Racine Water and Wastewater Utilities

Keith E. Haas, P.E.
General Manager

RACINE ON THE LAKE
City of Racine, Wisconsin

Michael L. Gitter, P.E.
Chief of Operations

Kenneth M. Scolaro, C.P.A.
Administrative Manager

Chad W. Regalia, P.E.
Chief Engineer

November 12, 2020

Board of Waterworks Commissioners:
Mayor Cory Mason
Alder John Tate II
Terry McCarthy
Kathleen DeMatthew
Stacy Sheppard
Alder Natalia Taft
James Spangenberg
Kathleen Fischer

SUBJECT: Change Order No. 1 – Contract W-19-9 – 933 Water Tank and Connection Foxconn

Dear Commissioners:

Submitted for your review and approval is Change Order No. 1 on Contract W-19-9, 933 Water Tank and Connection Foxconn, Landmark Structures I. L.P. (contractor) a credit in the amount of $40,232.80. This Change Order is for the following:

1.	Mitigation of unstable subgrade in the driveway	5,740.00
2.	Value engineering credit	-13,400.00
3.	New electrical service allowance	-7,572.80
4.	SCADA system allowance	-25,000.00
	TOTAL	($ 40,232.80)

The original contract amount is $ 3,109,000.00. Change Order No. 1would decrease the total contract amount to $3,068,767.20. This change order reflects a decrease of 1.30% on the original contract amount.

Sincerely,

Mike Gitter
Chief of Operations

MG/eg

Change Order No. One (1)

Date of Issuance:	November 11, 2020	Effective Date:	November 11, 2020
		Owner:	Racine Water and Wastewater Utilities
Contract:	933 Water Tank and Connection Foxconn	Owner Contract No.:	W-19-9
Contractor:	Landmark Structures I. L.P.	Engineer:	Ruekert & Mielke, Inc.
Address:	1665 Harmon Road	Engineer's Project No.:	8022-10037
	Fort Worth, TX 76177	Effective Date of Contract:	April 22, 2019

The Contract is modified as follows upon execution of this Change Order:

Description:
See attached summary table.

Reason for Change Order:
See attached summary table.

Attachments:
- Change Order 1 summary table.
- Supporting Attachment "A" – Change Order from Contractor and Work Order from Subcontractor
- Supporting Attachment "B" – Value Engineering Proposal from Contractor and Response Comments
- Supporting Attachment "C" – We Energies Cost Letter

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES
Original Contract Price $ 3,109,000.00	Original Contract Times: Substantial Completion: October 1, 2020 Ready for Final Payment: November 1, 2020 days or dates
Increase/Decrease from previously approved Change Orders: $ 0.00	●Increase● ●Decrease● from previously approved Change Orders No. ___ to No. ___: Substantial Completion: Ready for Final Payment: days
Contract Price prior to this Change Order: $ 3,109,000.00	Contract Times prior to this Change Order: Substantial Completion: Ready for Final Payment: days or dates
Decrease of this Change Order: $ 40,232.80	Increase of this Change Order: Substantial Completion: October 11, 2020 Ready for Final Payment: December 1, 2020 days or dates
Contract Price incorporating this Change Order: $ 3,068,767.20	Contract Times with all approved Change Orders: Substantial Completion: October 11, 2020 Ready for Final Payment: December 1, 2020 days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: 	By:	By:
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Christopher L. Epstein, P.E. Ruekert & Mielke, Inc.	City of Racine	Landmark Structures I, L.P.
Date: November 11, 2020	Date:	Date:

933 Water Tank and Connection Foxconn
Change Order 1 Summary

Contract Addition

Item	Supporting Attachment	Description	Amount	Reasons Needed
1	A	Mitigation of unstable subgrade in the driveway.	$ 5,740.00	Testing agency Intertek PSI performed subgrade preparation and improvement observation testing in the driveway. Due to Intertek PSI's recommendations, additional excavation work was conducted by subcontractor Willkomm to remove unstable subgrade and replace it with 3-inch dense graded crushed stone.
		Total	**$ 5,740.00**	

Contract Credit

Item	Supporting Attachment	Description	Amount	Reasons Needed
1	B	Value Engineering Credit	$ (13,400.00)	Value Engineering credit of $13,400 for approved items on Value Engineering Proposal #VE19113 submitted by contractor.
2	C	New Electrical Service allowance adjusment.	$ (7,572.80)	Allowance amount of $10,000 for New Electrical Service. Electrical Service was provided by We Energies at a cost of $2427.20. Credit of $7527.80 for unused allowance.
3	-	SCADA System allowance adjustment.	$ (25,000.00)	Allowance amount of $25,000 for New Electrical Service. Utility decided to provide SCADA system ouside this contract. Credit of $25,000 for unused allowance.
		Total	**$ (45,972.80)**	

Time Adjustment

Item	Supporting Attachment	Description	Amount	Reasons Needed
1	-	Adjustment to contract Substantial Completion to October 11, 2020	-	Delays due to "abnormal weather conditions"
2	-	Adjustment to contract Ready for Final Payment date to December 1, 2020	-	Delays due to the requirement in section 32 90 00 stating that seed cannot be placed between 10/1 and 11/14.

Net Change Order Amount $ (40,232.80)

Owner Change Order No. 1
Job Name: Louis Sorensen Road Elevated Tank
Job Number: 1641
Internal CO Number:
Description: Mitigation of unstable subgrade per PSI recommendation

	ITEM DESCRIPTION	AMOUNT DETAIL QTY		UNIT		UNIT RATE	EXTENDED AMOUNT	TOTAL AMOUNT
1	**ENGINEERING/PROJECT MANAGEMENT**							**$690.00**
1	ENGINEERING	0.00	Each	0.00	Hour	$125.00	-	
2	DRAFTING	0.00	Each	0.00	Hour	$50.00	-	
3	PROJECT MANAGEMENT	1.00	Each	5.00	Hour	$90.00	450.00	
4	PROGRAM MANAGEMENT	1.00	Each	2.00	Hour	$120.00	240.00	
5	**PROCUREMENT**							**$0.00**
6							-	
7							-	
8							-	
9							-	
10							-	
11							-	
12							-	
13							-	
14							-	
15							-	
16							-	
17							-	
18							-	
19							-	
20							-	
21							-	
22							-	
23	**CONSTRUCTION**							**$0.00**
24								
25	**Installation Labor**							
26							-	
27							-	
28							-	
29							-	
30	**Equipment**						-	
31							-	
32							-	
33	**SUBCONTRACT**							**$4,015.09**
34							-	
35							-	
36	WillKomm Invoice for mitigation of unstable grade per PSI recommendation.	1.00	EACH	1.00	EACH	$4,015.09	4,015.09	
37							-	
38							-	
39							-	
40							-	
41							-	
42							-	
43							-	
44							-	
45	**CHANGE ORDER AMOUNT SUMMARY**							**$0.00**
46								
47								
48							ENGINEERING/PROJECT MANAGEMENT	$690.00
49							PROCUREMENT	$0.00
50							CONSTRUCTION	$0.00
51							SUBCONTRACT	$4,015.00
52							Sub-Total	$4,705.00
53						**Bond and Insurance**		$94.10
54						**OVERHEAD & FEE @ 20%**		$941.00
55						**TOTAL VALUE OF THIS CHANGE ORDER**		**$5,740.00**
56								
57								
58								
59								
60	**JOB COMPLETION TIME IMPACT DUE TO THIS CHANGE ORDER**							
61	Current Substantial Completion Date						**11-Oct-20**	
62	Current Final Completion Date						**11-Nov-20**	
63	***Previously requested 10 weather delay days.***							
64	**Days Added with this Change**						**1 Days**	
65								
66	Revised Substantial Completion Date (with this CO)						**11-Jan-11**	
67	Revised Final Completion Date (with this CO)						**2-Nov-20**	
68								
69	**CHANGE ORDER SUMMARY**							
70	**Total Amount of this change**							**$5,740.00**
71	**Amount of Increase of Time To Complete**							**1 Days**
72	**Revised Substantial Completion Date Due to This Change**							**11-Jan-11**
73	**Revised Final Completion Date Due to This Change**							**02-Nov-20**
74								
75								

Willkomm Excavating & Grading, Inc.
17108 County Line Road • Union Grove, WI 53182
262.878.0877 • Fax 262.878.1337

WORK ORDER
No.7767

BILL TO - Landmark Structures I, L.P.

ADDRESS - 1665 Harmon Road

CITY - Fort Worth, TX 76177

JOB NAME AND LOCATION - Louis Sorenson Road-Elevated Tank, Sturtevant, WI

Start Date	COMPLETED DATE	JOB NUMBER	ORDER TAKEN BY
8/07/2020	8/07/2020	29016	Rob Hribar

LABOR

Employee/Classification	Hours ST	Hours OT	Rate	Amount
Foreman	2	2	$30.65	$61.30
Operator	2	2	$30.65	$61.30
Truck Driver	1.5	0	$0.00	$0.00
Truck Driver	3	0	$0.00	$0.00
Truck Driver	3	0	$0.00	$0.00
Truck Driver	1.5	0	$0.00	$0.00
Truck Driver	1.75	0	$0.00	$0.00
Truck Driver	1.5	0	$0.00	$0.00
Total Labor	**16.25**	**4**		**$122.60**

EQUIPMENT

Unit Number/Description	Hours	Rate	Amount
#523 Dozer	4	$153.00	$612.00
#592 Excavator	4	$196.00	$784.00
#608 Dump Truck	1.5	$115.00	$172.50
#611 Dump Truck	3	$115.00	$345.00
#544 Dump Truck	3	$115.00	$345.00
#97 Dump Truck	1.5	$115.00	$172.50
#70 Dump Truck	1.75	$115.00	$201.25
#92 Dump Truck	1.5	$115.00	$172.50
Total Equipment	**20.25**		**$2,804.75**

DESCRIPTION OF WORK

Undercut due to poor soil conditions in road, backfill with 3" TB, per PSI proof roll.

MATERIALS

Vendor/Description	Quantity	Rate	Amount
3" TB	84.06	$12.94	$1,087.74
Total Materials			**$1,087.74**

Total Labor	**$122.60**
Total Equipment	**$2,804.75**
Total Material	**$1,087.74**
Amount to Invoice	**$4,015.09**

Foreman Signature Date

Owners Representative Signature Date

The signatory acknowledges the satisfactory completion of the work described above, that a change order will be issued as a result, and any ancillary term purporting to nullify this work order provision is void.

Get tickets - 2 loads
Includes dirt off

Willkomm Excavating & Grading, Inc.
17108 County Line Road • Union Grove, WI 53182
262.878.0877 • Fax 262.878.1337

WORK ORDER

No.7767

BILL TO

START DATE 8-7-20

ADDRESS

COMPLETED DATE 8-7-20

CITY Mt Pleasant

JOB NUMBER 29016

JOB NAME AND LOCATION Elevated Tank / Mt Pleasant

ORDER TAKEN BY Rob Hribar

LABOR

Employee/Classification	Hours ST	Hours OT	Rate	Amount
Rob Hribar/022	2	2		
Mike Devries/022	2	2		
Scott G/Truck Driver	1.5			
Dennis G/Truck #611 Driver	3			
Tiffany/Truck Driver #515	3			
Scott/Hall #97	1.5			
~~Ted/Jun. #70~~	1.75			
~~Hall/#92~~	1.5			
Total Labor				20.25

EQUIPMENT

Unit Number/Description	Hours	Rate	Amount
523/50 Dozer	4		
592/Komatsu 360 Excavator	4		
Total Equipment			8

DESCRIPTION OF WORK

Undercut due to poor soil conditions in road.

Backfill with 3" TB.

Per PSI Proof Roll

MATERIALS

Vendor/Description	Quantity	Rate	Amount
Franklin agg/3" TB	84.06		
~~Dump Fees~~	4 loads		~~50.00~~
~~dirt~~			
Total Materials			

Total Labor	20.25
Total Equipment	8
Total Material	84.06 Tn.
Amount to Invoice	

8-7-20
Foreman Signature — Date

Owners Representative Signature — Date

The signatory acknowledges the satisfactory completion of the work described above, that a change order will be issued as a result, and any ancillary term purporting to nullify this work order provision is void.

FRANKLIN AGGREGATES
6211 WEST RAWSON AVENUE
FRANKLIN, WI 53132
(414) 421-2532

Daily Job Total		20.94
Product	Loads	Quantity
190	1	20.94

DriverID
Truck H94
Master *
Hauler/Payee 99999

N/C CASH

Ticket Number
80370 2070 0755255

08/7/20 14:25
OUTBOUND

	206893	WILLKOMM EXCAVATING & GRADI PO 1
Sales Order	145223	FOB J29016 SORENSON RD ELEV/ PO 2
Product	190	3" TB
AC:		
Quantity	20.94	US TON(S)
GrossPounds	TarePounds	NetPounds
71,080	29,200	41,880

ORIGINAL

Driver Name / Received by: X_____

As evidence by Signature or departure from Seller's facility, you are agreeing to accept and be bound by the Terms/Conditions on the reverse side for the material and vehicle or any future vehicle at this Facility or any other Company Facilities.

