TYPICAL LEVEE REPLACEMENT SECTION

LEVEE HEIGHTS EQUAL TO OR LESS THAN 12' USE 1% SLOPE.
LEVEE HEIGHTS GREATER THAN 12' USE 2% SLOPE.

TYPICAL TOE DRAIN DETAIL

TYPICAL LEVEE RIPRAP SECTION
GENERAL STRUCTURAL NOTES

1. ALL EXPOSED CONCRETE FORMED SURFACES SHALL BE CLASS "B" FINISH EXCEPT AS NOTED OTHERWISE. ALL OTHER SURFACE FINISHES SHOWN ON THE DRAWINGS.

2. CONCRETE IS CURED AT 100°F MINIMUM. ALL EXPOSED CONCRETE FORMED SURFACES SHOWN ON THE DRAWINGS SHALL BE CLASS "B" FINISH EXCEPT AS NOTED OTHERWISE.

3. EXPOSED CONCRETE FORMS AND CONCRETE SUPPORTS SHALL BE COVERED WITH PLASTIC SHEETS.

4. CONCRETE FOR THE PRECAST CONCRETE PIPE (RCP) CONDUIT SHALL HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS.

5. PRECAST CONDUIT SHALL BE DESIGNED FOR THE SOIL COVER CONDITIONS SHOWN IN THE PLANS AND PROFILE PLATES.

6. ALL RCP SHALL CONFORM TO ASTM C76 UNLESS NOTED OTHERWISE. ALL Anchor bolts shall be ASTM A307 UNLESS NOTED OTHERWISE.

7. PRECAST CONDUIT SHALL BE DESIGNED FOR THE SOIL COVER CONDITIONS SHOWN IN THE PLANS AND PROFILE PLATES.

8. RCP SHALL CONFORM TO ASTM C76 UNLESS NOTED OTHERWISE. ALL Anchor bolts shall be ASTM A307 UNLESS NOTED OTHERWISE.

9. ALL MONUMENTS SHALL BE MARKED WITH A CLASS "B" FINISH.

10. CONCRETE FOR THE INTAKE STRUCTURE, GATEWAY STRUCTURE, CAST-IN-PLACE CONDUIT, CAST-IN-PLACE PRESSURE MANHOLES, CAST-IN-PLACE BOX CULVERTS AND TRANSITION SECTIONS SHALL HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 6,000 PSI AT 28 DAYS. ALL OTHER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS UNLESS NOTED OTHERWISE.

11. CONCRETE FOR THE INTAKE STRUCTURE, GATEWAY STRUCTURE, CAST-IN-PLACE CONDUIT, CAST-IN-PLACE PRESSURE MANHOLES, CAST-IN-PLACE BOX CULVERTS AND TRANSITION SECTIONS SHALL HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 6,000 PSI AT 28 DAYS. ALL OTHER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.

12. CONCRETE FOR THE INTAKE STRUCTURE, GATEWAY STRUCTURE, CAST-IN-PLACE CONDUIT, CAST-IN-PLACE PRESSURE MANHOLES, CAST-IN-PLACE BOX CULVERTS AND TRANSITION SECTIONS SHALL HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 6,000 PSI AT 28 DAYS. ALL OTHER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.

13. STRESS IN THE BARS.

14. ALL RCP SHALL CONFORM TO ASTM C76 UNLESS NOTED OTHERWISE. ALL Anchor bolts shall be ASTM A307 UNLESS NOTED OTHERWISE.

15. ALL RCP SHALL CONFORM TO ASTM C76 UNLESS NOTED OTHERWISE. ALL Anchor bolts shall be ASTM A307 UNLESS NOTED OTHERWISE.

