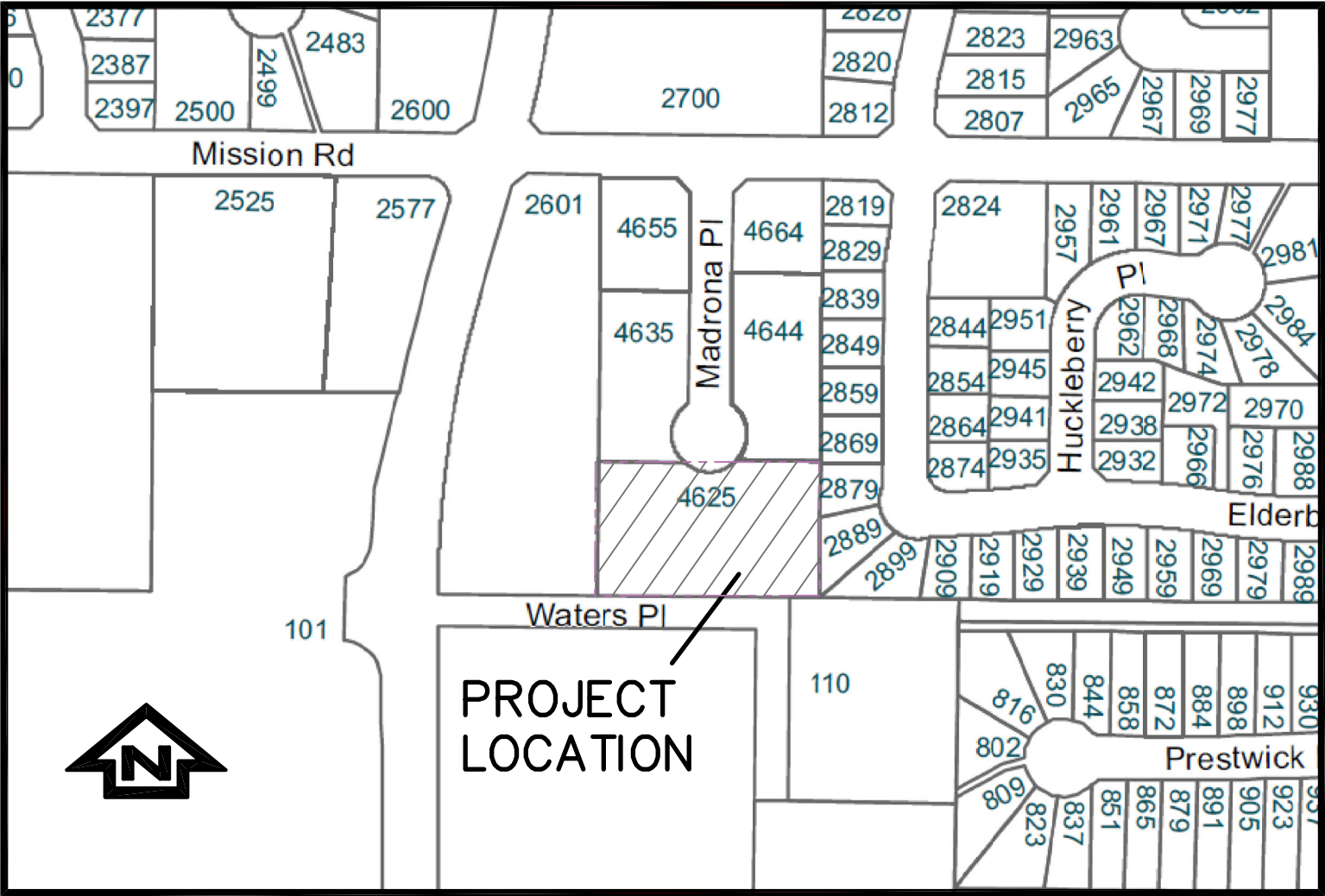


COURTENAY, BC



SITE LOCATION PLAN
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Drawing Index:

| Drawing No. | Issue | Title of Drawing |
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| V22-0522/A-00 | C | COVER AND SITE LOCATION PLAN |
| V22-0522/A-01 | C | KEY PLAN |
| V22-0522/A-02 | C | SITE SERVICING |
| V22-0522/A-03 | C | STORMWATER MANAGEMENT AND GRADING PLAN |
| V22-0522/A-04 | C | EROSION AND SEDIMENT CONTROL PLAN |
| V22-0522/A-05 | C | GENERAL NOTES, STORM CALCULATIONS AND MISCELLANEOUS DETAILS |
| V22-0522/A-06 | C | EMERGENCY 100-YEAR OVERFLOW ROUTE |

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Project:
COMMERCIAL DEVELOPMENT
4625 MADRONA PLACE

