

VOLUME

3 of 3

Contract 20093

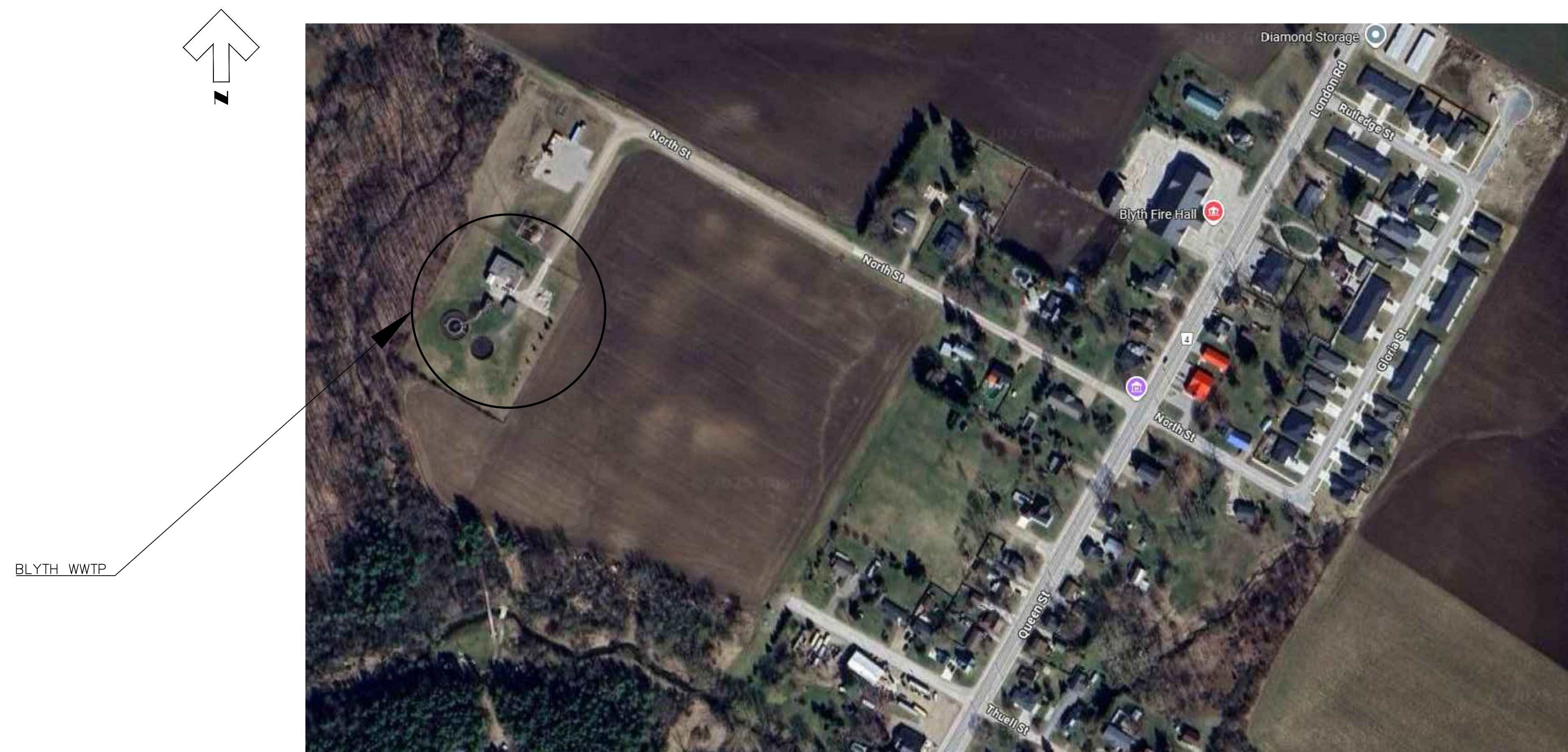


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TOWNSHIP OF NORTH HURON

BLYTH WWTP UPGRADE

PROJECT No. 20093

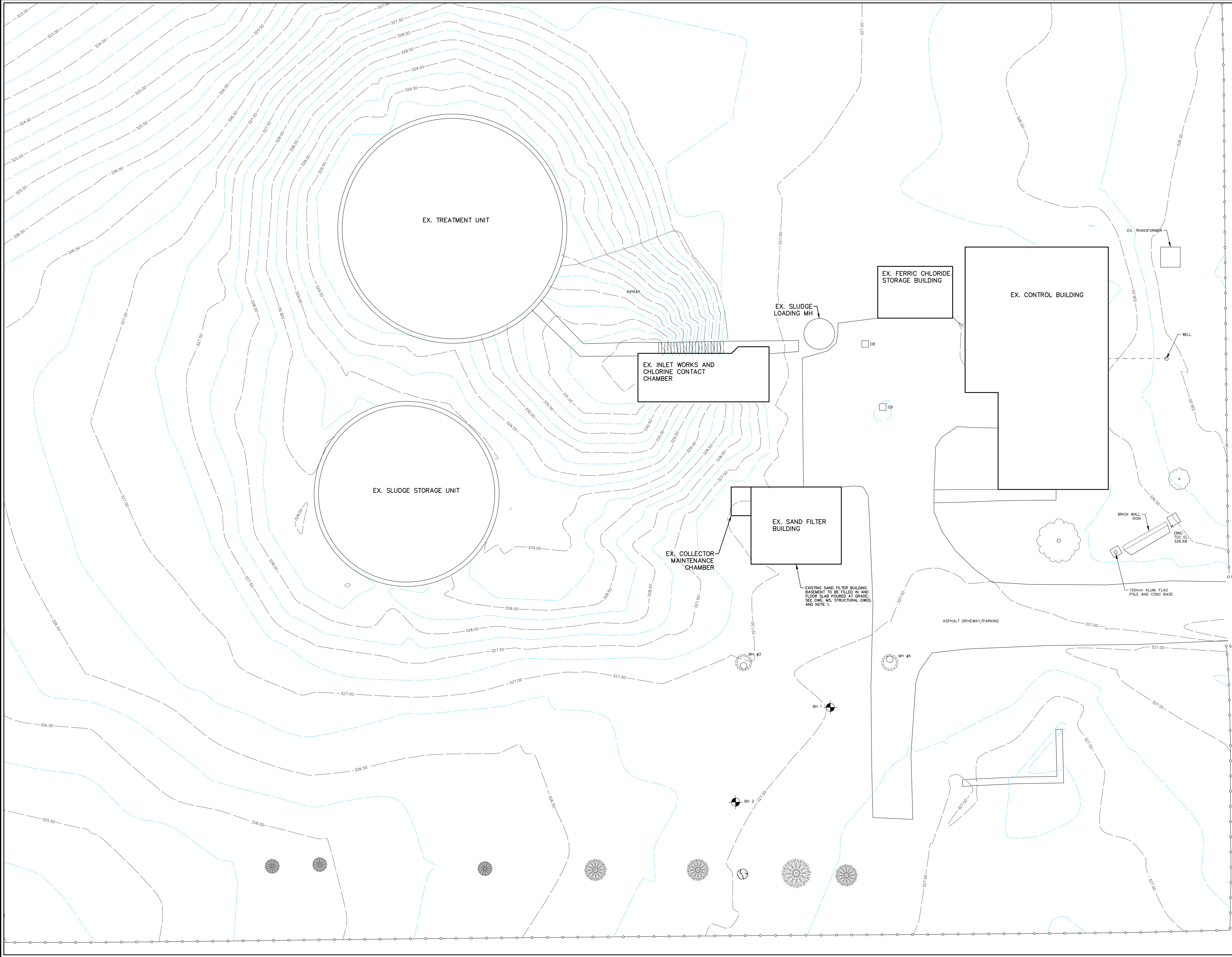


OCTOBER 28, 2025
ISSUED FOR TENDER



KEY PLAN

N.T.S.



NOTES

1. The existing Chlorine Contact Chamber and Sand Filter Building shall remain in operation until the new Filter/UV equipment is commissioned and in operation.

1:150

1m 0 2m 4m 6m 8m

NOTE

The locations of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work and agrees to be fully responsible for any damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

BENCHMARK INFORMATION

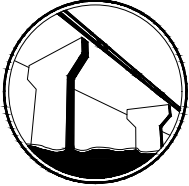
T.O.C. SE corner of concrete pad = 326.68 mASL

Design By: B.V.C.S. Checked By: A.J.G.

LICENSED PROFESSIONAL ENGINEER
B.V.C. SPENCER
100212689
October 28/23
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
A.J. GARLAND
100135095
October 28/23
PROVINCE OF ONTARIO

No.	DATE	REVISION
1	May 22, 2025	Issued for Equipment Pre-Selection
2	Sept. 17, 2025	Issued for MECP Approval
3	Oct. 1, 2025	Issued for Client Review
4	Oct. 28, 2025	Issued for Tender



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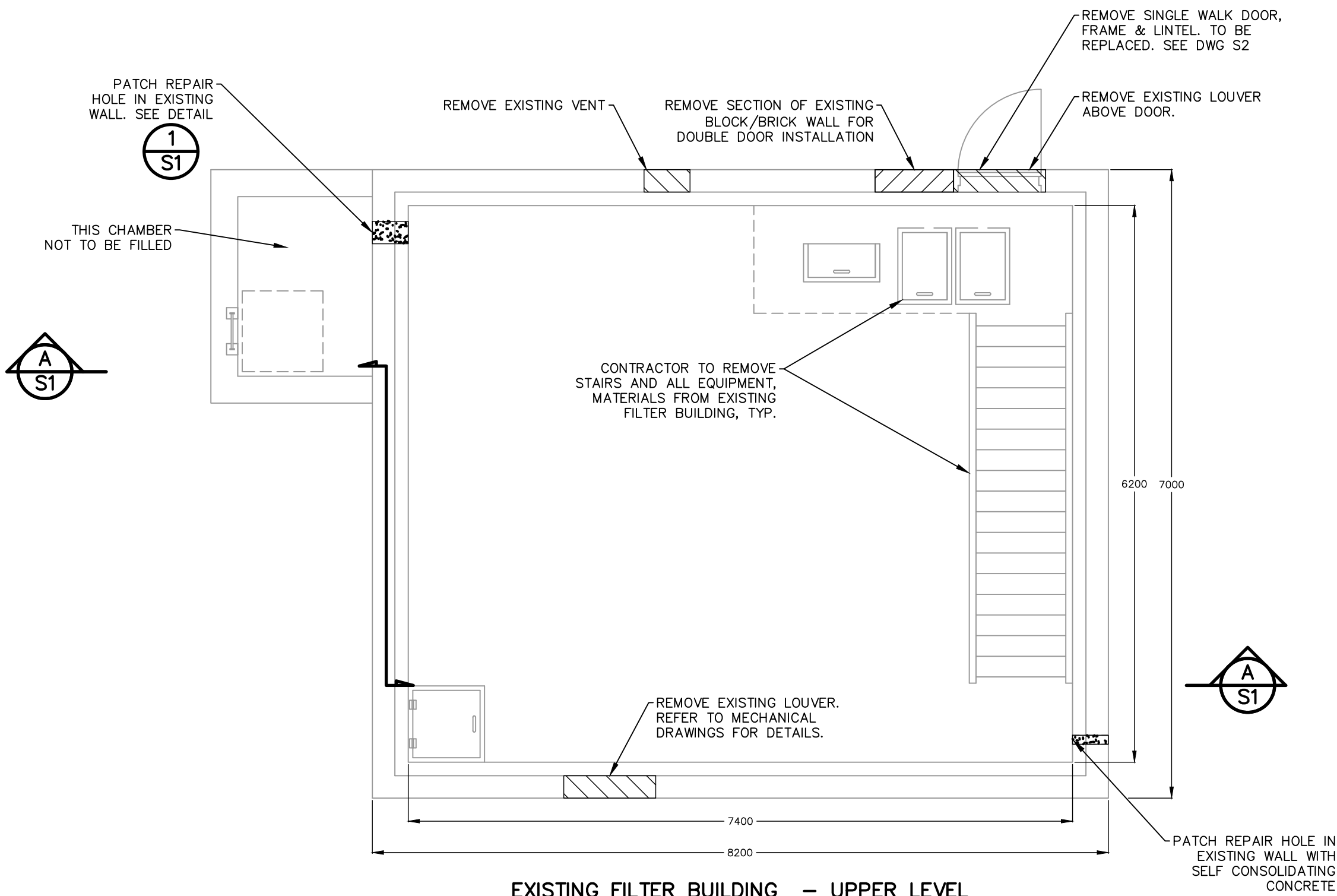
Goderich Kincardine Mount Forest Sarnia

Township of North Huron

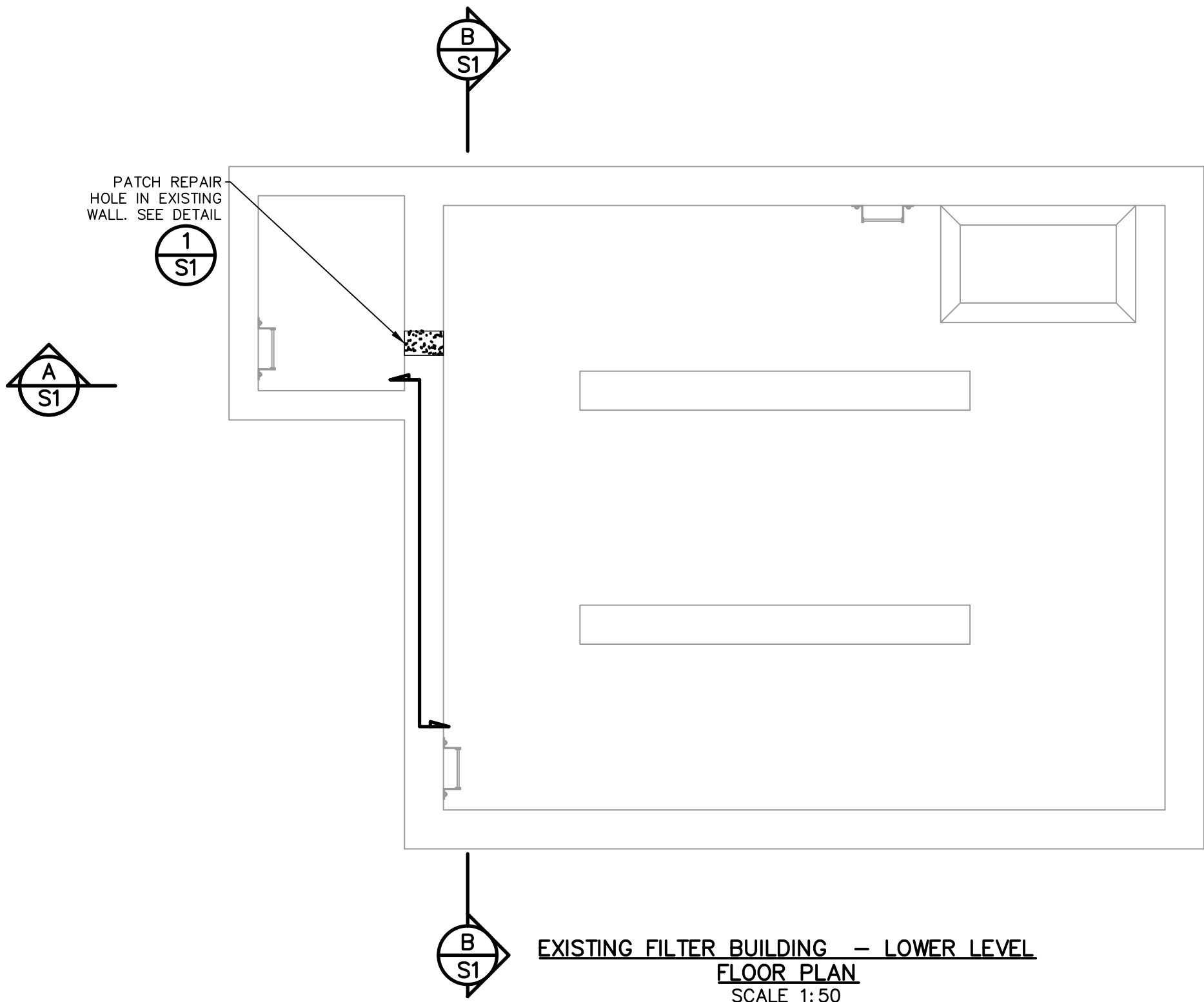
Blyth WWTP Upgrade

Existing Grading Plan

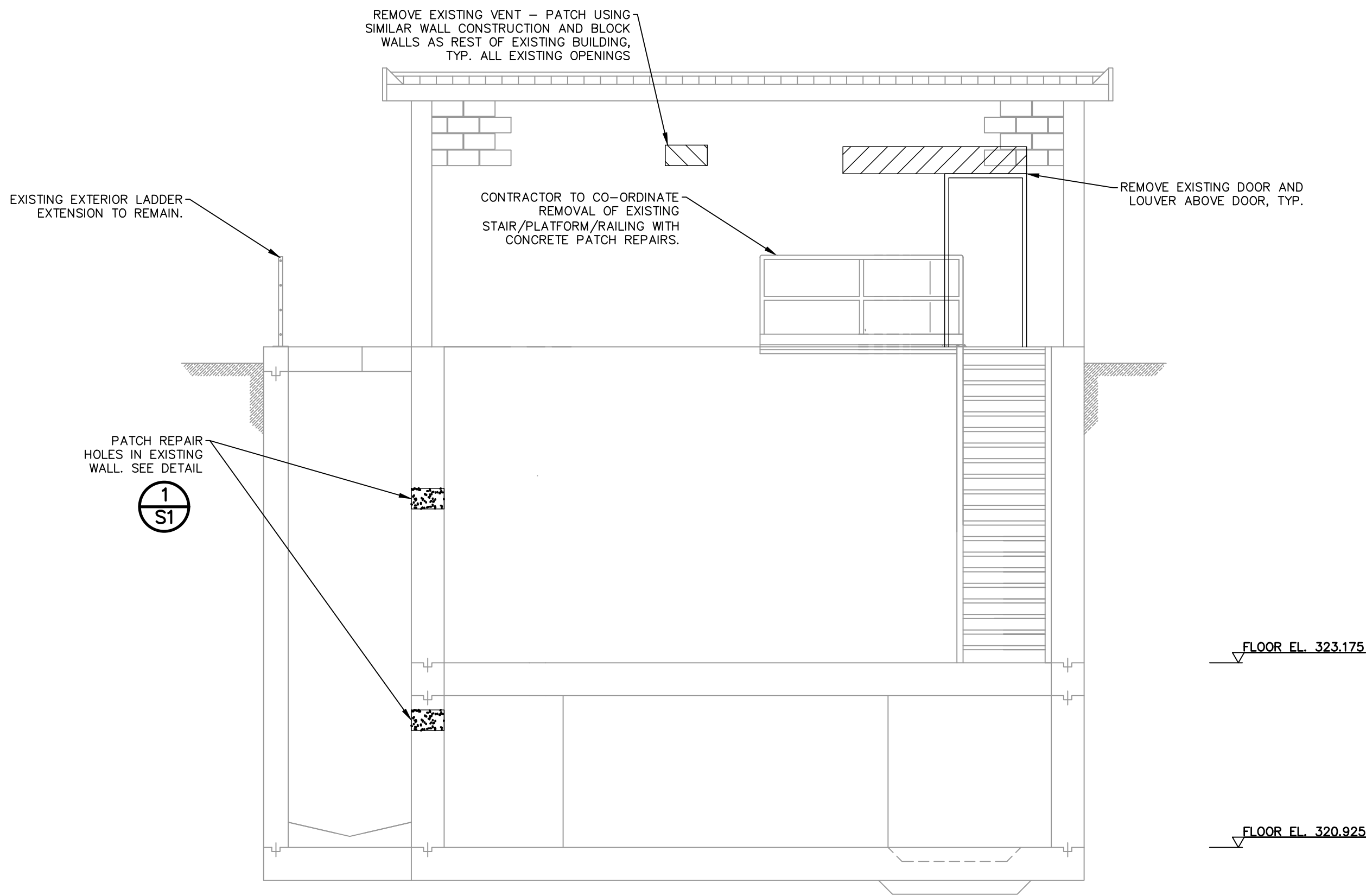
Contract No. 1	Project No. 20093
Scale (24x36) 1:150	Drawing No. G1



EXISTING FILTER BUILDING -- UPPER LEVEL
FLOOR PLAN
SCALE 1:50



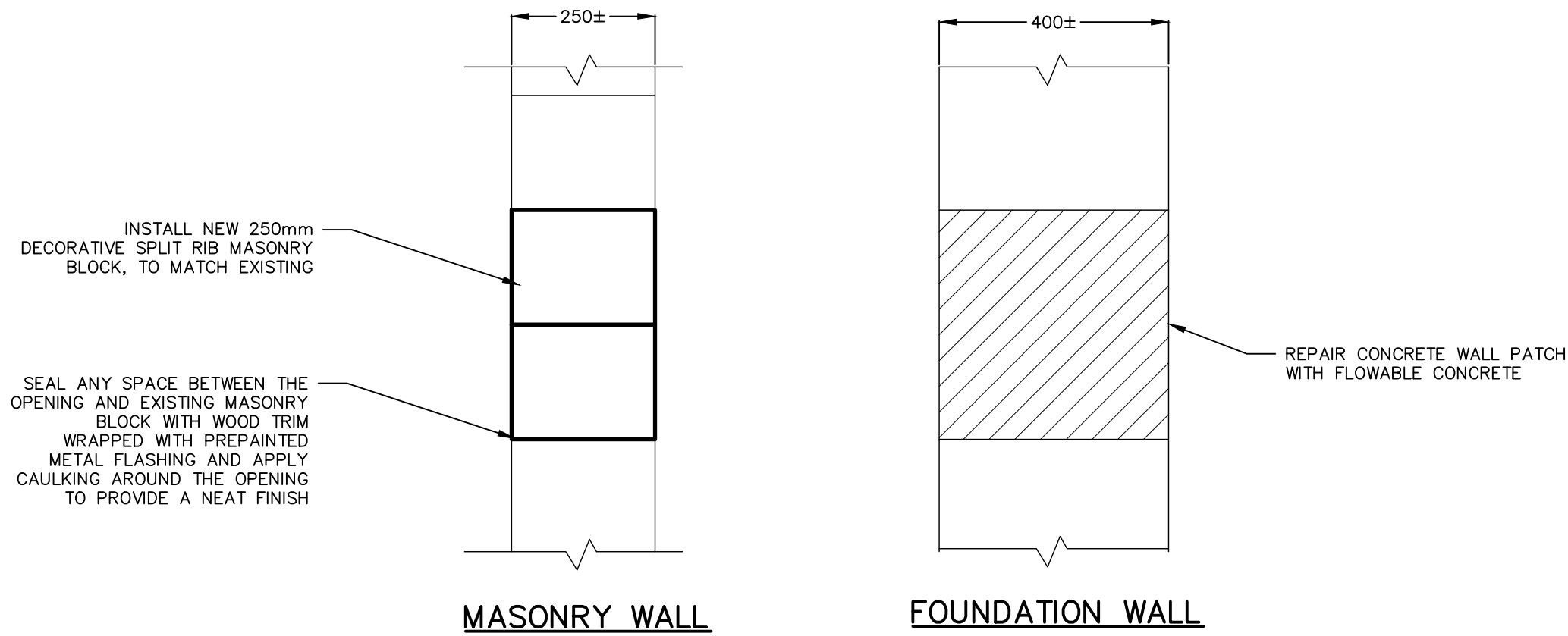
EXISTING FILTER BUILDING -- LOWER LEVEL
FLOOR PLAN
SCALE 1:50



EXISTING FILTER BUILDING -- SECTION A-S1
SCALE 1:50

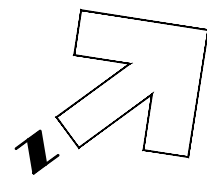


NORTH ELEVATION OF EXISTING FILTER BUILDING
N.T.S.



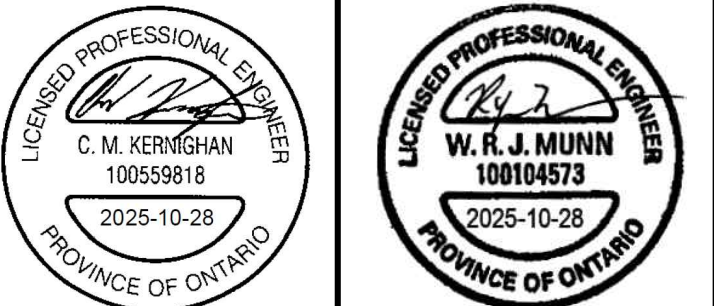
WALL OPENING REPAIR DETAILS
SCALE 1:10

Notes:
1. See drawing S3 for additional structural notes. See Site drawings for benchmark information. See Mechanical and Electrical drawings for details and notes related to mechanical and electrical.



1:100
1:50

Design By: C.M.K. Checked By: R.J.M.



No.	DATE	REVISION
1	Oct. 1, 2025	Issued for Client Review
2	Oct. 28, 2025	Issued for Tender



Goderich Kincardine Mount Forest Sarnia



Township of
North Huron

Blyth WWTP Upgrade
Existing Filter Building -
Removals and Repairs

Contract No.
1

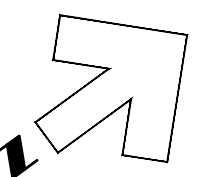
Project No.
20093

Scale (24x36)
1:50

Drawing No.
S1



- Notes:**
- See drawing S3 for additional structural notes. See Site drawings for benchmark information. See Mechanical and Electrical drawings for details and notes related to mechanical and electrical.
 - Contractor to confirm construction and opening dimensions before ordering lifts.
 - Contractor may remove additional block courses as needed to insert new steel supports as shown. Contractor to support and maintain stability of existing block walls until steel supports are installed.
 - Contractor to install new steel opening repairs shall include caulking, backer rod, flashing, waterproofing, etc. in order to make all openings water tight.
 - Contractor to remove existing concrete repair. Contractor shall reconstruct the openings using new masonry block similar to existing wall construction and new shrink joint finished nearly ground limits of the existing opening.



1:100



1:50

Design By: C.M.K. Checked By: R.J.M.



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Goderich	Kincardine	Mount Forest	Sarnia
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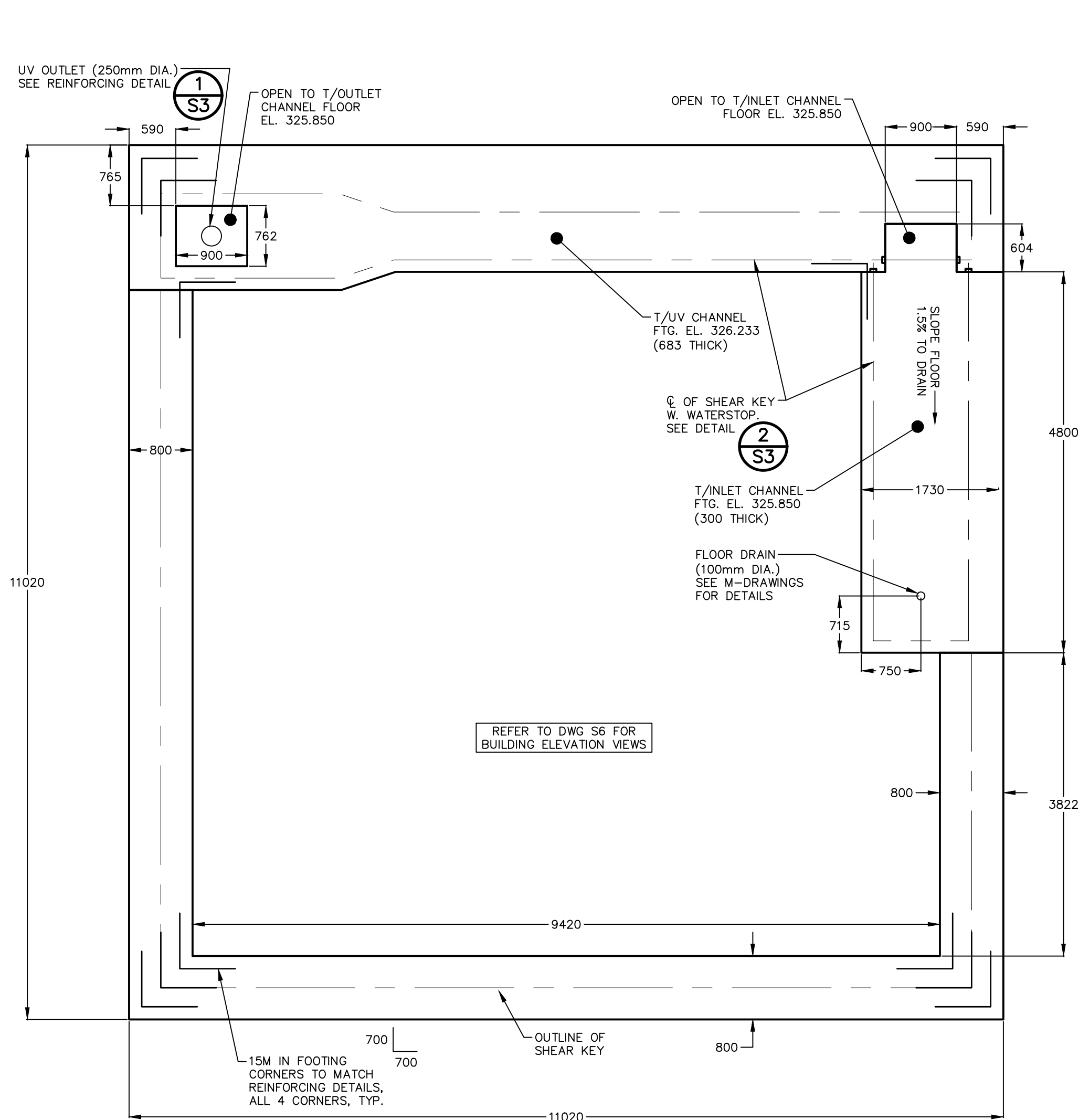
**Township of
North Huron**

Blyth WWTP Upgrade

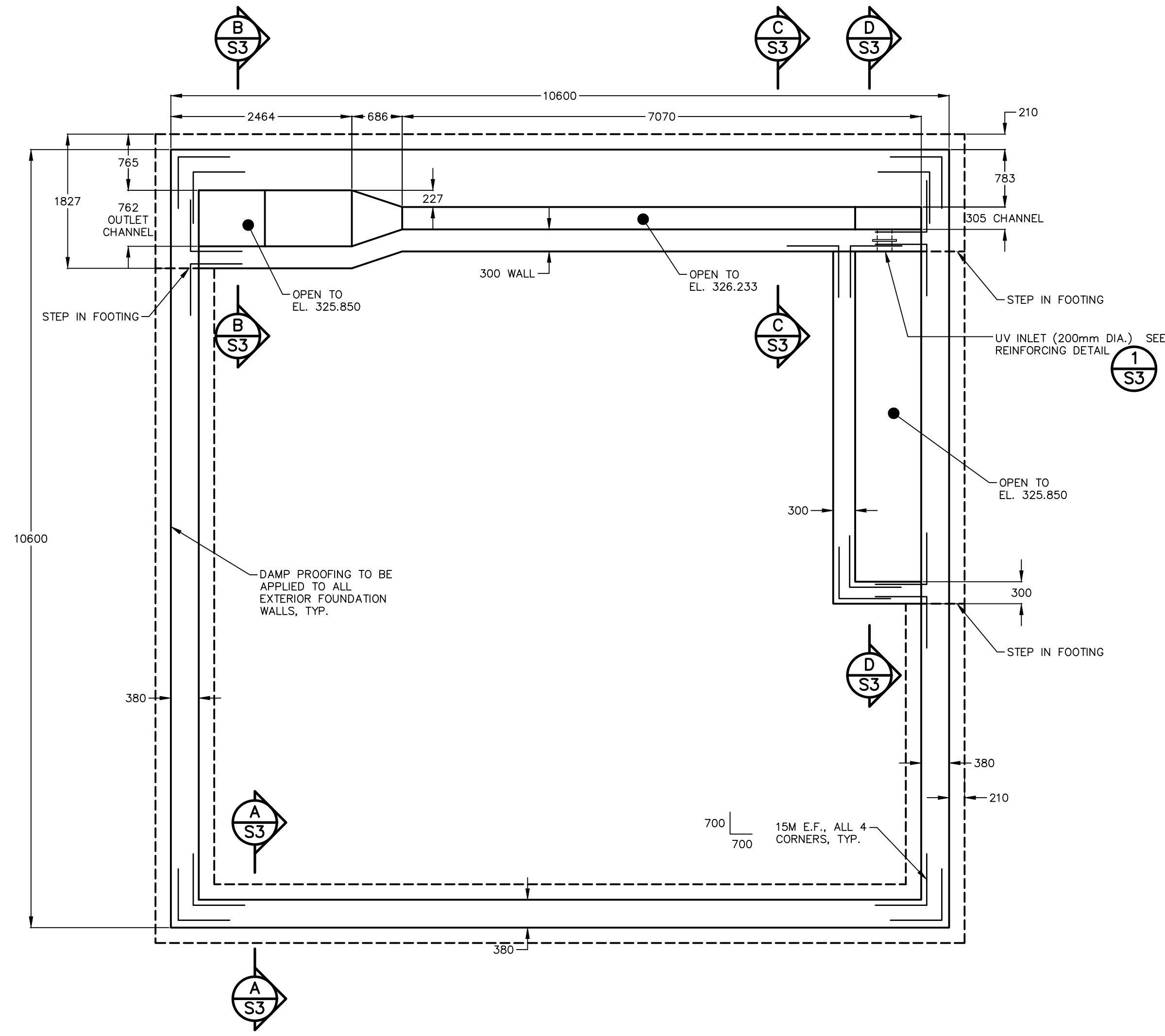
Existing Filter Building - Proposed Updates

Contract No. 1	Project No. 20093
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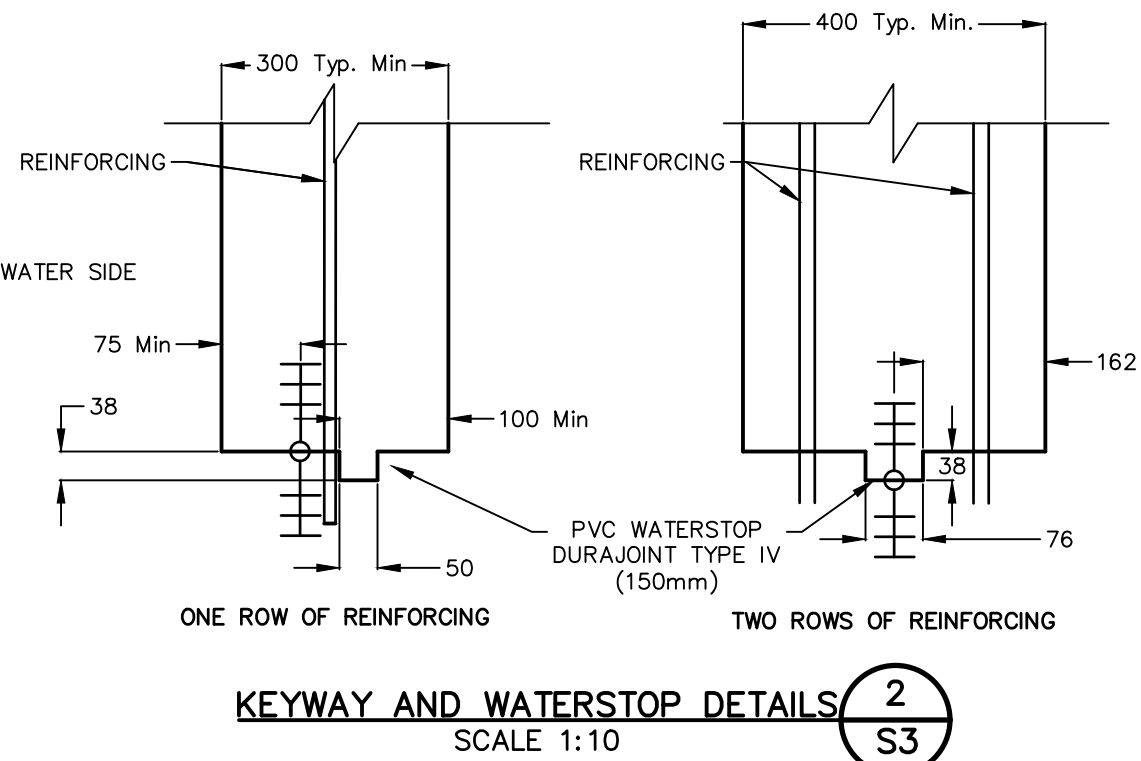
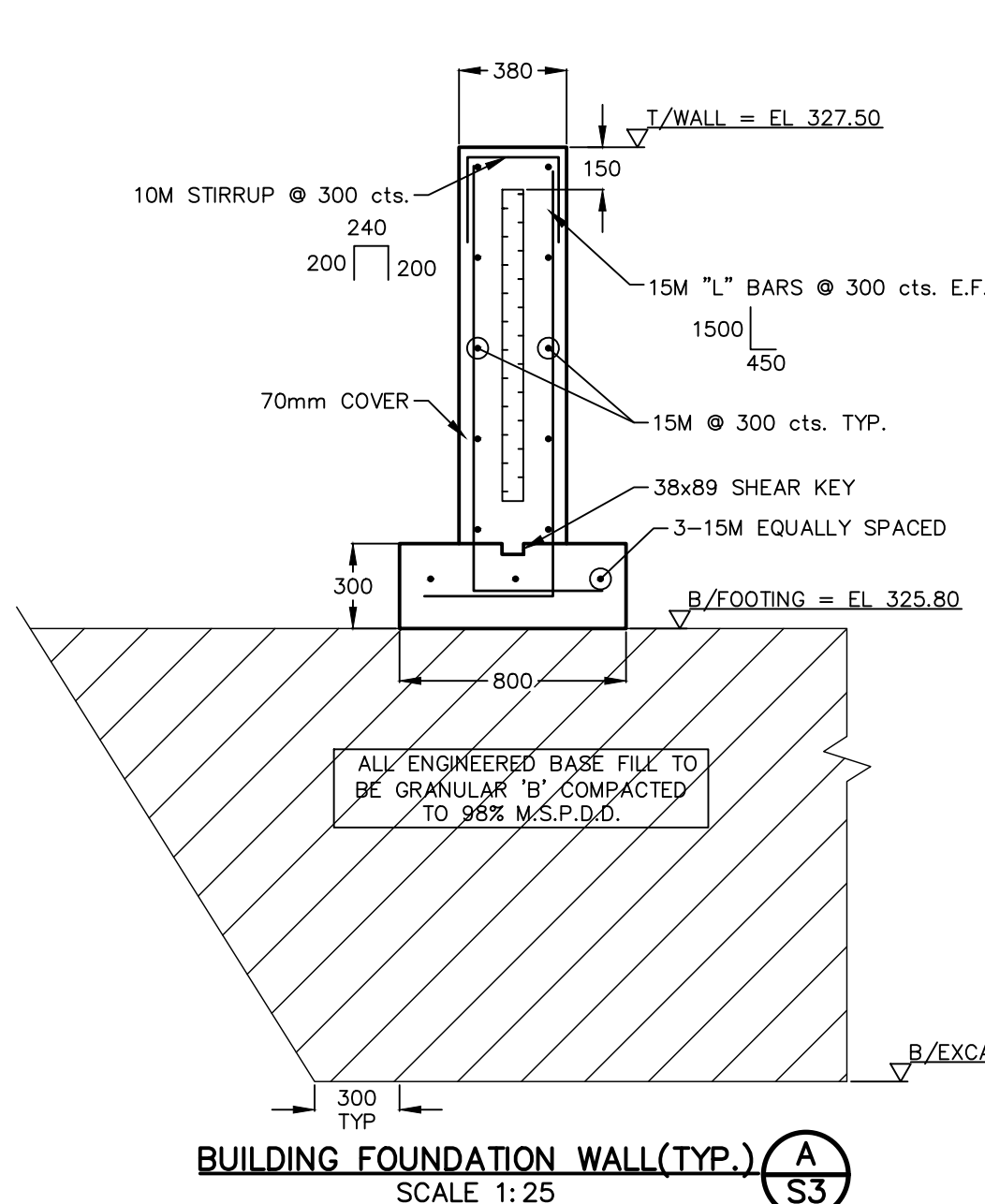
Scale (24x36)	Drawing No.
1:50	S2



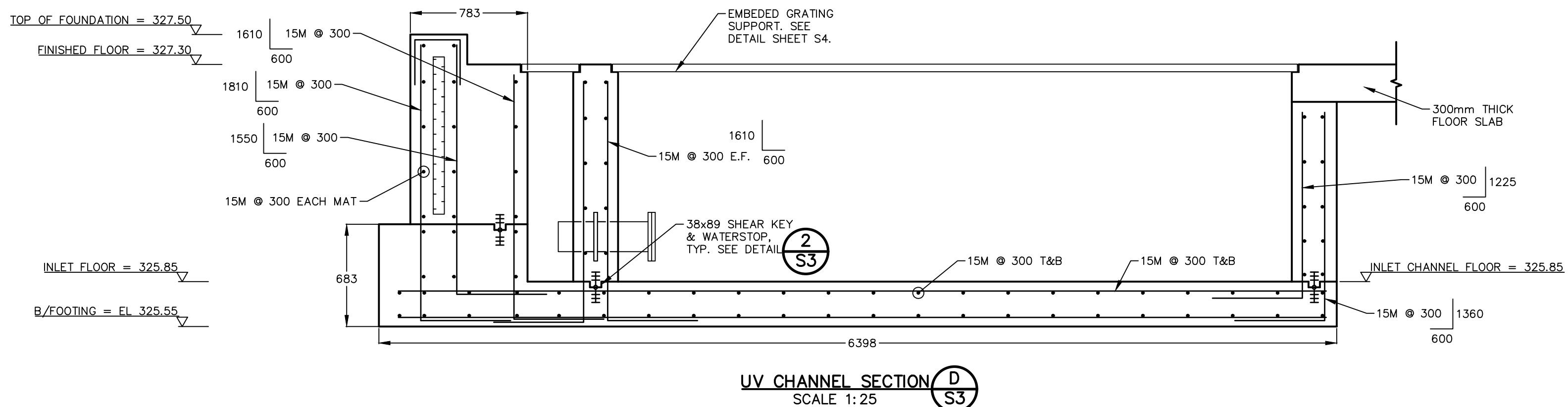
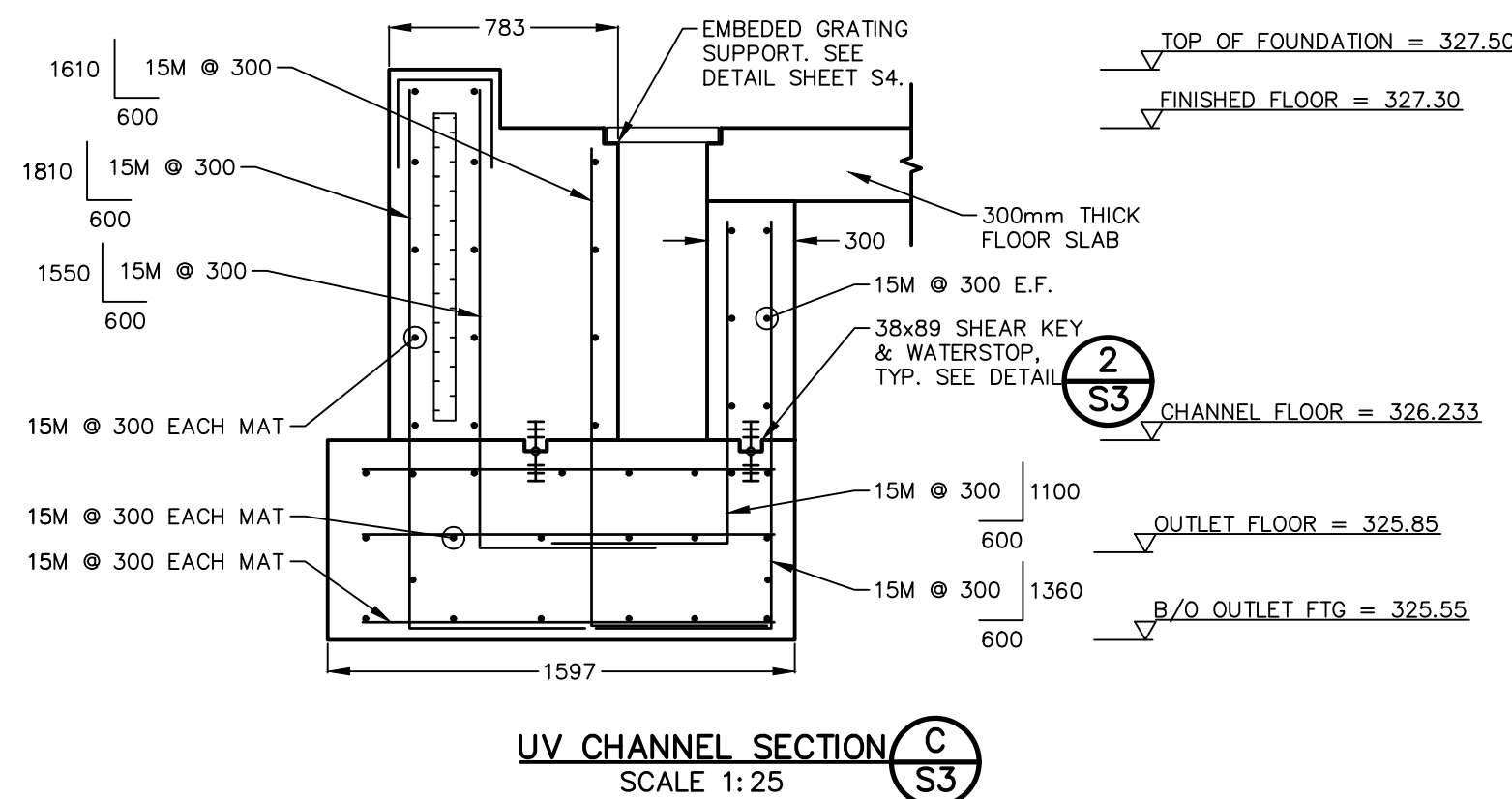
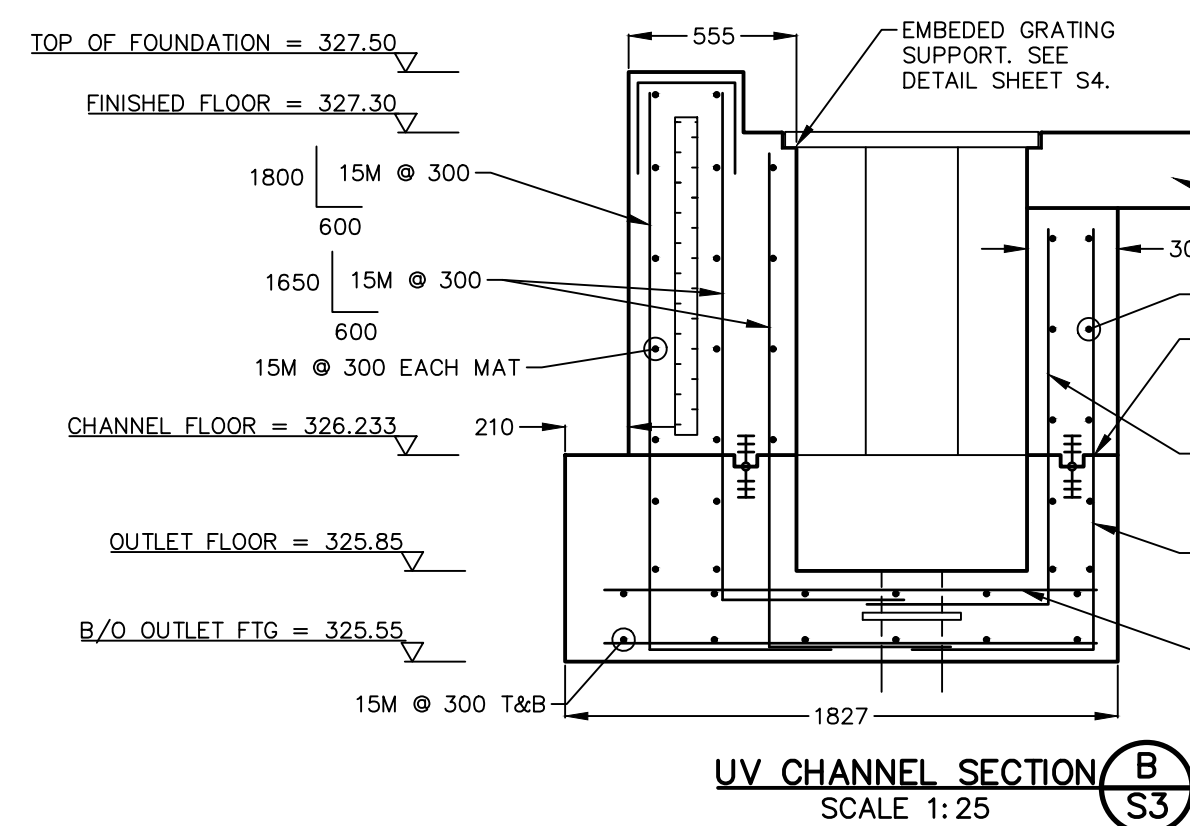
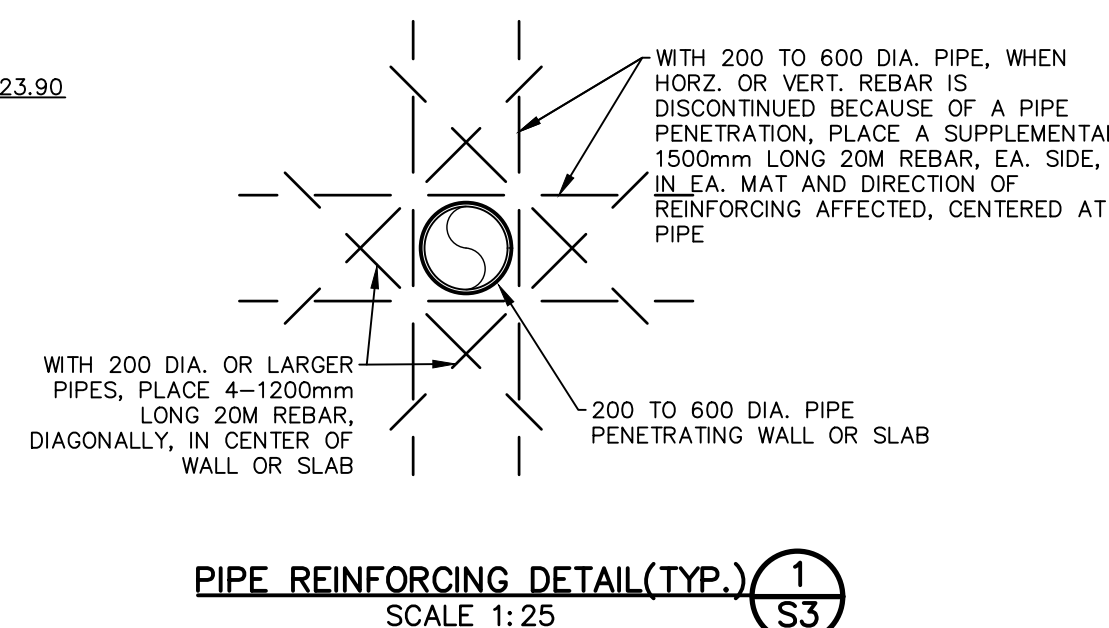
NEW FILTER/UV BUILDING - FOOTING PLAN
SCALE 1:50



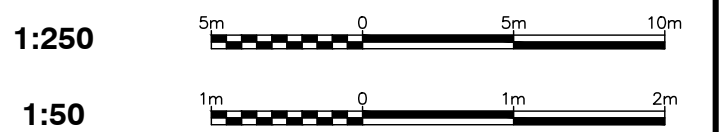
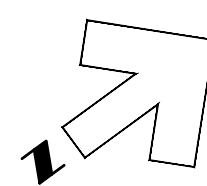
NEW FILTER/UV BUILDING - FOUNDATION WALL PLAN
SCALE 1:50



NOTE: TYPICAL MINIMUM DIMENSION. ALTERNATIVE WAYS TO CONSTRUCT THESE JOINTS MUST BE ACCEPTED BY THE ENGINEER. ALTERNATIVE WATERSTOP PRODUCTS TO BE APPROVED BY ENGINEER. WATERSTOP IS TO BE PLACED AT ALL CONSTRUCTION JOINTS THAT MAY HAVE WATER PRESSURE ON ONE SIDE.



