Weaver
CONSTRUCTION MANAGEMENT
3679 S Huron Street, Suite 404 Englewood, Colorado 80110
Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITAL

April 11, 2012
Submittal #: 02709-006

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **Oldcastle Precast**
427 N. Front Street
Platteville, CO 80651
Bruce.Buschbach@oldcastle.com

SUBJECT: Precast Manholes for Lines B, I and K

SPEC SECTION: 02709

PREVIOUS SUBMISSION DATES:

DEVIATIONS FROM SPEC: ___ YES _x_ NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:	Engineer's Stamp:
Date: 4/11/12 Reviewed by: Ronny Burst (X) Reviewed Without Comments ( ) Reviewed With Comments	

ENGINEER'S COMMENTS:_____
_____

Oldcastle Precast

ENGINEERING SUBMITTAL
FOR
PRECAST CONCRETE

PROJECT DATA

Product: 48" & 72" dia. manholes
Project Name: Thompson Regional Water Reclamation Facility
Location: 9001 Birdsall Rd. Fountain, CO
Contractor: Weaver Construction Mgmt.

Submitted By: Bruce Buschbach
04/06/12

OLDCASTLE PRECAST
8392 RIVERVIEW PARKWAY
LITTLETON, COLORADO. 80125
303.791.1100
303.791.1120 FAX

Oldcastle Precast
Amcor
www.oldcastle-precast.com

8392 Riverview Parkway • Littleton, CO 80125

Phone (303) 791-1100
Fax (303) 791-1120
bruce.buschbach@oldcastleprecast.com

MEMO

To: To Whom it may Concern

From: Oldcastle Precast / Amcor

Date: January 2, 2009

Subject: Design of manhole components

Dear Sirs,

This purpose of this letter is to address how we produce the various manhole components in our factory.

All of our manhole components – grade beams, precast bases, risers, flat lids, cone sections, and grade rings are designed to comply with ASTM C-478 (latest edition). They will support a minimum of H-20 loading, plus earth load.

Sincerely,

Larry Miller
District Engineer

AMCOR Precast®

DESIGN CRITERIA FOR UNDERGROUND PRECAST CONCRETE MANHOLE SECTIONS

ALL MANHOLE MATERIAL IS MANUFACTURED IN ACCORDANCE WITH ASTM C 478 SPECIFICATIONS AND IS SUITABLE FOR HS-20 LOADING

MATERIALS:

GENERAL DESCRIPTION:

-Concrete 28 day minimum compressive strength	4,500 psi.
-Reinforcing steel is grade 60 with yield strength	60,000 psi.
-Steel Welded Wire Fabric is grade 65 with yield strength	65,000 psi.
-Cement, unless otherwise specified by the project shall be either	TYPE I/II or TYPE III
-Admixtures, as described in the batch design, will include	air-entraining agent water-reducing agent superplasticizer agent

SPECIFICATIONS:

Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement	ASTM A615
Specifications for concrete aggregates	ASTM C33
Test Method for Compressive Strength of Cylindrical Concrete Specimens	ASTM C39
Method to Sieve Analysis for Fine and Coarse Aggregates	ASTM C136
Test Method for slump of Portland Cement Concrete	ASTM C143
Specifications for Portland Cement	ASTM C150
Specifications for Fly Ash	ASTM C618
Method of Making and Curing Concrete Test Specimens In the Laboratory	ASTM C192
Test Method of Air Content of Freshly Mixed Concrete by the Pressure Method	ASTM C231
Specifications for Air-Entrainment Admixtures for Concrete	ASTM C260
Specifications for Chemical Admixtures for Concrete	ASTM C494
Recommended Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures	ASTM C857
Specification for Steel Welded Wire Fabric	ASTM A185
Specifications for Precast Reinforced Concrete Manhole Sections	ASTM C478
Specifications for Design of Concrete using Ultimate Strength Design Methods	ACI 318-99

NOTE: Upon request, AMCOR Precast will furnish copies of any raw-material certifications that are required to prove compliance with the above referenced specifications

ALL PRODUCTS ARE DESIGNED AND APPROVED BY AN IN-HOUSE ENGINEER.

Special provisions made for individual projects will be considered and reviewed by the Engineering Department

PRODUCT SPECIFICATIONS

ConSeal™ CS102

Concrete Sealants INC.

Butyl Rubber Sealant For All Precast Structures; Meets Specs.

APPLICATIONS

For self-sealing joints in: Manholes, Concrete Vaults, Septic Tanks, Concrete Pipe, Box Culverts, Utility Vaults, Burial Vaults, and Vertical Panel Structures.

SEALING PROPERTIES

- Provides permanently flexible watertight joints.
- Low to high temperature workability: 30°F to 120°F (-1°C to 48°C)
- Rugged service temperature: -30°F to +200°F (-34°C to +93°C)
- Excellent chemical and mechanical adhesion to clean, dry surfaces.
- Sealed Joints will not shrink, harden or oxide upon aging.
- No priming normally necessary. When confronted with difficult installation conditions, such as wet concrete or temperatures below 40°F (4°C), priming the concrete will improve the bonding action. Consult Concrete Sealants for the proper primer to meet your application.

HYDROSTATIC STRENGTH

ConSeal CS-102 meets the hydrostatic performance requirement as set forth In ASTM C-990 section 10.1 (Performance requirement: 10psi for 10 minutes in straight alignment – in plant, quality control test for joint materials.)

SPECIFICATIONS

ConSeal CS-102 meets or exceeds the requirements of Federal Specification SS-S-210 (210-A), AASHTO M-198B, and ASTM C-990-91.

P.O. Box 176, New Carlisle OH, 45344 • 937.845.8776 or 800.332.7325
FAX 937-845-3587 • www.conseal.com

CONSEAL™ CS102

Concrete Sealants INC.

Butyl Rubber Sealant For All Precast Structures; Meets Specs.

PHYSICAL PROPERTIES

	Spec	Required*	CS 102
Hydrocarbon blend content % by weight	ASTM D4 (mod.)	50% min.	51%
Inert mineral filler % by weight	AASHTO T111	30% min.	35%
Volatile Matter % by weight	ASTM D6	2% max.	1.2
Specific Gravity, 77°F	ASTM D71	1.15-1.50	1.25
Ductility, 77°F	ASTM D113	5.0 min.	10
Penetration, cone 77°F, 150 gm. 5 sec.	ASTM D217	50-100	55-60
Penetration, cone 32°F, 150 gm. 5 sec.	ASTM D217	40 mm	40-65
Flash Point, C.O.C., °F	ASTM D92	350°F min.	450°F
Fire point, C.O.C., °F	ASTM D92	375°F min.	475°F

IMMERSION TESTING

- 30-Day Immersion Testing: No visible deterioration when tested in 5% Caustic Potash, 5% Hydrochloric Acid, 5% Sulfuric Acid, and 5% saturated Hydrogen Sulfide. *
- One Year Immersion Testing: No visible deterioration when tested in 5% Formaldehyde, 5% Formic Acid, 5% Sulfuric Acid, 5% Hydrochloric Acid, 5% Sodium Hydroxide, 5% Hydrogen Sulfide and 5% Potassium Hydroxide.
- Requirements of ASTM C-990 Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

P.O. Box 176, New Carlisle OH, 45344 • 937.845.8776 or 800.332.7325
FAX 937-845-3587 • www.conseal.com

PRODUCT SPECIFICATIONS

ConSeal™ CS-212

Concrete Sealants INC.

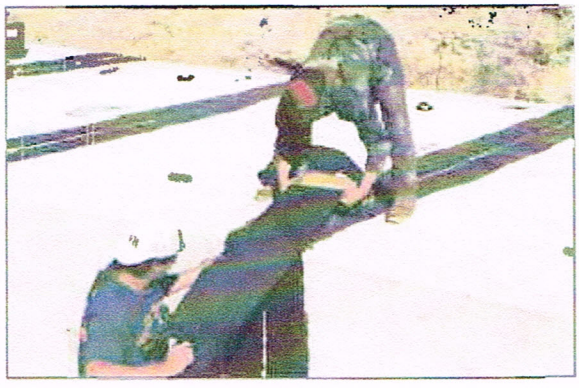
Polyolefin Backed Exterior Joint Wrap

APPLICATIONS

For self-sealing joints in: Box Culverts, Underground Concrete Vaults, Segmented Bridge Structures, Wastewater Structures and Arched Bridge Structures.

SEALING PROPERTIES

- Excellent resistance to puncture, tear and abrasions.
- Aggressively bonds to concrete and metal structures.
- Provides a permanent flexible water and soil barrier.
- Will not shrink, harden or oxidize upon aging.
- Available in numerous standard sizes (4", 6", 8", 12", 26", 36" and 48" widths).
- Custom widths and lengths available upon request.
- CS-212 should be used in conjunction with a compatible primer. Consult Concrete Sealants for the proper primer to meet your application.



SPECIFICATIONS

ConSeal CS-212 meets ASTM E-1745, C-877 and C-990 Specifications.

TECHNICAL DATA

ASTM E-1745: Standard specification for plastic water vapor retarders used in contact with soil or granular fill under concrete slabs.

Class C. Specification	Test Method	E-1745 Requirement	CS-212
Water Vapor Permeance	ASTM F-1249	0.30 perms, max.	0.045 perms, max.
Tensile Strength	ASTM E-154	13.6 lbs./in, min.	67.5 lbs./in., min.
Puncture Resistance	ASTM D-1709	475 grams, min.	8630 grams, min.

TECHNICAL DATA

ASTM C-877: Standard specification for external sealing bands for circular and noncircular concrete sewer, storm drain and culvert pipe.

PRODUCT SPECIFICATIONS

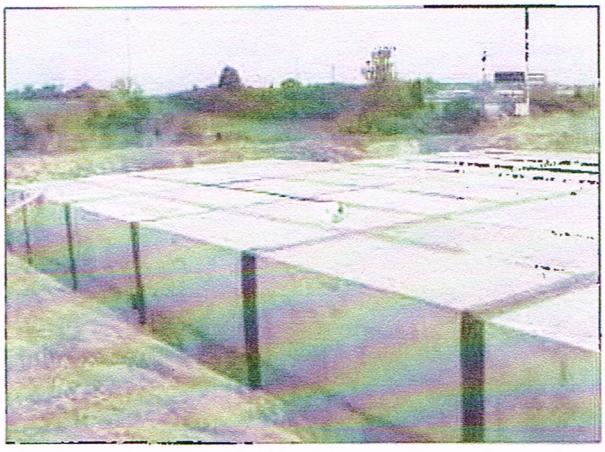
ConSeal CS-212

Concrete Sealants INC.

Polyolefin Backed Exterior Joint Wrap

Type III, Specification	E-1745 Requirement	CS-212
Backing Bond Element	4 Mil, min. thickness	4 Mil
Butyl Rubber Adhesive	.03 inch, min. thickness	.065, min.

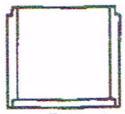
ASTM C-990: Standard specification for joints for concrete pipe, manholes and precast box sections using preformed flexible joint sealants.

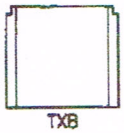


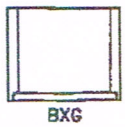
Section 6, Specification	C-990 Test Method	Requirements	CS-212
Hydrocarbon blend content % by weight	ASTM D-4	50-70%	52, min.
Inert mineral filler % by weight	ASTM C-990	30% min.	45, min.
Volatile Matter % by weight	ASTM C-990	2.0 max.	1.20
Specific Gravity	ASTM C-990	1.15-1.50	1.20-1.25
Ductility, 7°F	ASTM D-113	5.0, min.	12, min.
Penetration, cone 77°F, 150 gm. 5 sec	ASTM D-217	50-120 mm	70-80 mm
Softening point, °F	ASTM D-36	320°F, min.	335°F, min.

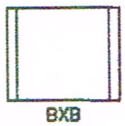
Not for use in expansion joints or joints that move.

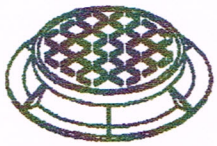
Joint Options



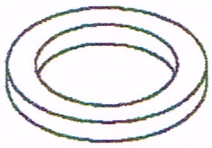








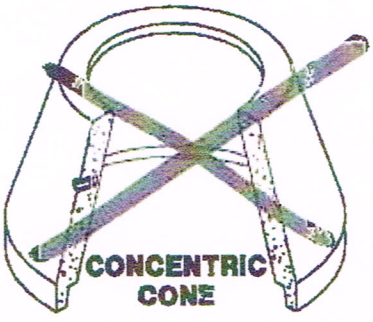
RING & COVER



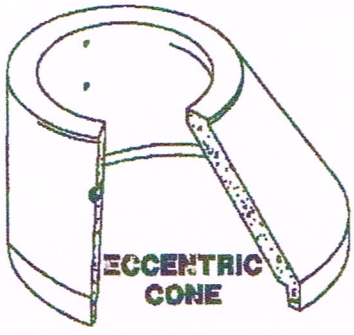
GRADE RING

Grade Ring Options

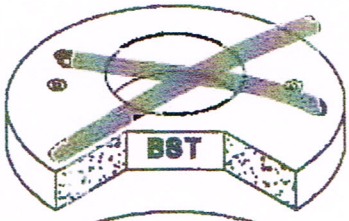
Height	Access	Weight
0'–2"	ø24"	80 lbs.
0'–3"	ø24"	120 lbs.
0'–4"	ø24"	160 lbs.
0'–6"	ø24"	240 lbs.
0'–2"	ø30"	118 lbs.
0'–3"	ø30"	177 lbs.
0'–4"	ø30"	236 lbs.
0'–6"	ø30"	354 lbs.

