



Functional Servicing Report
for
Re-development of General Amherst High School
130 Sandwich Street South, Amherstburg, Ontario

By

D.C. McCloskey Engineering Ltd.

Certification of Authorization No. 11557479



Project No: M24-290

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1.0 Property and Development Description

The former General Amherst High School, located at 130 Sandwich Street South in the Town of Amherstburg, Ontario is proposed to be re-developed to include the new location of the Town of Amherstburg municipal offices, a hotel, residential condominiums, a fitness centre, several commercial retail units, and surface and underground parking lots.

The development program and floor plans in Appendix A proposes the following:

- Municipal offices: 35,000 ft² (3,252 m²)
- Retail: 12,000 ft² (1,189 m²)
- Restaurant: 5,600 ft² (520 m²)
- Residential units: 144 (residential or hotel units total)

The re-development of the 1.17 hectare property will maintain parts of the school building, with the central section of the school removed to accommodate the surface and underground parking lots. This study will review the available capacity of the municipal domestic and fire protection water supply, sanitary conveyance, and storm sewers to determine if there is adequate capacity to support this development without having a negative impact on the municipal systems and surrounding neighbourhood properties.

1.1 Report References

The following drawings and standards were referenced in the preparation of this report:

- Plan of Survey prepared by Verhaegen Land Surveyors dated May 10, 2024
- House Service Location sheet provided by the Town of Amherstburg
- Sandwich Street Watermain (as-constructed) prepared by R.C. Spencer Associates, dated April 3, 2009 (sheet 15 of 35 and 26 of 36) (Appendix B)
- Laird Avenue South Watermain (as-constructed) prepared by R.C. Spencer Associates, dated January 30, 2009 (Appendix B)
- Sandwich and Fort Streets Plan and Profile sheets (2,3 and 7 of 9) prepared by LaFontaine, Cowie, Buratto & Associates Limited, dated December 1974 (Appendix B)
- Fort Street Plan and Profile (as-constructed) sheet 8 of 13 prepared by Hanna, Ghobrial and Spencer Limited, dated December 1974 (Appendix B)



- General Amherst High School building drawings prepared by J.P. Thomson Associates Architects (sheets A-2, A10 – A12), dated April 21, 1966 (Appendix C)
- Town of Amherstburg Development Manual (May 2009; refer to Town website for document)
- Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Design Guidelines
- MECP Design Criteria for Sewers and Force mains (2019)
- MECP Design Criteria for Sanitary Sewers, Storm Sewers and Force mains for Alterations Authorized under Environmental Compliance Approval (draft November 2019)

2.0 Municipal Service Requirements

The following sections of this report will develop a comparison of the demand on municipal services from the former high school and the proposed development. The objective of this report is to evaluate the increased water demand, higher wastewater flows, and to provide the design criteria for the stormwater management.

2.1 Sanitary Sewer

The former high school, according to the plot plan in Appendix C and Figure 1, was serviced by the following sanitary sewers connected to the combined sewers on Sandwich Street and Laird Avenue:

- a. 200mm transite pipe connected to the 500mm x 600mm combined sewer on Sandwich Street on the north end of the property (from the proposed gym / retail building).
- b. 200mm transite pipe connected to the 550mm x 700mm combined sewer located at the southerly end of the property (near the main entrance).

The 200mm sewer described in (b) appears to service most of the high school, with the exception of the building addition on the north side, completed in 1966.

An evaluation of the sanitary wastewater discharged to the Sandwich Street sanitary sewer assessed both the current high school and the new development probable drainage rates using the plumbing fixtures in each building. The plumbing fixture units for the high school building were determined from the existing building floor plans in Appendix C, and summarized in tables 1 and 2. The plumbing fixture units

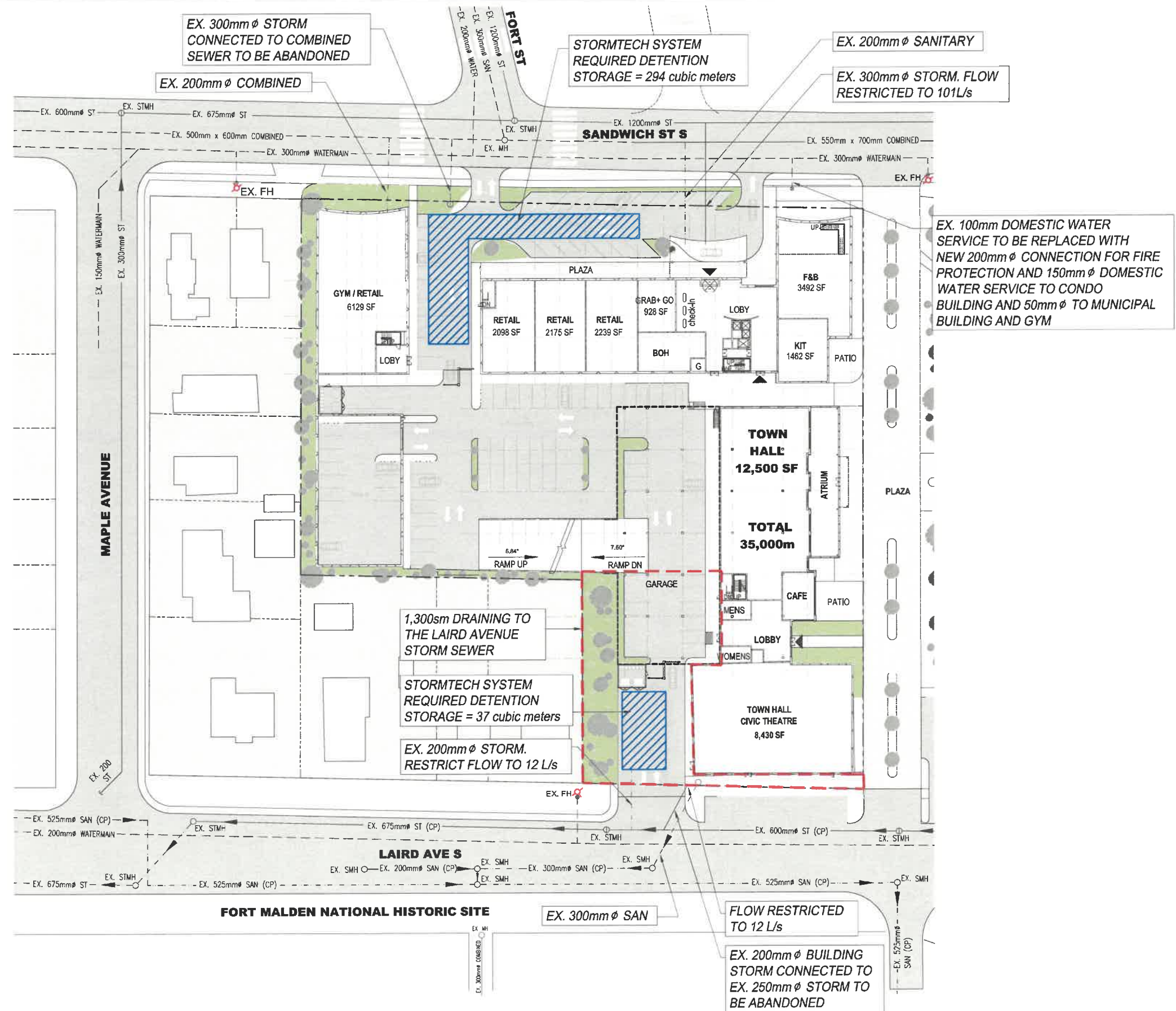


FIGURE 1 - MUNICIPAL SERVICES PLAN
SCALE : 1:400



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in the proposed development is based on the preliminary floor plans prepared by Architectura in Appendix A, and summarized in tables 3 and 4.

Table 1. Existing building plumbing fixtures

Location	Water Closet	Urinal	Sink	Drinking Fountain	Clothes Washer	Washroom Group
Shop Wing (dwg. A-12)	2	4	5	1	0	2
Basement, Academic Wing (dwg A-9)	9	2	6	2	0	2
First Floor, Academic Wing (dwg A-10)	11	4	7	2	0	2
Second Floor, Academic Wing (dwg. A-11)	9	4	6	2	1	3
First Floor, Gym & Shop (dwg. A-8)	2	0	4	0	0	4
Total:	33	14	28	7	1	13

Table 2. Existing building fixture units

Fixture	No. of Fixtures	Hydraulic Load (Fixture Units) Per Fixture ¹	Total Fixture Units
Water closet (direct flush)	33	6	198
Urinal	14	2	28
Sink	28	1.5	42
Drinking fountain	7	0.5	3.5
Clothes washer	1	1	1
Washroom group	13	8	104
Total Fixture Units (Current):			376.5

¹ – Fixture units per fixture referenced from Ontario Building Code (OBC) table 7.4.9.3

Table 3. Plumbing fixtures in proposed development

Location	Water Closet	Urinal	Sink	Drinking Fountain	Clothes Washer	Washroom Group
Lobby / Meeting Rooms	4	2	2	0	0	0
Back of House (laundry)	0	0	3	0	4	0
Gym	0	0	1	0	0	2
Retail (3 Units)	0	0	0	0	0	3
Residential (144 Units)	0	0	0	0	144	144
Town Hall	6	4	4	0	0	4
Total:	10	8	10	0	148	153

Note: Dishwashers in residential units connected to the domestic sink, and therefore no load is added (ref. Ontario Building Code (OBC) table 7.4.9.3).



Table 4. Estimated fixture units in proposed development

Fixture	No. of Fixtures	Hydraulic Load (Fixture Units) Per Fixture	Total Fixture Units
Water closet (direct flush)	10	6	60
Urinal	8	2	16
Sink	10	1.5	15
Drinking fountain	0	0.5	0
Clothes washer	148	1	148
Washroom group	153	8	1,224
Total Fixture Units (Proposed):			1,463

The maximum probable flow from the high school for 377 fixture units, based on fixture unit type (table 7.4.10.5 in the Ontario Building Code) is 93 USGPM (5.9 L/s), and the proposed development, with 1,471 fixture units, has a maximum probable flow rate of 215 USGPM (13.5 L/s).

The peak flow from the former high school is determined using the above design criteria and calculated using the following formula:

$$Q_{\text{peak}} = P \times q \times M + IA \text{ (L/s)}$$

where, P = population of 690 people
 p = population (thousands) = 0.69 people
 q = average water consumption per capita per day (70 - 140 L/day [ref. Table 1 for school common sewage flow rates in MECP Design Criteria for Sanitary Sewers, Storm Sewers, and Forcemains])
 Use q = 130 L/day based on fixtures not being low water usage
 M = Harmon Peaking Factor = $1 + \frac{14}{4 + p^{0.5}} = 3.9$
 I = infiltration (extraneous flow) = 0.2 L/s/ha
 A = property area (ha) = 1.17

$$Q_{\text{peak}} = \frac{P \times q \times M + IA \text{ (L/s)}}{86,400 \text{ s/day}}$$

$$Q_{\text{peak}} = 4.3 \text{ L/s}$$



The peak flow for the proposed development is determined using the above design criteria and calculated using the following formula:

$$Q_{\text{peak}} = P \times q \times M + IA \text{ (L/s)}$$

where, q (residential units) = 450 L/day/person
 q (municipal office/retail/gym) = 80 L/day/person
Office/retail/gym equivalent residential flow (ESF) based on a non-residential population of 120 persons is calculated as:

$$ESF = 120 \times 80 / 450 = 22 \text{ persons}$$

$$\text{Total residential population (P)} = 360 + 22 = 382 \text{ persons}$$

$$p = \text{population (thousands)} = 0.4$$

$$M = \text{Harmon Peaking Factor} = 1 + \frac{14}{4 + p^{0.5}} = 4.0$$

$$I = \text{infiltration (extraneous flow)} = 0.2 \text{ L/s/ha}$$

$$A = \text{property area (ha)} = 1.7$$

$$Q_{\text{peak}} = \frac{P \times q_{\text{residential}} \times M}{86,400 \text{ s/day}} + IA \text{ (L/s)}$$

$$Q_{\text{peak}} = 8.3 \text{ L/s}$$

The assessment of the increase in the probable flow rate and peak flow rates from the proposed development considered the following:

- Lower water usage from the new fixtures compared to the school.
- Duration and time of peak flow occurrence.
- School enrollment of 645 students (2019), with approximately 45 teachers and support staff (total population of 690 persons).
- Proposed development population estimated as:
 - Municipal Building: 80 employees
 - Retail (5 units): 10 employees
 - Gym (estimated occupancy): 30 persons
 - Residential units (2.5 persons / unit x 144 units): 360 persons
 - Total population: 480 persons



The probable and peak wastewater flow rates from the proposed development are each two times the rates of the former high school. However, the peak flows from the proposed development, with the majority of wastewater flow from the residential units, likely occur in the early morning and late evening, as opposed to the former high school peak flow rates occurring between 9:00AM and 3:30PM. The peak flow rate during the weekends would be higher from the new development, however the flow rate in the municipal sewer from industrial and commercial businesses would typically be much lower than during the work week.

The assessment of the wastewater peak flow increase of 4.3 L/s to 8.3 L/s concluded that this peak flow is not expected to have a measurable impact on the available conveyance capacity of the 550mm x 700mm combined sewer (this sewer may have been separated since the as-constructed drawing date of April 2009). In pre-consultation with the Town of Amherstburg Engineering Department, our office was advised that there are no known sanitary sewer conveyance issues, and the wastewater treatment plant has adequate capacity to support new developments.

2.2 Domestic Water Demand

The domestic water demand is calculated using an average of 250 L/day/person, a peak factor of 2.0, and an equivalent residential population (calculated in the previous section) of 382 persons:

$$Q = 382 \text{ persons} \times 250 \text{ L/day/person} \times 2.0 / 1,000 = 193 \text{ m}^3/\text{day}$$

The Town of Amherstburg advised during our pre-consultation meeting that the Town's consultant, Stantec, will evaluate the proposed development's water demand on the municipal water distribution network.

The fire protection flow demand for the proposed development will be at or below the flow demand for the high school, considering the change in building classifications, and the separation of the school into three (3) buildings (i.e. small fire compartments).



3.0 Stormwater Management Plan

This conceptual stormwater management plan will define the design criteria for the lot grading, storm sewers, and detention storage volume required for the re-development of the property. The conceptual design is in accordance with the Windsor/Essex Region Storm water Management Standards Manual (WERSMSM), the Town of Amherstburg Development Manual, and the MECP Stormwater Management Design Guidelines.

The allowable stormwater release rate from the property to the municipal storm sewer has been established at 113 L/s based on the assessment completed in the memorandum in Appendix D that has been approved by the Town of Amherstburg Engineering Department in December 2024.

The Modified Rational Method analyzed the post-development site conditions (pervious and impervious areas) to determine the stormwater detention storage for the 5-year and 100-year storm events. The results of this analysis concluded a minimum detention storage volume of 131m³ and 331m³ is required for the 5- and 100-year storm events, respectively (refer to Appendix E for the analysis calculations). A review of the plot plan prepared by J.P. Thomas (dwg. A-12 in Appendix B) indicates this storm connection to Sandwich Street (the northerly connection has subsequently been disconnected), and a small catchment area of approximately 1300m² (11% of the property area) drains to the Laird Avenue storm sewer, as highlighted on Figure 1. To maintain the same drainage area to the Laird and Sandwich Street storm sewers, the allowable release rate and required detention storage volume will be proportional, as shown in table 5 below.

Table 5. Allowable flow rate and detention volume proportions

Outlet Location	% of Property Area	Allowable Release Rate (L/s)	Minimum Detention Storage Volume (m ³)
Sandwich Street	89	101	294
Laird Avenue	11	12	37



The proposed site plan, including the underground parking, limits the use of temporary parking lot flooding for detention storage, and therefore Stormtech underground retention systems, located on the east and west sides of the property as shown in Fig. 1, will provide the total minimum detention storage.

Treatment of the stormwater effluent will use Stormtech isolation rows that filter the runoff through a geotextile fabric wrapped around the Stormtech units. The isolation rows are sized to meet a minimum 70% TSS removal efficiency (normal protection).

4.0 Assessment Conclusions

This functional servicing report and assessment has concluded that the proposed re-development of the former General Amherst property will not have a measurable impact on the municipal domestic water, sanitary sewers, or storm sewers. The following is a summary of the assessment and requirements to be incorporated into the final building design for each municipal service:

Sanitary sewer

- The 4 L/s increase in the proposed development's peak flow will not have a measurable impact on the sanitary sewer conveyance capacity.
- The wastewater treatment plant has adequate treatment capacity.
- CCTV all building sewers, including all private drain connections (PDCs) to determine pipe conduction and determine if re-lining or replacement may be necessary.
- Abandon all redundant PDCs by capping and grouting the PDC from the property to the mainline sewer.

Water

- Peak domestic water demand of 193 m³/day to be evaluated by the Town of Amherstburg consultant.



- Fire protection water demand for the development can be supplied by the 300mm municipal watermain on Sandwich Street, with no impact to the water distribution network.
- Flow tests to be completed on the 300mm watermain on Sandwich Street.
- The existing 100mm domestic water service from the Sandwich Street watermain is to be replaced with a new 200mm PVC connection to the property, with a 200mm fire protection main into each of the two (2) buildings. The gym building does not require fire protection.
- A water meter pit is to be installed at the property line with a 150mm domestic water service to the condominium building, and a 50mm domestic water service to the municipal and gym buildings.

Stormwater Management

- The reconstruction of the new development's allowable release rate of 113 L/s, with 110 L/s into the Sandwich Street sewer and 12 L/s into the Laird Avenue sewer will not increase the current flow rate from the high school.
- The lot grading and site servicing will improve the lot level controls to effectively convey all runoff into the storm sewer system and Stormtech underground detention systems.
- Water quality treatment of the runoff is incorporated into the stormwater management design (former high school has no water quality treatment).

END OF REPORT



APPENDIX A

Site and Floor Plans of Proposed Development



AMHERSTBURG
EST. 1796

AMHERSTBURG TOWN CENTRE

Preserving our past, while forging our future

PARK SIDE BLOCK UNITS SUMMARY

CATEGORY	UNITS AREA (SF)	UNIT COUNT
LEVEL 3-4-5-6		
- 2 BEDROOM UNITS	1080 SF	28
- 2+1 BEDROOM UNITS	1290 SF	8
- 1 BEDROOM UNITS	860 SF	4
LEVEL 7-8		
- 2 BEDROOM UNITS	1080 SF	6
- 3 BEDROOM UNITS	1500 SF	6
- 3 BEDROOM PREMIUM UNITS	1720 SF	2
LEVEL 9-10		
- 3 BEDROOM UNITS	1500 SF	4
- 3 BEDROOM PREMIUM UNITS	1720 SF	2
- 3+1 BEDROOM LUX UNITS	1935 SF	2
- 3+1 BEDROOM SUPER UNITS	2580 SF	2
LEVEL 11		
- PRIVATE SUITE	3000 SF	1

PARK SIDE BLOCK UNITS SUMMARY

CATEGORY	UNITS AREA (SF)	UNITS COUNT
- 1 BEDROOM UNITS	860 SF	4
- 2 BEDROOM UNITS	1080 SF	34
- 2+1 BEDROOM UNITS	1290 SF	8
- 3 BEDROOM UNITS	1500 SF	10
- 3 BEDROOM PREMIUM UNITS	1720 SF	4
- 3+1 BEDROOM LUX UNITS	1935 SF	2
- 3+1 BEDROOM SUPER UNITS	2580 SF	2
- PENTHOUSE SUITE	3000 SF	1
TOTAL UNITS		68

SANDWICH BLOCK UNITS SUMMARY

CATEGORY	UNITS AREA (SF)	UNITS COUNT
LEVEL 2-3		
- 1 BEDROOM UNITS	860 SF	28
- 2 BEDROOM UNITS	1080 SF	1
LEVEL 4-5-6		
- 1 BEDROOM UNITS	860 SF	15
- 2 BEDROOM UNITS	1080 SF	10
- 2+1 BEDROOM UNITS	1290 SF	6
- 3 BEDROOM UNITS	1500 SF	1
LEVEL 7-8		
- 1 BEDROOM UNITS	860 SF	6
- 2 BEDROOM UNITS	1080 SF	4
- 2+1 BEDROOM UNITS	1290 SF	4
- 3 BEDROOM UNITS	1500 SF	4

SANDWICH BLOCK TOTAL UNITS SUMMARY

CATEGORY	UNITS AREA (SF)	UNITS COUNT
- 1 BEDROOM UNITS	860 SF	49
- 2 BEDROOM UNITS	1080 SF	15
- 2+1 BEDROOM UNITS	1290 SF	10
- 3 BEDROOM UNITS	1500 SF	5
TOTAL UNITS		79
TOTAL PROJECT UNITS :		144

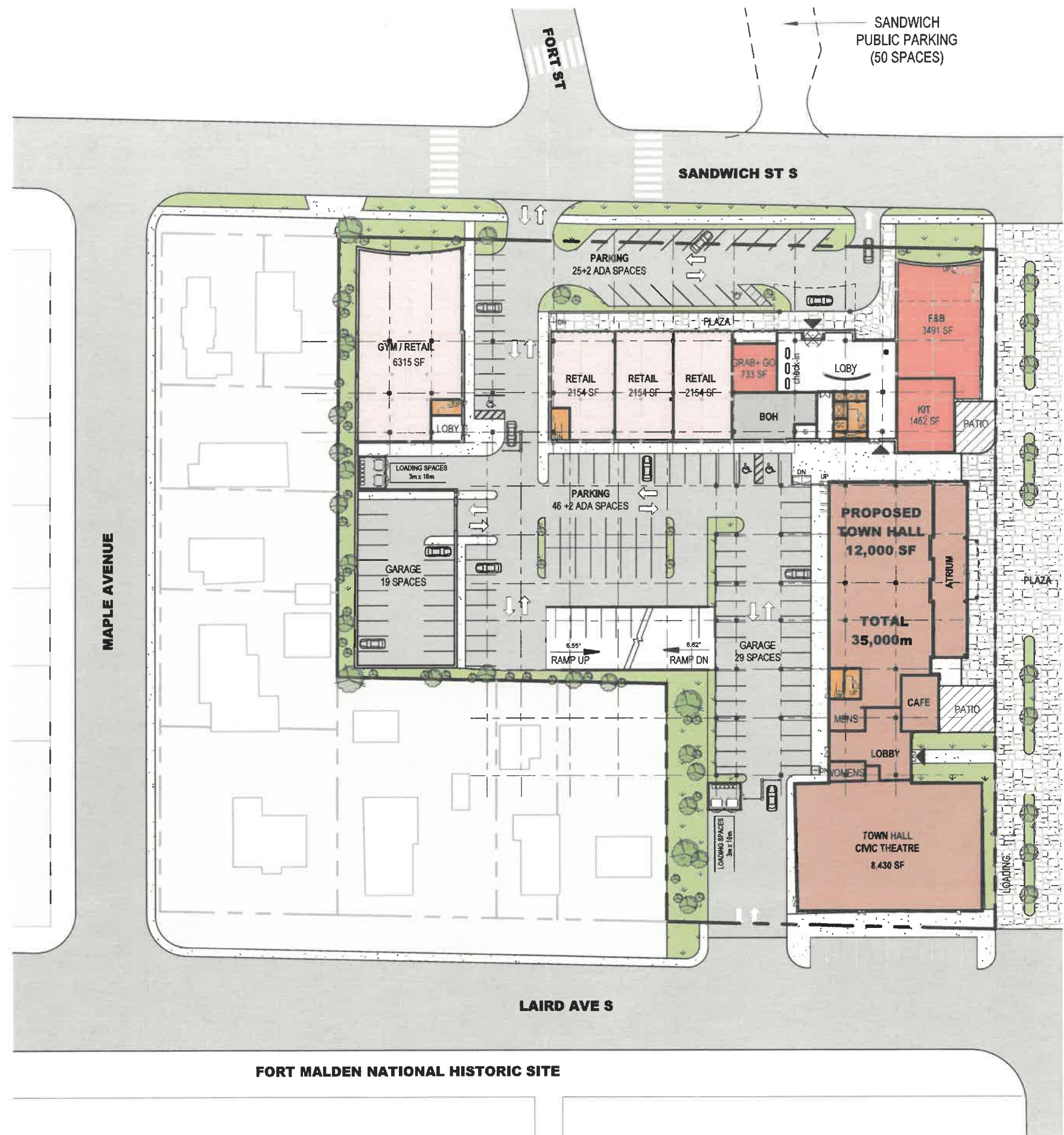
PARK SIDE BLOCK UNITS SUMMARY

CATEGORY	UNITS AREA (SF)
- BASEMENT AND GARAGE	71,112 SF
- FIRST FLOOR	51,548 SF
- 2nd FLOOR	36,850 SF
- 3rd FLOOR	27,884 SF
- 4th FLOOR	27,420 SF
- 5th FLOOR	27,420 SF
- 6th FLOOR	26,720 SF
- 7th FLOOR	25,145 SF
- 8th FLOOR	25,145 SF
- 9th FLOOR	16,096 SF
- 10th FLOOR	12,352 SF
- 11th FLOOR	6,090 SF
TOTAL AREA	353,782 SF 32,867 m ²

PARKING SUMMARY

CATEGORY	PARKING COUNT
PROVIDED PARKING	
- Level 01	100 + 4 ADA
- Level 02	31
- VIP Garage	19
- Level -1 (Underground Garage)	106 + 2 ADA
TOTAL PROVIDED PARKING	262
REQUIRED PARKING	
- Residential Units (144 x 1.25)	180
- Retail Area (12,800 SF ÷ 269 SF)	47
- Restaurant (5,600 SF ÷ 161 SF)	35
TOTAL REQUIRED PARKING	262
TOWN HALL	
municipa parking (35,000 SF ÷ 376 SF)	93

