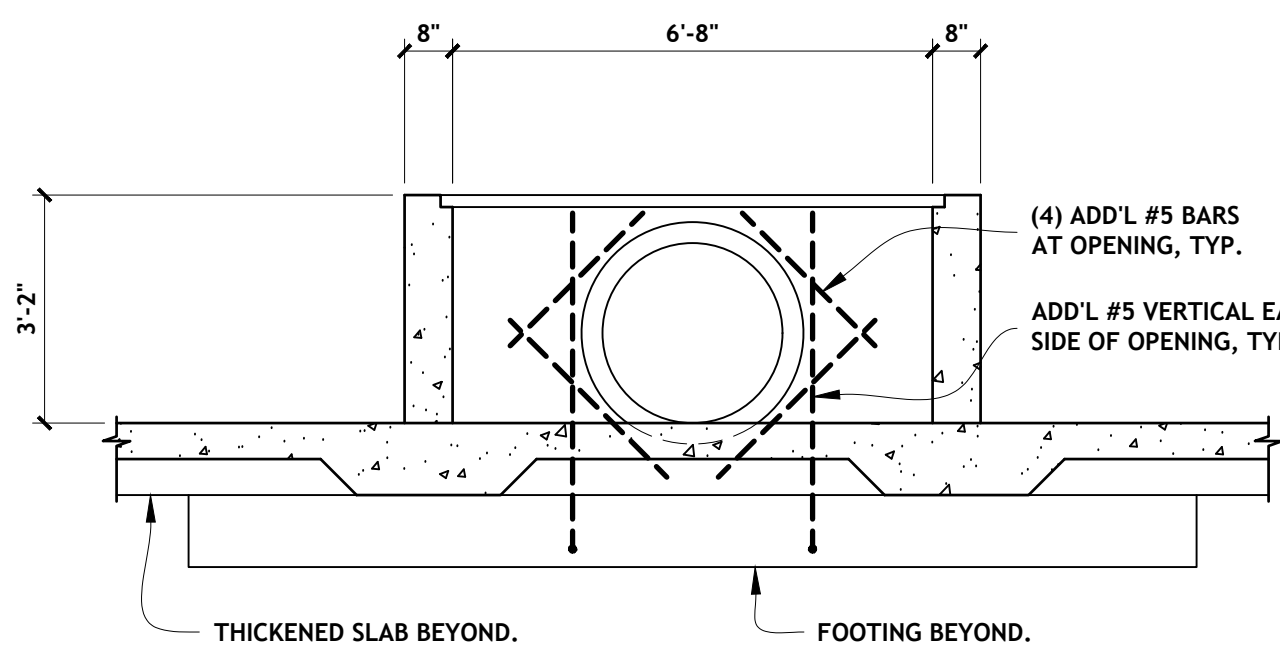
ELEVATION A

SCALE: 3/8"=1'-0"



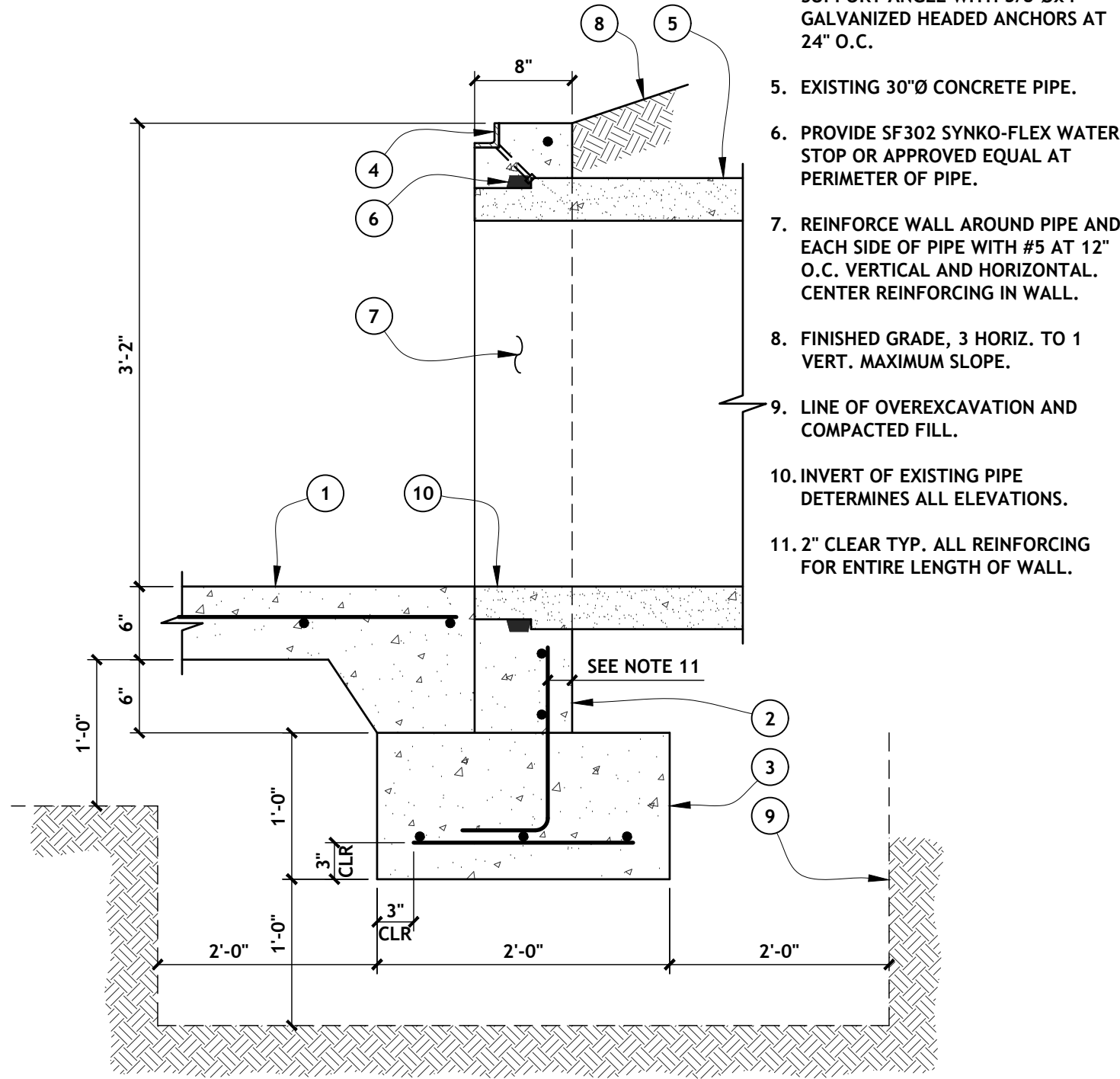
ELEVATION B

SCALE: 3/8"=1'-0"



SECTION C

SCALE: 3/8"=1'-0"



3 SECTION AT REINFORCED CONCRETE PIPE

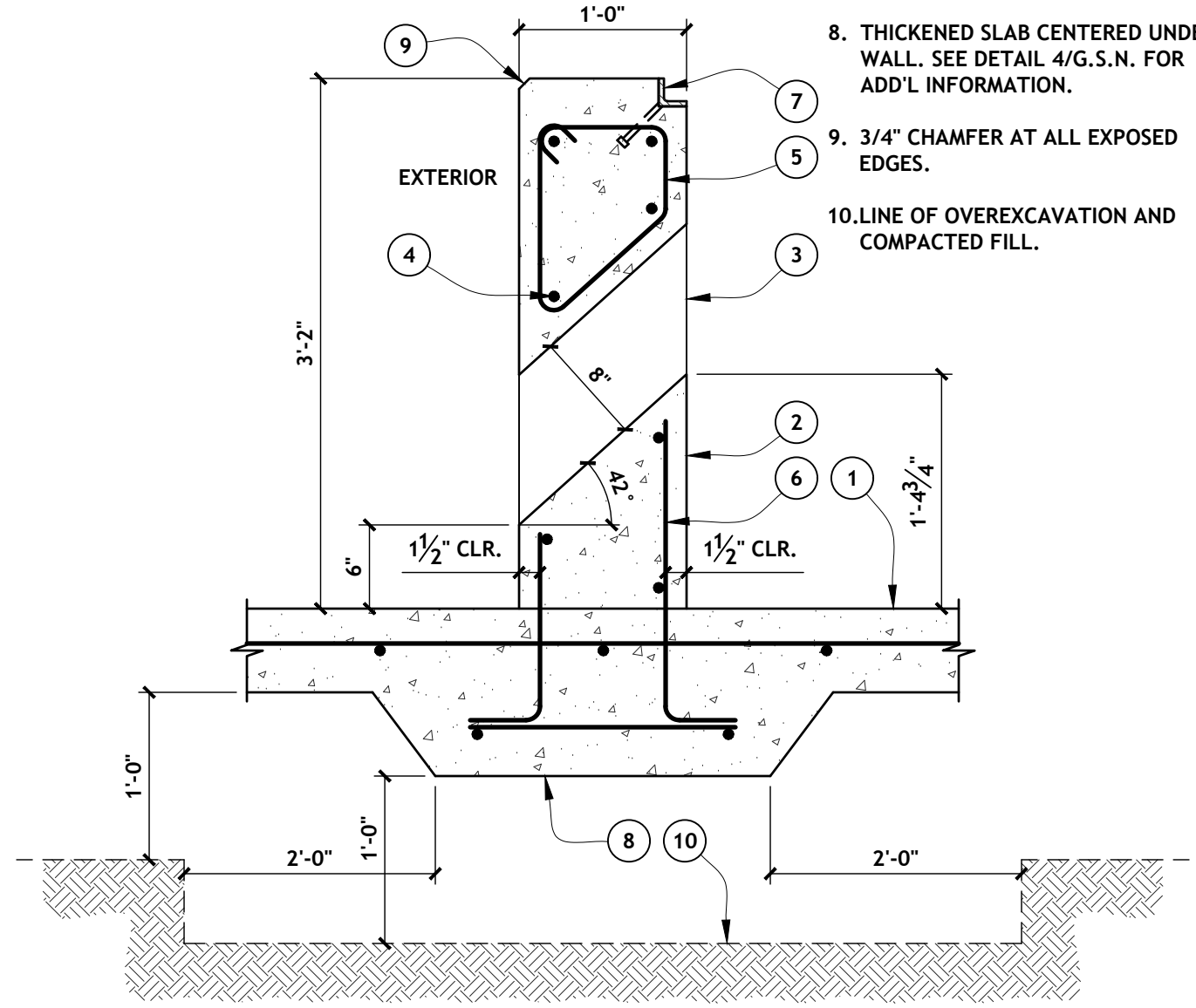
RCP(1)-TYP

NOTES:

- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 THE ON GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 14.0 CU.YD. |
| GRATES              | 583.3 LBS.  |
| STRUCTURAL STEEL    | 160.0 LBS.  |
| REBAR               | 1041.0 LBS. |

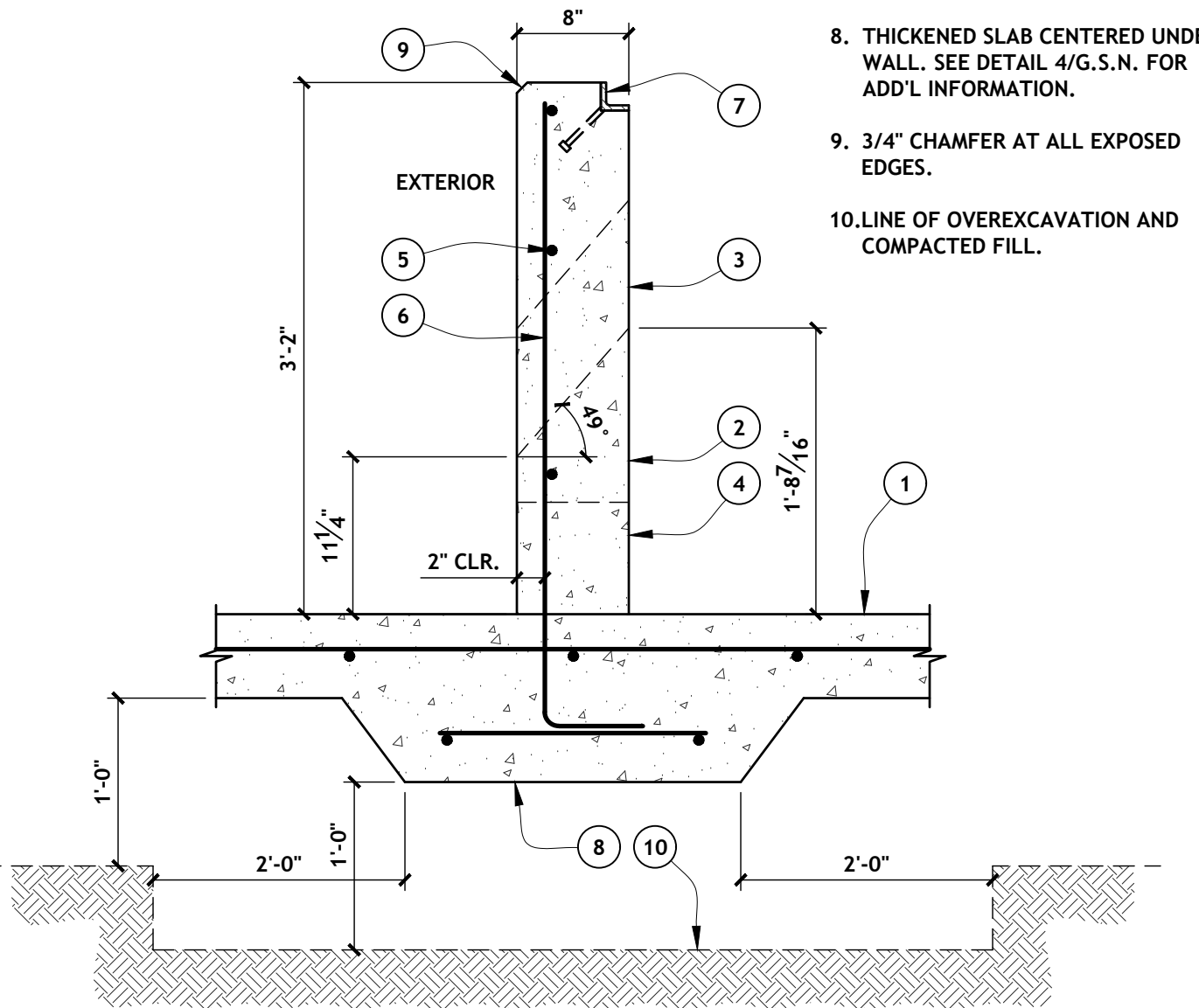
- 6" CONCRETE SLAB ON GRADE.
- 8" CONCRETE WALL WITH #5 HORIZONTAL BARS AT 12" O.C. MAX. AND #5 VERTICAL BARS WITH STANDARD HOOK AT 12" O.C. MAX.
- CONCRETE FOOTING AS SHOWN WITH (3) #5 CONT. AND #4 TRANSVERSE AT 24" O.C.
- 2x2x1/4 GALVANIZED GRATE SUPPORT ANGLE WITH 3/8"Øx4" GALVANIZED HEADED ANCHORS AT 24" O.C.
- EXISTING 30"Ø CONCRETE PIPE.
- PROVIDE SF302 SYNKO-FLEX WATER STOP OR APPROVED EQUAL AT PERIMETER OF PIPE.
- REINFORCE WALL AROUND PIPE AND EACH SIDE OF PIPE WITH #5 AT 12" O.C. VERTICAL AND HORIZONTAL. CENTER REINFORCING IN WALL.
- FINISHED GRADE, 3 HORIZ. TO 1 VERT. MAXIMUM SLOPE.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.
- INVERT OF EXISTING PIPE DETERMINES ALL ELEVATIONS.
- 2" CLEAR TYP. ALL REINFORCING FOR ENTIRE LENGTH OF WALL.



1 SECTION AT REVERSE INCLINE WEIR

RW(1)-TYP

- 6" CONCRETE SLAB ON GRADE.
- 12" CONCRETE WALL.
- 8" WEIR OPENING. SEE ELEVATION "A" FOR LENGTH.
- #5 HORIZONTAL BARS AT 12" O.C. MAX. EACH FACE.
- #3 TIES AT 12" O.C.
- #5 DOWELS WITH STANDARD HOOK AT 12" O.C. EACH FACE.
- 2x2x1/4 GALVANIZED GRATE SUPPORT ANGLE WITH 3/8"Øx4" GALVANIZED HEADED ANCHORS AT 24" O.C.
- THICKENED SLAB CENTERED UNDER WALL. SEE DETAIL 4/G.S.N. FOR ADD'L INFORMATION.
- 3/4" CHAMFER AT ALL EXPOSED EDGES.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.



2 SECTION AT REVERSE INCLINE PORT

PR(1)-TYP

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

30"Ø HORIZONTAL CULVERT - 8'-0"x8'-0" - NO WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



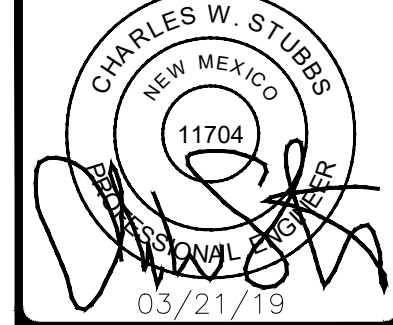
PROJECT NO:  
117106-07

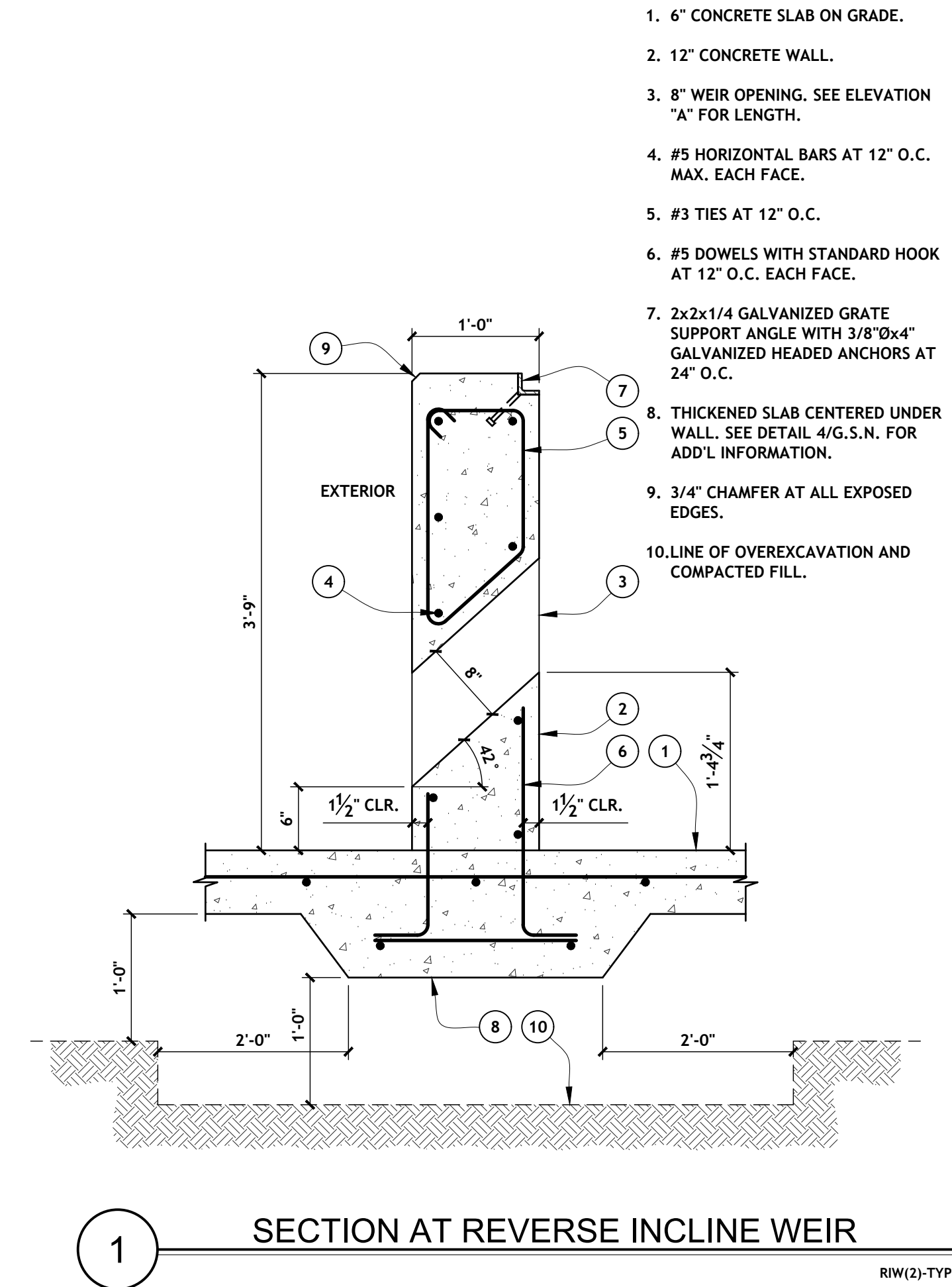
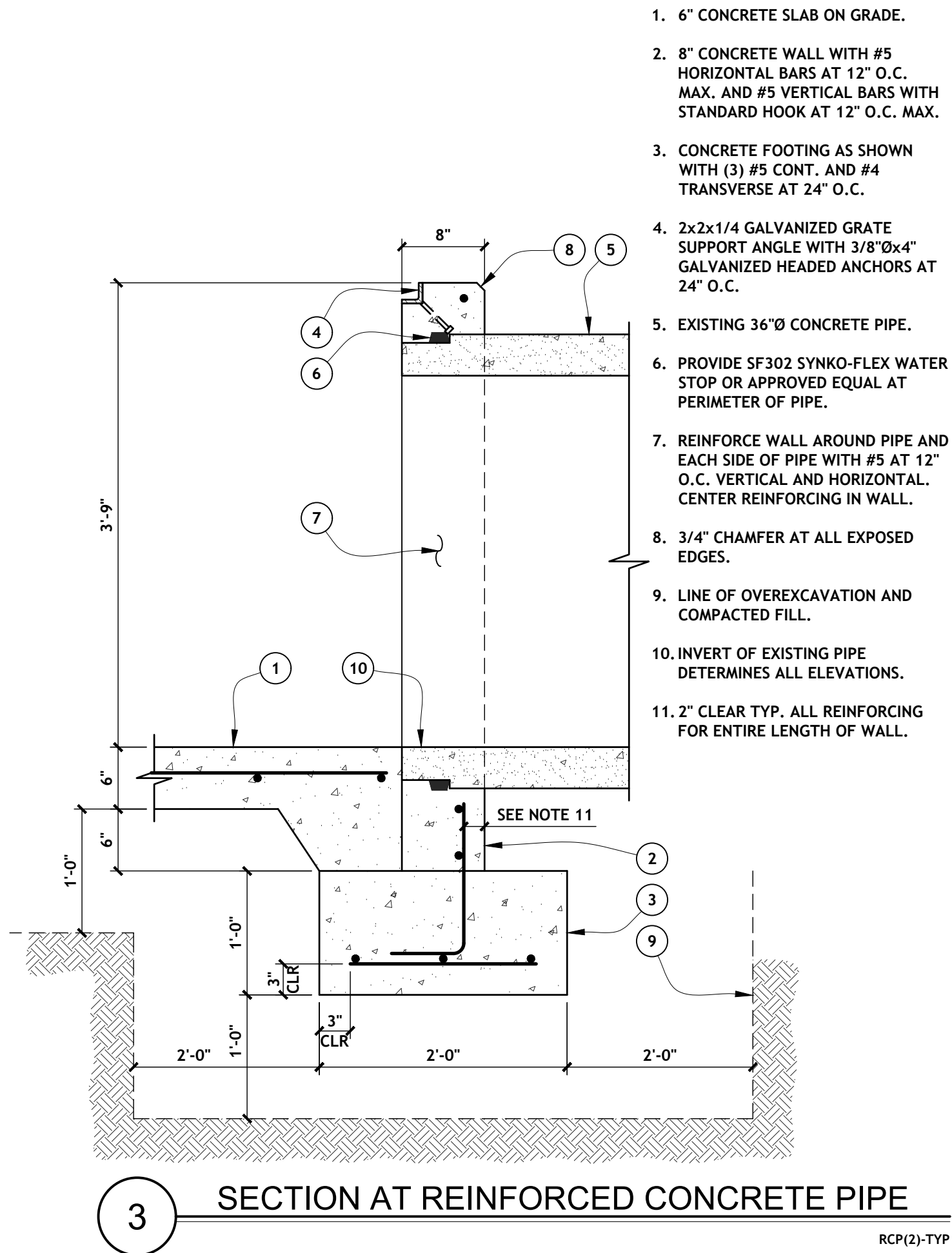
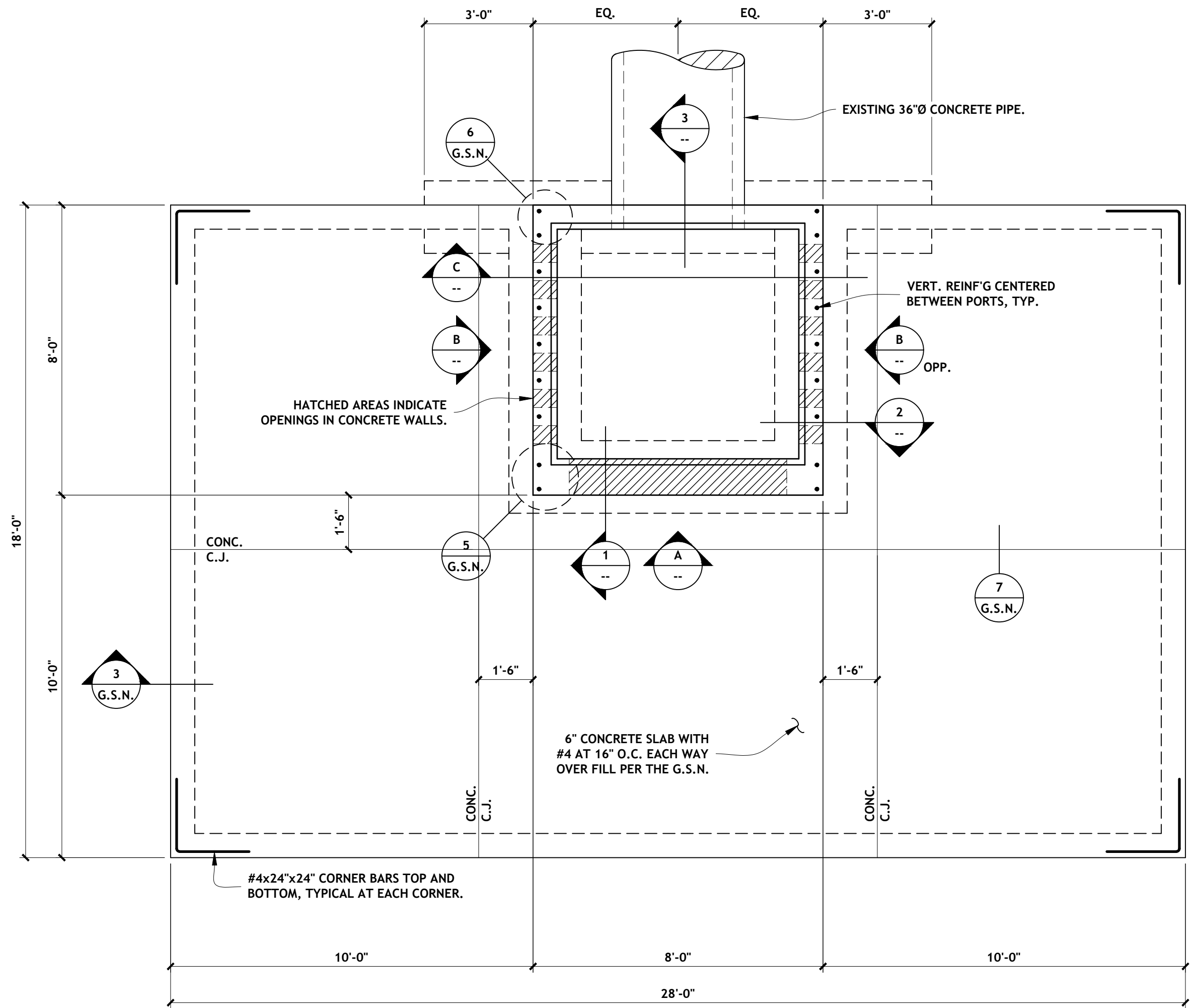
DATE:  
MARCH 2019

SHEET NO:  
2-7

TYPE #2  
DESIGN #7

| NO. | REVISION | DESCRIPTION             | DATE    | BY |
|-----|----------|-------------------------|---------|----|
| 1   | 1        | ISSUED FOR CONSTRUCTION | 5/26/19 | CS |
| 2   | 2        |                         |         |    |
| 3   | 3        |                         |         |    |
| 4   | 4        |                         |         |    |
| 5   | 5        |                         |         |    |

