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CoreGroup CONSULTANTS | **Design** | **Planning** | **Interior** | **Construction** | **Surveying** | **Engineering** | **Architecture** | **Environmental** | **Geotechnical** | **Water** | **Energy** | **Transportation** | **Urban** | **Industrial** | **Marine** | **Aviation** | **Healthcare** | **Education** | **Government** | **Private** | **Public** | **Non-Profit** | **International**

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Service Plan

scale: 1:200
 date: 2013.08.26
 drawn: S.R.
 checked: C.N.
 project no: 12-110
 drawing no:

GENERAL NOTES:

- CALL BC ONE-CALL 24 HOURS PRIOR TO CONSTRUCTION.
- UTILITY TRENCH WIDTH VARIES WITH DIAMETER AND DEPTH OF UTILITY PIPE TO BE INSTALLED. MINIMUM WIDTH TYPICALLY 600mm.
- THESE DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER CIVIL AND OTHER DISCIPLINE'S DRAWINGS.
- ALL EX. VALVES TO BE ADJUSTED TO SUIT NEW GRADES AND REPLACED WITH SQUARE ROBAR VALVE BOXES SUPPLIED BY DOBNEY OR APPROVED EQUIVALENT. VALVE # TO BE MARKED WITH GREASE PEN.
- COORDINATE ALL EXCAVATIONS CLOSE TO BUILDINGS WITH SHORING PLANS BY GEOTECH.

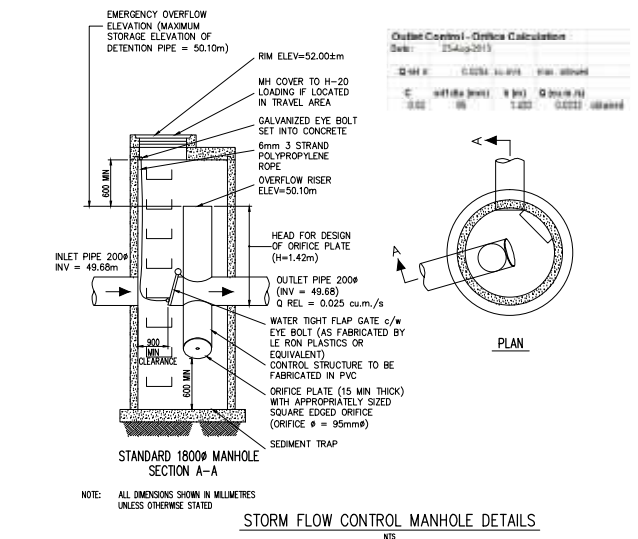
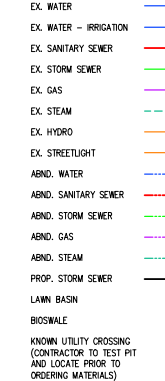
WATER NOTES:

- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH MMCD AND UBC SPECIFICATIONS.
- WATERMAIN TO HAVE MIN. 1.0m COVER.
- MAX DEPTH OF VALVE NUTS TO BE 600mm FROM FINAL GRADE.
- PIPE BEDDING SHALL BE GRANULAR PIPE BEDDING AND SURROUND MATERIAL CONFORMING TO MMCD CLAUSE 2.7, SECTION 02226.
- PIPE BACKFILL SHALL BE 100mm PIT RUN GRAVEL MATERIAL CONFORMING TO MMCD CLAUSE 2.3, SECTION 02226.
