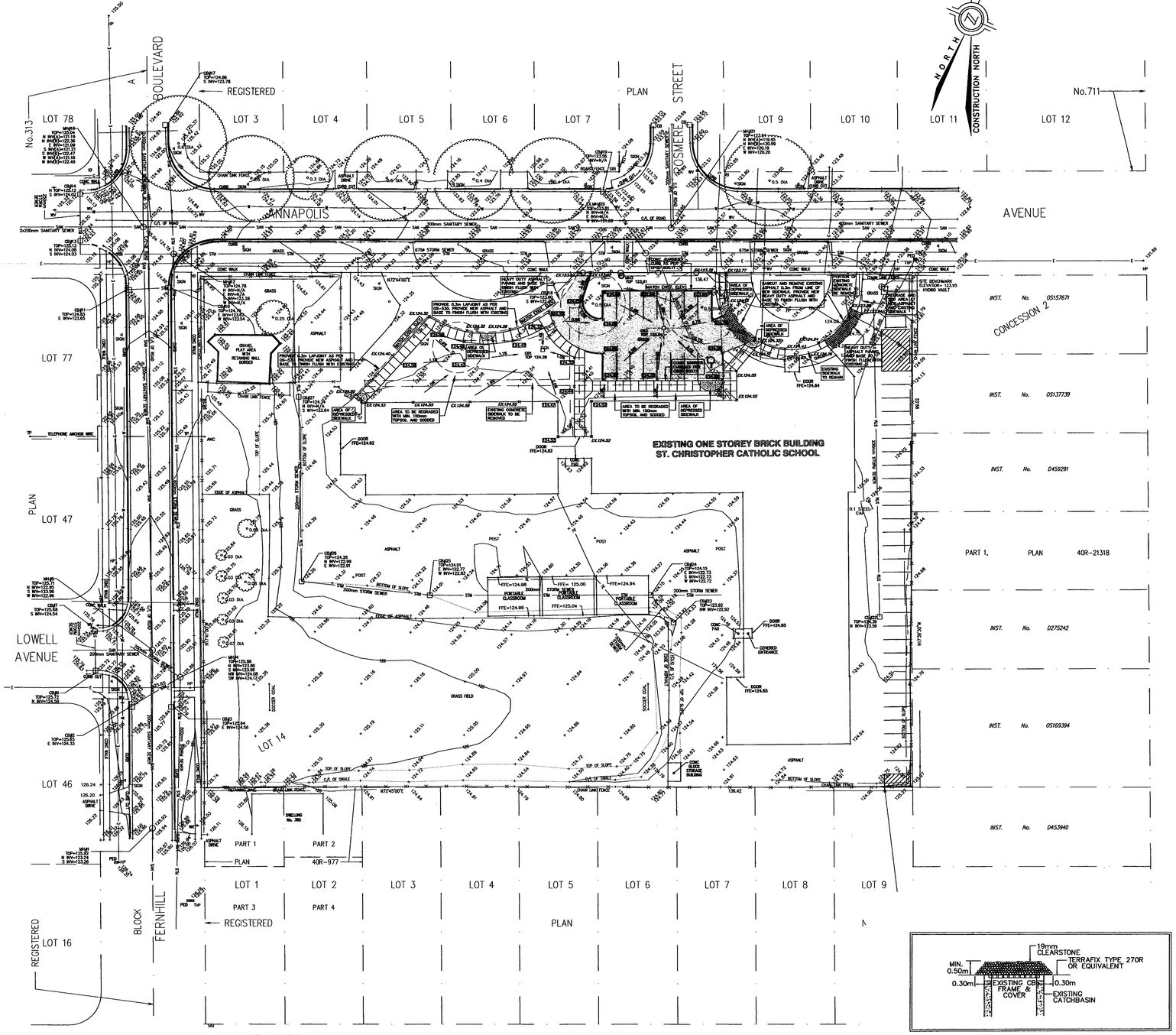
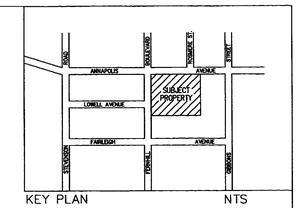




GENERAL NOTES:

1. FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE STANDARD DRAWINGS REFERRED TO ON THE PLANS. THOSE PREFIXED BY 'OS' ARE CITY OF OSHAWA STANDARD DRAWINGS; THOSE PREFIXED BY 'S' ARE REGION OF DURHAM STANDARD DRAWINGS. FOR ALL CONSTRUCTION DETAILS NOT REFERRED TO ON THE DRAWINGS, REFERENCE SHALL BE MADE TO THE DESIGN STANDARDS OF THE CITY OF OSHAWA, THE REGION OF DURHAM AND OPSD.
2. DIMENSIONS AND ELEVATIONS ARE IN METRES.
3. PIPE SIZES ARE IN MILLIMETRES.
4. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION AND IF THERE ARE ANY DISCREPANCIES, CONTRACTOR IS TO NOTIFY THE ENGINEER.
5. EXISTING UTILITIES AND SERVICES SHOWN ON THE DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. GAS, HYDRO, TELEPHONE OR ANY OTHER UTILITIES THAT MAY EXIST ON THE SITE OR WITHIN THE STREETLINES, MUST BE LOCATED BY ITS OWN UTILITY AUTHORITY AND VERIFIED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED TO EXISTING UTILITIES DURING CONSTRUCTION.
6. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS".
7. NO ORGANIC MATERIAL SHALL BE USED AS BACKFILL. ALL TRENCHES TO BE BACKFILLED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
8. THE CONTRACTOR SHALL VERIFY THE BENCHMARK WITH THE CITY OF OSHAWA PRIOR TO CONSTRUCTION.
9. ALL SITE SERVICING WORK TO BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO PLUMBING CODE.
10. A MINIMUM OF 0.25m SHALL BE PROVIDED BETWEEN THE OUTSIDE OF THE PIPE BARRELS AT THE POINT OF CROSSING FOR STORM AND SANITARY SEWERS. A MINIMUM OF 0.50m SHALL BE PROVIDED BETWEEN THE OUTSIDE OF THE PIPE BARRELS AT THE POINT OF CROSSING FOR ALL SEWERS AND WATERMAINS.
11. THE CONTRACTOR SHALL CARRY OUT T.V. CAMERA INSPECTIONS FOR ALL SEWERS INSTALLED UNDER THIS CONTRACT. THE CAMERA CAN EITHER BE PULLED OR SELF-PROPELLED THROUGH THE PIPES. THE EQUIPMENT IS TO HAVE FEATURES TO ENABLE CLOSER EXAMINATION OF FAULTS AND TO VIEW UP LATERAL CONNECTIONS. THE EQUIPMENT IS TO PROVIDE "MEASURED" LOCATION OF THE CAMERA RELATIVE TO MANHOLES IN ORDER TO LOCATE FAULTS, LATERALS, ETC. ALL VIDEO CASSETTES/DVD'S SHALL BE SUBMITTED DIRECTLY TO MMM GROUP ALONG WITH A WRITTEN REPORT OF ANY PROBLEM AREAS

EROSION AND SEDIMENT CONTROL NOTES:

1. SILTATION CONTROL FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SILTATION CONTROL DEVICES IN GOOD WORKING CONDITIONS AT ALL TIMES. CONTRACTOR SHALL INSPECT SUCH DEVICES REGULARLY AND AFTER EACH RAINFALL EVENT.
3. SEDIMENT TO BE REMOVED FROM BEHIND SILT FENCES WHEN IT IS ONE THIRD TO HALF WAY UP THE FILTER CLOTH.
4. TEMPORARY CATCHBASIN SILTATION CONTROL DEVICES SHALL BE INSTALLED IN ALL CATCHBASINS AND CATCHBASIN MANHOLES AS PER 'TEMPORARY SILTATION CONTROL DEVICE (CATCHBASINS)' DETAIL ON THIS DRAWING.

LEGEND

- PROPOSED ELEVATION
- EXISTING ELEVATION
- PROPOSED STORM CATCHBASIN
- PROPOSED STORM MANHOLE
- EXISTING MANHOLE
- SILTATION CONTROL FENCE
- PROPOSED SUBDRAIN

NOTES:

LOCATION OF BURIED UTILITIES ARE BASED UPON MARKINGS FOUND ON-SITE. ORIGIN AND AGE OF MARKINGS ARE UNKNOWN. CONTRACTOR TO VERIFY LOCATION OF ACTUAL UTILITIES PRIOR TO CONSTRUCTION.

BENCH MARK:

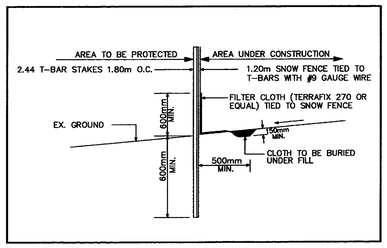
CITY OF OSHAWA BENCHMARK No. 32
ELEVATION = 124.803m (GEODETIC)
WEST SIDE GIBBONS STREET, SOUTH OF ANNAPOLIS AVENUE. PLAQUE TO SOUTHEAST CORNER BOTTOM OF FOUNDATION OF HOUSE No.368 GIBBONS STREET.

SITE BENCHMARK

NORTHWEST CORNER OF HYDRO VAULT PAD LOCATED AT THE NORTHEAST CORNER OF SUBJECT PROPERTY.

ELEVATION = 123.95

TEMPORARY SILTATION CONTROL DEVICE (CATCHBASINS)
N.T.S.



SILTATION CONTROL FENCE
N.T.S.

No.	DATE	REVISION	BY

APPROVED

PLANNING AND DEVELOPMENT SERVICES P.ENG.
CITY OF OSHAWA
DATE

THE CORPORATION OF THE CITY OF OSHAWA

SITE GRADING PLAN

MMM GROUP
Suite 201 - 791 Rossland Road East
Whitby, ON L1N 8Y9
t. 905.668.3022
f. 905.668.9443
www.mmm.ca

PROFESSIONAL ENGINEERS ASSOCIATION OF ONTARIO

PROJECT No.:	10-08633
DRAWN BY:	CADD
DESIGNED BY:	S.W.
CHECKED BY:	C.A.R.
DATE:	JANUARY 2009

ST. CHRISTOPHER CATHOLIC SCHOOL

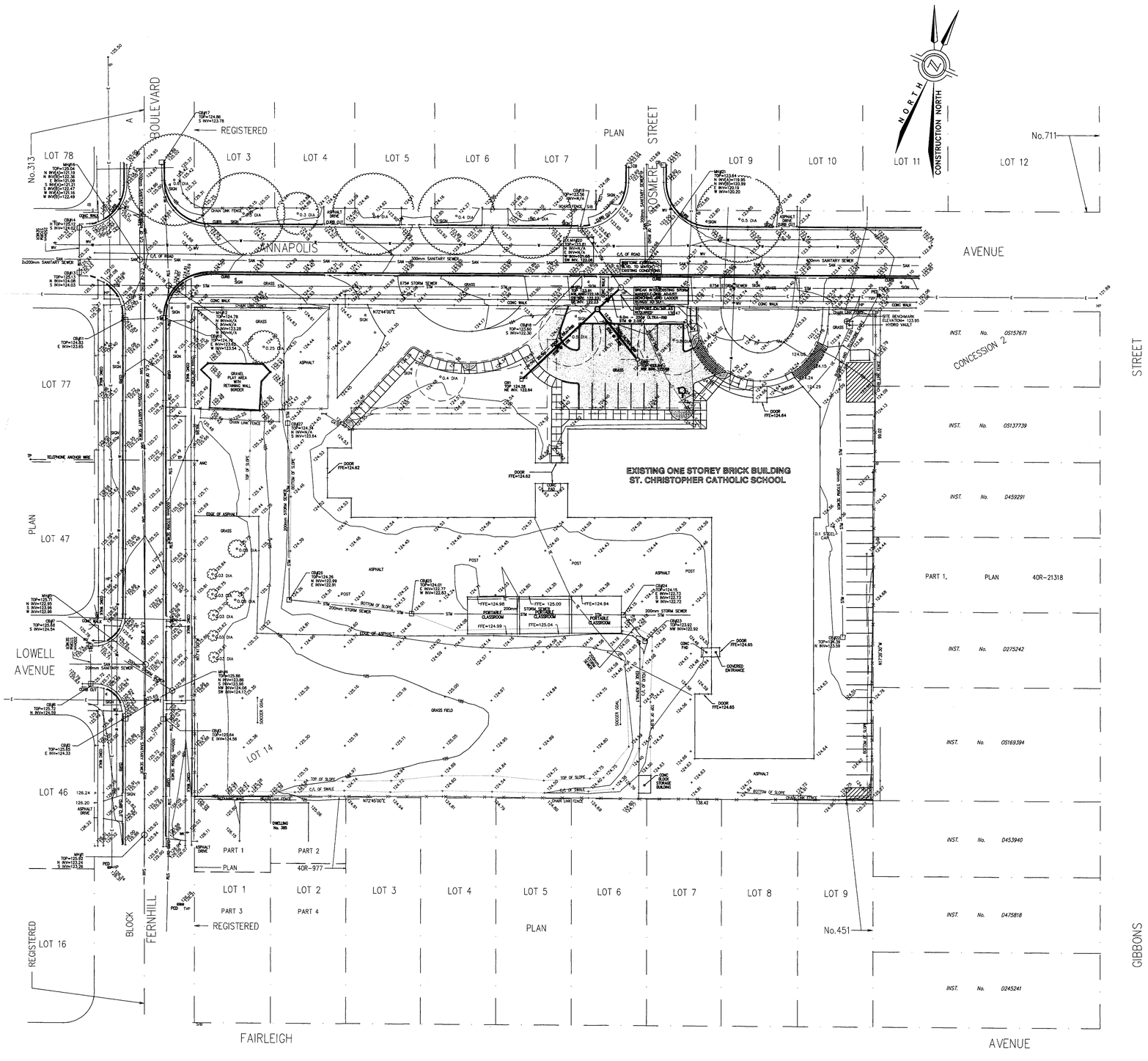
SACCOCCIO WEPPLER ARCHITECTS INC
215 MORRISH ROAD WEST HILL ONTARIO
(416) 282 - 1197 FAX (416) 282 - 7697

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME, REPORTING ANY DISCREPANCIES TO THE ARCHITECT BEFORE COMMENCING THE WORK.

PRINTS ARE NOT TO BE SCALED.

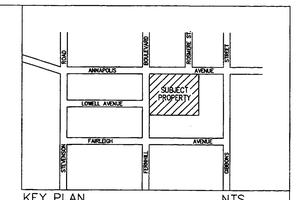
ALTERATIONS TO
ST. CHRISTOPHER CATHOLIC SCHOOL
431 ANNAPOLIS AVENUE OSHAWA
DURHAM CATHOLIC DISTRICT SCHOOL BOARD

DATE	DRAWN	SCALE	JOB No	DRAWING No
DEC 2008	CADD	1:300	10-08633	GR-1



GENERAL NOTES:

1. FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE STANDARD DRAWINGS REFERRED TO ON THE PLANS. THOSE PREFIXED BY 'OS' ARE CITY OF OSHAWA STANDARD DRAWINGS; THOSE PREFIXED BY 'S' ARE REGION OF DURHAM STANDARD DRAWINGS. FOR ALL CONSTRUCTION DETAILS NOT REFERRED TO ON THE DRAWINGS, REFERENCE SHALL BE MADE TO THE DESIGN STANDARDS OF THE CITY OF OSHAWA, THE REGION OF DURHAM AND OPSD.
2. DIMENSIONS AND ELEVATIONS ARE IN METRES.
3. PIPE SIZES ARE IN MILLIMETRES.
4. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION AND IF THERE ARE ANY DISCREPANCIES, CONTRACTOR IS TO NOTIFY THE ENGINEER.
5. EXISTING UTILITIES AND SERVICES SHOWN ON THE DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING SERVICES AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. GAS, HYDRO, TELEPHONE OR ANY OTHER UTILITIES THAT MAY EXIST ON THE SITE OR WITHIN THE STREETLINES, MUST BE LOCATED BY ITS OWN UTILITY AUTHORITY AND VERIFIED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED TO EXISTING UTILITIES DURING CONSTRUCTION.
6. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS".
7. NO ORGANIC MATERIAL SHALL BE USED AS BACKFILL. ALL TRENCHES TO BE BACKFILLED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
8. THE CONTRACTOR SHALL VERIFY THE BENCHMARK WITH THE CITY OF OSHAWA PRIOR TO CONSTRUCTION.
9. ALL SITE SERVICING WORK TO BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO PLUMBING CODE.
10. A MINIMUM OF 0.25m SHALL BE PROVIDED BETWEEN THE OUTSIDE OF THE PIPE BARRELS AT THE POINT OF CROSSING FOR STORM AND SANITARY SEWERS. A MINIMUM OF 0.50m SHALL BE PROVIDED BETWEEN THE OUTSIDE OF THE PIPE BARRELS AT THE POINT OF CROSSING FOR ALL SEWERS AND WATERMAINS.
11. THE CONTRACTOR SHALL CARRY OUT T.V. CAMERA INSPECTIONS FOR ALL SEWERS INSTALLED UNDER THIS CONTRACT. THE CAMERA CAN EITHER BE PULLED OR SELF-PROPELLED THROUGH THE PIPES. THE EQUIPMENT IS TO HAVE FEATURES TO ENABLE CLOSER EXAMINATION OF FAULTS AND TO VIEW UP LATERAL CONNECTIONS. THE EQUIPMENT IS TO PROVIDE "MEASURED" LOCATION OF THE CAMERA RELATIVE TO MANHOLES IN ORDER TO LOCATE FAULTS, LATERALS, ETC. ALL VIDEO CASSETTES/DVD'S SHALL BE SUBMITTED DIRECTLY TO MMM GROUP ALONG WITH A WRITTEN REPORT OF ANY PROBLEM AREAS
12. STORM SEWERS
    - ALL STORM SEWER MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO CURRENT CITY OF OSHAWA STANDARDS AND SPECIFICATIONS.
    - ULTRA-RIB PVC SEWER PIPE UP TO AND INCLUDING 375ø DIAMETER SHALL CONFORM TO CSA SPECIFICATIONS B182.4 OR LATEST AMENDMENT UNLESS OTHERWISE NOTED.
    - STORM SEWERS AND C.B. LEADS TO BE FITTED WITH APPROVED RUBBER GASKET JOINTS.
    - SINGLE CATCHBASINS TO BE PRECAST AS PER OPSD-705.010, DOUBLE CATCHBASINS TO BE PRECAST AS PER OPSD-705.020. FRAME AND GRATE AS PER OPSD-400.020.
    - CATCHBASIN CONNECTION DETAIL AS PER OPSD-708.03 (FLEXIBLE PIPE SEWER).
    - PVC LEADS AS PER OPSD-1006.02, SDR-28.
    - BEDDING FOR PVC STORM PIPES SHALL BE CLASS "P" BEDDING AS PER REGIONAL STANDARD S-401.
    - ALL STORM MAINTENANCE HOLES TO BE PRECAST CONCRETE (1200mm DIA. AS PER OPSD-701.010), UNLESS OTHERWISE NOTED.
    - MAINTENANCE HOLE COVER AS PER OPSD-401.01.
    - ALL STORM MAINTENANCE HOLES SHALL BE BENCHED TO THE OBVERT OF THE OUTLET PIPE.



KEY PLAN NTS

LEGEND

- □ CB1 — PROPOSED STORM CATCHBASIN
- O MH3 — PROPOSED STORM MANHOLE
- ○ — EXISTING MANHOLE
- ----- — PROPOSED SUBDRAIN

NOTES:

LOCATION OF BURIED UTILITIES ARE BASED UPON MARKINGS FOUND ON-SITE. ORIGIN AND AGE OF MARKINGS ARE UNKNOWN. CONTRACTOR TO VERIFY LOCATION OF ACTUAL UTILITIES PRIOR TO CONSTRUCTION.

BENCH MARK:

CITY OF OSHAWA BENCHMARK No. 32
ELEVATION = 124.803m (GEODETIC)
WEST SIDE GIBBONS STREET, SOUTH OF ANNAPOLIS AVENUE. PLAQUE TO SOUTHEAST CORNER BOTTOM OF FOUNDATION OF HOUSE No.368 GIBBONS STREET.

SITE BENCHMARK

NORTHWEST CORNER OF HYDRO VAULT PAD LOCATED AT THE NORTHEAST CORNER OF SUBJECT PROPERTY.

