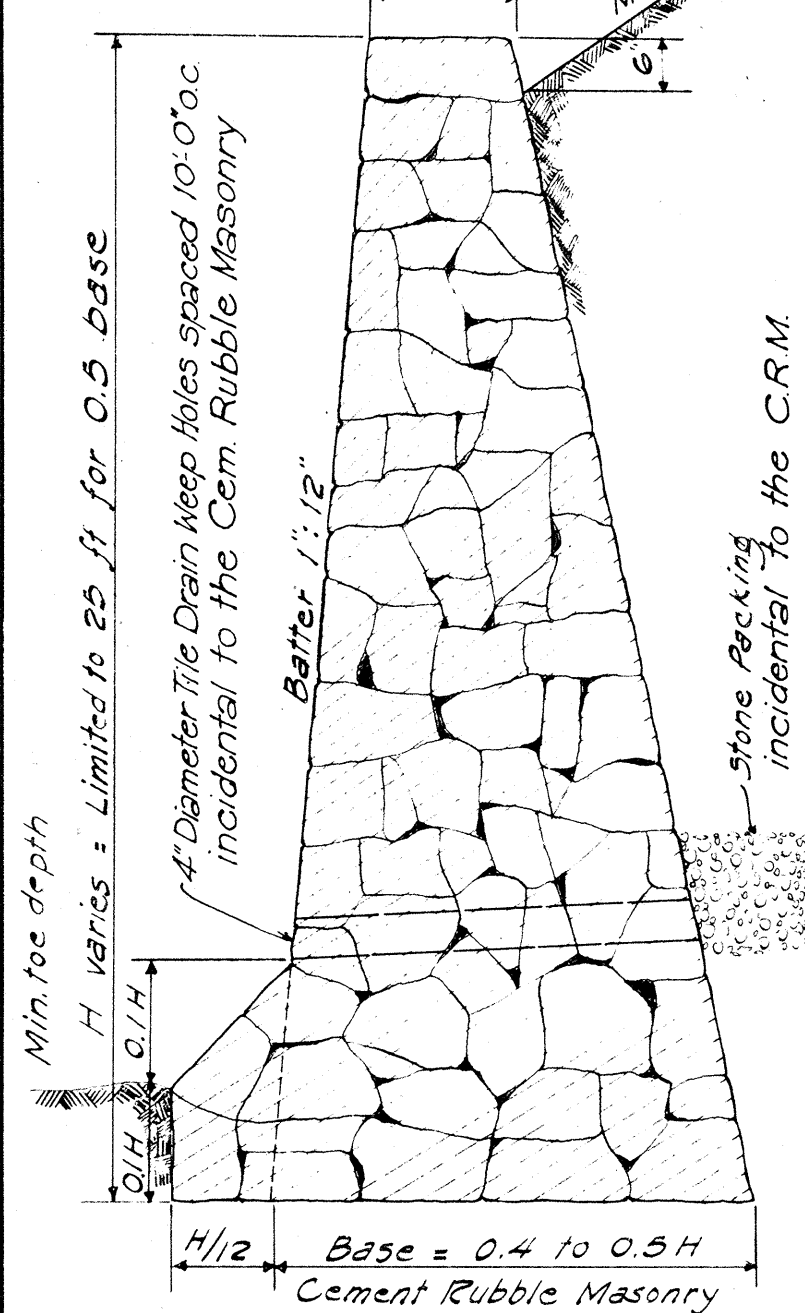


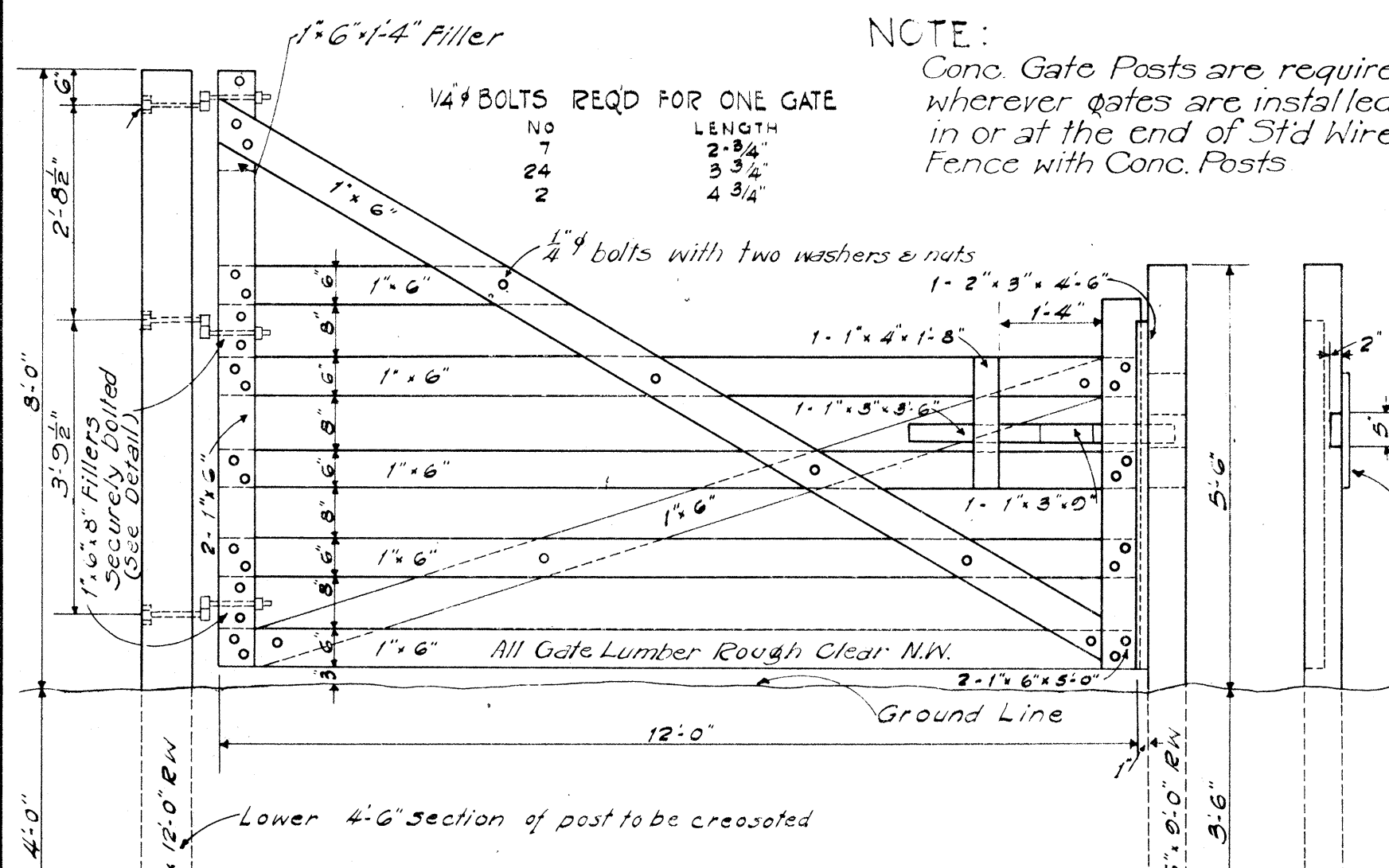
Note: TO RESIDENT ENGINEER  
Consider economy of reinf. conc. for high retaining walls which did not originate on plan layout.



STANDARD SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL

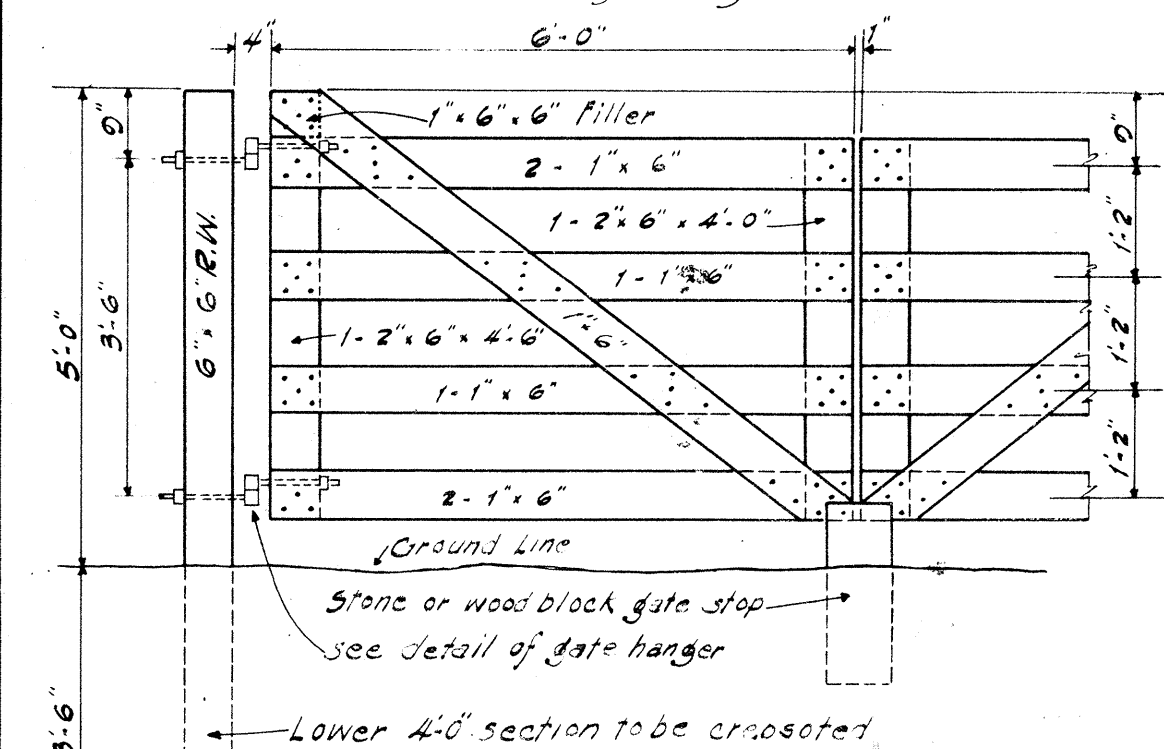
NOTE:  
Elevation of weep holes to be determined by Resident Engineer. Holes to be placed as close to the existing ground line as local conditions permit.

STANDARD SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL



DETAIL OF STANDARD CATTLE GATE

Scale: 1/2" = 1'-0"  
See Note regarding use of Concrete Posts.



DOUBLE HUNG GATE

Scale: 1/2" = 1'-0"

See Note regarding use of Concrete Posts.

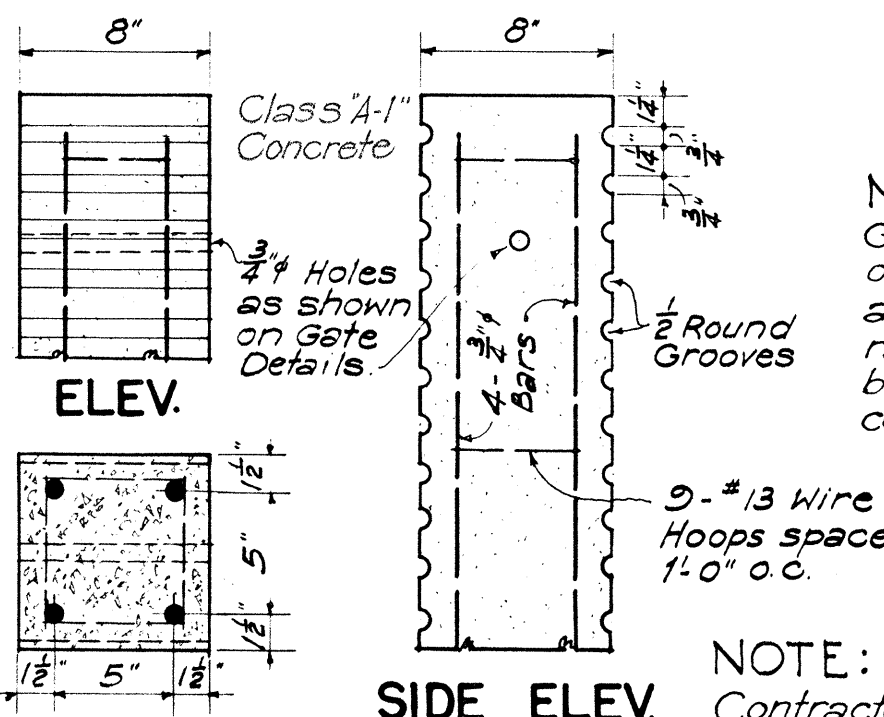
DETAIL OF GATE HANGER

Scale: 1/2" = 1'-0"

Note: Use 3/4" x 11" bolts for cattle gate

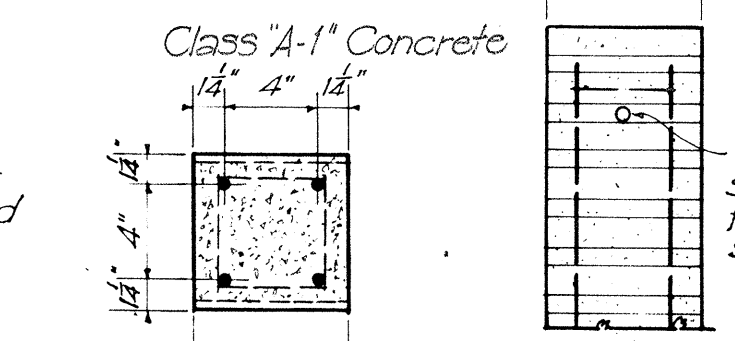
| DATA    | STANDARD MASONRY DROP INTAKE | Where Variable Equals |
|---------|------------------------------|-----------------------|
| D       | D                            | L = D + 6"            |
| 22 1/2" | 18"                          | 2' 0"                 |
| 25"     | 24"                          | 2' 6"                 |
| 35 1/2" | 30"                          | 3' 0"                 |
| 42"     | 36"                          | 3' 6"                 |

NOTE: Dimension "X" is assumed as 2'-4" in figuring the above quantities.



STANDARD MASONRY DROP INTAKE

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

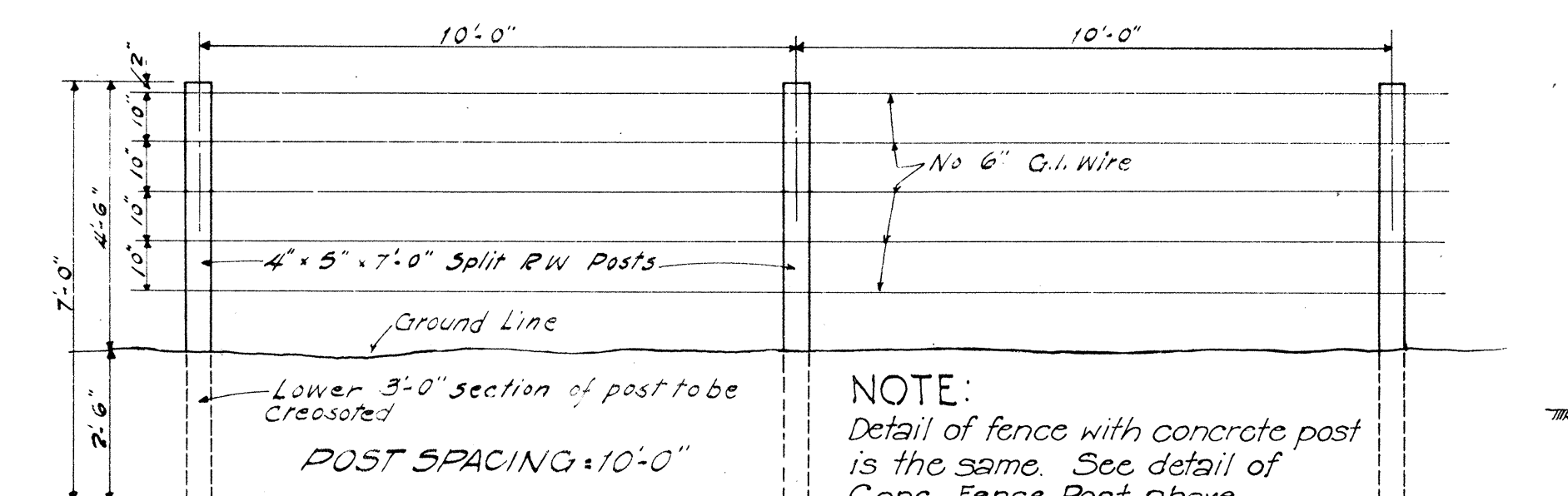


DETAIL OF STANDARD OUTLET DITCH

Scale: 1/2" = 1'-0"

STANDARD GUIDE POSTS:

8" x 8" Reinforced Conc. Posts same as those used for Std Wood Guard Rail spaced 13'-0" oc unless otherwise specified.



DETAILS OF STANDARD WIRE FENCE WITH WOODEN POSTS

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

NOTE: Detail of fence with concrete post is the same. See detail of Conc. Fence Post above.

