

1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



TRENCH DETAILS

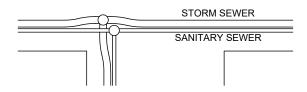
 Scale:
 NTS

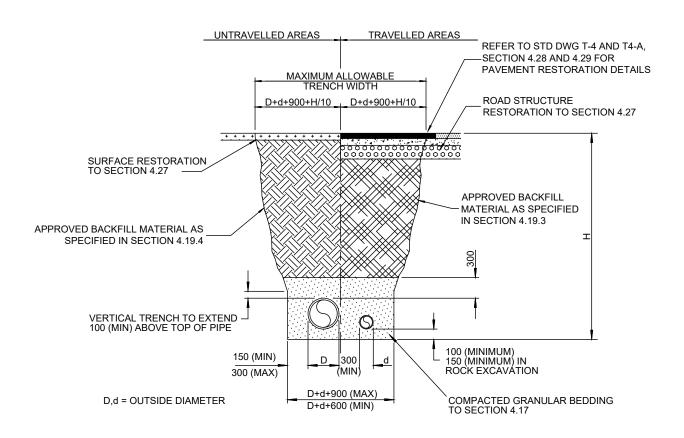
 Created:
 OCT 2012

 Rev Date:
 MAY 2020

 Dwg No:
 T-1

## STORM SEWER TO BE DEFLECTED AROUND SANITARY SEWER MANHOLES





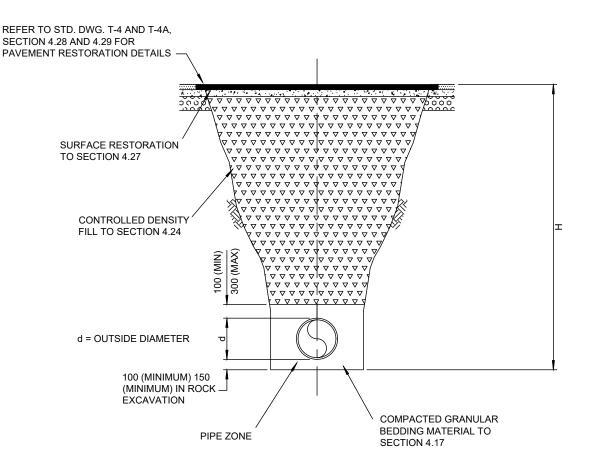
## NOTES:

- 1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DETAILS.
- 2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



SANITARY & STORM SEWER IN COMMON TRENCH

Scale: NTS
Created: OCT 2012
Rev Date: MAY 2020
Dwg No: T-2

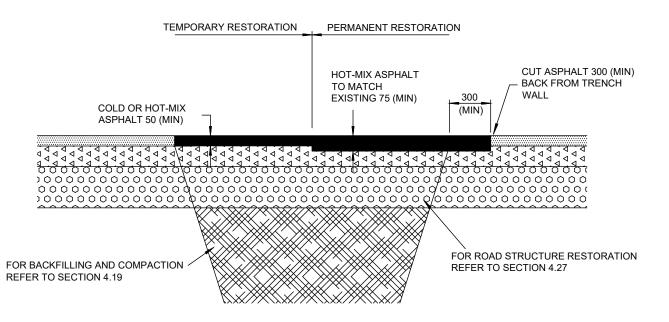


- 1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
- 2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

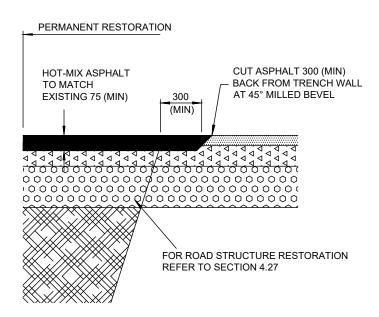


CONTROLLED DENSITY FILL IN PAVED SURFACE AREA

Scale: NTS
Created: MAY 1996
Rev Date: NOV 2016
Dwg No: T-3



## ALTERNATIVE 1 - STRAIGHT CUT



## ALTERNATIVE 2 - BEVEL CUT

#### NOTES:

- 1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
- 2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



