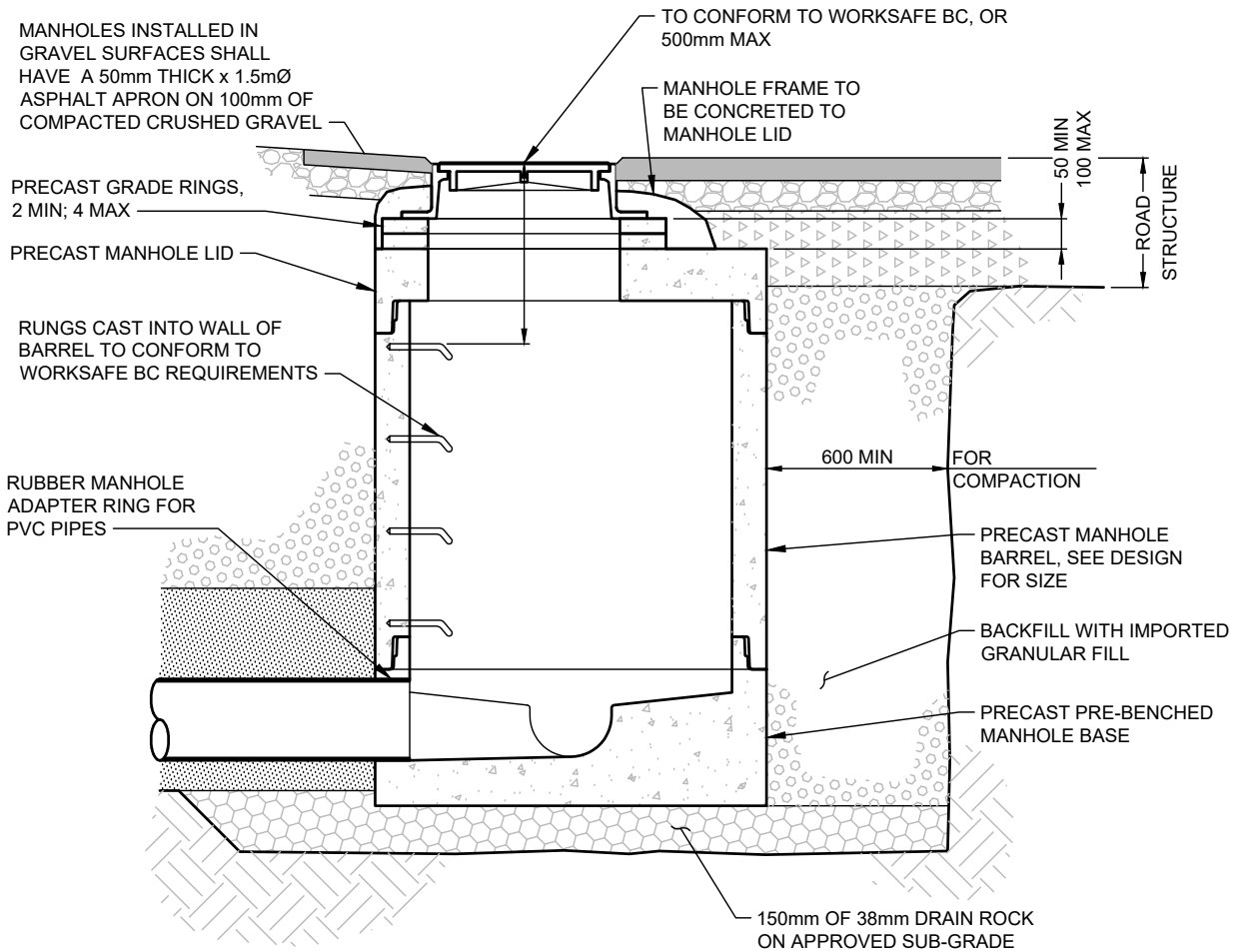


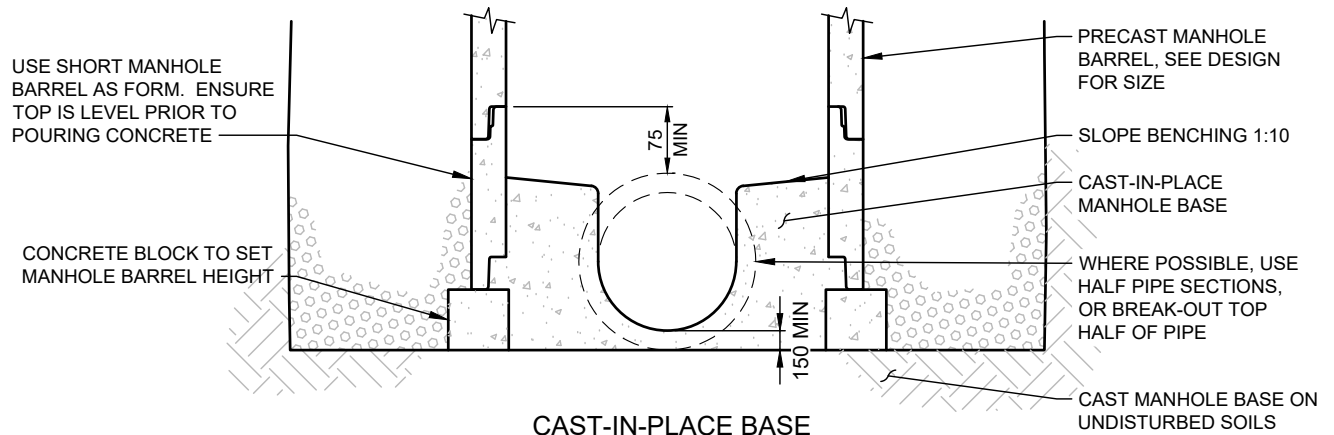
NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. FOR MANHOLE CHANNELING, REFER TO SECTION 6.49.
3. ALL CHANNELS SHALL BE FINISHED WITH A STEEL TROWEL. BENCHING (HATCHED AREAS), SHALL BE BROOM FINISHED.
4. MANHOLE COVER AND RUNG LOCATIONS SHALL BE AS SHOWN, UNLESS NOTED OTHERWISE.
5. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.