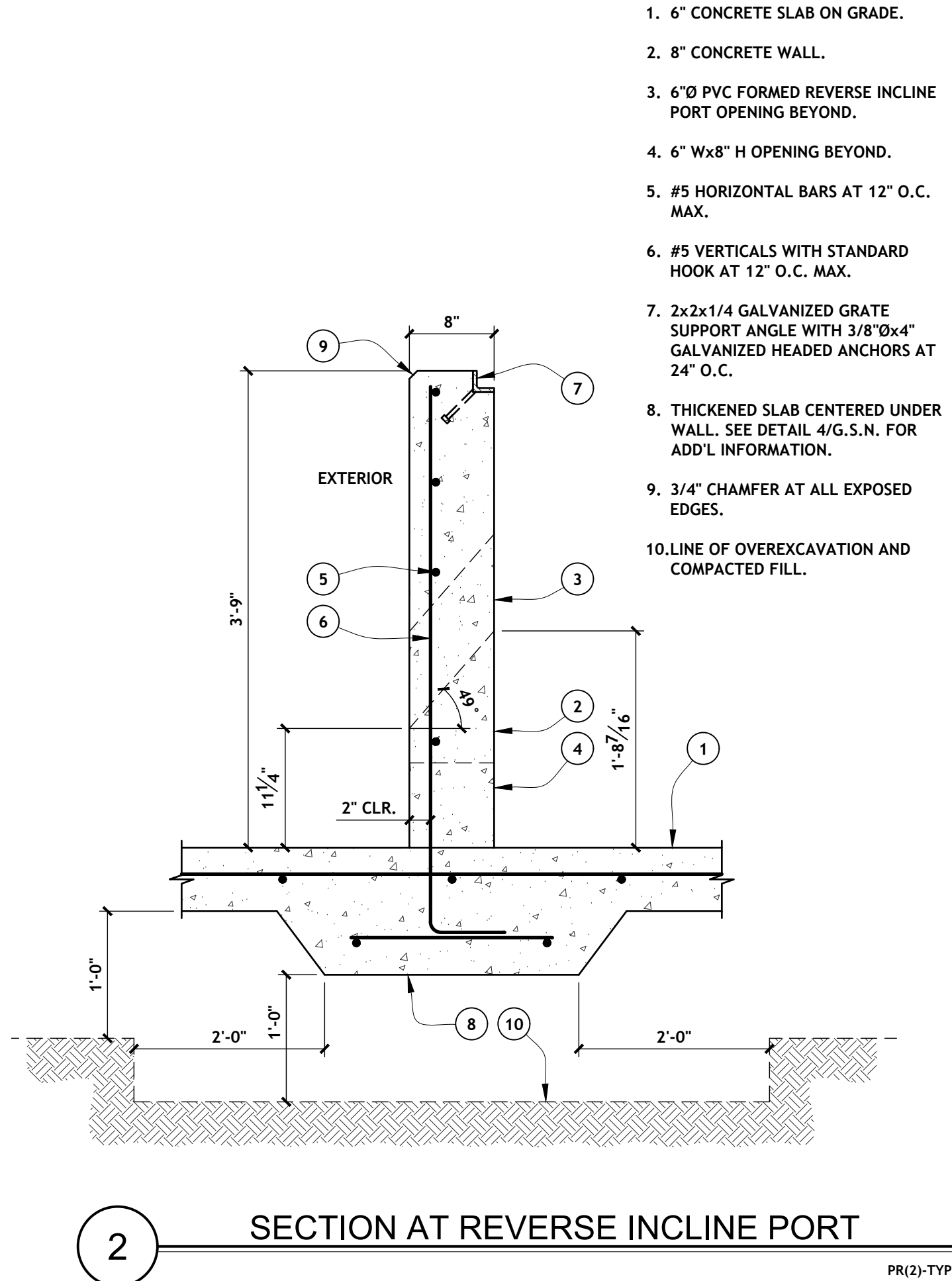
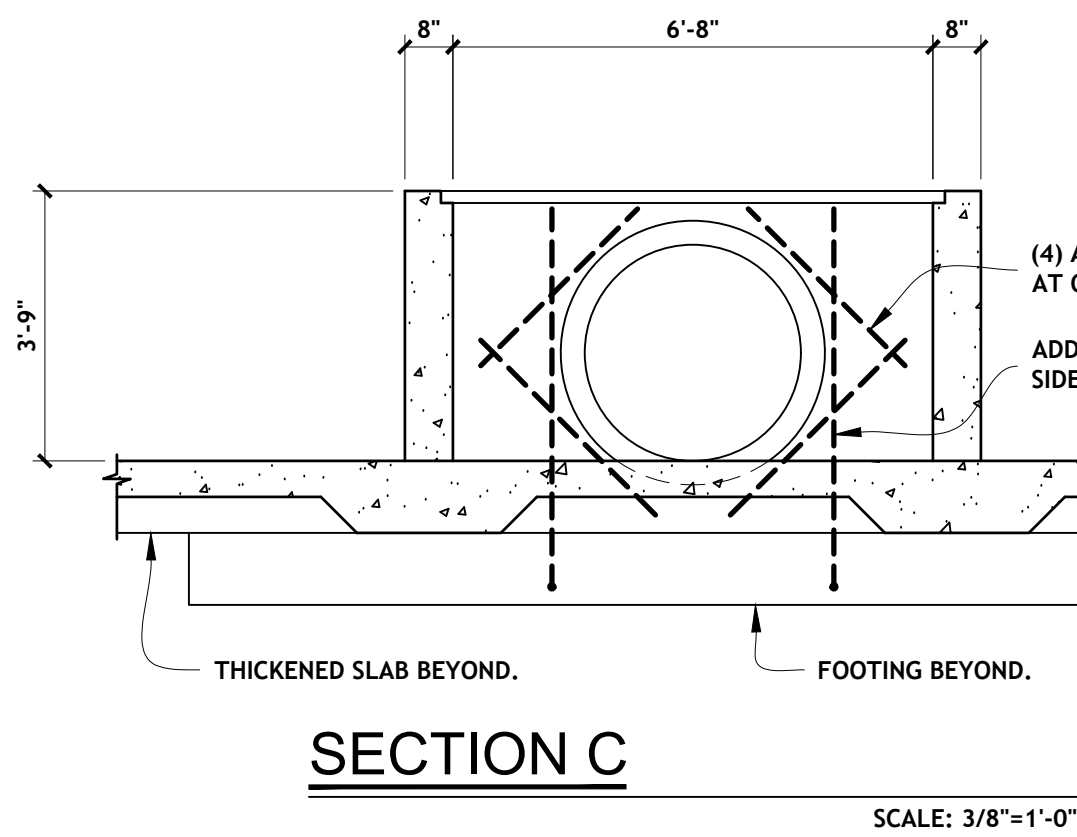
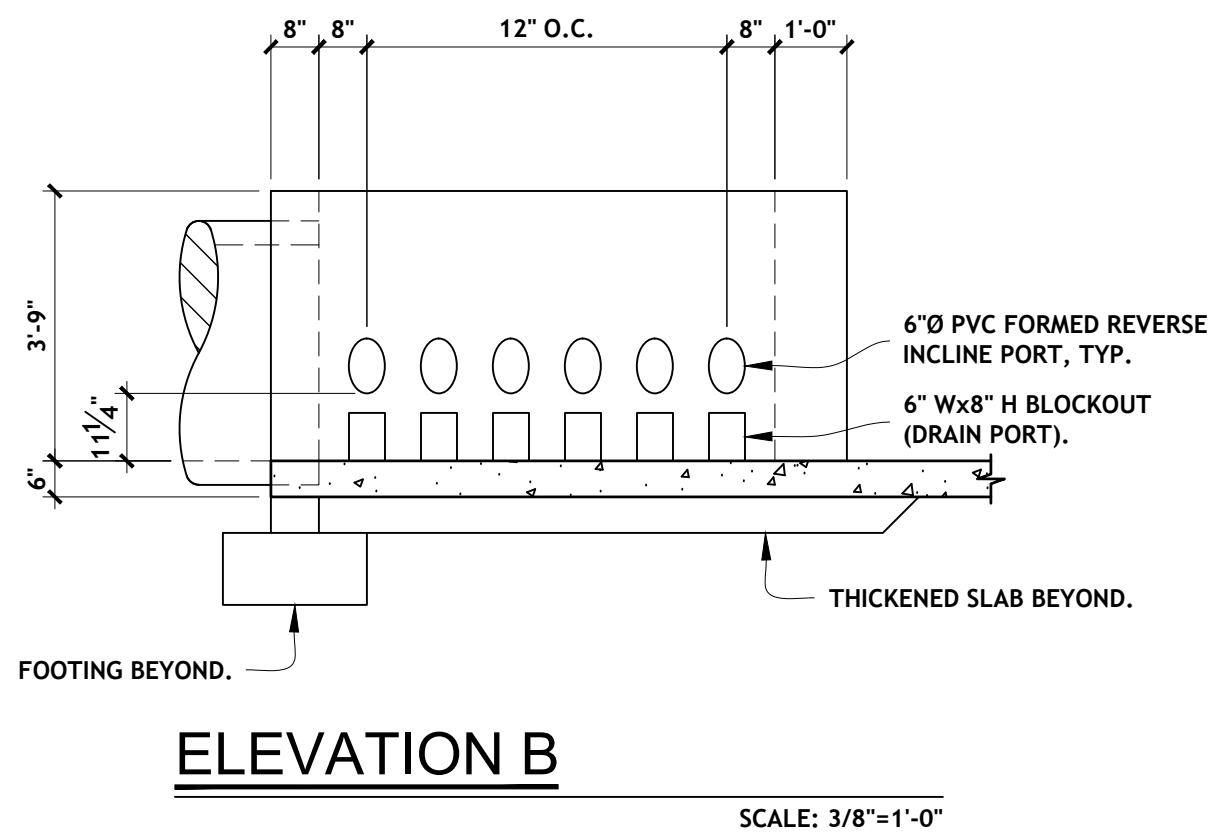
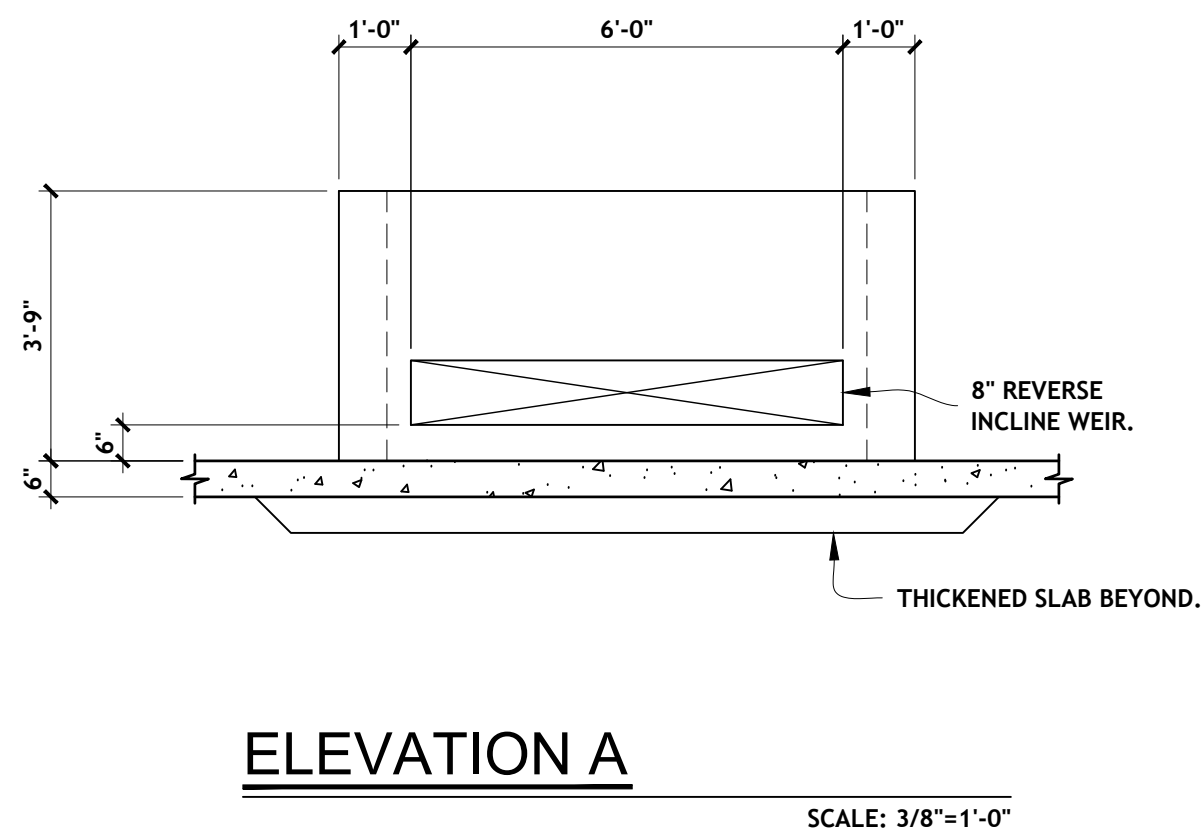




NOTES:

- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 THE ON GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 14.4 CU.YD. |
| GRATES              | 583.3 LBS.  |
| STRUCTURAL STEEL    | 160.0 LBS.  |
| REBAR               | 1099.0 LBS. |



CHARLES W. STUBBS  
NEW MEXICO  
11704  
03/21/19

TYPE #2  
DESIGN #8

NO. 1  
REVISION DESCRIPTION 5/26/19 CS  
DATE BY

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

36"Ø HORIZONTAL CULVERT - 8'-0"x8'-0" - NO WINGWALLS

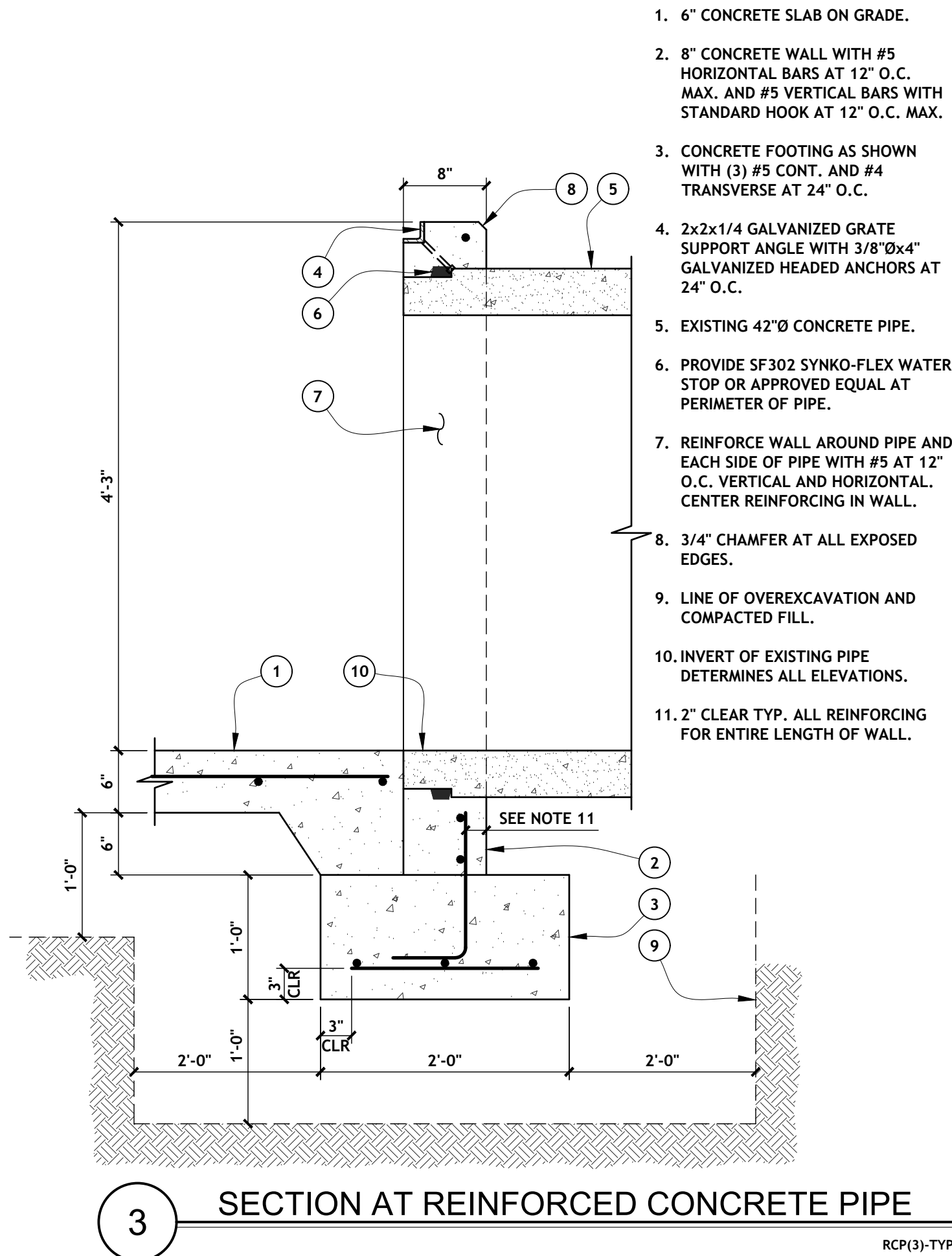
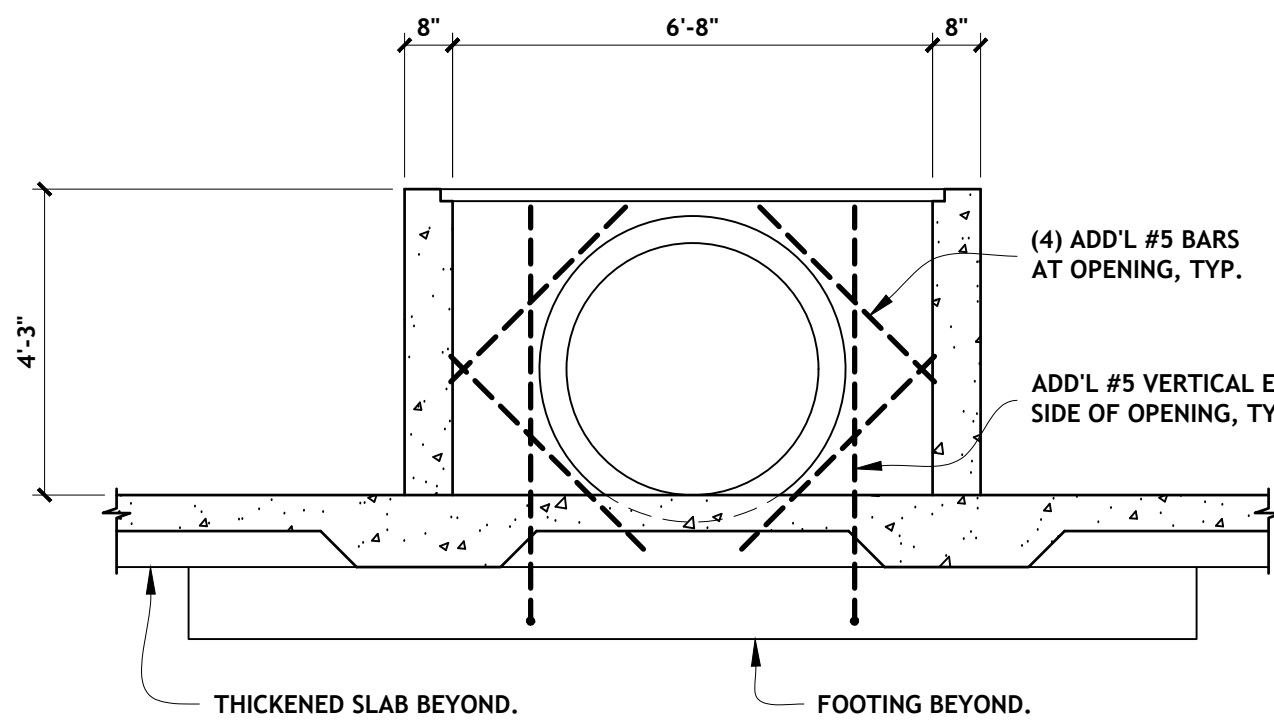
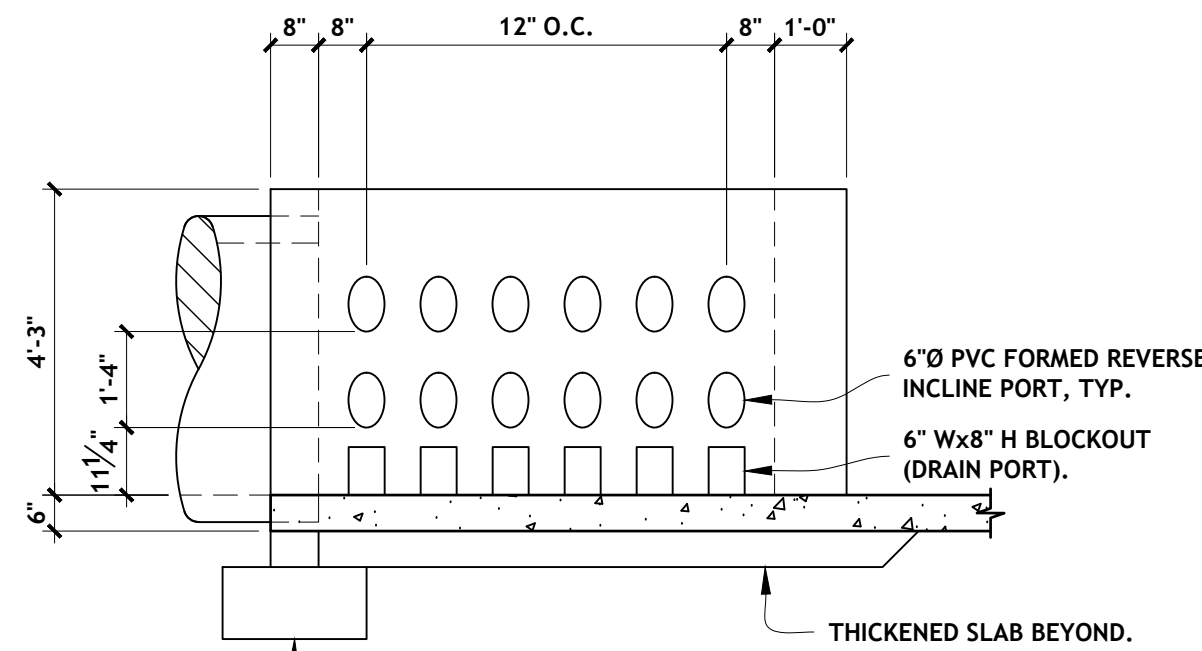
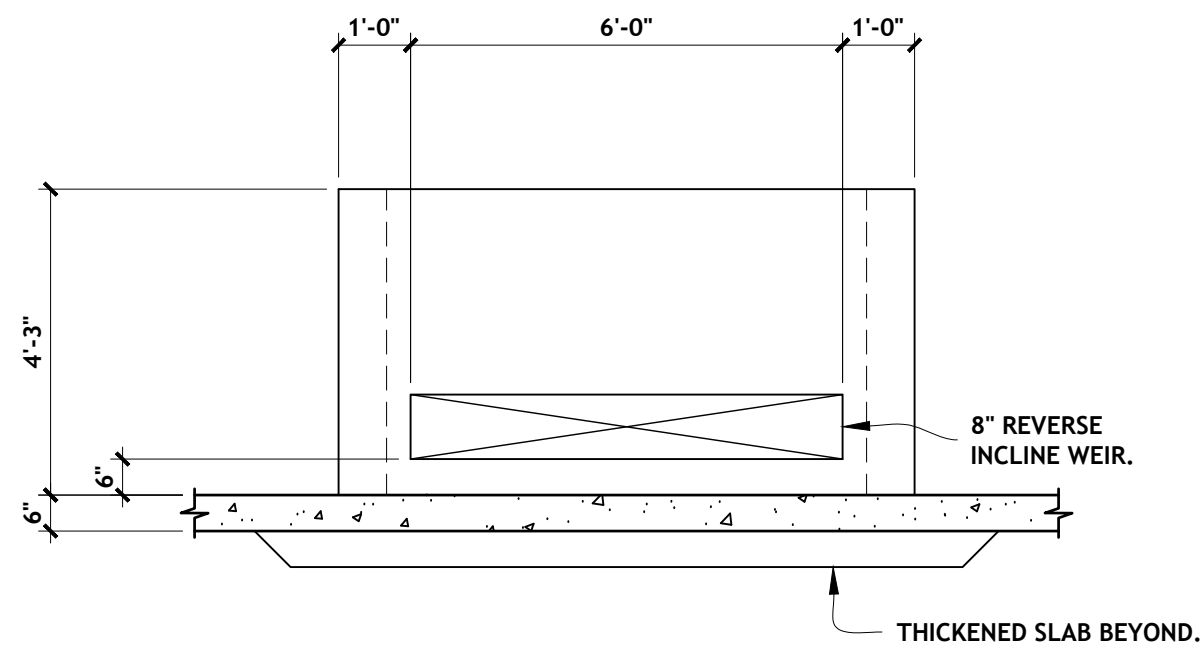
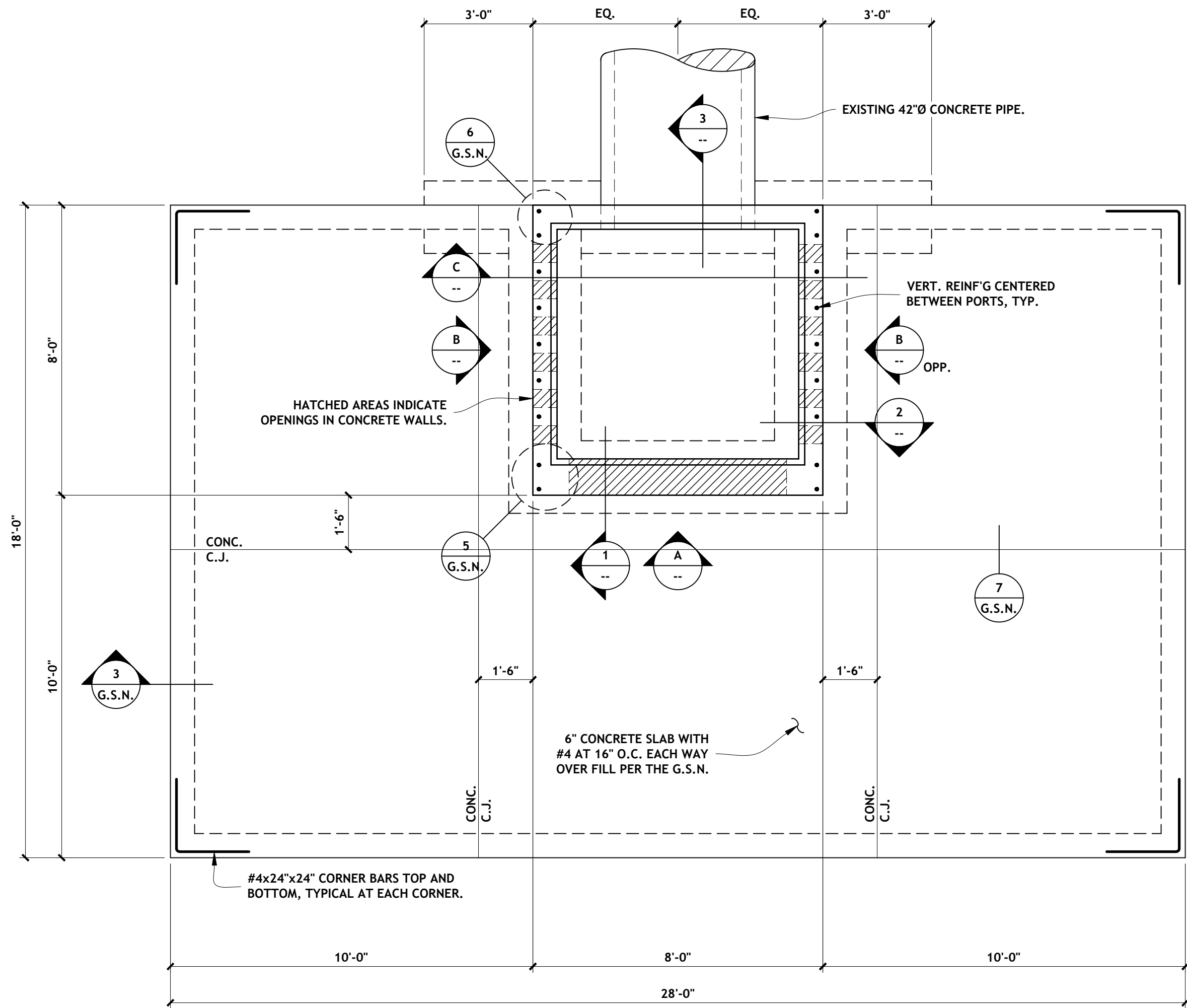
Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

SMITH  
ENGINEERING

PROJECT NO:  
117106-07

DATE:  
MARCH 2019

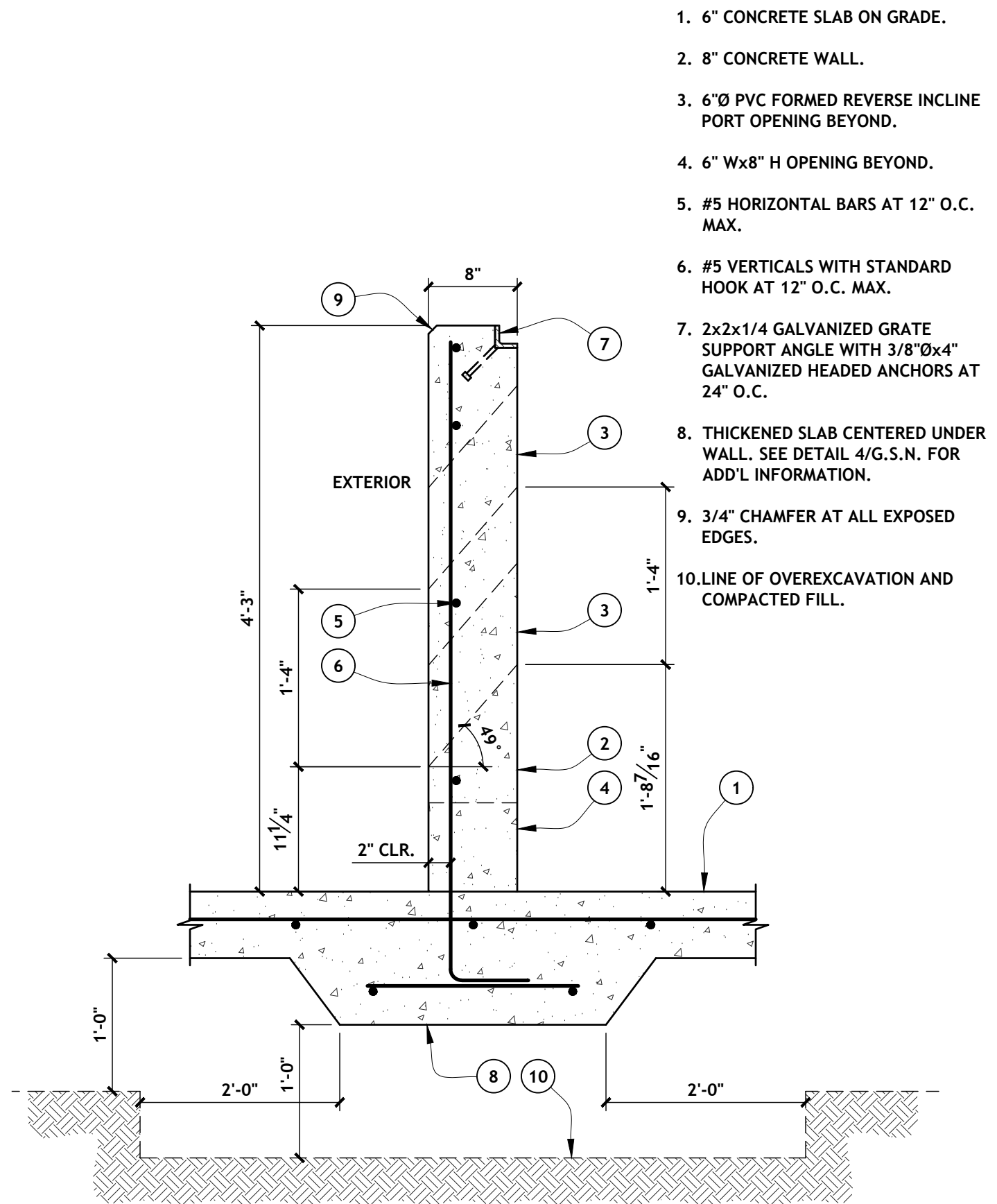
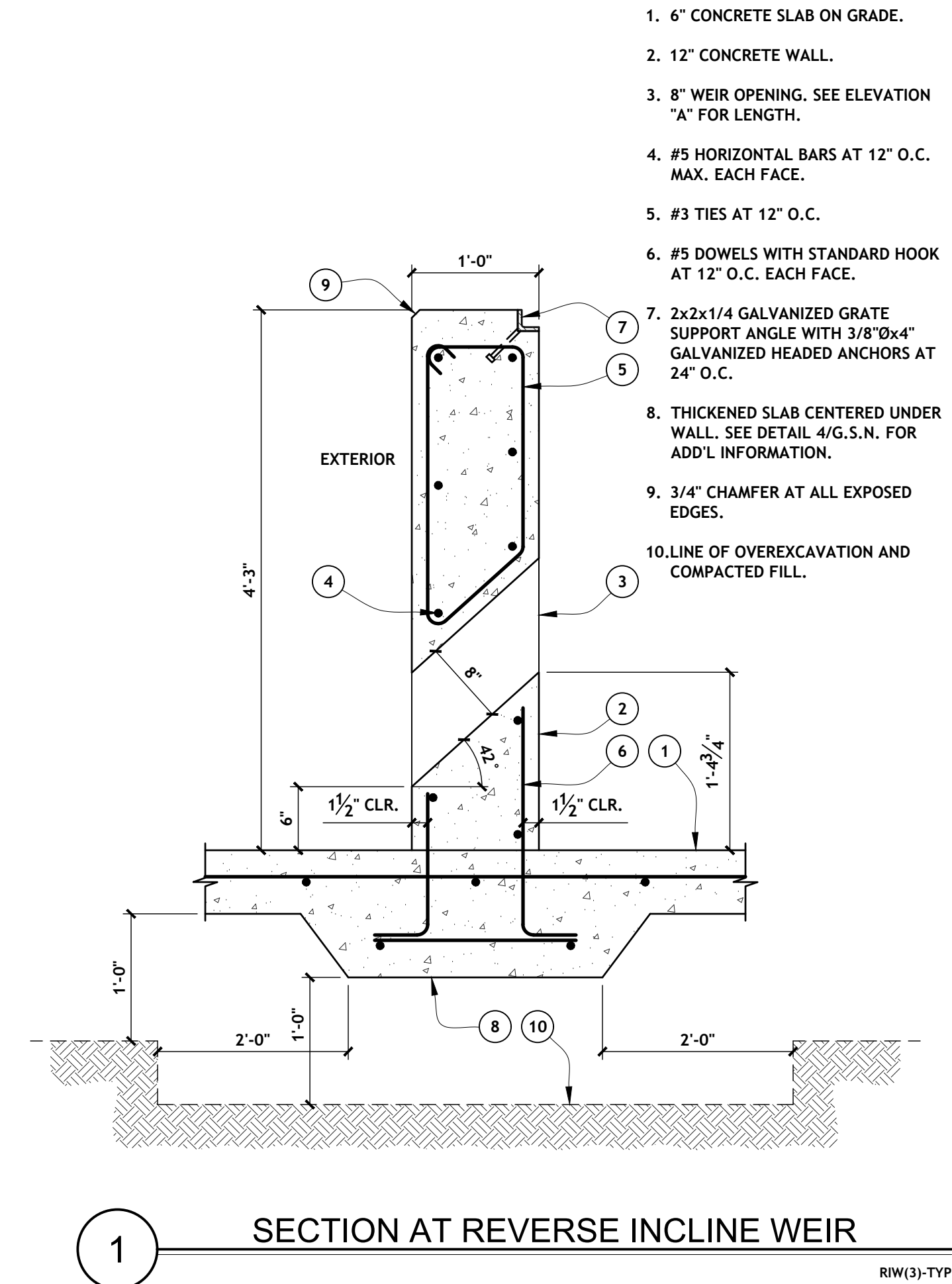
SHEET NO:  
2-8