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**KEYED NOTES**

1. 2-COMPONENT POLYURETHANE SEALANT
2. POLYURETHANE JOINT FILLER
3. REFER TO APPLICABLE PLAN FOR STRUCTURE MEMBER TYPE (i.e., WALL, SLAB, OR TRAPEZOIDAL SLAB)
4. INTERIOR FACE OF CONCRETE
5. REINFORCEMENT SHALL NOT EXTEND THROUGH JOINT, UNLESS NOTED OTHERWISE. TERMINATE REINFORCEMENT 2" FROM VERTICAL FACES OF CONCRETE.
6. HORSE KEY
7. 3/4" CHAMFER @ EXPOSED SURFACES
8. LAP MAY BE ON EITHER SIDE OF JOINT, DEPENDING ON DIRECTION OR PLACEMENT
9. CONT 2 X 4 KEY

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**CONSTRUCTION JOINT DETAIL**

**WALL HORIZONTAL CONSTRUCTION JOINT DETAIL**

**WALL VERTICAL CONSTRUCTION JOINT DETAIL**

**C.I.P. CBC ROOF SLAB OR WALL VERTICAL CONSTRUCTION JOINT DETAIL**

**EXPANSION JOINT**

**CONTRACTION JOINT**

**TYP. C.I.P. WALL VERTICAL CONTRACTION JOINT**

**1/2" WIDE C.I.P. WALL EXPANSION JOINT**

**SCALE: 1 1/2" = 1'-0"**
### OVERALL SCHEDULE

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### KEYED NOTES

1. HANDRAILS SHOWN IN THE DRAWINGS ELEVATIONS SHALL BE FABRICATED AS INDICATED. FOR TYPICAL HANDRAIL SEPARATION SEE A/R-103 AND FOR POST ANCHORAGE SEE B/S-103 DETAILS UNLESS OTHERWISE NOTED.
2. POST SPACING SHALL BE AS INDICATED OR 4'-0" O.C. MAX.
3. THE CONTRACTOR SHALL COORDINATE WITH THE HANDRAIL FABRICATOR ON AS REQUIRED TO ENSURE THAT THE EMBEDDED PLATES IN THE WALLETS OCCUR AT THE HANDRAIL POST LOCATIONS. REFER TO DETAIL B/S-103.
4. OVERALL OUTSIDE LENGTH OF HANDRAIL SECTION SHALL NOT EXCEED 48'-0" IN LENGTH. 40'-0" SECTIONS SHALL HAVE A MAXIMUM OF (4) HANDRAIL POSTS EQUALLY SPACED BETWEEN THE FIRST AND LAST HANDRAIL POSTS.

### HANDRAIL NOTES

- For TYPICAL POST ANCHOR DETAILS (B/S-103) and for post anchorage see A/S-103.
- This portion of the detail applies at end walls.
- Post anchor - see detail B/S-103.
- 1 1/2" Dia. x-Strong Pipe, Galvanized.
- 1 1/2" Dia. Standard Pipe, Galvanized.
- Keyed notes:
  - Wall contraction or expansion joint, at end of wall joints to match pipe finish with zinc rich paint.
  - Weld joints and grind all welds smooth. Paint all.
  - Studs 4" apart.
  - Plated 3/8" x 4" x 0'-4", Galvanized. Weld to in the shop, prior to galvanizing. Welded in the field.
  - Chamfer.

### TYPICAL HANDRAIL SPLICE/END/CORNER DETAIL

- TYPICAL HANDRAIL SPLICE/END/CORNER DETAIL (A)
- TYPICAL POST ANCHOR DETAILS (B)

### HANDRAIL SPLICE END/CORNER DETAIL

- TYPICAL HANDRAIL SPLICE/END/CORNER DETAIL (A)
- TYPICAL POST ANCHOR DETAILS (B)