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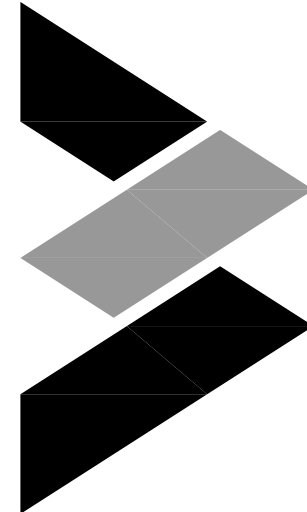
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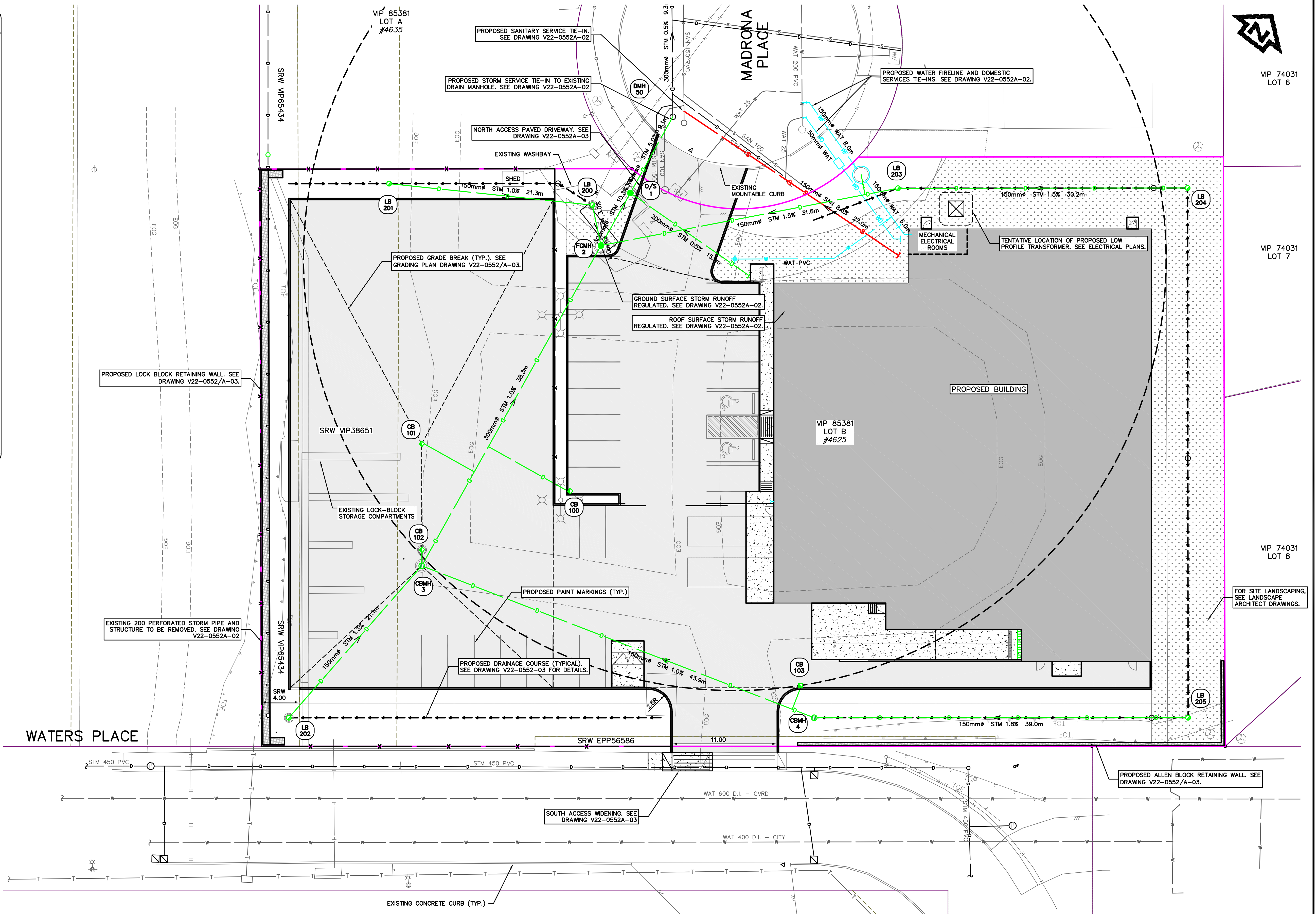
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Date: SEPTEMBER 2022
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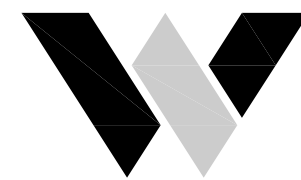
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| EXISTING | PROPOSED | |
| □ | ○ | CLEANOUT |
| ○ | ○ | CATCHBASIN-SQUARE GRATE |
| ○ | ○ | LAWN BASIN-ROUND GRATE |
| ○ | ○ | CATCHBASIN MANHOLE |
| ○ | ○ | STORM MANHOLE |
| ○ | ○ | SANITARY MANHOLE |
| — | — | DRAINAGE COURSE |
| — | — | SLOPE |
| — | — | STORM |
| — | — | SANITARY |
| — | — | WATER |
| WM | WM | WATER METER |
| — | — | CAP |
| — | — | GATE VALVE |
| — | — | HYDRANT |
| — | — | TELEPHONE/CABLE |
| — | — | GAS |
| — | — | UNDERGROUND ELECTRICAL |
| — | — | POWER POLE / ANCHOR |
| — | — | STREET LIGHT |
| — | — | SIGN |
| — | — | EDGE OF GRAVEL |
| — | — | EDGE OF PAVEMENT |
| — | — | FENCE LINE |
| — | — | IRON PIN |
| — | — | LOT LINE |
| — | — | CONTOURS |
| — | — | ASPHALT |
| — | — | BUILDING |
| — | — | CONCRETE |



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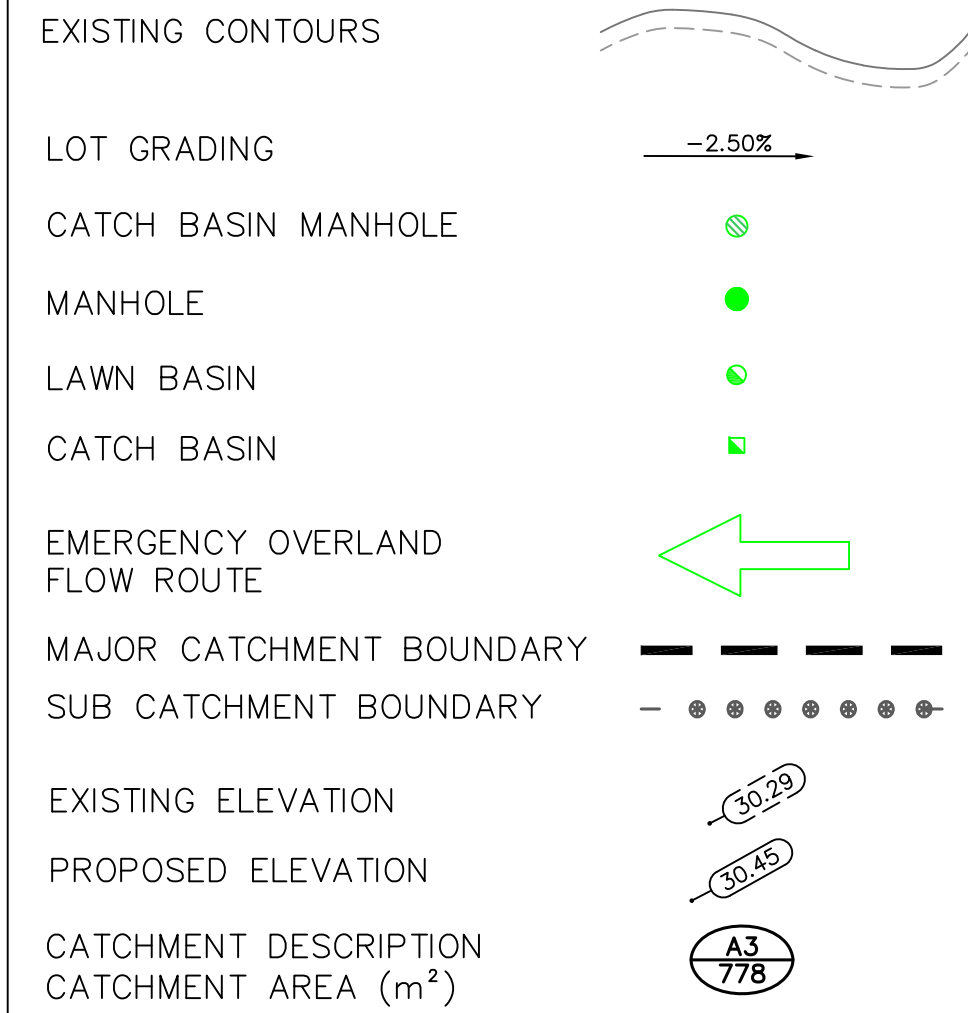
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| COURTENAY, BC | |
| KEY PLAN | |

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| MH | Details |
| 3 | RIM EL = 90.56 |
| | 1050mmø |
| | INV (S) = 89.32 |
| | INV (E) = 89.52 |
| 4 | INV (NW) = 89.25 |
| | INV (N) = 89.32 |
| | RIM EL = 91.35 |
| | 1050mmø |
| 205 | INV (NE) = 90.01 |
| | INV (W) = 89.96 |
| | RIM EL = 91.51 |
| | 600mmø |
| | INV (SW) = 90.71 |

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STORMWATER MANAGEMENT PLAN LEGEND



STORMWATER MANAGEMENT NOTES

MANAGEMENT OF ON-SITE STORMWATER SHALL BE ACHIEVED BY FOLLOWING CITY OF COURTENAY SERVICING STANDARDS.

MINOR EVENT STORMWATER RUNOFF ON LANDSCAPED AND HARDSCAPED AREAS SHALL BE DIRECTED TO FRENCH DRAINS OR STORMWATER STRUCTURE INLETS.