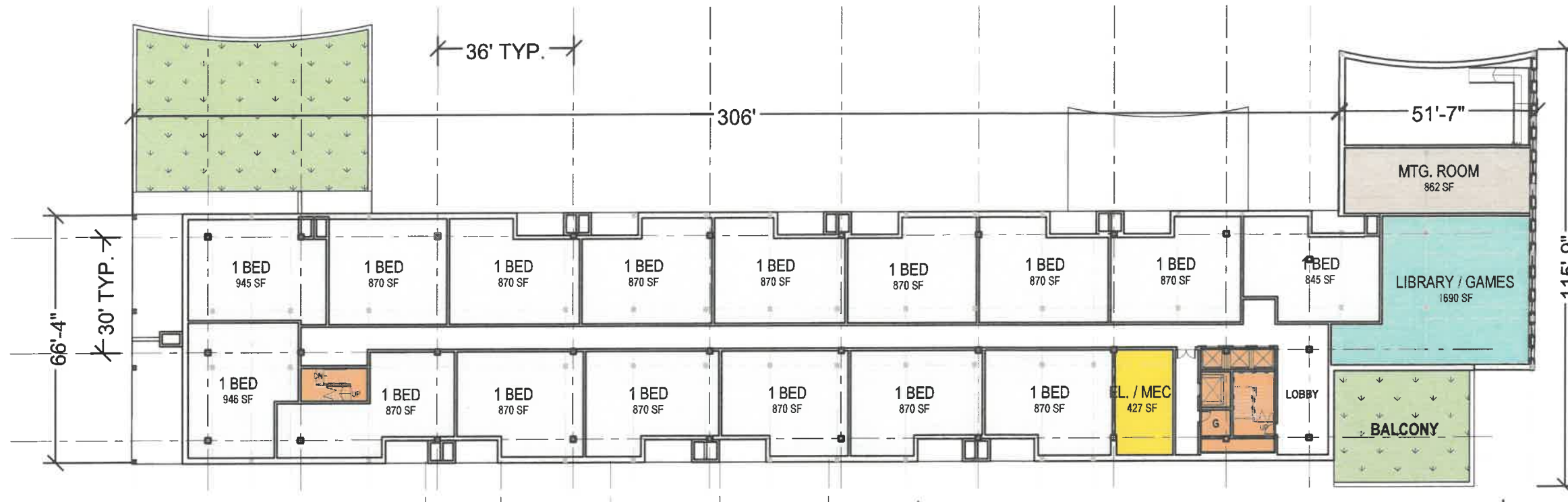




LEGEND

RETAIL / GYM 12,800 SF	OUTDOOR PLAZA
F & B 5,600 SF	OUTDOOR PATIO
GRASS	PARKING
TOWN HALL	CORE

GRADE
SCALE: 1 : 800



SANDWICH BLOCK UNIT SUMMARY

CATEGORY	UNITS COUNT
LEVEL 2-3	
- 1 BEDROOM UNITS	28
- 2 BEDROOM UNITS	1
LEVEL 4-5-6	
- 1 BEDROOM UNITS	15
- 2 BEDROOM UNITS	10
- 2+1 BEDROOM UNITS	6
- 3 BEDROOM UNITS	1
LEVEL 7-8	
- 1 BEDROOM UNITS	6
- 2 BEDROOM UNITS	4
- 2+1 BEDROOM UNITS	4
- 3 BEDROOM UNITS	4
TOTAL UNITS	79

PARK SIDE BLOCK UNIT SUMMARY

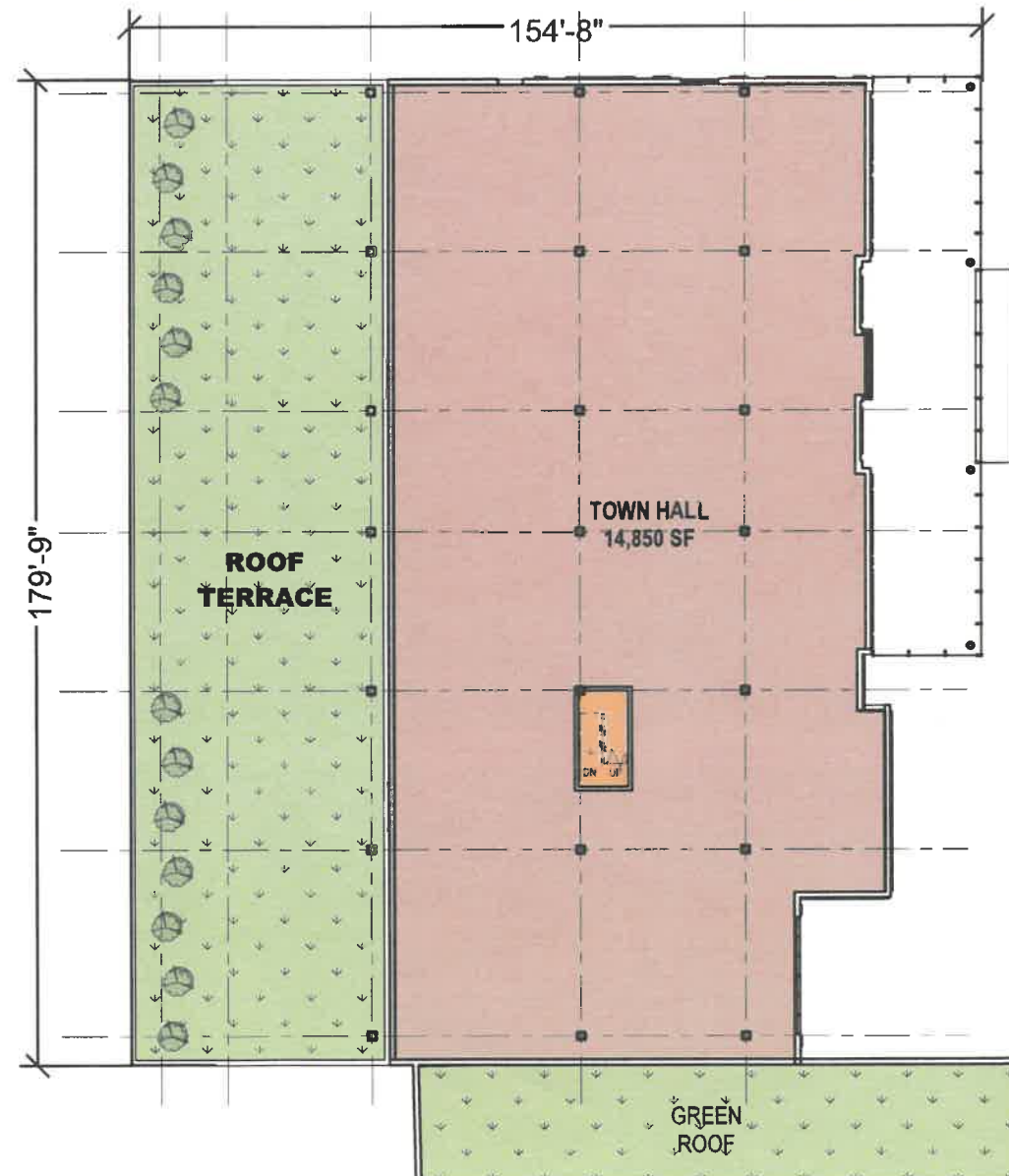
CATEGORY	UNIT COUNT
LEVEL 3-4-5-6	
- 2 BEDROOM UNITS	28
- 2+1 BEDROOM UNITS	8
- 1 BEDROOM UNITS	4
LEVEL 7-8	
- 2 BEDROOM UNITS	6
- 3 BEDROOM UNITS	6
- 3 BEDROOM PREMIUM UNITS	2
LEVEL 9-10	
- 3 BEDROOM UNITS	4
- 3 BEDROOM PREMIUM UNITS	2
- 3+1 BEDROOM LUX UNITS	2
- 3+1 BEDROOM SUPER UNITS	2
LEVEL 11	
- PRIVATE SUITE	1
TOTAL UNITS	68

Room Legend

- 1 BED
- EL. / MEC.
- LIBRARY / GAMES
- MTG. ROOM

FLOOR AREA SUMMARY

TOWNHALL:	14,850 SF
RESIDENTIAL:	14,358 SF
OTHER:	7,642 SF
TOTAL:	36,850 SF



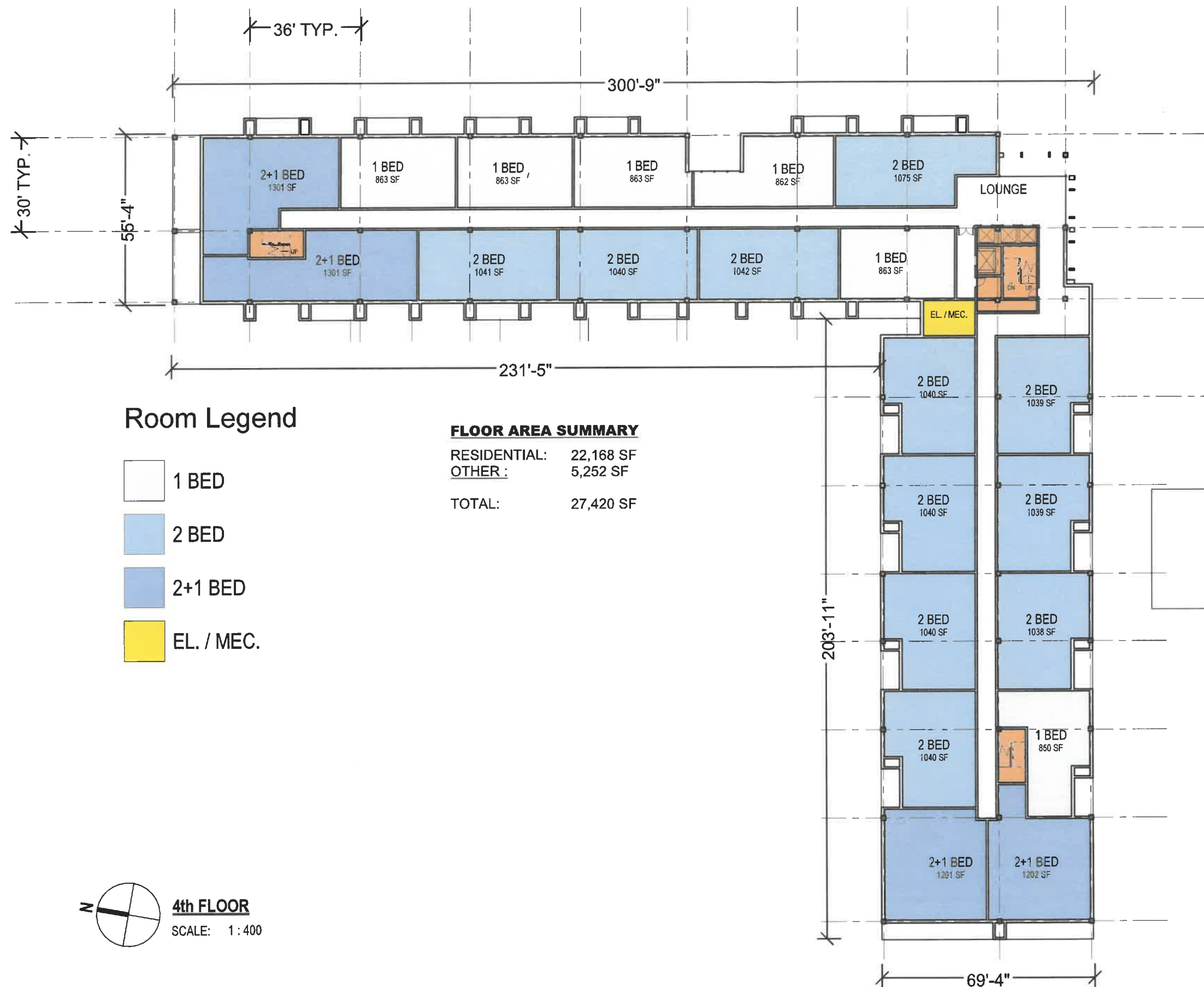


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- 3 BEDROOM UNITS	1
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- 2+1 BEDROOM UNITS	4
- 3 BEDROOM UNITS	4
TOTAL UNITS	79

PARK SIDE BLOCK UNIT SUMMARY

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TOTAL UNITS	68



Room Legend

- 1 BED
- 2 BED
- 2+1 BED
- EL. / MEC.

FLOOR AREA SUMMARY

RESIDENTIAL:	22,168 SF
OTHER :	5,252 SF
TOTAL:	27,420 SF

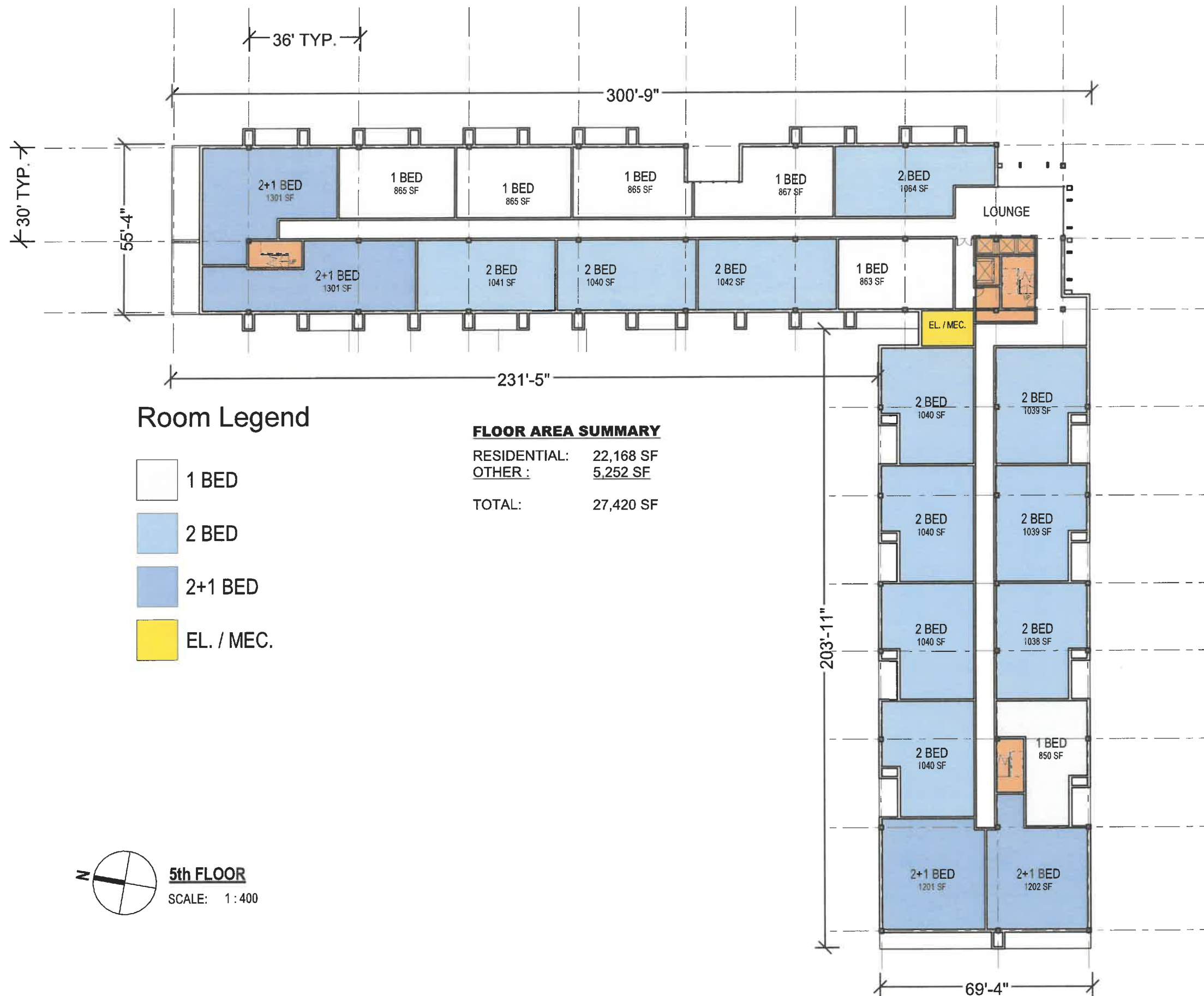


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TOTAL UNITS	79

PARK SIDE BLOCK UNIT SUMMARY

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LEVEL 7-8	
- 2 BEDROOM UNITS	6
- 3 BEDROOM UNITS	6
- 3 BEDROOM PREMIUM UNITS	2
LEVEL 9-10	
- 3 BEDROOM UNITS	4
- 3 BEDROOM PREMIUM UNITS	2
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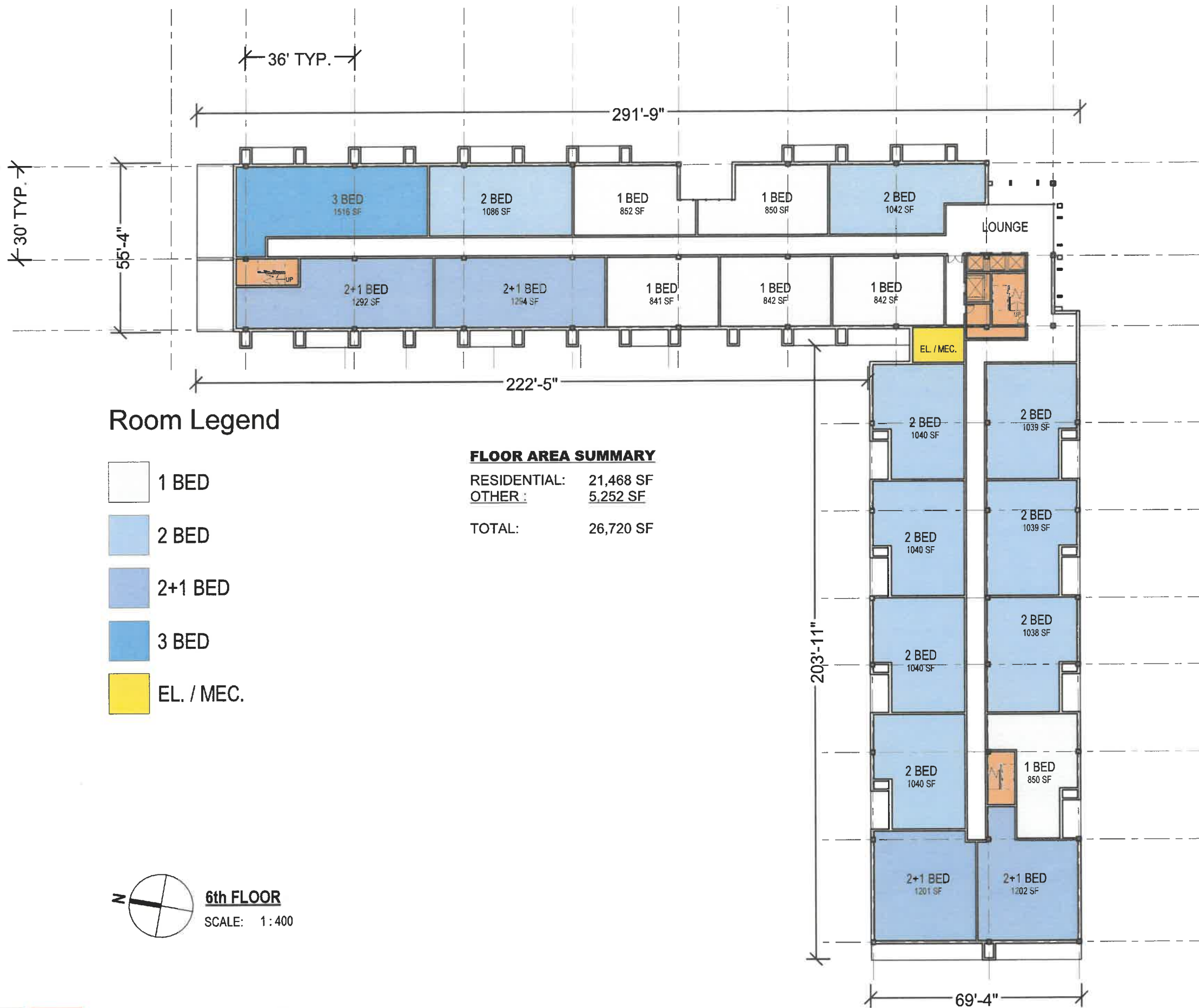


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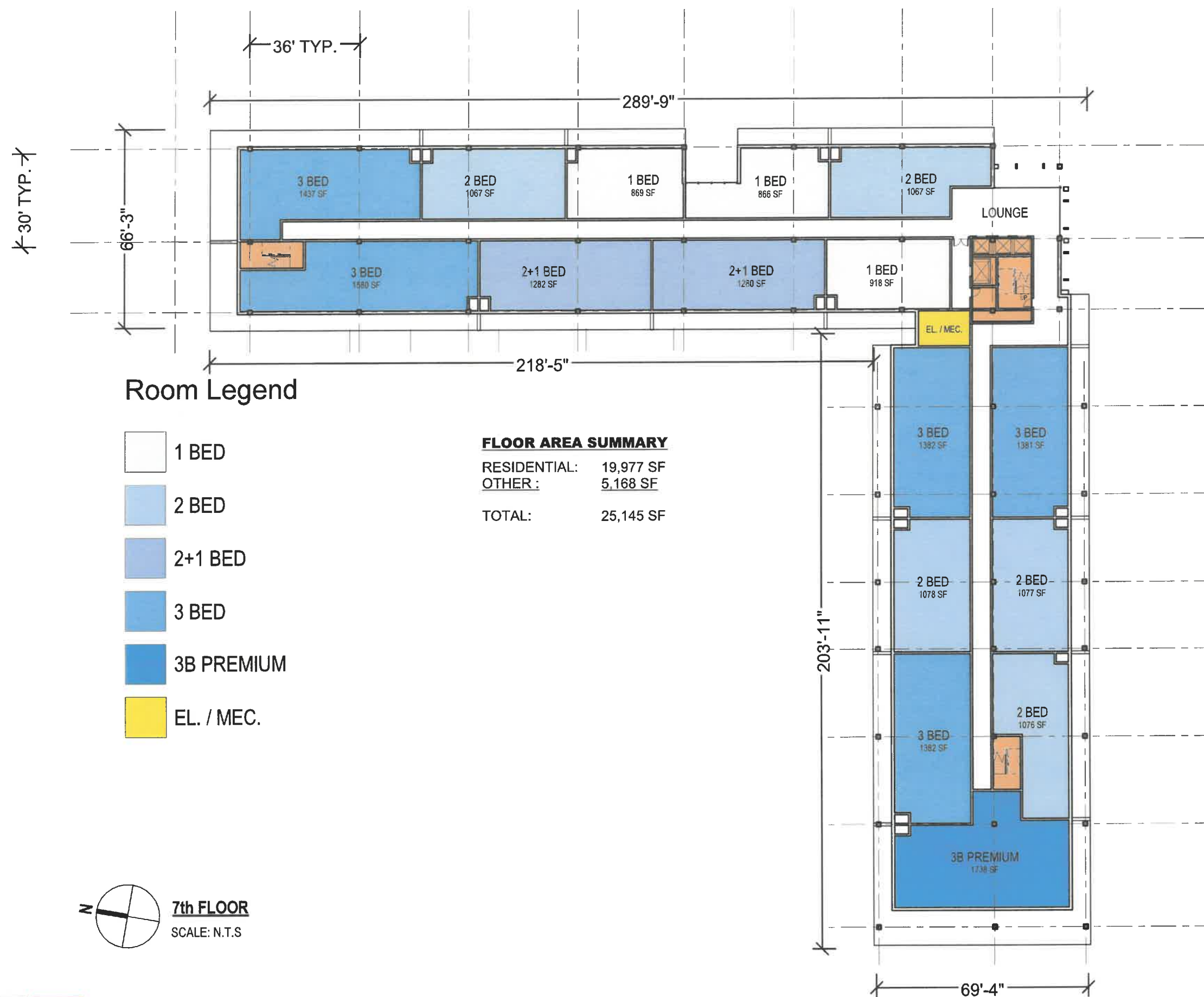


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- 1 BEDROOM UNITS	4
LEVEL 7-8	
- 2 BEDROOM UNITS	6
- 3 BEDROOM UNITS	6
- 3 BEDROOM PREMIUM UNITS	2
LEVEL 9-10	
- 3 BEDROOM UNITS	4
- 3 BEDROOM PREMIUM UNITS	2
- 3+1 BEDROOM LUX UNITS	2
- 3+1 BEDROOM SUPER UNITS	2
LEVEL 11	
- PRIVATE SUITE	1
TOTAL UNITS	68



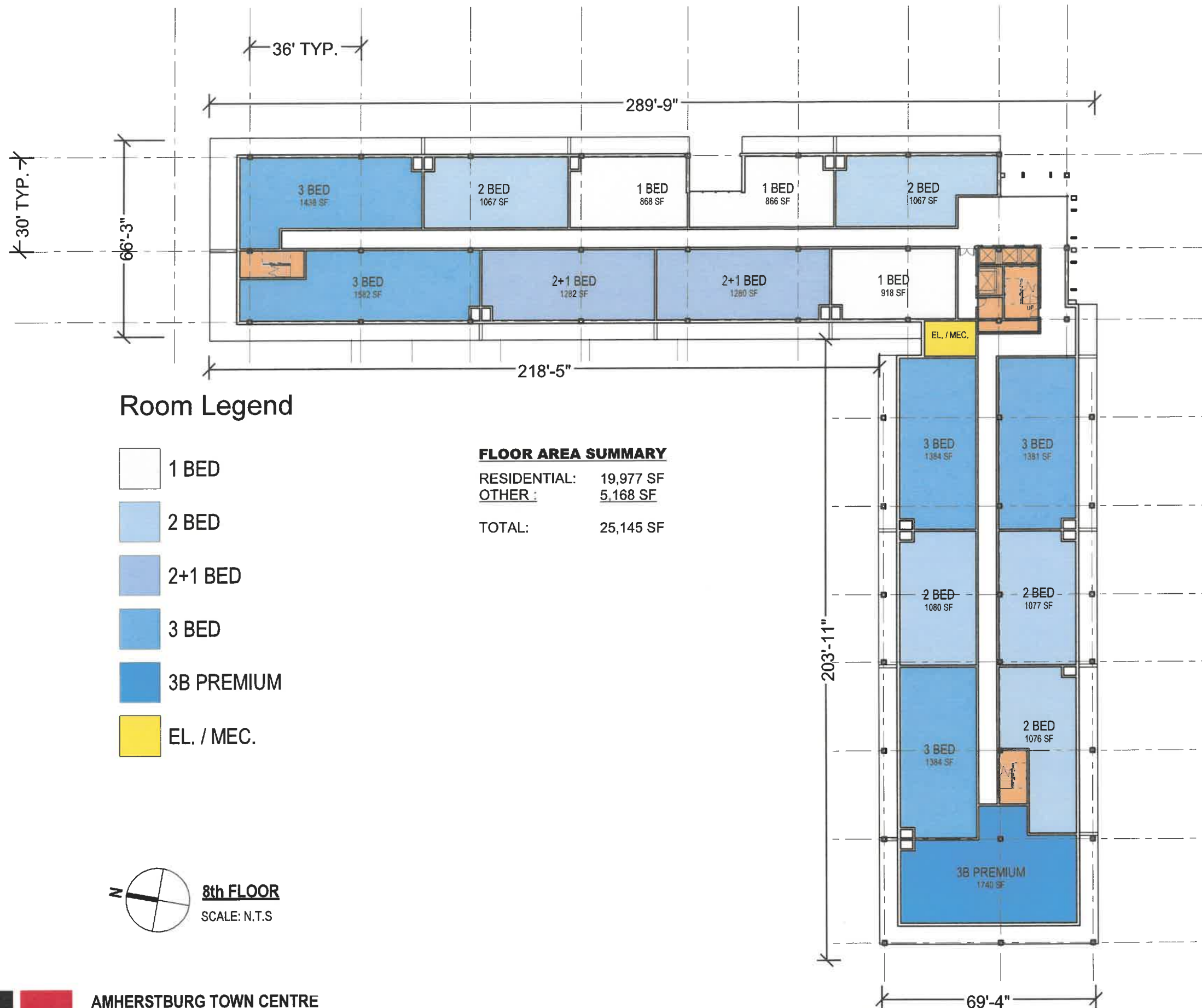
SANDWICH BLOCK UNIT SUMMARY

CATEGORY	UNITS COUNT
LEVEL 2-3	
- 1 BEDROOM UNITS	28
- 2 BEDROOM UNITS	1
LEVEL 4-5-6	
- 1 BEDROOM UNITS	15
- 2 BEDROOM UNITS	10
- 2+1 BEDROOM UNITS	6
- 3 BEDROOM UNITS	1
LEVEL 7-8	
- 1 BEDROOM UNITS	6
- 2 BEDROOM UNITS	4
- 2+1 BEDROOM UNITS	4
- 3 BEDROOM UNITS	4
TOTAL UNITS	79

