

**Appendix G:  
Existing Conditions Erosion Hazard Delineation**

DRAFT



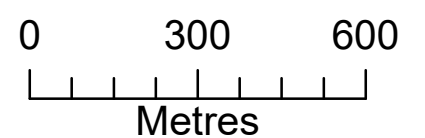
### Existing Conditions Meander Belt Widths Alloa Secondary Plan Area Caledon, Ontario

# DRAFT

#### Legend

- Reach Break and ID
- Headwater Drainage Feature
- Tile Drain
- Watercourse
- Not Field
- Meander Belt Width
- Meander Belt Width (Non-Participating)
- OHN Waterbody
- Participating Properties
- Non-Participating Properties, Access
- Non-Participating Property, No Access
- Phase 1 Lands
- Phase 2 Lands
- Alloa Secondary Plan Area and Primary Study Area

# DRAFT



Imagery: Google Earth, 2022. Waterbody, Watercourse: MNRF, 2023.  
 Alloa Phase 1 & 2 Lands, Alloa Secondary Plan Area: Crozier, 2024.  
 HDFs, Watercourse, Meander Belt Width: GEO Morphix Ltd., 2024.  
 Participating Properties, Wetlands, Dripline, Woodland: Crozier, 2024  
 Print Date: June 2024. PN24009. Drawn By: R.A., M.O., S.S.O., K.W.







**Legend**

Reach Break and ID	OHN Waterbody
Headwater Drainage Feature	Participating Properties
Tile Drain	Non-Participating Properties, Access
Watercourse	Non-Participating Property, No Access
Not Field Assessed	Phase 1 Lands
0.5 m Contour	Phase 2 Lands
Meander Belt Width	Alloa Secondary Plan Area and Primary Study Area
Meander Belt Width (Non-Participating)	

**Existing Conditions  
Meander Belt Widths  
Alloa Secondary Plan Area**

Caledon, Ontario

**GEO MORPHIX™**

0 210 420  
Metres

Imagery: Google Earth, 2022. Waterbody, Watercourse: MNRF, 2023; Alloa Phase 1 & 2 Lands, Alloa Secondary Plan Area; Crozier, 2024. HDFs, Watercourse, Meander Belt Width: GEO Morphix Ltd., 2024. Participating Properties, Wetlands, Dripline, Woodland: Crozier, 2024. 0.5 m Contour: MNRF, 2014-2016. PN24009. Print Date: June 2024. Drawn By: R.A., M.O., S.S.O., K.W.



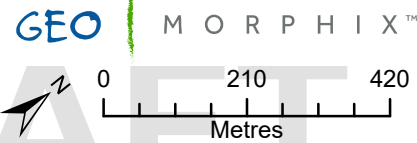


**Legend**

- Reach Break and ID
- Headwater Drainage Feature
- Tile Drain
- Watercourse
- Not Field
- 0.5 m Contour
- Meander Belt Width
- Meander Belt Width (Non-Participating)
- OHN Waterbody
- Participating Properties
- Non-Participating Properties, Access
- Non-Participating Property, No Access
- Phase 1 Lands
- Phase 2 Lands
- Alloa Secondary Plan Area and Primary Study Area

**Existing Conditions  
Meander Belt Widths  
Alloa Secondary Plan Area**

Caledon, Ontario



Imagery: Google Earth, 2022. Waterbody, Watercourse: MNRF, 2023; Alloa Phase 1 & 2 Lands, Alloa Secondary Plan Area; Crozier, 2024. HDFs, Watercourse, Meander Belt Width: GEO Morphix Ltd., 2024. Participating Properties, Wetlands, Dripline, Woodland: Crozier, 2024. 0.5 m Contour: MNRF, 2014-2016. PN24009. Print Date: June 2024. Drawn By: R.A., M.O., S.S.O., K.W.



**Appendix H:  
Proposed Stormwater Management Pond Locations and  
Erosion Mitigation Approach**

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# Proposed Stormwater Management Ponds and Established Erosion Threshold Locations

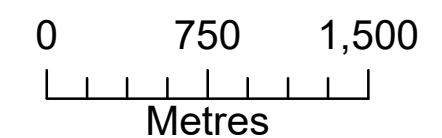
Caledon, Ontario

# DRAFT

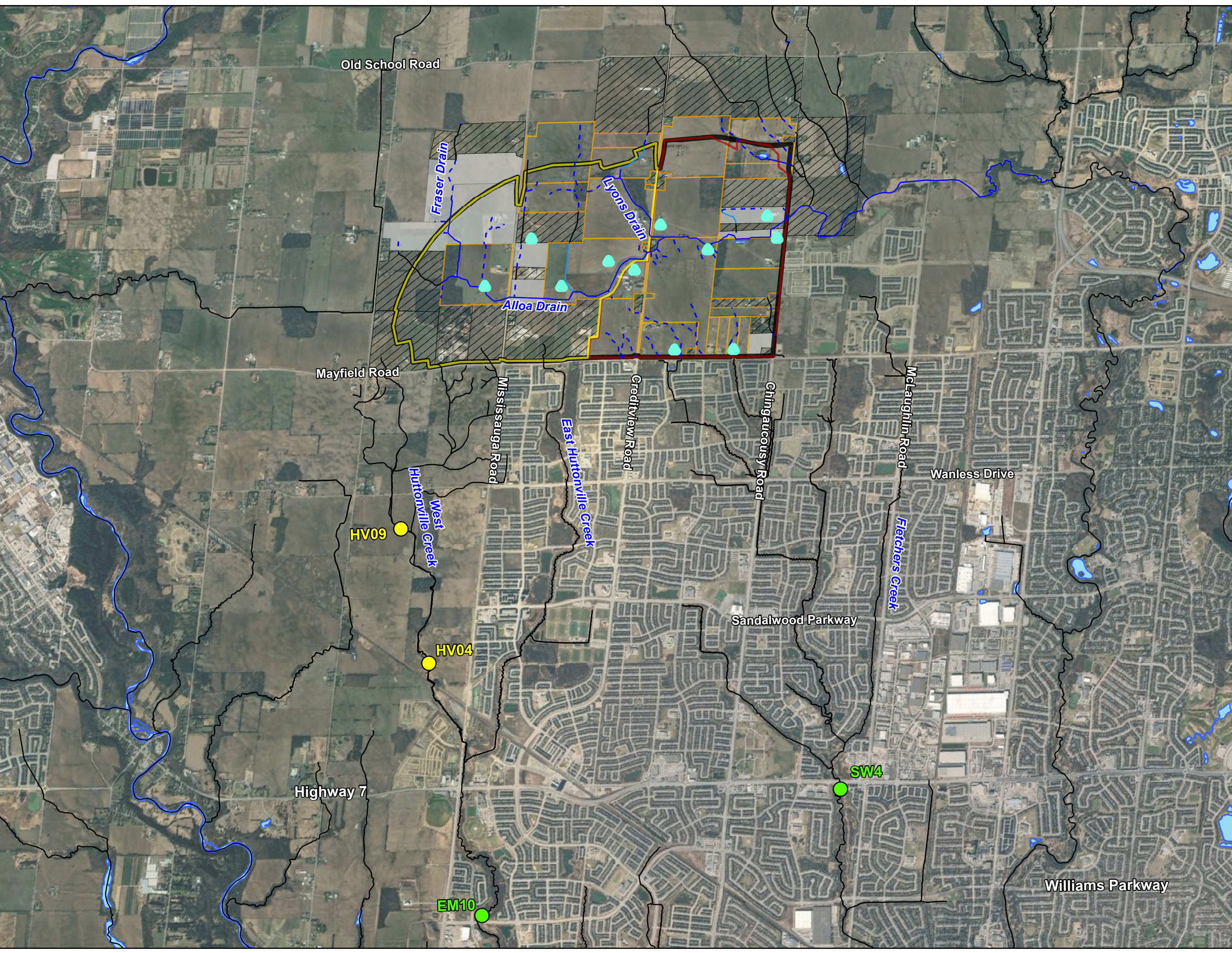
## Legend

- Erosion Threshold Location (Urbantech, 2016)
- Erosion Threshold Location (Wood, 2022)
- Watercourse
- HDF
- Tile Drain
- Not Field Assessed
- OHN Waterbody
- Proposed Stormwater Management Pond
- Participating Properties
- Non-Participating Properties, Access
- Phase 1 Lands
- Phase 2 Lands
- Alloa Secondary Plan Area and Primary Study Area

# DRAFT



Imagery: Google Earth, 2022. Waterbody, Watercourse: MNR, 2023. Alloa Phase 1 & 2 Lands, Alloa Secondary Plan Area: Crozier, 2024. HDFs, Watercourse, Surface Water Quality Monitoring Station: GEO Morphix Ltd., 2024. Participating Properties, Wetlands, Dripline, Woodland: Crozier, 2024. Print Date: June 2024. PN24009. Drawn By: R.A., M.O., S.S.O., K.W.