STORMWATER COLLECTED ON ROOFS OF BUILDINGS SHALL BE CONVEYED THROUGH ROOF LEADERS INTO THE STORMWATER SYSTEM. SITE STORMWATER SHALL BE DETAINED IN IN-GROUND STORMWATER DETENTION SYSTEMS AND PEAK RELEASE RATES SHALL BE RESTRICTED TO THE 100-YEAR RETURN PERIOD PRE-DEVELOPMENT LEVELS.

BUILDING 1 FOUNDATION DRAIN SHALL BE TIED INTO DMH 11. BUILDING 2 FOUNDATION DRAIN SHALL BE TIED INTO STORM PIPE UPSTREAM OF DMH 11. BUILDING 3 FOUNDATION DRAIN SHALL BE TIED INTO LAWN BASIN 21.

PROPOSED OFFSITE PAVED AREAS SHALL BE GRADED SO THAT RUNOFF FLOWS TO AND IS COLLECTED BY CATCH BASINS. ALL ON AND OFFSITE CATCH BASINS AND LAWN BASINS SHALL BE INSTALLED WITH SUMPS.

PARKING STALL AREAS SHALL BE DIRECTED THROUGH AN OIL/SILT SEPARATOR. THE OIL/SILT SEPARATOR SHALL BE MAINTAINED PER MANUFACTURER'S RECOMMENDATIONS.

PROVIDE REGULAR MONITORING OF ALL LAWN DRAINS, CATCH BASINS AND MANHOLES.

INSPECT SUMPS ON A REGULAR (MINIMUM ONCE PER YEAR) BASIS. CLEANING SHOULD OCCUR WHEN MONITORING INDICATES SUMPS ARE FILLING.

FOR PROPOSED ROAD STRUCTURE AND TRENCH BACKFILL MATERIALS, SEE GEOTECHNICAL REPORT BY MGLHANNEY: GEOTECHNICAL ASSESSMENT, FILE 2211-80402-00, DATED FEBRUARY 4, 2000

STORAGE REQ'D TO MEET PRE-CONSTRUCTION RELEASE RATE

| FACILITY | STORAGE (m ³) |
|-------------------|---------------------------|
| ROOF | 6.6 |
| PARKING LOT/PIPES | 13.8 |
| TOTAL | 20.4 |

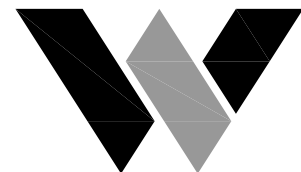
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WATERS PLACE

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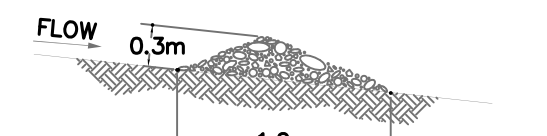
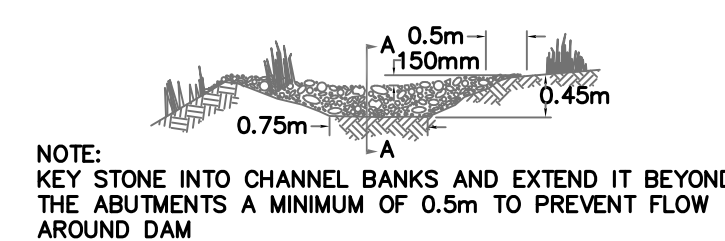
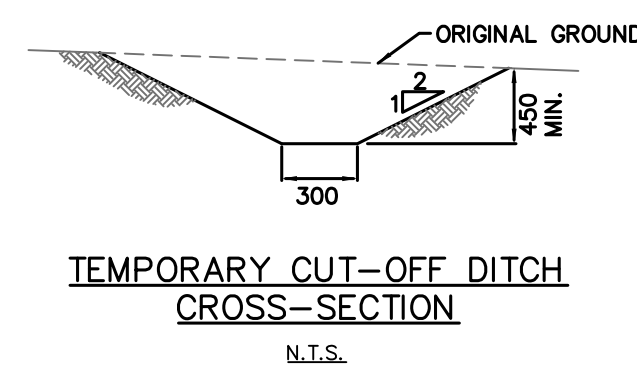
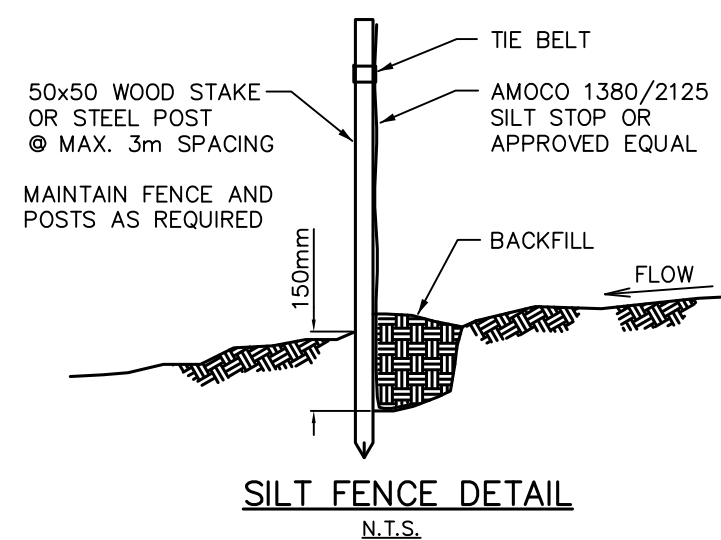
STORMWATER MANAGEMENT AND GRADING PLAN

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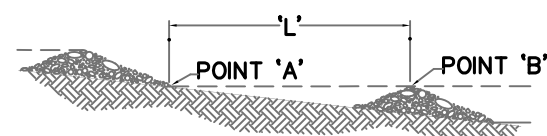
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SECTION A - A

'L' = THE DISTANCE SUCH THAT POINTS 'A'
AND 'B' ARE OF EQUAL ELEVATION.



