GRAHAM DESIGN AND CONSTRUCTION

10TH AVE ESTATES

OWEN SOUND



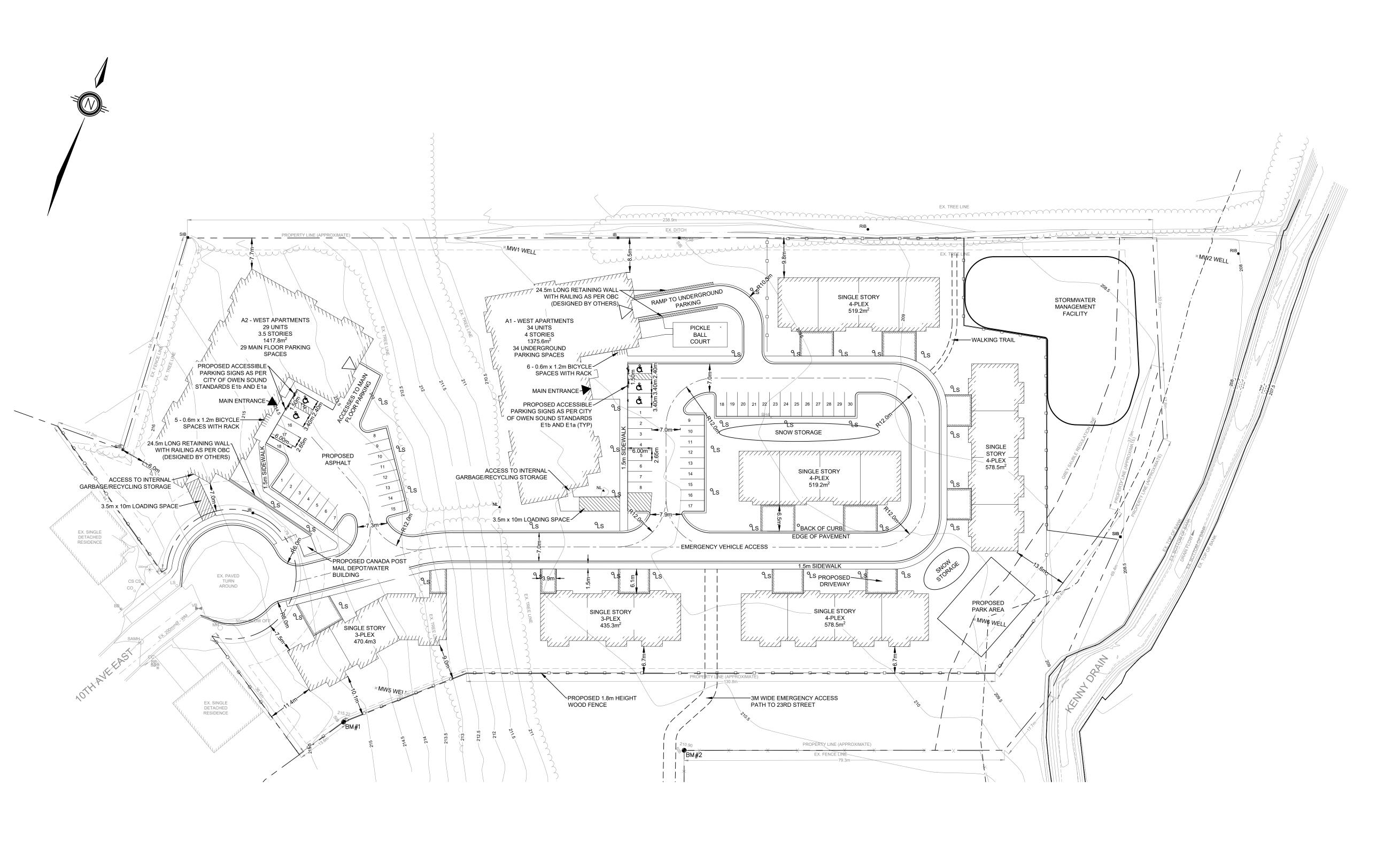




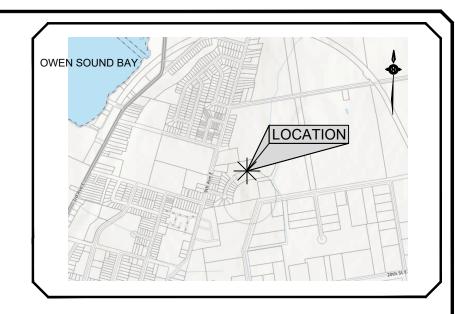


CLEARWATER SHORES PROJECT No. 24003

ISSUED FOR SITE PLAN APPROVAL



Zone R4 - Medium Density Residential			
Detail	Proposed	Zoning By-Law Requiremts	
Minimum Lot Area	25,305m2	200m2/unit and 900m2/ total deveopment parcel = 17,200m2	
Minimum Lot Frontage	79.2m	25m total development parcel and for any street fronting Townhouse 5.5m/units	
Minimum Lot Depth	N/A	N/A	
Minimum Front Yard Setback	7.0m	7.0m	
Minimum Interior Side Yard Setback	6.0m	1.2m on one side and 3.0m on the other side (0.0m where there is a common party wall)	
Minimum Exterior Side Yard Setback	N/A	3.0m	
Minimum Rear Yard Setback	13.6m	7.0m	
Lot Coverage	23.2% (5894.5m2)	40% (Max) = 10,362.4m2	
Maximum Density	85 units	1 unit/ 300m2 total development parcel = 86 units	
No. of Parking Spaces	133 spaces	1.25 spaces per dwelling unit = 107 spaces	
No. of Accessible Spaces	5 spaces	(101 to 200) 1, plus 3% of total required = 5 spaces	
No. of Bicycle Spaces	11	10% of required vehicle parking = 11 spaces	
No. of Loading Spaces	2 space	Multiple dwelling over 25 units = 2 space	
Building Height	13.2m	10m	



<u>LEGEND</u>	
EXISTING CENTRELINE	
SITE PROPERTY LINE	
EXISTING PROPERTY LINE	
PROPOSED EDGE OF PAVEMEN	т ———
PROPOSED BUILDING	7//////////////////////////////////////
ZONING SET BACK LIMITS	
EXISTING ELEVATION	×36 ^k coo
IRON BAR/STANDARD IRON BAR	
EXISTING HYDRO POLE	HP 🔾
EXISTING HYDRO POLE LIGHT S	TANDARD HPLS (
EXISTING LIGHT STANDARD	LS 🔾
BELL PEDESTAL	BPED ⊠
GUY WIRE	
BENCHMARK	^{BM} ⊕
CONIFEROUS TREE	100mm
DECIDUOUS TREE	()100mm
SIGN	•
PROPOSED MAN DOOR	lacktriangledown
PROPOSED OVERHEAD DOOR	
PROPOSED STREET LIGHT	Ls
PROPOSED 1 8m HIGH WOOD FE	

BENCHMARK #1 ELEV=215.22
BENCHMARK IS TOP OF SIB LOCATED NEAR THE SOUTH WEST CORNER OF THE WEST SECTION OF SUBJECT PROPERTY

BENCHMARK #2 ELEV=210.90
BENCHMARK IS TOP OF SIB LOCATED ON THE NORTH WEST CORNER OF THE ENBRIDGE COMMERCIAL PROPERTY

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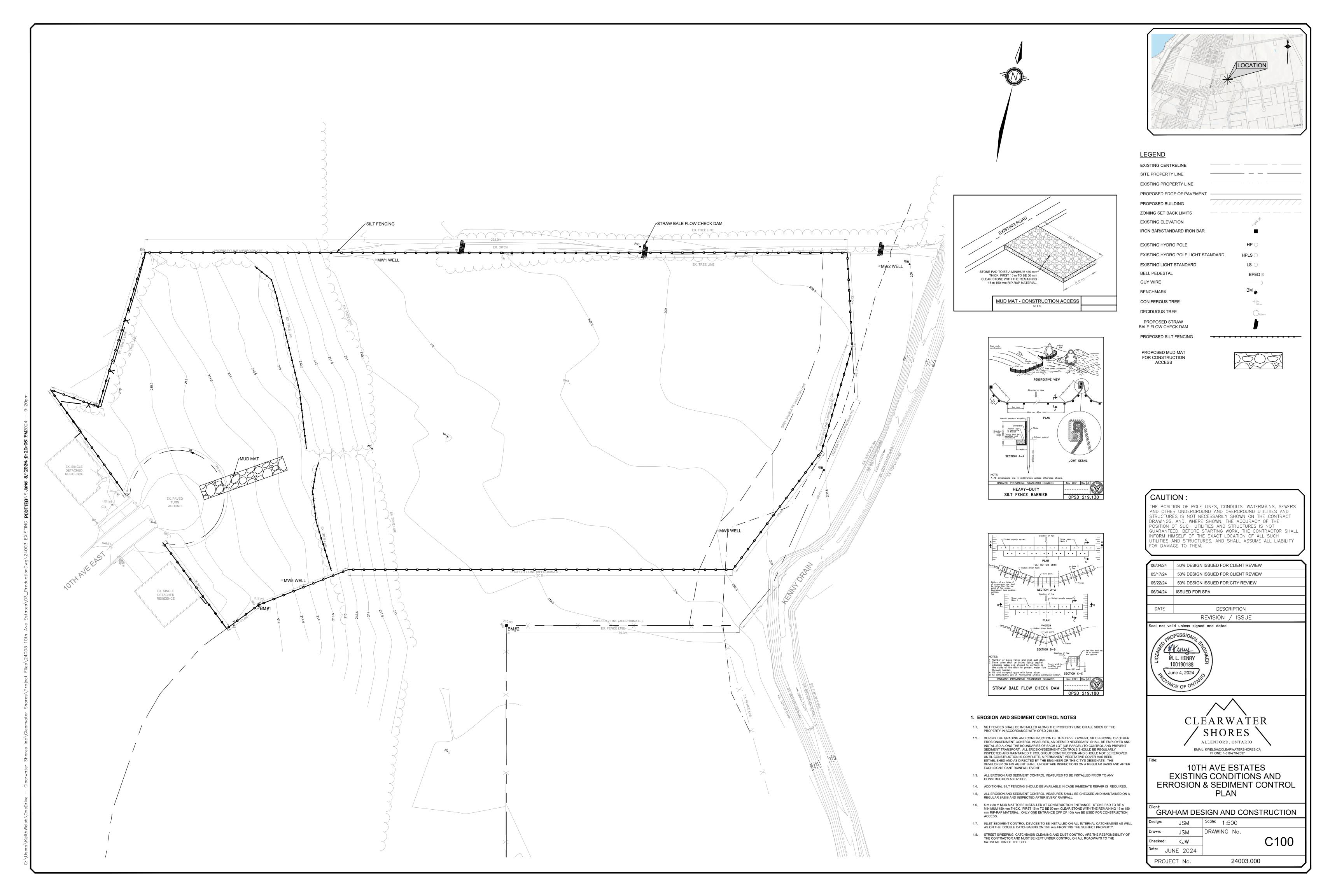