NEW HOURS 6:30 - 430PM, SAT-7-NOON (BE IN QUARRY 15 MIN BEFORE CLOSE) 80370 2070 0755255

FRANKLIN AGGREGATES
6211 WEST RAWSON AVENUE
FRANKLIN, WI 53132
(414) 421-2532

Daily Job Total		42.35
Product	Loads	Quantity
190	2	42.35

DriverID
Truck H98
Master 12408
Hauler/Payee 114746

JUNG BROS

Ticket Number
80370 2070 0755256

08/7/20 14:26
OUTBOUND

	206893	WILLKOMM EXCAVATING & GRADI PO 1
Sales Order	145223	FOB J29016 SORENSON RD ELEV PO 2
Product	190	3" TB
AC:		
Quantity	21.41	US TON(S)
GrossPounds	TarePounds	NetPounds
71,480	28,660	42,820

REPRINT 08/17/20 07:23

Driver Name / Received by: X_____

As evidence by Signature or departure from Seller's facility, you are agreeing to accept and be bound by the Terms/Conditions on the reverse side for the material and vehicle or any future vehicle at this Facility or any other Company Facilities.

NEW HOURS 6:30 - 430PM, SAT-7-NOON (BE IN QUARRY 15 MIN BEFORE CLOSE)

80370 2070 0755256

FRANKLIN AGGREGATES
6211 WEST RAWSON AVENUE
FRANKLIN, WI 53132
(414) 421-2532

Daily Job Total		63.36
Product	Loads	Quantity
190	3	63.36

DriverID	
Truck	H92
Master	*
Hauler/Payee	99999
N/C CASH	

Ticket Number
80370 2070 0755260

08/7/20 14:33
OUTBOUND

	206893	WILLKOMM EXCAVATING & GRADI PO 1
Sales Order	145223	FOB J29016 SORENSON RD ELEV/ PO 2
Product	190	3" TB
AC:		
Quantity	21.01	US TON(S)
GrossPounds	TarePounds	NetPounds
68,080	26,060	42,020

ORIGINAL

Driver Name / Received by: X_____

As evidence by Signature or departure from Seller's facility, you are agreeing to accept and be bound by the Terms/Conditions on the reverse side for the material and vehicle or any future vehicle at this Facility or any other Company Facilities.

NEW HOURS 6:30 - 430PM, SAT-7-NOON (BE IN QUARRY 15 MIN BEFORE CLOSE) 80370 2070 0755260

FRANKLIN AGGREGATES
6211 WEST RAWSON AVENUE
FRANKLIN, WI 53132
(414) 421-2532

Daily Job Total		84.06
Product	Loads	Quantity
190	4	84.06

DriverID	
Truck	WIL608
Master	*
Hauler/Payee	99999
N/C CASH	

Ticket Number
80370 2070 0755265

08/7/20 14:47
OUTBOUND

	206893	WILLKOMM EXCAVATING & GRADI PO 1
Sales Order	145223	FOB J29016 SORENSON RD ELEV/ PO 2
Product	190	3" TB
AC:		
Quantity	20.70	US TON(S)
GrossPounds	TarePounds	NetPounds
71,100	29,700	41,400

ORIGINAL

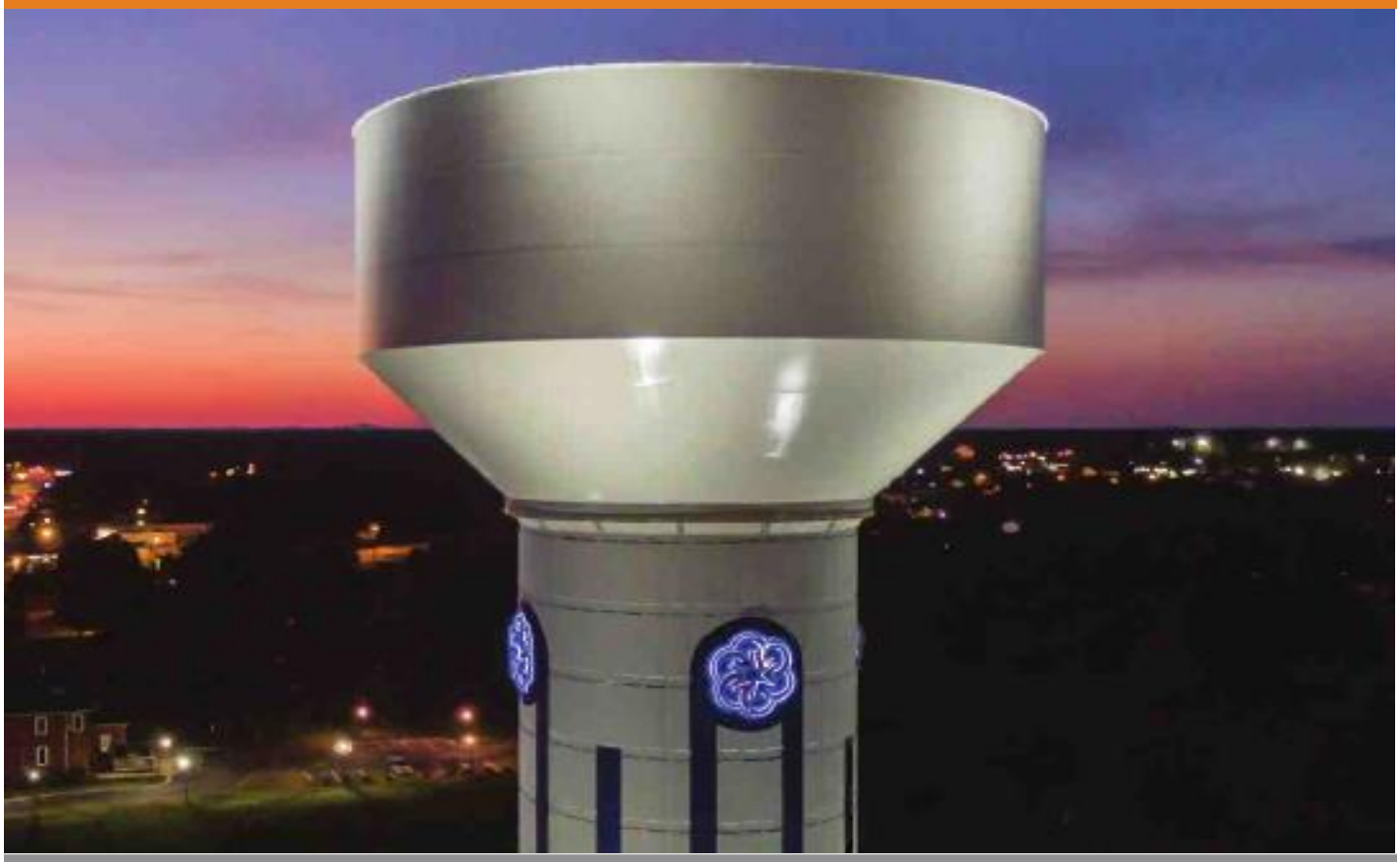
Driver Name / Received by: X_____

As evidence by Signature or departure from Seller's facility, you are agreeing to accept and be bound by the Terms/Conditions on the reverse side for the material and vehicle or any future vehicle at this Facility or any other Company Facilities.

NEW HOURS 6:30 - 430PM, SAT-7-NOON (BE IN QUARRY 15 MIN BEFORE CLOSE) 80370 2070 0755265

LANDMARK
PRE-CONSTRUCTION SERVICES

VALUE ENGINEERING PROPOSAL



Racine Water & Wastewater Utility

Louis Sorenson Road Elevated Tank

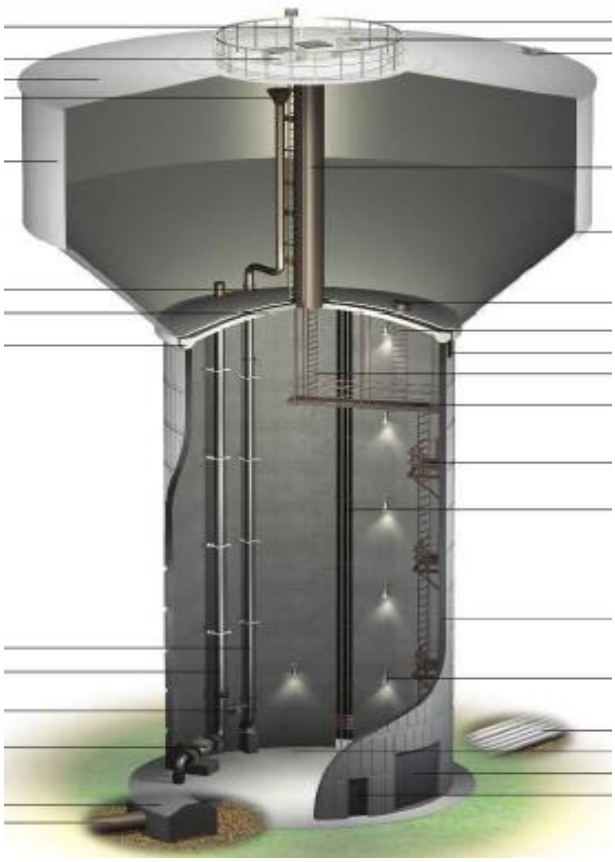
Engineer: Ruekert & Mielke Inc.

Landmark Pre-Construction Services

Benjie Talley
Director of Pre-Construction Services
Office 817.439.8888, x1212
Mobile 817.917.5072
btalley@teamlandmark.com
www.teamlandmark.com

Gary Stanford
Pre-Construction Strategy Manager
Office 817.439.8888, x1511
Mobile 817.913.5061
gstanford@teamlandmark.com
www.teamlandmark.com

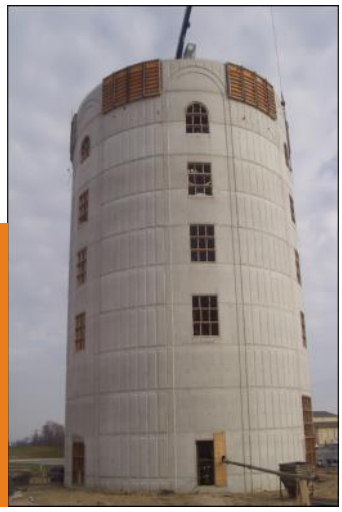
LANDMARK™
Elevating Expectations



About Us

OUR COMMITMENT TO YOU

Landmark strives to be the company of choice in the Composite Elevated Tank market. With more than 75 percent of all large capacity Composite Elevated Tank applications, no one has more experience providing high quality, low maintenance solutions for our clients. As the originator and market leader of the Composite Elevated Tank, our strict adherence to top safety, quality, and efficiency standards facilitate timely completion and added value to your project beyond just being the low bidder.



MAXIMIZING INVESTMENT: After award, our Pre-Construction Services Department aims to share our depth of knowledge and experience in all aspects of Composite Elevated Tank construction, ensuring we deliver superior value in the design, manufacturing, and construction phases. Our integrated and collaborative approach to Value Engineering is part of our commitment to quality, and designed to make your journey from pre-construction through project completion and beyond a truly exceptional experience. These recommendations have withstood the test of time and have a proven record of quality and longevity in the industry.

Value Engineering Proposal #VE19113

This proposal will improve the project's performance, value and/or quality, lower construction cost, or shorten the delivery time, while considering their impacts on the project's overall life-cycle cost and other applicable factors. Please take a moment to review our best offering and feel free to contact us with any questions or comments.

Proposed items on the following pages include labor, material, and overhead required to complete the individual scopes:

Contract Value at Award $3,109,000.00

Value Engineering Items ..... ($35,755.00)

Contract Value After Acceptance $3,073,245.00

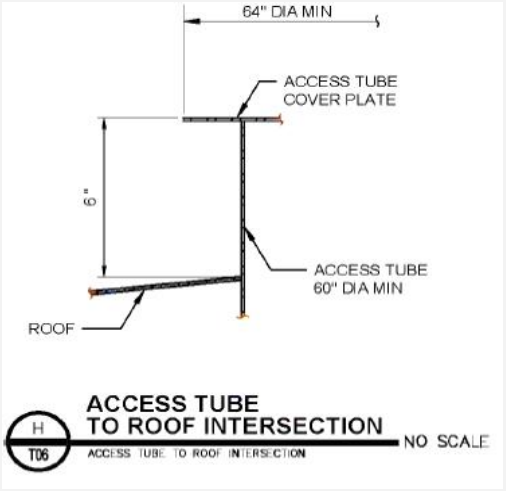
WE LOOK FORWARD TO WORKING WITH YOU ON THIS PROJECT TO MAKE IT A SUCCESS!

Access Tube / Roof Connection See Appendix 1

Access tube to roof intersection detail is shown.

Landmark proposes our typical detail:

- Maintains standard tank design
- Hatch assembly provides height above roof
- Cleaner appearance



Access Tube Hatch Vent

Vent is required on access tube hatch.

Landmark proposes to remove:

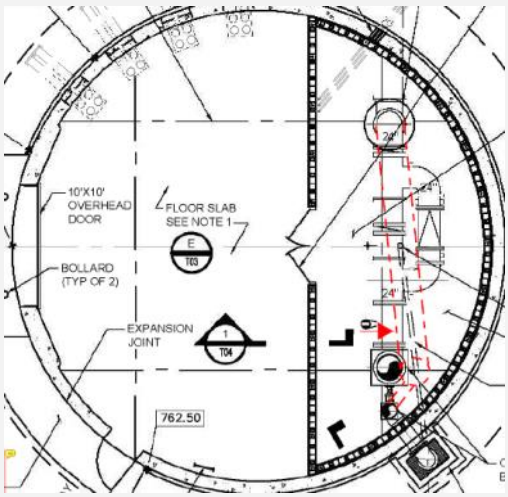
- Is not required per AWWA D107
- Unnecessary opening to be maintained

Chamber Pipe Configuration ($1,500.00)

Inlet/Outlet pipe shown inline with overflow and 24" diameter bypass.