PERIMETER CUTOFF DITCH c/w
ROCK CHECK DAMS

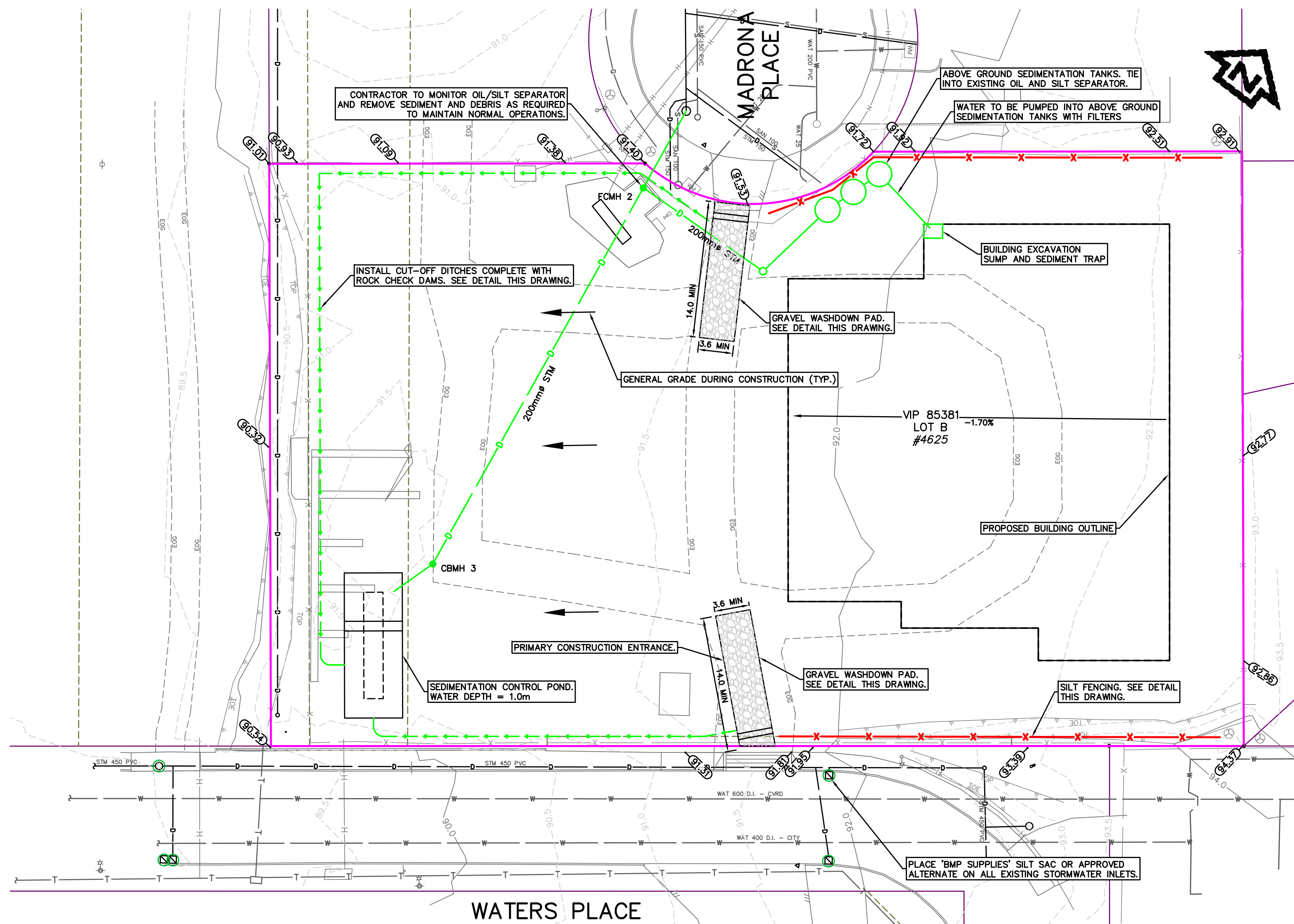
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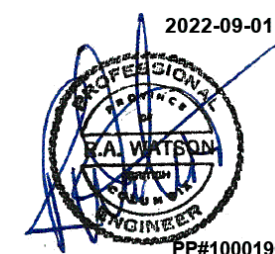
1. ALL WORK IS TO BE UNDERTAKEN AND COMPLETED BY THE CONTRACTOR IN SUCH MANNER AS TO PREVENT THE RELEASE OF SILT, SEDIMENT OR SEDIMENT LADEN WATER, CONCRETE OR CONCRETE LEACHATE, OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY STORM SEWER, LAWN DRAIN, SOAK-AWAY, DRY WELL OR WATERCOURSE. (SEDIMENT LADEN WATER MAY BE DISCHARGED TO STORM SYSTEMS THAT ARE USED TO CONVEY FLOWS TO A SEDIMENT MANAGEMENT FACILITY).
2. INSTALL TEMPORARY PIPES, SWALES, CULVERTS, ETC. AS REQUIRED TO DIRECT SEDIMENT LADEN FLOWS TO SEDIMENT MANAGEMENT FACILITIES. REMOVE TEMPORARY WORKS WHEN NO LONGER NEEDED. BACKFILL WITH MATERIALS AND LEVELS OF COMPACTION AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
3. TO PREVENT EROSION:
 - a. PREVENT CONCENTRATED OVERLAND FLOWS FROM OCCURRING.
 - b. COVER STOCKPILES, EXPOSED EARTH AND DISTURBED AREAS WITH STRAW OR BY OTHER COVERINGS.
 - c. LIMIT CLEARING AS MUCH AS POSSIBLE TO AREAS TO BE IMMEDIATELY WORKED.
4. PREVENT WIND BLOWN EROSION BY WATERING, COVERING EXPOSED EARTH OR BY OTHER APPROVED MEASURES.
5. CONTRACTOR TO INSTALL EROSION & SEDIMENT MANAGEMENT WORKS BEFORE ANY OTHER WORK, INCLUDING CLEARING AND EARTHWORKS, AS REQUIRED.
6. ALL EROSION & SEDIMENT MANAGEMENT WORKS TO BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES TO ASSURE PROPER OPERATION. REPLACEMENT OF FENCES AND/OR BERMS, THE FLUSHING OF SEWERS AND THE CLEANING OF SUMPS MAY BE REQUIRED DURING THE COURSE OF CONSTRUCTION.
7. REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT FROM SEDIMENT MANAGEMENT FACILITIES ON OR BEFORE SEDIMENT REACHING ONE THIRD THE HEIGHT OF THE FACILITY.
8. MONITOR EROSION AND SEDIMENT MANAGEMENT WORKS AT LEAST ONCE PER WEEK AND AFTER HEAVY RAIN OR SNOW MELT EVENTS.
9. BEFORE CONSTRUCTION ACTIVITIES, CONTRACTOR TO CLEAN EXISTING SUMPS AND FIT EXISTING CATCH BASINS & LAWN DRAINS WITH A FILTERXZ INLET SOXX OR APPROVED EQUIVALENT TO PREVENT SEDIMENT FROM ENTERING ANY STORM SYSTEMS. DO NOT USE FLYER FABRIC. ALL EROSION & SEDIMENT MANAGEMENT WORKS ARE TO REMAIN IN PLACE UNTIL BUILDING ACTIVITIES ARE 90% COMPLETE, AND UNTIL VEGETATION HAS DEVELOPED ON EXPOSED AND DISTURBED AREAS WHICH CONTRIBUTE FLOWS TO THE EROSION & SEDIMENT MANAGEMENT WORKS.
11. DEVELOPMENT PERMIT HOLDER (THROUGH THE CIVIL CONTRACTOR) SHALL BE RESPONSIBLE TO PROVIDE EROSION AND SEDIMENT CONTROL AS NECESSARY TO PREVENT THE RELEASE OF SEDIMENT OR SEDIMENT LADEN WATERS FROM ENTERING THE CITY DRAINAGE SYSTEM.
12. THE DEVELOPER SHALL DESIGNATE AN EROSION AND SEDIMENT CONTROL MONITOR TO BE RESPONSIBLE FOR THE INSPECTION AND DIRECTION OF REQUIRED MAINTENANCE OF THE IMPLEMENTED EROSION AND SEDIMENT CONTROL MEASURES.
13. THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THIS PLAN ARE THE MINIMUM LEVEL OF CONTROLS REQUIRED FOR THIS PROJECT.
14. CONTRACTOR AND BUILDER MUST SWEEP AND CLEAN PAVED OFFSITE ACCESS ROADS OF AT THE END OF EACH WORK DAY. NO SOIL OR SEDIMENTS SHALL BE DEPOSITED OR STORED OUTSIDE THE PROPERTY BOUNDARIES. WASHING OF ROADWAYS IS NOT PERMITTED.
15. DEVELOPER IS TO ENSURE THAT THE BUILDER IS MADE AWARE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND OF THEIR RESPONSIBILITY TO MAINTAIN DURING CONSTRUCTION AS DIRECTED BY THE DEVELOPER'S EROSION AND CONTROL MONITOR.