TYPICAL SECTION

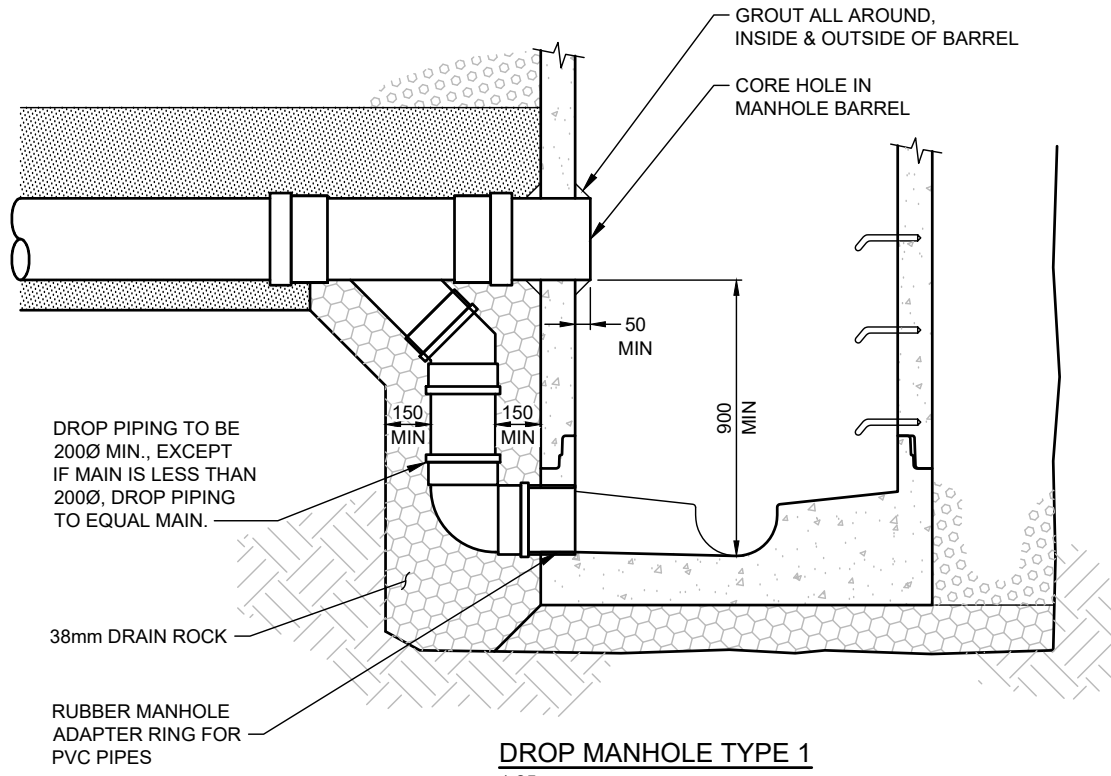
1:25



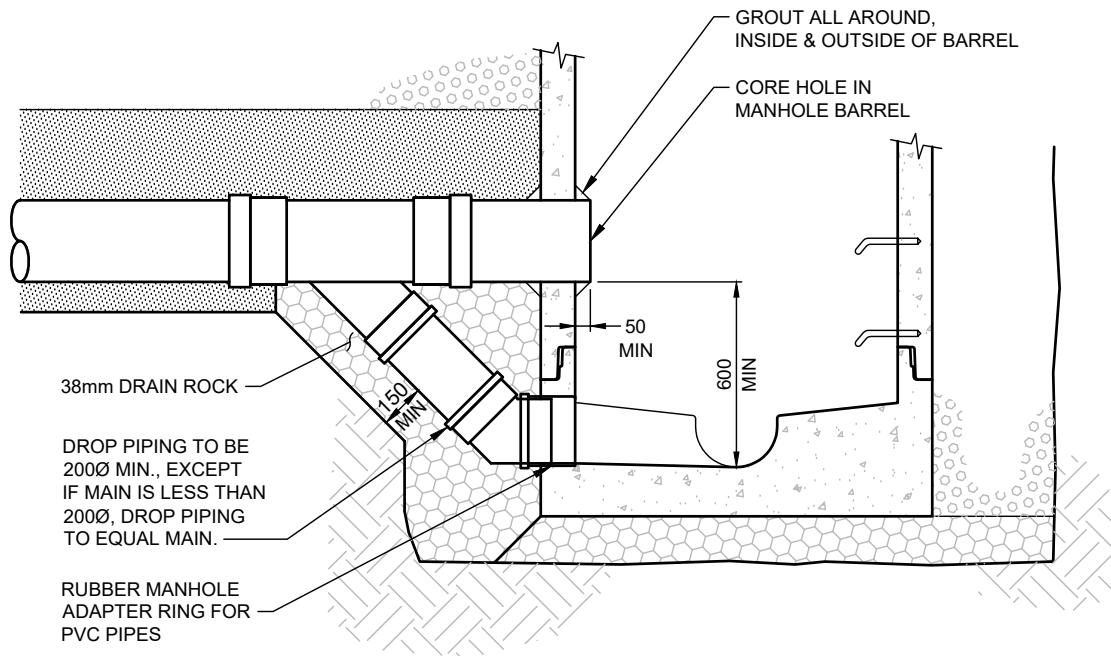
CAST-IN-PLACE BASE

NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. FOR MANHOLE BENCHING, SEE STD DWG S-1.
3. FOR FRAME AND COVER DETAILS, SEE STD DWG S-9.
4. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
5. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.
6. LOW PROFILE FRAMES NOT PERMITTED IN ROADS UNLESS APPROVED BY CITY ENGINEER.
7. CASTING TO BE SET FLUSH WITH TRAVELLED SURFACE SUCH THAT THERE ARE NO IRREGULARITIES GREATER THAN 6mm WHEN CHECKED WITH A 3m STRAIGHT EDGE IN ANY DIRECTION.



DROP MANHOLE TYPE 1
1:25



DROP MANHOLE TYPE 2
1:25

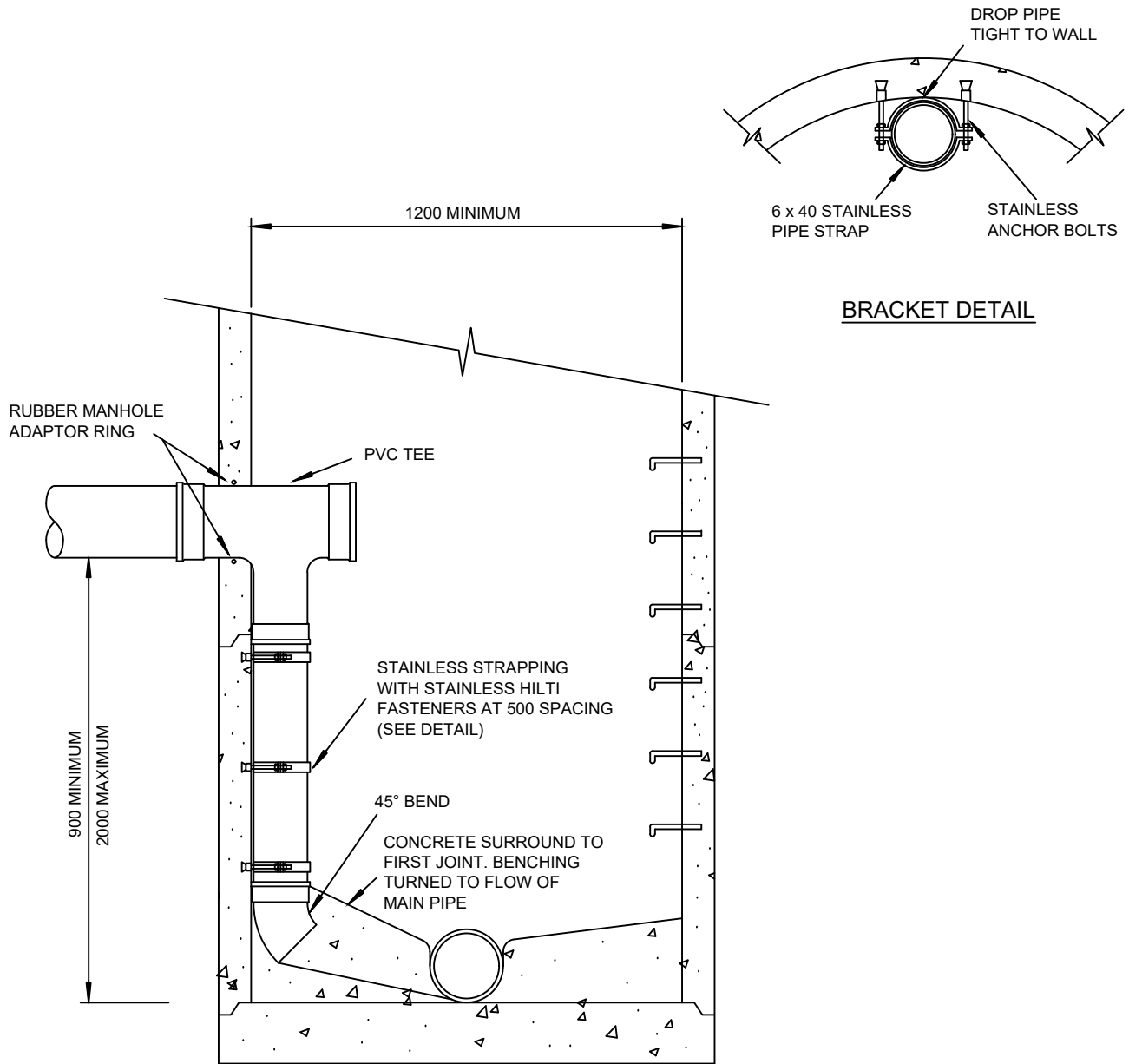
NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. FOR MANHOLE DETAILS, SEE STD DWG S-2.
3. FOR MANHOLE BENCHING, SEE STD DWG S-1.
4. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
5. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.



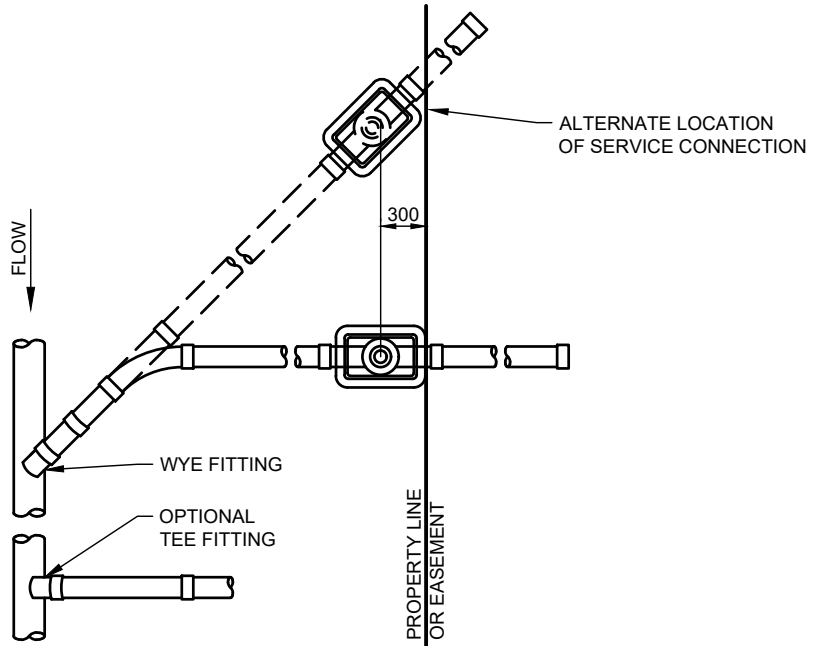
SANITARY DROP MANHOLE

Scale:	1:25
Created:	MAR 2016
Rev Date:	MAY 2020
Dwg No:	S-3

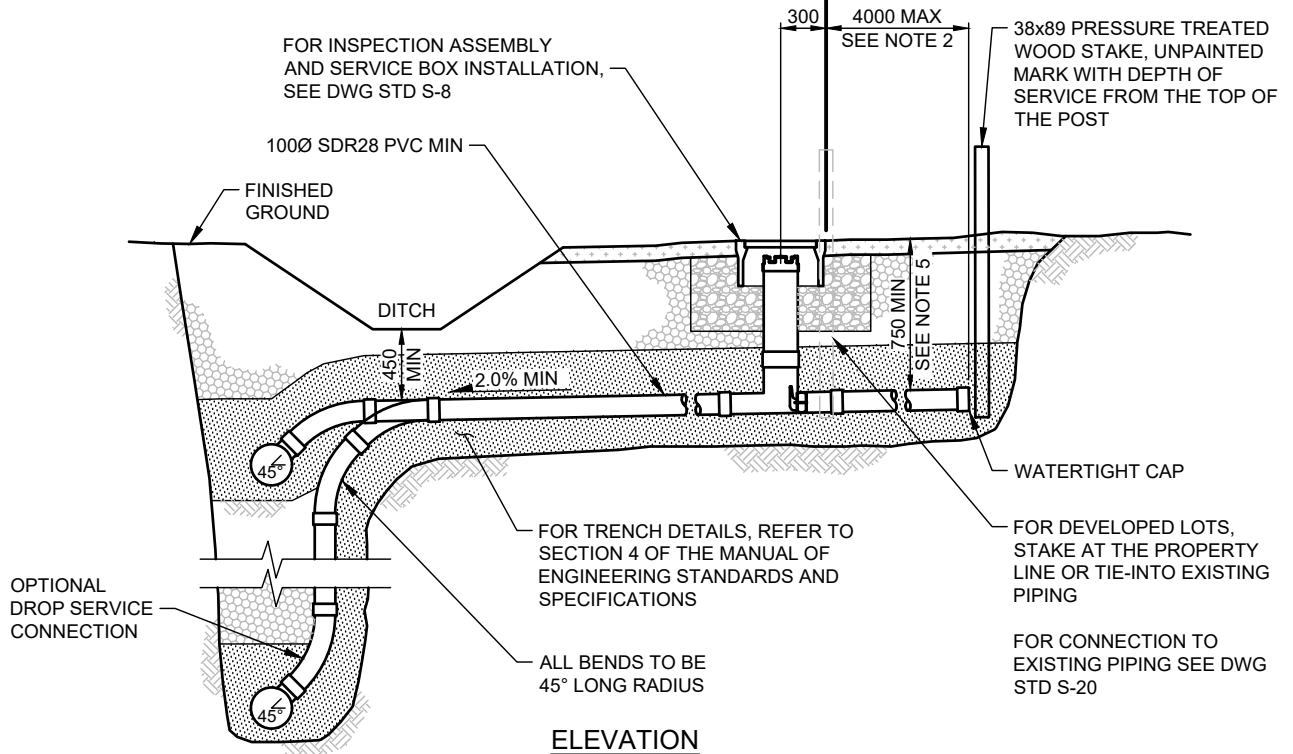


NOTES:

1. INSIDE DROP TO BE USED ONLY WHERE PERMITTED BY THE CITY ENGINEER.
2. MAXIMUM SIZE OF DROP PIPE TO BE 150Ø DR28 PVC.
3. THIS DRAWING SHOWS INSIDE DROP ONLY. SEE DRAWING S-2 FOR ALL OTHER DETAILS PERTAINING TO MANHOLE REQUIREMENTS.
4. ALL DIMENSIONS IN MILLIMETERS UNLESS SHOWN OTHERWISE
5. ALL MOUNTING & BRACKET HARDWARE, (STRAPS & BOLTS) SHALL BE STAINLESS STEEL
6. DROP PIPE SHALL BE TIGHT TO THE INSIDE FACE OF THE MANHOLE BARREL.