Landmark proposes rotating closer to pedestal wall and 16" diameter bypass:

- Pipe will intersect low point of the tank
- Does not require dedicated drain
- Uses standard wall brackets
- Smaller bypass frees up space
- Smaller bypass is less cost



Chamber Pipe Material

Ductile iron pipe is required for chamber room.

Landmark proposes stainless steel:

- Corrosion resistant surface
- Hot-dipped galvanized steel back-up flanges
- No coating maintenance
- No additional cost

Chamber Room ($12,000.00)

See Appendix 2

Masonry units are required for chamber room.

Landmark proposes 4” thick Metal-Span panels:

- Pre-insulated
- Brighter cleaner appearance
- Factory baked on finish
- Reduces load differential on slab-on-grade
- Efficient installation
- Quality workmanship
- Thickened slab not required below walls

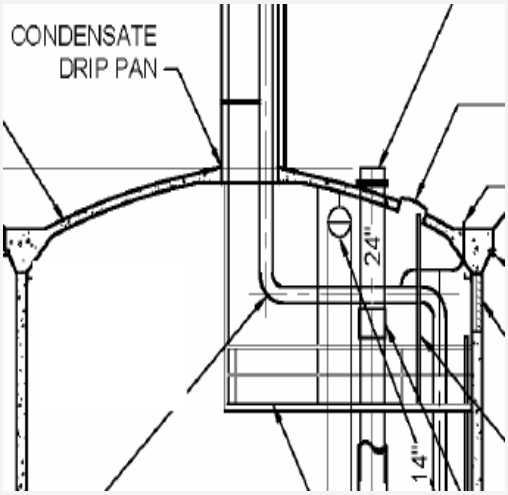
Condensate Drip Ring

See Appendix 3

A condensate drip pan is called out on plans.

Landmark proposes a drip ring:

- More efficient
- Less to maintain
- Works better with access tube design
- Drip pans used when access tube extends to landing



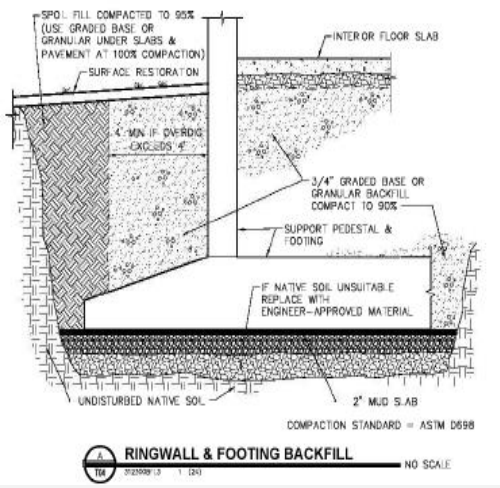
Exterior Backfill

See Appendix 4

3/4” granular base is required for exterior backfill.

Landmark proposes compacted native fill:

- Base holds water with multi-phased backfill
- In accordance with AWWA D107 and industry standards
- Compacted to 95% standard proctor



Ladder Safety Rail

($5,850.00)

See Appendix 5

Miller SAF-T-CLIMB system is required.

Landmark proposes aluminum TS Fall Prevention System by French Creek:

- Safest for operation and long term performance
- Climber is kept closer in proximity to the rail
- Light weight corrosion resistant material
- Unlike the required system there are no ongoing equipment recalls
- Standard practice during construction
- Compatible with anchorage connectors, trolleys, and harnesses

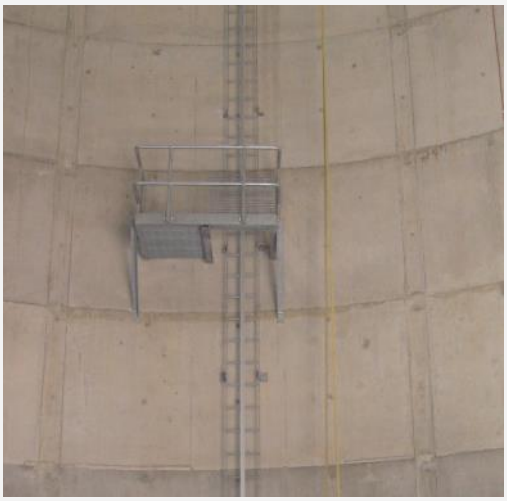
Landings (Intermediate)

($3,250.00)

Offset landings required at 25’ spacing.

Landmark proposes straight-run ladders and pass through landings spaced at 50’:

- Offset is difficult and dangerous
- Climber remains tied off the full climb
- Safety climb replaced need for offsets
- OSHA allows 150’ spacing

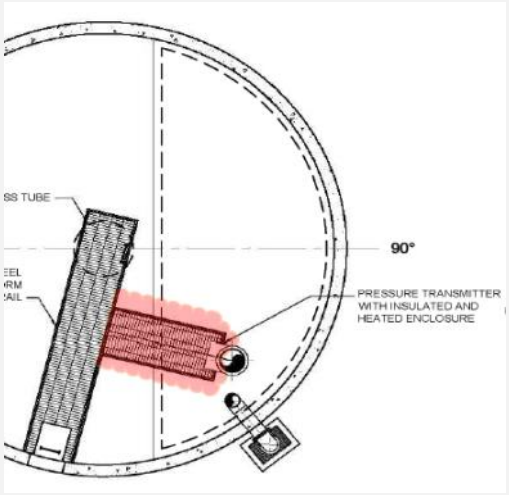


Landing (Top)
($2,800.00)

Landing shown extending to transmitter enclosure.

Landmark proposes removing landing and pressure transmitter enclosure:

- Tank level reading from chamber room
- No landing necessary
- No freeze protection needed
- Easier access for maintenance



Max Fill Flow Rate

4,000 gpm fill rate is specified.

Please confirm this is max fill flow rate:

- Used to calculate overflow pipe capacity
- Optimize overflow size

Design Data:

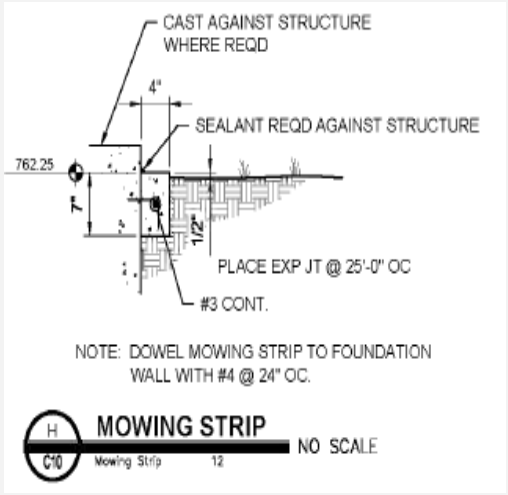
1. Capacity: 1,250,000 gallons.
2. Top Capacity Line: 170' 6".
3. Approximate Head Range: 40 ft
4. Minimum Plate Thickness: 1/4-inch
5. Corrosion Allowance: None.
6. Fill Rate: 4,000 gpm.
7. Withdrawal Rate: 4,000 gpm.

Mow Strip

Mow strip shown cast against structure.

Landmark proposes not cast to structure:

- Independent of structure
- Avoid settlement concerns
- Smoother transition to finish grade
- Casting against structure may recess mow strip

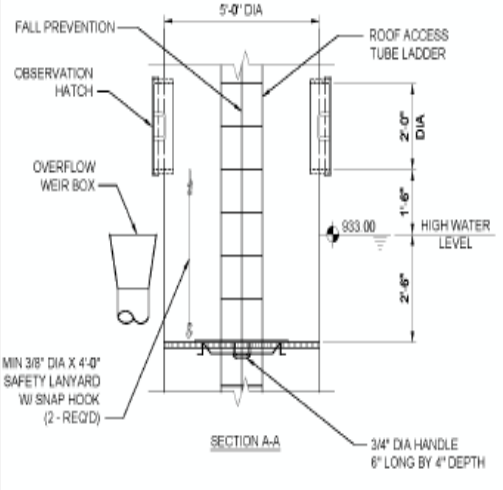


Observation Platform ($3,380.00)

Observation Platform shown on plans.

Landmark proposes to remove:

- Non-typical as shown and increase lead-time
- Maintenance item as shown
- Not often used as shown



Overflow Inside Tank

See Appendix 6

Overflow pipe is shown inside the access tube.

Landmark proposes inside tank:

- Adds to an already congested space
- Difficult to route future communication antenna cables
- Maintain OSHA ladder clearance requirements

Overflow Pipe Diameter ($3,200.00)

See Appendix 7

14” overflow pipe diameter is required.

Landmark proposes 12” diameter:

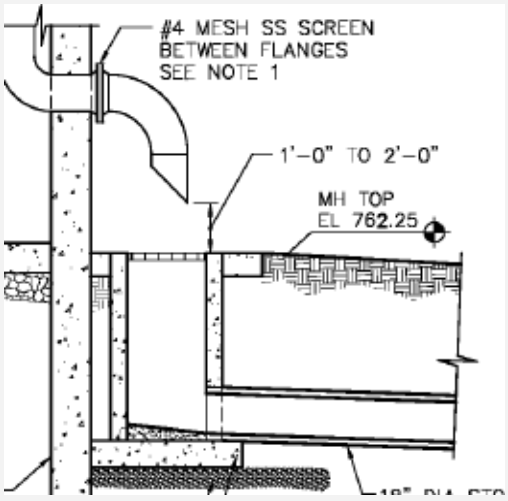
- Less cost
- 4000 gpm max fill flow rate
- 3.51 Safety Factor

Overflow Screen

Stainless steel screen required between flanges.

Landmark proposes removing:

- Screens known to clog or restrict flow
- Risk tank damage



Painted Galvanized Ladder

Tank interior ladders are required to be coated

Landmark proposes painted hot-dipped galvanized:

- Carbon steel ladders present corrosion issues
- Difficult to coat edges and irregular surfaces
- Use will result in damage to the coating film
- Galvanizing provides durable protection

Painter's Rail Hatch

24" diameter painter's rail access hatch is shown.

Landmark proposes 30" square:

- Provides better access to painter's rail
- Bolted cover provides tight seal
- Typical detail

Post Installed Concrete Anchors

Stainless Steel concrete anchors are required.

Landmark proposes hot-dipped galvanized steel:

- Corrosion resistant
- Sufficient for dry interior use
- Zinc Coating (hot dip galvanize) per ASTM A123
- Industry standard

Roof Guardrail ($2,675.00)

Inner and outer guardrails are shown on the roof.

Landmark proposes removing inner guardrail:

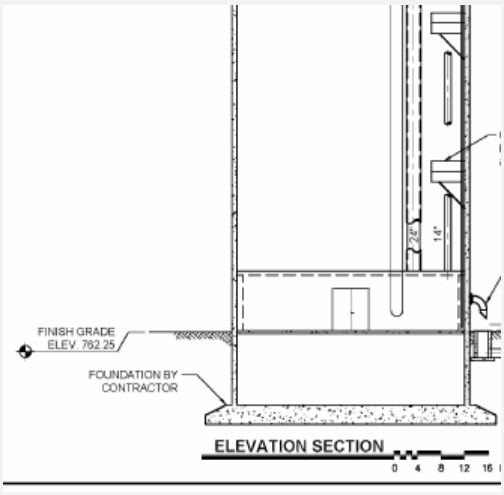
- Unnecessary maintenance item
- Outer guardrail is sufficient
- Redundancy is not needed
- Less cost

Slab-on-Grade Elevation

Finished floor is shown at elevation 762.50.

Landmark proposes raising to 763.00:

- 9” above finished grade
- Encourages drainage away from structure
- Extra height should any settlement occur

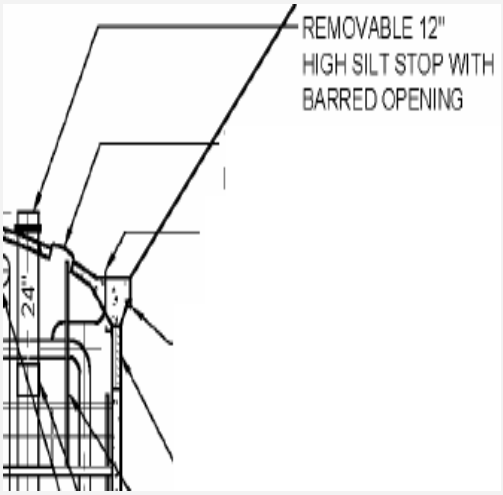


Silt Stop
(See Appendix 8)

Removable 12” high silt stop is required.

Landmark proposes 6” high:

- Industry standard
- Additional height is not required

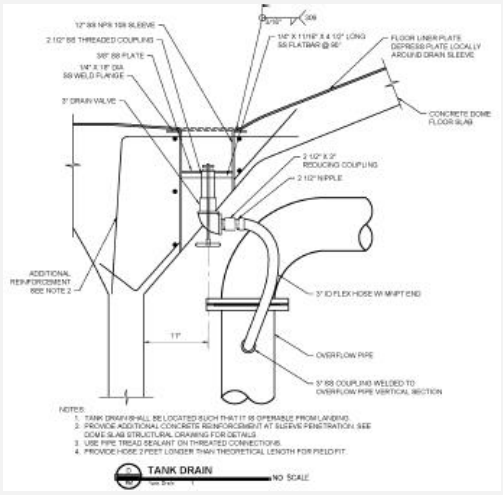


Tank Drain
($1,100.00)
(See Appendix 8)

Tank drain shown at the low point of tank.