PARK SIDE BLOCK UNIT SUMMARY

CATEGORY	UNIT COUNT
LEVEL 3-4-5-6	
- 2 BEDROOM UNITS	28
- 2+1 BEDROOM UNITS	8
- 1 BEDROOM UNITS	4
LEVEL 7-8	
- 2 BEDROOM UNITS	6
- 3 BEDROOM UNITS	6
- 3 BEDROOM PREMIUM UNITS	2
LEVEL 9-10	
- 3 BEDROOM UNITS	4
- 3 BEDROOM PREMIUM UNITS	2
- 3+1 BEDROOM LUX UNITS	2
- 3+1 BEDROOM SUPER UNITS	2
LEVEL 11	
- PRIVATE SUITE	1
TOTAL UNITS	68



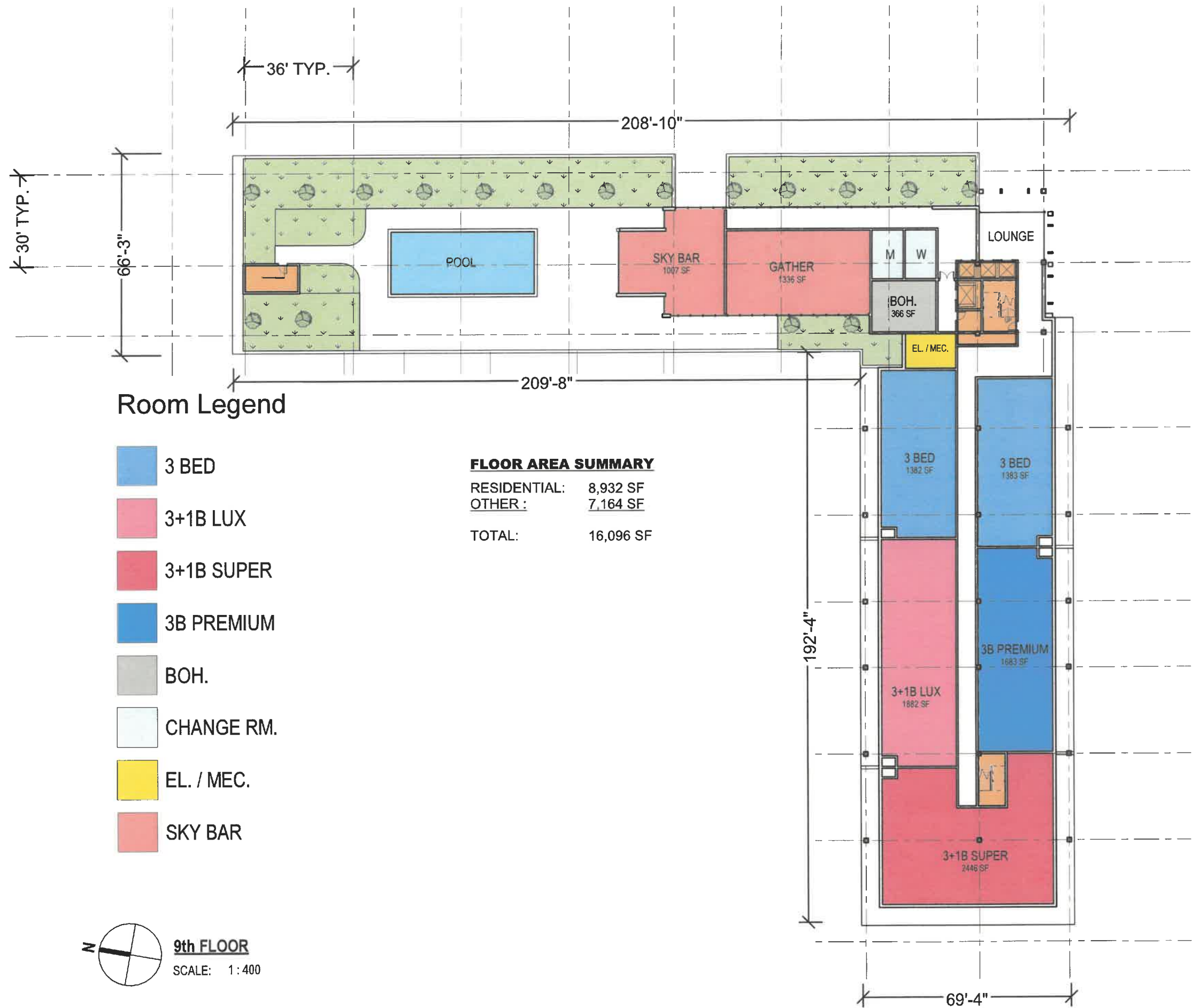


SANDWICH BLOCK UNIT SUMMARY

CATEGORY	UNITS COUNT
LEVEL 2-3	
- 1 BEDROOM UNITS	28
- 2 BEDROOM UNITS	1
LEVEL 4-5-6	
- 1 BEDROOM UNITS	15
- 2 BEDROOM UNITS	10
- 2+1 BEDROOM UNITS	6
- 3 BEDROOM UNITS	1
LEVEL 7-8	
- 1 BEDROOM UNITS	6
- 2 BEDROOM UNITS	4
- 2+1 BEDROOM UNITS	4
- 3 BEDROOM UNITS	4
TOTAL UNITS	79

PARK SIDE BLOCK UNIT SUMMARY

CATEGORY	UNIT COUNT
LEVEL 3-4-5-6	
- 2 BEDROOM UNITS	28
- 2+1 BEDROOM UNITS	8
- 1 BEDROOM UNITS	4
LEVEL 7-8	
- 2 BEDROOM UNITS	6
- 3 BEDROOM UNITS	6
- 3 BEDROOM PREMIUM UNITS	2
LEVEL 9-10	
- 3 BEDROOM UNITS	4
- 3 BEDROOM PREMIUM UNITS	2
- 3+1 BEDROOM LUX UNITS	2
- 3+1 BEDROOM SUPER UNITS	2
LEVEL 11	
- PRIVATE SUITE	1
TOTAL UNITS	68



SANDWICH BLOCK UNIT SUMMARY

CATEGORY	UNITS COUNT
LEVEL 2-3	
- 1 BEDROOM UNITS	28
- 2 BEDROOM UNITS	1
LEVEL 4-5-6	
- 1 BEDROOM UNITS	15
- 2 BEDROOM UNITS	10
- 2+1 BEDROOM UNITS	6
- 3 BEDROOM UNITS	1
LEVEL 7-8	
- 1 BEDROOM UNITS	6
- 2 BEDROOM UNITS	4
- 2+1 BEDROOM UNITS	4
- 3 BEDROOM UNITS	4
TOTAL UNITS	79

PARK SIDE BLOCK UNIT SUMMARY

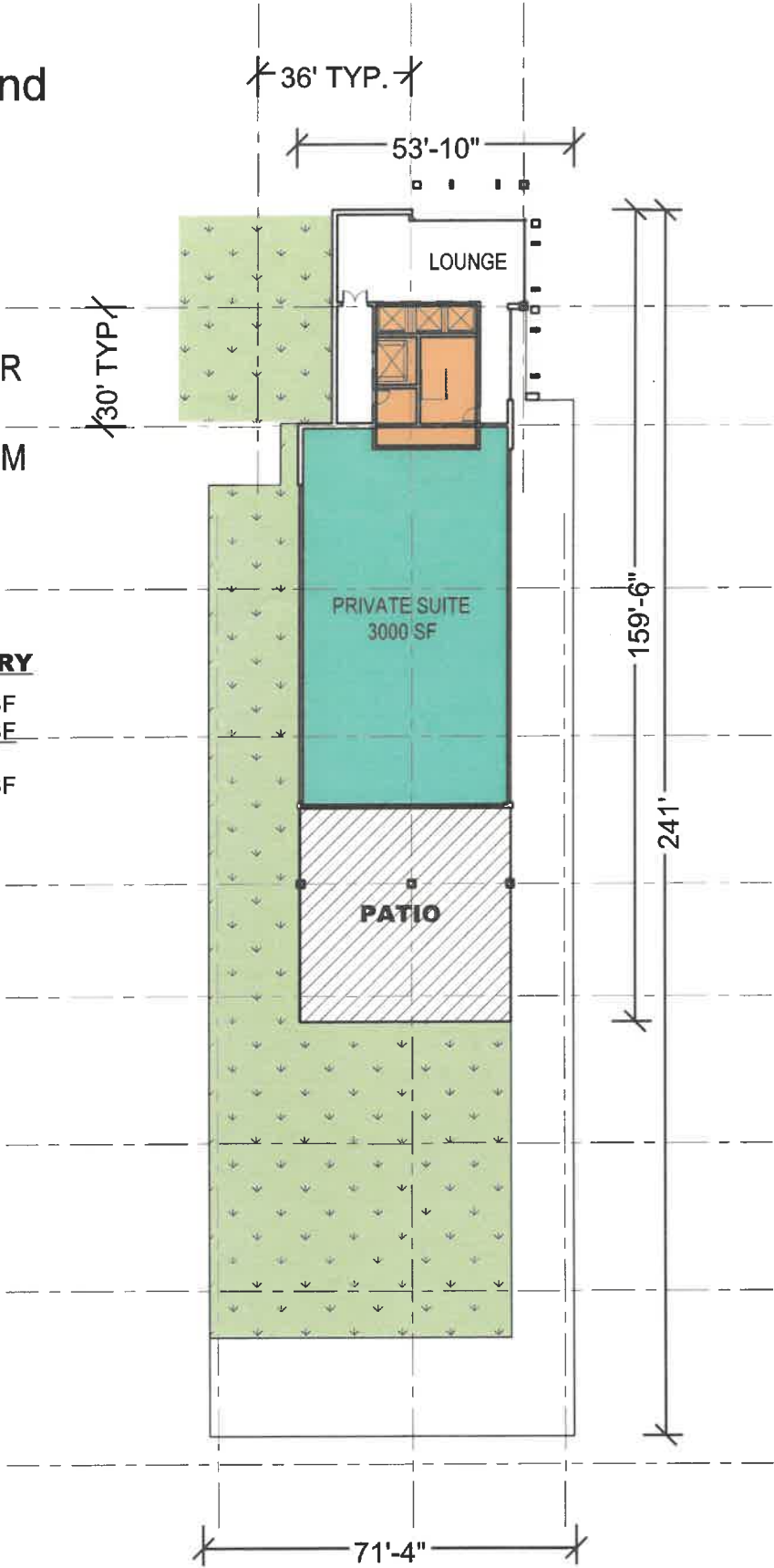
CATEGORY	UNIT COUNT
LEVEL 3-4-5-6	
- 2 BEDROOM UNITS	28
- 2+1 BEDROOM UNITS	8
- 1 BEDROOM UNITS	4
LEVEL 7-8	
- 2 BEDROOM UNITS	6
- 3 BEDROOM UNITS	6
- 3 BEDROOM PREMIUM UNITS	2
LEVEL 9-10	
- 3 BEDROOM UNITS	4
- 3 BEDROOM PREMIUM UNITS	2
- 3+1 BEDROOM LUX UNITS	2
- 3+1 BEDROOM SUPER UNITS	2
LEVEL 11	
- PRIVATE SUITE	1
TOTAL UNITS	68

Room Legend

- 3 BED
- 3+1B LUX
- 3+1B SUPER
- 3B PREMIUM
- EL. / MEC.

FLOOR AREA SUMMARY

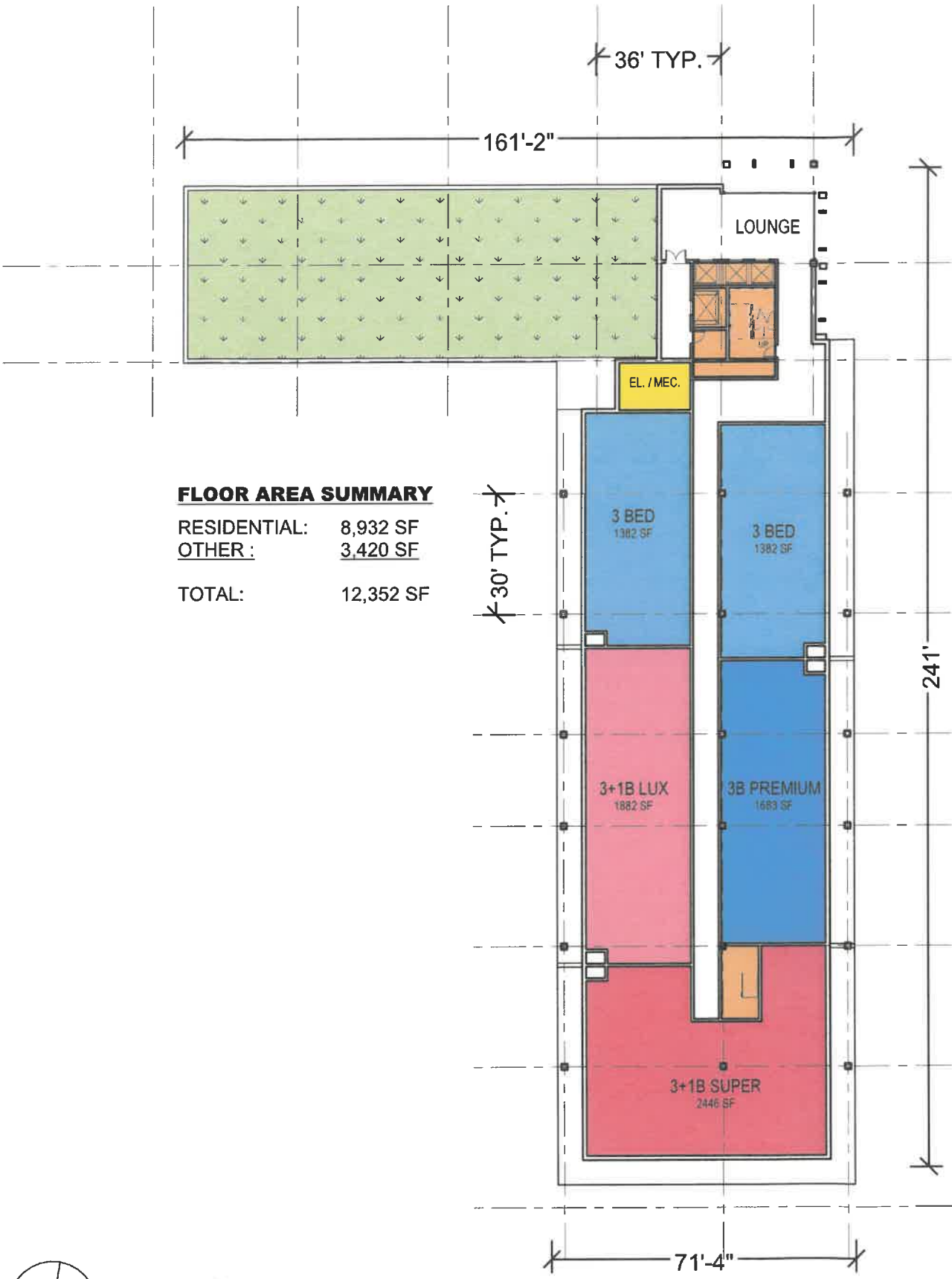
RESIDENTIAL:	3,000 SF
OTHER :	3,090 SF
TOTAL:	6,090 SF



11th FLOOR
SCALE: 1:400

FLOOR AREA SUMMARY

RESIDENTIAL:	8,932 SF
OTHER :	3,420 SF
TOTAL:	12,352 SF



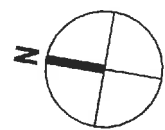
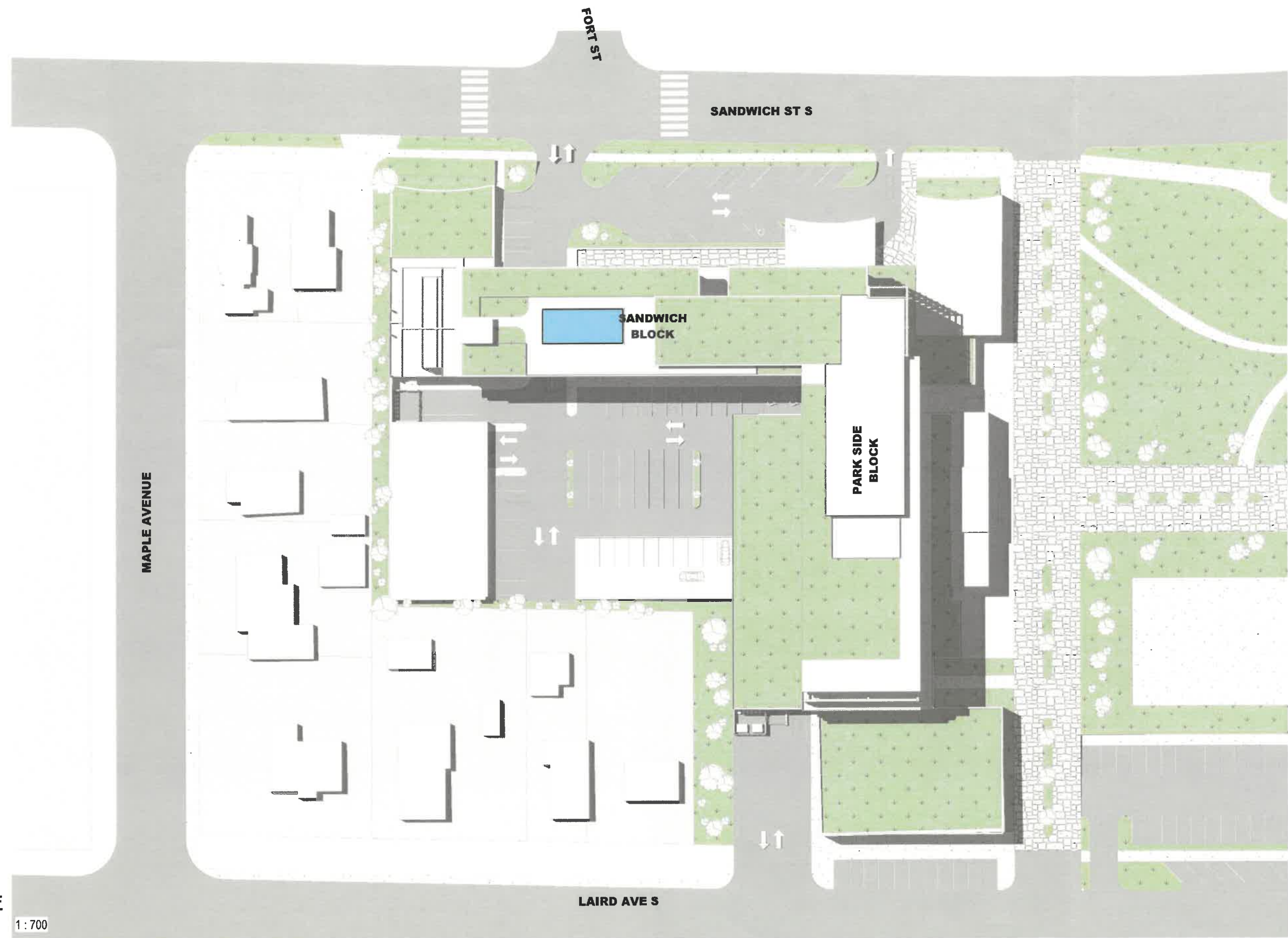
10th FLOOR
SCALE: 1:400

SANDWICH BLOCK UNIT SUMMARY

CATEGORY	UNITS COUNT
LEVEL 2-3	
- 1 BEDROOM UNITS	28
- 2 BEDROOM UNITS	1
LEVEL 4-5-6	
- 1 BEDROOM UNITS	15
- 2 BEDROOM UNITS	10
- 2+1 BEDROOM UNITS	6
- 3 BEDROOM UNITS	1
LEVEL 7-8	
- 1 BEDROOM UNITS	6
- 2 BEDROOM UNITS	4
- 2+1 BEDROOM UNITS	4
- 3 BEDROOM UNITS	4
TOTAL UNITS	79

PARK SIDE BLOCK UNIT SUMMARY

CATEGORY	UNIT COUNT
LEVEL 3-4-5-6	
- 2 BEDROOM UNITS	28
- 2+1 BEDROOM UNITS	8
- 1 BEDROOM UNITS	4
LEVEL 7-8	
- 2 BEDROOM UNITS	6
- 3 BEDROOM UNITS	6
- 3 BEDROOM PREMIUM UNITS	2
LEVEL 9-10	
- 3 BEDROOM UNITS	4
- 3 BEDROOM PREMIUM UNITS	2
- 3+1 BEDROOM LUX UNITS	2
- 3+1 BEDROOM SUPER UNITS	2
LEVEL 11	
- PRIVATE SUITE	1
TOTAL UNITS	68



ROOF
SCALE: 1 : 700



U/G PARKING
SCALE: 1:400

FLOOR AREA SUMMARY

PARKING:	40,814+16,050 SF
STR :	724 SF
LOCKER :	4,697 SF
EL./MEC. :	10,832 SF
BIKE :	2,049 SF
OTHER :	4,054 SF

TOTAL : 71,112 SF

PARKING SUMMARY

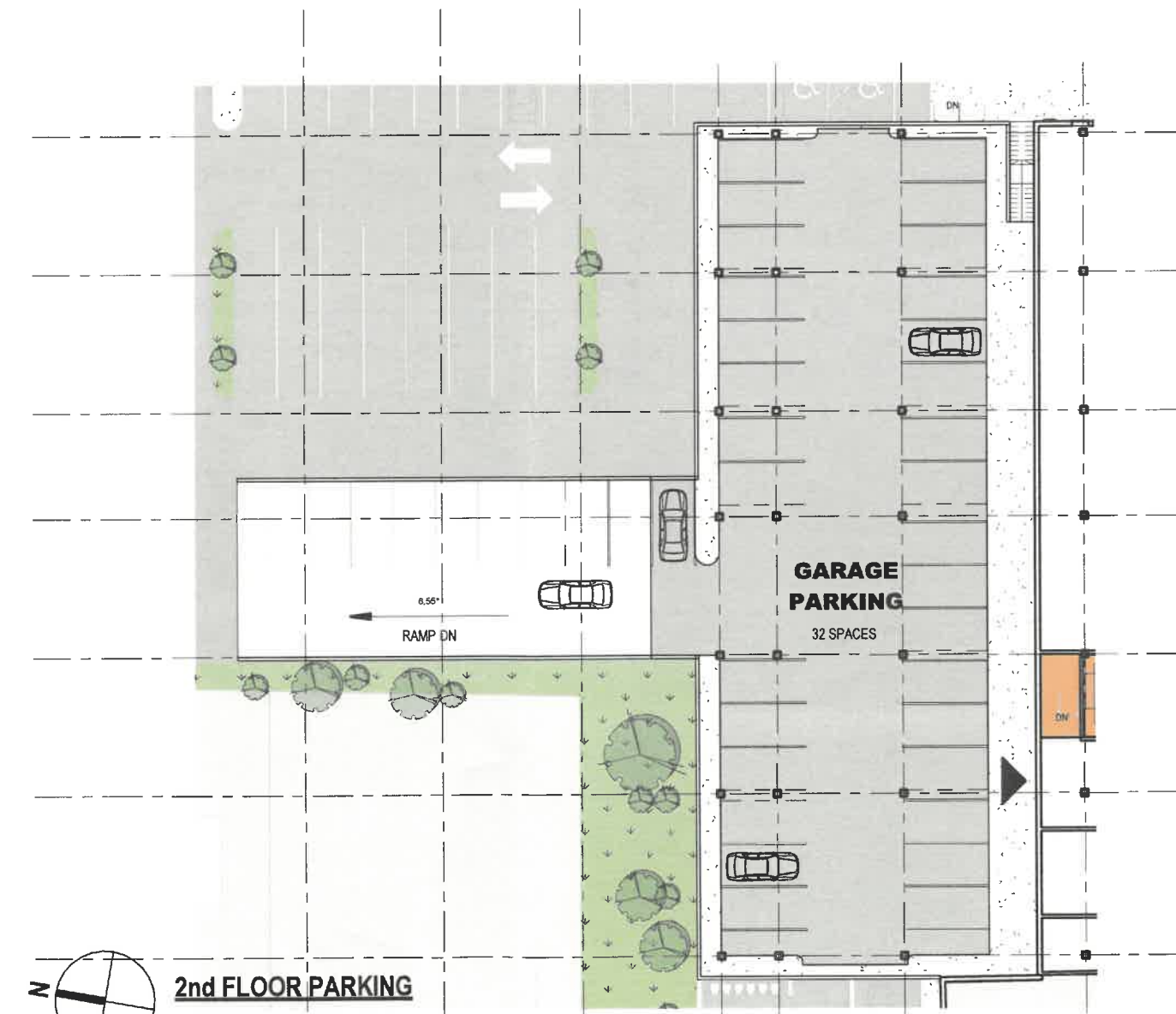
CATEGORY	PARKING COUNT
PROVIDED PARKING	
- Level 01	100 + 4 ADA
- Level 02	31
- VIP Garage	19
- Level -1 (Underground Garage)	106 + 2 ADA

