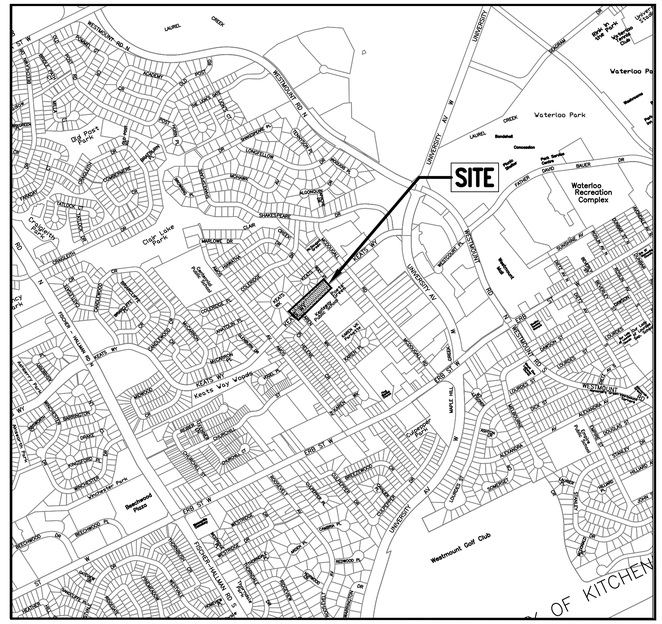
THE CITY OF Waterloo

PROPOSED CREEK RESTORATION

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION, CITY OF WATERLOO, ONTARIO

PROJECT NUMBER 60672393

ISSUED FOR CONSTRUCTION - SEPTEMBER 2024



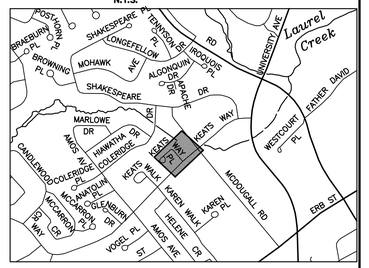
KEY PLAN
N.T.S.

DRAWING INDEX

DWG NO.	DESCRIPTION
---	TITLE PAGE & DRAWING INDEX
C-201	EXISTING CONDITIONS – CREEK RESTORATION
C-202	EXISTING CROSS SECTIONS – CREEK RESTORATION
C-203	REMOVALS PLAN – CREEK RESTORATION
C-204	TREE REMOVALS – CREEK RESTORATION
C-205	EROSION AND SEDIMENT –CREEK RESTORATION
C-206	PROPOSED CONDITIONS – CREEK RESTORATION
C-207	PROPOSED CROSS SECTIONS – CREEK RESTORATION
C-208	GENERAL CONSTRUCTION NOTES – CREEK RESTORATION
C-209	TYPICAL DETAILS – CREEK RESTORATION
L-101	LANDSCAPE SITE PLAN
L-501	LANDSCAPE NOTES AND DETAILS

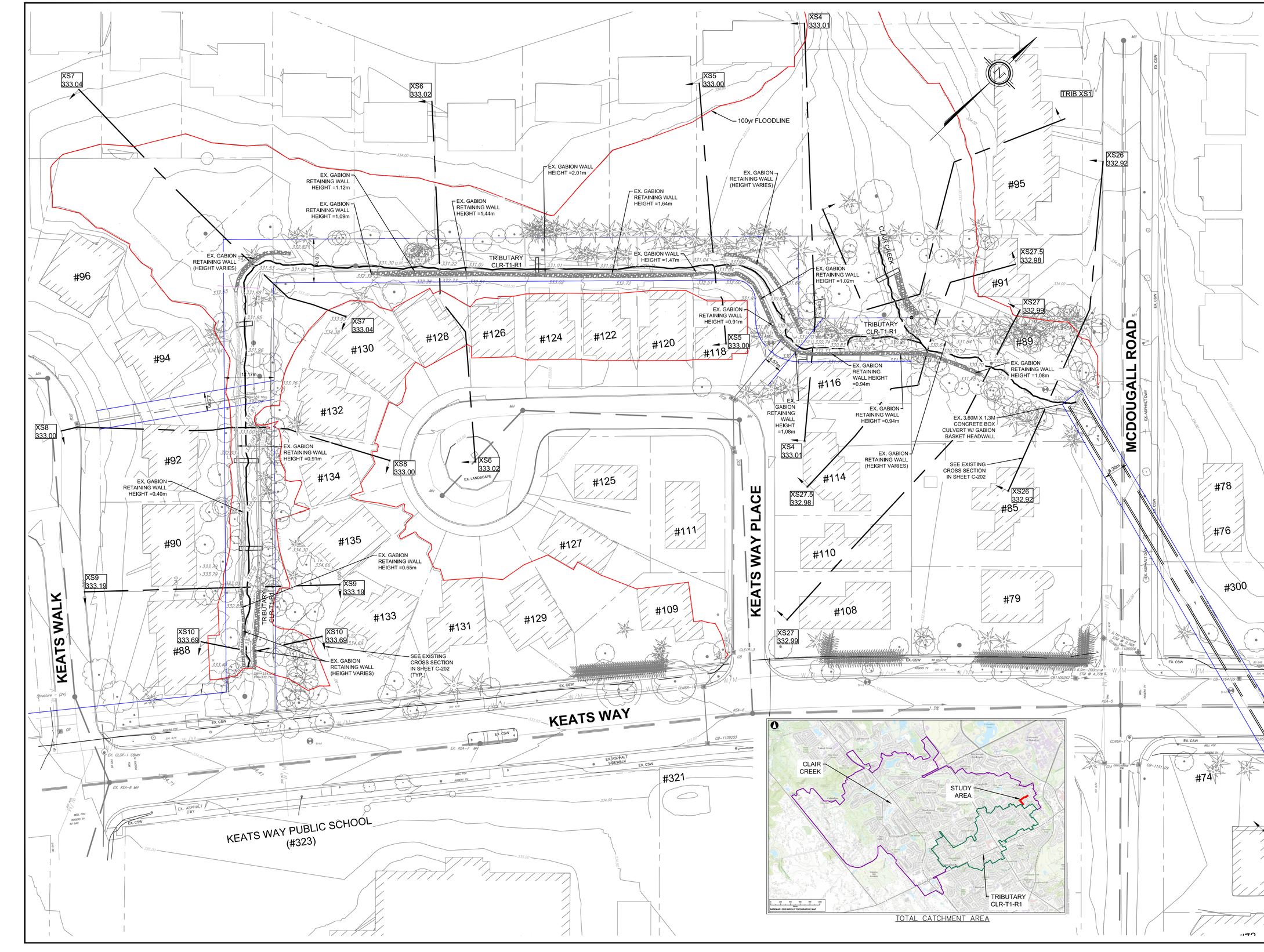
Z:\Kitchener-DWGs\12CS\Projects\WRK\60672393_Keatsway_Waterloo\900_CAD_GIS\911_CIVIL\911_3_Published\KEATS WAY CREEK RESTORATION TITLE.dwg
2024/9/9 8:58 AM by vdolinic, W

KEY PLAN
N.T.S.



LEGEND

- EXISTING EASEMENT (APPROX)
- 247.00 — EX. CONTOUR
- 247.50 — EX. SPOT ELEVATION
- EXISTING STORM MH, CBMH, DCBMH, DCB, CB
- EXISTING SANITARY MH
- HYDRO POLE/LIGHT STANDARD
- PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- GAS — EXISTING GAS SERVICE
- BELL — EXISTING BELL PHONE/CABLE
- EXISTING GABION RETAINING WALL
- EXISTING CREEK C/L
- XS27 / 332.99 — EXISTING CROSS SECTION ID / EXISTING FLOODPLAIN ELEVATION
- SEE EXISTING CROSS SECTIONS DWG C-202
- EX. 100yr FLOODLINE
- EXISTING TREE



TOTAL CATCHMENT AREA

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

INT.	DATE	REVISIONS
K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	24/06/22	ISSUED FOR 50% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

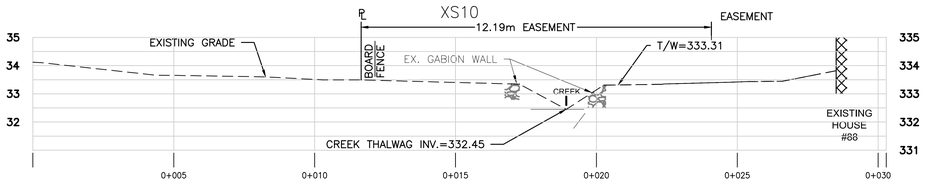
THE CITY OF Waterloo

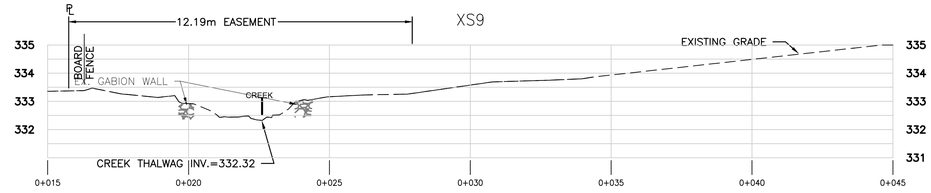
LICENSED PROFESSIONAL ENGINEER
K. N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

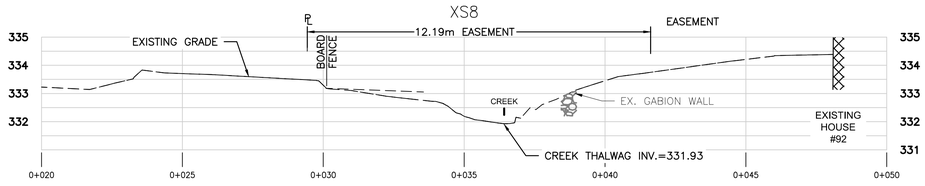
EXISTING CONDITIONS PROPOSED CREEK RESTORATION

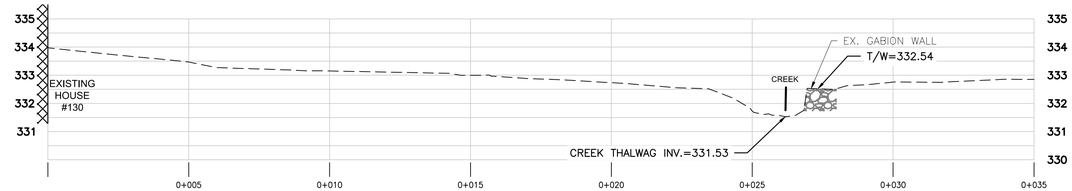
KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO, ON

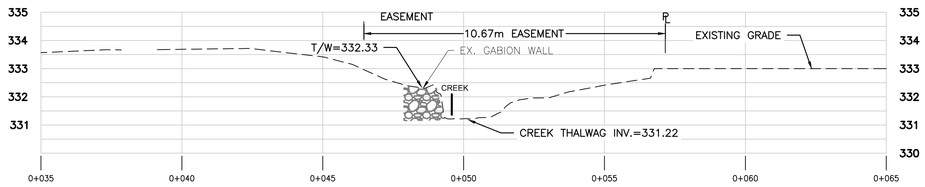
DATE:	JUNE 26, 2022	DESIGNED BY:	KP
SCALE:	HOR 1:400 VER N/A	DRAWN BY:	SW
		CHECKED BY:	KM
FIELD BK.	PAGE / DATE	DRAWING NO.	C–201

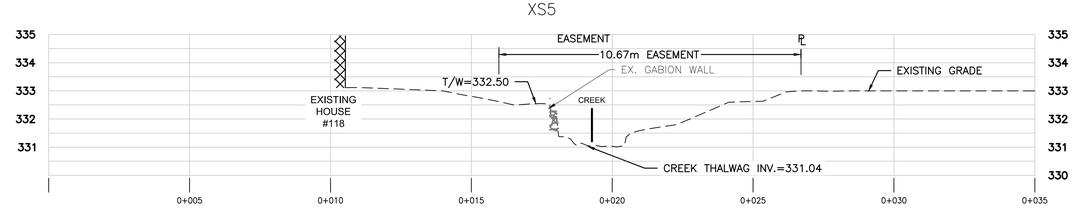


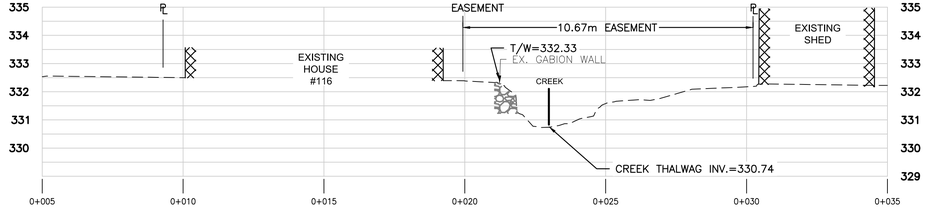


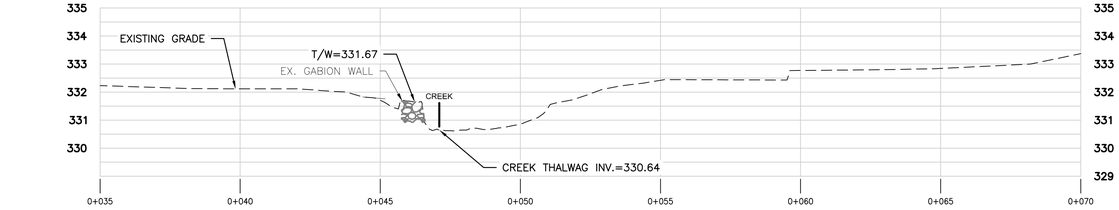


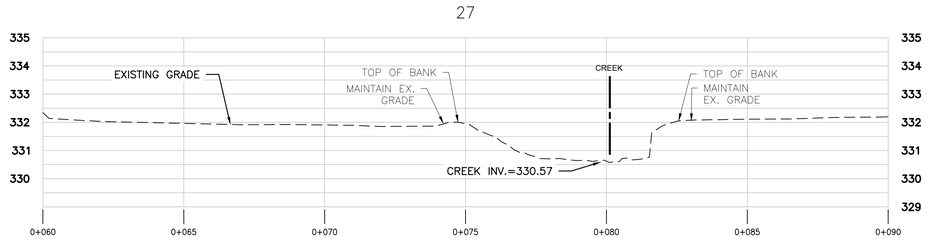


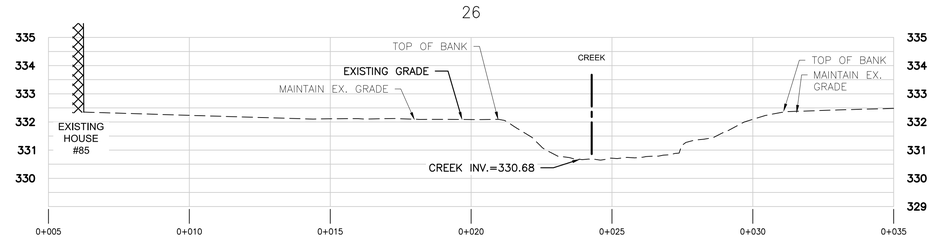


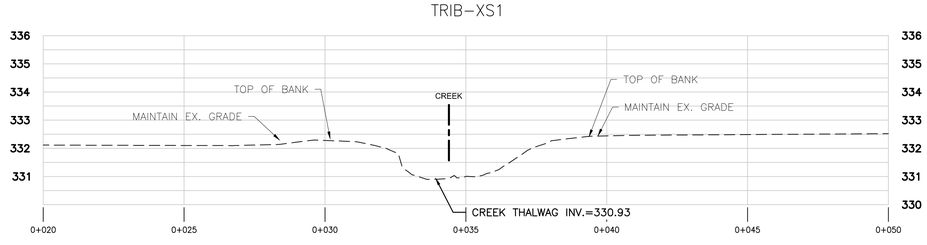


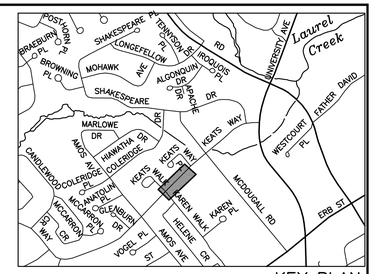












KEY PLAN
N.T.S.