- Notes:**
- See drawing S4 for additional structural notes. See Site drawings for benchmark information. See Mechanical and Electrical drawings for details and notes related to mechanical and electrical.
 - Structure to be built in accordance with the latest revision of the Ontario Provincial Standard Specifications for Structures Form 9 and the Ontario Building Code.
 - Contractor shall check all dimensions in the field with the working drawings and report any discrepancies that may have an impact on the design to the Engineer.
 - Concrete used shall satisfy the requirements of CSA A23.1 with an exposure class appropriate for the use.
 - Reservoir structural concrete shall be C-1 (35MPa)
 - Mass concrete for benching shall be F-2 (25MPa)
 - Sidewalks shall be C-2 (32MPa)
 - Self-consolidating concrete for mass fill shall be F-2 (10MPa)
 - Concrete shall be low shrinkage as per CSA A23.1
 - Concrete shall not be placed until forms, false-work, and reinforcing steel have been reviewed by the Contract Administrator.
 - Reinforcing steel shall be grade 400 MPa.
 - Cover on reinforcing steel shall be 70 ± 20mm unless otherwise noted. Where concrete is cast against earth and for the underside of footings the cover shall be 100 ± 20mm.
 - Minimum lap distances for reinforcing steel in concrete, unless dimensioned otherwise:
 - 15M Bar 650mm
 - In the case where two different bar sizes are being lapped, the shorter lap length shall be used.
 - Structural steel shall meet the requirements of CAN/CSA G40.20/21, grade 350W hot dip galvanized. Bearing Plates may be grade 300W.
 - Provide a Durojoint Type IV (150mm) or an accepted alternative water stop at all new construction joints below grade and where expected to resist the transfer of water. Also, a keyway shall be in all construction joints in the foundation walls, unless noted/detailed otherwise.
 - Construction joints in locations other than those shown on the drawings to be approved by the Contract Administrator.



Design By: C.M.K. Checked By: R.J.M.



No.	DATE	REVISION
1	Oct. 1, 2025	Issued for Client Review
2	Oct. 28, 2025	Issued for Tender



Goderich Kincardine Mount Forest Sarnia



Township of North Huron

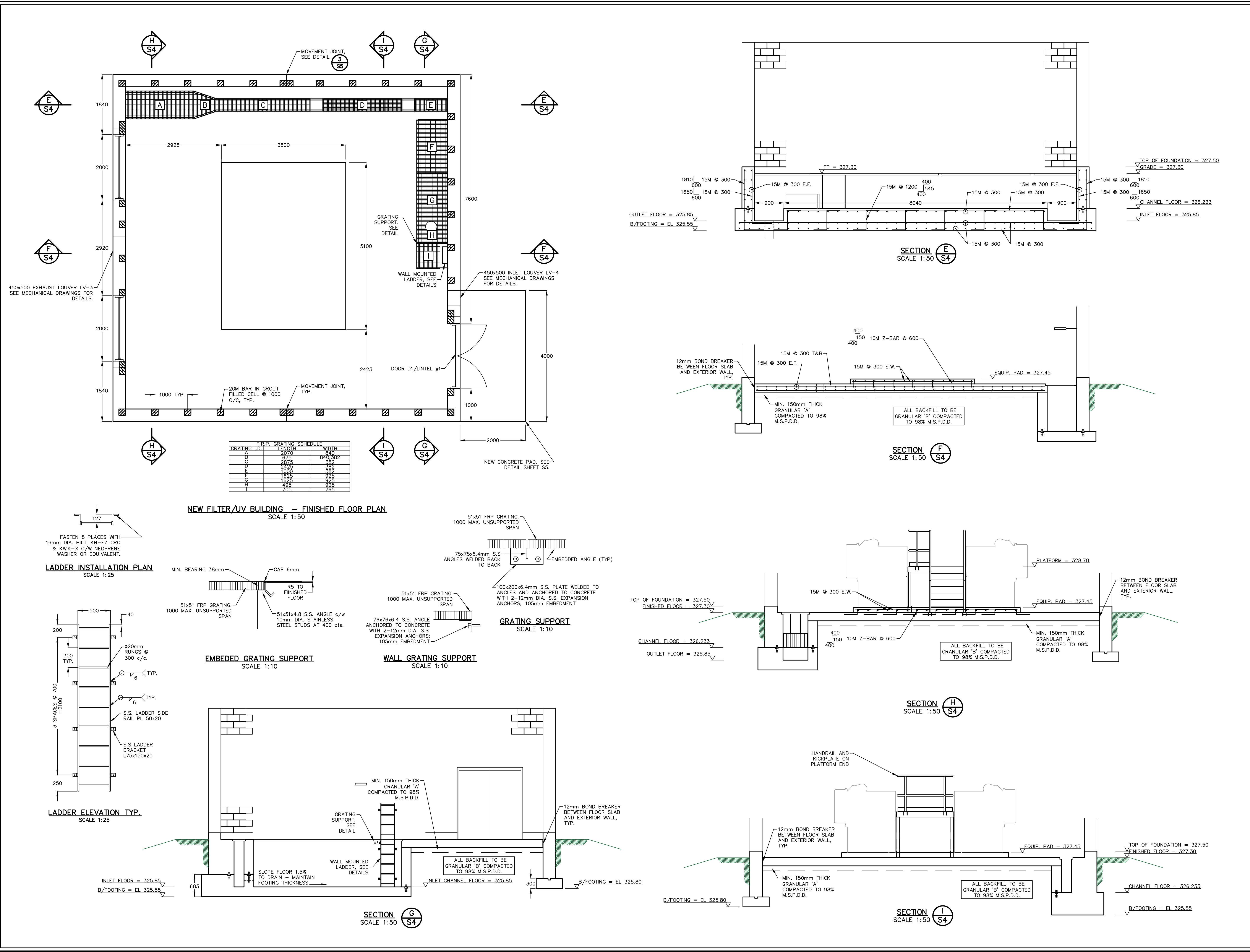
Blyth WWTP Upgrade
New Filter / UV Building -
Foundation Plan & Sections

Contract No.
1

Project No.
20093

Scale (24x36)
AS SHOWN

Drawing No.
S3



Notes:

- See drawing S3 for additional structural notes. See Site drawings for benchmark information. See Mechanical and Electrical drawings for details and notes related to mechanical and electrical.
- Coordinate size and location of openings required for electrical, mechanical, and plumbing with appropriate trade.
- All exposed corners to be chamfered 25mm, except for edges of concrete overlay.
- Heavy compaction equipment shall not be used within 2m of the exterior pumping station walls.
- All footings to be cast neatly against compacted engineered Granular 'B' fill. Concrete footings and all other castings shall not be placed until excavation, formwork/falsework and reinforcing has been reviewed by the Contract Administrator. Suitability of subgrade material to be reviewed by Project Engineer following excavation and prior to placement of engineered fill.
- All backfill within minimum 1000mm from the exterior structure walls to be Granular B or approved free draining granular material. Backfill shall take place simultaneously on each side of the building with a maximum height differential of 0.6m.
- The underground structures may float prior to backfilling. The contractor must take appropriate actions to ensure this does not happen, and be responsible for any consequences of not providing adequate protection. Borehole data included in contract appendices.
- Design bearing capacity: refer to Geotechnical report by GRIT, dated October 15, 2025 file no: GE25-1383-1-G-RPT-G-R0-2025-10-15
At ULS: 190 kPa
At SLS: 145 kPa

Design By: C.M.K. Checked By: R.J.M.

Professional Engineer
C.M. KERRIGAN
100559818
2025-10-28
PROVINCE OF ONTARIO

Professional Engineer
W.R.J. MUNN
100104573
2025-10-28
PROVINCE OF ONTARIO

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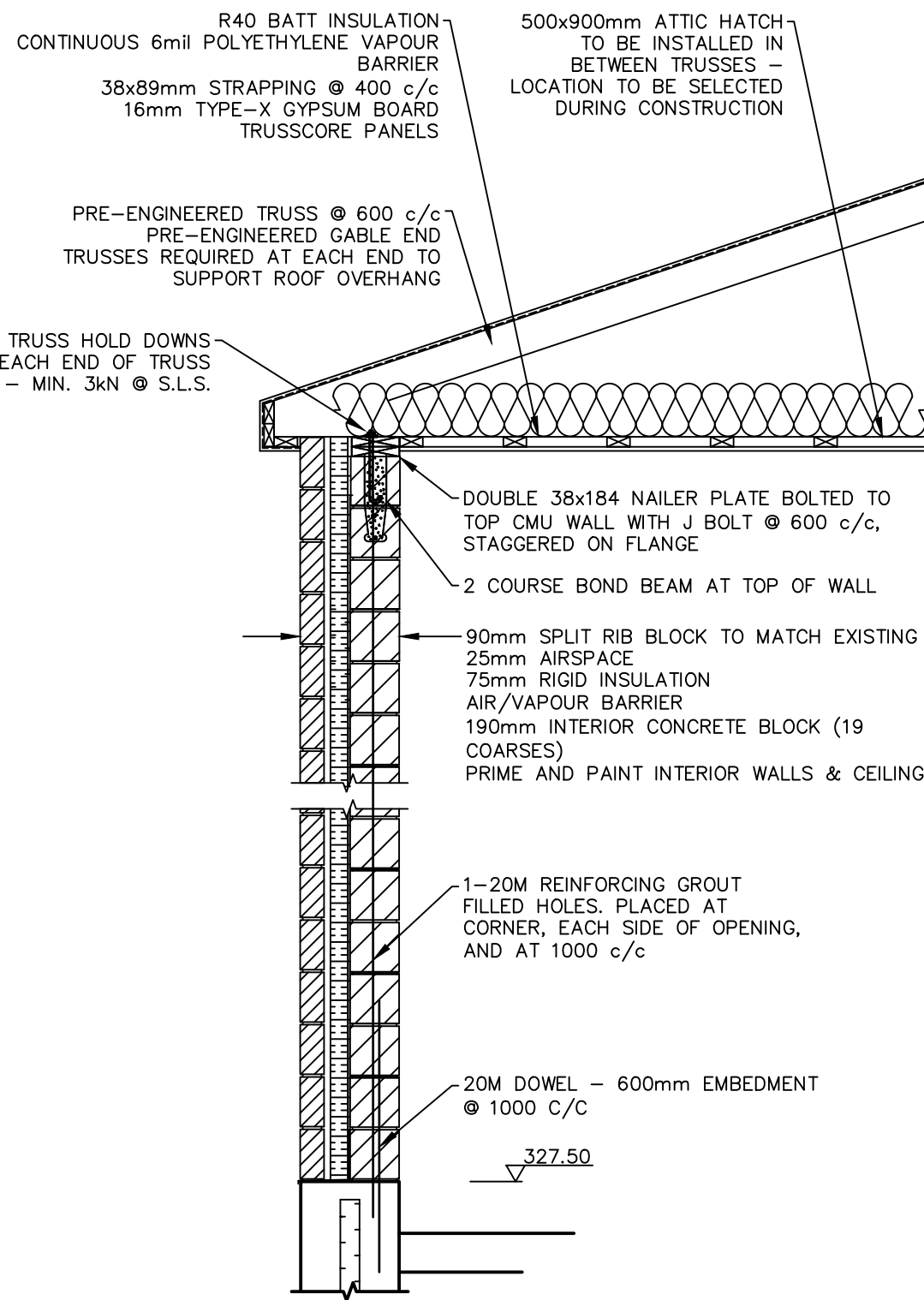
Goderich Kincardine Mount Forest Sarnia

Township of North Huron

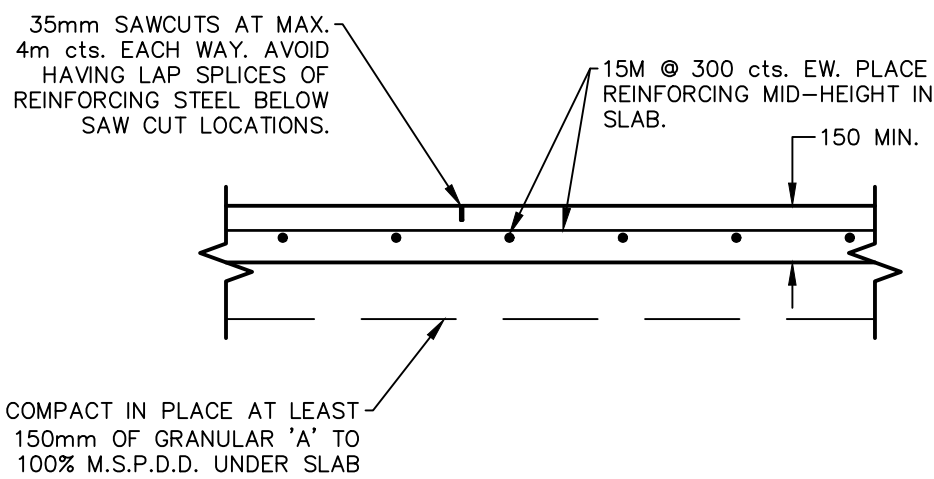
Blyth WWTP Upgrade
New Filter / UV Building - Building Plan & Sections

Contract No.	Project No.
1	20093

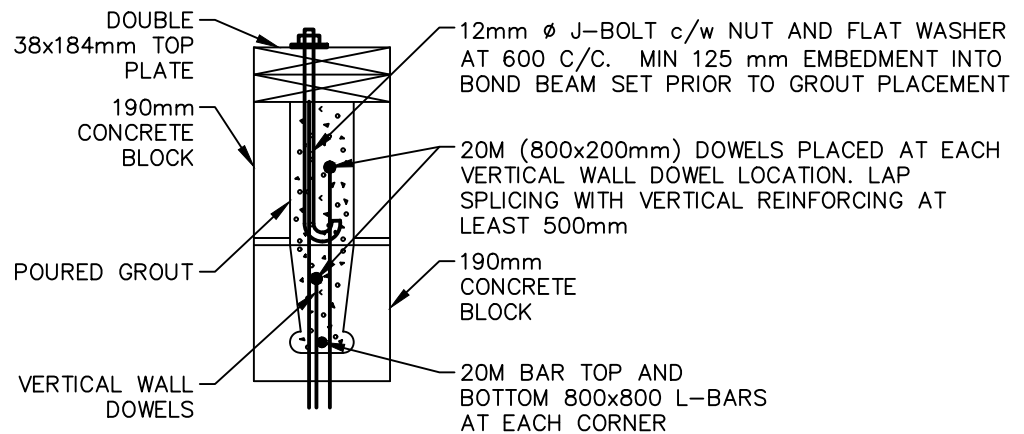
Scale (24x36)	Drawing No.
AS SHOWN	S4



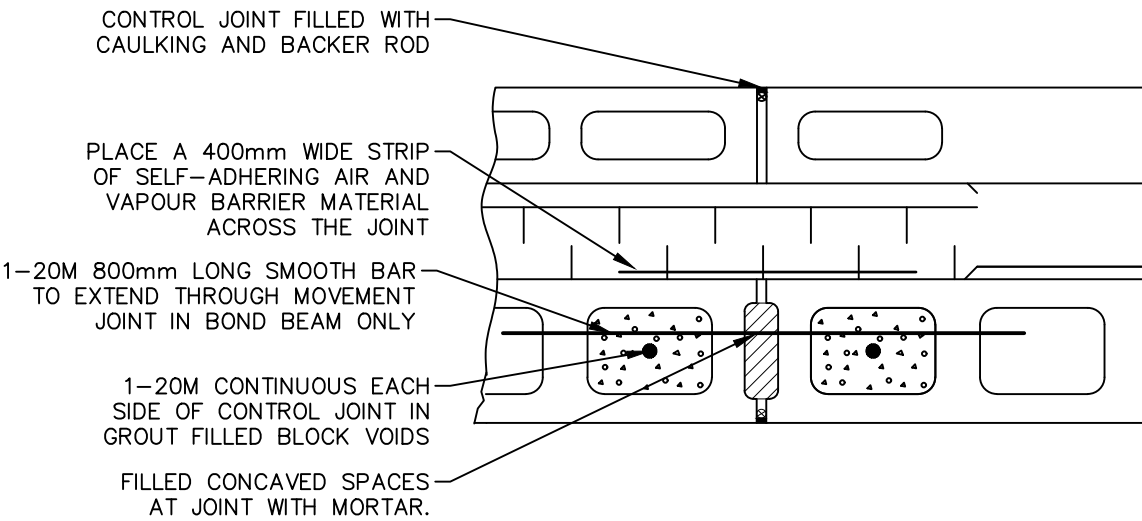
TYP. WALL SECTION
SCALE 1:25



TYPICAL EXTERIOR CONCRETE SLAB
SCALE 1:20

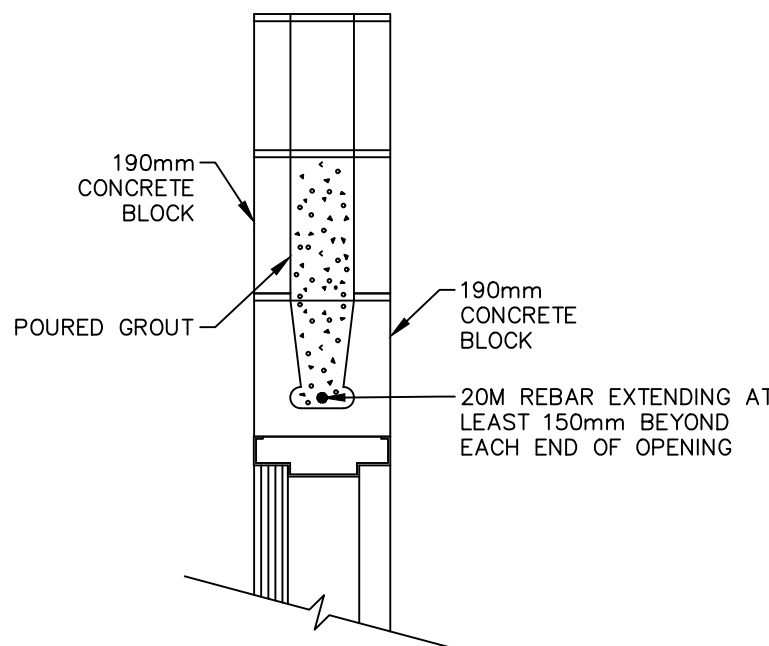


BOND BEAM DETAIL
SCALE 1:10

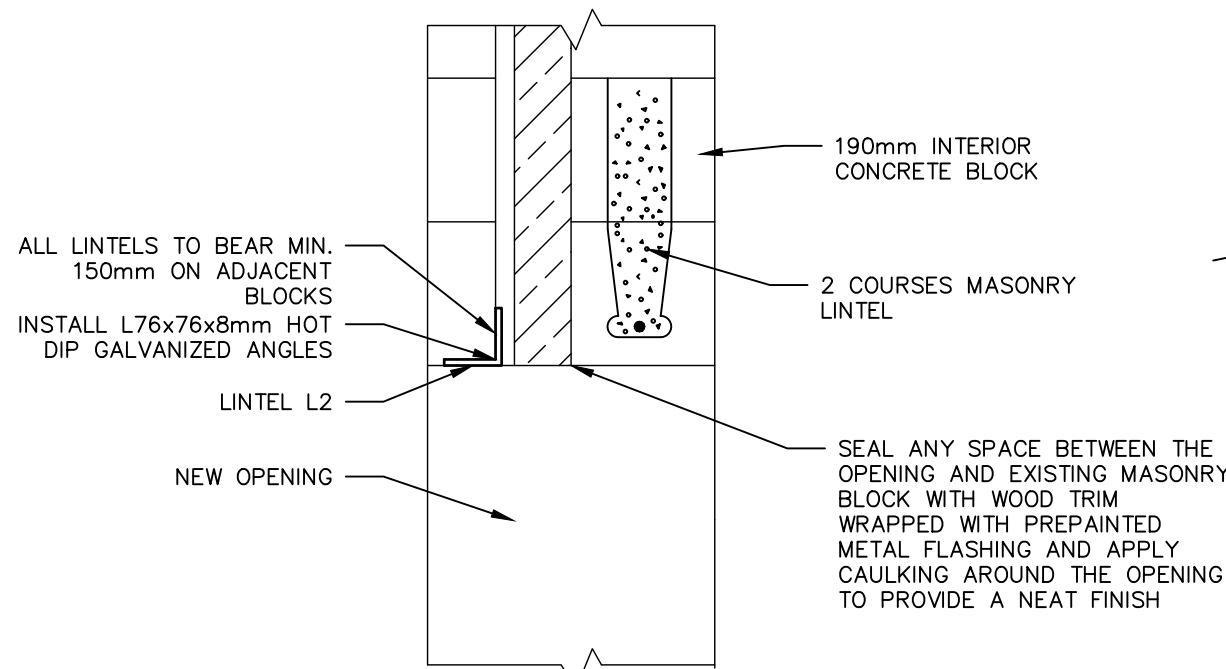


MOVEMENT JOINT DETAIL
N.T.S.

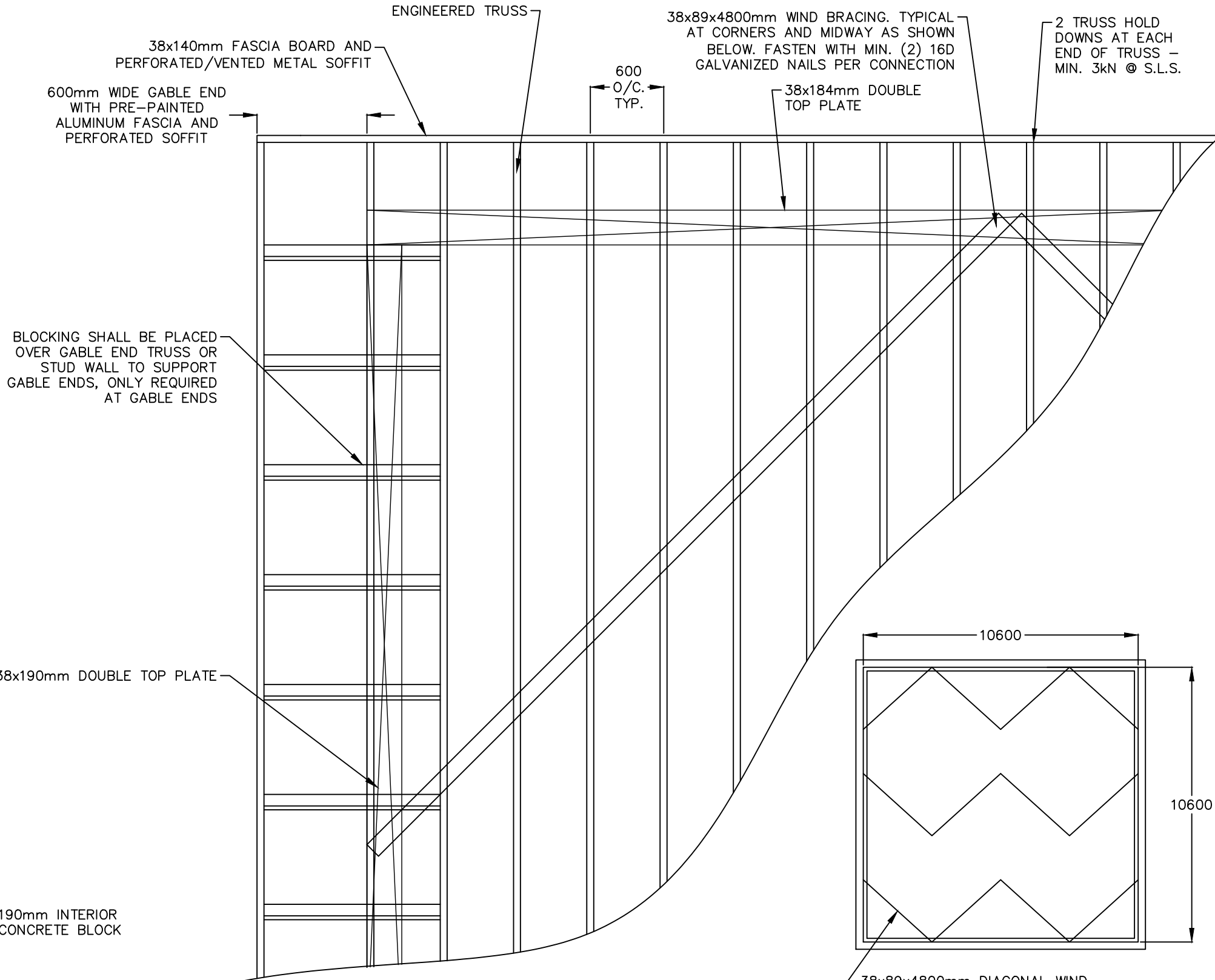
3
S5



MASONRY LINTEL DETAIL
SCALE 1:10



LINTEL DETAIL FOR OPENINGS IN
NEW FILTER / UV BUILDING
SCALE 1:10



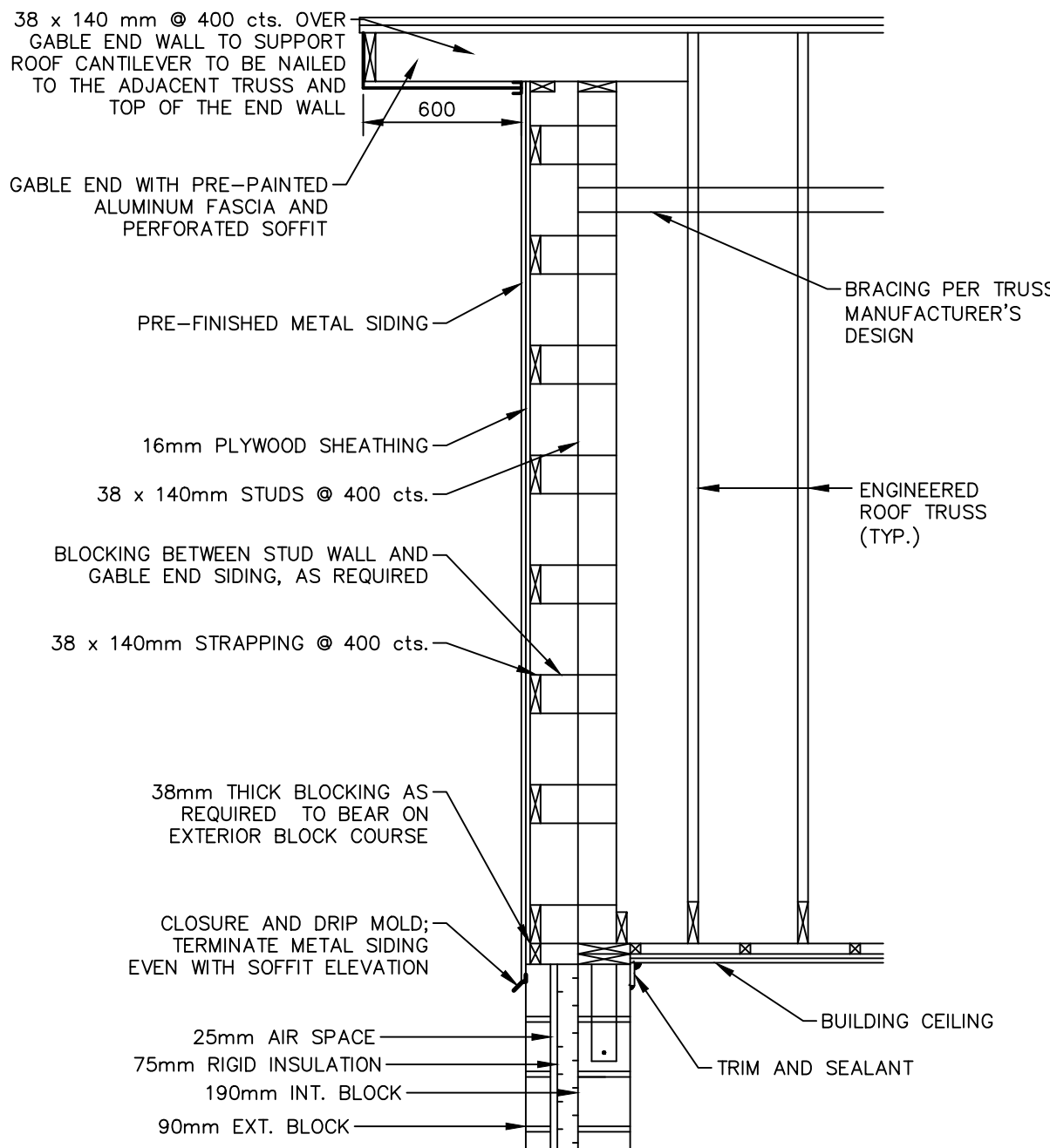
WIND BRACING DETAIL PLAN
SCALE: 1:25, N.T.S.

DOOR SCHEDULE										HARDWARE									
DOOR NUMBER	ELEVATION TYPE	FROM	TO	DOOR SWING	MATERIAL	FINISH	GLAZING	ENTRANCE LOCKSET	CYLINDRICAL PRIVACY SET	CYLINDRICAL PASSAGE SET	HINGES	CLOSER	STOP AND HOLDER	KICK PLATE	THRESHOLD	WEATHER STRIPPING	SURFACE BOLT	DEAD BOLT	PULL
D1(2)	A	INTERIOR	EXTERIOR	LH/RH	HMI	FACTORY FINISH		•		•	•	•	•	•	•	•	•	•	

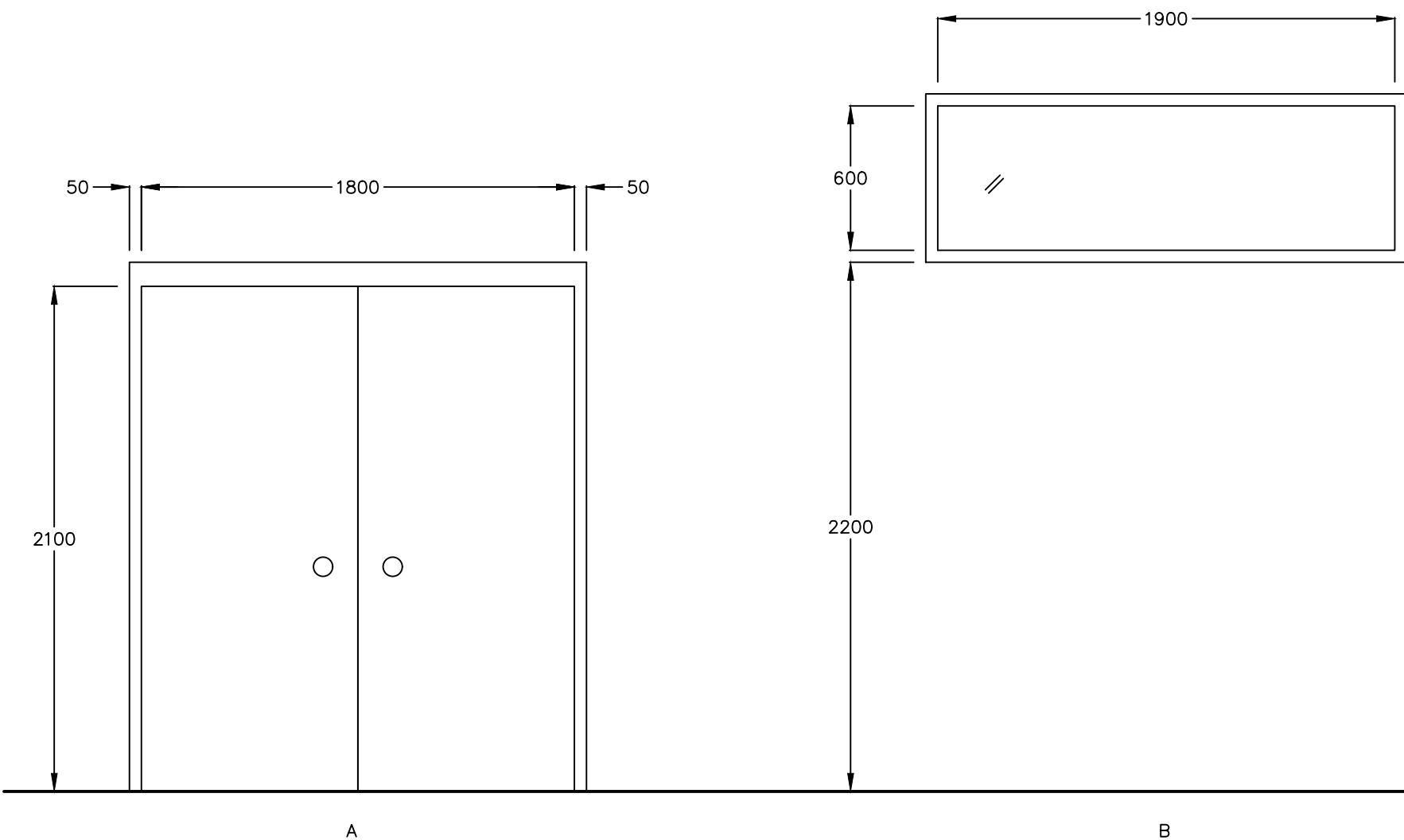
NOTE: HMI MEANS HOLLOW METAL INSULATED, SEE SPECIFICATION FOR MORE DETAILS

WINDOW SCHEDULE				
WINDOW NUMBER	WINDOW TYPE	MOUNTING HEIGHT - ABOVE FINISHED FLOOR	WIDTH	GLAZING
W1(2)	B	2200	1900	VINYL FRAME TWIN, THERMAL

LINTEL SCHEDULE			
LINTEL NUMBER	LINTEL SIZE	MAX. OPENING	REFERENCE DETAIL
L1	MASONRY LINTEL W. 2 COURSES GROUT	2000	SEE MASONRY LINTEL DETAIL
L2	L76x76x8.0	2000	LINTEL DETAIL ON S5
L3	L127x127x8.0	2000	LINTEL DETAIL ON S2



GABLE END DETAIL
SCALE 1:25

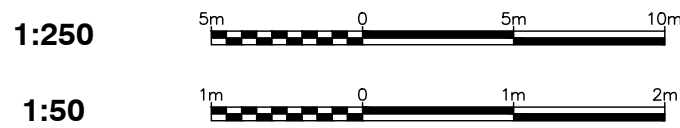


A

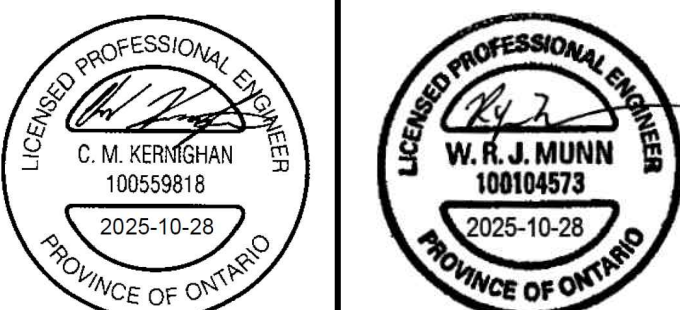
B

FINISHED FLOOR

Notes:
1. See drawing S3 for additional structural notes. See Site drawings for benchmark information. See Mechanical and Electrical drawings for details and notes related to mechanical and electrical.



Design By: C.M.K. Checked By: R.J.M.



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1	Oct. 1, 2025	Issued for Client Review
2	Oct. 28, 2025	Issued for Tender



Goderich Kincardine Mount Forest Sarnia



Township of North Huron

Blyth WWTP Upgrade
New Filter / UV Building -
Building Sections & Details

Contract No. 1 Project No. 20093

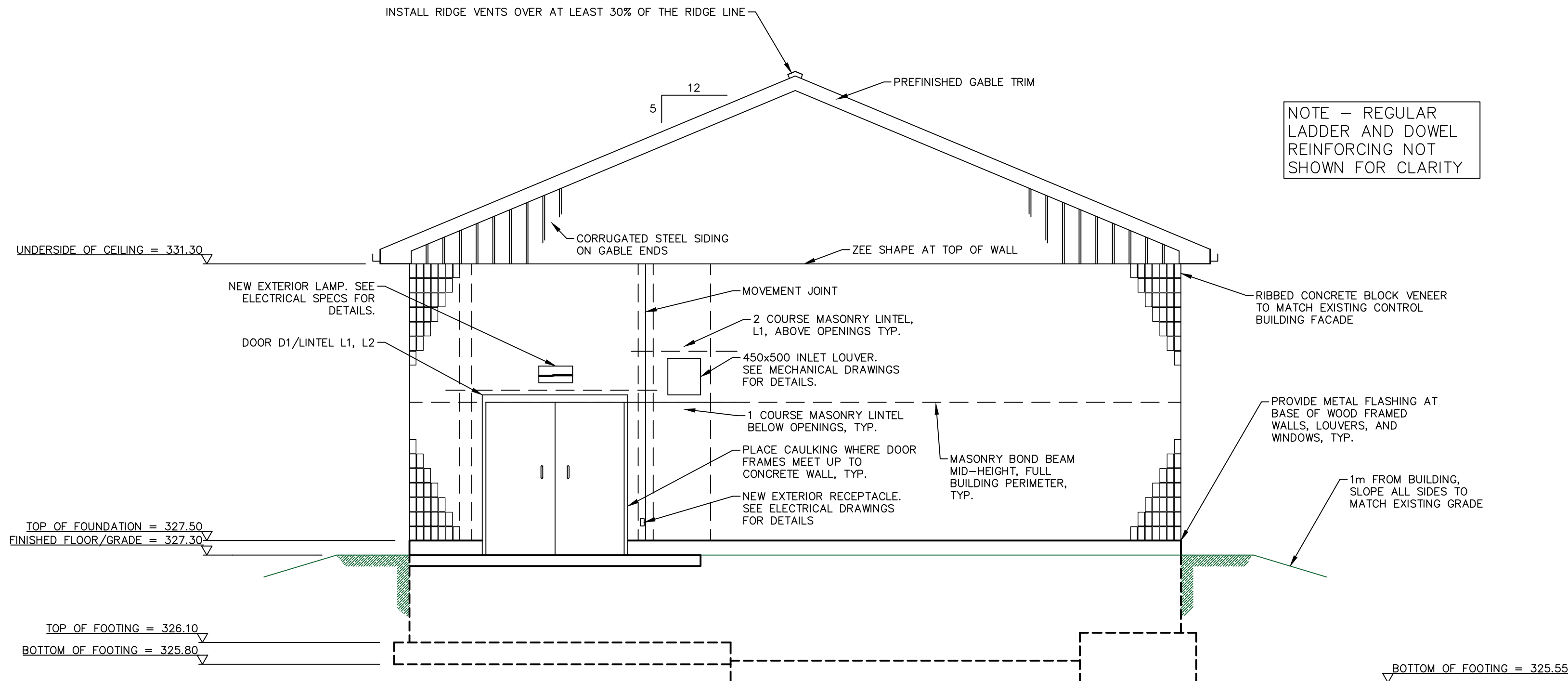
Scale (24x36) AS SHOWN Drawing No. S5

SPECIFIED LOADING (UNFACTORED):

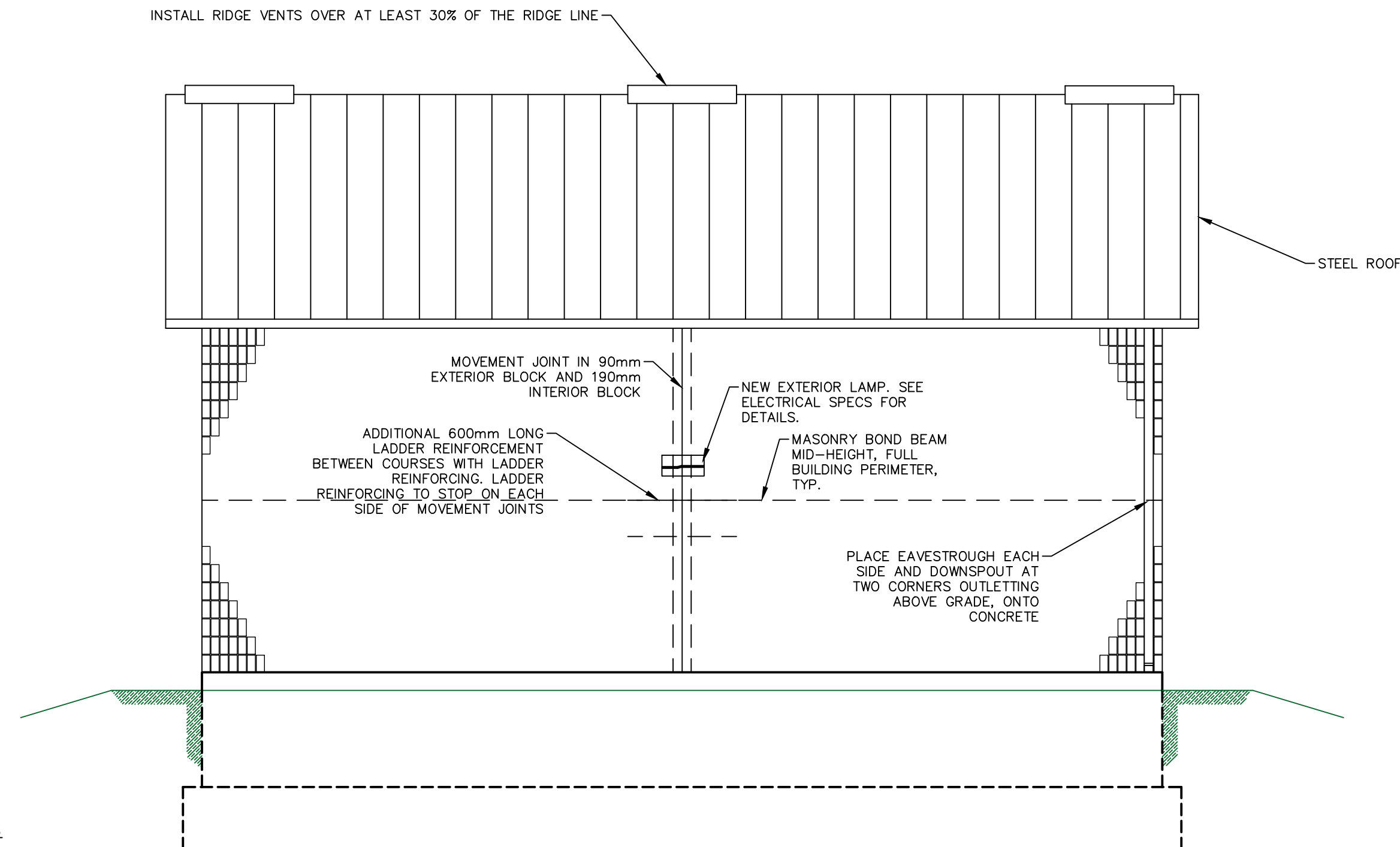
Floor:
• Mechanical – 9.6 kPa

Roof:
• Dead Load – 1.0 kPa
• Live Load – 1.0 kPa
• Snow Load – 3.1 kPa
• Wind Load
Uplift Force – 1.15 kPa
Down Force – 0.85 kPa

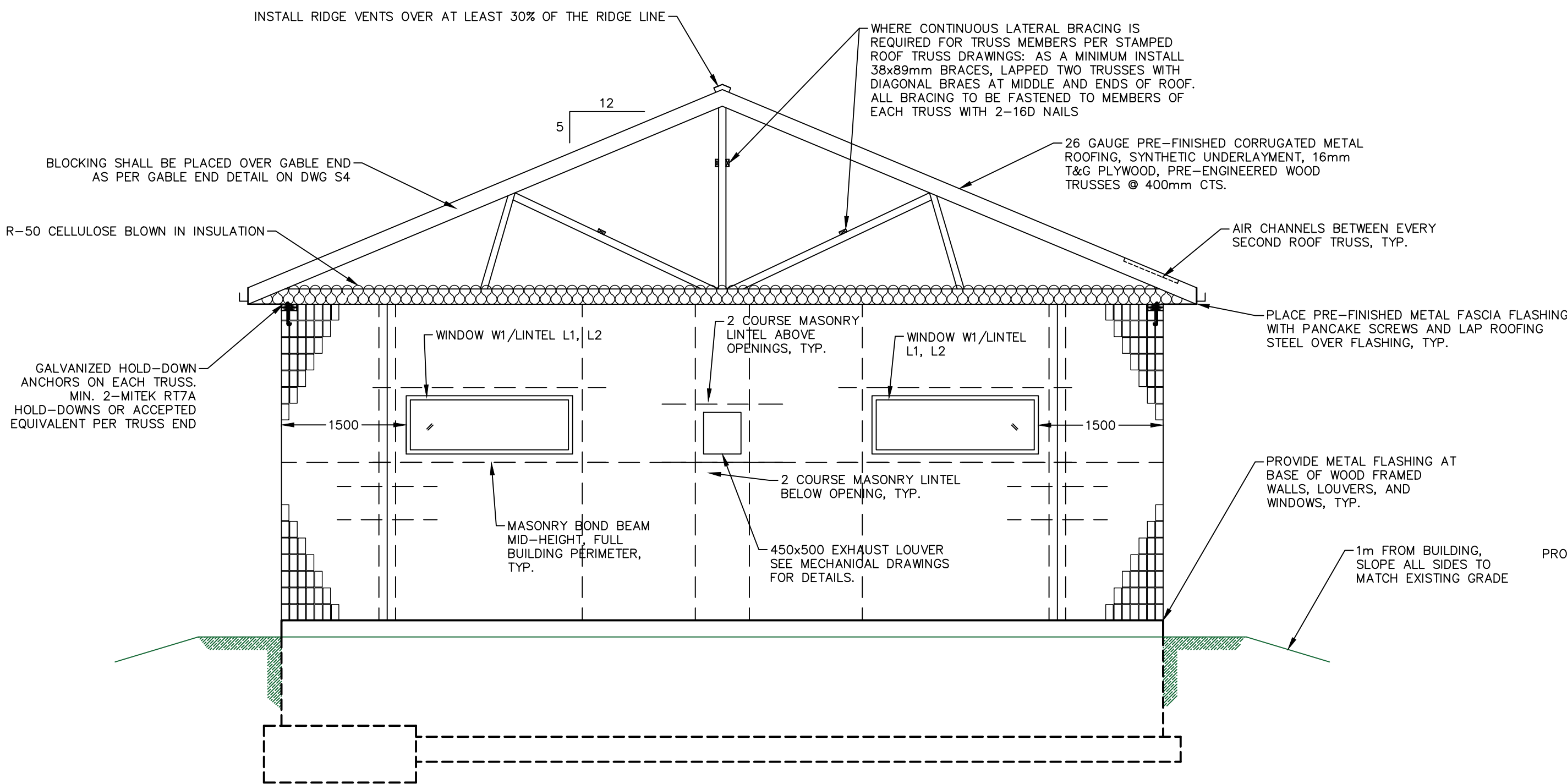
THE STRUCTURAL ASPECT OF THE BUILDING IS TO BE A POST DISASTER BUILDING. THE SNOW AND WIND LOADS LISTED ABOVE INCLUDE A 1.25 IMPORTANCE FACTOR, AND ARE OTHERWISE UNFACTORED. STRUCTURAL COMPONENTS SHALL BE DESIGNED AS PER OBC 2024 FOR FACTORED LOAD COMBINATIONS THAT PRODUCE THE MOST CRITICAL EFFECT.



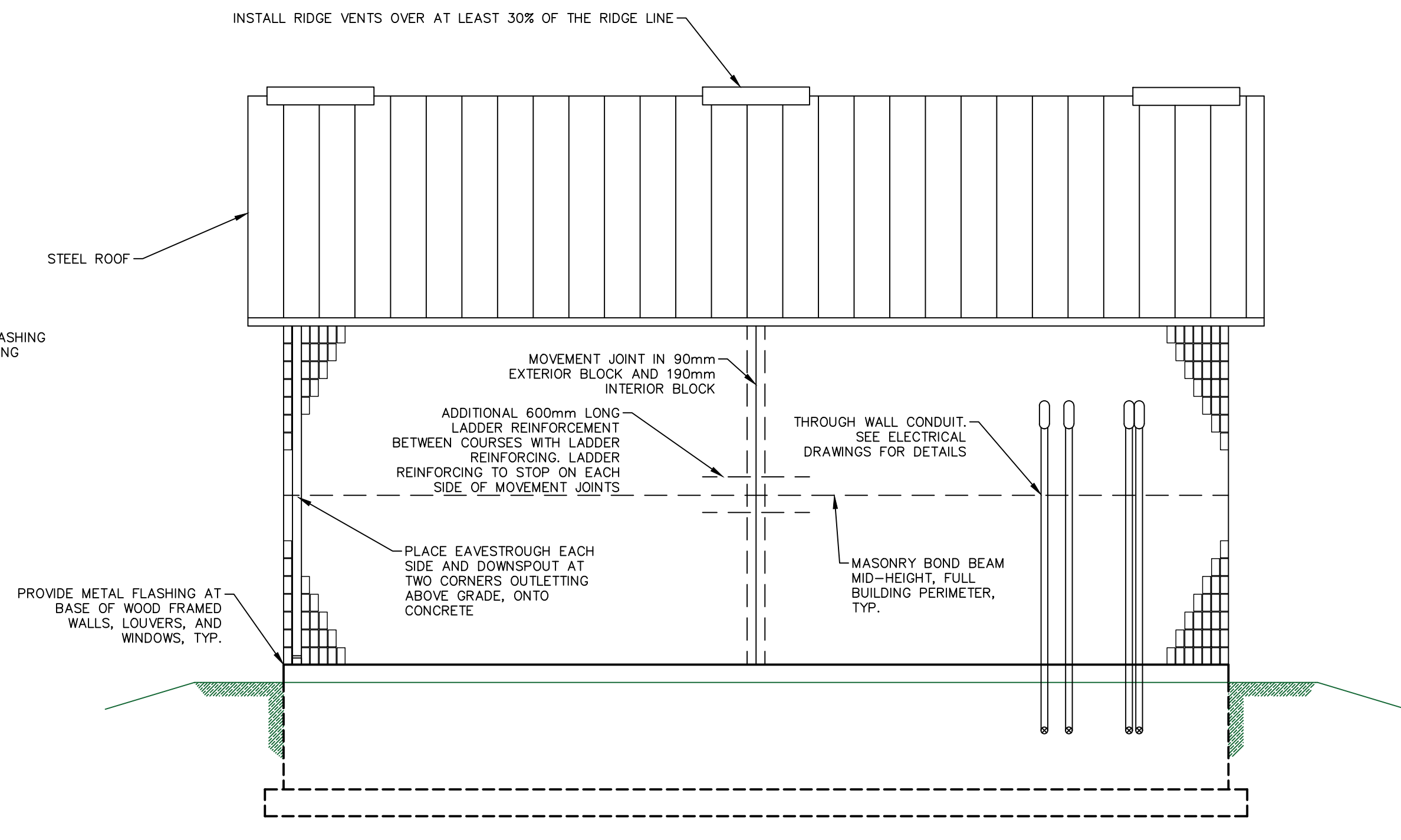
FILTER BUILDING – NORTH ELEVATION
SCALE 1:50



FILTER BUILDING – WEST ELEVATION
SCALE 1:50



FILTER BUILDING – SOUTH ELEVATION
SCALE 1:50



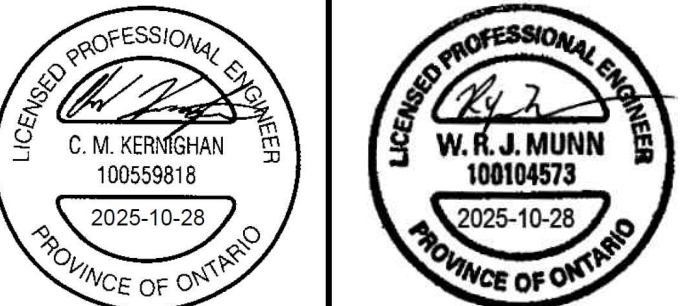
FILTER BUILDING – EAST ELEVATION
SCALE 1:50

Notes:

1. See drawing S3 for additional structural notes. See Site drawings for benchmark information. See Mechanical and Electrical drawings for details and notes related to mechanical and electrical.