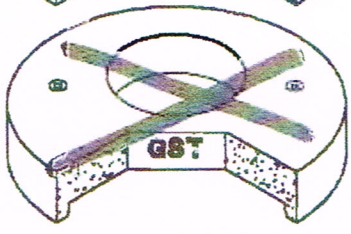


CONCENTRIC CONE



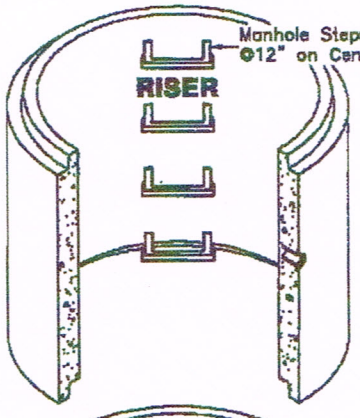
ECCENTRIC CONE





Eccentric Cone Options

Height	Access	Weight	Lift Gear
2'–6"	ø24"	2,250 lbs.	MH Lifting Cups
2'–6"	ø30"	2,250 lbs.	MH Lifting Cups
3'–0"	ø24"	2,660 lbs.	MH Lifting Cups



Riser Options

Height	Weight	Lift Gear
1'–0"	868 lbs.	MH Lifting Cups
2'–0"	1,736 lbs.	MH Lifting Cups
3'–0"	2,604 lbs.	MH Lifting Cups
4'–0"	3,472 lbs.	MH Lifting Cups

Concentric Cone Options

Height	Access	Weight	Lift Gear
3'–0"	ø24"	2,660 lbs.	MH Lifting Cups

Base Options (PBU)

**Weights Shown Do Not Include Invert

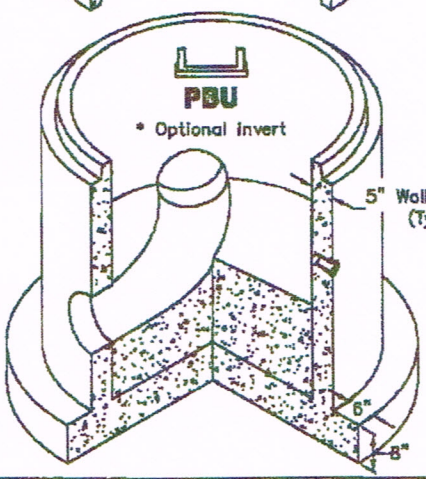
Height	Weight	Lift Gear
2'–0"	4,493 lbs.	MH Lifting Cups
2'–6"	4,927 lbs.	MH Lifting Cups
3'–0"	5,360 lbs.	MH Lifting Cups
4'–0"	6,228 lbs.	MH Lifting Cups

***Aproximate Invert weight = 2,000 lbs.

Butt Slab Top Options (BST)

*Access Hole Size And Location May Vary

Height	Access	Weight	Lift Gear
8"	ø24"	1,521 lbs.	2 Ton Swift Lift
8"	ø30"	1,344 lbs.	2 Ton Swift Lift



Groove Slab Top Options (GST)

*Access Hole Size And Location May Vary

Height	Access	Weight	Lift Gear
10 3/4"	ø24"	1,630 lbs.	2 Ton Swift Lift
10 3/4"	ø30"	1,453 lbs.	2 Ton Swift Lift

Notes

1. ALL MANHOLE MATERIAL IS DESIGNED AND MANUFACTURED ACCORDING TO ASTM C-478 SPECIFICATIONS.
2. ALL MANHOLE MATERIAL IS SUITABLE FOR HS-20 LOADING.

Oldcastle Precast
AMCOR Precast Division
8392 Riverview Pkwy. Littleton, CO 80125
Phone: (303) 791-1180 / 1-800-742-4538
Fax: (303) 791-1188

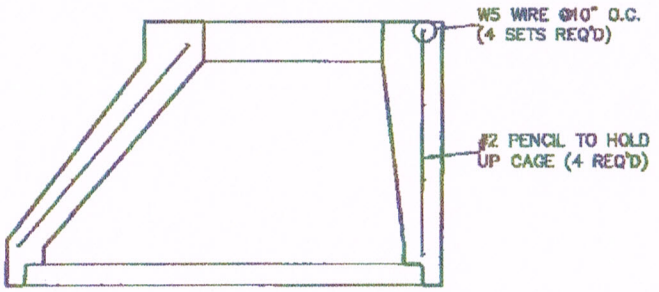
48-OPTIONS

FILE NAME: 110-MH-BASIC

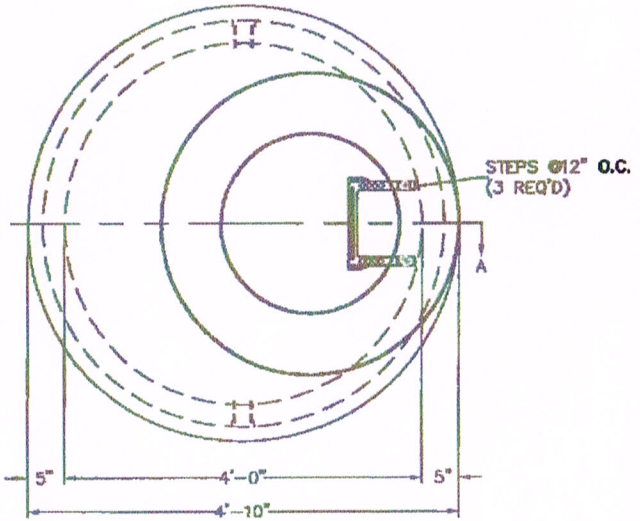
ISSUE DATE: APRIL, 2005

www.oldcastleprecast.com

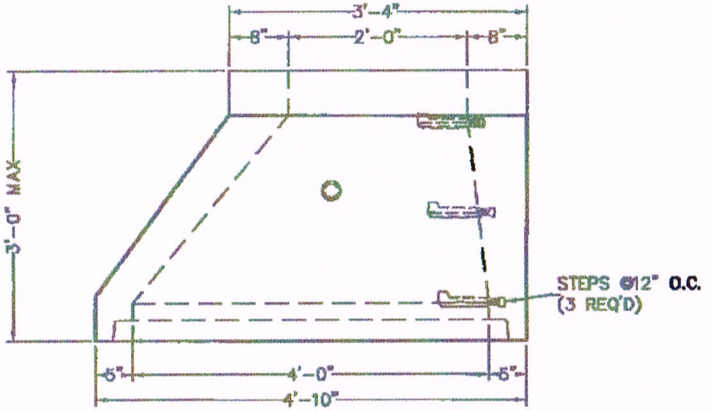
48" DIA. MANHOLE MATERIAL STANDARD DRAWINGS



SECTION A
SCALE 1/2" = 1'-0"



PLAN VIEW
SCALE 1/2" = 1'-0"



ELEVATION VIEW
SCALE 1/2" = 1'-0"

WALL REINFORCEMENT

1. 2 HOOPS (PLACED IN TOP & BOTTOM QUARTERS).
2. HOOPS SHALL BE ± @.25".
4. 2" OVERLAP – 50% PULL TEST.
5. BUTT WELD – 50% PULL TEST.

TOLERANCES

1. I.D. ± 1%
2. WALL THICKNESS = ± 5% OR 3/16".
3. HEIGHT = ½".

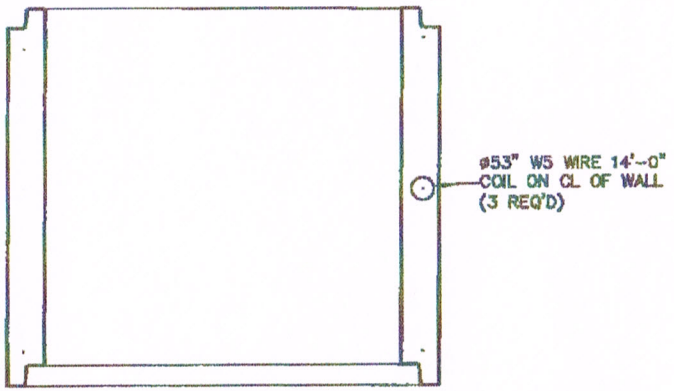
Oldcastle Precast®
8302 RHEINSEN PARKWAY, LITTLETON, CO 80125-9760
PHONE: 303.791.1100 FAX: 303.346.4855

48" MANHOLE
48ECC – OLDCASTLE STANDARD
EAGLE P3 E, CORRIDOR – 1D

CUSTOMER
PACHECO

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
3/16/12	BRUCE	SM			105115

DRAWING NUMBER	REVISION	SHEET
48_MH	REV DATE	3 OF 5



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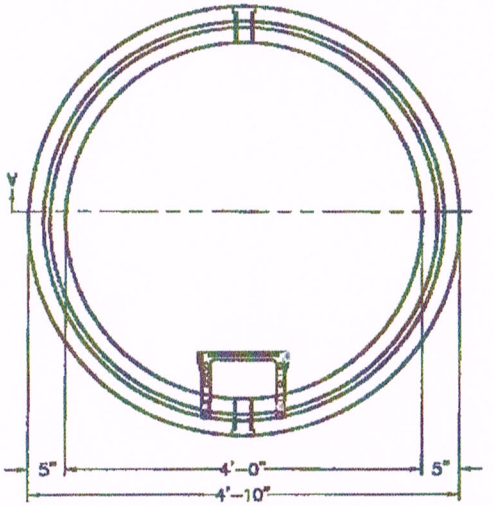
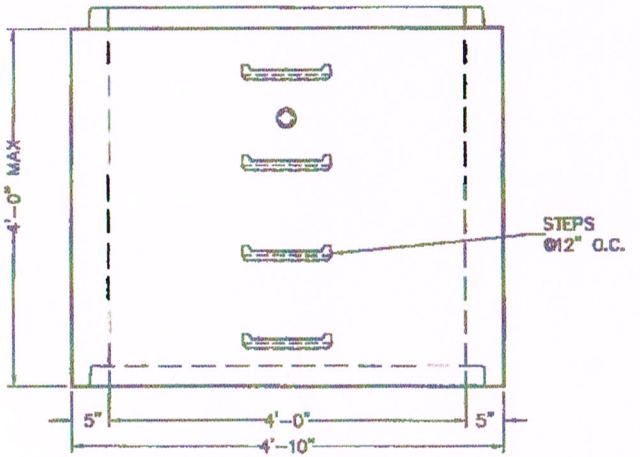


PLAN VIEW
SCALE 1/2" = 1'-0"



ELEVATION VIEW
SCALE 1/2" = 1'-0"

W5 WIRE REQUIREMENTS:

1. 2 HOOPS (PLACED IN TOP & BOTTOM QUARTERS).
2. 1 HOOP CENTERED VERTICALLY ± 6".
3. ø.25" MIN. PER HOOP.
4. 2" OVERLAP – 50% PULL TEST.
5. BUTT WELD – 50% PULL TEST.
6. HOOPS MUST BE ON CENTER THIRD OF WALL.

