

GENERAL STRUCTURAL NOTES

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

CODE:

COMPLY WITH 2015 INTERNATIONAL BUILDING CODE.

FOUNDATIONS:

FOOTINGS SHALL BEAR ON ADEQUATELY PLACED AND COMPACTED STRUCTURAL FILL AT 24" MINIMUM BELOW FINISH GRADE. SOIL BENEATH FOOTINGS SHALL BE SCARIFIED TO A DEPTH OF 12 INCHES, MOISTURE CONDITIONED TO OPTIMUM MOISTURE CONTENT OR ABOVE AND COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM-D-698. ALL STRUCTURAL FILL SHALL BE FREE OF VEGETATION, DEBRIS AND CONTAIN NO ROCK LARGER THAN 3 INCHES. GRADATION OF THE FILL SHALL BE AS FOLLOWS.

SIEVE SIZE	PERCENT PASSING
3"	100
NO. 4	60-100
NO. 40	15-45

ALL EARTHWORK, FOOTING DEPTHS, AND EXCAVATIONS FOR FOUNDATIONS SHALL BE INSPECTED TO VERIFY ASSUMED ALLOWABLE SOIL BEARING AND LOW SETTLEMENT AND SWELL POTENTIAL, AND TO MAKE ANY ADDITIONAL RECOMMENDATIONS. ALLOWABLE SOIL BEARING = 2500 PSF.

SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT ISSUE OF THE ACI MANUAL OF CONCRETE PRACTICE, WITH TYPE II CEMENT. MINIMUM 28 DAY STRENGTH, 4000 PSI (MAX. W/C = 0.45, 5% ENTRAINED AIR), EXCEPT AS FOLLOWS:

FOUNDATIONS.....3000 PSI (MAX. W/C = 0.55)

MAXIMUM SLUMP FOR ALL CONCRETE:.....5"

CONTRACTOR SHALL SUBMIT FOR APPROVAL CONCRETE MIX DESIGNS FOR EACH CLASS OF CONCRETE. THE MIX SUBMITTAL SHALL INDICATE WHICH OF THE FOLLOWING ACI 318 METHODS THE CONCRETE SUPPLIER ALONG WITH HIS TESTING LAB INTENDS TO USE FOR CONCRETE PROPORTIONING - THE FIELD EXPERIENCE METHOD, THE LABORATORY TRIAL MIXTURE METHOD OR A COMBINATION OF BOTH. IF CONSECUTIVE TESTS (15 TO 30) ARE BEING RELIED UPON PER ACI 318, SECTION 5.3 THOSE TESTS SHALL BE SUBMITTED ALONG WITH THE MIX DESIGNS.

MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED.

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

BACKFILL 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-IN-PLACE CONCRETE (NONPRESTRESSED):

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

EXPOSED TO EARTH OR WEATHER:

#6 THROUGH #18.....2"

#5 AND SMALLER.....1 1/2"

TYPICAL BAR BEND DIAMETER SHALL BE 6 BAR DIAMETERS.

LAP SPLICES IN CONCRETE SHALL BE CLASS B TENSION LAPS, UNLESS NOTED OTHERWISE.

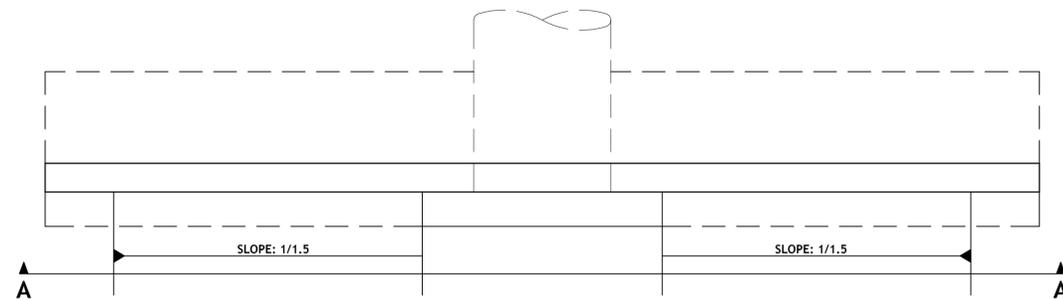
WHERE BARS ARE SHOWN SPLICED, THEY MAY RUN CONTINUOUS AT CONTRACTOR'S OPTION.