ELEVATION = 123.95

No.	DATE	REVISION	BY

APPROVED

PLANNING AND DEVELOPMENT SERVICES P.ENG.
CITY OF OSHAWA
DATE

THE CORPORATION OF THE CITY OF OSHAWA

SITE SERVICING PLAN

MMM GROUP
Suite 201 - 701 Rossland Road East
Whitby, ON L1N 8Y9
t. 905.668.3022
f. 905.668.9443
www.mmm.ca

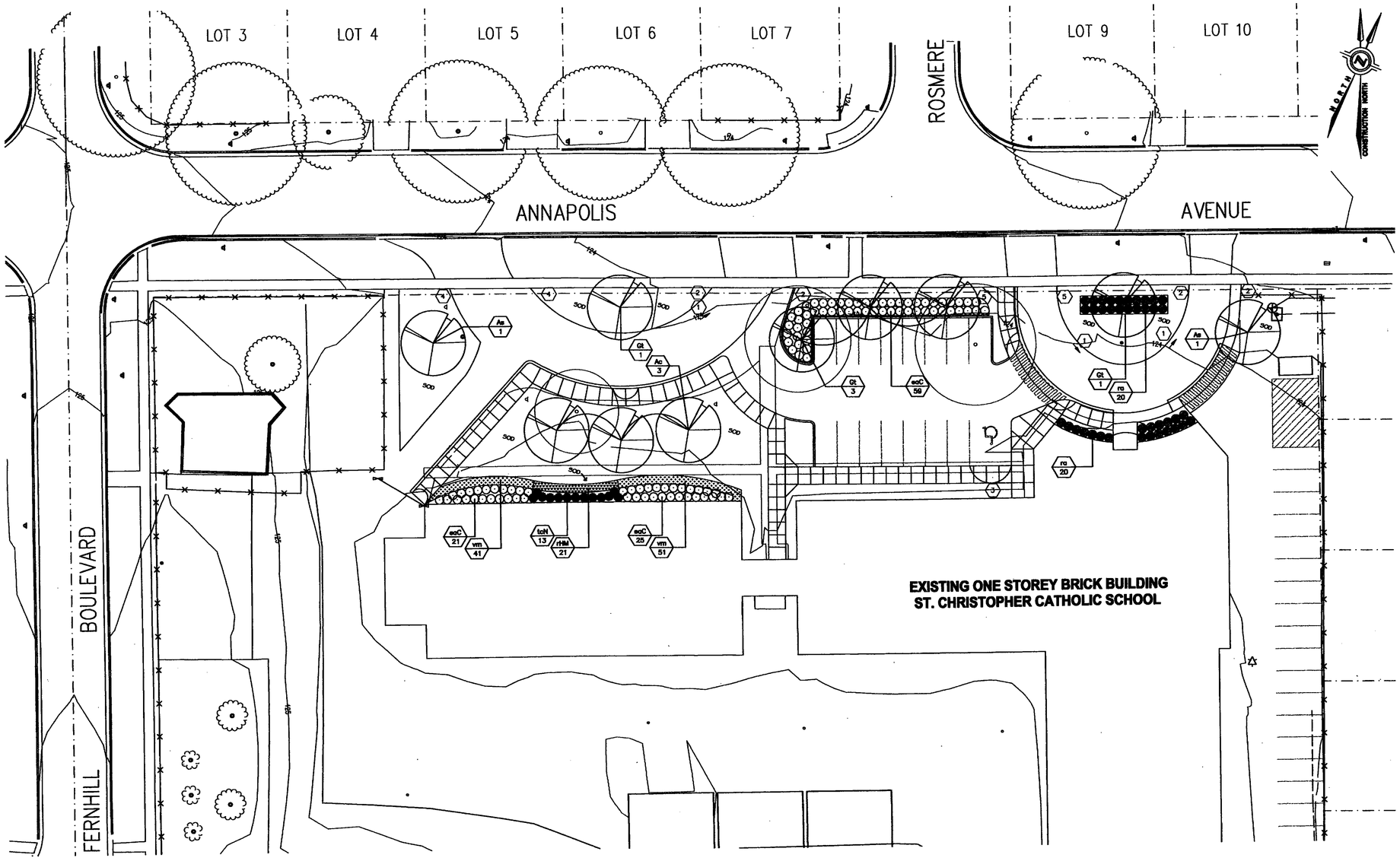
PROJECT No.: 10-08633
DRAWN BY: CADD
DESIGNED BY: S.W.
CHECKED BY: C.A.R.
DATE: JANUARY 2009

ST. CHRISTOPHER CATHOLIC SCHOOL

SACCOCCIO WEPPLER ARCHITECTS INC
215 MORRISH ROAD WEST HILL ONTARIO
(416) 282 - 1197 FAX (416) 282 - 7697

ALTERATIONS TO
ST. CHRISTOPHER CATHOLIC SCHOOL
431 ANNAPOLIS AVENUE OSHAWA
DURHAM CATHOLIC DISTRICT SCHOOL BOARD

DATE	DRAWN	SCALE	JOB No	DRAWING No
DEC 2008	CADD	1:300	10-08633	SS-1



LANDSCAPE SPECIFICATIONS

GENERAL

- CONTRACTOR TO CHECK ALL QUANTITIES.
- REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.
- THE QUANTITIES INDICATED ON THE PLAN SUPERSEDE THE TOTALS OF THE PLANT LIST.

DELIVERY AND INSPECTION

- SPRAY ALL PLANT MATERIAL WITH ANTI DESICCANT PRIOR TO TRANSPORT.
- KEEP ALL ROOTS AND ROOTBALLS MOIST PRIOR TO PLANTING. OBTAIN LANDSCAPE ARCHITECTS APPROVAL ON ALL PLANT MATERIAL AT SOURCE OR UPON DELIVERY, PRIOR TO COMMENCEMENT OF PLANTING WORK.
- APPROVAL OF PLANT MATERIAL PRIOR TO PLANTING SHALL NOT IMPAIR THE RIGHT OF THE LANDSCAPE ARCHITECT TO REJECT PLANTS AFTER PLANTING, WHICH HAVE BEEN DAMAGED, OR WHICH IN ANY WAY DO NOT CONFORM TO THE SPECIFICATIONS.
- SUBSTITUTIONS OF SIZE, OR WITH OTHER PLANT MATERIAL WILL ONLY BE ALLOWED WITH THE WRITTEN APPROVAL OF THE CONSULTANT.
- ALL MATERIAL MUST CONFORM TO THE SIZES SHOWN ON THE PLANT LIST, EXCEPT WHERE LARGER PLANT MATERIAL IS USED WHEN APPROVED BY THE CONSULTANT. USE OF LARGER PLANTS WILL NOT INCREASE THE CONTRACT PRICE. UNDERSIZED MATERIAL WILL BE REJECTED.
- ALL SHRUBS AND TREES SHALL CONFORM TO THE PRESENT STANDARDS OF THE CANADIAN NURSERY TRADES ASSOCIATION FOR SIZE AND SPECIES.
- PLANTS ARE TO BE NURSERY GROWN UNDER PROPER CULTURAL CONDITIONS, IN PARTICULAR WITH RESPECT TO SPACING, PEST AND DISEASE CONTROL, AND BRANCH AND ROOT PRUNING.
- TREES ARE TO HAVE STRAIGHT STURDY TRUNKS.
- TREES SHALL BE WELL BRANCHED AND BALANCED WITH A STRONG CENTRAL LEADER.
- DECIDUOUS SHADE TREES SHALL BE FREE OF BRANCHES NOT LESS THAN 1.8M ABOVE THE GROUND.

TOPSOIL

- ALL AREAS NOT DESIGNATED FOR HARD SURFACE SHALL RECEIVE 150mm TOPSOIL.
- MIX TOPSOIL AS RECOMMENDED BY SOIL TEST RESULTS AND RECOMMENDATIONS OF SOIL TESTING AGENCY.
- TOPSOIL SHALL NOT BE USED TO CONSTRUCT PERMANENT BERMS.
- ALL TOPSOIL SHOULD BE FREE OF SUBSOILS, CLAY, STONES, ROOTS, EXCESS WATER, FROST AND OTHER EXTRANEOUS MATTER.

RUBBER CRUMB AMENDMENT

- 5mm DIAMETER RUBBER CRUMBS SHALL BE LESS THAN 50% FROM RECYCLING SOURCE.
- IN AMENDED AREAS, TOPSOIL SHALL BE 80%, RUBBER CRUMBS 20%.
- THE AMENDED TOPSOIL SHALL BE MIXED PRIOR TO PLACEMENT AND COMPACTED TO 85% S.P.D.
- SOD SHALL COVER ENTIRE FIELD AND ROLLED.

UTILITIES

- CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES ON THE SITE.
- CONTRACTOR MUST CHECK & VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB, REPORTING ALL DISCREPANCIES TO THE LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
- CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO EXISTING SERVICES WHEN EXCAVATING.

PREPARATION AND INSTALLATION

- PREPARE PLANTING BEDS PRIOR TO ARRIVAL OF PLANT MATERIAL ON SITE.
- EXCAVATE PER PLANTING DETAILS.
- PREPARE PLANTING SOIL BY EVENLY MIXING:
  - 6 PARTS GOOD QUALITY TOPSOIL
  - TWO PARTS WELL ROTTED COW MANURE
  - ONE PART PEAT MOSS
  - 0.6 KILOS OF BONEMEAL PER CUBIC METRE

PER CUBIC METRE

THE FOREGOING RATES ARE SUBJECT TO CHANGE UPON RECEIPT OF TOPSOIL ANALYSES.

GUARANTEE AND FINAL INSPECTION

- AT THE COMPLETION OF PLANTING OPERATIONS, REMOVE ALL SURPLUS MATERIAL FROM THE SITE AT NO EXTRA COST.
- MAKE GOOD ALL DAMAGE RESULTING FROM PLANTING OPERATIONS AT NO EXTRA COST.
- SHRUBS SHALL BE GUARANTEED FOR A MINIMUM OF TWO YEARS FROM THE ISSUE DATE OF THE CERTIFICATE OF COMPLETION.
- ALL PLANTS SHALL BE INSPECTED AT THE END OF THE GUARANTEE PERIOD. PLANTS WHICH, AT THAT TIME, ARE NOT IN HEALTHY VIGOROUS GROWING CONDITION, TO THE CONSULTANTS APPROVAL, SHALL BE REPLACED AT NO EXTRA CHARGE.

SOD AND FERTILIZING

- SOD SHALL BE No. 1 CERTIFIED CULTIVATED TURF GRASS. 50% MERION AND 50% KENTUCKY BLUE (OR APPROVED EQUAL).
- ALL SOD SHALL BE GUARANTEED FOR 3 MONTHS FROM DATE OF SUBSTANTIAL PERFORMANCE.
- SODDING SHALL CONFORM TO LANDSCAPE ONTARIO'S 'GENERAL LANDSCAPE SPECIFICATIONS'.
- TOPSOIL SHALL BE EVENLY SPREAD OVER SUBGRADE AND LOOSELY COMPACTED TO 150mm MINIMUM DEPTH.
- ALL STONES AND DEBRIS OVER 25mm DIA. SHALL BE REMOVED. TOPSOIL SHALL BE SUPPLEMENTED WITH A 10-6-4 FERTILIZER AND 50% SUPERPHOSPHATE APPLIED AT A RATE OF 5 KILOS PER 100 SQUARE METRES PLACED, PRIOR TO PLACEMENT OF SOD.
- SOD SHALL BE PLACED WITH STAGGERED BUTT JOINTS, WATERED THOROUGHLY, AND ROLLED WHEN DRY.
- LAY SOD SECTIONS PERPENDICULAR ON SLOPED GREATER THAN 5:1 AND SECURE WITH WOODEN PEGS. WOODEN PEGS TO BE 17 X 17 X 300mm. PLACE PEGS 3 PER SQUARE METRE, 100mm BELOW TOP EDGE TO PREVENT SHIFTING OF SOD AND DRIVE PEGS FLUSH WITH TOP OF SOD SOIL. PROVIDE A MINIMUM OF 2 STAKES PER ROLL OF SOD.
- MAINTAIN SODDED AREA FROM THE TIME OF INSTALLATION UNTIL THIRTY (30) CALENDAR DAYS AFTER ALL SODDED AREAS HAVE BEEN INSPECTED BY THE CONSULTANT AND A CERTIFICATE OF COMPLETION IS ISSUED.

- MAINTENANCE SHALL INCLUDE ALL NECESSARY MEASURES TO ESTABLISH AND MAINTAIN GRASS IN A HEALTHY, VIGOROUS GROWING CONDITION.
- MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING WORK:
  - a) MOWING AT REGULAR INTERVALS TO MAINTAIN A MAXIMUM HEIGHT OF 60mm. DO NOT CUT MORE THAN 1/3 OF THE GRASS HEIGHT AT ANY ONE MOWING. TRIM AND CUT EDGES. REMOVE CUTTINGS AFTER MOWING AND TRIMMING.
  - b) WATERING WHEN REQUIRED IN SUFFICIENT QUANTITIES AND AT A FREQUENCY TO PREVENT SOD FROM DRYING OUT AND TO MAINTAIN SOIL UNDER SOD CONTINUOUSLY MOIST TO A DEPTH OF 75 TO 100mm.
  - c) FERTILIZE SODDED AREAS ONE MONTH AFTER SODDING WITH 5:1:1 RATIO FERTILIZER. SPREAD EVENLY AT A RATE AS PER MANUFACTURERS INSTRUCTIONS AND WATER IN WELL WITH A MINIMUM OF 50mm INFILTRATION AS PREVIOUSLY MENTIONED.

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — OALA — MEMBER

LEGEND

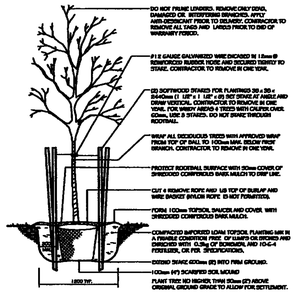
PROPOSED TREES

PROPOSED SHRUBS

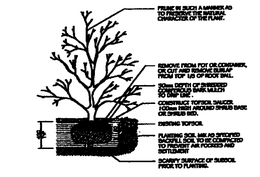
PLANT LIST *

KEY	QTY	COMMON NAME	BOTANICAL NAME	CALIPER	HEIGHT	SPACE	CONDITION
DECIDUOUS TREES							
Ac	3	AMELANCHIER CANADENSIS	SERVICEBERRY	50	-	-	B& MULTI-STEM MIN 5 CANES
As	2	ACER SACCHARUM	SUGAR MAPLE	60	-	-	B&
Gt	5	GLEDITSIA TRIACANTHOS V. INERMIS	HONEYLOCUST	60	-	-	B&
DECIDUOUS SHRUBS							
aaC	105	EUONYMOUS ALATUS 'COMPACTUS'	DWARF BURNING BUSH	-	600	1000	#7
rs	40	RHUS AROMATICA	FRAGRANT SUMAC	-	600	1500	#7
EVERGREEN SHRUBS							
tcN	13	TAXUS X CUSPIDATA 'NANA'	WARD'S JAPANESE YEW	-	-	750	#7
GROUNDCOVERS AND VINES							
HEM	21	HEMEROCALLIS 'RED MAGIC'	'RED MAGIC' DAYLILY	-	-	PER PLAN	2 YEAR GROWTH
vm	92	VINCA MINOR	PERIWINKLE			300	

* ALL PLANT MATERIAL MUST BE WELL BRANCHED



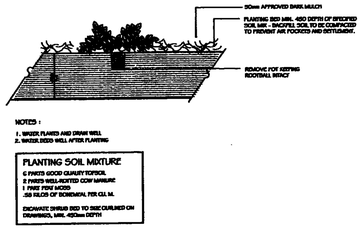
1 L-1 DECIDUOUS TREE
SCALE: NTS



NOTES :
1. PLANTING METHOD ILLUSTRATED SHALL APPLY EQUALLY TO SHRUB - ROOT AND BALLED STOCK.
2. SET SHRUBS 300mm INSIDE, THAN SURROUNDING GRADE TO ALLOW FOR SETTLEMENT.
3. THE ABOVE DETAIL DOES NOT REPRESENT ANY PARTICULAR SPECIES.
4. SHRUBS PLANTED IN GROUPS SHALL BE SET IN CONTINUOUS BEDS.
5. ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
6. FOR SHRUB PLANTING ON SLOPE CONDITIONS, INSTALL IN SIMILAR MANNER AS "DECIDUOUS TREE PLANTING ON SLOPE", REFER TO DETAIL.

BALLED AND BURLAPPED

2 L-1 SHRUB PLANTING DETAIL
SCALE: NTS



NOTES :
1. SPACES PLANTED AND DRAWN WELL
2. SPACE BEDS WELL AFTER PLANTING

PLANTING SOIL MIXTURE
6 PARTS GOOD QUALITY TOPSOIL
2 PARTS WELL-ROTTED COW MANURE
1 PART PEAT MOSS
.06 KILOS OF BONEMEAL PER CU. M.

EXCAVATE SHRUB BED TO SIDE OUTLINED ON DRAWINGS, MIN. 450mm DEPTH

3 L-1 GROUNDCOVER PLANTING
SCALE: NTS

No.	DATE	REVISION	BY

MMM GROUP
100 Commerce Valley Dr. West
Thornhill, Ont. L3T 0A1
Ph: 905-882-1100; F: 905-882-0055
www.mmm.ca

APPROVALS

CITY OF OSHAWA

REGION OF DURHAM WORKS DEPARTMENT

DATE

PART

SHEETS OF

DEPARTMENT OF DEVELOPMENT SERVICES
CITY OF OSHAWA

SACCOCCIO WEPPLER ARCHITECTS INC.
ST. CHRISTOPHER CATHOLIC SCHOOL
Durham Catholic District School Board

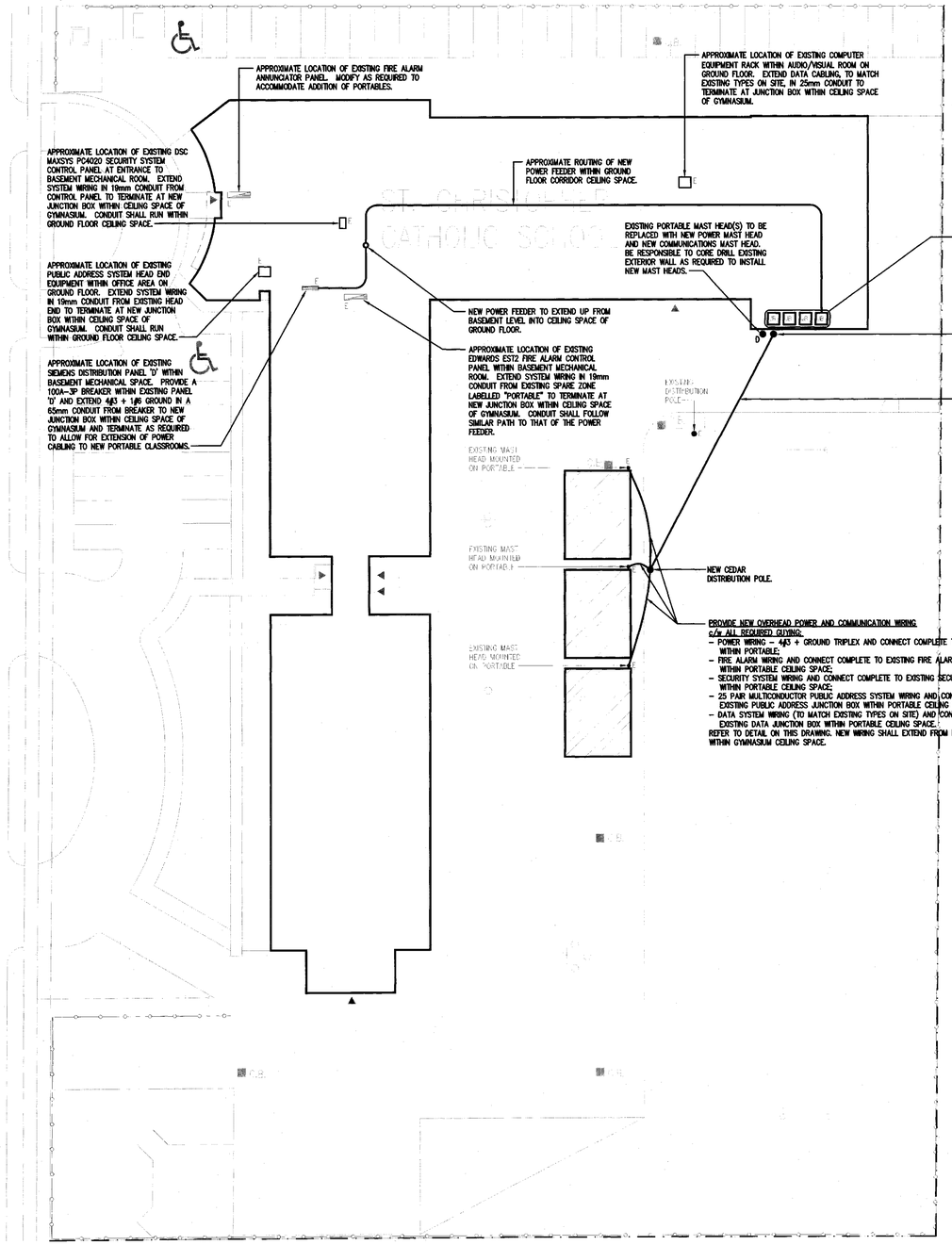
LANDSCAPE PLAN

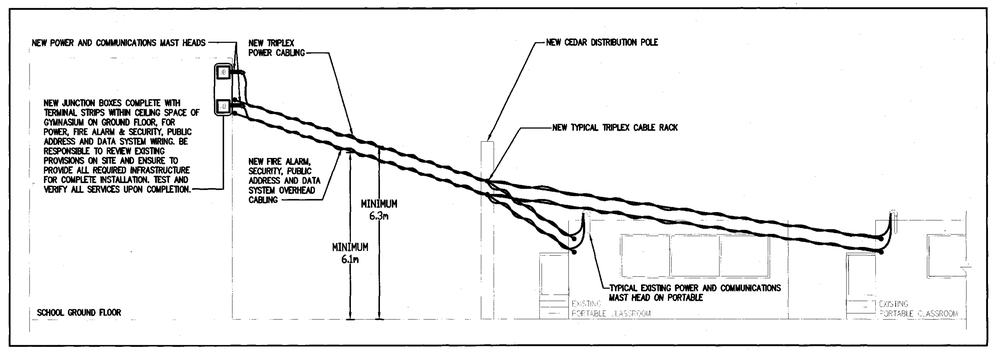
DRAWN BY	LOC.	CONST.	CITY	DESIGN BY	CHKD. BY	APPD. BY
T.N.				T.N.	L.S.N.	
DATE	FEB 2009		REGION	DESIGN BY	CHKD. BY	APPD. BY

SCALE — HORIZONTAL 0 5m 10m 15m 20m — 1:250

10-08633-002-L01 — DWG. No. L-1

FILENAME: J:\JOBS\LANDSCAPE\2008\10-08633-002-L01 Saccoccio Weppler Architect Inc - St. Christopher Catholic School\Drawing\St. Christopher CS - Oshawa Site.dwg
PLOTDATE: Feb 20, 2009 - 12:08pm





1 / E1-1 PORTABLE CLASSROOM POWER & SIGNAL CONNECTIONS TO THREE EXISTING PORTABLES
SCALE: NOT TO SCALE

CORPORATION OF THE CITY OF OSHAWA
TRUE COPY OF PERMIT PLANS
FEB 07 2013
PER: CHIEF FIRE PREVENTION OFFICER

PARTIAL FIRE ALARM VERIFICATION REQ'D.