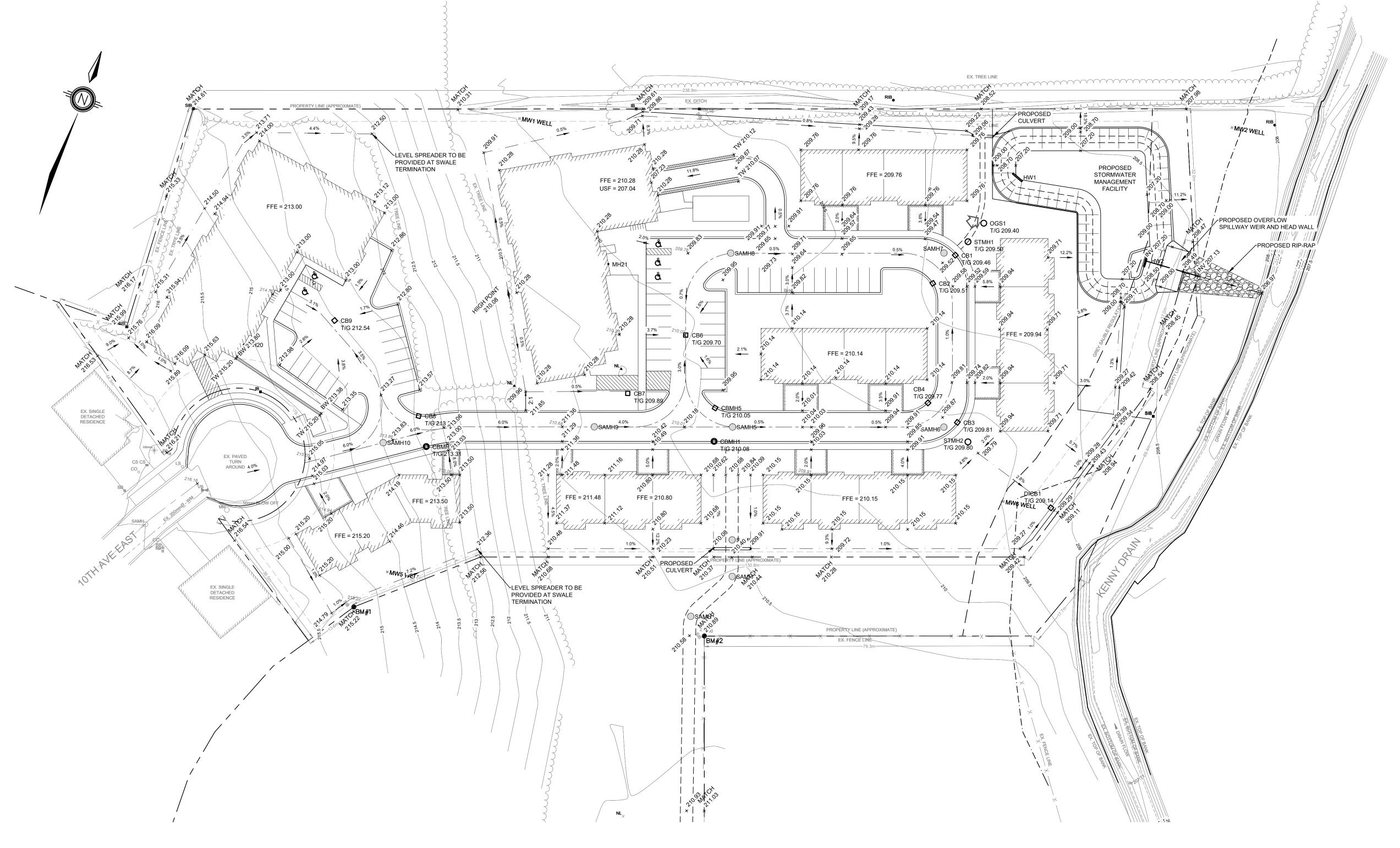
10TH AVE ESTATES SITE PLAN

GRAHAM DESIGN & CONSTRUCTION Scale: 1:500 KJW

DRAWING No. KJW Checked: MH Oate: JUNE 2024

PROJECT No.





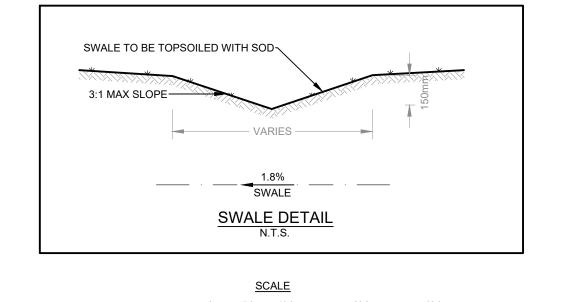
1. LOT GRADING AND DRAINAGE NOTES

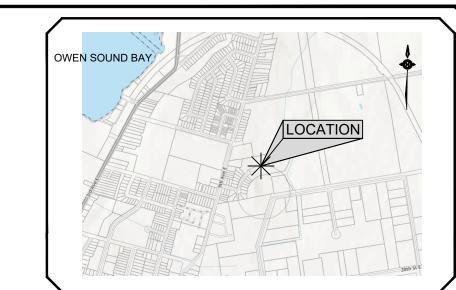
- 1.1. THE CITY OF OWEN SOUND, ALL APPROVAL AGENCIES AND THE ENGINEER MUST APPROVE ANY REVISIONS TO THIS PLAN.
- 1.2. MAXIMUM LOT COVERAGE AND ALL SETBACKS SHALL BE IN ACCORDANCE WITH CURRENT CITY BY-LAWS. IF NECESSARY, THE OWNER SHALL VERIFY THE LOCATION OF ANY SETBACKS ON-SITE WITH THE APPROPRIATE AGENCY OR CITY REPRESENTATIVE.
- 1.3. THE CONSTRUCTION SHALL INCLUDE THE ESTABLISHING OF A PERMANENT VEGETATIVE COVER OVER ALL AREAS EXCEPT THE DRIVEWAYS, PARKING AREAS AND THE BUILDINGS. THIS COVER WILL FILTER THE RUNOFF AND REDUCE POTENTIAL SEDIMENTATION. THE VEGETATED AND LANDSCAPED AREAS ON EACH LOT AND THE GRASSED SWALES THAT CONDUCT SURFACE RUNOFF WILL ALSO ENHANCE WATER QUALITY BY MEANS OF VEGETATIVE FILTERING.

ANY AREAS THAT DO NOT COMPLY WITH THE TOLERANCES AND WILL BE RESPONSIBLE FOR ANY RE-CERTIFICATION COSTS.

