

February 7, 2020

Director
Environmental Approvals Branch
Manitoba Conservation and Climate
1007 Century Street
Winnipeg, MB R3H 0W4

Darling International Canada Inc.
607 Dawson Rd.,
Winnipeg, MB R2J 0T2
T +1 204-233-7347
F +1 204-235-0942
rothsay.ca

**Re: Notice of Alteration, Environment Act Licence No. 1085 RR, File No. 491.10
Wastewater Treatment Plant Upgrade, relocation of the 6,000 cfm
Venturi Scrubber & new 25,000 cfm Packed Bed Scrubber
Rothsay, Winnipeg Plant**

Please find enclosed an application for a Notice of Alteration for the Rothsay, Winnipeg Plant ('Plant') located at 607 Dawson Road, Winnipeg, Manitoba. This application is being submitted under the existing Environment Act Licence No. 1085 RR, File No. 491.10, and pertains to the proposed new Wastewater Treatment System and additional odour abatement equipment within Rothsay main property.

Wastewater Treatment System Upgrade

Rothsay's current WWTP is located within the main plant building and is unable to properly treat the current wastewater streams resulting in higher overstrength surcharges and compliance issues with the City of Winnipeg's Sewer By-law. Rothsay is proposing to upgrade its wastewater treatment plant (WWTP) and scrubber system serving the new WWTP at their Winnipeg Plant ('Plant') located at 607 Dawson Road. Rothsay is planning to complete equipment installation in Q3 2020 and commissioning in Q1 2021. This timeline will allow Rothsay to meet the completion dates stated within Rothsay's approved Pollution Prevention (P2) Plan, which specifically includes completion dates to achieve compliance for parameters not covered by an overstrength surcharge agreement. A copy of the P2 Plan approval is provided in Attachment 1.

The current WWTP consists of an externally fed rotary screen, equalization tank, skimmer, dissolved air flotation (DAF) and chemical dosing system. The new WWTP will replace the existing WWTP and will utilize the same technology with the following changes:

- Internally fed rotary screen (which will improve the quality of influent to the skimmer and DAF);
- Larger equalization tank and DAF (to improve effluent quality); and
- Automated chemical dosing system (the current system is manually controlled).

The existing WWTP discharges effluent to the adjacent Maple Leaf Foods (MLF) WWTP, which then discharges the combined treated effluent to the City of Winnipeg sanitary sewer system. The new WWTP will allow Rothsay to discharge directly into the City of Winnipeg sanitary sewer system as the effluent is expected to be generally the same or slightly better than what is currently discharged into the City of Winnipeg sanitary sewer

system via the MLF WWTP. The new WWTP will also allow Rothsay to treat its condensate wastewater stream, which is currently not treated in either Rothsay's or MLF's WWTP.

Another benefit of the new WWTP, particularly a larger DAF, will allow Rothsay to recover a higher rate of TSS (total suspended solids) and FOG (fat, oil & grease) from the DAF float. Currently, TSS and FOG that are discharged to the MLF WWTP can't be recovered and reprocessed at the Rothsay plant due to the presence of restricted materials, which are introduced to the system by MLF. A larger DAF will allow Rothsay to recover approximately 140 tonnes per year of additional TSS and FOG, which will be reprocessed as opposed to being sent to landfill.

A technical memo that was prepared by Wood (Rothsay's wastewater engineer) and submitted to the City of Winnipeg that outlines the existing and future WWTP, including expected changes to effluent quality, is provided in Attachment 2 – Wood Technical Memo.

The City of Winnipeg Water & Waste Department have reviewed and approved Rothsay's proposal for a new WWTP. Correspondence from The City of Winnipeg Water & Waste Department confirming their approval of the new WWTP is included in Attachment 3. The location and layout of the proposed WWTP, including equipment, is provided in Attachment 4.

New 25,000 cfm Packed Bed Scrubber & 6,000 cfm Venturi Scrubber relocation

Rothsay is always aiming to improve air emissions and reduce odour inside of and leaving the Plant. The air quality treatment system at the Plant is comprised of a series of venturis and scrubbers to clean and treat the air leaving production areas in the Plant. The new WWTP building will also include an air pollution control system to treat odour generated from wastewater treatment and grease decanting operations. Similar to the existing WWTP, existing decanting operations are also located within the main Plant and will be relocated to the new WWTP building.

The existing WWTP and grease decanting operation is serviced by a venturi and a packed tower. The air pollution control system in the new WWTP building will consist of a 6,000 cfm venturi that currently treats emissions from the grease decanting system in the South Receiving Area and will be relocated to the new building, and a new 25,000 cfm packed tower scrubber. The system will discharge to the atmosphere via a common stack. The chemical dosing system for the new scrubber will be automated and will use similar chemicals to what is currently being used at the Plant. The monitoring program for the new scrubber system will consist of the following parameters: pH, differential pressure, water flow, and temperature.

Given that this new air pollution control system will serve processes that are already existing within the Plant instead of new/additional processes, odour emissions from the Plant are expected to be generally the same as current conditions. The layout and specifications of the proposed air pollution control system are provided in Attachment 5.

Lastly, it is important to note that these proposed changes will not increase the production capacity of the Plant.

Closing

As advised by Manitoba Conservation & Climate, Rothsay has provided the following justifications as to why this application should be considered a Minor Notice of Alteration;

- The treated effluent from the new WWTP is expected to be similar or slightly better than the treated effluent that is currently discharged to the City of Winnipeg sanitary sewer system;
- The new WWTP will allow Rothsay to divert approximately 140 MT of wastewater derived waste from landfill each year;
- The new scrubber system in the new WWTP will serve processes that already exist at the Plant; therefore, odour emissions are expected to be generally the same as current conditions; and
- The proposed changes within this application will not result in an increase in production capacity.

A Notice of Alteration Form and the required application fee has also been provided as part of this application.

If you have any questions or require any additional information, please don't hesitate to contact me directly.

Sincerely,

Mariana Moreira
Environmental & QA Supervisor
Rothsay, a Division of Darling International Canada Inc.

cc: Ron Vincent, Rothsay, Winnipeg Plant, Plant Manager
John Bayliss, Rothsay, Environmental Manager

Attachment 1 – Pollution Prevention Plan Approval Letter



NOV 21 2019

Mariana Moreira
Rothsay - A Division of Darling International Canada Inc.
607 Dawson Road
Winnipeg, MB R2J 0T2

November 13, 2019

Document ID: IWSB-PP-1298
NAICS Code: 311614

**Sewer By-law No. 106/2018
Pollution Prevention Plan Approved**

Dear Mariana Moreira,

We have approved the Pollution Prevention Plan for Rothsay - A Division of Darling International Canada Inc. at 607 Dawson Road with the conditions noted below.

You are required to:

- Provide a Progress Update every six months using our template
- Keep the Plan and all Progress Updates at the business available for inspection
- Notify us in writing of any changes to any of the following within 30 days:
 - Pollutants that may be discharged to the wastewater or land drainage system
 - Measures to be undertaken to reduce or eliminate the discharge of pollutants
 - Implementation schedules identified in your Plan
 - Ownership or contact information of the business

Your first progress update is due May 13, 2020.

Your Plan completion date for Oil and Grease is June 30, 2021

Your Plan completion date for Phenolics and Sulphide is June 30, 2023.

Information on Pollution Prevention Planning, including form templates, is available on our website at winnipeg.ca/waterandwaste/sewage/pollutionprevention.

If you have any questions or require additional information, please contact Christine Novak by phone at 204-986-8350 or by email at cnovak@winnipeg.ca.

Regards,

Glen Hagen
Industrial Waste Services Branch Head

—
ENVIRONMENTAL STANDARDS DIVISION

2230 Main Street, Winnipeg, Manitoba R2V 4T8

DIVISION DES NORMES ENVIRONNEMENTALES

2230 Main Street, Winnipeg, Manitoba R2V 4T8

T. | Tél. : 204-986-4684

F. | Fax : 204-339-2147

winnipeg.ca/waterandwaste

Attachment 2 – Wood Technical Memo



Wood Environment & Infrastructure Solutions,
a Division of Wood Canada Limited
900 Maple Grove Road, Unit 10
Cambridge, ON N3H 4R7
Canada
T: 519-650-7100
www.woodplc.com

September 23, 2019
Wood Ref. No. TPC172047

Mr. Ho Lau, C.E.T.
Project Coordinator
Wastewater Planning and Project Delivery
Water and Waste Department Engineering Services
City of Winnipeg,
31-30 Fort Street,
Winnipeg, MB
R3C 4X7

Subject: **Anticipated Process Effluent Characteristics from Rothsay's New Wastewater Treatment Facility**

Dear Mr. Lau

We have prepared this letter in response to your team's follow up inquiries to Mr. David Delevante at Rothsay. For extra clarity we have provided a clearer description of the existing operating condition and of the future operating condition. We have also provided a specific summary of the anticipated changes between the two conditions.

Existing Operating Condition

Figure 1 contains a simplified schematic of the existing collection sewers, treatment, and discharges for both the Rothsay and Maple Leaf facilities.

Presently both Rothsay and Maple Leaf have separate collection and discharge sewers for the personal hygiene wastewaters. Rothsay discharges their personal hygiene wastewater directly to the Dawson Road Sewer without any pretreatment. Maple Leaf discharges their personal hygiene wastewater directly to the Marion Street Sewer without any pretreatment.

Rothsay has two primary production wastewater streams: Process Wastewater and Process Condensate. The Process Wastewater is sent through a series of pretreatment screens and skimmers before being pumped to the Maple Leaf wastewater treatment facility (WWTF). The Process condensate is pumped directly to the Maple Leaf WWTF without any pretreatment.

Rothsay's two production wastewaters combine with Maple Leaf's Production wastewater in Maple Leaf's WWTF. Maple Leaf's WWTF consists primarily of a Dissolved Air Flotation (DAF) system that is operated without chemical coagulation and flocculation aids. The effluent from Maple Leaf's WWTF discharges to the city sewer on Marion Street and in the existing operating conditions this discharge contains the production wastewaters from both Rothsay and Maple Leaf. Operating data supplied from Maple Leaf to Rothsay is summarized in Table 1 and it indicates the effluent characteristics that were discharged from the Maple Leaf WWTF for the months of January through July in 2019.



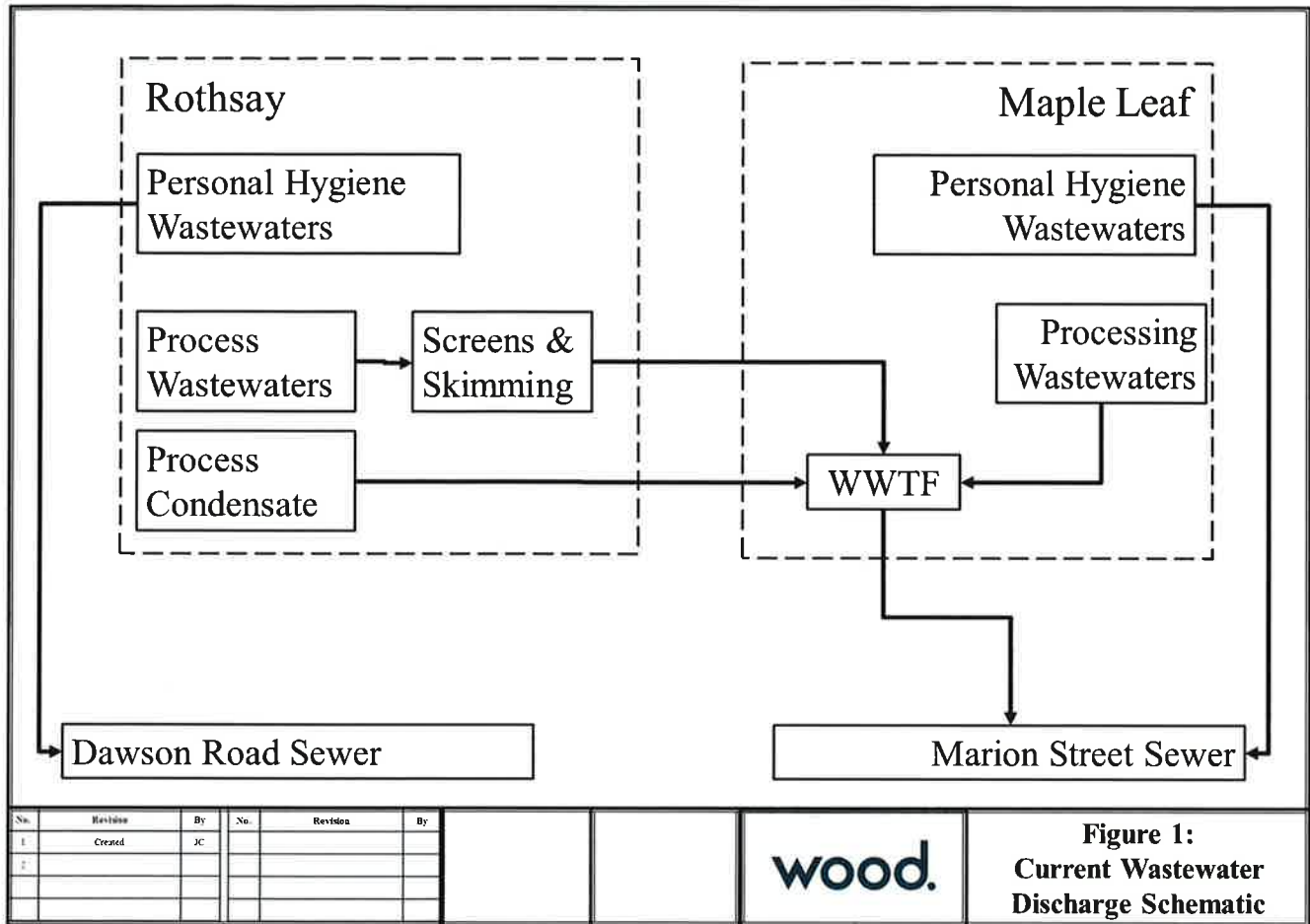


Table 1: Existing Total Effluent From Maple Leaf

Month (2019)	Flow	tBOD5	TSS	TKN	TP
	m3/d	kg/d	kg/d	kg/d	kg/d
January	1,653	4,501	786	590	70
February	1,625	3,905	428	573	77
March	1,557	3,713	492	543	85
April	1,573	3,967	560	565	76
May	1,524	4,323	542	622	72
June	1,629	5,562	587	805	69
July	1,788	7,006	747	1,102	93
Average	1,621	4,711	592	686	77

There is an operating cost share agreement between Rothsay and Maple Leaf that allocates operating costs such as sewer overstrength charges based on raw wastewater characteristics discharged into the Maple Leaf WWTF. It is also assumed that the discharge loads from the Maple Leaf DAF can be proportionate to the influent contributions. On this basis the estimated flow and load fractions in the existing Maple Leaf WWTF effluent that are allocated to Rothsay are summarized in Table 2 for the months of January through July in 2019.



