

**STREET IMPROVEMENTS FOR**  
**135th Street West**  
from 13th Street to 21st Street North

**STORM SEWER**  
**LINE 1, 12x4**  
**RCB WINGWALL**  
**DETAILS**

MKEC PROJ #10265  
PROJECT NUMBER

JRA  
DESIGN BY  
DMU  
DRAWN BY  
JRA  
CHECKED BY

ISSUED  
February 2012

REVISED

SHEET NO.  
**84 of 231**

**GENERAL NOTES**

**UNIT STRESSES:** Grade 4.0 Concrete;  $f'c = 4,000$  p.s.i.  
Reinforcing Steel;  $f_y = 60,000$  p.s.i.

**CONCRETE:** Grade 4.0 Concrete shall be used throughout.  
Bevel all exposed edges with a  $\frac{3}{4}$  inch triangular moulding.

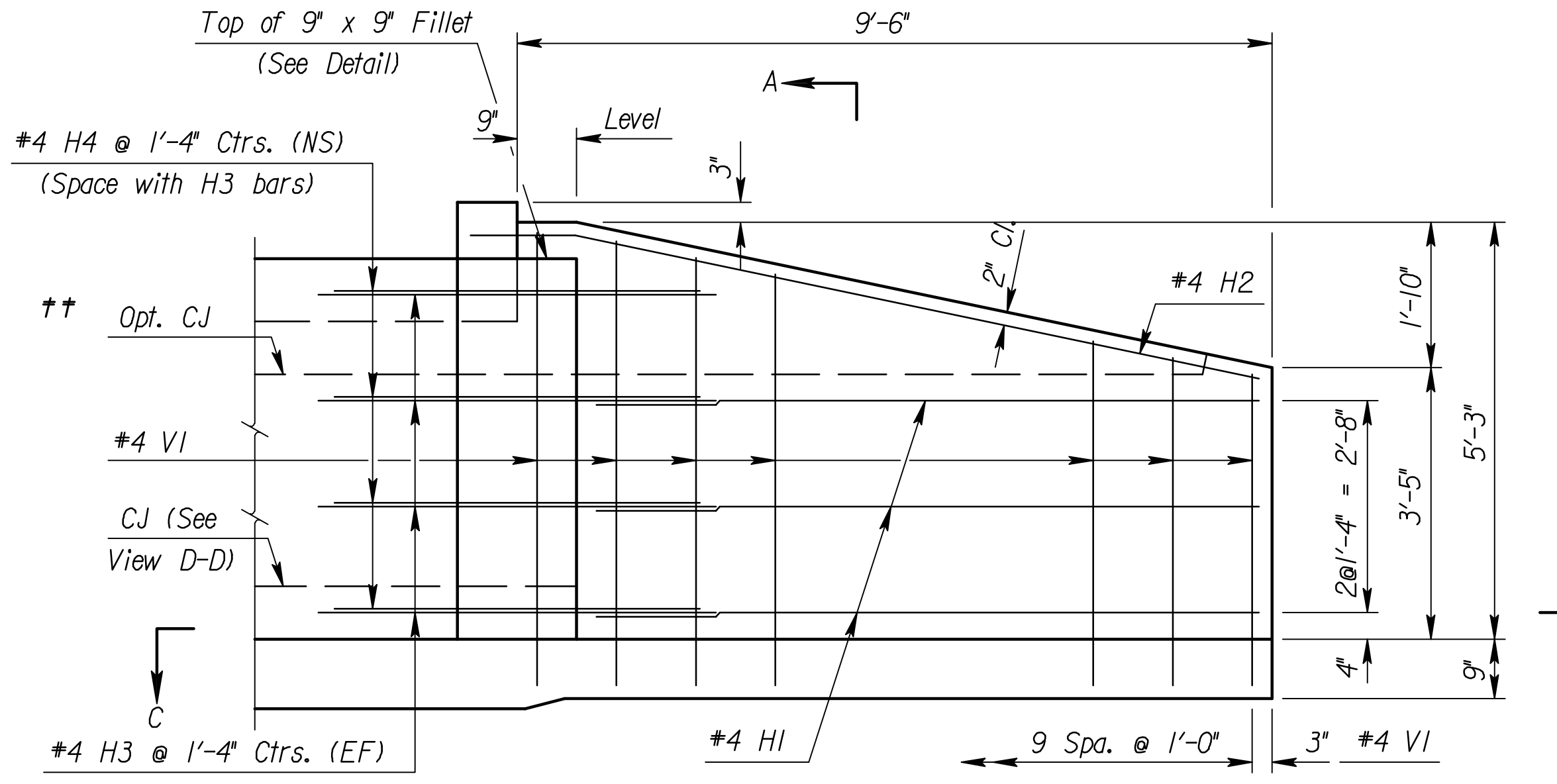
**REINFORCING:** All reinforcing shall conform to ASTM A615,  
Grade 60. Welded Wire Fabric shall conform to ASTM A185.  
All dimensions relative to reinforcing steel shall be to  
center-line of bar unless otherwise noted.