GENERAL NOTES:

1. THE POSITION OF POLE LINE, CONDUITS, WATER MAINS, SEWERS AND OTHER UTILITIES, FEATURES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS AND WHERE SHOWN, THE ACCURACY OF THE POSITIONS IS NOT GUARANTEED. BEFORE STARTING CONSTRUCTION, THE CONTRACTOR SHALL INFORM HIM/HER SELF OF THE EXACT LOCATION OF SUCH UTILITIES AND STRUCTURES.
2. ALL DIMENSIONS SHALL BE CHECKED BY THE CONTRACTOR AND INCONSISTENCIES REPORTED TO THE PROJECT ENGINEER.
3. ALL UNITS ARE IN METRES UNLESS OTHERWISE NOTED.
4. ALL WORK REPORTED IN ACCORDANCE WITH THE LATEST RELEVANT SECTIONS OF THE OPSD's, OPSS's, ONTARIO BUILDING CODE AND THE REQUIREMENTS OF THE CITY OF WATERLOO AND REGION OF WATERLOO
5. ALL DISTURBED AREAS RESTORED TO ORIGINAL CONDITIONS OR BETTER IN ACCORDANCE WITH CITY OF WATERLOO AND REGION OF WATERLOO DRAWINGS/SPECIFICATIONS.

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

INT.	DATE	REVISIONS
K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	24/06/22	ISSUED FOR 50% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

THE CITY OF Waterloo

LICENSED PROFESSIONAL ENGINEER
K.N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

EXISTING CROSS SECTIONS PROPOSED CREEK RESTORATION

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO, ON

DATE: JUNE 26, 2022		DESIGNED BY:	KP
SCALE:	HOR 1:100 VER	DRAWN BY:	SW
		CHECKED BY:	KM
FIELD BK.	PAGE / DATE	DRAWING NO.	C-202

REMOVE TWO POSTS ALONG THE TOP OF THE GABION WALL

REMOVE EX. GABION RETAINING WALL AND LANDSCAPING

REMOVE EX. PEDESTRIAN BRIDGE

REMOVE,SALVAGE AND REINSTATE EX. EAVESTROUGH FROM #122 CONTACT AND NOTIFY PROPERTY OWNER A MINIMUM OF THREE WEEKS PRIOR TO REMOVAL

REMOVE EX GARDEN AND REINSTATE ON COMPLETION OF WORKS

REMOVE EX. GABION RETAINING WALL AND VEGETATION

REMOVE EX. PEDESTRIAN BRIDGE

TRIBUTARY CLR-T1-R1

REMOVE EX. GABION RETAINING WALL AND VEGETATION

SEE DWG C-204 FOR TREE REMOVAL PLAN

REMOVE SALVAGE AND REINSTATE 97.0m± OF BOARD FENCE AS REQUIRED

REMOVE EX. PEDESTRIAN BRIDGE

REMOVE EX. PEDESTRIAN BRIDGE

REMOVE EX. GABION RETAINING WALL AND VEGETATION

REMOVE SALVAGE AND REINSTATE 12.0m± OF BOARD FENCE AS REQUIRED

REMOVE EX. GABION RETAINING WALL AND VEGETATION

CLAIR CREEK

EX. PEDESTRIAN BRIDGE

EX. SHED

TRIBUTARY CLR-T1-R1

REMOVE,SALVAGE AND REINSTATE EX. EAVESTROUGH FROM #116 CONTACT AND NOTIFY PROPERTY OWNER A MINIMUM OF THREE WEEKS PRIOR TO REMOVAL

REMOVE (IF REQUIRED) EX. AIR CONDITIONER AND PATIO AREA CONTACT AND NOTIFY PROPERTY OWNER A MINIMUM OF THREE WEEKS PRIOR TO REMOVAL

#95 #91 #89 #130 #128 #126 #124 #122 #120 #118 #116 #132 #134 #135 #133 #131 #129 #125 #127 #111 #109 #114 #110 #108 #85 #79 #73 #321

EX. LANDSCAPE

KEATS WAY PLACE

KEATS WAY

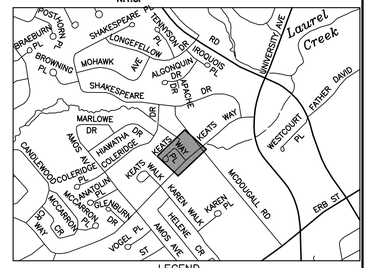
MCDOUGALL ROAD

EX. ASPHALT SIDEWALK

EX. BUS STOP

KEY PLAN

N.T.S.



LEGEND

- EXISTING EASEMENT (APPROX)
- 247.00 EX. CONTOUR
- 247.50 EX. SPOT ELEVATION
- EXISTING STORM MH, CBMH, DCBMH, DCB, CB
- EXISTING SANITARY MH
- HYDRO POLE/LIGHT STANDARD
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- W/M EXISTING WATERMAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- BH—4 BOREHOLE
- GAS EXISTING GAS SERVICE
- BELL EXISTING BELL PHONE/CABLE
- LIMITS OF DISTURBANCE (APPROX.)
- EXISTING GABION RETAINING WALL
- REMOVE EXISTING GABION RETAINING WALL
- EXISTING CREEK C/L
- EXISTING TREE
- PROPOSED TREE REMOVAL

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/12/22	FOR NEIGHBOURHOOD MEETING
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	14/10/22	ISSUED FOR 60% REVIEW
INT.	DATE	REVISIONS

CITY OF WATERLOO
PUBLIC WORKS SERVICES

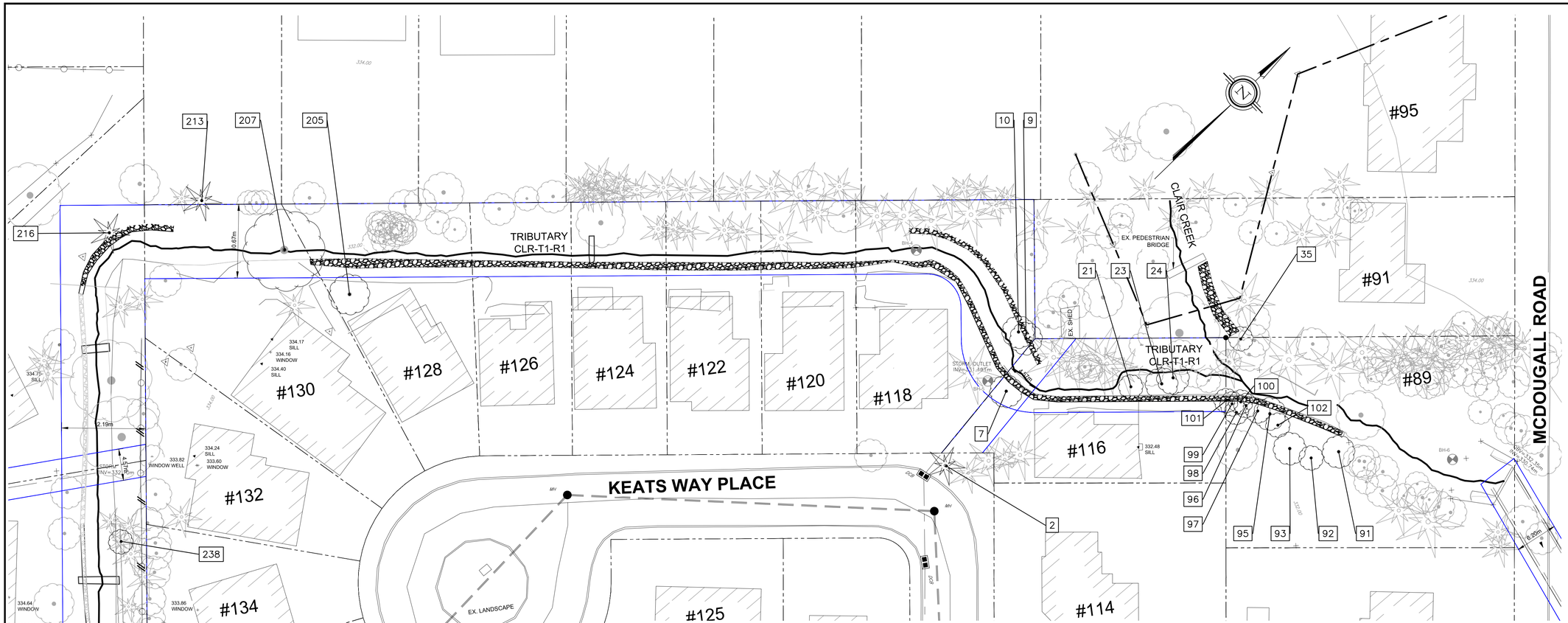
THE CITY OF Waterloo

LICENSED PROFESSIONAL ENGINEER
K. N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

REMOVALS PLAN PROPOSED CREEK RESTORATION

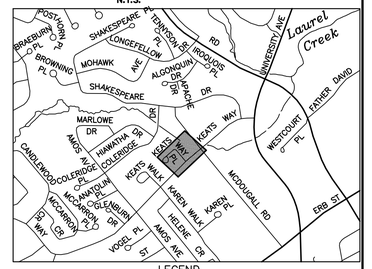
KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO. ON

DATE:	JUNE 26, 2022	DESIGNED BY:	KP
SCALE:	HOR 1:300 VER N/A	DRAWN BY:	SW
		CHECKED BY:	KM
FIELD BK.	PAGE / DATE	DRAWING NO.	C–203



KEY PLAN

N.T.S.



LEGEND

- EXISTING EASEMENT (APPROX)
- 247.00 EX. CONTOUR
- 247.50 EX. SPOT ELEVATION
- EXISTING STORM MH, CBMH, DCBMH, DCB, CB
- EXISTING SANITARY MH
- HYDRO POLE/LIGHT STANDARD
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- W/M EXISTING WATERMAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- BH—4 BOREHOLE
- GAS EXISTING GAS SERVICE
- BELL EXISTING BELL PHONE/CABLE
- LIMITS OF DISTURBANCE (APPROX.)
- EXISTING GABION RETAINING WALL
- REMOVE EXISTING GABION RETAINING WALL
- EXISTING CREEK C/L
- EXISTING TREE
- PROPOSED TREE REMOVAL

	Common Name	Scientific Name	Tree Ownership	WITHIN ROW	Recommended Action	Northing	Easting
2	Spruce - Norway	Picea abies	Public	YES	Remove	4812154.66	536681.03
3	Pine - Austrian	Pinus nigra	Public	NO	Remove	4812155.93	536684.28
4	Pine - Austrian	Pinus nigra	Public	NO	Remove	4812159.17	536685.43
7	Maple - Norway	Acer platanoides	Private	YES	Remove	4812168.52	536680.98
8	Spruce - Norway	Picea abies	Private	NO	Remove	4812167.35	536675.54
9	Ash - Green	Fraxinus pennsylvanica	Private	YES	Remove	4812176.21	536678.36
10	Ash - Green	Fraxinus pennsylvanica	Private	YES	Remove	4812176.25	536676.90
11	Spruce - Norway	Picea abies	Private	YES	Remove	4812176.69	536683.18
21	Ash sp.	Fraxinus sp.	Private	YES	Remove	4812180.49	536694.47
23	Ash sp.	Fraxinus sp.	Private	YES	Remove	4812183.64	536697.63
24	Maple - Manitoba	Acer negundo	Private	YES	Remove	4812185.36	536698.35
26	Linden - Basswood	Tilia americana	Private	YES	Remove	4812188.33	536702.55
32	Cedar - Eastern-White	Thuja occidentalis	Private	NO	Remove	4812200.48	536699.26
33	Maple - Norway	Acer platanoides	Public	NO	Remove	4812197.01	536703.98
34	Linden - Basswood	Tilia americana	Private	NO	Remove	4812199.31	536702.05
35	Ash - White	Fraxinus americana	Public	NO	Remove	4812195.96	536702.31
36	Maple - Manitoba	Acer negundo	Public	NO	Remove	4812194.94	536704.68
91	Linden - Basswood	Tilia americana	Public	NO	Remove	4812192.36	536723.60
92	Linden - Basswood	Tilia americana	Public	NO	Remove	4812189.14	536721.10
93	Linden - Basswood	Tilia americana	Public	NO	Remove	4812188.21	536717.86
95	Linden - Basswood	Tilia americana	Public	NO	Remove	4812190.25	536712.44
96	Walnut - Black	Juglans nigra	Public	NO	Remove	4812188.99	536709.03
97	Maple - Manitoba	Acer negundo	Public	NO	Remove	4812189.46	536710.84
98	Ash - White	Fraxinus americana	Public	NO	Remove	4812187.34	536708.59
99	Ash - White	Fraxinus americana	Public	NO	Remove	4812187.89	536707.32
100	Maple - Norway	Acer platanoides	Public	NO	Remove	4812188.91	536708.11
101	Linden - Basswood	Tilia americana	Public	NO	Remove	4812187.72	536706.37
102	Linden - Basswood	Tilia americana	Public	NO	Remove	4812189.73	536714.39
138	Cottonwood - Eastern	Populus deltoides	Private	NO	Remove	4812181.61	536678.98
139	Maple - Norway	Acer platanoides	Private	NO	Remove	4812179.64	536679.72
143	Spruce - Norway	Picea abies	Private	YES	Remove	4812184.98	536660.84
144	Spruce - Norway	Picea abies	Private	YES	Remove	4812180.66	536656.92

