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July 08, 2025

Addendum No. 02

File Reference Number: RFP 2025 026

Title: North Bay Motor Coach Services Parking Lot Upgrades

RE: Clarifications/Questions

CLARIFICATIONS/QUESTIONS

Changes and/or clarifications are required to the Tender Documents for the above-mentioned project as outlined below. These changes/clarifications will form part of the Contract Documents and supersede the requirements of the Tender Documents where applicable.

Item 1: Are the Block heater plugs mounted on pressure-treated 6x6 posts?

Answer: Yes.

Item 2: Will the fuel tank remain in place and have the asphalt hand places around it?

Answer: Correct, Fuel tank is to be left in place. Concrete barriers are to be removed, and asphalt hand placed and compacted around the concrete pads to provide a uniform surface with the remainder of the parking lot.

Item 3: The documents request that the additional parking spaces be included in phase #1. Does this include the five (5) spaces inside the new fence?

Answer: Contractor is to propose phasing options and ONTC is to decide on the best strategy to move forward in consultation with the Contractor. Priority is to be given to the addition of 20 new parking spaces, along with the enhancements to stormwater management infrastructure, specifically, the deepening of the existing pond.

Item 4: CBMN#8 and belowground piping from CB#6 will be completed in Phase#1?

Answer: Contractor is to propose phasing options and ONTC is to decide on the best strategy to move forward in consultation with the Contractor. Priority is to be given to the addition of 20 new parking spaces, along with the enhancements to stormwater management infrastructure, specifically, the deepening of the existing pond.

…/2

Item 5: Please provide clarification on the diameter and material type for all fence posts, end posts, and gate posts.

Answer: Fencing is to be commercial grade 72” black aluminum chain link fence, Posts are to be as per the manufacturers recommendations.

Item 6: Please provide clarification on the material type of the chain link and the gauge size for the fencing.

Answer: Fencing is to be commercial grade 72” black aluminum chain link fence.

Item 7: Does the fencing need barbed wire arms and barbed wire? If so, what is the total height of the fencing?

Answer: No Barbed wire on the fencing.

Item 8: The drawings indicate a very large gate opening for snow removal. The largest swing gate assembly measures 15 feet, providing a 30-foot opening. Is this adequate?

Answer: Each of the openings is to have a single 4.5m swing gate.

Item 9: Please provide gate specifications for the 2 operable gates. Material type for the frame, and if it is chain link.

Answer: Gate is to be compatible with fence type.

Item 10: Please provide the gate operator model and specifications.

Answer: Gate operator is to be supplied by ONTC preferred vendor and installed by the Contractor.

Item 11: Please provide the specifications on the card readers and the remotes for the buses to open the gates. Also, the quantity of remotes required.

Answer: To be supplied by ONTC preferred vendor, successful contractor to coordinate with Owner.

Item 12: Do the gates require safety eyes to stop the gates from closing?

Answer: Assume a safety eye for installation, to be supplied by ONTC preferred vendor, successful contractor to coordinate with Owner for procurement.

Item 13: Do the goose necks for the card readers require double heights? One lower for cars and another higher for the buses?

Answer: Assume double height for installation, to be supplied by ONTC preferred vendor, successful contractor to coordinate with Owner for procurement.

Item 14: Please provide the details (size/rebar/insulation) of the concrete pad required for the 6 motorcycle spaces.

Answer: Please use the allowance provided for pricing, specifications on the construction to follow the closing of the tender.

Item 15: We have the option of using either SP12.5 or HL4. If we choose HL4, what would be the AC, and will it be PG 58-28 or PG 58-34?

Answer: Please use PGAC 58-34.

Item 16: Part 3 – RFP Specifications – Schedule 3-A-3 – Issue for Tender Drawings

Please find the IFT drawings attached at the end of this Addendum for your reference.

These documents are provided for reference purposes only and are identical to those included in the RFP under Schedule 3-A-3 – Issue for Tender Drawings.

This Addendum hereby forms part of the RFP.

Regards,

Brinda Ranpura
Procurement Contracts Specialist
brinda.ranpura@ontarionorthland.ca

ONTARIO NORTHLAND TRANSPORTATION COMMISSION

CONTRACT
DRAWINGS

EXP PROJECT
NTB-24005495-00

Construction of ONTC Parking Lot Expansion

Services Inc.

Infrastructure Services - North Bay
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North Bay, Ontario, Canada
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exp.

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LEGEND

- PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- EXISTING WATER MAIN
- EXISTING GAS LINE
- EXISTING HYDRO LINE
- EXISTING SNOW FENCE
- EXISTING CHAIN LINK FENCE
- HEAVY DUTY STYROFOAM STORM PIPE INSULATION
- EXISTING/PROPOSED SANITARY MANHOLE
- EXISTING/PROPOSED STORM MANHOLE CATCH BASIN WQU = WATER QUALITY UNIT
- EXISTING/PROPOSED STORM DOUBLE MANHOLE CATCH BASIN
- EXISTING/PROPOSED STORM CATCH BASIN
- EXISTING/PROPOSED STORM DOUBLE CATCH BASIN
- EXISTING/PROPOSED FIRE HYDRANT
- PROPOSED SLOPE
- EXISTING/PROPOSED ELEVATION
- EXISTING ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED HEAVY DUTY ASPHALT
- EXISTING PARKING LOT/GRAVEL
- EXISTING CONCRETE
- EXISTING/PROPOSED LIGHT POST
- EXISTING/PROPOSED BUILDING
- EXISTING DOOR/ GARAGE
- EXISTING TREE

5	ISSUED FOR TENDER	BM	04/09/2025
4	ISSUED FOR CITY APPROVAL	BM	03/12/2025
3	ISSUED FOR CITY APPROVAL	BM	02/24/2025
2	ISSUED FOR CLIENT REVIEW	BM	12/10/2024
1	PRELIMINARY	EB	08/14/2024
	Revision	By:	Date

ISSUED FOR TENDER

Drawn By: EB	Scale: 1:350
Checked By: EB	Date: 04/09/25
Approved By: CLC	Date: 04/09/25

Date Printed: 04/09/25

File Name: NTB-24005495 ONTC - CIVIL

Project Title

ONTC PARKING LOT EXPANSION

567 WALLACE RD
NORTH BAY, ON
P1A 0E6

Dwg. Title

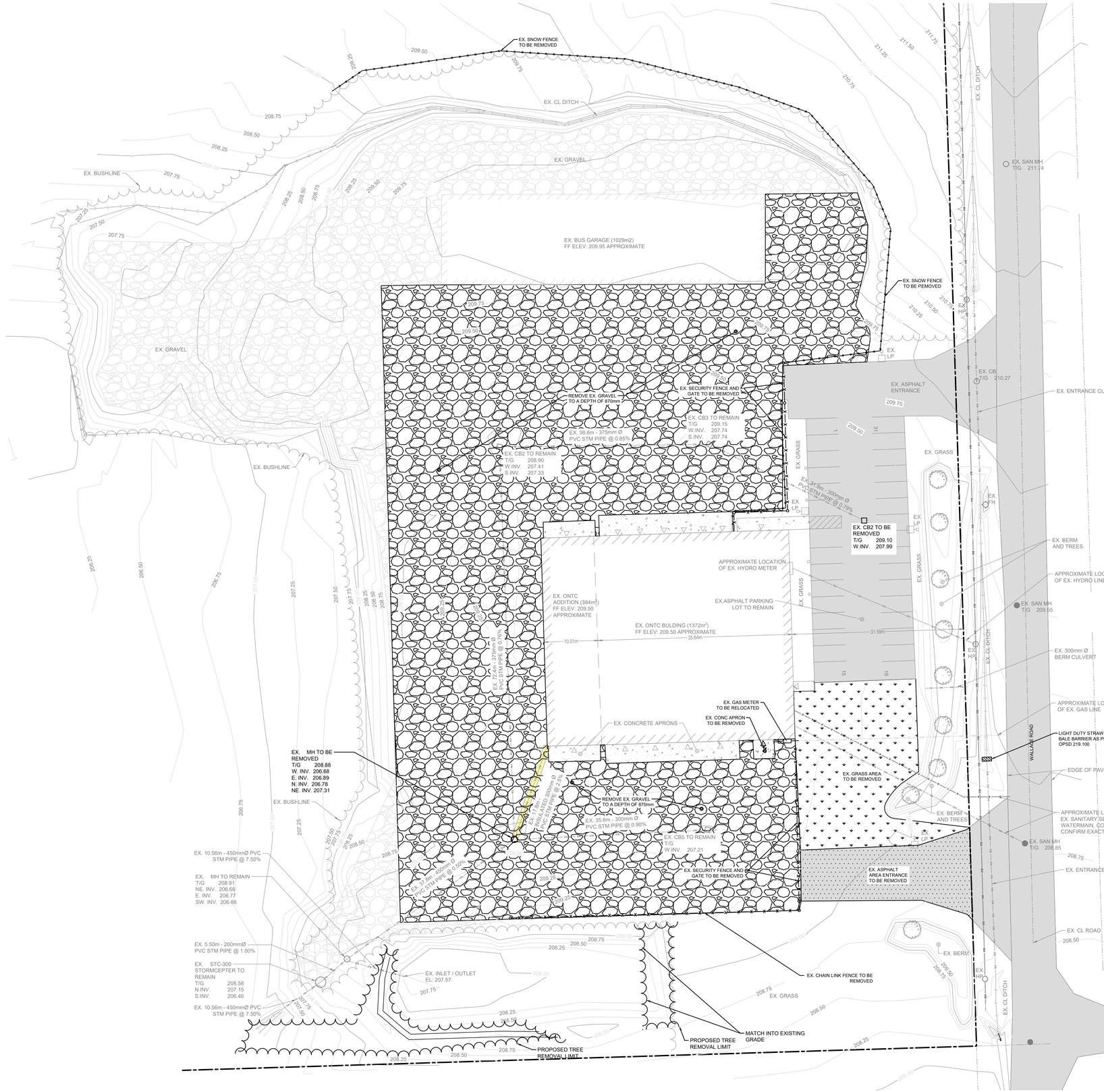
EXISTING CONDITIONS

Project No. NTB-24005495-00

Dwg. No. C-101

Rev. No. 5

E:\NTB\NTB-24005495-00\60 Execution\65 Drawings



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LEGEND

- ASPHALT REMOVAL
- GRASS REMOVAL
- GRAVEL REMOVAL

5	ISSUED FOR TENDER	BM	04/09/2025
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Professional Seal

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Project Title

ONTC PARKING LOT EXPANSION

567 WALLACE RD
NORTH BAY, ON
P1A 0E6

Dwg. Title

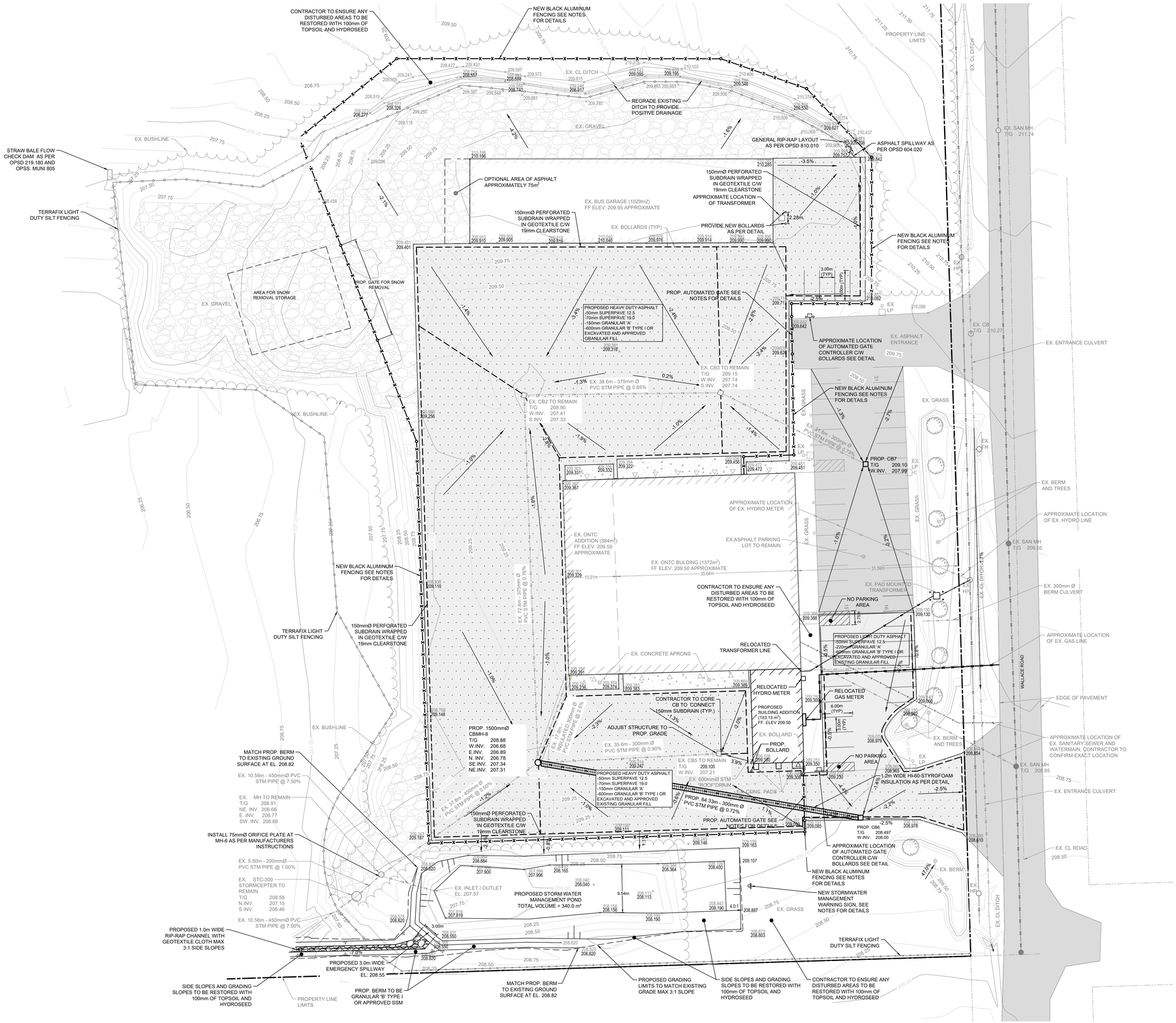
REMOVALS PLAN

Project No. NTB-24005495-00

Dwg. No. C-102

Rev. No. 5

E:\NTB\NTB-24005495-00\60 Execution\65 Drawings



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LEGEND

- PROPERTY LINE
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File Name: NTB-24005495 ONTC - CIVIL

Project Title

ONTC PARKING LOT EXPANSION

567 WALLACE RD
NORTH BAY, ON
P1A 0E6

Dwg. Title

SITE SERVICING AND GRADING PLAN

Project No. NTB-24005495-00

Dwg. No. C-103

Rev. No. 5

E:\NTB\NTB-24005495-00\60 Execution\05 Drawings

NOTES

CONTRACTOR TO NOTIFY CONSULTANT IMMEDIATELY IF ANY DISCREPANCIES ARE IDENTIFIED BETWEEN THESE NOTES AND BOOK SPECIFICATIONS. BOOK SPECIFICATIONS SHALL GOVERN.

UNLESS OTHERWISE NOTED ALL DIMENSIONS AND ALL ELEVATIONS ARE IN METERS. CONTRACTOR TO FIELD CHECK AND VERIFY ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE CONSULTANT PRIOR TO STARTING CONSTRUCTION.

1. GENERAL REQUIREMENTS

1.1. REFERENCES

1.1.1. ALL WORK TO BE DONE TO THE CITY OF NORTH BAY STANDARDS AND ALL ONTARIO PROVINCIAL STANDARDS (OPSS & OPSD). WHERE A CONFLICT OCCURS THE CITY OF NORTH BAY STANDARD GOVERNS.

1.1.2. THE WORK SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE LATEST EDITIONS OF THE APPLICABLE CSA STANDARDS AND THE ONTARIO BUILDING CODE.

1.1.3. THESE DRAWINGS SHOULD BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERS' PLANS. ANY DISCREPANCIES SHALL BE CLARIFIED PRIOR TO CONSTRUCTION.

1.1.4. SURVEY INFORMATION PROVIDED BY EXP SERVICES INC. .DATED JULY 4, 2024.

1.2. SIGNAGE

1.2.1. CONFINE CORPORATE SIGNAGE TO DESIGNATED CONSTRUCTION AREA.

1.2.2. PROVIDE AREA FOR ENGINEER'S CORPORATE SIGN AND MOUNT SAME IN LOCATION AS DIRECTED.

1.2.3. PROVIDE PROFESSIONALLY LETTERED SIGNAGE OF APPROPRIATE SIZE TO DIRECT TEMPORARY VEHICLE AND PEDESTRIAN TRAFFIC DURING CONSTRUCTION.

1.2.4. TRAFFIC CONTROL, PEDESTRIAN CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL CONFORM TO MUNICIPAL REQUIREMENTS AND THE MOST CURRENT ONTARIO CONSTRUCTION REGULATIONS INCLUDING REGULATION No. 213 UNDER OHSA AND REFERENCE TO MTO TEMPORARY CONDITIONS MANUAL BOOK No. 7.

1.3. CONTRACTOR RESPONSIBILITIES

1.3.1. ALL TRAFFIC CONTROL FOR WALLACE ROAD MUST BE SUBMITTED TO THE CONSULTANT AND CITY OF NORTH BAY FOR REVIEW AND APPROVAL MINIMUM TWO WEEKS PRIOR TO ANY WORK IN THE ROAD RIGHT OF WAY. TRAFFIC CONTROL SHALL MEET ALL MTO TEMPORARY CONDITIONS MANUAL BOOK No. 7. CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING AND ISSUING ANY NEWSPAPER, INTERNET AND/OR RADIO NOTIFICATIONS FOR ROAD CLOSURES/TRAFFIC CONTROLS.

1.3.2 OBTAIN AND PAY FOR ALL PERMITS AND FEES REQUIRED FOR THE INSTALLATION OF ALL PROPOSED WORKS. CITY IS TO BE NOTIFIED WELL IN ADVANCE FOR ANY WORKS WITHIN THE ROAD RIGHT OF WAY OR WATERMAIN WORK, WHICH IS TO BE COMPLETED WITH NORTH BAY PUBLIC WORKS IN ATTENDANCE.

1.3.3. VISIT THE SITE AND EXAMINE THE VISIBLE EXISTING FEATURES CONDITIONS AFFECTING THE WORK. NO EXTRA COMPENSATION WILL BE CONSIDERED FROM FAILURE OF NOT EXAMINING EXISTING CONDITIONS.

1.3.4. DRAWINGS ARE DIAGRAMMATIC IN NATURE, INTENDED TO CONVEY THE SCOPE OF THE WORK AND INTENDED OVERALL ARRANGEMENT. EXACT LOCATIONS SHALL SUIT FINAL LAYOUTS AND SITE CONDITIONS AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THOROUGH KNOWLEDGE OF THE WORK REQUIRED AND ALL EXISTING CONDITIONS BEFORE PROCEEDING WITH THE WORK.

1.3.5. ONLY DRAWINGS MARKED "FOR CONSTRUCTION" ARE TO BE USED FOR THIS PROJECT AND THE CONSTRUCTION OF THIS WORKS.

1.3.6. ALL DRAWINGS AND SPECIFICATIONS TO REMAIN THE PROPERTY OF THE OWNER, AND SHALL BE RETURNED UPON REQUEST. IN NO WAY SHALL THE DRAWINGS AND/OR SPECIFICATIONS IN WHOLE OR PART BE REPRODUCED OR DISTRIBUTED WITHOUT THE PERMISSION OF THE OWNER.

1.3.7. THE CONTRACTOR IS REQUIRED TO CONFIRM EXISTING GRADES AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE COMMENCING WORK.

1.3.8. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. AND NOT ALL NECESSARILY SHOWN ON THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITIES AND FOR CALLING "CALL ONE" AND OTHER UTILITIES FOR LOCATES OF THE UTILITIES WITHIN THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING INFORMATION IN REGARD TO EXACT SIZE AND LOCATION OF BURIED UTILITIES FROM THE RESPECTIVE UTILITY COMPANIES. THIS SHALL INCLUDE EXCAVATION OF INSPECTION HOLES IF NECESSARY. THE CONTRACTOR MUST EXERCISE NECESSARY CARE IN CONSTRUCTION OPERATIONS INCLUDING, NOTIFYING AND IF NECESSARY, HAND DIGGING TO SAFEGUARD UTILITIES FROM DAMAGE. THE CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF UTILITY POLES AND/OR DUCTS AS MAY BE REQUIRED TO COMPLETE THE WORK. THE CONTRACTOR IS LIABLE FOR ANY DAMAGE TO UTILITIES OCCURRING WITHIN OR OUTSIDE THE CONTRACT LIMITS CAUSED BY THEIR OPERATIONS.

1.3.9. THE CONTRACTOR IS RESPONSIBLE TO LOCATE THE FIBER OPTIC CABLE THAT RUNS THROUGH THEPROPERTY AND ANY OTHER UTILITIES OR SERVICES.

1.3.10. NOTIFY MINISTRY OF LABOUR OF INTENT TO COMMENCE CONSTRUCTION.

1.3.11. THE CONTRACTOR WORKING FROM DRAWINGS NOT SPECIFICALLY MARKED "FOR CONSTRUCTION" EXCEPT REFERENCED ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) MUST ASSUME FULL RESPONSIBILITY AND BEAR COSTS FOR ANY CORRECTIONS OR DAMAGES RESULTING FROM HIS WORK.

1.3.12 ROAD OCCUPANCY/ACCESS PERMIT MUST BE OBTAINED 48 HOURS PRIOR TO COMMENCING ANY WORKS WITHIN THE MUNICIPAL ROAD ALLOWANCE.

1.3.13 CONTRACTOR IS RESPONSIBLE TO REPLACE/REPAIR AT THEIR COST ANY DEFICIENT WORK AS NOTED BY THE CONSULTANT.

1.4. UTILITY COORDINATION

1.4.1. CONTRACTOR IS RESPONSIBLE TO NOTIFY ALL UTILITIES PRIOR TO COMMENCEMENT OF WORK AND CO-ORDINATE CONSTRUCTION ACCORDINGLY.

1.4.2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE PRIVATE LOCATES FOR A FIBER OPTIC CABLE AND OTHER UTILITIES ON THE PROPERTY. THE CONTRACT IS RESPONSIBLE FOR THE LOCATES PRIOR TO ANY EXCAVATION ON THE SITE.

1.5. SITE MAINTENANCE

1.5.1. MAINTAIN CONSTRUCTION SITE IN AN ORGANIZED AND ORDERLY STATE AT ALL TIMES.

1.5.2. CLEAN UP GROUNDS AND ACCESS ROADS DAILY AND WHENEVER DIRECTED BY OWNER, CONSULTANT OR CITY.

1.5.3. RESTORE ALL CONSTRUCTION DAMAGES TO THE SATISFACTION OF THE OWNER, CONSULTANT OR CITY.

1.5.4. EXCEPT WHERE EXPRESSLY STATED OTHERWISE, MATERIALS WHICH MUST BE REMOVED TO PERFORM THE WORK OR ARE INDICATED FOR REMOVAL BECOME THE CONTRACTOR'S PROPERTY AND RESPONSIBILITY AND ARE TO BE TAKEN FROM THE SITE.

