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LIST OF DRAWINGS

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 - E-3 NEW PLAN
 - E-4 SINGLE LINE DIAGRAM
 - E-5 EXISTING HV CONNECTIONS DETAIL
 - E-6 TYPICAL DETAILS

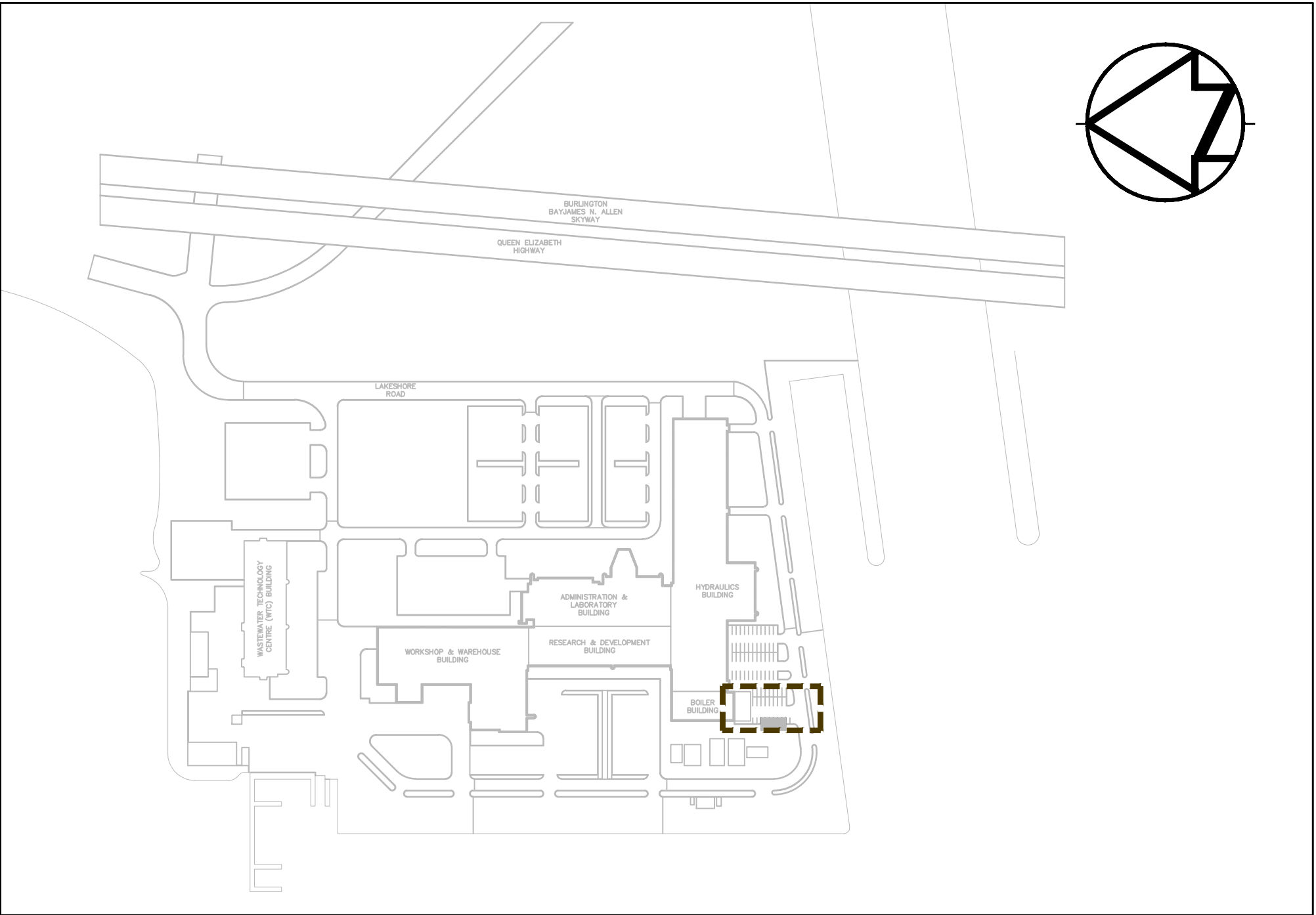
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600 Cochrane Drive, Suite 500, Markham, ON, L3R 5K3
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BURLINGTON, ONTARIO
ENVIRONMENT AND CLIMATE CHANGE CANADA
(ECCC)

CCIW TRANSFORMER RECAPITALIZATION
PWGSC Project No.: KW405-180719/001/PWL



6	ISSUED FOR TENDER	2021/02/19
5	FOR ESA REVIEW	2021/02/04
4	ISSUED FOR 100% REVIEW	2020/11/23
3	ISSUED FOR 100% REVIEW	2019/02/08
2	ISSUED FOR 90% REVIEW	2018/11/02
1	ISSUED FOR 50% REVIEW	2018/07/19
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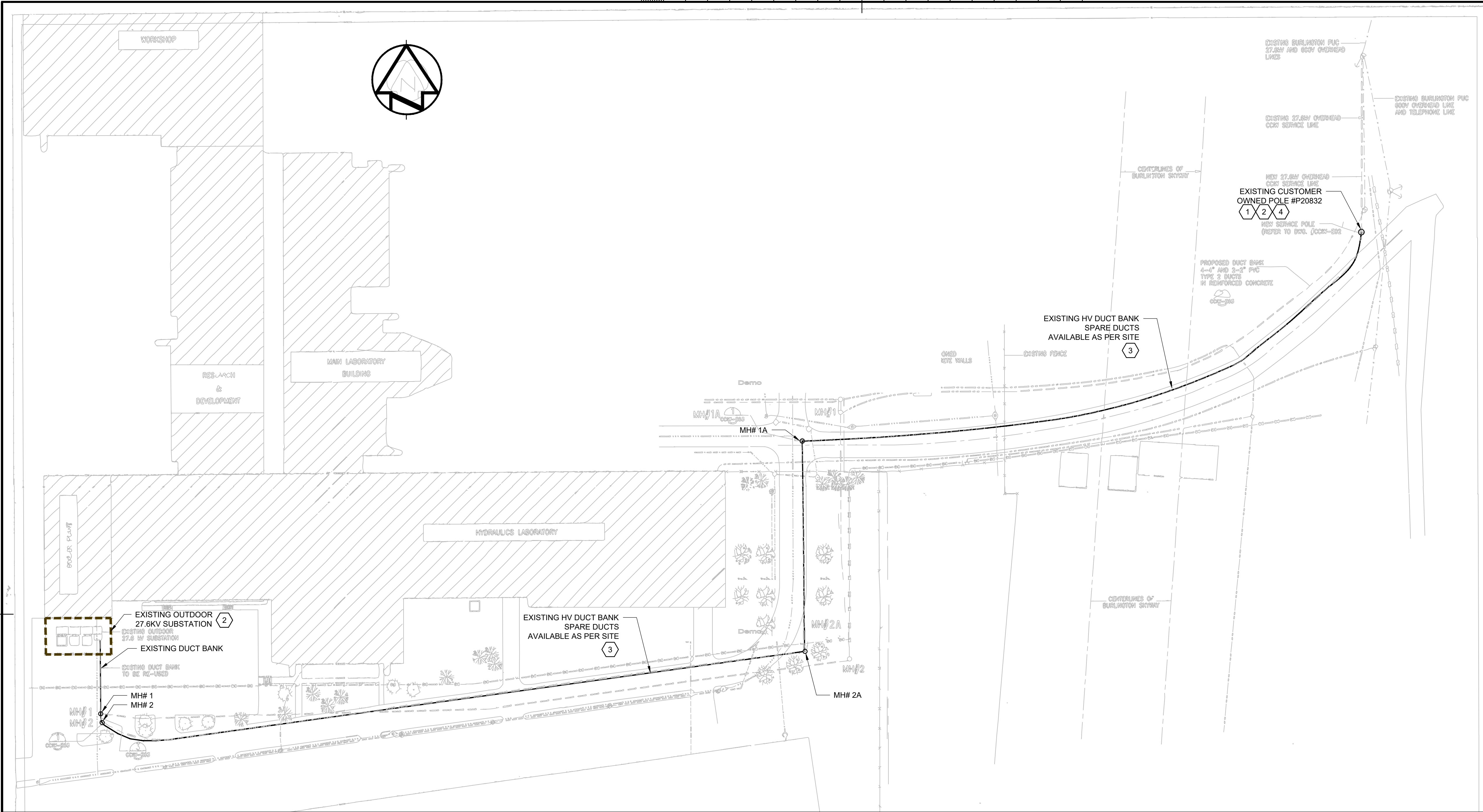
project title
titre du projet
BURLINGTON Ontario
ENVIRONMENT AND CLIMATE CHANGE CANADA
867 LAKESHORE RD.,
BURLINGTON ON, L7S 1A1
CCIW TRANSFORMER
RECAPITALIZATION

drawing title
titre du dessin

COVER SHEET

drawn by dessine par	SW
designed by conc par	AM
approved by approuve par	OB
tender soumission	--
project manager administrateur de projets	--
project date date du projet	2018/05/28
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1 SITE PLAN
E-1 NTS

DRAWING NOTES:

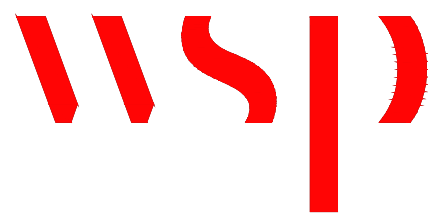
- CONTRACTOR TO PROVIDE A DEAD INSULATOR FOR BURLINGTON HYDRO(BHI) TO TERMINATE NEW 1-1/0 AL/O/H NEUTRAL CONDUCTOR AT POLE LOCATION P#20832. CONFIRM THE CONDUCTOR SIZE WITH BHI PRIOR TO SUPPLY. CONTRACTOR TO PERFORM ALL REQUIRED BONDING OF THE NEUTRAL CONDUCTOR TO ESA SPECIFICATIONS AND AS PER BHI AND CSA REQUIREMENTS.
- CONTRACTOR TO PROVIDE NEW NEUTRAL CONDUCTOR FROM THE DEMARCATION POINT POLE P#20832 TO THE HV SWITCHGEARS LOCATION. PROVIDE NEW NEUTRAL CONDUCTOR AS PER BURLINGTON HYDRO SPECIFICATIONS. TERMINATION OF NEUTRAL CONDUCTOR AT BOTH ENDS IS UNDER CONTRACTOR'S SCOPE OF WORK. CONTRACTOR TO APPROACH AND COORDINATE WITH BHI FOR TERMINATION OF NEUTRAL CONDUCTOR.
- CONTRACTOR TO UTILIZE THE EXISTING UNDERGROUND HV DUCT BANK FOR THE NEW NEUTRAL CONDUCTOR INSTALLATION IN THE EXISTING UNDERGROUND DUCTBANK. CONTRACTOR TO INVOLVE AN UNDERGROUND SURVEY COMPANY APPROVED BY CCIW AND TO CONDUCT A DETAILED SITE SURVEY TO CHECK AND VERIFY THE CONDITION OF THE EXISTING DUCTS. ANY DISCREPANCIES, AMBIGUITIES OR OMISSIONS IN THE DRAWINGS AND SITE CONDITIONS OR HAVING DOUBT AS TO THE MEANING OR INTENT THEREOF SHALL IMMEDIATELY NOTIFY THE PRIME CONSULTANT WHO SHALL ISSUE INSTRUCTION OR/AND CLARIFICATION.
- REMOVE EXISTING SPARE HV CONDUCTOR FROM DEMARCATION POINT TO THE HV SWITCHGEAR AND REPLACE WITH NEW ONE WITH SAME SPECIFICATION. NEW CABLE MUST BE AS PER BURLINGTON HYDRO SPECIFICATION. CONTRACTOR TO APPROACH AND COORDINATE WITH BHI FOR THE SPECIFICATION OF NEW HV CABLE CONDUCTOR.