DRAWING LIST

DRAWING No.	DESCRIPTION	SCALE
E1-1	PORTABLE SERVICES NEW WORK DRAWING LIST & DETAILS - ELECTRICAL	1:300
E2-1	SPECIFICATION - ELECTRICAL	Not to Scale

NOTES

1. INSTALLATION OF NEW POWER AND COMMUNICATION CABLING TO NEW PORTABLES SHALL BE DONE IN ACCORDANCE WITH O.E.S.C. SECTION 75.
2. CONFIRM EXACT ROUTING ON SITE PRIOR TO ROUGH IN. BE RESPONSIBLE TO CAREFULLY REMOVE EXISTING CEILING TILES TO INSTALL NEW CONDUIT AND RE-INSTALL WHEN WORK IS COMPLETE. BE RESPONSIBLE TO REPLACE ANY BROKEN OR DAMAGED CEILING TILES WITH NEW THAT OCCURED AS A RESULT OF WORK COMPLETION.

SC-0021

MMM GROUP
MMM Group Limited
100 Commerce Valley Drive West
Thornhill, ON L3T 0A1
t. 905-882-1100
f. 905-882-0055
www.mmm.ca

DATE	REVISIONS
01/30/2013	ISSUED FOR PERMIT & TENDER

ST. CHRISTOPHER CATHOLIC SCHOOL
431 ANNAPOLIS AVENUE
OSHAWA, ONTARIO

DRAWING
PORTABLE SERVICES NEW WORK, DRAWING LIST & DETAILS ELECTRICAL

LICENSED PROFESSIONAL ENGINEER M. SABLICI 100128433 PROVINCE OF ONTARIO
Jan 30 2013
1813036-000

TRUE NORTH | DWG. NORTH

JOB NO. 1310
SCALE 1:300
DATE JANUARY, 2013
PRINTED JANUARY 29, 2013
DWG. NO. E1-1

MOFFET & DUNCAN architects inc.
5052 DUNDAS ST. WEST
ISLINGTON, ONTARIO
M9A 1B9 TELE 239-2775

ELECTRICAL WORK SPECIFICATION

1 SCOPE OF WORK

1.1 SUPPLY LABOUR, TOOLS, SERVICES AND EQUIPMENT, AND PROVIDE PRODUCTS AND MATERIALS REQUIRED TO COMPLETE WORK IN ACCORDANCE WITH THIS SPECIFICATION AND DRAWINGS. COMPLY WITH LAWS, REGULATIONS, AND CODES OF AUTHORITIES HAVING JURISDICTION. CONFORM TO REQUIREMENTS OF BIDDING DOCUMENTS OF DIVISIONS 00 AND 01 AND GENERAL REQUIREMENTS HEREIN SPECIFIED WHICH ARE SUPPLEMENTARY TO THOSE REQUIREMENTS. WHERE CODES AND/OR REQUIREMENTS CONFLICT, INCLUDE FOR MORE STRINGENT AND COSTLY REQUIREMENTS. PERFORM WORK IN ACCORDANCE WITH LOCAL APPLICABLE GOVERNING CODES AND AUTHORITIES INCLUDING ONTARIO BUILDING CODE (OBC), ONTARIO ELECTRICAL SAFETY CODE (OESC) AND ISSUED BULLETINS AND SUPPLEMENTARY STANDARDS.

1.2 WHERE PROJECT PHASING IS REQUIRED, REFER TO DIVISION 01 DOCUMENTS AND/OR ON DRAWINGS. IN PHASES/AREAS OF WORK THAT WORK HAS BEEN COMPLETED AND WHICH IS TO BE TURNED OVER TO OWNER, ENSURE THAT INSTALLED SYSTEMS/EQUIPMENT ARE TESTED, COMMISSIONED AND VERIFIED TO BE IN PROPER WORKING ORDER PRIOR TO TURN OVER TO OWNER.

2 EXAMINATION OF SITE AND DOCUMENTS

2.1 PRIOR TO SUBMITTING BID, CAREFULLY EXAMINE CONDITIONS AT SITE WHICH WILL OR MAY AFFECT WORK, DRAWINGS, AND SPECIFICATIONS, AND BECOME FAMILIAR WITH BUILDING CONSTRUCTION, FINISHES AND OTHER WORK ASSOCIATED WITH WORK IN ORDER THAT BID INCLUDES FOR EVERYTHING NECESSARY FOR COMPLETION OF WORK.

3 PERMITS, CERTIFICATES AND FEES

3.1 PAY FOR AND OBTAIN PERMITS AND INSPECTION CERTIFICATES TO COMPLETE WORK. WHEN WORK IS COMPLETE, SUPPLY AND TURN OVER INSPECTION CERTIFICATES FROM GOVERNING AUTHORITIES INCLUDING ESA, TO CONSULTANT. PAY FEES AND CHARGES LEVIED BY MUNICIPALITY AND OTHER GOVERNING AUTHORITIES FOR PERMITS, INSPECTIONS, AND CERTIFICATES. KEEP COPY OF SUCH PERMITS AND CERTIFICATES, ETC., ON JOB SITE. WHERE WORK INVOLVES ELECTROMAGNETIC LOCK WORK, PROVIDE PERMITS AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.

4 CO ORDINATION AND CO OPERATION

4.1 COORDINATE YOUR WORK WITH WORK EACH TRADE TO ENSURE A PROPER AND COMPLETE INSTALLATION. NOTIFY TRADES CONCERNED OF REQUIREMENT FOR OPENINGS, SLEEVES, INSERTS AND OTHER HARDWARE NECESSARY IN THEIR WORK FOR INSTALLATION OF YOUR WORK, AND, WHERE YOUR WORK IS TO BE INTEGRATED WITH WORK OF OTHER TRADES OR IS TO BE INSTALLED IN CLOSE PROXIMITY WITH WORK OF OTHER TRADES, CAREFULLY COORDINATE WORK PRIOR TO AND DURING INSTALLATION.

4.2 EXACT LOCATIONS AND ROUTING OF SERVICES MUST BE PROPERLY PLANNED, COORDINATED AND ESTABLISHED WITH AFFECTED TRADES PRIOR TO INSTALLATION SUCH THAT THEY WILL CLEAR EACH OTHER AS WELL AS ANY OBSTRUCTIONS. GENERALLY, PIPING REQUIRING UNIFORM PITCH SHALL BE GIVEN RIGHT OF WAY, WITH OTHER SERVICES LOCATED AND ARRANGED TO SUIT.

5 NOISE CONTROL

5.1 WORK WHICH MAY CAUSE NOISE DISTURBANCES MUST BE SCHEDULED AT TIMES APPROVED BY CONSULTANT. COORDINATE WORK WITH TRADES TO MINIMIZE NOISE DISTURBANCES.

6 CLEANING UP

6.1 DURING CONSTRUCTION, KEEP SITE REASONABLY CLEAR OF RUBBISH AND WASTE MATERIAL RESULTING FROM WORK ON DAILY BASIS. AFTER COMPLETION OF WORK, REMOVE RUBBISH AND DEBRIS, ARRANGE AND PAY FOR REPAIR OF DAMAGES CAUSED AND LEAVE PREMISES AND WORK IN GOOD ORDER.

7 PROTECTION OF EQUIPMENT AND MATERIAL

7.1 PROPERLY PROTECT AND STORE EQUIPMENT AND MATERIALS ON SITE FROM DAMAGE. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFE STORAGE OF EQUIPMENT AND GOODS TO BE RELOCATED AND SHALL REPAIR OR REPLACE DAMAGED EQUIPMENT AND GOODS AT DISCRETION OF OWNER.

8 INSPECTION OF WORK

8.1 CONSULTANT SHALL AT TIMES HAVE ACCESS TO WORK AND SHALL BE NOTIFIED AT AGREED UPON TIMES OF STAGES OF WORK.

8.2 WHERE STANDARDS OF WORK ARE SPECIFIED OR IMPLIED AND WORK DOES NOT COMPLY WITH PERFORMANCE SPECIFIED OR IMPLIED, SUCH DEFICIENCY SHALL BE CORRECTED AS DIRECTED BY CONSULTANT. ANY SUBSEQUENT TESTING TO VERIFY PERFORMANCE SHALL BE DONE AT CONTRACTOR'S EXPENSE. ANY CHARGES FOR OWNER'S STAFF, CONSULTANT, OR OTHER PERSONNEL RELATED TO SUCH RETESTING SHALL ALSO BE AT EXPENSE OF CONTRACTOR.

9 PRODUCTS

9.1 PRODUCTS LISTED AND/OR SPECIFIED ON CONTRACT DOCUMENTS ARE SELECTED TO ESTABLISH DESIGN STANDARDS. IN MOST CASES, ACCEPTABLE MANUFACTURERS ARE LISTED. BASE YOUR BID PRICE ON BASE SPECIFIED PRODUCTS OR PRODUCTS SUPPLIED FROM ACCEPTABLE MANUFACTURERS. ENSURE PRODUCTS SUPPLIED FROM MANUFACTURERS OTHER THAN BASE SPECIFIED MANUFACTURERS ARE EQUIVALENT TO SPECIFIED PRODUCTS. CHANGES TO MANUFACTURERS OF PRODUCTS MAY BE PROPOSED TO CONSULTANT FOR ACCEPTANCE PRIOR TO CLOSING OF BIDS, LISTING IN EACH CASE CORRESPONDING CREDIT. CONSULTANT HAS SOLE DISCRETION IN ACCEPTING ANY PROPOSED SUBSTITUTION. INCLUDE IN BID PRICE ANY ADDITIONAL COSTS FOR CHANGES TO ASSOCIATED OR ADJACENT WORK RESULTING FROM PROVISION OF PRODUCTS SUPPLIED BY MANUFACTURER OTHER THAN BASE SPECIFIED MANUFACTURER. ANY PROPOSED CHANGES INITIATED BY CONTRACTOR AFTER AWARD OF CONTRACT MAY BE CONSIDERED BY CONSULTANT AT CONSULTANT'S DISCRETION, WITH COSTS FOR SUCH CHANGES IF APPROVED BY CONSULTANT, AND COSTS OF SUCH REVIEW BY CONSULTANT TO BE PAID FOR BY CONTRACTOR.

10 WARRANTY

10.1 UNLESS OTHERWISE NOTED IN DIVISION 01, WARRANT WORK TO BE IN STRICT ACCORDANCE WITH CONTRACT DOCUMENTS AND FREE FROM DEFECTS FOR 1 YEAR PERIOD FROM DATE OF WRITTEN ACCEPTANCE BY CONSULTANT. REPAIR AND/OR REPLACE ANY SUCH DEFECTS WHICH APPEAR IN WORK WITHIN WARRANTY PERIOD, ORDINARY WEAR AND TEAR AND WILFUL DAMAGE BY, OR CARELESSNESS OF OWNER'S STAFF OR AGENTS EXCEPTED, WITHOUT ADDITIONAL EXPENSE TO OWNER. WHERE SUCH DEFECTS OCCUR, BE RESPONSIBLE FOR COSTS INCURRED IN MAKING DEFECTIVE WORK GOOD, INCLUDES REPAIR OR REPLACEMENT OF BUILDING FINISHES, OTHER MATERIALS, OR DAMAGE TO OTHER EQUIPMENT CAUSED BY SUCH DEFECTS, OR BY SUBSEQUENT REPLACEMENT OR REPAIRS.

11 INTERRUPTIONS TO AND SHUT DOWNS OF EXISTING SERVICES AND SYSTEMS

11.1 COORDINATE AND PERFORM SHUT DOWNS AND INTERRUPTIONS TO EXISTING SYSTEMS AND SERVICES AT TIMES ACCEPTABLE TO OWNER. OBTAIN WRITTEN APPROVAL MINIMUM FIVE WORKING (5) DAYS IN ADVANCE OF SHUT DOWN OR INTERRUPTION. INCLUDE FOR COSTS OF PREMIUM TIME TO PERFORM WORK DURING NIGHTS, WEEKENDS OR OTHER TIME OUTSIDE OF NORMAL WORKING HOURS, AS NECESSARY TO MAINTAIN SERVICES IN OPERATION OR WITH MINIMUM INTERRUPTIONS AND TO COMPLY WITH OWNER'S REQUIREMENTS. NOTE: WORK ASSOCIATED WITH SHUT DOWNS AND INTERRUPTIONS WILL BE CARRIED OUT AS CONTINUOUS OPERATIONS TO MINIMIZE SHUT DOWN TIME AND TO REINSTATE SYSTEMS AS SOON AS POSSIBLE, AND, PRIOR TO SHUT DOWN, ENSURE MATERIALS AND LABOUR REQUIRED TO COMPLETE WORK FOR WHICH SHUT DOWN IS REQUIRED ARE AVAILABLE AT SITE.

12 CUTTING, PATCHING AND CORE DRILLING

12.1 PERFORM CUTTING, PATCHING AND CORE DRILLING OF EXISTING BUILDING REQUIRED FOR INSTALLATION OF WORK. PERFORM CUTTING IN NEAT AND TRUE FASHION, WITH PROPER TOOLS AND EQUIPMENT TO OWNER'S APPROVAL. PATCHING WILL EXACTLY MATCH EXISTING FINISHES AND BE PERFORMED BY TRADESMEN SKILLED IN PARTICULAR TRADE OR APPLICATION WORKED ON TO OWNER'S APPROVAL.

12.2 IN FIRE RATED CONSTRUCTION, PACK AND SEAL VOID BETWEEN OPENING AND CONDUIT FOR LENGTH OF OPENING WITH ASBESTOS FREE ELASTOMERIC AND INTUMESCENT ULC LISTED AND LABELLED MATERIALS. INSTALL FIRESTOP AND SMOKE SEAL MATERIALS IN ACCORDANCE TO ULC CERTIFICATION AND MANUFACTURER'S REQUIREMENTS TO PROVIDE FIRESTOP RATINGS OF OPENINGS IN ACCORDANCE WITH GOVERNING BUILDING CODE REQUIREMENTS. SUBMIT WITH SHOP DRAWINGS, SPECIFIC ULC DESIGNATED NUMBER FOR EACH APPLICATION. ACCEPTABLE MANUFACTURERS ARE 3M, TREMCO, HILTI, AND TYCO FIRE STOP SYSTEMS.

12.3 FOR EXTERIOR AND/OR UNDERGROUND PENETRATIONS, PROVIDE WATERPROOF, WEATHER-TIGHT, FIRE RATED MATERIALS IN COMPLIANCE WITH LOCAL GOVERNING AUTHORITY AND CODE REQUIREMENTS TO SEAL OPENINGS.

12.4 DO NOT CUT OR DRILL EXISTING WORK WITHOUT PRIOR OWNER'S APPROVAL. IN CONSULTATION WITH OWNER AND BY USE OF NON-DESTRUCTIVE RADAR SCANNING, DETERMINE PRESENCE OF EXISTING SERVICES AND REINFORCING RODS CONCEALED BEHIND SURFACE TO BE CUT. ENSURE THAT AREAS OF BOTH SIDES OF SURFACE BEING CUT ARE PROTECTED FROM DEBRIS. NOTE: YOU WILL BE HELD RESPONSIBLE FOR DAMAGE DONE TO EXISTING BUILDING AND SERVICES CAUSED BY CUTTING OR DRILLING. IF RADAR SCANNING IS NOT PERMITTED BY OWNER, CAREFULLY HAND CHISEL TO EXPOSE RE-BAR AND BURIED SERVICES AND CHISEL OUT REQUIRED OPENINGS.

13 CONCRETE WORK

13.1 PROVIDE CONCRETE REQUIRED FOR YOUR WORK, INCLUDING FORMWORK AND REINFORCING STEEL.

13.2 CONCRETE WORK SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 03 AND SHALL BE MINIMUM 3000 p.s.i. READY MIX TYPE.

14 DISCONNECTION, REMOVAL AND RELOCATION WORK

14.1 WHERE INDICATED ON THE DRAWINGS OR WHERE REQUIRED TO PERFORM THE WORK OF THIS PROJECT, DISCONNECT AND REMOVE ITEMS OF EXISTING OBSOLETE ELECTRICAL WORK. RELOCATE REQUIRED DEVICES AS REQUIRED TO ACCOMMODATE WORK OF OTHER DIVISIONS. WHERE LUMINAIRES, SWITCHES, RECEPTACLES, AND OTHER DEVICES AND/OR EQUIPMENT IS REMOVED, DISCONNECT AT THE POINT OF ELECTRICAL SUPPLY, REMOVE OBSOLETE WIRING AND CONDUIT UP TO SOURCE, UNLESS OTHERWISE NOTED, AND MAKE THE SYSTEM SAFE TO THE CONSULTANT'S SATISFACTION. REMOVE OBSOLETE CONDUIT/RACEWAYS IN ACCESSIBLE CEILING SPACES, EXPOSED LOCATIONS, ETC. WHERE EXISTING OBSOLETE CONDUIT AND SIMILAR RACEWAY MATERIAL CANNOT BE REMOVED, SUCH AS EMBEDDED IN CONCRETE, CUT BACK AND CAP OBSOLETE CONDUIT AND RACEWAYS. REFER TO SPECIFIC NOTES ON DRAWINGS.

14.2 UNLESS OTHERWISE NOTED, OBSOLETE MATERIALS WHICH ARE REMOVED AND ARE NOT TO BE RELOCATED OR REUSED ARE TO BECOME YOUR PROPERTY. REMOVE FROM THE SITE AND PROPERLY DISPOSE. OBTAIN FROM THE OWNER A LIST OF EXISTING ELECTRICAL ITEMS WHICH ARE TO BE REMOVED AND TURNED OVER TO THE OWNER. SAID ITEMS ARE TO REMAIN THE PROPERTY OF THE OWNER.

14.3 WHERE EXISTING SERVICES PASS THROUGH OR ARE IN AN AREA TO SERVE ITEMS WHICH ARE TO REMAIN, MAINTAIN THE SERVICES. INCLUDE FOR REROUTING EXISTING SERVICES CONCEALED BEHIND EXISTING FINISHES AND WHICH BECOME EXPOSED DURING THE RENOVATION WORK, SO AS TO BE CONCEALED BEHIND NEW OR EXISTING FINISHES. CONFIRM WITH OWNER THE SERVICES WHICH ARE TO BE KEPT IN SERVICE AND OPERATIONAL.

14.4 REVISE PANELBOARD DIRECTORIES ACCORDINGLY, IF AFFECTED BY ANY RENOVATION, DISCONNECTION OR REMOVAL OF WORK. USE OWNER'S ACTUAL ROOM NAMES/NUMBERS.

14.5 AFTER INSTALLATION IS COMPLETE, TEST PARTS OF THE RE-USED OR RELOCATED ELECTRICAL EQUIPMENT AND CORRECT FAULTS AND GROUNDS. INCLUDE FOR FIRE ALARM VERIFICATION COMPANY TO VERIFY ANY RELOCATED DEVICES AND DOWNSTREAM AFFECTED DEVICES, AND VERIFY SYSTEM AS REQUIRED BY LOCAL FIRE AUTHORITY TO SUIT ACTUAL RELOCATION WORK. FOR OTHER EXISTING SYSTEMS, ENGAGE MANUFACTURERS AUTHORIZED REPRESENTATIVE OR OWNER'S SYSTEM MAINTENANCE CONTRACTOR, TO INSPECT AND VERIFY RELOCATED DEVICES. COORDINATE AND CONFIRM EXACT REQUIREMENTS WITH OWNER AND/OR CONSULTANT. ANY FIRE ALARM OR COMMUNICATION SYSTEM DEVICE THAT HAS BEEN WORKED ON OR RELOCATED, SHALL BE TESTED, VERIFIED, AND CERTIFIED BY MANUFACTURER'S AUTHORIZED TECHNICIAN AFTER COMPLETION OF WORK. INCLUDE FOR SUCH WORK.

14.6 INTERIOR, EXTERIOR OR UNDERGROUND ELECTRICAL SERVICES (INCLUDING AUXILIARY SERVICES, TELEPHONE, FIRE ALARM, P.A. SYSTEM, ETC.) TO OPERATING PARTS OF THE BUILDING ARE NOT TO BE HAMPERED UNDER ANY CONDITIONS AND TO THAT EFFECT, NECESSARY WORK MAY HAVE TO BE CARRIED OUT ON AN OVERTIME BASIS, AT NO ADDITIONAL COST TO THIS PROJECT. EXISTING RISERS ARE TO BE MAINTAINED IN SERVICE AS REQUIRED TO FEED OTHER AREAS OF THE BUILDING(S). DO NOT INTERRUPT ANY SERVICES WITHOUT PRIOR WRITTEN APPROVAL BY THE CONSULTANT. SUBMIT FORMAL REQUESTS TO CONSULTANT OUTLINING IN DETAIL THE REQUIREMENTS OF THE PROPOSAL AND WAIT FOR INSTRUCTIONS FROM CONSULTANT.

14.7 CLOSE OPENINGS IN BOXES, PANELS, ETC., THAT RESULT FROM REMOVAL OF EQUIPMENT, CONDUIT, WIRING, FIXTURES, ETC. CLOSE OPENINGS IN A PROPER MANNER AND PROPERLY TERMINATE AND INSULATE CABLES TO RESTORE THE SYSTEM TO A SAFE OPERATING CONDITION, TO THE CONSULTANT'S SATISFACTION.

14.8 BE PRESENT AND SUPERVISE THE REMOVAL OF ELECTRICAL EQUIPMENT AND DEVICES. DURING DEMOLITION OF CEILINGS, WALLS, FLOORS, ETC. EXISTING EQUIPMENT WHICH IS NOT TO BE RELOCATED BUT INTERFERES WITH THE DEMOLITION, ARE TO BE TEMPORARILY RELOCATED UNTIL THE DEMOLITION WORK IS COMPLETED. SERVICES TO TEMPORARILY RELOCATED EQUIPMENT ARE TO BE MAINTAINED AT ALL TIMES.

14.9 REMOVE AND RE-INSTALL EXISTING CEILING TILES AS REQUIRED TO PERFORM WORK. PRIOR TO REMOVAL, INSPECT TILES FOR DAMAGE AND REPORT ANY TO THE OWNER AND CONSULTANT. ANY LOOSE CABLING IS TO BE SECURED, AND LUMINAIRES ADDITIONALLY SUPPORTED WITH CABLES SECURED TO CEILING SLAB. AFTER WORK HAS BEEN COMPLETED AND SUCCESSFULLY INSPECTED, RE-INSTALL CEILING TILES TO EXISTING STANDARDS AND RE-INSTALL DEVICES. BE RESPONSIBLE FOR REPLACEMENT OF TILES AND GRID MEMBERS DAMAGED DURING WORK OF THE ELECTRICAL DIVISION. COMPLY WITH APPLICABLE GOVERNING AUTHORITY REQUIREMENTS WITH REGARDS TO CEILING WORK IN SPECIAL AREAS.

