TN TDOT Department of Transportation

Part One: Guidelines & Procedures for Precast Product Verification by Non-Destructive and Destructive Testing

Tennessee Department of Transportation

Table of Contents

1.0 REFERENCES

Refer to SOP 5-3 Section 6.0 for verification procedures.

2.0 PRODUCT SELECTION

2.1 Standard Precast Drainage Catch Basins

2.1.1 Square and Rectangular Concrete & Lid

2.1.2 Standard Precast Circular Concrete & Lid

2.2 Endwall

2.3 Standard Precast Drainage Manholes

2.3.1 Square Concrete & Lid

2.3.2 Circular Concrete and Lid

2.4 Standard Precast Drainage Junction and Spring Box

2.4.1 Square Concrete & Lid

2.4.2 Circular Concrete & Lid

3.0 NON-DESTRUCTIVE VERIFICATION

3.1 Dimensional Measurements

3.1.1 Square and Rectangular Concrete (Drainage Catch Basins)

NOT TO SCALE

Opening Length 1.______________

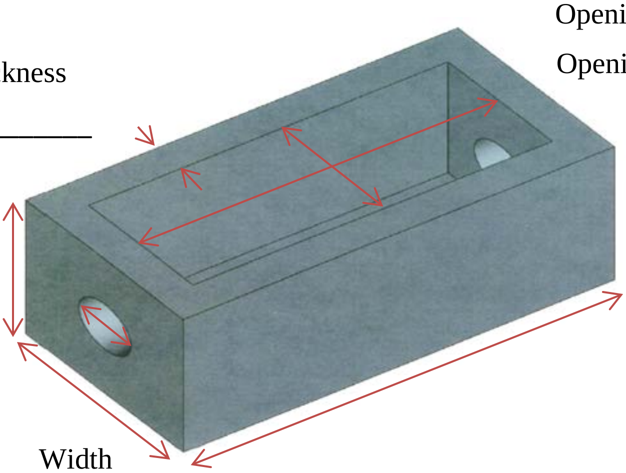
Opening Width 2.______________

Wall Thickness

____

Height

____



Inlet Diameter
Horizontal/Vertical

1.____________________

2.____________________

Outlet Diameter
Horizontal/Vertical

1.____________________

2.____________________

Width

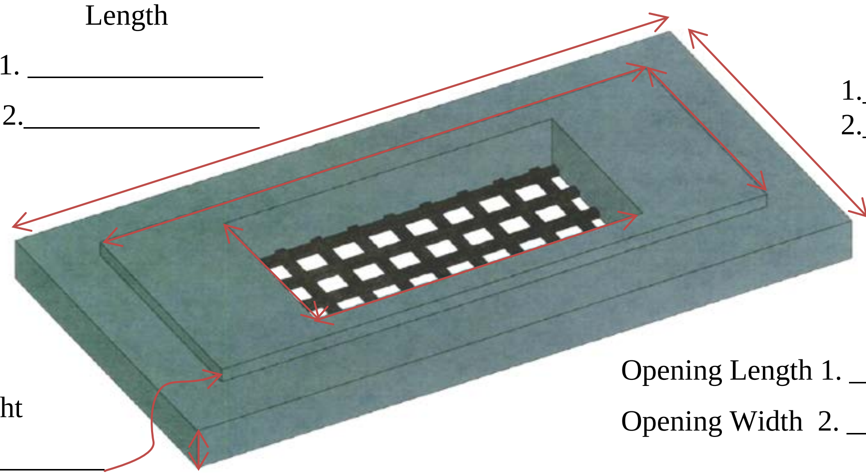
____

Length _________________

Length

1. _________________

2._________________



Width

1.________________

2.________________

Opening Length 1. ____________

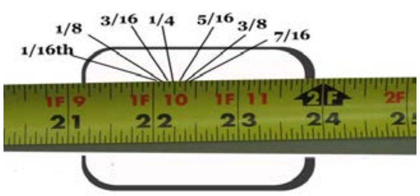
Opening Width 2. ____________

Height

1.________________

2.________________

Note: All Measurements shall be reported to 1/16”



3.1.2 Square Concrete (Drainage Manhole)

NOT TO SCALE

Wall Thickness

____

Outlet Diameter
Horizontal/Vertical

1.__________________

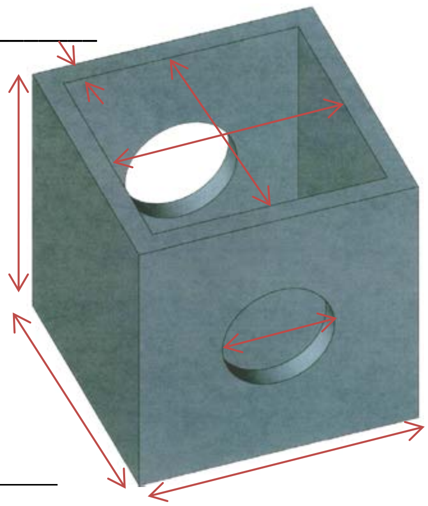
2.__________________

Height

____

Width

____



Opening Length 1.____________

Opening Width 2.____________

Inlet Diameter
Horizontal/Vertical

1.__________________

2.__________________

Length ________________

Length

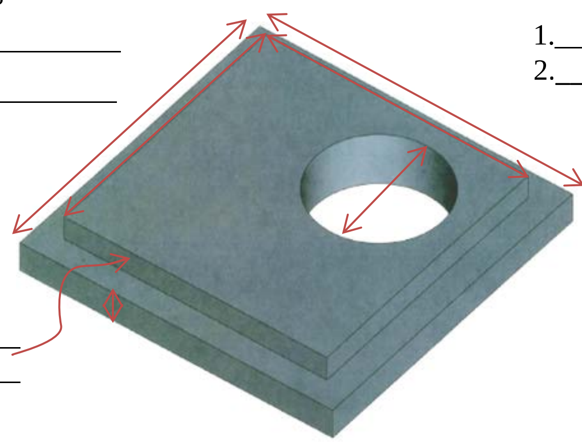
1. ________________

2.________________

Height

1.________________

2.________________



Width

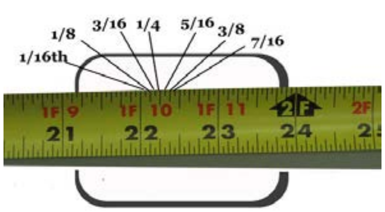
1.______________

2.______________

Manhole Diameter

____

Note: All Measurements shall be reported to 1/16”



3.1.3 Endwall

NOT TO SCALE

Head Wall Thickness

____

Height

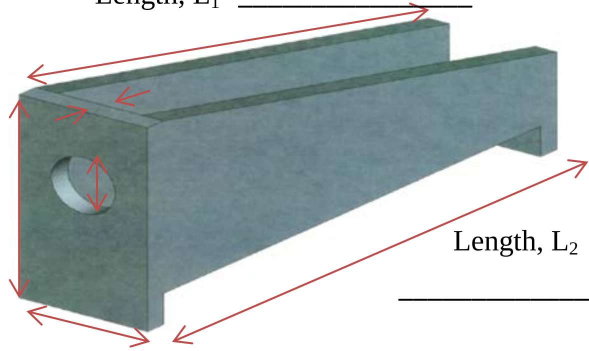
____

Inlet Diameter
Horizontal/Vertical

1.______________

2.______________

Length, L_1 ________________

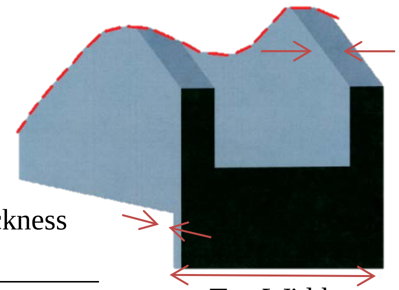


Length, L_2

____

Width ________________

Back View of
Endwall



Sidewall Thickness

____

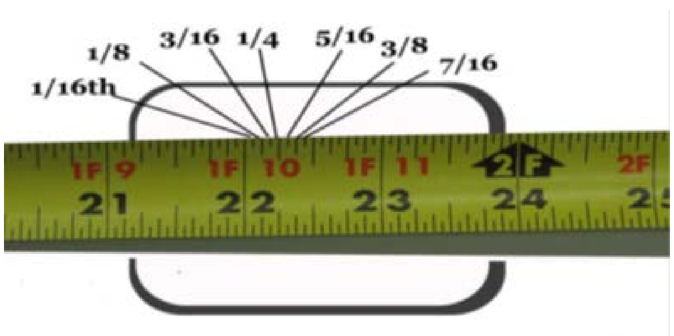
Toe Thickness

____

Toe Width

____

Note: All Measurements shall be reported to 1/16"



3.1.4 Square Concrete (Drainage Junction Box)

NOT TO SCALE

Wall Thickness

____

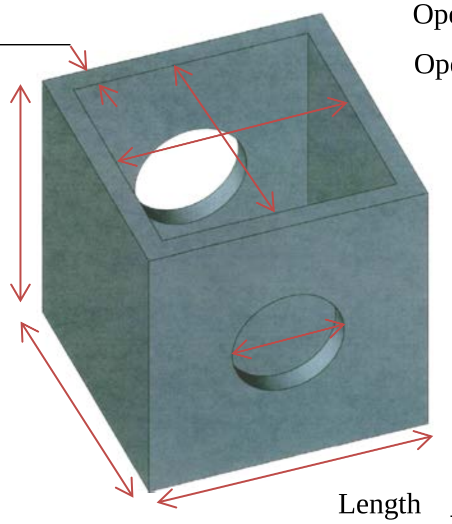
Opening Length 1.______________

Opening Width 2.______________

Outlet Diameter
Horizontal/Vertical

1.____________________

2.____________________



Inlet Diameter
Horizontal/Vertical

1.____________________

2.____________________

Height

____

Width

____

Length __________________

Length

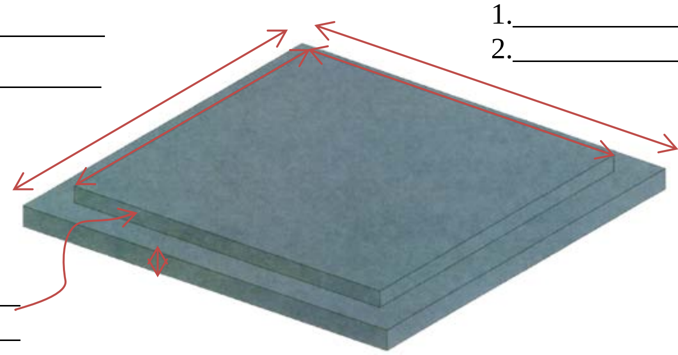
1. __________________

2.__________________

Width

1.________________

2.________________

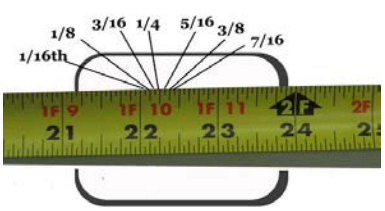


Height

1.________________

2.________________

Note: All Measurements shall be reported to 1/16”



3.1.5 Square Concrete (Drainage Spring Box)

NOT TO SCALE

Wall Thickness

____

Opening Length 1.____________

Opening Width 2.____________

Inlet Diameter
Horizontal/Vertical

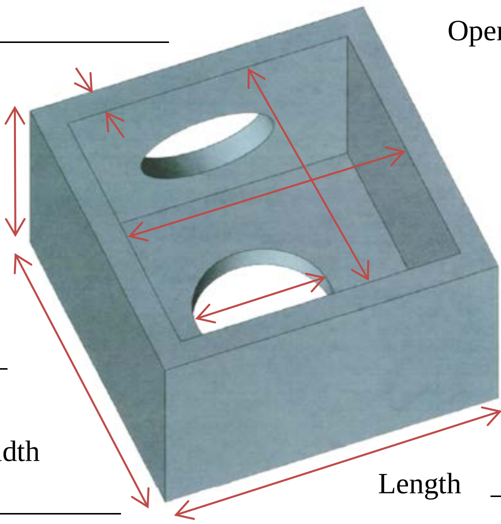
1.__________________

2.__________________

Outlet Diameter
Horizontal/Vertical

1.__________________

2.__________________



Height

____

Width

____

Length _______________

Length

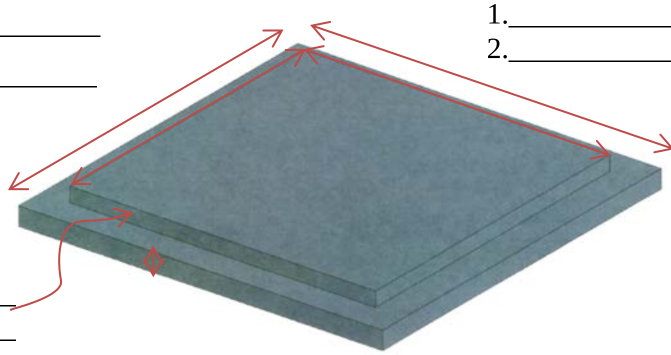
1. _______________

2._______________

Width

1.______________

2.______________

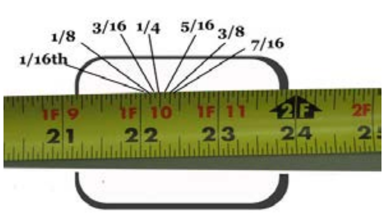


Height

1.______________

2.______________

Note: All Measurements shall be reported to 1/16”



3.1.6 Standard Precast Circular (Drainage Catch Basins)

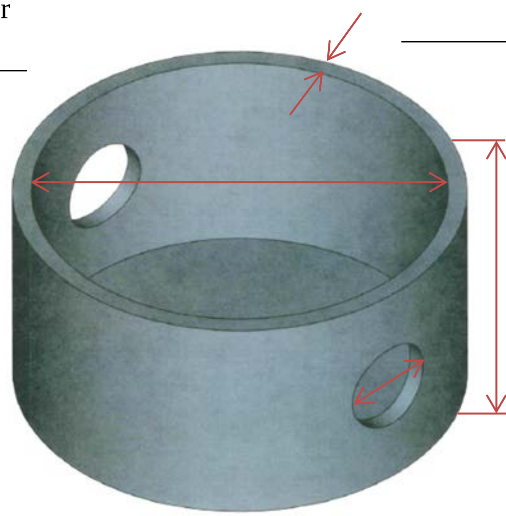
NOT TO SCALE

Wall Thickness

____

Inside Diameter

____



Inlet Diameter
Horizontal/Vertical

1.________________

2.________________

Height

____

Outlet Diameter
Horizontal/Vertical

1.________________

2.________________

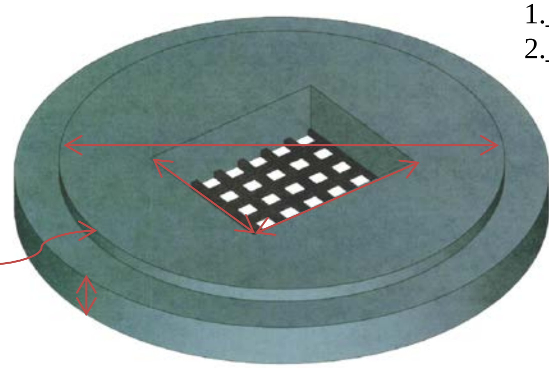
Inside Depth

____

Diameter

1.______________

2.______________



Height

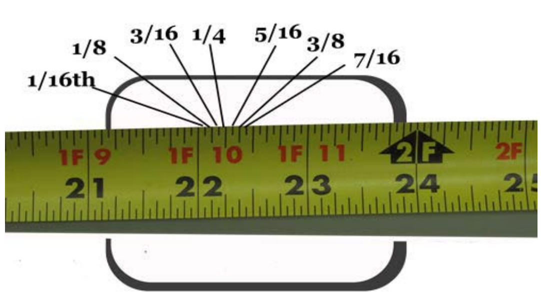
1.______________

2.______________

Opening Length 1. ___________

Opening Width 2. ___________

Note: All Measurements shall be reported to 1/16"