Month (2019)	Fraction of Flow	WWTF Effluent Load Fraction			
		tBOD5	TSS	TKN	TP
January	40.8%	63.0%	43.0%	85.0%	12.0%
February	41.5%	52.0%	25.0%	84.0%	11.0%
March	34.4%	46.0%	18.0%	76.0%	7.0%
April	36.2%	58.0%	30.0%	83.0%	12.0%
May	34.3%	59.0%	28.0%	83.0%	12.0%
June	33.6%	64.0%	34.0%	86.0%	11.0%
July	35.1%	73.0%	34.0%	88.0%	18.0%

Based on the above allocations, the portion of the Maple Leaf WWTF effluent characteristics that result from Rothsay's contributions can be calculated. These calculated values are summarized in Table 3 below.

Month (2019)	Flow	tBOD5	TSS	TKN	TP	tBOD5	TSS	TKN	TP
	m3/d	kg/d	kg/d	kg/d	kg/d	mg/L	mg/L	mg/L	mg/L
January	675	2,836	338	502	8	4,201	501	743	12
February	675	2,031	107	481	8	3,008	159	713	13
March	536	1,708	89	413	6	3,187	165	770	11
April	569	2,301	168	469	9	4,044	295	824	16
May	523	2,551	152	516	9	4,877	290	987	17
June	548	3,560	200	692	8	6,496	364	1,263	14
July	628	5,114	254	970	17	8,144	404	1,544	27
Average	593	2,871	187	578	9	4,851	311	978	16

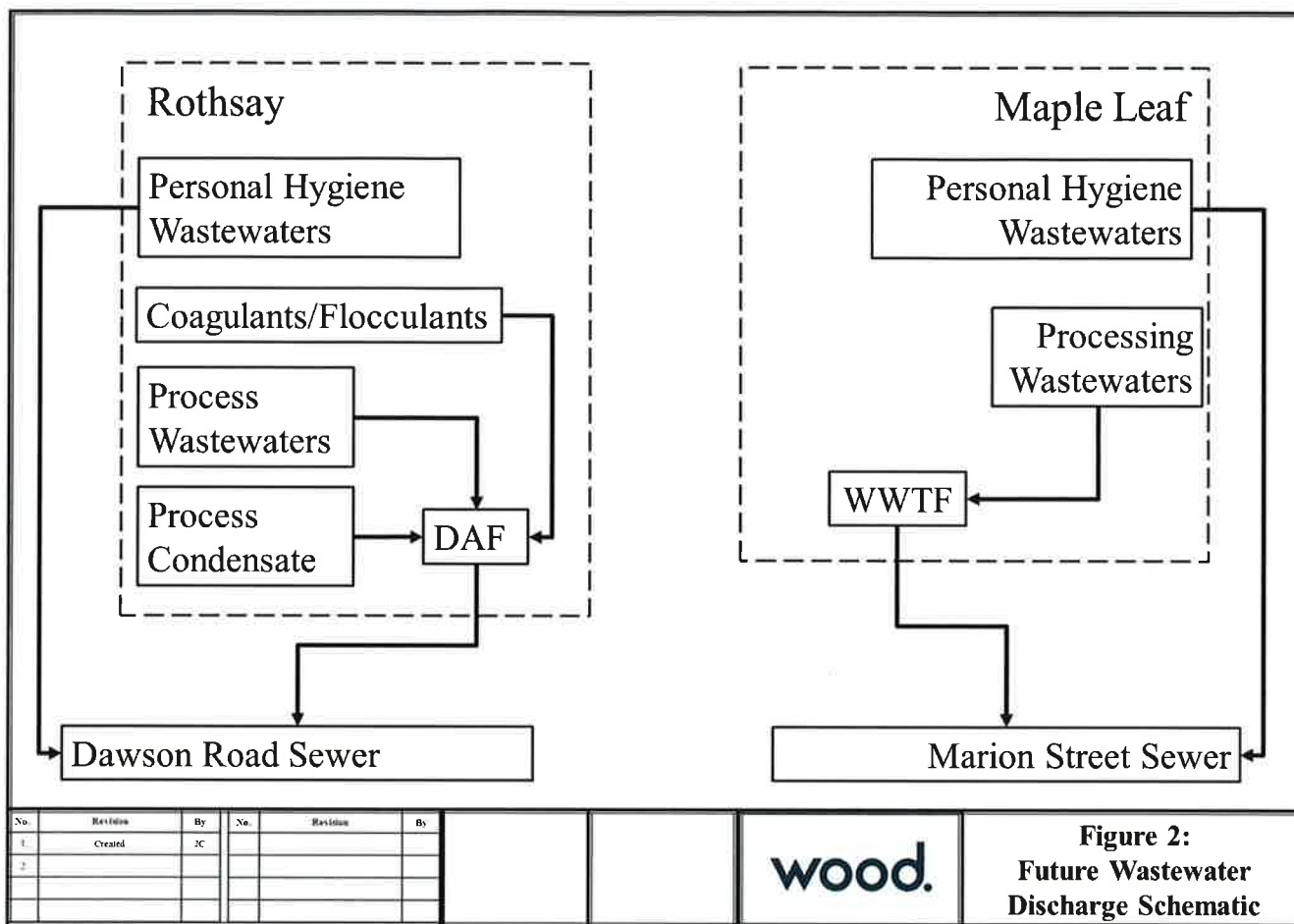
Future Operating Condition

In the future Rothsay wants to no longer discharge to the Maple Leaf WWTF. Figure 2 contains a simplified schematic of the future collection sewers, treatment systems, and discharges for both the Rothsay and Maple Leaf facilities.

In the future both Rothsay and Maple Leaf will continue to have separate collection and discharge sewers for the hygiene wastewaters. Rothsay will continue to discharge their personal hygiene wastewater directly to the Dawson Road Sewer without any pretreatment and Maple Leaf will continue to discharge their hygiene wastewater directly to the Marion Street Sewer without any pretreatment.

In the future Rothsay will collect and combine their two primary production wastewater streams: Process Wastewater and Process Condensate and screen them in the production facility before pumping them to a new pH adjustment and equalization tank located in a new effluent treatment facility located at the back of their plant. The pH adjusted and equalized wastewater will be pumped to a new Dissolved Air Flotation (DAF) system located in the same building. The wastewater will be conditioned using coagulants and flocculants enroute to the DAF unit. This DAF technology will essentially be the same as what is used in the Maple Leaf WWTF, except that it will use chemicals specific to the Rothsay wastewater to help improve the overall removal rates for some of the target parameters. The effluent from the dedicated Rothsay effluent treatment system will then be discharged to the city sewer on Dawson Road.





The raw wastewater flow and concentration data for the two Rothsay production waters for 2019 Year-To-Date was used to model the future expected DAF performance. Table 4 summarizes the average results of this modelling. These modelled future effluent results are different than was previously summarized in our July 30th letter as there were some calculation corrections made in relation to Total BOD vs Carbonaceous BOD (i.e. ammonia was double counted). For simplicity of comparison to the existing conditions the Average characteristics are presented. It should be noted that individual days will have effluent characteristics above and below these average day values.

**Table 4: Modelled Rothsay Future DAF Effluent
 Based on Actual Daily 2019 Process and Condensate Data
 at an Expected Average Flow of 618 m³/d**

<u>Parameter</u>	<u>Average Load (kg/d)</u>	<u>Average Concentration (mg/L)</u>
Total Suspended Solids	17	27
Total Biological Oxygen Demand (BOD)	2,039	3,301
Total Oil and Grease	10	17
Total Nitrogen (TKN*)	566	916
Total Phosphorus	7	11

NOTE: * Note that Rothsay's effluent has a very small fraction that is attributable to nitrate/nitrite and as a result the Total Nitrogen in their effluent is greater than 98% TKN, so these parameters have essentially the same value.



In the future operating mode, the existing transfer sewers between Rothsay and Maple Leaf will be isolated, and no wastewater will be sent from Rothsay to Maple Leaf. In this future operating mode Maple Leaf's WWTF will only receive, treat, and discharge Maple Leaf's Production wastewater. In this future operating mode, the effluent from Maple Leaf's WWTF will continue to discharge to the city sewer on Marion Street, but it will only be the effluent fraction that is allocated to Maple Leaf.

The operating cost share agreement between Rothsay and Maple Leaf will no longer be applicable and any effluent flow and load from the Maple Leaf WWTF will only be attributable to Maple Leaf's production and treatment activities.

Summary of Expected Changes

The proposed Rothsay future treatment system will use the same treatment technology (i.e. Dissolved Air Flotation) as the current Maple Leaf WWTF. Because the treatment technology is unchanged, the future Rothsay effluent treatment system is expected to perform generally the same as the existing Maple Leaf WWTF or slightly better. Improved performance may result on average because the future Rothsay system will use chemicals and will be operationally dedicated to their type of wastewater. In addition, the reduced loading on the Maple Leaf DAF will likely improve its performance as well.

Table 5 compares the existing calculated Rothsay sewer loading (based on the surcharge calculation results) to the expected future Rothsay sewer loading based on performance modelling. Both sets of results use data from the same operating period, demonstrating that overall system performance will be the same or better.

Month (2019)	Flow	tBOD5	TSS	TKN	TP	tBOD5	TSS	TKN	TP
	m3/d	kg/d	kg/d	kg/d	kg/d	mg/L	mg/L	mg/L	mg/L
Existing Average	593	2,871	187	578	9	4,851	311	978	16
Future Average	618	2,039	17	566	7	3,301	27	916	11

Please note that the presented data is the best information available at this time, actual performance won't be known with certainty until the new system is fully operationally tested and optimized.

Sincerely,
 Wood Environment & Infrastructure Solutions, a
 Division of Wood Canada Ltd.



Jeff Chambers
 Project Manager
 Direct Tel.: 519-650-7110
 E-mail: jeff.chambers@woodplc.com



Bill Malyk, M.Sc., P.Eng., BCEE
 Principal Engineer
 Direct Tel: 519-650-7122
 E-mail: bill.malyk@woodplc.com



**Attachment 3 – City of Winnipeg Water & Waste Department
Correspondence**

Bayliss, John

From: Delevante, David
Sent: Thursday, February 6, 2020 3:12 PM
To: Bayliss, John
Subject: FW: Rothsay, Dawson Ave: Anticipated Process Effluent Characteristics
Attachments: 01 Civil Design Plan Sealed - 2018 09 28 - REV03.pdf

From: Lau, Ho <HLau@winnipeg.ca>
Sent: Tuesday, September 24, 2019 10:19 AM
To: Chambers, Jeff <jeff.chambers@woodplc.com>; Paetkau, Michelle <mpaetkau@winnipeg.ca>
Cc: Delevante, David <dave.delevante@rothsay.ca>; Anderson, Jeff <jeffanderson@winnipeg.ca>
Subject: RE: Rothsay, Dawson Ave: Anticipated Process Effluent Characteristics

You are receiving an email from an outside source. Please use caution before opening any attachments or links.

Thank you for the sealed report Jeff.

David,

The revised wastewater flow submission from JRCC and the treatment report from Wood satisfies the City's wastewater component of the permit application.

Thank you.

Ho Lau, C.E.T.

Project Coordinator - Wastewater Planning and Project Delivery
City of Winnipeg
T: 204.986.5418
M: 204.232.0292
E: hlau@winnipeg.ca
WATER AND WASTE DEPARTMENT
ENGINEERING SERVICES
winnipeg.ca

From: Chambers, Jeff [<mailto:jeff.chambers@woodplc.com>]
Sent: Tuesday, September 24, 2019 7:00 AM
To: Paetkau, Michelle; Lau, Ho
Cc: Delevante, David
Subject: RE: Rothsay, Dawson Ave: Anticipated Process Effluent Characteristics

Michelle,

Attached please find a signed and sealed version of the letter.

Best Regards,
Jeff

From: Paetkau, Michelle <mpaetkau@winnipeg.ca>
Sent: Friday, September 20, 2019 12:31 PM
To: Chambers, Jeff <jeff.chambers@woodplc.com>; Lau, Ho <HLau@winnipeg.ca>
Cc: Delevante, David <dave.delevante@rothsay.ca>
Subject: RE: Rothsay, Dawson Ave: Anticipated Process Effluent Characteristics

Hi Jeff,

Thanks for this, it is very comprehensive. I have no further comments on it, other than can you please stamp/seal it for us? We can then continue to process the application.

Regards,
Michelle

From: Chambers, Jeff [<mailto:jeff.chambers@woodplc.com>]
Sent: Thursday, September 19, 2019 7:02 AM
To: Lau, Ho
Cc: Paetkau, Michelle; Delevante, David
Subject: Rothsay, Dawson Ave: Anticipated Process Effluent Characteristics

Mr. Lau,

Attached please find a letter that we have prepared in response to your team's follow up inquiries to Mr. David Delevante at Rothsay. For extra clarity we have provided a clearer description of the existing operating condition, the future operating condition, and a summary of the anticipated changes between the two conditions. Hopefully this will provide the information that you and your team require.