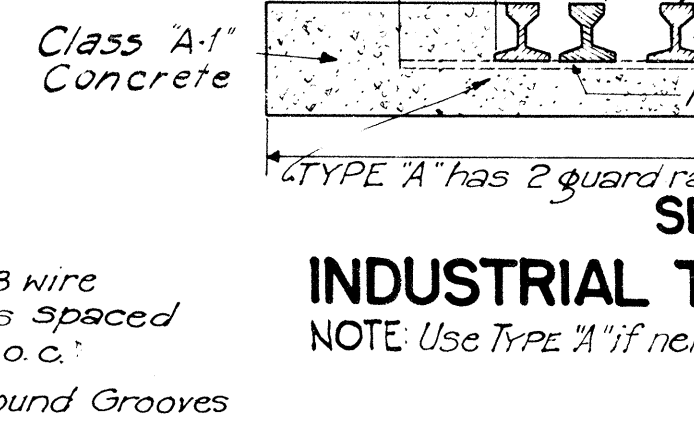
NOTE: This Project requires Std Wire Fence with 11" post spacing (If spacing is not indicated above, use 10' ft)

NOTE:

Guard rails are to be of the same shape and weight as Main rails. Details may be varied to suit conditions in field

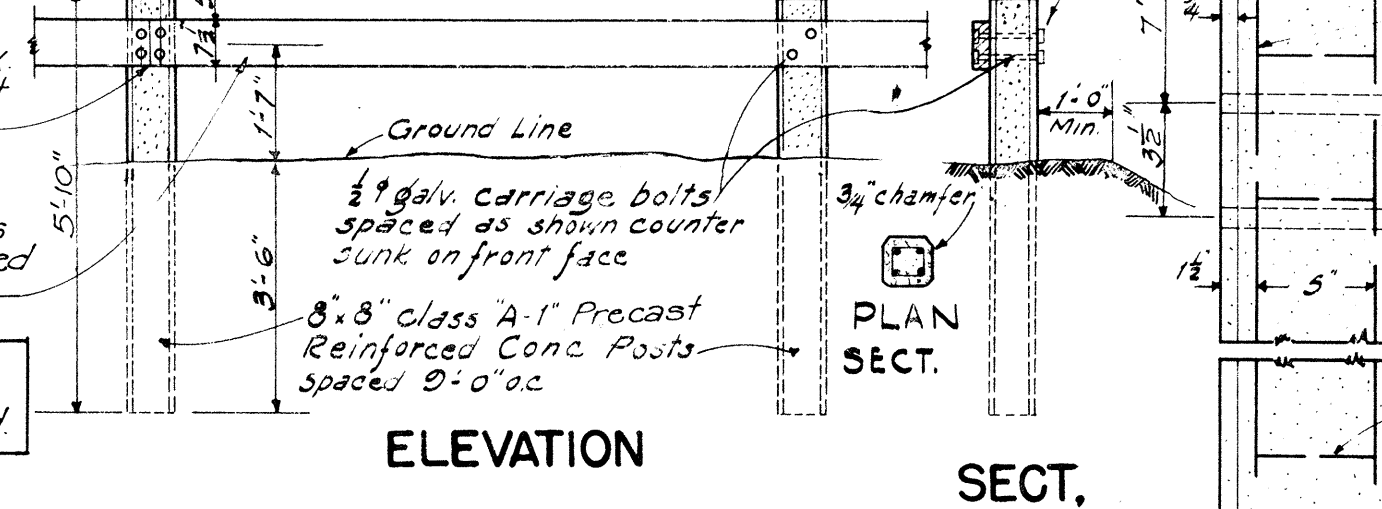
NOTE:

Contractor may either cast holes for fastening fence wire or cast post with 3/4" round grooves on 2 sides



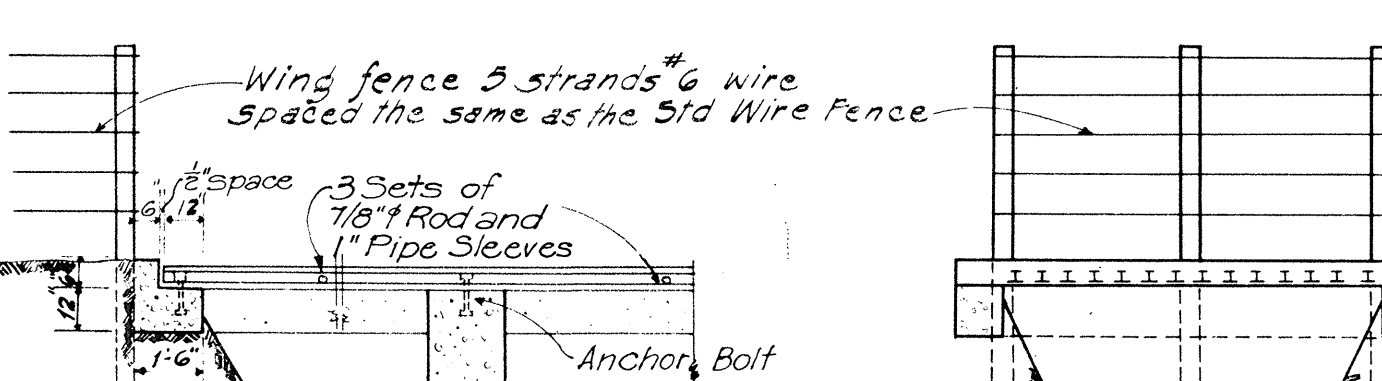
STANDARD WOOD GUARD RAIL

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



DETAILS OF CATTLE GUARD

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



DETAILS OF STANDARD WIRE FENCE WITH WOODEN POSTS

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

NOTE: Position in relation to R/W must be secured from Engineer in front of each separate property.

NOTE TO ENGINEER: Fence must be on road R/W to participate in Fed Aid. Consult office if uncertain what to do.

NOTE: This Project requires Std Wire Fence with 11" post spacing (If spacing is not indicated above, use 10' ft)

NOTE: Detail of fence with concrete post is the same. See detail of Conc. Fence Post above.

NOTE: This Project requires Std Wire Fence with 11" post spacing (If spacing is not indicated above, use 10' ft)

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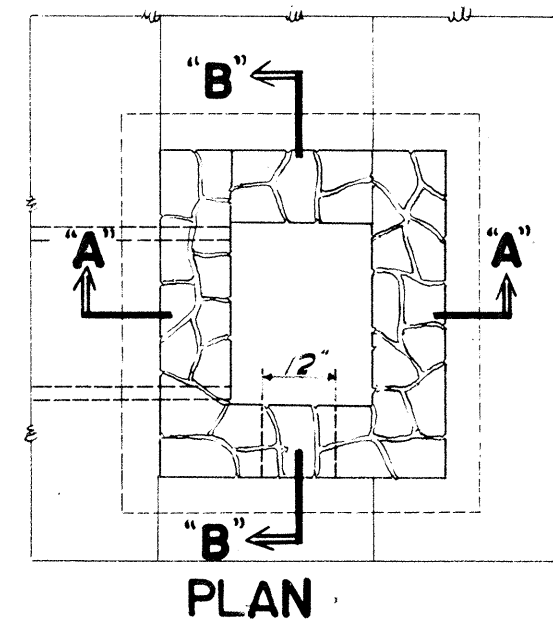
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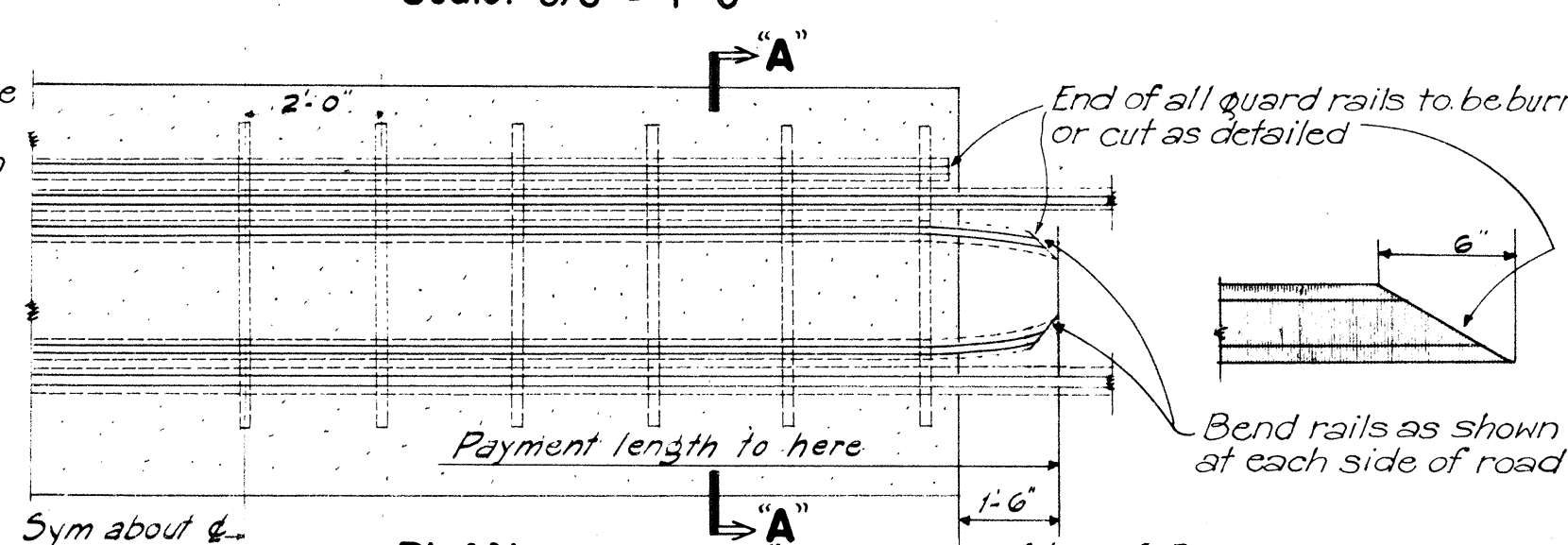


STANDARD MASONRY DROP INTAKE

STANDARD MASONRY DROP INTAKE

STANDARD MASONRY DROP INTAKE

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



STANDARD MASONRY DROP INTAKE

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

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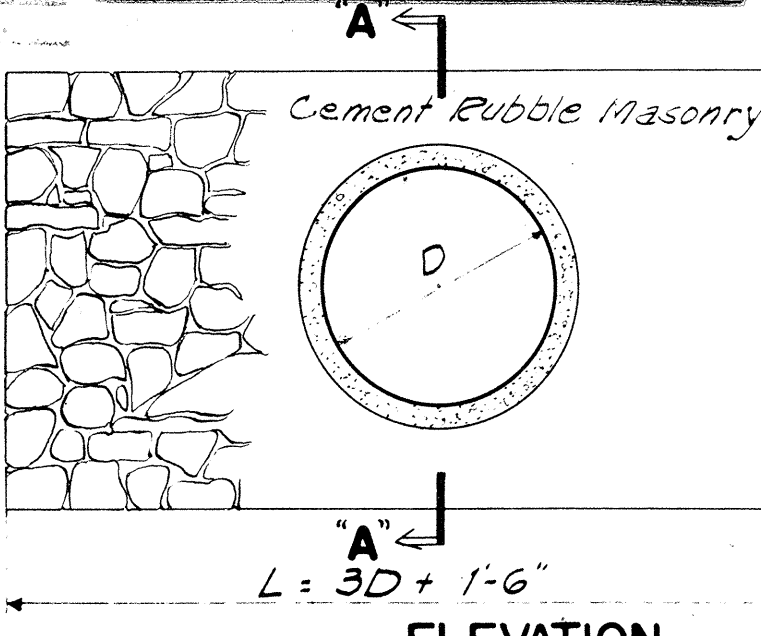
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| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 54-1AP (12)        | 1947        | 4         | 7            |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 54-1AP (12)        | 1947        | 28        | 134          |



STANDARD MASONRY HEADWALL

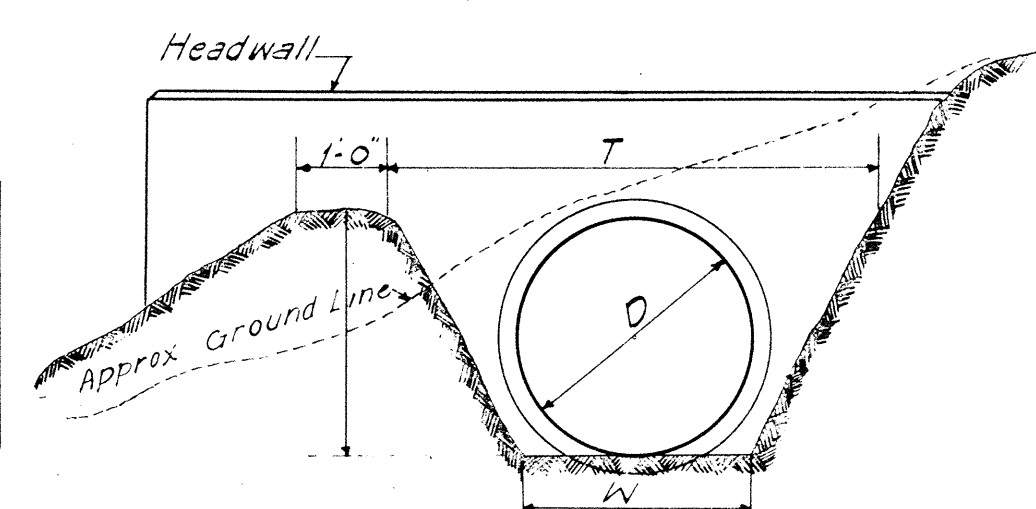
Scale: 1/2" = 1'-0"

| Cast-in-Place | Pre-cast | Data-Standard Rubble Masonry H.W. |       |       |        |           |
|---------------|----------|-----------------------------------|-------|-------|--------|-----------|
| Cu. Yds.      | Cu. Yds. | D                                 | H     | B     | L      | CX. One H |
| 0.85          | 0.25     | 18"                               | 3'-6" | 1'-0" | 6'-0"  | 0.03      |
| 1.23          | 1.45     | 24"                               | 4'-0" | 2'-0" | 7'-6"  | 1.41      |
| 1.83          | 2.06     | 30"                               | 4'-6" | 2'-3" | 9'-0"  | 2.00      |
| 2.40          | 2.84     | 36"                               | 5'-0" | 2'-6" | 10'-6" | 2.72      |

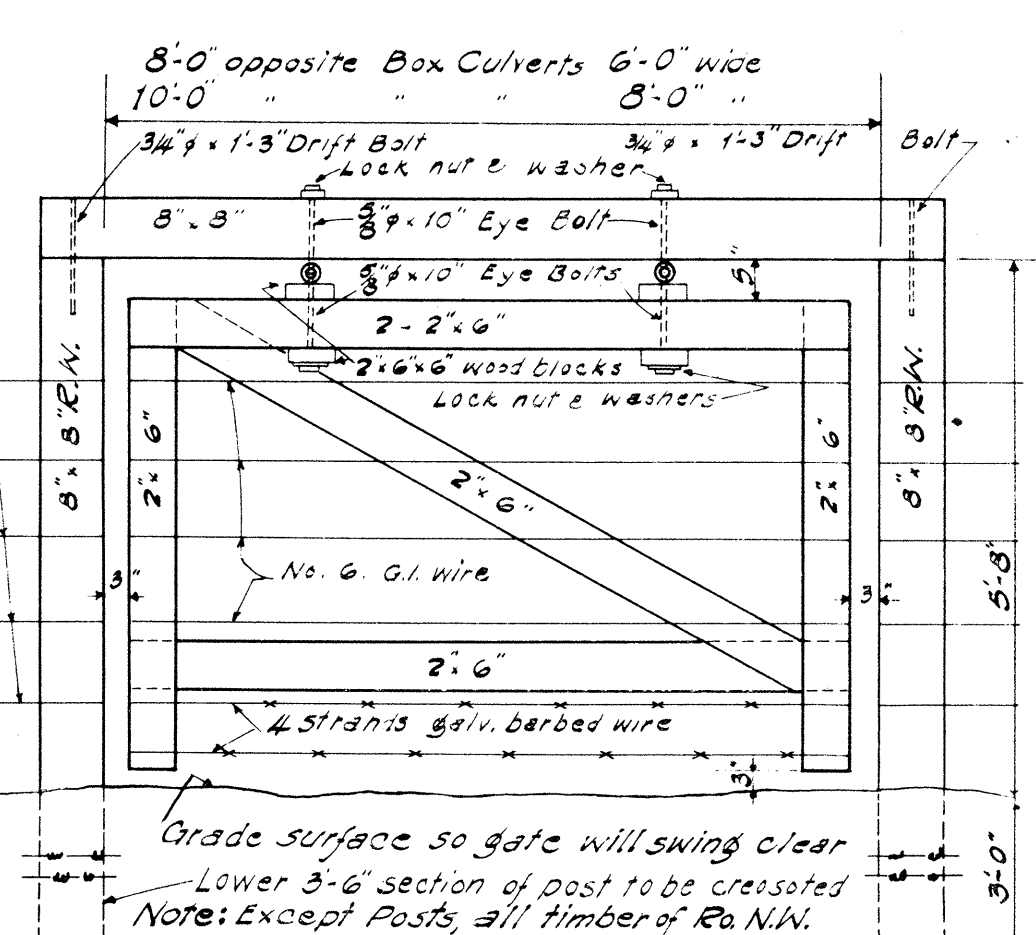
STANDARD MASONRY HEADWALL

Scale: 1/2" = 1'-0"

| Data-Standard Outlet Ditch |     |       |       |
|----------------------------|-----|-------|-------|
| D                          | W   | H     | T=W+H |
| 18"                        | 24" | 2'-0" | 4'-0" |
| 24"                        | 24" | 2'-0" | 4'-0" |
| 30"                        | 30" | 2'-0" | 5'-0" |
| 36"                        | 36" | 3'-0" | 6'-0" |

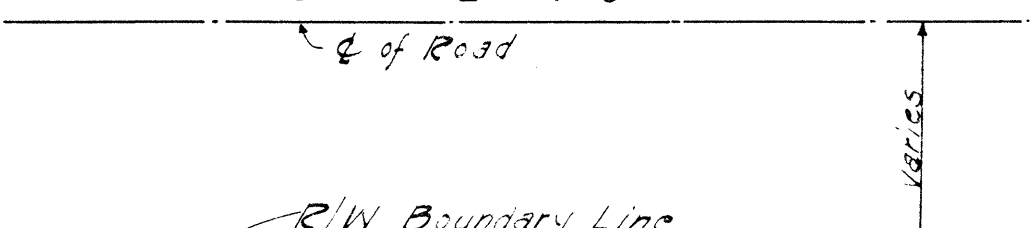


DETAIL OF STANDARD OUTLET DITCH



DETAIL OF STANDARD WIRE FENCE WITH WOODEN POSTS

Scale: 1/2" = 1'-0"



DETAILS OF HURDLE

Scale: 1/2" = 1'-0"

NOTE: This Project requires Std Wire Fence with 11" post spacing (If spacing is not indicated above, use 10' ft)

NOTE: Detail of fence with concrete post is the same. See detail of Conc. Fence Post above.

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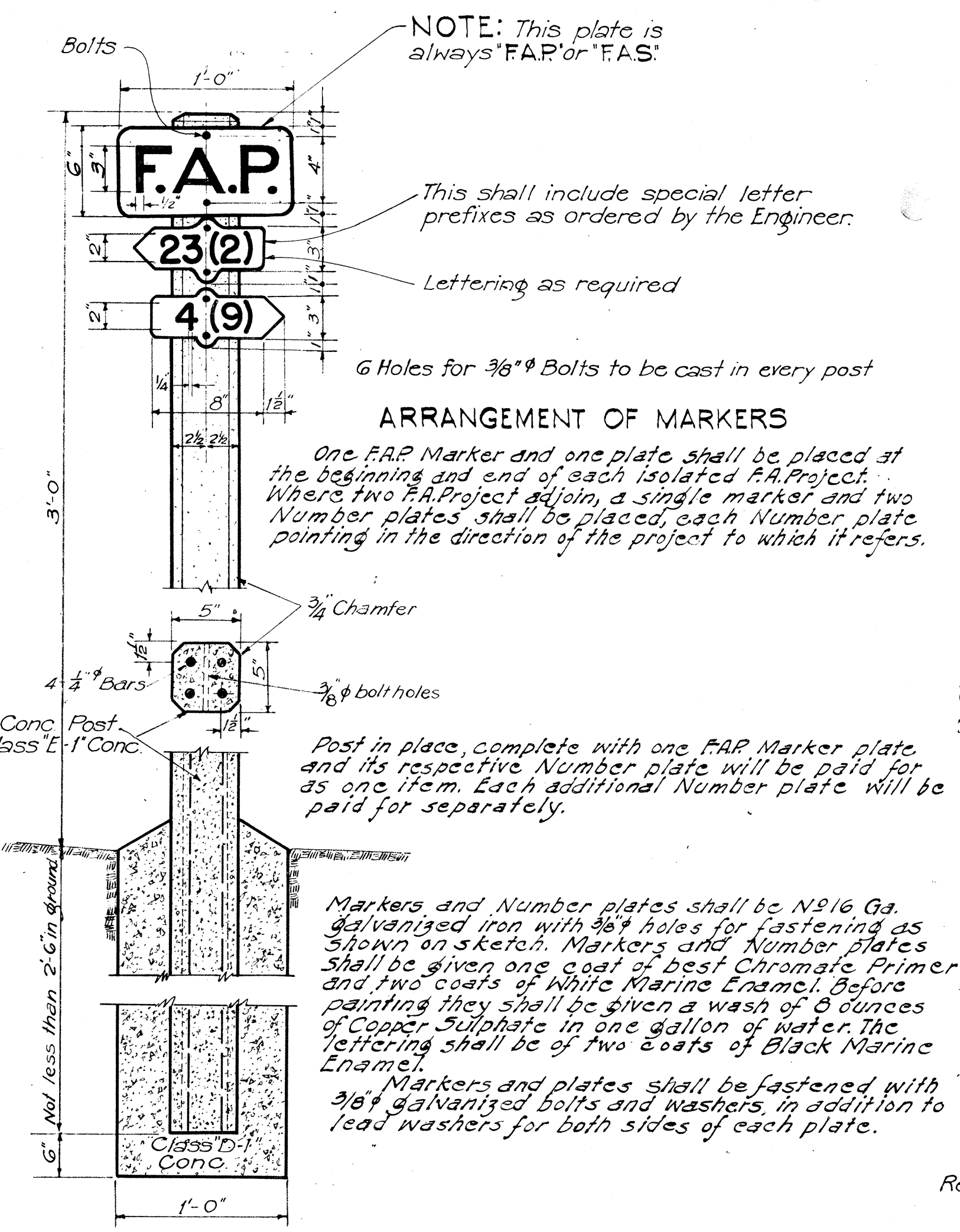
NOTE: Detail of fence with concrete post is the same. See detail of Conc. Fence Post above.

