GENERAL NOTES

1. ALL WORK TO CONFORM TO THE LATEST TOWN OF NIAGARA–ON–THE–LAKE STANDARDS AND REQUIREMENTS, REGIONAL MUNICIPALITY OF NIAGARA STANDARDS, LATEST ADOPTED ONTARIO PROVINCIAL STANDARD DRAWINGS AND SPECIFICATIONS AND THE ONTARIO BUILDING CODE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE CURRENT "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATION FOR CONSTRUCTION PROJECTS". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
3. ALL TEMPORARY TRAFFIC CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT ONTARIO TRAFFIC MANUAL BOOK 7: TEMPORARY CONDITIONS FIELD EDITION.
4. ALL TRENCHES WITHIN THE EXISTING RIGHT–OF–WAY PAVED AREAS SHALL BE BACKFILLED WITH GRANULAR A AND SHALL BE COMPACTED TO 100% SPMDD.
5. THE CONTRACTOR SHALL RECTIFY ALL DISTURBED AREAS TO THE ORIGINAL CONDITION OR BETTER AND TO THE SATISFACTION OF THE EXECUTIVE DIRECTOR OF TECHNICAL SERVICES.
6. PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL RIGHT–OF–WAY THE CONTRACTOR OR DEVELOPER SHALL OBTAIN ALL NECESSARY PERMITS FROM THE TOWN INCLUDED BUT NOT LIMITED TO ROAD OCCUPANCY PERMITS.
7. CONTACT TOWN INSPECTOR AND ENGINEER 48 HOURS BEFORE EXCAVATION, INSTALLATION OR BACKFILL.
8. LOCATION AND COMPLETENESS OF EXISTING SERVICES/UTILITIES SHOWN ON THE DRAWINGS ARE NOT GUARANTEED. CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AT LEAST FORTY–EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY LOCATION WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO LOCATE THE EXISTING SERVICES ON SITE.
9. THE DRAWINGS INDICATE EXISTING SERVICES AND DID NOT ATTEMPT TO LOCATE THESE SERVICES OR ANY ADDITIONAL SERVICES (I.E. ABANDONED BUILDING FOUNDATIONS AND OTHER EXISTING FACILITIES NOT SHOWN ON THE DRAWINGS).
10. THE CONTRACTOR SHALL PROVE THE EXACT LOCATION AND SIZE OF ALL SERVICES AND STRUCTURES AND SHALL BE RESPONSIBLE FOR ADEQUATELY PROTECTING THEM AGAINST DAMAGE ASSUMING ALL LIABILITIES FOR DAMAGE.
11. THE CONTRACTOR SHALL REPORT TO THE ENGINEER ANY CONFLICT WHICH THE EXISTING SERVICES MAY CREATE WITH THE PROPOSED WORK AND SHALL SCHEDULE CONSTRUCTION WORK AVOIDING CONSTRUCTION DELAYS CAUSED BY SUCH CONFLICTS.
12. MAINTAIN VEHICULAR AND PEDESTRIAN TRAFFIC AT ALL TIMES.
13. ALL SERVICES AND POLES TO BE SUPPORTED AS REQUIRED.
14. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES BEFORE PROCEEDING WITH ANY WORK.
15. THE CONTRACTOR SHALL BECOME SOLE OWNER OF ALL EXCESS MATERIAL.
16. WITHIN THE PROPOSED LANDSCAPE PAVED AREAS GRANULAR B SHALL BE USED AS BACKFILL WITHIN 1m FROM MANHOLES, VALVE CHAMBERS AND CATCHBASINS, AND APPROVED NATIVE OR IMPORTED BACKFILL SHALL BE USED FOR ALL OTHER LANDSCAPE AREAS.
17. PROTECT ALL TREES FROM DAMAGE. SEE THE ARBORIST/LANDSCAPE DRAWINGS AND REPORT FOR DETAILS.
18. REMOVE OBJECTS AS PER OPSS 510, INCLUDING APPROVED COMPACTED BACKFILL. AND ABANDON PIPE AS PER OPSS 510 INCLUDING SEALING OF PIPE AND FILLING IT WITH 15MPA CONCRETE OR GROUT.
19. ADJUST ALL EXISTING MANHOLE, CATCHBASIN AND VALVEBOX FRAMES TO PROPOSED FINISHED GRADE.
20. RELOCATE EXISTING SERVICES AS REQUIRED TO CONSTRUCT PROPOSED INFRASTRUCTURE.
21. CONTRACTOR TO WORK IN DRY CONDITIONS. TEMPORARY PLUGGING OF SEWER UP AND DOWN STREAM WILL BE REQUIRED. PROVISION FOR WET WEATHER SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
22. WHERE THE STABILITY, SAFETY OR FUNCTION OF THE EXISTING ROADWAY OR UNDERGROUND FACILITIES MAY BE IMPAIRED DUE TO THE CONTRACTOR'S METHOD OF OPERATIONS, THE CONTRACTOR SHALL PROVIDE SUCH PROTECTION AS MAY BE REQUIRED INCLUDING SHEETING, SHORING AND DRIVING PILES WHERE NECESSARY. CONSTRUCTION OF SHORING, BRACING AND PROTECTION SCHEMES SHALL CONFORM TO OPSS 538 AND OPSS 539.
23. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR AT NO COST TO THE OWNER.
24. REQUIRED SHOP DRAWINGS SHALL BE BASED ON FIELD MEASUREMENT AND LAYOUT VERIFICATION BY THE CONTRACTOR.
25. WHERE NEW PAVING OR EARTHWORK MEETS EXISTING PAVING OR EARTHWORK, SMOOTHLY BLEND LINE AND GRADE OF EXISTING WITH NEW.
26. EXPANSION JOINT FILLER SHALL BE PLACED WHERE PAVEMENT MEETS STRUCTURES–INCLUDING WALLS, LIGHT POLES, HYDRANTS, BUILDINGS AND BUILDING COLUMNS, STAIRS AND AT OTHER CONDITIONS SHOWN ON THE DRAWINGS.
27. EXCAVATION REQUIRED WITHIN PROXIMITY OF UTILITY LINES AND WITHIN THE TREE PROTECTION ZONE OF TREES DESIGNATED TO REMAIN SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATION AT NO COST TO THE UTILITY COMPANIES OR THE OWNER.

LAYOUT AND MATERIALS

1. ALL DIMENSIONS SHOWN ON THE DRAWINGS ARE IN METERS, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETERS, UNLESS OTHERWISE SHOWN.
2. CONSTRUCTION LAYOUT BY CONTRACTOR.
3. ALL HORIZONTAL DIMENSION ARE TO CENTER OF OBJECT OR TO GUTTER OF CURB.
4. LASER ALIGNMENT CONTROL IS MANDATORY. AS–BUILT OF PIPE INVERT ELEVATIONS WITH CORRESPONDING STATIONS SHALL BE RECORDED PRIOR TO BACK FILLING OF TRENCH.
5. AS–BUILT ELEVATION AND COORDINATES SHALL BE PROVIDED AT 20M INTERVALS, AND AT EVERY HORIZONTAL AND VERTICAL CHANGE OF ALIGNMENT AND UPSTREAM AND DOWNSTREAM OF EACH SANITARY OR STORM MAHHOLE, AND WATERMAIN VALVE CHAMBERS.
6. HORIZONTAL AND VERTICAL CONTROL BASED ON PUBLISHED BENCHMARKS AND HORIZONTAL CONTROL MARKERS.
7. ALL LINE AND GRADE WORK PER DRAWING AND SPECIFICATION SHALL BE LAID OUT BY A REGISTERED CIVIL ENGINEER OR SURVEYOR.

DEWATERING AND SOIL STABILIZATION

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING AND SOIL STABILIZATION.

SANITARY SEWERS

1. SERVICE CONNECTION PVC PIPE TO BE AS PER DR 28 CSA B182.2–06 CERTIFIED ASTM D3034–04A.
2. BEDDING FOR FLEXIBLE PIPE SHALL BE AS PER OPSD 802.010, 802.013 OR 802.014.
3. MAINTENANCE HOLES AS PER OPSD STANDARDS, 701.010 (1200mm), 701.011 (1500mm), 701.012 (1800mm), 701.013 (2400mm) AND 701.014 (3000mm). FRAME AND COVER AS PER OPSD 401.010 TYPE A CLOSED.
4. BENCHING SHALL BE AS PER OPSD 701.021.
5. SANITARY SERVICES SHALL BE A MINIMUM OF 2.4m AND MAXIMUM OF 3.0m DEEP MEASURED FROM THE FINAL GRADE AT THE STREET LINE.
6. SANITARY MAINTENANCE HOLE SHALL HAVE WATERTIGHT FRAME AND COVER IN PONDING AREAS AS PER OPSD 401.030.
7. LATERAL CONNECTIONS TO SEWERS SHALL BE CORE DRILLING AND FACTORY MADE SADDLES FOR CONNECTION TO EXISTING SEWERS AS PER NOTL REQUIREMENTS.
8. GRANULAR MATERIALS INCLUDING SEWER EMBEDMENT SHALL NOT CONSIST OF RECLAIMED/RECYCLED MATERIAL
9. THE USE OF HIGH PERFORMANCE BEDDING (HPB) FOR SEWER PIPE BEDDING/BACKFILL WILL NOT BE PERMITTED UNLESS REQUIRED AS A RESULT OF A SPECIFIC TRENCH CONDITIONS AND SUPPORTED WITH A RECOMMENDATION FROM A GEOTECHNICAL ENGINEER WHICH WILL INCLUDE THE POTENTIAL FOR MIGRATION OF NATIVE FINES INTO HPB VOIDS AND ITS MITIGATION.
10. CLEAN AND VIDEO INSPECT ALL SEWER AND SERVICE CONNECTIONS PRIOR TO FINAL RESTORATION.