GENERAL NOTES:

- CONTRACTOR IS TO PROVIDE ALL RESTORATION AS REQUIRED TO THE SATISFACTION OF CITY OF BURLINGTON AND CUSTOMER.
- THE SUPPLY \ DEMARCATION POINT ARE THE DEAD-END INSULATORS ON THE CUSTOMER SUPPLIED AND INSTALLED DIP POLE LOCATION.
- CONTRACTOR TO PROVIDE ALL REQUIRED APPROVALS \ PERMISSIONS WITH ANY ADJACENT PROPERTY PARTIES PRIOR TO CONSTRUCTION TO SUPPLY AND INSTALL PLANT ALONG THE EXISTING LANEWAY. PROVIDE AN EASEMENT WHERE REQUIRED FOR THE POLE, DUCT STRUCTURE ALONG THE EXISTING LANEWAY NAMING BURLINGTON HYDRO AS THE OCCUPANT \ OWNER OF THE EASEMENT. EASEMENT REQUIRED PRIOR TO ENERGIZATION OF THE NEW SERVICE. PLEASE CONTACT BHI ENGINEERING DEPARTMENT FOR DETAILS AND ASSISTANCE AS REQUIRED.
- ALL INSTALLATIONS TO BE IN ACCORDANCE WITH THE MOST RECENT BURLINGTON HYDRO INC SPECIFICATIONS AND GUIDELINES.
- EXISTING DUCT BANK RUN AND MANHOLE LOCATIONS ARE SHOWN ON THE DRAWINGS ARE ONLY DIAGRAMMATICALLY AS A GENERAL ARRANGEMENT AND CONTRACTOR IS TO VERIFY THE EXISTING SITE CONDITION AND REPORT ANY DISCREPANCIES. ANY NECESSARY CHANGE TO THE RUN TO ACCOMMODATE FIELDS CONDITIONS SHALL BE DONE WITHOUT ADDITIONAL CHARGE OR EXPENSE TO THE OWNER. NOTIFY THE ENGINEER IMMEDIATELY AND SECURE HIS AUTHORITY IN WRITING FOR SUCH REVISIONS BEFORE PROCEEDING WITH THE WORK.
- CARE HAD BEEN TAKEN TO INDICATE ALL UNDERGROUND SERVICES HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY/LOCATE EXISTING

BURLINGTON HYDRO COORDINATION:

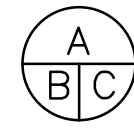
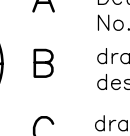
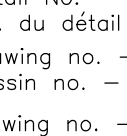
- CONTRACTOR IS TO PROVIDE A COPY OF THE PROTECTION AND COORDINATION STUDY TO CONFORM THE EXISTING DISTRIBUTION TO REMAIN OR AS A RESULT OF AN UPGRADE, REPAIR OR MAINTENANCE REQUIRES REVISIONS, WHERE APPLICABLE MANUFACTURES SUPPORTING SPECIFICATIONS AND DOCUMENTATION TO BE APPROVED BY BURLINGTON HYDRO IN ADVANCE OF SERVICE ENERGIZATION.
- CONTRACTOR TO PROVIDE WHERE REQUIRED AS A RESULT OF MAINTENANCE, REPAIR, OR DEFECT ENGINEERS STAMPED AND APPROVED DRAWINGS INDICATING THE AIR BREAK SWITCH, FUSED SWITCH, GROUNDING, ALL ASSOCIATED MATERIAL AND MANUFACTURERS SUPPORTING SPECIFICATIONS FOR THE ADDITIONAL TRANSFORMER TO BE APPROVED BURLINGTON HYDRO IN ADVANCE TO ENERGIZATION.
- CONTRACTOR TO PROVIDE WHERE REQUIRED AS A RESULT OF MAINTENANCE, REPAIR, OR DEFECT THE MANUFACTURERS \ ENGINEERS STAMPED AND APPROVED DRAWINGS FOR TRANSFORMER GROUNDING TO ESA SPECIFICATIONS APPROVED BY BURLINGTON HYDRO.
- CONTRACTOR TO PROVIDE WHERE REQUIRED AS A RESULT OF MAINTENANCE, REPAIR, OR DEFECT SECONDARY \ PRIMARY REPLACEMENT CABLES. THE CUSTOMER IS TO PROVIDE CABLE TEST RESULTS TO THE MANUFACTURERS SPECIFICATIONS INCLUDING SUPPORTING SPECIFICATIONS PRIOR TO ENERGIZATION.
- CONTRACTOR TO PROVIDE TRANSFORMER NAMEPLATE DATA INFORMATION AND SUPPORTING MANUFACTURERS SPECIFICATIONS INCLUDING THE ACTUAL FACTORY \ AND APPLICABLE FIELD TRANSFORMER TEST RESULTS PRIOR TO ENERGIZATION.
- CONTRACTOR TO ENSURE ESA PLAN REVIEW AND CONNECTION AUTHORIZATION ARE AVAILABLE FOR BHI SUBMISSION.
- BURLINGTON HYDRO TO SUPPLY AND INSTALL AT EXISTING WOOD POLE LOCATION P20838 3-200A, 25KV IN-LINE FUSED SWITCHES CWV 3-200K, SMU 20K, 34.5K FUSE UNITS SWITCH LOCATION #F4430. BURLINGTON HYDRO TO REMOVE EXISTING SOLID BLADE IN-LINE SWITCH LOCATION #S3671.
- BURLINGTON HYDRO TO SUPPLY AND INSTALL 2-SPANS OF 1/0 aL, O/H NEUTRAL CONDUCTOR FROM POLE P20838 TO P20832 AND TERMINATE ONTO CUSTOMERS DEAD END INSULATOR.
- BURLINGTON HYDRO TO OPERATE ALL CUSTOMER OWNED HIGH VOLTAGE SWITCHES ASSOCIATED WITH THE ISOLATION OF LOAD FROM THE DISTRIBUTION SYSTEM.



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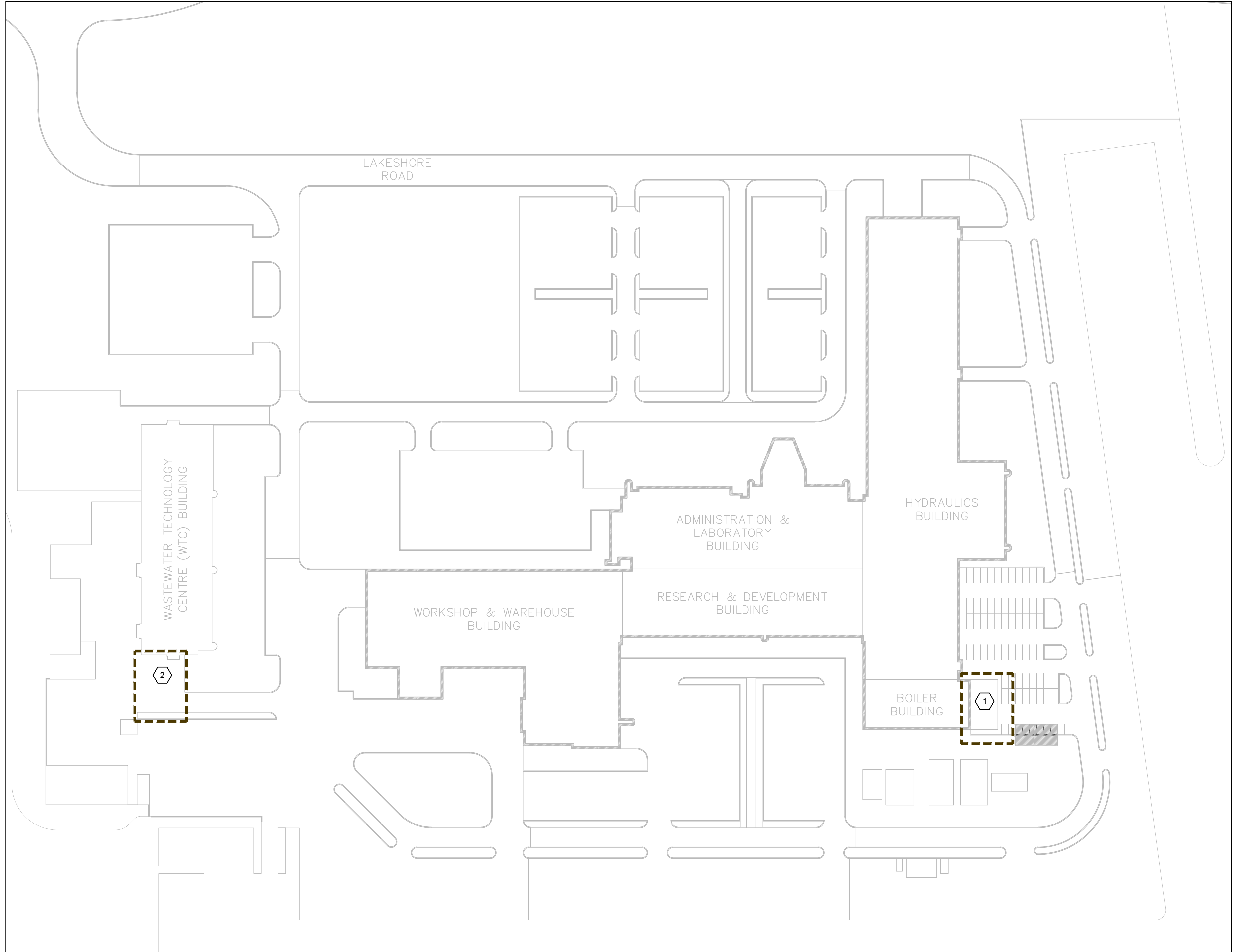
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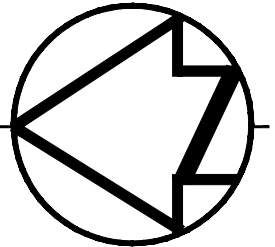
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RECAPITALIZATION**

drawing title
titre du dessin
**SITE PLAN -
MAIN ELECTRICAL
HV DUCT BANK**

drawn by dessiné par	MH	project manager administrateur de projets
designed by conc par	NS	
approved by approuvé par	NS	
tender soumission	--	
project date date du projet	2018/05/28	
project no. no. du projet	KW405-180719/001/PWL	
drawing no. dessiné no.	E-1	



1 KEY PLAN
E-1A/NTS

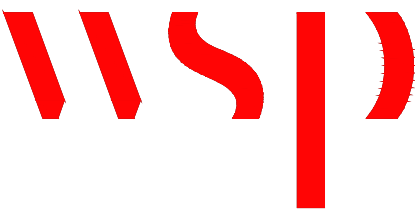


DRAWING NOTES:

- 1
- LOCATION OF THE EXISTING HIGH VOLTAGE SWITCHGEARS AND TRANSFORMERS.
- 2
- SUPPLY AND INSTALL TEMPORARY 600V, 400kVA DIESEL GENERATOR IN ADJACENT TO THE WTC TRANSFORMER TO FEED WTC BUILDING DURING THE PERIOD OF T3 IS BEING OUT OF SERVICE. PROVIDE REQUIRED 1000V CABLES, MANUAL TRANSFER SWITCH FOR TERMINATION TO WTC 600V SWITCHGEAR. FOR PRICING IT IS ASSUMED THE GENERATOR WILL BE IN SERVICE FOR TWO (2) WEEKS. PROVIDE FOR RE-FUELING SERVICES DURING TEMPORARY OPERATION. ALLOW FOR ALL THE RELATED COST FOR THE TEMPORARY POWER SUPPLY FOR WTC. CONTRACTOR TO CONDUCT SITE SURVEY PRIOR TO BIDDING, EVALUATE ALL SCOPE OF WORK INCLUDING TEMPORARY DISCONNECT SWITCH AND ASSOCIATED CABLE TERMINATIONS. CONTRACTOR TO COORDINATE THE TEMPORARY GENERATOR LOCATION WITH THE CLIENT.