### NOTE

- After welding, field paint plates with zinc rich paint.
NOTES FOR PRECAST CBC
1. PRECASTOR IS RESPONSIBLE FOR THE DESIGN OF THE CBC’S FOR THE REQUIREMENTS AS SHOWN. ALL PARTS ARE預先设计和
2. PROVIDED TO ATTACHMENT TO C.I.P. HEADWALL. ARE DRILLED AND HEX HEAD NUTS ARE SUPPLIED TO ATTACH TO THE
3. PRECASTOR SHALL PROVIDE ENDS IN ACCORDANCE WITH THE DETAIL AS SHOWN. IN THESE PLANS FOR ATTACHMENT TO C.I.P. HEADWALL.
4. CBC’S SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
   - DESIGN FOR FULLY SATURATED SOIL CONDITIONS INCLUDING COVER SOIL.
   - NORMAL GROUND WATER HEIGHT (ABOVE INVERT) = 30" (MAX), 24" (AVG)
   - SOIL WEIGHT (SAT.) = 130pcf
   - REINFORCING f_y = 60 ksi (ASTM) A615
   - CONCRETE, f'c= 5000psi @28 DAYS
   - ALLOWABLE BEARING MEASURE = 2500psf
   - EARTH COVER = 8FT (MAX), 2.5FT (MIN)
   - DESIGN FOR FULLY SATURATED SOIL CONDITIONS INCLUDING COVER SOIL.
   - CBC’S SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

NOTES FOR FABRICATED SLIDE GATE
1. FABRICATED SLIDE GATE SHALL BE A SELF-CONTAINED, FULLY SEALED, SELF-CLOSING GATE (QSR-15Y) BY WATERMAN INDUSTRIES, INC. OR APPROVED EQUAL.
2. THE CONTRACTOR SHALL SUBMIT CALCULATIONS PREPARED AND SEALED BY A NM LICENSED P.E. FOR GATE AND APPURTENANCES.
3. THE GATE FABRICATOR IS RESPONSIBLE FOR THE GATE ANCHORAGE TO THE C.I.P. HEADWALL AND ALL GATE FRAMING, RAILS, LIFTS (DUAL-RATIO GEARED) AND SEALS.
4. THE GATE SHALL COVER 10' WIDE X 5' HIGH OPENING, SHALL FULLY OPEN AND SHALL BE DESIGNED FOR 15 FT. OF POTENTIAL PRESSURE HEAD DOWNSTREAM.

TYPICAL ONE BARREL BOX CULVERT PLAN
SCALE: 1/16" = 1'-0"
NOTES FOR PRECAST CBC
1. Precaster is responsible for the design of the CBC’s for 15 ft. of potential pressure head downstream.
   - Design for fully saturated soil conditions including cover soil.
2. The Precaster shall provide end pieces in accordance with the details in these plans for attachment to C.I.P. Headwall.
3. CBC’s shall be designed in accordance with the following criteria:
   - Earth cover = 8 ft. (max) 2.5 ft. (min)
   - Allowable bearing means 2.5% of flow
   - Soil weight (sat.) = 130pcf
   - Soil weight (unsat.) = 150pcf
   - Design for fully saturated soil conditions including cover soil.

NOTES FOR FABRICATED SLIDE GATE
1. Fabricated slide gate shall be a self-contained, fully sealed to include frame, rails, lifts (dual-ratio geared) and seals.
2. The contractor shall submit calculations prepared and sealed by a NM licensed P.E. for gate and appurtenances.
3. The Gate fabrator is responsible for the gate anchorage to the C.I.P. Headwall and all gate framing, rails, lifts (dual-ratio geared) and seals.
4. The gate shall cover 48” diameter opening, shall fully open and shall be designed for 15 ft. of potential pressure head downstream.

DETAILS IN THESE PLANS FOR ATTACHMENT TO C.I.P. HEADWALL.
- Design for fully saturated soil conditions including cover soil.
- Normal ground water height (above invert) = 30” (max), 24” (avg)
- Live load = HS20
- Soil weight (sat.) = 130pcf
- Design for fully saturated soil conditions including cover soil.

DESIGN BY:

REVIEWED BY:

DRAWN BY:

DATE

DESCRIPTION

FILE NAME

FACILITIES DESIGN SECTION

SHEET NO.

SEQUENCE NO.

OF

Erode tolerance
Erode accidents

BERNALILLO TO BELEN LEVEES

BERNALILLO COUNTY AND VALENCE COUNTY, NEW MEXICO

AUGUST 2015

US Army Corps of Engineers
ALBUQUERQUE, NEW MEXICO