STARWOOD GROUP INC.

THE HAZELTON WESTBORO
403 RICHMOND ROAD & 389 ROOSEVELT AVENUE

LIST OF DRAWINGS

PLAN No:	DESCRIPTION
C000	COVER PAGE
C001	TOPOGRAPHICAL SURVEY PLAN
C002	SEDIMENT AND EROSION CONTROL PLAN
C003	NOTES PLAN – 1 of 2
C004	NOTES PLAN – 2 of 2
C005	GRADE CONTROL AND DRAINAGE PLAN
C006	SITE SERVICING PLAN
C007	STORM WATER MANAGEMENT PLAN
C008	CIVIL DETAILS PLAN – 1 of 5
C009	CIVIL DETAILS PLAN – 2 of 5
C010	CIVIL DETAILS PLAN – 3 of 5
C011	CIVIL DETAILS PLAN – 4 of 5
C012	CIVIL DETAILS PLAN – 5 of 5

CIMA+

STARWOOD GROUP INC.
THE HAZELTON WESTBORO
403 RICHMOND ROAD & 389 ROOSEVELT AVENUE
RE-ISSUED FOR SITE PLAN CONTROL - JANUARY 20, 2023

D07-12-22-0067

C000

#18861

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19 January 2023 Devdatsinh Vaghela

TITLEBLOCK 24x36 VERT ENG 3.0

WESTBORO CHAPEL
No. 403

RICHMOND ROAD

ROOSEVELT AVENUE

No. 385

No. 389

EXISTING WATER AND SEWER LATERALS TO BE ADEQUATELY BLANKED AND CAPPED PER CITY DETAIL S11.4. LOCATION IS APPROXIMATE AND MUST BE CONFIRMED BY CONTRACTOR.

EXISTING SEWER LATERALS TO BE ADEQUATELY BLANKED AND CAPPED PER CITY DETAIL S11.4. LOCATION IS APPROXIMATE AND MUST BE CONFIRMED BY CONTRACTOR.

SURVEY COMPLETED:
CIMA+ JUNE 23rd AND 26th, 2020
SUPPLEMENTED BY CITY UCC PLAN
20-0571 REVISED JULY 21, 2020

NOTE OF CAUTION

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EXISTING	PROPOSED
WATERMAIN	
SANITARY SEWER	
STORM SEWER	
DRAIN	
GAS LINE (APPROX. LOC.)	
UNDERGROUND TELEPHONE (APPROX. LOC.)	
UNDERGROUND TAFFIC CABLE (APPROX. LOC.)	
FENCE	
UNDERGROUND ELECTRICITY (APPROX. LOC.)	
OVERHEAD WIRES	
LOT LINE	
RIGHT-OF-WAY LIMITS	
EASEMENT	
TOP OF SLOPE	
DITCH CENTER	
BOTTOM OF SLOPE	
WOOD AREA	
GRADE CROSSING	
FLAGPOLE	
CATCHBASIN	
MANHOLE/CATCHBASIN	
MANHOLE	
FIRE HYDRANT	
VALVE	
REDUCER	
TEE	
VALVE CHAMBER	
PRIVATE UTILITIES (WATERMAIN)	
EXTERIOR WATER FAUCET	
SLUICEWAY	
NATURAL GAS VALVE	
SIGN	
STOP SIGN	
TRAFFIC LIGHT	
ELECTRICITY POLE	
TELEPHONE POLE	
ELECT.-TEL.-STREET LIGHT POLE	
ELECT.-TEL.-TRANSFORMER POLE	
PRIVATE STREET LIGHT	
ELECTICITY MANHOLE	
TELEPHONE MANHOLE	
SURVEY STATION	
ELEVATION	+ 99,000
BOREHOLE (LOC. APPROX.) GROUND ELEVATION (BEDROCK ELEVATION)	
WORK LIMIT	

1:200
0 2 4 6 12m

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:

DESIGNED BY | APPROVED BY

ENGINEER:
CIMA+

CLIENT:
The Hazelton Westboro

PROJECT NAME:
403 RICHMOND ROAD &
389 ROOSEVELT AVENUE

SHEET TITLE:
TOPOGRAPHICAL SURVEY PLAN

DISCIPLINE:
CIVIL

DRAFTER: S.C. POGGIOLI	SCALE: 1:200
DESIGNER: T. KENNEDY	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C001
SHEET No: 1 of 12	

D07-12-22-0067

#18861

PRINT DATE: 2023/01/20 / PAPER SIZE: ISO A4 (210.00 x 297.00 MM)
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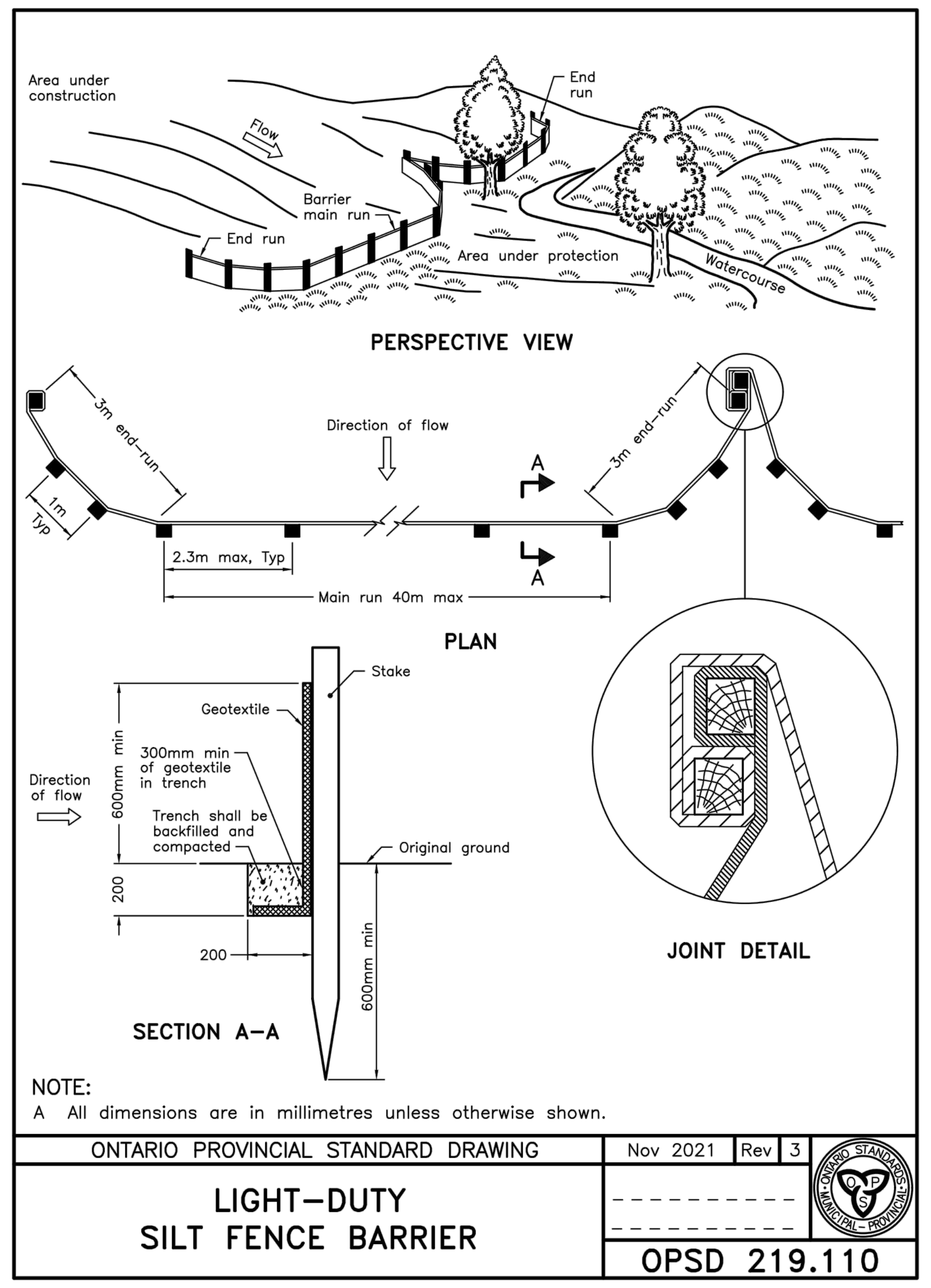

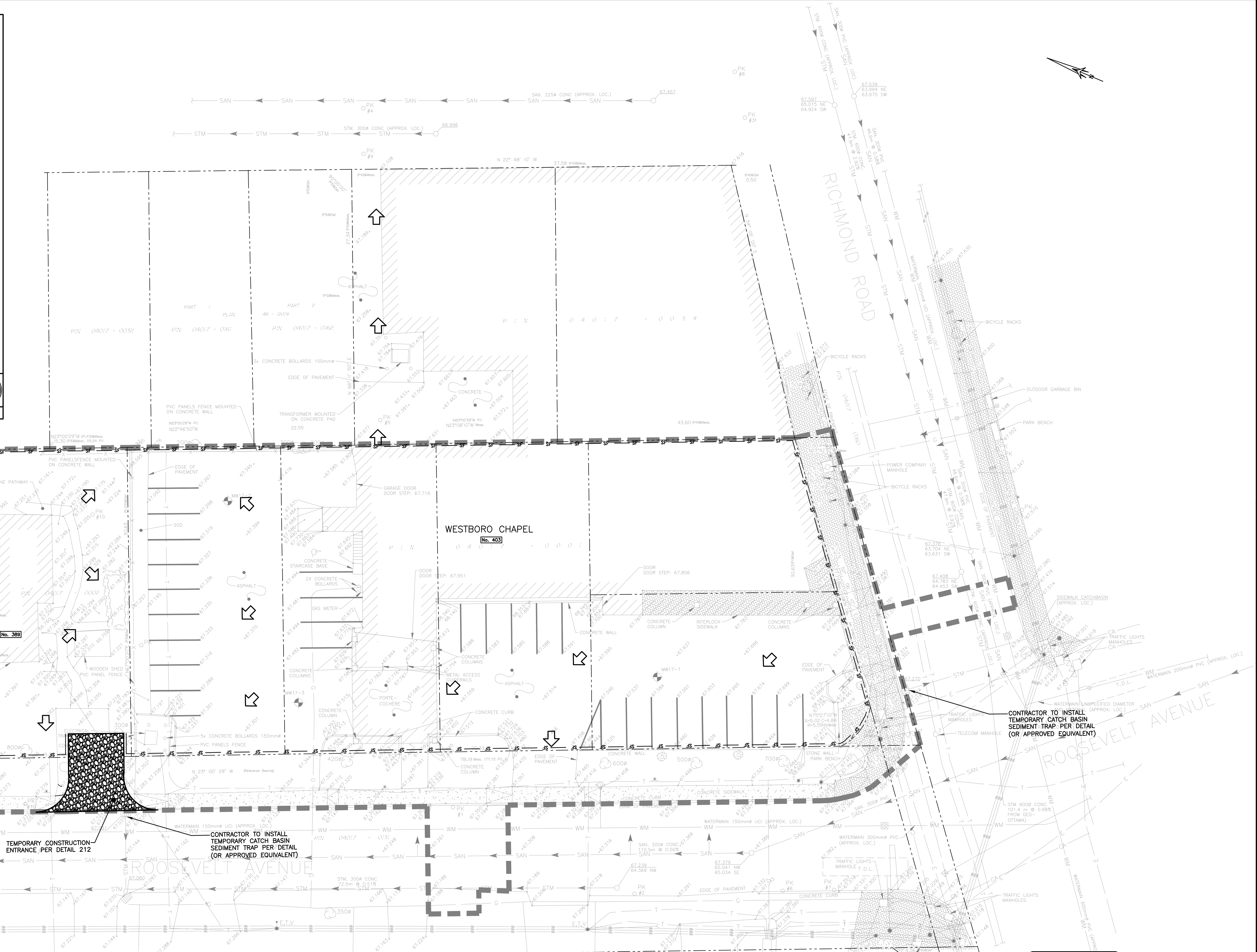

EXISINTG		PROPOSED
	WATERMAIN	
	SANITARY SEWER	
	STORM SEWER	
	DRAIN	
	GAS LINE (APPROX. LOC.)	
	UNDERGROUND TELEPHONE (APPROX. LOC.)	
	UNDERGROUND CABLE (APPROX. LOC.)	
	FENCE	
	UNDERGROUND ELECTRICITY (APPROX. LOC.)	
	OVERHEAD WIRES	
	LOT LINE	
	RIGHT-OF-WAY LIMITS	
	EASEMENT	
	TOP OF SLOPE	
	DITCH CENTER	
	BOTTOM OF SLOPE	
	WOOD AREA	
	GRADE CROSSING	
	FLAGPOLE	
	CATCHBASIN	
	MANHOLE/CATCHBASIN	
	MANHOLE	
	FIRE HYDRANT	
	VALVE	
	REDUCER	
	TEE	
	VALVE CHAMBER	
	PRIVATE UTILITIES (WATERMAIN)	
	EXTERIOR WATER FAUCET	
	SLUICEWAY	
	NATURAL GAS VALVE	
	SIGN	
	STOP SIGN	
	TRAFFIC LIGHT	
	ELECTRICITY POLE	
	TELEPHONE POLE	
	ELECT.-TEL.-STREET LIGHT POLE	
	ELECT.-TEL.-TRANSFORMER POLE	
	PRIVATE STREET LIGHT	
	ELECTICITY MANHOLE	
	TELEPHONE MANHOLE	
	SURVEY STATION	
	ELEVATION	
	BOREHOLE (LOC. APPROX.) GROUND ELEVATION (BEDROCK ELEVATION)	
	SILT FENCE PER OPSD 219.110	SF
	OVERLAND FLOW	
	TEMPORARY CONSTRUCTION ENTRANCE	
	WORK LIMIT	

1:200 — 0, 2, 4, 8, 12m

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
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2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:

LICENSED PROFESSIONAL ENGINEER — J. C. ADAMS — 100519478 — 20 January 2023 — PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER — T. G. KENNEDY — 100173201 — January 20, 2023 — PROVINCE OF ONTARIO

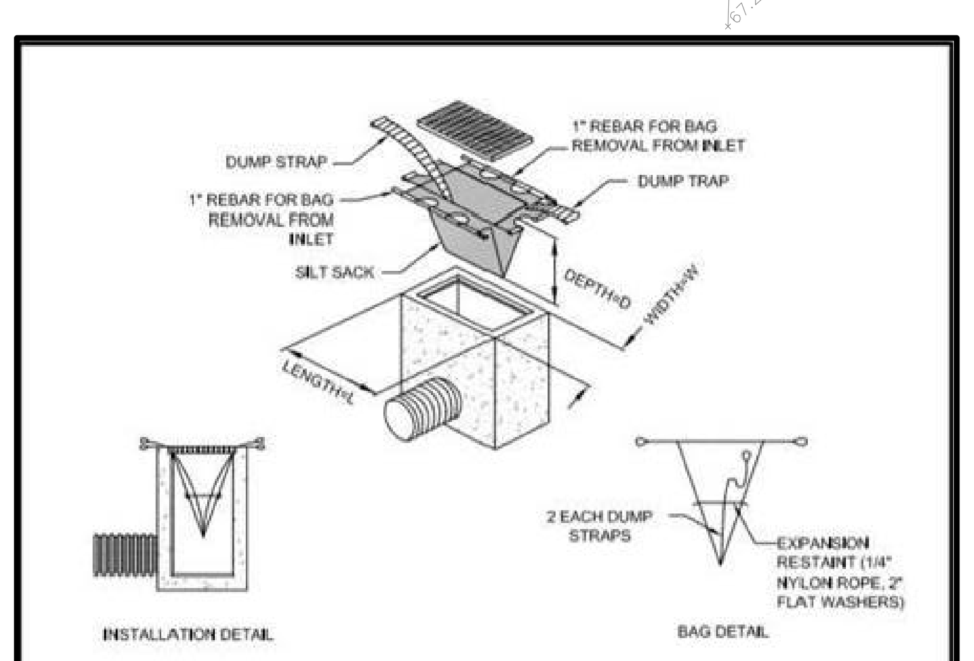
DESIGNED BY — APPROVED BY

ENGINEER:

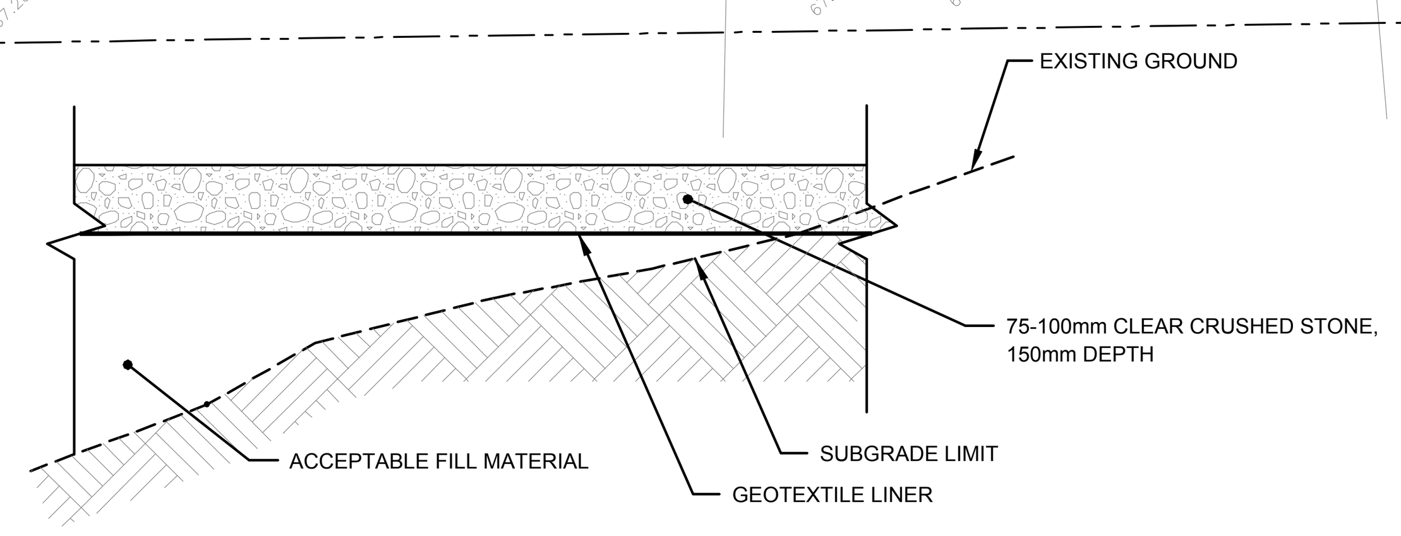
CIMA+

CLIENT:

The Hazelton Westboro



TEMPORARY SEDIMENT TRAP (TYPE 2) — N.T.S.