PROVIDE SHOP DRAWINGS AND FABRICATE AFTER MRGCD REVIEW. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL. 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.

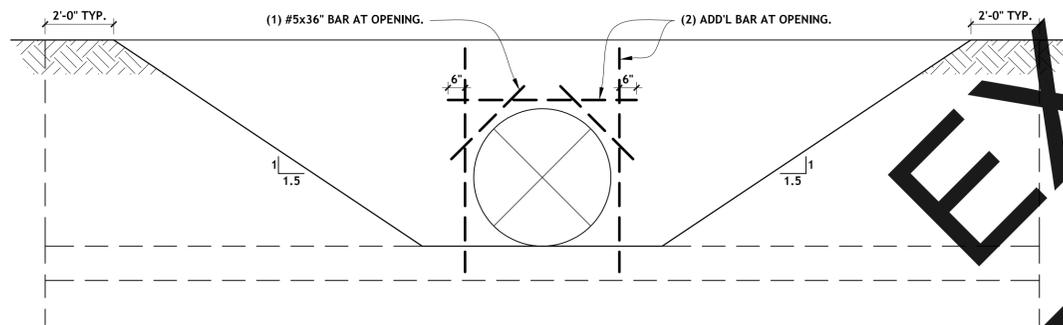
1. CONCRETE HEADWALL. THICKNESS = Kw.
 2. #4 CONT. AT 10" O.C.
 3. #4 DOWELS AT 10" O.C.
 4. #4 CONT. AT 10" O.C.
 5. LINE OF CULVERT AS OCCURS.
 6. LINE OF OVEREXCAVATION AND COMPACTED FILL.
 7. FINISHED GRADE AS OCCURS.
- A. #4 VERTICALS AT 10" O.C.
B. (4) #4 CONT.
C. #4 AT 12" O.C.

NOTE:
THIS SECTION SHOWS DIMENSIONS AND REINFORCING FOR 2'-0" OF EARTH COVER OVER THE CULVERT. SEE THE TABLE ON THIS SHEET FOR INFORMATION FOR EARTH COVER OF 3'-0", 4'-0" AND 5'-0". DO NOT USE THIS DESIGN FOR EARTH COVER IN EXCESS OF 5'-0".