WATERMAINS

1. ALL POLYVINYL CHLORIDE (PVC) PIPES, RANGING IN SIZE FROM 100 mm THROUGH 300 mm IN DIAMETER SHALL BE PRESSURE CLASS 235, DR 18 AND MANUFACTURED IN ACCORDANCE AWWA C900–07 AND TO CSA B137.3–05 AND SHALL HAVE CAST IRON OUTSIDE DIAMETER DIMENSIONS.
2. BEDDING FOR FLEXIBLE PIPE SHALL BE AS PER OPSD 802.010, 802.013 OR 802.014.
3. MINIMUM COVER ON WATERMAINS WILL BE 1.7 METRES BELOW FINISHED GRADE.
4. SERVICE CONNECTIONS SHALL BE 25mm DIAMETER AND CONFORM TO ASTM B88–03 (ASTM B88M–05 FOR METRIC SIZES) TYPE "K" SOFT COPPER.
5. MINIMUM COVER ON WATER SERVICES WILL BE 1.7 METRES BELOW FINISHED GRADE..
6. ALL HYDRANTS SHALL CONFORM TO OPSS 401 AND OPSD 1105.01. HYDRANTS SHALL HAVE TWO 63.5 mm I.D. HOSE NOZZLES AT 180° AND ONE 100 mm STORZ PUMPER NOZZLE, WITH OPERATING NUT "OPEN LEFT". HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH THE TOWN STANDARDS.
7. ALL CURB AND VALVE BOXES TO BE LOCATED AT STREET LINE. VALVE BOXES SHALL BE SET FLUSH WITH GRADE AND PROTECTED FROM ALL DAMAGE.
8. VALVES SHALL CONFORM TO AWWA C500 & C509 AND SHALL BE IRON–BODY RESILIENT–SEATED GATE VALVES, MECHANICAL JOINTED AND SHALL OPEN LEFT–HANDED WITH 50mm SQUARE OPERATING NUT. VALVE BOXES SHALL BE CAST IRON, SLIDE TYPE.
9. MECHANICAL THRUST RESTRAINTS SHALL BE INSTALLED AT ALL FITTINGS, BENDS, TEES, CROSSES, REDUCERS AND VALVES FOR ALL WATERMAIN SIZES.
10. ALL TEES, PLUGS, HORIZONTAL, VERTICAL BENDS, REDUCERS AND HYDRANTS TO HAVE CONCRETE THRUST BLOCKS AS PER OPSD 1103.01 & OPSD 1103.020.
11. WATERMAINS MUST FOLLOW THE MINISTRY OF THE ENVIRONMENT PROCEDURES THAT GOVERN THE SEPARATION OF SEWERS AND WATERMAINS F–6–1. A MINIMUM VERTICAL CLEARANCE OF 0.5 METRE AND HORIZONTAL SEPARATION OF 2.5 METRES MUST BE MAINTAINED BETWEEN WATERMAIN AND SEWERS.
12. 11.0 kg ZINC SACRIFICIAL ANODES TO BE INSTALLED FOR ALL METAL PIPES, APPURTENANCES AND FITTINGS AND 5.5 kg ZINC SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL WATER SERVICE CONNECTIONS, AS PER OPSD 1109.011.
13. TRACER WIRE SHALL BE 10 GAUGE SEVEN STRAND, INSULATED COPPER WIRE WITH 60 MIL OF BLACK, CROSS–LINKED POLYETHYLENE INSULATION SPECIFICALLY MANUFACTURED FOR DIRECT BURIAL APPLICATIONS AND SHALL BE BROUGHT THE SURFACE AT ALL HYDRANTS AND VALVES.
14. WATERMAINS TO BE INSTALLED TO GRADE AS SHOWN ON APPROVED PLANS, COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK, WHEN REQUESTED BY INSPECTOR.
17. INSULATE WATERMAIN WHERE COVER IS LESS THAN 1.8 m.
18. ALL SERVICE CONNECTION TO BE MARKED WITH A 38 mm x 89 mm x 2.4 m WOOD STAKE, PAINTED BLUE.

ROAD / PAVEMENTS

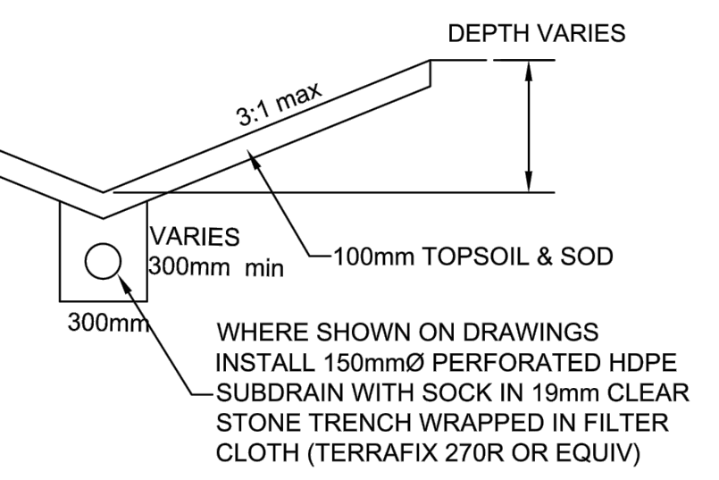
1. WHERE NEW ASPHALT MATCHES EXISTING ASPHALT, GRIND EXISTING ASPHALT A MINIMUM OF 300mm WIDE AND 40mm DEEP FOR KEYING. APPLY HOT RUBBER SEALING COMPOUND IN ACCORDANCE WITH OPSS 1212. ALL SURFACES TO BE TACK COATED WITH SS–1.
2. THE CONCRETE CURB, CONCRETE SIDEWALK (IF APPLICABLE) AND ALL RESTORATION ALONG FRONTING ROADWAYS TO THE SITE MUST BE CONSTRUCTED AND CARRIED OUT IN ACCORDANCE WITH ALL APPLICABLE AND CURRENT TOWN STANDARDS.
3. PRIOR TO PAVING, REMOVE UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER.
4. CRUSHED LIME STONE SHALL BE USED FOR ALL GRANULAR BASE MATERIAL BELOW ASPHALT SURFACES.
5. GRANULAR ROAD BASE SHALL BE COMPACTED TO 100% SPMDD.
6. ASPHALT SHALL BE COMPACTED TO 92.0% TO 96.5% MRD.
7. REFER TO OPSS 310 FOR PAVEMENT COMPACTION REQUIREMENTS.
8. SAW CUT EXISTING PAVED SURFACES FULL DEPTH AND IN STRAIGHT LINES, WHERE PROPOSED AND EXISTING PAVED SURFACES MEET.
9. ALL DISTURBED ASPHALT PAVEMENT AREAS ALONG CENTRE STREET, GAGE STREET, AND KING STREET SHALL BE RESTORED TO MATCH EXISTING PAVEMENT STRUCTURE OR:
   - –40mm HL3 HS
   - –50mm HL8 HS
   - –450mm GRANULAR A (COMPACTED TO 100% SPMDD)
10. WHERE CONSTRUCTION OF DRIVEWAY WILL IMPACT TREES TO BE RETAINED, GEOGRID TO BE UTILIZED TO MINIMIZE DEPTH OF DRIVEWAY. GEOGRID DRIVEWAY TO BE DESIGNED BY ENGINEER OR MANUFACTURER.
11. ON–SITE ACCESS PAVEMENT SHALL COMPRISE OF:
   - –40mm HL3
   - –50mm HL8
   - –150mm GRANULAR A
   - –450mm GRANULAR B

GRADING

1. ALL AREA GRADING AND RESULTING DRAINAGE PATTERNS SHALL NOT ADVERSELY AFFECT ADJACENT LANDS.
2. MINIMUM GENERALLY ACCEPTED GRADIENT – 2.0%.
3. MAXIMUM GENERALLY ACCEPTABLE GRADIENT – 5.0%.
4. MAXIMUM ACCEPTABLE SLOPE 3 PARTS HORIZONTAL TO 1 PART VERTICAL (3:1).
5. NO ALTERATIONS TO EXISTING BOUNDARY ELEVATIONS OR ADJACENT LANDS SHALL BE UNDERTAKEN UNLESS WRITTEN AGREEMENT WITH THE ADJACENT PROPERTY OWNER IS OBTAINED AND SUBMITTED IN A FORMAT ACCEPTABLE TO THE TOWN.
6. MINIMUM SWALE GRADIENT – 1.0%.
7. MINIMUM SWALE DEPTH – 150MM.
8. ALL SWALES OR DITCHES HAVING A VELOCITY IN EXCESS OF 1.5M/S SHALL BE DESIGNED TO INCORPORATE EROSION PROTECTION.
9. THE MINIMUM GRADIENT ON ANY DRIVEWAY SHALL BE 2.0%. THE MAXIMUM DRIVEWAY GRADIENT IS 8.0%.
10. RETAINING WALLS SHALL BE CONSTRUCTED ENTIRELY ON THE UPPER PROPERTY SO THAT TIE BACKS (IF REQUIRED) DO NOT CROSS PROPERTY BOUNDARIES.
11. MAXIMUM PONDING DEPTH 0.3 METERS.
12. PROPOSED SPOT ELEVATIONS WILL BE SHOWN FOR ASPHALT, LANDSCAPE OR CONCRETE AREAS. UNLESS OTHERWISE NOTED, TOP OF CURB ELEVATIONS ARE 0.15m ABOVE ASPHALT ELEVATIONS EXCEPT AT CURB DEPRESSIONS AND WHEEL CHAIR RAMPS.
13. FINISHED LOT GRADING NOT TO ADVERSELY AFFECT DRAINAGE OF EXISTING LANDS.
14. RESTORE ALL LANDSCAPE AREAS WITH 100mm TOPSOIL AND SOD.