PLAN
1:50



ELEVATION
1:50

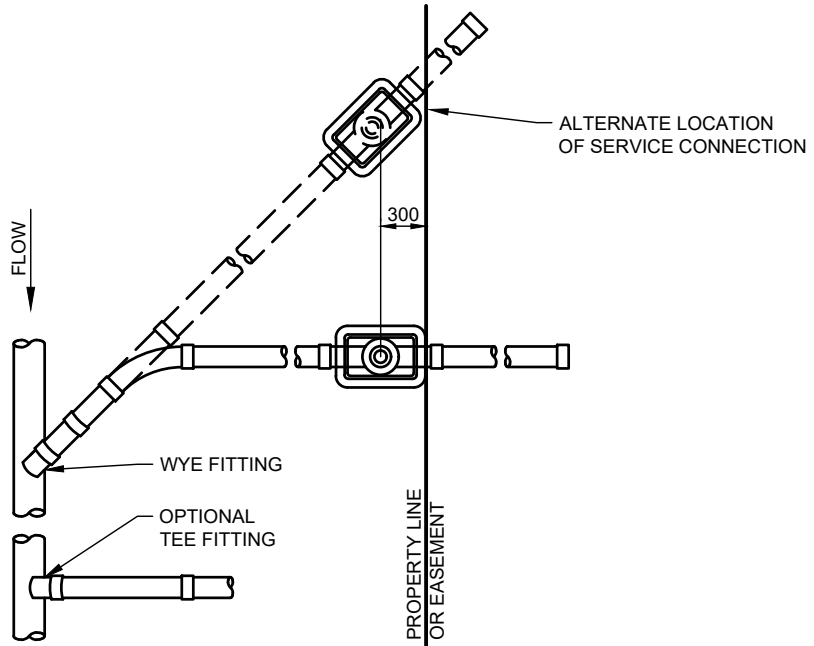
NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. WHERE DEPTH OF SERVICE AT PROPERTY LINE IS GREATER THAN 2.0m, EXTEND THE SERVICE PAST THE PROPERTY LINE EQUAL TO ITS DEPTH, TO MAXIMUM OF 4.0m.
3. WHERE SERVICE IS INSTALLED IN ROCK, THE TRENCH IS TO EXTEND 3.0m PAST THE PROPERTY LINE.
4. SANITARY SEWER INSPECTION ASSEMBLY, INCLUDING PROPERTY SIDE STUB TO BE WHITE.
5. SERVICE PIPE DEPTH TO BE INSTALLED TO PROVIDE SUFFICIENT DEPTH TO SERVICE THE BASEMENT PLUMBING BY GRAVITY IN ACCORDANCE WITH THE BC PLUMBING CODE. MINIMUM COVER OF SERVICE PIPE AT PROPERTY LINE TO BE 0.75m.
6. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
7. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

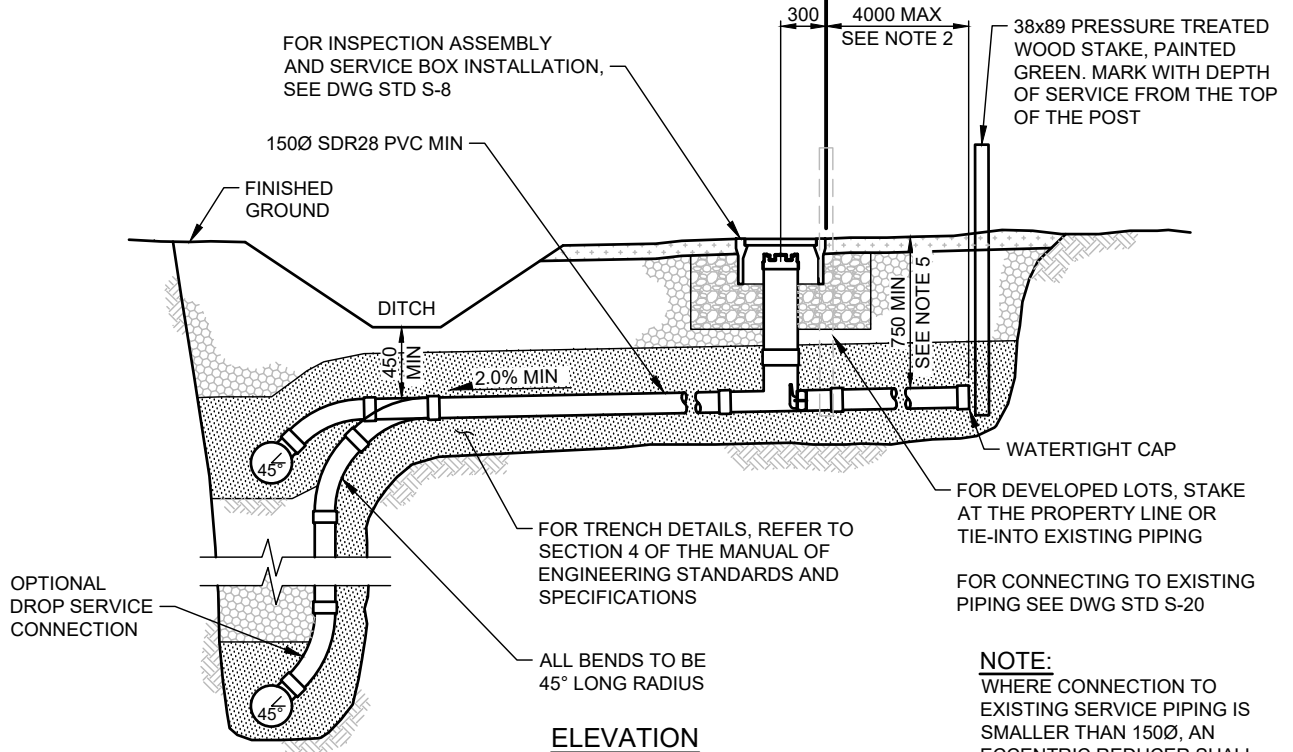


**GENERAL SANITARY SERVICE CONNECTION DETAIL
RISER AND NON-RISER TYPES**

Scale:	1:50
Created:	MAR 2015
Rev Date:	MAY 2020
Dwg No:	S-5



PLAN
1:50



ELEVATION
1:50

NOTES:

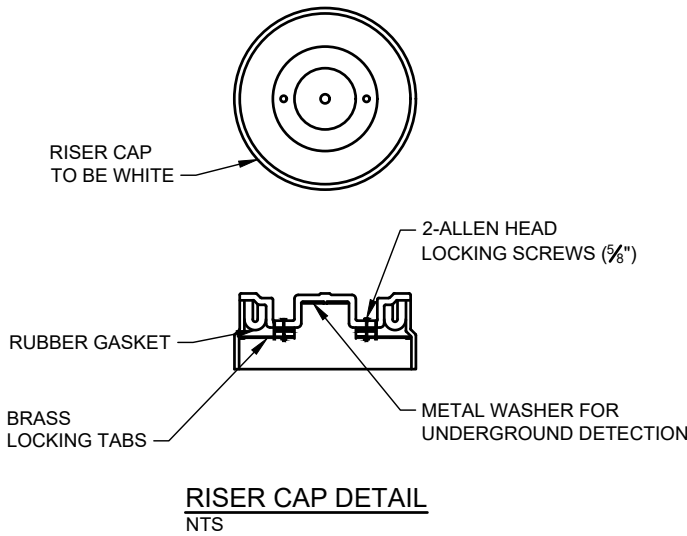
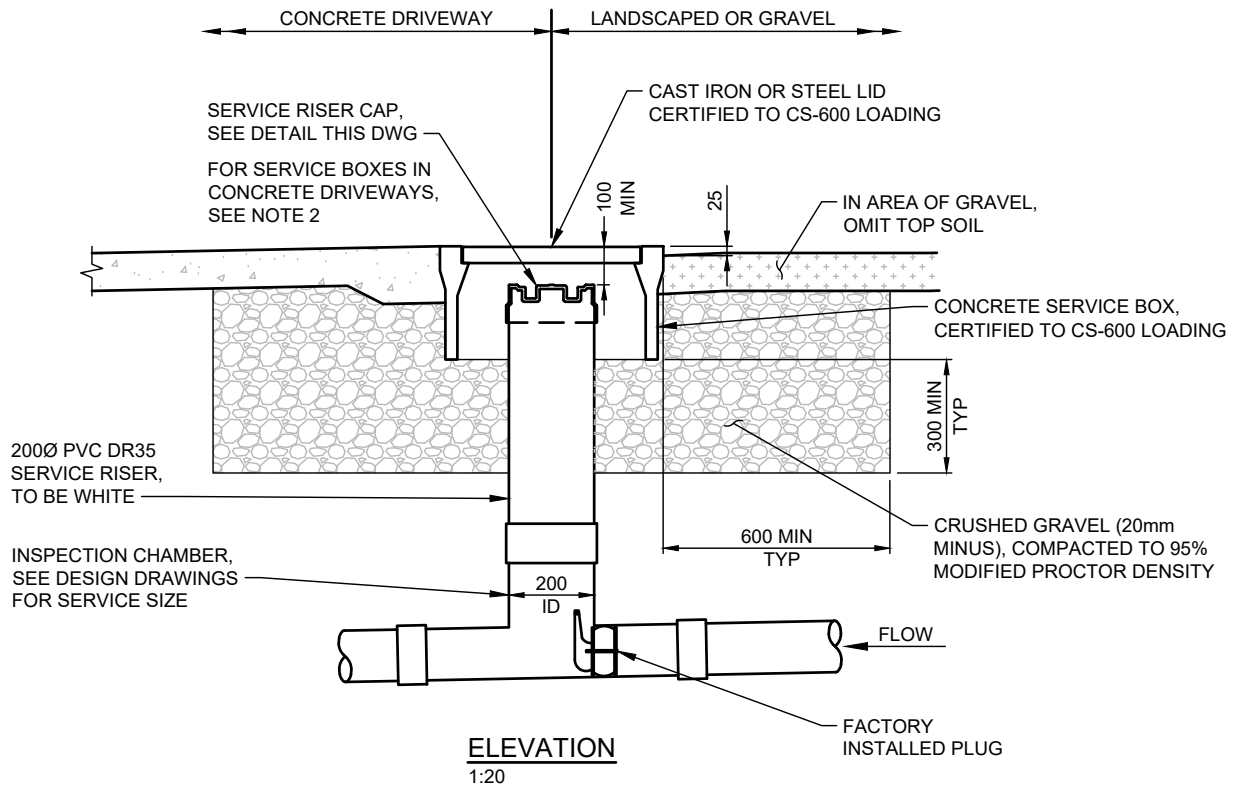
1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. WHERE DEPTH OF SERVICE AT PROPERTY LINE IS GREATER THAN 2.0m, EXTEND THE SERVICE PAST THE PROPERTY LINE EQUAL TO ITS DEPTH, TO A MAXIMUM OF 4.0m.
3. WHERE SERVICE IS INSTALLED IN ROCK, THE TRENCH IS TO EXTEND 3.0m PAST THE PROPERTY LINE.
4. SANITARY SEWER INSPECTION ASSEMBLY, INCLUDING PROPERTY SIDE STUB TO BE WHITE.
5. SERVICE PIPE DEPTH TO BE INSTALLED TO PROVIDE SUFFICIENT DEPTH TO SERVICE THE BASEMENT PLUMBING BY GRAVITY IN ACCORDANCE WITH THE BC PLUMBING CODE. MINIMUM COVER OF SERVICE PIPE AT PROPERTY LINE TO BE 0.75m.
6. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
7. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

