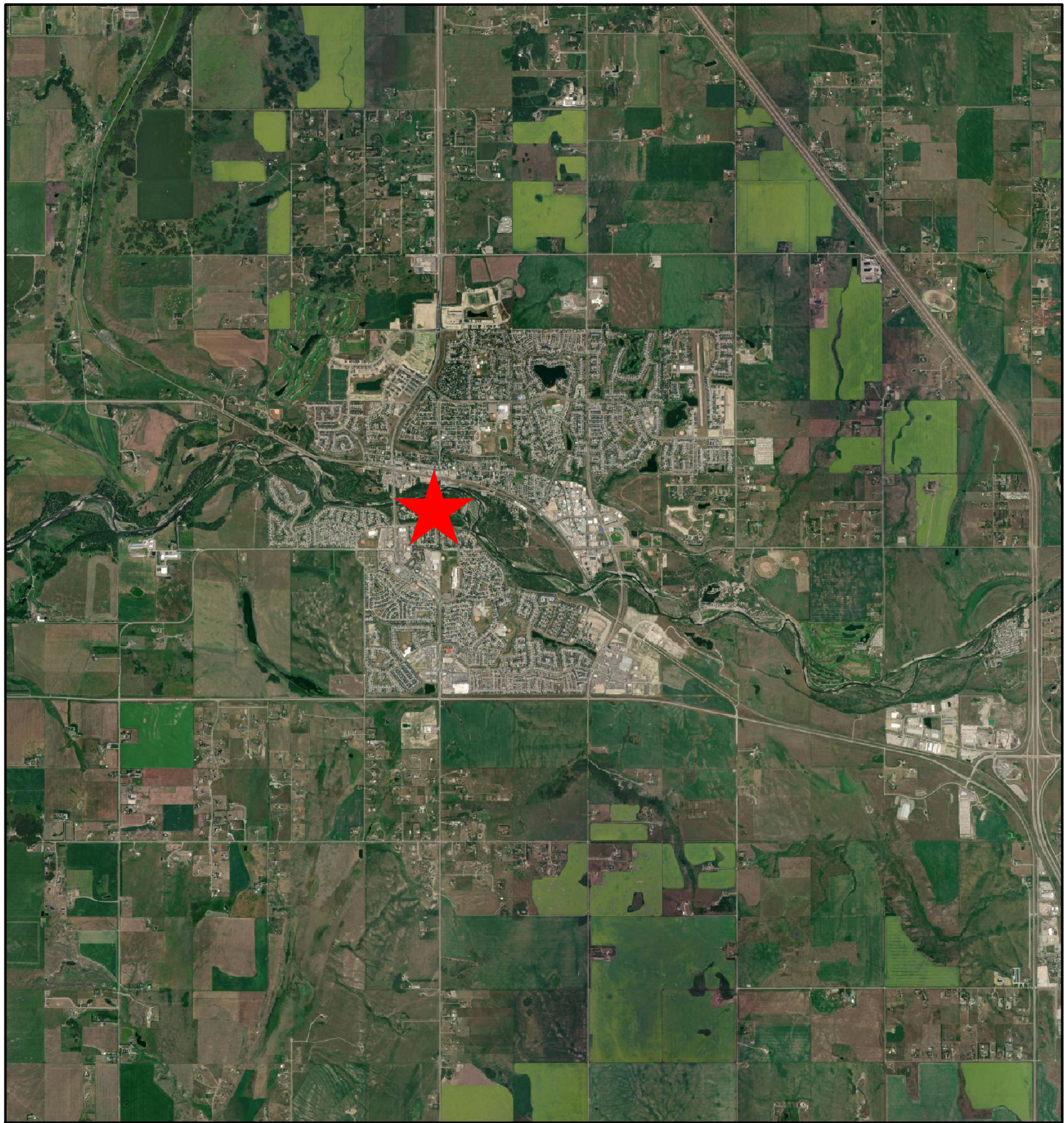




SITE LOCATION
NOT TO SCALE

FOOTHILLS OKOTOKS REGIONAL WATER PROJECT WATER TREATMENT PLANT TIE INS PRELIMINARY DESIGN DRAWINGS

List of Drawings

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
CIVIL		ELECTRICAL	
FORWP-03-C-SSP-001-01	SITE SERVICING PLAN	FORW-03-E-LEG-001	LEGEND
FORWP-03-C-SSP-001-02	SITE SERVICING PLAN	FORW-03-E-LEG-002	INSTRUMENT WIRING TYPICALS
FORWP-03-C-SGP-002	SITE GRADING PLAN	FORW-03-E-LAY-001	EQUIPMENT LAYOUT
		FORW-03-E-SCH-001	PANEL AND LIGHTING SCHEDULE
ARCHITECTURAL		FORW-03-E-WD-001	FULL VOLTAGE MOTOR STARTER TYPICAL
FORWP-02-A-GE-001	STANDARD NOTES	FORW-03-E-SCH-002	CABLE SCHEDULE
FORWP-02-A-GE-002	CODE REVIEW	FORW-03-E-LAY-002	CONTROL PANEL LAYOUT
FORWP-02-A-GE-003	ENERGY CODE	FORW-03-E-SCH-003	CONTROL PANEL BOM AND LABEL SCHEDULE
FORWP-02-A-LAY-001	FLOOR PLANS	FORW-03-E-LAY-003	CONTROL PANEL PLC LAYOUT
FORWP-02-A-GA-001	ELEVATIONS	FORW-03-E-LAY-004	CONTROL PANEL TERMINAL STRIP LAYOUT
FORWP-02-A-GA-002	TYPICAL SECTION	FORW-03-E-WD-002	CONTROL PANEL POWER DISTRIBUTION
FORWP-02-A-DET-001	EXTERIOR DETAILS	FORW-03-E-WD-003	PLC ANALOG INPUT MODULES 1 AND 2
		FORW-03-E-WD-004	PLC ANALOG OUTPUT MODULE 1
STRUCTURAL		FORW-03-E-WD-005	PLC DIGITAL INPUT MODULE 1 AND DIGITAL OUTPUT MODULE 1
FORWP-02-S-GE-001	GENERAL NOTES		
FORWP-02-S-GE-002	DEMOLITION PLAN		
FORWP-02-S-GE-003	FOUNDATION PLAN		
FORWP-02-S-GE-004	MAIN FLOOR PLAN		
FORWP-02-S-GE-005	ROOF PLAN		
FORWP-02-S-DET-001	SECTIONS AND DETAILS		
FORWP-02-S-DET-002	TYPICAL DETAILS		
PROCESS			
FORWP-03-P-PID-001	P&ID LEGEND		
FORWP-03-P-PID-002	P&ID		
FORWP-03-P-GA-001	PROCESS MECHANICAL LEGEND		
FORWP-03-P-GA-002	PLAN		
FORWP-03-P-GA-003	SECTIONS		
FORWP-03-P-GA-004	ISOMETRIC RENDERING		
73184D-105	PROCESS FILTER ½ AND U V		
	UPPER LEVEL PLAN		

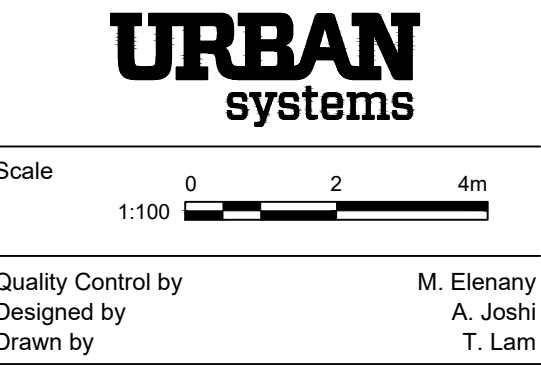
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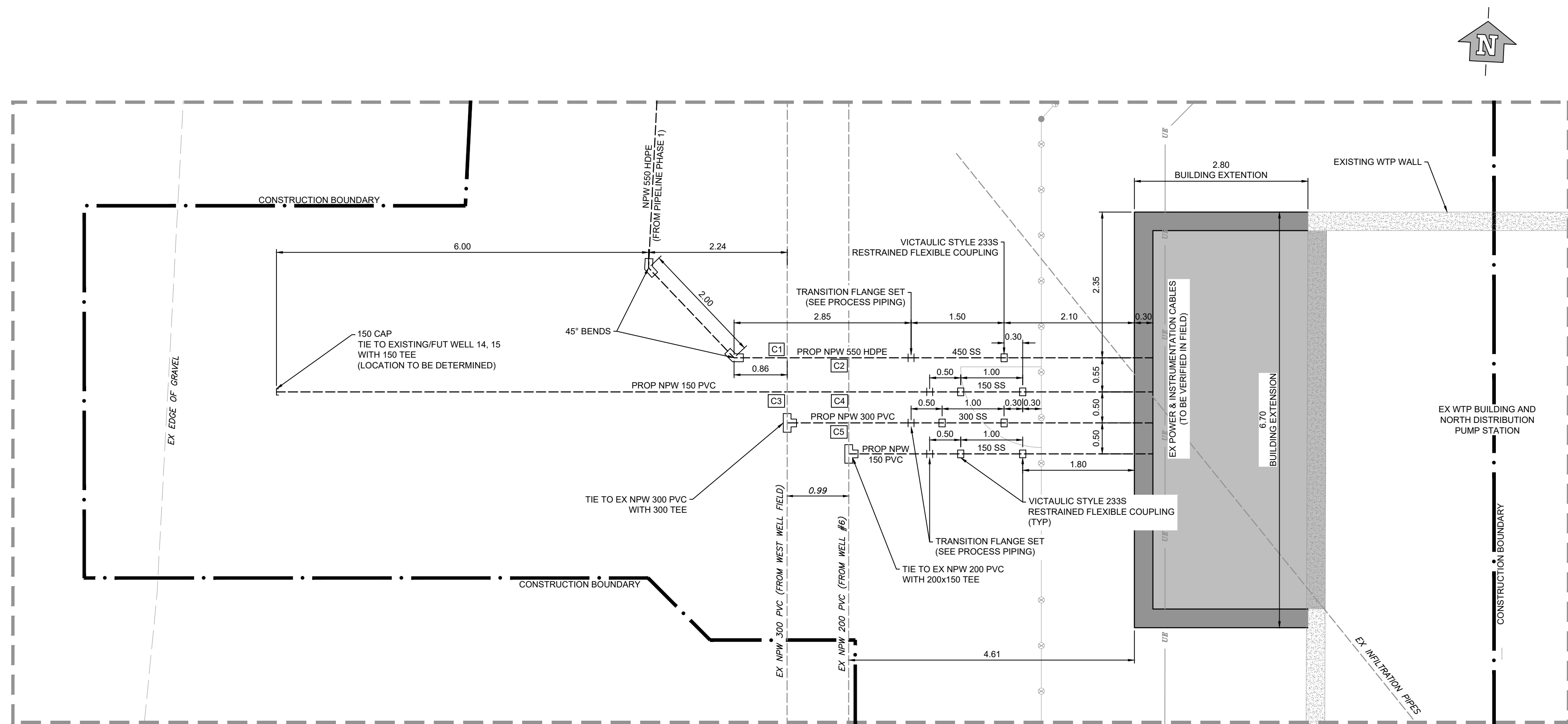
#	Date	Issue / Revision	App
2	2024-11-25	ISSUED FOR 75% DESIGN	ME



Sheet Number	1 of 3
Project Number	
1306.0120.08	
Drawing Number	Revision
FORWP-03-C-SSP-001-01	2

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1
001-01
PIPE CONNECTION DETAIL
SCALE 1:50

PIPE CROSSING [C#]	EXISTING PIPE SIZE-MATERIAL INVERT	PROPOSED PIPE SIZE MATERIAL INVERT
[C1]	EX NPW 300 PVC 1048.44	NPW 550 HDPE 1047.59
[C2]	EX NPW 200 PVC 1048.57	NPW 550 HDPE 1047.72
[C3]	EX NPW 300 PVC 1048.44	NPW 150 PVC 1047.99
[C4]	EX NPW 200 PVC 1048.56	NPW 150 PVC 1048.11
[C5]	EX NPW 200 PVC 1048.57	NPW 300 PVC 1047.97

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Scale
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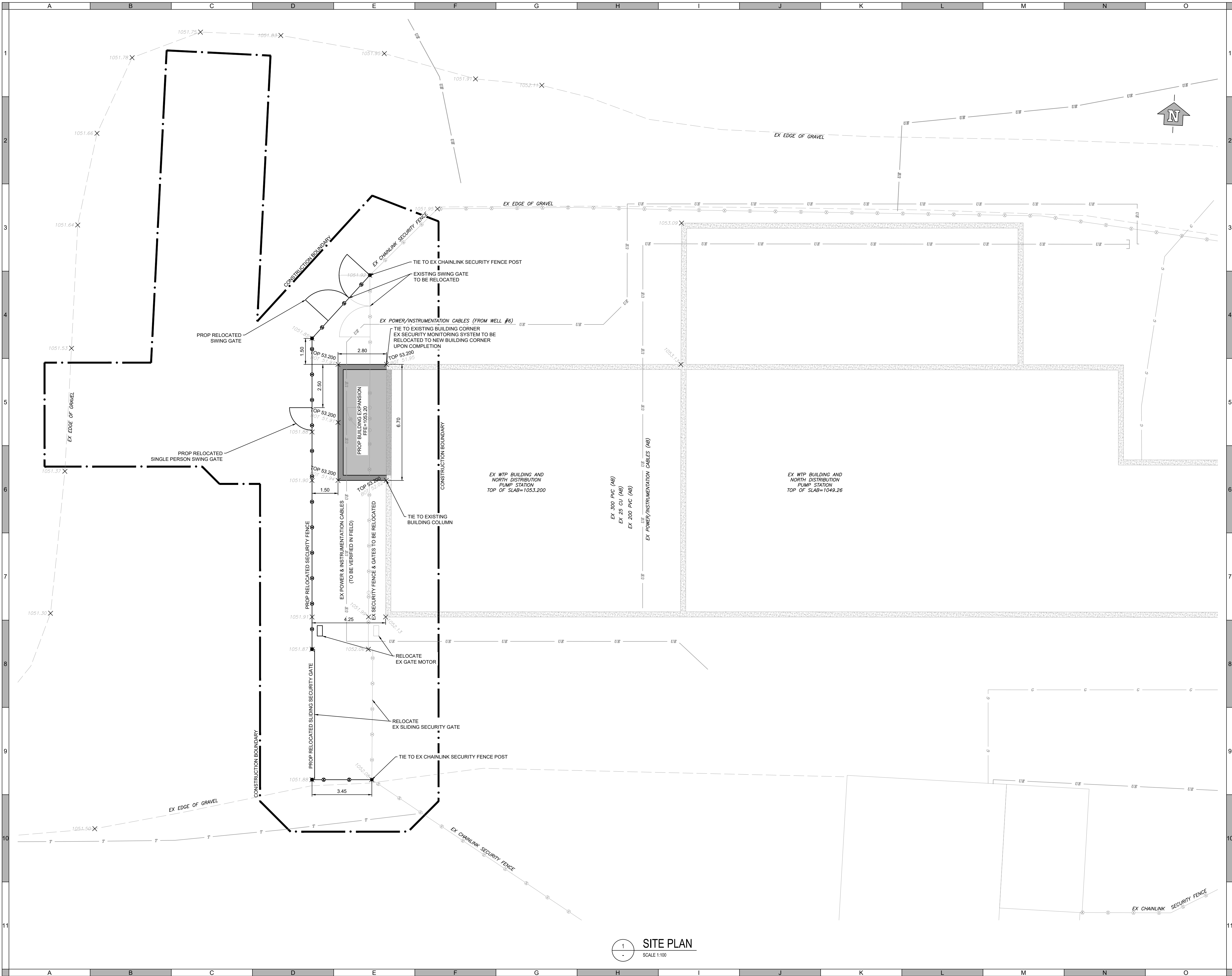
Quality Control by M. Elenany
Designed by A. Joshi
Drawn by T. Lam

FOOTHILLS OKOTOKS
REGIONAL WATER PROJECT
WTP TIE-INS
SITE SERVICING PLAN

Sheet Number 2 of 3
Project Number 1306.0120.08
Drawing Number FORWP-03-C-SSP-001-02
Revision 2

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1
-
SITE PLAN
SCALE 1:100

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Scale 1:100 0 2 4m

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Designed by A. Joshi
Drawn by T. Lam

FOOTHILLS OKOTOKS REGIONAL WATER PROJECT WTP TIE-INS SITE GRADING PLAN	
Sheet Number	3 of 3
Project Number	1306.0120.08
Drawing Number	FORWP-03-C-SGP-002
Revision	2

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
	WHEN SEPARATE SPECIFICATIONS ARE PROVIDED THOSE SPECIFICATIONS SUPERCEDE THE STANDARD NOTES															
1	FIRE STOPPING : PRODUCT OPTIONS & SUBSTITUTIONS: VAPOUR & AIR BARRIERS : SHOP DRAWINGS : FIELD REPORTS :															1
	GENERAL REQUIREMENTS															
2	1. Provide firestopping systems to meet the requirements of the current building code referenced in code review. 2. STANDARDS 1. Underwriters Laboratories of Canada (ULC): 1. CAN/ULC S115-05 STANDARD METHOD OF FIRE TESTS OF FIRESTOP SYSTEMS 2. ULC-FS-09 FIRESTOP SYSTEMS AND COMPONENTS 2009 EDITION 2. Warnock Hersey (WH) Certification Listings, current edition 3. REQUIREMENTS 1. Firestopping shall provide a rating EQUAL TO THE FIRE RATING OF THE ASSEMBLY, when tested to ULC S115, for a rating period applicable to the fire separation. 2. Firestopping of electrical and communications cables shall be easily re-enterable and re-sealable with negligible risk of damage to cables, and shall not require de-rating of electrical cables. 3. Firestopping used to fill voids in floors having openings 100 mm diameter or larger, and which are accessible to the public, shall support floor design loading. 4. COORDINATION: 1. Coordinate construction of fire separations and penetrations through fire separations with work of this Section. 2. Ensure penetrations have been completed prior to installing firestopping. 3. Install firestopping prior to insulation of piping, unless insulation is part of a tested firestop system meeting requirements. 5. Submit shop drawings of ALL firestopping systems and include manufacturer's printed product literature, specifications and data sheets for each firestopping system to be used Confirming the fire rating and testing standard. 6. DELIVERY, STORAGE, AND HANDLING 1. Deliver materials in original, unopened packaging bearing manufacturer's seals and labels intact. 2. Store materials off ground, under cover and away from moisture.															2
3	PRODUCTS															3
4	1. SYSTEMS AND MATERIALS 1. Firestopping systems as listed under ULC-FS-09 Firestop Systems and Components 2009 Edition, or as listed in WH Listings under "Through-Penetration Firestopping Systems". 2. Firestopping materials, whether used in a tested system or not, shall be: 1. listed under ULC-FS-09 or under WH Listings, 2. labeled with applicable ULC or WH label, and 3. compatible with applicable substrates and openings. 3. Provided that all other specified requirements can be met, use any of the following products, either singly or in combination: 1. Elastomeric sealant. 2. Elastomeric coating. 3. Mineral fibre. 4. Mortar. 5. Intumescent putty. 6. Poured-in-place silicone foam. 7. Preformed silicone foam. 8. Multi-cable transit system. 9. Any other product which meets all other specified requirements. 4. Primer: as recommended by firestopping manufacturer for applicable substrate.															4
5	EXECUTION															5
6	1. VERIFICATION OF CONDITIONS 1. Examine condition of voids to be filled to ensure suitability for firestop systems. 2. Verify installation of service penetrations and adjacent construction has been completed. 2. PREPARATION 1. Prepare substrates and surfaces to a clean, dry, and frost free condition, ready to receive firestopping. 2. Prime substrates and surfaces to manufacturer's recommendations. 3. INSTALLATION 1. Provide tested firestopping systems meeting the fire rating of the assembly it is penetrating wherever the continuity of a fire separation is interrupted by mechanical, electrical or other service penetrations, or by any other openings, gaps or discontinuities. 2. Install tested firestopping systems in accordance with manufacturer's recommendations and in strict conformance with tested systems. 3. In locations for which there are no applicable tested firestopping systems, provide firestopping materials where indicated and as detailed on drawings. Install materials in accordance with manufacturer's recommendations. 4. Where applicable, neatly tool or trowel firestopping surfaces remaining exposed and make flush with surrounding exposed surfaces.															6
7																7
8																8
9																9
10																10
11																11
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	

FIRE SEPARATIONS AND FIRE RESISTANCE RATINGS:

1. *Fire separation* - a construction assembly that acts as a barrier against the spread of fire.

A. Fire separations act as a barrier to the spread of fire and smoke within a building therefore to be effective the assembly shall be continuous. Fire separations shall terminate at and extend to other fire separations (from the top of floors to the underside of floors or roofs and from other partitions or exterior walls to other partitions or exterior walls).and

B. All penetrations and gaps through and around the perimeter of a fire separation should be sealed / caulked.

2. Fire separations may or may not also have a fire resistance rating – when a fire separation has a fire resistance rating there are “additional” requirements.

3. *Fire-resistance rating* - means the time in minutes or hours that a material or assembly of materials will withstand the passage of flame and the transmission of heat when exposed to fire under specified conditions of test and performance criteria, or as determined by extension or interpretation of information derived therefrom as prescribed in this Code.

4. All penetrations through a Fire separation with a *Fire-resistance rating* formed by electrical and mechanical items are required to sealed with an approved fire stopping system with a fire resistance rating equal to the fire rating of the fire separation based on the size or diameter of the penetration and the materials going through the assembly. Any small gaps around the perimeter of the fire separation shall also be fire stopped with an approved fire stopping system or completely sealed to adjoining walls, floors, roofs or ceilings.

5. Closures and fire dampers shall meet and be installed to the requirements of NFPA 80.

INSTALLATION

1. Install sheet polyethylene where indicated on drawings, as required to form a continuous vapour retarder on warm side of the building envelope directly beneath and supported by interior finish materials.

2. Use sheets of largest practical size to minimize joints. Join sheets over solid, continuous backing, lapping sheets minimum 150 mm.

3. Mechanically fasten or adhere polyethylene sheet to substrates.

4. Repair punctures and tears with sealing tape. Where punctures and tears are extensive replace entire damaged section, overlapping perimeter framing on all sides.

5. Seal sheet polyethylene to air/vapour hats installed over electrical boxes and other semi-recessed devices, using sealing tape or 15 mm diameter bead of polyurethane sealant.

6. Seal penetrations through air/vapour hats using polyurethane sealant. Ensure sealant extrudes to both sides of penetrations.

7. Seal along full perimeter and edges with polyurethane sealant.

8. Windows and storefront frame perimeters: Lap vapour retarder into all exterior rough openings and extend to at least 25mm past interior face of window and storefront frames. Maintain continuous barrier in all corners of rough opening. Seal with sealant and staples.

9. Wall Roof Junction: Lap vapour retarder from wall to roof vapour retarder with minimum 100mm lap. Seal with sealant and staple.

10. Press steel frame perimeters: trim vapour retarder to the rough opening and seal to SBS membrane with vapour barrier tape. SBS membrane should have already been installed to the full perimeter of the rough opening and should be installed over the full depth of the wall studs.

AIR BARRIERS

The installation of the air barriers are to follow manufacturers instruction and recommendations.

Self-adhered air barriers

1. Henry Blueskin VP160 Air barrier system .

2. Soprema Sopraseal Stick VP.

Liquid applied air barriers:

1. Dryvit Backstop NT and Aquaflash in combination with Dryvit EIFS system.

2. DuraBond Durex Blue Shield in combination with DuraBond EIFS system.

3. DuRock Cement Bear and Polar Bear in combination with DuRock PUCCS EIFS system

Mechanically fastened air barriers:

1. Typar Metrowrap functioning as an air barrier assembly with approved fasteners and tape to all joints, overlaps and perimeter edges of the membrane.

2. Hal-Tex “60 minute” building paper, two-layer application, with approved fasteners tape to all joints, overlaps and perimeter edges of the paper.

VAPOUR BARRIER

1. Polyethylene Film: to CAN/CGSB-51.34, 0.15 mm thick.

2. Staples: to CAN/CSA B111, galvanized wire, minimum 6 mm leg.

3. Sealing Tape: minimum 60 mm width, polypropylene sheathing tape with acrylic adhesive, or duct tape of same width.

4. Polyurethane Sealant: use one of the following:

1. One component, to CAN/CGSB-19.13, class 2, low temperature and having VOC content less than the VOC limits of State of California's South Coast Air Quality Management District Rule #1168, June 2006.

2. Multi-component, to CAN/CGSB-19.24, type 2 and having VOC content less than the VOC limits of State of California's South Coast Air Quality Management District Rule #1168, June 2006.

1. Shop drawings provide technical data specially prepared for work of this Contract; including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form.

2. Present shop drawings in a clear and thorough manner to appropriately illustrate the work.

3. Identify field dimensions on drawings.

4. Identify shop drawings by appropriate references to sheet, detail, schedule or room numbers.

SUBMITTAL PREPARATION

1. Review, date and sign, shop drawings, product data and samples, prior to submission.

2. Determine and verify:

1. Field measurements.

2. Field construction criteria.

3. Catalogue numbers and similar data.

4. Conformance with Contract Documents.

3. Coordinate each submittal with requirements of work and Contract documents. Individual drawings will not be reviewed until all related shop drawing and product data are available.

4. Notify the consultant, in writing, on the submittal and at the time of submission, of deviations from requirements of Contract Documents.

SUBMISSION REQUIREMENTS

1. Make submittals sufficiently in advance of date that reviewed submittals will be required and in such sequence as to cause no delay in the Work.

2. Accompany submittals with transmittal letter, containing:

1. Date.

2. Project title and number.

3. Contractor's name and address.

4. Number of each shop drawing, product data and sample submitted.

5. Other pertinent data.

3. Submittals shall include:

1. Date and revision dates.

2. Project title and number.

3. Name of:

1. Contractor.

2. Subcontractor.

3. Supplier.

4. Manufacturer.

5. Name of detailer when details not prepared by Contractor, sub- contractor, or supplier.

4. Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements, and compliance with Contract Documents.

5. Make corrections or changes to rejected submittals and resubmit, as specified for initial submission.
- RESPONSIBILITY FOR ERRORS, OMISSIONS AND DEVIATIONS
1. The review of submittals does not relieve Contractor from responsibility for errors and omissions, nor deviations from requirements of the Contract Documents and building code requirements.
- BACKING REQUIREMENTS :
1. The contractor shall provide and install all necessary in-wall framing / blocking to the walls and partitions to carry attached items fixed to and supported by walls or partitions.

2. Follow AWMAC and Woodwork Institute installation guidelines for architectural casework and millwork anchorage.

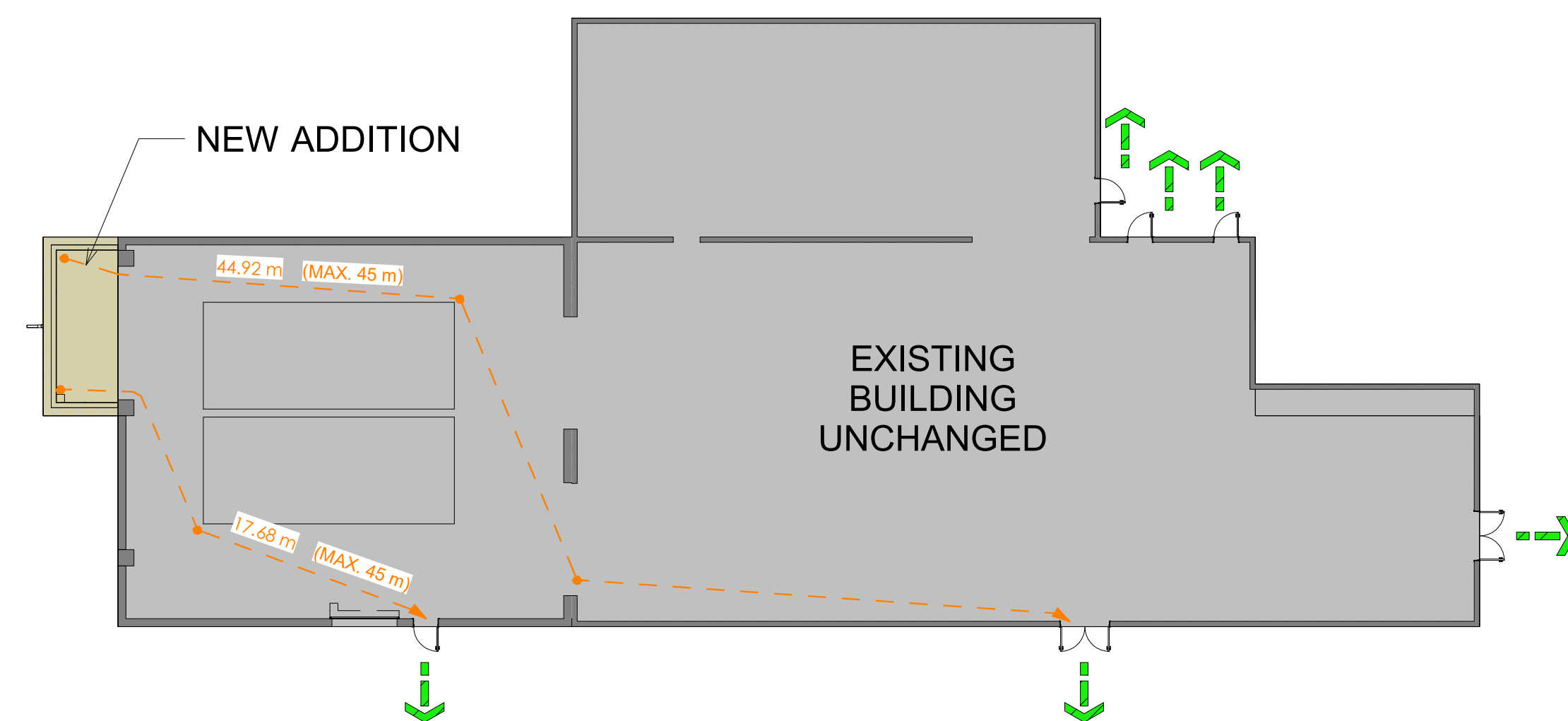
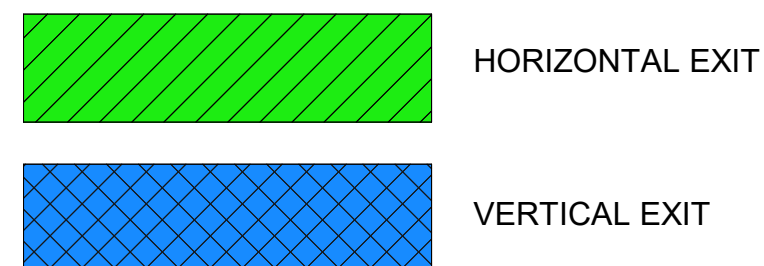
3. Coordinate placement of blocking with other work prior to installing gypsum board to ensure size and placement of blocking.