212 — TYPICAL SECTION - TEMPORARY CONSTRUCTION ENTRANCE

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PROJECT NAME:

403 RICHMOND ROAD &
389 ROOSEVELT AVENUE

SHEET TITLE:

SEDIMENT AND EROSION CONTROL PLAN

DISCIPLINE: CIVIL	
DRAFTER: S.C. POGGIOLI	SCALE: 1:200
DESIGNER: G. JOSEPH	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C002
SHEET No: 2 of 12	

D07-12-22-0067

#18861

PRINT DATE: 2023/01/20 / PAPER SIZE: ISO A4 (210.00 x 297.00 MM)
PATH: Z:\Cima-C10\Ott_Projects\A\A001000-A001499\A001046_403 Richmond - Servicing Report\400\460_Civil\C002_Sediment&Erosion.dwg / LAYOUT: C002

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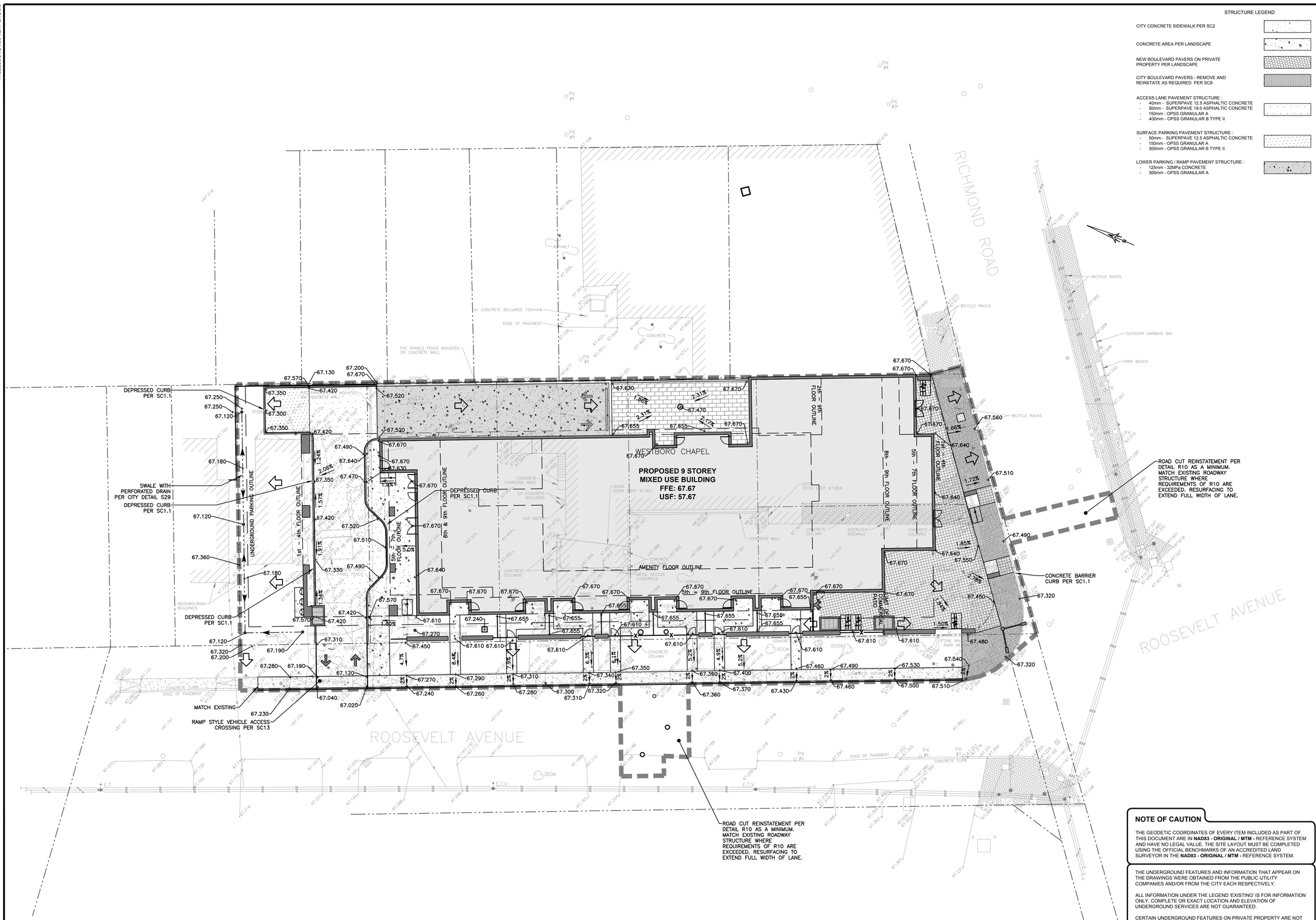

STRUCTURE LEGEND

- CITY CONCRETE SIDEWALK PER SC2
- CONCRETE AREA PER LANDSCAPE
- NEW BOULEVARD PAVERS ON PRIVATE PROPERTY PER LANDSCAPE
- CITY BOULEVARD PAVERS - REMOVE AND REINSTATE AS REQUIRED PER SC9
- ACCESS LANE PAVEMENT STRUCTURE :
  - 40mm - SUPERPAVE 12.5 ASPHALTIC CONCRETE
  - 50mm - SUPERPAVE 19.0 ASPHALTIC CONCRETE
  - 150mm - OPSS GRANULAR A
  - 400mm - OPSS GRANULAR B TYPE II
- SURFACE PARKING PAVEMENT STRUCTURE :
  - 50mm - SUPERPAVE 12.5 ASPHALTIC CONCRETE
  - 150mm - OPSS GRANULAR A
  - 300mm - OPSS GRANULAR B TYPE II
- LOWER PARKING / RAMP PAVEMENT STRUCTURE :
  - 125mm - 32MPa CONCRETE
  - 300mm - OPSS GRANULAR A

EXISTING		PROPOSED
WM	WATERMAIN	
SAN	SANITARY SEWER	
STM	STORM SEWER	
D	DRAIN	
G	GAS LINE (APPROX. LOC.)	
T	UNDERGROUND TELEPHONE (APPROX. LOC.)	
CA	UNDERGROUND TRAFFIC CABLE (APPROX. LOC.)	
X	FENCE	
E	UNDERGROUND ELECTRICITY (APPROX. LOC.)	
	OVERHEAD WIRES	
	LOT LINE	
	RIGHT-OF-WAY LIMITS	
	EASEMENT	
	TOP OF SLOPE	
	DITCH CENTER	
	BOTTOM OF SLOPE	
	WOOD AREA	
	GRADE CROSSING	
	FLAGPOLE	
CB	CATCHBASIN	
	MANHOLE/CATCHBASIN	
	MANHOLE	
	FIRE HYDRANT	
	VALVE	
	REDUCER	
	TEE	
	VALVE CHAMBER	
	PRIVATE UTILITIES (WATERMAIN)	
	EXTERIOR WATER FAUCET	
	SLUICEWAY	
	NATURAL GAS VALVE	
	SIGN	
	STOP SIGN	
	TRAFFIC LIGHT	
E	ELECTRICITY POLE	
T	TELEPHONE POLE	
E,T	ELECT.-TEL.-STREET LIGHT POLE	
E,T	ELECT.-TEL.-TRANSFORMER POLE	
	PRIVATE STREET LIGHT	
E	ELECTICITY MANHOLE	
T	TELEPHONE MANHOLE	
PK	SURVEY STATION	
100.000	ELEVATION	+ 99.000
	DRAINAGE DIRECTION	
MW17-1	BOREHOLE (LOC. APPROX.)	
	OVERLAND FLOW	
	WORK LIMIT	

1:200
0 2 4 6 12m

No.	Date	Description	By
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2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:

LICENSED PROFESSIONAL ENGINEER — J. C. ADAMS — 100519478 — 20 January 2023 — PROVINCE OF ONTARIO
DESIGNED BY

LICENSED PROFESSIONAL ENGINEER — T. G. KENNEDY — 100173201 — January 20, 2023 — PROVINCE OF ONTARIO
APPROVED BY

ENGINEER: CIMA+

CLIENT: The Hazelton Westboro

PROJECT NAME:
403 RICHMOND ROAD &
389 ROOSEVELT AVENUE

SHEET TITLE:
GRADE CONTOL AND DRAINAGE PLAN

DISCIPLINE: CIVIL

DRAFTER: S.C. POGGIOLI	SCALE: 1:200
DESIGNER: J. ADAMS	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C005
SHEET No: 5 of 12	

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D07-12-22-0067

#18861

NOTES:

1. FOUNDATION DRAIN BACKWATER VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14.
2. SANITARY BACKWATER VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14.1.
3. ALL FLOOR DRAINS WITHIN THE UNDERGROUND PARKING MUST BE DIRECTED TO THE SANITARY LATERAL.
4. INTERNAL WATER METER TO BE LOCATED IN WATER ENTRY AND FIRE PUMP ROOM ON LEVEL P1.

EXISTING		PROPOSED
WM	WATERMAIN	WM
SAN	SANITARY SEWER	SAN
STM	STORM SEWER	STM
D	DRAIN	D
G	GAS LINE (APPROX. LOC.)	
T	UNDERGROUND TELEPHONE (APPROX. LOC.)	
CA	UNDERGROUND TRAFFIC CABLE (APPROX. LOC.)	
X X	FENCE	
E	UNDERGROUND ELECTRICITY (APPROX. LOC.)	
	OVERHEAD WIRES	
	LOT LINE	
	RIGHT-OF-WAY LIMITS	
	EASEMENT	
	TOP OF SLOPE	
	DITCH CENTER	
	BOTTOM OF SLOPE	
	WOOD AREA	
	GRADE CROSSING	
	FLAGPOLE	
	CATCHBASIN	
	MANHOLE/CATCHBASIN	
	MANHOLE	
	FIRE HYDRANT	
	VALVE	
	REDUCER	
	TEE	
	VALVE CHAMBER	
	PRIVATE UTILITIES (WATERMAIN)	
	EXTERIOR WATER FAUCET	
	SLUICEWAY	
	NATURAL GAS VALVE	
	SIGN	
	STOP SIGN	
	TRAFFIC LIGHT	
	ELECTRICITY POLE	
	TELEPHONE POLE	
	ELECT.-TEL.-STREET LIGHT POLE	
	ELECT.-TEL.-TRANSFORMER POLE	
	PRIVATE STREET LIGHT	
	ELECTICITY MANHOLE	
	TELEPHONE MANHOLE	
	SURVEY STATION	
	ELEVATION	
	BOREHOLE (LOC. APPROX.)	
	SEWER / WATERMAIN INSULATION	
	REMOTE WATER METERING READING DEVICE	RM
	INTERNAL WATER METER	M
	FIRE DEPARTMENT (SIAMESE) CONNECTION	

1:200
0 2 4 6 12m

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:

LICENSED PROFESSIONAL ENGINEER — J. C. ADAMS — 100519478 — 20 January 2023 — PROVINCE OF ONTARIO
DESIGNED BY

LICENSED PROFESSIONAL ENGINEER — T. G. KENNEDY — 100173201 — January 20, 2023 — PROVINCE OF ONTARIO
APPROVED BY

ENGINEER: CIMA+

CLIENT: The Hazelton Westboro

PROJECT NAME:
403 RICHMOND ROAD &
389 ROOSEVELT AVENUE

SHEET TITLE:
SITE SERVICING PLAN

DISCIPLINE: CIVIL

DRAFTER: S.C. POGGIOLI	SCALE: 1:200
DESIGNER: G. JOSEPH	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C006
SHEET No: 6 of 12	

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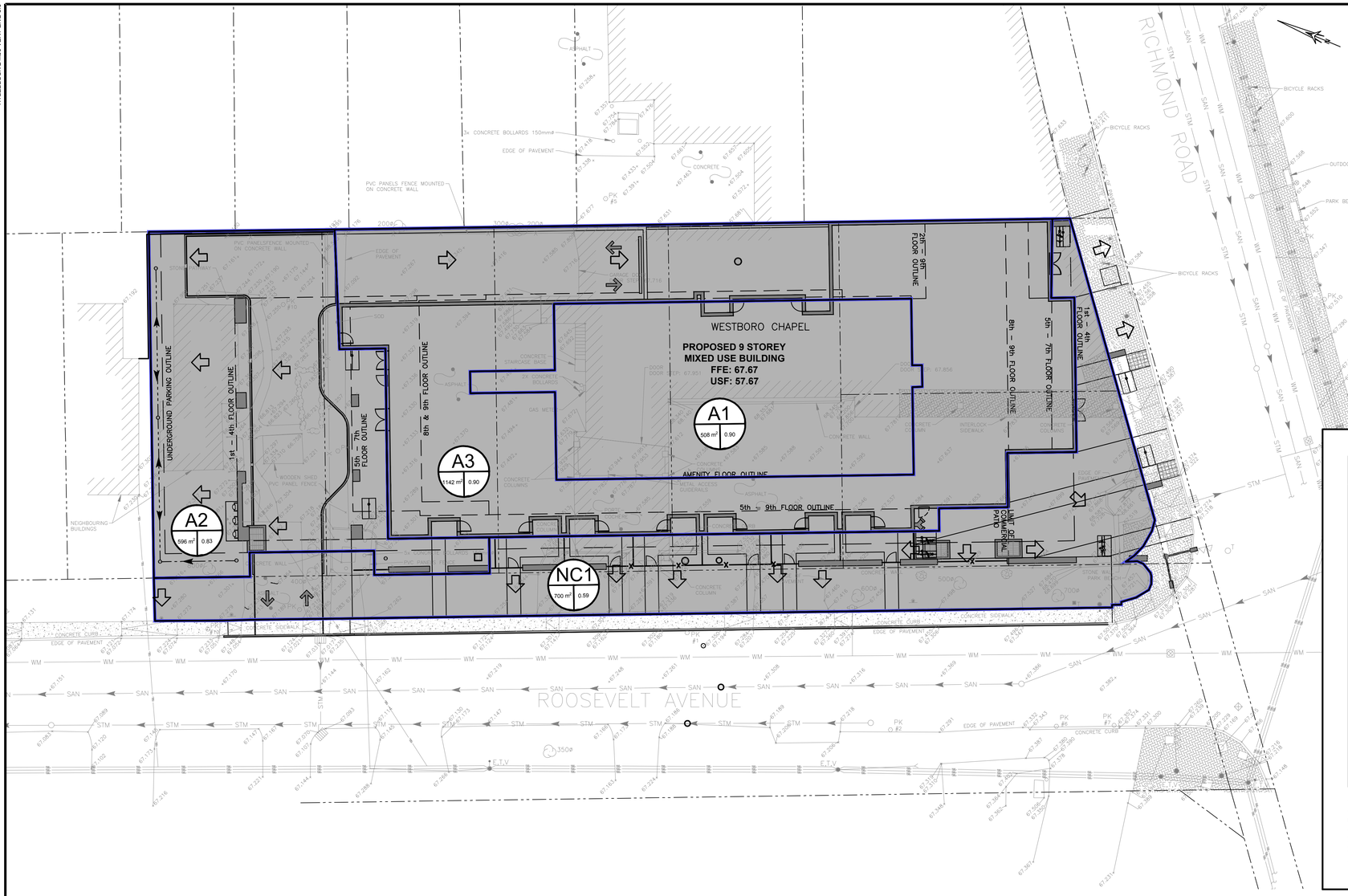


STORM WATER MANAGEMENT LEGEND

STORM DRAINAGE BOUNDARY

AREA ID — A1 (588 m² | 0.90)

AREA IN m2

RUNOFF COEFFICIENT

EXISTING	PROPOSED
WATERMAIN	
SANITARY SEWER	
STORM SEWER	
DRAIN	
GAS LINE (APPROX. LOC.)	
UNDERGROUND TELEPHONE (APPROX. LOC.)	
UNDERGROUND CABLE (APPROX. LOC.)	
FENCE	
UNDERGROUND ELECTRICITY (APPROX. LOC.)	
OVERHEAD WIRES	
LOT LINE	
RIGHT-OF-WAY LIMITS	
EASEMENT	
TOP OF SLOPE	
DITCH CENTER	
BOTTOM OF SLOPE	
WOOD AREA	
GRADE CROSSING	
FLAGPOLE	
CATCHBASIN	
MANHOLE/CATCHBASIN	
MANHOLE	
FIRE HYDRANT	
VALVE	
REDUCER	
TEE	
VALVE CHAMBER	
PRIVATE UTILITIES (WATERMAIN)	
EXTERIOR WATER FAUCET	
SLUICEWAY	
NATURAL GAS VALVE	
SIGN	
STOP SIGN	
TRAFFIC LIGHT	
ELECTRICITY PYLE	
TELEPHONE POLE	
ELECT.-TEL.-STREET LIGHT POLE	
ELECT.-TEL.-TRANSFORMER POLE	
PRIVATE STREET LIGHT	
ELECTICITY MANHOLE	
TELEPHONE MANHOLE	
SURVEY STATION	
ELEVATION	
BOREHOLE (LOC. APPROX.)	
OVERLAND FLOW	
WORK LIMIT	

1:200
0 2 4 6 12m

WATTS® Adjustable Accutrol Weir Tag: _____ — Adjustable Flow Control for Roof Drains

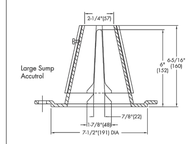
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.



1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____
Job Location _____ Contractor's P.O. No. _____
Engineer _____ Representative _____

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ES-WD-RD-ACCUTROLADJ-CAN 1615

STORMWATER MANAGEMENT – PRELIMINARY RETENTION CALCULATIONS – 2 YEAR EVENT

Sub-Area	Total Area (m^2)	Available Storage Area (m^2)	Catchbasin/ Roof Drain Elevation (m)	Maximum Ponding Elevation (m)	Y_{max} (m)	V_{max} (m^3)	V_{rain} (m^3)	V_{acc} (m^3)	Y_{rain} (m)	$Elev_{rain}$ (m)	A_{rain} (m^2)	Q (L/s)	Drawdown Time (min)	Comments
A1	508	508	100.00	100.15	0.15	25.4	5.8	5.8	0.07	100.07	242	1.90	50	Controlled roof area
A2	596	-	-	-	-	22.2	1.4	1.4	-	-	-	9.59	2	Area to swale
A3	1142	-	-	-	-	25.0	4.0	4.0	-	-	-	16.25	4	Areas to Tank
NC1	700	-	-	-	-	-	-	-	-	-	-	0.00	-	Unattenuated Areas
Total	**2946**	**508**				**72.6**	**11.1**	**11.1**				**27.74**		

DEFINITIONS OF ABBREVIATIONS USED IN CALCULATION TABLE:

NC = Area is not controlled (unattenuated)
Available Area = Area of water accumulated in sub-area at Max. Elev.
Catchbasin Elev. = Elevation of catchbasin inlet (top of grate).
Max. Elev. = Maximum elevation of water that may be accumulated within sub-area.
Y_{max} = Maximum depth of water that may be accumulated within the sub-area.
V_{max} = Maximum volume of water (capacity) that may be accumulated within the sub-area.
V_{rain} = Volume of water generated by rainfall.
V_{acc} = Total volume of water accumulated within the sub-area in the event of a specific rainfall.
Y_{rain} = Depth of water generated by rainfall.
$Elev_{rain}$ = Elevation of water generated by rainfall.
A_{rain} = Area of water generated by rainfall.
Q = Release flow rate.
Drawdown Time = Time required for the total volume of water accumulated within sub-area to subside.