Landmark proposes to remove:

- Inlet/outlet pipe intersects low point of tank
- Drain through overflow crossover valve at grade
- Unnecessary maintenance item



Water Main Encasement
(See Appendix 9)

Encasement shown flush with top of slab.

Landmark proposes to terminate the easement below:

- Avoids differential movement issues
- Slab-on-grade moves independent of structure

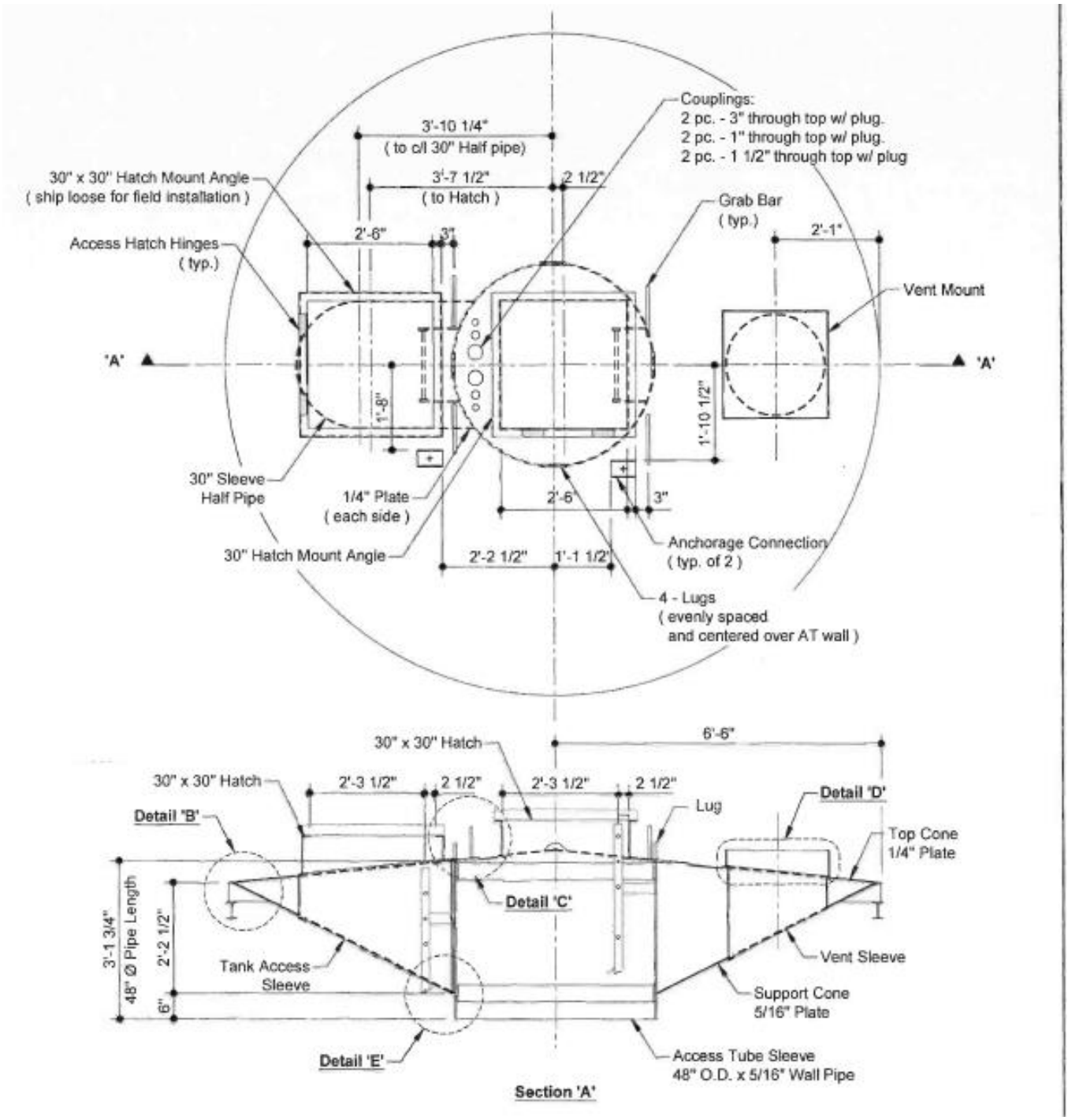
Water Main Flange

Mechanical joint connecting ductile to stainless pipe.

Landmark proposed a bolted flanged connection:

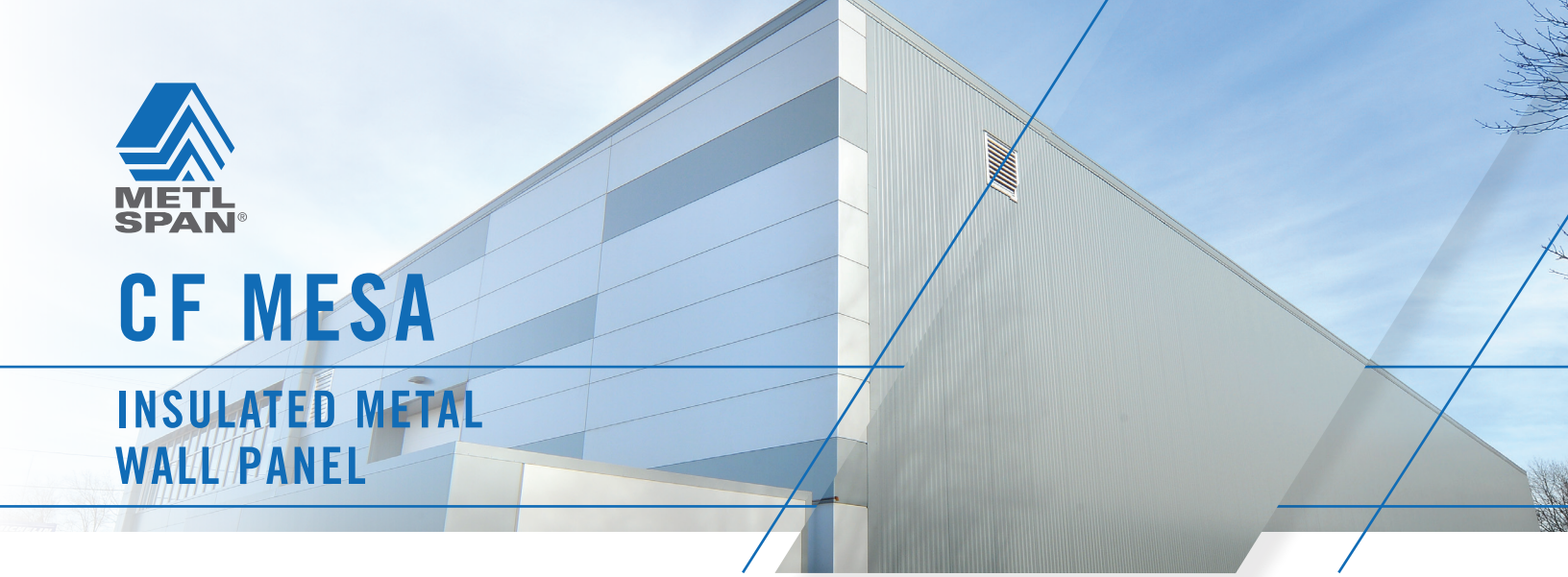
- Difficult transition to seal as shown
- Easier to isolate between dissimilar metals

APPENDIX 1 - Access Tube / Roof Connection Detail



APPENDIX 2

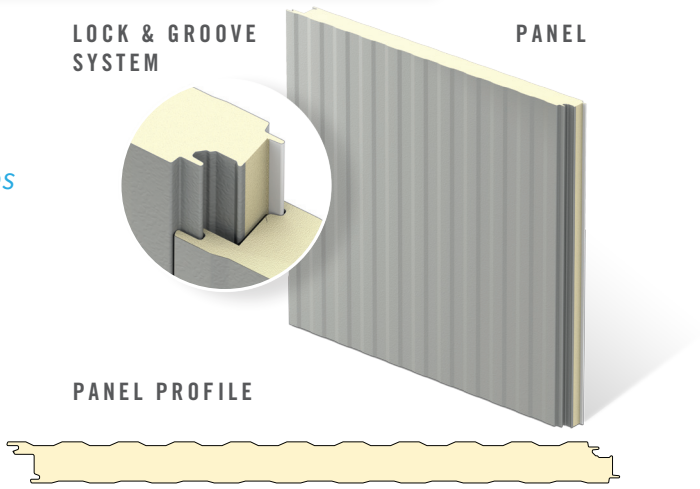
METAL-SPAN BROCHURE



CF MESA

INSULATED METAL WALL PANEL

The Metl-Span CF Mesa insulated metal panel is well suited for exterior and interior walls and ceiling applications. The lightly corrugated profile on both faces creates symmetry on the outside of the building and room to room within. The minor rib provides a flattened appearance. Mesa panels are ideal for cold storage, commercial, institutional and industrial applications.



PRODUCT SPECIFICATIONS

WIDTH • 30", 36", 42"

THICKNESS • 2", 2½", 3", 4", 5", 6"

LENGTH
- 8'-0" to 32'-0" for horizontal embossed
- 8'-0" to 16'-0" for horizontal unembossed
- 8'-0" to 52'-0" for vertical embossed
- 8'-0" to 40'-0" for vertical unembossed

EXTERIOR PROFILE • Longitudinal corrugations spaced at nominal 4" on center, nominal ⅛" deep, embossed or unembossed

EXTERIOR FACE • G-90 galvanized or AZ-50 aluminum-zinc coated steel in 26, 24 and 22 Ga.

INTERIOR PROFILE • Mesa, nominal ⅛" deep or Light Mesa, nominal 1/16" deep, embossed or unembossed

INTERIOR FACE • G-90 galvanized or AZ-50 aluminum-zinc coated, 304 or 316 stainless steel in 26, 24, 22 Ga~.

JOINT • Offset double tongue-and-groove with extended metal shelf for positive face fastening

U-FACTORS AND R-VALUES*

U-FACTOR (BTU/h·ft²·°F)

PANEL WIDTH: 42"	75°
2"	0.0706
2½"	0.0516
3"	0.0424
4"	0.0324
5"	0.0264
6"	0.0224

PANEL WIDTH: 42"	40°
2"	0.0669
2½"	0.0491
3"	0.0401
4"	0.0305
5"	0.0248
6"	0.0210

R-VALUE (h·ft²·°F/BTU)

PANEL WIDTH: 42"	75°
2"	14.16
2½"	19.38
3"	23.58
4"	30.86
5"	37.88
6"	44.64

PANEL WIDTH: 42"	40°
2"	14.95
2½"	20.37
3"	24.94
4"	32.79
5"	40.32
6"	47.62

*Based on ASTM C518, ASTM C1363 and thermal modeling, 75° F and 40° F core mean temp.
~22 Ga not available for stainless steel

DESIGN FEATURES & BENEFITS

- Consistent high quality with foamed-in-place panel manufacturing
- Easily washable
- Utilizes concealed clips and eliminates thermal short circuits
- Easy and fast installation, with reduced construction labor costs
- Interior and exterior applications
- USDA Compliant stainless steel for use in aggressive or daily wash-down areas

Metl-Span: Performance Redefined
1720 Lakepointe Drive, Suite 101, Lewisville, Texas 75057 (p) 877.585.9969 (f) 972.420.9382 metlspan.com