NOTES:

- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 THE ON GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 14.6 CU.YD. |
| GRATES              | 583.3 LBS.  |
| STRUCTURAL STEEL    | 160.0 LBS.  |
| REBAR               | 1117.0 LBS. |



CHARLES W. STUBBS  
NEW MEXICO  
11704  
03/21/19

TYPE #2  
DESIGN #9

NO. 1  
REVISION DESCRIPTION 5/26/19 CS  
DATE BY

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

42"Ø HORIZONTAL CULVERT - 8'-0"x8'-0" - NO WINGWALLS

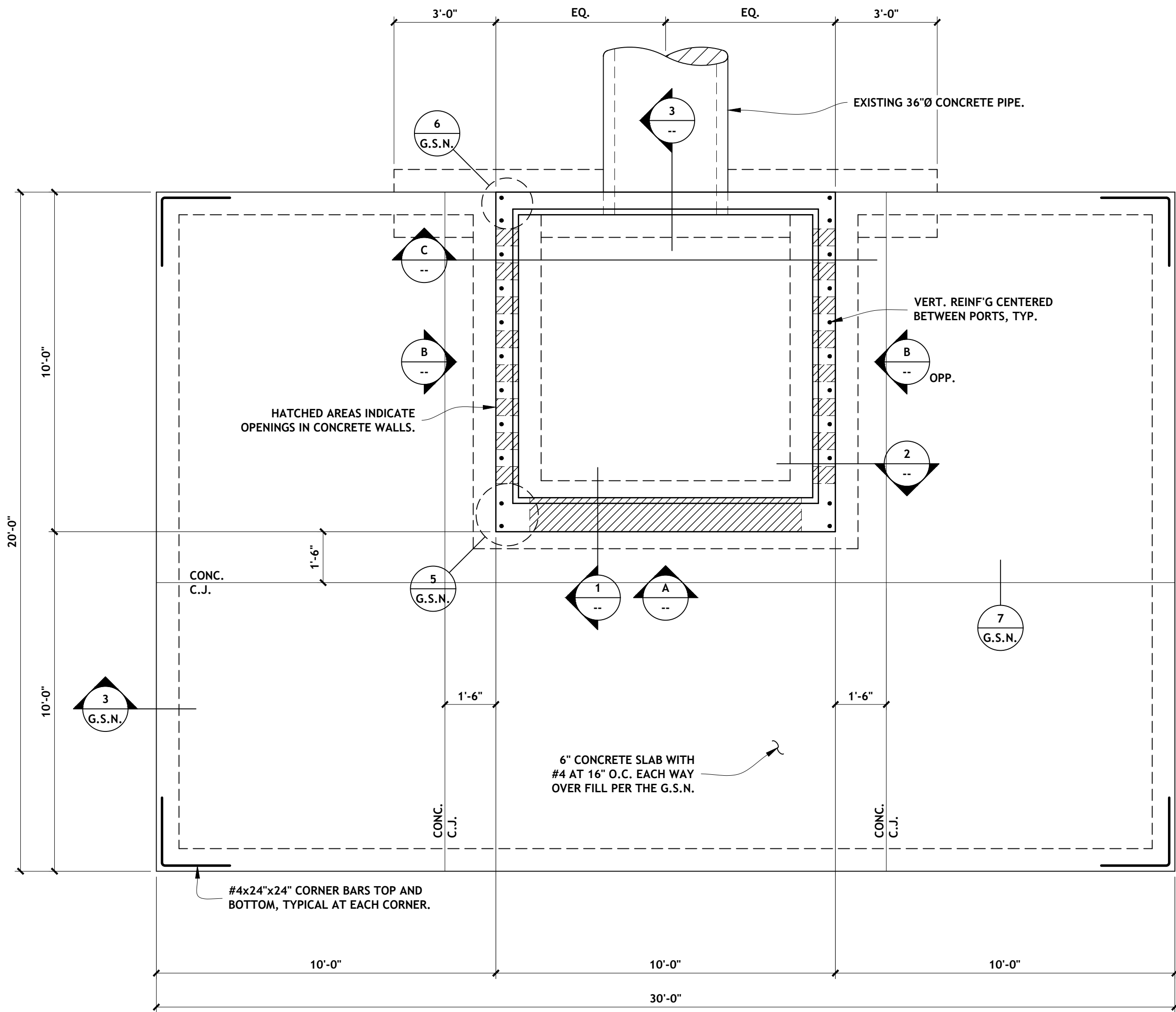
Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

**SMITH**  
ENGINEERING

PROJECT NO:  
117106-07

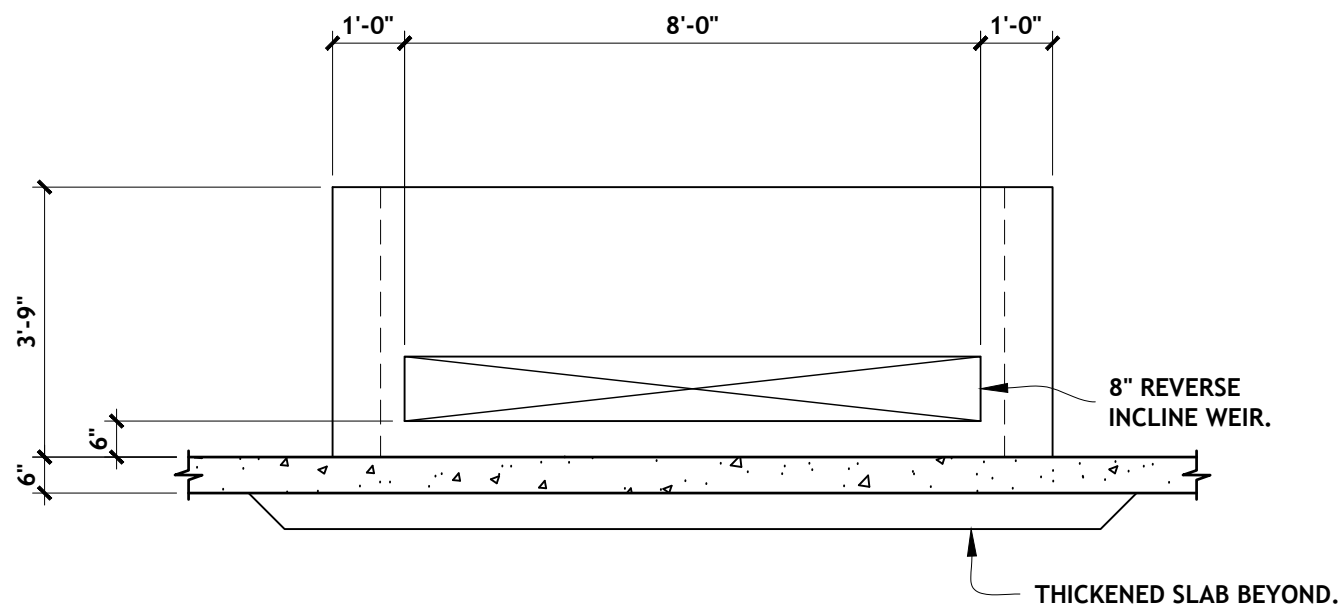
DATE:  
MARCH 2019

SHEET NO:  
2-9



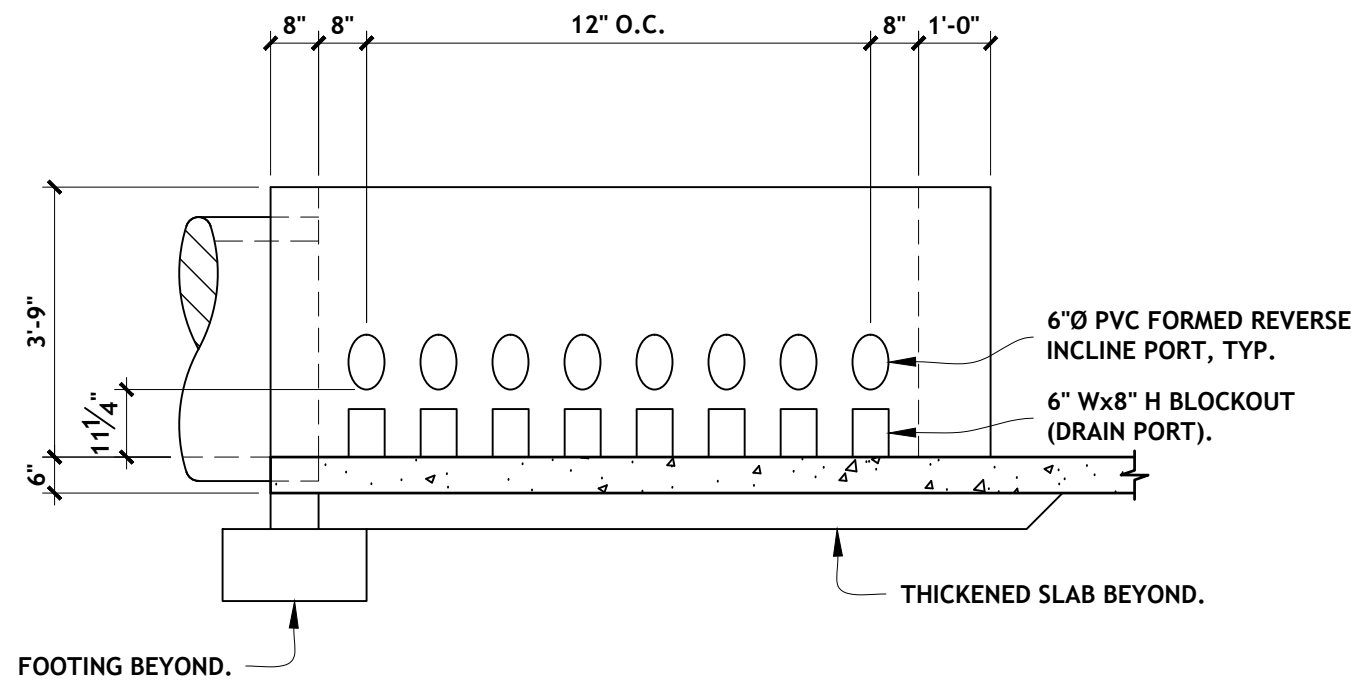
PLAN VIEW

SCALE: 3/8"=1'-0"



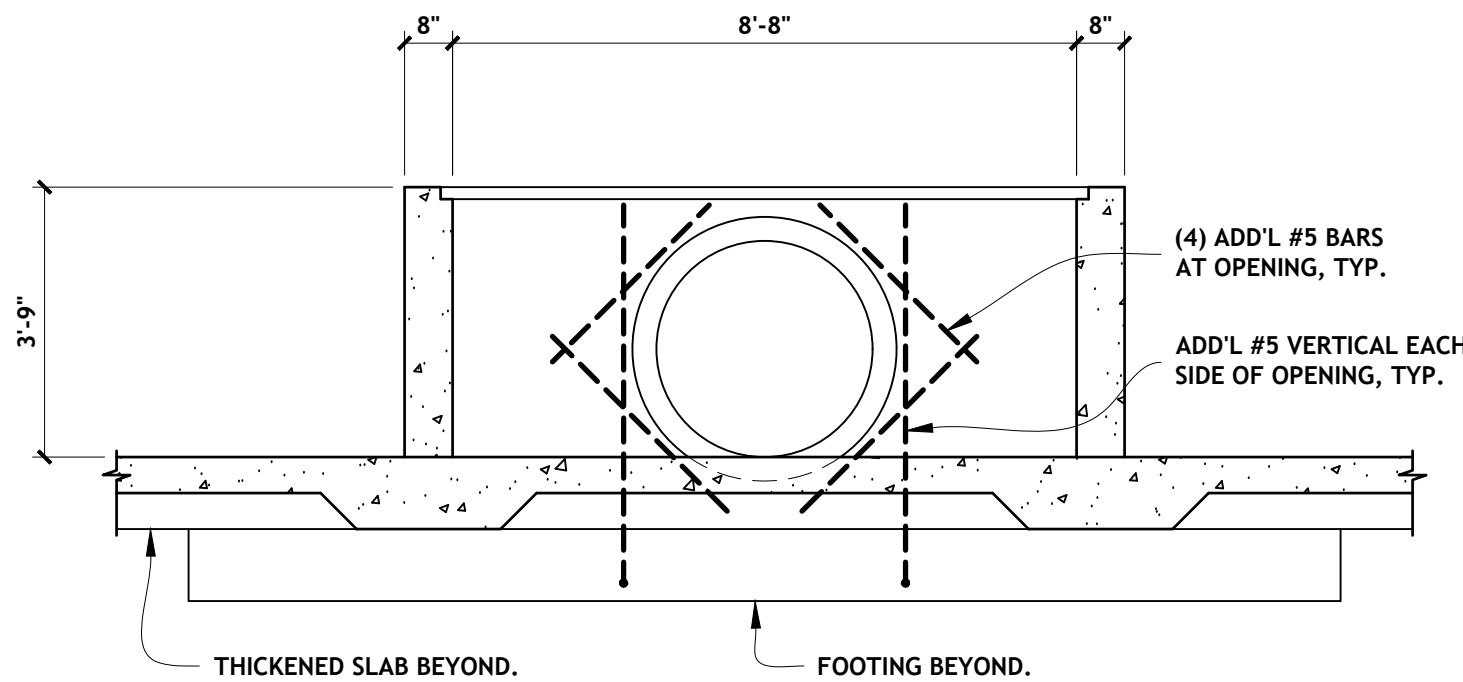
ELEVATION A

SCALE: 3/8"=1'-0"



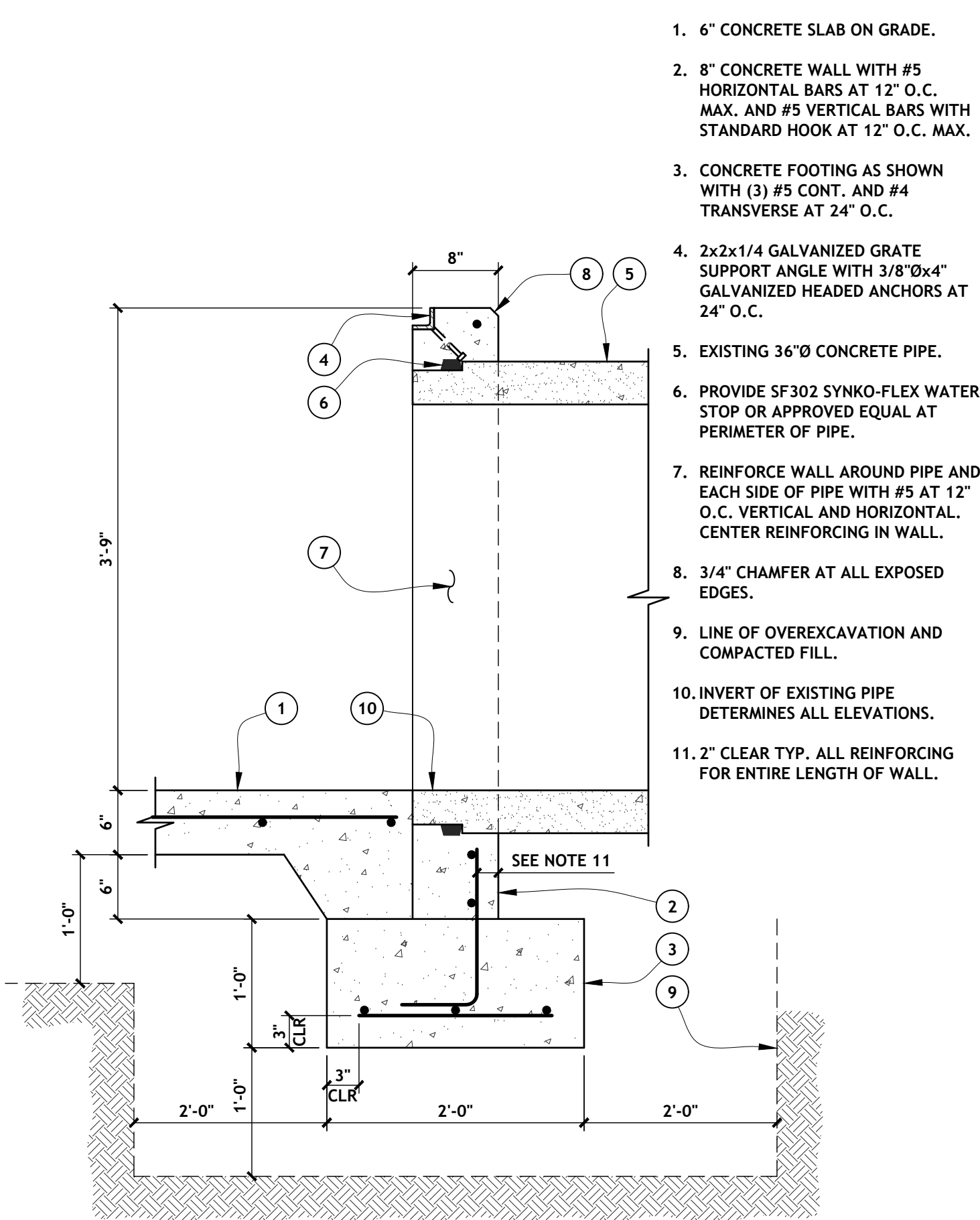
ELEVATION B

SCALE: 3/8"=1'-0"



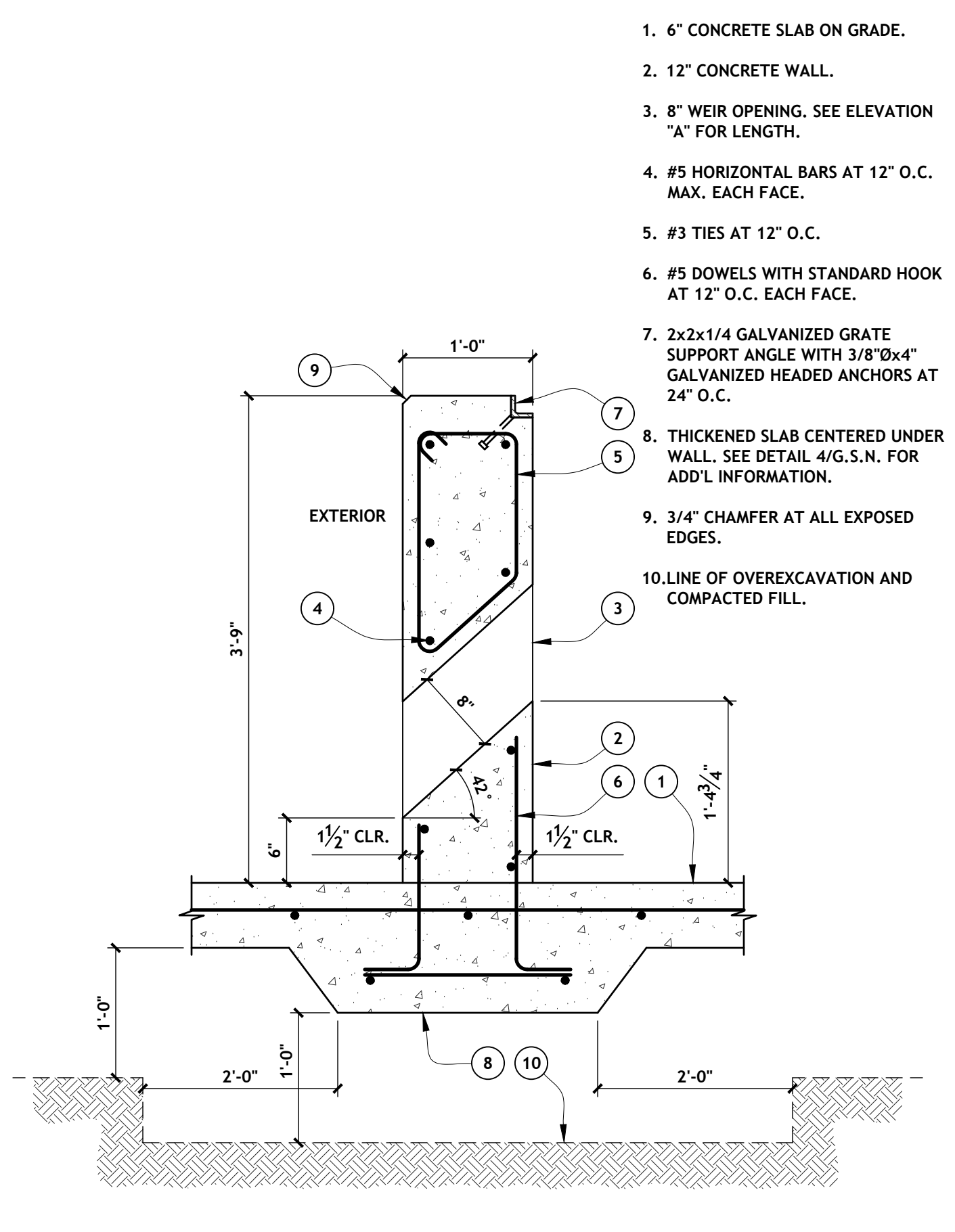
SECTION C

SCALE: 3/8"=1'-0"



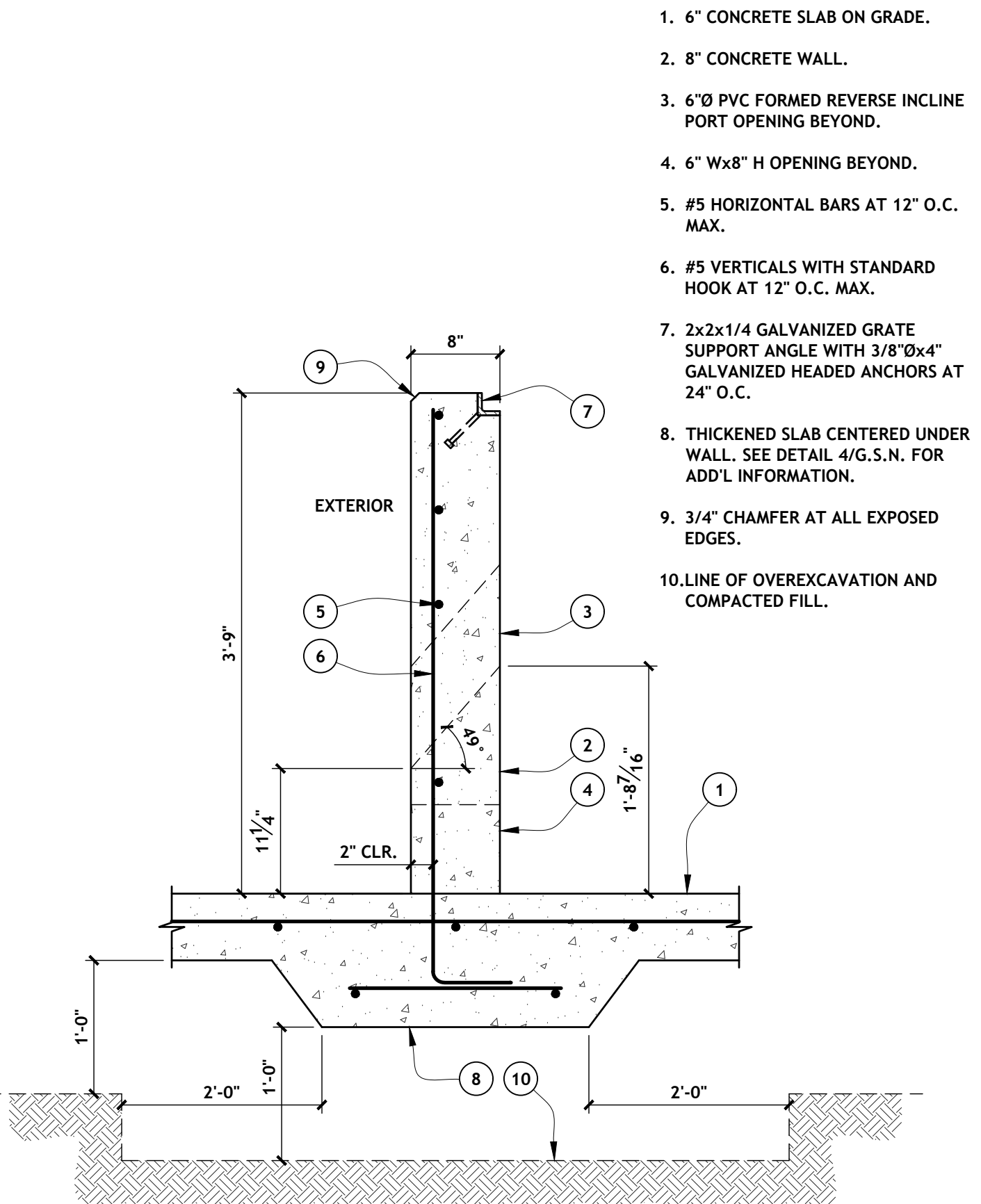
SECTION AT REINFORCED CONCRETE PIPE

RCP(2)-TYP



SECTION AT REVERSE INCLINE WEIR

RIW(2)-TYP



SECTION AT REVERSE INCLINE PORT

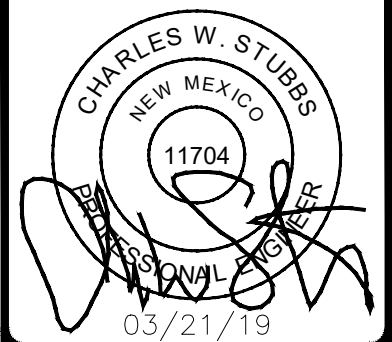
PR(2)-TYP

NOTES:

- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 THE ON GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 17.3 CU.YD. |
| GRATES              | 975.0 LBS.  |
| STRUCTURAL STEEL    | 204.0 LBS.  |
| REBAR               | 1300.0 LBS. |

- 6" CONCRETE SLAB ON GRADE.
- 8" CONCRETE WALL WITH #5 HORIZONTAL BARS AT 12" O.C. MAX. AND #5 VERTICAL BARS WITH STANDARD HOOK AT 12" O.C. MAX.
- CONCRETE FOOTING AS SHOWN WITH (3) #5 CONT. AND #4 TRANSVERSE AT 24" O.C.
- 2x2x1/4 GALVANIZED GRATE SUPPORT ANGLE WITH 3/8"Øx4" GALVANIZED HEADED ANCHORS AT 24" O.C.
- EXISTING 36"Ø CONCRETE PIPE.
- PROVIDE SF302 SYNKO-FLEX WATER STOP OR APPROVED EQUAL AT PERIMETER OF PIPE.
- REINFORCE WALL AROUND PIPE AND EACH SIDE OF PIPE WITH #5 AT 12" O.C. VERTICAL AND HORIZONTAL. CENTER REINFORCING IN WALL.
- 3/4" CHAMFER AT ALL EXPOSED EDGES.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.
- INVERT OF EXISTING PIPE DETERMINES ALL ELEVATIONS.
- 2" CLEAR TYP. ALL REINFORCING FOR ENTIRE LENGTH OF WALL.
- 6" CONCRETE SLAB ON GRADE.
- 12" CONCRETE WALL.
- 8" WEIR OPENING. SEE ELEVATION "A" FOR LENGTH.
- #5 HORIZONTAL BARS AT 12" O.C. MAX. EACH FACE.
- #3 TIES AT 12" O.C.
- #5 DOWELS WITH STANDARD HOOK AT 12" O.C. EACH FACE.
- 2x2x1/4 GALVANIZED GRATE SUPPORT ANGLE WITH 3/8"Øx4" GALVANIZED HEADED ANCHORS AT 24" O.C.
- THICKENED SLAB CENTERED UNDER WALL. SEE DETAIL 4/G.S.N. FOR ADD'L INFORMATION.
- 3/4" CHAMFER AT ALL EXPOSED EDGES.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.