PAVEMENT RESTORATION TYPE 1 (ASPHALT THICKNESS < 75mm)

 Scale:
 NTS

 Created:
 APR 2016

 Rev Date:
 MAY 2020

 Dwg No:
 T-4

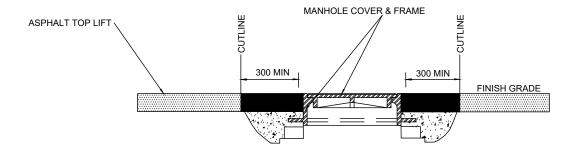
- 1. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
- 2. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



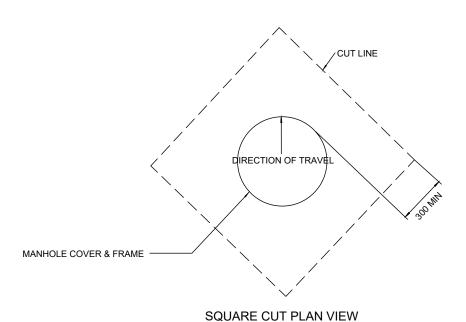
PAVEMENT RESTORATION TYPE 2 (75mm MINIMUM THICKNESS)

Scale: NTS
Created: OCT 2012
Rev Date: NOV 2016
Dwg No: T-4A

G:INFRASTRUCTURE PLANNINGISTANDARDS & PRODUCTSIMOESSIEDITION NO13 MAY 2020/2019-09-15 REDLINE INCORPORATION - WORKINGI.2020 DRAWING SECTIONSIFINAL DRAFTISECTION 4 DWGSIT-4A



# CONCRETE ENCASEMENT SUPPORT DETAIL



#### NOTES

- COVER MANHOLE WITH BUILDING PAPER AND CONSTRUCTION ASPHALT CONCRETE BASE COURSE AND WEARING COURSES.
- 2. SAW CUT SQUARE EXCAVATING AROUND MANHOLE 300mm MIN FROM MANHOLE FRAME.
- 3. RAISE MANHOLE COVER AND FRAME TO FINISH GRADE.
- 4. APPLY TACK COAT TO EDGES OF EXISTING PAVEMENT BEFORE INSTALLING PATCH.
- 5. FINISH JOINT WITH ASPHALT SEAL AND SAND.
- 6. REFER TO STANDARD DRAWINGS AS PER RELEVANT SECTIONS 5, 6, OR 7 FOR OTHER MANHOLE REQUIREMENTS.
- 7. ONLY PRODUCTS APPROVED BY THE CITY ENGINEER AND LISTED IN THE CITY OF NANAIMO APPROVED PRODUCT LIST WILL BE ACCEPTED FOR INSTALLATION.
- 8. REFER TO STANDARD DRAWING T-1 FOR ADDITIONAL TRENCH DIMENSIONS AND DETAILS.
- ALL DIMENSIONS IN MILLIMETERS UNLESS SHOWN OTHERWISE.