1:50 1m 0 1m 2m

Design By: C.M.K. Checked By: R.J.M.



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Township of
North Huron

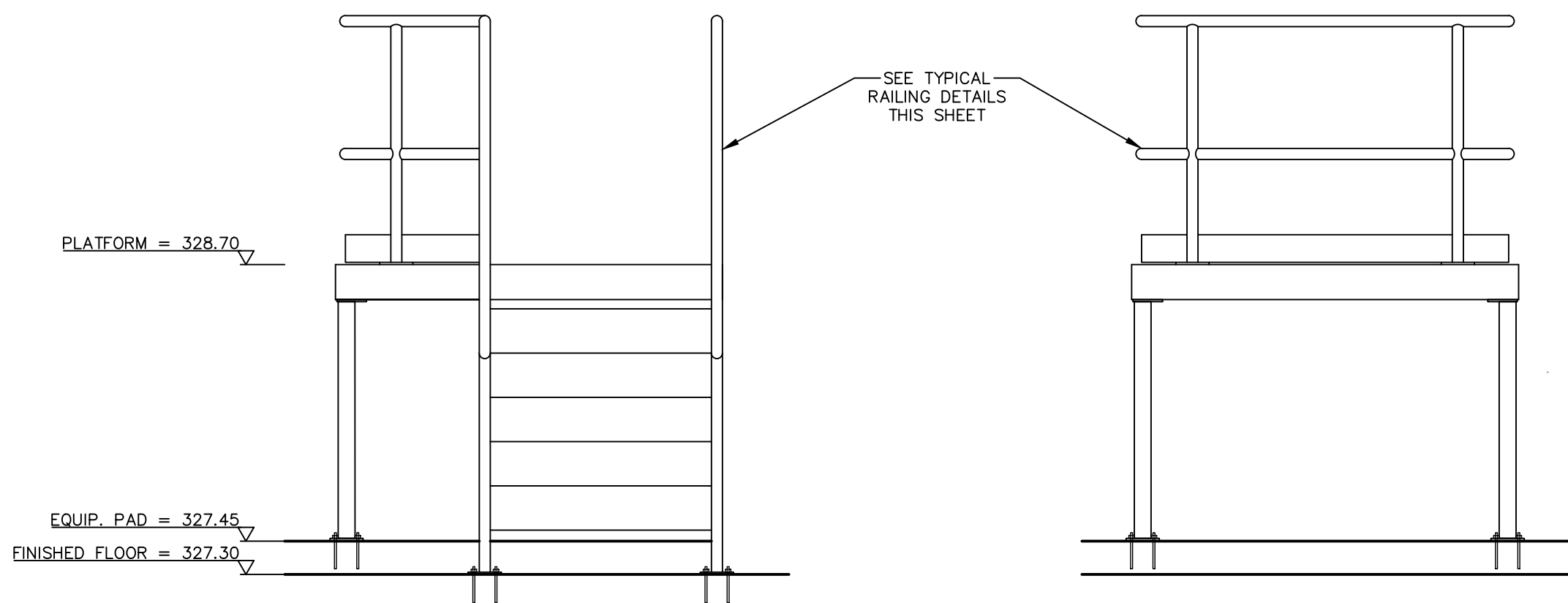
Blyth WWTP Upgrade
New Filter / UV Building -
Architectural Elevations

Contract No.
1

Project No.
20093

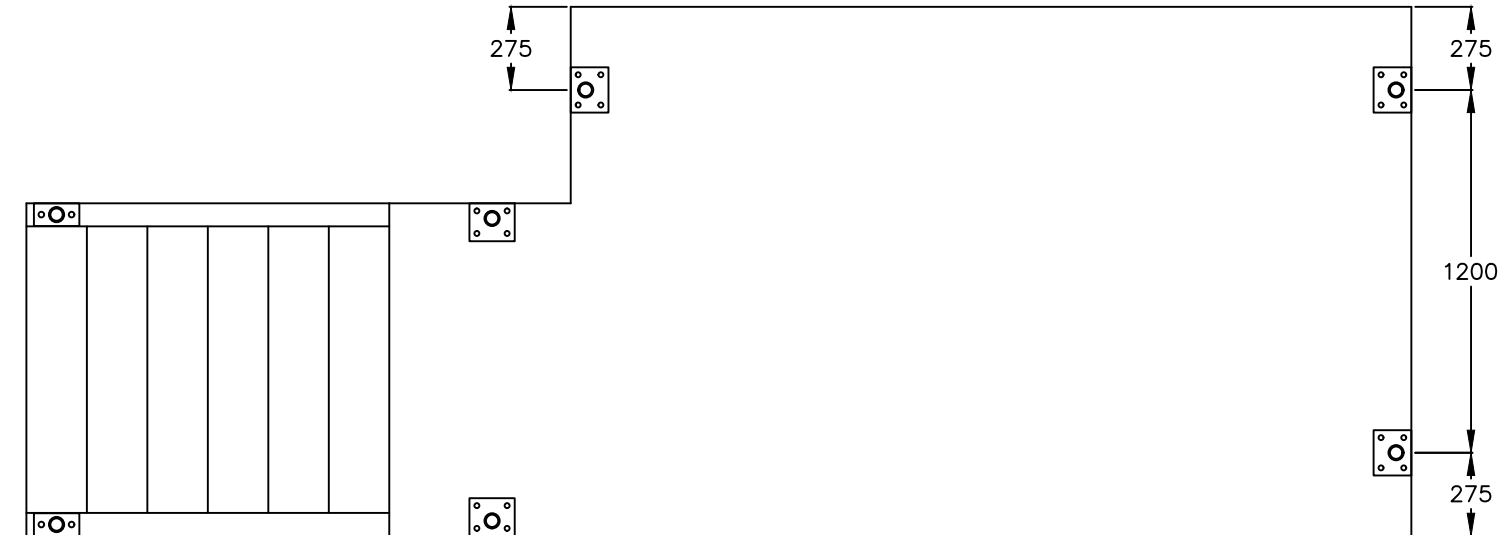
Scale (24x36)
1:50

Drawing No.
S6

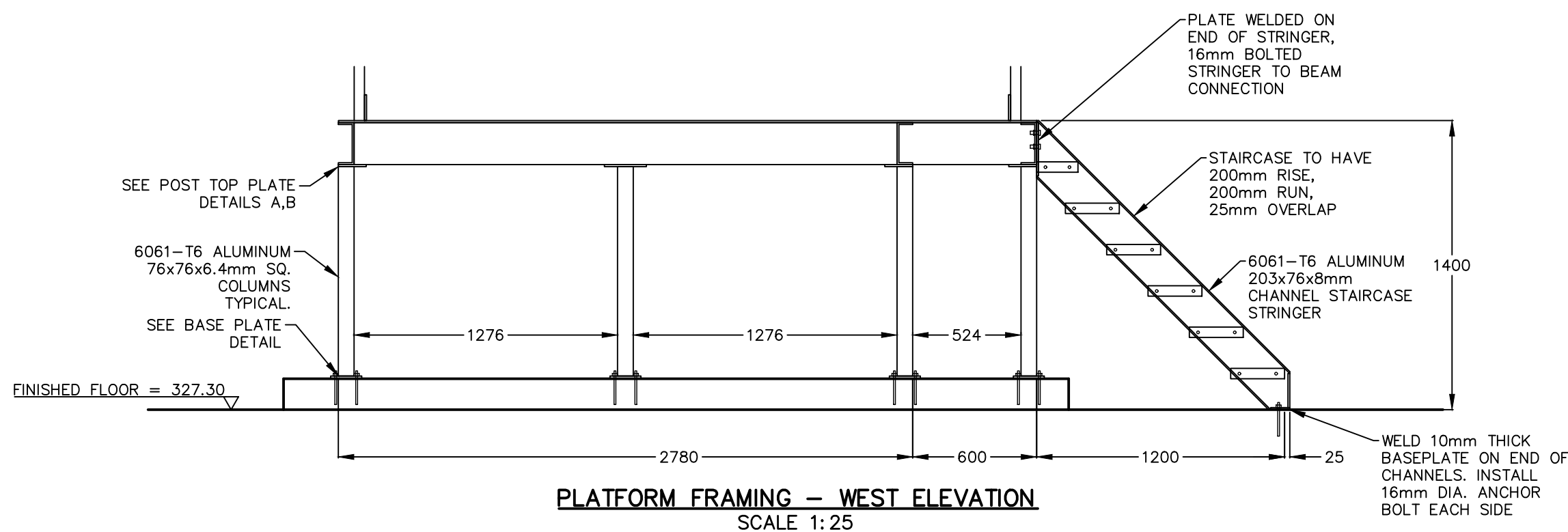


PLATFORM — SOUTH ELEVATION
SCALE 1:25

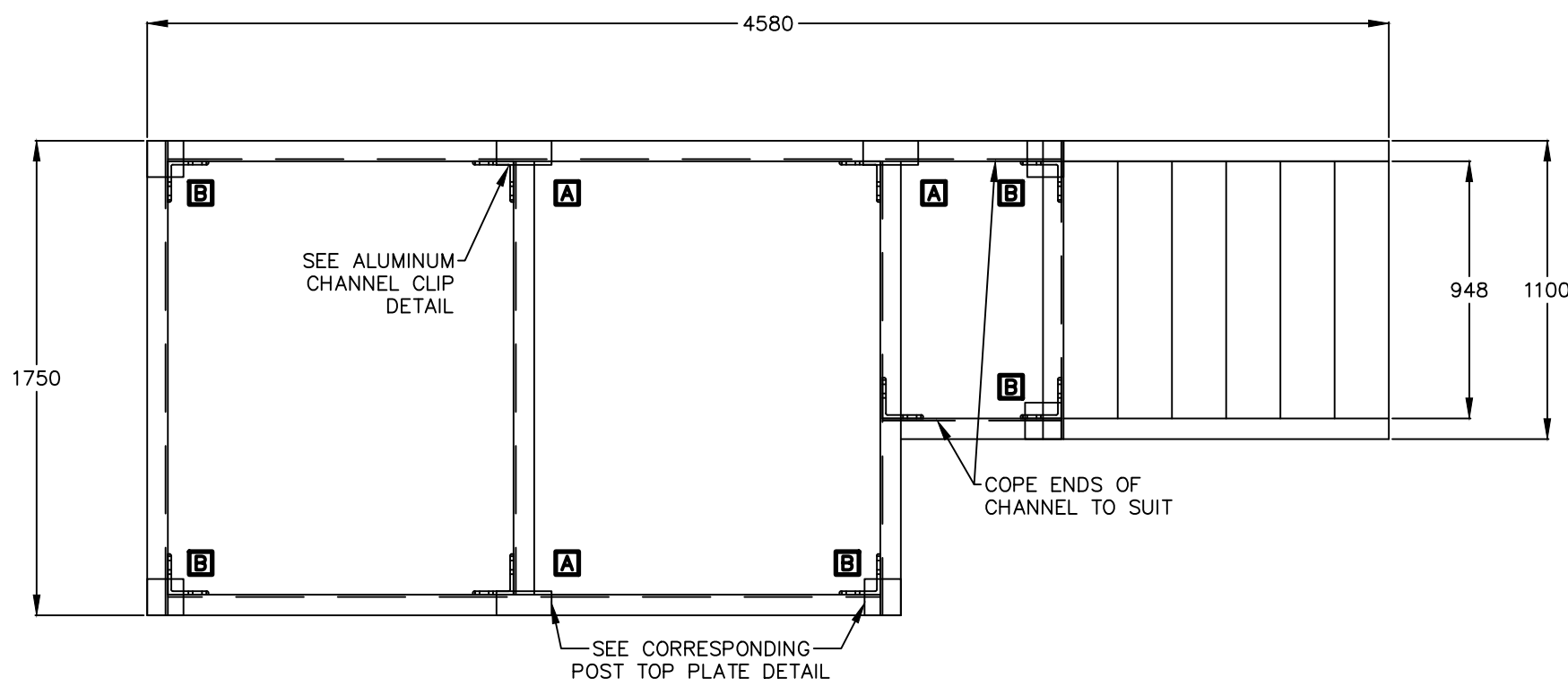
PLATFORM — NORTH ELEVATION
SCALE 1:25



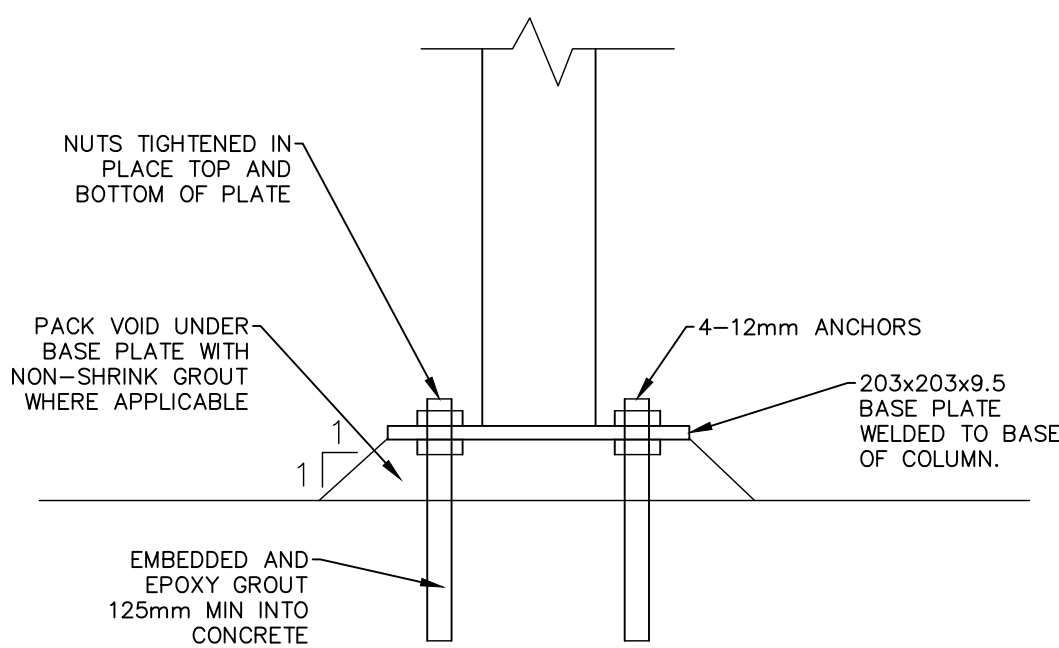
RAILING POST PLAN
SCALE 1:25



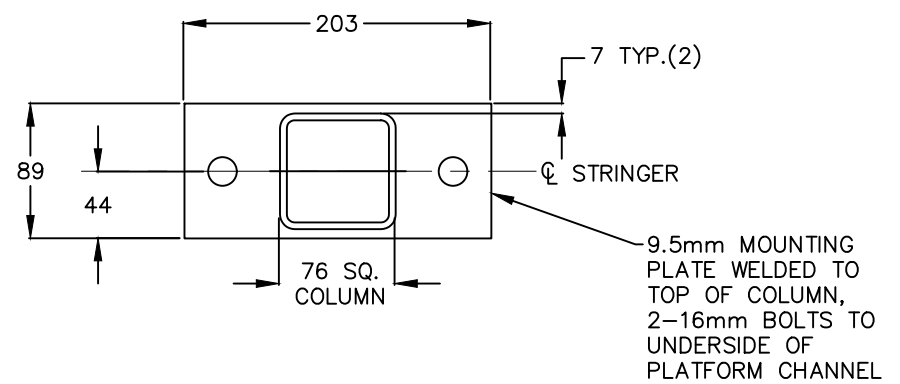
PLATFORM FRAMING — WEST ELEVATION
SCALE 1:25



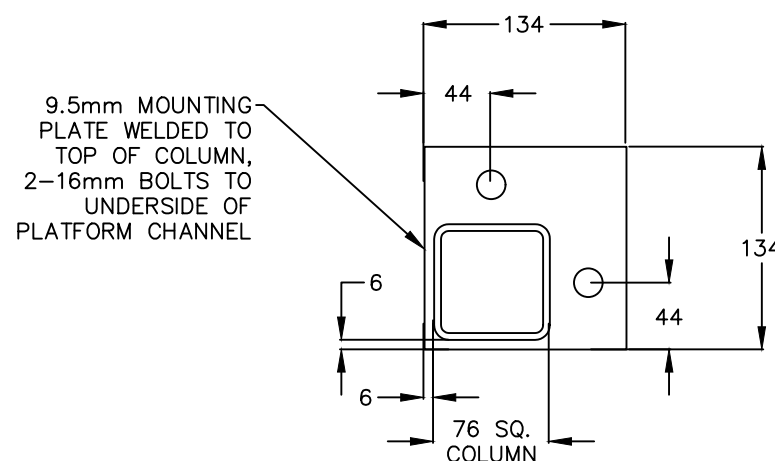
PLATFORM FRAMING — PLAN
SCALE 1:25



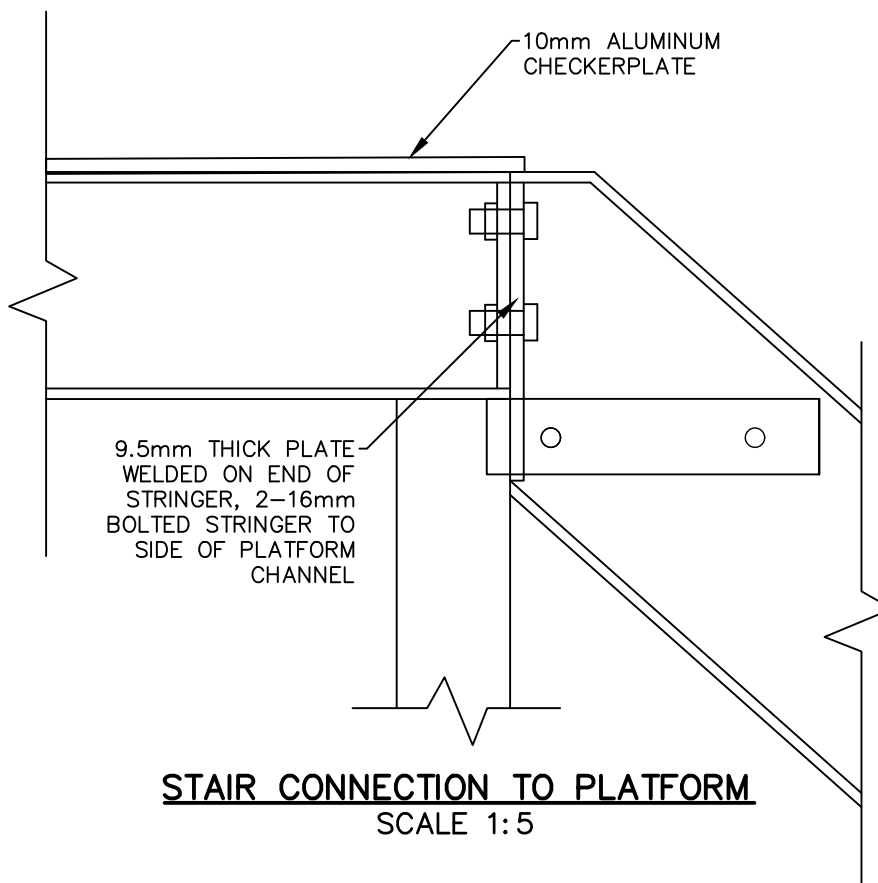
COLUMN BASE CONNECTION
SCALE 1:5



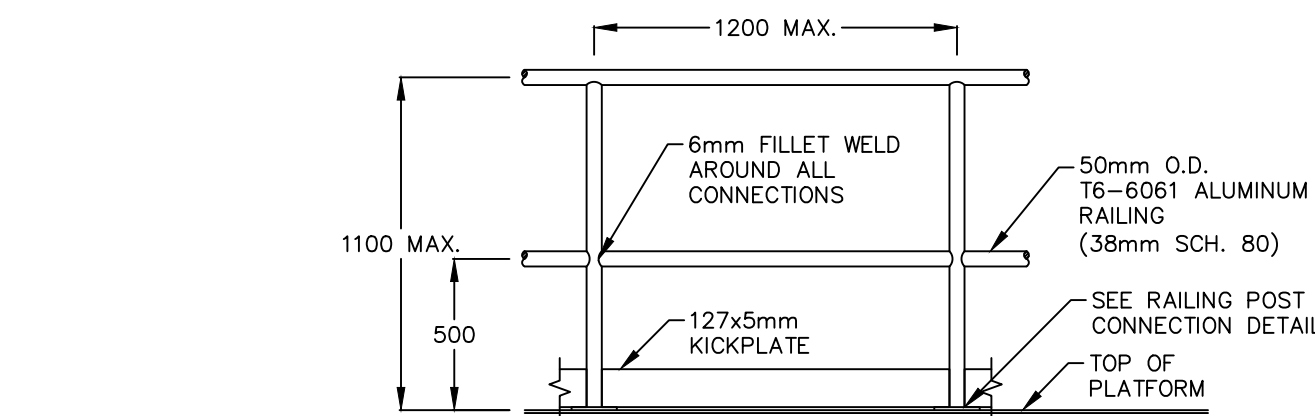
TYP. COLUMN TO PLATFORM MOUNTING PLATE A
SCALE 1:5



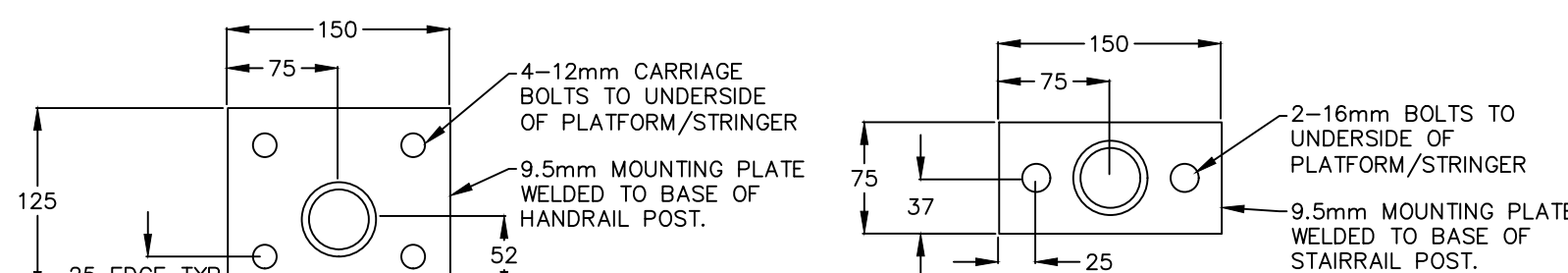
CORNER COLUMN TO PLATFORM MOUNTING PLATE B
SCALE 1:5



STAIR CONNECTION TO PLATFORM
SCALE 1:5

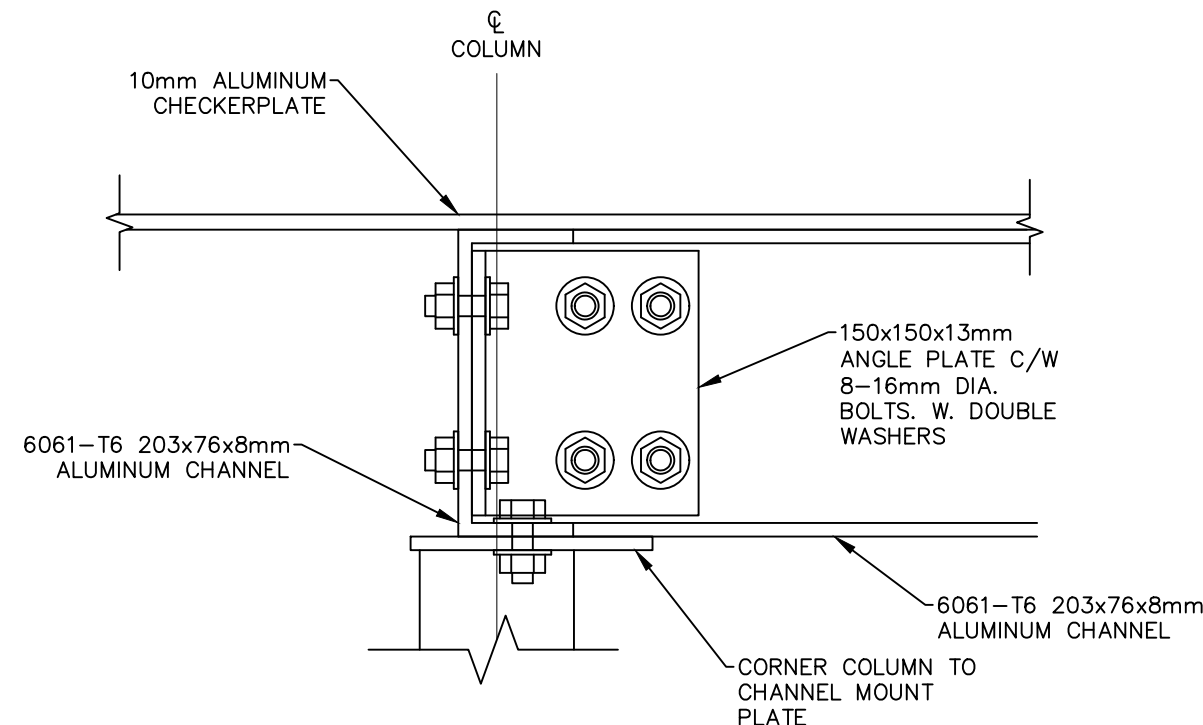


HANDRAIL TYP. DETAILS
SCALE 1:25



RAILING POST CONNECTION
SCALE 1:5

STAIRRAIL POST CONNECTION
SCALE 1:5



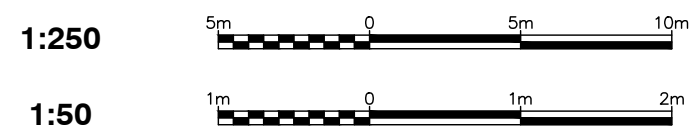
ALUMINUM CHANNEL CLIP
SCALE 1:5

Structural Aluminum:

- All platform structural elements shall be grade 6061-T6 aluminum and meet the requirements of CAN/CSA S157-17.
- Fabrication and erection of structural aluminum shall be as per the requirements of CAN/CSA S157-17.
- All base plate, and member connection hardware shall be Grade A304. All hardware bolts shall be stainless steel.
- All element members have been sized and the shown connection methods have been determined to be adequate but the fabricator will be responsible for confirming dimensions and provide connection details on their shop drawings.
- Welding of all structural members shall conform to CSA G59.2 and be undertaken by a fabricator and erector or certified to the requirements of CSA W47, Division 1 or 2.1.
- Components are to be shop fabricated in large pieces and generally all pieces shall be bolted in place. Field welding may only be performed where identified on the drawings or otherwise approved. All locations field welded shall be cleaned.

General Notes:

- See additional Notes Drawings S3 & S4
- Structure to be built in accordance with latest revision of Ontario Building Code
- Contractor shall check all dimensions in the field when preparing shop drawings and report any discrepancies with those shown in these drawings that may have an impact on the design to the Engineer.
- Live loads (unfactored): Platform and stairs — 4.8 kN/m²
- Dimensions are shown in millimeters except where noted otherwise.
- All grating shall be a minimum of 2" thick and be able to support the design loads. Grating to be fastened down with clips at corners or accepted equivalent.
- Contractor to submit shop drawings for review.
- Contractor may change a bolt connection to suitable welded connections when welding can be done in a shop or otherwise approved by the Engineer.



Design By: C.M.K. Checked By: R.J.M.



No.	DATE	REVISION
1	Oct. 1, 2025	Issued for Client Review
2	Oct. 28, 2025	Issued for Tender



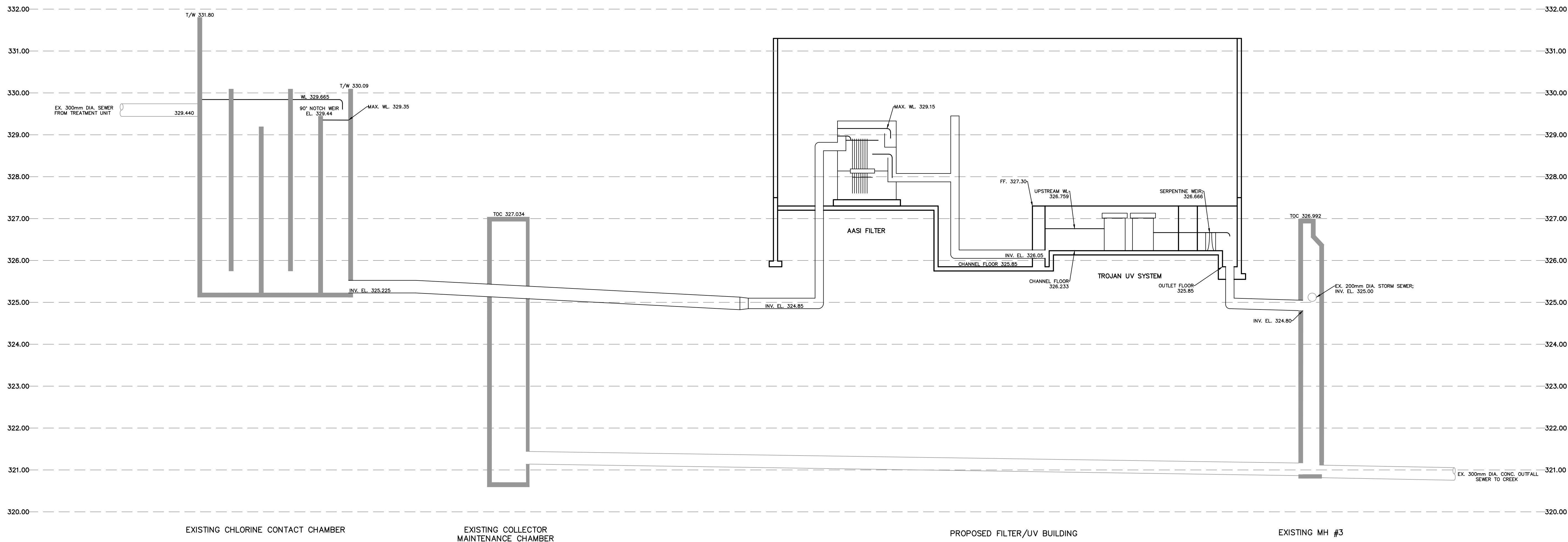
Goderich Kincardine Mount Forest Sarnia



Township of North Huron

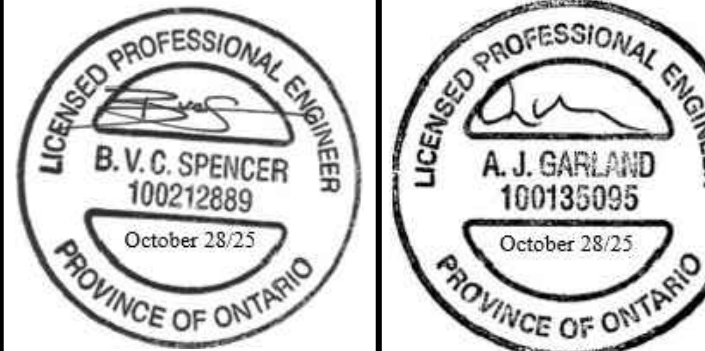
Blyth WWTP Upgrade
New Filter / UV Building - Platform Details

Contract No. 1	Project No. 20093
Scale (24x36) 1:50	Drawing No. S7



HYDRAULIC GRADE LINE FOR PEAK FLOW = 31.6 L/s

Design By: B.V.C.S. / N.Y. Checked By: A.J.G.



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Goderich Kincardine Mount Forest Sarnia



Township of
North Huron

Blyth WWTP Upgrade
Hydraulic Profile

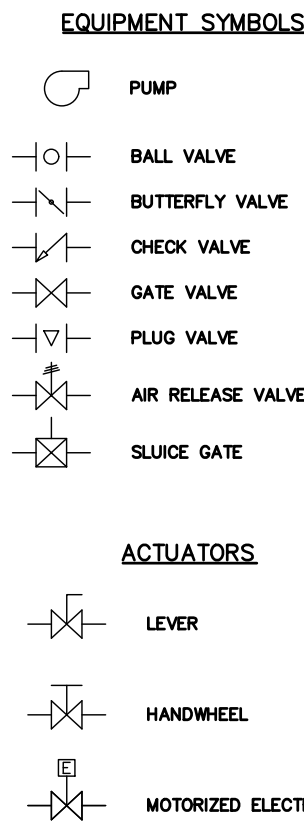
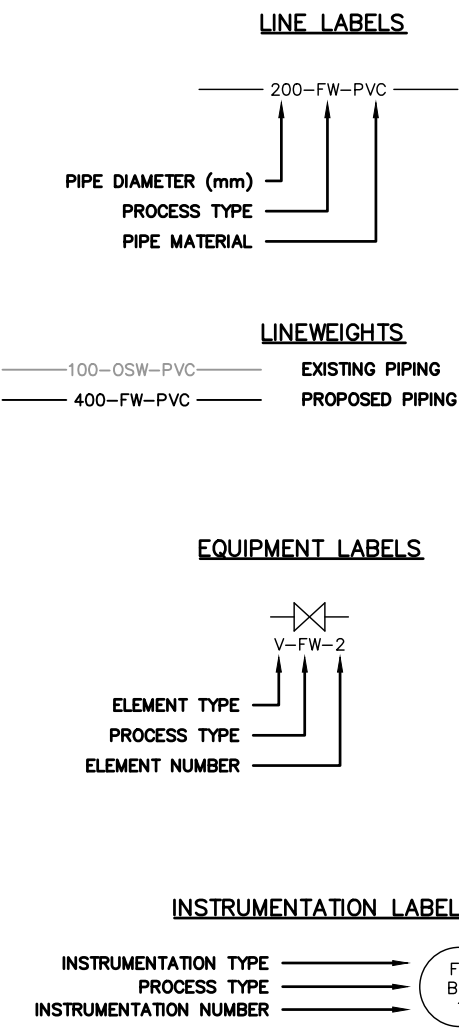
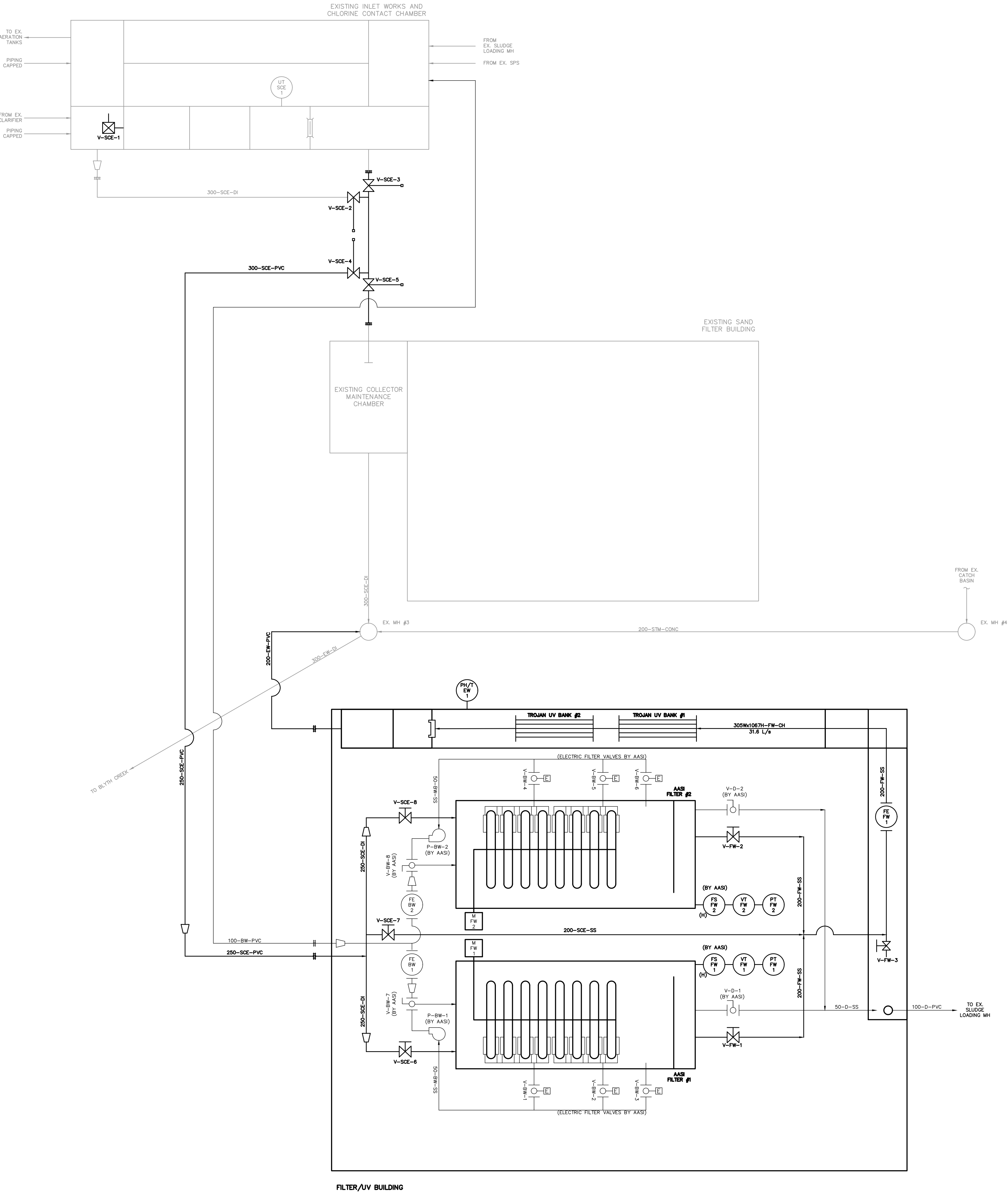
Contract No.
1

Project No.
20093

Scale (24x36)
N.T.S.

Drawing No.
P1

PROCESS FLOW DIAGRAM – LEGEND



PIPE MATERIAL	
DUCTILE IRON	DI
POLYVINYL CHLORIDE	PVC
STAINLESS STEEL	SS
CONCRETE	CONC
CHANNEL	CH
POLYETHYLENE	PE
PROCESS TYPE	
SECONDARY CLARIFIER EFFLUENT	SCE
STORM SEWER	STM
BACKWASH WASTE	BW
FILTERED WASTEWATER	FW
EFFLUENT WASTEWATER	EW
AERATION AIR	AA
WASTE ACTIVATED SLUDGE	WAS
RETURN ACTIVATED SLUDGE	RAS
EFFLUENT SYSTEM	ES
RAW SEWAGE	RSW
ELEMENT TYPE	
FLOWMETER	FE
FLOAT SWITCH	FS
VACUUM TRANSMITTER	VT
PRESSURE TRANSMITTER	PT
ULTRASONIC TRANSMITTER	UT
PH/TEMPERATURE TRANSMITTER	PH/T
VALVE	V
PUMP	P
MOTOR	M

VALVE SCHEDULE						
VALVE IDENTIFICATION	LOCATION	VALVE TYPE	ACTUATOR TYPE	VALVE DIAMETER (mm)	SUPPLIER	SPECIFICATION
V-SCE-1	CHLORINE CONTACT CHAMBER	SLUICE GATE	EXTENSION STEM AND NUT	300x300	CONTRACTOR	DIVISION 15
V-SCE-2	YARD	GATE	EXTENSION STEM, NUT AND VALVE BOX	300	CONTRACTOR	DIVISION 2
V-SCE-3	YARD	GATE	EXTENSION STEM, NUT AND VALVE BOX	300	CONTRACTOR	DIVISION 2
V-SCE-4	YARD	GATE	EXTENSION STEM, NUT AND VALVE BOX	300	CONTRACTOR	DIVISION 2
V-SCE-5	YARD	GATE	EXTENSION STEM, NUT AND VALVE BOX	300	CONTRACTOR	DIVISION 2
V-SCE-6	FILTER/UV BUILDING	GATE	HANDWHEEL	200	CONTRACTOR	DIVISION 15
V-SCE-7	FILTER/UV BUILDING	GATE	HANDWHEEL	200	CONTRACTOR	DIVISION 15
V-SCE-8	FILTER/UV BUILDING	GATE	HANDWHEEL	200	CONTRACTOR	DIVISION 15
V-FW-1	FILTER/UV BUILDING	GATE	HANDWHEEL	200	CONTRACTOR	DIVISION 15
V-FW-2	FILTER/UV BUILDING	GATE	HANDWHEEL	200	CONTRACTOR	DIVISION 15
V-FW-3	FILTER/UV BUILDING	GATE	HANDWHEEL	200	CONTRACTOR	DIVISION 15
V-BW-1	FILTER/UV BUILDING	BALL	ELECTRIC	50	AASI	REFER TO SUPPLIER
V-BW-2	FILTER/UV BUILDING	BALL	ELECTRIC	50	AASI	REFER TO SUPPLIER
V-BW-3	FILTER/UV BUILDING	BALL	ELECTRIC	50	AASI	REFER TO SUPPLIER
V-BW-4	FILTER/UV BUILDING	BALL	ELECTRIC	50	AASI	REFER TO SUPPLIER
V-BW-5	FILTER/UV BUILDING	BALL	ELECTRIC	50	AASI	REFER TO SUPPLIER
V-BW-6	FILTER/UV BUILDING	BALL	ELECTRIC	50	AASI	REFER TO SUPPLIER
V-BW-7	FILTER/UV BUILDING	3-WAY BALL	LEVER	50	AASI	REFER TO SUPPLIER
V-BW-8	FILTER/UV BUILDING	3-WAY BALL	LEVER	50	AASI	REFER TO SUPPLIER
V-D-1	FILTER/UV BUILDING	BALL	LEVER	50	AASI	REFER TO SUPPLIER
V-D-2	FILTER/UV BUILDING	BALL	LEVER	50	AASI	REFER TO SUPPLIER

INSTRUMENTATION/EQUIPMENT SCHEDULE			
INSTRUMENTATION IDENTIFICATION	LOCATION	SUPPLIER	NOTES
FE-BW-1	FILTER/UV BUILDING	AASI	75mm DIA. FLOWMETER MANUFACTURED BY KROHNE
FE-BW-2	FILTER/UV BUILDING	AASI	75mm DIA. FLOWMETER MANUFACTURED BY KROHNE
FE-FW-1	FILTER/UV BUILDING	CONTRACTOR	200mm DIA. FLOWMETER
FS-FW-1	FILTER/UV BUILDING	AASI	HIGH LEVEL SWITCH IN FILTER #1
FS-FW-2	FILTER/UV BUILDING	AASI	HIGH LEVEL SWITCH IN FILTER #2
VT-FW-1	FILTER/UV BUILDING	AASI	VACUUM TRANSMITTER IN FILTER #1
VT-FW-2	FILTER/UV BUILDING	AASI	VACUUM TRANSMITTER IN FILTER #2
PT-FW-1	FILTER/UV BUILDING	AASI	PRESSURE TRANSMITTER IN FILTER #1
PT-FW-2	FILTER/UV BUILDING	AASI	PRESSURE TRANSMITTER IN FILTER #2
M-FW-1	FILTER/UV BUILDING	AASI	0.5 HP DRIVE MOTOR IN FILTER #1
M-FW-2	FILTER/UV BUILDING	AASI	0.5 HP DRIVE MOTOR IN FILTER #2
P-BW-1	FILTER/UV BUILDING	AASI	5 HP GORMAN RUPP BACKWASH PUMP
P-BW-2	FILTER/UV BUILDING	AASI	5 HP GORMAN RUPP BACKWASH PUMP
PH/T-EW-1	FILTER/UV BUILDING	CONTRACTOR	PH/T PROBE AND TRANSMITTER

Design By: B.V.C.S. / N.Y. Checked By: A.J.G.



No.	DATE	REVISION
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Goderich Kincardine Mount Forest Samia



Township of North Huron
Blyth WWTP Upgrade
Process Flow Diagram

Contract No.
1

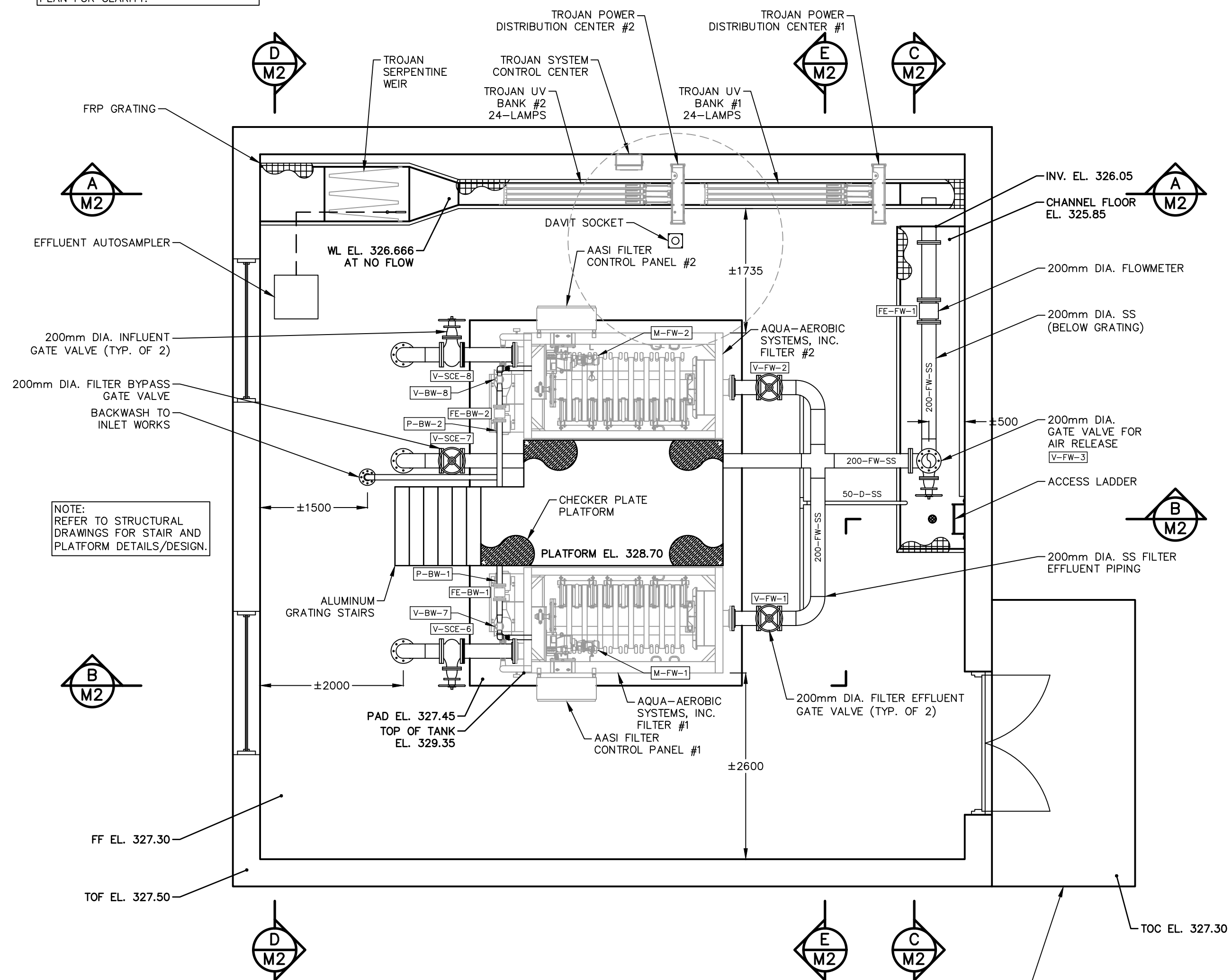
Project No.
20093

Scale (24x36)
N.T.S.