4. Typical blocking casework wall anchorage requires continuous in-wall blocking or backing of at least 50.8mm X 152.4mm (2" X 6") nominal wood OR 152.4mmX 1.4mm (6" X 16 GAUGE) flat strapping / backing plate appropriately located in all wood or metal stud walls. For installation into metal studs, the screw should be at least equal in length to the total thickness of the material, including gaps, with a minimum of three exposed threads.
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- | # | Date | Issue/ Revision | App. |
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| 1 | 24/10/08 | 75% REVIEW | IM |
| 2 | 24/11/29 | FOR DESIGN ASSIST RFP | IM |
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| Designed by | IM |
| Drawn by | KP |
- OKOTOKS WATER TREATMENT PLANT ADDITION STANDARD NOTES
- | | |
|----------------|-------------------|
| Sheet Number | of |
| Project Number | 29121-005-12 |
| Drawing Number | FORWP-02-A-GE-001 |
| Revision | 2 |
- NOT FOR CONSTRUCTION

NATIONAL BUILDING CODE - 2023 ALBERTA EDITION DATA										BUILDING CODE REFERENCE
1	PART 3 / 9		☒ PART 3 APPLIES ☐ PART 9 APPLIES							[A]1.1.2.
	1 PROJECT DESCRIPTION:		☐ NEW ☒ ADDITION ☐ RENOVATION ☐ CHANGE OF USE ☐ ADDITION AND RENOVATION							
	2 PROFESSIONAL DESIGN AND REVIEW:		☒ IS REQUIRED ☐ IS NOT REQUIRED							
2	3 MAJOR OCCUPANCY (S):		GROUP F2							3.1.2.1.(1)/ 9.10.2.1
	4 BUILDING CLASSIFICATION:		MAJOR F2 3.2.2.80							3.2.2.20 - 92/ 9.10.2
	5 BUILDING AREA (m²):		ALLOWABLE: 1,250m² EXISTING: 860.46 m² NEW: 18.76 m² TOTAL: 879.22 m²							[A]1.4.1.2
3	6 GROSS AREA (m²):		EXISTING: 860.46 m² NEW: 18.76 m² TOTAL: 879.22 m²							[A]1.4.1.2
	7 MEZZANINE AREA (m²):		EXISTING: 0 m² NEW: 0 m² TOTAL: 0 m²							3.2.1.1 / 9.10.4.1
	8 AREA AFFECTED (m²):		TOTAL: 18.76 m²							[A]1.4.1.2
3	9 NUMBER OF STOREYS:		ABOVE GRADE: 1 BELOW GRADE: N/A HEIGHT ABOVE GRADE: 9.1m							[A]1.4.1.2 / 3.2.1.1
	10 HIGH BUILDING:		☒ NO ☐ YES							3.2.6
	11 NUMBER OF STREETS:		2 STREETS							3.2.2.10 & 3.2.5
4	12 SPRINKLER SYSTEM:		☐ REQUIRED ☒ NOT REQUIRED							3.2.5.12
	13 SPRINKLER SYSTEM PROPOSED:		☐ ENTIRE BUILDING ☐ SELECTED COMPARTMENTS ☐ SELECTED FLOOR AREAS ☐ BASEMENT ☐ IN LIEU OF ROOF RATING ☒ NONE							3.2.5.12
	14 STANDPIPE SYSTEM:		☐ REQUIRED ☒ NOT REQUIRED							3.2.5.8
4	15 FIRE ALARM SYSTEM:		☐ REQUIRED ☒ NOT REQUIRED PROPOSED: ☐ SINGLE STAGE ☐ TWO STAGE ☐ NONE							3.2.4 / 9.10.18
	16 WATER SERVICE / SUPPLY IS ADEQUATE:		☐ NO ☒ YES							3.2.5.7
	17 CONSTRUCTION TYPE:		RESTRICTION: ☒ COMBUSTIBLE PERMITTED ☒ NON-COMBUSTIBLE PERMITTED ACTUAL: ☐ COMBUSTIBLE ☐ NON-COMBUSTIBLE ☒ COMBINATION HEAVY TIMBER CONSTRUCTION: ☐ NON-COMBUSTIBLE PERMITTED							3.2.2.20 - 92
5	18 IMPORTANCE CATEGORY:		☐ LOW ☐ LOW HUMAN OCCUPANCY ☐ POST-DISASTER SHELTER ☐ NORMAL ☐ MINOR STORAGE BUILDING ☐ EXPLOSIVE OR HAZARDOUS SUBSTANCES ☐ HIGH ☒ POST-DISASTER							4.1.2.1.(3) & T4.1.2.1.
	19 SEISMIC HAZARD INDEX:		(Ie Fa Sa (0.2)) = SEE STRUCTURE SEISMIC DESIGN REQUIRED FOR TABLE 4.1.8.18. ITEMS 6 TO 21: ((Ie Fa Sa (0.2)) ≥ 0.35 OR POST-DISASTER) ☐ NO ☒ YES							4.1.2.1.(3) 4.1.8.18.(2)
	20 OCCUPANT LOAD		FLOOR LEVEL/AREA OCCUPANT TYPE BASED ON OCCUPANT LOAD EXISTING UNCHANGED							3.1.17/ 9.9.1.3
7	21 BARRIER-FREE DESIGN:		☐ YES EXPLANATION: _____ ☒ NO							3.8
	22 HAZARDOUS SUBSTANCES:		☐ YES EXPLANATION: _____ ☒ NO							3.3.1.2 & 3.3.1.26/ 9.10.1.3 (4)
	23 REQUIRED FIRE RESISTANCE RATINGS:		HORIZONTAL ASSEMBLY RATING SUPPORTED ASSEMBLY (H) NONCOMBUSTIBLE IN LIEU OF RATING? FLOORS OVER BASEMENT N/A N/A ☐ NO ☐ YES ☐ N/A FLOORS 45 MIN SEE DWGS ☐ NO ☒ YES ☐ N/A MEZZANINE N/A N/A ☐ NO ☐ YES ☐ N/A ROOF N/A N/A ☐ NO ☐ YES ☐ N/A							3.2.2.20 - 92/ 9.10.8.1
8	24 LOAD BEARING WALLS, COLUMNS, AND ARCHES SUPPORTING AN ASSEMBLY REQUIRED TO HAVE A FIRE RESISTANCE RATING:		RATING NONCOMBUSTIBLE IN LIEU OF RATING? 45 MINS ☐ NO ☒ YES ☐ N/A							3.2.2.20 - 92
	25 SPATIAL SEPARATION:									3.2.3/ 9.10.14.4-5
	25.1 WALL EBF AREA (m²) L.D. (m) L/H or H/L PERMITTED MAX. % OF OPENINGS PROPOSED % OF OPENINGS REQUIRED FRR (H) CONSTRUCTION TYPE REQUIRED CLADDING REQUIRED									
10	NORTH		-	>9.0	-	100%	-	N/A	☐ NON-COMBUSTIBLE ☐ NON-COMBUSTIBLE	
	SOUTH		-	>9.0	-	100%	-	N/A	☐ NON-COMBUSTIBLE ☐ NON-COMBUSTIBLE	
	WEST		-	>9.0	-	100%	-	N/A	☐ NON-COMBUSTIBLE ☐ NON-COMBUSTIBLE	
	EAST		-	>9.0	-	100%	-	N/A	☐ NON-COMBUSTIBLE ☐ NON-COMBUSTIBLE	
11	26 WATER CLOSETS:		RATIO: _____ MALE:FEMALE = 50:50 EXCEPT AS NOTED OTHERWISE FLOOR LEVEL/AREA OCCUPANT LOAD ABC REFERENCE FIXTURES REQUIRED FIXTURES PROVIDED							3.7.2.2/ 9.31.4.1
			EXISTING UNCHANGED							
	27 NOTES:									

LEGEND :

- FIRE SEPARATION WITH 45 MIN. FIRE RESISTANT RATING
 FIRE SEPARATION WITH 1 HR. FIRE RESISTANT RATING
 FIRE SEPARATION WITH 2 HR. FIRE RESISTANT RATING
 PATH OF TRAVEL



1 CODE REVIEW - PLAN
GA-001 1 : 200

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#	Date	Issue/ Revision	Ap
1	24/10/08	75% REVIEW	II
2	24/11/29	FOR DESIGN ASSIST RFP	II



Scale	As indicated
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Quality Control by	IM
Designed by	IM
Drawn by	KP

OKOTOKS WATER
TREATMENT PLANT ADDITION
CODE REVIEW

Sheet Number	of
Project Number	
29121-005-12	
Drawing Number	Revision
FORWP-02-A-GE-002	2

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24/10/08	75% REVIEW	IM
24/11/29	FOR DESIGN ASSIST RFP	IM



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systems

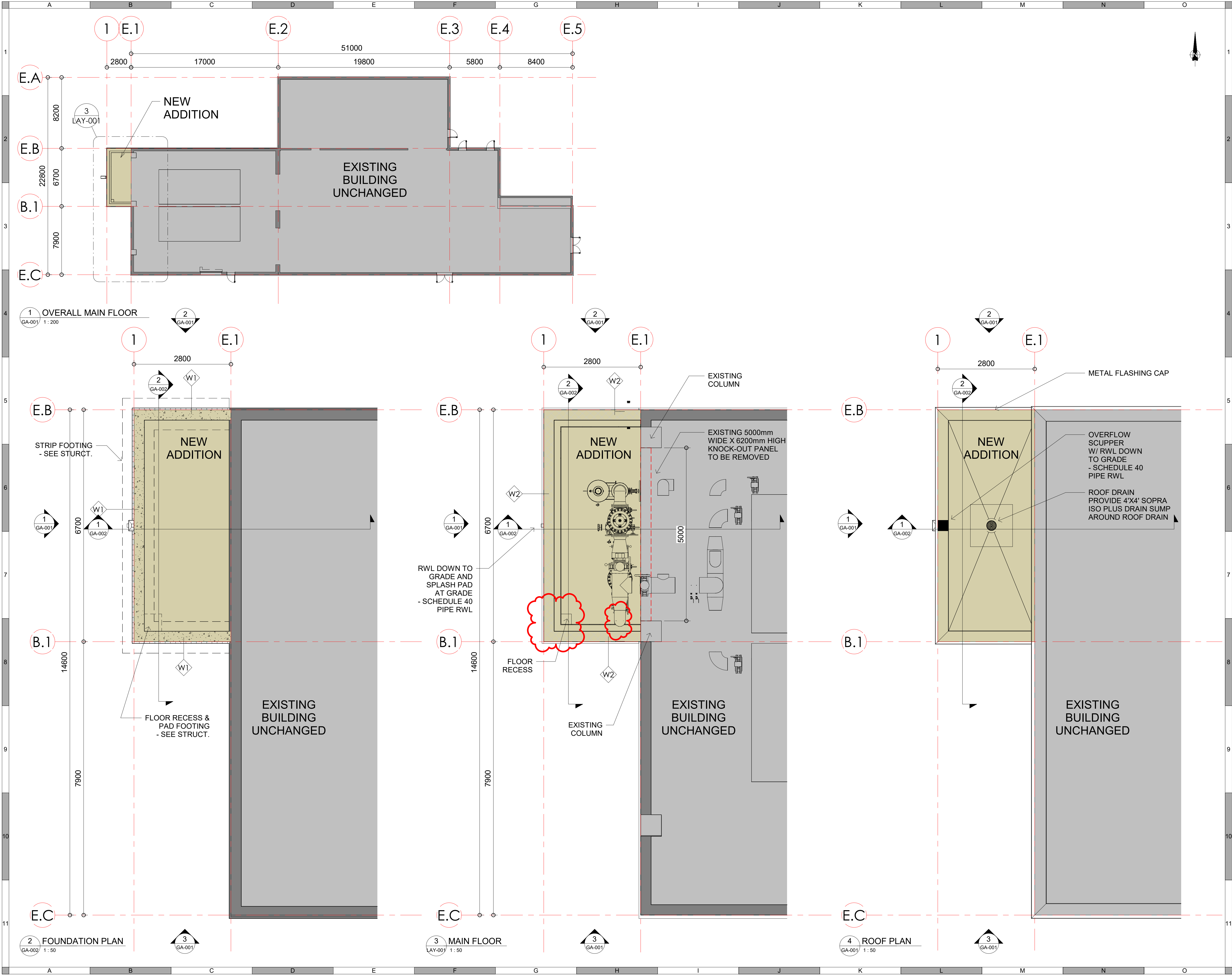
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OKOTOKS WATER
TREATMENT PLANT ADDITION
ENERGY CODE

Sheet Number	of
Project Number	
9121-005-12	
Drawing Number	Revision
FORWP-02-A-GE-003	2

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URBAN
systems

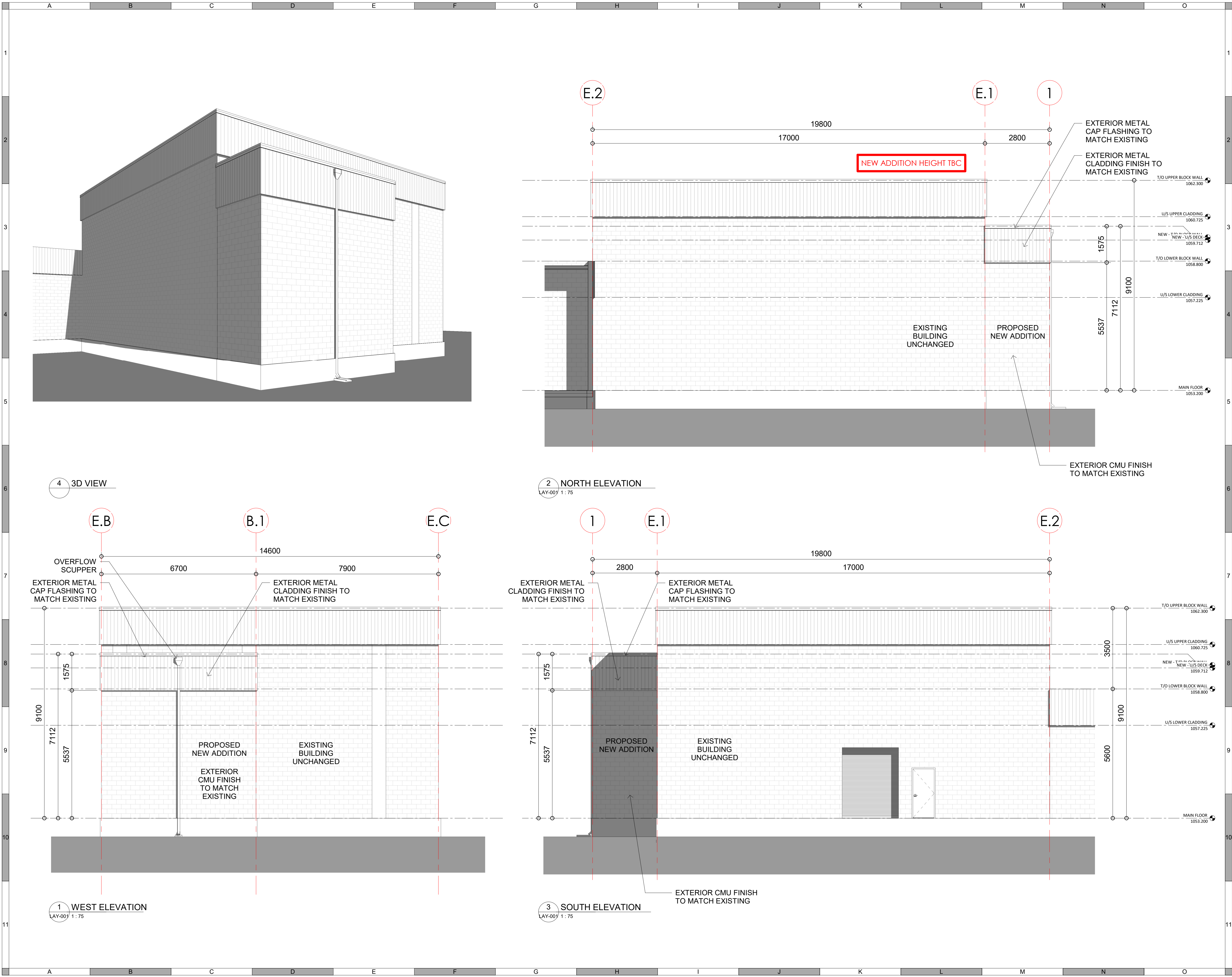
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OKOTOKS WATER TREATMENT PLANT ADDITION
FLOOR PLANS

Sheet Number of
Project Number
29121-005-12
Drawing Number Revision
FORWP-02-A-LAY-001 2

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Ian Moxon
Architect

MPE
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1	24/10/08	75% REVIEW	IM
2	24/11/29	FOR DESIGN ASSIST RFP	IM

FOOTHILLS
COUNTY
Okotoks
Water Treatment Plant

URBAN
systems

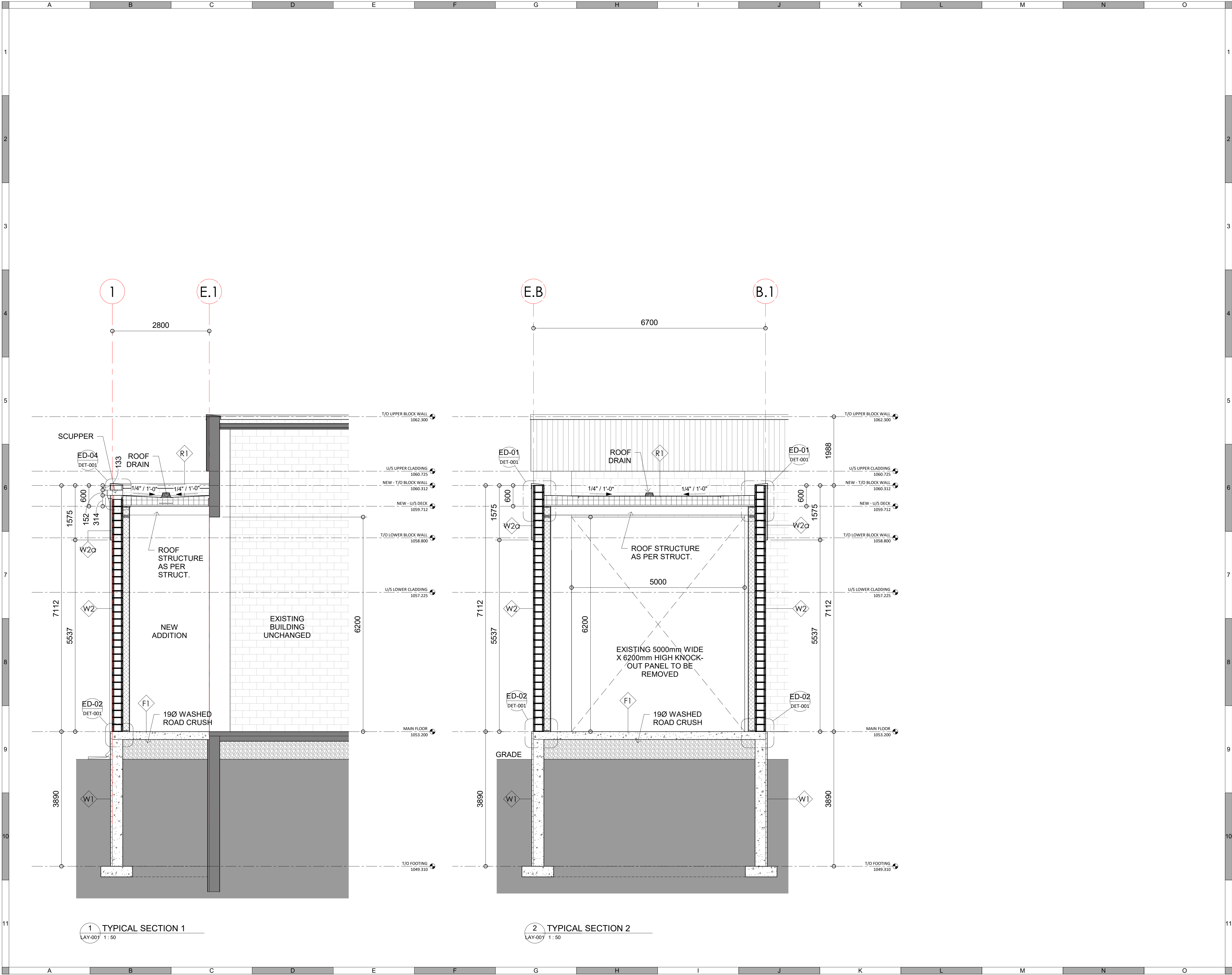
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OKOTOKS WATER
TREATMENT PLANT ADDITION
ELEVATIONS

Sheet Number of
Project Number
29121-005-12
Drawing Number Revision
FORWP-02-A-GA-001 2

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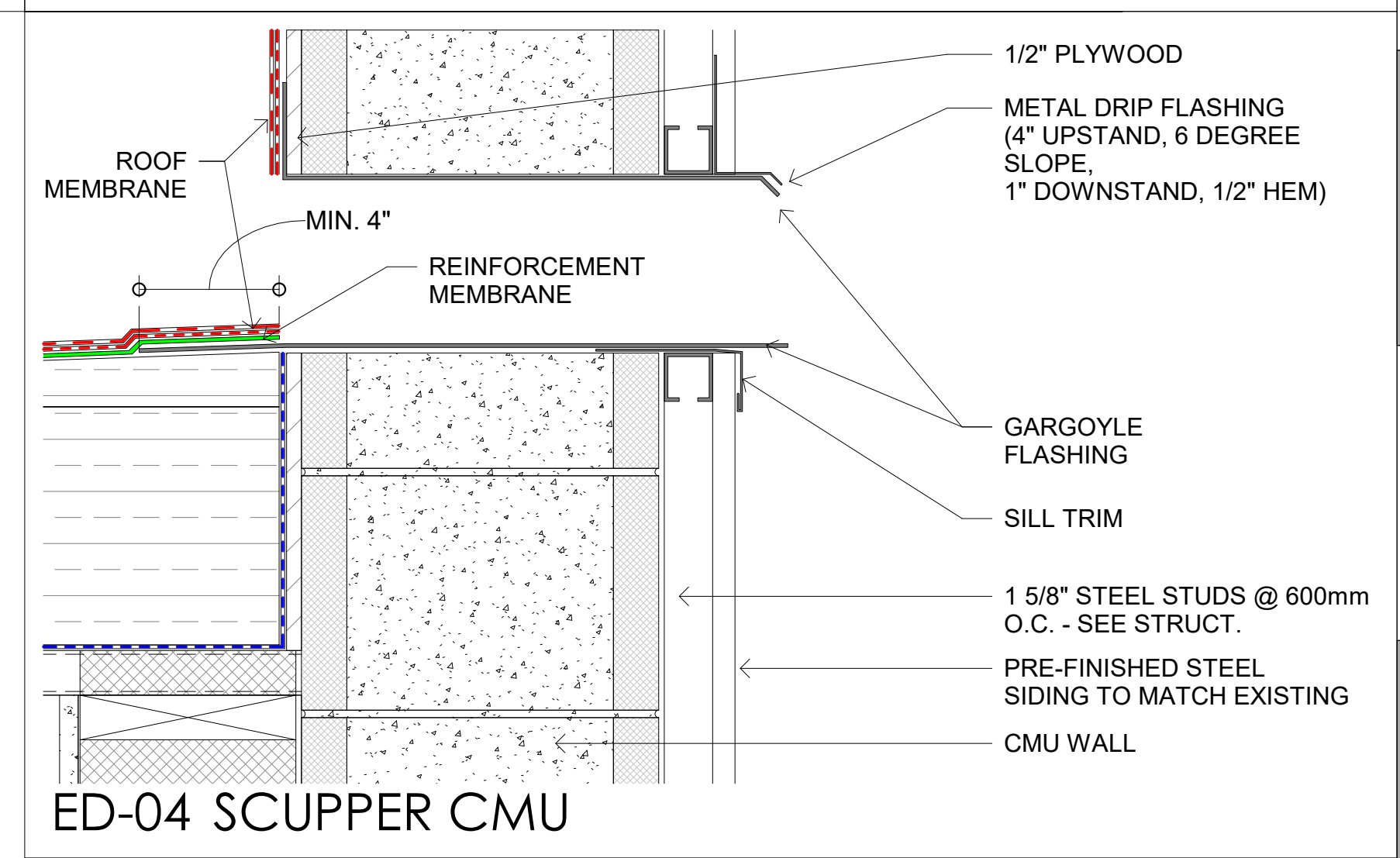
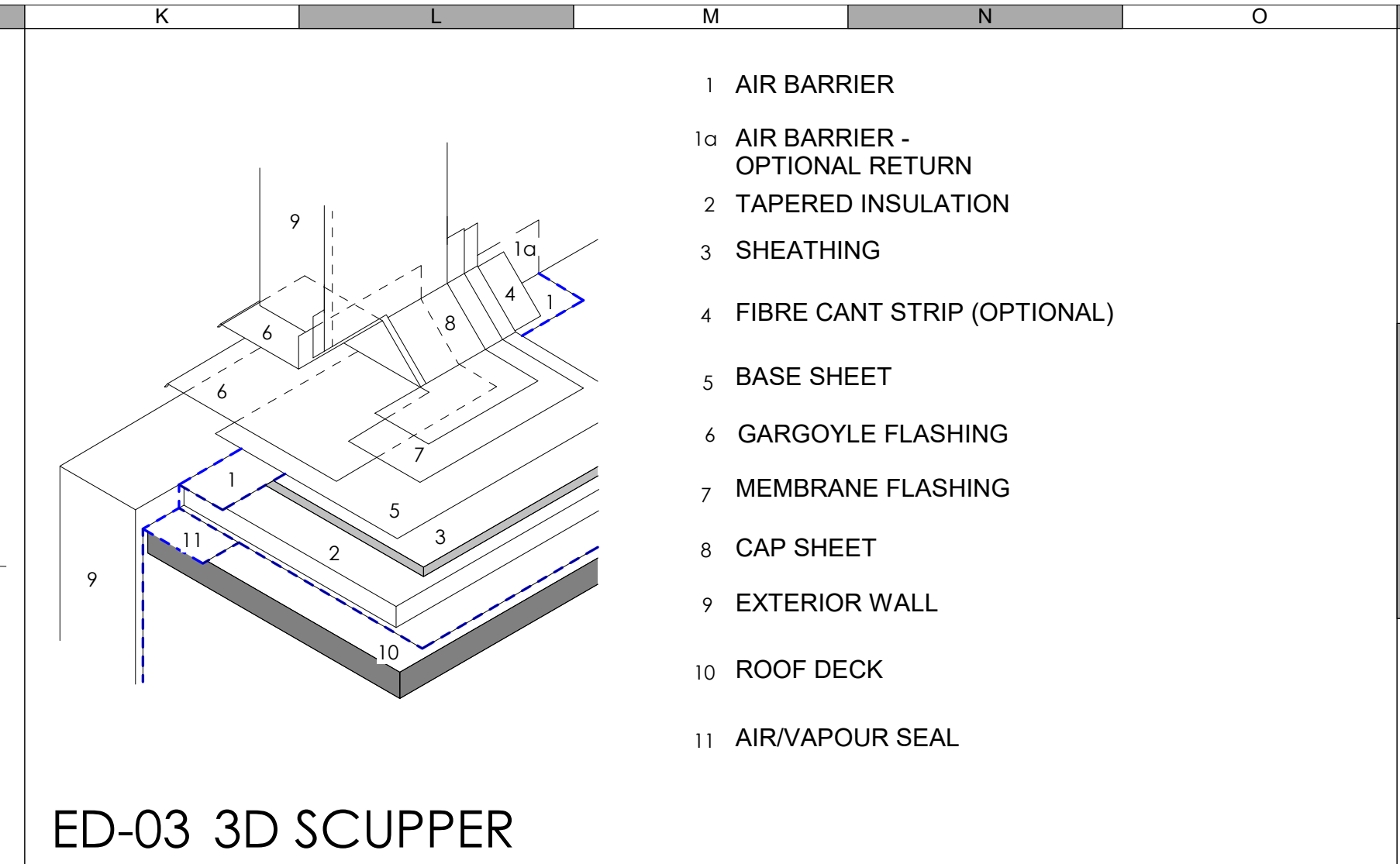
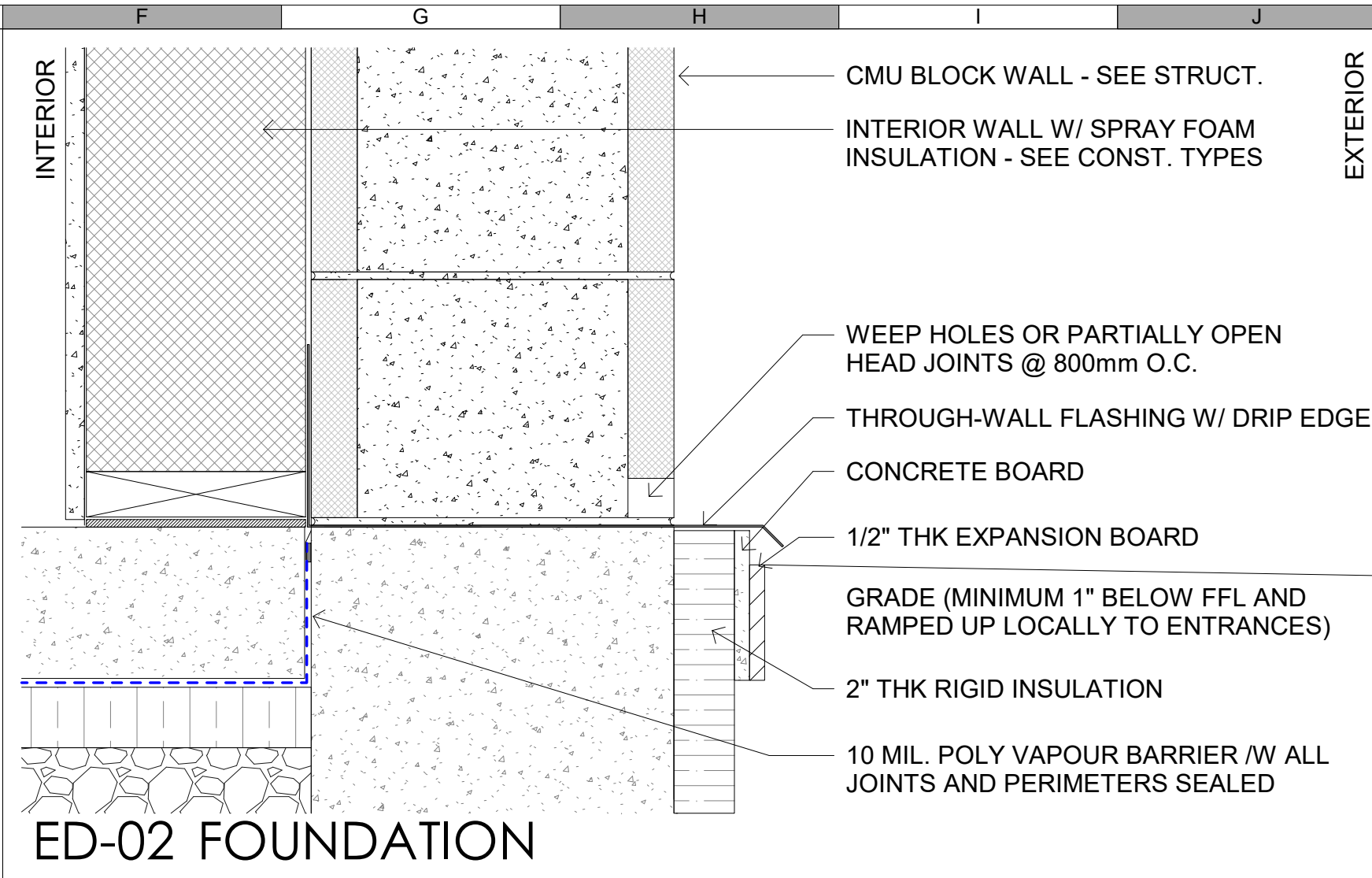
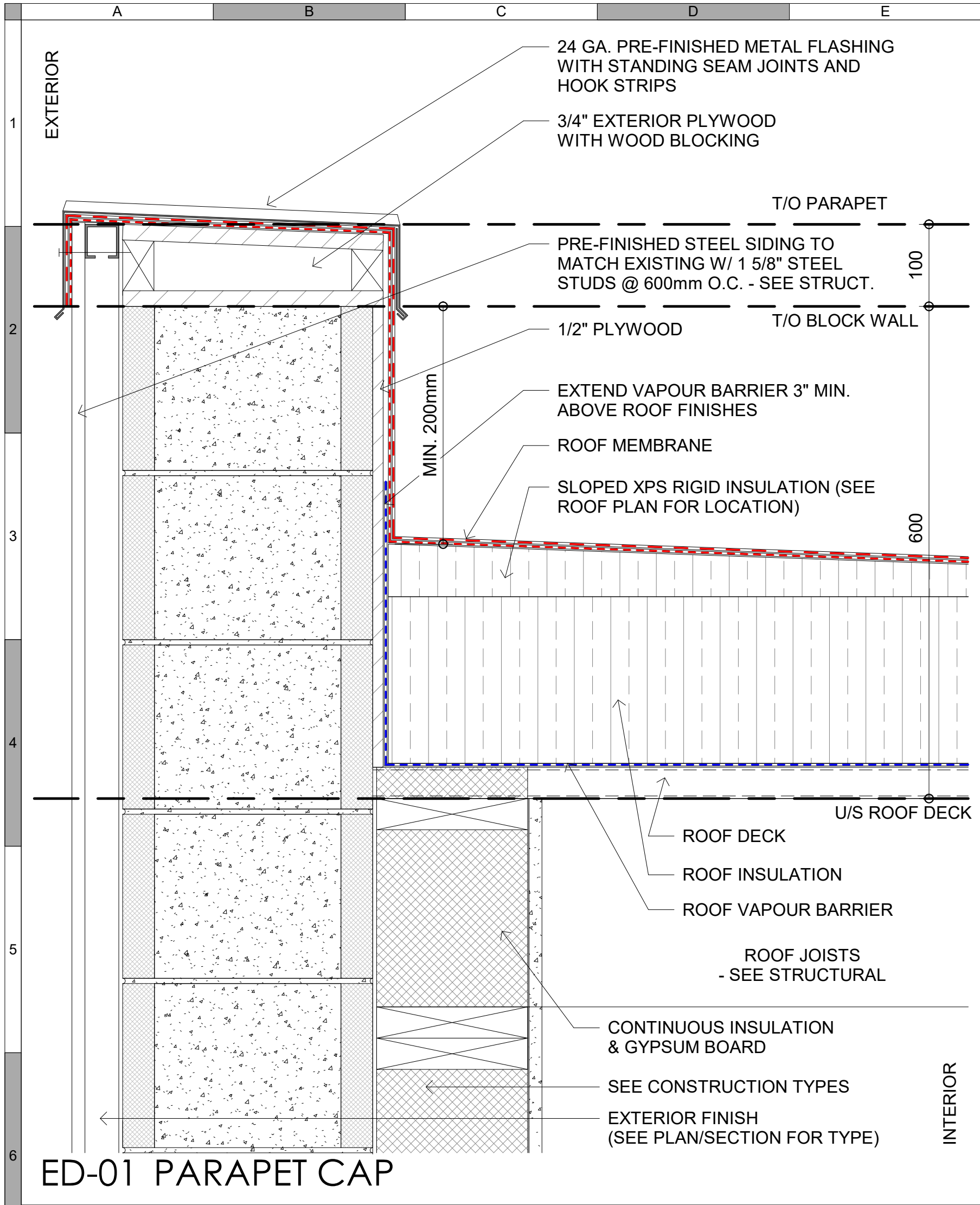
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OKOTOKS WATER TREATMENT PLANT ADDITION
TYPICAL SECTION

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Project Number
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Drawing Number Revision
FORWP-02-A-GA-002 2

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Ian Moxon
Architect

MPE
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Okotoks
Historic Root. Sustainable Future.