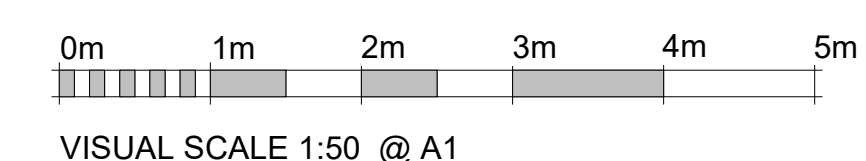
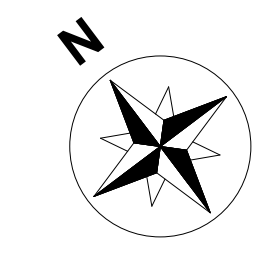
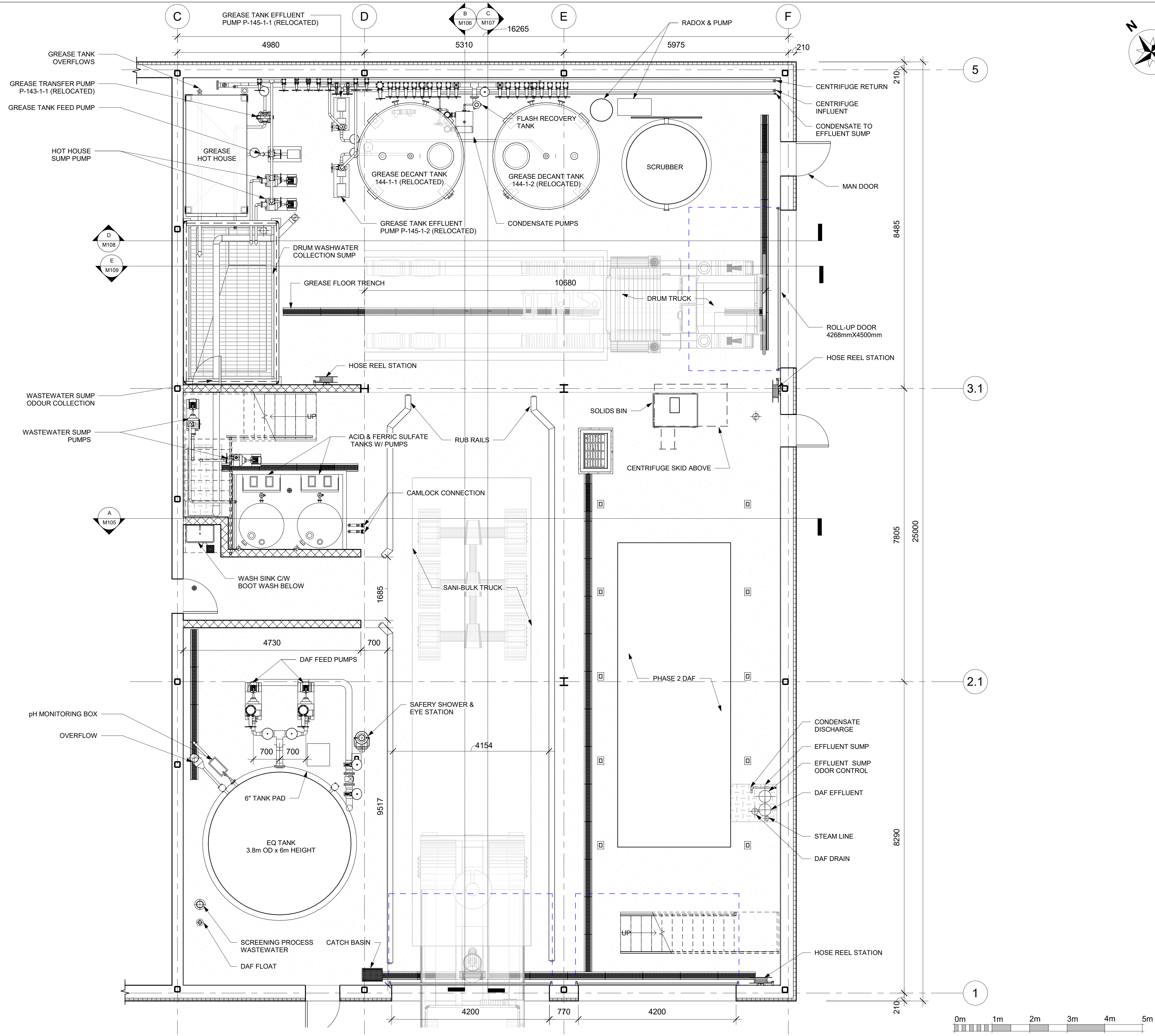
Best Regards,
Jeff

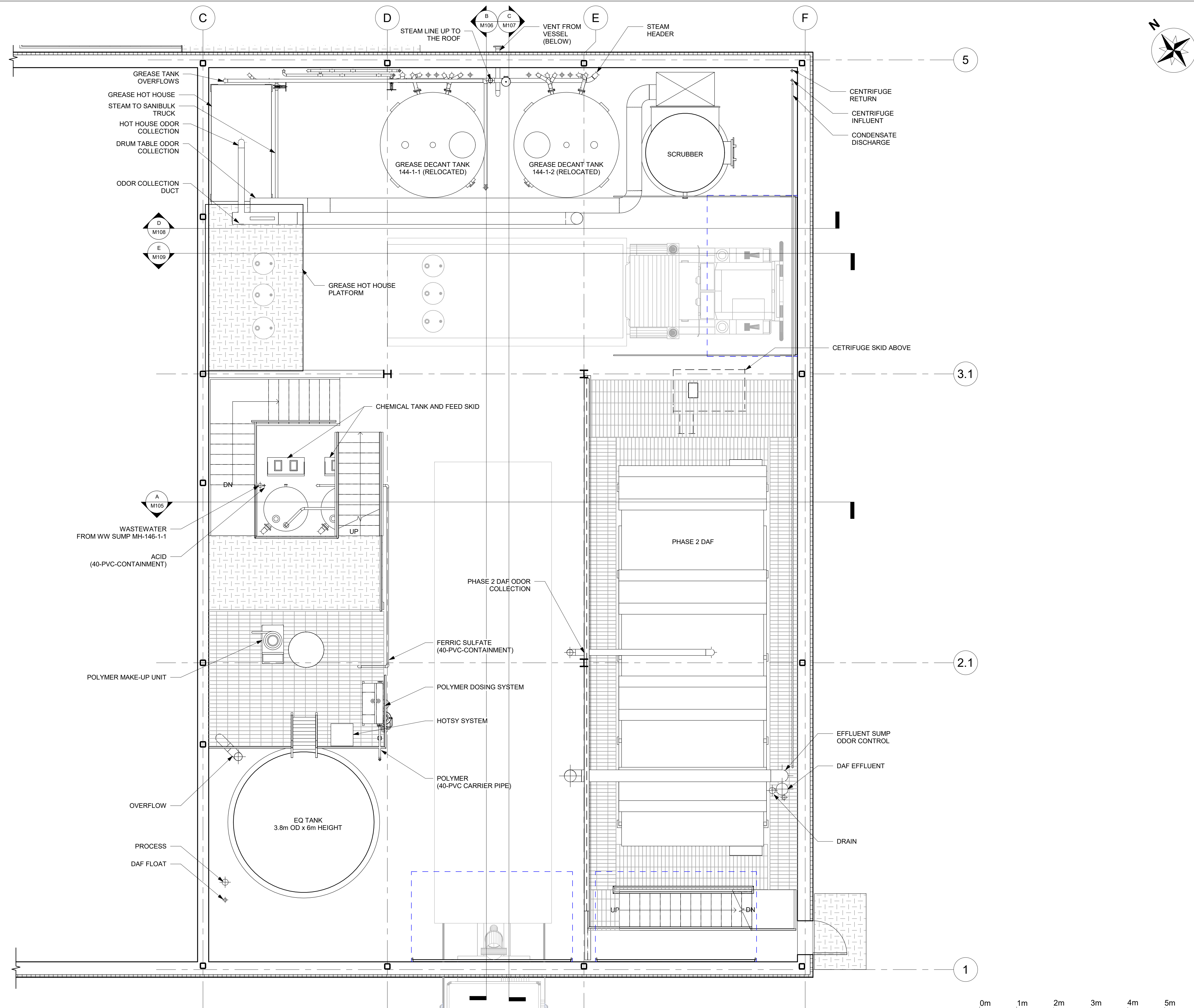
Jeff Chambers, P.Eng., BCEE
Principal Engineer
Direct: 1-519-650-7110
Mobile: 1-519-574-7502
www.woodplc.com

wood.

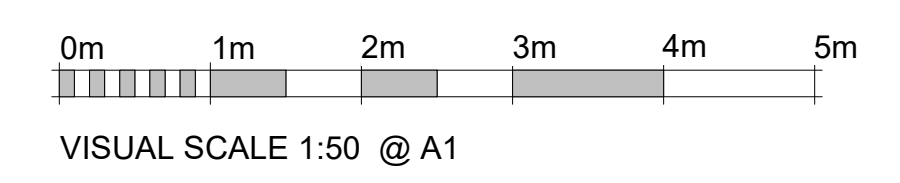
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Attachment 4 – WWTP Location and Layout





2 MEZZANINE LEVEL
1 : 50



REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	03/21/19
1	ISSUED FOR BID	J.C.	B.E.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			

wood.

ROTHSAY
WE RECYCLE | NOUS RECYCLONS

PROJECT NO.: TPC172047
DESIGNED BY: J.C.
CONSULTANT DRAWING NO.:
DATE DESIGNED: 06/18/18

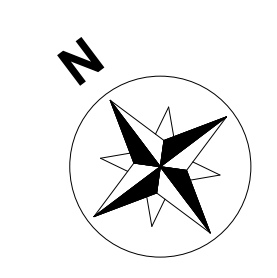
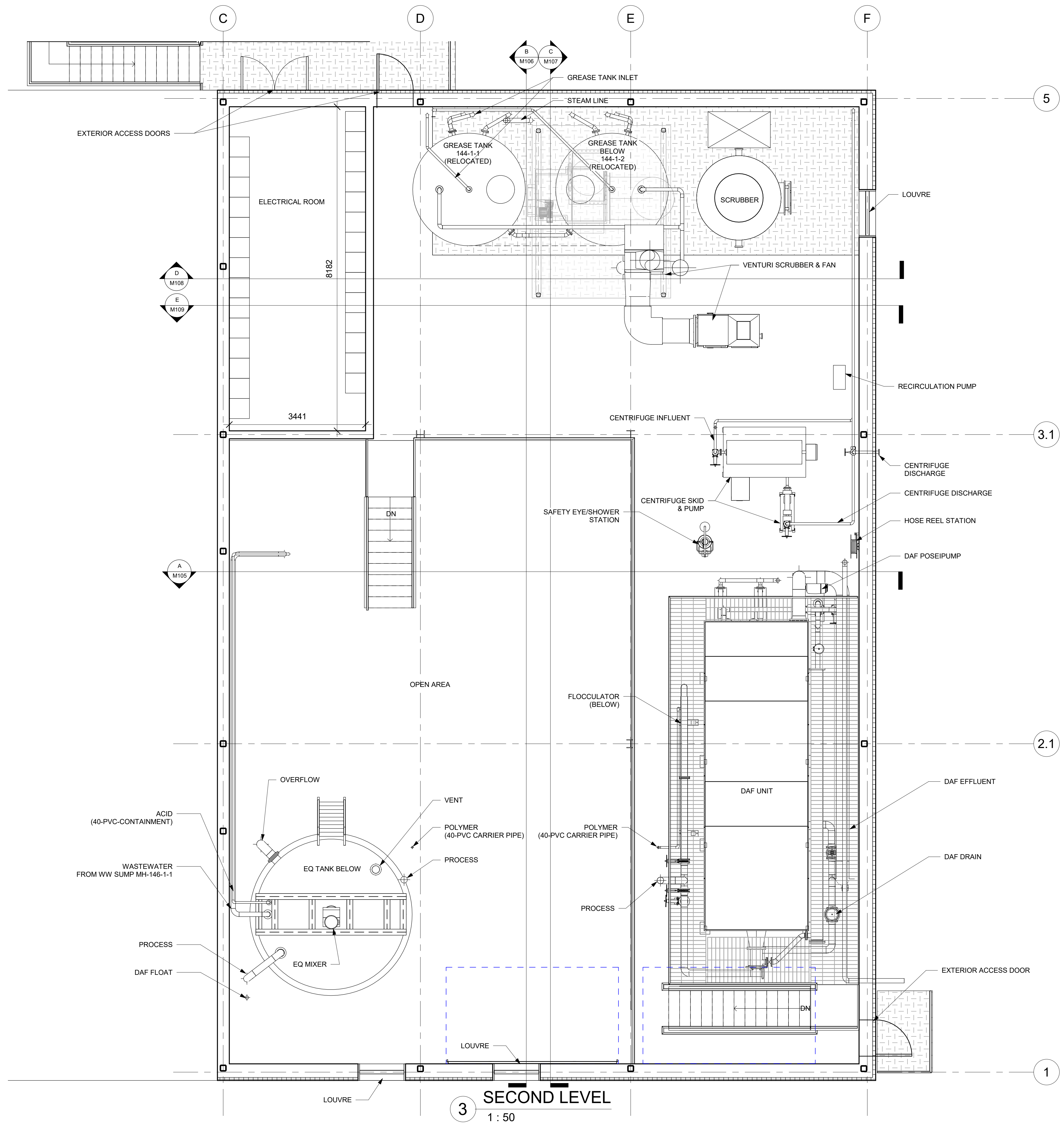
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ROTHSAY A DIVISION OF DARLING INTERNATIONAL CANADA INC.

DARLING
INTERNATIONAL INC.

DRAWING TITLE:
**WINNIPEG WASTEWATER UPGRADES
MEZZANINE LEVEL**

PLANT ADDRESS:	CAD FILE:
DRAWN BY: O.M.	DATE DRAWN: 06/18/18
CHECKED BY:	DATE CHECKED:
SCALE: 1 : 50	SIZE: DRAWING NO. M102
DATE PLOTTED: JUNE 2018	



REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
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1	ISSUED FOR BID	J.C.	B.E.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			

wood.

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WE RECYCLE | NOUS RECYCLONS

PROJECT NO: TPC12047 CONSULTANT DRAWING NO: DATE DESIGNED: 06/18/18
DESIGNED BY: J.C.