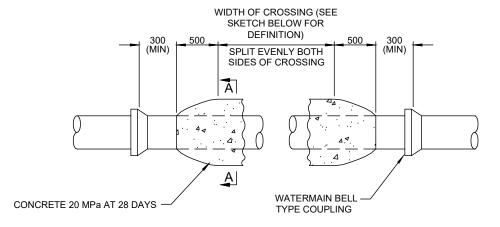
PAVEMENT RESTORATION
ASPHALT CUTTING FOR A MANHOLE

 Scale:
 NTS

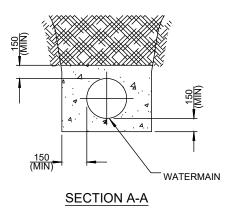
 Created:
 NOV 2012

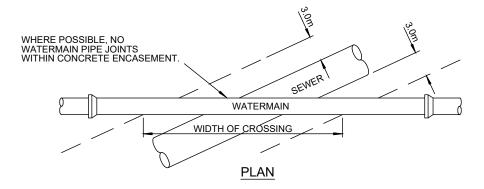
 Rev Date:
 NOV 2016

 Dwg No:
 T-4B



## **ELEVATION**





#### NOTES:

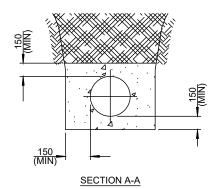
- USE OF PETROLATUM TAPE WRAPPING WHERE MINISTRY OF HEALTH'S MINIMUM WATER/SEWER SEPARATION OFFSET CANNOT BE MET, REQUIRES APPROVAL BY THE MINISTRY OF HEALTH. FOR PIPE PROTECTION WITH CONCRETE REFER TO STANDARD DRAWING T-6.
- ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



CONCRETE ENCASEMENT FOR WATERMAIN \ SEWER SEPARATION

NTS OCT 1993 Created: Rev Date: MAY 2020

Dwg No: T-5

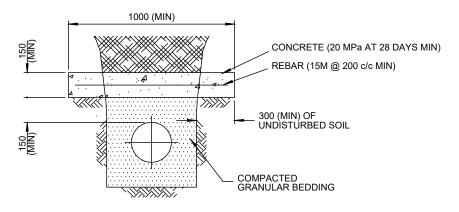


**ELEVATION** 

Α

CONCRETE 20 MPa AT 28 DAYS

## **ALTERNATIVE 1 - ENCASEMENT**



**FLEXIBLE** 

COUPLING

## ALTERNATIVE 2 - PROTECTIVE SLAB

### NOTES:

- I. THE REQUIREMENT FOR CONCRETE PIPE PROTECTION SHALL BE DETERMINED BY THE ENGINEER. DIMENSIONS SHOWN ARE MINIMUM REQUIREMENTS AND SHALL BE MODIFIED TO SUIT PIPE LOADING CONDITIONS.
- USE OF CONCRETE BEDDING OR HAUNCHING SHALL NOT BE PERMITTED ON PVC OR OTHER FLEXIBLE PIPE MATERIALS.
- 3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.