**QUANTITIES:** Wingwall Quantities include all quantities outside  
the neat lines of the box, excluding the hubguard.

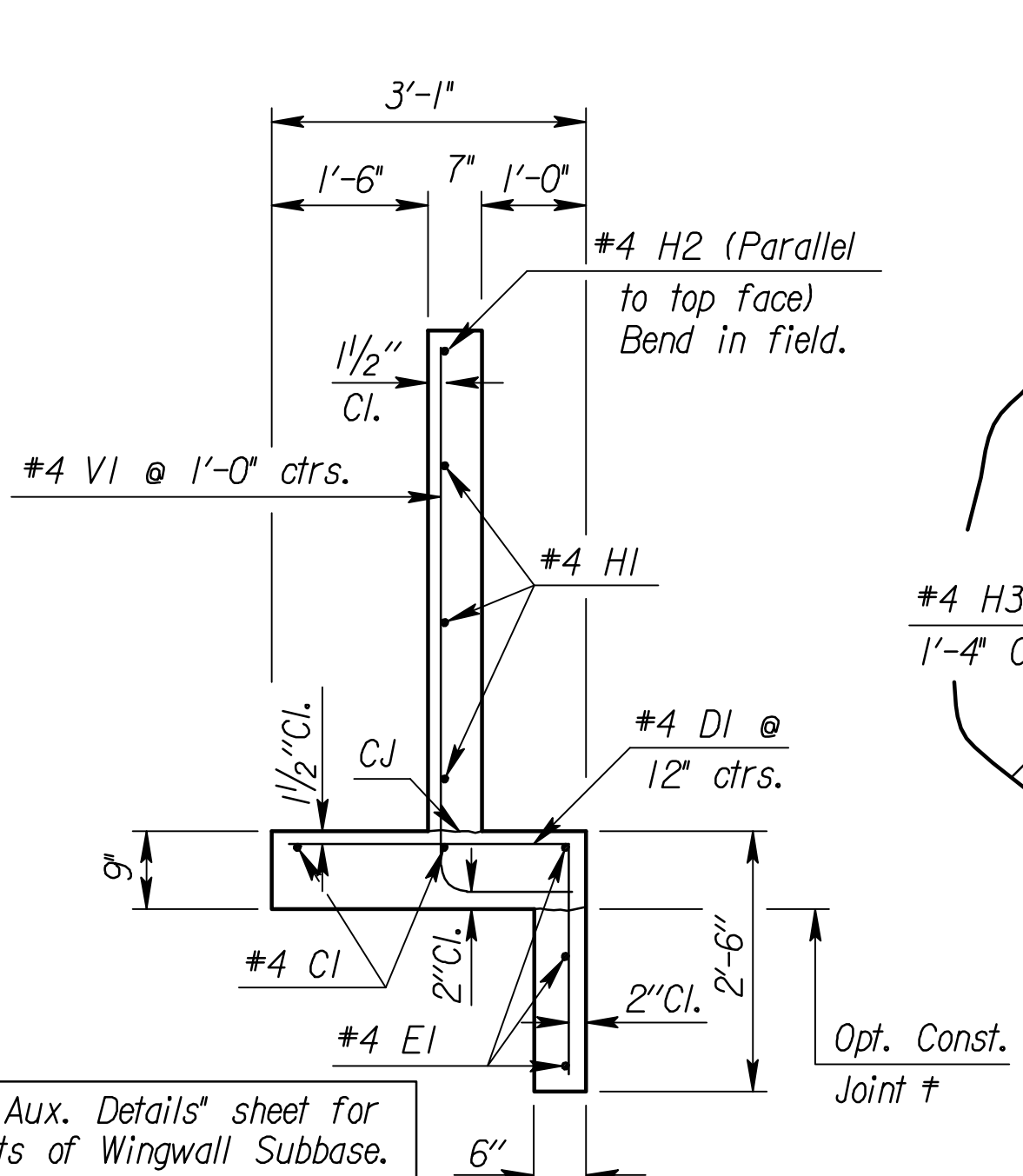
**APRON:** A 5' concrete slab shall be constructed between the  
down-stream wings in locations subject to scour only when  
specified on the plans or by the Engineer. Wire  
Reinforcing mesh shall be electrically welded and shall be  
classified as pounds of reinforcing and included in the  
total quantity for the bid item Reinforcing Steel (Gr. 60)