- 1.4. IT SHALL BE ASSUMED THAT THE GRADIENT BETWEEN SUCCESSIVE PROPOSED LOT ELEVATIONS SHOWN ON THE PLAN IS EITHER CONSTANT, OR AT THE GRADIENT SPECIFIED.
- 1.5. THE RECOMMENDED ELEVATION AROUND THE BUILDING ENVELOPE IS A "MINIMUM"; HOWEVER, THE ENGINEER MUST APPROVE ANY CHANGE TO THESE ELEVATIONS GREATER THAN 0.15 m.
- 1.6. ALL FINISHED ELEVATIONS ON THE SITE MUST BE WITHIN +/- 0.05 m OF THE PROPOSED ELEVATIONS SHOWN ON THE PLAN. ALL SWALES SHALL BE CONSTRUCTED TO THE SPECIFIED DIMENSIONS AND GRADIENTS. FAILURE TO COMPLY WITH THESE TOLERANCES WILL RESULT IN NON-CERTIFICATION OF THE LOT GRADING AND DRAINAGE FOR THE AFFECTED PROPERTY. THE DEVELOPER SHALL BE REQUIRED TO REGRADE
- 1.7. ALL PROPOSED LOT ELEVATIONS REPRESENT EITHER FINISHED ASPHALT, GRANULARS OR GROUND.
- 1.8. REGULAR INSPECTIONS, CLEANING, AND MAINTENANCE OF ANY SURFACE WATER INLETS, GRATES, CULVERTS AND GRASSED SWALES WILL BE REQUIRED TO ENSURE THAT ALL COMPONENTS CONTINUE TO FUNCTION PROPERLY.
- 1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND AND ABOVE GROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SHOULD THERE BE ANY CONFLICTS OR DISCREPANCIES BETWEEN THE PLANS AND ON-SITE CONDITIONS PRIOR TO COMMENCING ANY WORK.
- 1.10. ALL IMPERVIOUS SURFACES SHALL BE GRADED TO ENSURE POSITIVE DRAINAGE AND GRADIENT AWAY FROM ANY BUILDINGS AND ALONG THE COURSE OF ANY WALKWAYS OR FROM ANY LARGER IMPERVIOUS AREAS INCLUDING NO PONDING OF WATER WITHIN THESE AREAS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER OF ANY CONCERNS WITH THE PROPOSED ELEVATIONS AND GRADIENTS PRIOR TO PLACEMENT OF ANY GRANULARS, ASPHALT, PAVING STONE OR CONCRETE TO ALLOW FOR A THOROUGH ON-SITE REVIEW AND ADJUSTMENT (IF ANY). ANY PONDING ON IMPERVIOUS SURFACES SHALL BE DEEMED A DEFICIENT ITEM; THE AFFECTED SURFACE SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AND AT THE CONTRACTOR'S EXPENSE; THE EXTENT OF THE AREA TO BE REMOVED AND REPLACED SHALL BE AS DETERMINED BY THE OWNER OR THE ENGINEER.

- 1.11. RECOMMENDED MINIMUM SEPARATION BETWEEN FINISHED GROUND AROUND THE BUILDING ENVELOPE AND THE TOP OF THE FOUNDATION WALL IS 200 MILLIMETERS. THE ACTUAL MINIMUM AS PER SECTION 9.15.4.3 (1) O.B.C. IS 150 MILLIMETERS OR 200 MILLIMETERS AS PER SECTION 9.27.2.2 (1) O.B.C.
- 1.12. FOOTINGS WITHIN GROUNDWATER SHALL BE 2 TIMES STANDARD WIDTH AS PER O.B.C. SECTION 9.15.3.4.
- 1.13. ALL DOWNSPOUTS, SUMP PUMPS AND OTHER DRAINAGE DISCHARGE POINTS SHALL DISCHARGE ON TO A SPLASH PAD OR APPROVED
- 1.14. ALL DISTURBED AREAS ARE TO BE RESTORED WITH SOD OVER A MINIMUM OF 100mm OF TOPSOIL OR APPROVED ALTERNATIVE GROUND COVER.
- 1.15. INTERIM GRADING MEASURES MAY BE REQUIRED DURING BUILDING CONSTRUCTION. TO ENSURE THAT DRAINAGE DOES TO ADVERSELY AFFECT THE NEIGHBORING PROPERTIES, ROUGH GRADING OF THE PROPERTY SHALL BE COMPLETED SUCH THAT DRAINAGE IS CONTAINED ON SITE OR CONTROLLED TO A POSITIVE OUTLET.
- 1.16. ALL TOPSOIL SHALL BE STRIPPED (APPROX. 0.30 METERS) AND STOCKPILED
- 1.17. EXCAVATED MATERIAL SHALL BE PLACED IN AN APPROVED FILL AREA AS DIRECTED BY THE ENGINEER OR OWNER.
- 1.18. ALL SURVEY MONUMENTS SHALL BE LEFT INTACT. WHERE EXCAVATION IS REQUIRED ADJACENT TO MONUMENTS, CARE SHALL BE TAKEN TO ENSURE THEY ARE NOT DISTURBED.
- 1.19. SWALES TO BE LOCATED AS SHOWN ON THIS PLAN.





EXISTING CENTRELINE	
SITE PROPERTY LINE	
EXISTING PROPERTY LINE	
PROPOSED EDGE OF PAVEMENT ————	
PROPOSED BUILDING	///////////////////////////////////////
ZONING SET BACK LIMITS — —	
EXISTING ELEVATION	×314,96
IRON BAR/STANDARD IRON BAR	
PROPOSED ELEVATION	*345.3L
PROPOSED ELEVATIONS TO MATCH EXISTING GRADES	MATCH 1345.32
PROPOSED GRADE	1.8%
PROPOSED SWALE	1.8% SWALE
EXISTING HYDRO POLE	HP 🔾
EXISTING HYDRO POLE LIGHT STANDARD	HPLS (
EXISTING LIGHT STANDARD	LS 🔾
BELL PEDESTAL	BPED ⊠
GUY WIRE	
BENCHMARK	BM _◆
CONIFEROUS TREE	100mm
DECIDUOUS TREE	100mm
SIGN	.
PROPOSED MAN DOOR	$\overline{\mathbf{v}}$
PROPOSED OVERHEAD DOOR	
PROPOSED OVERLAND FLOW ROUTE	\Box
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	SHORES ALLENFORD, ONTARIO EMAIL: KWELSH@CLEARWATERSHORES.CA PHONE: 1-519-270-2837
Title:	10TH AVE ESTATES ONCEPTUAL GRADING PLAN