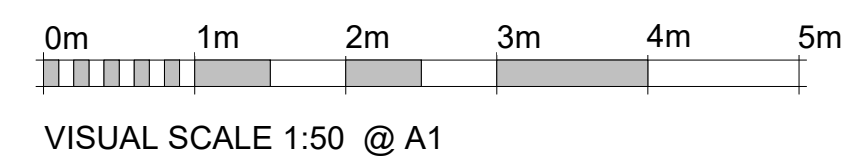
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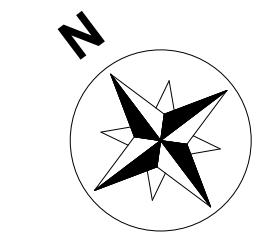
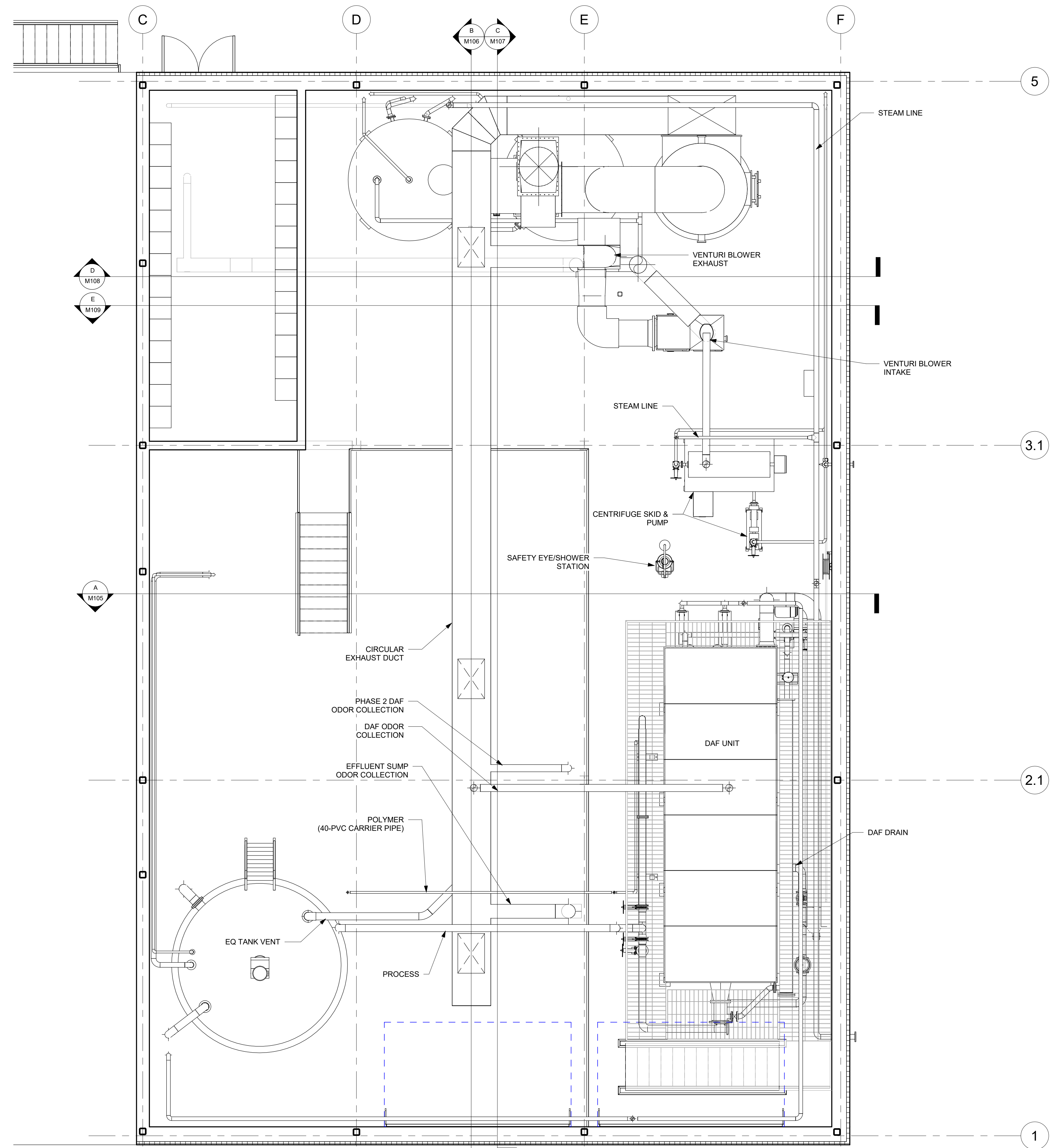
DARLING
INTERNATIONAL INC.

DRAWING TITLE:
**WINNIPEG WASTEWATER UPGRADES
SECOND LEVEL**

PLANT ADDRESS:	CAD FILE:
DRAWN BY: O.M.	DATE DRAWN: 06/18/18
CHECKED BY:	DATE CHECKED:
SCALE: 1 : 50	SIZE: DRAWING NO: M103
DATE PLOTTED: JUNE 2018	



3 SECOND LEVEL
1 : 50



REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	03/21/19
1	ISSUED FOR BID	J.C.	B.E.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			

wood.

ROTHSAY
WE RECYCLE | NOUS RECYCLONS

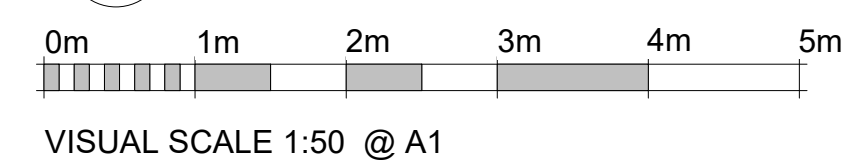
PROJECT NO:	TPC172047	CONSULTANT/DRAWING NO.:	
DESIGNED BY:	Designer	DATE DESIGNED:	09/06/18

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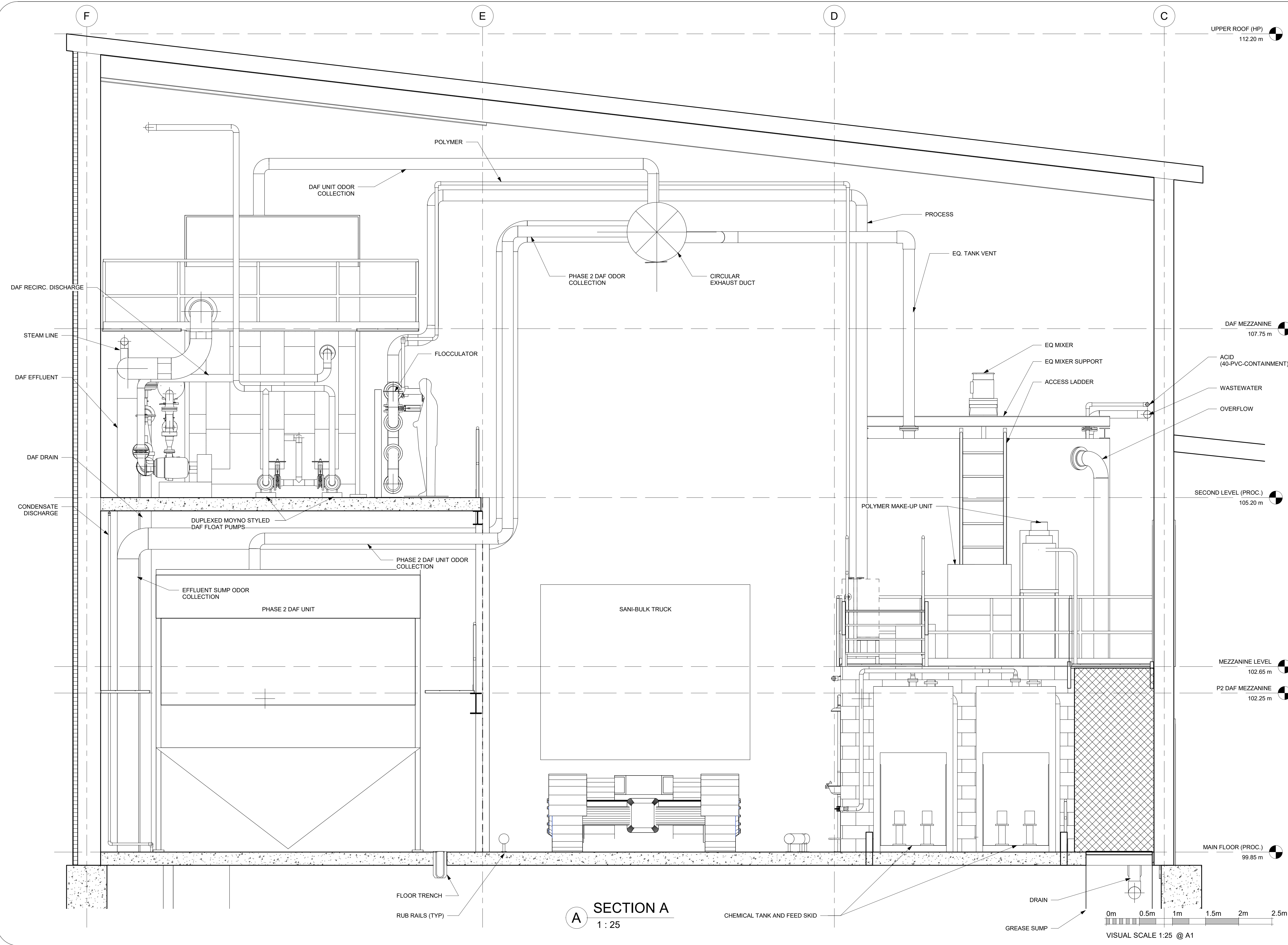
DARLING
INTERNATIONAL INC.

DRAWING TITLE:
**WINNIPEG WASTEWATER UPGRADES
CEILING LEVEL**



4 U/S CEILING
1 : 50

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DRAWN BY:	Author	DATE:	09/06/18
CHECKED BY:	Checker	DATE CHECKED:	
SCALE:	1 : 50	SIZE:	DRAWING NO. M104
DATE PLOTTED:	JUNE 2018		



A SECTION A
1 : 25

REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	03/21/19
1	ISSUED FOR BID	J.C.	B.E.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			

UPPER ROOF (HP)	112.20 m
DAF MEZZANINE	107.75 m
SECOND LEVEL (PROC.)	105.20 m
MEZZANINE LEVEL	102.65 m
P2 DAF MEZZANINE	102.25 m
MAIN FLOOR (PROC.)	99.85 m

wood.

ROTHSAY
WE RECYCLE | NOUS RECYCLONS

PROJECT NO:	TPC172047	CONSULTANT DRAWING NO:	
DESIGNED BY:	J.C.	DATE DESIGNED:	06/18/18

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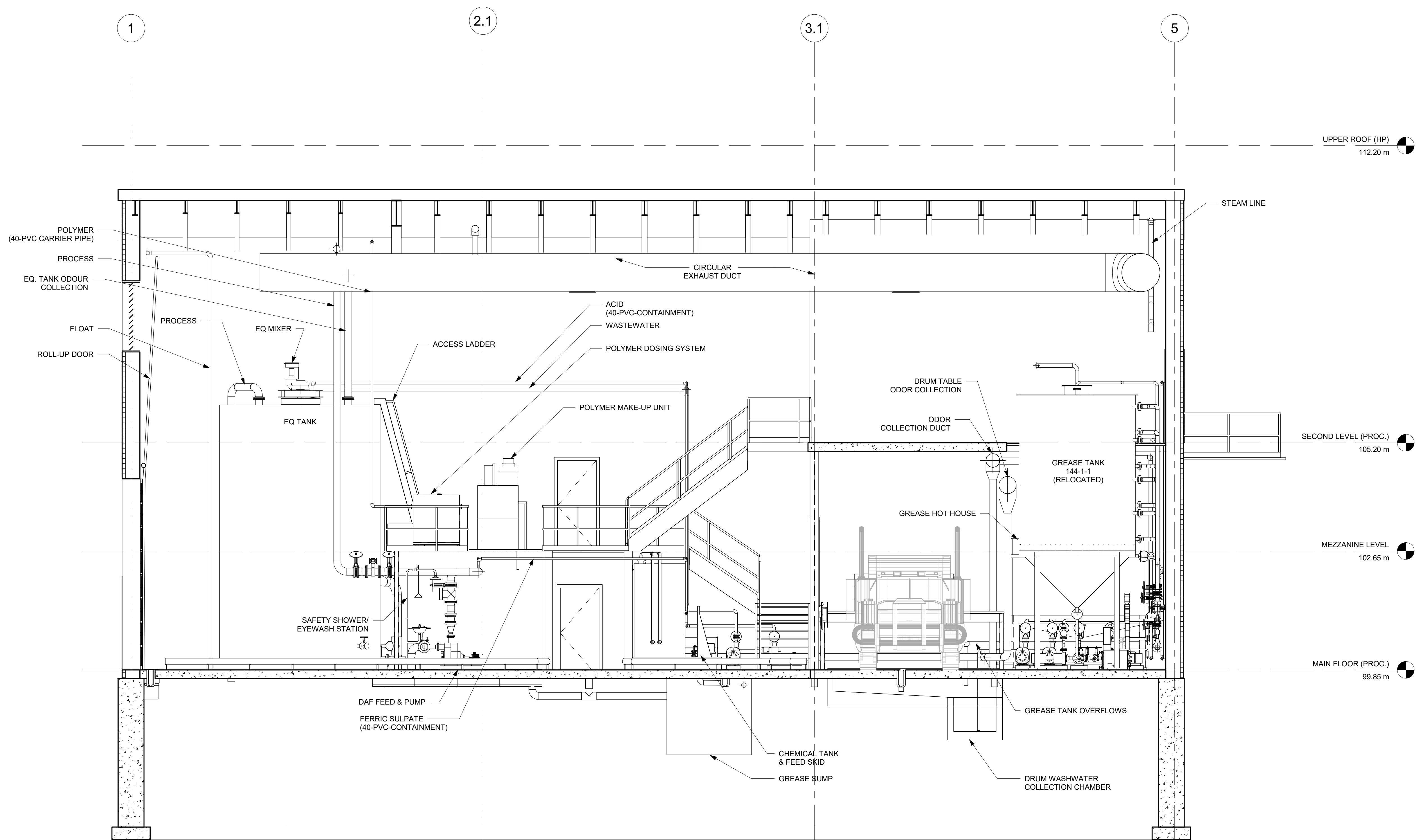
ROTHSAY A DIVISION OF DARLING INTERNATIONAL CANADA INC.