	Common Name	Scientific Name	Tree Ownership	WITHIN EASEMENT	Recommended Action	Northing	Easting
205	Maple - Norway	Acer platanoides	Private	NO	Remove	4812118.91	536598.87
207	Willow - Hybrid White	Salix x rubens	Private	YES	Remove	4812117.79	536587.51
213	Juniper sp.	Juniperus sp.	Private	NO	Remove	4812115.80	536573.78
216	Cedar - Eastern-White	Thuja occidentalis	Private	YES	Remove	4812103.72	536566.44
238	Maple - Norway	Acer platanoides	Private	YES	Remove	4812070.33	536596.15
263	Elm - White	Ulmus americana	Private	YES	Remove	4812053.1	536611.79
264	Elm - White	Ulmus americana	Private	YES	Remove	4812046.72	536615.52
277	Maple - Norway	Acer platanoides	Private	YES	Remove	4812043.72	536617.28
284	Maple - Manitoba	Acer negundo	Private	YES	Remove	4812043.26	536619.38
288	Ash - White	Fraxinus americana	Private	YES	Remove	4812040.68	536621.89
293	Aspen - Trembling	Populus tremuloides	Private	YES	Remove	4812032.35	536627.72
294	Walnut - Black	Juglans nigra	Private	YES	Remove	4812028.19	536621.86
321	Ash - White	Fraxinus americana	Private	YES	Remove	4812022.73	536626.60
322	Ash - White	Fraxinus americana	Private	YES	Remove	4812020.56	536627.45
324	Linden - Basswood	Tilia americana	Private	YES	Remove	4812022.68	536627.95
325	Maple - Manitoba	Acer negundo	Private	YES	Remove	4812028.88	536626.14
326	Ash - White	Fraxinus americana	Private	YES	Remove	4812025.11	536628.18

TREE REMOVAL CHARTS

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

INT.	DATE	REVISIONS
K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	14/10/22	ISSUED FOR 60% REVIEW
K.P.	24/06/22	ISSUED FOR 50% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

THE CITY OF Waterloo

LICENSED PROFESSIONAL ENGINEER
K.N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

TREE REMOVALS PLAN PROPOSED CREEK RESTORATION

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO, ON

DATE:	JUNE 26, 2022	DESIGNED BY:	KP
SCALE:	HOR 1:300 VER N/A	DRAWN BY:	SW
		CHECKED BY:	KM
FIELD BK.	PAGE	DATE	DRAWING NO.
			C–204

CONTRACTOR TO PROTECT TREES AT ALL TIME DURING CONSTRUCTION . ALL TREE REMOVALS AND PRUNING ARE TO BE REVIEWED AND CONFIRMED BY THE CITY OF WATERLOO,AECOM LANDSCAPE ARCHITECT, RESIDENTS AND CONTRACTOR PRIOR TO ANY WORK COMMENCING ON SITE. THE CONTRACTOR IS NOT TO REMOVE OR PRUNE ANY TREES UNTIL THE REVIEW HAS BEEN COMPLETED AND APPROVED. ALL TREE PROTECTION FENCING LOCATIONS ARE TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION WITH CONTRACT ADMINISTRATOR, CITY OF WATERLOO, AECOM LANDSCAPE ARCHITECT AND CONTRACTOR. REFER TO DETAIL 4 ON SHEET C-209 FOR DETAILS AND SHEET C-208 FOR TREE PROTECTION NOTES

5 C-208 5 C-209

TRIBUTARY CLR-T1-R1

10.67m

12.19m

4.57m

#94 #130 #128 #126 #124 #122 #120 #118 #116 #95 #91 #89 #132 #92 #134 #125 #114 #85 #90 #135 #127 #111 #110 #79 #133 #131 #129 #109 #108 #88 #321 #73

3 C-209 PROPOSED CONSTRUCTION ENTRANCE

3 C-209 PROPOSED MUD MAT

TEMPORARILY BLOCK OUTLET AND INSTALL SUMP PUMP WITH FILTER BAG

6 C-209 PROPOSED CATCH BASIN SEDIMENT CONTROL

EX. LANDSCAPE

9 C-208

7 C-209 PROPOSED COFFER DAM LOCATION

EX. SHED

CLAIR CREEK

EX. PEDESTRIAN BRIDGE

TRIBUTARY CLR-T1-R1

6.20m

3 C-209 PROPOSED CONSTRUCTION ENTRANCE FROM MCDOUGAL ROAD

MCDOUGALL ROAD

KEATS WAY PLACE

KEATS WAY

FUTURE BYPASS STRUCTURE

TRIBUTARY CLR-T1-R1

TEMPORARILY BLOCK AND UTILIZE FUTURE BYPASS STRUCTURE TO BYPASS FLOW (TO BE CONSTRUCTED PRIOR TO COMMENCING WORK ON THE PROPOSED CREEK WORKS

3 C-209 PROPOSED CONSTRUCTION ENTRANCE

PROPOSED BYPASS SYSTEM TO BE CONSTRUCTED PRIOR TO COMMENCING WORK IN THE PROPOSED CREEK WORKS

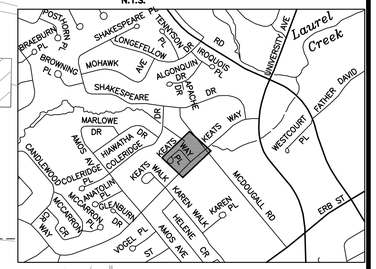
6 C-209 PROPOSED CATCH BASIN SEDIMENT CONTROL

CLN6R-12 PROPOSED MH TEE CULVERT SECTION STA=1+241.96 T/G=331.891

CLN6R-13 PROPOSED MH TEE CULVERT SECTION STA=1+153.74 T/G=332.992

EX. CSW EX. ASPHALT SIDEWALK EX. BUS STOP EX. ASPHALT DWY

KEY PLAN
N.T.S.



LEGEND

- 247.00 EX. CONTOUR
- 247.50 EX. SPOT ELEVATION
- EXISTING STORM MH, CBMH, DCBMH, DCB, CB
- EXISTING SANITARY MH
- HYDRO POLE/LIGHT STANDARD
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- W/M EXISTING WATERMAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- BH-4 BOREHOLE
- GAS EXISTING GAS SERVICE
- BELL EXISTING BELL PHONE/CABLE
- LIMITS OF DISTURBANCE (APPROX.)
- EXISTING GABION RETAINING WALL
- EXISTING CREEK C/L
- EXISTING TREE
- EXISTING EASEMENT (APPROX)
- PROPERTY LINE
- PROPOSED MUD MAT
- PROPOSED CATCH BASIN SEDIMENT CONTROL
- REFER TO DWG L-101 TREE PROTECTION FENCING
- PROPOSED CONSTRUCTION ACCESS
- PROPOSED COFFER DAM

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE. EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

INT.	DATE	REVISIONS
K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/12/22	FOR NEIGHBOURHOOD MEETING
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	14/10/22	ISSUED FOR 60% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

THE CITY OF Waterloo

LICENSED PROFESSIONAL ENGINEER K. N. PALIOURAS 100079832 September 9, 2024 PROVINCE OF ONTARIO
SEAL

EROSION AND SEDIMENT CONTROL PROPOSED CREEK RESTORATION

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO, ON

DATE: JUNE 26, 2022		DESIGNED BY:	KP
SCALE:	HOR 1:300 VER N/A	DRAWN BY:	SW
		CHECKED BY:	KM
FIELD BK.	PAGE	DATE	DRAWING NO. C-205

Last saved by: OBRIENA (2024-09-09) Last Plotted: 2024-09-11
Filename: Z:\KITCHENER-OAKON\DOCS\PROJECTS\WTR\60672393_KEATSWAY_WATERLOO\900_CAD_GIS\911_CIVIL\911_3_PUBLISHED\KEATS WAY CREEK RESTORATION EROSION AND SEDIMENT CONTROL.DWG

REPLACE EX. GABION RETAINING WALL WITH 40.0 m PROPOSED SOFT-ARMOURING RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR ENGINEER) TOP OF WALL TO MATCH TOP OF EXISTING RETAINING WALL WITH RIPARIAN PLANTINGS (SEE LANDSCAPE NOTES)

PR. WALL HEIGHT(FROM INVERT OF EMBEDMENT) (MIN.)= 1.57m (APPROX.)

PR. BTM. OF WALL INV. 331.03±

PR. WALL HEIGHT (FROM INVERT OF EMBEDMENT) (MIN.)= 1.54m (APPROX.)

REPLACE EX. GABION RETAINING WALL WITH 161.0m PROPOSED HARD ARMOUR RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR ENGINEER) TOP OF WALL TO MATCH TOP OF EXISTING RETAINING WALL

2 C-209

PR. WALL HEIGHT (FROM INVERT OF EMBEDMENT) (MIN.)= 1.89m (APPROX.)

PR. WALL HEIGHT(FROM INVERT OF EMBEDMENT) (MIN.)= 2.46m (APPROX.)

PR. WALL HEIGHT (FROM INVERT OF EMBEDMENT) (MIN.)= 1.64m (APPROX.)

PR. WALL HEIGHT (FROM INVERT OF EMBEDMENT) (MIN.)= 1.92m (APPROX.)

TRIBUTARY CLR-T1-R1

REPLACE EX. GABION RETAINING WALL WITH 31.0 m PROPOSED SOFT-ARMOURING RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR ENGINEER) TOP OF WALL TO MATCH TOP OF EXISTING RETAINING WALL WITH RIPARIAN PLANTINGS (SEE LANDSCAPE NOTES)

1 C-209

DESIGN OF ARMOURSTONE TO BE PROVIDED BY CONTRACTOR ENGINEER TO CONFIRM BUILDING STABILITY ADJACENT TO PROPOSED RETAINING WALL

TRIB XS1

PROPOSED 12.0m HARD ARMOUR RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR ENGINEER) TOP OF WALL EL = 332.00 VEGETATION TO BE REMOVED AND DISTURBED AREA TO BE RESTORED TO CURRENT SITE CONDITIONS

CLAIR CREEK

EX. PEDESTRIAN BRIDGE

EX. SHED

PR. BTM. OF WALL INV. 330.19±

MAINTAIN EXISTING GABION BASKET

TRIBUTARY CLR-T1-R1

PR. BTM. OF WALL INV. 330.29±

PR. BTM. OF WALL INV. 330.59±

PR. WALL HEIGHT (MIN.)= 1.02m (APPROX.)

PR. BTM. OF WALL INV. 330.77±

ALL WORK AREAS TO BE SECURED AT R.O.W. WITH MODULAR FENCING

DISTURBED AREA TO BE RESTORED TO CURRENT SITE CONDITIONS (SEE LANDSCAPE NOTES)

PR. WALL HEIGHT (FROM INVERT OF EMBEDMENT) (MIN.)= 0.91m (APPROX.)

CONTRACTOR TO MAINTAIN CHANNEL BED AS PER EXISTING CONDITION OR REPAIR WITH PROPOSED SUBSTRATE (WB-200 AS PER OPSS PROV 1005) DEPTH = 300mm SEE NOTE

ADDITIONAL VEGETATION TO BE PLACED ALONG CREEK BANKS (SEE LANDSCAPING NOTES)

PROPOSED HEADWALL AS PER OPSD 804.030

PR. WALL HEIGHT (FROM INVERT OF EMBEDMENT) (MIN.)= 1.08m (APPROX.)

PR. WALL HEIGHT (FROM INVERT OF EMBEDMENT) (MIN.)= 1.39m (APPROX.)

REPLACE REMOVED VEGETATION WITH RIPARIAN SHRUB/TREE PLANTINGS (SEE LANDSCAPE NOTES)

MAINTAIN GRADES AT EX. BOX CULVERT

PR. BTM. OF WALL INV. 331.48±

CONTRACTOR TO REPAIR WITH PROPOSED SUBSTRATE (WB-350 AS PER OPSS PROV 1005) DEPTH = 500mm SEE NOTE

NOTE:
A PORTION OF THE GRANULAR B IS TO BE APPLIED ON TOP OF THE SUBSTRATE AND SPRAYED DOWN WITH WATER BEFORE THE CHANNEL IS OPEN FOR GRANULAR B TO FILL VOID SPACES BETWEEN LARGER PARTICLES

REPLACE EX. GABION RETAINING WALL WITH 106.0 m PROPOSED SOFT-ARMOURING RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR ENGINEER) TOP OF WALL TO MATCH TOP OF EXISTING RETAINING WALL WITH RIPARIAN PLANTINGS (SEE LANDSCAPE NOTES)

PR. BTM. OF WALL INV. 332.00±

REPLACE EX. GABION RETAINING WALL WITH 19.0m PROPOSED HARD ARMOUR RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR ENGINEER) TOP OF WALL = 334.10 AT EX. CULVERT SEE DETAIL 1 DISTURBED AREA TO BE RESTORED TO CURRENT SITE CONDITIONS

REPLACE EX. GABION RETAINING WALL WITH 20.0m PROPOSED HARD ARMOUR RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR ENGINEER) TOP OF WALL = 334.10 AT EX. CULVERT SEE DETAIL 1 DISTURBED AREA TO BE RESTORED TO CURRENT SITE CONDITIONS

KEATS WAY

KEATS WAY PLACE

MCDOUGALL ROAD

EX. ASPHALT SIDEWALK

EX. BUS STOP

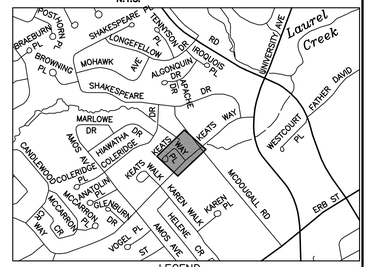
EX. LANDSCAPE

#130 #132 #134 #135 #133 #131 #129 #127 #125 #111 #109 #321 #128 #126 #124 #122 #120 #118 #116 #114 #110 #108 #95 #91 #89 #85 #79 #73

XS4 XS5 XS6 XS7 XS8 XS9 XS10

26.0 27.5 27

KEY PLAN
N.T.S.