FILL

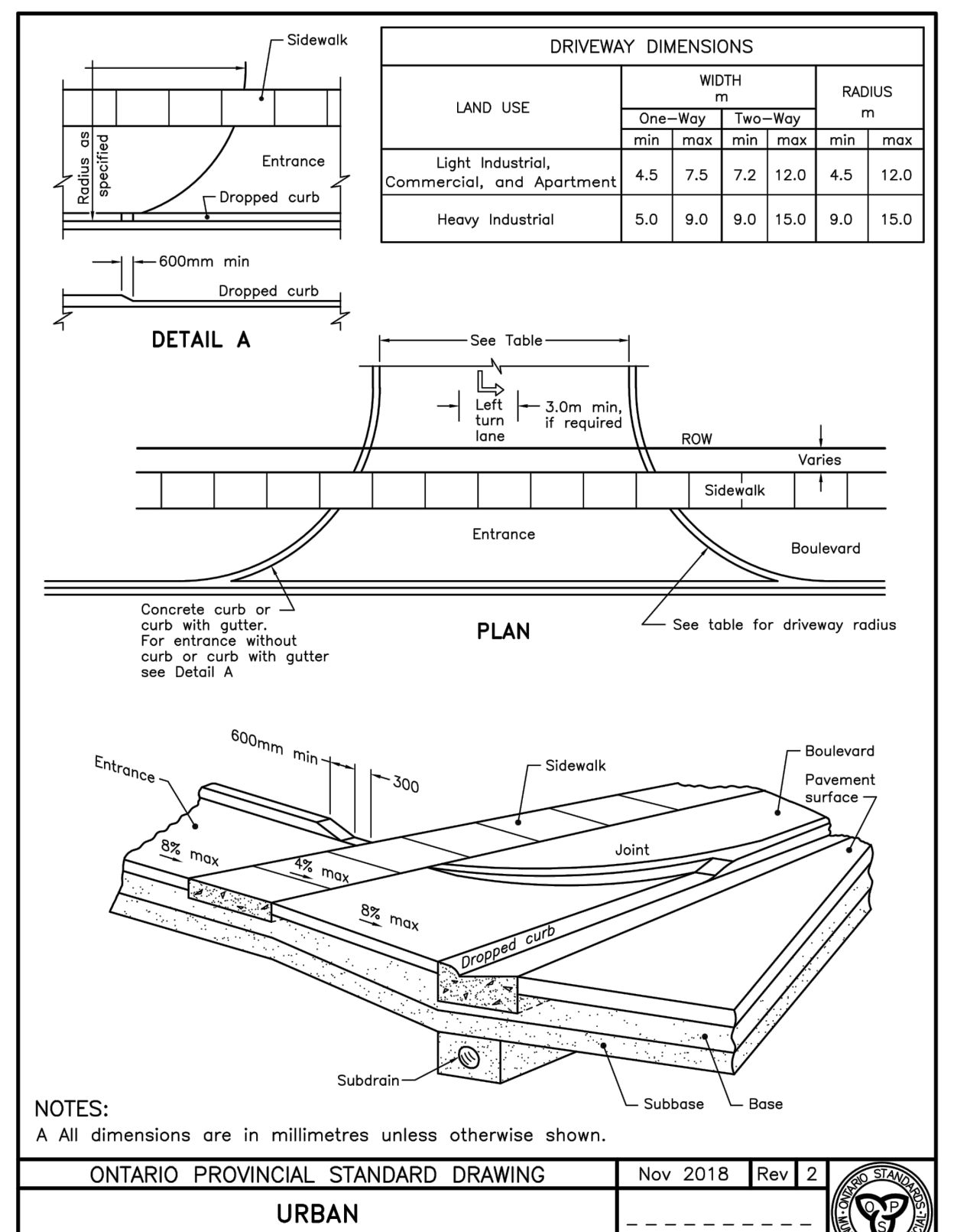
1. FILL SHALL BE NATIVE MATERIAL UNLESS OTHERWISE SHOWN. THE NATIVE MATERIAL SHALL BE FREE OF ORGANICS AND DEBRIS AND WITH A NATURAL MOISTURE CONTENT WHICH IS WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT. WET MATERIAL MAY REQUIRE AERATION FOR PROPER COMPACTION BY SPREADING THEM THINLY ON THE GROUND.
2. ALL PIPE BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF SPMDD.
3. FILL SHALL BE COMPACTED TO 95% SPMDD, EXCEPT UNDER PAVED SURFACES, WHERE THE UPPER 1.0M OF THE SUBGRADE SHALL BE COMPACTED TO 98% SPMDD. THE LIFT OF EACH LAYER SHALL BE LIMITED TO 200 mm OR THE LIFT THICKNESS SHALL BE DETERMINED BY TEST STRIPS.
4. STONES GREATER THAN 75 mm IN ANY DIMENSION WILL NOT BE PERMITTED IN BACKFILL PLACED WITHIN 300MM OF UTILITIES AND PAVEMENT SUBGRADE.
5. FILL SHALL BE PLACED AS FOLLOWS:
   - 1.1 THE AREA SHALL BE STRIPPED OF ALL EXISTING TOPSOIL AND OTHER UNSUITABLE MATERIALS. ALL SOFT SPOTS SHALL BE SUB–EXCAVATED. THE EXPOSED NATIVE SUBGRADE SHALL BE EXAMINED BY THE SOILS CONSULTANT PRIOR TO PLACEMENT OF FILL.
   - 1.2 THE FILL SHALL BE PLACED, SUCH THAT THE SPECIFIED FILL GEOMETRY IS ACHIEVED.
   - 1.3 TYPICALLY THE FILL MUST NOT BE PLACED BETWEEN THE PERIOD BETWEEN LATE NOVEMBER AND EARLY APRIL, AS IT IS DIFFICULT TO ENSURE THAT THE FILL IS FREE OF FROZEN SOILS. IF GRANULAR MATERIAL/RECYCLED CONCRETE IS USED, THE ABOVE PRECAUTIONARY MEASURES ARE NOT NECESSARY.



TYPICAL SWALE DETAIL
N.T.S.

EROSION AND SEDIMENT CONTROL

1. SEDIMENT BARRIERS, CHECK DAMS, AND TEMPORARY CONSTRUCTION ACCESS TO BE INSTALLED PRIOR TO THE BEGINNING OF CONSTRUCTION.
2. ALL SEDIMENT CONTROL DEVICES TO BE ROUTINELY INSPECTED AND MAINTAINED IN PROPER WORKING ORDER UNTIL AREA IS STABILIZED.
3. IF NECESSARY, TRUCKS WILL BE WASHED DOWN BEFORE LEAVING THE SITE.
4. THE SITE WILL BE WET DOWN IF NECESSARY TO CONTROL DUST.
5. ALL CONSTRUCTION EQUIPMENT MUST BE PARKED ON–SITE.
6. ALL CONSTRUCTION ACTIVITY WILL COMPLY WITH THE TOWN NOISE BYLAW.
7. SEDIMENT CONTROL FENCE TO BE AS PER OPSD 219.130.
8. ALL CONSTRUCTION VEHICLES TO ENTER AND EXIT SITE FROM TEMPORARY CONSTRUCTION ACCESS.
9. ALL TOPSOIL STOCKPILES TO BE SURROUNDED WITH SEDIMENT CONTROL FENCING.
10. FILTER FABRIC TO BE PLACED UNDER GRATES ON ALL CATCHBASINS TO TRAP SEDIMENT. SILT TRAPS ARE TO BE CLEANED REGULARLY AND ARE NOT TO BE REMOVED UNTIL SUCH TIME AS THE CURBS ARE CONSTRUCTED AND THE BOULEVARDS ARE SODDED OR BACKYARDS GRADED AND SODDED. FILTER FABRIC FOR SILT CONTROL TO BE TERRA FIX 270R OR APPROVED EQUIVALENT.
11. IN THE CASE OF ANY CONFLICT WITH ANOTHER PLAN, THIS PLAN PREVAILS ONLY IN RESPECT TO CONSTRUCTION MEASURES AND ACTIVITIES SUCH AS THE CONSTRUCTION ACCESS, SILT FENCE, SECURITY FENCING, SEDIMENT CONTROL, AND MUD MATS.
12. STREET SWEEPING, CATCH BASIN CLEANING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE DEVELOPER AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE CITY.
13. MUD MATS TO BE INSTALLED AT ALL TEMPORARY CONSTRUCTION ACCESS POINTS.
14. THE CONTRACTOR WILL BE RESPONSIBLE TO DETERMINE LOCATIONS OF TOPSOIL AND/OR GRANULAR STOCKPILES WITHIN THE SITE. LOCATION OF STOCKPILES MAY CHANGE TO SUIT VARIOUS STAGES OF CONSTRUCTION.
15. THE CONTRACTOR SHALL PROVIDE SEPARATE STORAGE AREAS WITHIN THE SITE FOR HAZARDOUS AND WASTE MATERIALS. THE STORAGE AREAS SHALL BE LOCATED AWAY FROM ANY RECEIVING WATER BODIES, INCLUDING PONDS, SEWERS, DITCHES, ETC. AND INCLUDE SPILL CONTAINMENT AREAS WITH IMPERVIOUS SURFACES. THE CONTRACTOR IS RESPONSIBLE FOR ADDRESSING AND REPORTING ANY HAZARDOUS WASTE SPILLS TO THE APPROPRIATE LOCAL AGENCY.
16. CONTRACTOR TO ENSURE THAT PORTABLE TOILETS ARE LOCATED OFF PAVED ROADWAYS AND AWAY FROM ANY RECEIVING WATERS SUCH AS PONDS AND SEWERS.
17. THE SEDIMENT CONTROLS, INCLUDING SEDIMENTS, SHALL BE REMOVED OFF SITE AFTER GRASS SURFACES HAVE BEEN RESTORED TO THE SATISFACTION OF THE ENGINEER.
18. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL SEDIMENT AND EROSION CONTROLS, AS DESCRIBED IN THE "EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN CONSTRUCTION" AND/OR OTHER TOWN OF NIAGARA–ON–THE–LAKE REQUIREMENTS ON A SITE–BY–SITE BASIS SUCH AS INTERCEPTOR SWALES/DIKES, ROCK CHECK DAMS, SEDIMENT TRAPS, ETC. TO PREVENT SEDIMENTS FROM THEIR CONSTRUCTION OPERATIONS FROM ENTERING THE EXISTING AND PROPOSED STORM DRAINAGE SYSTEMS.
18. AFTER ROAD CONSTRUCTION AND PRIOR TO LANDSCAPE OR SODDING OF SITE, CONTRACTOR TO INSTALL SEDIMENT CONTROLS, SUCH AS SEDIMENT FENCING, ALONG DOWNSTREAM EDGES OF INDIVIDUAL BLOCKS.



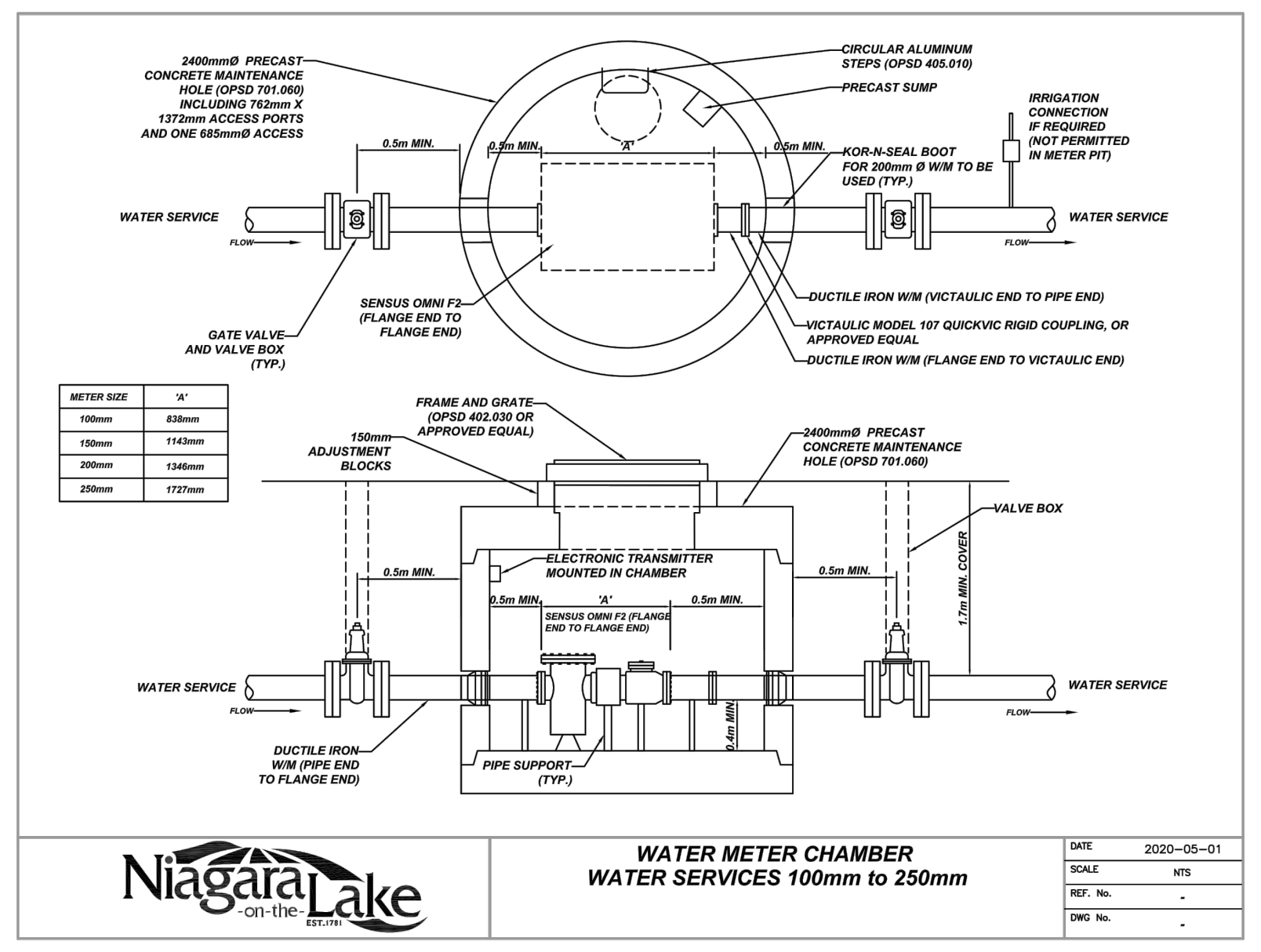
DRIVEWAY DIMENSIONS						
LAND USE	WIDTH m				RADIUS m	
	One–Way		Two–Way			
	min	max	min	max	min	max
Light Industrial, Commercial, and Apartment	4.5	7.5	7.2	12.0	4.5	12.0
Heavy Industrial	5.0	9.0	9.0	15.0	9.0	15.0