**BACKFILL MATERIAL:** Soils judged as high plasticity clays, fat  
clays, expansive clays, or organic clays are unsuitable for  
backfill material for wingwalls and will not be used. Where  
these conditions exist, use Granular Backfill (Wingwalls).

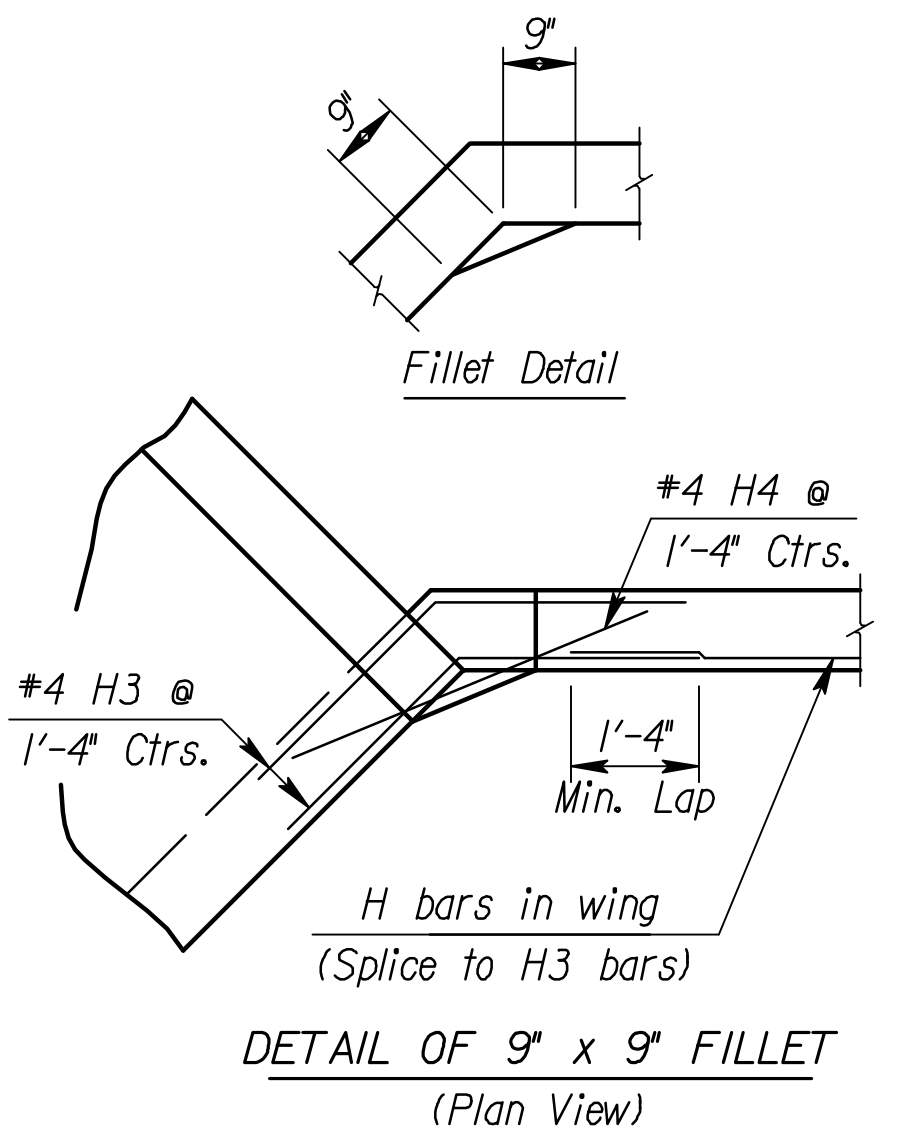
**FOUNDATION STABILIZATION:** Use Foundation Stabilization on all  
wingwalls unless founded on rock or granular material.