Drawing No.
P2

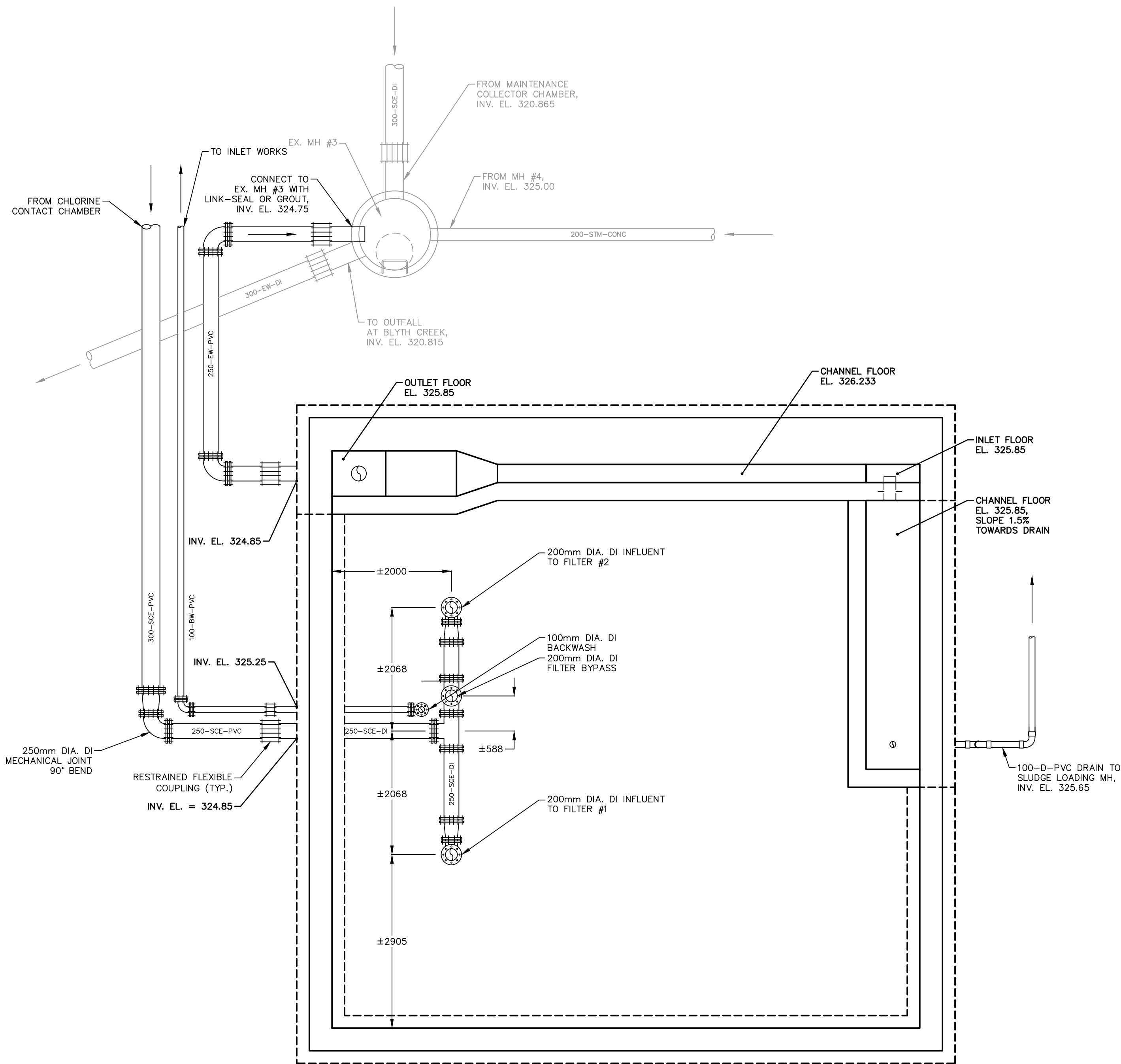
EX. MH #3,
LID EL. 327.00

NOTE:
UV EQUIPMENT AND METER EQUIPMENT
IN THE CHANNELS SHOWN ON THIS
PLAN FOR CLARITY.



FILTER BUILDING – PLAN ABOVE EL. 327.30
SCALE 1:50

2m W x 4m L CONCRETE ENTRANCE,
INSTALL FLUSH WITH DOOR SILL AND
SLOPE AWAY FROM DOOR



FILTER BUILDING – PLAN BELOW EL. 327.30
SCALE 1:50

NOTES

1. Refer to Contract appendices for details of the Aqua-Aerobic Systems, Inc. and Trojan Technologies UV system scope of supply, exclusions and specifications for components to be provided by the Contractor. Contractor shall be responsible for the purchasing and installation of all new pre-selected equipment, and provision of any materials excluded from the pre-selected equipment scope to deliver a fully-functional system.
2. Contractor to review all pre-selected equipment installation instructions prior to installation of equipment.
3. The UV channel width and depth must be kept within a tolerance of ± 6 mm and shall not be sloped.
4. Supply and install new aluminum grating to completely cover all open areas of the UV structure. Cut grating as required to fit around obstructions. Grating sections over the UV lamp modules to be configured to allow module removal.
5. Anchor bolts are to be supplied by the Contractor.
6. Pipe support and bracing locations shown are typical only. Contractor is responsible for proper support of all piping. Pipe supports to be adjustable stainless steel.
7. Refer to electrical drawings for locations of sensors and instrumentation.

1:50



Design By: B.V.C.S.

Checked By: A.J.G.



No.	DATE	REVISION
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2	Sept. 17, 2025	Issued for MECP Approval
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Goderich Kincardine Mount Forest Sarnia



**Township of
North Huron**

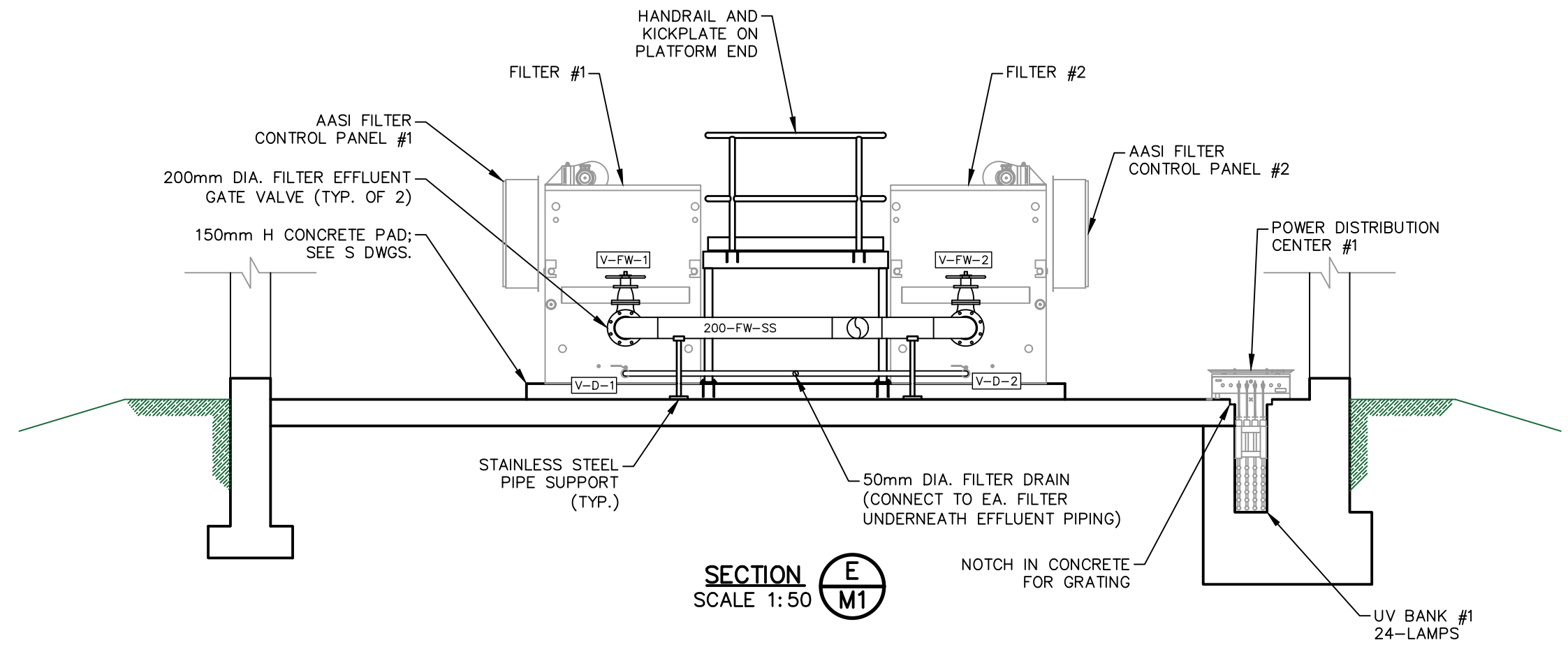
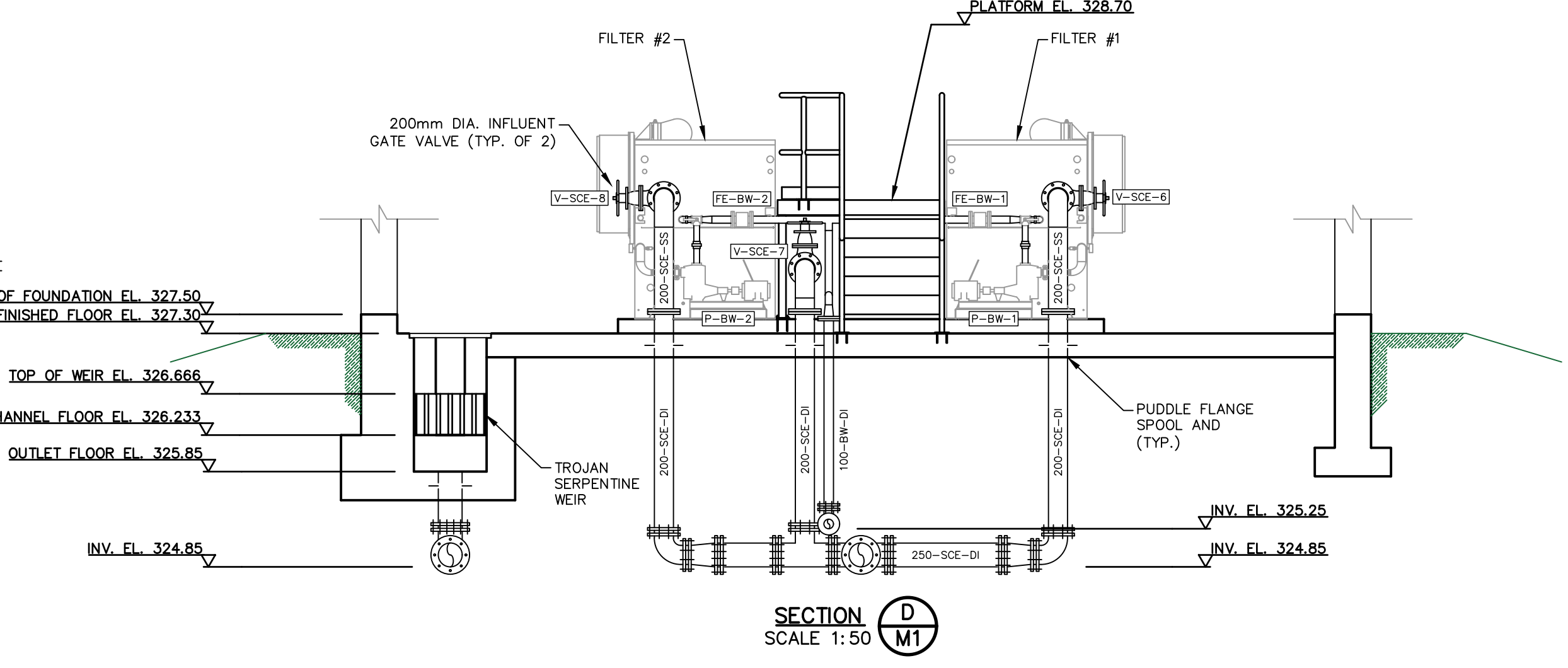
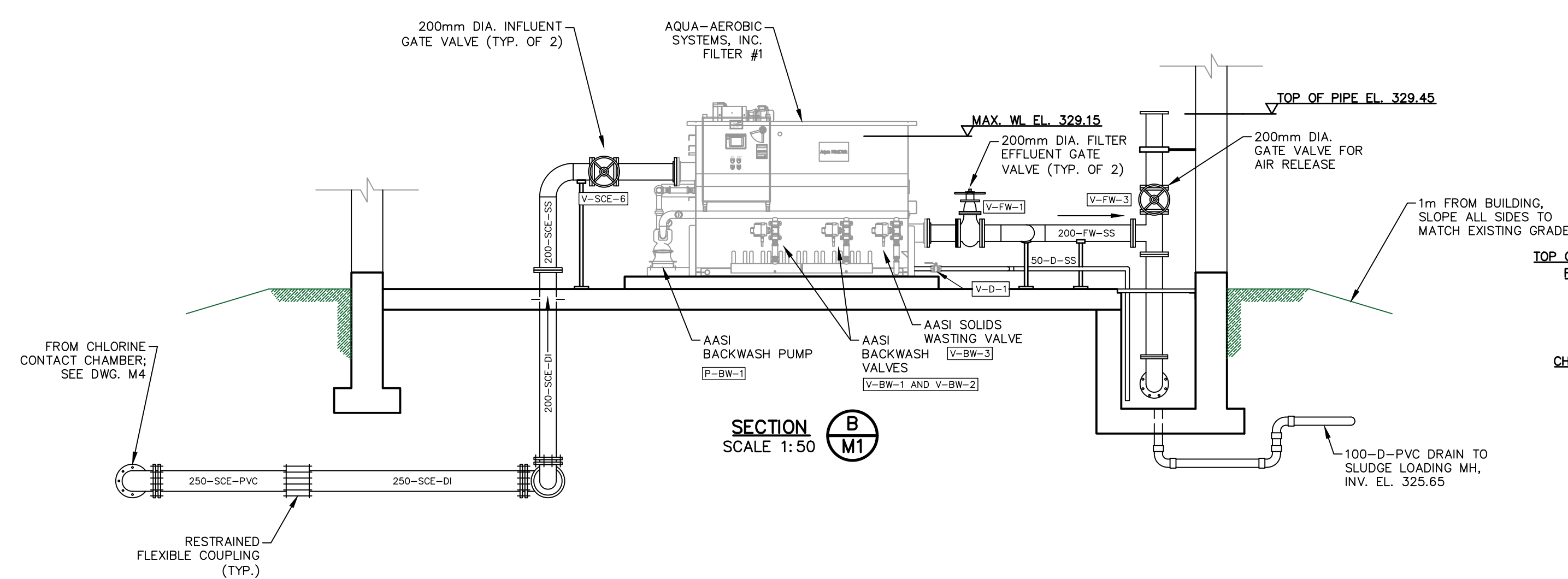
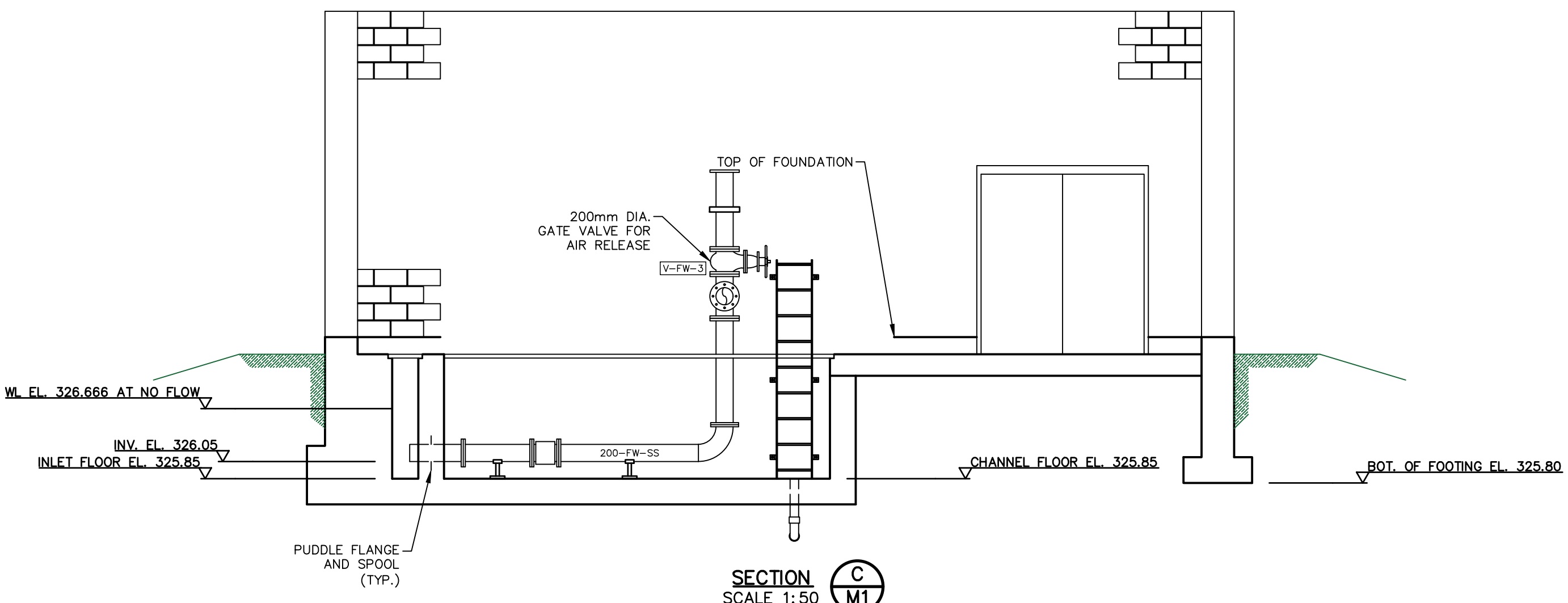
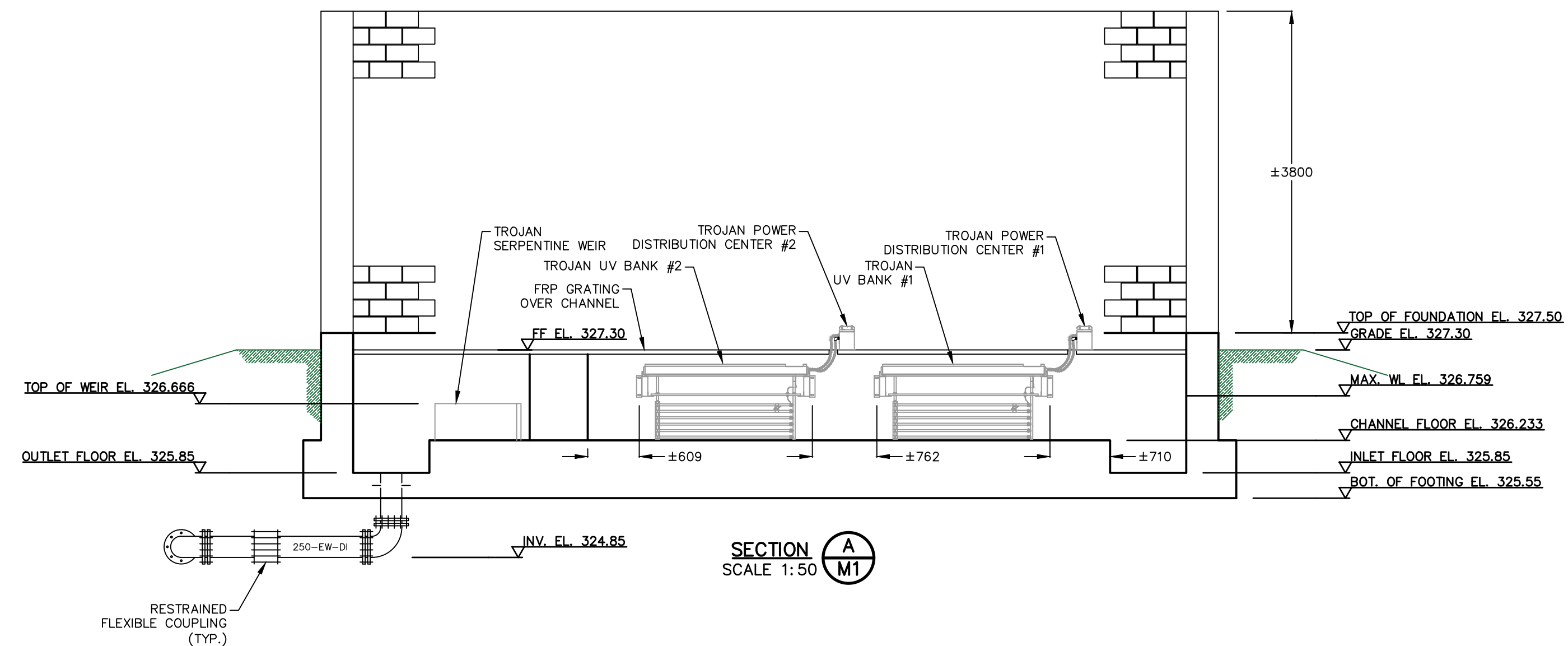
Blyth WWTP Upgrade
**Filter / UV Building -
Proposed Plan**

Contract No.
1

Project No.
20093

Scale (24x36)
1:50

Drawing No.
M1

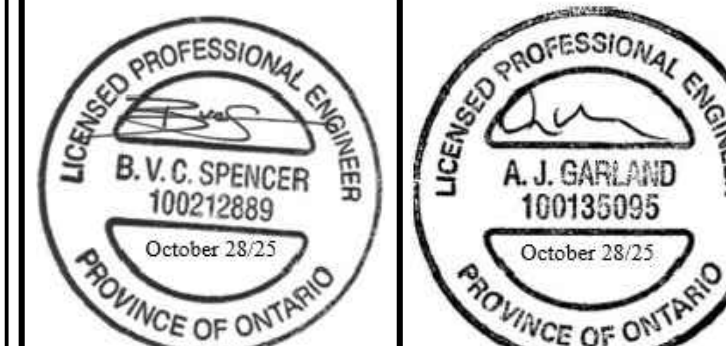


NOTES

1. Refer to notes on Drawing M1.



Design By: B.V.C.S. Checked By: A.J.G.



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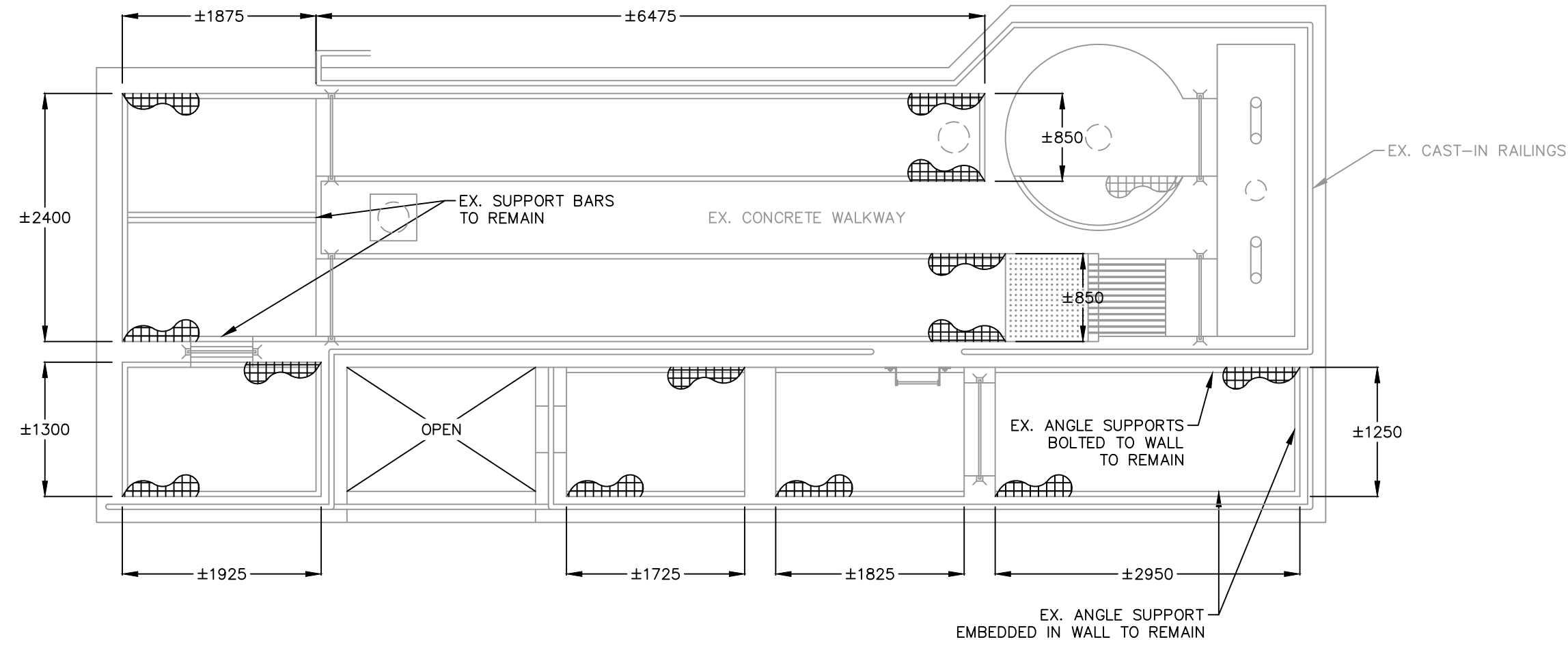
Goderich Kincardine Mount Forest Sarnia



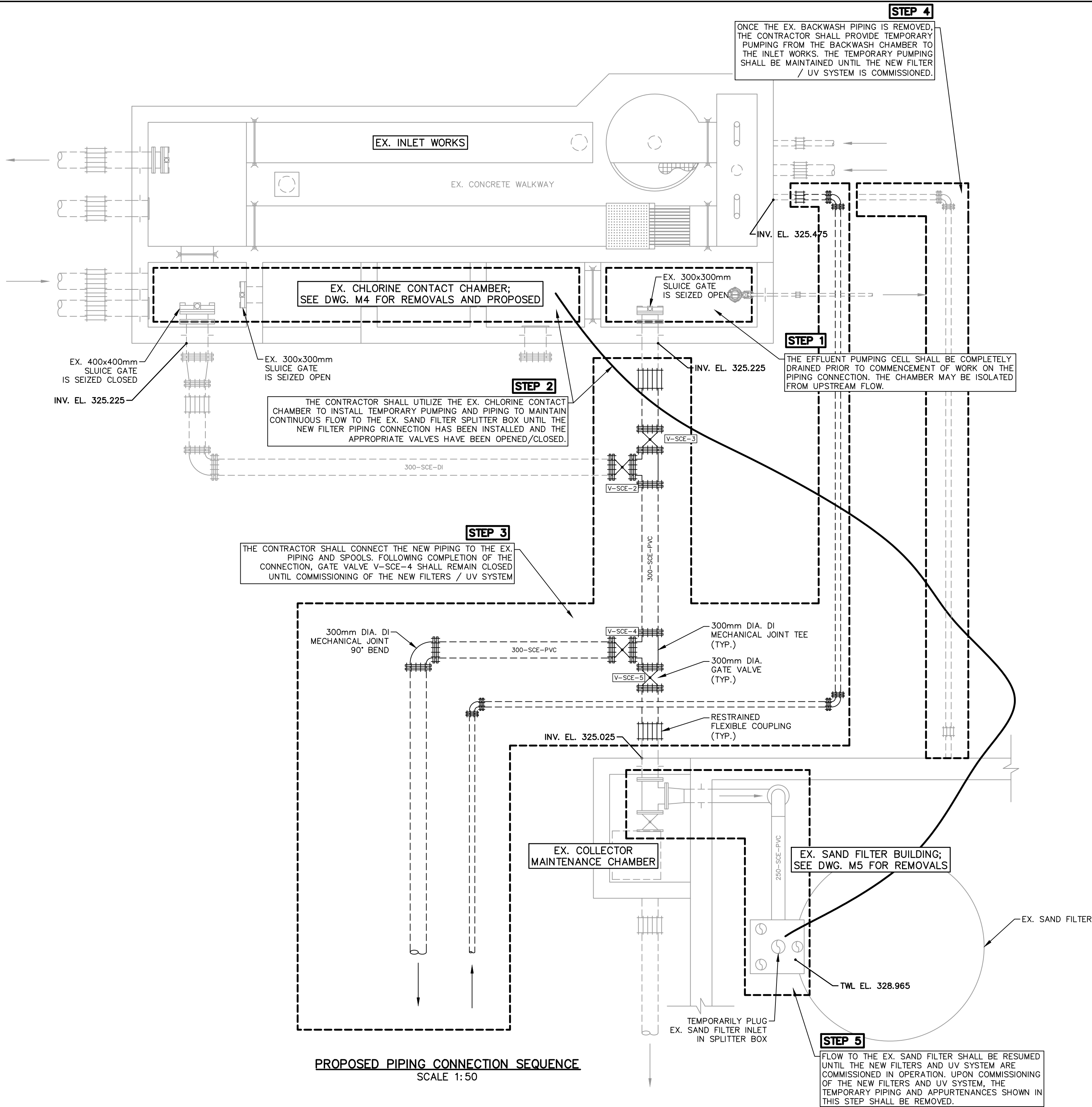
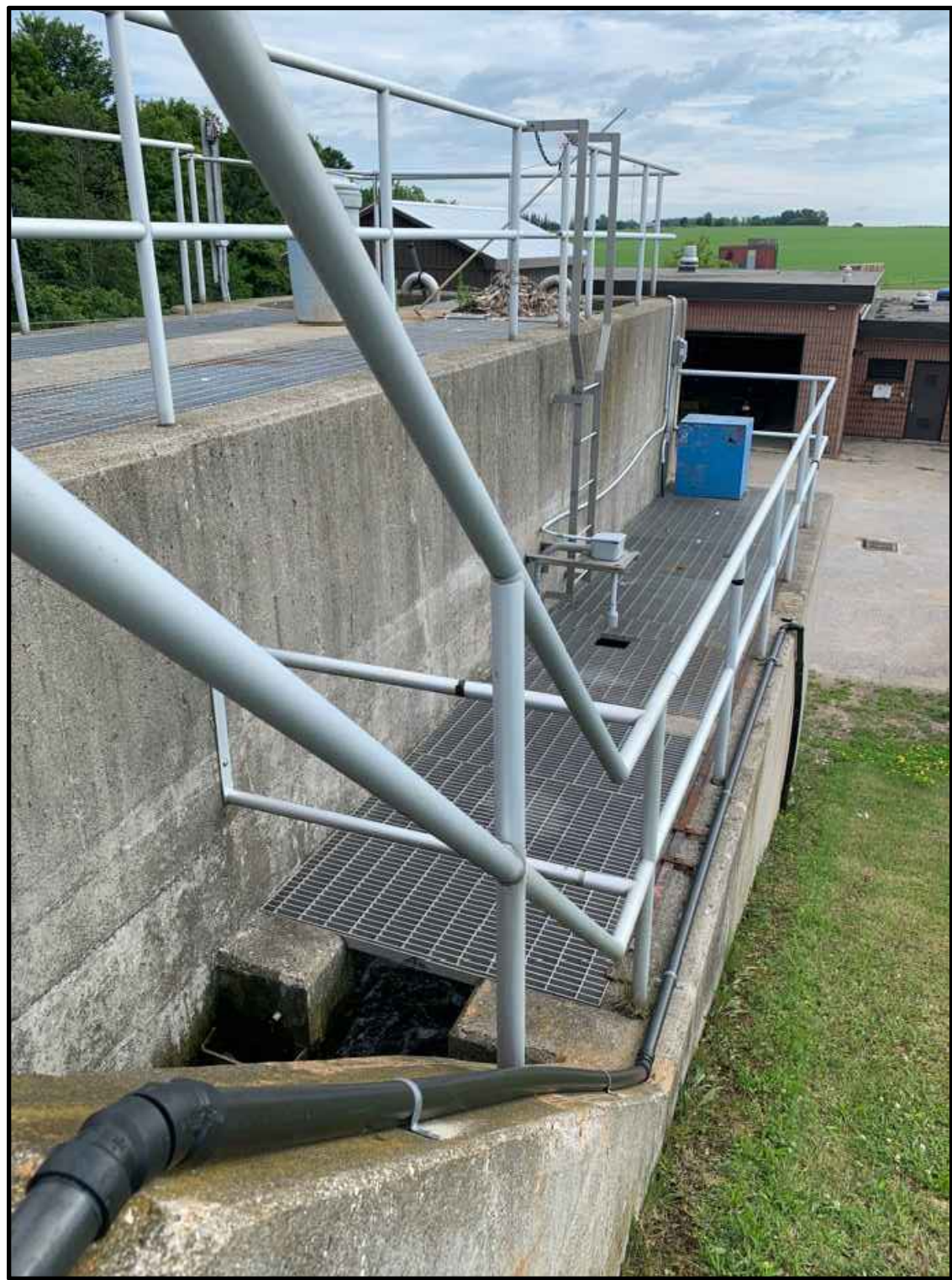
Township of North Huron
Blyth WWTP Upgrade
 Filter / UV Building - Proposed Sections

Contract No. 1	Project No. 20093
Scale (24x36) 1:50	Drawing No. M2

NOTE:
THE REMOVAL AND DISPOSAL OF
EXISTING ALUMINUM GRATING AND THE
SUPPLY AND INSTALLATION OF THE NEW
FRP GRATING ARE PROVISIONAL ITEMS.



INLET WORKS / CHLORINE CONTACT CHAMBER –
FRP GRATING PLAN
SCALE 1:50



PROPOSED PIPING CONNECTION SEQUENCE
SCALE 1:50



NOTES

- Supply and install new fiberglass reinforced plastic grating to completely cover open areas, as shown, of the Inlet Works Structure and Chlorine Contact Chamber. Cut grating as required to fit around obstructions. Grating sections over the stop gates are to be configured to allow removal.
- The Contractor shall submit sealed shop drawings with dimensions as measured in the field. The new FRP grating thickness shall match existing aluminum grating thickness of 38mm.
- The Contractor shall be responsible for maintaining continuous flow through the existing works at all times, in accordance with the drawings and with Division 1 -- "Maintenance of Flow" of the specifications. Prior to commencing any removals work, the Contractor shall submit a detailed "Maintenance of Flow Plan" to the Consultant for approval. This plan shall outline the proposed sequence of work, the method by which flow will be maintained and duration of work. Any additional costs incurred as a result of the Contractor proceeding without the Consultant's approval of the plan, shall be at the sole risk of the Contractor.

1:50 1m 0 1m 2m

Design By: B.V.C.S.

Checked By: A.J.G.



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Goderich Kincardine Mount Forest Sarnia



Township of
North Huron

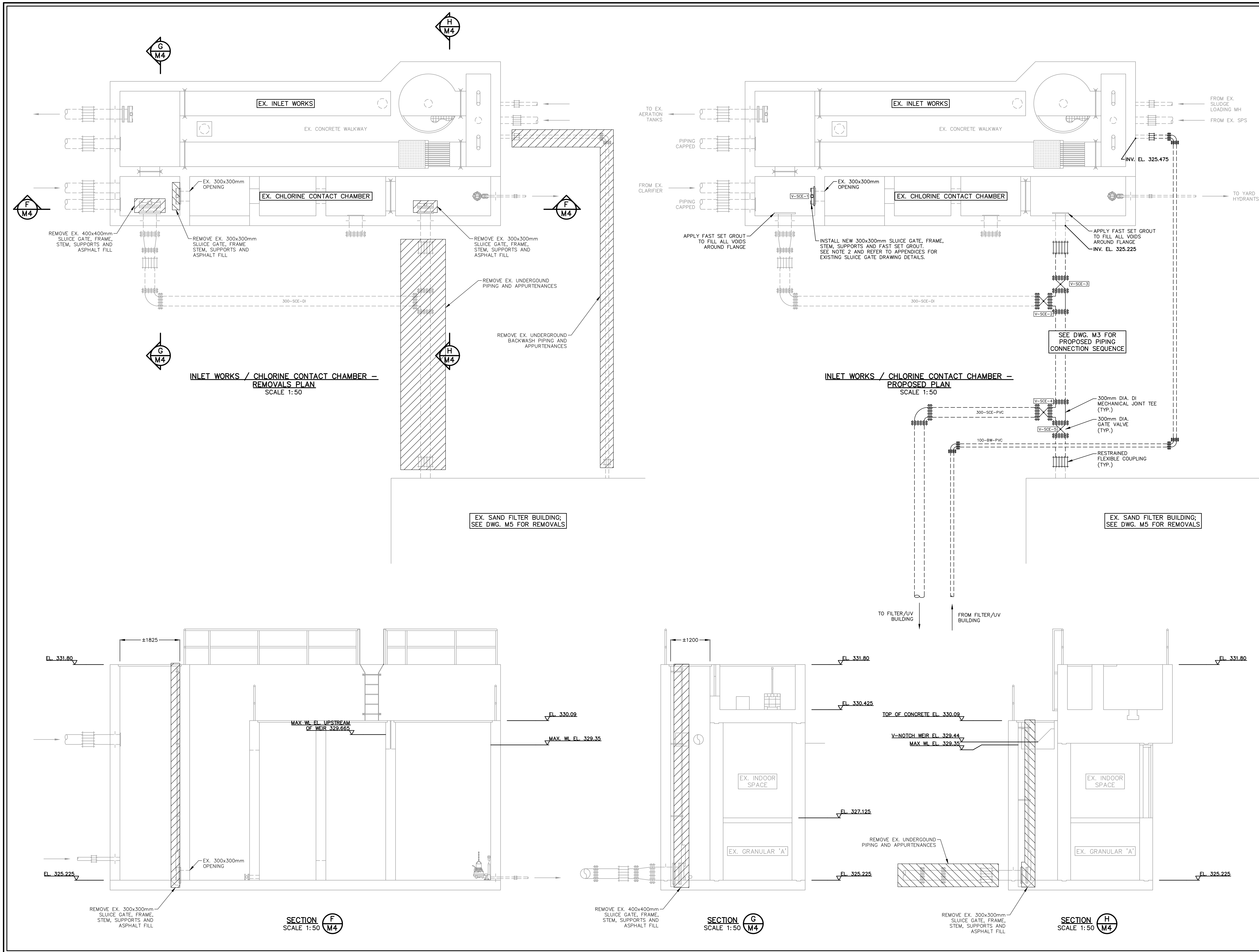
Blyth WWTP Upgrade
Inlet Works / Chlorine Contact Chamber
Grating Replacement and
Piping Sequence

Contract No.
1

Project No.
20093

Scale (24x36)
1:50

Drawing No.
M3



NOTES

1. The Contractor shall be responsible for maintaining continuous flow through the existing works at all times, in accordance with the drawings and with Division 1 -- "Maintenance of Flow" of the specifications. Prior to commencing any removals work, the Contractor shall submit a detailed "Maintenance of Flow Plan" to the Consultant for approval. This plan shall outline the proposed sequence of work, the method by which flow will be maintained and duration of work. Any additional costs incurred as a result of the Contractor proceeding without the Consultant's approval of the plan shall be at the sole risk of the Contractor.

2. Sluice Gate removal and installation requirements:

2.1. The Contractor shall coordinate this work with Veolia staff, providing a minimum of two (2) weeks' notice prior to commencement of sluice gate work.

2.2. Veolia staff, at their discretion and based on current conditions, shall perform Clarifier draining the day before scheduled work.

2.3. The Contractor shall note that the Clarifier can be drained on multiple occasions, as required, to complete removal, measurement and inspection of the existing sluice gate and wall thimble flange, for removal of the existing sluice gates and for installation of the new sluice gate.

2.4. It is assumed that the Contractor would have a 12-hour working period before the clarifier fills up again.

2.5. The new sluice gate valve (V-SCE-1) frame shall be bolted to the face of the concrete at a distance greater than the existing wall thimble flange.

2.6. The existing wall thimble and flange shall remain in place, as shown with a size of 19" on the existing shop drawings. Refer to the Contract Appendices for the existing sluice gate and frame details.

2.7. The Contractor shall apply fast-set grout to fill all voids around flanges.

2.8. The new sluice gate shall be installed to sit flush on the chamber bottom.

2.9. The Contractor shall verify all dimensions and conditions prior to installation and shall coordinate installation with the Consultant to ensure proper fit and alignment.

1:50

1m 0 1m 2m

Design By: B.V.C.S. Checked By: A.J.G.

LICENCED PROFESSIONAL ENGINEER
B.V.C. SPENCER
100212689
October 28/23
PROVINCE OF ONTARIO

LICENCED PROFESSIONAL ENGINEER
A.J. GARLAND
100135095
October 28/23
PROVINCE OF ONTARIO

No.	DATE	REVISION
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2	Oct. 1, 2025	Issued for Client Review
3	Oct. 26, 2025	Issued for Tender

BMROSS
engineering better communities

Goderich Kincardine Mount Forest Sarnia

NORTH HURON

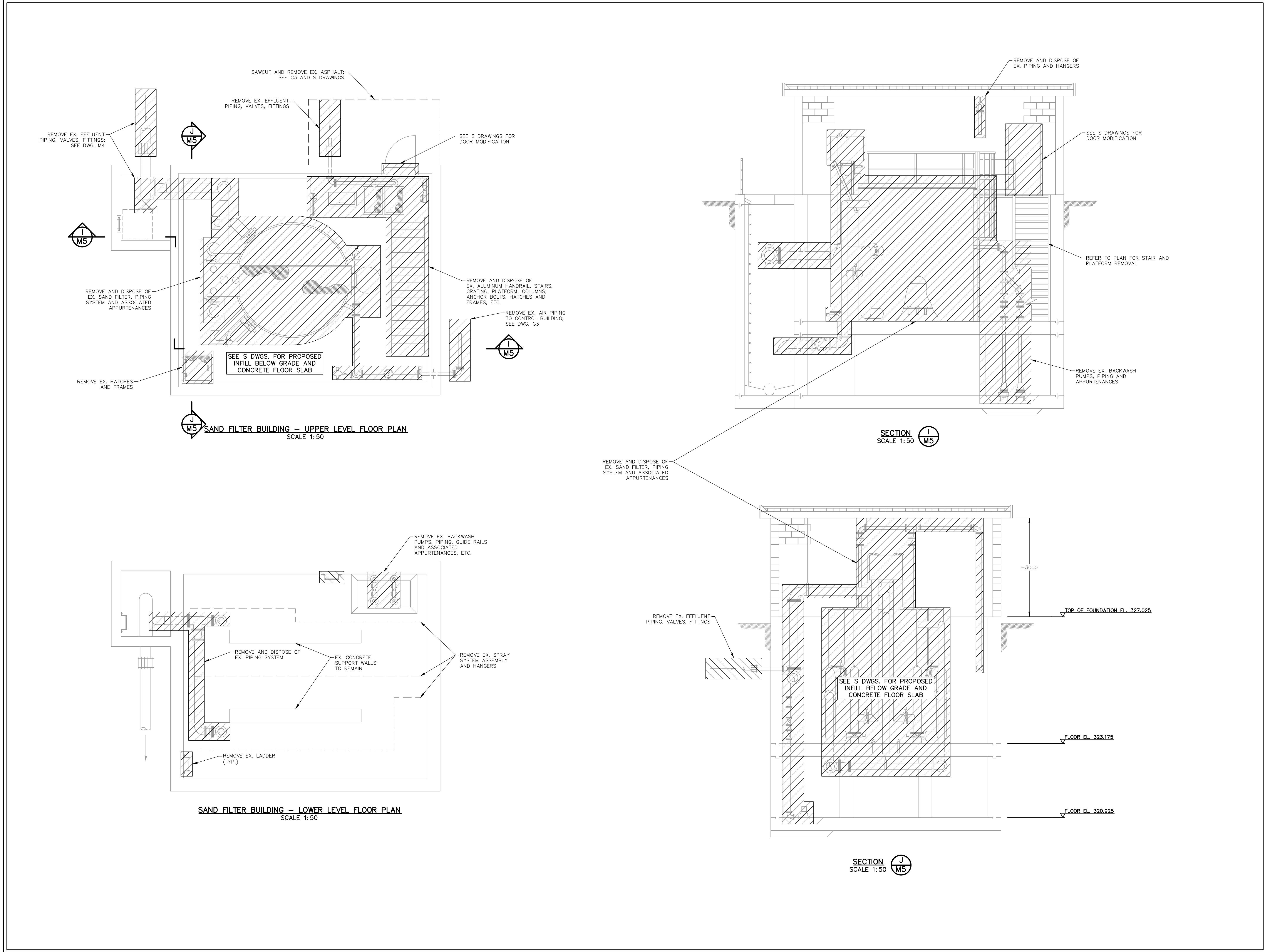
Township of North Huron

Blyth WWTP Upgrade

Inlet Works / Chlorine Contact Chamber

Existing and Removals

Contract No. 1	Project No. 20093
Scale (24x36) 1:50	Drawing No. M4



NOTES

1. The existing Chlorine Contact Chamber and Sand Filter Building shall remain in operation until the new Filter/UV equipment is commissioned and in operation.

1:50

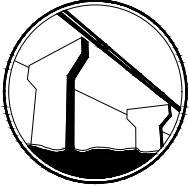
1m 0 1m 2m

Design By: B.V.C.S. Checked By: A.J.G.

LICENCED PROFESSIONAL ENGINEER
B.V.C. SPENCER
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October 28/25
PROVINCE OF ONTARIO

LICENCED PROFESSIONAL ENGINEER
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October 28/25
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NORTH HURON

Township of North Huron

Blyth WWTP Upgrade

Sand Filter Building - Existing and Removals

Contract No.
1

Project No.
20093

Scale (24x36)
1:50

Drawing No.
M5

MECHANICAL AND PLUMBING SYMBOLS AND ABBREVIATIONS			
PIPING		ABBREVIATIONS	
----- DOMESTIC COLD WATER NEW ----- DOMESTIC HOT WATER NEW ----- DOMESTIC HOT WATER RECIRCULATION ----- GAS ----- SANITARY WASTE NEW ----- SANITARY VENT LINE ----- GAS METER ----- WATER METER ----- BACKFLOW PREVENTER ----- PUMP ----- BOILER FEED WATER	AFF ABOVE FINISHED FLOOR AHU AIR HANDLING UNIT ALT ALTERNATE AP ACCESS PANEL AS AIR SEPARATOR BBH ELECTRIC BASE BOARD HEATER BTU BRITISH THERMAL UNIT BV BALANCE VALVE CA COMBUSTION AIR CB CATCH BASIN CO CLEANOUT COND CONDENSATE CONV HYDRONIC CONVECTOR CS COUNTER SINK CU CONDENSING UNIT C/W COMPLETE WITH DCW DOMESTIC COLD WATER DHW DOMESTIC HOT WATER DX DIRECT EXPANSION COOLING COIL EA EXHAUST AIR EG EXHAUST GRILLE EF EXHAUST FAN ESP EXTERNAL STATIC PRESSURE ET EXPANSION TANK FD FLOOR DRAIN OR FIRE DAMPER FFH FORCED FLOW HEATER FTR HYDRONIC FINED TUBE RADIATION GC GENERAL CONTRACTOR HB HOSE BIBB HX HEAT EXCHANGER	HWT HOT WATER TANK HWH HOT WATER HEATER HRV HEAT RECOVERY VENTILATOR LV LAVATORY MBH 1000 BTU/HOUR MD MOTORIZED DAMPER MDA MOTORIZED DAMPER ACTUATOR MPR MULTI PUMP RELAY MS MOP SINK NG NATURAL GAS OA OUTSIDE AIR PRV PRESSURE REDUCING VALVE RA RETURN AIR RG RETURN GRILLE RPZ REDUCED PRESSURE BACKFLOW PREVENTER RV ROOF INTAKE VENT RRV ROOF RELIEF VENT SA SUPPLY AIR SAN SANITARY SG SUPPLY GRILLE SP/D SPLITTER DAMPER SR SUPPLY REGISTER TP TRAP PRIMER LINE TYP TYPICAL UH UNIT HEATER- HYDRONIC UR URINAL VS VENT STACK VTR VENT THRU ROOF WC WATER CLOSET WH WATER HYDRANT WS WASTE STACK	
PIPE FITTINGS		VALVES	
----- ELBOW UP ----- ELBOW DOWN ----- TEE UP ----- TEE DOWN ----- UNION ----- STRAINER ----- FLANGED CONNECTION ----- FLOW DIRECTION ARROW ----- PIPE SLEEVE ----- PRESSURE GAUGE ----- AUTOMATIC AIR VENT ----- ELBOW ----- TEE ----- CLEANOUT ABOVE GRADE/ BELOW GRADE ----- FLOOR DRAIN ----- THERMOMETER		----- SHUT-OFF VALVE ----- VERTICAL SHUT-OFF/NEEDLE VALVE ----- BALANCING VALVE ----- CHECK VALVE ----- PRESSURE REDUCING VALVE ----- MAKEUP WATER VALVE ----- FLOW CONTROL VALVE ----- PRESSURE RELIEF VALVE ----- AUTOMATIC AIR VENT ----- CONTROL VALVE (TOV) ----- 3-WAY CONTROL VALVE ----- THROTTLING VALVE ----- ZONE VALVE	----- T'STAT-VENTILATION (BY DIV. 16) ----- T'STAT-HEATING (BY DIV. 16) ----- SPEED CONTROLLER ----- MANIFOLD ACTUATOR ----- MOTORIZED DAMPER ----- CARBON DIOXIDE SENSOR ----- FLOW SWITCH ----- PRESSURE GAUGE ----- THERMOMETER WITH BRASS WELL ----- TEMPERATURE SENSOR ----- LOW VOLTAGE CONTROL WIRE
DUCT SYMBOLS		DRAWING NOTATIONS	
----- BALANCING DAMPER ----- SUPPLY DUCT UP / DOWN ----- EXHAUST DUCT UP / DOWN ----- ROUND DUCT UP / DOWN ----- FLEX DUCT		1 2 3 ----- DIFFUSER, GRILLE OR REGISTER 1. TYPE (SEE SCHEDULE) 2. SIZE - METRIC: MM 3. AIR FLOW - METRIC: L/S	1 ----- DETAIL M4 ----- SHEET NUMBER OF DETAIL LOCATION
HVAC SYMBOLS		TEMPERATURE CONTROL/MONITORING	
----- LOUVER ----- AIR FLOW DIRECTION ----- SQUARE SUPPLY AIR DIFFUSER			

SEQUENCE OF OPERATIONS (VENTILATION)

EXISTING FILTER BUILDING

1. EF-1: IF ROOM TEMPERATURE SENSED BY THE THERMOSTAT (Tv-1) EXCEEDS 25°C, MD-1 AND MD-2 OPEN AND THEIR END SWITCHES START EF-1. WITH EF-1 OFF, DAMPERS MD-1 AND MD-2 ASSUME A NORMALLY CLOSED POSITION.

PROPOSED FILTER BUILDING

1. EF-2: IF ROOM TEMPERATURE SENSED BY THE THERMOSTAT (Tv-2) EXCEEDS 25°C, MD-3 AND MD-4 OPEN AND THEIR END SWITCHES START EF-2. WITH EF-2 OFF, DAMPERS MD-3 AND MD-4 ASSUME A NORMALLY CLOSED POSITION.