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ENVIRONMENT AND CLIMATE CHANGE CANADA
867 LAKESHORE RD.,
BURLINGTON ON, L7S 1A1
**CCIW TRANSFORMER
RECAPITALIZATION**

drawing title
titre du dessin

KEY PLAN

drawn by dessiné par	SW
designed by conçu par	AM
approved by approuvé par	OB
tender soumission	-- project manager administrateur de projets

project date
date du projet
2018/05/28

project no.
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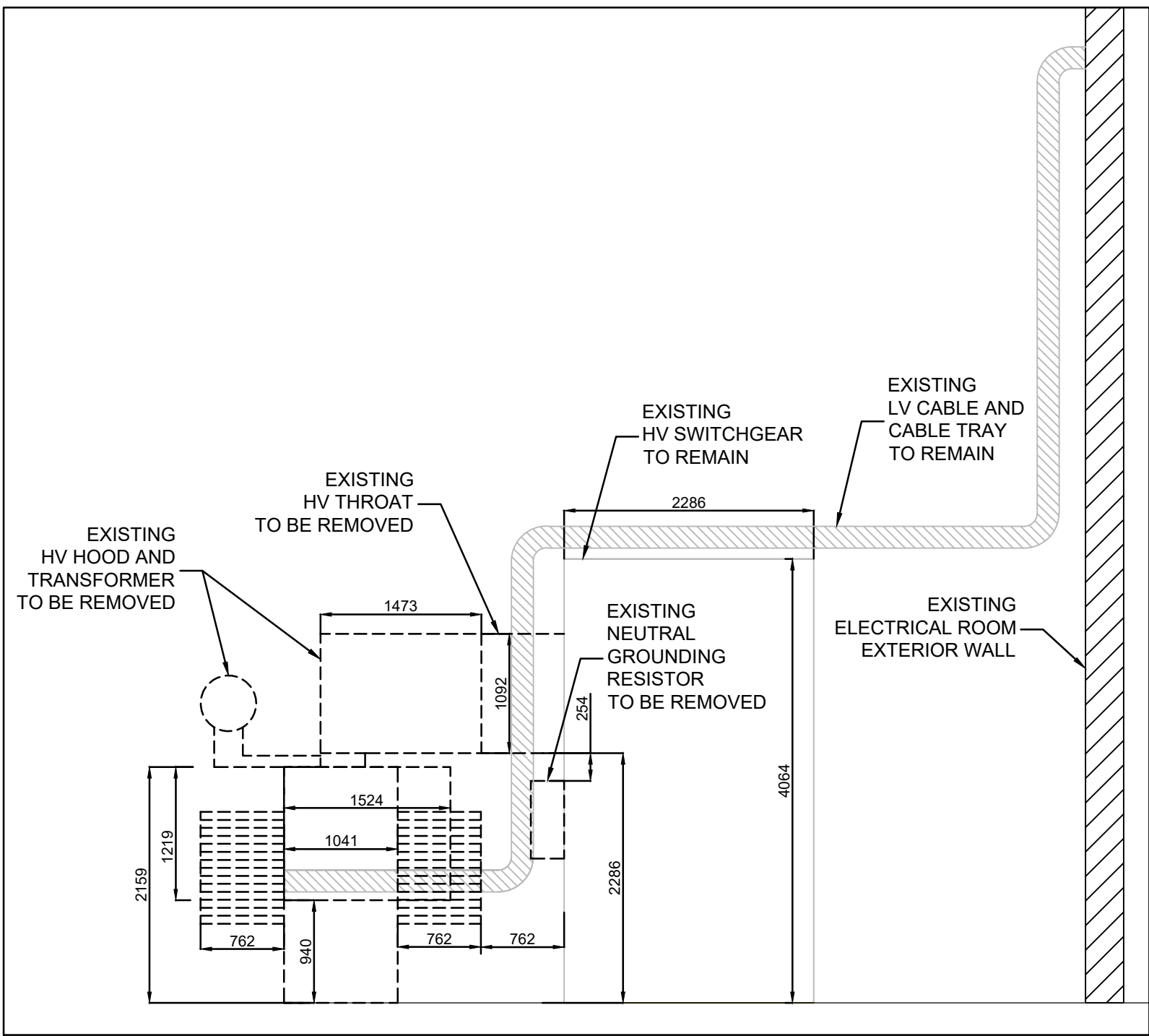
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dessiné no.
E-1A

GENERAL NOTES:

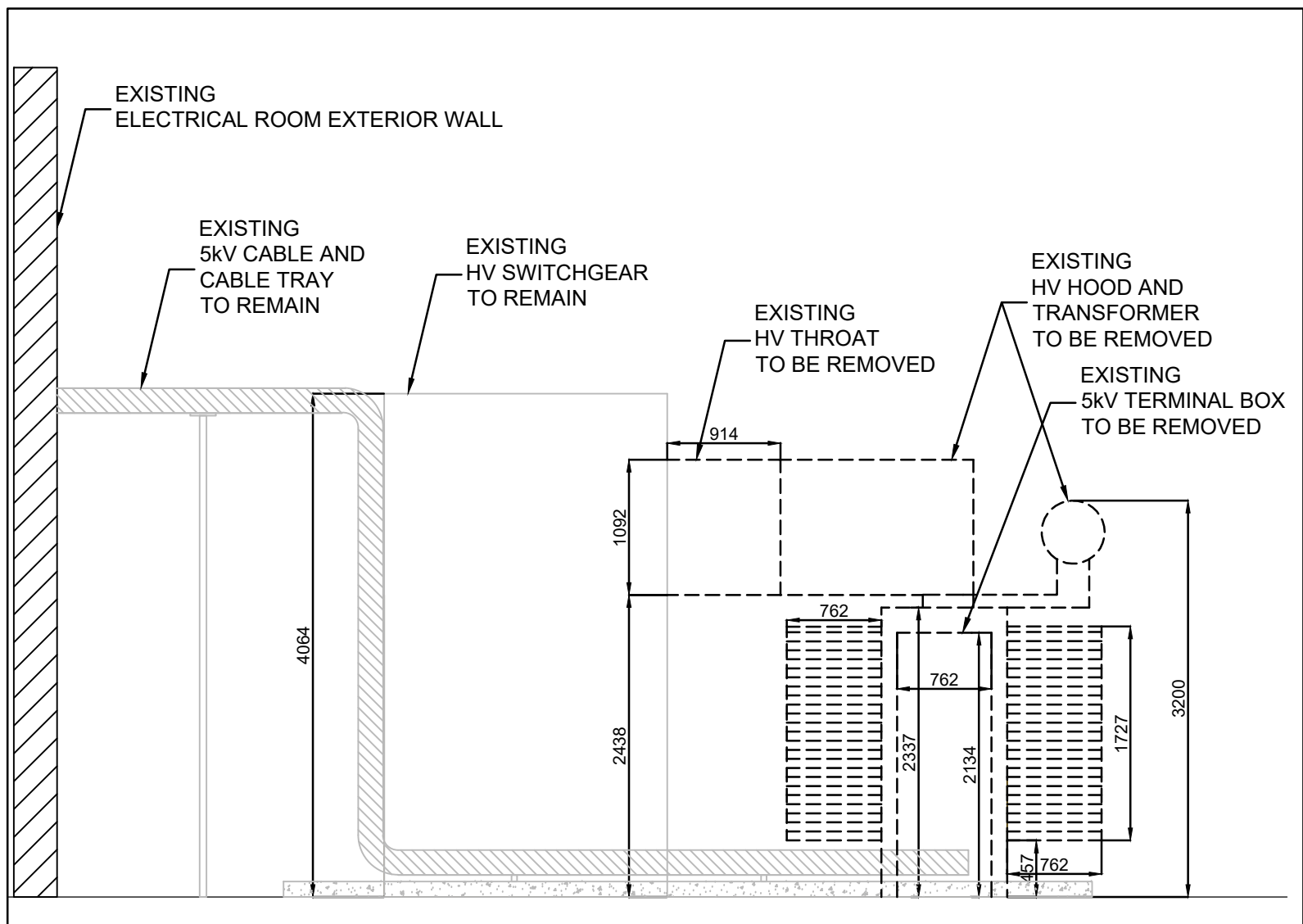
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- B. ELECTRICAL CONTRACTOR TO COORDINATE WITH BURLINGTON HYDRO (BHI) FOR SHUT DOWN. OBTAIN BURLINGTON HYDRO APPROVAL ON ANY WORK ON HIGH VOLTAGE SWITCHGEARS AND TRANSFORMERS PRIOR TO START. REFER TO BHI "CONDITIONS OF SERVICE" FOR MORE DETAILS.
- C. COORDINATE WITH ECCC FOR ANY OPERATION ON THE EXISTING HV AND LV SWITCHGEARS AND REMOVAL OF EQUIPMENT.
- D. CONFIRM EXISTING CONDITIONS ONSITE AND REPORT IMMEDIATELY TO ECCC IF ANY DISCREPANCY FOUND WITH THE DRAWINGS.

DRAWING NOTES:

- 1 EXISTING 27.6KV SWITCHGEARS TO REMAIN.
- 2 EXISTING CONCRETE PAD TO REMAIN. VERIFY THE DEPTH OF CONCRETE PAD AND INFORM ECCC PRIOR TO START NEW EQUIPMENT INSTALLATION.
- 3 DISCONNECT THE EXISTING TRANSFORMERS FROM HV SWITCHGEAR. DISCONNECT POWER AND CONTROL CABLES FROM TRANSFORMER. DRAIN TRANSFORMER OIL AND DISPOSE THE OIL FROM SITE IN SAFELY MANNER. REMOVE TRANSFORMERS FROM SITE AND RETURN TRANSFORMERS (WITHOUT OIL) TO ECCC. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO SHIP THE TRANSFORMERS TO THE STORAGE LOCATION IDENTIFIED BY ECCC WITHIN CCIW PROPERTY.
- 4 REMOVE THE EXISTING HIGH VOLTAGE THROATS. INSTALL TEMPORARY COVER ON EXISTING HIGH VOLTAGE OPENING ON HV SWITCHGEAR TO PROTECT PROPERLY DURING THE CONSTRUCTION.
- 5 REMOVE THE EXISTING NEUTRAL GROUND RESISTORS. PATCH AND PAINT THE INSTALLATION POINT ON HV SWITCHGEAR.
- 6 DISCONNECT AND PULL BACK THE EXISTING 1KV AND 5KV TECK CABLES UP TO THE BUILDING EXTERIOR WALL AND COIL IN PROTECTED CONDITIONS. EXISTING CABLE TRAYS TO REMAIN. ADJUST THE EXISTING CABLE TRAYS TO SUIT NEW EQUIPMENT.
- 7 ELECTRICAL CONTRACTOR TO REMOVE EXISTING TRANSFORMERS CONTROL/ALARM WIRING AND ABOVE GROUND CONDUITS. UNDERGROUND CONDUITS TO BE SEALED WITH CONCRETE AT BOTH ENDS.
- 8 REMOVE EXISTING TRANSFORMERS ALARM PANEL IN ELECTRICAL ROOM. CONFIRM LOCATIONS ONSITE AND COORDINATE WITH ECCC PRIOR TO REMOVAL. REMOVE POWER AND CONTROL CONDUCTORS AND CONDUITS BACK TO THE SOURCE. CONFIRM THE SOURCE PANEL FOR 120V POWER SUPPLY ONSITE. MAKE SAFE THE BREAKER IN OFF POSITION AND LABEL AS 'SPARE'. UPDATE THE PANEL SCHEDULE.
- 9 REMOVE ABOVE-GROUND GROUNDING AND BONDING WIRES AND CONNECTIONS ASSOCIATED WITH DEMOLISHED EQUIPMENT. THE UNDER-GROUND GROUNDING WIRES AND RODS TO REMAIN. GROUNDING CONNECTIONS TO HV SWITCHGEARS TO REMAIN.
- 10 COORDINATE WITH CCIW TO CLEAR PARKING LOT AREA FOR CONSTRUCTION ACTIVITIES AND CRANE ACCESS. CONTRACTOR IS TO PROVIDE CONSTRUCTION HOARDING AS REQUIRED FOR PROJECT EXECUTION.



3 SECTION B-B (T1 AND T2)
E-2 1:50



2 SECTION A-A (T3)
E-2 1:50

PROPOSED PROJECT PHASING:

PHASE-1 (TRANSFORMER T1 REPLACEMENT):