URBAN
systems

Scale
1 : 5

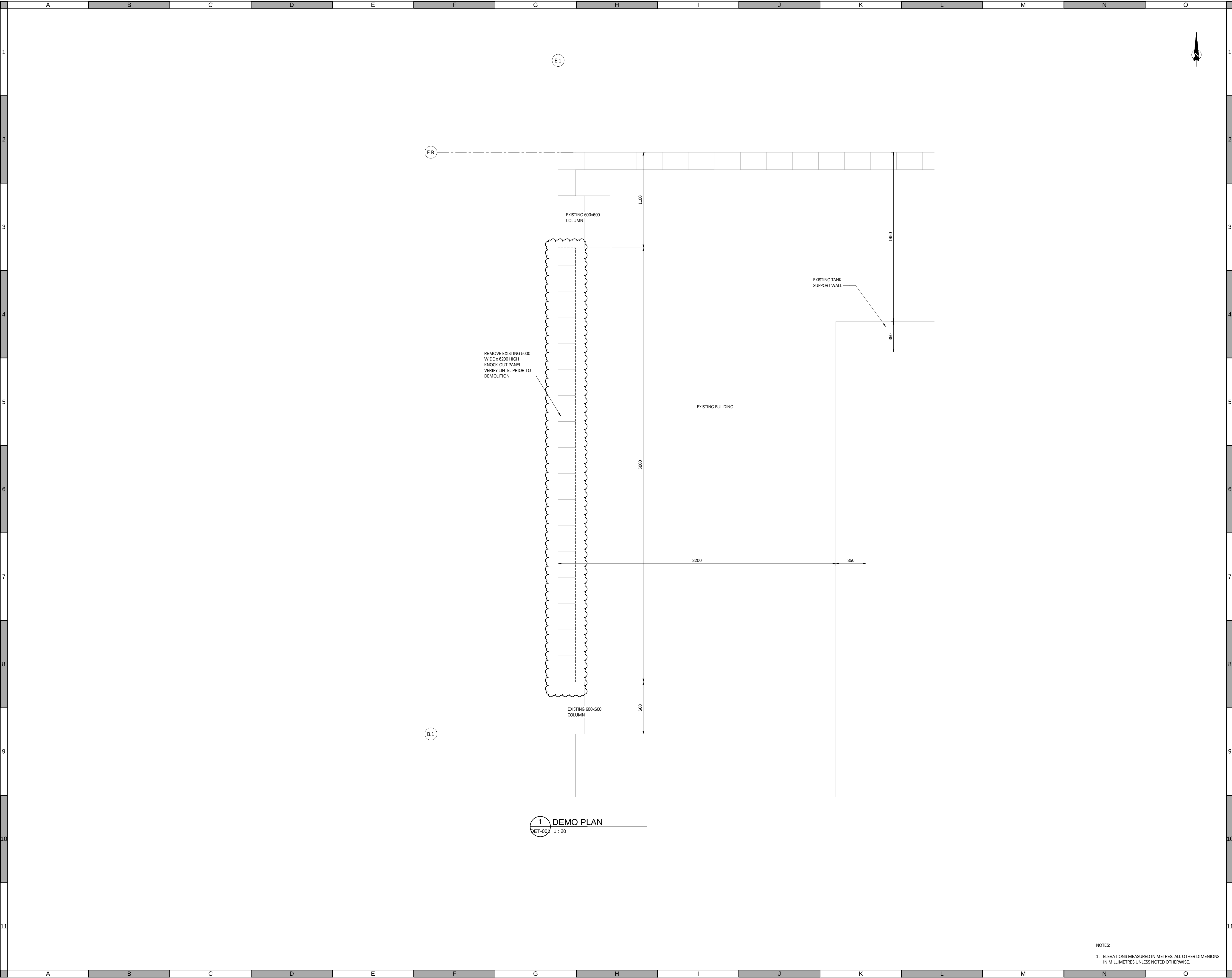
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OKOTOKS WATER
TREATMENT PLANT ADDITION
EXTERIOR DETAILS

Sheet Number of
Project Number
29121-005-12
Drawing Number Revision
FORWP-02-A-DET-001 2

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	GENERAL REQUIREMENTS			BASIS FOR DESIGN			EXCAVATION, BACKFILL AND COMPACTION			OPEN WEB STEEL JOISTS					
1	1. THESE DRAWINGS ARE PREPARED TO GENERALLY ACCEPTED STANDARDS OF PROFESSIONAL CARE. THE DESIGN AND DRAWINGS ARE PREPARED FOR EXPERIENCED CONTRACTORS WHO ARE COMPETENT AND FOLLOW THE APPLICABLE CODES AND STANDARDS. ALL WORK NOT EXPLICITLY SHOWN OR OUTLINED IN THE APPLICABLE STANDARDS AND CODES SHALL BE COMPLETED TO GENERALLY ACCEPTED LEVELS OF GOOD PRACTICE.			GOVERNING BUILDING CODE:..... NATIONAL BUILDING CODE PROJECT LOCATION:..... 2023 ALBERTA EDITION BUILDING IMPORTANCE CATEGORY:..... POST DISASTER			1. ALL BACKFILL AND COMPACTION TO PROVIDE A MINIMUM ALLOWABLE BEARING CAPACITY OF 100kPa			1. GENERAL 1. DESIGN CRITERIA 1. DESIGN MEMBERS, CONNECTIONS AND OTHER WORK NOT DETAILED ON DRAWINGS, BUT NECESSARY FOR COMPLETION OF THE WORK, IN ACCORDANCE WITH DIMENSIONS AND LOADINGS INDICATED ON DRAWINGS, AND REQUIREMENTS OF ALBERTA BUILDING CODE, CAN/CSA S16-14 AND CSA S136-16.					
	2. DRAWING NOTES AND SPECIFICATIONS ARE INSTRUCTIONS TO THE CONTRACTOR AND APPLY GENERALLY TO ALL THE WORK UNLESS MORE SPECIFIC INFORMATION IS SHOWN ELSEWHERE ON THE DRAWINGS.			GRAVITY LOADS ROOF: DEAD LOAD 1.32 kPa LIVE LOAD 1.0 kPa SNOW LOAD 1.53 kPa FLOOR: DEAD LOAD 5.29kPa LIVE LOAD (PUMP ROOMS) 3.69kPa WALL: DEAD LOAD 4.78 kPa			2. EXCAVATE TO LINES AND LEVELS NECESSARY TO PROPERLY COMPLETE THE WORK. MINIMUM SIDE SLOPES OF TEMPORARY EXCAVATIONS SHALL NOT EXCEED OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS.			2. SUBMITTAL 1. SUBMIT SHOP DRAWINGS AND PRODUCT DATA PRIOR TO COMMENCEMENT OF FABRICATION. 2. SHOP DRAWINGS SHALL INDICATE JOIST FRAMING PLANS AND GRID LINES, BEARING AND ANCHORAGE DETAILS, FRAMED OPENINGS, ACCESSORIES, SCHEDULE OF MATERIAL, CAMBER AND LOADINGS, FASTENERS, AND WELDS, USING AMERICAN WELDING SOCIETY BASIC WELD SYMBOLS.					
2	3. THESE DRAWINGS REPRESENT THE COMPLETED STRUCTURE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING, FORMWORK, ETC. AS REQUIRED FOR THE PROTECTION OF LIFE AND PROPERTY (INCLUDING UTILITIES) DURING CONSTRUCTION. THE STRUCTURE SHALL NOT BE LOADED IN EXCESS OF THE DESIGN LOADS.			CRANE LOADS LATERAL EARTH LOADS SNOW DESIGN IMPORTANCE FACTOR (Is) 1.25 (ULS) 0.9 (SLS) GROUND SNOW LOAD (Sg) 1.4 kPa ASSOCIATED RAIN LOAD (Sr) 0.1 kPa Cd 0.8 Cw 1.0 Drift 5.06 kPa ONE DAY RAIN 95 mm			3. CONTROL EXCAVATION TO ENSURE BOTTOM OF EXCAVATION DOES NOT SOFTEN DUE TO EXCESS MOISTURE. NOR DESICcate DUE TO EVAPORATION. CONSTRUCT SLOPES IN BOTTOMS OF EXCAVATIONS FOR DRAINAGE AS REQUIRED.			3. FABRICATOR SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF ALBERTA. 4. SUBMIT SHOP PAINT PRIMER MANUFACTURER'S PRODUCT DATA.					
	4. VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS ON SITE AND IN THE DRAWINGS. INFORM THE ENGINEER OF RECORD (EOR) IN WRITING OF ANY DISCREPANCIES OR OMISSIONS. ANY DISCREPANCY, OMISSION, OR VARIATION NOT REPORTED PRIOR TO CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMEDIATED, WHERE REQUIRED.			WIND DESIGN IMPORTANCE FACTOR (Iw) 1.25 (ULS) 0.75(SLS) HOURLY WIND PRESSURE (q (1/50)) 0.64 kPa EXPOSURE OPEN TERRAIN Cd 1.0			4. EXCAVATE BELOW SLABS-ON-GRADE TO REMOVE TOPSOIL, ORGANIC MATTER AND DEBRIS. PROOF ROLL AND COMPACT SUBGRADE AS SPECIFIED WITHIN GEOTECHNICAL REPORT.			4. SUBMIT SHOP PAINT PRIMER MANUFACTURER'S PRODUCT DATA.					
3	5. WHERE REFERENCES ARE MADE TO CODES OR STANDARDS, THESE SHALL BE THE EDITION REFERENCED IN THE GOVERNING BUILDING CODE OR LATEST RELEASE, WHICHEVER IS THE MOST STRINGENT.			SEISMIC LOAD DESIGN IMPORTANCE FACTOR (Ie) 1.5 (ULS) Sa(0.2) 0.208 Sa(0.5) 0.137 Sa(1.0) 0.079 Sa(2.0) 0.039 Sa(5.0) 0.014 Sa(10.0) 0.0049 PGA 0.104 PGV 0.058 SITE CLASS D (ASSUMED) MASONRY - MODERATELY DUCTILE SHEAR WALLS Rd 2.0 Ro 1.5			5. SHRUBS, TREES AND NEIGHBORING STRUCTURES SHALL BE PROTECTED AGAINST DAMAGE.			4. REFERENCE DOCUMENTS 1. COMPLY WITH APPLICABLE REQUIREMENTS OF CAN/CSA S16-14 AND CSA S136-16. 2. WELDING IN ACCORDANCE WITH CSA W59-M13.					
	6. READ THE STRUCTURAL DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS. ANY DISCREPANCIES WITHIN THESE DOCUMENTS SHALL BE IDENTIFIED IN WRITING TO THE EOR PRIOR TO CONSTRUCTION WITH SUFFICIENT TIME FOR REMEDIATION.			CONCENTRATED LOADS WHERE NOT IDENTIFIED ARE EQUAL TO THOSE SPECIFIED IN TABLE 4.1.5.9 OF THE BUILDING CODE.			10. SPECIFIED ELEVATIONS OF FOOTINGS SHALL BE LOWERED IF REQUIRED TO OBTAIN THE DESIGN BEARING PRESSURE, AS DIRECTED BY THE CONSULTANT.			5. TESTING AND INSPECTION 1. OWNER MAY APPOINT AND PAY FOR SERVICES OF TESTING AGENCY TO PERFORM TESTING AND INSPECTION OF WORK OF THIS SECTION. 2. NOTIFY OWNER PRIOR TO COMMENCEMENT OF FABRICATION WORK SO THAT TESTING AND INSPECTION MAY BE PROPERLY SCHEDULED. 3. WHEN DEFECTS ARE REVEALED, OWNER MAY REQUEST ADDITIONAL TESTING AND INSPECTION TO ASCERTAIN FULL AMOUNT OF DEFECT THAT HAS BEEN LOCATED AT CONTRACTORS EXPENSE.					
	7. THESE DRAWINGS SHALL NOT BE USED FOR PRICING, TENDERING OR CONSTRUCTION UNLESS SPECIFICALLY STATED IN THE REVISION COLUMN AND ARE STAMPED BY A PROFESSIONAL ENGINEER.			MASONRY 1. MASONRY BLOCK UNITS SHALL CONFORM TO CSA CAN3-A165 SERIES M84, CLASSIFICATION HJ15/C/M WITH A MINIMUM UNIT STRENGTH OF 15MPa, UNLESS NOTED OTHERWISE. 2. ALL MORTAR FOR MASONRY BLOCK SHALL CONFORM TO CSA A100.1, TYPE S, WITH A MINIMUM COMPRESSIVE STRENGTH OF 15MPa. 3. ALL LINTELS, BOND BEAMS, AND PILASTERS SHALL BE FILLED WITH CONCRETE HAVING A COMPRESSIVE STRENGTH OF 20MPa. CONCRETE SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 10 AND A MAXIMUM SLUMP OF 175. MECHANICALLY VIBRATE CORE FILL. 4. PROVIDE 1-15M VERTICAL AND CORE FILL AT EACH SIDE OF EVERY OPENING AND AT EACH CORNER. 5. CORE FILLS SHALL BE DONE IN MAXIMUM 1200 LIFTS AND SHALL BE RODDED AND VIBRATED TO AVOID HONEYCOMBING AND VOIDS. 6. PROVIDE CONCRETE FILLED AND REINFORCED BOND BEAMS WHERE SHOWN ON DRAWINGS. UNLESS NOTED OTHERWISE, REINFORCE EACH 200 OF BOND BEAM WITH 2-15M CONTINUOUS, WITH MATCHING CORNER BARS. 7. PROVIDE 2-COURSE LINTELS C/W 2-15M BARS OVER EVERY PENETRATION. EXTEND LINTEL MINIMUM 400 BEYOND EDGES OF OPENINGS, INCLUDING THOSE FOR MECHANICAL OR ELECTRICAL SERVICES AND EQUIPMENT. 8. EXTEND ALL LINTEL REINFORCEMENT AND CONCRETE 400 PAST EDGE OF OPENINGS BOTH SIDES, UNLESS NOTED OTHERWISE. 9. REINFORCEMENT TO EXTEND FULL HEIGHT OF WALL AND BE ANCHORED 200 INTO CONTINUOUS BOND BEAMS AT TOP OF WALL. 10. PROVIDE VERTICAL CONTROL JOINTS AT MAXIMUM 9m SPACING. BOND BEAM REINFORCING CONTINUES THROUGH CONTROL JOINT. CUT ALTERNATE WIRE JOINT REINFORCEMENT. 11. EXTEND ALL NON-LOAD BEARING MASONRY WALLS TO FORM A 25 GAP BETWEEN TOP OF WALL AND UNDERSIDE OF STRUCTURE ABOVE. FILL GAP WITH COMPRESSIBLE ACOUSTIC OR FIRE-STOP MATERIAL TO MAINTAIN WALL RATING. SEE ARCHITECTURAL FOR NON-LOAD BEARING MASONRY WALL LOCATIONS. 12. PROVIDE SOLID BLOCK OR CONCRETE FILLED BLOCK UNDER ALL CONCENTRATED LOADS BEARING ON MASONRY. 13. PROVIDE CONCRETE FILLED CORES AT ALL LOCATIONS WHERE METAL FABRICATIONS OR OTHER EQUIPMENT UTILITIES, ETC., FASTEN TO BLOCK WALLS. PROVIDE TEMPORARY BRACING FOR ALL WALLS UNTIL MASONRY HAS BEEN ANCHORED TO PERMANENT STRUCTURE. 14. REFER TO SPECIFICATIONS FOR OTHER REQUIREMENTS. 15. NUMERIC BOND BEAM ELEVATIONS INDICATE TOP OF BOND BEAM. REFER TO SPECIFICATIONS.			11. PROTECT BEARING SURFACES FROM DESICCATION AND MOISTURE INTRUSION. 12. CONTINUOUS DE-WATERING SHOULD BE ANTICIPATED.			6. COORDINATION 1. WHERE OPEN WEB STEEL JOISTS ARE SCHEDULED TO BE FINISH PAINTED, ENSURE THAT SHOP PRIMER IS COMPATIBLE WITH PAINTING COATS SPECIFIED.					
4	8. THE STRUCTURE REQUIRES INSPECTIONS BY THE EOR AT KEY POINTS DURING CONSTRUCTION. THESE POINTS ARE NOT LIMITED TO THE FOLLOWING: 8.1. REINFORCING INSPECTIONS, PRIOR TO CONCRETE POURS. 8.2. MASONRY WALL AND REINFORCING INSPECTIONS, PRIOR TO APPLICATIONS OF FINISHES. 8.3. FINAL BUILDING INSPECTIONS PRIOR TO OCCUPANCY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE EOR A MINIMUM OF 2 WORKING DAYS PRIOR TO THESE CRITICAL TIMES AND ACCOMMODATE THEIR, OR APPROVED DESIGNATES, INSPECTIONS.			REINFORCING 1. REINFORCING SHALL MEET CSA C30.18 GRADE 409W AND INSTALLED MEETING THE REQUIREMENTS OF CSA A23.1. 2. CHAIR SLAB REINFORCING NO FURTHER THAN 1.0m IN EITHER DIRECTION. SUPPLY SUPPORT BARS, CHAIRS AND CARRIERS AS REQUIRED. 3. DOWELS AND ANCHOR BOLTS SHALL BE SECURED IN POSITION BY MEANS OF TEMPLATES BEFORE CONCRETE IS POURED. "WET DOWELING" IS NOT PERMITTED. 4. NOTIFY EOR WHERE PLACEMENT OF REINFORCING STEEL CONFLICTS WITH WORK OF OTHER TRADES, PRIOR TO POUR FOR ALTERNATE SOLUTION. 5. REINFORCING TIES SHALL BE USED TO SECURE REINFORCING AT MINIMUM EVERY OTHER INTERSECTION. 6. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW 1 WEEK PRIOR TO CONSTRUCTION TO ENSURE DESIGN INTENT. STANDARD REINFORCING IS EXPECTED FOR THE PROJECT THOUGH NOT NECESSARILY SHOWN. 7. ALL REINFORCING SHALL BE DESIGNED WITH CLASS B TENSION LAP SPICES, STANDARD HOOKS AND COMPRESSION & TENSION EMBEDMENT AS REQUIRED BY CSA A23.3.			9. BEARING SURFACES FOR FOOTINGS SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO CASTING OF CONCRETE OR INSTALLING OTHER FOUNDATION TYPES.			6. COORDINATION 1. WHERE OPEN WEB STEEL JOISTS ARE SCHEDULED TO BE FINISH PAINTED, ENSURE THAT SHOP PRIMER IS COMPATIBLE WITH PAINTING COATS SPECIFIED.					
	9. DO NOT SCALE DRAWINGS. IF DIMENSION OR SIZES ARE NOT IDENTIFIED ON THE DRAWINGS, CONTRACTOR SHALL CONTACT EOR.			ADHESIVE ANCHORS 1. ADHESIVE ANCHOR INSTALLERS TO BE TRAINED BY THE ANCHOR MANUFACTURER PRIOR TO INSTALLATION OF ANCHORS AND SHALL PROVIDE WRITTEN CONFIRMATION OF TRAINING.			2. PRODUCTS 1. MATERIALS 1. STEEL: STRUCTURAL QUALITY TO CAN/CSA G40.20 AND CAN/CSA G40.21 2. WELDING MATERIALS: TO CSA W59 3. SHOP PAINT PRIMER: TO CISC/CPMA 2-75 OR CAN/CSB-1.105. 2. FABRICATION 1. FABRICATE STEEL JOISTS AND ACCESSORIES IN ACCORDANCE WITH CAN/CSA S16-14 AND CSA S136-16. 2. PROVIDE CEILING SUPPORT EXTENSIONS TO BOTTOM CHORD AS REQUIRED TO SUPPORT CEILING CONSTRUCTION. 3. SURFACE PREPARATION AND SHOP PRIMING 1. WHERE STEEL JOISTS ARE SCHEDULED TO BE FINISH PAINTED, PREPARE SURFACES IN ACCORDANCE WITH SSPC-SP6 - COMMERCIAL BLAST CLEANING. 2. APPLY SHOP PAINT PRIMER IN ACCORDANCE WITH CAN/CSA S16-14 TO A DRY FILM THICKNESS OF 2 TO 3 MIL.			3. EXECUTION 1. ERECTION 1. ERECT STEEL JOISTS AND BRIDGING IN ACCORDANCE WITH CAN/CSA S16-14 AND CSA S136-16. 2. OBTAIN OWNERS APPROVAL PRIOR TO FIELD CUTTING OR ALTERING JOINTS OR BRIDGING. 3. FIELD TOUCH UP SHOP PAINT PRIMER AT BOLTS, WELDS, AND BURNED OR SCRATCHED SURFACES. USE SAME PRIMER AS APPLIED IN SHOP.					
5	ADHESIVE ANCHORS 1. ADHESIVE ANCHOR INSTALLERS TO BE TRAINED BY THE ANCHOR MANUFACTURER PRIOR TO INSTALLATION OF ANCHORS AND SHALL PROVIDE WRITTEN CONFIRMATION OF TRAINING.			CONCRETE 1. CONCRETE MIX DESIGN SHALL FOLLOW THE REQUIREMENTS OF CSA 23.1 AND CSA A3001. 2. OWNER WILL APPOINT AND PAY FOR SERVICES OF 3RD PARTY INDEPENDENT TESTING AGENCY TO DO THE FOLLOWING: 2.1. TEST FINE AND COARSE AGGREGATE 2.2. TAKE THREE TEST CYLINDERS FROM LOAD, OR FRACTION THEREOF FROM EACH TYPE OF CONCRETE PLACED IN ANY ONE DAY. TEST CYLINDERS WILL BE CURED AS PER CODE REQUIREMENTS. 2.3. TAKE AT LEAST ONE SLUMP TEST AND ONE ENTRAINMENT AIR TEST FOR EACH SET OF TEST CYLINDERS TAKEN, AND SUBMIT RESULTS TO EOR. 3. PROVIDE 20 CHAMFERS TO ALL EXTERIOR CORNERS. 4. SACK RUB FINISH TO ALL EXPOSED VERTICAL CONCRETE SURFACES. PATCH AND REPAIR ANY HONEYCOMB AREAS. FILL HOLES AND REMOVE ALL FINS. 5. INTERIOR SLABS SHALL HAVE A SMOOTH TROWEL FINISH. EXTERIOR SLABS SHALL HAVE BROOM FINISH. TOLERANCE 3mm IN 3.0m. TOTAL VARIANCE ±6mm. 6. CONCRETE COVER SHALL BE AS SPECIFIED IN THE CONCRETE COVER TABLE BUT NOT LESS THAN THE REQUIREMENTS OF CODE. 7. CONCRETE MIXES SHALL BE DESIGNED WITH CRITERIA AS PER CONCRETE MIX CRITERIA TABLE.			MASONRY REINFORCING 1. FIRE WALLS 1. VERTICAL REINFORCING AND CORE FILL • EXTERIOR ENDS OF WALLS, 3 CORES, EACH C/W 1-15M TO TOP OF WALL • EACH SIDE OF DOOR OPENINGS, 2 CORES, EACH C/W 1-15M TO TOP OF WALL • SINGLE CORES AT MAXIMUM 400 O.C. C/W 1-15M TO TOP OF WALL 2. BOND BEAMS • TWO COURSE BOND BEAMS, EACH COURSE C/W 2-15M HORIZONTAL AT 1000 O.C. • SINGLE COURSE BOND BEAMS, C/W 2-15M HORIZONTAL AT 1000 O.C. • SEE TYPICAL DETAILS			3. EXECUTION 1. ERECTION 1. ERECT STEEL JOISTS AND BRIDGING IN ACCORDANCE WITH CAN/CSA S16-14 AND CSA S136-16. 2. OBTAIN OWNERS APPROVAL PRIOR TO FIELD CUTTING OR ALTERING JOINTS OR BRIDGING. 3. FIELD TOUCH UP SHOP PAINT PRIMER AT BOLTS, WELDS, AND BURNED OR SCRATCHED SURFACES. USE SAME PRIMER AS APPLIED IN SHOP.					
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1 DEMO PLAN
DET-007 1 : 20

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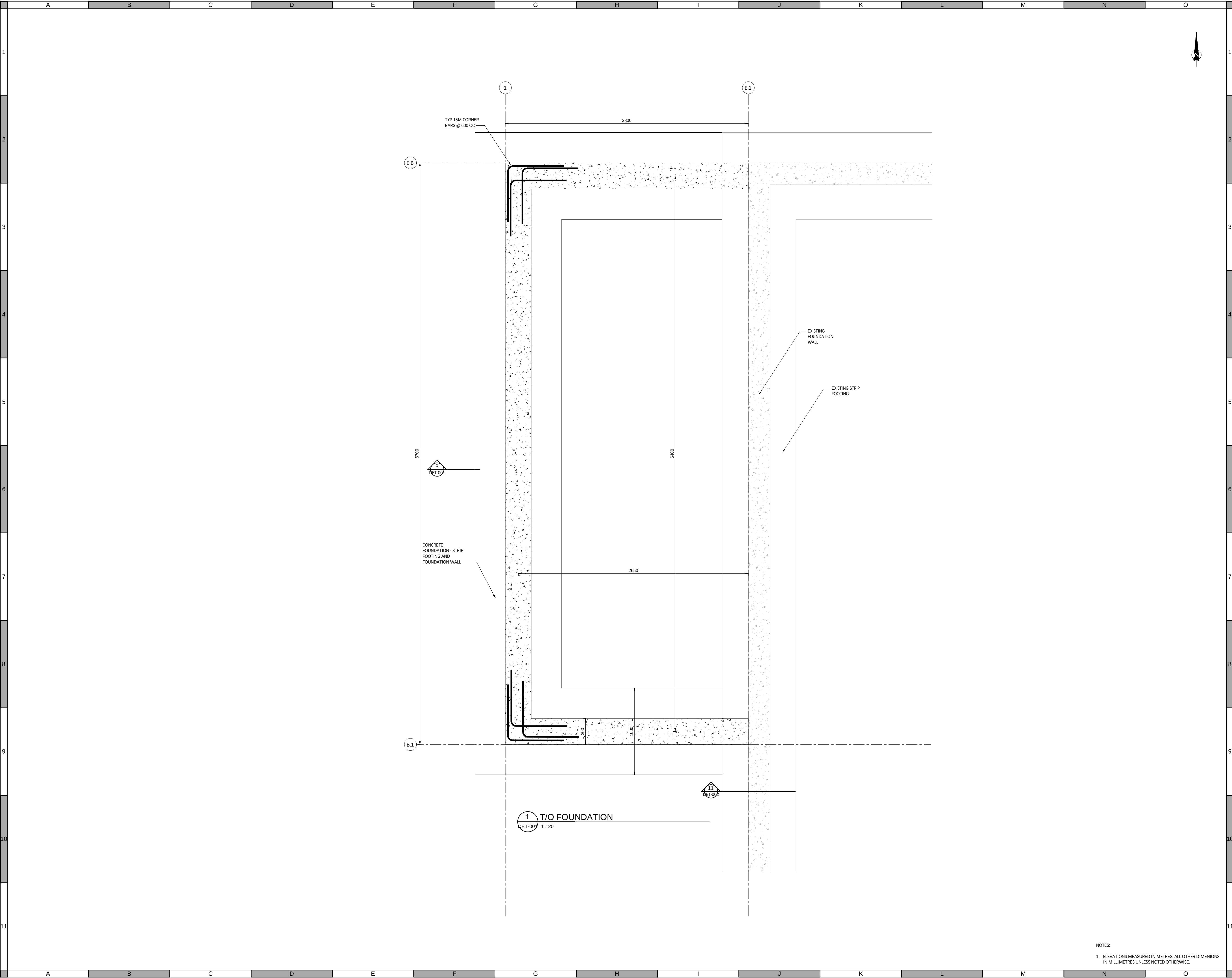
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FORW TIE INS
DEMOLITION PLAN

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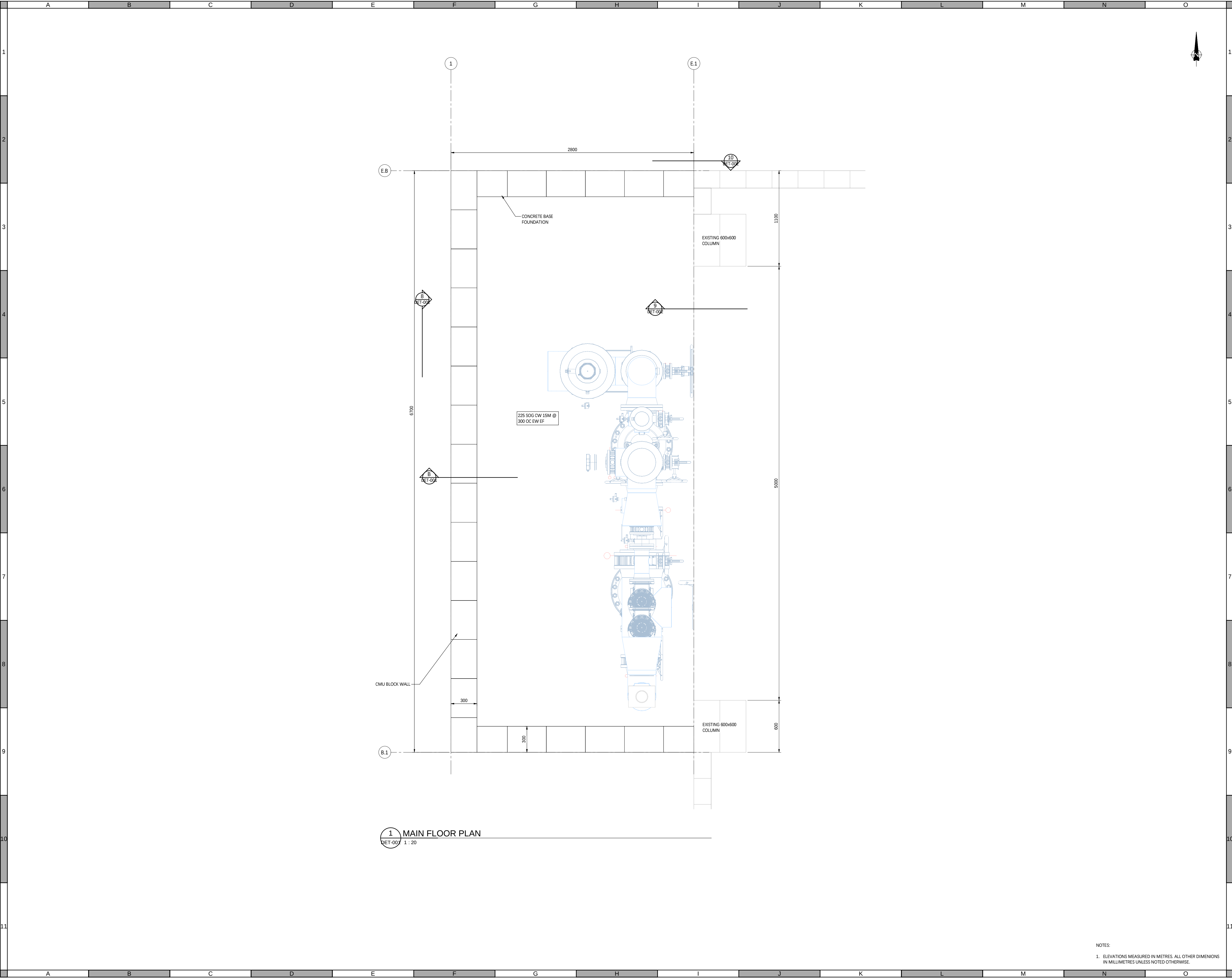