15 HAZARDOUS MATERIALS

15.1 IF AT ANY TIME DURING COURSE OF WORK ASBESTOS MATERIALS ARE ENCOUNTERED OR SUSPECTED, CEASE WORK IN AREA IN QUESTION AND IMMEDIATELY REPORT, IN ACCORDANCE WITH ONTARIO REGULATION 654/85 (SECTION 7) TO CONSULTANT. DO NOT RESUME WORK IN AFFECTED AREA WITHOUT APPROVAL FROM CONSULTANT.

15.2 MATERIALS CONTAINING PCBS OR MERCURY SHALL BE PROPERLY DISPOSED OF OFFSITE IN ACCORDANCE WITH LOCAL GOVERNING AUTHORITY REGULATIONS. USE SPECIALTY FIRMS LICENSED BY LOCAL AUTHORITIES AS REQUIRED TO HANDLE SUCH MATERIALS AND TO ENSURE PROPER DISPOSAL TO MINISTRY APPROVED SITES. SUBMIT COPIES OF PERMITS AND/OR APPROVALS.

16 RECORD DRAWINGS (AS-BUILTS)

16.1 DRAWINGS FOR THIS PROJECT HAVE BEEN PREPARED ON A CAD SYSTEM. SOFTWARE USED IS AUTOCAD RELEASE VERSION CONFIRMED WITH CONSULTANT. COPIES OF DRAWINGS ON DISKS FOR USE IN PREPARING AS-BUILTS MAY BE PURCHASED FROM CONSULTANT AT A COST OF $25 CDN. PLUS HST PER DRAWING.

16.2 WHEN WORK BEGINS AT SITE, CLEARLY AND ACCURATELY MARK ON A BOUND SET OF WHITE PRINTS OF CONTRACT DRAWINGS, ON A DAILY BASIS, CHANGES AND DEVIATIONS FROM ROUTING OF AND LOCATIONS OF EQUIPMENT SHOWN ON CONTRACT DRAWINGS, CHANGES AND DEVIATIONS INCLUDING THOSE MADE BY ADDENDA, CHANGE ORDERS, AND SITE INSTRUCTIONS, AND CHANGES AND DEVIATIONS INDICATED ON SUPPLEMENTAL DRAWINGS ISSUED WITH ADDENDA, CHANGE ORDERS, AND SITE INSTRUCTIONS. MAINTAIN "AS BUILT" WHITE PRINTS AT SITE FOR PERIODIC INSPECTION BY CONSULTANT THROUGHOUT DURATION OF WORK. PAY PARTICULAR ATTENTION TO ACCURATELY DIMENSIONING LOCATION OF CONCEALED SERVICES TERMINATED FOR FUTURE EXTENSION, BURIED WORK AND SERVICES, AND WORK CONCEALED WITHIN BUILDING IN INACCESSIBLE LOCATIONS. FIRE ALARM DEVICES SHALL BE LOCATED IN AS-BUILT LOCATIONS AND IDENTIFIED WITH ADDRESSES, AS APPLICABLE.

16.3 WHEN WORK ENDS AT SITE, UPDATE A COMPUTER FILE COPY OF CONTRACT DOCUMENT DRAWING SET SO THAT IT REFLECTS DEVIATIONS FROM ORIGINAL CONTRACT DOCUMENT DRAWINGS, THUS FORMING A TRUE "AS BUILT" DRAWING DISK SET. PROVIDE A SET OF PRINTS OF CONTRACT DRAWINGS PRODUCED FROM TRUE "AS BUILT" DRAWING SET. SUBMIT "AS BUILT" DRAWING COMPACT DISKS WITH WHITE PRINTS AND CAD PRODUCED "AS BUILT" PRINTS TO CONSULTANT. SUBMITTED DRAWINGS SHALL BE OF SAME QUALITY AS ORIGINAL CONTRACT DOCUMENT DRAWINGS.

16.4 UPDATE OWNER'S DISTRIBUTION RISER DIAGRAMS POSTED IN ELECTRICAL ROOMS.

17 SHOP DRAWINGS AND OPERATING/MAINTENANCE INSTRUCTION MANUALS

17.1 SUBMIT SHOP DRAWINGS AND OPERATING/MAINTENANCE INSTRUCTION MANUALS FOR FOLLOWING:

.1 BREAKERS.

17.2 PROPERLY IDENTIFY SHOP DRAWINGS FOR REVIEW AND SHOW IN DETAIL EQUIPMENT AND MATERIALS. ENDORSE EACH DRAWING; INCLUDE COMPANY NAME AND SUBMITTAL DATE. PROVIDE MANUALS AS INDEXED, IDENTIFIED HARD COVER 3 RING BINDERS COMPLETE WITH:

.1 TITLE SHEET AND LIST OF CONTENTS;
.2 A COPY OF EACH "REVIEWED" SHOP DRAWING;
.3 EXPLANATIONS OF OPERATING PRINCIPLES AND SEQUENCES;
.4 PART LISTS WITH NUMBERS;
.5 RECOMMEND MAINTENANCE PRACTICES AND PRECAUTIONS;
.6 COPIES OF INSPECTION CERTIFICATES ISSUED BY GOVERNING AUTHORITIES;
.7 WIRING AND CONNECTION DIAGRAMS;
.8 COPIES OF ADDITIONAL AND REVISED PANELBOARD DIRECTORIES.

17.3 PROVIDE MINIMUM 2 SETS OF MANUALS UNLESS OTHERWISE DIRECTED in division 01. CONFIRM EXACT QUANTITY AND METHOD OF SUBMISSION WITH CONSULTANT. REVIEW BY CONSULTANT DOES NOT MEAN APPROVAL OF DETAIL DESIGN INHERENT IN SHOP DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN SHOP DRAWINGS.

18 GENERAL CONDUIT AND CONDUCTOR INSTALLATION REQUIREMENTS

18.1 INSTALL CONDUIT AND CONDUCTORS CONCEALED TO DEGREE MADE POSSIBLE BY FINISHES AND PROVIDE INSTALLATIONS IN ACCORDANCE WITH OESC AND LOCAL GOVERNING AUTHORITIES. PLAN AND COORDINATE LOCATIONS AND ROUTING OF SERVICES, WITH TRADES PRIOR TO INSTALLATION. IN AREAS WHERE A MULTIPLICITY OF SERVICES OCCURS, PREPARE DETAIL DRAWINGS AND SUBMIT TO CONSULTANT FOR REVIEW PRIOR TO START OF AFFECTED WORK.

18.2 WHERE CONDUIT AND/OR CONDUCTORS ARE EXPOSED, ARRANGE SAME TO AVOID INTERFERENCE WITH OTHER WORK AND PARALLEL TO BUILDING LINES. WHERE HORIZONTAL CONDUITS AND/OR CONDUCTORS ARE EXPOSED, INSTALL AS HIGH AS POSSIBLE. DO NOT INSTALL CONDUIT AND/OR CONDUCTORS WITHIN 150 MM (6") OF "HOT" PIPES OR EQUIPMENT UNLESS CONDUIT AND/OR CONDUCTORS ARE ASSOCIATED WITH EQUIPMENT. INDEPENDENTLY RUN CONDUIT AND CONDUCTORS MUST BE SUPPORTED FROM CEILING/WALL STRUCTURE, NOT FROM CEILING HANGERS, DUCTWORK, PIPING, CABLE TRAYS, ETC.

18.3 IDENTIFY CONDUIT RUNS. (I.E.: TAG BOTH ENDS OF CONDUIT RUNS).

18.4 AT NO EXTRA COST, ALLOW FOR FINAL RELOCATIONS OF DEVICES UP TO 3M (10') TO SUIT FINAL COORDINATED DEVICE LOCATIONS, PRIOR TO INSTALLATION OF WALL COVERINGS.

18.5 GENERALLY, CONDUCTORS AND CONDUIT ARE SIZED ON DRAWINGS, BUT IN ABSENCE OF DIRECTION IN TYPE AND SIZING, TYPE AND SIZE REQUIRED QUANTITY IN ACCORDANCE WITH INTENDED APPLICATION, TO APPLICABLE OESC REQUIREMENTS. SIZES WHERE SHOWN, ARE MINIMUM SIZES AND SHALL NOT BE REDUCED UNLESS APPROVED BY CONSULTANT.

18.6 WHERE RECEPTACLE TYPE DEVICES ARE LOCATED IN EXISTING FLOORS AND/OR WHERE FEEDS ARE REQUIRED TO FURNITURE SYSTEMS IN OPEN SPACES, AND WHERE CHASING OF FLOOR SLAB TO RUN CONDUIT IS NOT ACCEPTABLE TO CONSULTANT, PROVIDE "POKE-THRU" ASSEMBLY INSTALLED THROUGH FLOOR AND FEED FROM CONDUIT RUNS PROVIDED IN CEILING SPACE OF FLOOR BELOW.

18.7 CONDUCTORS IN PLENUM SPACES AND IN RAISED FLOOR AREAS SHALL COMPLY WITH OBC AND OESC REQUIREMENTS WITH REGARDS TO FLAME AND SMOKE TEST.

19 CONDUIT

19.1 PROVIDE CONDUIT FOR CONDUCTORS. INTERIOR CONDUIT TO BE EMT (THINWALL) GALVANIZED, ELECTRICAL METALLIC TUBING TO CSA C22.2 NO. 83, COMPLETE WITH FACTORY MADE BENDS WHERE SITE BENDING IS NOT POSSIBLE, AND JOINTS AND TERMINATIONS MADE WITH SET SCREW TYPE CONNECTORS; FOR SHORT BRANCH CIRCUIT CONNECTORS TO MOTORIZED EQUIPMENT AND TRANSFORMERS (MINIMUM LENGTH 450 mm [18"], MAXIMUM LENGTH 600 MM [24"] WITH 180 DEGREE LOOP WHERE POSSIBLE) GALVANIZED STEEL FLEXIBLE FLUID TIGHT METALLIC CONDUIT TO CSA C22.2 NO. 56, COMPLETE WITH IDEAL "STEEL TOUGH" LIQUID TIGHT FLEXIBLE CONDUIT CONNECTORS AT TERMINATIONS. FOR EXTERIOR EXPOSED CONDUIT, AND FOR INTERIOR CONDUIT GREATER THAN 50 MM (2") DIAMETER AND FOR SURFACE MOUNTED CONDUIT AT HEIGHT LESS THAN 1200 mm (4'), PROVIDE RIGID GALVANIZED STEEL TO CSA C22.2 NO. 45 COMPLETE WITH FITTINGS, CONNECTORS, AND RIGID COUPLINGS.

19.2 FOR RUNNING UNDERGROUND, PROVIDE CSA APPROVED, RIGID PVC CONDUIT COMPLETE WITH COUPLINGS, EXPANSION JOINTS, ELBOWS, ETC., AS REQUIRED.

19.3 SUPPORT AND SECURE CONDUIT AT SPACING IN ACCORDANCE WITH CODE REQUIREMENTS BY MEANS OF GALVANIZED PIPE STRAPS, CONDUIT CLIPS, RING BOLT TYPE HANGERS, OR BY OTHER PROPER MANUFACTURED DEVICES. PROVIDE CONDUIT FITTINGS CONSTRUCTED OF SAME MATERIALS AS CONDUIT AND SUITABLE FOR APPLICATION. SQUARE AND PROPERLY REAM ENDS OF SITE CUT CONDUIT. GENERALLY, CONDUIT IS SIZED ON DRAWINGS. SIZE CONDUIT NOT SIZED ON DRAWINGS IN ACCORDANCE WITH CODE. FOR CONTROL AND COMMUNICATION CONDUCTORS, SIZE CONDUIT AS NOTED BUT WHICH SHALL BE INCREASED TO SUFFICIENTLY ACCOMMODATE HOME RUN CONDUCTORS. BEND CONDUIT AT FULL CONDUIT DIAMETER WITH NO KINKING AND NO FLAKING OR CRACKING OF FINISHES.

20 CONDUCTORS

20.1 PROVIDE CONDUCTORS. CONDUCTORS SHALL BE COPPER UNLESS OTHERWISE APPROVED BY CONSULTANT. REFER TO DRAWINGS FOR SIZING OF CONDUCTORS. GENERALLY, CONDUCTOR SIZES ARE INDICATED ON DRAWINGS. SUCH SIZES ARE MINIMUM REQUIREMENTS AND MUST BE INCREASED TO SUIT LENGTH OF RUN AND VOLTAGE DROP IN ACCORDANCE WITH SCHEDULE OBTAINED FROM CONSULTANT. CONDUCTORS NOT SIZED ON DRAWINGS SHALL BE SIZED IN ACCORDANCE WITH OESC. PROVIDE CABLE SUPPORT SYSTEM ACCESSORIES WHICH ARE NOT SPECIFIED HEREIN OR SHOWN ON DRAWINGS BUT ARE REQUIRED FOR PROPER INSTALLATION.

20.2 INTERIOR CONDUCTORS: "T90 NYLON" SINGLE COPPER CONDUCTOR TO CSA C22.2 NO. 75, COLOUR CODED, 90°C RATED, PVC INSULATED AND NYLON COVERED; OR "RW90" CSA CERTIFIED, SINGLE COPPER CONDUCTOR TO CSA C22.2 NO. 38, 600 VOLTS, MAXIMUM 90°C CONDUCTOR TEMPERATURE, MINUS 40°C MINIMUM INSTALLATION TEMPERATURE, X-LINK POLYETHYLENE INSULATION, COLOUR CODED.

20.3 OVERHEAD CONDUCTORS: "NS90" DUPLEX NEUTRAL SUPPORTED CABLES CONSIST OF AN ASSEMBLY OF ONE INSULATED PHASE CONDUCTOR AND AS REQUIRED, AN INSULATED CONTROL/SUPPLY CONDUCTOR, FACTORY-CABLED AROUND A NEUTRAL CONDUCTOR; NEUTRAL CONDUCTOR IS SUPPORTING MEMBER; CONDUCTOR IS INSULATED WITH CROSS-LINKED POLYETHYLENE (XLPE) RATED 90°C; 600 VOLT RATED; TO CSA 22.2 NO. 129; PHASE CONDUCTORS ARE ALUMINUM ALLOY 1350-H19, HARD-DRAWN, COMPACT, CONCENTRIC LAY STRANDED.

20.4 CONDUCTORS UP TO AND INCLUDING NO. 10 AWG SHALL BE SOLID. CONDUCTORS IN SIZES LARGER THAN NO. 10 AWG SHALL BE STRANDED. PROVIDE CONDUCTORS CONSTRUCTED OF 98% CONDUCTIVE COPPER AND APPROVED FOR 600V. DO NOT USE CONDUCTORS SMALLER THAN NO. 12 AWG UNLESS OTHERWISE NOTED.

20.5 PROVIDE IDI ELECTRIC "IDEAL" NO. 451, NO. 452 AND NO. 453 "WING NUT" CSA CERTIFIED 600V RATED PRESSURE TYPE CONNECTORS.

20.6 COLOUR CODE CONDUCTORS IN ACCORDANCE WITH CODE, THROUGHOUT TO IDENTIFY PHASES, NEUTRALS AND GROUND BY MEANS OF SELF LAMINATING COLOURED TAPE, COLOURED CONDUCTOR INSULATION, OR PROPERLY SECURED COLOURED PLASTIC DISCS.

20.7 WHEN PULLING WIRES INTO CONDUIT, USE IDI ELECTRIC "IDEAL YELLOW 77" LUBRICANT. ENSURE WIRES ARE KEPT STRAIGHT AND ARE NOT TWISTED OR ABRAISED.

21 OUTLET BOXES, PULLBOXES AND JUNCTION BOXES

21.1 PROVIDE CSA APPROVED STAMPED GALVANIZED STEEL OUTLET BOX FOR EACH LUMINAIRE, FIRE ALARM DEVICE, ETC. REFER TO DRAWINGS FOR LOCATIONS OF OUTLETS. CONFIRM EXACT LOCATIONS PRIOR TO ROUGHING IN. BOXES FOR RIGID STEEL CONDUITS SHALL BE CAST FS/FD TYPES.

21.2 PROVIDE PULLBOXES AND JUNCTION BOXES WHEREVER NECESSARY TO FACILITATE CONDUCTOR/CONDUIT INSTALLATIONS. GENERALLY, PROVIDE CONDUIT RUNS EXCEEDING 30 M (100') IN LENGTH, OR WITH MORE THAN 2, 90-DEGREE BENDS WITH PULLBOX INSTALLED AT CONVENIENT AND SUITABLE INTERMEDIATE ACCESSIBLE LOCATION. PROVIDE JUNCTION BOXES AND PULLBOXES SIZED IN ACCORDANCE WITH CODE TO SUIT NUMBER AND SIZE OF CONDUITS AND CONDUCTORS. BOXES TO BE GALVANIZED OR PRIME COATED PLATE STEEL COMPLETE WITH SCREW ON OR HINGED COVERS AND KNOCKOUTS. BOXES MUST BE ACCESSIBLE AFTER WORK IS COMPLETE.

21.3 SIZE, ARRANGEMENT AND TYPE OF BOXES MUST BE SUITABLE FOR APPLICATION. PROVIDE BLANK COVERPLATES ON EXISTING OBSOLETE BOXES, WHICH ARE TO REMAIN. CLEARLY IDENTIFY MAIN PULL OR JUNCTION BOXES BY SPRAY PAINTING COVERS IN ACCORDANCE WITH FOLLOWING COLOUR SCHEDULE:

.1 LIGHTING - YELLOW;
.2 NORMAL POWER - BLUE;
.3 ESSENTIAL POWER - ORANGE;
.4 FIRE ALARM - RED.

22 FASTENING AND SECURING HARDWARE

22.1 PROVIDE PROPER FASTENERS AND SIMILAR HARDWARE REQUIRED FOR CONDUIT, CONDUCTORS, AND FOR EQUIPMENT HANGER AND/OR SUPPORT MATERIAL UNLESS OTHERWISE NOTED. EXPLOSIVE POWDER ACTUATED FASTENERS WILL NOT BE PERMITTED UNLESS SPECIFIC WRITTEN APPROVAL FOR THEIR USE AND TYPE HAS BEEN OBTAINED FROM CONSULTANT. UNDER NO CIRCUMSTANCES USE CEILING SUSPENSION HANGERS OR GRIDS FOR SUSPENSION OF CONDUIT AND CONDUCTORS.

23 CIRCUIT BREAKERS FOR EXISTING PANELBOARDS

23.1 PROVIDE BREAKERS IN EXISTING PANELBOARDS OF TYPE TO MATCH EXISTING DEVICES. QUALITY AND STANDARDS OF BREAKERS SHALL MATCH EXISTING. CONFIRM REQUIREMENTS ON SITE PRIOR TO ORDERING. BREAKERS SHALL BE FULL HEIGHT MODULES UNLESS OTHERWISE APPROVED BY CONSULTANT. PROVIDE MODIFICATIONS TO PANELBOARDS TO ACCOMMODATE BREAKERS AND FEEDER INSTALLATIONS. PROVIDE REPLACEMENT BRANCH CIRCUIT DIRECTORY CARDS, NEATLY TYPEWRITTEN TO INCORPORATE ADDITIONAL AND EXISTING CONNECTED LOADS, TO CONSULTANT'S DIRECTIONS. DIRECTORIES SHALL USE OWNER'S ACTUAL ROOM NAMES/NUMBERS AND NOT CONTRACT DRAWINGS NAMES/NUMBERS. PROVIDE ENGRAVED LAMACOID I.D. NAMEPLATES FOR DISTRIBUTION PANELBOARDS, TO CONSULTANT'S DIRECTIONS.

24 GROUNDING AND BONDING

24.1 PROVIDE COMPLETE SYSTEM OF GROUNDING AND BONDING, WHICH COMPLIES, WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION FOR ELECTRICAL WORK, INCLUDING REQUIRED GROUNDING SECTIONS OF OESC. CONNECT GROUNDING CONDUCTORS TO EXISTING BUILDING GROUND SYSTEM. PROVIDE SEPARATE INSULATED GROUND WIRE FOR EACH ISOLATED GROUND CIRCUIT. BURIED OR IN SLAB GROUND CONNECTIONS SHALL BE MADE WITH ERICO CADWELD TYPE WELDED COPPER CONNECTIONS OR BURNDY HYGROUND COMPRESSION CONNECTORS. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, FEEDERS GREATER THAN 400 A SHALL BE PROVIDED WITH MINIMUM 3/0 AWG GROUND CONDUCTOR.

25 ELECTRICAL CONNECTIONS FOR MECHANICAL, OWNER'S, ETC., EQUIPMENT

25.1 PROVIDE REQUIRED ELECTRICAL CONNECTIONS TO APPARATUS SUPPLIED BY MECHANICAL DIVISION, OWNER AND AS PART OF OTHER DIVISIONS. DO REQUIRED ELECTRICAL WORK FOR EQUIPMENT SCHEDULED ON DRAWINGS. MECHANICAL DIVISION CONTRACTOR WILL SUPPLY STARTERS FOR MOTORIZED APPARATUS SUPPLIED BY THEM AND WILL PROVIDE LAMACOID IDENTIFICATION THROUGHOUT.

25.2 COORDINATE WITH TRADES OF OTHER DIVISIONS TO ENSURE PROVISION OF PROPER ELECTRICAL REQUIREMENTS. UNLESS OTHERWISE NOTED OR DIRECTED BY CONSULTANT, BE RESPONSIBLE FOR PROVISION OF INTERCONNECT WIRING BETWEEN REMOTE OPERATOR DEVICES/CONTROLLERS AND EQUIPMENT BEING CONTROLLED BY OPERATOR DEVICES, WHETHER OR NOT SUCH DEVICES ARE SUPPLIED BY ELECTRICAL DIVISION. PROVIDE DISCONNECT SWITCHES, RECEPTACLES AND OTHER REQUIRED WIRING AND CONNECTION ACCESSORIES. COORDINATE WORK WITH SUPPLIERS OF EQUIPMENT TO BE PROVIDED WITH ELECTRICAL CONNECTIONS.