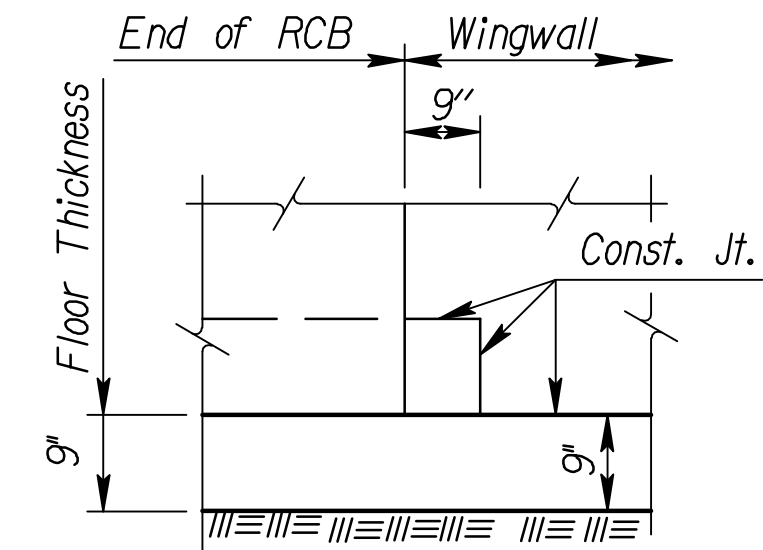
**ELEVATION OF WINGWALL**  
(Backface Shown)