TYPE #2  
DESIGN #10

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS  
36"Ø HORIZONTAL CULVERT - 10'-0"x10'-0" - NO WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



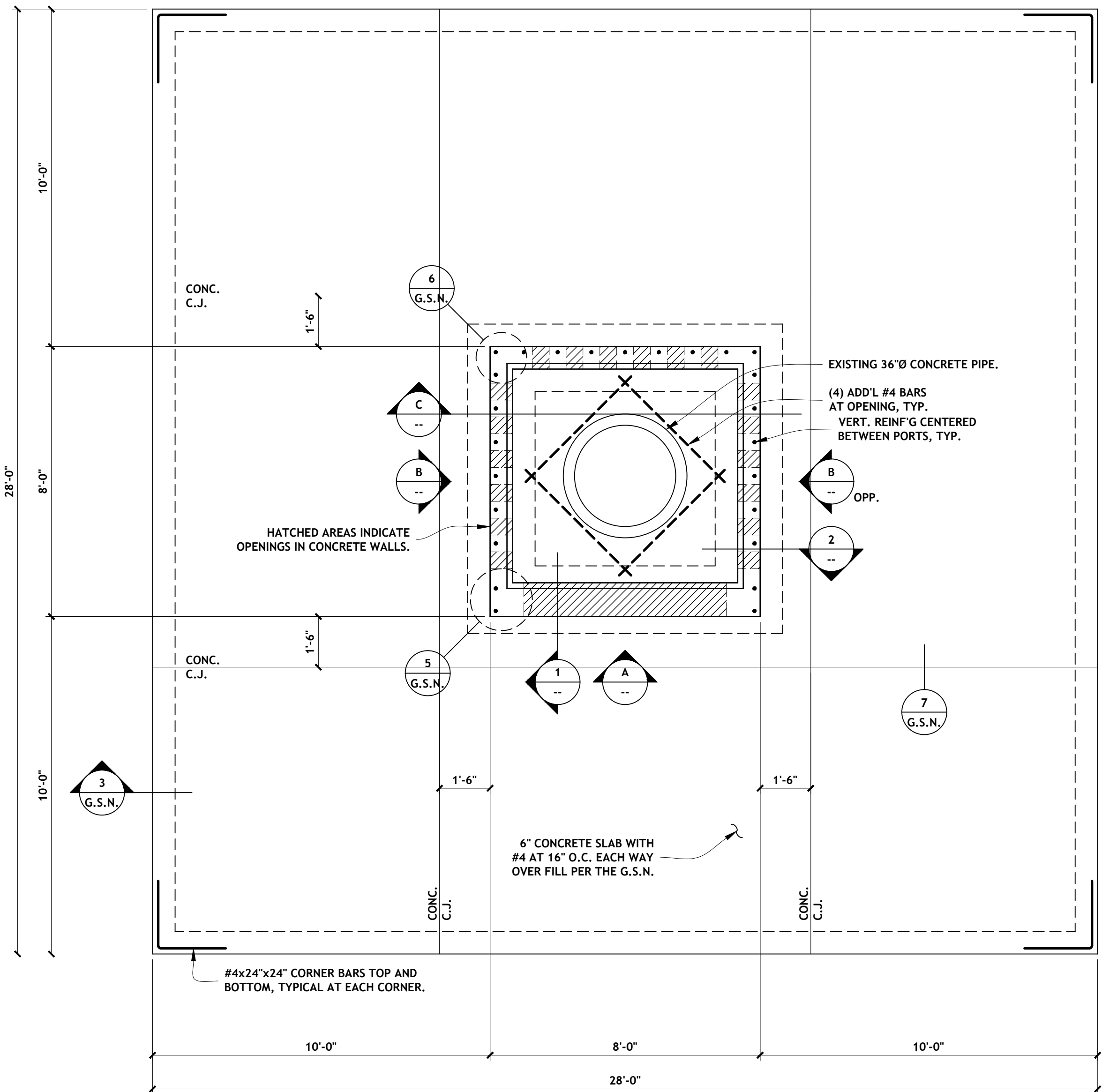
PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
2-10





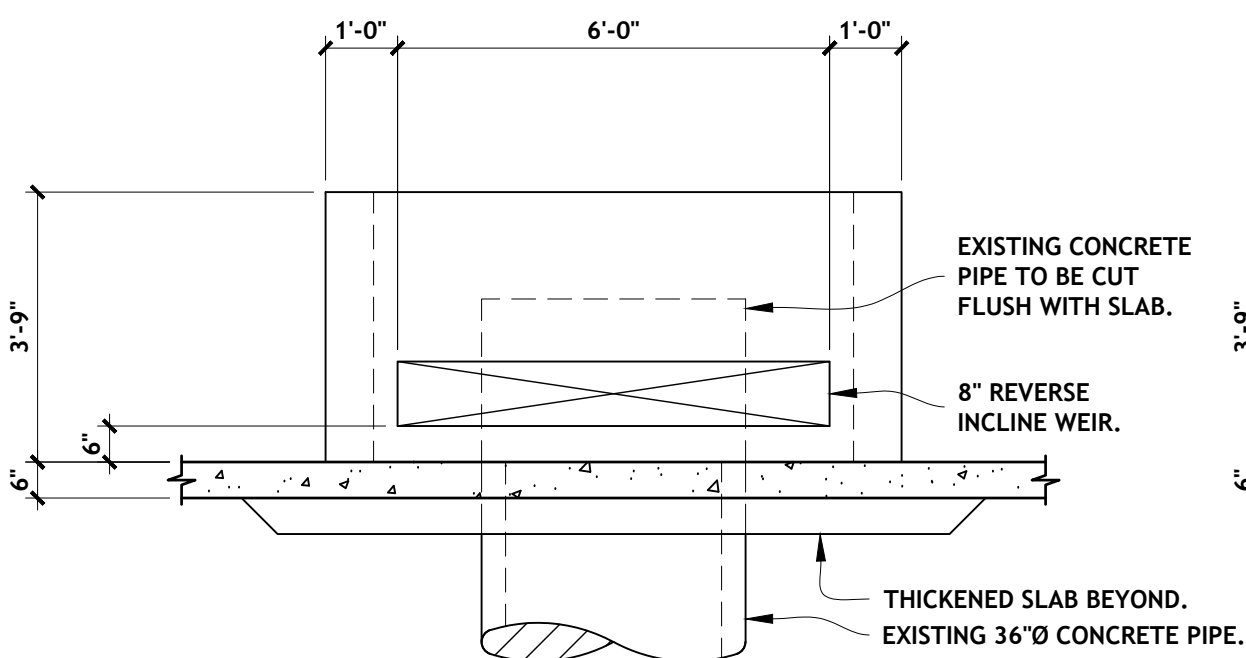






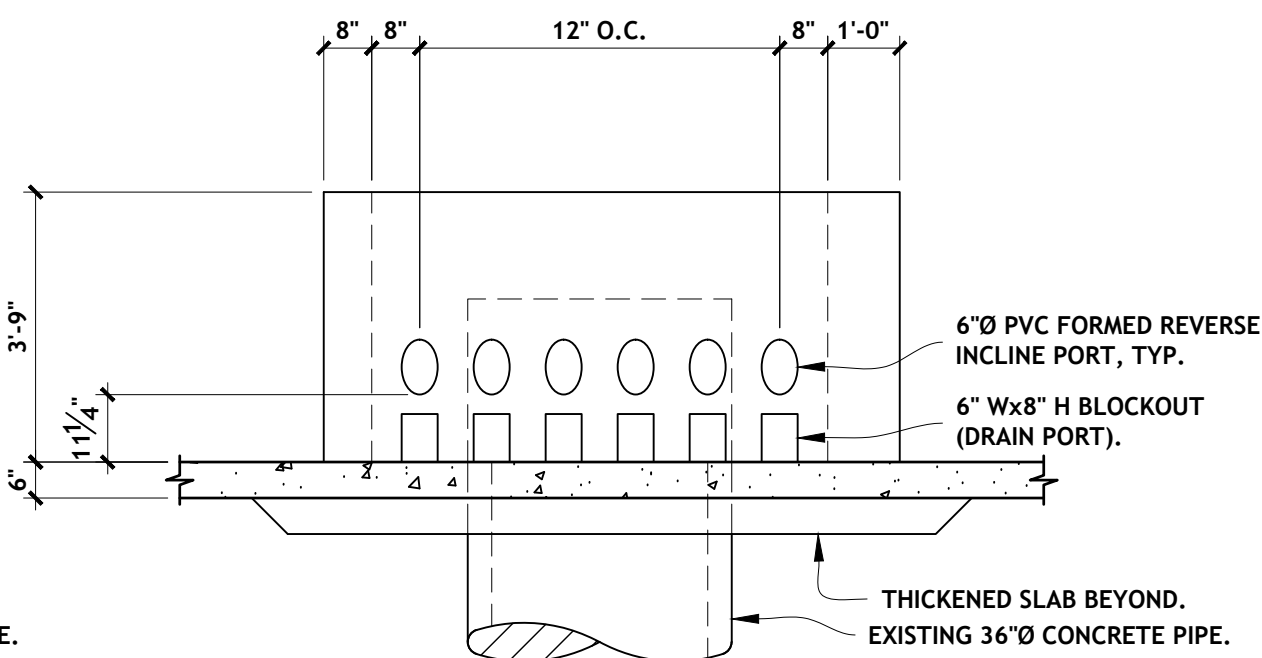
PLAN VIEW

SCALE: 3/8"=1'-0"



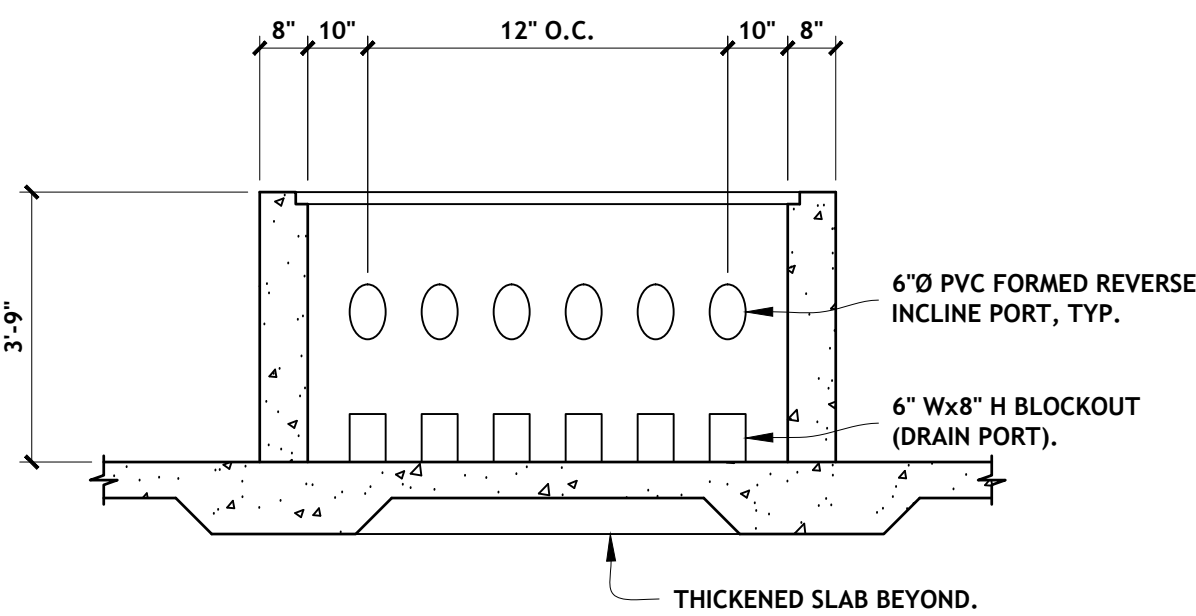
ELEVATION A

SCALE: 3/8"=1'-0"



ELEVATION B

SCALE: 3/8"=1'-0"



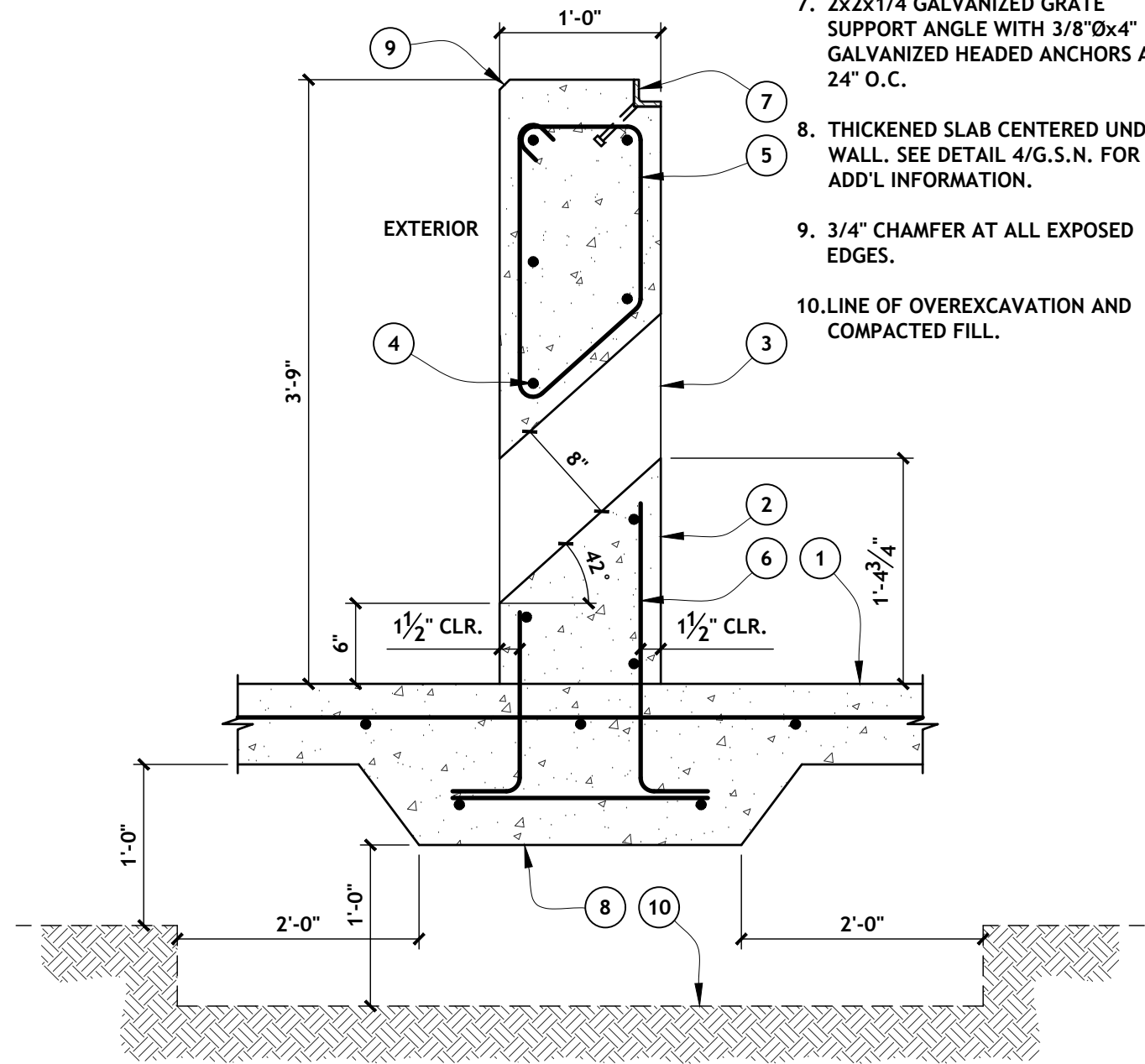
SECTION C

SCALE: 3/8"=1'-0"

NOTES:

- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 ON THE GRATES SHEET.

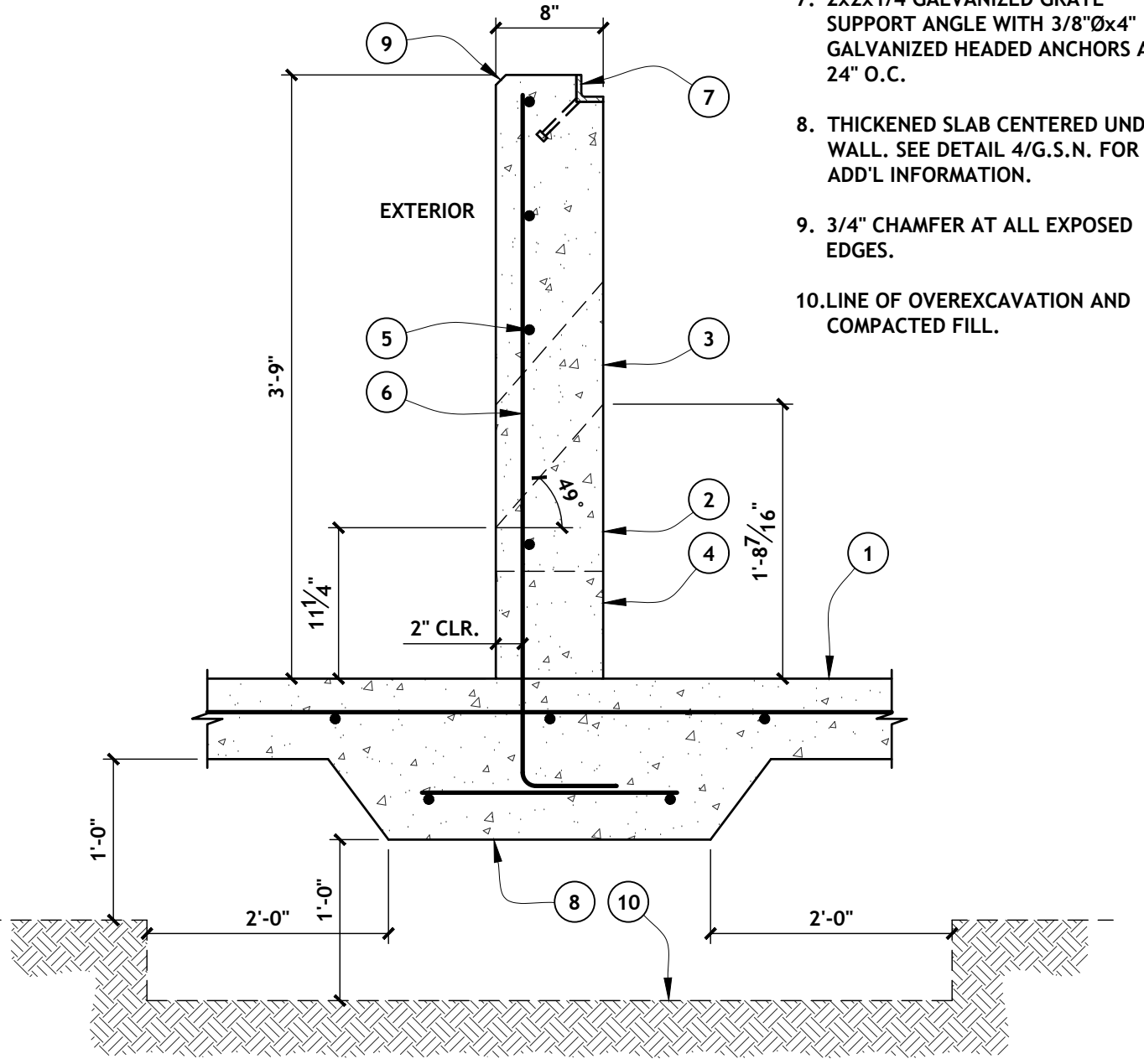
| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 19.2 CU.YD. |
| GRATES              | 583.3 LBS.  |
| STRUCTURAL STEEL    | 160.0 LBS.  |
| REBAR               | 1427.0 LBS. |



SECTION AT REVERSE INCLINE WEIR

RIW(2)-TYP

- 6" CONCRETE SLAB ON GRADE.
- 12" CONCRETE WALL.
- 8" WEIR OPENING. SEE ELEVATION "A" FOR LENGTH.
- #5 HORIZONTAL BARS AT 12" O.C. MAX. EACH FACE.
- #3 TIES AT 12" O.C.
- #5 DOWELS WITH STANDARD HOOK AT 12" O.C. EACH FACE.
- 2x2x1/4 GALVANIZED GRATE SUPPORT ANGLE WITH 3/8"Øx4" GALVANIZED HEADED ANCHORS AT 24" O.C.
- THICKENED SLAB CENTERED UNDER WALL. SEE DETAIL 4/G.S.N. FOR ADD'L INFORMATION.
- 3/4" CHAMFER AT ALL EXPOSED EDGES.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.



SECTION AT REVERSE INCLINE PORT

PR(2)-TYP

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

36"Ø VERTICAL CULVERT - 8'-0"x8'-0" - NO WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



PROJECT NO:

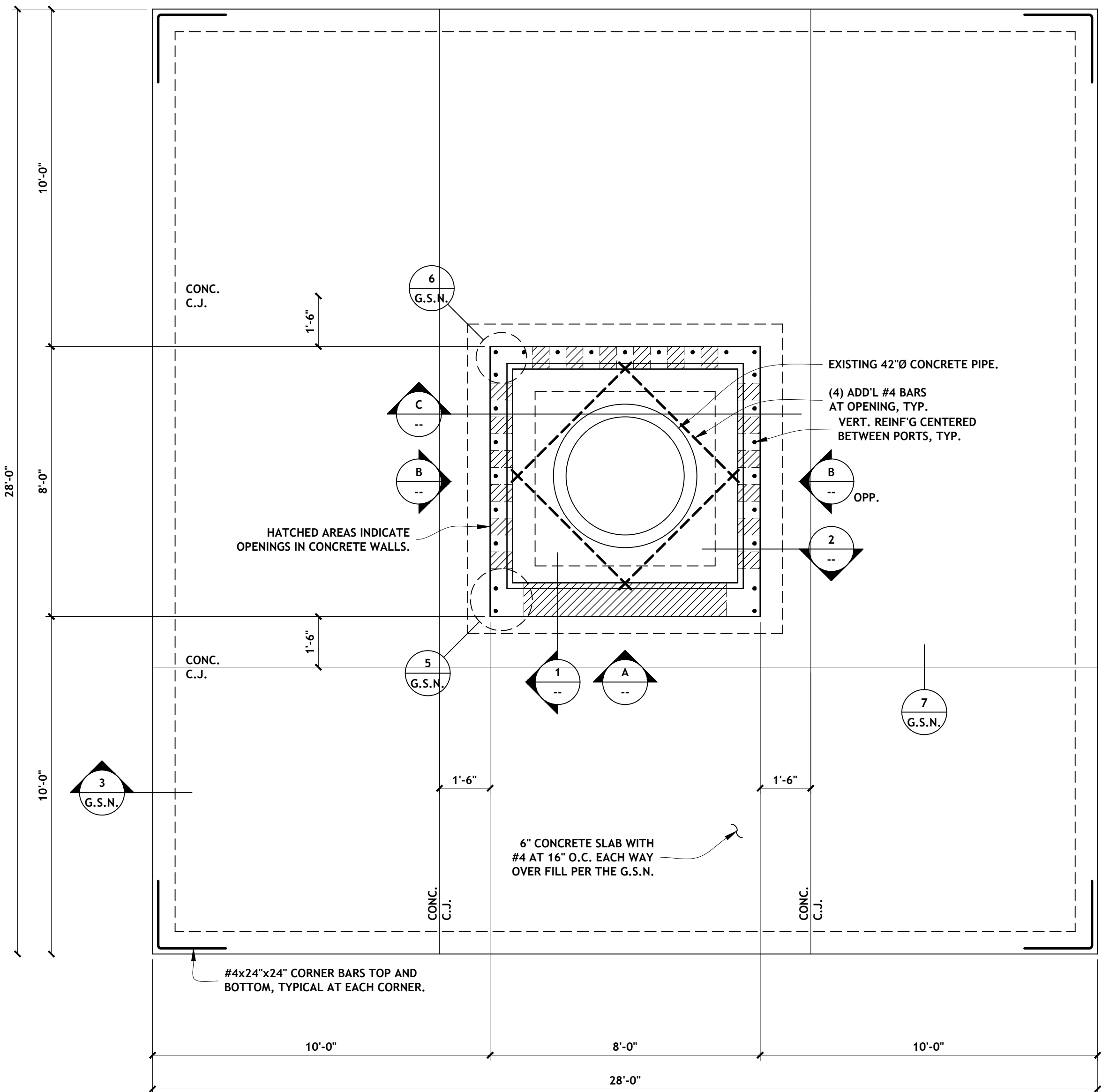
117106-07

DATE:

MARCH 2019

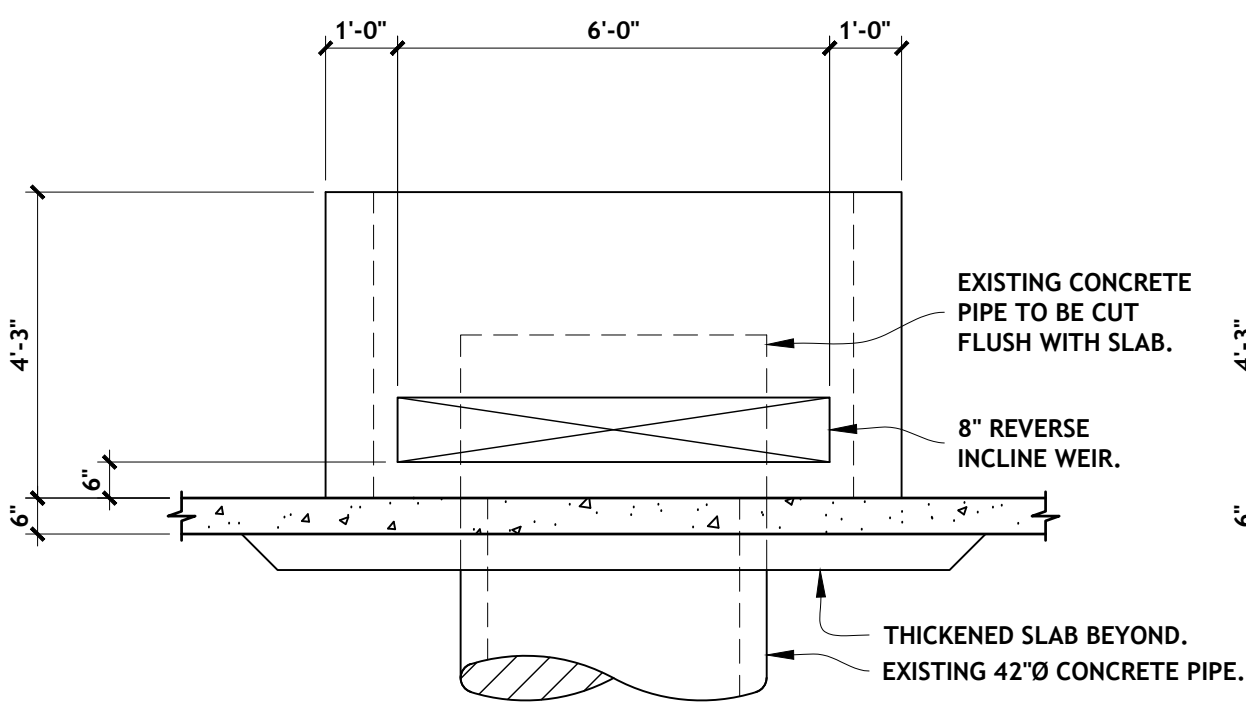
SHEET NO:

3-14



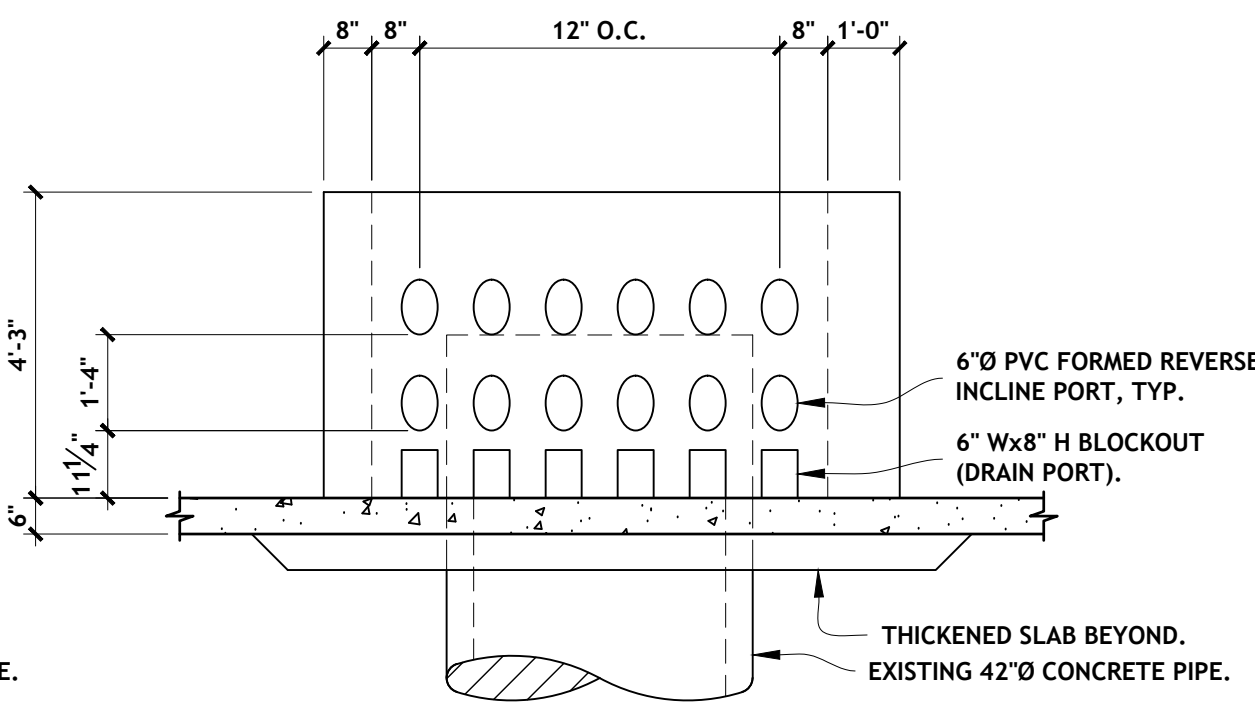
PLAN VIEW

SCALE: 3/8"=1'-0"



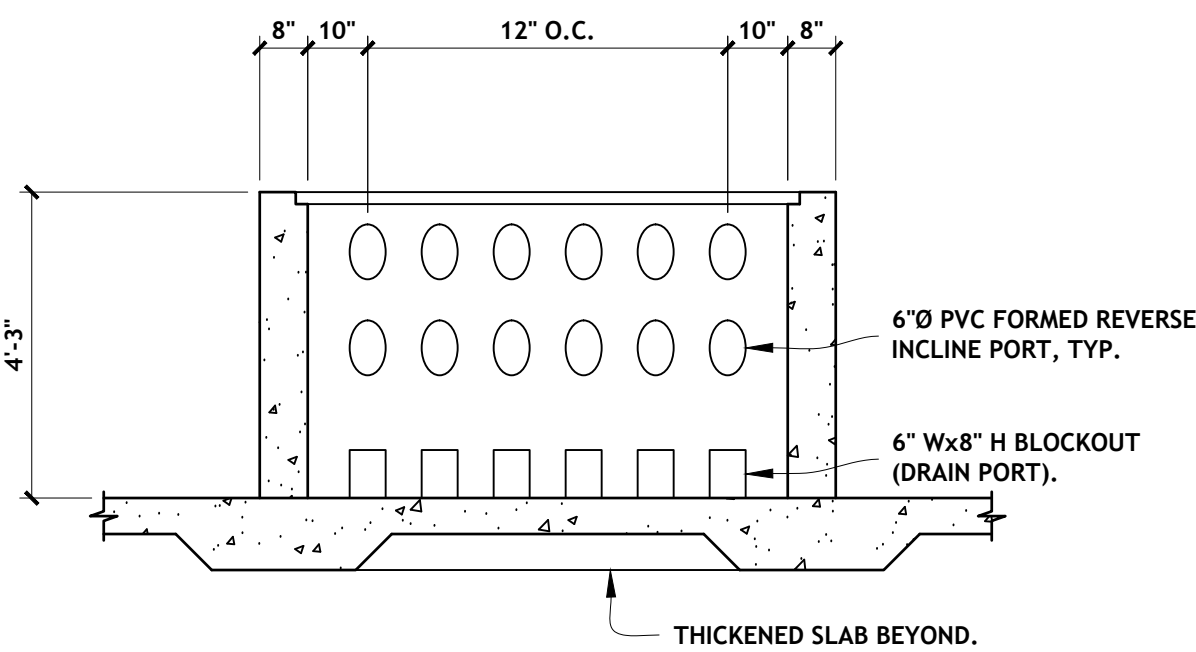
ELEVATION A

SCALE: 3/8"=1'-0"



ELEVATION B

SCALE: 3/8"=1'-0"