26 GENERAL ELECTRICAL WORK TESTING

26.1 IN ADDITION TO TESTS REQUIRED BY GOVERNING AUTHORITIES AND REGULATIONS, TEST WORK TO ENSURE THERE ARE NO GROUNDS OR CROSSES. ENSURE DEVICES ARE COMMISSIONED AND OPERABLE. CONNECT CIRCUITS TO PANELBOARDS SO AS TO BALANCE ACTUAL LOADS (WATTAGE) WITHIN 5%. IF REQUIRED, TRANSPOSE CIRCUITS WHEN WORK IS COMPLETE TO MEET THIS REQUIREMENT.

26.2 IN ADDITION, PERFORM FOLLOWING:

.1 CHECK COMPONENT CONNECTIONS AND OVERALL INSTALLATION;
.2 ENSURE THAT DEVICES ARE COMMISSIONED AND OPERABLE;
.3 ADJUST SOUND SYSTEMS FOR HIGH QUALITY, DISTORTION FREE PERFORMANCE, FREE FROM NOISE, CROSS-TALK, HUM OR OTHER INTERFERENCE;
.4 TEST AND ADJUST SYSTEM AND ASCERTAIN THAT COMPONENTS ARE AS SPECIFIED AND ENSURE THAT PRODUCTS OPERATE AS DESIGNED;
.5 PREPARE, DOCUMENT AND EVALUATE TEST RESULTS;
.6 AUTHENTICATE TEST RESULTS WITH SIGNATURE OF AUTHORIZED TESTING ENGINEER/TECHNICIAN.

26.3 SUBMIT SIGNED REPORTS TO CONSULTANT.

27 EXISTING FIRE ALARM SYSTEM WORK

27.1 ENGAGE EXISTING FIRE ALARM SYSTEM VENDOR AS APPROVED BY OWNER, TO PROVIDE SYSTEM WORK. WHERE SHOWN ON DRAWINGS, DISCONNECT, RELOCATE, AND RECONNECT REQUIRED DEVICES. NEW WORK TO BE AN EXTENSION OF EXISTING SYSTEM. PROVIDE ADDITIONAL DEVICES WHERE SHOWN, CONDUCTORS IN CONDUIT AND END OF LINE RESISTORS. PROVIDE ULC LISTED DEVICES TO MATCH EXISTING DEVICES AND BE COMPLETELY COMPATIBLE WITH EXISTING SYSTEM. PERFORM WORK IN ACCORDANCE WITH LATEST EDITION OF CAN/ULC S524. SEQUENCE OF OPERATION OF NEW WORK TO FUNCTION AS PER EXISTING SYSTEM. UNLESS OTHERWISE NOTED, CONNECT ADDITIONAL DEVICES TO EXISTING ZONES SERVING AREA, AS PER SYSTEM MANUFACTURER'S INSTRUCTIONS, TO EXISTING STANDARDS AND AS APPROVED BY LOCAL FIRE AUTHORITY. PROVIDE WIRING OF MINIMUM NO. 16 AWG IN CONDUIT AND AS PER OESC REQUIREMENTS. ALARM INITIATING CIRCUITS SHALL BE RUN IN SEPARATE CONDUITS FROM ALARM SIGNALLING CIRCUITS.

27.2 ADDITIONAL DEVICES SHALL BE OF TYPE TO SUIT APPLICATIONS AS RECOMMENDED BY SYSTEM SUPPLIER. INCLUDE REQUIRED ACCESSORIES FOR PROPER OPERATION AND INSTALLATION. RE-PROGRAM SYSTEM TO ACCOMMODATE ADDITIONS AND MODIFICATIONS. RE-BURN SOFTWARE AS REQUIRED BY LOCAL FIRE AUTHORITY. MODIFY ANNUNCIATORS AS REQUIRED TO INCORPORATE REVISIONS AND ADDITIONS. AUDIBLE DEVICES SHALL BE PROVIDED AND ADJUSTED TO SOUND AT LEVELS AS PER LOCAL FIRE AUTHORITY REQUIREMENTS. PROVIDE ADDITIONAL DEVICES AS REQUIRED TO ACHIEVE SOUND LEVEL STANDARDS.

27.3 DURING WORK TO EXISTING FIRE ALARM SYSTEM TIME AND DURATION OF INTERRUPTION SHALL BE APPROVED BY OWNER AND ONLY 1 ZONE SHALL BE INTERRUPTED AT ANY 1 TIME. IN AREAS WHERE RENOVATION WORK REQUIRES SHUTDOWN OF ANY PART OF FIRE ALARM PROTECTION SYSTEM, PROVIDE MANUAL FIRE ALARM PROTECTION (FIRE WARDEN) BY MEANS OF SUPERVISING AREA AS APPROVED BY GOVERNING AUTHORITIES. AT NO TIME SHALL FIRE ALARM SYSTEM OR ANY 1 ZONE BE LEFT INOPERATIVE OVERNIGHT. PROVIDE REQUIRED BYPASS WIRING AND TEMPORARY WIRING AS MAY BE REQUIRED TO MAINTAIN ENTIRE FIRE ALARM SYSTEM OPERATIVE DURING CONSTRUCTION AND ALTERATIONS.

27.4 COVER EXISTING DETECTORS TO PROTECT FROM DEMOLITION/CONSTRUCTION DUST. REMOVE COVERS WHEN ALTERNATIVE FIRE ALARM PROTECTION IN AREA IS NOT AVAILABLE OVERNIGHT.

27.5 WHERE APPLICABLE, PROVIDE FIRE ALARM PULL STATION AT LOCATIONS OF ELECTROMAGNETICALLY LOCKED DOORS. PULL STATIONS SHALL BE C/W AUXILIARY CONTACTS FOR CONNECTIONS TO SECURITY SYSTEM TO RELEASE MAGLOCKS UPON FIRE ALARM SYSTEM AND PULL STATION ACTIVATION. PROVIDE WIRING AND CONDUIT AND REQUIRED INTERCONNECTIONS TO SECURITY SYSTEM. CO-ORDINATE WORK WITH SECURITY SYSTEM CONTRACTOR. OBTAIN REQUIRED CERTIFICATE OF APPROVAL WORK FOR MAGLOCKS FROM RESPECTIVE AUTHORITY HAVING JURISDICTION. PROVIDE OBC COMPLIANT MESSAGE SIGNAGE WITH "PULL STATION FOR EMERGENCY EXIT", ADJACENT PULL STATION.

27.6 WHEN FIRE ALARM SYSTEM WORK IS COMPLETE AND READY SYSTEM MANUFACTURER TO INSPECT, TEST, VERIFY AND CERTIFY WORK AND EQUIPMENT, INCLUDING INITIATING DEVICES, SIGNALLING DEVICES, CONTROL DEVICES AND WIRING.

27.7 TEST AND VERIFY THAT AUDIBLE SIGNALS ARE AT LEVELS ACCEPTABLE TO LOCAL FIRE AUTHORITY AND THAT BATTERIES OF SUFFICIENT CAPACITY AS PER OBC. PROVIDE CERTIFICATE OF LIABILITY INSURANCE REGISTERED FOR THIS PROJECT TO SHOW SATISFACTORY PROOF OF MANUFACTURER'S LIABILITY COVERAGE FOR BOTH HIS PRODUCT AND PERSONNEL. CONDUCT WORK IN ACCORDANCE WITH LATEST EDITIONS OF CAN/ULC S536 AND S537. TESTS TO BE CONDUCTED IN PRESENCE OF OWNER AND/OR CONSULTANT. PROVIDE TO CONSULTANT MINIMUM 3 COPIES OF TEST REPORT WITH DETAILED SCHEDULES OF TESTED DEVICES. REPORTS SHALL BE SIGNED BY AUTHORIZED CERTIFIED TESTING TECHNICIAN. A DIGITAL COPY OF REPORT SHALL ALSO BE PROVIDED IN COMPATIBLE FORMAT CONFIRMED WITH CONSULTANT.

27.8 OBTAIN FROM LOCAL FIRE AUTHORITY, APPROVAL CERTIFICATE AND SUBMIT TO CONSULTANT WITH REPORTS.

27.9 EMPLOY TECHNICIANS CERTIFIED BY CANADIAN FIRE ALARM ASSOCIATION AND/OR ONTARIO FIRE MARSHALL, AS APPLICABLE.

28 NETWORK CABLING SYSTEM

28.1 WORK SHALL COMPLY WITH LATEST EDITIONS OF FOLLOWING:

.1 EIA/TIA 568-B.2.1 (CSA T529-95) COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARDS, WITH REGARDS TO CATEGORY 6 PERFORMANCE STANDARDS;
.2 ANSI/NECA/BICSI 568-2001 STANDARD FOR INSTALLING COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING;
.3 ANSI/EIA/TIA 606 (CSA T528) ADMINISTRATION STANDARD FOR TELECOMMUNICATIONS INFRASTRUCTURE OF COMMERCIAL BUILDINGS;
.4 ANSI/TIA/EIA-607 (CSA T527) GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS IN COMMERCIAL BUILDINGS;
.5 ANSI/EIA/TIA-569 (CSA T530) COMMERCIAL BUILDING STANDARDS FOR TELECOMMUNICATIONS PATHWAY AND SPACES;
.6 EIA/TIA TSB-36 - TECHNICAL SYSTEMS BULLETIN - ADDITIONAL CABLE SPECIFICATIONS FOR UNSHIELDED TWISTED PAIR CABLES;
.7 EIA/TIA TSB-67 - UTP END-TO-END SYSTEM PERFORMANCE TESTING;
.8 LATEST BICSI STANDARDS.

28.2 WORK MUST BE INSTALLED BY SYSTEM MANUFACTURER'S CERTIFIED SYSTEM INSTALLERS/VENDORS WHO ARE CERTIFIED AND EXPERIENCED IN IMPLEMENTING SELECTED DATA CABLING SYSTEM AND TO PERFORM RELATED TESTING PROGRAMS.

28.3 SYSTEM FINAL INSTALLATION LAYOUT MUST BE DESIGNED AND/OR REVIEWED BY A REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER (RCDD).

28.4 SYSTEM MANUFACTURER SHALL PROVIDE A MINIMUM TWENTY (20) YEAR PARTS LABOUR AND PERFORMANCE WARRANTY ON PASSIVE COMPONENTS INCLUDING STRUCTURAL CABLING SYSTEM. SYSTEM MUST BE CATEGORY 6 CERTIFIED AS AN END-TO END SOLUTION FROM A SINGLE MANUFACTURER.

28.5 SUBMIT SHOP DRAWINGS FOR EQUIPMENT AND ACCESSORIES SPECIFIED IN THIS SECTION. INCLUDE CABLING, FACEPLATE TERMINAL CABINETS, ETC., AND PROPOSED CABLING TESTING SHEETS. CABLING SHOP DRAWINGS AND DATA SHEETS MUST BE REVIEWED AND APPROVED BY CONSULTANT PRIOR TO ORDERING.

28.6 SUBMIT FOLLOWING:

.1 PROOF THAT FINAL INSTALLATION DRAWINGS HAVE BEEN REVIEWED BY A RCDD;
.2 SAMPLES OF PATCHCORD;
.3 PROPOSED LABELLING OF COMPONENTS AND WIRING;
.4 SAMPLE OF PROPOSED TEST SHEET.

28.7 HORIZONTAL CABLING TO DATA OUTLETS SHALL BE BELDEN/CDT "IBDN GIGAFLEX-2400", UTP CABLE AND SHALL EXCEED EIA/TIA REQUIREMENTS FOR CATEGORY 5E TRANSMISSION OR EQUIVALENT TO MATCH EXISTING TYPES ON SITE. CABLE FEATURES SHALL BE AS FOLLOWS:

.1 CONDUCTORS: 4 PAIR, 23 AWG. SOLID COPPER CONDUCTOR, UNSHIELDED TWISTED PAIR;
.2 CABLE GRADE: CATEGORY 5E;
.3 OVERALL SHEATH: CMP/FT6 PLENUM RATED OUTER SHEATH;
.4 JACKET COLOURS TO STANDARDS AS CONFIRMED WITH CONSULTANT.

28.8 COPPER DATA PATCH CORDS SHALL BE BELDEN/CDT "PS6LX", MODULAR, 23 AWG STRANDED COPPER, CATEGORY 5E OR EQUIVALENT TO MATCH EXISTING TYPES ON SITE, ISDN WIRED WITH A LENGTH FROM 0.6M TO 2.1M AT PATCHPANEL END. PROVIDE PATCHCORDS IN QUANTITIES TO ACCOMMODATE REQUIREMENT THAT EACH PORT IS ACTIVE. PATCHCORDS AT WORKSTATION ENDS SHALL BE PROVIDED BY OTHERS.

28.9 ACCEPTABLE NETWORK CABLING SYSTEM MANUFACTURERS ARE AS FOLLOWS:

.1 BELDEN/CDT;
.2 COMMSCOPE SYSTIMAX;
.3 PANDUIT;
.4 AMP.

28.10 CONTRACTOR SELECTED FOR INSTALLATION OF STRUCTURED CABLING SYSTEM SHALL PROVIDE CONFIRMATION OF FOLLOWING:

.1 DETAILED KNOWLEDGE AND EXPERIENCE IN CATEGORY 5E UTP END-TO-END WIRING INSTALLATIONS;
.2 DETAILED KNOWLEDGE AND EXPERIENCE IN INSTALLATION OF INTELLIGENT HUB EQUIPMENT;
.3 EXPERIENCE IN TROUBLESHOOTING AND PROBLEM SOLVING IN DATA COMMUNICATION NETWORKS;
.4 ABILITY TO PROVIDE SYSTEM MANUFACTURER'S CERTIFIED WARRANTIES;
.5 CERTIFIED AND VALID PROOF OF BEING SYSTEM MANUFACTURER'S AUTHORIZED VENDOR.

29 INSTALLATION OF NETWORK CABLING - GENERAL

29.1 CABLES MUST BE PROPERLY HANDLED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. UNDUE PULLING TENSION, ABRASION OR ROUGH HANDLING MUST BE AVOIDED TO ENSURE THAT CABLES WILL PERMIT TRANSMISSION UP TO CATEGORY 5E DESIGN SPEED FOR DATA/VOICE CABLES. CABLES MUST BE INSTALLED WITHOUT SPLICES OR CUTS TO ENSURE ELIMINATION OF REFLECTIONS, DISCONTINUITIES, IMPEDANCE MISMATCHES, ETC. MAXIMUM HORIZONTAL LENGTH FROM WORKSTATION TO NETWORK SWITCH SHALL NOT EXCEED 90 M (295'). COMPLY WITH MANUFACTURER'S MINIMUM RUN DISTANCES.

29.2 UNLESS OTHERWISE NOTED OR WHERE CABLE TRAY IS EXISTING ON SITE FOR SUCH USE, CABLING SHALL BE RUN IN CONDUIT. CONDUITS EXTENDING BETWEEN FLOORS SHALL INCLUDE PULL CORD FOR FUTURE USE.

29.3 GENERALLY, NO MORE THAN TWO (2) 90 DEGREE CHANGES IN DIRECTION ARE RECOMMENDED FOR CABLE INSTALLED IN CONDUIT WITHOUT PULLBOXES AND NOT MORE THAN 40% FILL RATIO. CONFIRM EXACT CONDUIT BENDING RADII RESTRICTIONS AND FILL RATIOS WITH SYSTEM MANUFACTURER AND COMPLY WITH THOSE STANDARDS. PULL BOXES AND OUTLET BOXES MUST BE OF SIZE TO COMPLY WITH RESPECTIVE SYSTEM EIA/TIA STANDARDS.

29.4 CARE SHALL BE TAKEN TO ENSURE THAT DURING INSTALLATION, NICKS, ABRASIONS, BURNING AND SCUFFING OF CABLE IS PREVENTED. CABLES FOUND TO BE DAMAGED WILL BE REPLACED AT CONTRACTOR'S EXPENSE REGARDLESS OF WHETHER CABLE PASSES REQUIRED PERFORMANCE TESTING STANDARDS.

29.5 TERMINATE DATA HORIZONTAL CABLING ONTO PUNCHDOWNS USING MANUFACTURER'S RECOMMENDED TOOLS. BUNDLE CABLING IN NEAT CONFIGURATION AND SECURE TO PATCHPANELS/BLOCKS AND RACK ASSEMBLIES, AS REQUIRED.

29.6 RUN INTERCONNECT CABLES NEATLY SECURED AND BUNDLED ACROSS CONNECTORS AND BETWEEN BANKS OF MOUNTS. USE D-RINGS TO THEIR FULL ADVANTAGE. NEATLY BUNDLE PIGTAILS AND SECURE TO BIX CONNECTORS.

29.7 ALIGN MOUNTS IN STRAIGHT FORMATIONS TO PROVIDE A NEAT INSTALLATION AND TO MINIMIZE INTERCONNECT WIRING LENGTHS.

29.8 HORIZONTAL, UTP CABLES SHALL BE CONTINUOUS FROM END TO END WITH NO SPLICES. HORIZONTAL CABLES SHALL BE INSTALLED IN STAR TOPOLOGY, EMANATING FROM RACK MOUNTED PATCHPANEL(S)/WALL MOUNTING BLOCKS AND TERMINATING ON DATA/VOICE OUTLET FACEPLATES IN ROOMS OR OTHER WORKSTATION LOCATIONS. MAXIMUM LENGTH FOR HORIZONTAL CABLES SHALL NOT EXCEED 90M. MAXIMUM LENGTH FOR PATCH CORDS AT PATCH PANEL SHALL NOT EXCEED 3M.

29.9 CONDUCTORS SHALL BE INSTALLED IN CABLE TRAY AND/OR CONDUIT RUNS DESIGNATED FOR DATA CONDUCTORS. UNDER NO CIRCUMSTANCES SHALL CONDUCTORS AND CONDUIT BE FASTENED TO SUSPENDED CEILING SUPPORT SYSTEMS. CONDUIT SHALL BE SUPPORTED TO BUILDING STRUCTURE SLAB INDEPENDENT OF OTHER SUPPORT. CABLING IN TRAY SHALL BE PROPERLY BUNDLED AND SECURED WITH VELCRO TYRAPS IN ACCORDANCE WITH EIA/TIA STANDARDS.

29.10 TERMINATIONS SHALL INVOLVE AS LITTLE OUTER JACKET REMOVAL AS POSSIBLE AND CABLE PAIRS "UNTWISTING" SHALL NOT EXCEED 6MM FOR CAT 5E.

29.11 SLACK CABLE MUST BE PROVIDED TO ALLOW FOR MINOR WORKSTATION RELOCATIONS. A COIL OF SLACK CABLE OF AN APPROXIMATE 3 M (10') LENGTH SHALL BE PROVIDED FOR EACH WORKSTATION OUTLET RUN.

29.12 A CONDUIT SLEEVE SHALL BE PROVIDED WHERE HORIZONTAL CABLES PENETRATE FIREWALLS. CONDUIT SLEEVE SHALL BE SIZED AT 40% FILL RATIO WITH A PLASTIC BUSHING AT BOTH ENDS.

29.13 AFTER CONDUIT SLEEVE IS INSTALLED, OPENING AROUND CONDUIT SHALL BE FILLED WITH FIRESTOP AND SMOKE SEAL MATERIALS, AS REQUIRED.

29.14 COMMUNICATION CABLES SHALL BE SEPARATED FROM SOURCES OF ELECTROMAGNETIC RADIATION IN ACCORDANCE WITH TIA STANDARD PROPOSAL SP 2072 AND LATEST EIA/TIA STANDARDS AND FOLLOWING:

.1 TELECOMMUNICATION CABLING RACEWAY AND POWER CONDUCTORS (2 KVA POWER CIRCUITS) RACEWAY REQUIRE 125 MM CLEARANCE;
.2 FOR FLUORESCENT LUMINAIRES, REQUIRED CLEARANCE IS 300 MM;
.3 CLEARANCE INCREASES UP TO 600 MM FOR POWER CIRCUITS OVER 5 KVA;
.4 FOR LARGE MOTOR, TRANSFORMERS, POWER PANELS, ETC., REQUIRED CLEARANCE IS 1 M;
.5 CABLES MUST BE ROUTED TO AVOID DIRECT CONTACT WITH STEAM PIPING, HOT WATER PIPING, OR OTHER HEAT SOURCES TO AVOID THERMAL DEGRADATION.

29.15 PROVIDE COMPLETE GROUNDING AND BONDING REQUIREMENTS AS PER ANSI/EIA/TIA 607 AND 568 STANDARDS. PROVIDE GROUNDING AND BONDING OF EQUIPMENT AND RACK TO CLOSET/LAN ROOM GROUNDING BUSBAR.

29.16 A COMPLETE IDENTIFICATION SYSTEM SHALL BE PROVIDED THAT CLEARLY DESIGNATES FOLLOWING:

.1 HORIZONTAL CABLE;
.2 HORIZONTAL/PASSIVE PATCHPANEL PORT;
.3 SWITCH/ACTIVE PATCHPANEL PORT;
.4 PATCH CORDS.

29.17 OBTAIN OWNER'S APPROVAL OF IDENTIFICATION FORMAT, PRIOR TO START OF WORK. FORMAT SHALL GENERALLY MATCH EXISTING STANDARDS. SUBMIT PROPOSED IDENTIFICATION SYSTEM AND NOMENCLATURE WITH SHOP DRAWING SUBMISSION.