1.5.5. SEPARATE AND DISPOSE OF REMOVALS AND EXCESS EXCAVATED MATERIALS AT APPROVED SITES (OFFSITE) OBTAINED BY THE CONTRACTOR AND IN ACCORDANCE WITH MOECC REGULATIONS.

1.5.6. FOR THE DURATION OF THE CONTRACT, MATERIAL THAT BECOMES CONTAMINATED DUE TO CONTRACTOR'S ACTIVITY SHALL BE REMOVED AND REPLACED AT NO EXTRA COST TO THE CONTRACT.

1.5.7. DEWATERING, IF REQUIRED TO BE CARRIED OUT IN ACCORDANCE WITH OPSS 517 AND 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION.

1.5.8. ALL AREAS DISTURBED BY CONSTRUCTION TO BE REINSTATED TO ORIGINAL CONDITIONS OR BETTER AS DIRECTED BY THE ENGINEER.

1.5.9. CONCRETE AND ASPHALT DELIVERY AND PLACEMENT TOOLS SHALL NOT BE CLEANED ON SITE AND LEFTOVER PRODUCT SHALL NOT BE DISPOSED OF ON SITE.

1.5.10. SEDIMENT AND EROSION CONTROL MUST BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION WORKS AND MUST REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ON SITE HAVE BEEN STABILIZED. DAILY INSPECTION OF THE EROSION & SEDIMENT CONTROLS ARE REQUIRED TO ENSURE THEY ARE FUNCTIONING PROPERLY. IF ANY DEFICIENCIES ARE FOUND, NO WORK SHALL OCCUR PRIOR TO THE CORRECTION OF SUCH DEFICIENCIES. SILT FENCE SHALL BE AS PER OPSD 219.110. SEDIMENT AND EROSION CONTROL SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF THE PROJECT AND VEGETATION IS ESTABLISHED.

1.5.11. A SPILL RESPONSE KIT AND A CREW TRAINED IN ITS USE, SHALL BE MAINTAINED ON SITE TO ADDRESS ANY SPILLS. ALL SPILLS SHALL BE IMMEDIATELY REPORTED TO THE ONTARIO MINISTRY OF THE ENVIRONMENT'S SPILLS ACTION CENTER AT 1-800-268-6060.

1.5.12. THE CONTRACTOR SHALL MAINTAIN ADEQUATE INGRESS AND EGRESS TO ALL PROPERTIES WITHIN THE CONSTRUCTION LIMITS AT ALL TIMES.

1.5.13. THE CONTRACTOR SHALL MAINTAIN CLEAN ADJACENT ROADWAYS AND KEEP THEM FREE FROM CONSTRUCTION DEBRIS. MUDMATS TO BE UTILIZED AT ALL ACCESS POINTS AND MAINTAINED. CONTRACTOR WILL BE RESPONSIBLE FOR SWEEPING STREETS COVERED IN CONSTRUCTION DEBRIS/GRAVEL/SAND ETC.

1.5.14 CONTRACTOR WILL BE REQUIRED TO COORDINATE AND PAY FOR 3RD PARTY GEOTECHNICAL TESTING FOR THE PROJECT AND PROVIDE RESULTS TO THE CONSULTANT. ANY FAILED TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RECTIFY AND RE-TEST UNTIL PASSING.

2. MATERIALS / EXCAVATION / REMOVALS / COMPACTION

2.1 EXCAVATION AND PLACEMENT OF GRANULAR AT THIS SITE SHALL BE IN ACCORDANCE WITH CITY OF NORTH BAY STANDARDS AND OPSS 206 CONSTRUCTION SPECIFICATION FOR GRADING AND OPSS 314 UNTREATED GRANULAR BASE AND SUBBASE.

2.2 CONTRACTOR IS RESPONSIBLE TO BE FAMILAR WITH THE CURRENT SITE AND REMOVE ALL THE NECESSARY EXISTING ORGANICS, EARTH, ROCK, DEBRIS, ASPHALT, CURBS, ETC. TO CONSTRUCT THE SITE AS PER THE CONTRACT DRAWINGS. ADDITIONAL OR OVER EXCAVATION WITHOUT THE CONSENT OF THE CONSULTANT WILL NOT BE PAID.

2.3 CONTRACTOR TO OBTAIN WRITTEN APPROVAL FROM THE OWNER ON TREES NOT DESIGNATED FOR REMOVAL. TREES TO BE REMOVED SHALL INCLUDE GRUBBING OF STUMPS AND ROOTS AND DISPOSED OFFSITE. REFER TO LANDSCAPING DRAWINGS FOR TREES TO BE REMOVED.

2.4 ALL PRECAUTIONARY MEASURES MUST BE TAKEN TO ENSURE THE ASPHALT SURFACES ARE UNDISTURBED AND NO DAMAGE IS INCURRED. CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REINSTATEMENT OF ANY DISTURBED ASPHALT ALONG ADJACENT ROADWAYS AT NO COST TO THE OWNER. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER AND/OR CALCIUM CHLORIDE AS REQUIRED FOR GRANULAR COMPACTION AND/OR DUST CONTROL.

2.5 SIDES OF EXCAVATIONS ARE NOT TO BE SLOPED STEEPER THAN THE CONDITIONS SET BY THE OHSA.

2.6 THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE VIA EXCAVATION THE EXACT LOCATIONS AND ELEVATION OF THE EXISTING INFRASTRUCTURE AS REQUIRED FOR CONNECTION TO. TAKE PRECAUTIONS TO PREVENT OVERLOADING OF ANY PART OF EXISTING OR NEW STRUCTURES AND MAKE GOOD, AT NO COST TO OWNER, DAMAGE RESULTING FROM SUCH OVERLOADING.

2.7 ALL DISTURBED GRASSED AREAS BY CONSTRUCTION ACTIVITIES TO BE REINSTATED WITH A MINIMUM OF 150mm OF TOPSOIL AND HYDROSEED. CONTRACTOR WILL BE RESPONSIBLE TO WATER GRASS UNTIL VEGETATION IS ESTABLISHED AND HEALTHY AT THE CONSULTANTS DISCRETION.

2.8 AREAS LABELED GRASS OR LANDSCAPE SHALL BE A MINIMUM OF 150mm OF TOPSOIL AND HYDROSEED. CONTRACTOR WILL BE RESPONSIBLE TO WATER GRASS UNTIL VEGETATION IS ESTABLISHED AND HEALTHY AT THE CONSULTANTS DISCRETION. ALL TOPSOIL ON THE PROJECT SHALL MEET OPSS 802. REFER TO LANDSCAPE DRAWINGS.

2.9 THE CONTRACTOR IS TO IDENTIFY HIS SOURCES OF GRANULAR TO THE CONSULTANT SO THAT THE QUALITY ASSURANCE CONSULTANT CAN GO AND SAMPLE THE MATERIALS AND ANALYZE THE MATERIALS FOR CONFORMITY AND TO DETERMINE PROCTOR DENSITIES.

2.10 ALL MATERIALS, ie. GRANULAR, CONCRETE AND ASPHALT, MUST CONFORM TO THE CITY OF NORTH BAY SPECIFICATIONS.

2.11 ALL ASPHALT, BASE, AND SUBBASE THICKNESS INDICATED REPRESENT THE THICKNESS REQUIRED AT COMPACTION INDICATED.

2.12 ASPHALT PLACED AT THIS PROJECT SHALL BE IN ACCORDANCE WITH OPSS 310 CONSTRUCTION SPECIFICATION FOR HOT MIXED, HOT LAID ASPHALTIC CONCRETE PAVING AND HOT MIX PATCHING.

2.13 ALL ASPHALT PLACED AT THIS PROJECT SHALL BE MANUFACTURED AT A MTO APPROVED ASPHALT PLANT AND PLACED BY A QUALIFIED AND APPROVED COMPANY EXPERIENCED AT PLACEMENT OF ASPHALT HAVING ALL THE NECESSARY EQUIPMENT TO HAUL, PLACE AND COMPACT THE PLACED ASPHALT. ASPHALT SHALL BE AS PER OPSS 310.

2.14 ASPHALT LIGHT DUTY COMPOSITION (CAR PARKING ONLY) :
50mm HOT MIX ASPHALT SURFACE COURSE (SUPERPAVE 12.5, CATEGORY D)
220mm GRANULAR 'A'
600mm MIN. GRANULAR 'B' TYPE I OR EXCAVATED AND APPROVED GRANULAR FILLS

ASPHALT HEAVY DUTY COMPOSITION (BUS AREA ASPHALT):
50mm HOT MIX ASPHALT SURFACE COURSE (SUPERPAVE 12.5, CATEGORY D)
70mm HOT MIX ASPHALT BINDER COURSE (SUPERPAVE 19.0, CATEGORY D)
150mm GRANULAR 'A'
600mm GRANULAR 'B' TYPE I OR EXCAVATED AND APPROVED GRANULAR FILLS

2.15 COMPACTION OF ASPHALT LAYERS TO BE A MINIMUM OF 92.0% M.R.D.

2.16 GRANULAR 'A' AND GRANULAR 'B' TO BE COMPACTED TO 100% OF EACH MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).

2.17 NATIVE OR SELECT SUBGRADE MATERIAL (SSM) SHALL BE PROOF ROLLED BENEATH ASPHALT SURFACES AND INSPECTED BY THE GEOTECHNICAL CONSULTANT PRIOR TO PLACEMENT OF GRANULAR MATERIALS.

2.18 THE MOST SEVERE LOADING CONDITIONS ON THE SUBSOIL COULD OCCUR DURING CONSTRUCTION DUE TO TRUCK TRAFFIC ETC. CONSEQUENTLY SPECIAL PROVISIONS MAY BE REQUIRED BY THE CONTRACTOR SUCH AS ADDITIONAL SUBBASE AND/OR RESTRICTED LOADINGS OR PROVISIONS FOR TEMPORARY ROADS, ETC. ESPECIALLY IF CONSTRUCTION IS CARRIED OUT DURING WET WEATHER CONDITIONS.

2.19 ANY ASPHALT TO BE REMOVED SHALL BE SAWCUT ALONG A STRAIGHT LINE. ASPHALT REMOVED FOR CONSTRUCTION SHALL BE REMOVED FROM SITE AND DISPOSED OF AT AN APPROVED DISPOSAL LOCATION.

2.20 CONTRACTOR IS RESPONSIBLE TO IMPORT MATERIAL AS REQUIRED TO CONSTRUCT SITE AS PER THE CONTRACT DOCUMENTS. BACKFILL SHALL BE SUITABLE NATIVE MATERIAL WHERE AVAILABLE AND APPROVED BY THE GEOTECHNICAL CONSULTANT OR IMPORTED SELECT SUBGRADE MATERIAL (SSM). MATERIAL BENEATH THE BUILDING/FOUNDATIONS SHALL BE AS PER THE STRUCTURAL DESIGN DOCUMENTS.

2.21 CONTRACTOR TO SEAL PAVEMENT IMMEDIATELY FOLLOWING PAVING AS CONDITIONS ALLOW. CONTRACTOR TO SEAL PAVEMENT WITH BLACKMAC OR EQUIVALENT SEALANT.

3. STORM SEWERS

3.1 STORM SEWERS SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF NORTH BAY STANDARDS AND OPSS 410 CONSTRUCTION SPECIFICATION FOR PIPE SEWER CONSTRUCTION BY OPEN CUT METHOD.

3.2 BEDDING TO BE AS PER OPSD 802.030 IN DRY EARTH (150mm GRANULAR A) AND OPSD 802.033 IN ROCK. WHERE IN ROCK TRENCH CONTRACTOR TO SUPPLY AND PLACE GEOTEXTILE FABRIC SEPARATOR BETWEEN THE TRENCH ROCK WALLS AND BOTTOM AND THE BEDDING, COVER AND BACKFILL. THE BACKFILL IN ROCK TRENCH SHALL BE GRANULAR B TYPE 1.

3.3 STORM SEWER PIPE SHALL BE:

3.3.1 PVC SDR35

3.4 STORM SEWER SHALL BE SMOOTH WALLS WITH BELL AND SPIGOT JOINTS.

3.5 MINIMUM COVER FOR STORM SEWERS SHALL BE 1.5 METERS AS PER CITY OF NORTH BAY STANDARDS. ANY REDUCTION OF THIS COVER DEPTH SHALL REQUIRE THE USE OF RIGID INSULATION TO PROVIDE COVERAGE.

3.6 RIGID STYROFOAM INSULATION SHALL BE MINIMUM 50mm THICK. CONTRACTOR SHALL TAPE SEEMS AND OVERLAP JOINTS. INSULATION SHALL BE A MINIMUM 1.5m WIDE PLACE 0.3m ABOVE THE TOP OF THE PIPE. 25mm OF ADDITIONAL INSULATION IS REQUIRED FOR EACH 0.30m FROST DEFICIENT.

4. FLEXIBLE PIPE AND CATCHBASIN INSTALLATION

4.1 PIPE DEFLECTIONS SHALL NOT EXCEED MANUFACTURER'S SPECIFICATIONS.

4.2 TRENCHING SHALL BE IN ACCORDANCE WITH OPSS 514 TRENCHING, BACKFILLING AND COMPACTING

4.3 PIPE BEDDING, COVER AND BACKFILL MATERIAL AS PER OPSD 802.010, 802.013, 802.033. 150mm GRANULAR A FOR BEDDING, 300mm GRANULAR B TYPE 1 FOR COVER AND SELECTED NATIVE BACKFILL IN DRY CONDITIONS. THE BEDDING AND BACKFILL MATERIAL SHALL BE PLACED IN LIFTS OF A MAXIMUM 300mm IN THICKNESS AND COMPACTED TO 98% SPMDD UNDER GRASSED AREAS AND 100% SPMDD UNDER PAVEMENTS.

4.4 MODIFIED PIPE BEDDING UNDER UNSTABLE TRENCH SUBGRADE CONDITIONS: FLEXIBLE AND RIGID PIPE BEDDING TO BE 20mm CLEAR STONE TO A DEPTH OF 450mm BELOW THE 150mm GRANULAR "A" PIPE BEDDING, FULL WIDTH OF THE TRENCH, WRAPPED IN GEOTEXTILE FABRIC (TERRAFIX 270R OR APPROVED EQUAL). IF TRENCH IS WET DUE TO CONTRACTORS INABILITY TO DEWATER THIS TREATMENT SHALL BE AT CONTRACTORS COST.

4.5 NO FROZEN MATERIAL SHALL BE PLACED IN THE TRENCHES OR USED FOR BACKFILL

4.6 PROVIDE 3 LAYERS MINIMUM 6 LAYERS MAXIMUM OF ADJUSTMENTS UNITS AT ALL STRUCTURES.

4.7 INSULATION SHALL BE MINIMUM 50mm THICK RIGID STYROFOAM INSULATION.

4.8 CONTRACTOR TO PLACE MINIMUM 150mm OF GRANULAR "A" COMPACTED TO 98% SPMDD BENEATH STRUCTURES IN DRY CONDITIONS.

4.9 ALL BENCHING SHALL BE AS PER OPSD 701.021.

4.10 CATCHBASINS SHALL BE PER OPSD 705.010 WITH GRATES TO OPSD 400.020.

5 FIELD TESTING

5.1 ALL NEWLY INSTALLED SEWERS NEED TO BE VIDEOED BY A QUALIFIED INDEPENDENT COMPANY AND PROVIDE VIDEOS AND REPORT OF VIDEOS AND FINDINGS TO ENGINEER. SEWER VIDEOING SHALL BE IN ACCORDANCE WITH OPSS 409 CLOSED CIRCUIT TELEVISION INSPECTION OF PIPELINES AND THE CITY OF NORTH BAY STANDARDS.

5.2 REMOVE FOREIGN MATERIAL FROM SEWERS AND RELATED APPURTENANCES BY FLUSHING WITH WATER PRIOR VIDEOING PIPE.

5.3 CCTV SHALL TAKE PLACE PRIOR TO INSTALLATION OF ASPHALT.

5.4 REPAIR VISIBLE LEAKS AND DEFICIENCIES NOTED BY THE CONSULTANT.

5.5 CONTRACTOR IS RESPONSIBLE TO PERFORM A SECOND VIDEOING OF ALL INSTALLED PIPES IN THE LAST MONTH OF THE WARRANTY PERIOD AND PROVIDE VIDEOS AND REPORT TO ENGINEER. CONTRACTOR IS RESPONSIBLE TO RECTIFY ANY NOTED DEFICIENCIES.

6 CONCRETE

6.1 CONCRETE SIDEWALKS SHALL BE AS PER OPSD 310.010 AND OPSS 351. GRANULAR BASE SHALL BE MINIMUM 150mm OF GRANULAR "A" COMPACTED TO 100% SPMDD.

6.2 ALL CONCRETE POURED AT THIS SITE SHALL BE SUPPLIED AND DELIVERED BY AN APPROVED READY-MIX PLANT.

6.3 EXTERIOR EXPOSURE CONCRETE TO HAVE 30MPa MINIMUM COMPRESSIVE STRENGTH @ 28 DAYS, 75mm SLUMP (±25mm), 6% ENTRAINED AIR (±1 1/2%).

6.4 WORK SHALL COMPLY WITH THE REQUIREMENTS OF CSA A23.1-/A23.2-00 AS A MINIMUM STANDARD.

6.5 CURE ALL CONCRETE WITH SPECIFIED CURING COMPOUND.

6.6 CURING COMPOUNDS - FLORSEAL AND RITECURE BY STERNSON OR APPROVED EQUIVALENT.

6.8 INSTALL EXPANSION JOINTS, CONTRACTION JOINTS AND DUMMY JOINTS ARE PER OPSD 310.010. ALLOW MINIMUM THREE DAYS OF CURING PRIOR TO BACKFILLING CURBS.

7 LINE PAINTING

7.1 PARKING LOT PAINTING SHALL BE DURABLE YELLOW PAINT AS PER OPSS 710.

7.2 PAVEMENT MARKINGS AND LINES TO BE LAID OUT BY THE CONTRACTOR AND APPROVED BY THE CONSULTANT PRIOR TO PAINTING. INCORRECT OR UNPROFESSIONALLY PAINTING MARKINGS OR LINES SHALL BE REMOVED BY GRINDING AND RE-PAINTED AT THE CONTRACTORS COST.

7.3 CONTRACTOR TO RESTORE ANY DAMAGED ROADWAY LINEWORK TO MATCH EXISTING PAINT.

8 SUBDRAINS

8.1 SUBDRAIN SHALL BE 150mm PERFORATED BIG "O" PIPE WRAPPED IN GEOTEXTILE SOCK SURROUNDED IN 0.45m X 0.55m 19mm CLEARSTONE WRAPPED IN 270-R GEOTEXTILE. CONNECT SUBDRAIN TO STORM STRUCTURES.

9 FENCING AND GATES

9.1 FENCING SHALL BE MINIMUM 86" BLACK COMMERCIAL GRADE ALUMINUM FENCING.

9.2 EXCAVATE FENCE POSTS TO A MINIMUM OF 24". POST SPACING TO BE 2.5m O/C. ALL FENCE HARDWARE TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS.

9.3 INSTALL END POSTS AT END OF FENCE AND AT BUILDINGS. GATE POSTS TO BE INSTALLED ON BOTH SIDES OF GATE OPENINGS AND GATE MOUNTING POST.

9.4 EXCAVATE GATE POSTS TO A MINIMUM OF 48". PLACE CONCRETE IN POST HOLES THEN EMBED POSTS INTO CONCRETE. EXTENDED CONCRETE 50mm ABOVE GRADE AND SLOPE TO DRAIN AWAY FROM POSTS.

9.5 AUTOMATED SLIDING GATES TO BE BLACK IRON ROD SECURITY GATES WITH A MINIMUM HEIGHT OF 86". AUTOMATED GATES TO BE COMPLETE WITH GATE MOTORS AND OPERATORS WITH INTERCOM SYSTEM.

9.6 INSTALL GATES IN LOCATIONS AS INDICATED. SET GATE BOTTOM APPROX. 50mm ABOVE THE GROUND SURFACE.

9.7 CLEAN ANY DAMAGED COATING WITH WIRE BRUSH TO REMOVE LOSE OR CRACKED COATINGS. APPLY TWO COATS OF COLOR MATCH COATING OF EQUAL QUALITY OR BETTER.

9.8 NOTIFY CONSULTANT IN WRITING OF ANY CONFLICT BETWEEN THESE SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS. CONSULTANT WILL DESIGNATE WHICH DOCUMENT IS TO BE FOLLOWED.

9.9 CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL FENCE COMPONENTS, GATES AND CONTROLLERS FOR REVIEW AND APPROVAL BY THE CLIENT.

10 MANUFACTURER'S INSTRUCTION

10.1 UNLESS OTHERWISE SPECIFIED, COMPLY WITH MANUFACTURER'S LATEST PRINTED INSTRUCTIONS FOR MATERIALS AND INSTALLATION METHODS.

10.2 NOTIFY CONSULTANT IN WRITING OF ANY CONFLICT BETWEEN THESE SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS. CONSULTANT WILL DESIGNATE WHICH DOCUMENT IS TO BE FOLLOWED.

11 INSPECTION AND TESTING

11.1. THE CLIENT WILL SELECT AN INDEPENDENT THIRD PARTY QUALITY ASSURANCE CONSULTANT (QAC) THAT WILL PERFORM ALL SAMPLING, ANALYSIS AND TESTING OF MATERIALS SUPPLIED AND PLACED AT THIS PROJECT. THE QUALITY ASSURANCE CONSULTANT WILL ALSO PERFORM INSPECTIONS OF SUBGRADES AND MAKE RECOMMENDATIONS PRIOR PLACEMENT OF SUBSEQUENT MATERIALS. THE QUALITY ASSURANCE CONSULTANT SHALL BE PAID BY THE CONTRACTOR FROM A TESTING ALLOWANCE IN THE TENDER.

11.2 CONTRACTOR SHALL COOPERATE WITH AND PROVIDE ALL NECESSARY ASSISTANCE AND MATERIAL SAMPLES TO QUALITY ASSURANCE CONSULTANT.

11.3 PROVIDE MINIMUM 24 HOURS NOTICE IN ORDER THAT THE QUALITY ASSURANCE CONSULTANT, AT HIS DISCRETION, MAY REVIEW OR INITIATE MATERIAL TESTING OF ALL PERMANENT CONSTRUCTION PRIOR TO COVERING AND SPECIFICALLY INCLUDING THE FOLLOWING ITEMS:

11.3.1 ALL BURIED SERVICES
11.3.2 BACKFILLING AND COMPACTION
11.3.3 ASPHALT PAVEMENTS
11.3.4 ALL OTHER ITEMS SPECIFICALLY IDENTIFIED ELSEWHERE IN THIS DOCUMENT.

12 SHOP DRAWINGS

12.1 SUBMIT TO ENGINEER ONE (1) COPY OF ALL ITEM SHOP DRAWINGS, FOR REVIEW AND ACCEPTANCE, ORGANIZED AS PER SPECIFICATION SECTIONS.