PROPOSED SEQUENCE OF CONSTRUCTION TO FACILITATE SILT CONTROL

1. INSTALL 'BMP SUPPLIES' SILT SAC OR APPROVED ALTERNATE ON ALL EXISTING STORMWATER INLETS.
2. INSTALL GRAVEL WASHDOWN PAD.
3. INSTALL PROPOSED STORM WORKS AS SHOWN.
4. INSTALL 'BMP SUPPLIES' SILT SAC OR APPROVED ALTERNATE ON ALL NEW CB MANHOLES.
5. CONSTRUCT CUTOFF DITCHES.
6. CONSTRUCT SEDIMENTATION POND
7. INSTALL ABOVE GROUND SEDIMENTATION TANKS.
8. EARTHWORK OPERATIONS SHALL BE CONDUCTED IN SUCH A WAY THAT EXPOSED UNPROTECTED AREAS ARE MINIMIZED. TEMPORARY STOCKPILES OF MATERIAL AND ANY EXPOSED SLOPES SHALL BE COVERED WITH STRAW, WOOD CHIPS OR OTHER COVERINGS TO PREVENT SOIL EROSION. EXPOSED AREAS WHICH WILL BE DORMANT FOR A PERIOD OF LONGER THAN 30 DAYS SHALL BE SEEDED AND STABILIZED WITH NATIVE VEGETATIVE SPECIES.



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EROSION AND SEDIMENT CONTROL PLAN

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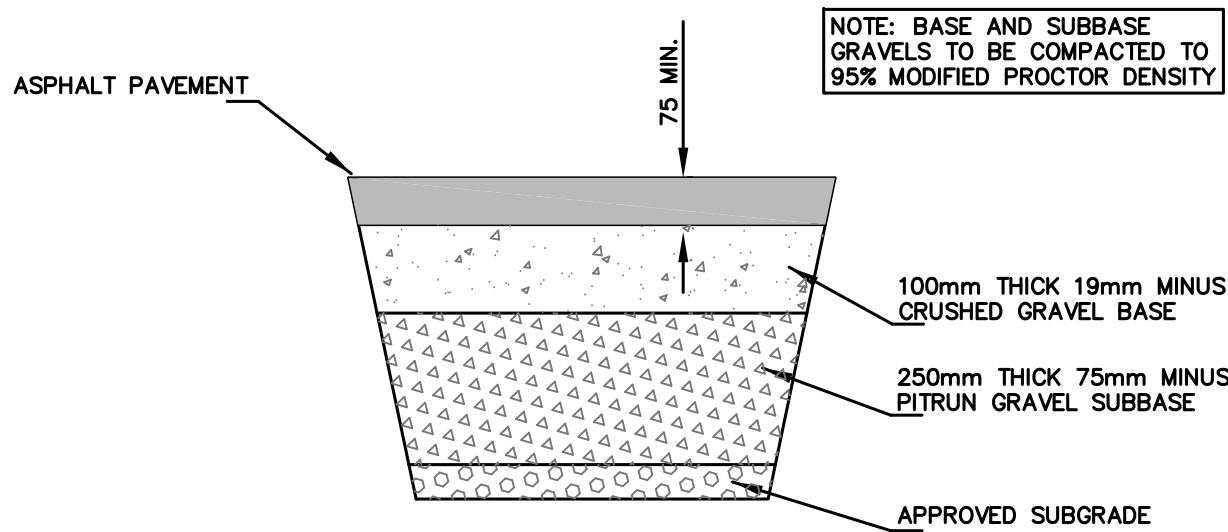
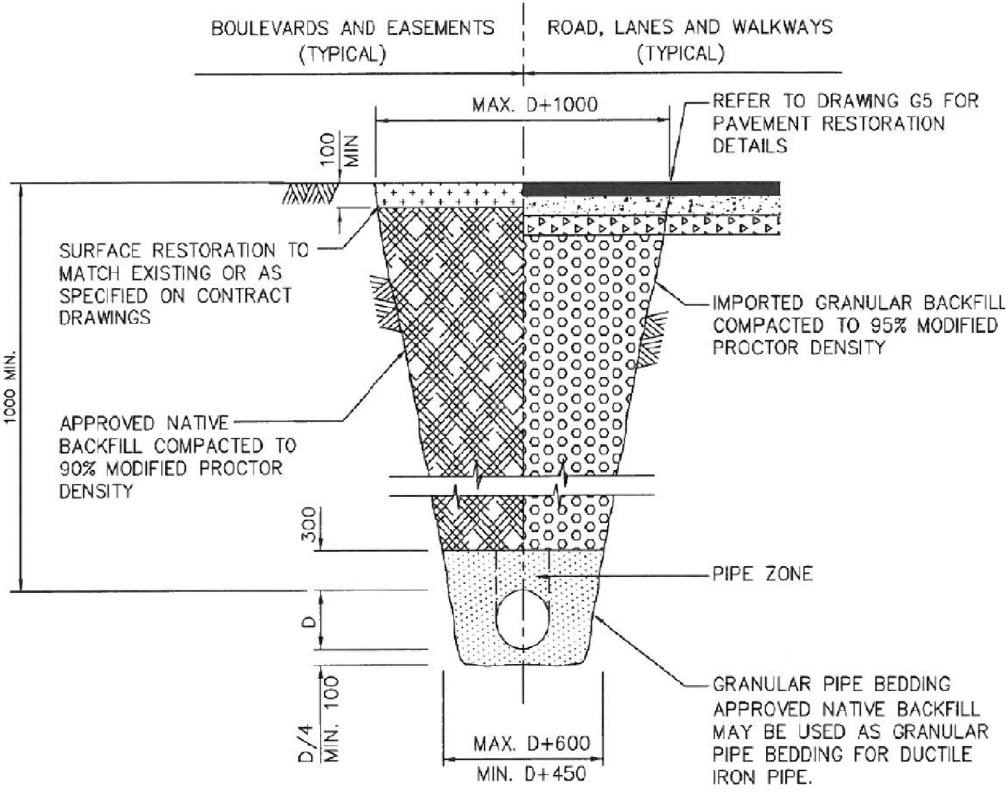
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GENERAL NOTES