29.18 LABELLING:

.1 LABELS FOR OUTLET AND PATCH PANEL IDENTIFICATION SHALL BE TYPEWRITTEN/COMPUTER PRINTED SELF-ADHESIVE TYPE WITH WHITE PRINTING AREA AT OUTLET LOCATION AND ON FACE OF PATCH PANEL; LEGIBLE PERMANENT MARKER ON INSIDE OF OUTLET BOX COVER; MINIMUM FONT SIZE SHALL BE ARIAL 10 POINT.
.2 CABLE IDENTIFICATION: HORIZONTAL UTP CABLES SHALL BE PERMANENTLY IDENTIFIED AT BOTH ENDS OF CABLE PLACED WITHIN 13MM (½") AT OUTLET LOCATION AND 50 MM (2") AT RACK LOCATION AND INSIDE OF OUTLET COVER IN FOLLOWING MANNER: CABLE # / RACK # / PATCH PANEL PORT # / OUTLET #"
.3 PATCHPANEL PORTS SHALL BE IDENTIFIED IN SIMPLE NUMERIC FORM APPROVED BY OWNER. PATCH CORDS SHALL BE IDENTIFIED AT BOTH ENDS IN SIMPLE NUMERIC FORM, NOT NECESSARILY CORRESPONDING TO PORT NUMBERS AND BE APPROVED BY OWNER.

29.19 CABLE AND WORKSTATION IDENTIFICATION SHALL BE RECORDED IN A HARD COPY "CABLE IDENTIFICATION LOG" WHICH IS TO BE HANDED OVER TO OWNER AFTER CABLE TESTING AND CERTIFICATION IS COMPLETE. A DUPLICATE COPY SHALL ALSO BE FORWARDED TO CONSULTANT.

29.20 STRUCTURED DATA CABLING SYSTEM CERTIFICATION SHALL INCLUDE 100% CABLE TESTING AND VERIFICATION FOR AN EIA/TIA CATEGORY 5E SOLUTION. VERIFICATION OF EACH CABLE SHALL BE PERFORMED BY CONTRACTOR AND SHALL BE DOCUMENTED ON A CABLE TESTING SHEET, WHICH SHALL FORM PART OF HARD COPY DOCUMENTATION SUPPLIED AT END OF INSTALLATION. TESTING SHEETS SHALL LIST DETAILED PERFORMANCE TEST MEASUREMENTS AS REQUESTED AND AS REQUIRED TO PROVE COMPLIANCE WITH REFERENCED STANDARDS. SUBMIT SAMPLE OF TEST SHEET WITH SHOP DRAWINGS.

29.21 COMPLY WITH MANUFACTURER'S TESTING AND CERTIFICATION PROCEDURES.

29.22 TESTING PROCEDURES:

.1 PERFORM TESTING USING CATEGORY 5E TESTERS SUCH AS FLUKE NETWORKS DTX CABLE ANALYZER SERIES, OR EQUIVALENT MICROTEST OR SCOPE COMMUNICATIONS. TESTER TO MEET TIA/ISO CERTIFICATION STANDARDS FOR LEVELS IIE, III, IIIE AND LEVEL IV. TESTING TO INCLUDE, BUT NOT BE LIMITED TO FOLLOWING:
  .1 WIRE MAP;
  .2 CABLE LENGTH;
  .3 ATTENUATION;
  .4 NEAR END CROSSTALK (NEXT);
  .5 POWER SUM NEAR END CROSSTALK (PSNEXT);
  .6 EQUAL LEVEL FAR END CROSSTALK (ELFEXT);
  .7 POWER SUM EQUAL LEVEL FAR END CROSSTALK (PSELFEXT);
  .8 RETURN LOSS;
  .9 ACR;
  .10 POWER SUM ACR;
  .11 END TO END CONTINUITY;
  .12 OPENS OR SHORTS;
  .13 PAIR POLARITY.
.2 SUBMIT TEST RESULTS TO SYSTEM MANUFACTURER AND OBTAIN MANUFACTURER'S CERTIFICATE OF APPROVAL OF SYSTEM. SUBMIT DETAILED INDEXED TEST REPORT IN A 3- RING BINDER WITH MANUFACTURER'S CERTIFICATE OF APPROVAL AND COVERING LETTER FROM COMPANY RESPONSIBLE FOR INSTALLATION AND TESTING OF SYSTEM STATING ACCURACY OF REPORT. LETTER SHALL BE SIGNED BY COMPANY'S AUTHORIZED TESTING TECHNICIAN.

.3 ANY CABLE NOT PASSING TESTING PROCEDURE SHALL BE REPLACED EXPEDITIOUSLY AND IN ITS ENTIRETY. NO SPLICING IS PERMITTED IN REPAIR OF ANY DEFECTIVE CABLE.

.4 SUBMIT TO CONSULTANT, A COPY OF MANUFACTURER'S CERTIFICATION OF SYSTEM.

30 DISTRIBUTION SYSTEM TESTING, CO-ORDINATION AND VERIFICATION

30.1 INCLUDE FOR PROVISION OF ON SITE ENGINEERING INSPECTION, TESTING, CO ORDINATION STUDY AND VERIFICATION OF DISTRIBUTION EQUIPMENT. REVIEW AND SURVEY EXISTING DISTRIBUTION SYSTEM PROTECTIVE DEVICES AS REQUIRED TO PROPERLY CO-ORDINATE ADDITIONAL SYSTEM DEVICES.

30.2 ENGINEERING INSPECTION AND TESTING WILL BE PERFORMED BY AN APPROVED INDEPENDENT TESTING COMPANY AND SHALL BE DONE PRIOR TO SYSTEM BEING ENERGIZED, AND SHALL INCLUDE FOLLOWING ITEMS WHERE APPLICABLE:

.1 TESTING, CLEANING WHEN NECESSARY, AND CALIBRATING RELAYS AND CIRCUIT BREAKER TRIP DEVICES (CALIBRATION OF PROTECTIVE DEVICES SHALL CONFORM TO REQUIREMENTS OF APPROVED CO ORDINATION CURVES);
.2 FUNCTION TEST OF ASSOCIATED CONTROL DEVICES;
.3 PROVIDE A COORDINATION STUDY PREPARED TO REVIEW REVISED DISTRIBUTION SYSTEM DEVICES INCLUDING EXISTING MAIN OVER CURRENT PROTECTION DEVICES FEEDING RESPECTIVE MCCS OR PANELS WHERE ADDITIONAL LOADS HAVE BEEN ADDED; REVIEW COORDINATION OF DEVICES AND RESET/ADJUST WHERE POSSIBLE AND AS REQUIRED;
.4 REPLACEMENT OF FUSES DESTROYED DURING TESTING;
.5 AN ACCEPTANCE TEST IN PRESENCE OF AND SATISFACTION OF CONSULTANT;
.6 PRESENCE, FOR LENGTH OF TIME REQUIRED, OF QUALIFIED AND COMPETENT EQUIPMENT MANUFACTURER'S SERVICE REPRESENTATIVE DURING START UP;
.7 ADJUSTMENTS, START-UP PROCEDURES AND VERIFICATION OF EQUIPMENT;
.8 TESTING OF INSTALLED ELECTRICAL DEVICES, WHETHER OR NOT SUPPLIED BY ELECTRICAL DIVISION.

30.3 *PROVIDE VISUAL AND MECHANICAL INSPECTION OF GROUND SYSTEM AND VERIFY THAT IT IS IN COMPLIANCE WITH ISSUED DOCUMENTS AND OESC* REQUIREMENTS.

31 EXCAVATION AND BACKFILL

31.1 PROVIDE EXCAVATION, BACKFILL, AND RELATED WORK REQUIRED FOR YOUR WORK. PERFORM SUCH WORK IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 2, EXCEPT AS MODIFIED BY THIS ARTICLE. OBTAIN A COPY OF SOIL TEST REPORT FROM CONSULTANT.

31.2 IN FIRM, UNDISTURBED SOIL, LAY SERVICES DIRECTLY ON SOIL. BACKFILL EXCESS EXCAVATION WITH 2,000 P.S.I. (13,790 KPA) CONCRETE.

31.4 WHERE EXCAVATION IS NECESSARY IN PROXIMITY TO AND BELOW LEVEL OF ANY FOOTING, BACKFILL WITH 2,000 P.S.I. (13,790 KPA) CONCRETE TO LEVEL OF HIGHEST ADJACENT FOOTING. PROXIMITY IS DETERMINED BY ANGLE OF REPOSE AS ESTABLISHED BY CONSULTANT.

31.5 BEFORE BACKFILLING, OBTAIN APPROVAL FROM CONSULTANT, LOCAL UTILITY, AND/OR AUTHORITY HAVING JURISDICTION, AS REQUIRED. FAILURE TO OBTAIN SUCH APPROVALS AND ALLOW FOR INSPECTION OF WORK PRIOR TO COVERING, WILL RESULT IN RE-EXCAVATING AND BACKFILLING AT NO EXTRA COST TO OWNER. REMOVE SHORING DURING BACKFILLING.

31.6 FILL DEPRESSIONS TO CORRECT GRADE LEVEL WITH APPROPRIATE MATERIAL, AFTER AN ADEQUATE PERIOD HAS PASSED TO REVEAL ANY SETTLEMENT. USE MAXIMUM POSSIBLE COMPACTION. PAY COSTS REQUIRED TO MAKE GOOD DAMAGES CAUSED BY SETTLEMENT.

31.11 STORE AND DISPOSE OF EXCAVATED MATERIALS AS FOLLOWS:

.1 DURING PROGRESS OF CONTRACT, PLACE MATERIAL AS DIRECTED IN SUCH A MANNER THAT A MINIMUM OF DAMAGE OR DISFIGUREMENT OF EXISTING GROUND WILL RESULT AND MATERIAL WILL NOT IN ANY WAY IMPEDE PROGRESS OF WORK;
.2 SEPARATELY PLACE SURPLUS TOPSOIL AND SUBSOIL AS DIRECTED, LEAVE SITE CLEAN AND UNENCUMBERED.

31.12 DO PUMPING AS REQUIRED TO KEEP EXCAVATIONS FREE OF WATER.

31.13 BEFORE COMMENCEMENT OF EXCAVATION FOR YOUR WORK, DETERMINE IN CONSULTATION WITH CONSULTANT, OWNER, MUNICIPALITY, AND UTILITIES PRESENCE, IF ANY, OF EXISTING UNDERGROUND SERVICES AT SITE. LOCATE SUCH SERVICES AND MARK OUT SAME. ENSURE THAT TRADES CONCERNED ARE AWARE OF THEIR PRESENCE. OBTAIN AND REVIEW ANY SURVEY REPORTS AVAILABLE FROM OWNER OR CONSULTANT.

31.14 NOTE: YOU WILL BE HELD RESPONSIBLE FOR ANY DAMAGE DONE TO EXISTING UNDERGROUND SERVICES CAUSED BY YOUR NEGLECT TO DETERMINE AND *MARK OUT LOCATION OF SUCH SERVICES PRIOR TO EXCAVATION WORK COMMENCING.*

31.15 INVERTS AND LOCATIONS OF EXISTING SITE SERVICES MAY HAVE BEEN SITE SURVEYED AND APPROXIMATE LOCATION MAY BE SHOWN ON DRAWINGS. HOWEVER, ACCURACY IN QUANTITIES AND LOCATIONS IS NOT TO BE TAKEN AS COMPLETE OR ACCURATE. IT IS YOUR RESPONSIBILITY TO CONFIRM AND SATISFY YOURSELF THAT INVERTS AND LOCATIONS IF SHOWN ARE CORRECT, PRIOR TO COMMENCING EXCAVATION. WHERE DISCREPANCIES ARE FOUND, IMMEDIATELY INFORM CONSULTANT, AND AWAIT A DIRECTION.

SC-0022

MMM GROUP
MMM Group Limited
100 Commerce Valley Drive West
Thornhill, ON L3T 0A1
t. 905-882-1100
f. 905-882-0055
www.mmm.ca

DATE	REVISIONS
01/30/2013	ISSUED FOR PERMIT & TENDER

THE DURHAM REGION ROMAN CATHOLIC SEPARATE SCHOOL BOARD

ST. CHRISTOPHER CATHOLIC SCHOOL
431 ANNAPOLIS AVENUE
OSHAWA, ONTARIO

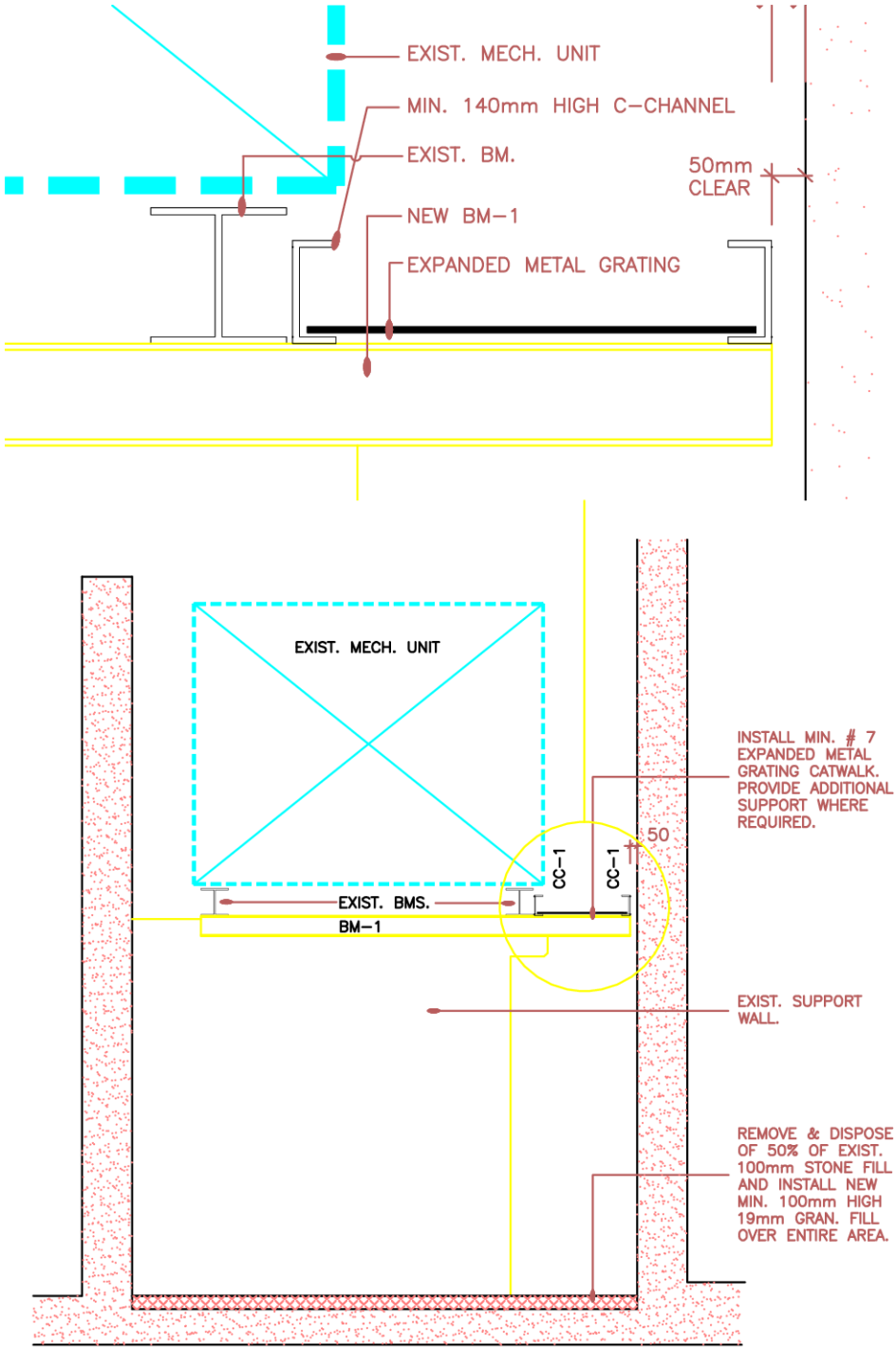
DRAWING
SPECIFICATION ELECTRICAL

LICENSED PROFESSIONAL ENGINEER
M. SABLICI
100128433
PROVINCE OF ONTARIO
Jan 30 2013
1813036-000

TRUE NORTH | DWG. NORTH

JOB NO. 1310
SCALE N.T.S.
DATE JANUARY, 2013
PRINTED JANUARY 29, 2013
DWG. NO. E2-1

MOFFET & DUNCAN
architects Inc.
5052 DUNDAS ST. WEST
ISLINGTON, ONTARIO
M9A 1B9 TELE 239-2775



NEW CATWALK AT COOLING TOWER

WHITBY CATHOLIC HIGH SCHOOL

THE VENTIN GROUP LTD., ARCHITECTS
Simcoe–Toronto–Cambridge–Guelph

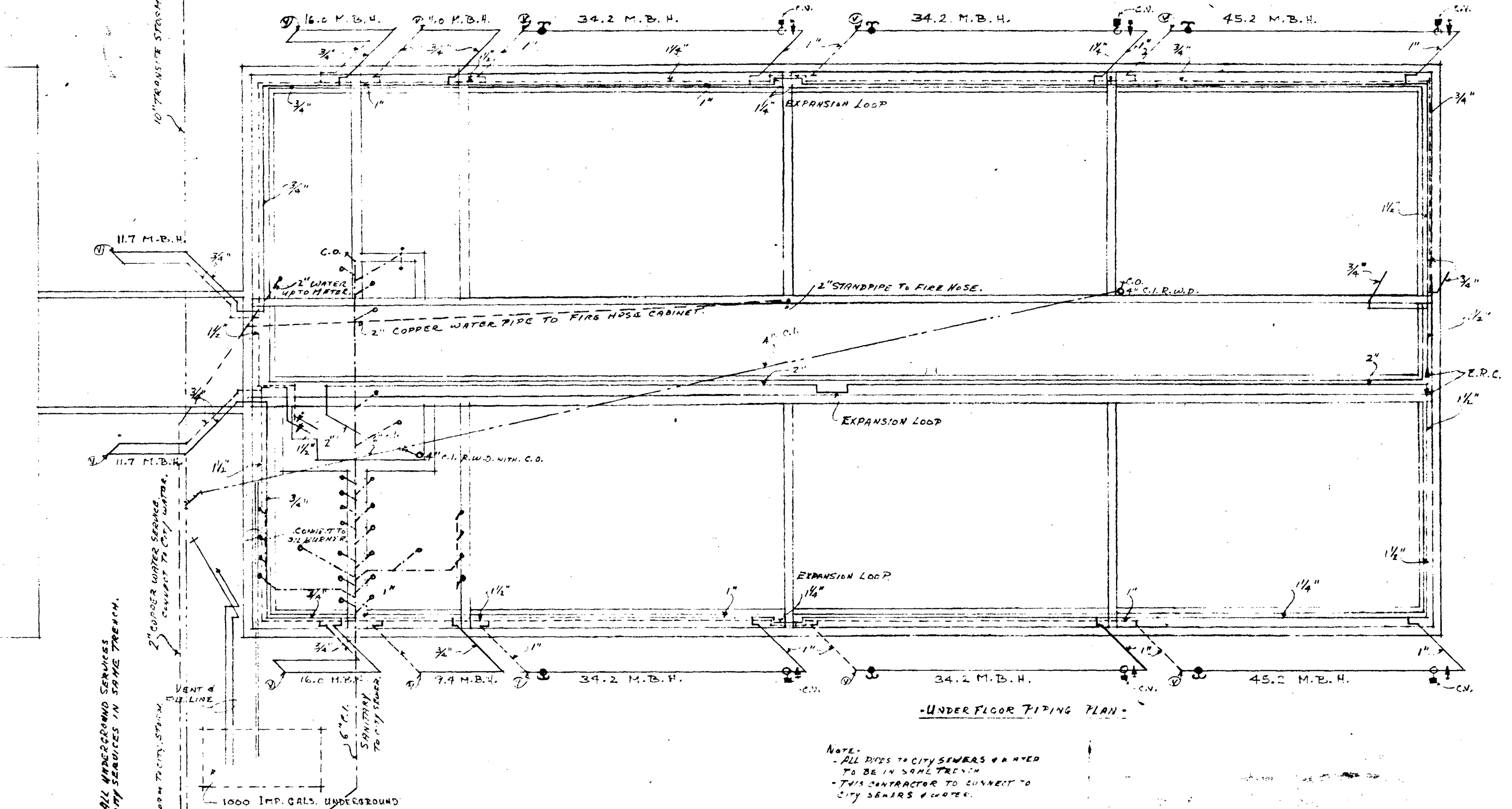
Project No.
98057

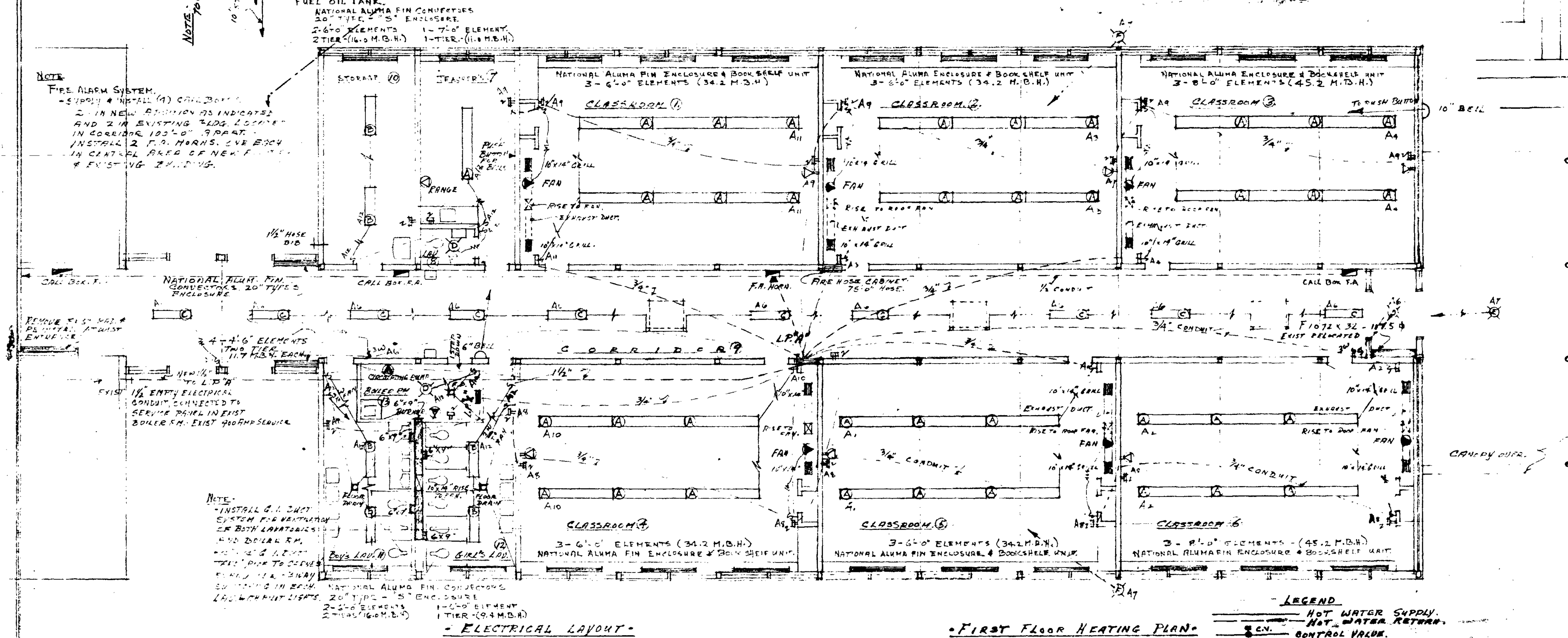
Scale
1:50

Date
April 18'02

Revision
.