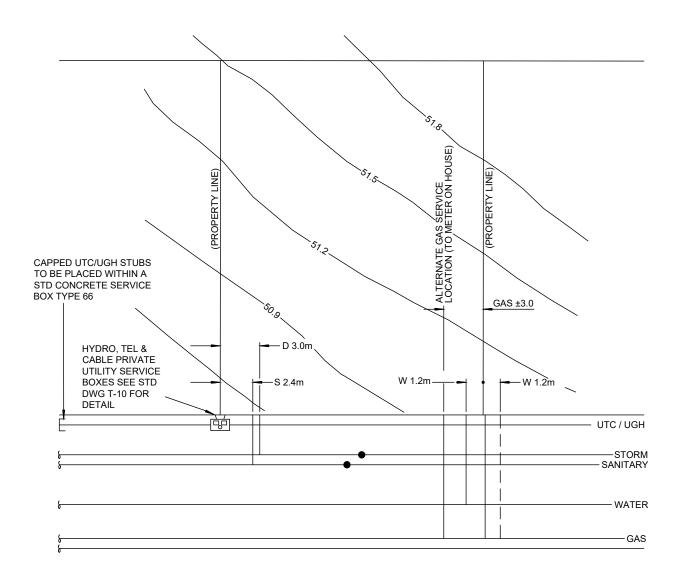
PIPE PROTECTION WITH CONCRETE

 Scale:
 NTS

 Created:
 OCT 1993

 Rev Date:
 NOV 2016

 Dwg No:
 T-6



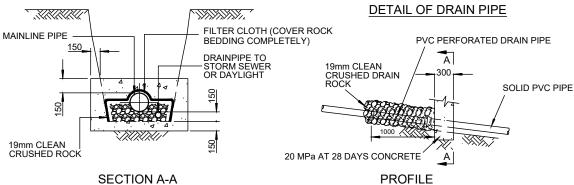
- SANITARY AND STORM SEWER SERVICES TO BE INSTALLED ON THE LOWER SIDE OF THE LOT, AND WHERE POSSIBLE, SHALL BE FROM THE THE FRONT PROPERTY LINE.
- 2. POLE RESERVE, IF REQUIRED, TO BE AT ALTERNATE LOT CORNER TO WATER SERVICES.
- 3. GAS SERVICES SHALL BE 1.0m MINIMUM SEPARATION FROM SANITARY, STORM AND WATER UTILITIES.
- 4. ALL DIMENSIONS IN METERS UNLESS OTHERWISE SHOWN.
- 5. CAPPED UTH/UGH STUBS MUST BE PLACED WITHIN A STANDARD CONCRETE SERVICE BOX TYPE 66.



TYPICAL LOCATION OF SERVICE CONNECTIONS TO RESIDENTIAL VACANT LOTS

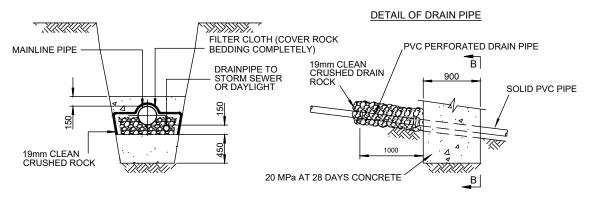
Scale: NTS
Created: OCT 2012
Rev Date: NOV 2016

Dwg No: T-7



ALTERNATIVE 1
FOR USE IN TILLS AND OTHER STABLE,
WELL COMPACTED NATIVE MATERIALS.

NOTE: MAINLINE PIPE & FILTER CLOTH NOT SHOWN FOR CLARITY.



**SECTION B-B** 

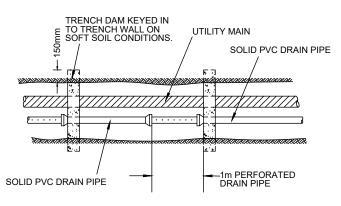
**PROFILE** 

ALTERNATIVE 2
FOR USE IN CLEAN GRAVELS, SANDS AND OTHER LOOSE, PERMEABLE NATIVE MATERIALS.

NOTE: MAINLINE PIPE & FILTER CLOTH NOT SHOWN FOR CLARITY.

## NOTES:

- IF APPROVED BY THE ENGINEER, IN AREAS INACCESSIBLE BY CONSTRUCTION EQUIPMENT, WET, PRE-MIXED CONCRETE FILLED SANDBAGS MAY BE USED.
- 2. REFER TO SECTION 4.18 FOR TRENCH DAM SPACING.
- 3. PROVIDE TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM. HIGHEST END OF THE TRENCH DAM DRAIN PIPE SHALL BE CAPPED.
- ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
- 5. ALL PIPE TO BE SDR 35 PVC.



**TYPE 1-PLAN VIEW** 



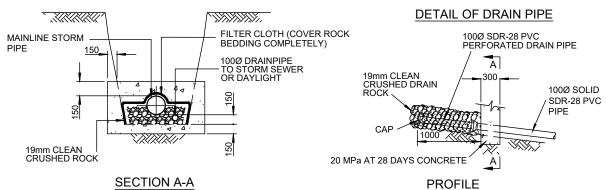
TRENCH DAMS - TYPE 1 FOR ALL UTILITY MAINS