NOTE:
WHERE CONNECTION TO EXISTING SERVICE PIPING IS SMALLER THAN 150Ø, AN ECCENTRIC REDUCER SHALL BE INSTALLED.



COMMERCIAL AREAS SANITARY
SERVICE CONNECTION DETAILS
RISER AND NON-RISER TYPES

Scale: 1:50
Created: MAR 2016
Rev Date: MAY 2020
Dwg No: S-7



NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. WHEN SERVICE BOX IS WITHIN A CONCRETE DRIVEWAY, CONCRETE ADJACENT TO THE SERVICE BOX MUST BE A MINIMUM OF 150mm THICK FOR A MINIMUM DISTANCE OF 150mm AROUND THE OUTSIDE EDGES OF THE SERVICE BOX.
3. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
4. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

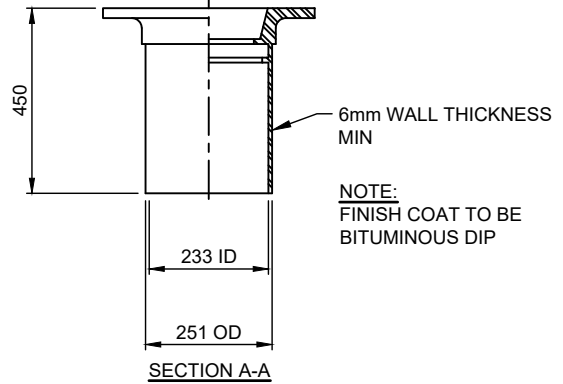
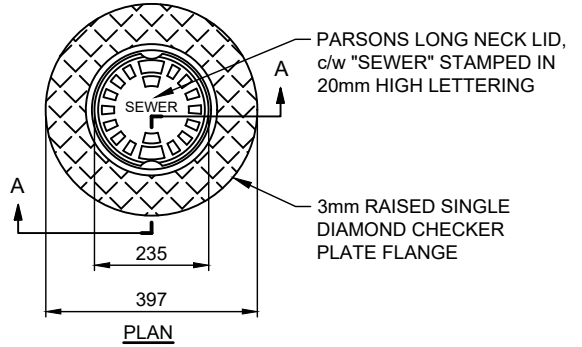
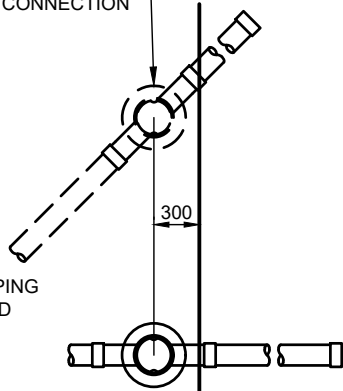
G:\INFRASTRUCTURE PLANNING\STANDARDS & PRODUCTS\MOOSE\SEDITION NO13 MAY 2020\2019-09-15 REDLINE INCORPORATION - WORKING\2020 DRAWING SECTIONS\FINAL DRAFT\SECTION 6 DWGSS-S-8A

ALTERNATE LOCATION
OF SERVICE CONNECTION

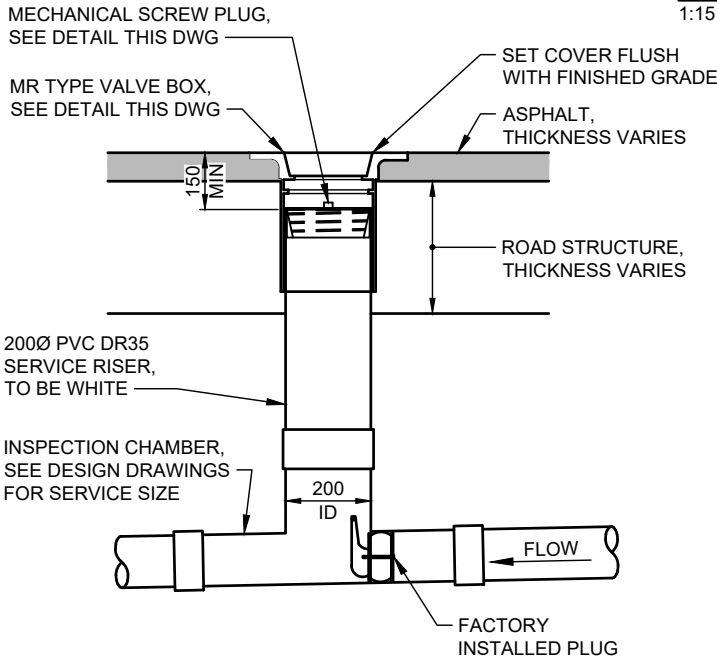
FOR SERVICE PIPING
DETAILS, SEE STD
DWG S-5

PROPERTY LINE
OR EASEMENT

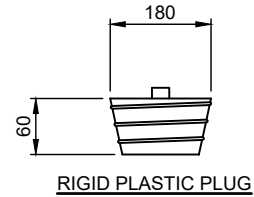
PLAN - VALVE BOX LOCATIONS
NTS



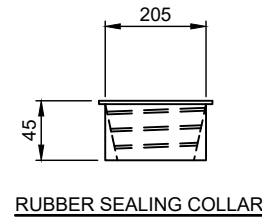
MR STYLE VALVE BOX
1:15



INSPECTION ASSEMBLY ELEVATION
1:20



RIGID PLASTIC PLUG



RUBBER SEALING COLLAR

MECHANICAL SCREW PLUGS
1:10

NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
3. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

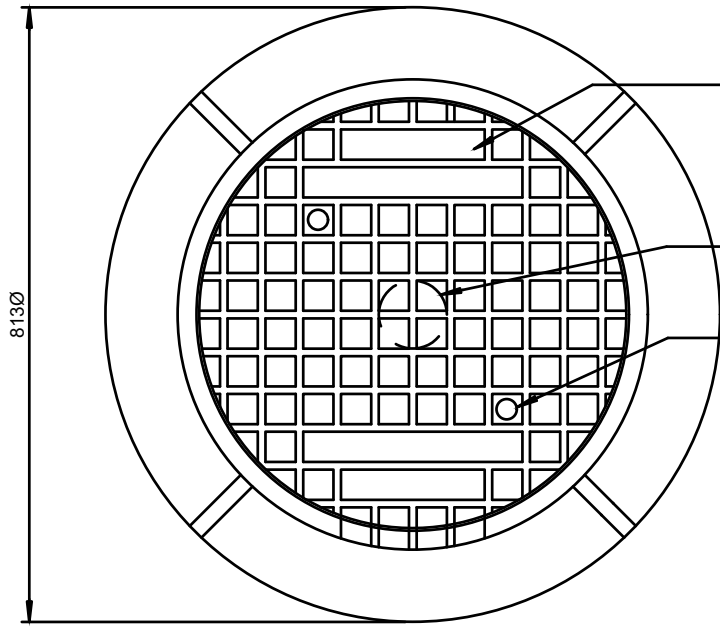
2.28.2020



SANITARY SERVICE BOX AND INSPECTION ASSEMBLY
INSTALLATION IN PAVED LANES AND ROADWAYS

Scale: AS NOTED
Created: MAR 2016
Rev Date: NOV 2016
Dwg No: S-8A

G:\INFRASTRUCTURE PLANNING\STANDARDS & PRODUCTS\SMOISS\EDITION NO13 MAY 2020\2019-09-15 REDLINE INCORPORATION - WORKING\2020 DRAWING SECTIONS\FINAL DRAFT\SECTION 6 DWGSS-9