Dwg. No.
AD
5.11





SCALE - 1/8"=1'-0"

•FIRST FLOOR HEATING PLAN•

ZONES - (ELECTRICAL)
"A" - 16 CIRCUITS (CORRIDOR)
"X" - 9 CIRCUITS (BOILER RM.)

LEGEND

- HOT WATER SUPPLY.
- HOT WATER RETURN.
- C.V. CONTROL VALVE.
- (V) - AUTOMATIC FLOAT TYPE AIR VENT.
- GATE VALVE.
- E.R.C. ECCENTRIC REDUCING COUPLINGS.
- LOCK SHIELD RADIATOR VALVE.

•ELECTRICAL FIXTURES•

A - WILSON F-706 LUMILUX - 4-40W-48" R.S. LAMPS
B - WILSON F-702 LUMILUX - 2-40W-48" R.S. LAMPS
C - WILSON F-702 LUMILUX - 2-40W-48" R.S.
D - WILSON 1162-10" B. ALUM. - 2-60W LAMPS
E - WILSON 1162-12" - STAIN STEEL - 3-60W LAMPS
F - HOLOPHANE - #420 - 1-200 W. LAMP

FANS - 7 CARNES No CL91A 1000 CFM ROOF EXHAUSTERS
CLOCKS 6 GE-2H1612 BROWN
BELLS - 1-6" EDWARDS - No 340-6, 24V - 1-340-10
FIRE ALARM - EDWARDS 4 #270 - SPO. STATION
- 2 # 364 HORNS 1 # 1221 PANEL TROUBLE BELL

•HEATING•

- BOILER. - W 508 AMERICAN-STANDARD WITH 20" STEEL BASE.
- BURNER - MODEL "L" AERO-FLAME WITH 4.0 G.P.H. NOZZLE.
- CIRCULATOR. - 2" ARMSTRONG, 30 GPM CONTROL - CR 106.
- 7-V8031 HONEYWELL ZONE VALVES (6)
- AT72D1 TRANSFORMERS (2)
- T26A THERMOSTATE (6)
- R CONTROL EACH VALVE

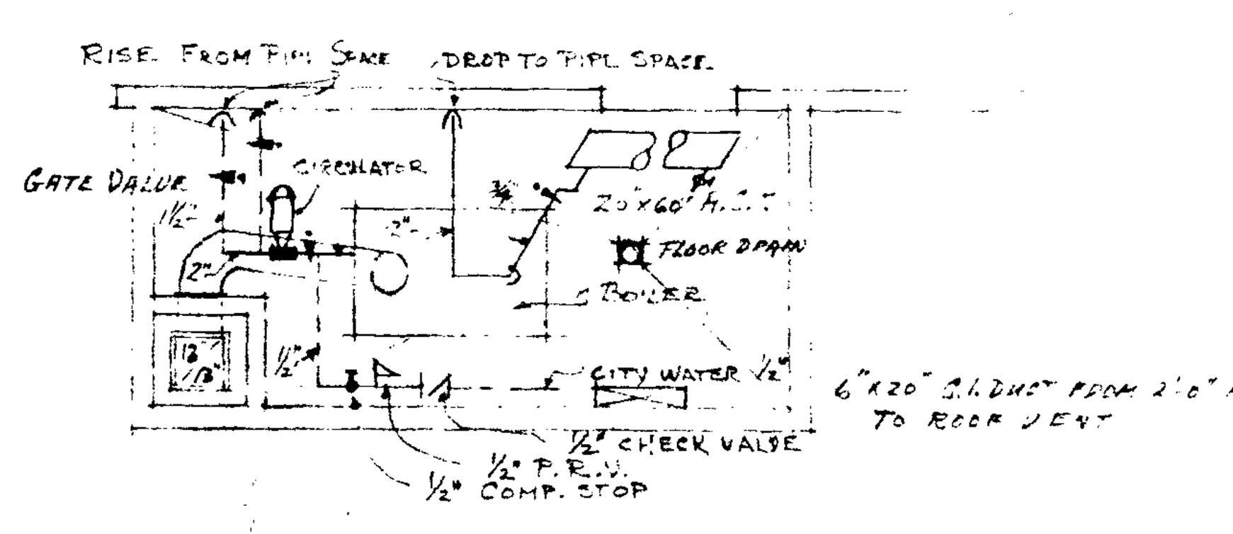
•PLUMBING FIXTURES•

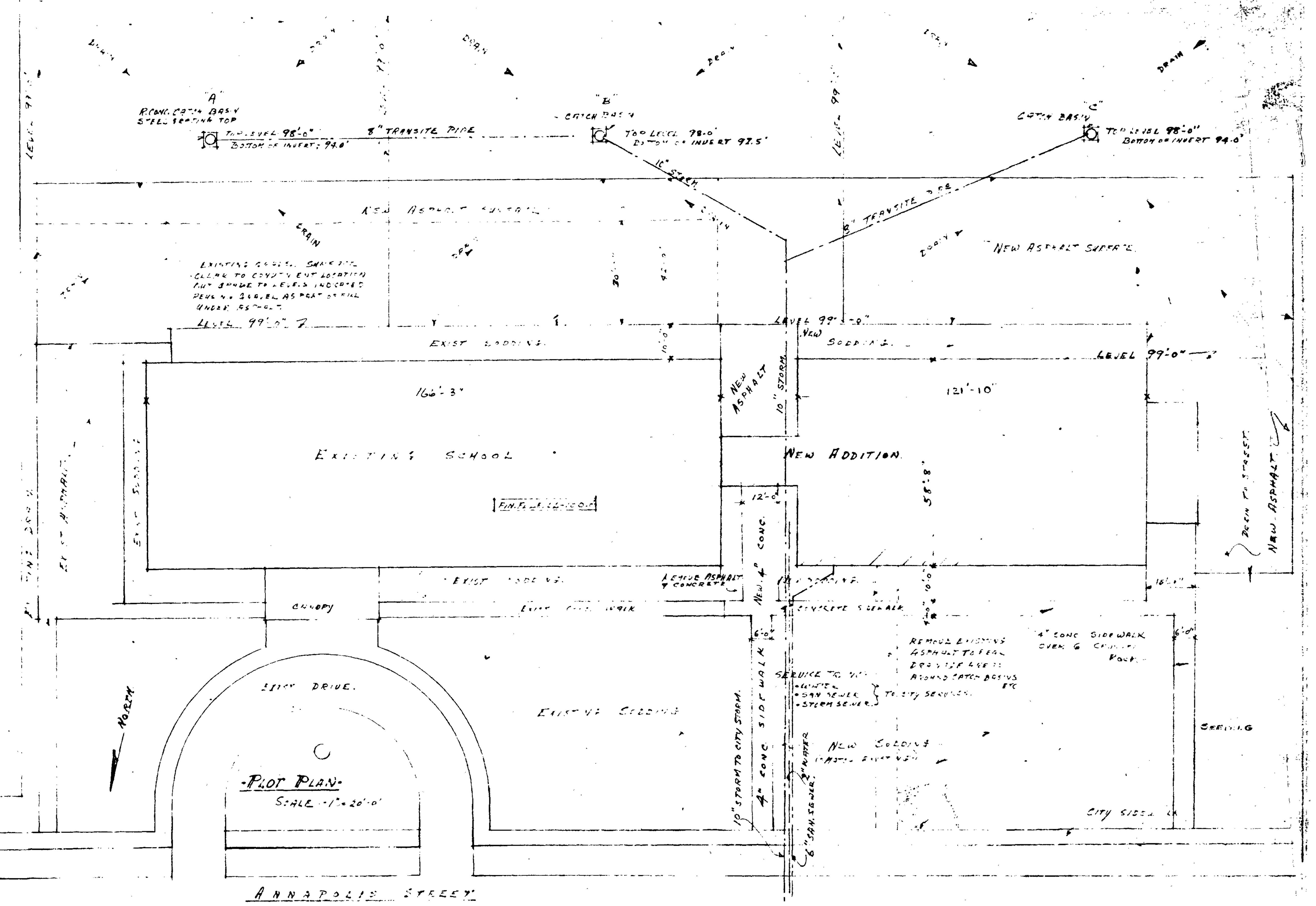
- 1 - STAINLESS STEEL SINK - KITCHEN INSTALL
- 4 - CRANE 7-32 "SANITOR" VITREOUS CHINA STALL URINALS.
- 10 - CRANE - 3-300½T "SANETO" VITREOUS CHINA WATER CLOSETS
- 2 - CRANE 6-515 "CLEARSTREAM" VITREOUS CHINA WALL DRINK. FOUNTAINS
- 9 - CRANE No. 1-24" "CLIFTON" 20"x18" PORCELAIN CAST IRON LAVATORIES
- 1 - CRANE 7-561-½ ACID RESIST. PORCELAIN ENAMEL CAST IRON SLOP SINK.
- 1 - F201 GENERAL FIREGUARD CORP. METAL GLASS FRONT WALL CAB - 2"x30"x6", 75 - 1½" HOSE

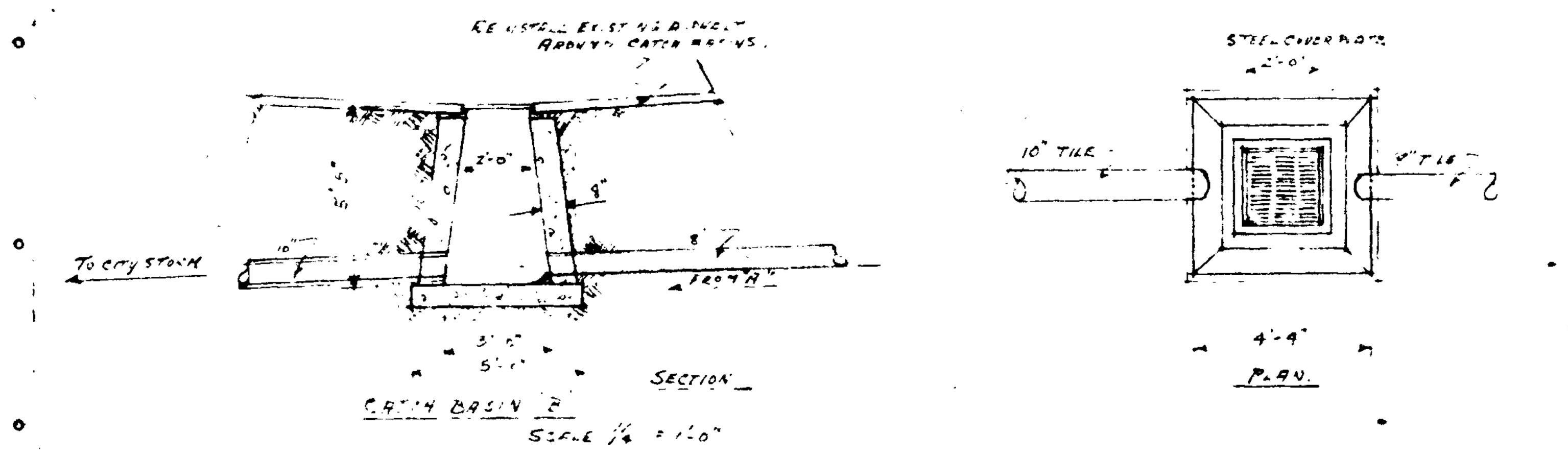
•ROOM FINISH SCHEDULE•

ROOM	FLOOR	WALLS	CEILING	TRIM	COMMENTS
1. CLASSROOM	1/8" VINYL ASBESTOS TILE	VITRICOTA TILE & BIRCH	ACOUSTIC TILE	BIRCH + RUBBER BASE (COLORED)	- ALUM TRIM AT CHALK & CORK BOARDS
2. CLASSROOM	"	" "	"	"	· STAIN & PAINT WOODWORK TO MATCH EXIST
3. CLASSROOM	"	" "	"	"	- FLOOR TILE COLORS TO MATCH EXISTING.
4. CLASSROOM	"	" "	"	"	- PAINT BEAMS, COLS. WHITE ALSO CANOPY.
7. TEACHER'S.	"	" "	"	"	- MATCH EXT & INT. COLORS & MATERIALS.
8. LAVATORY.	"	" "	"	"	
9. CORRIDOR.	TERRAZZO	" "	"	"	
10. STORAGE.	1/8" VINYL ASBESTOS TILE.	" "	"	"	
5. CLASSROOM.	"	" "	"	"	
6. CLASSROOM.	"	" "	"	"	
11. BOY'S LAVATORY.	TERRAZZO	" "	"	"	
12. GIRL'S LAVATORY.	TERRAZZO	" "	"	"	
13. BOILER ROOM.	PAINTED CONCRETE	DOUBLE GYPROC LATH + PLASTER (1 COAT)		"	

WALLS OF BOILER RM. - VITRICOTA TILE.





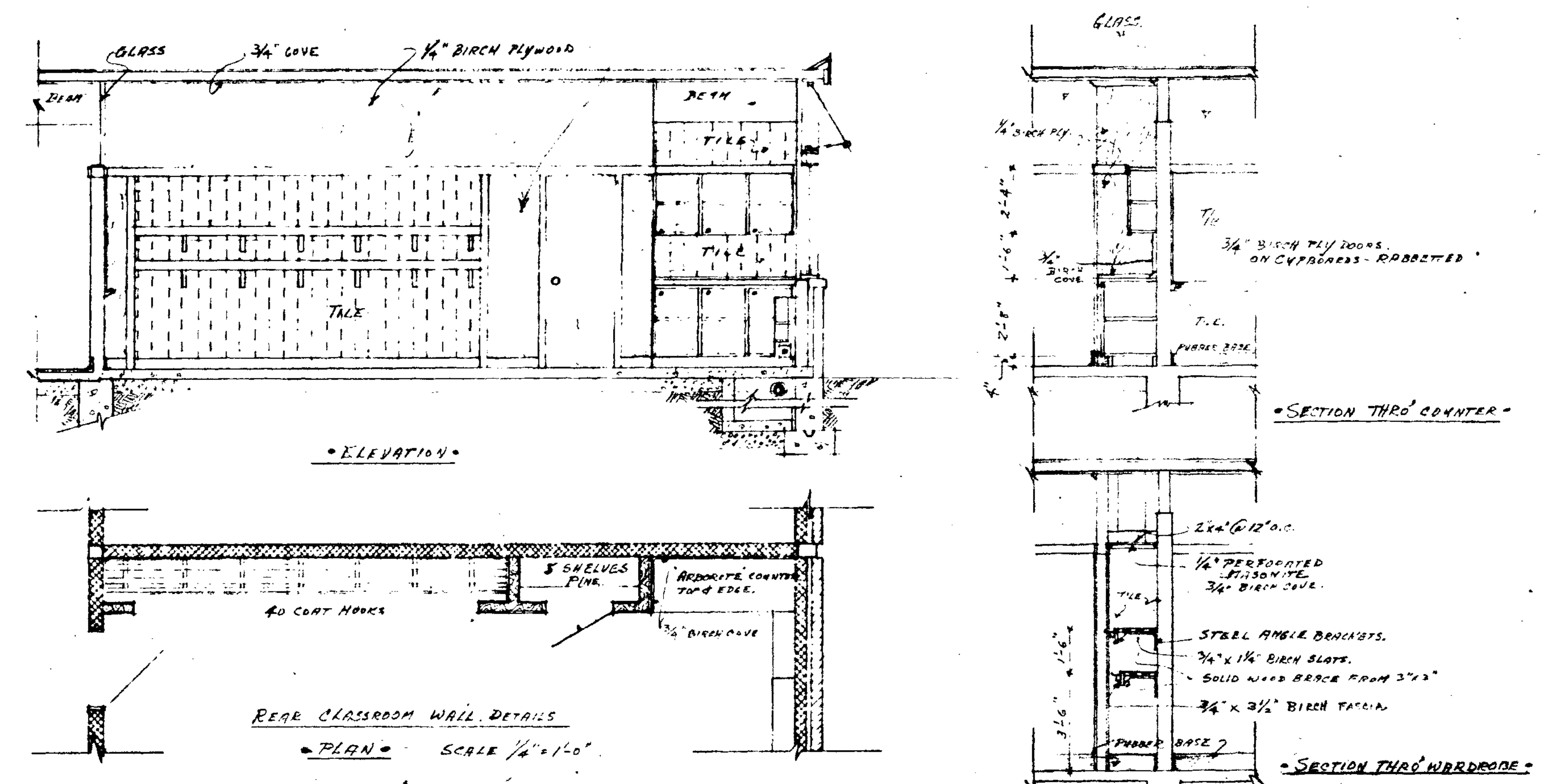


NOTE.

- FINISH GRADE TO LEVELS INDICATED.
- TAKE OFF TOP SURFACE OF GRAVEL, STORE AT CONVENIENT LOCATION, CUT GRADE TO PROPER LEVELS TO ALLOW FOR 4" GRAVEL AND 2" HOT ASPHALT, ALL TO DRAIN TO CATCH BASINS, ETC. AS INDICATED.
- REUSE EXIST ASPHALT SURFACE, AFTER CUTTING INTO CONVENIENT SQUARES, AS SURFACE DRAINAGE AROUND CATCH BASINS AND IN OPEN DRAINAGE DITCHES.
- INSTALL CLOSED TRANSITE PIPE WHERE INDICATED (STORM).
- SUPPLY & INSTALL NURSERY SOD OVER 2" TOP SOIL WHERE INDICATED AS NEW SODDING.
- SUPPLY & INSTALL (3) CONCRETE CATCH BASINS AS INDICATED.
- SEEDING SHALL NOT BE INCLUDED IN THIS CONTRACT.
- AFTER LEVELLING AND ROLLING 4" GRAVEL, SUPPLY & INSTALL 2" HOT ASPHALT & ROLL, WHERE INDICATED AS NEW ASPHALT.

* - ALL THE ABOVE SHALL BE INCLUDED IN THE TENDER PRICE.

* - ~~SUBMIT PRICE~~ FOR 2" ASPHALT SURFACE ALSO AS A SEPARATE PRICE.



GEO. C. N. TONKS — ONTARIO ASSOCIATION OF ARCHITECTS — MEMBER — ARCHITECT

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON JOB.