- ALL WORKS, MATERIALS AND TESTING SHALL BE IN ACCORDANCE WITH THE CURRENT CITY OF COURTENAY SUBDIVISION AND DEVELOPMENT SERVICING BYLAW 2919 AND THE CURRENT ISSUE OF THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS. ALL TESTING SHALL BE PERFORMED BY A CERTIFIED TESTING COMPANY AT EXPENSE TO THE CONTRACTOR.
- ALL DIMENSIONS AND ELEVATIONS ARE METRIC.
- INFORMATION ON THE DRAWINGS REGARDING EXISTING UTILITIES WAS COMPILED FROM MUNICIPAL RECORD DRAWINGS, CONSTRUCTION DRAWINGS AND FIELD SURVEYS. THIS INFORMATION IS NOT NECESSARILY ACCURATE OR COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DATA BY EXPOSURE PRIOR TO ANY CONSTRUCTION AND TO IMMEDIATELY REPORT ANY DISCREPANCIES TO THE ENGINEER IF REMEDIAL ACTION IS REQUIRED. ANY CLAIMS RESULTING FROM THE CONTRACTOR'S FAILURE TO DO SO SHALL BE AT THE CONTRACTOR'S EXPENSE.
- PRIOR TO ANY WORKS, THE CONTRACTOR SHALL ASCERTAIN FOR HIMSELF OF THE EXACT LOCATION OF BOUNDARIES OF LEGAL PROPERTIES, RIGHT-OF-WAYS OR EASEMENTS. ANY COST RESULTING FROM SPECIAL CONSTRUCTION METHODS, EQUIPMENT OR MATERIALS REQUIRED TO PERFORM ANY WORKS FORMING PART OF THIS CONTRACT WITHOUT ENCRDACHING ON OR CAUSING DAMAGE TO OTHER PROPERTY, SHALL BE INCLUDED IN THE CONTRACT PRICE AND NO ADDITIONAL PAYMENT WILL BE MADE FOR SUCH WORKS.
- THE CONTRACTOR SHALL PHOTOGRAPH, PRIOR TO CONSTRUCTION, ANY EXISTING FEATURES TO BE DISTURBED. THE CONTRACTOR SHALL RESTORE ALL DISTURBED PAVEMENT, CURBS, SIDEWALKS, LANDSCAPING, FENCES OR ANY OTHER FEATURES, INCLUDING MUNICIPAL AND THIRD PARTY UTILITIES INFRASTRUCTURE, AFFECTED BY THE CONSTRUCTION WORKS TO ORIGINAL CONDITIONS OR BETTER, AND TO THE SATISFACTION OF THE CONSULTANT AND THE CITY OF COURTENAY.
- THE CONTRACTOR MUST CONTACT THE CITY OF COURTENAY & WEDLER ENGINEERING PRIOR TO CONSTRUCTION TO SCHEDULE A PRE-CONSTRUCTION MEETING DURING WHICH CONSTRUCTION METHODS, TIMING AND INSPECTIONS WILL BE DISCUSSED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT.
- CHANGES TO THE DESIGN MUST BE REVIEWED AND APPROVED IN WRITING BY WEDLER ENGINEERING AND THE CITY OF COURTENAY. FAILURE TO DO SO IN ADVANCE OF CHANGES MAY RESULT IN REJECTION OF WORK.
- ALL MATERIALS TO BE SUPPLIED BY THE CONTRACTOR. SUBSTITUTION OF ANY MATERIAL SPECIFIED WITH A MATERIAL EQUAL OR BETTER IN QUALITY OR PERFORMANCE WILL BE PERMITTED ONLY WITH THE REVIEW AND EXPRESS WRITTEN APPROVAL OF BOTH THE CITY OF COURTENAY AND WEDLER ENGINEERING.
- THE CONTRACTOR SHALL NOTIFY WEDLER ENGINEERING A MINIMUM OF 48 HOURS PRIOR TO REQUIRED INSPECTIONS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
 - MOBILIZATION
 - DURING PIPE LAYING
 - DURING PREPARATION OF PAVEMENT STRUCTURE
 - DURING CONSTRUCTION OF DETENTION FACILITIES
 - TESTING OF ALL UTILITIES
 - AFTER COMPLETION OF ALL WORK
- TRENCHES ACROSS EXISTING PAVEMENT, CURBS, SIDEWALK AND BOULEVARDS SHALL BE REINSTATED IN COMPLIANCE WITH THE MUNICIPAL SPECIFICATIONS AND STANDARD DRAWINGS AND RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
- ALL EARTHWORKS, MATERIALS, SUBGRADE AND PAVEMENT STRUCTURE TO BE APPROVED BY A GEOTECHNICAL ENGINEER, AND TO COMPLY WITH THE GEOTECHNICAL SITE ASSESSMENT PREPARED BY SIMPSON GEOTECHNICAL LTD.
- GEOTECHNICAL ENGINEER TO REVIEW AND APPROVE ALL EARTHWORKS. THE CONTRACTOR SHALL NOT BEGIN BACKFILL OPERATIONS UNTIL THE EXCAVATION WORKS AND SUB-GRADE COMPACTION HAVE BEEN APPROVED BY THE GEOTECHNICAL ENGINEER.
- THE CONTRACTOR SHALL MAINTAIN ALL MUNICIPAL ROADS PROVIDING ACCESS TO THE CONSTRUCTION SITE AND ARRANGE FOR ADEQUATE STREET CLEANING DURING TIMES OF CONSTRUCTION.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ACCESS TO EXISTING BUSINESSES AND RESIDENCES AT ALL TIMES. ANY DISRUPTIONS THAT ARE UNAVOIDABLE WILL REQUIRE A MINIMUM OF 48 HOUR NOTICE. SINGLE LANE TRAFFIC MUST BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL AT ALL TIMES IMPLEMENT AND MAINTAIN ADEQUATE TRAFFIC CONTROL TO ENSURE THE CONVENIENCE AND SAFETY OF THE TRAVELING PUBLIC, THE SAFETY OF THE WORKERS ON THE PROJECT AND THE PROTECTION OF THE WORK TO THE SATISFACTION OF WEDLER ENGINEERING AND THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL APPROPRIATE MEASURES TO ENSURE THE SAFETY OF PEDESTRIANS AND CYCLISTS, AND THE SECURITY OF THE WORK AREA DURING CONSTRUCTION. ALL EXCAVATION LEFT OPEN DURING NON-CONSTRUCTION AND UNSUPERVISED PERIODS SHALL BE ADEQUATELY FENCED AND BARRIERED.
- THE CONTRACTOR SHALL BE REGISTERED WITH THE WORKERS COMPENSATION BOARD AND PROVIDE CLEARANCE LETTER TO THE CITY OF COURTENAY.
- THE CONTRACTOR SHALL RECORD ON A CURRENT SET OF PLANS IN A NEAT MANNER, ALL CHANGES ADDITIONS AND DELETIONS TO REFLECT THE "AS CONSTRUCTED" INSTALLATION. THE SET OF PLANS SHALL BE RETURNED TO WEDLER ENGINEERING AT THE COMPLETION OF THE WORKS AND PRIOR TO THE ISSUANCE OF SUBSTANTIAL PERFORMANCE.
- ALL SERVICE TRENCHES AND BACKFILLING SHALL BE CONSTRUCTED TO MMCD DRAWING G4. GRANULAR PIPE BEDDING MATERIAL SHALL BE PER MMCD STANDARDS SECTION 31 05 17 - 2.7.
- CONTRACTOR TO CALL 'BC ONE ALL' TO LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR ASSUMES 'PRIME CONTRACTOR' STATUS FOR THE DURATION OF CONSTRUCTION.
- ALL WORKS ARE TO BE INSTALLED UNDER THE DIRECTION OF AN ENVIRONMENTAL MONITOR AND ARE TO MITGATE MIGRATION OF SILTS/SANDS BY AIR, WATER, VEHICLE OR EQUIPMENT.
- A CITY OF COURTENAY TREE CUTTING PERMIT IS REQUIRED PRIOR TO THE REMOVAL OF ANY TREES.
- TRAFFIC PLAN REQUIRED FOR MOBILIZATION AND USE OF EQUIPMENT, AND FOR PEDESTRIAN CONTROL/ACCESS DURING WALKWAY CLOSURES.
- ANY DAMAGES TO THE CITY'S INFRASTRUCTURE MUST BE REPORTED BY THE CONTRACTOR TO THE PUBLIC WORKS YARD AND TO THE ENGINEER OF RECORD IMMEDIATELY.
- PRIOR TO CONSTRUCTION WITHIN THE CITY ROAD RIGHT OF WAY, CONTRACTOR TO OBTAIN A CITY CONSTRUCTION PERMIT.
- THE CONTRACTOR'S 'AS-CONSTRUCTED' DRAWING MARKUPS TO SHOW STRUCTURAL FILL WHERE PLACED IN DEPTHS 0.6m OR GREATER AS REQUIRED WITHIN BUILDING ENVELOPE AND ROAD RIGHT-OF-WAY.