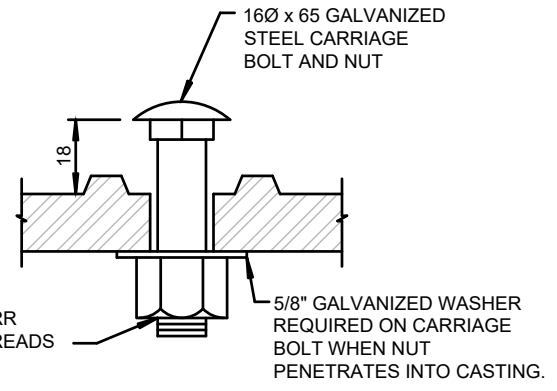


REFERRING TO "CITY OF NANAIMO SANITARY SEWER", LETTERING SHALL BE 25 FLATTENED FACE GOTHIC WITH FACE OF LETTERS RAISED TO THE SAME LEVELS AS THE TOP OF THE RIBS (IN STATUTORY RIGHTS-OF-WAY INCLUDE THE WORDING "DO NOT COVER" ON THE MANHOLE LID)

MANUFACTURER'S SYMBOL 90 MAXIMUM DIMENSION, CIRCLE OR SQUARE

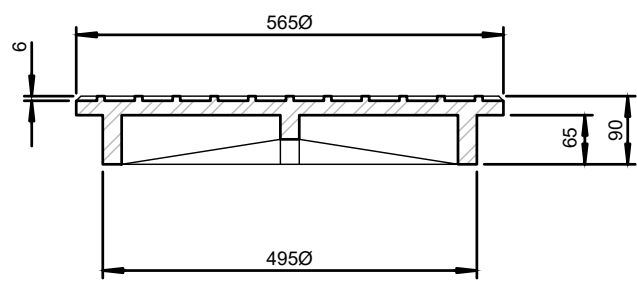
2-21Ø HOLES

PLAN

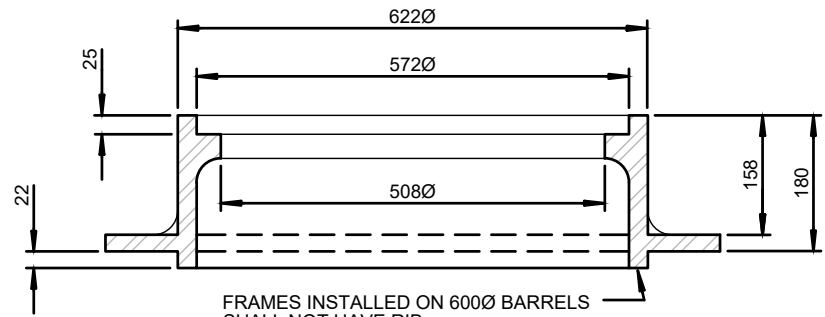


IMPORTANT:
CARRIAGE BOLT TO EXTEND EXACTLY 18mm ABOVE CASTING.

CARRIAGE BOLT DETAIL



COVER



FRAMES INSTALLED ON 600Ø BARRELS SHALL NOT HAVE RIB

FRAME

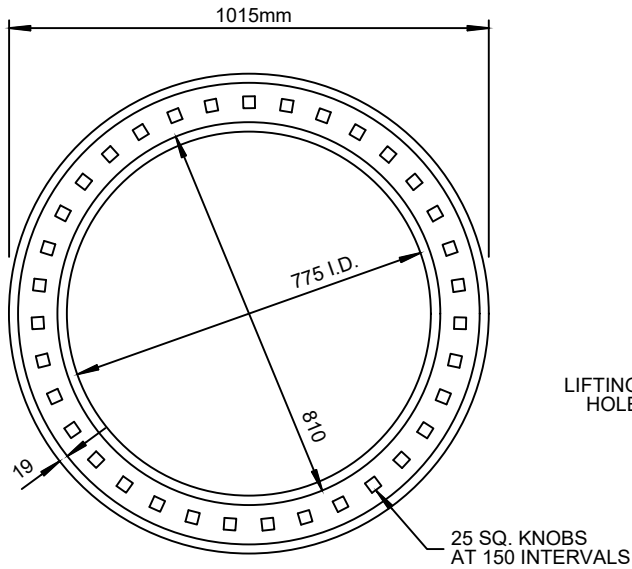
NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. ALL BEARING SURFACES BETWEEN FRAME, COVER AND RISER RINGS SHALL BE MACHINED FOR NON-ROCKING FIT IN ALL POSITIONS. ALLOW 1.5mm RAISED FACE IN CASTINGS FOR MACHINING.
4. PAINT THE INSIDE SURFACE OF THE MANHOLE FRAME IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION WITH ENAMEL RUST PAINT. COLOUR TO BE YELLOW.
5. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

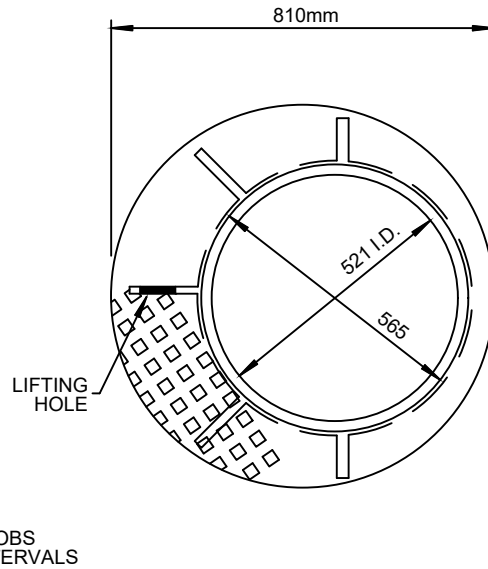


SANITARY MANHOLE
FRAME AND COVER

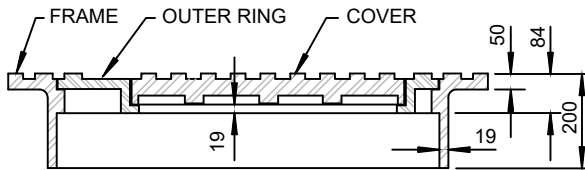
Scale:	NTS
Created:	MAR 2016
Rev Date:	NOV 2016
Dwg No:	S-9