PART# CFMDS0616

TESTING: CF MESA INSULATED METAL WALL PANEL

TEST/APPROVAL	TEST METHOD	TEST TITLE	RESULTS
Fire US	ASTM E84	Surface Burning Characteristics of Building Materials	Flame spread <25, smoke developed <450
	ASTM E119	Fire Tests of Building Construction Materials	One hour non-load bearing rating with two layers of Type X Gypsum Vertical or horizontal installation
	FM 4880	Class 1 Fire Rating of Insulated Wall, Ceiling and Roof Panels	Product approved Exterior wall requires FM 4881 approval
	NFPA 259	Test Method for Potential Heat of Building Materials	Potential heat of foam plastic insulation contained in the assembly tested in accordance with NFPA 285
	NFPA 285	Evaluation of Fire Propagation Characteristics of Exterior Non-Load Bearing Wall Assemblies	Panel assembly met the requirements of the standard
	NFPA 286	Fire Tests for Evaluating Contribution of Wall and Ceiling Finish to Roof Fire Growth	Test specimen met the criteria of the IBC Section 803.1.2.1
Fire Canada	CAN/ULC S101	Fire Endurance Tests of Building Construction and Materials	One hour non-load bearing fire rating with two layers of Type X Gypsum
	CAN/ULC S101	Fire Endurance Tests of Building Construction and Materials	Meets 15 minute stay-in-place requirements
	CAN/ULC S102	Surface Burning Characteristics of Building Materials and Assemblies	Meets the National Building Code of Canada requirements
	CAN/ULC S134	Fire Test of Exterior Wall Assemblies	Complies with the fire-spread and heat-flux limitations required by the National Building Code of Canada
	CAN/ULC S138	Fire Growth of Insulated Building Panels in a Full-Scale Room Configuration	Met the criteria of the standard
Structural	ASTM E72	Strength Tests of Panels for Building Construction	See Load Chart
	ASTM E1592	Structural Performance of Metal Roof and Siding Systems by Uniform Static Air Pressure Differences	See Load Chart
	FM 4881	Class 1 Exterior Wall Structural Performance	See FM Wall Load Chart
Thermal Performance	ASTM C518	Steady-State Thermal Transmission Properties by Means of the Heat-Flow Meter Apparatus	K-Factor of 0.126 BTU.in/hr.ft^2.°F at 40° F mean core K-Factor of 0.14 BTU.in/hr.ft^2.°F at 75° F mean core
	ASTM C1363	Thermal Performance of Building Materials and Envelope Assemblies	See Thermal Performance Guide
Air Infiltration	ASTM E283	Rate of Air Leakage Through Curtain Walls Under Specified Pressure Differences	<0.01 cfm/ft^2 at 20 psf Vertical or horizontal installation
Water Infiltration	ASTM E331	Water Penetration of Exterior Walls by Uniform Static Air Pressure Differences	No uncontrolled leakage when tested to a static pressure of 20 psf Vertical or horizontal installation
Special Approval	Miami-Dade NOA	Product Approval for City of Miami and Dade County	Product has City of Miami and Dade County Notice of Acceptance
	State of Florida	Product Approval for the State of Florida	Product has State of Florida approval

COLORS

FOR THE COMMERCIAL & INDUSTRIAL MARKET

METL SPAN®

PIONEERING INSULATED
METAL PANEL TECHNOLOGY

STANDARD I EXTERIOR COLORS

Fluropon® Full-Strength 70% PVDF Fluoropolymer Coating

- Polar White — R: .70 E: .86 SRI: 85
- Sandstone — R: .60 E: .86 SRI: 71

STANDARD II EXTERIOR COLORS

Fluropon® Full-Strength 70% PVDF Fluoropolymer Coating

- Regal Gray — R: .55 E: .86 SRI: 64
- Brownstone — R: .47 E: .88 SRI: 54
- Almond — R: .63 E: .87 SRI: 75

Standard I & II Colors in 22 Ga. will incur an additional material charge. Please inquire.

PREMIUM I EXTERIOR COLORS

Fluropon® Full-Strength 70% PVDF Fluoropolymer Coating

- Harbor Blue — R: .28 E: .85 SRI: 27
- Pacific Blue — R: .29 E: .87 SRI: 30
- Colonial Red — R: .34 E: .87 SRI: 36
- Brite Red — R: .49 E: .87 SRI: 56
- Slate Gray — R: .37 E: .88 SRI: 41
- Tundra — R: .46 E: .88 SRI: 52
- Snow White — R: .65 E: .87 SRI: 78
- Natural Patina — R: .41 E: .88 SRI: 46
- Spruce — R: .36 E: .88 SRI: 39
- Hunter Green — R: .35 E: .87 SRI: 37
- Classic Green — R: .27 E: .87 SRI: 27
- Medium Bronze — R: .33 E: .87 SRI: 35
- Terra Cotta — R: .28 E: .87 SRI: 41
- Smoke Gray — R: .50 E: .86 SRI: 57
- Aegean Blue — R: .29 E: .86 SRI: 29
- Gallery Blue — R: .28 E: .85 SRI: 27

PREMIUM II METALLIC & PEARLESCENT EXTERIOR COLORS

Fluropon Classic® & Fluropon Classic® II: Full-Strength 70% PVDF Fluoropolymer Coatings

- Weathered Zinc — R: .38 E: .87 SRI: 41
- Copper Metallic — R:.46 E: .85 SRI: 51
- Silver Metallic — R: .52 E: .80 SRI: 58
- Champagne — R: .40 E: .85 SRI: 43
- Dark Gray Metallic — R: .35 E: .84 SRI: 36

Metallic paint finishes will exhibit color shift, shade variances, striations and longitudinal patterning that are inherent characteristic and are not a product defect or cause for rejection.

TUFF COTE® EXTERIOR COLORS

Tuff Cote® Fiber-Reinforced Polymer Coating – for Tuff Wall® or Tuff-Cast™ Panels only

Antique Bronze
R: .26 E: .86 SRI: 25

Light Gray
R:.35 E: .86 SRI: 37

Light Stone ■
R: .51 E: .85 SRI: 58

Medium Beige
R: .39 E: .86 SRI: 42

Surrey Beige
R: .32 E: .87 SRI: 33

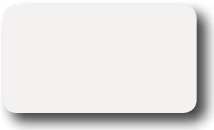
Textured White
R: .64 E: .86 SRI: 77

Warm Limestone
R: .45 E: .87 SRI: 51

■ Light Stone - Tuff Cote® does not match the Light Stone - Standard SP color offering.

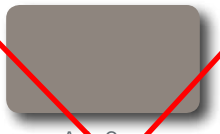
STANDARD SP EXTERIOR COLORS

Siliconized Polyester



Winter White
R: .59 E: .85 SRI: 69

Light Stone ■
R: .50 E: .88 SRI: 58



Ash Gray
R: .47 E: .9[illegible] SRI: 55

PREMIUM SP EXTERIOR COLORS

Siliconized Polyester

Hawaiian Blue
R: .32 E: .87 SRI: 33

Crimson Red
R: .33 E: .8[illegible] SRI: 36

Fern Green
R: .27 E: .88 SRI: 27

Saddle Tan
R: .48 E: .88 SRI: 55

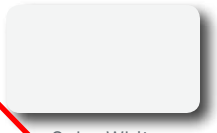
Desert Sand
R: .42 E: .89 SRI: 48

Burnished Slate
R: .28 E: .88 SRI: 29

Koko Brown
R: .28 E: .88 SRI: 29

Charcoal Gray
R: .27 E: .88 SRI: 27

Rustic Red
R: .36 E: .88 SRI: 39

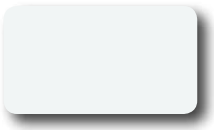


Solar White
R: .74 E: .87 SRI: 91

POLYESTER EXTERIOR COLORS

Igloo White is standard interior color for all panels

Igloo White
R: .64 E: .87 SRI: 77



Polyester Polar White
R: .58 E: .89 SRI: 69

R = Initial Solar Reflectivity (ASTM E903, C1549)

E = Emissivity (ASTM C1371 or E408)

SRI = Solar Reflective Index (ASTM E1980, based on medium wind speed)

All Metl-Span colors are formulated to provide maximum energy-efficiency and solar reflectivity. All standard available Premium I and Premium II colors have been formulated for maximum solar reflectance.

Prices will vary by color, gauge and quantity of metal. Please contact your Metl-Span representative for complete information. All colors shown here approximate actual finish colors as accurately as possible.

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METL SPAN®

PIONEERING INSULATED METAL PANEL TECHNOLOGY

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Suite #101
Lewisville, Texas 75057
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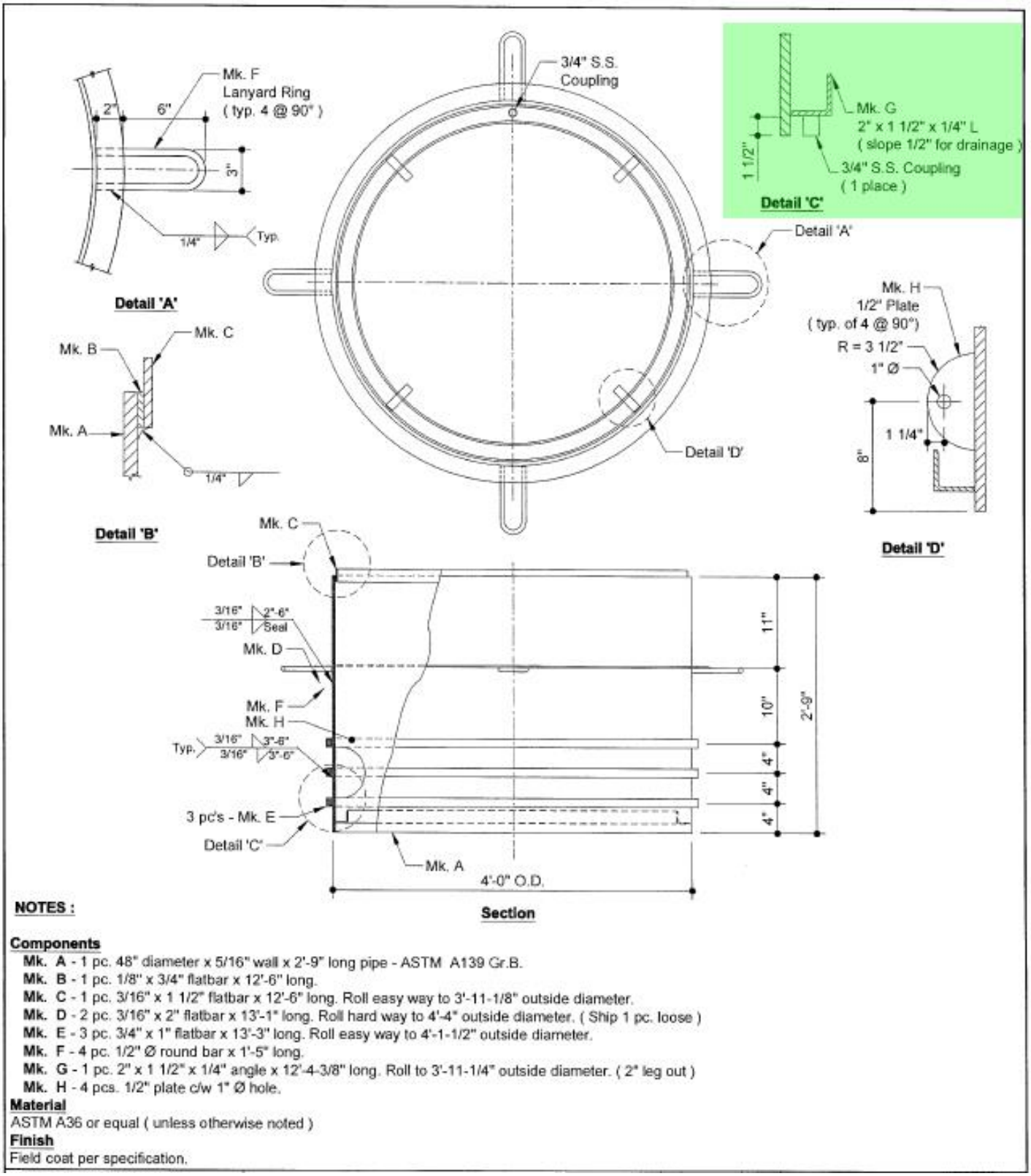
TEL: 972.221.6656
FAX: 972.420.9382
EMAIL: panel@metlspan.com
WEB: metlspan.com

ENVIRONMENTALLY CONNECTED

Printed in the U.S.A. METL-13-025

APPENDIX 3 - ACCESS TUBE CONDENSATION RING DETAIL



NOTES :

Components

Mk. A - 1 pc. 48" diameter x 5/16" wall x 2'-9" long pipe - ASTM A139 Gr.B.
Mk. B - 1 pc. 1/8" x 3/4" flatbar x 12'-6" long.
Mk. C - 1 pc. 3/16" x 1 1/2" flatbar x 12'-6" long. Roll easy way to 3'-11-1/8" outside diameter.
Mk. D - 2 pc. 3/16" x 2" flatbar x 13'-1" long. Roll hard way to 4'-4" outside diameter. (Ship 1 pc. loose)
Mk. E - 3 pc. 3/4" x 1" flatbar x 13'-3" long. Roll easy way to 4'-1-1/2" outside diameter.
Mk. F - 4 pc. 1/2" Ø round bar x 1'-5" long.
Mk. G - 1 pc. 2" x 1 1/2" x 1/4" angle x 12'-4-3/8" long. Roll to 3'-11-1/4" outside diameter. (2" leg out)
Mk. H - 4 pcs. 1/2" plate c/w 1" Ø hole.