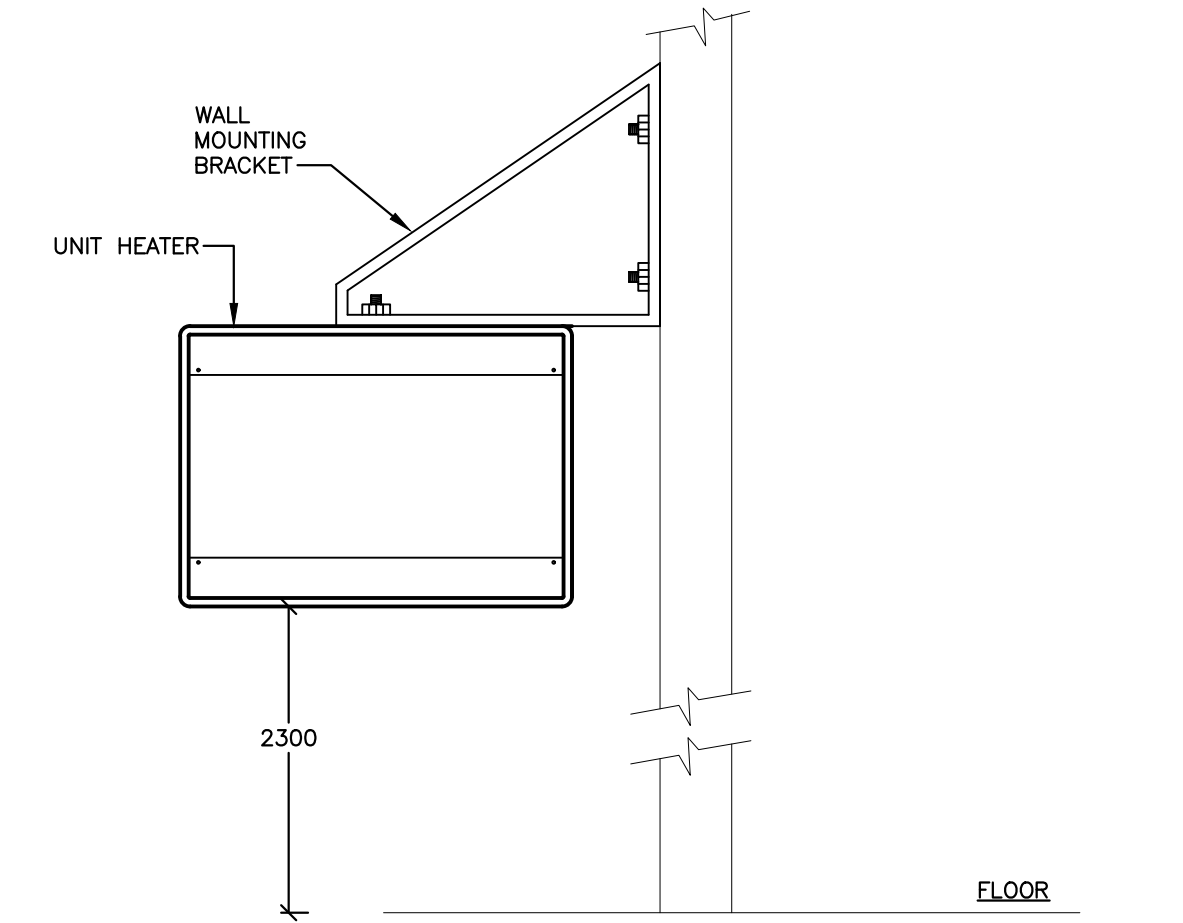
SEQUENCE OF OPERATIONS (HEATING):

EXISTING FILTER BUILDING

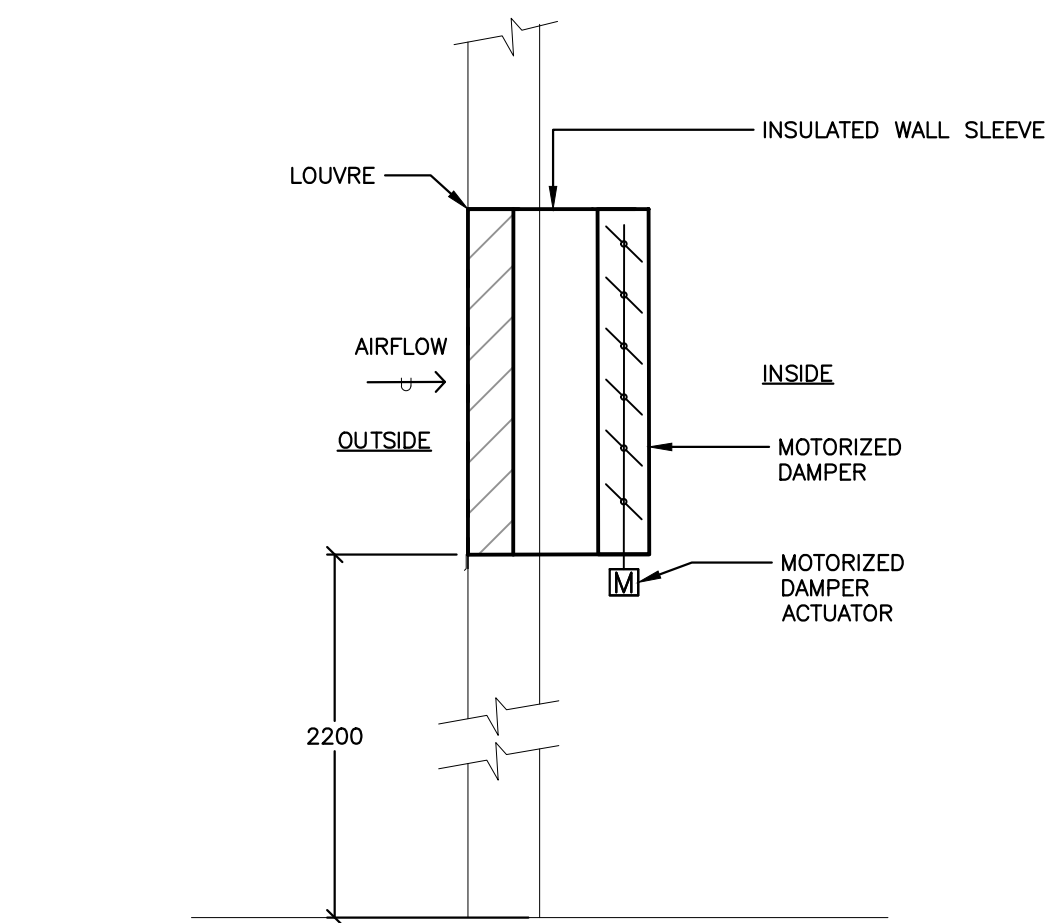
1. ELECTRIC UNIT HEATERS UH-1, UH-2: ELECTRIC UNIT HEATERS SHALL OPERATE FROM THEIR ASSOCIATED THERMOSTATS TO MAINTAIN A TEMPERATURE SET POINT OF 10°C.

PROPOSED FILTER BUILDING

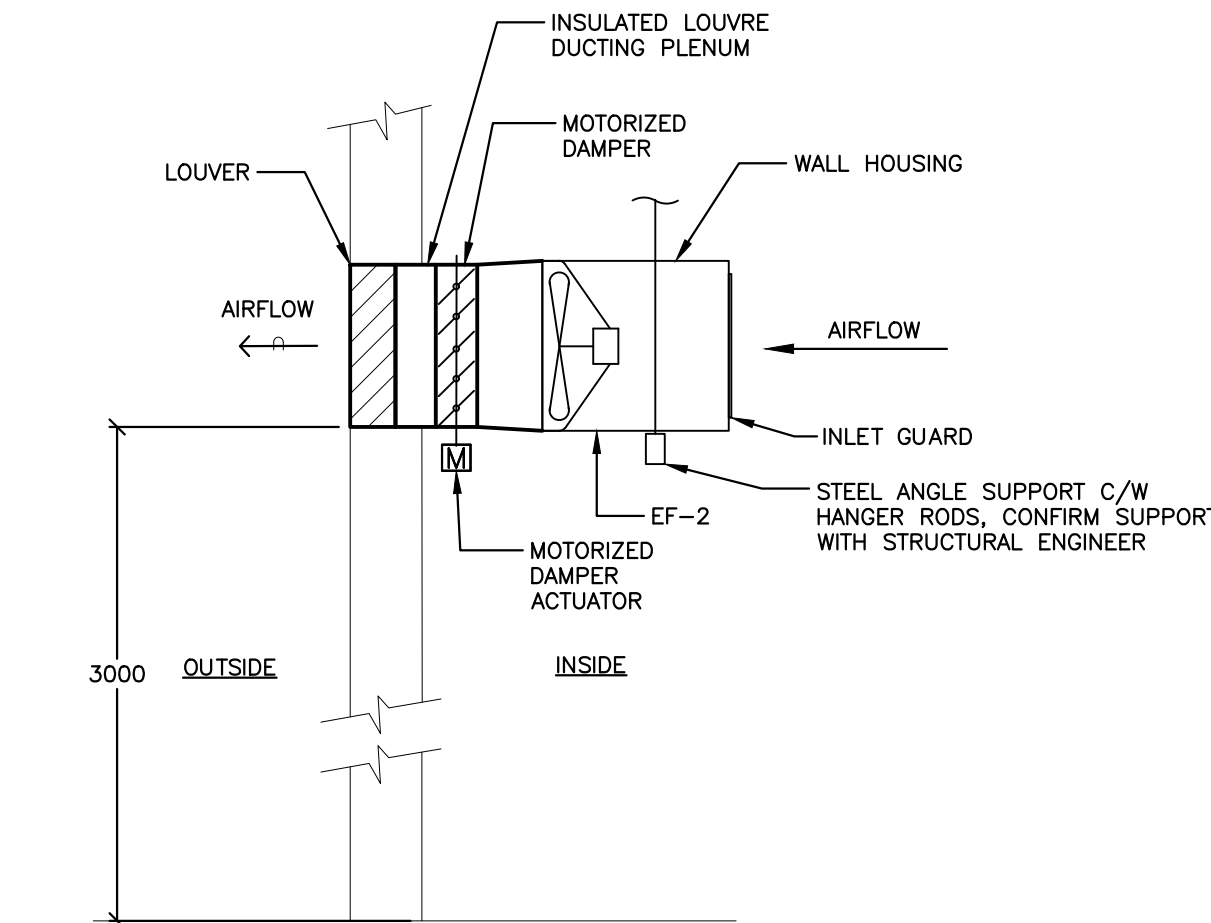
1. ELECTRIC UNIT HEATERS UH-3, UH-4: ELECTRIC UNIT HEATERS SHALL OPERATE FROM THEIR ASSOCIATED THERMOSTATS TO MAINTAIN A TEMPERATURE SET POINT OF 10°C.



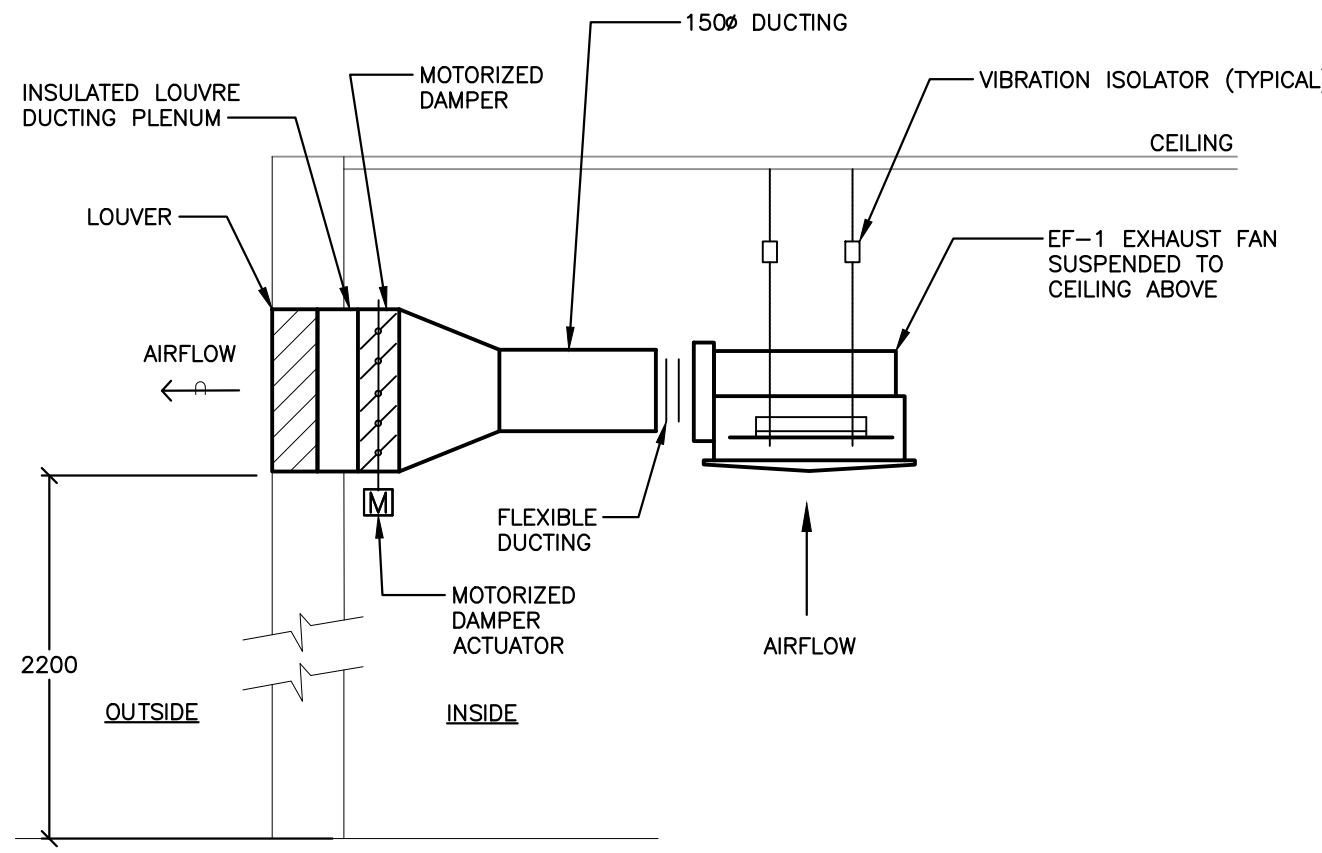
1 TYPICAL UNIT HEATER DETAIL
SCALE: NTS



2 INTAKE LOUVER DETAIL (LV-2, LV-4)
SCALE: NTS



3 EXHAUST FAN DETAIL (EF-2)
SCALE: NTS



4 EXHAUST FAN DETAIL (EF-1)
SCALE: NTS

ELECTRIC HEATER SCHEDULE					
TAG	LOCATION	DESCRIPTION	ELECTRICAL		ACCESSORIES/REMARKS
			V/ø/Hz	kW	
UH-1	EXISTING FILTER BUILDING	UNIT HEATER	600/3/60	4	SURFACE MOUNTED, C/W WALL MOUNTED THERMOSTAT
UH-2	EXISTING FILTER BUILDING	UNIT HEATER	600/3/60	4	SURFACE MOUNTED, C/W WALL MOUNTED THERMOSTAT
UH-3	PROPOSED FILTER BUILDING	UNIT HEATER	600/3/60	4	SURFACE MOUNTED, C/W WALL MOUNTED THERMOSTAT
UH-4	PROPOSED FILTER BUILDING	UNIT HEATER	600/3/60	4	SURFACE MOUNTED, C/W WALL MOUNTED THERMOSTAT
*ELECTRIC HEATERS SUPPLIED AND INSTALLED BY DIVISION 16					

FAN SCHEDULE												
TAG	LOCATION	MAKE	MODEL	DESCRIPTION	ELECTRICAL			RPM	AIR FLOW (CFM)	E.S.P (IN. WG)	WEIGHT (LBS)	ACCESSORIES/REMARKS
					V/ø/Hz	HP	FLA					
EF-1	EXISTING FILTER BUILDING	GREENHECK	SP-B150	CEILING MOUNTED EXHAUST FAN	115/1/60	1/6	1.8	1050	153	0.351	10	C/W ADJUSTABLE EASY INSTALLATION MOUNTING BRACKET
EF-2	PROPOSED FILTER BUILDING	GREENHECK	SBE-1H20-4	SIDEWALL BELT DRIVE EXHAUST FAN	115/1/60	1/4	5.8	667	570	0.218	125	SIDEWALL MOUNTING FAN CONFIGURATION, WALL HOUSING WITH OSHA, C/W INLET GUARD

DAMPER SCHEDULE							
TAG	MAKE	MODEL	DESCRIPTION	VOLTAGE	WIDTH (MM)	HEIGHT (MM)	ACCESSORIES/REMARKS
MD-1	GREENHECK	ICD-45	THERMALLY INSULATED MOTORIZED DAMPER	120	300	300	TWO POSITION 120V ACTUATOR, INSULATED BLADES & FRAME, FRAME AND BLADES TO BE THERMALLY BROKEN
MD-2	GREENHECK	ICD-45	THERMALLY INSULATED MOTORIZED DAMPER	120	300	300	TWO POSITION 120V ACTUATOR, INSULATED BLADES & FRAME, FRAME AND BLADES TO BE THERMALLY BROKEN
MD-3	GREENHECK	ICD-45	THERMALLY INSULATED MOTORIZED DAMPER	120	450	500	TWO POSITION 120V ACTUATOR, INSULATED BLADES & FRAME, FRAME AND BLADES TO BE THERMALLY BROKEN
MD-4	GREENHECK	ICD-45	THERMALLY INSULATED MOTORIZED DAMPER	120	450	500	TWO POSITION 120V ACTUATOR, INSULATED BLADES & FRAME, FRAME AND BLADES TO BE THERMALLY BROKEN

LOUVER SCHEDULE								
TAG	MAKE	LOCATION	DIRECTION	MODEL	DESCRIPTION	WIDTH (MM)	HEIGHT (MM)	ACCESSORIES/REMARKS
LV-1	GREENHECK	EXISTING FILTER BUILDING	EXHAUST	ESD-403	ALL WEATHER STATIONARY LOUVER	300	300	CONFIRM COLOR WITH OWNER, BIRDScreen IN FORMED "U-FRAME" ON INSIDE FACE, ALL FASTENERS TO BE CORROSION PROOF STAINLESS
LV-2	GREENHECK	EXISTING FILTER BUILDING	INTAKE	ESD-403	ALL WEATHER STATIONARY LOUVER	300	300	CONFIRM COLOR WITH OWNER, BIRDScreen IN FORMED "U-FRAME" ON INSIDE FACE, ALL FASTENERS TO BE CORROSION PROOF STAINLESS
LV-3	GREENHECK	PROPOSED FILTER BUILDING	EXHAUST	ESD-403	ALL WEATHER STATIONARY LOUVER	450	500	CONFIRM COLOR WITH OWNER, BIRDScreen IN FORMED "U-FRAME" ON INSIDE FACE, ALL FASTENERS TO BE CORROSION PROOF STAINLESS
LV-4	GREENHECK	PROPOSED FILTER BUILDING	INTAKE	ESD-403	ALL WEATHER STATIONARY LOUVER	450	500	CONFIRM COLOR WITH OWNER, BIRDScreen IN FORMED "U-FRAME" ON INSIDE FACE, ALL FASTENERS TO BE CORROSION PROOF STAINLESS

PLUMBING EQUIPMENT SCHEDULE					
TAG	FIXTURE	PIPE SIZE (mm)		DESCRIPTION	ACCESSORIES/REMARKS
		DRAIN	VENT		
FD-1	FLOOR DRAIN	75ø	38ø	WATTS, FD-100-C, CAST IRON BODY, EPOXY COATED, VANDAL PROOF, 5" NICKEL BRONZE STRAINER	FOR TRAP, USE JONES STEPHENS 4" FLOOR DRAIN TRAP SEAL P26002 OR APPROVED EQUIVALENT



Design By: RS Checked By: KL

Professional Engineers Ontario
October 28, 2025
Name: K. J. LAUGHTON
Number: 100562766
Limitations: Design of HVAC systems and plumbing systems for domestic water, sanitary and stormwater collection, includes calculations for heat gain and loss, and sizing of equipment, ductwork and piping.
Association of Professional Engineers of Ontario

No.	DATE	REVISION
1	Oct. 1, 2025	Issued For Client Review
2	Oct. 28, 2025	Issued For Tender

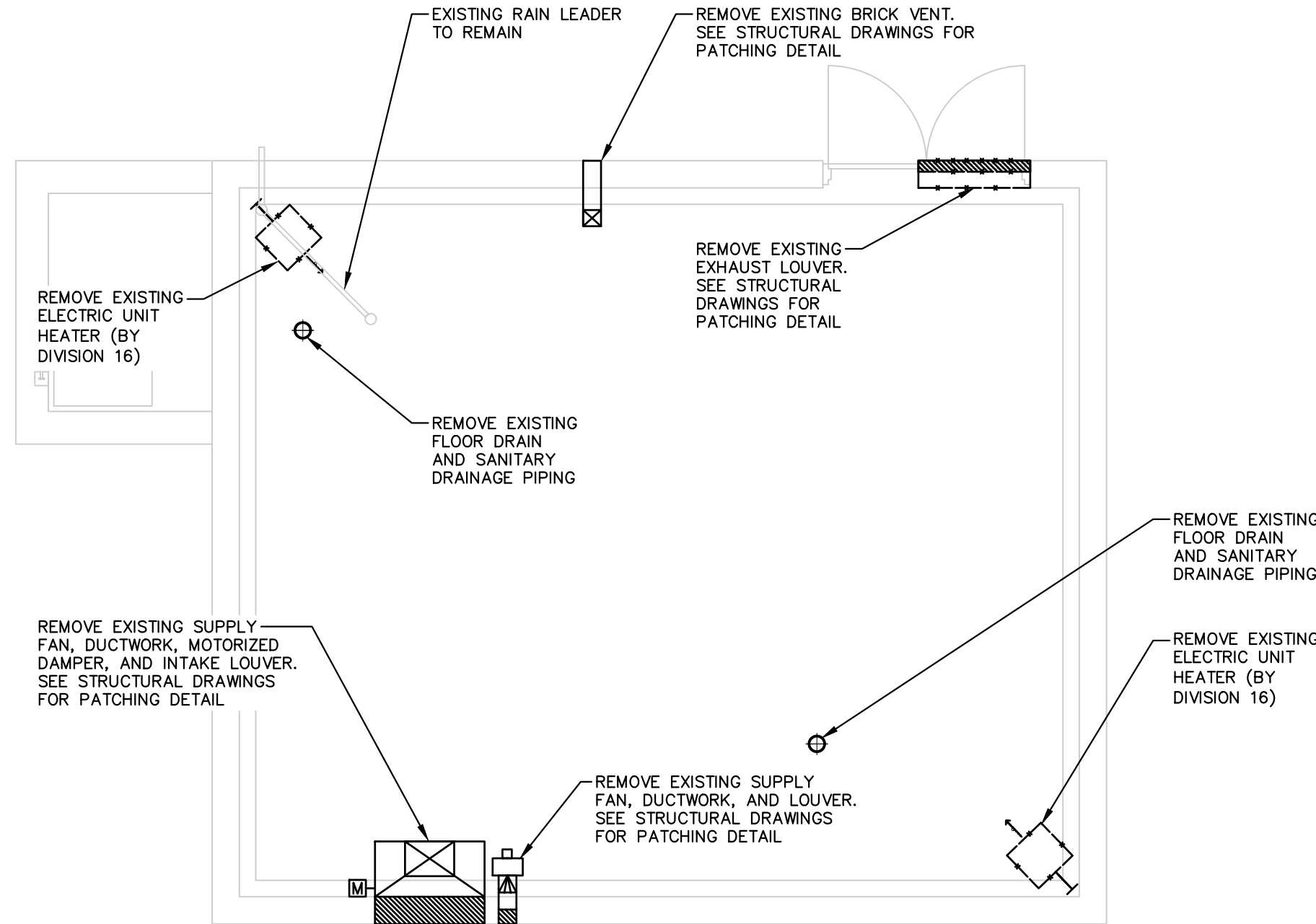


Goderich Kincardine Mount Forest Sarnia

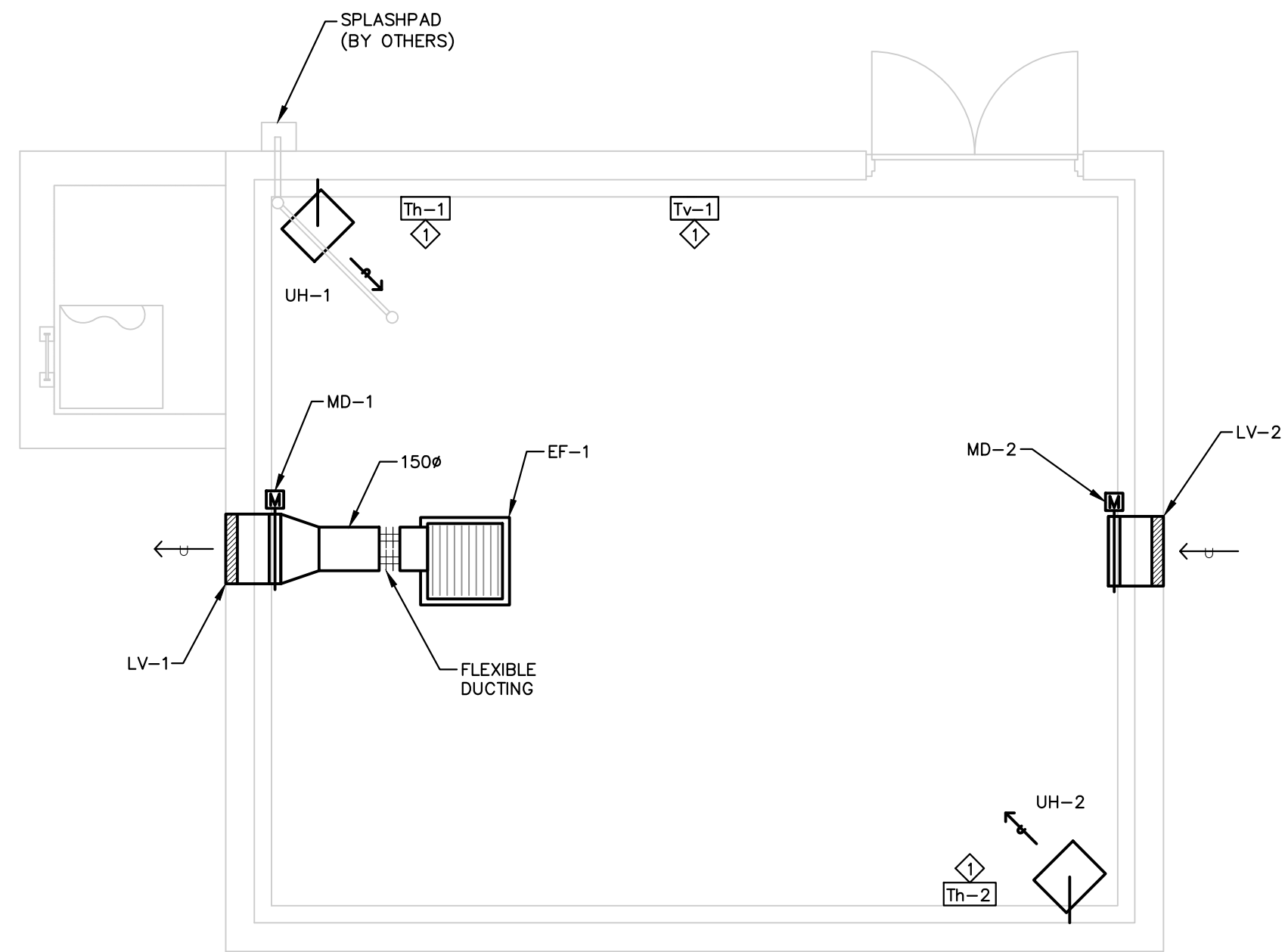


Township of North Huron
Blyth WWTP Upgrade
Legend, Schedules, and Details

Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. M6



1
M7
EXISTING FILTER BUILDING HVAC AND PLUMBING LAYOUT (DEMOLITION)
SCALE: 1:50



2
M7
EXISTING FILTER BUILDING HVAC LAYOUT (INSTALLATIONS)
SCALE: 1:50

NOTES:
◇ THERMOSTAT AND CONTROL WIRING SUPPLIED AND INSTALLED BY DIVISION 16.



Design By: RS Checked By: KL

Professional Engineers
Ontario
October 28, 2025
Licensed Engineering Technologist
Name: K. J. LAUGHTON
Number: 100562766
Limitations: Design of HVAC systems and plumbing systems for domestic water, sanitary and stormwater collection, includes calculations for heat gain and loss, and sizing of equipment, ductwork and piping.
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Goderich Kincardine Mount Forest Sarnia

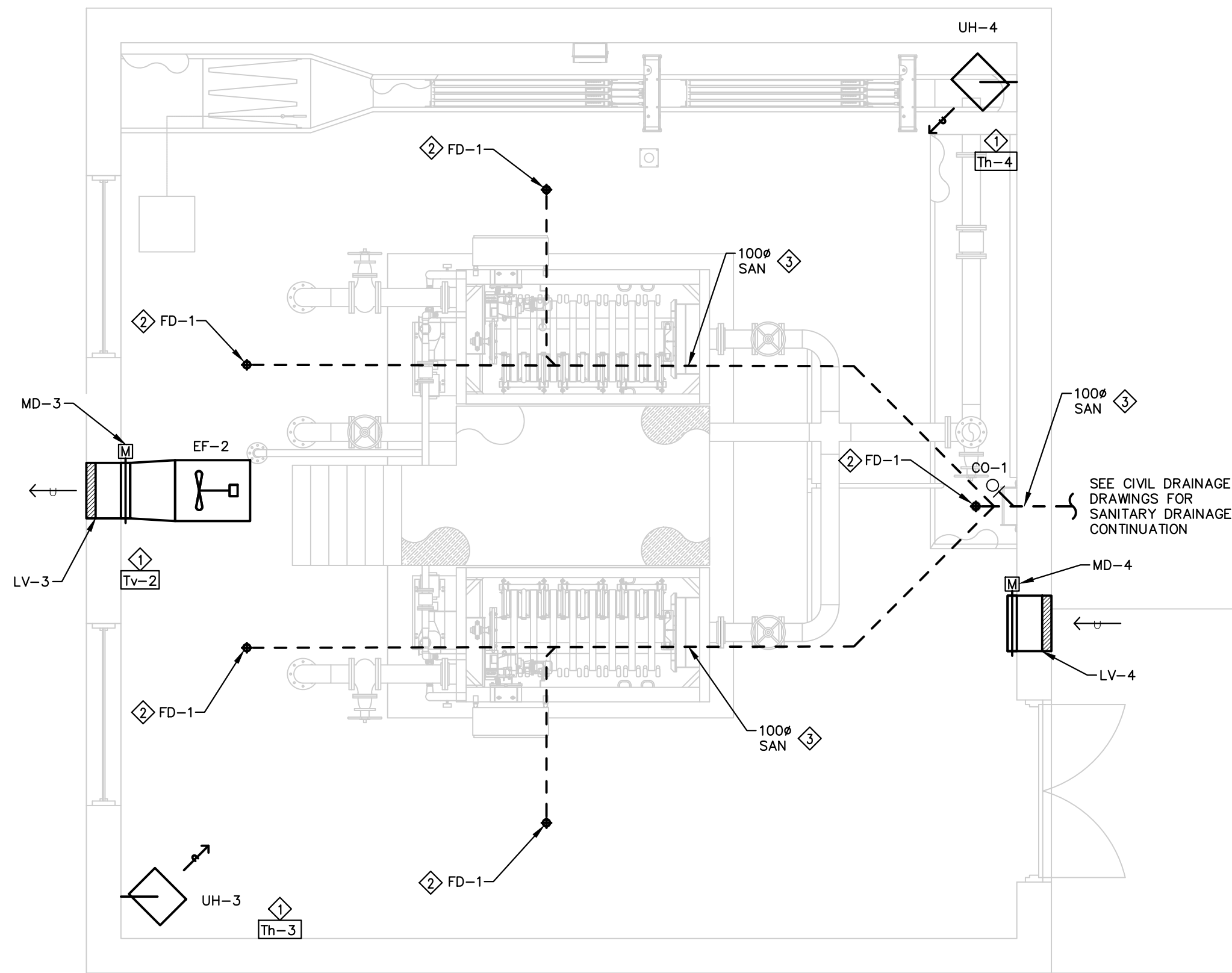


**Township of
North Huron**

Blyth WWTP Upgrade
Existing Filter Building Removals
and New HVAC Installations

Contract No.
1 Project No.
20093

Scale (24x36)
AS SHOWN Drawing No.
M7



1 MB PROPOSED FILTER BUILDING LAYOUT
SCALE: 1:50

- NOTES:
- ◇ THERMOSTAT AND CONTROL WIRING SUPPLIED AND INSTALLED BY DIVISION 16.
 - ◇ TRAP NOT USED ON FLOOR DRAIN, REFER TO MECHANICAL PLUMBING SCHEDULE FOR TRAP SEAL MODEL.
 - ◇ COORDINATE SANITARY DRAINAGE WITH ELECTRICAL CONDUIT AND DUCT ROUTING PRIOR TO INSTALLATION. VERIFY ELEVATIONS TO AVOID INTERFERENCE.



Design By: RS Checked By: KL

Professional Engineers
Ontario
October 28, 2025
Licensed Engineering Technologist
Name: K. J. LAUGHTON
Number: 100562766
Limitations: Design of HVAC systems and plumbing systems for domestic water, sanitary and stormwater collection, includes calculations for heat gain and loss, and sizing of equipment, ductwork and piping.
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Goderich Kincardine Mount Forest Sarnia



**Township of
North Huron**
Blyth WWTP Upgrade
Proposed Filter Building
HVAC and Plumbing Installations

Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. M8

SINGLE LINE SYMBOLS AND CONTROL DIAGRAMS	
SYMBOL	DESCRIPTION
	CIRCUIT BREAKER, MOULDED CASE WITH THERMAL & MAGNETIC TRIPS
	MOTOR CIRCUIT PROTECTOR (MCP) STYLE BREAKER, WITH MAGNETIC TRIPS ONLY
	NEMA SIZE 1 STARTER WITH THERMAL OVERLOAD TRIP
	VARIABLE FREQUENCY DRIVE, C/W LINE REACTOR, LOAD REACTOR AND CONTROL POWER TRANSFORMER
	CURRENT TRANSFORMER
	CAPACITOR
	CONTROL POWER TRANSFORMER (CPT)
	FUSE
	FUSIBLE DISCONNECT SWITCH
	NON-FUSIBLE DISCONNECT SWITCH
	DRY-TYPE POWER TRANSFORMER (INDOOR)
	OIL-FILLED POWER TRANSFORMER (OUTDOOR)
	SEAL (EYS) FITTING C/W CHICO POWDER
	MOTOR STARTER (MS) COIL, WITH COIL SUPPRESSOR
	PILOT LIGHT, WHERE "X" INDICATES LENS COLOR: R=RED, W=WHITE, G=GREEN
	PUSH TO TEST STYLE PILOT LIGHT
	ELAPSE TIME METER, IN HOURS CONTROL RELAY (# DENOTES RELAY NUMBER)
	TERMINAL BLOCK
	SOLENOID VALVE
	CONTACT, N.O. AND N.C.
	TEMPERATURE SWITCH, N.O AND N.C.
	LIMIT OR POSITION SWITCH, N.O AND N.C.
	PRESSURE SWITCH, N.O AND N.C.
	LEVEL OR FLOAT SWITCH, N.O AND N.C.
	TORQUE SWITCH, N.O AND N.C.
	PUSHBUTTON DEVICE, N.O AND N.C.
	SELECTOR SWITCH, 2-POSITION & 3-POSITION

DEVICE LOCATIONS	
	DEVICE LOCATED IN CONTROL BUILDING
	DEVICE LOCATED IN FIELD
	DEVICE LOCATED IN FILTER & UV BUILDING
	DEVICE LOCATED IN INLET WORKS BUILDING
	DEVICE LOCATED IN SAND FILTER (STORAGE) BUILDING
DRAWING INDEX – ELECTRICAL	
E1.1	LEGEND AND DUCTBANK DETAILS
E1.2	SITE PLAN
E1.3	CONTROL BUILDING DETAILS
E2.1	SINGLE LINE DIAGRAM AND MCC ARRANGEMENTS
E2.2	POWER PANELS, LIGHTING PANELS AND MISC. DETAILS
E2.3	UNIT HEATER AND EXHAUST FAN DETAILS
E2.4	EFFLUENT FILTER SYSTEM DETAILS
E2.5	UV SYSTEM DETAILS
E3.1	INSTRUMENTATION LOOP DIAGRAMS AND UPS PANEL DETAILS
E4.1	SAND FILTER BUILDING – EXISTING CONDITIONS
E4.2	SAND FILTER (STORAGE) BUILDING – PROPOSED CONDITIONS
E4.3	NEW FILTER AND UV BUILDING – PROPOSED CONDITIONS
E4.4	EXISTING INLET WORKS BUILDING – PROPOSED CONDITIONS

LIGHTING AND POWER ELECTRICAL SYMBOLS	
SYMBOL	DESCRIPTION
	1'x4' FLUORESCENT LUMINAIRE. "X" DENOTES LUMINAIRE TYPE (REFER TO LUMINAIRE SCHEDULE).
	2'x4' FLUORESCENT LUMINAIRE. "X" DENOTES LUMINAIRE TYPE (REFER TO LUMINAIRE SCHEDULE)
	CEILING MOUNTED LUMINAIRE – "X" DENOTES TYPE
	WALL MOUNTED LUMINAIRE – "X" DENOTES TYPE
	EXIT LIGHT – "X" DENOTES TYPE
	LIGHT SWITCH C/W BACK BOX: – "S" INDICATES 2-WIRE SWITCH – "S3" INDICATES 3-WIRE SWITCH – "S4" INDICATES 4-WIRE SWITCH – "D" INDICATES DIMMER (SIZE TO SUIT) – "T" INDICATES MANUAL TIMER – "M" INDICATES MOTION DETECTOR
	EMERGENCY REMOTE HEADS
	EMERGENCY BATTERY UNIT WITH REMOTE HEADS AND CHARGER (BU#)
	EXPLOSION PROOF – CLASS 1 DIV. 1&2
	ELECTRICAL PANEL/ENCLOSURE
	DUPLEX RECEPTACLE
	SINGLE RECEPTACLE
	GFI TYPE DUPLEX RECEPTACLE
	SPLIT DUPLEX RECEPTACLE
	DRYER RECEPTACLE
	WELDING RECEPTACLE
	SINGLE PHASE MOTOR
	THREE PHASE MOTOR
	SINGLE PHASE MANUAL STARTER SWITCH WITH LOCK-OFF AND PILOT LIGHT
	MANUAL STARTER SWITCH C/W PILOT LIGHT AND HAND/OFF/AUTO SELECTOR SWITCH
	CONTROL STATION OR PANEL
	DISCONNECT SWITCH, UN-FUSED, # DENOTES NUMBER OF POLES
	UNAUTHORIZED ENTRY KEYPAD UNIT
	MAGNETIC REED DOOR SWITCH
	MOTION SENSOR
	SMOKE DETECTOR
	TELEPHONE OUTLET
	JUNCTION BOX
	THERMOSTAT (VENTILATION)
	THERMOSTAT

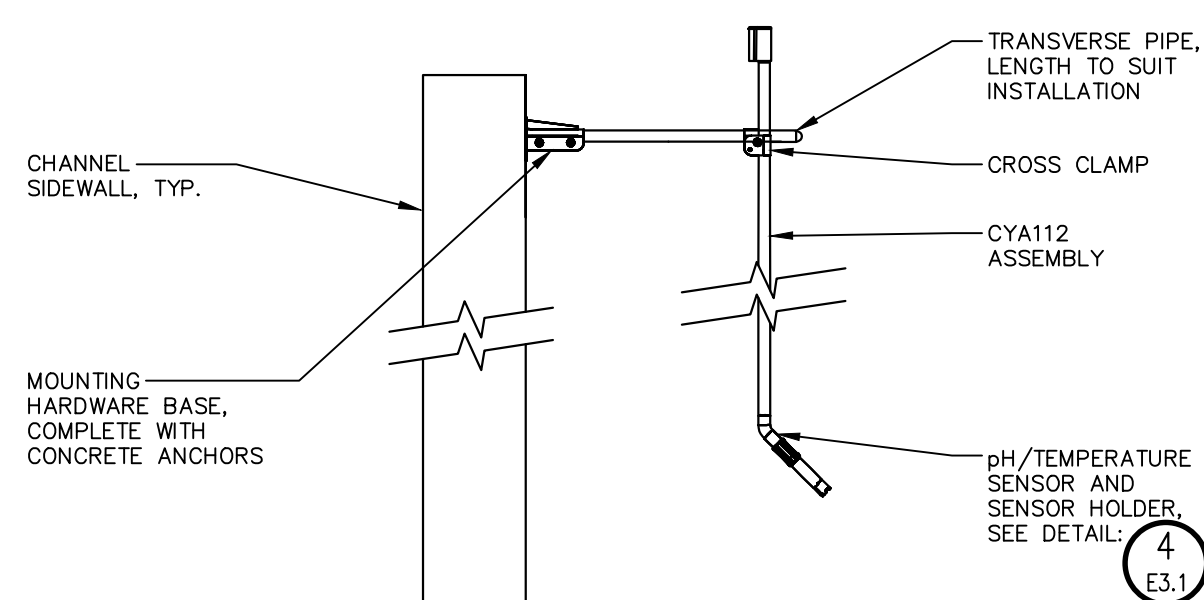
GENERAL SYMBOLS	
	DETAIL SYMBOL: X = DETAIL NUMBER YZ = DRAWING NUMBER
	EQUIPMENT SUPPLIED BY ANOTHER DIVISION, INSTALLATION, WIRING AND CONDUIT BY DIVISION 16
	EXISTING OR RELOCATED EQUIPMENT, NEW WIRING AND CONDUIT BY DIVISION 16
	SYMBOL INDICATES A DEVICE LOCATION, SEE BELOW (# DENOTES LOCATION NUMBER)
	SYMBOL INDICATES MODIFICATION OR NEW WORK NOTE (# DENOTES NOTE NUMBER)

MASTER ELECTRICAL LEGEND

ALL SYMBOLS/DEVICES/ABBREVIATIONS LISTED MAY NOT APPLY

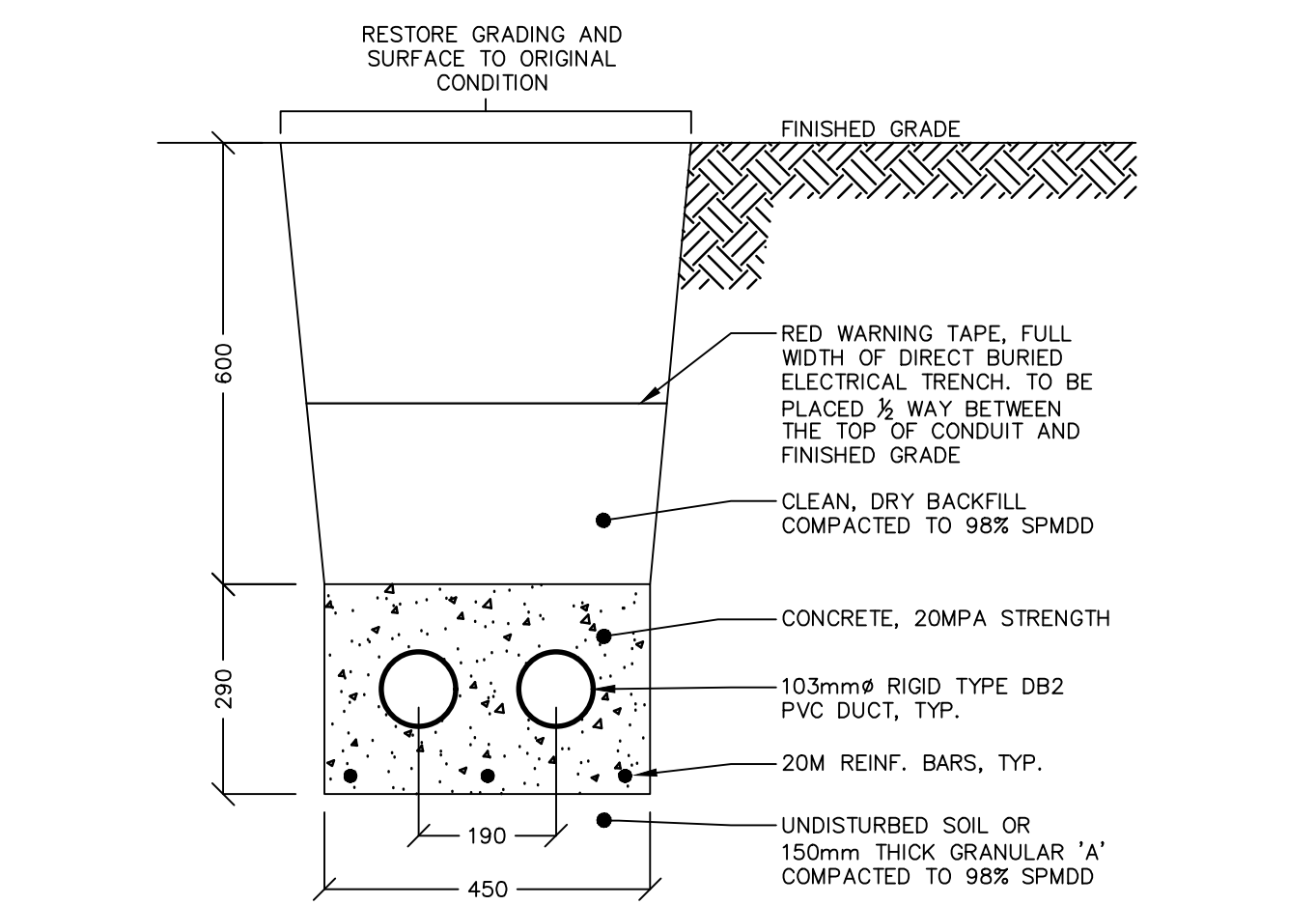
CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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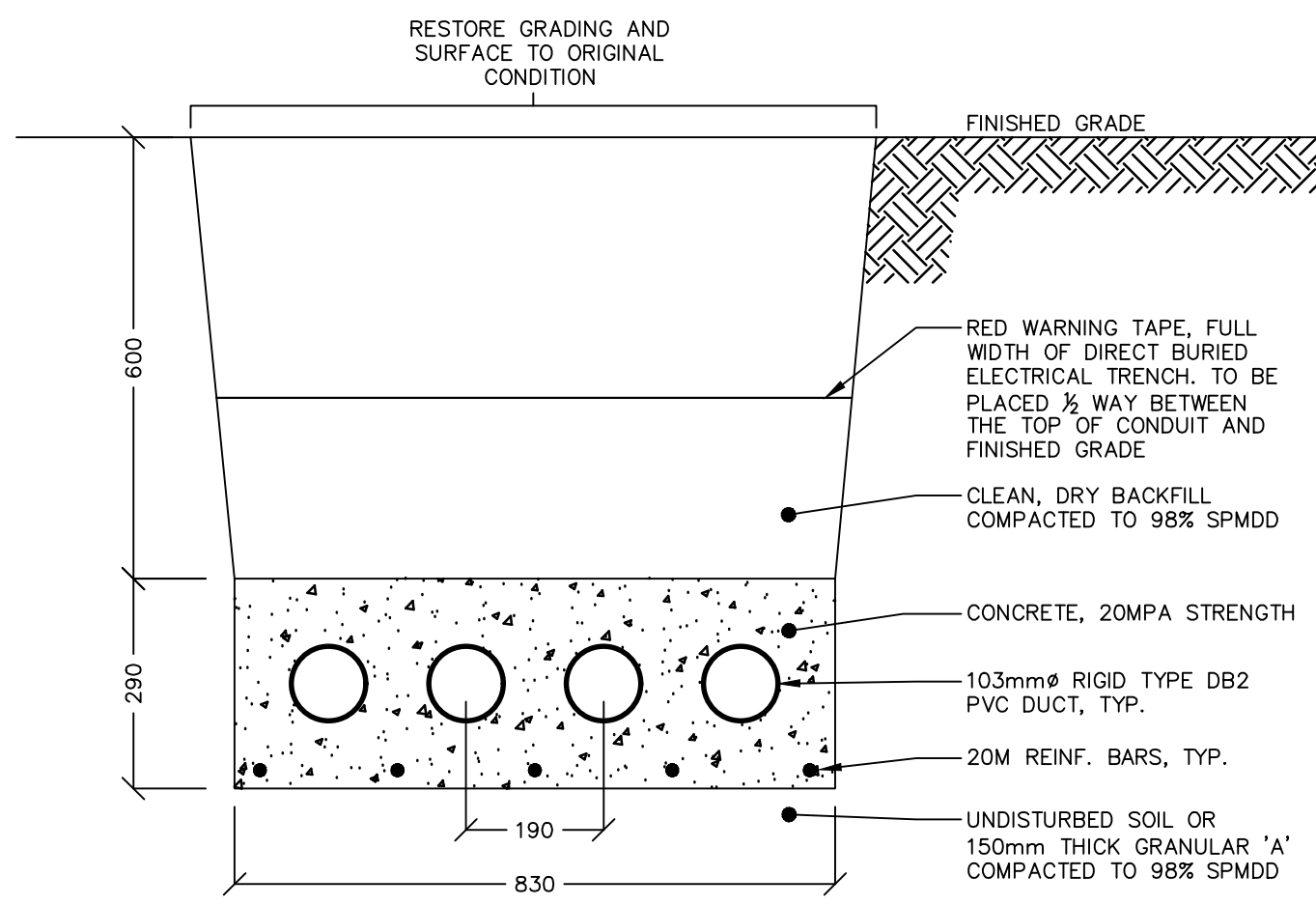


6 pH/TEMPERATURE SENSOR INSTALLATION DETAIL
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)