PLAN OF FRAME



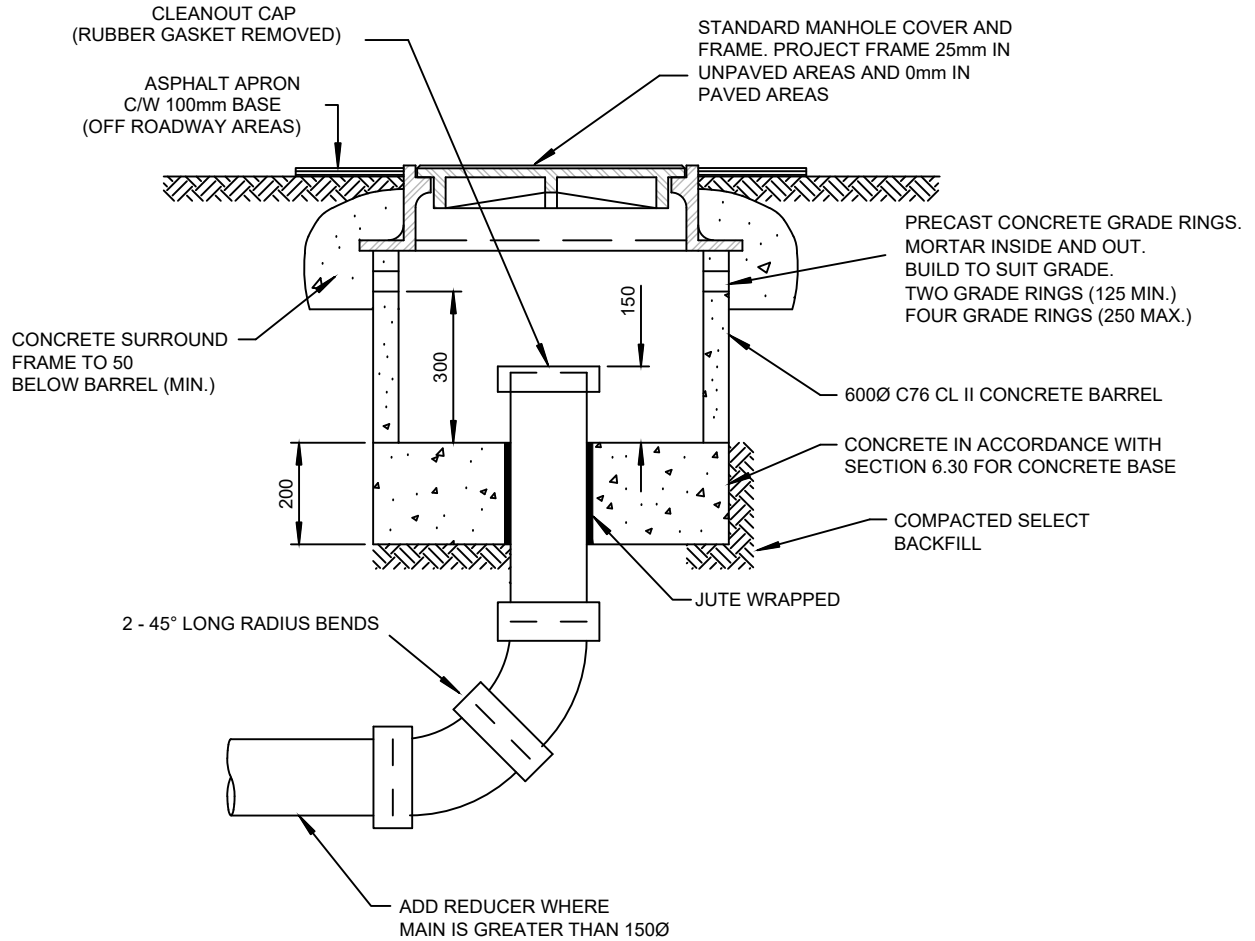
PLAN OF OUTER RING



SECTION OF FRAME, RING AND COVER

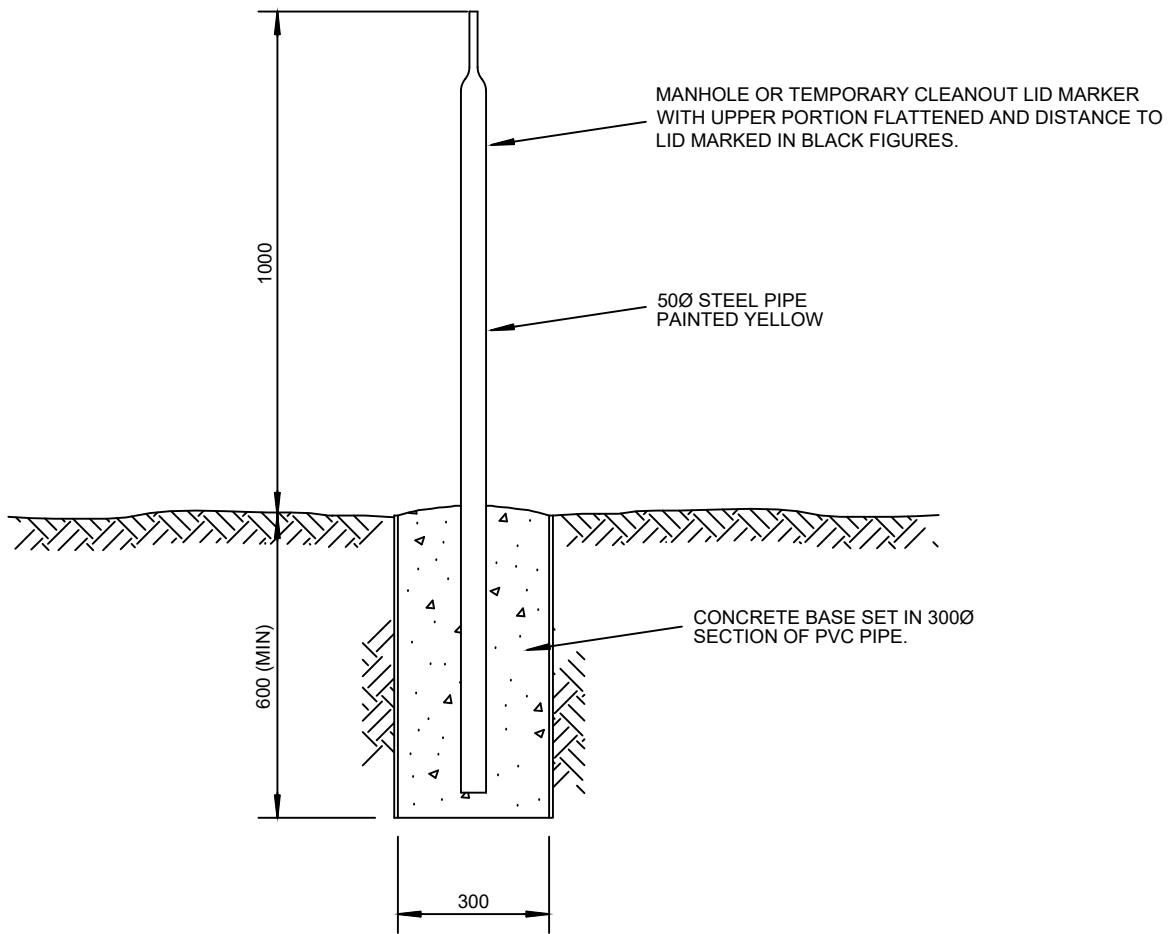
NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. FOR COVER LETTERING AND BOLTING REQUIREMENTS REFER TO STD. DWG. S-9 OR S-15.
4. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
5. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.



NOTES:

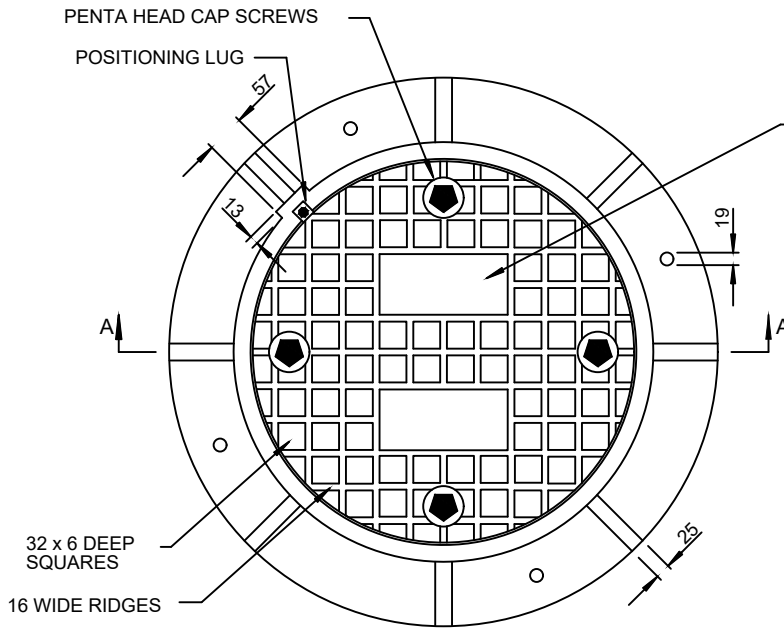
1. TEMPORARY CLEANOUT STRUCTURES MAY ONLY BE USED AT THE DISCRETION OF THE CITY ENGINEER WHERE THERE IS DEVELOPMENT PHASING.
2. USE WHERE NO SERVICE EXTENSION IS REQUIRED.
3. FRAME AND COVER TO STANDARD DRAWING S-9 (SANITARY MANHOLE FRAME AND COVER), OR STANDARD DRAWING S-15 (WATERTIGHT SANITARY MANHOLE FRAME AND COVER).
4. CLEAN OUT STRUCTURES LOCATED ON GRAVEL ROADS OR SHOULDERS REQUIRE A 1.5 m X 1.5 m HOT MIX ASPHALT APRON, 50 mm THICK.
5. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
6. ALL DIMENSIONS IN MILLIMETERS UNLESS SHOWN OTHERWISE.



NOTES:

1. FOR USE ONLY WHERE MANHOLE OR TEMPORARY CLEANOUT LIDS ARE LOCATED OUTSIDE THE PAVED PORTION OF A STREET.
2. THE MARKER SHALL BE LOCATED ON SITE BY THE ENGINEER WITH THE FLATTENED END AND MARKED DISTANCE FACING THE LID.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS SHOWN OTHERWISE.

APPLICATION: UNITS ARE FOR USE IN AREAS WHERE FLOODING OR HIGH TIDES ARE POSSIBLE. THIS UNIT SHALL HAVE A POSITIONING LUG IN COVER FOR EASY REPLACEMENT OF CAP SCREWS AND SHALL BE EQUIPPED WITH FOUR ONLY 19Ø HOLES IN FRAME FOR ANCHOR BOLTS AS SHOWN.



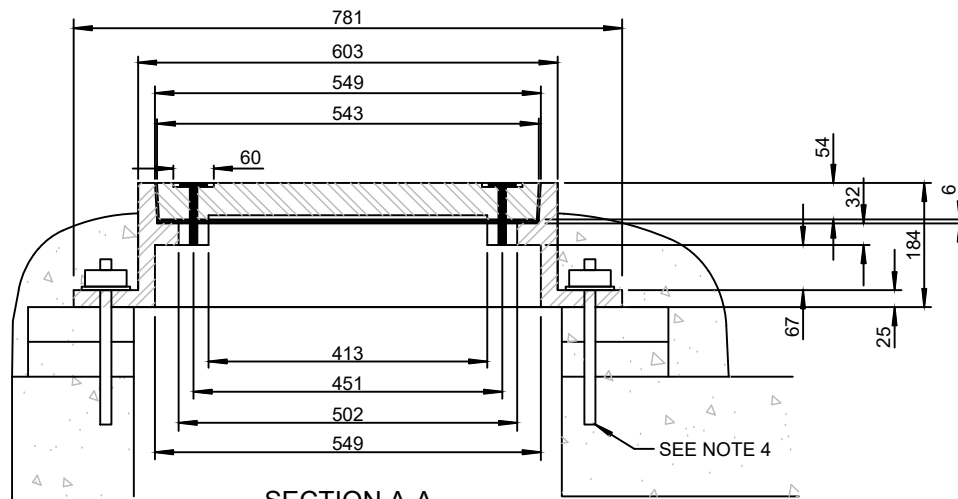
REFERRING TO "CITY OF NANAIMO SANITARY SEWER", LETTERING SHALL BE 25 FLATTENED FACE GOTHIC WITH FACE OF LETTERS RAISED TO THE SAME LEVELS AS THE TOP OF THE RIBS (IN STATUTORY RIGHTS-OF-WAY INCLUDE THE WORDING "DO NOT COVER" ON THE MANHOLE LID)

WEIGHT OF UNIT SHOWN IS
 FRAME = 113.4 kg
 COVER = 56.7 kg

FURNISHED WITH:

- A) FOUR 13x57 PENTA HEAD STAINLESS STEEL CAP SCREWS TO DISCOURAGE VANDALISM.
- B) A 6mm THICK NEOPRENE GASKET FULLY ENCOMPASSING BOLT HOLES.
- C) METAL SURFACES BETWEEN FRAME AND COVER MACHINED TO ENSURE NON ROCKING FIT IN ALL POSITIONS. ALLOW 1.5 RAISED FACE IN CASTING FOR MACHINING.
- D) MANUFACTURE BOLT HOLES TO PERMIT INTERCHANGING OF COVERS BETWEEN FRAME UNITS.

PLAN



DIA. OF COVER ----- 543
 THICKNESS OF COVER -- 54
 DIA. OF FRAME ----- 781
 DEPTH OF FRAME ----- 184

SECTION A-A

NOTES:

1. THIS DRAWING SHALL BE USED IN ACCORDANCE WITH SECTION 6.0 OF THE MANUAL OF ENGINEERING STANDARDS AND SPECIFICATIONS, LATEST EDITION.
2. CASTINGS SHALL BE CERTIFIED TO MEET CS-600 LOADING.
3. PAINT THE INSIDE SURFACE OF THE MANHOLE FRAME IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION WITH ENAMEL RUST PAINT. COLOUR TO BE YELLOW.
4. FRAME SHALL BE SET IN MORTAR AND BOLTED TO THE MANHOLE SLAB WITH 19Ø STAINLESS STEEL BOLTS, WASHERS AND NUTS.
5. THIS DRAWING TO BE READ IN ACCORDANCE WITH DRAWING S-2.
6. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
7. ALL DIMENSIONS ARE MILLIMETERS UNLESS NOTED OTHERWISE.