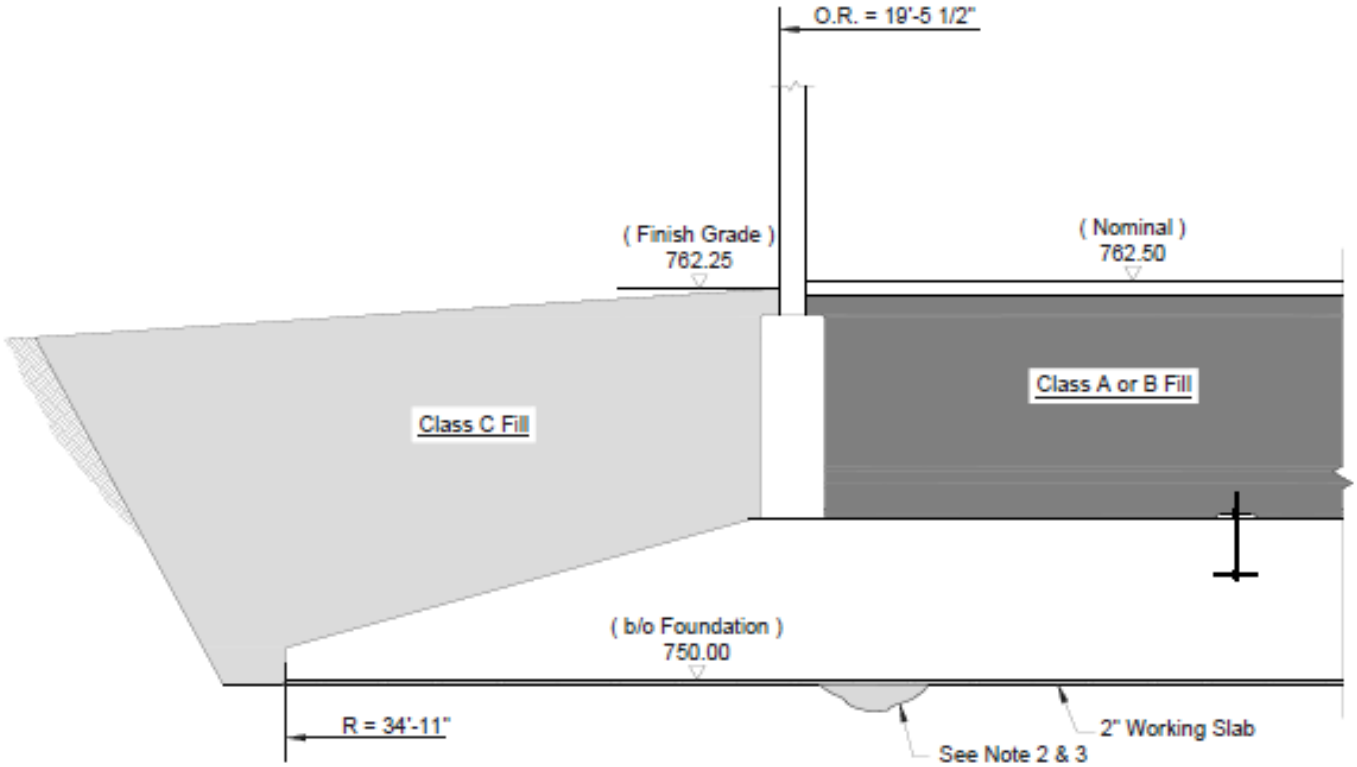
Material

ASTM A36 or equal (unless otherwise noted)

Finish

Field coat per specification.

APPENDIX 4 - EARTHWORK SECTION DETAIL



Excavation Procedure:

1. Excavate to EL. 749.83'.
2. Excavate to greater depth as required by the Geotechnical Engineer to remove soft soils or unsuitable bearing material
3. Backfill to underside of working slab with lean concrete.

Class A Fill:

Well graded crushed stone, or pit-run sand and gravel complying with AASHTO M145 gradation A-1.
Interior fill: Compact in 8" max loose lifts to minimum 95% Standard Proctor density (ASTM D698). Moisture condition as required.

Class B Fill:

Gravel-sized aggregate with 0% - 5% passing a No. 4 sieve, or, material meeting one of the following AASHTO M43 gradations: CA5, CA56, CA57, CA6, or CA67

Class C Fill:

Excavated material compacted to 95% Standard Proctor density (ASTM D698). Moisture condition as required.

APPENDIX 5

TS FALL PREVENTION SYSTEM - TECHNICAL INFORMATION

BULLETIN NO. 100B

FALL PREVENTION SYSTEM

A proven, effective safety rail climbing device for novice or experienced climber . . .

Provides maximum climbing safety for workers on:

• Communications towers • Antennas • Hydro transmission towers • Chimneys • Stacks • Scaffolds • Light support poles • Wind generators • High signs • Elevated water tanks • Dams • Water and sewage pumping stations • Silos • Bins • Interior or exterior industrial ladders • Below street access ladder wells • Refineries • Flare stacks • On shipboard • **Anywhere** climbing must be done!

MINIMIZES risk of severe injury or death by falling.

RECOMMENDED by safety engineers.

CHOSEN by major companies to safeguard employees.

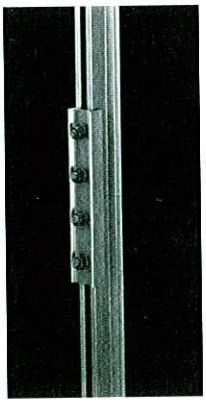
MEETS OSHA REGULATIONS (1910.27), and Canadian Safety Requirements.

The System

TS safety rail attaches quickly, easily to any ladder, step-irons or climbing surface. **TS trolley** with locking brake pawl attaches to climber's belt . . . moves freely up and down the TS safety rail with the climber in a normal climbing position.

Any fall is instantly arrested when climber slips or falls accidentally as a result of fatigue, weather conditions, inexperience, or sudden illness. Eliminates need for offset ladders, platforms, or safety cages.

HOW THE TS FALL PREVENTION SYSTEM WORKS . . .



THE TS RAIL

is die extruded of high strength aluminum alloy in a unique, patented design shape to provide maximum safety and easy installation.

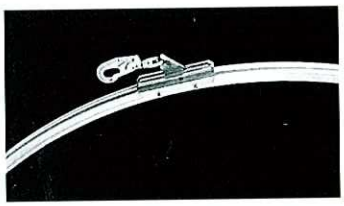
The front portion of the rail incorporates wheel guides for alignment of the trolley on the rail. The bearing wall surface for the brake pawl has as a secondary safety feature . . . protruding stops die formed at 12" increments. This feature is valuable under wet or oily conditions when engaging the trolley brake pawl on the bearing surface.

The back portion of the TS rail features a continuous slot designed to retain the hex head of a 3/8" bolt assembly . . . bolts used for clamping the rail to the supporting structure and interconnecting the rail sections with splice channels. The slot arrangement allows the clamps to be located to suit the attachment spacing without special drilling or in-field alterations.

All rail sections--with the exception of the bottom and top rails--may be reversed or interchanged, since protrusion stops are identical in both directions.

The bottom rail is equipped to retain the ice-guard (optional). The top rail is fitted with a bolt stop to prevent the trolley user from accidentally moving off the top of the safety rail. Rail sections are normally supplied in 20 ft. lengths, although any alternate lengths may be supplied to suit specific requirements without losing the effectiveness of the system.

Rail sections may be pulled in or out several degrees by hand during installation if a slight change of direction occurs in the supporting ladder. Ladders on curved structures, either concave or convex, can be fitted with TS rail preformed to a specific radius at the factory (optional). TS rail can also be adapted to **horizontal** applications.



Curved rail with modified trolley (curved or vertical rail)

TS rail may be extended above the top of the support ladder or structure by 3 to 4 feet to permit the climber total safety in landing himself on a platform or other structure before disengaging from the rail.

SPECIFICATIONS TS RAIL

Aluminum alloy: 6061-T6 (anodized)
Extrusion: 2-3/16"wide by 1-7/16" deep
Tensile strength: 38,000 PSI
Standard length: 20 feet
Prctrusion die formed stops: 3/8" x 1" x 3/32" every 12 inches
Continuous C shaped slot at back of rail confines hex head bolts for attachment of rail to rung.
SPLICE CHANNEL: Aluminum alloy: 6061-T6 (anodized)
Extrusion: 1-13/32" wide x 15/16" deep x 8" long
Tensile strength: 38,000 PSI
MOUNTING BRACKETS: Die formed of C-t020 HRS.
Tensile strength: Approximately 65,000 PSIHot dipped galvanized to ASTM-A-1 53
CAP SCREWS: 3/8"--16 X 1" grade s hex head cap screw. Hot dipped galvanized to ASTM-A-153.
Weight: Rail and attaching parts, approximately 1.15 pounds per foot

TS TROLLEY

is die extruded of high strength aluminum alloy. Precision machined in jigs to provide center slot and pin hole for brake pawl and wheel wells for the **Delrin** wheels. The wheels provide quiet, frictionless operation on the rail, climbing or descending.

Stainless steel brake pawl is confined to the center slot with a press fitted stainless steel pin. The stainless steel extension spring provides immediate braking of the trolley brake pawl if the climber relaxes or slips during ascent or descent.

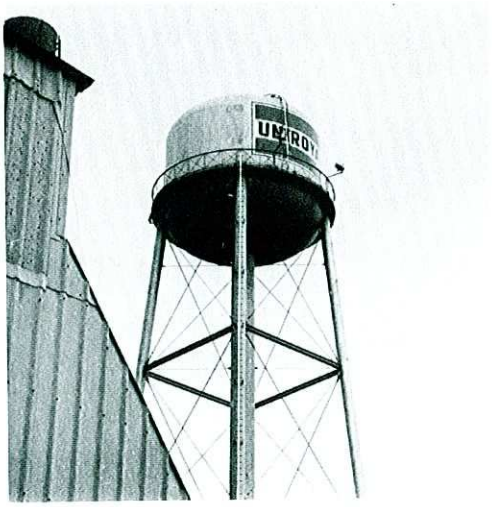
The climber is connected from the brake pawl to the trolley with a swivel type double locking snap hook with quick-action release. The snap hook of the trolley connects directly to the center D-ring of the climber's harness.

The trolley weight is negligible and causes no restriction of maneuverability. If the climber wishes to disengage himself from the trolley at any location on the rail, the trolley will remain in position because of the normal spring-brake action of the brake pawl. If the climber is leaning back slightly to release the brake during the climb, there is no need to adjust or move the trolley with the hands.

Up to four climbers may use one TS installation at the same time if each climber is equipped with a TS trolley and harness.

SPECIFICATIONS TS TROLLEY

Trolley body: Aluminum alloy, 6061-T6 (anodized), extrusion accurately machined in special jigs
Tensile strength: 38,000 PSI
COMBINATION LOCKING PAWL/SNAP HOOK ASSEMBLY:
Locking Paw: Type 303 stainless steel plate with tensile strength of approximately 90,000 PSI . . .secured to trolley body by type 303 stainless steel drive pin.
Snap Hook Assembly: Locking pawl is directly attached to a drop forged double locking swivel type snap hook. Snap hook is, cadmium plated with proof load test of 5,000 pounds.
PAWL SPRING: Stainless steel (302) extension spring.
TROLLEY WHEELS: 4 Delrin wheels 5/16" x .75" diameter. Wheels secured to the trolley body with 1/4" diameter stainless steel (18-8) shoulder screws.
Trolley weight: Approximately 3 pounds.



TS SAFETY BELT

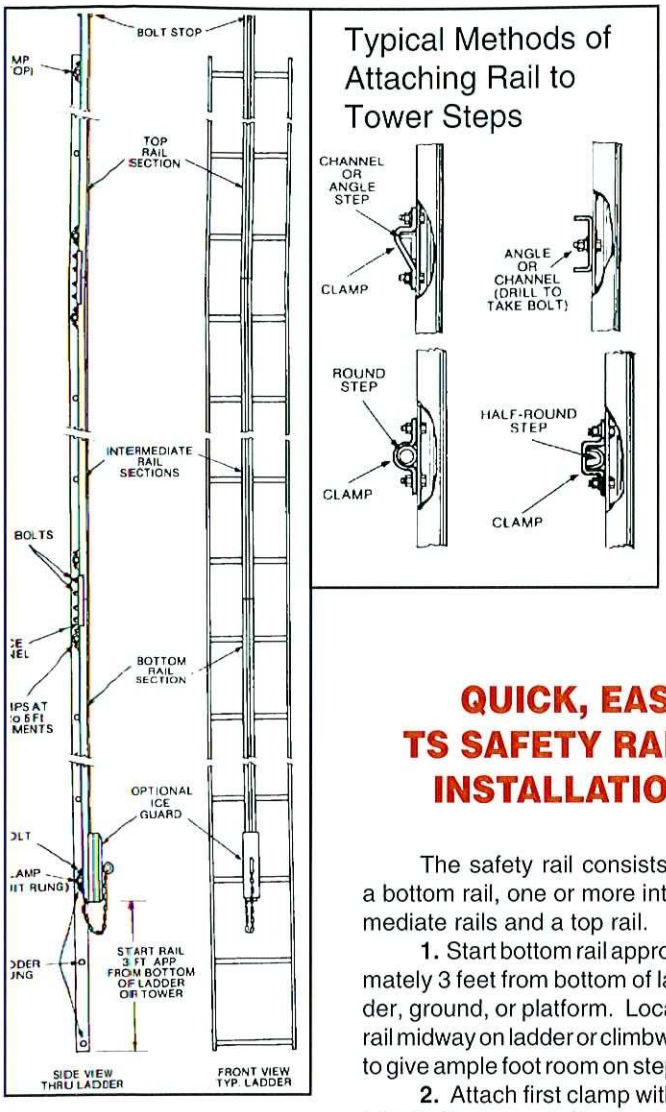
NOTE: Saftey belt is no longer available or acceptable for use with TS Rail System.

The TS Safety Belt is a nylon body strap and work belt designed and manufactured for use with the TS Fall Prevention System. The design meets all requirements of an ANSI Type 1 belt. In addition to the center D-ring which is used for attachment to the TS Safety Trolley, it also has two side D-rings which can be used to attach lanyards or safety straps. This is primarily a climber's belt and does not encompass tool holders or other accessory devices.