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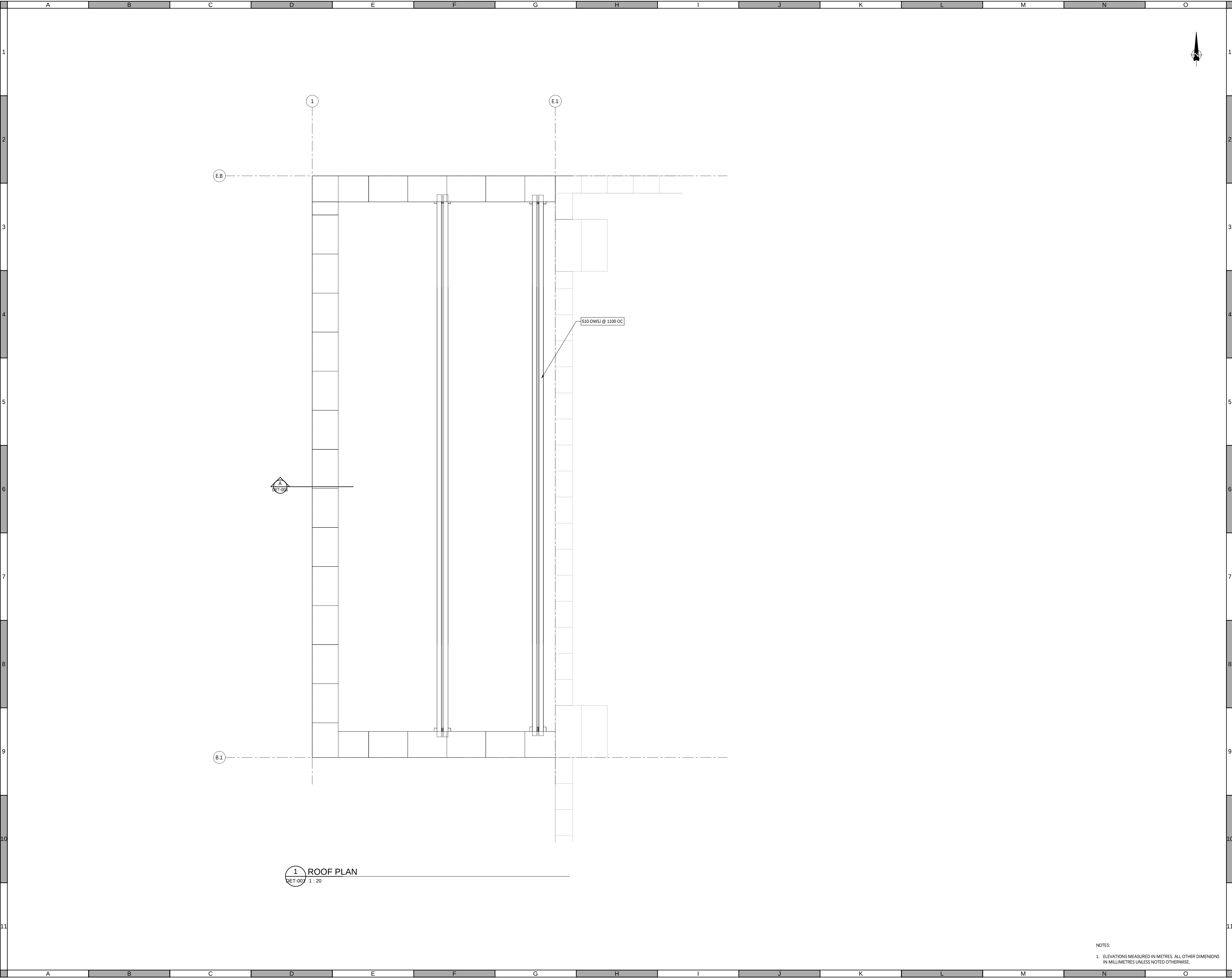


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Project Number	
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systems

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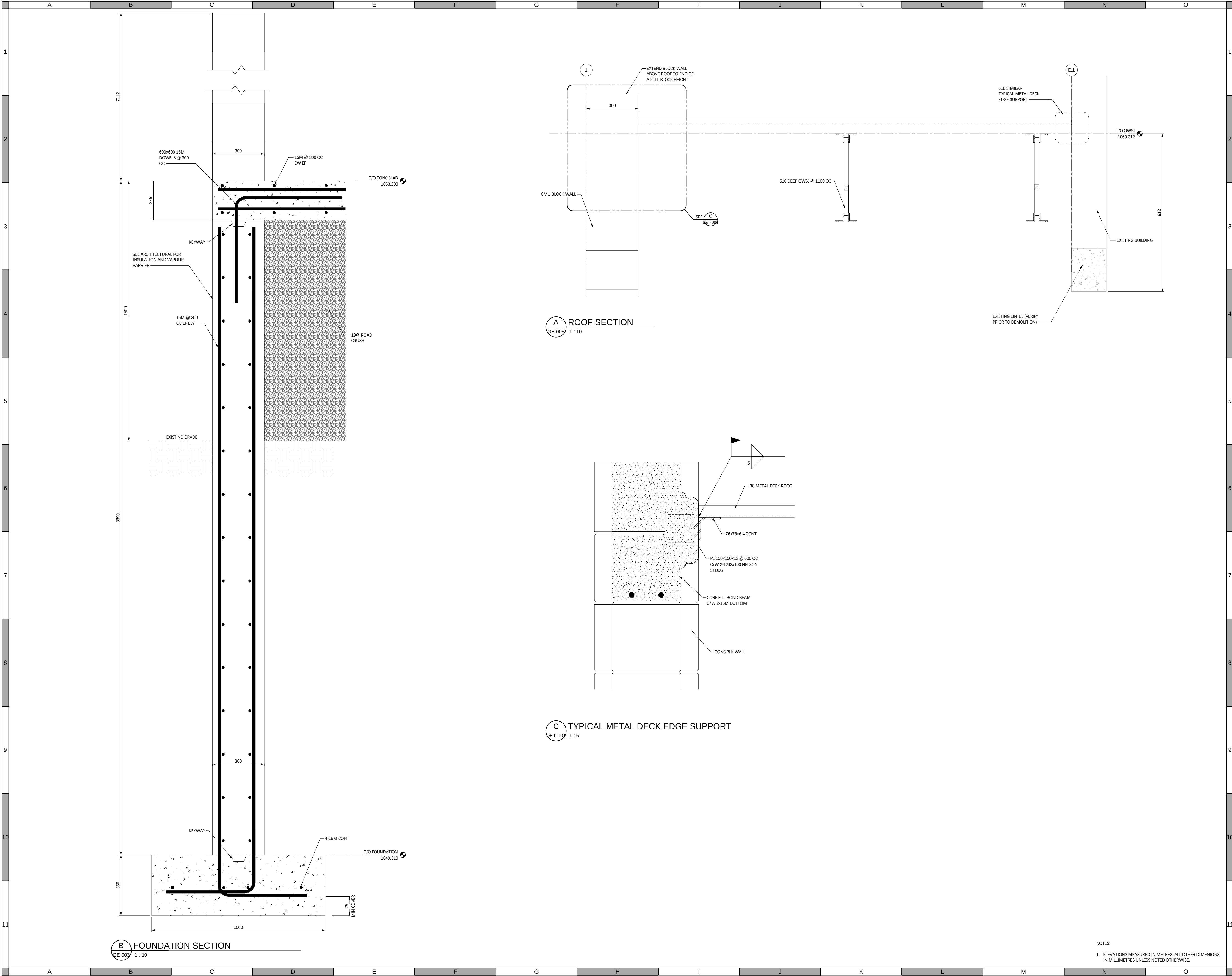
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FORW TIE INS
ROOF PLAN

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Ian Moxon
Architect

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systems

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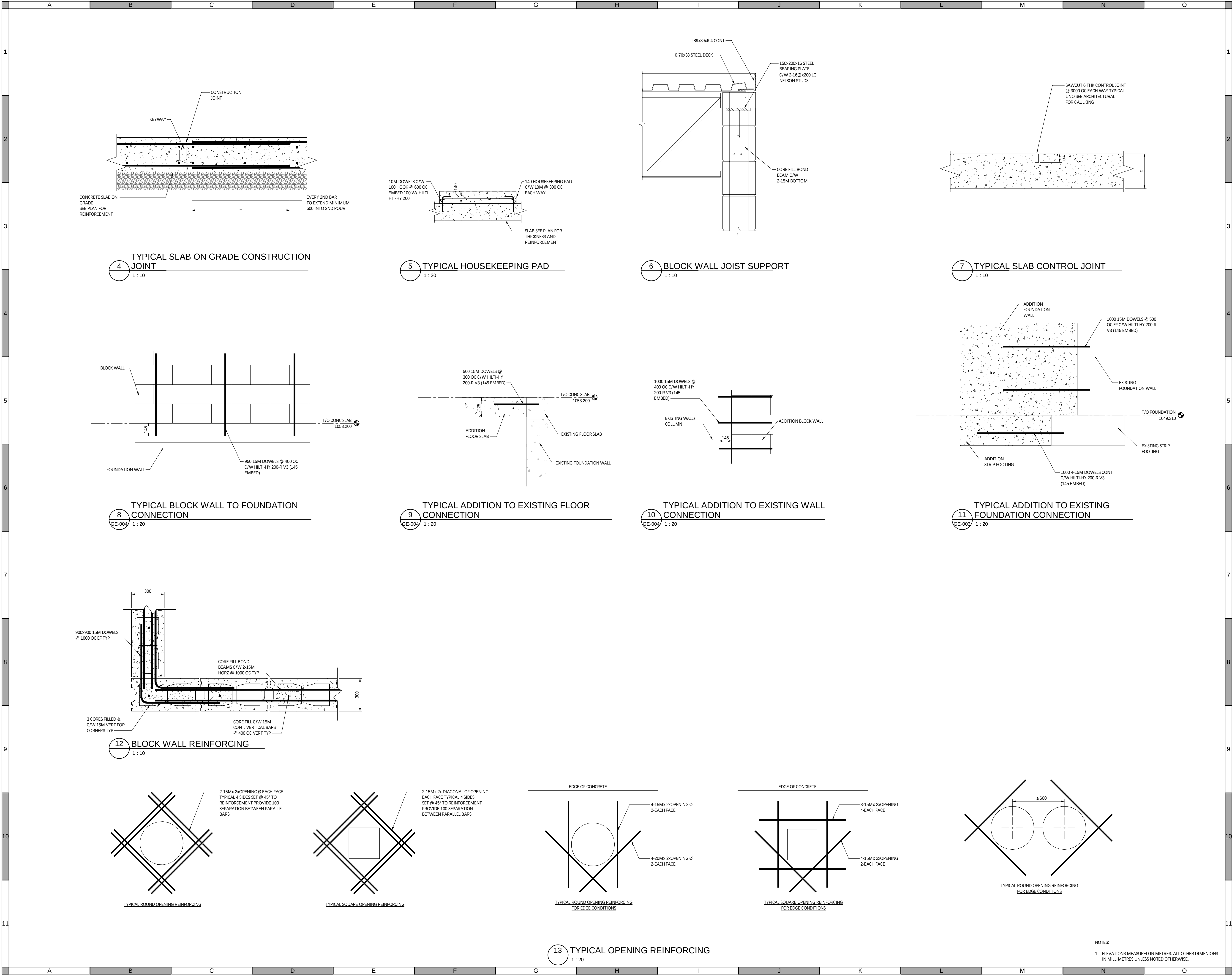
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SECTIONS AND DETAILS

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FOOTHILLS COUNTY
Okotoks
Historic Place Subdivision Phase 1

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Drawn by BHG

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Drawing Number Revision
FORW-02-S-DET-002 1

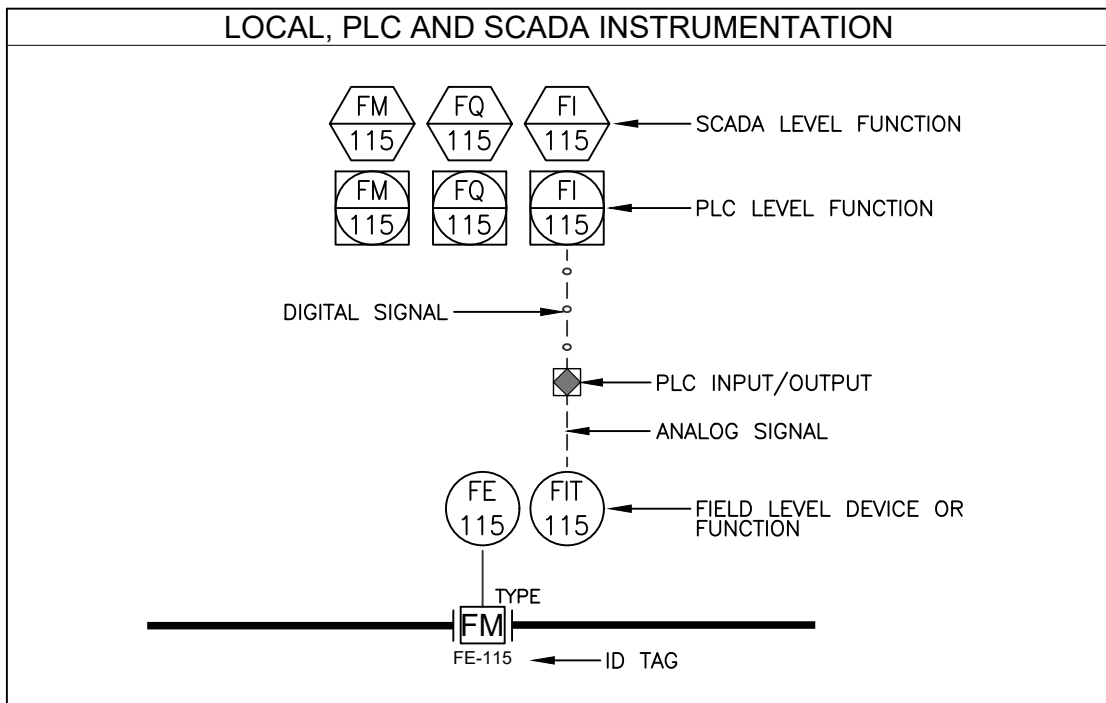
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ANSI/ISA 5.1-2009 INSTRUMENTATION IDENTIFICATION				
FIRST LETTERS		SUCCEEDING LETTERS		
COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
A ANALYSIS		ALARM		
B BURNER			CONTROL	CLOSE
C AUTO				DEVIATION
D USER'S CHOICE	DIFFERENTIAL	DISABLE		
E VOLTAGE		PRIM ELEMENT		
F FLOW	RATIO			
G USER'S CHOICE	RATIO	GLASS, GAUGE		
H HAND				HIGH
I CURRENT		INDICATE		
J POWER		SCAN		
K TIME, SCHEDULE	RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		LOW
M REQUEST		TREND		MIDDLE
N USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O USER'S CHOICE		ORIFICE		OPEN
P PRESSURE		POINT		
Q QUANTITY	INTEGRATE	TOTALIZE		
R RADIATION	REMOTE	RECORD		RUN
S SPEED, FREQ	SAFETY		SWITCH	STOP
T TEMPERATURE	SAFETY		TRANSMIT	
U MULTIVARIABLE		MULTIFUNCTIONAL	MULTIFUNCTIONAL	
V VIBRATION			VALVE	
W WEIGHT, FORCE		WELL, PROBE		
X LAMPLIGHT	X-AXIS	ACC. DEVICES	UNCLASSIFIED	UNCLASSIFIED
Y EVENT, STATE	Y-AXIS		AUXILIARY DEV	
Z POSITION	Z-AXIS		DRIVE, ACTUATOR	

INSTRUMENTATION DEVICE AND FUNCTION TAG	
SYMBOL	DESCRIPTION
	FIELD MOUNTED DEVICE
	LOCAL PANEL MOUNTED DEVICE
	INACCESSIBLE LOCAL PANEL DEVICE
	FUNCTION LOCATED IN PRIMARY PLC, NOT ACCESSIBLE TO OPERATOR
	FUNCTION LOCATED IN PRIMARY PLC, ACCESSIBLE TO OPERATOR
	FUNCTION LOCATED IN PRIMARY PLC, NOT NORMALLY ACCESSIBLE TO OPERATOR
	SCADA LEVEL FUNCTION, NOT ACCESSIBLE TO OPERATOR
	SCADA LEVEL FUNCTION, ACCESSIBLE TO OPERATOR

PLC AND HARDWARE COMMUNICATION	
SYMBOL	DESCRIPTION
	HARDWARE INTERLOCK
	PLC INPUT/OUTPUT (I/O)
	PLC LOGIC FUNCTION



COMPONENT AND INSTRUMENTATION TAG IDENTIFICATION SYSTEM	
IDENTIFICATION SYSTEM GENERAL EXPLANATION:	
• XXX-XXXX or XX-XXXX: ALL TAGS UTILIZE AN ALPHA-NUMERIC 6 OR 7 VALUE SYSTEM.	
• XXX-XXXX: THE FIRST TWO OR THREE VALUES ARE ALPHA IDENTIFIERS AND CONFORM TO ANSI/ISA DESCRIPTIVE STANDARDS/GUIDELINES OR INDUSTRY FREE FORM METHODS (EG CV = CHECK VALVE AND LIT = LEVEL INDICATING TRANSMITTER).	
• XX-XXXX: THE LAST THREE DIGITS REPRESENT A SPECIFIC AREA, SERIES OR SUBSYSTEM.	

EQUIPMENT		
SYMBOL	TAG	DESCRIPTION
	AC-XXXX	AIR COMPRESSOR
	SB-XXXX	BASKET STRAINER
	BR-XXXX	BLOWER (ROTARY)
	BL-XXXX	BLOWER/FAN (CENTRIFUGAL)
	FI-XXXX	MEMBRANE FILTER
	MX-XXXX	MIXER
	CP-XXXX	PUMP CENTRIFUGAL
	MP-XXXX	PUMP (METERING)
	SP-XXXX	PUMP (SUBMERSIBLE)
	WP-XXXX	PUMP (SUBMERSIBLE GROUNDWATER WELL AND CASING)
	VP-XXXX	PUMP (VERTICAL TURBINE)
	UVL-XXXX	UV REACTOR (LOW PRESSURE)
	UVM-XXXX	UV REACTOR (MEDIUM PRESSURE)

LIQUID STORAGE AND PRESSURE VESSEL		
SYMBOL	TAG	DESCRIPTION
	DT-XXXX	CHEMICAL STORAGE DAY TANK C/W SECONDARY CONTAINMENT
	CT-XXXX	CHEMICAL STORAGE TOTE C/W SECONDARY CONTAINMENT
	BS-XXXX	CHEMICAL BULK STORAGE VESSEL
	ET-XXXX	ELEVATED TANK OR RESERVOIR
	PT-XXXX	HORIZONTAL PRESSURE TANK
	HWT-XXXX	HOT WATER TANK
	HT-XXXX	HYDROPNEUMATIC BLADDER TANK
	LCT-XXXX	LIQUID STORAGE TANK (CLOSED TOP)
	LT-XXXX	LIQUID STORAGE TANK (OPEN TOP TO ATMOSPHERE)
	WS-XXXX	WATER SOFTENER

ELECTRICAL AND CONTROL	
SYMBOL	DESCRIPTION
	MOTOR (FIXED DRIVE), STARTER AND SUPPLY VOLTAGE
	MOTOR WITH SOFT START
	MOTOR WITH VARIABLE SPEED DRIVE AND SUPPLY VOLTAGE
	SOLENOID AND SUPPLY VOLTAGE

VALVE		
SYMBOL	TAG	DESCRIPTION
	AR-XXXX	AIR RELEASE VALVE
	AV-XXXX	AIR/VACUUM VALVE
	DC-XXXX	BACK-FLOW PREVENTER - DOUBLE CHECK OR REDUCED PRESSURE PRINCIPLE
	BL	BALL VALVE - NORMALLY OPEN/CLOSED
	BV-XXXX	BUTTERFLY VALVE - NORMALLY OPEN/CLOSED
	CV-XXXX	CHECK VALVE - SWING, BALL, DISC
	CVD-XXXX	CHECK VALVE - DUCK BILL
	CA-XXXX	COMBINATION AIR VALVE
	DV-XXXX	DIAPHRAGM VALVE - NORMALLY OPEN/CLOSED
	AF-XXXX	FLOAT OR ALTITUDE CONTROL VALVE
	VD-XXXX	FLOW CONTROL VALVE (HYDRAULIC ADJUSTABLE)
	VD-XXXX	FLOW CONTROL VALVE (HYDRAULIC FIXED)
	GV-XXXX	GATE VALVE - NORMALLY OPEN/CLOSED
	GL-XXXX	GLOBE VALVE - NORMALLY OPEN/CLOSED
	KV-XXXX	KNIFE GATE VALVE - NORMALLY OPEN/CLOSED
	NV	NEEDLE VALVE
	PC	PETCOCK VALVE
	PV-XXXX	PLUG VALVE - NORMALLY OPEN/CLOSED
	PCV-XXXX	PRESSURE VALVE - REDUCING OR SUSTAINING
	PR-XXXX	PRESSURE RELIEF OR SURGE ANTICIPATING VALVE
	MV-XXXX	THERMOSTATIC MIXING VALVE
	VB-XXXX	VACUUM BREAKER VALVE
	TW-XXXX	3-WAY VALVE - GENERIC SYMBOL
	FW-XXXX	4-WAY VALVE - GENERIC SYMBOL

INSTRUMENTATION COMPONENT		
SYMBOL	TAG	DESCRIPTION
	FS	FLOAT SWITCH
	FE-XXXX	FLOW METER
	LE-XXXX	LEVEL TRANSMITTER (ULTRASONIC)
	LE-XXXX	LEVEL TRANSMITTER (TRANSDUCER)
	LE-XXXX	LEVEL TRANSMITTER (RADAR)

ACTUATOR AND OPERATOR	
SYMBOL	DESCRIPTION
	ELECTRIC ACTUATOR
	ELECTRIC ACTUATOR (FLOW CONTROL)
	ELECTRIC ACTUATOR C/W MANUAL OVERRIDE
	ELECTRIC ACTUATOR (FLOW CONTROL) C/W MANUAL OVERRIDE
	MANUAL CHAIN-WHEEL OPERATOR
	MANUAL GEAR OPERATOR
	MANUAL LEVER OPERATOR
	PNEUMATIC ACTUATOR
	PNEUMATIC ACTUATOR C/W MANUAL OVERRIDE
	PNEUMATIC FLOW CONTROL ACTUATOR
	SOLENOID ACTUATOR

DESCRIPTION	LINE TYPE		
	PROPOSED	EXISTING	FUTURE
AIR			
CHEMICAL DOUBLE WALL			
CHEMICAL			
DRAIN			
ELECTRICAL SIGNAL ANALOG			
ELECTRICAL SIGNAL DIGITAL			
ELECTRICAL SUPPLY			
FLOW DIRECTION			
PROCESS - PRIMARY			
PROCESS - SECONDARY			

ANNOTATION	
SYMBOL	DESCRIPTION
	ELEV: XXX.XXXm
	PRIMARY OR SECONDARY PROCESS SYSTEM FLOW INFORMATION
	AIR OR PNEUMATIC SYSTEM PROCESS FLOW INFORMATION
	ELECTRICAL OR DATA SYSTEM PROCESS FLOW INFORMATION

ACCESSORY		
DESCRIPTION	TAG	SYMBOL
CALIBRATION COLUMN	CC	
CHEMICAL INJECTION QUILL	IQ-XXX	
CLEANOUT	C/O	
DEGASSING COLUMN		
DISCHARGE TO FUNNEL STYLE FLOOR DRAIN C/W ATMOSPHERIC BREAK		
FLANGE		
ORIFICE PLATE		
PULSATION DAMPENER		
QUICK CONNECT COUPLING (FEMALE AND MALE ENDS)	QC	
REDUCER (CONCENTRIC)		
REDUCER (ECCENTRIC)		
ROTAMETER	RM	
SPECTACLE BLIND (NORMALLY CLOSED)	SF	
SPECTACLE BLIND (NORMALLY OPEN)	SF	
STRAINER WYE STYLE	WY-XXX	
STATIC MIXER	SM-XXX	
TRANSITION COUPLING	TC RC GC	
WET WELL OR RESERVOIR VENT		
WEIR		

COMMODITY	
DESCRIPTION	
AIR	AERATION
AS	AIR SCOUR
ASC	ANTISCALANT
BW	BACKWASH WATER
CA	COMPRESSED AIR
CIP	CLEAN IN PLACE
CIT	CITRIC ACID (C ₆ H ₈ O ₇)
COG	COAGULANT
DAF	DISSOLVED AIR FLOATATION FEED
DR	DRAIN (PROCESS)
DRW	DRAIN WASTE
DW	DISINFECTED WATER
FB	FILTER BYPASS
FF	FILTER FEED
FP	FILTER PERMEATE
FR	FILTER RECYCLE
HCl	HYDROCHLORIC ACID
HRW	HEAT RECOVERY WATER
HYD	SODIUM HYDROXIDE (NaOH)
HYP	SODIUM HYPOCHLORITE (NaOCl)
IA	INSTRUMENT AIR
MIT	MEMBRANE INTEGRITY TEST
OF	OVER FLOW
PA	PROCESS AIR
PLY	POLYMER
POT	POTABLE WATER DISTRIBUTION
PWS	POTABLE WATER SERVICE
RAW	RAW WATER
REJ	FILTER REJECT (OR CONCENTRATE)
SBS	SODIUM BISULPHITE (NaHSO ₃)
SLU	SLUDGE
SMBS	SODIUM METABISULPHITE (Na ₂ S ₂ O ₅)
SOL	SOLIDS (SEDIMENT)
SUL	SULPHURIC ACID (H ₂ SO ₄)
SW	SERVICE WATER
TR	TREATED RESIDUALS
TW	TREATED WATER
VAC	VACUUM
VE	VENTILATION

PIPE TAG IDENTIFICATION SYSTEM		
COMMODITY	PIPE MATERIAL	
PIPE NOMINAL DIAMETER	PIPE WALL THICKNESS	
150	RAW	PVC SCH80
PIPE MATERIAL		
DESCRIPTION		
ABS	ACRYLONITRILE BUTADIENE STYRENE	
CPVC	CHLORINATE POLYVINYL CHLORIDE	
CS	CARBON STEEL	
CU	COPPER	
DI	DUCTILE IRON	
GS	GALVANIZED STEEL	
HDPE	HIGH DENSITY POLYETHYLENE	
PEX	CROSS LINKED POLYETHYLENE	
PVC	POLYVINYL CHLORIDE	
SS	STAINLESS STEEL	
UPVC	UN-PLASTICIZED PVC (DRAIN PIPING)	

ABBREVIATION	
ABBREVIATION	
CIRC	CIRCULATION
CONT	CONTROL
COND	CONDUCTIVITY
DIA	DIAMETER
DP	DIFFERENTIAL PRESSURE
DQ	DESIGN FLOW
ELEV	ELEVATION
EQ	EQUALIZATION
FWL	FULL WATER LEVEL
HWL	HIGH WATER LEVEL
HOA	HAND/OFF/AUTO
HP	HORSE POWER
IND	INDICATE
LWL	LOW WATER LEVEL
MAG	MAGNETIC
MAX	MAXIMUM
MIN	MINIMUM
MS	MOTOR STARTER
O/C	OPEN/CLOSED
OF	OVERFLOW
PLC	PROGRAMMABLE LOGIC CIRCUIT
POS	POSITION
Q	FLOW
REC	RECIRCULATION
SCH	SCHEDULE
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TURB	TURBIDITY
TYP	TYPICAL
UV	ULTRAVIOLET RADIATION
UVT	ULTRAVIOLET TRANSMITTANCE
VAC	VOLTS AC
VFD	VARIABLE FREQUENCY DRIVE
WTP	WATER TREATMENT PLANT

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compiled from information supplied by various parties
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drawing, all underground utilities in the area of the
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NOVEMBER 06, 2024
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Professional Seals

#	Date	Issue / Revision	App
A	2024-07-05	ISSUED FOR INFORMATION	AJ
B	2024-11-06	ISSUED FOR 75% DESIGN	ME



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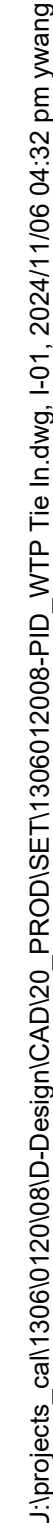
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Quality Control by	A. Joshi
Designed by	A. Joshi
Drawn by	J.Y. Wang

FOOTHILLS OKOTOKS
REGIONAL WATER PROJECT
WTP TIE-IN
P&ID LEGEND

Sheet Number	# of 10
Project Number	
1306.0120.08	
Drawing Number	Revision
FORWP-03-P-PID-001	B

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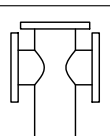
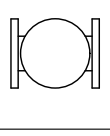
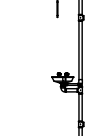
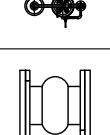
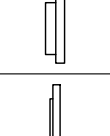
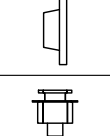
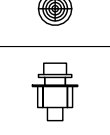
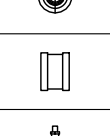
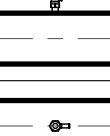
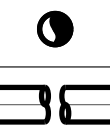
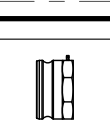
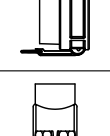
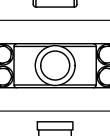
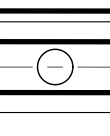
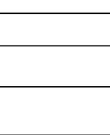
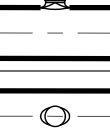
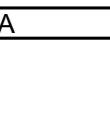
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Project Number	
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Drawing Number	Revision
FORWP-03-P-PID-002	B

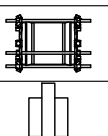
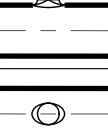
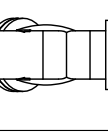
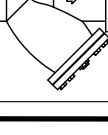
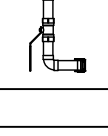
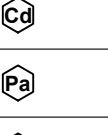
1. SAMPLING DRAIN TO BE DIRECTED INTO SUMP INSIDE STICK BUILDING, AND THEN PUMPED BACK TO ACIFLO UNIT 1 & 2.
2. PROVIDE CAMLOCK CONNECTIONS FOR REGIONAL WATER PIPELINE PIGGING PURPOSE.
3. PROVIDE VICTAULIC FLEX COUPLING OR BOLTED SLEEVE COUPLING TO ACCOMMODATE THE POTENTIAL IN-SERVICE DEFLECTION.
4. PROVIDE TRANSITION FLANGE SET TO TRANSIT THE PIPING MATERIAL FROM PVC/HDPE TO STAINLESS STEEL. USE RESTRAINED FLANGE ADAPTER ON PVC/HDPE SIDE AND WELD NECK FLANGE ON STAINLESS SIDE. PROVIDE INTERIOR STIFFENER FOR HDPE PIPE AS REQUIRED BY MANUFACTURER.