3.1.7 Standard Precast Circular (Drainage Manhole)

NOT TO SCALE

Wall Thickness

____

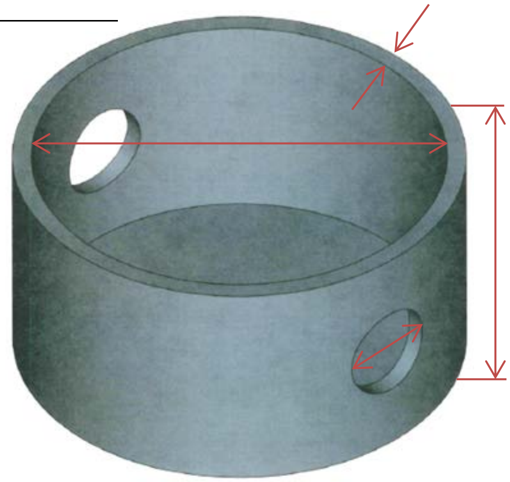
Inside Diameter

____

Inlet Diameter
Horizontal/Vertical

1.__________________

2.__________________



Height

____

Inside Depth

____

Outlet Diameter
Horizontal/Vertical

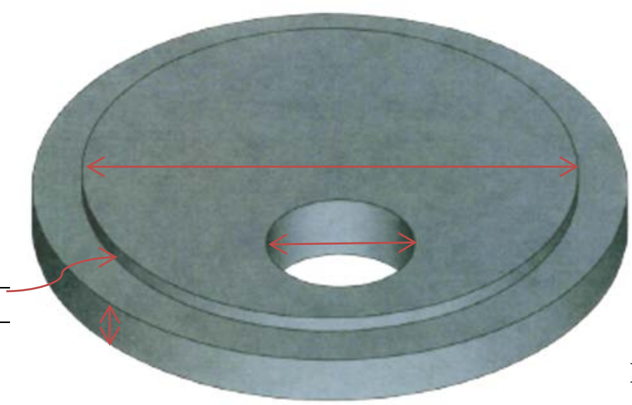
1.__________________

2.__________________

Diameter

1._______________

2._______________



Height

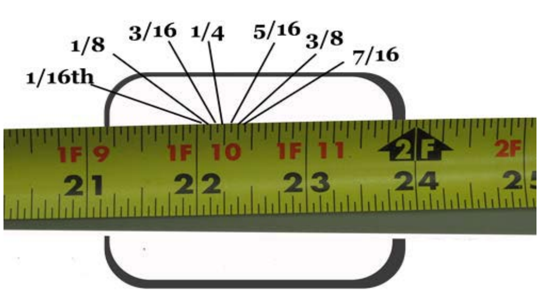
1._______________

2._______________

Manhole Diameter

____

Note: All Measurements shall be reported to 1/16"



3.1.8 Standard Precast Circular (Drainage Junction Box)

NOT TO SCALE

Inside Diameter

____

Wall Thickness

____

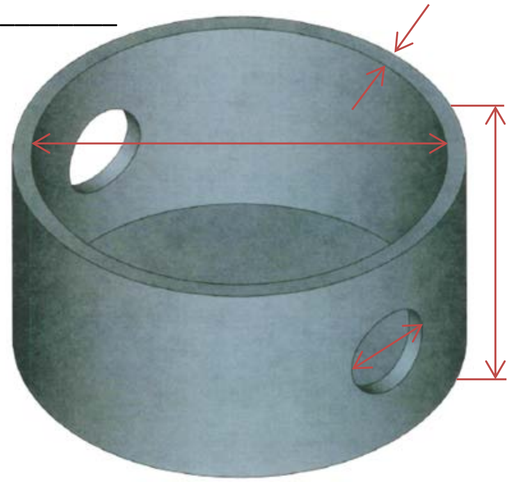
Inlet Diameter
Horizontal/Vertical

1.__________________

2.__________________

Inside Depth

____



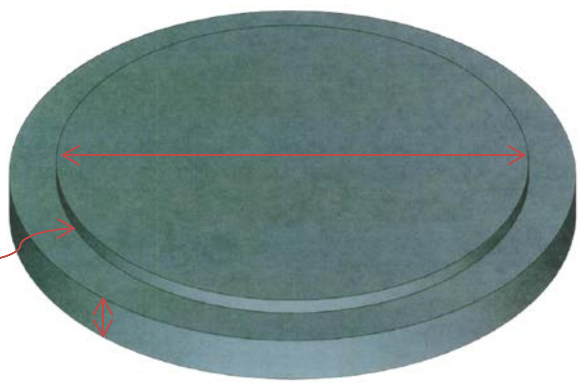
Height

____

Outlet Diameter
Horizontal/Vertical

1.__________________

2.__________________



Height

1.________________

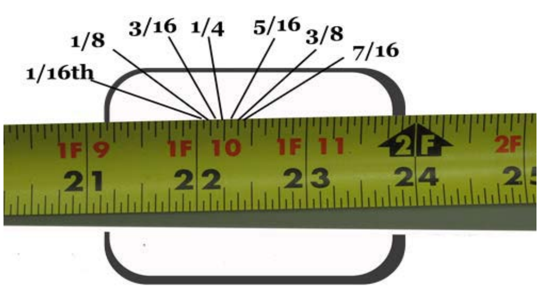
2.________________

Diameter

1.________________

2.________________

Note: All Measurements shall be reported to 1/16”



3.1.9 Standard Precast Circular (Drainage Junction Box)

NOT TO SCALE

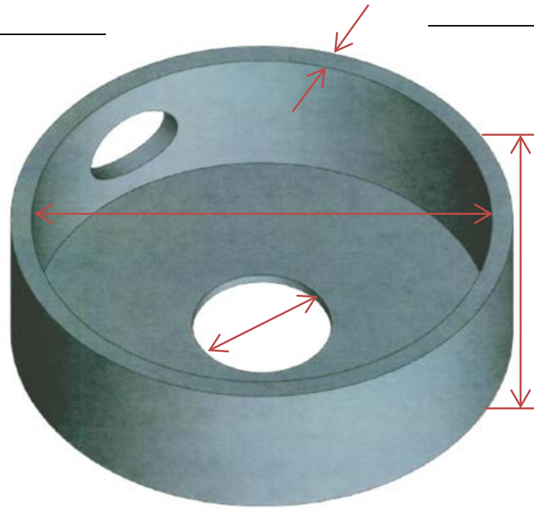
Inside Diameter ________________

Wall Thickness ________________

Inlet Diameter Horizontal/Vertical

1.____________________

2.____________________



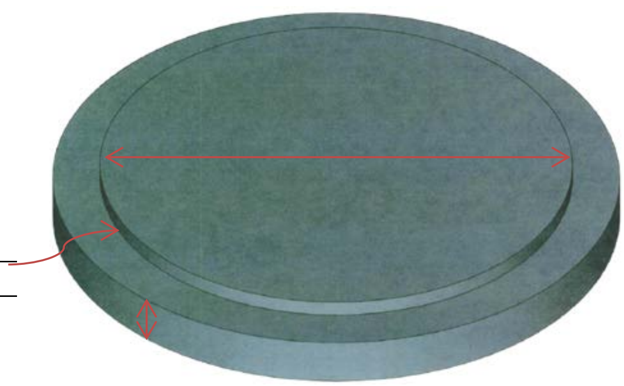
Height ________________

Inside Depth ________________

Outlet Diameter Horizontal/Vertical

1.____________________

2.____________________



Height

1.________________

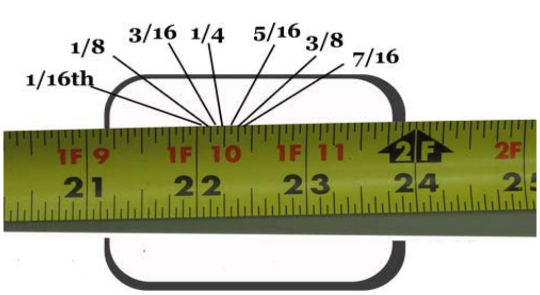
2.________________

Diameter

1.________________

2.________________

Note: All Measurements shall be reported to 1/16”



3.2 Verification of Concrete Strength (SCHMIDT Hammer Method)

The SCHMIDT concrete test hammer (also known as "Swiss Hammer") is designed for the non-destructive testing of the uniformity of concrete and for **estimating the compressive strength**. The test-hammer strikes the concrete with defined force; a body rebounds depending on the hardness of the concrete.

3.2.1 SCHMIDT Hammer Measuring Procedure

- Rub test surface with grinding stone.

-Release the impact bolt by applying pressure to it.

-Place test hammer perpendicular to the test surface.

-Press housing against the test surface at moderate speed until impact is

3.2.2 SCHMIDT Hammer Calculation

Per **ASTM C-805** 9.1 Discard readings differing from the average of 10 readings by **more than 6 units** and determine the average of the remaining readings. If more than 2 readings differ from the average by 6 units, discard the entire set of readings and determine rebound numbers at 10 new locations within the test area as shown in Table 1 below.

Table 1: Verification of Concrete Strength by SCHMIDT Hammer Method

Blow No.	Rebound	Blow No.	Rebound
1	32	6	39
2	35	7	45
3	36	8	32
4	33	9	29
5	31	10	34

REBOUND AVERAGE: 34.6

Blow No.	Rebound	Blow No.	Rebound
1	32	6	39
2	35	7	~~45~~
3	36	8	32
4	33	9	29
5	31	10	34

REBOUND AVERAGE: 33.4

Note: Eliminate values higher or lower than 6 units of first average rebounds.

COMPRESSIVE STRENGTH: 3600 psi

Note: Compressive Strength from Concrete Hammer Graph Position A.

3.3. Verification of Location of Steel (Ground Penetrating Radar (GPR) Method)

1. Verify that there are no metal items on hands, fingers, or in the vicinity of test area
2. Power on: Press the ON/OFF button on the top panel
3. Reset the Instrument
4. Check the operation with the start-up test kit and confirm:
    - -The location and orientation of the rebar
    - -The position between two rebar
    - -Cover depth

4.0 Destructive Verification

4.1 Destructive Testing Equipment – The following saws are recommendations. Any type of sawing equipment is acceptable that will provide the appropriate required cuts.

4.1.1 Gas Powered Concrete Chain Saw

695GC AND 695F4 PRODUCT SPECIFICATIONS			
WEIGHT	21 lbs/9.6 kg (without bar and chain)	BAR LENGTH	Up to 16" (40 cm)
ENGINE SPEED	9300 +/- 150 rpm, 2700 rpm idle	POWERHEAD DIMENSIONS	19"L x 14"H x 12"W (48 cm x 36 cm x 30 cm)
HORSEPOWER	6.4 @ 9000 rpm	WATER SUPPLY	Minimum of 20 psi (1.5 bar)
ENGINE TYPE	2-stroke, single cylinder, air cooled	FUEL MIX RATIO	25:1 fuel to oil (4% oil)
DISPLACEMENT	5.7 cu. inch (94cc)	FUEL CAPACITY	0.26 gal (1.0 liter)

4.1.2 Hydraulic Powered Concrete Chain Saw

880F4 PRODUCT SPECIFICATIONS - 12 GPM	
WEIGHT	27.3 lbs (12.4 kg) with 15-inch (38 cm) bar and chain
BAR LENGTH	Up to 25 in (63 cm)
MOTOR SPEED	6400 rpm
POWERHEAD DIMENSIONS	23 in (58.5 cm) length 10.5 in (26.5 cm) height 9.5 in (24 cm) width
TORQUE	172 in-lbs (19.5 Nm)
HORSEPOWER	17.5 hp (13 kW)
HYDRAULIC SUPPLY	12 gpm (45 lpm), 2500 psi (172.5 bar)
NOISE LEVEL	88 dB @ 3 ft (1 m)
VIBRATION LEVEL	4 meters/second^2 (front handle)
WATER SUPPLY	Minimum 20 psi (1.5 bar)

• *Product data shown is rated based on maximum input conditions and efficiency assumptions and may vary dependent on power supply.*

4.1.3. Location of Steel (Pachometer Method)

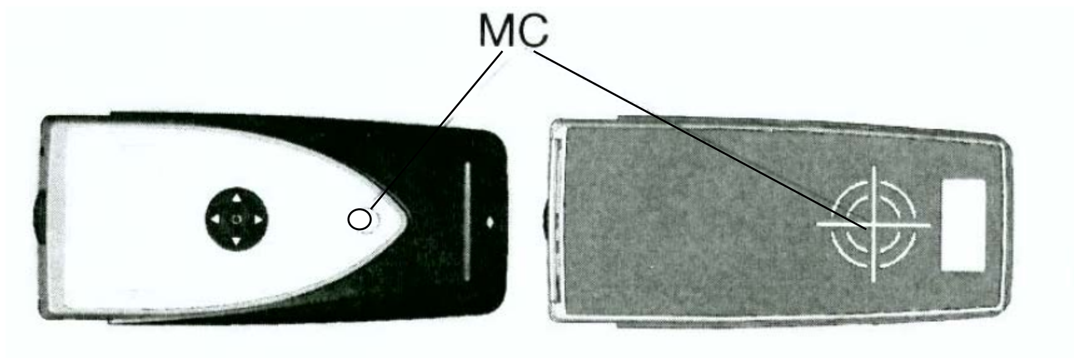
First time user: Complete the tutorial OR see a demo by a qualified representative. Also, please refer to manufacturer user's manual for further instructions.

2. Verify that there are no metal items on hands, fingers, or in the vicinity of test area

2. Power on: Press the ON/OFF button on the top panel

3. Reset the Instrument

4. Check the location of the Measurement Center (MC) which indicates the center of the probe



5. Check the operation with the start-up test kit and confirm:

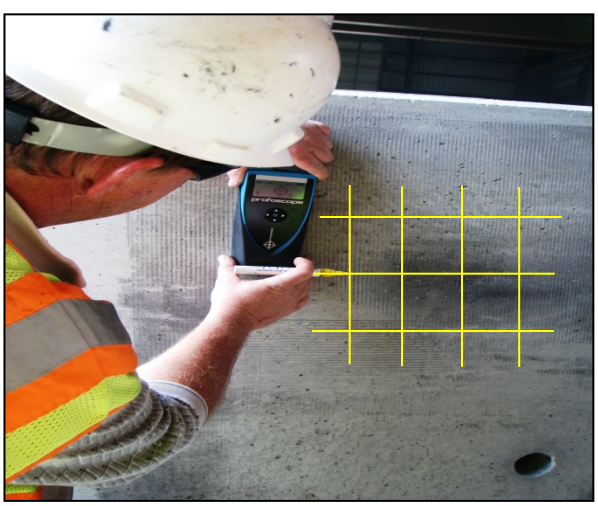
-The location and orientation of the rebar

-The position between two rebar

-Cover depth 15mm/0.59" and 60mm/2.36"

-Diameter 16 mm/ #5

6. Locate and draw horizontal and vertical bars prior to cut as shown in Figures below



5.0 VERIFICATION

Figures 1 through 9 illustrate the different types of structures and possible testing locations. Testing locations and data sheets for each specific structure are detailed on the following pages.