LEGEND

- EXISTING EASEMENT (APPROX)
- EX. CONTOUR
- EX. SPOT ELEVATION
- EXISTING STORM MH, CBMH, DCBMH, DCB, CB
- EXISTING SANITARY MH
- HYDRO POLE/LIGHT STANDARD
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- BOREHOLE
- EXISTING GAS SERVICE
- EXISTING BELL PHONE/CABLE
- LIMITS OF DISTURBANCE (APPROX.)
- EXISTING CREEK C/L
- PROPOSED HARD ARMOUR RETAINED SOIL SYSTEM (DETAIL2)
- PROPOSED SOFT ARMOUR RETAINED SOIL SYSTEM (DETAIL1)
- 27 PROPOSED CROSS SECTION ID
- SEE PROPOSED CROSS SECTIONS DWG C-207

TOP OF RETAINED SOIL SYSTEM COORDINATES TABLE

	NORTHING	EASTING
1	4812024	536628
2	4812068	536590
3	4812089	536574
4	4812122	536590
5	4812119	536592
6	4812195	536722
7	4812178	536655
8	4812175	536682
9	4812203	536692
10	4812197	536703

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

	DATE	REVISIONS
K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/12/22	FOR NEIGHBOURHOOD MEETING
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	14/10/22	ISSUED FOR 60% REVIEW
INT.	DATE	REVISIONS

CITY OF WATERLOO
PUBLIC WORKS SERVICES

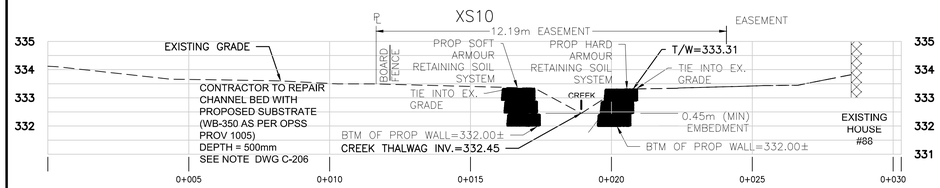
THE CITY OF Waterloo

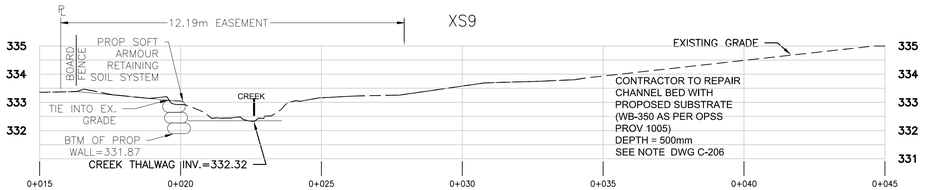
LICENSED PROFESSIONAL ENGINEER
K.N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

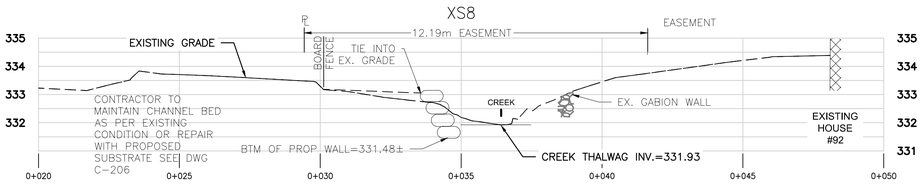
PROPOSED CONDITIONS PROPOSED CREEK RESTORATION

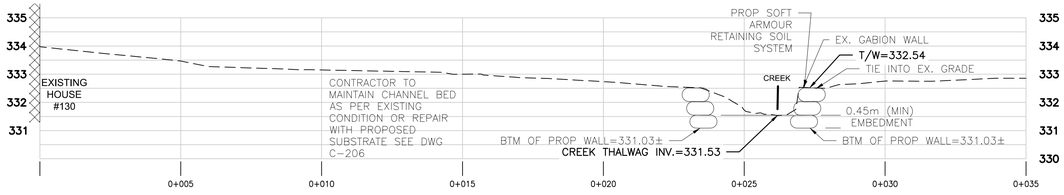
KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO. ON

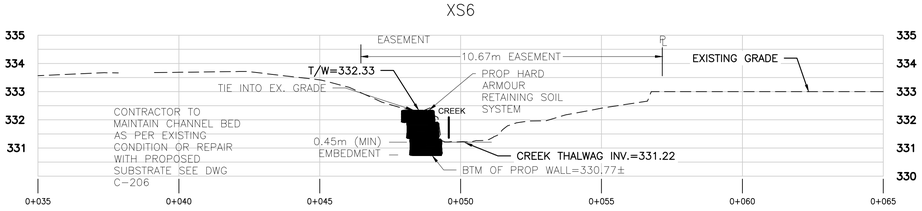
DATE: JUNE 26, 2022		DESIGNED BY:	KP
SCALE:	HOR 1:300 VER N/A	DRAWN BY:	SW
		CHECKED BY:	KM
FIELD BK.	PAGE / DATE	DRAWING NO.	C-206

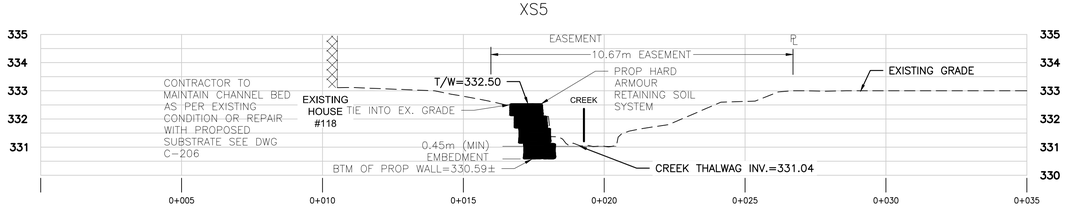


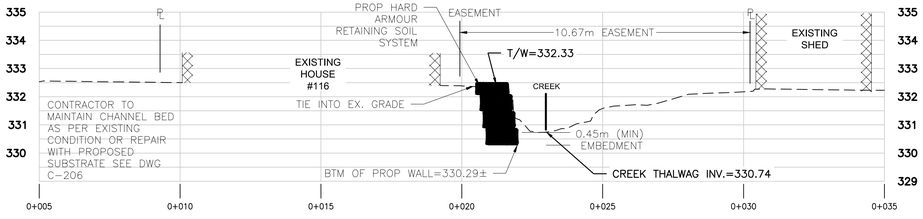


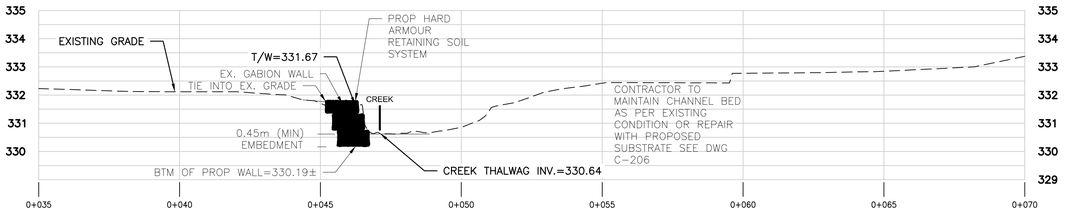


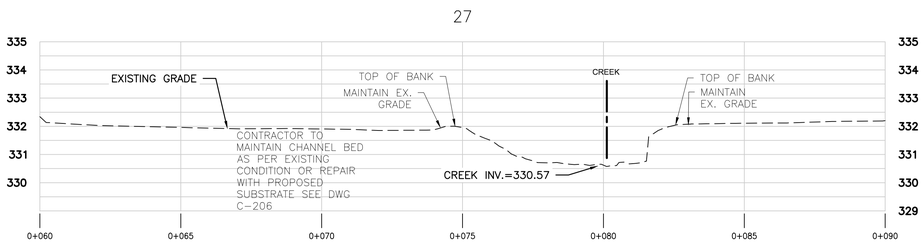


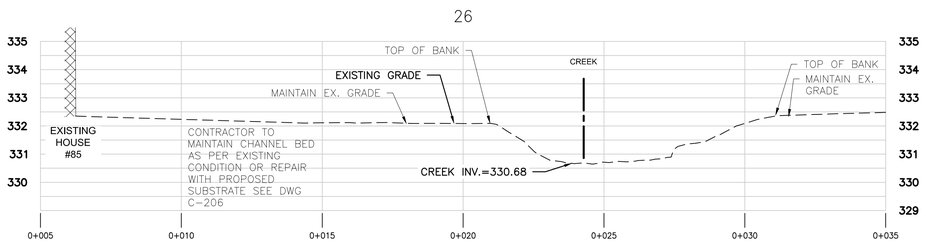


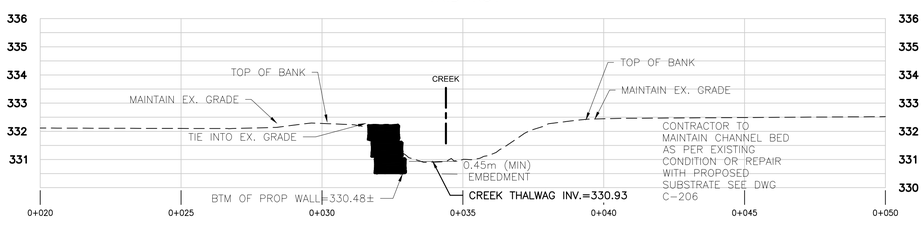


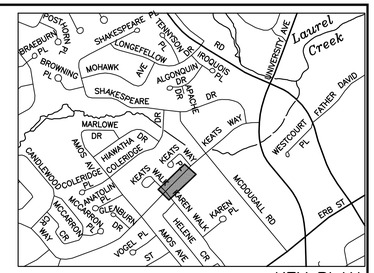












KEY PLAN
N.T.S.

GENERAL NOTES:

1. THE POSITION OF POLE LINE, CONDUITS, WATER MAINS, SEWERS AND OTHER UTILITIES, FEATURES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS AND WHERE SHOWN, THE ACCURACY OF THE POSITIONS IS NOT GUARANTEED. BEFORE STARTING CONSTRUCTION, THE CONTRACTOR SHALL INFORM HIM/HER SELF OF THE EXACT LOCATION OF SUCH UTILITIES AND STRUCTURES.
2. ALL DIMENSIONS SHALL BE CHECKED BY THE CONTRACTOR AND INCONSISTENCIES REPORTED TO THE PROJECT ENGINEER.
3. ALL UNITS ARE IN METRES UNLESS OTHERWISE NOTED.
4. ALL WORK REPORTED IN ACCORDANCE WITH THE LATEST RELEVANT SECTIONS OF THE OPSD's, OPSS's, ONTARIO BUILDING CODE AND THE REQUIREMENTS OF THE CITY OF WATERLOO AND REGION OF WATERLOO
5. ALL DISTURBED AREAS RESTORED TO ORIGINAL CONDITIONS OR BETTER IN ACCORDANCE WITH CITY OF WATERLOO AND REGION OF WATERLOO DRAWINGS/SPECIFICATIONS.

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

INT.	DATE	REVISIONS
K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	24/06/22	ISSUED FOR 50% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

THE CITY OF Waterloo

LICENSED PROFESSIONAL ENGINEER
K.N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

PROPOSED CROSS SECTIONS PROPOSED CREEK RESTORATION

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO, ON

DATE:	JUNE 26, 2022	DESIGNED BY:	KP
SCALE:	HOR 1:100 VER	DRAWN BY:	SW
		CHECKED BY:	KM
FIELD BK.	PAGE / DATE	DRAWING NO.	C-207

GENERAL NOTES

1. ALL DIMENSIONS ARE SHOWN IN METERS UNLESS NOTED OTHERWISE.
2. TOPOGRAPHIC SURVEY MAY NOT BE COMPLETE OR ACCURATE. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.
3. ALL DIMENSIONS AND INFORMATION SHALL BE CHECKED AND VERIFIED ON SITE AND ANY DISCREPANCIES MUST BE REPORTED TO THE CONSULTANT PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL BENCHMARKS, ELEVATIONS, DIMENSIONS AND GRADES MUST BE CHECKED BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE CONSULTANT. AT LEAST TWO DIFFERENT BENCHMARKS MUST BE REFERRED TO AT ALL TIMES.
4. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE VERTICAL POSITION BASED ON THE BENCHMARK(S) STATED HEREON, PRIOR TO BEGINNING CONSTRUCTION LAYOUT.
5. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL VERIFY ELEVATIONS, PIPE SIZE, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH CONSTRUCTION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE TESTING AGENCY, 72 HOURS PRIOR TO START OF CONSTRUCTION TO PREVENT GRADE AND ALIGNMENT CONFLICTS.
6. CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING SURVEY MONUMENTATION DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT OF ANY MONUMENTS DAMAGED OR REMOVED DURING CONSTRUCTION. NEW MONUMENTS SHALL BE REESTABLISHED BY A LICENSED ONTARIO LAND SURVEYOR.
7. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LOCAL MUNICIPALITY AND/OR REGION STANDARDS, APPLICABLE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS & STANDARD DRAWINGS, AND ONTARIO BUILDING CODE.
8. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, PROVINCIAL, AND LOCAL CODES, ORDINANCES AND REGULATIONS. ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES FOR THE EXECUTION AND COMPLETION OF WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
9. CONTRACTOR SHALL MAINTAIN ALL UTILITIES TO ADJACENT FACILITIES AT ALL TIMES DURING CONSTRUCTION.
10. THE CONSULTANT OR OWNER IS NOT RESPONSIBLE FOR THE SAFETY OF THE CONTRACTOR OR HIS CREW. ONTARIO'S OH&S ACT AND REGULATIONS SHALL BE STRICTLY ADHERED TO IN THE PERFORMANCE OF THE WORK.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING ALL WORK WITH TESTING AGENCY.
12. CONTRACTOR SHALL NOTIFY THE OWNER, THE CONSULTANT, AND ALL APPLICABLE LOCAL AGENCIES / INSPECTORS 120 HOURS BEFORE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, THE CONSULTANT, THE TESTING AGENCY, THE CONTRACTOR AND THE LOCAL MUNICIPALITY.
13. THIS DRAWING IS NOT FOR CONSTRUCTION UNTIL STAMPED BY THE CONSULTANT
14. ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT AND MAY NOT BE REPRODUCED OR REVISED WITHOUT THE CONSULTANTS WRITTEN PERMISSION.
15. MAINTAIN ALL TRAFFIC & PEDESTRIAN TRAVEL IN AND AROUND THE WORK AREA AT ALL TIMES FOR THE DURATION OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN TO TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION.
16. ALL WORK INVOLVED IN THE CONSTRUCTION, RELOCATION, REPAIR OF MUNICIPAL SERVICES FOR THE PROJECT SHALL BE TO THE SATISFACTION OF THE CITY
17. THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS NORMALLY REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS, BUT NOT LIMITED TO THE FOLLOWING:
    - BUILDING PERMIT
    - ROAD CUT PERMITS
    - APPROACH APPROVAL PERMITS
    - COMMITTEE OF ADJUSTMENT
    - SEWER AND WATER PERMITS
    - RELOCATION OF SERVICES
    - ENCROACHMENT AGREEMENTS (IF REQUIRED)