DARLING
INTERNATIONAL INC.

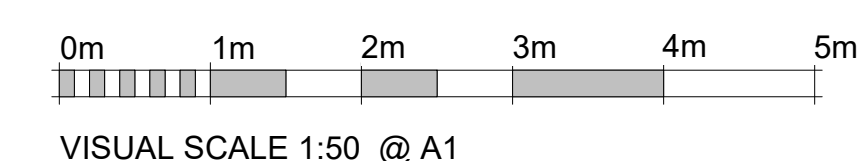
WINNIPEG WASTEWATER UPGRADES

SECTION A

PLANT ADDRESS:	EAP FILE:
DRAWN BY: O.M.	DATE DRAWN: 06/18/18
CHECKED BY: -	DATE CHECKED: -
SCALE: 1 : 25	SIZE: -
DATE PLOTTED: JUNE 2018	DRAWING NO: M105



B SECTION B
1 : 50



REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	03/21/19
1	ISSUED FOR BID	J.C.	B.E.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			



PROJECT NO.:	TPC172047	CONSULTANT/DRAWING NO.:	
DESIGNED BY:	J.C.	DATE DESIGNED:	06/18/18

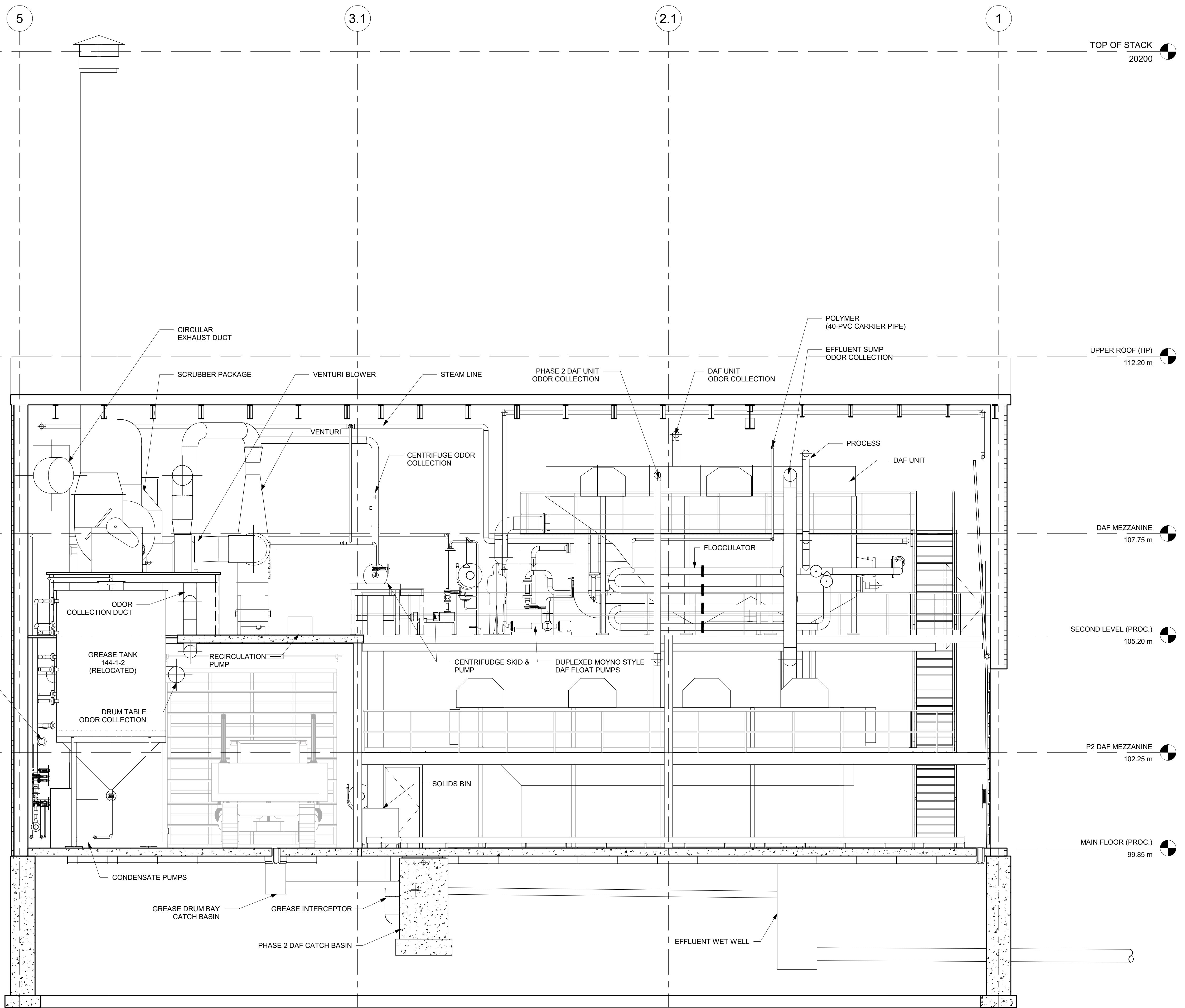
ALL RIGHTS RESERVED. NO PART OF THIS WORK MAY BE USED, REPRODUCED, DISTRIBUTED, DISPLAYED, OR COMMUNICATED IN ANY WAY, FORM, OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF

ROTHSAY A DIVISION OF DARLING INTERNATIONAL CANADA INC.



DRAWING TITLE:
WINNIPEG WASTEWATER UPGRADES
SECTION B

PLANT ADDRESS:		CAD FILE:	
DRAWN BY:	O.M.	DATE DRAWN:	06/18/18
CHECKED BY:		DATE CHECKED:	
SCALE:	1 : 50	SIZE:	
DATE PLOTTED:	JUNE 2018	DRAWING NO.:	M106



C SECTION C
1 : 50

REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	09/21/19
1	ISSUED FOR BID	J.C.	B.L.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			

wood.

ROTHSAY
WE RECYCLE / NOUS RECYCLONS

PROJECT NO.: TPC172047	CONSULTANT DRAWING NO.:
DESIGNED BY: J.C.	DATE DESIGNED: 06/18/18

ALL RIGHTS RESERVED. NO PART OF THIS WORK MAY BE USED, REPRODUCED, DISTRIBUTED, DISPLAYED, OR COMMUNICATED IN ANY WAY, FORM, OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF

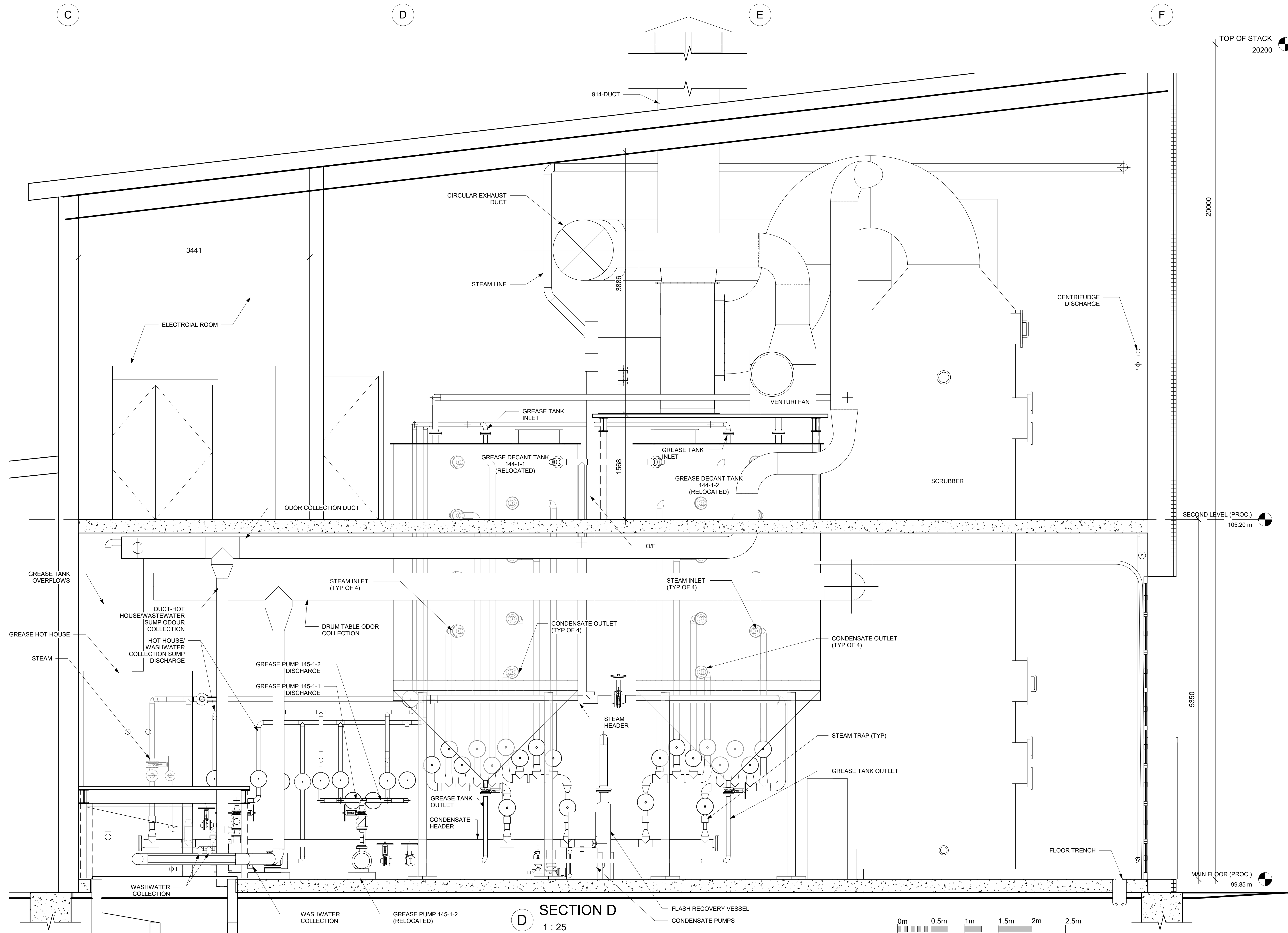
ROTHSAY A DIVISION OF DARLING INTERNATIONAL CANADA INC.

DARLING
INTERNATIONAL INC.

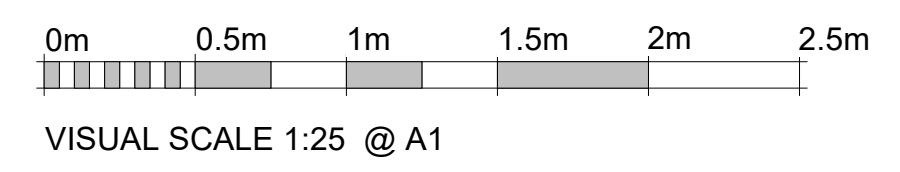
DRAWING TITLE:
WINNIPEG WASTEWATER UPGRADES
SECTION C

PLANT ADDRESS:	FILE:
DRAWN BY: O.M.	DATE DRAWN: 06/18/18
CHECKED BY:	DATE CHECKED:
SCALE: 1 : 50	SIZE:
DATE PLOTTED: JUNE 2018	DRAWING NO: M107

VISUAL SCALE 1:50 @ A1



SECTION D
1:25



REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	03/21/19
1	ISSUED FOR BID	J.C.	B.L.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			



wood.

ROTHSAY
WE RECYCLE | NOUS RECYCLONS

PROJECT NO.:	TPC172047	CONSULTANT DRAWING NO.:	
DESIGNED BY:	J.C.	DATE DESIGNED:	09/06/18

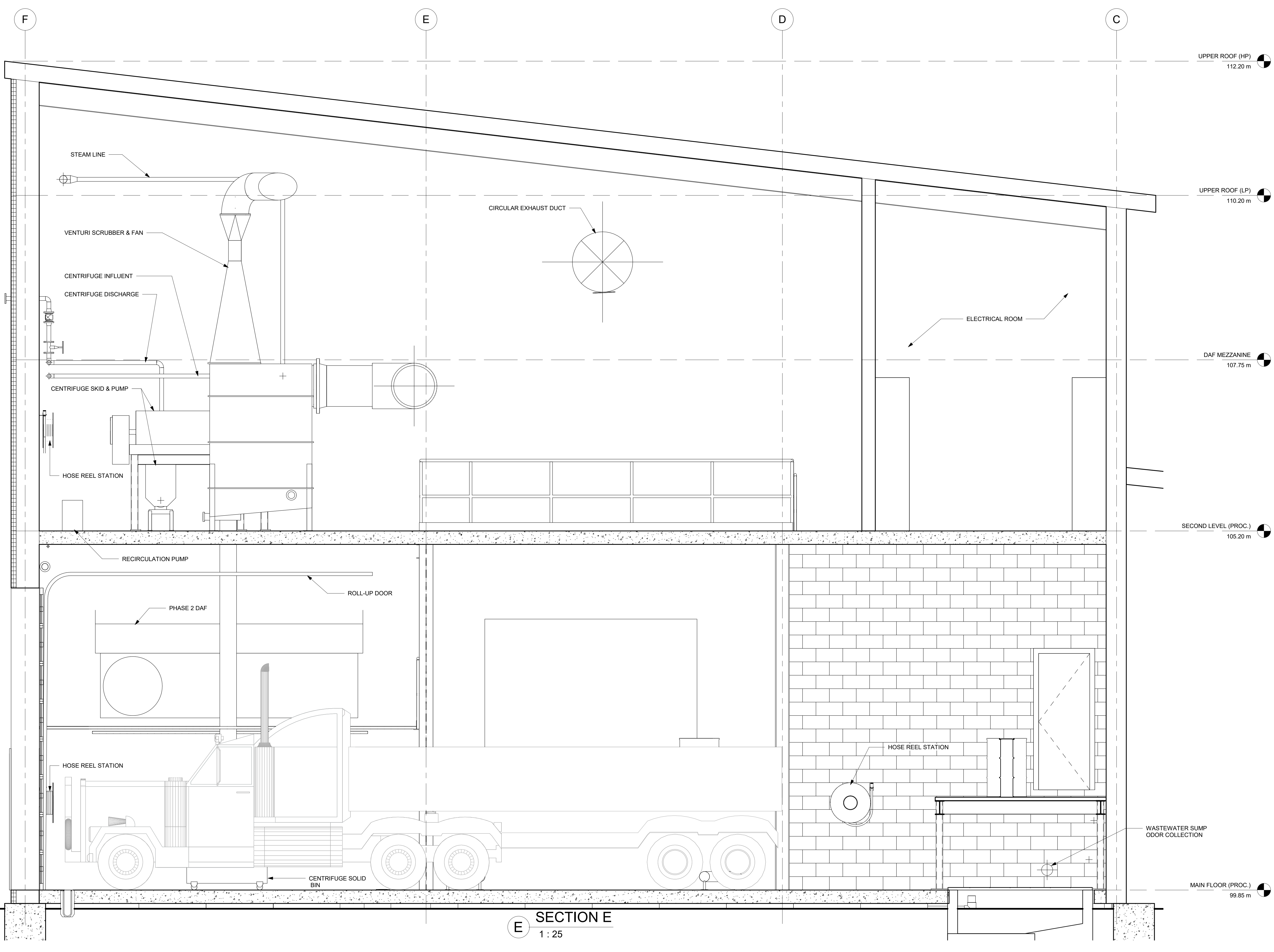
ALL RIGHTS RESERVED. NO PART OF THIS WORK MAY BE USED, REPRODUCED, DISTRIBUTED, DISPLAYED, OR COMMUNICATED IN ANY WAY, FORM, OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF