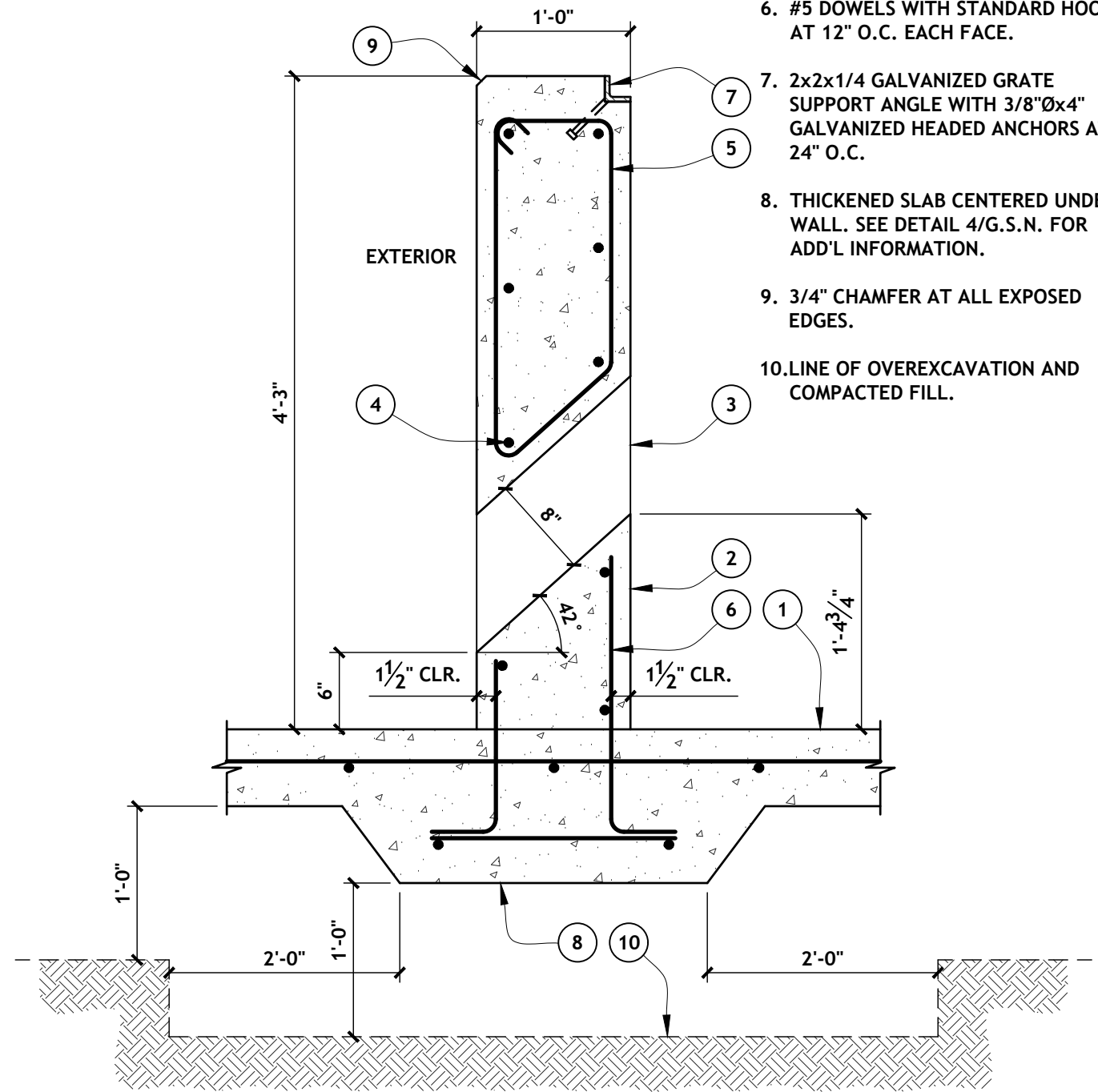
SECTION C

SCALE: 3/8"=1'-0"

NOTES:

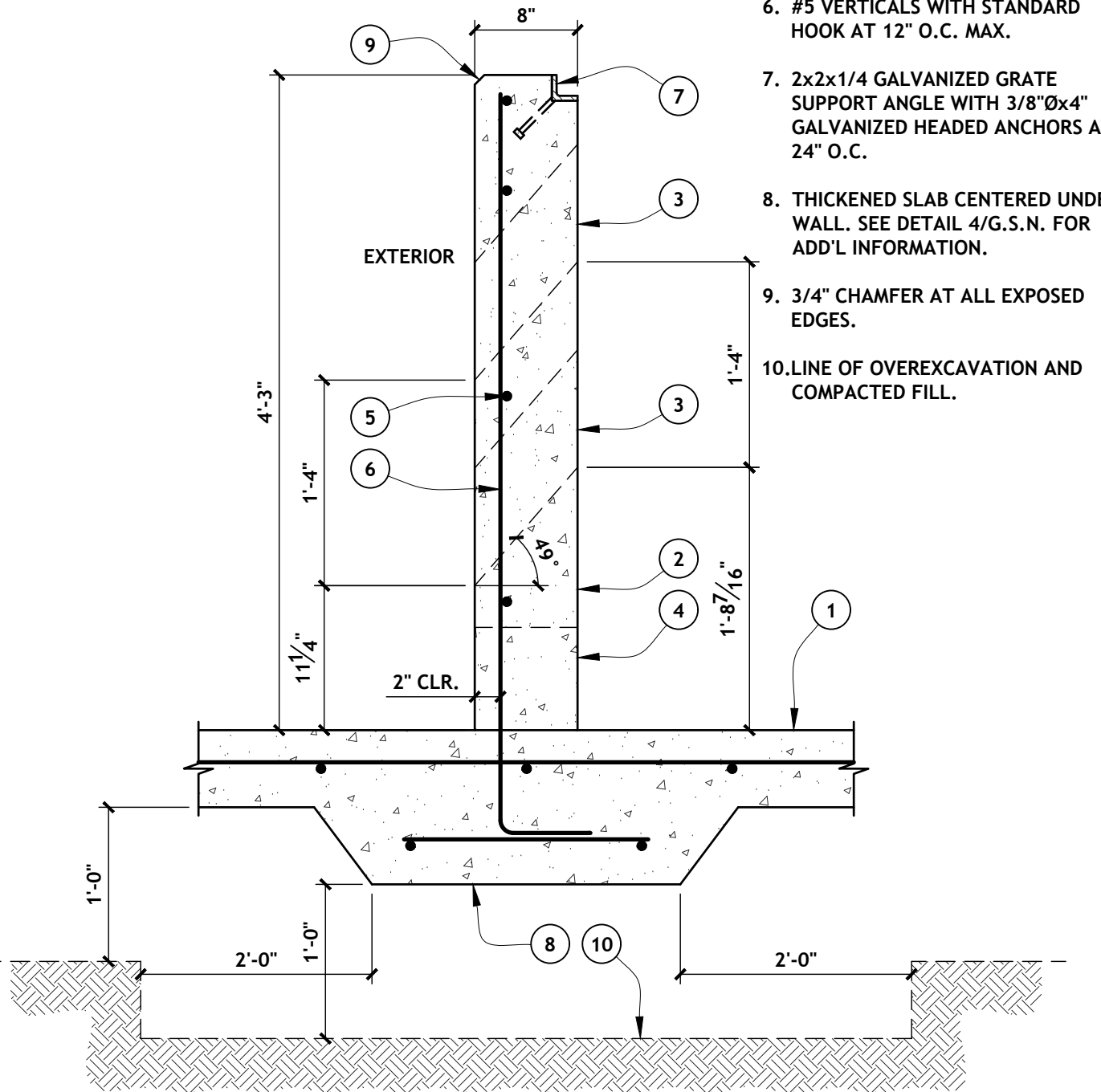
1. THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
2. SEE THE G.S.N. SHEET FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
3. THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
4. THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 19.4 CU.YD. |
| GRATES              | 583.3 LBS.  |
| STRUCTURAL STEEL    | 160.0 LBS.  |
| REBAR               | 1464.0 LBS. |



SECTION AT REVERSE INCLINE WEIR

RIW(3)-TYP



SECTION AT REVERSE INCLINE PORTS

PR(3)-TYP

CHARLES W. STUBBS  
NEW MEXICO  
11704  
03/21/19

TYPE #3  
DESIGN #15

NO. 5  
BY 4  
DATE 3  
DESCRIPTION 2  
ISSUED FOR CONSTRUCTION 5/26/19

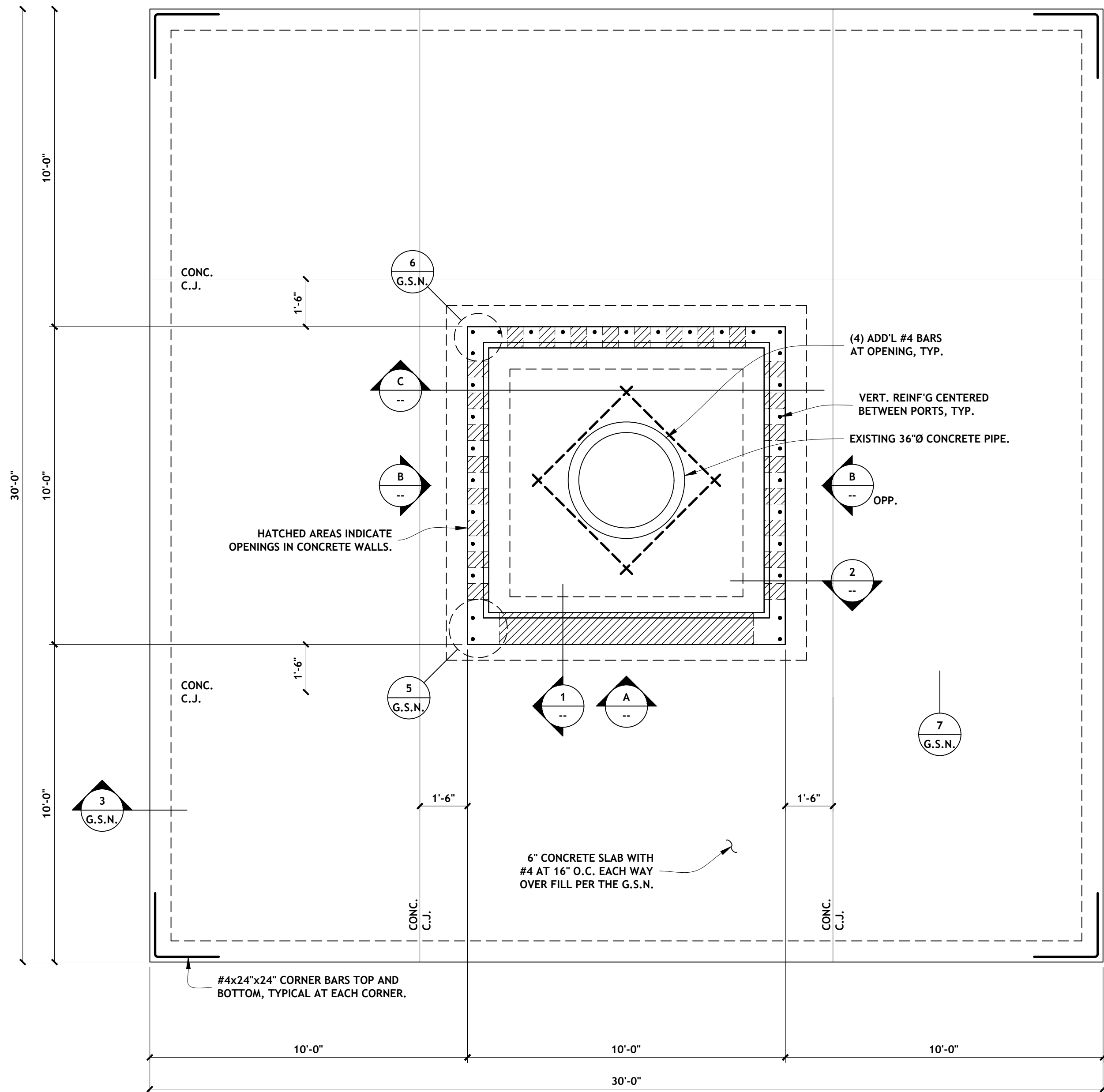
CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

42"Ø VERTICAL CULVERT - 8'-0"x8'-0" - NO WINGWALLS

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

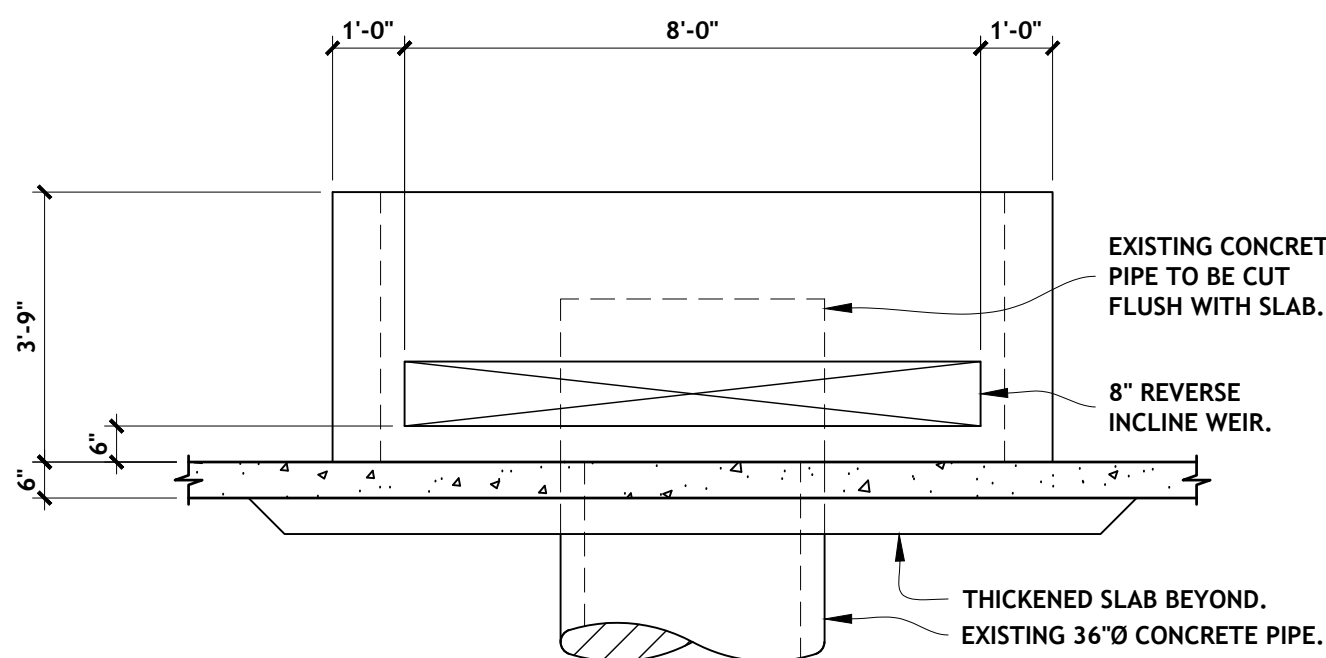
**SMITH**  
ENGINEERING

PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
3-15



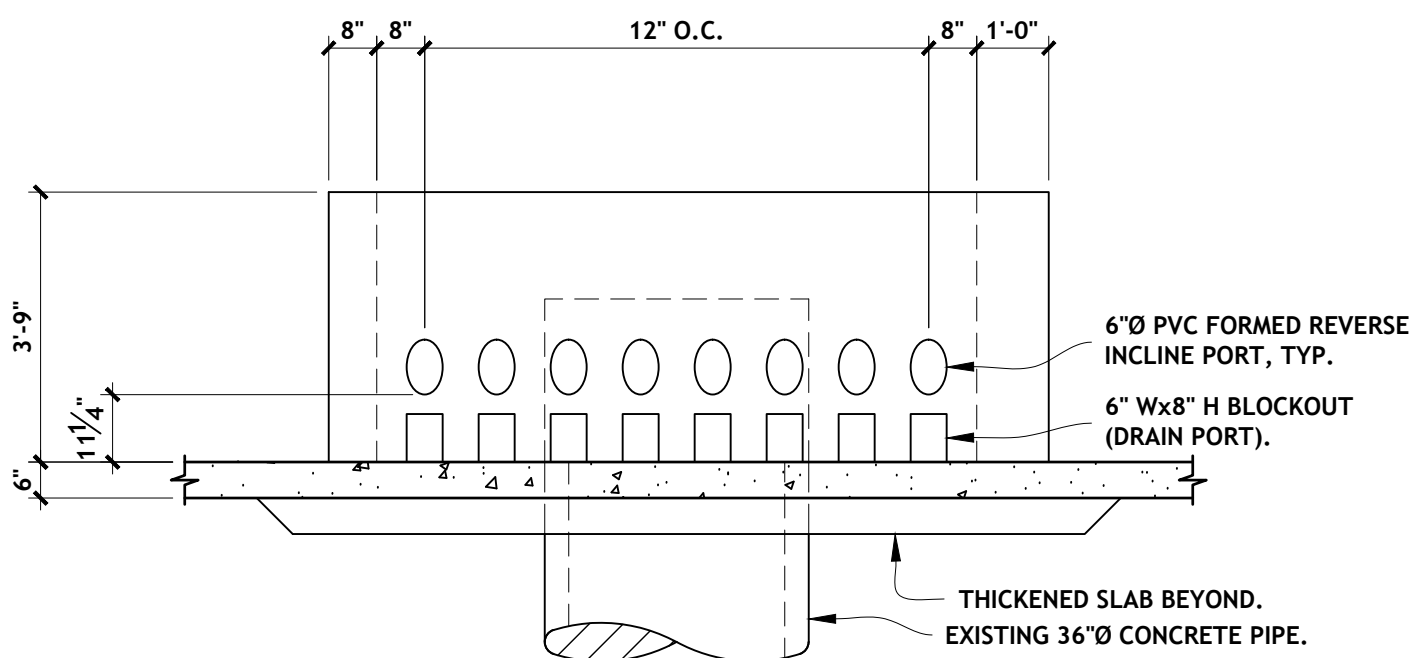
PLAN VIEW

SCALE: 3/8"=1'-0"



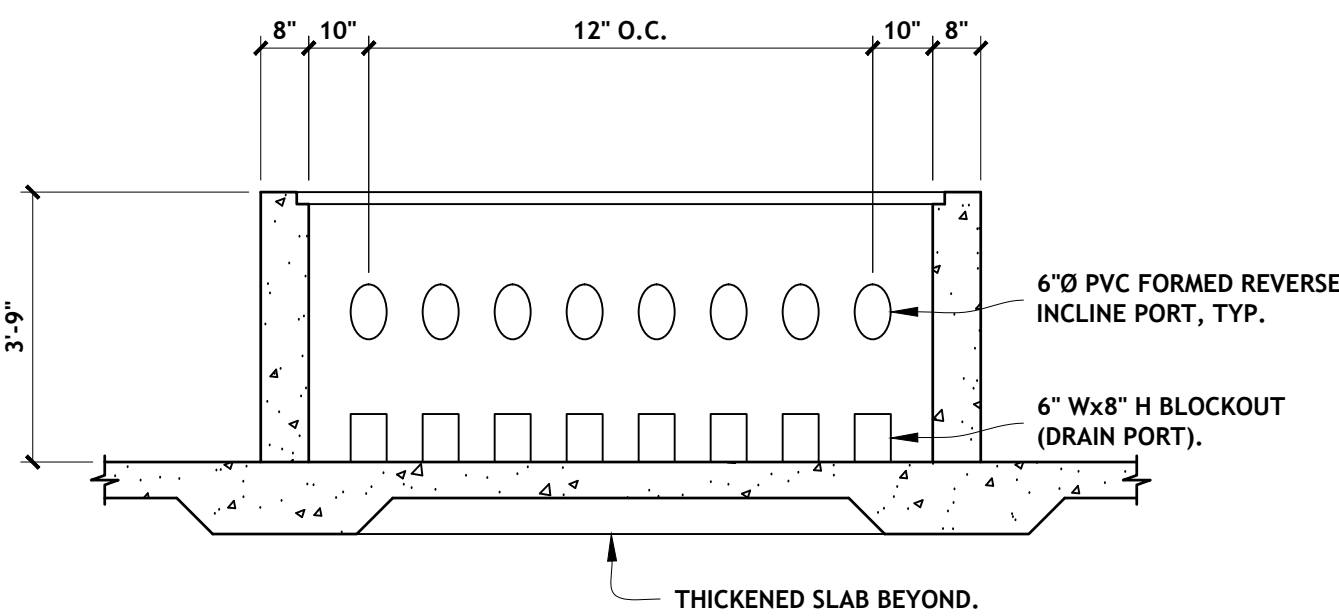
ELEVATION A

SCALE: 3/8"=1'-0"



ELEVATION B

SCALE: 3/8"=1'-0"



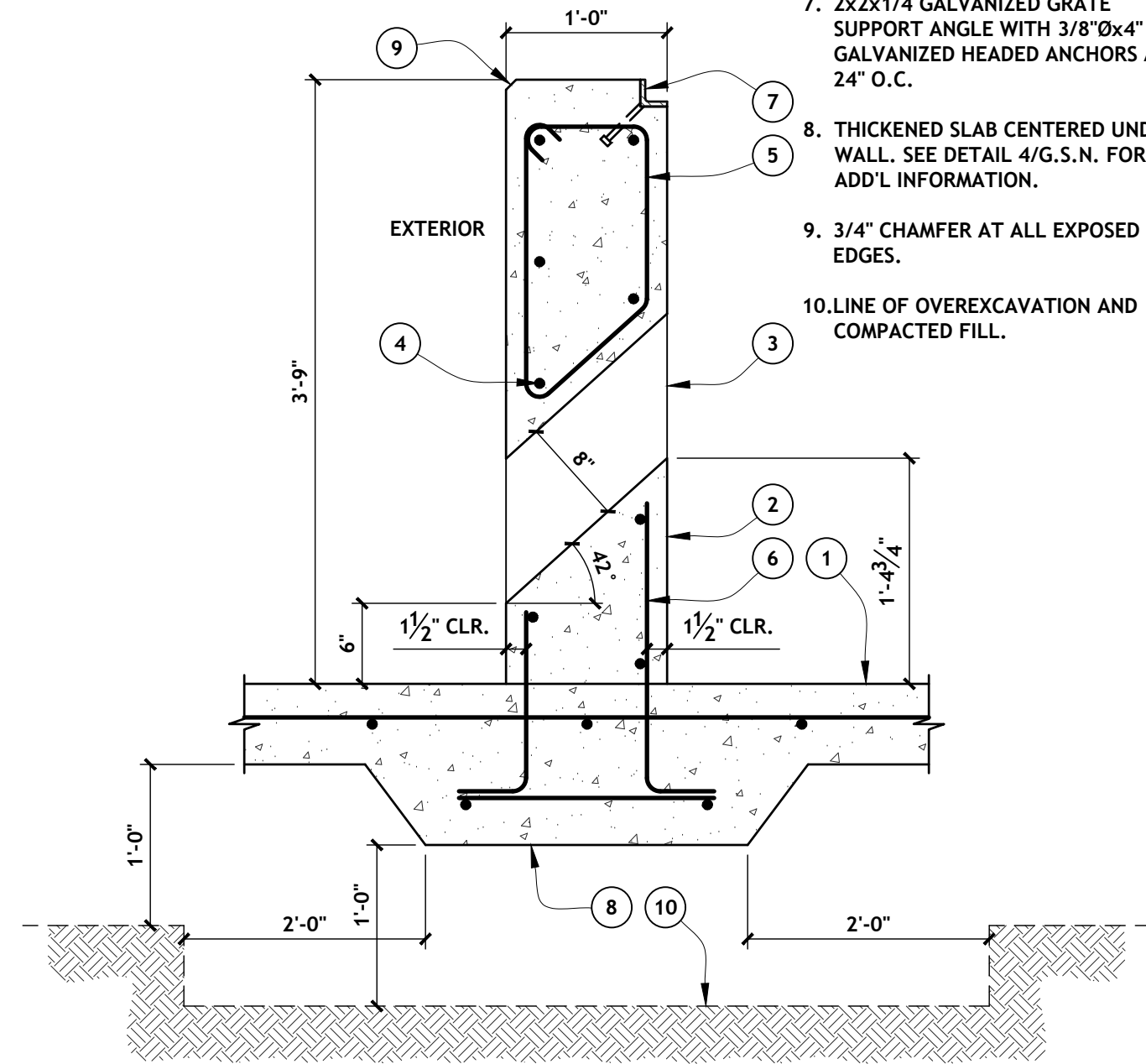
SECTION C

SCALE: 3/8"=1'-0"

NOTES:

- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER ALL PORT OPENINGS PER DETAIL 3 ON THE GRATES SHEET.

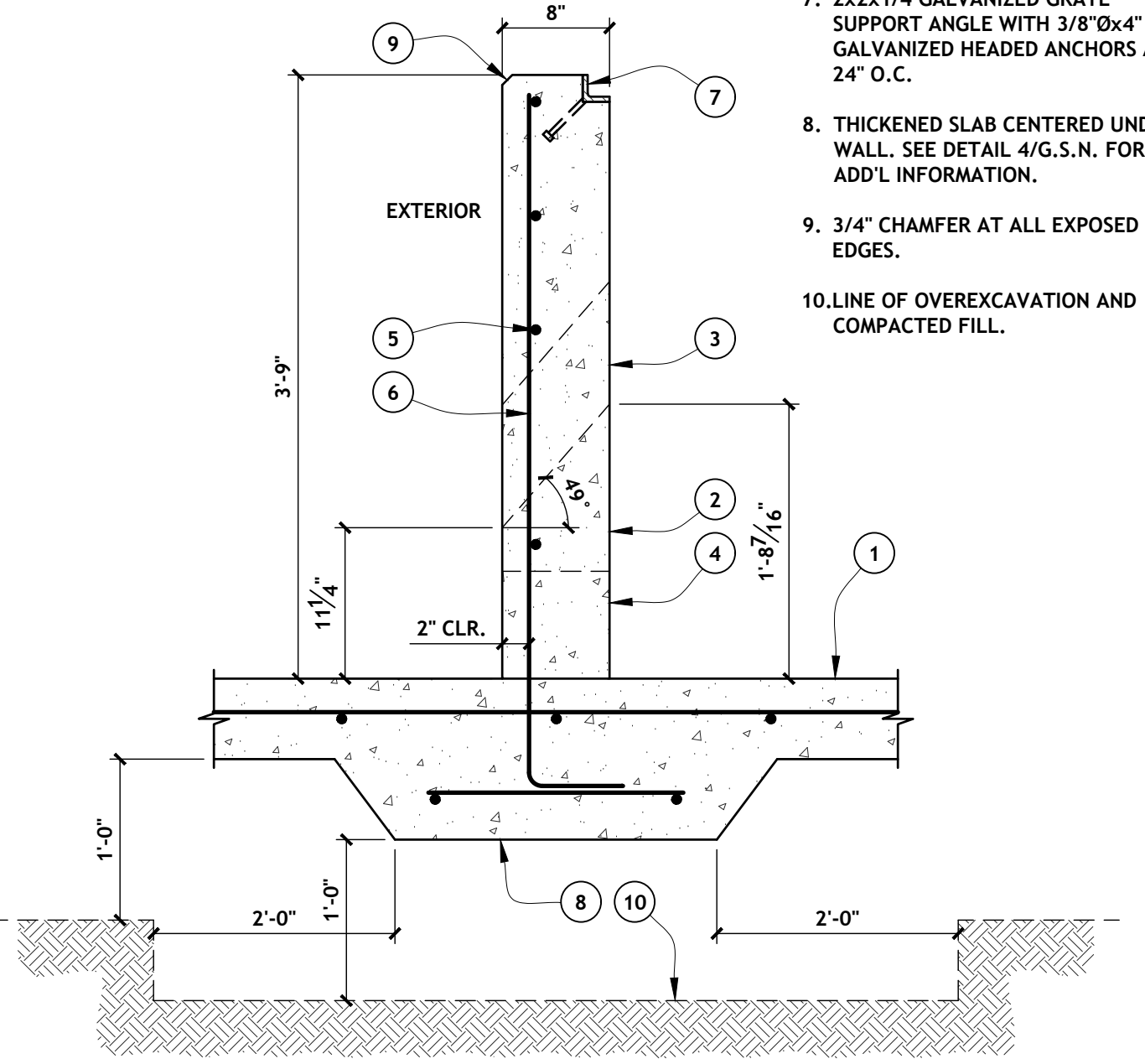
| MATERIAL QUANTITIES |              |
|---------------------|--------------|
| CONCRETE            | 22.4 CU. YD. |
| GRATES              | 975.0 LBS.   |
| STRUCTURAL STEEL    | 204.0 LBS.   |
| REBAR               | 1666.0 LBS.  |



1 SECTION AT REVERSE INCLINE WEIR

RIW(2)-TYP

- 6" CONCRETE SLAB ON GRADE.
- 12" CONCRETE WALL.
- 8" WEIR OPENING. SEE ELEVATION "A" FOR LENGTH.
- #5 HORIZONTAL BARS AT 12" O.C. MAX. EACH FACE.
- #3 TIES AT 12" O.C.
- #5 DOWELS WITH STANDARD HOOK AT 12" O.C. EACH FACE.
- 2x2x1/4 GALVANIZED GRATE SUPPORT ANGLE WITH 3/8"x4" GALVANIZED HEADED ANCHORS AT 24" O.C.
- THICKENED SLAB CENTERED UNDER WALL. SEE DETAIL 4/G.S.N. FOR ADD'L INFORMATION.
- 3/4" CHAMFER AT ALL EXPOSED EDGES.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.



