



Public Works  
Government Services  
Canada

Architectural and  
Engineering Services

Ontario Region

Travaux publics  
Services gouvernementaux  
Canada

Services d'architecture  
et de génie

Région de l'Ontario

WARKWORTH ONTARIO

CORRECTION SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD # 29, CAMPBELLFORD

CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

R.068488.001



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ORIGINALLY STAMPED  
G01–G09



ORIGINALLY STAMPED  
S01–S03



ORIGINALLY STAMPED  
R01–R03  
M01–M05



ORIGINALLY STAMPED  
V01

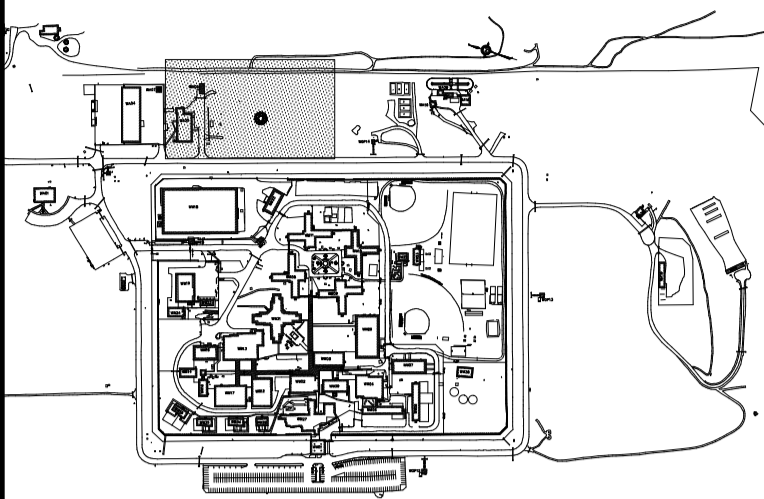


ORIGINALLY STAMPED  
E01–E12



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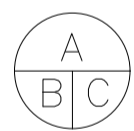


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project title  
titre du projet  
WARKWORTH Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE  
WATER ELEVATED TANK

drawing title  
titre du dessin  
COVER SHEET

drawn by  
dessine par  
AQ

designed by  
conc. par  
—

approved by  
approuve par  
—

tender  
soumission  
—

project manager  
administrateur  
de projets

project date  
date du projet  
2017/05/16

project no.  
no. du projet  
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drawing no.  
dessine no.  
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GENERAL NOTES

1. THE POSITION OF POLE LINES, CONDUITS, SEWERS, WATERMAINS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED, BEFORE STARTING WORK THE CONTRACTOR SHALL CONFIRM FOR THEMSELVES THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.
2. CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY SUPPORT AND/OR RELOCATION OF EXISTING UTILITIES AND SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION. THE CONTRACTOR SHALL CO-ORDINATE AND COMPLY WITH THE REQUIREMENTS OF ALL UTILITIES WHEN CROSSING OR WORKING NEAR THEIR PLANT.
3. CONTRACTOR IS RESPONSIBLE FOR THE SUPPORT OF HYDRO, BELL AND OTHER UTILITY POLES AFFECTED BY CONSTRUCTION ACTIVITIES.
4. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ACCURACY OF ALL TEMPORARY BENCHMARKS ESTABLISHED FOR DESIGN PURPOSES PRIOR TO CONSTRUCTION.
5. EXISTING TREES AND SHRUBS WHICH ARE NOT TO BE REMOVED UNDER THE CONTRACT SHALL BE PROTECTED DURING ALL PHASES OF CONSTRUCTION.
6. WHERE LIMBS OR PORTIONS OF TREES ARE REMOVED TO ACCOMMODATE CONSTRUCTION ACTIVITIES, THEY SHALL BE REMOVED CAREFULLY IN ACCORDANCE WITH ARBORICULTURAL PRACTICES SUBJECT TO DEPARTMENTAL REPRESENTATIVE. ALL DAMAGED LIMBS AND BRANCHES SHALL BE REMOVED LEAVING NO STUBS. TREES AND SHRUBS WHICH DIE OR DECAY WITHIN THE MAINTENANCE PERIOD, OR ARE SEVERELY DAMAGED DURING CONSTRUCTION AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE, SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO EXTRA COST TO THE CONTRACT.
7. ALL TOPSOIL SHALL BE STRIPPED AND STOCKPILED SEPARATELY FROM OTHER EXCAVATED MATERIAL BY THE CONTRACTOR IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR USE TOPSOIL FROM ANY SOURCE AS BACKFILL.
8. THE CONTRACTOR IS RESPONSIBLE FOR TRANSPORTING AND DISPOSING OF ALL EXCESS EXCAVATED MATERIAL AND DEBRIS OFF SITE AT AN APPROPRIATE DISPOSAL SITE.
9. THE CONTRACTOR SHALL MATCH PROPOSED GRADES TO EXISTING GRADES AT PROPERTY LINES AND PROVIDE POSITIVE DRAINAGE AWAY FROM EXISTING AND PROPOSED STRUCTURES. CONTRACTOR SHALL PROVIDE SWALES WHERE NECESSARY AND REQUIRED TO ACHIEVE POSITIVE DRAINAGE.
10. ALL ROAD SURFACES DISTURBED BY CONSTRUCTION SHALL BE REINSTATED AS PER THE MINIMUM RESTORATION DETAILS SPECIFIED.
11. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL CONDITIONS OR BETTER. ALL DITCHES DISTURBED BY CONSTRUCTION SHALL BE REGRADED TO PROVIDE POSITIVE DRAINAGE. MINIMUM RESTORATION SHALL INCLUDE TOPSOIL AND SEED.
12. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING GATES AND FENCES.

WATERMAIN

1. MINIMUM COVER OF 1.8 m FOR WATERMAIN, AND WATER SERVICES, UNLESS OTHERWISE APPROVED.
2. PVC WATERMAINS AND HYDRANT LEADS SHALL BE MINIMUM DR 18 CLASS 235 (AWWA C900-07).
3. ALL HYDRANTS SHALL BE CONSTRUCTED ACCORDING TO OPSD 1105.010. ALL HYDRANTS LEADS, FITTINGS, BENDS, TEES, REDUCERS, AND VALVES SHALL BE CONSTRUCTED AS REQUIRED PER M.O.E.C.C. STANDARDS.
4. MECHANICAL THRUST RESTRAINTS SHALL BE INSTALLED AT ALL FITTINGS, BENDS, TEES, CROSSES, REDUCERS AND VALVES FOR ALL WATERMAIN SIZES. MECHANICAL RESTRAINTS AT JOINTS SHALL BE INSTALLED AT EVERY PIPE JOINT WITHIN 6.1 m OR LESS OF EITHER SIDE OF THE VALVE FOR WATERMAINS 100 mm DIAMETER OR LARGER.
5. SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL METALLIC PIPES AND APPURTENANCES, WATER SERVICES AND FITTINGS ACCORDING TO OPSD.
6. ONCE PROPOSED WATERMAIN AND NEW SERVICE CONNECTIONS HAVE BEEN PLACED IN SERVICE, EXISTING WATERMAIN TO BE ABANDONED.
7. WATERMAIN BEDDING SHALL BE GRANULAR "A" ACCORDING TO OPSS 1010, UNLESS SPECIFIED OTHERWISE.
8. PIPES ARE NOT TO BE LAID ON FILL UNTIL THE FIELD DENSITY TEST REPORTS HAVE BEEN SUBMITTED AND APPROVED BY THE ENGINEER.
9. FILL TO BE PLACED TO A MINIMUM OF 600 mm ABOVE THE WATERMAIN GRADES AND TO 3 m MINIMUM ON EACH SIDE PRIOR TO WATERMAIN LAYING COMPACTED TO A MINIMUM OF 100 % OF MAXIMUM DRY DENSITY IN 300 mm LIFTS.
10. SOIL DENSITY TESTS SHALL BE TAKEN ALONG THE CENTRELINE OF THE WATERMAIN AND ON LINES 1.5 m ON EITHER SIDE OF SAME AT A MAXIMUM INTERVAL OF 30 m. TESTS TO BE TAKEN AT EACH 600 mm LIFT.
11. ALL HYDRANTS, TEES, VALVES, BENDS, PLUGS AND EACH PIPE JOINT ARE TO BE MECHANICALLY RESTRAINED.
12. PIPE JOINT DEFLECTIONS ARE NOT ALLOWED.

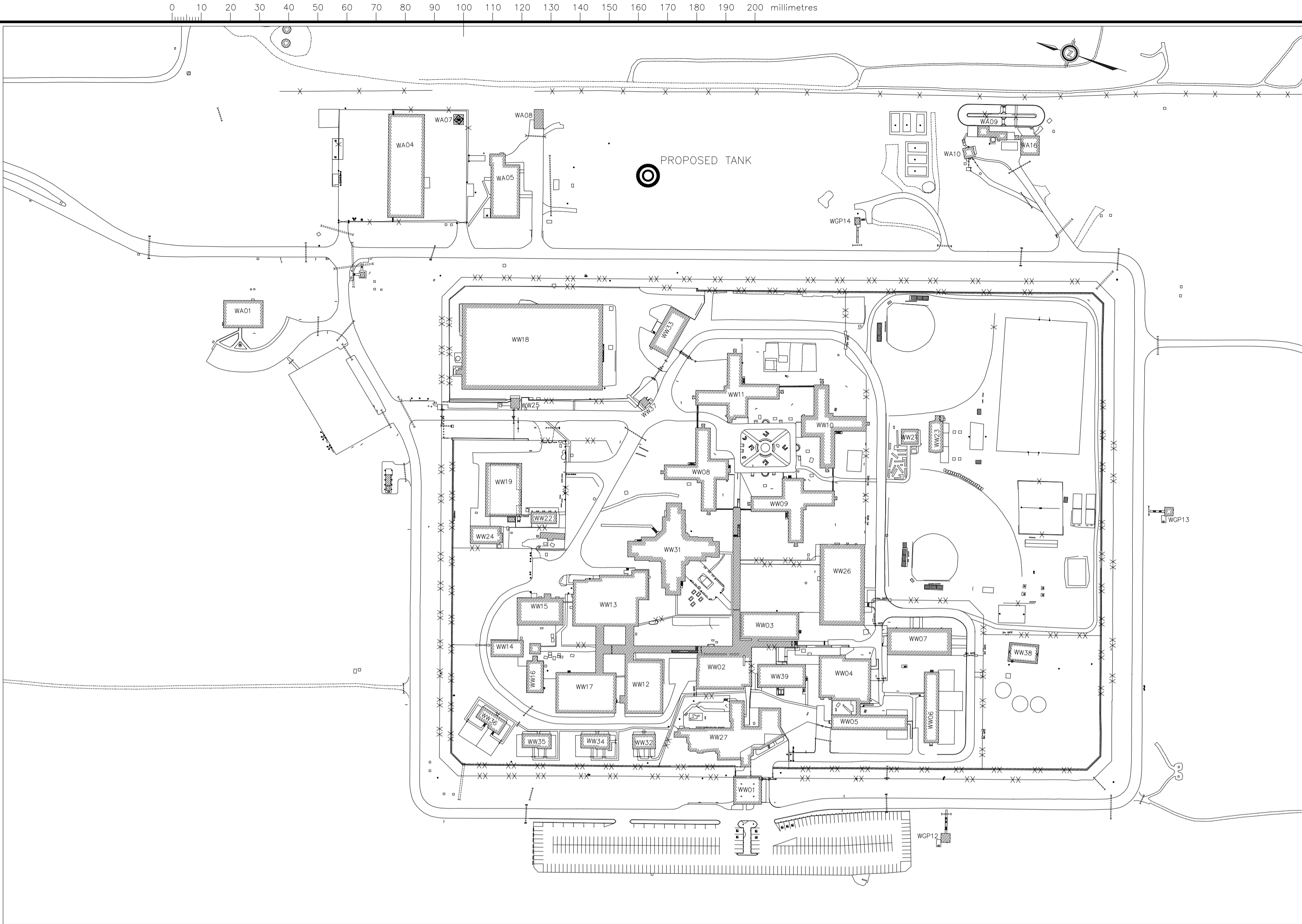
EROSION AND SEDIMENT CONTROL

1. EROSION AND SEDIMENT CONTROL (ESC) MEASURES SHALL BE IMPLEMENTED PRIOR TO, AND MAINTAINED DURING CONSTRUCTION PHASES, TO PREVENT ENTRY OF SEDIMENT INTO THE WATERWAY. ALL DAMAGED EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF INSPECTION OR BOTH.
2. SEDIMENTATION AND EROSION CONTROLS INCLUDING SILT FENCES ARE TO BE IN PLACE PRIOR TO INITIATION OF TOPSOIL STRIPPING OR PRE-GRADING OPERATIONS AND SHALL BE LOCATED TO PREVENT SURFACE RUNOFF FROM LEAVING THE SITE "UNTREATED." CONTRACTOR TO CLEAN ALL CATCH BASINS, MAINTENANCE HOLES, OR ANY OTHER INLETS AND OUTLETS USING A VACUUM TRUCK, AND TO FLUSH EXISTING ON SITE STORM SEWERS AND CULVERTS PRIOR TO, AND AFTER THE SITE CONSTRUCTION ACTIVITIES.
3. ALL SEDIMENTATION AND EROSION CONTROLS ARE TO BE INSPECTED DAILY (AND AFTER ANY STORM EVENT) AND CLEARED OR REPLACED, AS REQUIRED.
4. ALL DISTURBED AREAS WILL BE MINIMIZED TO THE EXTENT POSSIBLE, AND TEMPORARILY OR PERMANENTLY STABILIZED OR RESTORED AS THE WORK PROGRESSES.
5. THE EROSION AND SEDIMENT CONTROL STRATEGIES OUTLINED ON THE PLANS ARE NOT STATIC AND MAY NEED TO BE UPGRADED/AMENDED AS SITE CONDITIONS CHANGE TO MINIMIZE SEDIMENT LADEN RUNOFF FROM LEAVING THE WORK AREA. IF THE PRESCRIBED MEASURES ON THE PLANS ARE NOT EFFECTIVE IN PREVENTING THE RELEASE OF A DELETERIOUS SUBSTANCE, THEN ALTERNATIVE MEASURES MUST BE IMPLEMENTED IMMEDIATELY TO MINIMIZE POTENTIAL ECOLOGICAL IMPACTS ADDITIONAL ESC MEASURES TO BE KEPT ON SITE AND USED AS NECESSARY.
6. ALL CONSTRUCTION ACTIVITIES INCLUDING MAINTENANCE PROCEDURES WILL BE CONTROLLED TO PREVENT ENTRY OF PETROLEUM PRODUCTS, DEBRIS, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO NEARBY DITCHES, SWALES, STORM DRAINS OR WATERBODIES. VEHICLE REFUELING AND MAINTENANCE MUST BE CONDUCTED IN DESIGNATED AREAS.
7. ALL EROSION CONTROL AND TEMPORARY ROADS, STRUCTURES AND FACILITIES TO BE REMOVED FOLLOWING CONSTRUCTION AND AREAS RESTORED TO THE SATISFACTION OF THE DEPARTMENTAL REPRESENTATIVE.

8. REMOVE SILT FROM DEWATERING AND OTHER PUMPING OPERATIONS PRIOR TO DISCHARGE.
9. PROVIDE DUST CONTROL AT ALL TIMES INCLUDING THE MAINTENANCE AND CLEANUP (WHEN NECESSARY) OF ROADS ADJACENT TO THE PROJECT.
10. CLEAN OFF TRUCKS AND EQUIPMENT PRIOR TO LEAVING THE SITE TO PREVENT MUD AND DIRT TRACKING ONTO ROADS.
11. PROVIDE SPILL CONTAINMENT CONTROL.

SANITARY SEWERS

1. MAIN LINE PVC PIPE SHALL BE DR 35.
2. MAINTENANCE HOLES SHALL BE ACCORDING TO OPSD 701.010 (1200 mm), OPSD 701.011 (1500 mm). FRAME AND COVER SHALL BE ACCORDING TO OPSD 401.010 TYPE A CLOSED FOR SANITARY.
3. MAINTENANCE HOLE CHAMBER OPENINGS MUST BE LOCATED ON THE UPSTREAM SIDE OF THE MAINTENANCE HOLE.
4. BENCHING DETAILS SHALL BE ACCORDING TO OPSD 701.021 OR AS SHOWN ON THE DRAWINGS.
5. DROP STRUCTURES SHALL BE ACCORDING TO OPSD 1003.01.
6. SANITARY MAINTENANCE HOLES SHALL HAVE WATERTIGHT FRAMES AND COVERS IN PONDING AREAS ACCORDING TO OPSD 401.030.
7. COORDINATES SHOWN FOR MAINTENANCE HOLES ARE TO CENTRE OF BASE SLAB.
8. FOR ALL OTHER SANITARY AND STORM SEWERS, CLASS B BEDDING SHALL BE USED UNLESS OTHERWISE APPROVED. DEPENDENT ON SOIL TYPE REFER TO OPSD 802.010 TO 802.054.
9. FOR PIPE SUPPORT REQUIRED AT ALL CROSSINGS OVER OR UNDER EXISTING WATERMAINS AND SEWERS.



EXISTING SITE PLAN

SCALE 1:500



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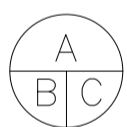
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dessin no. - où détail exigé  
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CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

EX. SITE PLAN &  
GENERAL NOTES

drawn by  
dessiné par

DC

designed by  
conc par

PS

approved by  
approuvé par

ET

tender  
soumission

project manager  
administrateur  
de projets

project date  
date du projet

2017/05/16

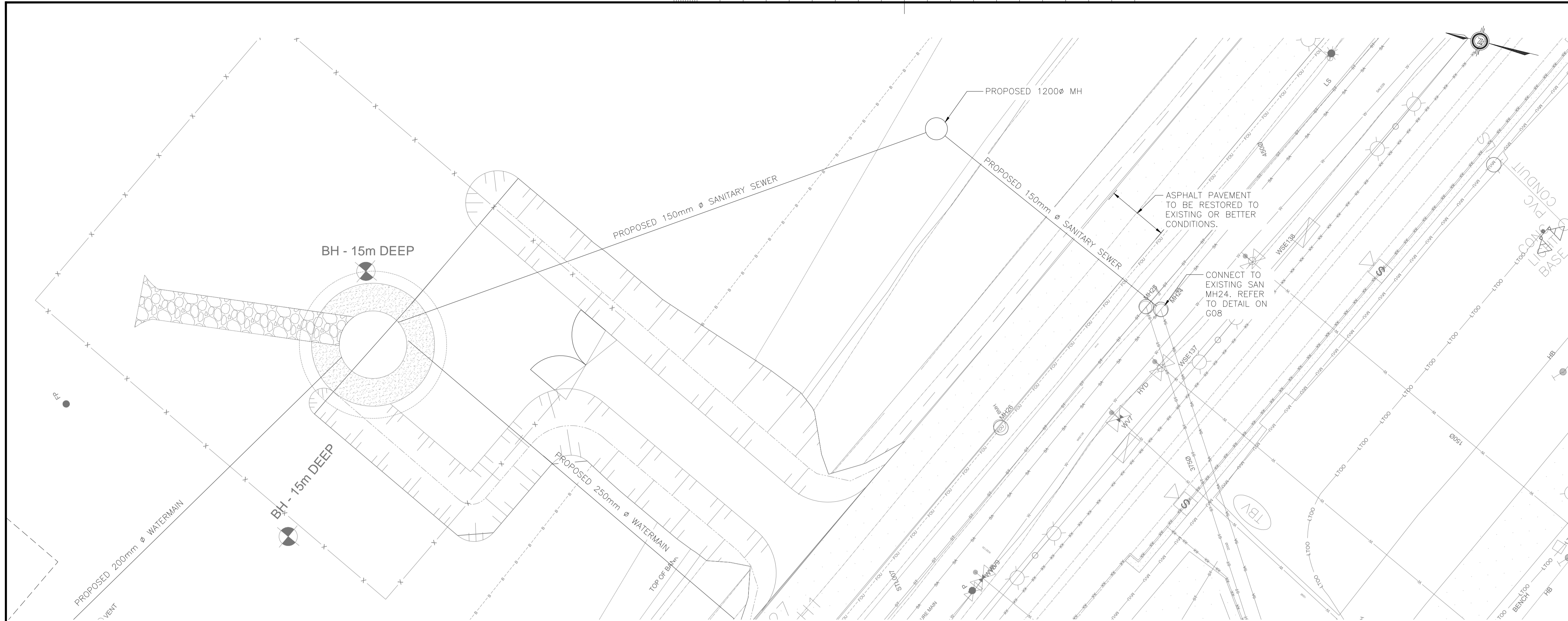
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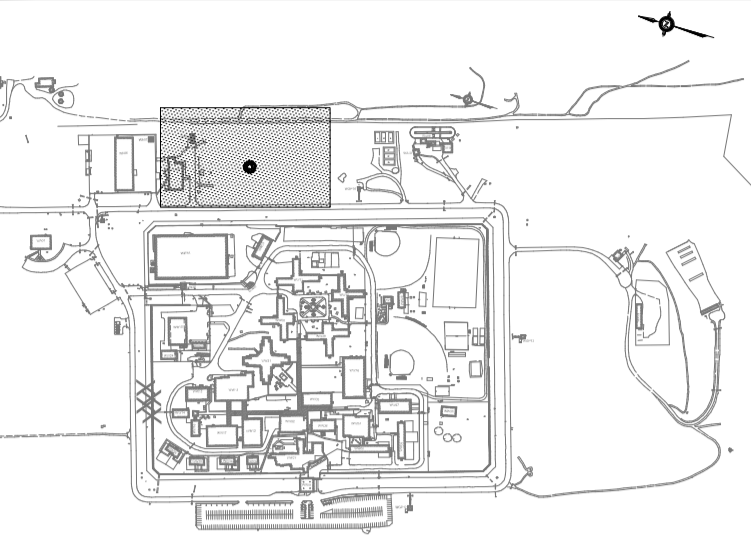
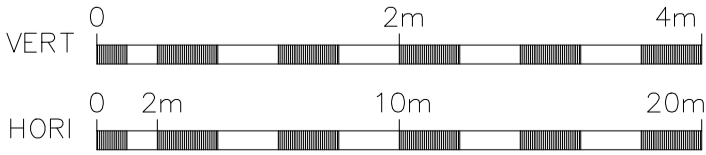
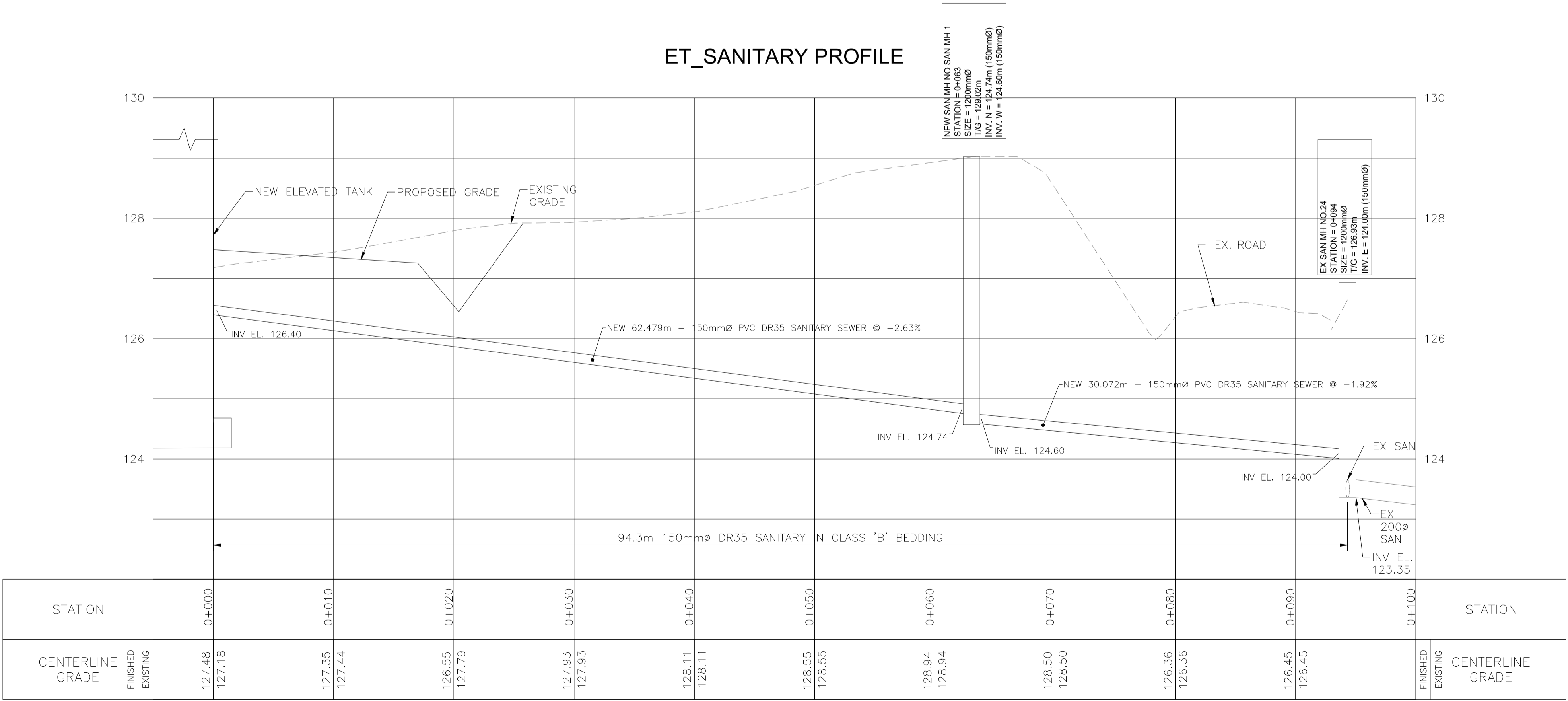
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dessiné no.

G01





ET\_SANITARY PROFILE



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COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

**PROP. 150mmØ SANITARY  
SEWER PLAN & PROFILE**

**1+000 TO 1+065**

drawn by  
dessiné par DC

designed by  
conc par PS

approved by  
approuvé par ET

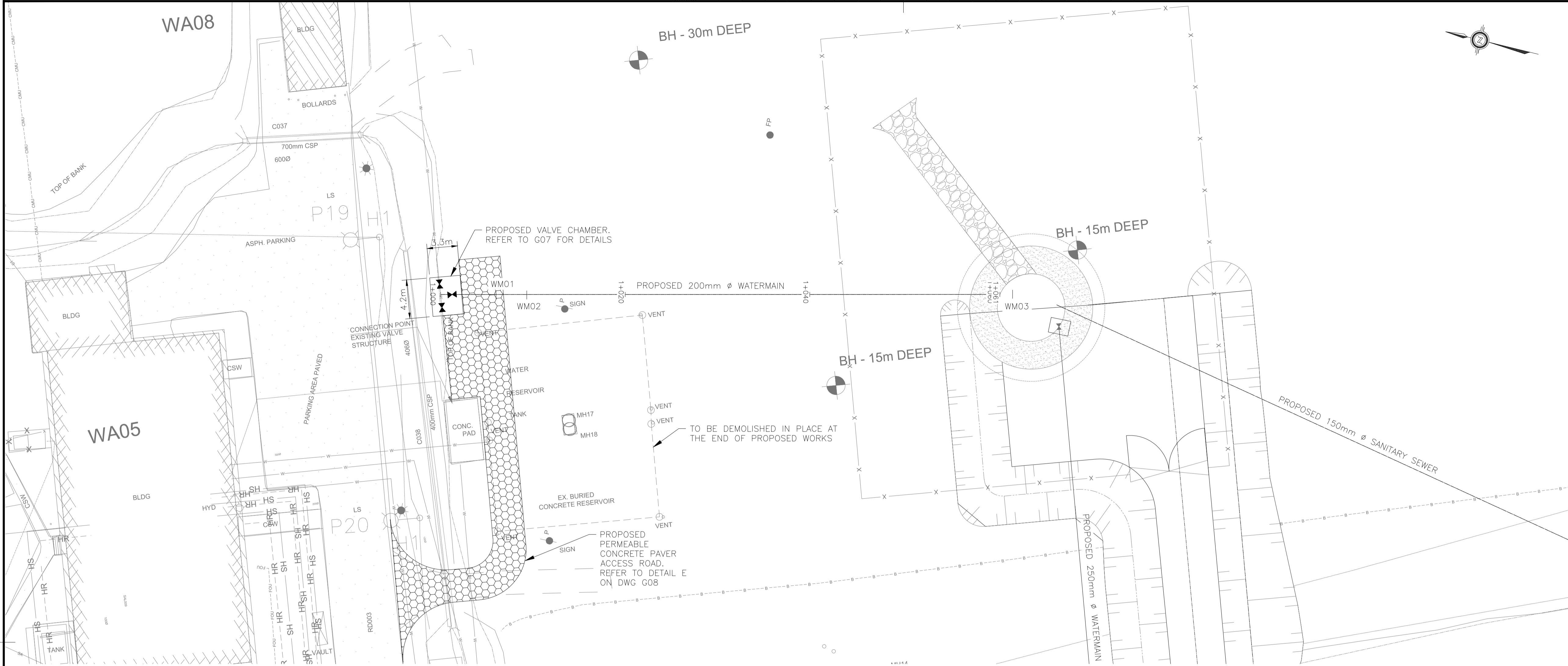
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administrateur de projets

project date  
date du projet 2017/05/16

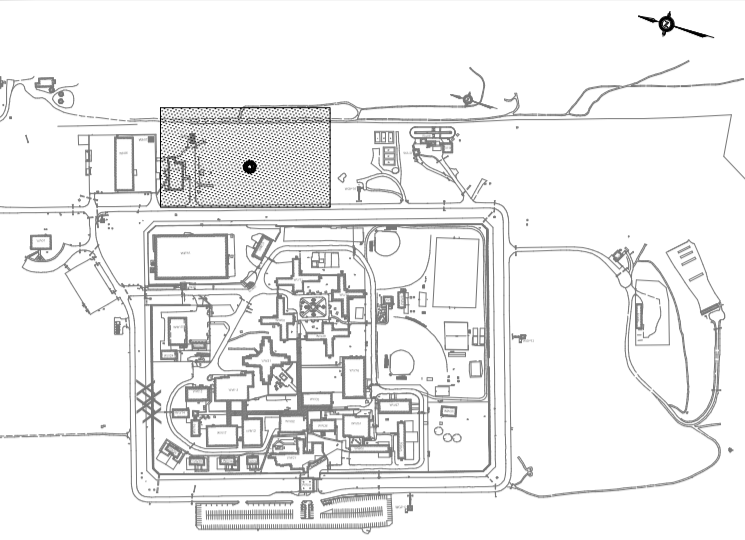
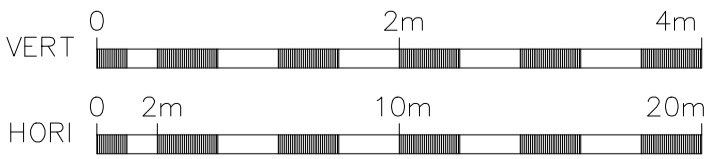
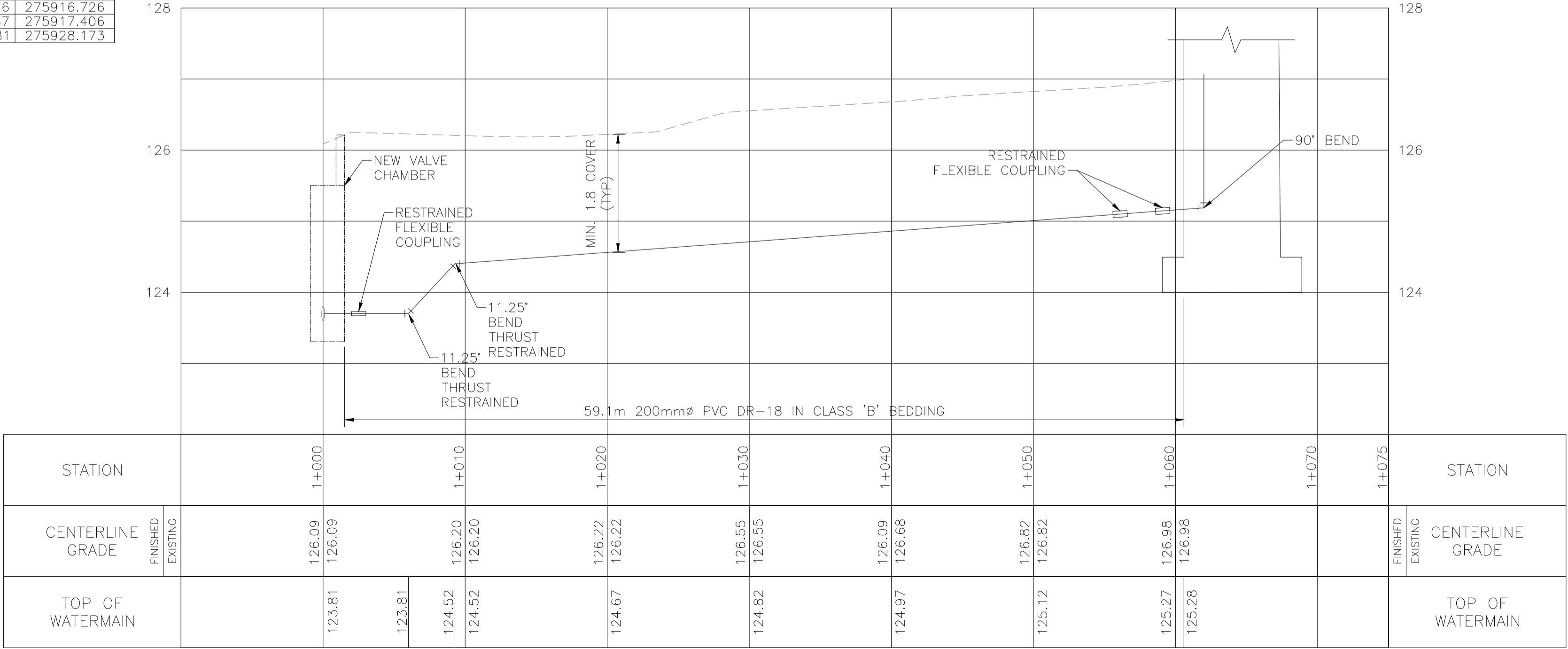
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no. du projet R.068488.001

drawing no.  
dessiné no. G03



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WM02	—	11.25	4899487.787	275917.406
WM03	—	90	4899436.281	275928.173

200mm WM TO TANK PROFILE



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WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**PROPOSED WATERMAIN  
PLAN & PROFILE 1**  
1+000 TO 1+075

drawn by  
dessiné par  
DC

designed by  
conc par  
PS

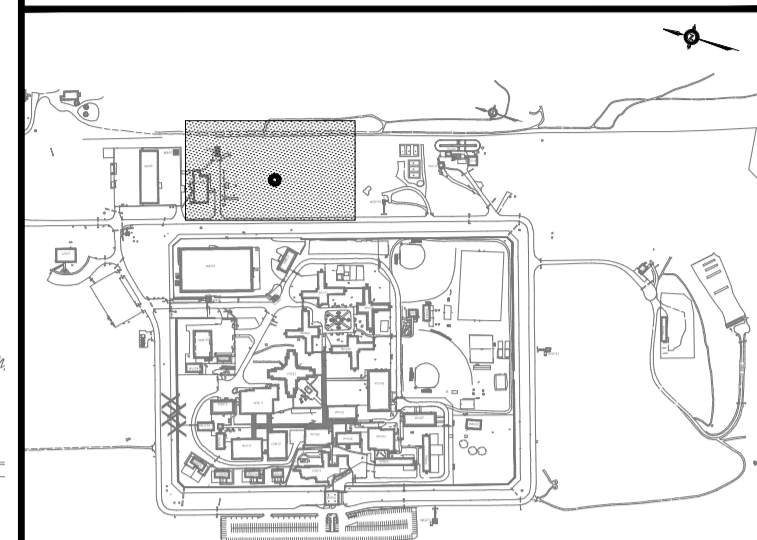
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drawing no.  
dessiné no.  
G04



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C	drawing no. - where detail required dessin no. - où détail exigé
C	drawing no. - where detailed dessin no. - où détaillé

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CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**PROPOSED WATERMAIN  
PLAN & PROFILE 2**

2+000 TO 2+138

drawn by  
dessiné par  
SP

designed by  
conc par  
PS

approved by  
approuvé par  
ET

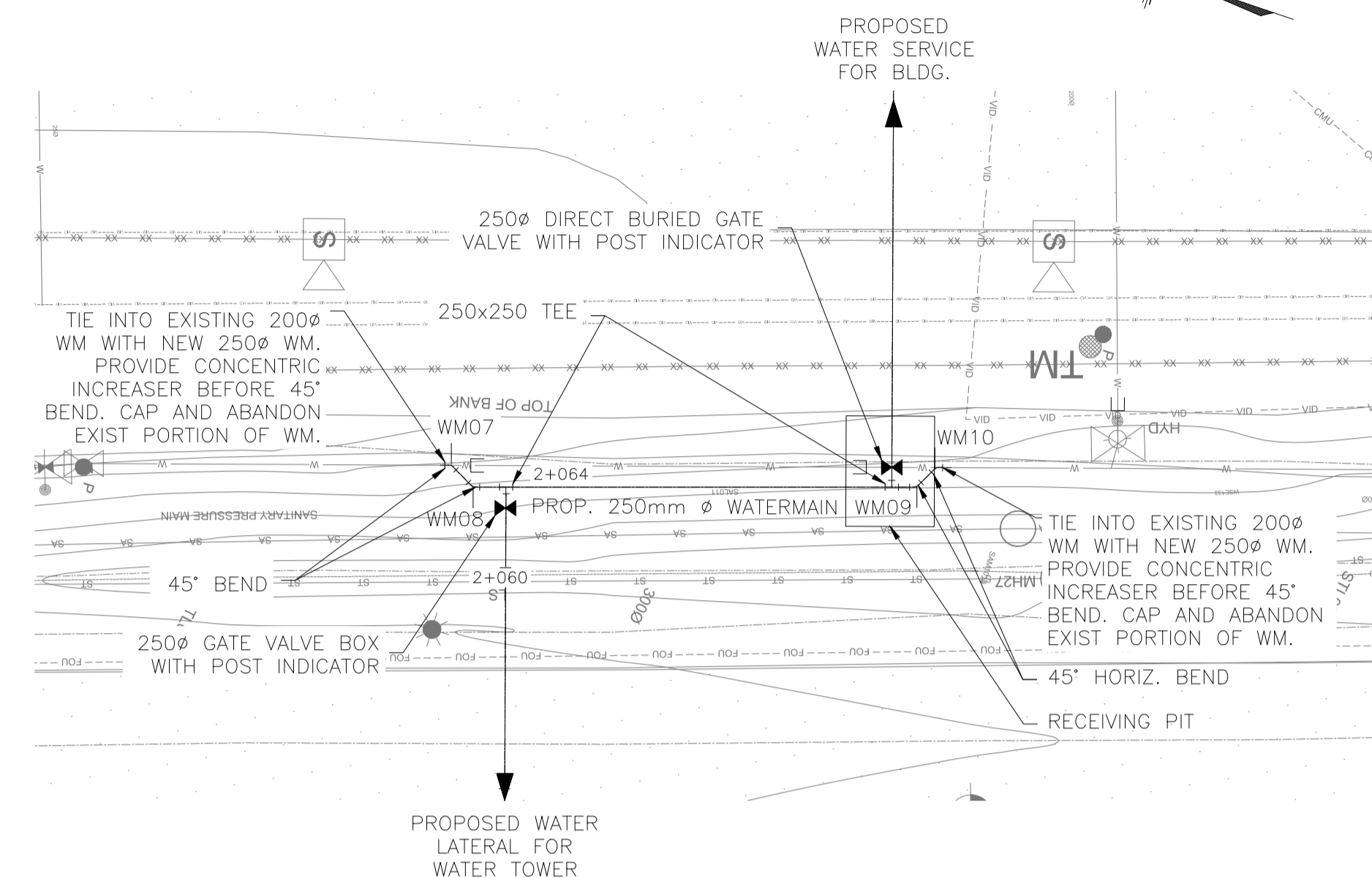
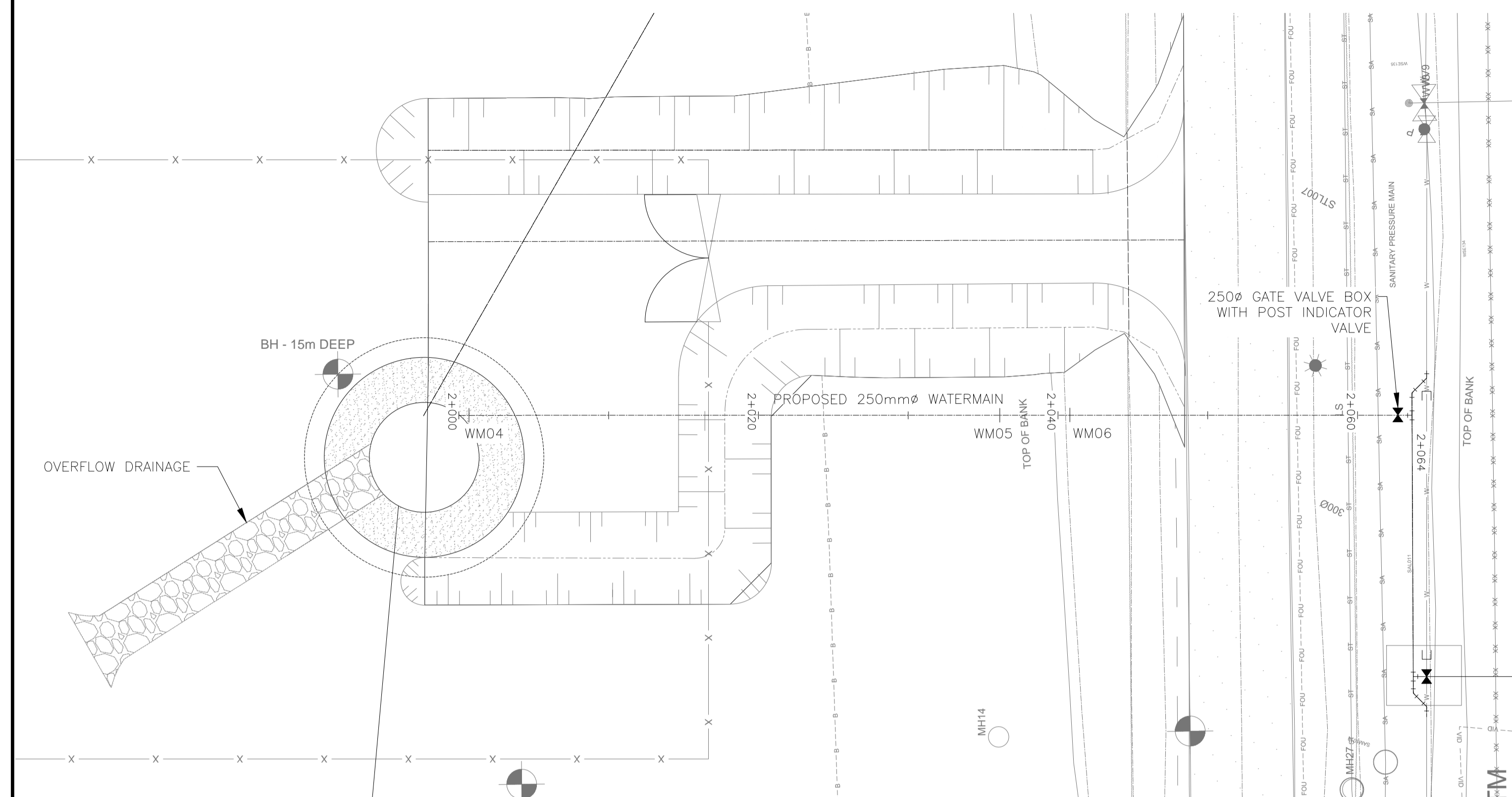
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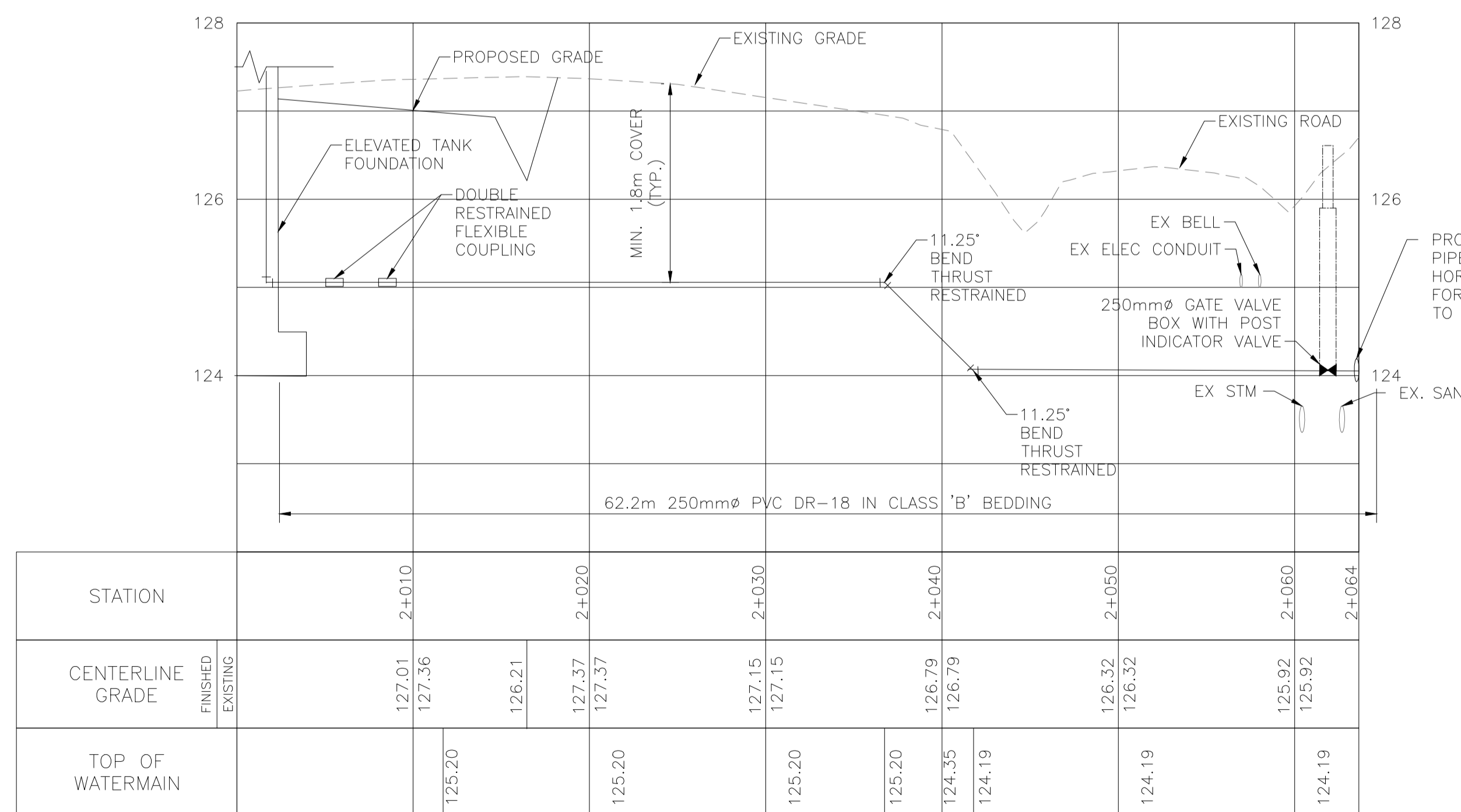
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drawing no.  
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G05