- ALL PIPE TO BE CLASS 50 DUCTILE IRON MANUFACTURED TO ANWA C15; CEMENT MORTAR LINED TO ANWA C104 AND COATED 1 MIL. THICK ASPHALT.
- PRESSURE AND BACTERIOLOGICAL TESTING TO BE DONE BY CONTRACTOR PRIOR TO TIE-IN AND ACCEPTANCE BY UBC UTILITIES. ASSUMED TEST PRESSURE OF 1380 kPa (200 psi).
- WATER MAIN OR SERVICE PIPE WALLS TO HAVE WRAPPED JOINTS PER LOCAL & MUNICIPAL HEALTH STANDARDS IF CLOSER THAN 0.5m VERTICAL OR 3.0m HORIZONTAL TO SANITARY OR STORM MAIN PIPE WALLS.
- VALVE, VALVE BOXES, COMPONENTS & HYDRANTS TO BE PER UBC TECHNICAL GUIDELINES SECTION 0266, CLAUSE 2.7 AND 2.8. CIRCULAR VALVE BOXES SHALL BE NELSON TYPE PER TERMINAL CITY OF DOBNEY FOUNDRY. VALVE BOX RISER PIPE TO BE 150# PVC DR35.
- ALL WATER MAIN JOINTS TO BE RESTRAINED.
- ALL WATER MAIN FITTINGS TO BE INSTALLED WITH 0.5m² CONCRETE THRUST BLOCKS WITH MIN BEARING AREA OF 0.5m² ON COMPACTED TRENCH WALL.
- ALL TESTING TO BE DONE AND APPROVED BEFORE BACKFILLING PIPE.
- WHERE CONTROLLED DENSITY FILL (CDF) OR CONCRETE IS USED, 6 MIL POLY BARRIER TO BE PLACED BETWEEN CDF/CONCRETE AND WATER MAIN/FITTINGS.
- WATER VALVE NUTS TO BE RAISED MAX. 600mm BELOW FINAL GRADE.
- FITTINGS SHALL BE DUCTILE IRON TO ANWA C10 SUITABLE FOR PRESSURE RATING OF 2,415 kPa. CEMENT MORTAR LINED TO ANWA C104. MINIMUM DESIGN PRESSURE FOR PIPING 1,210 kPa.
- CIRCULAR VALVE BOXES SHALL BE NELSON TYPE AS MANUFACTURED BY TERMINAL CITY OR DOBNEY FOUNDRY. VALVE BOX RISER PIPE TO BE 150mm # PVC DR35.
- WATER SERVICE TO ALL BUILDINGS TO BE MAINTAINED, SHUT OFFS TO BE COORDINATED WITH UBC UTILITIES AND BUILDING TENANTS.
- WATER SHUTDOWNS ARE MOST LIKELY TO BE ON WEEKENDS. ALL WEEKEND WORK IS TO BE INCLUDED IN THE CONTRACT.
- CHANGES TO PIPE INVERTS TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.