NOTES:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2018 | Rev 2

URBAN
INDUSTRIAL, COMMERCIAL, AND
APARTMENT ENTRANCES

OPSD 350.010

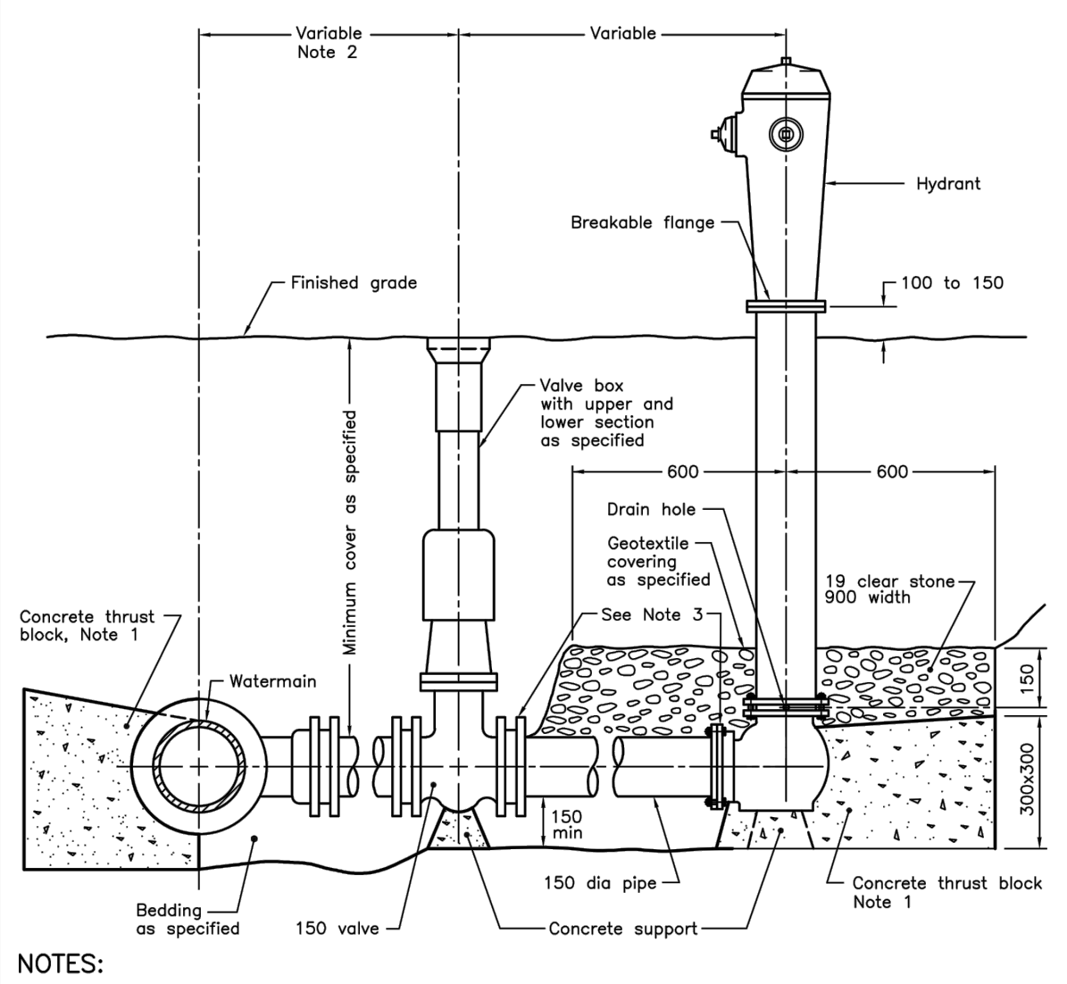


METER SIZE	'A'
100mm	838mm
150mm	1143mm
200mm	1346mm
250mm	1727mm

Niagara-on-the-Lake EST. 1781

WATER METER CHAMBER
WATER SERVICES 100mm to 250mm

DATE	2020–05–01
SCALE	NTS
REF. No.	-
DWG No.	-

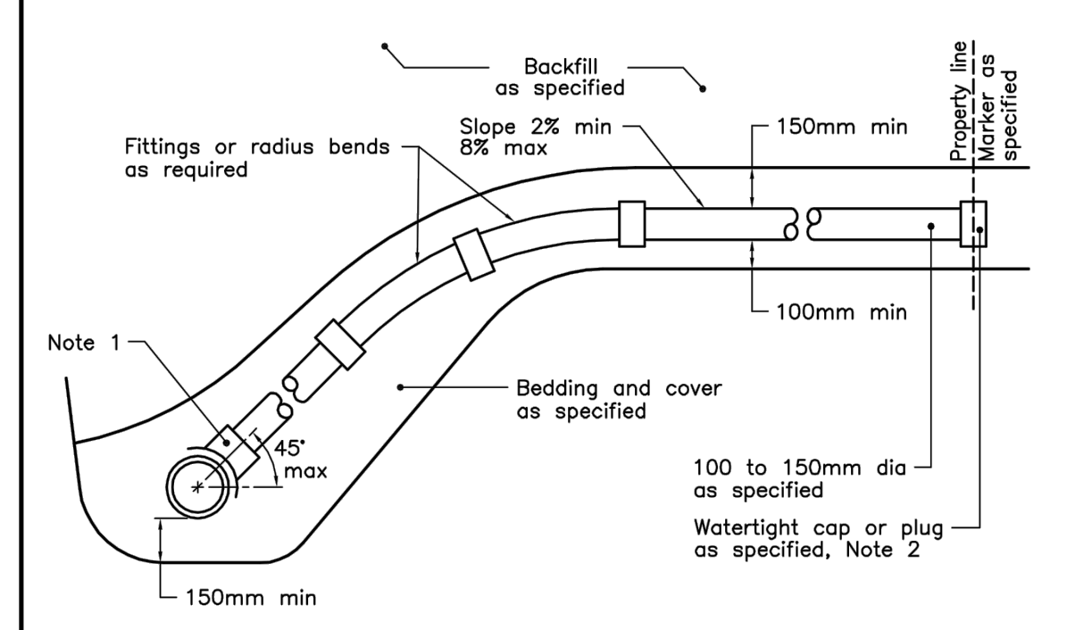


NOTES:
1 All concrete thrust blocks shall be poured against undisturbed ground.
2 When specified, for watermains 400mm and less, locate valve within 1.0m of centreline of watermain. Retaining and restraining devices shall be utilized. For watermains 600mm and over, bolt valve with flanged end directly to flanged tee.
3 Retaining and restraining devices shall be as specified.
A Bond breaker shall be used between the concrete and the fittings and appurtenances.
B Bolts and nuts for buried flange to flange connections shall be stainless steel.
C When required, flange of standpipe extensions shall not be in frost zone.
D This OPSD shall be read in conjunction with OPSD 1103.010 and 1103.020.
E Backfill material within 500mm of service box shall be native or imported, as specified.
F Tracer wire shall be installed as specified.
G All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2018 | Rev 3

HYDRANT INSTALLATION

OPSD 1105.010



NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees or wyes, strap–on–saddles, or other approved saddles.
2 Cap or plug at property line shall be adequately braced.

A Maintenance holes shall be used at the main sewer to connect service connections greater than or equal to 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut–in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2011 | Rev 2

SEWER SERVICE CONNECTIONS
FOR FLEXIBLE MAIN PIPE SEWER

OPSD 1006.020

KEY PLAN
N.T.S.

No.	Revision	Comments
1	2023–02–02	ISSUED FOR 1ST ZBA SUBMISSION
2	2024–08–30	ISSUED FOR 1ST SPA SUBMISSION
3	2025–03–07	RE–ISSUED FOR SPA SUBMISSION

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS PREPARED BY RVA.

A. WONG
100187477
2025-03-07
RVA 226757

Drawing Prepared By:

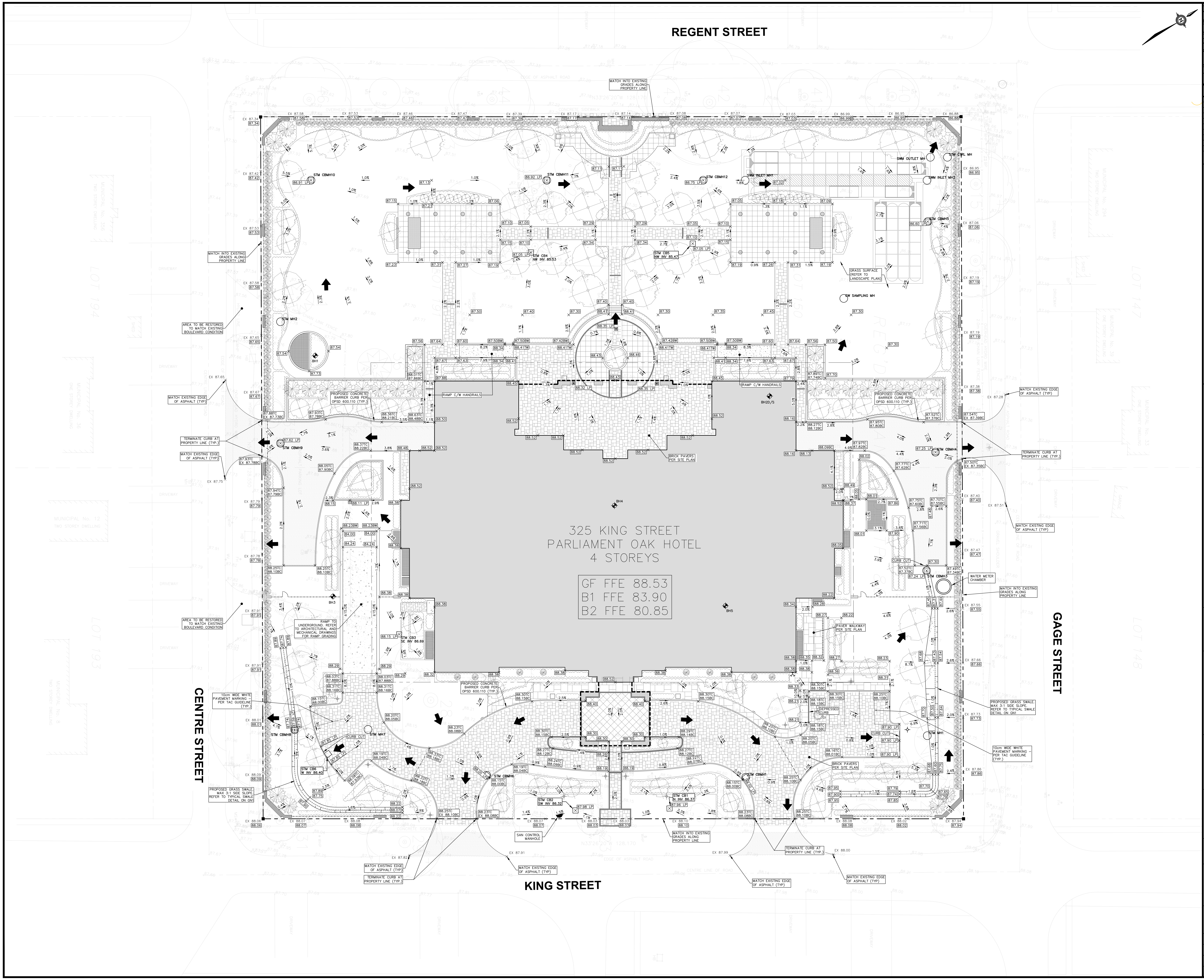
R.V. ANDERSON ASSOCIATES LIMITED

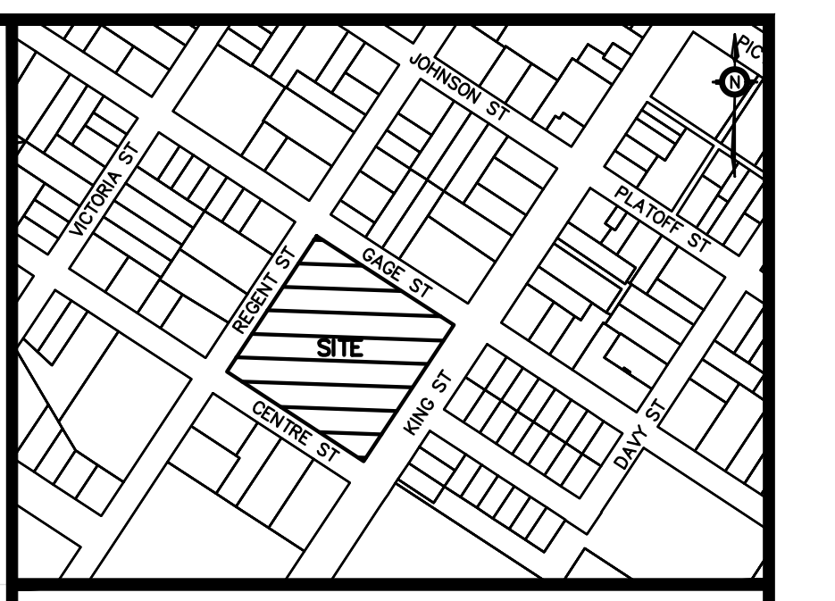
Client:
TWO SISTERS RESORTS CORP.

Project Name:
PARLIAMENT OAK INN
325 KING ST.

Drawing Title:
GENERAL NOTES

Drawn: SO	Design: SO	Date: JULY 2023
Checked: SDF	Approved: AST	Scale:
CADD File: 226757–S–GN1.dwg		Dwg. No.: GN1
Project No.: 226757		





KEY PLAN
N.T.S.

No.	Revision	Comments
1	2023-02-02	ISSUED FOR 1ST ZBA SUBMISSION
2	2024-08-30	ISSUED FOR 1ST SPA SUBMISSION
3	2024-12-17	ISSUED FOR BUILDING PERMIT
4	2025-03-07	RE-ISSUED FOR SPA SUBMISSION

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS PREPARED BY RVA.

LEGEND

— — —	PROPERTY LINE
▬ ▬ ▬	LIMIT OF ROOF OVERHANG
×123.00	PROPOSED ELEVATION
×123.00 LP	PROPOSED LOW POINT
×EX 123.00	EXISTING ELEVATION
2.5% →	PROPOSED SLOPE
⊞	AREA DRAIN (AD)
□	CATCH BASIN
▭	STRIP DRAIN (SD)
○	ACCESS OPENING FRAME & GRATE (MH)
▬	PROPOSED RETAINING WALL
H.P.	PROPOSED HIGH POINT
F.F.E.	PROPOSED FINISHED FLOOR ELEVATION
➡	PROPOSED OVERLAND FLOW ROUTE (GREATER THAN 100-YR STORM)
▨	PROPOSED ASPHALT
▨	PROPOSED CONCRETE
▦	PROPOSED PAVER
⌖	PROPOSED LIGHT STANDARD
⊕	BOREHOLE LOCATION (REFER TO GEOTECH INVESTIGATION REPORT)
MS	EXISTING MUNICIPAL SIGN
WHP	EXISTING HYDRO POLE
——	EXISTING BELL
——	EXISTING GAS MAIN
- - - -	EXISTING GUY WIRE

BENCH MARK:
ELEVATIONS SHOWN ON THIS PLAN ARE EXTRACTED FROM TOPOGRAPHICAL SKETCH OF 325 KING ST., BY J.D. BARNES DATED NOVEMBER 25, 2022. ELEVATIONS ARE OF GEODETIC ORIGIN (CGVD-1928:7), AND ARE DERIVED FROM GNSS OBSERVATIONS AND NATURAL RESOURCES CANADA'S GEOID MODEL HT2.0.

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LICENSED PROFESSIONAL ENGINEER
Alex Wong
A. WONG
100187477
2025-03-07
RVA 226757
PROVINCE OF ONTARIO

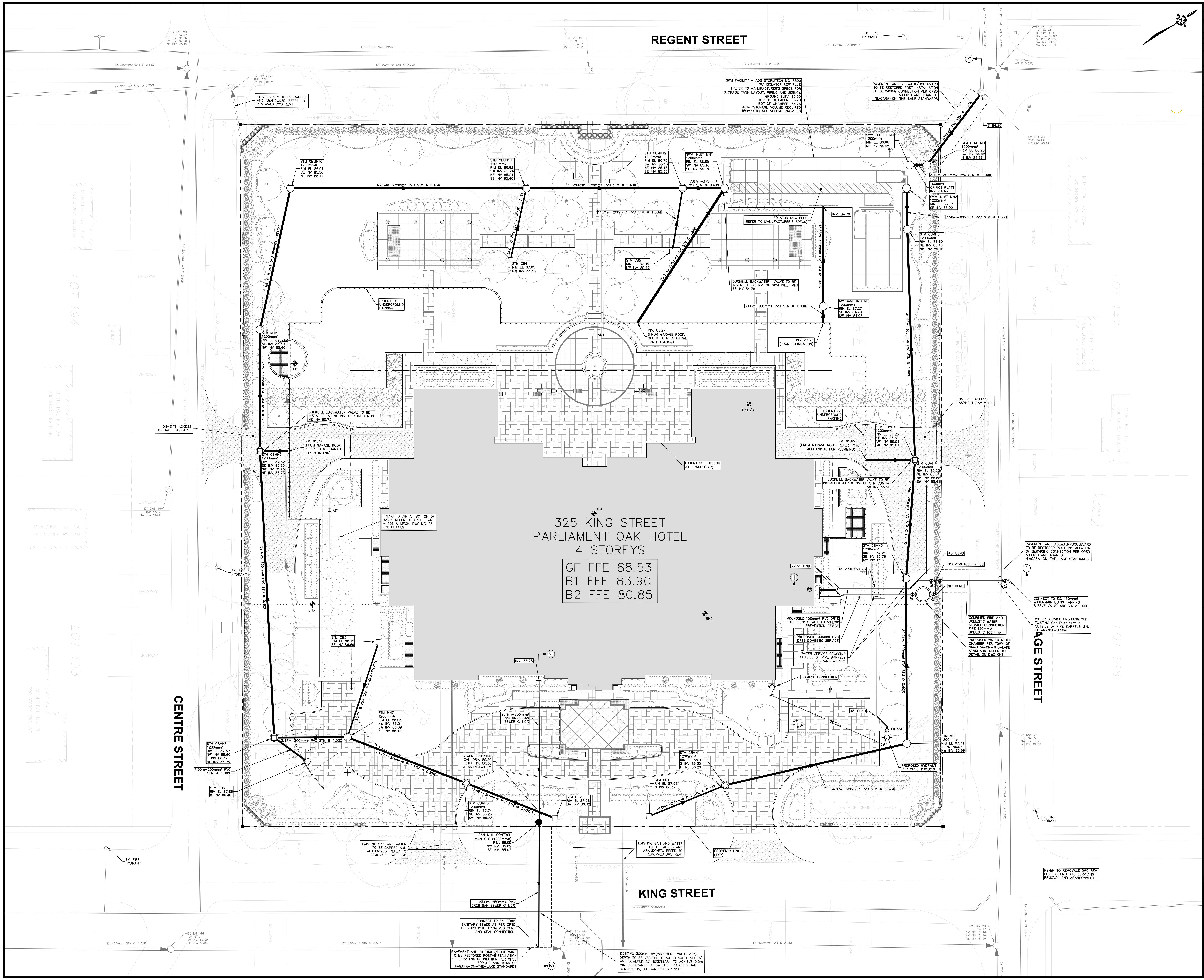
Drawing Prepared By:
R.V. ANDERSON ASSOCIATES LIMITED

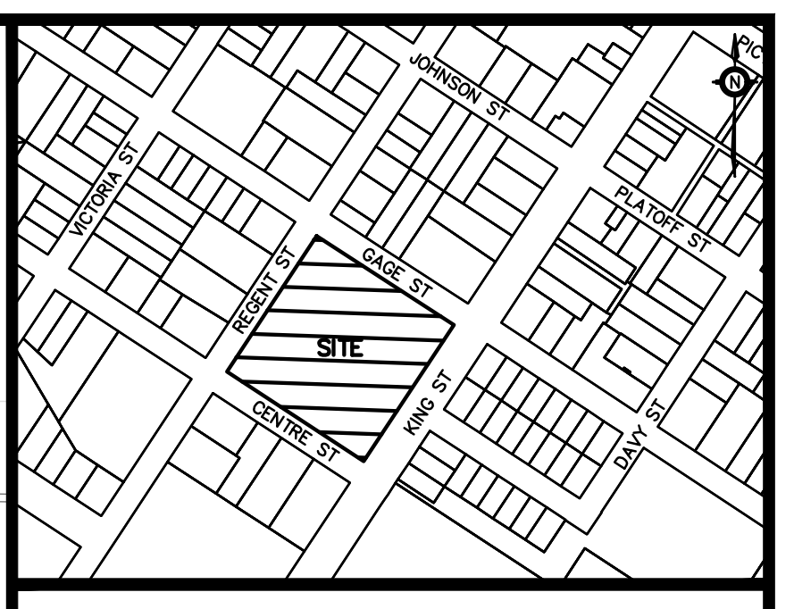
Client:
TWO SISTERS RESORTS CORP.