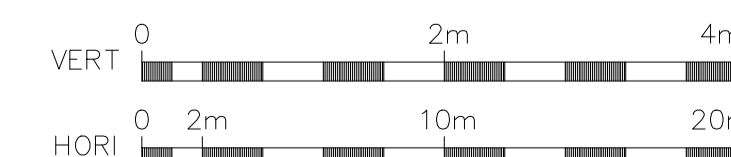
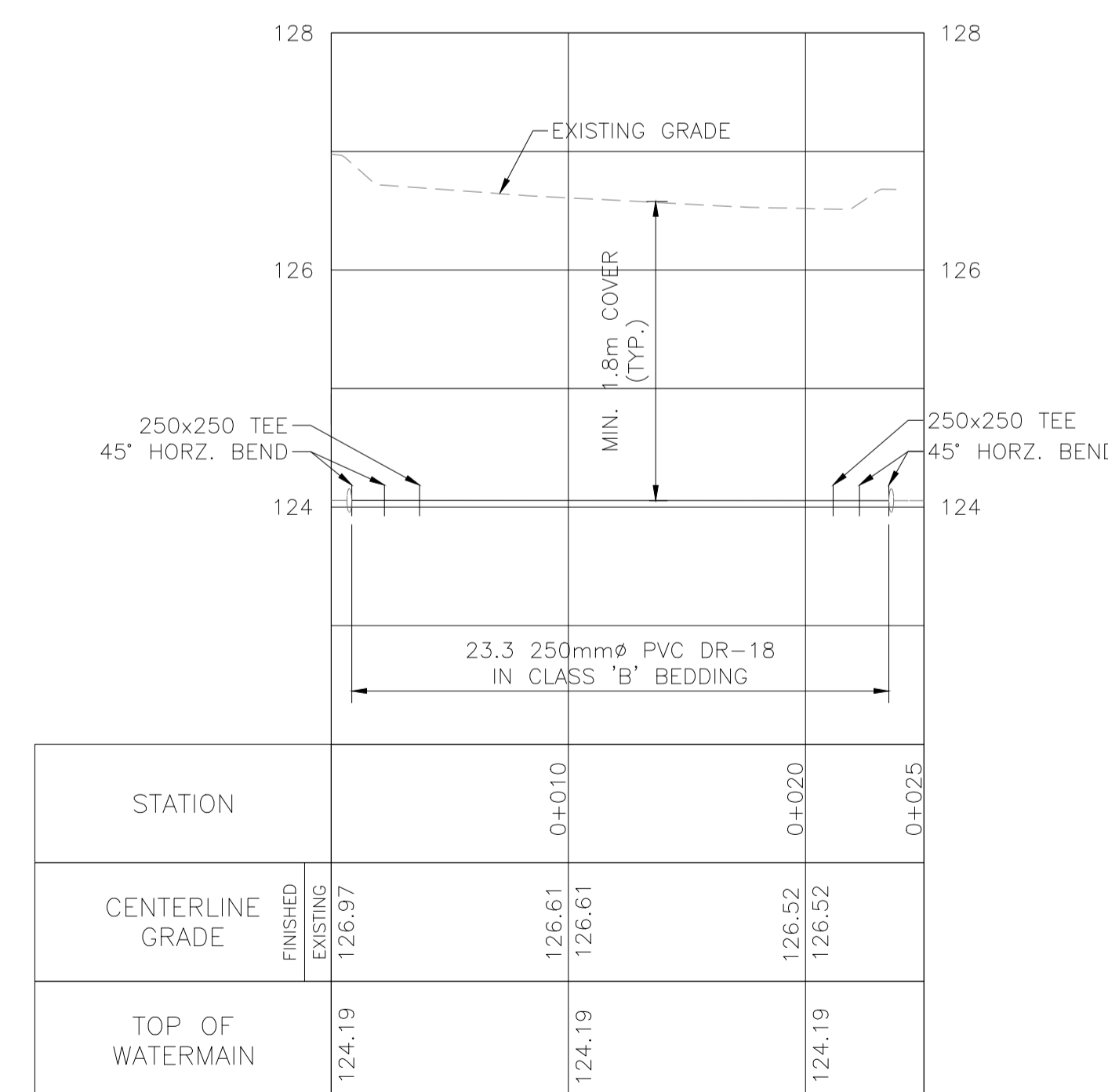
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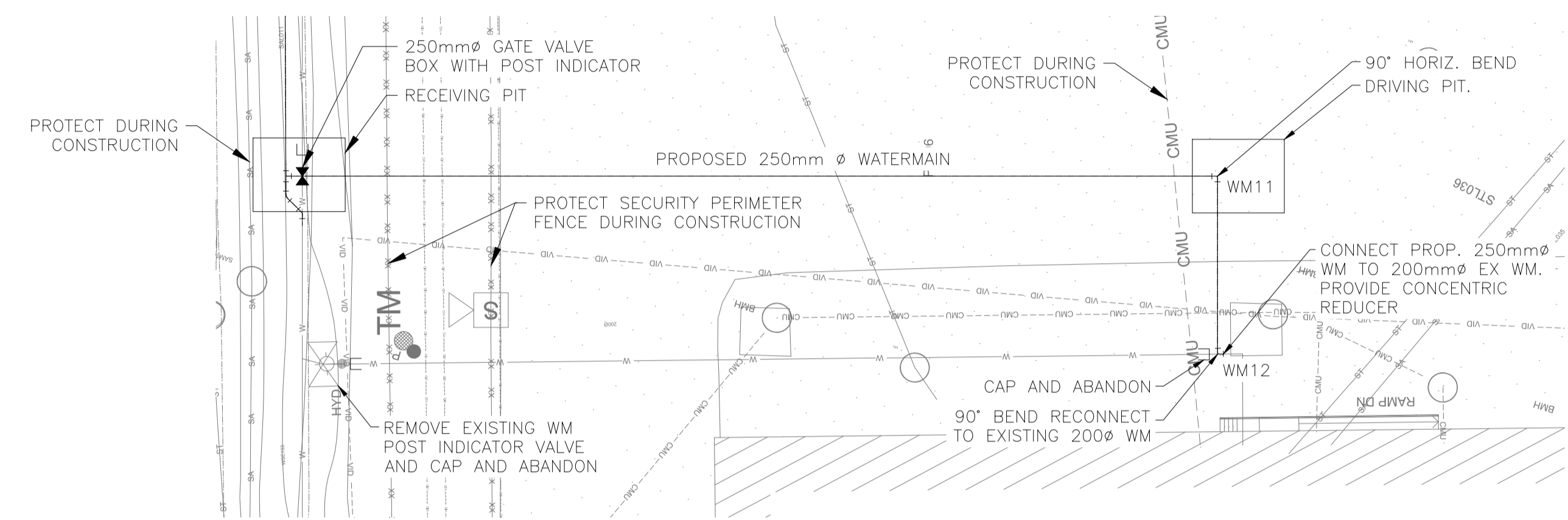
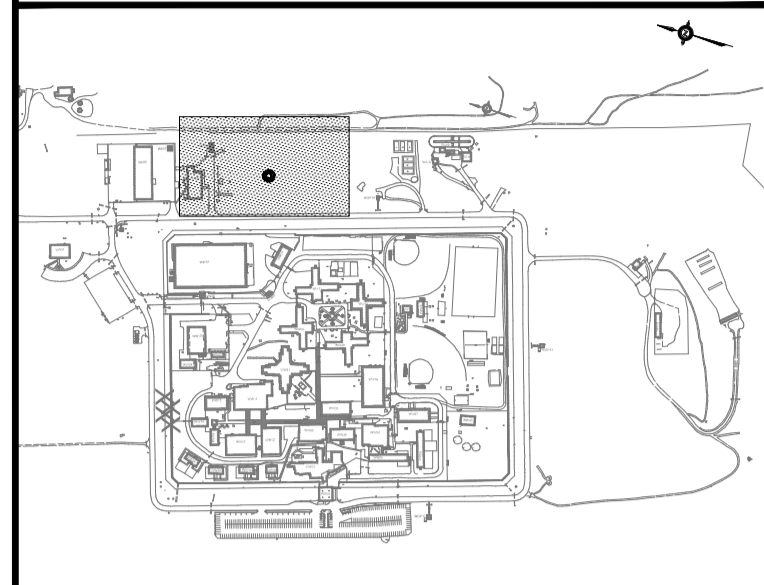
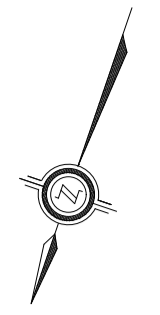
250mm WM FROM TANK PROFILE



BEND NO.	HOR. BEND (°)	VERT. BEND (°)	NORTHING	EASTING
WM07	45	-	4899409.543	275864.603
WM08	45	-	4899412.192	275864.820
WM09	45	-	4899429.928	275859.357
WM10	45	-	4899430.519	275858.252

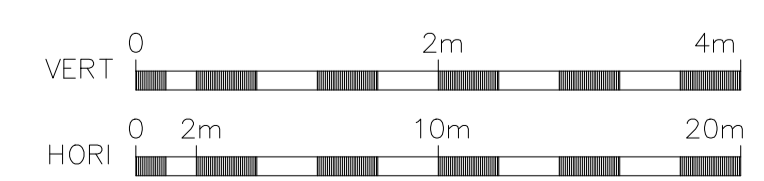
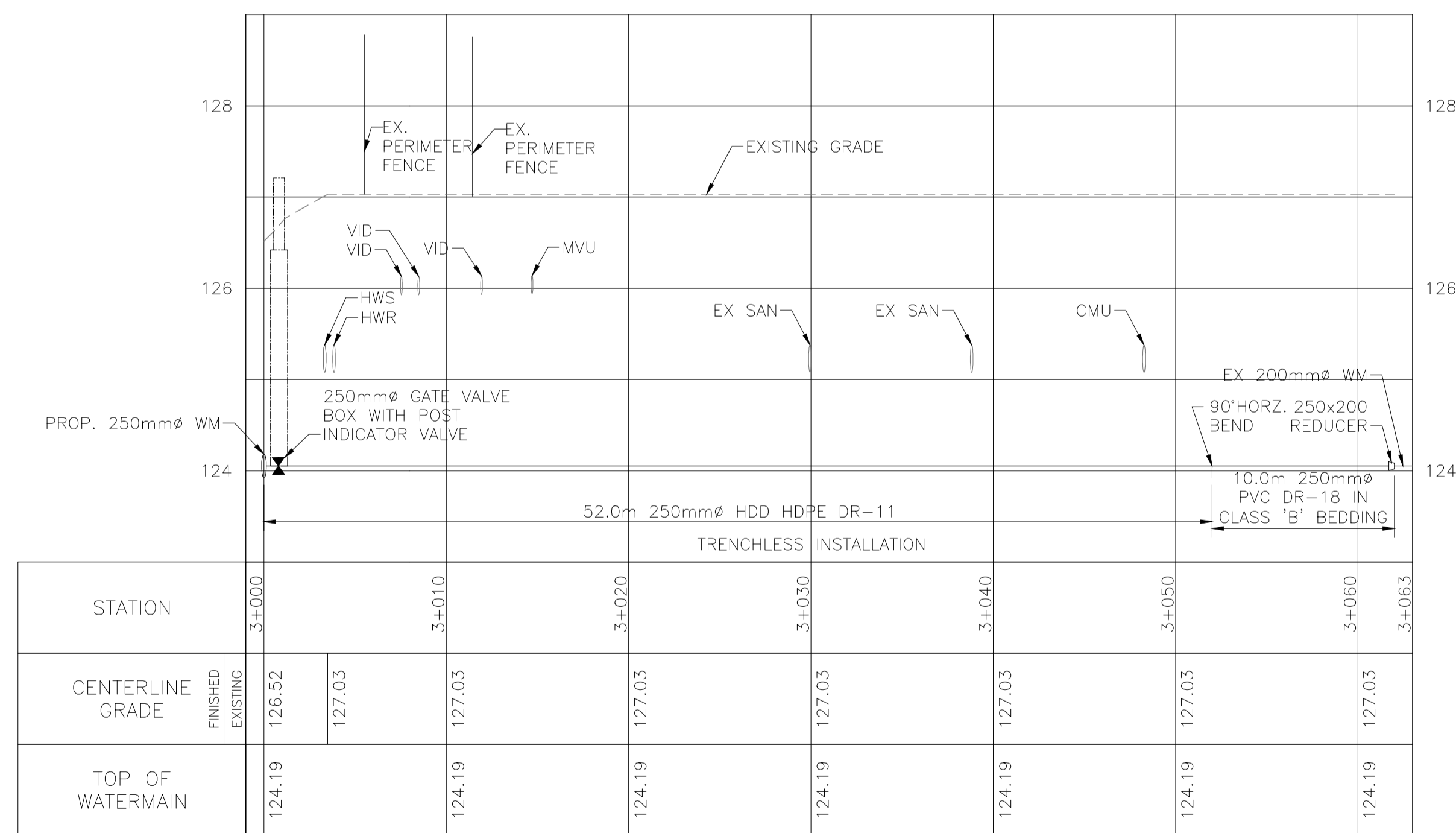
250mm CONN. TO EXISTING WM PROFILE






BEND NO.	HOR. BEND (°)	VERT. BEND (°)	NORTHING	EASTING
WM11	90	—	4899414.187	275811.248
WM12	90	—	4899423.431	275808.439

250mm FROM NEW MAIN TO BLDG PROFILE






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WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
PROPOSED WATERMAIN  
PLAN & PROFILE 3  
3+000 TO 3+063

drawn by  
dessiné par  
SP

designed by  
conç par  
PS

approved by  
approuvé par  
ET

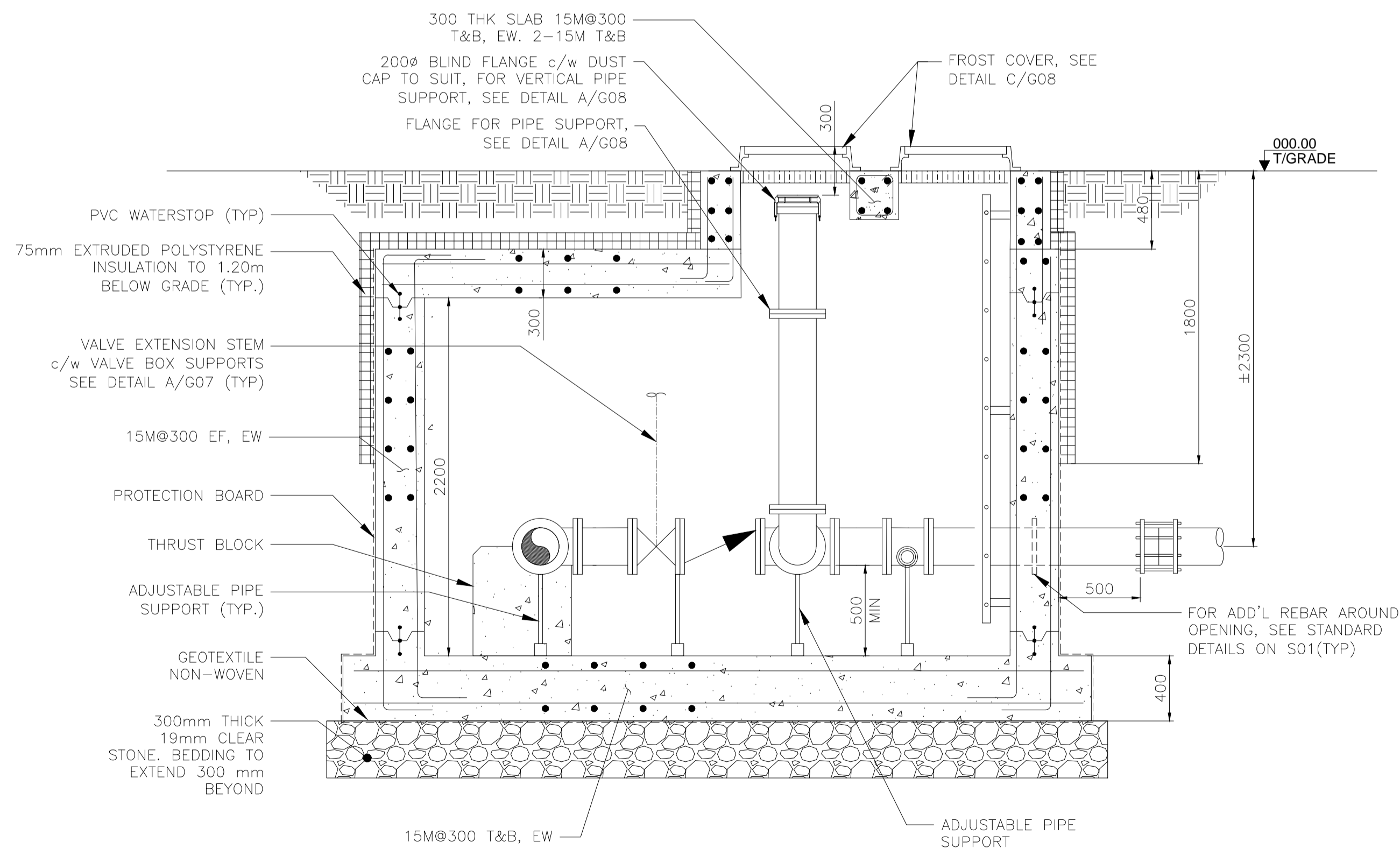
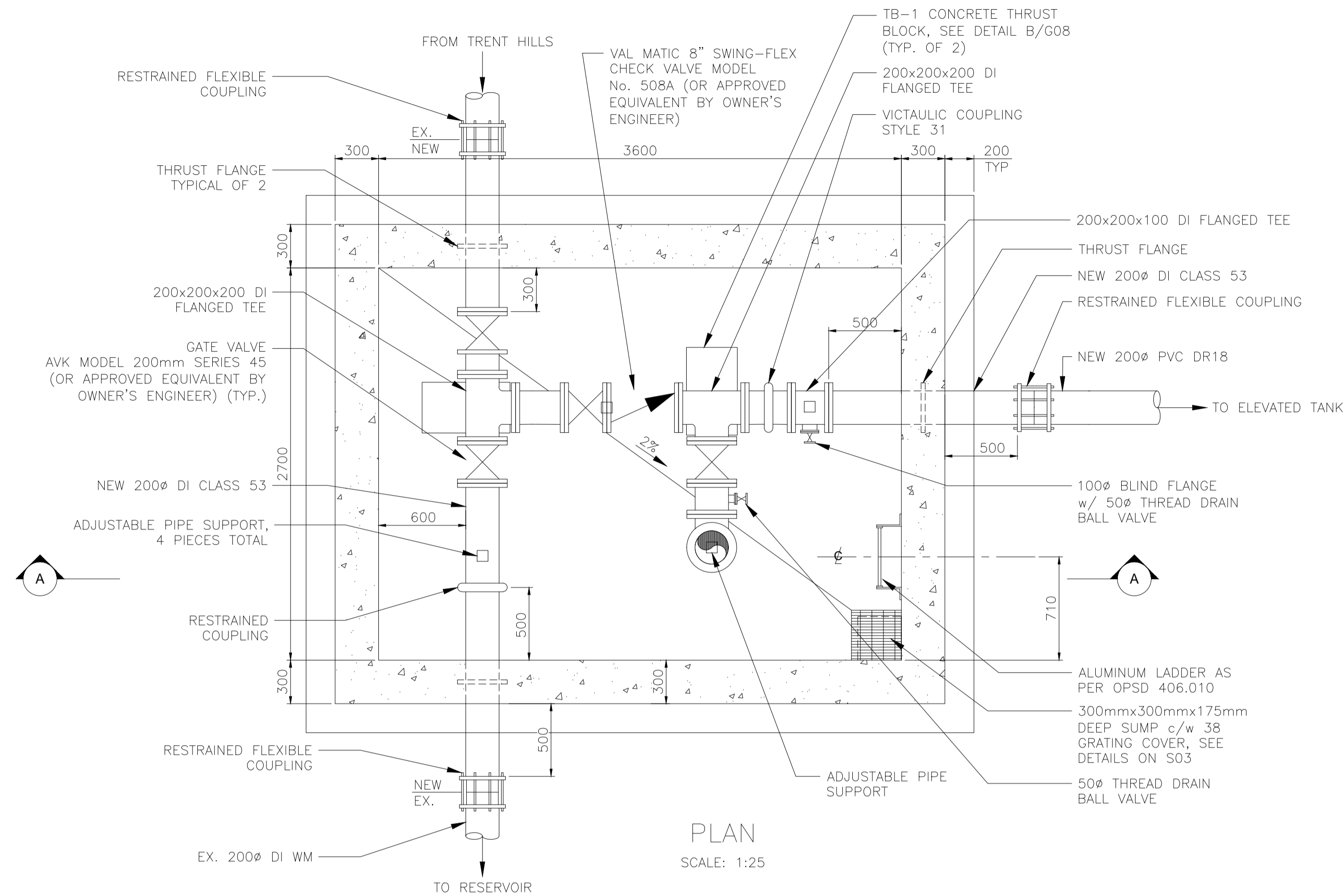
lender  
soumission

project manager  
administrateur  
de projets

project date  
date du projet  
2017/05/16

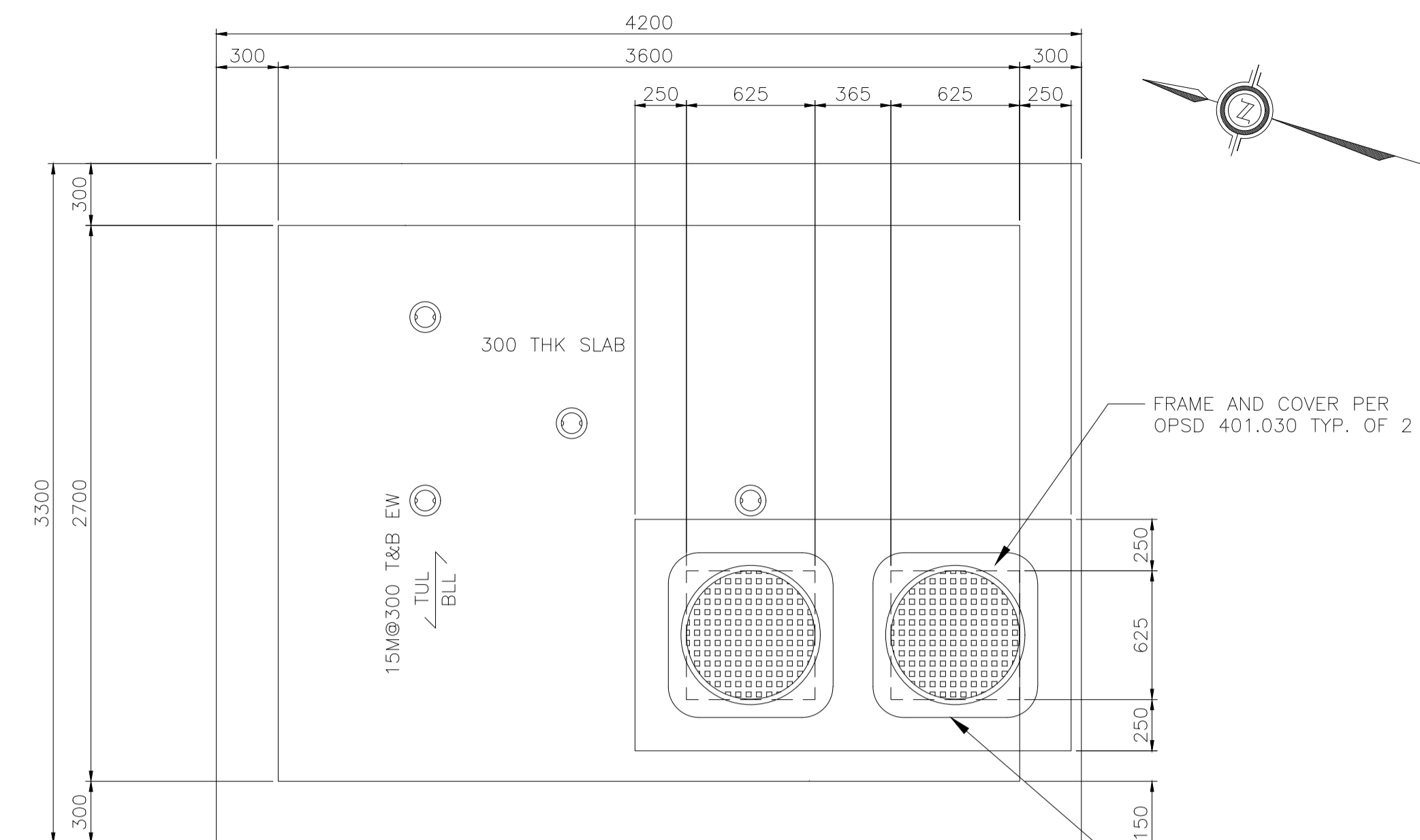
project no.  
no. du projet  
R.068488.001

drawing no.  
dessiné no.  
G06



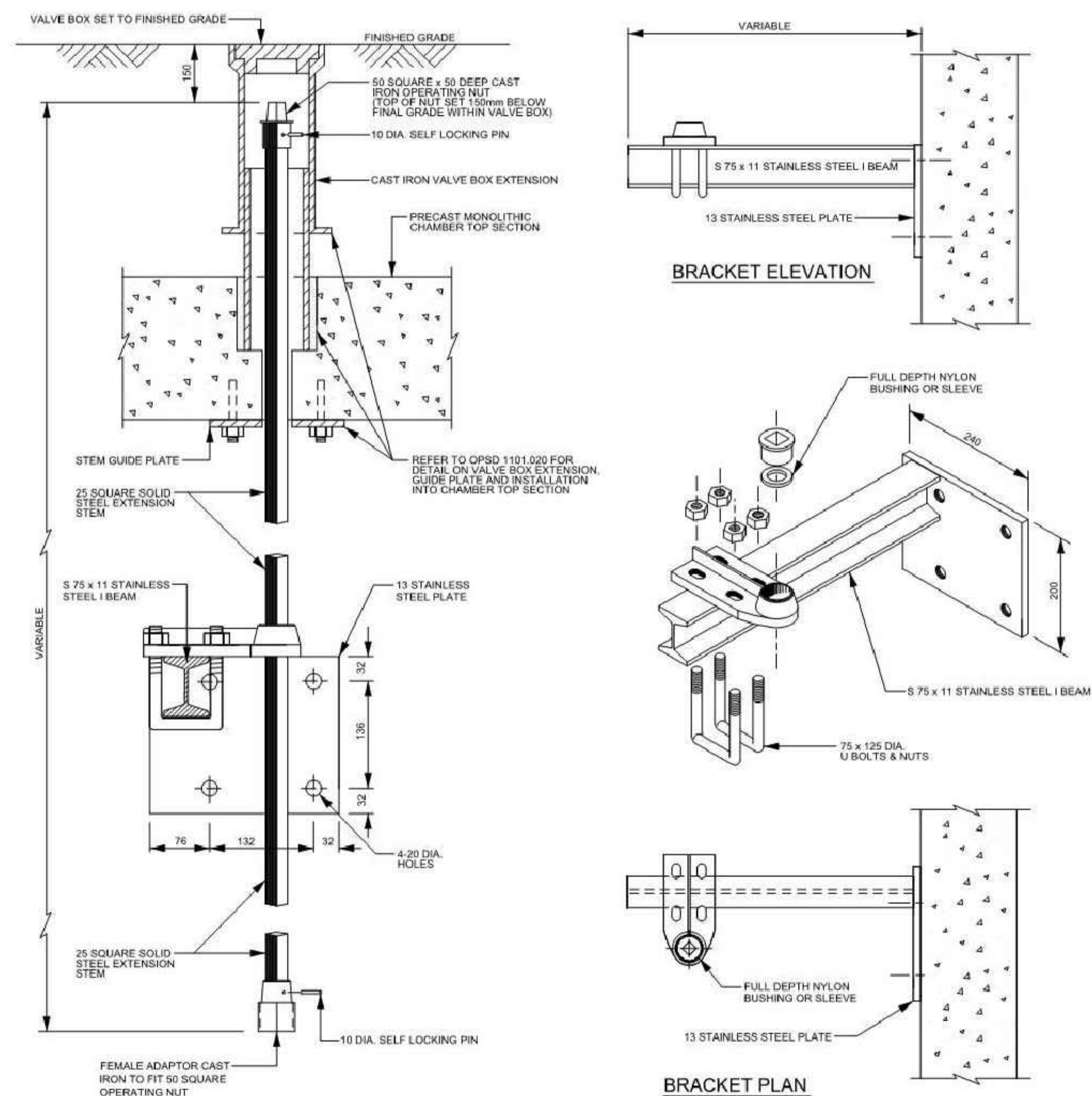
SECTION A-A

SCALE: 1:25



ROOF PLAN

SCALE: 1:25



## NOTE

1. STEM EXTENSION BRACKET AND ALL COMPONENTS AND FASTENERS TO BE STAINLESS STEEL.
2. ON EXISTING CHAMBERS FASTEN BRACKET TO WALL USING 15 DIA.x 75 LONG SCREWS WITH 75 LONG EXPANSION SHIELDS.
3. ON PROPOSED CHAMBERS FASTEN BRACKET TO WALL USING 15 DIA.x 200 LONG BOLTS WITH WASHERS AND NUTS.
4. STEM EXTENSION BRACKET ONLY TO USED WHEN DEPTH EQUALS OR EXCEEDS 1.5m FROM SURFACE.
5. ADJUSTMENT TO BE MADE IN ORDER TO BRING OPERATING NUT TO 150mm FROM FINAL GRADE WITHIN VALVE BOX.

A  
G07

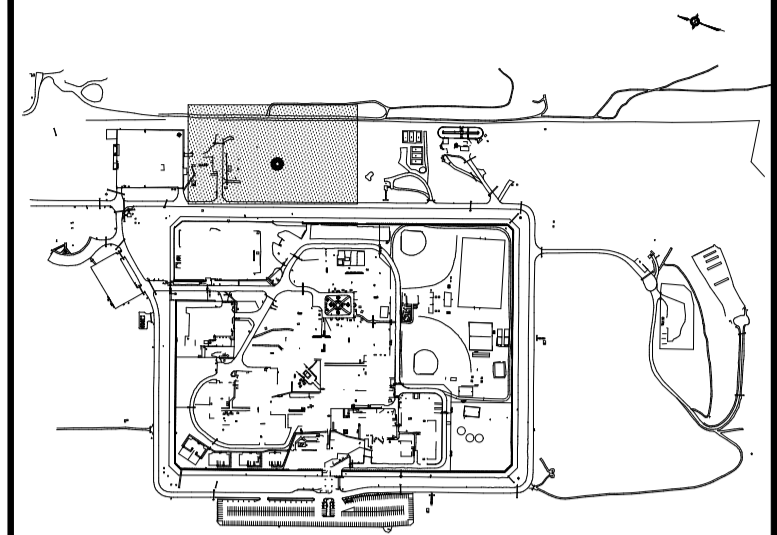
VALVE STEM EXTENSION AND BRACKET DETAIL

SCALE: NTS



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CORRECTIONAL SERVICE CANADA  
WARKWORTH INSTITUTION  
COUNTY ROAD # 29 CAMPBELLFORD

CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

CHAMBER PLANS AND SECTION

drawn by  
dessiné par PL

designed by  
conçue par PS

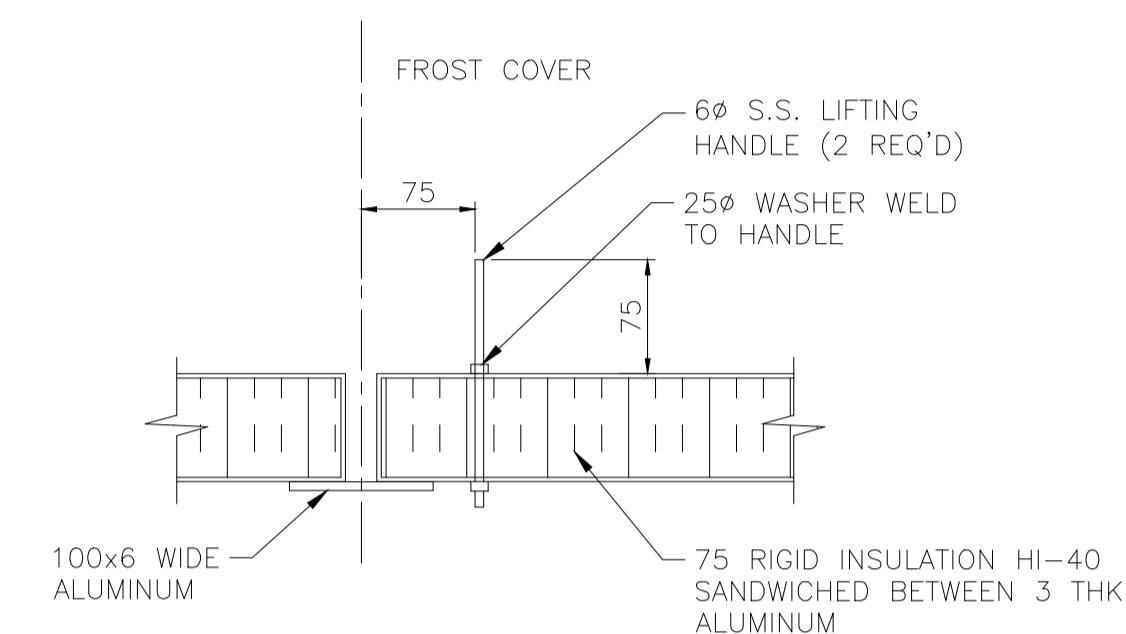
approved by  
approuvé par ET

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soumission --- project manager  
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project date  
date du projet 2017/05/16

project no.  
no. du projet R.068488.001

drawing no.  
dessiné no. G07

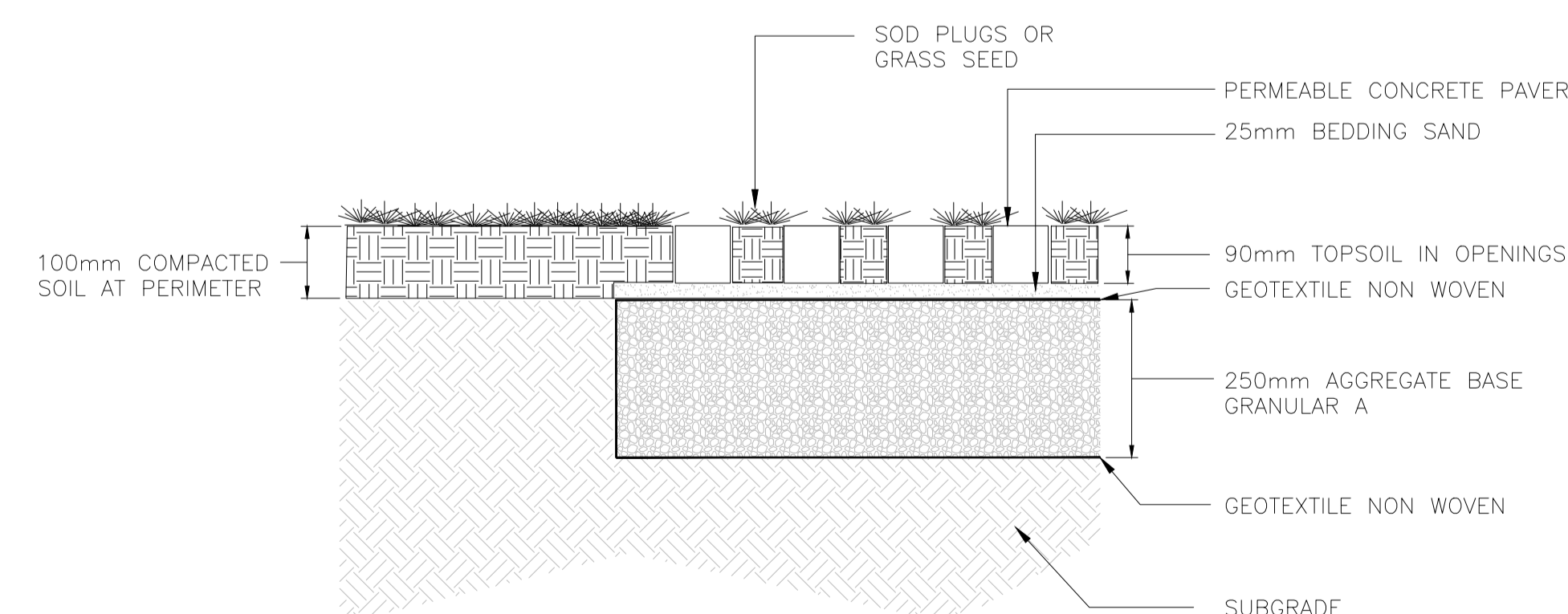


**B** TYPICAL CONCRETE THRUST BLOCK DETAILS  
G07 SCALE: NTS

SCALE: NTS

TYPICAL CONCRETE THRUST BLOCK DETAILS


**C** FROST COVER DETAILS  
G07 SCALE: NTS



**E** TURFSTONE PAVERS DETAIL  
G02 SCALE: NTS

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WARKWORTH INSTITUTION  
COUNTY ROAD # 29 CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

CHAMBER DETAILS

drawn by	
dessiné par	EZ

designed by conc par	PS
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approved by approuve par	ET
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tender	project manager
soumission	administrateur de projets
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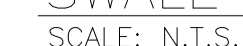
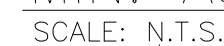
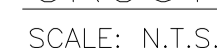
project date date du projet	2017/05/16
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project no. no. du projet	R.068488.001
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drawing no.  
dessine no. G08



SCALE: N.T.S.





REMOVE ALL VENTS

REMOVE EXISTING MANHOLE COVER

REMOVE SUCTION PIPING IN DEEP TRENCH

CELL NO. 2

CELL NO. 1

200 mm

350 mm

350 mm

200 mm

200 mm

VALVE CHAMBER

RESERVOIR CELL NO. 1 AND NO. 2  
TOTAL CAPACITY 1400 M<sup>3</sup>

CHLORINE CHART RECORDER

200 mm

TO THE INSTITUTION

SUPPLY FROM MUNICIPALITY OF TRENT HILLS  
1440 m<sup>3</sup>/d

200 mm

200 mm

TO THE INSTITUTION

HIGH LIFT WELL

200 mm

100 mm

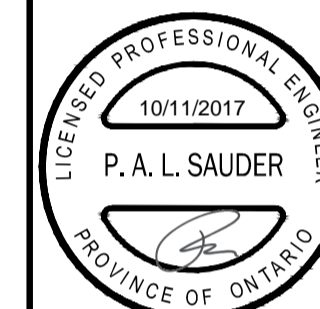
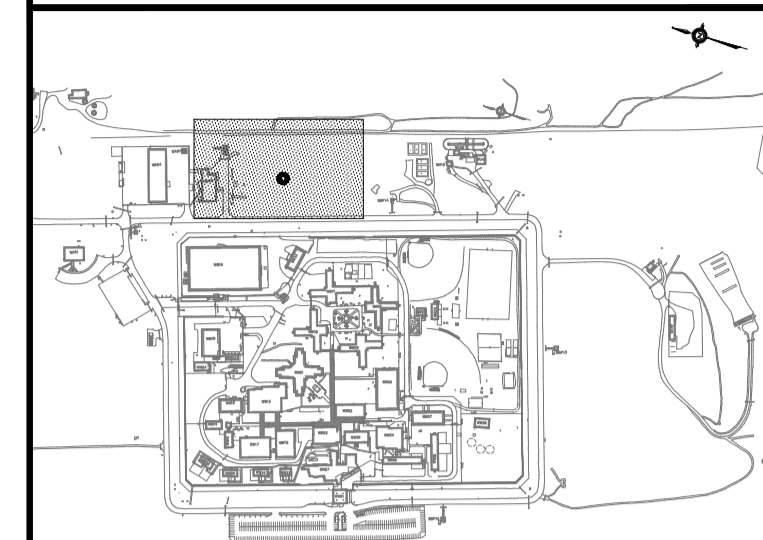
REMOVE FIRE PUMP AND HIGH LIFT PUMPS

HIGH LIFT WELL  
CAPACITY 65.0 m<sup>3</sup>

FP NO. 1


BP NO. 2

BP NO. 1

 TO BE REMOVED

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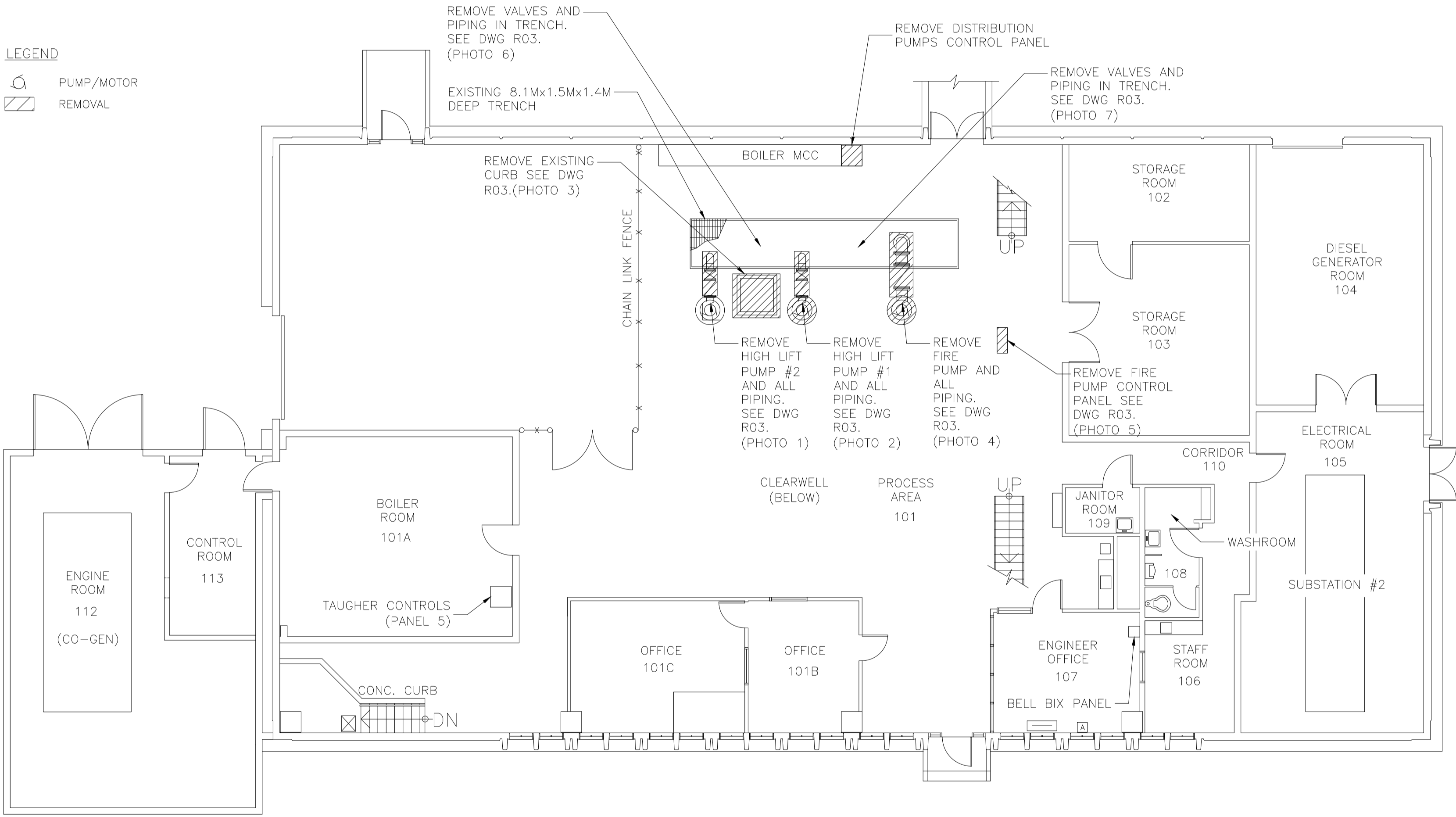
project title  
titre du projet

WARKWORTH Ontario  
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COUNTY ROAD # 29 CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title
titre du dessin


REMOVALS – VALVE CHAMBER  
AND EXISTING RESERVOIR

drawn by dessine par	EZ
designed by conc par	PS
approved by approuve par	ET
tender soumission	--- project manager administrateur de projet
project date date du projet	2017/12/13
project no. no. du projet	R.068488.001
drawing no. dessine no.	R01

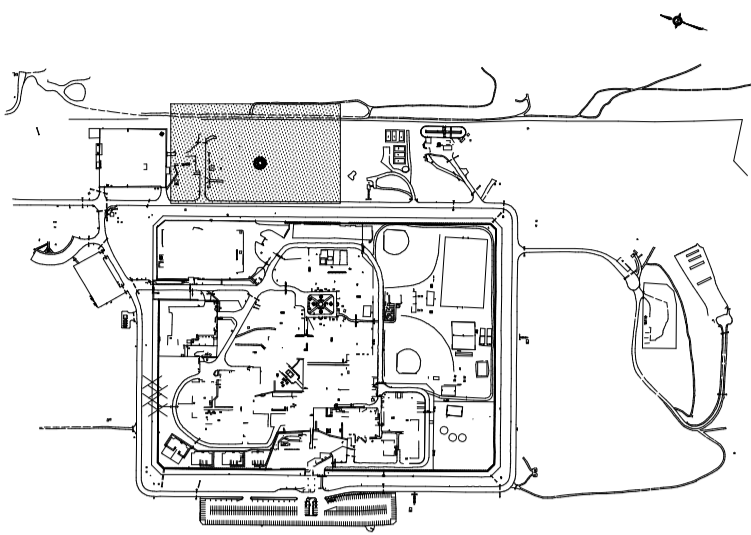


1 FLOOR PLAN – WA05 BUILDING  
SCALE: 1:100

- NOTES:**
1. REMOVE PUMPS AND CONCRETE PUMP BASES. FILL IN PUMP SUCTION HOLE IN FLOOR WITH METAL PLUG.
  2. REMOVE DISCHARGE PIPING AND VALVES IN BURIED CHANNEL.
  3. REFER TO PHOTOS ON DRAWING R03.
  4. REFER TO DRAWING E03 FOR ADDITIONAL ELECTRICAL REMOVALS.

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CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**REMOVALS – WA05 BUILDING  
PLAN**

drawn by  
dessiné par  
EI

designed by  
conçue par  
PS

approved by  
approuvé par  
ET

tender  
soumission

project manager  
administrateur  
de projets

project date  
date du projet  
2017/05/16

project no.  
no. du projet  
R.068488.001

drawing no.  
dessiné no.  
R02

REMOVE HIGH LIFT PUMP #2, MOTOR, PUMP BASE AND ALL ASSOCIATED PIPING AND COMPONENTS. REPAIR FLOOR TO MATCHING EXISTING.



REMOVE EXISTING CURB

1

HIGH LIFT PUMP # 2

SCALE: NTS

REMOVE HIGH LIFT PUMP #1, MOTOR, PUMP BASE AND ALL ASSOCIATED PIPING AND COMPONENTS. REPAIR FLOOR TO MATCHING EXISTING.



REMOVE EXISTING CURB

2

HIGH LIFT PUMP # 1

SCALE: NTS

REMOVE HIGH LIFT PUMP #2, MOTOR, PUMP BASE AND ALL ASSOCIATED PIPING AND COMPONENTS. REPAIR FLOOR TO MATCHING EXISTING.



REMOVE EXISTING CURB

3

HIGH LIFT PUMP # 1 & # 2

SCALE: NTS

REMOVE FIRE PUMP, MOTOR, PUMP BASE AND ALL ASSOCIATED PIPING AND COMPONENTS. REPAIR FLOOR TO MATCHING EXISTING.



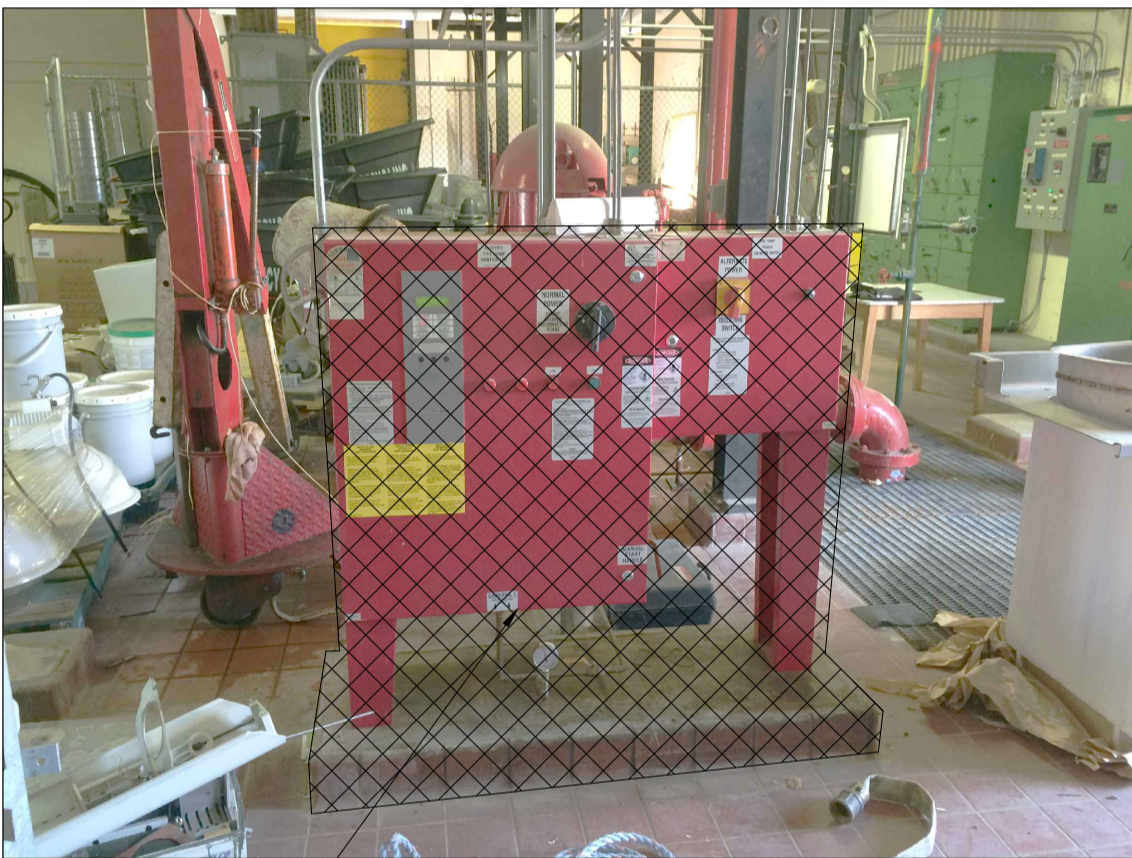
REMOVE FIRE PUMP CONTROL PANEL, PANEL BASE AND ALL ASSOCIATED COMPONENTS

4

FIRE PUMP

SCALE: NTS

REMOVE FIRE PUMP CONTROL PANEL, PANEL BASE AND ALL ASSOCIATED COMPONENTS



5

FIRE PUMP CONTROL PANEL

SCALE: NTS

REMOVE AND DISPOSE OF VALVES AND PIPING IN TRENCH. BLIND FLANGE ALL OPENING TO CLEARWELL AND RESERVOIR.

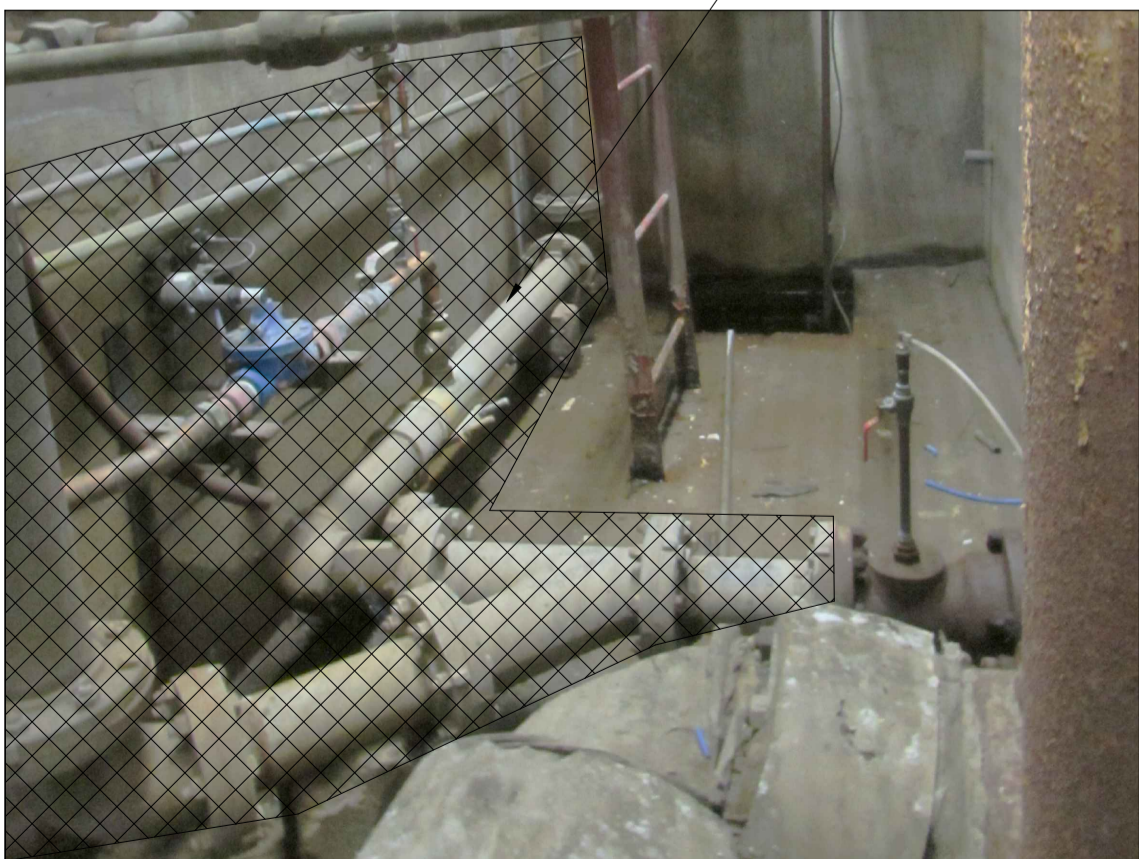


6

PIPING IN THE TRENCH

SCALE: NTS

REMOVE AND DISPOSE OF VALVES AND PIPING IN TRENCH. BLIND FLANGE ALL OPENING TO CLEARWELL AND RESERVOIR.