TOLERANCES:

1. I.D. ± 1%.
2. WALL THICKNESS = ± 5% OR 3/16".
3. HEIGHT = ½".

DESIGN NOTES

1) ALL MANHOLE MATERIAL IS DESIGNED AND MANUFACTURED ACCORDING TO ASTM C-478 SPECIFICATIONS

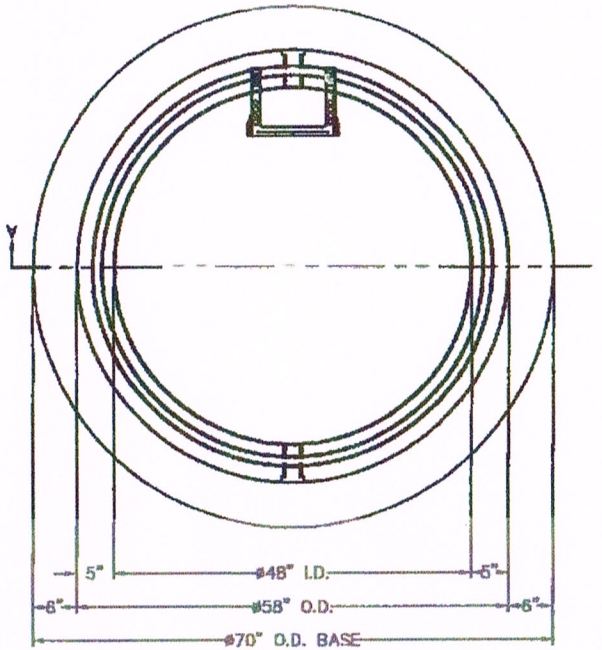
Oldcastle Precast®
6362 RAVENNA PARKWAY, LITTLETON, CO 80125-9700
PHONE: 303.791.1420 FAX: 303.348.4855

48" MANHOLE
48 TBG- OLDCASTLE STANDARD
EAGLE P3 E, CORRIDOR – 1D

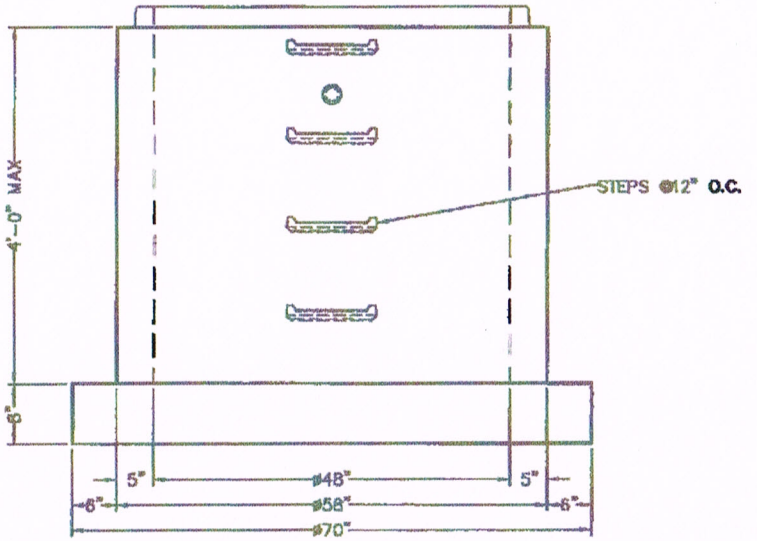
CUSTOMER
PACHECO

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
3/18/12	BRUCE	SM			105115

DRAWING NUMBER	REVISION	SHEET
48_MH	REV DATE	4 OF 5



PLAN VIEW
SCALE 1/2" = 1'-0"



ELEVATION VIEW
SCALE 1/2" = 1'-0"

CAGE DESIGN REQUIREMENTS

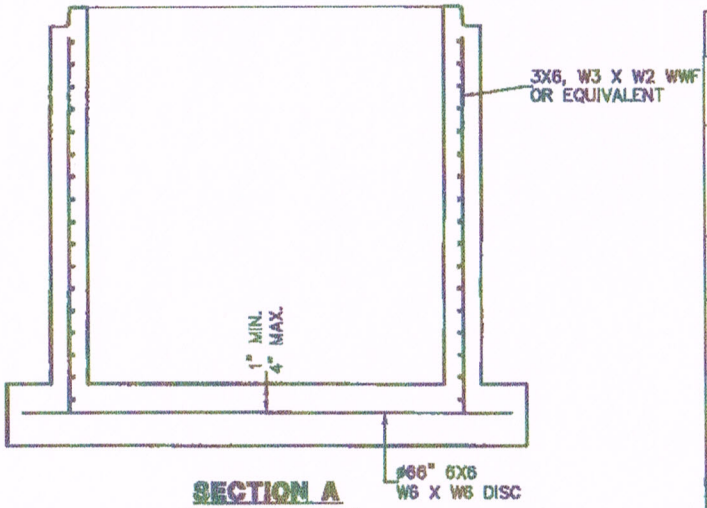
1. 6X6, W6 X W6.
2. AS REQUIRED = 0.12 $IN^2/FT.$
3. AS PROVIDED = 0.12 $IN^2/FT.$
4. ø = 66"
5. PLACED ABOVE MID POINT ≥ 1" CLR.
6. BASE THICKNESS ± 5%.

WELD REQUIREMENTS - WALL

1. 3X6, W3 X W2.
2. AS REQUIRED = 0.12 $IN^2/FT.$
3. AS PROVIDED = 0.12 $IN^2/FT.$
4. PLACE ON CENTER THIRD OF WALL.
5. WELD TO HAVE 2" OVERLAP W/ 50% PULL TEST.
6. NON WELD TO HAVE 12" OVERLAP.

TOLERANCES

1. I.D. ± 1%
2. WALL THICKNESS = ± 5% OR 3/8".
3. HEIGHT = ± 1/2".



SECTION A
SCALE 1/2" = 1'-0"

DESIGN NOTES

1) ALL MANHOLE MATERIAL IS DESIGNED AND MANUFACTURED ACCORDING TO ASTM C-478 SPECIFICATIONS

Oldcastle Precast®
4582 RINGWOOD PARKWAY, LITTLETON, CO 80216-9700
PHONE: 303.791.1100 FAX: 303.348.4855

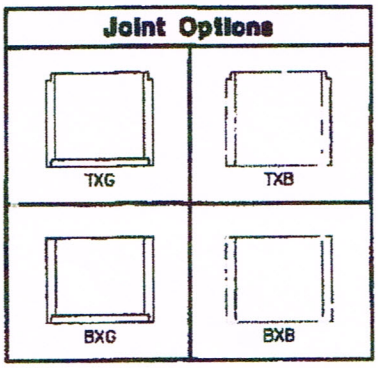
48" MANHOLE
48 PBU - OLDCASTLE STANDARD
EAGLE P3 E, CORRIDOR - 1D

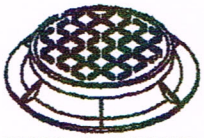
CUSTOMER
PACHECO

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
3/16/12	BRUCE	SM			105115

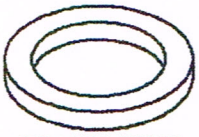
DRAWING NUMBER	REVISION	SHEET
48_MH	REV DATE	5 OF 5

Joint Options





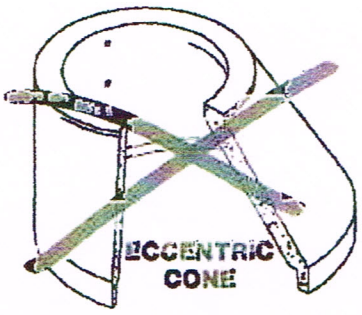
RING & COVER



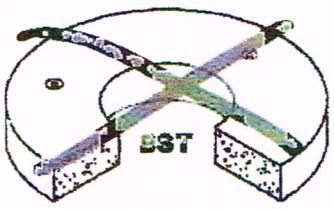
GRADE RING

Grade Ring Options

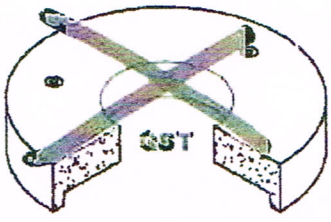
Height	Access	Weight	Height	Access	Weight
0'-2"	ø24"	80 lbs.	0'-2"	ø37"	142 lbs.
0'-3"	ø24"	120 lbs.	0'-4"	ø37"	284 lbs.
0'-4"	ø24"	160 lbs.	0'-6"	ø37"	426 lbs.
0'-6"	ø24"	240 lbs.	1'-0"	ø37"	852 lbs.
0'-2"	ø30"	118 lbs.			
0'-3"	ø30"	177 lbs.			
0'-4"	ø30"	236 lbs.			
0'-6"	ø30"	354 lbs.			



ECCENTRIC CONE



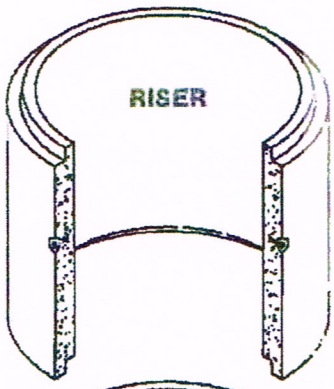
BST



GST

Eccentric Cone Options

Height	Access	Weight	Lift Gear
2'-8"	ø30"	4,800 lbs.	4 Ton Swift Lift
3'-0"	ø24"	6,000 lbs.	4 Ton Swift Lift



RISER

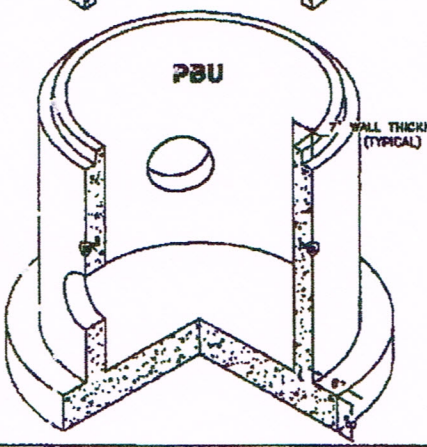
Riser Options

Height	Weight	Lift Gear
1'-0"	1,810 lbs.	4 Ton Swift Lift
2'-0"	3,620 lbs.	4 Ton Swift Lift
3'-0"	5,430 lbs.	4 Ton Swift Lift
4'-0"	7,240 lbs.	4 Ton Swift Lift
5'-0"	9,050 lbs.	4 Ton Swift Lift
6'-0"	10,860 lbs.	4 Ton Swift Lift

Butt Slab Top Options (BST)

*Access Hole Size And Location May Vary

Height	Access	Weight	Lift Gear
8"	ø24"	3,720 lbs.	4 Ton Swift Lift
8"	ø30"	3,544 lbs.	4 Ton Swift Lift
8"	ø36"	3,328 lbs.	4 Ton Swift Lift



Base Options (PBU)

**Weights Shown Do Not Include Invert

Height	Weight	Lift Gear
4'-0"	12,970 lbs.	4 Ton Swift Lift
5'-0"	14,780 lbs.	4 Ton Swift Lift
6'-0"	16,590 lbs.	4 Ton Swift Lift

Groove Slab Top Options (GST)

*Access Hole Size And Location May Vary

Height	Access	Weight	Lift Gear
1'-2"	ø24"	4,085 lbs.	4 Ton Swift Lift
1'-2"	ø30"	3,908 lbs.	4 Ton Swift Lift
1'-2"	ø36"	3,692 lbs.	4 Ton Swift Lift

Notes

ALL MANHOLE MATERIAL IS DESIGNED AND MANUFACTURED ACCORDING TO ASTM C-478 SPECIFICATIONS.

Oldcastle Precast
AMCOR Precast® Division
8292 Riverview Pkwy. Littleton, CO 80125
Phone (303) 791-1100 / 1-800-742-4538
Fax (303) 791-1129

72-OPTIONS

FILE NAME: 110-MH-BASIC

ISSUE DATE: APRIL, 2005

www.oldcastleprecast.com

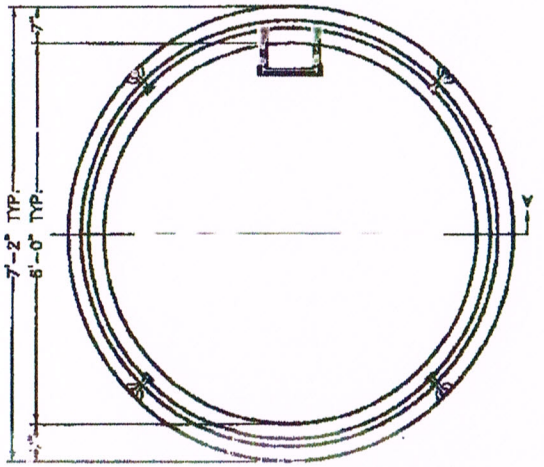
72" DIA. MANHOLE MATERIAL STANDARD DRAWINGS

MESH REQUIREMENTS

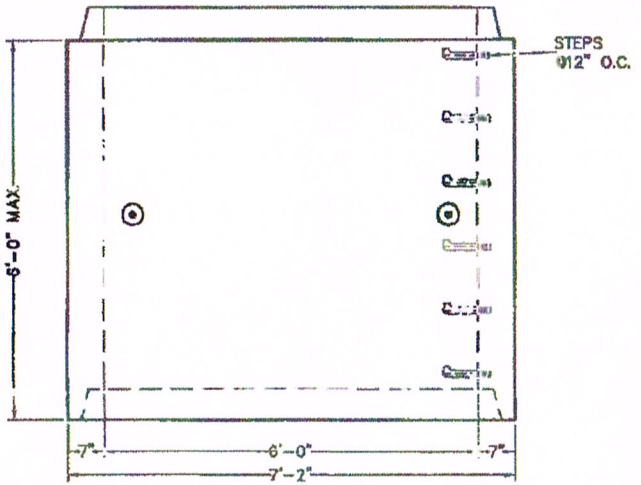
1. 2X6, W3 X W2 WWF
2. AS REQUIRED = 0.18 $IN^2/FT.$
3. AS PROVIDED = 0.18 IN /FT.
4. 2" OVERLAP REQUIRES 50% PULL TEST.
5. NO WELD REQUIRES 12" OVERLAP.
6. MESH TO BE PLACED ON CENTER THIRD OF WALL.

TOLERANCES

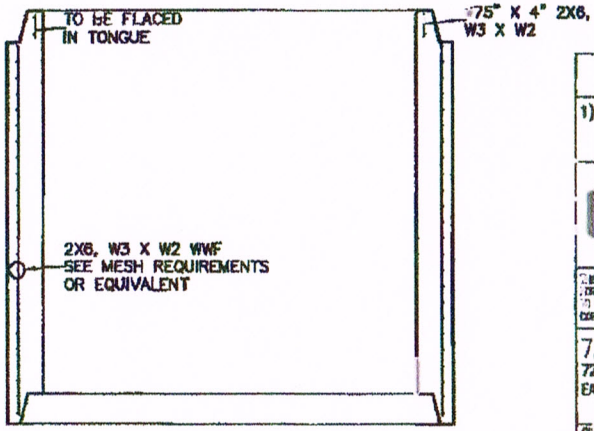
1. I.D. ± 1%.
2. WALL THICKNESS = ± 5% OR 3/16".
3. HEIGHT = ½".