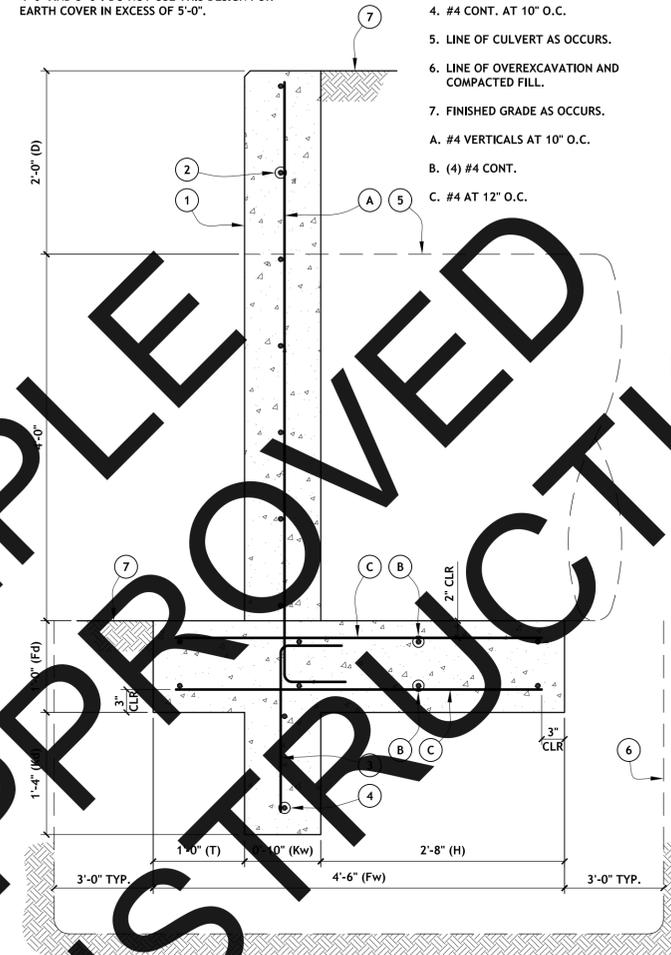
ENLARGED PLAN VIEW

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



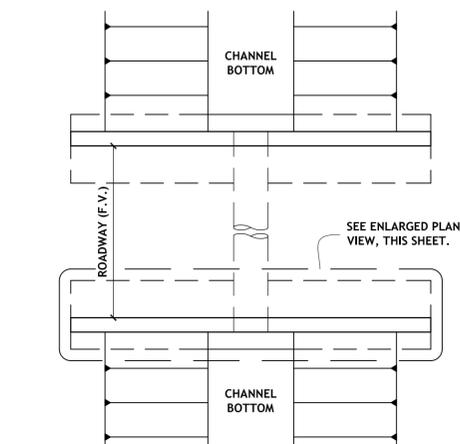
ELEVATION A-A

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



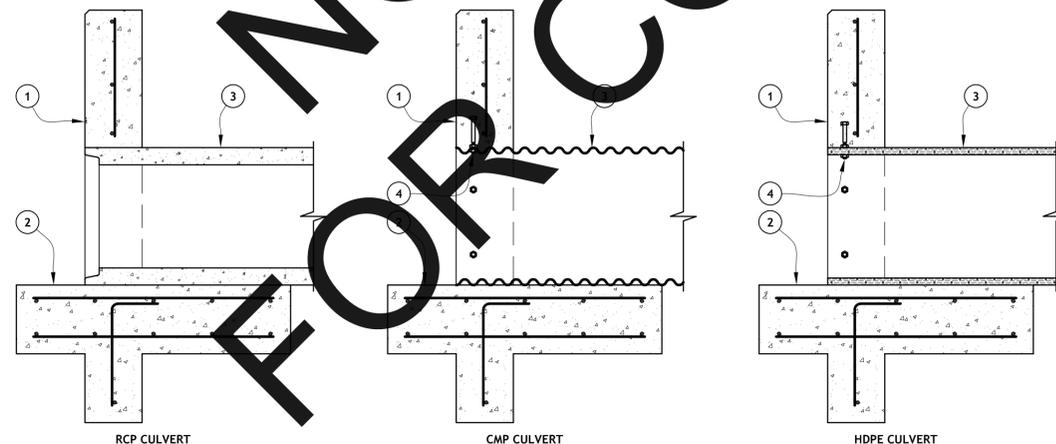
TYPICAL 48" CULVERT SECTION

48(1)-TYP



PLAN OVERALL VIEW

OVERVIEW(1)



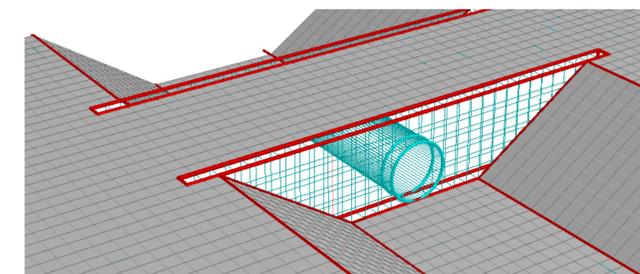
TYPICAL CULVERT TO WALL CONNECTIONS

CONNECTIONS

1. CONCRETE HEADWALL, SEE PLANS.
2. CONCRETE FOOTING, SEE PLANS.
3. CULVERT PIPE AS OCCURS.
4. 5/8"Øx6" GALVANIZED BOLTS WITH WASHERS AND NUTS AT 18" O.C. MAX. WHERE BOLTS WILL BE EMBEDDED IN CONCRETE HEADWALL.