ROTHSAY A DIVISION OF DARLING INTERNATIONAL CANADA INC.

DARLING
INTERNATIONAL INC.

DRAWING TITLE:
WINNIPEG WASTEWATER UPGRADES
SECTION D

PLANT ADDRESS:		CAD FILE:	
DRAWN BY:	C.F.	DATE DRAWN:	09/06/18
CHECKED BY:		DATE CHECKED:	
SCALE:	1:25	SIZE:	DRAWING NO. M108
DATE PLOTTED:	JUNE 2018		



E SECTION E
1 : 25

REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	03/21/19
1	ISSUED FOR BID	J.C.	B.E.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			



PROJECT NO:	TPC172047	CONSULTANT DRAWING NO.:	
DESIGNED BY:	Designer	DATE DESIGNED:	10/26/18

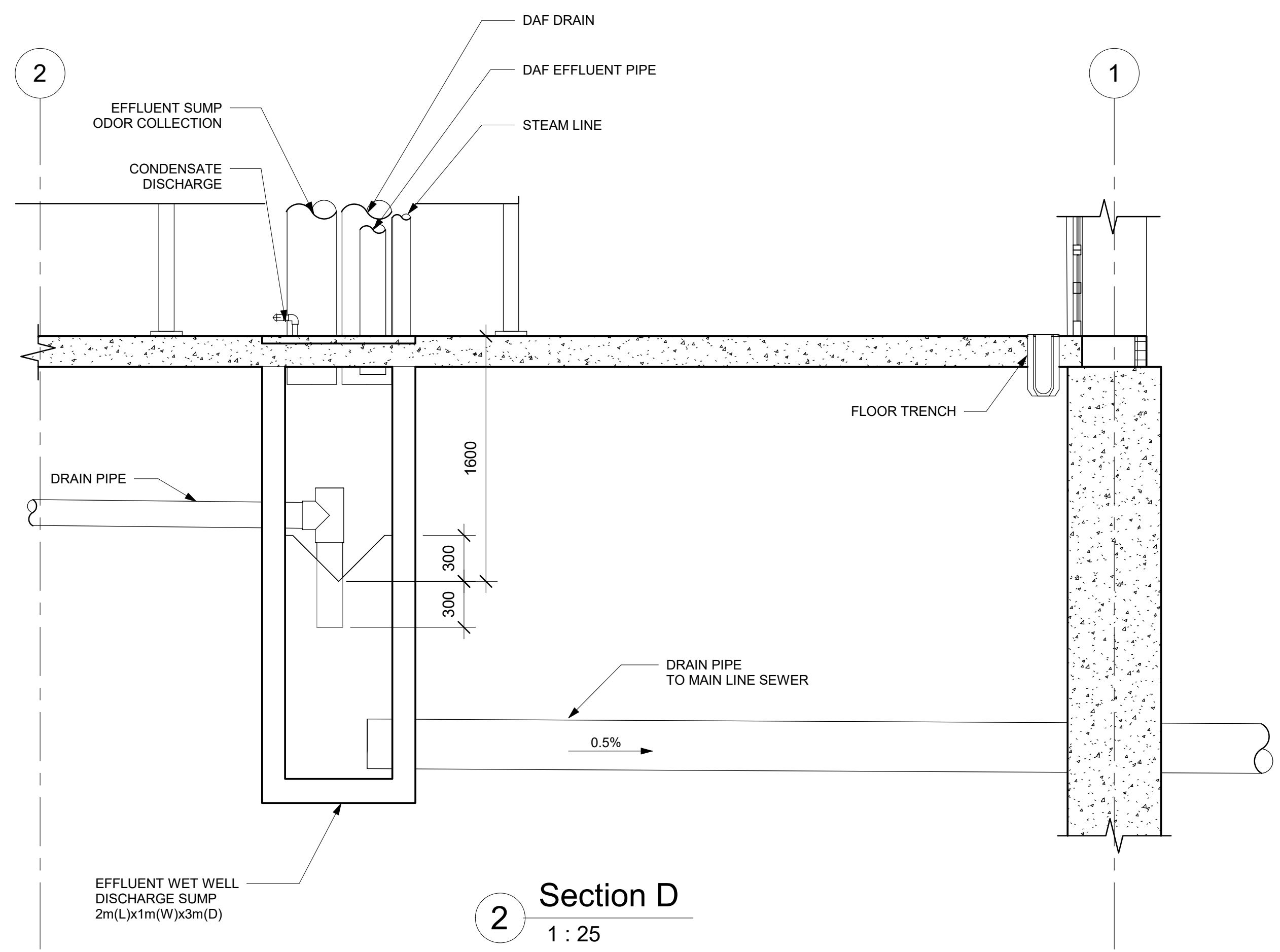
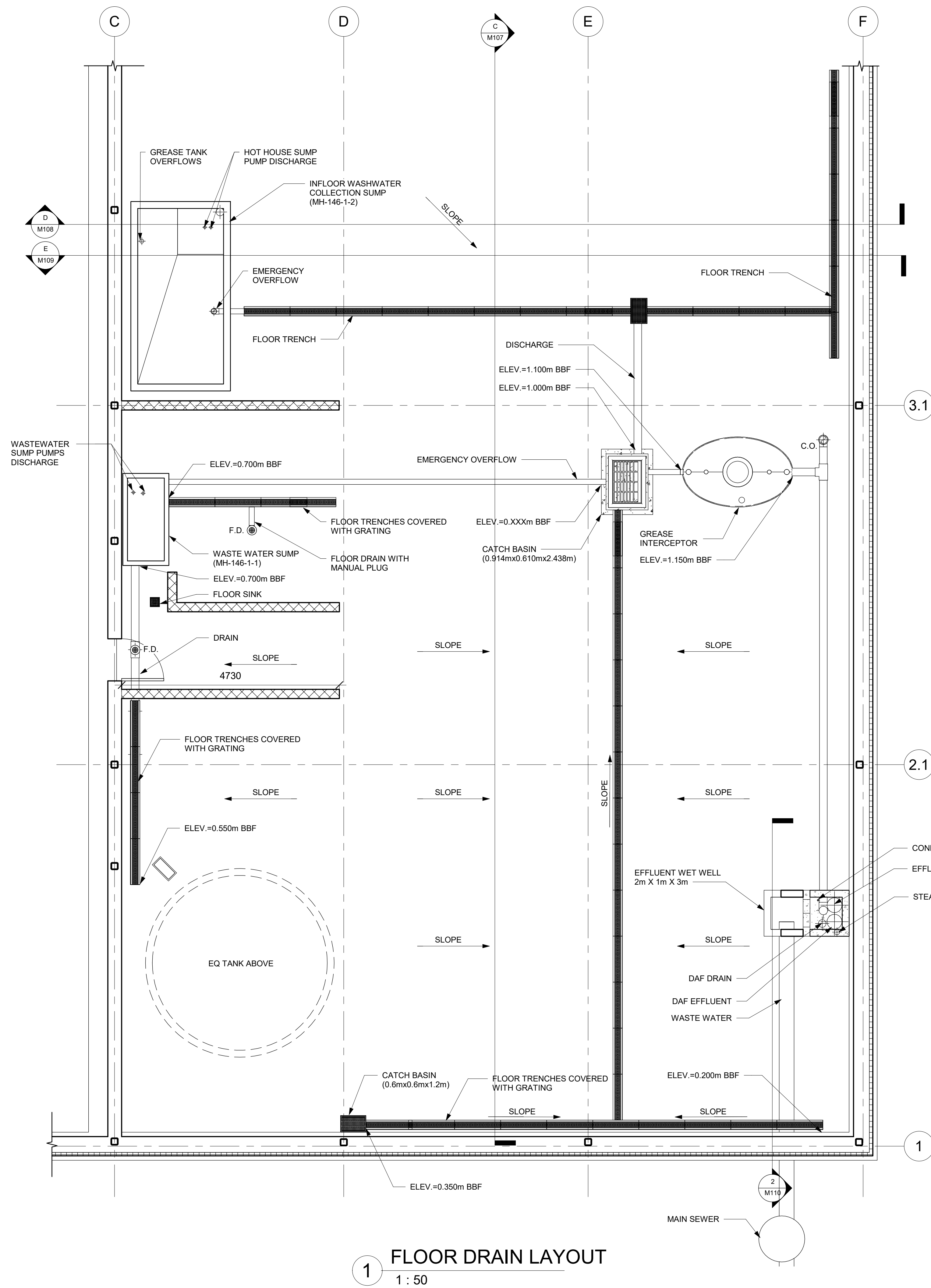
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ROTHSAY A DIVISION OF DARLING INTERNATIONAL CANADA INC.



DRAWING TITLE:
WINNIPEG WASTEWATER UPGRADES
SECTION E

PLANT ADDRESS:		CAD FILE:	
DRAWN BY:	Author	DATE DRAWN:	10/26/18
CHECKED BY:	Checker	DATE CHECKED:	
SCALE:	1 : 25	SIZE:	
DATE PLOTTED:	JUNE 2018	DRAWING NO.:	M109



REVISIONS				
REV	DESCRIPTION	REV BY	VER BY	DATE
2		J.C.	B.L.	03/21/19
1	ISSUED FOR BID	J.C.	B.E.	
0	CONCEPT DESIGN - FOR INTERNAL REVIEW			

wood.

ROTHSAY
WE RECYCLE | NOUS RECYCLONS

PROJECT NO.:	TPC172047	CONSULTANT DRAWING NO.:	
DESIGNED BY:	Designer	DATE DESIGNED:	06/26/18

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ROTHSAY A DIVISION OF DARLING INTERNATIONAL CANADA INC.

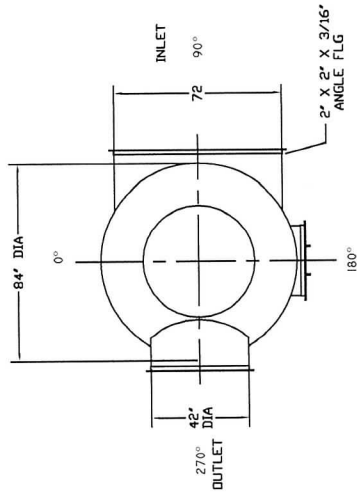
DARLING
INTERNATIONAL INC.