13 STORMWATER MANAGEMENT POND WARNING SIGN

13.1 PROVIDE REQUIRED WARNING SIGNS AS PER THE CITY OF NORTH BAY DESIGN GUIDELINES THE WARNING SIGN SHALL CONTAIN THE TEXT : "WARNING POND NOT MONITORED FOR HAZARDOUS CONDITIONS THIS STORMWATER MANAGEMENT POND IS SUBJECT TO FLUCTUATING WATER LEVEL, WATER QUALITY AND THIN ICE THE CITY ASSUMES NO RESPONSIBILITY FOR ITS UNATTENDED USE".

THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) WHICH ARE PROVISIONS OF THIS PROJECT ARE:

DIVISION 1 - GENERAL CONDITIONS AND SPECIFICATIONS
100 NOTICE TO USERS OF OPSS 100 (GENERAL CONDITIONS OF CONTRACT)
102 WEIGHING OF MATERIALS
127 SCHEDULE OF RENTAL RATES FOR CONTRACTOR EQUIPMENT INCLUDING MODEL AND SPECIFICATION REFERENCE
180 MANAGEMENT OF EXCESS MATERIAL

DIVISION 2 - GENERAL GRADING
201 CLEARING, CLOSE CUT CLEARING, GRUBBING, AND REMOVAL OF SURFACE BOULDERS
206 GRADING

DIVISION 3 - PAVEMENT
310 HOT MIX ASPHALT
314 UNTREATED GRANULAR BASE AND SUBBASE
351 CONCRETE SIDEWALKS

DIVISION 4 - DRAINAGE, WATERMAIN AND UTILITY
401 TRENCHING, BACKFILLING AND COMPACTING
402 EXCAVATING, BACKFILLING AND COMPACTING FOR MAINTENANCE HOLES, CATCH BASINS, DITCH INLETS AND VALVE CHAMBERS
403 ROCK EXCAVATION FOR PIPELINES, UTILITIES AND ASSOCIATED STRUCTURES IN OPEN CUT
404 SUPPORT SYSTEMS
405 PIPE SUBDRAINS
407 MAINTENANCE HOLE, CATCH BASIN, DITCH INLET, AND VALVE CHAMBER INSTALLATION
409 CLOSED CIRCUIT TELEVISION INSPECTION OF PIPELINES
410 PIPE SEWER INSTALLATION IN OPEN CUT
421 PIPE CULVER INSTALLATION IN OPEN CUT
490 SITE PREPARATION FOR PIPELINES, UTILITIES AND ASSOCIATED STRUCTURES IN OPEN CUT
491 PRESERVATION, PROTECTION AND RECONSTRUCTION OF EXISTING FACILITIES
492 SITE RESTORATION FOLLOWING INSTALLATION OF PIPELINES, UTILITIES AND ASSOCIATED STRUCTURES IN OPEN CUT

DIVISION 5 - GENERAL CONSTRUCTION
501 COMPACTING
506 DUST SUPPRESSANTS
510 REMOVAL
517 DEWATERING OF PIPELINE, UTILITY AND ASSOCIATED STRUCTURE EXCAVATION
518 CONTROL OF WATER FROM DEWATERING OPERATIONS
539 TEMPORARY PROTECTION SYSTEMS

DIVISION 7 - TRAFFIC SAFETY
706 TRAFFIC CONTROL SIGNING
710 PAVEMENT MARKING

DIVISION 8 - ENVIRONMENTAL AND LANDSCAPE
802 TOPSOIL
803 SODDING
804 SEED AND COVER
805 TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

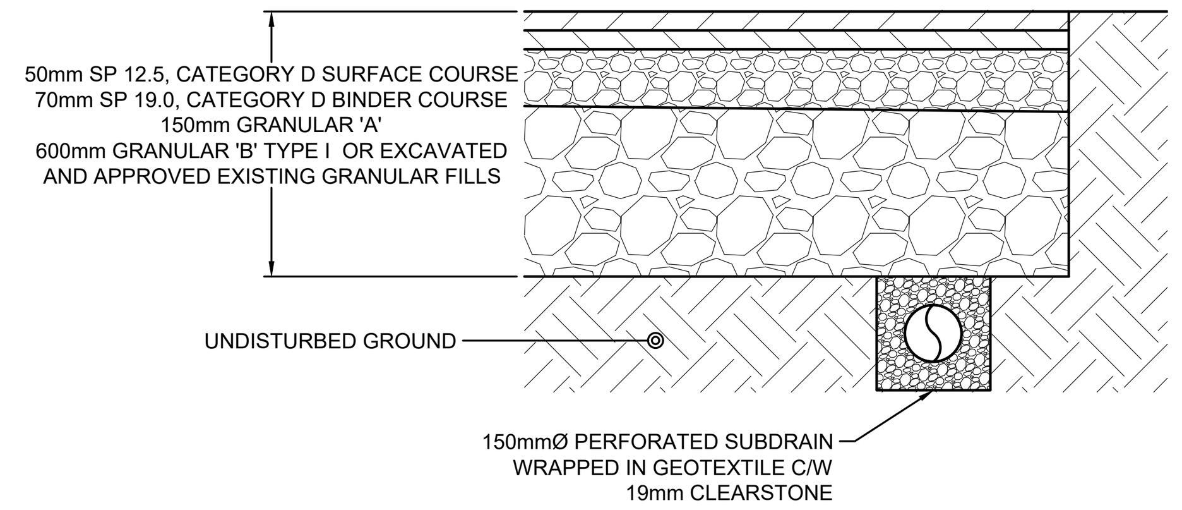
DIVISION 10 - AGGREGATES
1001 AGGREGATES - GENERAL
1002 AGGREGATES - CONCRETE
1003 AGGREGATES - HOT MIX ASPHALT
1004 AGGREGATES - MISCELLANEOUS
1006 AGGREGATES - SURFACE TREATMENT
1010 AGGREGATES - BASE, SUBBASE, SELECT SUBGRADE, AND BACKFILL MATERIAL

DIVISION 11 - BITUMENS
1150 HOT MIX ASPHALT

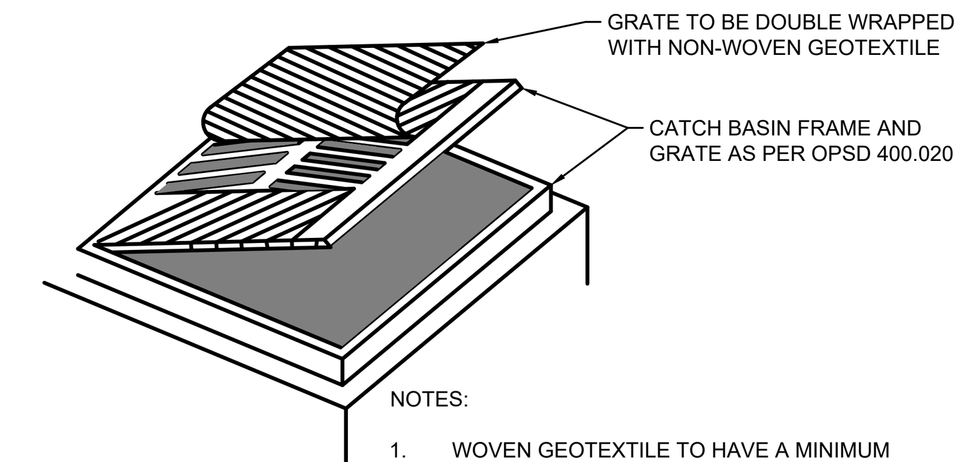
DIVISION 13 - CEMENT AND CONCRETE
1301 CEMENTING MATERIALS
1302 WATER
1303 AIR ENTRAINING AND CHEMICAL ADMIXTURES FOR CONCRETE
1308 JOINT FILLER IN CONCRETE

DIVISION 17 - COATINGS
1712 ORGANIC SOLVENT BASED TRAFFIC PAINT
1713 THERMOPLASTIC PAVEMENT MARKING MATERIALS
1714 FIELD REACTED POLYMERIC PAVEMENT MARKING MATERIALS
1716 WATER-BORNE TRAFFIC PAINT

DIVISION 18 - PIPES AND ASSOCIATED DRAINAGE ITEMS
1841 NON-PRESSURE POLYVINYL CHLORIDE (PVC) PIPE PRODUCTS
1842 PRESSURE POLYETHYLENE PIPE PRODUCTS
1850 FRAMES, GRATES, COVERS, AND GRATINGS
1853 RUBBER ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS
1860 GEOTEXTILES



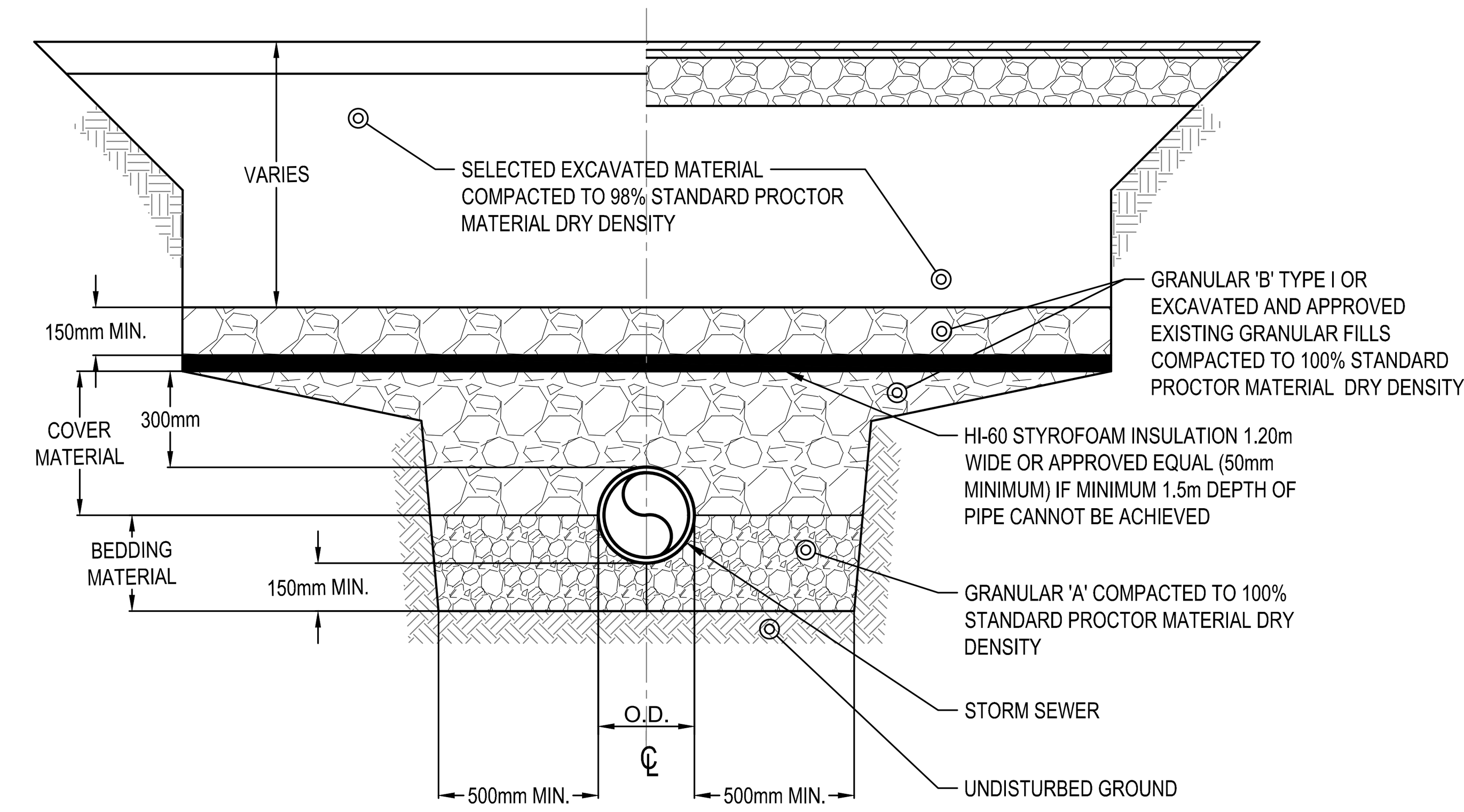
1 / C-104 TYPICAL PAVEMENT DETAIL
N.T.S.



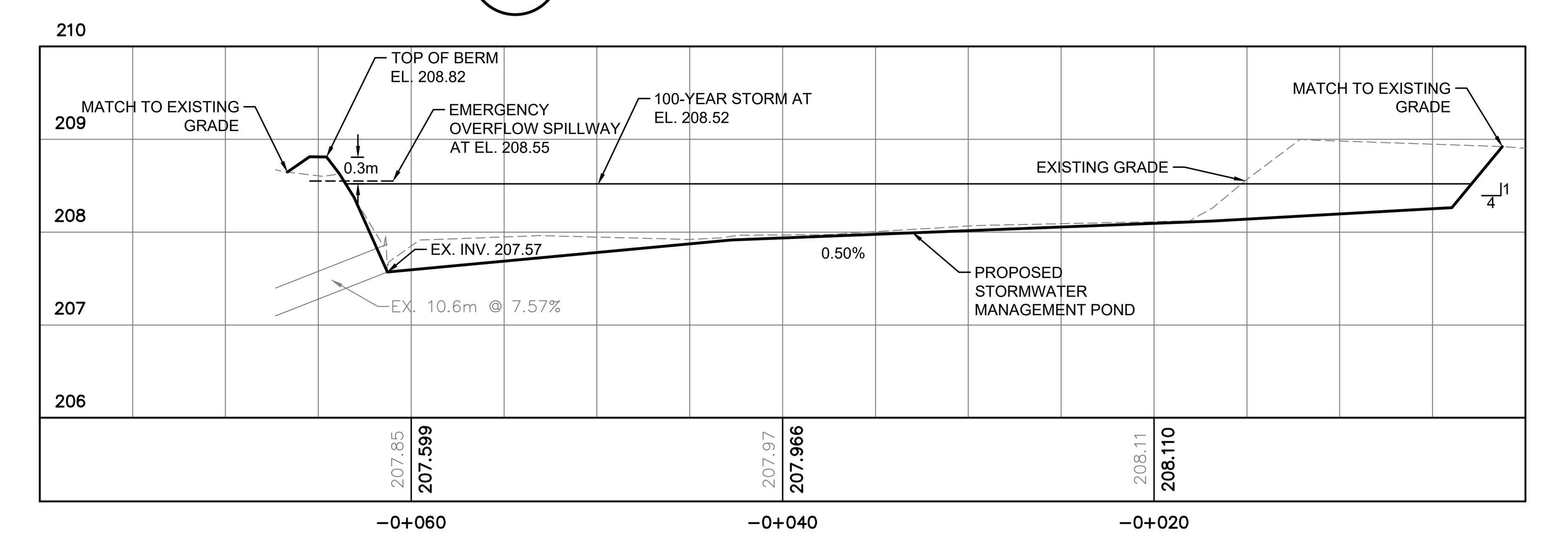
NOTES:

1. WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm.
2. NON-WOVEN GEOTEXTILE TO BE REPLACED PERIODICALLY WITH ACCUMULATED SEDIMENTS INTERFERES WITH DRAINAGE.

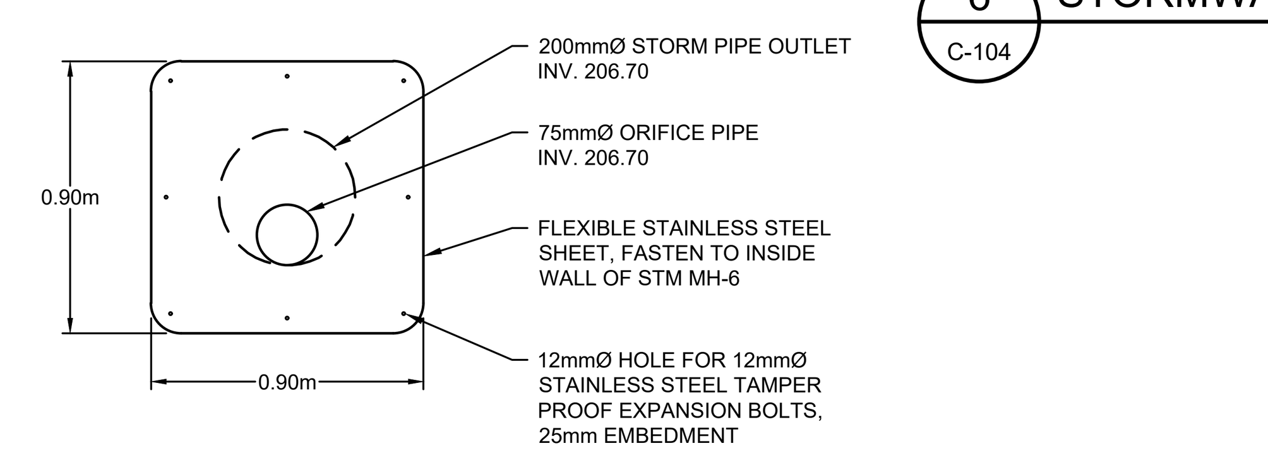
4 / C-104 SEDIMENT TRAP DETAIL
N.T.S.



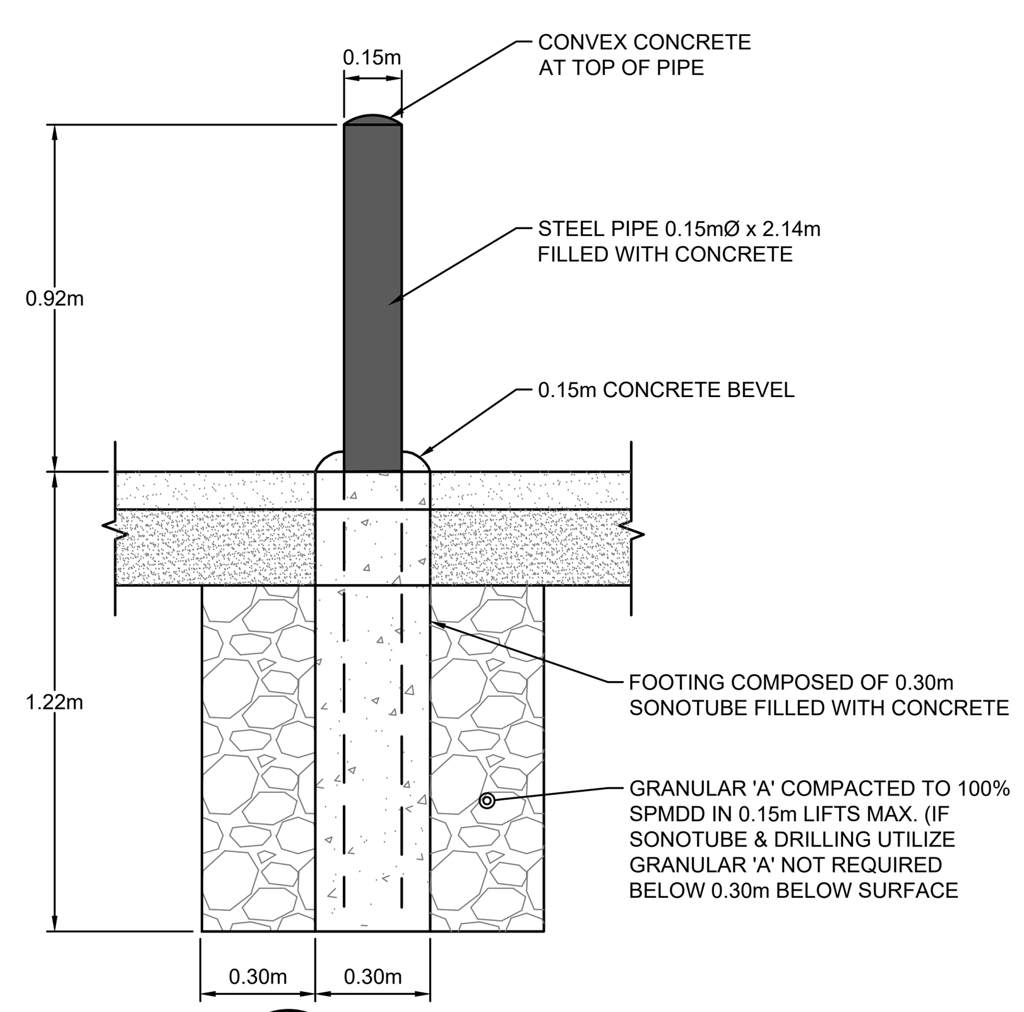
2 / C-104 PIPE INSULATION DETAIL
N.T.S.



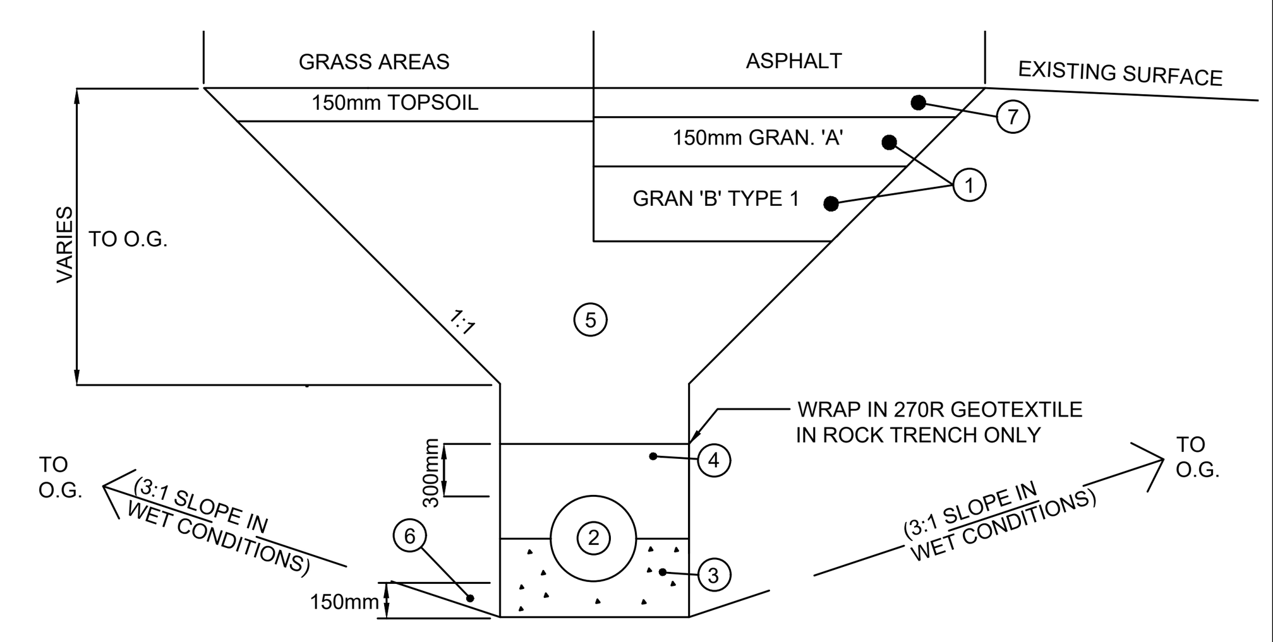
6 / C-104 STORMWATER MANAGEMENT POND DETAIL
N.T.S.



