SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

PLANS FOR RECONSTRUCTION ON

WEST STATE STREET STORM DRAIN
SEGMENT IIIC
CONSTRUCTION OF TRANSITION STRUCTURES
AT BENSON AVENUE AND MOUNTAIN AVENUE

F01087
SAN ANTONIO CREEK SYSTEM

CONSTRUCTION NOTES
1. CONSTRUCT CURVE TRANSITION FROM TRIPLE 5'W X 6'-0" TO TRIPLE 5'W X 6'-0" BOX PROFILE AND SHEET 10.
2. CONSTRUCT CURVE TRANSITION FROM TRIPLE 5'W X 6'-8" TO TRIPLE 5'W X 6'-8" BOX PROFILE AND DETAILS ON SHEET 11.
3. CONSTRUCT BOX SECTIONS ON PROFILE AND ON SHEETS 12, 13, 14, AND 15.
4. CONSTRUCT VARYING W/D (7'-0" TO 8'-0") BY 12'-0" SOUTHERLY RECTANGULAR CHANNEL PER DETAILS ON SHEET B. LIMITS PER PROFILE.
5. CONSTRUCT FENCE SPEC 1 & 6 PER SHEETS 6 & 7.
6. CONSTRUCT VARYING W/D (7'-0" TO 8'-0") BY 12'-0" NORTHERLY RECTANGULAR CHANNEL PER DETAILS ON SHEET B. LIMITS PER PROFILE.
7. CONSTRUCT 10'-0" W/D BY 12'-0" SOUTHERLY 8" RECTANGULAR CHANNEL PER DETAILS ON SHEET B. LIMITS PER PROFILE.
8. CONSTRUCT 10'-0" W/D BY 12'-0" NORTHERLY 8" RECTANGULAR CHANNEL PER DETAILS ON SHEET B. LIMITS PER PROFILE.
9. CONSTRUCT CONCRETE BARRIER TYPE 560 PER STATE STD PLAN ATQK.
10. CONSTRUCT 8'-0" W/D BY 10'-0" NORTHERLY RECTANGULAR CHANNEL PER DETAILS ON SHEET B. LIMITS PER PROFILE.
11. CONSTRUCT 8'-0" W/D BY 10'-0" SOUTHERLY RECTANGULAR CHANNEL PER DETAILS ON SHEET B. LIMITS PER PROFILE.

NOTE:
FALL PER QUANTITY FOR B11M REINFORCING STEEL IS INCLUDED IN THE QUANTITY SHOWN. THE QUANTITY IS B11M REINFORCING STEEL ONLY. ALL LAYOUT IS TO BE DETERMINED BY CONTRACTOR AND CONSULTANT. DRAINAGE IN THE CHANNELS OR ALONG THE LATERAL PARAPETS IS TO BE DETERMINED BY CONTRACTOR AND CONSULTANT. DRAINAGE IN THE EXISTING DRAINAGE OR ALONG THE LATERAL PARAPETS IS TO BE DETERMINED BY CONTRACTOR AND CONSULTANT.
### REINFORCED CONCRETE RECTANGULAR CHANNEL SCHEDULE (SOUTHERLY SIDE)

<table>
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<tr>
<th>SECTION</th>
<th>SIZE (FT)</th>
<th>THICK (IN)</th>
<th>Y (IN)</th>
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### STRUCTURAL NOTES

1. Dimensions from face of concrete to steel are to outside face of bar and shall be two inches unless otherwise shown.

2. Concrete dimensions shall be measured horizontally or vertically on the profile and parallel to or at right angles (or radially) to centerline of channel on the plan except as otherwise shown.

3. All bar bends and hooks shall conform to the American Concrete Institute's Building Code Requirements for reinforced concrete, latest edition.

4. Placing of reinforcement shall conform to the American Concrete Institute's Building Code Requirements for reinforced concrete, latest edition.

5. Transverse expansion joints shall not be placed closer than 50 feet nor be less than 30 feet measured along the centerline of construction, except as otherwise shown on the drawings.

6. Transverse expansion joints shall not be placed closer than 50 feet nor be less than 30 feet measured along the centerline of construction.

7. The transverse reinforcing steel shall terminate one and one-half inches from the concrete surfaces unless otherwise shown on the structural details.

8. Exposed edges of concrete members shall be rounded or beveled.

9. No splices in transverse steel reinforcement will be permitted other than those shown on the drawings.

10. Longitudinal steel shall terminate two inches from transverse expansion joints.

11. Transverse joints shall be spaced not to exceed 50 feet nor be less than 30 feet measured along the centerline of construction, except as otherwise shown on the drawings.

12. Transverse joints shall be placed at the junction of rectangular open channel sections with closed conduit sections.

13. All rectangular open channel walls shall be formed in accordance with Spec. B-1, except as otherwise shown on the drawings.

14. Unless otherwise shown on the drawings, in curved sections, the maximum spacing of bars shall not exceed that shown on the drawings.

15. At the beginning and ending of all piers, a complete curtain of reinforcement composed of B1, B2, B3, B4, B5, B6 shall be placed three inches from the transverse expansion joint.

16. Where channels vary in height or width between sections shown in schedule, vary the concrete thickness uniformly between the two adjoining sections. Reinforcing shall be placed at or near the adjoining section provides the greater steel area. The maximum size of B1, B2, B3, B4, B5, B6 and B7 uniformly along the transverse except as otherwise shown on the drawings.