STORM & SANITARY SEWER NOTES:

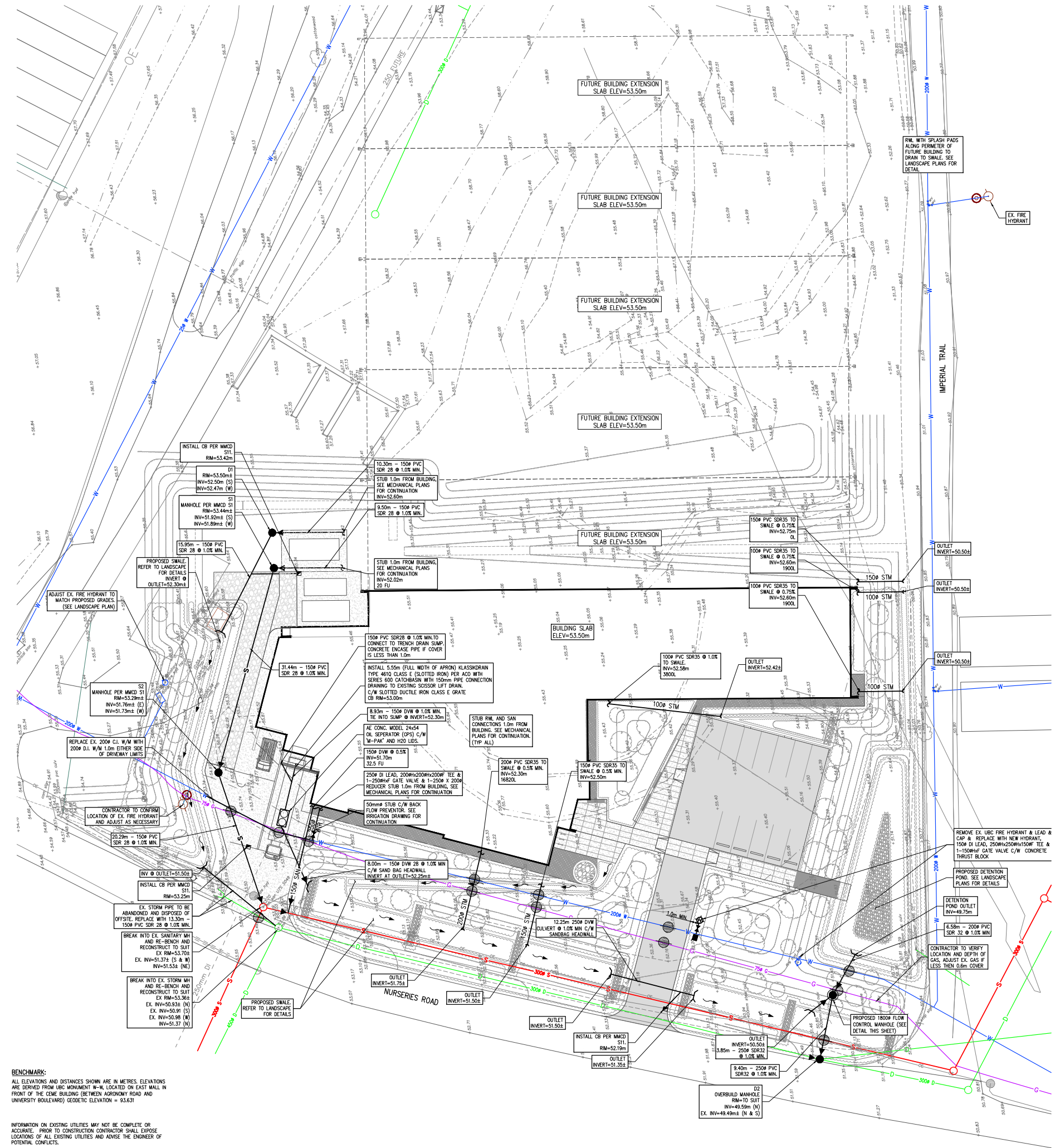
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT UBC AND MMCD SPECIFICATIONS.
- PIPE BEDDING SHALL BE GRANULAR PIPE BEDDING AND SURROUND MATERIAL CONFORMING TO MMCD CLAUSE 2.7, SECTION 02226.
- PIPE BACKFILL SHALL BE 100mm PIT RUN GRAVEL MATERIAL CONFORMING TO MMCD CLAUSE 2.3, SECTION 02226.
- MINOR (5 YEAR) AND MAJOR (100 YEAR) HYDRAULIC GRADE LINES ARE WITHIN THE STORM SEWER PIPES, UNLESS NOTED OTHERWISE.
- ALL PIPE UP TO AND INCLUDING 375mm# PVC PIPE TO UBC SPECIFICATIONS AS FOLLOWS:
 - 150mm# & SMALLER SDR28
 - 200mm# TO 375mm# SDR35
- ALL PIPES SHALL HAVE CLOSED JOINTS.
- PIPE TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS FOR PIPE DEPTH AND SLOPE FOR SOIL CONDITIONS.
- ALL SANITARY AND STORM SEWER MANHOLES TO BE 150mm# WITH MARKINGS PER UBC REQUIREMENTS UNLESS OTHERWISE NOTED.
- ALL CATCH BASIN LEADS SHALL HAVE A MINIMUM OF 1.0% GRADE.
- ALL STORM MANHOLES TO BE BENCHED UNLESS NOTED OTHERWISE.
- STORM MANHOLES 6m DEEP OR DEEPER TO HAVE PLATFORM INSTALLED HALF-WAY DOWN BARREL PER DETAIL THIS SHEET.
- CONTRACTOR TO CONFIRM ANY FOUNDATION STABILIZATION REQUIREMENTS OF EXISTING STRUCTURES IN TRENCHING AREA WITH GEOTECHNICAL ENGINEER.
- MANHOLE RIM ELEVATIONS TO BE PER LANDSCAPE DWGS.