2 SECTION AT REVERSE INCLINE PORT

PR(2)-TYP

CHARLES W. STUBBS  
NEW MEXICO  
11704  
03/21/19

TYPE #3  
DESIGN #16

NO. 1  
REVISION DESCRIPTION 5/26/19 CS  
DATE BY

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

36"Ø VERTICAL CULVERT - 10'-0"x10'-0" - NO WINGWALLS

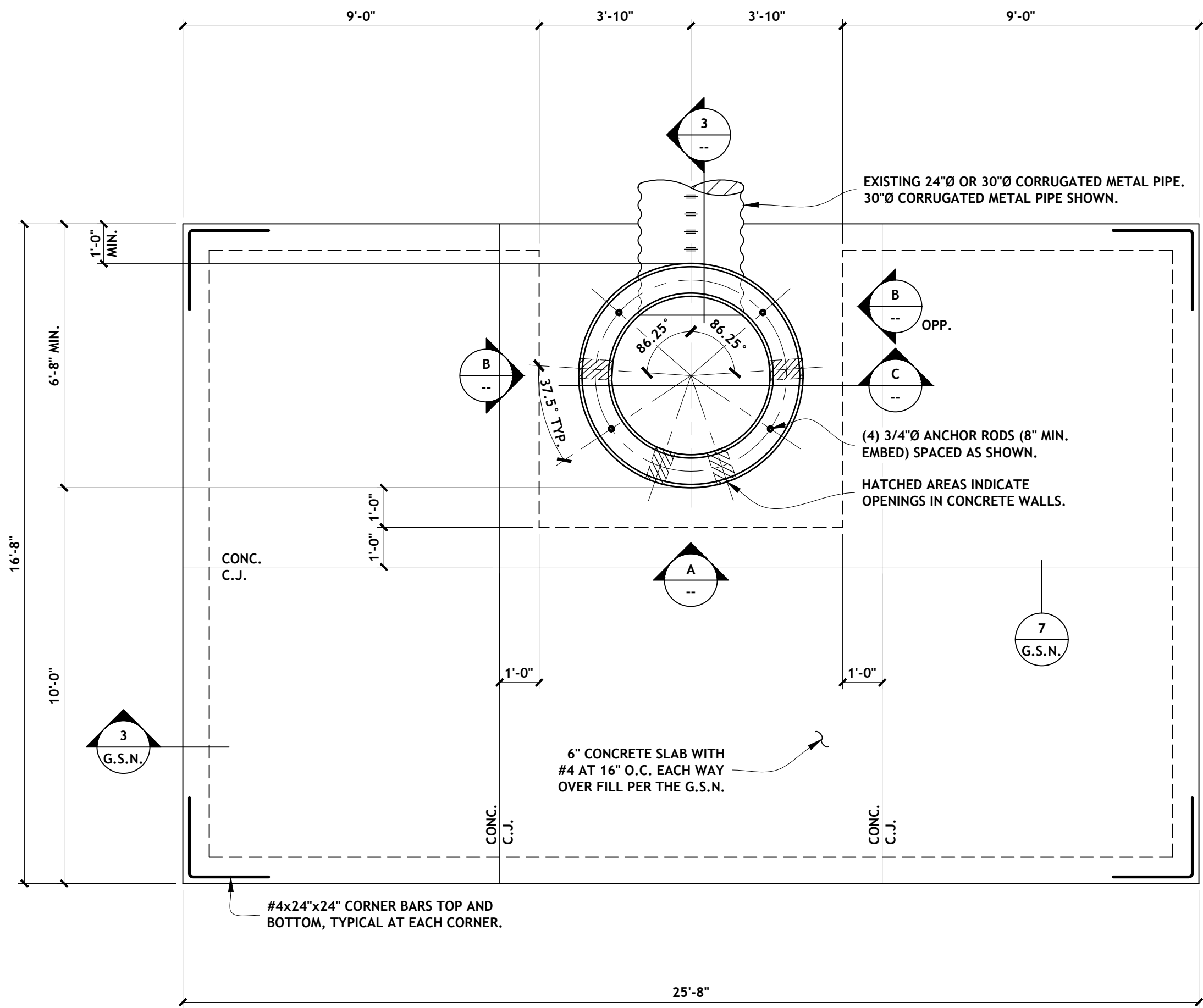
Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
3-16









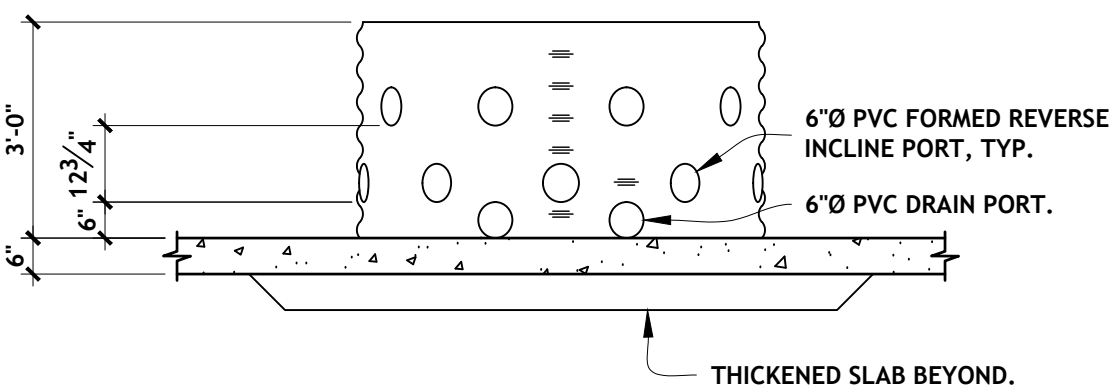
PLAN VIEW - LEVEL 1 DRAIN PORTS

SCALE: 3/8"=1'-0"

NOTES:

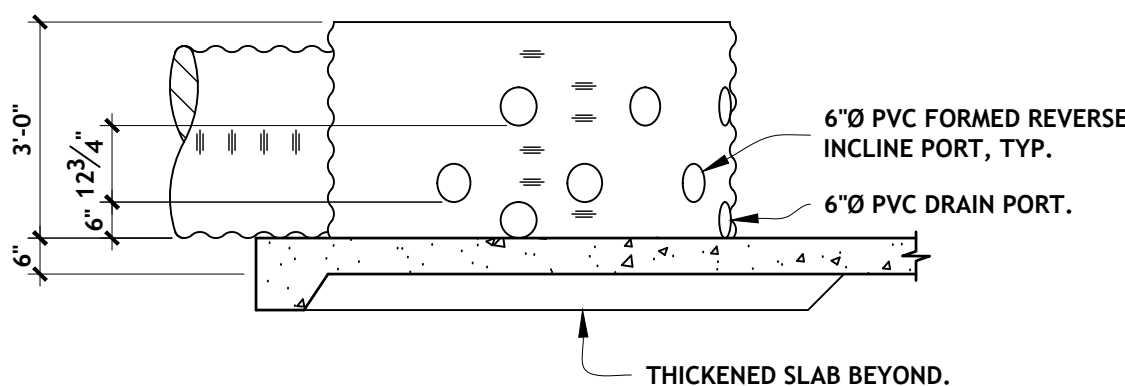
- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER THE BOTTOM ROW OF PORT OPENINGS SIMILAR TO DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 11.0 CU.YD. |
| GRATES              | 84.0 LBS.   |
| STRUCTURAL STEEL    | 8.0 LBS.    |
| REBAR               | 621.0 LBS.  |



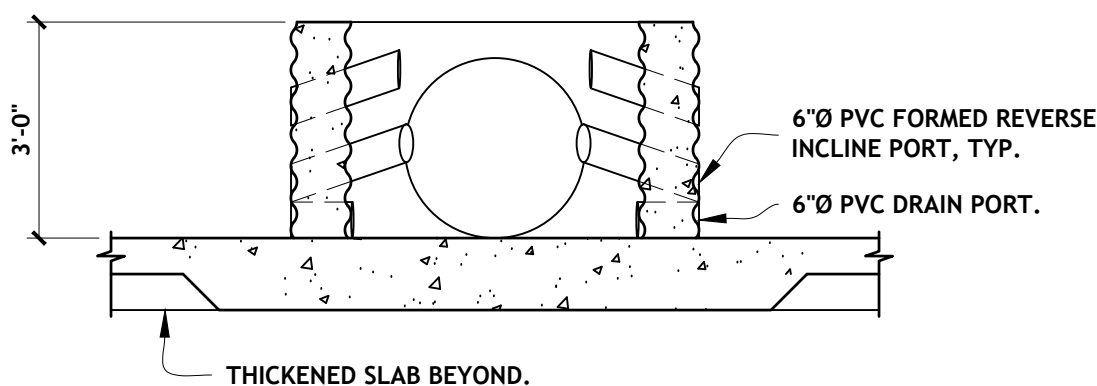
ELEVATION A

SCALE: 3/8"=1'-0"



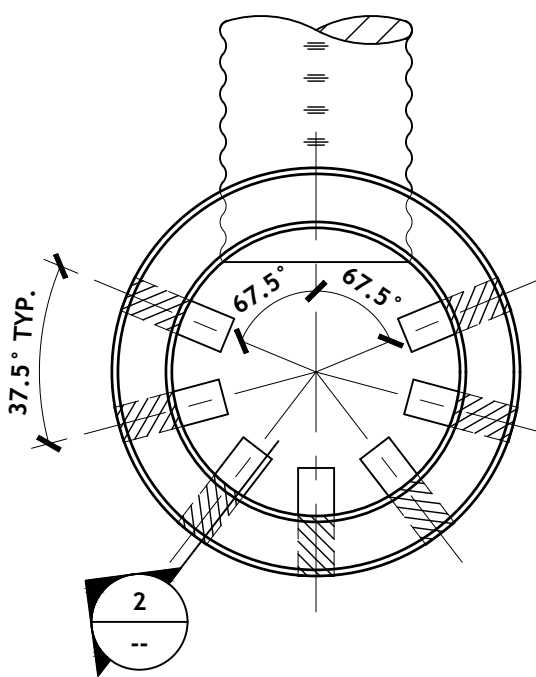
ELEVATION B

SCALE: 3/8"=1'-0"



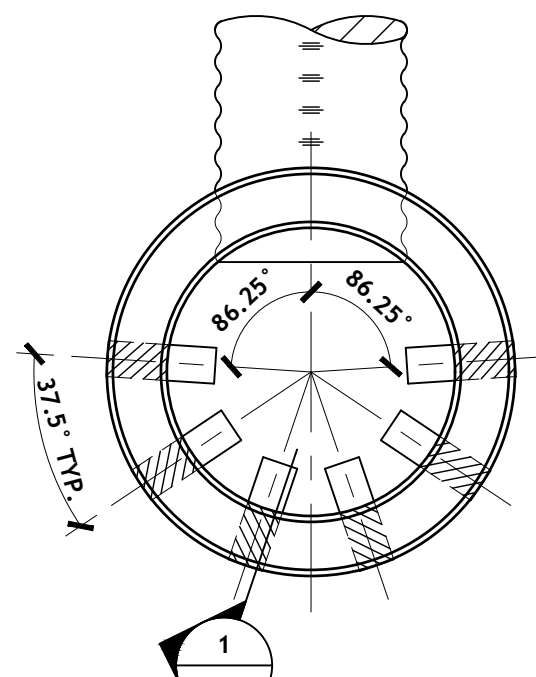
SECTION C

SCALE: 3/8"=1'-0"



LEVEL 2 PORTS

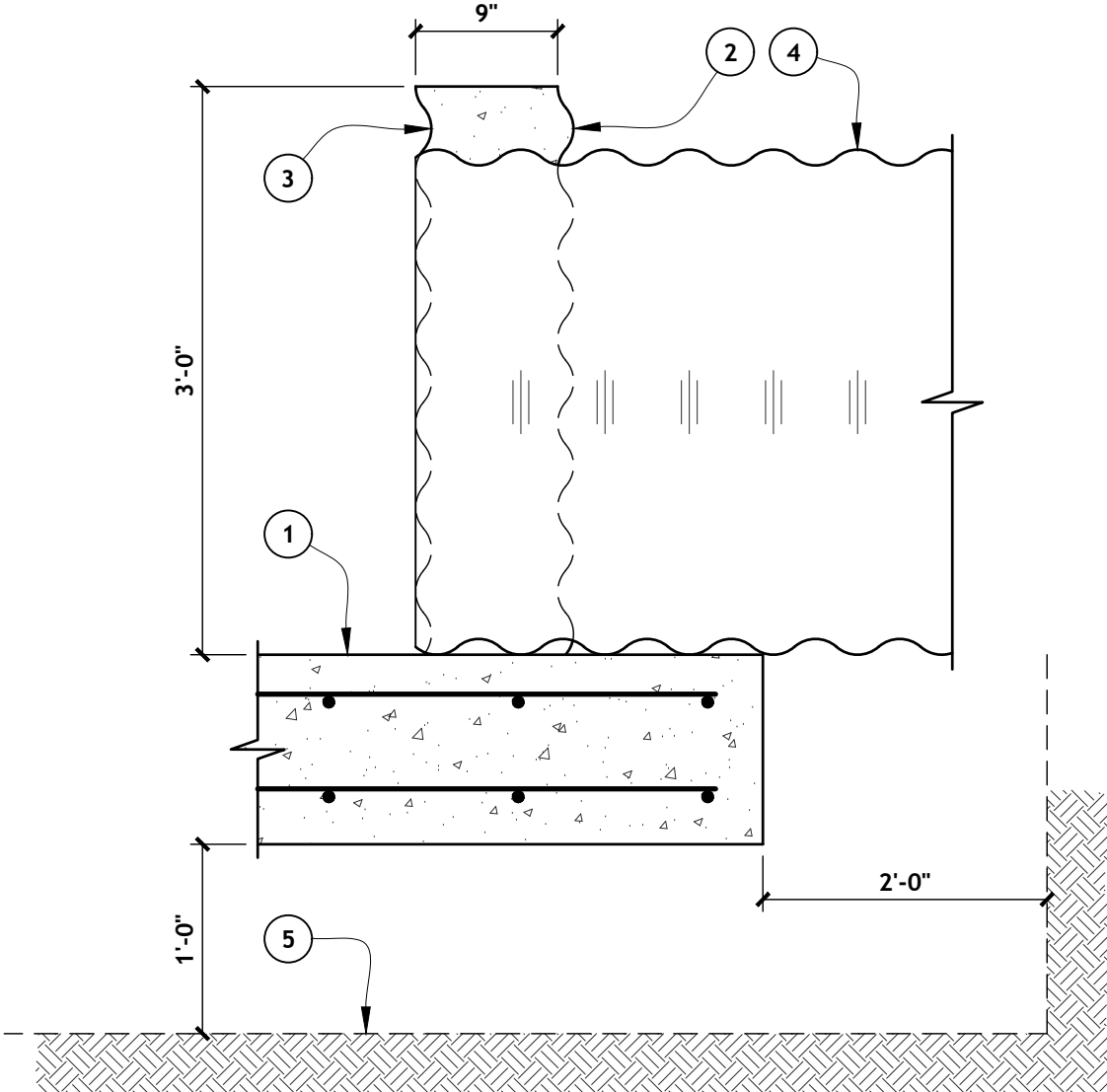
SCALE: 3/8"=1'-0"



LEVEL 3 PORTS

SCALE: 3/8"=1'-0"

- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- 66"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- EXISTING 24"Ø OR 30"Ø CORRUGATED METAL PIPE. 30"Ø CORRUGATED METAL PIPE SHOWN.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.

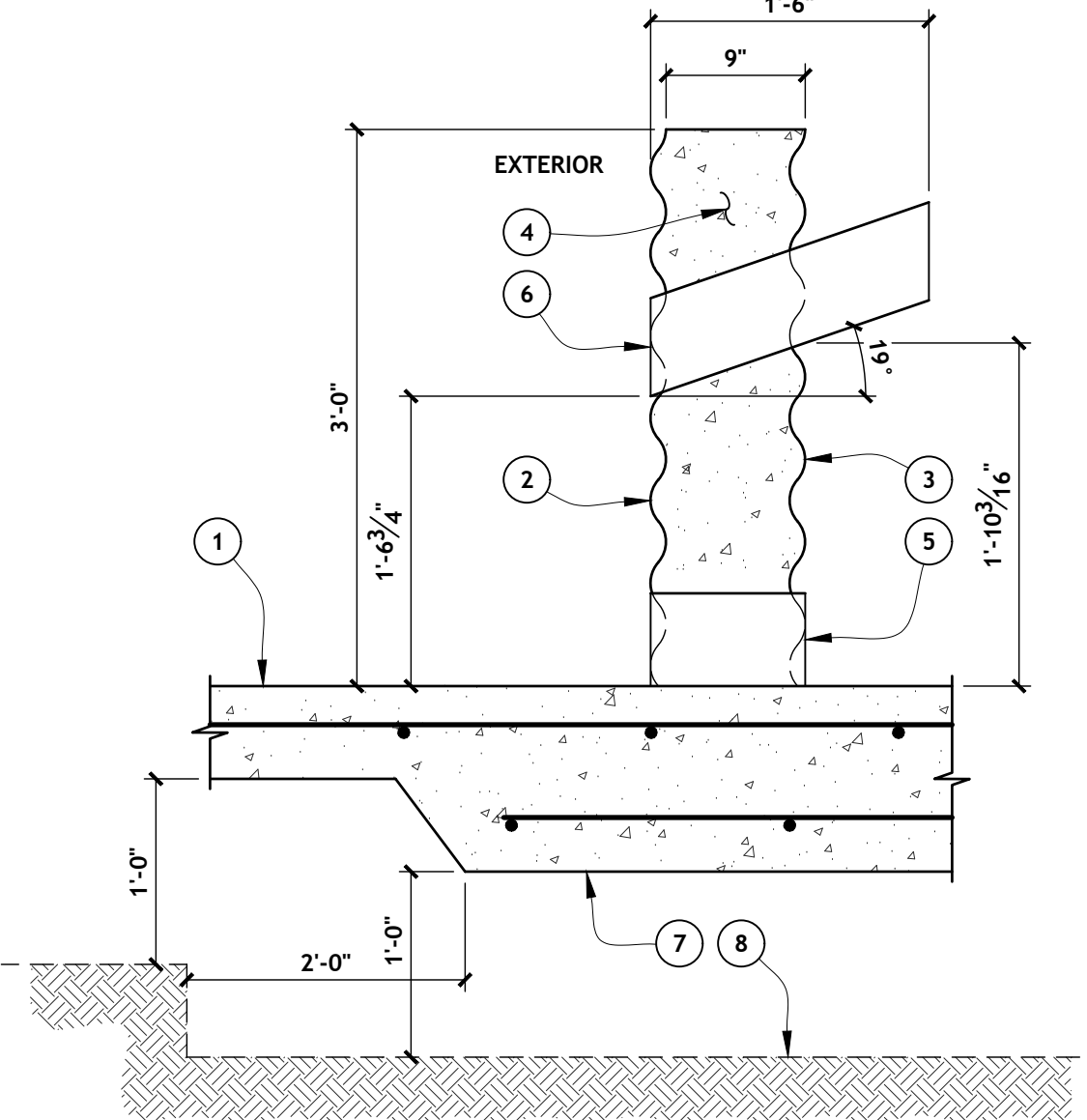


3

SECTION AT CORRUGATED METAL PIPE

CMP(1)-TYP

- 6" CONCRETE SLAB ON GRADE.
- 66"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- 3000 PSI, 8" SLUMP CONCRETE FILL.
- 6"Ø PVC FORMED DRAIN PORT.
- 6"Ø PVC FORMED REVERSE INCLINE PORT OPENING.
- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.

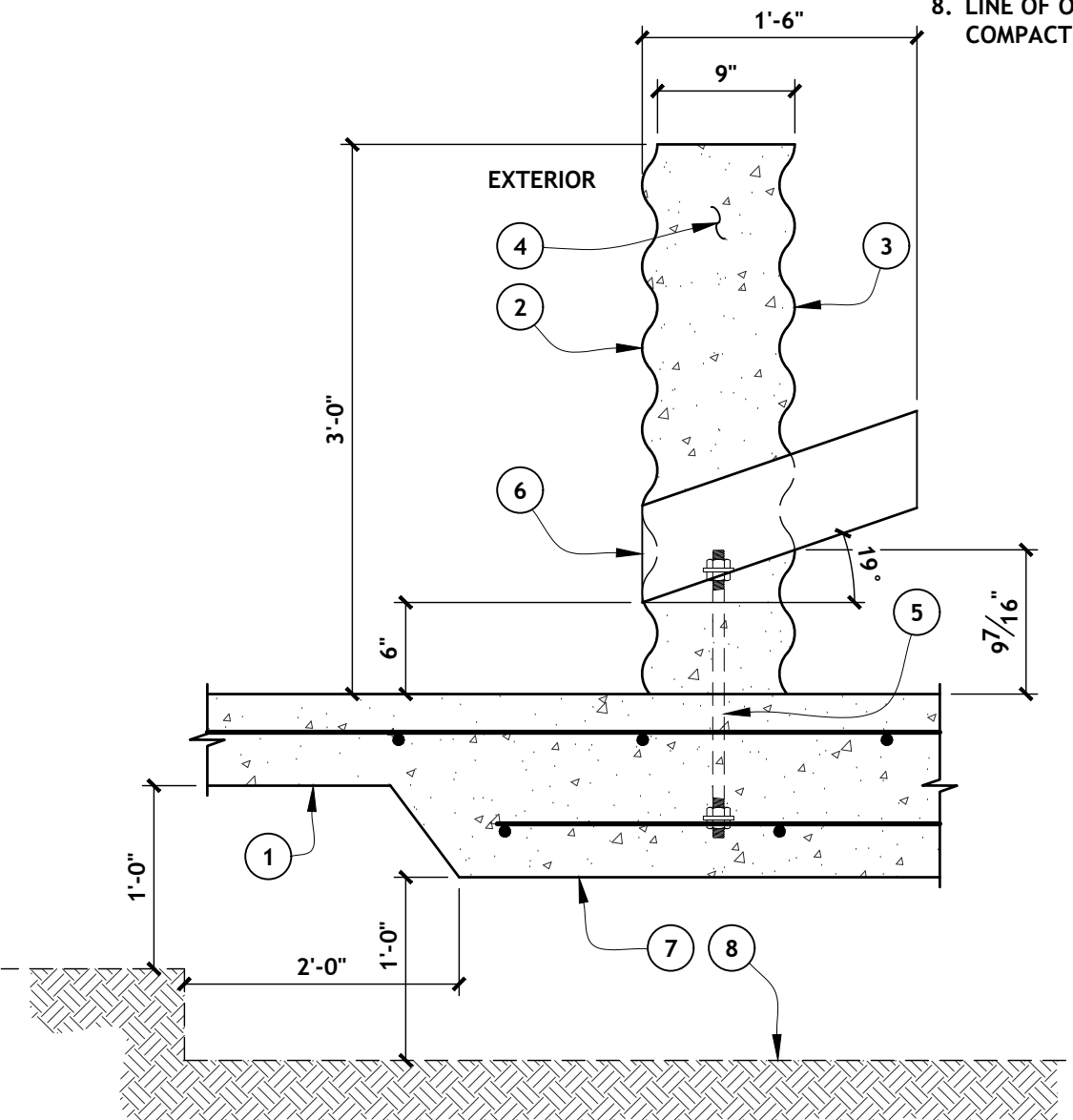


1

SECTION AT REVERSE INCLINE PORT

PR(6A)-TYP

- 6" CONCRETE SLAB ON GRADE.
- 66"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- 3000 PSI, 8" SLUMP CONCRETE FILL.
- 3/4"Ø ANCHOR BOLT WITH 8" EMBED BOTH DIRECTIONS BEYOND.
- 6"Ø PVC FORMED REVERSE INCLINE PORT OPENING.
- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.



2

SECTION AT REVERSE INCLINE PORT

PR(6B)-TYP

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

24"Ø OR 30"Ø HORIZONTAL CULVERT - DOUBLE CMP PIPE

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



PROJECT NO:

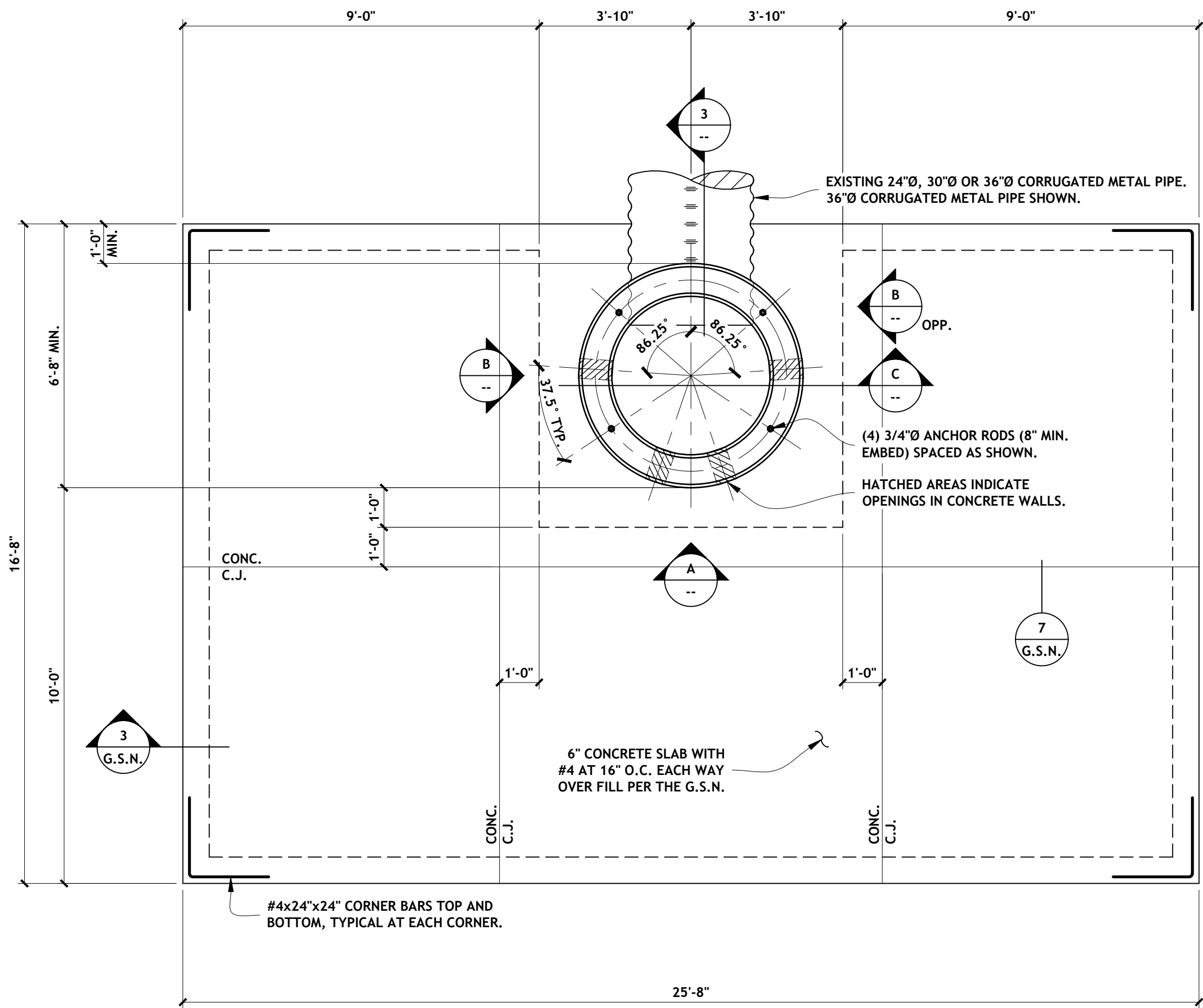
117106-07

DATE:

MARCH 2019

SHEET NO:

4-19



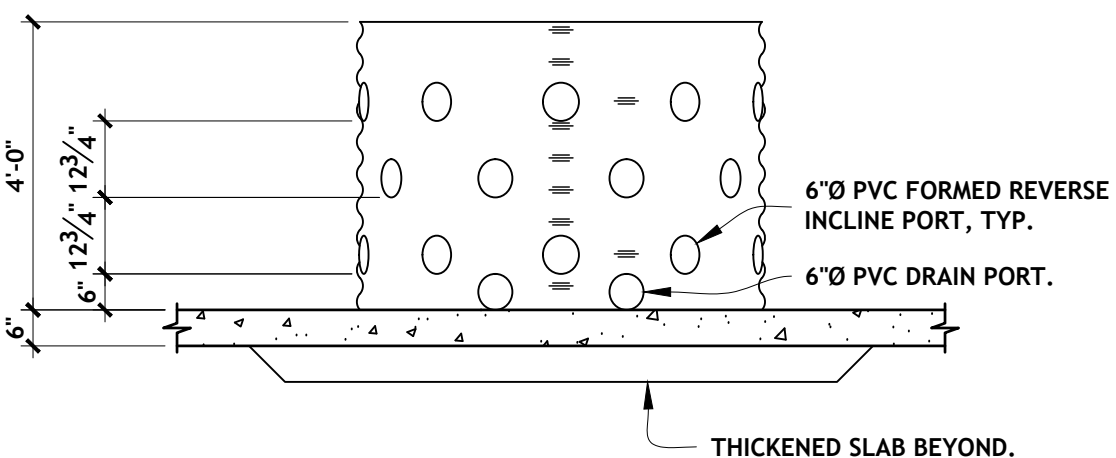
PLAN VIEW - LEVEL 1 DRAIN PORTS

SCALE: 3/8"=1'-0"

NOTES:

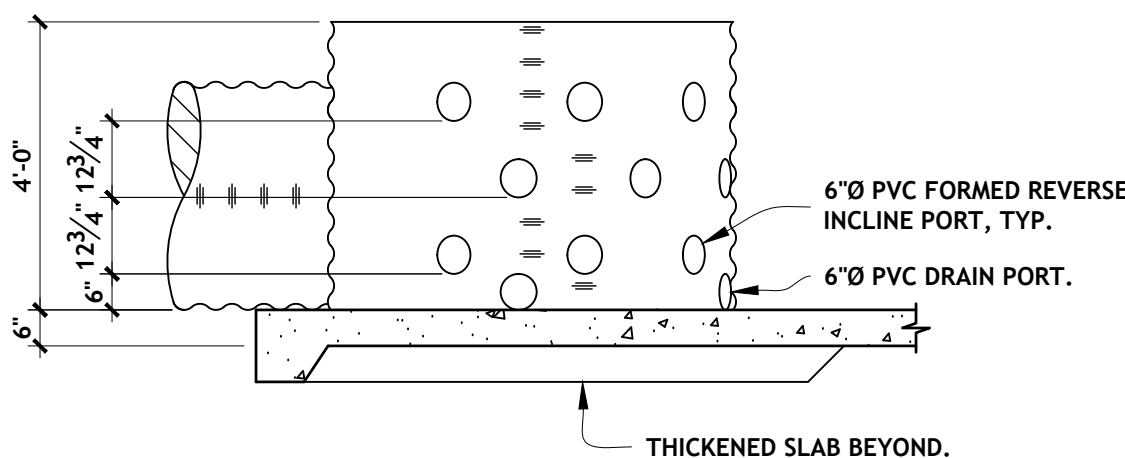
- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER THE BOTTOM ROW OF PORT OPENINGS SIMILAR TO DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 11.3 CU.YD. |
| GRATES              | 84.0 LBS.   |
| STRUCTURAL STEEL    | 8.0 LBS.    |
| REBAR               | 621.0 LBS.  |



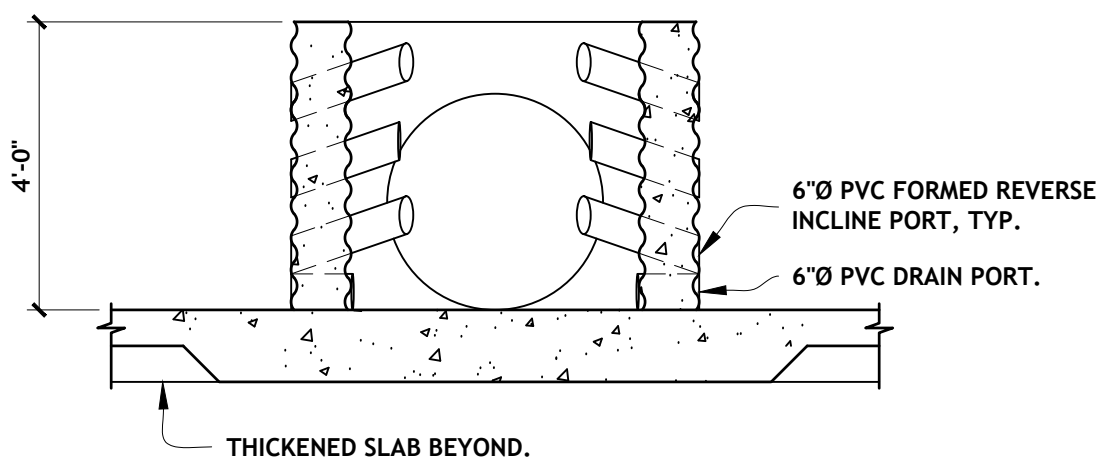
ELEVATION A

SCALE: 3/8"=1'-0"



ELEVATION B

SCALE: 3/8"=1'-0"



SECTION C

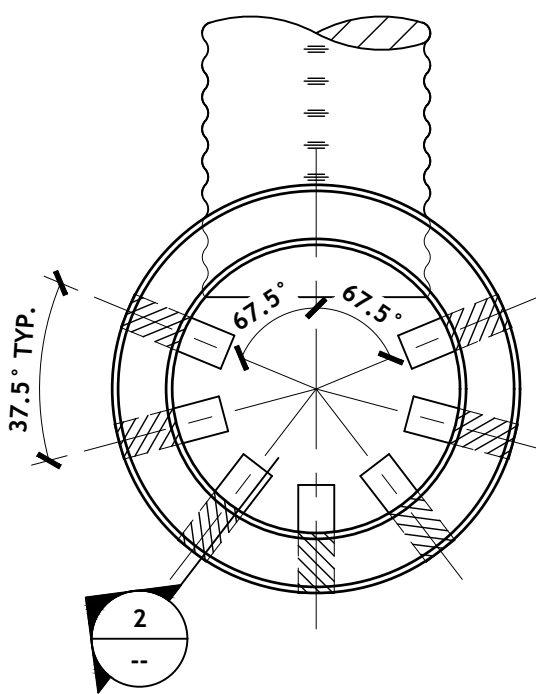
SCALE: 3/8"=1'-0"

3 SECTION AT CORRUGATED METAL PIPE

CMP(2)-TYP

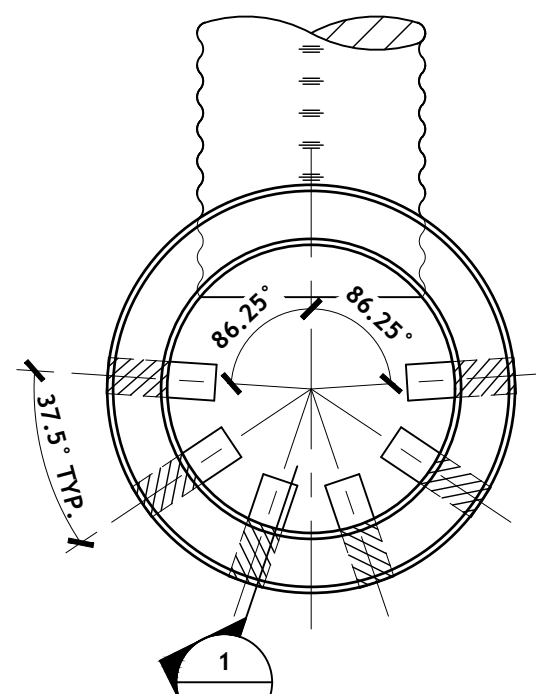
1 SECTION AT REVERSE INCLINE PORT

PR(7A)-TYP



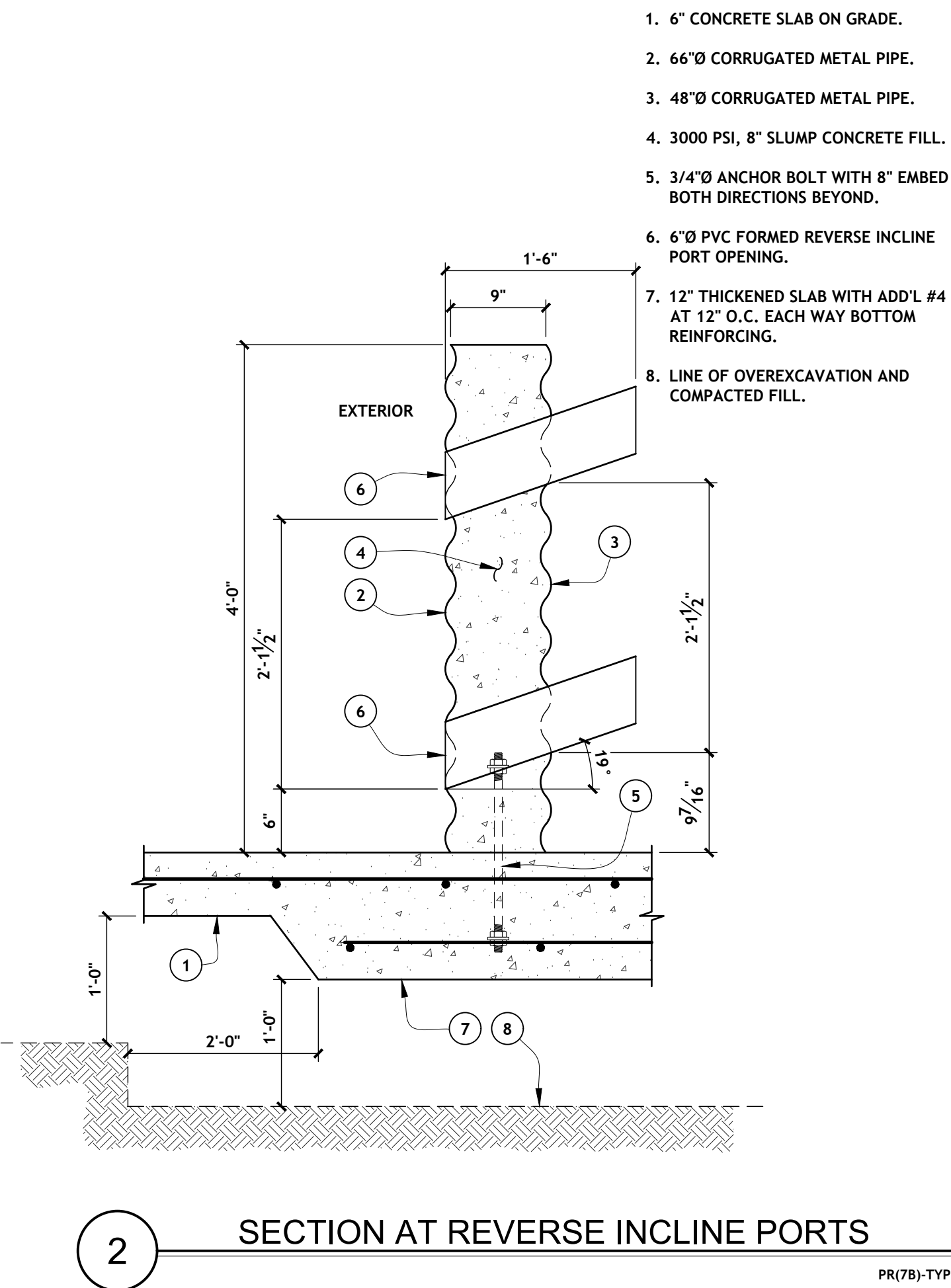
LEVEL 2 & 4 PORTS

SCALE: 3/8"=1'-0"



LEVEL 3 PORTS

SCALE: 3/8"=1'-0"



2 SECTION AT REVERSE INCLINE PORTS

PR(7B)-TYP

- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- 66"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- EXISTING 24"Ø, 30"Ø OR 36"Ø CORRUGATED METAL PIPE. 36"Ø CORRUGATED METAL PIPE SHOWN.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.