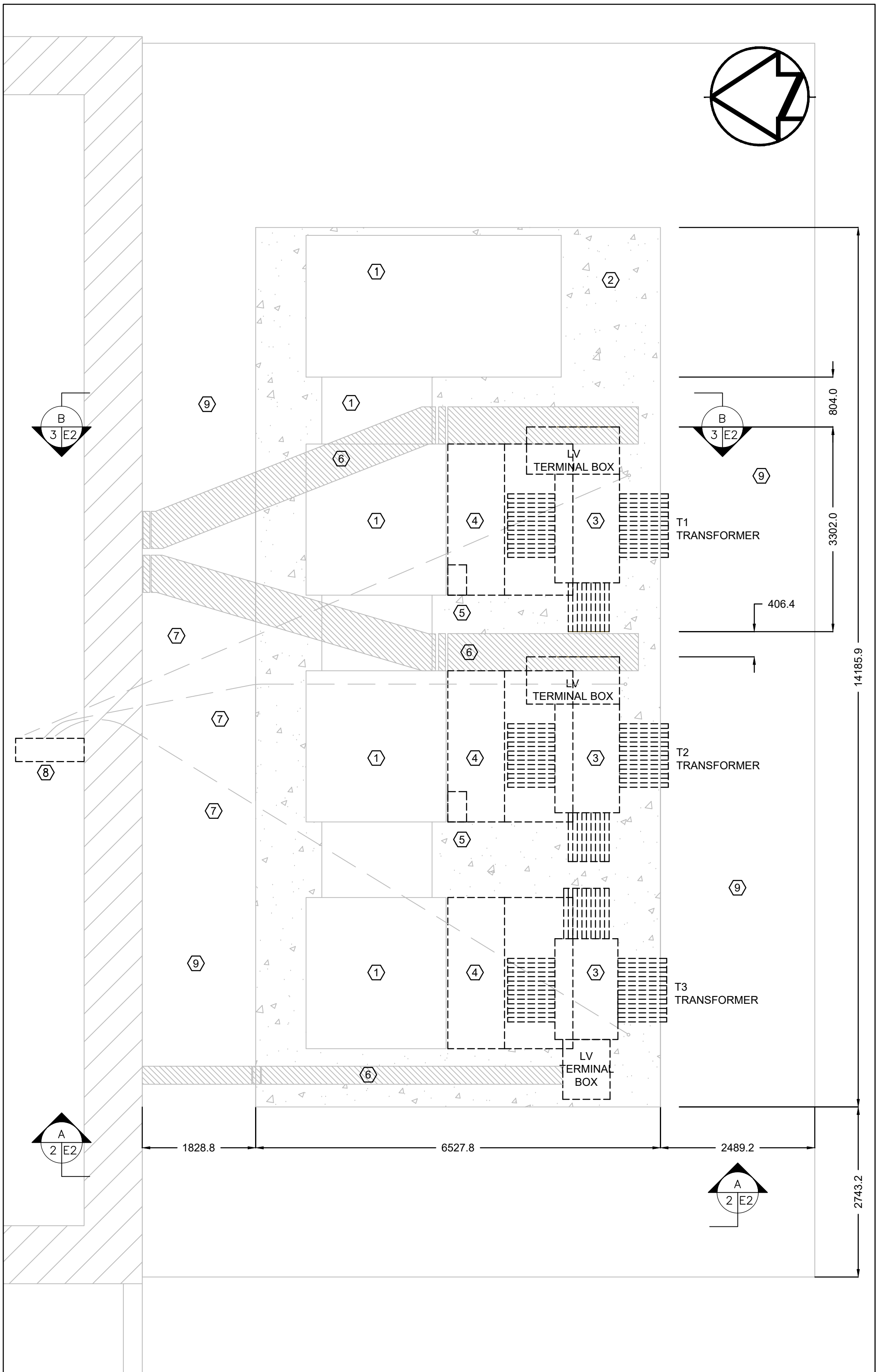
- TRANSFER AND SWITCHOVER 600V LOADS TO TRANSFORMER T2 BY OPENING TRANSFORMER T1 SECONDARY BREAKER AND CLOSING 600V NORMAL BUS TIE BREAKER.
- DE-ENERGIZE HV SWITCHGEAR FEEDER #1 AND DISCONNECT HV AND LV CONNECTIONS.
- REMOVE TRANSFORMER, NGR, HV HOOD AND THROAT.
- INSTALL NEW TRANSFORMER T1, HV HOOD AND THROAT.
- TERMINATE THE EXISTING CABLES TO LV TERMINAL BOX.
- ENERGIZE THE TRANSFORMER AND PERFORM TESTING AND COMMISSIONING.
- TRANSFER ALL 600V LOADS FROM TRANSFORMER T2 TO NEW TRANSFORMER T1.

PHASE-2 (TRANSFORMER T2 REPLACEMENT):

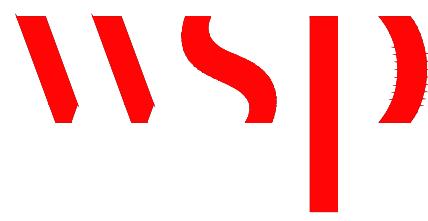
- ISOLATE THE COGEN AND OPEN EMERGENCY BUS TIE BREAKER.
- TRANSFER AND SWITCHOVER ALL 600V LOADS TO TRANSFORMER T1 BY OPENING TRANSFORMER T2 SECONDARY BREAKER AND CLOSING 600V NORMAL BUS TIE BREAKER.
- DE-ENERGIZE HV SWITCHGEAR FEEDER #2 AND DISCONNECT HV AND LV CONNECTIONS.
- REMOVE TRANSFORMER, NGR, HV HOOD AND THROAT.
- INSTALL NEW TRANSFORMER T2, HV HOOD AND THROAT.
- TERMINATE THE EXISTING CABLES TO LV TERMINAL BOX.
- ENERGIZE THE TRANSFORMER T2 AND AND PERFORM TESTING AND COMMISSIONING.
- TRANSFER ALL 600V CRITICAL (PRE-DETERMINED) LOADS FROM TRANSFORMER T1 TO NEW TRANSFORMER T2.
- START COGEN.

PHASE-3 (TRANSFORMER T3 REPLACEMENT):

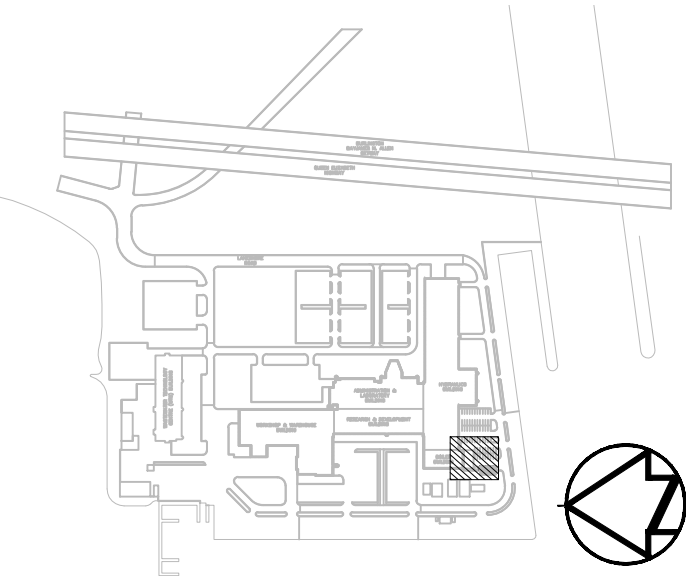
- INSTALL 600V TEMPORARY DIESEL GENERATOR AND MANUAL DISCONNECT SWITCH NEAR WTC BUILDING TRANSFORMER LOCATION.
- OPEN 5KV SWITCHGEAR INCOMING AND HV SWITCHGEAR FEEDER #3 AND DE-ENERGIZE THE FEEDER.
- DISCONNECT THE WTC TRANSFORMER 600V CABLES. CONNECT THE 600V SECONDARY CABLES TO TEMPORARY GENERATOR AND FEED WTC BUILDING WITH 600V GENERATOR.
- DISCONNECT TRANSFORMER T3 HV AND LV CONNECTIONS.
- REMOVE TRANSFORMER T3, HV TERMINAL BOX AND THROAT.
- INSTALL NEW TRANSFORMER T3, HV HOOD AND THROAT.
- CONNECT THE EXISTING 5KV CABLES TO SECONDARY TERMINALS.
- DISCONNECT WTC 600V CABLES FROM GENERATOR AND TERMINATE TO WTC TRANSFORMER SECONDARY TERMINALS.
- ENERGIZE THE TRANSFORMER T3 AND AND PERFORM TESTING AND COMMISSIONING.
- FEED WTC BUILDING FROM NEW TRANSFORMER T3.



1 PARTIAL DEMOLITION PLAN
E-2 1:50



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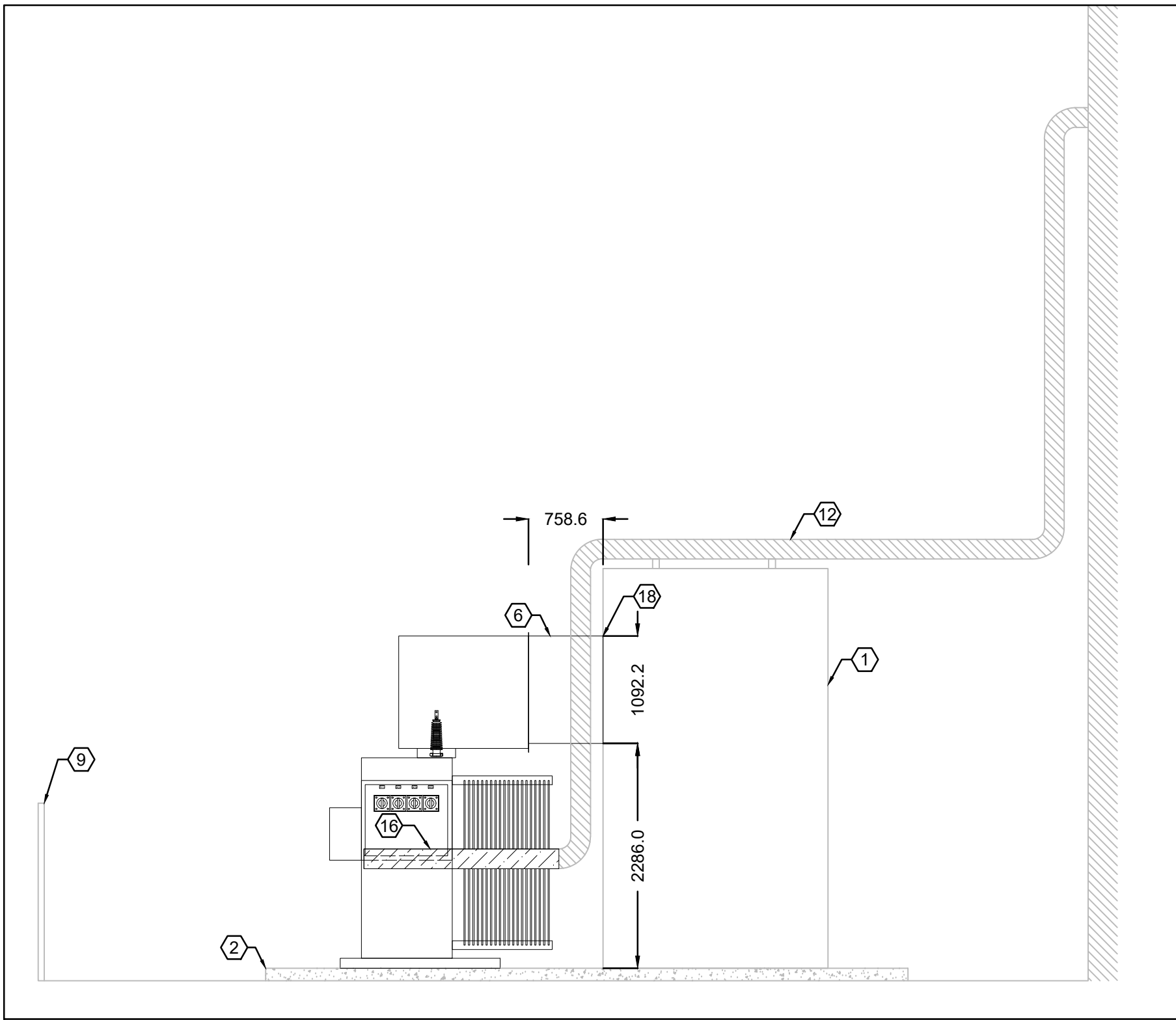
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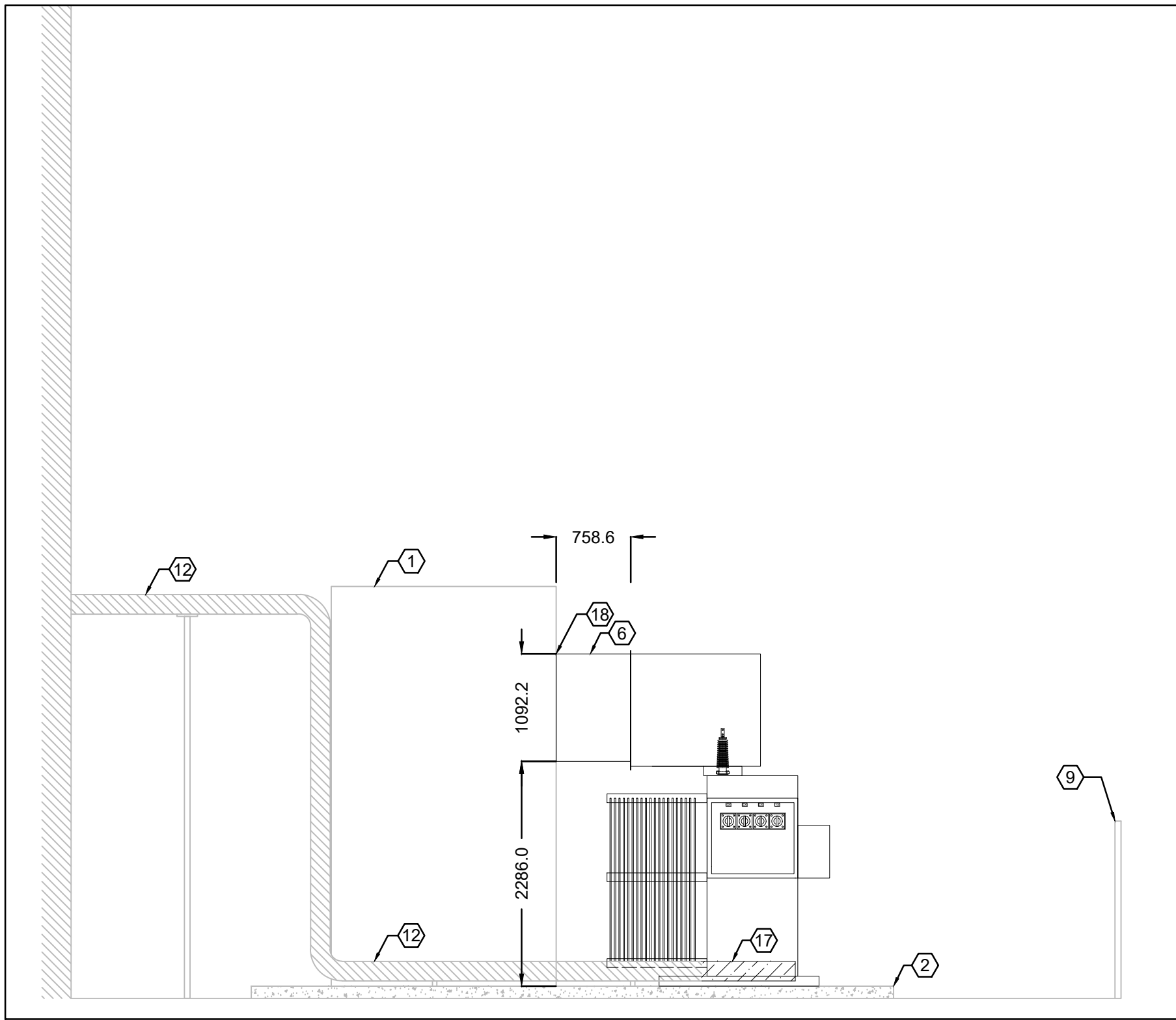
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DEMOLITION PLAN
AND PHASING