7

PIPING IN THE TRENCH

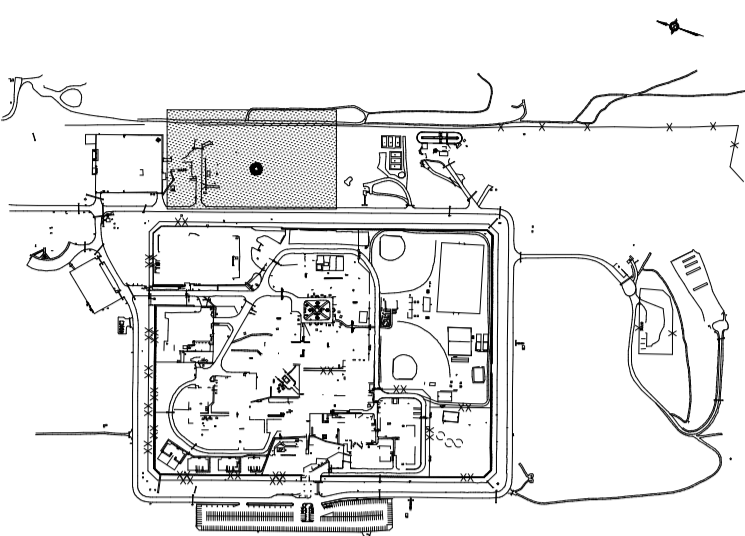
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LEGEND

REMOVAL



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COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**REMOVALS - WA05 BUILDING  
PHOTO DETAILS**

drawn by  
dessiné par PK

designed by  
conçue par PS

approved by  
approuvé par ET

tender  
soumission

project manager  
administrateur de projets

project date  
date du projet 2017/05/16

project no.  
no. du projet R.068488.001

drawing no.  
dessiné no. R03

GENERAL NOTES

- DO NOT SCALE DRAWINGS.
- DESIGN LOADS INDICATED ARE UNFACTORED UNLESS NOTED OTHERWISE.
- DESIGN LIVE LOADS FOR EACH PORTION OF THE STRUCTURE ARE SHOWN. DO NOT EXCEED THESE LOADS DURING CONSTRUCTION.
- STRUCTURAL DESIGN IS BASED ON THE LATEST EDITION OF THE NATIONAL AND ONTARIO BUILDING CODES. SUBSTRUCTURES AND WATER RETAINING TANKS, RESERVOIRS AND CONDUITS HAVE BEEN DESIGNED IN ACCORDANCE WITH CODE REQUIREMENTS FOR ENVIRONMENTAL CONCRETE STRUCTURES (ACI) 350-06 EXCEPT WHERE IT WAS NOT CONSIDERED APPLICABLE.
- FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF THE SAME CHARACTER AS THOSE NOTED FOR SIMILAR CONDITIONS.

FOUNDATION

- FOUND ALL FOUNDATIONS ON COMPETENT UNDISTURBED NATIVE SOILS CAPABLE OF SUSTAINING 450 kPa SLS AFTER ALL VARVED CLAYEY SOILS HAVE BEEN REMOVED. THE BEARING ELEVATION CAN BE RAISED BY PLACING ENGINEERED FILL AFTER SUBEXCAVATING THE VARVED CLAYEY DEPOSITS. THE ENGINEERED FILL IS TO BE PLACE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND BE CAPABLE OF SUSTAINING 350kPa SLS. SEE THE GEOTECHNICAL REPORT NUMBER 1531866 BY GOLDER AND ASSOCIATES, FOR INFORMATION ON ELEVATIONS, BEARING CAPACITY, AND REQUIREMENTS FOR THE ENGINEERED FILL.
- SOIL BEARING CAPACITY SPECIFIED MUST BE VERIFIED BY THE SOIL ENGINEER PRIOR TO THE PLACING OF THE FOUNDATIONS OR ENGINEERED FILL AND ANY NON-CONFORMANCE WITH THE SPECIFIED MINIMUM CAPACITIES MUST BE IMMEDIATELY REPORTED TO THE STRUCTURAL ENGINEER.
- FOUND FOOTINGS WHICH ARE EXPOSED TO FREEZING WEATHER A MINIMUM OF 1600 mm BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
- THE DESIGN OF TEMPORARY WORKS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTROL OF THE GROUND WATER SHALL BE CARRIED OUT BY A SPECIALIZED FOUNDATION CONSULTANT, ENGAGED BY THE CONTRACTOR. THE COSTS OF ANY ADDITION GEOTECHNICAL INVESTIGATION AND/OR TESTING IS INCIDENTAL TO THE WORK AND WILL NOT BE CONSIDERED AS EXTRA COST TO THE OWNER.
- THE SPECIALIZED FOUNDATION CONSULTANTS SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION, TESTING, MONITORING AND, IF REQUIRED, REMOVAL OF TEMPORARY SHORING AND DEWATERING SYSTEMS.
- A SHORING SYSTEM IS NOT REQUIRED IF THE SAFE INCLINATION OF THE SIDES OF THE EXCAVATION IS PROVIDED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS, EXCAVATION IS MAINTAINED, AND DOES NOT INTERFERE WITH EXISTING STRUCTURES OR ACCESS ON THE SITE.
- PROTECT SOIL FROM FREEZING ADJACENT TO AND BELOW ALL FOOTINGS.
- BACKFILL AGAINST FOUNDATION WALL IN SUCH A MANNER THAT THE LEVEL OF BACKFILLING ON ONE SIDE OF THE WALL IS NEVER MORE THAN 450 mm DIFFERENCE FROM THE LEVEL ON THE OTHER SIDE OF THE WALL UNLESS TEMPORARY SUPPORT FOR THE WALL IS PROVIDED.
- SOFT AREAS UNCOVERED ON EXCAVATION SHALL BE SUB EXCAVATED TO SOUND MATERIAL AND FILLED WITH GRANULAR 'A' SOIL COMPACTED TO 100% STANDARD PROCTOR DRY DENSITY.
- DO NOT EXCEED A RISE OF 7 IN A RUN OF 10 IN THE LINE OF SLOPE BETWEEN ADJACENT FOOTING EXCAVATIONS OR ALONG STEPPED FOOTINGS. FOR STEPPED FOOTINGS, USE STEPS NOT EXCEEDING 600 mm IN HEIGHT AND NOT LESS THEN 1200 mm IN LENGTH.
- PLACE SLAB ON GRADE ON SOIL CAPABLE OF SUSTAINING 24 kPa WITHOUT SETTLEMENT RELATIVE TO THE BUILDING FOOTINGS.
- SEE PROCESS DRAWINGS FOR RECESSES AND DEPRESSIONS IN SLAB ON GRADE AND MAINTAIN SLAB THICKNESS INDICATED ON STRUCTURAL DRAWINGS IN ALL CASES.
- REINFORCE CONCRETE SIDEWALKS OR WALKWAYS WITH 10M BAR @ 400 E.W. IN THE CENTER OF THE CONCRETE, UNLESS NOTED OTHERWISE.

MATERIALS

- THE DESIGN REQUIREMENTS FOR THE VARIOUS CONCRETE MIX DESIGNS INDICATED SHALL CONFORM TO THE CHARACTERISTICS DESCRIBED IN THE PROJECT SPECIFICATIONS.
- MINIMUM 28 DAY COMPRESSIVE STRENGTH:  
STRUCTURAL CONCRETE: 30 mPa  
FILL CONCRETE: 20 mPa  
BENCHING: 30 mPa
- ALL REINFORCING BAR SHALL BE GRADE 400 MPa, DEFORMED, CAN/CSA-G30.18.
- CONCRETE BLOCK SHALL CONFORM TO THE LATEST EDITION OF THE RELEVANT CODES AND STANDARDS AND THE BLOCK STRENGTH SHALL BE 15 MPa ON NET AREA.
- MORTAR SHALL BE TYPE "S" UNLESS NOTED OTHERWISE.
- CONCRETE FILL IN REINFORCED MASONRY SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 20 MPa.
- COLUMN BEARING GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 40 MPa.
- STRUCTURAL STEEL TO CONFORM TO CAN/CSA-G40.21, UNO.  
W SECTIONS: GRADE 350W  
L AND C SECTIONS: GRADE 300W  
HSS SECTIONS: GRADE 350 CLASS 'H'
- ALL PIPE SUPPORTS TO BE 304 STAINLESS STEEL, UNLESS NOTED OTHERWISE.

CAST-IN-PLACE CONCRETE

- THE CLEAR DISTANCE BETWEEN REINFORCING STEEL AND SURFACE OF CONCRETE SHALL BE AS FOLLOWS:  
FORMED CONCRETE NOT EXPOSED TO WATER OR WEATHER: 40mm  
FORMED CONCRETE EXPOSED TO WATER, WEATHER OR EARTH: 50mm  
CONCRETE PLACED AGAINST EARTH: 75mm
- UNLESS INDICATED OTHERWISE, ALL DOWELS SHALL HAVE THE SAME SIZE AND SPACING AS THE REINFORCING STEEL TO WHICH THEY ARE SPLICED, AND SHALL HAVE A MINIMUM LAP L1.
- PROTECT ALL AREAS WHERE CONCRETE IS TO BE PLACED WITH A MINIMUM OF 50 mm THICK "MUD" SLAB WHICH WILL FUNCTION AS A WORKING MAT ONLY AND WILL NOT BE CONSIDERED TO PROVIDE A

CONTRIBUTION TO THE OVERALL SLAB THICKNESS.

- PROVIDE REINFORCING DOWELS PROJECTING FROM CAST-IN-PLACE CONCRETE INTO BLOCK WALLS TO MATCH VERTICAL REINFORCING IN BLOCK WALLS.

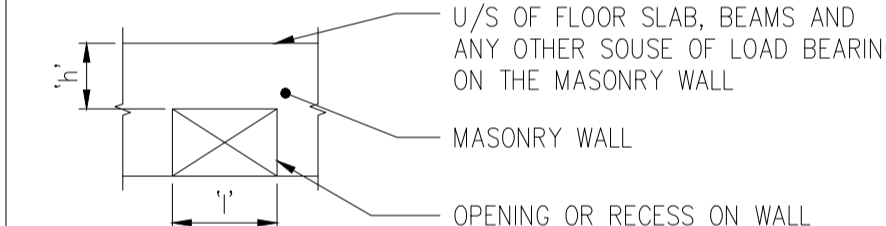
MASONRY

- PROVIDE AND INSTALL LINTELS OVER ALL OPENINGS OR RECESSES IN MASONRY WALLS INCLUDING THOSE FOR MECHANICAL OR ELECTRICAL SERVICES OR EQUIPMENT, IN ACCORDANCE WITH THE REQUIREMENTS OF THE LINTEL SCHEDULE.
- PROVIDE A MINIMUM LENGTH OF 200 mm OF 100% SOLID MASONRY UNITS FOR BEARING OF STEEL, CONCRETE OR REINFORCED MASONRY LINTELS. FILL LINTELS WITH 20 mPa CONCRETE GROUT CONTAINING 10 mm AGGREGATE.
- THE CONCRETE CONTRACTOR MUST PROVIDE REINFORCING DOWELS PROJECTING FROM CAST-IN-PLACE CONCRETE INTO BLOCK WALLS TO MATCH VERTICAL REINFORCING IN BLOCK WALLS. LAPS IN REINFORCING:

WIRE REINFORCING	150
10M	600
15M	750
20M	950
25M	1100
30M	1600
35M	MECHANICAL SPLICE
- FILL CELLS CONTAINING VERTICAL REINFORCING WITH 20 MPa CONCRETE GROUT CONTAINING 10 mm AGGREGATE AND UP TO 250 mm SLUMP, VIBRATE OR PUDDLE TO FILL CELLS COMPLETELY. USING JOINT MORTAR FOR FILLING THE CELLS IS NOT ACCEPTABLE AND WILL REQUIRE RECONSTRUCTION OF WALL.
- PROVIDE CONTINUOUS LADDER TYPE JOINT REINFORCING AT 400 mm c/c AND USE "CORNER-LOK" AT ALL WALL INTERSECTIONS. REINFORCING TO BE GALVANIZED TO ASTM A153 CLASS B2(458g/m<sup>2</sup>).  
FOR CAVITY WALL AND SINGLE WYTHE: 3.65 mm Ø WIRES(9 GAUGE)  
FOR COMPOSITE WYTHE: 4.76 mm Ø WIRES
- THE BRICK VENEER MUST BE FASTENED TO THE BACK UP USING 'BLOCK SHEAR TIES' BY FERO CORPORATION ([WWW.FEROCORP.COM](http://WWW.FEROCORP.COM)). REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

BLOCK LINTEL SCHEDULE		
WALL THK	UP TO 1200mm	1200mm TO 2030mm
90 mm	1-10M T&B	1-15M T&B
140 mm	1-10M T&B	1-15M T&B
190 mm	2-15M T&B	2-15M T&B
240 mm	2-15M T&B	2-15M T&B

1. MINIMUM BEARING FOR BLOCK LINTEL SHALL BE 200 mm UNO.  
2. FILL VOIDS OR LINTEL BLOCK WITH 20 MPa (300 psi) CONCRETE GROUT. MORTAR IS NOT ACCEPTABLE.  
3. WHEN 'h' IS SMALLER THAN 'l' ABOVE LINTEL SCHEDULE DOES NOT APPLY. (REFER TO PLAN VIEW OR THE LINTEL SCHEDULE).

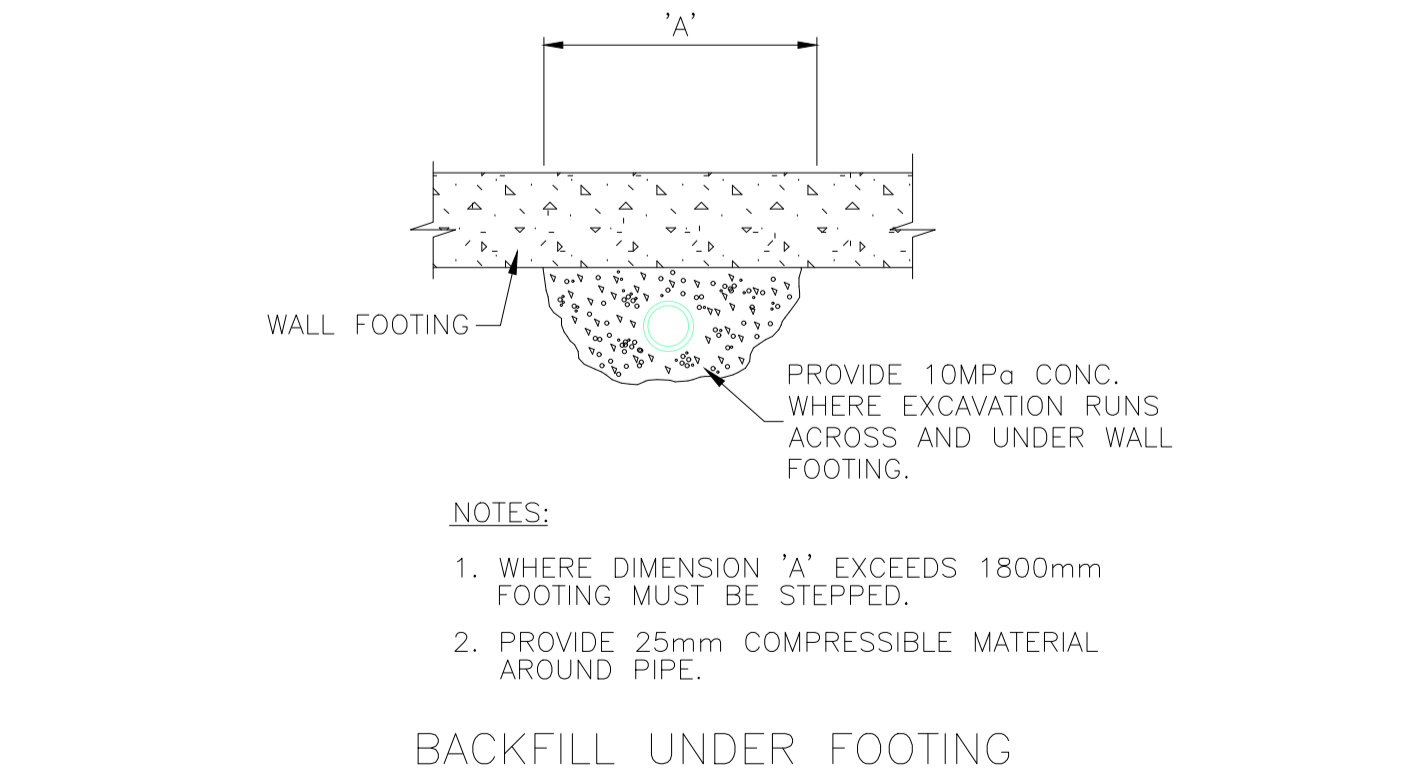
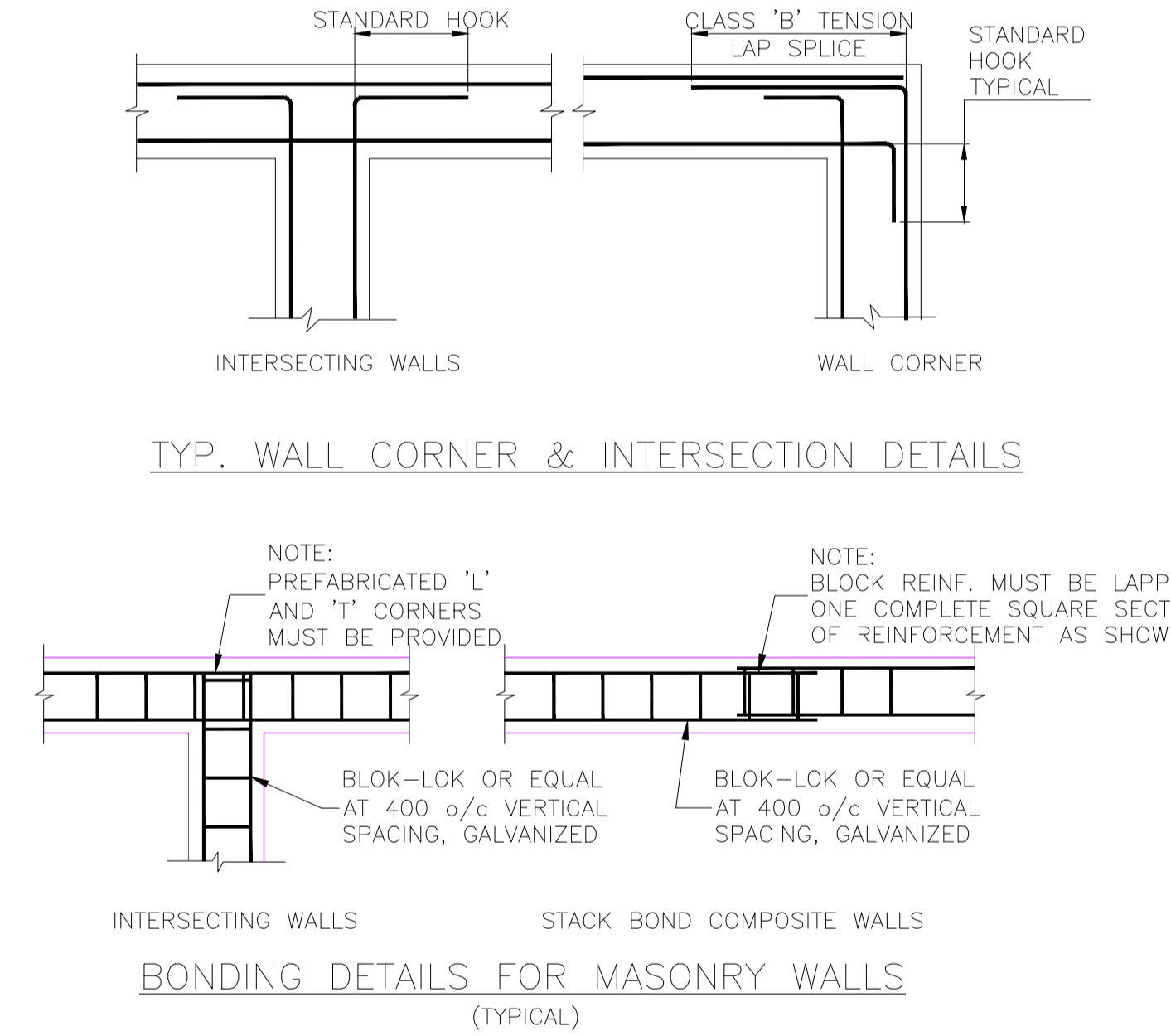
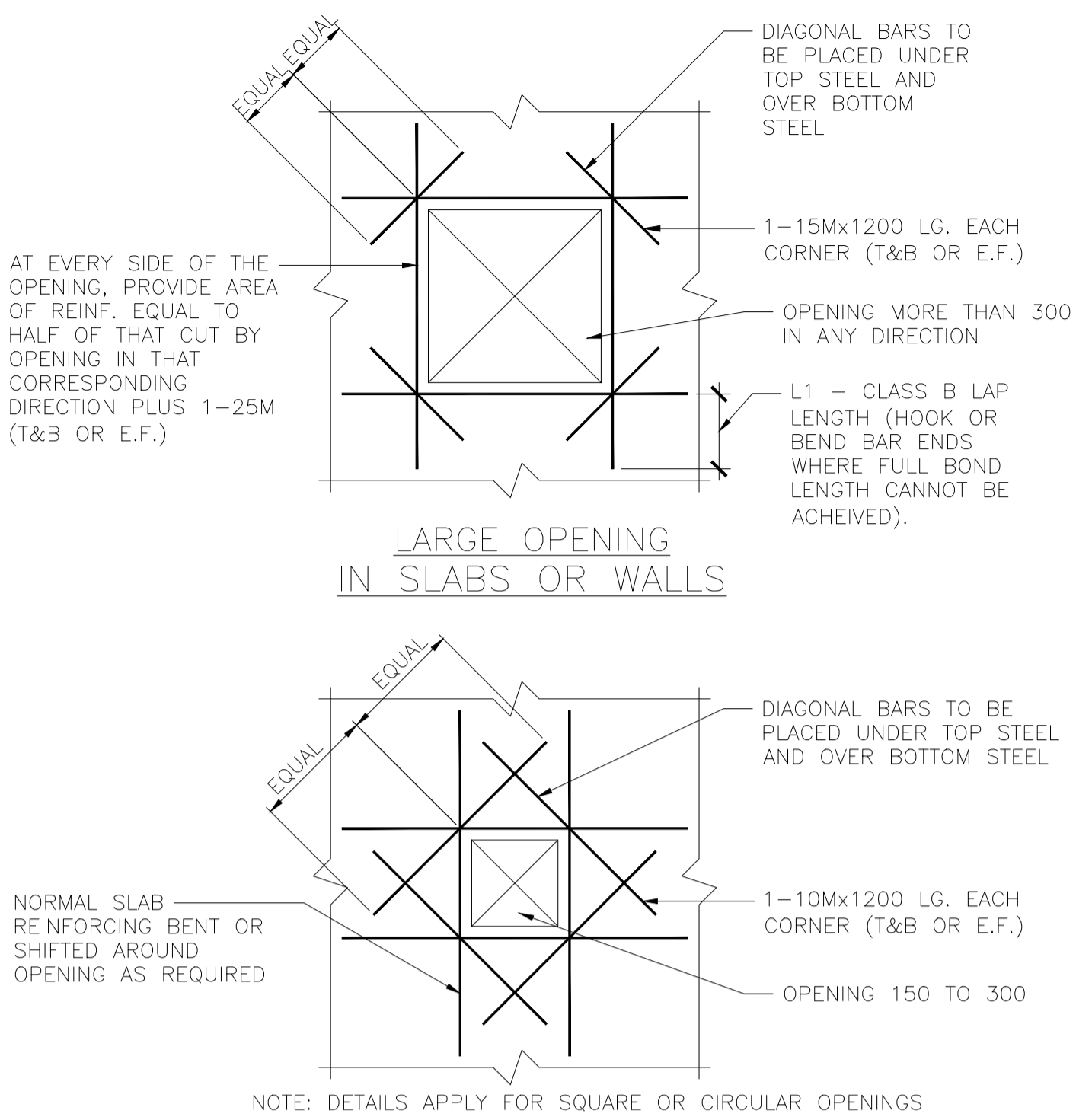


STEEL LINTEL SCHEDULE			
CLEAR SPAN	UP TO 1200mm	1200mm TO 1800mm	1800mm TO 2100mm
90 WALL	1L-90x90x8	1L-127x90x8	1L-150x90x8
140 WALL	1L-127x127x8	1L-180x127x8	1L-180x127x8
190 WALL	2L's-90x90x8	2L's-127x90x8	2L's-150x90x8
240 WALL	2L's-100x100x8	2L's-150x100x8	2L's-150x100x8
290 WALL	3L's-90x90x9	3L's-127x90x8	3L's-150x90x8

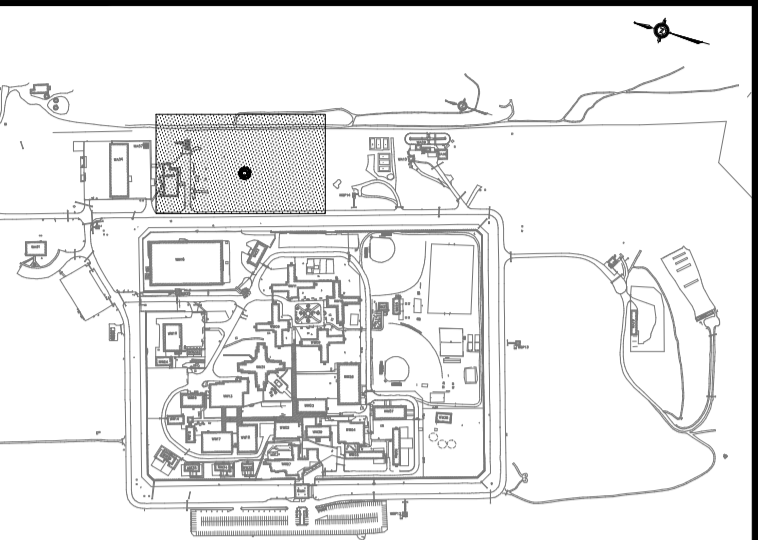
UP TO 3200mm W200x27 + PL. 6mm THK IN CENTER OF WALL

1. PAIRS OF LINTEL ANGLES TO BE STITCH WELDED (T&B) @ 600mm c/c  
2. MINIMUM BEARING FOR STEEL ANGLES SHALL BE 150mm, UNO.  
3. FOR LINTELS ABUTTING STEEL COLUMNS, CONCRETE WALLS OR OTHER COLUMNS PROVIDE L-90x90x10 FASTENED TO ABUTMENT.  
4. ALL ANGLES SHALL BE LLV, UNO.  
5. ALL LOOSE ANGLES SHALL BE HOT DIPPED, GALVANIZED, UNO.

TABLE OF CLASS 'B' TENSION LAPS AND STANDARD 90° HOOKS F <sub>y</sub> = 400MPa, F <sub>c</sub> = 30MPa			
BAR SIZE	STANDARD TENSION LAP SPICE	TENSION LAP SPICE FOR TOP BARS	STANDARD 90° HOOK
	L1	L2	L3
10M	400mm	500mm	180mm
15M	600mm	700mm	260mm
20M	700mm	900mm	310mm
25M	1100mm	1400mm	400mm
30M	1300mm	1700mm	510mm
35M	1500mm	2000mm	610mm



BACKFILL UNDER FOOTING



revision	description	date
0	ISSUED FOR BID	2017/10/11

Do not scale drawings.  
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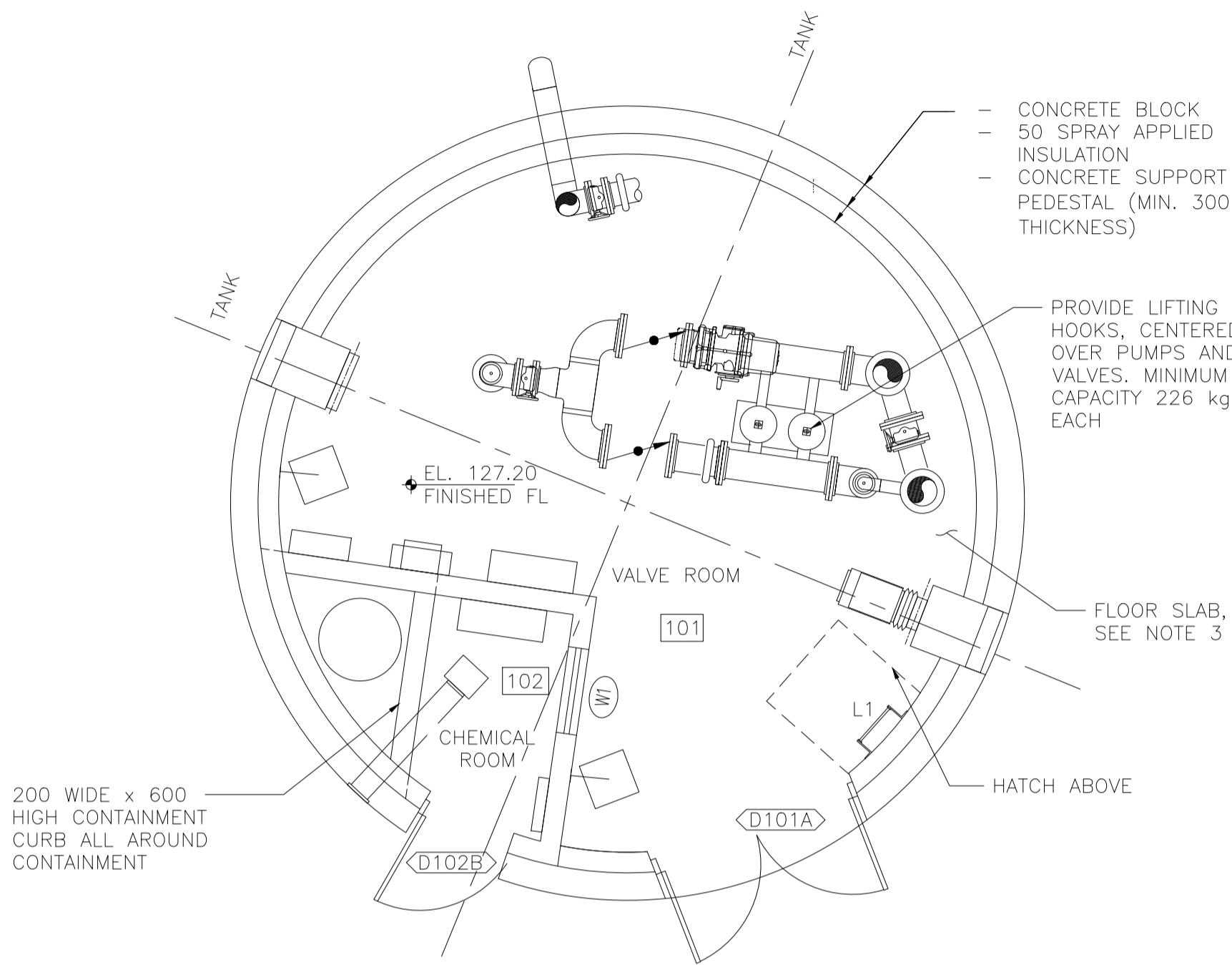
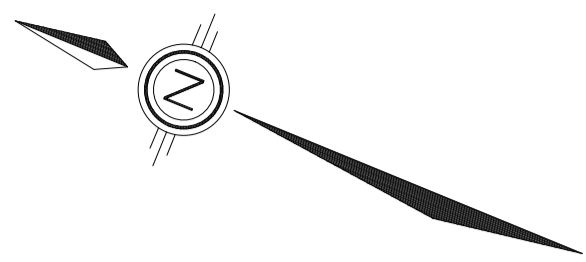
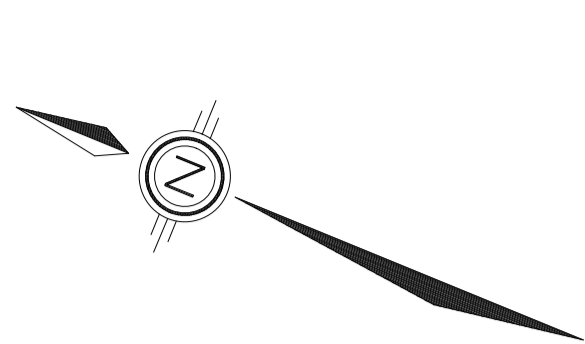
A	Detail No.
B	No. du détail
C	drawing no. - where detail required dessin no. - où détail exigé
C	drawing no. - where detailed dessin no. - où détaillé

project title  
titre du projet  
WARKWORTH Ontario  
CORRECTIONAL SERVICE CANADA  
WARKWORTH INSTITUTION  
COUNTY ROAD # 29 CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

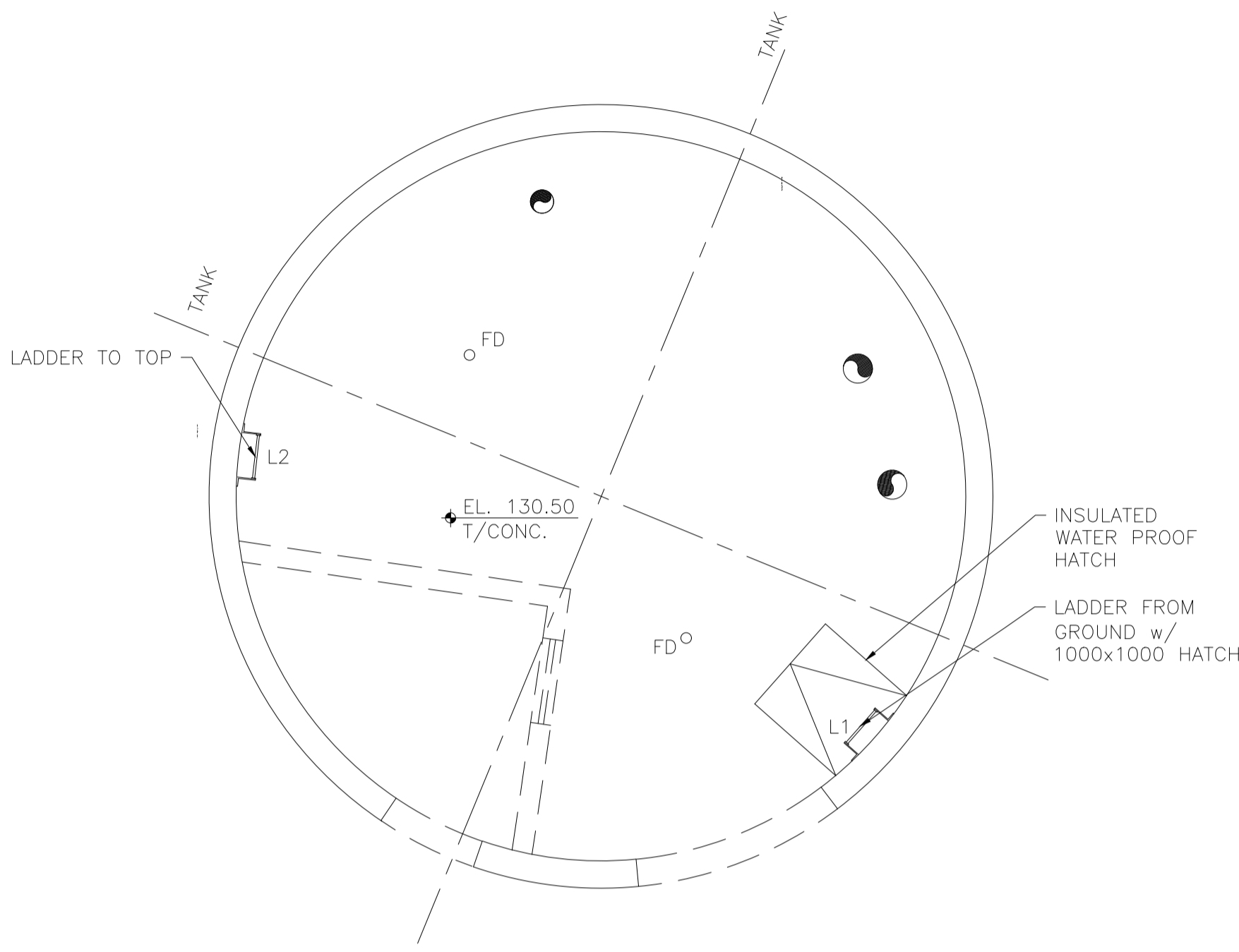
drawing title  
titre du dessin

GENERAL NOTES AND DETAILS

drawn by dessine par	EZ
designed by conc par	ARP
approved by approuve par	ET
tender soumission	---
project manager administrateur de projets	
project date date du projet	2017/05/16
project no. no. du projet	R.068488.001
drawing no. dessine no.	S01



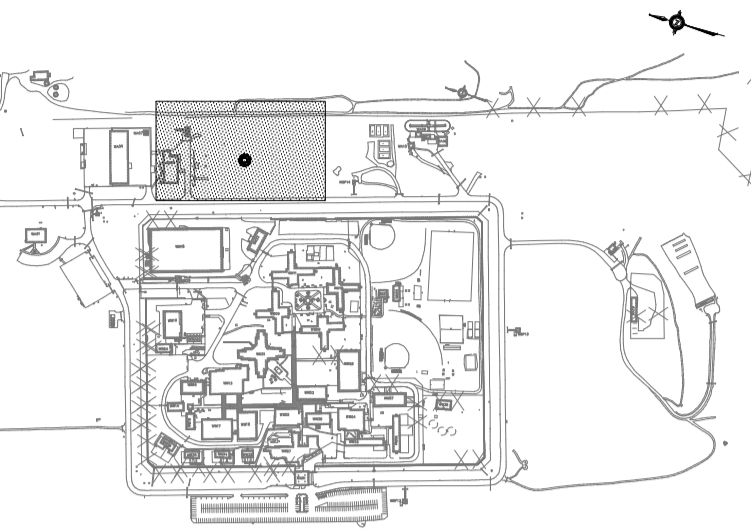
FLOOR PLAN  
SCALE: 1:50  
NOTE:  
FOR LOCATION OF FLOOR DRAINS,  
SEE M03. SLOPE FLOOR TO DRAINS.



MEZZANINE PLAN  
SCALE: 1:50

- NOTES:
- LOCATIONS OF RISER PIPES ABOVE VALVE CHAMBER CEILING ARE CONCEPTUAL ONLY. EXACT POSITION IS DEPENDENT UPON TANK FLOOR/TANK SLAB DESIGN.
  - PROVIDE 226kg CAPACITY (UNFACTORED LOADING) LIFTING HOOKS AND ANCHORS IN THE VALVE CHAMBER CEILING, ABOVE THE BUTTERFLY VALVES, CHECK VALVES AND OTHER HEAVY FITTINGS/ EQUIPMENT.
  - FLOOR SLAB:  
PROVIDE A STRUCTURAL FLOOR SLAB SUPPORTED ON FOUNDATION WALLS AND/OR INDEPENDANT FOOTINGS. THE FOUNDATION WALLS SHALL BE SUPPORTED ON THE TOWER FOUNDATION ON ROCK.
  - MEZZANINE CONSTRUCTION SHALL INCLUDE:
    - GALVANIZED STEEL DECKING EQUAL TO ASTM A653, GRADE 230;
    - MIN. 250 REINFORCED CONCRETE SLAB;
    - A LAYER OF 75mm RIGID INSULATION AND VAPOUR BARRIER;
    - A LAYER OF TOPPING, SLOPED TO DRAIN, WITH A MINIMUM THICKNESS OF 65mm;
    - UPPER SLAB SHALL BE SLOPED TO PROVIDE POSITIVE DRAINAGE.
  - GROUND FLOOR DESIGN LOADS:  
D.L. – WEIGHT OF SLAB  
– WEIGHT OF PIPING, EQUIPMENT & THRUST BLOCKS  
– S.I.D.L. 1.0 kPa (MISC. & PARTITIONS)  
L.L. – MOMENT FROM THRUST BLOCKS  
– 4.8 kPa  
– WEIGHT OF STORED CHEMICALS
  - MEZZANINE FLOOR DESIGN LOADS:  
D.L. – WEIGHT OF SLAB  
– MISCELLANEOUS MATERIALS  
– WEIGHT OF PIPING  
L.L. – 2.4 kPa  
– LIFTING HOOKS OFR EQUIPMENT BELOW
  - CONTRACTOR TO CO-ORDINATE SIZE OF LOUVER AND DAMPER OPENINGS WITH DRAWING V01.

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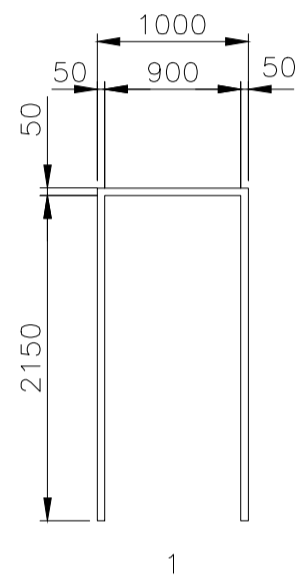
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**WARKWORTH** Ontario  
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COUNTY ROAD # 29 CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**FLOOR PLAN AND  
MEZZANINE PLAN**

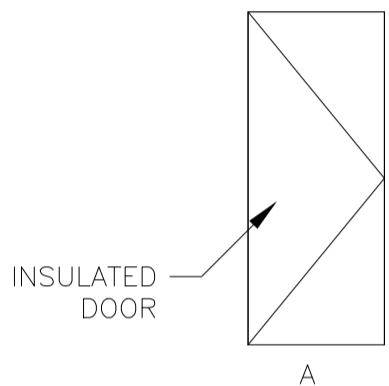
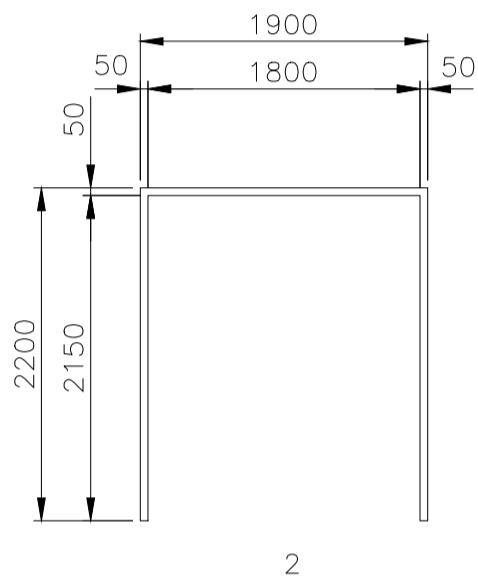
drawn by dessine par	EZ
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approved by approuve par	ET
tender soumission	---
project manager administrateur de projets	
project date date du projet	2017/05/16
project no. no. du projet	R.068488.001
drawing no. dessine no.	S02

ROOM SCHEDULE															
LOCATION		FLOOR		WALLS								CEILING MATERIAL	CEILING FINISH	HEIGHT	COMMENTS
NO.	ROOM NAME	FLOOR MAT.	BASE MAT.	NORTH WALL		SOUTH WALL		EAST WALL		WEST WALL					
101	VALVE ROOM	CONC/EPXY	—	CMU	P	CMU	P	CMU	P	CMU	P	CONC	P	3658	
102	CHEMICAL ROOM	CONC/EPXY	—	CMU	P	CMU	P	CMU	P	CMU	P	CONC	P	3658	CHEMICAL RESISTANT COATING UP TO 600 ABOVE FF

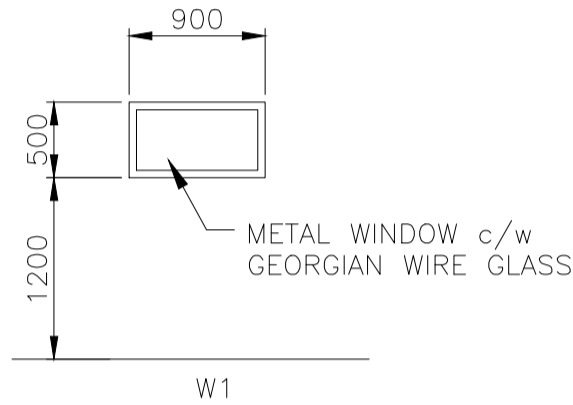
DOOR SCHEDULE W/ HARDWARE																												
TO ROOM: NUMBER	MARK	SWING	DOOR				FRAME						HARDWARE												DETAILS			
			DOOR LEAF SIZE				TYPE	MAT.	FIN	TYPE	MAT.	FIN.	FIRE	RAT.	INSULATED	HINGES	OPERATOR	STOP	THRESHOLD	ASTRAGAL	FLUSH BOLTS	TRIM	SIGN	WEATHER STRIPPING	CLOSER	HEAD	JAMB	THRESHOLD
			W	H	T	Qty.																						
101	D101A	DOUBLE REV RIGHT ACTIVE	900	2150	45	2	A	HM	P	2	HM	P	—	Yes	H1	N/A E01	DS3	TH1	AS	FB1 N/A	DT1	N/A	WS1/2	CL1	—	—	—	
102	D102B	LEFT REV	900	2150	45	1	A	FG	P	1	FG	P	—	Yes	H1	E01	DS3	TH1	N/A	N/A	DT1	N/A	WS1/2	CL1	—	—	—	



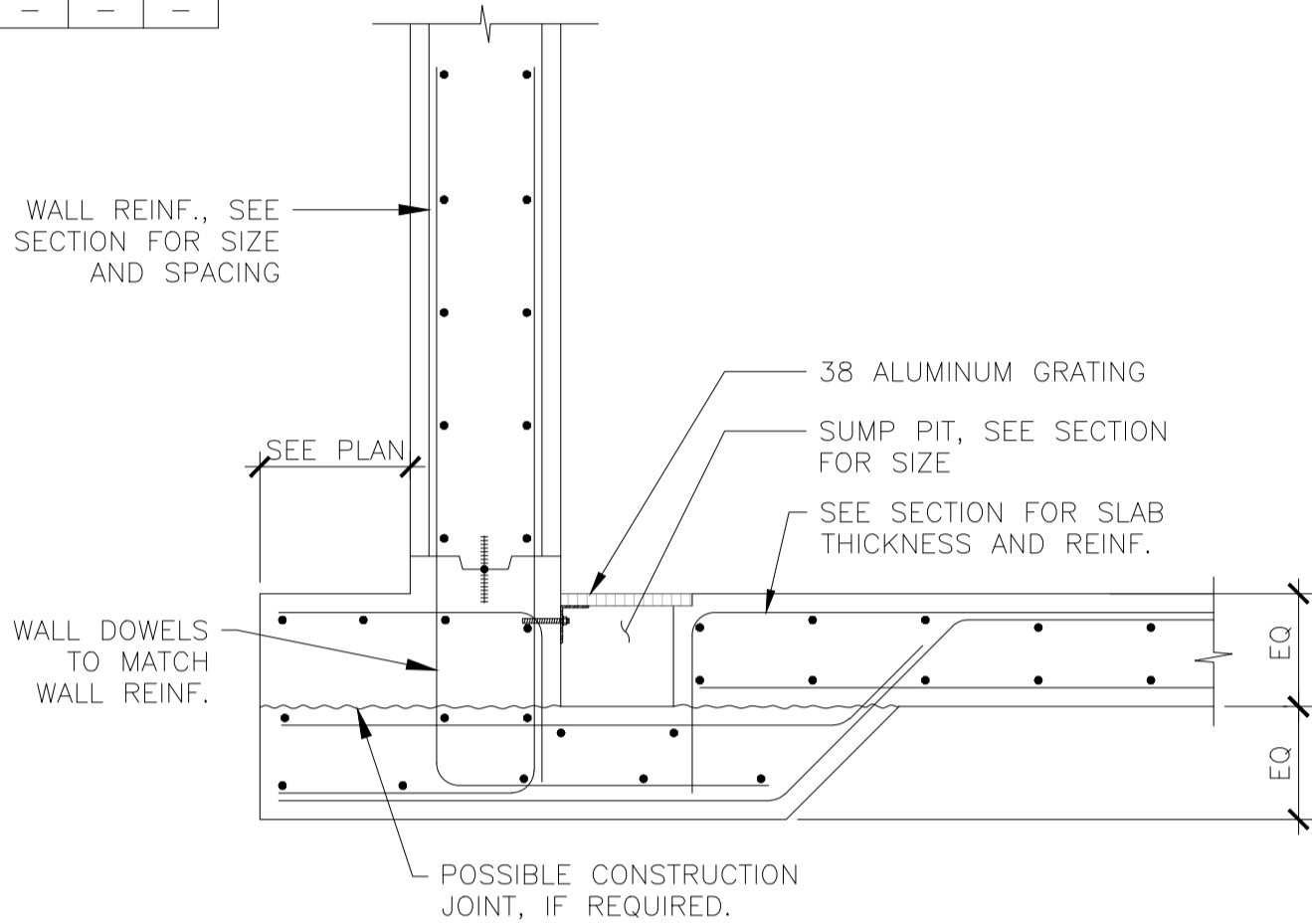
DOOR FRAME LEGEND



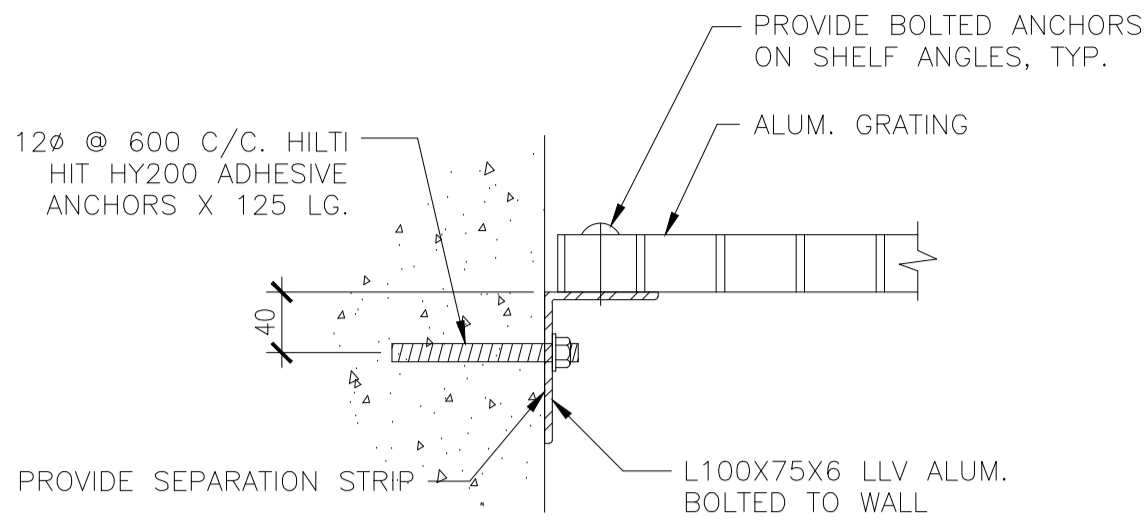
DOOR LEAF LEGEND



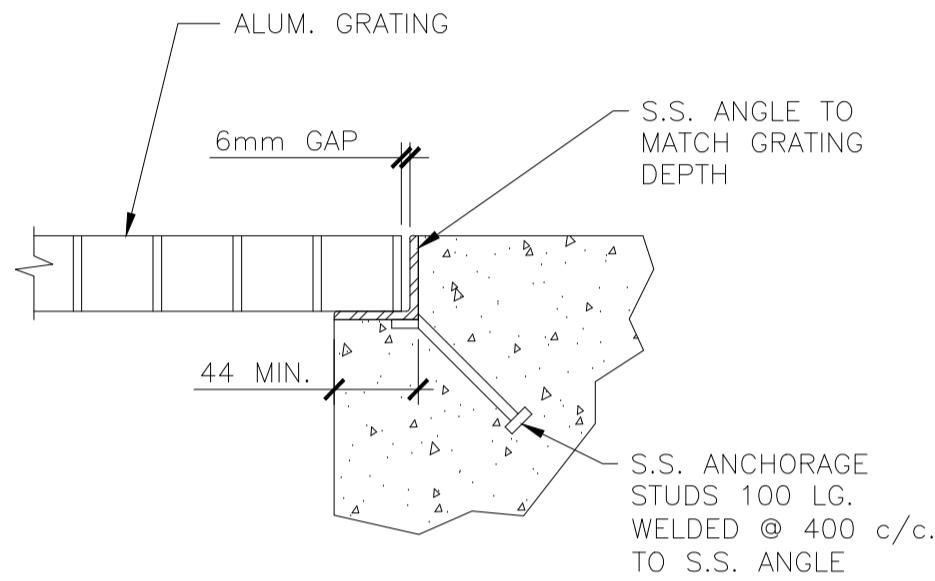
WINDOW LEGEND



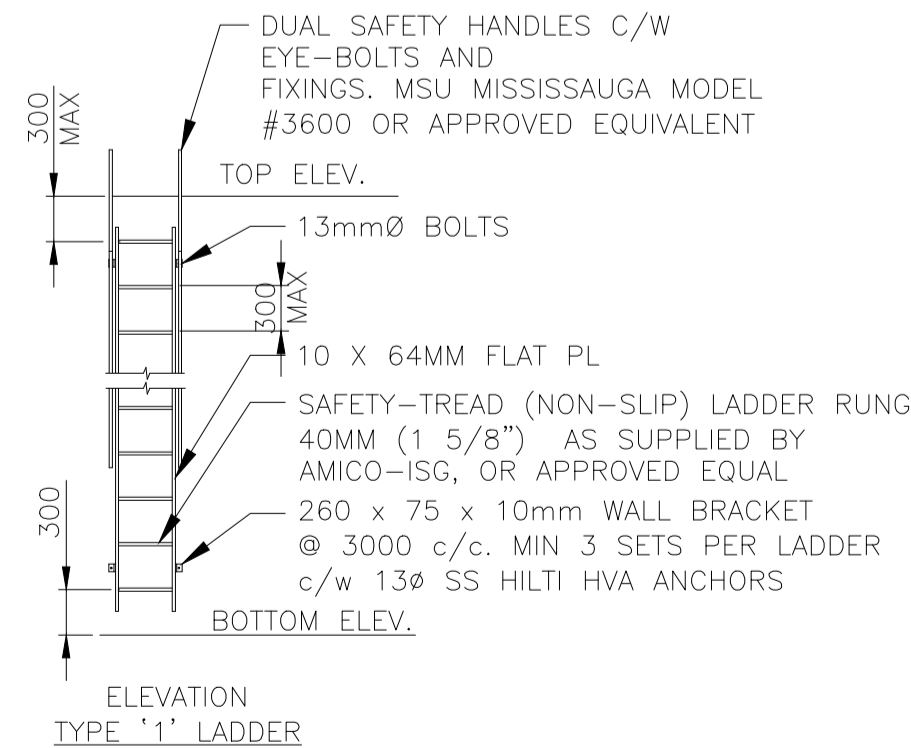
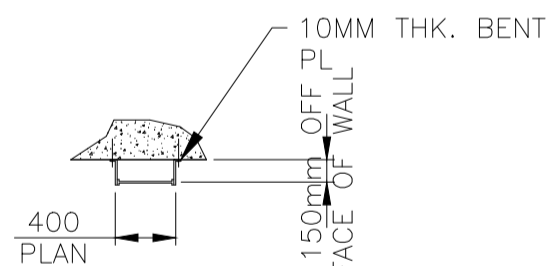
SHALLOW SUMP AT WALL