DIMENSIONS AND REINFORCING

DIMENSIONS							REINFORCING		
D	Fd	T	Kw	Kd	H	Fw	A	B	C
3'-0"	1'-2"	1'-6"	0'-10"	1'-10"	2'-8"	5'-0"	#5 @ 12" O.C.	(4) #4 CONT.	#4 @ 12" O.C.
4'-0"	1'-2"	1'-6"	0'-10"	2'-0"	3'-5"	5'-9"	#5 @ 9" O.C.	(5) #5 CONT.	#4 @ 12" O.C.
5'-0"	1'-3"	1'-9"	0'-10"	2'-3"	3'-8"	6'-3"	#6 @ 9" O.C.	(5) #5 CONT.	#5 @ 15" O.C.



NO.	REVISION	DESCRIPTION	DATE	BY
1	1	REISSUED WITH PHASE 2	4/1/19	CS
2				
3				
4				
5				

WALL TYPE #1
DESIGN #2

MRGCD TYPICAL HEADWALLS
MIDDLE RIO GRANDE CONSERVANCY DISTRICT

48"Ø CULVERT - STRAIGHT HEADWALL - LEVEL BACKFILL

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:
116118-02

DATE:
APRIL 2019

SHEET NO:
DESIGN #2

GENERAL STRUCTURAL NOTES

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

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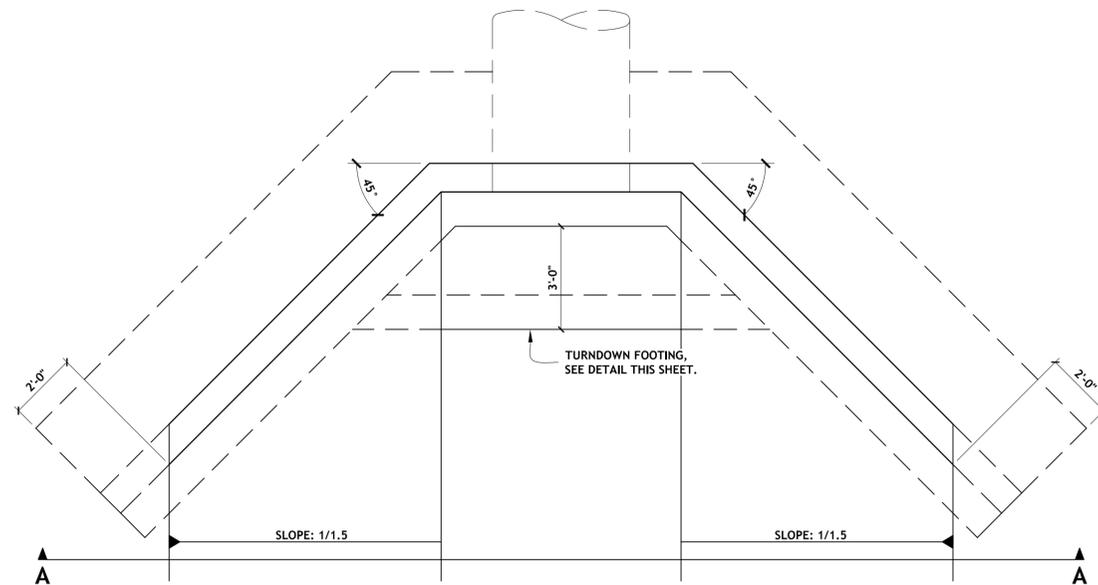
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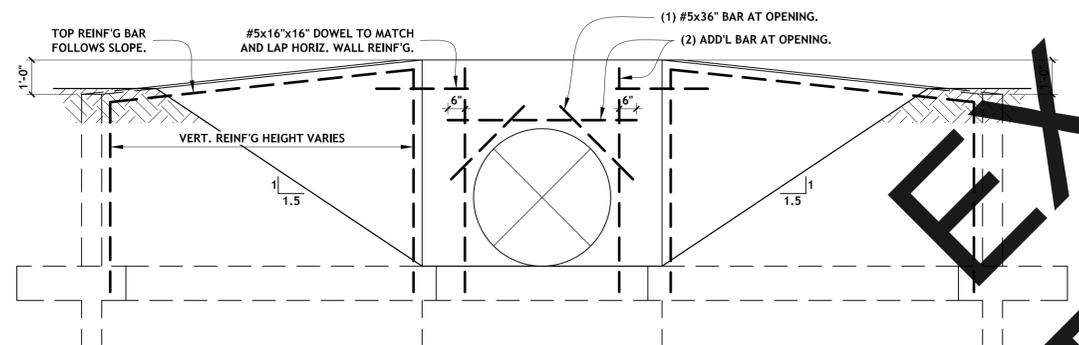
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2. #4 CONT. AT 10" O.C.
3. #4 DOWELS AT 10" O.C.
4. #4 CONT. AT 10" O.C.
5. LINE OF CULVERT AS OCCURS.
6. LINE OF OVEREXCAVATION AND COMPACTED FILL.
7. FINISHED GRADE AS OCCURS.
8. 6" CONCRETE SLAB ON GRADE WHERE OCCURS WITH #5 AT 18" O.C. EACH WAY. EXTEND SLAB REINFG (6" MIN. EMBED) INTO FOOTING.