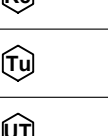
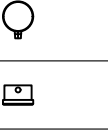
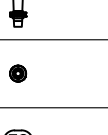
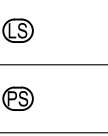
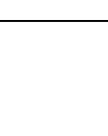
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DESIGN POINT: ~1 L/s @ 6m TDH
POWER: 0.5 HP, 120V/1 Ph/60 Hz

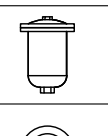
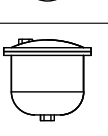
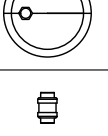
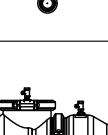
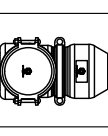
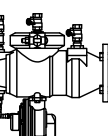
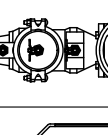
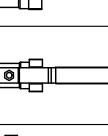
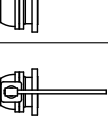
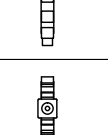
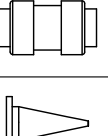
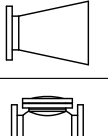
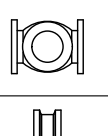
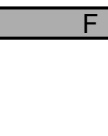
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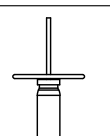
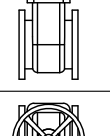
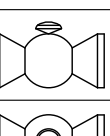
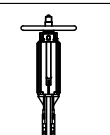
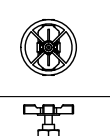
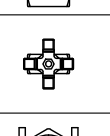
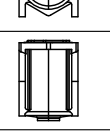
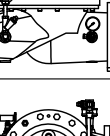
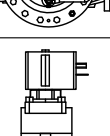
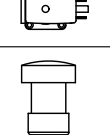
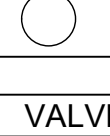
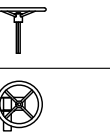
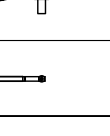
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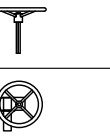
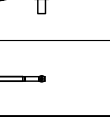
ACCESSORY		
SYMBOL	TAG	DESCRIPTION
	STR-XXXX	BASKET STRAINER (SIDE)
	STR-XXXX	BASKET STRAINER (TOP)
	ES-XXXX	EMERGENCY SHOWER AND EYEWASH STATION (SIDE)
	ES-XXXX	EMERGENCY SHOWER AND EYEWASH STATION (TOP)
	EJ	EXPANSION JOINT - RUBBER (SINGLE ARCH)
		FLANGE - PVC SOCKET
		FLANGE - STEEL SLIP / LAP JOINT
		FLANGE - STEEL WELD NECK
	FD	FLOOR DRAIN - FLUSH MOUNT (SIDE)
	FD	FLOOR DRAIN - FLUSH MOUNT (TOP)
	FFD	FLOOR DRAIN - FUNNEL (SIDE)
	FFD	FLOOR DRAIN - FUNNEL (TOP)
	GC	GROOVED COUPLING - FLEXIBLE / RIGID
	IQ-XXXX	INJECTION QUILL (SIDE)
	IQ-XXXX	INJECTION QUILL (TOP)
		PIPE - END
		PIPE - BREAK / CONTINUATION
		PIPE - PLAIN END TERMINATION
	QC	QUICK CONNECT CONNECTION - MALE
	QC	QUICK CONNECT CONNECTION - FEMALE
	SS	SERVICE SADDLE (SIDE)
		SERVICE SADDLE (TOP)
		SOCKOLET (SIDE)
		SOCKOLET (TOP)
	SM-XXXX	STATIC MIXER - TUBULAR (SIDE)
	SM-XXXX	STATIC MIXER - TUBULAR (TOP)
		THREAOLET (SIDE)
		THREAOLET (TOP)

ACCESSORY		
SYMBOL	TAG	DESCRIPTION
	RC	TRANSITION COUPLING - RESTRAINED
	UJ	UNION JOINT
		WELDOLET (SIDE)
		WELDOLET (TOP)
	WS-XXXX	WYE STRAINER (SIDE)
	WS-XXXX	WYE STRAINER (TOP)
	SP	SAMPLE POINT / DRAIN

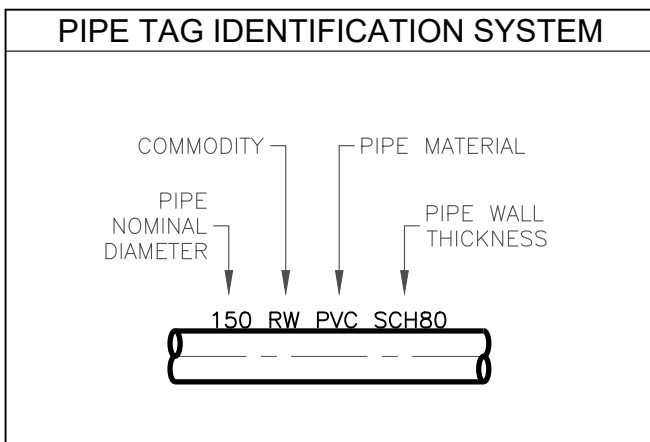
INSTRUMENTATION		
SYMBOL	TAG	DESCRIPTION
	AE-XXXX	ANALYSIS ELEMENT - CHLORINE FREE
	AE-XXXX	ANALYSIS ELEMENT - CHLORINE TOTAL RESIDUAL
	AE-XXXX	ANALYSIS ELEMENT - CONDUCTIVITY
	AE-XXXX	ANALYSIS ELEMENT - PARTICLE
	AE-XXXX	ANALYSIS ELEMENT - PH
	AE-XXXX	ANALYSIS ELEMENT - REDOX
	AE-XXXX	ANALYSIS ELEMENT - TURBIDITY
	AE-XXXX	ANALYSIS ELEMENT - UVT
	FE-XXXX	FLOW ELEMENT - MASS FLOW PROBE
	LE-XXXX	LEVEL ELEMENT
	PE-XXXX	PRESSURE ELEMENT
	TE-XXXX	TEMPERATURE ELEMENT
	FE-XXXX	FLOW METER
	PG-XXXX	PRESSURE GAUGE C/W FEED PIPING AND ISOLATION BALL VALVE (SIDE)
	PG-XXXX	PRESSURE GAUGE (TOP)
	RM	ROTAMETER (SIDE)
	RM	ROTAMETER (TOP)
	FS-XXXX	SWITCH - FLOAT
	LS-XXXX	SWITCH - LEVEL
	PS-XXXX	SWITCH - PRESSURE
	TS-XXXX	SWITCH - TEMPERATURE

VALVE		
SYMBOL	TAG	DESCRIPTION
	AR-XXXX	AIR RELEASE VALVE - SMALL PORT (SIDE)
	AR-XXXX	AIR RELEASE VALVE - SMALL PORT (TOP)
	CA-XXXX	AIR RELEASE VALVE - COMBINATION (SIDE)
	CA-XXXX	AIR RELEASE VALVE - COMBINATION (TOP)
	AVC-XXXX	AIR VALVE - CHEM STYLE (SIDE)
	AVC-XXXX	AIR VALVE - CHEM STYLE (TOP)
	DC-XXXX	BACK-FLOW PREVENTER - DOUBLE CHECK VALVE ASSEMBLY (SIDE)
	DC-XXXX	BACK-FLOW PREVENTER - DOUBLE CHECK VALVE ASSEMBLY (TOP)
	DC-XXXX	BACK-FLOW PREVENTER - REDUCED PRESSURE PRINCIPLE STYLE (SIDE)
	DC-XXXX	BACK-FLOW PREVENTER - REDUCED PRESSURE PRINCIPLE STYLE (TOP)
	BL	BALL VALVE - SOCKET, THREADED (SIDE)
	BL	BALL VALVE - SOCKET, THREADED (TOP)
	BL	BALL VALVE - FLANGED (SIDE)
	BL	BALL VALVE - FLANGED (TOP)
	BV-XXXX	BUTTERFLY VALVE - WAFER / LUGGED (SIDE)
	BV-XXXX	BUTTERFLY VALVE - WAFER / LUGGED (TOP)
	CV-XXXX	CHECK VALVE - BALL
	CV-XXXX	CHECK VALVE - DUCK BILL (SIDE)
	CV-XXXX	CHECK VALVE - DUCK BILL (TOP)
	CV-XXXX	CHECK VALVE - SWING (SIDE)
	CV-XXXX	CHECK VALVE - SWING (TOP)
	CV-XXXX	CHECK VALVE - WAFER

VALVE		
SYMBOL	TAG	DESCRIPTION
	GV-XXXX	GATE VALVE (SIDE)
	GV-XXXX	GATE VALVE (TOP)
	GL-XXXX	GLOBE VALVE (SIDE)
	GL-XXXX	GLOBE VALVE (TOP)
	KV-XXXX	KNIFE GATE VALVE (SIDE)
	KV-XXXX	KNIFE GATE VALVE (TOP)
	NV	NEEDLE VALVE (SIDE)
	NV	NEEDLE VALVE (TOP)
	PV-XXXX	PLUG VALVE (SIDE)
	PV-XXXX	PLUG VALVE (TOP)
	PCV-XXXX	PRESSURE VALVE - GLOBE STYLE SUSTAINING, RELIEF, SURGE, REDUCING (SIDE)
	PCV-XXXX	PRESSURE VALVE - GLOBE STYLE SUSTAINING, RELIEF, SURGE, REDUCING (TOP)
	SV-XXXX	SOLENOID VALVE (SIDE)
	SV-XXXX	SOLENOID VALVE (TOP)
	VB-XXXX	VACUUM BREAKER VALVE (SIDE)
	VB-XXXX	VACUUM BREAKER VALVE (TOP)

VALVE ACTUATOR AND OPERATOR	
SYMBOL	DESCRIPTION
	MANUAL GEAR OPERATOR C/W HAND WHEEL - SIDE
	MANUAL GEAR OPERATOR C/W HAND WHEEL - TOP
	MANUAL OPERATOR C/W LEVER STYLE HANDLE - SIDE
	MANUAL OPERATOR C/W LEVER STYLE HANDLE - TOP

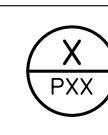
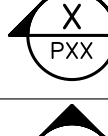
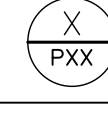
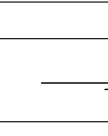
DESCRIPTION	LINE TYPE		
	PROPOSED	EXISTING	FUTURE
COMPONENT OR EQUIPMENT	_____	_____	_____
CONCRETE STRUCTURES	_____	_____	_____
LIQUID (OR HGL) LEVEL	_____	_____	_____
LIQUID LEVEL LOW	_____	_____	_____
PIPING - AIR (HIGH PRESSURE)	_____	_____	_____
PIPING - AIR (LOW PRESSURE)	_____	_____	_____
PIPING - CHEMICAL	_____	_____	_____
PIPING - DRAIN (PRIMARY)	_____	_____	_____
PIPING - WASTEWATER (PRIMARY)	_____	_____	_____
PIPING - WATER (PRIMARY)	_____	_____	_____
PIPING OR EQUIPMENT CENTERLINE	_____	_____	_____
PIPING - HIDDEN	_____	_____	_____

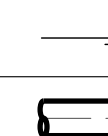
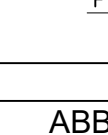
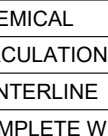


PIPE MATERIAL	
ABB	DESCRIPTION
ABS	ACRYLONITRILE BUTADIENE STYRENE
CPVC	CHLORINATE POLYVINYL CHLORIDE
CS	CARBON STEEL
CU	COPPER
DI	DUCTILE IRON
HDPE	HIGH DENSITY POLYETHYLENE
PEX	CROSS LINKED POLYETHYLENE
PVC	POLYVINYL CHLORIDE
SS	STAINLESS STEEL
UPVC	UN-PLASTICIZED PVC (DRAIN PIPING)

PML WATER COMMODITY	
ABB	DESCRIPTION
PRIMARY PROCESS	
DW	DISINFECTED WATER
FB	FILTER BYPASS
FF	FILTER FEED
FP	FILTER PERMEATE
FR	FILTER RECYCLE
POT	POTABLE WATER DISTRIBUTION
RAW	RAW WATER
TW	TREATED WATER
SECONDARY PROCESS	
BW	BACKWASH WATER
CIP	CLEAN IN PLACE
HRW	HEAT RECOVERY WATER
PSW	POTABLE WATER SERVICE
REJ	FILTER REJECT (OR CONCENTRATE)
SOL	SOLIDS (SEDIMENT)
SW	SERVICE WATER
TR	TREATED RESIDUALS
CHEMICAL	
ASC	ANTISCALANT
CIT	CITRIC ACID (C ₆ H ₈ O ₇)
COG	COAGULANT
HCl	HYDROCHLORIC ACID
HYD	SODIUM HYDROXIDE (NaOH)
HYP	SODIUM HYPOCHLORITE (NaOCl)
PLY	POLYMER
SBS	SODIUM BISULPHITE (NaHSO ₃)
SMBS	SODIUM METABISULPHITE (Na ₂ S ₂ O ₅)
SUL	SULPHURIC ACID (H ₂ SO ₄)

AIR - HIGH	
CA	COMPRESSED AIR
IA	INSTRUMENT AIR
MIT	MEMBRANE INTEGRITY TEST
PA	PROCESS AIR
AIR - LOW	
AIR	AERATION
AS	AIR SCOUR
DA	DAF FEED
VAC	VACUUM
VE	VENTILATION
WASTE/DRAIN	
DR	DRAIN (PROCESS)
DRW	DRAIN WASTE
OF	OVERFLOW
WW - GRIT, SLUDGE, SOLIDS	
SLP	PRIMARY SLUDGE

ANNOTATION AND SYMBOL (TITLE, SECTION AND DETAIL)	
ANNOTATION AND SYMBOLS	DESCRIPTION
 PLAN - TITLE NOT TO SCALE	PLAN TITLE
 SECTION - TITLE NOT TO SCALE	SECTION TITLE, REFERENCE INFORMATION
 PLAN - TITLE NOT TO SCALE	SECTION INDICATION AND REFERENCE INFORMATION
 PLAN - TITLE NOT TO SCALE	DETAIL TITLE AND REFERENCE INFORMATION
	DETAIL INDICATOR AND REFERENCE INFORMATION

ANNOTATION SYMBOL	
SYMBOLS	DESCRIPTION
 ELEV: XXX.XXXm	LIQUID LEVEL OR HGL AT ATMOSPHERIC PRESSURE
	PIPE FLOW DIRECTION ARROW
	ELEVATION SECTION MARKER (GEODETIC)

ABBREVIATION	
ABB	DESCRIPTION
CHEM	CHEMICAL
CIRC	CIRCULATION
CL	CENTERLINE
CW	COMPLETE WITH
DIA	DIAMETER
DP	DIFFERENTIAL PRESSURE
DQ	DESIGN FLOW
ELEV	ELEVATION
EQ	EQUALIZATION
FWL	FULL WATER LEVEL
HF	HIGH FLOW
HGL	HYDRAULIC GRADE LINE
HOA	HAND/OFF/AUTO
HP	HORSE POWER
HPZ	HIGH PRESSURE ZONE
HWL	HIGH WATER LEVEL
HWV	HIGH WATER VOLUME
INV	INVERT
LF	LOW FLOW
LPZ	LOW PRESSURE ZONE
LWL	LOW WATER LEVEL
MAG	MAGNETIC
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MS	MOTOR STARTER
O/C	OPEN/CLOSED
PLC	PROGRAMMABLE LOGIC CIRCUIT
Q	FLOW
REC	RECIRCULATION
RED	REDOX
REQ	REQUIRED
RET	RETURN
RF	REVERSE FLUSH
RO	REVERSE OSMOSIS
SCH	SCHEDULE
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TURB	TURBIDITY
TYP	TYPICAL
US	ULTRASONIC
UV	ULTRAVIOLET
UVT	ULTRAVIOLET TRANSMITTANCE
VAC	VOLTS AC
VDC	VOLTS DC
VFD	VARIABLE FREQUENCY DRIVE
VT	VERTICAL TURBINE PUMP
WTP	WATER TREATMENT PLANT
WWTP	WASTE WATER TREATMENT PLANT

FITTING ID	
ABB	DESCRIPTION
BM	BELL MOUTH
CR	CROSS
RE	REDUCER - ECCENTRIC
SR	ELBOW - 90° SHORT RADIUS
TR	TEE - REDUCING
Y	LATERAL

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#	Date	Issue / Revision	App
A	2024-10-8	ISSUED FOR 75% DESIGN	ME

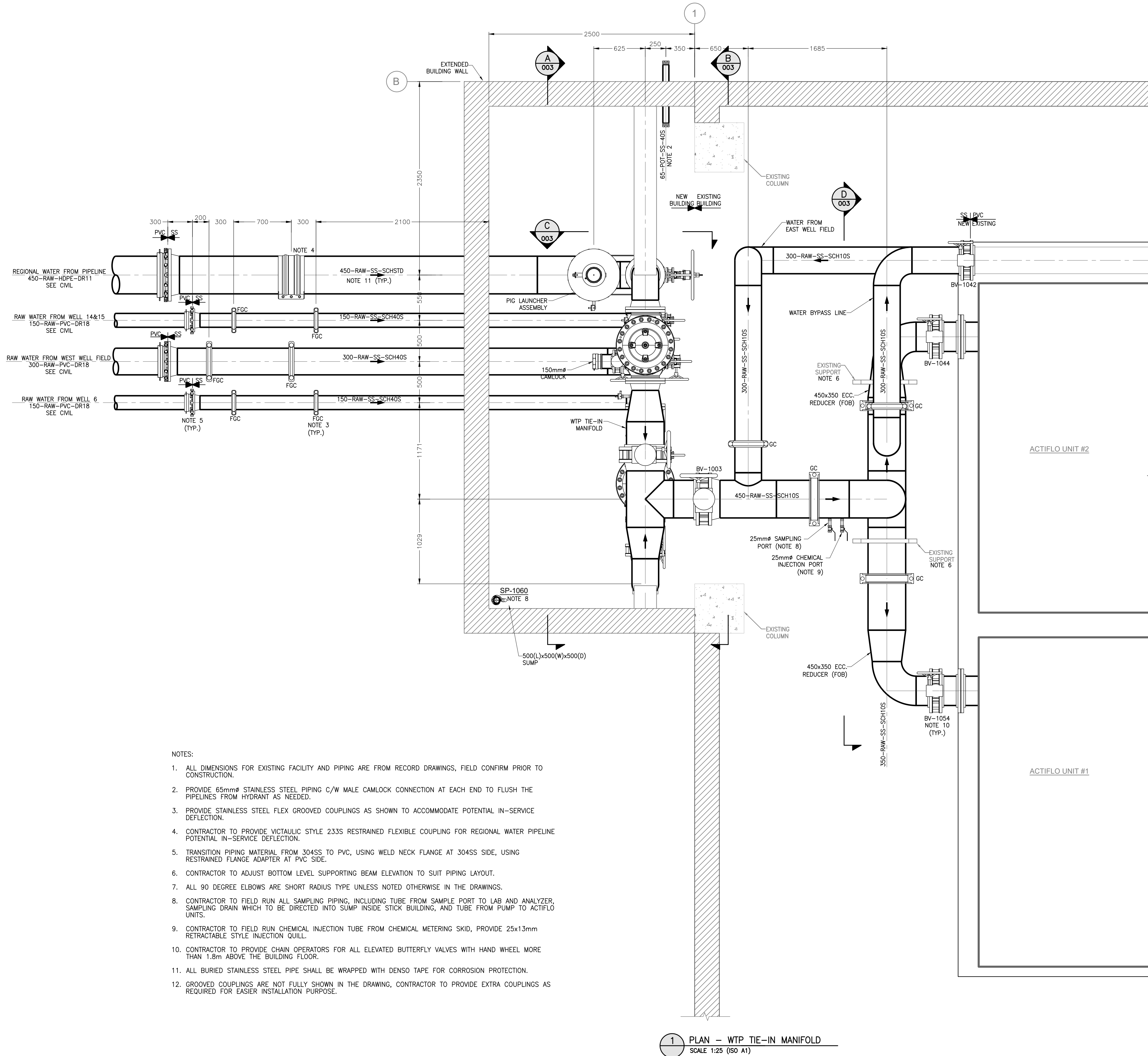


URBAN systems	
Scale AS SHOWN	
Quality Control by	A. Joshi
Designed by	A. Joshi
Drawn by	J.Y. Wang

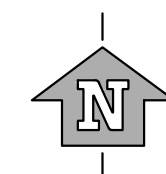
FOOTHILLS OKOTOKS REGIONAL WATER PROJECT	
WTP TIE-IN PROCESS MECHANICAL LEGEND	
Sheet Number	# of 10
Project Number	1306.0120.08
Drawing Number	Revision
FORWP-03-P-GA-001	A

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1 PLAN - WTP TIE-IN MANIFOLD
SCALE 1:25 (ISO A1)



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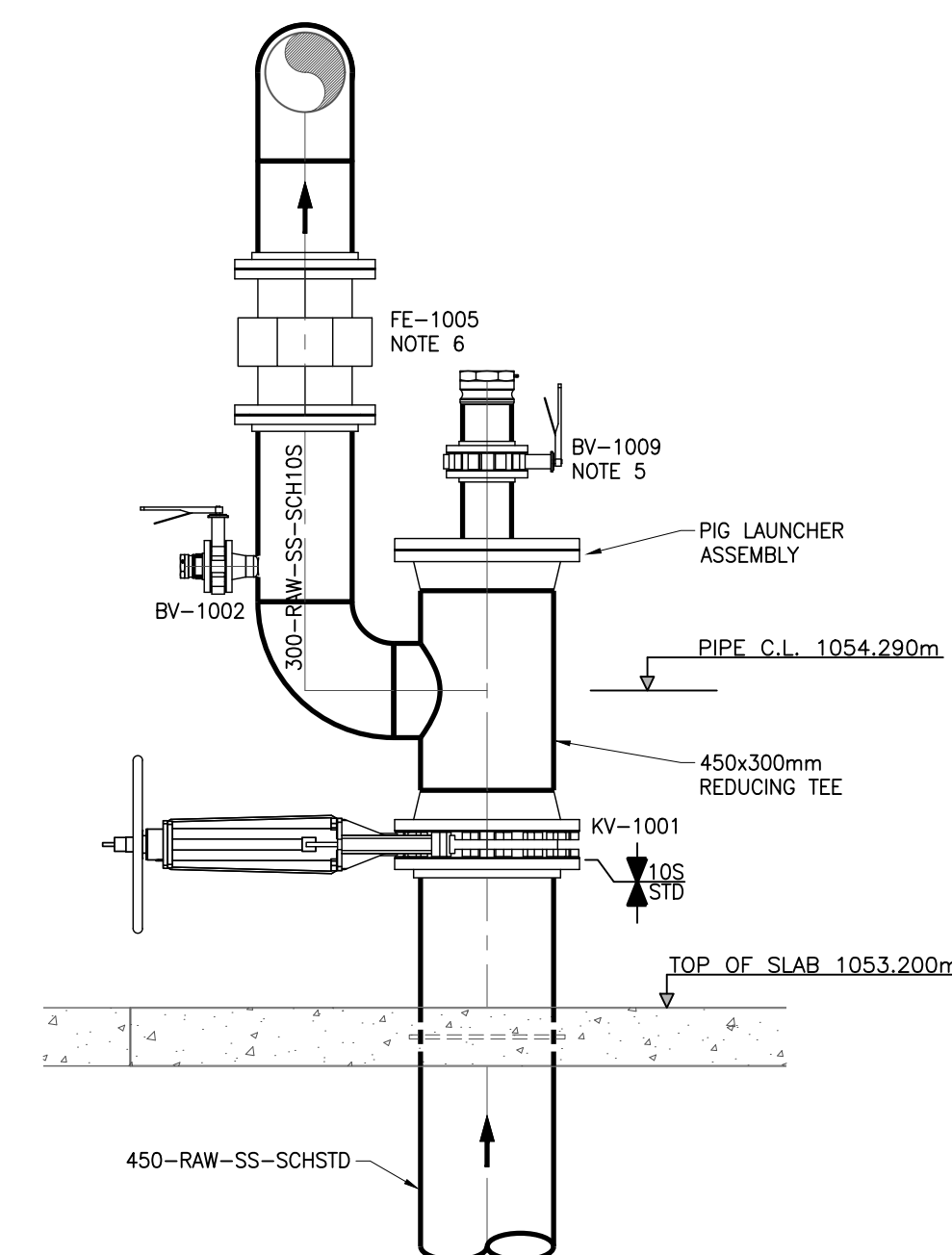
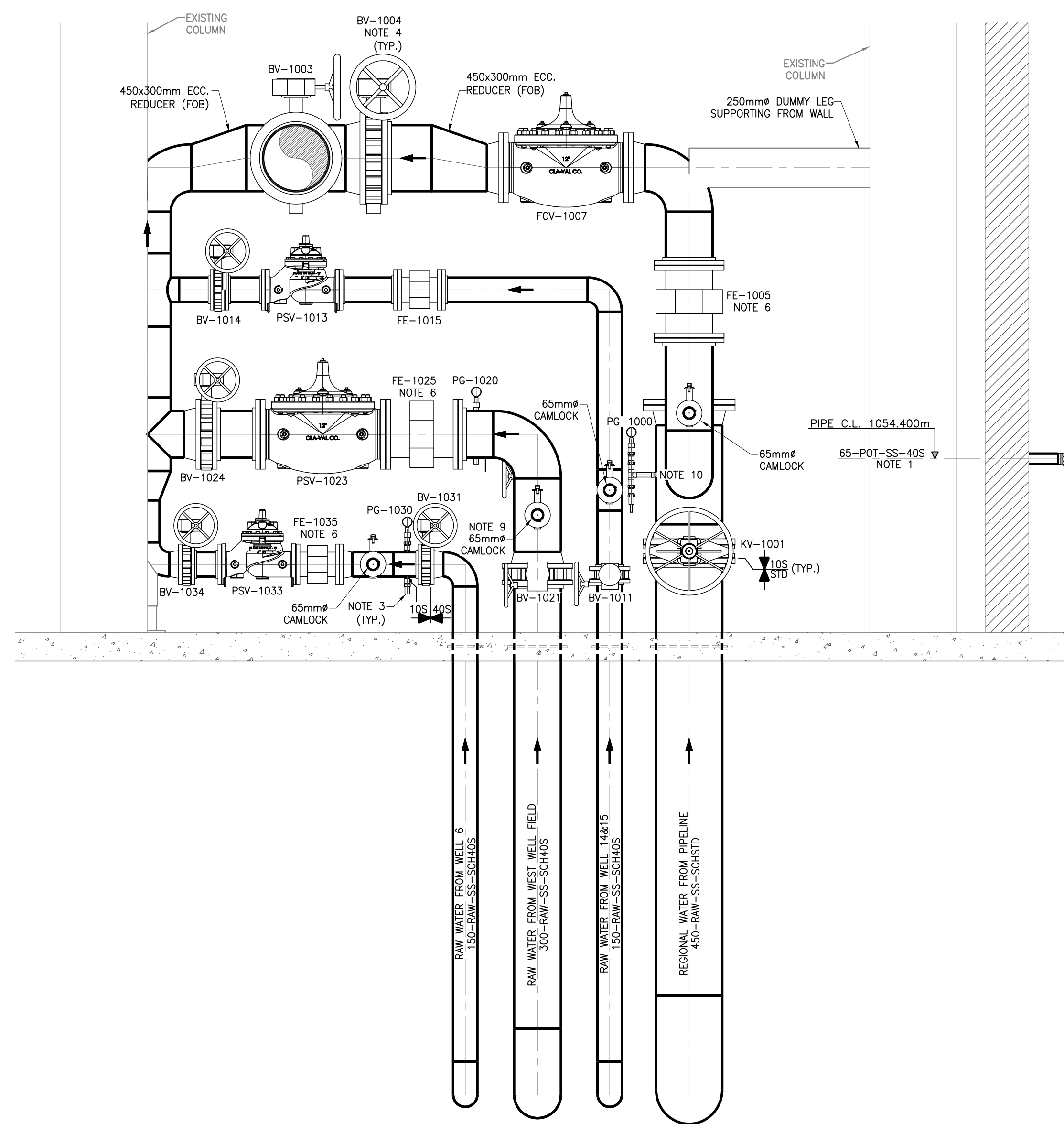
URBAN
systems

Scale: 1:XXX SCALE NOT SELECTED

Quality Control by: A. Joshi
Designed by: A. Joshi
Drawn by: J.Y. Wang

FOOTHILLS OKOTOKS REGIONAL WATER PROJECT WTP TIE-IN PLAN	
Sheet Number	# of 10
Project Number	1306.0120.08
Drawing Number	FORWP-03-P-GA-002
Revision	A

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1. PROVIDE 65mmØ STAINLESS STEEL PIPING C/W MALE CAMLOCK CONNECTION AT EACH END TO FLUSH THE PIPELINES FROM HYDRANT AS NEEDED.
2. ALL 90 DEGREE ELBOWS ARE SHORT RADIUS TYPE UNLESS NOTED OTHERWISE IN THE DRAWINGS.
3. CONTRACTOR TO FIELD RUN ALL SAMPLING PIPING, INCLUDING TUBE FROM SAMPLE PORT TO LAB AND ANALYZER, SAMPLING DRAIN WHICH TO BE DIRECTED INTO SUMP INSIDE FROST BOX, AND TUBE FROM PUMP TO ACTIFLO UNITS.
4. CONTRACTOR TO PROVIDE CHAIN OPERATORS FOR ALL ELEVATED BUTTERFLY VALVES.
5. PROVIDE 150mmØ CAMLOCK CONNECTIONS FOR REGIONAL WATER PIPELINE PIGGING PURPOSE.
6. CONTRACTOR TO PROVIDE 0-DN STRAIGHT PIPE REQUIREMENT FLOW METER DUE TO SPACE RESTRAINT, SEE SPECIFICATION FOR FURTHER INFORMATION.
7. ALL PIPING PENETRATIONS THROUGH BUILDING SLAB SHALL CONTAIN SS THRUST COLLARS FABRICATED TO AWWA M11 TABLE 7.7D. ADDITIONALLY PROVIDE TWO WATERSTOPS (ONE PER SIDE OF COLLAR) AROUND FULL CIRCUMFERENCE OF PIPE USING SIKA-SWELL OR APPROVED EQUAL PRODUCT. SUBMIT SHOP DRAWING CLEARLY SHOWS THRUST COLLAR PLACEMENT, GEOMETRY AND WELD ATTACHMENT DETAILS.
8. ALL PIPING SUPPORTS SHOWN ON THE DRAWINGS ARE INDICATIVE, CONTRACTOR SHALL FINALIZE SUPPORT LOCATIONS PER REQUIREMENTS IN SPECIFICATION. CONTRACTOR TO PROVIDE ENGINEER SIGNED AND SEALED SHOP DRAWING FOR REVIEW AND APPROVAL.
9. CONTRACTOR TO TAP HOLE FOR 65mmØ CAMLOCK CONNECTION IN THE 300x150mm REDUCING TEE.
10. CONTRACTOR TO TAP HOLE FOR 25mmØ SAMPLING CONNECTION IN THE 450x300mm REDUCING TEE.
11. CONTRACTOR TO ADJUST BOTTOM LEVEL SUPPORTING BEAM ELEVATION TO SUIT PIPING LAYOUT.

 SECTION
SCALE 1:25 (ISO A1)

 SECTION
SCALE 1:25 (ISO A1)

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URBAN
systems

Scale

SCALE NOT SELECTED

1:XXX 

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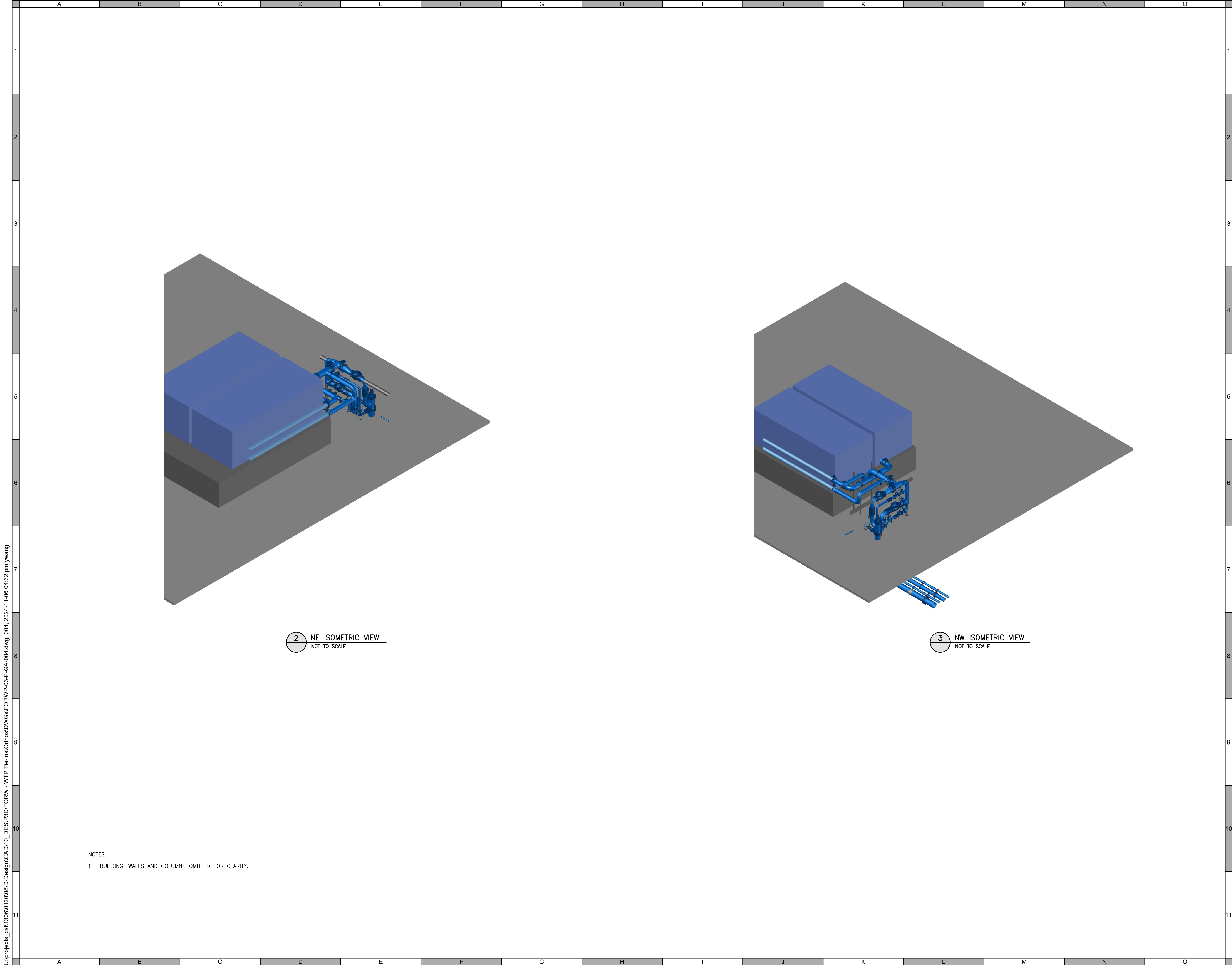
Designed by A. Joshi

Drawn by J.Y. Wang

FOOTHILLS OKOTOKS REGIONAL WATER PROJECT

Sheet Number	# of 10
Project Number	
1306.0120.08	
Drawing Number	Revision
FORWP-03-P-GA-003	A

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2 NE ISOMETRIC VIEW
NOT TO SCALE

3 NW ISOMETRIC VIEW
NOT TO SCALE

NOTES:
1. BUILDING, WALLS AND COLUMNS OMITTED FOR CLARITY.

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for any use of this drawing for any purpose without the express written
authority of Urban Systems Ltd.