TOTAL PROVIDED PARKING 262

REQUIRED PARKING	
- Residential Units (144 x 1.25)	180
- Retail Area (12,800 SF + 269 SF)	47
- Restaurant (5,600 SF + 161 SF)	35

TOTAL REQUIRED PARKING 262

TOWN HALL
municipa parking (35,000 SF + 376 SF) 93

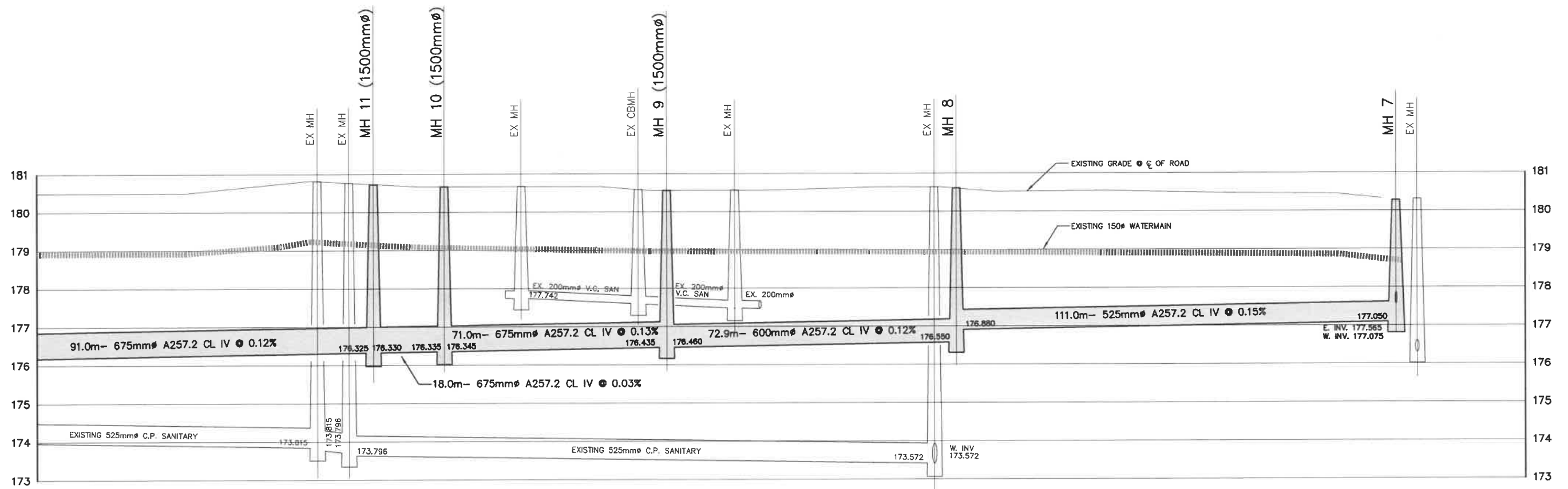
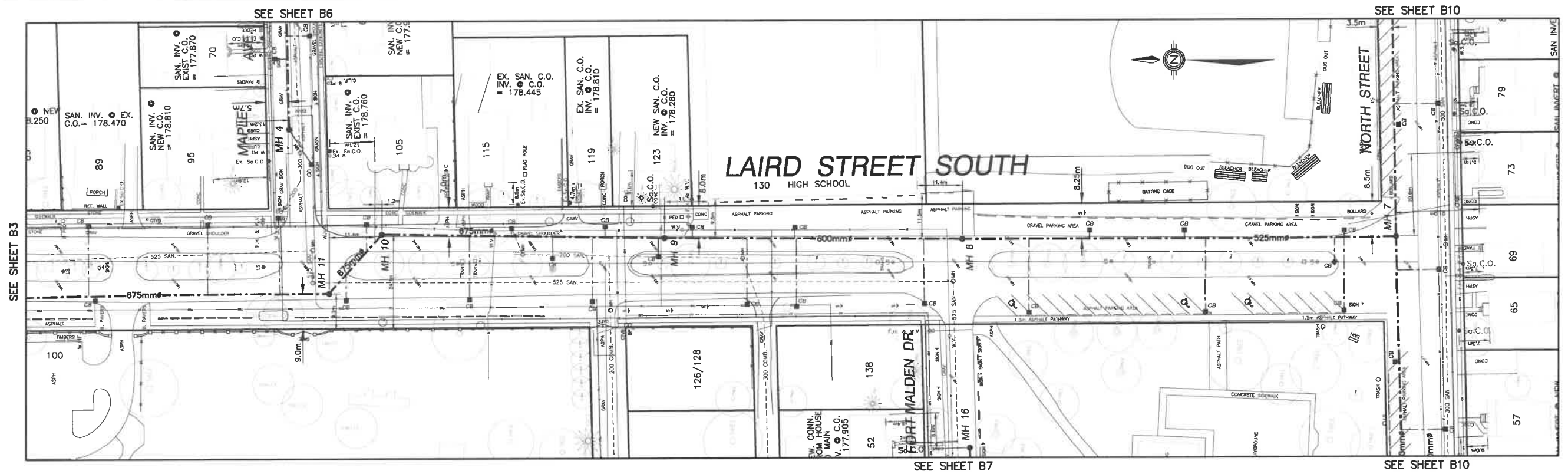


BASEMENT PLAN AND GARAGE PARKING

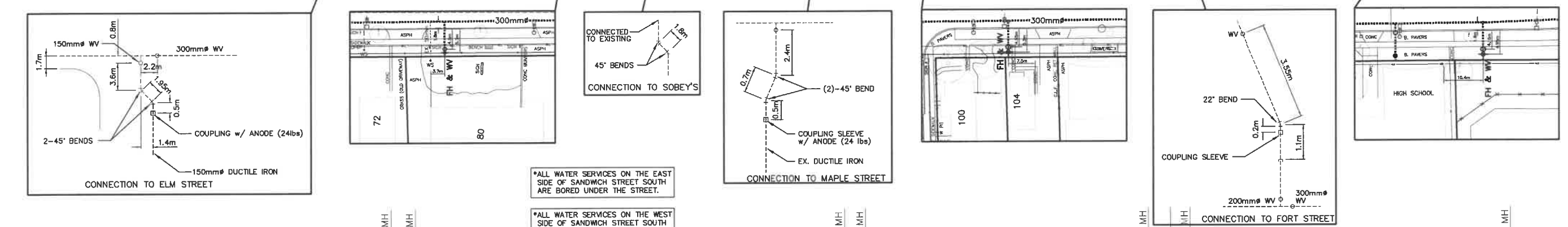
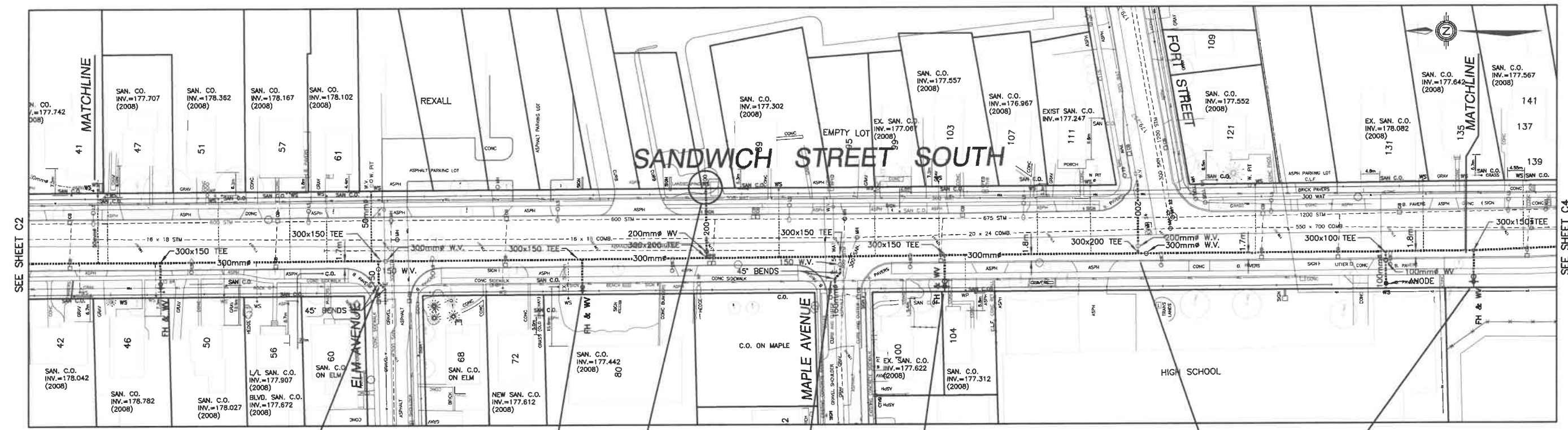


Appendix B

Plan and Profile As-constructed Servicing Plans

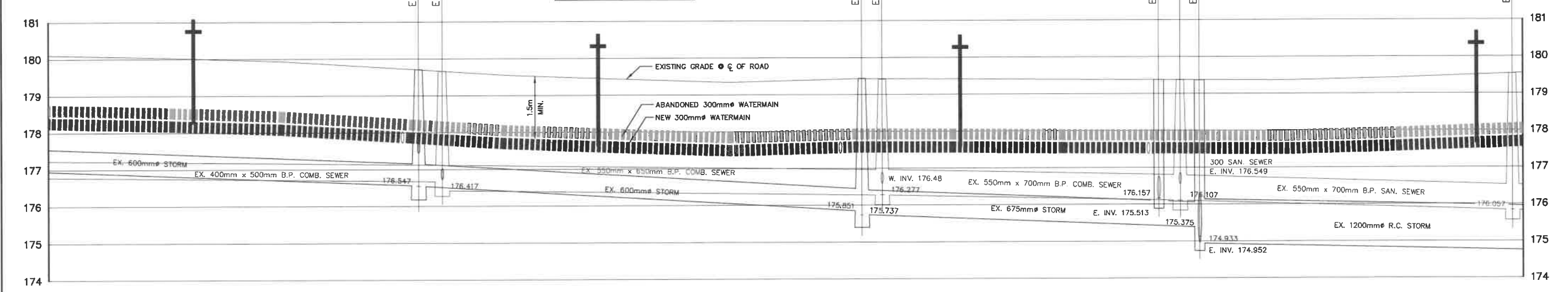


		<table border="1"> <tr> <td>7. AS CONSTRUCTED</td> <td>APR 3, 2009</td> <td>A.A.H.</td> <td rowspan="5"> AMHERSTBURG SEWER SEPARATION PART 'B' PLAN AND PROFILE LAIRD AVENUE SOUTH AS CONSTRUCTED </td> <td>PROJECT NO.</td> </tr> <tr> <td>6. REVISED STORM LAYOUT</td> <td>MAR. 17, 2008</td> <td>D.M.A.</td> <td>C108-1440</td> </tr> <tr> <td>5. ISSUED FOR CONSTRUCTION</td> <td>FEB 28, 2008</td> <td>D.M.A.</td> <td>DESIGN</td> <td>SHEET NO.</td> </tr> <tr> <td>4. ADDENDUM No. 4</td> <td>FEB 15, 2008</td> <td>D.M.A.</td> <td>CHECKED</td> <td>B4 of B12</td> </tr> <tr> <td>3. ADDENDUM No. 3</td> <td>FEB 12, 2008</td> <td>D.M.A.</td> <td>DRAWN</td> <td>SHEET NO.</td> </tr> <tr> <td>2. ISSUED FOR TENDER</td> <td>FEB 1, 2008</td> <td>D.M.A.</td> <td>CHECKED</td> <td>15 of 35</td> </tr> <tr> <td>1. ISSUED FOR MUNICIPAL REVIEW</td> <td>JAN 18, 2008</td> <td>D.M.A.</td> <td>DATE</td> <td></td> </tr> <tr> <td>NO.</td> <td>REVISION</td> <td>DATE</td> <td>BY</td> <td>SCALE</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>1:50 VERT.</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>1:500 HORIZ.</td> <td></td> </tr> </table>				7. AS CONSTRUCTED	APR 3, 2009	A.A.H.	AMHERSTBURG SEWER SEPARATION PART 'B' PLAN AND PROFILE LAIRD AVENUE SOUTH AS CONSTRUCTED	PROJECT NO.	6. REVISED STORM LAYOUT	MAR. 17, 2008	D.M.A.	C108-1440	5. ISSUED FOR CONSTRUCTION	FEB 28, 2008	D.M.A.	DESIGN	SHEET NO.	4. ADDENDUM No. 4	FEB 15, 2008	D.M.A.	CHECKED	B4 of B12	3. ADDENDUM No. 3	FEB 12, 2008	D.M.A.	DRAWN	SHEET NO.	2. ISSUED FOR TENDER	FEB 1, 2008	D.M.A.	CHECKED	15 of 35	1. ISSUED FOR MUNICIPAL REVIEW	JAN 18, 2008	D.M.A.	DATE		NO.	REVISION	DATE	BY	SCALE						1:50 VERT.						1:500 HORIZ.	
		7. AS CONSTRUCTED	APR 3, 2009	A.A.H.	AMHERSTBURG SEWER SEPARATION PART 'B' PLAN AND PROFILE LAIRD AVENUE SOUTH AS CONSTRUCTED	PROJECT NO.																																																			
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NO.	REVISION	DATE	BY	SCALE																																																					
				1:50 VERT.																																																					
				1:500 HORIZ.																																																					



ALL WATER SERVICES ON THE EAST SIDE OF SANDWICH STREET SOUTH ARE BORED UNDER THE STREET.

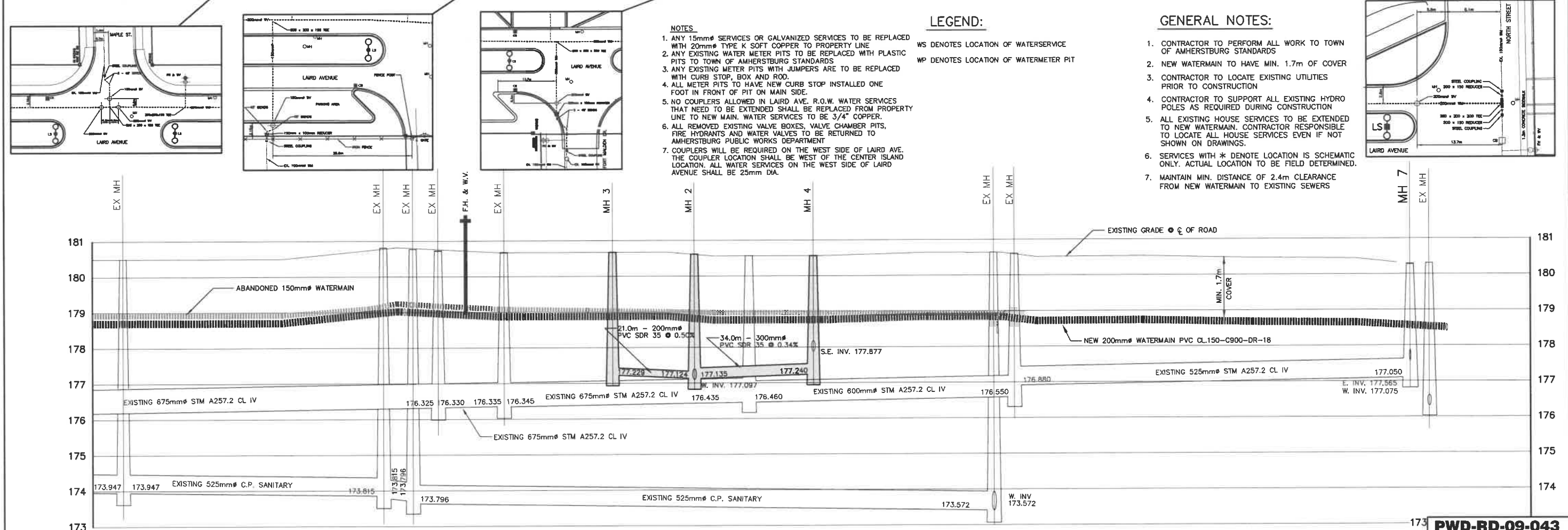
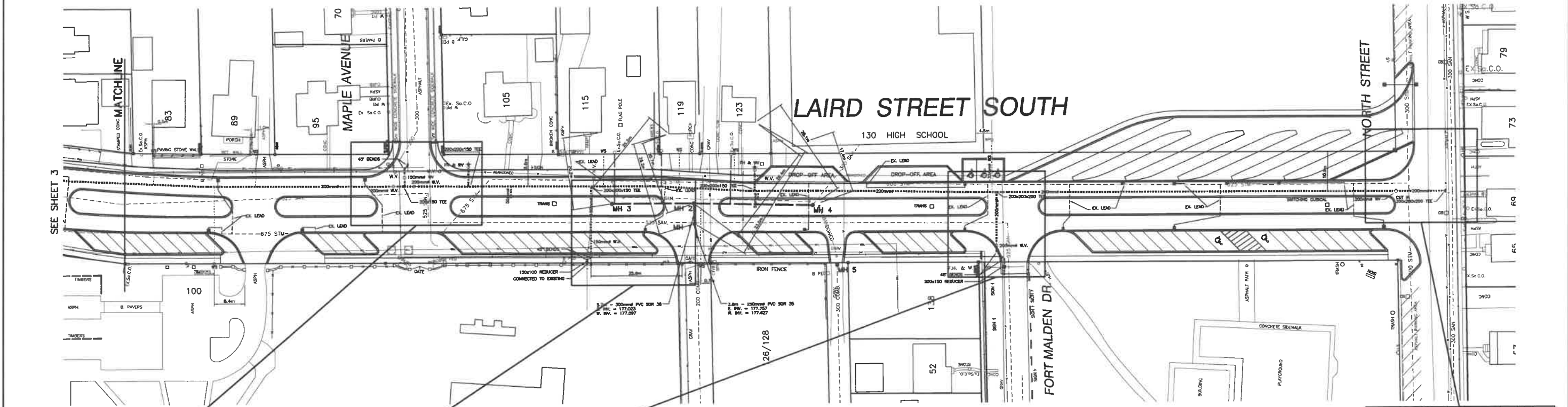
ALL WATER SERVICES ON THE WEST SIDE OF SANDWICH STREET SOUTH ARE RECONNECTS.



hes LIMITED
Consulting Engineers
WINDSOR, ONTARIO

5.	AS CONSTRUCTED	APR 3, 2009	D.L.	DESIGN	D.M.A.
4.	REVISED RUNNING LINE	MAY 27, 2008	D.M.A.	CHECKED	R.C.S.
3.	ISSUED FOR CONSTRUCTION	FEB 26, 2008	D.M.A.	DRAWN	H.M.K.
2.	ISSUED FOR TENDER	FEB 1, 2008	D.M.A.	CHECKED	R.C.S.
1.	ISSUED FOR MUNICIPAL REVIEW	JAN 18, 2008	D.M.A.	DATE	NOV 2007
NO.	REVISION	DATE	BY	SCALE	1:500

SANDWICH STREET WATERMAIN PART 'C'		PROJECT NO. C108-1440
PLAN AND PROFILE SANDWICH STREET SOUTH AS-CONSTRUCTED		SHEET NO. C3 of C6
		SHEET NO. 26 of 36



- NOTES:**
1. ANY 15mm# SERVICES OR GALVANIZED SERVICES TO BE REPLACED WITH 20mm# TYPE K SOFT COPPER TO PROPERTY LINE
 2. ANY EXISTING WATER METER PITS TO BE REPLACED WITH PLASTIC PITS TO TOWN OF AMHERSTBURG STANDARDS
 3. ANY EXISTING METER PITS WITH JUMPERS ARE TO BE REPLACED WITH CURB STOP, BOX AND ROD.
 4. ALL METER PITS TO HAVE NEW CURB STOP INSTALLED ONE FOOT IN FRONT OF PIT ON MAIN SIDE.
 5. NO COUPLERS ALLOWED IN LAIRD AVE. R.O.W. WATER SERVICES THAT NEED TO BE EXTENDED SHALL BE REPLACED FROM PROPERTY LINE TO NEW MAIN. WATER SERVICES TO BE 3/4" COPPER.
 6. ALL REMOVED EXISTING VALVE BOXES, VALVE CHAMBER PITS, FIRE HYDRANTS AND WATER VALVES TO BE RETURNED TO AMHERSTBURG PUBLIC WORKS DEPARTMENT
 7. COUPLERS WILL BE REQUIRED ON THE WEST SIDE OF LAIRD AVE. THE COUPLER LOCATION SHALL BE WEST OF THE CENTER ISLAND LOCATION. ALL WATER SERVICES ON THE WEST SIDE OF LAIRD AVENUE SHALL BE 25mm DIA.

LEGEND:

WS DENOTES LOCATION OF WATERSERVICE
WP DENOTES LOCATION OF WATERMETER PIT

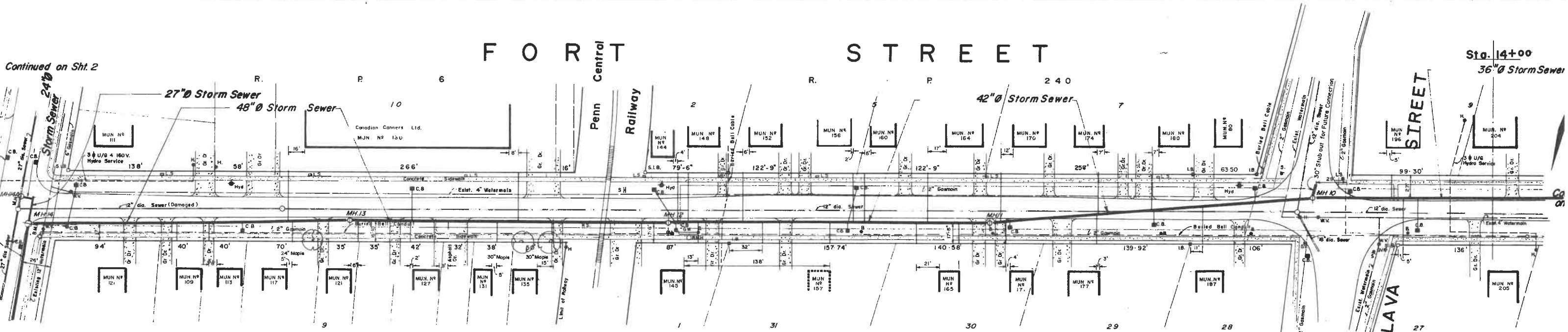
- GENERAL NOTES:**
1. CONTRACTOR TO PERFORM ALL WORK TO TOWN OF AMHERSTBURG STANDARDS
 2. NEW WATERMAIN TO HAVE MIN. 1.7m OF COVER
 3. CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION
 4. CONTRACTOR TO SUPPORT ALL EXISTING HYDRO POLES AS REQUIRED DURING CONSTRUCTION
 5. ALL EXISTING HOUSE SERVICES TO BE EXTENDED TO NEW WATERMAIN. CONTRACTOR RESPONSIBLE TO LOCATE ALL HOUSE SERVICES EVEN IF NOT SHOWN ON DRAWINGS.
 6. SERVICES WITH * DENOTE LOCATION IS SCHEMATIC ONLY. ACTUAL LOCATION TO BE FIELD DETERMINED.
 7. MAINTAIN MIN. DISTANCE OF 2.4m CLEARANCE FROM NEW WATERMAIN TO EXISTING SEWERS



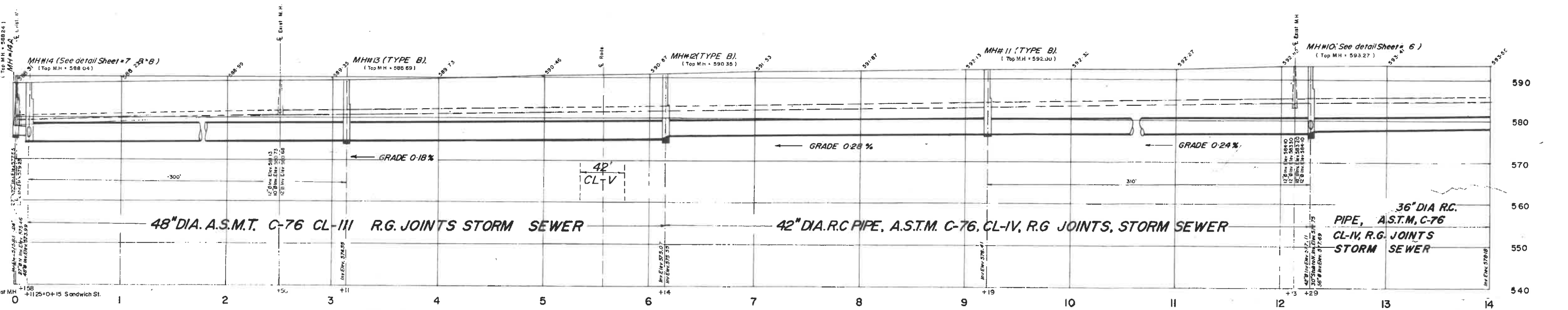
1.	ISSUED FOR M.O.E. APPROVAL	SEPT. 9, 2009	H.M.K.	D.M.A.	6.	REVISED WATERMAIN	OCT. 8, 2009	H.M.K.	D.M.A.	DESIGN	D.M.A.
2.	ISSUED FOR TENDER	SEPT. 16, 2009	H.M.K.	D.M.A.	7.	ADDED SANITARY SEWER ON ALMA STREET	OCT. 13, 2009	H.M.K.	D.M.A.	CHECKED	R.C.S.
3.	ADDENDUM 1	SEPT. 22, 2009	H.M.K.	D.M.A.	8.	GRADES, LIGHTS AND BOLLARDS ON PARKING LOT	OCT. 16, 2009	H.M.K.	D.M.A.	DRAIN	D.L./ G.S.
4.	ISSUED FOR CONSTRUCTION	OCT. 1, 2009	H.M.K.	D.M.A.	9.	BUS LAYBY ISLANDS ALL 3.0m WIDE	NOV. 4, 2009	H.M.K.	D.M.A.	CHECKED	B.R.
5.	ISSUED FOR CONSTRUCTION	OCT. 8, 2009	H.M.K.	D.M.A.	10.	AS-CONSTRUCTED	JAN. 30, 2010	A.R./C.H.	D.M.A.	DATE	JANUARY 2010
NO.	REVISION	DATE	BY	APP.	NO.	REVISION	DATE	BY	APP.	SCALE	1:50 VERT. 1:500 HORIZ.