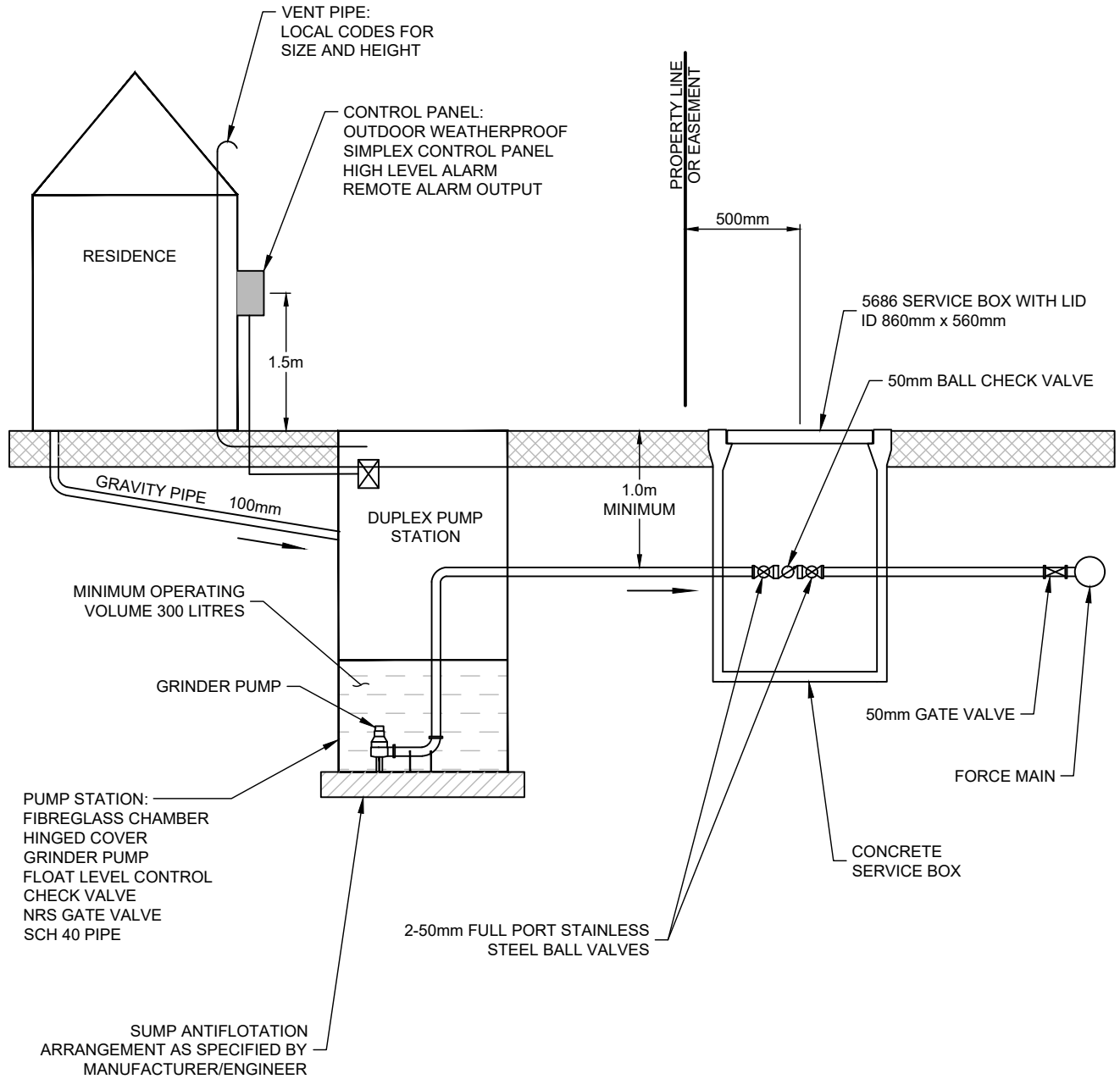
G:\INFRASTRUCTURE PLANNING\STANDARDS & PRODUCTS\MOES\SEDITION NO13 MAY 2020\2019-09-15 REDLINE INCORPORATION - WORKING\2020 DRAWING SECTIONS\FINAL DRAFT\SECTION 6 DWGSS-15

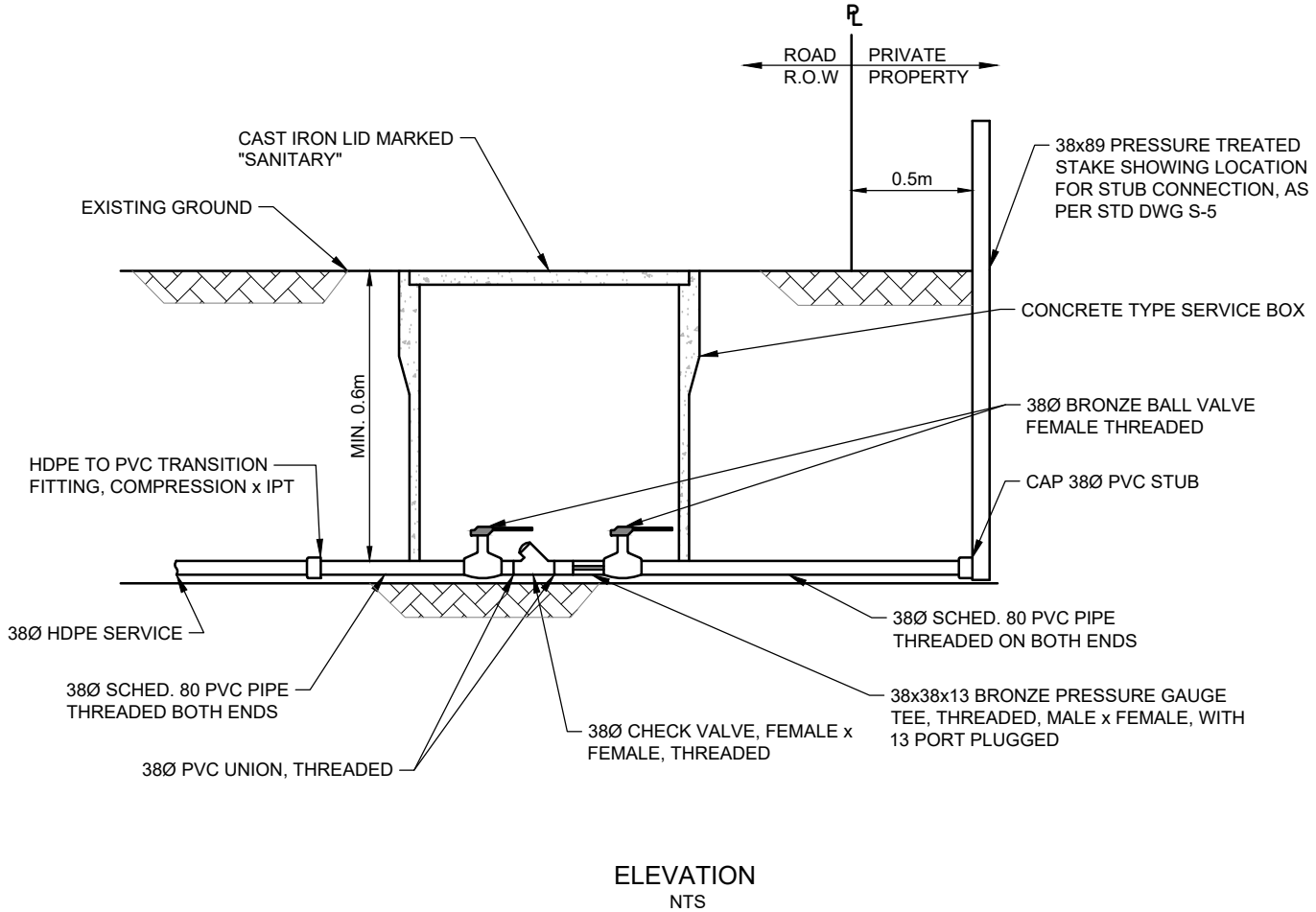
2.28.2020



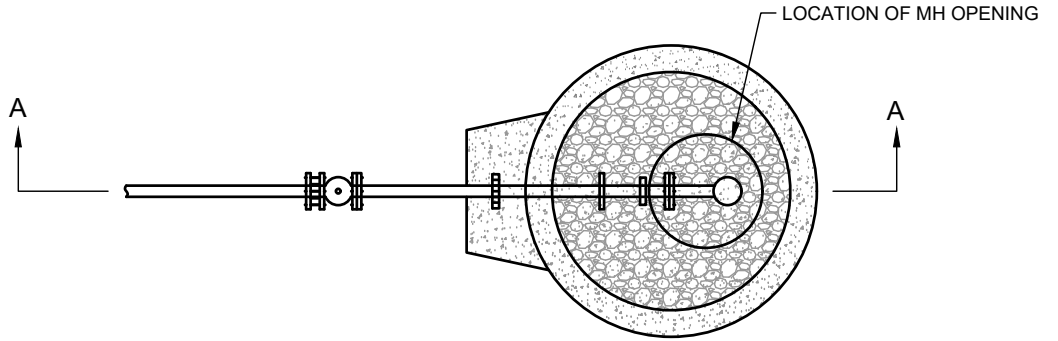
WATERTIGHT SANITARY MANHOLE
 FRAME AND COVER