- A. #4 VERTICALS AT 10" O.C.
- B. (4) #4 CONT.
- C. #4 CONT.



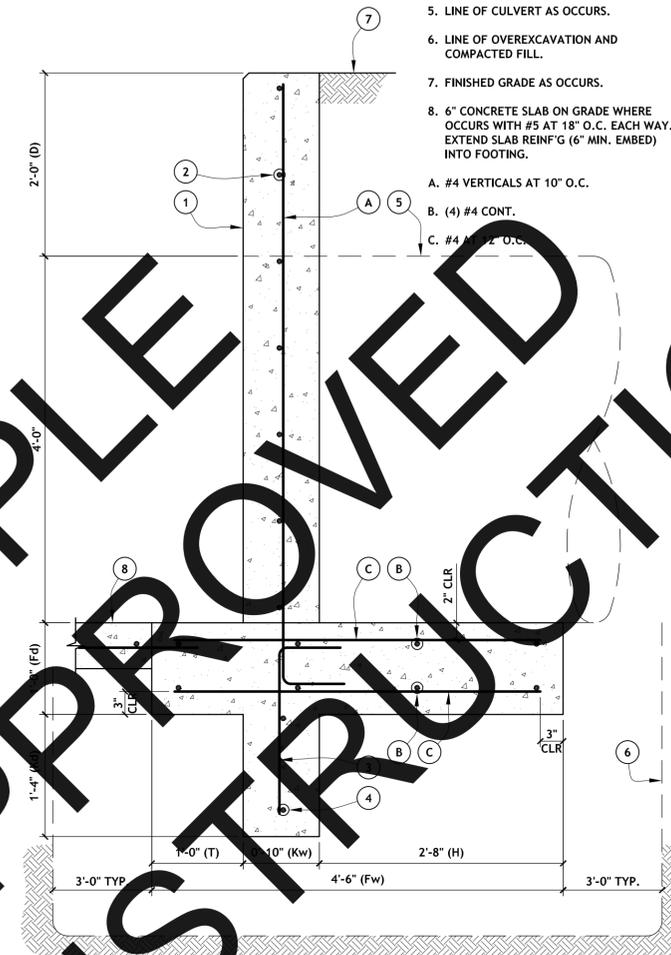
ENLARGED PLAN VIEW

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



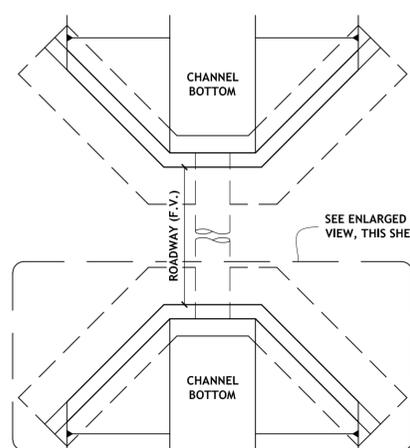
ELEVATION A-A

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



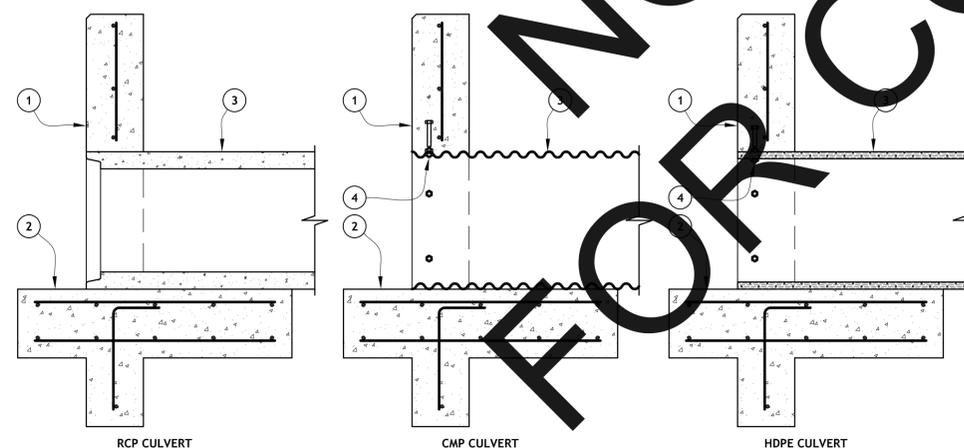
TYPICAL 48" CULVERT SECTION

48(3)-TYP



PLAN OVERALL VIEW

OVERVIEW(3)

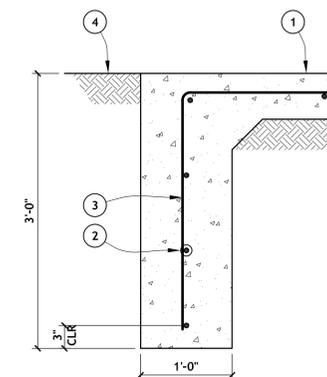


TYPICAL CULVERT TO WALL CONNECTIONS

CONNECTIONS1

1. CONCRETE HEADWALL, SEE PLANS.
2. CONCRETE FOOTING, SEE PLANS.
3. CULVERT PIPE AS OCCURS.
4. 5/8"x6" GALVANIZED BOLTS WITH WASHERS AND NUTS AT 18" O.C. MAX. WHERE BOLTS WILL BE EMBEDDED IN CONCRETE HEADWALL.

1. 6" CONCRETE SLAB ON GRADE WITH #5 AT 18" O.C. EACH WAY.
2. #4 CONT. AT 12" O.C.