DRAWING TITLE:
WINNIPEG WASTEWATER UPGRADES
FLOOR DRAIN LAYOUT

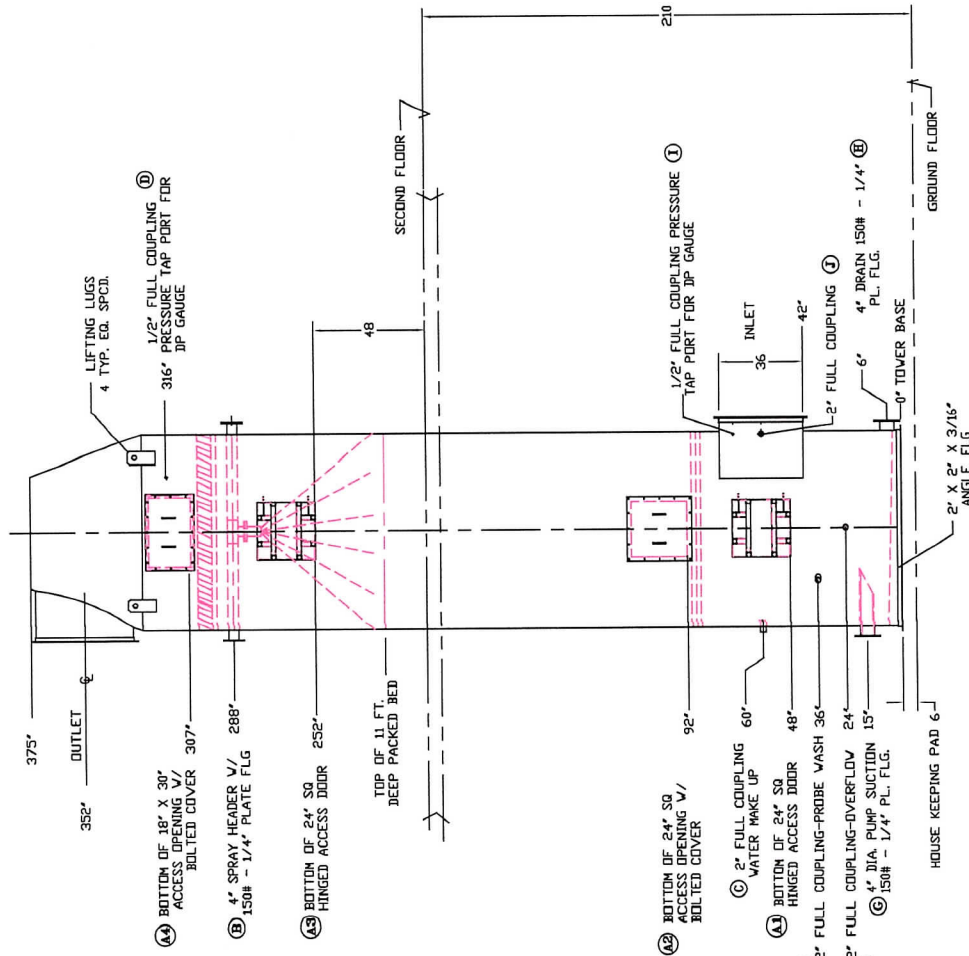
PLANT ADDRESS:	CAD FILE:
DRAWN BY: O.M.	DATE DRAWN: 06/26/18
CHECKED BY:	DATE CHECKED:
SCALE: As Indicated	SIZE: DRAWING NO. M110
DATE PLOTTED: JUNE 2018	

Attachment 5 – Air Pollution Control System Layout and Specifications

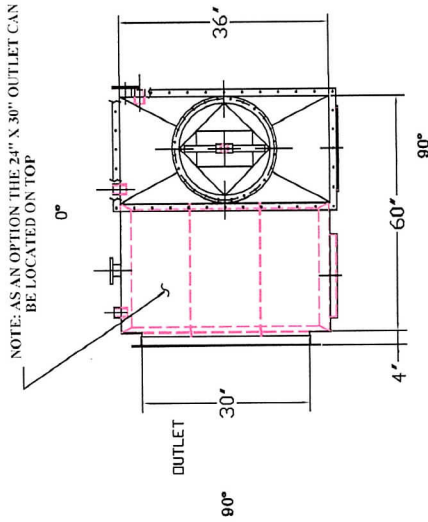
- 25,000 CFM PACKED BED SCRUBBER FITTINGS**
- (A) ACCESS DOORS 1 THRU 4
 - (B) 4" PUMP RETURN (SPRAY HEADER)
 - (C) 2" PUMP PLANT WATER
 - (D) 1/2" UPPER PRESSURE PORT
 - (E) 2" OVERFLOW
 - (F) 2" EXTRA (PROBE WASH)
 - (G) 4" PUMP SUCTION
 - (H) 4" DRAIN
 - (I) 1/2" LOWER PRESSURE PORT
 - (J) 2" EXTRA



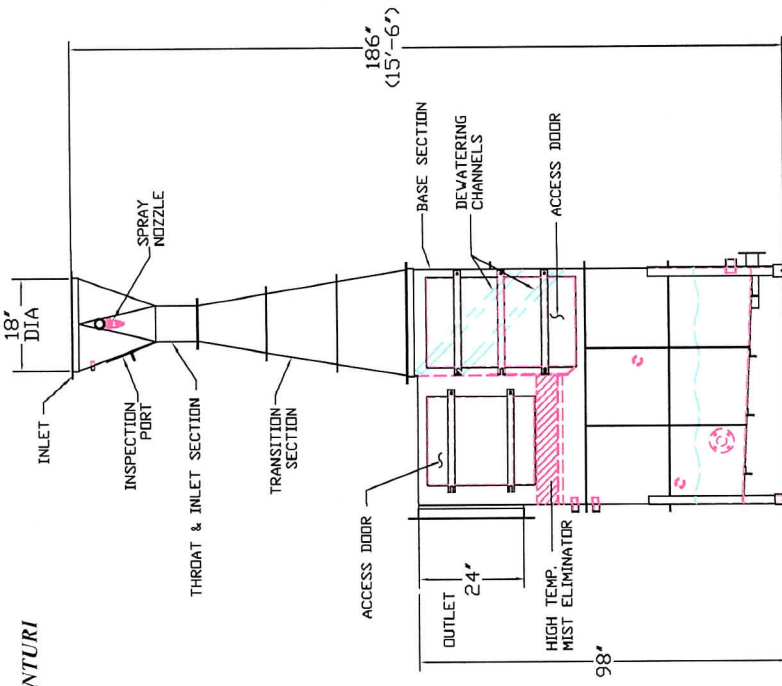
7'-0" DIA. 25,000 CFM TOWER



TOWER ELEVATION DIMENSIONS ARE FROM 0" BASE AND DO NOT INCLUDE 6" HOUSE KEEPING PAD



6,000 CFM VENTURI



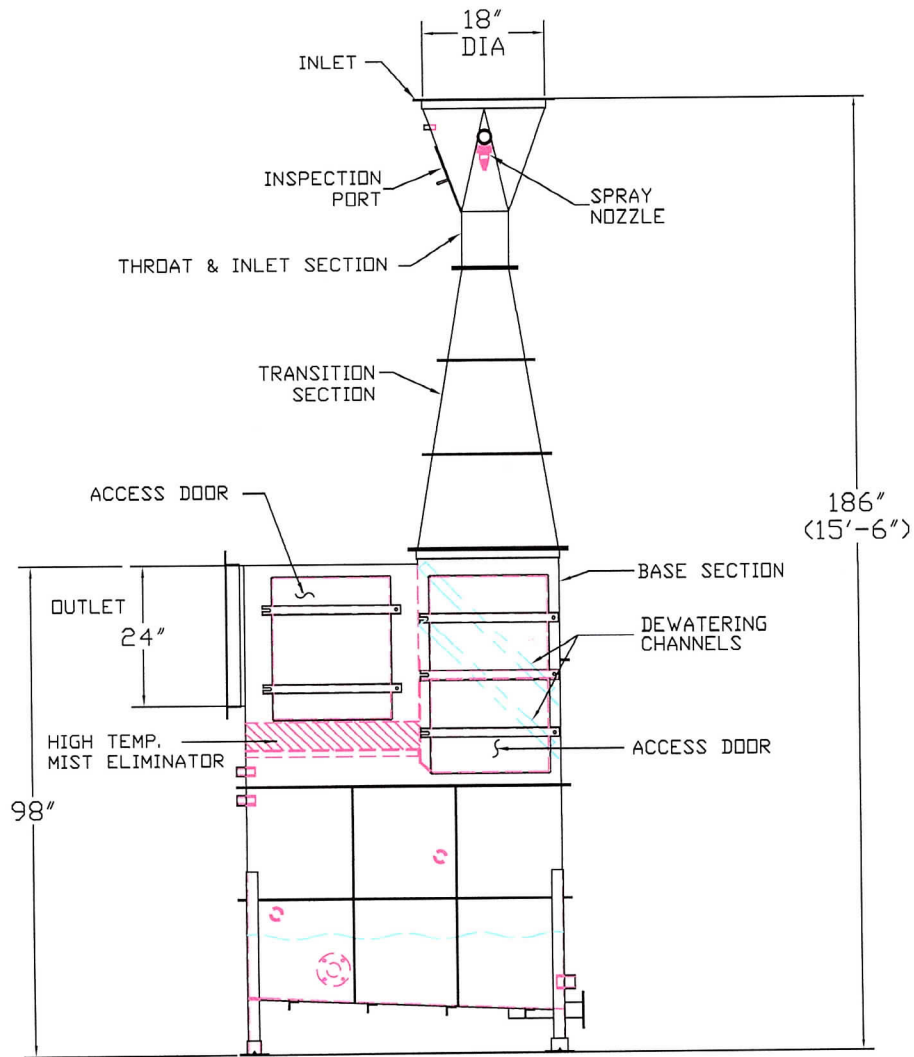
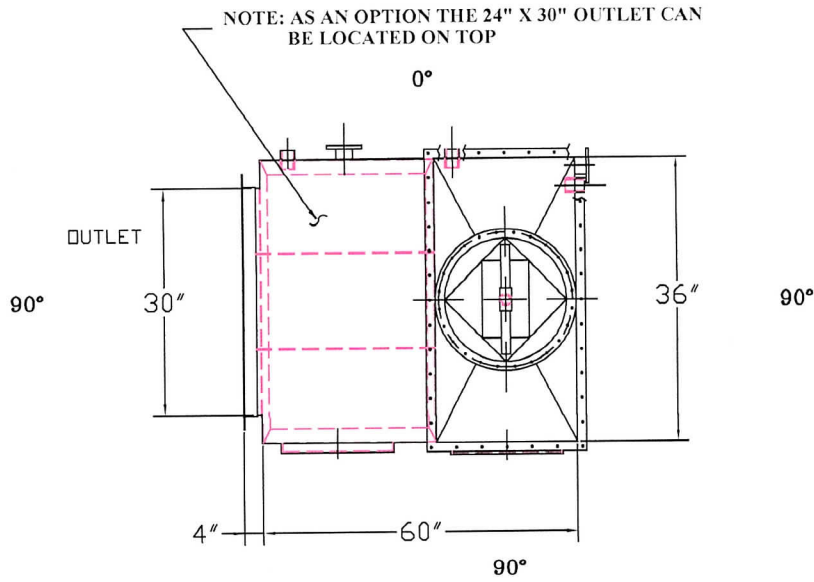
ROBERTSON TECHNOLOGIES LLC
 SHORUBERT, MN 55306-7601

FOR QUOTE ONLY
 DIMENSIONS SUBJECT TO CHANGE
 VENTURI SCRUBBER IS NOT SHOWN TO SCALE

ROTHSAY WINNIPEG

PROJECT: J. ROBERTSON
 DATE: 10-24-2018
 SCALE: NTS

DRAWING #: 7-1985-681-1
 SHEET: 1 OF 1
 REV: 0

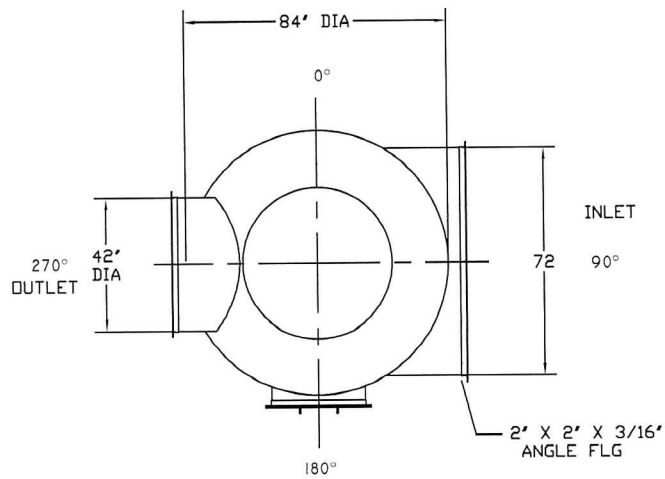


REVISIONS	
REV	DATE
ROBERTSON TECHNOLOGIES LLC SHOREVIEW, MN 55306-5401	
TITLE: PROPOSED 6,000 CFM VENTURI SCRUBBER	
FOR: ROTHSAY - WINNIPEG	
PROPOSAL #:	DATE:
PBS-1-72518	7-25-2018
DRAWN BY:	SCALE:
J. ROBERTSON	NTS
DRAWING #:	SHEET:
1-72518-1	1 OF 1
	REV:

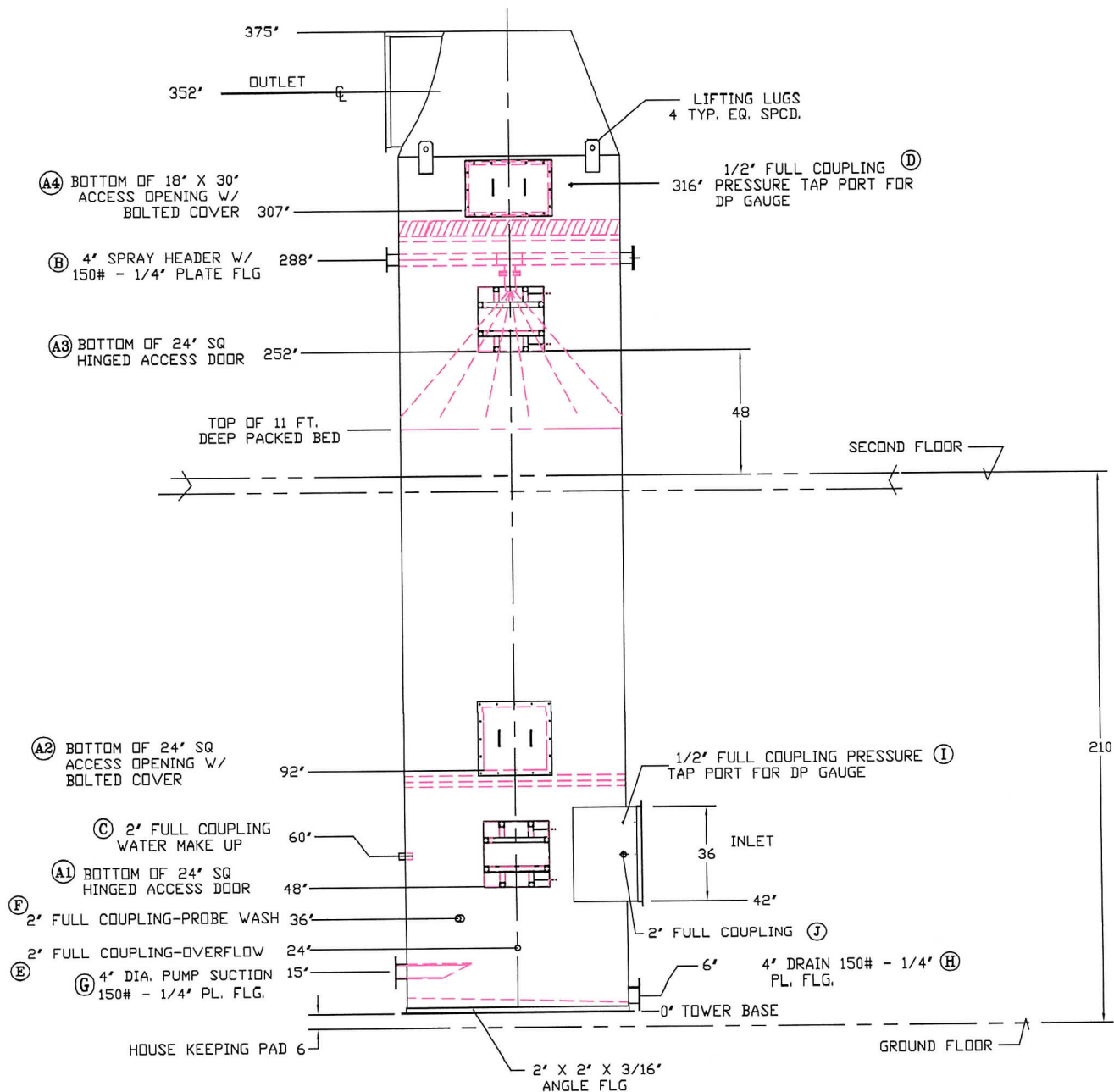
FOR QUOTE ONLY
DIMENSIONS SUBJECT TO CHANGE