Scale: NTS
 Created: MAR 2016
 Rev Date: NOV 2016
 Dwg No: S-15



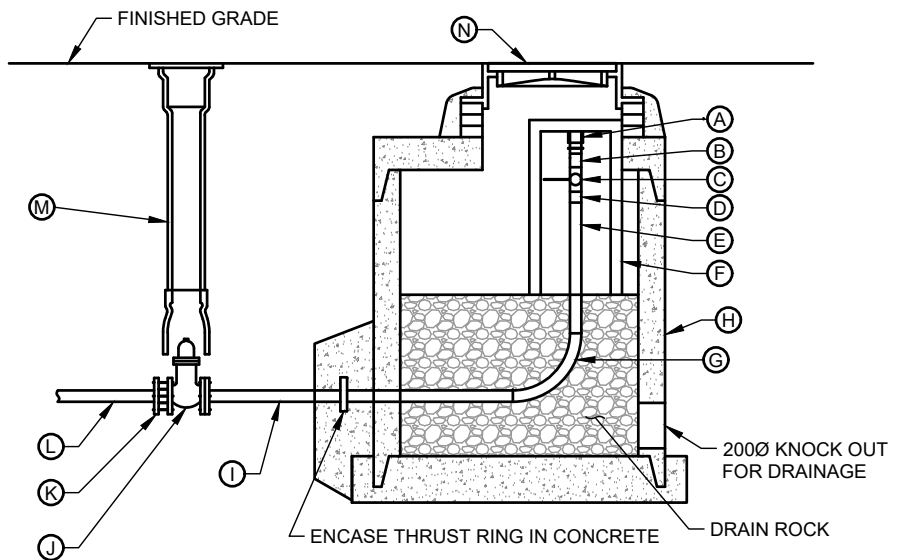


ELEVATION
NTS



PLAN VIEW

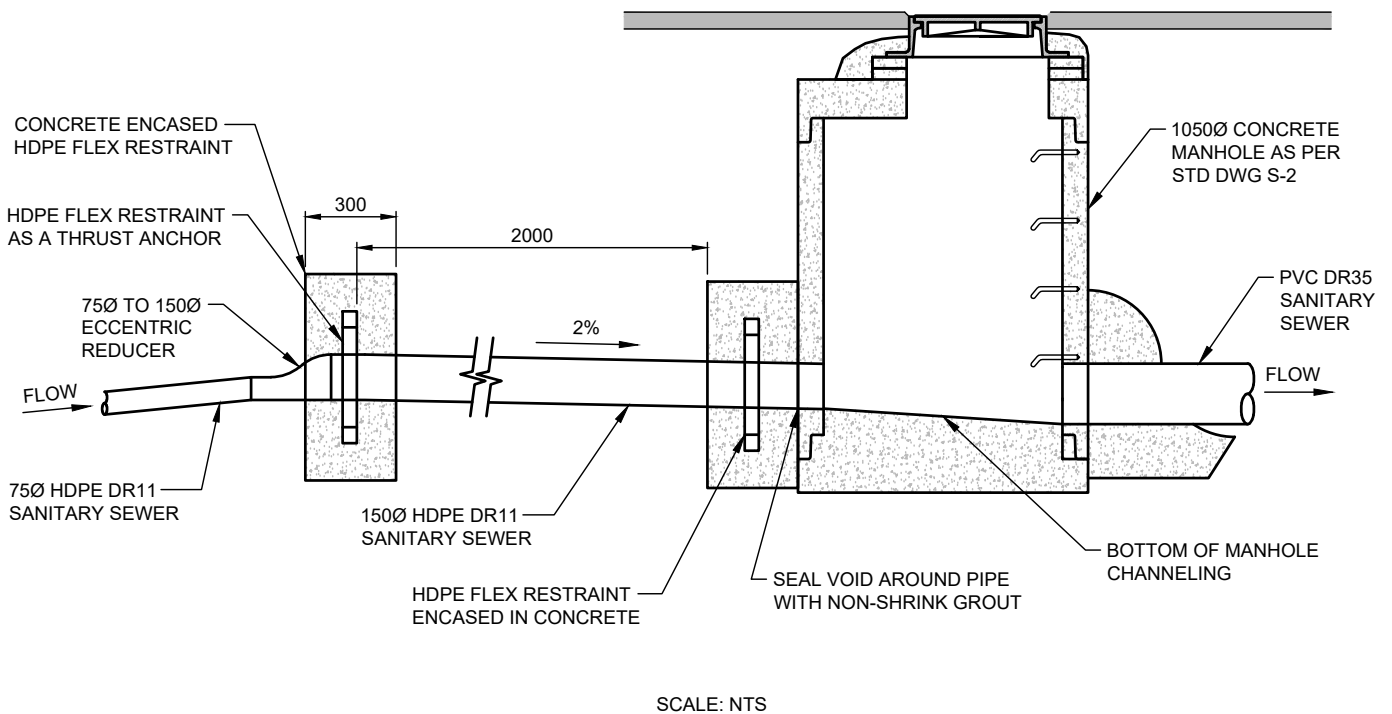
LPS END OF LINE FLUSHOUT MH LIST OF MATERIALS	
ITEM	DESCRIPTION
A	65Ø FIRE HOSE CONNECTION PER C.O.N. SPECIFICATIONS
B	65X50 REDUCER, MALE x MALE IPT
C	50Ø BRONZE BALL VALVE, FEMALE x FEMALE IPT
D	50Ø PVC SCHED. 80 ADAPTER, MALE x MALE IPT
E	50Ø S.S. PIPE, THREADED TO FIT BEND AND PVC ADAPTER
F	50mm THICK HIGH DENSITY STYROFOAM INSULATION
G	50Ø S.S. LONG RADIUS 90° BEND, IPTxIPT
H	1050Ø MANHOLE TO C.O.N. SPECIFICATIONS
I	50Ø S.S. SPOOL PIECE c/w 100Ø x 13mm THRUST RING, FxIPT
J	50Ø BALL VALVE, FxF
K	50Ø HDPE STUB END WITH METAL BACKING FLANGE
L	50Ø HDPE DR11 PIPE
M	150x200 VALVE HOOD, 150Ø PVC RISER & 150Ø MR VALVE BOX
N	HEAVY DUTY MH FRAME AND COVER AS PER C.O.N. STD. DWG. No. S-9



SECTION A
NTS

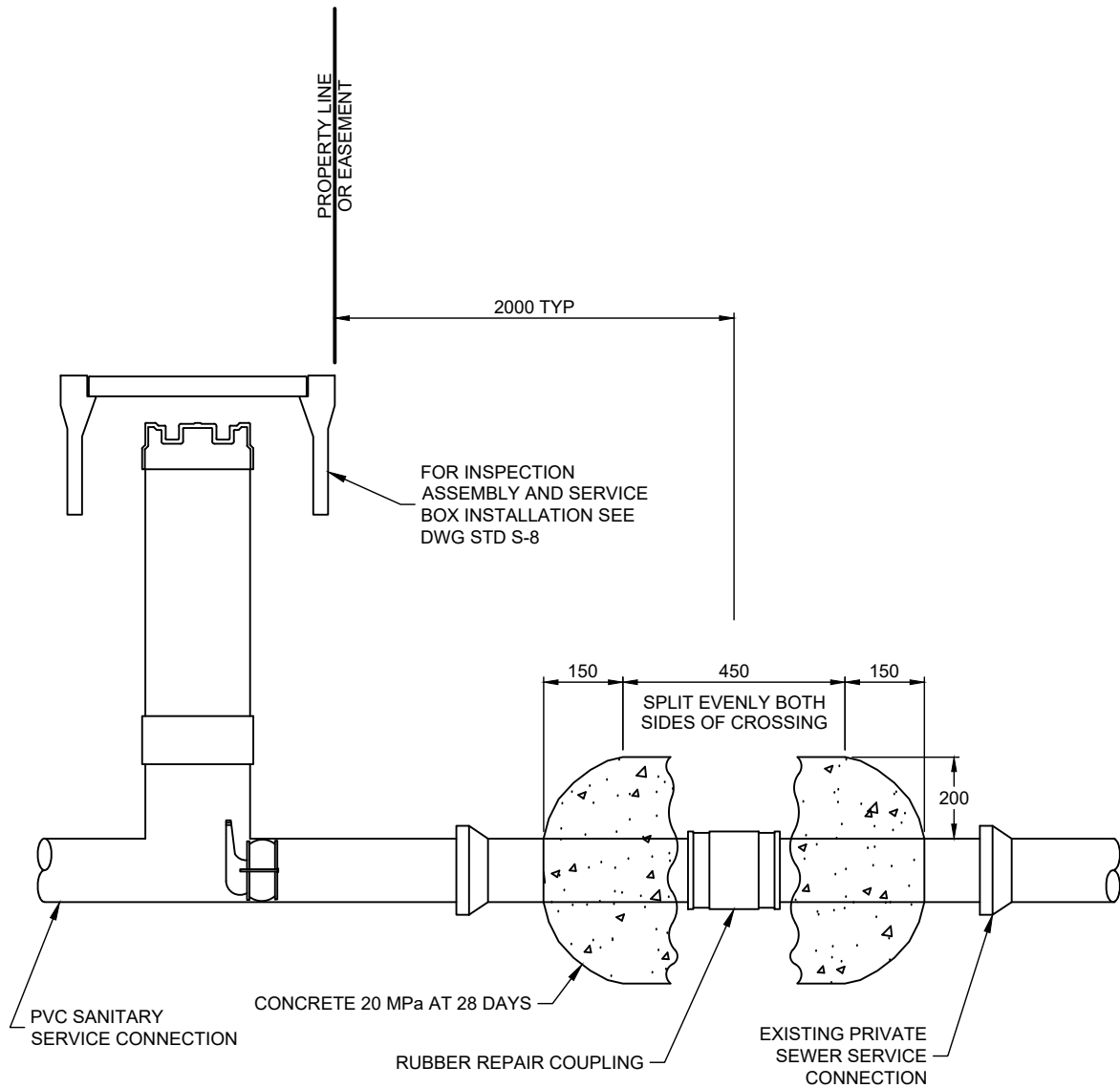
NOTES:

1. S.S. = STAINLESS STEEL TYPE 316 SCHEDULE 40.
2. FIRE HOSE EQUIPMENT CONNECTION TO BE DIRECTLY ACCESSIBLE THROUGH MANHOLE ACCESS.



NOTES:

1. REFER TO STD DWG S-2 FOR GENERAL NOTES AND CONCRETE REQUIREMENTS.
2. ALL HDPE JOINTS TO BE HEAT BUTT FUSED.



ELEVATION

NOTES:

1. ONLY PRODUCTS LISTED IN THE CITY OF NANAIMO APPROVED PRODUCTS LIST WILL BE ACCEPTED FOR INSTALLATION.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
3. SPIGOTS IF PRESENT SHALL BE REMOVED BEFORE COUPLING IS INSTALLED.