Catch Basin

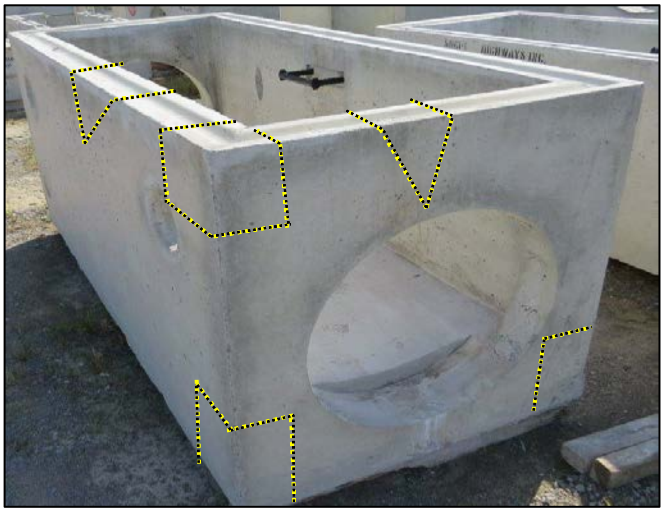


Figure 1

Lid

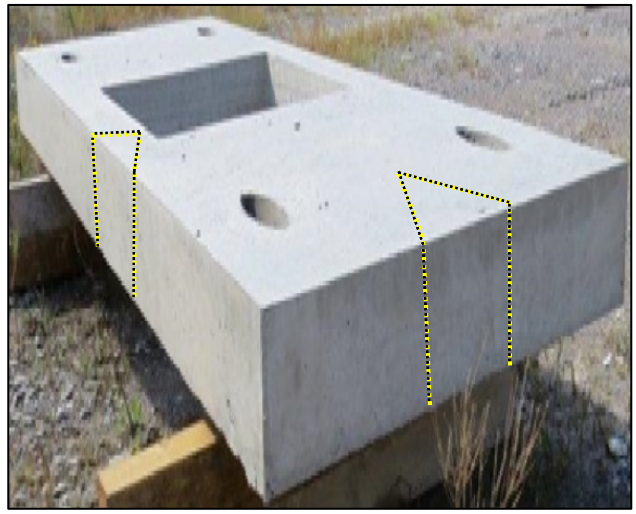


Figure 2

Manhole

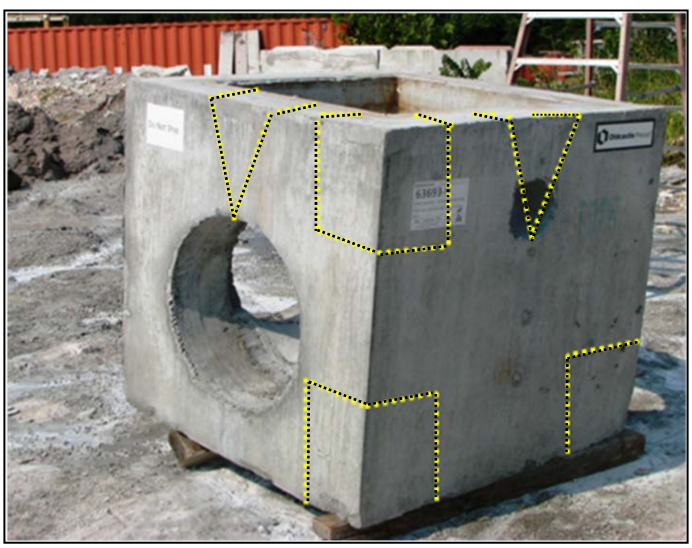


Figure 3

Lid

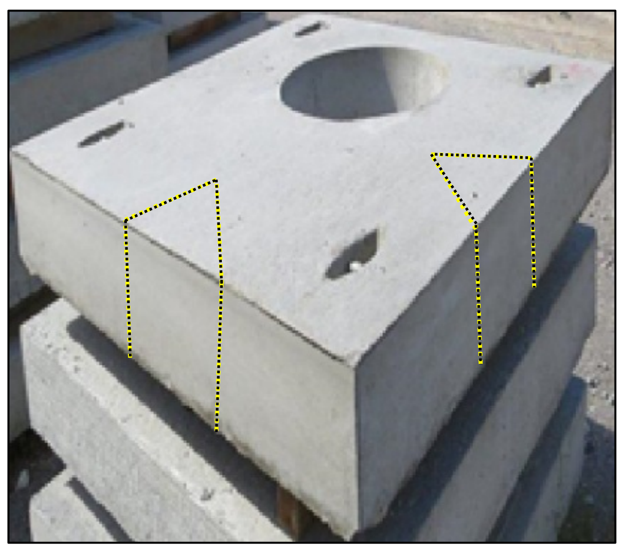


Figure 4

Endwall

Pipe End View

Figure 5

Side View

Figure 6

Toe End View

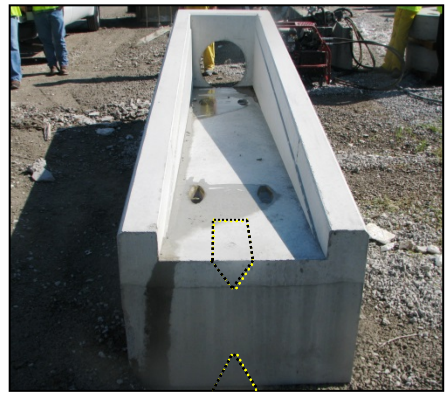
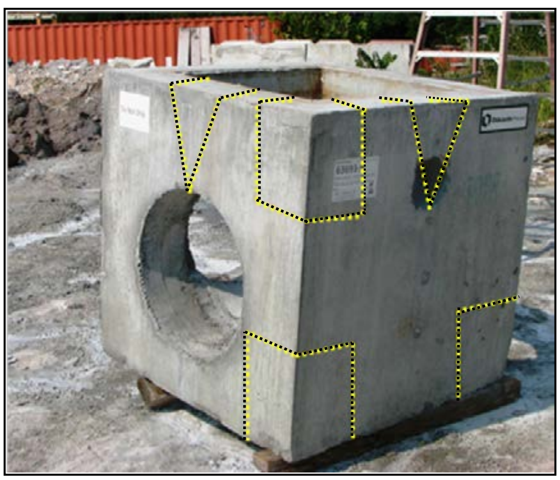


Figure 7

Junction and Spring Box



Fig

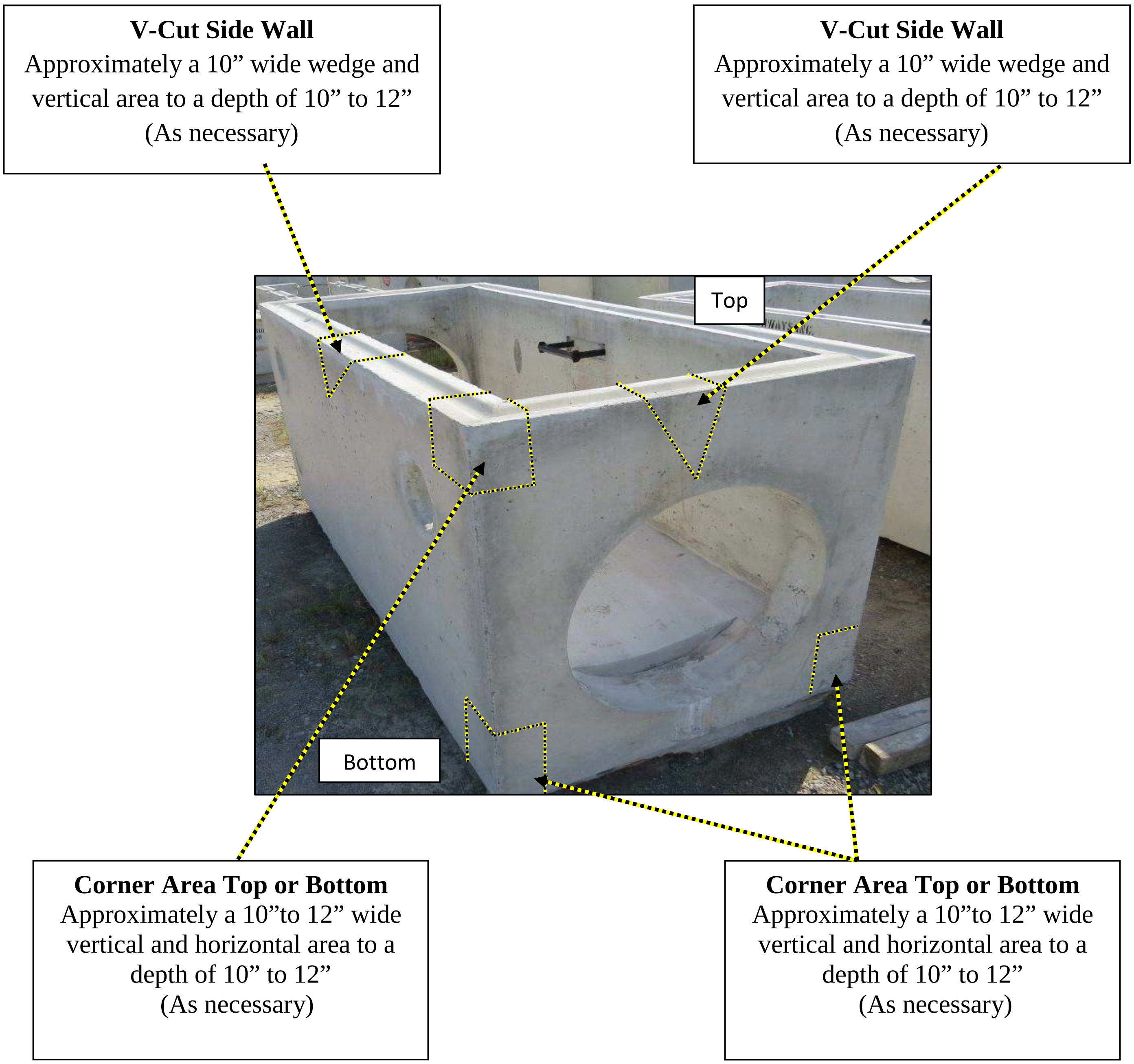
Lid

Figure 9

5.1. Drainage Catch Basins

5.1.1. Square and Rectangular Concrete

It’s recommended that a minimum of **two sides be verified**. These areas should include **one corner** and **one V-cut**. Corner areas can be made on any of the eight corners of the structure. The V-cut can be taken from any side of the structure including directly over an inlet or outlet.



5.1.1.1. Verification of the Steel Placement

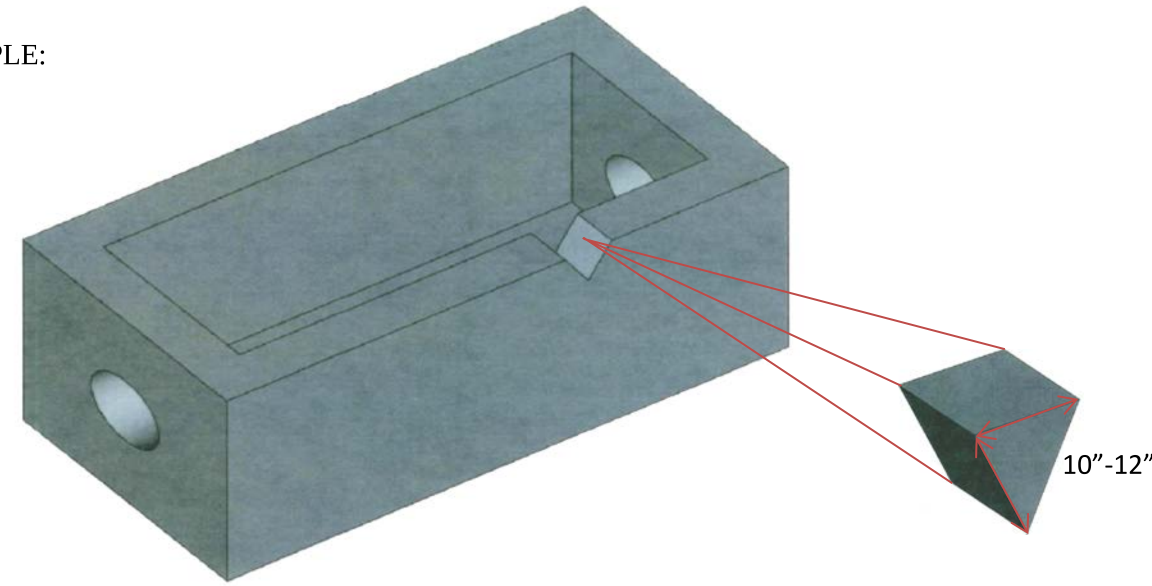
The following shows a recommended procedure for verifying steel placement in a Square and Rectangular Concrete Catch Basin.

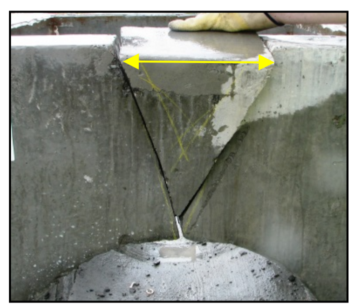
AREA ON SIDE OR OVER OUTLET/INLET

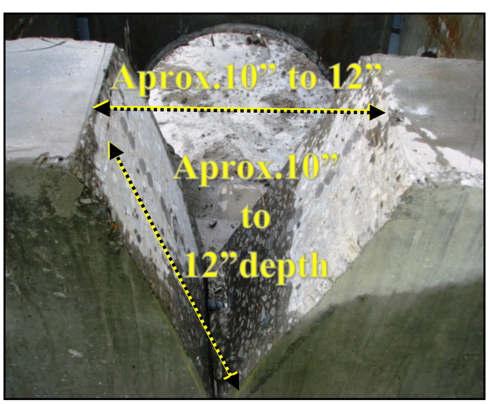
1. Choose the location to verify; the area shall be from the top edge of the structure or over an inlet or outlet.

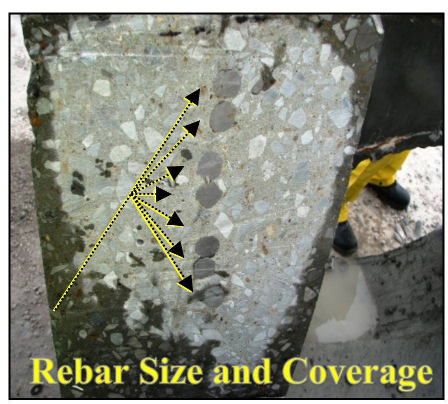
2. Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:







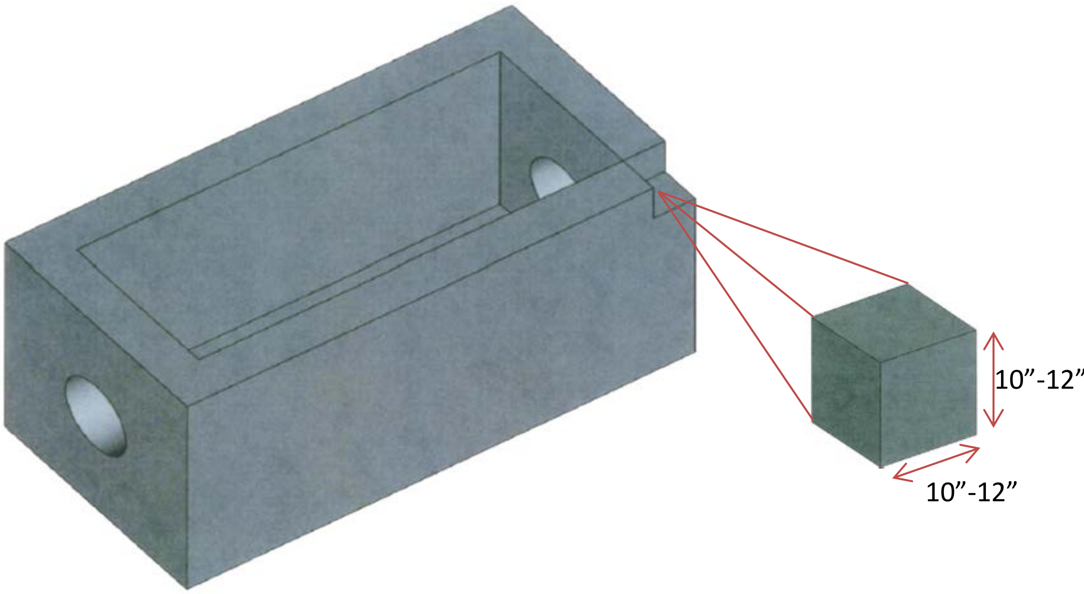


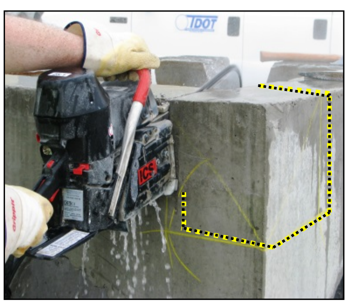
CORNER AREA TOP OR BOTTOM

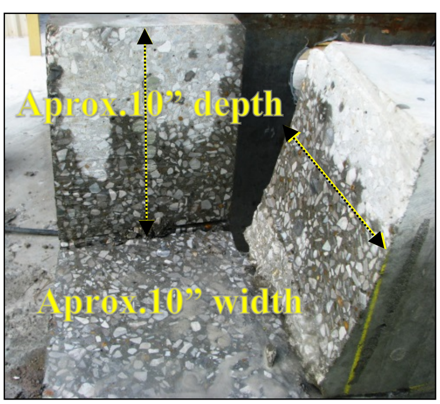
1. Choose the location of the corner area; corner area can be made on any of the eight corners of the structure.