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information supplied by other sources and may not be complete or
accurate at the time of review. It is the sole responsibility of any party
making use of this drawing to expose and conclusively confirm the loca-
tion in the field of all underground utilities and structures, whether or not
indicated on this drawing, all underground utilities in the area of the
proposed work, and any utilities or structures reasonably apparent from
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**ISSUED FOR
75% DESIGN**
NOVEMBER 06, 2024
urbansystems.ca

Professional Seals

#	Date	Issue / Revision	App
A	2024-10-08	ISSUED FOR 75% DESIGN	ME



**URBAN
systems**

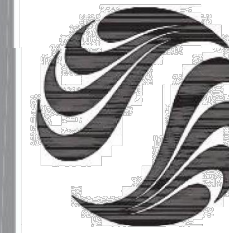
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Quality Control by: A. Joshi
Designed by: A. Joshi
Drawn by: J.Y. Wang

FOOTHILLS OKOTOKS REGIONAL WATER PROJECT WTP TIE-IN ISOMETRIC RENDERING	
Sheet Number	# of 10
Project Number	1306.0120.08
Drawing Number	Revision
FORWP-03-P-GA-004	A

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NOT FOR CONSTRUCTION



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 Calgary AB Canada
 T2A 7H8
 Tel: 403.716.8000
 Fax: 403.716.8049
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Record Drawing

These drawings have been prepared based on information provided by Lockyer & Hole Contracting Limited with a construction completion date of March 2013. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

Legend

Notes

ISSUED FOR
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Revision	By	Appd.	YY.MM.DD
E			
D			
C FOR RECORD	JX	RR	13.03.18
B FOR CONSTRUCTION	JX	RR	09.08.25
A FOR QUOTATION	JX	RR	09.06.30
Issued	By	Appd.	YY.MM.DD
Client Number	996738	TR	RR
		Desg.	YY.MM.DD

Permit/Seal

**ORIGINAL STAMPED & SIGNED
 FOR IFC - 2009 AUG 25
 IFR - 2013 MAR 18**

Client/Project



OKOTOKS WATER TREATMENT PLANT UPGRADE
 Okotoks, AB, Canada

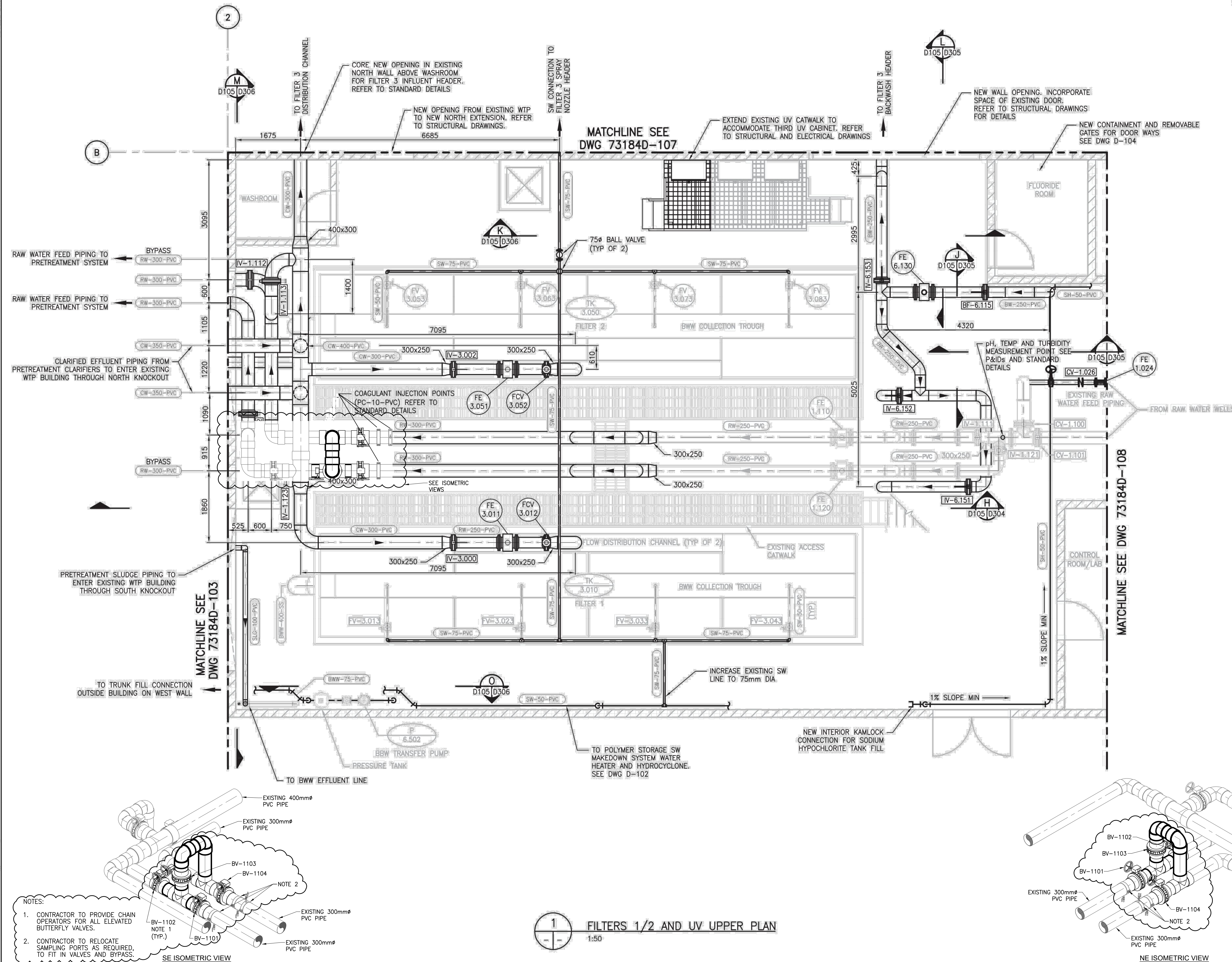
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**PROCESS
 FILTER 1/2 AND UV
 UPPER LEVEL PLAN**

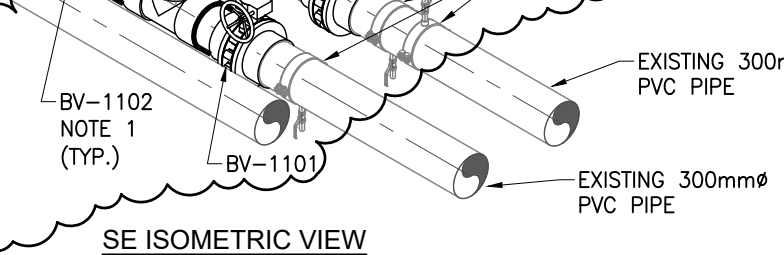
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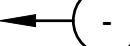
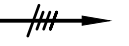
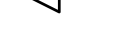
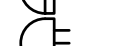
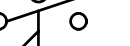
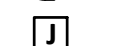
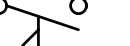
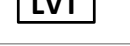
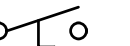
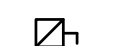
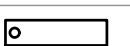
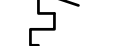
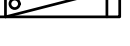
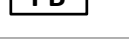
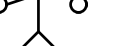
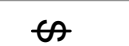
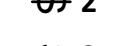
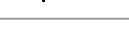
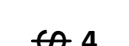
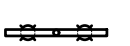
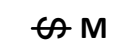
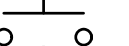
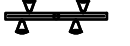
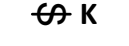
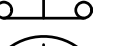
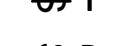
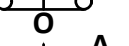
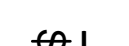
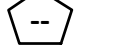
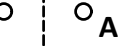
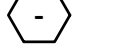
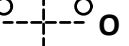
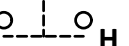
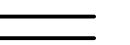
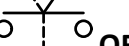
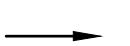
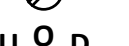
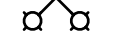
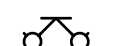
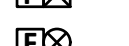
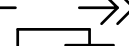
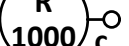
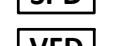
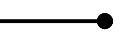
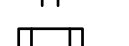
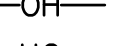
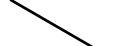
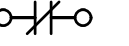
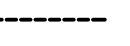
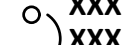
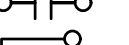
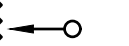
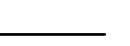
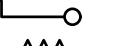
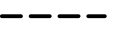
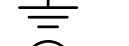
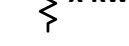
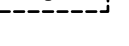
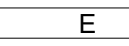


- NOTES:
- CONTRACTOR TO PROVIDE CHAIN OPERATORS FOR ALL ELEVATED BUTTERFLY VALVES.
 - CONTRACTOR TO RELOCATE SAMPLING PORTS AS REQUIRED, TO FIT IN VALVES AND BYPASS.



1 FILTERS 1/2 AND UV UPPER PLAN
 1:50

M:\N-Data\201\21 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-ins\AutoDesk\MCAD\ED 1 - FORW-03-E-LEG-001.dwg, FORW-03-E-LEG-001, 2024/11/29 04:38 pm vrendeau

DISTRIBUTION		POWER CONTINUED		COMMUNICATIONS		INSTRUMENTATION EQUIPMENT	
	CONDUIT IDENTIFICATION TAG		HOME RUN WITH WIRE COUNT		WALL MOUNTED TELEPHONE OUTLET		LEVEL SWITCH (OPEN ON RISING LEVEL)
	GROUND BAR		HEAT TRACING		WALL MOUNTED DATA OUTLET		LEVEL SWITCH (OPEN ON FALLING LEVEL)
	METERING CABINET GREATER THAN 200A		PIN AND SLEEVE CONNECTOR (FEMALE)		WALL MOUNTED COMBINATION TELEPHONE/DATA OUTLET		FLOW SWITCH (OPEN ON RISING FLOW)
	POWER METER		PIN AND SLEEVE CONNECTOR (MALE)		WALL MOUNTED TELEVISION OUTLET		FLOW SWITCH (OPEN ON FALLING FLOW)
	ELECTRIC UTILITY METER 200A AND LESS		WALL MOUNTED JUNCTION BOX		CEILING MOUNTED TELEPHONE OUTLET		PRESSURE SWITCH (OPEN ON RISING PRESSURE)
	WATER METER		FLOOR MOUNTED JUNCTION BOX		CEILING MOUNTED COMBINATION TELEPHONE/DATA OUTLET		PRESSURE SWITCH (OPEN ON FALLING PRESSURE)
	GAS METER		CEILING MOUNTED JUNCTION BOX		CEILING MOUNTED TELEVISION OUTLET		TEMPERATURE SWITCH (OPEN ON RISING TEMPERATURE)
	120/24V LOW VOLTAGE TRANSFORMER		THERMOSTAT		CEILING MOUNTED DATA OUTLET		TEMPERATURE SWITCH (OPEN ON FALLING TEMPERATURE)
	120/24V LOW VOLTAGE TRANSFORMER		NON-FUSEABLE DISCONNECT SWITCH		FLOOR MOUNTED DATA OUTLET		LIMIT SWITCH (NC)
LIGHTING			FUSEABLE DISCONNECT SWITCH		FLOOR MOUNTED TELEPHONE OUTLET		LIMIT SWITCH (NO)
	SURFACE MOUNTED LIGHT FIXTURE		COMBINATION MAGNETIC HOA STARTER		FLOOR MOUNTED TELEVISION OUTLET		TIME DELAY RELAY (NC)
	RECESSED LIGHT FIXTURE		O/H DOOR PUSH BUTTON		FLOOR MOUNTED COMBINATION TELEPHONE/DATA OUTLET		TIME DELAY RELAY (NO)
	RECESSED LIGHT FIXTURE WITH END PLATES		PULL BOX		WIRELESS ACCESS POINT		INSTRUMENTATION IDENTIFICATION TAG
	SURFACE MOUNTED STRIP LIGHT FIXTURE	SWITCHES		CONTROL PANEL EQUIPMENT		MISCELLANEOUS AND LABELS	
	UNDER CABINET/VAIENCE STRIP LIGHT FIXTURE		LINE VOLTAGE SWITCH		RESET PUSH BUTTON (NO)		REVISION NUMBER
	WALL MOUNTED CUBED LIGHT FIXTURE		SWITCH C/W PILOT LIGHT		RESET PUSH BUTTON (NC)		FIXTURE TYPE
	SURFACE MOUNTED LIGHT FIXTURE		TWO POLE SWITCH		MUSHROOM HEAD STOP		MECHANICAL EQUIPMENT IDENTIFICATION TAG
	RECESSED LIGHT FIXTURE		THREE WAY SWITCH		3 POSITION SELECTOR SWITCH		KITCHEN EQUIPMENT TAG
	WALL MOUNTED LIGHT FIXTURE		FOUR WAY SWITCH		2 POSITION SELECTOR SWITCH		KEY NOTES
	WALL MOUNTED LIGHT FIXTURE ON EMERGENCY		MANUAL MOTOR PROTECTION SWITCH C/W PILOT LIGHT		HAND-OFF-AUTO SELECTOR SWITCH		SINGLE LINE BREAK
	TRACK LIGHT C/W PENDANT HEADS		KEY OPERATED SWITCH - CYLINDER TYPE		UP-OFF-DOWN SELECTOR SWITCH		DOUBLE LINE BREAK
	TRACK LIGHT C/W ADJUSTABLE HEADS		TIMER SWITCH		RESET PUSH BUTTON		CAPPED OFF LINE OR CONDUIT
	BOLLARD LIGHT FIXTURE		DIMMER SWITCH - SLIDER TYPE		AMBER PILOT LIGHT		CONDUIT BREAK
	POLE MOUNTED LIGHT FIXTURE (ONE HEAD SHOWN)		INTERNALLY ILLUMINATED LIGHT SWITCH		GREEN PILOT LIGHT		CABLE TRAY
	CEILING MOUNTED EXIT LIGHT SINGLE FACE		LOW VOLTAGE SWITCH		RED PILOT LIGHT		DISH WASHER
	CEILING MOUNTED EXIT LIGHT DOUBLE FACE		2 GANG SWITCH		DUPLEX RECEPTACLE		FRIDGE
	CEILING COMBINATION EXIT SIGN AND EMERGENCY LIGHT C/W BATTERY		3 GANG SWITCH		SINGLE PHASE PLUG		RANGE
	WALL MOUNTED EXIT LIGHT SINGLE FACE		4 GANG SWITCH		MAIN CONTROL PANEL FUSED TERMINAL BLOCK		MICROWAVE
	WALL MOUNTED EXIT LIGHT DOUBLE FACE		5 GANG SWITCH		AUXILIARY FUSED TERMINAL BLOCK		GARBURATOR
	WALL COMBINATION EXIT SIGN AND EMERGENCY LIGHT C/W BATTERY		WALL MOUNTED PHOTOCELL		CIRCUIT BREAKER		DRYER
	EXIT LIGHT DIRECTIONAL ARROW	LIFE SAFETY			MAIN CONTROL PANEL TERMINAL BLOCK		WASHER
	WALL MOUNTED EMERGENCY LIGHTING BATTERY PACK		SMOKE DETECTOR		PLC/RTU TERMINAL		NIGHT LIGHT
	CEILING MOUNTED EMERGENCY LIGHTING DOUBLE REMOTE HEAD		SMOKE ALARM - 120V		AUXILIARY TERMINAL BLOCK		TAMPER PROOF
	WALL MOUNTED EMERGENCY LIGHTING DOUBLE REMOTE HEAD		HEAT DETECTOR - RATE OF RISE		MCC/VFD TERMINAL BLOCK		GROUND FAULT CIRCUIT INTERRUPTER
POWER			HEAT DETECTOR - FIXED TEMPERATURE		DEVICE TERMINAL BLOCK		ISOLATED GROUND
	DUPLEX RECEPTACLE	POWER EQUIPMENT			DRY CONTACT RELAY		EMERGENCY
	SPLIT FEED RECEPTACLE		DELTA WYE TRANSFORMER		TIME DELAY RELAY		AMP FRAME
	FOURPLEX RECEPTACLE		DISTRIBUTION TRANSFORMER		MAGNETIC CONTACTOR		AMP TRIP
	SWITCHED DUPLEX RECEPTACLE		POTENTIAL TRANSFORMER		SOLENOID		EXPLOSION PROOF
	20A T-SLOT RECEPTACLE (KITCHEN)		FUSE DRAW OUT TYPE		DRY CONTACT RELAY (NC)		EXISTING DEVICE TO REMAIN
	TWISTLOCK RECEPTACLE		CIRCUIT BREAKER DRAW OUT TYPE		DRY CONTACT RELAY (NO)		EXISTING DEVICE TO BE REMOVED
	208 VOLT 1PH RECEPTACLE		3 PHASE GENERATOR (GROUNDED)		VARIABLE RESISTOR		EXISTING DEVICE TO BE RELOCATED
	208 VOLT 3PH RECEPTACLE		THERMAL OVERLOAD PROTECTION		RESISTOR		RELOCATED DEVICE
	WALL MOUNTED USB PORT		INTERLOCK		THERMISTOR		WIRE COUNT
	PEDESTAL DUPLEX RECEPTACLE		CAPACITOR		DIODE		CONDUIT RUN UP
	WALL MOUNTED PUSH BUTTON		CURRENT METER		METAL OXIDE VARISTOR		CONDUIT RUN DOWN
	WALL MOUNTED SURGE PROTECTIVE DEVICE (SPD OR TVSS)		CONTACTOR		PLC/RTU DIGITAL INPUT		OVERHEAD POWER
	WALL MOUNTED VARIABLE FREQUENCY DRIVE (VFD)		FUSE		PLC/RTU DIGITAL OUTPUT		UNDERGROUND POWER
	CEILING MOUNTED DUPLEX RECEPTACLE		DISCONNECT SWITCH		PLC/RTU ANALOG INPUT		CONDUCTOR/CONDUIT
	CEILING MOUNTED FOURPLEX RECEPTACLE		FUSED DISCONNECT SWITCH		PLC/RTU ANALOG OUTPUT		UNDERGROUND CONDUCTOR/CONDUIT
	CEILING MOUNTED 208 VOLT 1PH RECEPTACLE		CIRCUIT BREAKER		FLEXIBLE CONDUIT		EXISTING EQUIPMENT
	CEILING MOUNTED 208 VOLT 3PH RECEPTACLE		FRAME SIZE		NEW EQUIPMENT		EQUIPMENT TO BE REMOVED
	AUXILIARY RELAY		TRIP RATING				
	CEILING MOUNTED POWER ZONE BOX		POLE				
	REEL DOWN RECEPTACLE		ELAPSED TIME METER				
	PACK POLE		GROUND ROD				
	FLOOR MOUNTED DUPLEX RECEPTACLE		GROUND ROD C/W WELL				
	FLOOR MOUNTED FOURPLEX RECEPTACLE		GROUND ROD WITHOUT WELL				
	FLOOR MOUNTED 208 VOLT 1PH RECEPTACLE		HEATER C/W KILOWATT RATING				
	FLOOR MOUNTED 208 VOLT 3PH RECEPTACLE		TRANSFER SWITCH				
	MOTOR						
	MOTOR WITH DISCONNECT SWITCH						
	MOTOR WITH FUSIBLE DISCONNECT SWITCH						
	MOTOR WITH COMBINATION DISCONNECT SWITCH						
	MAGNETIC MOTOR STARTER						

E0.1

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LEADERS ARE ACCEPTABLE BUT MUST BE AVOIDED
WHEREVER POSSIBLE. DIMENSION STYLES HAVE
MEASUREMENT SCALE FACTOR OF 1000 TO SHOW
MILLIMETRES.
2. SYMBOL TEXT SHALL BE CALIBRI 1.35mm. LEADERS,
NOTES, AND DIMENSIONS SHALL BE 1.65mm CALIBRI.
TITLES SHALL BE CALIBRI 1.95mm.
3. NOTES SHALL HAVE A LINE SPACE FACTOR OF 1.1 AND BE
SEPARATED BY A RETURN. TYPE NOTES AS USUAL AND
AFTERWARDS ADD THE RETURN NOTES BY
HOLDING SHIFT AND PRESSING ENTER.

Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



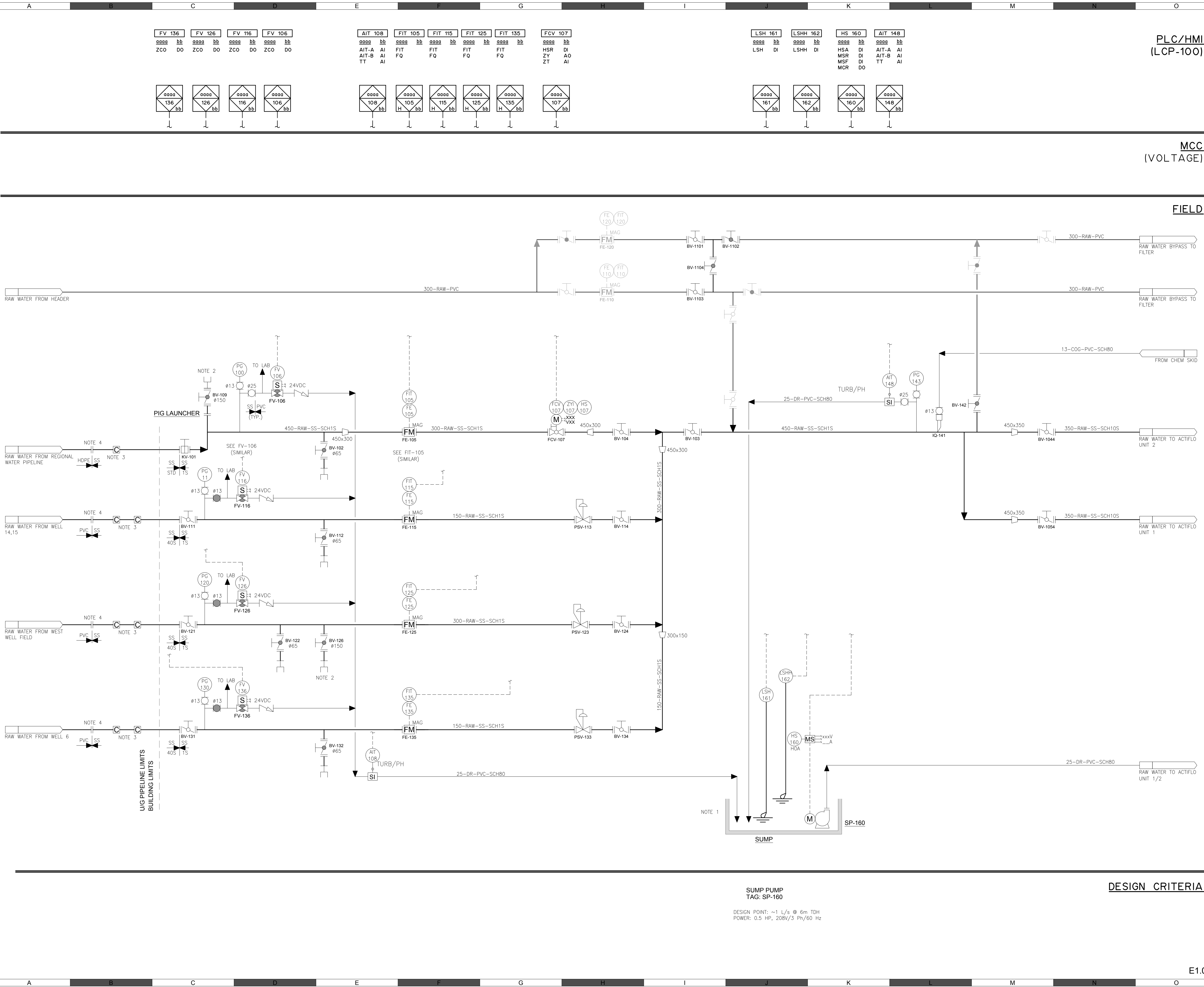
	
a division of Englobe	
Scale NOT TO SCALE	
Quality Control by Designed by Drawn by	V.R., G.B.P. V.R.

FORW OKOTOKS WTP TIE-INS
LEGEND

Sheet Number	# of ##
Project Number	29121-005-13
Drawing Number	FORW-03-E-LEG-001
Revision	A

NOT FOR CONSTRUCTION

M:\N-Data\2011\21 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-ins\AutoDesk\ACAD\PI1.2 - FORWP-03-P-PID-002.dwg, FORWP-03-P-PID-002, 2024/11/29 05:59 pm ysheng



PLC/HMI
(LCP-100)

MCC
(VOLTAGE)

FIELD

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Professional Seals

#	Date	Issue / Revision	App
A	24-11-29	ISSUED FOR DESIGN ASSIST RFP	G.B.P.



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Quality Control by	V.R., G.B.P.
Designed by	V.R.
Drawn by	

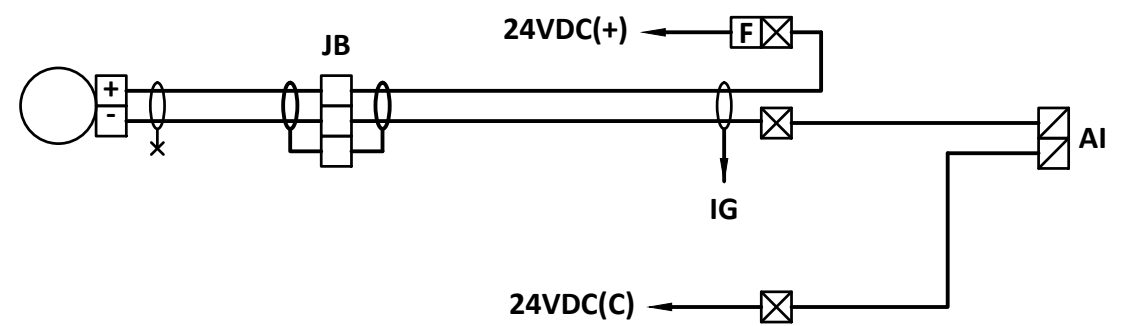
FORW OKOTOKS WTP TIE-INS
PROCESS & INSTRUMENTATION DIAGRAM
WTP TIE-IN

Sheet Number	# of #
Project Number	29121-005-13
Drawing Number	FORWP-03-P-PID-002
Revision	A

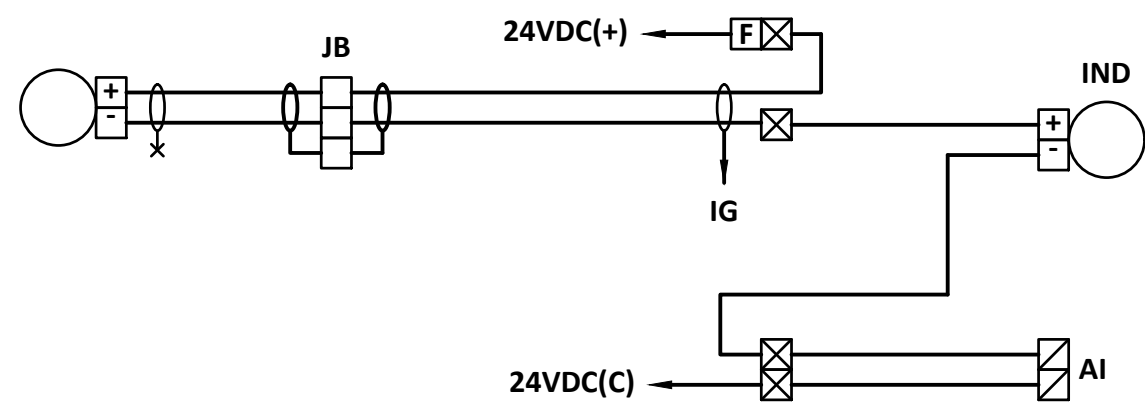
E1.0

NOT FOR CONSTRUCTION

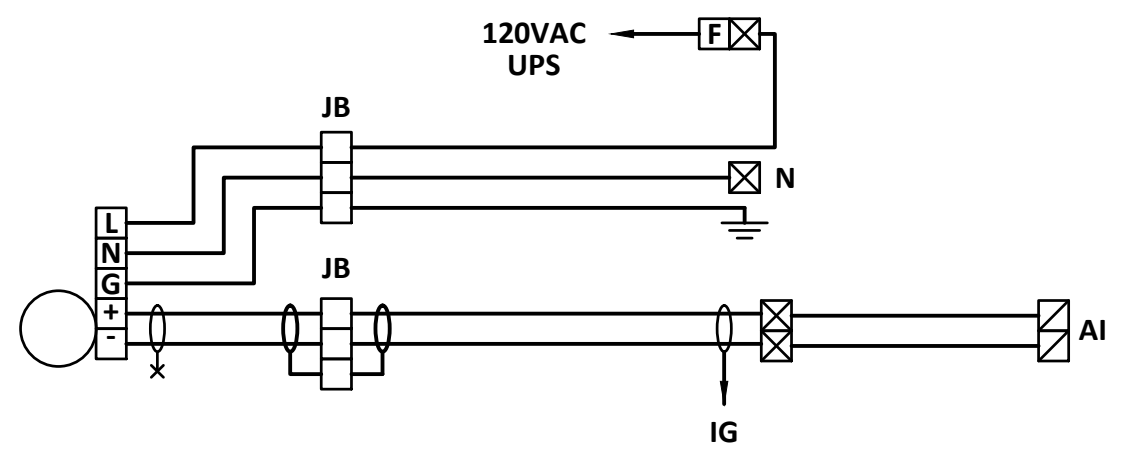
M:\N-Data\29121\21 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-ins\AutoDesk\CAD\IED 2 - FORW-03-E-LEG-002 INSTRUMENT WIRING TYPICALS.dwg, FORW-03-E-LEG-002, 2024/11/29 04:38 pm vriendeau



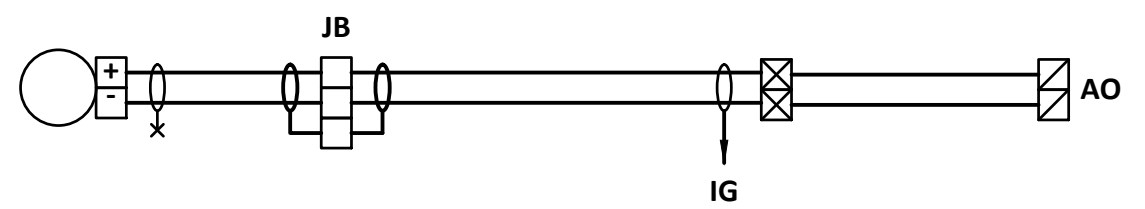
2 WIRE TRANSMITTER



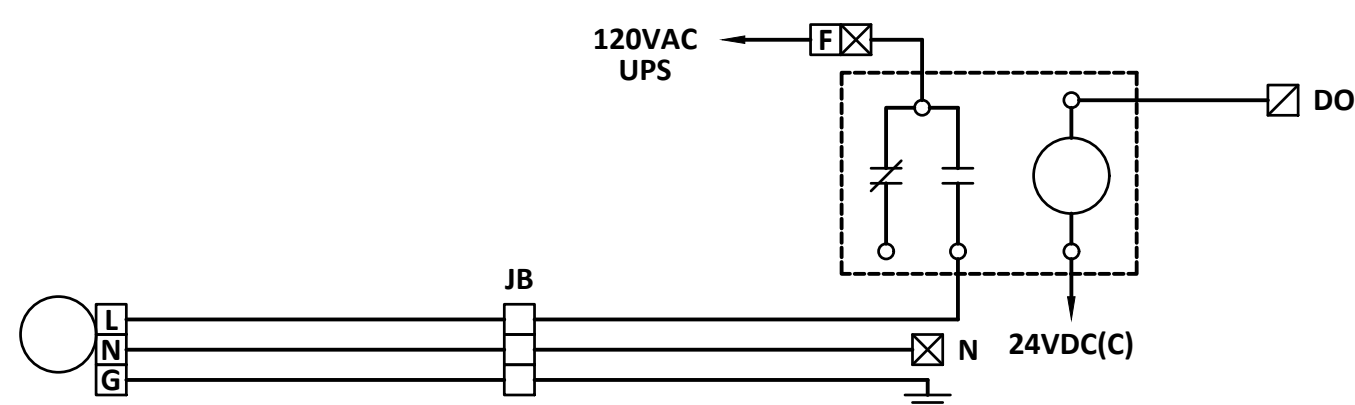
2 WIRE TRANSMITTER WITH PANEL INDICATION