**Appendix I:  
Conceptual Natural Corridor Designs**


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DATA SHARING TERMS AND CONDITIONS

THE RECIPIENT OF THIS DRAWING AGREES TO THE FOLLOWING TERMS AND CONDITIONS:

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- MODIFICATION OF THE DRAWING OR DRAWING COMPONENTS IS PROHIBITED WITHOUT CONSENT OF GEO MORPHIX LTD.
- DRAWING INFORMATION WILL NOT BE PROVIDED TO ANY THIRD PARTY WITHOUT THE CONSENT OF GEO MORPHIX LTD.
- THIS DRAWING IS APPLICABLE ONLY TO THE SUBJECT PROJECT, AS DENOTED BY THE PROJECT NUMBER "PN" CODE IN THE DESIGN FILE NAME

DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	
<p><b>DRAFT FOR INTERNAL DISCUSSION</b></p> <p><b>NOT FOR CONSTRUCTION</b></p>	 <p>M O R P H I X™            36 Main St N., P.O. Box 205            Campbellville, Ontario L0P 1B0            T: 416.920.0926            www.geomorphix.com</p>	
ALLOA SPA TOWN OF CALEDON		
ETOBICOKE CREEK - ALLOA DRAIN CONCEPTUAL CHANNEL DESIGN DISCLAIMER		
PROJECT No.: 24009	DRAWING No.: DISCLAIMER	
SCALE: AS NOTED	SHEET 1 OF 35	

SCALED FOR PLOT ON 'ARCH D'





**OVERVIEW OF NATURAL CHANNEL DESIGN LOCATIONS**

1:15,000

**DESIGN IMPLEMENTATION NOTES**

**GENERAL NOTES**

1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2024) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER, AND THE CONTRACT ADMINISTRATOR.
6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
7. ON-SITE SUPPORT FROM PROJECT ENGINEER (E.G. GEOTECHNICAL, HYDROGEOLOGICAL, AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

**TIMING OF WORKS**

1. WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW SET OUT BY MNRF/OPC.
2. TREE CLEARING IS TO BE COMPLETED OUTSIDE THE BIRD NESTING SEASON (APRIL 1ST TO AUGUST 1ST) TO COMPLY WITH THE FEDERAL MIGRATORY BIRDS CONVENTION ACT. ANY TREES THAT REQUIRE REMOVAL OUTSIDE OF THIS TIMING WINDOW MUST FIRST BE INSPECTED BY A QUALIFIED BIOLOGIST TO DETERMINE THE PRESENCE OF NESTING BIRDS.
3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
4. COMPLETE THE WORKS WITH MINIMAL AVOIDABLE INTERRUPTIONS ONCE THEY COMMENCE.

**SITE AND MATERIAL MANAGEMENT**

1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERBODY IN A STABLE AREA ABOVE THE ACTIVE FLOODPLAIN, OR IN A DESIGNATED STAGING/STORAGE AREA.
2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
6. ALL VEGETATION, ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELINEATED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
7. ALL GRADES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

**EROSION AND SEDIMENT CONTROL**

1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS.
2. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-CISEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS. PARTICULARLY, THE ESC MEASURES, DRAINING AND IN- OR NEAR-WATER WORKS, SHOULD CONCERN ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
3. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
4. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
5. ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
6. ADDITIONAL EROSION AND SEDIMENT CONTROL SUPPLIES MUST BE KEPT ON SITE IN ORDER TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
7. ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
8. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
9. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

**DELETERIOUS SUBSTANCE CONTROL/SPILL MANAGEMENT**

1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAFFINE OR STORM SEWER SYSTEM.
2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL, AND GREASE.
3. NO EQUIPMENT REFUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.


**WORK AREA ISOLATION**

1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
3. THE UNWATERING DISCHARGE LOCATION MUST BE LOCATED AT LEAST 30 m FROM ANY WATERCOURSE OR WETLAND IN AN AREA WITH DENSE VEGETATIVE GROUND COVER, AND WHERE THE DISCHARGE CAN RETURN TO THE WATERBODY DOWNSTREAM OF THE WORK AREA OVER THE GROUND COVER.
4. FISH MUST BE REMOVED FROM THE WORK AREA ONCE ISOLATED. FISH SALVAGE MUST BE COMPLETED BY A QUALIFIED TECHNICIAN WITH A LICENSE FROM THE ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY.

**DRAWING SHEET LIST INDEX**

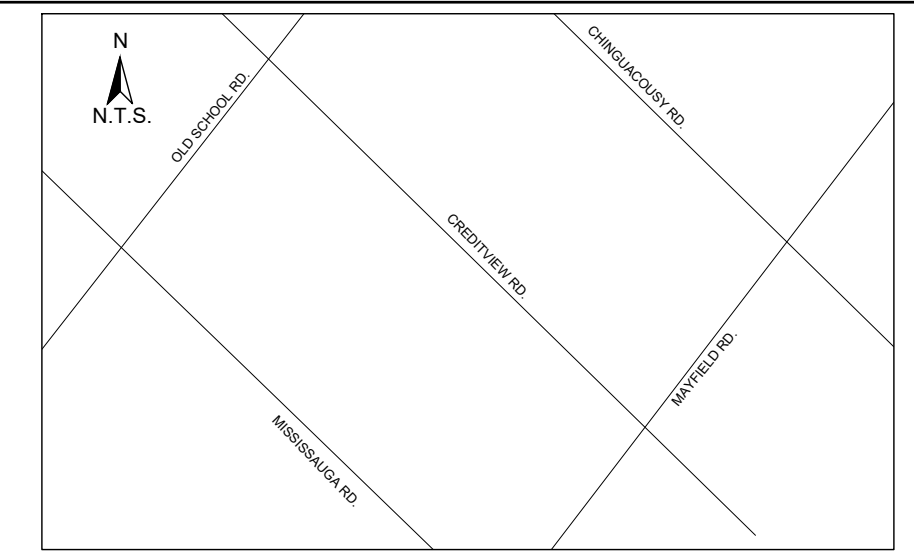
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1	COVER	COVER SHEET, DRAWINGS INDEX
<b>NATURAL CHANNEL DESIGN DRAWINGS</b>		
2	GEO-1	ETOBICOKE CREEK ALLOA DRAIN - PLAN
3	GEO-2	ETOBICOKE CREEK ALLOA DRAIN - PLAN
4	GEO-3	ETOBICOKE CREEK ALLOA DRAIN - PLAN
5	GEO-4	ETOBICOKE CREEK ALLOA DRAIN - PLAN
6	GEO-5	ETOBICOKE CREEK ALLOA DRAIN - PLAN
7	GEO-6	ETOBICOKE CREEK ALLOA DRAIN - PLAN
8	GEO-7	ETOBICOKE CREEK ALLOA DRAIN - PLAN
9	GEO-8	ETOBICOKE CREEK ALLOA DRAIN - PLAN
10	GEO-9	ETOBICOKE CREEK ALLOA DRAIN - PLAN
11	GEO-10	ETOBICOKE CREEK ALLOA DRAIN - PLAN
12	GEO-11	ETOBICOKE CREEK ALLOA DRAIN - PLAN
13	GEO-12	ETOBICOKE CREEK ALLOA DRAIN - PLAN
14	GEO-13	ETOBICOKE CREEK ALLOA DRAIN - PLAN
15	GEO-14	ETOBICOKE CREEK ALLOA DRAIN - PLAN
16	GEO-15	ETOBICOKE CREEK ALLOA DRAIN - PLAN
17	GEO-16	ETOBICOKE CREEK ALLOA DRAIN - PLAN

SHEET #	SHEET NAME	DETAILS
18	GEO-17	ETOBICOKE CREEK ALLOA DRAIN - PLAN
19	GEO-18	ETOBICOKE CREEK ALLOA DRAIN - PLAN
20	GEO-19	ETOBICOKE CREEK ALLOA DRAIN - PLAN
21	GEO-20	ETOBICOKE CREEK ALLOA DRAIN - PLAN
22	GEO-21	ETOBICOKE CREEK ALLOA DRAIN - PLAN
23	GEO-22	ETOBICOKE CREEK ALLOA DRAIN - PLAN
24	GEO-23	ETOBICOKE CREEK ALLOA DRAIN - PLAN
25	GEO-24	ETOBICOKE CREEK ALLOA DRAIN - PLAN
26	GEO-25	ETOBICOKE CREEK ALLOA DRAIN - PLAN
27	DET-1	ETOBICOKE CREEK ALLOA DRAIN - CHANNEL DETAILS
28	DET-2	ETOBICOKE CREEK ALLOA DRAIN - CHANNEL DETAILS
29	DET-3	ETOBICOKE CREEK ALLOA DRAIN - CHANNEL DETAILS
30	DET-4	ETOBICOKE CREEK ALLOA DRAIN - CHANNEL DETAILS
31	DET-5	ETOBICOKE CREEK ALLOA DRAIN - CULVERT DETAILS
32	DET-6	ETOBICOKE CREEK ALLOA DRAIN - RESTORATION DETAILS
33	DET-7	ETOBICOKE CREEK ALLOA DRAIN - RESTORATION DETAILS
34	DET-8	ETOBICOKE CREEK ALLOA DRAIN - RESTORATION DETAILS
35	DET-9	ETOBICOKE CREEK ALLOA DRAIN - RESTORATION DETAILS

DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	
<b>DRAFT FOR INTERNAL DISCUSSION</b>		 <b>GEO MORPHIX™</b> 36 Main St N., P.O. Box 205 Campbellville, Ontario L0P 1B0 T: 416.920.0926 www.geomorphix.com
<b>NOT FOR CONSTRUCTION</b>		
ALLOA SPA TOWN OF CALEDON		
ETOBICOKE CREEK - ALLOA DRAIN CONCEPTUAL CHANNEL DESIGN COVERPAGE		
PROJECT No.: 24009	DRAWING No.: COVERPAGE	
SCALE: AS NOTED	SHEET 1 OF 35	

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

- GENERAL NOTES**
1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
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  6. ALL VEGETATION ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRASSES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
  8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

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  2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  3. NO EQUIPMENT REBUILDING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
  4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON-SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
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- WORK AREA ISOLATION**
1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
  2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
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DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

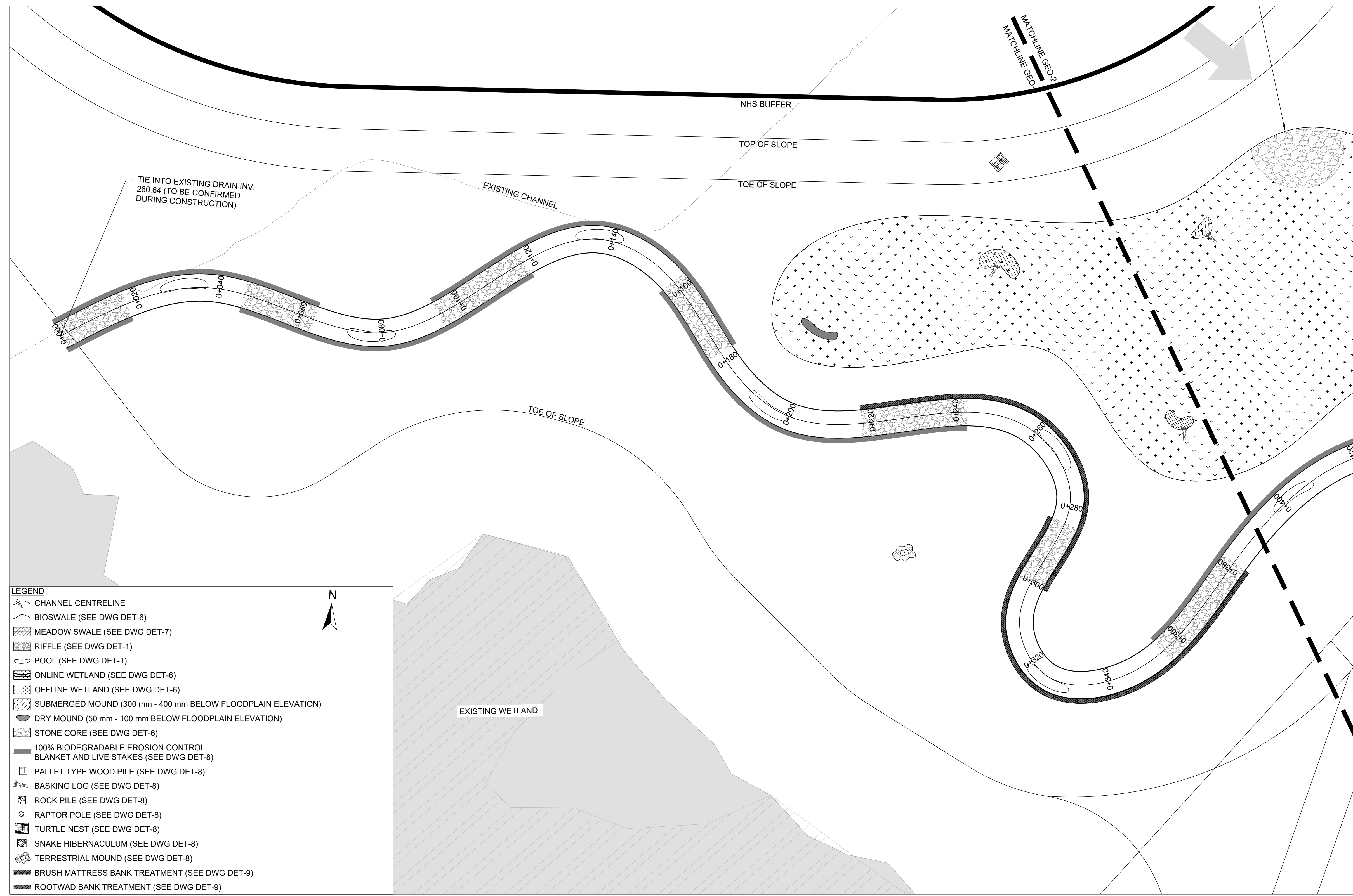
**NOT FOR CONSTRUCTION**

MORPHIX™  
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Campbellville, Ontario L0P 1B0  
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www.geomorphix.com

ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009      DRAWING No.: GEO-1  
SCALE: AS NOTED      SHEET 2 OF 35

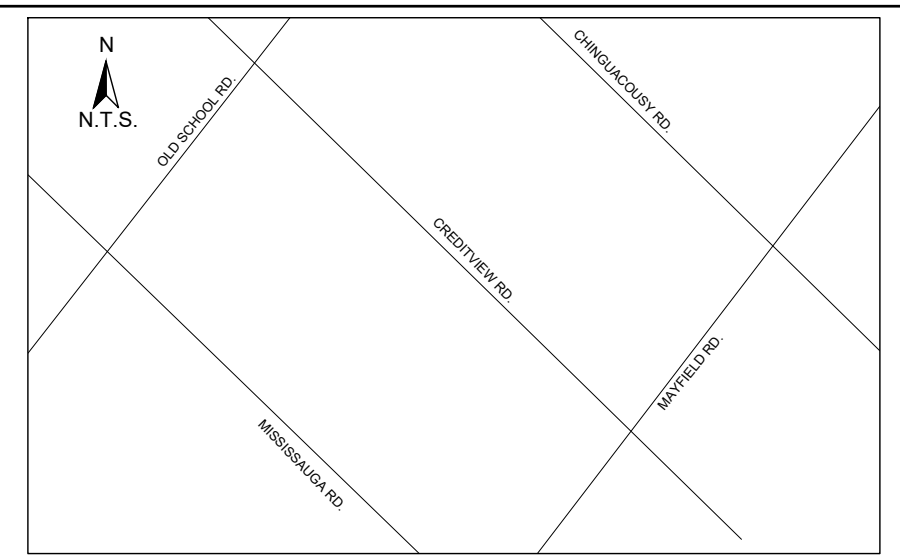


- LEGEND**
- CHANNEL CENTRELINE
  - BIO-SWALE (SEE DWG DET-6)
  - MEADOW SWALE (SEE DWG DET-7)
  - RIFFLE (SEE DWG DET-1)
  - POOL (SEE DWG DET-1)
  - ONLINE WETLAND (SEE DWG DET-6)
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  - SUBMERGED MOUND (300 mm - 400 mm BELOW FLOODPLAIN ELEVATION)
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  - 100% BIODEGRADABLE EROSION CONTROL BLANKET AND LIVE STAKES (SEE DWG DET-8)
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  - BRUSH MATTRESS BANK TREATMENT (SEE DWG DET-9)
  - ROOTWAD BANK TREATMENT (SEE DWG DET-9)

**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

- GENERAL NOTES**
1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
  2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
  3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
  5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
  6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
  7. ON-SITE SUPPORT FROM PROJECT ENGINEER (E.G. GEOTECHNICAL, HYDROGEOLOGICAL, AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

- TIMING OF WORKS**
1. WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW SET OUT BY MNR/DFPO.
  2. TREE CLEARING IS TO BE COMPLETED OUTSIDE THE BIRD NESTING SEASON (APRIL 1ST TO AUGUST 1ST) TO COMPLY WITH THE FEDERAL MIGRATORY BIRDS CONVENTION ACT. ANY TREES THAT REQUIRE REMOVAL OUTSIDE OF THIS TIMING WINDOW MUST FIRST BE INSPECTED BY A QUALIFIED BIOLOGIST TO DETERMINE THE PRESENCE OF NESTING BIRDS.
  3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
  4. COMPLETE THE WORKS WITH MINIMAL AVAILABLE INTERRUPTIONS ONCE THEY COMMENCE.