STORMWATER MANAGEMENT – PRELIMINARY RETENTION CALCULATIONS – 100 YEAR EVENT

Sub-Area	Total Area (m^2)	Available Storage Area (m^2)	Catchbasin/ Roof Drain Elevation (m)	Maximum Ponding Elevation (m)	Y_{max} (m)	V_{max} (m^3)	V_{rain} (m^3)	V_{acc} (m^3)	Y_{rain} (m)	$Elev_{rain}$ (m)	A_{rain} (m^2)	Q (L/s)	Drawdown Time (min)	Comments
A1	508	508	100.00	100.15	0.15	25.4	20.1	20.1	0.13	100.13	452	1.90	177	Controlled roof area
A2	596	-	-	-	-	22.2	11.6	11.6	-	-	-	9.59	20	Area to swale
A3	1142	-	-	-	-	25.0	24.1	24.1	-	-	-	16.25	25	Areas to Tank
NC1	700	-	-	-	-	-	-	-	-	-	-	0.00	-	Unattenuated Areas
Total	**2946**	**508**				**72.6**	**55.9**	**55.9**				**27.74**		

DEFINITIONS OF ABBREVIATIONS USED IN CALCULATION TABLE:

NC = Area is not controlled (unattenuated)
Available Area = Area of water accumulated in sub-area at Max. Elev.
Catchbasin Elev. = Elevation of catchbasin inlet (top of grate).
Max. Elev. = Maximum elevation of water that may be accumulated within sub-area.
Y_{max} = Maximum depth of water that may be accumulated within the sub-area.
V_{max} = Maximum volume of water (capacity) that may be accumulated within the sub-area.
V_{rain} = Volume of water generated by rainfall.
V_{acc} = Total volume of water accumulated within the sub-area in the event of a specific rainfall.
Y_{rain} = Depth of water generated by rainfall.
$Elev_{rain}$ = Elevation of water generated by rainfall.
A_{rain} = Area of water generated by rainfall.
Q = Release flow rate.
Drawdown Time = Time required for the total volume of water accumulated within sub-area to subside.

NOTE OF CAUTION

THE GEODETIC COORDINATES OF EVERY ITEM INCLUDED AS PART OF THIS DOCUMENT ARE IN **NAD83 - ORIGINAL / MTM -** REFERENCE SYSTEM AND HAVE NO LEGAL VALUE. THE SITE LAYOUT MUST BE COMPLETED USING THE OFFICIAL BENCHMARKS OF AN ACCREDITED LAND SURVEYOR IN THE **NAD83 - ORIGINAL / MTM -** REFERENCE SYSTEM.

THE UNDERGROUND FEATURES AND INFORMATION THAT APPEAR ON THE DRAWINGS WERE OBTAINED FROM THE PUBLIC UTILITY COMPANIES AND/OR FROM THE CITY EACH RESPECTIVELY.

ALL INFORMATION UNDER THE LEGEND 'EXISTING' IS FOR INFORMATION ONLY. COMPLETE OR EXACT LOCATION AND ELEVATION OF UNDERGROUND SERVICES ARE NOT GUARANTEED.

CERTAIN UNDERGROUND FEATURES ON PRIVATE PROPERTY ARE NOT SHOWN ON THE CURRENT DRAWING.

ANYONE WHO PROCEEDS WITH EXCAVATION WORK SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND FEATURES, BY EXPLORATORY EXCAVATIONS, AND SHALL ASSUME FULL RESPONSIBILITY IF THERE IS ANY DAMAGE THAT OCCURS DURING WORK.

THE CONTRACTOR WILL HAVE THE RESPONSIBILITY AND THE OBLIGATION TO VALIDATE, BY EXPLORATORY EXCAVATION, THE SIZE OF THE PUBLIC UTILITIES UNDERGROUND SERVICES AND TO WARN THE ENGINEER OF ANY CONFLICT WITH THE PROJECTED WORK.

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:

LICENSED PROFESSIONAL ENGINEER — J. C. ADAMS — 100519478 — 20 January 2023 — PROVINCE OF ONTARIO — DESIGNED BY

LICENSED PROFESSIONAL ENGINEER — T. G. KENNEDY — 100173201 — January 20, 2023 — PROVINCE OF ONTARIO — APPROVED BY

ENGINEER:

CIMA+

CLIENT:

The Hazelton Westboro

PROJECT NAME:

403 RICHMOND ROAD &
389 ROOSEVELT AVENUE

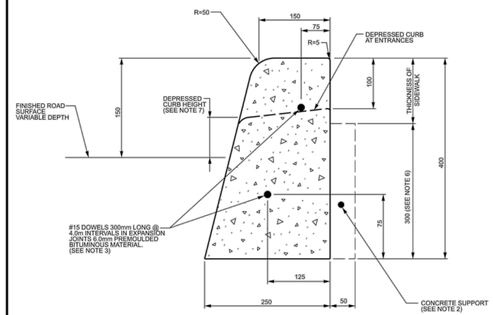
SHEET TITLE:

STORM WATER MANAGEMENT PLAN

DISCIPLINE:

CIVIL

DRAFTER: S.C. POGGIOLI	SCALE:
DESIGNER: J. ADAMS	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C007
SHEET No: 7 of 12	



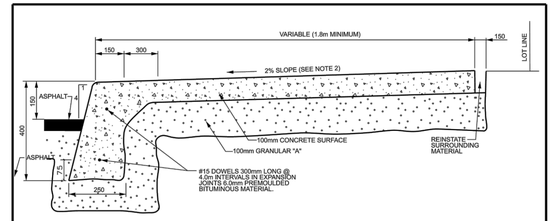
CONCRETE BARRIER CURB

NOTES:

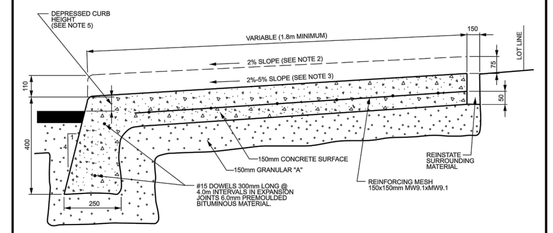
1. THE FULL CURB DEPTH SHALL BE CARRIED THROUGH THE DEPRESSED ACCESS CROSSING.
2. A CONCRETE SUPPORT IS REQUIRED WHEN BUILT ADJACENT TO THE SIDEWALK.
3. IF AN EXTRUSION CURBING MACHINE IS USED, THE EXPANSION BITUMINOUS MATERIAL AND THE #15 DOWELS ARE TO BE PLACED AT THE END OF THE EXTRUSION.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
5. DUMMY JOINTS SHALL BE 25mm DEEP, FRONT, BACK AND TOP OF SECTION AT 4m SPACING OR MATCH JOINTING WHERE SIDEWALK IS ADJACENT.
6. FOR DEPRESSED CURB AT ENTRANCES USE 250.
7. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13mm.

N.T.S.

Ottawa	CONCRETE BARRIER CURB FOR GRANULAR BASE PAVEMENT (MODIFIED OPSD-600.110)	DATE:	JANUARY 2003
		REV. DATE:	MARCH 2021
		DWG. No.:	SC1.1



TYPICAL SIDEWALK SECTION



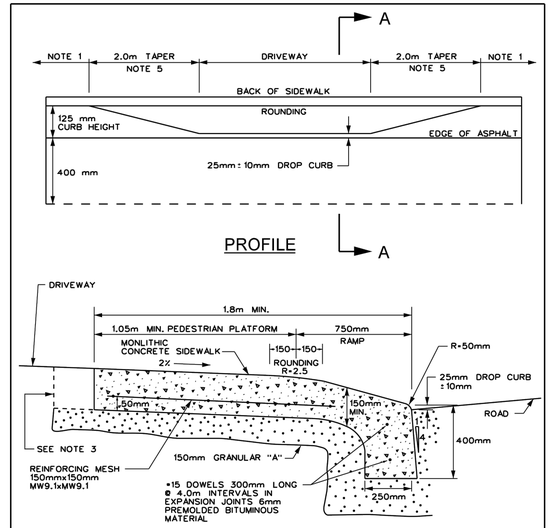
SECTION AT PRIVATE ENTRANCE AND PEDESTRIAN RAMPS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
2. THE MAXIMUM SLOPE IS NOT TO EXCEED 2%.
3. FOR CURB RAMPS, SLOPE OF 2% TO 5%, MAXIMUM 8%..
4. EXPANSION AND DUMMY JOINTS AS PER SC5.
5. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13 mm.

N.T.S.

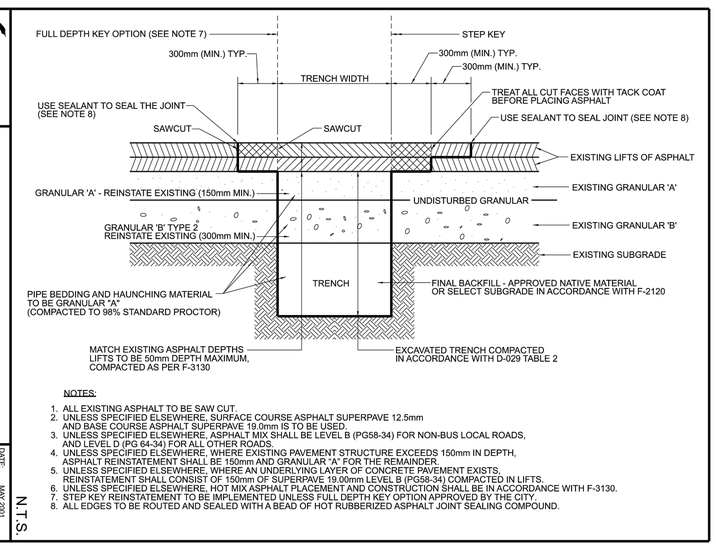
Ottawa	MONOLITHIC CONCRETE CURB AND SIDEWALK	DATE:	MAY 2001
		REV. DATE:	MAY 2021
		DWG. No.:	SC2



NOTES:

1. TYPICAL MONOLITHIC CONCRETE CURB AND SIDEWALK AS PER SC2, EXCEPT USE 125mm CURB HEIGHT.
2. DEPRESSIONS AT INTERSECTIONS AS PER SC6.
3. FOR WIDER SIDEWALKS, PEDESTRIAN PLATFORM TO BE INCREASED ACCORDINGLY.
4. NOT APPLICABLE FOR PROFILE GRADES OVER 5%.
5. TAPERS TO BE 1.5m WHEN ON-STREET PARKING IS PERMITTED.
6. WHERE VEHICLE ACCESS FOR ADJACENT PROPERTIES IS LESS THAN 3.0m APART, DO NOT APPLY TAPER: RAMP ACCESS IS CONTINUOUS - SEE SC13.1.

Ottawa	RAMP STYLE VEHICLE ACCESS CROSSING	DATE:	MARCH 2006
		REV. DATE:	MARCH 2015
		DWG. No.:	SC13

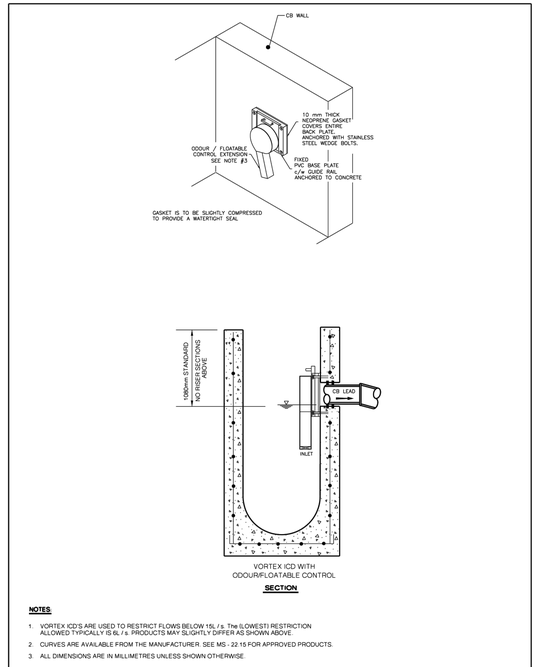


NOTES:

1. ALL EXISTING ASPHALT TO BE SAW CUT.
2. UNLESS SPECIFIED ELSEWHERE, SURFACE COURSE ASPHALT SUPERPAVE 12.5mm AND BASE COURSE ASPHALT SUPERPAVE 19.0mm IS TO BE USED.
3. UNLESS SPECIFIED ELSEWHERE, ASPHALT MIX SHALL BE LEVEL B (PG58-34) FOR NON-BUS LOCAL ROADS, AND LEVEL D (PG 64-34) FOR ALL OTHER ROADS.
4. UNLESS SPECIFIED ELSEWHERE, WHERE EXISTING PAVEMENT STRUCTURE EXCEEDS 150mm IN DEPTH, ASPHALT REINSTATEMENT SHALL BE 150mm AND GRANULAR "A" FOR THE REMAINDER.
5. UNLESS SPECIFIED ELSEWHERE, WHERE AN UNDERLYING LAYER OF CONCRETE PAVEMENT EXISTS, REINSTATEMENT SHALL CONSIST OF 150mm OF SUPERPAVE 19.00mm LEVEL B (PG58-34) COMPACTED IN LIFTS.
6. UNLESS SPECIFIED ELSEWHERE, HOT MIX ASPHALT PLACEMENT AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH F-3130.
7. STEP KEY REINSTATEMENT TO BE IMPLEMENTED UNLESS FULL DEPTH KEY OPTION APPROVED BY THE CITY.
8. ALL EDGES TO BE ROUTED AND SEALED WITH A BEAD OF HOT RUBBERIZED ASPHALT JOINT SEALING COMPOUND.

Ottawa	STANDARD TRENCH REINSTATEMENT IN PAVED SURFACE	DATE:	MAY 2001
		REV. DATE:	MARCH 2022
		DWG. No.:	R10

N.T.S.

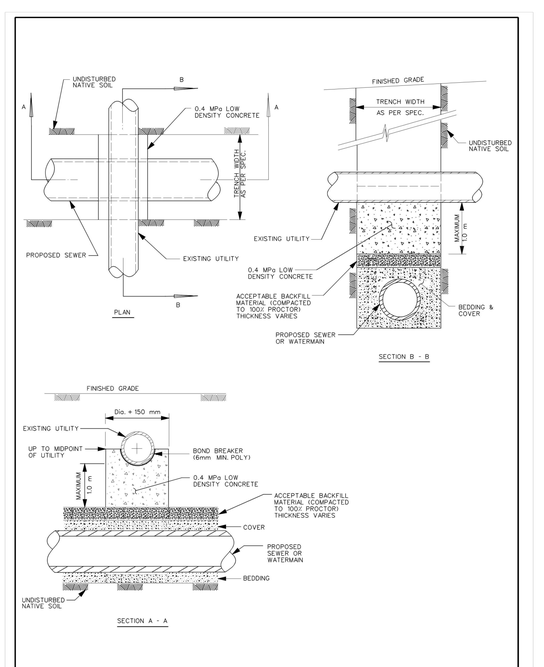


NOTES:

1. VORTEX ICD'S ARE USED TO RESTRICT FLOWS BELOW 15L / s. The ILOWEST) RESTRICTION ALLOWED TYPICALLY IS 6L / s. PRODUCTS MAY SLIGHTLY DIFFER AS SHOWN ABOVE.
2. CURVES ARE AVAILABLE FROM THE MANUFACTURER. SEE MS - 22.15 FOR APPROVED PRODUCTS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

N.T.S.

Ottawa	VORTEX ICD INSTALLATION	DATE:	MARCH 2008
		REV. DATE:	MARCH 2019
		DWG. No.:	S4.1



Ottawa	SUPPORT DETAIL FOR EXISTING UTILITY CROSSING SEWER OR WATERMAIN TRENCH	DATE:	MAY 2001
		REV. DATE:	NONE
		DWG. No.:	S10

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:

LICENSED PROFESSIONAL ENGINEER — J.C. ADAMS — 100519478 — 20 January 2023 — PROVINCE OF ONTARIO

DESIGNED BY

LICENSED PROFESSIONAL ENGINEER — T.G. KENNEDY — 100173201 — January 20, 2023 — PROVINCE OF ONTARIO

APPROVED BY

ENGINEER: CIMA+

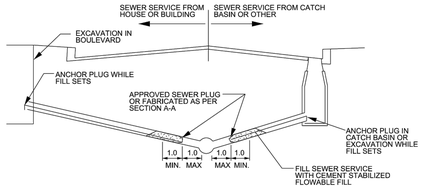
CLIENT: The Hazelton Westboro

PROJECT NAME: 403 RICHMOND ROAD & 389 ROOSEVELT AVENUE

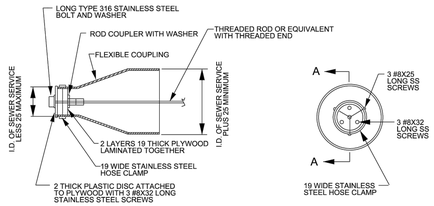
SHEET TITLE: DETAILS PLAN

DISCIPLINE: CIVIL

DRAFTER: S.C. POGGIOLI	SCALE:
DESIGNER: T. KENNEDY	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A0010046	DRAWING No: C008
SHEET No: 8 of 12	



SEWER SERVICE ABANDONMENT BENEATH PAVEMENT



SECTION A - A
FABRICATED SEWER PLUG

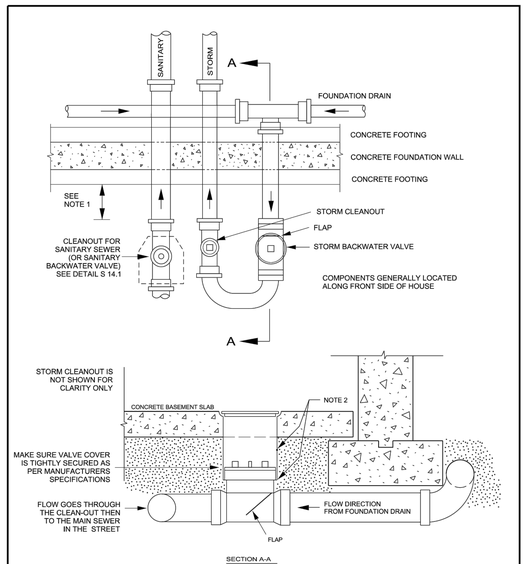
FRONT VIEW

NOTES:

1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SHOWN.