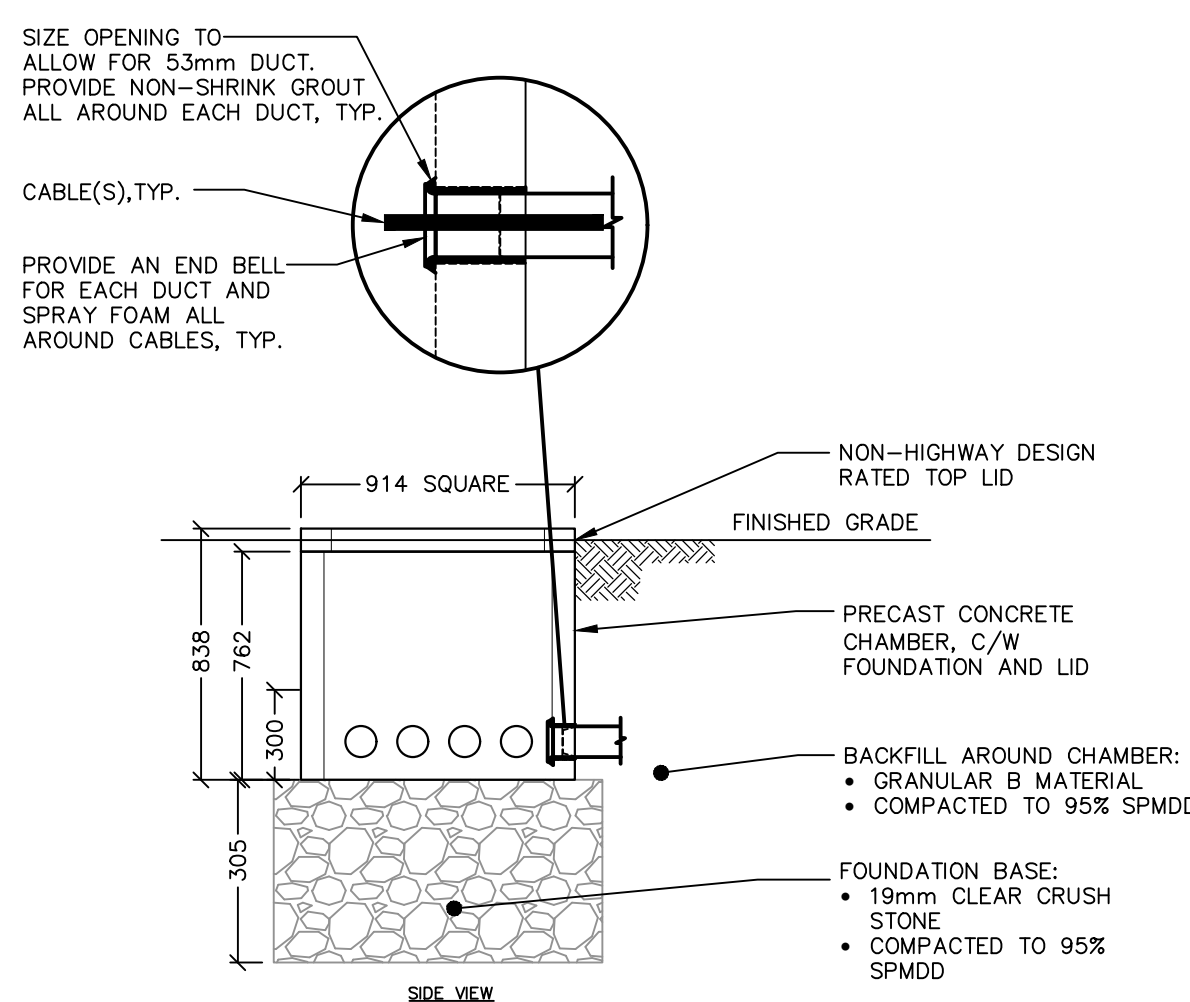
STANDARD ABBREVIATIONS – ELECTRICAL	
ABBREVIATION	DESCRIPTION
A	AMPERES (CONTINUOUS)
AC	ALTERNATING CURRENT
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BU	BATTERY UNIT (EMERGENCY)
°C	DEGREE CELSIUS
C	CONDUCTOR
C/O	CIRCUIT
CH	COUNTER HEIGHT
CL	CENTERLINE
C/W	COMPLETE WITH
CPT	CONTROL POWER TRANSFORMER
CSA	CANADIAN STANDARDS ASSOCIATION
CSI	CONTROLS SYSTEM INTEGRATOR
CT	CURRENT TRANSFORMER
Cu	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EEMAC	ELECTRICAL AND ELECTRONIC MANUFACTURERS ASSOCIATION OF CANADA
EP	EXPLOSION PROOF (SUITABLE FOR CLASS I, ZONE 1)
ETM	ELAPSED TIME METER
ESA	ELECTRICAL SAFETY AUTHORITY
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
Hz	HERTZ
IEEE	INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERS
INST	INSTANTANEOUS
I/O	INPUT/OUTPUT
ISB	INTRINSIC SAFETY BARRIER
JB	JUNCTION BOX
KAIC	KILO-AMP INTERRUPTING CAPACITY
kVA	KILOVOLTAMPERE
kW	KILOWATT
kWh	KILOWATT HOUR
LOR	LOCAL-OFF-REMOTE
LUC	LOCAL UTILITY COMPANY
MAN	MANUAL
MCC	MOTOR CONTROL CENTRE
MH	MANHOLE
mm	MILLIMETER
MOT	MOTOR
N	NEUTRAL
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N/A	NON AUTOMATIC
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
NP	NAMEPLATE
NTS	NOT TO SCALE
OESC	ONTARIO ELECTRICAL SAFETY CODE
O/H	OVERHEAD
O/L	OVERLOAD
OD	ON-OFF
PB	PUSHBUTTON
PDC	POWER DISTRIBUTION CENTRE
PH, OR Ø	PHASE OR DIAMETER
PLC	PROGRAMMABLE LOGIC CONTROLLER
REM	REMOTE
RGS	RIGID GALVANIZED STEEL
RPVC	RIGID PVC CONDUIT
SN	SOLID NEUTRAL
SPDT	SINGLE POLE DOUBLE THROW
SPMD	STANDARD PROCTOR MAXIMUM DRY DENSITY
SPST	SINGLE POLE SINGLE THROW
SW	SWITCH
SYM	SYMMETRICAL
TDC	TIME DELAY ON CLOSING
TDDO	TIME DELAY ON DROP-OUT (OR OFF TIMER)
TDO	TIME DELAY ON OPENING
TDPU	TIME DELAY ON PICK-UP
TYP.	TYPICAL
U/G	UNDERGROUND
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
316SS	316 STAINLESS STEEL



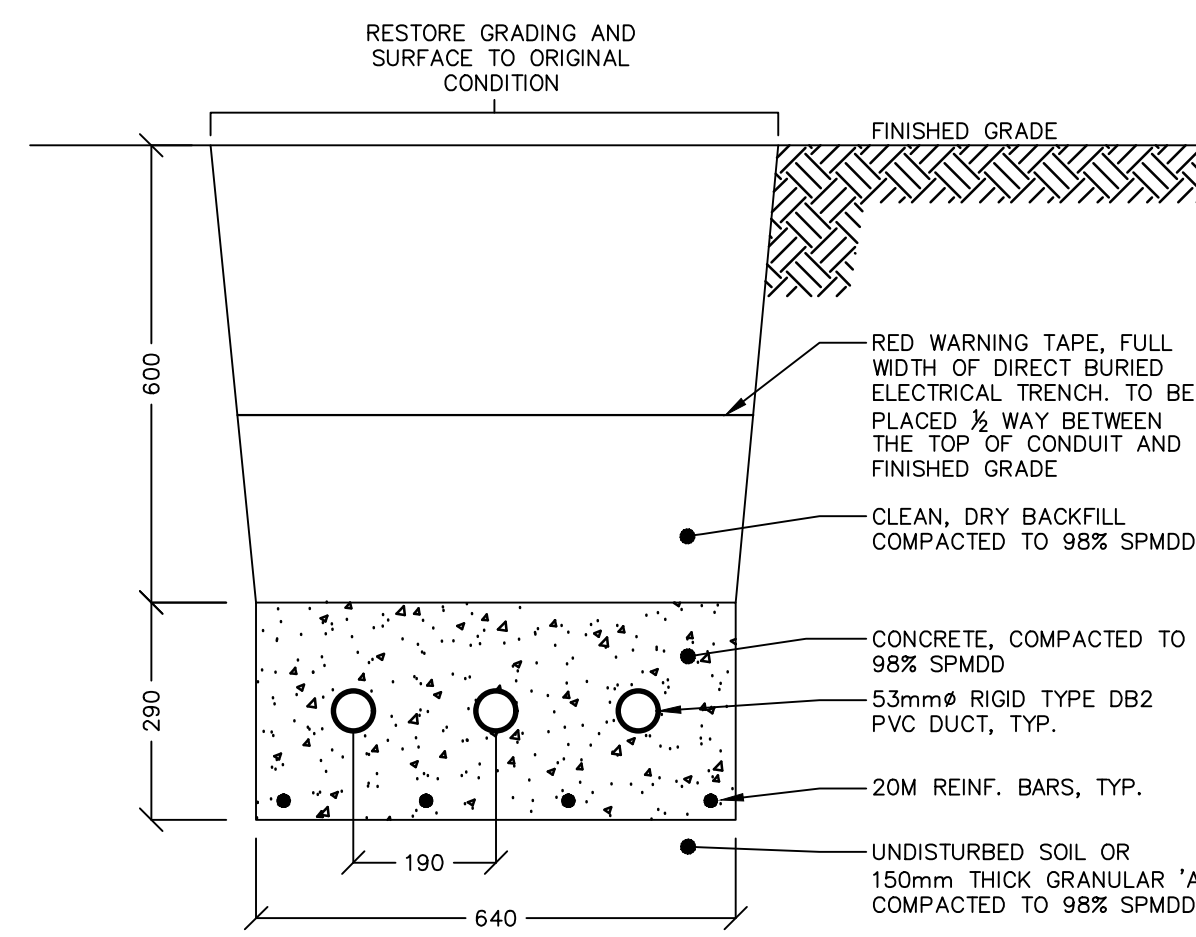
1 UNDERGROUND DUCTBANK – 1X2
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)



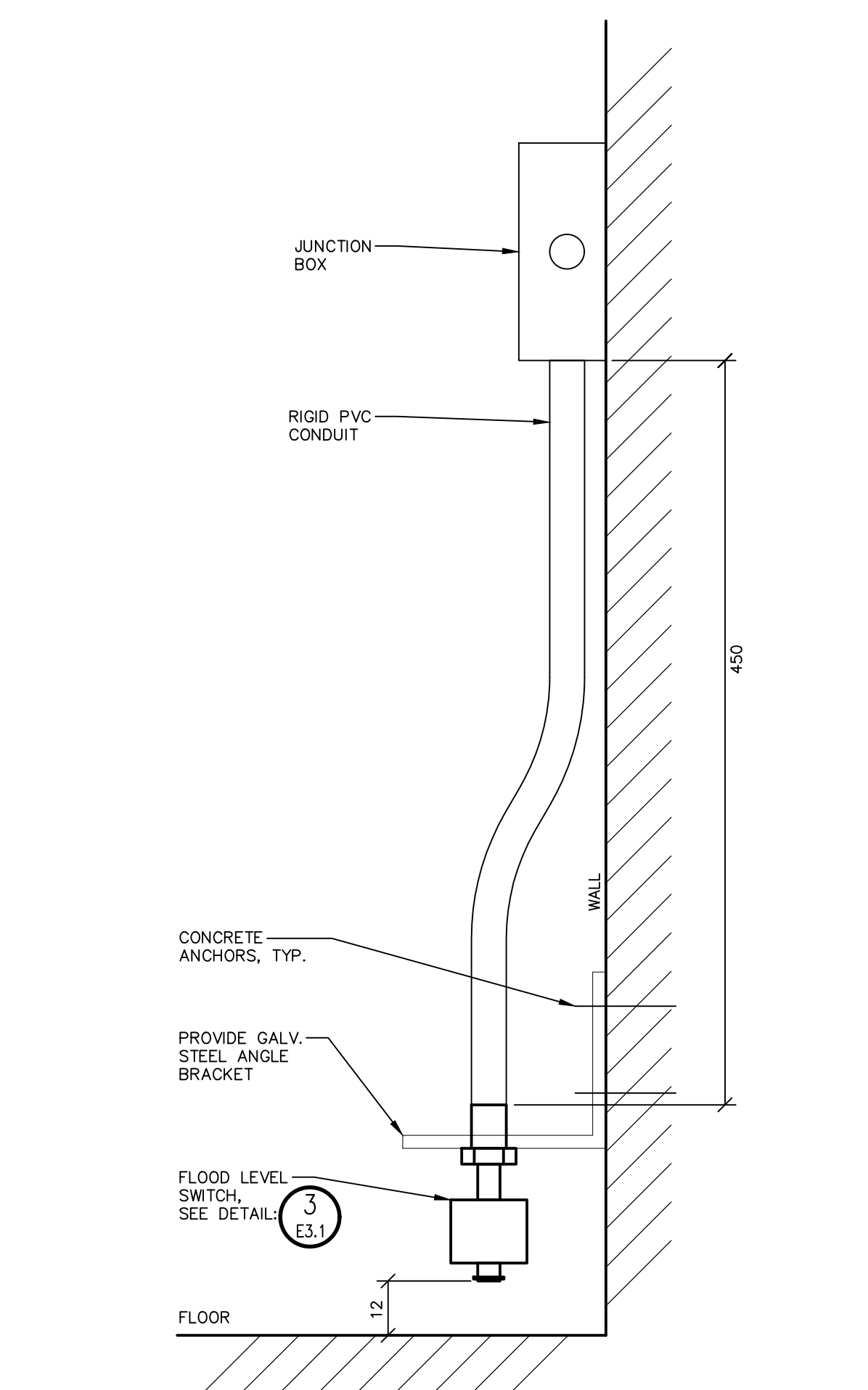
3 UNDERGROUND DUCTBANK – 1X4
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)



4 CABLE PULLING CHAMBER
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)



2 UNDERGROUND DUCTBANK – 1X3
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)



5 FLOOD SWITCH INSTALLATION DETAIL
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)

NOTES:

- 1. DUCTBANK NOTES:
 - DIMENSIONS SHOWN IN mm.
 - ALL DUCTS ARE 103mm Ø TYPE PVC DB2, UNLESS OTHERWISE NOTED.
 - FOR 78mm Ø DUCTS AND LARGER, PROVIDE 915mm "LONG SWEEP" UTILITY ELBOWS FOR ALL BENDS: 90°, 45°, AND 22.5° BENDS.
 - FOR 53mm Ø DUCTS, PROVIDE 610mm "LONG SWEEP" UTILITY ELBOWS FOR ALL BENDS: 90°, 45°, AND 22.5° BENDS.
 - PROVIDE FISH ROPE IN EACH SPARE DUCT.
 - FOR CONCRETE DUCTBANKS, INSTALL SPACERS EVERY 1524mm TO ASSEMBLE DUCTS. OFFSET OR STAGGER SPACERS.
 - GLUE ALL PVC JOINTS.
 - PROVIDE END-BELLS WHEN FINISHING DUCTS IN VAULTS, CHAMBERS OR WALLS.



Design By: DR Checked By: GGR



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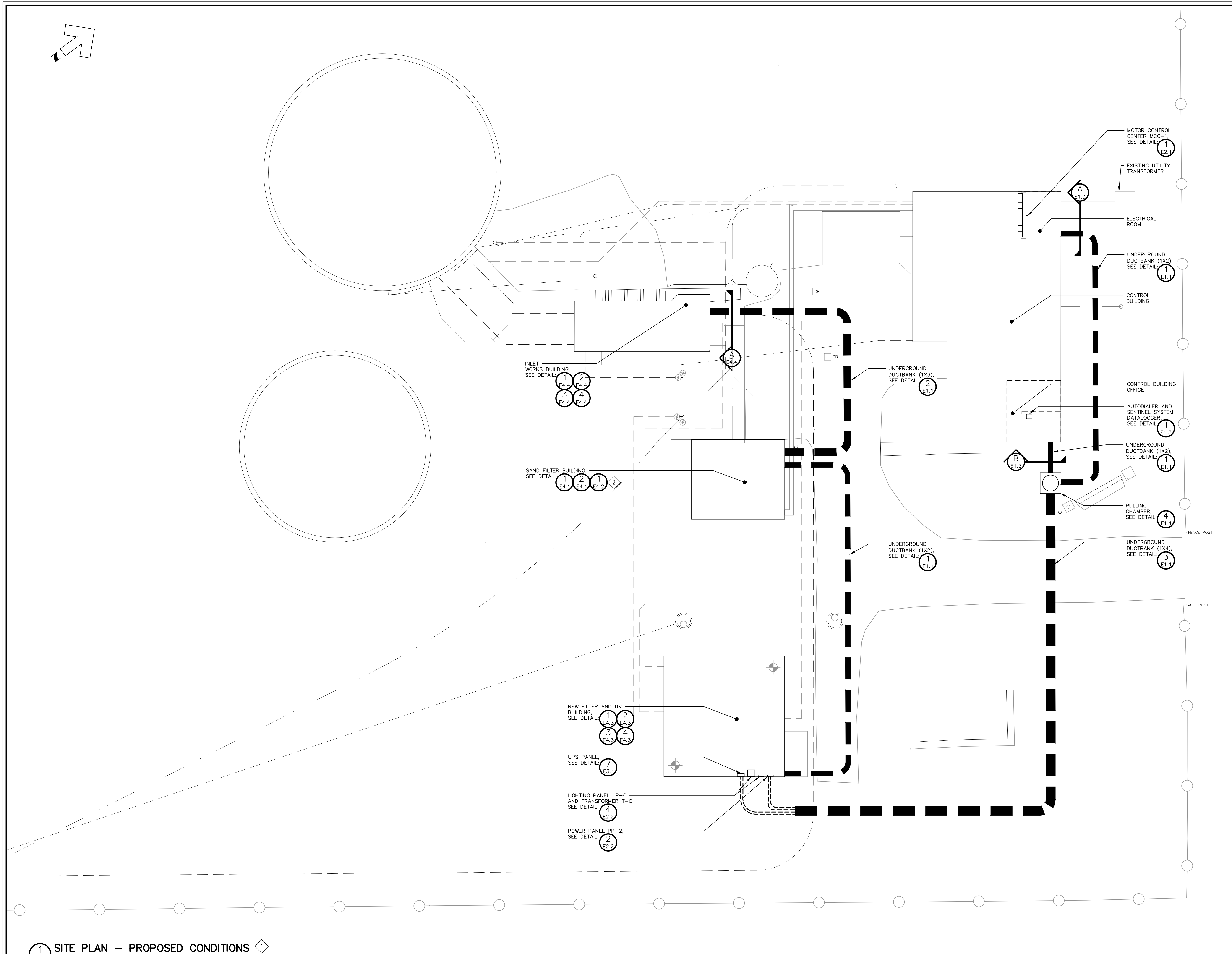


Goderich Kincardine Mount Forest Sarnia



Township of North Huron
Blyth WWTP Upgrade
Legend and Ductbank Details

Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. E1.1



1 SITE PLAN – PROPOSED CONDITIONS

E1.2 • 1:150

NOTES:

- CONTRACT DRAWINGS DO NOT PORTRAY THE LOCATION OF ALL EXISTING UNDERGROUND SERVICES. PRIOR TO PERFORMING ANY TRENCHING OR DIGGING WORK, CONTRACTOR IS REQUIRED TO CONTACT ALL LOCAL UTILITIES AND REQUEST A STAKING OR MARKING OF ALL SEWERS, WATERMAINS, GAS MAINS, AND ALL TYPES OF CABLES AND CONDUITS. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE TO PAY FOR DAMAGES OR DISTURBANCES CAUSED TO ANY EXISTING UTILITY.
- EXISTING FILTER BUILDING TO BE CONVERTED TO STORAGE BUILDING FOLLOWING COMMISSIONING OF NEW FILTER AND UV BUILDING. ALL EXISTING EQUIPMENT, CONDUIT, AND WIRING TO BE REMOVED, REFER TO CONTRACT DRAWINGS FOR ADDITIONAL INFORMATION.



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Goderich Kincardine Mount Forest Sarnia



Township of
North Huron
Blyth WWTP Upgrade
Site Plan

Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. E1.2



CONDUITS TO
DIALER/DATALOGGER
TO BE ROUTED IN
OFFICE CEILING SPACE
ABOVE T-BAR

EXISTING
DIALER/DATALOGGER
EQUIPMENT



EXISTING SENTINEL
SYSTEM DATALOGGER,
SEE DETAIL:

EXISTING SENSAPHONE
DIALER,
SEE DETAIL:

1 EXISTING CONTROL BUILDING OFFICE – DIALER AND DATALOGGER LOCATION
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)



CORE DRILL HOLES
THROUGH WALLS
FOR ALL CONDUIT

"LB" FITTING, TYP.

CHANNEL SUPPORT
COMPLETE WITH
CONDUIT CLAMPS, TYP.

EXPANSION JOINT, TYP.

UNDERGROUND
DUCTBANK TO PULLING
CHAMBER,
SEE DETAIL:

A EXISTING CONTROL BUILDING EXTERIOR – NORTH WALL
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)
• PROPOSED DETAIL IS CONCEPTUAL, FINAL ARRANGEMENT OF CONDUITS TO BE REVIEWED WITH ENGINEER DURING CONSTRUCTION



CORE DRILL HOLES
THROUGH WALLS
FOR ALL CONDUIT

"LB" FITTING, TYP.

CHANNEL SUPPORT
COMPLETE WITH
CONDUIT CLAMPS, TYP.

EXPANSION JOINT, TYP.

UNDERGROUND
DUCTBANK TO
PULLING CHAMBER,
SEE DETAIL:

B EXISTING CONTROL BUILDING EXTERIOR – EAST WALL
• NTS, DIMENSIONS SHOWN IN MILLIMETRES (mm)
• PROPOSED DETAIL IS CONCEPTUAL, FINAL ARRANGEMENT OF CONDUITS TO BE REVIEWED WITH ENGINEER DURING CONSTRUCTION

NOTES:

- COORDINATE DUCTBANK STUB-UP AND WALL PENETRATION TO ELECTRICAL ROOM AND OFFICE WITH EXISTING INTERFERENCES WITHIN EACH ROOM.
- EXISTING DIALER IS A SENSAPHONE 400. DIALER TO BE REPLACED WITH A SENSAPHONE 800. EXISTING DIALER TO BE RETURNED TO TOWNSHIP.
- EXISTING SENTINEL SYSTEM IS USED FOR DATALOGGING OF ANALOG SIGNALS FROM FIELD EQUIPMENT. EXISTING pH/TEMPERATURE EQUIPMENT TO BE REMOVED WITH DECOMMISSIONING OF EXISTING SAND FILTER BUILDING. NEW SENSOR TO BE INSTALLED IN THE NEW FILTER AND UV BUILDING AND CONNECTED TO THE SENTINEL SENSAPHONE. COORDINATE REMOVAL OF EXISTING AND INSTALLATION AND CONNECTION OF NEW SENSOR WITH TOWNSHIP AND ENGINEER.

TATHAM
ENGINEERING

Design By: DR Checked By: GGR



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Goderich Kincardine Mount Forest Sarnia



**Township of
North Huron**
Blyth WWTP Upgrade
Control Building Details

Contract No.
1

Project No.
20093

Scale (24x36)
AS SHOWN

Drawing No.
E1.3

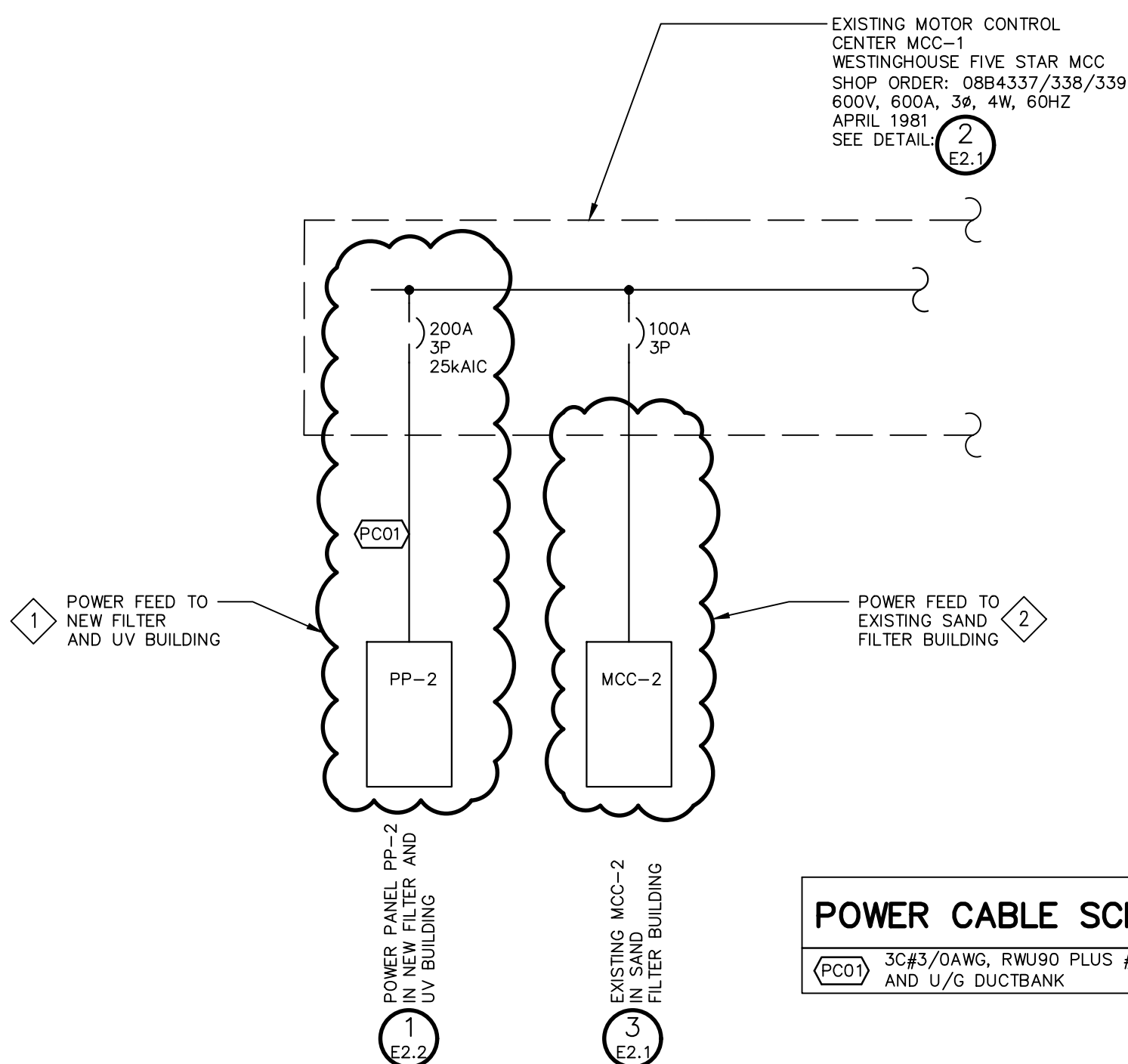


EXISTING POWER FEED TO SAND FILTER BUILDING (MCC-2), SEE DETAIL 1 2

POWER FEED TO NEW FILTER AND UV BUILDING, SEE DETAIL 1 1

2 MOTOR CONTROL CENTER MCC-1 ARRANGEMENT

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK



POWER CABLE SCHEDULE

3C#3/0AWG, RWU90 PLUS #6AWG GND, Cu, 1kV IN 63mmØ RPVC AND U/G DUCTBANK

1 MCC-1: 600V SINGLE LINE DIAGRAM

- NTS
- 600V SINGLE LINE DIAGRAM FOR REFERENCE ONLY
- CONTRACTOR TO VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK



INLET WORKS BUILDING UNIT HEATER 4

EXISTING MCC-2 WESTINGHOUSE FIVE STAR MCC SHOP ORDER: 08B4340 600V, 600A, 3Ø, 4W, 60HZ APRIL 1981 3

EXISTING LIGHTING PANEL LP-B SEE DETAIL 4 E2.1

EXISTING FILTER CONTROL PANEL 3

COMMUNITOR AT INLET WORKS AREA 5

3 MOTOR CONTROL CENTER MCC-2 ARRANGEMENT

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK

PANEL TAG NAME: 'LP-B'		120/208V, 3PH, 4W		LOCATION: MCC-2	
LOAD-W		BUS: 100A MAIN: MAIN LUGS			
CIRCUIT DESCRIPTION	PROT.	CIRCUITS	PROT.	CIRCUIT DESCRIPTION	LOAD-W
EF.5, FLOR. LIGHTS	15A	1 A 2	15A	LITES INLET WORKS	
LITES BELOW FILTER BUILDING	15A	3 B 4	15A	REC. INLET WORKS	
REC. FILTER BLDG	15A	5 C 6	15A	OUTSIDE REC. INLET WORKS	
FILTER CONTROL PANEL	15A	7 A 8	15A	FILTER TANK LITES	
SPARE	15A	9 B 10	15A	SPARE	
SPARE	15A	11 C 12	15A	SPARE	

EXISTING INLET WORKS BUILDING LOADS 4

4 EXISTING LIGHTING PANEL LP-B SCHEDULE

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK

NOTES:

- PROVIDE NEW 100A FEEDER BREAKER WITH PLUG-IN STYLE MCC BUCKET FOR POWER FEED TO NEW FILTER AND UV BUILDING. MCC BUCKET TO INCLUDE LAMICOID NAMEPLATE.
- POWER FEED TO EXISTING SAND FILTER BUILDING TO BE REMOVED FOLLOWING COMMISSIONING OF NEW FILTER AND UV BUILDING. EXISTING BREAKER TO BECOME SPARE. PROVIDE LAMICOID NAME PLATE INDICATING "SPARE 100A".
- EXISTING EQUIPMENT AND ASSOCIATED CONDUIT AND WIRING TO BE REMOVED FOLLOWING COMMISSIONING OF NEW FILTER AND UV BUILDING.
- EXISTING EQUIPMENT LOCATED AT INLET WORKS BUILDING TO REMAIN AND BE RE-FED FROM NEW POWER SOURCE. REMOVE ALL ASSOCIATED EXISTING CONDUIT AND WIRING AND REPLACE WITH NEW. REFER TO CONTRACT DRAWINGS FOR ADDITIONAL INFORMATION.
- COMMUNITOR NO LONGER EXISTS. ALL ASSOCIATED CONDUIT AND WIRING TO BE REMOVED, INCLUDING AT INLET WORKS AREA.



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Goderich Kincardine Mount Forest Sarnia



Township of North Huron
Blyth WWTP Upgrade
Single Line Diagram and MCC Arrangements

Contract No. 1

Project No. 20093

Scale (24x36) AS SHOWN

Drawing No. E2.1

PANEL TAG NAME: 'PP-1'		600V, 3PH, 3W				MOUNTING: WALL LOCATION: SAND FILTER (STORAGE) BUILDING		
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS			PROT.	CIRCUIT DESCRIPTION	LOAD-W
4000	UNIT HEATER UH-1, SEE DETAIL: 3 E2.3	15A	1	A	2	20A	LIGHTING PANEL LP-B, SEE DETAIL: 3 E2.2	9000
			3	B	4			
		3P	5	C	6	3P		
4000	UNIT HEATER UH-2, SEE DETAIL: 3 E2.3	15A	7	A	8	15A		
			9	B	10		SPARE	
		3P	11	C	12	3P		
	INLET WORKS EXISTING UNIT HEATER UH-5, SEE DETAIL: 3 E2.3	15A	13	A	14	30A		
			15	B	16		SPARE	
		3P	17	C	18	3P		
	SPARE	30A	19	A	20	30A		
			21	B	22		SPARE	
		3P	23	C	24	3P		
	SPARE	15A	25	A	26	30A		
			27	B	28		SPARE	
		3P	29	C	30	3P		
	SPARE	15A	31	A	32	60A		
			33	B	34		SURGE PROTECTION DEVICE SPD-1 5	
		3P	35	C	36	3P		
	SPARE	15A	37	A	38	15A		
			39	B	40		SPARE	
		3P	41	C	42	3P		

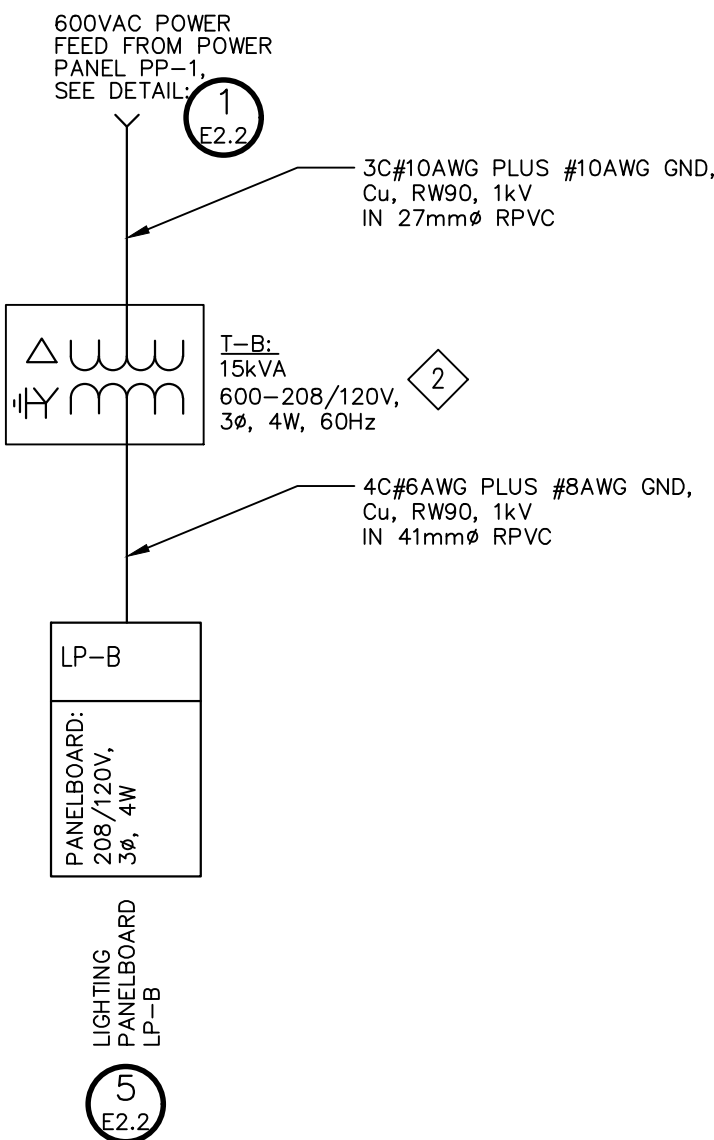
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E2.2 **POWER PANEL PP-1 PANEL SCHEDULE** 1 2

- NTS
- PANEL LOCATED IN THE EXISTING SAND FILTER (STORAGE) BUILDING

PANEL TAG NAME: 'PP-2'		600V, 3PH, 3W				MOUNTING: WALL LOCATION: FILTER AND UV BUILDING		
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS			PROT.	CIRCUIT DESCRIPTION	LOAD-W
4000	UNIT HEATER UH-3, SEE DETAIL: 3 E2.3	15A	1	A	2	30A	FILTER CONTROL PANEL 1 (FILTER ROOM), SEE DETAIL: 1 E2.4	6000
			3	B	4			
		3P	5	C	6	3P		
4000	UNIT HEATER UH-4, SEE DETAIL: 3 E2.3	15A	7	A	8	30A	FILTER CONTROL PANEL 2 (FILTER ROOM), SEE DETAIL: 2 E2.4	6000
			9	B	10			
		3P	11	C	12	3P		
	SPARE	15A	13	A	14	100A	POWER PANEL "PP-1", SEE DETAIL: 1 E2.2 6	17000
			15	B	16			
		3P	17	C	18	3P		
	SPARE	15A	19	A	20	40A	LIGHTING PANEL "LP-C", SEE DETAIL: 4 E2.2	30000
			21	B	22			
		3P	23	C	24	3P		
	SPARE	15A	25	A	26	15A		
			27	B	28		SPARE	
		3P	29	C	30	3P		
	SPARE	15A	31	A	32	60A		
			33	B	34		SURGE PROTECTION DEVICE SPD-2 5	
		3P	35	C	36	3P		
	SPARE	15A	37	A	38	15A		
			39	B	40		SPARE	
		3P	41	C	42	3P		

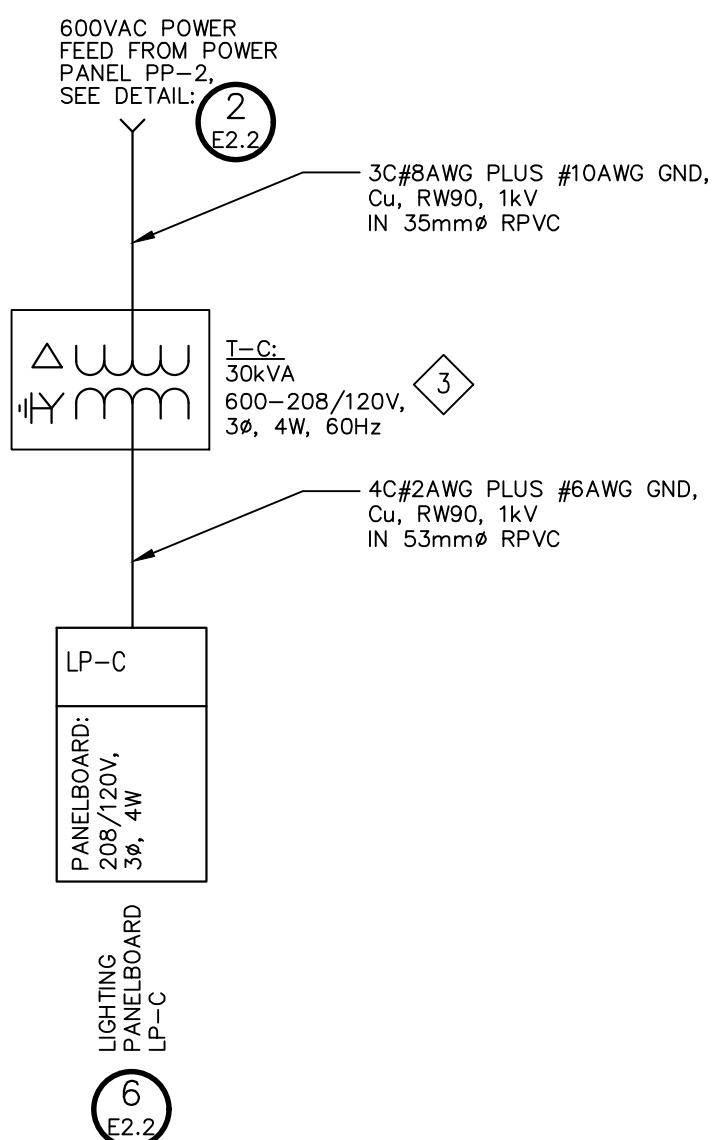
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E2.2 **POWER PANEL PP-2 PANEL SCHEDULE** 1 3

- NTS
- PANEL LOCATED IN THE NEW FILTER AND UV BUILDING



3
E2.2 **LIGHTING PANEL LP-B POWER WIRING DIAGRAM**

- LIGHTING PANEL LP-B AND TRANSFORMER T-B LOCATED IN SAND FILTER (STORAGE) BUILDING



4
E2.2 **LIGHTING PANEL LP-C POWER WIRING DIAGRAM**

- LIGHTING PANEL LP-C AND TRANSFORMER T-C LOCATED IN FILTER AND UV BUILDING

PANEL TAG NAME: 'LP-B'		120/208V, 3PH, 4W				MOUNTING: WALL LOCATION: SAND FILTER (STORAGE) BUILDING		
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS			PROT.	CIRCUIT DESCRIPTION	LOAD-W
	LIGHTS - INTERIOR	15A	1	A	2	15A	RECEPTACLES - INTERIOR	
	LIGHTS - EXTERIOR	15A	3	B	4	15A (GFCI)	RECEPTACLES - EXTERIOR	
	LIGHTS - EMERGENCY	15A	5	C	6	15A	LIGHTS - INLET WORKS	
	SPARE	30A	7	A	8	15A	RECEPTACLES - INLET WORKS INTERIOR	
	SPARE	15A	9	B	10	15A (GFCI)	RECEPTACLES - INLET WORKS EXTERIOR	
	SPARE	15A	11	C	12	15A	CHEMICAL PUMP P1 - INLET WORKS	
		15A	13	A	14	15A	CHEMICAL PUMP P2 - INLET WORKS	
	SURGE PROTECTION DEVICE SPD-B 5		15	B	16	15A	EXHAUST FAN EF-1	125
		3P	17	C	18	15A	SPARE	
	SPARE	15A	19	A	20	15A		
	SPARE	15A	21	B	22	15A	SPARE	
	SPARE	15A	23	C	24	15A	SPARE	

5
E2.2 **LIGHTING PANEL "LP-B" PANEL SCHEDULE** 1

- NTS
- PANEL LOCATED IN EXISTING SAND FILTER (STORAGE) BUILDING

PANEL TAG NAME: 'LP-C'		120/208V, 3PH, 4W				MOUNTING: WALL LOCATION: NEW FILTER AND UV BUILDING		
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS			PROT.	CIRCUIT DESCRIPTION	LOAD-W
	LIGHTS - INTERIOR	15A	1	A	2	15A	EMERGENCY LIGHT	
	LIGHTS - EXTERIOR	15A	3	B	4	15A	UV SYSTEM CONTROL PANEL (SCC PANEL)	17
	RECEPTACLES - INTERIOR	15A	5	C	6	15A		
	RECEPTACLES - EXTERIOR	15A (GFCI)	7	A	8	15A	UV BANK 1B PDC PANEL	2300
	UPS CONTROL PANEL	30A	9	B	10	3P		
2300	UV BANK 1A PDC PANEL	15A	11	C	12	15A	EFFLUENT SAMPLER	240
		13	A	14	15A		EXHAUST FAN EF-2	190
	SPARE	3P	15	B	16	15A		
		15A	17	C	18	15A	SURGE PROTECTION DEVICE SPD-C 5	
	SPARE	15A	19	A	20	15A		
	SPARE	15A	21	B	22	15A	SPARE	
	SPARE	15A	23	C	24	15A	SPARE	

6
E2.2 **LIGHTING PANEL "LP-C" PANEL SCHEDULE** 1

- NTS
- PANEL LOCATED IN THE NEW FILTER AND UV BUILDING

NOTES:

- 1 CONTRACTOR TO PROVIDE NEW CONDUIT AND WIRING TO ALL FIELD DEVICES. PANELBOARD NOTES:
- BREAKER SIZES LISTED ARE PROVIDED AS A GENERAL GUIDE. PRIOR TO INSTALLATION, CONTRACTOR TO CONFIRM ALL BREAKER SIZES WITH FINAL EQUIPMENT LOADS.
 - CONTRACTOR TO PROVIDE ALL FEEDER CONDUCTORS AND CONDUIT BASED ON ONTARIO ELECTRICAL SAFETY CODE - LATEST EDITION.
 - ALL WIRING TO HAZARDOUS AREAS TO BE TECK90-HL RATED COMPLETE WITH ALL REQUIRED HAZARDOUS FITTINGS.
- 2 EQUIPMENT IS NEW AND IS TO REPLACE EXISTING EQUIPMENT.
- 3 EQUIPMENT IS NEW.
- 4 PROVIDE WIRING TO EXISTING INLET WORKS BUILDING LOADS. CONTRACTOR TO INVESTIGATE EXISTING CONDITIONS AND DISCUSS WITH ENGINEER. FINAL DIRECTIONS TO BE CONFIRMED DURING CONSTRUCTION.
- 5 REFER TO SPECIFICATION 16400 FOR SURGE PROTECTION DEVICE SPECIFICATIONS. SPD TO BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
- 6 PROVIDE 3C#3AWG, RW90 PLUS #8AWG GND, Cu, 1kV IN 53mmØ RPVC AND U/G DUCTBANK FOR POWER FEED FROM PP-2 TO PP-1.



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Goderich Kincardine Mount Forest Sarnia



Township of North Huron

Blyth WWTP Upgrade

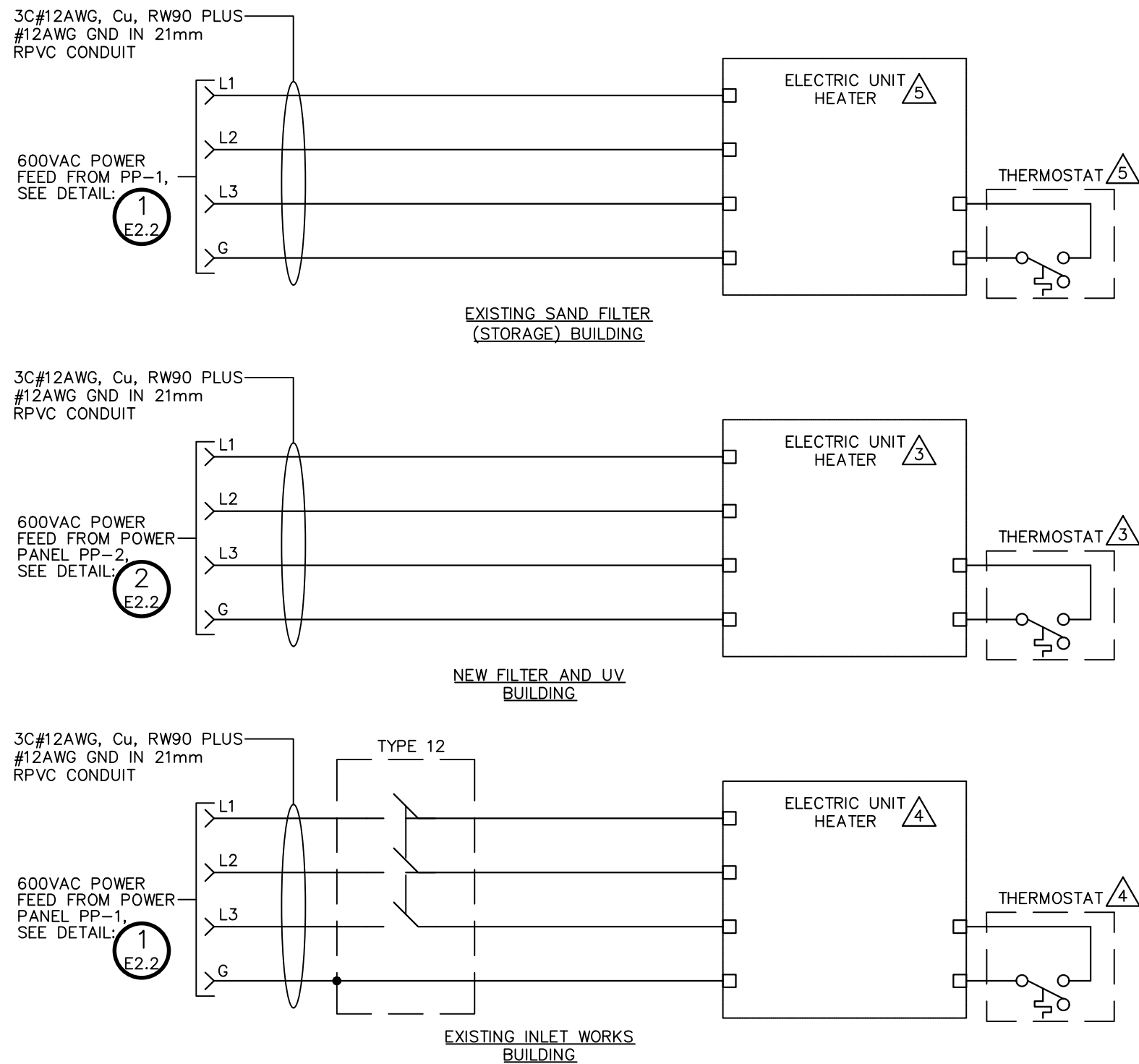
Power Panels, Lighting Panels and Misc. Details

Contract No. 1

Project No. 20093

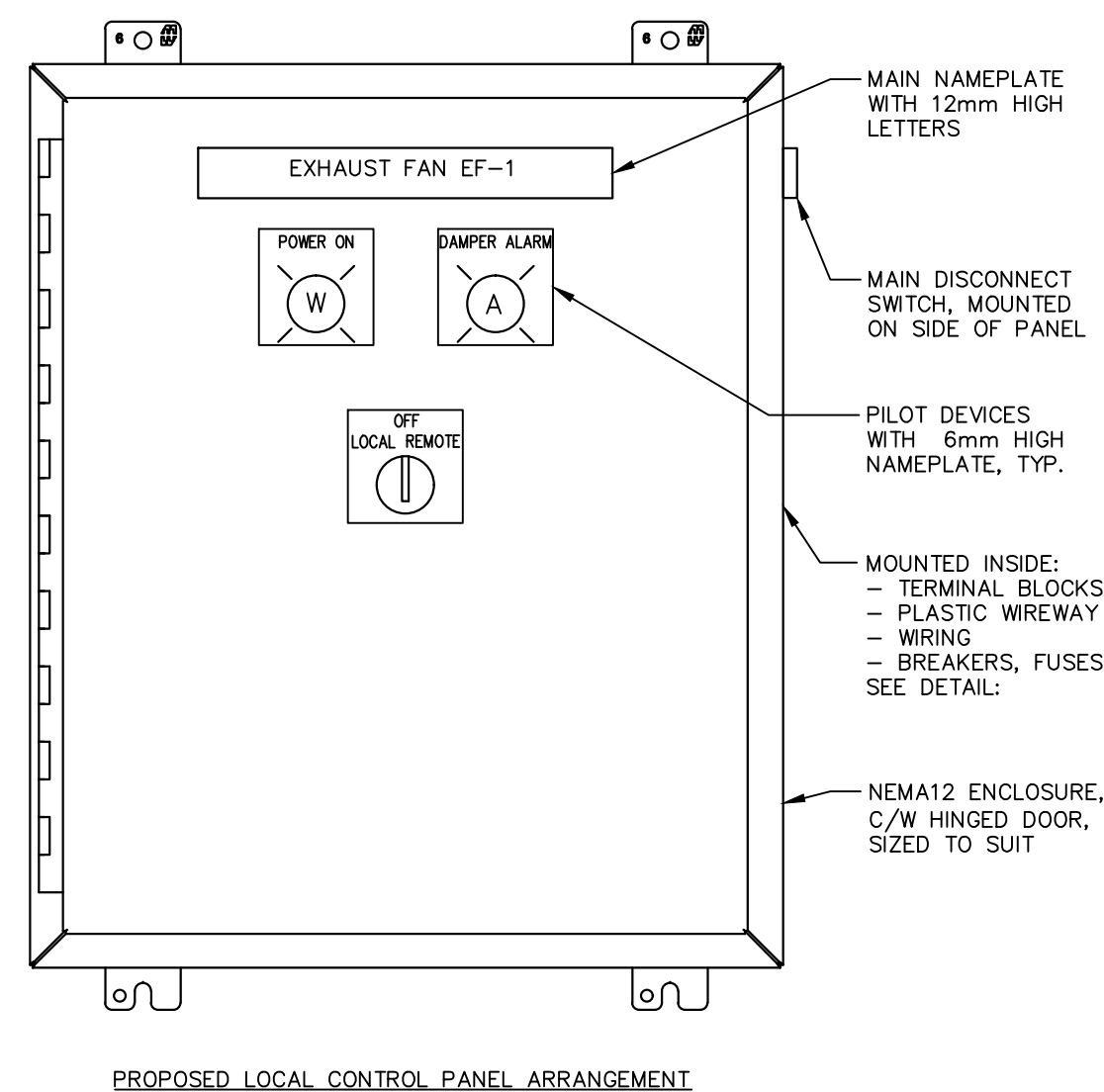
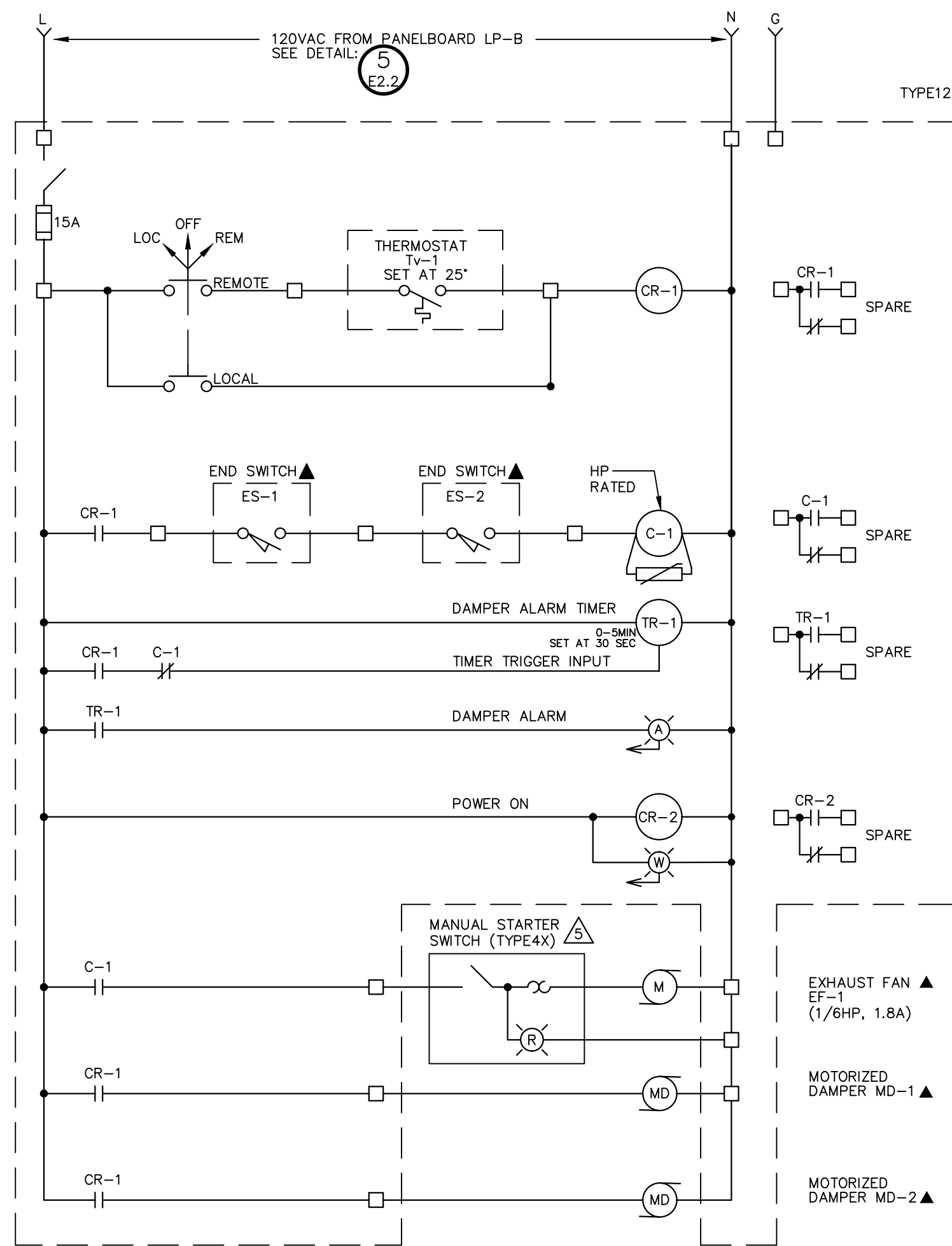
Scale (24x36) AS SHOWN