Project Name:
PARLIAMENT OAK INN
325 KING ST.

Drawing Title:
SITE GRADING PLAN

Drawn: SO	Design: SO	Date: JULY 2023
Checked: SDF	Approved: AST	Scale: 1:200
CADD File: 226757-S-SG1.dwg		Dwg. No.: SG1
Project No.: 226757		





KEY PLAN
N.T.S.

No.	Revision	Comments
1	2023-02-02	ISSUED FOR 1ST ZBA SUBMISSION
2	2024-08-30	ISSUED FOR 1ST SPA SUBMISSION
3	2024-12-17	ISSUED FOR BUILDING PERMIT
4	2025-03-07	RE-ISSUED FOR SPA SUBMISSION

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS PREPARED BY RVA.

LEGEND

- PROPERTY LINE
- UNDERGROUND PARKING STRUCTURE
- ⊞ AREA DRAIN
- ○ ACCESS OPENING FRAME & GRATE (F&G)
- SEWER AND FLOW DIRECTION
- WATERMAIN
- VALVE & BOX (V&B)
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- M+B WATER METER & BACK FLOW PREVENTER
- Ⓓ DETECTOR ASSEMBLY
- [PROPOSED SEWER CAP
- PROPOSED LIGHT STANDARD
- BOREHOLE LOCATION (REFER TO GEOTECH INVESTIGATION REPORT)
- MS EXISTING MUNICIPAL SIGN
- WHP EXISTING HYDRO POLE
- B EXISTING BELL
- GM EXISTING GAS MAIN
- EXISTING GUY WIRE

BENCH MARK:
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Alex Wong
A. WONG
100187477
2025-03-07
RVA 226757

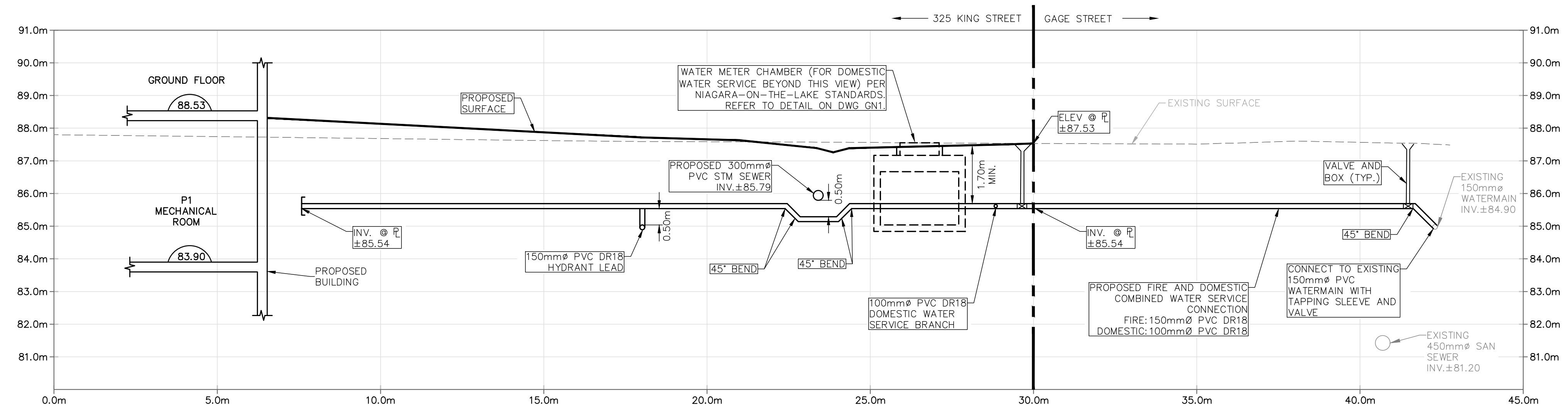
Drawing Prepared By:
R.V. ANDERSON ASSOCIATES LIMITED

Client:
TWO SISTERS RESORTS CORP.

Project Name:
PARLIAMENT OAK INN
325 KING ST.

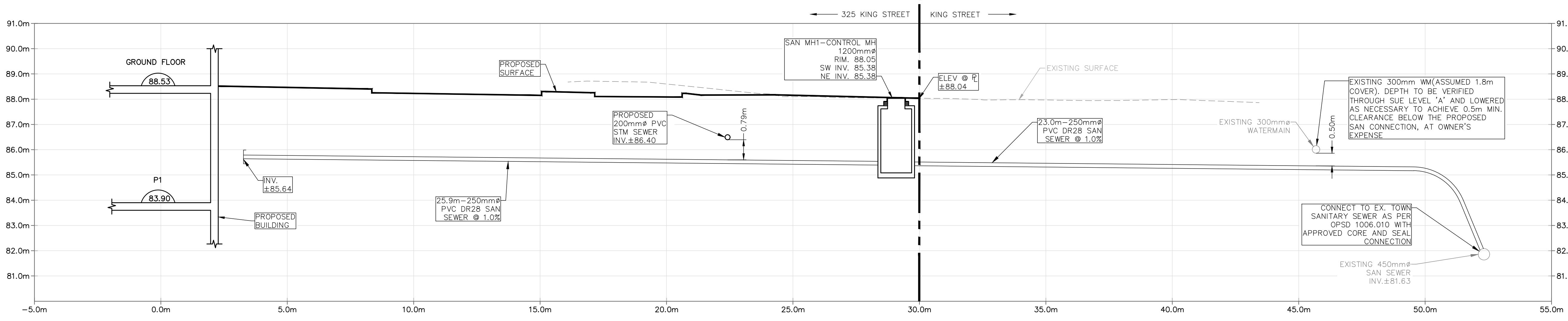
Drawing Title:
SITE SERVICING PLAN

Drawn: SO	Design: SO	Date: JULY 2023
Checked: SDF	Approved: AST	Scale: 1:200
CADD File: 226757-S-SS1.dwg		Dwg. No.: SS1
Project No.: 226757		



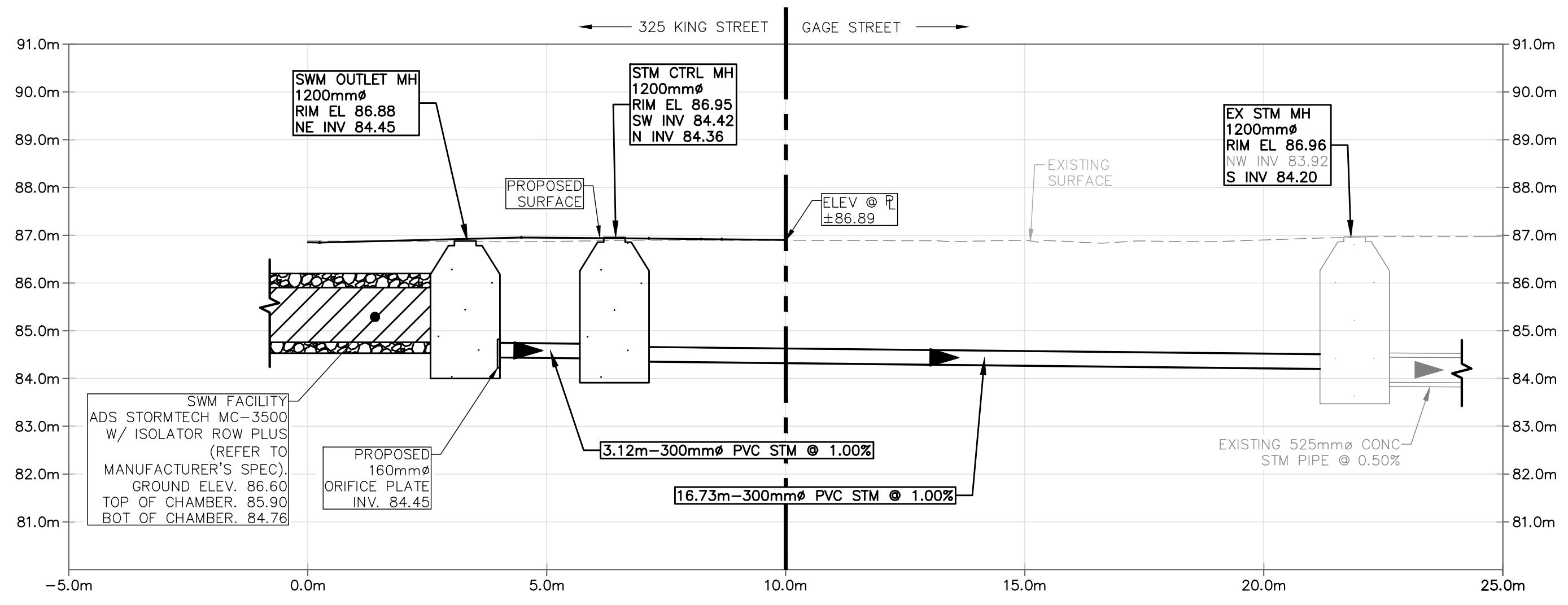
SECTION 1 - WAT 0+22.91

SCALE 1:100



SAN SERVICE 0+55.00

SCALE 1:100



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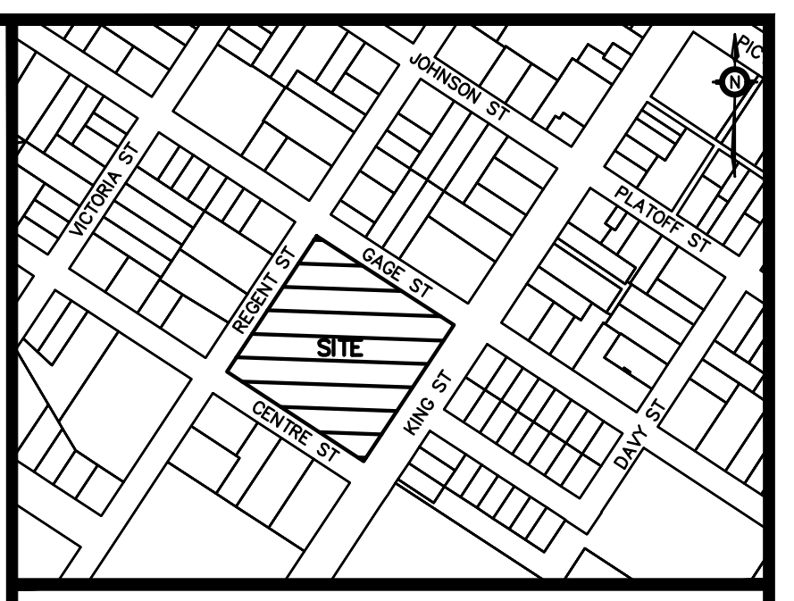
SCALE 1:100



KEY PLAN
N.T.S.

No.	Revision	Comments
1	2023-02-02	ISSUED FOR 1ST ZBA SUBMISSION
2	2024-08-16	ISSUED FOR 1ST SPA SUBMISSION

A. WONG
100187477
2025-03-07
RVA 226757

Drawing Prepared By:

R.V. ANDERSON ASSOCIATES LIMITED

Client:

TWO SISTERS RESORTS CORP.