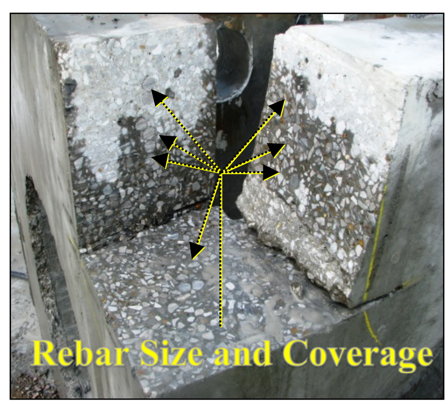
2. Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:





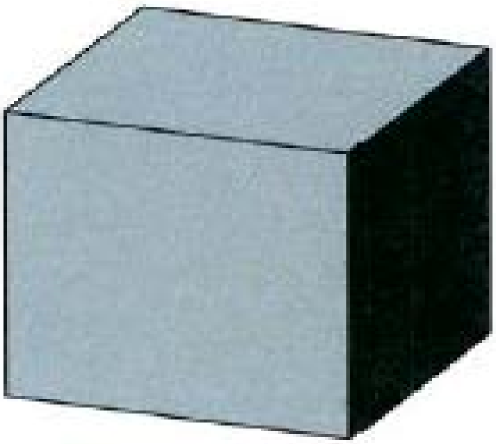




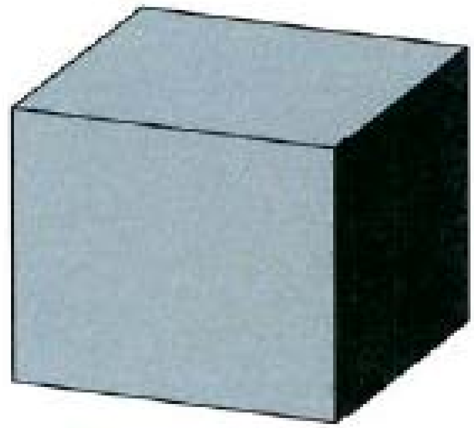
5.1.1.2 Confirm Rebar Size, Spacing, and Coverage

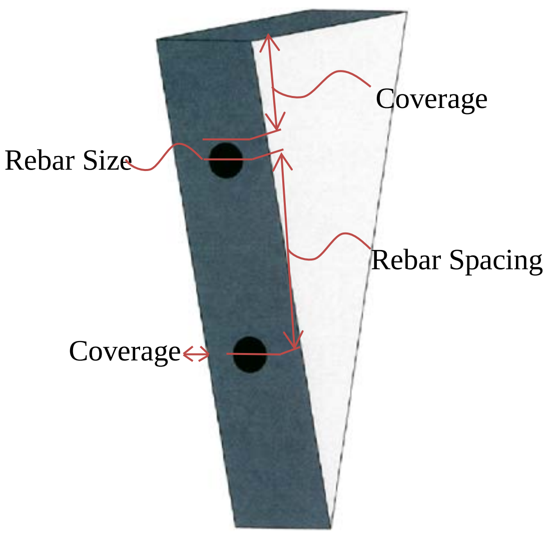
<u>Verify Rebar Size, Spacing, & Coverage</u>

DOCUMENT ALL MEASUREMENTS BELOW

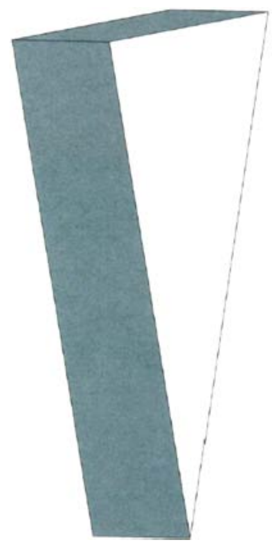


Example





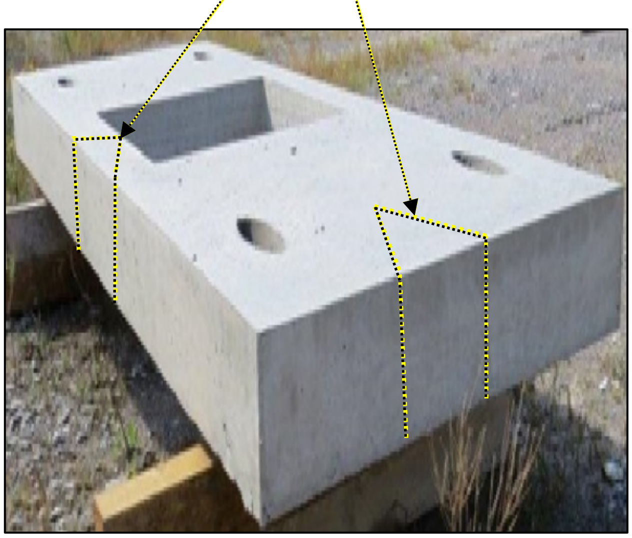
Example



5.1.2. Square/Rectangular Precast Lids

It's recommended that at a minimum of **two areas be verified**. The area can be taken from any side of the structure. The following shows the recommended procedure for making a V-Cut on a square/rectangular lid.

V Cut Side Wall Area
Approximately a 10" wide wedge to
a depth of 10" to 12"
(As necessary)

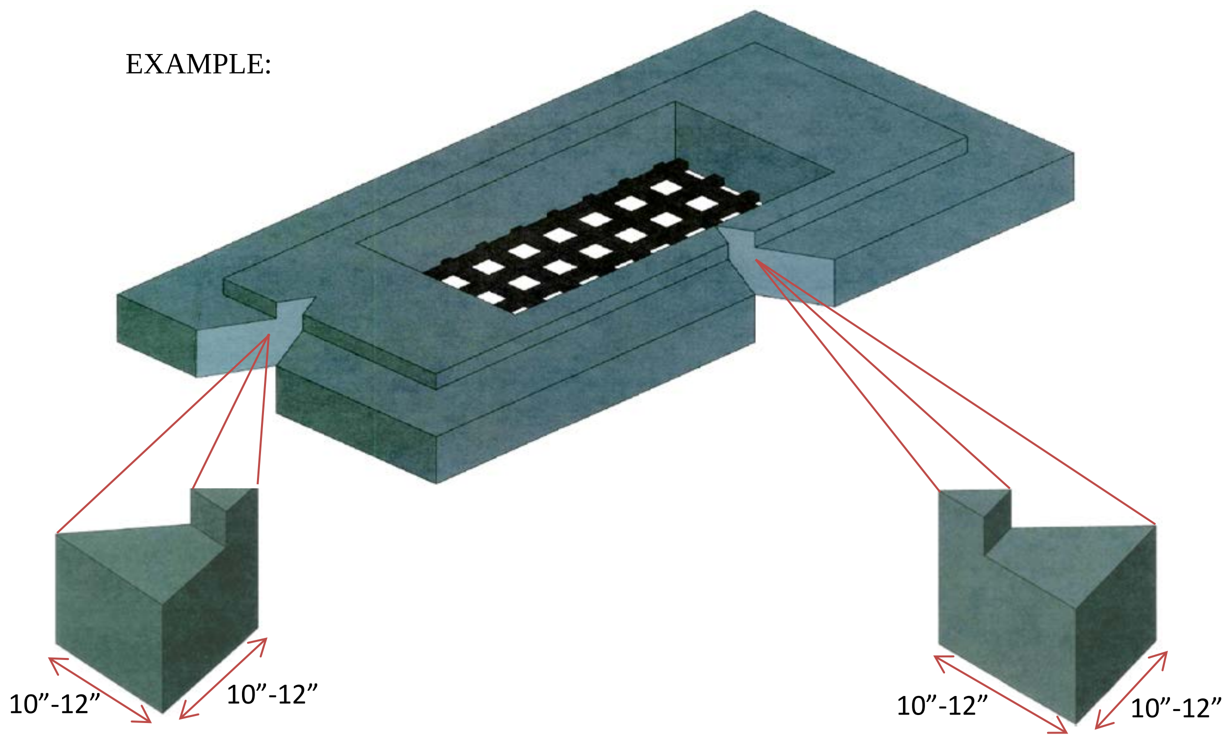


5.1.2.1 Verification of the Steel Placement (Saw Cut Method)

The following shows a recommended procedure for making a V-Cut from a square/rectangular lid.

1. Choose the location of the V-cut; the cut shall be verified from two sides of the lid.
2. Measure and mark a wedge **10 to 12** inches wide and deep.

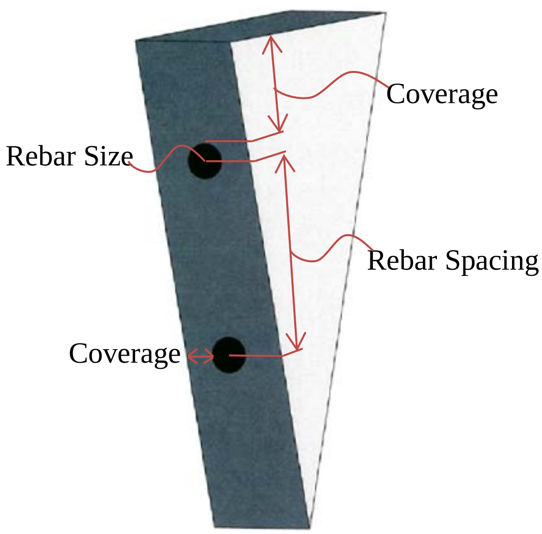
EXAMPLE:



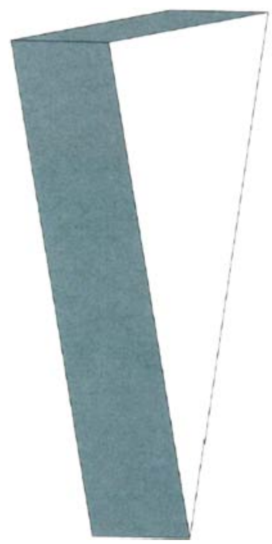
5.1.2.2 Confirm Rebar Size, Spacing, and Coverage

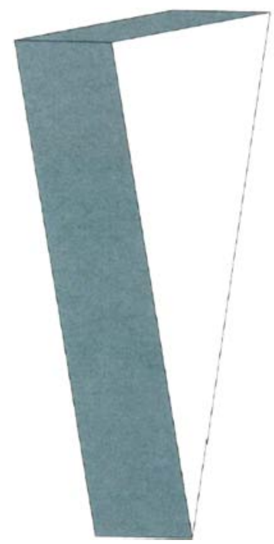
<u>Verify Rebar Size, Spacing, & Coverage</u>

DOCUMENT ALL MEASUREMENTS BELOW



Example





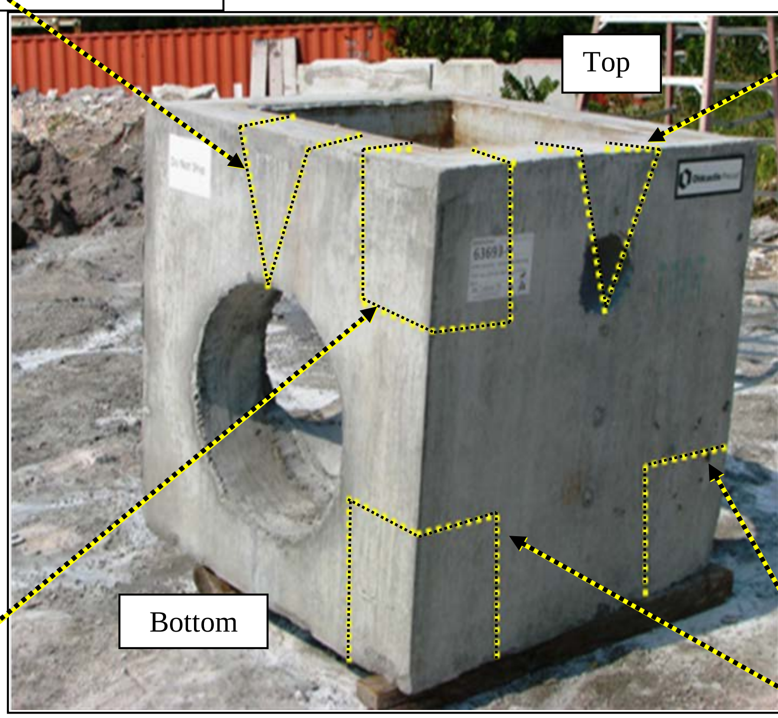
5.2. Drainage Manhole

5.2.1. Square Concrete

It’s recommended that a minimum of **two areas be verified**. The area should include **one corner** cut and **one other area**. Corner areas can be made on any of the eight corners of the structure. The other area can be taken from any side of the structure including directly over an inlet or outlet.

V-Cut Side Wall
Approximately a 10” wide wedge and vertical cut to a depth of 10” to 12”
(As necessary)

V-Cut Side Wall
Approximately a 10” wide wedge and vertical cut to a depth of 10” to 12”
(As necessary)



Corner Cut Top or Bottom
Approximately a 10”to 12” wide vertical cut and a horizontal cut to a depth of 10” to 12”
(As necessary)

Corner Cut Top or Bottom
Approximately a 10”to 12” wide vertical cut and a horizontal area to a depth of 10” to 12”
(As necessary)

5.2.1.1. Verification of the Steel Placement (Saw Cut Method)

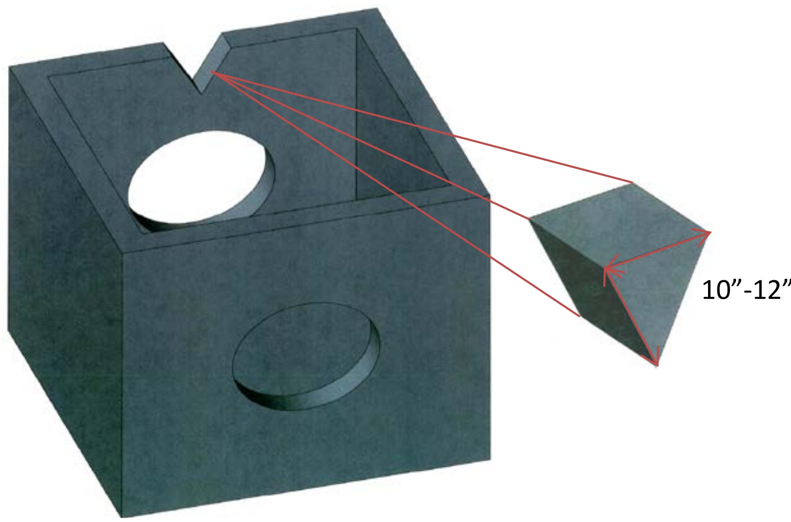
The following shows a recommended procedure for making a V-Cut and a Corner Cut for a Square Concrete Manhole.

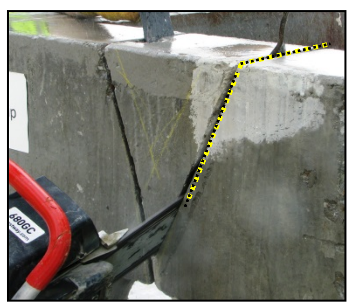
V-CUT ON SIDE OR OVER OUTLET/INLET

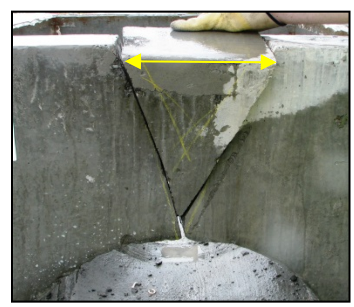
1. Choose the location **areas be verified**. The area shall be from the top edge of the structure or over an inlet or outlet.

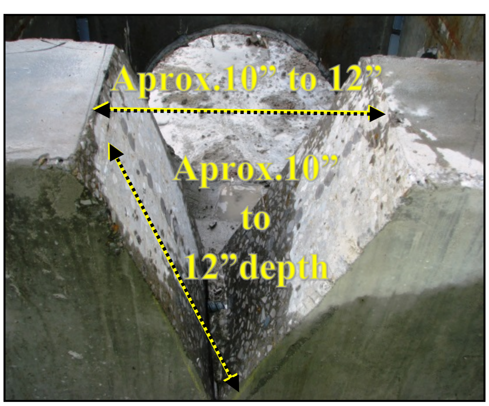
2. Measure and mark an area approximately **10 to 12** inches wide.