LAIRD AVENUE SOUTH RECONSTRUCTION	PROJECT NO. 09-30
LAIRD AVENUE SOUTH WATERMAIN	SHEET NO. 4
	OF 17

Continued on Sht. 2



PLAN
SCALE: 1" = 40'



PROFILE
SCALE: Horizontal: 1" = 40'
Vertical: 1" = 10'

LA FONTAINE, COWIE, BURRITO & ASSOCIATES
Consulting Engineers

TOWN OF AMHERST
STORM RELIEF
Phase 1B

PLAN & PROFILE ON FORT

DRAWN A.E. & P.T.	APPROVED [Signature]	DATE DEC 74
CHECKED [Signature]	SCALE 1" = 40'	CONTRACT NO. A6-129-73
OFFICE FILE NO. A6-129-73		DRAWING NO. 3 of 9
SHEET NO.		DATE

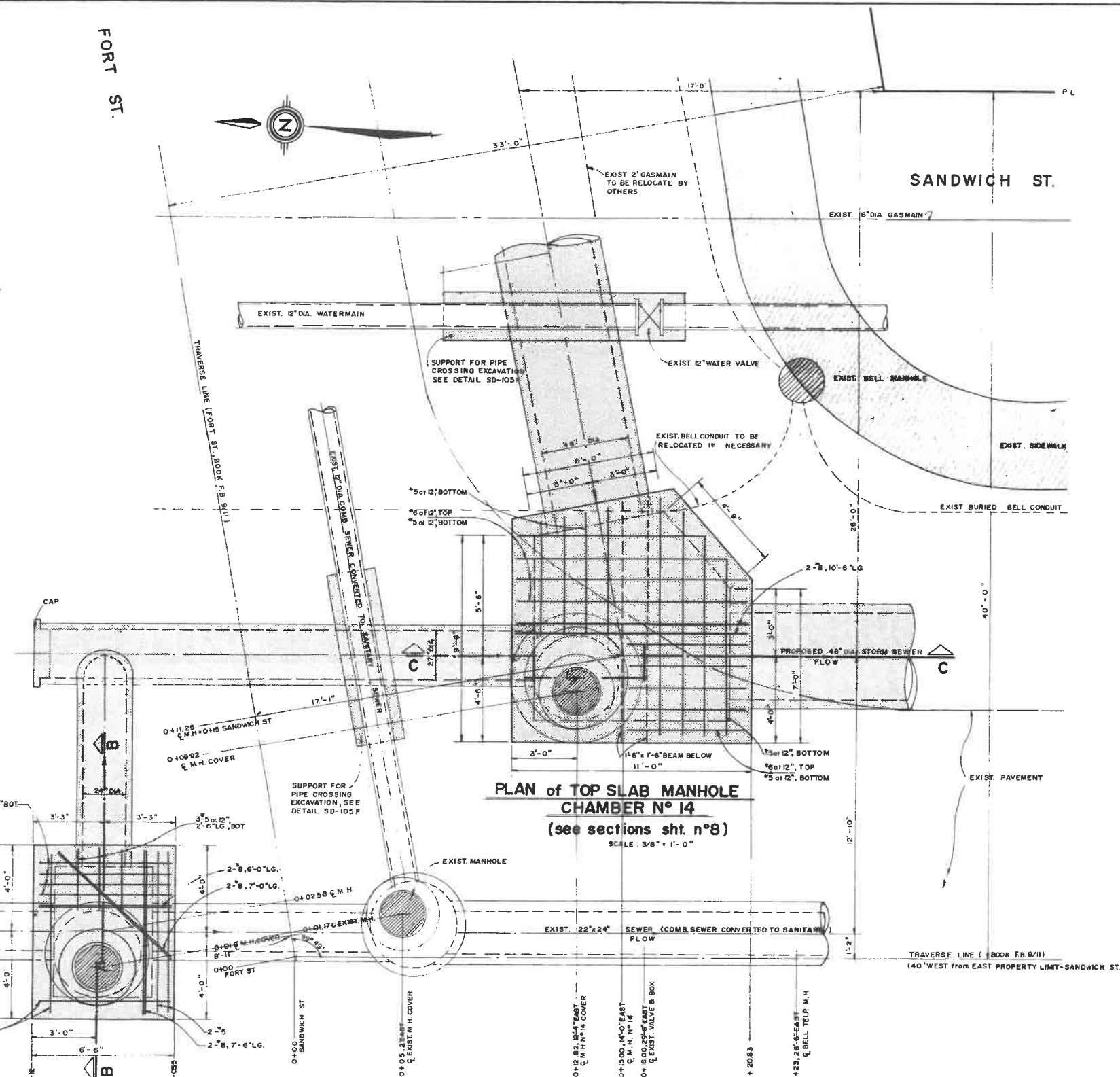
"AS CONSTRUCTED"

REV. REVISIONS

FORT ST.

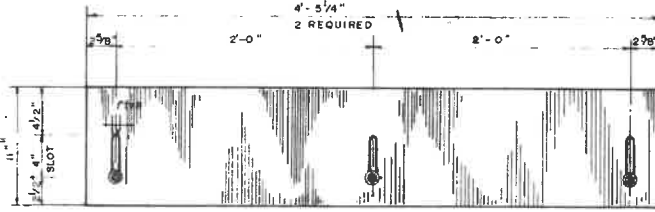


SANDWICH ST.

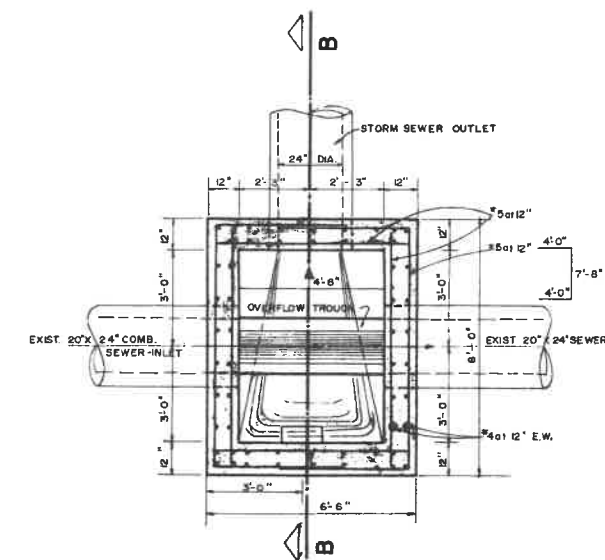


PLAN of TOP SLAB MANHOLE CHAMBER N° 14 A SCALE 3/8" = 1'-0"

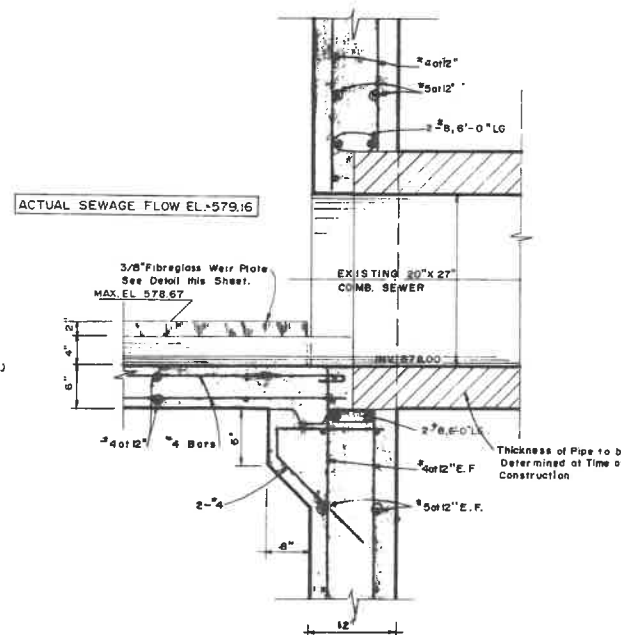
LOCATION of M.H. n° 14 and M.H. n° 14A



ELEVATION OF FIBREGLASS WEIR

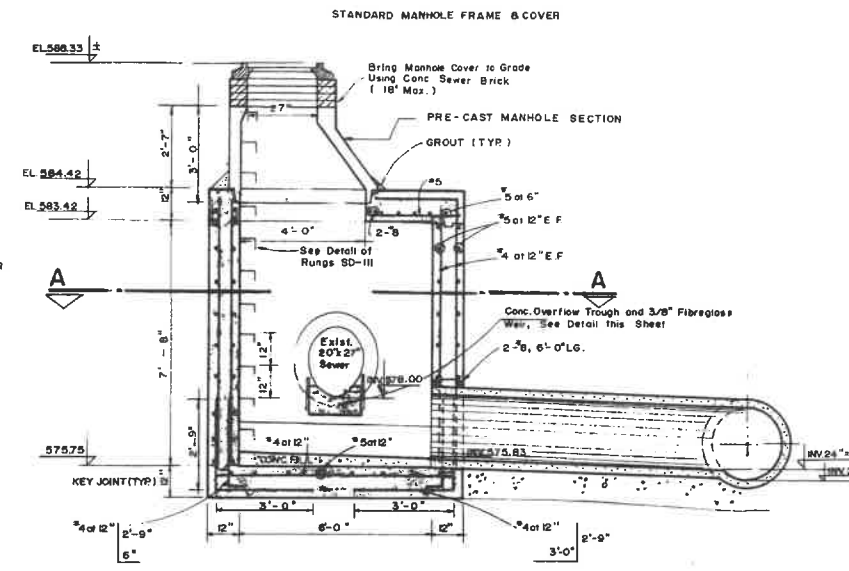


SECTION A-A MANHOLE CHAMBER N° 14 A SCALE 3/8" = 1'-0"

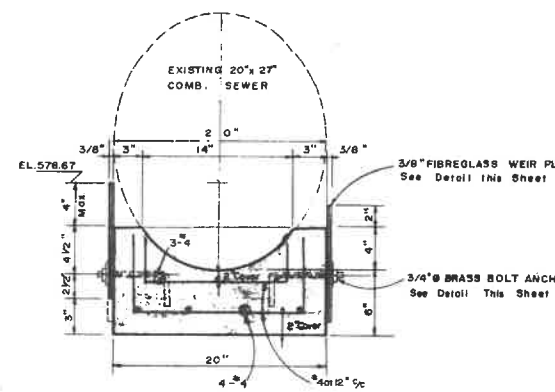


END DETAIL OF OVERFLOW TROUGH

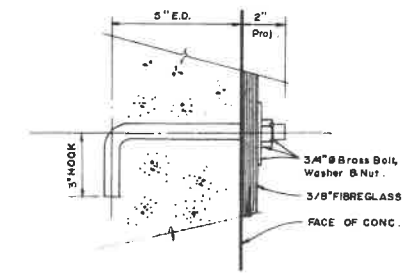
NOTE: SEE NOTE 1 AND 2 SHEET N° 6



SECTION 'B-B' MANHOLE CHAMBER N° 14 A SCALE: 3/8" = 1'-0"

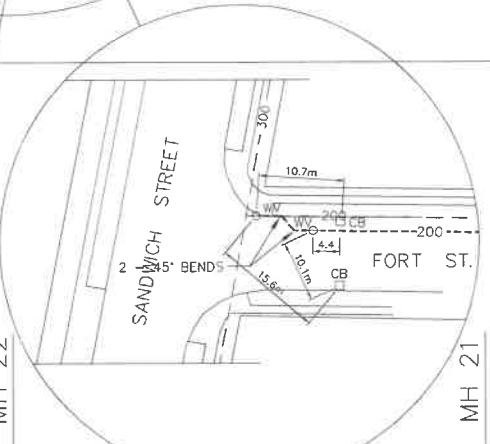
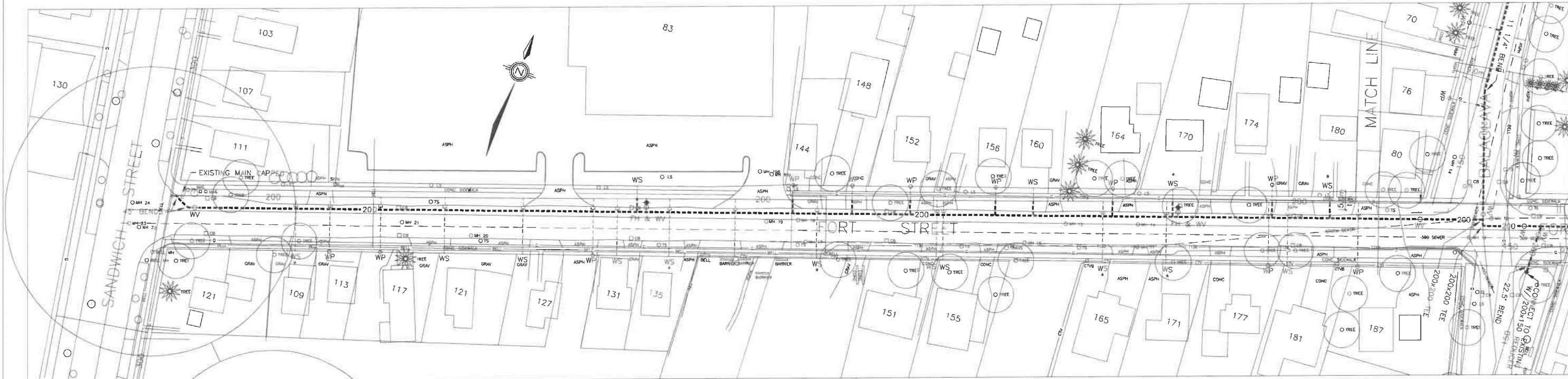


TROUGH DETAIL FOR MANHOLE N° 14 A



WEIR ANCHOR BOLT DETAIL

"AS CONSTRUCTED"		REVISIONS	
REV			
LA FONTAINE, COWIE, BURRITO & ASSOCIATES Consulting Engineers Windsor			
TOWN OF AMHERSTB STORM RELIEF SEW Phase J. B			
LOCATION of M.H. n° 14, M.H. n° 14A & DETAILS & SECTIONS of MANHOLE			
DRAWN M. M. T.	APPROVED J. M. L.	DATE JUL 1991	
CHECKED AS SHOWN	SCALE AS SHOWN	FIELD	
OFFICE FILE No. AG 129		CONTRACT No.	
SHEET NO. 7 of 9		DRAWING No. LB	



GENERAL NOTES:

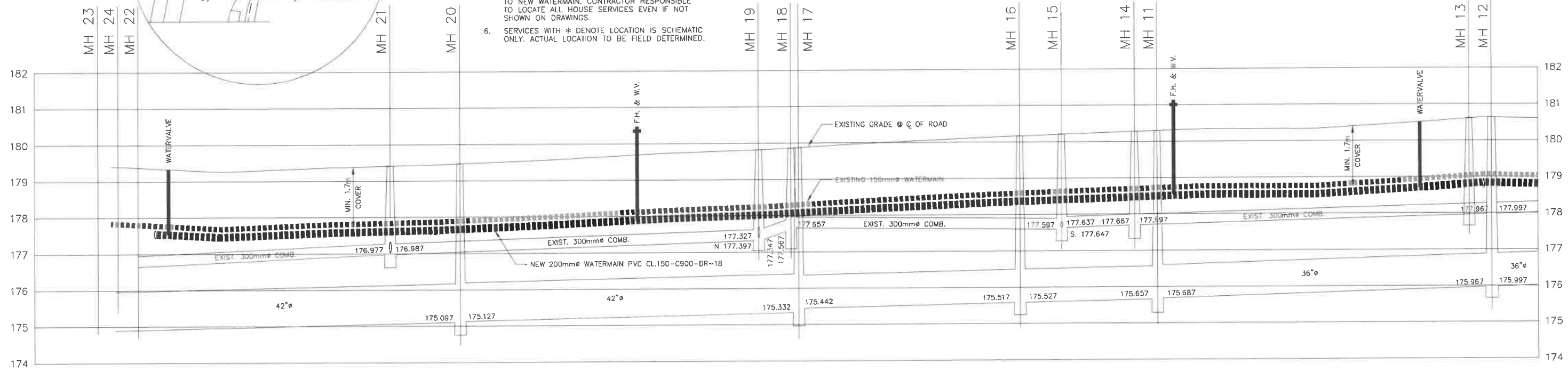
1. CONTRACTOR TO PERFORM ALL WORK TO TOWN OF AMHERSTBURG STANDARDS
2. NEW WATERMAIN TO HAVE MIN. 1.7m OF COVER
3. CONTRACTOR TO LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION
4. CONTRACTOR TO SUPPORT ALL EXISTING HYDRO POLES AS REQUIRED DURING CONSTRUCTION
5. ALL EXISTING HOUSE SERVICES TO BE EXTENDED TO NEW WATERMAIN. CONTRACTOR RESPONSIBLE TO LOCATE ALL HOUSE SERVICES EVEN IF NOT SHOWN ON DRAWINGS.
6. SERVICES WITH * DENOTE LOCATION IS SCHEMATIC ONLY. ACTUAL LOCATION TO BE FIELD DETERMINED.

NOTES

1. ANY 5/8" SERVICES OR GALVANIZED SERVICES TO BE REPLACED WITH 3/4" TYPE K SOFT COPPER TO PROPERTY LINE
2. ANY EXISTING WATER METER PITS TO BE REPLACED WITH PLASTIC PITS TO TOWN OF AMHERSTBURG STANDARDS
3. ANY EXISTING METER PITS WITH JUMPERS ARE TO BE REPLACED WITH CURB STOP, BOX AND ROD.
4. ALL METER PITS TO HAVE NEW CURB STOP INSTALLED ONE FOOT IN FRONT OF PIT ON MAIN SIDE.

LEGEND

- WS DENOTES LOCATION OF WATERSERVICE
- WP DENOTES LOCATION OF WATERMETER PIT
- DISCONNECT EXISTING WATERSERVICE FROM EXISTING WATERMAIN AND RECONNECT TO NEW WATERMAIN
- DISCONNECT EXISTING WATERSERVICE AND EXTEND EXISTING WATERSERVICE AND RECONNECT TO NEW WATERMAIN



hgs LIMITED
Consulting Engineers
WINDSOR, ONTARIO

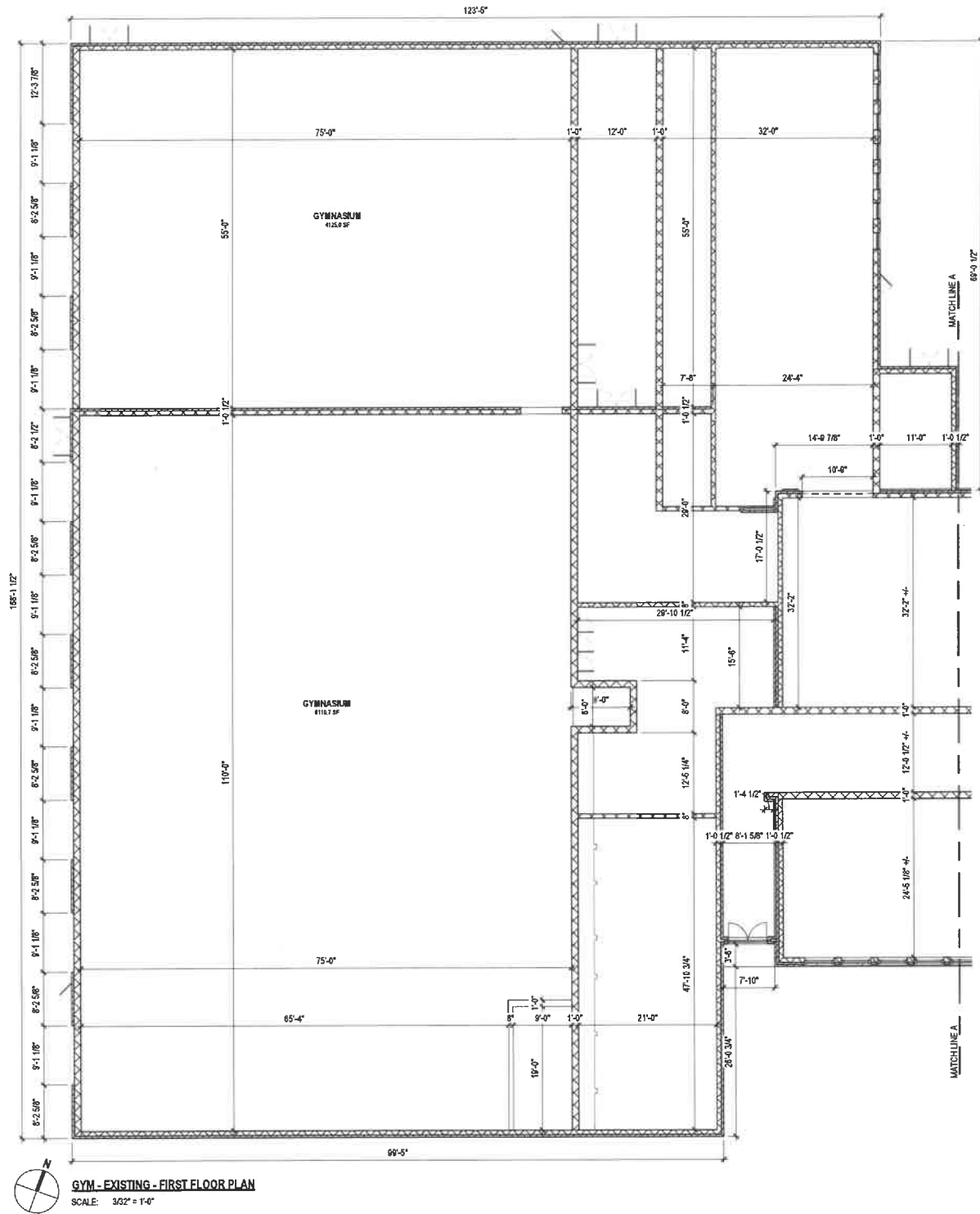
7. AS-BUILTS	SEPT. 11 2008	J.R.
6. REVISED FORT ST. WATERMAIN LOCATION	FEB. 23, 2006	D.M.A.
5. ISSUED FOR CONSTRUCTION	DEC. 13, 2005	D.M.A.
4. REISSUED FOR TENDER	OCT. 31, 2005	D.M.A.
3. ISSUED FOR TENDER	SEPT. 15, 2005	D.M.A.
2. REVISED AS PER TOWN COMMENTS	SEPT. 7, 2005	D.M.A.
NO.	REVISION	DATE
		BY
		SCALE
		1:500

AMHERSTBURG WATERMAIN REPLACEMENT - 2005	PROJECT NO. A105-1245
PLAN AND PROFILE FORT STREET	SHEET NO. 8
	OF 13



Appendix C

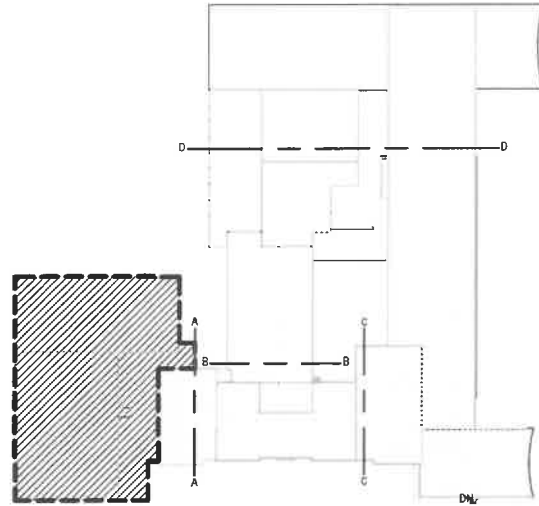
Existing Building Floor Plans



GYM - EXISTING - FIRST FLOOR PLAN
SCALE: 3/32" = 1'-0"



EXISTING KEY PLAN
SCALE: 1/8" = 1'-0"



Client
**AMHERST HIGH SCHOOL
RENOVATION**
Street Address, City, Ontario XXX XXX

Drawn By
AJ
Project No
-
Sheet No
-

Checked By
AJ
Tender No
-

A025

SHEET NAME
FLOOR PLAN - EXISTING - GYM

No.