Scale: NTS

Created: OCT 2012

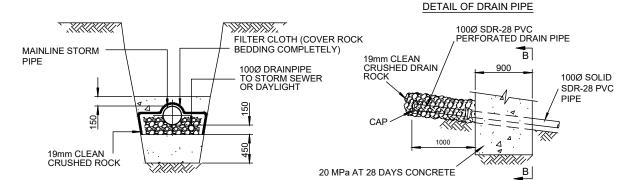
Rev Date: MAY 2020

Dwg No: T-8



**ALTERNATIVE 1** FOR USE IN TILLS AND OTHER STABLE, WELL COMPACTED NATIVE MATERIALS

NOTE: MAINLINE PIPE & FILTER CLOTH NOT SHOWN FOR CLARITY.



**SECTION B-B** 

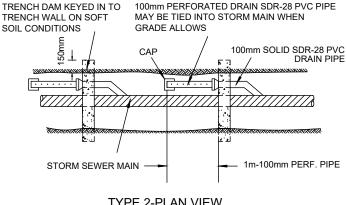
## **ALTERNATIVE 2**

FOR USE IN CLEAN GRAVELS, SANDS AND OTHER LOOSE, PERMEABLE NATIVE MATERIALS.

NOTE: MAINLINE PIPE & FILTER CLOTH NOT SHOWN FOR CLARITY.

#### NOTES:

- IF APPROVED BY THE ENGINEER, IN AREAS INACCESSIBLE BY CONSTRUCTION EQUIPMENT, WET, PRE-MIXED CONCRETE FILLED SANDBAGS MAY BE USED.
- REFER TO SECTION 4.18 FOR TRENCH DAM SPACING.
- PROVIDE TRENCH DRAINAGE TO AN ACCEPTABLE WATERCOURSE OR STORM COLLECTION SYSTEM FROM EVERY TRENCH DAM. HIGHEST END OF THE TRENCH DAM DRAIN PIPE SHALL BE CAPPED
- ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.
- ALL PIPE TO BE SDR-28 PVC.



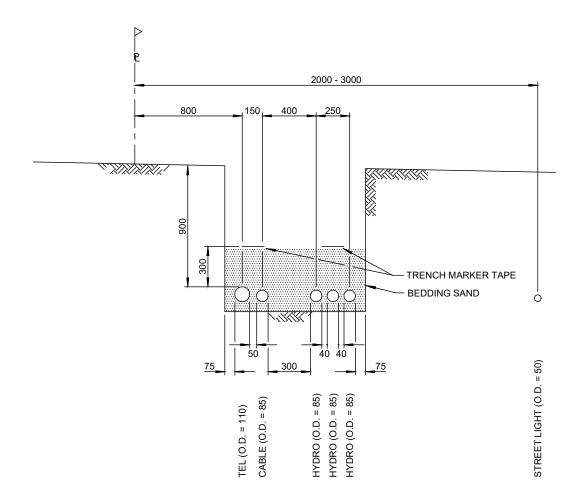
**PROFILE** 

TYPE 2-PLAN VIEW



TRENCH DAMS - TYPE 2 OPTIONAL FOR STORM **SEWER MAINS** 

NTS Scale OCT 2012 Created: Rev Date: NOV 2016 Dwg No: T-8A



- DIMENSIONS ARE SUGGESTIONS ONLY, DETAILS ARE TO BE DETERMINED BY PRIVATE UTILITY. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
- REFER TO UTILITY CONSTRUCTION DRAWINGS FOR DUCT SIZE AND OTHER CONSTRUCTION REQUIREMENTS. 3.
- ALL UTILITIES SHALL BE TRACEABLE ELECTRONICALLY.



