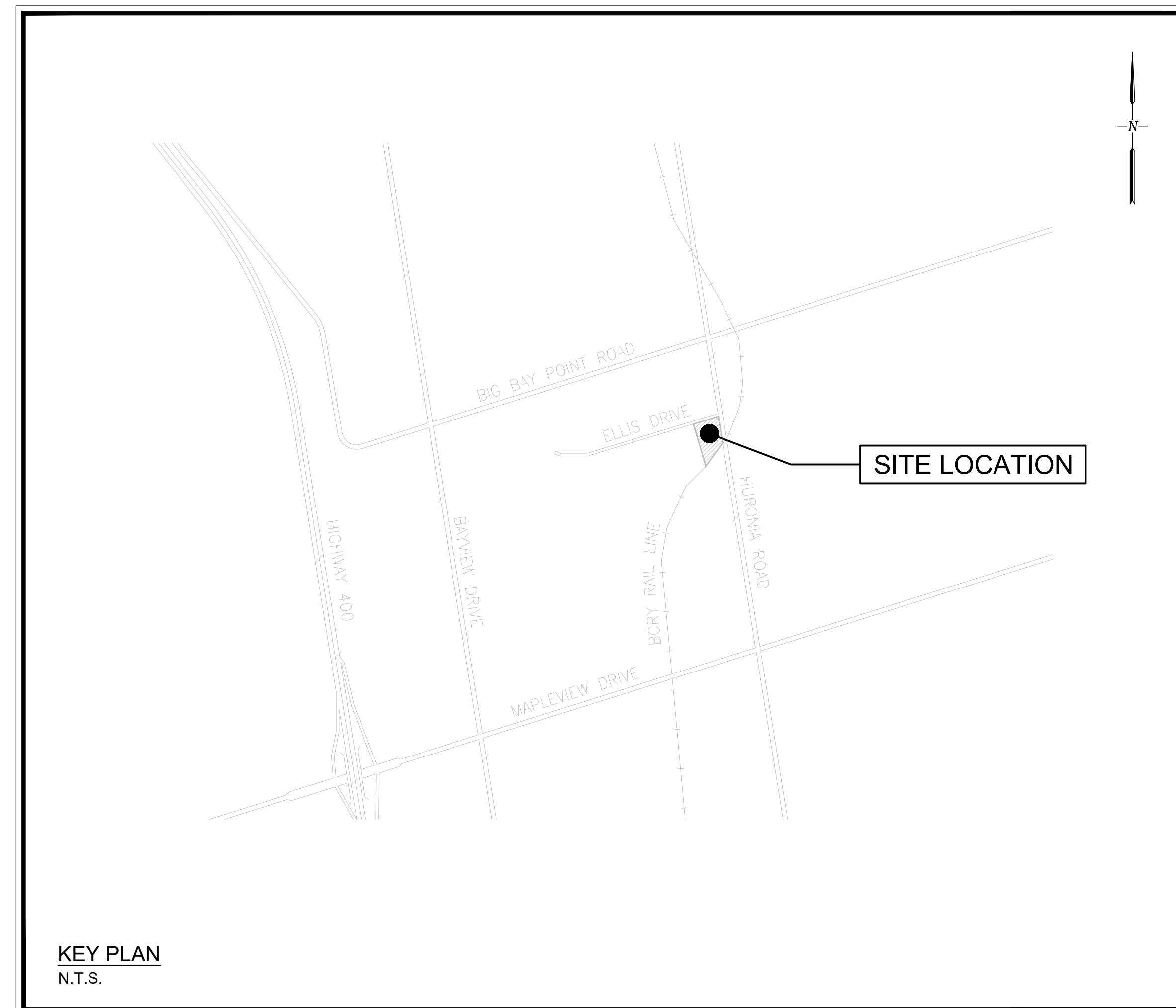


# KINGSLEA DEVELOPMENTS

## 131 ELLIS DRIVE SITE PLAN CITY OF BARRIE

### DRAWING INDEX

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C2	SITE GRADING PLAN
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C6	EROSION AND SEDIMENT CONTROL PRE-ASPHALT
C7	STANDARD DETAILS
C8	STANDARD DETAILS
C9	STANDARD DETAILS
C10	STANDARD DETAILS



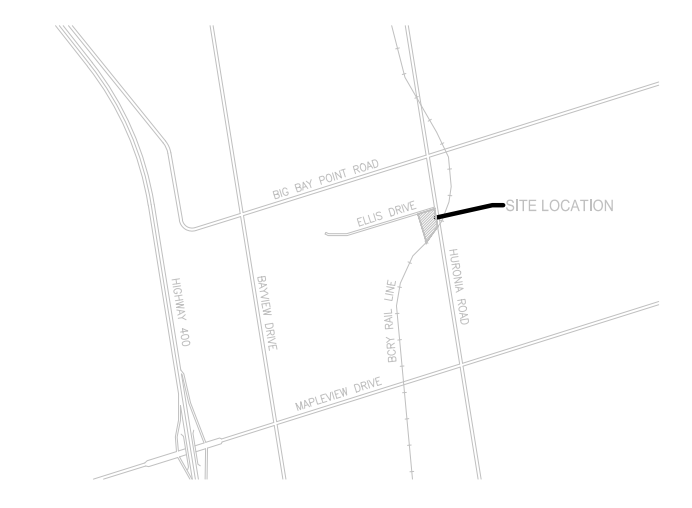
KINGSLEA DEVELOPMENTS  
16-107 WOODBINE DOWNS  
TORONTO, ON  
M9W 6Y1

Project No. 2019-038

FUNCTIONAL SERVICING REPORT - 2019/10/02

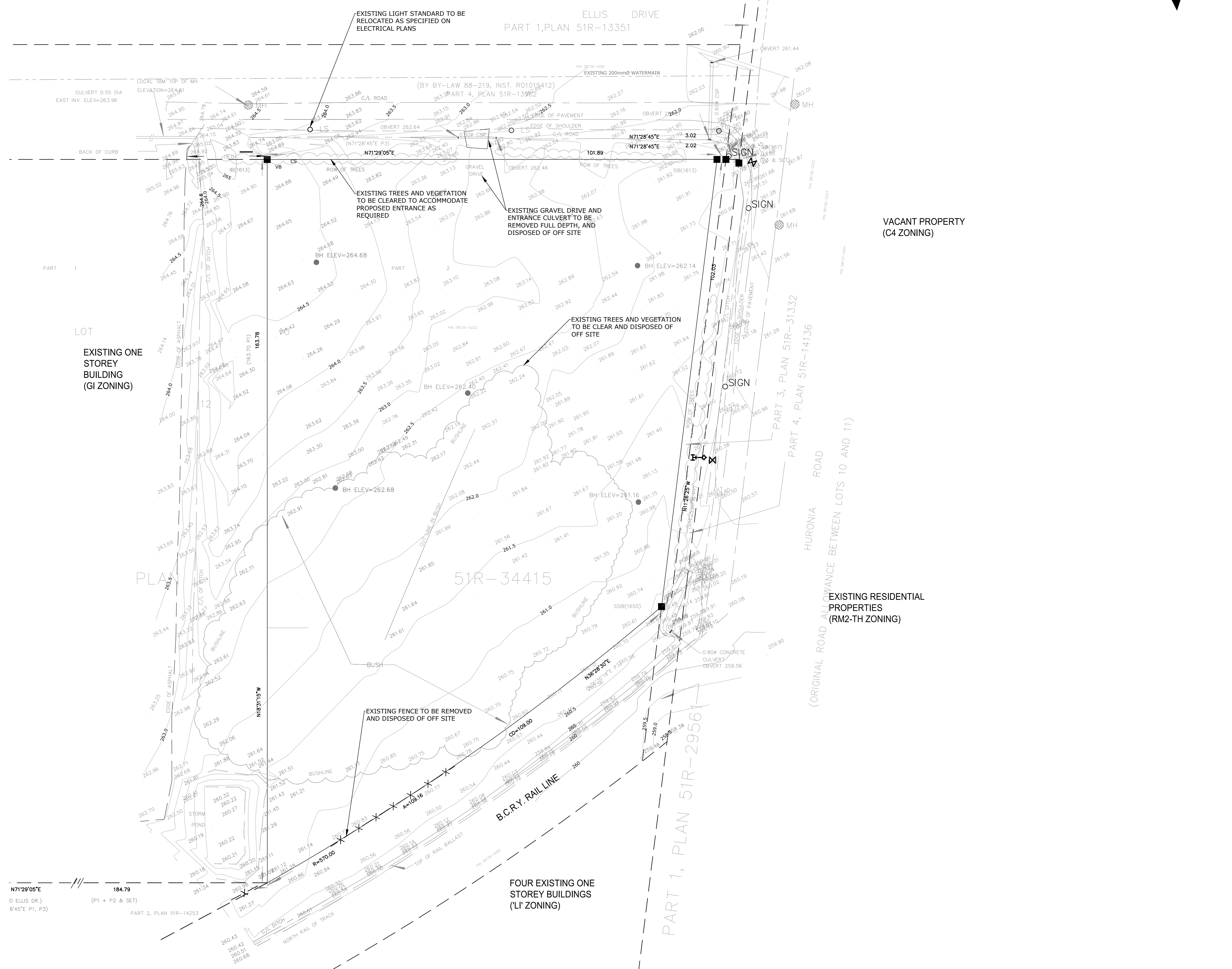
**CAPE**  
**ENGINEERING**

KEY PLAN



LEGEND

- DENOTES FOUND SURVEY MONUMENT
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- OH- DENOTES OVERHEAD WIRES
- ✕ DENOTES FENCING
- LS DENOTES LIGHT STANDARD
- MH DENOTES MANHOLE
- HYD DENOTES HYDRANT
- WV DENOTES WATER VALVE
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- WV DENOTES WATER VALVE
- (976) DENOTES W.N. WILDMAN, O.L.S.
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- (1650) DENOTES DINO R.S. ASTRI, O.L.S.
- (P1) DENOTES PLAN 51R-31332
- (P2) DENOTES PLAN 51R-28612
- (P3) DENOTES PLAN 51R-34415



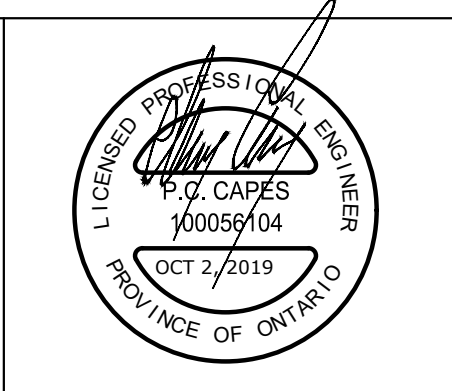
PART OF  
 LOT 10  
 CONCESSION 12  
 GEOGRAPHIC TOWNSHIP OF INNISFIL  
 CITY OF BARRIE  
 COUNTY OF SIMCOE

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No	Issue / Revision	Date	Auth
1	FUNCTIONAL SERVICING REPORT	19/10/02	CC

**BENCHMARK**  
 TOP OF EXISTING MANHOLE ON ELLIS DRIVE AT FRONTAGE OF SUBJECT SITE  
 ELEVATION 264.61  
 ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE DERIVED  
 USING GPS TECHNOLOGY AND THE CAN-NET VRS NETWORK.  
 EXISTING INFORMATION PROVIDED BY DINO ASTRI SURVEYING LTD. DATED JULY 26,  
 2019



Client  
**KINGSLEA DEVELOPMENTS**  
 16-107 WOODBINE DOWNS  
 TORONTO, ON  
 M9W 6Y1

**CAPES ENGINEERING**  
 355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE  
 CLARKSBURG, ON N0W 1J0  
 TEL: 705-994-4818