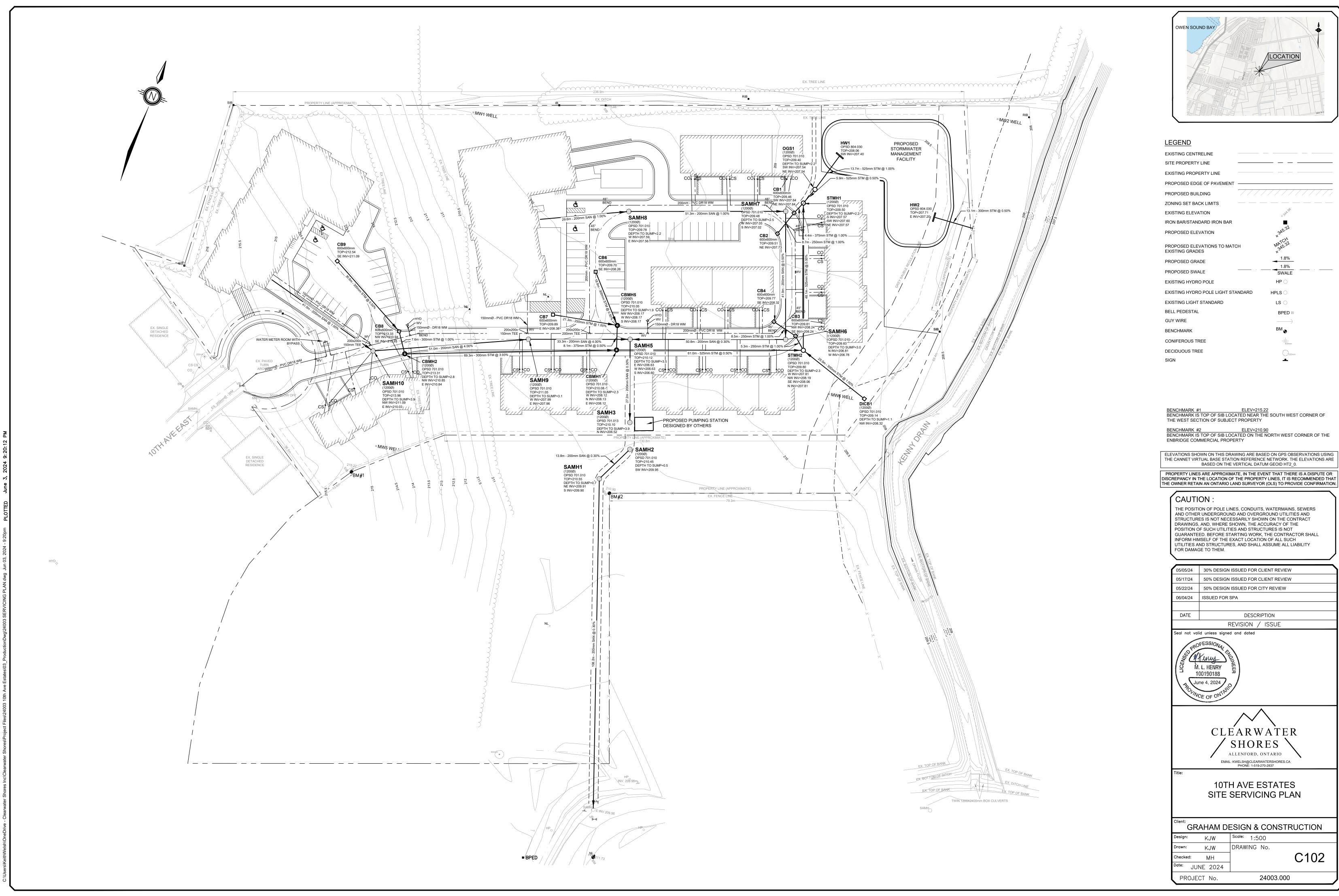
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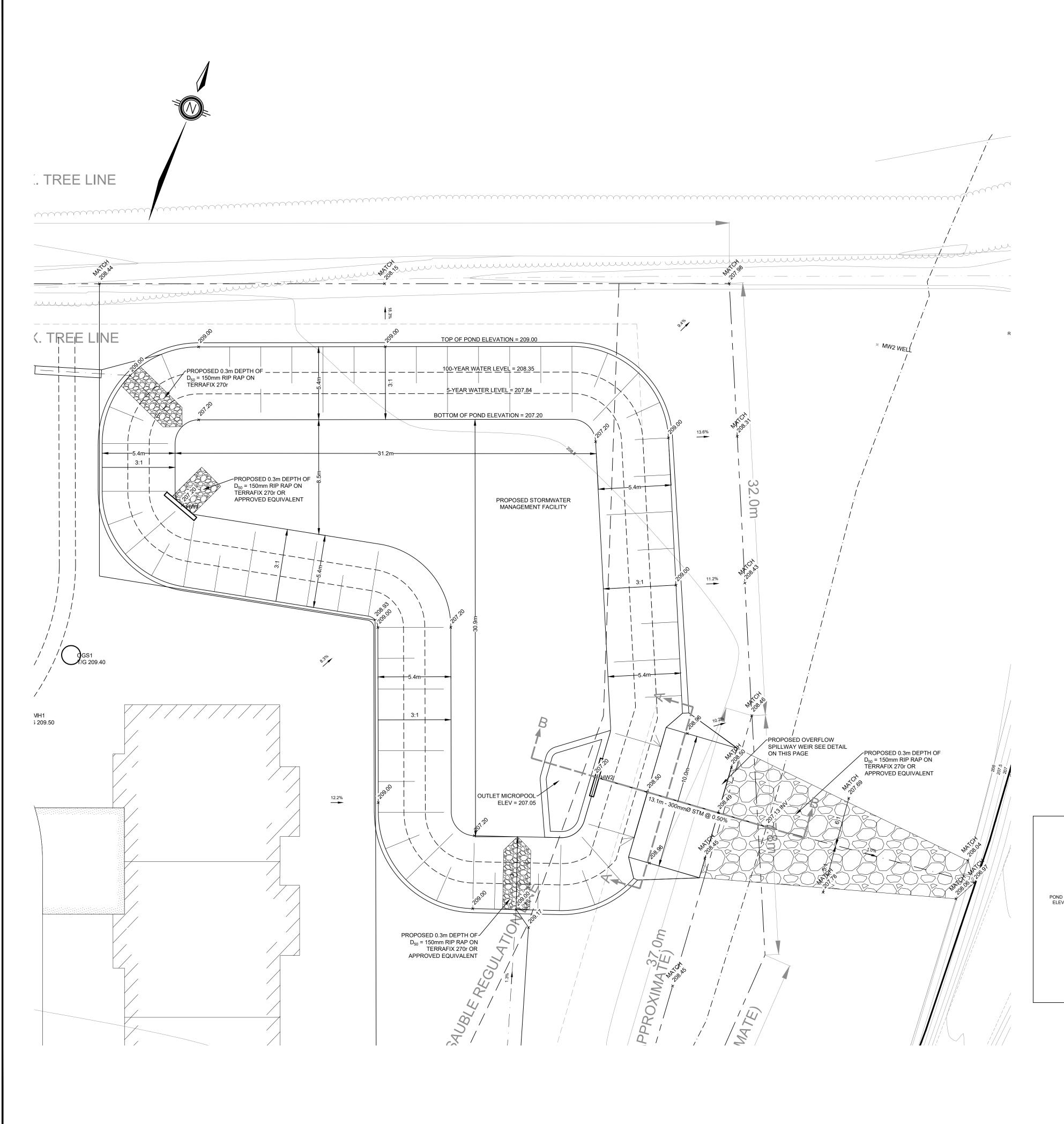
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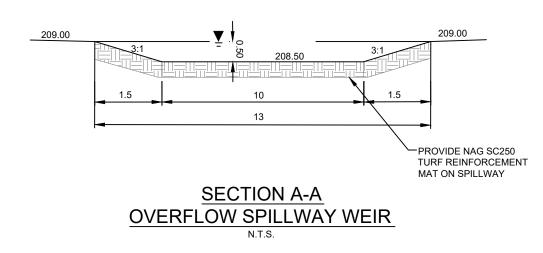
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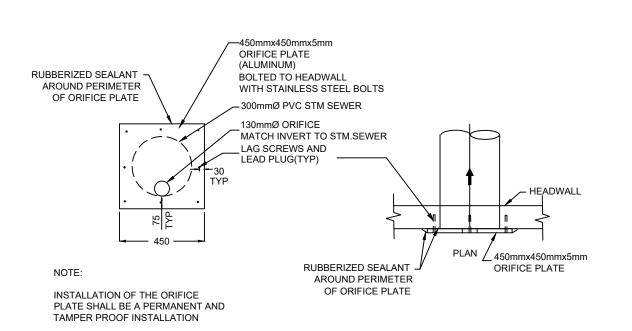
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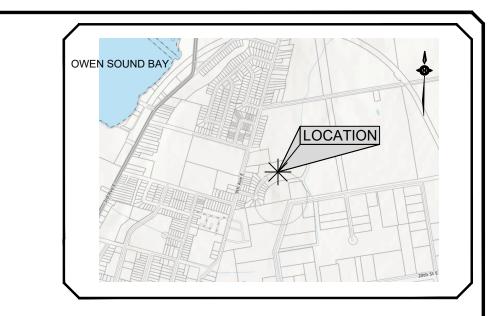






ORIFICE PLATE DETAIL FOR HEADWALL

N.T.S.



<u>LEGEND</u>		
EXISTING CENTRELINE		
SITE PROPERTY LINE		
EXISTING PROPERTY LINE		
PROPOSED EDGE OF PAVEMENT		
PROPOSED BUILDING	7////	///////////////////////////////////////
ZONING SET BACK LIMITS		
EXISTING ELEVATION		×3 th oo
IRON BAR/STANDARD IRON BAR		
PROPOSED ELEVATION		4345.31
PROPOSED ELEVATIONS TO MATO EXISTING GRADES	СН	MATCH 345.32
PROPOSED GRADE		1.8%
PROPOSED SWALE		1.8% SWALE
EXISTING HYDRO POLE		HP 🔾
EXISTING HYDRO POLE LIGHT STA	ANDARD	HPLS ()
EXISTING LIGHT STANDARD		LS ()
BELL PEDESTAL		BPED ⊠
GUY WIRE		
BENCHMARK		BM⊕
CONIFEROUS TREE		100mm
DECIDUOUS TREE		()100mm
SIGN		•

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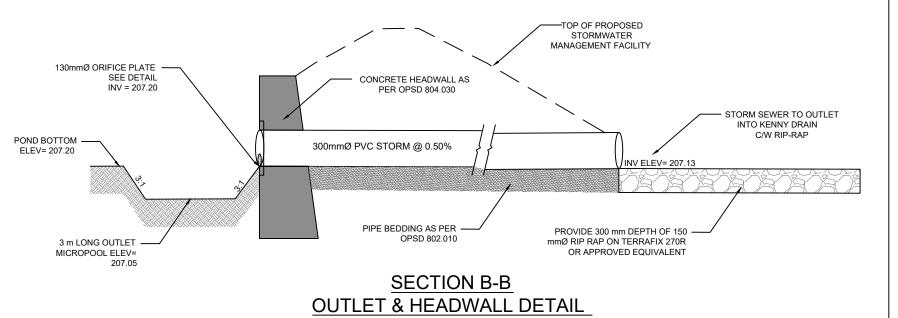
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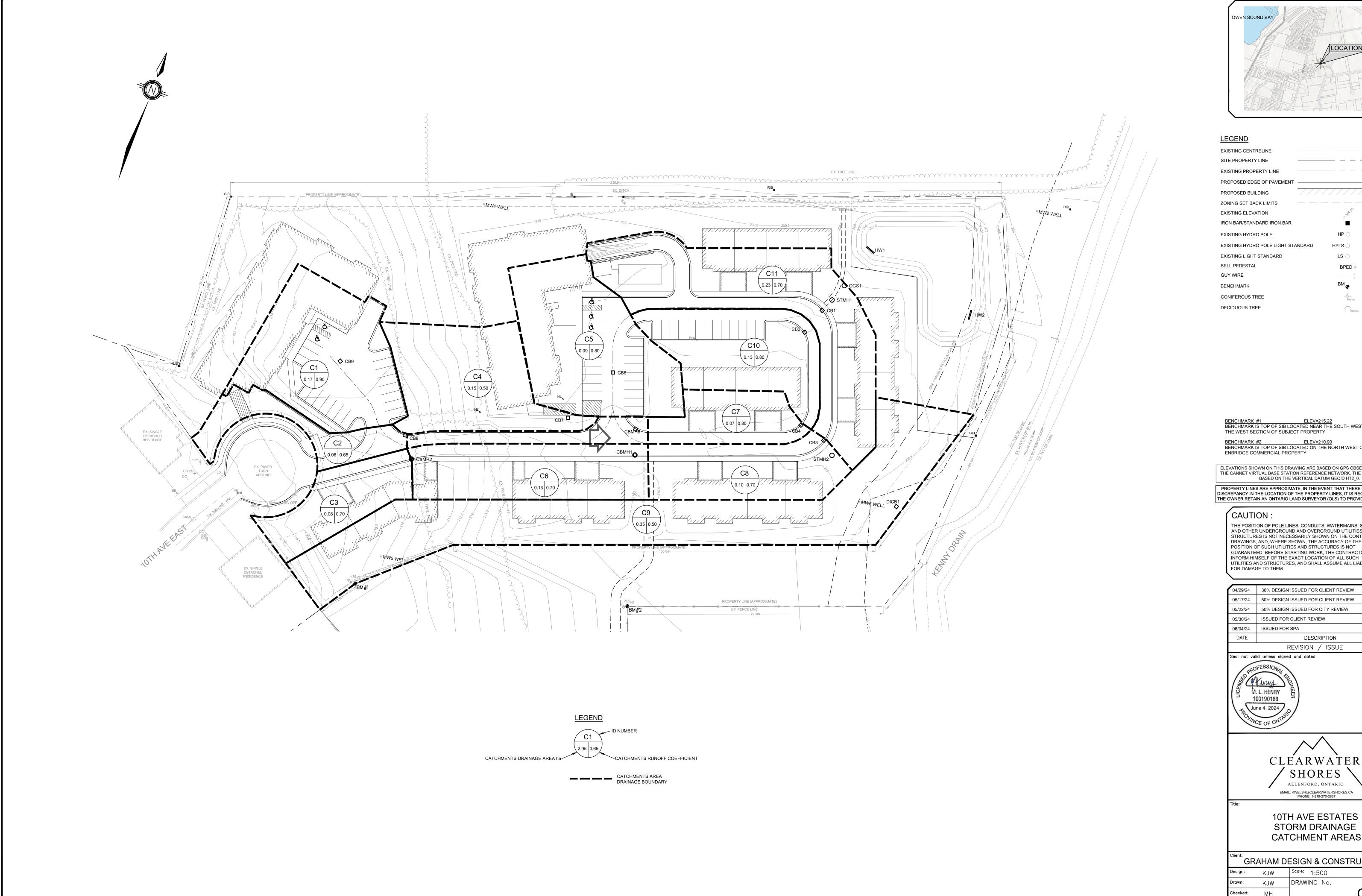
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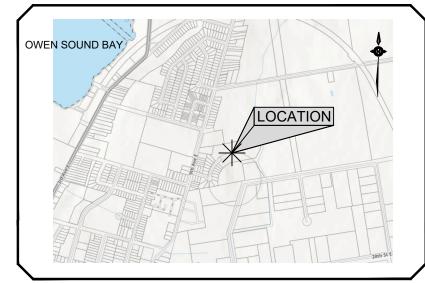
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Client:	STOF	RMWATER POND
Client:	STOF	RMWATER POND DETAIL
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Client: GR Design:	STOF	RMWATER POND DETAIL ESIGN & CONSTRUCTION Scale: 1:150