UTILITY TRENCH DETAIL PER MMCD DWG G4 N.T.S.



TYPICAL PAVEMENT STRUCTURE N.T.S.

STORM


- ALL STORM SEWER PIPE AND FITTINGS SHALL CONFORM TO CURRENT MMCD SPECIFICATIONS AND THE CURRENT CITY OF COURTENAY SUBDIVISION AND DEVELOPMENT SERVICING BYLAW 2919.
- ALL STORM SEWER PIPE SHALL BE PVC AND SHALL CONFORM TO ASTM D3034 MIN. CLASS DR35 STANDARDS. PIPE LESS THAN 200mm DIAMETER IS TO BE DR28. ALL PIPE SHALL BE JOINTED WITH RUBBER GASKETS OR GASKETED FITTINGS OR COUPLINGS.
- ALL STORM SEWER PIPE SHALL HAVE A MINIMUM COVER OF 1.0m FROM PIPE OBVERT TO FINAL GRADE. ANY STORM SEWER PIPE WITHOUT MINIMUM COVER SHALL BE INSULATED TO MANUFACTURER'S SPECIFICATIONS.
- HORIZONTAL DEFLECTION OF STORM SEWER PIPE NOT TO EXCEED ONE-HALF OF MANUFACTURER'S RECOMMENDATION.
- ALL SERVICE TRENCHES AND BACKFILLING TO BE CONSTRUCTED PER MMCD DRAWING # G4 SPECIFICATIONS.
- ALL MANHOLES TO BE PRECAST CONCRETE PER MMCD DRAWING # S1 SPECIFICATIONS.
- CONNECTION TO THE EXISTING MAIN SHALL BE COMPLETED UNDER THE SUPERVISION OF THE CITY.
- CONTRACTOR TO PERFORM VIDEO INSPECTION ON ALL STORM SEWER PIPES & MANHOLES INSTALLED PRIOR TO PAVING OR COMMISSION OF THE SYSTEM.

SANITARY

- ALL SANITARY SEWER PIPE AND FITTINGS SHALL CONFORM TO CURRENT MMCD SPECIFICATIONS AND THE CURRENT CITY OF COURTENAY SUBDIVISION AND DEVELOPMENT SERVICING BYLAW 2919.
- ALL SANITARY DRAINAGE PIPE 100mm AND 150mm DIAMETER MUST BE SDR 28.
- ALL SANITARY SEWER PIPE SHALL BE PVC AND SHALL CONFORM TO ASTM D3034 MIN. CLASS DR35 STANDARDS. PIPE LESS THAN 200mm DIAMETER IS TO BE DR28. ALL PIPE SHALL BE JOINTED WITH RUBBER GASKETS OR GASKETED FITTINGS OR COUPLINGS.
- ALL SANITARY SEWER PIPE SHALL HAVE A MINIMUM COVER OF 1.0m FROM PIPE OBVERT TO FINAL GRADE. ANY SANITARY SEWER PIPE WITHOUT MINIMUM COVER SHALL BE INSULATED TO MANUFACTURER'S SPECIFICATIONS.
- HORIZONTAL DEFLECTION OF SANITARY SEWER PIPE NOT TO EXCEED ONE-HALF OF MANUFACTURER'S RECOMMENDATION.
- ALL SERVICE TRENCHES AND BACKFILLING TO BE CONSTRUCTED PER MMCD DRAWING # G4 SPECIFICATIONS.
- CONNECTION TO THE EXISTING MAIN SHALL BE COMPLETED UNDER THE SUPERVISION OF THE CITY.
- CONTRACTOR TO PERFORM VIDEO INSPECTION ON ALL SANITARY SEWER PIPES & MANHOLES INSTALLED PRIOR TO PAVING OR COMMISSION OF THE SYSTEM.

WATER

- ALL WATER PIPE AND FITTINGS SHALL CONFORM TO CURRENT MMCD SPECIFICATIONS AND THE CURRENT CITY OF COURTENAY SUBDIVISION AND DEVELOPMENT SERVICING BYLAW 2919.
- ALL WATERMAIN PIPE SHALL HAVE A MINIMUM COVER OF 1.0m BETWEEN PIPE OBVERT AND FINAL GRADE. WHERE MINIMUM COVER CANNOT BE MET WATER MAIN TO BE CONCRETE ENCASED PER MMCD DWG G7. CROSSINGS OF SEWERS BELOW MINIMUM COVER SHALL BE PER MMCD DWG G6.
- ALL SERVICE TRENCHES AND BACKFILLING TO BE CONSTRUCTED PER MMCD DRAWING # G4 SPECIFICATIONS.
- ALL WATERMAIN PIPE SHALL BE DR-18 PVC TO AWWA C900, CSA 137.3, CLASS 1035 UNLESS NOTED OTHERWISE.
- ALL WATERMAIN FITTINGS SHALL BE CAST IRON TO AWWA C110 STANDARDS OR INJECTION MOULDED PVC TO AWWA C907.
- ALL WATERMAIN FITTINGS ON SITE TO HAVE MECHANICAL JOINT RESTRAINTS OR CONCRETE THRUST BLOCKS PER CITY OF COURTENAY SUPPLEMENTARY SPECIFICATIONS. ALL WATERMAIN FITTINGS OFF SITE TO BE RESTRAINED BY MECHANICAL RESTRAINTS ONLY WITHOUT THE USE OF CONCRETE THRUST BLOCKS.
- ALL INSTALLED WATER PIPE SHALL BE PRESSURE TESTED PER MMCD SECTION 33 11 01.
- ALL INSTALLED WATER PIPE SHALL BE DISINFECTED, FLUSHED & BACTERIOLOGICALLY TESTED PER MMCD SECTION 33 11 01.
- MINIMUM VERTICAL SEPARATION BETWEEN A WATERMAIN AND ANY STORM OR SANITARY PIPE SHALL BE 0.45m. WHERE WATERMAIN CROSSINGS OF SANITARY/STORM OCCUR, WRAP ALL WATERMAIN, STORM AND SANITARY JOINTS INCLUDING TEES, BENDS, REDUCERS, VALVES, CROSSES ETC WITHIN 3.0m OF CROSSING. JOINT WRAP TO AWWA/ANSI C209 (CANUS 'JointWrap' COLD APPLIED JOINT SLEEVE OR APPROVED ALTERNATE).
- CONNECTION TO THE EXISTING MAIN SHALL BE COMPLETED UNDER THE SUPERVISION OF THE CITY. CONTRACTOR TO PREPARE AND SUBMIT A WATER TIE-IN SEQUENCE/METHODOLOGY PLAN TO THE PROJECT ENGINEER FOR SUBMISSION TO THE CITY FOR APPROVAL, PRIOR TO SCHEDULING TIE-IN WORKS.