EROSION AND SEDIMENT CONTROL (ESC) NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES.
2. CONTRACTOR TO HOLD A PRE-CONSTRUCTION MEETING INCLUDING ALL RELEVANT PROJECT CONSTRUCTION PERSONNEL, INCLUDING THE TESTING AGENCY, TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS.
3. ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH LOCAL AND PROVINCIAL REQUIREMENTS.
4. INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH LOCAL AND PROVINCIAL REQUIREMENTS.
5. RETAIN A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO THE PROVINCIAL OR LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, THE ABOVE RECORDS MUST BE RETAINED BY THE CONTRACTOR AND/OR PERMIT REGISTRANT (IF PERMIT IS REQUIRED), BUT DO NOT NEED TO BE AT THE CONSTRUCTION SITE.
6. ALL CONTRACTORS AND/OR PERMIT REGISTRANTS (IF PERMIT IS REQUIRED) MUST IMPLEMENT THE EROSION AND SEDIMENT CONTROL PLANS. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE EROSION AND SEDIMENT CONTROL PLANS IS A VIOLATION OF THE PERMIT.
7. THE EROSION AND SEDIMENT CONTROL PLANS MUST BE ACCURATE AND REFLECT SITE CONDITIONS.
8. THE EROSION AND SEDIMENT CONTROL PLANS MAY BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.
9. ALTERNATIVE EROSION CONTROL MEASURES MUST BE REVIEWED AND APPROVED BY THE TESTING AGENCY AND THE MUNICIPALITY BEFORE IMPLEMENTATION.
10. ALL BASE ESC MEASURES, MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
11. INLET PROTECTION SHALL BE RE-INSTALLED IMMEDIATELY FOLLOWING PAVING ACTIVITIES OR ADJUSTMENT OF FRAME AND GRATES.
12. EROSION & SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED IN ACCORDANCE WITH APPLICABLE CONSERVATION AUTHORITY, AS WELL AS ALL APPLICABLE MUNICIPAL STANDARDS AND SPECIFICATIONS.
13. SILT FENCING, TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY AREA GRADING OR EXCAVATING WORKS. EROSION CONTROL FENCING TO BE PLACED AROUND THE BASE OF ALL STOCKPILES. ALL STOCKPILES MUST BE KEPT A MINIMUM DISTANCE OF 2.5m FROM ALL PROPERTY LINES AND 15m AWAY FROM ALL WATER COURSES.
14. EROSION CONTROL STRUCTURES TO BE MONITORED REGULARLY BY TESTING AND INSPECTION AGENCY AND ANY DAMAGE REPAIRED IMMEDIATELY. SEDIMENTS TO BE REMOVED WHEN ACCUMULATIONS REACH A MAXIMUM OF ONE THIRD (1/3) THE HEIGHT OF THE SILT FENCE.
15. MUD MATS TO BE PROVIDED ON SITE AT ALL LOCATIONS WHERE CONSTRUCTION VEHICLES EXIT THE SITE. MUD MATS SHALL BE AS PER DETAIL ON DRAWING D100 (OR APPROVED EQUIVALENT). CONTRACTOR TO ENSURE ALL VEHICLES LEAVE THE SITE VIA THE MUD MAT AND THAT THE MAT IS MAINTAINED IN A MANNER TO MAXIMIZE ITS EFFECTIVENESS AT ALL TIMES.
16. CONTROL SEDIMENT AS NEEDED ALONG THE SITE PERIMETER AND AT ALL OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION, BOTH INTERNALLY AND AT THE SITE BOUNDARY.
17. CONSTRUCTION ENTRANCES SHALL BE ADJUSTED AS NECESSARY DURING CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, STREET SWEEPING, AND VACUUMING, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
18. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING APPROPRIATE METHODS SUCH AS: CONSTRUCTION ENTRANCES, MUD MATS, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, TEMPORARY GRAVEL ROADS LOCATED WITHIN THE SITE, OR EXIT TIRE WASH STATIONS. THESE PROCEDURES MUST BE IN PLACE PRIOR TO LAND DISTURBING ACTIVITIES.
19. THE CONTRACTOR IS RESPONSIBLE FOR THE MUNICIPAL AND/OR REGION OWNED ROADWAYS TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AT THE END OF EACH WORK DAY.
20. ANY MUD / MATERIAL TRACKED ONTO ROADWAYS SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE EQUIPMENT.
21. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE.
22. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK.
23. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS.
24. CONTRACTOR SHALL SUBMIT A PLAN INDICATING THE CONTROL AND DISPOSAL METHODS OF PROHIBITED MATERIALS, AS PER MUNICIPAL REQUIREMENTS. CONTROL PROHIBITED DISCHARGES SUCH AS CONCRETE WASH-OUT AND WASTEWATER FROM CLEANOUT OF STUCCO, PAINT, AND CURING COMPOUNDS FROM LEAVING THE CONSTRUCTION SITE AT ALL TIMES AS PER THE APPROVED PLAN.
25. PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZER, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS.
26. IMPLEMENT THE FOLLOWING PROCEDURES WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE COVERED STORAGE AREAS FOR WASTE AND SUPPLIES.
27. FUEL STORAGE AND FUELING ON SITE ARE NOT ALLOWED.
28. DURING CONSTRUCTION MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE. PROTECT ALL DISTURBED AREAS FROM RUNOFF.
29. CONTRACTOR TO PRESERVE VEGETATION ON STEEP SLOPES UNTIL IT BECOMES NECESSARY TO DISTURB FOR CONSTRUCTION.
30. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND BARE GROUND DURING WET WEATHER.
31. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREAS WILL NOT BE REHABILITATED WITHIN 30 DAYS.
32. USE WATER, SOIL-BINDING AGENTS, OR OTHER DUST CONTROL TECHNIQUES AS REQUIRED TO CONTROL WIND-BLOWN DUST AND SOIL TO ACCEPTABLE LEVELS.
33. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. REFER TO LANDSCAPING SPECIFICATIONS IF APPLICABLE.
34. SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE MUST BE REMEDIATED WITHIN 24 HOURS. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT ADDITIONAL CONTROLS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN-UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE PROVINCIAL AND LOCAL AUTHORITIES TIMEFRAME.
35. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS BY THE CONTRACTOR AT HIS OWN EXPENSE.
36. CONTRACTOR TO TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIALS, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS THAT HAVE BEEN AFFECTED.
37. ALL EROSION CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED WITH PAVEMENT OR GROUND COVER AND VEGETATION HAS BEEN ESTABLISHED.

CONSTRUCTION NOTES

GENERAL

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST MUNICIPAL STANDARDS AND SPECIFICATIONS.
2. ALL MATERIALS SHALL BE NEW. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, AND USEFULNESS. PROPOSED SUBSTITUTIONS WILL REQUIRE WRITTEN APPROVAL FROM TESTING AGENCY PRIOR TO INSTALLATION.
3. ALL BEDDING, COVER MATERIAL AND EMBEDMENT MATERIAL TO BE COMPACTED GRANULAR 'A' UNLESS NOTED OTHERWISE.
4. EARTH FILL MATERIALS TO BE COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY (SPD), UNLESS OTHERWISE INDICATED IN THE LATEST GEOTECHNICAL REPORT. GRANULAR MATERIALS TO BE COMPACTED TO 100% SPD, UNLESS OTHERWISE INDICATED IN THE LATEST GEOTECHNICAL REPORT. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER IS NOT PERMITTED.
5. ALL BEDDING, GRANULAR BASE AND THRUST BLOCKING TO BE FOUNDED ON COMPETENT SOIL.
6. PLACEMENT OF GRANULAR MATERIALS 'A' AND 'B' ARE TO BE IN COMPLIANCE WITH OPSS 102, OPSS 314 AND OPSS 501. PLACEMENT OF RIP RAP TO BE IN COMPLIANCE WITH OPSS 511.
7. GRADING AND COMPACTION METHODS ARE TO BE IN COMPLIANCE WITH THE LATEST GEOTECHNICAL REPORT., OPSS.MUNI 206, OPSS.MUNI 314 AND OPSS.MUNI 501.
8. ALL SURPLUS MATERIALS NOT DESIGNATED FOR SALVAGE TO BE DISPOSED OF OFF-SITE BY CONTRACTOR. PROVIDE PROPERTY OWNER RELEASE FORM TO SATISFACTION OF THE TESTING AGENCY.
9. SPECIAL INSPECTION BY THE TESTING AGENCY REQUIRED FOR ALL COMPACTION TESTING.
10. SUBGRADE INSPECTION BEFORE PLACING GRANULAR BASE SHALL BE COMPLETED BY TESTING AGENCY.

DEMOLITION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND DISPOSAL OF EXISTING AC, CURBS, SIDEWALKS AND OTHER SITE ELEMENTS WITHIN THE SITE AREA AS IDENTIFIED IN THE PLANS.
2. EXCEPT FOR MATERIALS INDICATED TO BE STOCKPILED OR TO REMAIN ON OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY, REMOVED FROM THE SITE, AND DISPOSED OF PROPERLY. CONTRACTOR SHALL PROVIDE LOCATION OF DISPOSAL SITES AND APPROPRIATE RELEASE FORMS FROM LAND OWNERS ACCEPTING THE MATERIAL AT THE COMPLETION OF THE PROJECT.
3. ITEMS INDICATED TO BE SALVAGED SHALL BE CAREFULLY REMOVED AND STORED AT THE PROJECT SITE AS DIRECTED BY THE TESTING AGENCY.
4. ALL LANDSCAPING, PAVEMENT, CURBS AND SIDEWALKS, BEYOND THE IDENTIFIED SITE AREA, DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL CONDITION OR BETTER.

UTILITIES

1. CONTRACTOR TO SUPPORT AND PROTECT EXISTING UTILITIES DURING CONSTRUCTION TO THE SATISFACTION OF THE UTILITY COMPANY.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THEMSELVES OF THE EXACT LOCATION OF, AND ASSUME ALL LIABILITY FOR DAMAGE TO ALL UTILITIES, SERVICES AND STRUCTURES WHETHER ABOVE GROUND OR BELOW GRADE, BEFORE COMMENCING THE WORK. SUCH INFORMATION IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND WHERE SHOWN, THE ACCURACY CANNOT BE GUARANTEED.

RETAINED SOIL SYSTEM

1. THE RETAINED SOIL SYSTEM WALLS SHALL BE DESIGNED TO WITHSTAND THE LATERAL EARTH PRESSURE AND A SURCHARGE OF 5 kPa.
2. THE RETAINED SOIL SYSTEM WALLS SHALL BE DESIGNED WITH THE FOLLOWING ATTRIBUTES:
    - PERFORMANCE - LOW (SURFACE MOVEMENT < 1H:100V)
    - GEOMETRY - SLOPE
    - APPEARANCE - LOW (ARMOUR STONE) ; MEDIUM (CONCRETE UNITS)
3. STEPPING OF THE TOP AND UNDERSIDE SHALL BE DETERMINED BY THE CONTRACTOR AND SUIT THE GENERAL CONCEPT SECTION.
4. SUBMIT THE DETAILED DESIGN AND SHOP DRAWINGS OF THE ARRANGEMENT, STAMPED BY A PROFESSIONAL ENGINEER, LICENSED IN THE PROVINCE OF ONTARIO.

ENVIRONMENTAL NOTES

GENERAL

1. ALL ACTIVITIES SHALL BE DONE IN ACCORDANCE WITH REQUIREMENTS AND CONDITIONS OF APPLICABLE PERMITS AND APPROVALS.
2. REMOVE ALL DEBRIS AND GARBAGE FROM THE SITE.

SPILLS AND SEDIMENT CONTROL

1. ENSURE AN APPROVED SPILL KIT IS ON-SITE AND READILY AVAILABLE , AS PER SPILL RESPONSE PLAN. ENOUGH SPILL RESPONSE AND CONTAINMENT MEASURES, INCLUDING EROSION AND SEDIMENT CONTROL MEASURES, SHOULD BE ON-SITE AND READILY AVAILABLE TO CONTAIN ANY INADVERTENT RELEASE OF SEDIMENT, FUEL, GREASE, OIL, ETC.
2. UPON DETECTION OF A SPILL (INCLUDING RELEASE OF SEDIMENT), WORK IN THAT AREA SHOULD STOP AS SPILL RESPONSE IS IMPLEMENTED.
3. EQUIPMENT MAINTENANCE, REFUELLING, WASHING, ETC. SHOULD TAKE PLACE 30 M AWAY FROM THE WATERCOURSE, AND IN A MANNER THAT PREVENTS SPILLS.
4. STOCKPILED MATERIAL SHOULD BE IN A LOCATION AND IN A MANNER AND LOCATION (I.E. 30 M AWAY, WHERE FEASIBLE) THAT PREVENTS THE RELEASE OF SEDIMENT TO THE WATERCOURSE.
5. EROSION AND SEDIMENT CONTROL MEASURES (I.E., SILT FENCE, ETC.) SHOULD BE INSTALLED PRIOR TO INITIATING WORK.

TIMNG

1. WORK BELOW THE HIGH WATER MARK, INCLUDING INSTALLATION OF COFFERDAMS OR WORK WITHIN A COFFERDAM, SHALL NOT OCCUR BETWEEN APRIL 1 AND JUNE 30
2. VEGETATION REMOVAL SHALL OCCUR OUTSIDE OF THE BREEDING BIRD WINDOW. VEGETATION CLEARING SHALL NOT OCCUR FROM APRIL 1 TO AUGUST 31.