PLAN VIEW
SCALE 3/8" = 1'-0"



ELEVATION VIEW
SCALE 3/8" = 1'-0"



SECTION A
SCALE 3/8" = 1'-0"

DESIGN NOTES

1) ALL MANHOLE MATERIAL IS DESIGNED AND MANUFACTURED ACCORDING TO ASTM C-478 SPECIFICATIONS

Oldcastle Precast

72" MANHOLE
72TBC- OLDCASTLE STANDARD
EAGLE P3 E, CORRIDOR - 1D

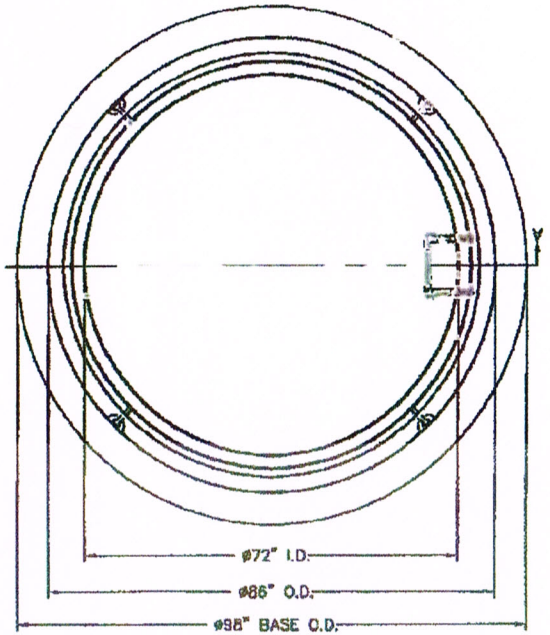
DESIGNER
PACHECO

DATE	SALES	ENGR	ENGR	CHECKED	JOB #
3/16/12	BRUCE	SH			105115

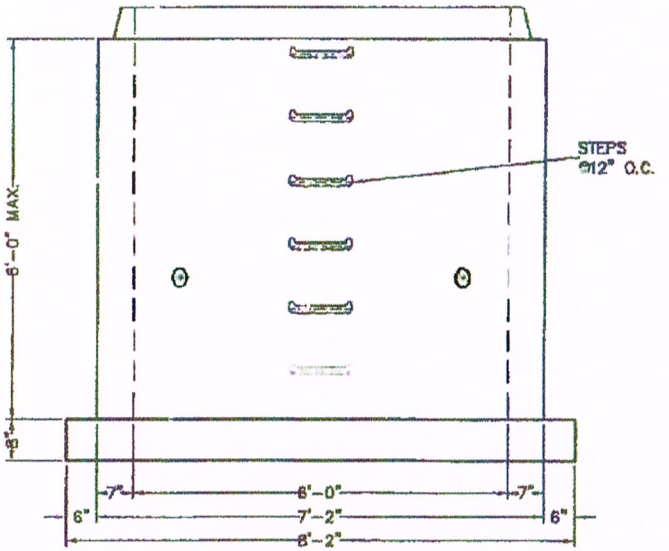
DRAWING NUMBER
72_MH

REVISION
REV DATE

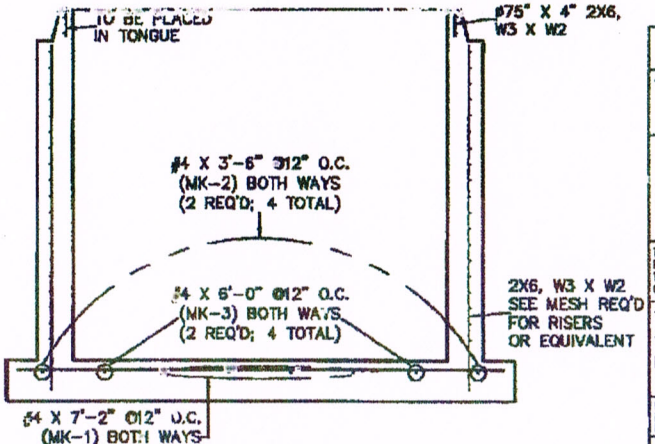
SHEET
3 OF 4



PLAN VIEW
SCALE 3/8" = 1'-0"



ELEVATION VIEW
SCALE 3/8" = 1'-0"



SECTION A
SCALE 3/8" = 1'-0"

BASE REQUIREMENTS

1. #4 REBAR PLACED @ 1.5" CLR.

MESH REQUIREMENTS - WALLS

1. 2X6, W3 X W2.
2. AS REQUIRED = 0.18 IN^2/FT.
3. AS PROVIDED = 0.18 IN^2/FT.
4. LOCATED ON CENTER THIRD OF THE WALL
5. WELD TO HAVE 2" OVERLAP.
6. NON WELD TO HAVE 12" OVERLAP

TOLERANCES

1. I.D. ± 1%.
2. WALL THICKNESS = ± 5% OR 3/16".
3. HEIGHT = ±½".

DESIGN NOTES

1) ALL MANHOLE MATERIAL IS DESIGNED AND MANUFACTURED ACCORDING TO ASTM C-478 SPECIFICATIONS

Oldcastle Precast
8382 RIVERVIEW PARKWAY, LITTLETON, CO 80125-9780
PHONE: 303.791.1100 FAX: 303.346.4635

72" MANHOLE
72PBU - OLDCASTLE STANDARD
EAGLE P3 E, CORRIDOR - 1D

CUSTOMER
PACHECO

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
3/18/12	BRUCE	SM			105115
DRAWING NAME				REVISION	SHEET
72_MH				REV DATE	4 OF 4

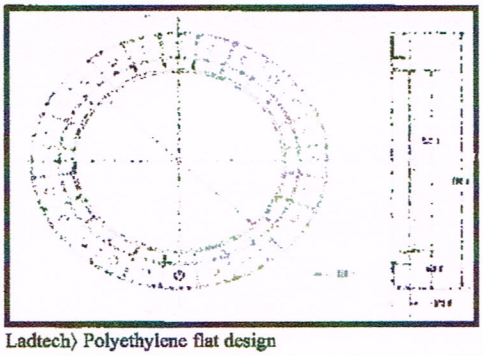
DESCRIPTION FOR ROUND Ladtech Inc. HDPE Adjustment Ring DESIGNS:

- Plastic injection molded adjusting ring
- Molded from high density polyethylene as defined in ASTM specification D1248-84
- Actual resin properties will vary allowing for the utilization of 100% regrind material
- The percent of post consumer waste to industrial waste will vary with availability and property retention needs
- Color, shade, and uniformity will vary with the mix of the post consumer and industrial waste materials

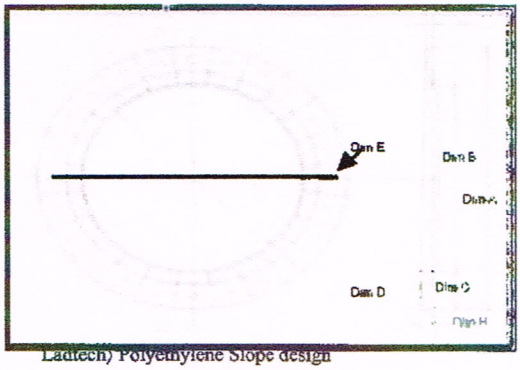
Dimensions shown are normal - actual size will vary within allowable tolerance and required fit

Cone Size	Dim A	Dim B	Dim C	Dim D	Dim E
24"	33.50"	23.75"	5.00"	23.25"	30 1/4"
27"	36.50"	26.75"	5.00"	26.25"	33 3/8"
30"	39.50"	29.75"	5.00"	29.25"	37 1/4"
32"	41.50"	31.75"	5.00"	31.25"	39 1/2"
34"	41.50"	33.75"	4.00"	33.25"	39 1/2"

E = inside hole center to center



Ladtech) Polyethylene flat design



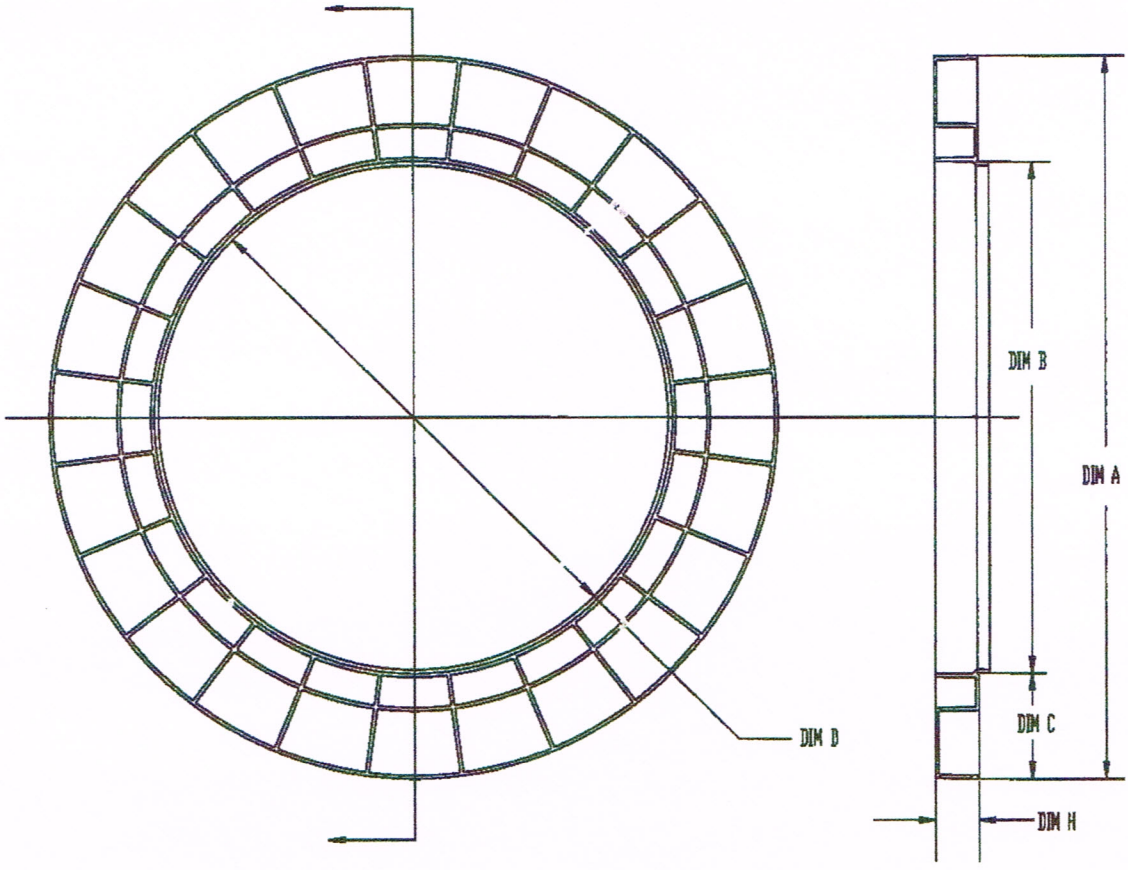
Ladtech) Polyethylene Slope design

Product Compliance Testing for the LADTECH® Injection Molded Recycled High Density Polyethylene Adjusting Rings

Product compliance testing was conducted by American Engineering Testing, Inc. The compressive load carrying capability was confirmed. The rings were successfully loaded up to 60,000 pounds. At that point, with the LADTECH® ring still in serviceable condition, failure of the concrete catch basin and the manhole cover frame assembly halted further testing.

Water penetration tests were also conducted by American Engineering Testing Inc. under ambient laboratory conditions utilizing the approved sealants. When the sealants were properly applied, this testing showed no leakage.