N.T.S.

Ottawa	SEWER SERVICE ABANDONMENT BENEATH PAVEMENT	DATE: MARCH 2011 REV. DATE: DWG. No.: S11.4



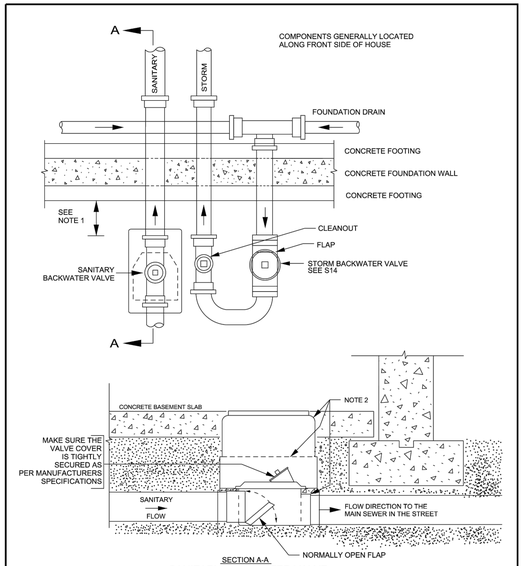
STORM BACKWATER VALVE

NOTES:

1. BACKWATER VALVE, CLEAN-OUTS AND ANY OTHER FITTINGS MUST BE INSTALLED A MINIMUM OF 300mm INSIDE OF THE BASEMENT FOOTING. THIS IS TO ENSURE THERE IS SUFFICIENT ROOM TO REPLACE THESE COMPONENTS IN THE FUTURE WITHOUT HAVING TO DAMAGE THE FOOTING/WALL DURING THE PROCESS
2. JOINTS BETWEEN THE SLEEVE AND THE BACKWATER VALVE AND THE FLOOR SHALL BE WATERTIGHT.

N.T.S.

Ottawa	FOUNDATION DRAIN BACKWATER VALVE INSTALLATION	DATE: DEC. 2002 REV. DATE: MARCH 2011 DWG. No.: S14



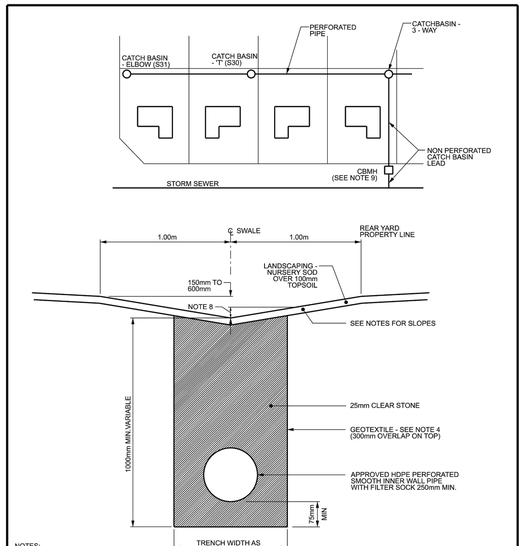
SANITARY BACKWATER VALVE

NOTES:

1. BACKWATER VALVE, CLEAN-OUTS AND ANY OTHER FITTINGS MUST BE INSTALLED A MINIMUM OF 300mm INSIDE OF THE BASEMENT FOOTING. THIS IS TO ENSURE THERE IS SUFFICIENT ROOM TO REPLACE THESE COMPONENTS IN THE FUTURE WITHOUT HAVING TO DAMAGE THE FOOTING/WALL DURING THE PROCESS
2. JOINTS BETWEEN THE ACCESS BOX SECTIONS AND THE ACCESS BOX AND THE BACKWATER VALVE AND THE FLOOR SLAB SHALL BE SEALED.

N.T.S.

Ottawa	SANITARY BACKWATER VALVE INSTALLATION TYPE 1	DATE: MARCH 2010 REV. DATE: MARCH 2011 DWG. No.: S14.1

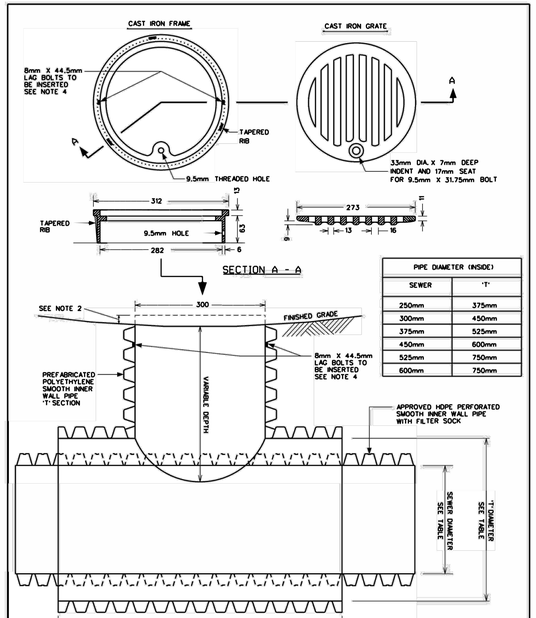


NOTES:

1. SIDE SLOPE OF SWALE - MIN. 1.5%, MAX. 3:1.
2. LONGITUDINAL SLOPE OF SWALE WITHOUT PERFORATED PIPE 1.5% MIN.
3. LONGITUDINAL SLOPE OF SWALE WITH PERFORATED PIPE 0.5% MIN. WITH 1% OR GREATER PREFERRED.
4. UNDER DRIVEWAYS NON PERFORATED PIPE TO BE USED WITH 75mm BEDDING AND BACKFILLED WITH APPROVED NATIVE MATERIAL.
5. CB "T" TO BE SPACED ABOUT EVERY 20 TO 25m AND LOCATED 1m OFF REAR YARD AND SIDE YARD PROPERTY LINES.
6. CB ELBOW TO BE AT UPPER ENDS OF PERFORATED PIPE AND LOCATED 1m OFF REAR YARD AND SIDE YARD PROPERTY LINES.
7. GEOTEXTILE SHALL BE APPROVED NON-WOVEN CLASS 1 OR AS SPECIFIED.
8. MAXIMUM REAR YARD WATER DEPTH IS 300mm.
9. A STANDARD CATCHBASIN NO DEEPER THAN 2.4m OR A CATCHBASIN MAINTENANCE HOLE. STANDARD FRAMES C/W PERFORATED OR SOLID COVER AS SPECIFIED. STANDARD ICD'S AS SPECIFIED

N.T.S.

Ottawa	PERFORATED PIPE INSTALLATION FOR REAR YARD AND LANDSCAPING APPLICATIONS	DATE: MARCH 2007 REV. DATE: MARCH 2019 DWG. No.: S29

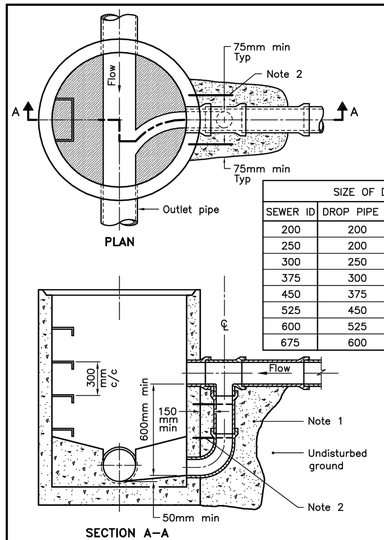


PIPE DIAMETER (INSIDE)	
SEWER	'T'
250mm	375mm
300mm	450mm
375mm	525mm
450mm	600mm
525mm	750mm
600mm	750mm

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
2. FOR DITCHED PIPE APPLICATIONS, TOP OF CB SHALL BE MIN. 5cm ABOVE BOTTOM OF THE DITCH/SWALE AND BE LOCATED MIN. 2m FROM EDGE OF PAVEMENT.
3. WHEN NON PERFORATED PIPE IS USED, MATCH THE 'T's HORIZONTAL OPENING DIAMETERS TO THE PIPE DIAMETER AND CONNECT WITH MANUFACTURER RECOMMENDED CONNECTION SLEEVE.
4. CAST IRON FRAME TO BE SECURED TO PIPE WITH 2 LAG BOLTS AS SHOWN.

Ottawa	CATCH BASIN - 'T' FOR REAR YARD, DITCHED PIPE AND LANDSCAPING APPLICATIONS	DATE: MARCH 2007 REV. DATE: MARCH 2021 DWG. No.: S30



SIZE OF DROP PIPE		
SEWER ID	DROP PIPE ID	APPLICATION
200	200	Storm and Sanitary
250	200	Storm and Sanitary
300	250	Storm and Sanitary
375	300	Storm and Sanitary
450	375	Storm
525	450	Storm
600	525	Storm
675	600	Storm

NOTES:

1 Concrete shall be placed to undisturbed ground and the outside face of the maintenance hole, but there shall be a minimum of 150mm of 15MPa concrete around the drop pipe.
2 Concrete shall be secured to the maintenance hole with 450mm long, 13mm diameter threaded rods and drilled expansion anchors down either side of the drop pipe at 300mm centres.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
CAST–IN–PLACE MAINTENANCE HOLE DROP STRUCTURE TEE		OPSD 1003.010

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:

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LICENSED PROFESSIONAL ENGINEER — T. G. KENNEDY — 100173201 — January 20, 2023 — PROVINCE OF ONTARIO — APPROVED BY

ENGINEER: CIMA+

CLIENT: The Hazelton Westboro

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SHEET TITLE: DETAILS PLAN

DISCIPLINE: CIVIL

DRAFTER: S.C. POGGIOLI	SCALE:
DESIGNER: T. KENNEDY	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C009
SHEET No: 9 of 12	

D07-12-22-0067

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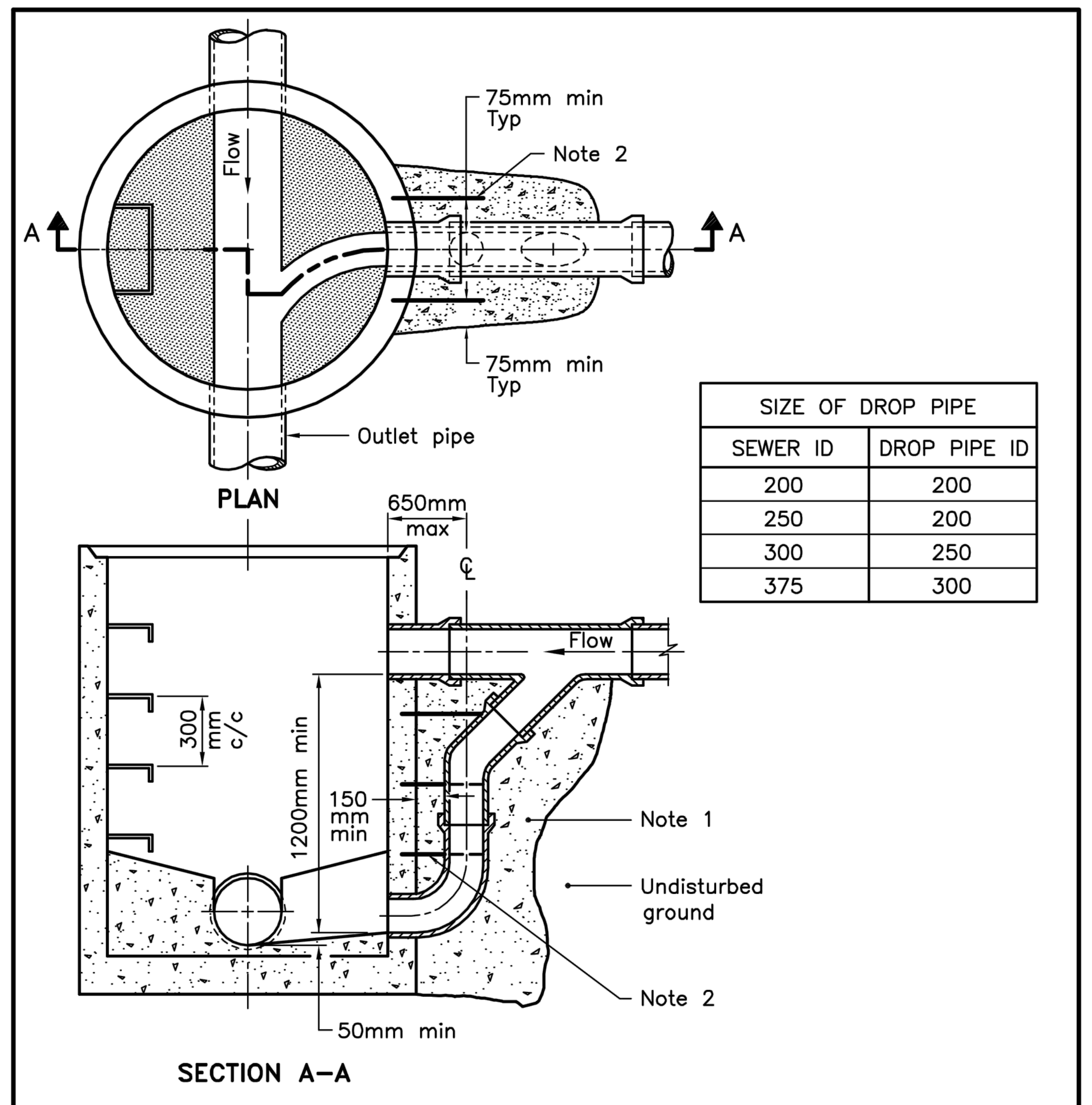
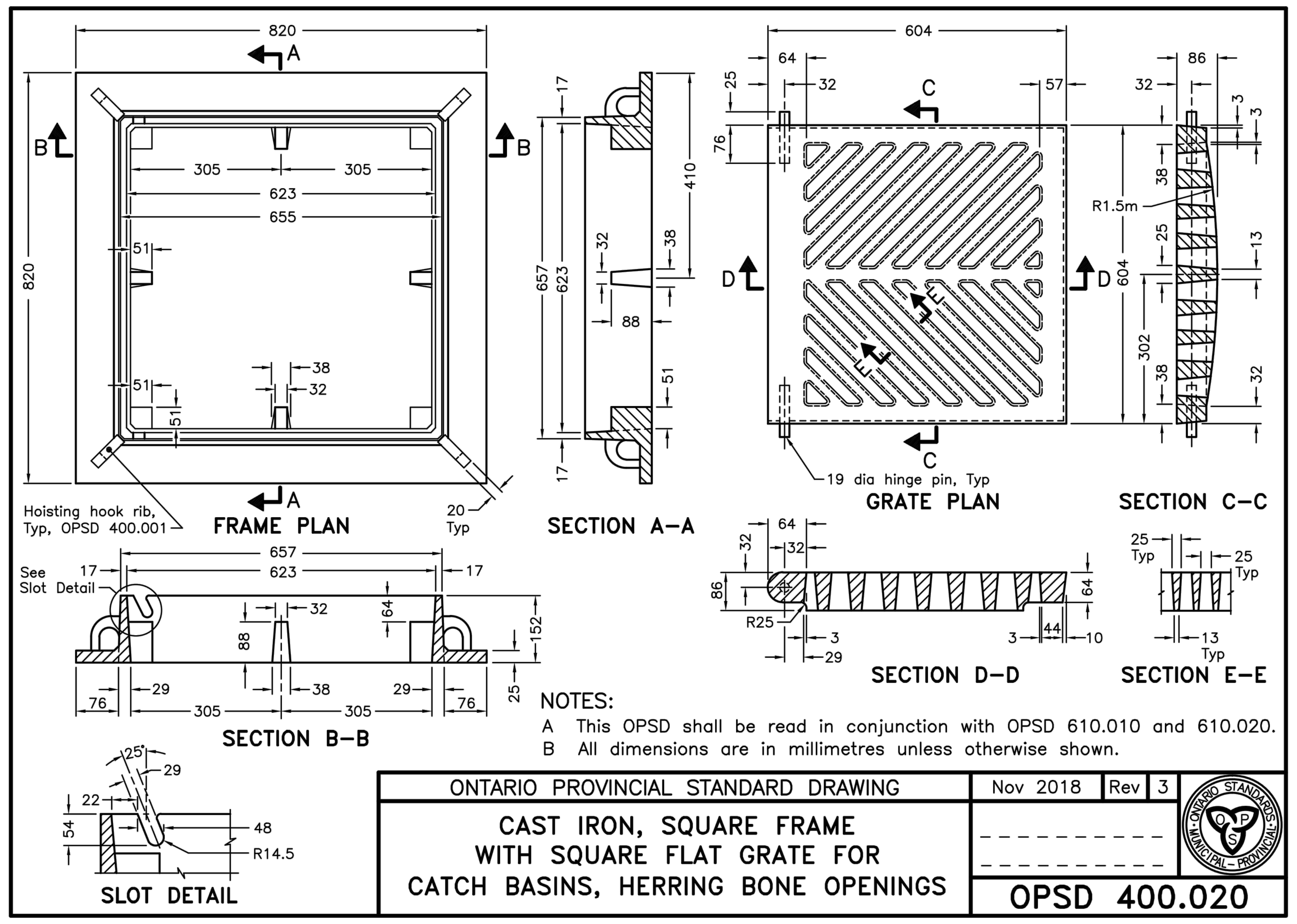