NOTE: This Project requires Std Wire Fence with 11" post spacing (If spacing is not indicated above, use 10' ft)

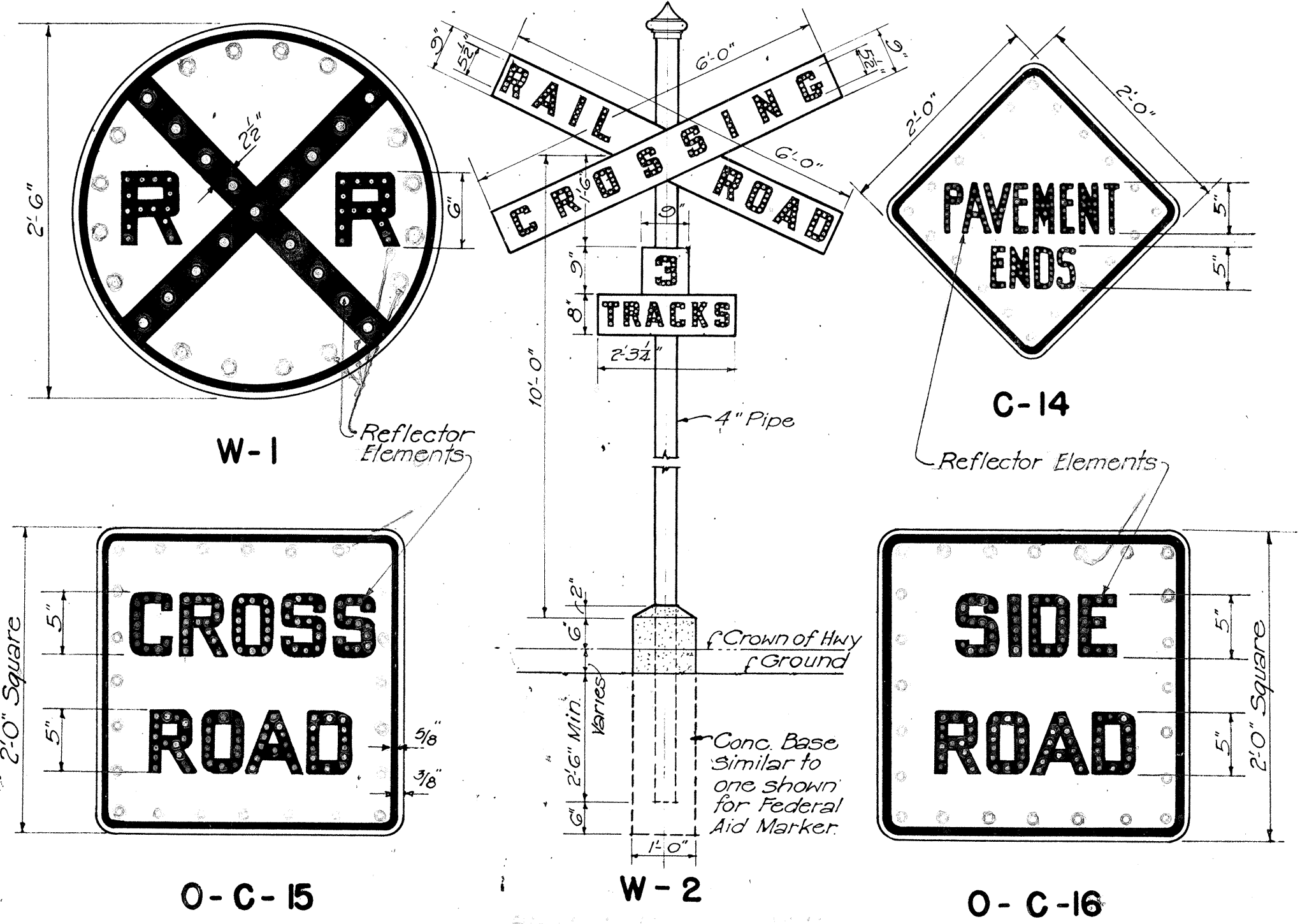
NOTE: Detail of fence with concrete post is the same. See detail of Conc. Fence Post above.

NOTE: This Project requires Std Wire Fence with 11" post spacing (If spacing is not indicated above, use 10' ft)

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS | FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | SN-FAP 7(19)       | 1947        | 5         | 7            | HAWAII              | HAW.  | DA-WR 8(3)         | 1947        | 29        | 134          |

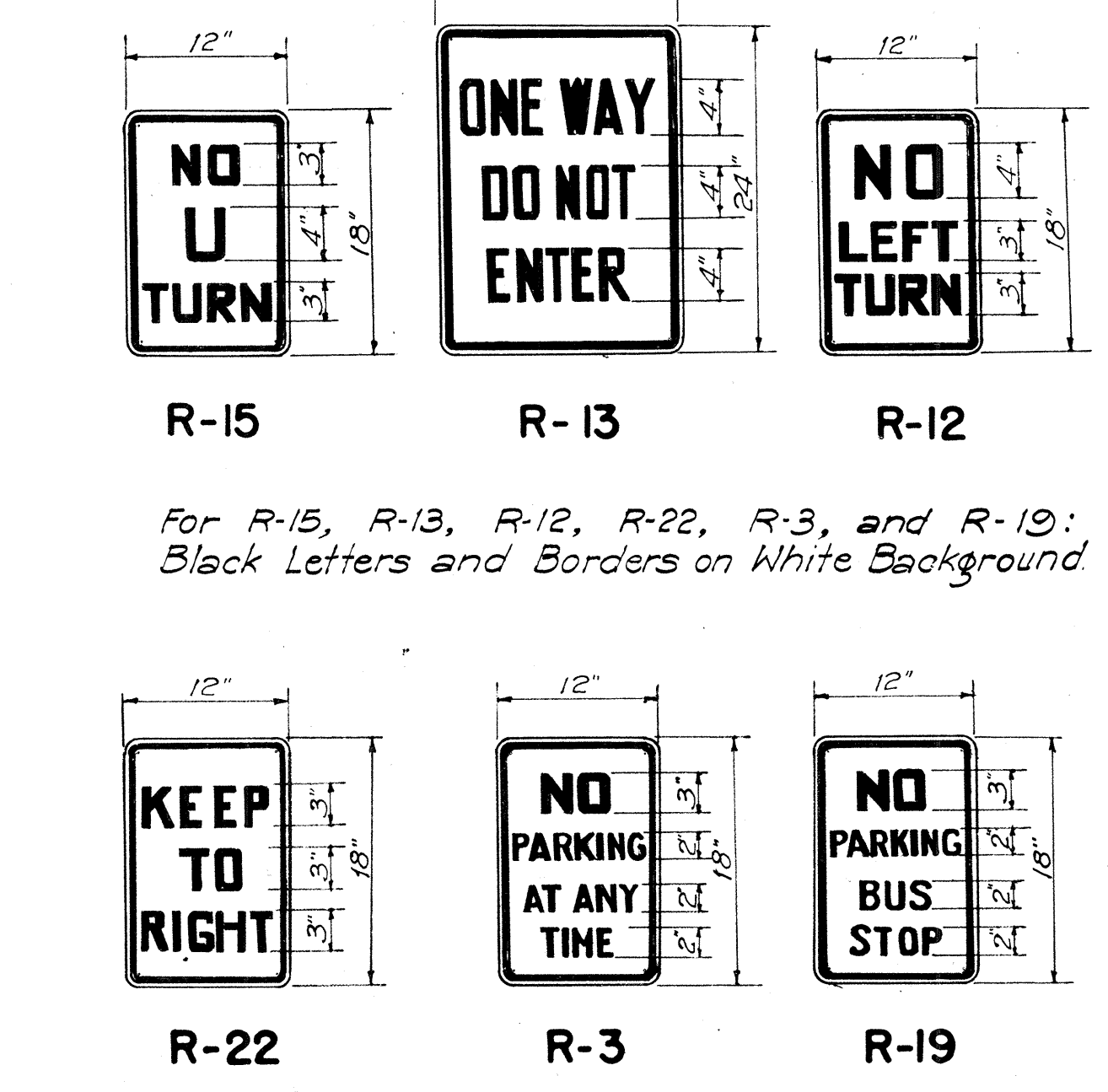


**FEDERAL AID MARKER**  
Scale: 1-1/2" = 1'-0"

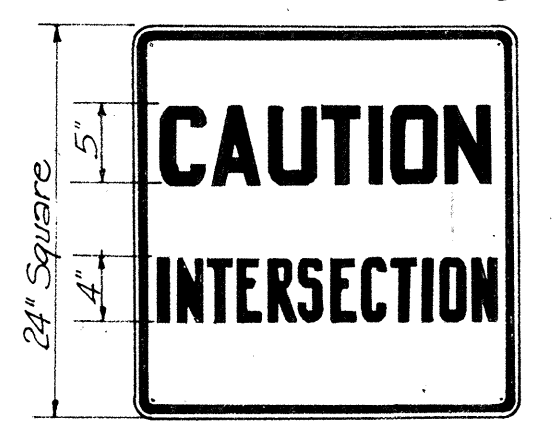


**WARNING AND CAUTION SIGNS**

NOTE: Each sign, except W-2, is to be mounted on 3" Galv. Pipe in the same manner as detailed for Regulatory Sign.  
Black Letters on Yellow  
Reflector Elements White

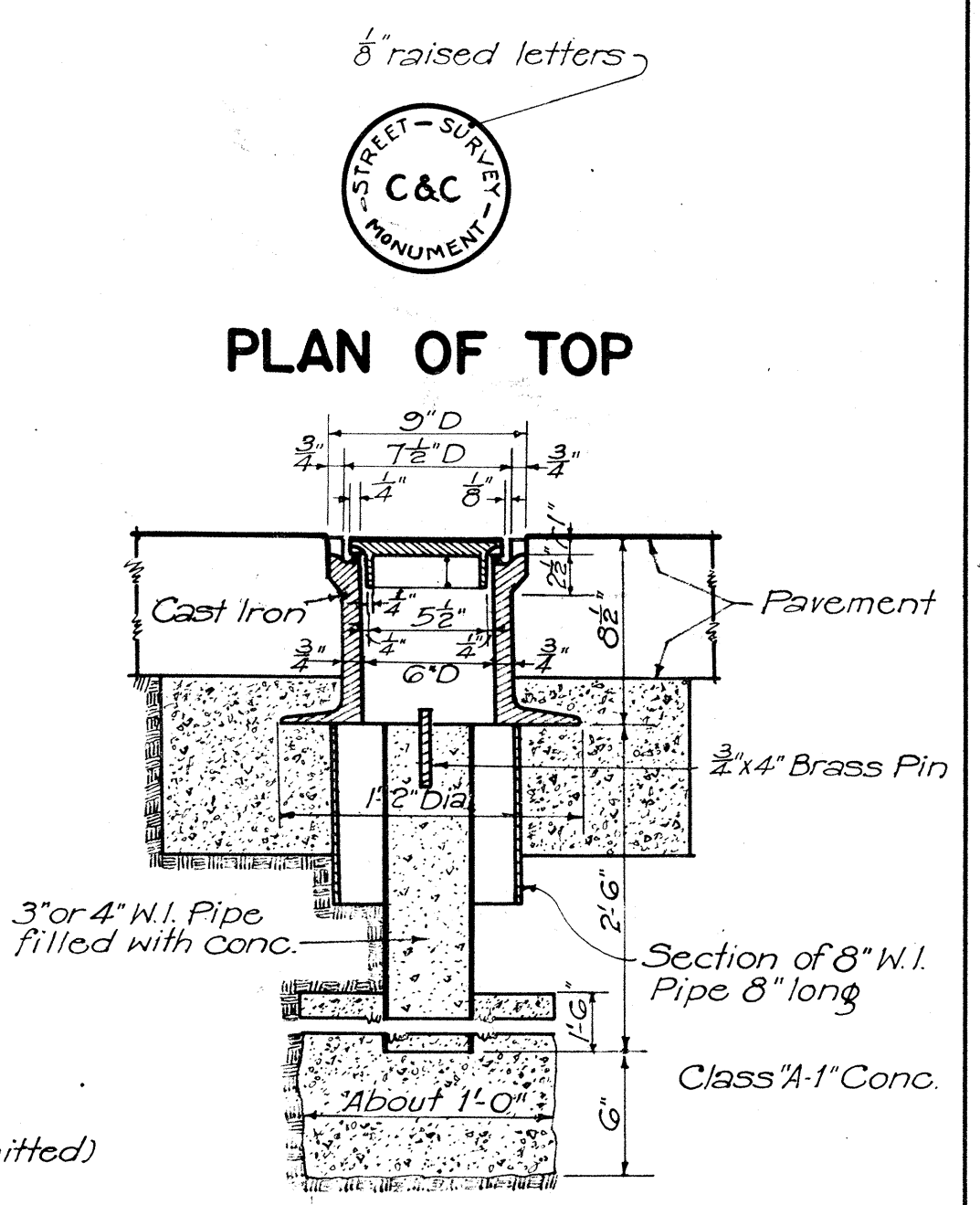


For NS-R33:  
Black Letters and Borders on Yellow Background.