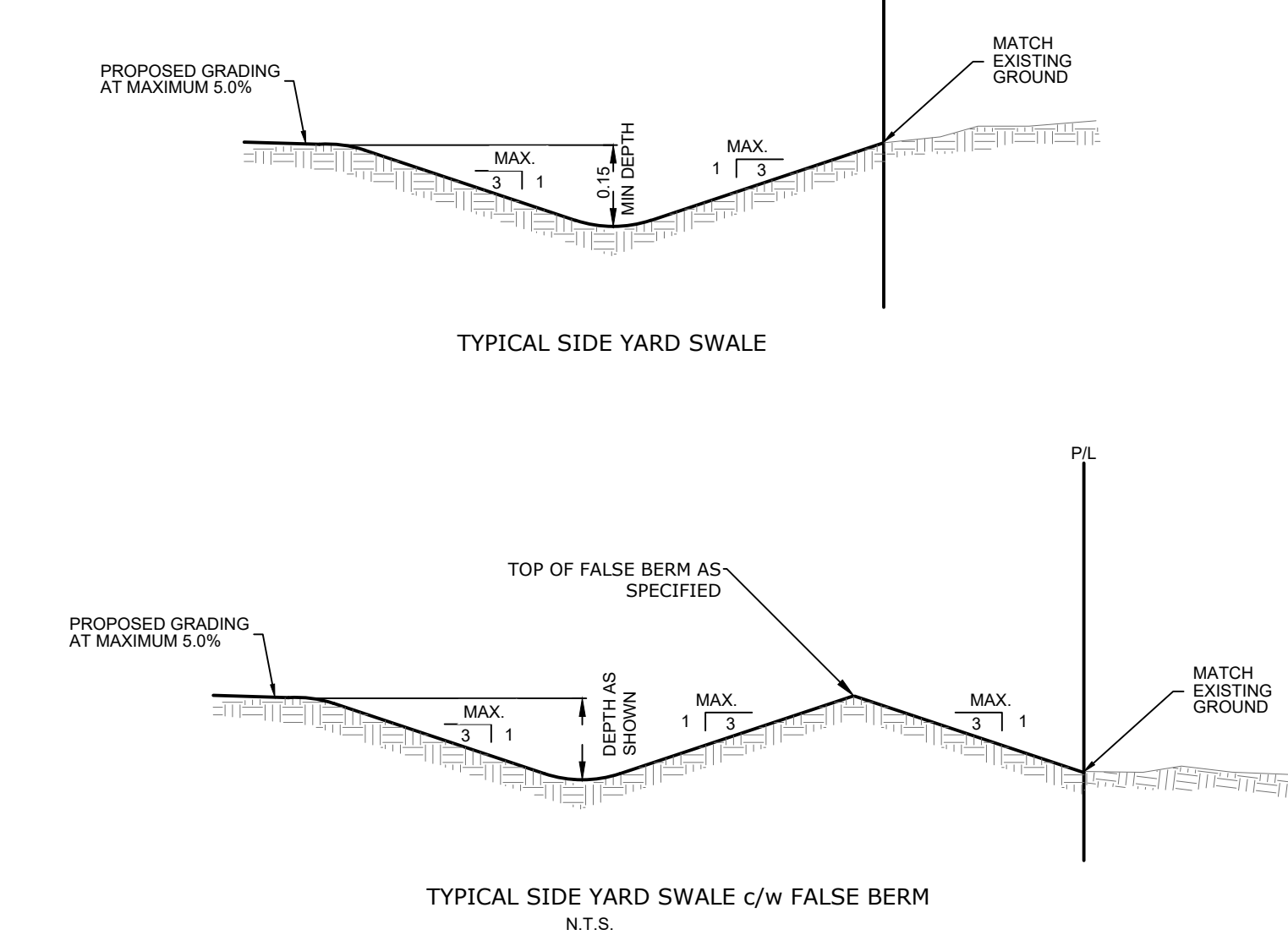
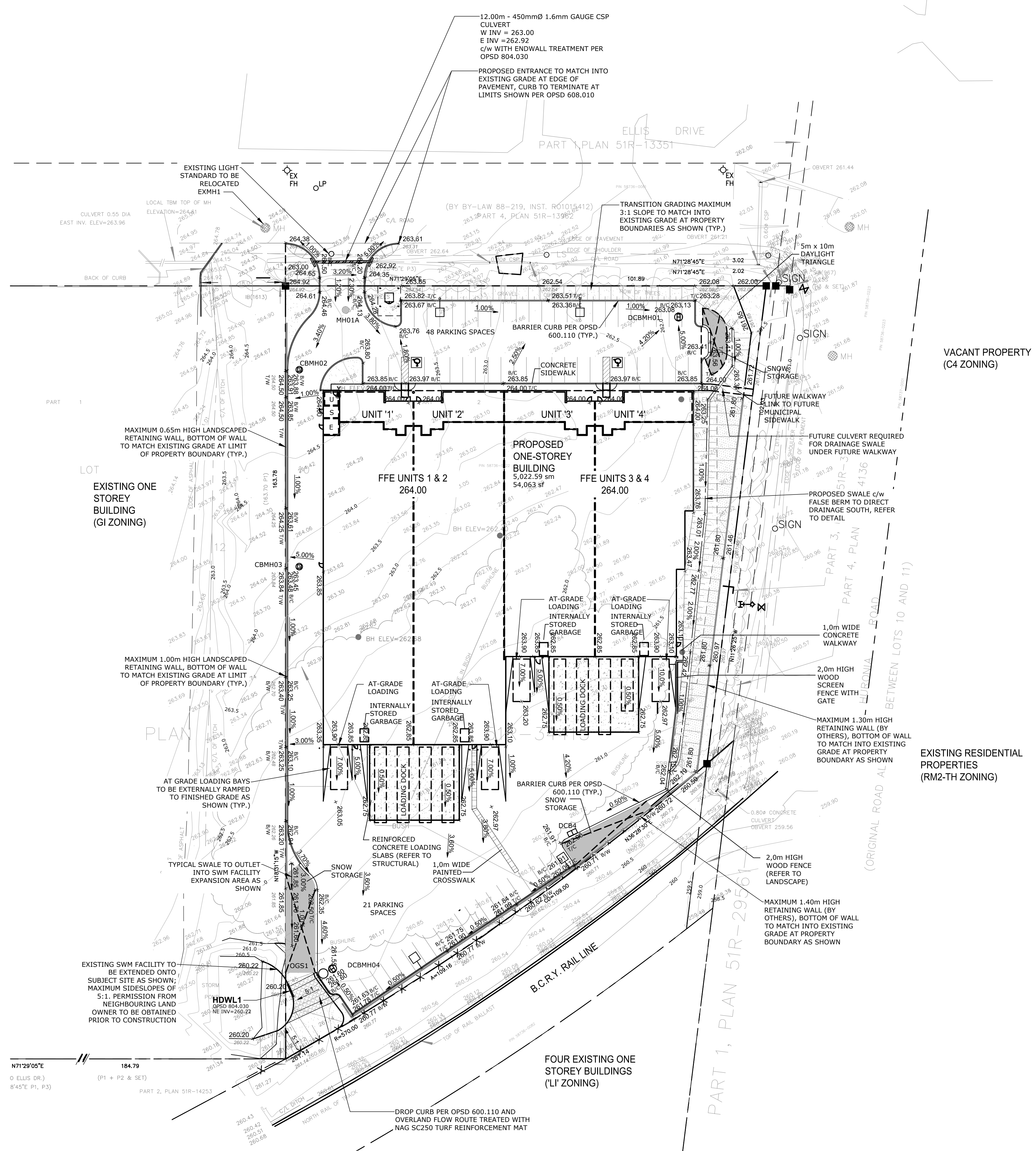
131 ELLIS DRIVE SITE PLAN  
 EXISTING CONDITIONS AND REMOVALS PLAN

Designed K. GRIFFIN	Checked C. CAPES	Date 19/07/23	Drawing No.
Project No. 2019-038	Rev No. 1		C1
Scale 1:500	0 5.0 10.0 20.0 30.0m		

**KEY PLAN**

**LEGEND**

• 221.21	PROPOSED ELEVATION
◊ 221.21	EXISTING ELEVATION
▬	MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
○	SANITARY & STORM MANHOLE
● CS	50mmØ DOMESTIC WATER SERVICE CURB STOP
▶	200mmØ FIRE LINE GATE VALVE
⊕	HYDRANT & VALVE
■	DENOTES FOUND SURVEY MONUMENT
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
IB	DENOTES IRON BAR
-OH-	DENOTES OVERHEAD WIRES
✕	DENOTES FENCING
LS	DENOTES LIGHT STANDARD
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(P1)	DENOTES PLAN 51R-31332
(P2)	DENOTES PLAN 51R-28612
(P3)	DENOTES PLAN 51R-34415



**GEOTECHNICAL NOTES, TERRAPROBE INC.**

**FOUNDATION**

SHOULD ENGINEERED FILL BE REQUIRED TO RAISE THE GRADE, IT MAY BE PLACED UPON THE COMPETENT UNDISTURBED, SILTY SAND SOILS. A GEOTECHNICAL ENGINEER SHALL PERFORM FREQUENT IN SITU DENSITY MEASUREMENTS TO ENSURE UNIFORMITY AND ADEQUACY OF THE COMPACTION EFFORT

ALL FOOTINGS RESTING ON ENGINEERED FILL MUST BE AT LEAST 500mm IN WIDTH REGARDLESS OF LOADING CONSIDERATIONS. ENGINEERED FILL MUST BE PLACED IN LAYERS (150mm THICK OR LESS) AND COMPACTED UNIFORMLY TO NOT LESS THAN 98% SPMD. REFER TO GEOTECHNICAL REPORT FOR FURTHER DETAILS REGARDING CONSTRUCTION OF ENGINEERED FILL MATERIALS

**SLAB-ON-GRADE**

SUBGRADE PREPARATION SHOULD INCLUDE REMOVAL OF ANY VEGETATION, TOPSOIL, WEAK AND DISTURBED SOILS. ONCE THE SUBGRADE HAS BEEN EXPOSED, IT IS RECOMMENDED THAT IT BE INSPECTED FOR OBVIOUS SOFT OR WEAK AREAS BY TERRAPROBE. WHERE NEW FILL REQUIRED TO RAISE THE GRADE, CLEAN IMPORTED FILL MATERIAL MAY BE USED, PROVIDED THE MATERIAL IS PLACED AT A MOISTURE CONTENT WITHIN 2% OF OPTIMUM, IN LARGE AREA WHERE IT CAN BE COMPACTED BY A HEAVY VIBRATORY TYRE ROLLER. THE UNDER-SLAB FILL SHOULD BE PLACED IN THIN, LOOSE LIFTS (MAXIMUM 150mm THICK) AND BE THOROUGHLY COMPACTED TO NOT LESS THAN 98% SPMD.

CONVENTIONAL LIGHTLY LOADED CONCRETE FLOOR SLABS SHOULD BE PLACED ON AT LEAST 150mm OF GRANULAR BASE MATERIAL (OPSS GRANULAR 'A' OR 19mm CRUSHER RUM LIMESTONE) COMPACTED TO 98% SPMD.

FOR ANY FLOOR WHICH HAS FINISHED SURFACES, OR ON WHICH MATERIALS THAT CAN BE DAMAGED BY MOISTURE WILL REST, A CAPILLARY MOISTURE BREAK IS REQUIRED UNDER THE SLAB. THIS IS ACCOMPLISHED BY PLACING THE SLAB ON A MINIMUM 200mm LAYER OF 19mm CLEAN STONE (OPSS 1004) COMPACTED BY VIBRATION TO A DENSE STATE. THE UPPER 50mm OF THE 200mm LAYER MAY BE REPLACED WITH 50mm GRANULAR 'A' (OPSS 1003) TO PROVIDE A TRAFFICABLE SURFACE.

CARE MUST BE TAKEN IN DETAILING THE EXTERIOR SLABS/SIDEWALKS, PROVIDING INSULATION/DRAINAGE AND NON-FROST SUSCEPTIBLE BACKFILL TO MAINTAIN THE FLUSH THRESHOLD DURING FREEZING WEATHER CONDITIONS.

ANY BUILDING WITH BELOW GRADE SPACE MUST HAVE BOTH PERIMETER AND SUBFLOOR DRAINAGE IN THE AREA OF THE DEPRESSED SLAB AND IS RECOMMENDED FOR STRUCTURES AT THIS SITE. PERIMETER DRAINAGE AT THE FOUNDATION LEVEL IS NOT REQUIRED PROVIDED THE FINISHED FLOOR SURFACE IS AT LEAST 200mm ABOVE THE PREVAILING GRADE ADJACENT THE STRUCTURE AND THE SURROUNDING SURFACES SLOPE AWAY FROM THE BUILDING AT A GRADIENT OF AT LEAST 2%.

LOWER FLOOR LEVELS AND LOADING DOCKS SHOULD BE KEPT AT LEAST 0.5m ABOVE THE ENCOUNTERED HIGH GROUNDWATER LEVEL. STABILIZED GROUNDWATER LEVELS HAVE RECENTLY BEEN MEASURED (APRIL 24, 2019) TO BE BETWEEN 2.5m AND 5.0m BELOW EXISTING GROUND SURFACE.