SPECIFICATIONS
TS SAFETY BELT

Belt body pad of 4" width polypropylene/polyester material. Body belt of 1-3/4" width nylon webbing with drop forged frame and tongue type buckle. Buckle holes reinforced with brass grommets.
FRONT D-RING: Steel D-ring, 5,000 lb. proof load test, for attachment to trolley snap hook.
SIDE D-RINGS: Two drop forged D-rings, 5,000 lb. proof load test, positioned on each side of belt for attachment of safety straps or lanyards.
Safety belt weight: approximately 2-1/2 lb.

TYPICAL LADDER INSTALLATION



QUICK, EASY TS SAFETY RAIL INSTALLATION

The safety rail consists of a bottom rail, one or more intermediate rails and a top rail.

1. Start bottom rail approximately 3 feet from bottom of ladder, ground, or platform. Locate rail midway on ladder or climbway to give ample foot room on steps.

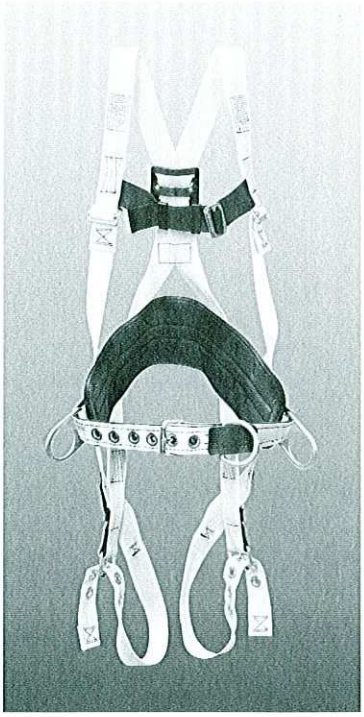
2. Attach first clamp within 1 foot of lower end of bottom rail. Throughout the remaining height of ladder or tower, attach clamps at 4' to 6' intervals. Place clamp at top as shown. Clamps are attached to the T-slot of the rail with 3/8" bolts. Before raising rail sections, it is advisable to place the bolts for the clamps and splice channel in their approximate position with nuts only finger tight.

3. After the bottom rail (with ice-guard option) is secured, the regular section in turn can be raised and similarly secured. The top rail to be installed with stop-bolt at top.

Important note: *On steel ladders or towers, leave approximately 1/16" expansion gap between rail sections.*

4. Maintain straightness and joint evenness. Keep rail free of burrs, Do not paint.

TS SAFETY HARNESS

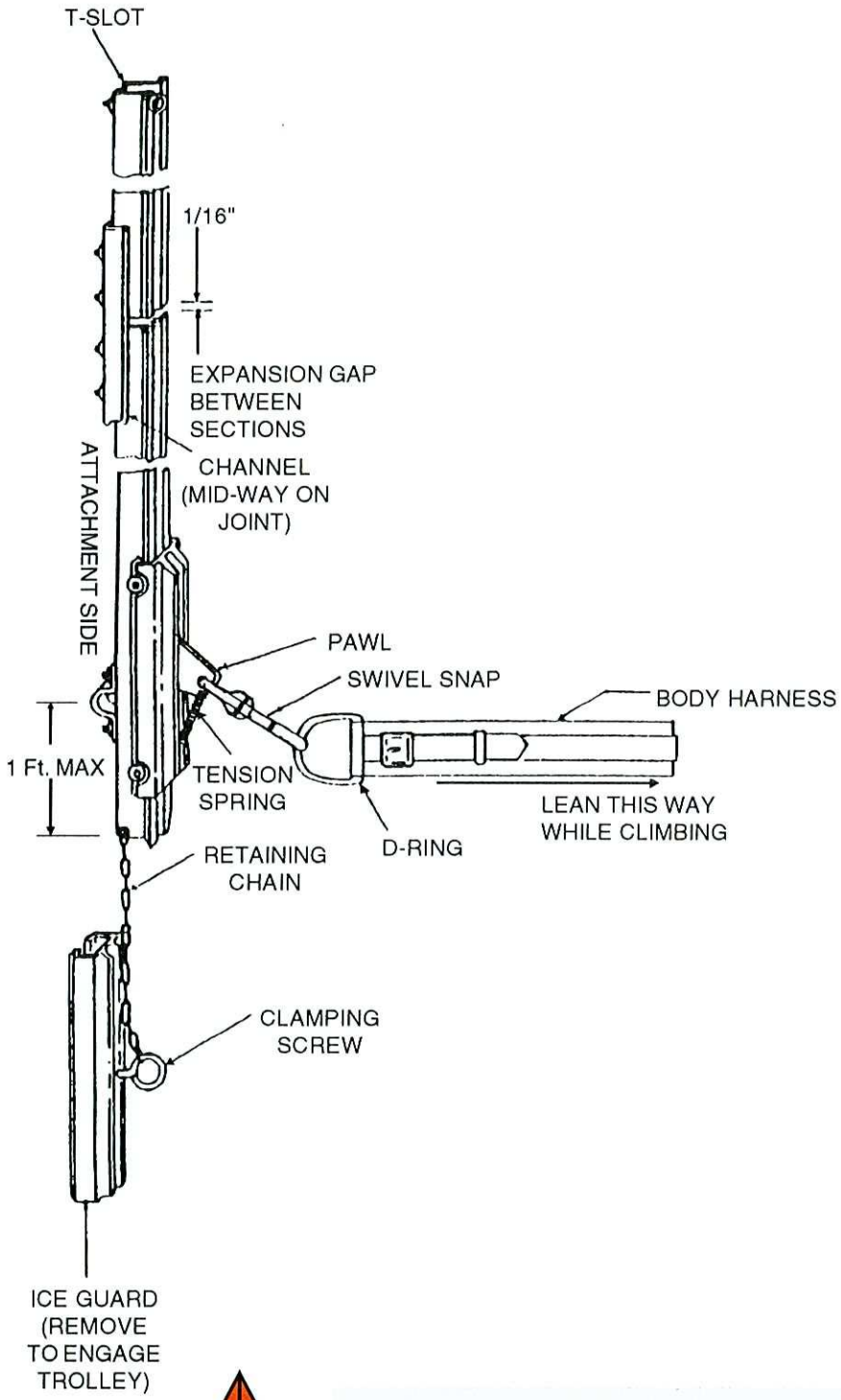


The TS Safety Harness (850 Series) is a type 1 full body harness. It is designed to distribute impact forces of a fall over the thighs, buttocks, chest and shoulders. Harness includes 6" comfort back pad, hip positioning D-rings, adjustable back D-ring and adjustable shoulder and leg straps. Waist belt and leg straps use a tongue buckle closure.

SPECIFICATIONS
TS SAFETY HARNESS

Safety harness is made of high strength nylon webbing. Body back pad of 6" "Coolmax" material which resists moisture, odor and mildew. Body belt is 1-3/4" width nylon webbing with drop forged frame and tongue buckle closure. Buckle holes of body belt and leg straps reinforced with brass grommets.
Front D-Ring: Steel D-ring, 5,000 lb. proof load test, attaches to snap hook of safety trolley.
Side/back D-rings: Drop forged D-rings, 5,000 lb. proof load test, for attachment of safety straps or lanyards.
Complete harness weight: approximately 4-1/2 lb.

HOW TO USE TS SAFETY RAIL SYSTEM



1. Disengage ice-guard (if part of system) from bottom rail by turning clamping screw. Let ice-guard hang from chain.

2. Attach harness belt snugly around waist. Put excess strap through loop. With D-ring at front, attach to trolley snap. (Refer to separate instructions for donning body harness.)

3. Lean slightly away from rail to disengage pawl. Then, begin to climb, keeping tension on harness while climbing or descending. ***Safety trolley should be level with climber's waist when climbing or descending.***

4. Trolley engages rail and locks when outward tension ceases.

5. Ice-guard can be removed from clamping screw and used in advance of the trolley to remove ice from rail.

6. *Do not leave trolley and safety harness on TS rail when not in use.*

TS

FCP FrenchCreek Production

FrenchCreek Production, Inc
626 13th St.
Franklin, PA 16323

Phone: (877) 228-9327 **Fax: (814) 437-2544**
Website: www.frenchcreekproduction.com

American Owned, American Made

APPENDIX 6 - LIMITED SPACE FOR OVERFLOW AND CABLES

GOOD CABLE MANAGEMENT

BAD CABLE MANAGEMENT

APPENDIX 7

Overflow Pipe Capacity Calculations

Input Parameters

Qr =	**4,000**	gpm, required flow capacity
Dp =	12	in, pipe diameter

Pipe Flow Capacity

Ke =	0.1	entrance loss coefficient
Kb =	0.25	elbow loss coefficient
nb =	4	number of elbows
Ko =	1.2	outlet loss coefficient
Head =	170.5	ft, head from overflow to discharge
L =	200.5	ft, length of pipe
f =	0.018	assumed friction factor ≥ 0.016 - OK
Qp =	31.31	cfs, calculated pipe flow capacity
Qp =	**14,053**	gpm, calculated pipe flow capacity ≥ Qr - OK
FS =	**3.51**	Factor of Safety on required flow

Check Flow Velocity, Friction Factor Assumed & Head Loss

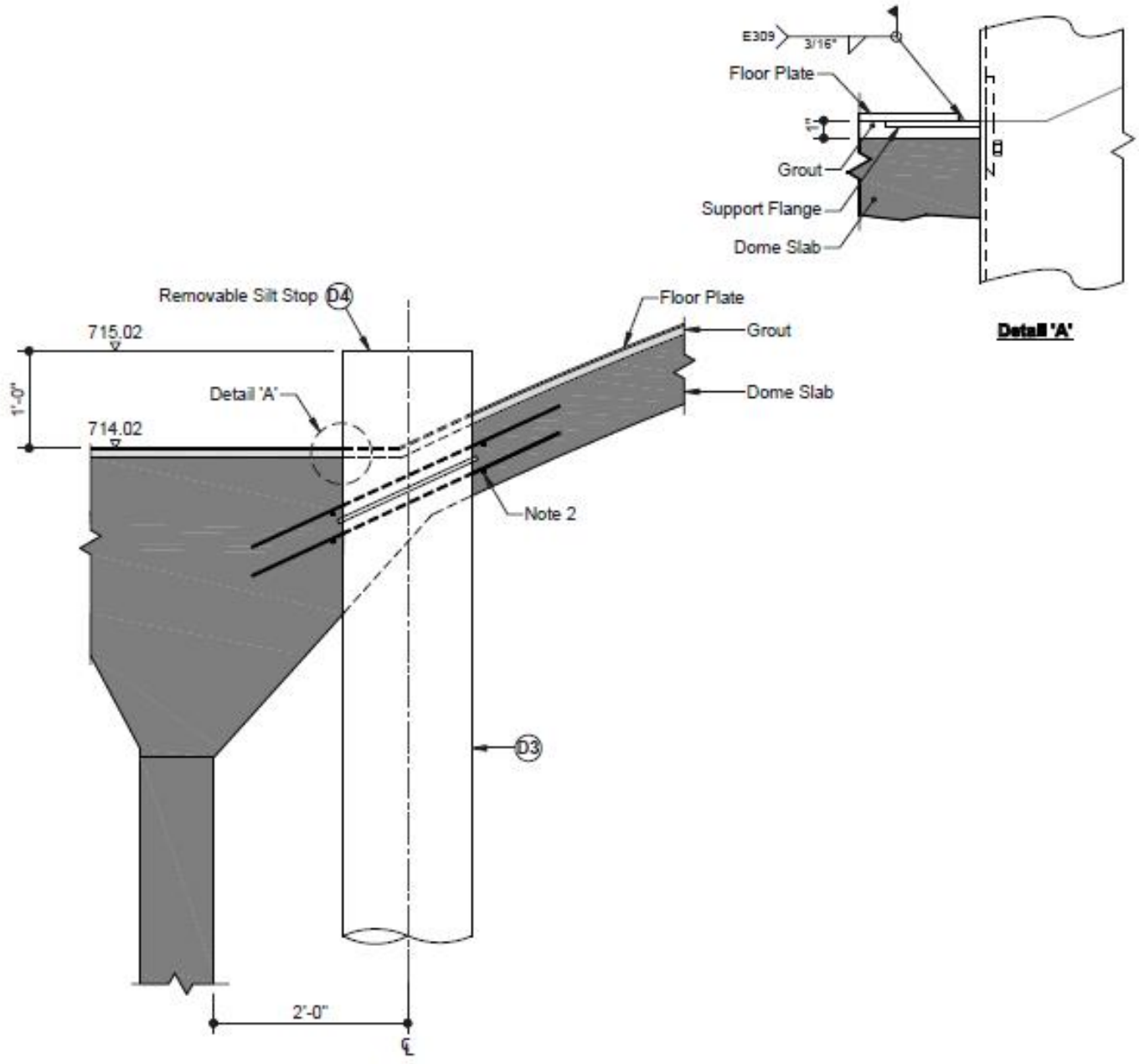
V =	11.3	ft/s, flow velocity
Re =	1.07E+06	Reynolds Number
f_calc =	0.016	calculated friction factor, from Weaver - assumed friction factor - OK
hL =	13.0	ft, head loss for Qr, required flow capacity

Controlling Equation

Pipe Flow Capacity (from Bernoulli):

$$Q_p = \frac{\frac{\pi}{4} D_p^{\,2} \sqrt{2 g Head}}{\sqrt{K_e + \frac{f \cdot L}{D_p} + n_b \cdot K_b + K_o + 1}}$$