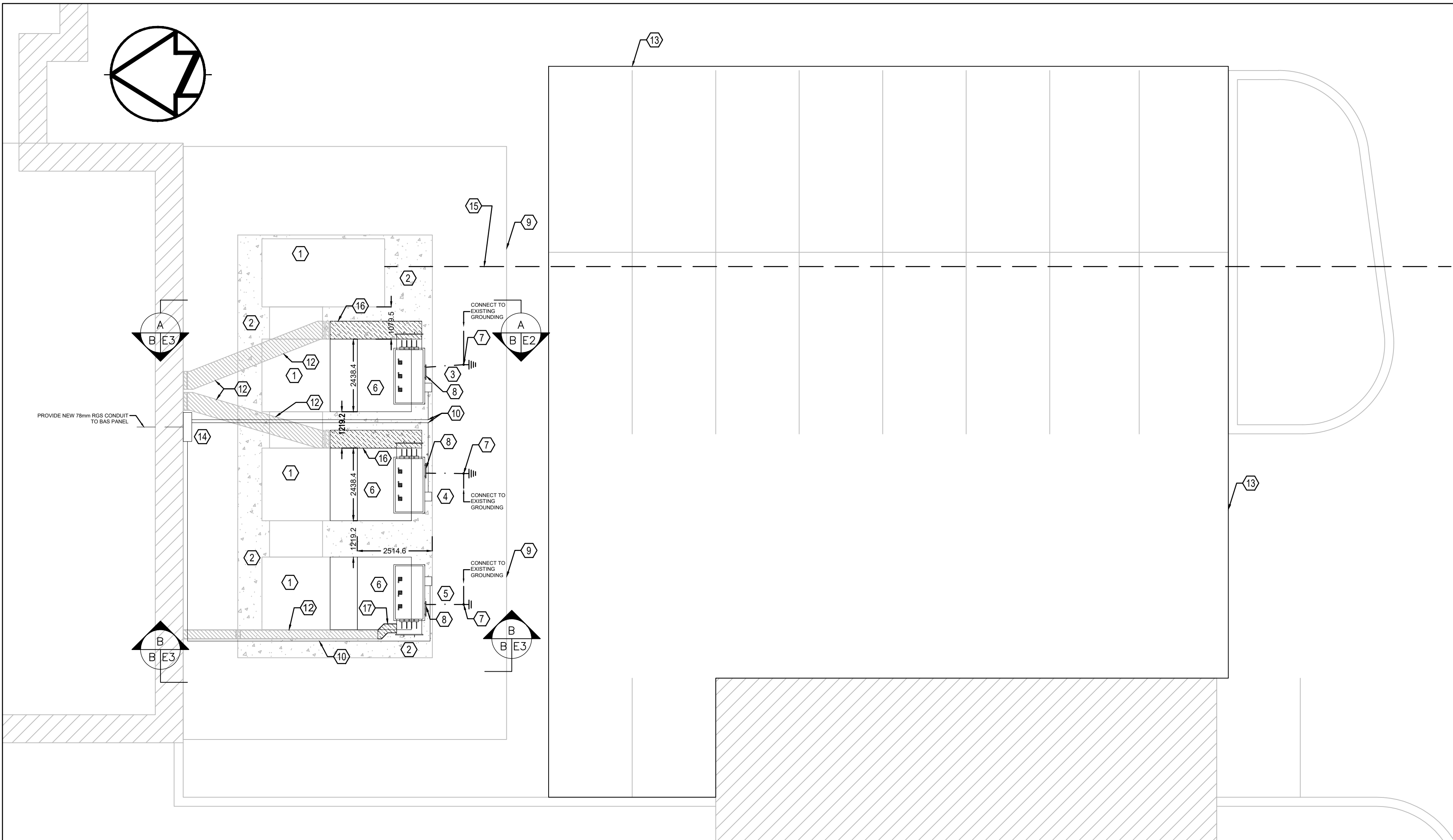
drawn by dessiné par	SW
designed by conc par	AM
approved by approuvé par	OB
tender soumission	--
project manager administrateur de projets	--
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project no. no. du projet	KW405-180719/001/PWL
drawing no. dessiné no.	E-2



2 SECTION A-A
E-3 1:100



3 SECTION B-B
E-3 1:100



1 PARTIAL SITE PLAN - NEW
E-3 1:100

GENERAL NOTES:

- A. THE DIMENSIONS AND EQUIPMENT LAYOUT SHOWN ON THE DRAWINGS ARE ONLY TO SHOW THE INTENT OF DESIGN CONCEPT. ELECTRICAL CONTRACTOR TO VERIFY THE DIMENSIONS, RATINGS AND ARRANGEMENTS ONSITE PRIOR TO ORDERING EQUIPMENTS.
- B. ELECTRICAL CONTRACTOR TO COORDINATE WITH BURLINGTON HYDRO (BHI) FOR SHUT DOWN. OBTAIN BURLINGTON HYDRO APPROVAL ON ANY WORK ON HIGH VOLTAGE SWITCHGEARS AND TRANSFORMERS PRIOR TO START. REFER TO BHI "CONDITIONS OF SERVICE" FOR MORE DETAILS.
- C. ELECTRICAL CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR BHI'S REVIEW AND APPROVAL ON NEW EQUIPMENT INCLUDING TRANSFORMERS, HOOD, THROAT AND GROUNDING.

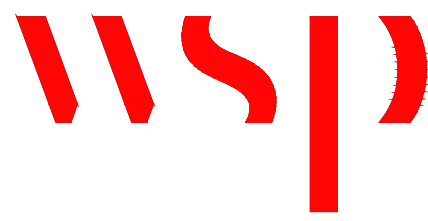
DRAWING NOTES:

- 1 EXISTING 27.6kV SWITCHGEARS TO REMAIN.
- 2 EXISTING TRANSFORMERS CONCRETE PAD TO REMAIN.
- 3 SUPPLY AND INSTALL NEW POWER TRANSFORMER T1.
- 4 SUPPLY AND INSTALL NEW POWER TRANSFORMER T2.
- 5 SUPPLY AND INSTALL NEW POWER TRANSFORMER T3.
- 6 SUPPLY AND INSTALL NEW NEMA 4X HIGH VOLTAGE THROAT 27.6kV, 150A, 25kA, BIL 200kV WITH COPPER BUSSING. NEW THROAT TO MATCH THE EXISTING HV SWITCHGEAR BUSBAR SIZE AND ARRANGEMENT ON SWITCHGEAR SIDE AND HV HOOD AND BUSHING SIZE AND ARRANGEMENT ON TRANSFORMER SIDE. SITE VERIFY EXISTING CONDITIONS PRIOR TO ORDER.
- 7 VERIFY AND MEASURE THE EXISTING GROUNDING SYSTEM RESISTANCE AND SUBMIT THE RESULT TO ECCC AND BHI. PROVIDE THREE (3) NEW GROUND ROD WITH INSPECTION BOXES AND #4/0 AWG COPPER GROUND CONDUCTOR AND EXOTHERMIC CONNECTIONS AND CONNECT TO THE EXISTING GROUND LOOP. FINALIZE LOCATION OF THE NEW ROD AND INSPECTION BOXES ONSITE. PROVIDE "T1" AND "T2" NEUTRAL POINT GROUND CONNECTION TO GROUND BAR WITH #4/0 AWG RW90XLPE COPPER GROUND CONDUCTORS. PROVIDE "T3" NEUTRAL POINT GROUND CONNECTION TO NEW GROUND BAR WITH #4/0 AWG RW90XLPE COPPER GROUND CONDUCTOR. INCLUDE COST FOR PROVIDING EXTRA NEW THREE (3) GROUND RODS AND 100m OF #4/0 AWG RW90XLPE COPPER GROUND CONDUCTOR AND EXOTHERMIC AND C-CLAMP CONNECTIONS AS REQUIRED. CONTRACTOR TO PROVIDE ALL MATERIAL AS REQUIRED TO FINISH THE GROUNDING.
- 8 PROVIDE NEW THREE (3) COPPER GROUNDING BARS WITH MIN. 500mm LENGTH IN ADJACENT OF TRANSFORMERS. PROVIDE GROUNDING AND BONDING CONNECTION FROM GROUND BAR TO TRANSFORMER, HV HOOD AND BUSDUCT. CONNECT THE GROUND BAR TO THE UNDERGROUND GROUNDING LOOP. PROVIDE #4/0 AWG COPPER GROUND CONDUCTOR AS REQUIRED. PROVIDE EXOTHERMIC CONNECTIONS AND ABOVE-GROUND CONNECTIONS AS REQUIRED.
- 9 EXISTING METALLIC FENCE REMAIN AND BE BONDED TO THE EXISTING GROUNDING LOOP. SUPPLY AND INSTALL #4/0 COPPER BONDING CONDUCTOR AND CONNECTIONS AS REQUIRED. PROVIDE BRAIDED GROUND CONNECTORS AS REQUIRED FOR DOORS.
- 10 SUPPLY AND INSTALL 27mmC RIGID HOT DIP GALVANIZED STEEL CONDUIT FROM EACH TRANSFORMER CONTROL BOX TO THE NEW JUNCTION BOX ON THE ELECTRICAL ROOM EXTERIOR WALL. SUPPLY AND INSTALL EIGHT (8) #12AWG COPPER RW90XLPE CONDUCTORS FROM EACH TRANSFORMER TO THE BUILDING AUTOMATION SYSTEM (BAS) FOR TRANSFORMER GAS DETECTION AND OIL HIGH TEMPERATURE ALARMS. PROVIDE EQUIPMENT AND UPDATE SOFTWARE ASSOCIATED WITH THE BAS SYSTEM AS REQUIRED TO ACCEPT NEW SIGNALS. INVOLVE BASE BUILDING BAS CONTRACTOR AS REQUIRED. INCLUDE ALL ASSOCIATED COSTS IN THE CONTRACT PRICE.
- 11 NOT USED.
- 12 ADJUST THE EXISTING CABLE TRAY TO SUIT THE NEW INSTALLATION AND LOCATION OF LV TERMINAL BOX. SUPPLY AND INSTALL CABLE TRAY, ACCESSORIES AND SUPPORTS AS REQUIRED. ALL ACCESSORIES TO BE HOT-DIP GALVANIZED STEEL TYPE. INSTALL THE EXISTING POWER CABLES ON THE CABLE TRAY AND MAKE TERMINATION. INCLUDE ALL REQUIRED ACCESSORIES FOR CABLE INSTALLATION AND TERMINATION.
- 13 COORDINATE WITH CCIW TO CLEAR PARKING LOT AREA FOR CONSTRUCTION ACTIVITIES AND CRANE ACCESS. CONTRACTOR IS TO PROVIDE CONSTRUCTION HOARDING AS REQUIRED FOR PROJECT EXECUTION.
- 14 PROVIDE NEW NEMA 4X STAINLESS STEEL JUNCTION BOX ON THE ELECTRICAL ROOM EXTERIOR WALL.
- 15 EXISTING 28kV UNDERGROUND FEEDER FROM UTILITY TO REMAIN.
- 16 PROVIDE HOT DIP GALVANIZED STEEL CABLE TRAY AS REQUIRED WITH 1000mm WIDTH, 150mm HEIGHT AND ALL ACCESSORIES AND BENDS TO SUIT THE NEW TRANSFORMER LV TERMINAL BOX AND EXISTING CABLE TRAY. CONTRACTOR TO VERIFY THE EXISTING CONDITION PRIOR TO ORDER.
- 17 PROVIDE HOT DIP GALVANIZED STEEL CABLE TRAY AS REQUIRED WITH 300mm WIDTH, 150mm HEIGHT AND ALL ACCESSORIES AND BENDS TO SUIT THE NEW TRANSFORMER LV TERMINAL BOX AND EXISTING CABLE TRAY. CONTRACTOR TO VERIFY THE EXISTING CONDITION PRIOR TO ORDER.
- 18 PROVIDE GASKET AND DRIP HOOD ON ALL CONNECTIONS TO THE EXISTING SWITCHGEAR TO PROVIDE ACCEPTABLE SEALING.
- 19 CONTRACTOR TO INCLUDE ALL REQUIRED SERVICES AND VERIFICATIONS LIKE PHASE ROTATION, ORIENTATION ETC. TO BE COMPLETED WITH THE EXISTING ELECTRICAL SYSTEM IN ORDER TO SUCCESSFULLY REPLACE AND OPERATE THE NEW TRANSFORMERS.