Drawing No. E2.2



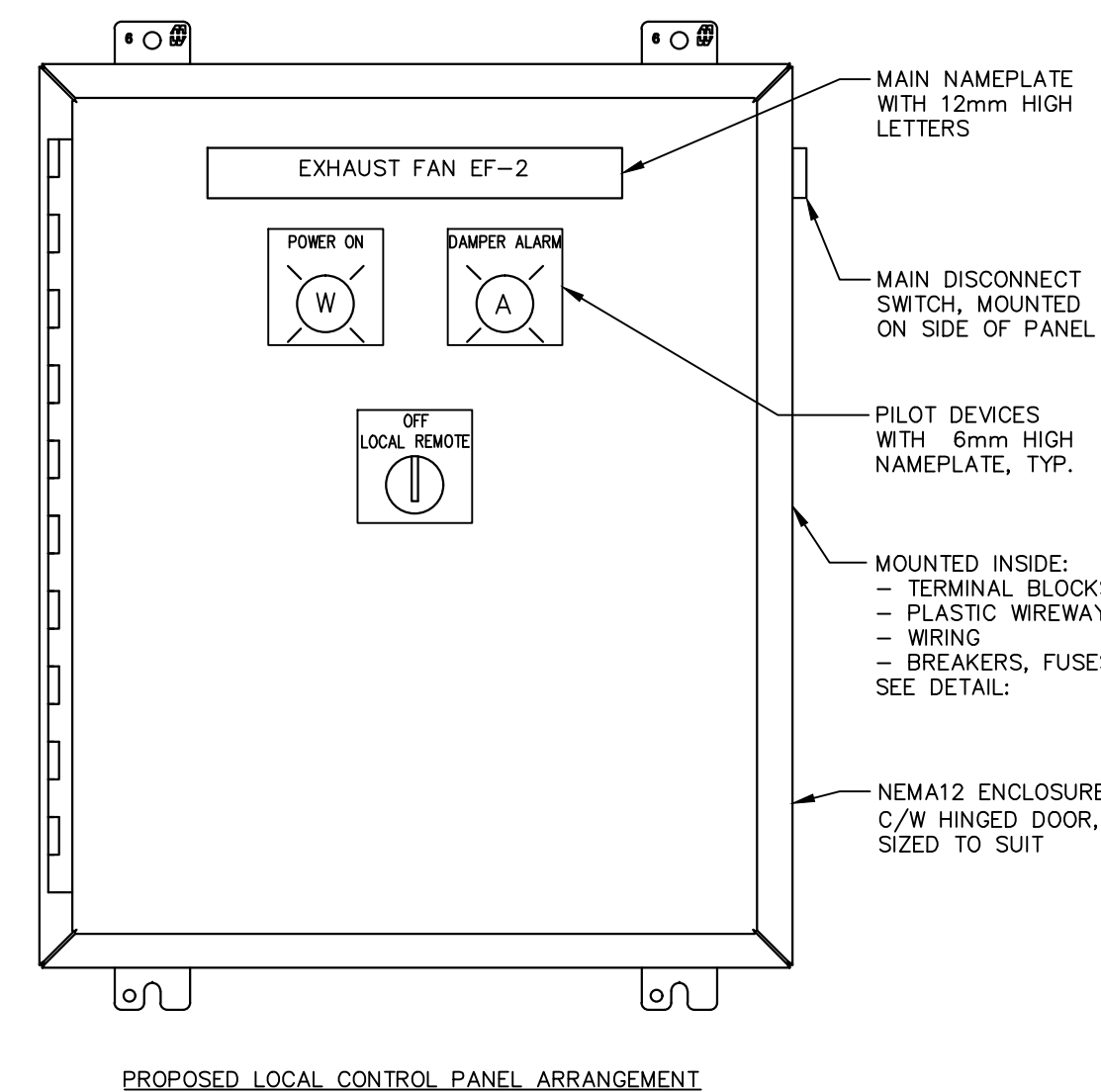
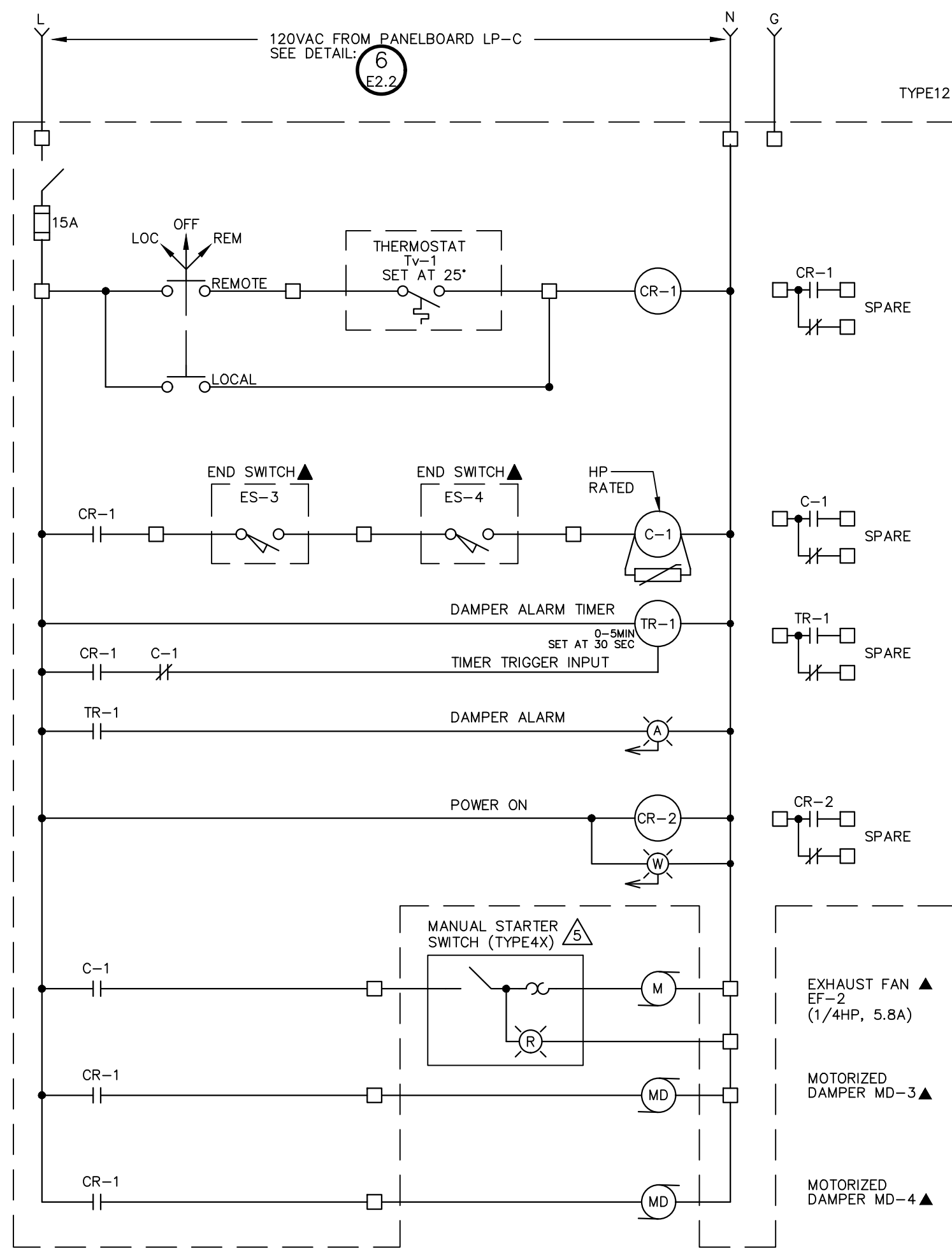
3 TYPICAL UNIT HEATER ELEMENTARY WIRING DIAGRAM

- DIAGRAM FOR SAND FILTER (STORAGE) BUILDING UNIT HEATER UH-1 AND UH-2
- DIAGRAM FOR NEW FILTER AND UV BUILDING UNIT HEATER UH-3 AND UH-4
- DIAGRAM FOR INLET WORKS BUILDING UNIT HEATER UH-5
- UNIT HEATER UH-1, UH-2, AND UH-5 THERMOSTAT TO INCLUDE INSULATED THERMOSTAT WALL PLATE



1 EXHAUST FAN EF-1 ELEMENTARY CONTROL WIRING DIAGRAM

- NTS
- DIAGRAM FOR SAND FILTER (STORAGE) BUILDING EXHAUST FAN EF-1, MOTORIZED DAMPERS MD-1, MD-2 AND END SWITCHES ES-1, ES-2
- PROVIDE LAMICOID NAMEPLATE FOR CONTROL PANEL



2 EXHAUST FAN EF-2 ELEMENTARY CONTROL WIRING DIAGRAM

- NTS
- DIAGRAM FOR NEW FILTER AND UV BUILDING EXHAUST FAN EF-2, MOTORIZED DAMPERS MD-3, MD-4, AND END SWITCHES ES-3, ES-4
- PROVIDE LAMICOID NAMEPLATE FOR CONTROL PANEL

NOTES:

- REFER TO MECHANICAL DRAWINGS FOR EXHAUST FAN SEQUENCE OF OPERATION.



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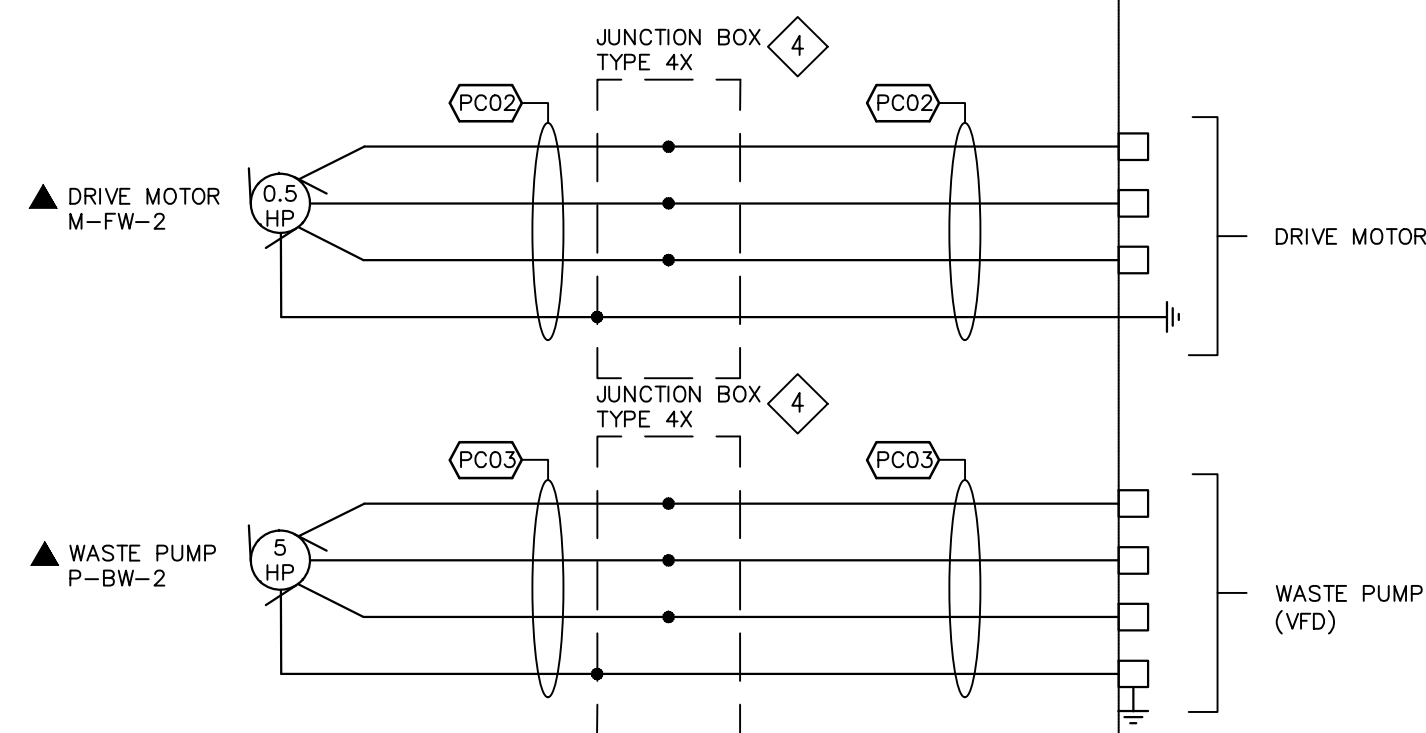
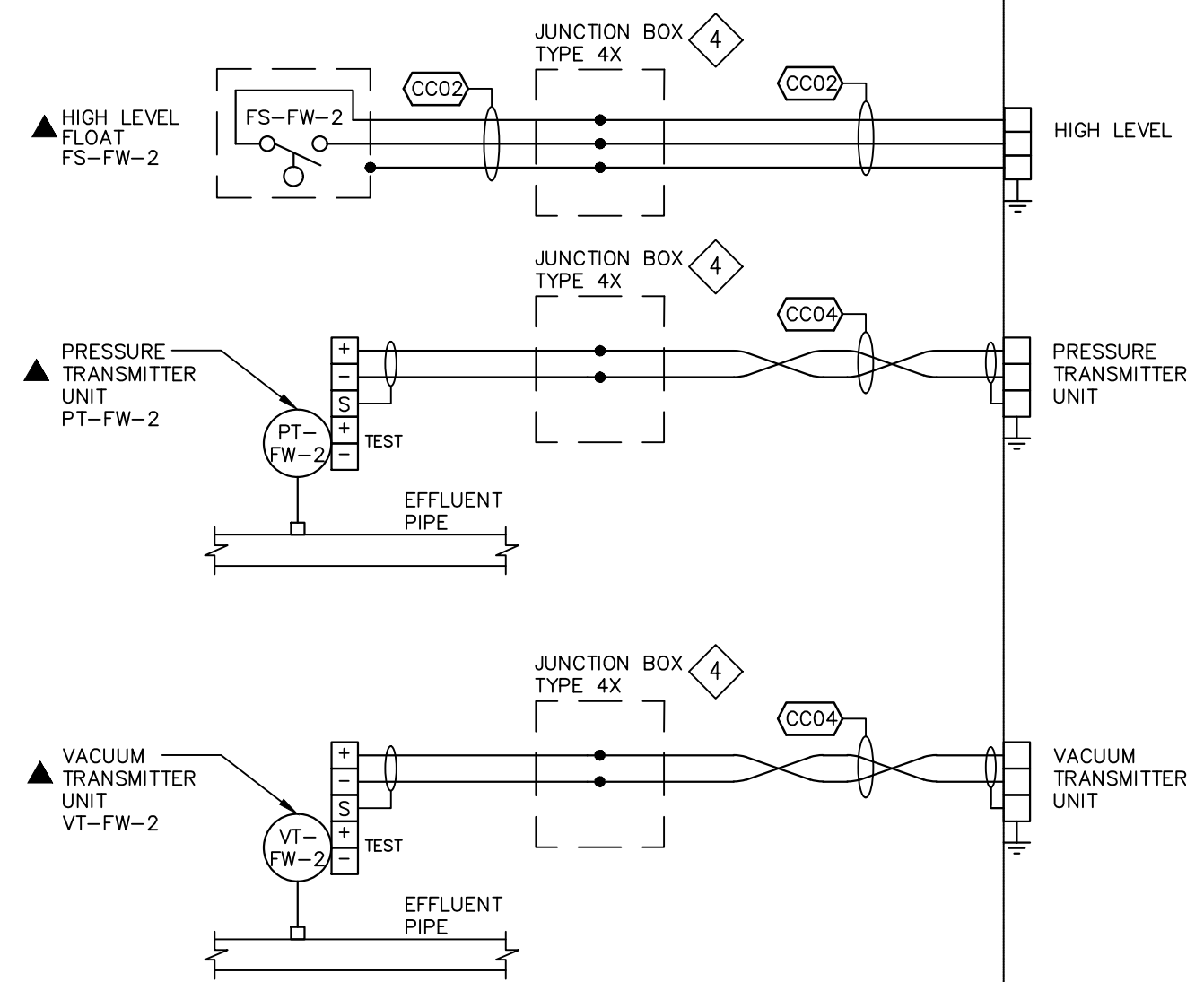
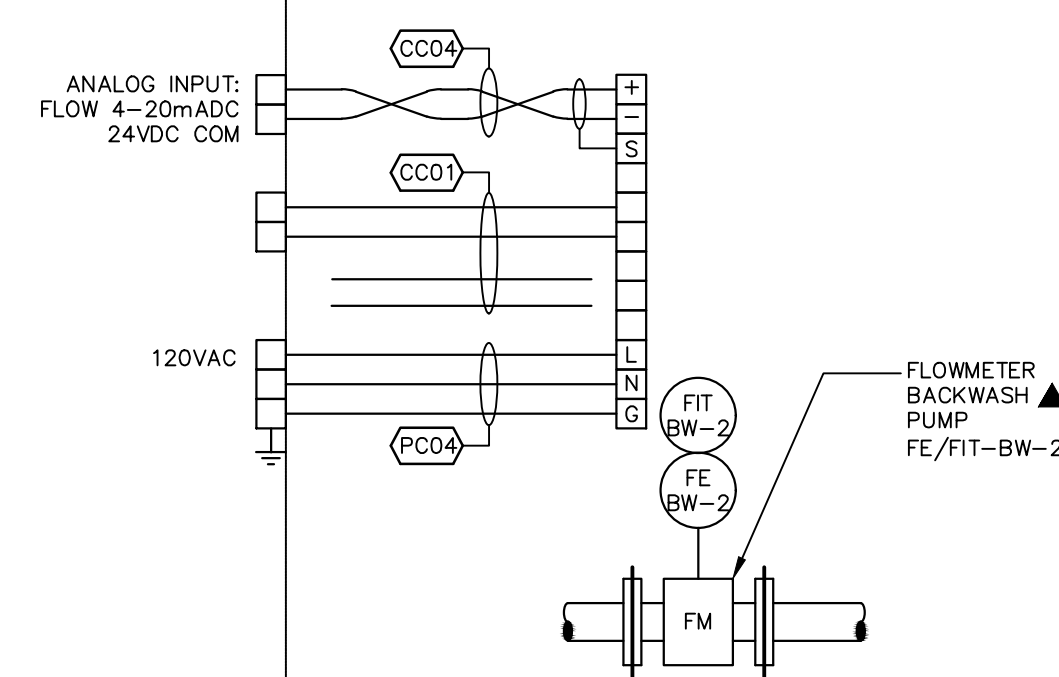
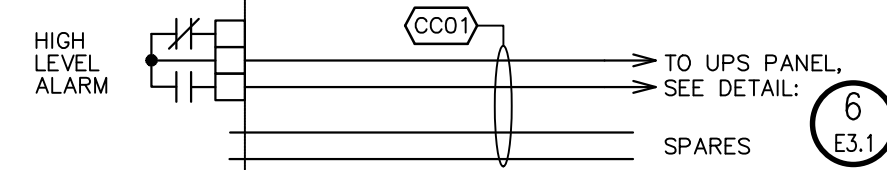
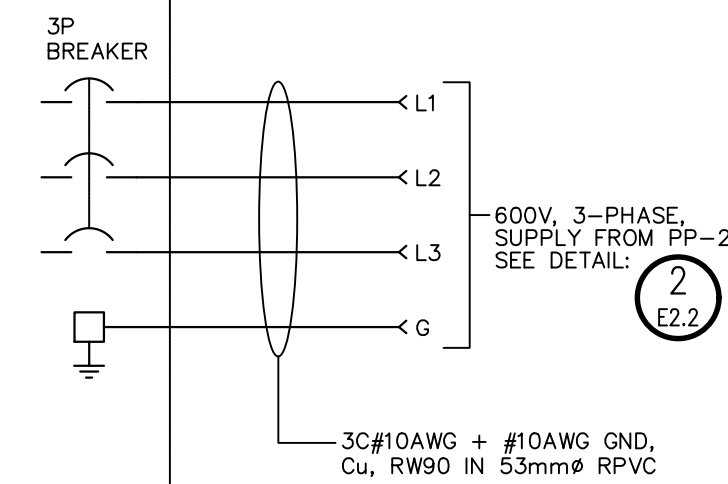
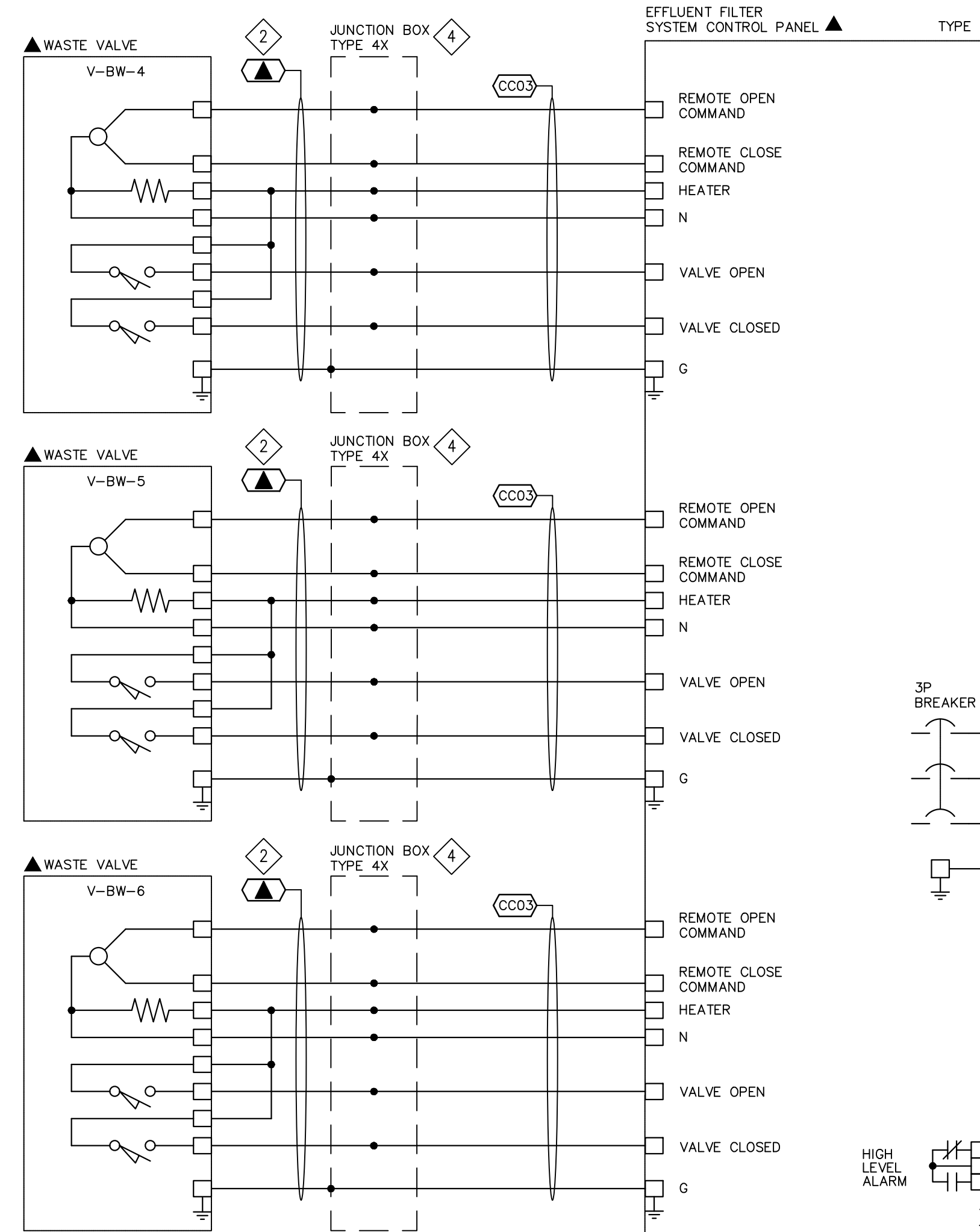
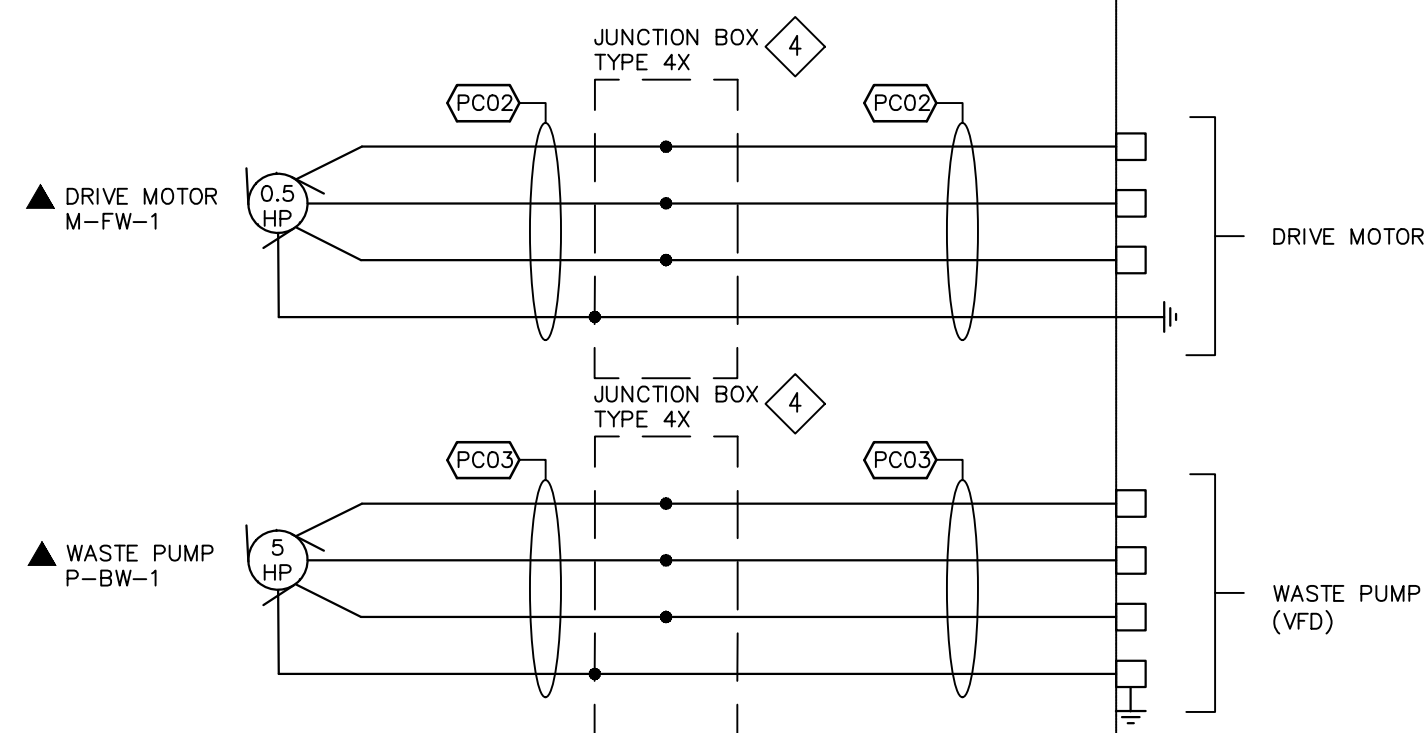
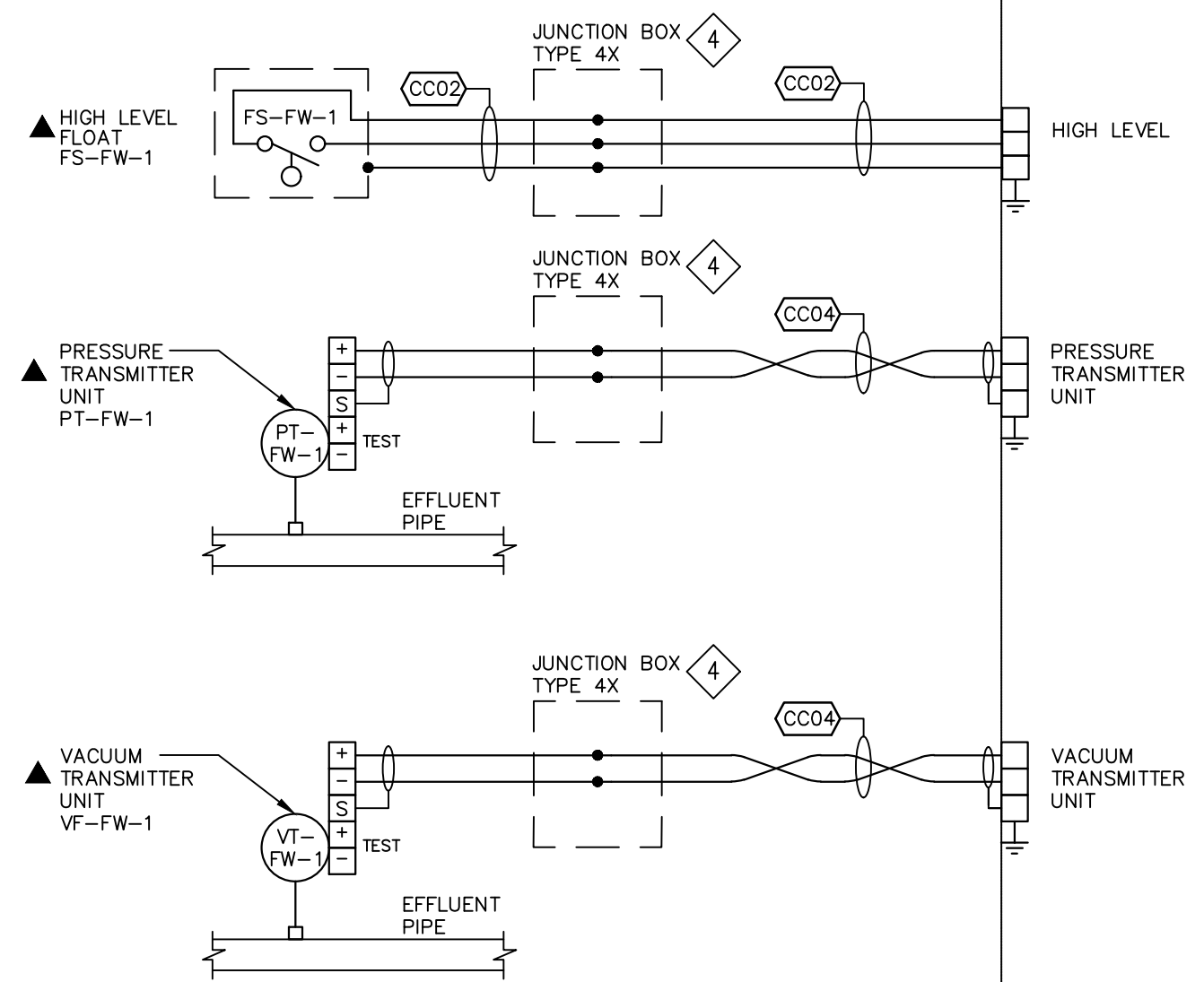
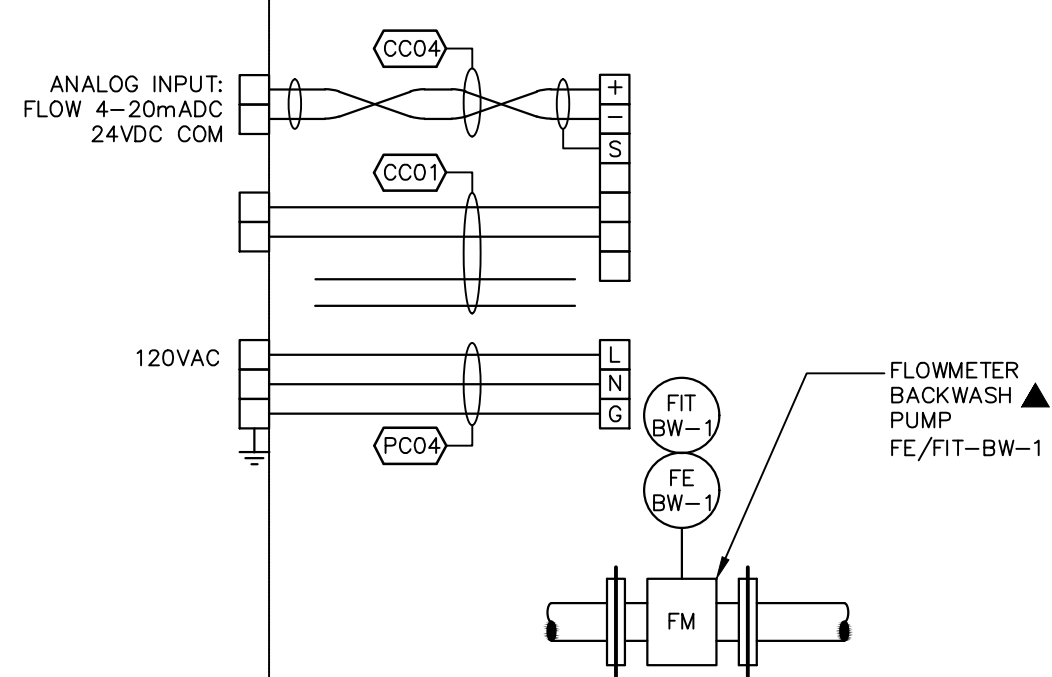
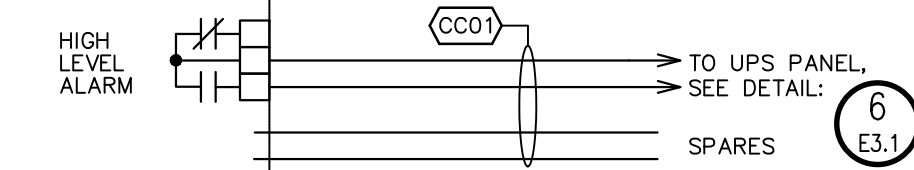
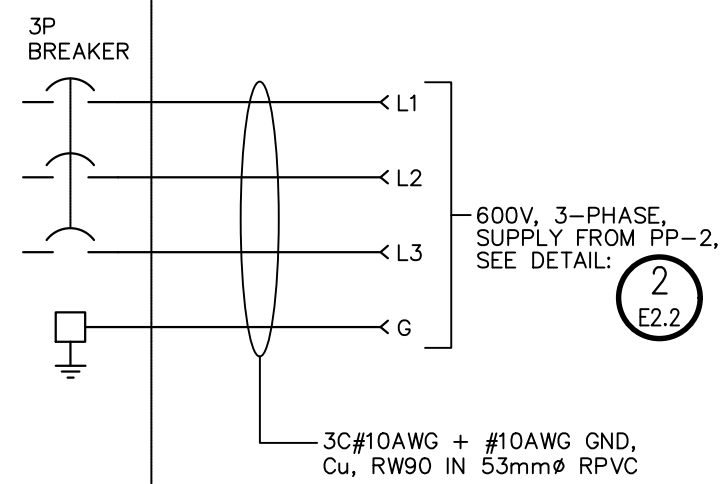
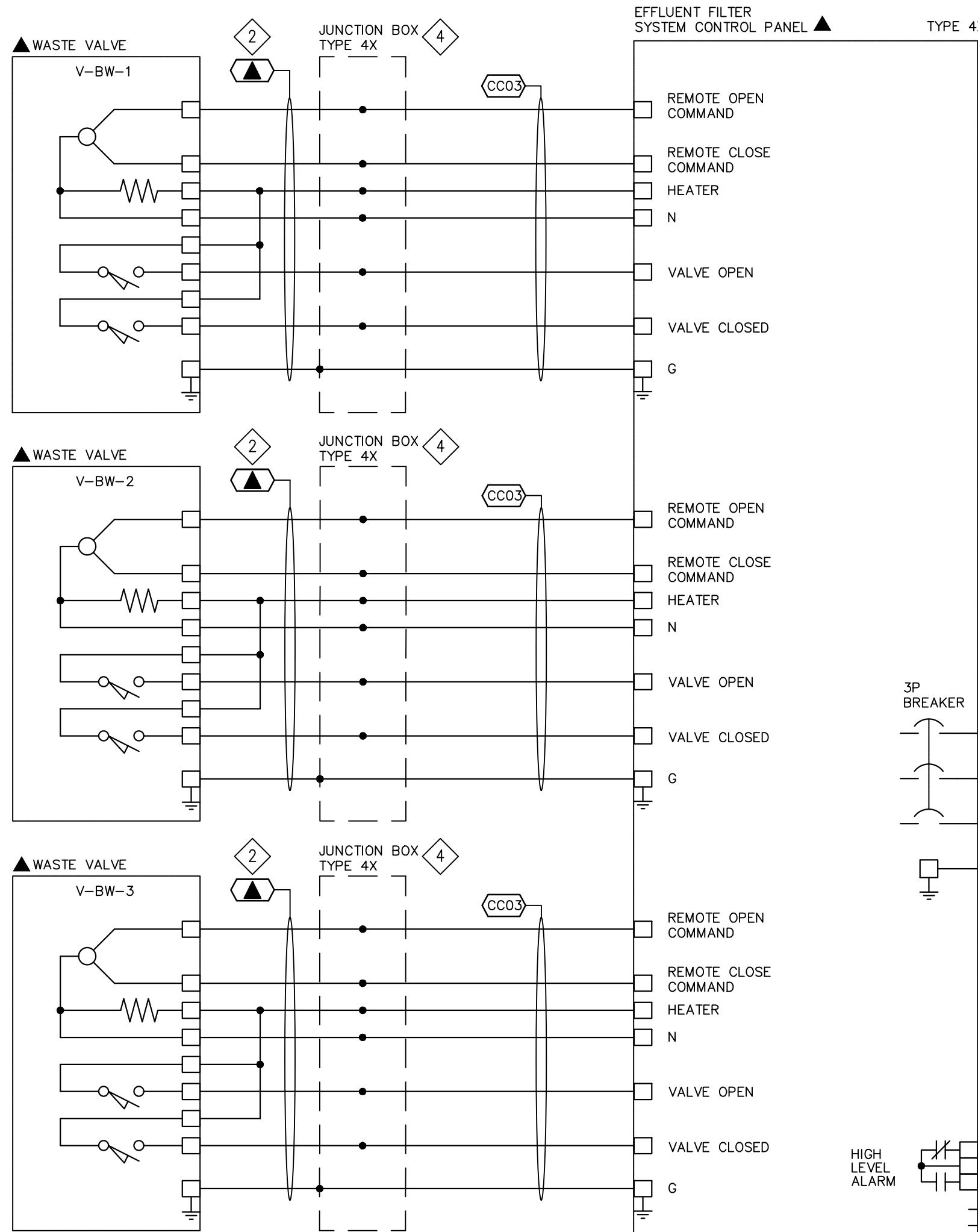


Goderich Kincardine Mount Forest Sarnia



Township of North Huron
Blyth WWTP Upgrade
Unit Heater and Exhaust Fan Details

Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. E2.3



POWER CABLE SCHEDULE

PC02	3C#12AWG + #14AWG GND, Cu, RW90 IN 21mmØ RPVC
PC03	3C#12AWG + #14AWG GND, Cu, RW90, SHIELDED "VFD" RATED CABLE C/W 3-SYMMETRICALLY CONSTRUCTED GROUND CONDUCTORS IN 41mmØ RPVC
PC04	2C#12AWG + #14AWG GND, Cu, RW90 IN 21mmØ RPVC
CC01	4C#14AWG + #14AWG GND, Cu, RW90 IN 53mmØ RPVC
CC02	2C#14AWG + #14AWG GND, Cu, RW90 IN 21mmØ RPVC
CC03	8C#14AWG + #14AWG GND (2 SPARE), Cu, RW90 IN 21mmØ RPVC
CC04	#16AWG, Cu, SHIELDED TWISTED PAIR IN 21mmØ RPVC
CABLE SUPPLIED WITH MOTOR OR DEVICE. INSTALLATION AND CONNECTIONS BY ELECTRICAL CONTRACTOR	

NOTES:

- CONTRACTOR TO PROVIDE JUNCTION BOXES AS REQUIRED TO SUIT INSTALLATION. COORDINATE INSTALLATION WITH EQUIPMENT SHOP DRAWINGS.
- VALVE ACTUATOR CABLE IS A 7P DOUBLE FEMALE-MALE, 3' CORD CONSISTING OF 7 WIRES FOR POWER AND CONTROL.
- ALTERNATIVELY, CONTRACTOR IS PERMITTED TO USE TECK90-HL POWER CABLE, OR ARMoured INSTRUMENTATION CABLE AS REQUIRED, IN LIEU OF CONDUCTORS IN CONDUIT. INCLUDE THE NECESSARY CHANNEL MOUNTING SUPPORTS TO PROPERLY INSTALL CABLES.
- PROVIDE COMPRESSION CONNECTIONS COMPLETE WITH HEAT SHRINK AND WRAPPED WITH VULCANIZING TAPE TO "MAKE-SAFE" ALL WIRING CONNECTIONS AS REQUIRED BY OESC.



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Goderich Kincardine Mount Forest Sarnia



Township of North Huron
Blyth WWTP Upgrade
Effluent Filter System Details

Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. E2.4

1 EFFLUENT FILTER #1 SYSTEM WIRING DIAGRAM

- NTS
- DIAGRAM FOR FILTER #1 CONTROL PANEL
- DESIGN BASED ON EFFLUENT FILTER SHOP DRAWINGS AS MANUFACTURED BY AQUA-AEROBIC SYSTEMS INC.
- FINAL WIRING REQUIREMENTS TO BE CONFIRMED BY CONTRACTOR WITH EQUIPMENT SHOP DRAWINGS
- FINAL ALARM/STATUS SIGNALS TO BE CONFIRMED WITH EQUIPMENT SHOP DRAWINGS.

2 EFFLUENT FILTER #2 SYSTEM WIRING DIAGRAM

- NTS
- DIAGRAM FOR FILTER #2 CONTROL PANEL
- DESIGN BASED ON EFFLUENT FILTER SHOP DRAWINGS AS MANUFACTURED BY AQUA-AEROBIC SYSTEMS INC.
- FINAL WIRING REQUIREMENTS TO BE CONFIRMED BY CONTRACTOR WITH EQUIPMENT SHOP DRAWINGS
- FINAL ALARM/STATUS SIGNALS TO BE CONFIRMED WITH EQUIPMENT SHOP DRAWINGS.

NOTES:

ALTERNATIVELY, CONTRACTOR IS PERMITTED TO USE ITECK90-HL POWER CABLE, OR ARMoured INSTRUMENTATION CABLE, AS REQUIRED, IN LIEU OF CONDUCTORS IN CONDUIT. INCLUDE THE NECESSARY CHANNEL MOUNTING SUPPORTS TO PROPERLY INSTALL CABLES.