Project Name:

PARLIAMENT OAK INN
325 KING ST.

Drawing Title:

SERVICING CROSS SECTIONS

Drawn: SO	Design: SO	Date: JULY 2023
Checked: SDF	Approved: AST	Scale: AS SHOWN
CADD File: 226757–S–SS1.dwg		Dwg. No.: SEC1
Project No.: 226757		

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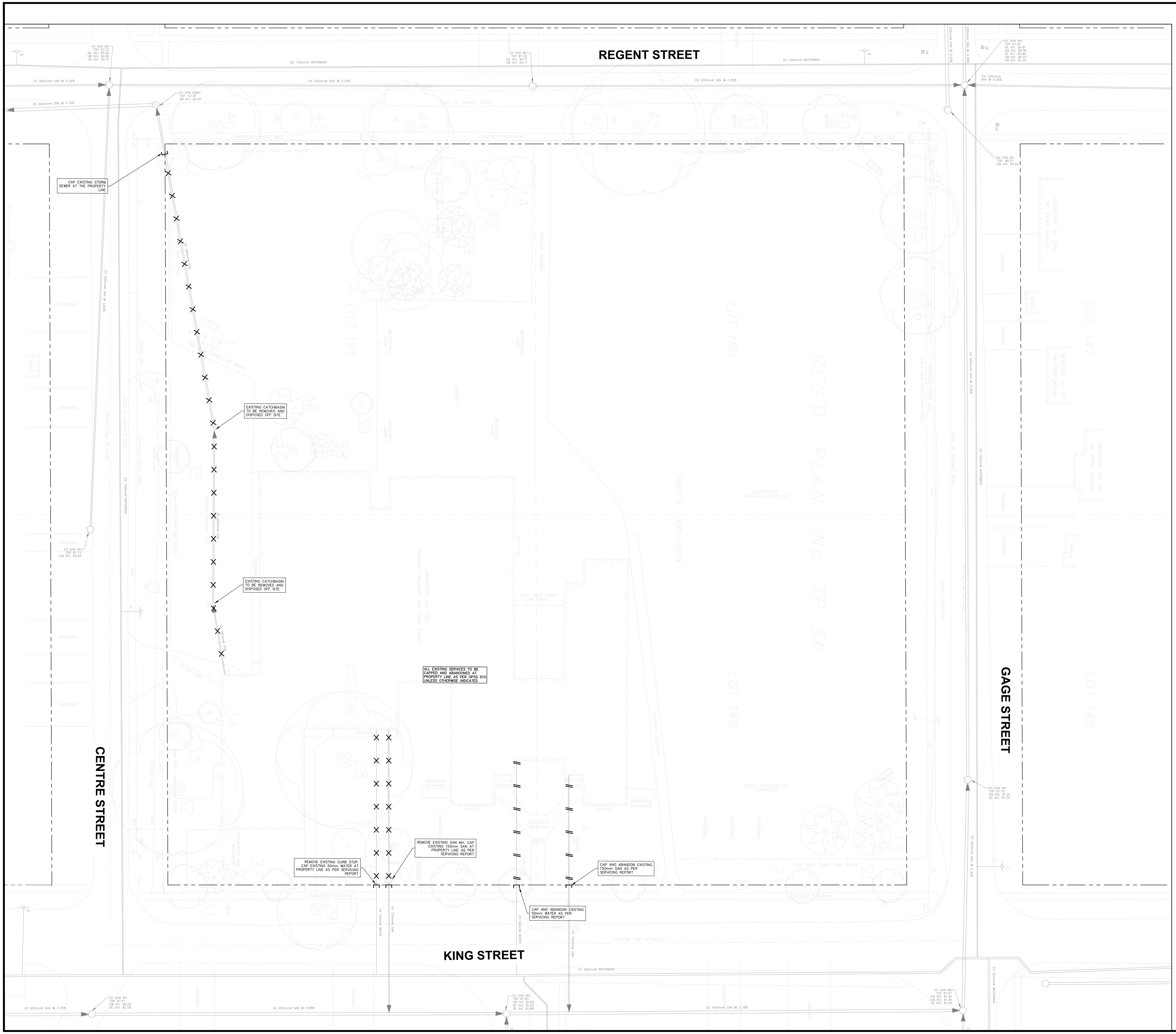

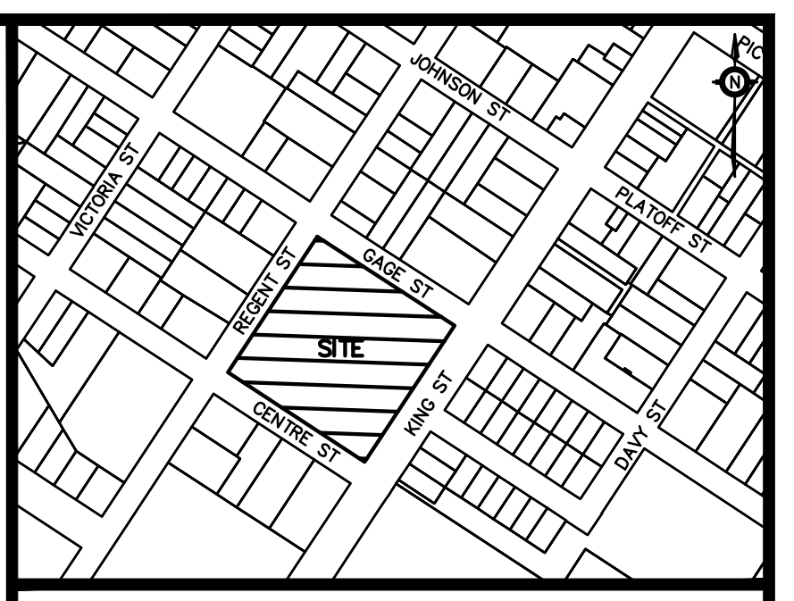

KEY PLAN
N.T.S.

No.	Revision	Comments
1	2023-02-02	ISSUED FOR 1ST ZBA SUBMISSION
2	2024-08-30	ISSUED FOR 1ST SPA SUBMISSION
3	2025-03-07	RE-ISSUED FOR SPA SUBMISSION

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS PREPARED BY RVA.

LEGEND

— — — PROPERTY LINE
✕ REMOVE AND DISPOSE OFF SITE
// ABANDON IN-PLACE

BENCH MARK:
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LICENSED PROFESSIONAL ENGINEER
Alex Wong
A. WONG
100187477
2025-03-07
RVA 226757
PROVINCE OF ONTARIO

Drawing Prepared By:
R.V. ANDERSON ASSOCIATES LIMITED

Client:
TWO SISTERS RESORTS CORP.

Project Name:
PARLIAMENT OAK INN
325 KING ST.

Drawing Title:
SERVICING REMOVALS PLAN

Drawn:	Design:	Date:
SO	SO	JULY 2023
Checked: SDF	Approved: AST	Scale: 1:200
CADD File: 226757-S-REM1.dwg		Dwg. No.: REM1
Project No.: 226757		

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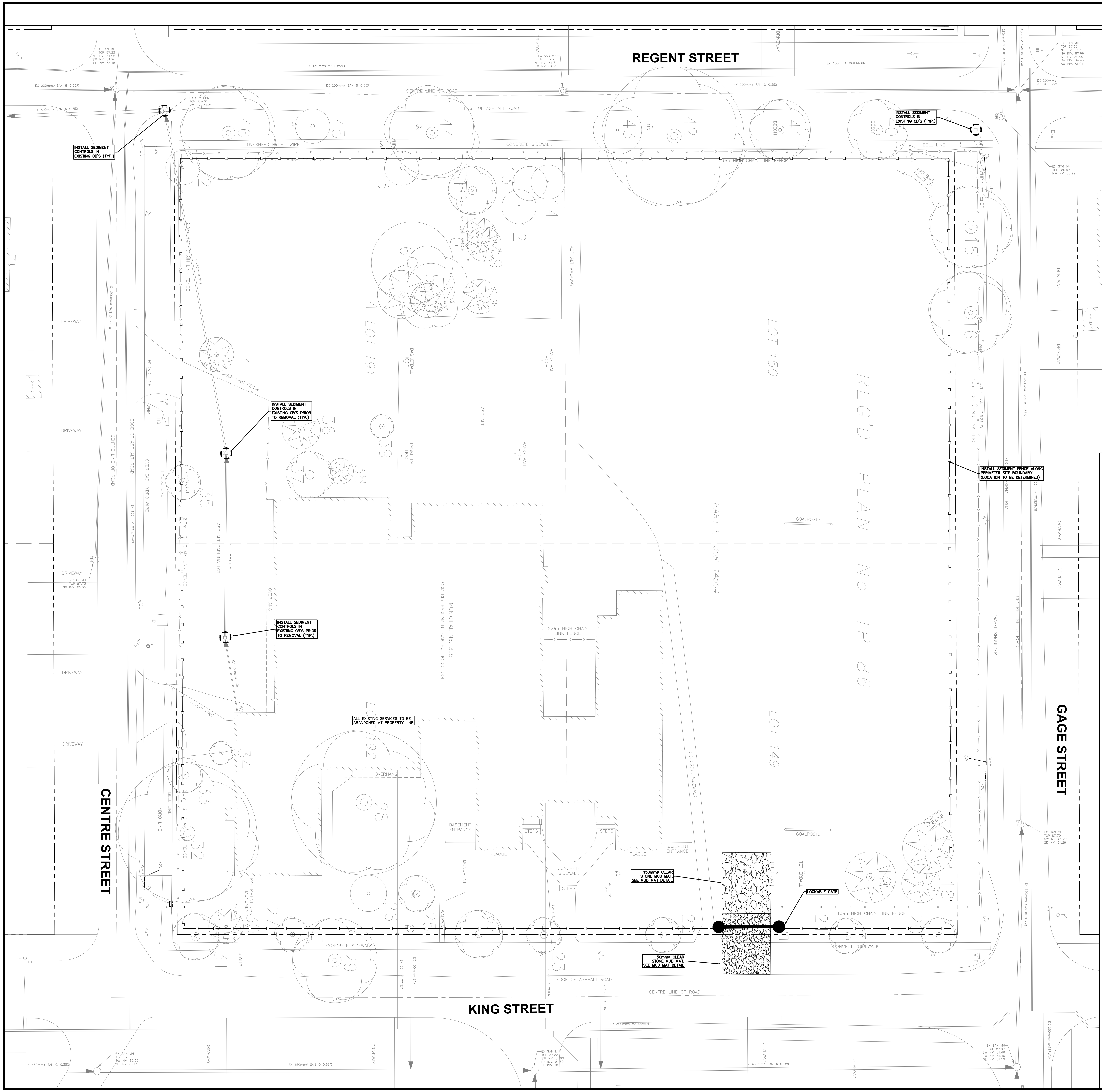
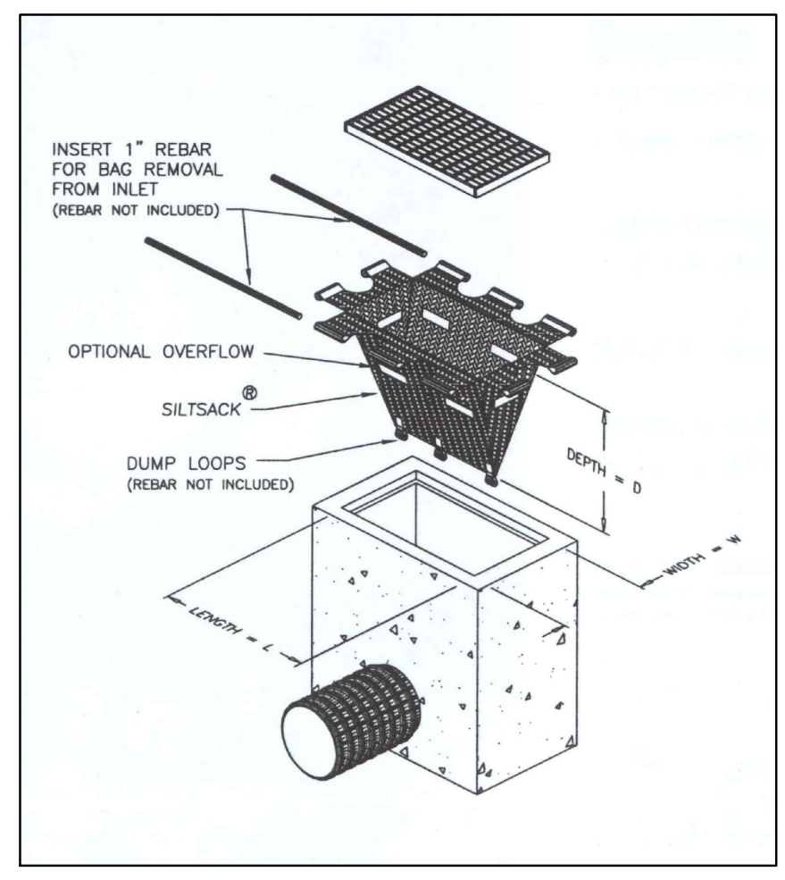