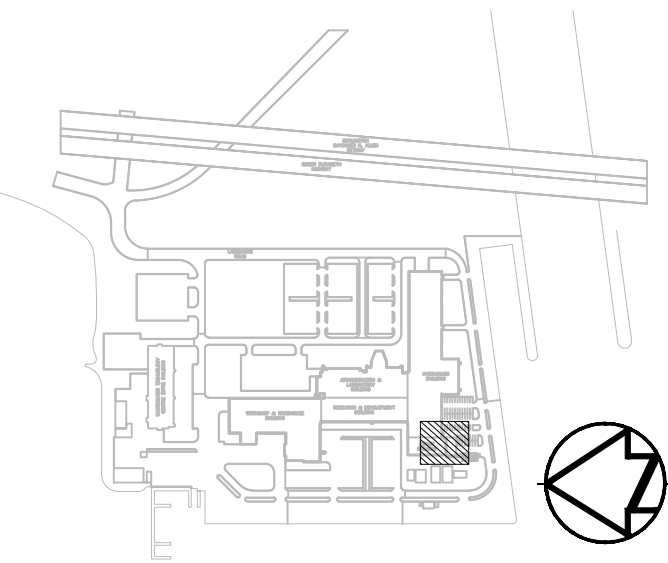


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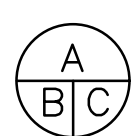


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6	ISSUED FOR TENDER	2021/02/19
5	FOR ESA REVIEW	2021/02/04
5	FOR ESA REVIEW	2021/02/04
4	ISSUED FOR 100% REVIEW	2020/11/19
3	ISSUED FOR 100% REVIEW	2019/02/08
2	ISSUED FOR 90% REVIEW	2018/11/02
1	ISSUED FOR 50% REVIEW	2018/07/19

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

BURLINGTON Ontario
ENVIRONMENT AND CLIMATE CHANGE CANADA
867 LAKESHORE RD.,
BURLINGTON ON, L7S 1A1
CCIW TRANSFORMER
RECAPITALIZATION

drawing title
titre du dessin

NEW PLAN

drawn by dessiné par	SW
designed by conc par	AM
approved by approuvé par	OB
tender soumission	--
project manager administrateur de projets	

project date
date du projet

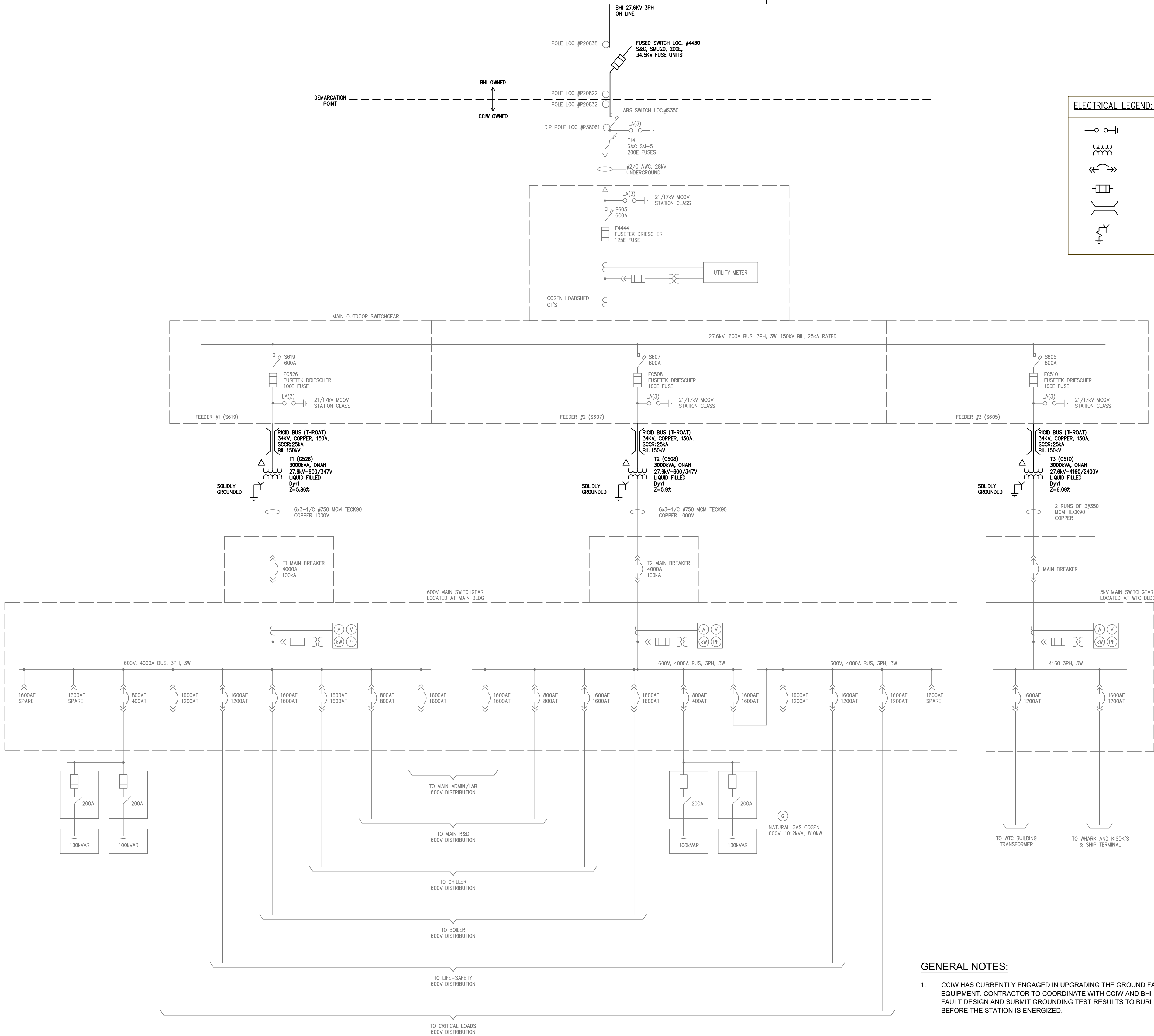
2018/05/28

project no.
no. du projet

KW405-180719/001/PWL

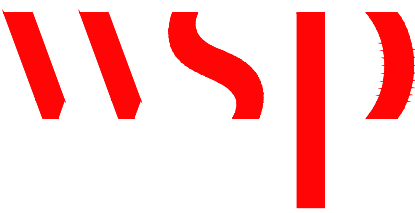
drawing no.
dessiné no.

E-3



ELECTRICAL LEGEND:

- SURGE ARRESTER
- POWER TRANSFORMER
- DRAW-OUT BREAKER
- POWER FUSE
- BUS DUCT / THROAT
- NEUTRAL GROUNDING RESISTOR



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RECAPITALIZATION**

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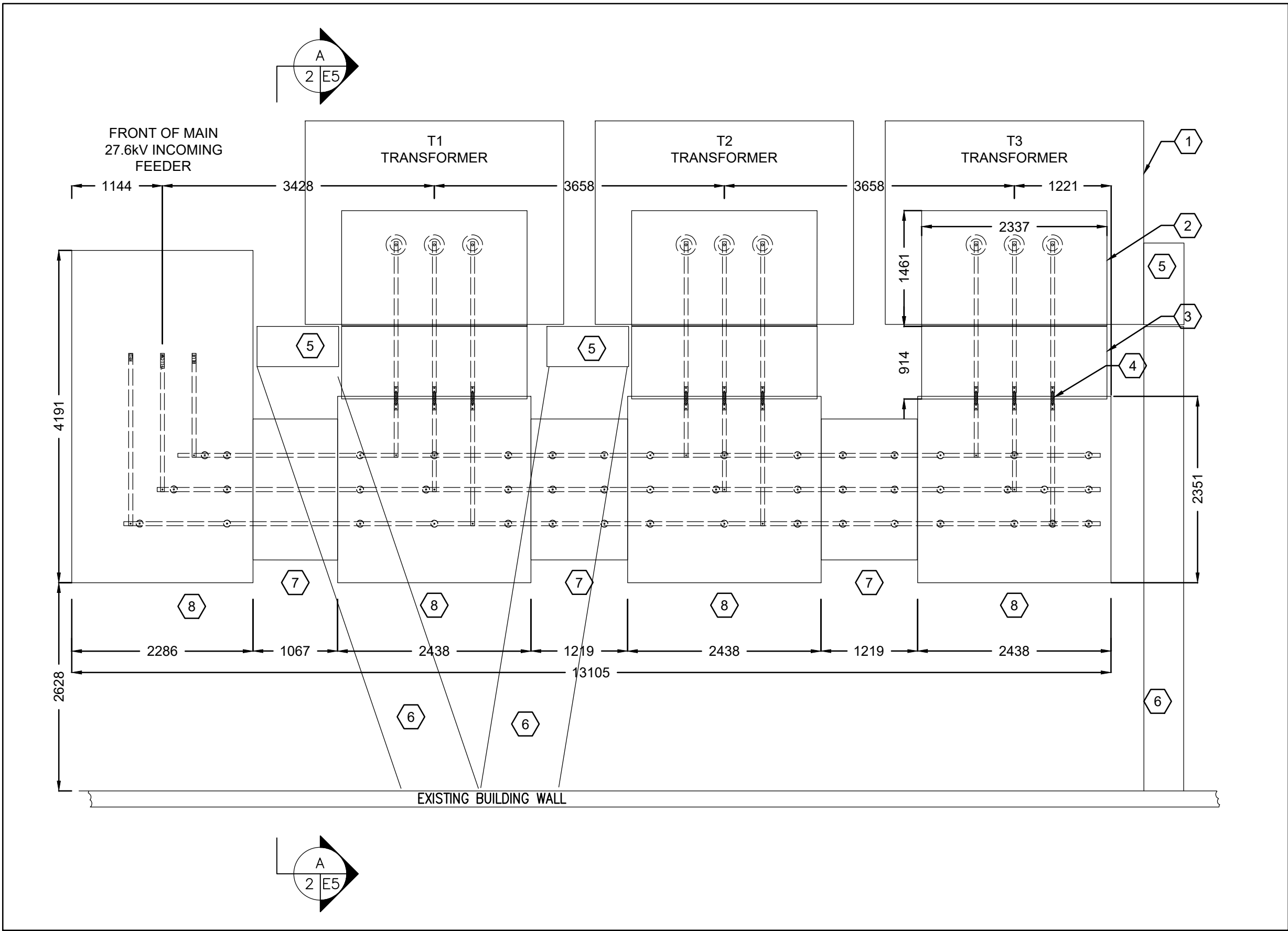
SINGLE LINE DIAGRAM

drawn by dessiné par	SW
designed by conçue par	AM
approved by approuvé par	OB
tender soumission	--
project manager administrateur de projets	--