**EXCAVATIONS**

EXCAVATIONS MUST BE CARRIED OUT IN ACCORDANCE WITH THE OMSA FOR CONSTRUCTION PROJECTS (PART III, SECTION 222 THROUGH 242).

THE EXISTING TOPSOIL, FILL AND COMPACT SILTY SAND ARE CLASSIFIED AS TYPE 3 SOILS UNDER THESE REGULATIONS.

**SITE SERVICING**

THE EXISTING COMPACT TO VERY DENSE SILTY SAND OR ENGINEERED FILL SOILS WILL PROVIDE ADEQUATE SUPPORT FOR PIPING PROVIDED WITH CONVENTIONAL CLASS 'B' BEDDING. BEDDING MATERIALS CAN BE WELL GRADED, GRANULAR FILL SUCH AS GRANULAR 'A' (OPSS 1010). THE BEDDING MATERIAL SHOULD BE COMPACTED TO A MINIMUM 95% SPMD. THE BEDDING SHOULD CONFORM TO PERTINENT CITY STANDARDS.

WHERE DISTURBANCES OF THE TRENCH BASE HAVE OCCURRED, SUCH AS DUE TO GROUNDWATER SEEPAGE OR CONSTRUCTION TRAFFIC, THE DISTURBED SOILS MUST BE EXCAVATED AND REPLACED WITH SUITABLY COMPACTED GRANULAR FILL.

EXCAVATED EXISTING CLEAN EARTH FILL MATERIALS AND NATIVE, INORGANIC SOILS ENCOUNTERED ON SITE CAN GENERALLY BE USED AS BACKFILL PROVIDED THE MOISTURE CONTENT OF THESE MATERIALS IS WITHIN 2% OF OPTIMUM TO ENSURE ADEQUATE COMPACTION, AND THE TRENCHES ARE WIDE ENOUGH TO ACCOMMODATE A LARGE SHEEPS FOOT COMPACTION ROLLER. IF NARROW TRENCHES ARE EXCAVATED AND/OR WHERE NATIVE SOILS ARE WET OF OPTIMUM, THEN USE OF AGGREGATE FILL, SUCH AS OPSS 1010 GRANULAR 'B' IS REQUIRED. THERE IS TO BE POST-CONSTRUCTION GRADE INTEGRITY. THE UTILITY TRENCH BACKFILL MUST BE COMPACTED TO AT LEAST 98% SPMD. IT WOULD BE PRUDENT TO INCORPORATE FROST TAPERS AS PER OPS STANDARDS TO MINIMIZE DIFFERENTIAL FROST HEAVE IN SETTLEMENT SENSITIVE AREAS.

WHERE BACKFILL UNDERLIES PAVEMENT AREAS, BACKFILL MUST BE COMPACTED TO AT LEAST 98% SPMD. IT NEEDS TO BE NOTED THAT POST-COMPACTION SETTLEMENT OF FINE GRAINED FILLS ON THE ORDER OF 0.5 - 1.0% OF TOTAL HEIGHT ARE COMMON, EVEN WHEN ADEQUATELY PLACED TO SPECIFIED COMPACTION. IT IS BEST TO SCHEDULE DEEP FILL PLACEMENT AS FAR IN ADVANCE OF FRESH SURFACING AS POSSIBLE.

SOILS WHICH ARE OR BECOME OVERLY WET SHOULD BE MIXED WITH DRIER SOILS, LEFT ASIDE, OR WASTED. FROZEN MATERIAL IS NOT TO BE UTILIZED AS TRINCH BACKFILL OR FOUNDATION WALL BACKFILL.

**PAVEMENT DESIGN**

ANY VEGETATION, TOPSOIL OR OTHER DELETERIOUS MATERIALS MUST BE STRIPPED FROM THE PAVEMENT AREAS. THE EXISTING EARTH FILL MATERIALS ENCOUNTERED AT THE SITE MAY BE UTILIZED FOR SUBGRADE PREPARATION PROVIDED THEY DO NOT CONTAIN EXCESSIVE AMOUNTS OF ORGANICS AND DELETERIOUS MATERIALS. THE SUBGRADE SHOULD BE CUT AS CLEAN AS POSSIBLE TO MINIMIZE DISTURBANCE AND SURFACE COMPACTED TO NOT LESS THAN 98% SPMD. SUBGRADE COMPACTION OR PROOF-ROLLING PRIOR TO PLACEMENT OF PAVEMENT AGGREGATE SHOULD BE CARRIED OUT UNDER THE CLOSE TECHNICAL SUPERVISION DURING DRY WEATHER CONDITIONS.

PRIOR TO PLACEMENT OF AGGREGATE PAVEMENT COMPONENTS, IT IS RECOMMENDED THAT THE CUT SUBGRADE BE INSPECTED FOR OBVIOUS LOOSE, SOFT OR WEAK AREAS AS EXPOSED.

WHERE NEW FILL IS NEEDED TO INCREASE THE GRADE OR REPLACE DISTURBED PORTIONS OF SUBGRADE, EXCAVATED NATIVE INORGANIC SOILS OR SIMILAR CLEAN IMPORTED FILL MATERIALS MAY BE USED, PROVIDED THEIR MOISTURE CONTENT IS MAINTAINED WITHIN 2% OF THE SOIL'S OPTIMUM MOISTURE CONTENT. ALL FILL PLACED AND COMPACTED IN THIN LIFTS (MAXIMUM 150mm) TO NOT LESS THAN 98% SPMD.

**ASPHALT ROUTES**

- 40mm H-3 SURFACE ASPHALT
- 70mm H-4 OR H-4 BINDER ASPHALT
- 150mm OPSS GRANULAR 'A'
- 300mm OPSS GRANULAR 'B'

**CONCRETE APRONS**

- 200mm CONCRETE
- 150mm OPSS GRANULAR 'A'
- 300mm OPSS GRANULAR 'B'

ALL GRANULAR PAVEMENT COMPONENTS SHOULD BE COMPACTED TO 100% SPMD. THE HOT LAID ASPHALTIC CONCRETE MATERIALS SHOULD BE ROLLED AND COMPACTED AS PER OPS 310.

No	Issue / Revision	Date	Auth
1	FUNCTIONAL SERVICING REPORT	19/10/02	CC

**BENCHMARK**

TOP OF EXISTING MANHOLE ON ELLIS DRIVE AT FRONTAGE OF SUBJECT SITE ELEVATION 264.61

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE DERIVED USING GPS TECHNOLOGY AND THE CAN-NET VRS NETWORK.

EXISTING INFORMATION PROVIDED BY DINO ASTRJ SURVEYING LTD. DATED JULY 26, 2019

Client  
**KINGSLEA DEVELOPMENTS**  
16-107 WOODBINE DOWNS  
TORONTO, ON  
M9W 6Y1

355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE  
CLARKSBURG, ON. N0M 1JX  
TEL: 705-994-4818

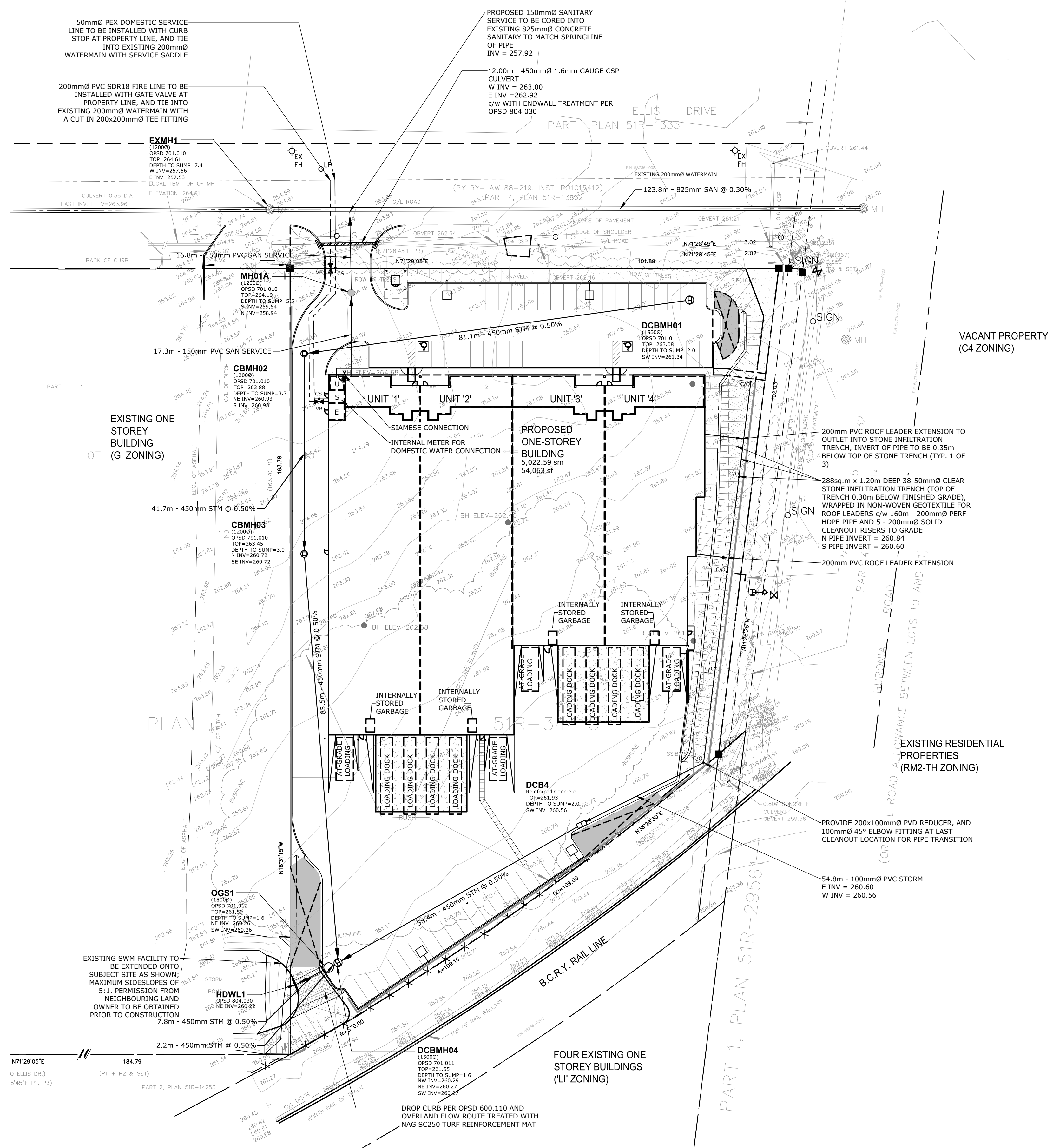
**131 ELLIS DRIVE SITE PLAN**

**SITE GRADING PLAN**

Designed K. GRIFFIN	Checked C. CAPES	Date 19/07/23	Drawing No.
Project No. 2019-038	Rev No. 1		<b>C2</b>

Scale: 1:500

File: C:\Users\Kevin\Documents\Projects\2019-038 - 131 Ellis Drive\Drawings\03 - Production\03-038 Grading Plan.dwg Date Plotted: October 1, 2019 3:22 PM



**KEY PLAN**

**LEGEND**

- SANITARY & STORM SEWER/MANHOLE
- WATERMAIN/WATER SERVICE
- CS 50mmØ DOMESTIC WATER SERVICE CURB STOP
- VB 200mmØ FIRE LINE GATE VALVE
- ⊕ HYDRANT & VALVE
- DENOTES FOUND SURVEY MONUMENT
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- OH- DENOTES OVERHEAD WIRES
- ✕ DENOTES FENCING
- LS DENOTES LIGHT STANDARD
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- (1650) DENOTES DINO R.S. ASTRI, O.L.S.
- (P1) DENOTES PLAN 51R-31332
- (P2) DENOTES PLAN 51R-28612
- (P3) DENOTES PLAN 51R-34415