For more information about testing procedures and existing test results, contact LADTECH, Inc. at www.ladtech.com



DESCRIPTION

PLASTIC INJECTION MOLDED ADJUSTMENT RING

MOLDED FROM HIGH DENSITY POLYETHYLENE AS DEFINED IN ASTM SPECIFICATION D-4976

ACTUAL RESIN PROPERTIES WILL VARY ALLOWING FOR THE UTILIZATION OF A MAXIMUM PERCENT OF RECYCLED MATERIAL

THE PERCENT OF POST CONSUMER WASTE TO INDUSTRIAL WASTE WILL VARY WITH AVAILABILITY AND PROPERTY RETENTION NEEDS

COLOR, SHADE AND UNIFORMITY WILL VARY WITH THE MIX OF THE POST CONSUMER AND INDUSTRIAL WASTE MATERIALS

DIMENSIONS SHOWN ARE NOMINAL - ACTUAL SIZE WILL VARY WITHIN ALLOWABLE TOLERANCE AND REQUIRED FIT

DIMENSION SCHEDULE

CONE SIZE	DIM A	DIM B	DIM C	DIM D	DIM H
24	33.50	23.75	5.00	23.25	1.25, 1.50, 2.00, 4.00
27	36.50	26.75	5.00	26.25	1.25, 1.50, 2.00, 4.00
30	39.50	29.75	5.00	29.25	1.50, 2.00, 3.25
32	41.50	31.75	5.00	31.25	2.00, 3.00
34	41.50	33.75	4.00	33.25	2.00, 3.00

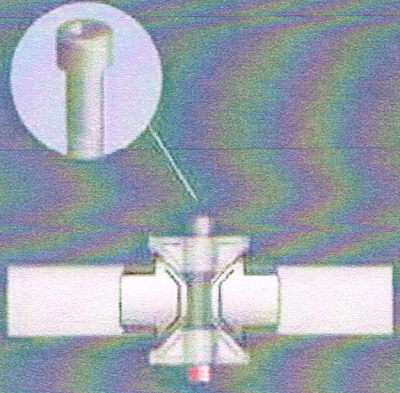
APPROVAL DATE_____ BY_____	DESCRIPTION	SPECIFICATION REFERENCE	STANDARD PLATE NO.
	POLYETHYLENE MANHOLE ADJUSTMENT RING FLAT DESIGN		

TRELLEBORG

Kor-N-Seal® II
206 Series Pipe-to-Manhole Connector

NEW CORRUGATED RUBBER DESIGN

- *Corrugated profile for easier installation and positioning of the pipe in trench*
- *Designed for larger pipe sizes 18" - 51"*
- *Meets the specifications of ASTM C923*



The new 206 Series Connector is designed with an Allen Head Wedge Bolt for easier installation of the connector into the manhole.

Kor-N-Seal II
206 Series Pipe-to-Manhole Connector

- To fit larger sized pipe into smaller diameter manholes, please refer to our Kor-N-Seal II 306 Series Connectors.

- Using Corrugated Pipe. Adapters are required when using Corrugated Pipe. Refer to the Corrugated Pipe Adapter Data Sheet for details.

NOMINAL HOLE SIZE	MODEL NUMBER	PIPE O.D. RANGE	MINIMUM MANHOLE SIZE REQUIRED
18"	S206-18L	15.000 - 15.625	48/4
20"	S206-20	15.625 - 17.000	48/4
20"	S206-20L	17.000 - 17.625	48/4
22"	S206-22	17.625 - 19.000	48/4
22"	S206-22L	19.000 - 19.625	48/4
24"	S206-24A	18.000 - 19.500	48/5
24"	S206-24	19.625 - 21.000	48/5
24"	S206-24L	21.000 - 21.625	48/5
26"	S206-26	21.625 - 23.000	48/5
26"	S206-26L	23.000 - 23.625	48/5
28"	S206-28	23.625 - 25.000	48/5
28"	S206-28L	25.000 - 25.625	48/5
30"	S206-30	25.625 - 27.000	48/6
30"	S206-30L	27.000 - 27.625	48/6
32"	S206-32	27.625 - 29.000	60/6
32"	S206-32L	29.000 - 29.625	60/6
34"	S206-34	29.625 - 31.000	60/6
34"	S206-34L	31.000 - 31.625	60/6
36"	S206-36	31.625 - 33.000	60/7
36"	S206-36L	33.000 - 33.625	60/7
38"	S206-38	33.625 - 35.000	60/7
38"	S206-38L	35.000 - 35.625	60/7
40"	S206-40	35.625 - 37.000	60/8
40"	S206-40L	37.000 - 37.625	60/8
42"	S206-42	37.625 - 39.000	60/8
42"	S206-42L	39.000 - 39.625	60/8
44"	S206-44	39.625 - 41.000	72/8
44"	S206-44L	41.000 - 41.625	72/8
46"	S206-46	41.625 - 43.000	84/4
46"	S206-46L	43.000 - 43.625	84/8
48"	S206-48	43.625 - 45.000	84/8
48"	S206-48L	45.000 - 45.625	84/8
50"	S206-50	45.000 - 45.625	84/9
50"	S206-50L	45.625 - 47.000	84/9
52"	S206-52	47.000 - 47.625	84/9
52"	S206-52L	47.625 - 49.000	84/9
54"	S206-54	49.000 - 49.625	96/8.5
54"	S206-54L	49.625 - 51.000	96/8.5

Larger sizes quoted upon request.

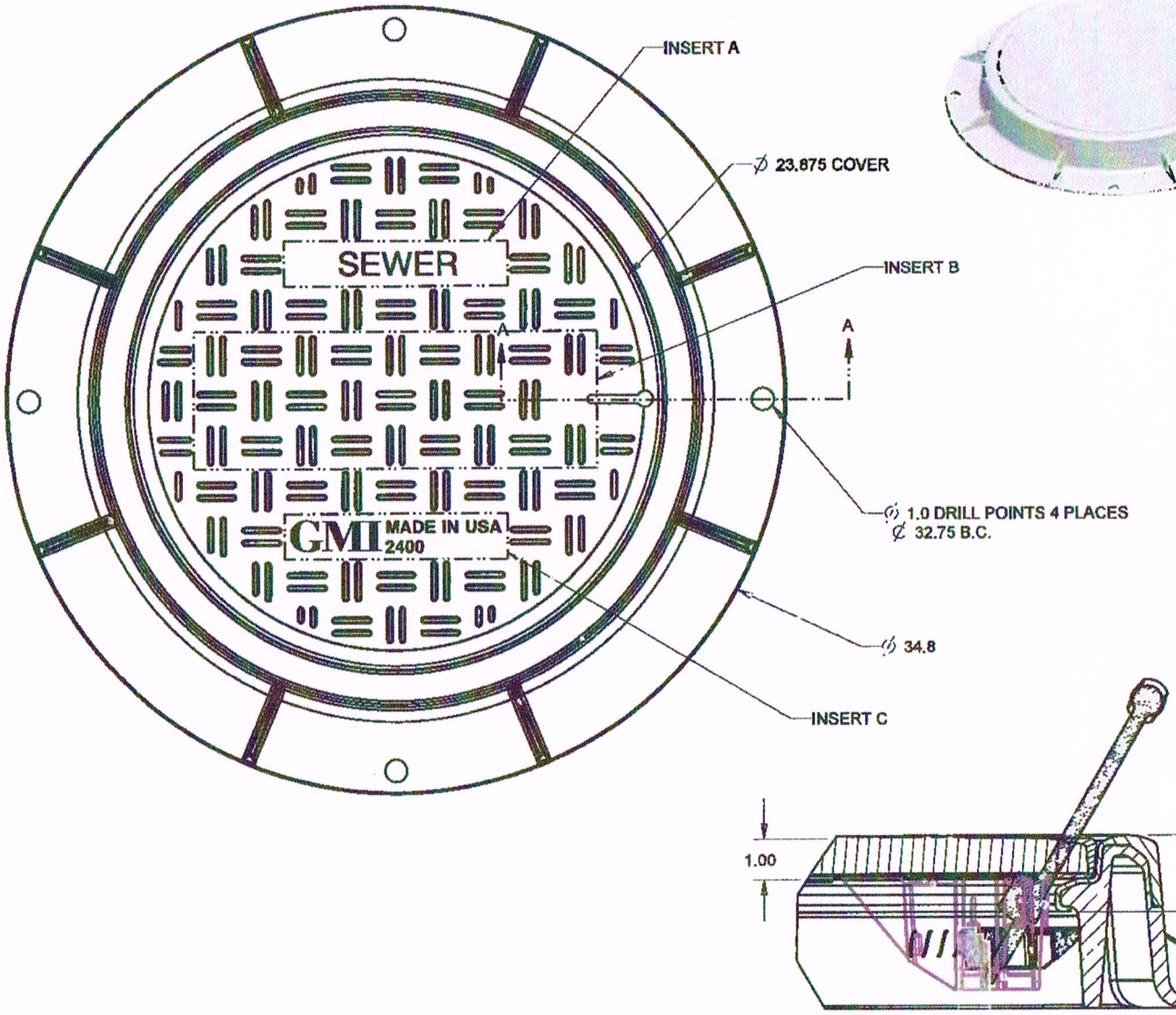
TRELLEBORG
ENGINEERED SYSTEMS

Trelleborg Pipe Seals Milford, Inc.
P.O. Box 301, 250 Elm Street, Milford, New Hampshire 03055 U.S.A.
Tel: 800-626-2180 603-673-8680 Fax: 603-673-7271 www.trelleborg.com/npc

06/09

2400 Series GMI Utility Access Cover & Frame with Liber-T Lock

GMI COMPOSITES INC



Product/ Drawing Number

2400AAAE05

Product Attributes

Materials:

Fiber Reinforced Polymer

Load Rating:

AASHTO H-20/25
EN/24 D400

Weight:

Cover = 28 lbs
Frame = 25 lbs
Assembly = 53 lbs

Lock:

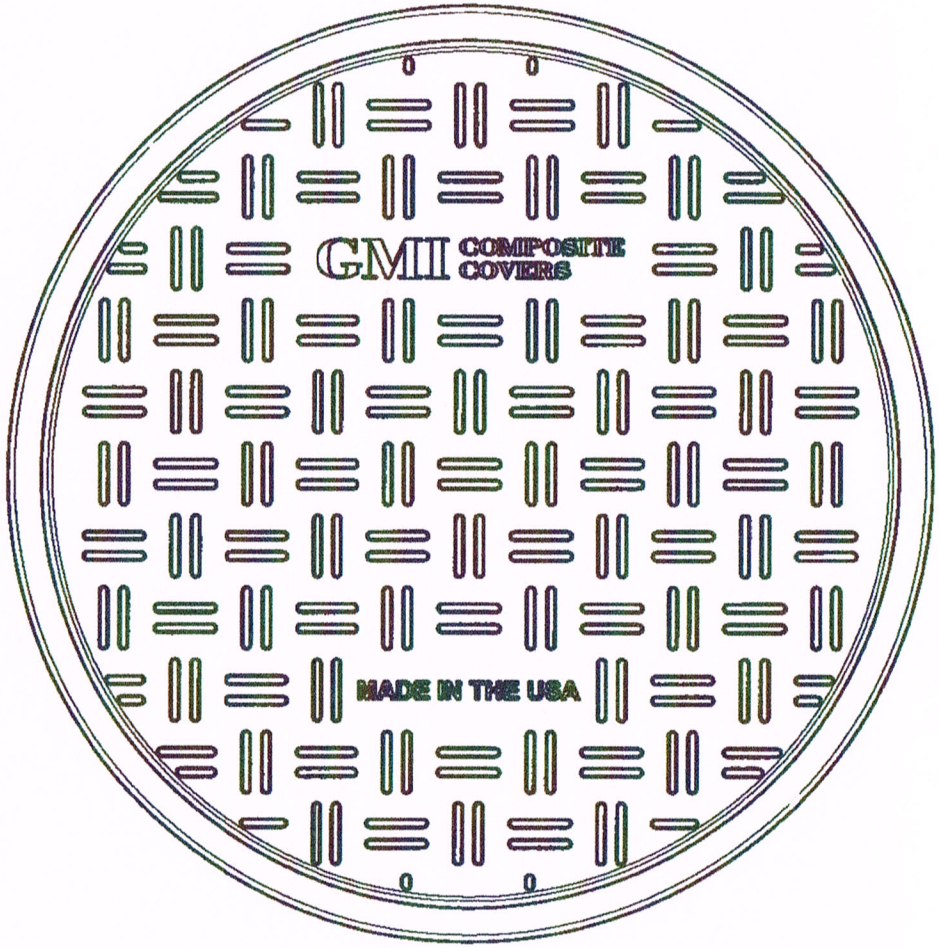
GMI Liber-T Lock Set

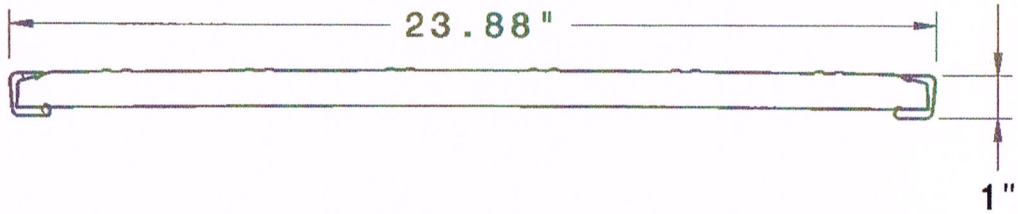
MADE IN USA

Drawing shown in inches

GMI COMPOSITES INC. 1355 Sherman Blvd., Muskegon, MI 49441 P: 800.330.4045 F: 231.755.1613 www.gmi-covers.com