GRATING SUPPORT ANGLE



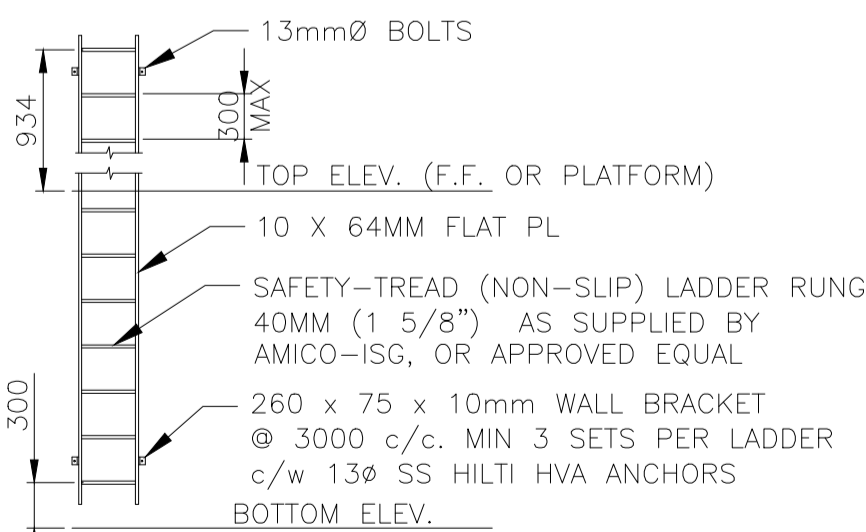
GRATING TYP. BEARING ON CONCRETE DETAIL



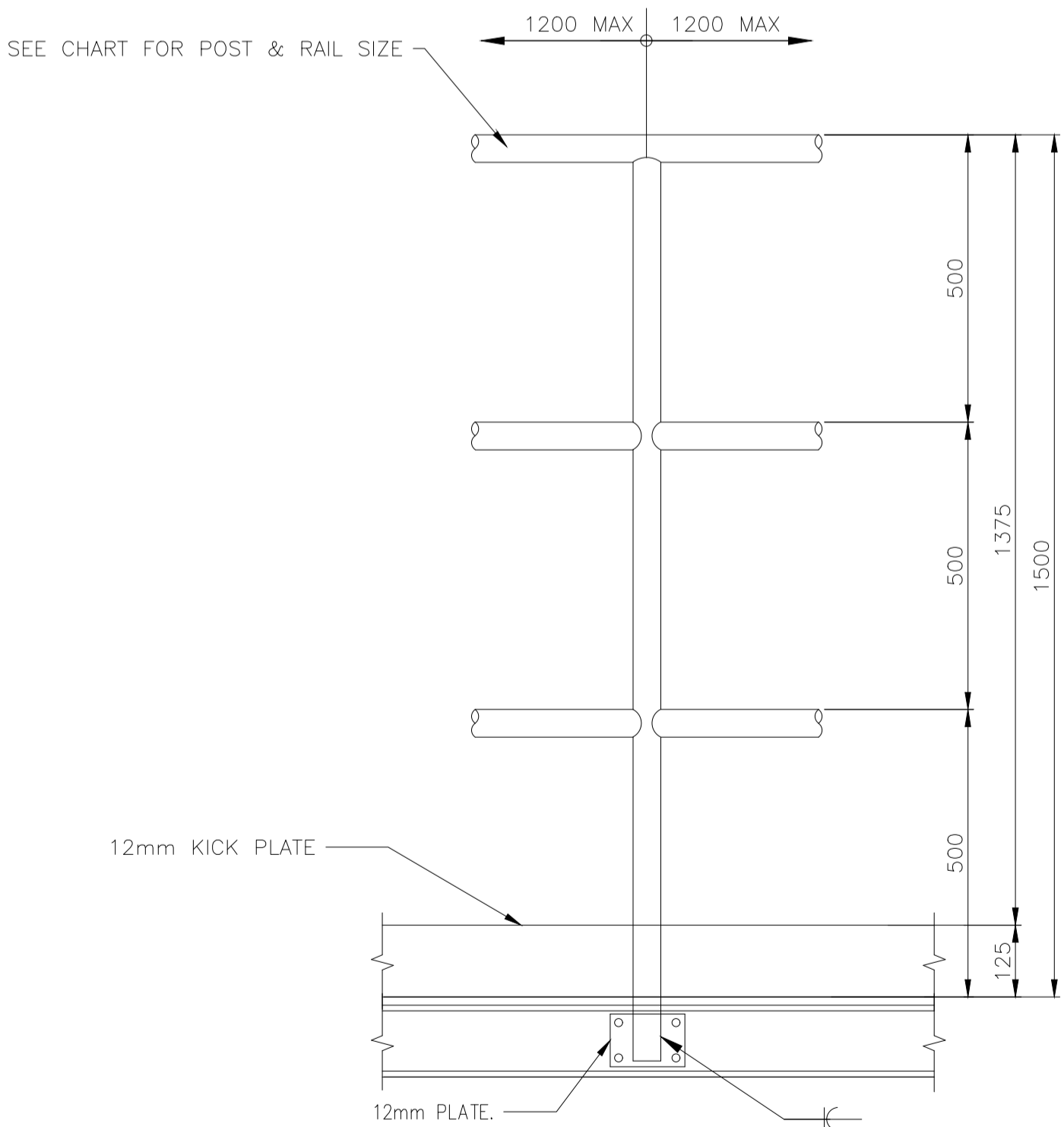
ELEVATION TYPE '1' LADDER

NOTE:  
IF NEW LADDERS ARE TO BE IN FRP, THEN THE EXACT EQUIVALENT OF THE MEMBERS SPECIFIED ON THE CONTRACT DRAWINGS ARE TO BE SUPPLIED & INSTALLED BY THE CONTRACTOR. PRIOR TO FABRICATION THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR REVIEW, STAMPED & SEALED BY AN ONTARIO QUALIFIED ENGINEER.

LADDER DETAILS AND SCHEDULE  
SCALE: NTS

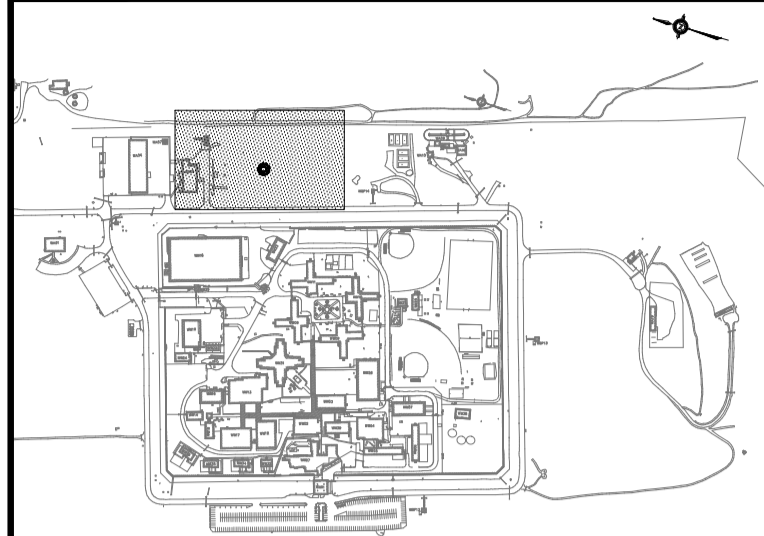


ELEVATION TYPE '2' LADDER



MATERIAL	APPLICATION	POST	RAIL
AL. GRADE 6061-T6 AND S.S. GRADE 316	Handrail (on stairs)	420 SCH 80	420 SCH 40
	Guard (on platform)	480 SCH 40	480 SCH 40
	Guard (platforms > 10m)	480 SCH 80	480 SCH 80
GALV STEEL GRADE	Handrail (on stairs)	420 SCH 40	420 SCH 40
	Guard (on platform)	480 SCH 40	480 SCH 40
	Guard (platform > 10m)	480 SCH 80	480 SCH 80

HANDRAIL ON ALUMINUM CURB DETAIL  
SCALE: NTS



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WORKWORTH Ontario  
CORRECTIONAL SERVICE CANADA  
WORKWORTH INSTITUTION  
COUNTY ROAD # 29 CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

STANDARD DETAILS

drawn by  
dessiné par

EZ

designed by  
conc par

ARP

approved by  
approuvé par

ET

tender  
soumission

project manager  
administrateur  
de projets

project date  
date du projet

2017/05/16

project no.  
no. du projet

R.068488.001

drawing no.  
dessiné no.

S03

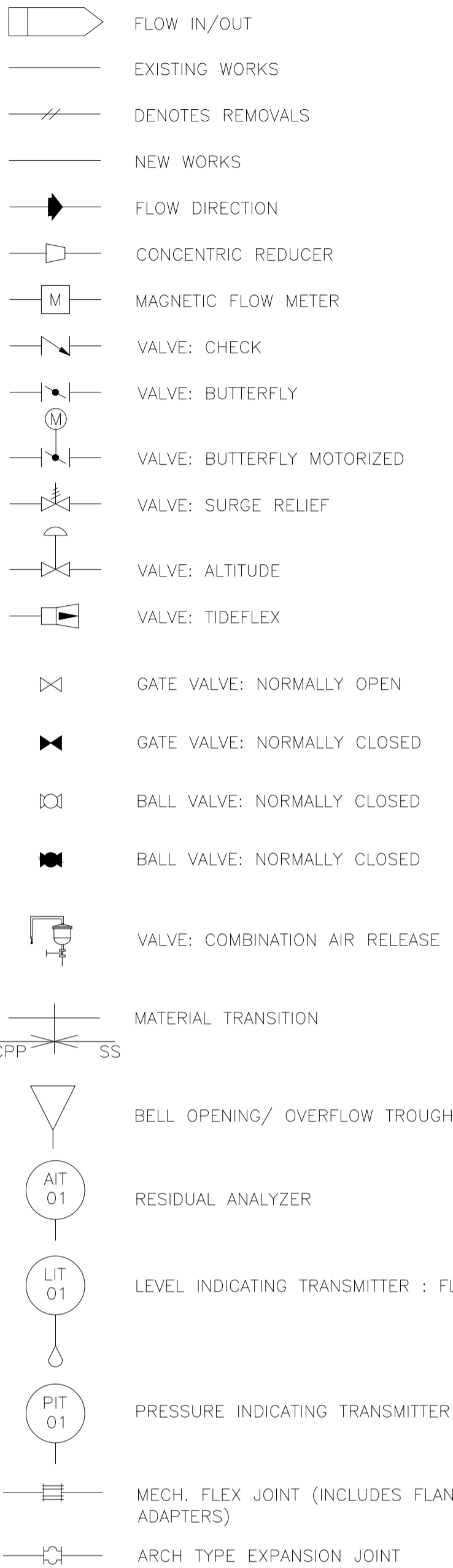
PROCESS NOTES

- ALL INTERIOR ABOVE-GRADE PIPING AND FITTINGS SHALL BE STAINLESS STEEL (S.S.) TYPE 316L SCHEDULE 10S WITH POLISHED FINISH UNLESS OTHERWISE APPROVED BY THE ENGINEER. S.S. FITTINGS SHALL BE PROVIDED AS SHOWN (WELDED OR FLANGED), UNLESS OTHERWISE SHOWN OR APPROVED BY THE ENGINEER AND REGION. FLANGES MUST BE PROVIDED AT ALL VALVES OR INSTRUMENTS. ALL SS BENDS TO BE SMOOTH.
- ALL PIPING, FLANGES, FITTINGS AND ACCESSORIES INSIDE THE STEEL TANK SHALL BE FUSION BONDED, NSF 61 CERTIFIED EPOXY-COATED (INTERNALLY AND EXTERNALLY) STEEL IN ACCORDANCE WITH AWWA C213, WITH NO EXCEPTIONS. PROVIDE NSF 61 CERTIFIED NEOPRENE GASKETS.
- ALL MATERIALS IN CONTACT WITH POTABLE WATER SHALL BE CERTIFIED FOR USE UNDER NSF 61.
- ALL PROCESS PIPING, VALVES, FITTINGS, ETC. SHALL BE RATED FOR A MINIMUM COLD WATER WORKING INTERNAL PRESSURE OF 1034 KPA (150 PSI).
- LOCATION OF INLET AND OUTLET RISER PIPES AND OVERFLOW PIPE ABOVE VALVE ROOM CEILING IS CONCEPTUAL ONLY, EXACT POSITION IS DEPENDENT ON SUPPORT STRUCTURE DESIGN BY THE CONTRACTOR AND IS SUBJECT TO REVIEW AND APPROVAL BY ENGINEER.
- ALL EXTENSION STEMS, SUPPORT BRACKETS AND PIPE HANGERS IN THE VALVE ROOMS SHALL BE GALVANIZED STEEL, UNLESS NOTED OTHERWISE. ALL DISSIMILAR METALS TO BE SEPARATED BY A NEOPRENE GASKET OR ISOLATION KITS AS NECESSARY.
- ALL NUTS AND BOLTS ON STAINLESS STEEL PIPING, VALVES AND FITTINGS TO BE 316L STAINLESS STEEL. ALL NUTS AND BOLTS ON D.I. PIPING, VALVES AND FITTINGS TO BE 316L STAINLESS STEEL OR CADMIUM COATED.
- WHERE D.I. OR C.S. PIPING OR VALVES ARE CONNECTED TO STAINLESS STEEL PIPING, USE STAINLESS STEEL NUTS AND BOLTS WITH INSULATOR SLEEVES AND WASHERS TO PREVENT CONTACT BETWEEN DISSIMILAR METALS.
- CONTRACTOR TO PROVIDE 316L STAINLESS STEEL SCHEDULE 10S SPOOL PIECES, SAME LENGTH, FLANGE-TO-FLANGE, AS THE FLOW METERS.
- ALL INTERIOR ABOVE-GRADE PIPING SHALL BE MECHANICALLY RESTRAINED TO RESIST THRUST AND VIBRATION. INSTALL PIPE SUPPORT BRACES AT MAX. 2000MM O/C AND THRUST BRACKETS OR CONCRETE THRUST BLOCKS AT ALL CHANGES OF DIRECTION.
- ALL VALVES TO BE TAGGED, NUMBERED AND LABELLED NORMALLY OPEN (N/O) OR NORMALLY CLOSED (N/C). REFER TO THE VALVE SCHEDULE.
- ALL PROCESS PIPE WALL THIMBLES TO BE CAST IN WALLS COMPLETE WITH THRUST FLANGES. BLOCKOUTS ARE NOT PERMITTED. COORDINATE WITH STRUCTURAL DRAWINGS.
- PRESSURE TRANSMITTERS, SAMPLE POINTS AND PRESSURE GAUGES ARE TO BE INSTALLED ON PIPING C/W S.S. ISOLATION BALL VALVES AND 12MM S.S. BLOCK AND BLEED VALVES. PIPE TAPS SHALL BE OFF THE SIDE OF THE PROCESS PIPING AS DETAILED.
- THE PRESSURE GAUGES ASSOCIATED WITH THE PRESSURE TRANSMITTERS ARE TO BE MOUNTED AT THE SAME ELEVATION.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT PIPING SHOP DRAWING AND SHOW LOCATION OF ALL FLANGES, FITTINGS, COUPLINGS, NIPPLES AND SAMPLE PORTS.
- THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS TO THE ENGINEER FOR REVIEW TO CONFIRM THAT AN EXPANSION JOINT IS NOT REQUIRED ON THE OVERFLOW RISER PIPING. THE CALCULATIONS SHALL SHOW AND CONFIRM THAT THE OVERFLOW PIPING HAS SUFFICIENT STRENGTH TO BE AXIALLY DEFORMED WITHOUT OVER-STRESSING THE RISER, TANK, SUPPORT STRUCTURE OR FOUNDATION AT A FLOW OF 120 MLD.
- THE OVERFLOW PIPE SHALL BE SUPPORTED AND SECURED TO THE CONCRETE PEDESTAL WALL AND TANK FLOOR (NON-LOAD BEARING).
- ALL GRATING REQUIRED FOR MECHANICAL PURPOSES SHALL BE ALUMINUM OR GALVANIZED AS NOTED AND SHALL BE FASTENED DOWN UNLESS OTHERWISE NOTED. WHERE GRATING IS PROVIDED OVER ACCESS TO SUMPS, MANHOLES ETC. LIGHT SECTIONS SHALL BE PROVIDED.
- LOCATION OF ALL HOLES THROUGH CONCRETE AND LOCATION OF CONDUITS IN FLOOR TO BE CONFIRMED BY THE CONTRACTOR AND COORDINATED WITH ALL TRADES. ALL HOLES THROUGH FLOOR AND WALLS TO BE COMPLETELY WATERTIGHT AND FIRE-PROOF.
- THE CONTRACTOR SHALL VIEW ALL CONTRACT DRAWINGS AND SPECIFICATIONS AS ONE CONTRACT AND SHALL FULLY COORDINATE THE WORK WITH ALL THE TRADES.
- ORIENTATION OF HAND WHEELS AND ACTUATORS SHALL BE DETERMINED IN THE FIELD AND SHALL BE ORIENTED TO ALLOW FOR EASY ACCESSIBILITY, OPERATION AND MAINTENANCE. ADJUST TO SUIT FIELD CONDITIONS AT NO ADDITIONAL COST. PROVIDE CHAINS FOR HANDWHEELS GREATER THAN 1800mm ABOVE FINISHED FLOOR.
- THE ENGINEER TO APPROVE THE ROUTES TO BE USED FOR WATER, SERVICE, AIR AND OTHER PIPING INSTALLATIONS (SHOWN SCHEMATICALLY ON THE DRAWING) PRIOR TO THE CONTRACTOR BEGINNING INSTALLATION. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW. ADJUST TO SUIT FIELD CONDITIONS AT NO ADDITIONAL COSTS.
- SUPPLY AND INSTALL 50mm SCH 40 PVC WASHDOWN LINE BESIDE LADDER FROM ATRIUM TO UPPER PLATFORM, INCLUDING SS NPT BALL VALVES AND CAM-LOCK COUPLINGS TO SUIT.
- FOR VALVING REQUIREMENTS FOR ANALYZERS REFER TO THE INSTRUMENTATION DRAWINGS AND SPECIFICATIONS. SAMPLE LINES AND LINES TO CHLORINE ANALYZERS TO BE 316L STAINLESS STEEL TUBING AND FASTENED TO THE WALL WITH INSULATED CLAMPS.
- CONTRACTOR TO COMPLY WITH AWWA STANDARD C652 METHOD 2 DISINFECTION OF WATER STORAGE FACILITIES, AND C651 FOR ALL PIPING.
- PROVIDE DETAILS FOR CONCRETE HOUSEKEEPING PADS AND CONCRETE PIPE SUPPORTS/THRUST BLOCKS.
- ALL DRAINS ON AIR RELEASE TYPE VALVES, ANALYZER ELEMENTS AND HVAC EQUIPMENT TO BE PIPED TO THE NEAREST FLOOR DRAIN. SEE PROCESS DRAWINGS FOR FLOOR DRAIN LOCATIONS AND DETAILS.
- SEE STRUCTURAL DRAWINGS FOR STAIRS, LADDERS, PIPE SUPPORTS, VENT OPENINGS AND OTHER MISCELLANEOUS DETAILS.
- ALL BURIED PIPE WITHIN LIMITS OF FOOTINGS TO BE CONCRETE PRESSURE PIPE OR DUCTILE IRON WITH RESTRAINED JOINTS.
- ALL ELEVATIONS IN METERS AND ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED. ALL LOCATIONS AND DIMENSIONS TO BE FIELD CHECKED AND MEASURED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION.
- PROPER SIGNAGE IS TO BE PROVIDED FOR ROOM IDENTIFICATION EXIT SIGNS.
- THE INLET AND OUTLET RISER PIPES SHALL BE HEAT TRACED AND INSULATED WITH 75mm FIBRE INSULATION, COMPLETE WITH PVC JACKETING FROM THE SERVICE PLATFORM LEVEL TO UNDERSIDE OF THE CONCRETE DOME SLAB.
- DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

GENERAL PLUMBING AND DRAINAGE NOTES

- COORDINATE AND ADJUST AS REQUIRED, THE FINAL LOCATIONS OF ALL MECHANICAL EQUIPMENT, PLUMBING AND DRAINAGE FIXTURES, DUCTWORK AND ABOVEGROUND/UNDERGROUND PIPING WITH PROCESS, STRUCTURAL, ELECTRICAL AND ARCHITECTURAL WORKS.
- ALL PLUMBING AND DRAINAGE DETAILS HAVE NOT BEEN SHOWN FOR CLARITY. THE CONTRACTOR SHALL ENSURE THAT ALL REQUIRED WORK AND MATERIALS RELATED TO PLUMBING AND DRAINAGE SHALL BE SUPPLIED AND INSTALLED IN STRICT ACCORDANCE WITH PART 7 (PLUMBING) OF THE LATEST EDITION OF THE ONTARIO BUILDING CODE.
- THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHOP DRAWINGS OF THE PROPOSED DRAINAGE LAYOUT TO THE DEPARTMENTAL REPRESENTATIVE, A MINIMUM OF FOUR WEEKS PRIOR TO CONSTRUCTION.
- SANITARY DRAIN LINES SHALL BE SLOPED A MINIMUM OF 20mm VERTICAL PER ONE METRE OF HORIZONTAL PIPE.
- THE CONTRACTOR TO COORDINATE WITH ALL OTHER TRADES TO ENSURE THAT ALL DRAINAGE PIPES INSTALLED WITHIN OR BENEATH THE CONCRETE FLOOR DO NOT CONFLICT. THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE DRAIN PIPE LAYOUT TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
- PROVIDE EVERY FLOOR DRAIN WITH ITS OWN P-TRAP, PRIMER LINE AND VENT IN ACCORDANCE WITH THE REQUIREMENTS OF ONTARIO BUILDING CODE, PART 7. INSTALL PRIMER LINES TO THE LOCATION SHOW ON THE CONTRACT DRAWINGS, AND CAP. COMBINE INDIVIDUAL VENT RISERS INTO COMMON VENTS TO SUIT SITE CONDITIONS.
- SLOPE ALL FLOORS TO PROVIDE POSITIVE DRAINAGE TO FLOOR DRAINS.
- PROVIDE PIPE WRAP INSULATION FOR ALL DRAIN PIPES WITHIN UNHEATED ZONES.
- DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

VALVE & GENERAL PIPING SYMBOLS




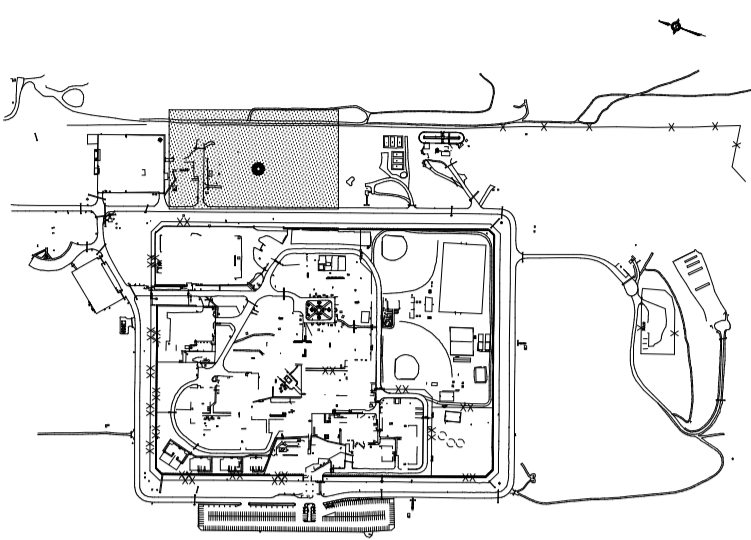
VALVE SCHEDULE – WARKWORTH POTABLE WATER SYSTEM


Valve No	Size (mm)	Type	Operator	Mode	Location	Comments
V001	250	Butterfly	Motorized	N/O	Inlet Line	
V002	100	Butterfly	Motorized	N/C	Recirculation Valve	
HV001	200	Butterfly	Manual	N/O	Facility Inlet Isolation Valve	
HV002	80	Butterfly	Manual	N/O	Pump 2 Inlet Isolation Valve	Supplied by Pump Skid Vendor
HV003	80	Butterfly	Manual	N/O	Pump 2 Outlet Isolation Valve	Supplied by Pump Skid Vendor
HV004	80	Butterfly	Manual	N/O	Pump 1 Inlet Isolation Valve	Supplied by Pump Skid Vendor
HV005	80	Butterfly	Manual	N/O	Pump 1 Outlet Isolation Valve	Supplied by Pump Skid Vendor
HV006	250	Butterfly	Manual	N/O	Tank Inlet Isolation Valve	
HV007	250	Butterfly	Manual	N/O	Facility Outlet Isolation Valve	
HV008	250	Butterfly	Manual	N/O	Tank Outlet Isolation Valve	
HV009	200	Butterfly	Manual	N/C	Tank Drain Valve	
HV010	250	Butterfly	Manual	N/C	Tank Bypass Valve	
HV011	250	Butterfly	Manual	N/O	Tank Bypass/Drain Isolation	
CV001	250	Check	-	-	Tank Inlet Isolation Valve	
CV002	250	Check	-	-	Pump Inlet Isolation Valve	
CV003	80	Check	-	-	Pump 2 Outlet Isolation Valve	
CV004	80	Check	-	-	Pump 1 Outlet Isolation Valve	
CV004	200	Tideflex	-	N/C	Overflow	
AR001		Air Release			Inlet Line	Inlet SS Isolation Ball Valve Sized to Match Air Release Valve

PROCESS INSTRUMENTATION SCHEDULE

Instrument	Physical Tag no.	Size (mm)	Type	I/O Type	Location	Notes
Pressure Switch (Low)	PSL 003	-	-	DI	Pump 2 Discharge	Supplied by Pump Vendor
Pressure Switch (High)	PSH 003	-	-	DI	Pump 2 Discharge	Supplied by Pump Vendor
Pressure Switch (Low)	PSL 004	-	-	DI	Pump 1 Discharge	Supplied by Pump Vendor
Pressure Switch (High)	PSH 004	-	-	DI	Pump 1 Discharge	Supplied by Pump Vendor
Pressure Gage	PI 003	-	-	-	Pump 2 Discharge	Supplied by Pump Vendor
Pressure Gage	PI 004	-	-	-	Pump 1 Discharge	Supplied by Pump Vendor
Pressure Transmitter	PIT 001	-	-	AN	Tower Inlet	
Pressure Gauge	PI 001	-	-	-	Tower Inlet	
Chlorine Residual Analyzer	AIT 001	-	-	AN	Tower Inlet	
Pressure Transmitter	PIT 002	-	-	AN	Tower Outlet	Measures Tank Water Level
Pressure Gauge	PI 002	-	-	-	Tower Outlet	
Chlorine Residual Analyzer	AIT 002	-	-	AN	Tower Outlet	
Flow Transmitter	FIT 001	200mm	Magnetic	AN	Tower Outlet	

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T000517A



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revision	description	date

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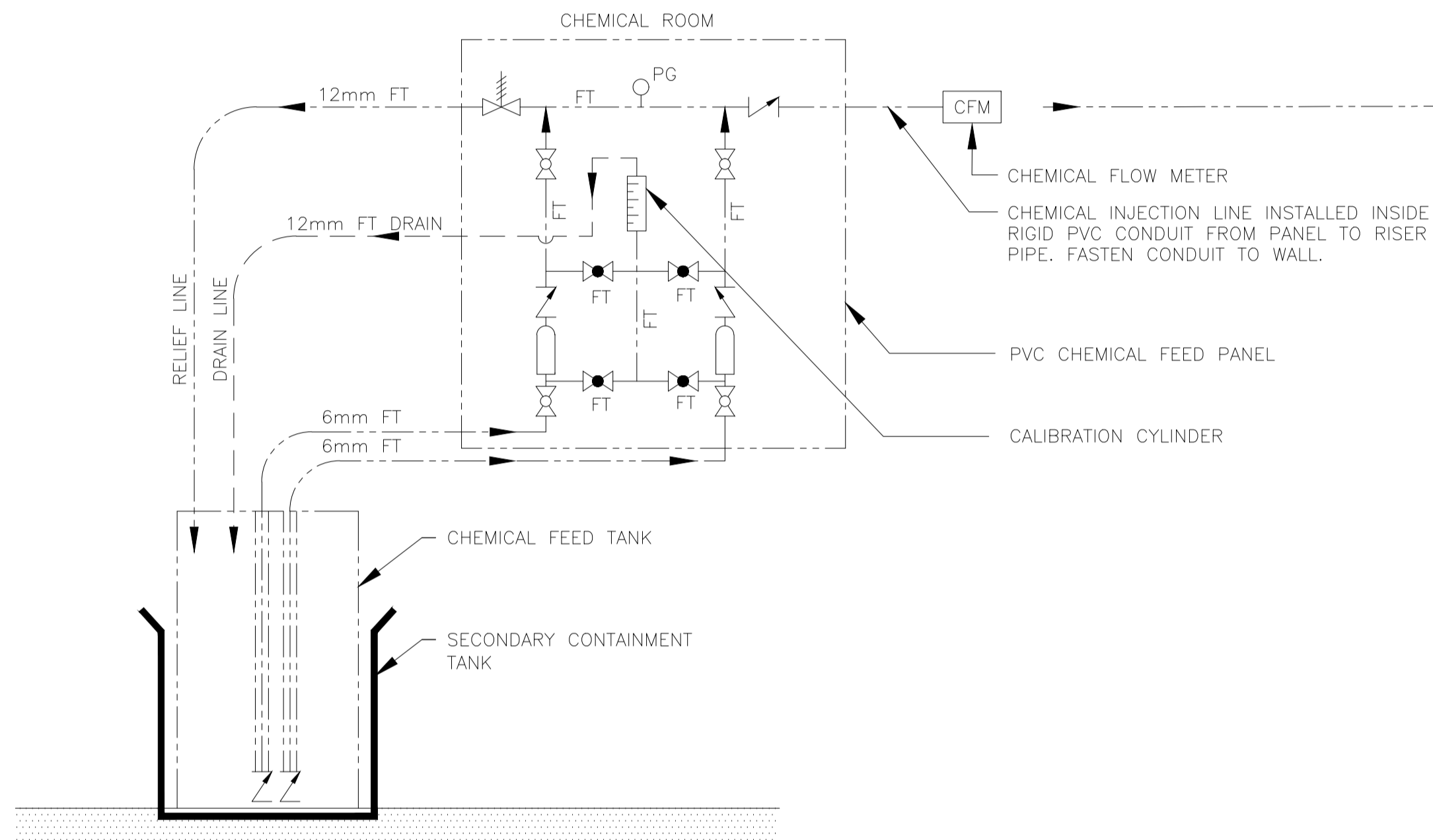
  
A Detail No.  
B No. du détail  
C drawing no. – where detail required  
dessin no. – où détail exigé

project title  
titre du projet  
**WARKWORTH** Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

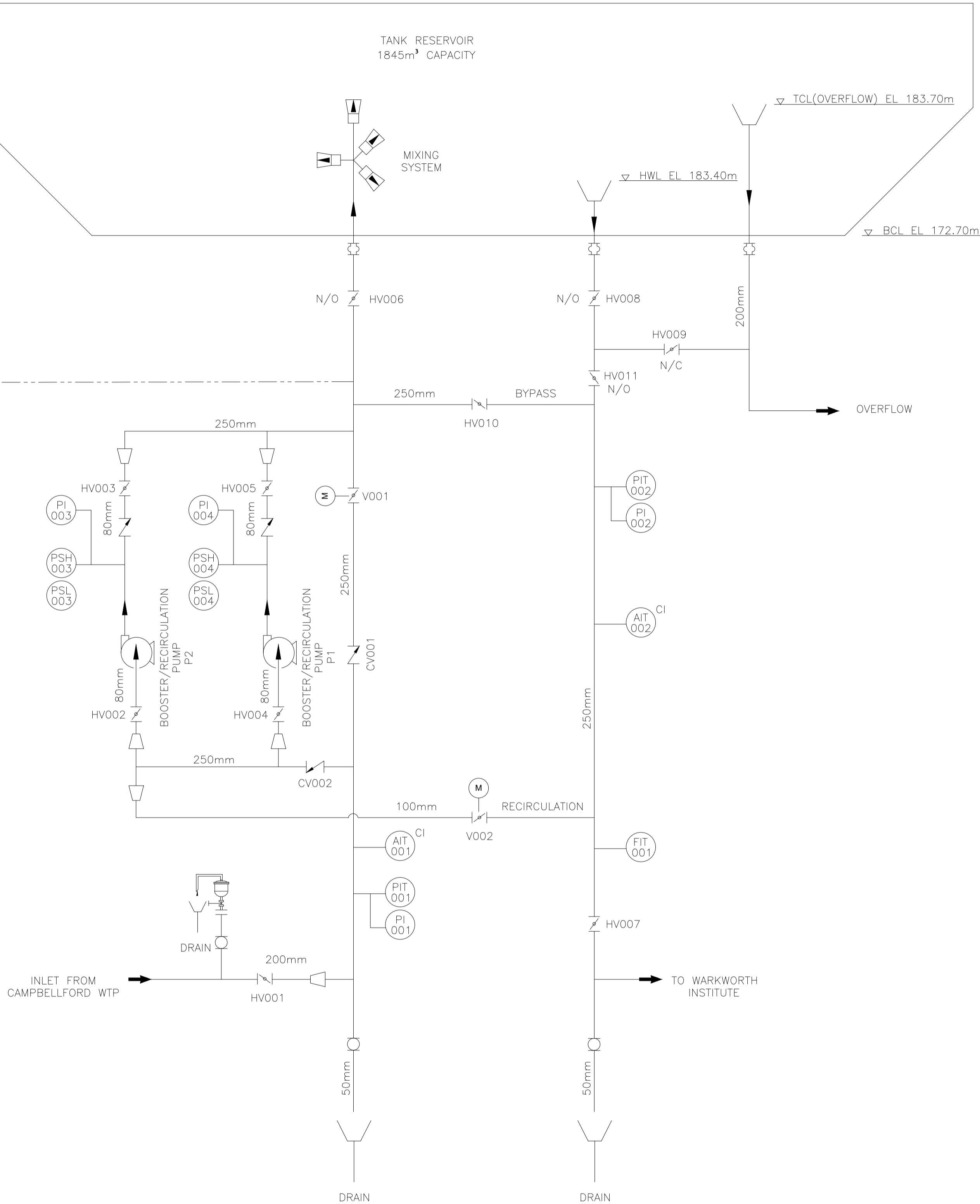
drawing title  
titre du dessin

MECHANICAL LEGENDS

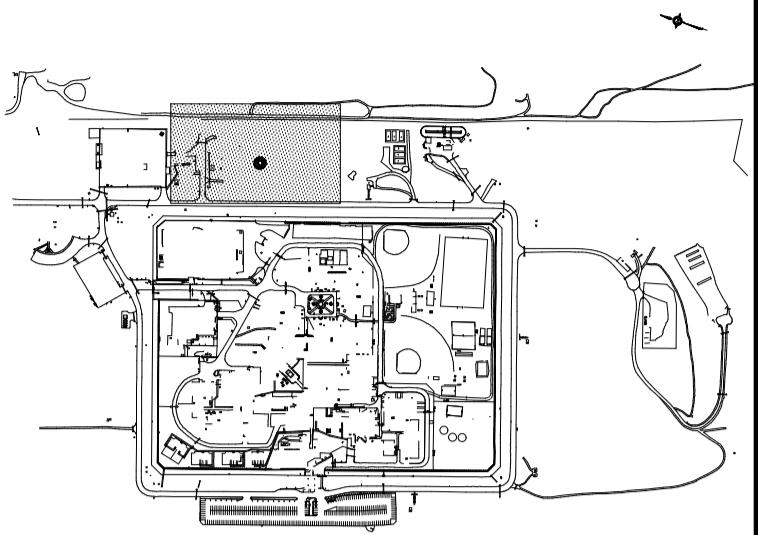
drawn by dessiné par	PL	
designed by conc par	PS	
approved by approuvé par	ET	
tender soumission	KH	project manager administrateur de projets
project date date du projet	2017/05/16	
project no. no. du projet	R.068488.001	
drawing no. dessiné no.	M01	



SODIUM HYPOCHLORITE FEED SCHEMATIC  
N.T.S.



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revision description date

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A Detail No.  
No. du détail  
B drawing no. - where detail required  
dessin no. - où détail exigé  
C drawing no. - where detailed  
dessin no. - où détaillé

project title  
titre du projet  
**WARKWORTH** Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**PROCESS FLOW SCHEMATIC**

drawn by  
dessine par DC

designed by  
conc par PS

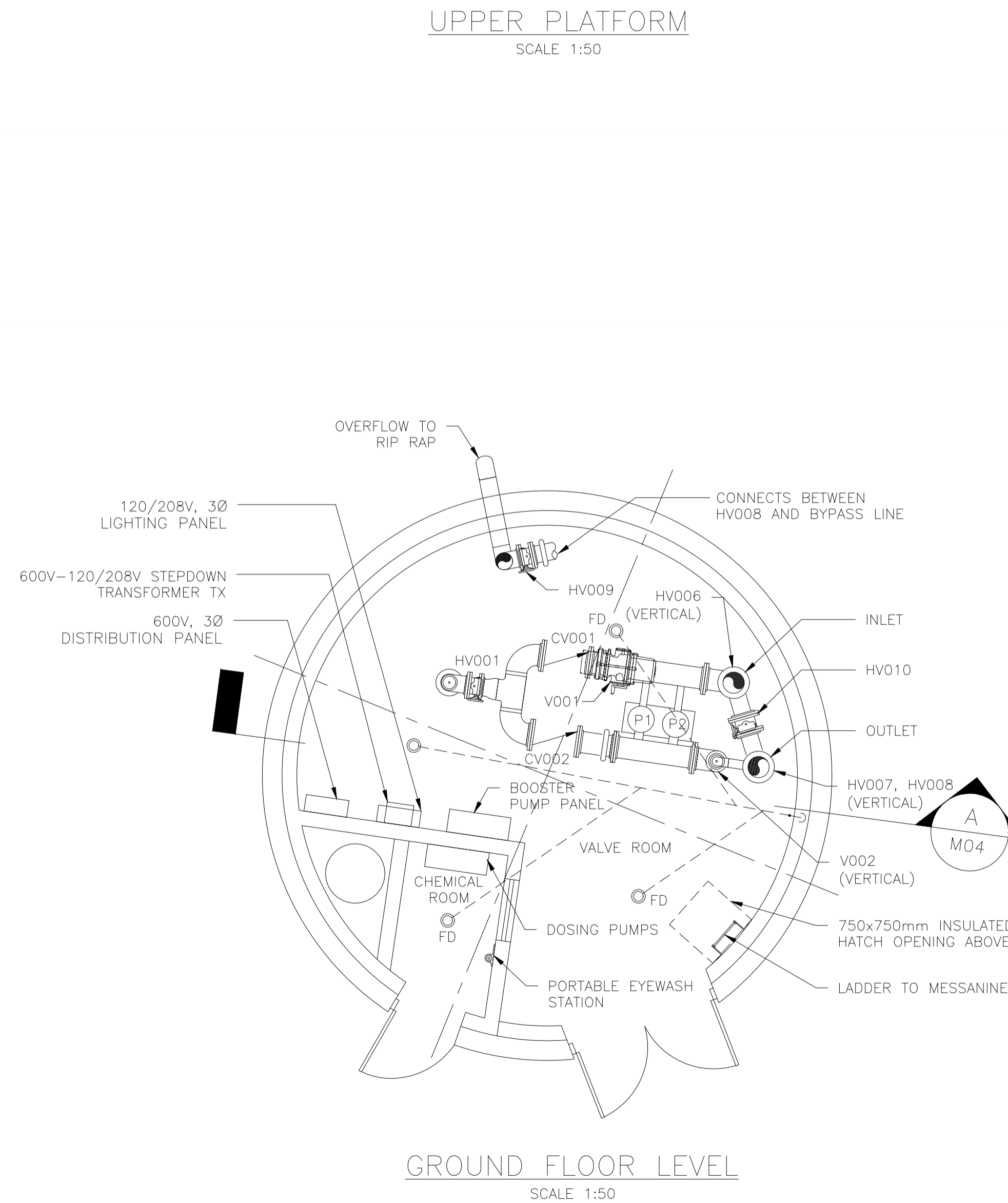
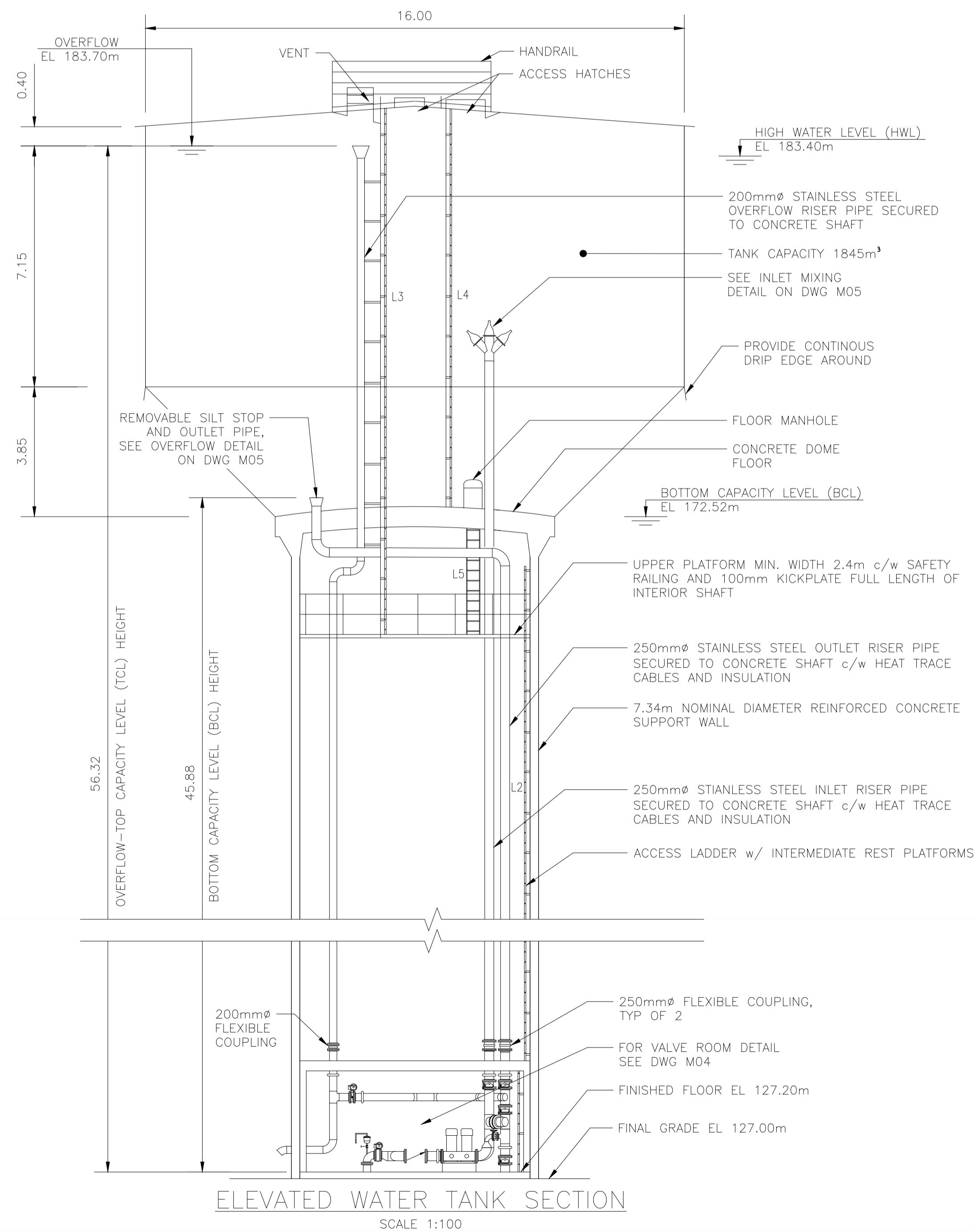
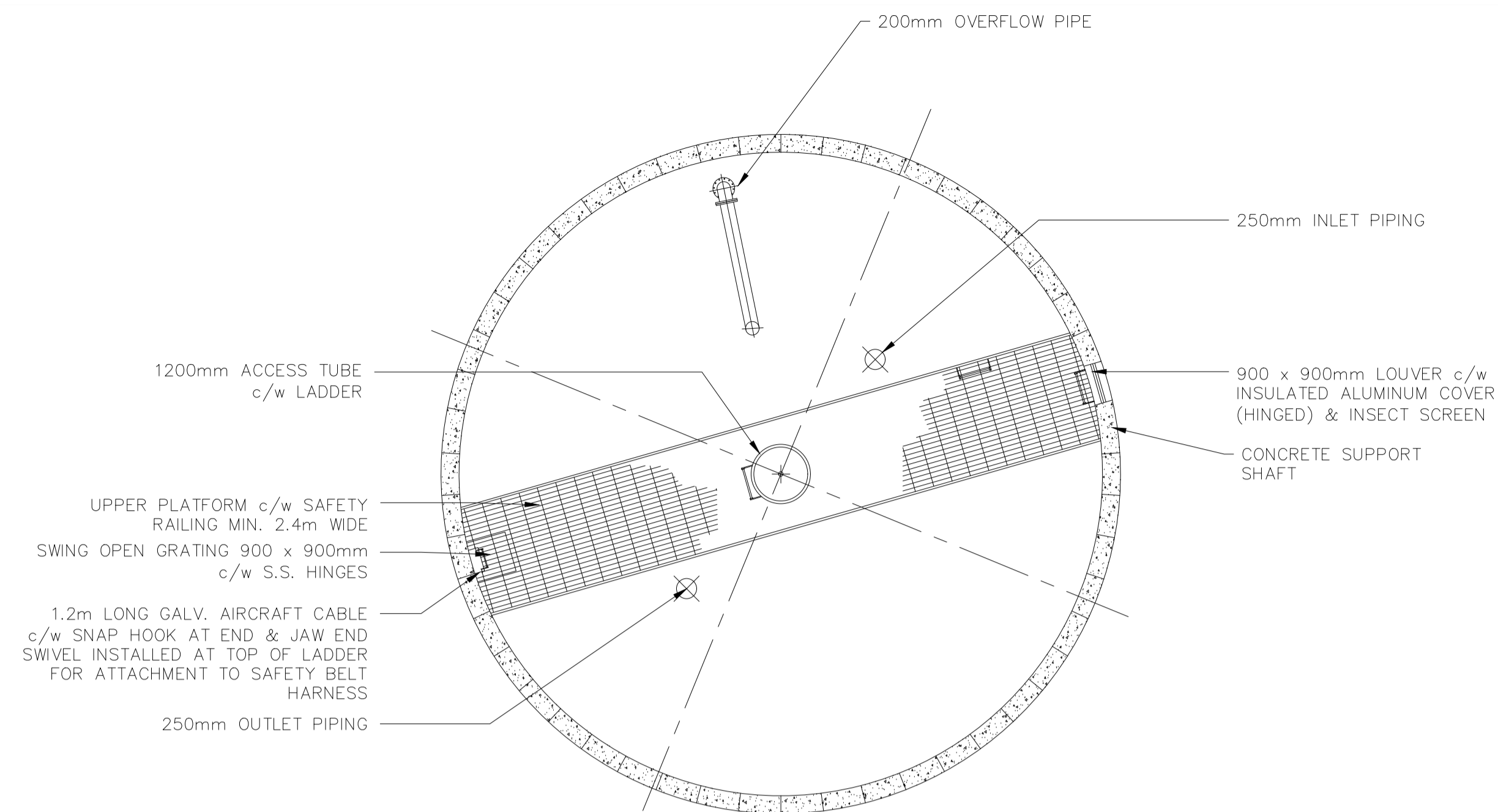
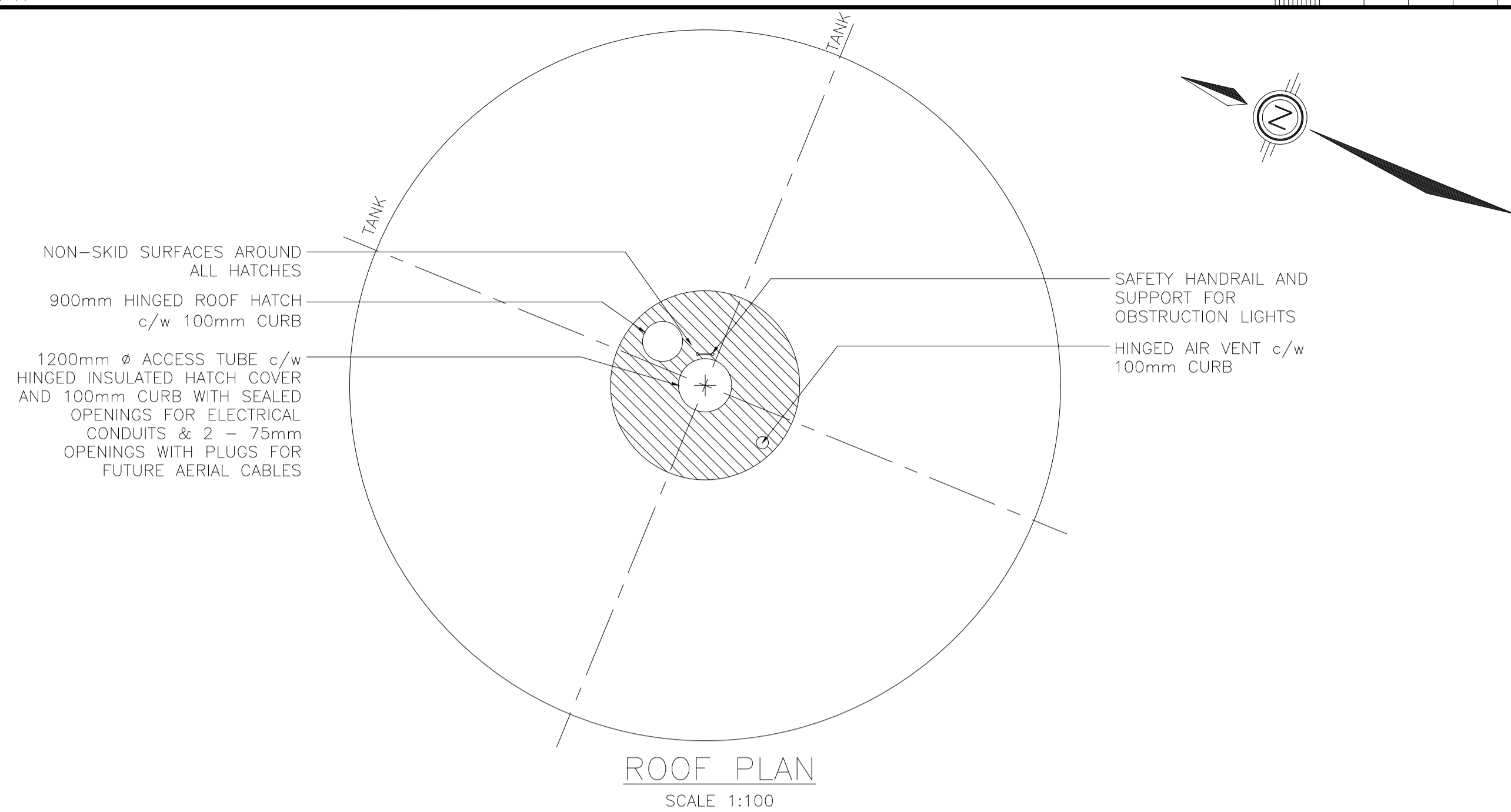
approved by  
approuve par ET

tender  
soumission project manager  
administrateur de projets

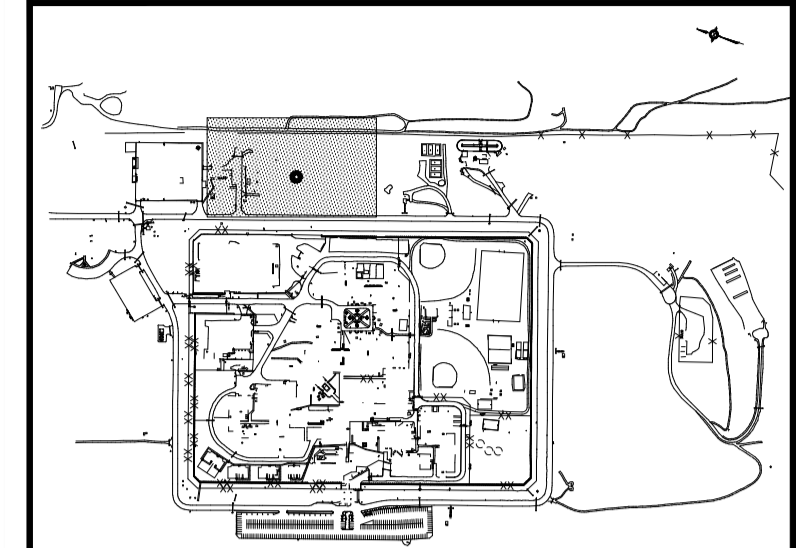
project date  
date du projet 2017/05/16

project no.  
no. du projet R.068488.001

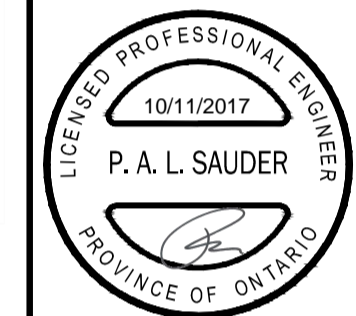
drawing no.  
dessine no. M02



NOTE:  
SLAB FLOOR FOR BASE SHALL BE A STRUCTURAL SLAB WITH  
FOOTINGS TO ACCOMMODATE DESIGN REQUIREMENTS

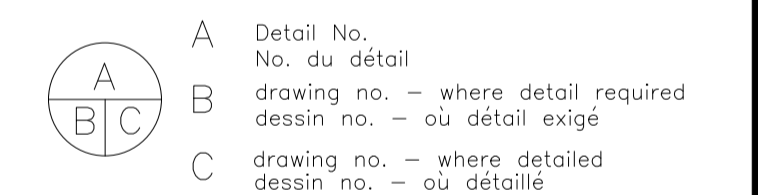


\* CENTRE LINES ON DRAWINGS ALIGN WITH TRUE NORTH



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titre du projet

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CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

ELEVATED WATER TANK PLAN  
AND ELEVATION

drawn by dessine par	DC
-------------------------	----

designed by	
conc par	PS

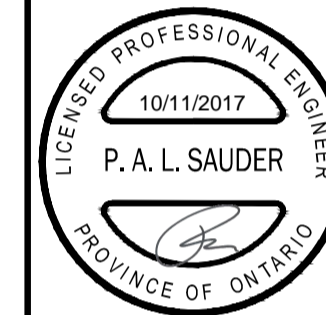
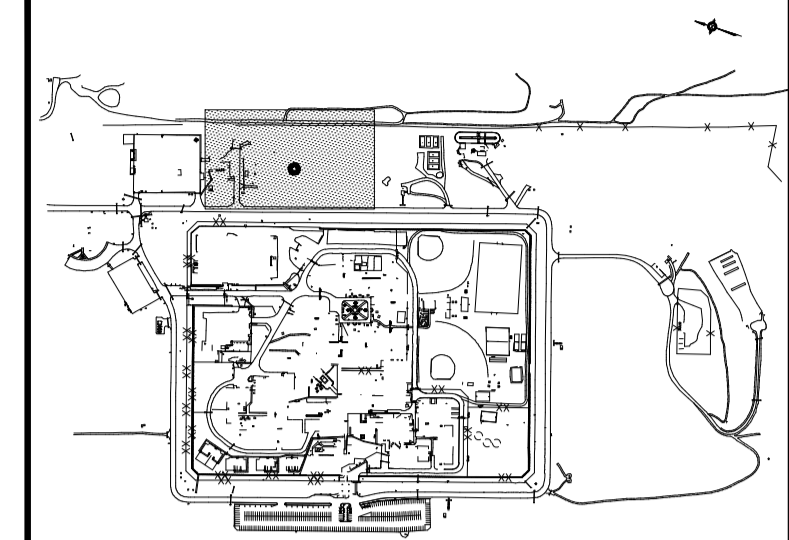
approved by approuvé par	ET
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tender	project manager
soumission	administrateur de projets

project date	
date du projet	2017/05/16

project no. no. du projet	R.068488.001
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drawing no. dessine no.	M03
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revision	description	date

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immediately notify the engineer of all discrepancies.