**PART OF  
LOT 10  
CONCESSION 12  
GEOGRAPHIC TOWNSHIP OF INNISFIL  
CITY OF BARRIE  
COUNTY OF SIMCOE**

**131 ELLIS DRIVE SITE PLAN  
SITE SERVICING PLAN**

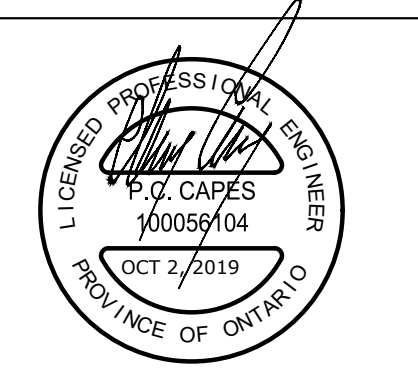
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TOP OF EXISTING MANHOLE ON ELLIS DRIVE AT FRONTAGE OF SUBJECT SITE  
ELEVATION 264.61  
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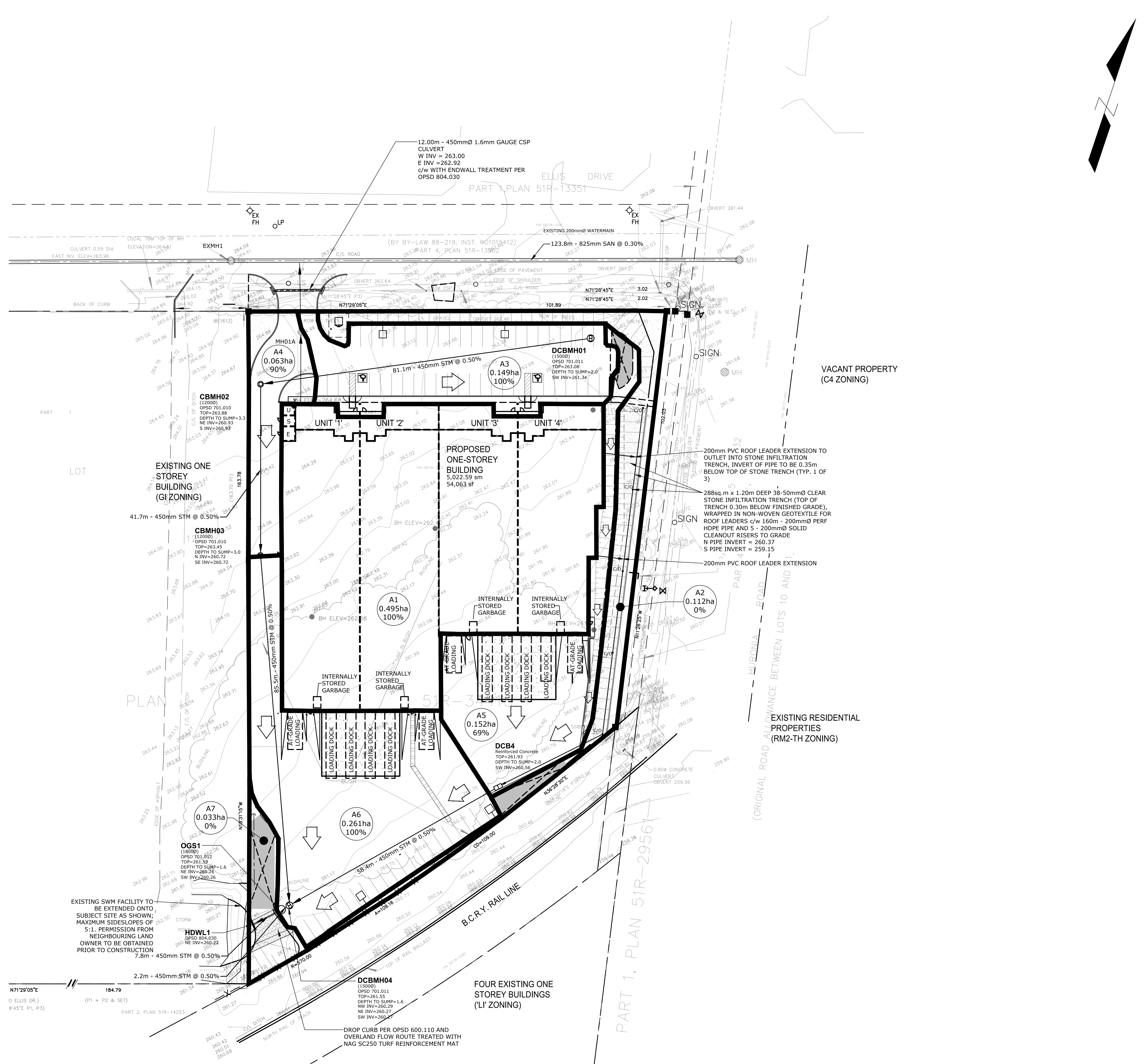
EXISTING INFORMATION PROVIDED BY DINO ASTRI SURVEYING LTD. DATED JULY 26, 2019



Client  
**KINGSLEA DEVELOPMENTS**  
16-107 WOODBINE DOWNS  
TORONTO, ON  
M9W 6Y1

**CAPES ENGINEERING**  
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE  
CLARKSBURG, ON N0W 1J0  
TEL: 705-994-4818

Designed K. GRIFFIN	Checked C. CAPES	Date 19/07/23	Drawing No.
Project No. 2019-038	Rev. No. 1		<b>C3</b>
Scale 1:500			



**KEY PLAN**

**LEGEND**

- SANITARY & STORM SEWER/MANHOLE
- WATERMAIN/WATER SERVICE
- CS 50mmØ DOMESTIC WATER SERVICE CURB STOP
- VB 200mmØ FIRE LINE GATE VALVE
- ⊕ HYDRANT & VALVE
- A2 0.112ha 0% DRAINAGE ID
- A2 0.112ha 0% DRAINAGE AREA
- A2 0.112ha 0% PERCENT IMPERVIOUS
- ➔ OVERLAND FLOW DIRECTION
- DENOTES FOUND SURVEY MONUMENT
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
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- (P1) DENOTES PLAN 51R-31332
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PART OF  
 LOT 10  
 CONCESSION 12  
 GEOGRAPHIC TOWNSHIP OF INNISFIL  
 CITY OF BARRIE  
 COUNTY OF SIMCOE

131 ELLIS DRIVE SITE PLAN  
 POST DEVELOPMENT PLAN

Designed K. GRIFFIN	Checked C. CAPES	Date 19/07/23	Drawing No.
Project No. 2019-038	Rev. No. 1		
Scale 1:500	0 5.0 10.0 20.0 30.0m		<b>C4</b>

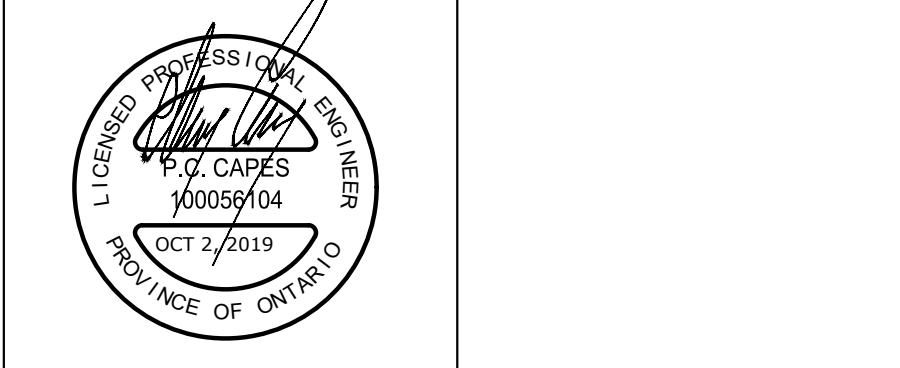
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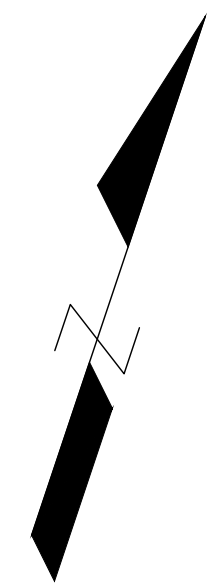
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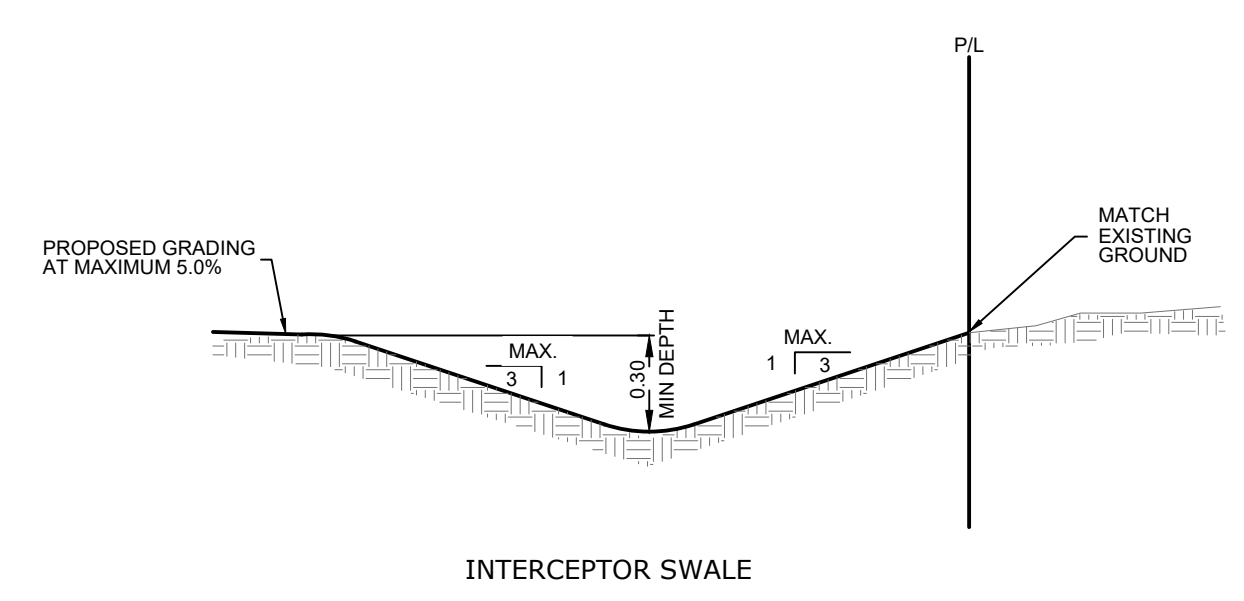
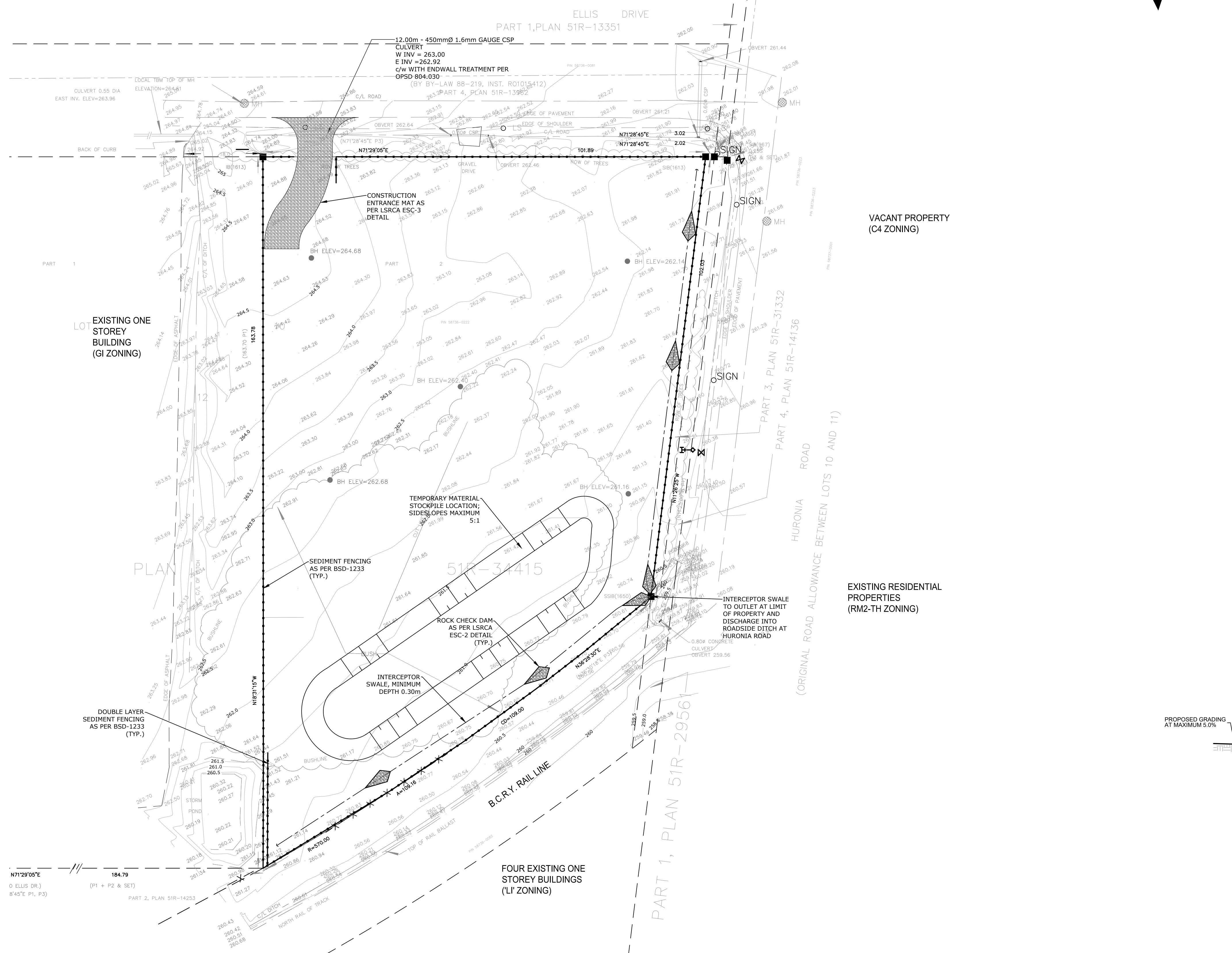
**CAPES ENGINEERING**  
 355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE  
 CLARKSBURG, ON N0M 1J0  
 TEL: 705-994-4818