**25,000 CFM PACKED
BED SCRUBBER FITTINGS**

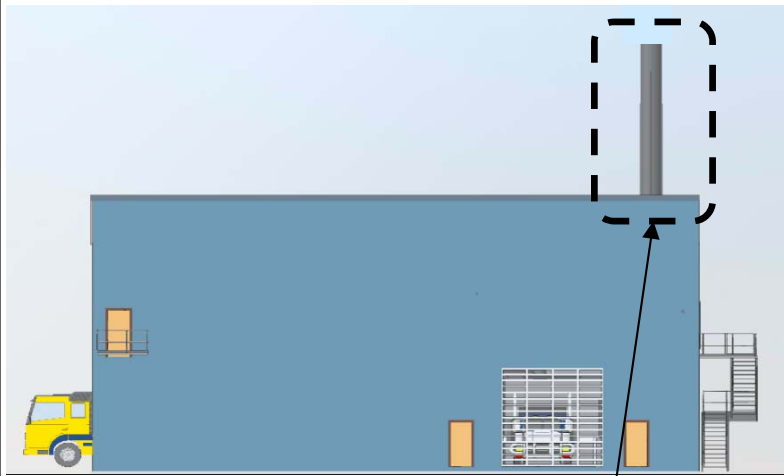
- (A) ACCESS DOORS 1 THRU 4
- (B) 4"Ø PUMP RETURN (SPRAY HEADER)
- (C) 2"Ø PLANT WATER
- (D) 1/2"Ø UPPER PRESSURE PORT
- (E) 2"Ø OVERFLOW
- (F) 2"Ø EXTRA (PROBE WASH)
- (G) 4"Ø PUMP SUCTION
- (H) 4"Ø DRAIN
- (I) 1/2"Ø LOWER PRESSURE PORT
- (J) 2"Ø EXTRA



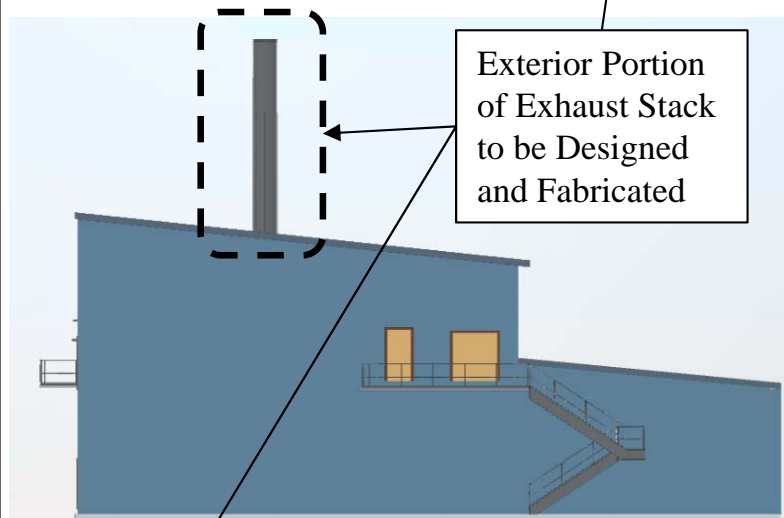
NO.	BY	DATE	REVISIONS
ROBERTSON TECHNOLOGIES LLC SHOREVIEW, MN / 612.306.7461			
TITLE: 7'-0" DIA. SS TOWER WITH SIDE OUTLET DIM.			
FOR: ROTHSAY WINNIPEG			
PROJECT #:	DRAWN BY:	DATE:	SCALE:
PROPOSAL:	J.ROBERTSON	10-22-2018	NTS
DRAWING #:	7-SS-PBS-2	SHEET:	1 OF 1
			REV: 0



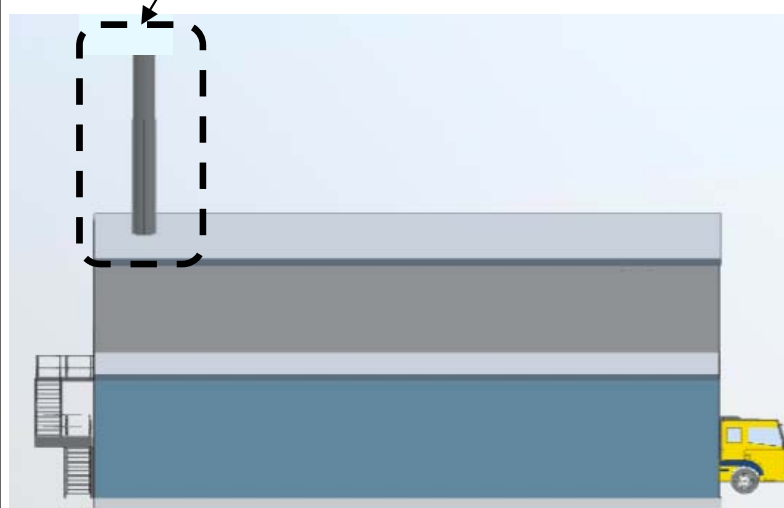
TOWER ELEVATION DIMENSIONS ARE FROM 0" BASE AND DO NOT INCLUDE 6" HOUSE KEEPING PAD



East Elevation



North Elevation



West Elevation

Two 6"x6" dia 316ss **stack test ports** w/ flush mounted interior and threaded exterior cap located at 90 deg from each other and ~8ft below stack tip.

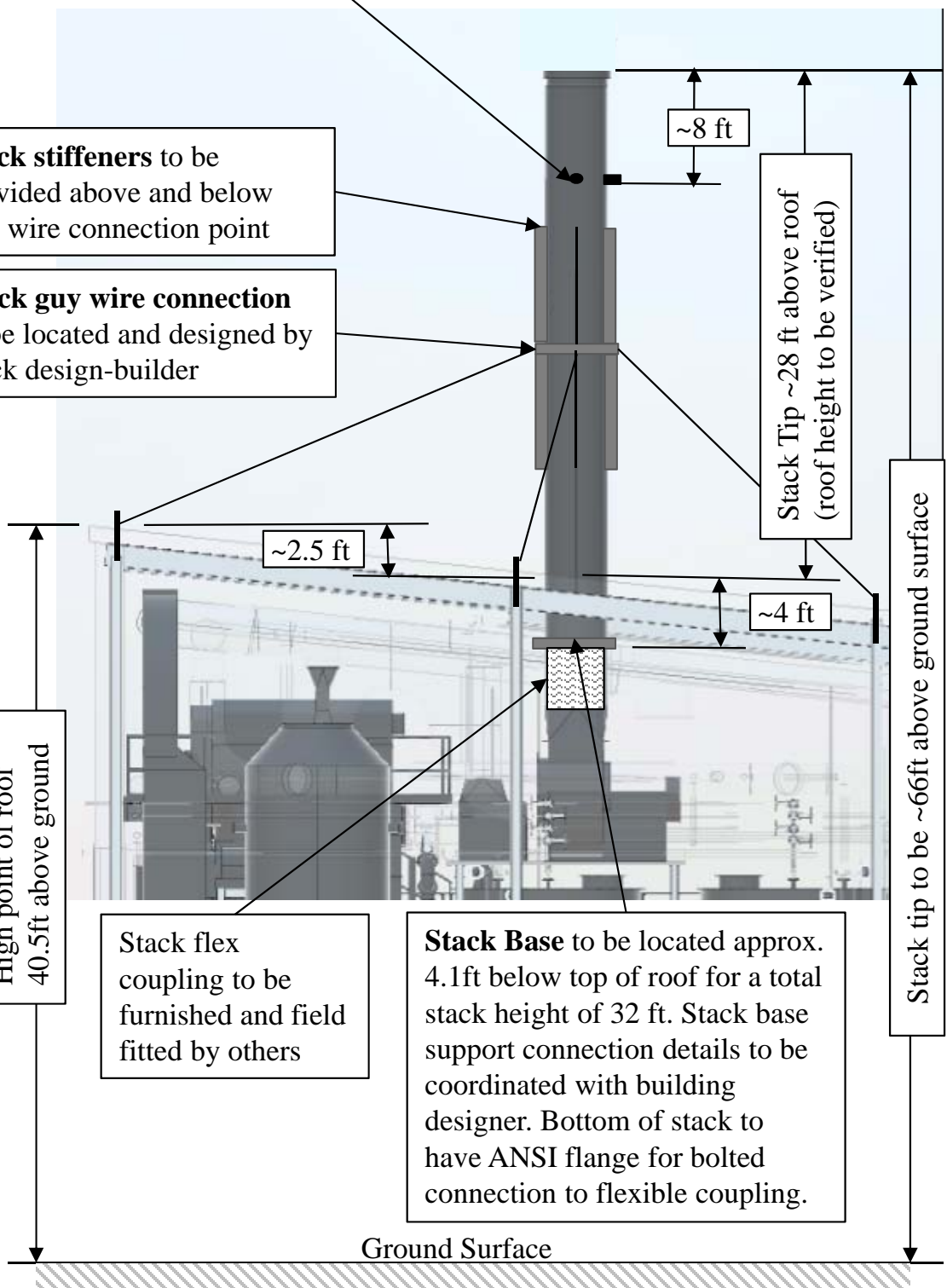
Stack stiffeners to be provided above and below guy wire connection point

Stack guy wire connection to be located and designed by stack design-builder

High point of roof 40.5ft above ground

Stack flex coupling to be furnished and field fitted by others

Stack Base to be located approx. 4.1ft below top of roof for a total stack height of 32 ft. Stack base support connection details to be coordinated with building designer. Bottom of stack to have ANSI flange for bolted connection to flexible coupling.

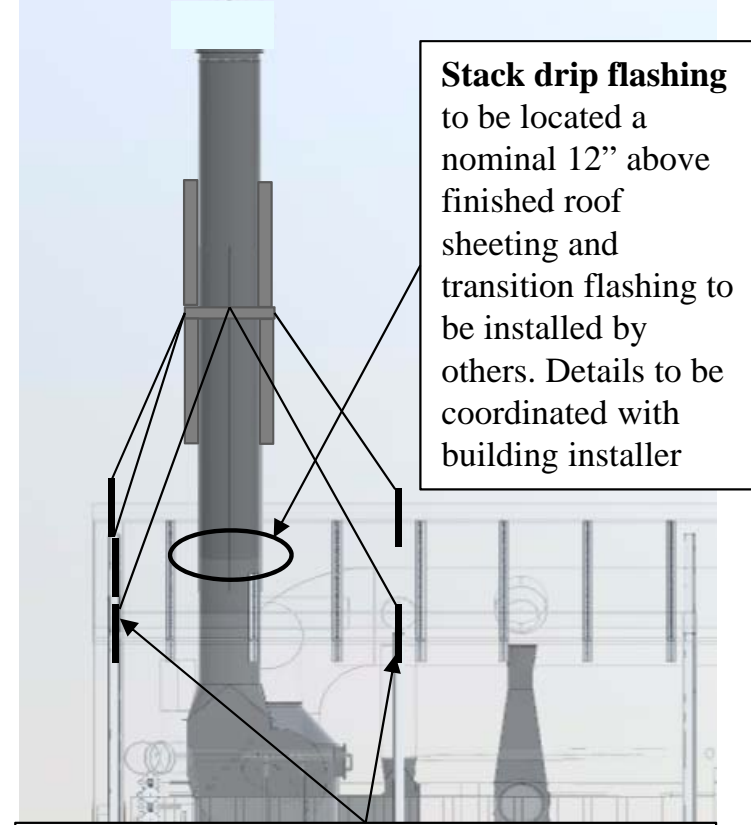


Stack Tip ~28 ft above roof (roof height to be verified)

Stack tip to be ~66ft above ground surface

Scrubber Exhaust Stack Design and Fabrication Requirements:

1. The tip of the stack is to be located 66ft (~20m) above finished grade.
2. Design and Fabricate in general accordance with "ASME STS-1 Steel Stacks".
3. Stack materials of construction to be **316ss**.
4. The nominal **stack tip ID needs to be 33 inches**.
5. The nominal **stack diameter should be 36 inches**.
6. The nominal **stack height is 32 ft**.
7. The stack tip exhaust velocity needs to be 4,000 fpm or greater
8. The Stack air flow rate is 25,000 scfm.
9. Total stack pressure loss should be less than 2 inches of water column.



Stack drip flashing to be located a nominal 12" above finished roof sheeting and transition flashing to be installed by others. Details to be coordinated with building installer

Guy wire anchor points to be identified and designed by building designer. Assume located at building columns (5 points).

No.	Revision	By	No.	Revision	By
1	Created - Dec. 13/18	JC			
2	Client Comments - Dec. 14/18	JC			



Scrubber Exhaust Stack Specification