GMI





GMI COMPOSITES, INC.
1355 W. SHERMAN BLVD.
MUSKEGON, MI 49441
(800)330-4045
WWW.GMI-COVERS.COM

PART SERIES-2400

2400-XXX

24" MANHOLE COVER

MADE IN USA

ESTIMATED WEIGHT

22 LBS.

LOAD RATING

AASHTO M306-05
H-20 & H-25
EN 124 CLASS A-D

MATERIAL SPECIFICATION

FIBER REINFORCED POLYMER

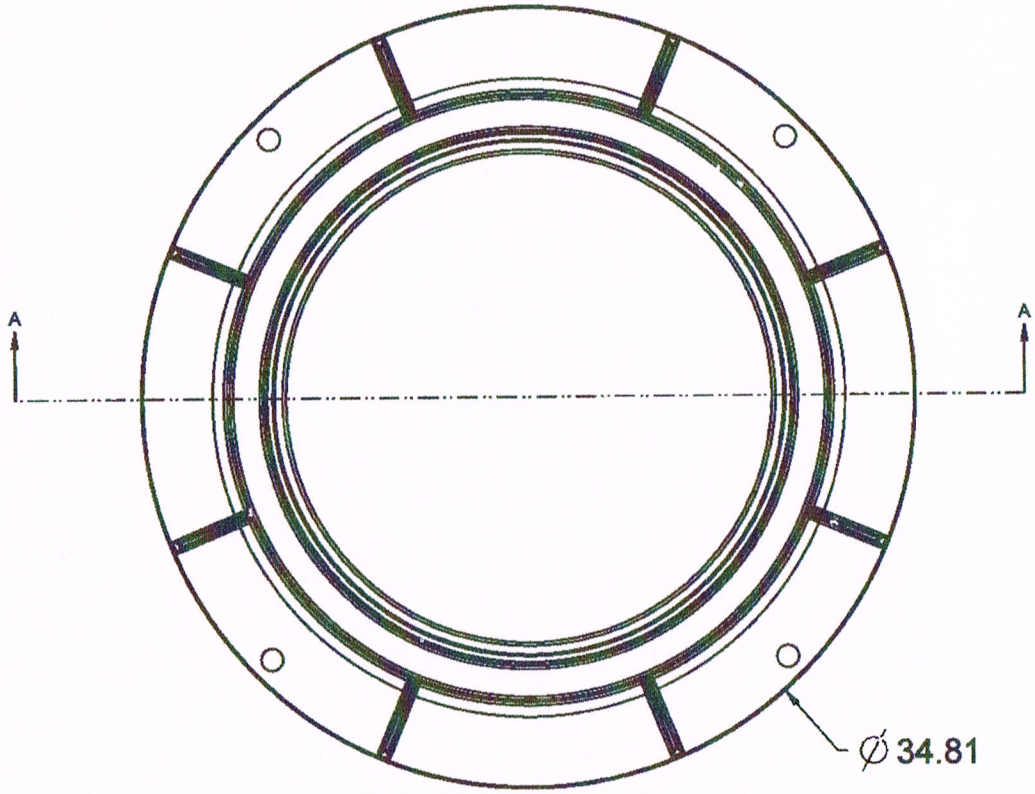
RETENTION & ANI-THEFT LOCKS
CUSTOM LOGOS/LETTERING AVAILABLE

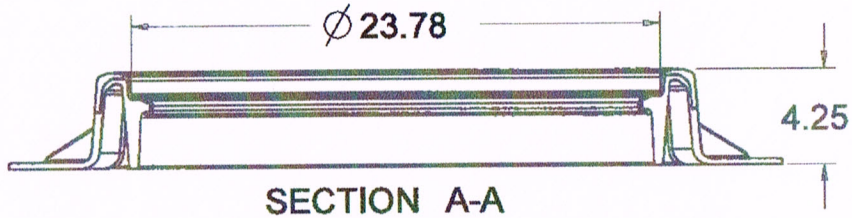
LAST REVISED	DATE
	02/13/09

CONFIDENTIAL

2400 Series Frame

GMI COMPOSITES INC





SECTION A-A

Product/ Drawing Number

2400FDXT00

Product Attributes

Materials:

Fiber Reinforced Polymer

Load Rating:

AASHTO M306-05
H-20 & H-25
EN124 CLASS A-D

Weight:

26 lbs

MADE IN USA

Drawing shown in inches

GMI COMPOSITES INC. 1355 Sherman Blvd., Muskegon, MI 49441 P: 231.755.1611 P: 877.755.1611 F: 231.755.1613 www.gmi-covers.com

product data

carboline®

Bitumastic®300 M

Selection & Specification Data

Generic Type Coal Tar Epoxy

Description Renowned high build coal tar epoxy for protection for steel and concrete in single or two-coat applications in a broad variety of aggressive industrial applications.

Features
- Excellent chemical, corrosion and abrasion resistance
- High-build, 16-24 mils (400-610 microns) in a single coat (up to 35 mils with force curing)
- Compatible with controlled cathodic protection
- Suitable for use in exposures as referenced in the following specifications*:
  - **Corp of Engineers C-200, C200a**
  - **AWWA C-210 for exterior**
  - **SSPC-Paint 16**
  - **Steel Tank Institute Corrosion Control System STI-P$_3$**

Color Black (0900)

Finish Gloss. Will discolor, chalk and lose gloss in sunlight exposure.

Primers Self-priming, Carboguard 888, or others as recommended

Topcoats Not recommended

Dry Film Thickness Normally 16.0 mils (400 microns) in one or two coats.
Total dry film thickness less than 8 mils (200 microns) or in excess of 35 mils (610 microns) is not recommended. Wet-on-wet spray techniques should be used for high thicknesses allowing time for solvents to flash between passes.

Solids Content By Volume: 74% ± 2%

Theoretical Coverage Rate 1187 mil ft^2 (29.1 m^2/l at 25 microns)
Allow for loss in mixing and application

VOC Values
As supplied: 1.85 lbs/gal (222 g/l)
Thinned:
20 oz/gal w/ #10:* 2.6 lbs/gal (309 g/l)
25 oz/gal w/ #10: 2.7 lbs/gal (327 g/l)
These are nominal values.
*Maximum thinning for 250 g/l restricted areas is 6 oz/gal.

Dry Temp. Resistance
Continuous: 350°F (177°C)
Non-Continuous: 370°F (190°C)

Wet Temp. Resistance Immersion temperature should not exceed 120°F (49°C).

Limitations Do not use for potable water requirements

Substrates & Surface Preparation

General Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.

Steel
Immersion: SSPC-SP10
Non-Immersion: SSPC-SP6
SSPC-SP2 or SP3 as minimum requirement.
Surface Profile: 2.0-3.0 mils (50-75 micron)

Concrete Concrete must be cured 28 days at 75°F (24°C) and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D4258 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require surfacing.

Performance Data

Test Method	System	Results	Report #
ASTM D4060 Abrasion	Blasted Steel 2 cts. 300M	130 mg. loss after 1000 cycles. CS17 wheel, 1000 gm load.	02877
ASTM D4541 Adhesion	Blasted Steel 2 cts. 300M	1443 psi (Pneumatic)	02877
ASTM D2794 Impact	Blasted Steel 2 cts. 300M	Impact site diameter. Inches: 3/8, 3/8, ½ 100 in/lbs Gardner Impactor at ½ in. diam.	02877
ASTM B117 Salt Fog	Blasted Steel 2 cts. 300M	No blistering, rusting or delamination. No measurable undercutting at scribe after 2000 hrs.	02938

Test reports and additional data available upon written request.

* Disclaimer: Bitumastic 300M is a proprietary formula that is not necessarily formulated to the exact compositional guidelines set forth in some of these standards. Minor deviations that control and improve application characteristics may be present, but does not have a detrimental effect on the suitability for use outlined therein.

August 2005 replaces March 2003

0165

Bitumastic® 300M

Application Equipment

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

General Guidelines:

Spray Application (General)
This is a high solids coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Conventional Spray
Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, with 50' maximum material hose .086" I.D. fluid tip and appropriate air cap.

Airless Spray

Pump Ratio:	30:1
GPM Output:	3.0 (min.)
Material Hose:	½" I.D. (min.)
Tip Size:	.023-.035"
Output PSI:	2100-2500
Filter Size:	30 mesh

Teflon packings are recommended and available from the pump manufacturer.

Brush & Roller (General)
Recommended for touch up, striping of weld seams and hard-to-coat areas only. Avoid excessive re-brushing or re-rolling.

Brush
Use a medium bristle brush.

Roller
Use a short-nap synthetic roller cover with phenolic core.

Mixing & Thinning

Mixing
Power mix separately, then combine and power mix for a minimum of two minutes. DO NOT MIX PARTIAL KITS.

Ratio
4:1 Ratio (A to B)

Thinning
Up to 20 oz/gal (16%) w/ #10
Up to 25 oz/gal (20%) w/ #10 for the first coat application to concrete. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Pot Life

75°F (24°C)	2 Hours
90°F (32°C)	1 Hour

Pot life ends when coating loses body and begins to sag.

Cleanup & Safety

Cleanup
Use #2 Thinner or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety
Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Caution
This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Normal	60-85°F (16-29°C)	60-85°F (16-29°C)	60-85°F (16-29°C)	0-80%
Minimum	50°F (10°C)	50°F (10°C)	50°F (10°C)	0%
Maximum	90°F (32°C)	125°F (52°C)	110°F (43°C)	90%

Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Dry to Touch	Minimum Recoat Time	Maximum Recoat Time	Cure for Immersion
50°F (10°C)	8 Hours	10 Hours	24 Hours	14 Days
75°F (24°C)	4 Hours	6 Hours	24 Hours	7 Days
90°F (32°C)	2 Hours	3 Hours	24 Hours	5 Days

These times are based on a 16.0 mil (400 micron) dry film thickness. Higher film thickness, insufficient ventilation, high humidity or cooler temperatures will require longer cure times. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discoloration and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. If the **maximum recoat time** is exceeded, the surface must be abraded by sweep blasting prior to the application of additional coats. **Holiday Detection** (if required): Wet sponge types may be used if the dry film thickness is below 20 mils (500 microns). High voltage spark testing should b e used when the dry film thickness exceeds 20 mils (500 microns). Refer to NACE RP0188-90 for specific procedures.

Force Curing (recommended for thicknesses above 24 mils)

150°F (65°C)	Hold substrate temperature at 150°F for 8 hours and material will be ready to handle and ready for immersion service.

Packaging, Handling & Storage

Shipping Weight (Approximate)	1.25 Gallon Kit 12 lbs (6 kg)	5 Gallon Kit 50 lbs (26 kg)
Flash Point (Setaflash)	75°F (24°C) for Part A >200°F (93°C) for Part B	
Storage (General)	Store Indoors.	
Storage Temperature & Humidity	40° -110°F (4°-43°C) 0-100% Relative Humidity	
Shelf Life	Part A: Min. 24 months at 75°F (24°C) Part B: Min. 36 months at 75°F (24°C)	

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**

carboline.
350 Hanley Industrial Court, St. Louis, MO 63144-1599
314 644-1000 314/644-4617 (fax) www.carboline.com
An RPM Company

August 2005 replaces March 2003

Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

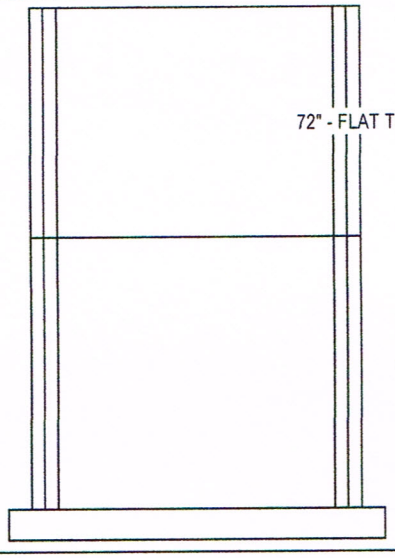
Oldcastle Precast

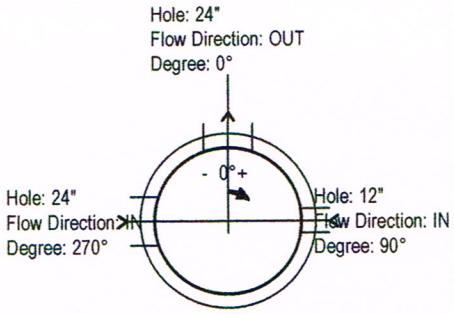
1) 72" - FLAT TOP RISER - 72BXG60
1) 72" - PBU - 72PBU72
2) 72" - Conseal - 1 1/2" Conseal
2) KOR-N-SEAL - BOOT24L
1) KOR-N-SEAL - Boot12A

Structure ID: **Sta. 0+42.00 (MH-03)**
Size: 72"
Rim to Invert: 10.88'
Precast Height: 11'
Step Position:

Structure Notes: Thompson Regional Water Reclamation
Weaver Const. Mgmt.

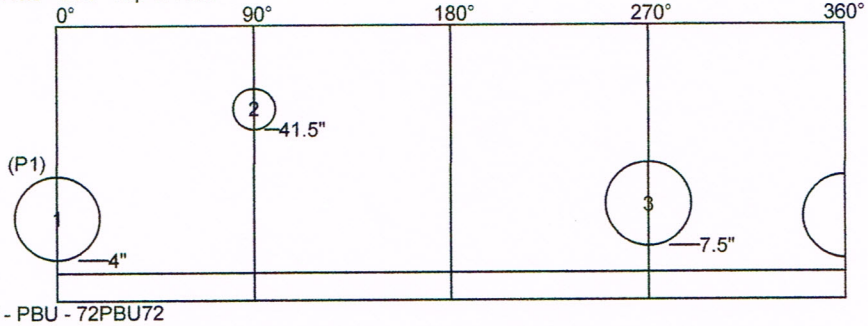
No steps in manhole. 12" joint wrap on exterior.





Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	413.75'					
Reducer						
Invert 1	402.87'	0°	24"	4"	20" C-905	KOR-N-SEAL BOOT24L
Invert 2	406'	90°	12"	41.5"	8" PVC	KOR-N-SEAL Boot12A
Invert 3	403.17'	270°	24"	7.5"	20" C-905	KOR-N-SEAL BOOT24L
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						

Bottom of Hole - Left - Top of Floor



(P1) - 72" - PBU - 72PBU72

Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

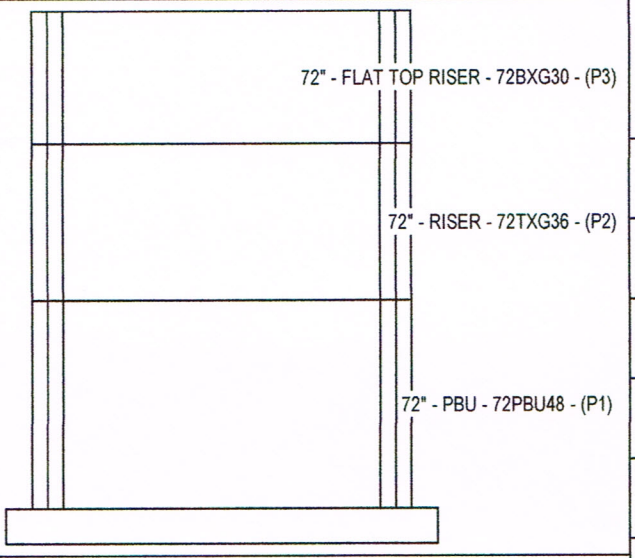
Oldcastle Precast

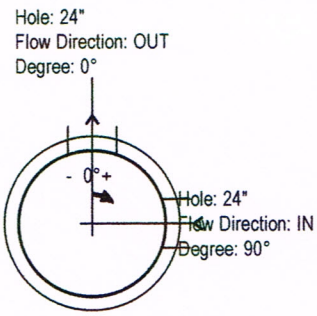
1) 72" - FLAT TOP RISER - 72BXG30
1) 72" - RISER - 72TXG36
1) 72" - PBU - 72PBU48
3) 72" - Conseal - 1 1/2" Conseal
2) KOR-N-SEAL - BOOT24L

Structure ID: **Sta. 1+82.25 (MH-02)**
Size: 72"
Rim to Invert: 9.17'
Precast Height: 9.5'
Step Position:

Structure Notes: Thompson Regional Water Reclamation
Weaver Const. Mgmt.

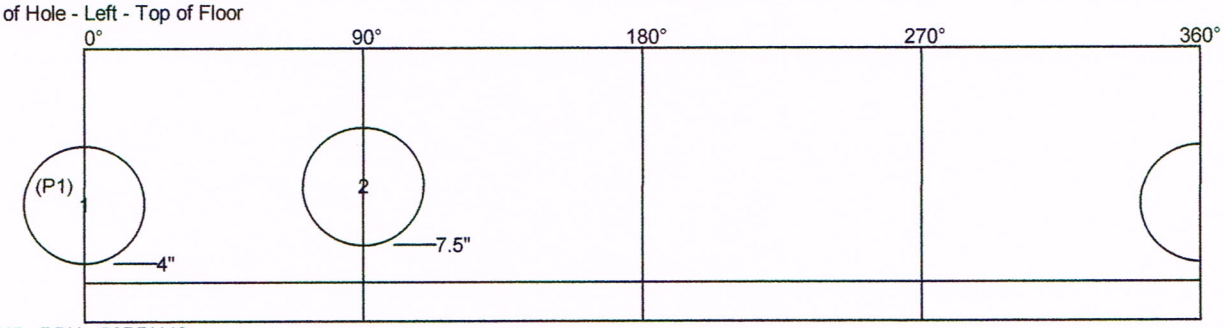
No steps in manhole. 12" joint wrap on exterior.





Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	414.25'					
Reducer						
Invert 1	405.08'	0°	24"	4"	20" C-905	KOR-N-SEAL BOOT24L
Invert 2	405.38'	90°	24"	7.5"	20" C-905	KOR-N-SEAL BOOT24L
Invert 3						
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						

Bottom of Hole - Left - Top of Floor



(P1) - 72" - PBU - 72PBU48

Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

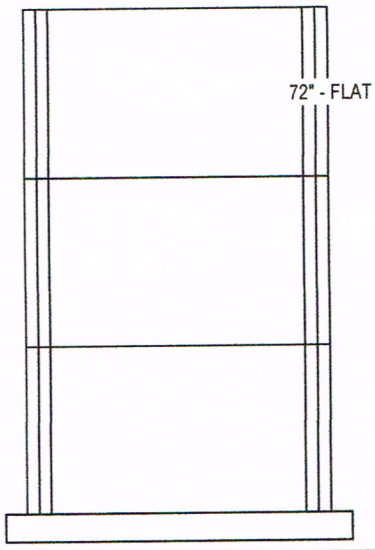
Oldcastle Precast

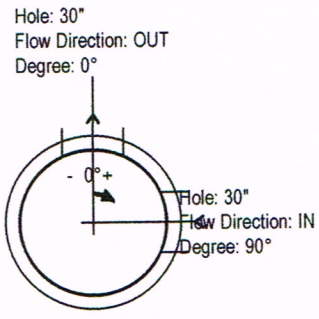
1) 72" - FLAT TOP RISER - 72BXG48
1) 72" - RISER - 72TXG48
1) 72" - PBU - 72PBU48
3) 72" - Conseal - 1 1/2" Conseal
2) KOR-N-SEAL - BOOT30

Structure ID: **Sta. 0+69.09 Manhole MH-04**
Size: 72"
Rim to Invert: 11.72'
Precast Height: 12'
Step Position:

Structure Notes: Thompson Regional Water Reclamation Weaver Const. Mgmt.

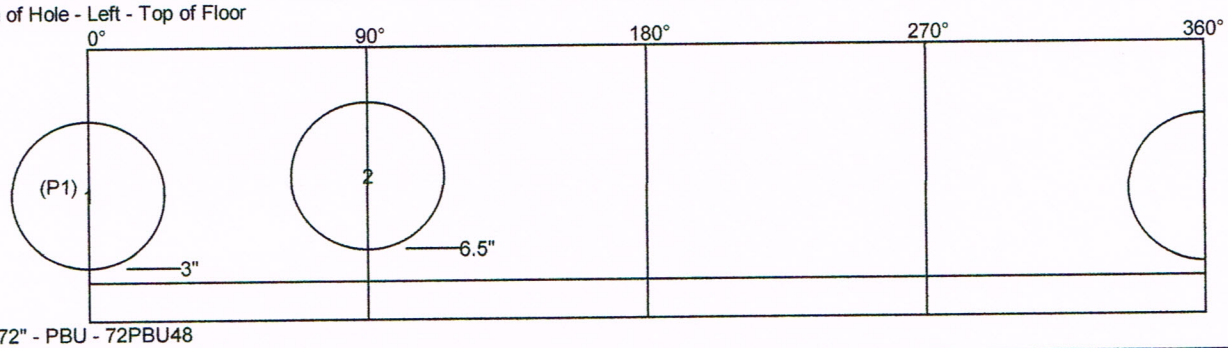
No steps in manhole. 12" joint wrap on exterior.





Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	410'					
Reducer						
Invert 1	398.28'	0°	30"	3"	24" C-905	KOR-N-SEAL BOOT30
Invert 2	398.58'	90°	30"	6.5"	24" C-905	KOR-N-SEAL BOOT30
Invert 3						
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						

Bottom of Hole - Left - Top of Floor



(P1) - 72" - PBU - 72PBU48

Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

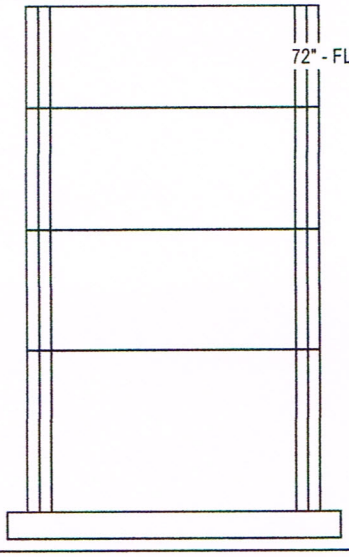
Oldcastle Precast

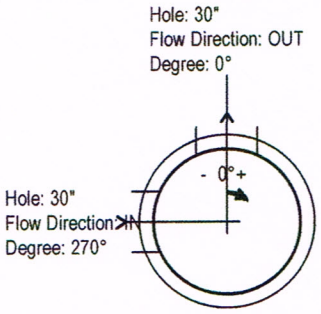
1) 72" - FLAT TOP RISER - 72BXG30
2) 72" - RISER - 72TXG36
1) 72" - PBU - 72PBU48
4) 72" - Conseal - 1 1/2" Conseal
2) KOR-N-SEAL - BOOT30

Structure ID: **Sta. 0+09.26 Manhole MH-05**
Size: 72"
Rim to Invert: 12.24'
Precast Height: 12.5'
Step Position:

Structure Notes: Thompson Regional Water Reclamation
Weaver Const. Mgmt.

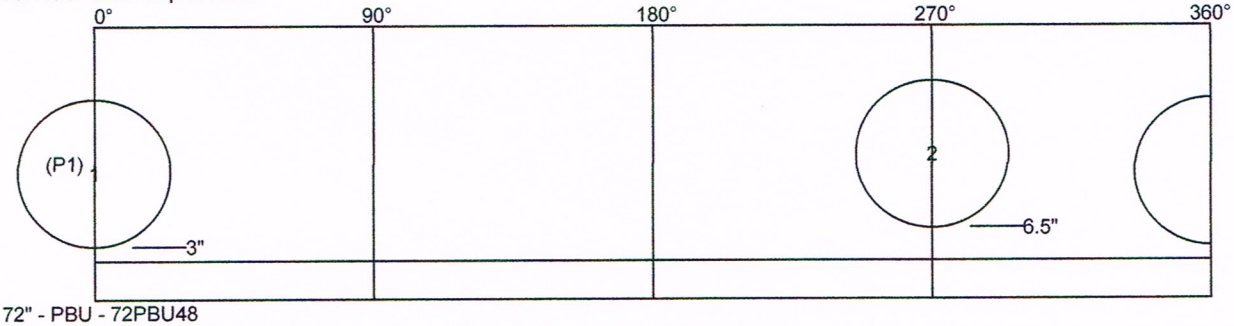
No steps in manhole. 12" joint wrap on exterior.





Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	409.5'					
Reducer						
Invert 1	397.26'	0°	30"	3"	24" C-905	KOR-N-SEAL BOOT30
Invert 2	397.56'	270°	30"	6.5"	24" C-905	KOR-N-SEAL BOOT30
Invert 3						
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						

Bottom of Hole - Left - Top of Floor



(P1) - 72" - PBU - 72PBU48

Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

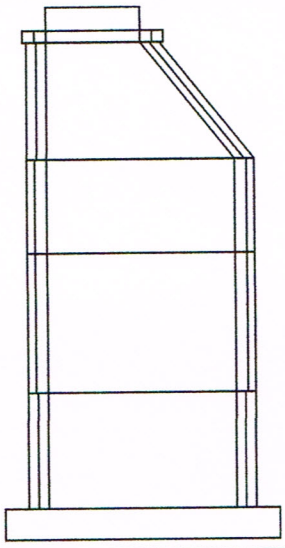
Oldcastle Precast

1) 24" - RING & COVER - R&C24X6
1) 24" - GRADE RING - 24GRR03
1) 48" - CONE - 48ECC30AE
1) 48" - RISER - MH Riser 48"X2'
1) 48" - RISER - MH Riser 48"X3'
1) 48" - PBU w/Invert - 48PBU30CI
3) 48" - Conseal - 1" Conseal
1) KOR-N-SEAL - BOOT12
1) KOR-N-SEAL - Boot12A
10.25 VtFt) Bitumastic 300M - Bitumastic 300M(Coal tar epoxy) (1)

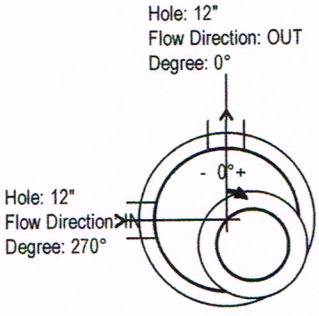
Structure ID: **Sta. 0+90.00** **Manhole MH-13A**
Size: 48"
Rim to Invert: 10.33'
Precast Height: 10.75'
Step Position:

Structure Notes: Thompson Regional Water Reclamation Weaver Const. Mgmt.

Composite Ring & cover. Plastic adjusting rings. Joint wrap on exterior.
Coat interior with two coats of coal tar epoxy.
No steps in manhole.