Revision Schedule
Description

Date

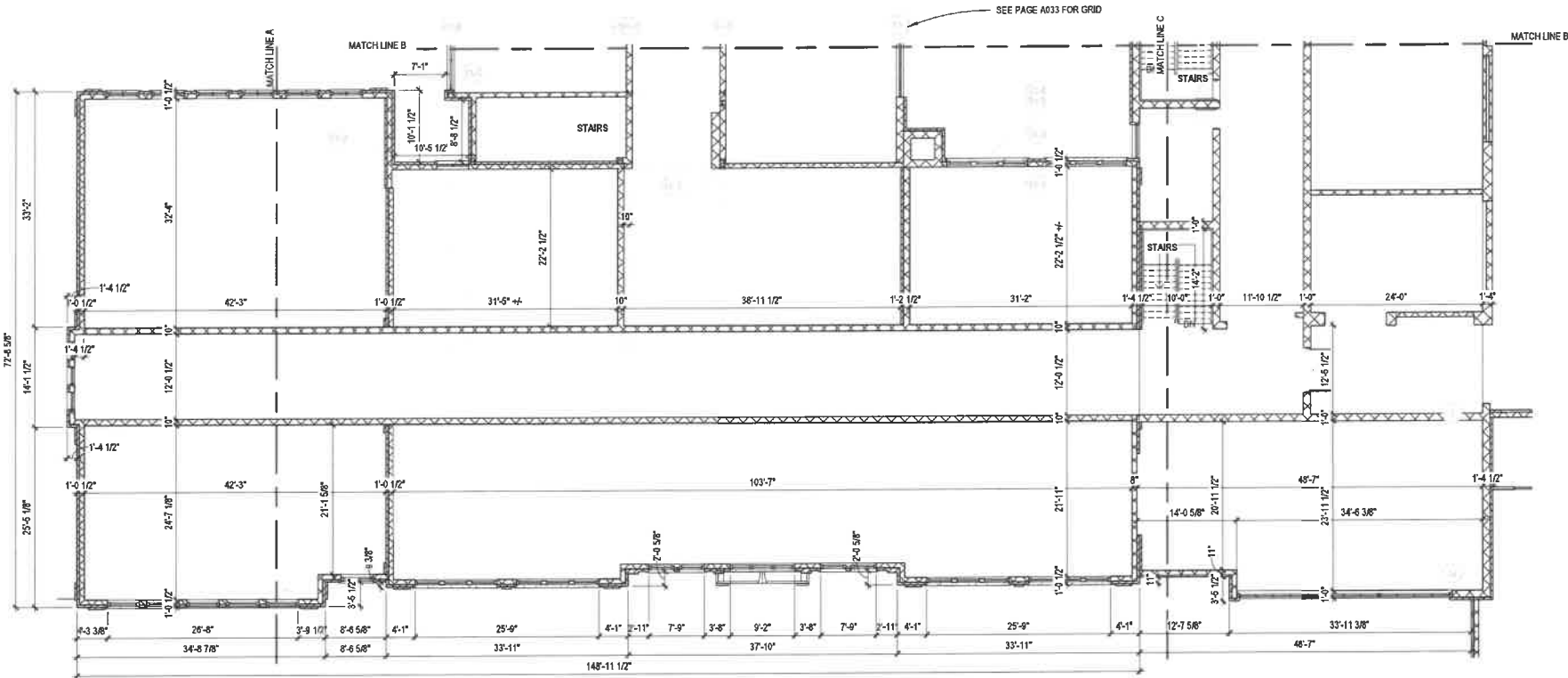
Issued For (YYYYMMDD)

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Approval

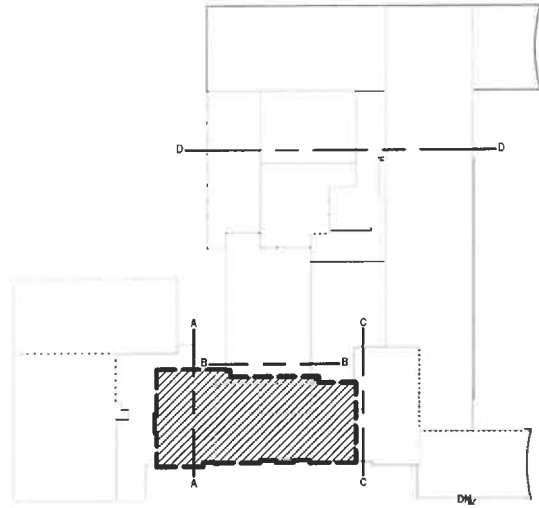
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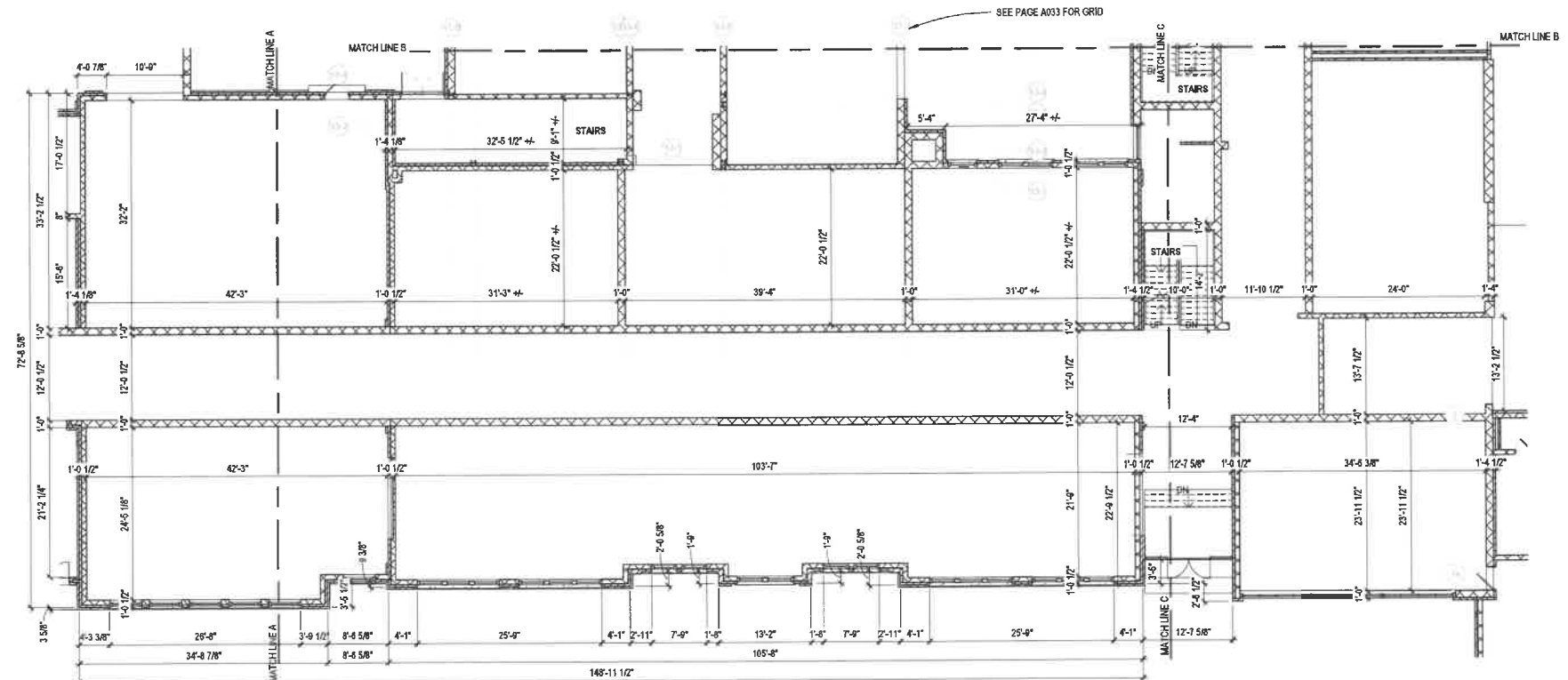
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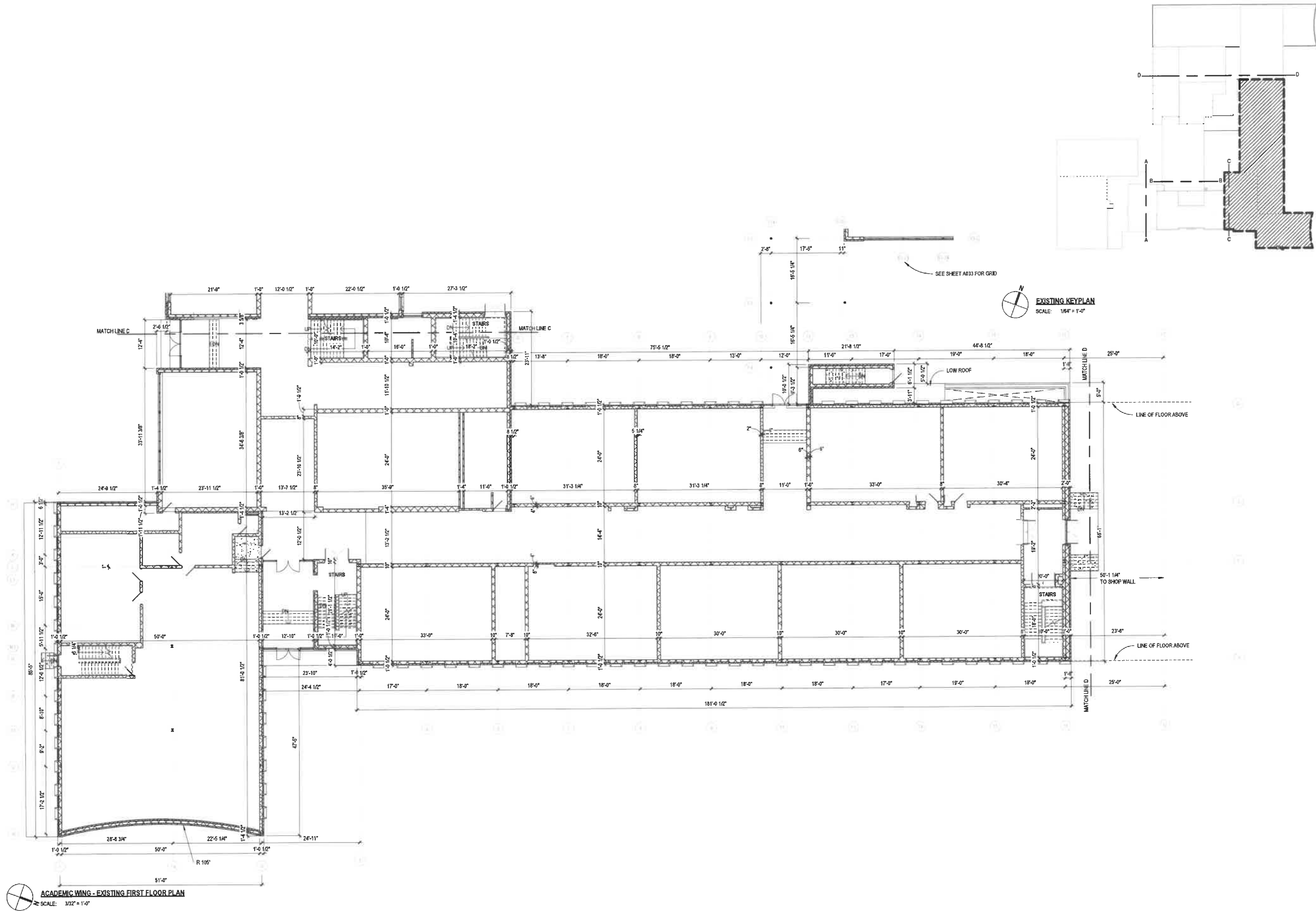
EXISTING KEYPLAN
SCALE: 1/8" = 1'-0"



ORIGINAL - EXISTING - FIRST FLOOR PLAN
SCALE: 3/32" = 1'-0"



\\04-1-17 1:52:53 PM c:\users\jbs\my documents\A030 Acad Wing - RENEW.rvt



architecture
a+e
100 Eugene Street West
Whitby, ON M8B 2J6
905.243.1300

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Issued For: 07/11/2020

Date

Revision Schedule

Description

No.

SHEET NAME

FLOOR PLAN - EXISTING - ACADEMIC
WING

Client

AMHERST HIGH SCHOOL
RENOVATION
Street Address, City, Ontario XXX XXX

Drawn By

AI

Checked By

AI

Project No

-

Tender No

-

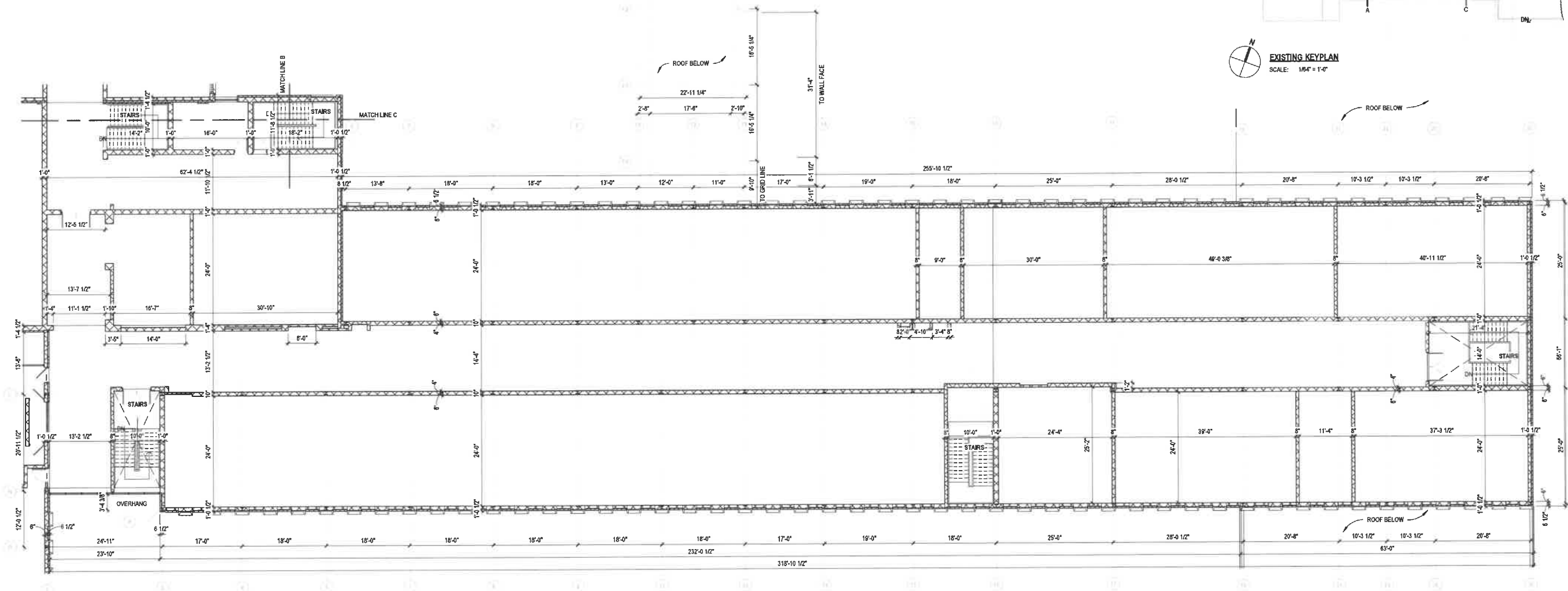
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A030

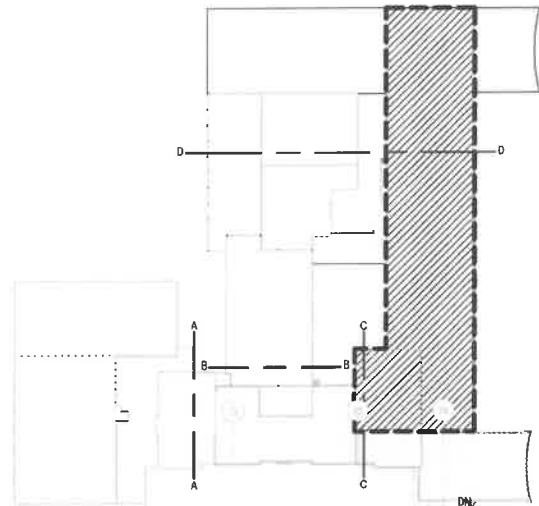
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2024.12.17 1:53:13 PM User:alr-ar\Documents\2420 ARCH - 23020 - REVISED

ACADEMIC WING - EXISTING SECOND FLOOR PLAN
SCALE: 3/32" = 1'-0"



EXISTING KEYPLAN
SCALE: 1/8" = 1'-0"



Client

AMHERST HIGH SCHOOL
RENOVATION

Steel Address, City, Ontario XXX XXX

Drawn By

AI

Project No

-

Sheet No

-

Checked By

AI

Tender No

-

Sheet No

-

A031

SHEET NAME

FLOOR PLAN - EXISTING - ACADEMIC
WING

No.

Revision Schedule

Description

Date

Issued For

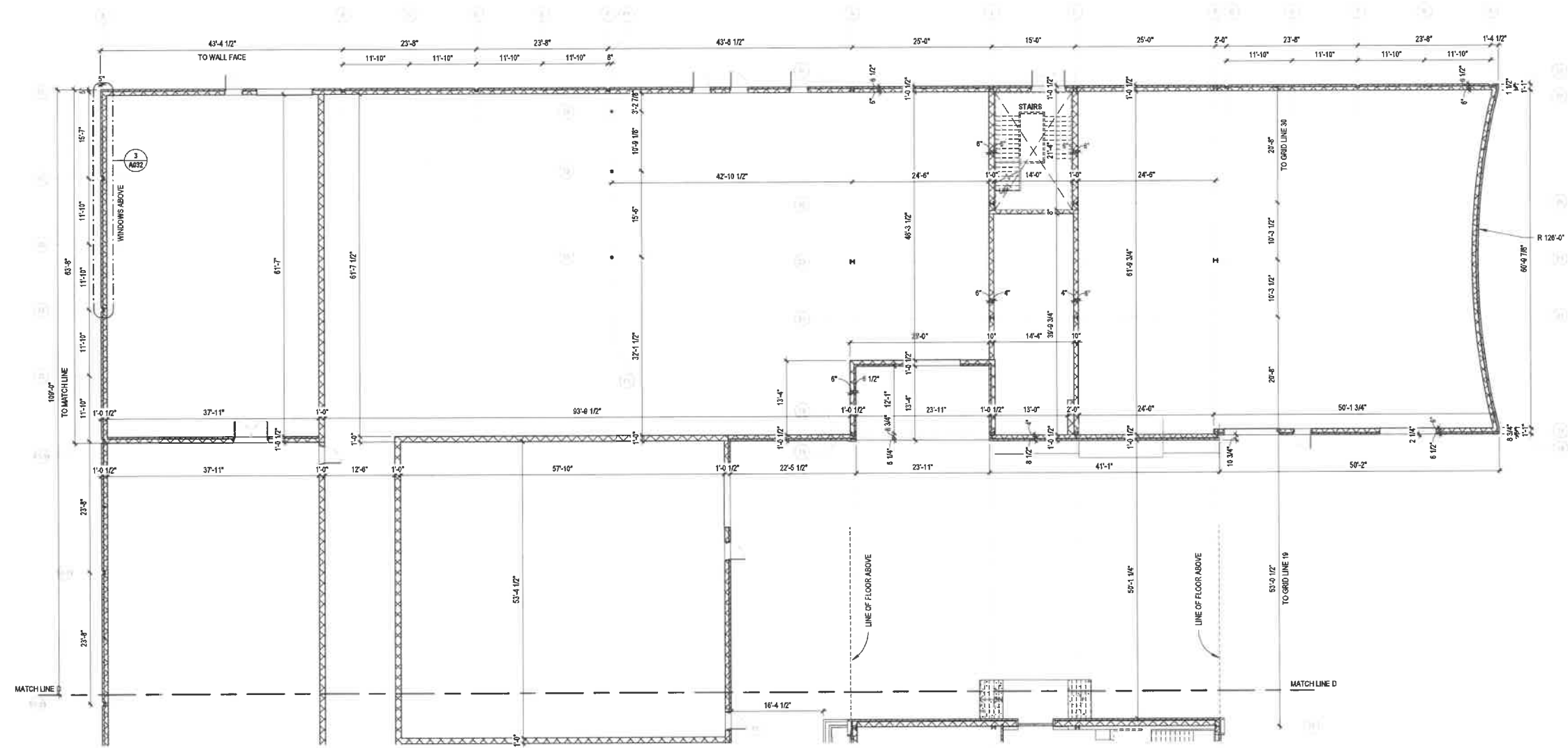
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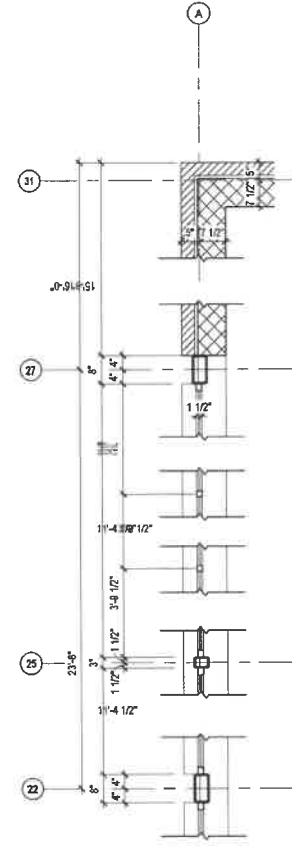
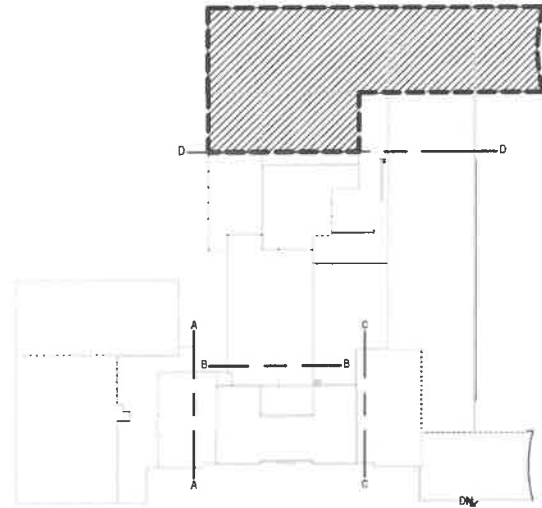
C:\Users\designer1\Documents\2431 ARCH - 2431s - REVITE.rvt 2/24/2017 1:53:46 PM



SHOP - EXISTING - FIRST FLOOR PLAN
SCALE: 3/32" = 1'-0"



EXISTING KEYPLAN
SCALE: 1/64" = 1'-0"



3
A032

DETAIL PLAN VIEW - SHOP WINDOWS
SCALE: 1/2" = 1'-0"

Client

AMHERST HIGH SCHOOL
RENOVATION

Street Address, City, Ontario XXX XXX

Drawn By

Checked By

Project No

Tender No

Sheet No

A032

SHEET NAME

FLOOR PLAN - EXISTING - SHOP

Revision Schedule

Description

Date

No.

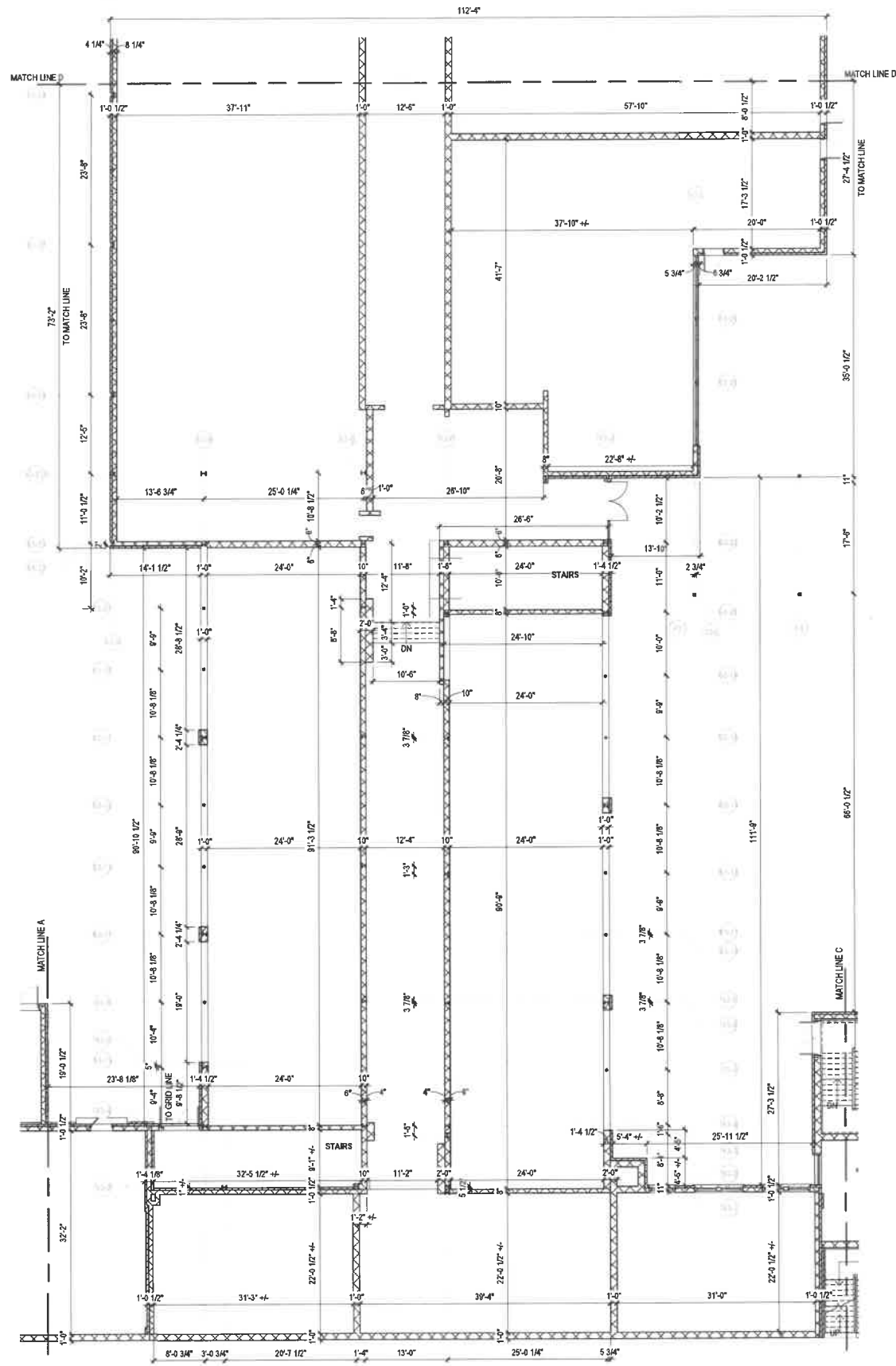
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unless it is accompanied by the Project
Architect

Issued For (1111) A032

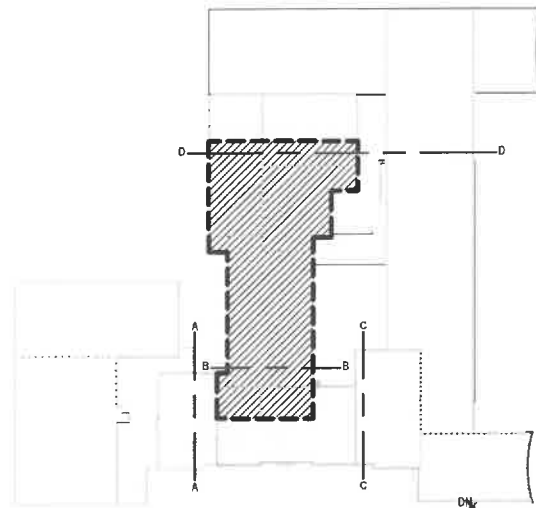
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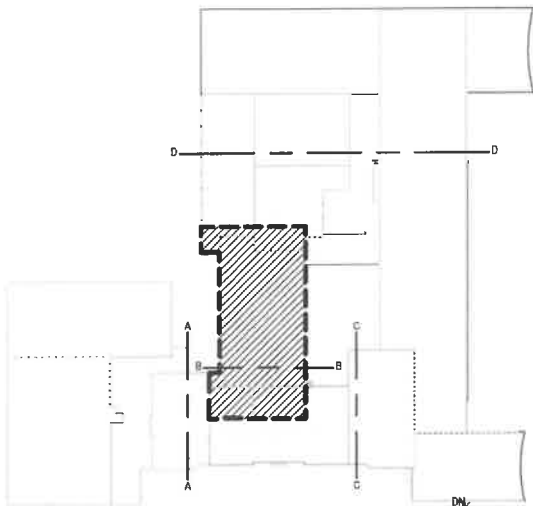
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EXISTING KEY PLAN
SCALE: 1/64" = 1'-0"