3. STANDARD HOOK CONTINUED FROM SLAB REINFORCING.
4. FINISHED GRADE AS OCCURS.

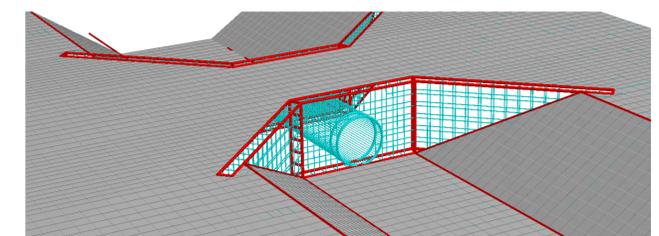


TYPICAL TURNDOWN FOOTING

TURNDOWN

DIMENSIONS AND REINFORCING

DIMENSIONS							REINFORCING		
D	Fd	T	Kw	Kd	H	Fw	A	B	C
3'-0"	1'-2"	1'-6"	0'-10"	1'-10"	2'-8"	5'-0"	#5 @ 12" O.C.	(4) #4 CONT.	#5 @ 15" O.C.
4'-0"	1'-2"	1'-6"	0'-10"	2'-0"	3'-5"	5'-9"	#5 @ 9" O.C.	(5) #5 CONT.	#5 @ 15" O.C.
5'-0"	1'-3"	1'-9"	0'-10"	2'-3"	3'-8"	6'-3"	#6 @ 9" O.C.	(5) #5 CONT.	#5 @ 12" O.C.



NO.	REVISION	DESCRIPTION	DATE	BY
1	ISSUED WITH PHASE 2		4/1/19	CS
2				
3				
4				
5				

WALL TYPE #3
DESIGN #8

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MIDDLE RIO GRANDE CONSERVANCY DISTRICT

48"Ø CULVERT - WINGWALLS - LEVEL BACKFILL

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