<div><div>A</div><div>B</div><div>C</div></div>	<div>A Detail No. No. du détail</div> <div>B drawing no. - where detail required dessin no. - où détail exigé</div> <div>C drawing no. - where detailed dessin no. - où détaillé</div>
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project title  
titre du projet  
**WORKWORTH** Ontario  
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WORKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**ELEVATED WATER TANK  
VALVE ROOM DETAIL**

drawn by  
dessiné par  
PK

designed by  
conc par  
PS

approved by  
approuvé par  
ET

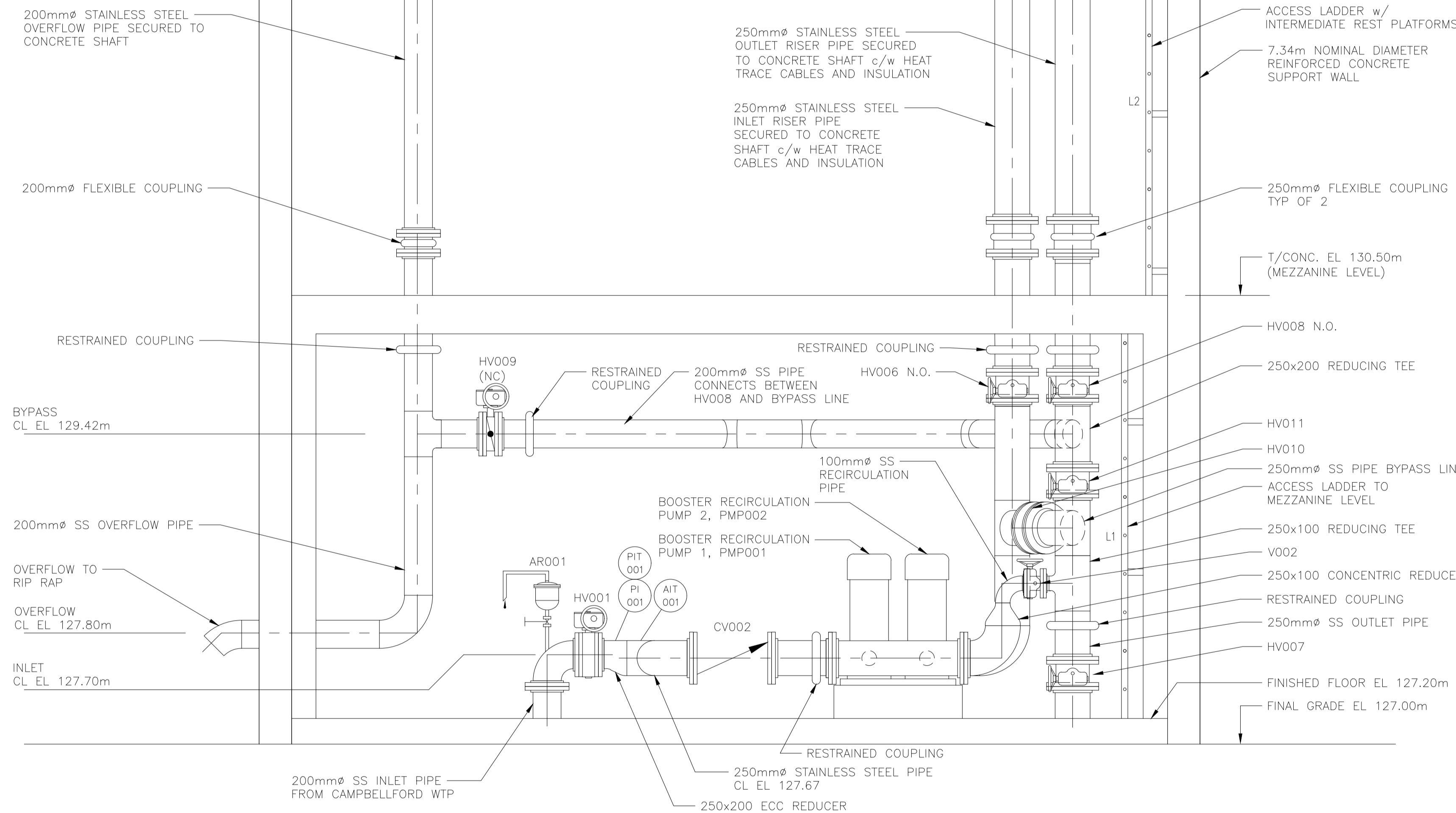
tender  
soumission

project manager  
administrateur  
de projets

project date  
date du projet  
2017/05/16

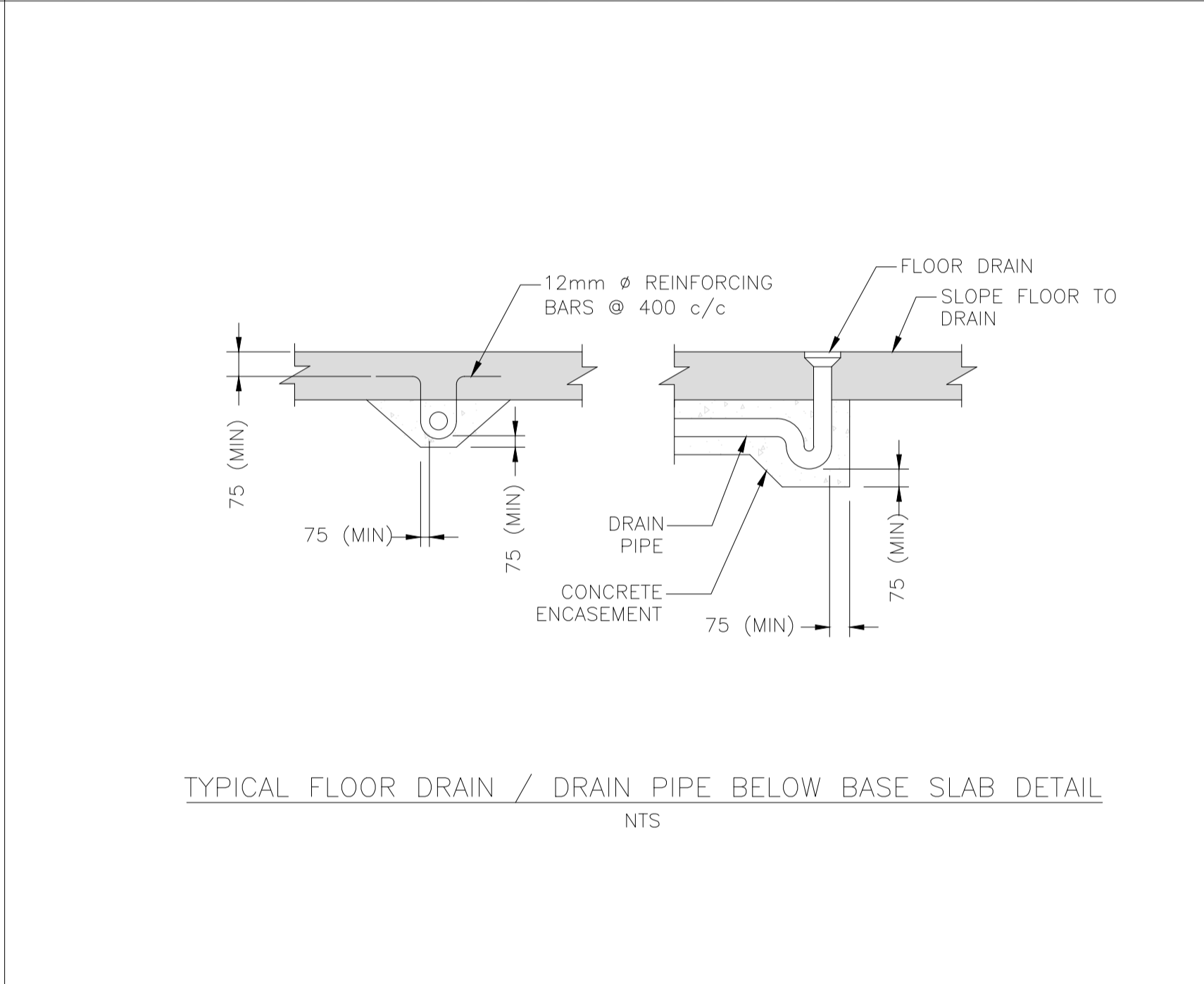
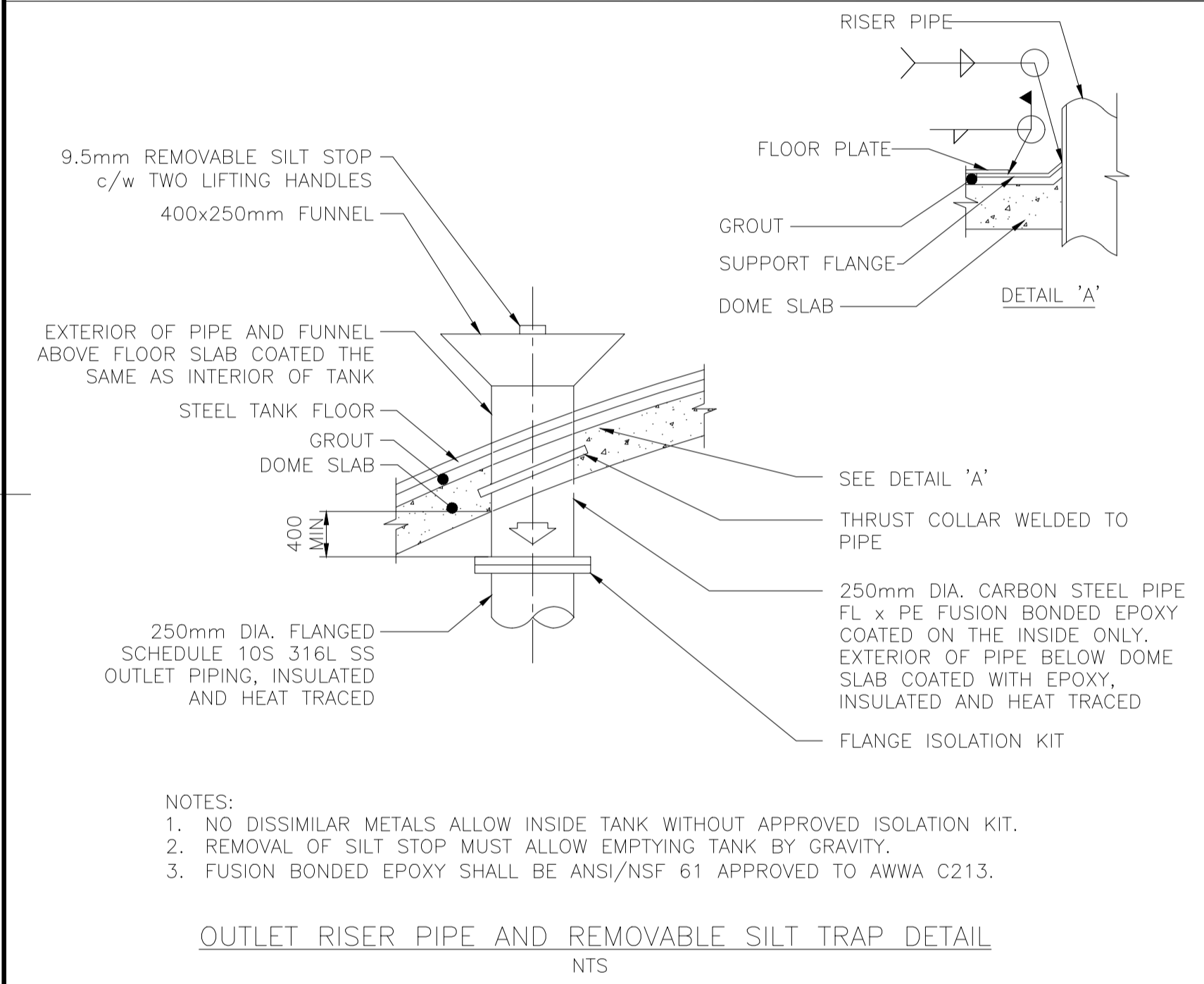
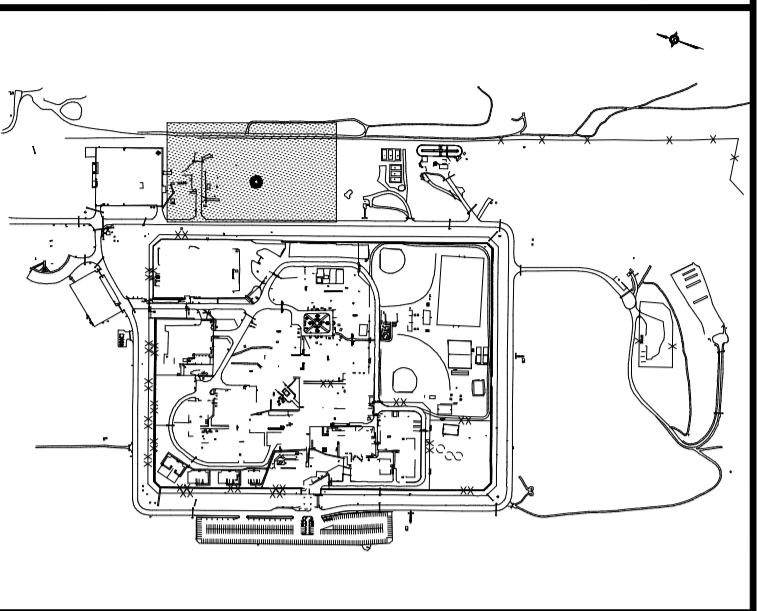
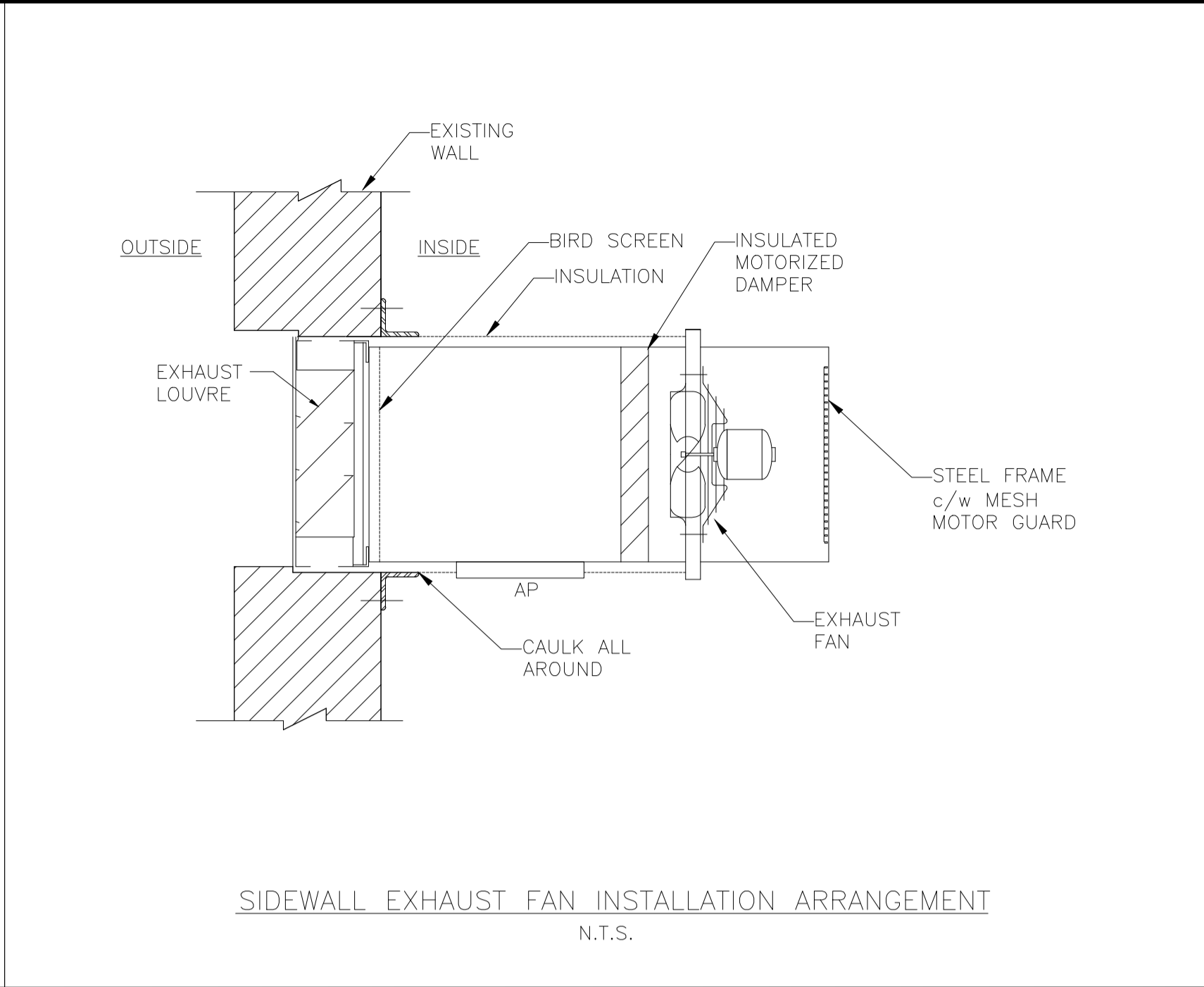
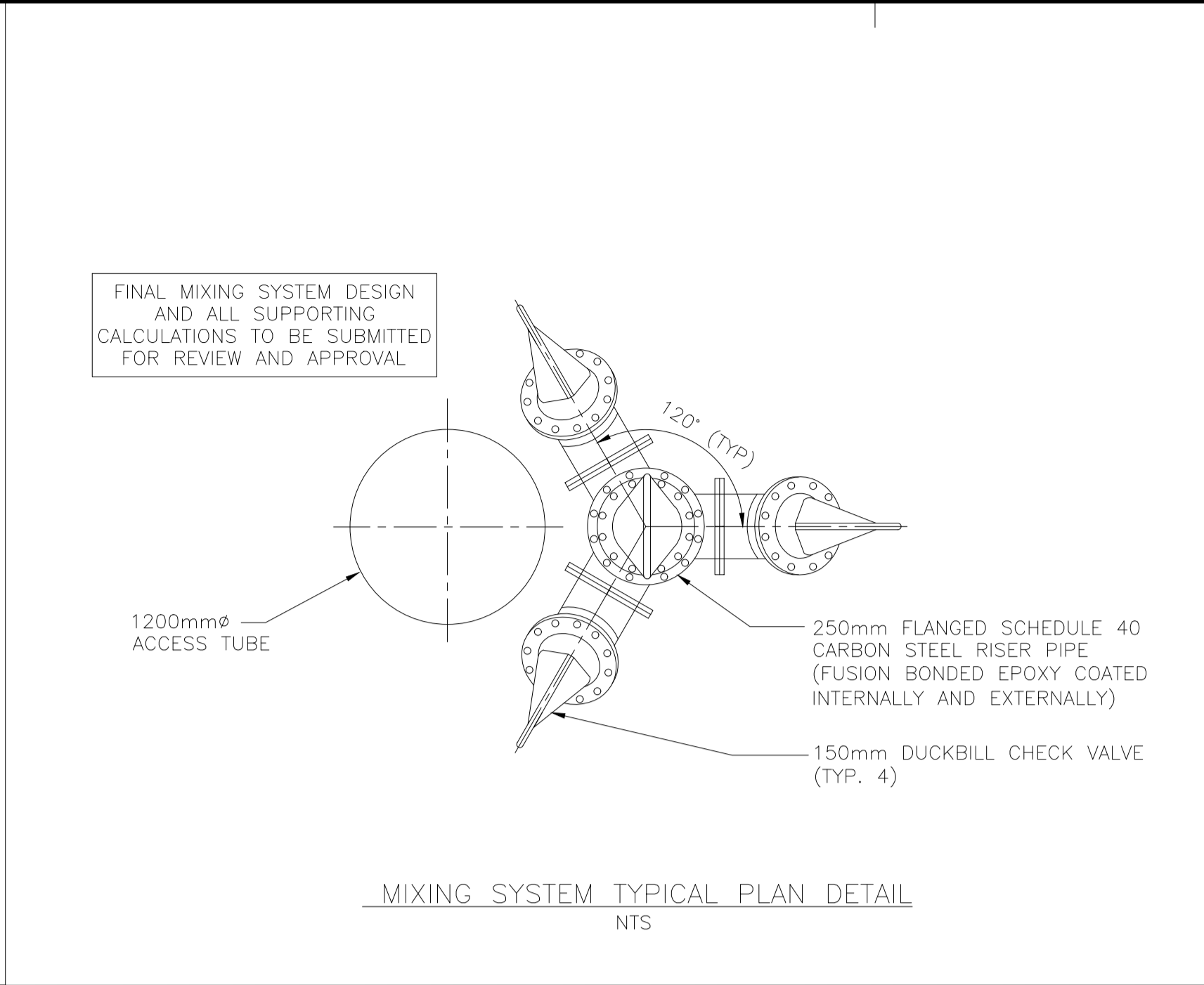
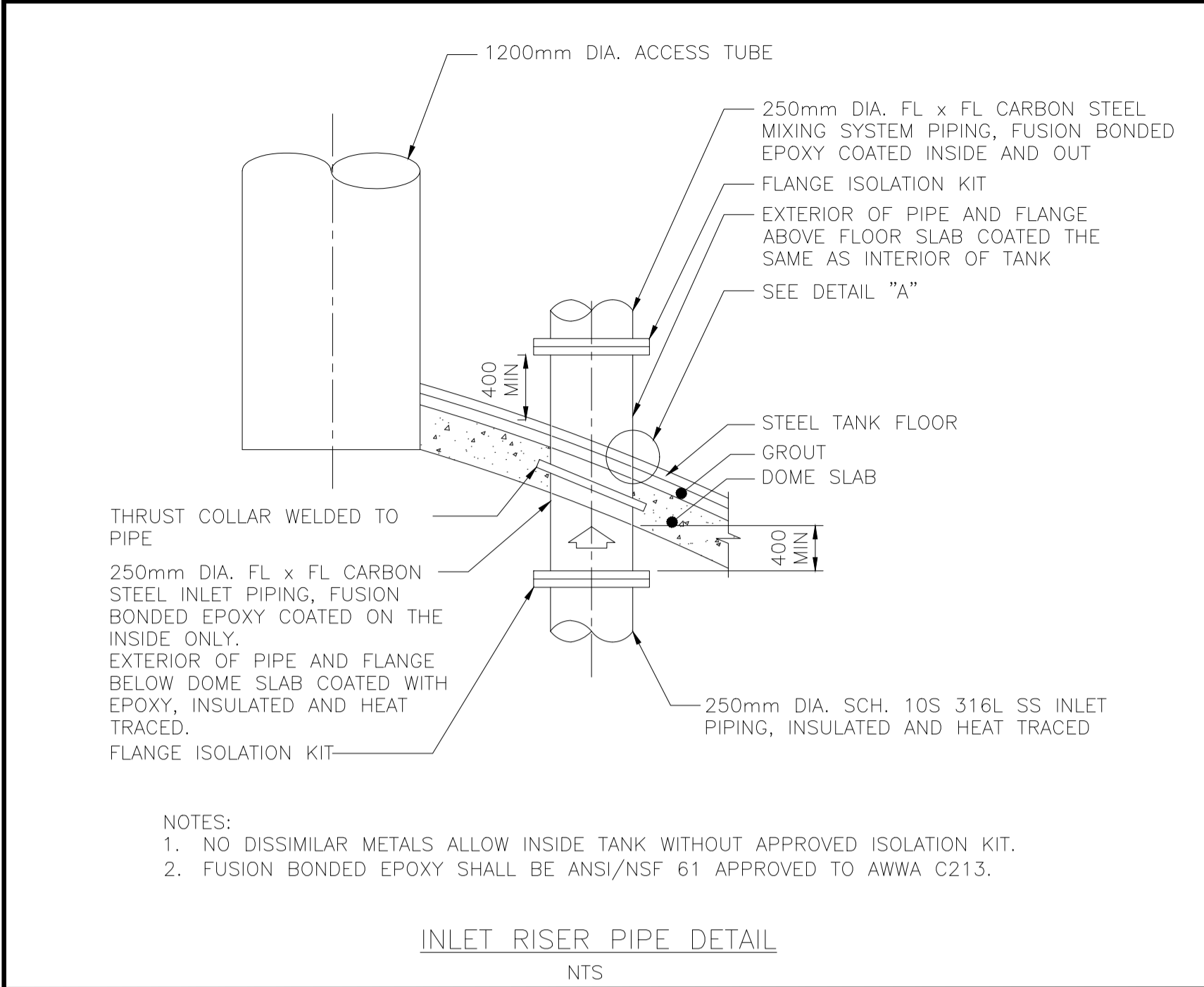
project no.  
no. du projet  
R.068488.001

drawing no.  
dessiné no.  
M04

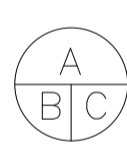


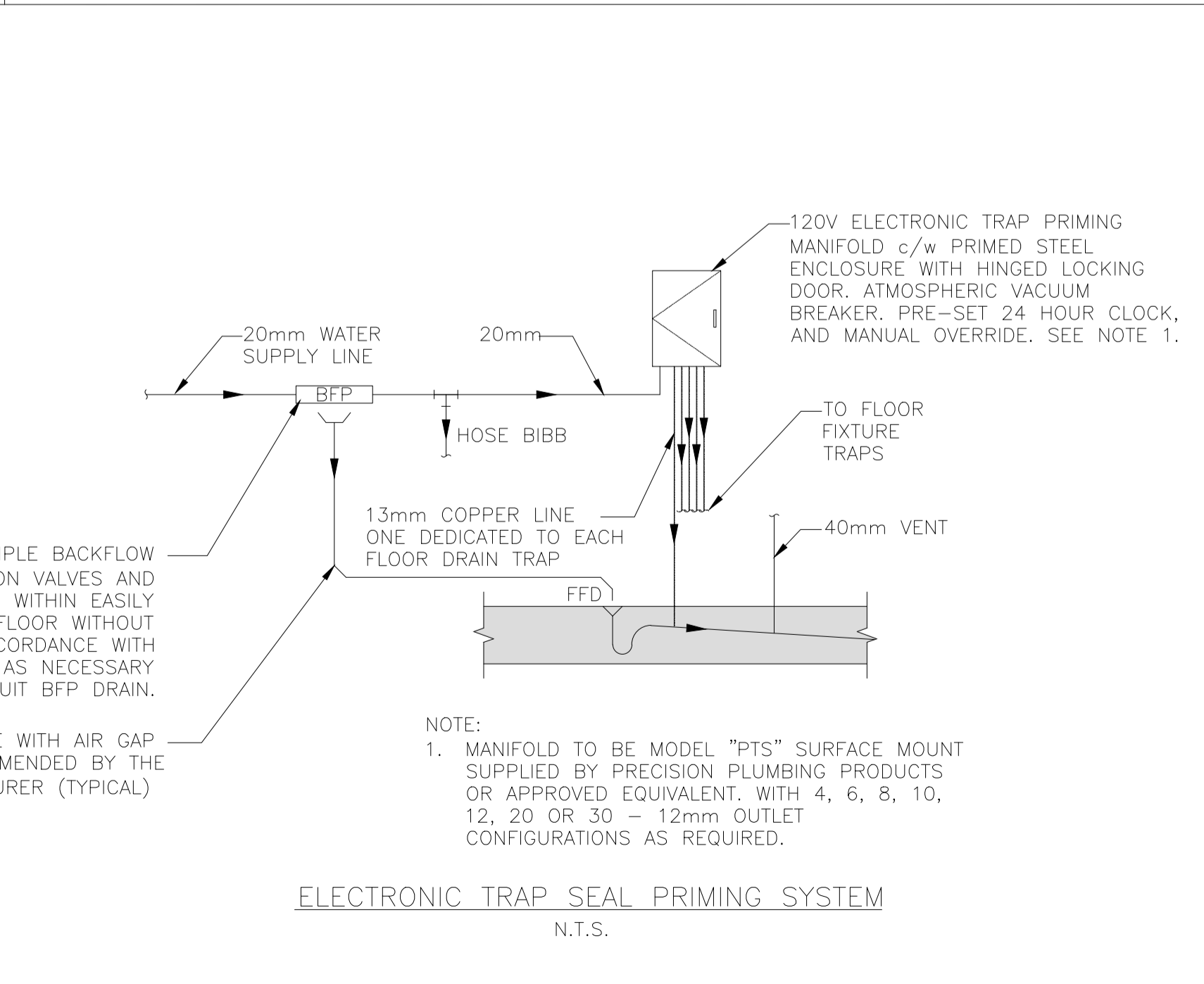
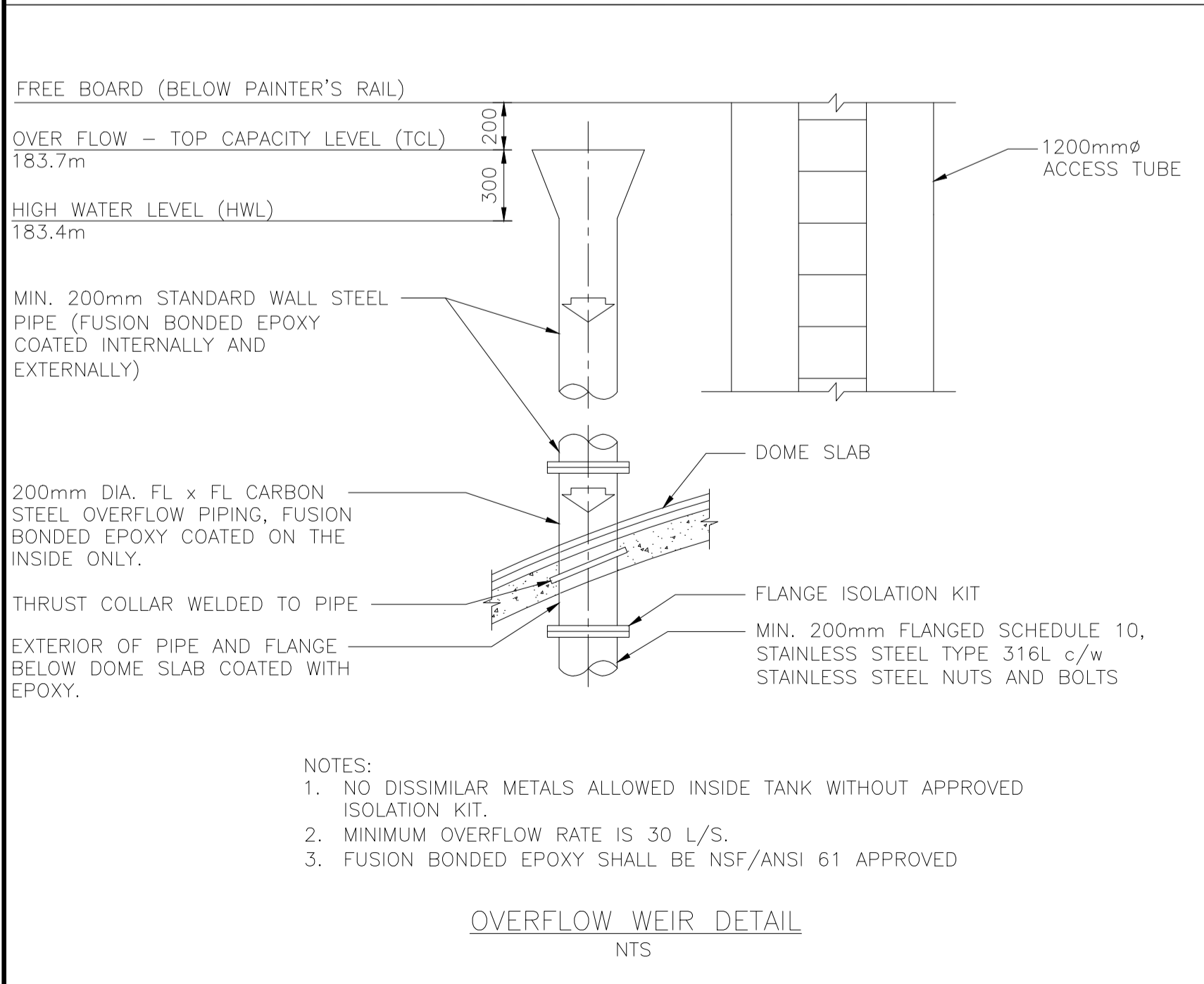
**A WATER TANK VALVE ROOM DETAIL**  
SCALE 1:25

NOTE:  
SLAB FLOOR FOR BASE SHALL BE A STRUCTURAL SLAB WITH  
FOOTINGS TO ACCOMMODATE DESIGN REQUIREMENTS

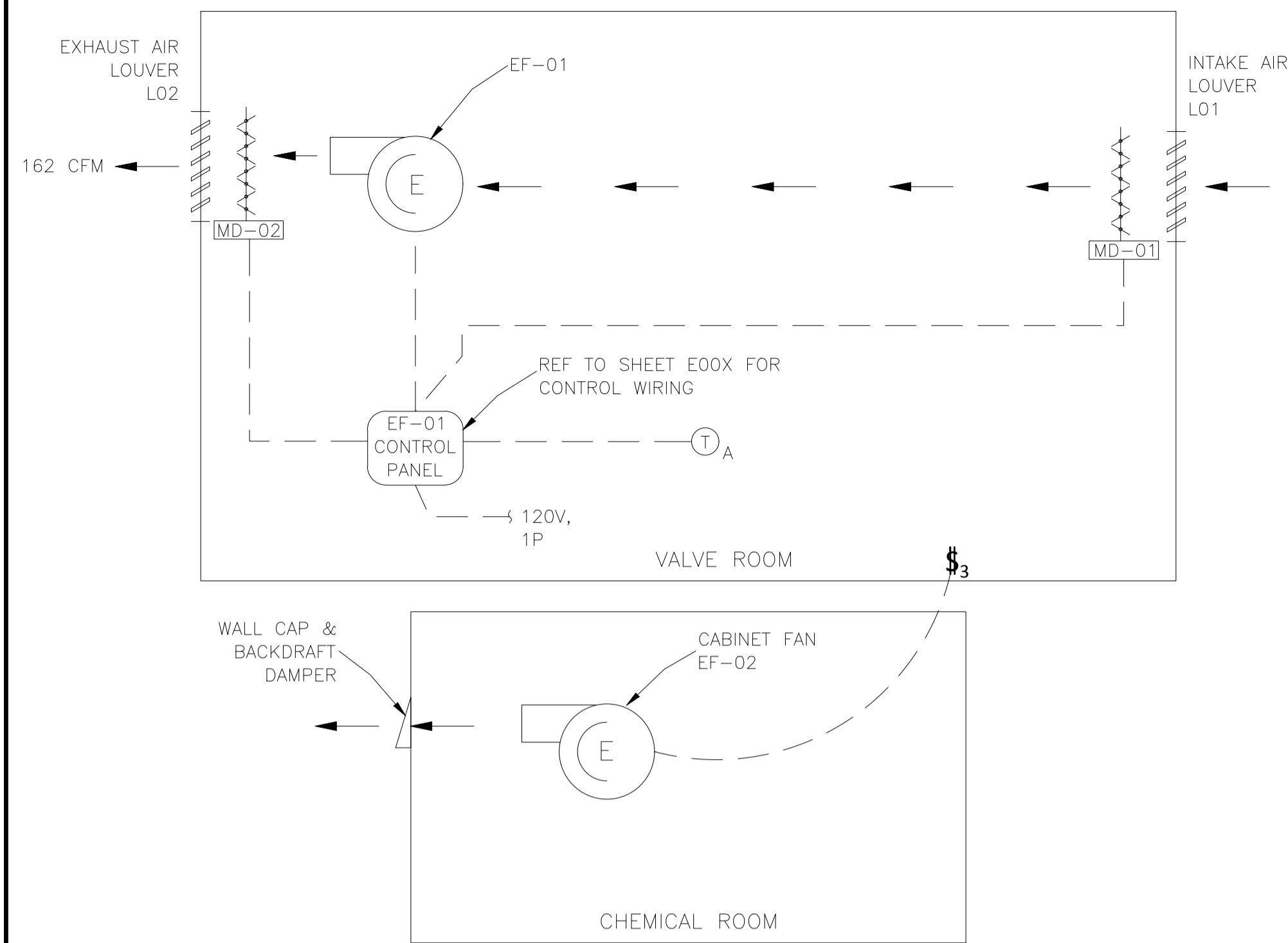


		
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revision	description	date
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	A Detail No. No. du détail
	B drawing no. - where detail required dessin no. - où détail exigé
	C drawing no. - where detailed dessin no. - où détaillé



project title titre du projet	
WARKWORTH Ontario CORRECTIONAL SERVICES CANADA WARKWORTH INSTITUTION COUNTRY ROAD #29, CAMPBELLFORD CONSTRUCT NEW POTABLE WATER ELEVATED TANK	
drawing title titre du dessin	
<b>DETAILS</b>	
drawn by dessiné par	PL
designed by conçue par	PS
approved by approuvé par	ET
tender soumission	project manager administrateur de projets
project date date du projet	2017/05/16
project no. no. du projet	R.068488.001
drawing no. dessiné no.	M05



NOTES:  
SEE ELECTRICAL DRAWING FOR  
CONTROL WIRING SCHEMATICS.

VENTILATION SYSTEM SCHEMATIC  
SCALE: NTS

LOUVER/DAMPER SCHEDULE

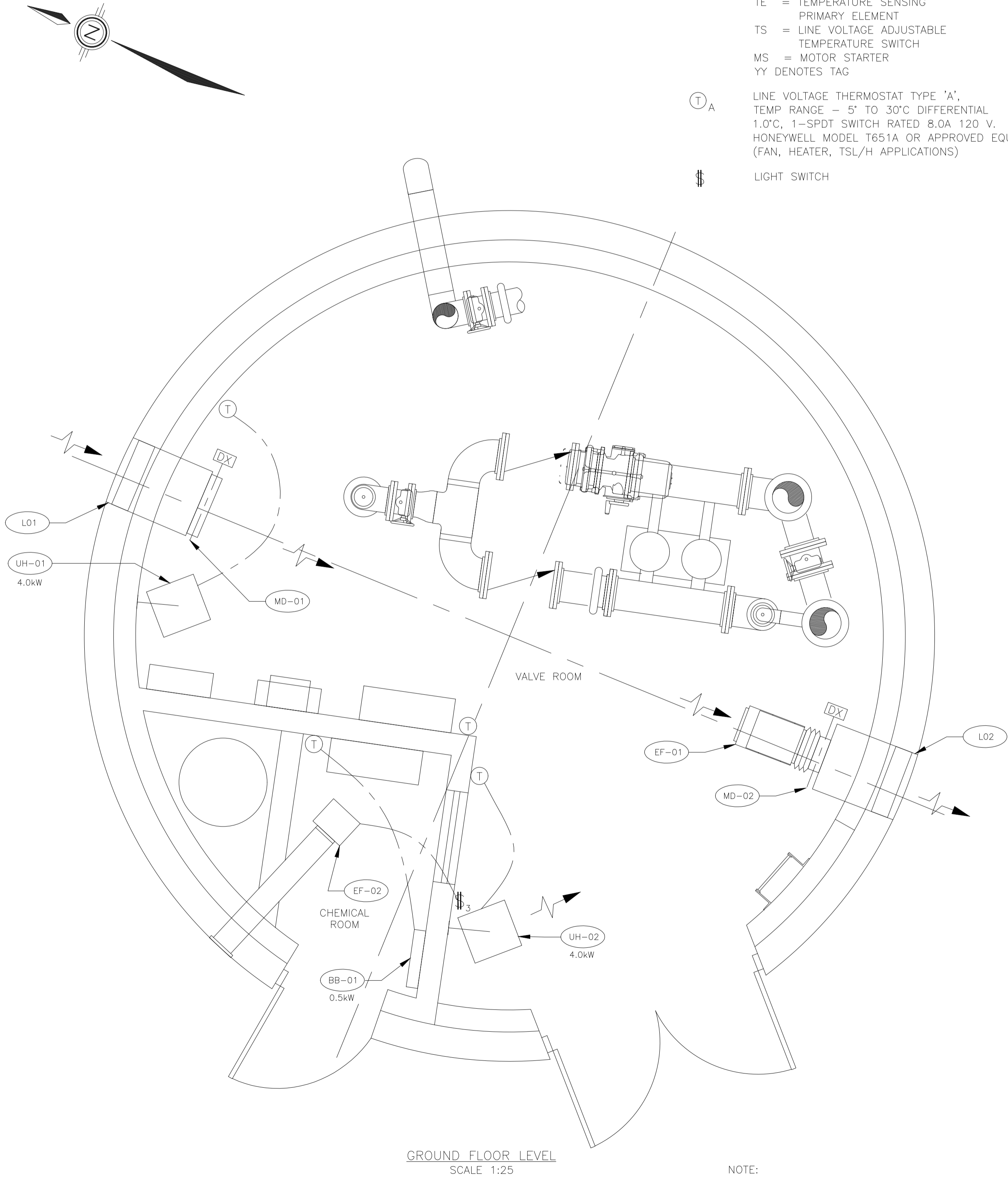
ITEM	LOCATION	SYSTEM	REF.	TYPE	(W)mm	(H)mm	(D)mm	WALL OPENING		COMMENTS
								(W)mm	(H)mm	
LOUVER	VALVE ROOM	AIR INTAKE SYSTEM	L01	A	600	600	150	600	600	COMPLY WITH ARCHITECTURAL COLOUR REQUIREMENTS
	VALVE ROOM	EXHAUST AIR SYSTEM	L02	A	600	600	150	600	600	COMPLY WITH ARCHITECTURAL COLOUR REQUIREMENTS
	CATWALK	GENERAL VENTILATION	L03	B	900	900	50	900	900	PROVIDE INSULATED MANUAL CLOSURE PANEL
DAMPER	VALVE ROOM	AIR INTAKE	MD-01		550	550	100	--	--	INSULATED DAMPER TAMCO 9000 1BF
DAMPER	VALVE ROOM	EXHAUST AIR SYSTEM	MD-02		300	300	100	300	300	INSULATED DAMPER TAMCO 9000 1BF

FAN SCHEDULE

REF	LOCATION	SPECIFICATION	POWER	VOLTAGE	COMMENTS
EF-01	VALVE ROOM	CENTRIFUGAL SQUARE INLINE FAN, HIGH PRESSURE BELT DRIVE, 1281 RPM, 162 CFM, COOK MODEL 70SQN-B.	746W	115V, 1, 60Hz	CONTROL BY T-STAT FAN TO BE CONSTRUCTED OF CORROSIONS RESISTANT MATERIAL AND SHALL INCLUDE A TEFC MOTOR, BELT GUARD, INLET GUARD, DUCT CONNECTOR, SPARE BELT SET, ISOLATORS AND INSTALLATION HARDWARE.
EF-02	CHEMICAL ROOM	COOK INLINE BLOWER MODEL GN-242, 108 CFM @ 0.25SP", 1483 RPM C/W FAN SPEED CONTROLLER AND GEMINI ISOLATOR KIT	25W	115V, 1, 60Hz	CONTROLLED BY LIGHT SWITCH

UNIT HEATER SCHEDULE

REF	LOCATION	MAKE	MODEL	ELECTRICAL LOAD (kW)	VOLTS	PHASE	COMMENTS
UH-01	VALVE ROOM	OUELLET	OAS04036	4.0 kW	600	3	ELECTRIC UNIT HEATER c/w BUILT-IN THERMOSTAT, DISCONNECT SWITCH, COATING: CORROSION RESISTANT COATING
UH-02	VALVE ROOM	OUELLET	OAS04036	4.0 kW	600	3	ELECTRIC UNIT HEATER c/w BUILT-IN THERMOSTAT, DISCONNECT SWITCH, COATING: CORROSION RESISTANT COATING

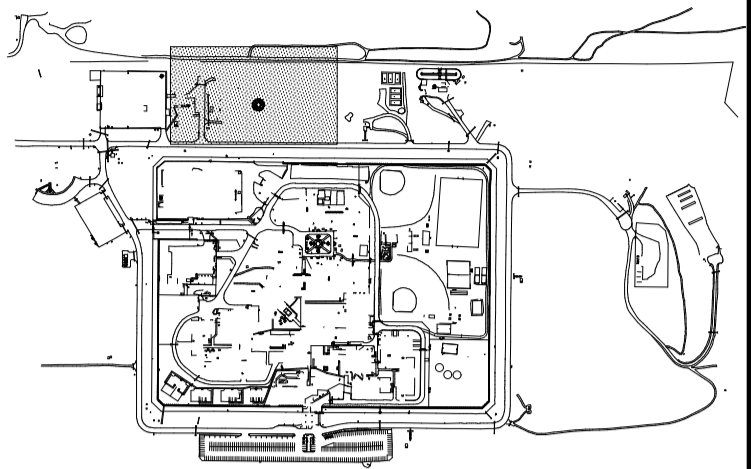


NOTE:  
SEE DRAWING E07 FOR UNIT HEATER SCHEDULE

- LEGEND
- MD-XX DAMPER MOTOR ACTUATOR, 120VAC CLOSE/OPEN  
X: DENOTES TAG NUMBER
- (X) FAN  
X: DENOTES THE FOLLOWING  
S = SUPPLY  
E = EXHAUST
- ← AIR FLOW DIRECTION
- CFM CUBIC FEET PER MINUTE
- ELECTRICAL POWER & CONTROL WIRING
- OPPOSITE BLADE DAMPER
- LOUVER
- XX YY DEVICE SYMBOL  
"XX" DENOTES DEVICE TYPE AS FOLLOWS:  
UC = UNIT CONTROLLER  
MICROPROCESSOR BASED
- VENTILATION SYSTEM CONTROLLER  
JOHNSON CONTROLS MODEL UNIT
- TE = TEMPERATURE SENSING PRIMARY ELEMENT
- TS = LINE VOLTAGE ADJUSTABLE TEMPERATURE SWITCH
- MS = MOTOR STARTER
- YY DENOTES TAG
- T\_A LINE VOLTAGE THERMOSTAT TYPE 'A',  
TEMP RANGE - 5° TO 30°C DIFFERENTIAL  
1.0°C, 1-SPDT SWITCH RATED 8.0A 120 V.  
HONEYWELL MODEL T651A OR APPROVED EQUAL  
(FAN, HEATER, TSL/H APPLICATIONS)
- § LIGHT SWITCH

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\* CENTRE LINES ON DRAWINGS ALIGN WITH  
TRUE NORTH

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A	Detail No.
B	No. du détail
C	drawing no. - where detail required dessin no. - où détail exigé

project title  
titre du projet  
**WARKWORTH** Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**VENTILATION LAYOUT**

drawn by  
dessiné par DC

designed by  
conçue par PS

approved by  
approuvé par ET

tender  
soumission


project manager  
administrateur de projets

project date  
date du projet 2017/05/16

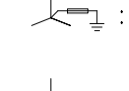
project no.  
no. du projet R.068488.001

drawing no.  
dessiné no. V01


GENERAL ELECTRICAL LEGEND



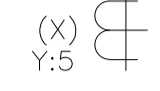
TRANSFORMER  
Δ : DENOTES DELTA CONNECTION




: DENOTES WYE CONNECTION  
WITH IMPEDANCE GROUND



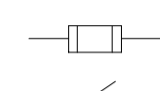
: DENOTES WYE CONNECTION  
WITH SOLID GROUND



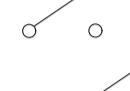
CURRENT XMR  
X: QUANTITY (IF SHOWN)  
Y: RATIO (IF SHOWN)  
IF NOT INDICATED, PROVIDE QUANTITY &  
RATIO TO SUIT PHASING, COORDINATION  
STUDY REQUIREMENTS AND EQUIPMENT



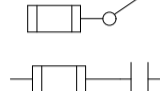
ZERO SEQUENCE CURRENT XMR



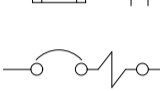
FUSE



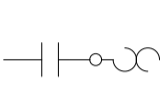
NON FUSED INTERRUPTER SWITCH



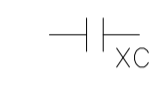
FUSED INTERRUPTER LOAD BREAK  
SWITCH




FUSED CONTACTOR



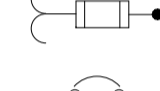
CIRCUIT BREAKER C/W MAG. &  
THERM TRIP




CONTACTOR & OVERLOAD




CONTACTOR-XC  
BC: BYPASS CONT.  
CC: CAPACITOR CONT.  
IC: INLINE CONT.