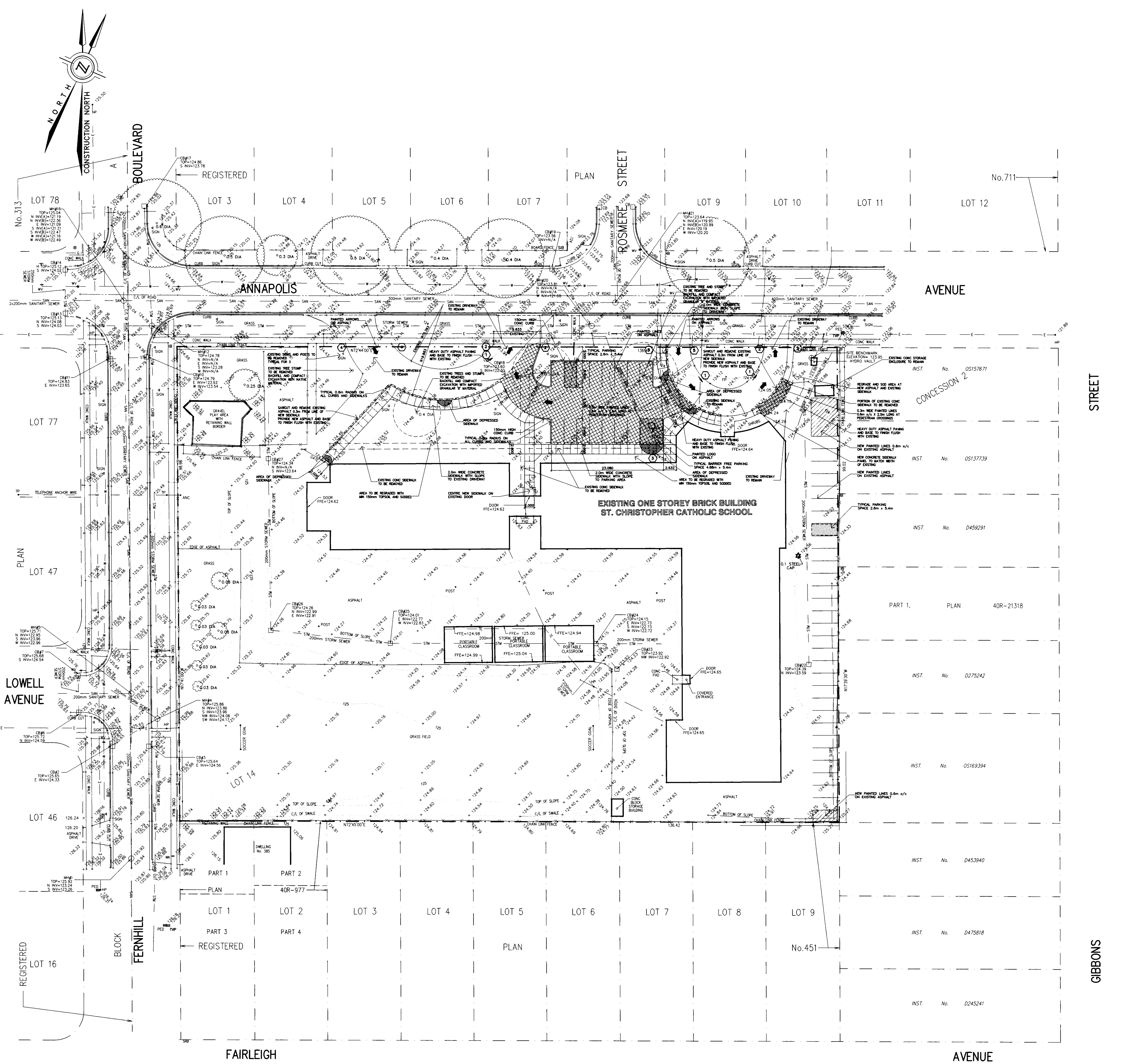
GEORGE C. N. TONKS
& ASSOCIATES
ARCHITECTS AND ENGINEERS
TORONTO — OWEN SOUND

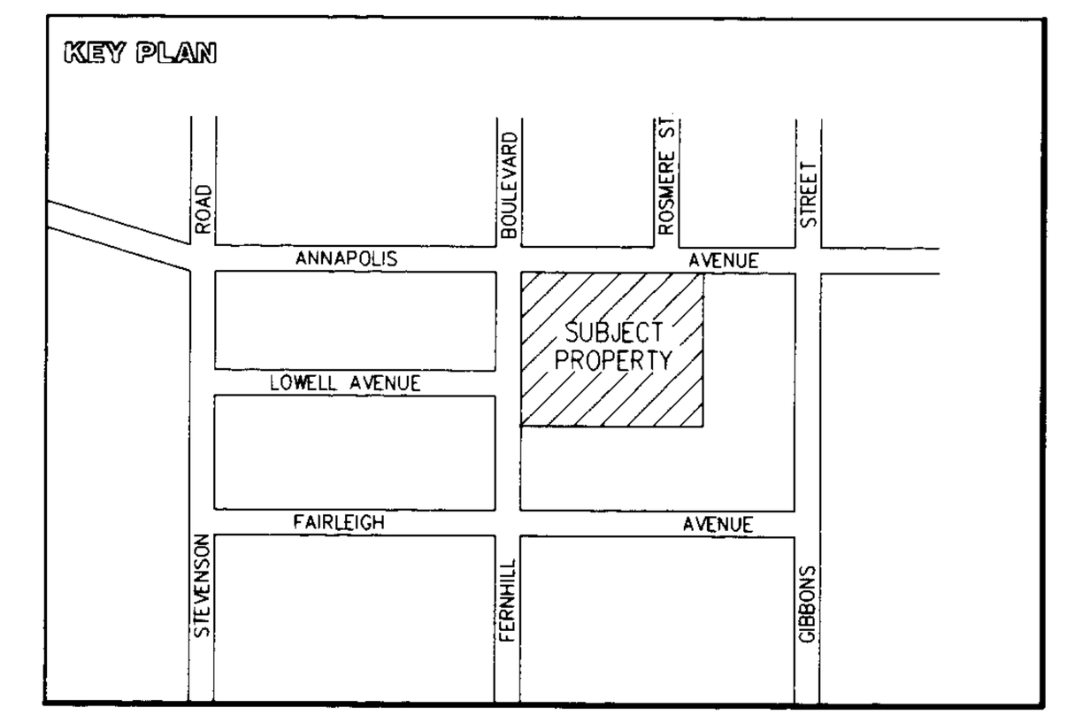
ADDITION TO ST. CHRISTOPHER'S SCHOOL

OSHAWA, ONT.

-HEATING • ELECTRICAL • PLUMBING • SITE PLAN • DETAILS.-		JOB No.
DRAWN BY: G T	CHECKED BY: G.T.	DRWG. No. 1
SCALE: AS SHOWN	DATE: APRIL, 1961 REVISED "	


NORTH ELEVATION
SOUTH ELEVATION
LONGITUDINAL SECTION L-L
WEST ELEVATION
CROSS SECTION C-C
LOUVRE DETAIL
SCALE 1" = 1'-0"
SKYLIGHT & FAN HOUSING CURB DETAILS
DOOR JAMB DETAILS
DETAILS
SCALE 1½" = 1'-0"
NOTE - MATCH EXIST BLDG. LINES, HTS. ETC.
NOTE - LASTO MERIC CAULKING (THIOKOL) AT ALL OPENINGS WHERE WEATHER MIGHT PENETRATE.
4 PLY FELT, ASPHALT & GRAVEL ROOF
G.I. FLASHING
FINISHED CEILING
FLOOR LEVEL
GRADE
EXISTING
NEW
BRICK
POURED CONCRETE
G.I. DAMPROOF FLASHING
EXISTING CANOPY & SUPPORTS - REUSED
CHALKBOARD
TACKBOARD
4" REINFORCED CONC. SLAB FLOOR OVER 6" CRUSHED ROCK
4" BROWN RUBBER BASEBOARD
5¼" x 17⅛" GLULAM BEAM
3" x 6" T&G ROOF DECK
LOUVRES
2" SOLID OAK
4" TILE
TERRAZZO
4" REINFORCED CONC. FLOOR
2" EXTERIOR SOLID DOOR
13" GLULAM BEAM
3/4" x 6" BIRCH
4" CONC. FLOOR
CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON JOB.
GEORGE C. N. TONKS
& ASSOCIATES
ARCHITECTS AND ENGINEERS
TORONTO
OWEN SOUND
ONTARIO ASSOCIATION OF ARCHITECTS
MEMBER
• ADDITION TO
ST. CHRISTOPHER'S
SCHOOL •
OSHAWA, ONT.
• ELEVATIONS •
• SECTIONS • DETAILS •
JOB No.
DRAWN BY
BY
G T
DRWG. No
3
SCALE
AS SHOWN
DATE
APRIL 1961
THESE DRAWINGS AND COPYRIGHT THEREIN REMAIN PROPERTY OF THE ARCHITECT AT ALL TIMES





PARKING REQUIREMENTS

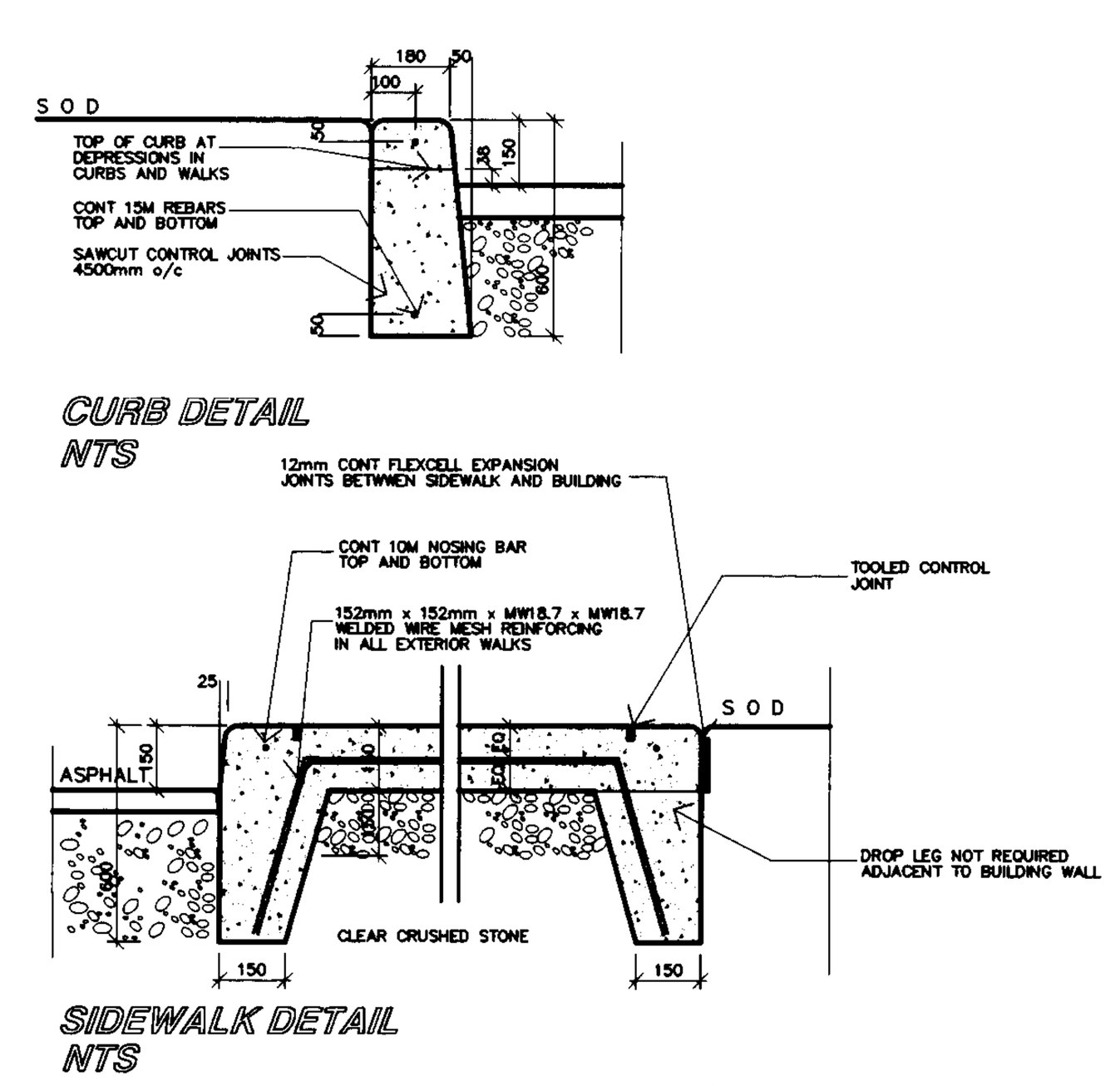
TOTAL SPACES REQUIRED :	ELEMENTARY SCHOOL – 1.5 SPACES / CLASSROOM (18):	27
	EXISTING PORTABLES – 1.5 SPACES / PORTABLE (3):	5
	FUTURE PORTABLES – 1.5 SPACES / PORTABLE (3):	5
	TOTAL :	37
TOTAL SPACES PROVIDED :	EXISTING :	30
	NEW :	15
	BARRIER FREE :	1
	TOTAL :	46

SITEWORK NOTES

1. VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH AND WORK TO BE CO-ORDINATED WITH LANDSCAPE DRAWINGS FOR LAYOUT AND DETAILS.
3. TOTAL SCOPE OF LANDSCAPING AND SITEWORK IS NOT INDICATED ON THIS DRAWING.
4. ALL DAMAGE TO GRADES AND EXISTING SURFACING TO REMAIN OR ON ADJOINING PROPERTIES CAUSED BY CONSTUCTION ACTIVITIES SHALL BE RESTORED TO MATCH EXISTING BY THE GENERAL CONTRACTOR.
5. GRADE SITE IN CONSTANT SLOPE BETWEEN NEW GRADE ELEVATIONS SHOWN. ALLOW FOR POSITIVE SLOPE IN SWALES AND TO CATHBASINS.
6. ALL WORK CARRIED OUT ON CITY OF OSHAWA PROPERTY SHALL BE IN ACCORDANCE WITH CITY DETAILS AND STANDARDS TO THE APPROVAL OF THE CITY ENGINEER AND THE ARCHITECT.
7. PROVIDE TYPICAL CURB DEPRESSIONS AT DRIVEWAYS WHERE WALKS MEET PERPENDICULARLY AS INDICATED ON THE DRAWINGS.
8. GENERAL CONTRACTOR SHALL INSPECT THE NATURE AND CONDITION OF THE SITE AND CERTIFY TO THE OWNER, IN WRITING, ACCEPTANCE OF THE SITE AS FOUND. NO CLAIMS FOR EXTRA ARISING OUT OF DISCREPANCIES BETWEEN EXISTING GRADES AND CONDITIONS OUTLINED IN THE CONTRACT DOCUMENTS AND FOUND GRADES AND CONDITIONS ON THE SITE WILL BE APPROVED BY THE OWNER.

GENERAL LEGEND

EXISTING GRADE ELEVATIONS AND CONTOURS
CONCRETE SIDEWALKS / PLATFORMS
CONCRETE SIDEWALK DEPRESSIONS



TOPOGRAPHIC PLAN SHOWING
PART OF LOT 14
CONCESSION 2
(GEOGRAPHIC TOWNSHIP OF EAST WHITBY)
NOW IN THE
CITY OF OSHAWA
REGIONAL MUNICIPALITY OF DURHAM
SCALE 1 : 300

J. D. BARNES LIMITED

METRIC DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

BENCHMARK

CITY OF OSHAWA BENCHMARK No.32

WEST SIDE GIBBONS STREET, SOUTH OF ANNAPOLIS AVENUE.
PLAQUE TO SOUTHEAST CORNER BOTTOM OF FOUNDATION OF HOUSE No.368 GIBBONS STREET

ELEVATION = 124.803m (GEODETIC)

SITE BENCHMARK

NORTHWEST CORNER OF HYDRO VAULT PAD LOCATED AT THE NORTHEAST CORNER OF SUBJECT PROPERTY.

ELEVATION = 123.95

NOTES

LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED BY THE CONTRACTOR BEFORE EXCAVATION.

SIZES AND LOCATIONS OF SEWERS MUST BE VERIFIED BY THE CONTRACTOR.

UNABLE TO VERIFY STORM AND SANITARY SEWER ROUTING.

BOUNDARY INFORMATION IS DERIVED FROM A PLAN OF SURVEY BY DONEVAN & FLEISCHMANN, O.L.S. DATED AUGUST 2, 1967 AND HAS NOT BEEN CONFIRMED BY FIELD SURVEY.

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE SOUTHERLY LIMIT OF ANNAPOLIS AVENUE AS SHOWN ON A PLAN OF SURVEY BY DONEVAN & FLEISCHMANN, O.L.S. DATED AUGUST 2, 1967, HAVING A BEARING OF N72°44'00"E.

LEGEND

■	DENOTES SURVEY MONUMENT FOUND
SIB	DENOTES STANDARD IRON BAR
IB	DENOTES IRON BAR
○ MH	DENOTES MANHOLE
□ CB	DENOTES CATCHBASIN
TP	DENOTES TELEPHONE POLE
HP	DENOTES HYDRO POLE
POST	DENOTES POST
FP	DENOTES FLAG POLE
WV	DENOTES WATER VALVE
H	DENOTES FIRE HYDRANT
PED	DENOTES TELEPHONE PEDESTAL
TVP	DENOTES CABLE TV PEDESTAL
SIGN	DENOTES SIGN
	DENOTES DECIDUOUS TREE
	DENOTES CONIFERIOUS TREE
—W—	DENOTES WATERMAIN
—UT—	DENOTES UNDERGROUND TELEPHONE
—UE—	DENOTES UNDERGROUND HYDRO
—G—	DENOTES GASMAIN
—E—	DENOTES OVERHEAD HYDRO
—C—	DENOTES UNDERGROUND CABLE
—SAN—	DENOTES SANITARY SEWER
—STM—	DENOTES STORM SEWER
DICB	DENOTES DITCH INVERT CATCHBASIN
FFE	DENOTES FINISHED FLOOR ELEVATION
—TE—	DENOTES TELEPHONE AND HYDRO

SURVEYOR'S CERTIFICATE

THE UNDERSIGNED CERTIFIES THAT THIS SURVEY MEETS THE CURRENT MINIMUM STANDARDS AND REQUIREMENTS AS SET OUT BY THE ASSOCIATION OF ONTARIO LAND SURVEYORS.

SIGNED ______________ DATED ______________
G. C. LAFRAMBOISE

BEING A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE PROVINCE OF ONTARIO.
LAND SURVEYOR No. 1898

THE FIELDWORK REPRESENTED ON THIS PLAN WAS COMPLETED ON OCTOBER 22, 2008.

J.D.BARNES LIMITED
SURVEYING PLANNING MAPPING GIS
LAND INFORMATION SPECIALISTS
110 SCOTIA COURT, #40 WHITBY, ON L1N 8Y7
T: (905) 723-1212 F: (905) 723-4234 www.jdbarnes.com

DRAWN BY: F.B.J.	CHECKED BY: G.C.L.	REFERENCE NO.: 08-25-110-00
FILE:		DATED: NOVEMBER 4, 2008

ST. CHRISTOPHER CATHOLIC SCHOOL

ONTARIO ASSOCIATION OF ARCHITECTS
PAUL A. WEPPLER
LICENCE 3541

SACCOCCIO WEPPLER ARCHITECTS INC
215 MORRISH ROAD WEST HILL ONTARIO
(416) 282 - 1197 FAX (416) 282 - 7697

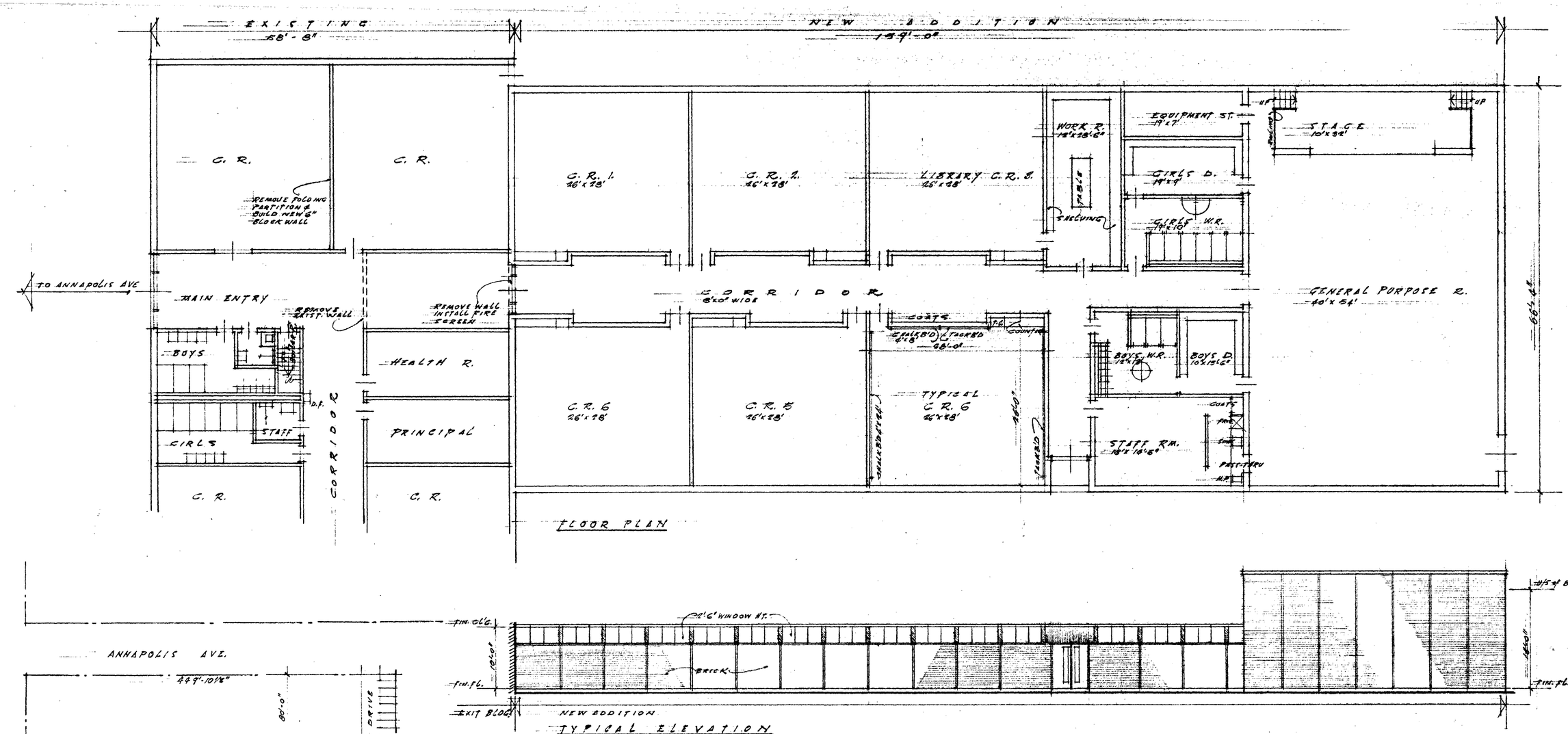
CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME, REPORTING ANY DISCREPANCIES TO THE ARCHITECT BEFORE COMMENCING THE WORK.

PRINTS ARE NOT TO BE SCALED.

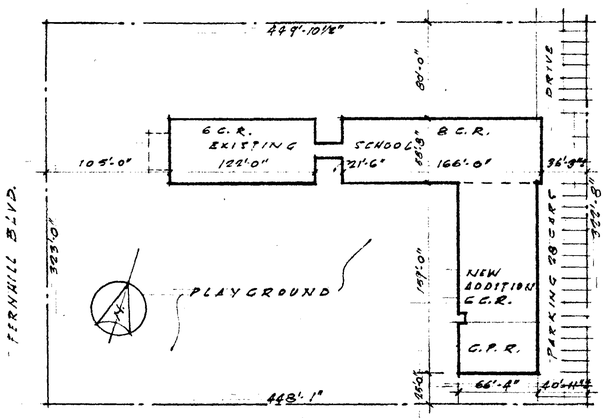
SITE ALTERATIONS TO
ST. CHRISTOPHER CATHOLIC SCHOOL
431 ANNAPOLIS AVENUE OSHAWA
DURHAM CATHOLIC DISTRICT SCHOOL BOARD

SITE PLAN

DATE	DRAWN	SCALE	JOB No	DRAWING No
MAY 2009	P A W	1:300	09101	ONE



TYPICAL ELEVATION
SCALE 1/8" = 1'-0"



SITE PLAN
SCALE 1" = 60'-0"

AREA - 10,574 SQ. FT.

ADDITION TO
ST. CHRISTOPHER'S SCHOOL
ANNAPOLIS A.A.C. For
BD. OF R.C. SEPARATE SCHOOL TRUSTEES

PLANS & ELEVATION

DATE	DRAWN	SCALE	JOB No.	DWG. No.
FEB./67	W. S.	AS NOTED	67107	1