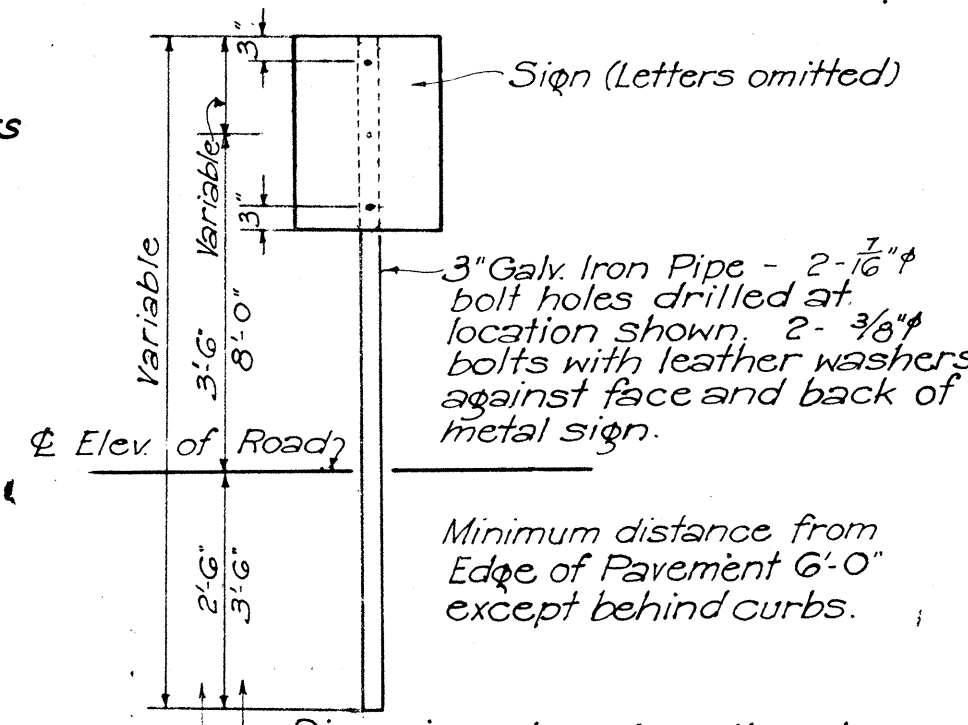


**DETAILS OF REGULATORY SIGNS**

For Additional Regulatory Signs See Std. Det. Sht. No. 5245.32

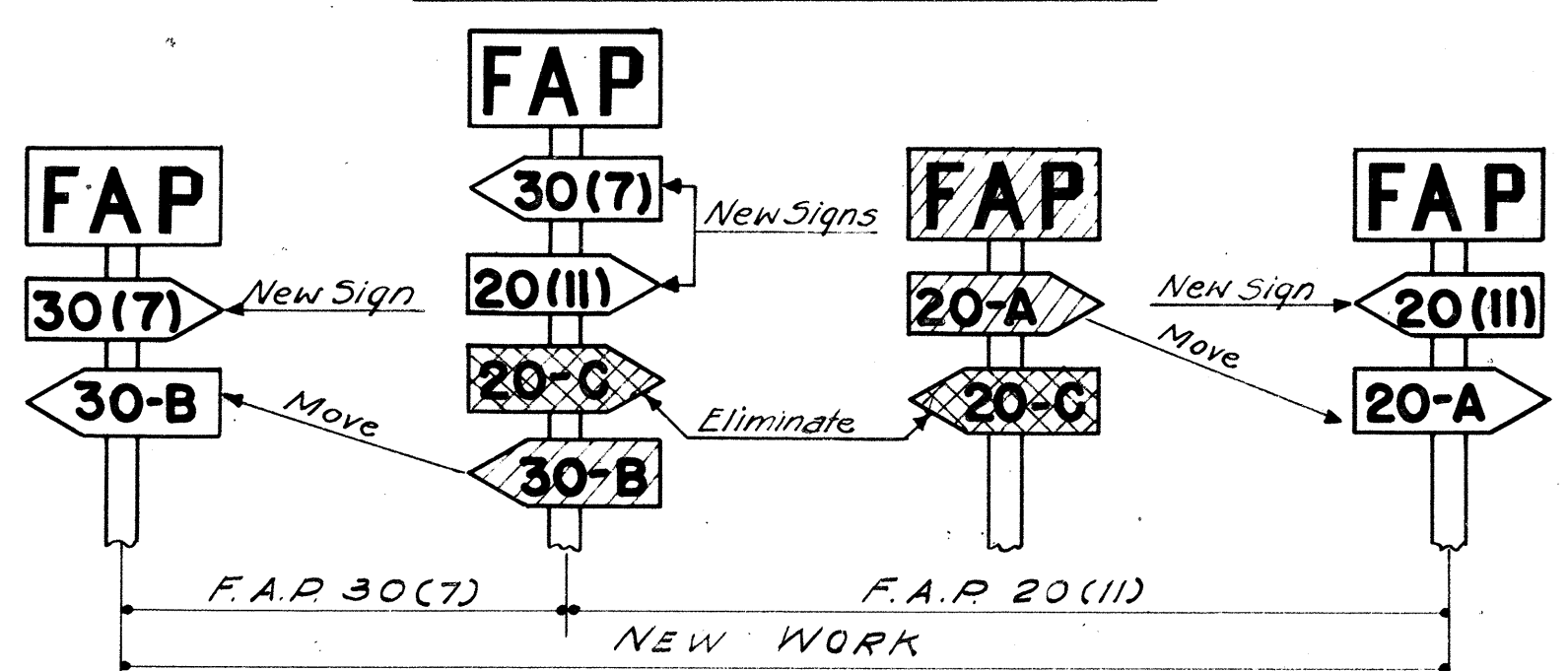


**STD. C&C STREET SURVEY MONUMENT**

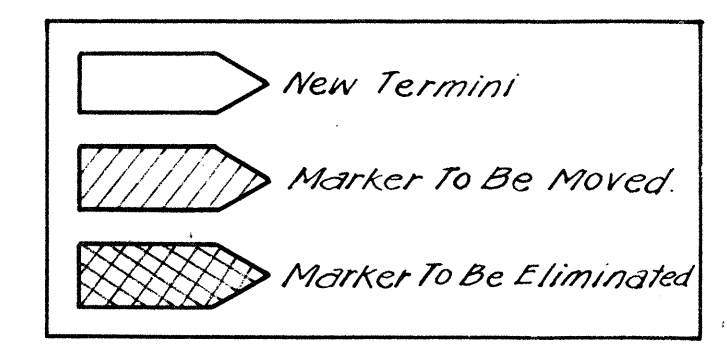
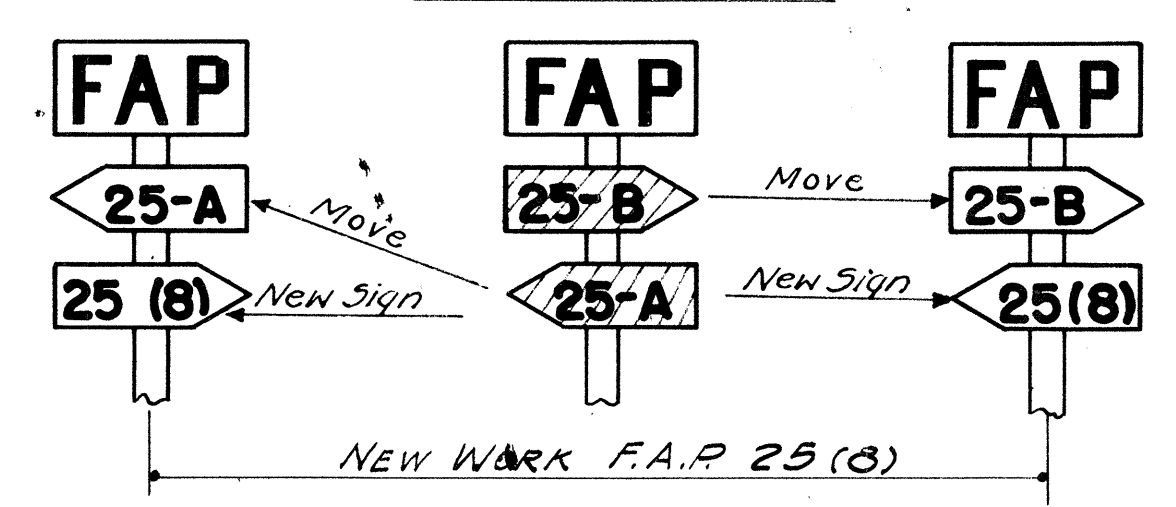


**CENTER LINE MONUMENT**  
Scale: 1/2" = 1'-0"

**F.A.P. 20 8 30**

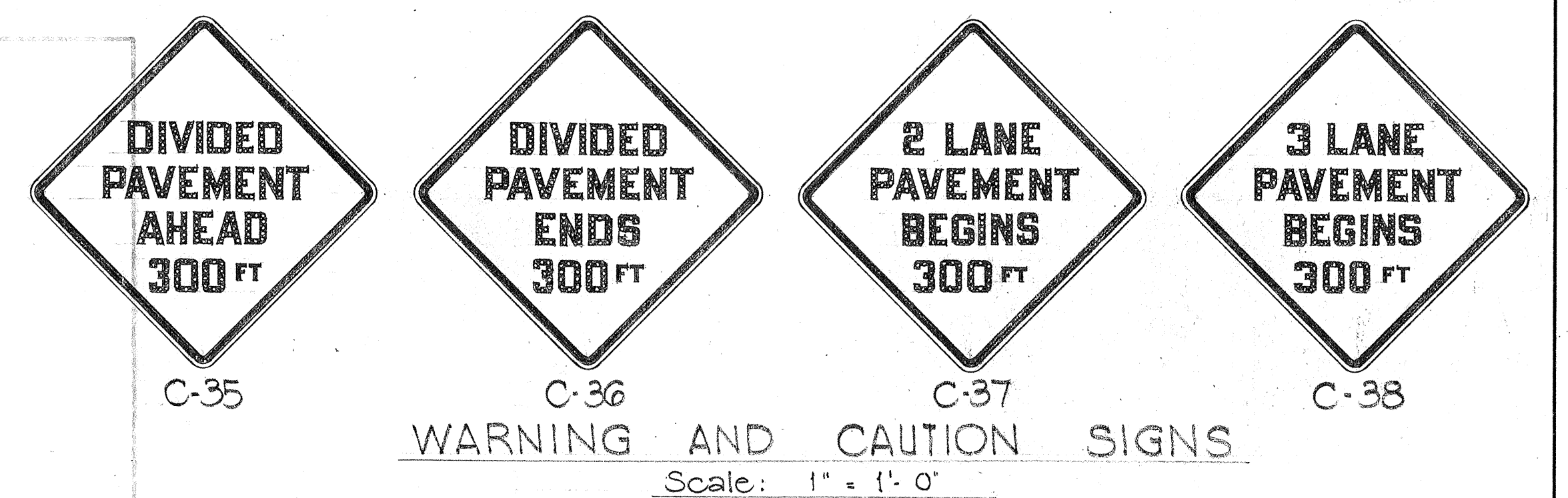


**F.A.P. 25**

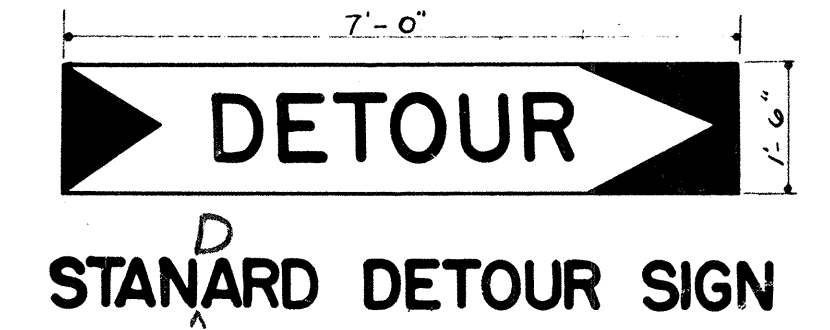


NOTE: Federal Aid markers should be placed at the termini of suffix designated sections. Intermediate letter designated markers of adjacent sections located within the limits of new improvements should be moved to the termini of the new work. The same procedure would be followed on each successive improvement until all markers for letter designated sections are eventually eliminated.

**METHOD OF MARKING F.A. PROJECTS AT OVERLAPS**  
(USING NUMBER SUFFIX ON NEW WORK)



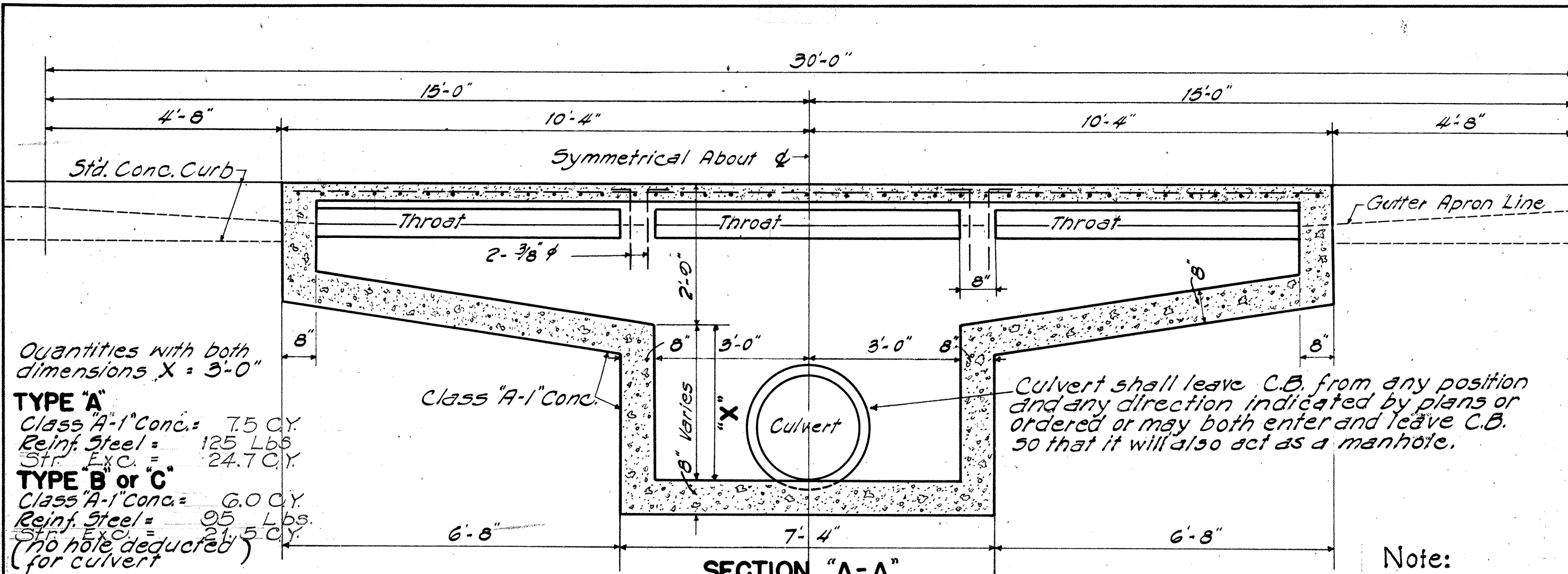
NOTE: Letters to be 12" high and 1/2" thick. Secondary detour and direction signs necessary to be at least 1/2" in the above size. Detour signs shall be placed at the location ordered by the Engineer.



NOTE: Signs to conform with latest available AASHTO Manual.

**TERRITORIAL HIGHWAY DEPARTMENT**  
Territory of Hawaii  
**STANDARD DETAILS**  
SCALES AS NOTED  
Sept. 5, 1946  
APPROVED: *B.F. Rush*  
Territorial Highway Engineer  
SHEET No. 2 OF 4 SHEETS

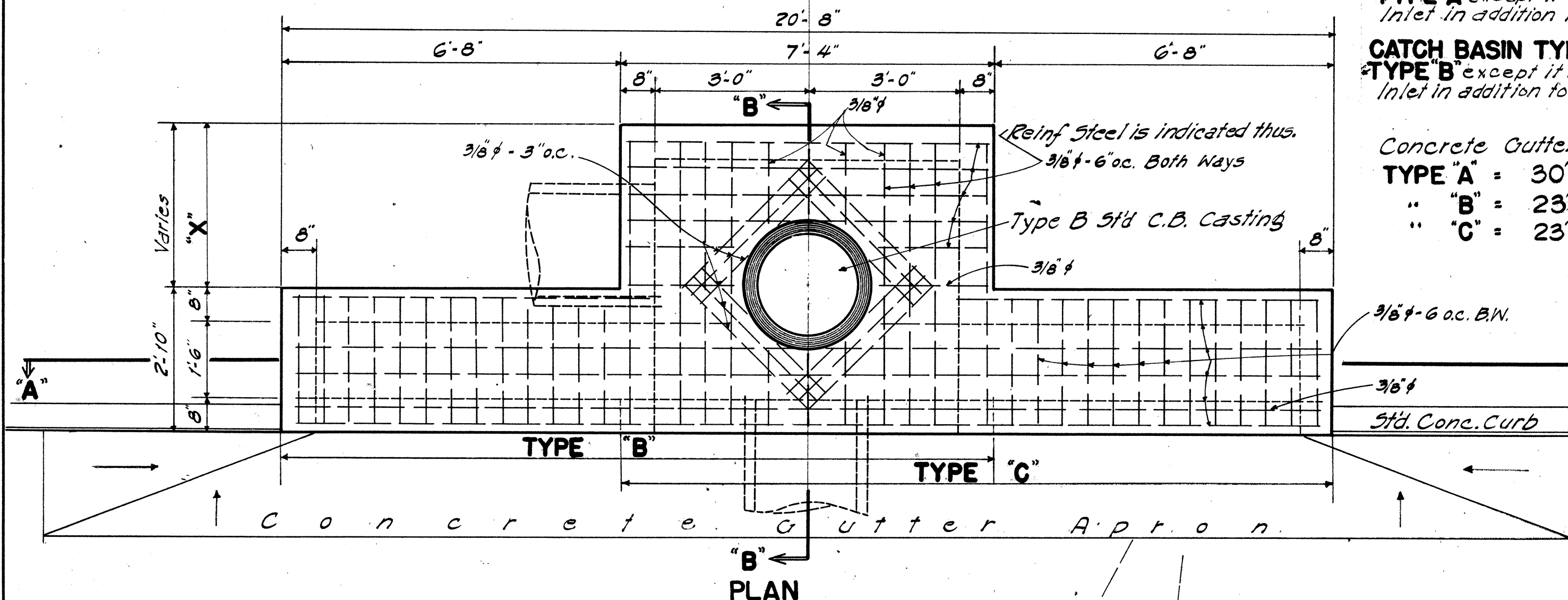
DATE: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
DRAWN BY: *S. L. Lumb*  
CHECKED BY: \_\_\_\_\_  
ORIGINAL PLAN: \_\_\_\_\_  
NOTE BOOK: \_\_\_\_\_  
QUANTITIES BY: \_\_\_\_\_  
CORRECTIONS BY: \_\_\_\_\_



Note:  
**CATCH BASIN TYPE "B"** similar to **TYPE "A"** except it has only Left Side Inlet in addition to the Main Box.

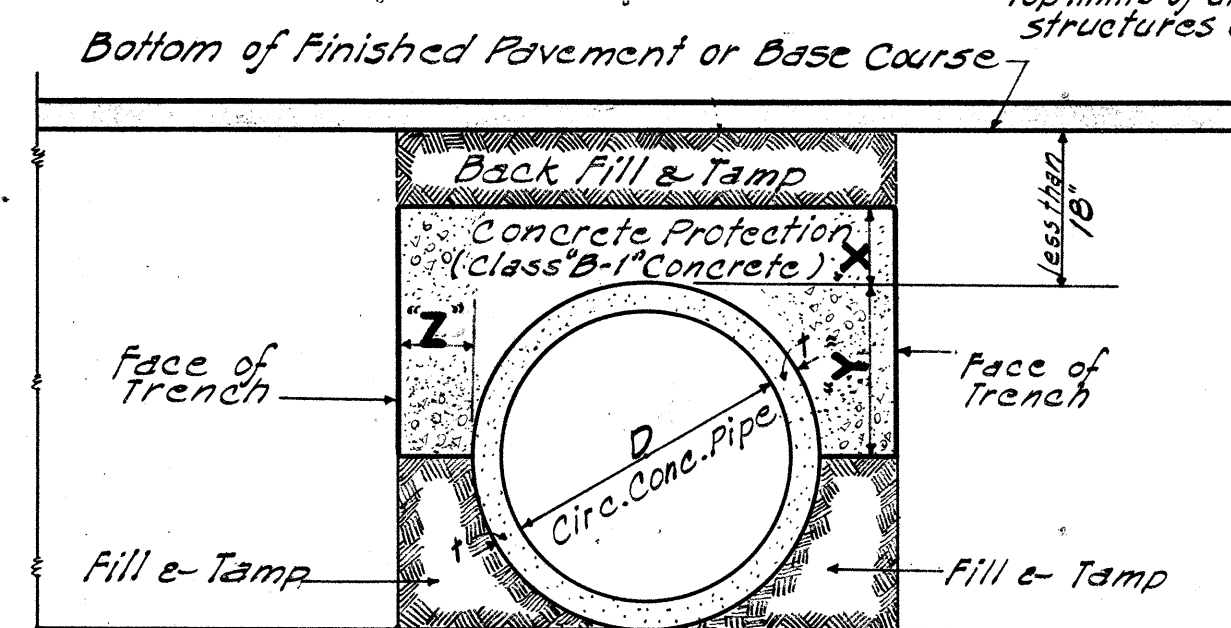
**CATCH BASIN TYPE "C"** similar to **TYPE "B"** except it has only Right Side Inlet in addition to the Main Box.