- SITE AND MATERIAL MANAGEMENT**
1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERCOURSE OR WETLAND ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
  2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED A STABLE AREA ABOVE FLOODPLAIN.
  3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
  4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
  5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
  6. ALL VEGETATION ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELINEATED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRASSES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
  8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

- EROSION AND SEDIMENT CONTROL**
1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-CSECC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN-OR NEAR-WATER WORKS. SHOULD CONCERNS ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
  2. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
  3. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
  4. ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
  5. ADDITIONAL EROSION AND SEDIMENT CONTROL SUPPLIES MUST BE KEPT ON SITE IN ORDER TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
  6. ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
  7. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
  8. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

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1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAINE OR STORM SEWER SYSTEM.
  2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  3. NO EQUIPMENT RE-FUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
  4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
  5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

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DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
 DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

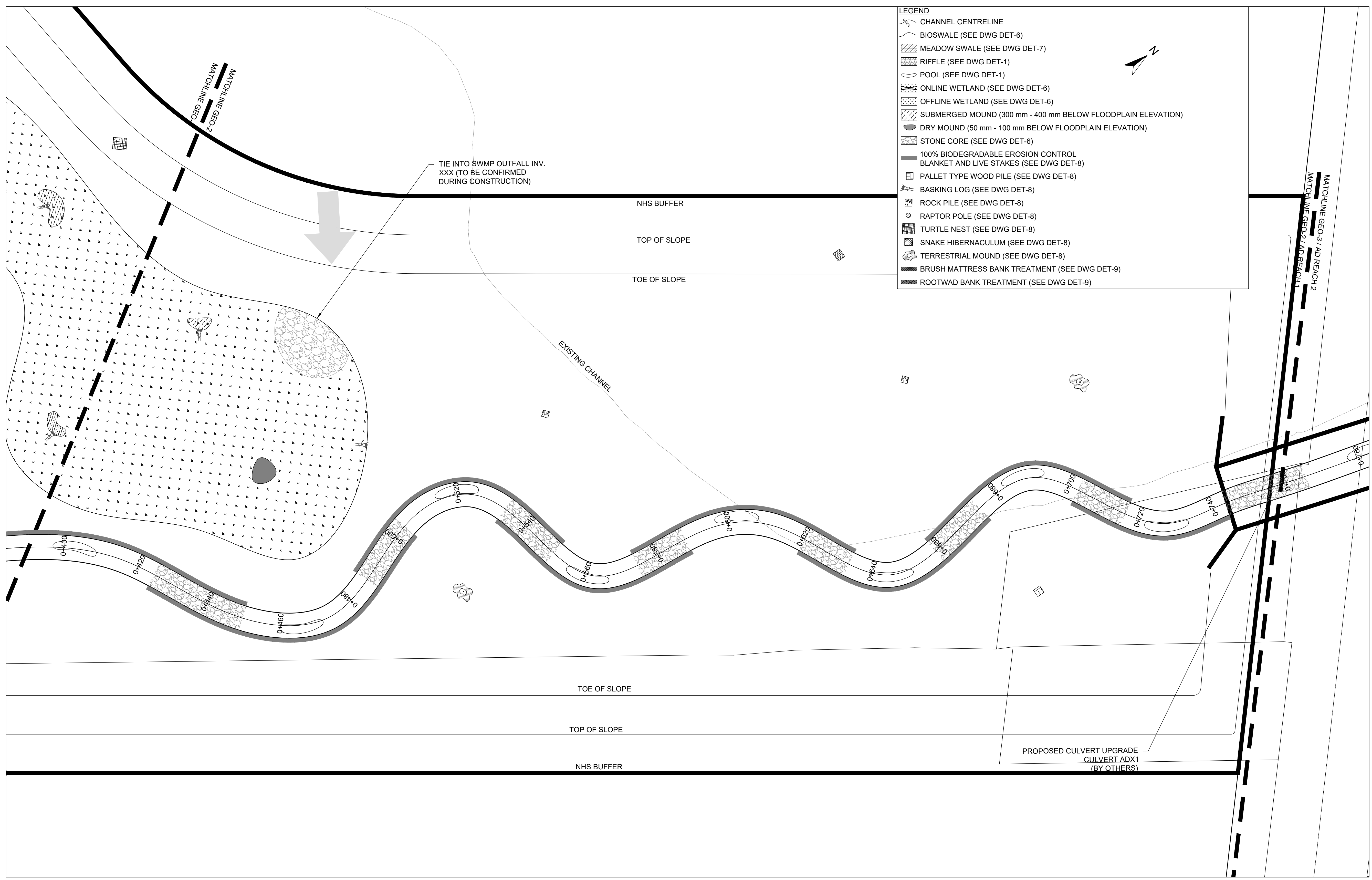
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 CHANNEL PLANFORM

PROJECT No.: PN24009      DRAWING No.: GEO-2  
 SCALE: AS NOTED      SHEET 3 OF 35

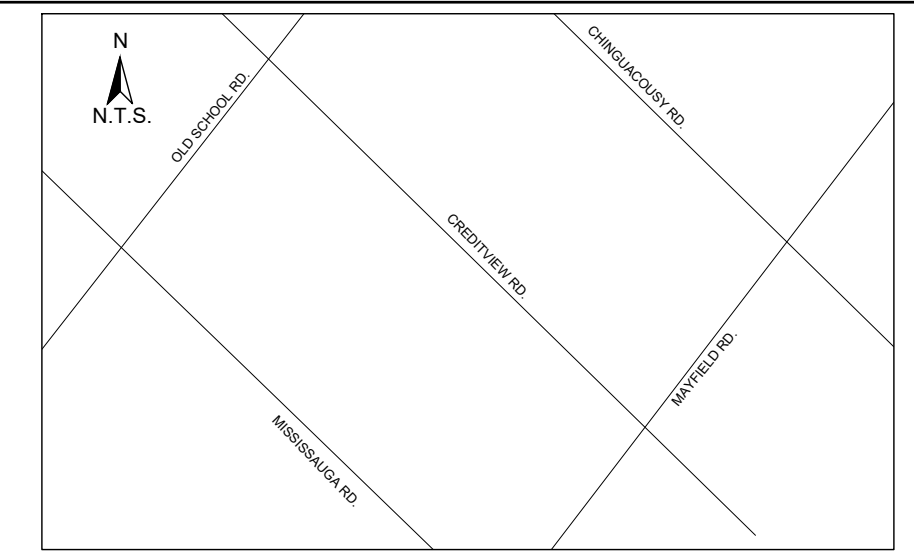


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**PLANFORM**  
 1:500

SCALED FOR PLOT ON 'ARCH D'





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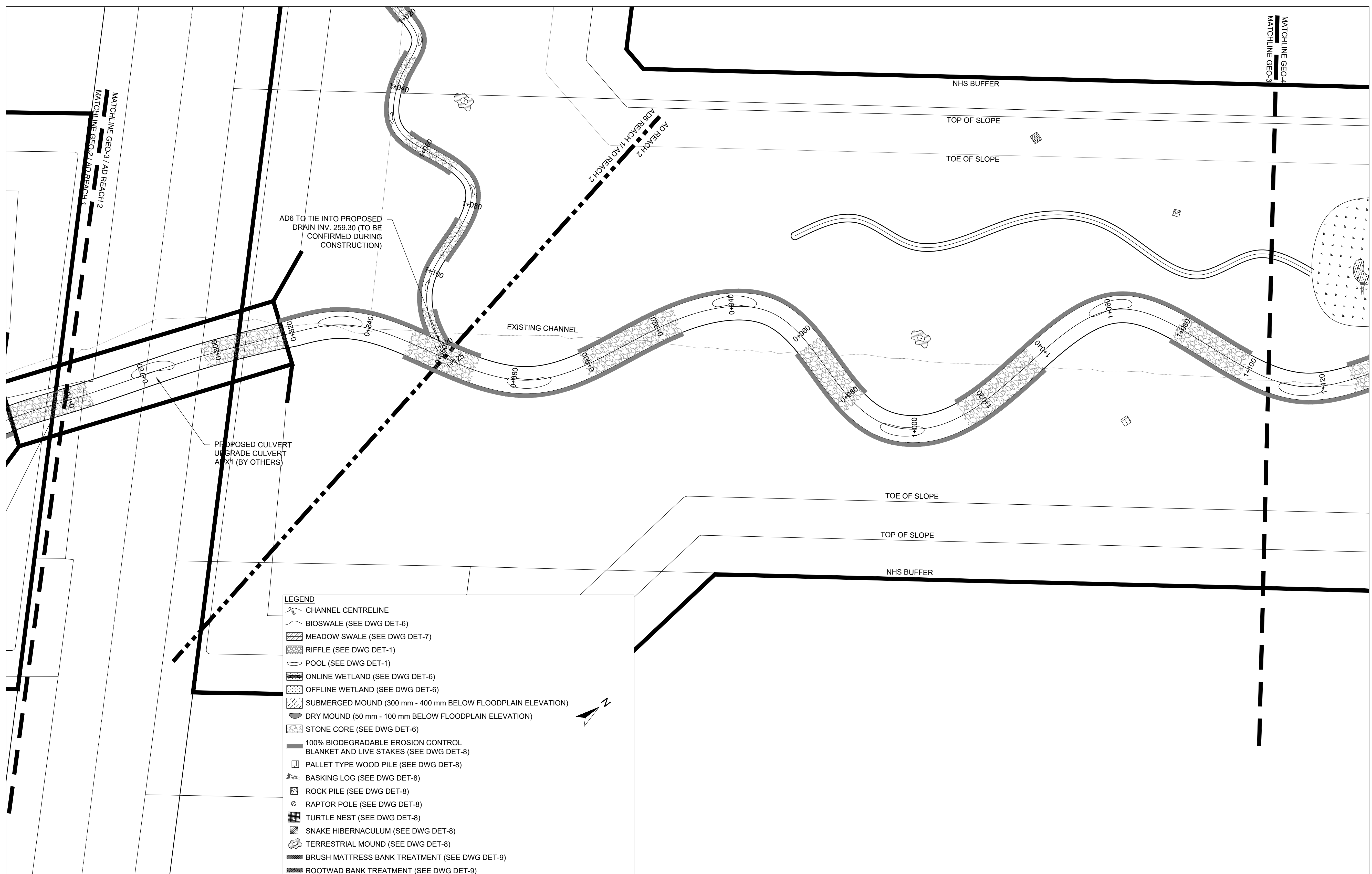
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CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-3
SCALE: AS NOTED	SHEET 4 OF 35