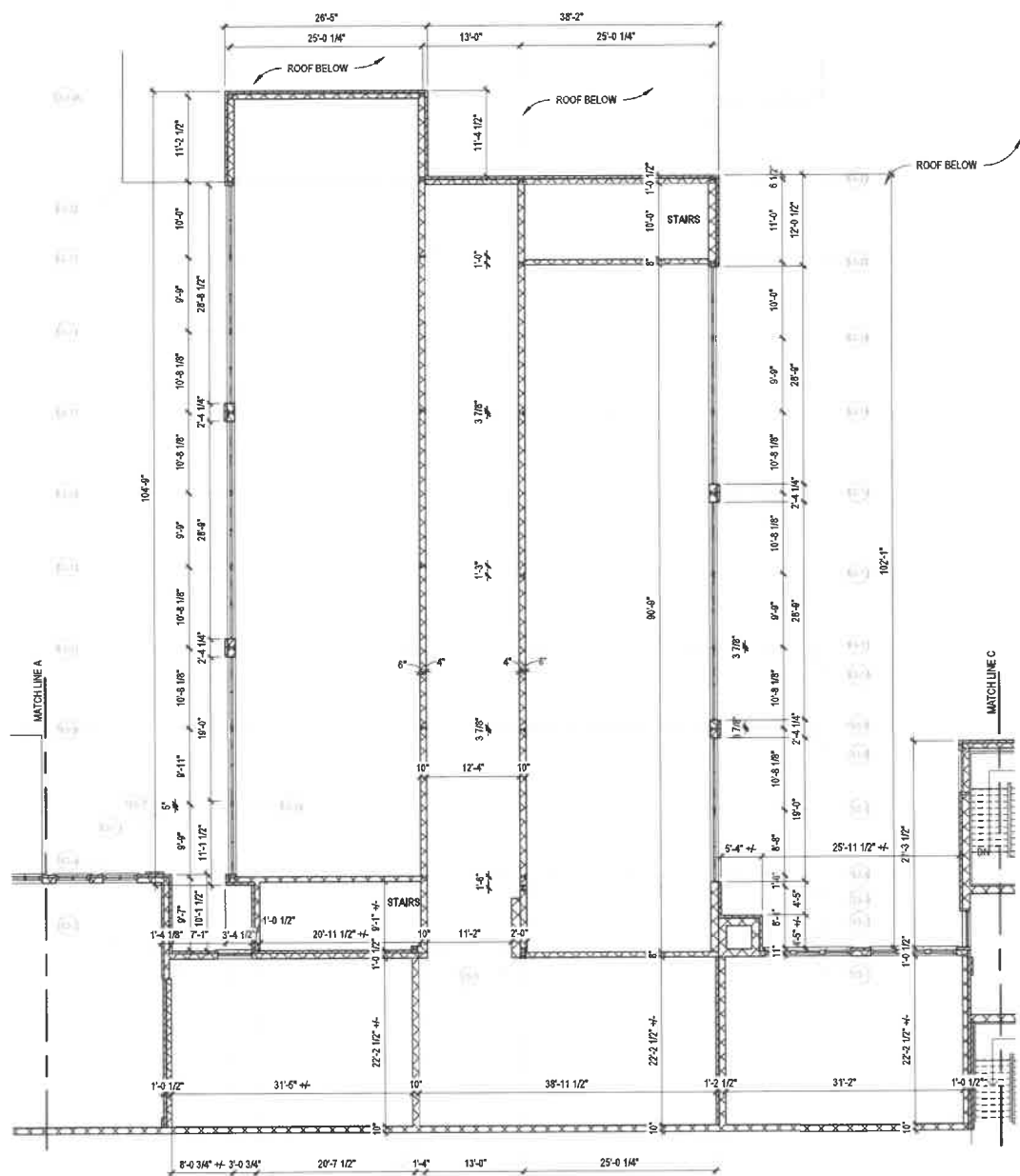


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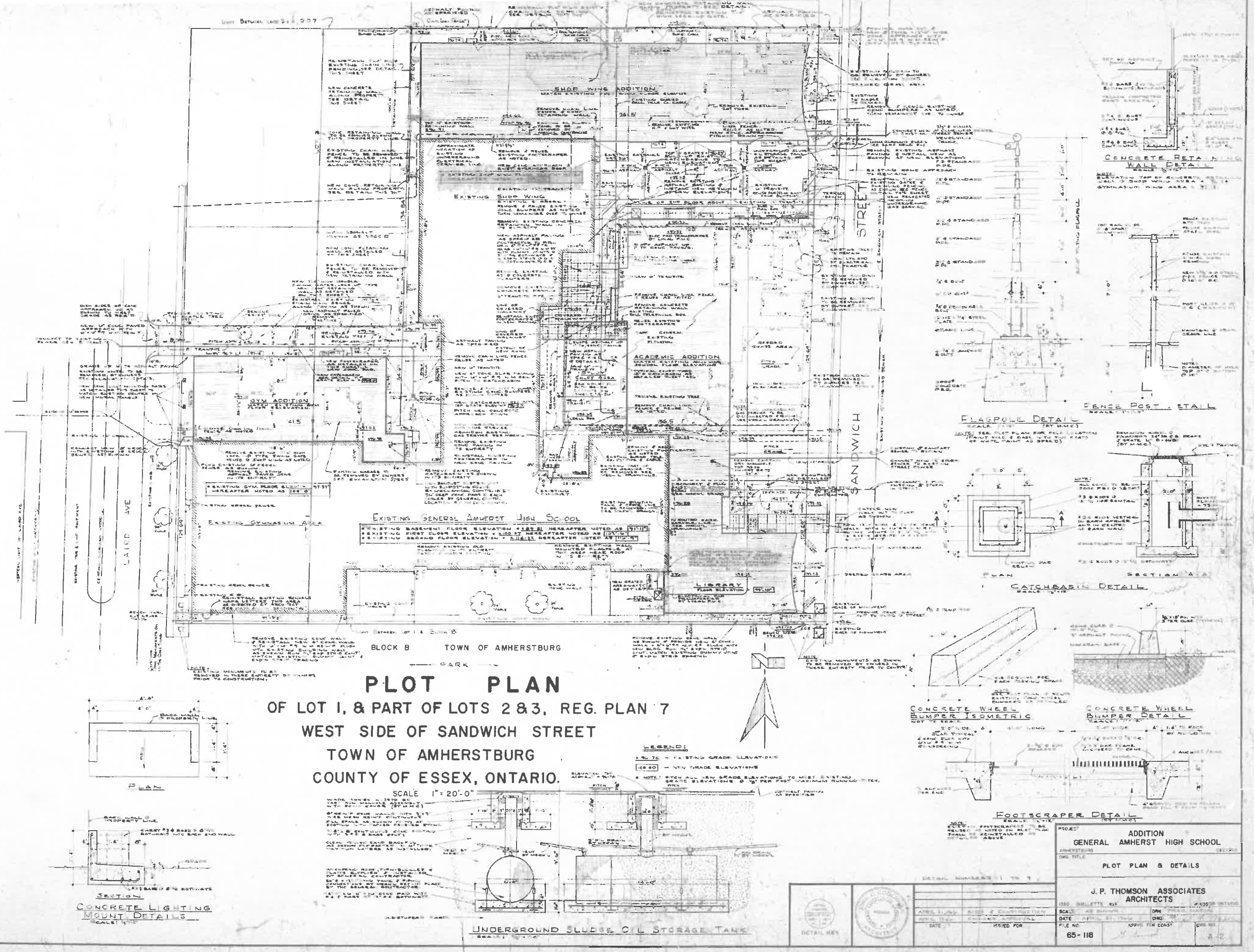


2
A035

EXISTING KEYPLAN
SCALE: 1/8" = 1'-0"



MIDDLE - EXISTING - SECOND FLOOR PLAN
SCALE: 3/32" = 1'-0"



PLOT PLAN
OF LOT 1, & PART OF LOTS 2 & 3, REG. PLAN 7
WEST SIDE OF SANDWICH STREET
TOWN OF AMHERSTBURG
COUNTY OF ESSEX, ONTARIO.

SCALE 1" = 20'-0"

- LEGEND:**
- 2.5' TO 7.5' - EXISTING GRADE ELEVATIONS
 - 100.00 - NEW GRADE ELEVATIONS
 - NOTE: PITCH ALL NEW GRADE ELEVATIONS TO MEET EXISTING GRADE ELEVATIONS @ 1" PER FOOT MAXIMUM RUNNER PITCH.

CONCRETE LIGHTING MOUNT DETAILS
SCALE 1/2" = 1'-0"

UNDERGROUND SLUDGE OIL STORAGE TANK
SCALE 1/2" = 1'-0"

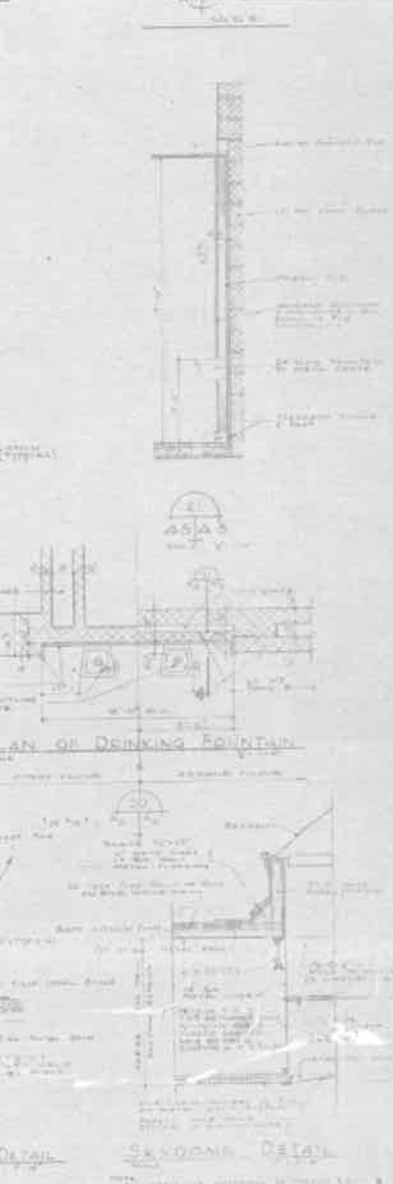
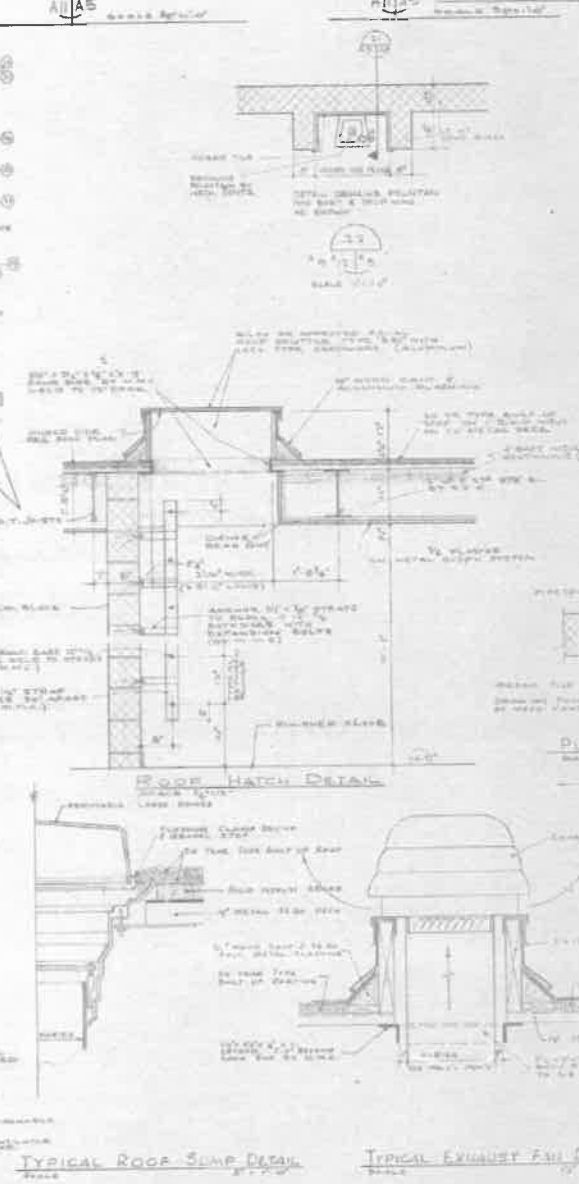
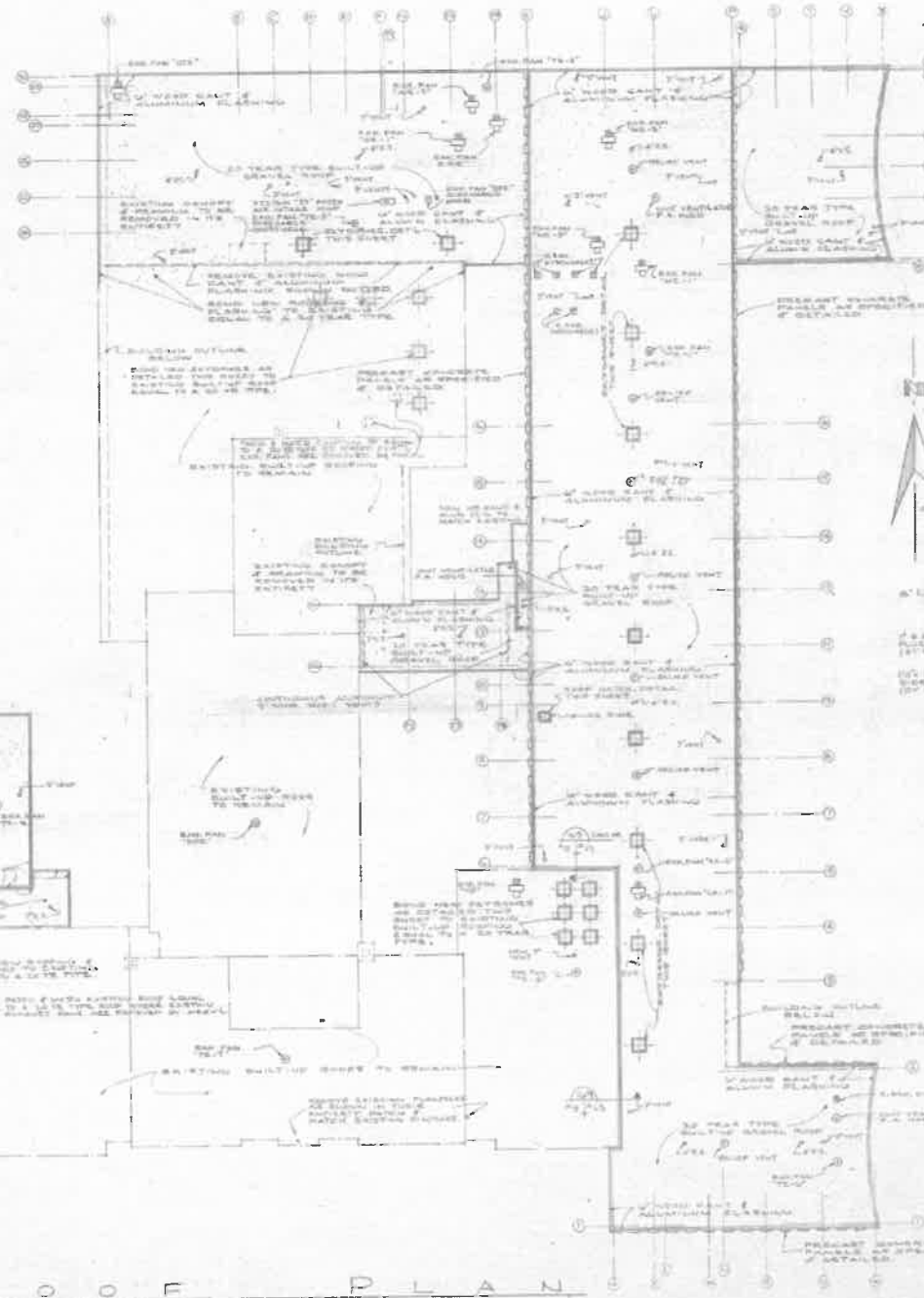
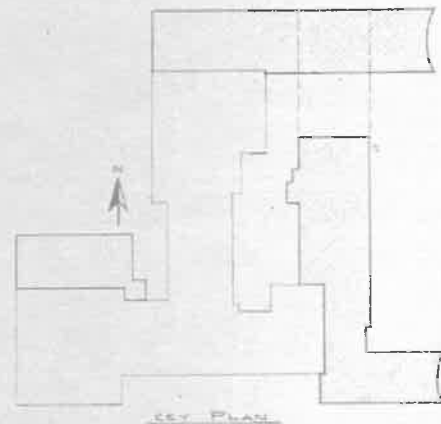
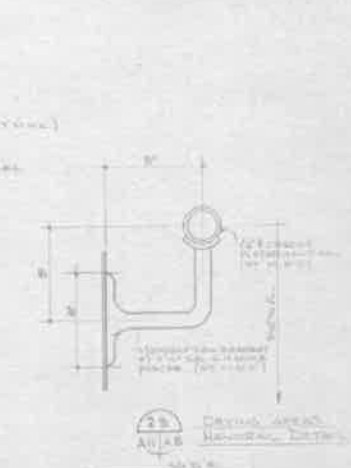
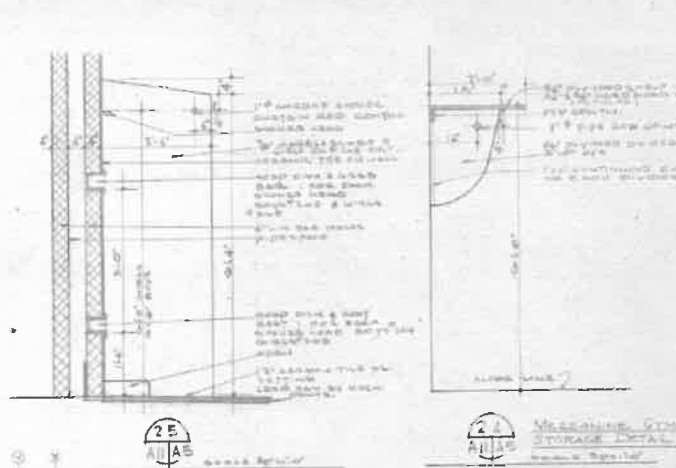
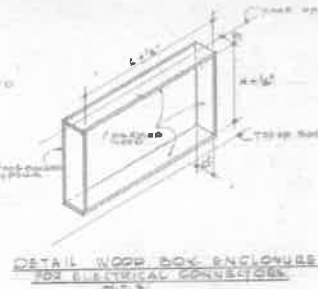
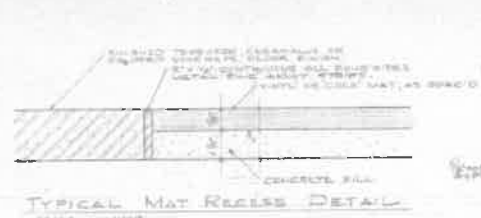
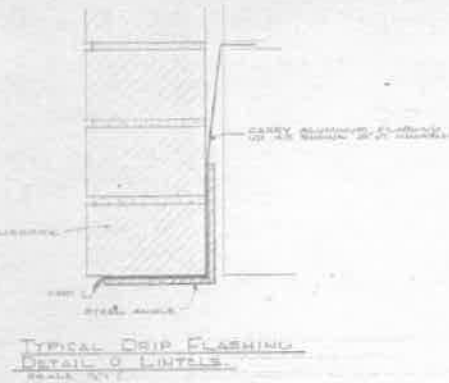
FLAGPOLE DETAIL
SCALE 1/2" = 1'-0"

CONCRETE WHEEL BUMPER ISOMETRIC
SCALE 1/2" = 1'-0"

CONCRETE WHEEL BUMPER DETAIL
SCALE 1/2" = 1'-0"

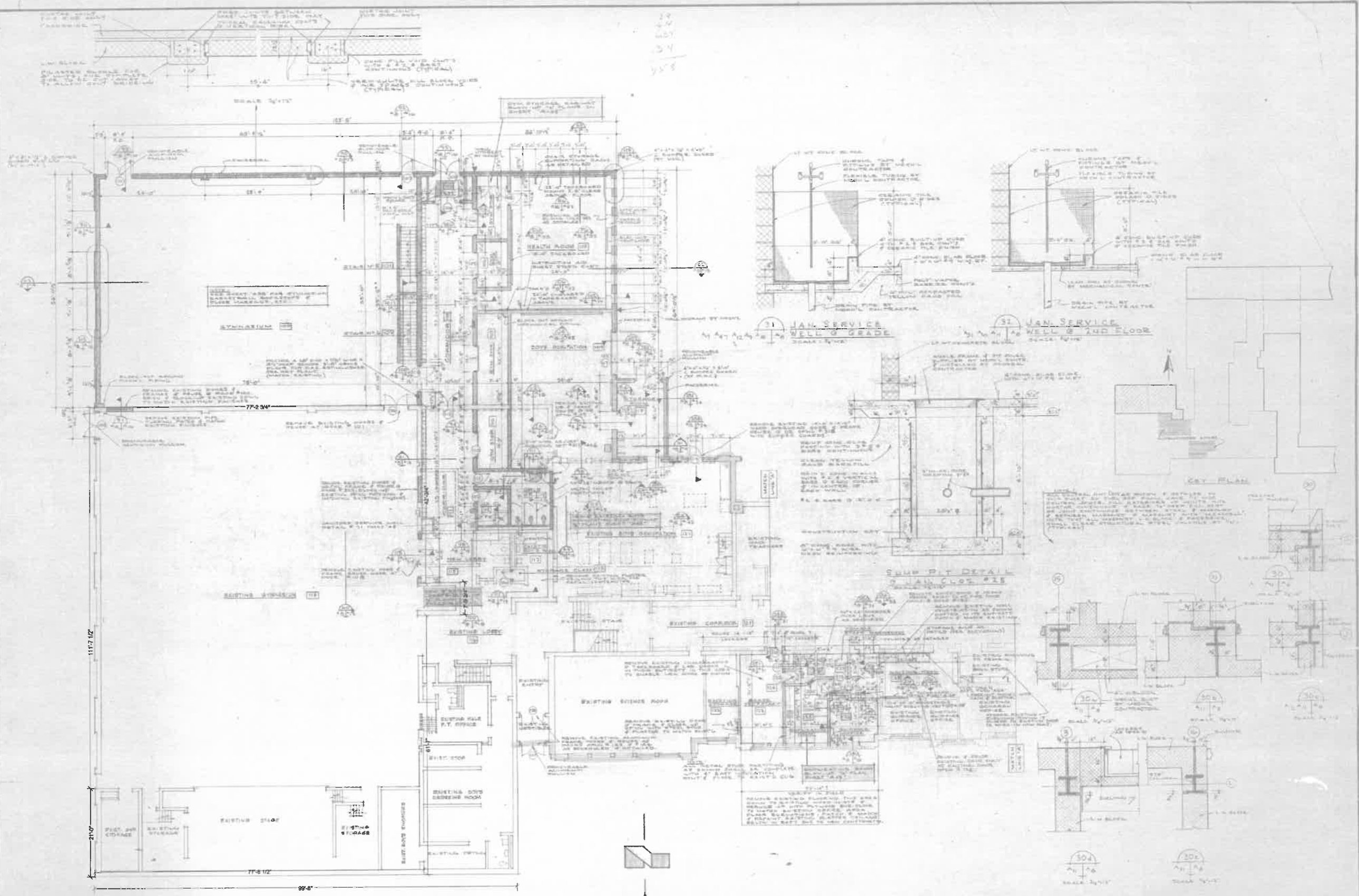
FOOTSCAPER DETAIL
SCALE 1/2" = 1'-0"

PROJECT		ADDITION	
GENERAL AMHERST HIGH SCHOOL		AMHERSTBURG, ONTARIO	
DWS TITLE		PLOT PLAN & DETAILS	
J. P. THOMSON ASSOCIATES ARCHITECTS			
1550 DUNDAS ST. W.	SCAL. AS SHOWN	DWN. PRESS. MARK	PROJ. NO. 1000
DATE: APRIL 27, 1966	DATE: APRIL 27, 1966	DWG. NO.	65-118
FILE NO.	OFFICE FILE NO.	DWG. NO.	A-2



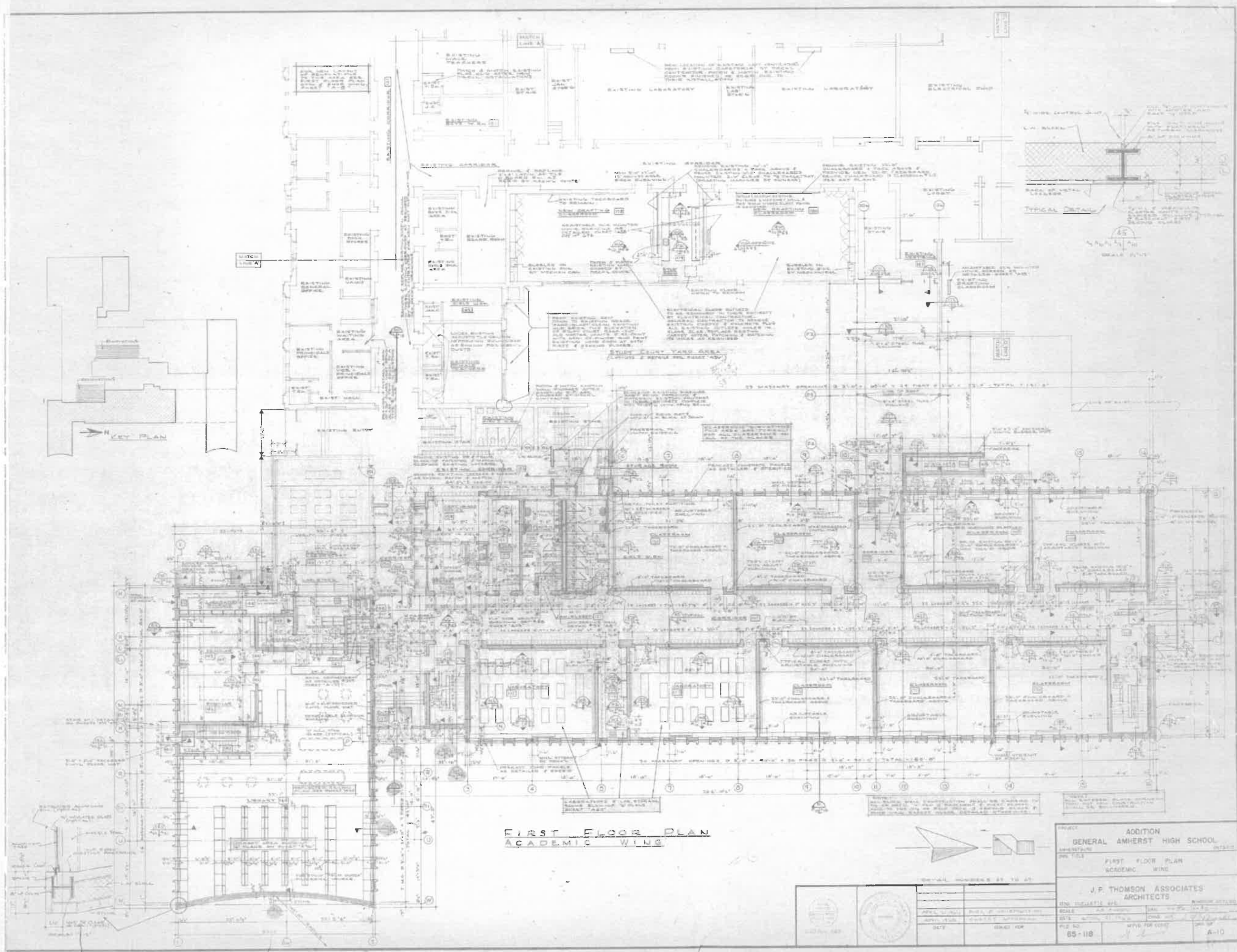
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ARCHITECT		J.P. THOMSON ASSOCIATES ARCHITECTS	
DATE		JULY 1965	
SCALE		1/2" = 1'-0"	
FILE NO.		65-118	
SHEET NO.		A-5	