Concrete Gutter Apron Length:  
**TYPE "A" = 30'-0"**  
" **"B" = 23'-4"**  
" **"C" = 23'-4"**



### STANDARD CONCRETE CATCHBASIN

Scale: 1/2" = 1'-0"



TYP. SECT. OF CULVERT WITH CONG. PROTECTION  
(To be used when cover is less than 18")

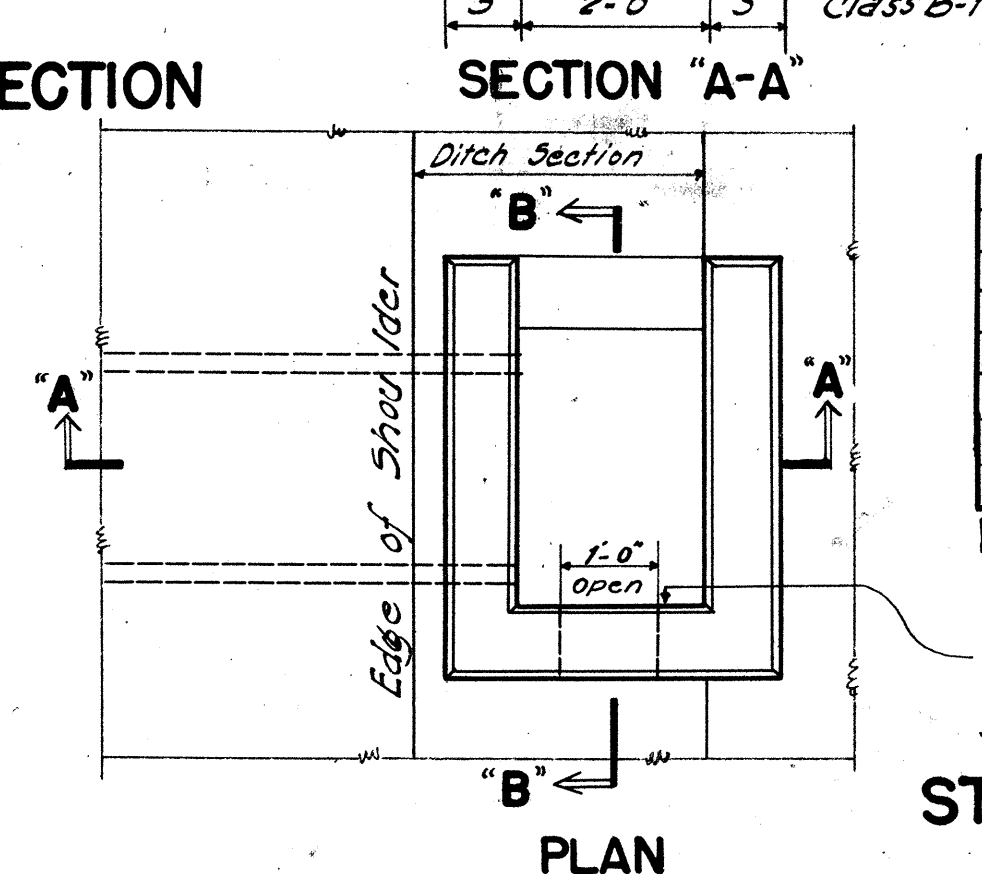
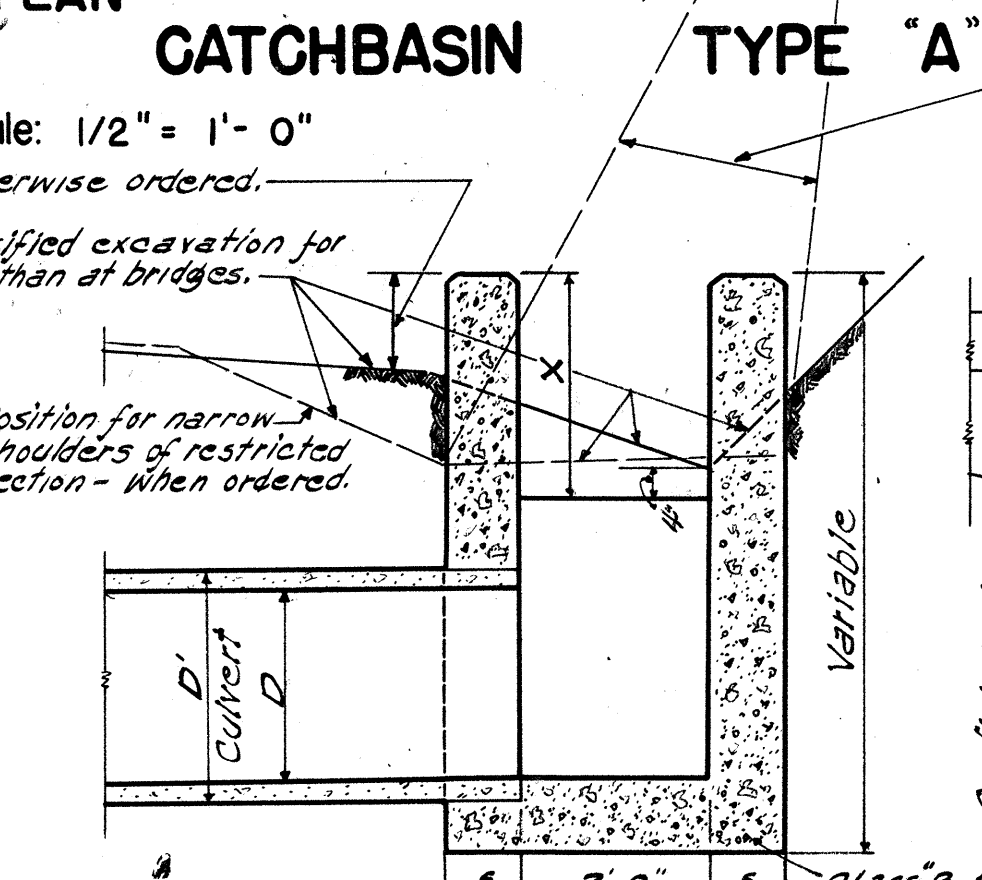
| DATA: CONCRETE PROTECTION OVER CULVERTS |   |   |
|-----------------------------------------|---|---|
| X                                       | Y | Z |
| 6" for 18" D                            |   |   |
| 7" " 24" D                              |   |   |
| 8" " 30" D                              |   |   |
| 9" " 36" D                              |   |   |
| 10" " 42" D                             |   |   |
| 11" " 48" D                             |   |   |
| 12" " 54" D                             |   |   |

$\frac{D}{2} + T$

**Z** must be from pipe to face of trench

Minimum = **X**

Maximum pay quantity will be **Z = 12"**



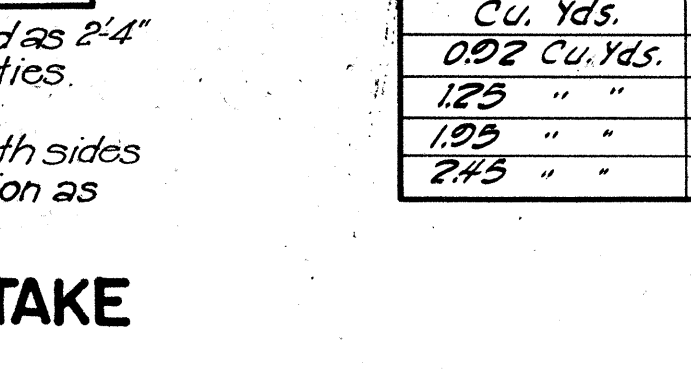
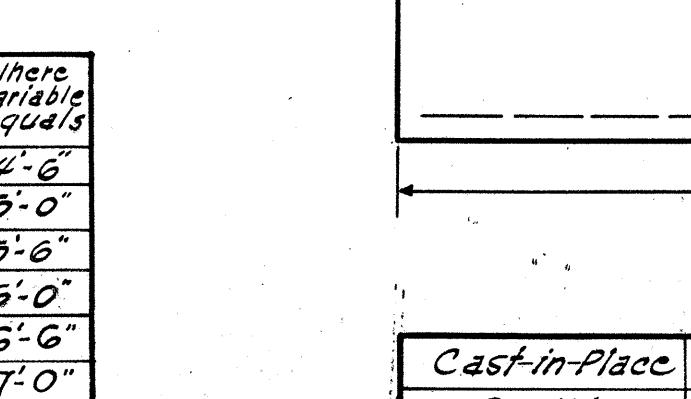
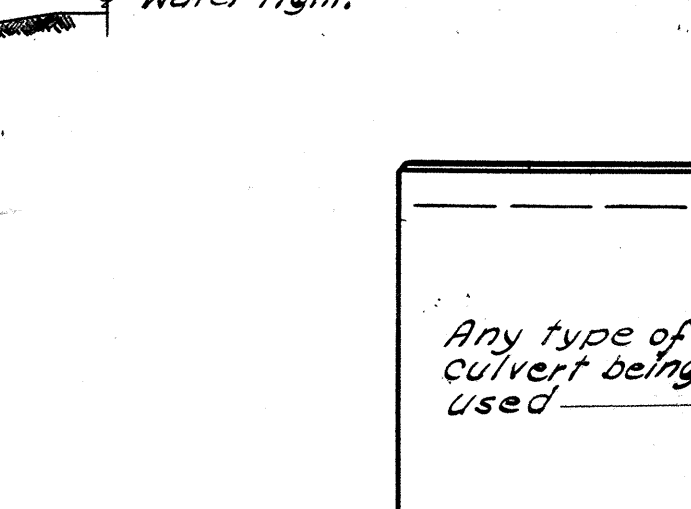
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"

| Data: Standard Drop Intake |    |        |     |
|----------------------------|----|--------|-----|
| D'                         | D  | L-D+6" | S   |
| 22 1/2                     | 18 | 2'-0"  | 8"  |
| 20                         | 24 | 2'-6"  | 8"  |
| 18 1/2                     | 30 | 3'-0"  | 8"  |
| 17                         | 36 | 3'-6"  | 8"  |
| 15 1/2                     | 42 | 4'-0"  | 10" |
| 14 1/2                     | 48 | 4'-6"  | 10" |

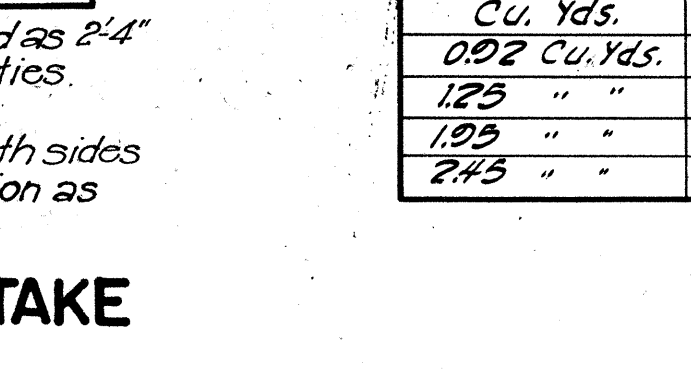
Note: Dimensions 'X' is assumed as 2'-4" in figuring the above quantities.

Where drainage comes from both sides lower this wall to same elevation as shown for opposite wall.

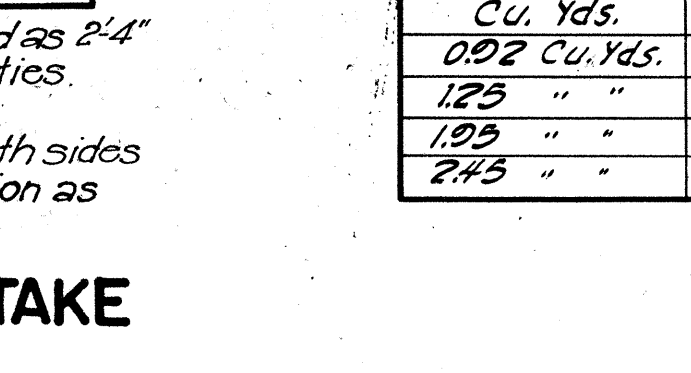
Note: This type of structure shall also be used for the drop intakes of siphons connected with irrigation ditches or flumes with appropriate changes to dimensions. In this case all joints must be made water tight.



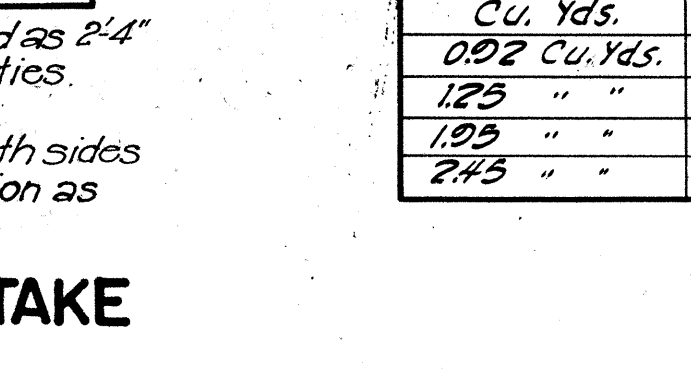
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"



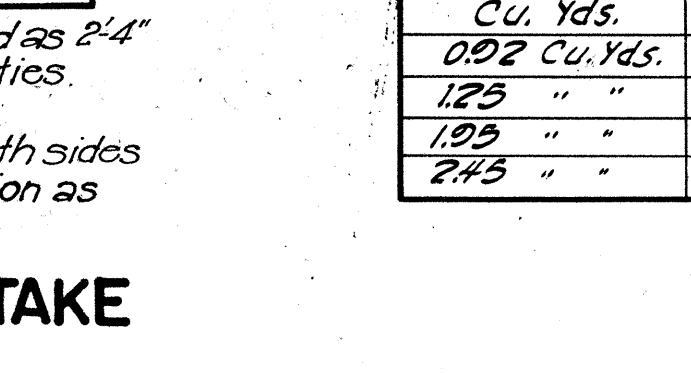
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"



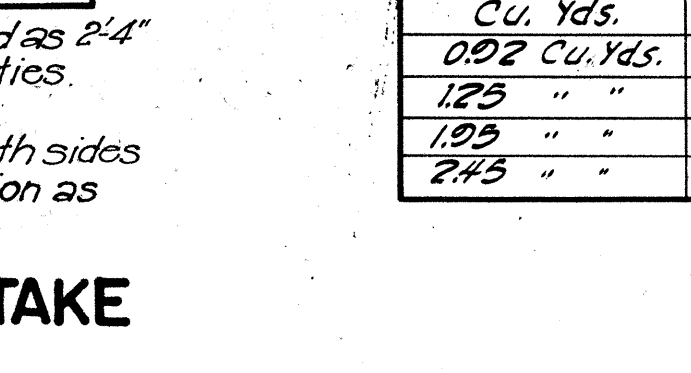
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"



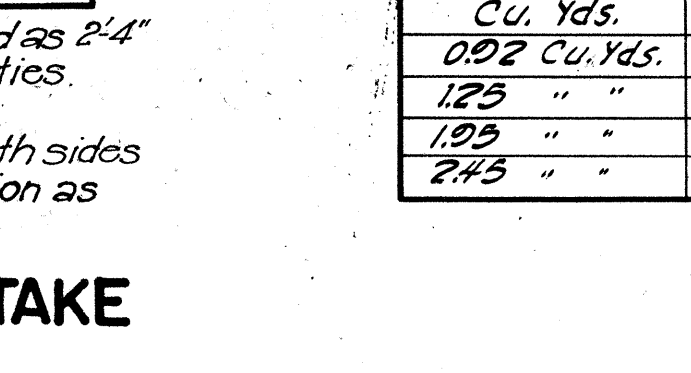
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"



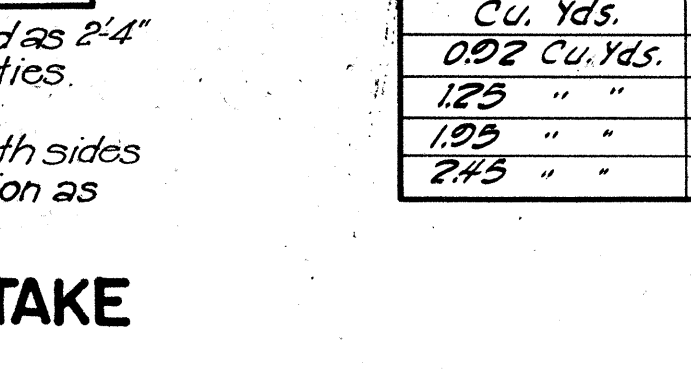
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"



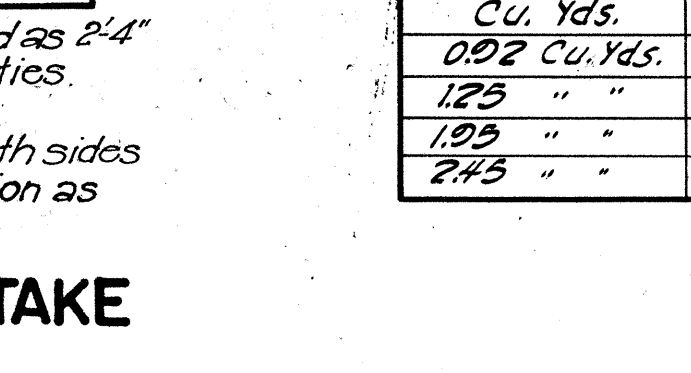
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"



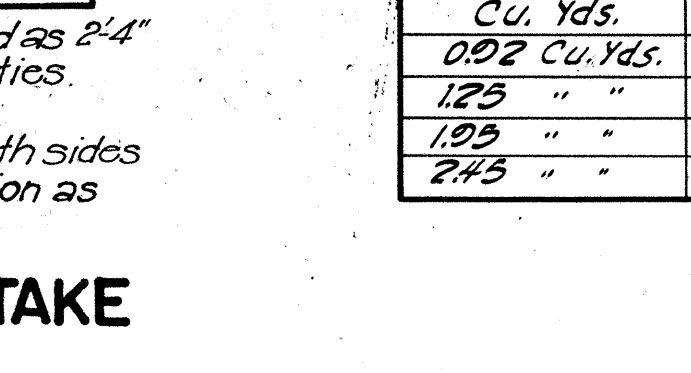
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Scale: 1/2" = 1'-0"