WORK IN WATER

1. WORK IN WATER IS CONSIDERED TO BE ACTIVITIES BELOW THE HIGH WATER MARK.
2. IN-WATER WORK ISOLATION MEASURES (I.E. COFFERDAMS) ARE TO BE INSTALLED IN ADVANCE OF WORK BELOW THE HIGH WATER MARK OF THE WATERCOURSE.
3. THE IN-WATER WORK AREA ISOLATED BY COFFERDAMS SHALL BE CLEARED OF ALL FISH BY QUALIFIED PERSONNEL IN ADVANCE OF ANY WORK IN THE WATERCOURSE.
4. ALL VEHICLES, MACHINERY, OR OTHER EQUIPMENT SHALL NOT ENTER THE WATERCOURSE.
5. DEWATERING SHOULD OCCUR USING MEANS SUCH AS A FILTER BAG, AND/OR OTHER EROSION AND SEDIMENT CONTROL MEASURES, AS REQUIRED, TO PREVENT THE RELEASE OF SEDIMENT-LADEN WATER TO THE WATERCOURSE.
6. PUMP INTAKES SHALL BE SCREENED IN ACCORDANCE WITH THE DFO CODE OF PRACTICE FOR END-OF-PIPE FISH PROTECTION SCREENS IN FRESHWATER.

TREE PROTECTION NOTES

1. ALL EXISTING TREES WHICH ARE TO REMAIN SHALL BE FULLY PROTECTED PRIOR TO COMMENCEMENT OF CONSTRUCTION. GROUPS OF TREES AND OTHER EXISTING PLANTINGS TO BE PROTECTED SHALL BE DONE IN A LIKE MANNER WITH PROPER TREE PROTECTION FENCING AROUND THE ENTIRE CLUMP(S). AREAS WITHIN THE PROTECTIVE FENCING SHALL REMAIN UNDISTURBED AND SHALL NOT BE USED FOR THE STORAGE OF BUILDING MATERIALS OR EQUIPMENT.
2. NO RIGGING CABLES SHALL BE WRAPPED AROUND OR INSTALLED IN TREES AND SURPLUS SOIL, EQUIPMENT, DEBRIS OR MATERIALS SHALL NOT BE PLACED OVER THE ROOT SYSTEMS OF THE TREES WITHIN THE PROTECTIVE FENCING. NO CONTAMINANTS ARE TO BE DUMPED OR FLUSHED WHERE FEEDER ROOTS OF TREES EXIST.
3. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION NECESSARY TO PREVENT DAMAGE TO TREES OR SHRUBS TO BE RETAINED.
4. WHERE LIMBS OR PORTIONS OF TREES ARE REMOVED TO ACCOMMODATE CONSTRUCTION WORK, THEY WILL BE CLEANLY CUT IN ACCORDANCE WITH ACCEPTABLE ARBORICULTURAL PRACTICES.
5. WHERE ROOT SYSTEMS OF PROTECTIVE TREES ARE EXPOSED DIRECTLY ADJACENT TO OR DAMAGED BY CONSTRUCTION WORK, THEY SHALL BE TRIMMED NEATLY AND THE AREA BACK-FILLED WITH APPROPRIATE MATERIAL IN A TIMELY MANNER TO PREVENT DRYING.
6. WHERE NECESSARY, THE TREES SHALL BE GIVEN AN OVERALL PRUNING TO RESTORE THE BALANCE BETWEEN ROOTS AND TOP GROWTH OR TO RESTORE THE APPEARANCE OF THE TREE.
7. TREES SCHEDULED FOR PRESERVATION THAT HAVE DIED OR BEEN DAMAGED BEYOND REPAIR SHALL BE REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE BY TREES OF A SIMILAR SIZE AND SPECIES OR SUCH SIZE AND SPECIES AS APPROVED BY THE CONTRACT ADMINISTRATOR.
8. IF GRADES AROUND TREES TO BE PROTECTED ARE LIKELY TO CHANGE, THE CONTRACTOR SHALL BE REQUIRED TO TAKE SUCH PRECAUTIONS AS DRY WELLING AND ROOT FEEDING TO THE SATISFACTION OF THE CITY OF WATERLOO.
9. SHOULD A CONFLICT OCCUR BETWEEN TREES SCHEDULED FOR PRESERVATION AND THE PROPOSED CONSTRUCTION, APPROVAL SHALL BE OBTAINED IN WRITING FROM THE CITY OF WATERLOO PRIOR TO PROCEEDING WITH THE REMOVAL OF SUCH.
10. ANY TREES DESIGNATED FOR REMOVAL SHALL BE REMOVED IN ENTIRETY INCLUDING ALL STUMPS AND ROOTS AND DISPOSED OF OFF SITE. NO BURYING OF TREE BRANCHES AND STUMPS WILL BE PERMITTED.
11. PRIOR TO ANY WORK ACTIVITY WITHIN THE CRITICAL ROOT ZONE (CRZ = 10 X DIAMETER) OF A TREE, TREE PROTECTION FENCING MUST BE INSTALLED SURROUNDING THE CRITICAL ROOT ZONE, AND REMAIN IN PLACE UNTIL THE WORK IS COMPLETE.
12. UNLESS PLANS ARE APPROVED BY CITY FORESTRY STAFF, FOR WORK WITHIN THE CRITICAL ROOT ZONE (CRZ):
    - DO NOT PLACE ANY MATERIAL OR EQUIPMENT - INCLUDING OUTHOUSES;
    - DO NOT ATTACH ANY SIGNS, NOTICES OR POSTERS TO ANY TREE;
    - DO NOT RAISE OR LOWER THE EXISTING GRADE;
    - THERE SHALL BE NO COMPACTION OF SOILS;
    - DO DISPOSE OF ANY LIQUIDS (OILS, PAINTS, GAS, ETC);
    - TUNNEL OR BORE WHEN DIGGING;
    - DO NOT DAMAGE THE ROOT SYSTEM, TRUNK, OR BRANCHES OR ANY TREE;
    - ENSURE THAT EXHAUST FUMES FROM ALL EQUIPMENT ARE NOT DIRECTED TOWARD ANY TREE CANOPY.
    - DO NOT EXTEND HARD SURFACE OR SIGNIFICANTLY CHANGE LANDSCAPING.
13. IF MINOR WORKS ARE REQUIRED WITHIN THE DESIGNATED TREE PROTECTION ZONE:
    - THE CONTRACTOR SHALL USE HAND TOOLS
    - THERE SHALL BE NO MACHINERY ACCESS
14. TREE PROTECTION FENCING MUST BE AT LEAST 1.2m IN HEIGHT, AND CONSTRUCTED OF RIGID OR FRAMED MATERIALS (E.G. MODULOC - STEEL, PLYWOOD HOARDING, OR SNOW FENCE ON 2" X4" WOOD FRAME) WITH POSTS 2.4m APART, SUCH THAT THE FENCE LOCATION CANNOT BE ALTERED. ALL SUPPORTS AND BRACING MUST BE PLACED OUTSIDE OF THE CRZ, AND INSTALLATION MUST MINIMIZE DAMAGE TO EXISTING ROOTS.
15. THE LOCATION OF THE TREE PROTECTION FENCING MUST BE DETERMINED BY AN ARBORIST OR LANDSCAPE ARCHITECT AND DETAILED ON ANY ASSOCIATED PLANS FOR THE SITE (E.G. TREE CONSERVATION REPORT, TREE REMOVALS PLAN, ETC.) THE PLAN AND CONSTRUCTED FENCING MUST BE APPROVED BY CITY FORESTRY STAFF PRIOR TO THE COMMENCEMENT OF WORK.
16. IF THE FENCED TREE PROTECTION AREA MUST BE REDUCED TO FACILITATE CONSTRUCTION, MITIGATION MEASURES MUST BE PRESCRIBED BY AN ARBORIST AND APPROVED BY CITY FORESTRY STAFF. THESE MAY INCLUDE THE PLACEMENT OF PLYWOOD, WOOD CHIPS, OR STEEL PLATING OVER THE ROOTS FOR PROTECTION OR THE PROPER PRUNING AND CARE OF ROOTS WHERE ENCOUNTERED.
17. ALL TREE REMOVALS AND PRUNING ARE TO BE REVIEWED AND CONFIRMED BY THE CITY OF WATERLOO, RESIDENTS AND CONTRACTOR PRIOR TO ANY WORK COMMENCING ON SITE. THE CONTRACTOR IS NOT TO REMOVE OR PRUNE ANY TREES UNTIL THE REVIEW HAS BEEN COMPLETED AND APPROVED. ALL TREE PROTECTION FENCING LOCATIONS ARE TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION WITH CONTRACT ADMINISTRATOR, CITY OF WATERLOO AND CONTRACTOR. REFER TO DETAIL X ON SHEET XX FOR DETAILS AND SHEET XX FOR TREE PROTECTION NOTES.

ACCOUNT #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4811978 TO N. 4812183
E. 536617 E. 536836

INT.	DATE	REVISIONS
K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	23/02/22	ISSUED FOR 30% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

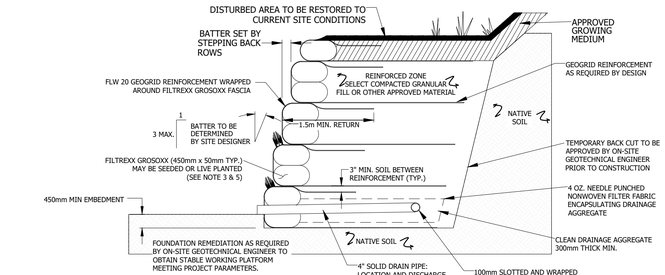
THE CITY OF Waterloo

LICENSED PROFESSIONAL ENGINEER
K.N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

GENERAL CONSTRUCTION NOTES PROPOSED CREEK RESTORATION

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO, ON

DATE:	Feb. 10, 2022	DESIGNED BY:	SW
SCALE:	HOR N/A	DRAWN BY:	SW
	VER N/A	CHECKED BY:	KM
FIELD BK.	PAGE	DATE	DRAWING NO.
			C-208

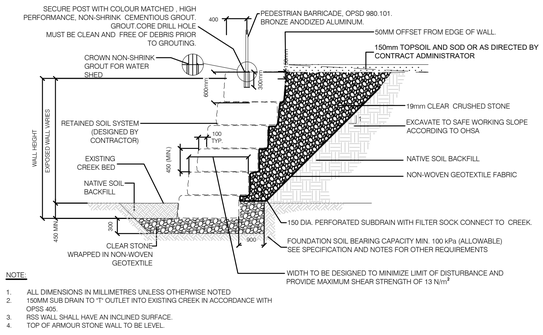


NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
2. GROSOXX FILL TO MEET APPLICATION REQUIREMENTS.
3. GROSOXX MAY BE PRE SEEDED, OR HYDROSEEDED PER LANDSCAPE ARCHITECT'S SPECIFICATIONS.
4. BACKFILL TO BE PLACED PER CONTRACTOR ENGINEER'S REQUIREMENTS.
5. GEOGRID STRENGTH, LENGTH, AND VERTICAL SPACING TO BE DETERMINED BY CONTRACTOR ENGINEER. GEOGRID--NO STRANDS ARE TO BE CUT DURING PLANTING, ETC. WE RECOMMEND BI-DIRECTIONAL STRENGTH FOR CONSTRUCTION EASE.
6. NATIVE AND DRAINAGE BACKFILL TO BE SEPARATED BY NON-WOVEN FILTER FABRIC.
7. MAXIMUM HEIGHT RECOMMENDATIONS: TEN FEET EXPOSED HEIGHT.

NOTE:
CONTRACTOR ENGINEER IS TO PROVIDE FINAL DESIGN OF THE SOFT ARMOUR RETAINED SOIL SYSTEM

SOFT ARMOUR RETAINED SOIL SYSTEM
SCALE: NTS

1 / C-101

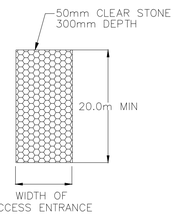


NOTE:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED
2. 150MM SUB DRAIN TO "T" OUTLET INTO EXISTING CREEK IN ACCORDANCE WITH OPSS 405.
3. RSS WALL SHALL HAVE AN INCLINED SURFACE.
4. TOP OF ARMOUR STONE WALL TO BE LEVEL.

NOTE:
CONTRACTOR ENGINEER IS TO PROVIDE FINAL DESIGN OF THE HARD ARMOUR RETAINED SOIL SYSTEM

HARD ARMOUR RETAINED SOIL SYSTEM
SCALE: NTS

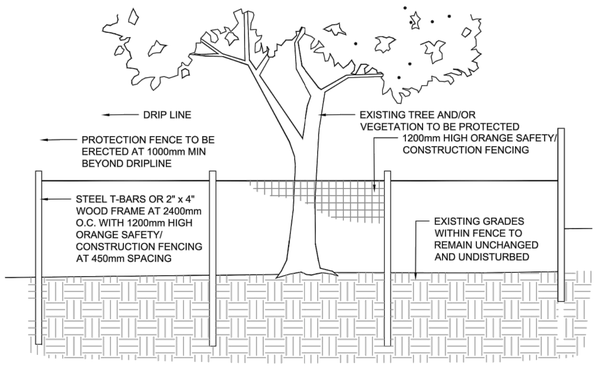
2 / C-101



NOTE:
MUD MAT SHALL BE OF SUFFICIENT LENGTH AND WIDTH TO ENSURE THAT MATERIAL IS NOT TRACKED OFF-SITE ONTO ADJACENT ROADS. MUD MAT TO BE MAINTAINED AND KEPT CLEAR OF DEBRIS AND MUD.