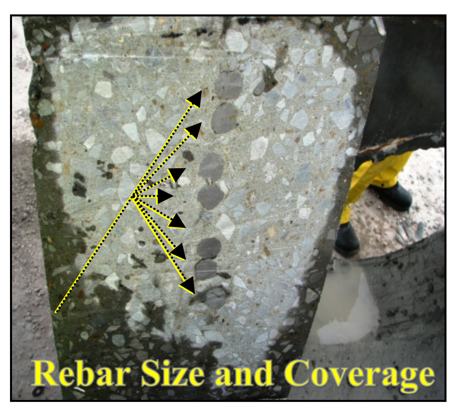
EXAMPLE:









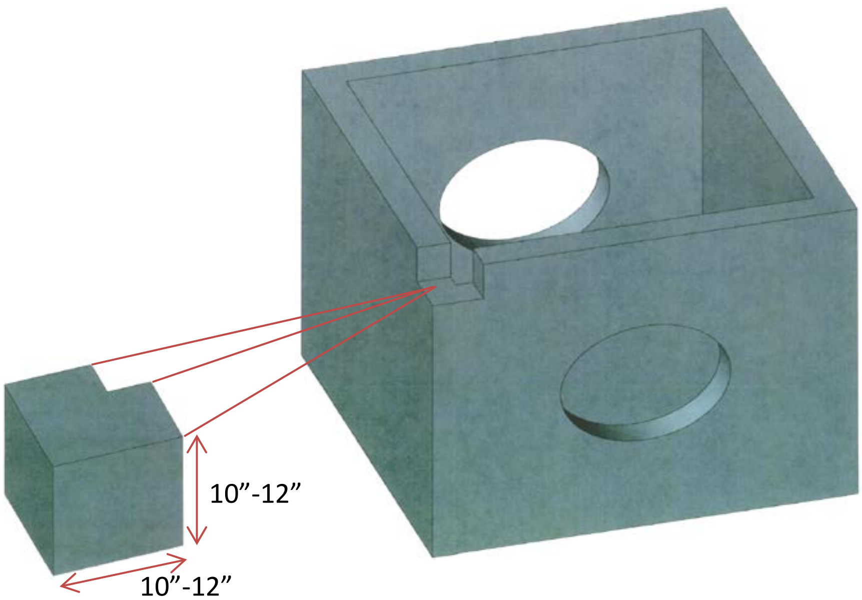


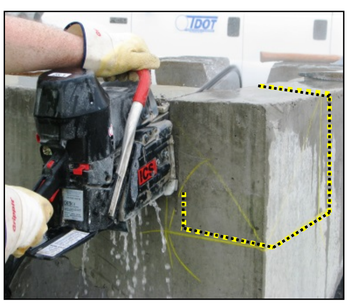
CORNER AREA TOP OR BOTTOM

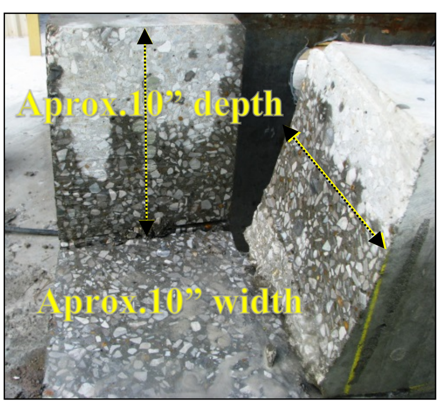
3. Choose the location of the corner area; corner area can be made on any of the eight corners of the structure.

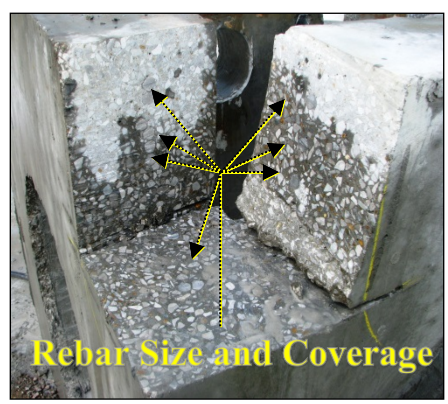
4. Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:





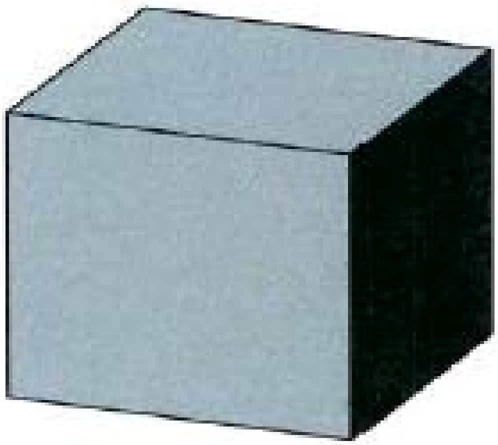





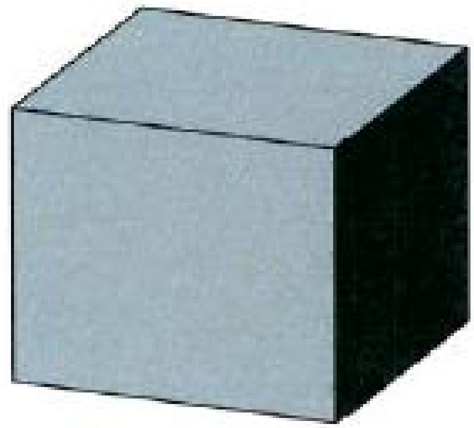
5.2.1.2 Confirm Rebar Size, Spacing, and Coverage

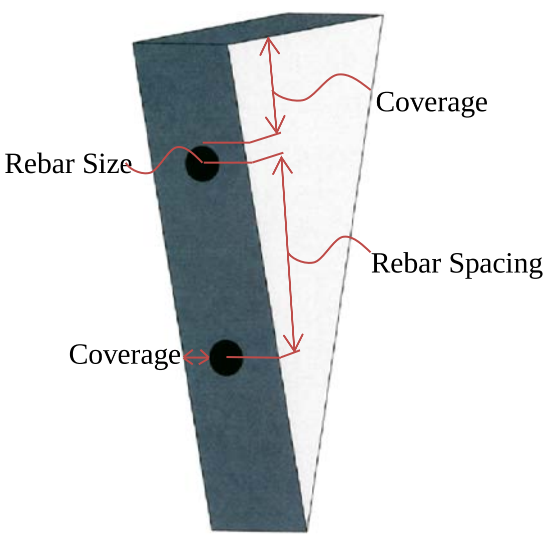
Verify Rebar Size, Spacing, & Coverage

DOCUMENT ALL MEASUREMENTS BELOW

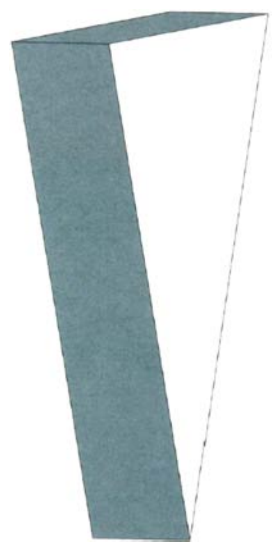


Example



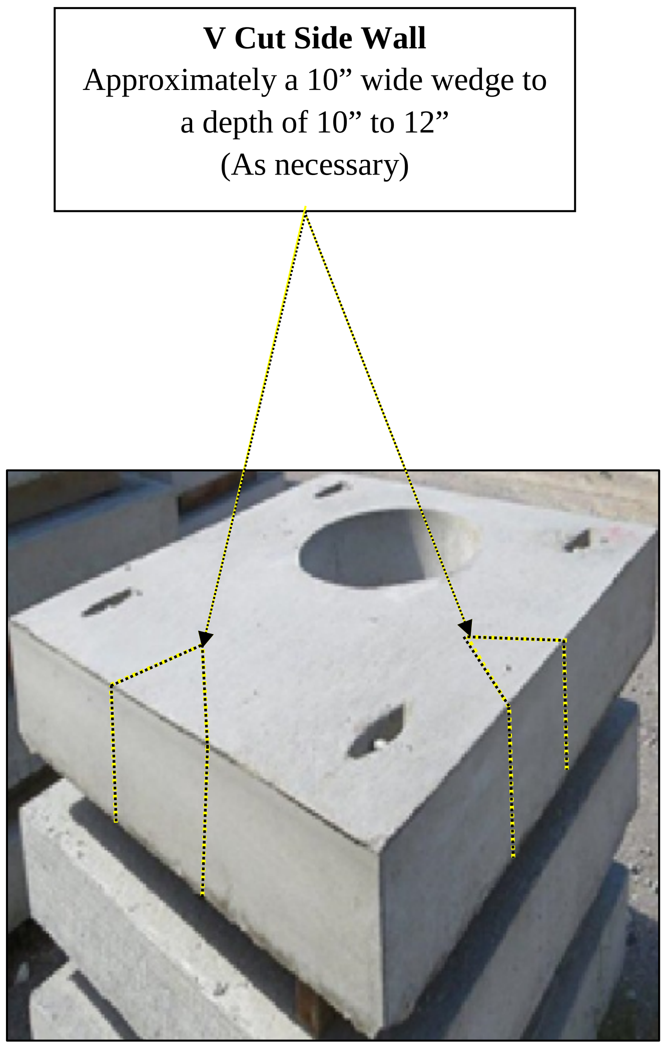


Example



5.2.2. Square Precast Lids

It’s recommended that at a minimum of **two areas be verified**. The area can be taken from any side of the structure. The following shows the recommended procedure for making a V-Cut on a square lid.



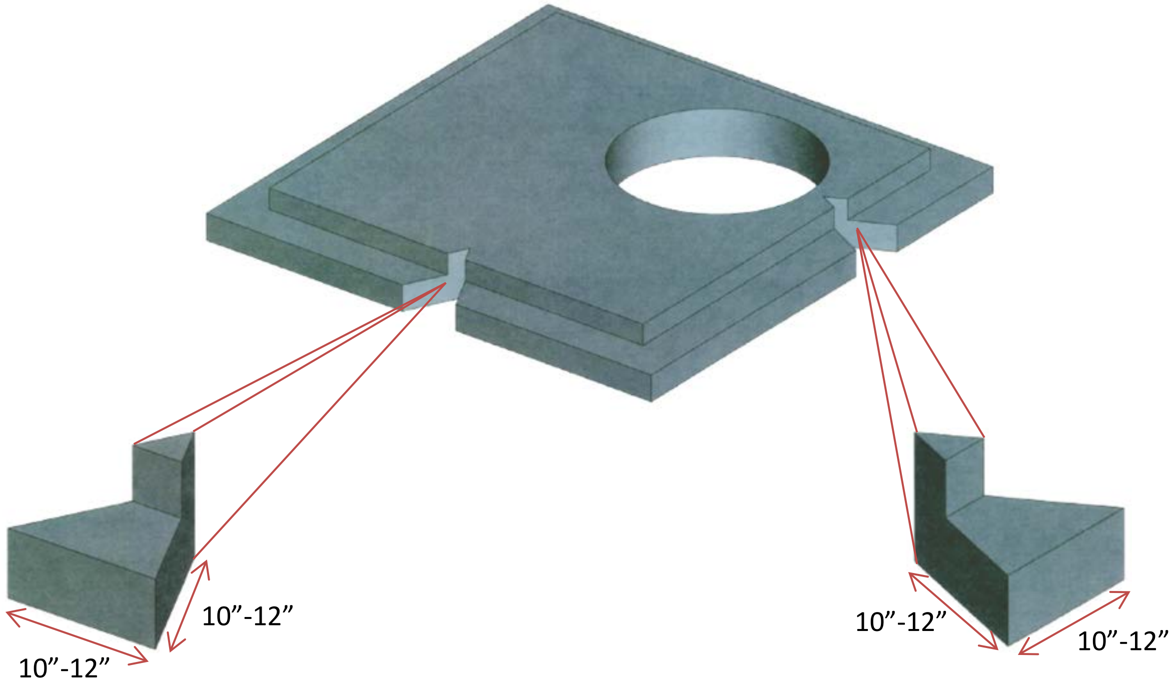
5.2.2.1 Verification of the Steel Placement (Saw Cut Method)

The following shows a recommended procedure for making a V-Cut from a square lid.

3. Choose the location of **two areas be verified**. The area shall be from two sides of the lid.

4. Measure and mark a wedge **10 to 12** inches wide and deep.

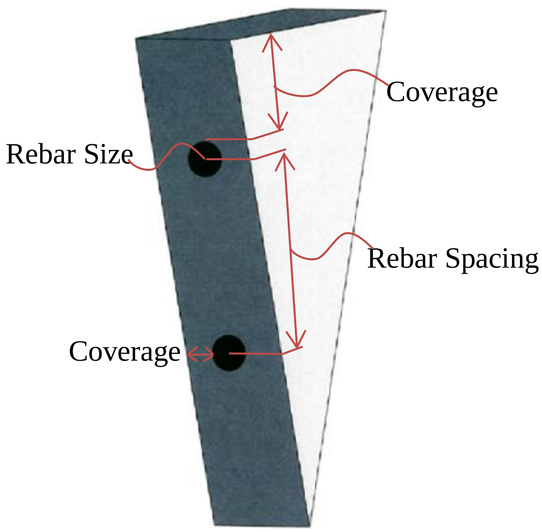
EXAMPLE:



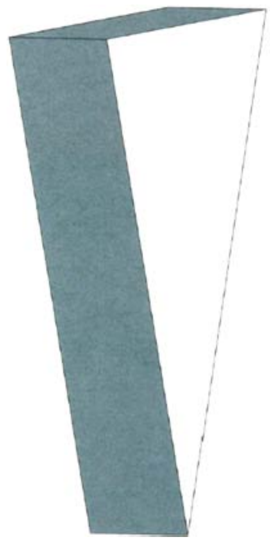
5.2.2.2 Confirm Rebar Size, Spacing, and Coverage

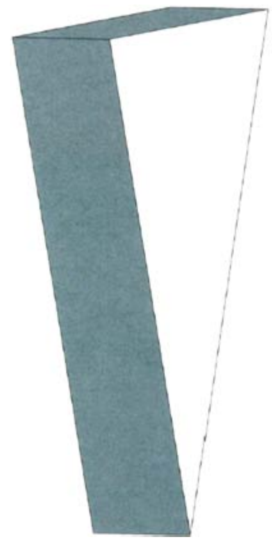
Verify Rebar Size, Spacing, & Coverage

DOCUMENT ALL MEASUREMENTS BELOW



Example

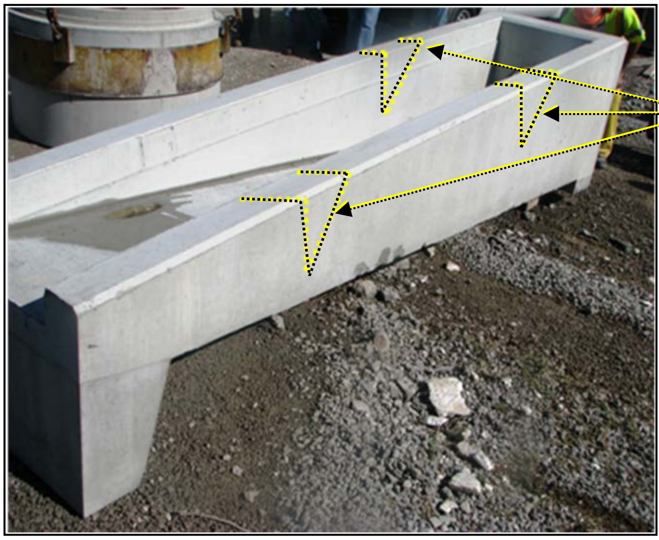




5.3. Endwall

It’s recommended that at a minimum of **three areas be verified**. One area shall be taken from any side of the structure, one shall be directly over pipe inlet, and one shall be taken from the toe. The following shows a recommended procedure for multiple V-Cuts for an End Wall

V Cut Over Inlet
Approximately a 10”to 12” wide wedge to a depth of 10” to 12”
(As necessary)



V Cut Over Inlet
Approximately a 10”to 12” wide wedge to a depth of 10” to 12”
(As necessary)

Top or Bottom V Cut over Toe
A wedge cut approximately 10” to 12” wide

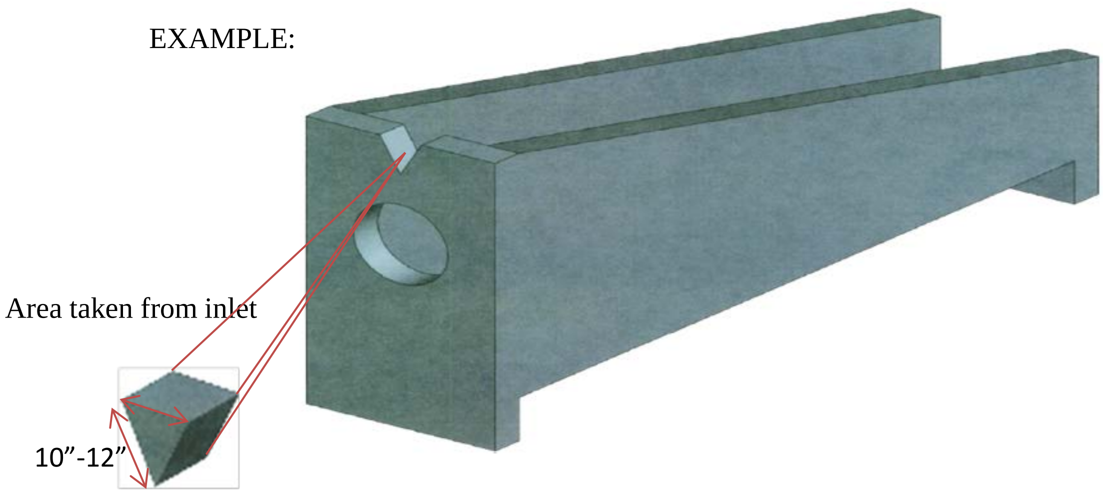
5.3.1. Verification of the Steel Placement (Saw Cut Method)

V-CUT OVER INLET

1. Choose the location of the **area be verified**. The area shall be from the top edge of the structure and should be over inlet.

2. Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:

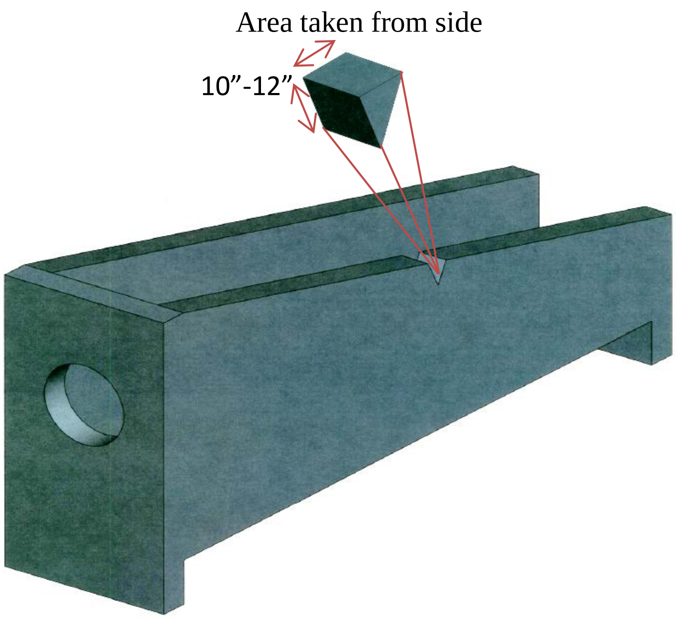


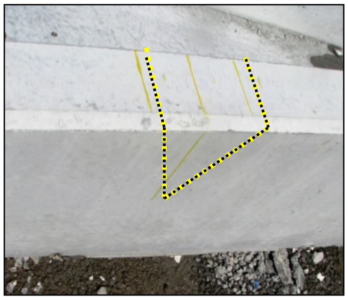
AREA ON SIDE

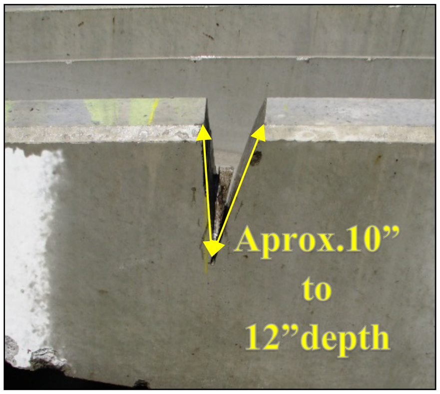
1. Choose the location of the **area to be verified**. The area shall be from the top edge of the structure and should be on one of the sides.

2. Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:





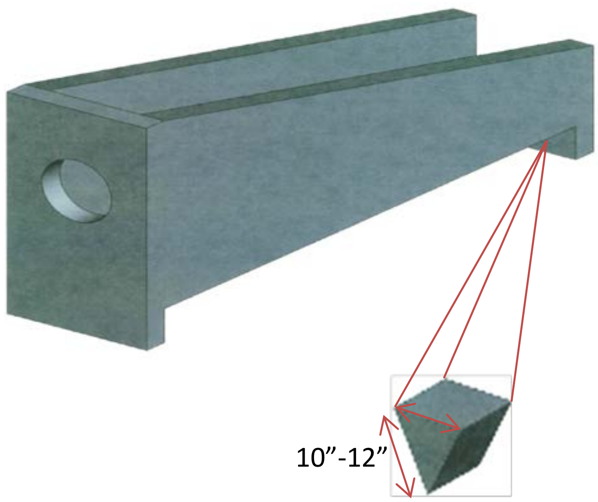


AREA ON TOE

1. Choose the location **area to be verified**. The area shall be from the top edge of the structure and should be on top or bottom of Endwall toe.

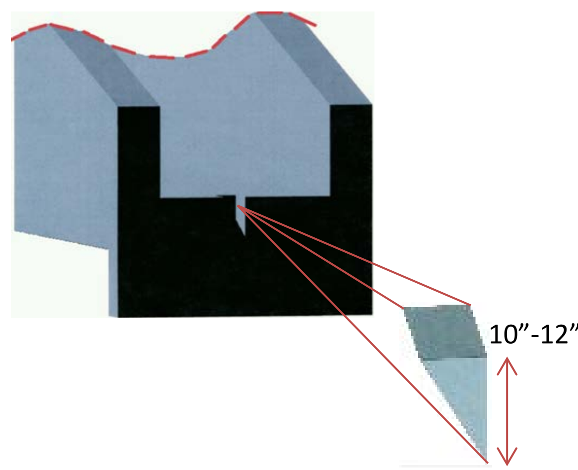
2. Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:

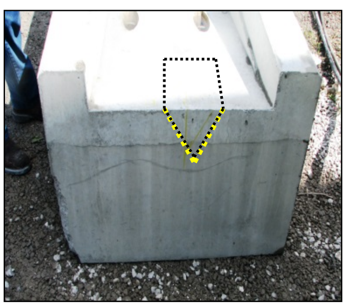


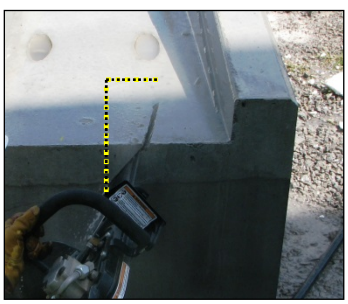
Area taken from bottom of toe

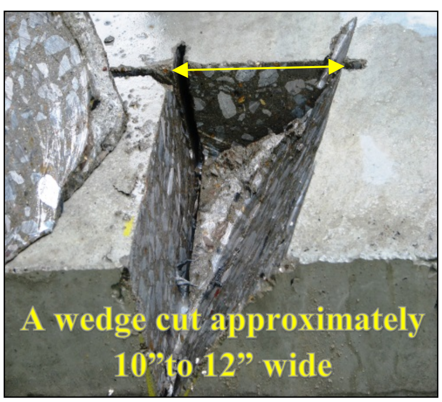
Back View of Endwall

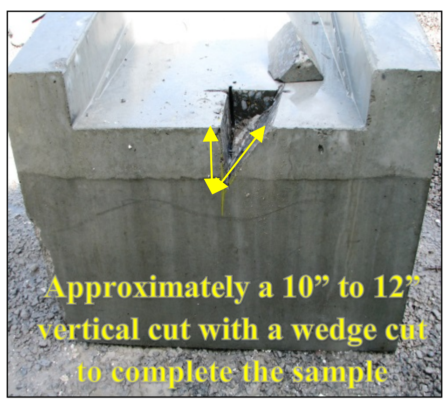


Area taken from top of toe





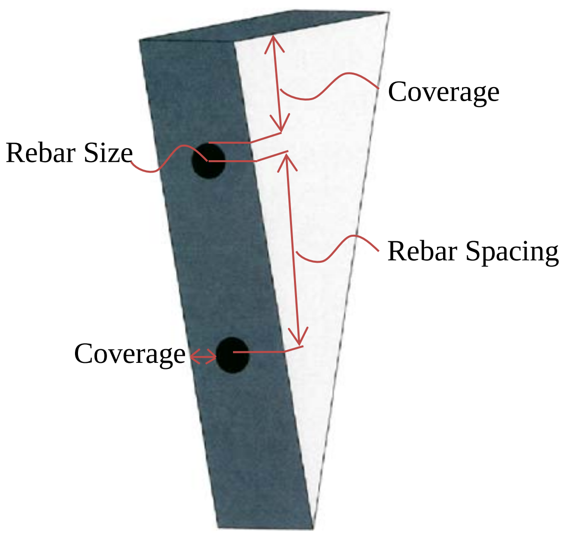




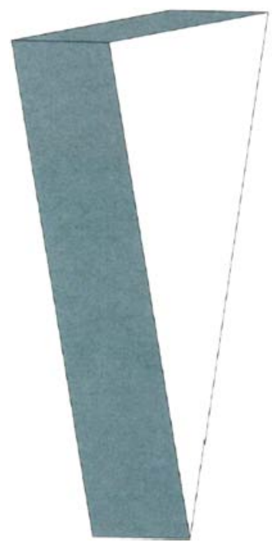
5.3.2 Confirm Rebar Size, Spacing, and Coverage

Verify Rebar Size, Spacing & Coverage

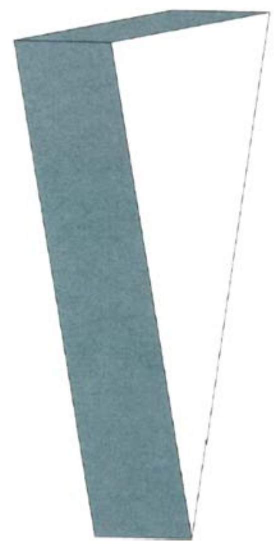
DOCUMENT ALL MEASUREMENTS BELOW



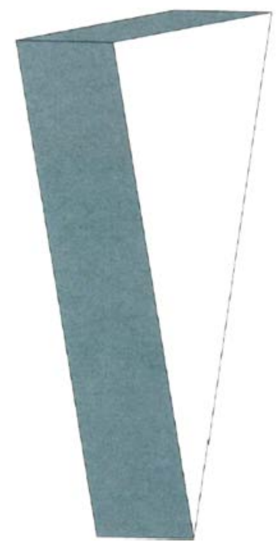
Example



Cut No.1



Cut No.2



Cut No.3

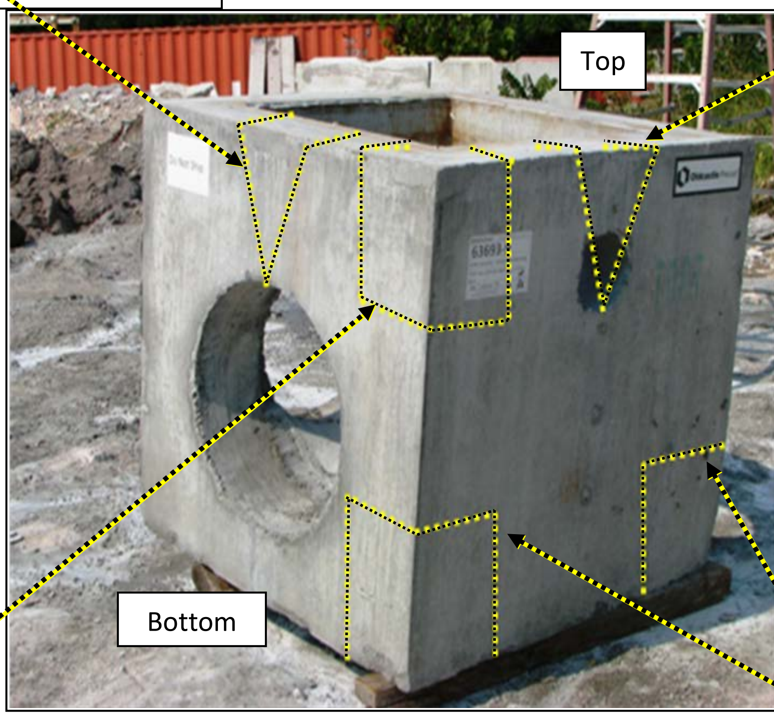
5.4. Drainage Junction Box

5.4.1. Square Concrete

It's recommended that a minimum of **two areas be verified**. The area should include **one corner** cut and **one other area**. Corner area can be made on any of the eight corners of the structure. The other area can be taken from any side of the structure including directly over an inlet or outlet.

V-Cut Side Wall
Approximately a 10" wide wedge and vertical area to a depth of 10" to 12"
(As necessary)

V-Cut Side Wall
Approximately a 10" wide wedge and vertical area to a depth of 10" to 12"
(As necessary)



Corner Area Top or Bottom
Approximately a 10"to 12" wide vertical cut and a horizontal area to a depth of 10" to 12"
(As necessary)

Corner Area Top or Bottom
Approximately a 10"to 12" wide vertical cut and a horizontal area to a depth of 10" to 12"
(As necessary)

5.4.1.1. Verification of the Steel Placement (Saw Cut Method)

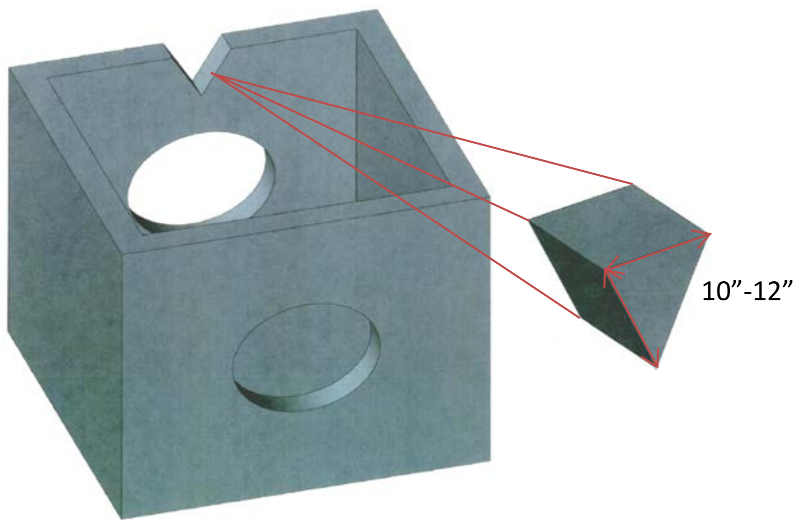
The following shows a recommended procedure for making a V-Cut and a Corner Cut for a Square Concrete Junction Box.

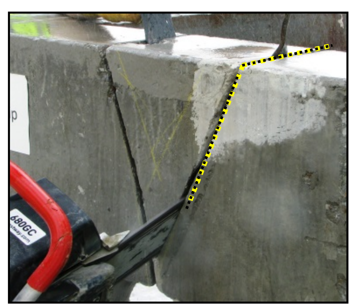
AREA ON SIDE OR OVER OUTLET/INLET

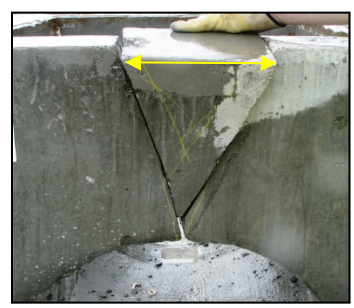
1. Choose the location of the **area to be verified**. The area shall be from the top edge of the structure or over an inlet or outlet.

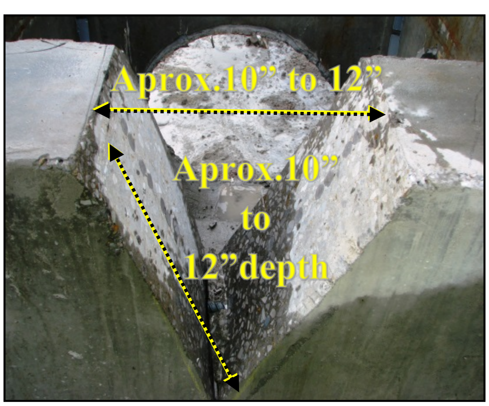
2. Measure and mark an area approximately **10 to 12** inches wide.