17. For weld details and location see drawing 9.

### TYPICAL CHANNEL SECTION SOUTHERLY SIDE

Not to scale.

### STRUCTURAL DESIGN CRITERIA

L.A.C.F.D. Structural Design Manual, dated April 1982

Live Load

H300-44 unless otherwise noted

Dead Load

Dry Back Fill = 40 psf equivalent fluid pressure

Service dead load + self weight + 50% of storm water pressure

Internal water = 40 psf net equivalent fluid pressure

### ALLOWABLE STRESSES

Ft = 4500 psi

F = 3700 psi

Fb = 4400 psi

Fw = 4000 psi

Shear and Bend Stresses per AASHTO-99

Foundation modulus, K = 165 psi

### REINFORCED CONCRETE RECTANGULAR CHANNEL SECTION AND SCHEDULE (SOUTHERLY SIDE)
# Reinforced Concrete Rectangular Channel Schedule (Northerly Side)

<table>
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<tr>
<th>Section</th>
<th>Transverse Reinforcement Steel</th>
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<tr>
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<td>N2</td>
<td>10'-0&quot; 12'-0&quot; 12'-0&quot; 10'</td>
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<tr>
<td>N3</td>
<td>8'-0&quot;  12'-0&quot; 12'-0&quot; 10'</td>
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<tr>
<td>N4</td>
<td>7'-0&quot;  12'-0&quot; 12'-0&quot; 10'</td>
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**Typical Channel Section Northerly Side**

**Continuous Wall Filter Material Detail**

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**Transverse Expansion Joint Detail**

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**Weephole Detail**

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**Longitudinal Construction Joint**

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**Section**

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**Detail 'A' Weakened Plane for Walls**

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**Weakened Plane for Invert Slab**

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**Note:** For structural notes and design criteria, see Sheet 8.
NOTES:

1. SEE "ADDITIONAL NOTES FOR SECTIONS TO BE JACKED IN PLACE" ON SHEET 5 FOR DETAILS.
2. VARIATION FROM THEORETICAL ALIGNMENT AND GRADE OF THE ENDS OF THE BOXS AT THE TIME OF COMPLETION SHALL NOT EXCEED 1", THE CONTRACTOR SHALL INFORM THE ENGINEER IF THE LIMIT IS EXCEEDED, AND PROPOSE "FOR DETAIL" TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
3. FOR CONSTRUCTION JOINT DETAIL AT INTERFACE BETWEEN PRECAST JACKED BOX AND CIP TRIPLE BOX TRANSITION SEE SHEET 3.
4. FOR SECTIONS A-A, B-B AND SECTION C-C SEE SHEET 12. FOR SECTION D-D, SEE SHEET 17.
5. SEE "DRILL AND BEND DOWEL" ON SHEET 17 FOR CONNECTION OF NEW STRUCTURE AT EXISTING.
NOTES

1. SEE STRUCTURAL DESIGN CRITERIA ON SHEET 5
2. BARS ARE SHOWN IN SEPARATE LAYERS FOR CLARITY ONLY. ALL BARS IN THE SAME FACE OF THE MEMBER SHALL BE IN THE SAME LINE.
3. DIMENSIONS SHOWN ARE APPROXIMATE AND MAY VARY IN FIELD DUE TO J ACKING PROCEDURES. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE START OF WORK.
4. \* DENOTES BARS TO BE PLACED ALONG CURVED TRANSITION ONLY
5. \+= DENOTES 12" THICK (10" THICK AT DL OF CHANNEL) INVERT SLAB ALONG CURVED TRANSITION STRUCTURE.
6. \++ DENOTES DIMENSION VARIATION ALONG CURVED TRANSITION STRUCTURE.
7. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTER OF BAR UNLESS OTHERWISE SHOWN.

FINISH GRADE PER PLAN AND PROFILE

SECTION

N.T.B.

SAN BENEDICTO CREEK
FLOOD CONTROL DISTRICT

REINFORCED CONCRETE TRIPLE BOX CONDUIT AND RECTANGULAR CHANNEL

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DATE: 3/10/04
SCALE: 1"=10'-0"
DRAWING NO: 13 OF 15

P&D Consultants, Inc.
1901 West, Suite 201
Beaumont, TX 77703
(361) 853-0447

SAN BENEDICTO CREEK
REINFORCED CONCRETE TRIPLE BOX CONDUIT AND RECTANGULAR CHANNEL
NOTES
1. SEE STRUCTURAL DESIGN CRITERIA ON SHEET 5 FOR CONCRETE STRENGTH AND ALLOWABLE STRESSES
2. BARS ARE SHOWN IN SEPARATE LAYERS FOR CLARITY ONLY. ALL BARS IN THE SAME FACE OF THE MEMBER SHALL BE IN THE SAME LINE
3. DIMENSIONS FROM FACE OF CONCRETE TO STEEL ARE TO CENTER OF BAR UNLESS OTHERWISE SHOWN.

SECTION
H.T.C.

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

SAN ANTONIO CREEK SYSTEM
REINFORCED CONCRETE DOUBLE BOX CONDUIT
AND RECTANGULAR CHANNEL