MUD MAT DETAIL
SCALE: NTS

3 / C-204

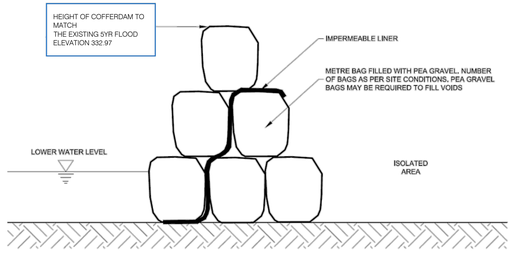


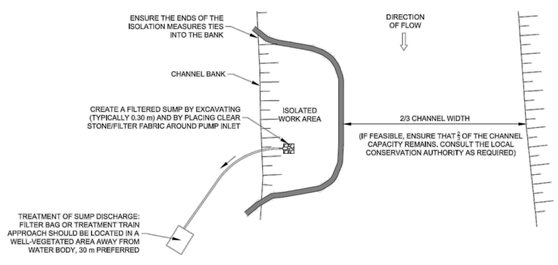
NOTES:

1. ATTACHMENT OF FENCE TO TREES WILL NOT BE PERMITTED.
2. ANY EXPOSED ROOTS ARE TO BE HAND PRUNED USING PROPER ARBORICULTURAL PRACTICES.
3. UNDER NO CIRCUMSTANCES SHALL ANY CONSTRUCTION MATERIALS, EQUIPMENT OR VEHICLES BE PLACED WITHIN THE TREE PROTECTION ZONE.
4. ALL TREE PROTECTION TO BE ERECTED PRIOR TO ANY CONSTRUCTION ACTIVITY AND IS TO REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS BEEN COMPLETED. OBTAIN WRITTEN APPROVAL FROM CONTRACT ADMINISTRATOR PRIOR TO REMOVAL OF FENCING.

TREE PROTECTION FENCE DETAIL
SCALE: NTS

4 / C-205





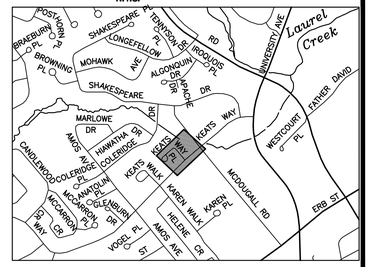
NOTES:

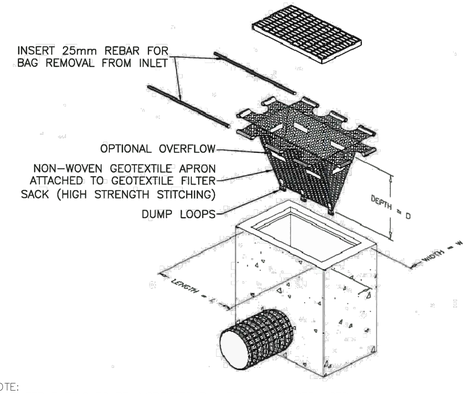
1. DETAILS FOR WATERPROOF ISOLATION BARRIER (WIB) SHOULD BE PROVIDED SEPARATELY
2. THE WIB SHOULD BE SIZED USING THE FLOOD RISK CALCULATION
3. EXCAVATION SHOULD NOT BE REQUIRED FOR THE INSTALLATION OF THE WIB
4. ENSURE THAT THE DOWNSTREAM AND UPSTREAM ENDS OF THE WIB CREATE A CONTINUOUS BARRIER WITH THE EROSION AND SEDIMENT CONTROL MEASURES ON THE TABLELAND
5. WIB SHOULD ONLY BE REMOVED ONCE THE ISOLATED AREA HAS STABILIZED
6. ALL PUMP INTAKES SHOULD BE FITTED WITH A FISH SCREEN IF THERE IS THE POTENTIAL FOR FISH OR OTHER AQUATIC WILDLIFE ENTRAPMENT

COFFER DAM
SCALE: NTS

7 / C-204

KEY PLAN
N.T.S.





NOTE:
1. FILTER FABRIC TO BE INSPECTED BI-WEEKLY AND REPLACED BY CONTRACTOR WHEN SILT SACK IS 50% FULL OF SEDIMENT
2. THE USE OF TERRAFIX SILT SACK IS REQUIRED. THE USE OF ANY EQUIVALENT PRODUCT IS SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR

CATCH BASIN SEDIMENT CONTROL DETAIL
SCALE: NTS

6 / C-204

ACCOUNT #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4811978 TO N. 4812183
E. 536617 E. 536836

K.P.	09/09/24	ISSUED FOR CONSTRUCTION
K.P.	21/06/24	ISSUED FOR TENDER
K.P.	16/12/22	REVISED AS PER CITY COMMENTS
K.P.	01/11/22	ISSUED FOR 90% REVIEW
K.P.	23/02/22	ISSUED FOR 30% REVIEW
INT.	DATE	REVISIONS

CITY OF WATERLOO
PUBLIC WORKS SERVICES

THE CITY OF Waterloo

LICENSED PROFESSIONAL ENGINEER
K. N. PALIOURAS
100079832
September 9, 2024
PROVINCE OF ONTARIO
SEAL

TYPICAL DETAILS PROPOSED CREEK RESTORATION

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION CITY OF WATERLOO, ON

DATE: Feb. 10, 2022		DESIGNED BY:	SW
SCALE:	HOR N/A	DRAWN BY:	SW
	VER N/A	CHECKED BY:	KM
FIELD BK.	PAGE	DATE	DRAWING NO.
			C-209

Last saved by: OBRIENA1(2024-06-19) - Last Plotted: 2024-06-09
Filename: Z:\KITCHENER-OAK\ON\DCS\PROJECTS\WTR\60672393_KEATSWAY_WATERLOO\900_CAD_GIS\911_CIVIL\911_3_PUBLISHED\KEATS WAY CREEK RESTORATION CIVIL DETAILS.DWG

PROPOSED HARD-ARMOURING RETAINED SOIL SYSTEM (DESIGNED BY CONTRACTOR)

PROPOSED SOFT-ARMOURING RETAINED SOIL SYSTEM (DESIGNED BY CONTRACTOR)

EXISTING PEDESTRIAN BRIDGE

PROPOSED 12.0m HARD ARMOUR RETAINED SOIL SYSTEM (DESIGN BY CONTRACTOR)

PROPOSED SOFT-ARMOURING RETAINED SOIL SYSTEM (DESIGNED BY CONTRACTOR.) SEE C-209 FOR DETAILS.

PROPOSED WOODY DEBRIS CONSISTING OF LOGS, LARGE BRANCHES, SMALL CONIFERS AND /OR ROOT WADS (WASHED OF SOIL). WOODY STRUCTURE TO BE PLACED ALONG THE BANKS, NOT BLOCKING THE CHANNEL. SEE L-501 FOR DETAILS.

EXISTING EASEMENT. REFER TO CIVIL DRAWINGS FOR DETAILS

CONSTRUCTION ACCESS

CONSTRUCTION ACCESS

PROPOSED SOFT-ARMOURING RETAINED SOIL SYSTEM (DESIGNED BY CONTRACTOR). SEE C-209 FOR DETAILS.

RETAINED LOG OR ROOT WAD FROM VEGETATION REMOVAL TO BE PLACED ON OUTSIDE BANK

PROPOSED HARD ARMOUR RETAINING WALL (DESIGNED BY CONTRACTOR)

KEATS WAY

KEATS WAY PLACE

MCDOUGALL ROAD

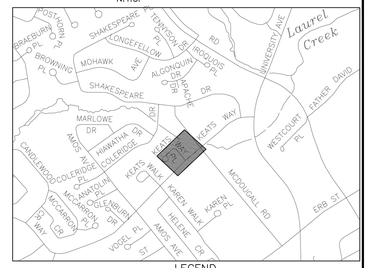
#91 #126 #124 #122 #120 #118 #116 #114 #85 #134 #135 #133 #131 #129 #127 #125 #111 #109 #110 #108 #79 #132

se 7 · cr 15 · cs 9 · Ar 2 · To 5 · Ar 1 · cr 4 · Ar 1 · Ps 1 · Pt 1 · Ta 2 · Ar 3 · To 2 · As 1 · Ua 1 · Ta 2 · As 1 · Pt 1

NOTES:
ALL PROPOSED PLANTING LOCATIONS ARE TO BE REVIEWED AND CONFIRMED WITH CITY OF WATERLOO STAFF ON SITE.

ALL TREE REMOVALS AND PRUNING ARE TO BE REVIEWED AND CONFIRMED BY THE CITY OF WATERLOO,AECOM LANDSCAPE ARCHITECT, RESIDENTS AND CONTRACTOR PRIOR TO ANY WORK COMMENCING ON SITE. THE CONTRACTOR IS NOT TO REMOVE OR PRUNE ANY TREES UNTIL THE REVIEW HAS BEEN COMPLETED AND APPROVED. ALL TREE PROTECTION FENCING LOCATIONS ARE TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION WITH CONTRACT ADMINISTRATOR, CITY OF WATERLOO, AECOM LANDSCAPE ARCHITECT AND CONTRACTOR. REFER TO DETAIL 4 ON SHEET C-209 FOR DETAILS AND SHEET C-208 FOR TREE PROTECTION NOTES.

KEY PLAN
N.T.S.



LEGEND

- EXISTING EASEMENT (APPROX)
- EXISTING CREEK CENTRELINE
- EX. CONTOUR
- EX. SPOT ELEVATION
- EXISTING STORM MH, CBMH, DCBMH, DCB, CB
- EXISTING SANITARY MH
- HYDRO POLE/LIGHT STANDARD
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING GAS SERVICE
- EXISTING BELL PHONE/CABLE
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING CREEK C/L
- LIMITS OF DISTURBANCE (APPROX.)
- PROPOSED HARD ARMOUR RETAINED SOIL SYSTEM (REFER TO CIVIL DRAWINGS FOR DETAILS)
- PROPOSED SOFT ARMOUR RETAINED SOIL SYSTEM (REFER TO CIVIL DRAWINGS FOR DETAILS)
- PROPOSED SHRUB PLANTING BED
- PROPOSED SOD
- PROPOSED DECIDUOUS TREE
- PROPOSED CONIFEROUS TREE
- TREE PROTECTION FENCE, REFER TO ARBORIST REPORT FOR DETAILS. TREE REMOVALS TO BE CONFIRMED ON SITE.

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE.
EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204
E. 536630 E. 536745

INT.	DATE	REVISIONS
AH	09/10/24	ISSUED FOR CONSTRUCTION
AH	03/07/24	ISSUED FOR TENDER
AH	03/02/23	ISSUED FOR GRCA APPROVAL AND TENDER
AH	20/12/22	ISSUED FOR 90% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

THE CITY OF Waterloo

ASSOCIATION OF LANDSCAPE ARCHITECTS ONTARIO — Richard T. Belyea — OALA — Sept. 15, 2014 — MEMBER

SEAL

LANDSCAPE SITE PLAN

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION
CITY OF WATERLOO, ON

DATE: DECEMBER 2022		DESIGNED BY:	RB
SCALE:	HOR 1:300 VER N/A	DRAWN BY:	AH
		CHECKED BY:	RB
FIELD BK.	PAGE	DATE	DRAWING NO.

L–101

GENERAL NOTES:

1. THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS STAMPED AND SIGNED BY THE LANDSCAPE ARCHITECT.
2. ANY AMBIGUITY IN THE DRAWINGS, SPECIFICATIONS OR DETAILS IS TO BE REPORTED TO THE CONTRACT ADMINISTRATOR FOR DIRECTION. DO NOT PROCEED IN UNCERTAINTY.
3. DRAWINGS MAY BE SCALED FOR APPROPRIATE LAYOUT ONLY. ALL MEASUREMENTS IN METRIC. ALL LAYOUT, INCLUDING PLANTING, TO BE STAKED BY THE CONTRACTOR AND APPROVED BY THE CONTRACT ADMINISTRATOR.
4. THE CONTRACTOR IS TO TAKE NECESSARY PRECAUTION TO PROTECT ALL EXISTING SITE FEATURES UNLESS SPECIFIED FOR DEMOLITION. THIS INCLUDES ALL SURVEY BARS, STAKES AND MONUMENTS. MAKE GOOD ANY DAMAGE.
5. UPON COMPLETION OF WORK EACH DAY, REMOVE ALL DEBRIS, GARBAGE AND SURPLUS MATERIALS FROM THE SITE. KEEP THE SITE CLEAN AND USABLE AT ALL TIMES.
6. ALL LANDSCAPE WORKMANSHIP AND MATERIALS, INCLUDING PLANTS, TO BE GUARANTEED FOR TWO FULL YEARS FOLLOWING FINAL ACCEPTANCE OF THE PROJECT. ALL WORKMANSHIP TO THE STANDARDS OF LANDSCAPE ONTARIO.
7. AT THE TIME OF FINAL INSPECTION, ALL PLANTS SHALL BE IN A HEALTHY, VIGOROUS GROWING CONDITION, PLANTED IN FULL ACCORDANCE WITH DRAWINGS AND CONDITIONS.
8. ANY CHANGES TO THIS ACCEPTED PLAN MUST BE REVIEWED AND APPROVED BY THE CONTRACT ADMINISTRATOR.