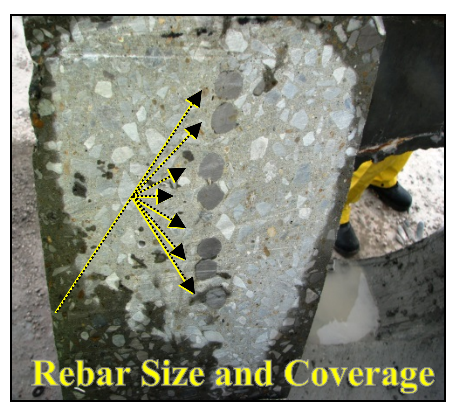
EXAMPLE:









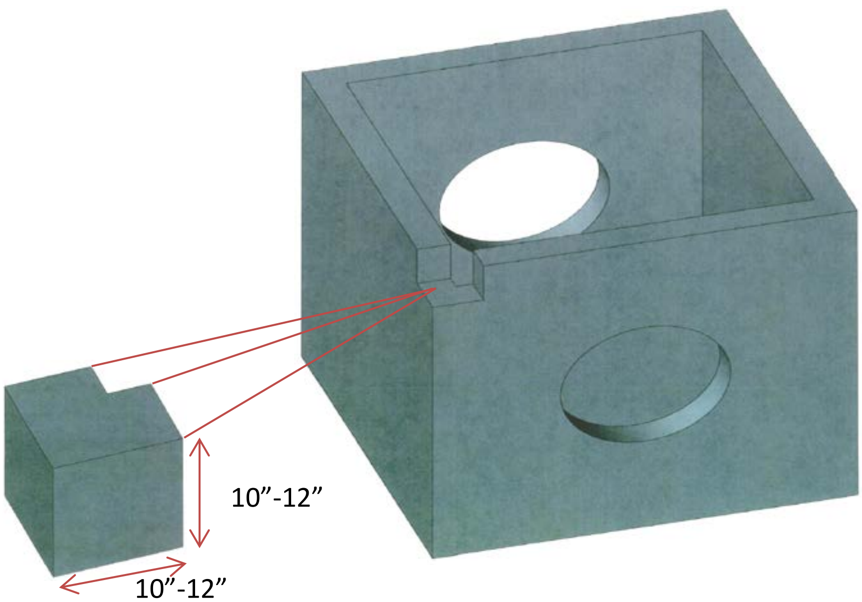


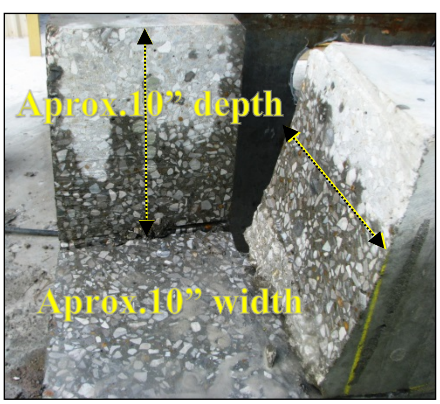
CORNER AREA TOP OR BOTTOM

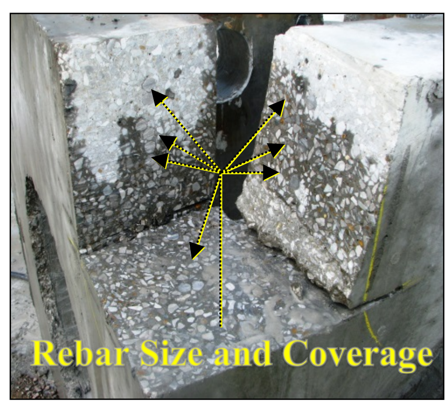
1. Choose the location of the **area to be verified**. The area can be made on any of the eight corners of the structure.

2. Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:



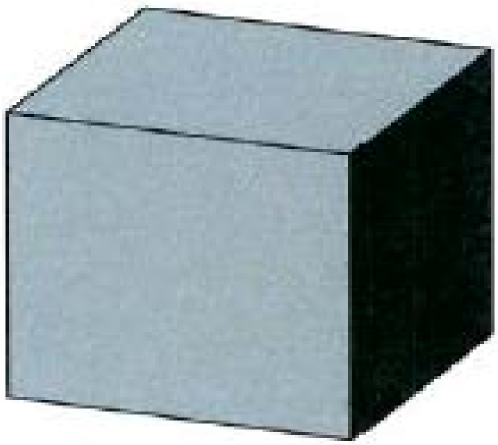


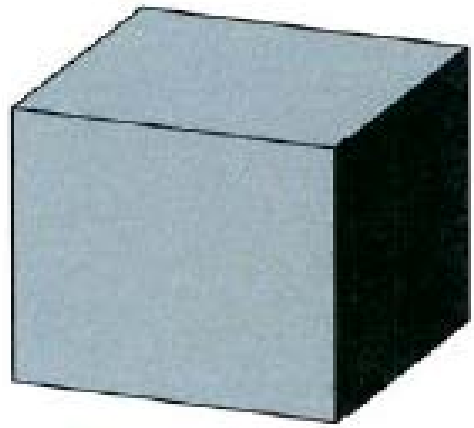


5.4.1.2 Confirm Rebar Size, Spacing, and Coverage

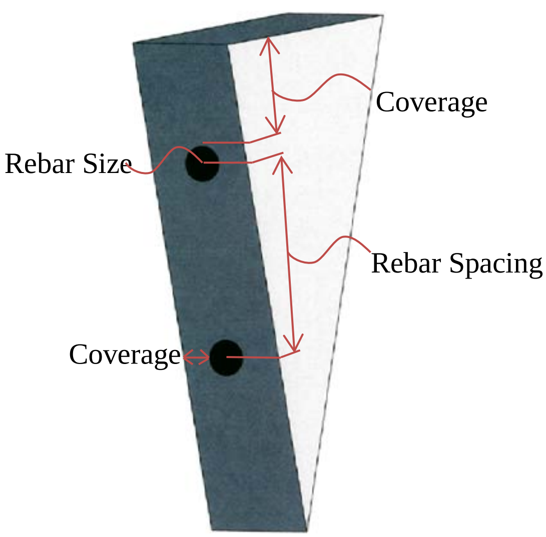
Verify Rebar Size, Spacing, & Coverage

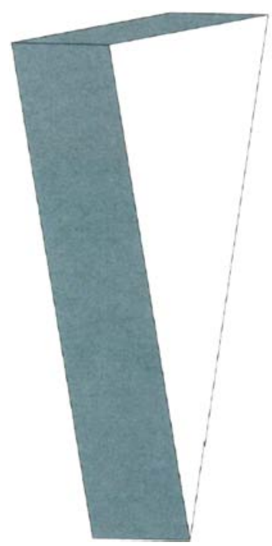
DOCUMENT ALL MEASUREMENTS BELOW





Example



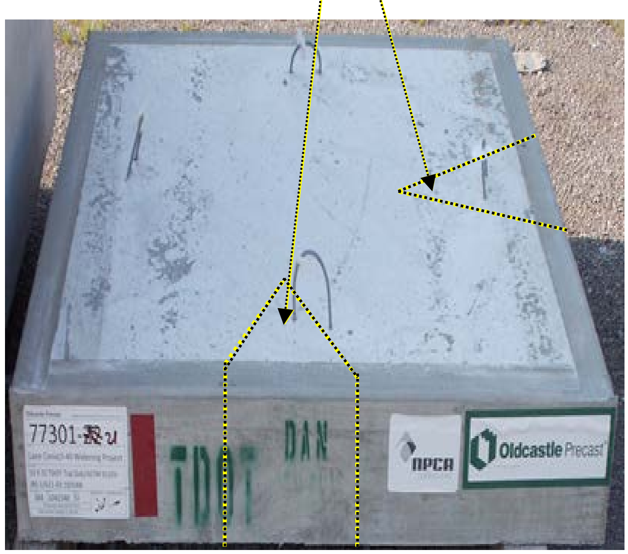


Example

5.4.2. Square Precast Lids

It’s recommended that at a minimum of **two areas be verified**. The area can be taken from any side of the structure. The following shows the recommended procedure for making a V-Cut on a square lid.

V Cut Side Wall
Approximately a 10” wide wedge to
a depth of 10” to 12”
(As necessary)



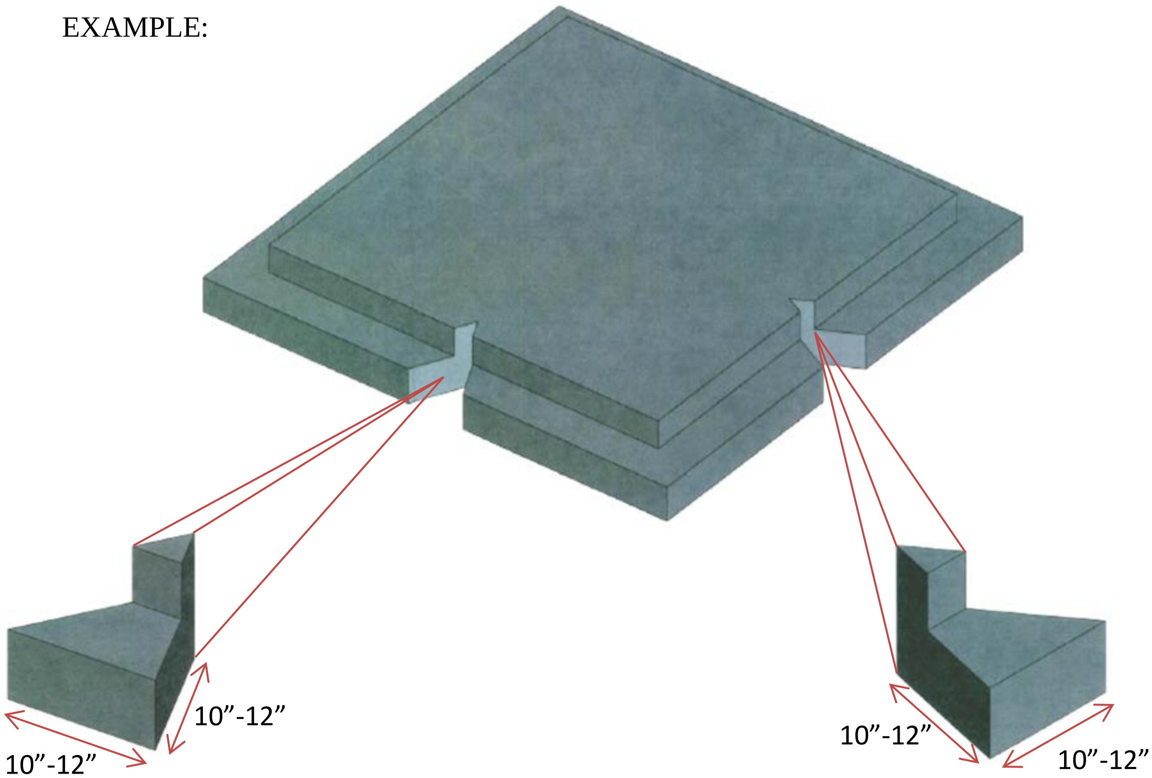
5.4.2.1 Verification of the Steel Placement (Saw Cut Method)

The following shows a recommended procedure for making a V-Cut from a square lid.

- Choose the location of the **area to be verified**. The area shall be from two sides of the lid.

- Measure and mark a wedge **10 to 12** inches wide and deep.

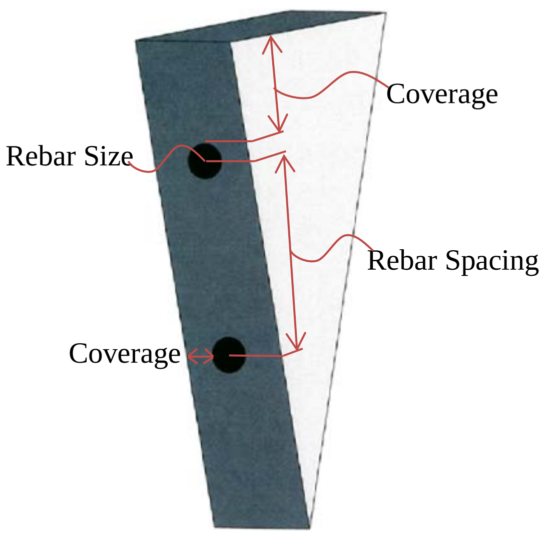
EXAMPLE:



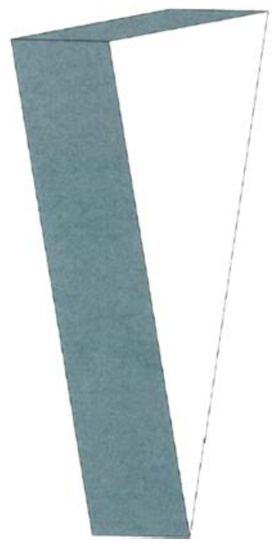
5.4.2.2 Confirm Rebar Size, Spacing, and Coverage

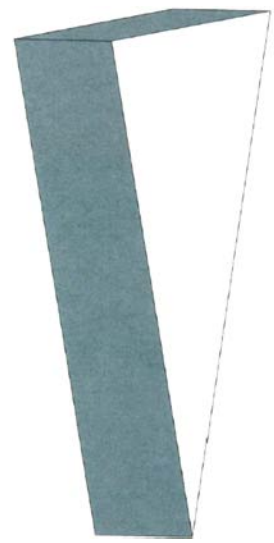
Verify Rebar Size, Spacing, & Coverage

DOCUMENT ALL MEASUREMENTS BELOW



Example





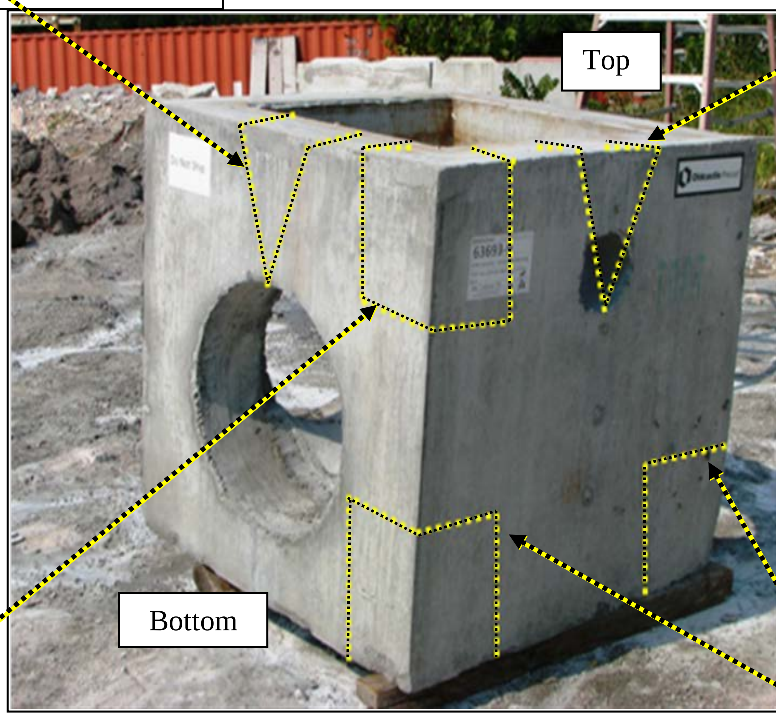
5.5. Drainage Spring Box

5.5.1. Square Concrete

It’s recommended that a minimum of **two areas be verified**. The area should include **one corner** cut and **one other area**. Corner area can be made on any of the eight corners of the structure. The other area can be taken from any side of the structure including directly over an inlet or outlet.

V-Cut Side Wall
Approximately a 10” wide wedge and vertical area to a depth of 10” to 12”
(As necessary)

V-Cut Side Wall
Approximately a 10” wide wedge and vertical area to a depth of 10” to 12”
(As necessary)



Corner Area Top or Bottom
Approximately a 10”to 12” wide vertical cut and a horizontal area to a depth of 10” to 12”
(As necessary)

Corner Area Top or Bottom
Approximately a 10”to 12” wide vertical cut and a horizontal area to a depth of 10” to 12”
(As necessary)

5.5.1.1. Verification of the Steel Placement (Saw Cut Method)

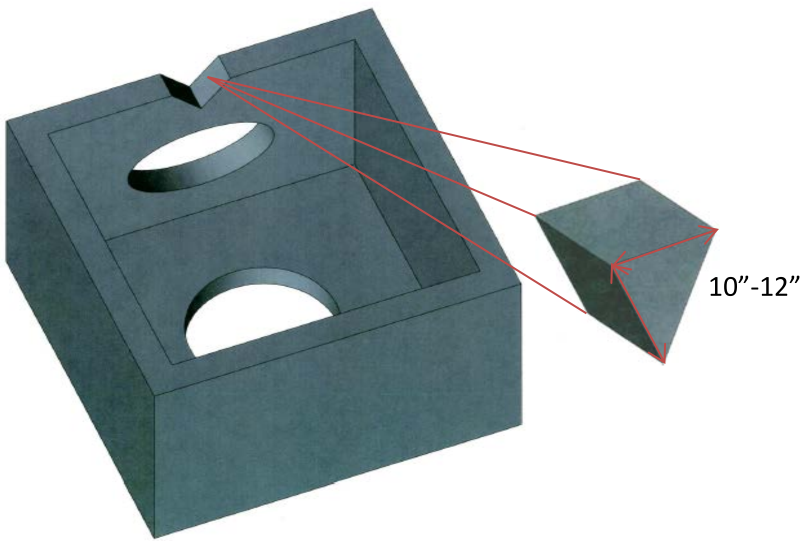
The following shows a recommended procedure for making a V-Cut and a Corner Cut for a Square Concrete Spring Box.