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- ◌ 221.21 EXISTING ELEVATION
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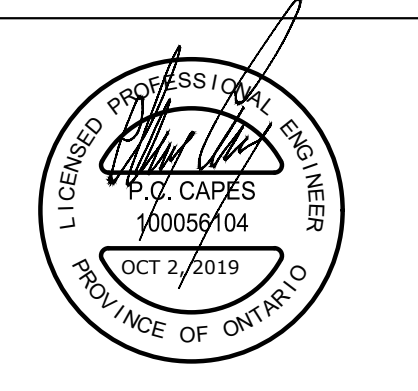
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EXISTING INFORMATION PROVIDED BY DINO ASTRI SURVEYING LTD. DATED JULY 26, 2019



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**KINGSLEA DEVELOPMENTS**  
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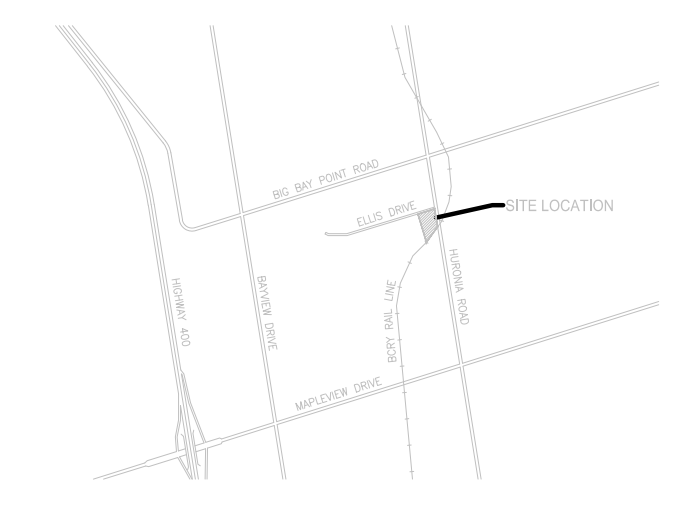
**CAPES ENGINEERING**  
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE  
CLARKSBURG, ON N0W 1J0  
TEL: 705-994-4818

**131 ELLIS DRIVE SITE PLAN**  
EROSION AND SEDIMENT CONTROL  
PRE-EARTHWORKS & DEEP SERVICING

Designed K. GRIFFIN	Checked C. CAPES	Date 19/07/23	Drawing No.
Project No. 2019-038	Rev No. 1		<b>C5</b>

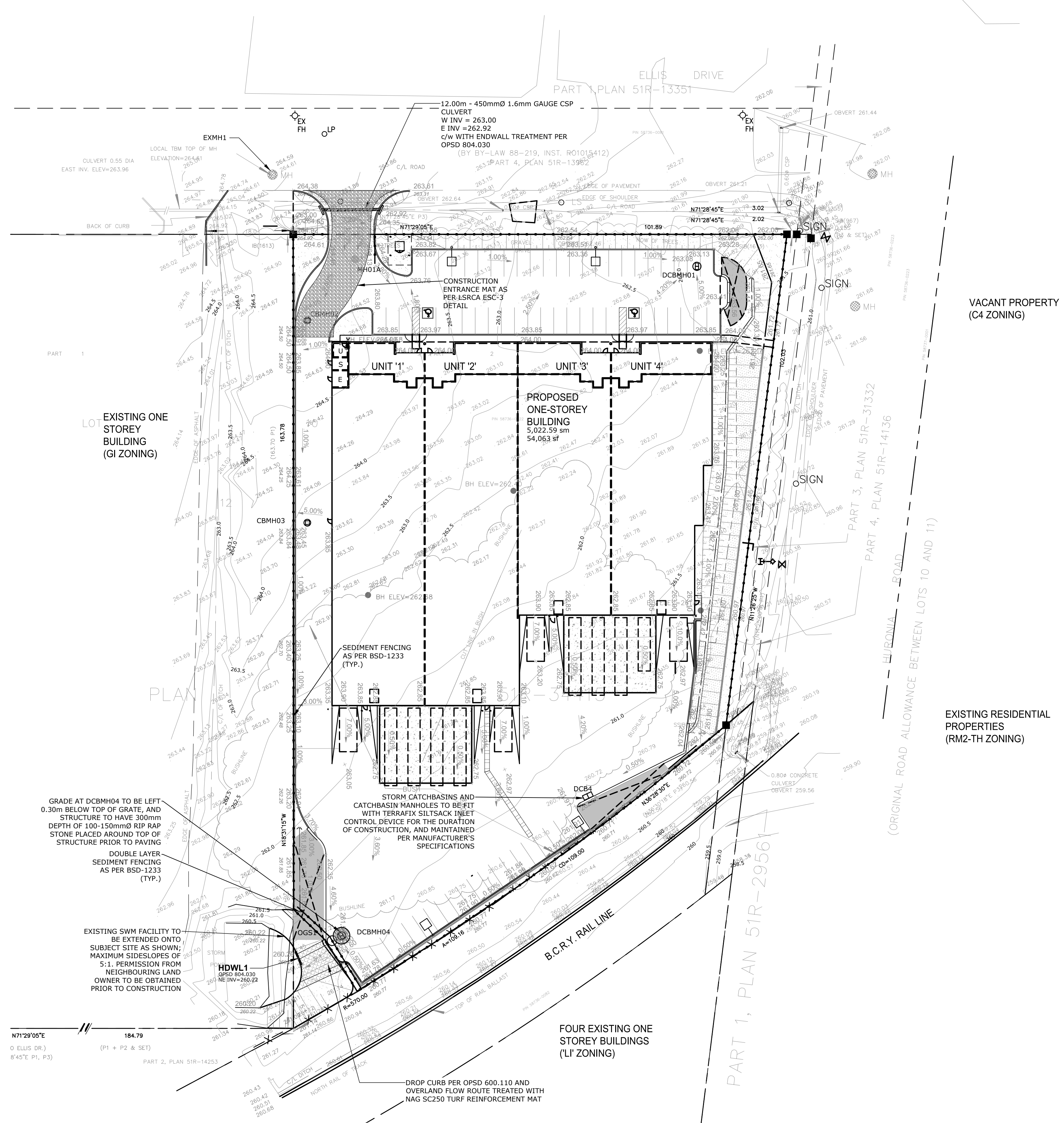
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KEY PLAN



LEGEND

- 221.21 PROPOSED ELEVATION
- ◊ 221.21 EXISTING ELEVATION
- ▬ MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- SANITARY & STORM MANHOLE
- CS 50mmØ DOMESTIC WATER SERVICE CURB STOP
- ▬ VB 200mmØ FIRE LINE GATE VALVE
- ⊕ HYDRANT & VALVE
- DENOTES FOUND SURVEY MONUMENT
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- OH- DENOTES OVERHEAD WIRES
- ⊗ DENOTES FENCING
- LS DENOTES LIGHT STANDARD
- MH DENOTES MANHOLE
- HYD DENOTES HYDRANT
- WV DENOTES WATER VALVE
- HYD DENOTES HYDRANT
- WV DENOTES WATER VALVE
- (976) DENOTES W.N. WILDMAN, O.L.S.
- (1546) DENOTES RUDY MAK, O.L.S.
- (1613) DENOTES A. WOROBEC, O.L.S.
- (1650) DENOTES DINO R.S. ASTRI, O.L.S.
- (P1) DENOTES PLAN 51R-31332
- (P2) DENOTES PLAN 51R-28612
- (P3) DENOTES PLAN 51R-34415



PART OF  
 LOT 10  
 CONCESSION 12  
 GEOGRAPHIC TOWNSHIP OF INNISFIL  
 CITY OF BARRIE  
 COUNTY OF SIMCOE

Notes

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- The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to CAPES Engineering Ltd. prior to construction.
- This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

No	Issue / Revision	Date	Auth
1	FUNCTIONAL SERVICING REPORT	19/10/02	CC

**BENCHMARK**  
 TOP OF EXISTING MANHOLE ON ELLIS DRIVE AT FRONTAGE OF SUBJECT SITE  
 ELEVATION 264.61  
 ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE DERIVED  
 USING GPS TECHNOLOGY AND THE CAN-NET VRS NETWORK.

EXISTING INFORMATION PROVIDED BY DINO ASTRI SURVEYING LTD. DATED JULY 26,  
 2019



Client  
**KINGSLEA DEVELOPMENTS**  
 16-107 WOODBINE DOWNS  
 TORONTO, ON  
 M9W 6Y1

**CAPES ENGINEERING**  
 355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE  
 CLARKSBURG, ON N0W 1J0  
 TEL: 705-994-4818