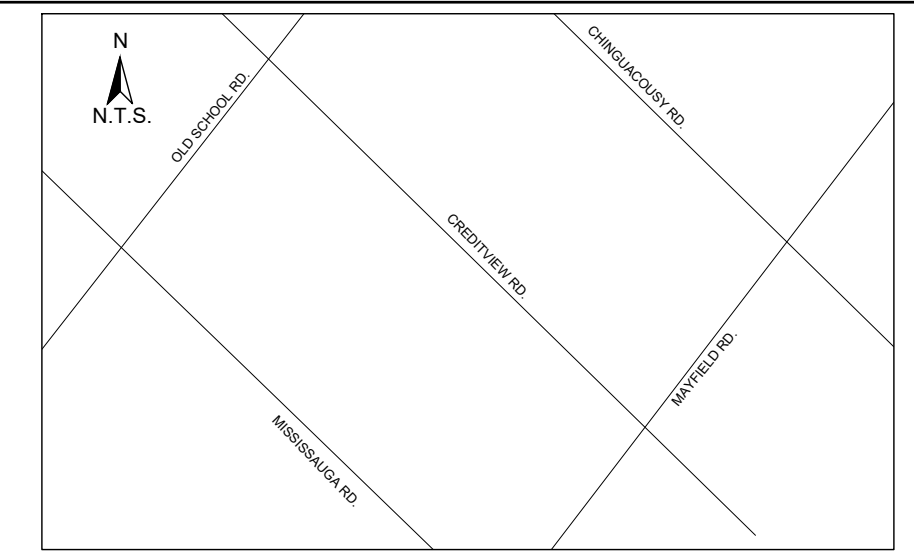


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**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

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**EROSION AND SEDIMENT CONTROL**

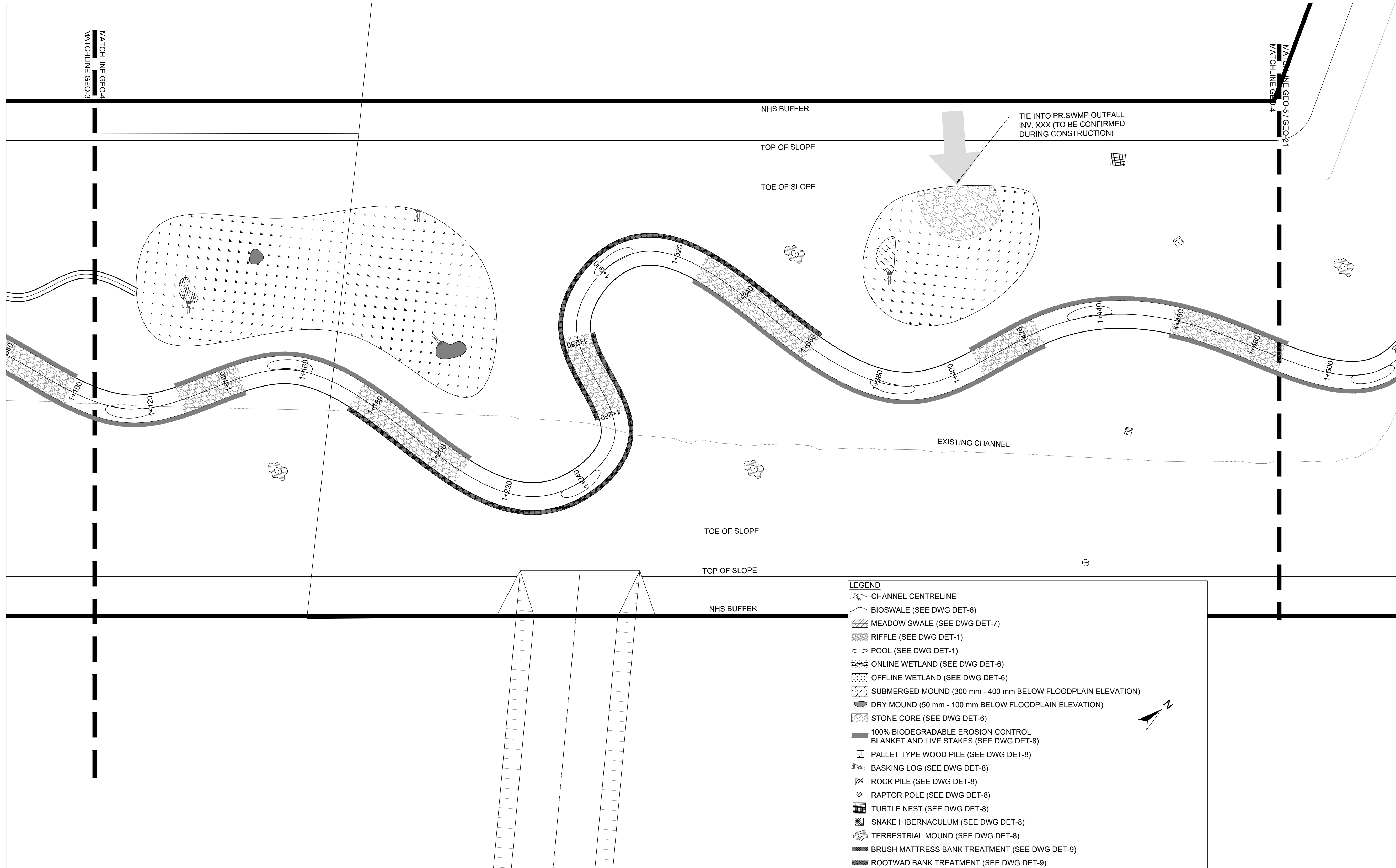
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- LEGEND**
- CHANNEL CENTRELINE
  - BIOSWALE (SEE DWG DET-6)
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**PLANFORM**  
1:500


DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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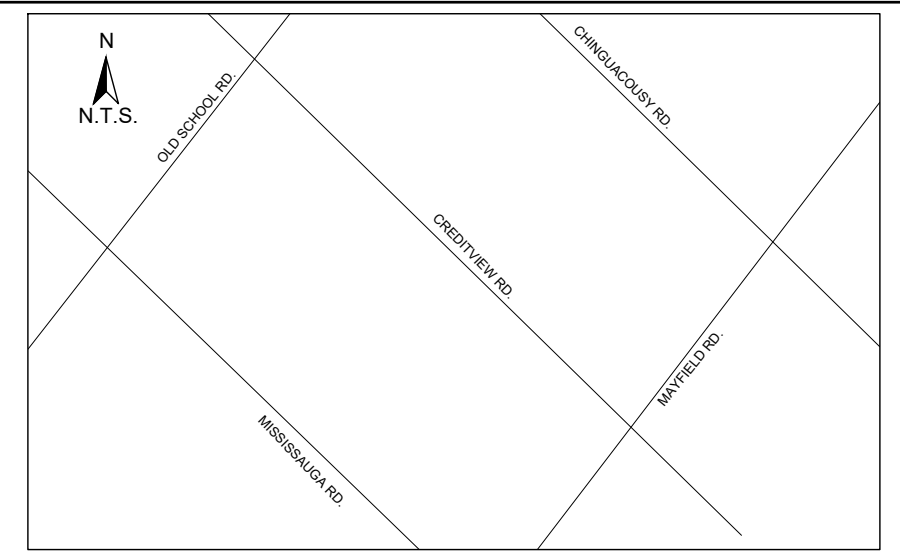
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-4
SCALE: AS NOTED	SHEET 5 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