7 / C-104 ORIFICE PLATE DETAIL
N.T.S.



3 / C-104 BOLLARD DETAIL
N.T.S.



1. GRAN. 'B' TYPE 1 & GRAN. 'A' LAYERS SHALL CONSIST OF SPECIFIED COMPACTED THICKNESS OF GRAN. 'B' TYPE 1 & 150mm OF GRAN. 'A'. REFER TO NOTES 2.14, 2.15 AND 2.16 FOR GRANULAR "B" THICKNESS.
2. MAIN OR SERVICE LATERAL.
3. GRANULAR 'A' TO SPRINGLINE. IN ROCK TRENCH REPLACE GRANULAR 'A' WITH 19mm CLEARSTONE AND WRAP IN 270R GEOTEXTILE
4. COVER MATERIAL COMPACTED IN 150mm LAYERS (GRANULAR 'B' TYPE I) GRANULAR 'B' FOR COVER MATERIAL TO HAVE A MAXIMUM STONE SIZE OF 25mm.
5. NATIVE MATERIAL COMPACTED IN 300mm LAYERS.
6. FLEXIBLE PIPES SHALL BE PLACED ON A MIN. OF 150mm OF GRAN. 'A' BEDDING.
7. REFER TO NOTES 2.14, 2.15 AND 2.16 FOR ASPHALT THICKNESS. REPLACE EXISTING PAVED SURFACES TO MATCH EXISTING.

NOTES:
1. TRENCHING MUST CONFORM TO O.H. & S. ACT & REGULATIONS, REGARDING EXCAVATIONS.
2. TO BE READ IN CONJUNCTION WITH O.P.S.D. 802.010 & 802.013.

5 / C-104 TYPICAL TRENCH DETAIL
N.T.S.

exp Services Inc.
Infrastructure Services - North Bay
757 Main St. East
North Bay, Ontario, Canada
P1B 4V6
Ph. 705 474 2720
Fax 705 474 8515
www.exp.com

• BUILDINGS • EARTH & ENVIRONMENT • ENERGY •
• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

No.	Revision	By:	Date
5	ISSUED FOR TENDER	BM	04/09/2025
4	ISSUED FOR CITY APPROVAL	BM	03/12/2025
3	ISSUED FOR CITY APPROVAL	BM	02/24/2025
2	ISSUED FOR CLIENT REVIEW	BM	11/26/2024
1	PRELIMINARY	EB	09/05/2024

ISSUED FOR TENDER

Professional Seal

Drawn By:	EB	Scale:	N.T.S.
Checked By:	EB	Date:	04/09/25
Approved By:	CLC	Date:	04/09/25

Date Printed: 04/09/25

File Name: NTB-24005495 ONTC - CIVIL

Project Title

ONTC PARKING LOT EXPANSION

567 WALLACE RD
NORTH BAY, 0N
P1A 0E6

Dwg. Title

NOTES AND DETAILS

Project No. NTB-24005495-00

Dwg. No. C-104

Rev. No. 5

E:\NTB\NTB-24005495-00\60 Execution\65 Drawings

ONTC MAINTENANCE GARAGE PARKING AREA

NORTH BAY, ONTARIO

EXP PROJECT NO. NTB-24005495-00

ELECTRICAL DRAWING LIST:

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING / HEIGHT
LIGHTING		
	2'-0" x 4'-0" LIGHT FIXTURE	CEILING
	2'-0" x 2'-0" LIGHT FIXTURE	CEILING
	1'-0" x 4'-0" LIGHT FIXTURE	CEILING
	STRIP LIGHT FIXTURE	CEILING
	RECESSED DOWNLIGHT FIXTURE	CEILING
	LIGHT FIXTURE	POLE AS NOTED
	LIGHT FIXTURE	WALL
	TRACK LIGHTING	CEILING
	1 POLE, LIGHT SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
	GANGED LIGHT SWITCHES	900mm TO 1100mm AS PER OBC 3.8.1.5
	DIMMER SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
	347V SINGLE POLE SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
$	LOW VOLTAGE SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
M	OCCUPANCY SENSOR - LIGHTING	WALL / 3050mm AFF
M	OCCUPANCY SENSOR - LIGHTING	CEILING
M	OCCUPANCY SENSOR - LIGHTING (AIMING AS NOTED)	WALL / 3050mm AFF
M	OCCUPANCY SENSOR - LIGHTING (AIMING AS NOTED)	CEILING
PC	PHOTO CELL	AS NOTED
EMERGENCY LIGHTING		
	EMERGENCY BATTERY UNIT AND RECEPTACLE	2286mm AFF
	REMOTE EMERGENCY LIGHTING HEADS	2286mm AFF
	REMOTE EMERGENCY LIGHTING HEAD	2286mm AFF
	REMOTE EMERGENCY LIGHTING HEADS	CEILING
	REMOTE EMERGENCY LIGHTING HEAD	CEILING
	RECESSED EMERGENCY LIGHTING HEAD	CEILING
EXIT LIGHTING		
EXIT	EXIT LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT RIGHT ARROW LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT LEFT ARROW LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT DUAL FACE RIGHT ARROW LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT DUAL FACE LEFT ARROW LIGHT FIXTURE	WALL OR CEILING
POWER		
	ELECTRICAL LIGHTING OR POWER PANEL	1980 mmAFF TO TOP
	ELECTRICAL EQUIPMENT PANEL AS NOTED	AS NOTED
	DUPLEX RECEPTACLE	457mm AFF
	SPLIT DUPLEX RECEPTACLE	OVER COUNTER
	GFI RECEPTACLE	457mm AFF
	DUPLEX RECEPTACLE	FLOOR
	DIRECT CONNECTION TO AN ELECTRICAL DEVICE	AS NOTED
	DIRECT CONNECTION TO A DATA DEVICE	AS NOTED
	QUAD-PLEX RECEPTACLE	457mm AFF
	SWITCHED RECEPTACLE	AS NOTED
50A	RANGE OUTLET	104mm AFF
30A	DRYER OUTLET	104mm AFF
	HALF-SWITCHED DUPLEX RECEPTACLE	457mm AFF
	DUPLEX RECEPTACLE	CEILING
	JUNCTION BOX	AS NOTED
	CLOCK	2286mm AFF
	MOTOR DISCONNECT SWITCH	1524mm AFF
	COMBINATION MANUAL STARTER	1524mm AFF
	COMBINATION MAGNETIC STARTER	1524mm AFF
	MAGNETIC STARTER	1524mm AFF
	MANUAL MOTOR STARTER OR CONTACTOR	1524mm AFF
	ELECTRICAL MOTOR OR MOTORIZED EQUIPMENT	-
	ELECTRICAL EQUIPMENT OR DEVICE AS NOTED	-
	VFD	-
	CIRCUITING	-
	CONDUIT	-

SYMBOL	DESCRIPTION	MOUNTING / HEIGHT
CONTROLS		
K	KEY PAD	900mm TO 1100mm AS PER OBC 3.8.1.5
C	DOOR CONTACT - SECURITY	T/O DOOR FRAME
ES	ELECTRICAL STRIKE	DOOR LATCH
CR	CARD READER	900mm TO 1100mm AS PER OBC 3.8.1.5
TC	TIME CLOCK	AS NOTED
M	MOTION SENSOR - SECURITY	2440mm AFF
	PUSH BUTTON	AS NOTED
CC	SECURITY CAMERA	AS NOTED
T	THERMOSTAT	1200mm AFF AS PER OBC 3.8.1.5
H	HUMIDISTAT	1200mm AFF AS PER OBC 3.8.1.5
F	FAN SPEED CONTROLLER	1200mm AFF AS PER OBC 3.8.1.5
F	FLOW SWITCH	AS NOTED
S	SUPERVISORY VALVE	AS NOTED
	END OF LINE RESISTOR	2286mm AFF
MD	MOTORIZED DAMPER	AS NOTED
	ELECTRIC HEATER	AS NOTED
	ELECTRIC HEAT TRACING (PIPE OR AREA)	AS NOTED
FIRE ALARM		
	FIRE ALARM MANUAL PULL STATION	1200mm AFF AS PER OBC 3.8.1.5
	FIRE ALARM SIGNAL APPLIANCE 6" OR 10" GONG	2300mm AFF TO TOP CAN/ULC-ULC-S524 - 5.4
	FIRE ALARM HORN/STROBE	2300mm AFF TO TOP CAN/ULC-ULC-S524 - 5.4
	FIRE ALARM HORN/SPEAKER	2300mm AFF TO TOP CAN/ULC-ULC-S524 - 5.4
	FIRE ALARM STROBE	2000mm AFF TO 2400mm CAN/ULC-ULC-S524 - 5.4
	SMOKE DETECTOR	CEILING
	SMOKE DUCT DETECTOR	IN DUCT
	SMOKE ALARM	CEILING
	HEAT DETECTOR 194° FIXED TEMPERATURE	CEILING
	HEAT DETECTOR 135° RATE OF RISE	CEILING
D	ELECTRO-MAGNETIC DOOR HOLD OPEN DEVICE	WALL OR FLOOR
COMMUNICATIONS		
y	TELEPHONE OUTLET (y INDICATES # OF OUTLETS AT THIS LOCATION)	457mm AFF
y	TELEPHONE OUTLET (y INDICATES # OF OUTLETS AT THIS LOCATION)	FLOOR
x	DATA OUTLET (x INDICATES # OF OUTLETS AT THIS LOCATION)	457mm AFF
x	DATA OUTLET (x INDICATES # OF OUTLETS AT THIS LOCATION)	FLOOR
x,y	COMBINATION DATA AND TELEPHONE OUTLET (x = # OF DATA DROPS, y = # OF PHONE DROPS)	457mm AFF
x,y	COMBINATION DATA AND TELEPHONE OUTLET (x = # OF DATA DROPS, y = # OF PHONE DROPS)	FLOOR
	TELEVISION (CABLE) OUTLET	457mm AFF
H	HDMI OUTLET	AS NOTED
S	SOUND SYSTEM SPEAKER OUTLET	CEILING
S	P/A SPEAKER C/W SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
H	P/A HORN	2286mm AFF
P	PROGRAM BELL	2286mm AFF
V	SOUND SYSTEM VOLUME CONTROL	900mm TO 1100mm AS PER OBC 3.8.1.5
P	NURSE CALL PATIENT STATION	900mm TO 1100mm AS PER OBC 3.8.1.5
L	NURSE CALL LAVATORY STATION	900mm TO 1100mm AS PER OBC 3.8.1.5
S	NURSE CALL STAFF STATION CONSOLE	-
T	NURSE CALL TUB/SHOWER STATION	900mm TO 1100mm AS PER OBC 3.8.1.5
N	NURSE CALL DOME LIGHT	AS NOTED

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
HOA	HAND OFF AUTO
PL	PILOT LIGHT
HD	HAND DRYER
WG	WIRE GUARD
C	DENOTES MOUNTED ABOVE COUNTER
m	DENOTES MOUNTED IN MILLWORK
WM	WALL MOUNTED
WP	WEATHERPROOF
EM	DENOTES CONNECTED TO EMERGENCY SUPPLY
TL	TWIST LOCK
RA	REVERSE ACTING
FH	MANUAL PULL STATION MOUNTED IN FIRE HOSE CABINET
MD	MOTORIZED DAMPER
EXP	EXPLOSION PROOF
E	EXISTING TO REMAIN
R	EXISTING TO BE REMOVED
E/R	EXISTING TO BE RELOCATED
CLG	CEILING MOUNTED

LEGEND NOTES:

1. THIS IS A STANDARD LEGEND. ALL SYMBOLS MAY NOT NECESSARILY BE USED ON DRAWINGS.
2. STANDARD MOUNTING HEIGHTS SHOWN ON LEGEND SHALL BE USED, UNLESS NOTED OTHERWISE. ALL TRADES TO COORDINATE THESE HEIGHTS PRIOR TO INSTALLATION
3. FOR HEIGHTS THAT ARE NOT DICTATED THROUGH A CODE OR STANDARD, COORDINATE WITH ARCHITECTURAL ELEVATIONS. WHERE A RANGE IS INDICATED, COORDINATE WITH THE ARCHITECTURAL DRAWINGS AND MAINTAIN THE SAME HEIGHT THROUGHOUT THE PROJECT.

GENERAL NOTES:

1. THE ROUTING OF SERVICES SHOWN ARE DIAGRAMMATIC TO SHOW DESIGN INTENT.
2. THE ELECTRICAL DRAWINGS INCLUDE INDICATIVE LAYOUTS FOR SMALL POWER AND SYSTEM DEVICES. THE FINAL LOCATION AND ELEVATION OF ALL ELECTRICAL AND SYSTEM DEVICES TO BE COORDINATED WITH INTERIOR DESIGNER'S/ARCHITECT PACKAGE.
3. REFER TO FF&E DOCUMENTS FOR ELECTRICAL AND SYSTEM REQUIREMENTS.
4. CONTRACTOR SHALL IDENTIFY AND LABEL CLEARLY ALL CIRCUITS, WIRING, SERVICES, JUNCTION BOXES, PULL BOXES, DEVICES AND EQUIPMENT INSTALLED AND CONNECTED UNDER THE SCOPE OF WORK OF THIS PROJECT. IDENTIFICATION SHALL BE OF AS PER OWNER REQUIREMENTS AND ALL MARKING SHALL BE OF NON-ERASABLE LAMACOID TYPE. COORDINATE ALL LABELING WITH THE OWNER AND CONSULTANTS.
5. CONTRACTOR TO INCLUDE FOR PAYMENT OF REQUIRED PERMITS, FEE, LICENSE, CERTIFICATES OF INSPECTION ETC., IF REQUIRED.
6. WIRING AND CABLES EXPOSED WITHIN THE CEILING SPACES SHALL CONFORM TO THE PLENUM REQUIREMENTS OF ONTARIO BUILDING CODE SENTENCE 3.6.4.3(1).
7. CABLE SIZES INDICATED ON DRAWINGS ARE THE MINIMUM SIZES AND SHALL BE INCREASED BASED ON ACTUAL ROUTING AND VOLTAGE DROP.

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File Name: NTB - 24005495 - Electrical Title Sheet

Project Title

ONTC PARKING LOT EXPANSION

567 WALLACE RD
NORTH BAY, ON
P1A 0E6

Dwg. Title

ELECTRICAL - TITLE SHEET

Project No. NTB-24005495-00

E-000 | 1

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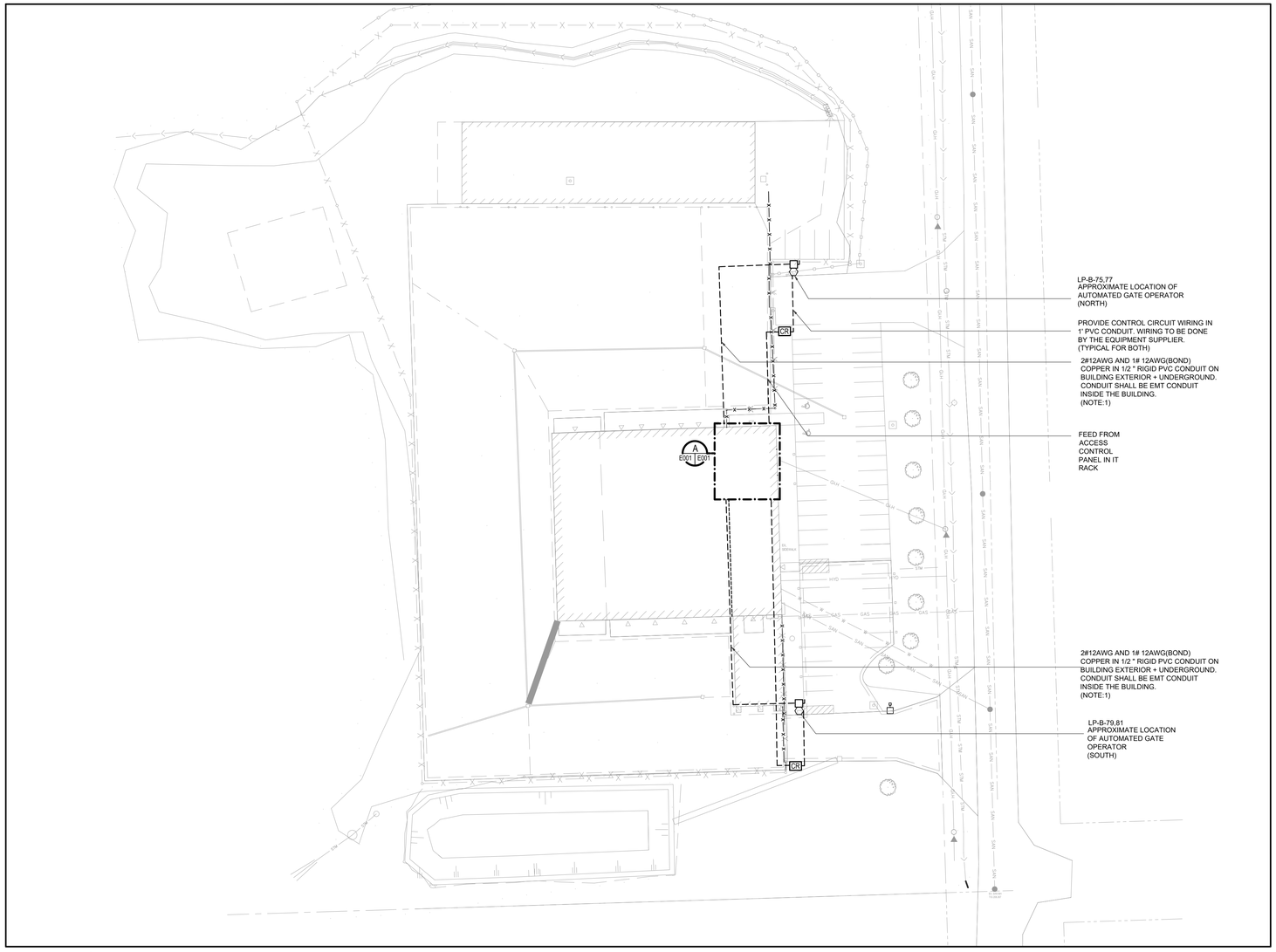


N TRUE

ELECTRICAL- SITE PLAN

PANEL LP-B (EXISTING)		100A		120/208V		3 PHASE 4 WIRE	
ELECTRICAL ROOM FED FROM LP-B		BREAKER	CIRCUIT	CIRCUIT	BREAKER		
EXISTING LOAD		15	1	2	15		EXISTING LOAD
EXISTING LOAD		15	3	4	15		EXISTING LOAD
EXISTING LOAD		15	5	6	15		EXISTING LOAD
EXISTING LOAD		15	7	8	15		EXISTING LOAD
EXISTING LOAD		15	9	10	15		EXISTING LOAD
EXISTING LOAD		15	11	12	15		EXISTING LOAD
EXISTING LOAD		15	13	14	15		EXISTING LOAD
EXISTING LOAD		15	15	16	15		EXISTING LOAD
EXISTING LOAD		15	17	18	15		EXISTING LOAD
EXISTING LOAD		15	19	20	15		EXISTING LOAD
EXISTING LOAD		15	21	22	15		EXISTING LOAD
EXISTING LOAD		15	23	24	15		EXISTING LOAD
EXISTING LOAD		15	25	26	15		EXISTING LOAD
EXISTING LOAD		15	27	28	15		EXISTING LOAD
EXISTING LOAD		15	29	30	15		EXISTING LOAD
			31	32	15		EXISTING LOAD
EXISTING LOAD		15	33	34	15		EXISTING LOAD
EXISTING LOAD		15	35	36	15		EXISTING LOAD
EXISTING LOAD		60	37	38	15		EXISTING LOAD
			39	40	15		EXISTING LOAD
			41	42			
EXISTING LOAD		15	43	44	15		EXISTING LOAD
			45	46			
			47	48	15		EXISTING LOAD
EXISTING LOAD		15	49	50	15		EXISTING LOAD
			51	52	15		EXISTING LOAD
			53	54	15		EXISTING LOAD
EXISTING LOAD		15	55	56			
			57	58	30		EXISTING LOAD
			59	60			
EXISTING LOAD		15	61	62	15		EXISTING LOAD
EXISTING LOAD		15	63	64	15		EXISTING LOAD
EXISTING LOAD		15	65	66	15		EXISTING LOAD
EXISTING LOAD		15	67	68	15		EXISTING LOAD
EXISTING LOAD		15	69	70	15		EXISTING LOAD
EXISTING LOAD		15	71	72	15		EXISTING LOAD
EXISTING LOAD		15	73	74	15		EXISTING LOAD
AUTOMATED GATE CONTROLLER (NORTH)		30	75	76	15		EXISTING LOAD
			77	78	15		EXISTING LOAD
AUTOMATED GATE CONTROLLER (SOUTH)		30	79	80			SPACE
			81	82			SPACE
SPACE			83	84			SPACE

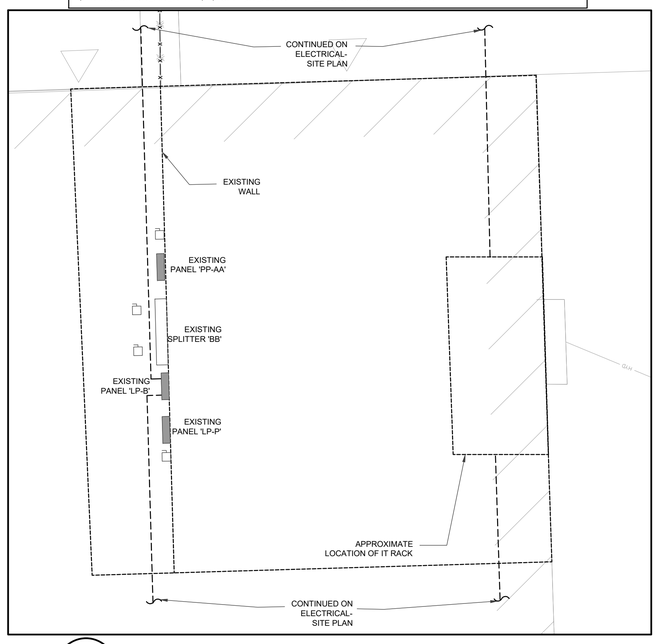
✳ TANDEM BREAKER ✳✳ GFI BREAKER ■ ARC FAULT BREAKER

GENERAL NOTES:

1. THE ROUTING OF SERVICES SHOWN ARE DIAGRAMMATIC TO SHOW DESIGN INTENT.
2. COORDINATE FINAL ELECTRICAL CONDUIT ROUTING WITH SITE CONDITIONS AND GENERAL CONTRACTOR.
3. ANY WALL AND ROOF PENETRATIONS SHALL BE FIRE-CAULKED TO MATCH THE EXISTING FIRE PROTECTION RATING.
4. CONTRACTOR SHALL PROVIDE APPROPRIATELY RATED JUNCTION BOXES TO TRANSITION FROM EMT TO PVC WHEN EXITING THE BUILDING.
5. PROVIDE ROUGH INS FOR CARD READER. WIRING FROM ACCESS CONTROL PANEL TO THE GATE CONTROLLERS SHALL BE DONE BY FACILITY SECURITY VENDOR.