- 6" CONCRETE SLAB ON GRADE.
- 66"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- 3000 PSI, 8" SLUMP CONCRETE FILL.
- 6"Ø PVC FORMED DRAIN PORT.
- 6"Ø PVC FORMED REVERSE INCLINE PORT OPENING.
- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.

CHARLES W. STUBBS  
NEW MEXICO  
11704  
03/21/19

TYPE #4  
DESIGN #20

NO. 5  
DATE 3/26/19  
BY CS

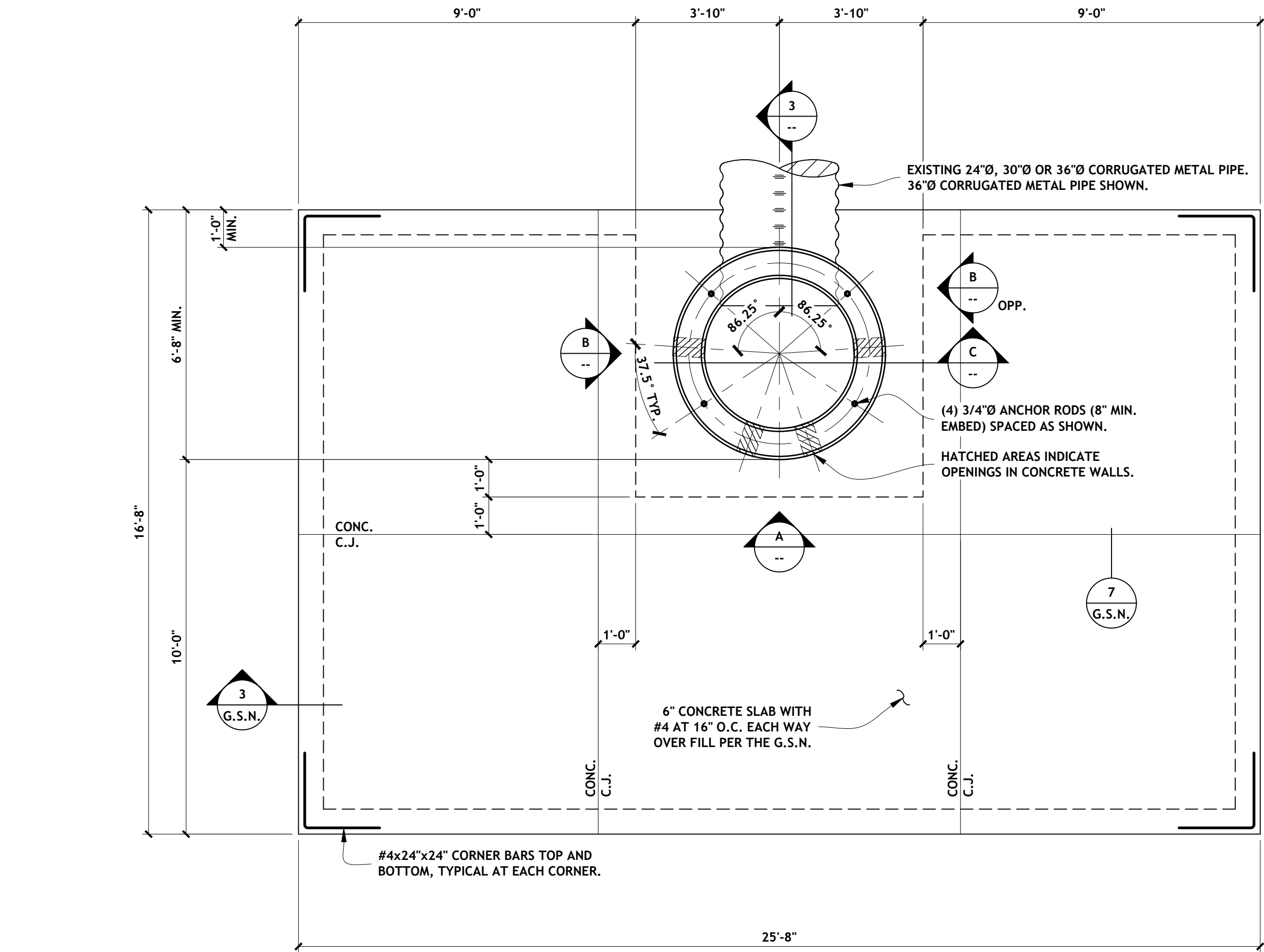
CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

24"Ø, 30"Ø OR 36"Ø HORIZONTAL CULVERT - DOUBLE CMP PIPE

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

**SMITH**  
ENGINEERING

PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
4-20



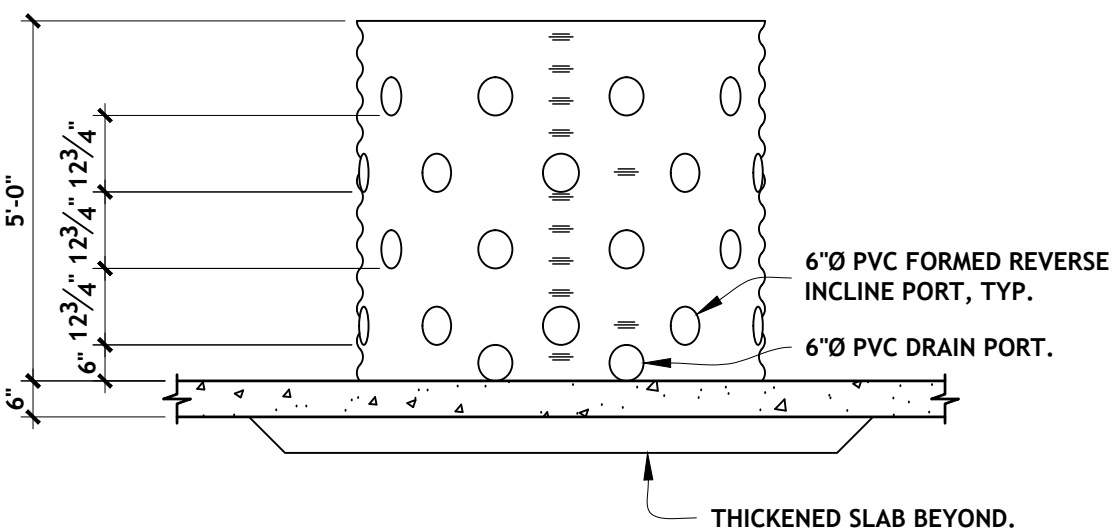
PLAN VIEW - LEVEL 1 DRAIN PORTS

SCALE: 3/8"=1'-0"

NOTES:

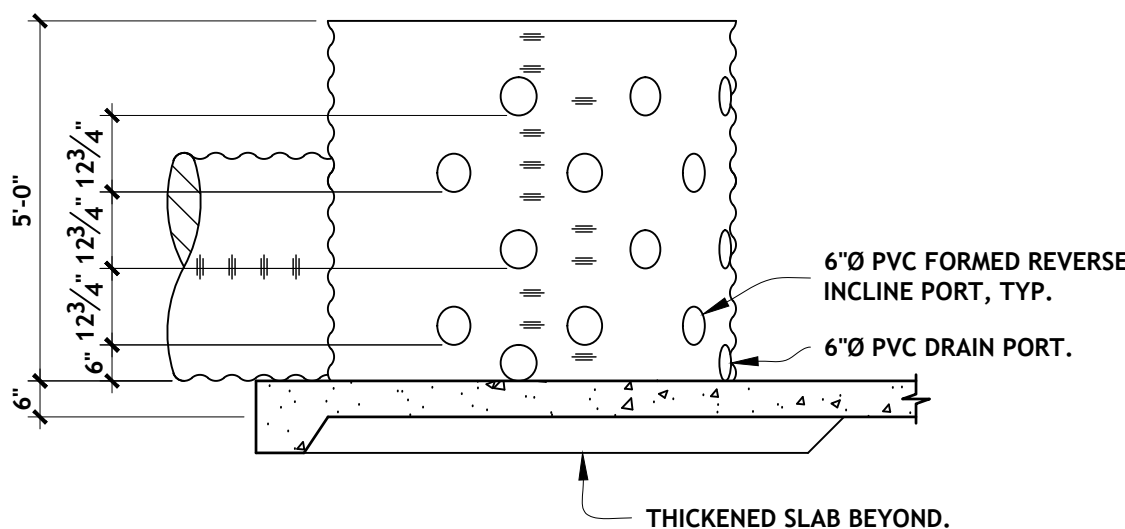
- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER THE BOTTOM ROW OF PORT OPENINGS SIMILAR TO DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 11.7 CU.YD. |
| GRATES              | 84.0 LBS.   |
| STRUCTURAL STEEL    | 8.0 LBS.    |
| REBAR               | 621.0 LBS.  |



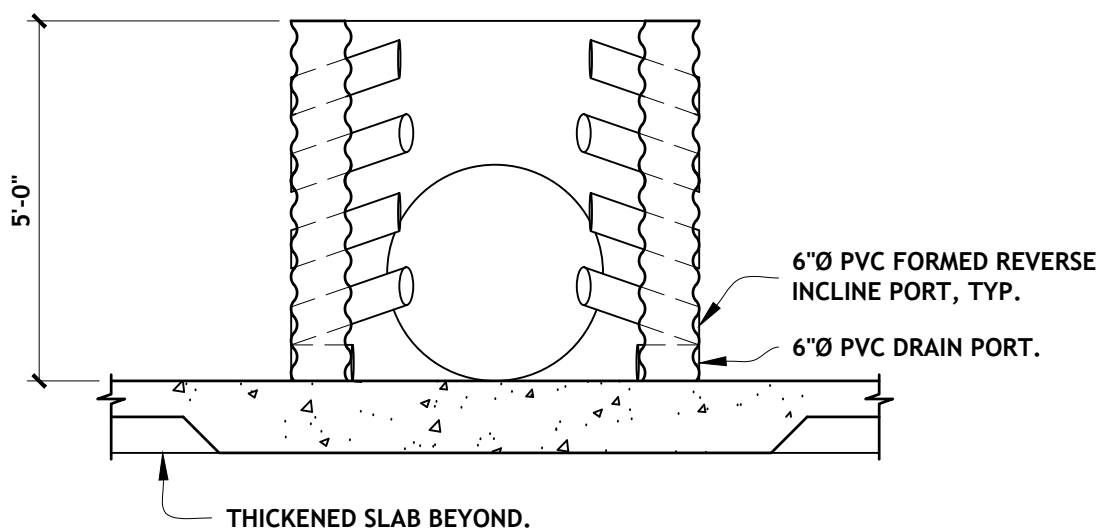
ELEVATION A

SCALE: 3/8"=1'-0"



ELEVATION B

SCALE: 3/8"=1'-0"

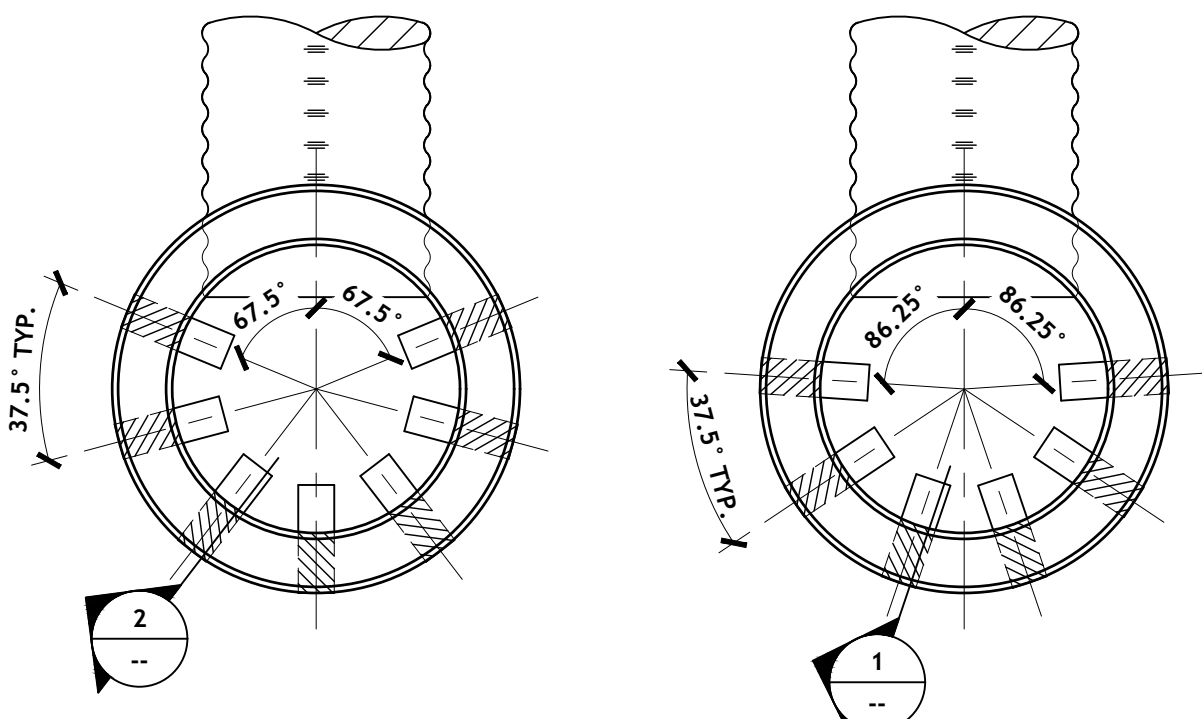


SECTION C

SCALE: 3/8"=1'-0"

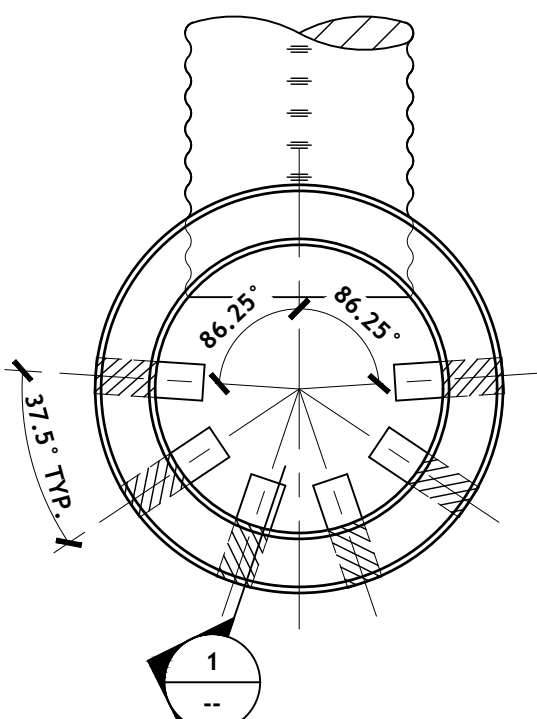
3 SECTION AT CORRUGATED METAL PIPE

CMP(3)-TYP



LEVEL 2 & 4 PORTS

SCALE: 3/8"=1'-0"

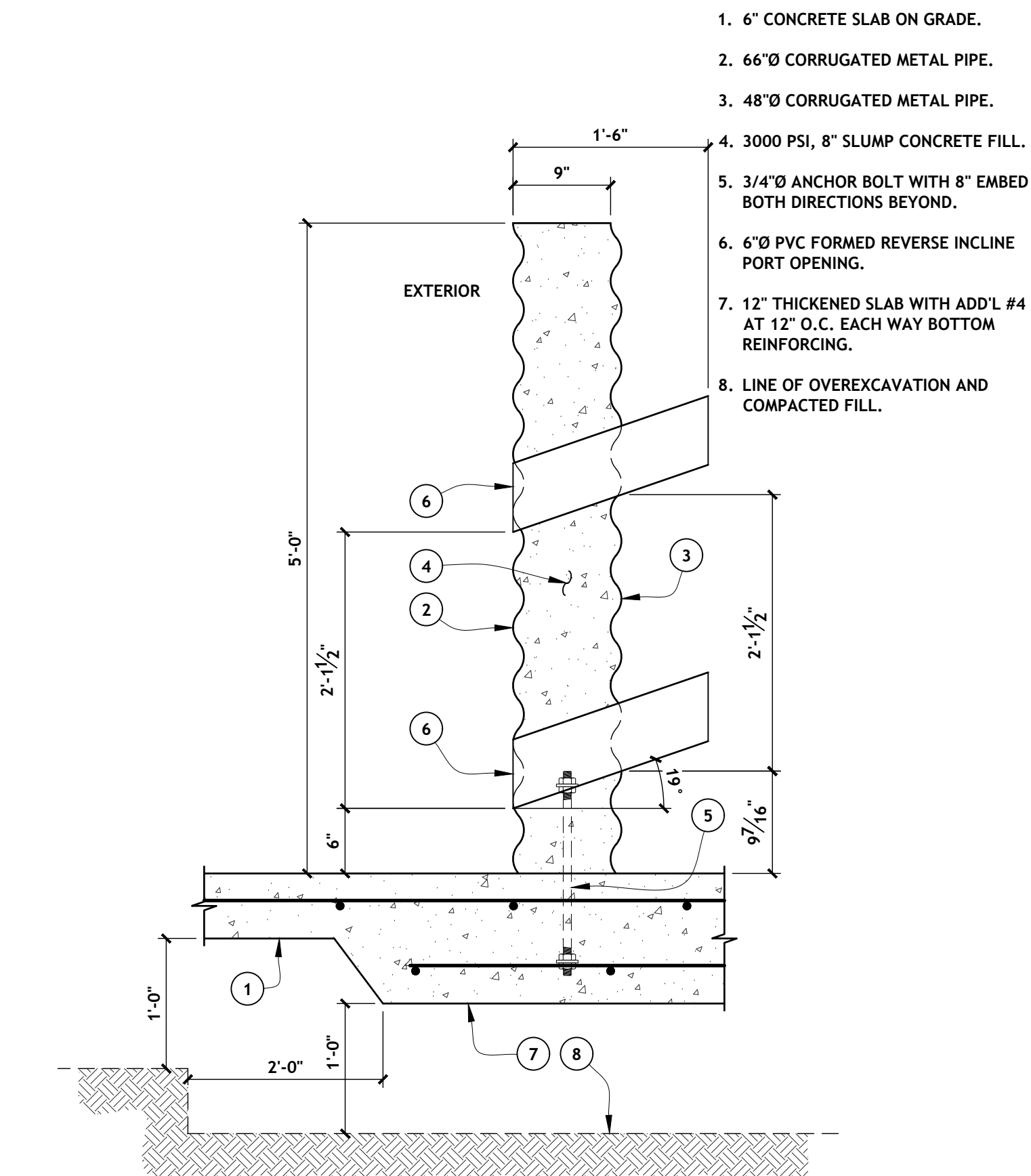


LEVEL 3 & 5 PORTS

SCALE: 3/8"=1'-0"

1 SECTION AT REVERSE INCLINE PORTS

PR(8A)-TYP

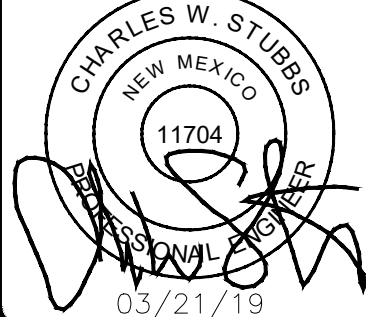


2 SECTION AT REVERSE INCLINE PORTS

PR(7B)-TYP

- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- 66"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- EXISTING 24"Ø, 30"Ø OR 36"Ø CORRUGATED METAL PIPE. 36"Ø CORRUGATED METAL PIPE SHOWN.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.

- 6" CONCRETE SLAB ON GRADE.
- 66"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- 3000 PSI, 8" SLUMP CONCRETE FILL.
- 6"Ø PVC FORMED DRAIN PORT.
- 6"Ø PVC FORMED REVERSE INCLINE PORT OPENING.
- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.



TYPE #4  
DESIGN #21

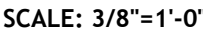
CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

24"Ø, 30"Ø OR 36"Ø HORIZONTAL CULVERT - DOUBLE CMP PIPE

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro

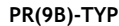
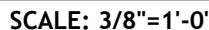
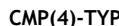
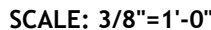
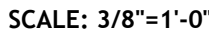
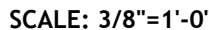


PROJECT NO:  
117106-07  
DATE:  
MARCH 2019  
SHEET NO:  
4-21



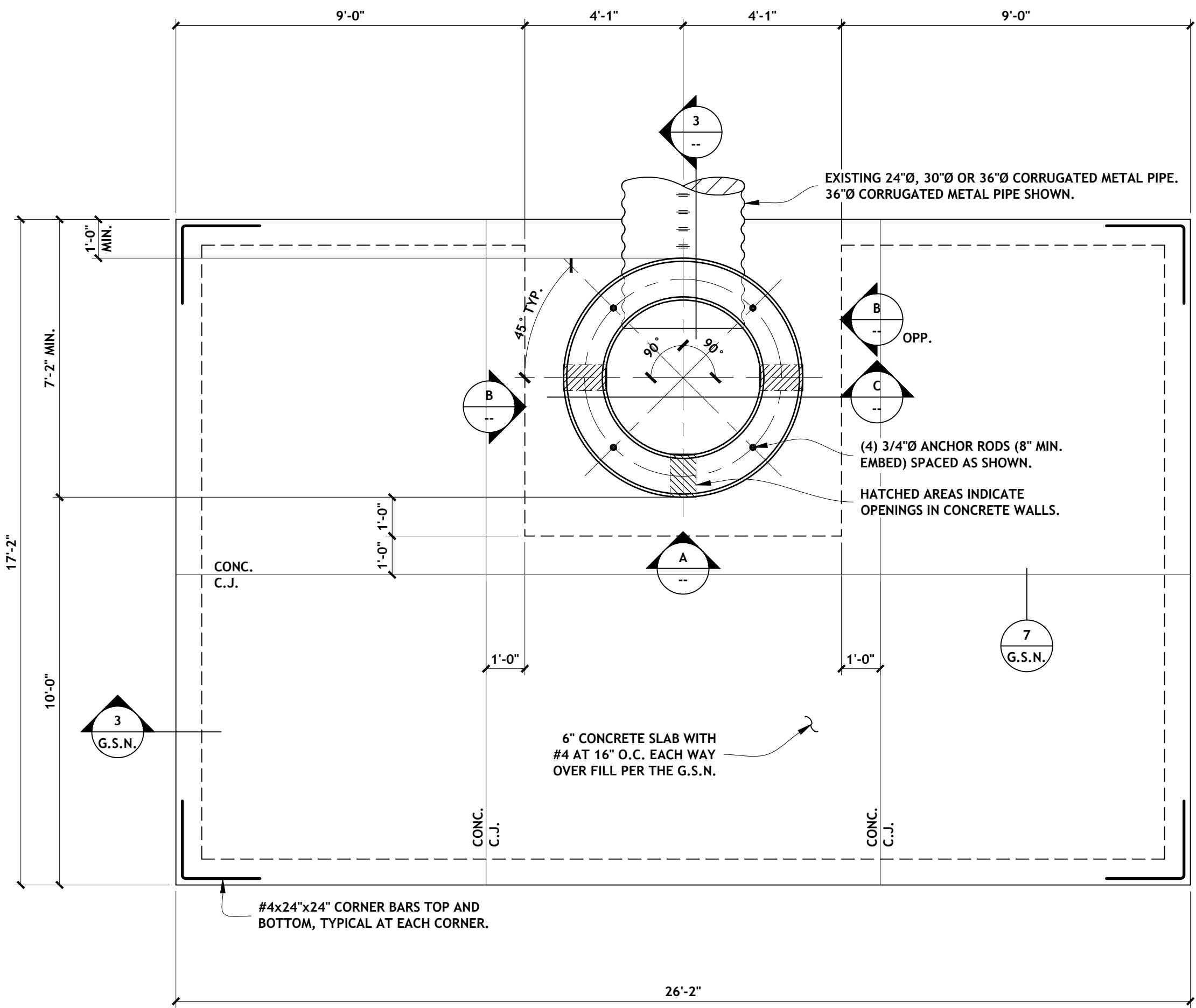
1. THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
2. SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
3. THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
4. THIS DESIGN IS TO HAVE MESH OVER THE BOTTOM ROW OF PORT OPENINGS SIMILAR TO DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 12.0 CU.YD. |
| GRATES              | 101.1 LBS.  |
| STRUCTURAL STEEL    | 8.0 LBS.    |
| REBAR               | 640.0 LBS.  |



1. 6" CONCRETE SLAB ON GRADE.
2. 72"Ø CORRUGATED METAL PIPE.
3. 48"Ø CORRUGATED METAL PIPE.
4. 3000 PSI, 8" SLUMP CONCRETE FILL.
5. 8"Ø PVC FORMED DRAIN PORT.
6. 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
7. LINE OF OVEREXCAVATION AND COMPACTED FILL.