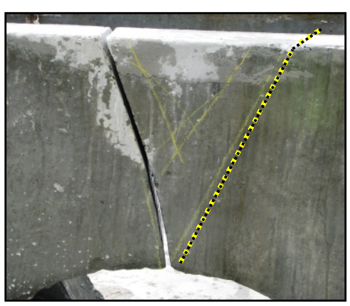
AREA ON SIDE OR OVER OUTLET/INLET

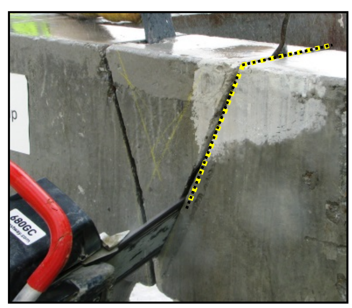
- Choose the location of the **area to be verified**. The area shall be from the top edge of the structure or over an inlet or outlet.

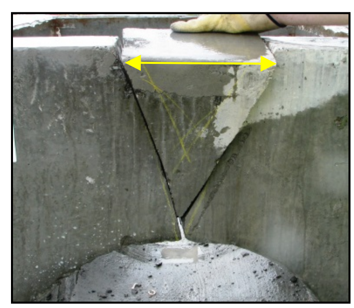
- Measure and mark an area approximately **10 to 12** inches wide.

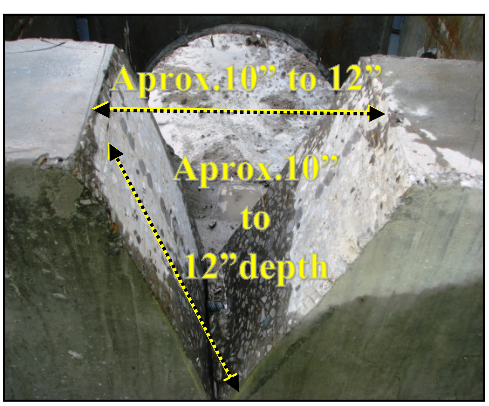
EXAMPLE:

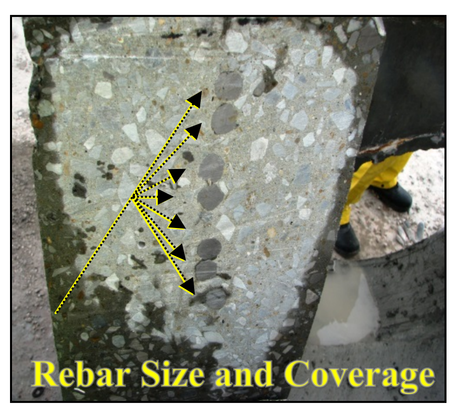










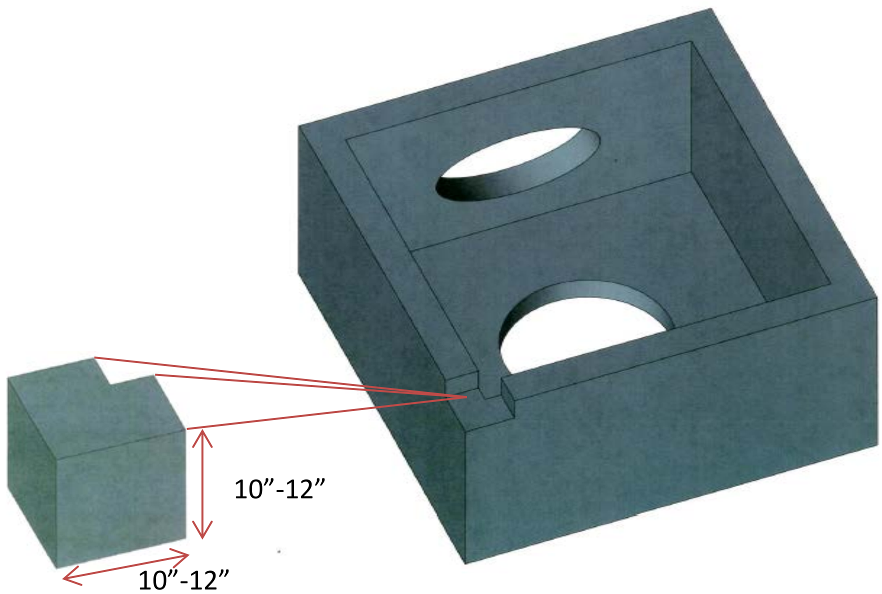


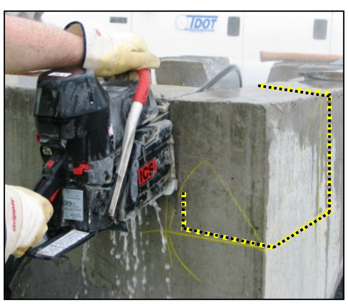
CORNER AREA TOP OR BOTTOM

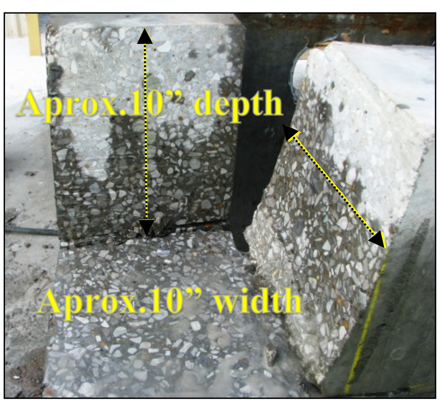
- Choose the location of the corner **area to be verified**. The area can be made on any of the eight corners of the structure.

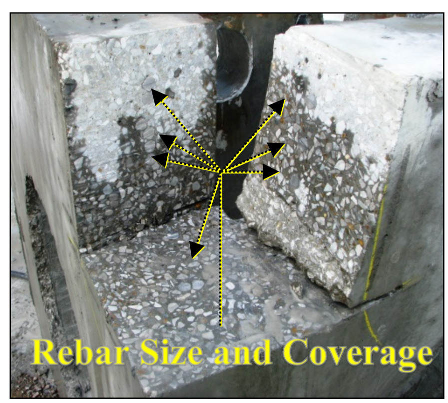
- Measure and mark an area approximately **10 to 12** inches wide.

EXAMPLE:





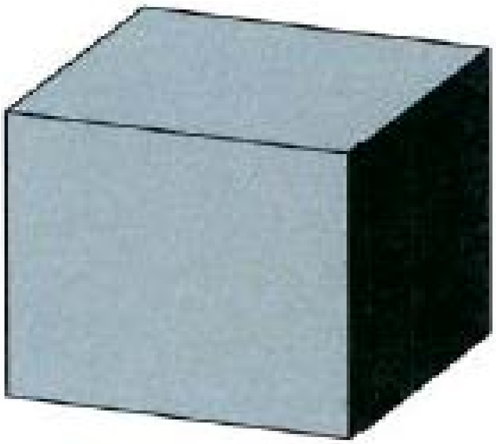




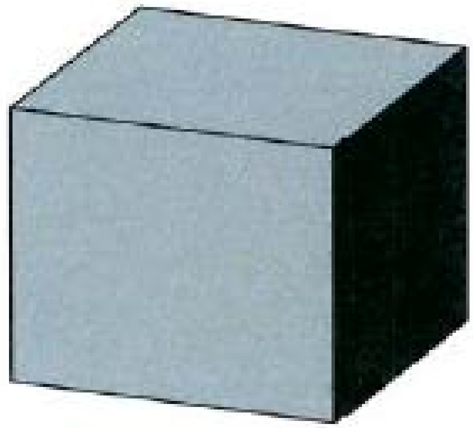
5.5.1.2 Confirm Rebar Size, Spacing, and Coverage

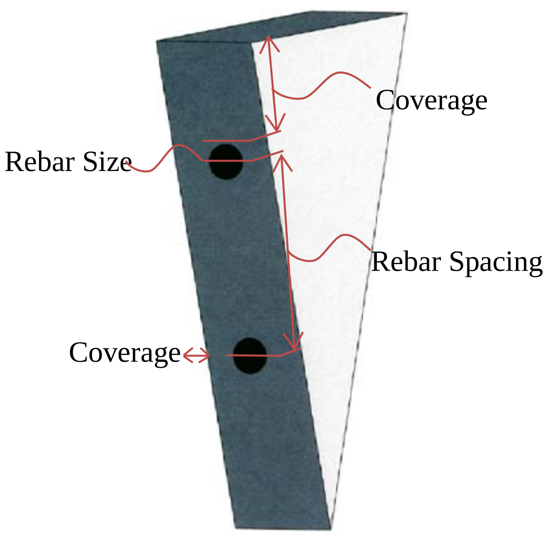
<u>Verify Rebar Size, Spacing, & Coverage</u>

DOCUMENT ALL MEASUREMENTS BELOW

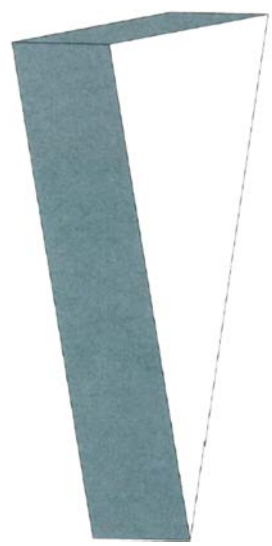


Example





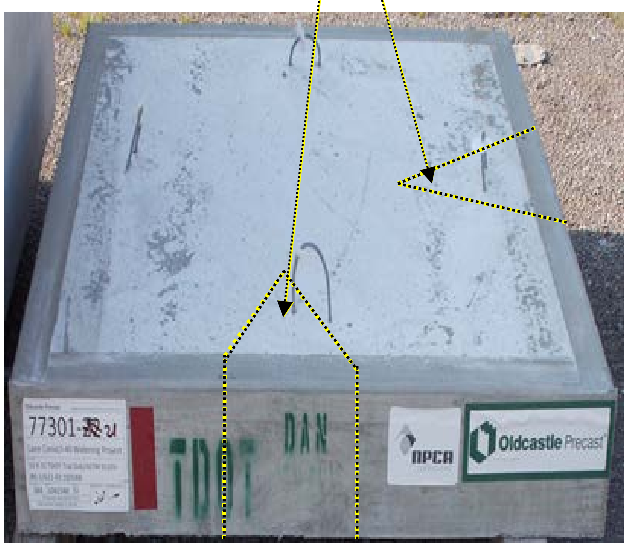
Example



5.5.2. Square Precast Lids

It's recommended that at a minimum of **two areas be verified**. The area can be taken from any side of the structure. The following shows the recommended procedure for making a V-Cut on a square lid.

V Cut Side Wall
Approximately a 10" wide wedge to a depth of 10" to 12"
(As necessary)



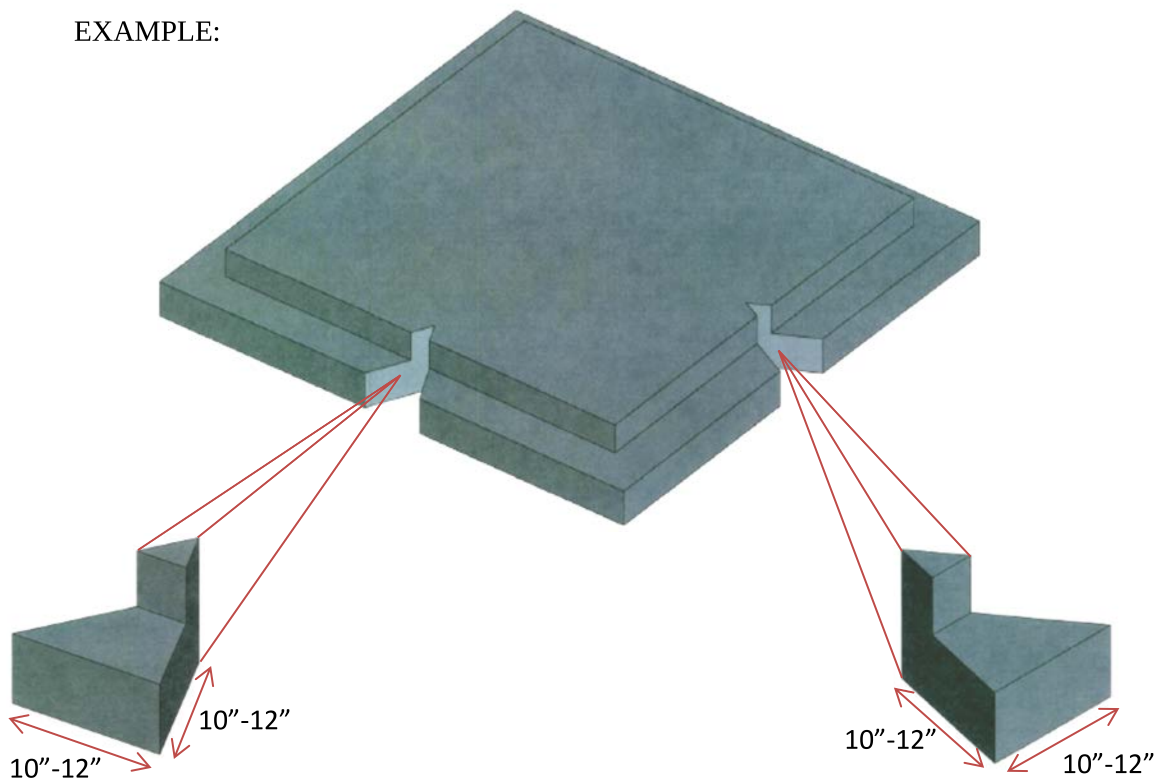
5.5.2.1 Verification of the Steel Placement (Saw Cut Method)

The following shows a recommended procedure for making a V-Cut from a square lid.

3. Choose the location of the **area to be verified**. The area shall be from two sides of the lid.

4. Measure and mark a wedge **10 to 12** inches wide and deep.

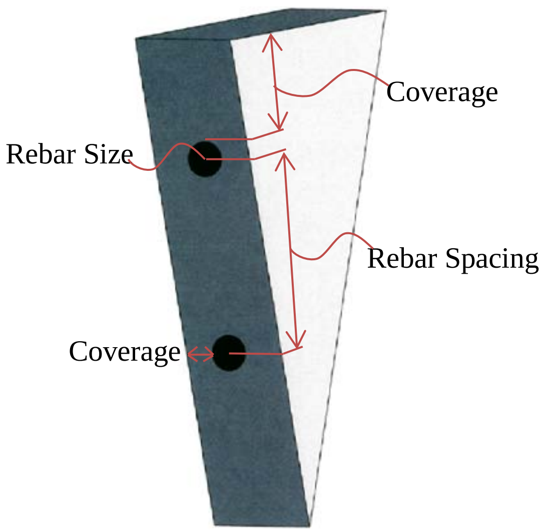
EXAMPLE:



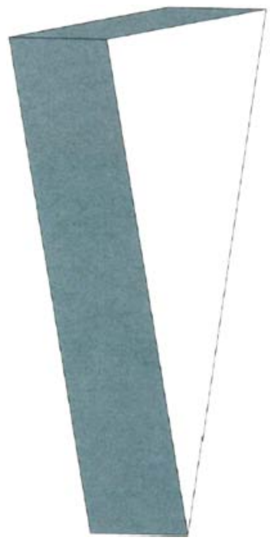
5.5.2.2 Confirm Rebar Size, Spacing, and Coverage

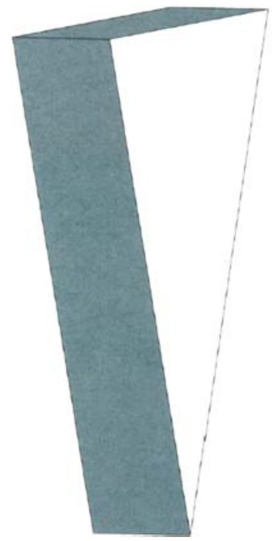
<u>Verify Rebar Size, Spacing, & Coverage</u>

DOCUMENT ALL MEASUREMENTS BELOW



Example





6.0 REPORT

Copies of all documentation (data recorded, photographs, etc.) of the process for verification testing of Precast Drainage Structures shall be sent to HQ Materials and Test and Construction. Also, samples in question shall be retained by Regional office.