LEGEND



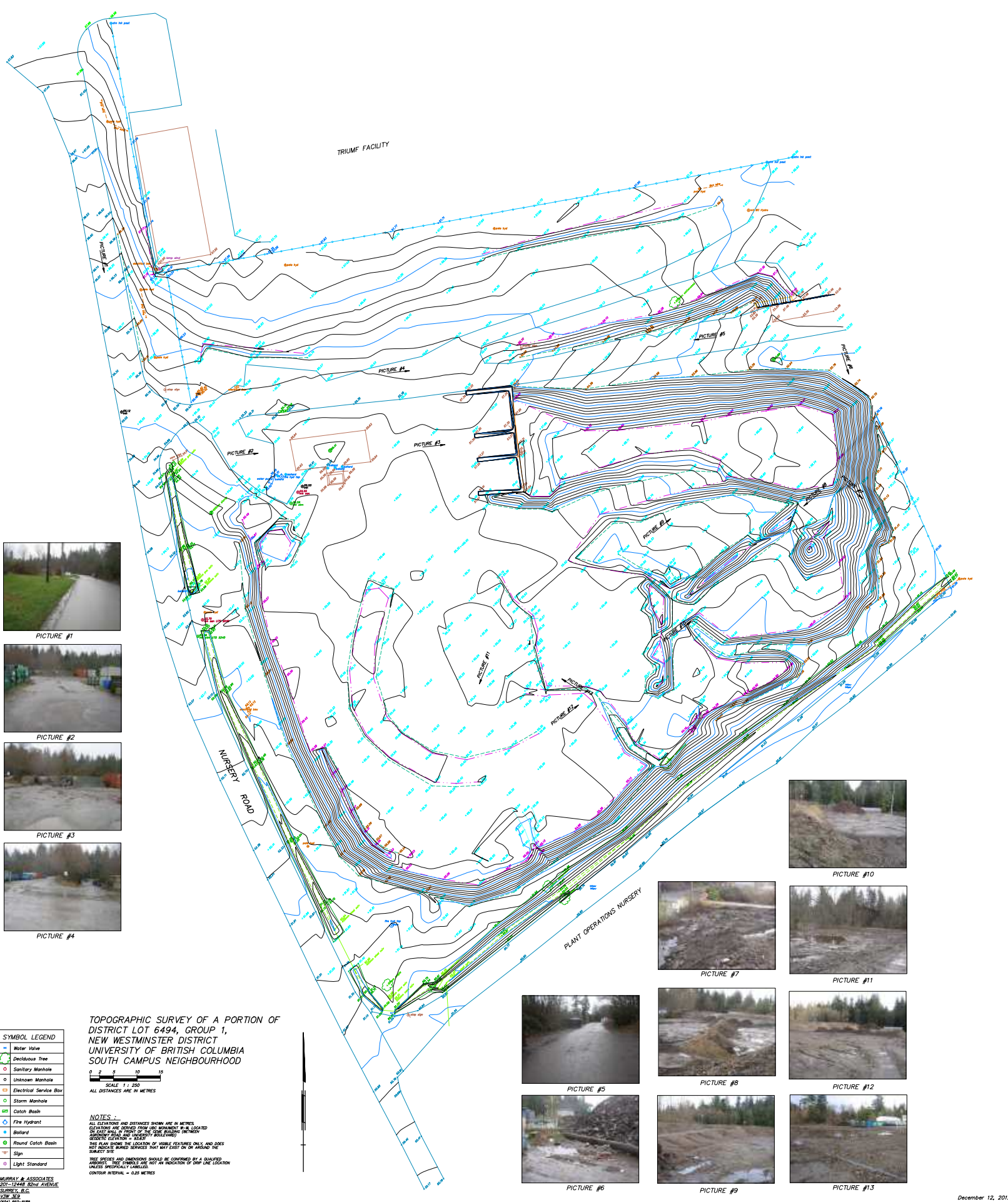
STORM FLOW CONTROL MANHOLE DETAILS
 SECTION A-A
 NOTE: ALL DIMENSIONS SHOWN IN MILLIMETRES UNLESS OTHERWISE STATED

GRAPHIC SCALE
 SCALE: 1:200



BENCHMARK:
 ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES. ELEVATIONS ARE DERIVED FROM UBC MONUMENT W-N, LOCATED ON EAST MALL IN FRONT OF THE CEME BUILDING (BETWEEN AGRONOMY ROAD AND UNIVERSITY BOULEVARD) GEODIC ELEVATION = 83.831

INFORMATION ON EXISTING UTILITIES MAY NOT BE COMPLETE OR ACCURATE. PRIOR TO CONSTRUCTION CONTRACTOR SHALL EXPOSE LOCATIONS OF ALL EXISTING UTILITIES AND ADVISE THE ENGINEER OF POTENTIAL CONFLICTS.



TRUMF FACILITY



PICTURE #1



PICTURE #2



PICTURE #3



PICTURE #4



PICTURE #10



PICTURE #7



PICTURE #11



PICTURE #8



PICTURE #12



PICTURE #5



PICTURE #9



PICTURE #13

SYMBOL LEGEND

- Water Valve
- Deciduous Tree
- Sanitary Manhole
- Unknown Manhole
- Electrical Service Box
- Storm Manhole
- Catch Basin
- Fire Hydrant
- Ballard
- Round Catch Basin
- Sign
- Light Standard

TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 6494, GROUP 1, NEW WESTMINSTER DISTRICT, UNIVERSITY OF BRITISH COLUMBIA SOUTH CAMPUS NEIGHBOURHOOD

SCALE 1 : 250
ALL DISTANCES ARE IN METRES

NOTES:
ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
ELEVATIONS ARE PROVIDED FROM THE MEAN SEA LEVEL (MSL) DATUM.
ON ALL MEASUREMENTS OF THE SAME KINDS (WITHIN GROUPS) THE SAME METHOD OF MEASUREMENT SHOULD BE USED.
THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
THESE SERVICES AND DIMENSIONS SHOULD BE CONFIRMED BY A QUALIFIED SURVEYOR. THESE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION UNLESS SPECIFICALLY LABELED.
CONTOUR INTERVAL = 0.25 METRES

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