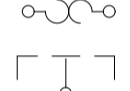
FUSED POTENTIAL TRANSFORMER(S)



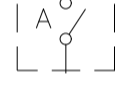
CIRCUIT BREAKER MOLDED CASE



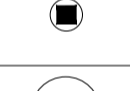
SURGE PROTECTION DEVICE  
TOTAL PROTECTION SOLUTIONS  
SERVICE TRACK MODEL ST240 FOR  
600V AND MODEL ST80 FOR  
120/208VAC APPLICATION.




SOLID STATE OVERLOAD




TYPE 'A' NON FUSED DISCONNECT  
RATED 30A(20HP),600V,3P BRYANT  
MODEL 30003 IN A PVC BOX  
SCEPTRE TYPE FSC 15/10 C/W  
VSC 15/10 WEATHERPROOF  
TOGGLE COVER PLATE



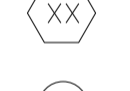
SINGLE/THREE PH LOAD



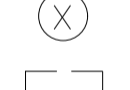
UTILITY METER C/W 7 JAW METER  
BASE INSTALLED IN A NEMA 4X  
LOCKABLE ENCLOSURE WITH A  
CLEAR LEXSON VIEWING WINDOW



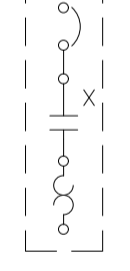
ELECTRICAL UNIT /  
BASEBOARD HEATER




CABLE SCHEDULE TAG




EQUIPMENT SCHEDULE TAG




WALL MOUNTED MOTOR STARTER IN  
A NEMA 12 ENCLOSURE  
FULL VOLTAGE NON REVERSING  
"X" DENOTES EEMAC STARTER SIZE



HYDRO POLE




VFD




OPERATING HANDLE FOR 600V  
DISCONNECT


POWER LAYOUT LEGEND




GROUND ROD  
19mmx3000mm (GALVANIZED)  
TOP OF GROUND ROD 600mm  
BELOW GRADE




LINE VOLTAGE THERMOSTAT TYPE  
'A', TEMP RANGE - 5° TO 30°C  
DIFFERENTIAL 1.0°C, 1-SPDT  
SWITCH RATED 8.0A 120 V.  
HONEYWELL MODEL T651A OR  
APPROVED EQUAL  
(FAN, HEATER, TSL/H  
APPLICATIONS)




DAMPER MOTOR, 120VAC




DUPLEX RECEPTACLE, 15A - 120V  
U GROUND  
WP: DENOTES WEATHER PROOF  
GFCI: DENOTES GROUND FAULT  
CIRCUIT INTERRUPTER




XXX.XX  
m  
SPOT ELEVATION




CONDUIT TAG




DISCONNECT SWITCH




COMBINATION STARTER




THREE PHASE MOTOR




SINGLE PHASE MOTOR



INDUSTRIAL ELECTRIC UNIT HEATER  
C/W INTEGRAL OR REMOTE WALL  
MOUNT THERMOSTAT AS REQUIRED  
BY THE APPLICATION




LOCAL CONTROL PANEL




600V, 60A, 4P WELDING  
RECEPTACLE, NEMA 4, HUBBLE OR  
APPROVED EQUAL.

CONDUCTORS



EARTH GROUND



CHASSIS GROUND

ABBREVIATIONS

AA/FA DRY TYPE SELFCOOLED/FORCED  
AIR COOLED

AL RIGID ALUMINUM

ASH SMOKE DETECTOR HIGH ALARM

ATS AUTOMATIC TRANSFER SWITCH

AWG AMERICAN WIRE GAUGE

CSO COMBINED SEWER OVERFLOW

DIS LOCAL DISCONNECT AUXILIARY  
POSITION STATUS CONTACT 2A,  
120VAC, LATE MAKE EARLY BREAK  
TO SUIT VFD APPLICATIONS

IIT HEAT TRACE CONTROLLER

REC RECEPTACLE

EMH ELECTRICAL MAN HOLE

SDBC SOFT DRAWN BARE COPPER

SPD SURGE PROTECTION DEVICE

HONI HYDRO ONE NETWORKS INC.

CN CONCENTRIC NEUTRAL

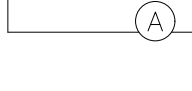
XLPE CROSS-LINKED POLYETHYLENE

CU COPPER CONDUCTOR


AL ALUMINUM CONDUCTOR

EMHx ELECTRICAL MANHOLE  
x DENOTES NUMBER


LIGHTING LAYOUT LEGEND




COLUMBIA LIGHTING, CAT#  
LXEM4-50LW-RFA-EU, LINEAR LED  
FIXTURE. 500K, 4250 LUMENS,  
120VAC, 36WATTS, RIBBED FROSTED  
ACRYLIC OPTICS, SURFACE MOUNTED  
ON CEILING OR APPROVED EQUAL.




TYPE B - FIXTURE - WALL MOUNTED  
OUTDOOR LED FIXTURE, 120V, 55W, 5095  
LUMENS, 5000°K COLOUR, WIDE THROW,  
COMPLETE WITH INTEGRAL MOTION  
SENSOR, PHOTOCCELL, AND AUTO DIMMING  
FEATURE WHEN AREA IS UNOCCUPIED.  
DARK SKY COMPLIANT IN ACCORDANCE  
WITH IESNA RP-33-99. LSI LED PATRIOT  
WALL SCONCE MODEL  
XPWS3-WT-LED-28-350-CW-UE-BRZ-IMS-PC120V  
OR APPROVED EQUAL.



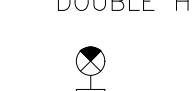
TYPE F - LED LINEAR FIXTURE, 600 mm,  
ALUMINUM BODY W/GLASS OPTICS, 4000 K,  
120 DEGREE OPTICS, WET LOCATION LISTED,  
TEMP RANGE -20 TO +40 DEG. C.,, SOLID  
STATE LUMINAIRES BASELINE  
BL25AC-2-120-4K-120.




TYPE O - LED BASED RTO  
OBSTRUCTION LIGHTS RED LED, 5.5W,  
120VAC DUAL FIXTURE. DIALIGHT MODEL  
RTO-6R07-002 OR APPROVED EQUAL.




NEMA 4X BATTERY UNIT EMERGENCY LIGHT  
FIXTURE, 120VAC INPUT, 12VDC OUTPUT, 2 LED  
HEADS, 10MIN. DELAY.




NEMA 4X REMOTE EMERGENCY LIGHT FIXTURE  
WITH 2 LED HEADS.



NEMA 4X BATTERY UNIT EXIT SIGN,  
120VAC INPUT, 12VDC OUTPUT,  
PICTOGRAM, SINGLE FACE.



SELF-POWERED EXIT UNIT, 120VAC INPUT,  
6VDC OUTPUT, PICTOGRAM, 2 HEADS,  
COLD-WEATHER RATED, EMERGI-LITE CAT.#  
ENC1W6N36LACW.



SINGLE POLE SWITCH, 120V  
3: DENOTES 3 WAY SWITCH






PHOTO CELL, 120VAC, 10A


TERMINALS




DEVICE TERMINAL



TERMINAL BLOCK IN MOTOR STARTER




TERMINAL BLOCK IN PANEL LP-01



TERMINAL BLOCK IN CONTROL PANEL

----- FIELD WIRING CONNECTIONS

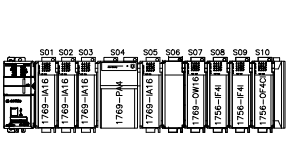
SECURITY LAYOUT LEGEND



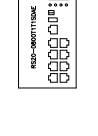
SECURITY SYSTEM LEGEND SYMBOL  
"XX" DENOTES TYPE OF SECURITY  
SYSTEM DEVICE AND/OR EQUIPMENT  
AS FOLLOWS:

DS: ELECTRIC DOOR STRIKE  
DC: DOOR CONTACT  
MO: ELECTRICALLY ACTUATED  
MOTORIZED DOOR OPERATOR  
SS: DOOR STATUS SWITCH  
HB: HANDICAP ACCESS PUSH BUTTON  
HO: MAGNETIC HOLD OPEN DEVICE  
CR: WALL MOUNTED ACCESS CARD  
READER  
MS: GENERAL PURPOSE MOTION  
SENSOR  
KP: KEY PAD

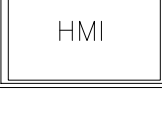
INSTRUMENTATION LEGEND



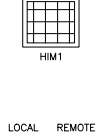
COMPACTLOGIX PLC  
1769-L36ERM PROCESSOR




HIRSHMANN MANAGED  
ETHERNET SWITCH  
RS20-0800T1T1SDAE




ALLEN BRADLEY PANELVIEW PLUS 6




HUMAN INTERFACE MODULE




LOCAL/REMOTE SELECTOR SWITCH



PUSH BUTTON




PILOT LIGHT  
X: G = GREEN  
R = RED  
A = AMBER



Public Works and  
Government Services Canada  
Architectural and Engineering Services  
Ontario Region

Travaux publics et  
Services gouvernementaux Canada  
Services d'architecture et de génie  
Région de l'Ontario



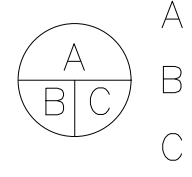
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www.cima.ca

T000517A

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revision	description	date

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Verify all dimensions and conditions on site and  
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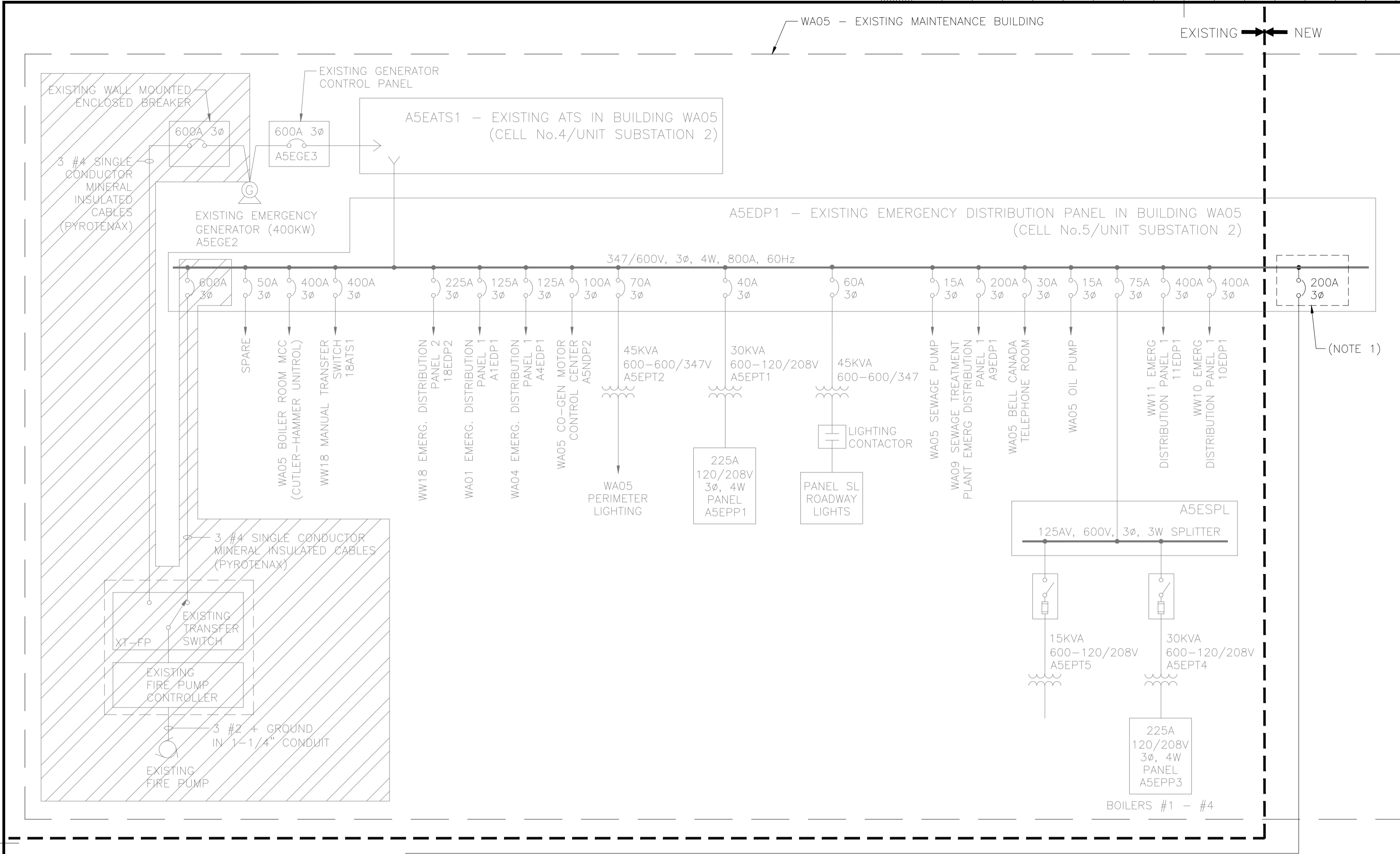
A Detail No.  
No. du détail  
B drawing no. - where detail required  
dessin no. - où détail exigé  
C drawing no. - where detailed  
dessin no. - où détaillé

project title  
titre du projet  
WORKWORTH Ontario  
CORRECTIONAL SERVICES CANADA  
WORKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

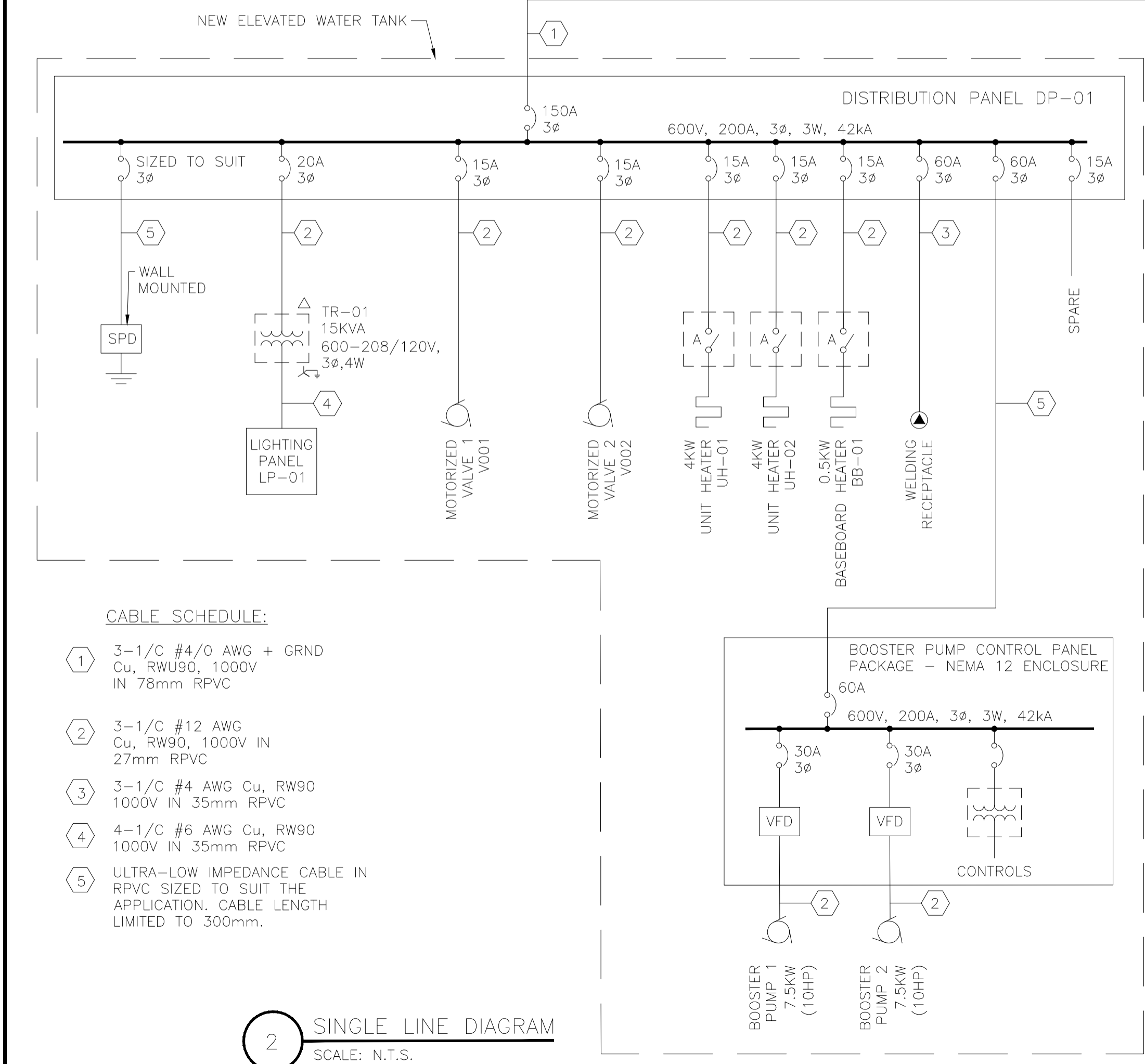
drawing title  
titre du dessin  
ELECTRICAL LEGENDS

drawn by dessine par	PY
designed by conc par	MG
approved by approuve par	BS
tender soumission	project manager administrateur de projets
project date date du projet	2017/05/16
project no. no. du projet	R.068488.001
drawing no. dessine no.	E01

GSC-A1 DATE PLOTTED: 2017/12/18 PLOT SCALE: 1:1 CAD FILE: Z:\CIMA-C13\PROJECTS\T000517A WARKWORTH POTABLE WATER SYSTEM (PWGSC)\400-DRAWINGS AND SKETCHES\410\413\SHEET\S\E\T000517A-E01.DWG

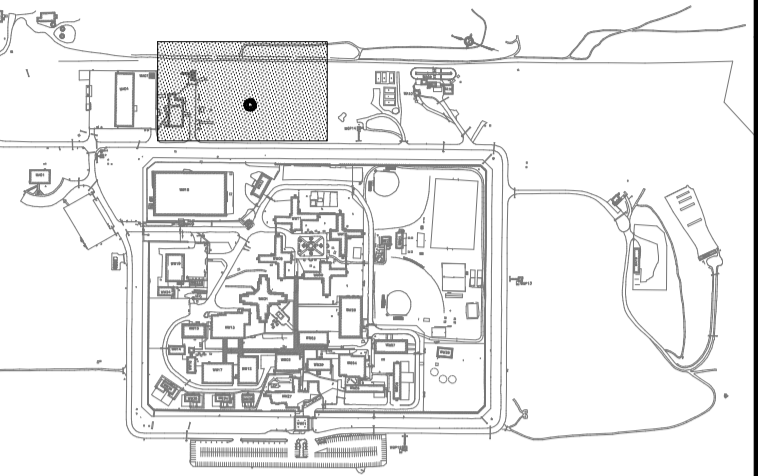


1 EXISTING EMERGENCY DISTRIBUTION PANEL IN BUILDING WA05  
SCALE: N.T.S.



BRANCH PANEL: LP-01															
VOLTS: 120/208V PHASES: 3 WIRES: 4				LOCATION: ELEVATED TANK ELECTRICAL ROOM FEEDER: DP-01 ENCLOSURE: NEMA 12 C/W FRONT DOOR				A. BUSSING: 100A MAIN BKR: NONE MOUNTING: WALL NO. CIR: 42 IR: 14KA							
LOCATION	LTG	REC	CIR	BKR	P	A	B	C	P	BKR	CIR	REC	LTG	LOCATION	
Receptacles - Valve Room	xx		1	15 A	1	•			1	15 A	2			EM1 Lighting - Valve Room	
Exhaust Fan EF-01 Control Panel		5	3	15 A	1		•		1	15 A	4			Exit Signs-EX1, EX2, EX3	
			5	15 A	1			•	1	15 A	6		2	Lighting - Outdoor	
			7	15 A	1	•			1	20 A	8			Booster Pump Control Panel	
			9	15 A	1		•		1	15 A	10		11	Lighting - Pedestal	
Exhaust Fan EF-02	xx		11	15 A	1			•	1	15 A	12		6	Lighting - Valve Room	
Lighting - Chemical Room	2		13	15 A	1	•			1	15 A	14			xx	
			15	15 A	1		•		1	15 A	16			xx	
Obstruction Lighting	xx		17	15 A	1			•	1	15 A	18	1		Receptacle - Chemical Room	
			19	15 A	1	•			1	15 A	20			xx	
			21	15 A	1		•		1	15 A	22			xx	
Receptacles - Mezzanine & Upper Platform	4		23	15 A	1			•	1	15 A	24			xx	
			25	15 A	1	•			1	15 A	26			EM2 Lighting - Pedestal, Upper Platform and Access Tube	
			27	15 A	1		•		2	15 A	28			Heat Trace Controller #1 - Trace No.1	
Auto Dialer	xx		29	15 A	1			•			30			xx	
Heat Trace Controller #2 - Trace No.1	31		33	15 A	2	•			2	15 A	32			Heat Trace Controller #1 - Trace No.2	
			35	15 A	2		•		1	15 A	36			xx	
Heat Trace Controller #2 - Trace No.2	37		39	15 A	1	•			3	30 A	40			SPD	
			41	15 A	1		•				42				

3 ELEVATED TANK LIGHTING PANEL  
SCALE: N.T.S.



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revision	description	date
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C	drawing no. - where detail required
	dessin no. - où détail exigé
	drawing no. - where detailed
	dessin no. - où détaillé

project title  
titre du projet  
**WARKWORTH** Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**SINGLE LINE DIAGRAM  
& PANEL SCHEDULE**

drawn by  
dessiné par PY

designed by  
conc par MG

approved by  
approuvé par BS

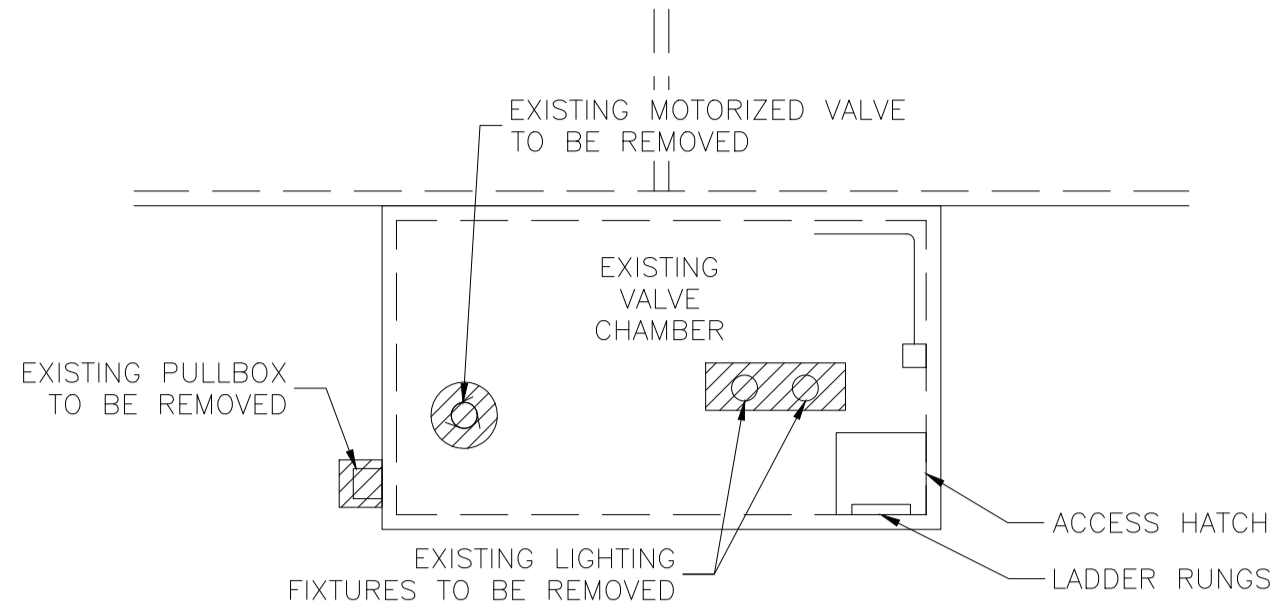
tender  
soumission

project manager  
administrateur  
de projets

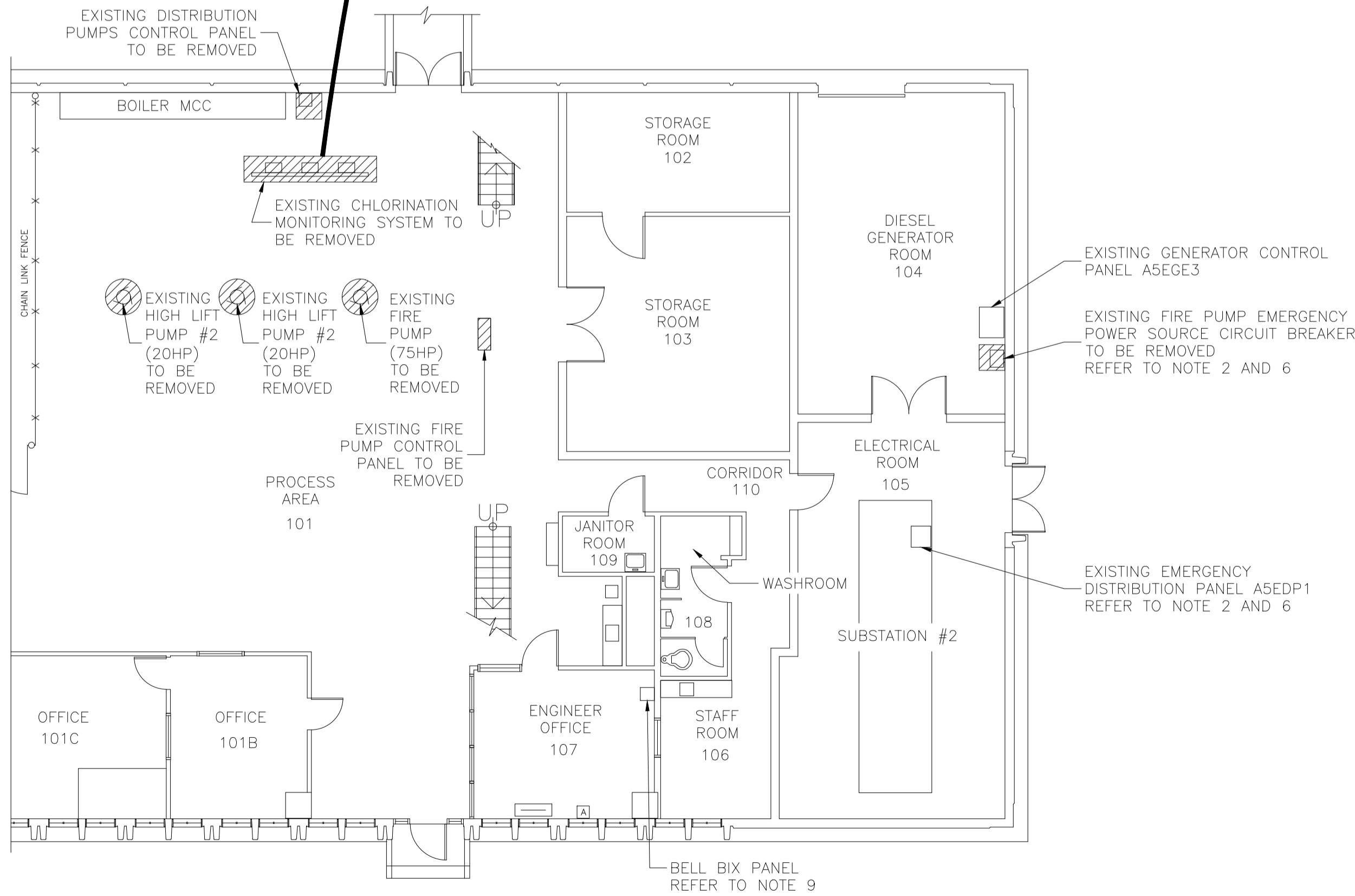
project date  
date du projet 2017/05/16

project no.  
no. du projet R.068488.001

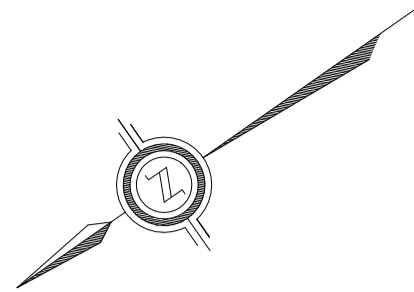
drawing no.  
dessiné no. E02



2 VALVE CHAMBER – ELECTRICAL DEMOLITION – PLAN VIEW  
SCALE: NTS



1 WA05 BUILDING – ELECTRICAL DEMOLITION – PLAN VIEW  
SCALE: NTS



LEGEND

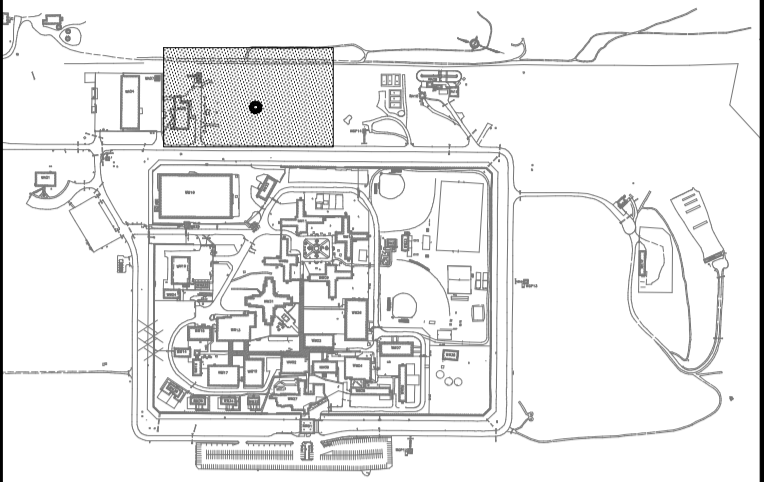
- PUMP/MOTOR
- REMOVAL

VALVE CHAMBER NOTES:

1. THE CONTRACTOR SHALL MAKE ELECTRICALLY DEAD IN A PERMANENT FASHION, ALL ELECTRICAL EQUIPMENT IN AND ON THE VALVE CHAMBER TO ALLOW DEMOLITION OF THE VALVE CHAMBER TO PROCEED SAFELY AND EXPEDIENTLY.
2. REMOVE ALL EXISTING WIRING AND EXPOSED CONDUIT FROM THE EXISTING VALVE CHAMBER SUCH THAT THE CONCRETE WALLS OF THE CHAMBER CAN BE KNOCKED DOWN TO 1.6 METERS BELOW GROUND ELEVATION. SEE R01.
3. WITH REGARDS TO THE WIRES, CABLES AND CONDUIT ENTERING THE VALVE CHAMBER AT AN ELEVATION LOWER THAN 1.6 METERS BELOW GROUND ELEVATION, CUT BACK CABLES, WIRES AND CONDUIT ON THE INTERIOR SIDE OF THE WALL, AS MUCH AS PRACTICALLY POSSIBLE. ELECTRICALLY INSULATE THE CUT ENDS OF ABANDONED WIRES AND CABLES. CAP AND SEAL ABANDONED CONDUIT OPENINGS.
4. WITH REGARDS TO THE WIRES, CABLES AND CONDUIT ENTERING THE VALVE CHAMBER AT AN ELEVATION ABOVE 1.6 METERS BELOW GROUND ELEVATION, CUT BACK CABLES, WIRES AND CONDUIT ON THE EXTERIOR SIDE OF THE WALL AS REQUIRED TO ALLOW ADEQUATE CLEARANCE FOR OTHER TRADES TO DEMOLISH THE VALVE CHAMBER. COORDINATE THE CUT-BACK LENGTH WITH THE OTHER TRADES. ELECTRICALLY INSULATE THE CUT ENDS OF ABANDONED WIRES AND CABLES. CAP AND SEAL ABANDONED CONDUIT OPENINGS.
5. WITH REGARD TO WIRES, CABLES AND CONDUIT ENTERING THE BUILDING WA05, CUT BACK CABLES, WIRES AND CONDUIT ON THE INTERIOR SIDE OF THE BUILDING AS MUCH AS PRACTICALLY POSSIBLE. ELECTRICALLY INSULATE THE CUT ENDS OF ABANDONED WIRES AND CABLES. CAP AND SEAL ABANDONED CONDUIT OPENINGS.
6. ALL SECTIONS OF EXISTING WIRING, CABLE AND EXPOSED CONDUIT THAT RESIDES IN BUILDING WA05 AND ARE RELATED TO THE ELECTRICAL EQUIPMENT IN THE VALVE CHAMBER SHALL BE ENTIRELY REMOVED, AS WELL AS ANY RELATED ELECTRICAL APPURTENANCES.
7. WITHIN BUILDING WA05, INSTALL APPROPRIATE PLUGS AND COVERS IN AND ON ELECTRICAL ENCLOSURES THAT REMAIN IN SERVICE , WHERE CONDUIT AND CABLE REMOVALS HAVE LEFT OPEN HOLES IN THOSE ENCLOSURES.
8. WITHIN BUILDING WA05, INSTALL APPROPRIATE SEALS IN ALL WALL AND FLOORS WHERE CONDUIT REMOVALS HAVE LEFT OPEN HOLES, TO MAINTAIN THE FIRE RATING ANDS STRUCTURAL INTEGRITY OF THE STRUCTURE AND TO SUIT ENVIRONMENTAL CONDITIONS.
9. THE DETAIL SHOWN IS DIAGRAMMATIC. THE INFORMATION PROVIDED IN THE DETAIL IS UNCONFIRMED. THE CONTRACTOR SHALL VERIFY ON SITE THE EXACT QUANTITY, DETAILS AND FUNCTIONS OF THE ELECTRICAL APPARATUS AND THE THEIR POINT OF POWER CONNECTION IN BUILDING WA05.
10. RETURN INSTRUMENTS, CIRCUIT BREAKERS AND CONTROL PANELS TAKEN OUT OF SERVICE TO THE CLIENT OR DISCARD AS INSTRUCTED BY THE CLIENT.
11. DIVISION 15 TO REMOVE MECHANICAL APPARATUS INCLUDING THE MOTORIZED VALVE THAT RESIDES IN THE VALVE CHAMBER.

WA05 BUILDING NOTES:

1. REMOVE ALL EXISTING WIRING, CABLES AND EXPOSED CONDUIT FROM THE EXISTING DISTRIBUTION PUMPS CONTROL PANEL TO THE BOILER MCC, TO THE HIGH LIFT PUMPS #1 AND #2, AND TO THE PRESSURE AND LEVEL INSTRUMENTATION ASSOCIATED TO THE CONTROL PANEL, AS WELL AS ANY ELECTRICAL APPURTENANCES RELATED TO THE OPERATION OF THE PANEL, THE PUMPS AND THE INSTRUMENTATION.
2. REMOVE ALL EXISTING WIRING, CABLES AND EXPOSED CONDUIT FROM THE EXISTING FIRE PUMP CONTROL PANEL TO SUBSTATION #2 AS WELL AS ANY ELECTRICAL APPURTENANCES RELATED TO THE OPERATION OF THE PANEL, THE PUMP AND THE FIRE ALARM SYSTEM. SEE DETAIL 2 ON E02.
3. REMOVE ALL EXISTING WIRING, CABLES AND EXPOSED CONDUIT FROM THE EXISTING CHLORINATION MONITORING SYSTEM AS WELL AS ANY ELECTRICAL APPURTENANCES RELATED TO THE OPERATION OF THE SYSTEM.
4. CAP AND LABEL ABANDONED CONCEALED CONDUITS.
5. INSTALL APPROPRIATE SEALS IN ALL WALL AND FLOORS WHERE CONDUIT REMOVALS HAVE LEFT OPEN HOLES, TO MAINTAIN THE FIRE RATING AND STRUCTURAL INTEGRITY OF THE STRUCTURE AND TO SUIT ENVIRONMENTAL CONDITIONS.
6. INSTALL APPROPRIATE PLUGS AND COVERS IN AND ON ELECTRICAL ENCLOSURES THAT REMAIN IN SERVICE, WHERE CONDUIT REMOVALS HAVE LEFT OPEN HOLES IN THOSE ENCLOSURES.
7. RETURN INSTRUMENTS, CIRCUIT BREAKERS AND CONTROL PANELS TAKEN OUT OF SERVICE TO THE CLIENT OR DISCARD AS INSTRUCTED BY THE CLIENT.
8. DIVISION 15 TO REMOVE MECHANICAL APPARATUS INCLUDING HIGH LIFT PUMPS #1 AND #2 AND THE FIRE PUMP.
9. CONTRACTOR TO COORDINATE WITH BELL WHEN ADDING THE LANDLINE FROM THE BELL BIX PANEL TO THE DIALER IN THE ELEVATED TANK. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE COMMUNICATION CONDUIT ROUTED FROM THE BIX PANEL TO THE TELEPHONE PORT NEAR THE DIALER IS ROPED AND READY FOR BELL TO COMPLETE THE LANDLINE CONNECTION. BELL IS RESPONSIBLE TO CONNECT THE LANDLINE FROM THE BIX PANEL TO THE TELEPHONE CONNECTION PORT NEAR THE DIALER.



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revision	description	date
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A	Detail No.
B	No. du détail
C	drawing no. – where detail required dessin no. – où détail exigé
	drawing no. – where detailed dessin no. – où détaillé

project title  
titre du projet  
**CHAMBER** Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**ELECTRICAL REMOVALS**  
**WA05 BUILDING & VALVE**  
**CHAMBER**

drawn by  
dessiné par EI

designed by  
conçue par MG

approved by  
approuvé par BS

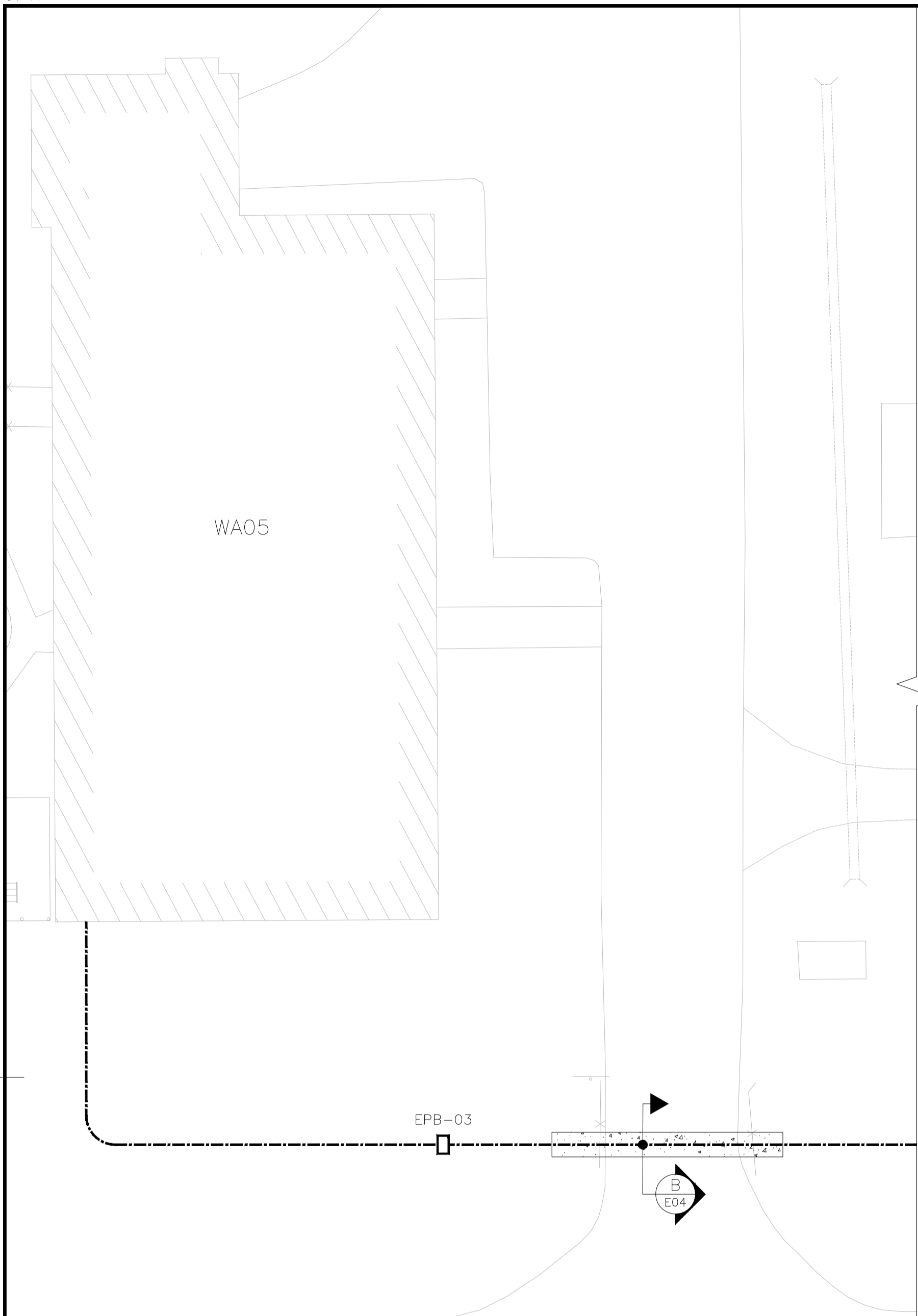
tender  
soumission

project manager  
administrateur de projets

project date  
date du projet 2017/05/16

project no.  
no. du projet R.068488.001

drawing no.  
dessiné no. E03



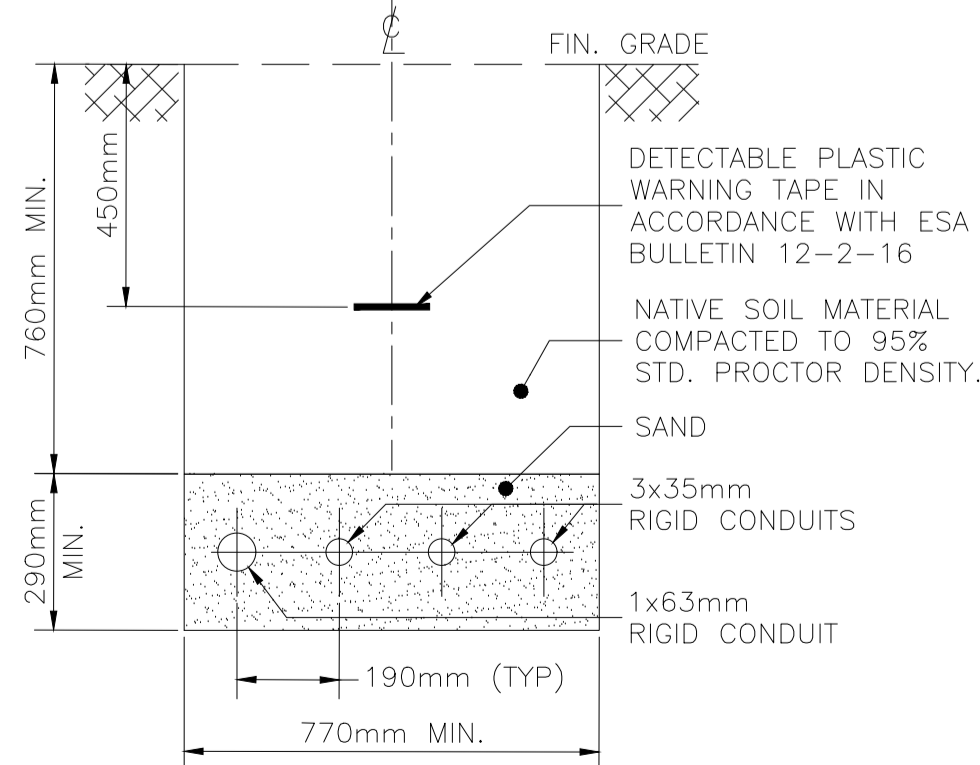
1 SITE PLAN – ELECTRICAL  
SCALE: 1:200



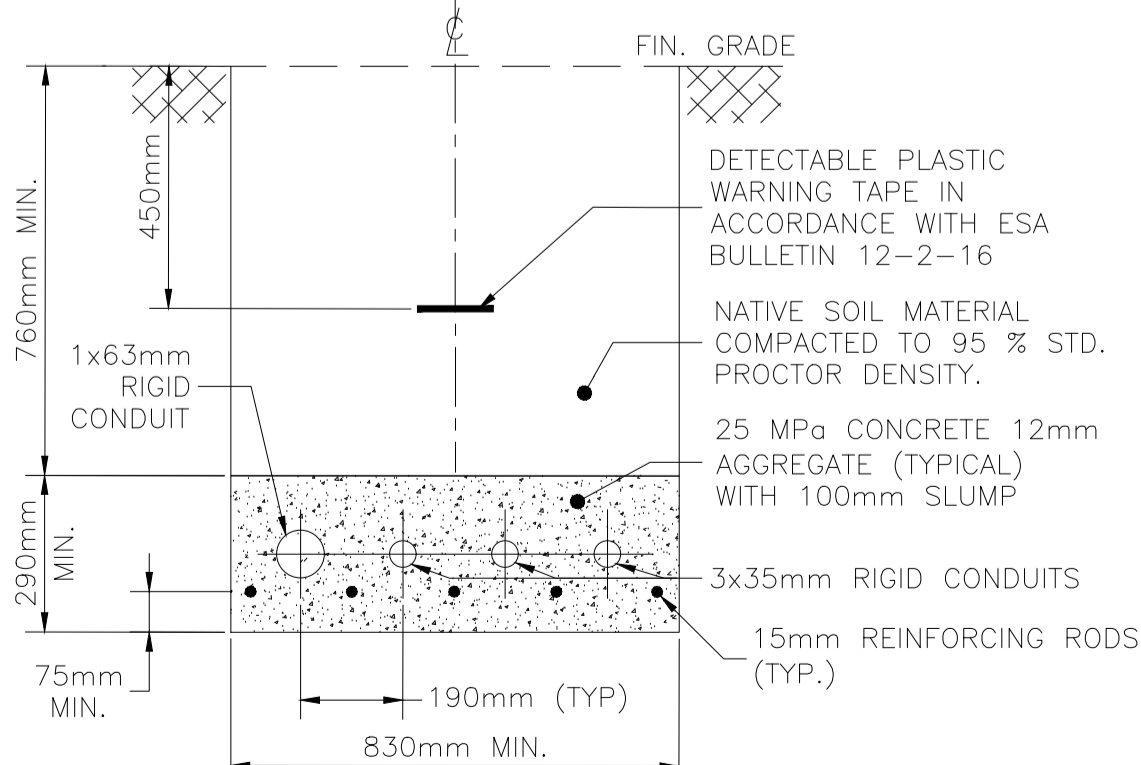
#### CONDUIT SCHEDULE

DIRECTLY BURIED RIGID PVC DUCTS

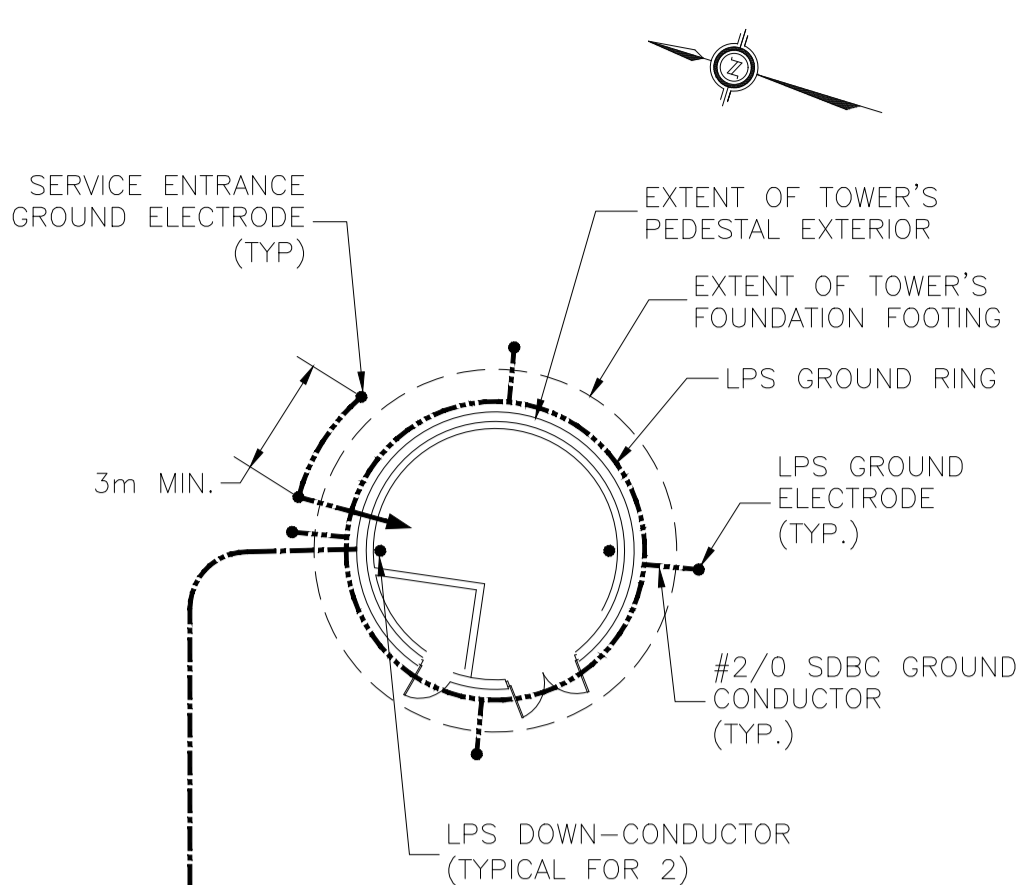
TAG	DESCRIPTION	ORIGIN	DESTINATION	DETAIL
C1	1x63mm (600V POWER) 1x35mm (120V POWER) 1x35mm (BELL COMMUNICATION) 1x35mm (SPARE)	WA05 BUILDING	NEW ELEVATED TANK	A & B



A CROSS SECTION  
E04 SCALE: N.T.S.