DRAWING NOTES:

1. UNDERGROUND DUCT BANK CARRYING PVC CONDUIT OUTSIDE THE BUILDING SHALL BE BURIED ACCORDING TO APPENDIX D(TABLE D11) OF THE OESC, THE EMT CONDUIT TO BE ROUTED INSIDE THE BUILDING THROUGH THE CEILING SPACE OR CORRIDOR.



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ENLARGED SITE PLAN-POWER

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File Name: NTB - 24005495 - Electrical Site Plan

Project Title

ONTC PARKING LOT EXPANSION
567 WALLACE RD
NORTH BAY, 0N
P1A 0E6

Dwg. Title

ELECTRICAL - SITE PLAN

Project No. NTB-24005495-00

Dwg. No. E-001

Rev. No. 1

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END OF INDEX

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 The specifications of Section 26 05 01 shall apply to and govern the work of Divisions 26, 27 and 28 and shall be read as an integral part of each Section.

.2 The Electrical Drawings and these Specifications are complementary to each other and each forms a part of this contract. In the event of discrepancies between Drawings and Specifications, the more restrictive conditions shall apply unless a written clarification is obtained from the Consultant.

.3 Misinterpretation of any requirement of the Drawings or Specifications will not relieve this Division of responsibility to complete the work. If in doubt, contact the Consultant for written clarification. If clarification is not sought the Consultant's decision shall be final and binding on the Contractor.

.4 Related Work

.1	Submittals	Section 26 05 02

1.02 SYSTEM DESCRIPTION

.1 Supply all labour, tools, equipment, materials and transportation required for the installation and proper operation of the complete systems as shown on the Drawings, as specified herein, or as reasonably inferable from both.

.2 Work to be Supplied and Installed

The work of this Division includes, but is not limited to supply and installation of the following systems:

Secondary Distribution
Wiring Devices
Communication Systems
Wiring for Other Trades

1.03 REFERENCES

.1 The Specifications for the Divisions as listed below shall govern the work of all Sections of this Division.

Existing Conditions	Division 02
Concrete	Division 03
Openings	Division 08
Finishes	Division 09
Specialties	Division 10
Equipment	Division 11
Conveying Systems	Division 14
Mechanical	Division 21, 22 and 23

1.04 WORKMANSHIP

.1 Only first class workmanship by skilled electricians will be accepted, not only with regards to durability, and safety, but also with regard to its neatness of installation, and overall accessibility. Present a neat and clean installation on completion to the satisfaction of the Consultant. Any unsatisfactory workmanship shall be replaced at no extra cost.

.2 Employ a competent foreman to supervise the work.

.3 Employ qualified and experienced trades people employed to perform specific work such as installation or testing of specific systems including fire alarm systems, special systems, etc.

1.05 DRAWINGS

.1 Drawings, which accompany these specifications, are diagrammatic and show the power distribution, number and general location of the electrical equipment, outlets and required circuiting. They do not show all structural and mechanical details, and are not intended to be shop or working drawings.

.2 Do not scale drawings but use only dimensions, which are shown. Where exact building dimensions and details are required, use only figured dimensions on the Architectural or Structural Drawings or job site dimensions.

.3 Make alterations to device and equipment locations as required; co-ordinate with other trades at no extra cost.

.4 No deviations from the Drawings or Specifications will be permitted without written authorization from the Consultant.

1.06 RECORD & SHOP DRAWINGS

.1 Provide record drawings and shop drawings in accordance with Section 26 05 03, Submittals.

1.07 PERMITS AND FEES

.1 Obtain and pay for all permits and fees required for the execution and inspection of the electrical work and pay all charges incidental to such permits.

.2 The contract documents have been approved by ESA. The successful Electrical Contractor shall request the file number after being awarded the project, prior to submission for permit.

.3 Arrange and pay for any special inspection of equipment specified if and when required.

.4 On completion of the electrical work, obtain and submit to the Consultant the Electrical Safety Authority Final Unconditional Inspection certificate together with the maintenance manuals.

1.08 RULES AND REGULATIONS

.1 Provide all materials and installation in accordance with the latest editions of the Canadian Electrical Code, Ontario Electrical Safety Code, CSA Standards and Bulletins, the Electrical Safety Authority Department Special Inspection, The Ontario Fire Marshal

and any other more restrictive requirements of all applicable Municipal and Provincial Codes and Regulations.

.2 The Contract Drawings show the minimum standard acceptable regardless of any lesser standards set by any Codes or Regulations having jurisdiction.

1.09 CO-OPERATION OF TRADES

.1 Read Specifications and Drawings of other trades and conform with their requirements before proceeding with any work specified in this Division related to the other trades.

.2 Co-operate with all other trades on the job, so that all equipment can be satisfactorily installed, and so that no delay is caused to any other trade.

1.10 CO-OPERATION OF TRADES – LIFE SAFETY AND FIRE PROTECTION SYSTEMS

.1 All life safety systems and fire protection systems and their components shall be verified to ensure that they are functioning according to the intent of their design.

.2 The life safety systems and fire protection systems and their components shall include but not be limited to; fire alarm systems, sprinkler system, standpipe systems, smoke control, ventilation, pressurization, door hold-open devices, elevator recalls, smoke and fire shutters and dampers, emergency power, emergency lighting, etc.

.3 Where life safety and fire protection systems are installed, the commissioning of these integrated systems shall also be performed as a whole to ensure proper operation and inter-relationship between the systems. The commissioning of these integrated systems as a whole shall be the responsibility of Division 26. Refer to Fire Alarm Systems Section 28 31 00.

1.11 EXAMINATIONS

.1 Before submitting tenders, carefully examine the Architectural, Structural, Electrical and Mechanical Drawings and all Specifications having a bearing on the work of this Division. Visit the site of the building and thoroughly ascertain that the work of this Division can be carried out satisfactorily without any changes to the Drawings or Specifications. No extras will be allowed for anything, which would have been revealed in the course of such an examination.

.2 Examine the proposed locations of equipment and fixtures of other trades and report any defects or interference with the work of this Division in writing to the Consultant. Affected work shall not commence until any discrepancies adversely affecting the work of this Division are remedied.

.3 Fully understand the function of the systems described in this Division. Have no doubt as to the extent of the systems and/or materials and labour required. Contact the Consultant for clarification. No extras will be allowed to complete systems inadequately installed or not fully operational.

1.12 ABBREVIATIONS & DEFINITIONS

.1 Abbreviations used on Electrical Drawings and in this Division are generally listed below:

OBC	Ontario Building Code
CSA	Canadian Standards Association
FHP	Fractional Horse Power

C	Conduit
E.C.	Empty Conduit
Trans.	Transformer
F @	Fused at
SP (DP)	Single Pole (Double Pole)
3P	Three Pole
SN	Solid Neutral
Disc. Sw	Disconnect Switch
LP	Lighting Panel
PP	Power Panel
DP	Distribution Panel
WP	Weatherproof
MH	Mounting Height
OESC	Ontario Electrical Safety Code
NFPA	National Fire Protection Association
NFC	National Fire Code
EEMAC	Electrical Equipment Manufacturer's Association of Canada
ANSI	American National Standards Institute
ULC	Underwriter Laboratories of Canada
RT	Rain Tight
FA	Fire Alarm
EXP	Explosion Proof

.2 Wherever the words "approved", "satisfactory", "directed", "permitted", "inspected", "instructed", "required", "submit", "order", or similar words or phrases are used in the specification, it shall be understood, unless the context implies otherwise, that the words "by (to) the Consultant" follows.

.3 Wherever the word "provide" is used in this specification or on the drawings, it shall be understood, unless the context implies otherwise, that it is equivalent to "supply and install".

1.13 ELECTRICAL EXTRAS AND CREDITS

.1 Changes to the contract requiring additions to or deletions from the work of this Division shall be carried out upon written request of the Consultant. Extras to the contract or credits shall be submitted with a complete cost breakdown as follows:

.1 Materials, quantities and unit prices for all equipment required or deleted.

.2 Unit man hours.

.3 Total material cost.

.4 Total man hours.

.5 Hourly rate. (Refer to Supplementary Conditions and General Contract).

.6 Total overhead and profit. (Refer to Supplementary Conditions and General Contract).

.2 Equipment and material costs shall be accepted at net costs only.

.3 Invoices, time sheets, and other evidence of costs shall be provided upon request by the Consultant.

.4 Prices not submitted in this format will not be accepted.

1.14 OPERATING AND MAINTENANCE MANUALS

.1 Submit operating and maintenance manuals in accordance with Section 26 05 02, Submittals.

1.15 GUARANTEE

.1 Upon completion of the work of this Division and prior to final payment, provide to the owner a written guarantee that for one year from the date of acceptance, any defect in workmanship or materials will be corrected at no cost to the Owner except where Owner misuse, neglect, or abnormal conditions have caused the defect.

.2 This guarantee shall not supersede any longer Guarantee furnished by a manufacturer.

1.16 INSPECTION

.1 All work and materials covered by these Specifications shall be subject to inspection at any time, by the Consultant or the Owner's Representative.

.2 If the Consultant or Owner's representative finds that any material or workmanship does not conform with these specifications undertake to correct such workmanship within 5 days of notification by the Consultant.

1.17 FINAL INSPECTION

.1 Notify the Consultant when the final inspection of the work shall be performed. Defects or deficiencies found during this inspection shall be corrected to the satisfaction of the Consultant before final payment is made.

1.18 DAMAGE TO OTHER WORK

.1 This Trade shall be responsible for all damages to his own work or the work of other trades caused by the execution of work by this Division.

.2 Provide protective covers on or around equipment and materials to prevent damage during construction.

PART 2 : PRODUCTS

2.01 MATERIALS AND EQUIPMENT

.1 All materials and equipment shall be new and conform to CSA Standards. All materials and equipment shall be approved for their intended use by the authority having jurisdiction.

.2 Material or equipment specified by technical description shall be provided with the best commercial qualities obtainable for the purposes described.

.3 Maintain uniformity of manufacturer, type, and style, within a particular group of equipment or class or type of fixture.

.4 Requests for extra money, time or equipment substitution due to late ordering of equipment will not receive any consideration.

.5 The listing of specific manufacturers does not imply acceptance of their products. Any listed manufacturers must meet the specifications in their entirety.

2.02 ALTERNATES AND SUBSTITUTIONS

.1 Whenever a substitute or alternate product is proposed for use, this Contractor shall guarantee that such proposed substitutes or alternates will not adversely affect the requirements allocated on the drawings for the material or item or plant or equipment specified. He shall agree to bear any additional expense incurred due to the use of proposed substitutes or alternates, particularly in connection with any required changes in the work of any other division.

.2 Requests for approval shall be accompanied by complete specifications for the equipment, showing dimensions, ratings, photometrics, cost reductions, etc.

.3 No substitutions or alternates will be allowed after tender close.

.4 Any equipment installed, without the Consultant's written approval, shall be removed and the correct equipment installed at no extra cost.

.5 In the event the approved alternate equipment is not available for any reason, the specified equipment shall be installed.

.6 When proposing an alternative product make all affected parties aware of any structural, architectural, mechanical, or electrical design changes necessary to accommodate the alternative product. The contractor is responsible for paying all costs incurred, which may result from the acceptance of the alternative. Any cost savings anticipated must include all additional costs incurred for any changes to the original design.

PART 3 : EXECUTION

3.01 GENERAL REQUIREMENTS

.1 The location of any panels, equipment, outlet, raceway and wiring may be changed by the Consultant if the new location is within a limit of 3 metres (10’) radius of the original location. Provide changes without extra cost if requested before installation.

.2 Do not install wall-mounted equipment at locations where built-in furniture or other equipment is to be installed. In cases of conflict, install equipment above the built-in furniture and clear the trim by approximately 150 mm (6") unless otherwise instructed by the Consultant.

.3 Arrange for openings in the walls and floors for transportation and installation of equipment. Extra charges for cutting and making good of walls or floors for the work will not be accepted.

.4 Adjust phase loading on all panels and switchgear so as not to exceed a 10% phase imbalance of current at operating load conditions.

.5 Megger test all feeders prior to energizing. Submit test results in maintenance manuals.

.6 Measure voltage at all feeder supply connectors and at the load connections. Tests to be conducted at normal operating conditions. Submit test results in maintenance manuals.

3.02 STORAGE OF MATERIALS

.1 Provide proper facilities for a workshop, tool shop, office space and protection of materials and equipment. Coordinate location with General Contractor.

.2 Store all material, equipment, panels, luminaires, etc. in a dry, clean place and cover as necessary to preserve factory finish.

3.03 WASTE AND SURPLUS MATERIALS

.1 Keep the premises free of accumulation of waste and surplus materials.

.2 On completion of the contract, this Division shall remove all tools, scaffolding, surplus material, scrap and debris resulting from the work of this Division from the site.

.3 Clean all equipment such as panel boxes, luminaires, switches receptacles, etc., of all dirt, dust and paint at the time of final acceptance of the work.

3.04 SLEEVES, HOLES AND PATCHING

.1 Supply and set all necessary sleeves for this contract prior to pouring of concrete. There will be no allowance for holes or sleeves missed during initial construction.

.2 Holes through concrete structural members shall be schedule 40 steel pipe sleeves. Holes through exterior walls and/or roof are to be properly flashed and made weather-proof. All holes through concrete or steel structural members shall be approved by the Structural Consultant.

.3 All cutting, patching, sleeves and grouting is to be done by fully qualified craftsmen of that respective trade. All costs for cutting and patching required by this Division are to be included in the tender.

.4 All cutting, patching, sleeving, etc. shall be carried out under the direct supervision of the General Contractor, and to the satisfaction of the Consultant.

3.05 GROUNDING AND TESTING

.1 Provide a complete grounding system throughout All grounds are not shown on the drawings.

.2 Under this Section, test all equipment and wiring supplied and installed in this contract at any time requested by the Consultant. Provide all meters materials and labour to carry out these tests. All readings shall conform to the requirements of the Local and Provincial codes which apply to this Specification.

.3 Test May Include:

.1 Voltage reading on near full load at main service switch, distribution panel feeders, transformer feeders, and load connection points for Mechanical & Electrical equipment.

.2 Amperage readings of service and each panel feeder.

.3 Ground fault insulation resistance.

.4 Continuity of metal raceways.

.5 Operation of each piece of equipment and system for correct function.

.4 Written records of the tests performed indicating date of test, equipment name, purpose of test, device used for testing and measured results. Include test results in maintenance manuals.

3.06 CORROSION, PROTECTION & TOUCH-UP

.1 Provide prime and paint finish on exterior ferrous metal.

.2 All priming shall be free of runs or drips. Scratches, chipped or rough items will not be accepted. Sand smooth and refinish.

.3 All shop painted equipment damaged in transit or during installation shall be touched-up to match existing finishes.

.4 Provide protection of installed materials from abuse and damage during construction. Provide all necessary protective coatings or shields to prevent damage to installed equipment until final acceptance by the Owner.

3.07 EQUIPMENT IDENTIFICATION

.1 Identify all equipment such as panels, cabinets, contactors, starters, disconnect switches, transformers, switchgear with labels as specified below.

.2 Labels shall be 3 mm (1/8") thick lamacoid plates, black with 6 mm (1/4") white lettering, mechanically fastened to the equipment.

.3 Mount nameplates on the top inside cover on all panels and on the front cover of equipment for the respective system.

.4 The wording on these plates shall conform generally with that used in these Specifications and on the Drawings. All fused disconnects to include size and type of fusing on equipment name plate. All panels to have mains voltage indicated. Panel nameplates to indicate from where and which distribution they are fed from.

.5 Mechanically fasten nameplates directly on the equipment. For small size equipment install nameplates on the wall above or under equipment.

.6 Colour code all conduits and metallic sheathed cables according to the following standards:

.1 Colour to be min. 25 mm (1") band of plastic tape or spray bomb.

.2 Colour code at entrance/exit to wall, ceiling, or floor and minimum 15 m (50') intervals.

.3 Systems colour code for conduits, metallic cables, and low voltage wiring sheath.
Green – Lighting Controls
Red - Fire Alarm
Blue – Communications/Data
Orange - Auxiliary Power.

.7 Colour code conductors as follows:

Phase A - Red
Phase B - Black
Phase C - Blue
Neutral - White
Ground - Green

.8 The junction boxes of all power and lighting systems shall be labelled indicating circuits contained within.

.9 CIRCUIT IDENTIFICATION:
Provide p-touch labelling, 6mm (1/4”) tape, white with black lettering with receptacle circuit number. Place one on front of coverplate and one inside box.

3.08 MOUNTING AND MOUNTING HEIGHTS

.1 Provide all supports and bases for the work of this trade. Every conduit run shall have at least one support. Only approved conduit supports shall be used.

.2 Support every outlet box, junction box, panel tub, etc. independent of conduits running to it.

.3 No piece of equipment shall be mounted on a wall or panel with the underside of the equipment less than 460 mm (18") above the floor except for equipment over 1650 mm (5'-6") high which shall be mounted with the top side of the equipment 2100 mm (7'-0") above the floor or as directed in the field.

.4 Panels for mounting of equipment shall consist of #10 gauge steel on an angle iron frame. The complete panel is to be thoroughly cleaned of all dirt, rust and loose material and be given two coats of grey enamel before mounting any equipment.

.5 In areas of combustible construction mount service box and panelboards on spacers to provide 50 mm (2") ventilated distance between back of the panel and the backboard.

.6 Install switches, receptacles, outlets, etc., on one common centre line, one above the other, when shown on the drawings in a grouping.

.7 Dimensions refer to the centre line of equipment above the finished floor unless otherwise shown or specified. Mounting heights in stairwells refer to the floor, landing or stair tread directly below the equipment.

.8 Install equipment at heights as directed on legend:

.1	Power and Lighting	Standard
	Circuit Breaker Panels	72" (1830 MM) to top
	Individual Safety Switches	60" (1520 MM) O/C
	Individual Motor Control	60" (1520 MM) O/C
	Convenience Receptacles	18" (460 MM) O/C
	Above Counter Receptacles	42" (1070 MM) O/C
	Above Desk Receptacles	36" (915 MM) O/C
	Light Switches	39" (1000 MM) O/C
	Thermostat Outlets	47" (1200 MM) O/C
.2	Fire Alarm System	
	Manual Pull Stations	47" (1200 MM) O/C
	Signal Devices	90" (2280 MM) O/C
	End of Line Resistors	60" (1520 MM) O/C

.3 Communication System

Telephone Cord Set	18" (460 MM) O/C
Telephone Wall Set	63" (1600 MM) O/C
Computer Data Outlet	18" (460 MM) O/C

3.09 EXCAVATION AND BACKFILLING & TRENCHING

.1 Refer to Excavation, Backfilling and Trenching Specification in Section 31 and adhere to these specifications for all associated electrical underground installations.

END OF SECTION

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 Shop drawings and product data

.2 Working/Interference drawings

.3 As-built drawings

.4 Operating and maintenance manuals including extended warranties.

.5 Related Work

.1	Basic Materials and Methods	Section 26 05 03
.2	Fire Stopping	Section 26 05 04
.6	Panelboards	Section 26 24 16
.14	Door Access Control	Section 28 13 43
.15	Intrusion System	Section 28 16 13

1.02 ADMINISTRATIVE

.1 Submit to Consultant submittals listed for review. Submit with reasonable promptness and in an orderly sequence so as to not cause delay in the construction schedule. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default is allowed.

.2 Work affected by the submittal not to proceed until the review is complete unless an approval is obtained from the Consultant.

.3 Review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, and that each submittal has been checked and co-ordinated with the requirements of the Contract Documents.

1.03 SHOP DRAWINGS

.1 Submit shop drawings in accordance with the General Requirements of Division 1 and as required in various sections of these specifications and on the drawings.

.2 Shop drawings to be submitted with a cover sheet(s) on the Contractor's letterhead listing the following information:

- Project:
- Owner/Client:
- Architect:
- Mechanical/Electrical Consultant:
- General Contractor:
- Electrical Contractor:
- Supplier
- Specification Section

- Materials or Equipment submitted

Include space for review stamps by Consultant, General Contractor and Electrical Contractor.

.3 Prepare and submit for review, where specified, shown or considered necessary by the Consultant, shop drawings showing details of work as follows:

.1 Fabrication and erection dimension.

.2 Sections, arrangements and details which indicate complete construction as well as interconnections with other work.

.3 Location and type of anchors and fastenings.

.4 Materials including gauges, thickness, sizes and finishes.

.5 Descriptive names of equipment and mechanical and electrical characteristics when applicable.

.6 Data verifying that superimposed loads will not affect function, appearance, and safety of work shown on shop drawings as well as other work interconnected.

.4 Submit shop drawings, unless otherwise specified in form of electronic copies.

.5 Manufacturer's printed data sheets for standard items are acceptable providing pertinent characteristics are identified and relate to specified items. Submit eight (8) copies of data sheets except where specified otherwise.

.6 Check shop drawings and data sheets, before submission as follows:

.1 Against contract documents and other applicable shop drawings, to ensure that work adjacent to and affecting other work is accurately detailed.

.2 To ensure that work shown on shop drawings conforms to requirements of Contract Documents.

.3 Enclose notice in writing of any variations from requirements of Contract Documents.

.7 Indicate on shop drawings that they have been checked by applying stamp "checked and certified correct for construction", including date and Contractor's signature. Drawings and details submitted without such stamp or whenever it is evident that drawings have not been checked (despite approval stamp) will not be reviewed and will be returned to Contractor.

.8 The Consultant's review of shop drawings and data sheets pertain to general design only. Errors in dimensions, quantities or interference will be marked if noticed, but this will not in any way relieve Contractor from his responsibility to complete work as shown and specified.

.9 All shop drawings are to be submitted in Imperial dimensions.

.10 Shop drawings are to be returned with "Reviewed", "Revised as noted" or "Revise and Submit".

.1 "Reviewed" - Drawings conform with the general design concept.

.2 "Revised as noted" - Drawings conform with the general design concept subject to the corrections noted. Drawings to be corrected and resubmitted for final review and incorporation into maintenance manuals. Such submission is not to hold up manufacture.

.3 "Revise and Resubmit" - Drawings are rejected and manufacture of this equipment is not to proceed. Drawings are to be resubmitted with required corrections on equipment.

1.04 WORKING/INTERFERENCE DRAWINGS

.1 Before commencing any work, the Contractor is to prepare working/interference drawings, to ensure that all components, including any components of other divisions, are to be properly accommodated within the spaces provided, ensuring all clearances required by jurisdictional authorities and for proper maintenance are indicated and maintained.

.2 Prepare drawings to indicate co-ordination and method of installation of a system with other systems where their relationship is critical. Ensure all details of equipment, apparatus and connections are co-ordinated.

.3 As an alternative to preparing interference drawings, regularly scheduled meetings on site with all associated trades are to be conducted as necessary but not less than one per week.

.4 Failure to co-ordinate with all other trades could result in reworking of installed equipment, conduit or wiring at the discretion of the Consultant. Any reworking to accommodate the installation of other trades to be performed at no extra cost.

1.05 AS-BUILT DRAWINGS

.1 As-built drawings are to be maintained in accordance with the general requirements of Division 1.