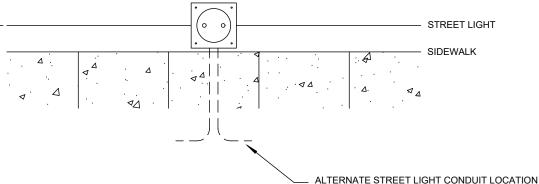
PRIVATE UTILITIES UNDERGROUND ELECTRICAL **COMMON TRENCH DETAIL** 

NTS MAY 2001 Created: Rev Date: MAY 2020 Dwg No: T-9

HYDRO BOX : 750Ø TEL BOX : 750x1000 CABLE BOX : 750x1000

300mm BACK OF CURB, 300mm DEEP

1.0 MIN HYDRO UNDERGROUND ELECTRICAL SERVICE AREA 0.7 MIN TEL (2.00 x 3.50 MIN) 0.4 MIN CABLE 0.60 1.00 0.15 0.15 - PROPERTY LINE 0.80 TEL CABLE  $\bigcirc$ CABLE TEL 2.00 - 3.00 HYDRO **HYDRO** 0.40



NOTES:

- 1. REFER TO SECTION 8 FOR STREET LIGHT AND SIDEWALK OFFSETS.
- FOR STREET LIGHT OFFSETS LESS THAN 3.00m, HYDRANTS AND STREET LIGHT POLES SHALL NOT BE LOCATED WITH UNDERGROUND ELECTRICAL SERVICES.
- 3. SERVICE BOXES SHALL HAVE MINIMUM SEPARATION OF 300mm.
- 4. REFER TO UTILITY CONSTRUCTION DRAWINGS FOR FURTHER DETAILS.
- 5. ALL UTILITIES SHALL BE TRACEABLE ELECTRONICALLY.
- 6. DIMENSIONS ARE SUGGESTIONS ONLY, DETAILS TO BE DETERMINED BY PRIVATE UTILITY.
- 7. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.



PRIVATE UTILITIES
UNDERGROUND ELECTRICAL
TYPICAL SERVICE BOX LOCATION

 Scale:
 NTS

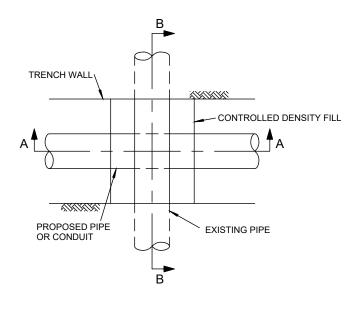
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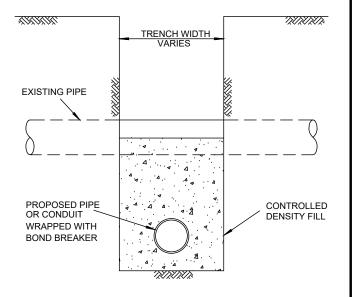
 Rev Date:
 MAY 2020

 Dwg No:
 T-10

3.20.2020

G:INFRASTRUCTURE PLANNINGISTANDARDS & PRODUCTSIMOESSIEDITION NO13 MAY 2020/2019-09-15 REDLINE INCORPORATION - WORKINGI2020 DRAWING SECTIONS/FINAL DRAFTISECTION 4 DWGSIT-10

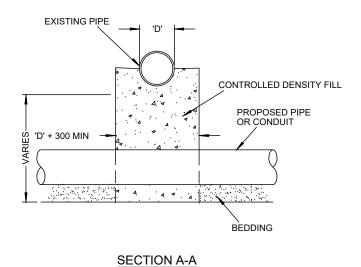




**PLAN** 

FINISHED GRADE

SECTION B-B



NOTES:

1. ALL DIMENSION IN MILLIMETERS UNLESS SHOWN OTHERWISE.



DETAIL OF SUPPORT FOR EXISTING UTILITIES

Scale: NTS
Created: MAY 1998
Rev Date: NOV 2016

Dwg No: T-11

G:INFRASTRUCTURE PLANNINGISTANDARDS & PRODUCTSIMOESSIEDITION NO13 MAY 2020/2019-09-15 REDLINE INCORPORATION - WORKING:2020 DRAWING SECTIONSIFINAL DRAFTSECTION 4 DWGSIT-11