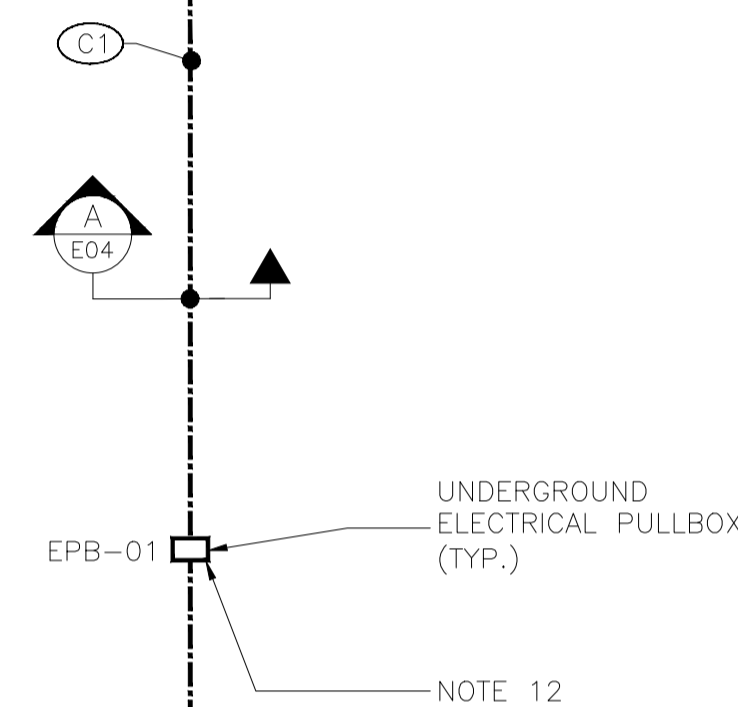


B CROSS SECTION  
E04 SCALE: N.T.S.

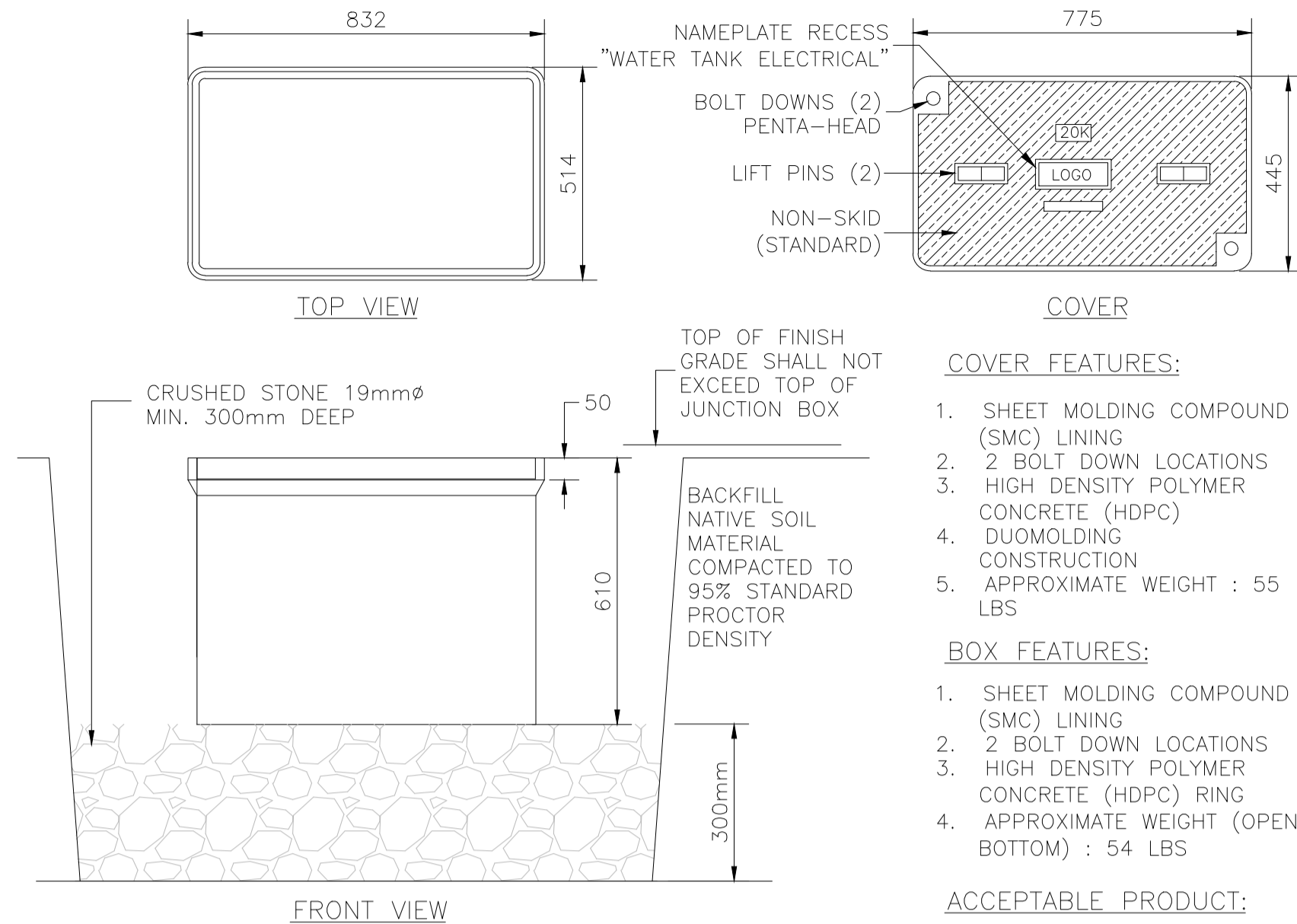


#### NOTES:

1. REFER TO E05 DETAIL 4 FOR GROUND ROD LOCATIONS AND OTHER DETAILS.



NOTE 12



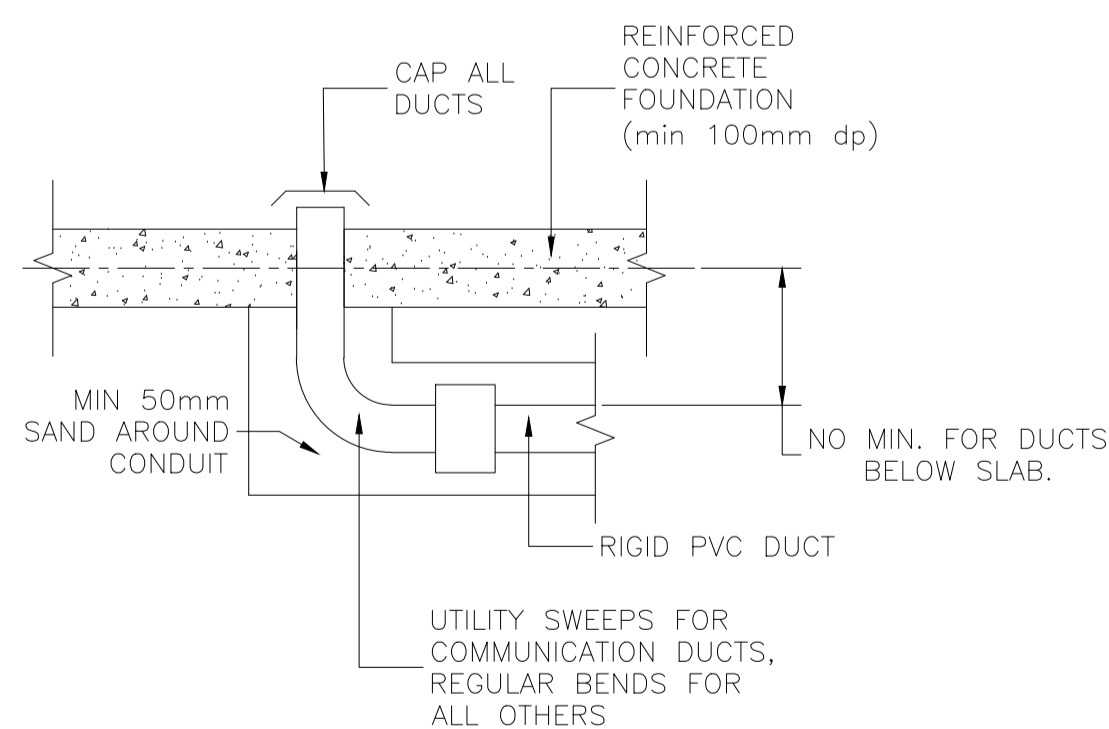
2 TYPICAL UNDERGROUND PULLBOX DETAIL  
SCALE: N.T.S.

#### PULLBOX NOTES:

1. THE DETAIL SHOWN HERE ILLUSTRATES THE METHOD OF INSTALLATION OF THE PULLBOX ENCLOSURES AND IS NOT COMPLETE IN EVERY DETAIL. THE PULLBOX ENCLOSURE DIMENSIONS PROVIDED ARE NOT CONFIRMED TO BE ADEQUATE FOR ALL APPLICATIONS. THE CONTRACTOR SHALL DETERMINE THE NECESSARY DIMENSIONS AND SELECT THE APPROPRIATE MODEL OF PULLBOX ENCLOSURE. THE PULLBOX ENCLOSURE DIMENSIONS PROVIDED ILLUSTRATE THE MINIMUM ACCEPTABLE DIMENSIONS.

#### NOTES:

1. EXISTING CONDUITS, SEWERS, WATERMAINS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES MAY NOT BE SHOWN ON THE CONTRACT DRAWINGS AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME LIABILITY FOR ANY DAMAGE DONE TO THEM.
2. THE CONTRACTOR SHALL STAKE ALL PROPOSED ELECTRICAL TRENCHING & SHALL OBTAIN APPROVAL FROM THE DEPARTMENTAL REPRESENTATIVE PRIOR TO PROCEEDING WITH TRENCHING.
3. COORDINATE INSTALLATION OF ALL BURIED CONDUIT & DUCTS WITH CIVIL WORKS BEING INSTALLED BELOW GRADE.
4. WHEN RUNNING PARALLEL TO ANOTHER UTILITY THE DUCT BANK SHALL BE MINIMUM 1.5M CLEAR AND IN NO CASE INSTALLED IN THE SAME EXCAVATION.
5. SUPPLY, PLACE AND MAINTAIN SHEETING, BRACING AND SHORING AS REQUIRED TO SUPPORT SIDES OF EXCAVATIONS TO PREVENT MOVEMENT WHICH CAN REDUCE NECESSARY WIDTHS OF EXCAVATIONS OR OTHERWISE INJURE OR DELAY WORK, OR ENDANGER ANY PERSON.
6. DUCT BANKS TO BE SLOPED AWAY FROM THE SUBSTATION AND TOWARDS INTERMEDIATE VAULTS/CHAMBERS. MIN. SLOPE: 75MM IN 30M.
7. RESTORE ALL TRENCHING TO ORIGINAL CONDITION OR BETTER AFTER INSTALLATION OF DUCT BANKS.
8. WHERE REINFORCING BARS ENTER STRUCTURES (I.E. TRANSFORMER VAULT), BARS ARE TO ENTER FULL THICKNESS OF WALL OPENING.
9. MAINTAIN SPACING BETWEEN COMMUNICATION AND POWER CONDUITS AS REQUIRED BY ONTARIO ELECTRICAL SAFETY CODE.
10. ALL CONDUITS ARE RIGID PVC UNLESS OTHERWISE NOTED.
11. ALL DUCTS TO BE TERMINATED AT BOTH ENDS WITH A "BELL END" COUPLING.
12. CONTRACTOR TO PROVIDE AND INSTALL A PULLBOX AT EVERY 50m FOR ALL UNDERGROUND INSTALLATIONS. SEE DETAIL 2.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY SUPPORT AND/OR RELOCATION OF EXISTING UTILITIES AND SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE AND COMPLY WITH THE REQUIREMENTS OF ALL UTILITIES WHEN CROSSING.
14. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE ACCURACY OF ALL TEMPORARY BENCHMARKS ESTABLISHED FOR DESIGN PURPOSES, PRIOR TO STARTING CONSTRUCTION.
15. EXISTING TREES AND SHRUBS WHICH ARE NOT TO BE REMOVED UNDER THE CONTRACT SHALL BE PROTECTED DURING ALL PHASES OF CONSTRUCTION. TREES AND SHRUBS WHICH DIE OR DECAY DURING THE MAINTENANCE PERIOD OR ARE SEVERELY DAMAGED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO EXTRA COST TO THE CONTRACT.
16. ALL TOPSOIL SHALL BE STOCKPILED SEPARATELY FROM OTHER EXCAVATED MATERIAL BY THE CONTRACTOR. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE TOPSOIL FROM ANY SOURCE AS BACKFILL IN A TRENCH.
17. ALL ROAD SURFACES DISTURBED BY CONSTRUCTION SHALL BE REINSTATED AS PER THE MINIMUM RESTORATION DETAILS SHOWN.
18. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITIONS OR BETTER. GRASS AREA DISTURBED TO BE RESTORED WITH MINIMUM 100MM TOPSOIL AND SOD.
19. ALL CONTRACTOR LAYDOWN AREAS, STAGING AREAS, STORAGE AND OFFICES TO BE LOCATED WITHIN THE PROPERTY LINE OF THE EXISTING RESERVOIR. CONTRACTOR TO MAINTAIN ACCESS TO TOWN OPERATIONS STAFF AT ALL TIMES.
20. CONDUIT RUNS INSIDE THE ELEVATED TANK ARE NOT SHOWN AND SHALL BE DETERMINED ON SITE.
21. CONDUIT RUNS INSIDE WA05 BUILDING ARE NOT SHOWN AND SHALL BE DETERMINED ON SITE.



3 DUCT BELOW SLAB DETAIL  
SCALE: N.T.S.

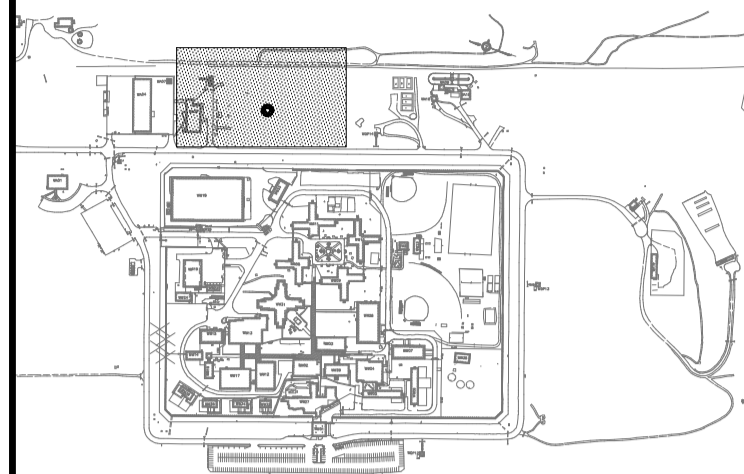
#### NOTES:

1. INSTALL STUB-UPS & CAP ALL DUCTS FOR COMPLETION BY OTHERS.
2. INSTALL GROUND ELECTRODE & RUN EQ'T PIGTAILS FOR CONNECTION TO EQ'T BY OTHERS.



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#### ELECTRICAL SITE PLAN LEGEND:

LS	EXISTING LIGHT STANDARD
HP	HYDRO POLE
HYD	HYDRANT
CX	CONDUIT TAG
EPB-X	ELECTRICAL PULLBOX
---	BURIED RIGID CONDUITS
---	DIRECTLY BURIED SDBC GROUND CONDUCTORS #2/0
---	CONCRETE ENCASED DUCT

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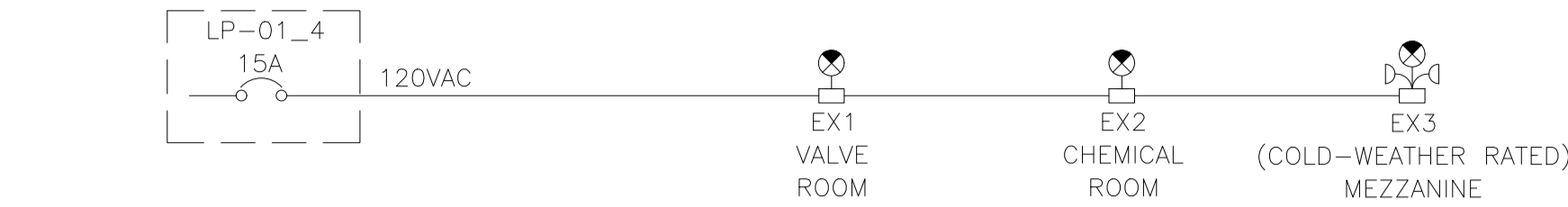
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ELEVATED TANK

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titre du dessin  
**ELECTRICAL SITE PLAN**

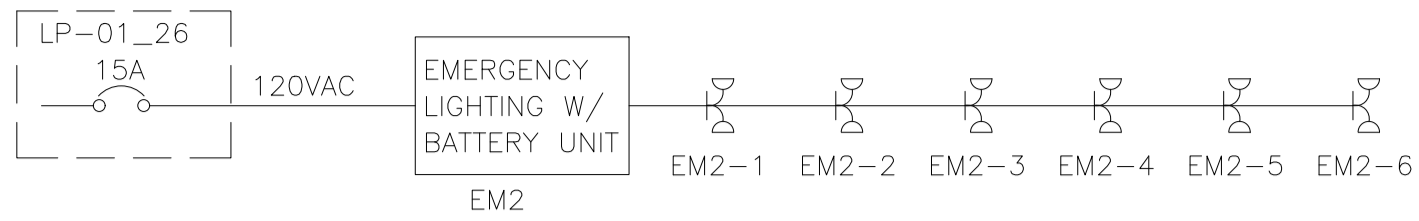
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designed by conc par	MG
approved by approuvé par	BS
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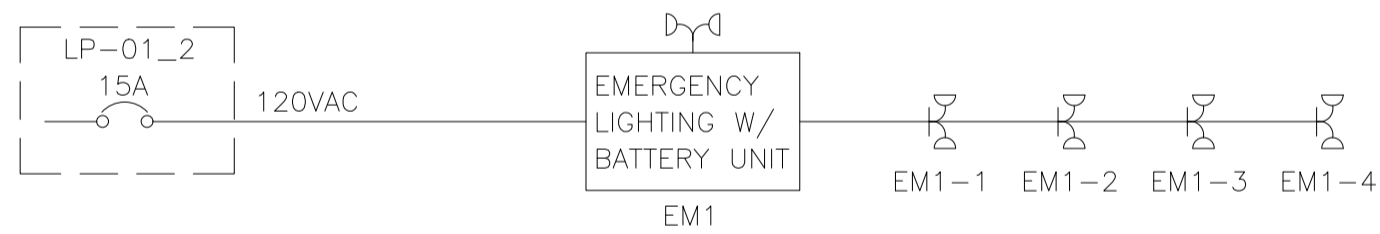
EXIT SIGNS				
TAG NAME	EMERGI-LITE CAT #	DEVICE DESCRIPTION	LOAD (W)	
EX1	EN1WID	SELF-POWERED EXIT PICTOGRAM		TOTAL LOAD (W)
BATTERY UNIT LOAD CAPACITY = 2 HOURS MIN.				
EX2	EN1WID	SELF-POWERED EXIT PICTOGRAM		TOTAL LOAD (W)
BATTERY UNIT LOAD CAPACITY = 2 HOURS MIN.				
EX3	ENC1W6N36LACW	SELF-POWERED EXIT PICTOGRAM SIGN W/2 HEADS 6VDC, COLD WEATHER RATED	9	TOTAL LOAD (W)
BATTERY UNIT LOAD CAPACITY FOR 90 MIN. = 20W			9	

1 EXIT SIGNS  
SCALE: N.T.S.



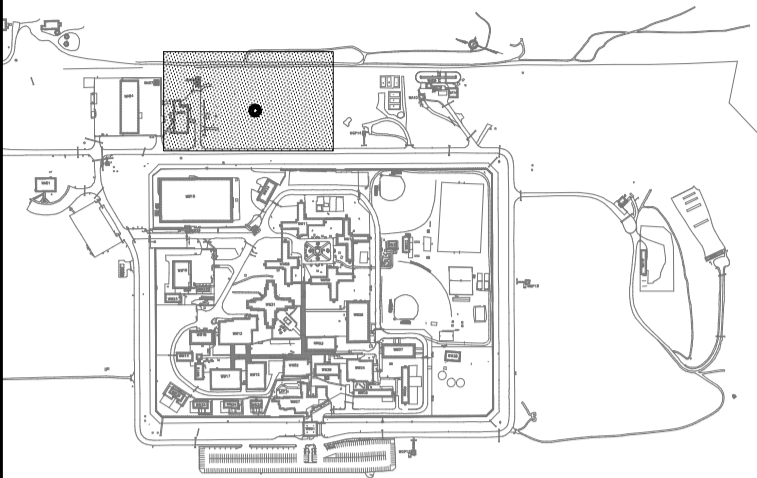
EMERGENCY LIGHTS – PEDESTAL, UPPER PLATFORM AND ACCESS TUBE				
TAG NAME	EMERGI-LITE CAT #	DEVICE DESCRIPTION	LOAD (W)	
EM2	12ESLNX200U/0	BATTERY UNIT	12	
EM2-1	EF39PDM-LJ	NEMA 4 FIXTURE W/ 2 HEADS	12	
EM2-2			12	
EM2-3			12	
EM2-4			12	
EM2-5			12	
EM2-6			12	
BATTERY UNIT LOAD CAPACITY FOR 90 MIN. = 83W			72	

3 EMERGENCY LIGHTING – UPPER PLATFORM AND PEDESTAL  
SCALE: N.T.S.



EMERGENCY LIGHTING — MEZZANINE LEVEL (VALVE ROOM)				
TAG NAME	EMERGI-LITE CAT #	DEVICE DESCRIPTION	LOAD (W)	
EM1	12ESLNX200U/2LJ	BATTERY UNIT W/2 HEADS	12	
EM1-1	EF39PDM-LJ	NEMA 4X FIXTURE W/ 2 HEADS	12	
EM1-2			12	
EM1-3			12	
EM1-4			12	
BATTERY UNIT LOAD CAPACITY FOR 90 MIN. = 83W			60	TOTAL LOAD (W)

2 EMERGENCY LIGHTING – VALVE ROOM AND CHEMICAL ROOM  
SCALE: N.T.S.



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ELEVATED TANK

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EMERGENCY LIGHTING AND  
EXIT SIGNS SCHEDULES

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PY

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MG

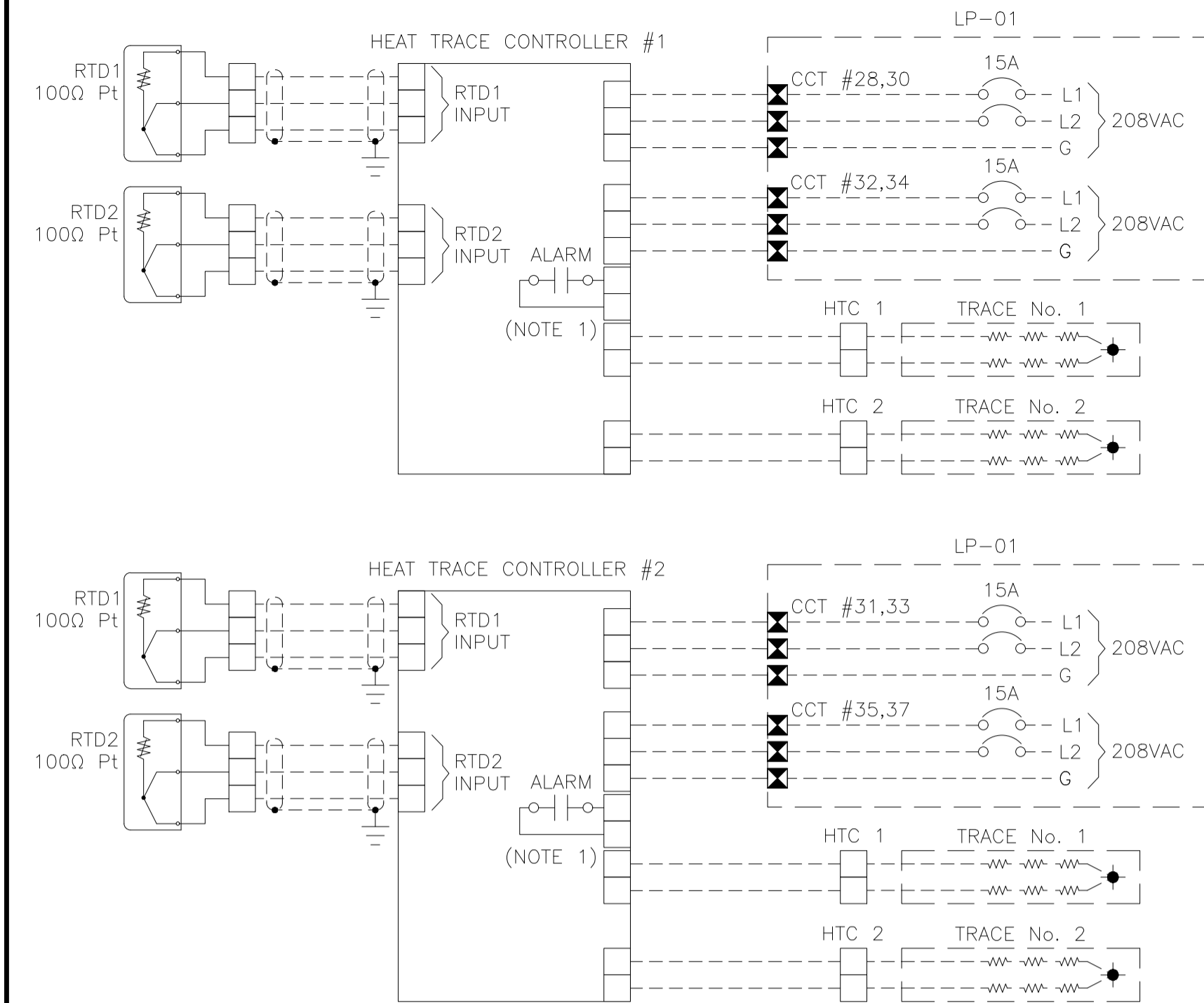
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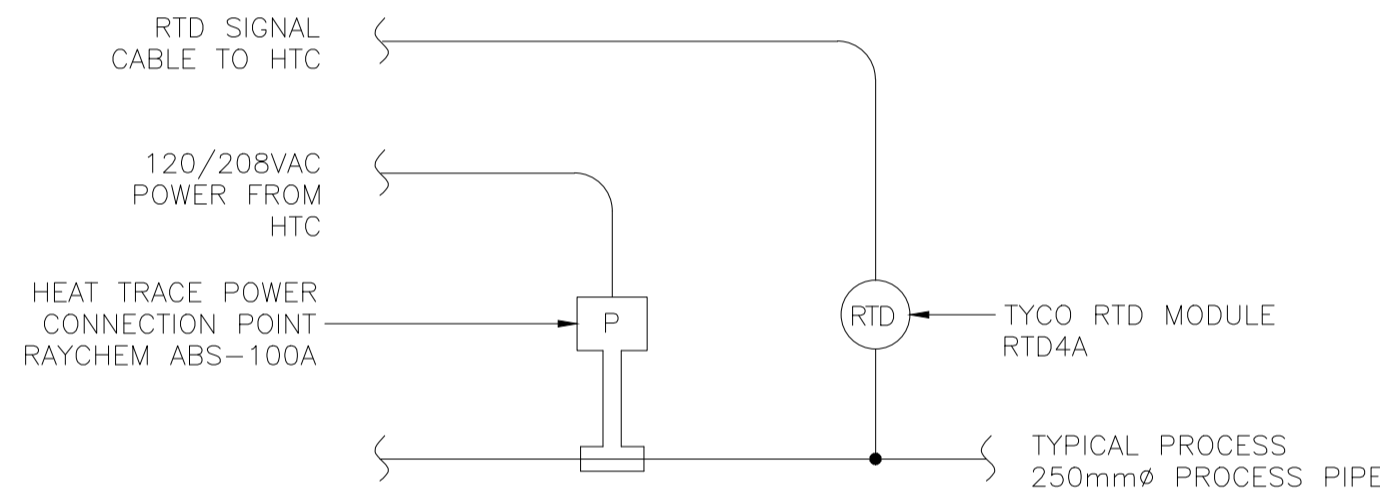
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HEAT TRACE NOTES:

1. EACH HEAT TRACE PANEL TO INCLUDE A GENERAL ALARM PILOT LIGHT ON THE DOOR EXTERIOR.

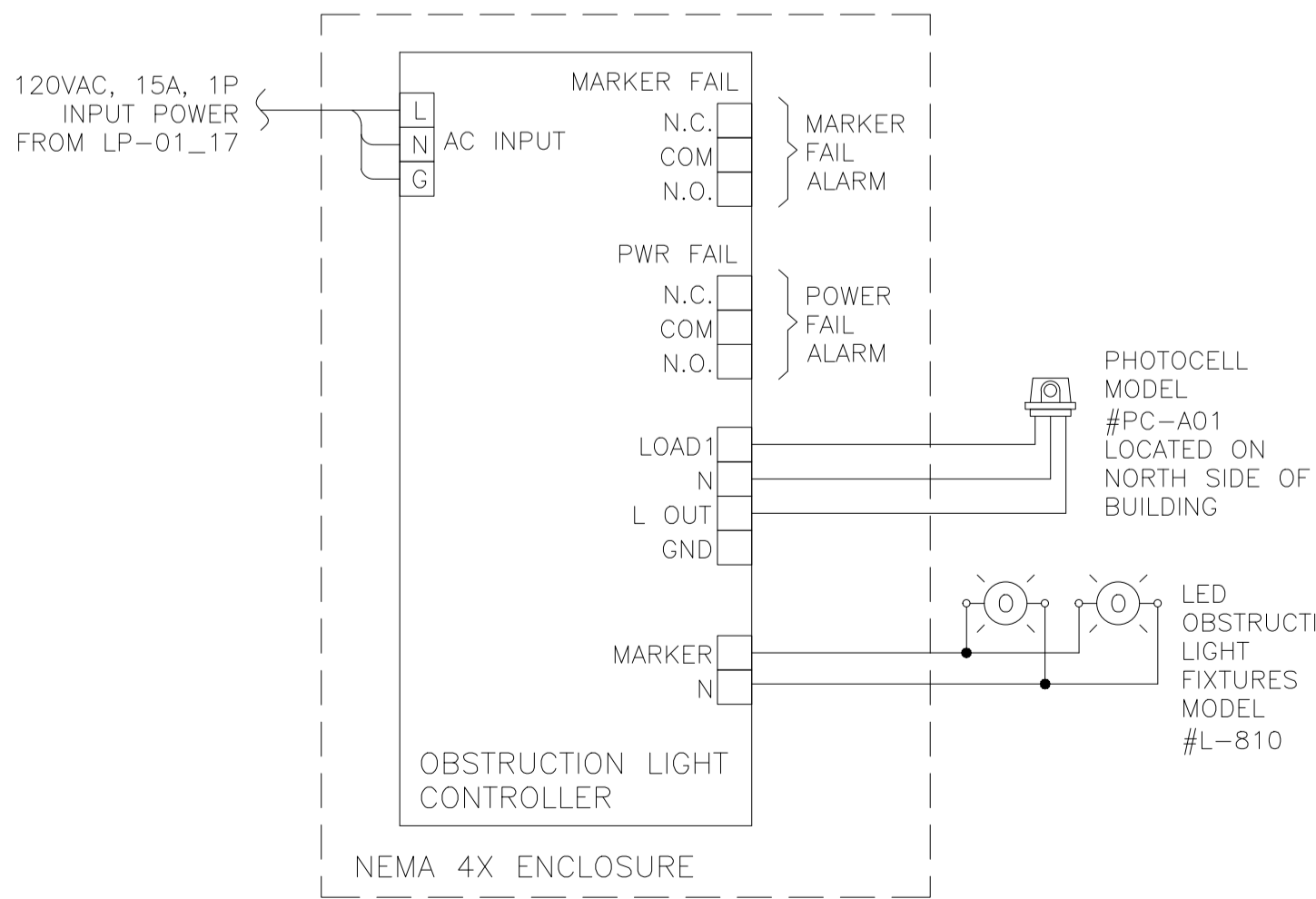
1 HEAT TRACE CONTROLLER DETAIL – DUAL TRACE (TYP.)  
SCALE: N.T.S.



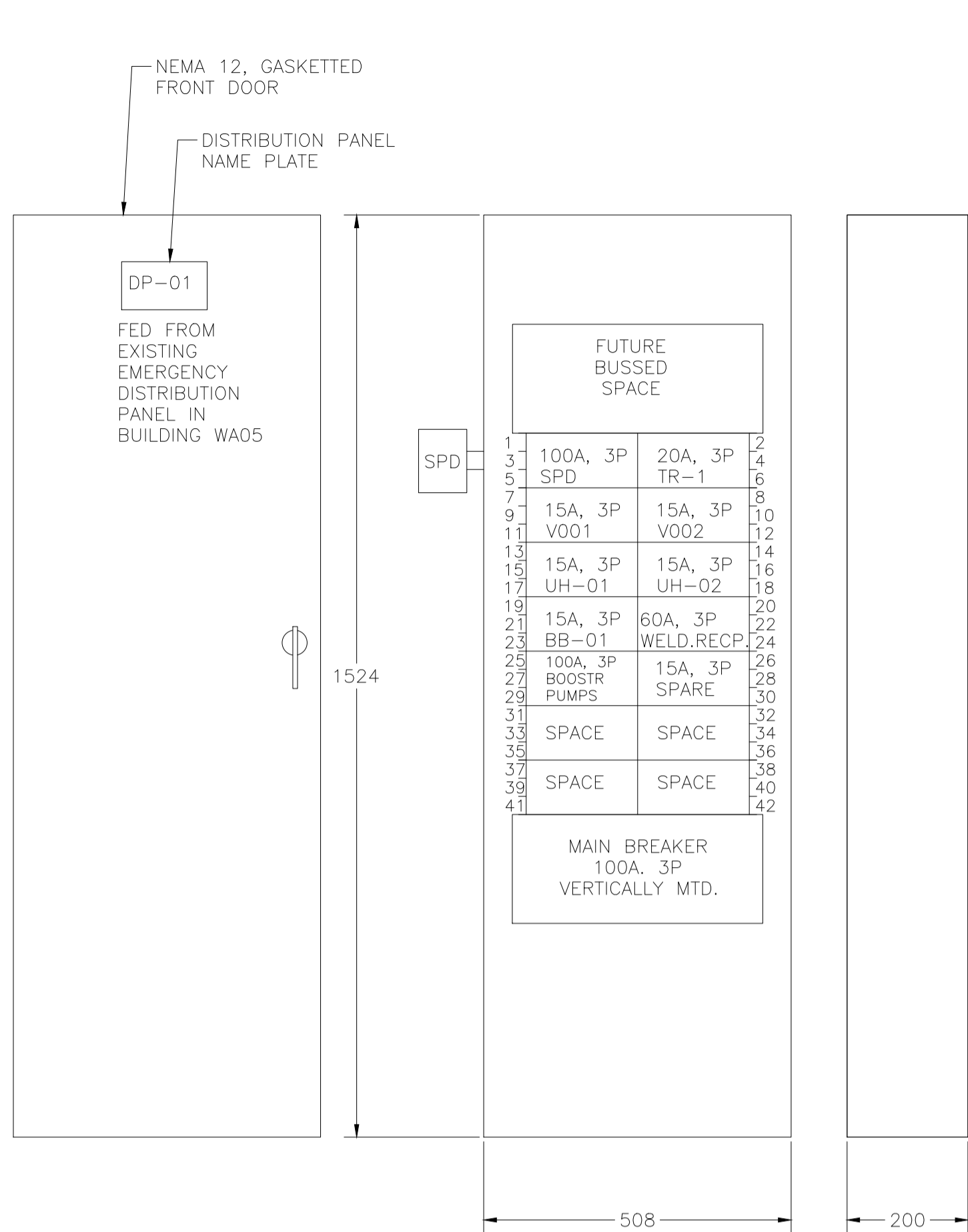
2 HEAT TRACE, CROSS SECTION (TYP.)  
SCALE: N.T.S.

DUAL TRACE NOTES:

1. DUAL TRACE APPLICATIONS: TWO 250mmØ PROCESS PIPES



3 ELECTRICAL CONNECTION – OBSTRUCTION LIGHT  
SCALE: N.T.S.

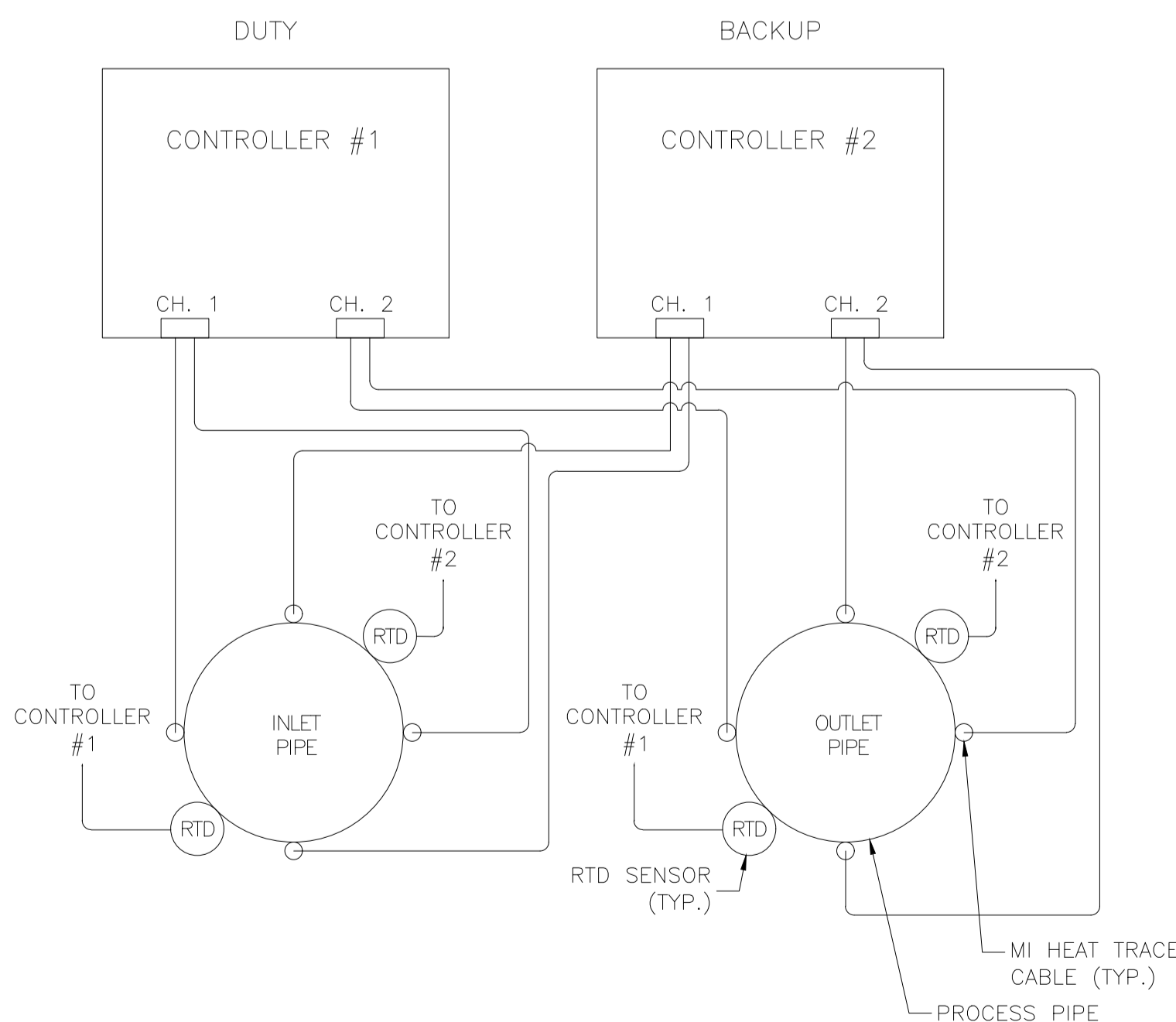


FRONT DOOR VIEW

FRONT VIEW

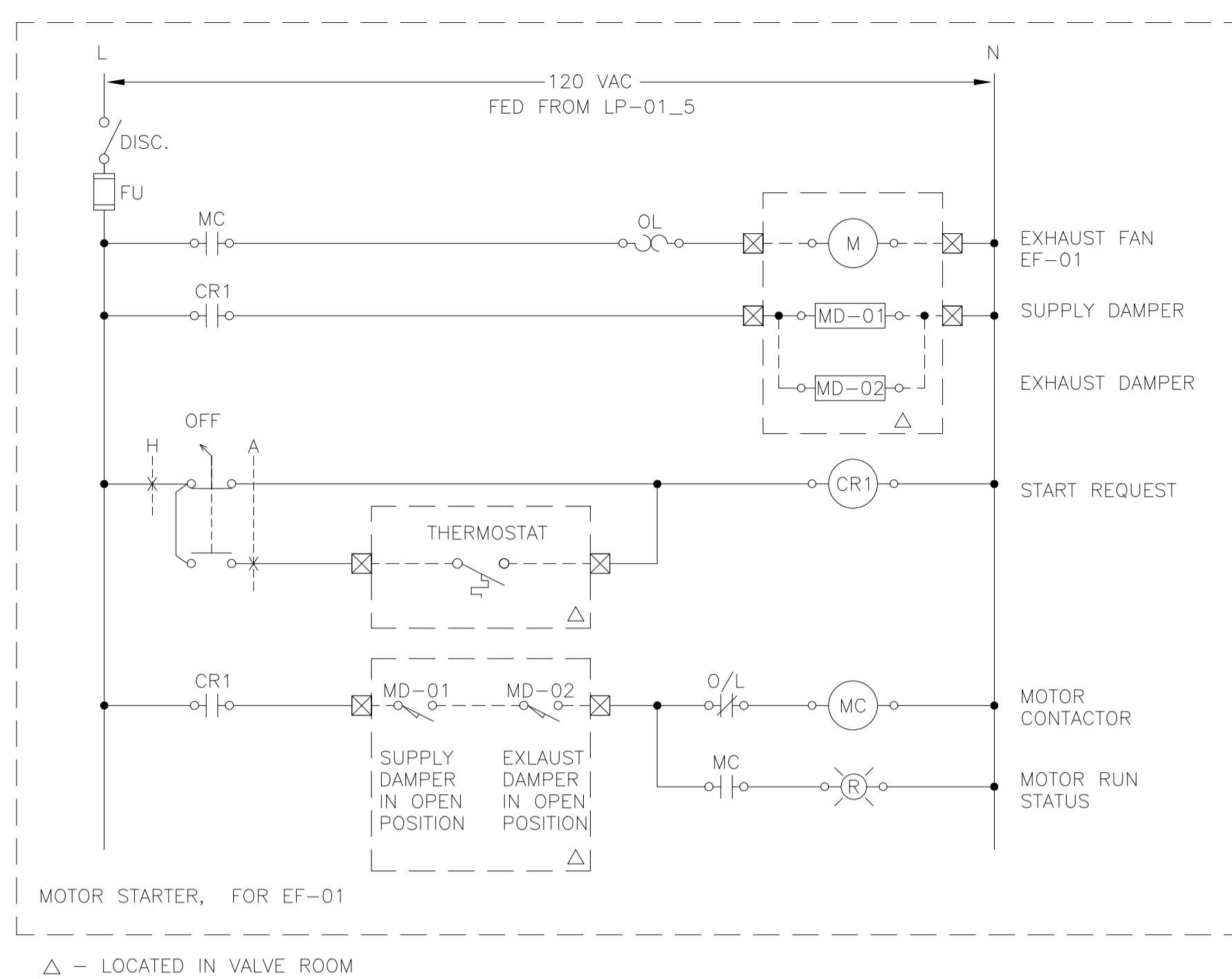
SIDE VIEW

4 PANEL LAYOUT (DP-01)  
SCALE: N.T.S.



5 INLET AND OUTLET PIPEWORK HEAT TRACE, WIRING OVERVIEW (TYP.)  
SCALE: N.T.S.

REFER TO E05 DETAIL 4 FOR MORE DETAILS

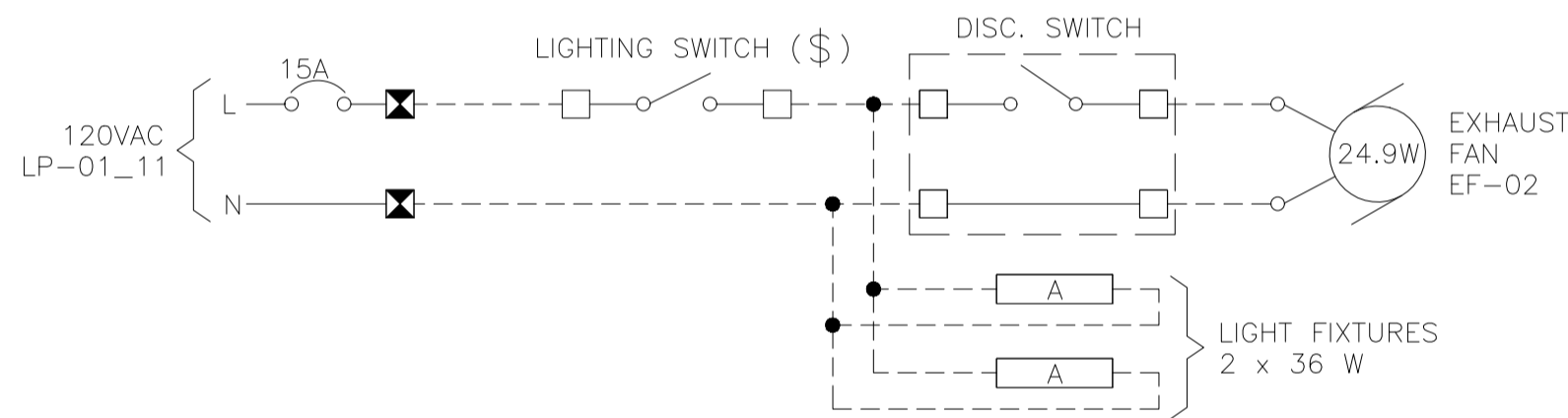


△ – LOCATED IN VALVE ROOM

6 VALVE ROOM EXHAUST FAN (EF-01) STARTER SCHEMATIC  
SCALE: N.T.S.

NOTES:

1. COORDINATE WITH VENTILATION CONTROL SYSTEM PACKAGE TO SUIT FAN, DAMPER OPERATION.

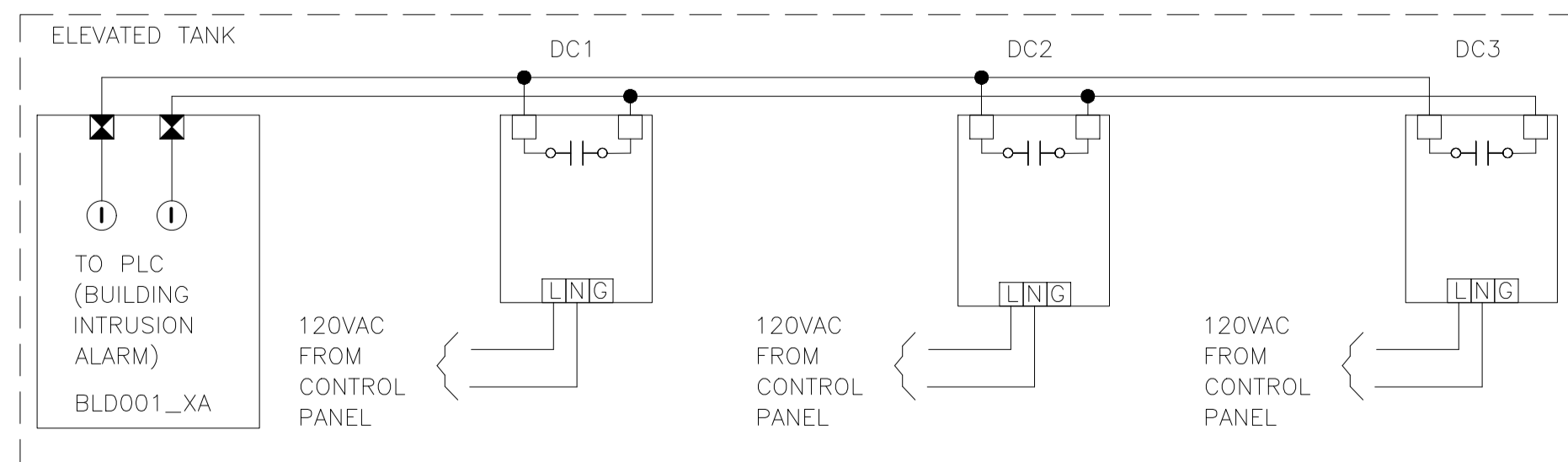


7 CHEMICAL ROOM LIGHTING AND EXHAUST FAN (EF-02) STARTER SCHEMATIC  
SCALE: N.T.S.

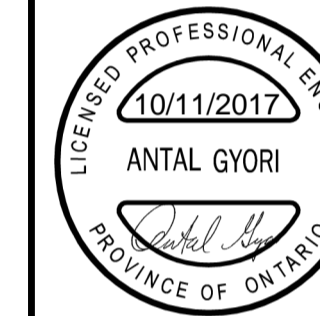
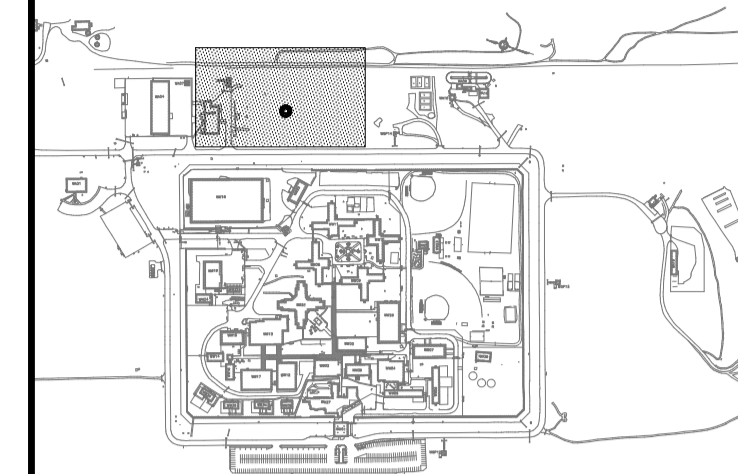
ELECTRICAL UNIT HEATERS SCHEDULE