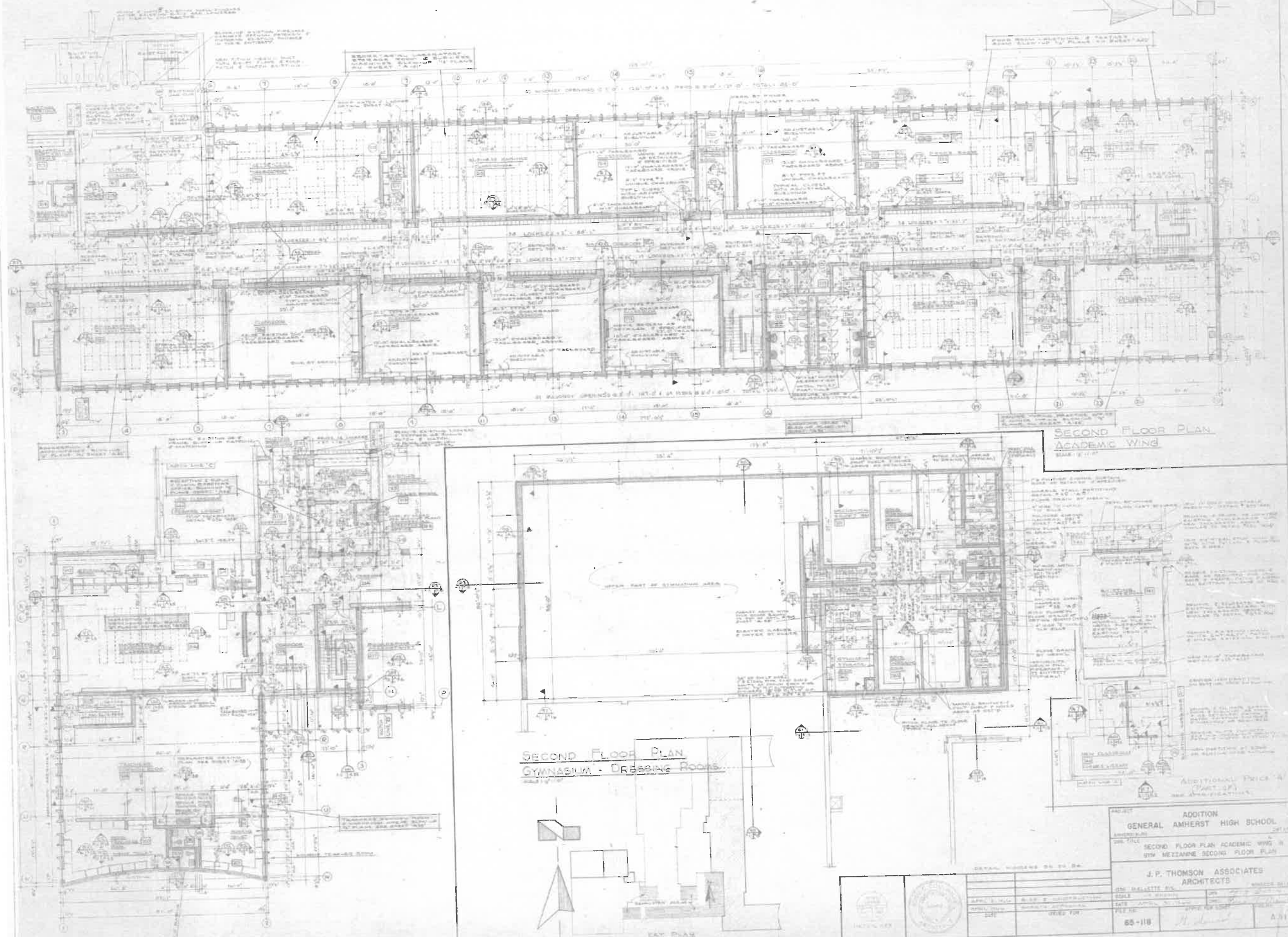
Architect: J.P. Thomson Associates
 Date: 11/17/65
 A-8



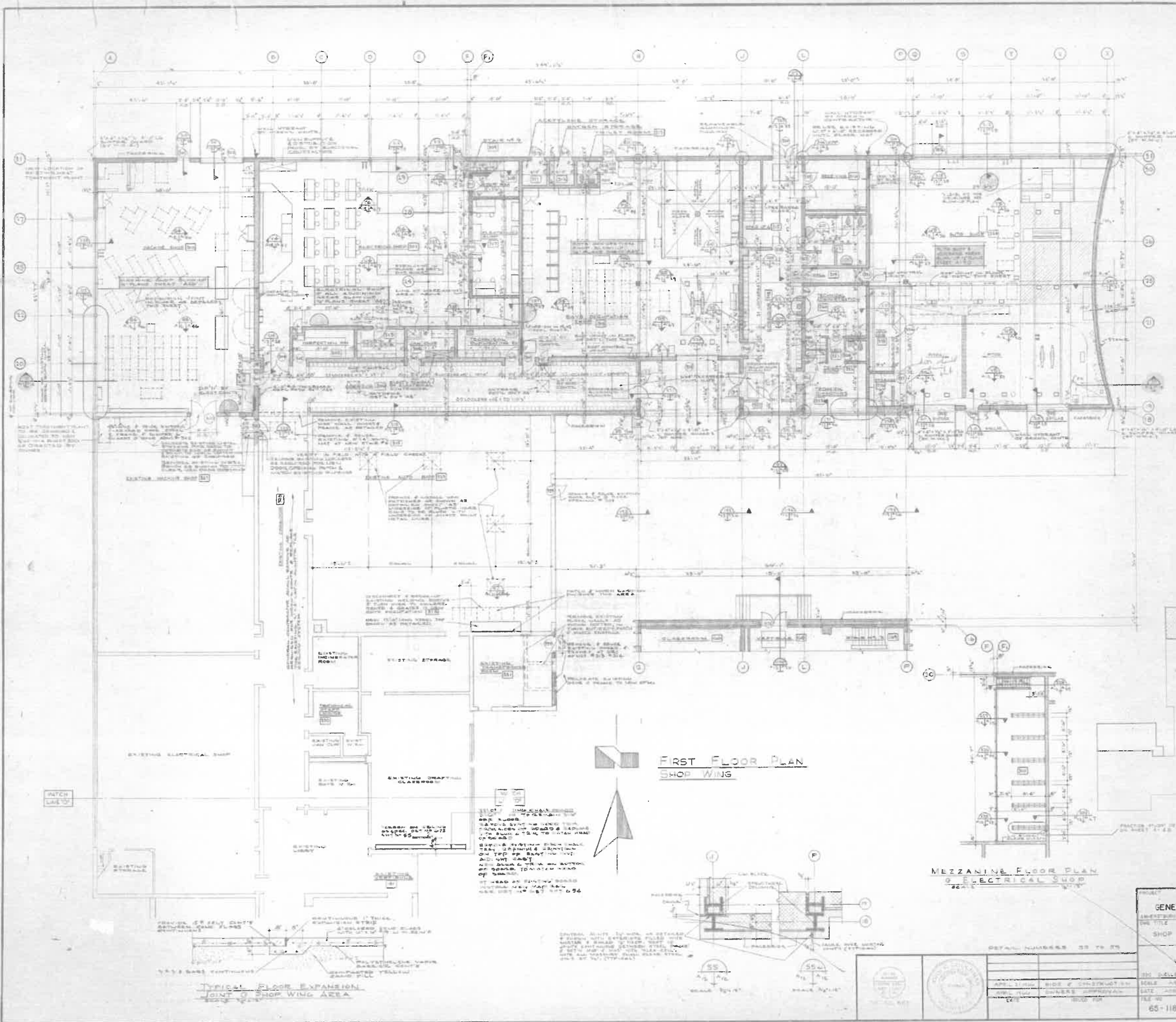
FIRST FLOOR PLAN GYM & SHOP WING
 SCALE: 1/8" = 1'-0"

PROJECT		ADDITION GENERAL AMHERST HIGH SCHOOL	
ARCHITECT		J.P. THOMSON ASSOCIATES ARCHITECTS	
DRAWN BY		J.P. THOMSON	
CHECKED BY		J.P. THOMSON	
DATE		11/17/65	
SCALE		1/8" = 1'-0"	
SHEET NO.		65-118	
TOTAL SHEETS		11	





PROJECT		ADDITION GENERAL AMHERST HIGH SCHOOL	
SHEET TITLE		SECOND FLOOR PLAN ACADEMIC WING & GYMNASIUM SECOND FLOOR PLAN	
ARCHITECT		J.P. THOMSON ASSOCIATES ARCHITECTS	
DATE PREPARED	DATE APPROVED	DATE PREPARED	DATE APPROVED
FILE NO.	FILE NO.	FILE NO.	FILE NO.
65-118		65-118	



PROJECT		ADDITION	
GENERAL AMHERST HIGH SCHOOL		SHEET	
SHEET TITLE		SHOP WING FLOOR PLAN	
J.P. THOMSON ASSOCIATES		ARCHITECTS	
DATE		APPROVED	
65-118		A-12	



Appendix D

Stormwater Allowable Flow Rate

Stormwater Allowable Flow Rate to Sandwich Street Storm Sewer
Commercial Development, Sandwich Street, Amherstburg

The assessment of the allowable release rate from the 1.19 hectare property to the 1200mm RCP storm sewer on Sandwich Street evaluated the flow rate from the following two (2) scenarios:

SCENARIO 1: 5-year storm event

A 5-year storm event using the IDF equations in Town of Amherstburg Development Manual, a time of concentration calculated using the Kinematic Wave Equation, and a design run-off coefficient of 0.7.

Time of Concentration (Tc):

Length (m) =	80
Slope (m/m) =	0.004
n =	0.2
i (mm/hr) =	54

value between short prairie grass and dense grass

$$t_{\text{sheet}} = (6.92 \times L^{0.6} \times n^{0.6}) / (i^{0.4} S^{0.3})$$

Tc (min) = 39

Rainfall Intensity - 5-year storm event

a = 1259

b = 9.5

c = 0.838

i = a/(T+b)^c

i = 1259/(39+9.5)^{0.838}

i (mm/hr) = 49

values for parameters a, b, and c are from Table 3.2.1.1 in WERSMSM

C = 0.7

Qpre (scenario #1) = (2.78 x C x i x A)/1000

Qpre (scenario #1) = (2.78 x 0.7 x 49 x 1.19)/1000

Qpre (scenario #1) = 0.113 m³/s



SCENARIO 2: 5-year storm event with weighted run-off design coefficient using current development topography and impervious areas

A 5-year storm event using the IDF equations in Town of Amherstburg Development Manual, a time of concentration of 39 minutes, as calculated in scenario #1, and a weighted design coefficient of 0.9.

Property area (ha): 1.19

The property area consists of landscaping, asphalt pavement, and building areas.

Run-off coefficients - C

Grass / landscaped areas
Asphalt, concrete, and building roof

2-year
0.20
0.95

	Area (sq.m.)	Area (ha)	C x A (ha)
Site Area	11900	1.19	-
Grass / landscaped areas	840	0.08	0.02
Asphalt, concrete, and building roof	11060	1.11	1.05
			1.07

Weighted Run-off Coefficient (5-year)

$$C_w = \frac{\text{sum}(C \times A)}{\text{Area}}$$

$$C_w = 0.9$$

$$Q_{pre}(\text{senario \#2}) = Q_{pre}(\text{senario \#1}) \times (C_w \text{ senario \#2} / C \text{ senario \#1})$$

$$Q_{pre}(\text{senario \#2}) = 0.113 \times (0.9 / 0.7)$$

$$Q_{pre}(\text{senario \#2}) = 0.145 \text{ m}^3/\text{s}$$

The flow rates from both scenarios are:

SCENARIO #1 =	113	L/s
SCENARIO #2 =	145	L/s

The conveyance capacity of the 550mm x 675mm PDC, assuming gravity flow is calculated using the Manning formula:

$$Q = 1 / n \times (A / P)^{2/3} \times S^{1/2}$$

$$n = 0.014 \quad (\text{building and paved surfaces})$$

$$A = 371 \times 10^3 \text{ mm}^2$$

$$P = 2 \times (550 + 675) = 2450 \text{ mm}$$

$$S = 0.01$$

$$Q = 203 \text{ L/s}$$

Recommended Allowable Release Rate

The recommended allowable release rate of 113 L/s for the new development should be established for all storm events up to and including the 100-year storm event. The post-development flow rates to be calculated using the 5- and 100-year IDF equations in the Windsor Essex Region Stormwater Management Standards Manual (WERSMSM). The Urban Stress Test will not be evaluated as part of this exercise since this property is currently fully developed, and the proposed development will add a substantial increase to available on-site stormwater detention storage. The proposed stormwater management strategy will consider the Urban Stress Test to confirm impact to neighbouring adjacent properties and adequate overland flow routes.

PLAN OF SURVEY
OF
LOT 1
PART OF LOTS 2 and 3
REGISTERED PLAN 7
(EAST SIDE OF LAIRD AVENUE)
IN THE
TOWN OF AMHERSTBURG
COUNTY OF ESSEX, ONTARIO
© VERHAEGEN LAND SURVEYORS, A DIVISION OF J.D. BARNES LTD.

SCALE : 1"=30'
0 15.0 30.0 60.0 90.0 150.0 FEET

"IMPERIAL" DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE
IN FEET AND CAN BE CONVERTED TO METRES BY
MULTIPLYING BY 0.3048

LEGEND AND NOTES

BEARINGS ARE UTM GRID DERIVED FROM OBSERVED REFERENCE POINTS 'A' AND 'B'
BY REAL TIME NETWORK OBSERVATIONS AND ARE REFERRED TO UTM ZONE 17
(81° WEST LONGITUDE) NAD83 (CSRS) (2010.0).

DISTANCES ON THIS PLAN ARE GROUND AND CAN BE CONVERTED TO GRID BY
MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999952.

ALL SET SIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN
AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH
SECTION 11 (4) OF O.R.G. 525/91.

■ DENOTES SURVEY MONUMENT FOUND
□ DENOTES SURVEY MONUMENT SET
SIB DENOTES STANDARD IRON BAR
SSIB DENOTES SHORT STANDARD IRON BAR
IB DENOTES IRON BAR
IB# DENOTES ROUND IRON BAR
PB DENOTES PLASTIC BAR
CP DENOTES STEEL PIN
WT DENOTES WITNESS
L DENOTES PERPENDICULAR
CLF DENOTES CHAIN LINK FENCE
BF DENOTES BOARD FENCE
ORP DENOTES OBSERVED REFERENCE POINT
M DENOTES MEASURED
S DENOTES SET
(D) DENOTES DEED
(OU) DENOTES ORIGIN UNKNOWN
(P) DENOTES PLAN 12R-24659
(FN) DENOTES FIELD NOTE BY (1744) DATED MAY 27, 2010. (Job No. 4-25362)
(J.D.B.) DENOTES J.D. BARNES LIMITED, O.L.S.
(1744) DENOTES VERHAEGEN LAND SURVEYORS, O.L.S.
+ FH DENOTES FIRE HYDRANT
BCB DENOTES CATCH BASIN
N = NORTH; S = SOUTH; E = EAST; W = WEST

INTEGRATION DATA

COORDINATES ARE DERIVED FROM GRID OBSERVATIONS USING THE CAN-NET
NETWORK SERVICE AND ARE REFERRED TO UTM ZONE 17 (81° WEST LONGITUDE)
NAD83 (CSRS) (2010.0).

COORDINATE VALUES ARE TO AN URBAN ACCURACY IN ACCORDANCE WITH
SECTION 14(2) O.R.G. 216/10

POINT ID	NORTHING	EASTING
ORP-A	15301318.08	1067941.61
ORP-B	15300884.42	1067577.34

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS
OR BOUNDARIES SHOWN ON THIS PLAN.

THE RESULTANT TIE BETWEEN ORP 'A' AND ORP 'B' IS 566.38' (GROUND), N47°01'50"E.

FOR BEARING COMPARISONS THE FOLLOWING ROTATIONS WERE APPLIED TO CONVERT TO GRID BEARINGS	
PLAN	COUNTER-CLOCKWISE ROTATION
P	00° 04' 20"

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

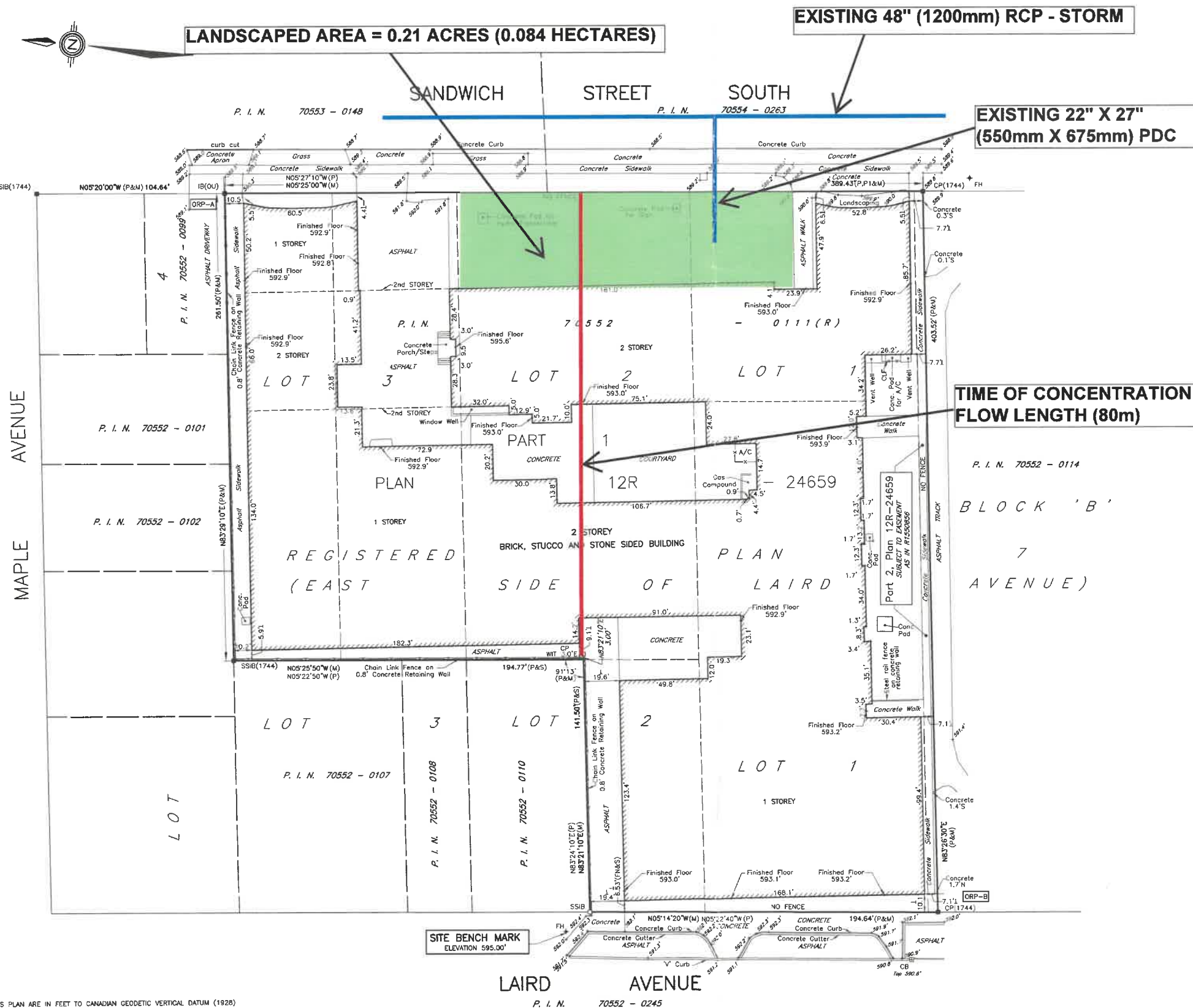
- THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT,
THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
- THIS SURVEY WAS COMPLETED ON THE 22nd DAY OF APRIL, 2024.

DATE MAY 10, 2024

Ray A. Simone
RAY A. SIMONE
ONTARIO LAND SURVEYOR

 **VERHAEGEN** SURVEYING
LAND SURVEYORS MAPPING
GIS
A DIVISION OF J.D. BARNES LTD.
944 OTTAWA STREET, WINDSOR, ON, N8X 2E1
T: (519) 258-1772 F: (519) 258-1791 www.jdbarnes.com

DRAWN BY: D.J.	CHECKED BY: RAS	REFERENCE NO.: 24-47-206-00
CAD Date: May 13, 2024 2:38 PM		E-7-E/S LAIRD AVE.-0
CAD File: 24-47-206-00.dwg		



ELEVATIONS
ELEVATIONS SHOWN ON THIS PLAN ARE IN FEET TO CANADIAN GEODETIC VERTICAL DATUM (1928)

BENCH MARK
BENCH MARK 81U049 ELEVATION 594.15'
PUBLIC LIBRARY AT SOUTHWEST CORNER OF INTERSECTION OF SANDWICH STREET
(HIGHWAY No. 18) AND RICHMOND STREET, TABLET IN NORTH FACE OF CONCRETE
PLATFORM FOR STAIRS, 7.4 FEET EAST OF EAST WALL OF BUILDING, 4.3 FEET BELOW
TOP OF PLATFORM, 10 INCHES WEST OF NORTHEAST CORNER.

SITE BENCH MARK ELEVATION 595.00'
TOP OF FIRE HYDRANT AT THE NORTHWEST CORNER OF THE PROPERTY.

FIGURE 1. TOPOGRAPHICAL SURVEY



Appendix E

Required Detention Storage

Pre- and Post-development Flow Rates

The Modified Rational Method is used to analyze the stormwater management for this development using the following design criteria:

Property area (ha): 1.17

The property area consists of landscaping, asphalt pavement, and gravelled areas.

Run-off coefficients - C

Grass / landscaped areas

Asphalt, concrete, and building roof

Gravel

<u>2-year</u>
0.20
0.95
0.00

Allowable Release Flow Rate

Allowable flow rate from the property is 113 L/s. Refer to the approved SWM memorandum dated 13 December 2024 appended to this report

Post-development flow

Impervious % = 90

Run-off Coefficient (5-year) = 0.9

Run-off Coefficient (100-year)

Storage Depth (mm) = $72 + 0.33 (x) = 101.7$ (clay soil)

$$C_w = \frac{\text{Storage Depth}}{108 \text{ mm}}$$

$$C_w = 0.94$$

$$\begin{aligned} Q_{\text{post}} (5\text{-year}) &= 2.78 \times 0.9 \times i \times 1.17 = 2.93 \times 10^{-3} \text{ i m}^3/\text{s} \\ Q_{\text{post}} (100\text{-year}) &= 2.78 \times 0.94 \times i \times 1.17 = 3.06 \times 10^{-3} \text{ i m}^3/\text{s} \end{aligned}$$

Rainfall Intensity Parameters

(ref. Table 3.2.1.1 in Windsor/Essex Region Stormwater Management Standards Manual)

5-year storm event

$$a = 1259$$

$$b = 8.8$$

$$c = 0.838$$

100-year storm event

$$a = 2375$$

$$b = 11.0$$

$$c = 0.861$$

Required Storage: 5-Year Storm Event**IDF Curve Parameters: a = 1259, b = 8.8, c = 0.838**Release volume based on Qpre = 0.113 m³/s

DURATION (minutes)	INTENSITY (mm/hr)	Qpost (m ³ /s) 2.93 x 10 ⁻³ i m ³ /s	STORM VOLUME m ³	RELEASE VOLUME m ³	REQUIRED STORAGE m ³
5	139.6	409	123	34	89
10	107.7	315	189	68	121
15	88.4	259	233	102	131
20	75.3	221	265	136	129
25	65.9	193	289	170	120
30	58.7	172	309	203	106
35	53.0	155	326	237	89
40	48.4	142	340	271	69

Minimum Required Storage = **131** m³ (ca. 15 minute duration)**Required Storage: 100-Year Storm Event****IDF Curve Parameters: a = 2375, b = 11, c = 0.861**

Release volume based on Qpre = 0.113 L/s

DURATION (minutes)	INTENSITY (mm/hr)	Qpost (m ³ /s) 3.06 x 10 ⁻³ i m ³ /s	STORM VOLUME m ³	RELEASE VOLUME m ³	REQUIRED STORAGE m ³
5	218.2	667	200	34	166
10	172.7	528	317	68	249
15	143.7	439	395	102	294
20	123.5	378	453	136	317
25	108.6	332	498	170	328
30	97.1	297	534	203	331
35	87.9	269	564	237	327
40	80.4	246	590	271	319
45	74.2	227	613	305	308
50	68.9	211	632	339	293
55	64.4	197	650	373	277
60	60.5	185	666	407	259

Minimum Required Storage = **331** m³ (ca. 30 minute duration)