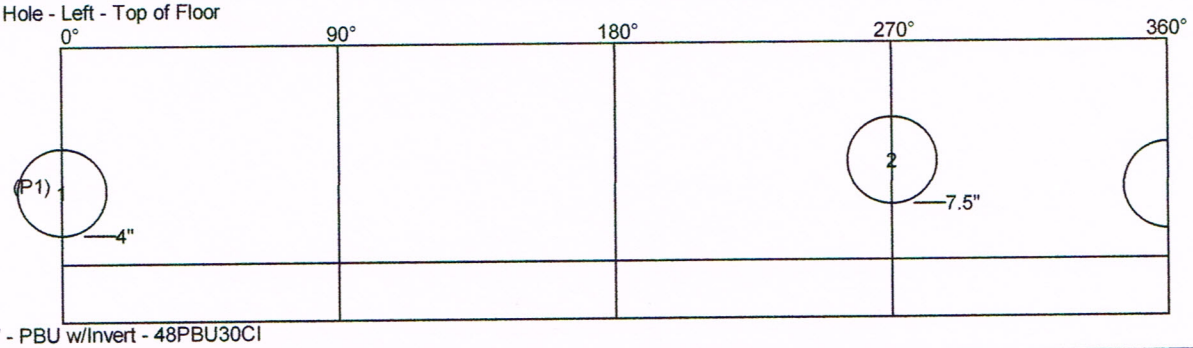


24" - RING & COVER - R&C24X6 - (P6)
24" - GRADE RING - 24GRR03 - (P5)
48" - CONE - 48ECC30AE - (P4)
48" - RISER - MH Riser 48"X2' - (P3)
48" - RISER - MH Riser 48"X3' - (P2)
48" - PBU w/Invert - 48PBU30CI - (P1)



Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	403.92'					
Reducer						
Invert 1	393.59'	0°	12"	4"	8" D.I.	KOR-N-SEAL BOOT12
Invert 2	393.89'	270°	12"	7.5"	8" PVC	KOR-N-SEAL Boot12A
Invert 3						
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						

Bottom of Hole - Left - Top of Floor



(P1) - 48" - PBU w/Invert - 48PBU30CI

Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

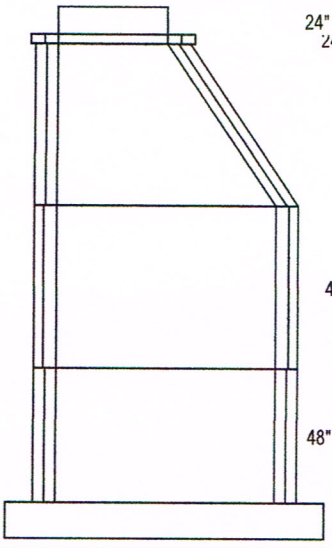
Oldcastle Precast

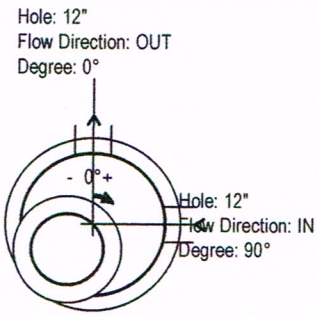
1) 24" - RING & COVER - R&C24X6
1) 24" - GRADE RING - 24GRR02
1) 48" - CONE - 48ECC36AE
1) 48" - RISER - MH Riser 48"X3'
1) 48" - PBU w/Invert - 48PBU30CI
2) 48" - Conseal - 1" Conseal
1) KOR-N-SEAL - BOOT12
1) KOR-N-SEAL - Boot12A
8.67 VtFt) Bitumastic 300M - Bitumastic 300M(Coal tar epoxy) [INT]

Structure ID: **Sta. 4+63.16** **Manhole MH-13**
Size: 48"
Rim to Invert: 8.74'
Precast Height: 9.17'
Step Position:

Structure Notes: Thompson Regional Water Reclamation
Weaver Const. Mgmt.

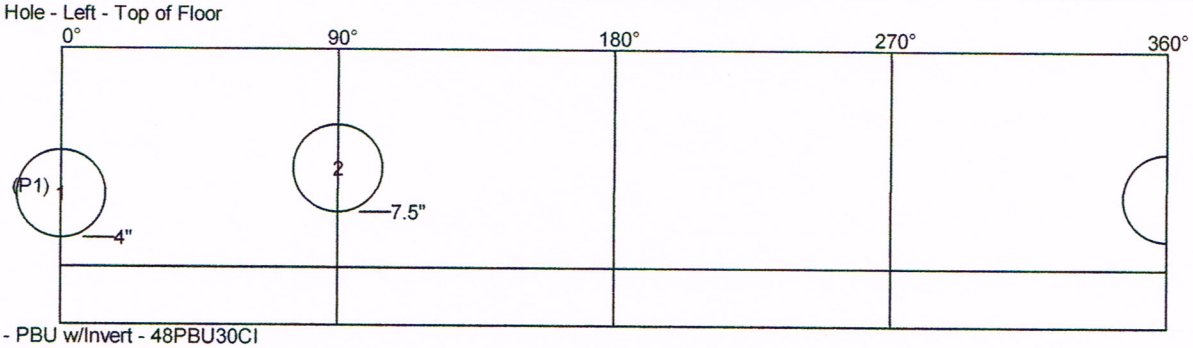
Composite Ring & cover. Plastic adjusting rings. Joint wrap on exterior.
Coat interior with two coats of coal tar epoxy.
No steps in manhole.





Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	405.2'					
Reducer						
Invert 1	396.46'	0°	12"	4"	8" D.I.	KOR-N-SEAL BOOT12
Invert 2	396.76'	90°	12"	7.5"	8" PVC	KOR-N-SEAL Boot12A
Invert 3						
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						

Bottom of Hole - Left - Top of Floor



(P1) - 48" - PBU w/Invert - 48PBU30CI

Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

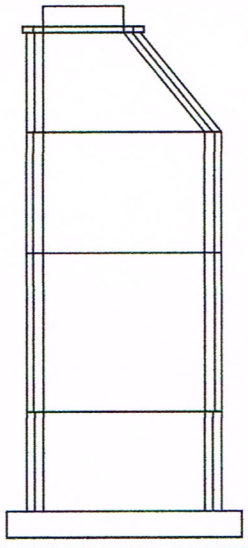
Oldcastle Precast

1) 24" - RING & COVER - R&C24X6
1) 24" - GRADE RING - 24GRR02
1) 48" - CONE - 48ECC30AE
1) 48" - RISER - MH Riser 48"X3'
1) 48" - RISER - MH Riser 48"X4'
1) 48" - PBU w/Invert - 48PBU30CI
3) 48" - Conseal - 1" Conseal
2) KOR-N-SEAL - Boot12A
1) KOR-N-SEAL - BOOT12B
12.17 VtFt) Bitumastic 300M - Bitumastic 300M(Coal tar epoxy)(1)

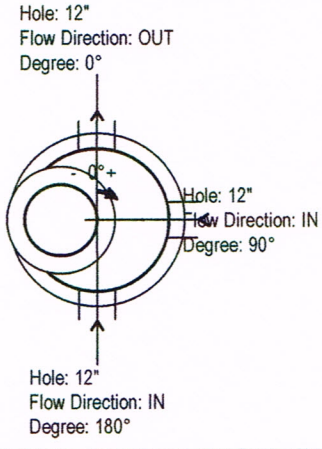
Structure ID: **Sta. 6+99.16 Manhole MH-12A**
Size: 48"
Rim to Invert: 12.17'
Precast Height: 12.67'
Step Position:

Structure Notes: Thompson Regional Water Reclamation
Weaver Const. Mgmt.

Composite Ring & cover. Plastic adjusting rings. Joint wrap on exterior.
Coat interior with two coats of coal tar epoxy.
No steps in manhole.

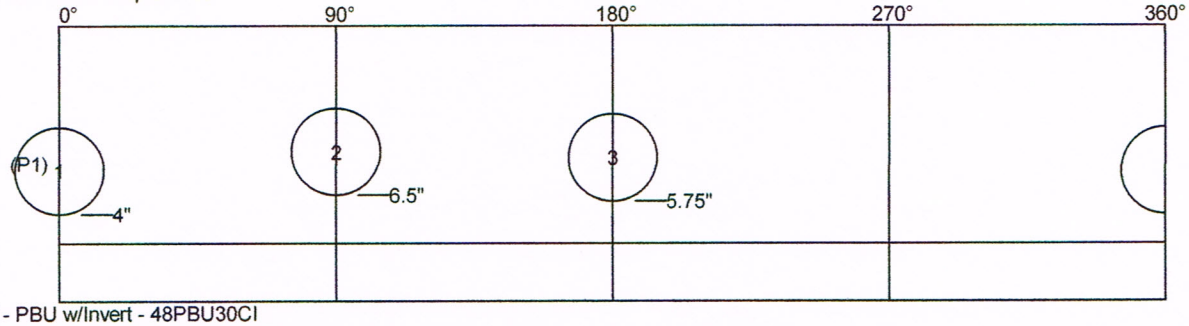


24" - RING & COVER - R&C24X6 - (P6)
24" - GRADE RING - 24GRR02 - (P5)
48" - CONE - 48ECC30AE - (P4)
48" - RISER - MH Riser 48"X3' - (P3)
48" - RISER - MH Riser 48"X4' - (P2)
48" - PBU w/Invert - 48PBU30CI - (P1)



Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	410.7'					
Reducer						
Invert 1	398.53'	0°	12"	4"	8" PVC	KOR-N-SEAL Boot12A
Invert 2	398.83'	90°	12"	6.5"	6" PVC	KOR-N-SEAL BOOT12B
Invert 3	398.68'	180°	12"	5.75"	8" PVC	KOR-N-SEAL Boot12A
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						

Bottom of Hole - Left - Top of Floor



(P1) - 48" - PBU w/Invert - 48PBU30CI

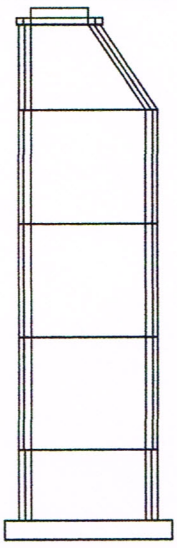
Job Name: Thompson Regional Water Reclamation Facility
Weaver Construction Mgmt.

Oldcastle Precast

1) 24" - RING & COVER - R&C24X4
1) 24" - GRADE RING - 24GRR03
1) 48" - CONE - 48ECC36AE
2) 48" - RISER - MH Riser 48"X4'
1) 48" - RISER - MH Riser 48"X4'
1) 48" - PBU w/Invert - 48PBU30CI
4) 48" - Conseal - 1" Conseal
1) KOR-N-SEAL - BOOT12
1) KOR-N-SEAL - BOOT12B
1) KOR-N-SEAL - BOOT07
17.75 VtFt) Bitumastic 300M - Bitumastic 300M(Coal tar epoxy) [INT]

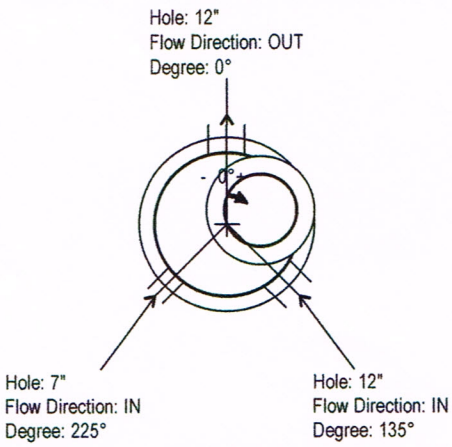
Structure ID: **Sta. 8+38.57** **Manhole MH-12**
Size: 48"
Rim to Invert: 17.63'
Precast Height: 18.08'
Step Position:

Structure Notes: Thompson Regional Water Reclamation
Weaver Const. Mgmt.
Composite Ring & cover. Plastic adjusting rings. Joint wrap on exterior.
Coat interior with two coats of coal tar epoxy.
No steps in manhole.

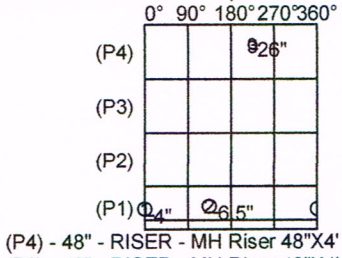


24" - RING & COVER - R&C24X4 - (P7)
48" - CONE - 48ECC36AE - (P5)
48" - RISER - MH Riser 48"X4' - (P4)
48" - RISER - MH Riser 48"X4' - (P3)
48" - RISER - MH Riser 48"X4' - (P2)
48" - PBU w/Invert - 48PBU30CI - (P1)

Position	Elev	Angle	Hole	UP (_)	Pipe	Connector
Rim	417.36'					
Reducer						
Invert 1	399.73'	0°	12"	4"	8" C-900	KOR-N-SEAL BOOT12
Invert 2	400.03'	135°	12"	6.5"	6" C-900	KOR-N-SEAL BOOT12B
Invert 3	412.03'	225°	7"	26"	4" D.I.	KOR-N-SEAL BOOT07
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						



Bottom of Hole - Left - Top of Floor



(P4) - 48" - RISER - MH Riser 48"X4'
(P3) - 48" - RISER - MH Riser 48"X4'
(P2) - 48" - RISER - MH Riser 48"X4'
(P1) - 48" - PBU w/Invert - 48PBU30CI