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Township of North Huron
Blyth WWTP Upgrade
UV System Details

Contract No.
1

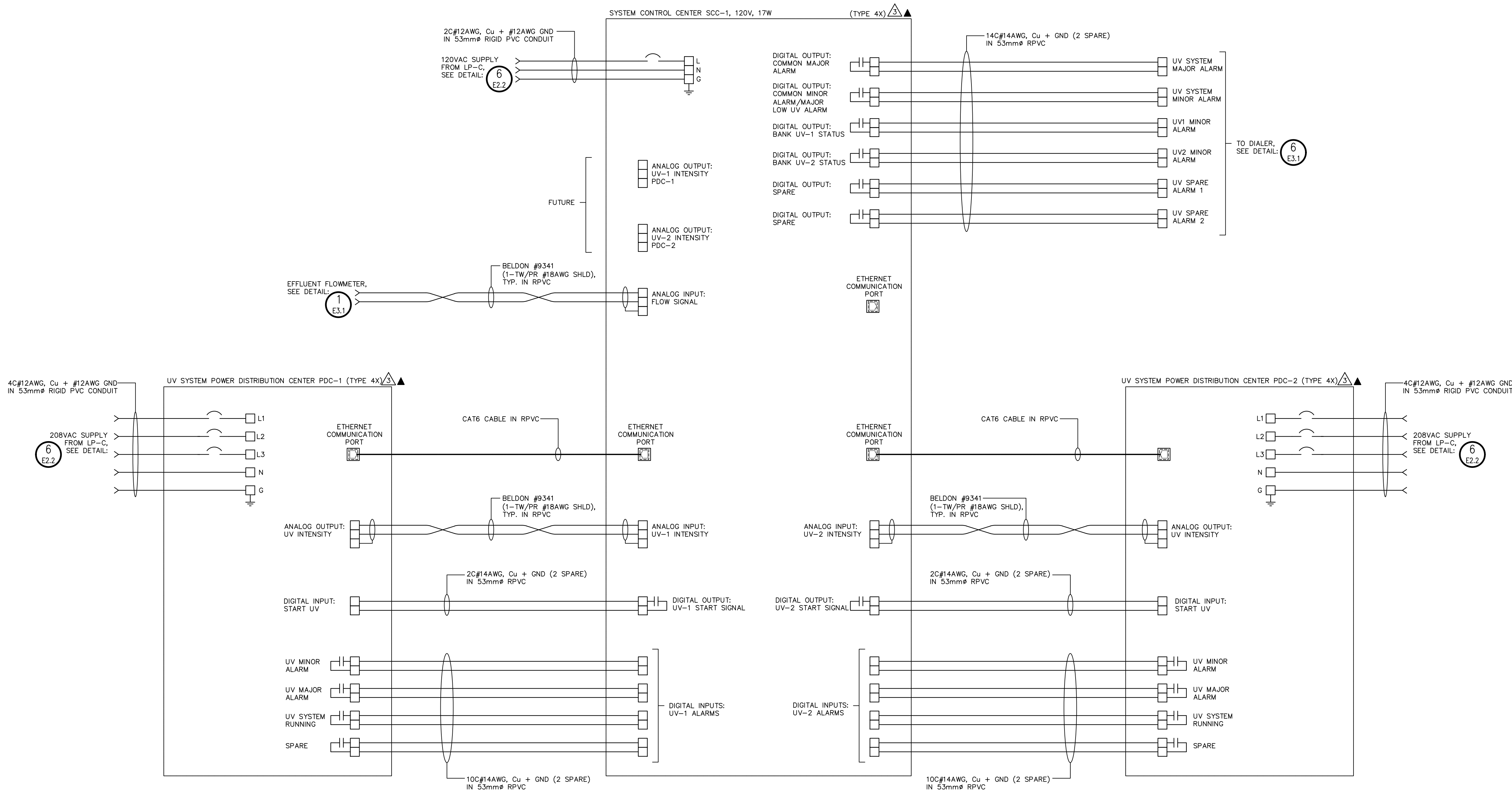
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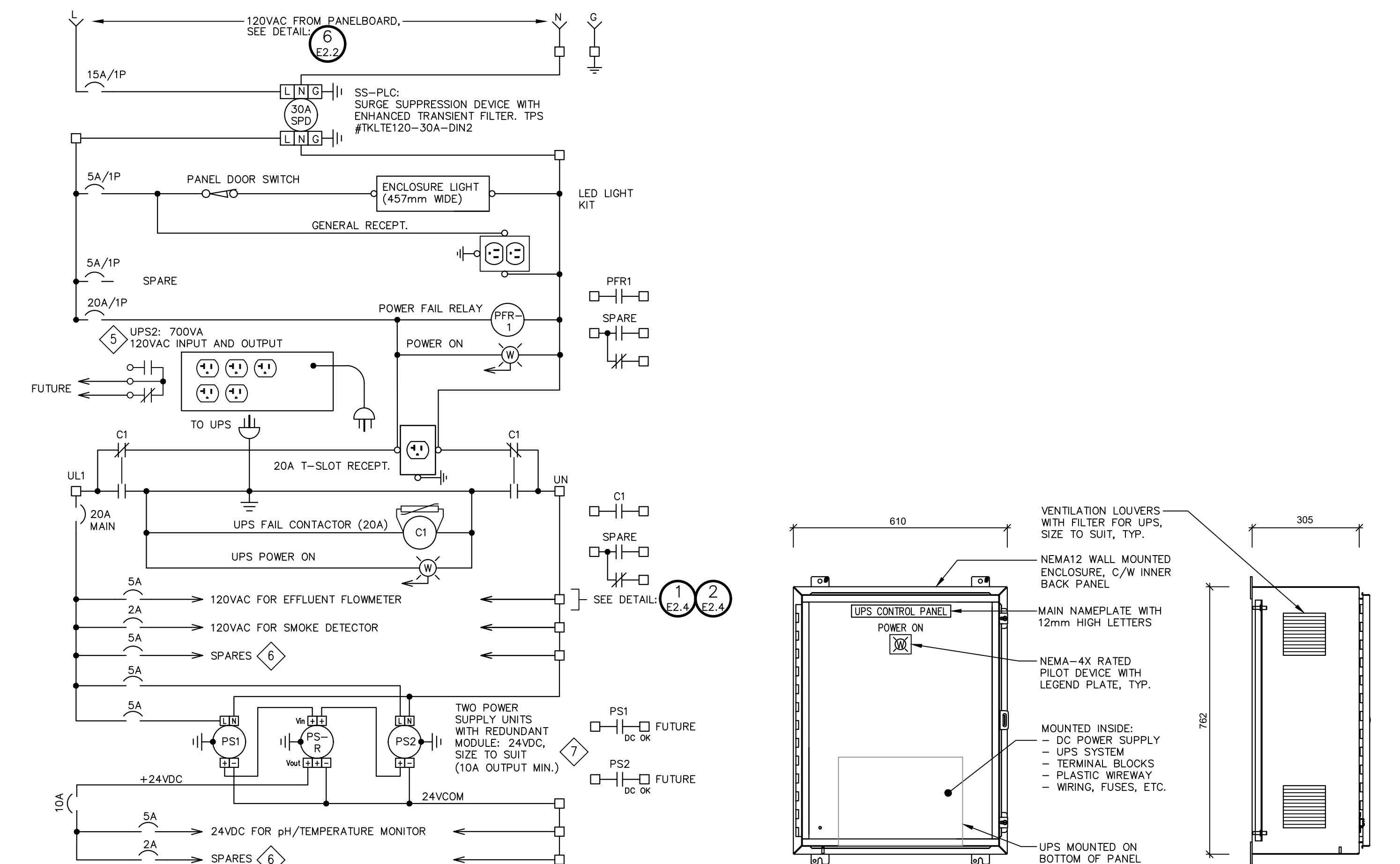
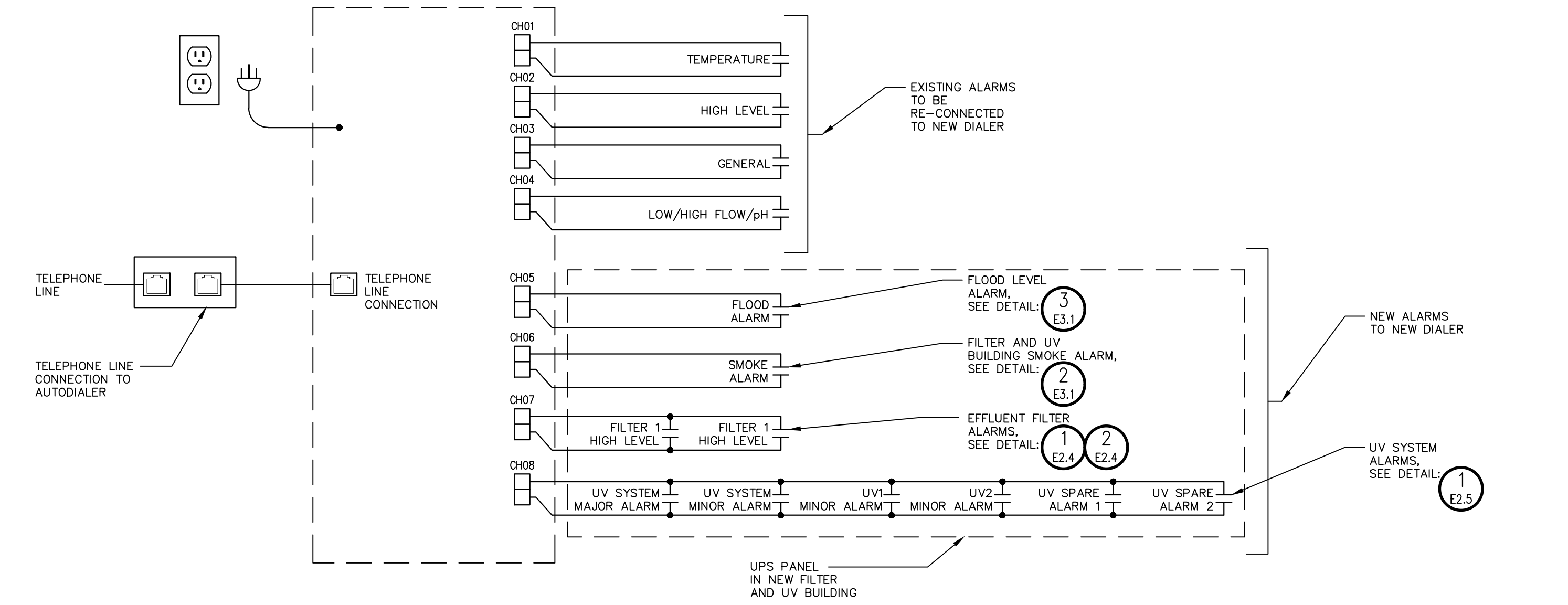
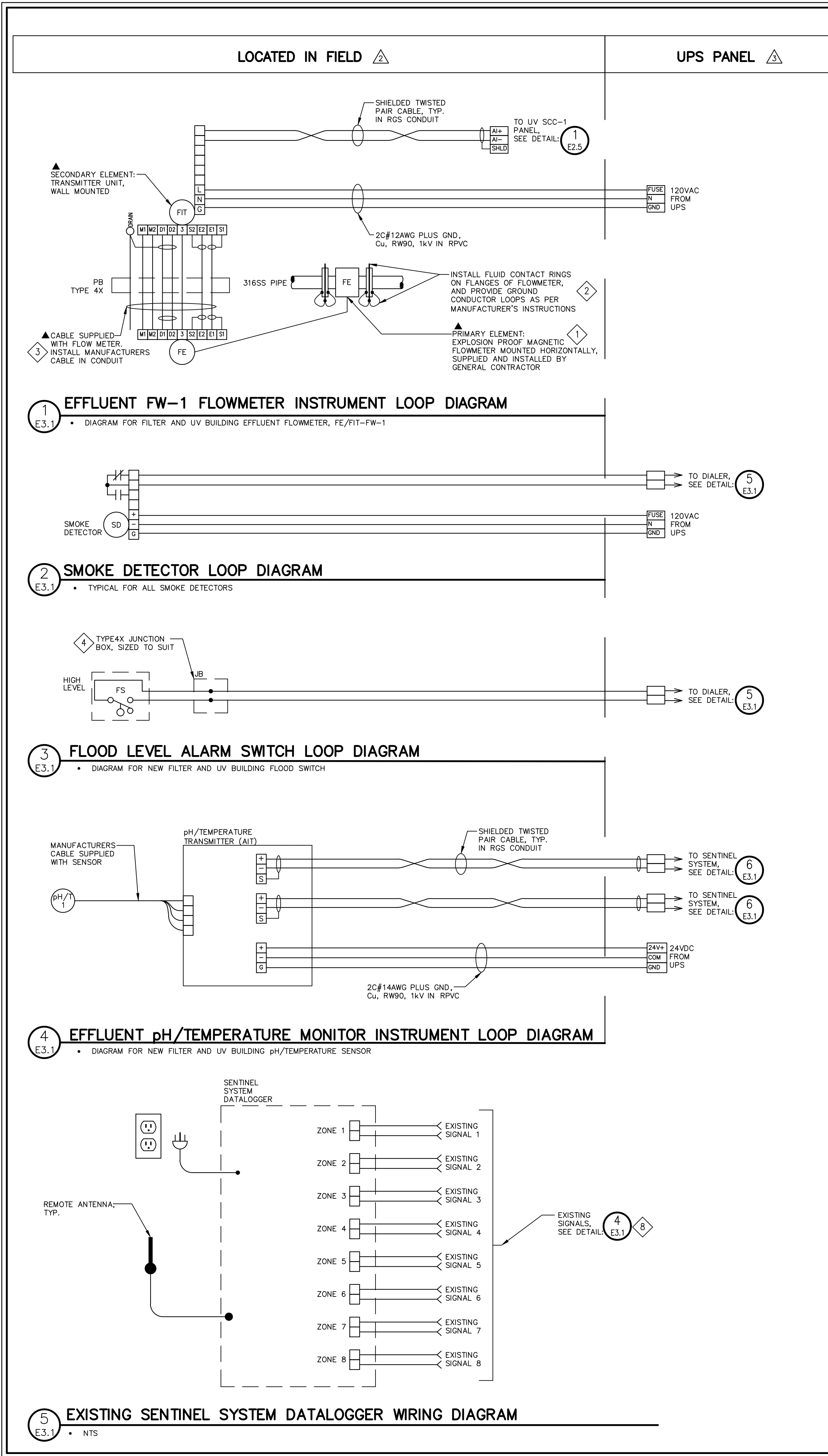
Scale (24x36)
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Drawing No.
E2.5

1 UV SYSTEM CONTROL WIRING INTERFACE DIAGRAM

- NTS
- DIAGRAM BASED ON TROJAN UV SYSTEM AS SUPPLIED BY H2FLOW
- FINAL WIRING REQUIREMENTS TO BE CONFIRMED WITH EQUIPMENT SHOP DRAWINGS
- CONTRACTOR TO REVIEW SUPPLIERS SHOP DRAWINGS AND CONSULT WITH SUPPLIER PRIOR TO INSTALLATION

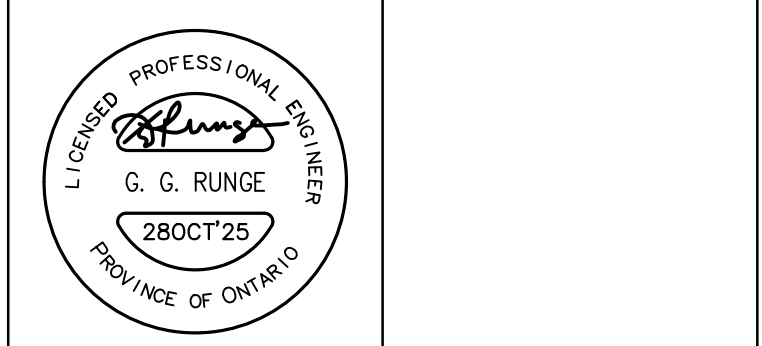




- NOTES:**
- COORDINATE INSTALLATION OF FLOWMETER WITH DIVISION 15 - MECHANICAL (AS THE PRIMARY ELEMENT WILL BE INSTALLED BY MECHANICAL AND TRANSMITTER BY DIVISION 16).
 - PROVIDE #10AWG INSULATED GROUND Cu CONDUCTOR BETWEEN FLUID CONTACT RINGS TO PROCESS PIPE FLANGES. PROVIDE GROUNDING LUGS, AS REQUIRED.
 - COORDINATE REQUIRED FLOWMETER CABLE LENGTH WITH DIVISION 15. FLOWMETER CABLE TO EXTEND TO TRANSMITTER. PROVIDE PULL BOX, SIZED TO SUIT, AND LOOP MINIMUM 1m OF FLOWMETER CABLE WITHIN PULL BOX. PULL BOX TO BECOME JUNCTION BOX IN THE EVENT THE FLOWMETER REQUIRES REPLACEMENT.
 - PROVIDE COMPRESSION CONNECTIONS COMPLETE WITH HEAT SHRINK AND WRAPPED WITH VULCANIZING TAPE TO "MAKE-SAFE" ALL WIRING CONNECTIONS AS REQUIRED BY OESC.
 - INCLUDE AN ALARM CONTACT MODULE FOR UPS UNIT TO MONITOR FOR: LOSS OF NORMAL POWER, BATTERY ALARM, UPS ALARM AND UPS ON BYPASS.
 - PROVIDE MINIMUM THREE (3) SPARE CIRCUIT BREAKERS IN UPS PANEL FOR 120VAC AND 24VDC CIRCUITS, UNLESS INDICATED OTHERWISE.
 - PROVIDE DC POWER SUPPLIES COMPLETE WITH REDUNDANCY MODULE.
 - CONFIRM ALL EXISTING SIGNALS WITH TOWNSHIP AND ENGINEER. EXISTING pH/TEMPERATURE SIGNALS TO BE REPLACED WITH SIGNALS FROM NEW DEVICE IN NEW FILTER AND UV BUILDING.



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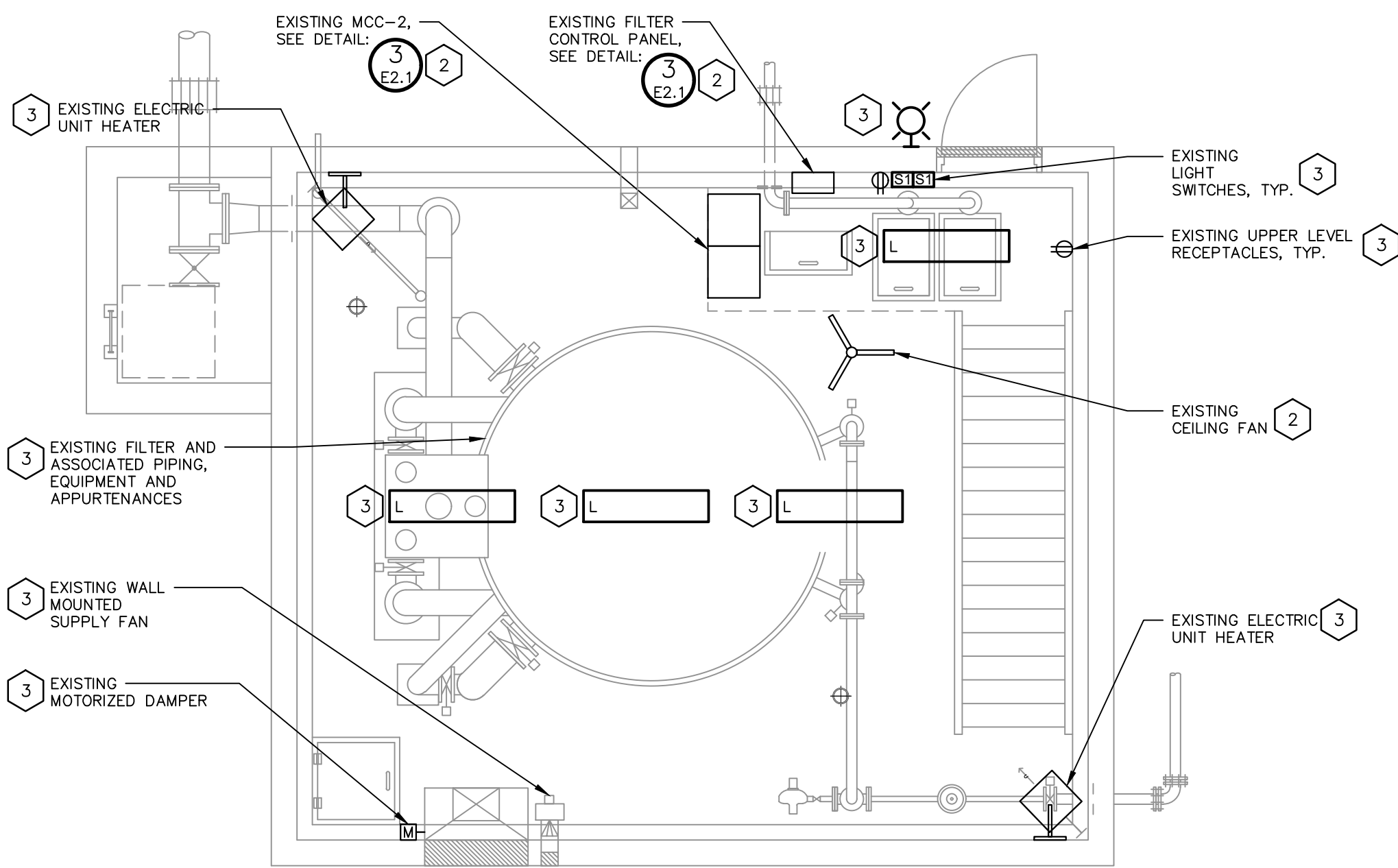


Township of North Huron

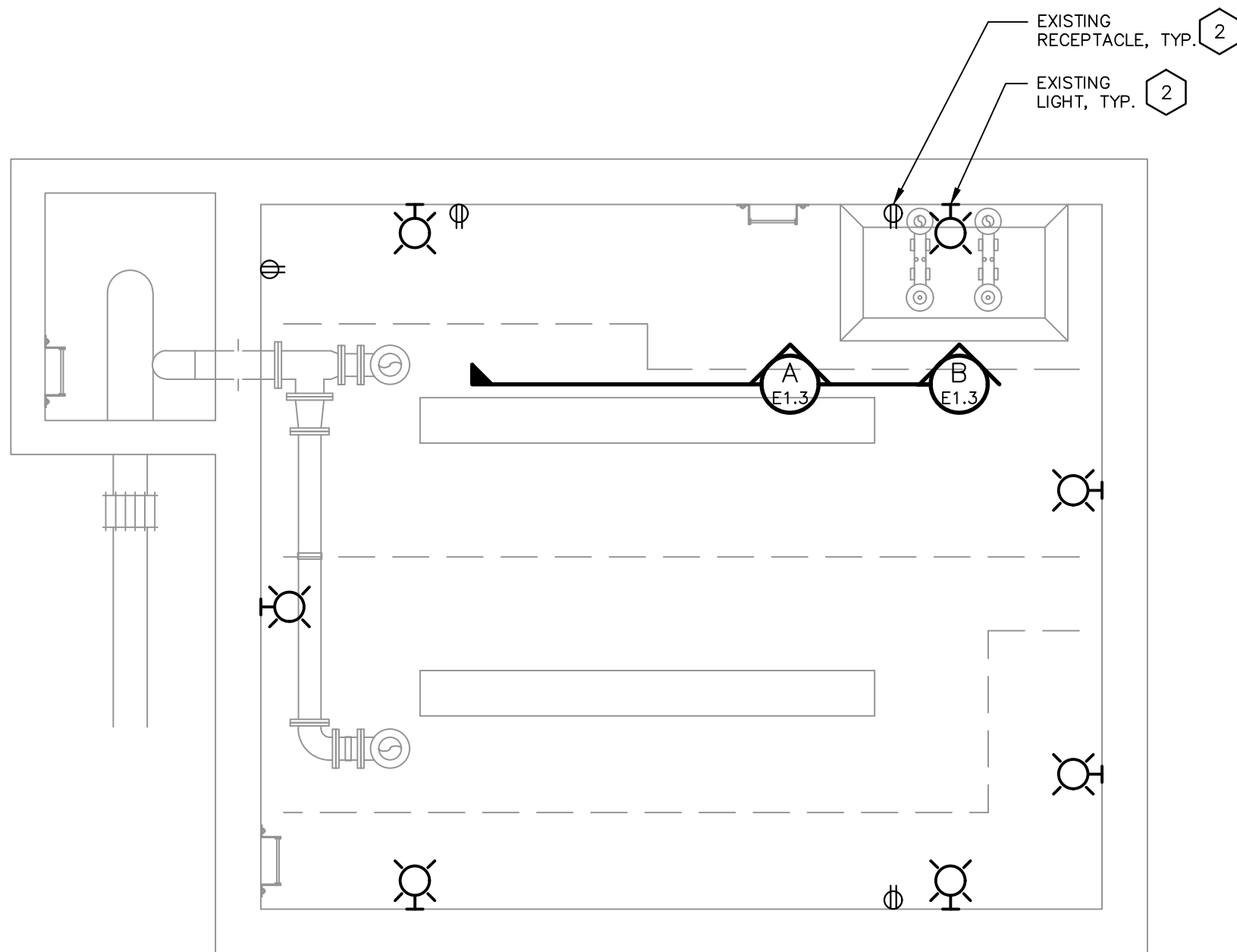
Blyth WWTP Upgrade

Instrumentation Loop Diagrams and UPS Panel Details

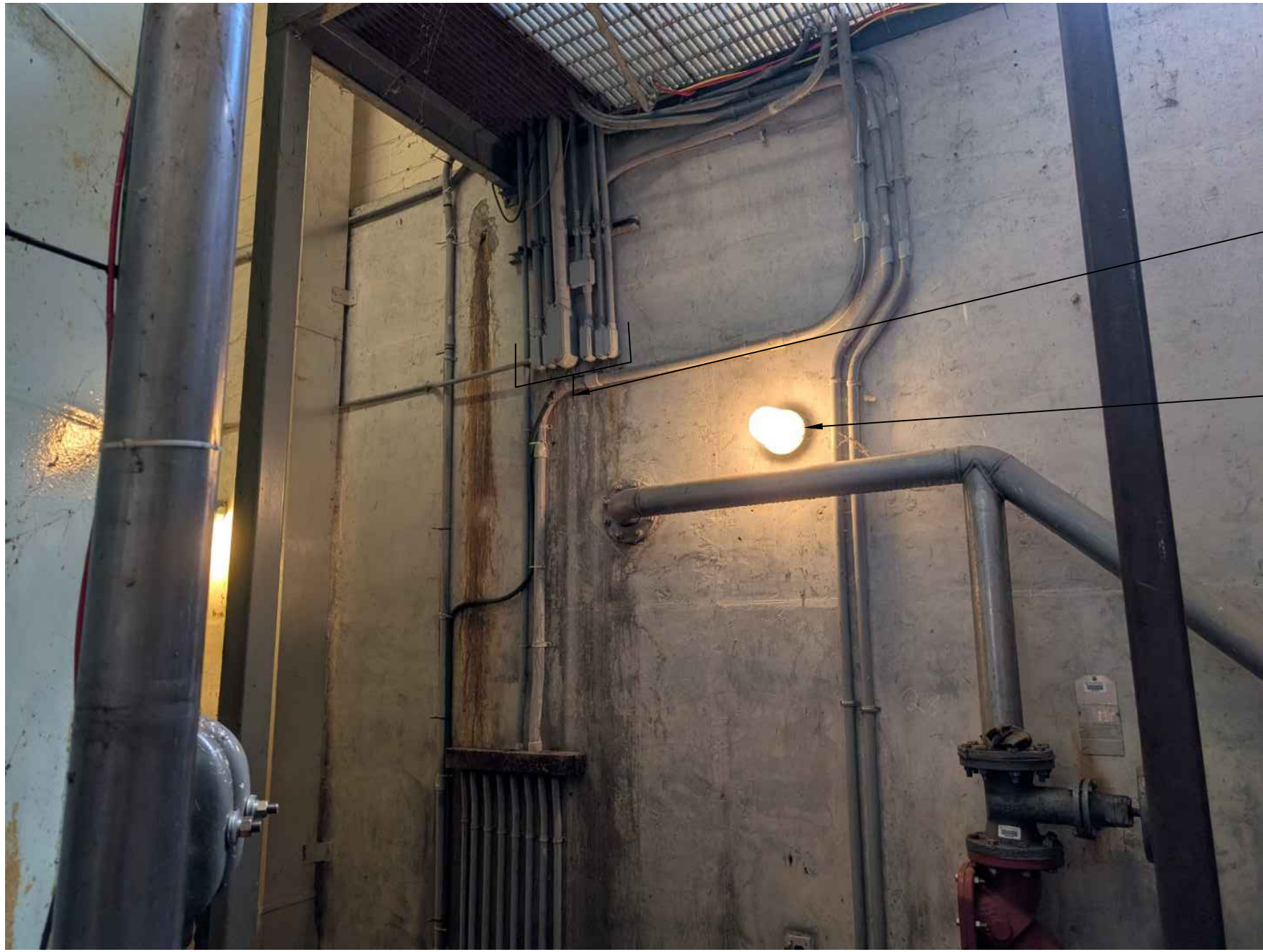
Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. E3.1



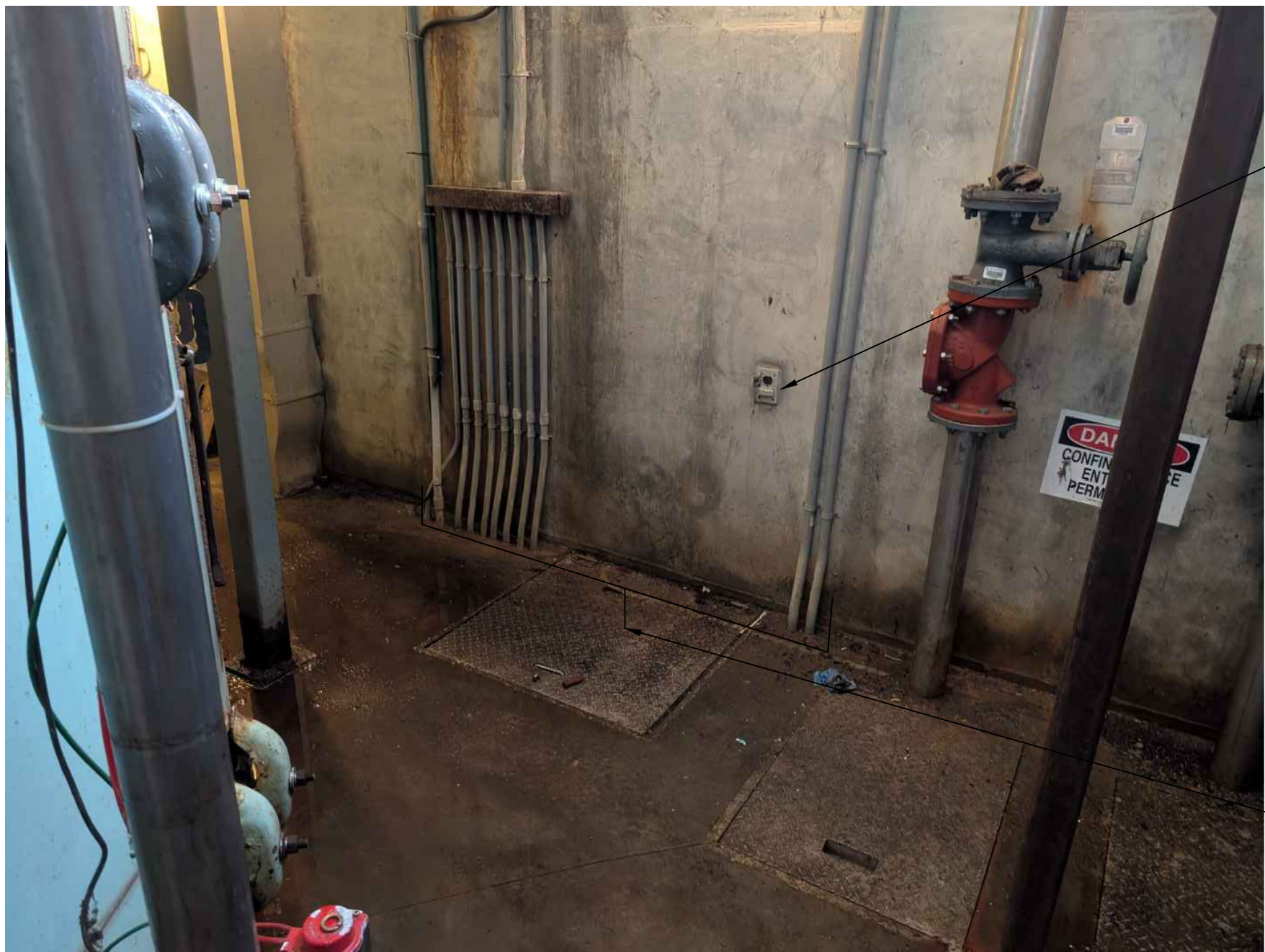
1 SAND FILTER (STORAGE) BUILDING – UPPER LEVEL EXISTING CONDITIONS 1
• 1:50



2 SAND FILTER (STORAGE) BUILDING – LOWER LEVEL EXISTING CONDITIONS 1
• 1:50



A E4.1 SAND FILTER (STORAGE) BUILDING – EXISTING CONDUIT CONDITIONS 1
• NTS



B E4.1 SAND FILTER (STORAGE) BUILDING – EXISTING CONDUIT CONDITIONS 1
• NTS

REMOVAL NOTES:

- GENERAL NOTES FOR ALL REMOVAL WORKS:
- UNLESS OTHERWISE NOTED, "REMOVE" OR "REMOVED" INDICATES CONTRACTOR TO DISCONNECT, REMOVE AND DISPOSE OF ELECTRICAL EQUIPMENT AND/OR DEVICE INCLUDING POWER FEED CONDUCTORS, CONDUIT AND/OR CABLE(S).
 - CONTRACTOR TO COORDINATE WITH THE TOWNSHIP ALL EQUIPMENT TO BE REMOVED AND EQUIPMENT TO BE SAVED. CONTRACTOR TO ASSIST TOWNSHIP WITH DELIVERY OF EQUIPMENT TO BE SAVED, WITHIN THE TOWN.
 - ALL REMOVED EQUIPMENT TO BE DISPOSED BY THE CONTRACTOR.
 - MAINTAIN OPERATION TO ALL AREAS OF THE STATION "AS MUCH AS POSSIBLE", AS THE STATION IS TO OPERATE AT ALL TIMES WITH MINIMAL INTERRUPTIONS.
 - CONTRACTOR TO PREPARE AN ELECTRICAL REMOVAL SCHEDULE FOR REVIEW WITH ENGINEER AND OWNER PRIOR TO BEGINNING ANY SHUT DOWN WORK.
 - COORDINATE ALL ELECTRICAL WORK WITH THE PROCESS EQUIPMENT REMOVALS AND NEW INSTALLATIONS.
 - ALL REMOVAL WORK SCHEDULES REQUIRED BY THE CONTRACTOR ARE TO BE APPROVED BY ENGINEER AND OWNER FIVE (5) WORKING DAYS PRIOR TO ANY POWER SHUTDOWN.
 - REMOVAL WORK IS TO OCCUR WHILE STATION IS OPERATING AT "LOW FLOW" CONDITIONS, WITH MINIMAL EQUIPMENT OPERATING. CONTRACTOR IS TO INCLUDE ALL NECESSARY PREMIUM LABOUR TIME TO PERFORM REMOVAL WORK ON WEEKENDS, EVENINGS OR OTHER "NON-REGULAR" TIMES AS DIRECTED BY THE OWNER/OPERATOR.
- 1 EXISTING SAND FILTER BUILDING TO BE DE-COMMISSIONED AND TURNED INTO SINGLE LEVEL STORAGE ROOM.
- 2 EXISTING EQUIPMENT, ASSOCIATED CONDUIT, WIRING AND APPURTENANCES TO BE REMOVED AND NOT REPLACED.
- 3 EXISTING EQUIPMENT, ASSOCIATED CONDUIT, WIRING AND APPURTENANCES TO BE REMOVED AND REPLACED WITH NEW.



Design By: DR Checked By: GGR



No.	DATE	REVISION
1	Oct. 1, 2025	Issued For Client Review
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Goderich Kincardine Mount Forest Sarnia



Township of
North Huron

Blyth WWTP Upgrade

Sand Filter Building -
Existing Conditions

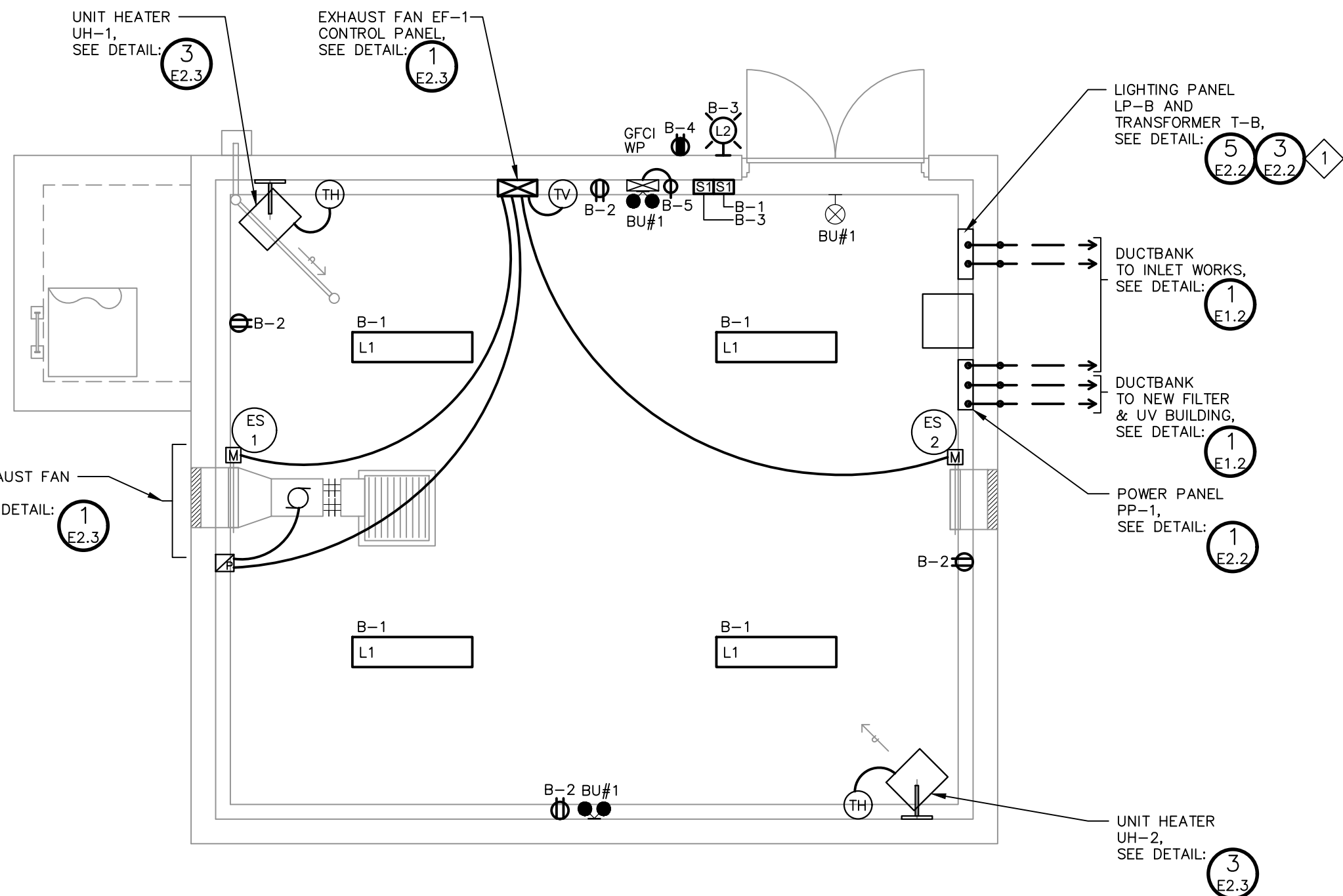
Contract No. 1	Project No. 20093
Scale (24x36) AS SHOWN	Drawing No. E4.1

LUMINAIRE SCHEDULE														
FIXTURE LETTER	FIXTURE DESCRIPTION	CEILING		WALL		LUMINAIRE DATA				VOLTAGE		BASIC OPTIONS		BASE BID MANUFACTURER MODEL NUMBERS
		SURFACE	RECESSED	SURFACE	RECESSED	WATTAGE	LAMP TYPE	LUMINAIRE DELIVERED LUMENS	DISTRIBUTION TYPE	COLOR TEMP. DEG. KELVIN	MINIMUM CRI	120VAC	240VAC	
L1	ILP WTZ AMAZON SERIES	●		●		47	LED	6505	N/A	4000	>80	●	●	W ILP LIGHTING WTZ4-6L-U-40-RAFL-SS-SP10-HUB3/4-FMB
L2	ILP WPCM SERIES			●		31	LED	4362	N/A	4000	>70	●	●	ILP LIGHTING WPCM-4L-U-40-T4-BLK-SP2-WPC25WG-PCU
●	READYLITE RHP SERIES			●		2x6	LED	N/A	N/A	N/A	N/A	●	●	READYLITE RHP-24150-2-L6 (NEMA 4X)
●	READYLITE TUF-NM SERIES			●		4	LED	N/A	N/A	N/A	N/A	●	●	READYLITE NMMP-2-LD13-BLANK-SM (NEMA 4X)
⊗	READYLITE RN SERIES			●		2.5	LED	N/A	N/A	N/A	N/A	●	●	READYLITE RN-1-BLANK-W-U (NEMA 4X)
NOTES: A. ALTERNATE MANUFACTURER SPECIFICATIONS MUST MEET OR EXCEED BASE BID SPECIFICATIONS. B. LAMP TYPE LEGEND: T8=T8 FLUORESCENT, HPS=HIGH PRESSURE SODIUM, MH=METAL HALIDE, CF=COMPACT FLUORESCENT, INC=INCANDESCENT QH=QUARTZ HALOGEN LED=LED TECHNOLOGY C. COLOR LEGEND: ST=STANDARD, W=WHITE, B=BLACK, G=GRAY, R=RED														
WHEN MOUNTING IS INDICATED AS "RECESSED", DIVISION 16 CONTRACTOR IS TO DETERMINE CEILING TYPE FROM THE LATEST ARCHITECTURAL REFLECTED CEILING PLAN DRAWINGS AND PROVIDE THE APPROPRIATE CEILING INSTALLATION KIT. E. EMERGENCY BATTERY UNITS: PROVIDE SEALED LONG LIFE BATTERIES, MINIMUM 10 YEAR DESIGN LIFE. F. PHOTOCELL MINIMUM 20 YEAR UNCONDITIONAL WARRANTY.														

EMERGENCY BATTERY UNIT LOADING CHECK:	
BATTERY SIZE FOR BU#1	= 150W/30MIN
LAMPS CONNECTED TO BU#1	= 2x6W + 2x4W
	= 20W
EMERGENCY BATTERY UNIT LOADING CHECK:	
BATTERY SIZE FOR BU#2	= 150W/30MIN
LAMPS CONNECTED TO BU#2	= 2x6W + 2x4W
	= 20W

2 LUMINAIRE SCHEDULE

• NTS



1 SAND FILTER (STORAGE) BUILDING – PROPOSED CONDITIONS

• 1:50
• CONTRACTOR TO REVIEW UNDERGROUND CONDUIT ARRANGEMENTS PRIOR TO INSTALLATION WITH ENGINEER



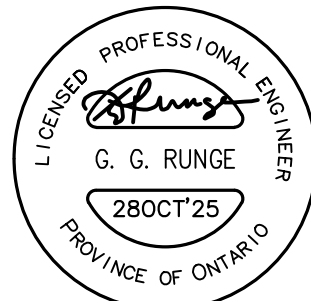
A SAND FILTER (STORAGE) BUILDING – EXTERIOR NORTH WALL – PROPOSED

• NTS
• CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK

NOTES:
TRANSFORMER "T-B" TO BE FLOOR MOUNTED, BESIDE LIGHTING PANEL "LP-B".



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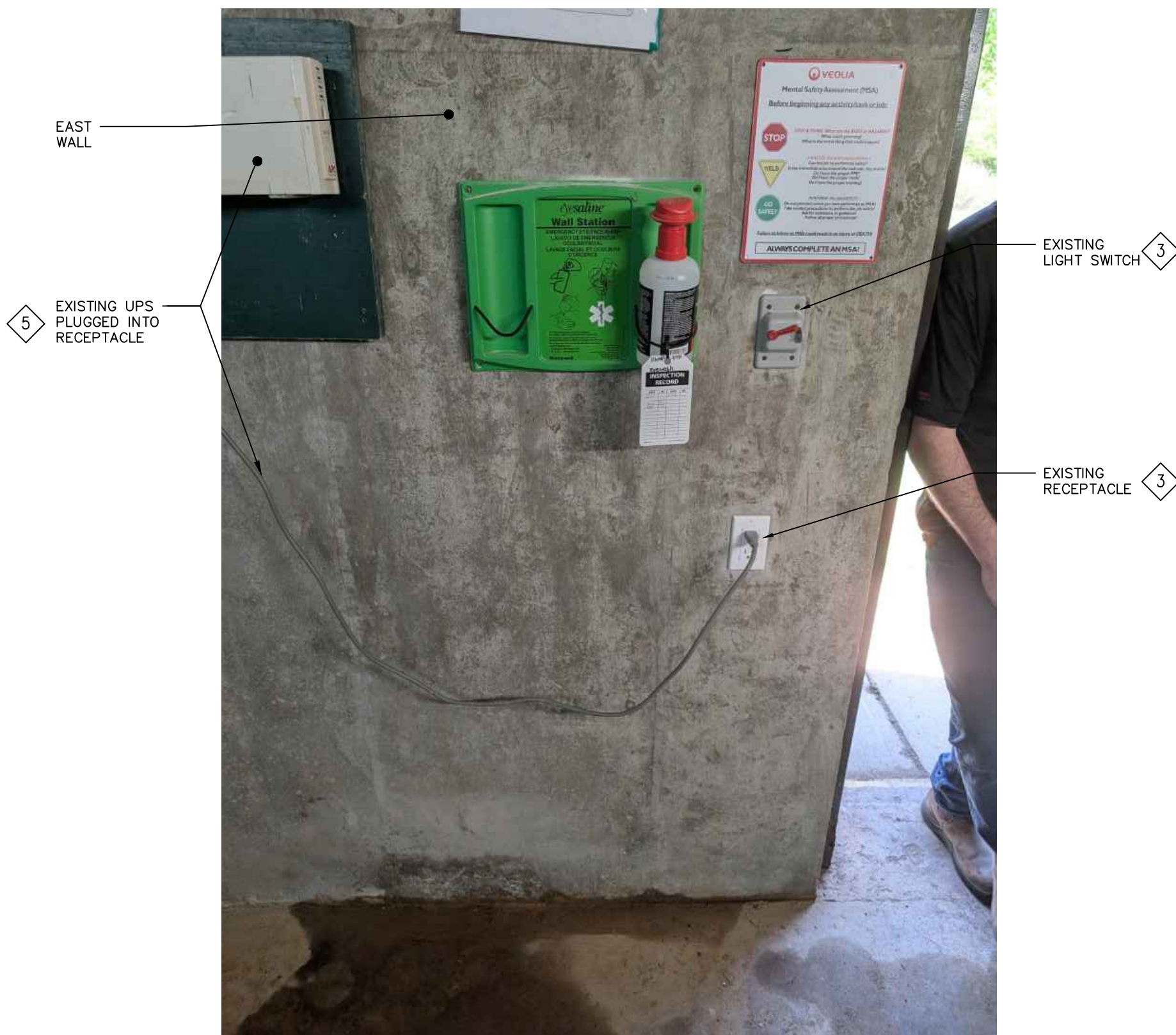
Township of North Huron
Blyth WWTP Upgrade
Sand Filter (Storage) Building - Proposed Conditions

Contract No. 1

Project No. 20093

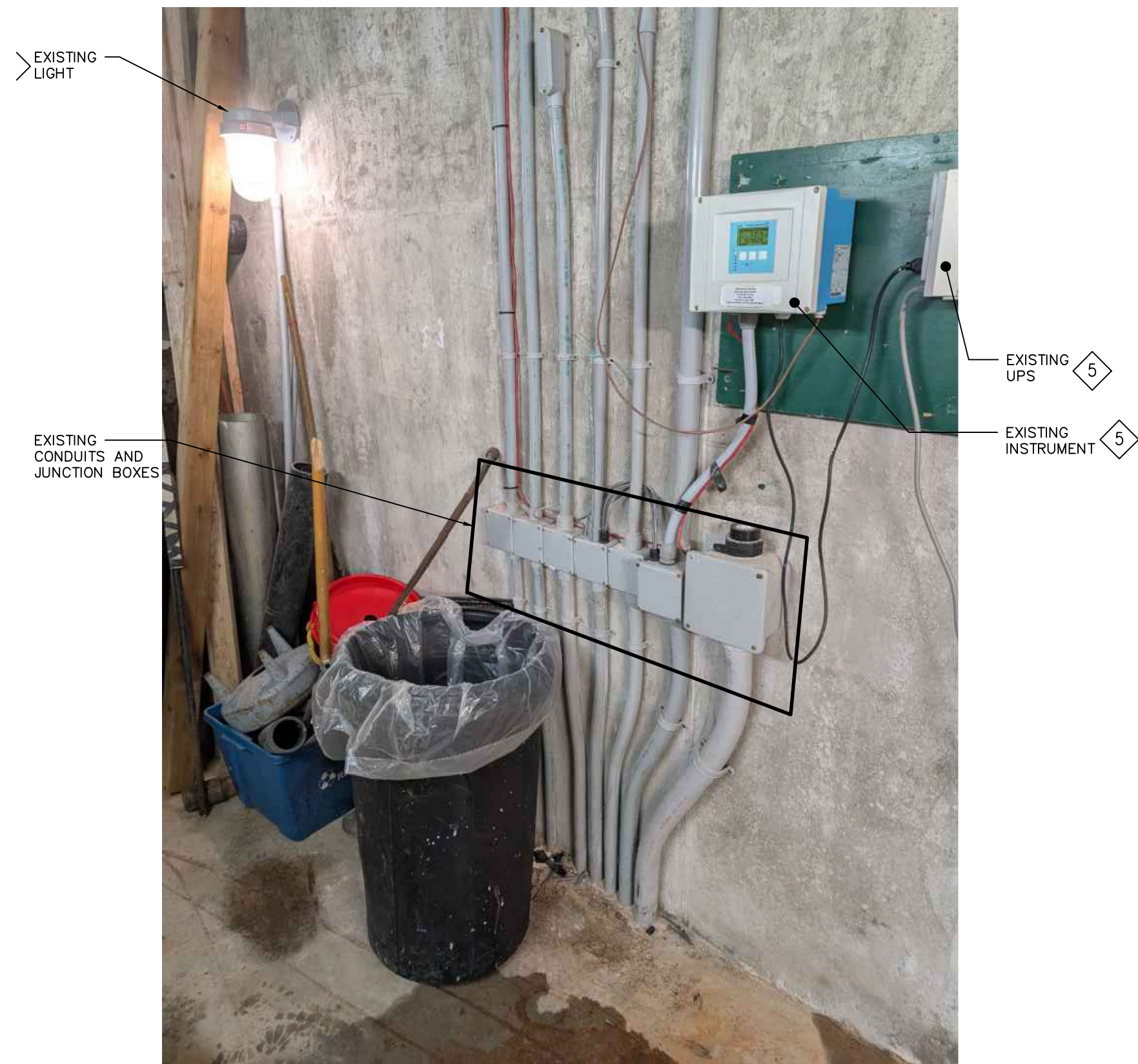
Scale (24x36)
AS SHOWN

Drawing No. E4.2



3 INLET WORKS – INTERIOR – PROPOSED

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK



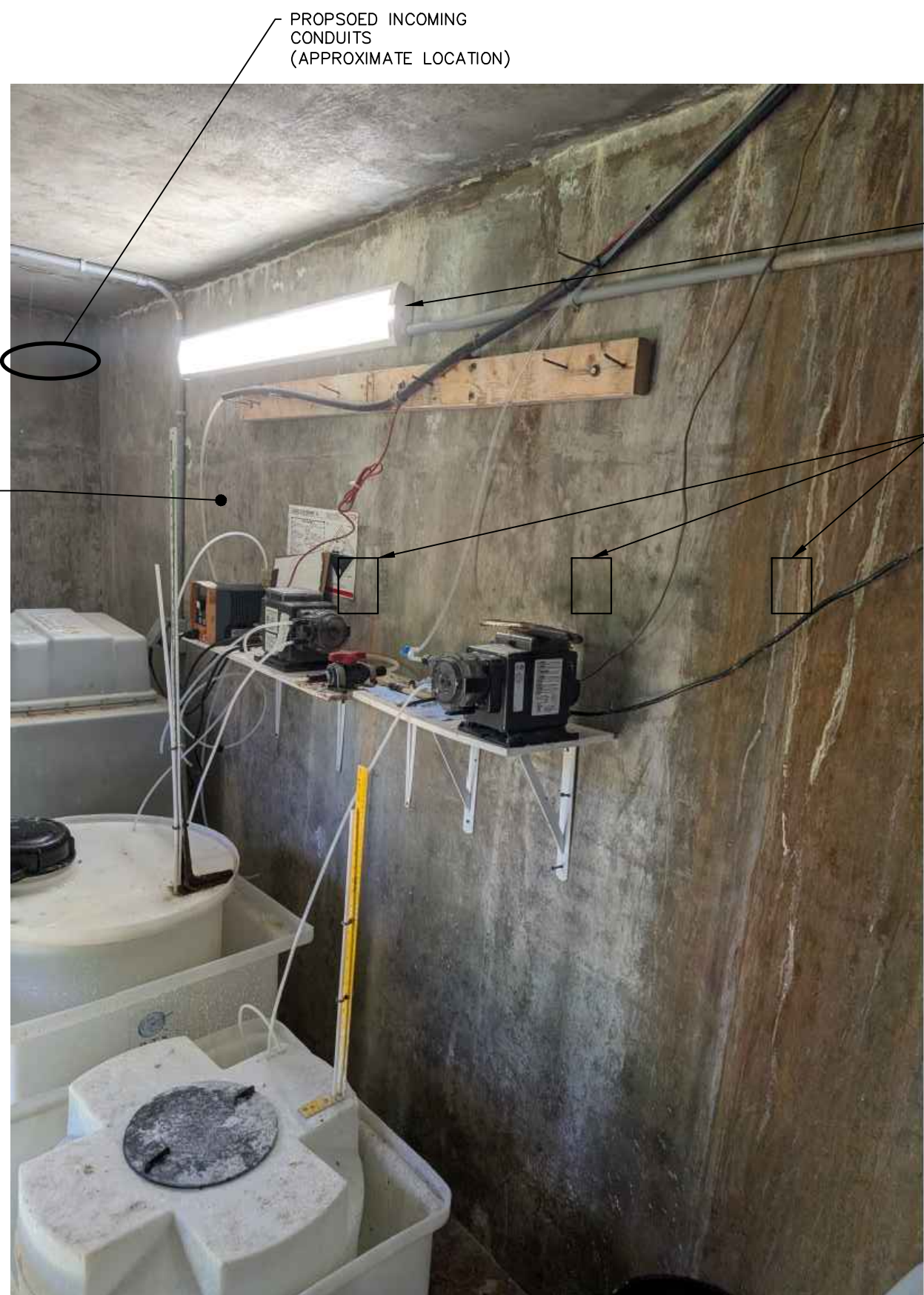
4 INLET WORKS – INCOMING CONDUITS

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK



A INLET WORKS – EXTERIOR NORTH WALL – PROPOSED

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK



1 INLET WORKS – INTERIOR – PROPOSED

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK



2 INLET WORKS – INTERIOR – PROPOSED

- NTS
- CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS PRIOR TO COMMENCING WORK

NOTES:

- 1 CONTRACTOR TO INVESTIGATE AND IDENTIFY ALL EXISTING CONDUITS AND WIRING, ALL UNUSED CONDUIT AND WIRING TO BE REMOVED ALONG WITH CONDUIT AND WIRING ASSOCIATED WITH DECOMMISSIONING OF EXISTING SAND FILTER BUILDING. EXISTING LIGHTING AND RECEPTACLE CONDUIT PERMITTED TO BE RE-USED, WHERE POSSIBLE, WITH NEW POWER FEED FROM PROPOSED LIGHTING PANEL LP-B. CONTRACTOR TO DISCUSS WITH ENGINEER DURING CONSTRUCTION.
- 2 COORDINATE DUCTBANK STUB-UP AND WALL PENETRATION TO INLET WORKS BUILDING WITH EXISTING INTERFERENCES WITHIN BUILDING.
- 3 FOLLOWING INVESTIGATION OF EXISTING CONDUIT AND WIRING, EQUIPMENT TO BE REPLACED, AS NECESSARY, TO SUIT NEW POWER FEED FROM SAND FILTER/STORAGE BUILDING.
- 4 FOLLOWING INVESTIGATION OF EXISTING CONDUIT AND WIRING, EQUIPMENT TO BE REMAIN AND CONNECTED TO NEW POWER FEED NEW POWER FEED FROM SAND FILTER/STORAGE BUILDING.
- 5 EXISTING EQUIPMENT TO REMAIN.



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Township of North Huron

Blyth WWTP Upgrade

Existing Inlet Works Building - Proposed Conditions

Contract No. 1

Project No. 20093

Scale (24x36)
AS SHOWN

Drawing No. E4.4