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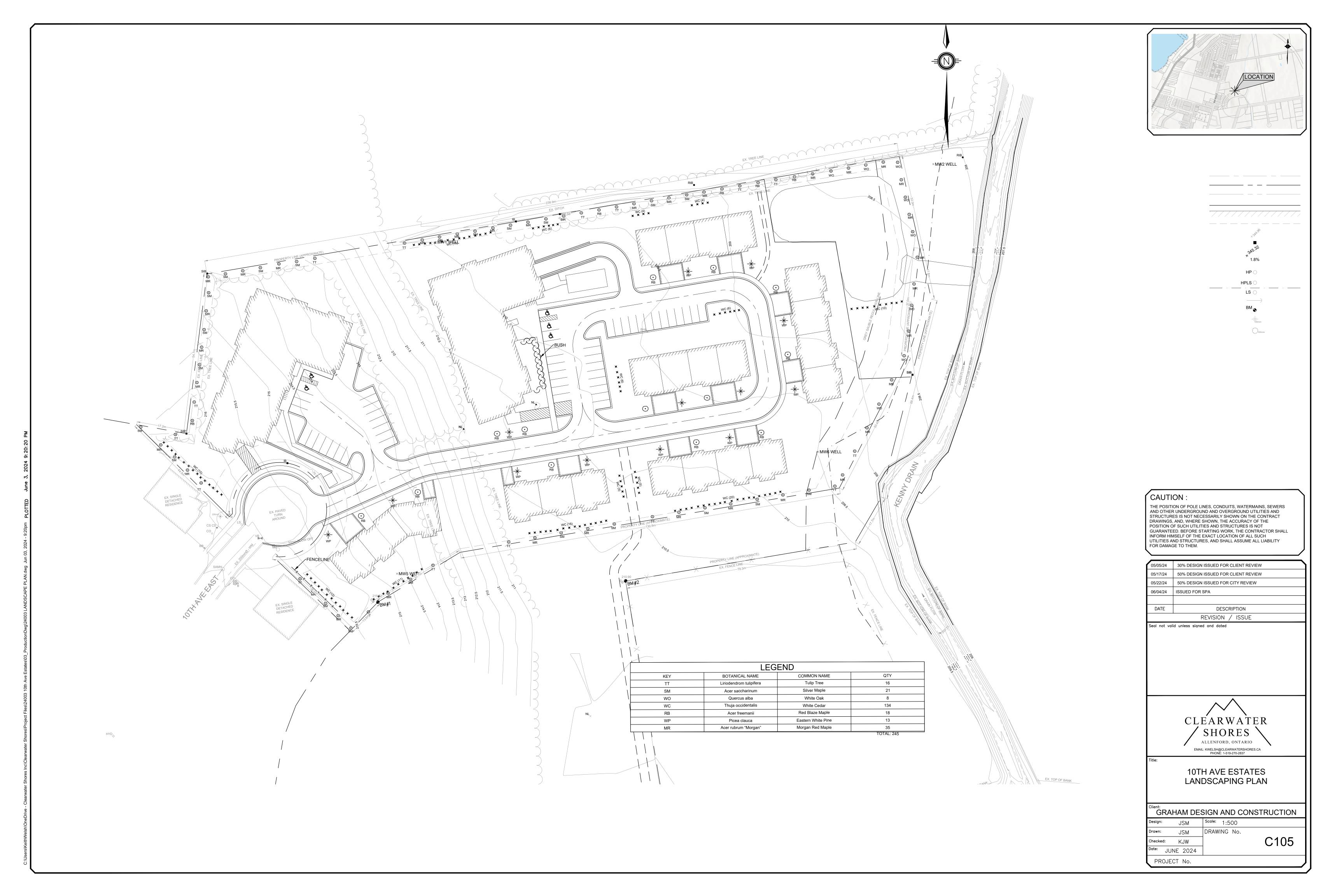
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	CLEARWATER

10TH AVE ESTATES STORM DRAINAGE CATCHMENT AREAS

GRAHAM DESIGN & CONSTRUCTION

Scale: 1:500 DRAWING No.

^{Date:} JUNE. 2024 PROJECT No.



1. GENERAL NOTES

- 1.1. ALL DIMENSIONS ARE IN METERS, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETERS, UNLESS SPECIFIED OTHERWISE.
- 1.2. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION, AND ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
- 1.3. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR
- 1.4. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE CITY OF OWEN SOUND STANDARDS AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS). WHERE CONFLICT OCCURS, THE CITY OF OWEN SOUND STANDARDS ARE TO GOVERN.
- 1.5. THE CITY OF OWEN SOUND, ALL APPROVAL AGENCIES AND THE ENGINEER MUST APPROVE ANY REVISIONS TO THE PLANS.
- 1.6. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING. ALL WORK RELATING TO WATERMAINS AND SEWERS TO BE INSPECTED BY THE CITY OF OWEN SOUND WHEN REQUIRED.
- 1.7. THE STANDARD DRAWINGS INCLUDED WITH THESE PLANS ARE PROVIDED FOR CONVENIENCE ONLY AND ARE NOT TO BE CONSTRUED TO BE A COMPLETE SET FOR THE PURPOSE OF THE CONTRACT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN
- 1.8. ALL TEMPORARY TRAFFIC CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT ONTARIO TRAFFIC MANUAL BOOK 7: TEMPORARY CONDITIONS FIELD EDITION.

ALL RELEVANT STANDARD DRAWINGS AND SPECIFICATIONS AS REQUIRED FOR THIS CONTRACT.

- 1.9. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS
- 1.10. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE IMMEDIATELY REPORTED TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
- 1.11. ALL BOULEVARDS AND DISTURBED AREAS TO BE SODDED OR SEEDED OVER A MINIMUM OF 150 mm OF SCREENED TOPSOIL OR
- 1.12. PAVED BOULEVARD AREAS TO BE REINSTATED WITH 50mm HL3 SURFACE COURSE ASPHALT AND 150 mm GRANULAR 'A' WHERE
- 1.13. A COPY OF THE "FOR CONSTRUCTION" PLAN ARE TO BE ON SITE FOR REFERENCE AT ALL TIMES DURING CONSTRUCTION.
- 1.14. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS
- 1.15. ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY AN O.L.S. AT THE CONTRACTORS EXPENSE IF REMOVED/DAMAGED
- DURING CONSTRUCTION.

 1.16. THE NOTES ON THIS SHEET APPLY TO ALL WORKS UNDER THIS CONTRACT UNLESS OTHERWISE NOTED ON THE PLAN AND PROFILE
- 1.17. MINIMUM VERTICAL SEPARATION OF 150 mm BETWEEN SEWERS AT CROSSINGS.

DRAWINGS AND/OR SPECIFIC DETAIL DRAWINGS.