project date
date du projet
2018/05/28

project no.
no. du projet
KW405-180719/001/PWL

drawing no.
dessiné no.
E-4



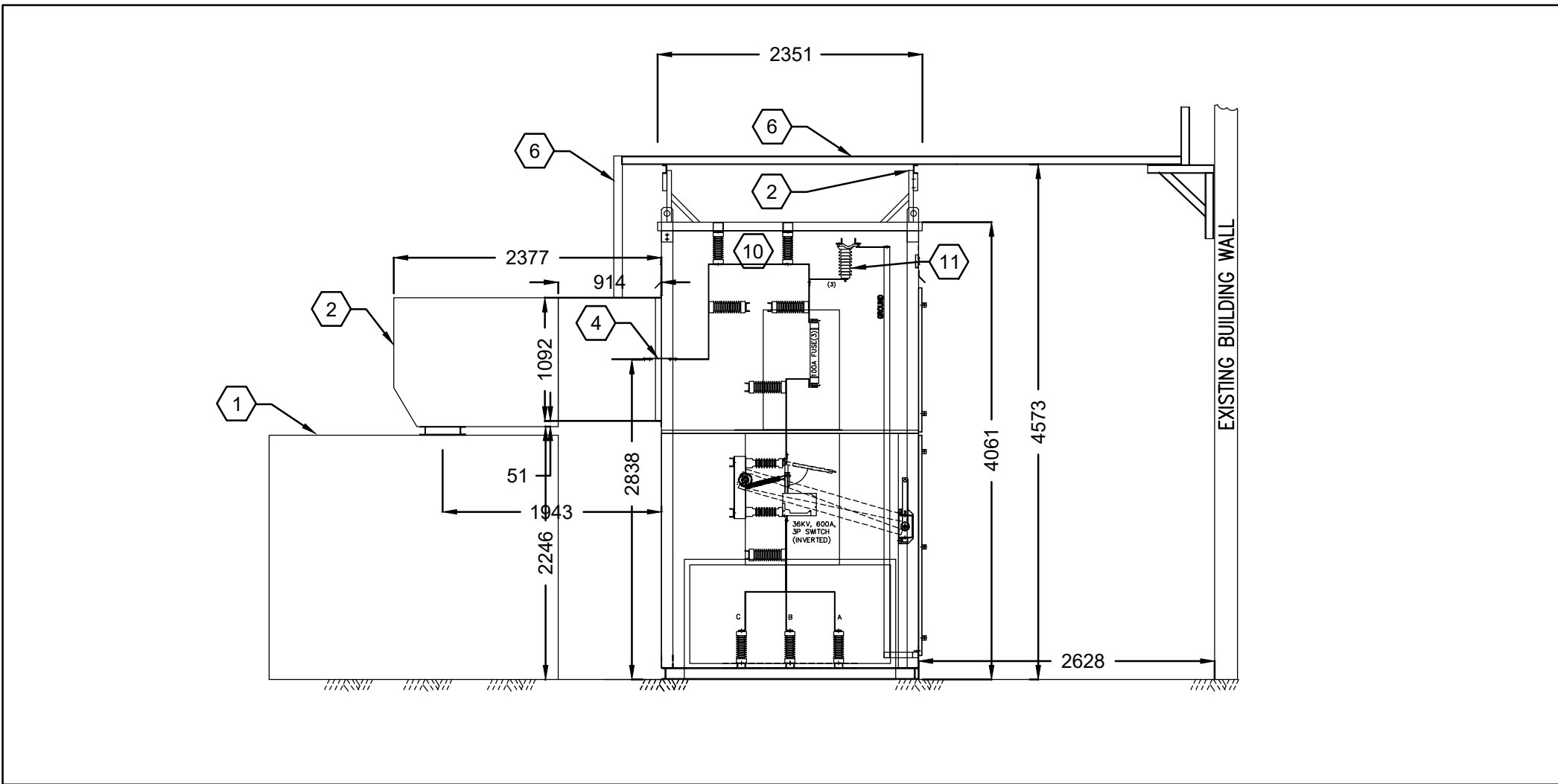
1 EXISTING HIGH VOLTAGE BUSSING CONNECTION DETAIL – TOP VIEW
E-5 1:50

GENERAL NOTES:

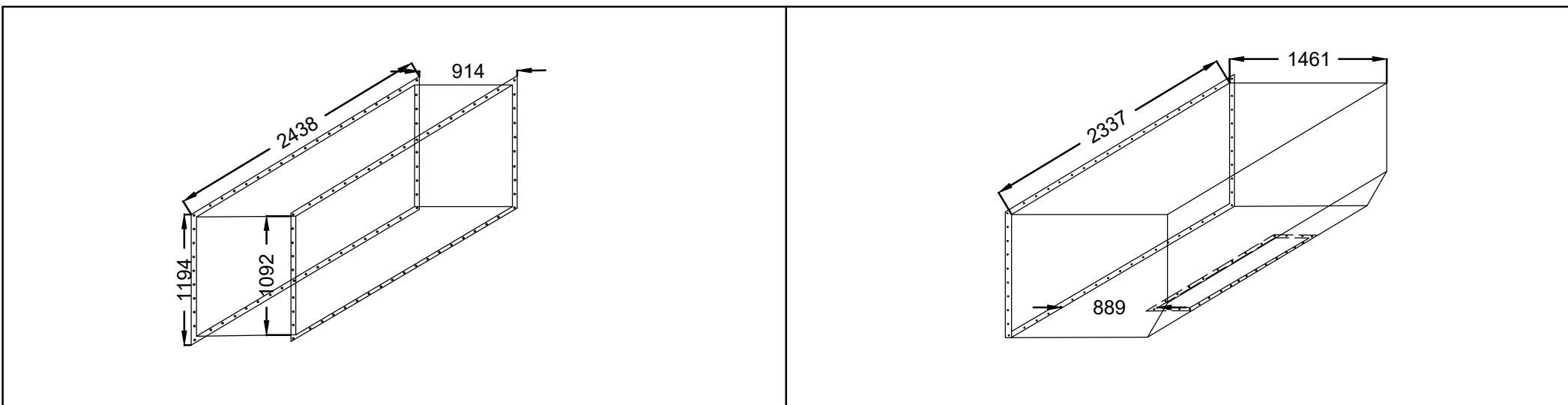
- A. ALL DIMENSIONS ARE SHOWN AS APPROXIMATE AND NOT TO BE USED FOR FABRICATION. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO ORDERING THE MATERIAL AND EQUIPMENT.
- B. COORDINATE WITH CCIW AND BURLINGTON HYDRO FOR ANY SHUT DOWN THAT MIGHT BE REQUIRED.
- C. THE PURPOSE OF THIS DRAWING IS ONLY GIVE THE INDICATION OF THE EXISTING ARRANGEMENT. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL INFORMATION SITE.

DRAWING NOTES:

- 1 EXISTING TRANSFORMER.
- 2 EXISTING HV HOOD OVER THE HV TERMINALS.
- 3 EXISTING HV BUSDUCT.
- 4 EXISTING 600A COPPER FLEXBRAIDS.
- 5 EXISTING LV CABLE TRAY.
- 6 EXISTING CABLE TRAY FROM LV TERMINAL BOX TO THE BUILDING WALL.
- 7 EXISTING 27.6kV SWITCHGEAR BUSWAY.
- 8 EXISTING 27.6kV SWITCHGEARS.
- 9 ADJUSTABLE RACK ON THE ROOF FOR EXISTING CABLE TRAY.
- 10 EXISTING 27.6kV BUSBARS IN THE SWITCHGEAR
- 11 EXISTING 21kV (17kV MCOV) LIGHTNING ARRESTERS.

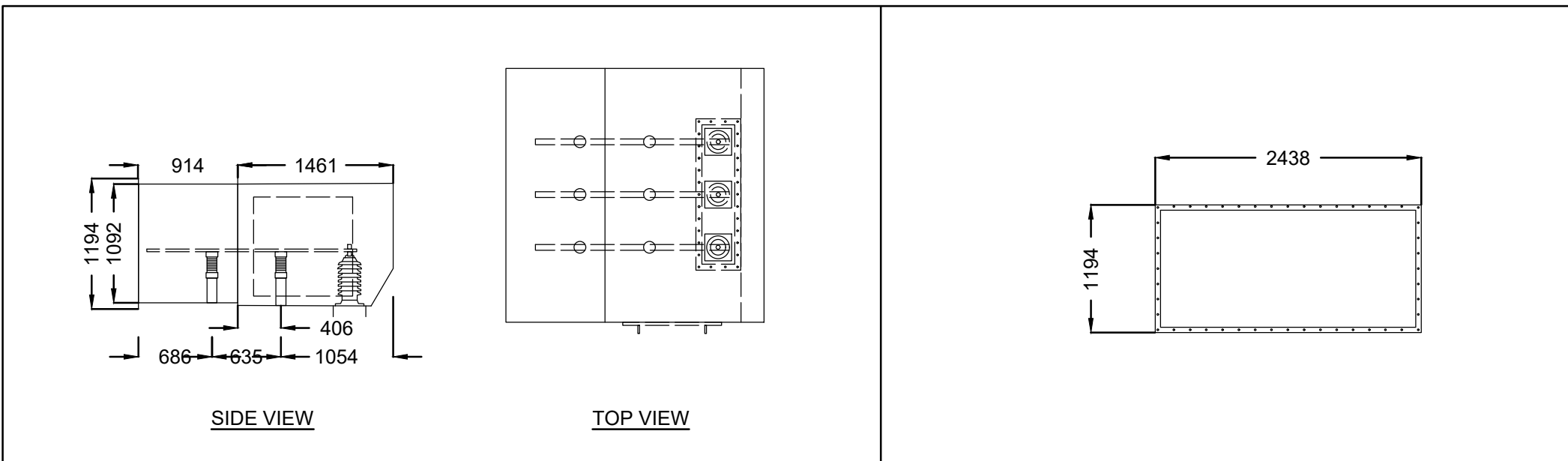


2 EXISTING HIGH VOLTAGE CONNECTION SIDE VIEW A-A
E-5 1:50



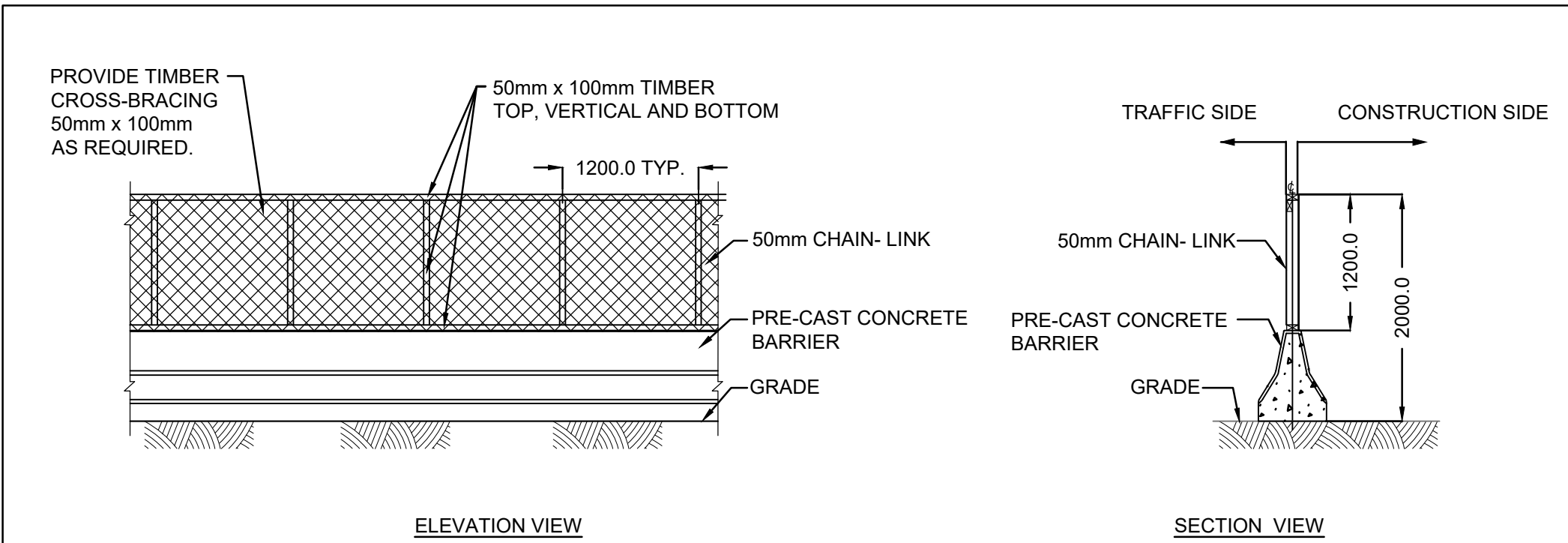
3 EXISTING TRANSFORMER THROAT DETAIL
E-5 1:50

4 EXISTING TRANSFORMER HOOD DETAIL
E-5 1:50



5 EXISTING TRANSFORMER HOOD DETAIL
E-5 1:50

6 EXISTING HOOD TO SWITCHGEAR FLANGE DETAIL
E-5 1:50



NOTES:

1. SECURE TIMBER TO TOP OF CONCRETE BARRIER AS REQUIRED TO PREVENT OVERTURNING.
2. FOR ADDITIONAL INFO ON CHAIN LINK FENCE REFER TO SPECIFICATION 32 31 00.