SIZE OF DROP PIPE	
SEWER ID	DROP PIPE ID
200	200
250	200
300	250
375	300

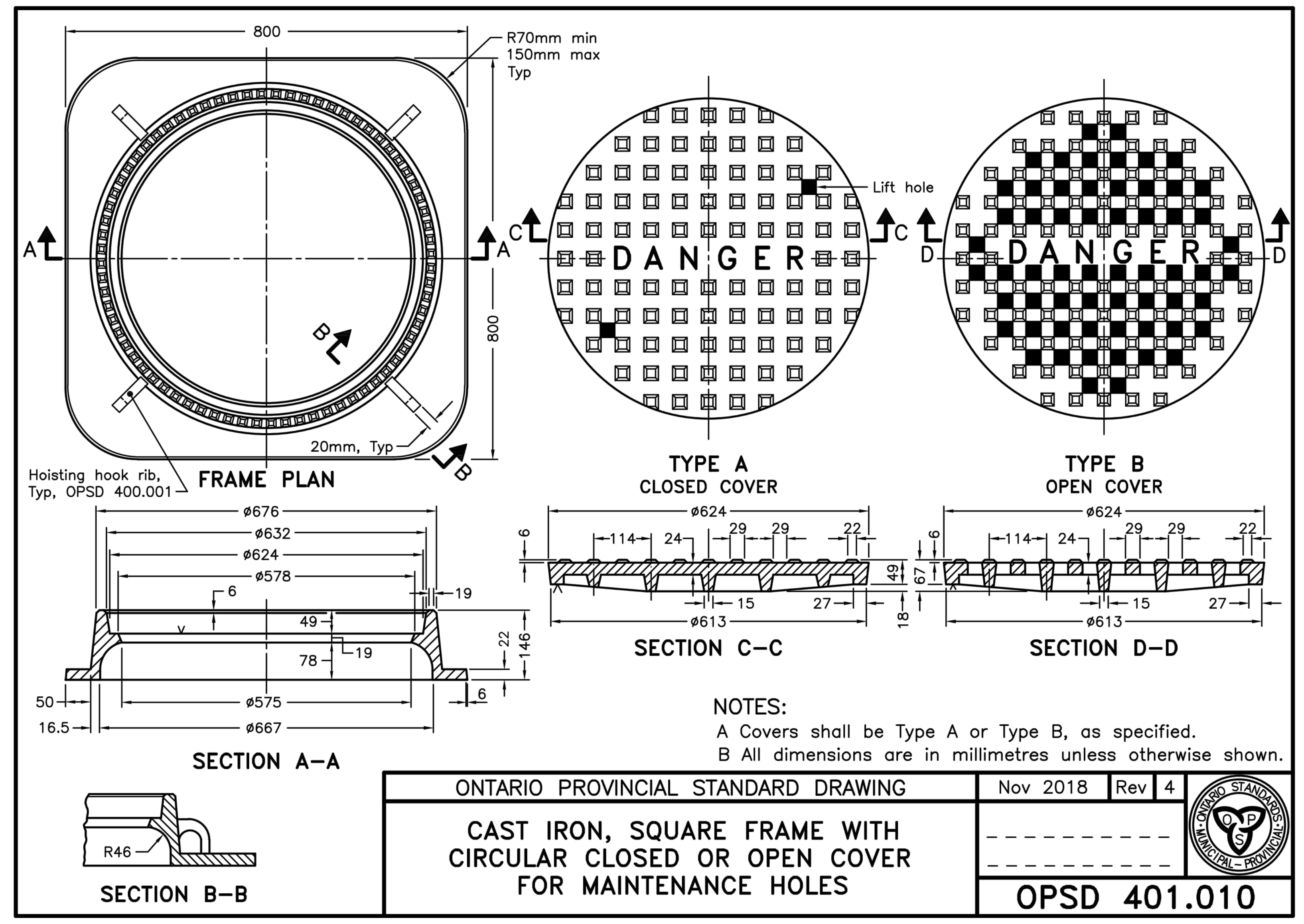
NOTES:
1 Concrete shall be placed to undisturbed ground and the outside face of the maintenance hole, but there shall be a minimum of 150mm of 15MPa concrete around the drop pipe.
2 Concrete shall be secured to the maintenance hole with 450mm long, 13mm diameter threaded rods and drilled expansion anchors down either side of the drop pipe at 300mm centres.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2016 — Rev 3
CAST–IN–PLACE MAINTENANCE HOLE DROP STRUCTURE WYE
OPSD 1003.020



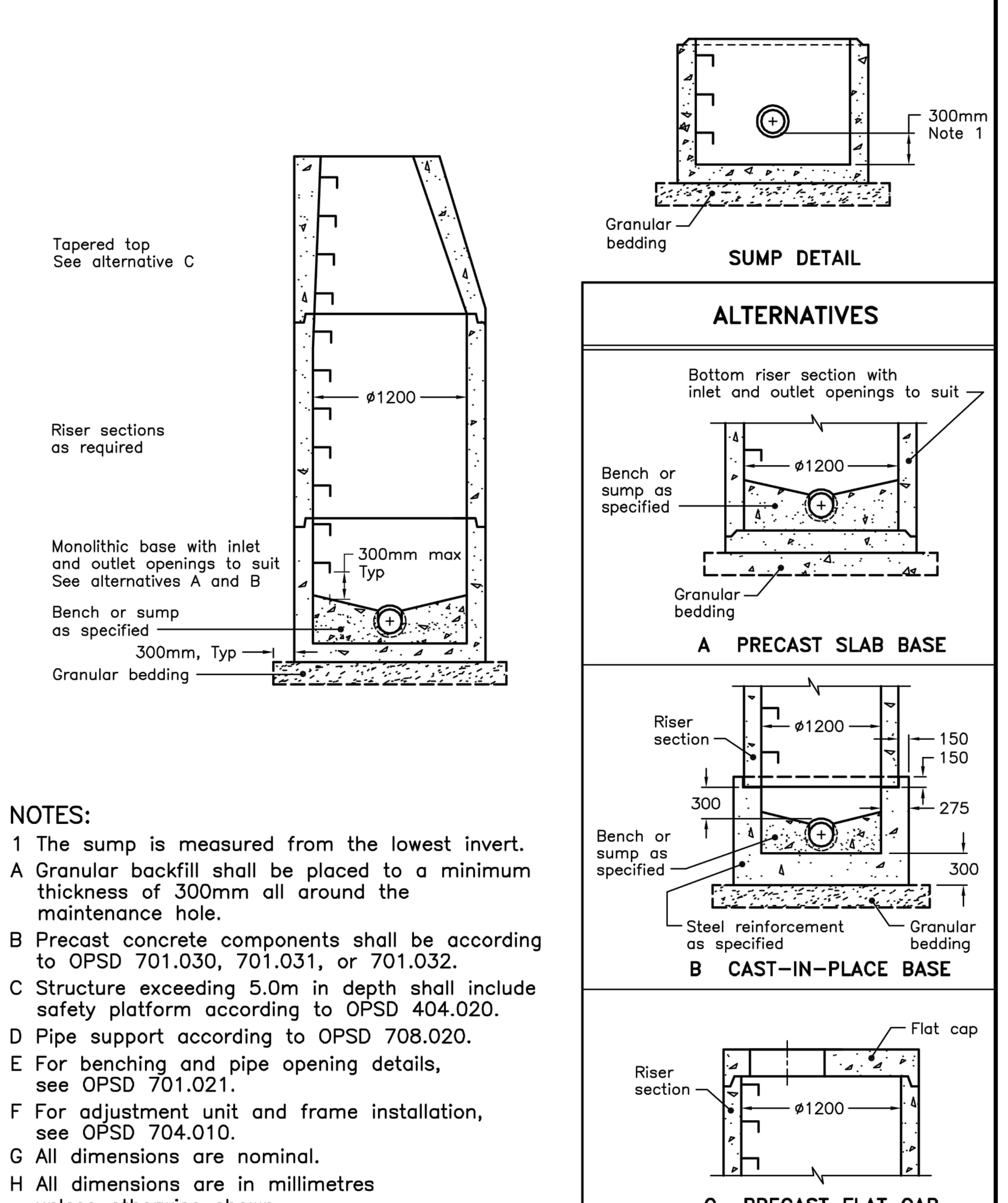
NOTES:
A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2018 — Rev 3
CAST IRON, SQUARE FRAME WITH SQUARE FLAT GRATE FOR CATCH BASINS, HERRING BONE OPENINGS
OPSD 400.020



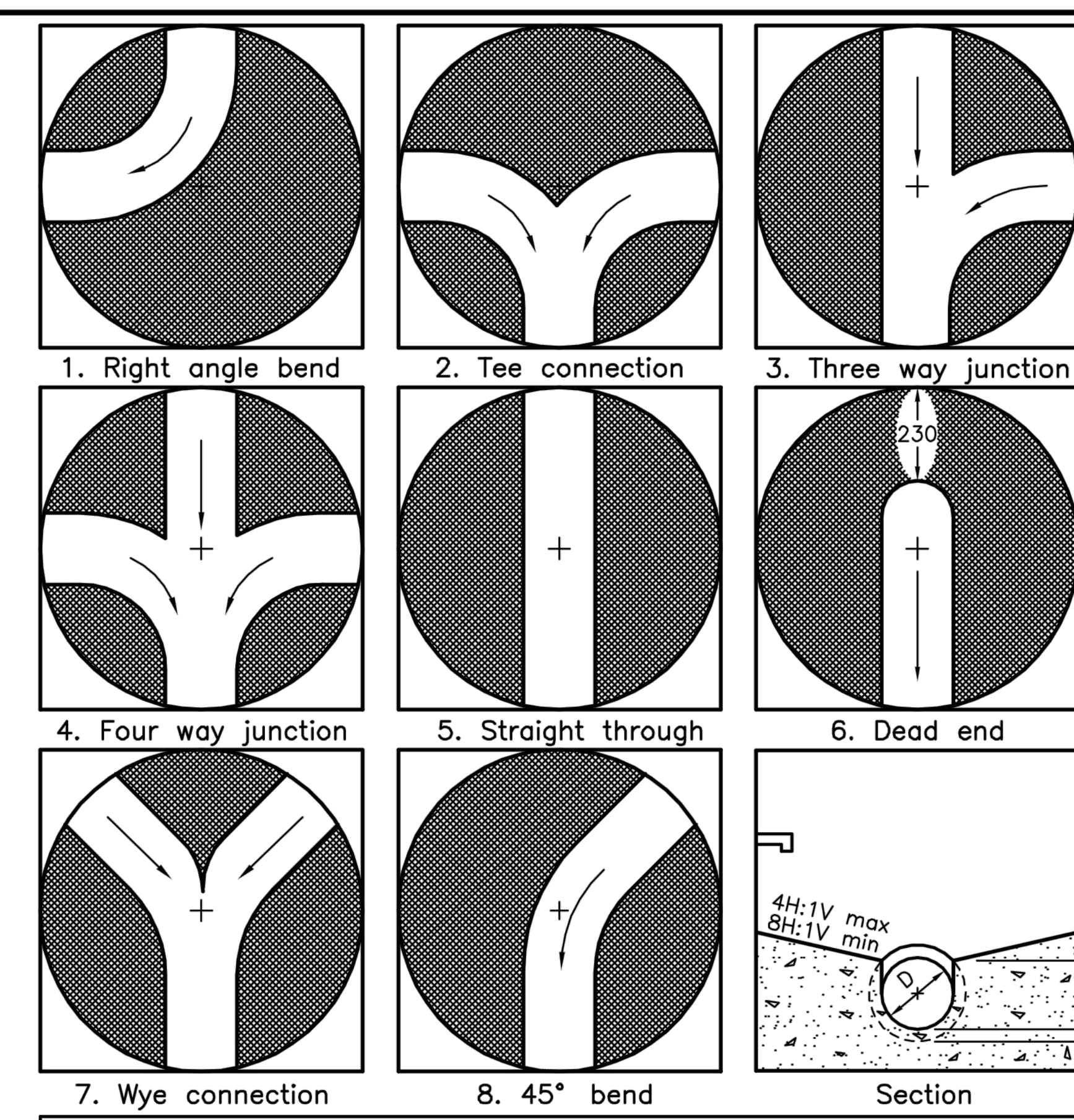
NOTES:
A Covers shall be Type A or Type B, as specified.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2018 — Rev 4
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES
OPSD 401.010



NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

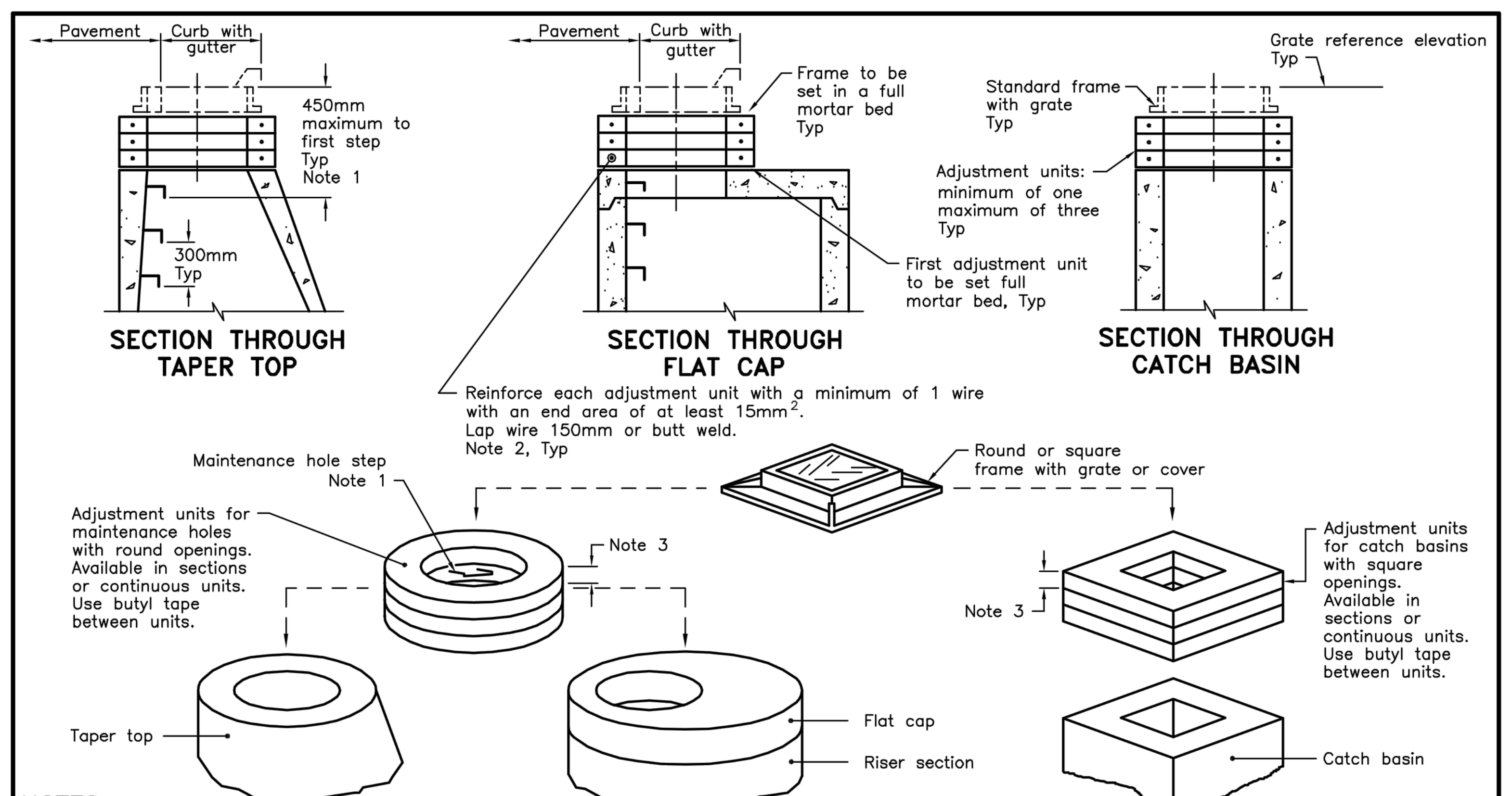
ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2014 — Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER
OPSD 701.010



MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS					
Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7 Inlet Hole	No.7 Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand–finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2014 — Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES
OPSD 701.021

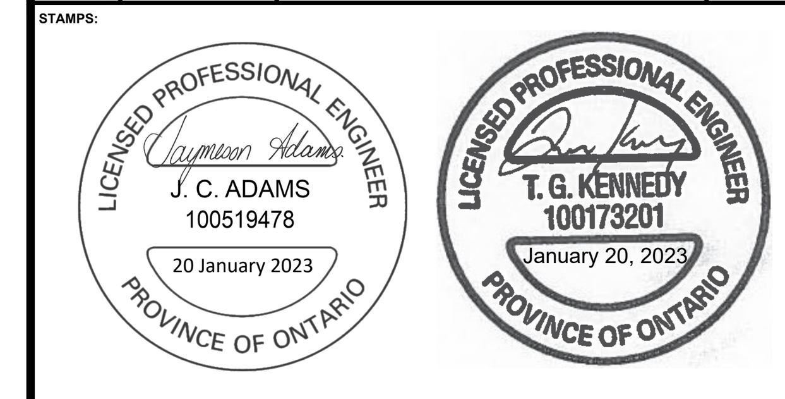


NOTES:
1 If first step is in an adjustment unit, the adjustment unit shall be of the type manufactured with a step in place.
2 Centre reinforcing in adjustment unit ±10mm.
3 Round and square adjustment units are available in sizes of 50, 75, 100, 150, and 300mm.
A Adjustment units shall not extend beyond the outside edge of the structure.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2014 — Rev 3
PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS
OPSD 704.010

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:



DESIGNED BY — APPROVED BY

ENGINEER: CIMA+

CLIENT: The Hazelton Westboro

PROJECT NAME: 403 RICHMOND ROAD & 389 ROOSEVELT AVENUE

SHEET TITLE: DETAILS PLAN

DISCIPLINE: CIVIL

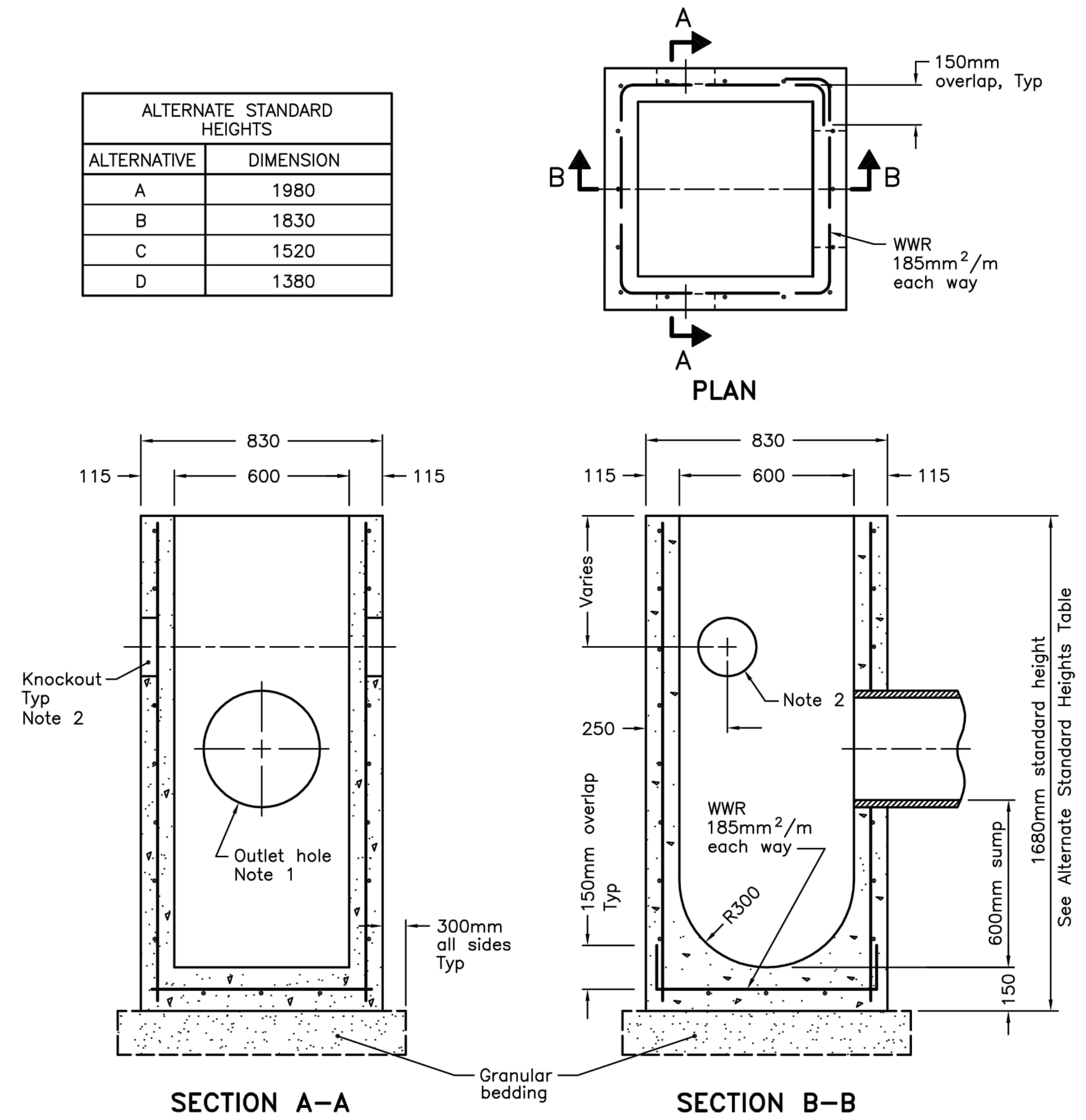
DRAFTER: S.C. POGGIOLI — SCALE:
DESIGNER: T. KENNEDY — DATE: 2022/04/07
APPROVER: T. KENNEDY — APPROVER: T. KENNEDY
PROJECT No: A001046 — DRAWING No: C010
SHEET No: 10 of 12

D07-12-22-0067

#18861

PRINT DATE: 2023/01/19 / PAPER SIZE: ISO A4 (210.00 x 297.00 MM)

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380



150mm overlap, Typ
WWR 185mm²/m each way
PLAN
Knockout Typ Note 2
Outlet hole Note 1
300mm all sides Typ
Granular bedding
Note 2
WWR 185mm²/m each way
R300
150mm overlap Typ
Varies
600mm sump
1680mm standard height See Alternate Standard Heights Table
SECTION A–A
SECTION B–B

NOTES:

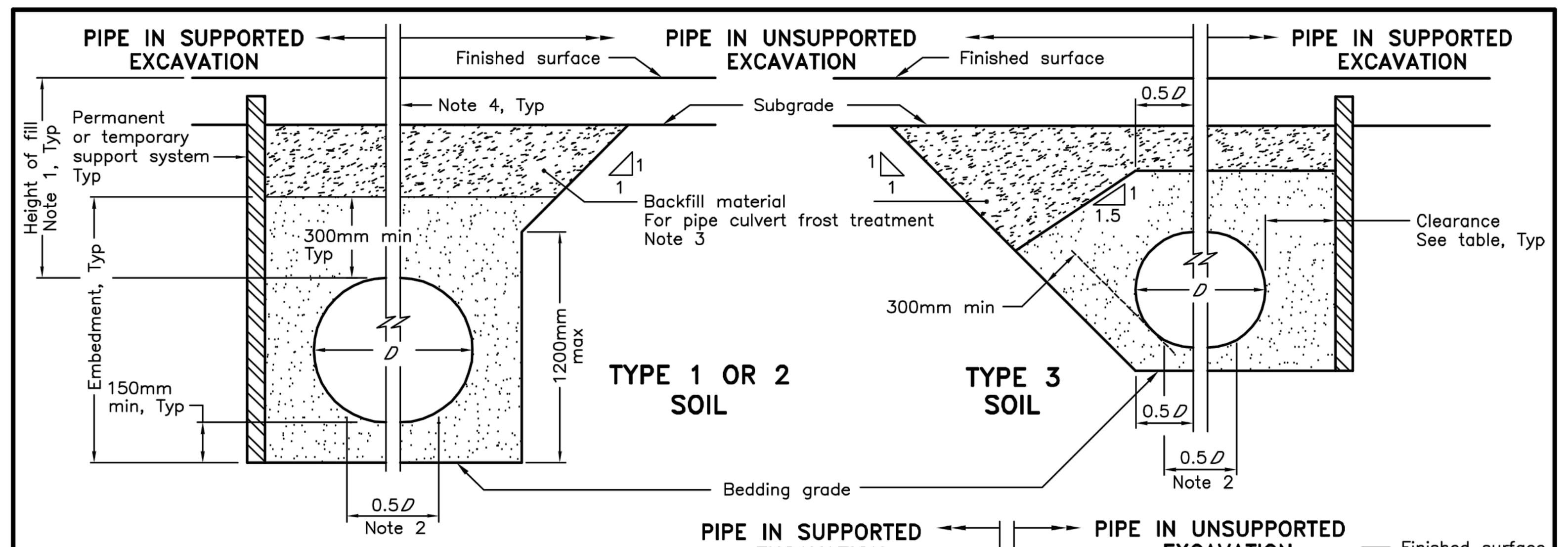
1. Outlet hole size 525mm diameter maximum, location as required.
2. 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.

A. Centre reinforcing in base slab and walls ±20mm.
B. Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C. Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D. Pipe support shall be according to OPSD 708.020.
E. All dimensions are nominal.
F. All dimensions are in millimetres unless otherwise shown.

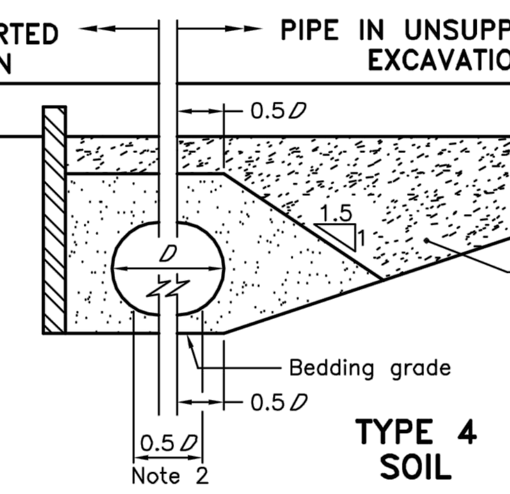
ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2019 — Rev 4

PRECAST CONCRETE CATCH BASIN 600x600mm

OPSD 705.010



PIPE IN SUPPORTED EXCAVATION
PIPE IN UNSUPPORTED EXCAVATION
PIPE IN SUPPORTED EXCAVATION
Finished surface
Note 4, Typ
Subgrade
Permanent or temporary support system, Typ
Backfill material For pipe culvert frost treatment Note 3
Clearance See table, Typ
300mm min
TYPE 1 OR 2 SOIL
TYPE 3 SOIL
150mm min, Typ
Bedding grade
1200mm max



LEGEND:
Ø – Inside diameter

NOTES:

1. Height of fill is measured from the finished surface to top of pipe.
2. The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3. Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4. Condition of excavation is symmetrical about centreline of pipe.

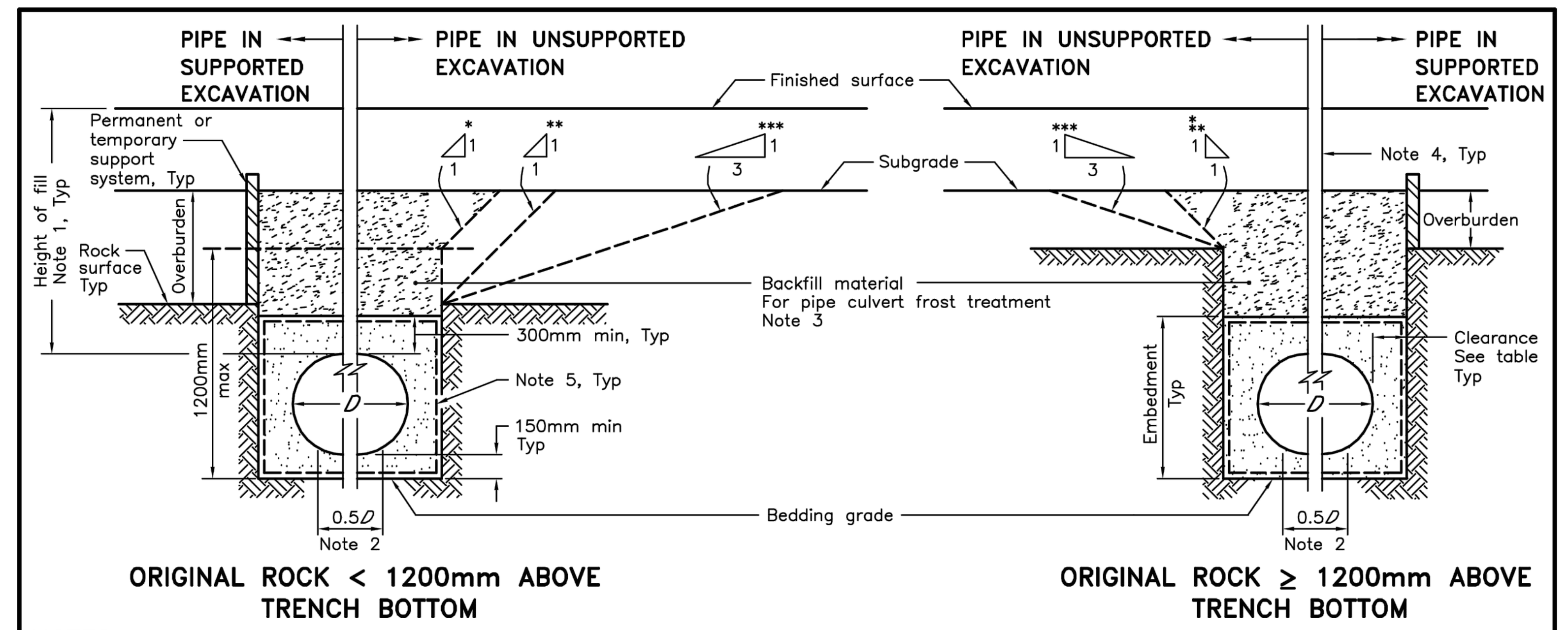
A. Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B. Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C. All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2014 — Rev 3

FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION

OPSD 802.010



PIPE IN SUPPORTED EXCAVATION
PIPE IN UNSUPPORTED EXCAVATION
PIPE IN UNSUPPORTED EXCAVATION
PIPE IN SUPPORTED EXCAVATION
Finished surface
Subgrade
Note 4, Typ
Permanent or temporary support system, Typ
Rock surface Typ
Overburden
Backfill material For pipe culvert frost treatment Note 3
300mm min, Typ
Note 5, Typ
150mm min Typ
Clearance See table Typ
Bedding grade
ORIGINAL ROCK < 1200mm ABOVE TRENCH BOTTOM
ORIGINAL ROCK ≥ 1200mm ABOVE TRENCH BOTTOM

NOTES:

1. Height of fill is measured from the finished surface to top of pipe.
2. The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3. Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4. Condition of excavation is symmetrical about centreline of pipe.
5. Embedment material shall be wrapped in non-woven geotextile when specified.

A. Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B. Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C. Fractured rock shall be treated as Type 1 soil.
D. All dimensions are in metres unless otherwise shown.

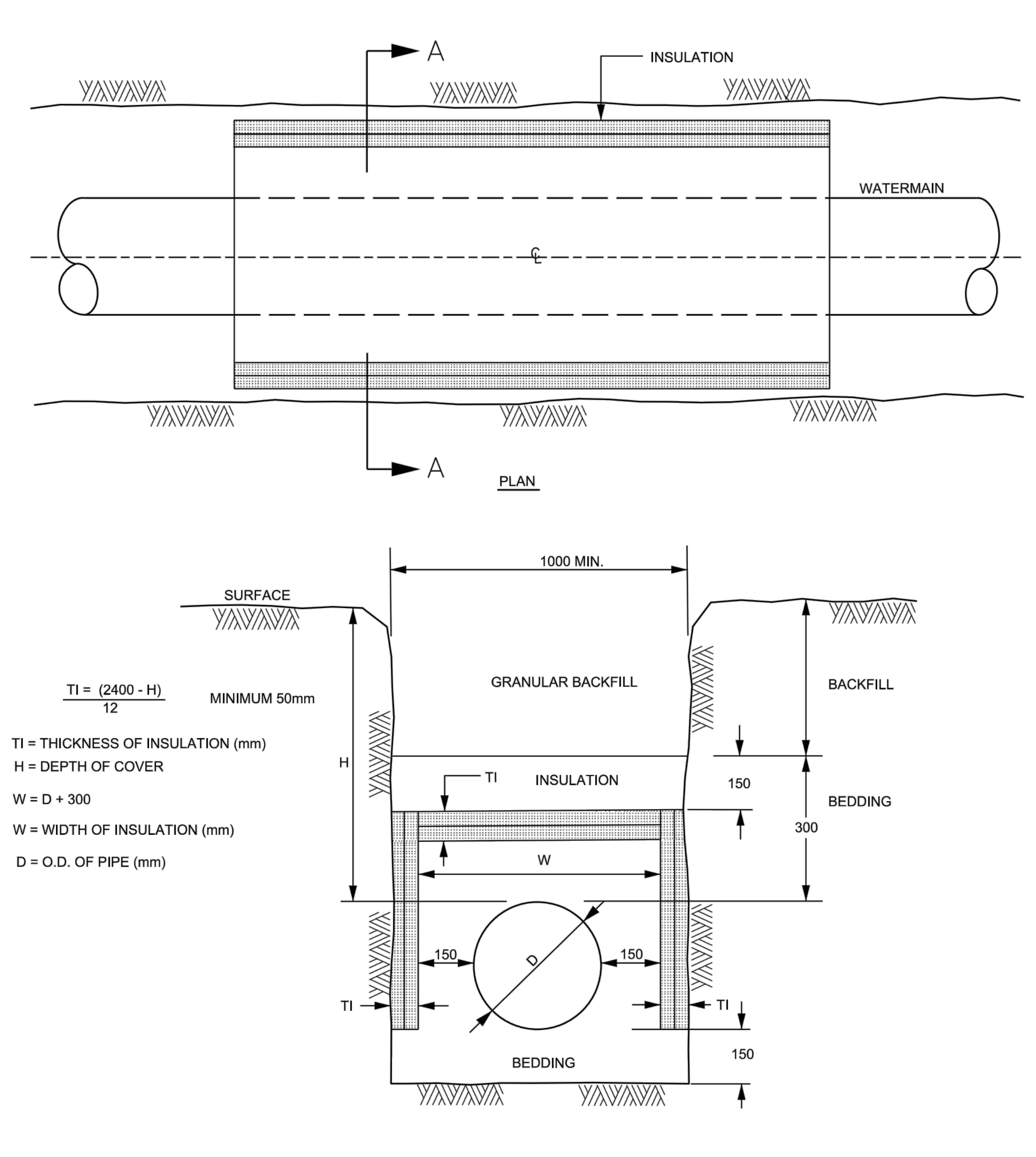
LEGEND:
Ø – Inside diameter
* – Type 1 or 2 soil
** – Type 3 soil
*** – Type 4 soil

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2014 — Rev 3

FLEXIBLE PIPE EMBEDMENT AND BACKFILL ROCK EXCAVATION

OPSD 802.013



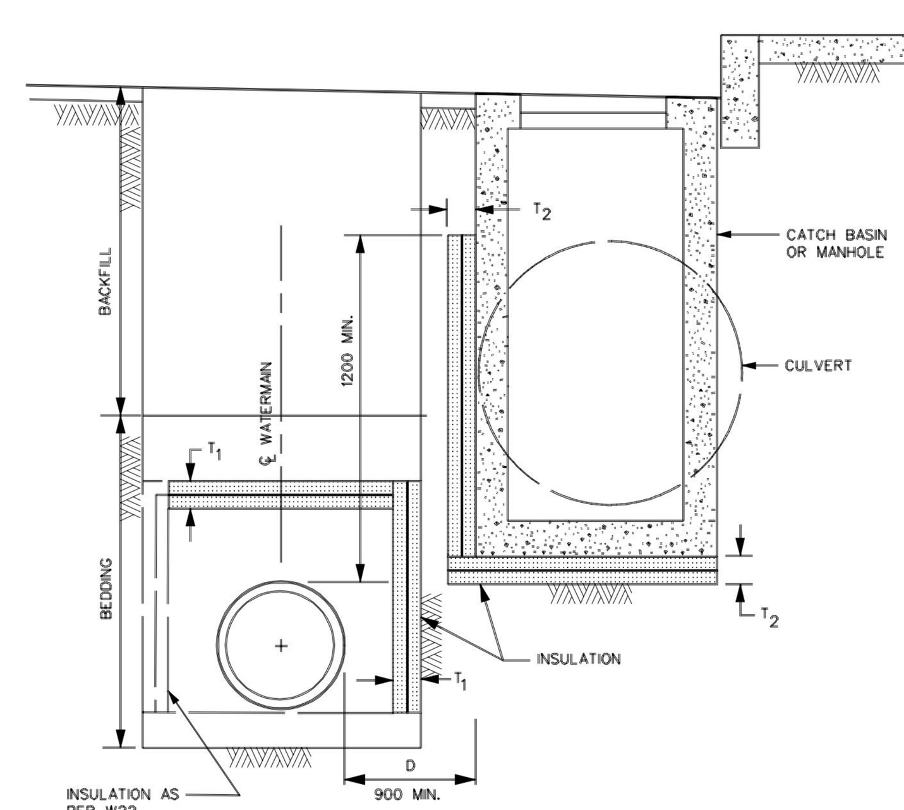
NOTES

FOR 150 - 400mm (NOMINAL DIAMETER) WATERMAINS, WHERE THE DEPTH OF COVER IS LESS THAN 2400mm

1. INCREMENTS OF THICKNESS SHALL BE ADJUSTABLE TO 25mm.
2. IN PROXIMITY OF MAINTENANCE HOLES, CULVERTS, CATCHBASINS, ETC., INSULATION SHALL BE PLACED PER DETAIL W23
3. DEPTH OF COVER LESS THAN 1200mm REQUIRES SPECIAL DESIGN
4. STAGGER JOINTS OF MULTIPLE SHEETS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