- 1.18. ALL EXISTING WATERMAIN, STORM AND SANITARY PIPE, ASPHALT, CONCRETE, TOPSOIL AND EARTH EXCAVATION TO BE REMOVED TO A LOCATION AS APPROVED BY THE ENGINEER.
- 1.19. REFER TO GEOTECHNICAL INVESTIGATION REPORT PREPARED FOR ALL GEOTECHNICAL INFORMATION INCLUDING BUT NOT LIMITED TO REQUIREMENTS FOR COMPACTION, BACKFILL MATERIAL, BEDDING MATERIAL, GROUNDWATER, EXCAVATION, ETC.
- 1.20. THE EXISTING "STATIC" GROUND WATER ELEVATION WAS NOT ESTABLISHED AS PART OF THE SCOPE OF WORK COMPLETE BY CLEARWATER SHORES INCORPORTAED. IT IS STRONGLY RECOMMENDED THAT THE OWNER/DEVELOPER SHOULD LOCATE THE STATIC WATER TABLE PRIOR TO ANY CONSTRUCTION AND VERIFY THAT THE PROPOSED CONSTRUCTION IS NOT AFFECTED BY IT.

2. FIRE ROUTE (OBC)

PROJECT.

- 2.1. FOR A BUILDING NOT PROVIDED WITH A FIRE DEPARTMENT CONNECTION, A FIRE DEPARTMENT PUMPER VEHICLE CAN BE LOCATED SUCH THAT THE LENGTH OF THE ACCESS ROUTE FROM A HYDRANT TO THE VEHICLE PLUS THE UNOBSTRUCTED PATH OF TRAVEL FOR THE FIREFIGHTER FROM THE VEHICLE TO THE BUILDING IS NOT MORE THAN 90 m.
- 2.2. THE UNOBSTRUCTED PATH OF TRAVEL FROM THE VEHICLE TO THE BUILDING IS NOT MORE THAN 45 m.

3. WATERMAINS:

- 3.1. WATERMAIN SHALL BE DESIGNED IN ACCORDANCE WITH THE MINISTRY OF THE ENVIRONMENT GUIDELINES AND THE CITY OF OWEN
- 3.2. WATERMAIN SHALL BE A MINIMUM SIZE OF 150mm DIAMETER.

SOUND DESIGN CRITERIA.

TO OPSD 1104.010.

- 3.3. WATERMAIN SHALL BE POLYVINYL CHLORIDE (PVC) CLASS 150 DR-18 PIPE MANUFACTURED TO AWWA C900-89 AND CSA CAN3 B137.3-M1986 WITH GASKETED BELL END C/W #14 AWG SOLID COPPER TRACER WIRE.
- 3.4. TRACER WIRE TO BE 12 GAUGE, 7 STRAND, COPPER WITH PLASTIC COATING ATTACHED TO UNDERSIDE OF BOTTOM FLANGE OF HYDRANT. REFER TO THE CITY OF OWEN SOUND STANDARD DRAWINGS.
- 3.5. WATER SERVICE TO BE PE160 OR TYPE "K" SEAMLESS COPPER PIPE UNLESS OTHERWISE APPROVED BY THE CITY OF OWEN SOUND PUBLIC WORKS DEPARTMENT.
- 3.6. WATER SERVICE TO BE MIN. 25 mm DIAMETER PER OBC OR TO MATCH EXISTING, WHICHEVER IS GREATER, FOR RESIDENTIAL. REFER
- 3.7. WATERMAINS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 2.5 m AND VERTICAL SEPARATION OF 300mm OVER AND 500mm UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING. .ALL WATERMAINS AND SERVICES SHALL HAVE 1.7m MINIMUM COVER
- AS PER THE CITY OF OWEN SOUND STANDARDS.

 3.8. CLASS 'B' BEDDING AS PER OPSD-802.030 (RIGID PIPE) OR BEDDING AS PER OPSD-802.010 (FLEXIBLE PIPE) USING GRANULAR 'A'.
- 3.9. ALL WATERMAIN HORIZONTAL AND VERTICAL BENDS, JOINTS AND PLUGS TO BE MECHANICALLY RESTRAINED. THRUST BLOCKS/MECHANICAL RESTRAINERS MUST BE INSTALLED ON ALL WATERMAIN BENDS, TEES, AND PLUGS AS PER LOCAL MUNICIPAL STANDARDS.
- 3.10. CATHODIC PROTECTION (S-12 ZINC ANODES @ 30M SPACING) TO BE PROVIDED IN ACCORDANCE WITH OPSS-702 AS REQUIRED BY THE GEOTECHNICAL REPORT.
- 3.11. ALL WATERMAINS AND SERVICES SHALL BE BACKFILLED WITH APPROVED SITE MATERIAL. ALL BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY AS PER OPSS 514.
- 3.12. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50mm BLOW OFF UNLESS OTHERWISE NOTED.
- 3.13. HYDRANT AND VALVE TO BE CONSTRUCTED AS PER OPSD 1105.010.
- 3.14. ALL HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.15 m ABOVE PROPOSED FINISHED GRADE AT HYDRANT.
- 3.15. BUILDING SERVICE VALVES TO BE 3.0 m OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12 m BACK FROM STUB.
- 3.16. THE CONTRACTOR MUST GIVE MIN. 48 HOURS NOTICE TO THE CITY OF OWEN SOUND FOR OFFICIALS TO BE PRESENT FOR THE OPERATION OF VALVES, TESTING, DISINFECTION AND CONNECTION OF WATERMAIN AND TESTING OF SEWERS.
- 3.17. WATERMAINS SHALL BE SWABBED, FLUSHED, DISINFECTED AND TESTED IN ACCORDANCE WITH OPSS 701 WITH MUNICIPAL OFFICIALS
- 3.18. DISINFECTING OF WATERMAINS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF AWWA C651-05 SPECIFICATIONS.
- 3.19. PROVISIONS FOR FLUSHING WATERMAINS MUST BE PROVIDED WITH A MINIMUM 50 mm OUTLET FOR MAINS 100 mm AND LARGER. FLUSHING POINTS MATCHING THE SIZE OF THE PIPE MUST BE PROVIDED AT THE END OF EACH COPPER MAIN. FIRE MAIN FLUSHING OUTLETS TO BE 100 mm DIAMETER MINIMUM OR A HYDRANT. FLUSHING POINTS MUST BE HOSED OR PIPED TO ALLOW THE WATER TO
- 3.20. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH LOCAL MUNICIPAL AND PROVINCIAL GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.

- 3.21. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING MAINS IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATION.
- 3.22. ALL VALVES AT POINTS OF TERMINATION OF A STAGE OF CONSTRUCTION SHALL BE BRACED WITH TWO ADDITIONAL LENGTH OF WATERMAIN PIPE BEYOND THE GATE VALVE. WATERMAIN PIPE TERMINATION SHALL BE PLUGGED AND BRACED COMPLETE WITH A MINIMUM 50 mm BLOW OFF AS PER OPSD 1104.030.
- 3.23. WHERE VALVES ARE LOCATED WITHIN THE TRAVELED ROAD SURFACES, TOP OF THE VALVE BOX SHALL BE SET FLUSH WITH THE PAVED ROAD SURFACE AND A 0.50 m ASPHALT APRON PROVIDED IF LOCATED IN GRAVEL SHOULDERS.
- 3.24. HYDRANT LEADS SHALL BE 150 mm DIAMETER AND SHALL HAVE A SHUTOFF VALVE, PLACED 0.90 m FROM THE HYDRANT
- 3.25. HYDRANTS SHALL BE INSTALLED FOR A 2.0 m DEPTH OF TRENCH WITH PROVISION OF EXTENSION THAT THE SURFACE FOR ADJUSTMENT TO STREET LINE GRADES. HYDRANTS SHALL BE BEDDED IN 19 mm SCREENED CRUSHED STONE AND MECHANICALLY RESTRAINED TO THE SATISFACTION OF THE MUNICIPAL ENGINEER.
- 3.26. HYDRANTS SHALL BE PAINTED TO CONFORM TO THE CITY OF OWEN SOUND COLOURS.
- 3.27. DETAILS NOT REFERENCED IN THE ABOVE NOTES ARE SHOWN IN THE CITY OF OWEN SOUND STANDARD DRAWINGS.
- 3.28. THE DEVELOPER'S CONTRACTOR SHALL NOT OPERATE ANY VALVE OR HYDRANT ON THE EXISTING WATER DISTRIBUTION SYSTEM WITHOUT PRIOR APPROVAL OF THE CITY OF OWEN SOUND PUBLIC WORKS DEPARTMENT.