131 ELLIS DRIVE SITE PLAN  
 EROSION AND SEDIMENT CONTROL PRE-ASPHALT

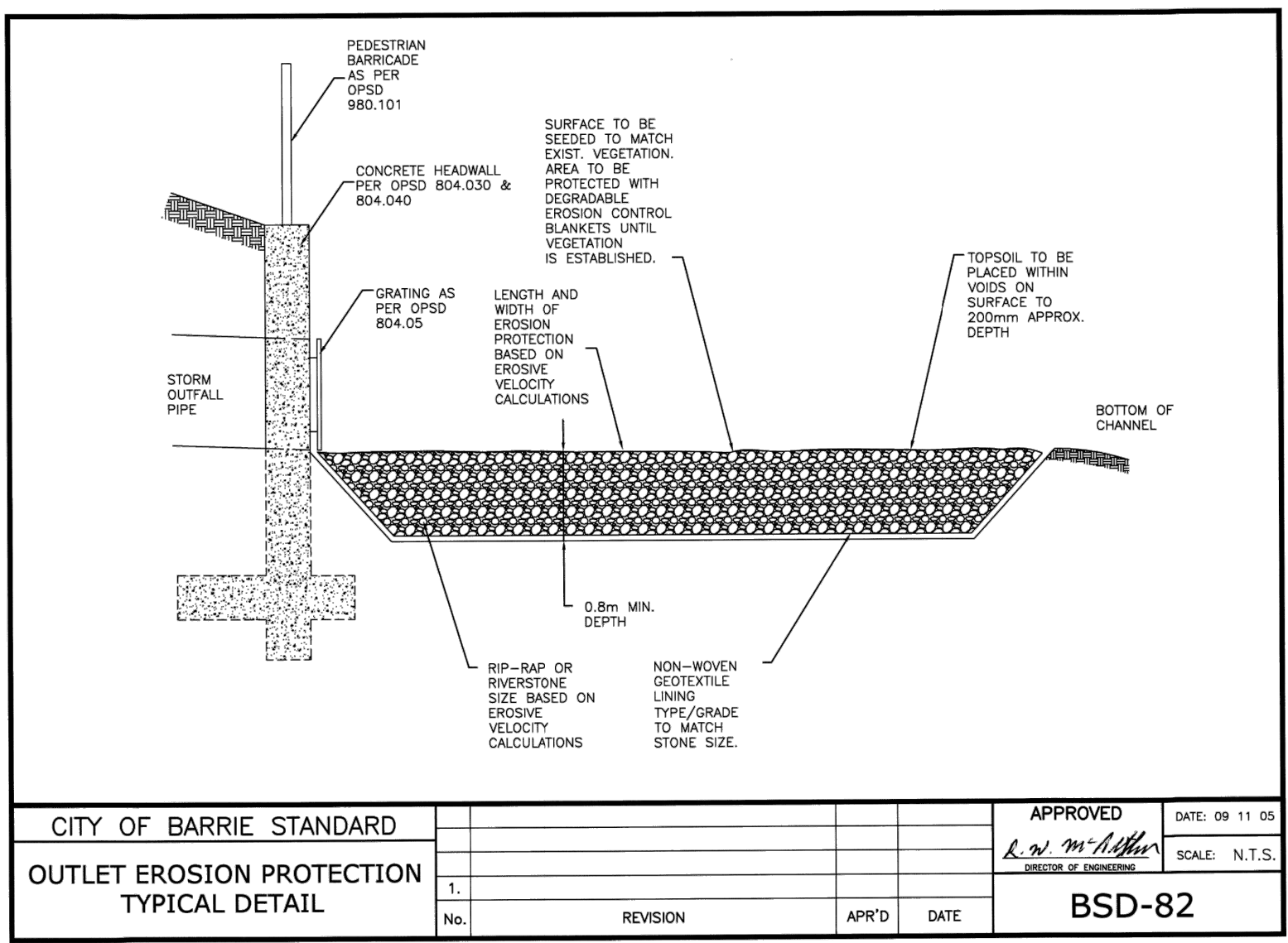
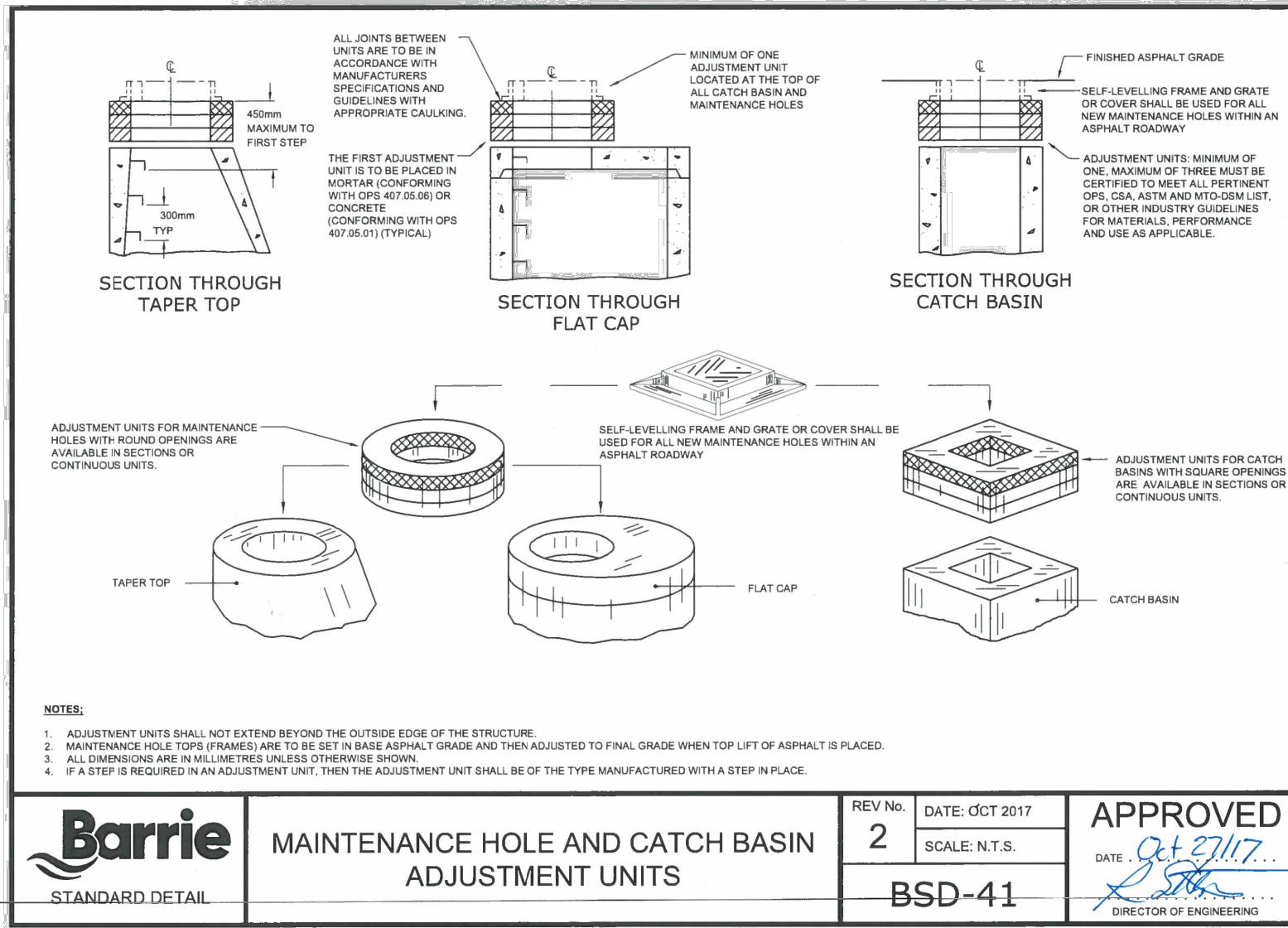
Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/10/02	
Project No.	Rev No.		
2019-038	1		

Scale: 1:500

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**C6**

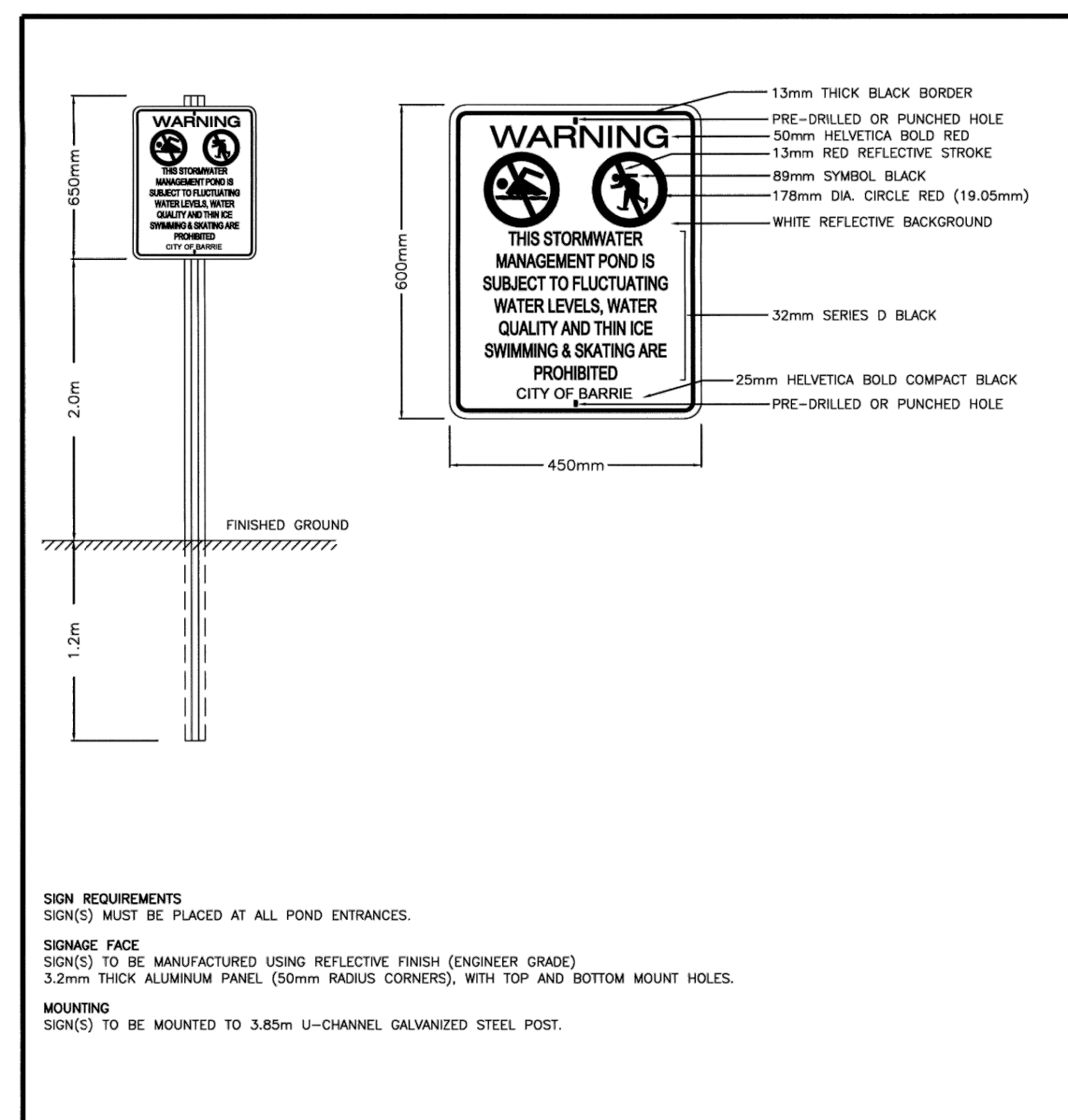




**GENERAL NOTES - WATERMAIN**

- CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM WORK ON WATER INFRASTRUCTURE.
- OPERATION OF HYDRANTS AND VALVES ON THE POTABLE WATER SYSTEM BY OTHER THAN QUALIFIED WATER OPERATIONS STAFF IS PROHIBITED BY CURRENT BY-LAW. CITY SERVICE FEES ARE PER THE CURRENT FEES BY-LAW. THE CITY'S WATER OPERATIONS STAFF WILL SWAB, PRESURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMANS.
- MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.5m WHERE WATERMAIN CONFLICTS WITH SEWERS. PERFORM WATERMAIN HORIZONTALS ON VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
- WATERMAIN SHALL BE INSTALLED IN BEDDINGS AS PER OPSD 902.01 (GRANULAR) OR EMBEDMENT MATERIAL FOR FLEXIBLE PIPES AND OPSD 902.02 OR 902.03 CLASS 'B' (GRAVEL) OR BEDDING MATERIAL, GRANULAR 'A' OR SELECT NATIVE COVER MATERIAL FOR RIGID PIPES UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDMENT MATERIAL, SAND MEETING GRADATION REQUIREMENTS OF OPSD 104.04 IS COMPATIBLE TO THIS STANDARD PRACTICE MAXIMUM DENSITY IS PERMISSIBLE. SPECIFIC NOTES IN STANDARD DETAILS, GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ZONE (HANDHOLES, BEDDING, TOP OF PIPE AND COVER).
- COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 150mm ABOVE AND BELOW TO CONFORM TO OPSD MUNI 104.05.07.
- RESTRAINING WALLS ARE REQUIRED ON ALL HYDRANTS. THRUST BLOCKS, AS PER OPSD 1103.01 AND 1103.02, RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKS WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION.
- NEW WATERMANS TO BE PVC DR18 CL 150 MINIMUM, DUCTILE IRON CL 50 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- ALL WATER SERVICES SHALL BE MINIMUM 25mm TYPE 'K' COPPER OR 25mm CROSS LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SIZES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.
- SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.4m FROM JOINTS, ENDS OF PIPES.
- RISER PIPES ARE TO BE INSTALLED AS PER BSD-511 AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED.
- ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.