.2 The Consultant is to provide this Division with an extra set of white prints on which to show clearly in red ink, as the job progresses, all changes and deviations from the plans, including all changes as part of change orders, site instructions or site conditions.

.3 Record location of concealed electrical services and components. Dimension and reference all concealed and buried electrical services from visible and accessible permanent features of structure.

.4 Maintain as-built drawings on site for periodic review by Consultant.

.5 In accordance with the Commissioning Schedule Plan, submit a complete set of record drawings, marked “as-built” and dated.

1.06 MAINTENANCE DATA AND OPERATING INSTRUCTIONS

.1 Submit three (3) copies of Operation and Maintenance Manual individually bound in suitable sized hard backed three-ring binders.

.2 Front cover of each binder to be suitably lettered as follows:

OPERATION AND MAINTENANCE MANUAL FOR
(Project Name)

(Owners Name)
(Date)

.3 Provide plastic tab indices for all sections of the manual, provide separate sections for each major piece of equipment and for groups of smaller products.

.4 Provide master index at the beginning of each binder indicating all items included in each section.

.5 Provide list of names, addresses and telephone numbers of equipment suppliers, Installing Contractors, General Contractors, Architect and Consulting Engineer.

.6 Provide final review shop drawings of each manufactured item in addition to the operating and maintenance instructions.

.7 Operating instructions to include:

.1 General description of each electrical system.

.2 Step by step procedure to follow in commissioning each piece of equipment.

.3 Schematic control diagrams for each separate system.

.4 Drawings of each control panel identifying all components on the panels and their function.

.5 All electrical equipment wiring diagrams.

.8 Maintenance instructions are to include:

.1 Manufacturer's maintenance instructions for each item of electrical equipment installed under this Division. Instructions are to include installation instructions, parts numbers and lists, name of supplier and maintenance instructions.

.2 Summary list of each item of electrical equipment requiring maintenance, indicating the name of the equipment item, maintenance required and frequency of maintenance.

.3 Copies of all panel directories.

.9 Provide written warranty on the Contractor's letterhead addressed to the Owner, copied to the General Contractor.

1.07 EXTENDED WARRANTIES

.1 The contractor is to submit extended warranties for specific materials and/or work specified in their respective sections.

.2 Extended warranties are to be issued on the General Contractor's letterhead, under seal, and issued in the name of the owner.

END OF SECTION

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 Conform to General Conditions, Supplementary General Conditions and Sections of Division 01, as applicable.

.2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.

.3 Related Work

.1	Submittals	Section 26 05 02

1.02 SCOPE OF WORK

.1 Work to be Supplied and Installed

.1 Raceways
.2 Conductors
.3 Armoured Cable
.4 Wire Connections and Devices
.5 Outlet Boxes
.6 Pull and Junction Boxes
.7 Cabinets
.8 Supporting Devices
.9 Wiring Devices and Cover plates
.10 Contactors
.11 Time Switches
.12 Motor and Circuit Disconnects
.13 Fuses

1.03 QUALITY ASSURANCE

.1 Install all equipment to the minimum of Ontario Electrical Safety Code standards, unless stricter standards are indicated on the drawings or in this specification. In all situations the more restrictive standard of material and installation shall apply.

1.04 REFERENCES

.1 CSA Standards

C22.2 No. 62	Surface Raceways and Lighting Fixture Raceways and Fittings.
C22.2 No. 83	Electrical Metallic Tubing.
C22.2 No. 211.1	EB1 and DB2/ES2 PVC Conduit.
C22.2 No. 211.2	Rigid PVC Conduit.
C22.2 No. 211.3	Rigid Fibreglass Reinforced Epoxy (RE) Conduit and Associated Fittings.
CAN3-C21.2	Control Cable for Low Energy Circuits.
C22.2 No. 35	Extra-Low-Voltage Control Circuit Cables, Low-Energy Control Cable, Extra-Low-Voltage Control Cables.
C22.2 No. 38	Thermoset Insulated Wires and Cables.
C22.2 No. 48	Nonmetallic Sheathed Cable.
C22.2 No. 51	Armoured Cables.
C22.2 No. 52	Service-Entrance Cables.
C22.2 No. 75	Thermoplastic-Insulated Wires and Cables.

C22.2 No. 124	Mineral Insulated Cables.
C68.3	Power Cables with Thermoset Insulation.
C22.2 No. 227.1	Electrical Nonmetallic Tubing.
C22.2 No. 227.2	Flexible Liquid-Tight Nonmetallic Conduit.
C22.2 No. 227.3	Flexible Nonmetallic Tubing.
C22.2 No. 56	Flexible Metal Conduit and Liquid-Tight Metal Conduit.
C22.2 No. 45	Rigid Metal Conduit.
C22.2 No. 85	Rigid PVC Boxes and Fittings.
C22.2 No. 18	Outlet boxes, Conduit Boxes and Fittings.
C22.2 No. 40	Cutout, Junction and Pull Boxes.
C22.2 No. 65	Wire Connectors.
C22.2 No. 14	Industrial Control Equipment.
C22.2 No. 177	Clock-Operated Switches
C22.2 No. 4	Enclosed Switches
C22.2 No. 111	General Use Switches
C22.2 No. 55	Specialty Use Switches
C22.2 No. 106	HRC Fuses
C22.2 No. 248	Low-Voltage Fuses

1.05 SUBMITTALS

.1 Submit shop drawings for the following pieces of equipment:

.1 Fire Rated Access Panels
.2 Wiring Devices and Coverplates
.3 Contactors
.4 Time Switches
.5 Motor Starters
.6 Motor and Circuit Disconnects
.7 Fuses

.2 Submit to the Engineer, in writing, a schedule of proposed feeders to be used if different than those specified on the drawings or in this specification.

PART 2 : PRODUCTS

2.01 GENERAL

.1 Where an alternate manufacturer is proposed for use, the proposed item must meet all qualifications of the specification.

.2 All materials/equipment of similar type shall be of one manufacturer.

2.02 RACEWAYS

.1 Provide raceway type as detailed on drawings. Where type is not specified, raceways shall be provided in accordance with Section 12 of the Ontario Electrical Safety Code.

.2 Provide all empty raceways and raceway systems complete with outlet boxes, coverplates, nylon fish wire, bushings, caps, etc.

.3 Size all raceways to suit the number and type of conductors and of sufficient size to permit easy removal of conductors at any time. Where raceway sizes are shown on the drawings, these sizes are minimum and in no case shall they be reduced.

.4 Colour code surface and exposed parts of raceways and all conduits as specified in

Section 26 05 01.

.5 Where conduits cross expansion joints of building, provide expansion joints for conduit c/w grounding straps.

.6 All raceways shall be installed parallel to building lines.

2.03 CONDUCTORS

.1 Use R-90, RW-90, or T90 copper conductor building wires rated at 600 Volt, X-Link insulation.

.2 Where a particular type of insulation is specified, or shown, that type of wire shall be used.

.3 Use minimum # 12 copper wire unless otherwise specified. Minimum wire size is #10 for runs greater than 25m (82').

.4 All conductors shall be colour coded consistent with the OESC, Section 16010.

.5 Conductors up to and including # 10 shall be solid copper. Larger conductors shall be stranded.

.6 Size conductors for a maximum of 3% voltage drop from the supplying panel to the farthest outlet in the circuit.

.7 All joints must be approved solderless pressure connectors or insulated crimped connections terminated in boxes or fittings of adequate size.

.8 Conductors up to #6 AWG shall be copper. Conductors #6 AWG and larger may be substituted with aluminum conductors sized for the equivalent current rating capacity. Submit proposed equivalent conductors and sizes for review by the Consultant. Aluminum conductors shall be ACM type alloy (1350 alloy not acceptable).

2.04 ARMOURED CABLE

.1 Armoured cable when used for final drops to lighting fixtures shall not exceed 3m (10’) in length.

.2 AC-90 shall be allowed for branch circuit wiring in stud walls but shall not exceed 3m (10’) in length exposed in ceiling.

2.05 WIRE CONNECTIONS AND DEVICES

.1 Install wire connectors as per Manufacturer and OESC requirements.

2.06 OUTLET BOXES

.1 Use outlet boxes to suit device and OESC requirements.

.2 Multiple-gang boxes shall be of one piece construction. Sectional boxes will not be permitted.

2.07 PULL BOXES AND JUNCTION BOXES

.1 Size pull boxes and junction boxes for the dimensions and cubic inch capacity as required by the OESC. for the application or as shown on the drawings.

.2 Pull boxes and junction boxes shall be constructed of code gauge steel, primed and painted, complete with screw-on or hinged covers.

.3 Junction boxes in hazardous locations shall be approved for such locations.

2.08 CABINETS - EQUIPMENT ENCLOSURES

.1 Cabinets to be code gauge steel, prime coated, c/w locking door flush lock and latch assembly and concealed flush hinges.

2.09 SUPPORTING DEVICES

.1 Every conduit or cable shall have at least one support. Only approved conduit supports will be accepted. Perforated pipe straps, tie wrap or wood support for conduits or outlet boxes etc., will not be accepted.

.2 Single conduit runs: Galvanized conduit straps, ring bolt type hangers or P.V.C. saddles.

.3 Horizontal multiple raceways runs: Conduit rack with minimum 25 percent spare capacity. Trapeze style hanger on threaded rod.

.4 Vertical multiple raceway runs: Electrical strut fastened to structure.

2.10 WIRING DEVICES AND COVERPLATES

.1 General

.1 Colour of devices and coverplates (other than stainless) to be confirmed by Consultant.
.2 Manufacturers: Hubbell, Bryant, Pass & Seymour, Leviton.
.3 All devices to be of the same manufacturer throughout.

.2 Switches

.1 All switches shall be extra heavy duty industrial grade, rated for 15A at 120/277 or 347V.
.2 Switches to be single pole, 3-way or 4-way, as indicated on the drawings.
.3 All switches to be of the same manufacturer throughout.

.3 Dimmer Switches

.1

.4 Receptacles

.1 Duplex Receptacles
.1 Specification grade, rated 15A, 125VAC, U-ground type, parallel blade, CSA 5-15R configuration.
.2 Specification grade, rated 20A, 125VAC, U-ground type, parallel blade, CSA 5-20RA configuration.

.2 Ground Fault Interrupter Receptacle

.1 Rated 15A, 125VAC, U-grounded type, Class A requirement, trip level 4-6 mA, parallel blade, with test and reset switches, CSA 5-15R configuration.
.2 Rated 20A, 125VAC, U-grounded type, Class A requirement, trip level 4-6 mA, parallel blade, with test and reset switches, CSA 5-20RA configuration.

.3 Transient Voltage Surge Suppressor Receptacle
.1 Rated 15A, 125V, U-ground type parallel blade, CSA 5-15R configuration with the following suppression characteristics:
.1 80 joules of energy absorption and 6500 Amps current handling capability in each of three modes,
.2 Clamping voltage of 150V rms (212 peak)
.3 Less than 1 nanosecond response time,
.4 Potted electronic components, and RFI and EMI noise filters,
.5 Pass & Seymour #6262 series or equivalent.

.4 Isolated Ground Duplex Receptacle
.1 Rated 15A, 125VAC, U-grounded type, isolated insulated ground conductor screw lug, parallel blade, CSA 5-15R configuration.

.5 Range Receptacle
.1 Rated 50A, 250VAC, grounded, straight blade type, CSA #14-50R configuration, complete with mounting plate.

.6 Dryer Receptacle
.1 Rated 30A, 250VAC, grounded, straight blade type, CSA #14-30R configuration, complete with mounting plate.

.7 Twist Lock Receptacles
.1 Provide twist lock receptacles, plugs and flexible cord at all pump motor locations. Refer to drawings and equipment schedule for receptacle ratings.

.8 Tamper Resistant Receptacles
.1 Rated 15A, 125V, U Ground, straight blade type, commercial grade, decora style EEMAC 5-15R; Leviton #TDR15-W or approved equal to be used in Child Care Area Rooms.

.9 Colour of receptacles to be determined by Architect.

.5 Coverplates

.1 Coverplates to be:
.1 In service areas - pressed galvanized.
.2 In office (finished) areas - stainless steel.
.3 In residential suites - nylon (colour to match device).
.4 In wet locations - grey, hinged gasketted Lexan, while in use.

2.11 CONTACTORS

.1 Manufacturers: Cutler Hammer, Allen Bradley, Asco Electric, Schneider Electric.

.2 Manual Contactors:

- c/w pilot light to indicate the on state.
- EEMAC rated enclosures for applicable mounting location.
- Rated 115/230 volts.
- Contacts rated as described on the drawings.
- Number of poles as required for load to be controlled.

.3 AC Magnetic Contactors for Automatic Control of Loads:

- Voltage of coil to match operating voltage described on the drawings.
- EEMAC rated enclosures for applicable mounting location.
- Rated 115/230 volts.
- Contacts rated as described on the drawings.
- Number of poles as required for load to be controlled.

.4 Enclosures shall be general purpose EEMAC type 1 surface mounted unless specified or shown otherwise on the drawings. Use EEMAC type 3R in weatherproof applications.

.5 All contactors shall be one manufacturer.

2.12 TIME SWITCHES

.1 Manufacturers: Intermatic, Precision, Tork.

.2 Standard 24 hour ON-OFF electronic time switch with the following:

- Two poles switched, rated 30 amp, 240 VAC.
- EEMAC rated enclosure for applicable mounting location.
- 120 volt clock with standby battery (battery to be included).
- Minimum four on-off settings per day.

.3 Intermatic series ET100C or equivalent.

.4 Enclosures shall be general purpose EEMAC type 1 surface mounted unless specified or shown otherwise on the drawings. Use EEMAC type 3R in weatherproof applications.

2.13 MOTOR AND CIRCUIT DISCONNECTS

.1 General Requirements

.1 Where more than one manufacturer is named for an item, proposed item must meet all qualifications of the specification.
.2 All materials of similar type shall be of one manufacturer.
Acceptable Manufacturers: Arrow Hart, Bryant, Cutler Hammer, Schneider Electric, Siemens.

.2 Disconnect Switches

.1 This section governs local disconnect switches to be located adjacent to, or in close proximity to motorized equipment.
.2 Motor less than 1 H.P.: Fractional horse power motors less than 1/4 h.p. use rated general purpose switches; 1/4 h.p. or greater use h.p. rated, single throw, toggle, disconnect switches in rated enclosure.
.3 Motors 1 H.P. or larger: Provide h.p. rated disconnect switches to interrupt all the line voltage supply lines to the motor. Provide rated enclosures. Disconnect shall be single throw design, quick make, quick break, with reinforced fuse caps

where required. Provide lock-off feature.

.3 Circuit Disconnects

.1 This section governs the use of disconnects for the purpose of local isolation switches for non-motorized electrical equipment and feeder circuits.
.2 Size disconnect switches for isolation and feeder protection as required by the connected load conditions or as indicated on the drawings. The more stringent of the two requirements shall govern in each situation.
.3 Provide fuse holders designed for the correct fuses as indicated on the drawings.
.4 Switch operation shall be quick make, quick break design with arc quenching facilities at the contacts.
.5 Provide sufficient size contact area for the ampere rating of the switch and the connected load to be interrupted.

2.14 FUSES

.1 HRC fuses rated above 600 amperes shall be CSA certified HRC-L fuses, of the types(s) specified below, and shall be in accordance with CSA Standard C22.2 No 106-M1985 or CSA certified HRC Class L fuses in accordance with CSA Bulletin No. 832-1971

.2 HRC fuses rated 600 amperes and smaller shall be CSA certified HRCI-J fuses of the type(s) specified below, and shall be in accordance with CSA Standard C22.2 No. 106 or specification C22.2 No. 106 with HRC-J (HRC-JY fuses are not acceptable) fuse dimensions and current-limiting performance in accordance with the appropriate ULC standard as specified below.

.3 Fuse interrupting rating shall be 200,000 amperes RMS symmetrical, unless otherwise noted.

.4 Time Delay fuses shall carry 500% of the rated current for a minimum of ten seconds and shall be labelled “Time Delay” by the manufacturer. (Exception: fuses rated 250V, 15-30A, an 8 second delay is permitted).

.5 Provide three spare fuses of each type and size installed. Provide spare fuse storage cabinet.

.6 Submit fuse melting and clearing time-current characteristic and current-limiting performance data for each fuse type and size above 200 Amps.

.7 Select fuses to provide a fully co-ordinated system for both overload and short circuit fault conditions.

.8 Application of all fuses shall comply with the Canadian Electrical Code - Part 1 and local inspection authority regulations.

.9 Unless otherwise noted on the drawings, Time Delay fuses for overcurrent protection of motor circuits are to be rated up to 150% of motor full-load current.

.10 Manufacturers: Bussman, Gould Shawmut, Littelfuse.

PART 3 : EXECUTION

3.01 GENERAL

.1 All equipment, devices and panels to be mounted plumbed-true.

.2 All equipment and panel labels to be mounted level.

.3 Provide a separate conductor and raceway system for each separate system.

3.02 RACEWAYS

.1 All raceways to be installed in concrete between floor levels must be reviewed with and approved by the Structural Engineer prior to installation. Where, in the opinion of the Structural Engineer, it is not acceptable to install raceways in concrete between floor levels, raceways shall be installed concealed in walls, ceilings etc.

.2 Empty ducts shall be capped at both ends. Provide 10 mm (3/8") nylon fish wire in each duct.

.3 Locate raceways at least 150 mm (6") clear of steam pipe, flues and similar items and do not install in slab under boilers, or like equipment.

.4 All conduit and raceways to be concealed in all finished areas. Exposed raceways and conduit are permitted only in service areas, utility rooms such as Mechanical and Electrical Rooms. Where exposed, they shall be neatly grouped and installed parallel to the building lines.

.5 Conduit must be plugged and kept clean and dry during installation and be free from kinks or foreign matter.

.6 Use flexible conduit (PVC jacketed in damp or wet locations) for final connections to all vibrating or moving equipment.

.7 Conduit installed in masonry to be coordinated with masonry trade.

.8 Flexible metal conduits shall be secured at intervals not exceeding 1.5m (5'-0") and within 300 mm (1’-0”) of outlet box or fittings except for lengths not over 900 mm (3’-0”) or terminals which require flexibility.

.9 Where the Consultant determines additional support is required, this shall be provided without cost to the Owner.

.10 Where conduits are proposed to pass through structural members, written approval must be obtained from the Structural Consultant.

.11 Provide pull boxes every 30 m (100') of conduit run to facilitate installation of conductors.

.12 Provide sleeves through floors for all conduits or cables passing through the floor. Sleeves shall extend 100 mm (4") above the finished floor. Caulk and make watertight on completion of work. Sleeves penetrating fire separations shall be caulked with an approved material to maintain the integrity of the separation.

.13 Provide acceptable pull boxes in telephone or system raceways to facilitate installation of conductors. Co-ordinate with cable installer prior to commencing work.

.14 Underground raceways shall be sealed/drained in accordance with OESC Section 22.

3.03 ARMOURED CABLE

.1 Provide acceptable insulating bushings between armour and conductors at all terminations.

.2 Provide acceptable cable straps within 300 mm (12") of any box or fitting and at 1.5 m (5') or less intervals throughout its length.

.3 Single conductor cables shall be installed as per manufacturer's recommendations to achieve desired rating of conductors.

.4 Support individual conductors with non-ferrous straps and hangers.

.5 Where aluminum armour comes in contact with copper piping a permanent non-metallic sleeve shall be installed.

3.04 CONDUCTORS

.1 Conductor length for parallel feeders to be identical.

.2 Wire or cable used for feeders shall be free of splices.

.3 Systems of different voltages shall be installed in separate raceways.

3.05 WIRE CONNECTIONS AND DEVICES

.1 All pressure connectors shall be tightened to the manufacturers stated pressures, for the wire size used.

3.06 OUTLET BOXES

.1 See Section 26 05 01, Part 3 for mounting heights.

.2 Mount all boxes, plumbed-true on vertical installations. Mount level on horizontal installations.

.3 All boxes to be installed flush mounted except in service areas, utility rooms such as Mechanical and Electrical Rooms.

.4 All boxes to be supported independent of conduits or cables.

.5 Test all boxes for continuity of ground through the box where the conduit is the grounding means.

.6 Openings in all boxes shall be punched or cut, no burning of holes allowed.

.7 Fill all K.O. openings not used with proper filler plates.

.8 Keep access doors to a minimum by locating equipment in easily accessible locations.

.9 Door swings are to be determined from the Architectural drawings for switch locations.

.10 A variation of location of 3 m (10') shall be provided without cost to the Owner if requested before installation of equipment. Confirm location prior to installation.

3.07 PULL BOXES AND JUNCTION BOXES

.1 Install pull and junction boxes so they are supported independent of raceways.

.2 Install pull boxes after every 30 m (100') of continuous raceway.

.3 Locate pull boxes above accessible ceiling spaces in inconspicuous locations wherever possible.

.4 Colour code pull boxes to indicate system involved.

3.08 EQUIPMENT ENCLOSURES

.1 Mount all surface mounted equipment enclosures on an approved fire rated backing, or unistrut channels.

.2 All recessed enclosures shall have trim for recessed mounting.

.3 Enclosures mounted in finished areas shall be finished to match.

.4 Terminate wiring in screw type terminal blocks or strips.

3.09 SUPPORTING DEVICES

.1 Install supporting devices to maintain headroom and clearances as described for conduits and conductors. Maintain a neat appearance and follow building lines where possible.

3.10 WIRING DEVICES AND COVERPLATES

.1 Mount all devices plumb and level against supporting wall.

.2 Do not mount devices back to back.

3.11 CONTACTORS

.1 Provide steel channel supports for all contactors located on walls.

.2 Locate contactors in a convenient location for accessibility and service. Wherever possible, locate in service spaces such as janitors closets, mechanical rooms, etc. Provide a self-supporting mounting surface where required.

.3 Provide weatherproof connections and raceways to all equipment exposed to the weather.

.4 Label each contactor to indicate the device it controls.

3.12 TIME SWITCHES

.1 Provide suitable mounting boards for all wall mounted time switches.

.2 Locate time switches in a convenient location for accessibility and service. Wherever possible locate in service spaces such as janitors closets, mechanical rooms, etc. Provide a self-supporting mounting surface where required.

.3 Provide weather tight connections and raceways to all equipment exposed to the weather.

.4 Label each time switch to indicate the device it controls.

3.13 MOTOR AND CIRCUIT DISCONNECTS

.1 General

.1 Provide proposed wording for all electrical equipment labels to the consultant for review and approval prior to installing the labels.

.2 Disconnect Switches

.1 Provide a separate self-supporting structure to support the disconnect device where the equipment or adjacent walls are not capable of supporting the device.
.2 Use weather tight connections to all EEMAC type 3R enclosures.
.3 Label each disconnect switch to indicate the device it controls.

.3 Circuit Disconnects

.1 Mount circuit disconnects securely to the structural elements of the building. Where the structure is not present or not of sufficient capacity to support the additional weight of the electrical equipment, provide sufficient reinforcing or construct additional facilities to support the load.
.2 Use weather tight connections to all EEMAC type 3R enclosures.
.3 Label each disconnect switch to indicate the device it controls.
.4 On all fused equipment, provide a label indicating fusing size and type on the outside of the fused equipment.