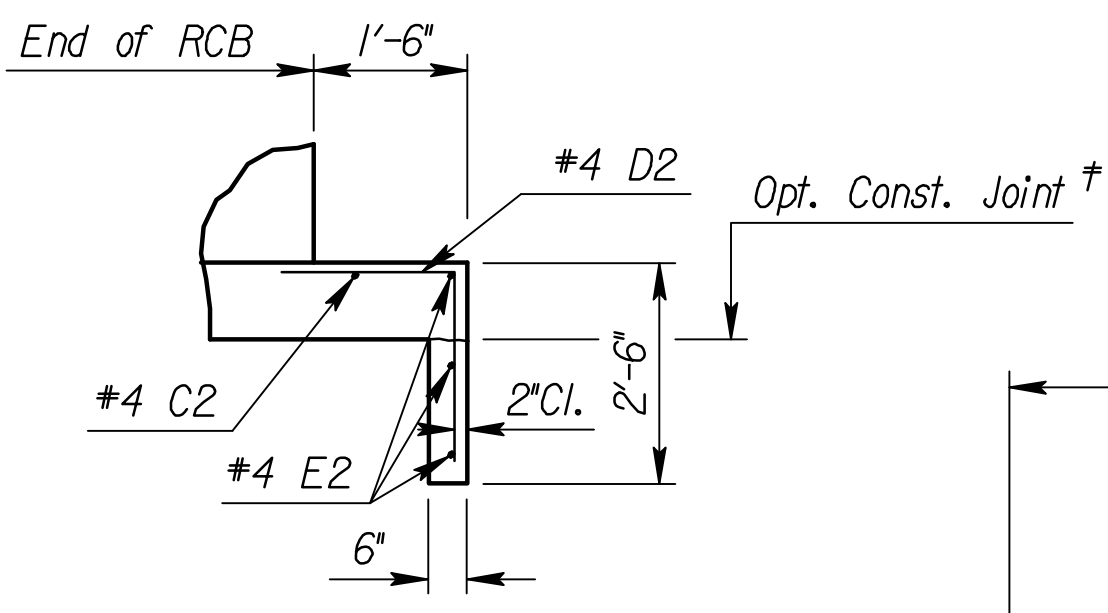
**SECTION A-A**



**DETAIL OF 9' x 9' FILLET**  
(Plan View)



**VIEW D-D**

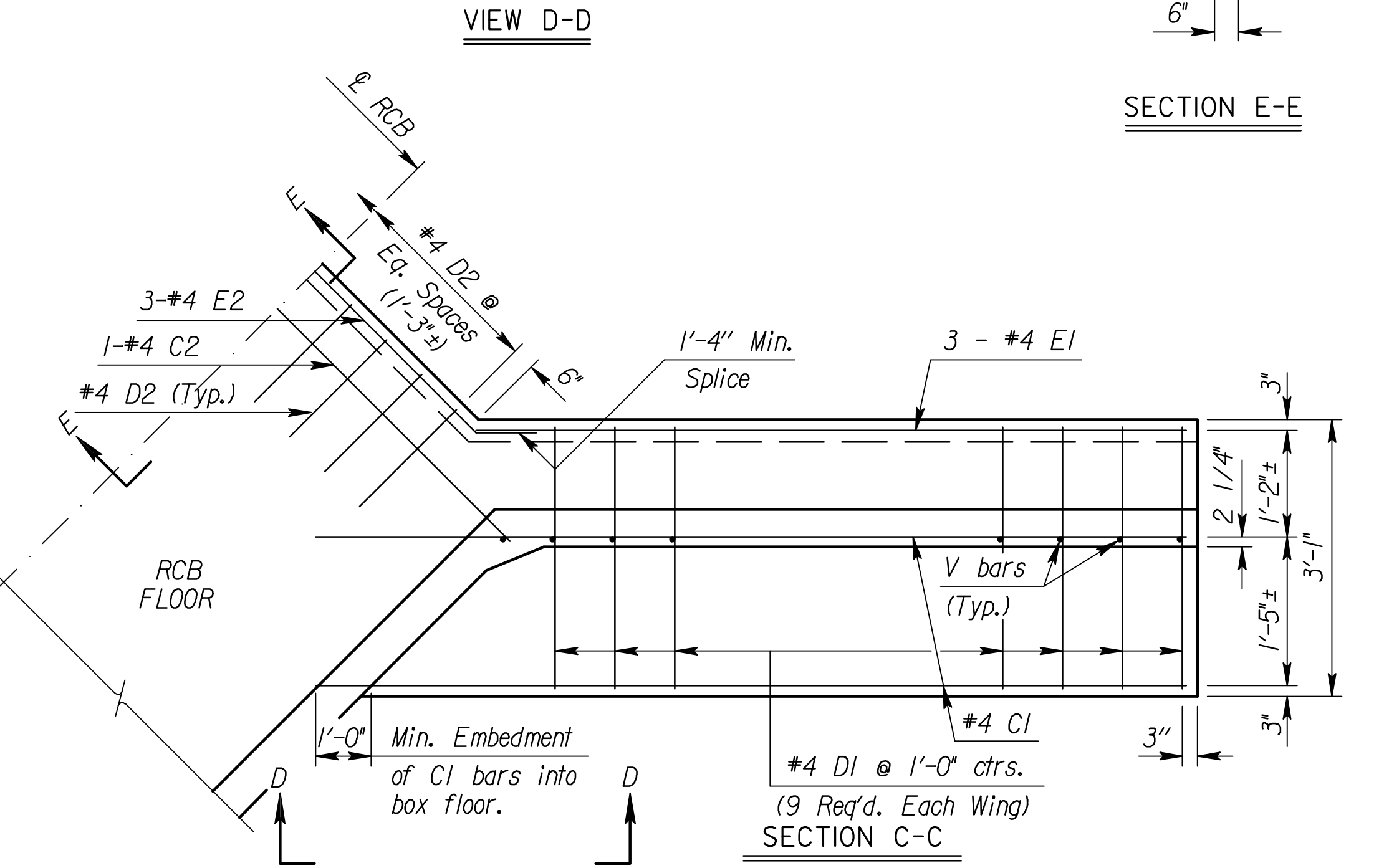