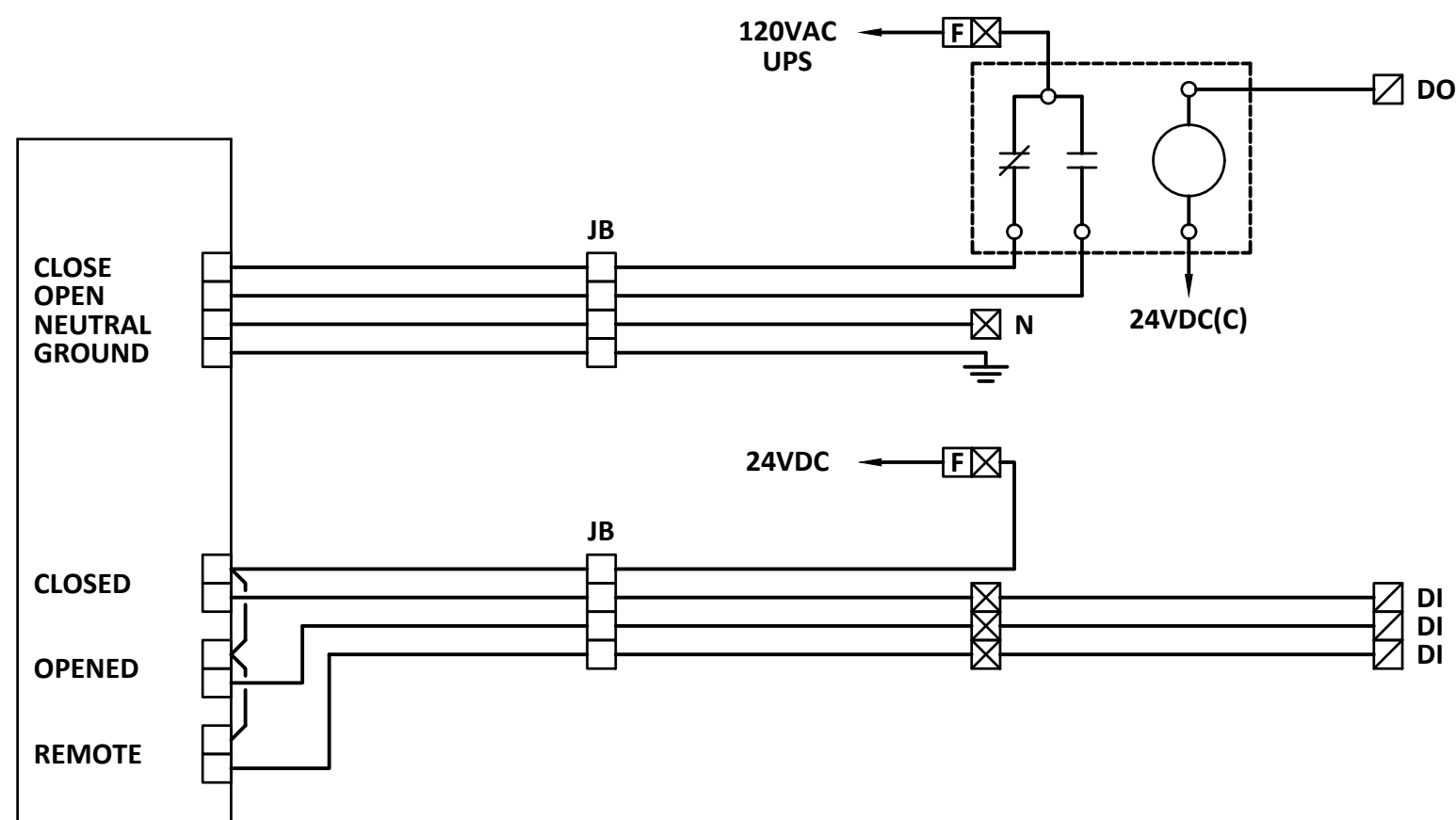
4 WIRE TRANSMITTER



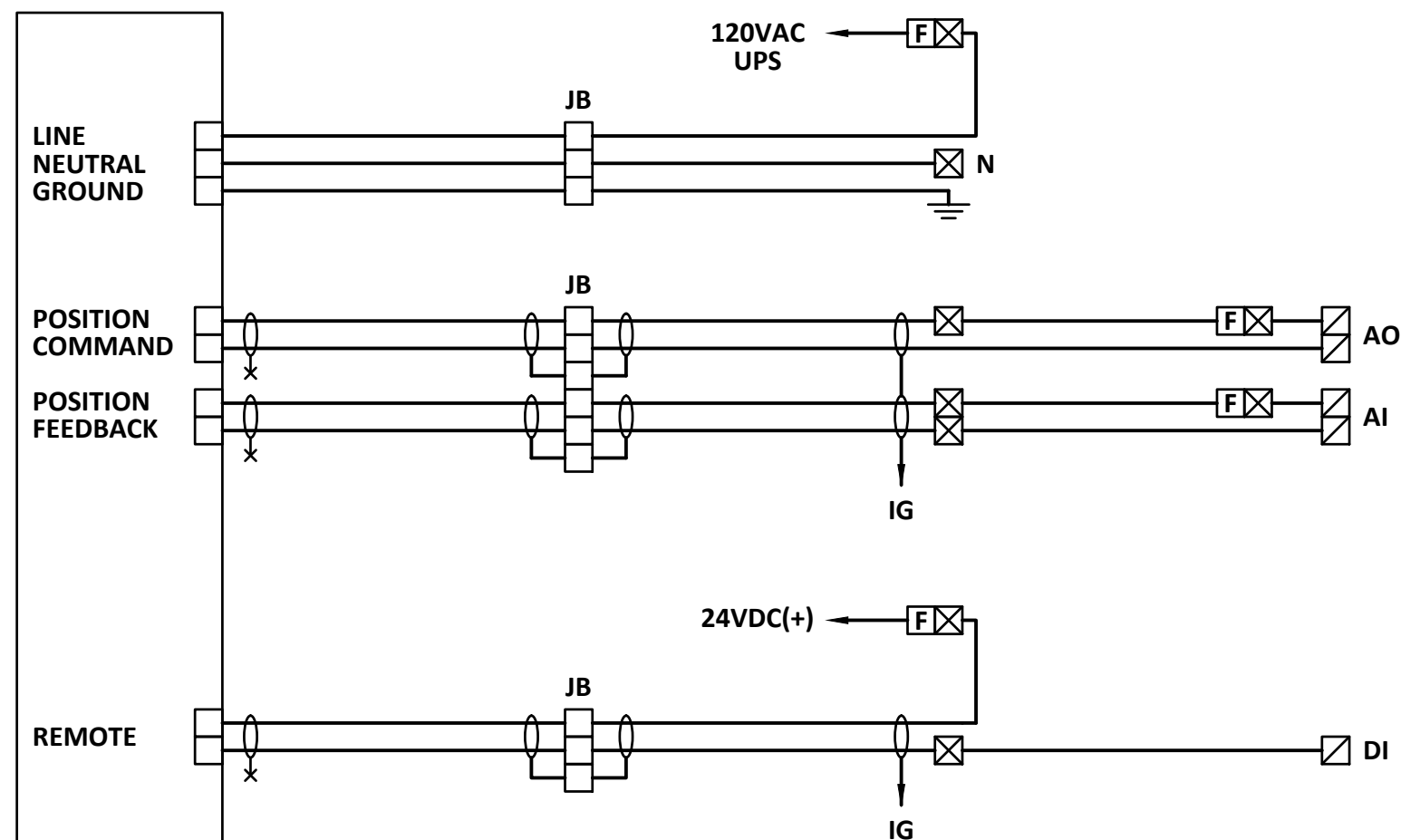
ANALOG OUTPUT



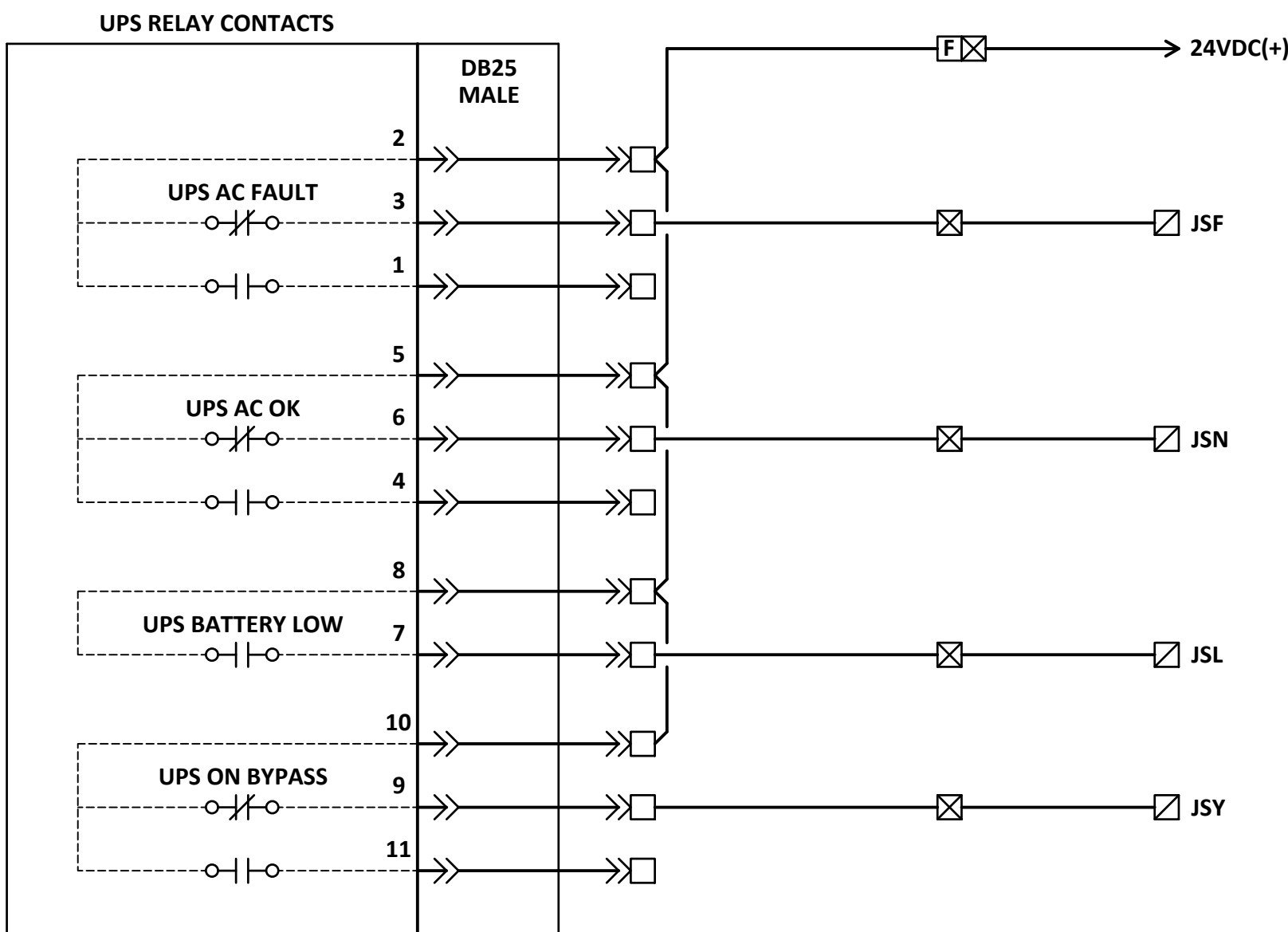
SOLENOID VALVE



NON-MODULATING MOTOR OPERATED VALVE



MODULATING MOTOR OPERATED VALVE



ALWAYS-ON UPS RELAY CONTACT SCHEMATIC

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Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



Scale
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Quality Control by
Designed by
Drawn by

V.R., G.B.P.
V.R.

FORW OKOTOKS WTP TIE-INS
INTRUMENT WIRING TYPICALS

Sheet Number
Project Number
29121-005-13
Drawing Number
FORW-03-E-LEG-002

of ##
Revision
A

E0.2

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NOTES:
1. ALL ELEVATIONS ARE IN METERS UNLESS NOTED
OTHERWISE. ALL DIMENSIONS AND PAPER SIZES ARE IN
MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL ITEMS SHOWN IN BOLD INDICATE WORK TO BE
DONE. ALL ITEMS SHOWN IN LIGHT INDICATE EXISTING
CONDITIONS.

Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



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V.R.

FORW OKOTOKS WTP TIE-INS
EQUIPMENT LAYOUT

Sheet Number	# of ##
Project Number	29121-005-13
Drawing Number	FORW-03-E-LAY-001
Revision	A

NOT FOR CONSTRUCTION

M:\N-Data\2012\1 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-ins\AutoDesk\ACAD\E2.1 - FORW-03-E-SCH-001 PANEL AND LIGHTING SCHEDULE.dwg, FORW-03-E-SCH-001, 2024/11/29 04:38 pm vrtendeau

	PANEL 2A SCHEDULE							
	LOCATION: TERTIARY TREATMENT FACILITY							
	208/120V, 3Ø, 4W, 225A MAIN							
DESCRIPTION	TRIP AMPS	BRK. No.	PHASE A B C			BRK. No.	TRIP AMPS	DESCRIPTION
	20	1	●			2	20	
	15	3		●		4	15	
	15	5			●	6	15	
	15	7	●			8	15	
	15	9		●		10	15	
	15	11			●	12	15	
	15	13	●			14	15	
	15	15		●		16	15	
	15	17			●	18	20	
	15	19	●			20	20	
	15	21		●		22	20	
	15	23			●	24	30	
	15	25	●			26	30	
	15	27		●		28	30	
	15	29			●	30	30	
	15	31	●			32	30	
	15	33		●		34	30	
	15	35			●	36	15	CONTROL PANEL UPS
	15	37	●			38	15	SUMP PUMP 160
	15	39		●		40	15	
	15	41			●	42	15	

LUMINAIRE SCHEDULE						
TYPE	DESCRIPTION	MAKE/MODEL	LAMPING	VOLTAGE	MOUNTING/BALLAST	QUANTITY
101	INTERIOR VAPOUR TIGHT LIGHT	COLUMBIA, LXEM 4-40HL-RFA-EU	LED	120V	STD	2

SEE NOTE 3

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NOTES:
1. FOR INFORMATION REGARDING GENERAL NOTES,
ABBREVIATIONS, AND SYMBOLS, REFER TO THE LEGEND
DRAWINGS.
2. ALL PROPOSED ITEMS ARE SHOWN IN DARK BOLD WITH
ALL EXISTING IN LIGHT.

Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



Scale
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Designed by
Drawn by
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V.R.

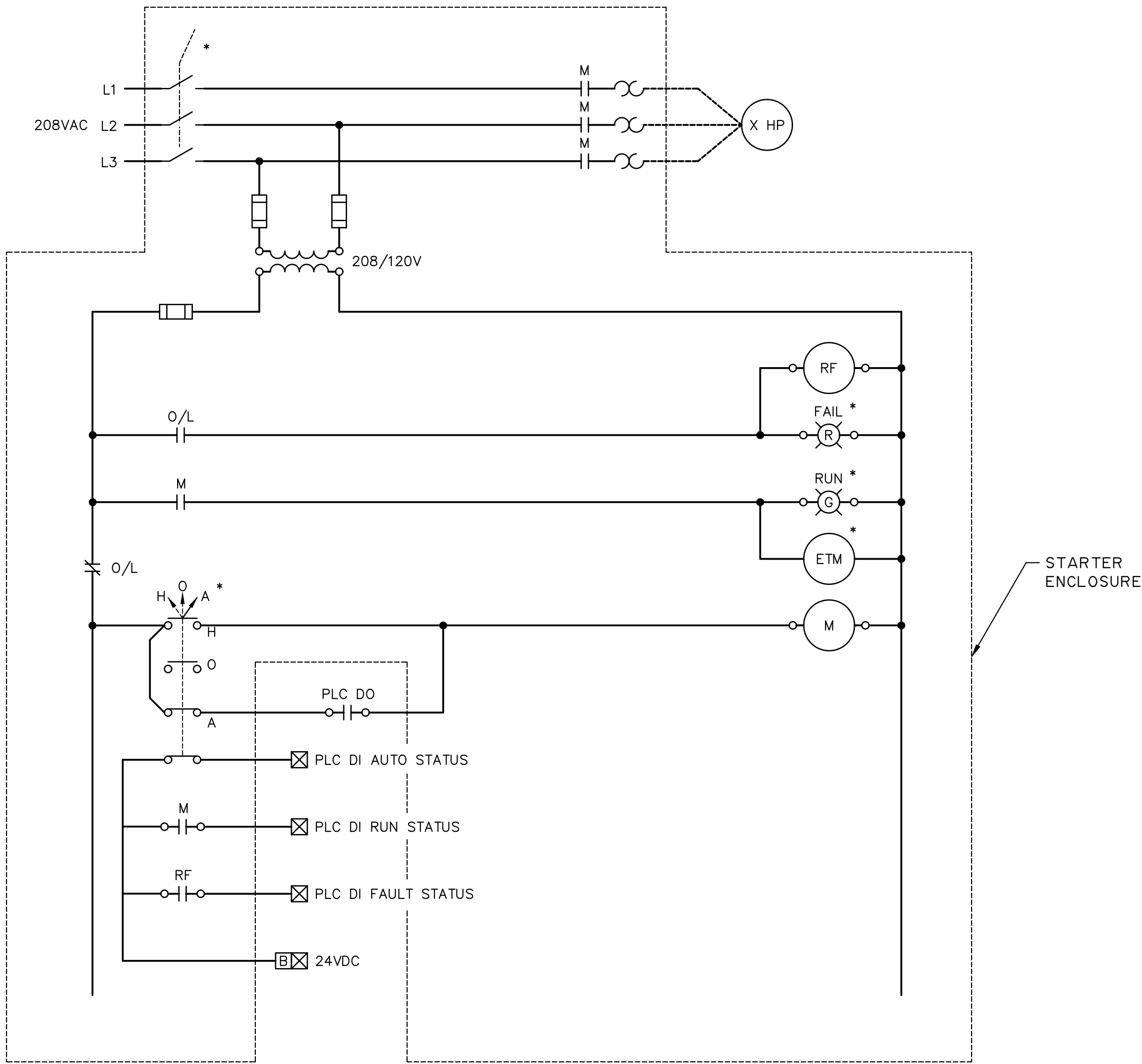
FORW OKOTOKS WTP TIE-INS
PANEL AND LIGHTING SCHEDULE

Sheet Number	# of ##
Project Number	
29121-005-13	
Drawing Number	Revision
FORW-03-E-SCH-001	A

E2.1

NOT FOR CONSTRUCTION

M:\N-Data\2011\21 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-Ins\AutoDesk\ACAD\E2.1 - FORW-03-E-WD-001 FULL VOLTAGE MOTOR STARTER TYPICAL.dwg, FORW-03-E-WD-001, 2024/11/29 04:39 pm vriendeau



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ABBREVIATION DRAWINGS.
2. ITEMS MARKED WITH AN ASTERISK ARE TO BE MOUNTED
ON DOOR OF ENCLOSURE.
3. OVERLOAD TO BE ELECTRONIC.

Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



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V.R.

FORW OKOTOKS WTP TIE-INS
FULL VOLTAGE MOTOR STARTER
TYPICAL

Sheet Number	# of ##
Project Number	
29121-005-13	
Drawing Number	Revision
FORW-03-E-WD-001	A

E2.1

NOT FOR CONSTRUCTION

M:\N-Data\2011\21 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-ins\AutoDesk\ACAD\E2.2 - FORW-03-E-SCH-002 CABLE SCHEDULE.dwg, FORW-03-E-SCH-002, 2024/11/29 04:39 pm vriendeau

REFERENCE	CABLE TAG NUMBER	FROM	TO	CABLE DETAILS			VOLTAGE	LENGTH	NOTES	REV No.	REVISION
		EQUIP TAG No.	EQUIP TAG No.	SIZE AWG	No. OF CONDr.	TYPE		(IN METERS)			
	MCP-PC	PNL2A	MCP	12	2	R90	120VAC	TBD	UPS		
	HS160FVNR-PC	PNL2A	HS160FVNR	12	3	R90	208VAC	TBD			
	HS160-PC	HS160FVNR	HS160REC	12	3	R90	208VAC	TBD			
	FCV107-PC	MCP	FCV107	12	2	R90	120VAC	TBD			
	AIT108-PC	MCP	AIT108	12	2	R90	120VAC	TBD			
	AIT148-PC	MCP	AIT148	12	2	R90	120VAC	TBD			
	HS160FVNR-IC	MCP	HS160FVNR	16	4PR	R90	24VDC	TBD	3 DI, 1 DO		
	FVC10-IC	MCP	FCV107	16	3PR	R90	24VDC	TBD	3 DI, 1 DO		
	AIT108-IC	MCP	AIT108	16	3PR	R90	24VDC	TBD	3 AI		
	AIT148-IC	MCP	AIT148	16	3PR	R90	24VDC	TBD	3 AI		
	FV106-IC	MCP	FV106	16	1PR	R90	24VDC	TBD	PWR		
	FV116-IC	MCP	FV116	16	1PR	R90	24VDC	TBD	PWR		
	FV126-IC	MCP	FV126	16	1PR	R90	24VDC	TBD	PWR		
	FV136-IC	MCP	FV136	16	1PR	R90	24VDC	TBD	PWR		
	FIT105-IC	MCP	FIT105	16	2PR	R90	24VDC	TBD	PWR, AI		
	FIT115-IC	MCP	FIT115	16	2PR	R90	24VDC	TBD	PWR, AI		
	FIT125-IC	MCP	FIT125	16	2PR	R90	24VDC	TBD	PWR, AI		
	FIT135-IC	MCP	FIT135	16	2PR	R90	24VDC	TBD	PWR, AI		
	LSH161-IC	MCP	LSH161	16	1PR	R90	24VDC	TBD	DI		
	LSHH162-IC	MCP	LSHH162	16	1PR	R90	24VDC	TBD	DI		
	MCP-NET	MCP	FOPP3			FIBRE OPTIC		TBD			

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NOTES
1. NOT ALL CABLES ARE SHOWN IN THESE SCHEDULES.
CONTRACTOR TO PROVIDE CABLES/WIRING FOR A
COMPLETE AND OPERATIONAL SYSTEM.

Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



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Designed by
Drawn by

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V.R.

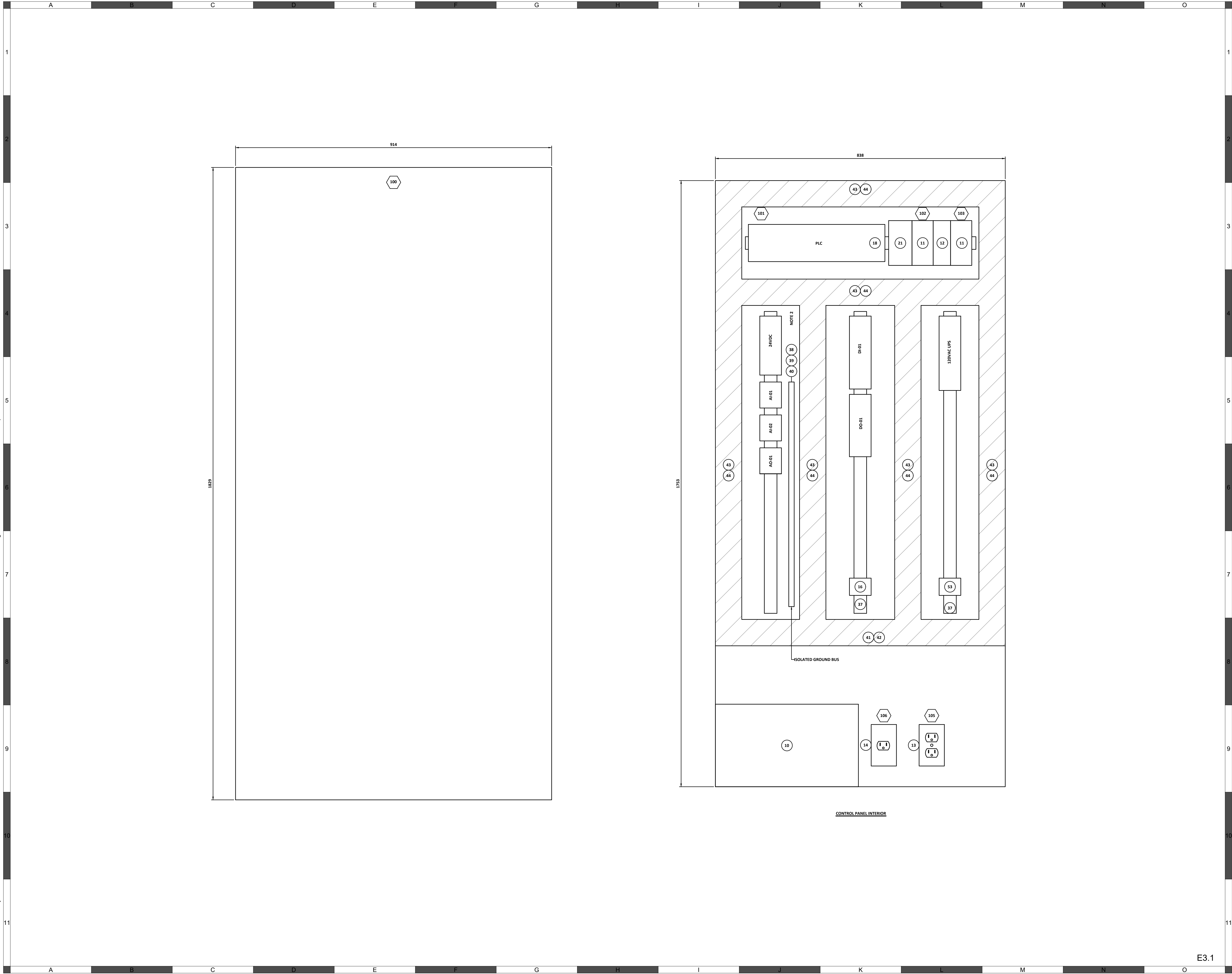
FORW OKOTOKS WTP TIE-INS
CABLE SCHEDULE

Sheet Number	# of ##
Project Number	
29121-005-13	
Drawing Number	Revision
FORW-03-E-SCH-002	A

E2.2

NOT FOR CONSTRUCTION

M:\N-Data\29121 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-ins\AutoDesk\CAD\E3.1 - FORW-03-E-LAY-002 CONTROL PANEL LAYOUT.dwg FORW-03-E-LAY-002 2024/11/29 04:39 pm vrendeau



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NOTES:

- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ISOLATED GROUND BUS TO BE CONNECTED TO GROUND GRID.

Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.

Logos:

- FOOTHILLS COUNTY
- Okotoks
- MPE a division of Englobe

Scale: NOT TO SCALE

Quality Control by: V.R., G.B.P.
Designed by: V.R.
Drawn by: V.R.

**FORW OKOTOKS WTP TIE-INS
CONTROL PANEL LAYOUT**

Sheet Number: 29121-005-13
Project Number: 29121-005-13
Drawing Number: FORW-03-E-LAY-002
Revision: A

E3.1

NOT FOR CONSTRUCTION

M:\N-Data\201\21 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-ins\AutoDesk\ACAD\E3.2 - FORW-03-E-SCH-003 CONTROL PANEL BOM LABEL SCHEDULE AND PLC LAYOUT.dwg, FORW-03-E-SCH-003, 2024/11/20 04:39 pm vrvendeau

BILL OF MATERIALS			
ITEM	QTY	DESCRIPTION	CATALOGUE No.
①	1	ENCLOSURE – SINGLE DOOR 72"x36"x12" C/W 3 POINT LATCH	HOFFMAN
②	1	ENCLOSURE – BACK MOUNTING PLATE	HOFFMAN
③			
④			
⑤			
⑥			
⑦			
⑧			
⑨			
⑩	1	UPS 1500 VA/120VAC SIDE MOUNTING DISPLAY	ALWAYS ON
⑪	2	POWER SUPPLY 24VDC 10A	PHOENIX CONTACT
⑫	1	DIODE MODULE	PHOENIX CONTACT
⑬	1	DUPLEX RECEPTACLE (ORANGE)	
⑭	1	SIMPLEX RECEPTACLE	
⑮			
⑯	1	DB25 TO TERMINALS INTERFACE	PHOENIX CONTACT
⑰	1	DB25 SOCKET TO DB25 PIN CABLE LENGTH AS APPROPRIATE	
⑱	1	PLC	SCHNEIDER
⑲			
⑳			
㉑	1	ETHERNET SWITCH 8 PORTS 1F0 1CU	SCHNEIDER
㉒			
㉓			
㉔			
㉕			
㉖	A/R	ELECTRONIC CIRCUIT BREAKER 24VDC 1-3A	PHOENIX CONTACT
㉗			
㉘	A/R	THERMAL MAGNETIC CIRCUIT BREAKER 120VAC 2A TMC 81C02A	PHOENIX CONTACT
㉙	A/R	KNIFE DISCONNECT TERMINAL BLOCK - PT4-MT	PHOENIX CONTACT
㉚	A/R	TERMINAL, PT4	PHOENIX CONTACT
㉛	A/R	FUSE TERMINAL, PT4, VOLTAGE AS REQUIRED	PHOENIX CONTACT
㉜	A/R	RELAY TERMINAL, 24VDC 1C0, 10A CONTACTS PT TERMINAL	PHOENIX CONTACT
㉝	A/R	GROUND TERMINAL PT4-PE	PHOENIX CONTACT
㉞	A/R	END BRACKET, CLIP FIX 35–5	PHOENIX CONTACT
㉟	A/R	END PLATE, DU–T	PHOENIX CONTACT
㊱	A/R	TAG CARRIER, KLM 3–L	PHOENIX CONTACT
㊲	A/R	MOUNTING RAIL	PHOENIX CONTACT
㊳	1	BUS BAR, PERFORATED, NSCH 15x2	WEIDMULLER
㊴	A/R	PRESSURE PIECE, DKSUE	WEIDMULLER
㊵	A/R	CLAMPING SCREW, BFSC M5x8	WEIDMULLER
㊶	A/R	2" X 3" NARROW FINGER SLOTTED WIRING DUCT, WHITE	PANDUIT
㊷	A/R	2" WIRING DUCT COVER, WHITE	PANDUIT
㊸	A/R	3" X 3" NARROW FINGER SLOTTED WIRING DUCT, WHITE	PANDUIT
㊹	A/R	3" WIRING DUCT COVER, WHITE	PANDUIT
㊺	A/R	4" X 3" NARROW FINGER SLOTTED WIRING DUCT, WHITE	PANDUIT
㊻	A/R	4" WIRING DUCT COVER, WHITE	PANDUIT
㊼	A/R	4" WIRING DUCT COVER, WHITE	PANDUIT
㊽			
㊾	A/R	RELAY PLUG–IN BRIDGE BLUE	PHOENIX CONTACT
㊿	A/R	TERMINAL JUMPER 2 POSITION RED	PHOENIX CONTACT
1	A/R	TERMINAL JUMPER No. POSITION AND COLOUR AS NEEDED	PHOENIX CONTACT
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

NOTE 2

LAMICOID/LABEL SCHEDULE				
ITEM	QTY	DESCRIPTION	TYPE	SIZE
⑩0		CONTROL PANEL	LAMICOID	25x50
⑩1		PLC RACK 0	LAMICOID	25x50
⑩2		POWER SUPPLY A	LAMICOID	25x50
⑩3		POWER SUPPLY B	LAMICOID	25x50
⑩4				
⑩5		UPS RECEPTACLE	LAMICOID	25x50
⑩6		UPS FEED	LAMICOID	25x50
⑩7				
⑩8				
⑩9				
⑪0				
⑪1				
⑪2				
⑮0				
⑮1		120VAC UPS	LABEL	TO FIT
⑮2		24 VDC	LABEL	TO FIT
⑮3		DI-01	LABEL	TO FIT
⑮4		DO-01	LABEL	TO FIT
⑮5		AI-01	LABEL	TO FIT
⑮6		AI-02	LABEL	TO FIT
⑮7		AO-01	LABEL	TO FIT
⑮8				
⑮9				
⑮0				

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ABBREVIATIONS DRAWINGS.
2. UPS DISPLAY SIDE MOUNTED
2.1. 30300 (GES-152N 120V)
2.2. 00987 (A5400 RELAY COMMUNICATION CARD)
2.3. 30080 (FACE PLATE SIDE MOUNT OPTION
701N-152N)

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A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



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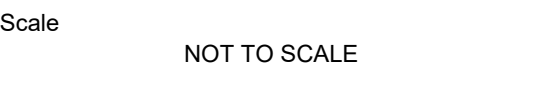
FORW OKOTOKS WTP TIE-INS
CONTROL PANEL BOM AND LABEL
SCHEDULE

Sheet Number	# of ##
Project Number	
29121-005-13	
Drawing Number	Revision
FORW-03-E-SCH-003	A

E3.2

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FORW OKOTOKS WTP TIE-INS

CONTROL PANEL PLC LAYOUT

NOT FOR CONSTRUCTION



AI-02	(156)	(36)
060P		(34)
060C		(26)
060V		
061P		
061C		
061V		
062P		
062C		
062V		
063P		
063C		
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064P		
064C		
064V		
065P		
065C		
065V		
066P		
066C		
066V		
067P		
067C		
067V		
		(35)
		(34)

DO-01		
154		36
		34
A1	ROB00	11
		12
A2	ROB01	14
		11
A1	ROB02	12
		14
A2	ROB03	11
		12
A1	ROB04	14
		11
A2	ROB05	12
		14
A1	ROB06	11
		12
A2	ROB07	14
		11
A1	ROB08	12
		14
A2	ROB09	11
		12
A1	ROB10	14
		11
A2	ROB11	12
		14
A1	ROB12	11
		12
A2	ROB13	14
		11
A1	ROB14	12
		14
		34

24VDC		
		(36)
		(34)
	B301	(26)
	B302	
	B303	
	B304	
	B305	
	B306	
	B307	
	B308	
	B309	
	B310	
	B311	
	B312	
	B313	
	B314	
	B315	
	B315	
	301C	(30)
	302C	
	303C	
	304C	
	305C	
	306C	
	307C	
	308C	
	309C	
	310C	
	311C	
	312C	
	313C	
	314C	
	315C	
		(35)

120VAC UPS		
		(36)
		(34)
B201		(28)
B202		
B203		
B204		
B205		
B206		
B207		
B208		
B209		
201N		(30)
202N		
203N		
204N		
205N		
206N		
207N		
208N		
209N		
		(35)
		(34)