3.14 FUSES

.1 Ship fuses in original containers

.2 Do not ship equipment with fuses installed.

.3 Store spare fuses in original containers in fuse storage cabinet. Install fuse storage cabinet in electrical room.

.4 Install fuses in mounting devices immediately before energizing circuit.

.5 Prior to energization of any circuit, verify that the correct fuse is installed:
a) for the calculated or assumed circuit capacity, and
b) for the proper equipment and conductor protection requirements.

END OF SECTION

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 Conform to the General Electrical Provisions, Section 26 05 01 as applicable.

1.02 RELATED WORK SPECIFIED ELSEWHERE

.1	Thermal and Moisture Protection	Division 7
.2	Submittals	Section 26 05 02
.3	Basic Materials and Methods	Section 26 05 03

1.03 QUALITY ASSURANCE

.1 Conform to the 2012 Ontario Building Code (OBC) Compendium containing the Building Code Act and including all amendments.

.2 Conform to CAN4-S115-M "Standard Method of Fire Tests of Fire Stop Systems".

1.04 SUBMITTALS

.1 Submit shop drawings in accordance with Section 26 05 02, paragraph 1.4 for the following items:

.1 Fire stopping materials.

.2 Manufacturers literature and installation instructions.

.3 Manufacturers Letter of Certification that project meets or exceeds specified requirements.

1.05 APPROVALS

.1 Additional manufacturers wishing to bid products other than the product specified herein, are to submit to Consultant prior to tender close a list of three past installations of products similar to those listed. Complete catalogue data along with deviations from the product specified are to be noted in the submittal to the Consultant. The manufacturer guarantees the proposed substitute product to comply with the product specified and as detailed on the drawings, unless the deviations are so noted in the submittal for approval.

PART 2 : PRODUCTS

2.01 FIRE STOP MATERIAL FOR SERVICE PENETRATIONS

.1 Provide materials and systems capable of maintaining effective barrier against flame, smoke and gases.

.2 Comply with the requirements of CAN4-S115-M35, and do not exceed opening sized for which they have been tested.

.3 Systems to have an F or FT rating (as applicable) not less than the fire protection rating required for closures in a fire separation.

.4 The fire stopping materials are not to shrink, slump or sag and to be free of asbestos, halogens and volatile solvents.

.5 Fire stopping materials are to consist of a component sealant applied with a conventional caulking gun and trowel.

.6 Fire stop materials are to be capable of receiving finish materials in those areas which are exposed and scheduled to receive finishes.

.7 Acceptable Manufacturers:

- Fyresleeve Industries Inc.
- General Electric Pensil Firestop Systems
- International Protective Coatings Corp.
- Rectorseal Corporation (Metacaulk)
- Proset Systems
- Minnesota Mining and Manufacturing (3M).
- Tremco.
- Hilti

PART 3 : EXECUTION

3.01 INSTALLATION

.1 Confirm location and extent of fire separations from architectural drawings.

.2 Inspect surface to be fire stopped. Report unsatisfactory conditions to Consultant in writing prior to commencement. Initiation of work to be deemed as acceptance of conditions and surfaces.

.3 Store all materials in accordance with manufacturer's recommendations as to acceptable ambient temperatures. Damaged or deteriorated materials are not to be used and are to be removed from the site.

.4 Install fire stopping and smoke seal material and components in accordance with ULC certification and manufacturers instructions in all conduit, cable, duct etc. penetrations in new or existing fire separation to provide temperature, flame and smoke rated seals not less than the fire resistance rating of the assembly, or separation.

.5 Seal all holes made by through-penetrations and un-penetrated openings to ensure continuity and integrating of fire separation, including where existing component or device has been removed.

.6 Notify Consultant and/or Authority having jurisdiction for inspection prior to concealing or enclosing fire stopping materials and service penetrations.

.7 Remove excess material and debris and clean adjacent surfaces immediately after application. Leave in a tidy condition.

END OF SECTION

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 Conform to Division 01, General Conditions and Section 260501, General Electrical Provisions as applicable.

.2 Related Work

.1 Submittals Section 260502

1.02 DESCRIPTION

.1 Changes and alterations to existing facilities and equipment caused by the work of this division.

1.03 EXISTING EQUIPMENT

.1 All existing equipment and associated wiring and conduit shall be removed from the renovated area unless noted otherwise on drawings.

.2 All existing equipment removed shall be handed over to the Owners and/or discarded at their discretion.

1.04 FAMILIARIZATION

.1 It is this contractor’s responsibility to visit the site and become thoroughly familiar with the existing building, equipment and systems prior to submitting tender price.

PART 3 : EXECUTION

3.01 GENERAL

.1 Provide under this Section for the relocation or re-routing of existing conduits and other electrical equipment remaining which are exposed during the work.

.2 Where existing wall or ceiling is being removed and/or replaced or where new drywall is being installed on existing studs, remove and reinstall all electrical equipment and wiring. Use information from the site and from architectural drawings to determine this division’s scope of work.

.3 It is the responsibility of this division to patch and repair all surfaces affected by work of this trade. All patching and repairs must be done by an approved means acceptable to the Architect.

.4 Refer to the attached asbestos audit for the building, prior to proceeding with work.

.5 Where asbestos will be disturbed in the execution of this contract, comply with the regulation respecting asbestos on construction projects and in buildings and repair operations made under the Occupational Health and Safety Act, Ontario Regulation 645/85 and local requirements pertaining to asbestos. Asbestos inspection reports have been bound into this specification for use by this Contractor. Employ only licensed asbestos removal Contractors to execute abatement of all asbestos.

.6 This Contractor shall visit the site and examine the existing conditions and make necessary allowances in his tender price for removal, rerouting, relocation and reconnecting of equipment as may be necessary for the execution and completion of this project.

.7 Wiring, conduits, etc., located in areas being altered or demolished, but feeding outlets or equipment required to remain in service shall be rerouted as required to maintain the continuity of these services to the satisfaction of the Engineer.

.8 Include for strapping existing conduits and cables that are not properly supported and are required to remain above the ceilings. Determine exact extent of work on site.

.9 This Contractor shall provide adequate protection to existing equipment throughout the project and particularly where wiring, piping, equipment, etc. have become exposed to mechanical injury or moisture in the course of the alternations.

.10 Existing distribution equipment in areas designated to be demolished shall be permitted to be reused only as indicated on the drawings.

.11 Existing equipment being reused shall be checked for proper operation. Reused equipment shall not have any sign of physical abuse or corrosion. Any knockouts removed in existing equipment being reused shall be plugged.

.12 All wiring made redundant due to demolition/renovation work shall be disconnected and removed to the nearest distribution point upstream that is not affected by demolition/renovation work. All concealed conduit made redundant due to demolition/renovation work may remain provided it does not adversely affect any new installations, unless it is noted to be removed on the drawings. All exposed conduit in finished areas made redundant due to demolition/renovation work shall be removed and the wall patched.

.13 Existing wiring devices shall be permitted to be reused as indicated on the drawings. Existing outlet boxes may be reused if “as new” condition. Existing branch circuit wiring will only be permitted to be reused in existing non accessible walls/ceilings where the existing wiring is of adequate size, has acceptable bonding conductor and is as new condition.

.14 All existing panel schedules, zone legends and distribution equipment identification shall be reworked to reflect any changes made by any demolition/renovation work.

3.02 CHANGE OVER SERVICES

.1 To obtain permission for an interruption, submit a request at least two weeks before, stating the time the interruption is to begin, expected duration and the services and area affected. Where in the opinion of the Consultant it is advisable or desirable to maintain service in the area or any part of the area involved during the interruption, provide such temporary wiring, equipment, etc., as required or as may be deemed necessary by the Consultant to maintain services. No additional payments will be made for any additional cost or inconveniences which may incur. Under NO circumstances will the Contractor's operation be allowed to interfere with or interrupt the tenants or the owners of the building

END OF SECTION

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 Conform to General Conditions, Supplementary General Conditions and Sections of Divisions 01 as applicable.

.2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.

.3 Related Work

.1 Submittals Section 26 05 02

1.02 SYSTEM DESCRIPTION

.1 Description of Work

.1 Install concrete encased duct-banks where shown on drawings and as detailed.

1.03 REFERENCES

.1 Utility Regulations and Standard Drawings.

PART 2 : PRODUCTS

2.01 GENERAL

.1 Provide materials as specified herein or approved equals.

.2 All ducts and conduits will be supplied by Division 26.

.3 All other materials unless otherwise stated will be supplied by the Contractor. Any material supplied to the Contractor in good condition shall become the responsibility of the Contractor. Any unused material damaged after it has been delivered safely to the construction site must be replaced at the Contractor's expense undamaged to the Utility.

.4 The concrete used should have a minimum strength of 20MPa (3000 psi) for regular ductbanks and 35MPa (5000 psi) for ductbanks under road crossings. and the aggregate used in the concrete should be small enough, (9.5mm) to allow to flow freely around ducts.

PART 3 : EXECUTION

3.01 TRENCH

.1 The normal depth from the ground surface to the top of the duct should be 760 mm (30”). The upper surface of pavement or sidewalk should be considered as ground surface.

.2 The width and depth of the trench should be such as to allow room for a 75 mm (3”) concrete envelope around the duct bank and allow sufficient cover.

.3 The bottom of the trench must be graded evenly and the soil in the bottom of the trench must be undisturbed. Overbreak must be filled with concrete. Ensure that no water traps are formed in individual ducts.

.4 Backfill of trench over the concrete envelope must meet City Engineer's specifications. No backfilling can be completed until the concrete is set sufficiently well to satisfy the Engineer.

.5 Ensure that the ducts are properly plugged prior to backfilling.

.6 Mark the location of ends of the duct bank on the surface sufficiently to allow utility crews to tie in its location.

3.02 ROAD CROSSINGS

.1 Road crossing shall be:

.1 Type II PVC ducts in size and numbers as shown, properly spaced and reinforced.

.2 Covered with minimum 760 mm (30”) approved material.

.3 Of a length to extend 1.0 metre (40”) minimum beyond edge of roadway.

.2 Excavate the full length of trench across the roadway prior to the construction of duct work. Only one half of the road can be closed at any time, and the excavated portion of traffic lanes are to be steel plated so as to minimize the inconvenience to the public.

.3 Grade and shape the sub-grade of the excavated trench to a smooth surface before laying ducts and placing concrete.

3.03 CONCRETE ENCASING THE DUCTS

.1 The Built Up or Monolithic Method consists of erecting a self-supporting structure with the ducts in position before pouring the concrete. Use spacers to establish vertical and horizontal separation in the duct assembly.

.2 The first tier of ducts is laid on the precast base spacers centred on the bottom of the trench located approximately 1500 mm (60”) apart. This will allow a 75 mm (3”) thickness of concrete below the bottom layer of ducts. The joints and spacers in all adjacent ducts should be arranged to be offset with dimensions revised for different conduit sizes.

.3 The subsequent tiers of ducts required are laid on intermediate spacers placed immediately above the base spacers. The top tier is sometimes given additional support by placing extra spacers midway between the tiers of spacers supporting the duct structures as a whole. The whole structure should be braced down at the tiers of spacers to maintain accurate position of the ducts against the tendency of the concrete to lift and float the ducts.If the duct bank is to be constructed over recent fill or where the bottom of the trench is not solid, the trench should be deepened and the base spacers blocked up from the trench bottom so that the thickness of the concrete above and below the duct will be at least 130 mm (5”). In such cases it may also be necessary to reinforce with 13 mm (1/2”), 16 mm (0.63”), 19 mm (3/4”) steel bars laid longitudinally along the trench with approximately a 150 mm (5.6”) lateral spacing and approximately 50 mm (2”) inside the concrete envelope, and should lap 40 bar diameters at the ends. In such cases only individual runs of reinforcing bars should be tied together.

.4 Concrete should not be poured when the temperature is below freezing without special precautions. If concrete is poured in freezing weather, heated aggregates and non-corrosive additives should be used. After pouring, the concrete should be covered.

.5 To prevent any displacement of the duct structure during pouring, the concrete should be deflected down alongside the structure to the bottom and up through the assembly. A long flat spatula worked carefully up and down between the ducts will help to eliminate voids.

.6 Concrete should be poured into the trench until the top layer of ducts is covered to a minimum depth of 75 mm (3”). Chutes should be used when pouring so that the aggregate does not separate. Concrete must no be allowed to freefall more than 0.9m (3'-0").

.7 The end of the duct structure should be properly blocked and supported so that a smooth face is attained and no concrete enters the mouth of the ducts.

.8 Red warning tape should be placed approximately 300 mm (12”) below the finished grade to avoid future damage or injury.

3.04 CLEANING DUCTS

.1 Clean completed duct runs by pulling an approved cleaning device through the ducts by means of a winch line. Tail the cleaning device with a second winch line to permit withdrawal in case of blockage. Clean the ducts in the presence of an Inspector/Engineer.

.2 Provide a polypropylene rope 6 mm (1/4”) in diameter in each duct for future pulling of cables.

.3 At ends of the ductbank plug the ducts and mark the ductbank location.

END OF SECTION

PART 1 : GENERAL

1.01 GENERAL REQUIREMENTS

.1 Conform to General Conditions, Supplementary General Conditions and Sections of Division 01, as applicable.

.2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.

.3 Related Work

.1	Submittals	Section 26 05 02
.2	Basic Materials and Methods	Section 26 05 03
.3	Separate Price Items	Section 26 05 06

1.02 SYSTEM DESCRIPTION

.1 Work Supplied and Installed by This Division

.1 All excavation, fill, and backfill, including repair of surfaces, ie. pavement, sod, concrete, etc., required for the installation of secondary power incoming underground service, telephone incoming underground service, or cable television incoming underground services, as outlined on the drawings.

.2 Installation of all necessary raceways and conductors as outlined on the drawings.

1.03 REFERENCES

.1 Regulatory Agencies

.1 Electrical Safety Authority.

.2 Local Telephone Supply Company

.3 Local Cable Television Supply Company

PART 2 : PRODUCTS

2.01 GENERAL

All conduits, cables, wire, etc. to be as specified on the drawings and under Section 26 05 03 Basic Materials and Methods.

PART 3 : EXECUTION

3.01 INSTALLATION

.1 Co-ordinate all site work with Division 1, the local Supply Authority the Local Telephone Supply Company, or the Local Cable Television Supply Company.

.2 All buried ducts to be surrounded in 150 mm (6”) of sand in non-vehicular areas.

.3 Provide mechanical protection or encase ducts in 50 mm (2") of concrete where ducts pass under vehicular areas.

.4 Seal and drain all underground ducts as required by OESC (Section 22).

3.02 EXCAVATION AND BACKFILLING

.1 All excavation to be carried out in accordance with the Occupational Health and Safety Requirements, bylaws and authorities having jurisdiction over installation of this work.

.2 Conduit trenches are to be cut to comply with the grades shown on the drawings. Any cutting of the trench below the required grade is to be backfilled to the proper elevation with thoroughly compacted sand.

.3 Bottoms of trenches are to be excavated so that conduits and ducts, etc. are supported on a solid bed of undisturbed earth with additional excavation under joints to permit joint to be properly made up. Provide a concrete pad, brick or concrete piers properly reinforced under all conduit, etc. below grade when a solid undisturbed earth is not obtainable. Approval for any alternate procedure is at the discretion of the Consultant.

.4 Bed beneath conduit is to be laid of an approved sand supplied and consolidated to provide a continuous solid bearing for the conduit. Do all necessary pumping required to maintain any excavation free of water.

.5 Inform the Consultant immediately if the excavation reveals unexpected sub-surface conditions such as heavy seepage or springs, etc.

.6 Backfill the trenches carefully to prevent injury to the work and subsequent settlement and execute the backfilling generally as follows:

.1 Backfill the lower 24" (610mm) depth of all conduit trenches with sand or pit run gravel, hand tamped in layers of 6" (152mm) thickness.

.2 Backfill and consolidate the remainder of the trench in 12" (305mm) layers with Granular ‘B’ material conforming to O.P.S.S. Form 1010 below areas to receive floor slabs or under paved areas and native fine sand with a 12" (300mm) native silty clay cap below surrounding ground in grassed areas.3 Compact each layer thoroughly at optimum moisture content with approved hand or mechanical tampers to a density equal to that of the adjacent original undisturbed sub-soil or

to 95% Standard Proctor Maximum Dry Density.

.7 Obtain geotechnical inspection of compaction of trench backfill materials and conduit bedding materials. Costs for inspection by independent testing agency to be paid from cash allowance as outlined in accordance with Section 01001, General Requirements.

.8 Do not puddle or flood with water for consolidating the backfill. Add water during the compaction to the optimum moisture of the backfilling material.

.9 Protect the bottom of the excavation against flooding or freezing. Use pumping or other method to keep bottom dry. Trenching to be excavated and backfilled no more than weather will permit.

.10 Ensure special precautions at all conduit penetrations in foundation wall

.11 Prior to backfilling of conduit service trenches, the installation must be inspected and tested by an authorized representative. Provide minimum 48 hours notice.

END OF SECTION

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 Conform to General Conditions, Supplementary General Conditions and Sections of Division 01, as applicable.

.2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.

.3 Related Work

.1	Submittals	Section 26 05 02
.2	Basic Materials and Methods	Section 26 05 03

1.02 SYSTEM DESCRIPTION

.1 Work to be Supplied and Installed:

.1 Circuit Breakers.

.2 Provide circuit breakers as indicated in panelboard schedules on drawings.

1.03 QUALITY ASSURANCE

.1 Acceptable Manufacturers:

.1 Schneider Group

.2 Cutler Hammer

.3 Siemens

1.04 REFERENCES

.1	Moulded Case Circuit Breakers	CSA C22.2 No.5.

1.05 SUBMITTALS

.1 Submit shop drawings for the following:

.1 Circuit Breakers.

PART 2 : PRODUCTS

2.01 CIRCUIT BREAKERS

.1 Quick-make quick-break design, c/w arc quenching device, trip free handle, thermal overload protection and instantaneous magnetic trip, ambient temperature compensating type. Breaker frame size and mounting type to match required interrupting capacity and panel type.

.2 Two pole and three pole breakers are to have a common trip.

.3 Minimum interrupting capacity shall be 10kAIC unless listed otherwise on the drawings - refer to panel schedule(s). (To be confirmed through the short circuit and coordination and arc flash hazard study.)

PART 3 : EXECUTION

3.01 CIRCUIT BREAKERS

.1 All circuit breakers shall be identified as per Section 26 05 03.

.2 Install circuit breakers as required.

.3 Ensure all circuit breakers mounted in panelboard have the specified interrupting capacity required for that piece of equipment.

3.02 FIELD QUALITY CONTROL

.1 Provide spot checks on all terminations as directed by the Consultant. Tighten all loose connections discovered.

END OF SECTION

PART 1 : GENERAL

1.01 REQUIREMENTS INCLUDED

.1 Conform to General Conditions, Supplementary General Conditions and Sections of Division 01, as applicable.

.2 Conform to General Electrical Provisions, Section 26 05 01 as applicable.

.3 Related Work

.1	Submittals	Section 26 05 02
.2	Basic Materials and Methods	Section 26 05 03
.3	Telecommunication System Cabling	Section 27 13 00
.4	Firestopping	Section 26 05 04

1.02 SYSTEM DESCRIPTION

.1 This document describes Cable Tray, Conduit, and electrical installation requirements to support the Data and Voice Cabling.

1.03 REFERENCES

.1 Applicable Standards & Codes

.1 Ontario Electrical Safety Code

.2 CSA T-527-94: Grounding and Bonding for Communications in Commercial Buildings

.3 CSA T-528-93: Design Guidelines for Administration of Telecommunication and Infrastructure in Commercial Buildings

.4 CSA T-529-M95: Design Guidelines for Telecommunications Wiring System in Commercial Buildings

.5 CSA T-530-M99: Building Facilities, Design Guidelines for Telecommunication

.6 Ontario Building Code

PART 2 : PRODUCTS

2.01 GENERAL REQUIREMENTS

.1 Fish wires - pull wires - minimum 3 mm (1/8") nylon braided cord.

2.02 CABLING J-HOOKS

.1 Non-continuous cable supports shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance cables; cUL Listed.

.2 Non-continuous cable supports shall have flared edges to prevent damage while installing cables.

.3 Non-continuous cable shall have a cable retainer strap to provide containment of cables within the hanger. The cable retainer strap shall be removable and reusable and be suitable for use in air handling spaces.

.4 Non-continuous cable supports shall have an electro-galvanized or G60 finish and shall be rated for indoor use in non-corrosive environments.

.5 Non-continuous cable supports shall be ERICO CableCat™ J-hook series CAT64HP double hooks or approved equal. J-Hooks shall be of the screw on type, hammer on will not be accepted.

2.03 PULL BOXES

.1 A pull box shall be placed in conduit runs where:

.1 The length is over 100’ (30m), or
.2 There are more than two 90-degree bends.

.2 Pull boxes shall be constructed of code gauge steel and shall have a rust resistant finish.

.3 In all instances pull boxes shall be placed in straight sections of conduit run and shall NOT be used in lieu of a bend. Corresponding ends of the conduit are to be aligned with each other. Conduit fittings shall not be used in place of pull boxes and/or conduit bends.

.4 Pull boxes shall be placed in a readily accessible location.

.5 Pull box locations shall be identified on the As Built Drawings.

.6 Pull boxes shall be labelled on the exposed exterior.

.7 Pull box sizes shall be as follows:

Size of Conduit:	Size of Pull Box			For each additional conduit increase width:
	Width	Length	Depth	
1” (25mm)	4” (100mm)	16” (406mm)	2” (50mm)	2” (50mm)
2” (50mm)	8” (200mm)	36” (915mm)	5” (127mm)	5” (127mm)
3” (75mm)	12” (300mm)	48” (1220mm)	6” (150mm)	6” (150mm)
4” (100mm)	15” (380mm)	60” (1500mm)	8” (200mm)	8” (200mm)

2.04 CONDUIT

.1 All conduits shall be thin wall EMT, reamed and bushed at both ends.

.2 Flexible metal conduit shall not be used for the installation of voice and data cabling.

.3 Conduit runs shall be a maximum of 100’ (30m) in length with a maximum of two 90 degree bends between pull points, unless otherwise specified.

.4 The inside radius of a bend in a conduit shall not be less than:

.1 Six times the internal diameter when the conduit is less than 2” (50mm) in diameter, or
.2 Ten times the internal diameter when the conduit is larger than 2” (50mm) in diameter.

.5 A pull cord or fish tape shall be installed in all conduits. Conduits shall be identified and labelled at both ends; tags shall identify start and finish of conduit runs.

.6 Conduits shall be Columbia-MBF True Color, BLUE.

2.05 FIRE PROTECTION

.1 Fire-stop all wall and/or floor penetrations.

.2 Conduit penetrations will be returned to the integrity of the existing fire barrier.

.3 Provide STI EZ-Path Fire Rated raceway, as noted on the drawings.

.4 Provide manufacturers letter of certification that project meets or exceeds specified requirements (ULC).

2.06 FIRE RATED PATHWAYS

.1 Provide fire rated pathways as shown on the drawings and as specified hereinafter. Include all associated hardware required for a complete and professional installation to the satisfaction of the Engineer.