PLANTING NOTES

1. PLANT MATERIALS SPECIFIED FOR THIS PROJECT WILL CONFORM TO THE CANADIAN NURSERY LANDSCAPE ASSOCIATION (CNLA) FOR SIZE, VARIETY AND CONDITION AS INDICATED ON THE PLANT LIST SHOWN ON THIS SHEET. ANY PLANT MATERIALS WHICH DO NOT CONFORM WILL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
2. THE CONTRACT ADMINISTRATOR IS TO BE CONTACTED FOR INSPECTION AND WRITTEN APPROVAL PRIOR TO ANY PLANT MATERIAL INSTALLATION. THE CONTRACT ADMINISTRATOR RESERVES THE RIGHT TO REJECT ANY PLANT MATERIALS THAT HAVE NOT BEEN INSPECTED AND APPROVED.
3. ANY PLANT MATERIAL THAT IS REJECTED BY THE CONTRACT ADMINISTRATOR WILL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF ACCEPTABLE QUALITY AT NO ADDITIONAL COST TO THE PROJECT.
4. ONLY REMOVE DEAD OR DAMAGED BRANCHES ON TREES AND SHRUBS. ALL PRUNING SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICES AND APPROPRIATE TIMING FOR EACH SPECIES.
5. PLANTING LAYOUT TO BE DETERMINED ON SITE AT DIRECTION OF THE CONTRACT ADMINISTRATOR. FIELD ADJUSTMENTS TO GENERAL PLANT LOCATIONS INDICATED ON THE PLAN MAY BE NECESSARY TO RESPOND TO SITE CONDITIONS.
6. ANY DISCREPANCIES BETWEEN QUANTITIES SHOWN AND THE PLANT LIST SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR FOR DIRECTION.
7. ANY SUBSTITUTIONS OF PLANT MATERIALS REQUIRE THE PRIOR WRITTEN PERMISSION OF THE CONTRACT ADMINISTRATOR.
8. TREES AND SHRUBS ARE TO BE PLANTED AND STAKED IN ACCORDANCE WITH TYPICAL PLANTING DETAILS. CONTRACTOR TO REMOVE ALL STAKES AND TIES FROM THE SITE AT THE END OF THE TWO-YEAR WARRANTY PERIOD.
9. PLANTS ARE NOT TO BE INSTALLED OR TRANSPLANTED DURING EXTREME HEAT, DROUGHT, OR OTHER UNDESIRABLE CONDITIONS. THE CONTRACTOR IS NOT TO PROCEED IN UNCERTAINTY. CONTACT CONTRACT ADMINISTRATOR FOR DIRECTION.
10. DO NOT PLANT IN DRAINAGE SWALES. WHERE PROPOSED PLANTING LOCATIONS CONFLICT WITH CONSTRUCTED SWALES, CONTACT CONTRACT ADMINISTRATOR FOR DIRECTION.
11. ALL PLANT MATERIALS WILL BE PLANTED IN SOIL NATIVE TO THE SITE. IF ADDITIONAL TOPSOIL IS NECESSARY FOR COMPLIANCE WITH THESE SPECIFICATIONS, IT MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO APPLICATION.
12. ALL TOPSOIL IS TO BE STOCKPILED SEPARATELY FROM SUBSOIL DURING THE EXCAVATION PERIOD.
13. ALL SUBSOIL COMPACTED DURING CONSTRUCTION ACTIVITIES IS TO BE SCARIFIED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR PRIOR TO PLACEMENT OF TOPSOIL.
14. SHREDDED PINE BARK MULCH SHALL BE SPREAD UNIFORMLY AROUND BASE OF TREES AND SHRUBS TO A DEPTH OF 100mm AND A RADIUS OF 100mm FROM TRUNK(S). DO NOT PLACE MULCH IN DIRECT CONTACT WITH TRUNKS.
15. SHRUBS TO BE PLANTED IN A CONTINUOUS PLANTING BED WITH CONTINUOUS MULCH.
16. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ARRANGEMENTS FOR PLANT MATERIAL TO BE MAINTAINED IN A HEALTHY STATE FOR THE DURATION OF THE WARRANTY PERIOD AND FOR ALL MAINTENANCE AND REPLACEMENT OF DEAD PLANT MATERIALS DURING THE WARRANTY PERIOD UNTIL ACCEPTABLE BY THE CONTRACT ADMINISTRATOR AND THE CITY/CLIENT.
17. ALL AREAS OF DISTURBED SOIL MUST BE STABILIZED WITH EROSION CONTROL MEASURES AND/OR SEEDED WITH NATIVE GROUNDCOVER SEED MIX IMMEDIATELY UPON COMPLETION OF WORK. PLEASE PROVIDE EROSION CONTROL MATTING/BLANKETS WITH FULLY BIODEGRADABLE, WOVEN NETTING BE USED TO PREVENT WILDLIFE ENTRAPMENT.
18. THE CONTRACTOR IS TO REVIEW WITH CONTRACT ADMINISTRATOR ANY MAINTENANCE REQUIREMENTS NECESSARY FOR WARRANTY PURPOSES.
19. THE CITY/CLIENT RESERVES THE RIGHT TO EXTEND THE CONTRACTOR'S WARRANTY RESPONSIBILITIES FOR AN ADDITIONAL YEAR IF, AT THE END OF THE INITIAL WARRANTY PERIOD LEAF DEVELOPMENT AND GROWTH IS NOT SUFFICIENT TO ENSURE FUTURE SURVIVAL AS DETERMINED BY CONTRACT ADMINISTRATOR.
20. A MINIMUM OF TWO YEARS OF MONITORING FOR PLANT ESTABLISHMENT IS REQUESTED. ALL DEAD AND DYING PLANTS WOULD NEED TO BE REPLACED AT THE END OF THE TWO-YEAR MONITORING.
21. LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING PLANTING OPERATIONS
22. ALL PLANTS SHALL BE INSTALLED AS PER CONTRACT SPECIFICATIONS AND CITY/CLIENT STANDARD DETAILS

SODDING NOTES

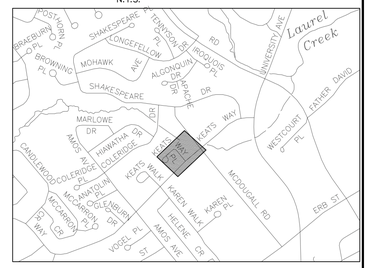
1. THE CONTRACTOR IS TO ENSURE COVERAGE AND SOD GROWTH.
2. SOD APPLICATION TO BE INSTALLED IN A CONSISTENT AND THOROUGH FASHION COVERING ENTIRE SITE.
3. SOD ALL DISTURBED AREAS WITHIN THE CONSTRUCTION/ACCESS EASEMENTS UNLESS SHOWN OTHERWISE.
4. TOPSOIL IN SODDED AREAS TO BE 150mm MINIMUM.
5. SOD WITH TURF GRASS NURSERY SOD TYPES:

5.1 NUMBER ONE KENTUCKY BLUE GRASS SOD AND/OR FESCUE SOD. NURSERY SOD GROWN SOLELY FROM SEED MIXTURE OF CULTIVARS OF KENTUCKY BLUEGRASS AND/OR CHEWING FESCUE OR CREEPING RED FESCUE, CONTAINING NOT LESS THAN 40% KENTUCKY BLUEGRASS CULTIVARS AND 30% CHEWING FESCUE OR CREEPING RED FESCUE CULTIVARS.

6. CONTRACT ADMINSTRATOR TO BE CONTACTED PRIOR TO SODDING TO COORDINATE OPERATIONS IN ORDER TO ENSURE FINAL ACCEPTANCE.
7. ALL SODDING OF DISTURBED AREAS MUST OCCUR IMMEDIATELY UPON COMPLETION OF THE GRADING WORK, WEATHER PERMITTING. SODDING OPERATIONS SHOULD TAKE PLACE BETWEEN APRIL 15 AND JUNE 15 OR BETWEEN AUGUST 15 AND OCTOBER 30 AT THE LATEST, PROVIDING THE GROUND IS IN A FROST-FREE CONDITION. IN THE EVENT THAT IMMEDIATE COMPLETION OF THE SODDING IS NOT FEASIBLE OTHER EROSION CONTROL METHODS WILL BE REQUIRED. DISCUSS WITH CONTRACT ADMINISTRATOR PRIOR TO PROCEEDING.
8. ALL AREAS DISTURBED DURING REMOVAL OF SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE SODDED.
9. ALL TOPSOIL COMPACTED DURING CONSTRUCTION ACTIVITIES IS TO BE SCARIFIED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR PRIOR TO SOD APPLICATION.
10. IF DISTURBED AREA EXTENDS BEYOND CONSTRUCTION LIMIT, APPLY 150mm THICK TOPSOIL AND SOD.

KEY PLAN

N.T.S.

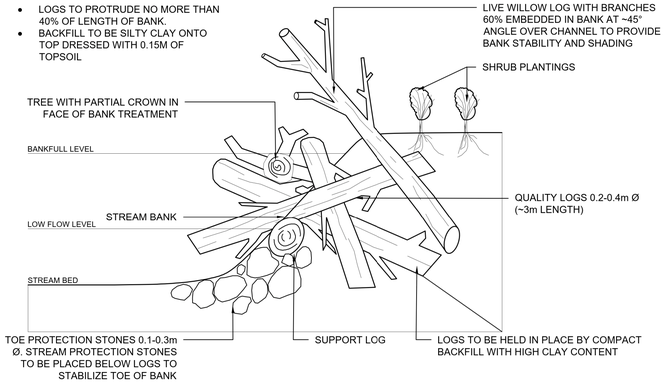


NOTES:
ALL PROPOSED PLANTING LOCATIONS ARE TO BE REVIEWED AND CONFIRMED WITH CITY OF WATERLOO STAFF ON SITE.

ALL TREE REMOVALS AND PRUNING ARE TO BE REVIEWED AND CONFIRMED BY THE CITY OF WATERLOO, AECOM LANDSCAPE ARCHITECT, RESIDENTS AND CONTRACTOR PRIOR TO ANY WORK COMMENCING ON SITE. THE CONTRACTOR IS NOT TO REMOVE OR PRUNE ANY TREES UNTIL THE REVIEW HAS BEEN COMPLETED AND APPROVED. ALL TREE PROTECTION FENCING LOCATIONS ARE TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION WITH CONTRACT ADMINISTRATOR, CITY OF WATERLOO, AECOM LANDSCAPE ARCHITECT AND CONTRACTOR. REFER TO DETAIL 4 ON SHEET C-209 FOR DETAILS AND SHEET 208 FOR TREE PROTECTION NOTES.

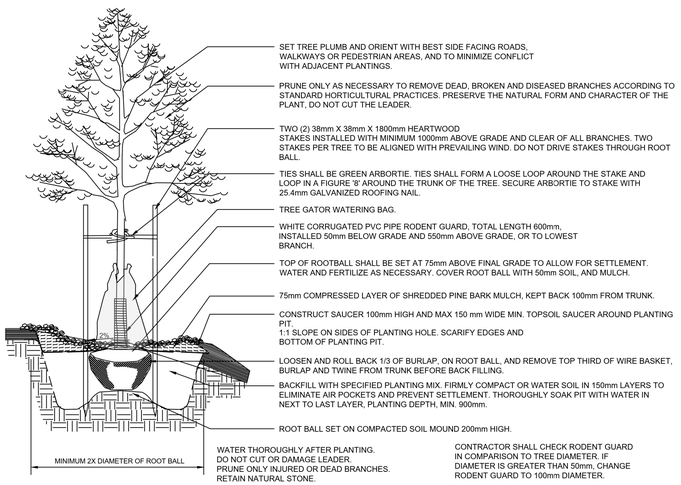
PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING
DECIDUOUS TREES						
Ar	7	Acer rubrum	Red Maple	50mm cal.	WB	As Shown
As	2	Acer saccharum	Sugar Maple	50mm cal.	WB	As Shown
Pt	2	Populus tremuloides	Trembling Aspen	50mm cal.	WB	As Shown
Ta	4	Tilia americana	American Basswood	50mm cal.	WB	As Shown
Ua	1	Ulmus americana	White Elm	50mm cal.	WB	As Shown
CONIFEROUS TREES						
Pa	1	Picea abies	Norway Spruce	2.0m ht.	WB	As Shown
Ps	1	Pinus strobus	Eastern White Pine	2.0m ht.	WB	As Shown
To	7	Thuja occidentalis	Eastern White Cedar	1.8m ht.	WB	As Shown
SHRUBS						
cr	19	Cornus racemosa	Gray Dogwood	80cm ht.	Potted	2.5m O.C.
cs	9	Cornus stolonifera	Red Osier Dogwood	80cm ht.	Potted	2.0m O.C.
se	7	Salix exigua	Sandbar Willow	80cm ht.	Potted	3.0m O.C.



D1 L-501 EMBEDDED WOODY HABITAT BANK TREATMENT

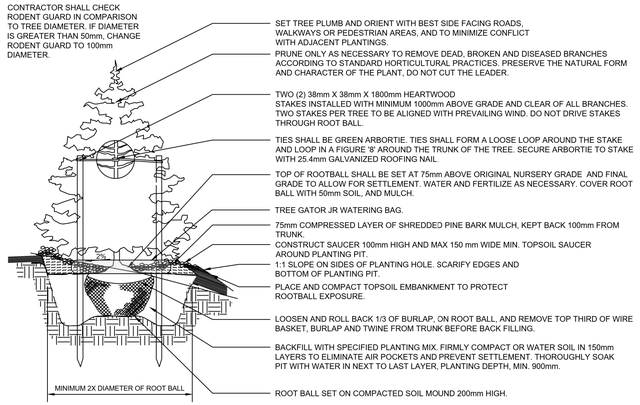
1:25



NOTE: CONTRACTOR SHALL REMOVE TREE STAKES AND TIES ONE YEAR AFTER PLANTING, OR AT THE END OF THE WARRANTY PERIOD IF STAKES ARE STILL REQUIRED.

D2 L-501 DECIDUOUS TREE PLANTING

1:25

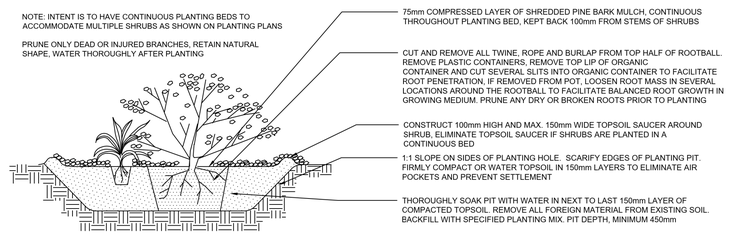


NOTE: CONTRACTOR SHALL REMOVE TREE STAKES AND TIES ONE YEAR AFTER PLANTING, OR AT THE END OF THE WARRANTY PERIOD IF STAKES ARE STILL REQUIRED.

WATER THOROUGHLY AFTER PLANTING. DO NOT CUT OR DAMAGE LEADER. PRUNE ONLY INJURED OR DEAD BRANCHES. RETAIN NATURAL STONE.

D3 L-501 CONIFEROUS TREE PLANTING

1:25



D4 L-501 SHRUB PLANTING

1:25

PROJECT NUMBER #60672393

BENCHMARKS:
TOP OPERATING NUT OF FIRE HYDRANT LOCATED ON NORTH WEST CORNER OF KEATS WAY AND KEATS WAY PLACE. EL. 333.669
PROJECT LIMITS FROM – N. 4812025 TO N. 4812204 E. 536630 E. 536745

INT.	DATE	REVISIONS
AH	09/10/24	ISSUED FOR CONSTRUCTION
AH	03/07/24	ISSUED FOR TENDER
AH	03/02/23	ISSUED FOR GRCA APPROVAL AND TENDER
AH	20/12/22	ISSUED FOR 90% REVIEW

CITY OF WATERLOO
PUBLIC WORKS SERVICES

THE CITY OF Waterloo

ASSOCIATION OF LANDSCAPE ARCHITECTS ONTARIO OALA SEPT. 6, 2024

SEAL

LANDSCAPE NOTES AND DETAILS

KEATSWAY STORM BYPASS AND CREEK BANK STABILIZATION
CITY OF WATERLOO, ON

DATE: DECEMBER 2022		DESIGNED BY:	RB
SCALE:	HOR 1:300 VER N/A	DRAWN BY:	AH
		CHECKED BY:	RB
FIELD BK.	PAGE	DATE	DRAWING NO.
			L-501