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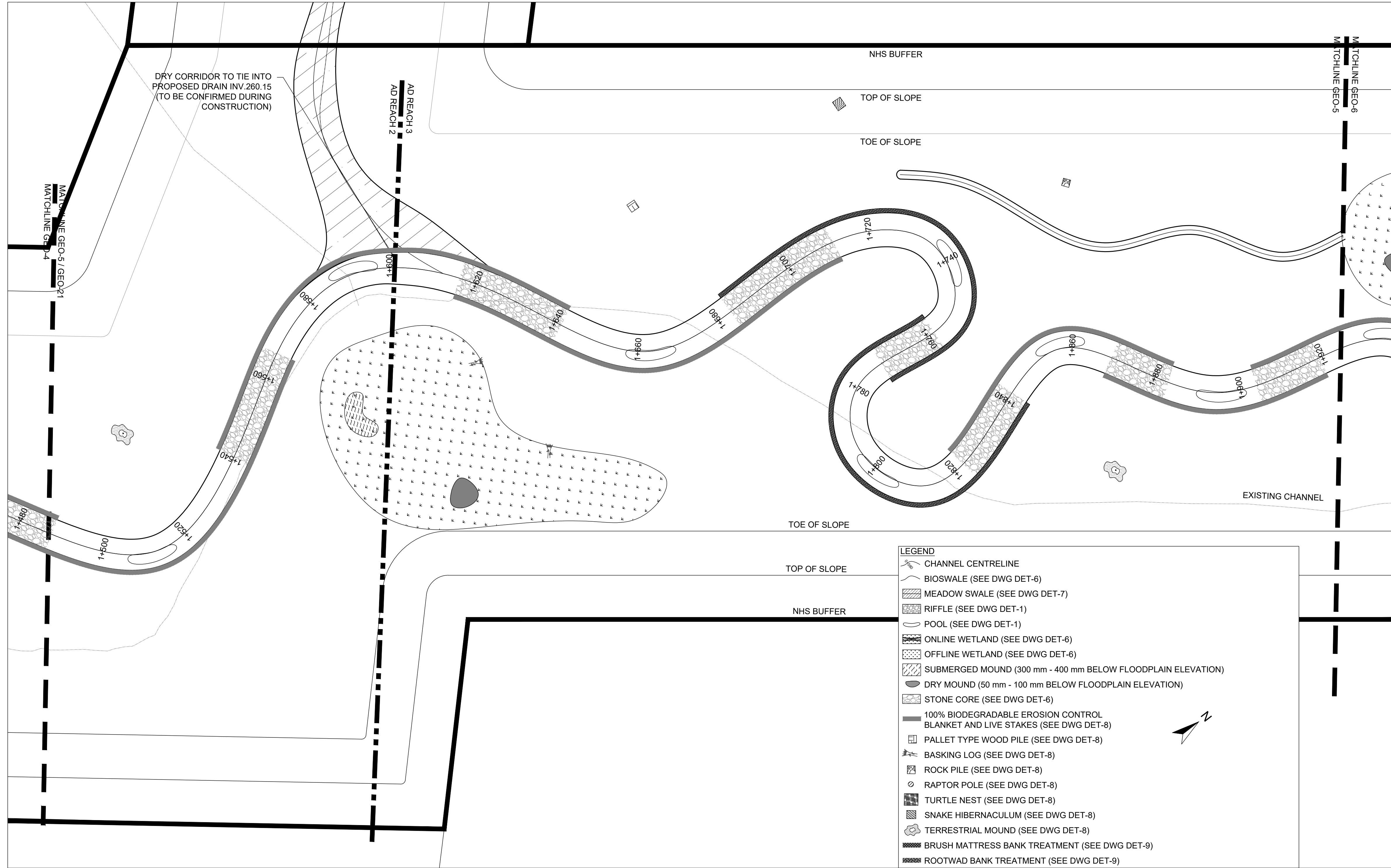
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**PLANFORM**  
1:500

DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

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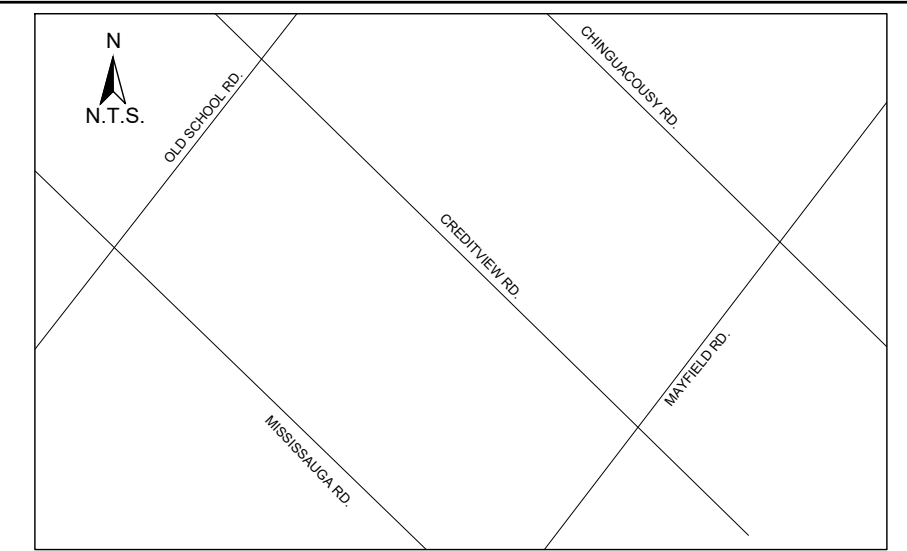
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-5
SCALE: AS NOTED	SHEET 6 OF 35

SCALED FOR PLOT ON 'ARCH D'





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N.T.S.

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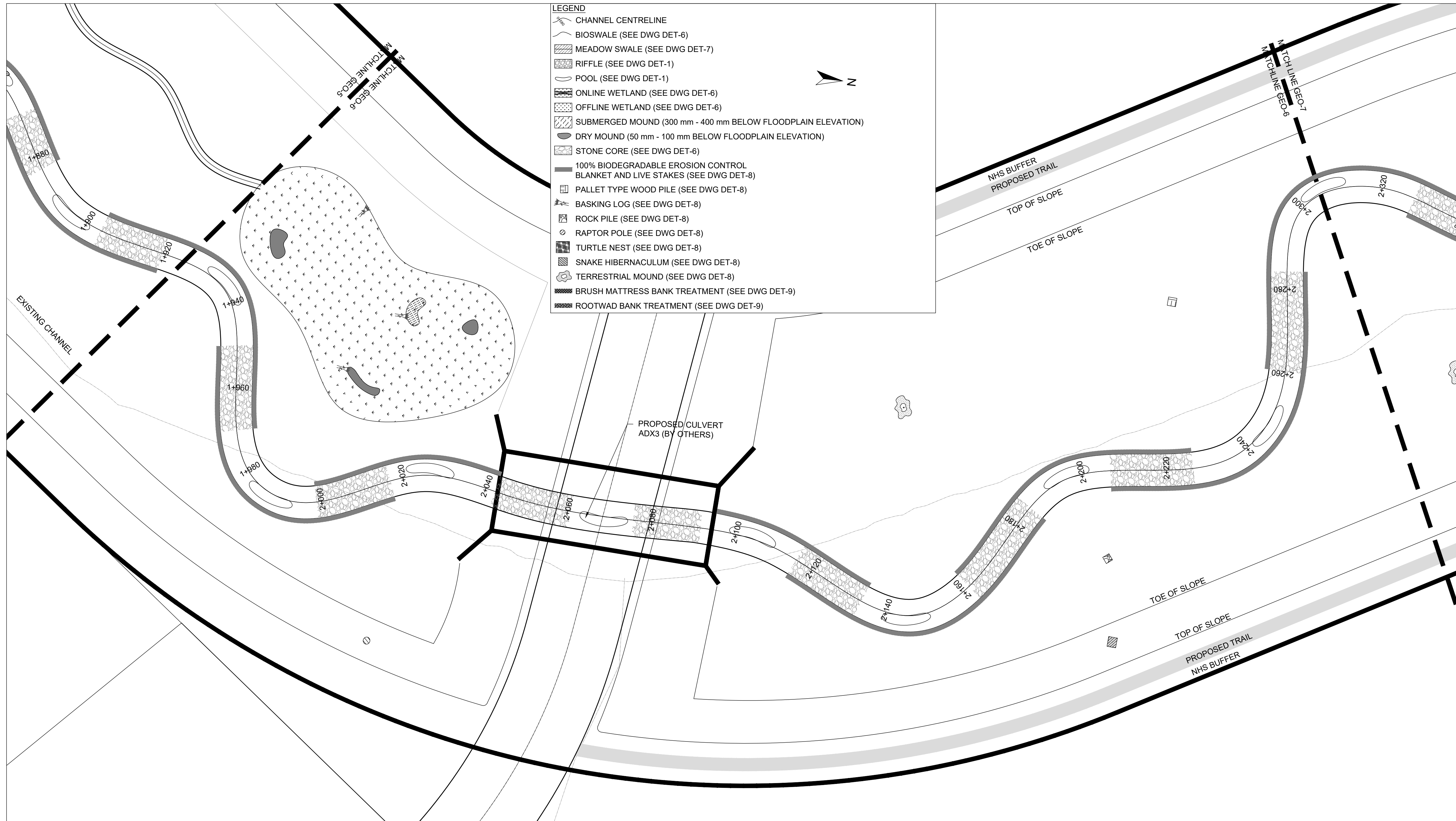
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**PLANFORM**  
1:500

DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

**GEO MORPHIX™**  
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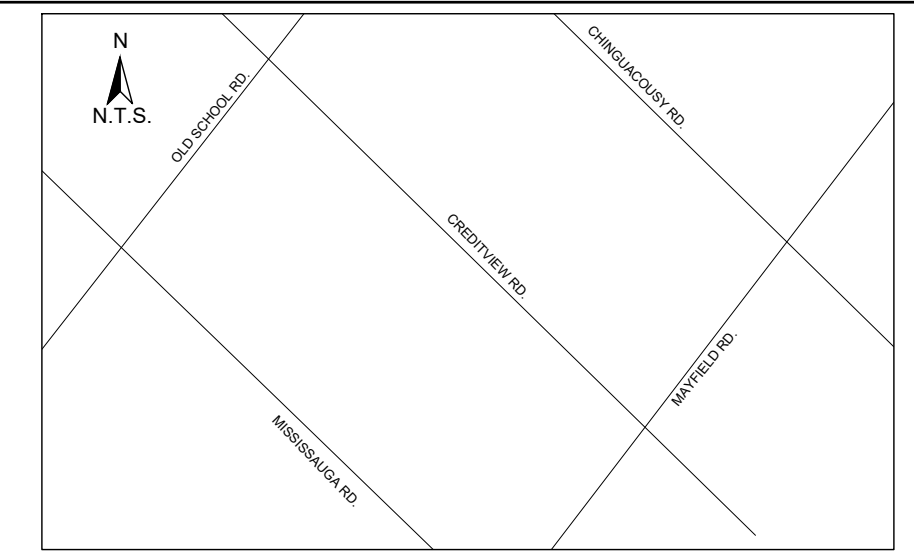
**ALLOA SPA  
TOWN OF CALEDON**

**ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM**

PROJECT No.: PN24009	DRAWING No.: GEO-6
SCALE: AS NOTED	SHEET 7 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

**GENERAL NOTES**

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3. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
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8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

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**SITE AND MATERIAL MANAGEMENT**

1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERCOURSE OR STABLE AREA ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
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6. ALL VEGETATION, ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELINEATED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
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8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

**EROSION AND SEDIMENT CONTROL**

1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS.
2. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-COSEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES. DEWATERING, AND IN-OR NEAR-WATER WORKS, SHOULD CONCERNS ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
3. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
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9. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

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2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
3. NO EQUIPMENT REPAIRING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
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DATE	BY	REVISIONS

DESIGNED BY: LD/AS	CHECKED BY: PV
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**DRAFT FOR INTERNAL DISCUSSION**

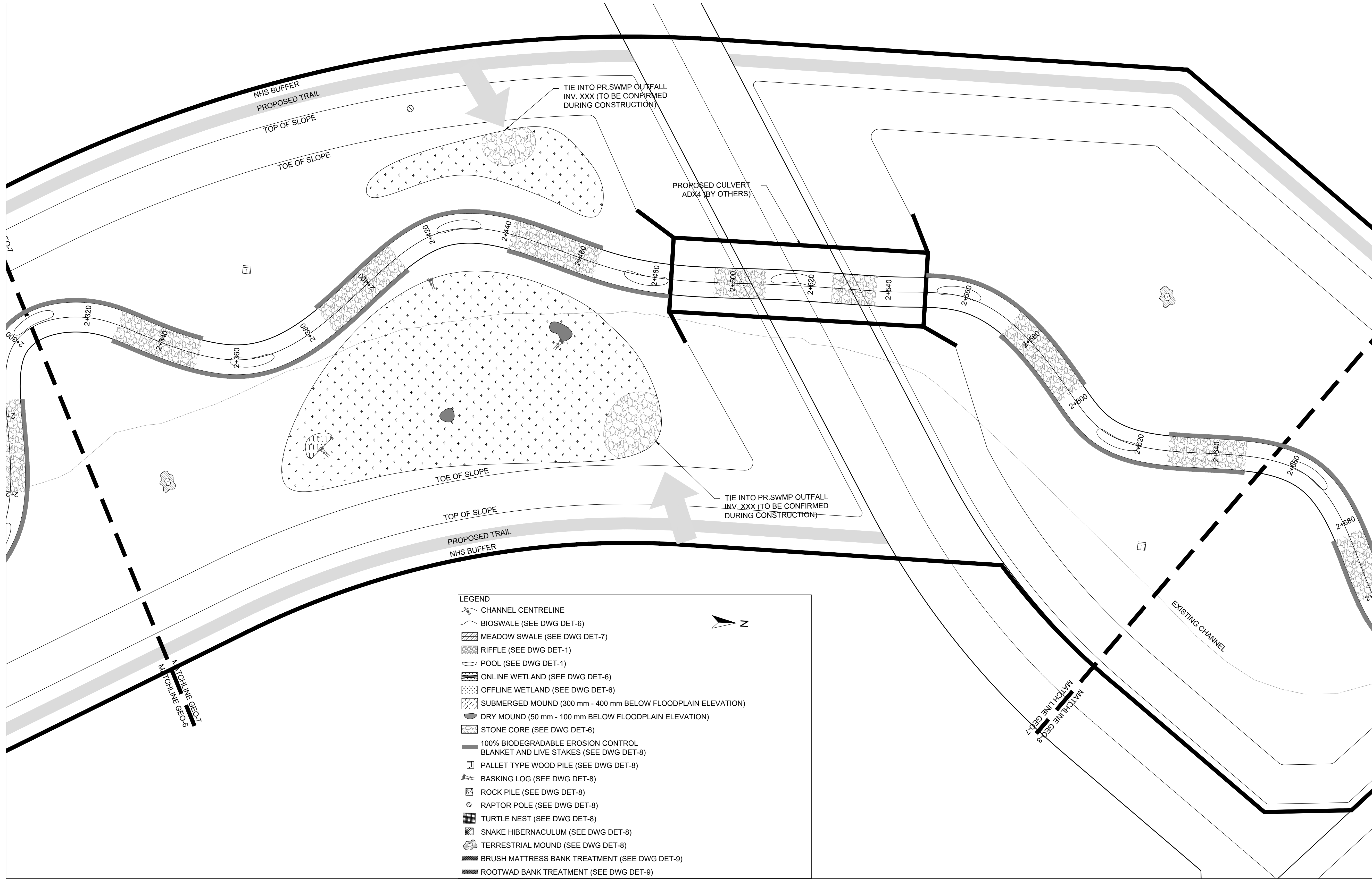
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**ALLOA SPA  
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**ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM**

PROJECT No.: PN24009	DRAWING No.: GEO-7
SCALE: AS NOTED	SHEET 8 OF 35



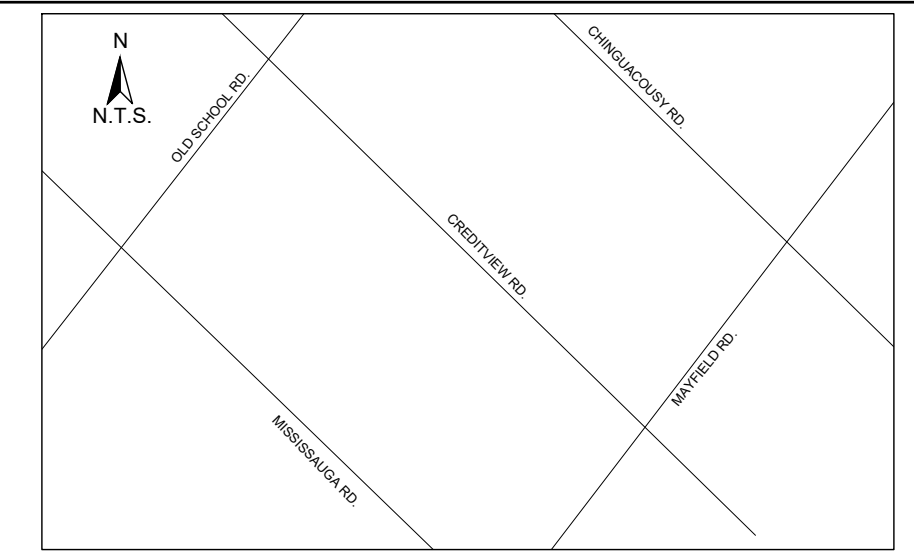
**LEGEND**

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**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





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N.T.S.

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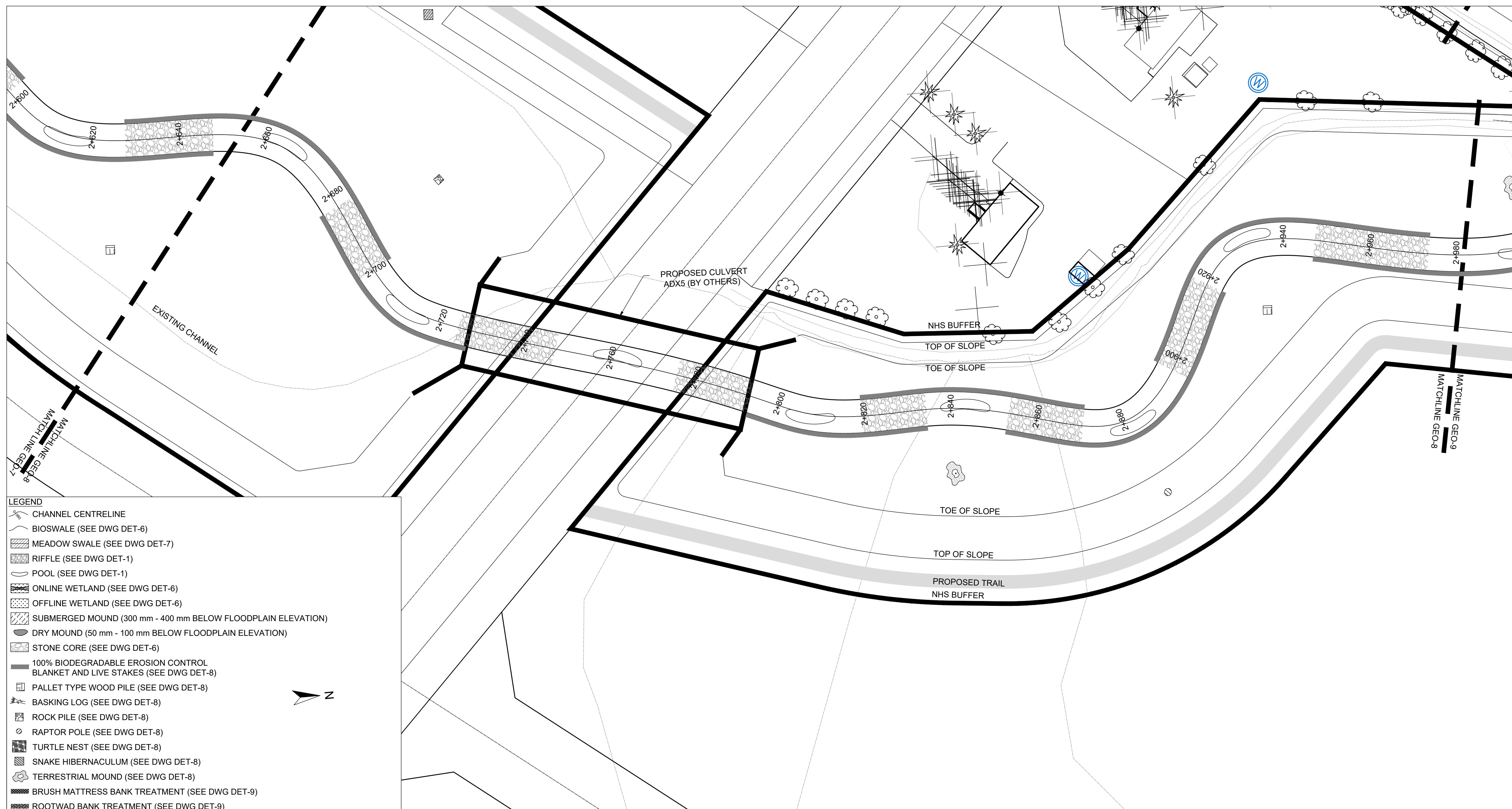
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**LEGEND**