Ottawa — THERMAL INSULATION FOR WATERMAINS IN SHALLOW TRENCHES — DATE: MAY 2001 — REV. DATE: MARCH 2013 — DWG. No.: W22

INSULATION REFERENCE TABLE	
D DISTANCE FROM C.B. OR M.H. WALL	T REQUIRED INSULATION THICKNESS $T = T_1 + T_2$
2400 - 1800 mm.	50 mm
1800 - 1500 mm.	75 mm
1500 - 1200 mm.	100 mm
1200 - 900 mm.	125 mm

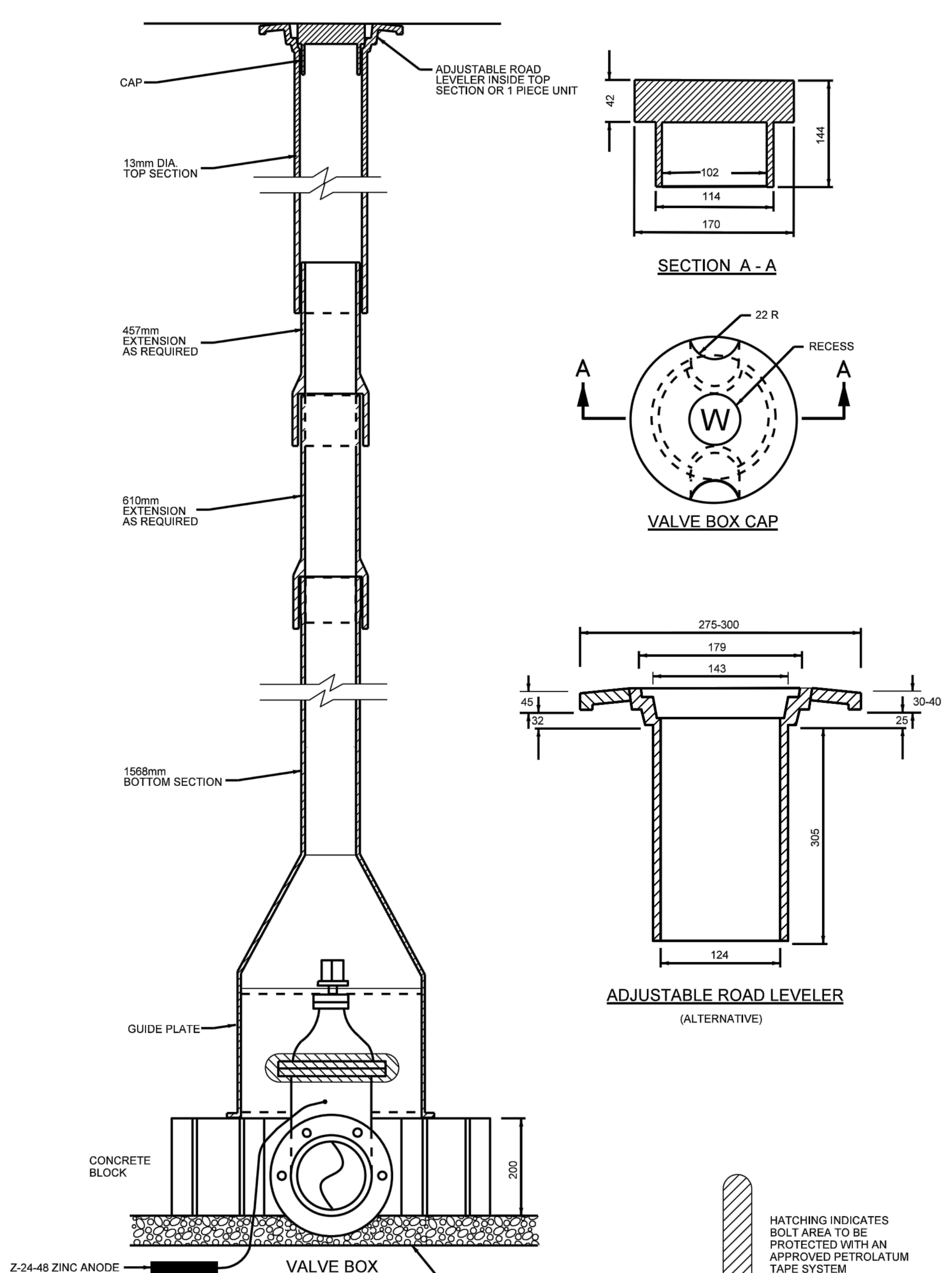


NOTES

FOR WATERMAINS & SERVICES IN PROXIMITY TO CATCHBASINS MAINTENANCE HOLES, CULVERTS ETC.

1. INSULATION SHALL EXTEND 1000 mm EACH WAY FROM THE ENDS OF THE STRUCTURE, PARALLELED TO THE WATERMAIN.
2. STAGGER JOINTS OF MULTIPLE SHEETS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
4. INSULATION CAN BE AT EITHER LOCATION OR BOTH.

Ottawa — THERMAL INSULATION OF WATER-MAINS AT OPEN STRUCTURES — DATE: MAY 2001 — REV. DATE: FEB 2004 — DWG. No.: W23



CAP
ADJUSTABLE ROAD LEVELER INSIDE TOP SECTION OR 1 PIECE UNIT
SECTION A - A
VALVE BOX CAP
RECESS
ADJUSTABLE ROAD LEVELER
(ALTERNATIVE)
GUIDE PLATE
CONCRETE BLOCK
Z-24-48 ZINC ANODE
VALVE BOX
SEE NOTE 2
HATCHING INDICATES BOLT AREA TO BE PROTECTED WITH AN APPROVED PETROLATUM TAPE SYSTEM

NOTES:

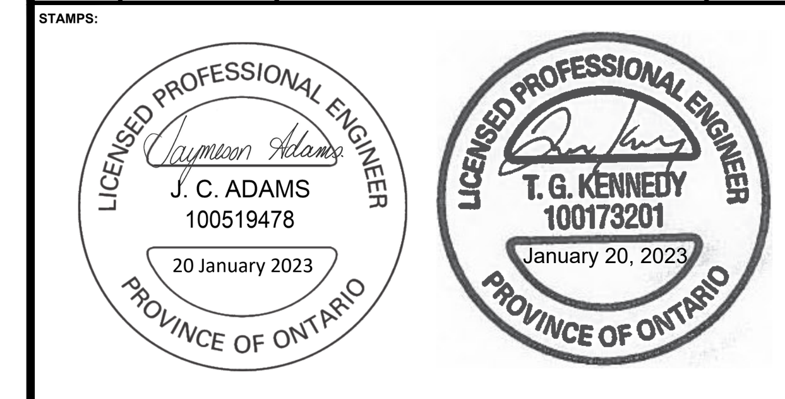
FOR AUXILIARY, SERVICES AND ISOLATION VALVES.

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
2. FOR 200 AND 250mm VALVES, ADD BEDDING BELOW THE CONCRETE BLOCKS AS REQUIRED TO RAISE BELL HIGH ENOUGH TO PREVENT CONTACT WITH THE VALVE BONNET.

Ottawa — VALVE BOX ASSEMBLY — DATE: MAY 2001 — REV. DATE: MARCH 2021 — DWG. No.: W24

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:



DESIGNED BY — APPROVED BY

ENGINEER: CIMA+

CLIENT: The Hazelton Westboro

PROJECT NAME: 403 RICHMOND ROAD & 389 ROOSEVELT AVENUE

SHEET TITLE: DETAILS PLAN

DISCIPLINE: CIVIL

DRAFTER: S.C. POGGIOLI	SCALE:
DESIGNER: T. KENNEDY	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C011
SHEET No: 11 of 12	

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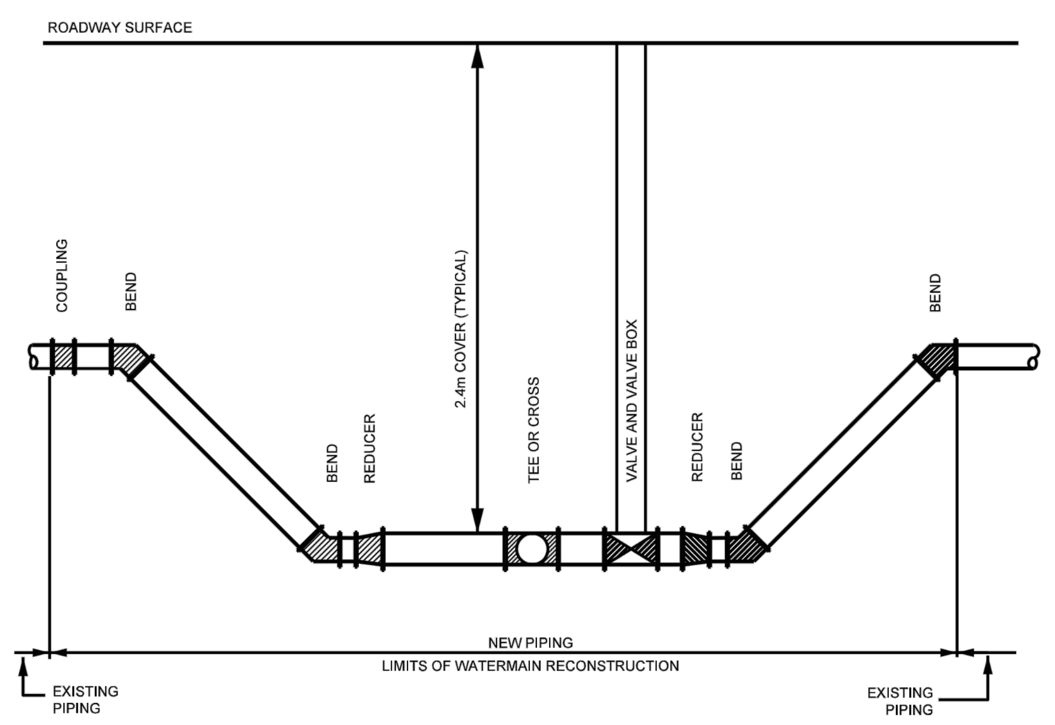
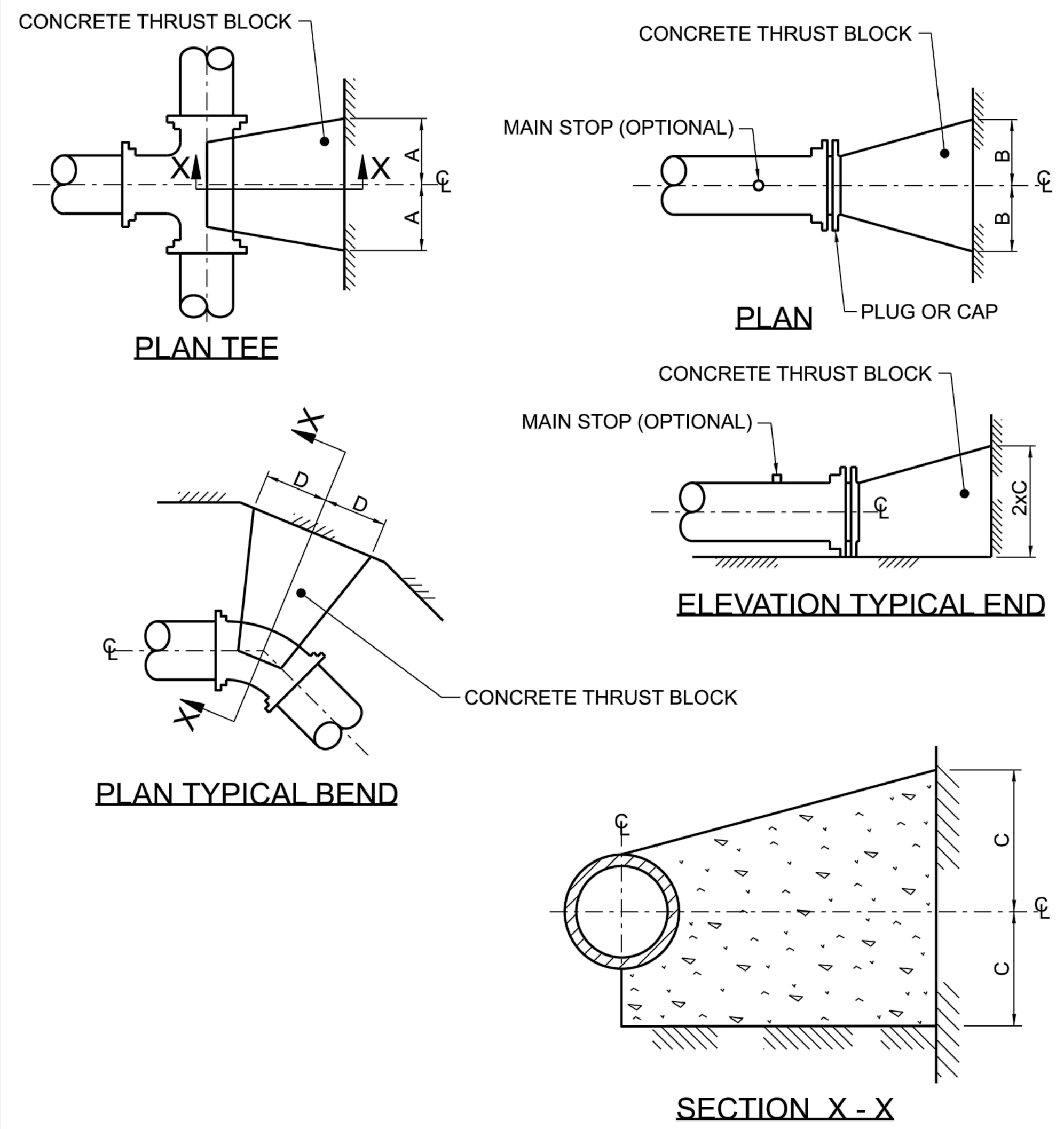


NOTES:

1. FOR 300mm OR GREATER DIAMETER WATERMAIN, BENDS SHALL BE MAXIMUM 22Ø.
2. INSULATION PER W22 AT EXISTING WATERMAIN.
3. REFER TO W25.6 FOR RESTRAINED LENGTH REQUIREMENTS.
4. REFER TO W25.3 AND W25.4 FOR THRUST BLOCK REQUIREMENTS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
6. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W39, W40, AND W42.
7. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W36.

Ottawa | TYPICAL CONNECTION DETAIL FROM NEW TO EXISTING WATERMAIN | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: W25.1



NOTES:
1. CONCRETE SHALL BE PLACED TO WITHIN 50mm OF FACE OF THE BELL.
2. BOND BREAKER TO BE USED BETWEEN CONCRETE AND FITTINGS.
3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
4. REFER TO W25.4 FOR ADDITIONAL REQUIREMENTS.
5. THRUST BLOCKS SHALL BE 20 MPa. CONCRETE AND AS SHOWN ON ABOVE DRAWINGS UNLESS OTHER DIRECTED BY THE CONTRACT ADMINISTRATOR. THE BLOCK SHALL BE CENTERED ON THE THRUST FORCE AND SHALL ALSO PARTIALLY CRADLE THE FITTING TO DISTRIBUTE THE FORCE. THE SIDES OF THE BLOCK SHALL BE 80mm FROM THE JOINT ON EITHER SIDE OF THE BEND OR TEE.
6. THE CONCRETE WHERE POSSIBLE SHALL BE PLACED AGAINST UNDISTURBED SOIL AT THE BOTTOM AND SIDE OF THE TRENCH. WHERE THRUST BLOCKS CAN NOT BE POURED TO UNDISTURBED SOIL, OR WHERE IT WOULD CONFLICT WITH EXISTING OR FUTURE INFRASTRUCTURE, THE THRUST BLOCK SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.
7. EXCEPT FOR THE ADDITION OF WATER, CONCRETE FOR THRUST BLOCKS SHALL COME PREMIXED FROM CONCRETE SUPPLIER, AS 'READY MIX' FROM A CONCRETE TRUCK. ON-SITE MIXING OF CEMENT, SAND AND AGGREGATE ETC. BY THE CONTRACTOR, FOR THE PURPOSE OF MAKING CONCRETE THRUST BLOCKS/ ANCHORS WILL NOT BE ACCEPTED.

N.T.S.