**SECTION E-E**

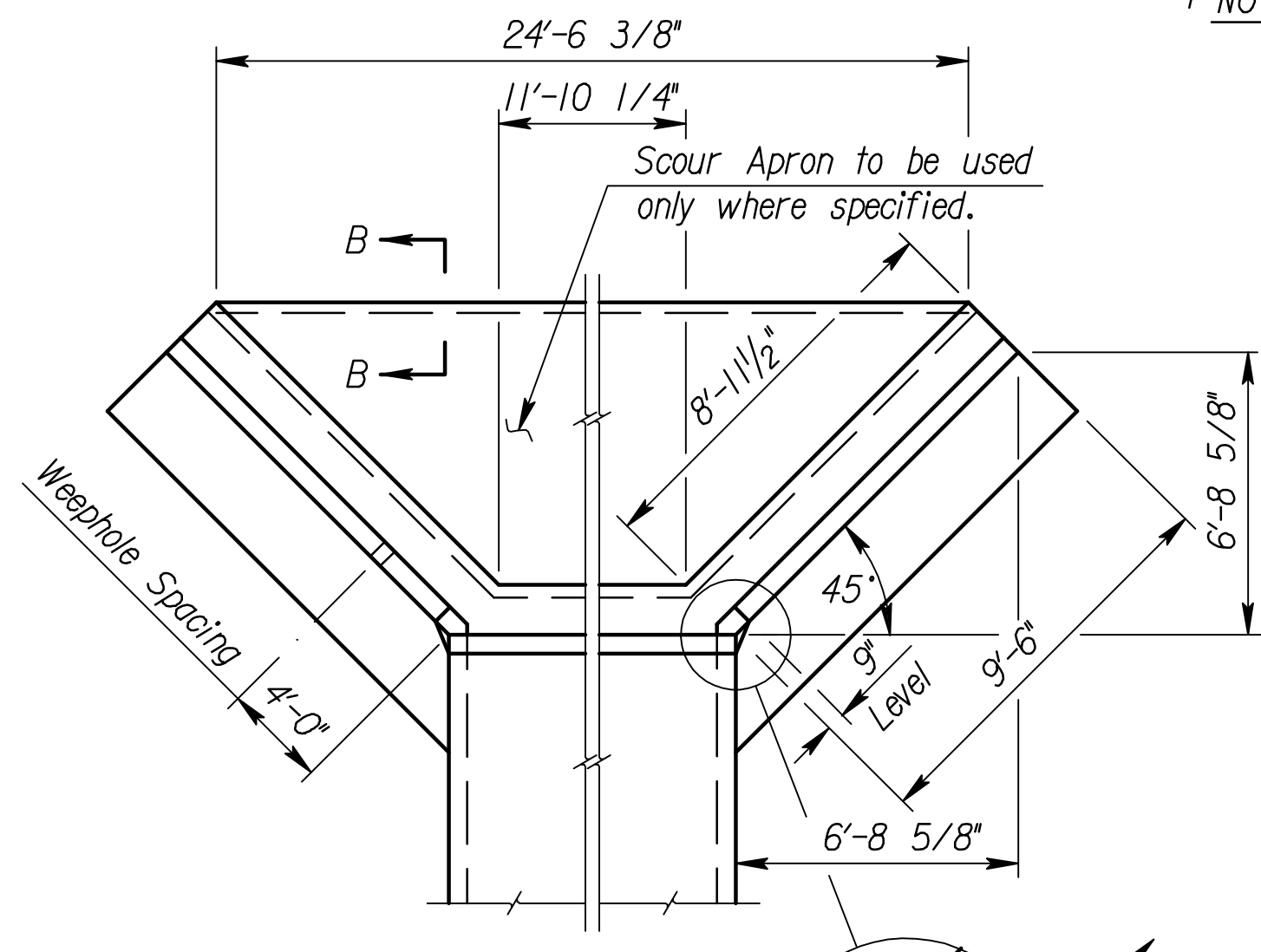
**NOTE:**  
EF = Each Face  
NS = Near Side  
FS = Far Side  
CJ = Const. Joint