|  | | DRAINAGE SYSTEM DESIGN - CALCULATION SHEET | | | | | | | | | | | | | | | | | | | | |
|---|--------|--|--------------------------|---------------|------|------------------|---------------|---------------|-------------------|------------|---|----------|------------|-------|------------------|------------|-------------|----------|-----------|------------|------------|-----|
| Client: | | Bartle and Gibson Co. Ltd. | | | | | | Date: | 8/22/2022 | | | | | | | | | | | | | |
| Project: | | 4625 Madrona Place | | | | | | Date Printed: | 8/31/2022 | | DESIGN RETURN PERIOD: 10 year / 100 year | | | | | | | | | | | |
| Project #: | | V22-0552A | | | | | | By: | TJD | | Commercial Development Environment Canada "Courtenay Puntledge VCHP ID: 1021990" IDF Data used for calculations +15% Increase from Historical Intensities | | | | | | | | | | | |
| Pipe Run Info | | | Drainage Area Parameters | | | | IDF Info. | | Flow Calculations | | Pipe Design | | | | | | | | | | | |
| Manhole | Length | Catchment | Catch. Area | Runoff Coeff. | R*A | Cumulative (R*A) | Cumulative Tc | Intensities | | 100 year | 100 year | Diameter | Pipe Rough | Slope | Pipe at Capacity | | Time | Qcap-Q10 | Qcap-Q100 | % Capacity | % Capacity | |
| From | To | (m) | (m²) | R | (m²) | (m²) | (minutes) | I10 (mm/hr) | I100 (mm/hr) | Q10 (m³/s) | Q100 (m³/s) | D (mm) | n | S (%) | Qcap (m³/s) | Vcap (m/s) | t (minutes) | (m³/s) | (m³/s) | (%) | (%) | |
| LB205 | CBMH4 | 39 | A9 | 227 | 0.20 | 45 | 5.00 | 82.40 | 149.00 | 0.001 | 0.002 | 150 | 0.013 | 1.8 | 0.020 | 1.16 | 0.56 | 0.019 | 0.019 | 5 | 9 | |
| CBMH4 | CBMH3 | 44 | A10, A11 | 335 | 0.42 | 141 | 186 | 5.56 | 78.31 | 140.95 | 0.004 | 0.007 | 150 | 0.013 | 1.00 | 0.015 | 0.86 | 0.85 | 0.011 | 0.008 | 27 | 48 |
| LB204 | LB203 | 30 | A8 | 236 | 0.20 | 47 | 5.00 | 82.40 | 149.00 | 0.001 | 0.002 | 150 | 0.013 | 1.50 | 0.019 | 1.06 | 0.47 | 0.018 | 0.017 | 6 | 10 | |
| LB203 | FCMH2 | 32 | A7 | 391 | 0.20 | 78 | 125 | 5.47 | 78.92 | 142.13 | 0.003 | 0.005 | 150 | 0.013 | 1.50 | 0.019 | 1.06 | 0.51 | 0.016 | 0.014 | 15 | 27 |
| LB201 | LB200 | 21 | A1 | 99 | 0.20 | 20 | 20 | 5.00 | 82.40 | 149.00 | 0.000 | 0.001 | 150 | 0.013 | 1.00 | 0.015 | 0.86 | 0.41 | 0.015 | 0.014 | 3 | 5 |
| LB200 | FCMH2 | 4 | A2 | 73 | 0.20 | 15 | 34 | 5.41 | 79.38 | 143.06 | 0.001 | 0.001 | 150 | 0.013 | 3.00 | 0.026 | 1.49 | 0.04 | 0.026 | 0.025 | 3 | 5 |
| ROOF1 | OS 1 | 18 | A12 | 1,582 | 0.90 | 1,424 | 1,424 | 5.00 | 82.40 | 149.00 | 0.033 | 0.059 | 200 | 0.013 | 2.00 | 0.046 | 1.48 | 0.20 | 0.014 | -0.013 | 70 | 127 |
| LB202 | CBMH3 | 21 | A5 | 253 | 0.20 | 51 | 51 | 5.00 | 82.40 | 149.00 | 0.001 | 0.002 | 150 | 0.013 | 1.30 | 0.017 | 0.98 | 0.36 | 0.016 | 0.015 | 7 | 12 |
| CBMH3 | FCMH2 | 38 | A3, A4, A6 | 2,600 | 0.90 | 2,340 | 2,577 | 5.36 | 79.74 | 143.75 | 0.057 | 0.103 | 300 | 0.013 | 1.00 | 0.097 | 1.37 | 0.46 | 0.040 | -0.006 | 59 | 106 |
| FCMH2 | OS 1 | 6 | - | - | - | - | 4,001 | 5.32 | 76.64 | 137.67 | 0.085 | 0.153 | 300 | 0.013 | 10.31 | 0.310 | 4.39 | 0.02 | 0.225 | 0.158 | 27 | 49 |
| OS 1 | DMH50 | 9 | - | - | - | - | 4,160 | 5.84 | 76.50 | 137.39 | 0.088 | 0.159 | 300 | 0.013 | 5.00 | 0.216 | 3.06 | 0.05 | 0.128 | 0.057 | 41 | 73 |

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|----------|---|----------------------------------|------------|--------------|--|-------------------|--|------------------|--|-----------------|--|---------------|--|--|
| LEGAL: | A | ISSUED FOR DEVELOPMENT PERMIT | 2022-02-28 | TJD | | | | | | | | | | |
| | B | RE-ISSUED FOR DEVELOPMENT PERMIT | 2022-03-30 | TJD | | | | | | | | | | |
| | C | RE-ISSUED FOR DEVELOPMENT PERMIT | 2022-09-01 | TJD | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| BM/ TBM: | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| LOT B | | PID 027-585-166 | | CIVIC: #4625 | | GNSS OBSERVATIONS | | ELEV'S REF'D TO: | | V. DATUM CGVD28 | | | | |
| REV | | DESCRIPTION | | YYYY-MM-DD | | BY | | REV | | DESCRIPTION | | YYYY-MM-DD BY | | |



| | |
|---------------|-------|
| PROJ. MGR. | RAW |
| DESIGN/DRAWN | TJD |
| PEER REVIEWED | RAW |
| HORIZ. SCALE | 1:200 |
| VERT. SCALE | - |



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COMMERCIAL DEVELOPMENT - 4625 MADRONA PLACE
COURTENAY, BC

GENERAL NOTES, STORM CALCULATIONS
AND MISCELLANEOUS DETAILS

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| DRAWING NO. | OF 6 |
| V22-0552/A-05 | |
| LOCAL GOVERNMENT FILE | |
| PHASE | REVISION |
| | C |

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| LEGAL: | A | ISSUED FOR DEVELOPMENT PERMIT | 2022-02-28 | TJD | | | | |
| | B | RE-ISSUED FOR DEVELOPMENT PERMIT | 2022-03-30 | TJD | | | | |
| | C | RE-ISSUED FOR DEVELOPMENT PERMIT | 2022-09-01 | TJD | | | | |
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| LOT B VIP85381 PID 027-585-166 CIVIC: #4625 | | | | | | | | |
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| GNSS OBSERVATIONS ELEV'S REF'D TO: V. DATUM CGVD28 | | | | | | | | |
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| | | | | | | | | |
| BM/ TBM: | REV | DESCRIPTION | YYYY-MM-DD | BY | REV | DESCRIPTION | YYYY-MM-DD | BY |



| | |
|---------------|--------|
| PROJ. MGR. | RAW |
| DESIGN/DRAWN | TJD |
| PEER REVIEWED | RAW |
| HORIZ. SCALE | N.T.S. |
| VERT. SCALE | - |



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| V22-0552/A-06 | |
| LOCAL GOVERNMENT FILE | |
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