SHEET NO  
4-23



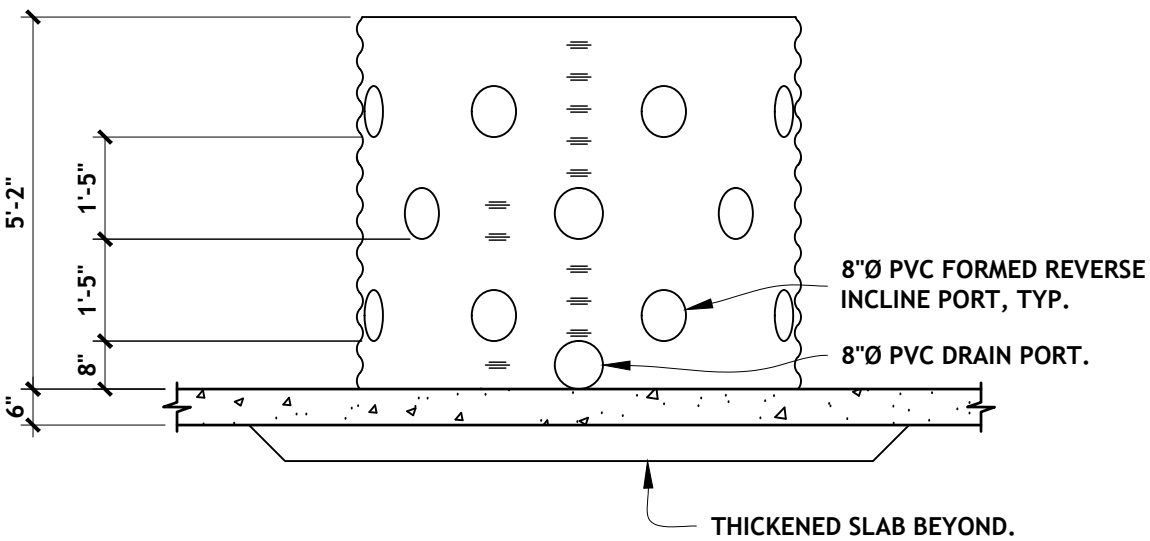
PLAN VIEW - LEVEL 1 DRAIN PORTS

SCALE: 3/8"=1'-0"

NOTES:

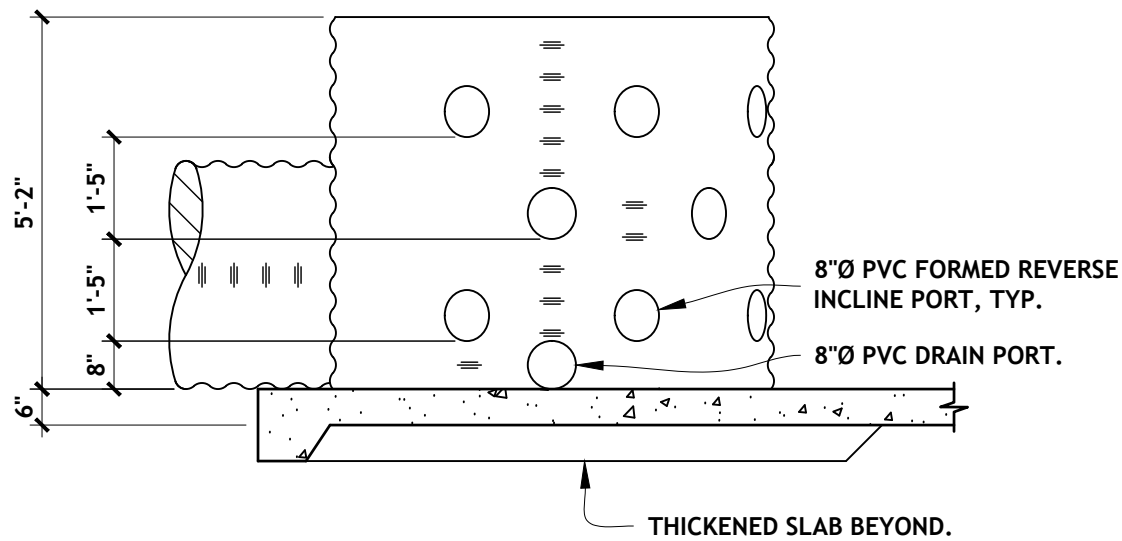
- THIS DESIGN IS TO BE ISSUED ALONG WITH THE G.S.N. SHEET AND GRATES SHEET.
- SEE THE G.S.N. SHEET FOR FOR THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
- THIS DESIGN IS TO HAVE THE APPROPRIATE GRATE COVER INSTALLED.
- THIS DESIGN IS TO HAVE MESH OVER THE BOTTOM ROW OF PORT OPENINGS SIMILAR TO DETAIL 3 ON THE GRATES SHEET.

| MATERIAL QUANTITIES |             |
|---------------------|-------------|
| CONCRETE            | 13.0 CU.YD. |
| GRATES              | 101.1 LBS.  |
| STRUCTURAL STEEL    | 8.0 LBS.    |
| REBAR               | 640.0 LBS.  |



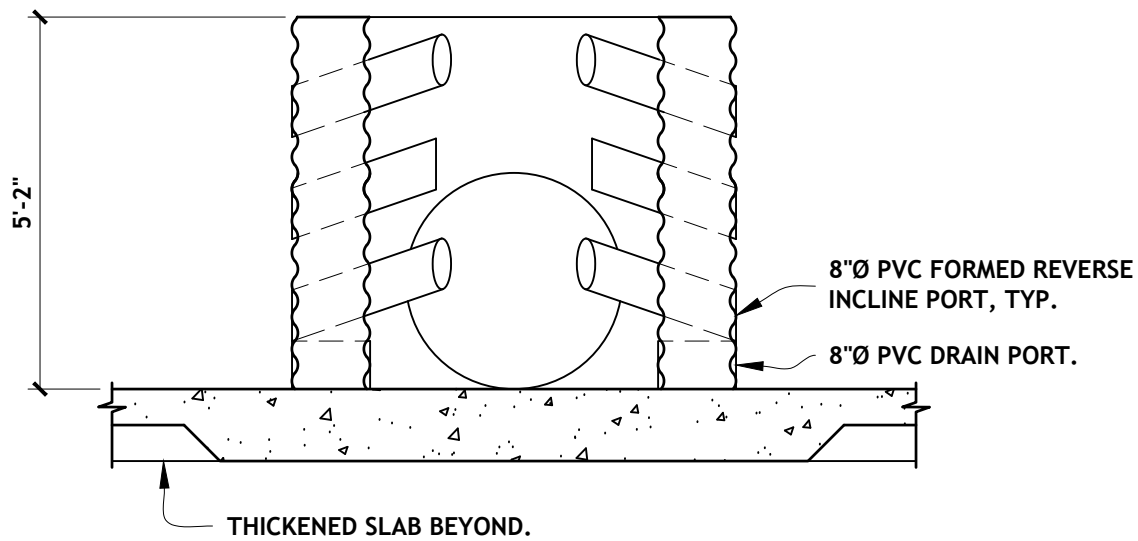
ELEVATION A

SCALE: 3/8"=1'-0"



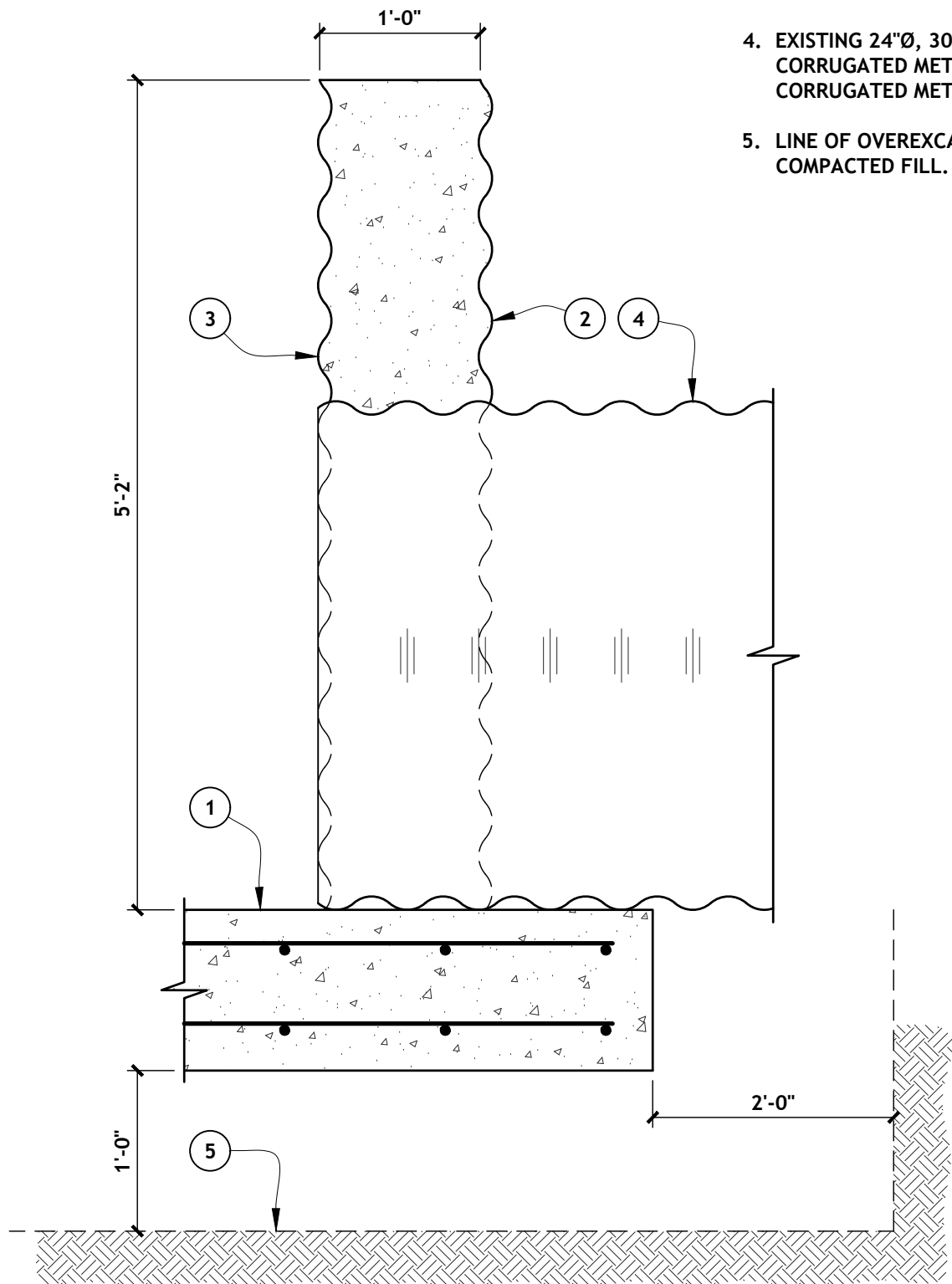
ELEVATION B

SCALE: 3/8"=1'-0"



SECTION C

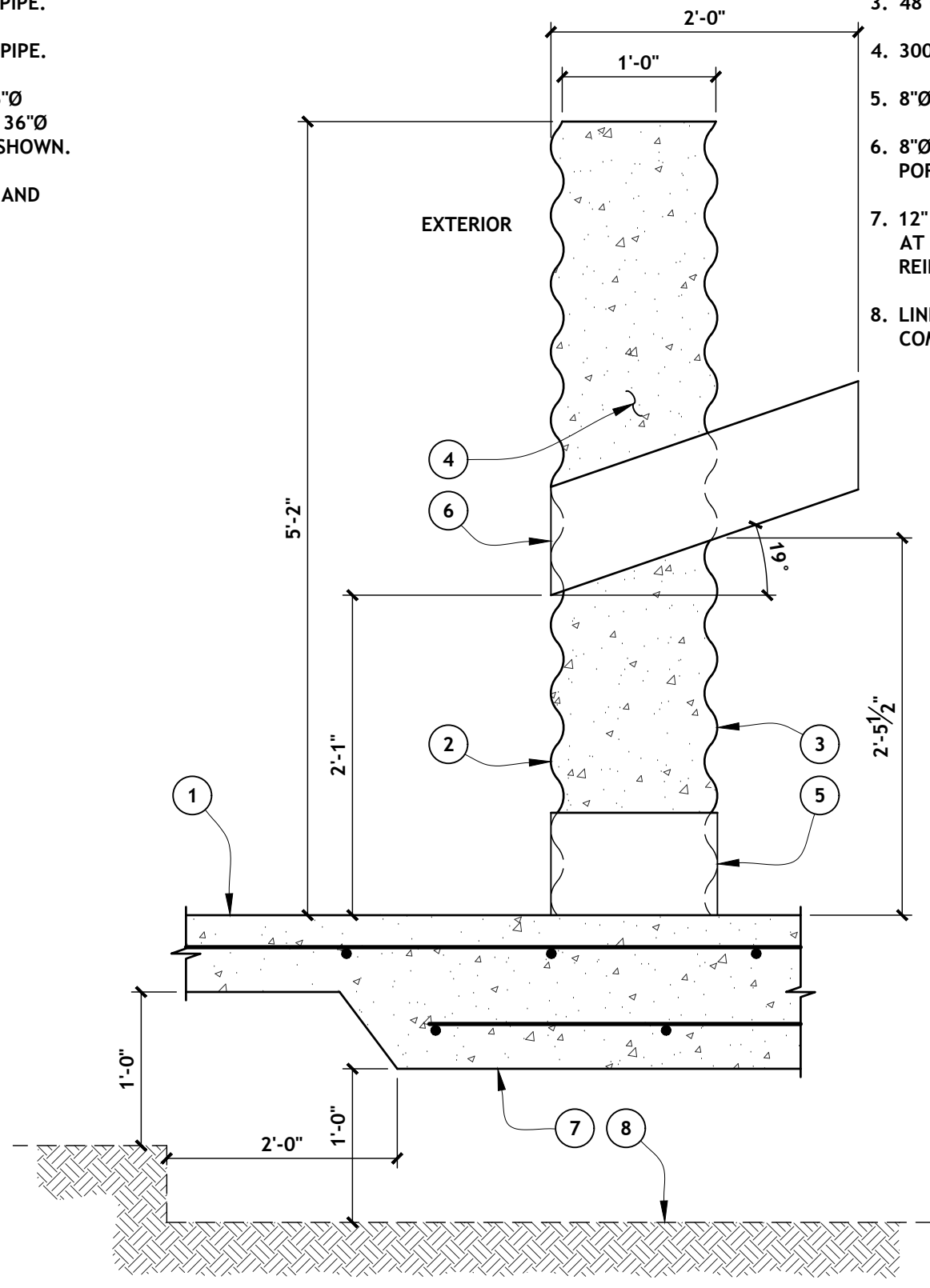
SCALE: 3/8"=1'-0"



3

SECTION AT CORRUGATED METAL PIPE

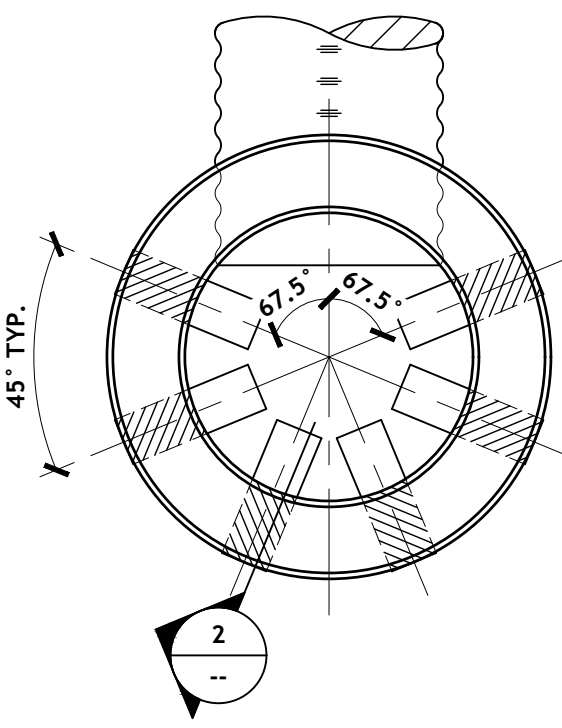
CMP(6)-TYP



1

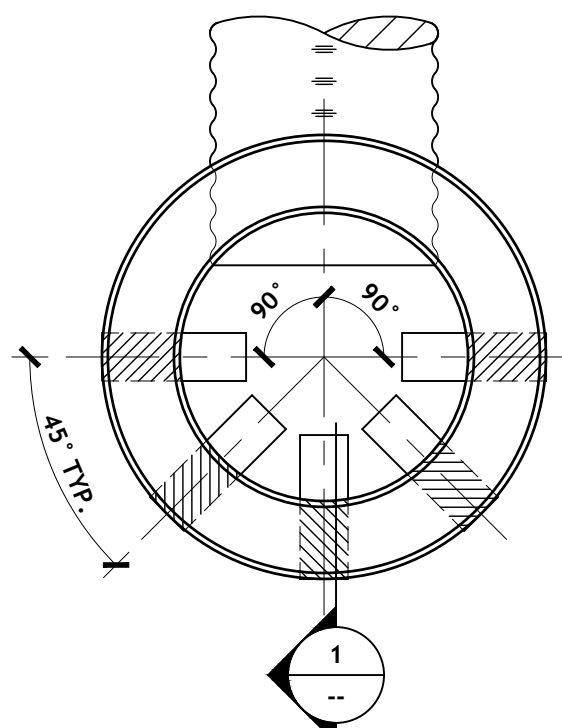
SECTION AT REVERSE INCLINE PORT

PR(11A)-TYP



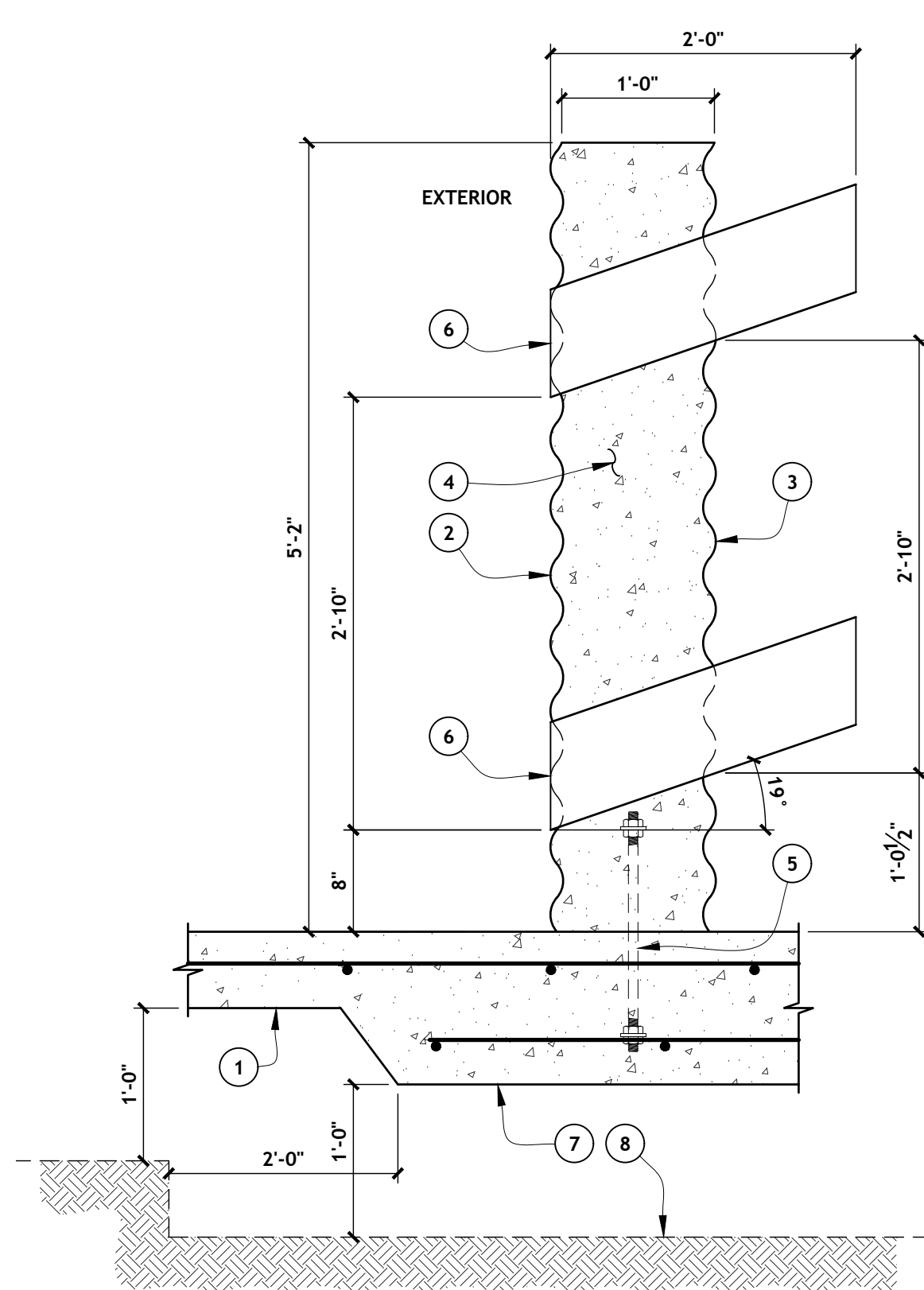
LEVEL 2 & 4 PORTS

SCALE: 3/8"=1'-0"



LEVEL 3 PORTS

SCALE: 3/8"=1'-0"



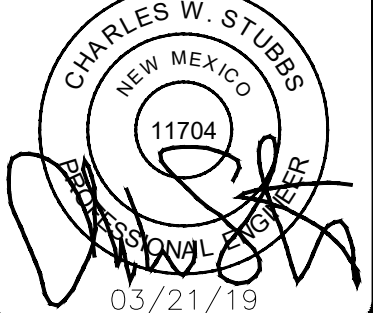
2

SECTION AT REVERSE INCLINE PORTS

PR(11B)-TYP

- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- 72"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- EXISTING 24"Ø, 30"Ø OR 36"Ø CORRUGATED METAL PIPE. 36"Ø CORRUGATED METAL PIPE SHOWN.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.

- 6" CONCRETE SLAB ON GRADE.
- 72"Ø CORRUGATED METAL PIPE.
- 48"Ø CORRUGATED METAL PIPE.
- 3000 PSI, 8" SLUMP CONCRETE FILL.
- 8"Ø PVC FORMED DRAIN PORT.
- 8"Ø PVC FORMED REVERSE INCLINE PORT OPENING.
- 12" THICKENED SLAB WITH ADD'L #4 AT 12" O.C. EACH WAY BOTTOM REINFORCING.
- LINE OF OVEREXCAVATION AND COMPACTED FILL.



TYPE #4  
DESIGN #24

CITY OF ALBUQUERQUE  
PORTED RISER PRINCIPAL SPILLWAYS

24"Ø, 30"Ø OR 36"Ø HORIZONTAL CULVERT - DOUBLE CMP PIPE

Solutions for Today...  
Vision for Tomorrow  
2201 San Pedro Dr NE  
Building 4, Suite 200  
Albuquerque, NM 87110  
Phone: 505-884-0700  
www.smithengineering.pro



PROJECT NO:  
117106-07

DATE:  
MARCH 2019

SHEET NO:  
4-24

| PORTED PRINCIPAL SPILLWAYS (Stormwater Quality Improvement Structures)                                                                                                                                                                      |           |                    |           |                    |           |                    |           |                    |           |                         |           |                         |           |                    |           |                    |           |                    |           | ELEVATION - DISCHARGE TABLES                                                                                                           |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |             |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|-------------------------|-----------|-------------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|-------------|------|
| Elevation represents Headwater (HW) elevation, Discharges were computed assuming round culvert hydraulics, simulated with CulvertMaster, culvert length = 100 ft at 1% slope, "n" = 0.013, Tailwater (TW) maximum depth = culvert diameter. |           |                    |           |                    |           |                    |           |                    |           |                         |           |                         |           |                    |           |                    |           |                    |           | Refer to Design Summary Report (Smith Engineering Company, (March 2019) for detailed hydraulic analyses explanations and calculations) |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |             |      |
| Designs 1, 7, 13                                                                                                                                                                                                                            |           | Designs 2, 8, 14   |           | Designs 3, 9, 15   |           | Designs 4, 10, 16  |           | Designs 5, 11, 17  |           | Designs 6.1, 12.1, 18.1 |           | Designs 6.2, 12.2, 18.2 |           | Design 19.1        |           | Design 19.2        |           | Design 20.1        |           | Design 20.2                                                                                                                            |           | Design 20.3        |           | Design 21.1        |           | Design 21.2        |           | Design 21.3        |           | Design 22.1        |           | Design 22.2        |           | Design 23.1        |           | Design 23.2        |           | Design 23.3        |           | Design 24.1        |           | Design 24.2        |           | Design 24.3 |      |
| Relative Elevation                                                                                                                                                                                                                          | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation      | Discharge | Relative Elevation      | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation                                                                                                                     | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge | Relative Elevation | Discharge |             |      |
| ft                                                                                                                                                                                                                                          | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                      | cfs       | ft                      | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                                                                                                                                     | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       | ft                 | cfs       |             |      |
| 100.00                                                                                                                                                                                                                                      | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00                  | 0.0       | 100.00                  | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00                                                                                                                                 | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       | 100.00             | 0.0       |             |      |
| 101.00                                                                                                                                                                                                                                      | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00                  | 0.1       | 101.00                  | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00                                                                                                                                 | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       | 101.00             | 0.1       |             |      |
| 101.84                                                                                                                                                                                                                                      | 0.2       | 101.84             | 0.2       | 101.84             | 0.2       | 101.84             | 0.2       | 101.84             | 0.2       | 101.84                  | 0.2       | 101.84                  | 0.2       | 101.27             | 0.2       | 101.27             | 0.2       | 101.27             | 0.2       | 101.27                                                                                                                                 | 0.2       | 101.27             | 0.2       | 101.27             | 0.2       | 101.27             | 0.2       | 101.70             | 0.2       | 101.70             | 0.2       | 101.70             | 0.2       | 101.70             | 0.2       | 101.70             | 0.2       | 101.70             | 0.2       | 101.70             | 0.2       | 101.70             | 0.2       |             |      |
| 102.00                                                                                                                                                                                                                                      | 6.4       | 102.00             | 6.4       | 102.00             | 6.4       | 102.00             | 8.6       | 102.00             | 8.6       | 102.00                  | 8.6       | 102.00                  | 8.6       | 102.00             | 4.7       | 102.00             | 4.7       | 102.00             | 4.7       | 102.00                                                                                                                                 | 4.7       | 102.00             | 4.7       | 102.00             | 4.7       | 102.00             | 4.7       | 102.00             | 4.6       | 102.00             | 4.6       | 102.00             | 4.6       | 102.00             | 4.6       | 102.00             | 4.6       | 102.00             | 4.6       | 102.00             | 4.6       | 102.00             | 4.6       |             |      |
| 102.10                                                                                                                                                                                                                                      | 8.2       | 102.10             | 8.2       | 102.10             | 8.2       | 102.10             | 10.9      | 102.10             | 10.9      | 102.10                  | 10.9      | 102.10                  | 10.9      | 102.33             | 5.7       | 102.33             | 5.7       | 102.33             | 5.7       | 102.33                                                                                                                                 | 5.7       | 102.33             | 5.7       | 102.33             | 5.7       | 102.33             | 5.7       | 103.00             | 9.6       | 103.00             | 9.6       | 103.00             | 9.6       | 103.00             | 9.6       | 103.00             | 9.6       | 103.00             | 9.6       | 102.43             | 7.2       |                    |           |             |      |
| 103.00                                                                                                                                                                                                                                      | 26.3      | 103.00             | 26.3      | 103.00             | 26.3      | 103.00             | 35.1      | 103.00             | 35.1      | 103.00                  | 35.1      | 103.00                  | 35.1      | 103.00             | 11.2      | 103.00             | 11.2      | 102.90             | 10.6      | 102.90                                                                                                                                 | 10.6      | 102.90             | 10.6      | 102.90             | 10.6      | 102.90             | 10.6      | 104.00             | 25.7      | 104.00             | 37.7      | 103.11             | 10.0      | 103.11             | 10.0      | 103.11             | 10.0      | 103.11             | 10.0      | 103.11             | 10.0      |                    |           |             |      |
| 103.17                                                                                                                                                                                                                                      | 28.4      | 103.75             | 34.4      | 103.42             | 31.1      | 103.75             | 43.3      | 103.42             | 41.5      | 103.42                  | 41.5      | 103.42                  | 41.5      | 104.00             | 25.7      | 104.00             | 37.7      | 103.00             | 12.9      | 103.00                                                                                                                                 | 12.9      | 103.00             | 12.9      | 103.00             | 12.9      | 103.00             | 12.9      | 105.00             | 30.2      | 105.00             | 45.0      | 104.00             | 19.4      | 104.00             | 19.4      | 104.00             | 19.4      | 103.87             | 18.5      | 103.87             | 18.5      | 103.11             | 10.0      |             |      |
| 104.00                                                                                                                                                                                                                                      | 37.7      | 104.00             | 44.4      | 104.00             | 44.0      | 104.00             | 49.6      | 104.00             | 58.6      | 104.00                  | 58.6      | 104.00                  | 58.6      | 105.00             | 30.2      | 105.00             | 45.0      | 104.00             | 21.1      | 104.00                                                                                                                                 | 21.1      | 104.00             | 21.1      | 104.00             | 21.1      | 104.00             | 21.1      | 106.00             | 34.0      | 106.00             | 51.2      | 105.00             | 30.2      | 105.00             | 45.0      | 105.00             | 52.7      | 104.00             | 22.4      | 104.00             | 22.4      | 103.87             | 18.5      |             |      |
| 105.00                                                                                                                                                                                                                                      | 45.0      | 105.00             | 61.4      | 104.25             | 47.5      | 105.00             | 61.4      | 104.25             | 63.4      | 104.83                  | 73.0      | 104.75                  | 71.8      | 106.00             | 34.0      | 106.00             | 51.2      | 105.00             | 30.2      | 105.00                                                                                                                                 | 45.0      | 105.00             | 54.2      | 104.46             | 23.7      | 104.46             | 23.7      | 104.46             | 23.7      | 107.00             | 37.4      | 107.00             | 56.9      | 106.00             | 34.0      | 106.00             | 51.2      | 106.00             | 70.9      | 105.00             | 33.9      | 105.00             | 33.9      | 104.00      | 22.4 |
| 106.00                                                                                                                                                                                                                                      | 51.3      | 106.00             | 70.9      | 105.00             | 89.7      | 106.00             | 70.9      | 105.00             | 89.7      | 105.00                  | 79.9      | 105.00                  | 81.9      | 107.00             | 37.4      | 107.00             | 56.9      | 106.00             | 34.0      | 106.00                                                                                                                                 | 51.2      | 106.00             | 70.9      | 105.00             | 29.9      | 105.00             | 29.9      | 108.00             | 40.3      | 108.00             | 61.9      | 107.00             | 37.4      | 107.00             | 56.9      | 107.00             | 79.3      | 105.17             | 35.4      | 105.17             | 35.4      | 105.00             | 33.9      |             |      |
| 107.00                                                                                                                                                                                                                                      | 56.9      | 107.00             | 79.3      | 106.00             | 108.9     | 107.00             | 79.3      | 106.00             | 108.9     | 106.00                  | 132.5     | 105.50                  | 93.6      | 108.00             | 40.3      | 108.00             | 61.9      | 107.00             | 37.4      | 107.00                                                                                                                                 | 56.9      | 107.00             | 79.3      | 106.00             | 34.0      | 106.00             | 51.2      | 106.00             | 64.5      | 109.00             | 43.1      | 109.00             | 66.7      | 108.00             | 40.3      | 108.00             | 61.9      | 108.00             | 86.8      | 106.00             | 34.0      | 106.00             | 51.2      | 105.17      | 35.4 |
| 108.00                                                                                                                                                                                                                                      | 62.0      | 108.00             | 86.8      | 107.00             | 123.9     | 108.00             | 86.8      | 107.00             | 123.9     | 107.00                  | 155.1     | 106.00                  | 124.8     | 109.00             | 43.1      | 109.00             | 66.7      | 108.00             | 40.3      | 108.00                                                                                                                                 | 61.9      | 108.00             | 86.8      | 107.00             | 37.4      | 107.00             | 56.9      | 107.00             | 79.3      | 110.00             | 45.7      | 110.00             | 71.1      | 109.00             | 43.1      | 109.00             | 66.7      | 109.00             | 93.8      | 107.00             | 37.4      | 107.00             | 56.9      | 106.00      | 62.7 |
| 109.00                                                                                                                                                                                                                                      | 66.7      | 109.00             | 93.8      | 108.00             | 136.2     | 109.00             | 93.8      | 108.00             | 136.2     | 108.00                  | 174.8     | 107.00                  | 155.1     | 110.00             | 45.7      | 110.00             | 71.1      | 109.00             | 43.1      | 109.00                                                                                                                                 | 66.7      | 109.00             | 93.8      | 108.00             | 40.3      | 108.00             | 61.9      | 108.00             | 86.8      | 111.00             | 48.2      | 111.00             | 75.2      | 110.00             | 45.7      | 110.00             | 71.1      | 110.00             | 100.3     | 108.00             | 40.3      | 108.00             | 61.9      | 107.00      | 79.3 |
| 110.00                                                                                                                                                                                                                                      | 71.1      | 110.00             | 100.3     | 109.00             | 147.7     | 110.00             | 100.3     | 109.00             | 147.7     | 109.00                  | 191.0     | 108.00                  | 174.8     | 111.00             | 48.2      | 111.00             | 75.2      | 110.00             | 45.7      | 110.00                                                                                                                                 | 71.1      | 110.00             | 100.3     | 109.00             | 43.1      | 109.00             | 66.7      | 109.00             | 93.8      | 112.00             | 50.5      | 112.00             | 79.1      | 111.00             | 48.2      | 111.00             | 75.2      | 111.00             | 106.3     | 109.00             | 43.1      | 109.00             | 66.7      | 108.00      | 86.8 |
| 111.00                                                                                                                                                                                                                                      | 75.2      | 111.00             | 106.3     | 110.00             | 158.4     | 111.00             | 106.3     | 110.00             | 158.4     | 110.00                  | 205.8     | 109.00                  | 191.0     | 112.00             | 50.5      | 112.00             | 79.1      | 111.00             | 48.2      | 111.00                                                                                                                                 | 75.2      | 111.00             | 106.3     | 110.00             | 45.7      | 110.00             | 71.1      | 110.00             | 100.3     | 113.00             | 52.7      | 113.00             | 82.9      | 112.00             | 50.5      | 112.00             | 79.1      | 112.00             | 112.1     | 110.00             | 45.7      | 110.00             | 71.1      | 109.00      | 93.8 |
| 112.00                                                                                                                                                                                                                                      | 79.2      | 112.00             | 112.1     | 111.00             | 168.5     | 112.00             | 112.1     | 111.00             | 168.5     | 111.00                  | 219.7     | 110.00                  | 205.8     | 113.00             | 52.7      | 113.00             | 82.9      | 112.00             | 50.5      | 112.0                                                                                                                                  |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |                    |           |             |      |