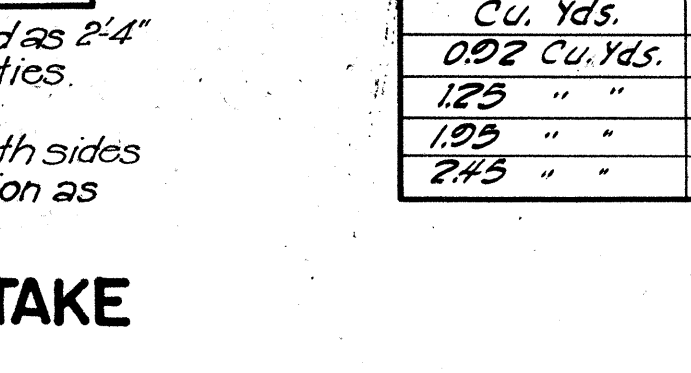
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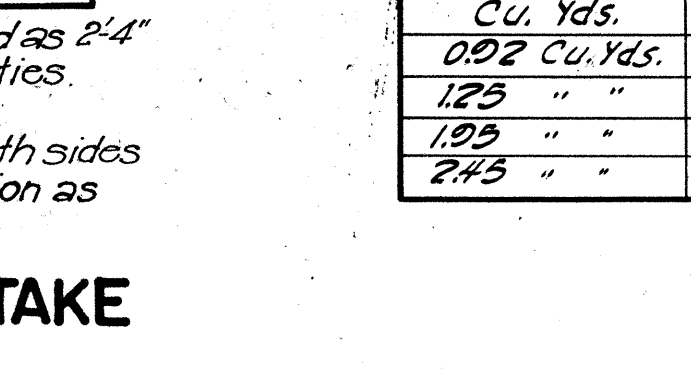
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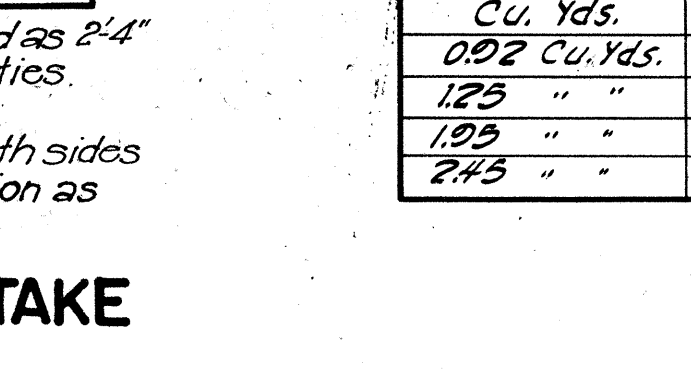
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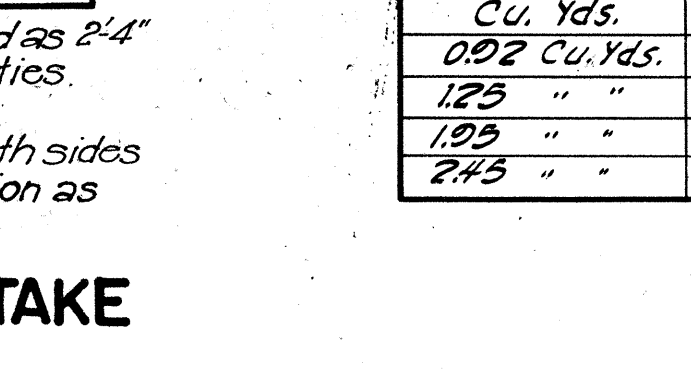
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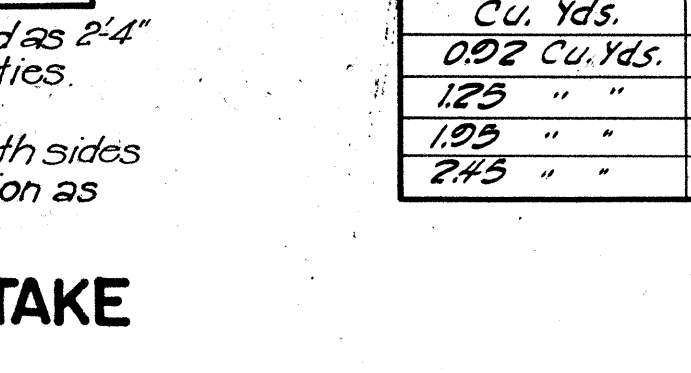
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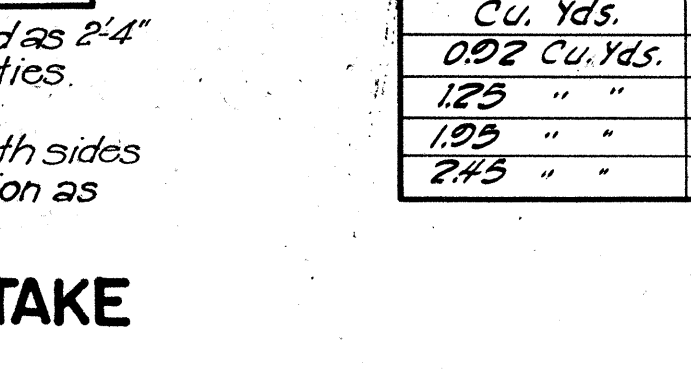
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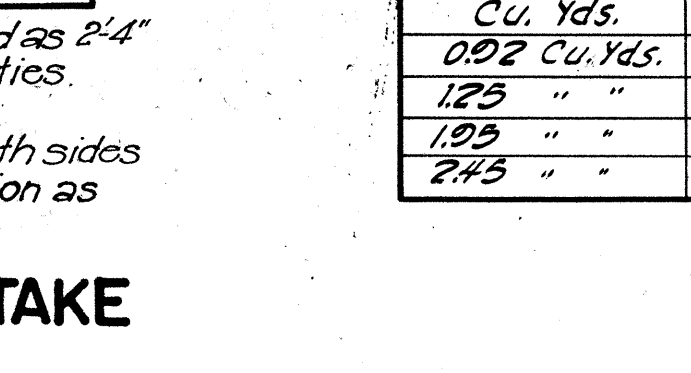
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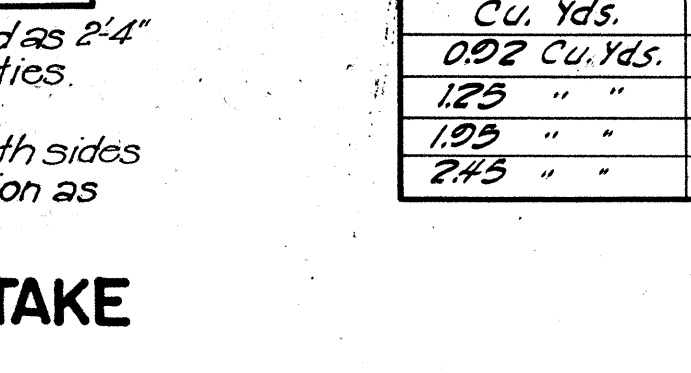
ST'D. CONG. DROP INTAKE  
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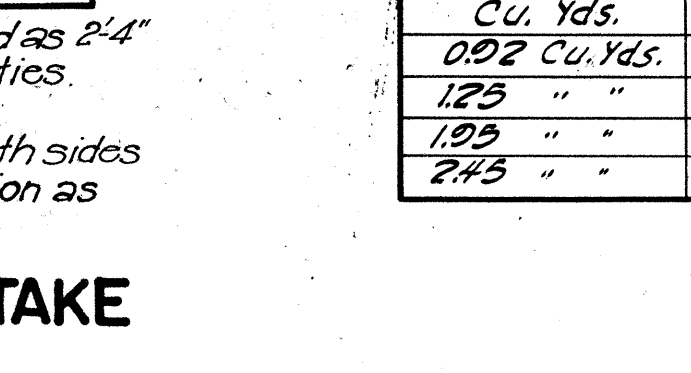
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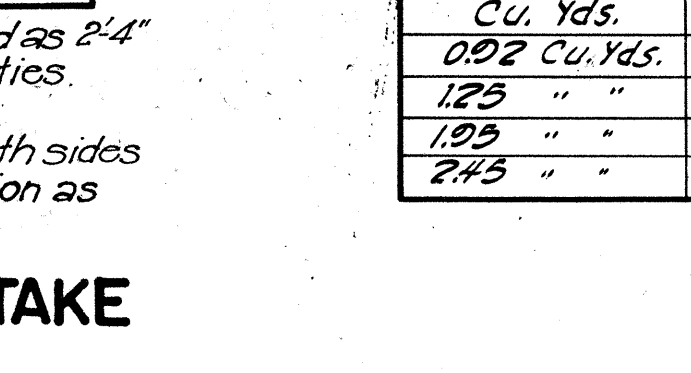
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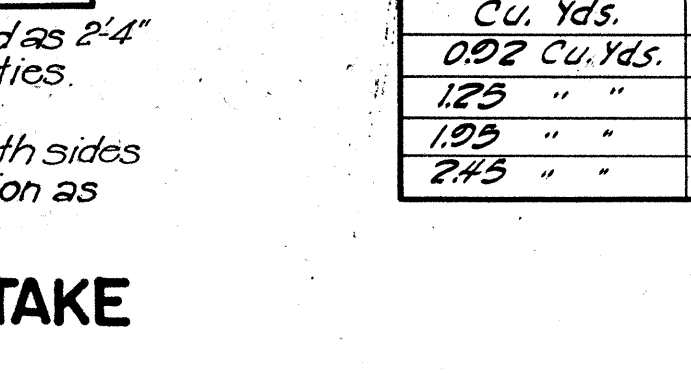
ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"



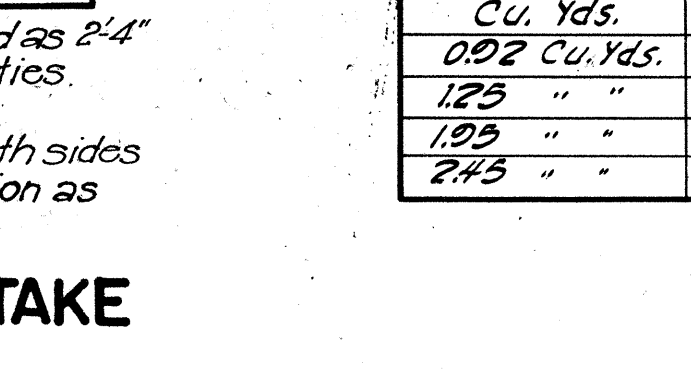
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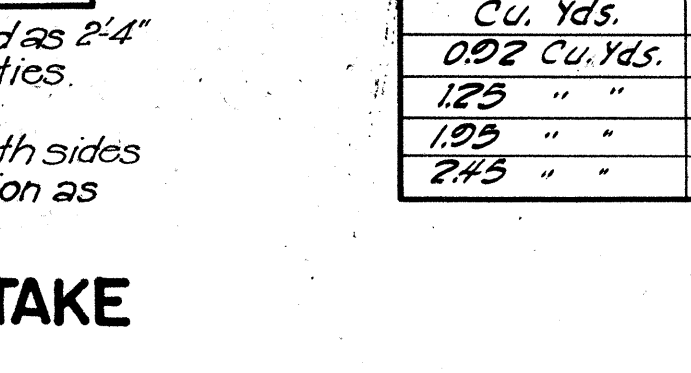
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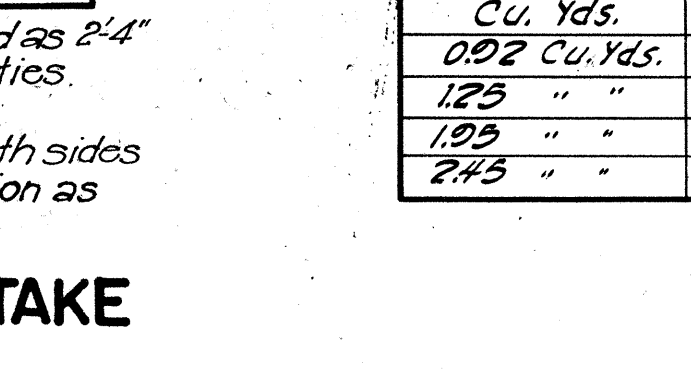
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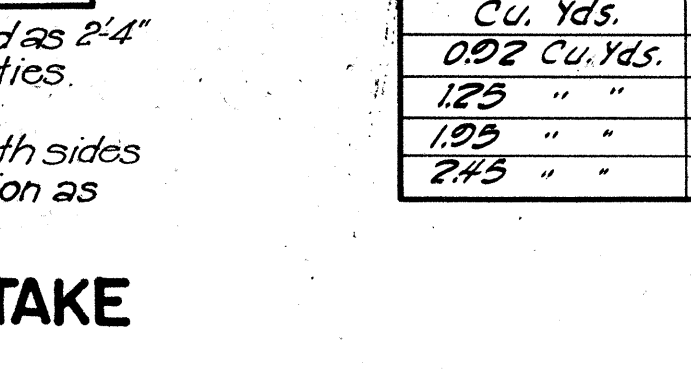
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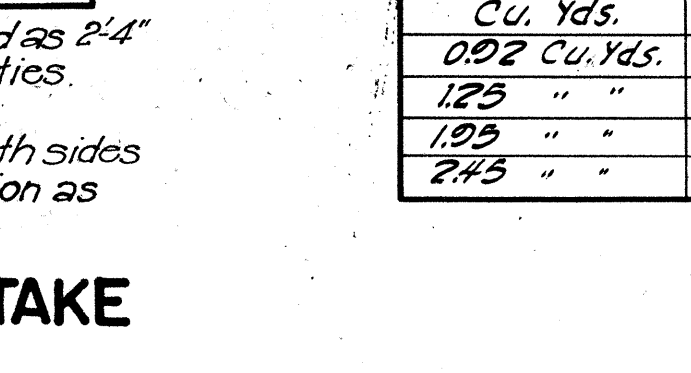
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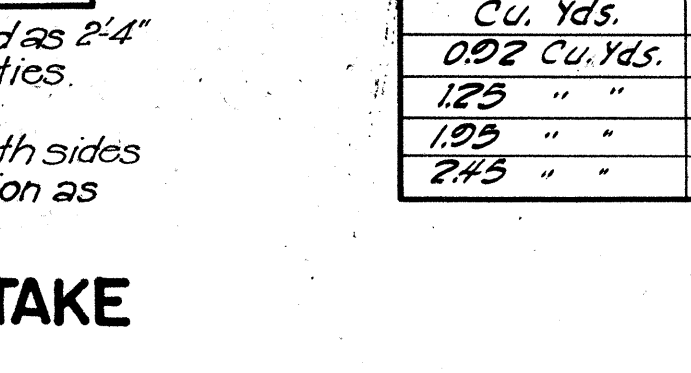
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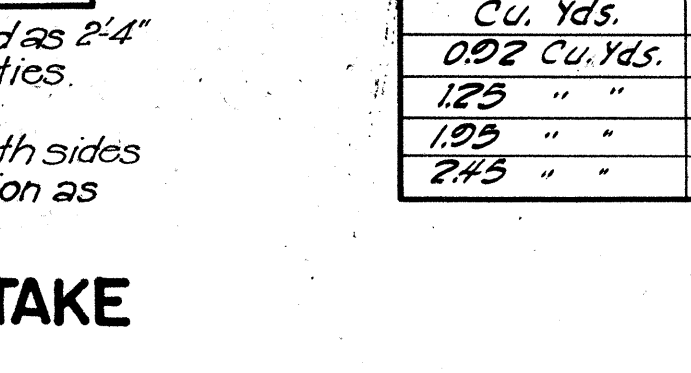
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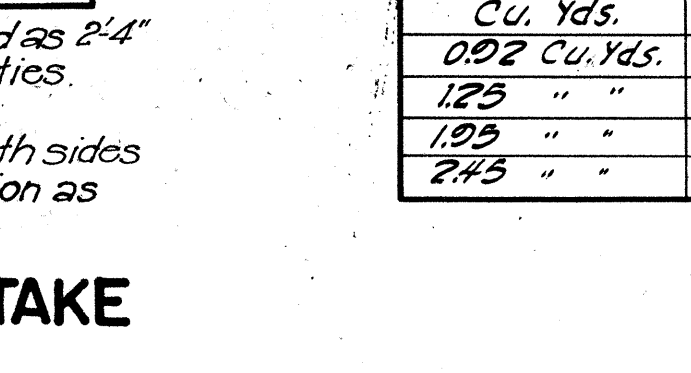
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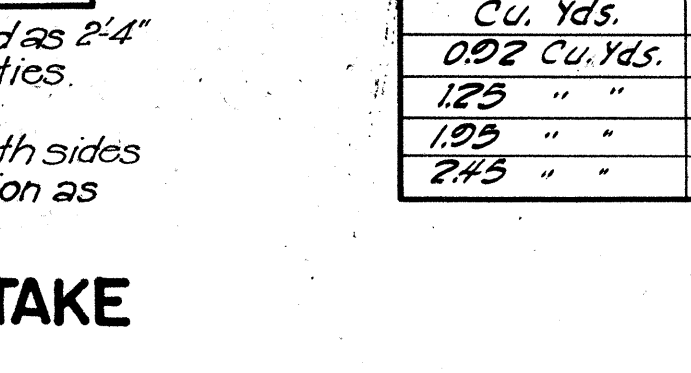
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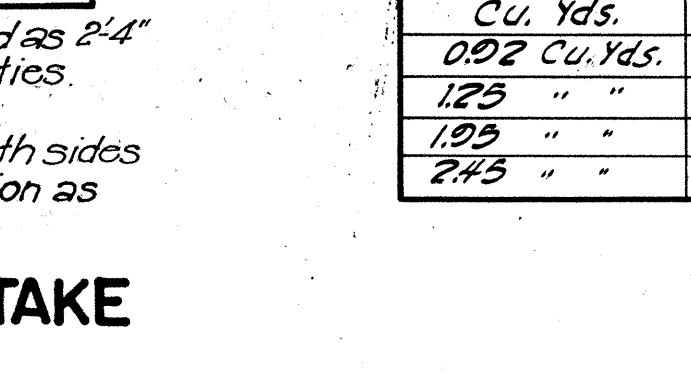
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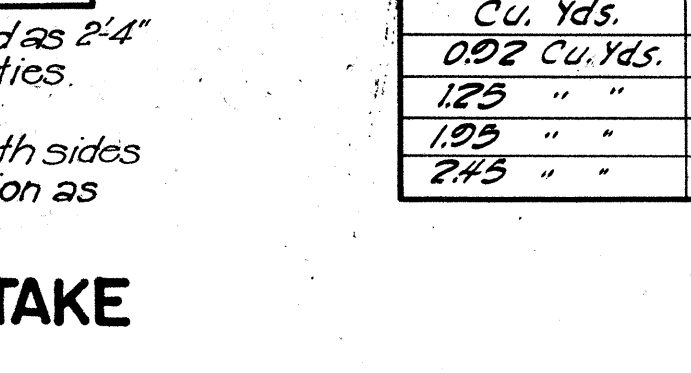
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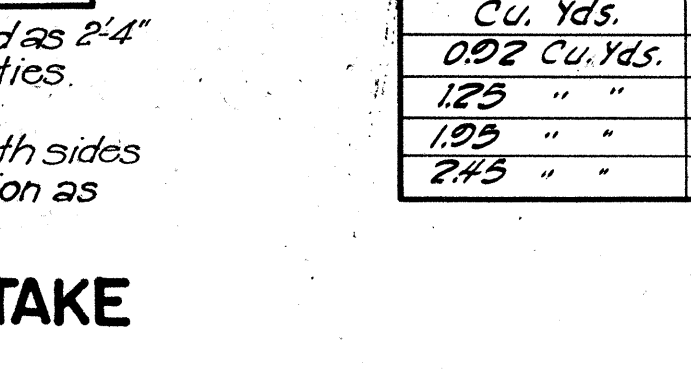
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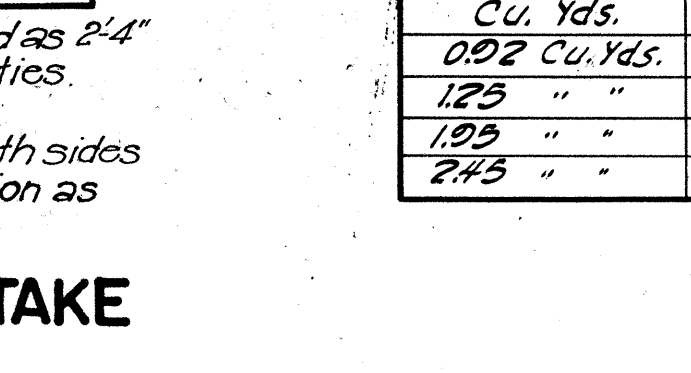
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Scale: 1/2" = 1'-0"



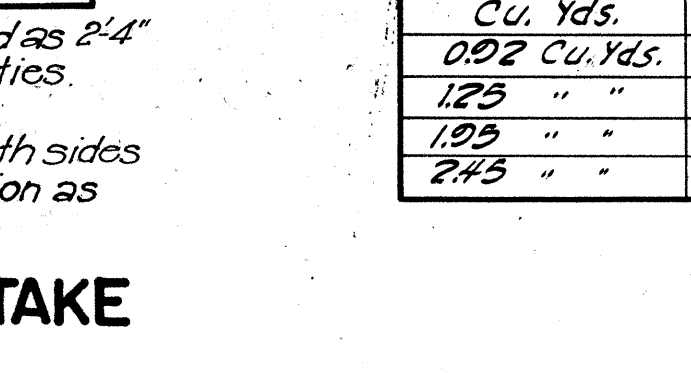
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Scale: 1/2" = 1'-0"



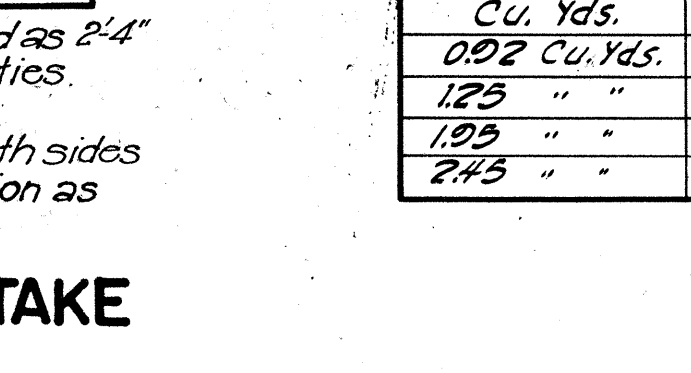
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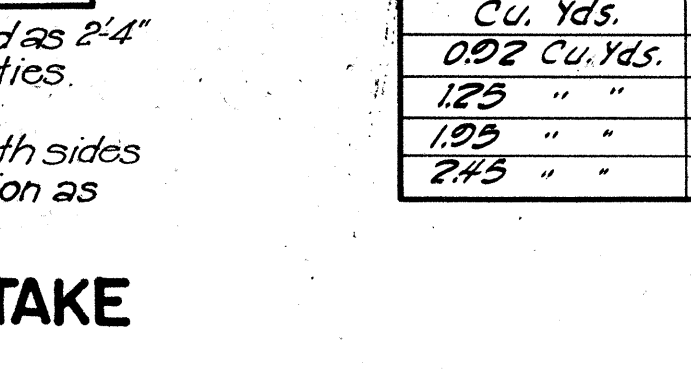
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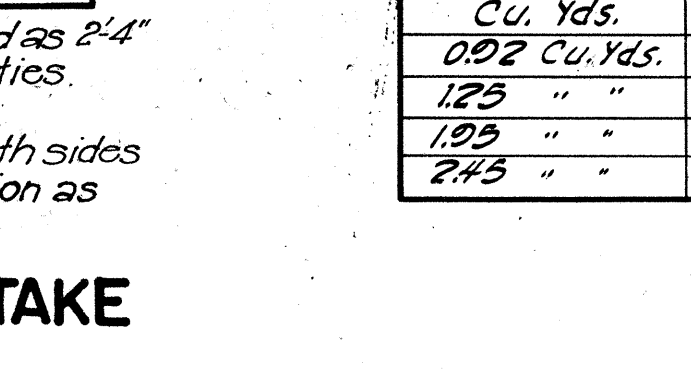
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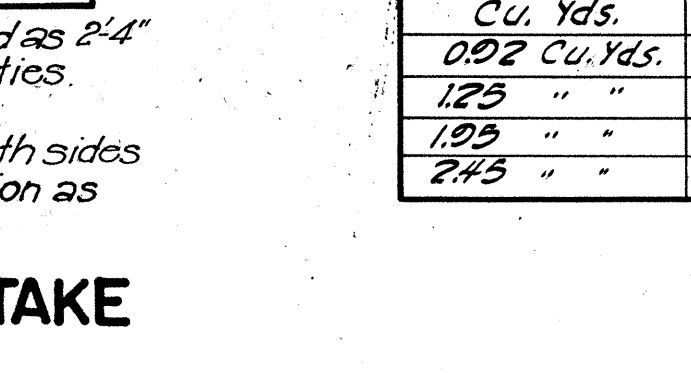
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Scale: 1/2" = 1'-0"