Ottawa | CONCRETE THRUST BLOCKS FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: MARCH 2022 | DWG. No.: W25.3

1. SOIL DESCRIPTION: VERY FINE SANDS, SANDY CLAYS, CLAYS.
SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 199 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	250	250	200	200
152	400	400	250	300
203	550	550	300	450
254	650	650	400	500
305	800	800	450	650
406	1050	1050	600	850

2. SOIL DESCRIPTION: SILTY SAND GRAVELS OR CLAYEY SAND GRAVEL MIXTURES, MODERATE AMOUNT OF FINES.
SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 299 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	200	200	150	150
152	250	250	200	200
203	350	350	250	270
254	450	450	300	350
305	500	500	350	400
406	750	750	400	600

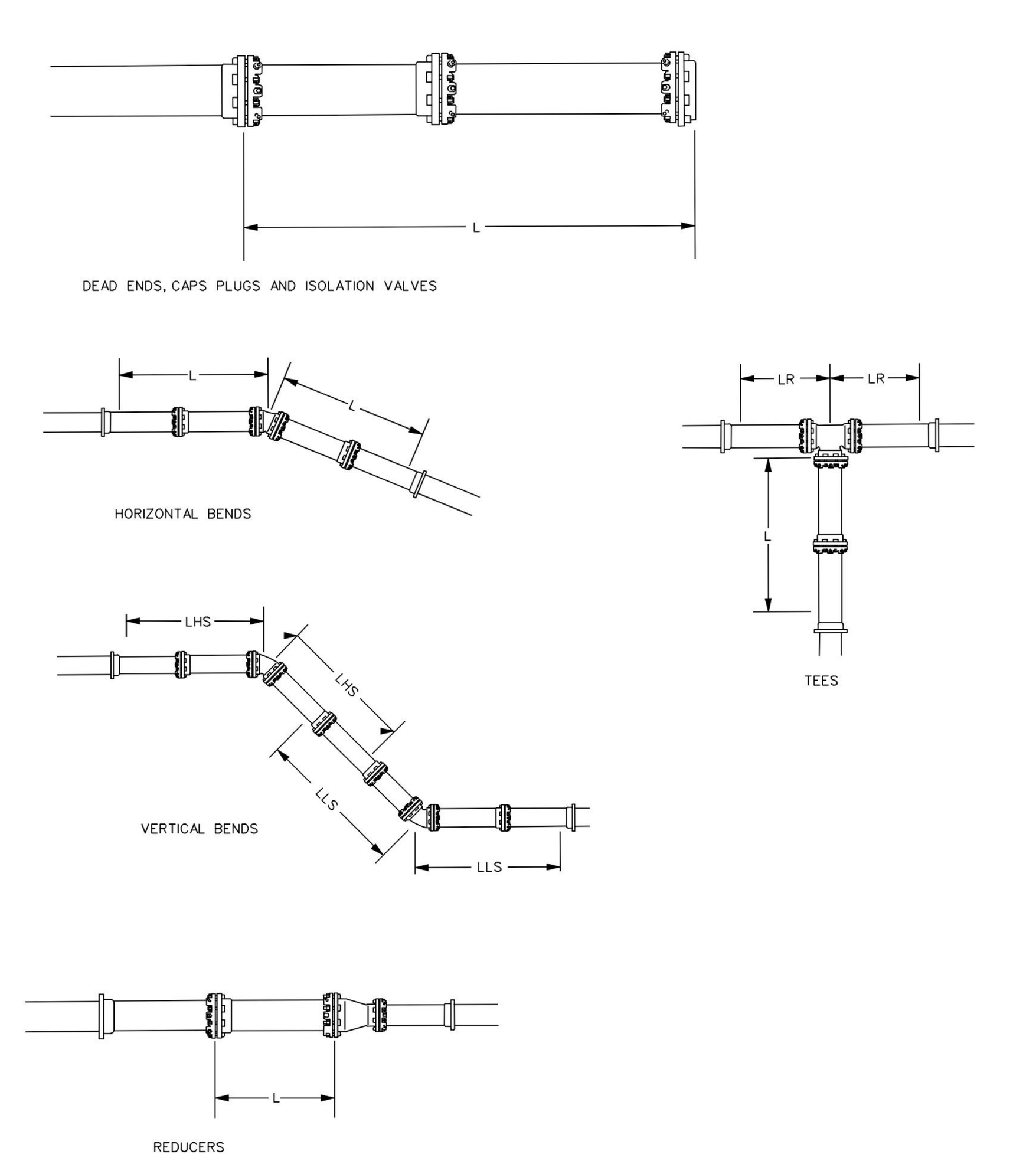
3. SOIL DESCRIPTION: SANDS, GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.
SOILS WITH TYPICAL BEARING STRENGTH OF 300 KPa AND OVER

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	150	150	150	150
152	200	200	200	200
203	300	300	200	230
254	400	400	250	270
305	450	450	300	300
406	650	650	350	450

NOTES:

1. THE ABOVE THRUST BLOCK DIMENSIONS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A DRINKING WATER WORKS PERMIT.
2. THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:
   a) MAXIMUM OPERATING PRESSURE OF 100 psi.
   b) MAXIMUM SURGE PRESSURE WITH A FLOW VELOCITY CHANGE OF 0.6 m/s OF 115 psi (115 psi FOR CLASS 52 DI AND FOR PVC MAX. SURGE IS 35 psi)
3. THE TABLES APPLY TO BOTH DUCTILE IRON AND PVC. WHERE ONE LENGTH EXCEEDED THE OTHER THE LONGER LENGTH WAS USED.
4. DIMENSIONS MAY BE ADJUSTED SO LONG AS THE BEARING SURFACE AREA OF THE THRUST BLOCK IS NOT REDUCED.
4. TO BE USED IN CONJUNCTION WITH W25.3.

Ottawa | THRUST BLOCK DIMENSION TABLES FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: MARCH 2011 | DWG. No.: W25.4



NOTES:

1. ANY JOINT THAT FALLS WITHIN THE RECOMMENDED LENGTH (L) SHALL BE RESTRAINED. SEE DRAWING W25.6
2. TO REDUCE THE NUMBER OF RESTRAINERS REQUIRED THE USE OF FULL PIPE LENGTHS IS RECOMMENDED IN THESE AREAS.

Ottawa | RESTRAINING AND RETAINING RINGS FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: NONE | DWG. No.: W25.5

TABLE OF RESTRAINED LENGTHS FOR DI AND PVC WATERMAIN PIPE IN STANDARD GRANULAR 'A' EMBEDMENT IN SOILS OF BEARING CAPACITY OF 100 KPa AND OVER

REDUCERS — LARGER DIAMETER SIDE (TO BE RESTRAINED)

SMALLER DIAMETER (UNRESTRAINED)	100mm	150mm	200mm	250mm	300mm	400mm
100mm	N/A	3	6	8	10	14
150mm	N/A	N/A	4	6	9	13
200mm	N/A	N/A	N/A	3	6	11
250mm	N/A	N/A	N/A	N/A	4	9
300mm	N/A	N/A	N/A	N/A	N/A	7
400mm	N/A	N/A	N/A	N/A	N/A	N/A

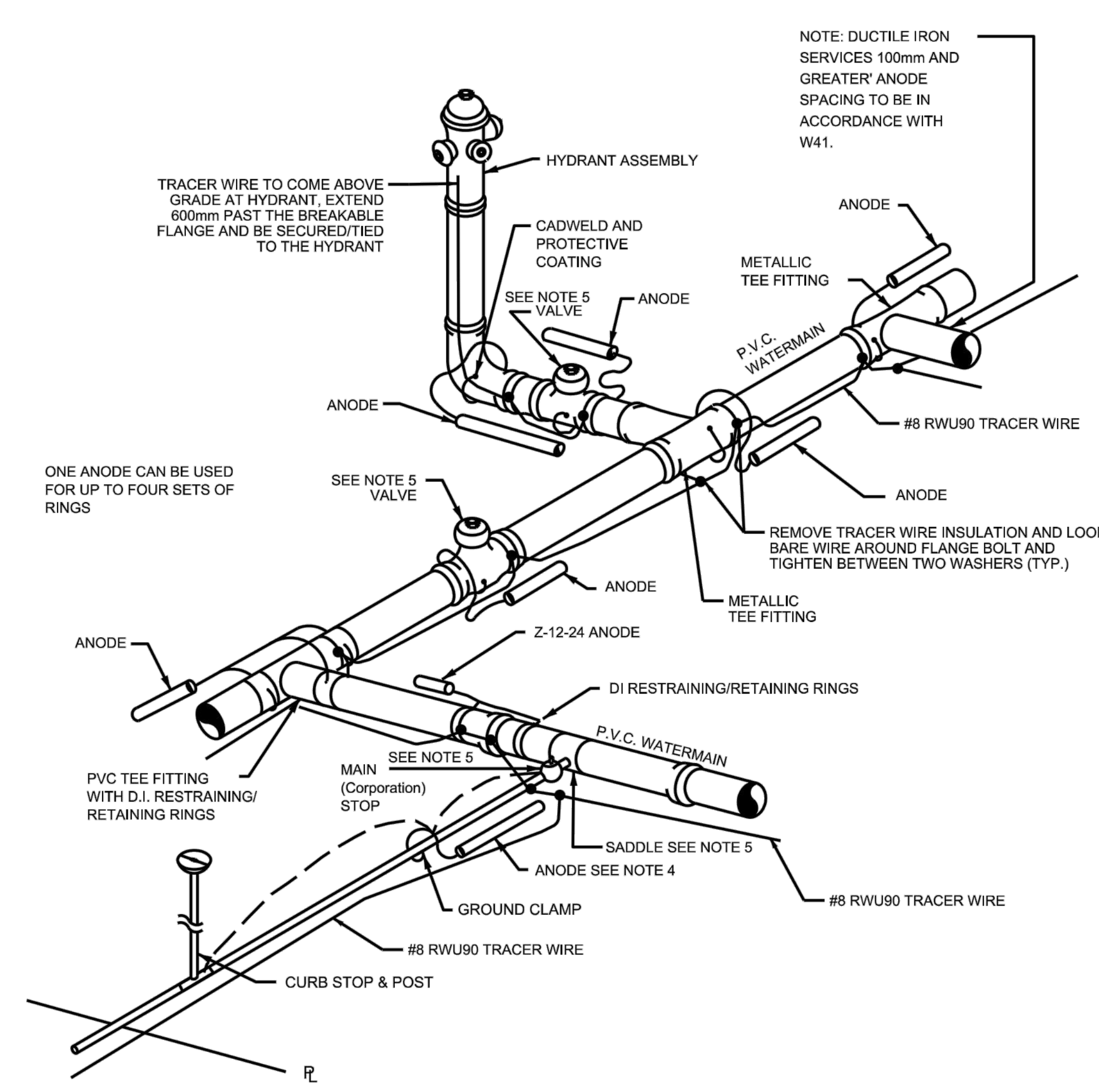
PIPE DIAMETER

	100mm	150mm	200mm	250mm	300mm	400mm
DEAD ENDS, CAPS, PLUGS, VALVES						
BEFORE CAPS AND EITHER SIDE OF VALVES - L	5	6	9	10	12	16
VERTICAL BENDS						
LENGTH HIGH SIDE - LHS	3	4	5	6	7	9
LENGTH LOW SIDE - LLS	1.5	2	2.5	3	3.5	4.5
TEES						
LENGTH ALONG THE BRANCH - L	1	1	1	1	1	1
LENGTH ALONG THE RUN - Lr	3	3	3	3	3	3
HORIZONTAL BENDS						
11.25, 22.5, AND 45 DEGREE BENDS	1	1.5	1.5	2	2	2.5

NOTES:

1. THE ABOVE RESTRAINED LENGTHS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A DRINKING WATER WORKS PERMIT.
2. THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:
   a) MAXIMUM OPERATING PRESSURE OF 100 psi.
   b) MAXIMUM SURGE PRESSURE WITH A FLOW VELOCITY CHANGE OF 0.6 m/s OF 115 psi (115 psi FOR CLASS 52 DI AND FOR PVC MAX. SURGE IS 35 psi)
3. FOR SOFTWARE CALCULATIONS A TEST PRESSURE OF 150 psi AND A SAFETY FACTOR OF 1.5 WAS USED WHICH RESULTS IN 225 psi MAXIMUM PRESSURE.
4. TYPE 5 TRENCH BEDDING.
5. DEPTH TO BURY 2.4 METRES EXCEPT FOR VERTICAL BENDS WHERE THE HIGH SIDE IS AT 1.8 METRES.
6. EMBEDMENT MATERIAL GRANULAR 'A' WITH CHARACTERISTICS OF ASTM D2487 GP.
7. GP SOILS ARE DESCRIBED AS POORLY GRADED GRAVEL AND SAND-GRAVEL MIXES WITH LITTLE OR NO FINES.
8. (Lr) MUST BE OF SOLID PIPE WITHOUT JOINTS, FITTINGS, ETC.
9. THE TABLES APPLY TO BOTH DUCTILE IRON AND PVC. WHERE ONE LENGTH EXCEEDED THE OTHER THE LONGER LENGTH WAS USED.
10. RESTRAINED LENGTHS ARE IN METRES.

Ottawa | TABLES OF RESTRAINED LENGTHS FOR PVC AND DI PIPE 400mm AND UNDER | DATE: MAY 2001 | REV. DATE: MARCH 2011 | DWG. No.: W25.6

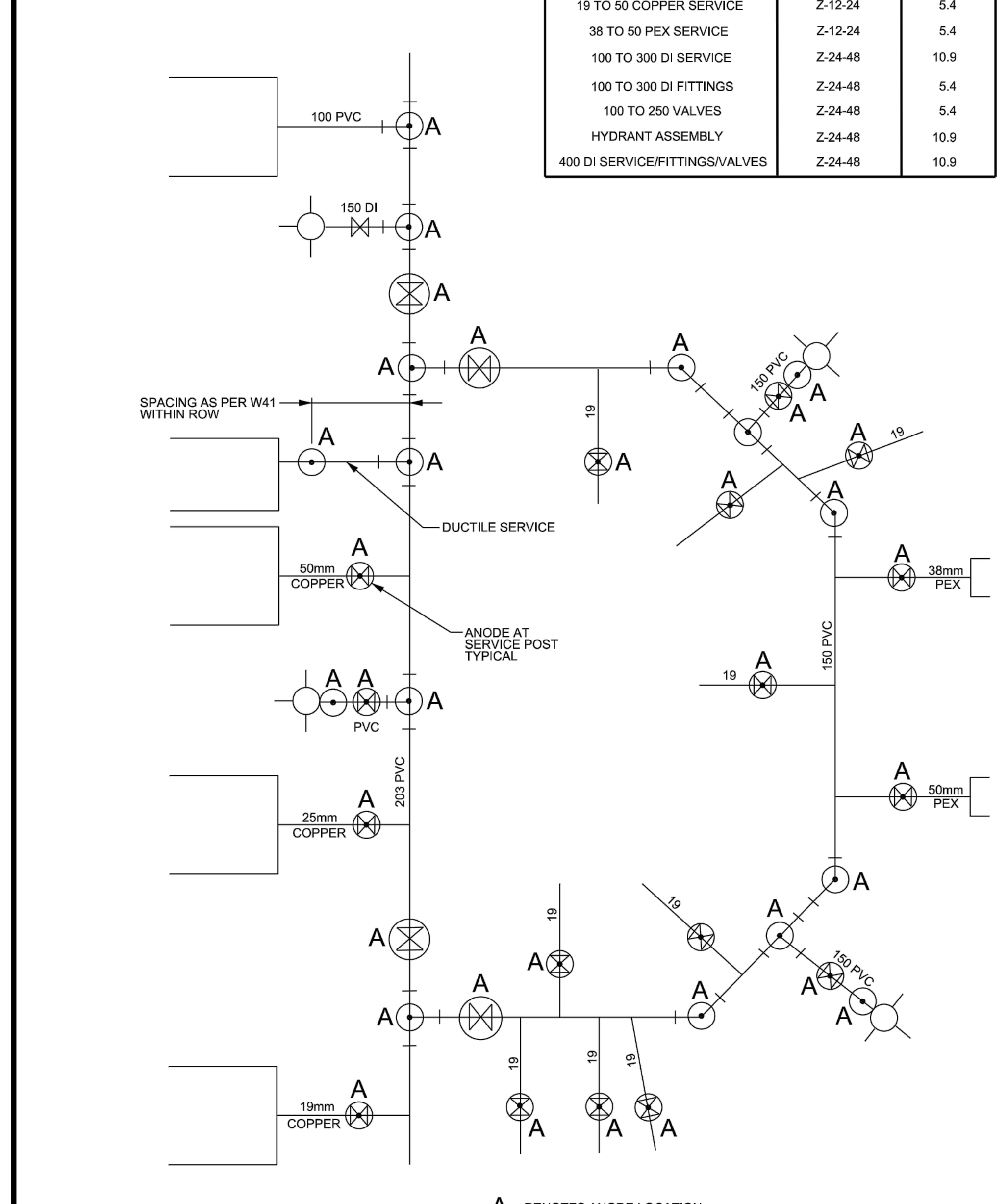


NOTES:

1. ANODE CONNECTING WIRE TO BE LOOPED AROUND PIPES / FITTINGS AND KNOTTED.
2. PROTECTIVE COATING TO BE APPLIED TO ALL CADWELDS.
3. ANODE TYPE & SPACING AS PER W42.
4. CONNECT ANODE TO COPPER SERVICES USING A GROUND CLAMP AND FOR PEX SERVICES CONNECT ANODE TO TRACER WIRE TERMINALS ON BOTH MAIN AND CURB STOPS.
5. PROTECT AUXILIARY VALVES, ISOLATION VALVES, SADDLES AND MAIN STOPS/FITTINGS/VALVES/HYDRANT BOLTS AND FLANGE WITH A PETROLATUM WAX TAPE COATING SYSTEM.
   FOR PEX SERVICES ALSO WAX TAPE CURB STOP UP TO THE BASE OF THE TEE HEAD.
6. ALL DIMENSIONS ARE IN MILLIMETERS.
7. TRACER WIRE BOLT CONNECTIONS TO BE COMPLETED PER W55.
8. TRACER WIRE SPLICES TO BE COMPLETED PER W47.

Ottawa | CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: W40

SIZE (mm)	ANODE TYPE	WEIGHT (Kg)
19 TO 50 COPPER SERVICE	Z-12-24	5.4
38 TO 50 PEX SERVICE	Z-12-24	5.4
100 TO 300 DI SERVICE	Z-24-48	10.9
100 TO 300 DI FITTINGS	Z-24-48	5.4
100 TO 250 VALVES	Z-24-48	5.4
HYDRANT ASSEMBLY	Z-24-48	10.9
400 DI SERVICE/FITTINGS/VALVES	Z-24-48	10.9

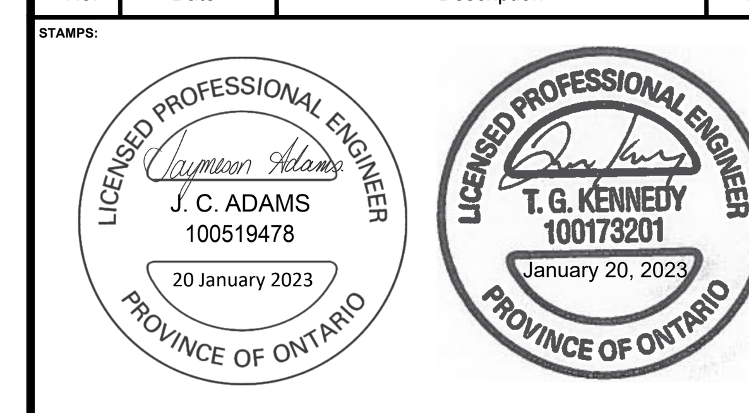


NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
2. ANODE FOR JOINT RESTRAINTS FOR PVC FITTINGS 300mm DIAMETER AND SMALLER.
3. INSTALL TRACER WIRE AS PER W40.

Ottawa | TYPICAL ANODE INSTALLATION PVC WATERMAIN | DATE: MAY 2001 | REV. DATE: MARCH 2021 | DWG. No.: W42

No.	Date	Description	By
4	23/01/20	RE-ISSUED FOR SITE PLAN CONTROL	T.K
3	22/11/07	RE-ISSUED FOR SITE PLAN CONTROL	T.K
2	22/10/14	RE-ISSUED FOR SITE PLAN CONTROL	T.K
1	22/04/07	ISSUED FOR SITE PLAN CONTROL	T.K

STAMPS:



DESIGNED BY — APPROVED BY

ENGINEER: CIMA+

CLIENT: The Hazelton Westboro

PROJECT NAME: 403 RICHMOND ROAD & 389 ROOSEVELT AVENUE

SHEET TITLE: DETAILS PLAN

DISCIPLINE: CIVIL

DRAFTER: S.C. POGGIOLI	SCALE:
DESIGNER: T. KENNEDY	DATE: 2022/04/07
APPROVER: T. KENNEDY	APPROVER: T. KENNEDY
PROJECT No: A001046	DRAWING No: C012
SHEET No: 12 of 12	

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