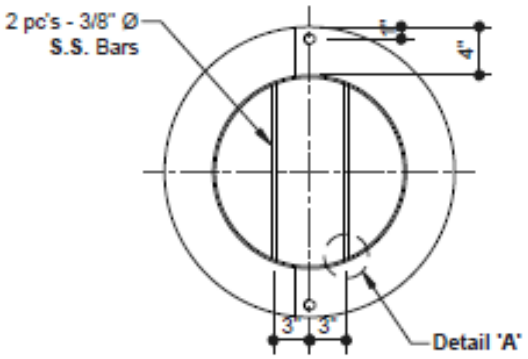
APPENDIX 8 - Inlet/Outlet Pipe Tank Floor Penetration (1 of 2)



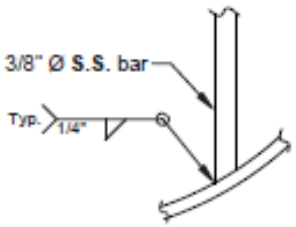
NOTES :

1. Cast **Mk. D3** in ring beam / dome slab.

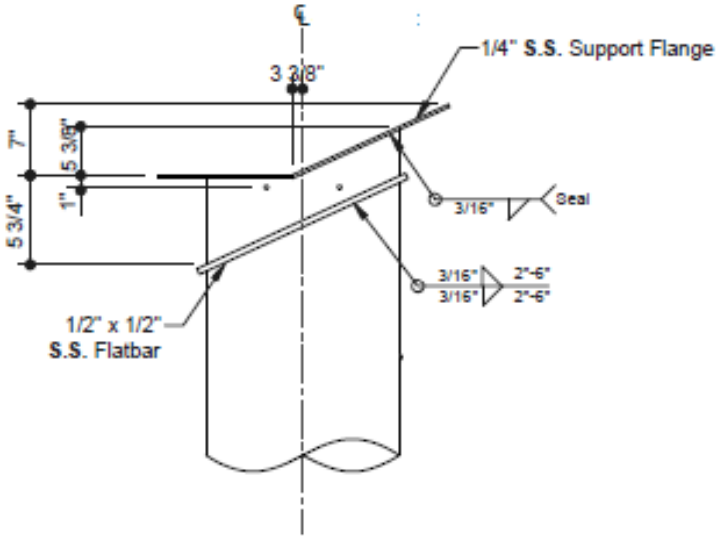
APPENDIX 8 - Inlet/Outlet Pipe Tank Floor Penetration (2 of 2)



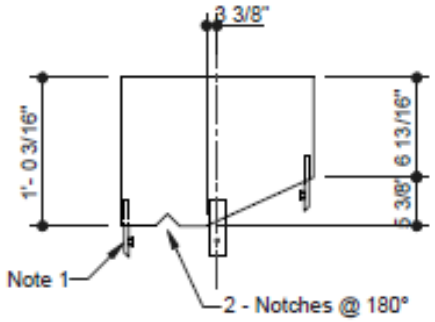
Section



Detail 'A'



Mk. D3



Mk. D4

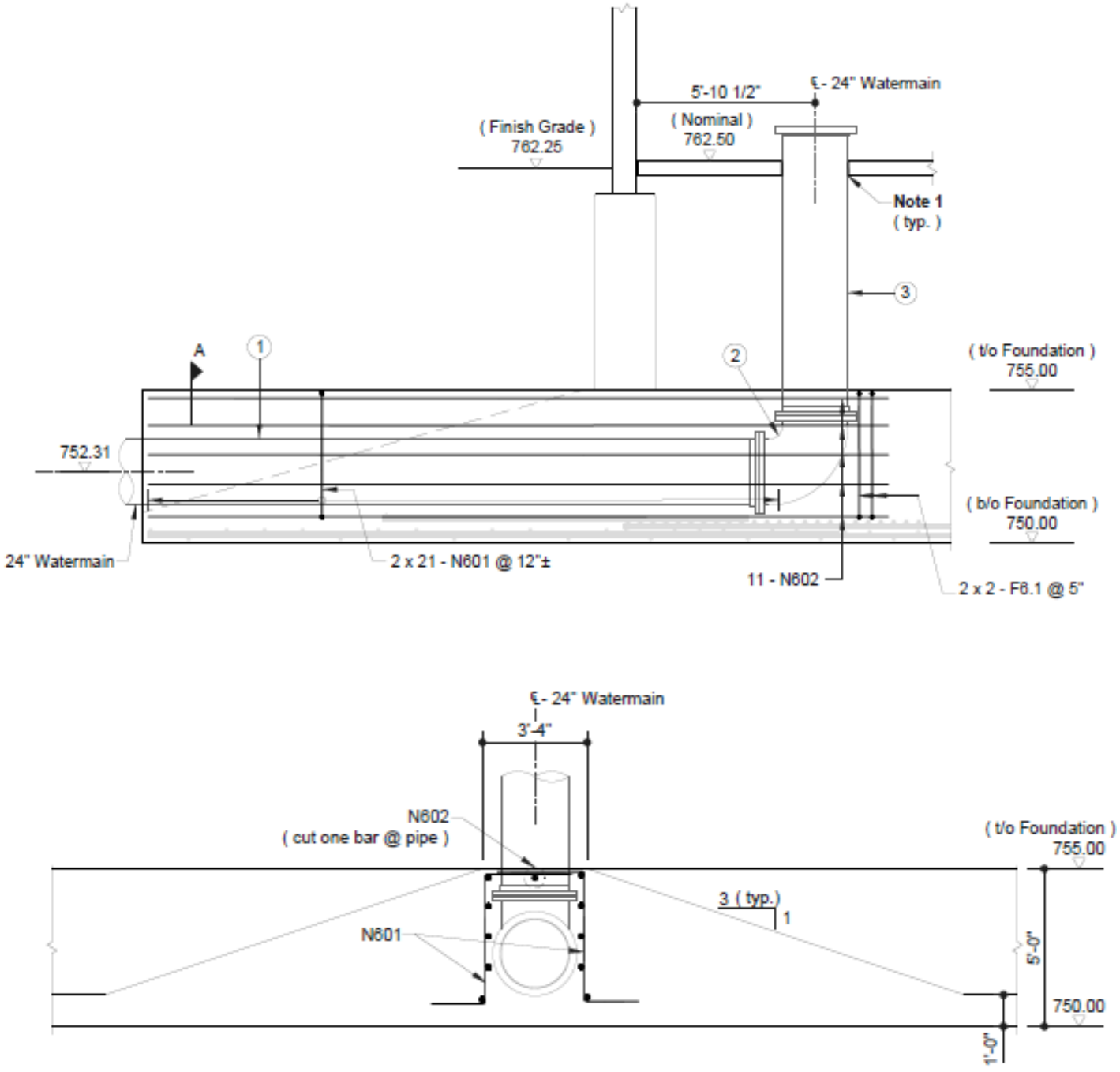
NOTES :

1. Provide 4 pc's - 3/8" x 1" retainer clips.

Material Specification
Pipe / Flatbar / Plate - ASTM A - 240 Type 304L S.S.

Fabrication Specification
Weld Procedures - GSS - V - 1

APPENDIX 9 - WATER MAIN ENCASEMENT DETAIL



Section A-A

From:	Schultz, Ryan
To:	Aimee Hanei
Cc:	Heikkila, Donald; Chad.Regalia@cityofracine.org; Epstein, Chris
Subject:	Sub. 01 - Value Engineering Proposal - Comments
Date:	Tuesday, June 11, 2019 10:01:00 AM
Attachments:	image001.gif Revised Drawings.pdf

Morning Aimee:

I reviewed the items in the Value Engineering Proposal yesterday with the Racine Water and Wastewater Utility. Please see the following responses:

1. **Access Tube Roof/Connections**
   Response: Access tube roof connection is acceptable.
2. **Access Tube Hatch Vent**
   Response: Access tube hatch vent may be eliminated as long as adequate ventilation is provided in the access tube.
3. **Chamber Pipe Configuration**
   Response: Bypass diameter to remain at 24-inches. It is acceptable to rotate piping closer to pedestal wall.
4. **Chamber Pipe Material**
   Response: Stainless steel piping is acceptable.
5. **Chamber Room**
   Response: The Utility would like to keep masonry chamber room per plan.
6. **Condensate Drip Ring**
   Response: The Condensate Drip Ring is acceptable.
7. **Exterior Backfill**
   Response: Waiting on confirmation.
8. **Ladder Safety Rail**
   Response: TS Fall Prevention Systems by French Creek are acceptable.
9. **Landings**
   Response: The Utility would like to keep the landings per plan.
10. **Landing (Top)**
    Response: The Utility would like to keep the top landing per plan.
11. **Max Fill Flow Rate**
    Response: 4,000 gpm is the anticipated future max day fill rate. Initial fill rates may be as high as 5,000 gpm.
12. **Mow Strip**
    Response: The mow strip shall be installed per plan.
13. **Observation Platform**
    Response: The Utility would like to keep the observation platform per plan.
14. **Overflow Inside Tank**
    Response: The Wisconsin Department of Natural Resources (WDNR) requires the overflow to be located in the access tube. Overflow is to be located per plan.
15. **Overflow Pipe Diameter**
    Response: Please submit calculations for 5,000 gpm fill rate.

16. **Overflow Screen:**
    Response: Please see attached revised drawings.
17. **Painted Galvanized Ladder**
    Response: Painted galvanized ladders are acceptable.
18. **Painters Rail Hatch**
    Response: 30-inch square painter's rail hatches are acceptable. Painter's rail hatches are to be provided with two handles, rubber gasket and chain as shown on Detail L/T05.
19. **Post Installed Concrete Anchors**
    Response: Hot dipped galvanized concrete anchors are acceptable.
20. **Roof Guardrail**
    Response: The Utility would like to keep the roof guardrail per plan.
21. **Slab-on-Grade Elevation**
    Response: Please submit proposed grading plan to accommodate raising floor slab 6-inches.
22. **Silt Stop**
    Response: A 6-inch high silt stop is acceptable.
23. **Tank Drain**
    Response: Tank drain may be eliminated, as long as the riser is located at the lowest point.
24. **Water Main Encasement**
    Response: Terminating encasement below the slab is acceptable.
25. **Water Main Flange**
    Response: A bolted flange connection is acceptable.

I will try and get you the remaining answers as soon as possible. Please call me if you have any questions.

Thanks,

Ryan M. Schultz, P.E. (WI)
Project Engineer

From: Jessica Martin <jmartin@teamlandmark.com>
Sent: Tuesday, June 4, 2019 11:45 AM
To: Epstein, Chris <CEpstein@ruekert-mielke.com>; Schultz, Ryan <RSchultz@ruekert-mielke.com>
Cc: Aimee Hanei <ahanei@teamlandmark.com>
Subject: 1641 - Racine, WI - Sub. 01 - Value Engineering Proposal

Hello.
On behalf of Aimee Hanei, please find attached Submittal 01 – Value Engineering Proposal, for your review and approval.

Jessica Martin • Project Assistant
Landmark Structures
Office 817.439.8888, x1035
Direct 817.230.8896
jmartin@teamlandmark.com

We Energies
7815 Northwestern Avenue
Racine, WI 53406-1799
www.we-energies.com

September 17, 2020

Racine Water& Wastewater Utilities
800 Center St Rm 227
Racine, WI 53403-1481

THIS LETTER IS YOUR INVOICE FOR ELECTRIC SERVICE
11317 Louis Sorenson Rd , Mount Pleasant, WI 53177-1707

Dear Racine Water& Wastewater Utilities,

With your returned service application, you are on your way to having electric service installed at your location.

Please confirm that the following electric service details are correct. If not, please call me right away.

Type:	New Service	Subdivision:	n/a	
Class:	Underground	Lot #:		
Size:	100 amps	Work Request #:	4568572	(for internal use only)
Voltage:	120/240V-3W			

Your next steps are to:

1. *Send in payment for electric service installation.*
   - **The cost for electric service installation is: $2,427.20**
   - Additional charges will apply if installation is needed from December 1 through March 31.
   - We must receive your payment and electrical inspection before we can schedule your installation. Please include the service address with your payment, and send it to us in the enclosed envelope.
   - In the event we encounter unusual conditions during the installation of your service, there may be additional charges.
   - This amount is valid for 90 days from the date of this letter.
   - If an additional cost estimate is needed within 12 months, there will be a charge for preparing the new estimate.
2. *Sign and return one of the enclosed sketches:*
   - Review, sign and return an enclosed sketch in the envelope provided.
   - Draw and label any private underground facilities on the sketch.
   - We must receive your approved and signed sketch before step #3 below.
3. *Send or fax the* Ready for Service *card when the site is ready for electric service installation:*
   - Your construction site is ready for service when requirements 1-4 on the *Ready for Service* card are met.
   - When we receive your card, we will call you to discuss the installation.

4. Mark private underground facilities.
   - Locate and mark (with stakes, spray paint or flags) or expose any customer-owned underground obstructions or facilities.
   - If you are not sure what this includes, please call for more information.
   - We Energies and/or its agents will not be held responsible for damage to unmarked, private facilities.

Contact me for all of your electric installation needs.

I'm here to make sure your questions are answered and any concerns you have are addressed. On behalf of We Energies, I appreciate the opportunity to serve you and look forward to providing you with safe, reliable and reasonably-priced electricity.

Sincerely,

Randy Wrycza
Service Representative
Phone 262-552-3344