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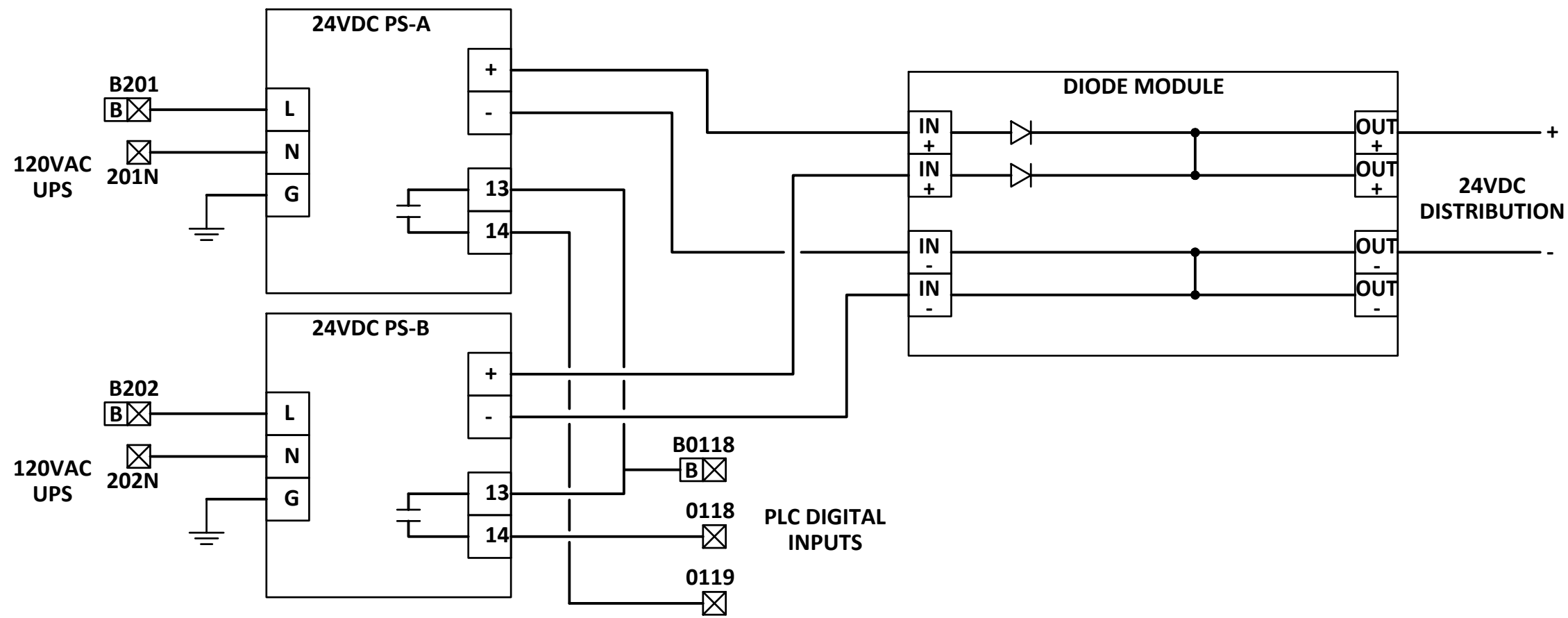
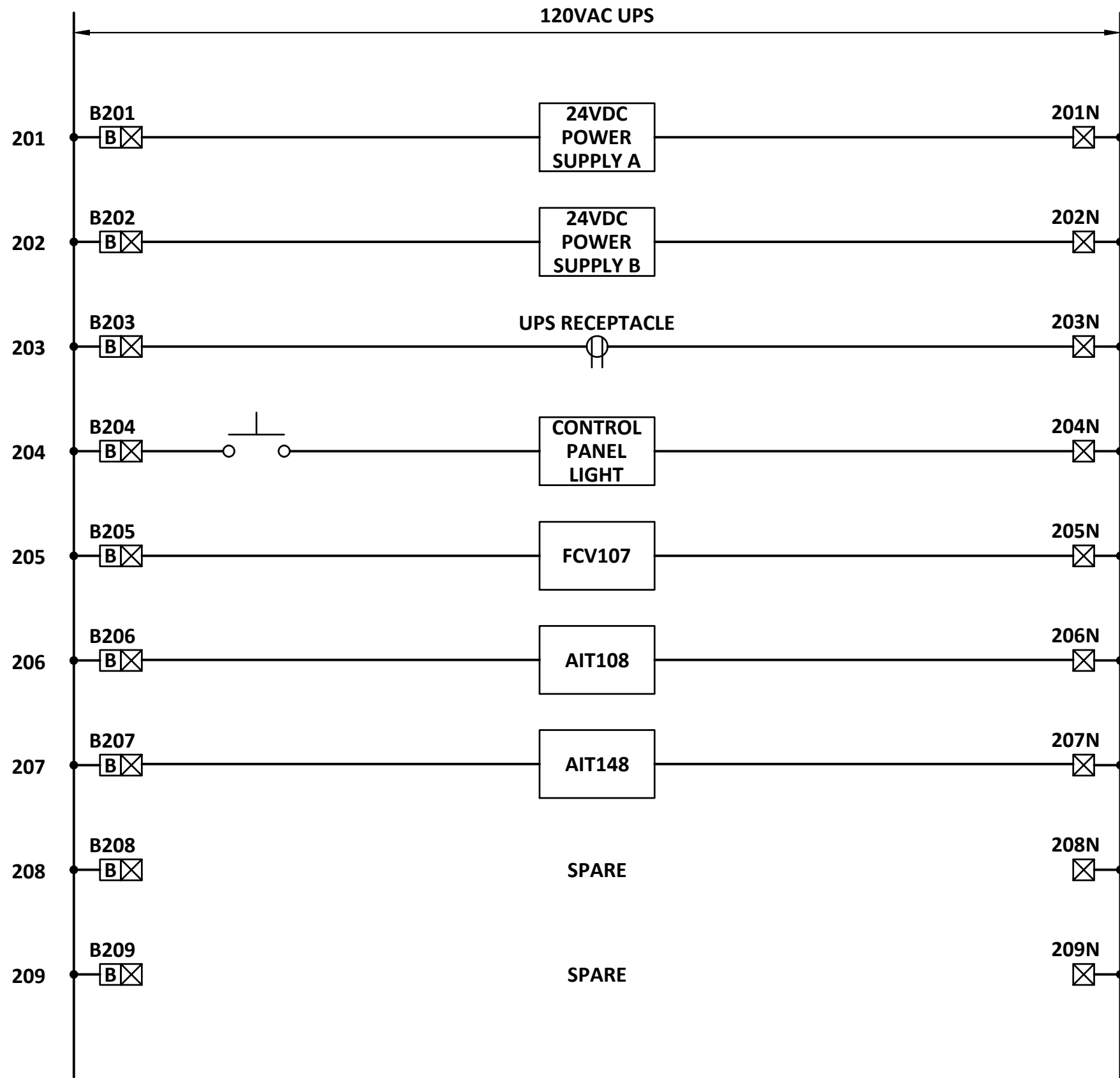
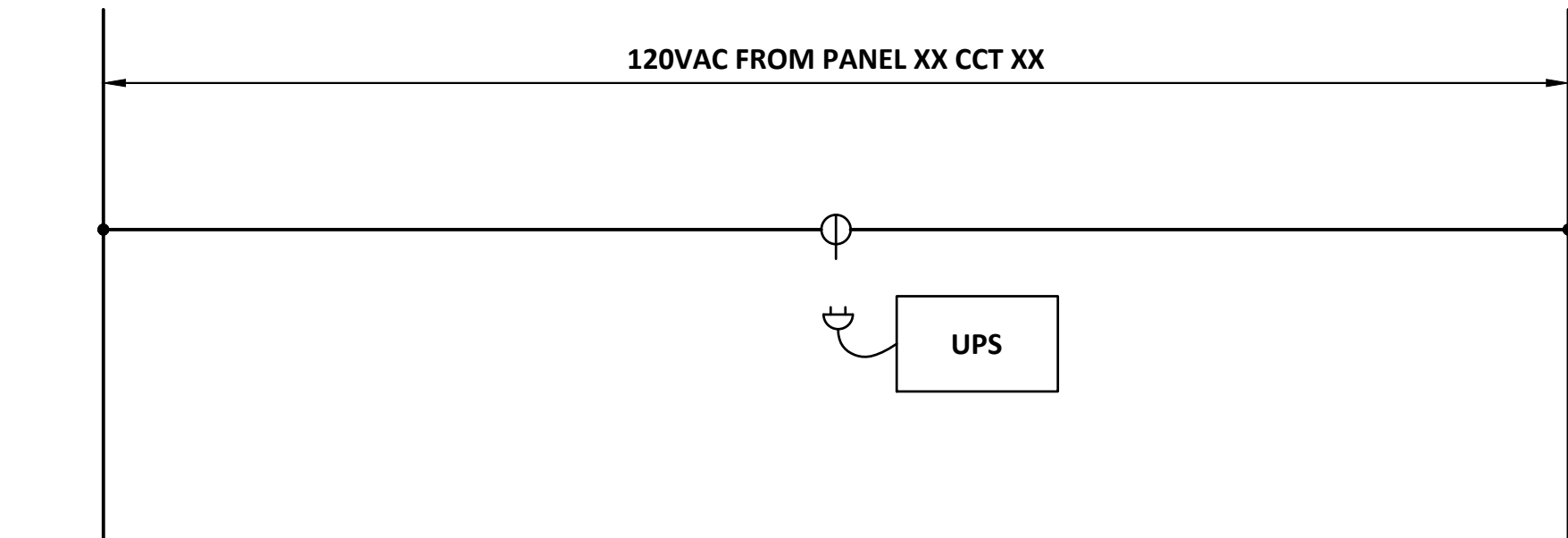


Okotoks
Historic Past. Sustainable Future

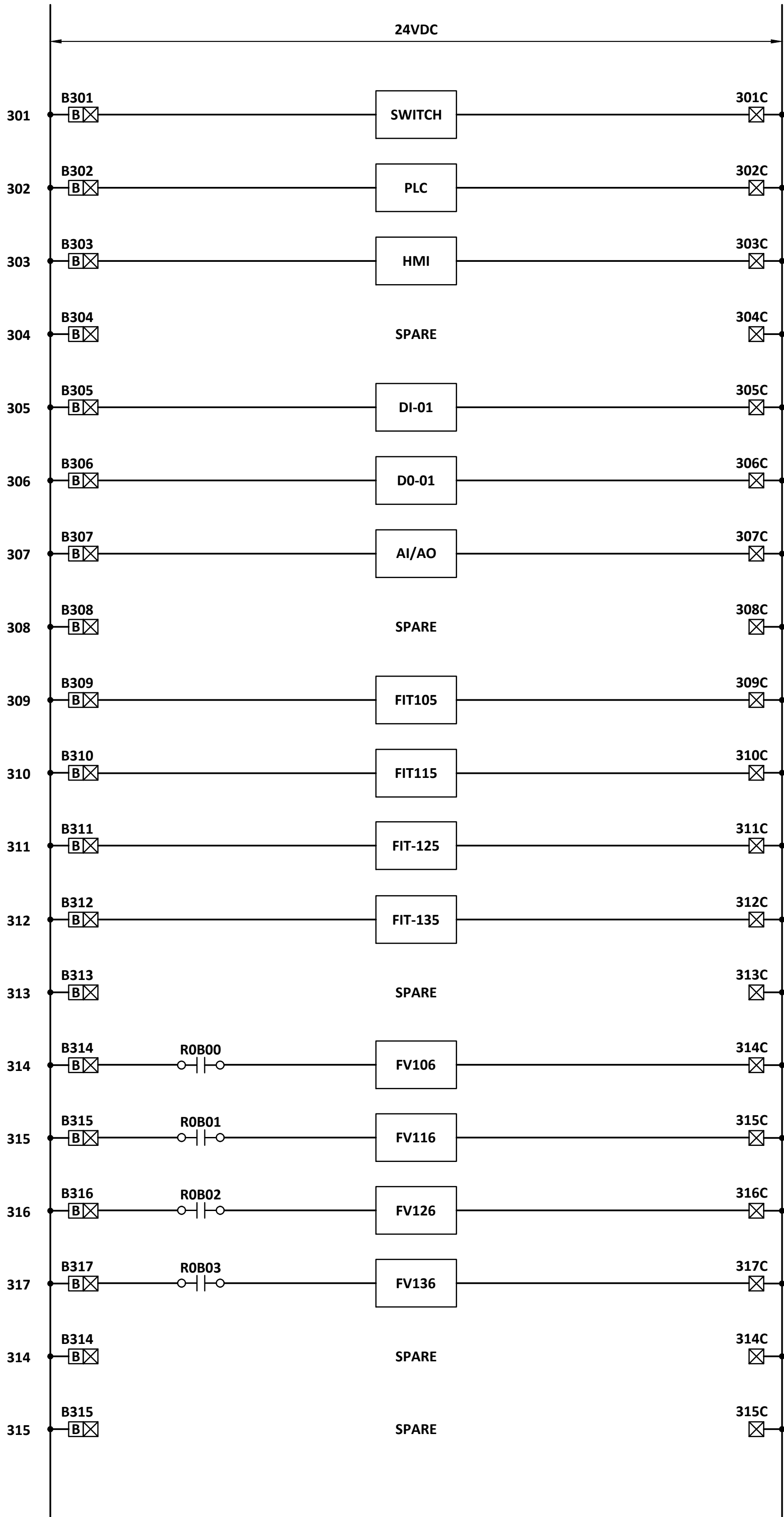


Sheet Number	# of ##
Project Number	
29121-005-13	
Drawing Number	Revision
FORW-03-E-LAY-004	A

M:\N-Data\2012\1 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-Ins\AutoDesk\CAD\E3.5 - FORW-03-E-WD-002 CONTROL PANEL POWER DISTRIBUTION.dwg, FORW-03-E-WD-002, 2024/11/29 04:39 pm vrien@deau



CONTROL PANEL POWER SUPPLY DETAIL



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V.R.

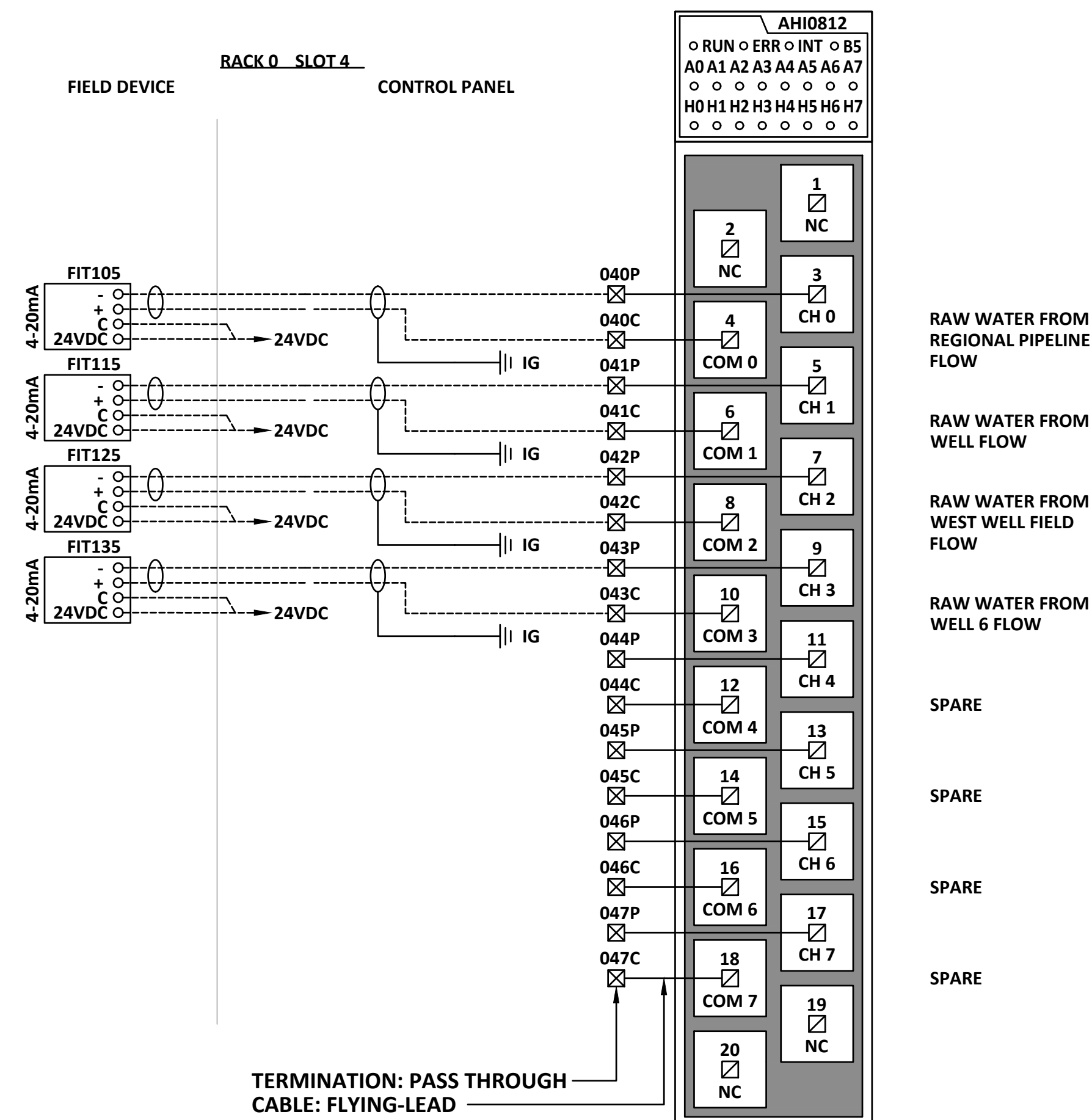
FORW OKOTOKS WTP TIE-INS
CONTROL PANEL POWER
DISTRIBUTION

Sheet Number
Project Number
29121-005-13
Drawing Number
FORW-03-E-WD-002

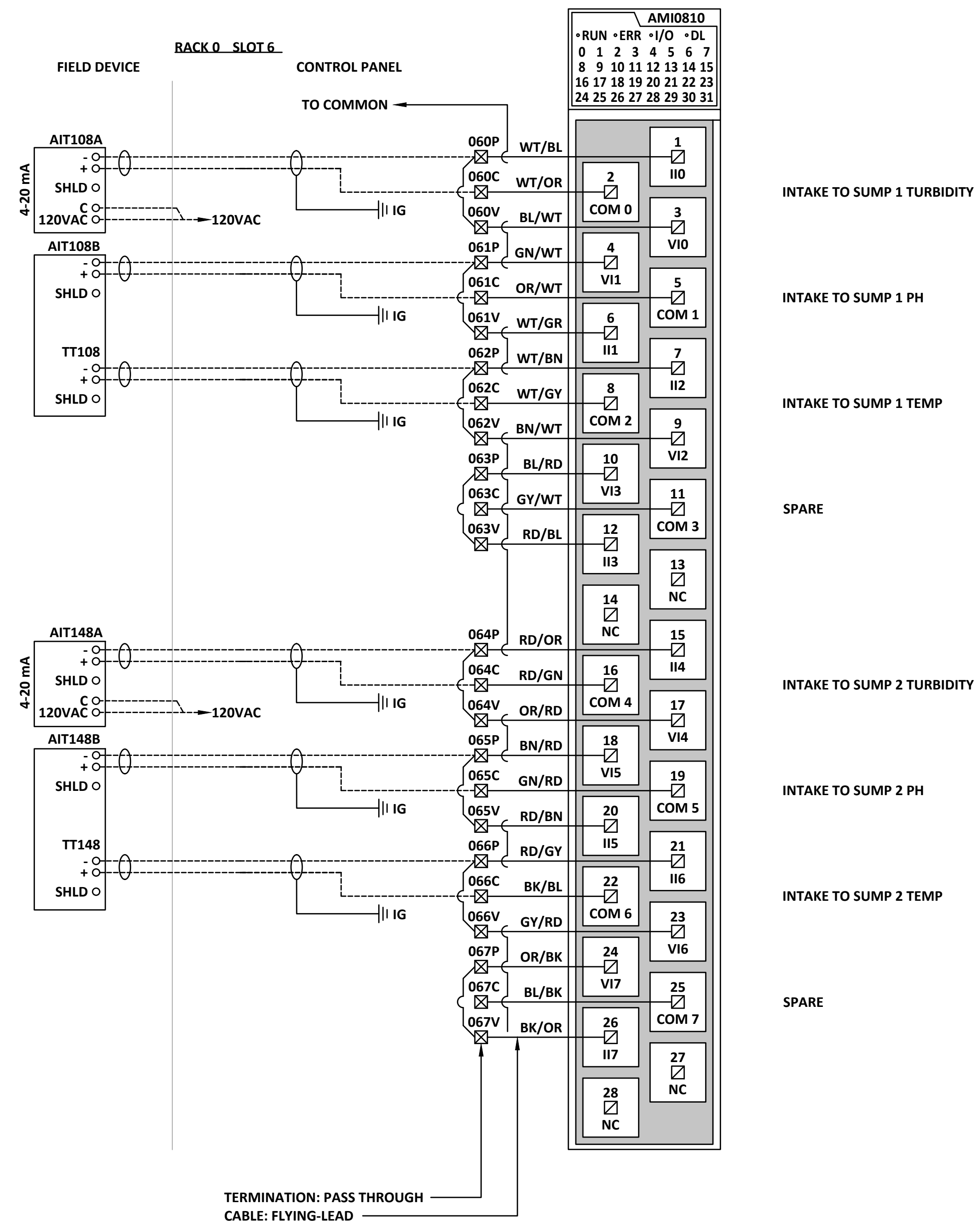
of ##
Revision
A

E3.5

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AI-01



AI-02

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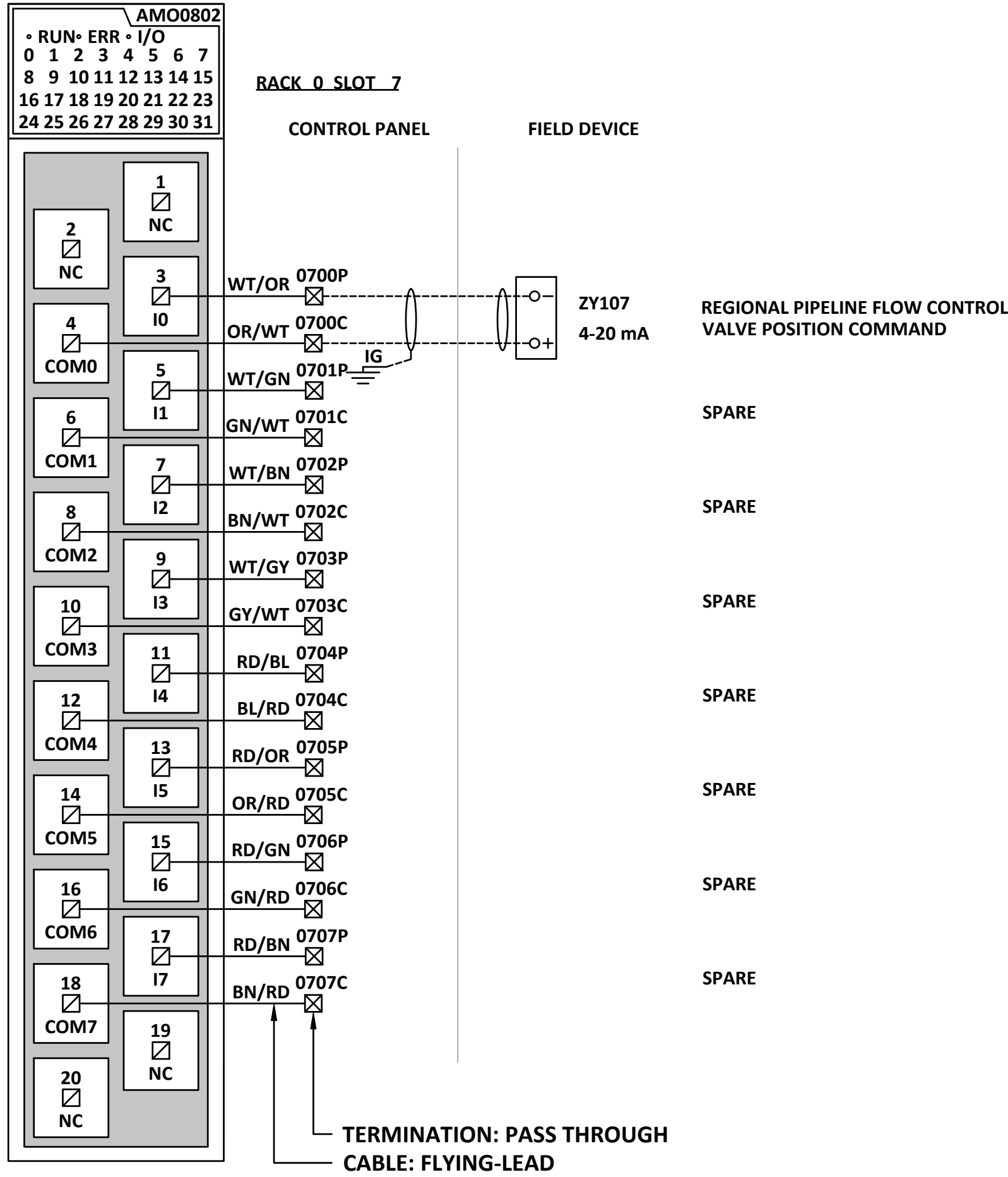
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Designed by	V.R., G.B.P.
Drawn by	V.R.

FORW OKOTOKS WTP TIE-INS
PLC ANALOG INPUT MODULE 1 AND 2

Sheet Number	# of ##
Project Number	
29121-005-13	
Drawing Number	Revision
FORW-03-E-WD-003	A

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M:\N-Data\2012\1 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-Ins\AutoDesk\ACAD\E3.11 - FORW-03-E-WD-004 PLC ANALOG OUTPUT MODULE 1.dwg, FORW-03-E-WD-004, 2024/11/29 04:39 pm vriendeau

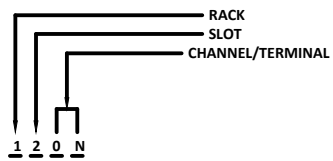


AO-01

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 - REFER TO BILL OF MATERIALS AND LABEL SCHEDULE DRAWING.
 - REFER TO CONTROL PANEL ENCLOSURE DRAWING FOR TERMINAL STRIP LOCATION.
 - CIRCUIT BREAKERS 1AMP UNLESS NOTED OTHERWISE.
 - DEVICE IS THREE WIRE. INCLUDE CONNECTION TO 24VDC COMMON.



Professional Seals

#	Date	Issue / Revision	App
A	24-12-00	FOR PRELIMINARY APPROVAL	G.B.P.



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V.R.

FORW OKOTOKS WTP TIE-INS
PLC ANALOG OUTPUT MODULE 1

Sheet Number
Project Number
Drawing Number

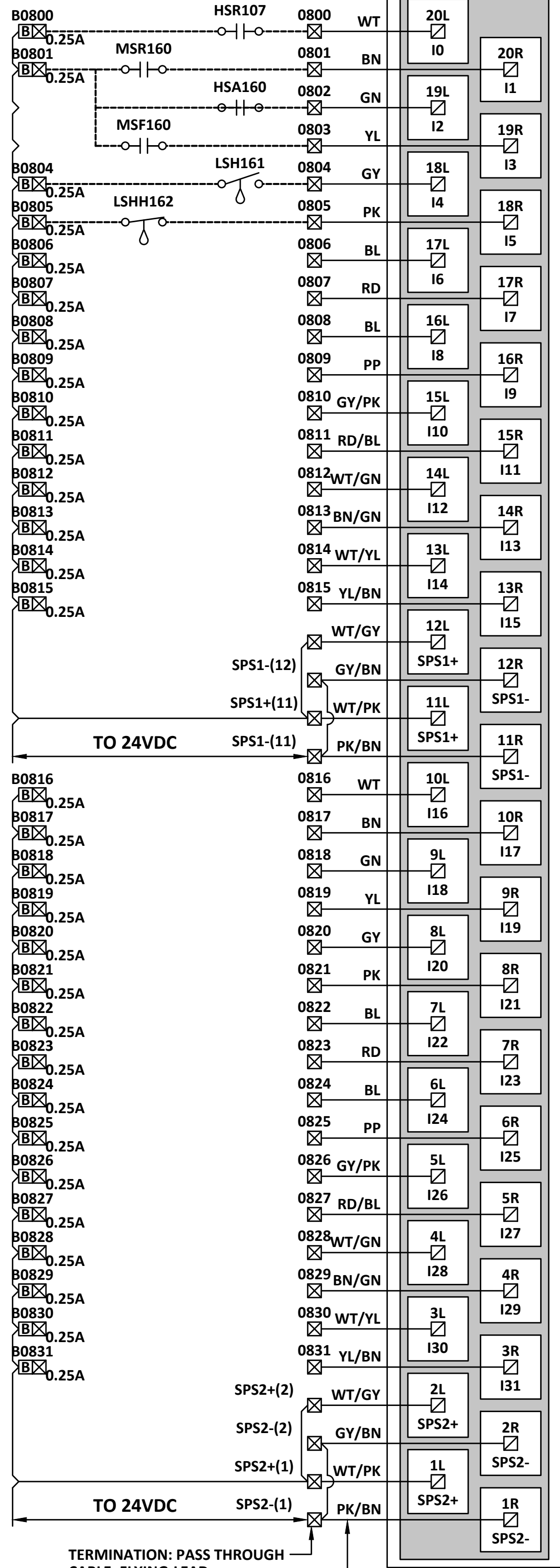
of ##
29121-005-13
Revision
A

E3.11

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M:\N-Data\2011\21 Urban Systems Ltd\005-13 Task 8 - FORW Okotoks WTP Tie-Ins\AutoDesk\ACAD\E3.12 - FORW-03-E-WD-005.DWG, FORW-03-E-WD-005, 2024/11/29 04:39 pm vrendeau

RACK 0 SLOT 8



DI-01

REGIONAL PIPELINE FLOW CONTROL
VALVE REMOTE

SUMP PUMP 160 RUN STATUS

SUMP PUMP 160 AUTO STATUS

SUMP PUMP 160 FAULT STATUS

SUMP LEVEL HIGH

SUMP LEVEL HIGH HIGH ALARM

SPARE

SPARE

SPARE

SPARE

SPARE

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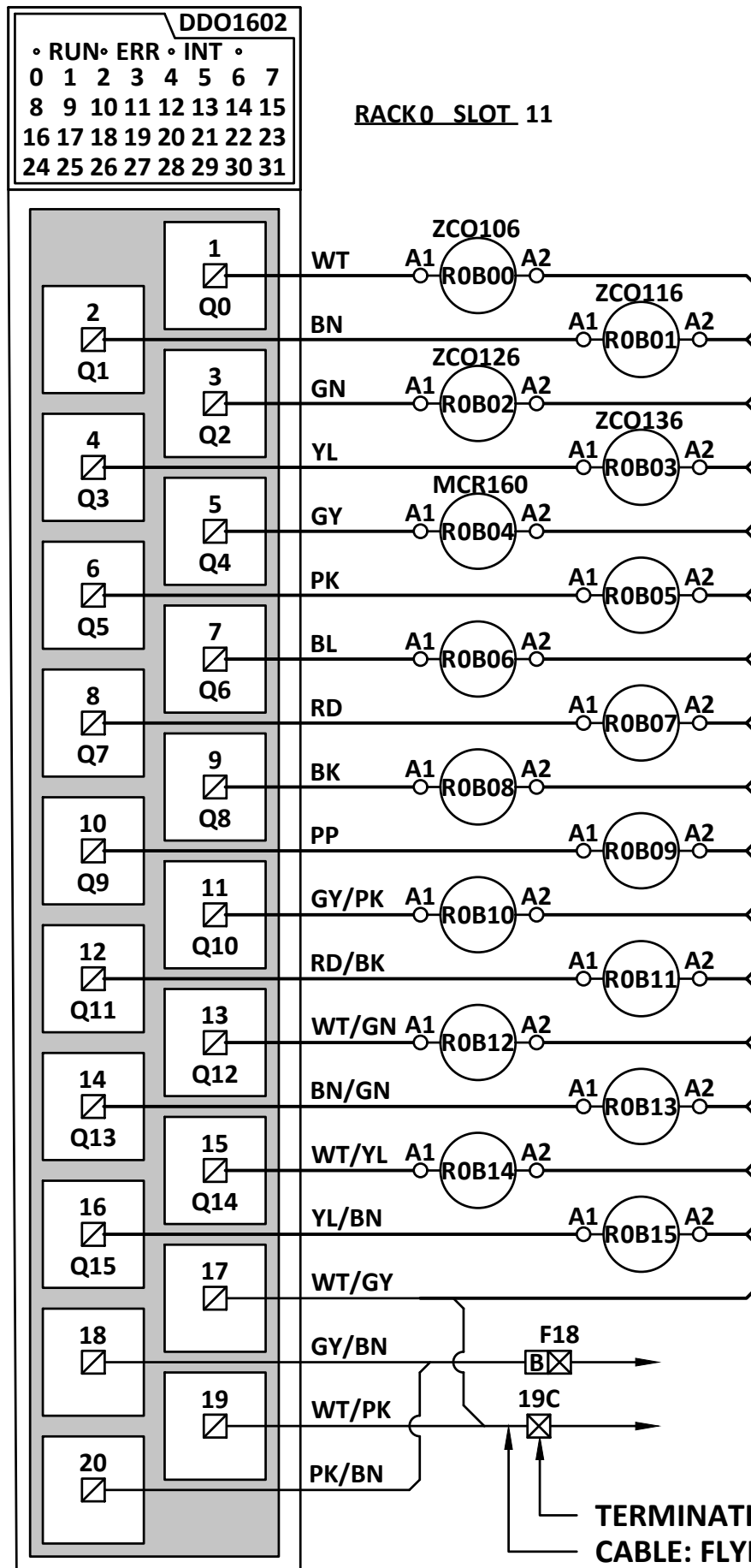
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RACK 0 SLOT 11

DO-01

REGIONAL PIPELINE FLOW VALVE OPEN
COMMAND

WELL FLOW VALVE OPEN COMMAND

WEST WELL FIELD FLOW VALVE OPEN COMMAND

WELL 6 FLOW VALVE OPEN COMMAND

SUMP PUMP 160 RUN COMMAND

SPARE

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SPARE

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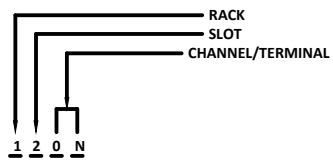
SPARE

SPARE

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3. REFER TO CONTROL PANEL ENCLOSURE DRAWING FOR
TERMINAL STRIP LOCATION.
4. CIRCUIT BREAKERS 1AMP UNLESS NOTED OTHERWISE.
5. DEVICE IS THREE WIRE. INCLUDE CONNECTION TO 24VDC
COMMON.



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FORW OKOTOKS WTP TIE-INS
PLC DIGITAL INPUT MODULE 1 AND
DIGITAL OUTPUT MODULE 1

Sheet Number # of ##
Project Number
29121-005-13
Drawing Number Revision
FORW-03-E-WD-005 A

E3.12

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