**NOTE:** The work on this sheet shall be  
subsidiary to "Pipe, SWS, RCBC (12'x4)

**† NOTE:** Const. Jt. may be used at Contractor's  
option when approved by the Engineer.  
DI bars or mesh may be spliced thus:  
Minimum overlap shall be 1'-3". No increase  
in quantities or cost shall be allowed when  
Contractor elects this option.

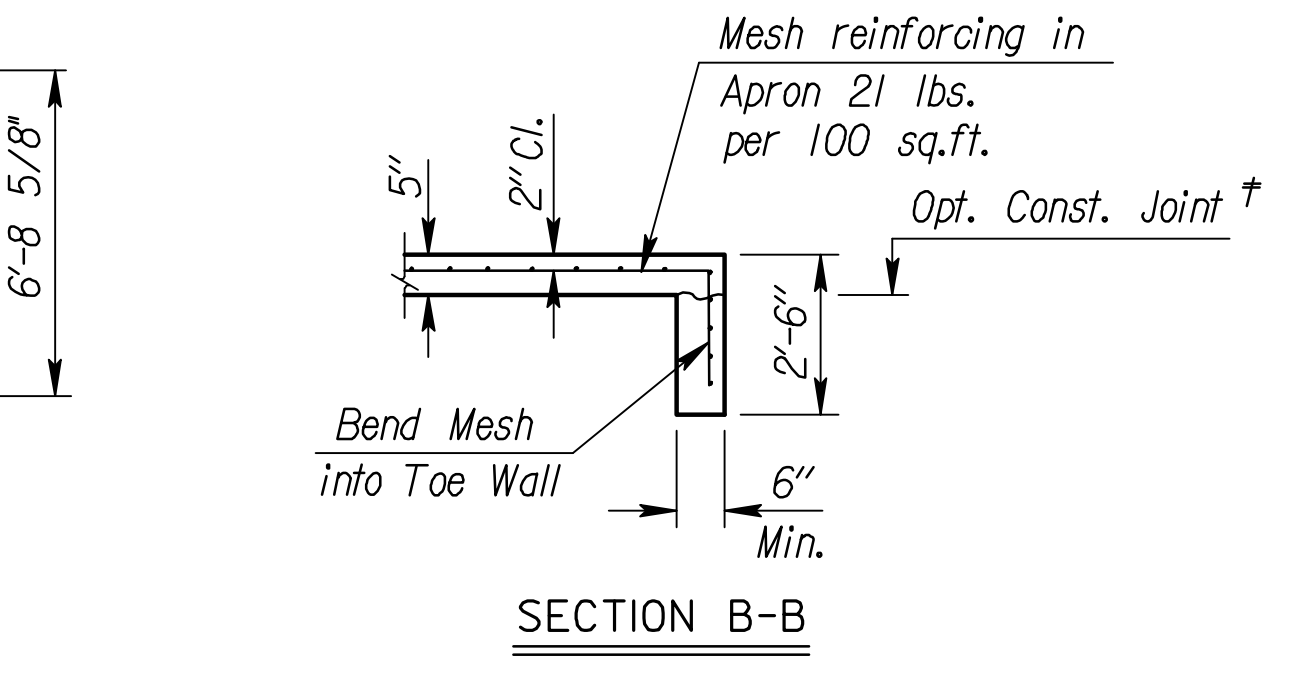


**SECTION C-C**



**WING DIMENSIONS FOR NORMAL BOX**  
(3/2:1 Embankment Slope)

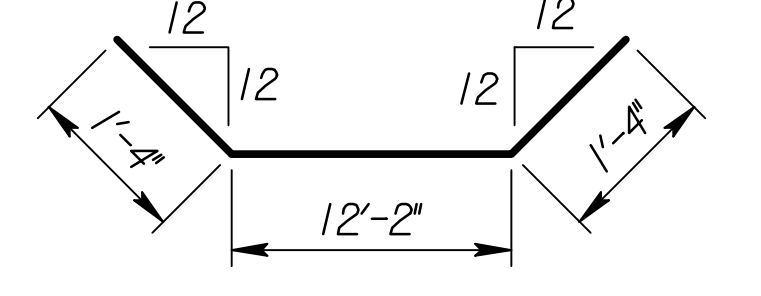
**NOTE:** Space weepholes to  
clear reinforcing steel.  
See "RCB Aux. Details"  
sheet for additional  
weephole details.



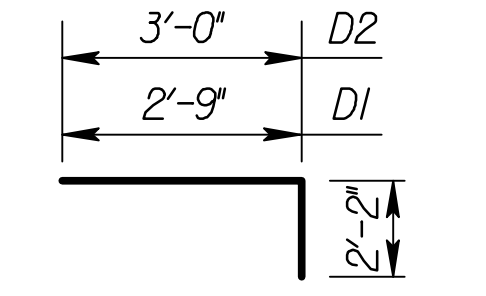
**SECTION B-B**

Quantities listed below are included in the Summary  
of Quantities shown on the RCB details.