4. STORM SEWERS

- 4.1. ALL MATERIALS SHALL BE CSA CERTIFIED.
- 4.2. THE CITY OF OWEN SOUND MINIMUM FROST COVER REQUIREMENTS 1.5 m TO INVERT OF PIPE.
- 4.3. MANHOLES SHALL BE AS PER OPSD 701.010 AND OPSD 701.011; FRAMES AND COVERS SHALL BE AS PER OPSD 401.010. SAFETY PLATFORMS TO BE INSTALLED WHERE DEPTH EXCEEDS 5.0 m.
- 4.4. SINGLE CATCHBASINS WITH 300 mm SUMP SHALL BE AS PER OPSD 705.010, WITH FRAMES AND COVERS AS PER OPSD 400.020. DOUBLE CATCHBASINS SHALL BE AS PER OPSD 705.020.
- 4.5. ALL MANHOLE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY.
- 4.6. DROP STRUCTURES SHALL CONFORM WITH OPSD 1003.010 AND 1003.020.8.
- 4.7. MAINTENANCE HOLE AND CATCHBASIN COVERS SHALL BE SET ON A MINIMUM OF 50 mm AND A MAXIMUM OF 150 mm OF 'MODULOC' ADJUSTMENT RINGS. PRECAST CONCRETE ADJUSTMENT UNITS SHALL BE INSTALLED AS PER OPSD 704.010.
- 4.8. MAINTENANCE HOLES WITHIN THE TRAVELED PORTION OF THE ROADWAY MUST BE INITIALLY INSTALLED SUCH THAT THE COVER IS FLUSH WITH BASE COURSE ASPHALT AND RAISED TO BE FLUSH WITH THE FINISHED GRADE PRIOR TO THE PLACEMENT OF TOP COURSE ASPHALT. IN ACCORDANCE WITH OPSD 610.010.
- 4.9. CONCRETE PIPE SEWER BEDDING SHALL BE CLASS 'B' AS PER OPSD 802.030, PVC PIPE SEWER BEDDING SHALL BE CLASS 'B' AS PER OPSD 802.030 TO TOP OF SEWER. NATIVE BACKFILL TO BE COMPACTED TO A MIN. 98% STANDARD PROCTOR DENSITY, WITH A MINIMUM 300mm SAND COVER OVER PIPE.
- 4.10. ALL STORM SEWER PIPES UP TO 450mm DIA. SHALL BE PVC SDR-35 OR PROFILE (RIBBED) WITH BELL AND SPIGOT GASKETTED JOINTS CONFORMING TO OPSS.MUNI 1841, OR HIGH DENSITY PE WITH A SMOOTH INTERIOR HAVING A MANNINGS "N" < 0.013 AND BELL AND SPIGOT TYPE JOINTS CONFORMING TO OPSS.MUNI 1840 WITH A MINIMUM 320 KPa, AND MUST CONFORM TO OPSS.MUNI 410. ALL STORM SEWER PIPES 525mm DIA. AND LARGER SHALL BE CONCRETE AND EQUAL TO C.S.A. SPECIFICATIONS A257.2 REINFORCED CLASSES AS SPECIFIED (65-D, 100-D, 140-D,) OR LATEST AMENDMENT UNLESS OTHERWISE SPECIFIED.
- 4.11. ALL BLIND CONNECTIONS TO MATCH THE INVERT OF THE CATCH BASIN LEAD TO THE SPRINGLINE OF THE STORM PIPE. OTHERWISE INSTALL THE CATCH BASIN LEAD AT A MAXIMUM 2.00% AND DROP INTO PIPE.
- 4.12. UNLESS NOTED OTHERWISE, CATCHBASIN LEADS SHALL BE 250 mm Ø AT MINIMUM 1.00% SLOPE
- 4.13. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL STORM SEWERS, INCLUDING PICTORIAL REPORT, TWO (2) CD COPIES IN A FORMAT SATISFACTORY TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION.

5. SANITARY SEWERS:

- 5.1. THE CITY OF OWEN SOUND MINIMUM FROST COVER REQUIREMENTS 1.7m TO INVERT OF PIPE.
- 5.2. ALL MATERIALS SHALL BE CSA CERTIFIED.
- 5.3. SANITARY SEWERS SHALL BE DESIGNED IN ACCORDANCE WITH THE MINISTRY OF THE ENVIRONMENT GUIDELINES AND THE CITY OF OWEN SOUND DESIGN CRITERIA.
- 5.4. SANITARY SEWER SHALL BE PVC SDR 35 WITH RUBBER GASKET CONNECTIONS AND OF MINIMUM SIZE 200 mm DIAMETER, UNLESS OTHERWISE NOTED. HOUSE SERVICE CONNECTIONS SHALL BE PVC SDR 28 WITH RUBBER GASKET CONNECTIONS AND SHALL BE 125 mm MINIMUM DIAMETER FOR SINGLE DWELLING AND 150 mm DIAMETER FOR STACKED DWELLINGS.
- 5.5. PIPE SHALL BE A MINIMUM SIZE OF 200 mm DIAMETER, UNLESS OTHERWISE NOTED.
- 5.6. THE MINIMUM LATERAL SLOPE IS TO BE 2%, MAXIMUM 8% AS PER OPSD 1006.020.
- 5.7. THE SANITARY SERVICE CONNECTION SHALL BE LOCATED 1.5 m OFFSET FROM THE CENTRE OF THE LOT UNLESS OTHERWISE NOTED, AT A MINIMUM DEPTH OF 500 mm BELOW THE WATER SERVICE TO THE LOT AND AT A MAXIMUM DEPTH OF 2.5 m BELOW FINISHED GRADE AT SPECIFIED OFFSET FROM CONDO UNIT 3.
- 5.8. SERVICE CONNECTIONS SHALL BE A MINIMUM SIZE OF 100 mm DIAMETER FOR SINGLE RESIDENTIAL SERVICES.
- 5.9. SERVICE CONNECTIONS SHALL BE A MINIMUM SIZE OF 150 mm DIAMETER FOR MULTIPLE RESIDENTIAL, COMMERCIAL, INDUSTRIAL, CONDOMINIUM AND INSTITUTIONAL SERVICES.
- $5.10. \ \mathsf{SERVICE} \ \mathsf{CONNECTIONS} \ \mathsf{SHALL} \ \mathsf{BE} \ \mathsf{A} \ \mathsf{MINIMUM} \ \mathsf{GRADE} \ \mathsf{OF} \ \mathsf{2\%}, \ \mathsf{MAXIMUM} \ \mathsf{8\%} \ \mathsf{AS} \ \mathsf{PER} \ \mathsf{OPSD} \ \mathsf{1006.020}.$
- 5.11. SERVICE CONNECTIONS TO HAVE MINIMUM 1.5 m COVER. WHERE MINIMUM DEPTH OF COVER CANNOT BE ACHIEVED, PIPE INSULATION SHALL BE REQUIRED IN ACCORDANCE WITH THE CITY OF OWEN SOUND STANDARDS.
- 5.12. CONCRETE MAINTENANCE HOLES SHALL BE AS PER OPSD SECTION 700, AS SPECIFIED ON DESIGN DRAWINGS.
- 5.13. MAINTENANCE HOLE BENCHING SHALL BE IN ACCORDANCE WITH OPSD 701.021. PRE-BENCHED STRUCTURES TO BE USED WHERE POSSIBLE.
- 5.14. ALL SANITARY MAINTENANCE HOLE COVERS SHALL CONFORM TO OPSD 401.010 TYPE 'A' OPSD 401.030 FOR WATERTIGHT COVERS AND USE SELF LEVELING ASSEMBLY AS PER DETAIL ON C1001 OR C1002.
- 5.15. ALL SANITARY MANHOLE JOINTS ARE TO BE SEALED WITH DENSO TAPE FROM THE OUTSIDE.
- 5.16. MAINTENANCE HOLE STEPS SHALL BE AS PER OPSD 405.010 (HOLLOW ALUMINUM). MAINTENANCE HOLE SAFETY PLATFORMS SHALL BE AS PER OPSD 404.02 (ALUMINUM).
- 5.17. DROP STRUCTURES ARE REQUIRED WHERE THE INLET AND OUTLET INVERTS DIFFER BY MORE THAN 0.9 m. DROP STRUCTURES SHALL CONFORM WITH OPSD 1003.010 AND 1003.020. INTERNAL DROP STRUCTURES FOR EXISTING MANHOLES SHALL CONFORM WITH OPSD 1003.03
- 5.18. SEWER PIPE BEDDING SHALL BE CLASS 'B' BEDDING AS PER OPSD-802.010 USING GRANULAR 'A' COMPACTED TO 95% MAXIMUM DRY DENSITY. USE SELECTED SITE MATERIAL FOR BACKFILL COMPACTED TO 95% MAXIMUM DRY DENSITY. REFER TO GEOTECHNICAL RECOMMENDATIONS.
- 5.19. MAINTENANCE HOLE COVERS SHALL BE SET ON A MINIMUM OF 150 mm AND A MAXIMUM OF 300 mm OF ADJUSTMENT UNITS. PRECAST CONCRETE WITH SELF LEVELING ASSEMBLY ADJUSTMENT UNITS SHALL BE INSTALLED AS PER OPSD 704.010.
- 5.20. MAINTENANCE HOLES WITHIN THE TRAVELED PORTION OF THE ROADWAY MUST BE INITIALLY INSTALLED SUCH THAT THE COVER IS FLUSH WITH BASE ASPHALT ELEVATION AND RAISED TO BE FLUSH WITH THE FINISHED GRADE PRIOR TO THE PLACEMENT OF SURFACE ASPHALT WITH SELF LEVELING ASSEMBLY.
- 5.21. MAINTENANCE HOLES WILL BE TESTED IN ACCORDANCE WITH OPSS 407.

- 5.22. SANITARY SEWER SHALL BE TESTED IN ACCORDANCE WITH OPSS 410.
- 5.23. SEWER SERVICE CONNECTIONS SHALL CONFORM TO OPSD 1006.010 AND 1006.020 AND BE TESTED AS PER OBC 7.3.6.1.
- 5.24. ALL MANHOLE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY
- 5.25. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SANITARY SEWERS, INCLUDING PICTORIAL REPORT, TWO (2) CD COPIES IN A FORMAT SATISFACTORY TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION.
- 5.26. CLAY PLUGS SHALL BE PLACED IN SANITARY SEWER TRENCHES AT 50 m INTERVALS (TYP.) ALONG THE FULL LENGTH OF THE TRENCH, WHERE THE INVERT OF THE TRENCH IS BELOW THE WATER TABLE. THE PLUG SHALL BE AT LEAST 1.0 m THICK AND SHALL COMPLETELY REPLACE THE GRANULAR BEDDING AND BACKFILL. THE CLAY PLUGS MUST BE COMPACTED TO A MINIMUM OF 95 % SPMDD AS PER GEOTECHNICAL REPORT.