TAG	AREA SERVED	LOCATION	SPECIFICATION	OUELLET MODEL OR APPROVED EQUAL	KW	VOLTS	PHASE
UH-01 UH-02	VALVE ROOM	VALVE ROOM	INDUSTRIAL UNIT HEATER C/W BUILT-IN THERMOSTAT OPTIONS: 1. BUILT-IN T-STAT 2. WALL BRACKETS 3. DISCONNECT, 3P, NEMA 4X, ADJACENT EACH UNIT	OAS07536-T-DIS40-120	4	600	3
BB-01	CHEMICAL ROOM	CHEMICAL ROOM		OFM0502	0.5	600	3

8 ELECTRICAL UNIT HEATERS SCHEDULE  
SCALE: N.T.S.



9 DOOR CONTACTS CONTROL WIRING  
SCALE: N.T.S.



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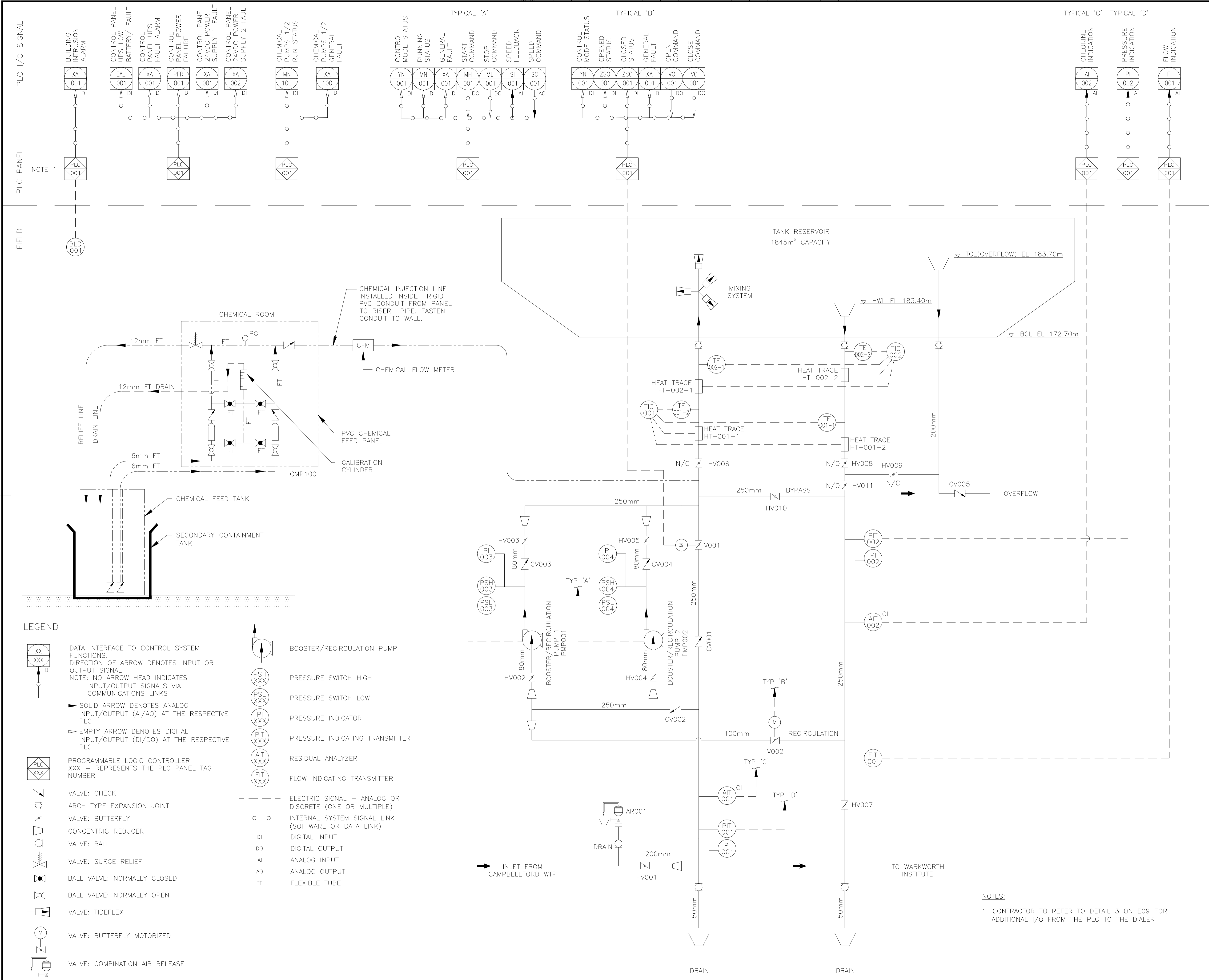
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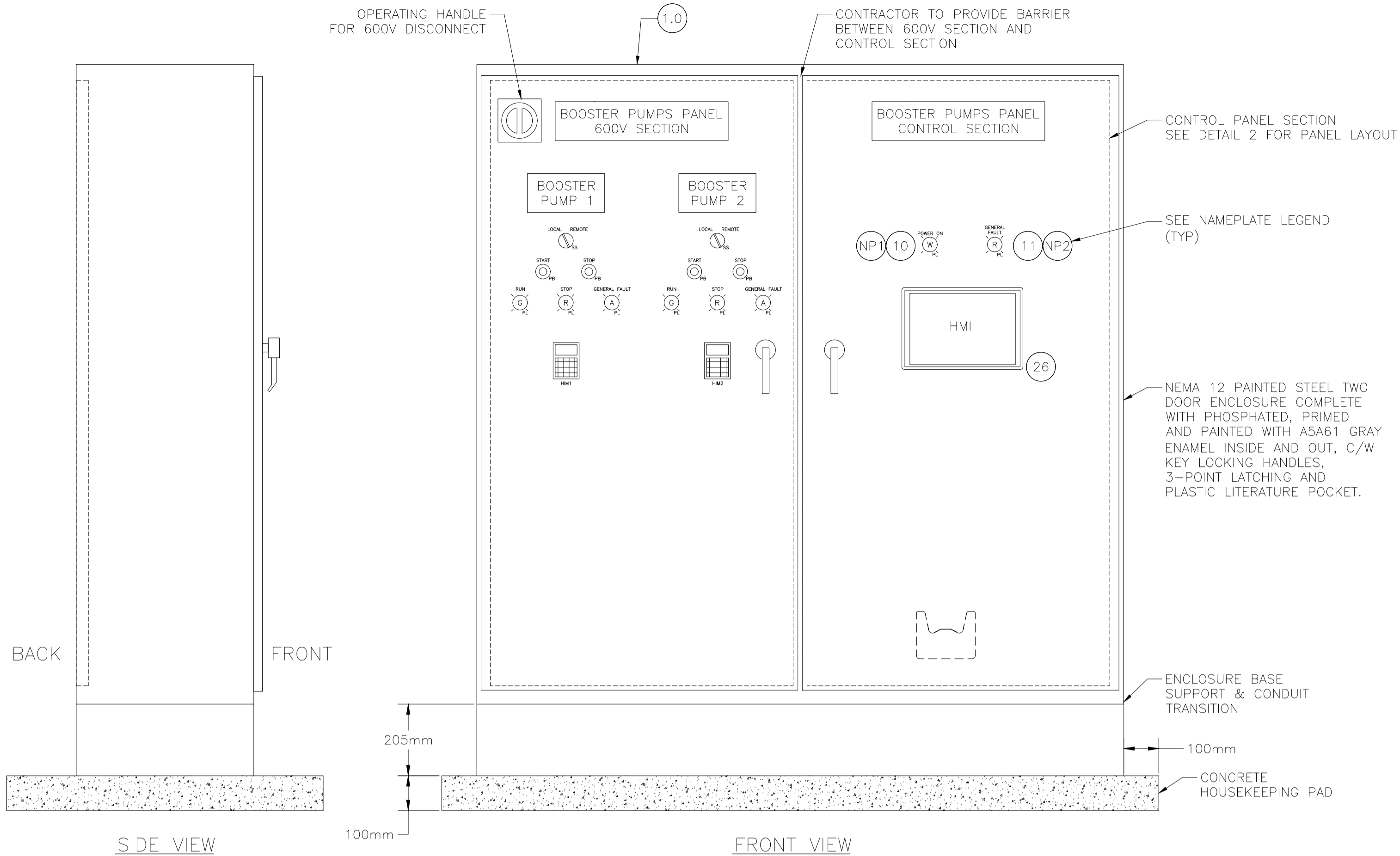
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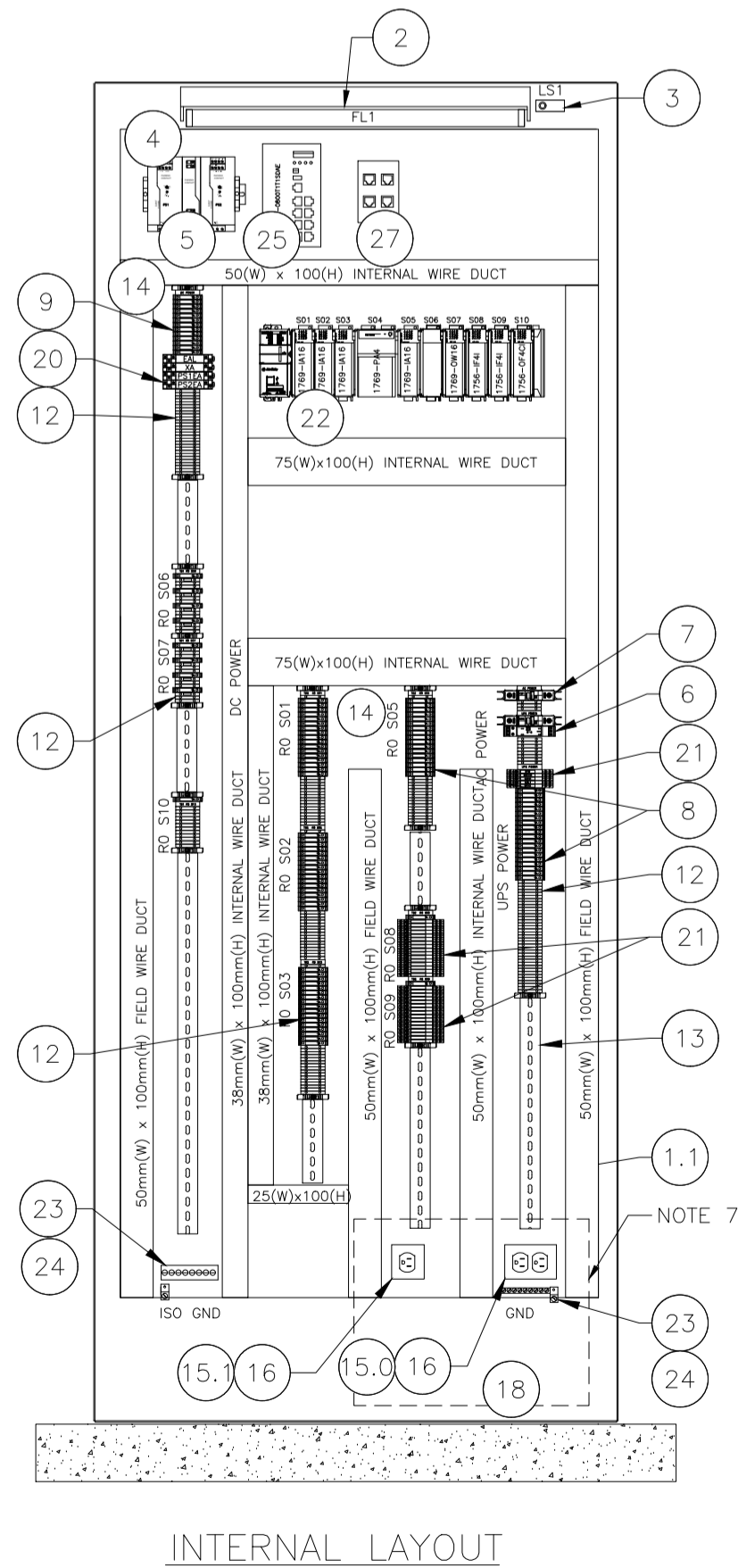
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**CONSTRUCT NEW POTABLE WATER ELEVATED TANK**

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**PROCESS FLOW I/O SCHEMATIC**

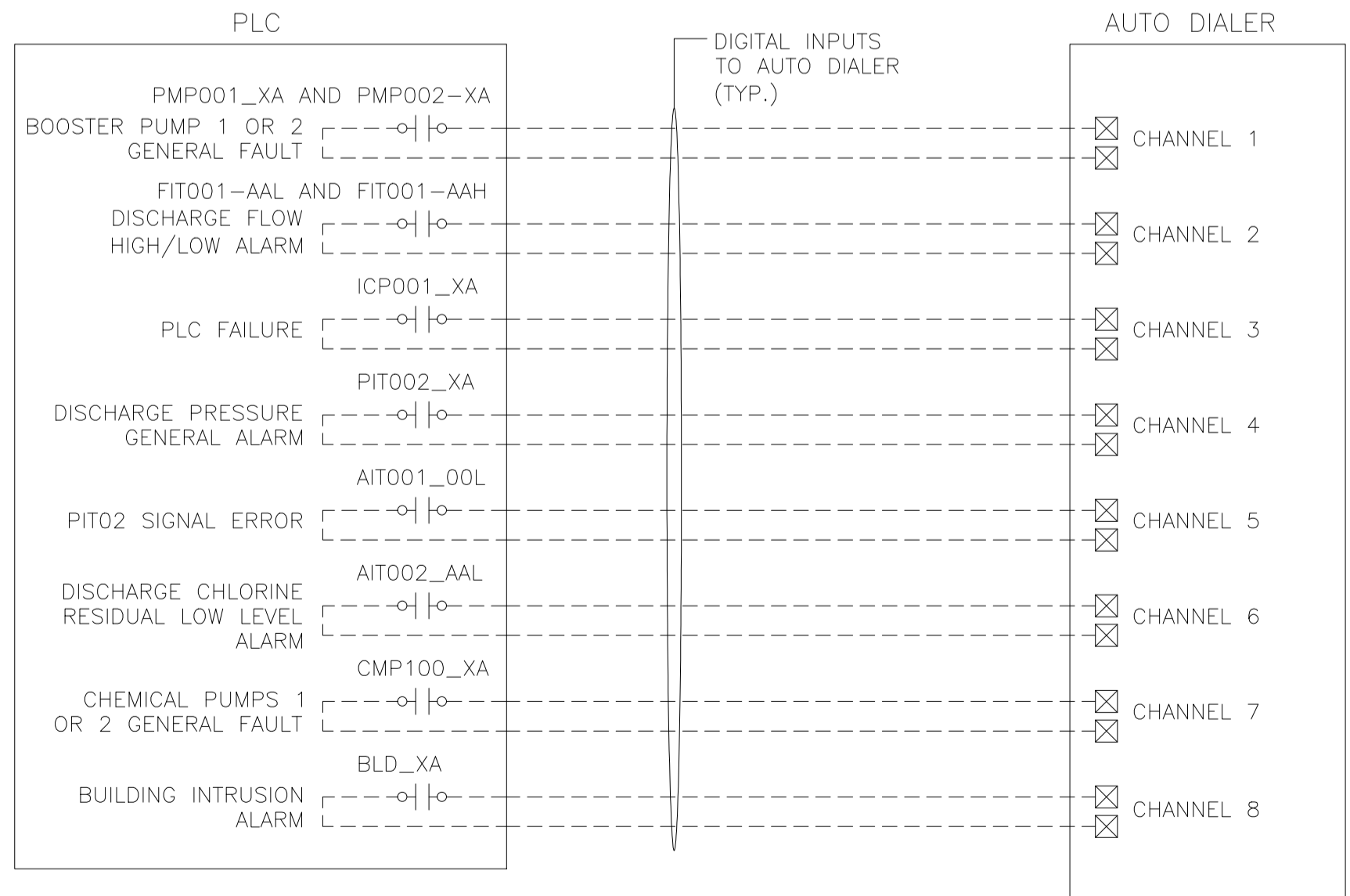
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1 BOOSTER PUMPS PANEL ELEVATION  
SCALE: NTS



2 BOOSTER PUMPS PANEL CONTROL SECTION  
SCALE: NTS



3 AUTO DIALER WIRING DETAIL  
SCALE: NTS

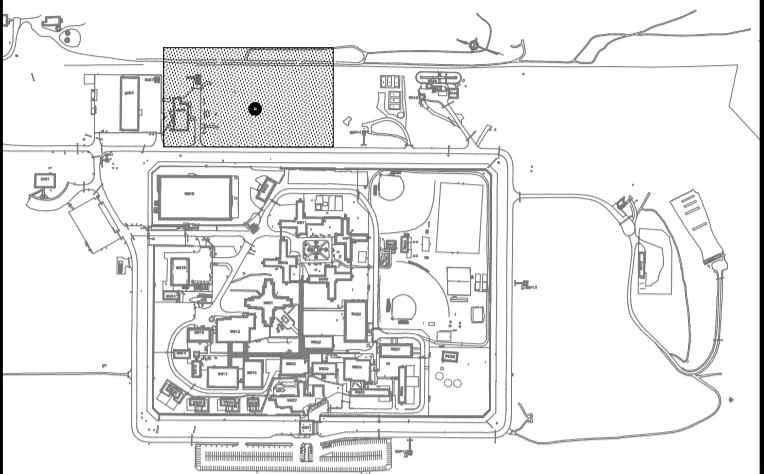
NOTES:

- CONTRACTOR TO PROVIDE A BOOSTER PUMPS PANEL ENCLOSURE THAT CONSISTS OF A 600V SECTION THAT COMES WITH MOTOR STARTERS AND A CONTROL SECTION THAT INCLUDES THE PLC AND HMI. THE BOOSTER PUMPS PANEL LAYOUT SHOWN HERE IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY. CONTRACTOR SHALL DESIGN THE PANEL SECTION LAYOUTS BASED ON THE ILLUSTRATION DRAWING THAT HAS BEEN PROVIDED.
- CONTRACTOR TO PROVIDE A BARRIER BETWEEN THE 600V SECTION AND CONTROL SECTION OF THE BOOSTER PUMPS PANEL.
- THE NEW BOOSTER PUMPS PANEL SHALL BE INSTALLED ON A CONCRETE HOUSEKEEPING PAD.
- THE CONTROL SECTION SHALL BE FULL DEPTH C/W BACKPLATE FOR MOUNTING.
- PROVIDE VENTILATION FOR THE THE PANEL SECTIONS AS REQUIRED TO MITIGATE TEMPERATURE RISE INSIDE THE RESPECTIVE PANEL SECTIONS. PANEL TEMPERATURE SHALL NOT EXCEED 29 DEGREES CELSIUS. ALL VENTILATION OPENINGS SHALL C/W REMOVABLE FILTERS.
- THE BOOSTER PUMP PANEL NEMA 12 ENCLOSURE IS TO INCLUDE VENTILATION TO SUIT PLC ENVIRONMENTAL PROOF DRIP SHIELD. THE ENCLOSURE SHALL INCLUDE CORROSION INHIBITORS, FLUORESCENT LIGHTS IN EACH SECTION (600V SECTION AND CONTROL PANEL SECTION), ROLLERS TO SUIT 3-POINT DOOR LATCHES, OIL CONTINUOUS PIANO HINGE/HEAVY DUTY HINGE, STIFFENERS GROUNDED SMOOTH SEAMS, GASKETED DOORS WITH PAINTED STAINLESS STEEL.
- PROVIDE 200 MM MINIMUM CLEARANCE TO SUIT THE FRONT UPS DISPLAY AND 150 MM CLEARANCE TO SUIT THE UPS REAR RECEPTACLES.
- ALL CONTROL SYSTEM COMPONENTS INCLUDING TERMINAL BLOCKS, WIRING, WIRE WAYS, PLC, ETC., ARE TO BE MOUNTED ON THE BACK PLATE. PROVIDE ADDITIONAL CONTROL SECTIONS AS REQUIRED TO SUIT THE DESIGN OF THE CONTROL PANEL APPLICATIONS. DO NOT MOUNT ANY CONTROL SYSTEM COMPONENTS ON THE RESPECTIVE PANEL SIDE WALLS.
- PANDUIT TYPE WIRE WAYS SHOWN ON LAYOUTS ARE TO BE CONSIDERED MINIMUM REQUIREMENT. THE CONTRACTOR IS REQUIRED TO DESIGN THE PANEL LAYOUT TO SUIT THE SPECIFIC APPLICATION.
- UPS POWER FEED RECEPTACLE COLOUR TO BE ORANGE.
- CONTRACTOR TO PROVIDE A RACO VERBATIM AUTODIALER, MODEL NUMBER 327VPLC-4C-96ET WITH 8 DISCRETE ALARM CHANNELS THAT ARE TO BE TIED TO THE PLC. CONTRACTOR TO PROGRAM THE AUTODIALER ALARM CHANNELS AND PROVIDE VOICE RECORDING FOR THE SPECIFIC ALARMS AS SHOWN, UPON APPROVAL FROM THE INSTITUTION. CONTRACTOR TO PROVIDE ADDITIONAL WIRING AND RELAYS AS REQUIRED. PROVIDE 120VAC POWER TO THE DIALER AS REQUIRED. COORDINATE WITH BELL WHEN PROVIDING A BELL LANDLINE CONNECTION.



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CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

BOOSTER PUMPS  
PANEL AND DIALER DETAILS

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dessiné par

PY

designed by  
conc par

MG

approved by  
approuvé par

BS

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administrateur de projets

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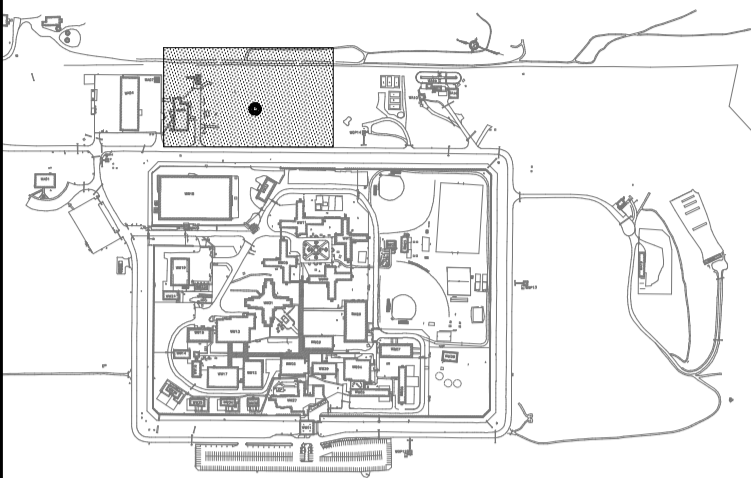
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BOOSTER PUMPS CONTROL SECTION						
ITEM	TAG	QTY	MAKE	MODEL	DESCRIPTION	CERT.
1.0	ENCL	1	EUROBEX		NEMA 12 ENCLOSURE, c/w KEY LOCKING HANDLES, 3POINT LATCHING	CSA
1.1	BP	1	EUROBEX		BACK PANEL	CSA
2	FL1	2	CFI	SB124-120SO	24" 120VAC LIGHT FIXTURE C/W LAMP (ONE FOR EACH SECTION)	CSA
3	LS1,2	2	OMRON	A-20GQ-B7-K	PANEL DOOR ACTIVATED LIGHT SWITCH, 7.5A, c/w SWITCH COVER (PART #: AP-Z) (ONE FOR EACH SECTION)	CSA
4	PS1,2	2	PHOENIX CONTACT	2866750	24VDC 5A POWER SUPPLY, QUINT-PS/1AC/24DC/5	CSA
5	EY	1	PHOENIX CONTACT	2320157	REDUNDANCY MODULE, 2 x 20A (INPUT)MAX, DIODE/12-24DC/2X20/1X40	CSA
6	S-S	1	PHOENIX CONTACT	2856812	120VAC IN/OUT SURGE PROTECTOR, 26A, PT2-PE/S-120AC/FM	CSA
7	CB1, CB2	2	ABB/ENTRELEC	SU201M-C20	120VAC 60HZ 20A 1 POLE CIRCUIT BREAKER	CSA
8			ABB/ENTRELEC	011566121	120VAC FUSE TERMINAL BLOCK WITH INDICATOR c/w FAST ACTING FUSE	CSA
9		AS REQ	ABB/ENTRELEC	011566323	24VDC FUSE TERMINAL BLOCK WITH INDICATOR c/w FAST ACTING FUSE	CSA
10	IL1	1	ALLEN BRADLEY	800FP-LE7	"POWER ON" WHITE CAP EXTENDED PUSH-TO-TEST BUTTON	CSA
				800F-PN5W	WHITE PILOT LIGHT LED	CSA
				800F-X10	NORMALLY OPEN CONTACT	CSA
				800F-X01	NORMALLY CLOSED CONTACT	CSA
11	IL2	1	ALLEN BRADLEY	800FP-LE4	"GENERAL FAULT" RED CAP EXTENDED PUSH-TO-TEST BUTTON	CSA
				800F-PN5R	RED PILOT LIGHT LED	CSA
				800F-X10	NORMALLY OPEN CONTACT	CSA
				800F-X01	NORMALLY CLOSED CONTACT	CSA
12	TB's	AS REQ	ABB/ENTRELEC	011511607	GREY SINGLE DECK TERMINAL BLOCK	CSA
				012511601	BLUE SINGLE DECK TERMINAL BLOCK	CSA
				011568714	SWITCH TERMINAL BLOCK WITH BLADE	CSA
				011836816	SINGLE DECK TERMINAL BLOCK END PLATE	CSA
				011695115	FUSE TERMINAL BLOCK END PLATE	CSA
				010300226	END STOP	CSA
13	DIN	AS REQ	PHOENIX CONTACT	1201730	TS 35x7.5 DIN RAIL, STEEL	CSA
14		AS REQ	PANDUIT	TYPE F	GRAY PVC WIRE DUCT & COVER, SIZE AS ON LAYOUT DRAWING	CSA
15.0	REC1	1	HUBBELL	CR5252I	120VAC 15A DUPLEX RECEPTACLE, NEMA 5-15R, IVORY	CSA
15.1	REC2	1	HUBBELL	RR201	120VAC 20A SIMPLEX RECEPTACLE, NEMA 5-20R, BROWN	CSA
16	RBOX	2	IBERVILLE	BC1110	RECEPTACLE BOX	CSA
17		1	CUSTOM MADE		BREAKER AND FUSE TABLE WITH PLEXIGLASS COVER MOUNTED ON INNER SIDE OF DOOR	CSA
18	UPS1	1	POWERWARE	9130L2000T-XL	120VAC/120VAC UPS,2000VA/1800W, ETHERNET COMPATIBLE	CUL
	EBM1	1	POWERWARE	PW9130N2000T-EBM	EXTENDED BATTERY MODULE FOR 9130L2000T-XL	CUL
		1	POWERWARE	1014018	RELAY INTERFACE CARD UPS, CONTACT RATED 1A/30VAC OR 200mA/60VDC	CUL
19	MBM	1	POWERWARE	58120	MAINTENANCE BYPASS MODULE MOUNTED ON INNER SIDE OF DOOR	CSA
20	EAL, PS1EA, PS2EA, XA	4	OMRON	G2R-1-SN-DC24S	24VDC SPDT INTERPOSING RELAY WITH INDICATOR, CONTACT 10A	CSA
				P2RF-05-E	SCREW TERMINAL SOCKET SPDT INTERPOSING RELAY	CSA
21	PFR, CRHH1, CRH1, CRL1, CRXX, CR*	37	OMRON	G2R-1-SN-AC120S	120VAC SPDT INTERPOSING RELAY WITH INDICATOR, CONTACT 10A	CSA
				P2RF-05-E	SCREW TERMINAL SOCKET SPDT INTERPOSING RELAY	CSA
22	PLC-001	1	ALLEN BRADLEY	1769-PA4	120VAC 60Hz POWER SUPPLY, 200VA MAX @ INPUT	CSA
		1	ALLEN BRADLEY	1769-L36ERM	CPU MODULE C/W INDUSTRIAL COMPACTFLASH CARD 1784-CF128	CSA
		4	ALLEN BRADLEY	1769-IA16	16 POINT ISOLATED DISCRETE INPUT MODULE, 120VAC	CSA
		1	ALLEN BRADLEY	1769-OW16	16 POINT ISOLATED RELAY DISCRETE OUTPUT MODULE, N.O. CONTACT	CSA
		2	ALLEN BRADLEY	1769-IF4I	4 POINT ANALOG INPUT MODULE, 4-20mA	CSA
		1	ALLEN BRADLEY	1769-OF4CI	4 POINT ANALOG OUTPUT MODULE, 4-20mA	CSA
23		AS REQ	ILSCO	N-174	COPPER GROUND BAR 6-14 AWG	CSA
24		AS REQ	ILSCO	SLU-125	COPPER GROUND LUG 1/0-6 AWG	CSA
25	ETHS1	1	HIRSCHMANN	RS20-0800T1T1SDAE	MANAGED ETHERNET SWITCH	CSA
26	HMI1	1	ALLEN BRADLEY	PANELVIEW PLUS 6	HMI 7" SCREEN SIZE	CUL
27	WA1	1			4-PORT WORK AREA OUTLET	CSA



Do not scale drawings.  
Verify all dimensions and conditions on site and  
immediately notify the engineer of all discrepancies.

	A	Detail No.
	B	No. du détail
	C	drawing no. - where detail required dessin no. - où détail exigé

project title  
titre du projet  
WARKWORTH Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
BOOSTER PUMPS  
CONTROL PANEL  
BILL OF MATERIAL

drawn by  
dessine par  
PY

designed by  
conc par  
MG

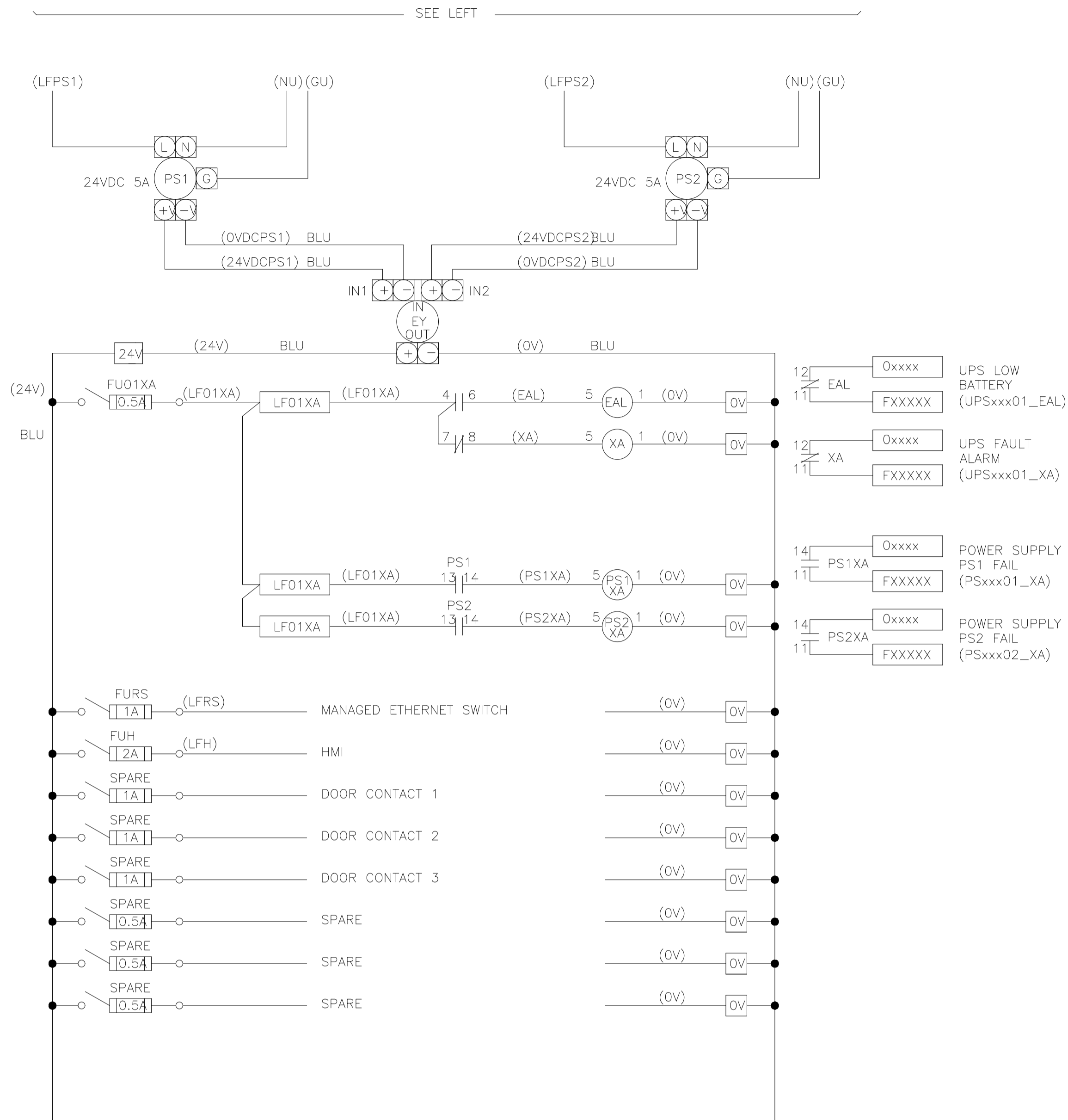
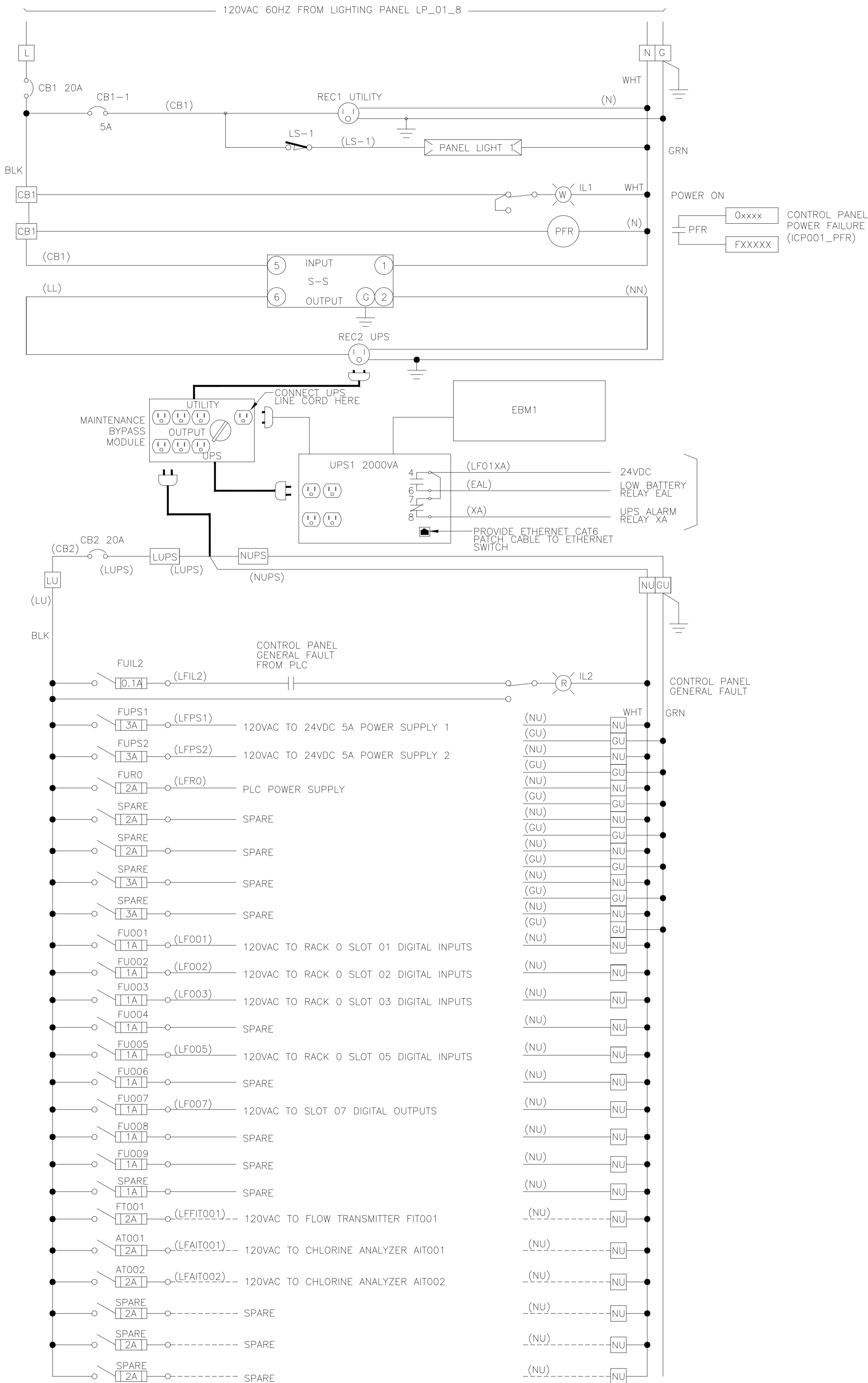
approved by  
approuve par  
BS

tender  
soumission  
project manager  
administrateur  
de projets

project date  
date du projet  
2017/05/16

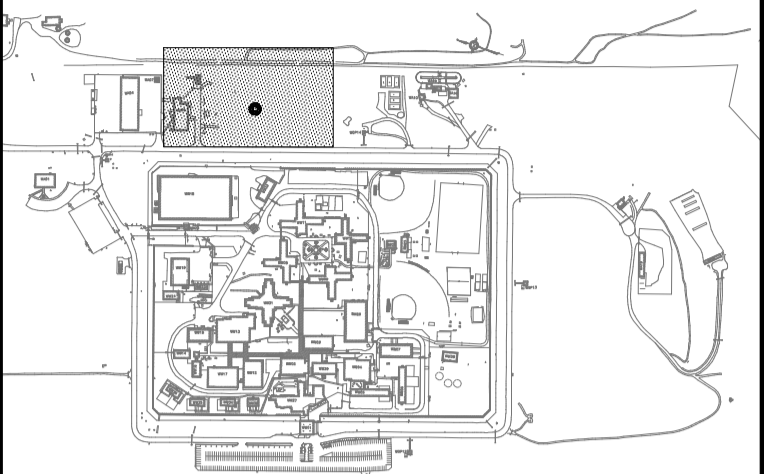
project no.  
no. du projet  
R.068488.001

drawing no.  
dessine no.  
E10



NOTES:

- CONTRACTOR TO PROVIDE 120VAC UPS POWER TO ALL INSTRUMENTS WITH 120VAC INPUT POWER.



0 ISSUED FOR BID 2017/10/11

revision	description	date
0	ISSUED FOR BID	2017/10/11

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	A	Detail No.
A	No. du détail	
B	drawing no. - where detail required	
C	dessin no. - où détail exigé	
	drawing no. - where detailed	
	dessin no. - où détaillé	

project title  
titre du projet  
**WARKWORTH** Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin  
**BOOSTER PUMPS  
CONTROL PANEL  
POWER DISTRIBUTION**

drawn by  
dessiné par PY

designed by  
conç par MG

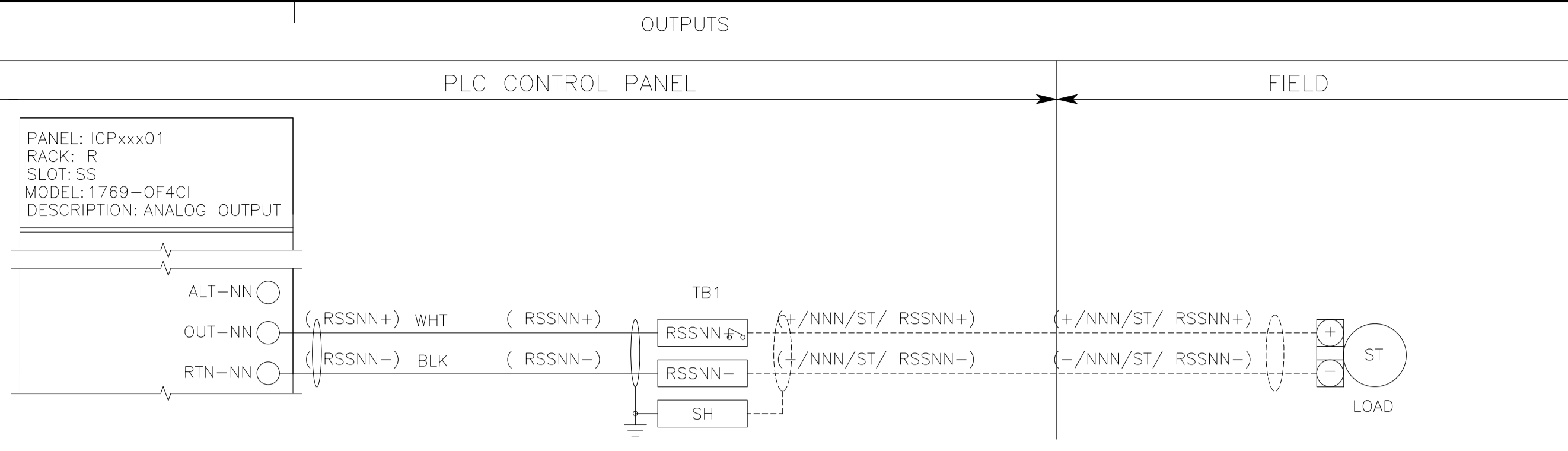
approved by  
approuvé par BS

tender  
soumission project manager  
administrateur de projets

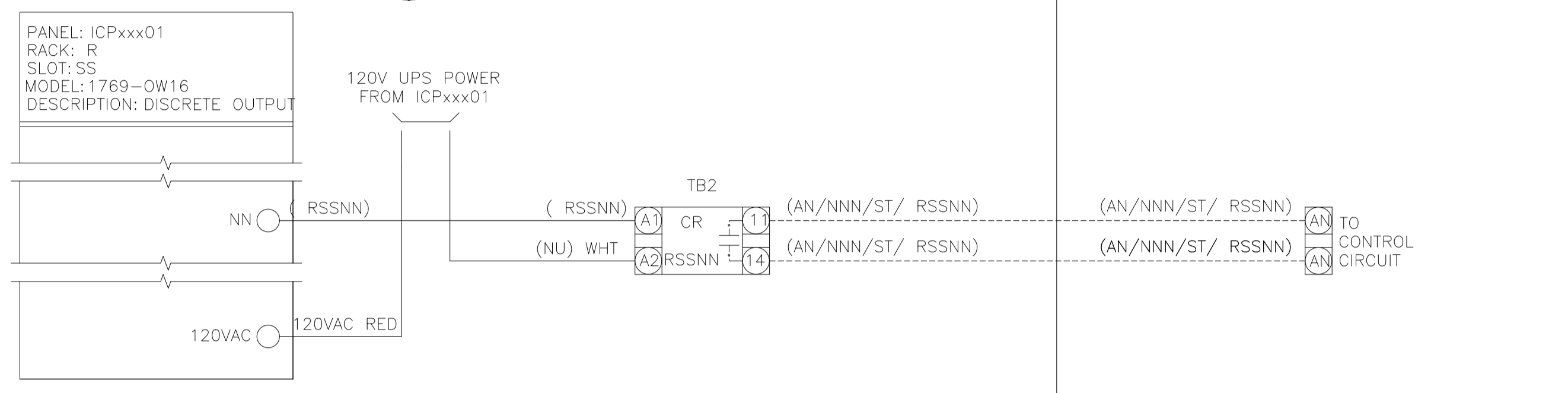
project date  
date du projet 2017/05/16

project no.  
no. du projet R.068488.001

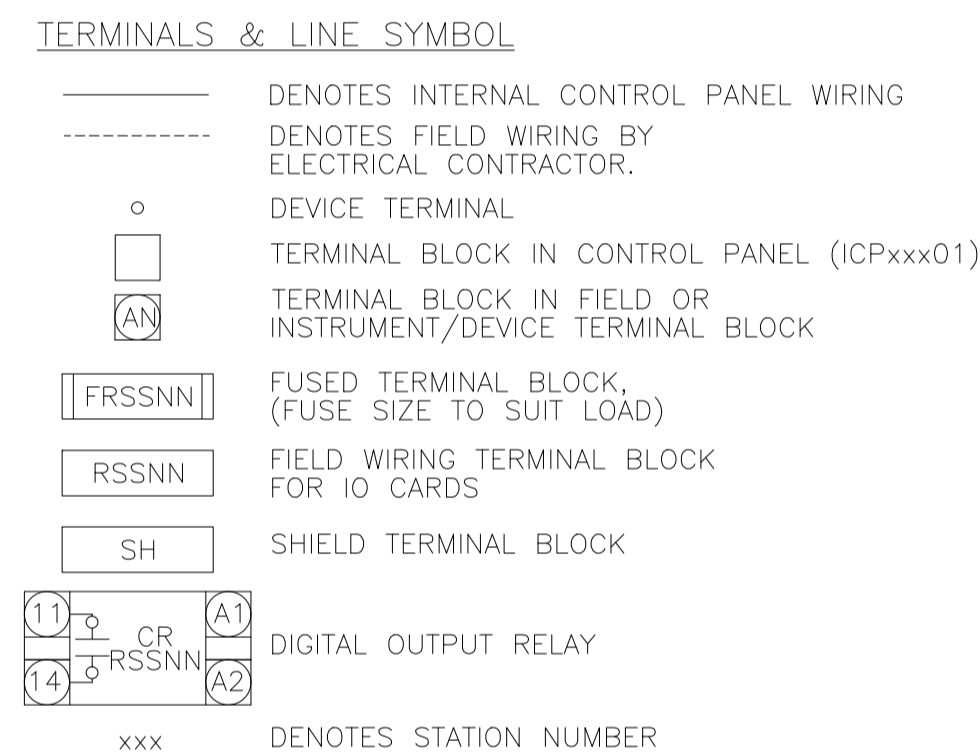
drawing no.  
dessiné no. E11



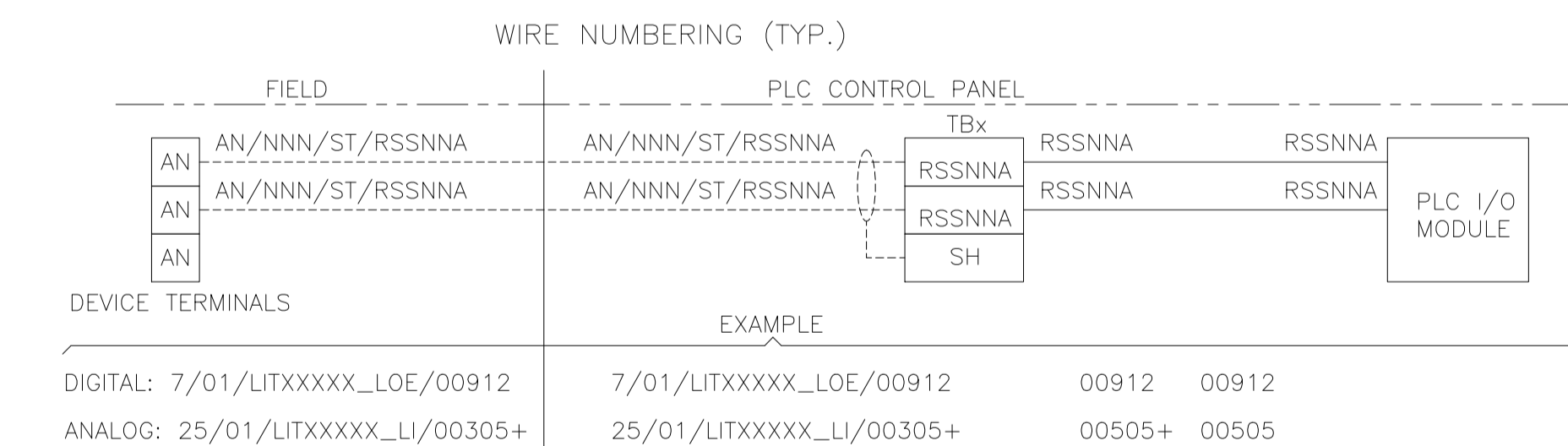
4 TYPICAL LOOP DIAGRAM FOR ANALOG OUTPUT MODULE  
SCALE: NTS



5 TYPICAL LOOP DIAGRAM FOR 120VAC DIGITAL RELAY OUTPUT MODULE & INTERPOSING  
SCALE: NTS



3 TYPICAL LOOP DIAGRAM FOR ISOLATED 120VAC DIGITAL INPUT  
SCALE: NTS



NOTE FOR WIRE MARKER ON ICP FOR WIRE  
GOING FROM TBx TO PLC MODULE:

1. THE WIRE MARKER FOR THE ICP END WIRE GOING TO PLC MODULE SHALL BE AS FOLLOWS: "RSSNNA" - WHERE "RSSNNA" STANDS FOR ICP TERMINAL NUMBER, ACCORDING TO TERMINALS IDENTIFICATION NOTED BELOW.


NOTE FOR WIRE MARKER IN ICP AT PLC  
MODULE END:

1. USE THE SAME WIRE MARKER AS AT THE OTHER END.

1. Tbx IDENTIFIES THE TERMINAL BLOCKS, WHERE  
 x=1 FOR ANALOG SIGNAL TERMINAL BLOCK  
 x=2 FOR DI/DO SIGNAL TERMINAL BLOCK
2. ICP TERMINAL NUMBERS HAVE THE "RSSNNA" ASSIGNMENT, WHERE "R" STANDS FOR THE RACK NUMBER, "SS" STANDS FOR THE SLOT NUMBER, AND "N" STANDS FOR THE CHANNEL NUMBER IN THE I/O MODULE, AND "A" STANDS FOR ANALOG MODULES ONLY. THE POLARITY OF THE MARKING IN THE I/O MODULE.
3. "SS" & "NN" INCLUDE A LEADING ZERO WHERE SLOT CHANNEL NUMBER IS LESS THAN 10.
4. EACH GROUP OF TERMINALS ASSOCIATED WITH AN I/O CARD SHALL BE LABELED AS "RSS" TO IDENTIFY THE CARD BASED ON "R" - RACK AND "SS" - SLOT NUMBER.

0	ISSUED FOR BID	2017/10/
revision	description	date

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project title  
titre du projet

WARKWORTH Ontario  
CORRECTIONAL SERVICES CANADA  
WARKWORTH INSTITUTION  
COUNTRY ROAD #29, CAMPBELLFORD  
CONSTRUCT NEW POTABLE WATER  
ELEVATED TANK

drawing title  
titre du dessin

drawn by dessiné par	PY
designed by conc par	MG
approved by approuvé par	BS
tender soumission	project manag administrateur de proje
project date date du projet	2017/05/16
project no. no. du projet	R.068488.001
drawing no. dessiné no.	E12