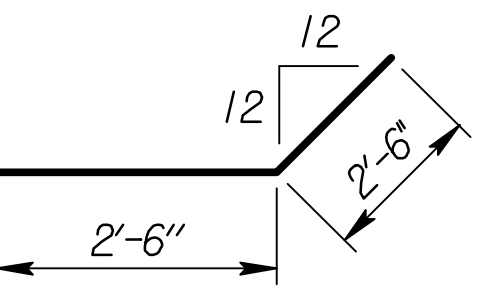
WINGWALL QUANTITIES (For Information Only) (One End Only)		
	Foundation Stabilization (C.Y.)	Concrete (Gr. 4.0) (C.Y.)
Wingwalls	1.80	5.04
Apron	1.91	2.73
Reinforcing Steel (Gr. 60)		395 Lbs.
Welded Wire Fabric		37 Lbs.



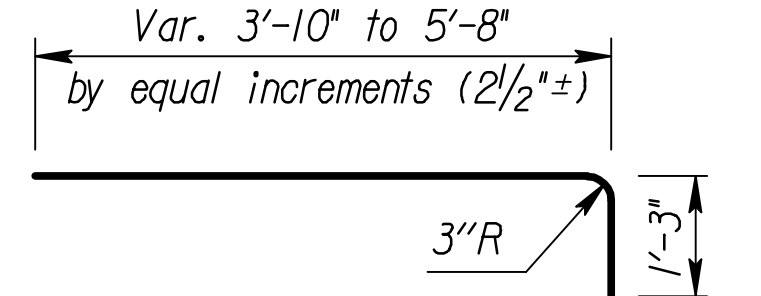
**E2**



**D1, D2**



**H3**



**V1**

(2 Req'd., each length)

**BENDING DIAGRAM**

(All dimensions are out to out of bars.)

**NOTE:** Reinforcing Bar List is for both wings at one end of box only.

0° Skew	#4C1	#4D1	#4E1	#4C2	#4D2	#4E2	#4V1	#4H1	#4H2	#4H3	#4H4
	No.	4	18 *	6	1	10 *	3 *	20	6	2	16 *
Length	11'-7"	4'-11"	8'-9"	13'-0"	5'-2"	14'-10"	*	8'-4"	10'-3"	5'-0"	3'-0"

\* See Bending Diagram

PLOTED: Thursday, February 16, 2012 @ 11:19AM

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