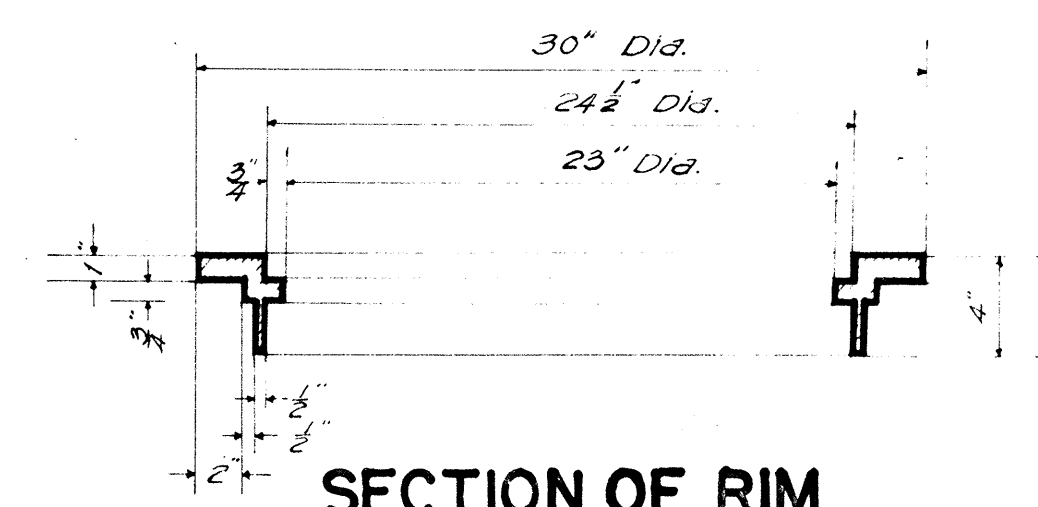


ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"

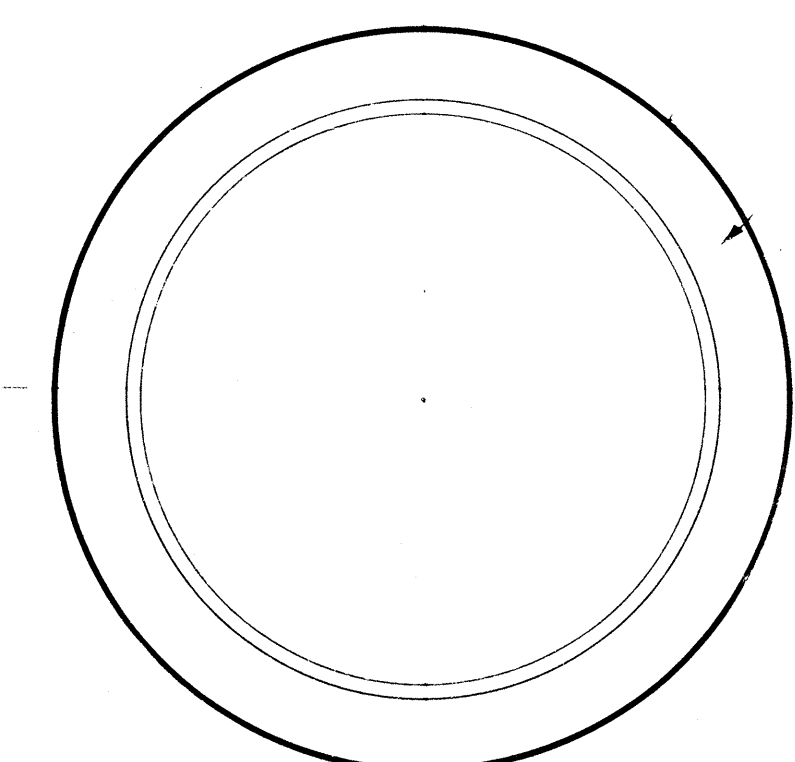


ST'D. CONG. DROP INTAKE  
Scale: 1/2" = 1'-0"





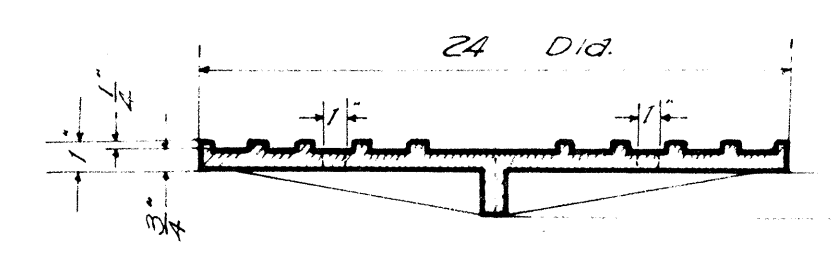
SECTION OF RIM



PLAN OF RIM

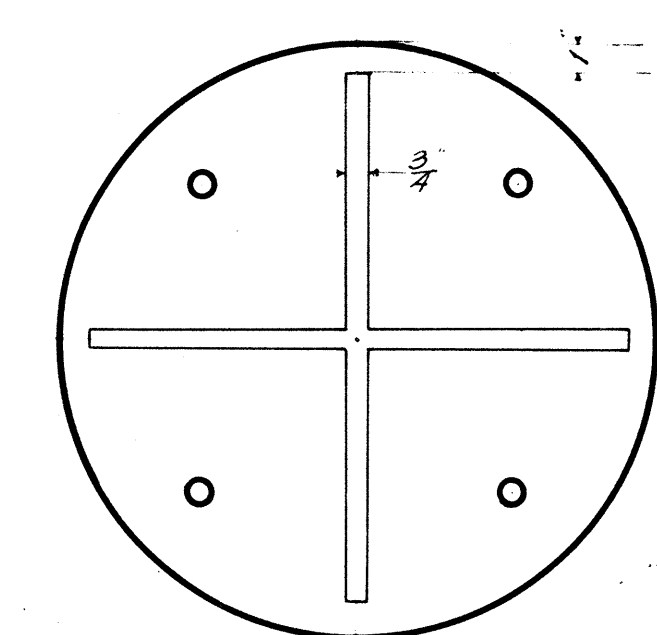


PLAN OF COVER TOP



SECTION OF COVER

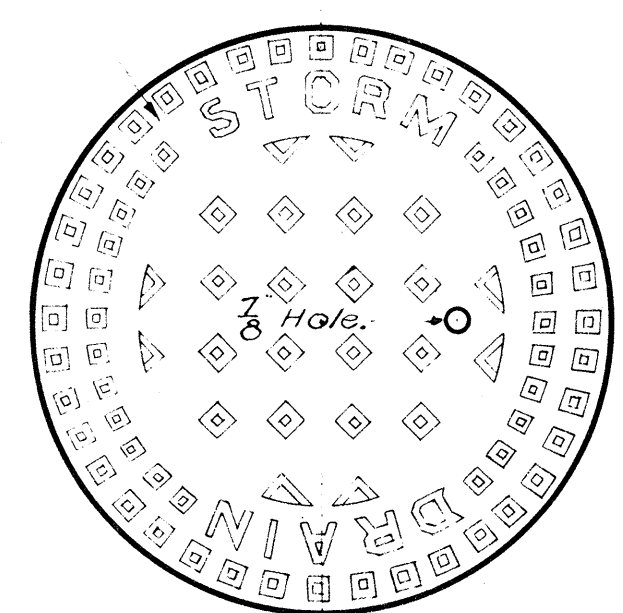
NOTE: A unit includes both Rim and Cover



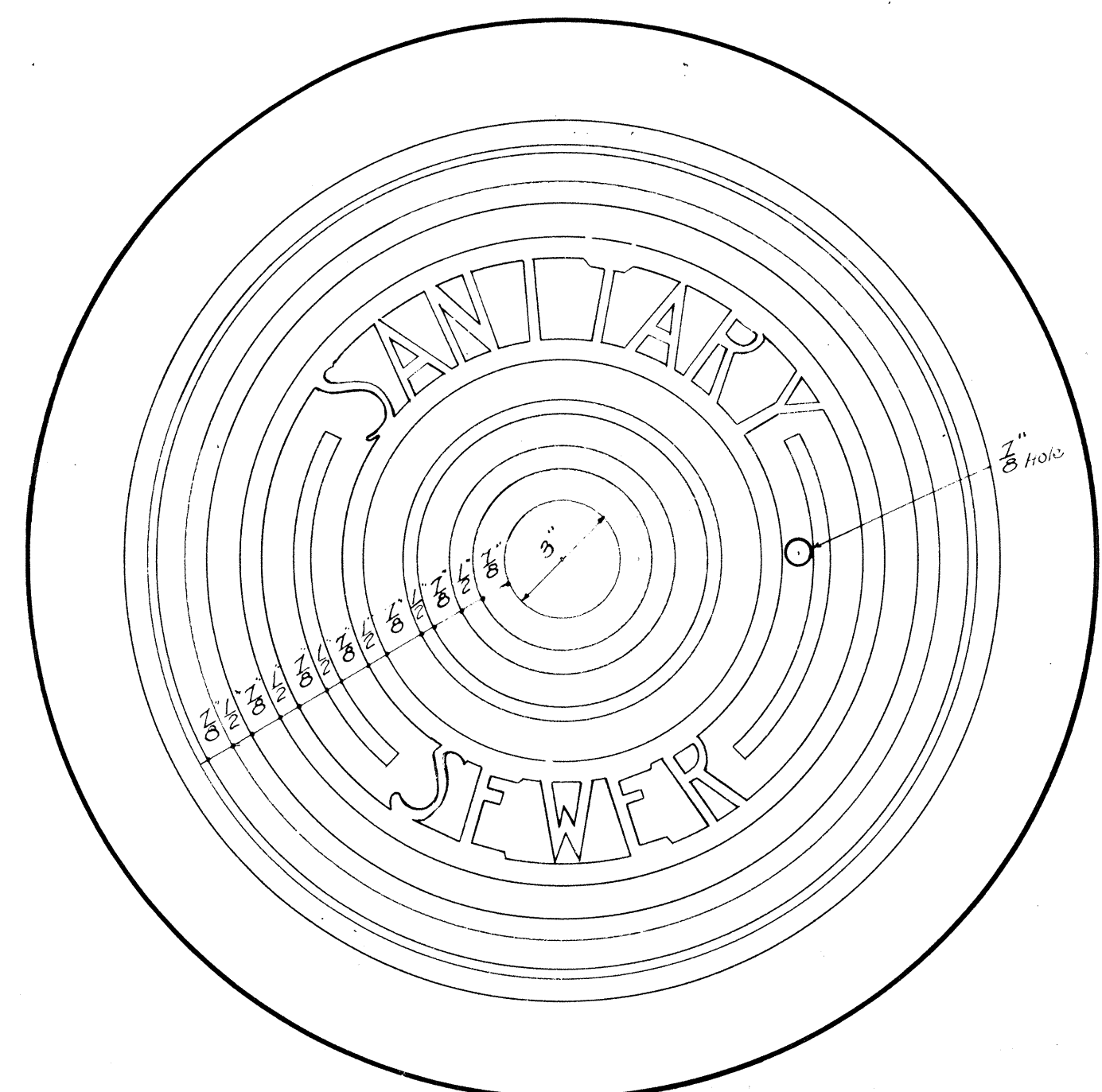
BOTTOM VIEW OF COVER  
TYPE "B"  
STANDARD CATCH BASIN CASTINGS

Scale: 1-1/2" = 1'-0"

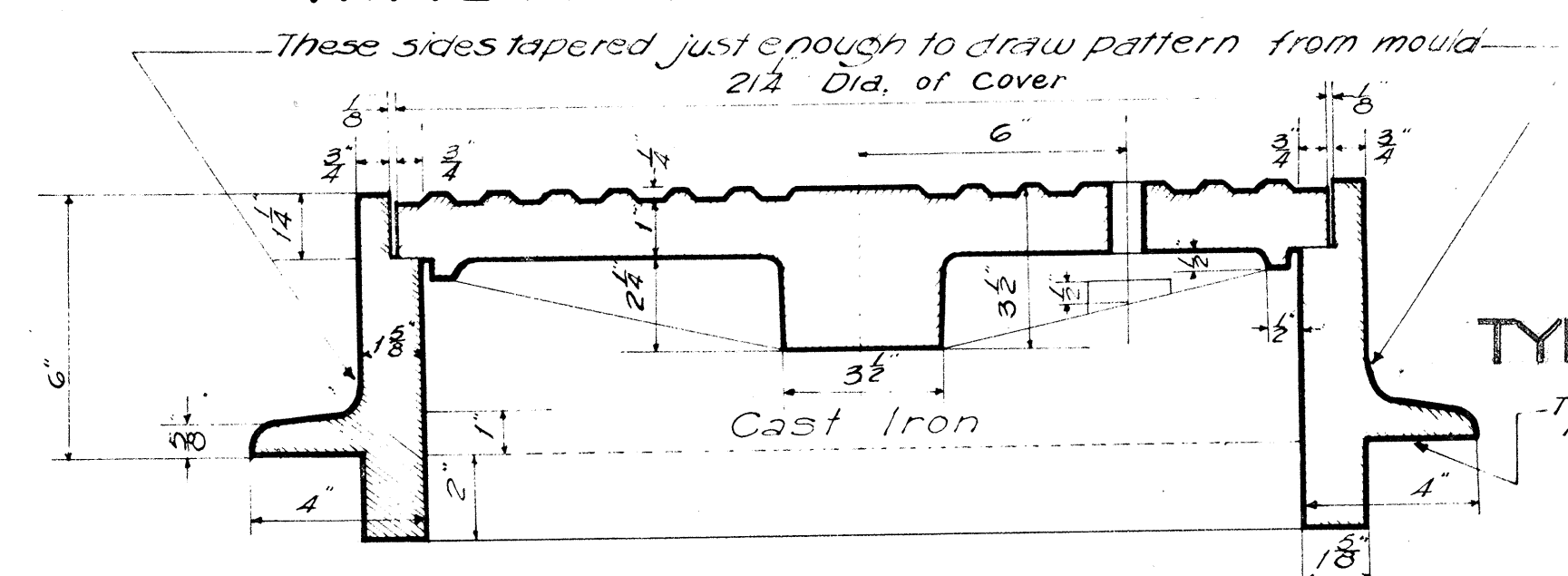
Cast Iron



PATTERN FOR  
STORM DRAIN MANHOLE COVER

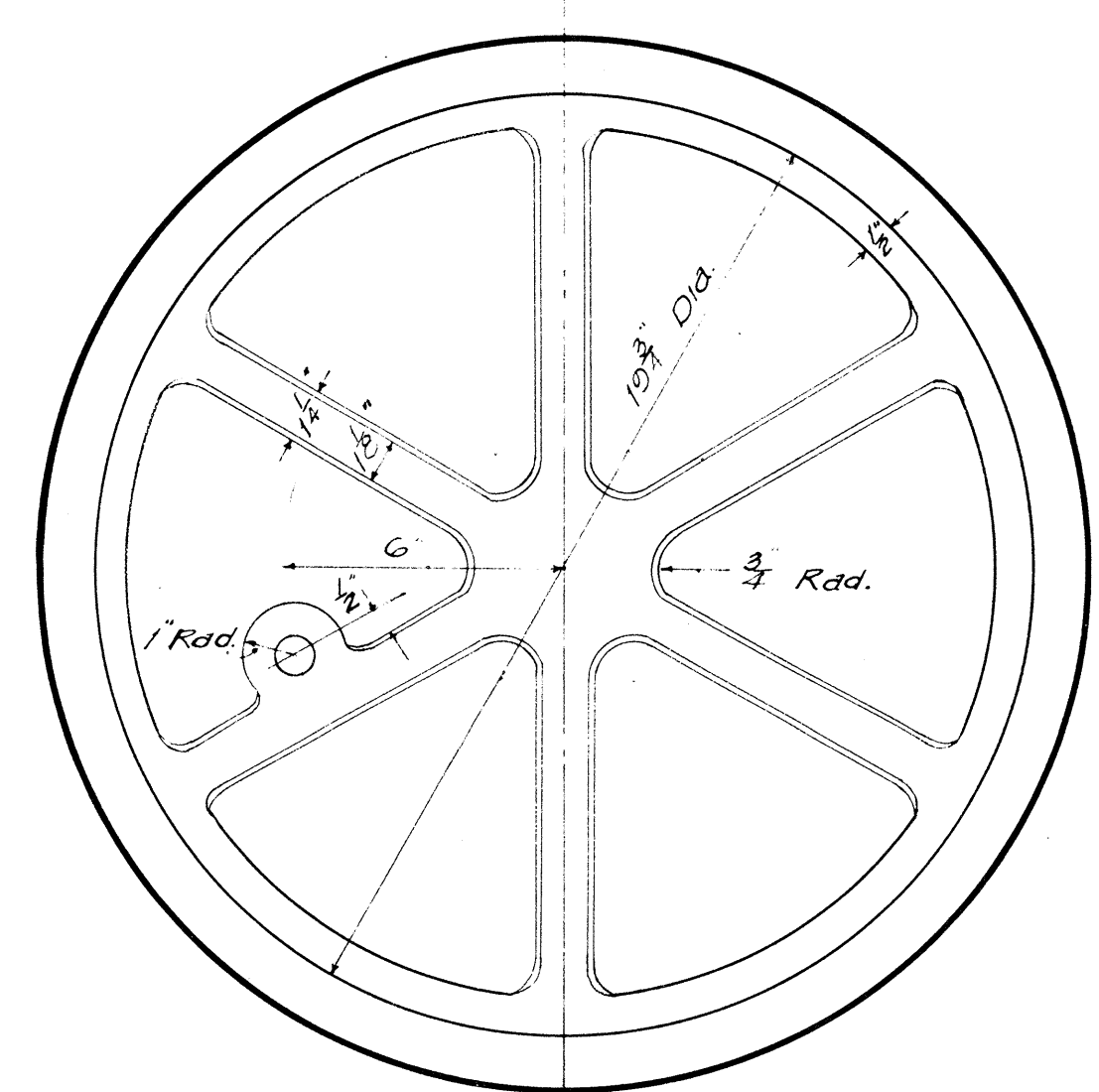


PATTERN FOR SEWER MANHOLE COVER



SECTION

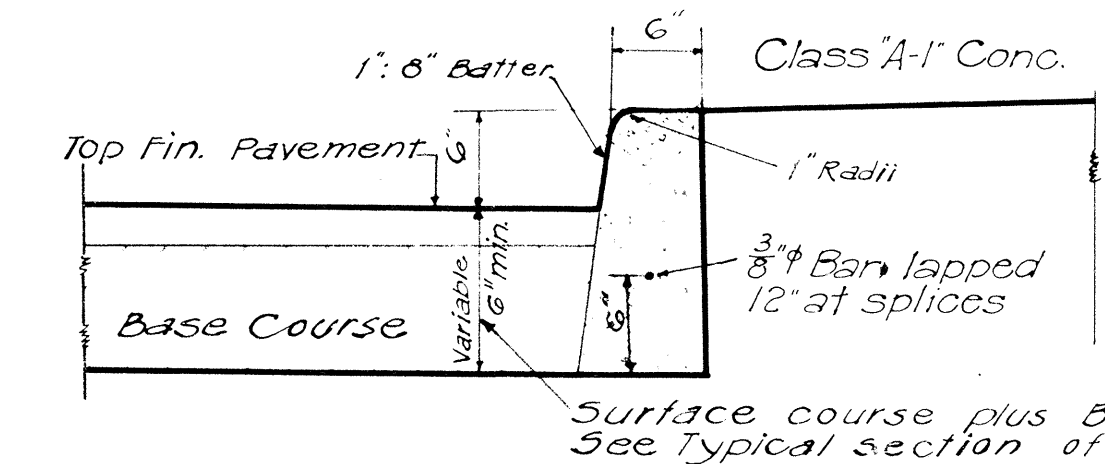
NOTE: A unit includes both Frame and Cover