7 TEMPORARY HOARDING—DETAILS
E-5 1:50



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867 LAKESHORE RD.,
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RECAPITALIZATION**

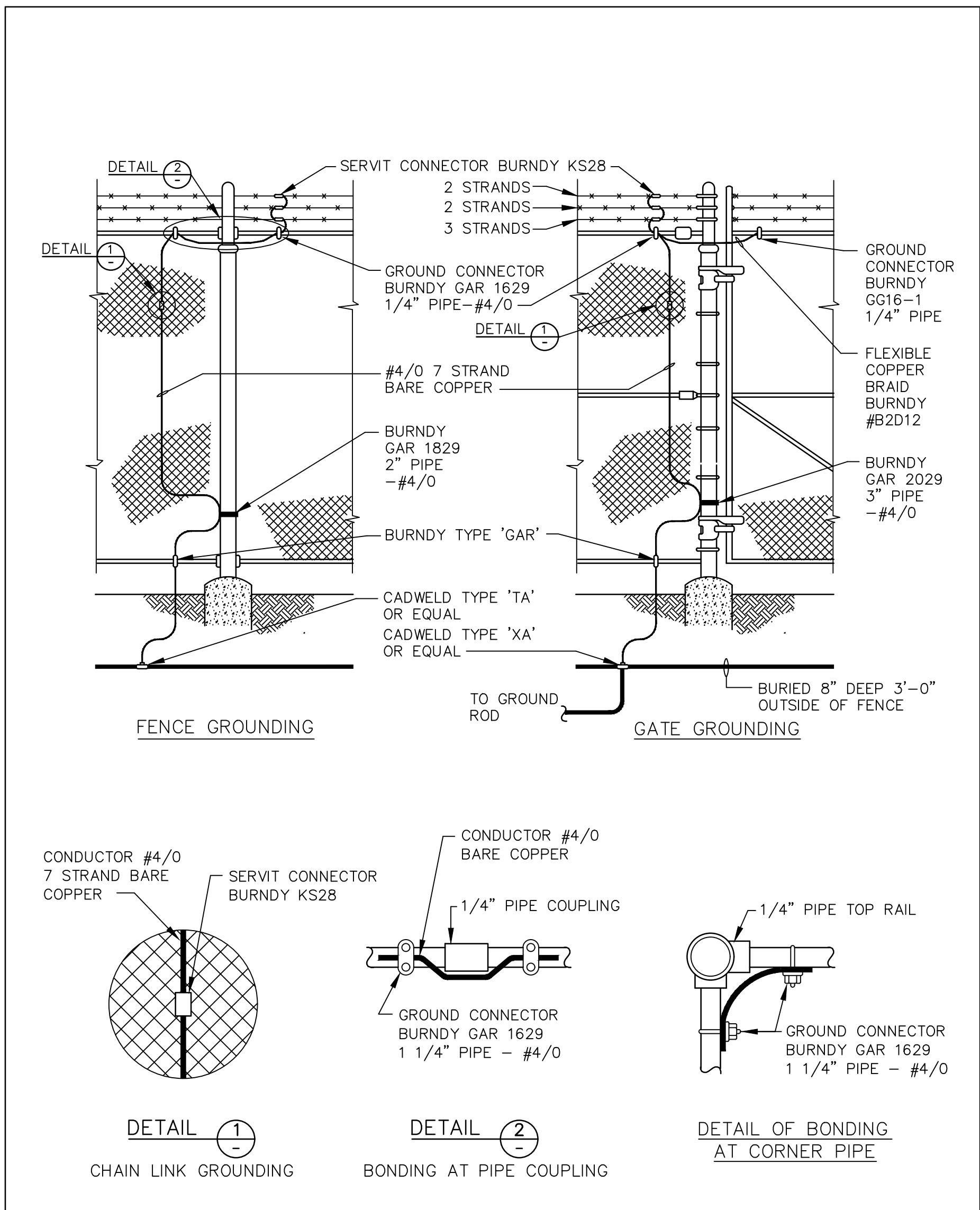
drawing title
titre du dessin
**EXISTING
HIGH VOLTAGE CONNECTIONS
DETAILS**

drawn by dessiné par	SW
designed by conc par	AM
approved by approuvé par	OB
tender soumission	--
project manager administrateur de projets	--

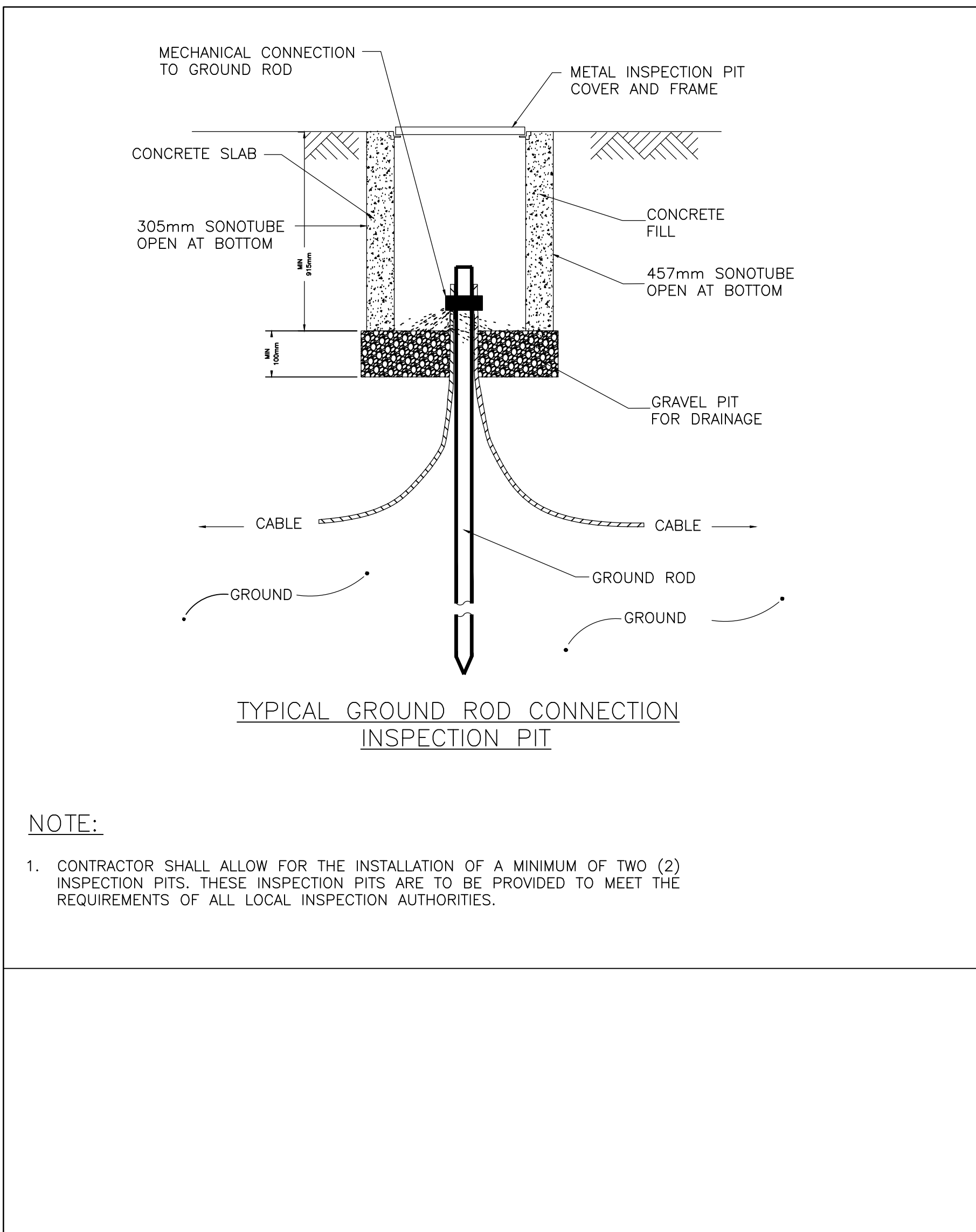
project date
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KW405-180719/001/PWL

drawing no.
dessiné no.
E-5



1 TYPICAL GROUNDING OF FENCE
E-6 N.T.S.



NOTE:

1. CONTRACTOR SHALL ALLOW FOR THE INSTALLATION OF A MINIMUM OF TWO (2) INSPECTION PITS. THESE INSPECTION PITS ARE TO BE PROVIDED TO MEET THE REQUIREMENTS OF ALL LOCAL INSPECTION AUTHORITIES.

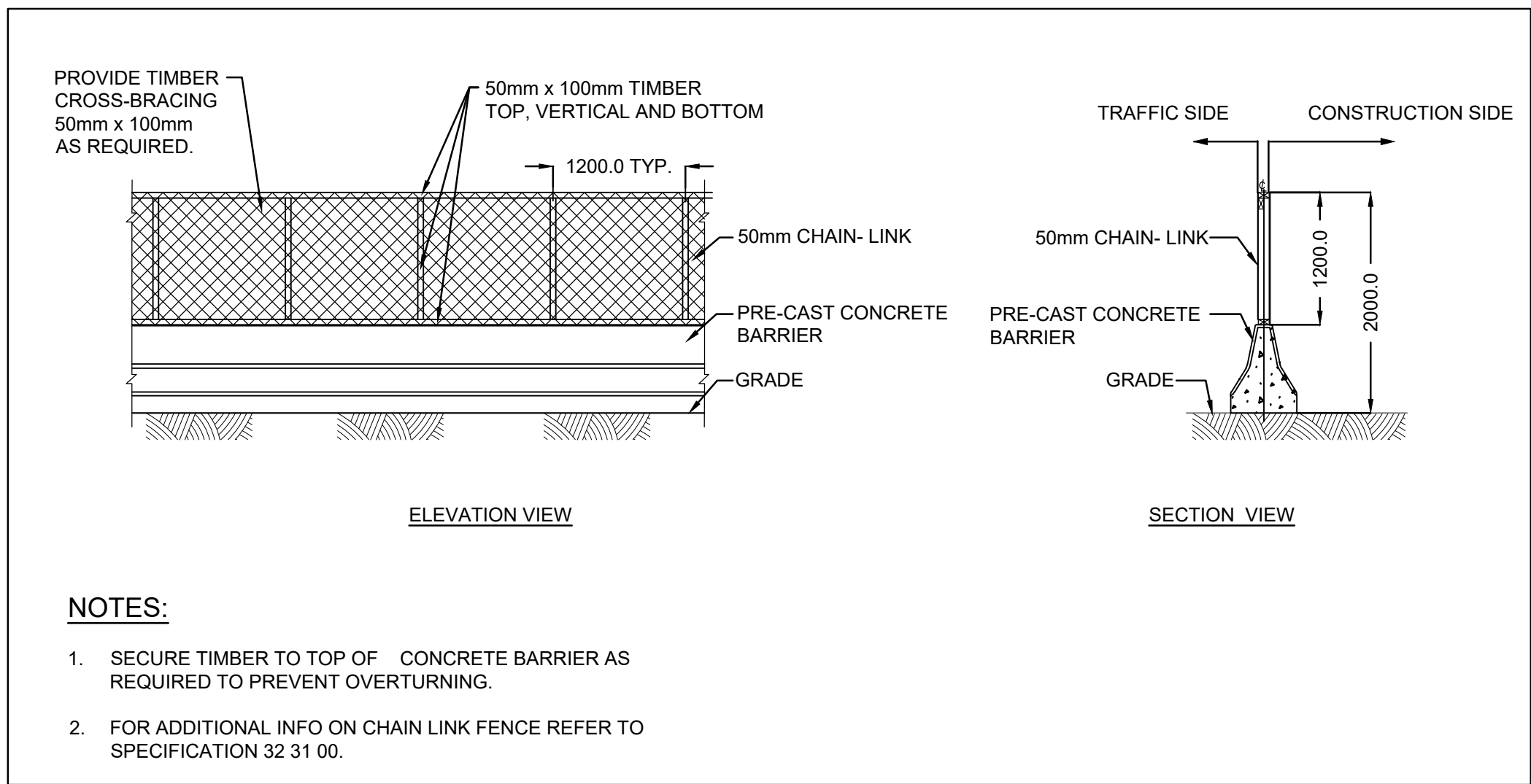
2 TYPICAL GROUND ROD CONNECTION INSPECTION PIT
E-6 N.T.S.

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- EXISTING 21kv (17kv MCOV) LIGHTNING ARRESTERS.



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1. SECURE TIMBER TO TOP OF CONCRETE BARRIER AS REQUIRED TO PREVENT OVERTURNING.
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3 TYPICAL HORDING DETAIL
E-6 N.T.S.



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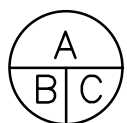
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TYPICAL DETAILS

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