REV No: 2 DATE: MAY 2015  
SCALE: N.T.S.  
APPROVED: [Signature]  
DIRECTOR OF ENGINEERING



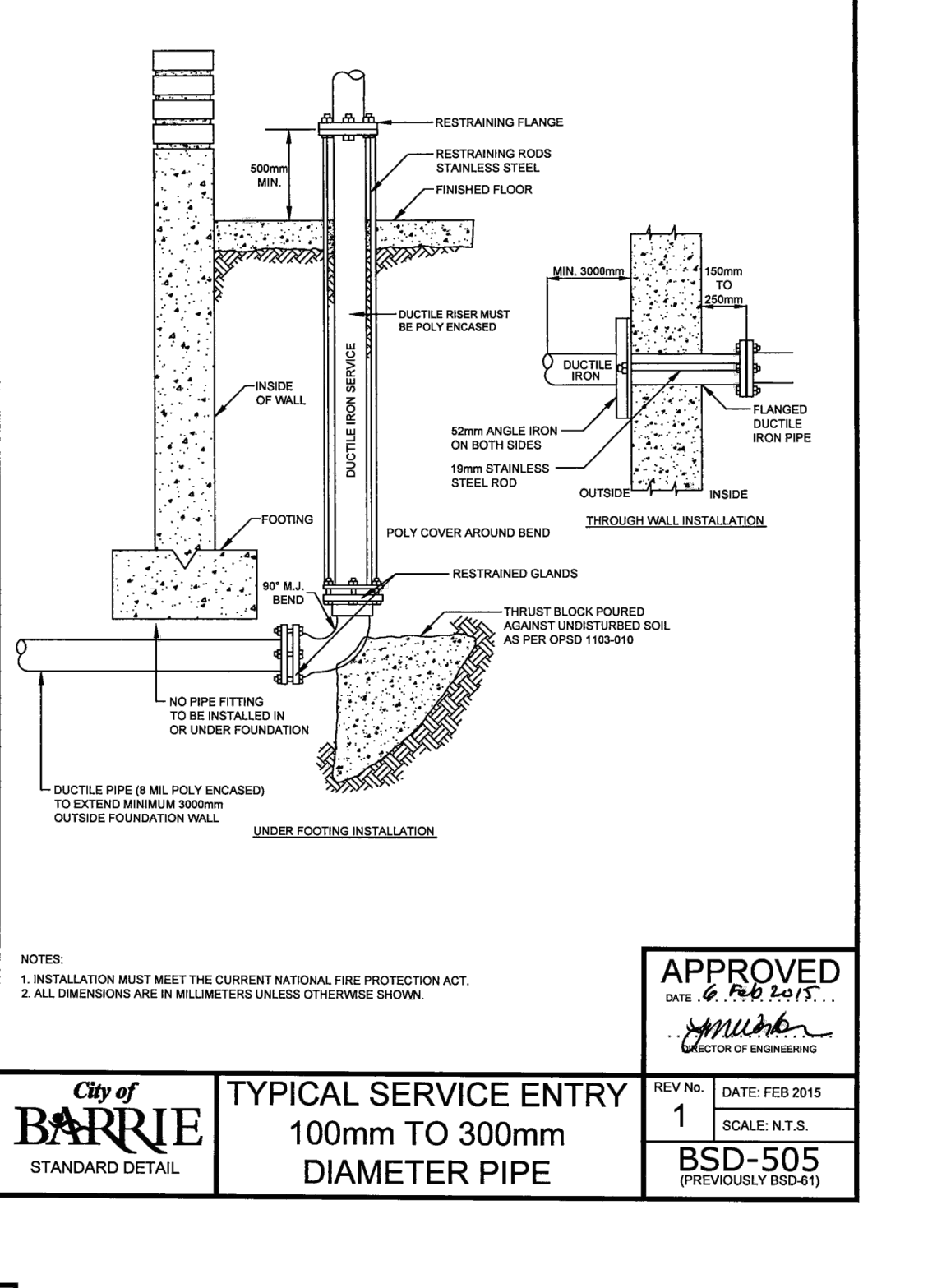
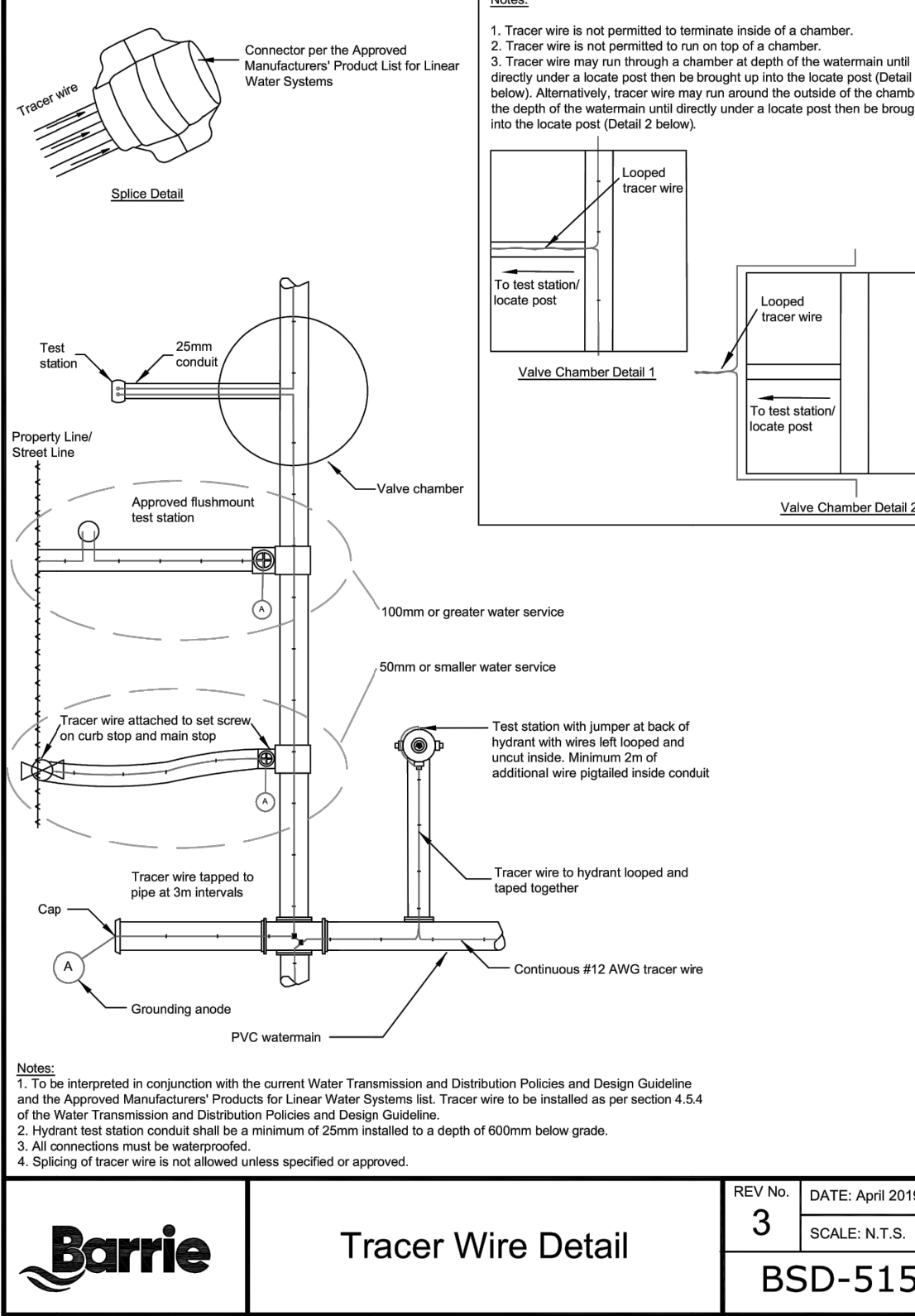
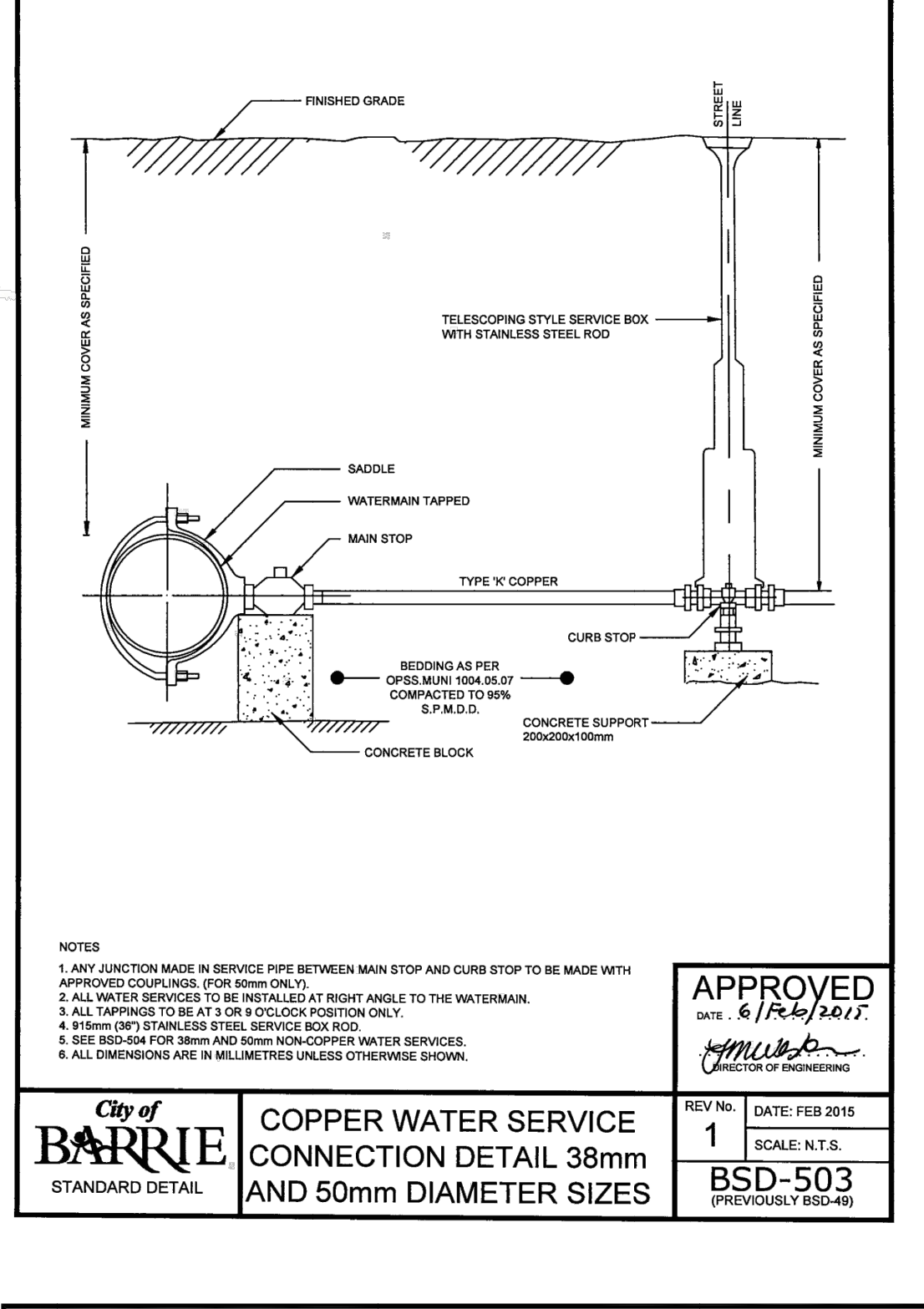
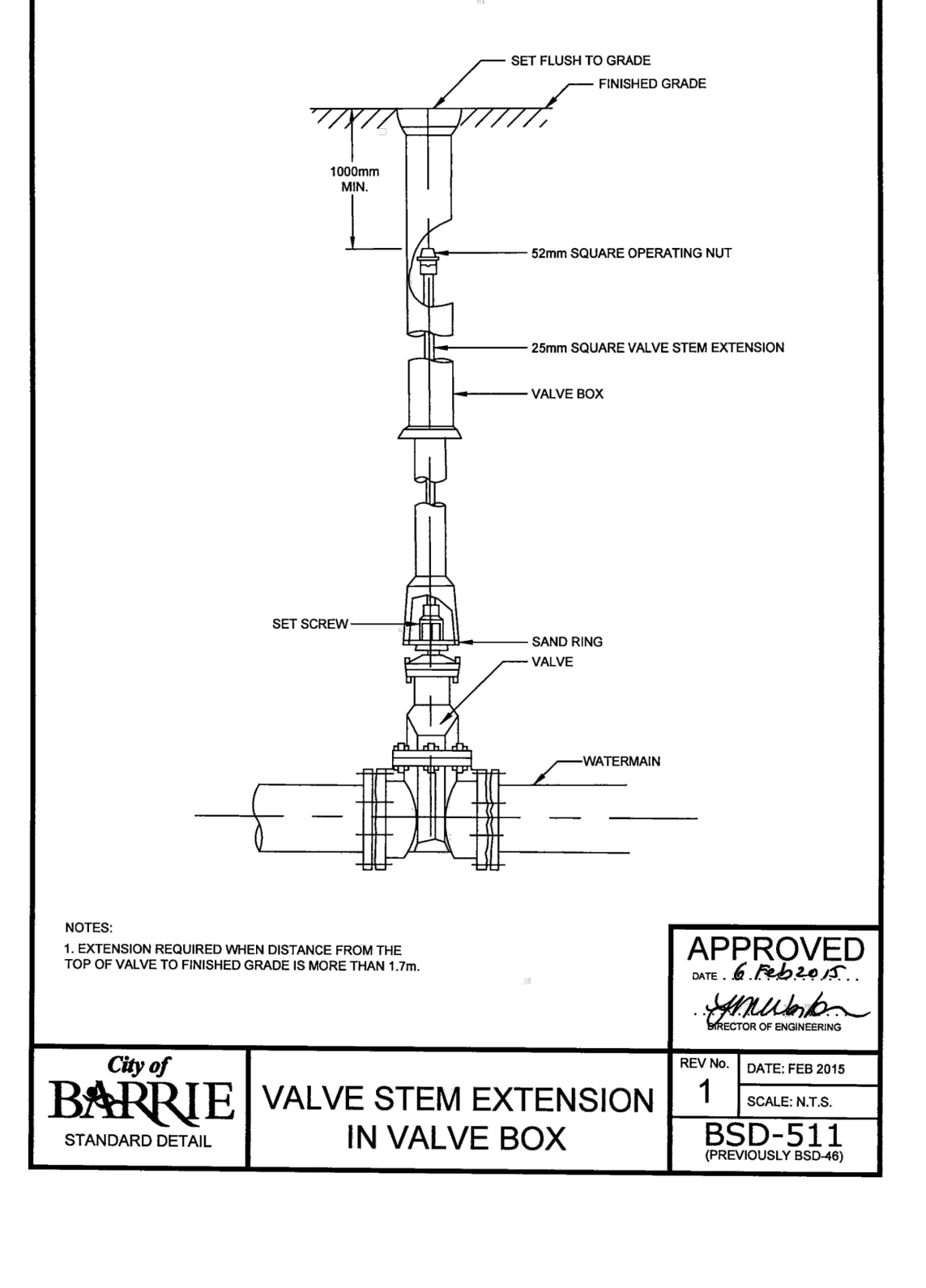
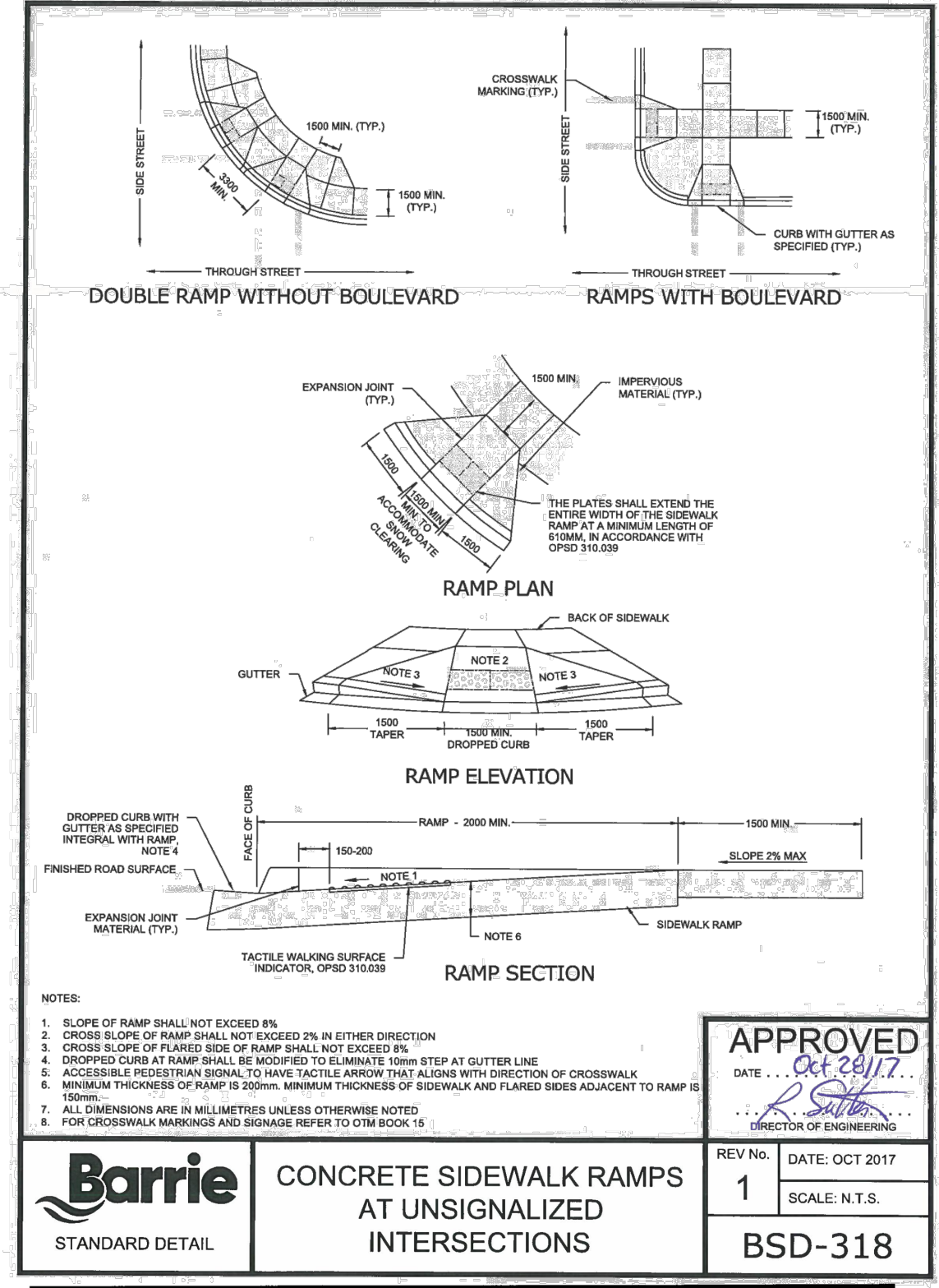
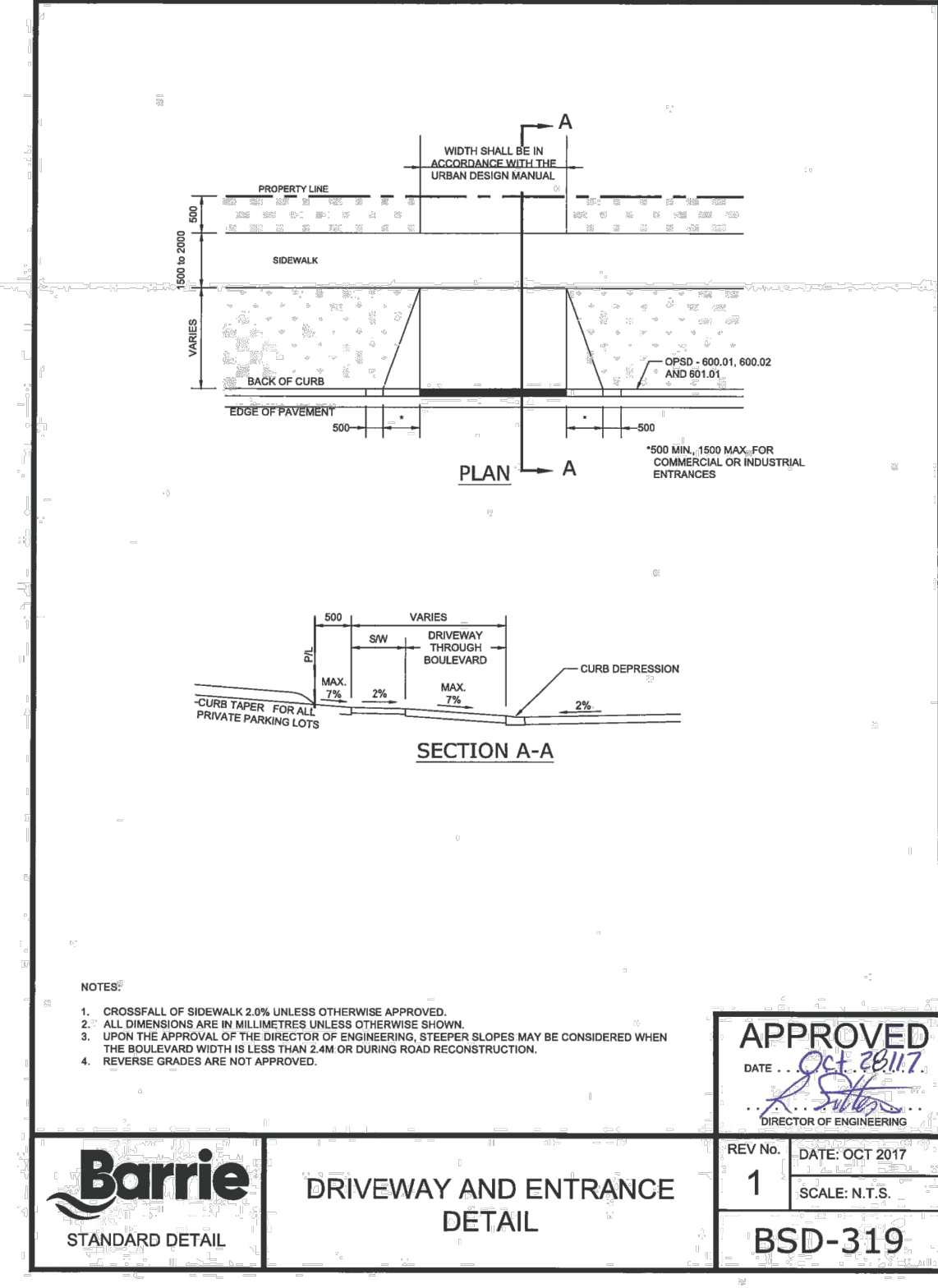
No.	REVISION	APP'D	DATE