BOTTOM VIEW OF COVER  
TYPE "A"  
STANDARD MANHOLE CASTINGS

Scale: 3" = 1'-0"

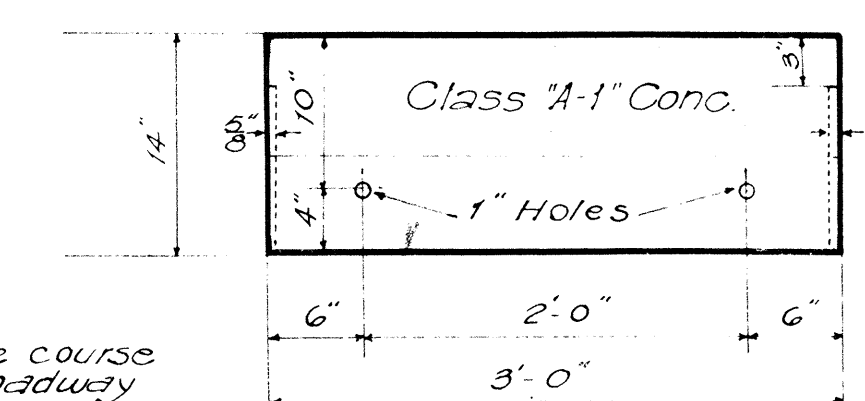
NOTE: The pattern for water manhole covers shall be the same as for sanitary sewer except that the word "Water" shall be substituted for Sanitary Sewer.



SECTION

TYPE "A" CAST-IN-PLACE CONC. CURB

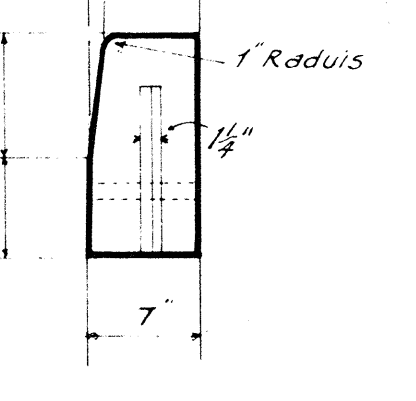
Scale: 1" = 1'-0"



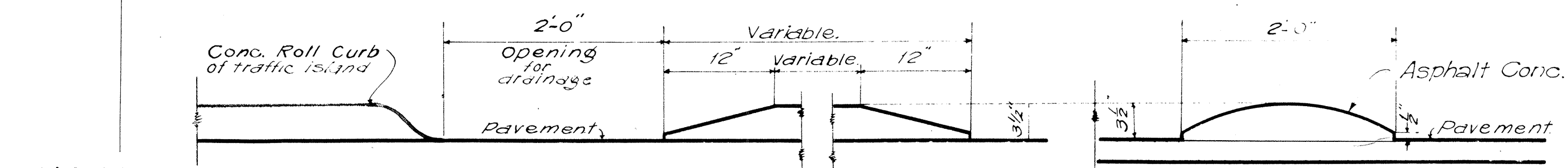
FRONT ELEV

TYPE "A" PRECAST CONC. CURB

Scale: 1" = 1'-0"



END ELEV

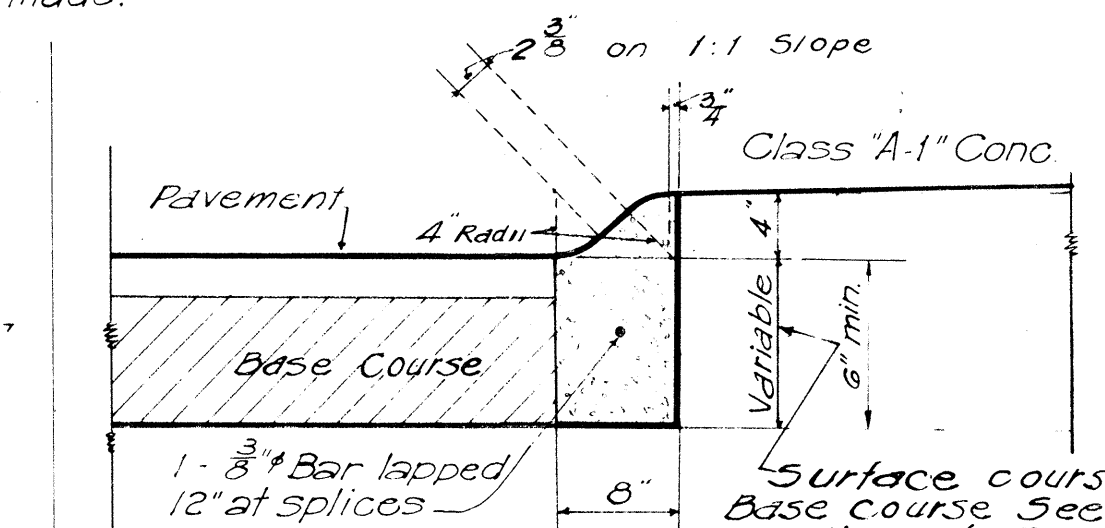


ELEVATION

DETAIL OF A.C. ROLL

Scale: 1" = 1'-0"

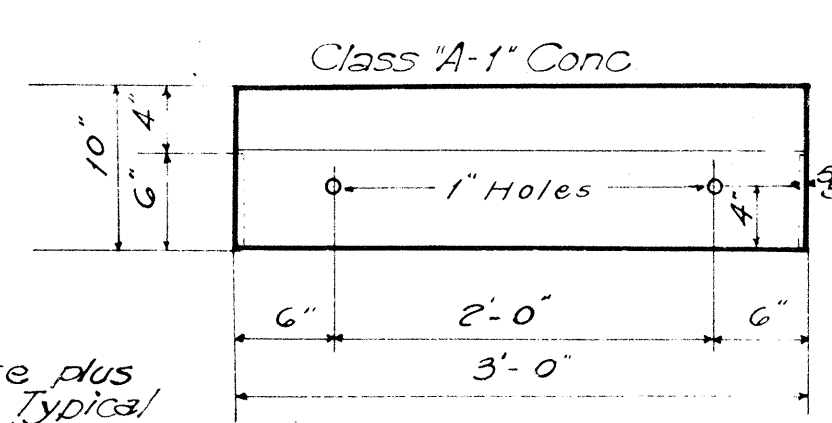
NOTE: There may be more than one over-all curb height used on an individual project depending upon Base Courses used, but this shall make no difference in items under which payment is made.



SECTION

TYPE "B" CAST-IN-PLACE CONC. ROLL CURB

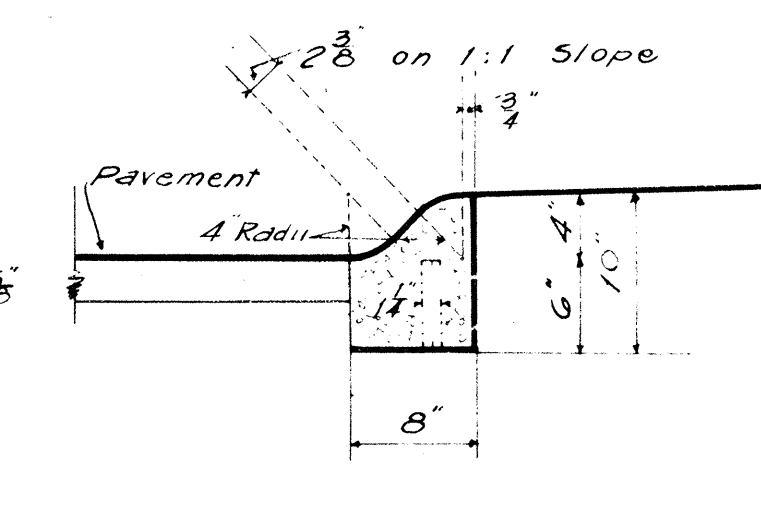
Scale: 1" = 1'-0"



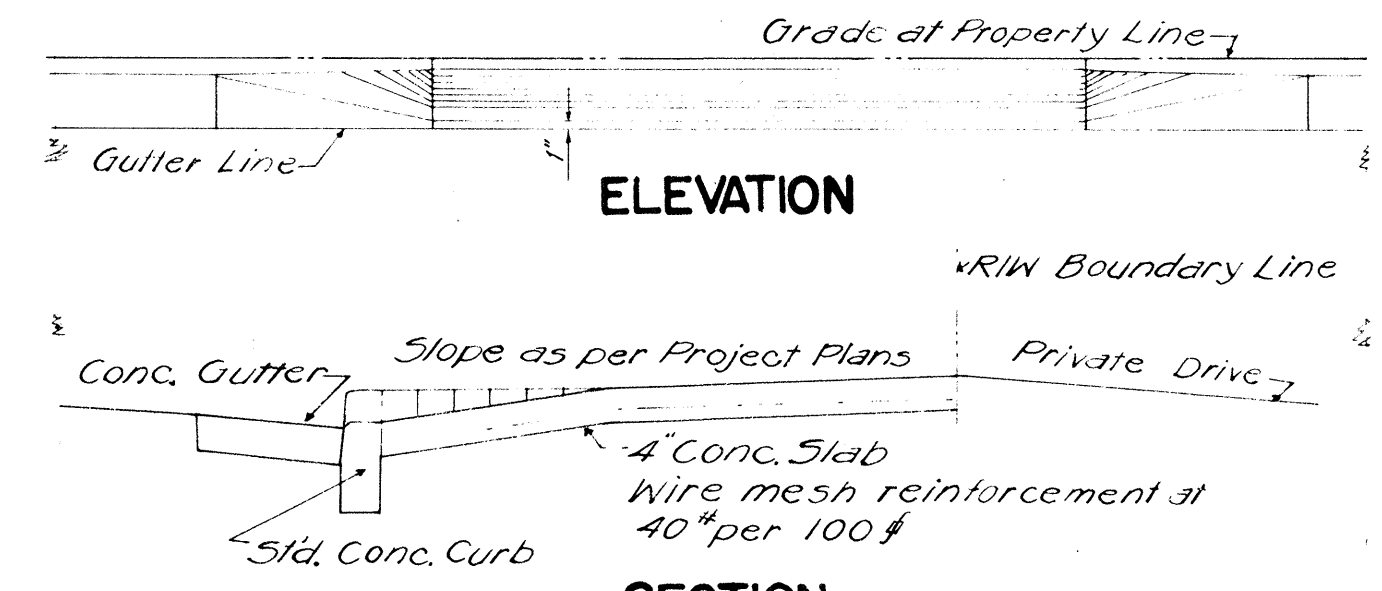
FRONT ELEV

TYPE "B" PRECAST CONC. ROLL CURB

Scale: 1" = 1'-0"

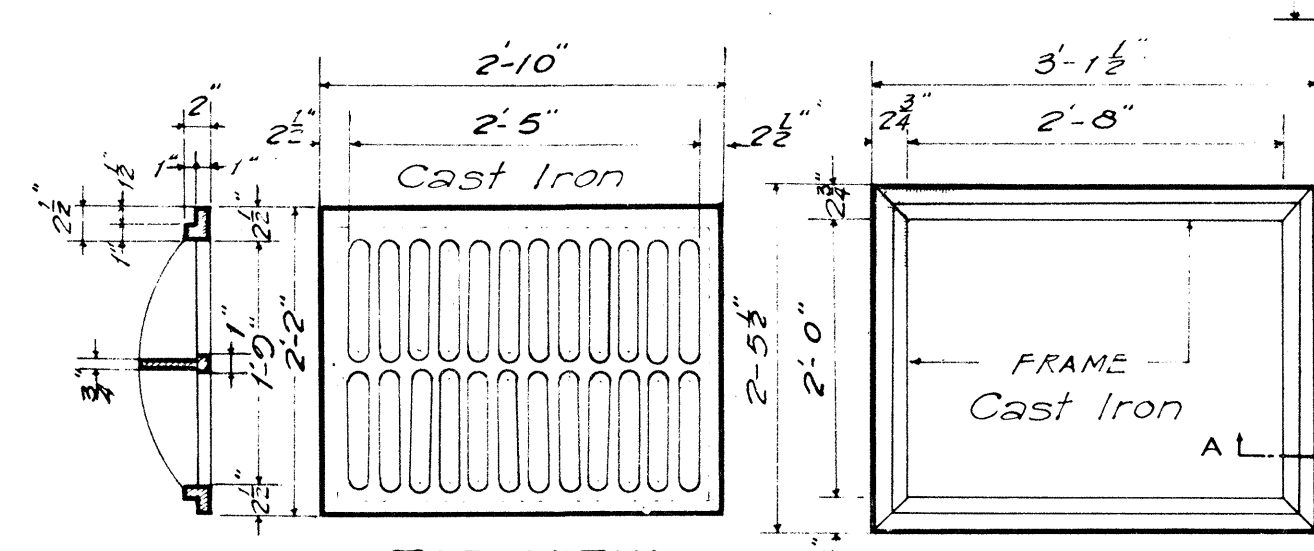


SECTION



ELEVATION

SECTION

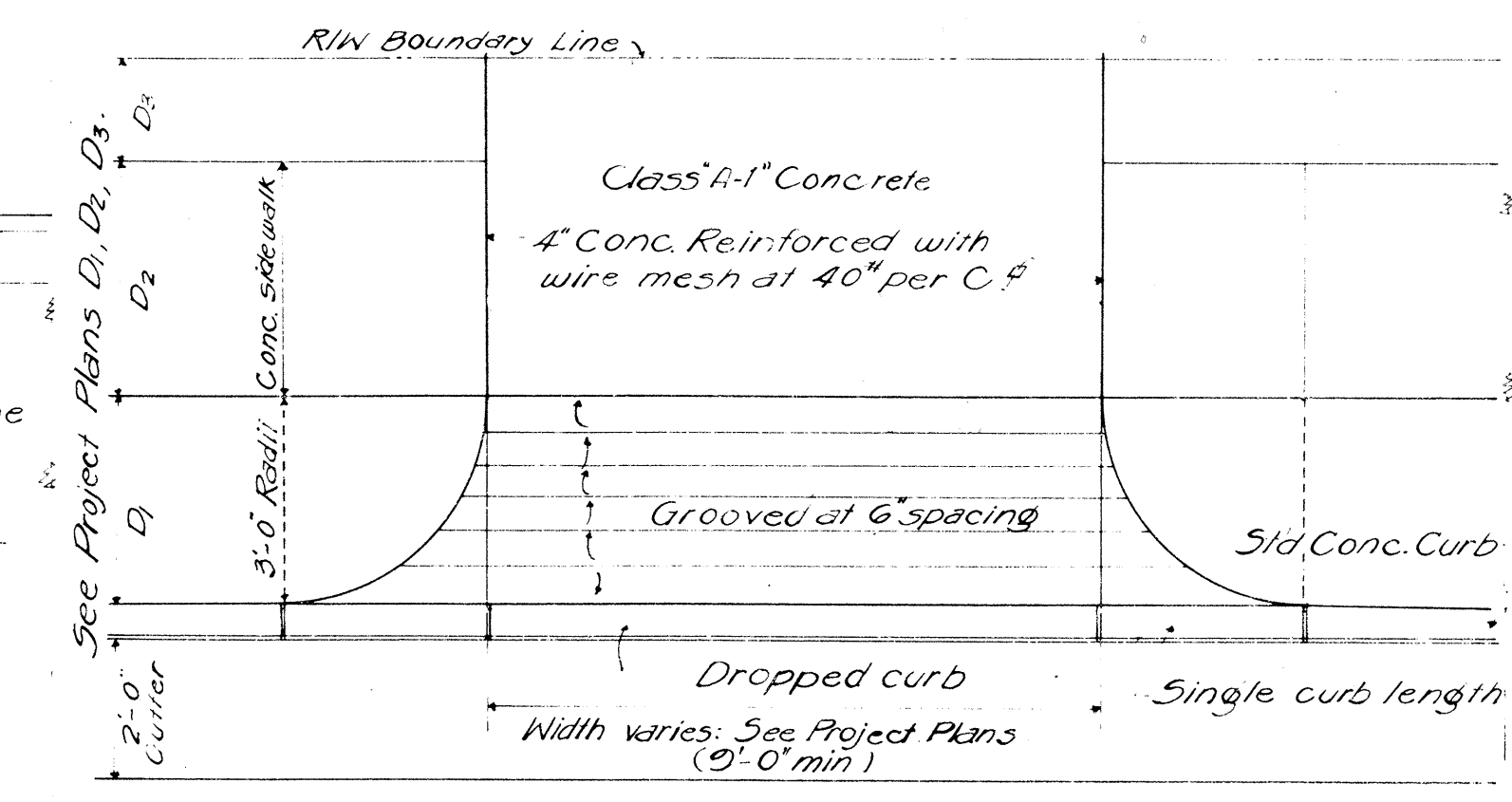


TOP VIEW

STANDARD C. I. FRAME AND GRATE TYPE "C"

Scale: 3/4" = 1'-0"

NOTE: Stock Pattern from Novelty Foundry-Honolulu



PLAN  
DETAILS OF DROPPED DRIVEWAY

SECTION A-A

Scale: 3" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT  
TERRITORY OF HAWAII

STANDARD DETAILS

SCALES AS NOTED Sept. 5, 1946

APPROVED: B. F. Rush  
Territorial Highway Engineer

SHEET NO. 4 OF 4 SHEETS

DATE  
DRAWN BY  
S. Nambu  
CHECKED BY