SILTSACK® Regular Flow

Property	Test Method	Minimum Value
Grab Tensile	ASTM D-4632	300 lbs.
Grab Elongation	ASTM D-4632	20%
Puncture	ASTM D-4633	120 lbs.
Mullen Burst	ASTM D-3786	800 psi
Trapezoid Tear	ASTM D-4533	120 lbs.
UV Resistance	ASTM D-4355	80%
Apparent Opening	ASTM D-4751	40 US Sieve
Flow Rate	ASTM D-4491	40 Gal/Min/Ft^2
Permittivity	ASTM D-4491	0.55 sec^{-1}

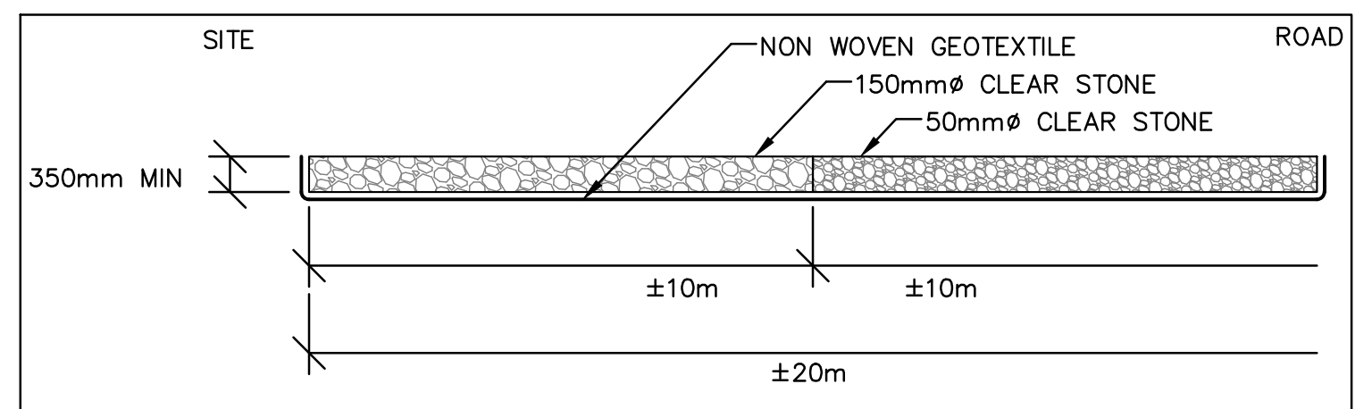
or SILTSACK® Hi-Flow Property Test Method Test Results

Property	Test Method	Minimum Value
Grab Tensile	ASTM D-4632	265 lbs.
Grab Elongation	ASTM D-4632	20 %
Puncture	ASTM D-4633	135 lbs.
Mullen Burst	ASTM D-3786	420 psi
Trapezoid Tear	ASTM D-4533	45 lbs.
UV Resistance	ASTM D-4355	90%
Apparent Opening	ASTM D-4751	20 US Sieve
Flow Rate	ASTM D-4491	200 Gal/Min/Ft^2
Permittivity	ASTM D-4491	1.5 sec^{-1}

All properties are minimum average roll values

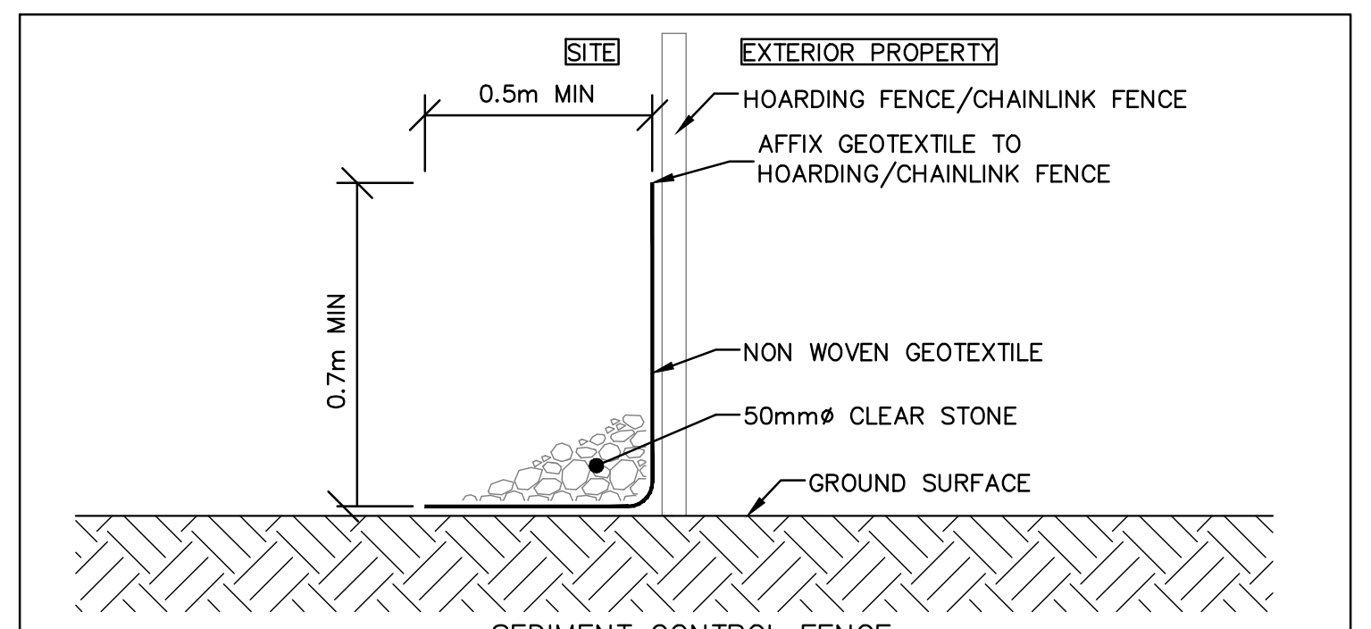
CB/DCB SILT SACK DETAIL

N.T.S.



MUD MAT DETAIL

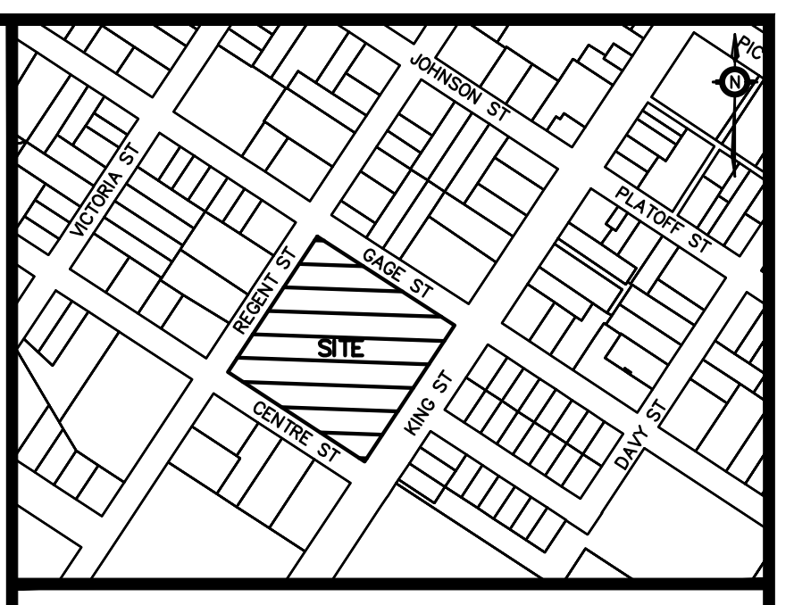
N.T.S.



SEDIMENT CONTROL FENCE

N.T.S.

MUD MATS TO BE INSTALLED PER MUD MAT DETAIL, CLEANED AND/OR REPLACED AS REQUIRED. EXACT LOCATION, ORIENTATION AND GRADE OF MUD MAT IS SUBJECT TO CHANGE TO SUIT STAGES OF EXCAVATION AND CONSTRUCTION.



KEY PLAN
N.T.S.

No.	Revision	Comments
1	2023-02-02	ISSUED FOR 1ST ZBA SUBMISSION
2	2024-08-30	ISSUED FOR 1ST SPA SUBMISSION
3	2025-03-07	RE-ISSUED FOR SPA SUBMISSION

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS PREPARED BY RVA.

LEGEND

— — —	PROPERTY LINE
—□—□—	SEDIMENT CONTROL FENCE
◌	SEDIMENT CONTROL (SILT SACK)

BENCH MARK:
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LICENSED PROFESSIONAL ENGINEER
Alex Wong
A. WONG
100187477
2025-03-07
RVA 226757
PROVINCE OF ONTARIO

Drawing Prepared By:

R.V. ANDERSON ASSOCIATES LIMITED

Client:
TWO SISTERS RESORTS CORP.

Project Name:
PARLIAMENT OAK INN
325 KING ST.

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn: SO	Design: SO	Date: JULY 2023
Checked: SDF	Approved: AST	Scale: 1:200
CADD File: 226757-S-ESC1.dwg		Dwg. No.: ESC1
Project No.: 226757		

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