**CITY OF BARRIE STANDARD**

**STORMWATER MANAGEMENT POND WARNING SIGN**

APPROVED: [Signature]  
DATE: 09 11 05  
SCALE: N.T.S.

BSD-83



No	Issue / Revision	Date	Auth
1	FUNCTIONAL SERVICING REPORT	19/10/02	CC

**BENCHMARK**

TOP OF EXISTING MANHOLE ON ELLIS DRIVE AT FRONTAGE OF SUBJECT SITE ELEVATION 264.61

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE DERIVED USING GPS TECHNOLOGY AND THE CAN-NET VRS NETWORK.

EXISTING INFORMATION PROVIDED BY DINO ASTRIS SURVEYING LTD. DATED JULY 26, 2019

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**GENERAL NOTES - WATERMAIN**

REV No: 2 DATE: MAY 2015  
SCALE: N.T.S.  
APPROVED: [Signature]  
DIRECTOR OF ENGINEERING

BSD-500

**City of BARRIE STANDARD DETAIL**

**VALVE STEM EXTENSION IN VALVE BOX**

REV No: 1 DATE: FEB 2015  
SCALE: N.T.S.  
APPROVED: [Signature]  
DIRECTOR OF ENGINEERING

BSD-511 (PREVIOUSLY BSD-48)

**City of BARRIE STANDARD DETAIL**

**Tracer Wire Detail**

REV No: 3 DATE: April 2019  
SCALE: N.T.S.  
APPROVED: [Signature]  
DIRECTOR OF ENGINEERING

BSD-515

**Client**  
KINGSLEA DEVELOPMENTS  
16-107 WOODBINE DOWNS  
TORONTO, ON  
M9W 6Y1

**131 ELLIS DRIVE SITE PLAN**

STANDARD DETAILS

Designed: K. GRIFFIN  
Checked: C. CAPES  
Date: 19/10/02  
Project No: 2019-038  
Scale: AS NOTED

**CAVES ENGINEERING**  
35510 BLUE MOUNTAINS - EUPHRASIA TOWNLINE  
CLARKSBURG, ON N0W 1J0  
TEL: 705-994-4818

Drawing No. 1  
Rev No. 1  
Scale: AS NOTED

**C8**