6. ROADS

- 6.1. ALL EXISTING ASPHALT, ASPHALT CURB, CONCRETE CURB AND SUBDRAIN WITHIN THE LIMITS OF THE CONTRACT TO BE REMOVED TO A SITE AS APPROVED BY THE ENGINEER. EXISTING GRANULAR BASE MAY BE USED FOR TRENCH BACKFILL IF APPROVED BY THE GEOTECHNICAL ENGINEER.
- 6.2. THE ROAD PAVEMENT STRUCTURE SHALL CONSIST OF THE FOLLOWING:
- 6.2.1. RESIDENTIAL ROAD

 40mm HL-3 ASHPHALT CEMENT

 50mm HL-4 ASHPHALT CEMENT

AND THE PROPERTY LINE.

96.5% OF THE MARSHALL DENSITY

150mm OPSS GRANULAR `A'

500mm OPSS GRANULAR `B' (TYPE-1)

- 6.3. SUBGRADE AND BOULEVARD MATERIAL TO BE COMPACTED TO A MINIMUM DRY DENSITY OF AT LEAST 100% SPMDD. SUBGRADE TO BE PROOF ROLLED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING GRANULAR 'B' ROAD BASE MATERIAL.
- 6.4. GRANULAR `A' AND `B' BASE TO BE COMPACTED TO 100% OF THE MATERIAL'S RESPECTIVE SPMDD.
- 6.5. THE ROAD BASE SHALL INCORPORATE 100 mm Ø SUBDRAINS WITH FACTORY INSTALLED FILTER FABRIC AS PER THE CITY OF OWEN SOUND STANDARDS. ALL SUBDRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSS 405. SUBDRAINS TO BE INSTALLED BELOW CURB IN 300 mm DEEP (BELOW SUBGRADE) GRANULAR 'A' TRENCH AND CONNECTED TO EACH CB OR CBMH AS PER OPSD 216.021.
- 6.6. ALL GRANULARS AND ASPHALT MATERIALS TO BE PLACED IN ACCORDANCE WITH OPSS 314 AND OPSS 310.
- 6.7. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ASPHALT JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT PRIOR TO PLACING NEW ASPHALT. HL4 SURFACE ASPHALT TO OVERLAP EXISTING ASPHALT BY A MINIMUM OF 600mm. TACK COAT TO BE APPLIED TO EXISTING ASPHALT SURFACES MEETING NEW ASPHALT.
- 6.8. THE ROAD MINIMUM STRUCTURE SHALL CONSIST OF THE FOLLOWING AND WILL BE CONFIRMED BY A SOILS CONSULTANT AND APPROVED BY THE TOWN
- 6.8.1. PROVIDE 0.50 m (MIN.) OPEN GRADED BASE MATERIAL IN ACCORDANCE WITH ASTM D 2940, CLEAR CRUSHED STONE 50 mm Ø
- WITH VOID RATE RATIO OF 0.40.
 6.8.2. GRANULAR BASE TO BE CRUSHED STONE CONFORMING TO ASTM C 33 NO. 57, CLEAN CRUSHED STONE 20 mm Ø, 100 mm THICK
- 6.8.3. BEDDING TO BE IN ACCORDANCE WITH ASTM C 33 NO. 8 THICKNESS BETWEEN 40 mm AND 75 mm, 5 mm Ø STONE.
 6.8.4. JOINT/CELL FILL MATERIAL TO BE ASTM NO. 8, 5 mm Ø STONE.
- 6.9. TWO STAGE CONCRETE CURB AND GUTTER CONFORMING TO OPSD 600.100 SHALL BE INSTALLED ALONG ALL EDGE OF THE ROADWAY PAVED SURFACE IN NEW DEVELOPMENTS. THE SECOND STAGE OF CURB CONSTRUCTION SHALL ONLY BE PERMITTED FOLLOWING THE SATISFACTORY INSPECTION OF THE BASE CURB AND ASPHALT BY THE MUNICIPAL ENGINEER.
- 6.10. ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE MUNICIPAL WORKS DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY WORK WITH THEIR RESPECTIVE RIGHT-OF-WAYS. A MINIMUM 48 HOUR NOTICE IS REQUIRED.
- 6.11. DRIVEWAY RAMPS BETWEEN BACK OF CURBS AND SIDEWALK, OR PROPERTY LINE WHERE THERE IS NO SIDEWALK, SHALL BE PAVED WITH 50mm HOT MIX ASPHALT HL3F (COMPACTED). DEVELOPER IS RESPONSIBLE TO PAVE THE DRIVEWAY BETWEEN THE SIDEWALK
- 6.12. CONCRETE SIDEWALK (1.5 m WIDE) SHALL BE CONSTRUCTED ON ONE SIDE OF RESIDENTIAL LOCAL STREETS, IN ACCORDANCE WITH OPSD 310.01 AND AS PER THE CITY OF OWEN SOUND STANDARD DRAWING.
- 6.13. RAMPS AND TACTILE PLATES SHALL BE PROVIDED AT ALL INTERSECTIONS OF CONCRETE SIDEWALK WITH CURB, AS PER OPSD 310.03
- 6.14. CONCRETE SIDEWALK SHALL HAVE A THICKNESS OF 125 mm AND A MINIMUM 100 mm THICKNESS OF GRANULAR 'A' BASE. EXPANSION

WITH THE 'ONTARIO TRAFFIC MANUAL - BOOK 5'. TRAFFIC CONTROL SIGNS WILL BE SUPPLIED AND INSTALLED BY THE DEVELOPER.

- JOINT MATERIAL IS TO BE BITUMINOUS IMPREGNATED FIBREBOARD.

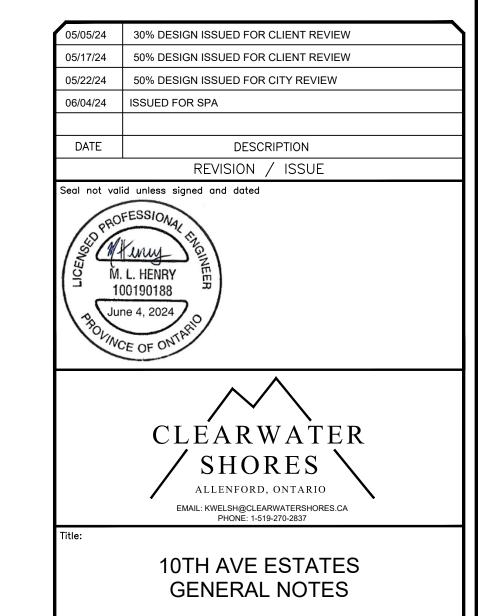
 6.15. TRAFFIC CONTROL SIGNS WILL BE PROVIDED AT LOCATIONS DESIGNATED BY THE MUNICIPALITY AND SHALL BE IN ACCORDANCE
- 6.16. FOLLOWING STRIPPING OF TOPSOIL AND DELETERIOUS MATERIALS FROM THE SITE, THE EXPOSED SUBGRADE AREA SHOULD BE PROOF-ROLLED AND INSPECTED BY A QUALIFIED GEOTECHNICAL INSPECTOR. ANY SOFT SPOTS ENCOUNTERED SHOULD BE EXCAVATED TO THE LEVEL OF COMPETENT SOIL.

AND ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES ACT (AODA), 2005.

- 6.17. REQUIRED GRADES CAN BE ACHIEVED BY PLACING APPROVED FILL SOILS IN MAXIMUM 200 mm TO 300 mm THICK LIFTS, COMPACTED TO 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD) IN ROADWAY AREAS AND TO 98% SPMDD UNDER THE FUTURE
- 6.18. THE LIMIT OF THE ENGINEERED FILL TO BE PLACED TO SUPPORT FUTURE STRUCTURAL LOADS AND FOUNDATIONS SHOULD EXTEND
- 6.19. THE ROADWAY SUB-GRADE SHALL BE SHAPED TO CONFORM TO THE REQUIRED LONGITUDINAL GRADE AND CROSS-SECTION AND SHALL HAVE A CROSSFALL OF 2.0% FROM THE CENTRELINE OF THE ROADWAY TO EACH SIDE.

HORIZONTALLY A DISTANCE AT LEAST EQUAL TO THE DEPTH OF FILL TO BE PLACED BENEATH THE STRUCTURES.

- 6.20. REQUIRED ROADWAY GRADES CAN BE ACHIEVED BY PREPARING THE SUBGRADE AS PER THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT, FOLLOWED BY UNIFORM PLACEMENT OF SUB-BASE AND BASE MATERIALS IN ACCORDANCE WITH CURRENT OPSS SPECIFICATIONS. AND COMPACTION TO 100% SPMDD.
- 6.21. ALL BACKFILLING AND COMPACTION OPERATIONS SHOULD BE SUPERVISED BY QUALIFIED GEOTECHNICAL INSPECTORS TO APPROVE MATERIAL AND ENSURE THE SPECIFIED DEGREE OF COMPACTION HAS BEEN OBTAINED.
- 6.22. THE ASPHALTIC CONCRETE SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH OPSS 310, AND IS TO BE BETWEEN 92% AND



GRAHAM DESIGN AND CONSTRUCTION

Design: JSM Scale:

Drawn: JSM DRAWING No.

Checked: KJW

Date: JUNE 2024

Coale:

Checked: C106

PROJECT No. 24003.000