.2 All pathways shall be heavy-duty specification grade with an intumescent insert material allowing for 0 to 100-percent visual fill of conductors.

.3 The pathway shall include both internal and external firestopping.

.4 The pathway shall utilize a fire and smoke sealing system that automatically adjusts to the addition or removal of cables.

.5 The pathway shall require no maintenance under normal use and shall accommodate future cable changes without mechanical adjustments and/or removal or replacement of protective materials.

.6 Pathways to be provided with steel wall plates allowing for single or multiple devices to be ganged together.

PART 3 : EXECUTION

3.01 CONDUIT INSTALLATION

.1 Provide EMT conduits from Telecom riser closets to computer rooms and LAN rooms as indicated on Drawings for the installation of backbone cabling.

.2 All conduits entering a main computer room or LAN room (unless otherwise stipulated) will protrude into the area from 1 to 2” (25-50mm) without a bend.

.3 Where possible, conduit runs shall follow building grid lines.

.4 The cable distribution system conduits be bonded together at the main computer room and LAN rooms and bonded to the telecommunications bus bar within the rooms using a No. 6 awg green jacketed stranded copper ground wire.

3.02 CABLE HOOK INSTALLATION

.1 Follow manufacturer's recommendations for allowable fill capacity for each size non-continuous cable support.

.2 Do not exceed load ratings specified by manufacturer.

.3 Provide mounting support (threaded rod, beam clamp, wall anchor, etc.) as required by location of installation. Clamps to be of screw-on type, hammer-on type will not be accepted.

.4 Maximum spacing shall not exceed 3'-0"

3.03 FIRE RATED PATHWAYS

.1 Pathways shall be installed in locations where indicated on the drawings, above the acoustic tile ceiling.

.2 Install pathways in accordance with the manufacturer's recommendations.

.3 Apply the factory supplied gasketing material prior to the installation of the wall plates.

.4 Secure wall plates to devices per the equipment manufacturer's recommendations.

.5 Provide manufacturer's Letter of Certification that the project (as installed) meets or exceeds the specified requirements for fire rating (ULC).

3.04 AS BUILT DRAWINGS

.1 As built drawings will be produced and delivered to the design authority on completion of installation. The as built drawings shall consist of marked up installation drawings.

END OF SECTION

ONTC MAINTENANCE GARAGE PARKING AREA

NORTH BAY, ONTARIO

EXP PROJECT NO. NTB-24005495-00

ELECTRICAL DRAWING LIST:

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING / HEIGHT
LIGHTING		
	2'-0" x 4'-0" LIGHT FIXTURE	CEILING
	2'-0" x 2'-0" LIGHT FIXTURE	CEILING
	1'-0" x 4'-0" LIGHT FIXTURE	CEILING
	STRIP LIGHT FIXTURE	CEILING
	RECESSED DOWNLIGHT FIXTURE	CEILING
	LIGHT FIXTURE	POLE AS NOTED
	LIGHT FIXTURE	WALL
	TRACK LIGHTING	CEILING
	1 POLE, LIGHT SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
	GANGED LIGHT SWITCHES	900mm TO 1100mm AS PER OBC 3.8.1.5
	DIMMER SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
	347V SINGLE POLE SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
$	LOW VOLTAGE SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
M	OCCUPANCY SENSOR - LIGHTING	WALL / 3050mm AFF
M	OCCUPANCY SENSOR - LIGHTING	CEILING
M	OCCUPANCY SENSOR - LIGHTING (AIMING AS NOTED)	WALL / 3050mm AFF
M	OCCUPANCY SENSOR - LIGHTING (AIMING AS NOTED)	CEILING
PC	PHOTO CELL	AS NOTED
EMERGENCY LIGHTING		
	EMERGENCY BATTERY UNIT AND RECEPTACLE	2286mm AFF
	REMOTE EMERGENCY LIGHTING HEADS	2286mm AFF
	REMOTE EMERGENCY LIGHTING HEAD	2286mm AFF
	REMOTE EMERGENCY LIGHTING HEADS	CEILING
	REMOTE EMERGENCY LIGHTING HEAD	CEILING
	RECESSED EMERGENCY LIGHTING HEAD	CEILING
EXIT LIGHTING		
EXIT	EXIT LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT RIGHT ARROW LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT LEFT ARROW LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT DUAL FACE RIGHT ARROW LIGHT FIXTURE	WALL OR CEILING
EXIT	EXIT DUAL FACE LEFT ARROW LIGHT FIXTURE	WALL OR CEILING
POWER		
	ELECTRICAL LIGHTING OR POWER PANEL	1980 mmAFF TO TOP
	ELECTRICAL EQUIPMENT PANEL AS NOTED	AS NOTED
	DUPLEX RECEPTACLE	457mm AFF
	SPLIT DUPLEX RECEPTACLE	OVER COUNTER
	GFI RECEPTACLE	457mm AFF
	DUPLEX RECEPTACLE	FLOOR
	DIRECT CONNECTION TO AN ELECTRICAL DEVICE	AS NOTED
	DIRECT CONNECTION TO A DATA DEVICE	AS NOTED
	QUAD-PLEX RECEPTACLE	457mm AFF
	SWITCHED RECEPTACLE	AS NOTED
50A	RANGE OUTLET	104mm AFF
30A	DRYER OUTLET	104mm AFF
	HALF-SWITCHED DUPLEX RECEPTACLE	457mm AFF
	DUPLEX RECEPTACLE	CEILING
	JUNCTION BOX	AS NOTED
	CLOCK	2286mm AFF
	MOTOR DISCONNECT SWITCH	1524mm AFF
	COMBINATION MANUAL STARTER	1524mm AFF
	COMBINATION MAGNETIC STARTER	1524mm AFF
	MAGNETIC STARTER	1524mm AFF
	MANUAL MOTOR STARTER OR CONTACTOR	1524mm AFF
	ELECTRICAL MOTOR OR MOTORIZED EQUIPMENT	-
	ELECTRICAL EQUIPMENT OR DEVICE AS NOTED	-
	VFD	-
	CIRCUITING	-
	CONDUIT	-

SYMBOL	DESCRIPTION	MOUNTING / HEIGHT
CONTROLS		
K	KEY PAD	900mm TO 1100mm AS PER OBC 3.8.1.5
C	DOOR CONTACT - SECURITY	T/O DOOR FRAME
ES	ELECTRICAL STRIKE	DOOR LATCH
CR	CARD READER	900mm TO 1100mm AS PER OBC 3.8.1.5
TC	TIME CLOCK	AS NOTED
M	MOTION SENSOR - SECURITY	2440mm AFF
	PUSH BUTTON	AS NOTED
CC	SECURITY CAMERA	AS NOTED
T	THERMOSTAT	1200mm AFF AS PER OBC 3.8.1.5
H	HUMIDISTAT	1200mm AFF AS PER OBC 3.8.1.5
F	FAN SPEED CONTROLLER	1200mm AFF AS PER OBC 3.8.1.5
F	FLOW SWITCH	AS NOTED
S	SUPERVISORY VALVE	AS NOTED
	END OF LINE RESISTOR	2286mm AFF
MD	MOTORIZED DAMPER	AS NOTED
	ELECTRIC HEATER	AS NOTED
	ELECTRIC HEAT TRACING (PIPE OR AREA)	AS NOTED
FIRE ALARM		
	FIRE ALARM MANUAL PULL STATION	1200mm AFF AS PER OBC 3.8.1.5
	FIRE ALARM SIGNAL APPLIANCE 6" OR 10" GONG	2300mm AFF TO TOP CAN/ULC-ULC-S524 - 5.4
	FIRE ALARM HORN/STROBE	2300mm AFF TO TOP CAN/ULC-ULC-S524 - 5.4
	FIRE ALARM HORN/SPEAKER	2300mm AFF TO TOP CAN/ULC-ULC-S524 - 5.4
	FIRE ALARM STROBE	2000mm AFF TO 2400mm CAN/ULC-ULC-S524 - 5.4
	SMOKE DETECTOR	CEILING
	SMOKE DUCT DETECTOR	IN DUCT
	SMOKE ALARM	CEILING
	HEAT DETECTOR 194° FIXED TEMPERATURE	CEILING
	HEAT DETECTOR 135° RATE OF RISE	CEILING
D	ELECTRO-MAGNETIC DOOR HOLD OPEN DEVICE	WALL OR FLOOR
COMMUNICATIONS		
y	TELEPHONE OUTLET (y INDICATES # OF OUTLETS AT THIS LOCATION)	457mm AFF
y	TELEPHONE OUTLET (y INDICATES # OF OUTLETS AT THIS LOCATION)	FLOOR
x	DATA OUTLET (x INDICATES # OF OUTLETS AT THIS LOCATION)	457mm AFF
x	DATA OUTLET (x INDICATES # OF OUTLETS AT THIS LOCATION)	FLOOR
x,y	COMBINATION DATA AND TELEPHONE OUTLET (x = # OF DATA DROPS, y = # OF PHONE DROPS)	457mm AFF
x,y	COMBINATION DATA AND TELEPHONE OUTLET (x = # OF DATA DROPS, y = # OF PHONE DROPS)	FLOOR
	TELEVISION (CABLE) OUTLET	457mm AFF
H	HDMI OUTLET	AS NOTED
S	SOUND SYSTEM SPEAKER OUTLET	CEILING
S	P/A SPEAKER C/W SWITCH	900mm TO 1100mm AS PER OBC 3.8.1.5
H	P/A HORN	2286mm AFF
P	PROGRAM BELL	2286mm AFF
V	SOUND SYSTEM VOLUME CONTROL	900mm TO 1100mm AS PER OBC 3.8.1.5
P	NURSE CALL PATIENT STATION	900mm TO 1100mm AS PER OBC 3.8.1.5
L	NURSE CALL LAVATORY STATION	900mm TO 1100mm AS PER OBC 3.8.1.5
S	NURSE CALL STAFF STATION CONSOLE	-
T	NURSE CALL TUB/SHOWER STATION	900mm TO 1100mm AS PER OBC 3.8.1.5
N	NURSE CALL DOME LIGHT	AS NOTED

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
HOA	HAND OFF AUTO
PL	PILOT LIGHT
HD	HAND DRYER
WG	WIRE GUARD
C	DENOTES MOUNTED ABOVE COUNTER
m	DENOTES MOUNTED IN MILLWORK
WM	WALL MOUNTED
WP	WEATHERPROOF
EM	DENOTES CONNECTED TO EMERGENCY SUPPLY
TL	TWIST LOCK
RA	REVERSE ACTING
FH	MANUAL PULL STATION MOUNTED IN FIRE HOSE CABINET
MD	MOTORIZED DAMPER
EXP	EXPLOSION PROOF
E	EXISTING TO REMAIN
R	EXISTING TO BE REMOVED
E/R	EXISTING TO BE RELOCATED
CLG	CEILING MOUNTED

LEGEND NOTES:

1. THIS IS A STANDARD LEGEND. ALL SYMBOLS MAY NOT NECESSARILY BE USED ON DRAWINGS.
2. STANDARD MOUNTING HEIGHTS SHOWN ON LEGEND SHALL BE USED, UNLESS NOTED OTHERWISE. ALL TRADES TO COORDINATE THESE HEIGHTS PRIOR TO INSTALLATION
3. FOR HEIGHTS THAT ARE NOT DICTATED THROUGH A CODE OR STANDARD, COORDINATE WITH ARCHITECTURAL ELEVATIONS. WHERE A RANGE IS INDICATED, COORDINATE WITH THE ARCHITECTURAL DRAWINGS AND MAINTAIN THE SAME HEIGHT THROUGHOUT THE PROJECT.

GENERAL NOTES:

1. THE ROUTING OF SERVICES SHOWN ARE DIAGRAMMATIC TO SHOW DESIGN INTENT.
2. THE ELECTRICAL DRAWINGS INCLUDE INDICATIVE LAYOUTS FOR SMALL POWER AND SYSTEM DEVICES. THE FINAL LOCATION AND ELEVATION OF ALL ELECTRICAL AND SYSTEM DEVICES TO BE COORDINATED WITH INTERIOR DESIGNER'S/ARCHITECT PACKAGE.
3. REFER TO FF&E DOCUMENTS FOR ELECTRICAL AND SYSTEM REQUIREMENTS.
4. CONTRACTOR SHALL IDENTIFY AND LABEL CLEARLY ALL CIRCUITS, WIRING, SERVICES, JUNCTION BOXES, PULL BOXES, DEVICES AND EQUIPMENT INSTALLED AND CONNECTED UNDER THE SCOPE OF WORK OF THIS PROJECT. IDENTIFICATION SHALL BE OF AS PER OWNER REQUIREMENTS AND ALL MARKING SHALL BE OF NON-ERASABLE LAMACOID TYPE. COORDINATE ALL LABELING WITH THE OWNER AND CONSULTANTS.
5. CONTRACTOR TO INCLUDE FOR PAYMENT OF REQUIRED PERMITS, FEE, LICENSE, CERTIFICATES OF INSPECTION ETC., IF REQUIRED.
6. WIRING AND CABLES EXPOSED WITHIN THE CEILING SPACES SHALL CONFORM TO THE PLENUM REQUIREMENTS OF ONTARIO BUILDING CODE SENTENCE 3.6.4.3(1).
7. CABLE SIZES INDICATED ON DRAWINGS ARE THE MINIMUM SIZES AND SHALL BE INCREASED BASED ON ACTUAL ROUTING AND VOLTAGE DROP.

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File Name: NTB - 24005495 - Electrical Title Sheet

Project Title

ONTC PARKING LOT EXPANSION

567 WALLACE RD
NORTH BAY, ON
P1A 0E6

Dwg. Title

ELECTRICAL - TITLE SHEET

Project No. NTB-24005495-00

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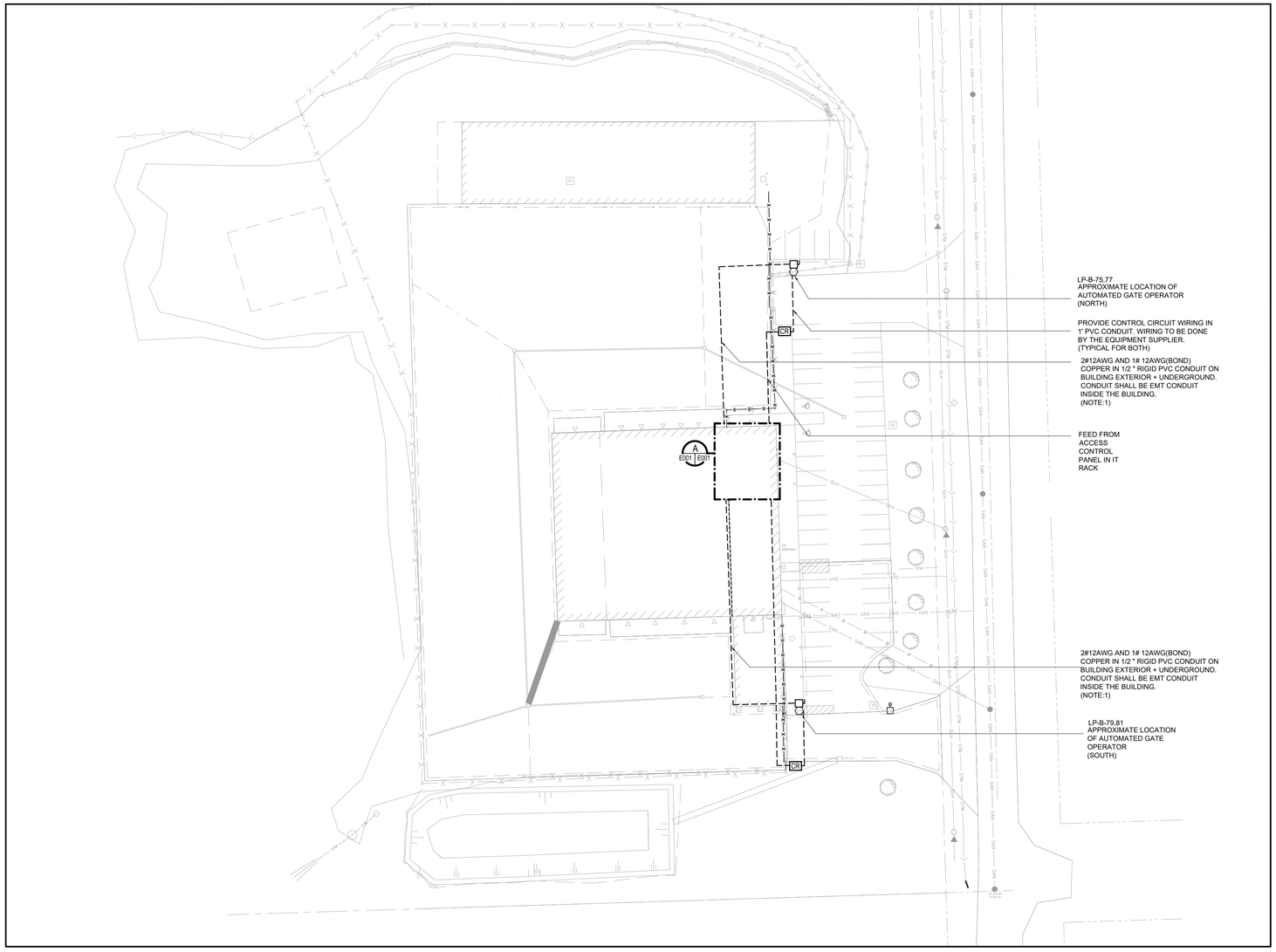

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ELECTRICAL- SITE PLAN

PANEL LP-B (EXISTING)		100A		120/208V		3 PHASE 4 WIRE	
ELECTRICAL ROOM FED FROM LP-B		BREAKER	CIRCUIT	CIRCUIT	BREAKER		
EXISTING LOAD		15	1	2	15		EXISTING LOAD
EXISTING LOAD		15	3	4	15		EXISTING LOAD
EXISTING LOAD		15	5	6	15		EXISTING LOAD
EXISTING LOAD		15	7	8	15		EXISTING LOAD
EXISTING LOAD		15	9	10	15		EXISTING LOAD
EXISTING LOAD		15	11	12	15		EXISTING LOAD
EXISTING LOAD		15	13	14	15		EXISTING LOAD
EXISTING LOAD		15	15	16	15		EXISTING LOAD
EXISTING LOAD		15	17	18	15		EXISTING LOAD
EXISTING LOAD		15	19	20	15		EXISTING LOAD
EXISTING LOAD		15	21	22	15		EXISTING LOAD
EXISTING LOAD		15	23	24	15		EXISTING LOAD
EXISTING LOAD		15	25	26	15		EXISTING LOAD
EXISTING LOAD		15	27	28	15		EXISTING LOAD
EXISTING LOAD		15	29	30	15		EXISTING LOAD
			31	32	15		EXISTING LOAD
EXISTING LOAD		15	33	34	15		EXISTING LOAD
EXISTING LOAD		15	35	36	15		EXISTING LOAD
EXISTING LOAD		60	37	38	15		EXISTING LOAD
			39	40	15		EXISTING LOAD
			41	42			
EXISTING LOAD		15	43	44	15		EXISTING LOAD
			45	46			
			47	48	15		EXISTING LOAD
EXISTING LOAD		15	49	50	15		EXISTING LOAD
			51	52	15		EXISTING LOAD
			53	54	15		EXISTING LOAD
EXISTING LOAD		15	55	56			
			57	58	30		EXISTING LOAD
			59	60			
EXISTING LOAD		15	61	62	15		EXISTING LOAD
EXISTING LOAD		15	63	64	15		EXISTING LOAD
EXISTING LOAD		15	65	66	15		EXISTING LOAD
EXISTING LOAD		15	67	68	15		EXISTING LOAD
EXISTING LOAD		15	69	70	15		EXISTING LOAD
EXISTING LOAD		15	71	72	15		EXISTING LOAD
EXISTING LOAD		15	73	74	15		EXISTING LOAD
AUTOMATED GATE CONTROLLER (NORTH)		30	75	76	15		EXISTING LOAD
			77	78	15		EXISTING LOAD
AUTOMATED GATE CONTROLLER (SOUTH)		30	79	80			SPACE
			81	82			SPACE
SPACE			83	84			SPACE

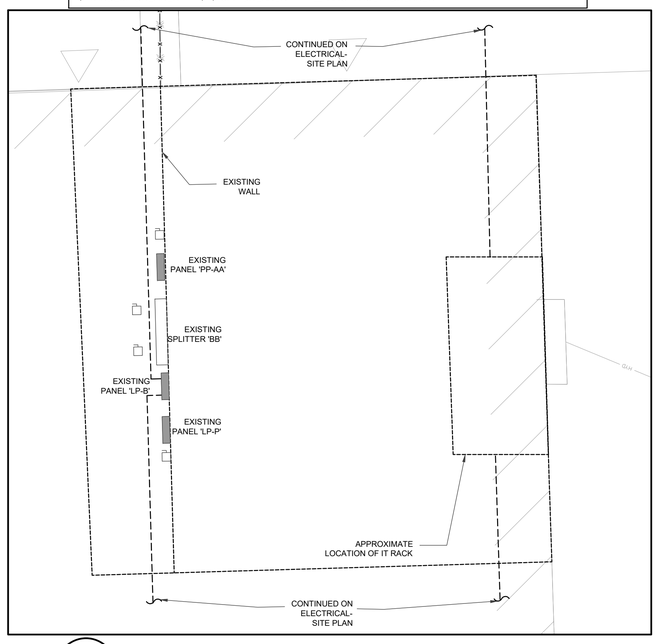
✳ TANDEM BREAKER ✳✳ GFI BREAKER ■ ARC FAULT BREAKER

GENERAL NOTES:

1. THE ROUTING OF SERVICES SHOWN ARE DIAGRAMMATIC TO SHOW DESIGN INTENT.
2. COORDINATE FINAL ELECTRICAL CONDUIT ROUTING WITH SITE CONDITIONS AND GENERAL CONTRACTOR.
3. ANY WALL AND ROOF PENETRATIONS SHALL BE FIRE-CAULKED TO MATCH THE EXISTING FIRE PROTECTION RATING.
4. CONTRACTOR SHALL PROVIDE APPROPRIATELY RATED JUNCTION BOXES TO TRANSITION FROM EMT TO PVC WHEN EXITING THE BUILDING.
5. PROVIDE ROUGH INS FOR CARD READER. WIRING FROM ACCESS CONTROL PANEL TO THE GATE CONTROLLERS SHALL BE DONE BY FACILITY SECURITY VENDOR.

DRAWING NOTES:

1. UNDERGROUND DUCT BANK CARRYING PVC CONDUIT OUTSIDE THE BUILDING SHALL BE BURIED ACCORDING TO APPENDIX D(TABLE D11) OF THE OESC, THE EMT CONDUIT TO BE ROUTED INSIDE THE BUILDING THROUGH THE CEILING SPACE OR CORRIDOR.



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ENLARGED SITE PLAN-POWER

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Project Title

ONTC PARKING LOT EXPANSION
567 WALLACE RD
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P1A 0E6

Dwg. Title

ELECTRICAL - SITE PLAN

Project No. NTB-24005495-00

Dwg. No. E-001

Rev. No. 1

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