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**PLANFORM**  
1:500


DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

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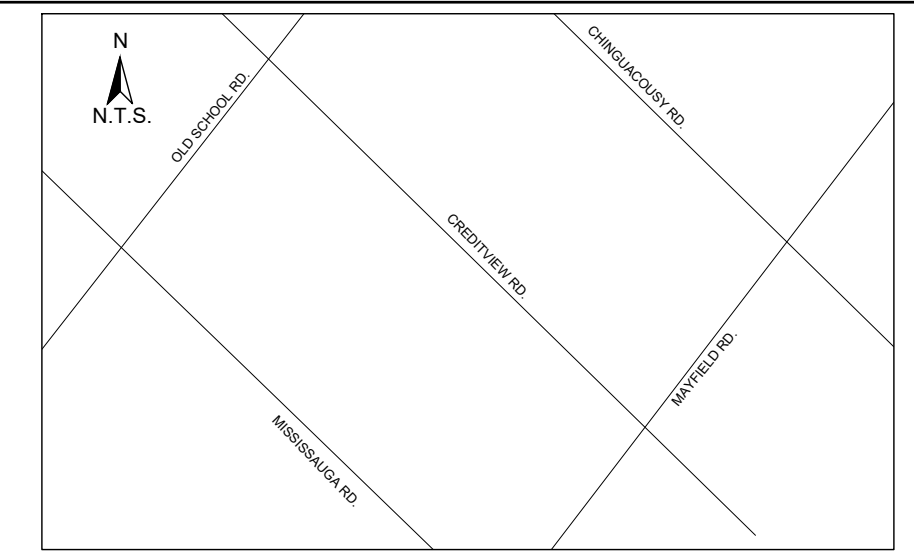
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-8
SCALE: AS NOTED	SHEET 9 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

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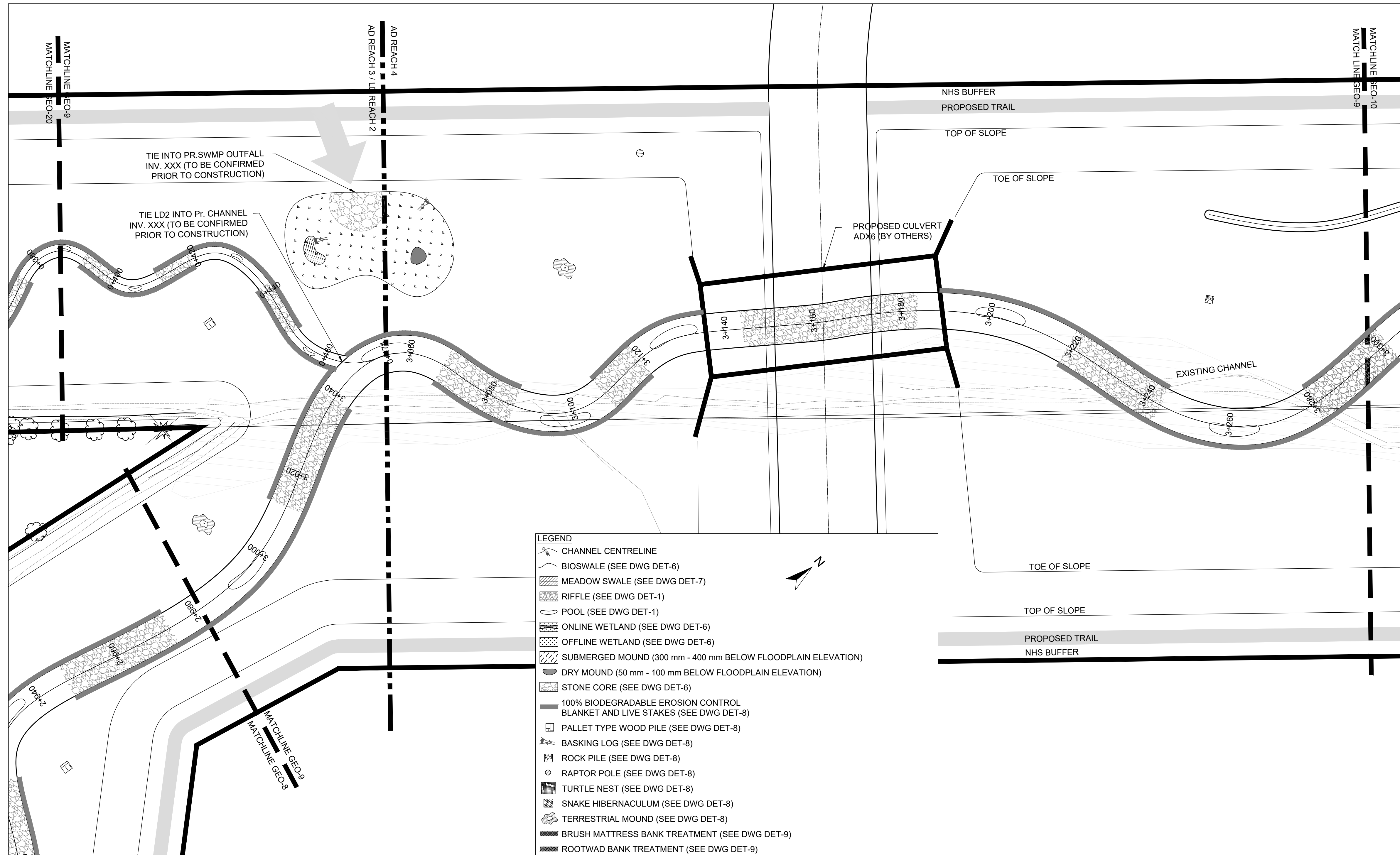
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**PLANFORM**  
1:500


DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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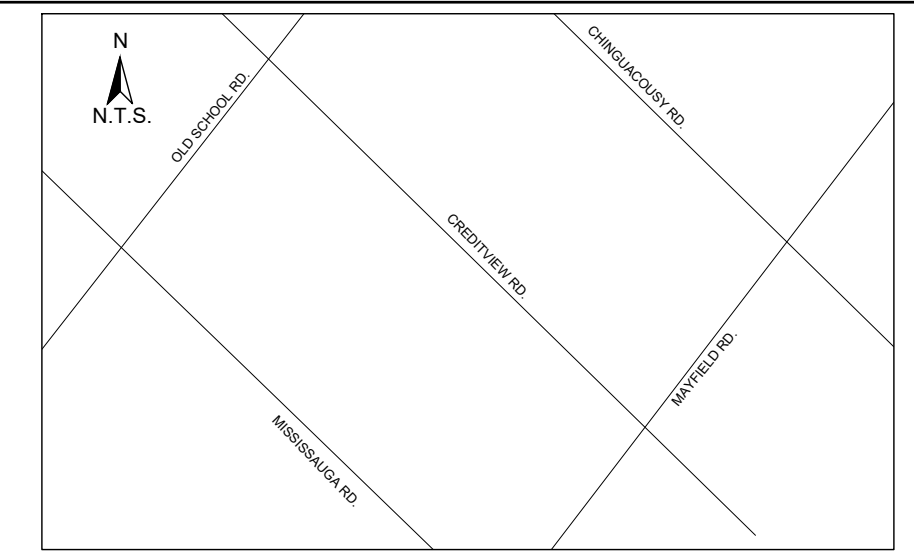
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-9
SCALE: AS NOTED	SHEET 10 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

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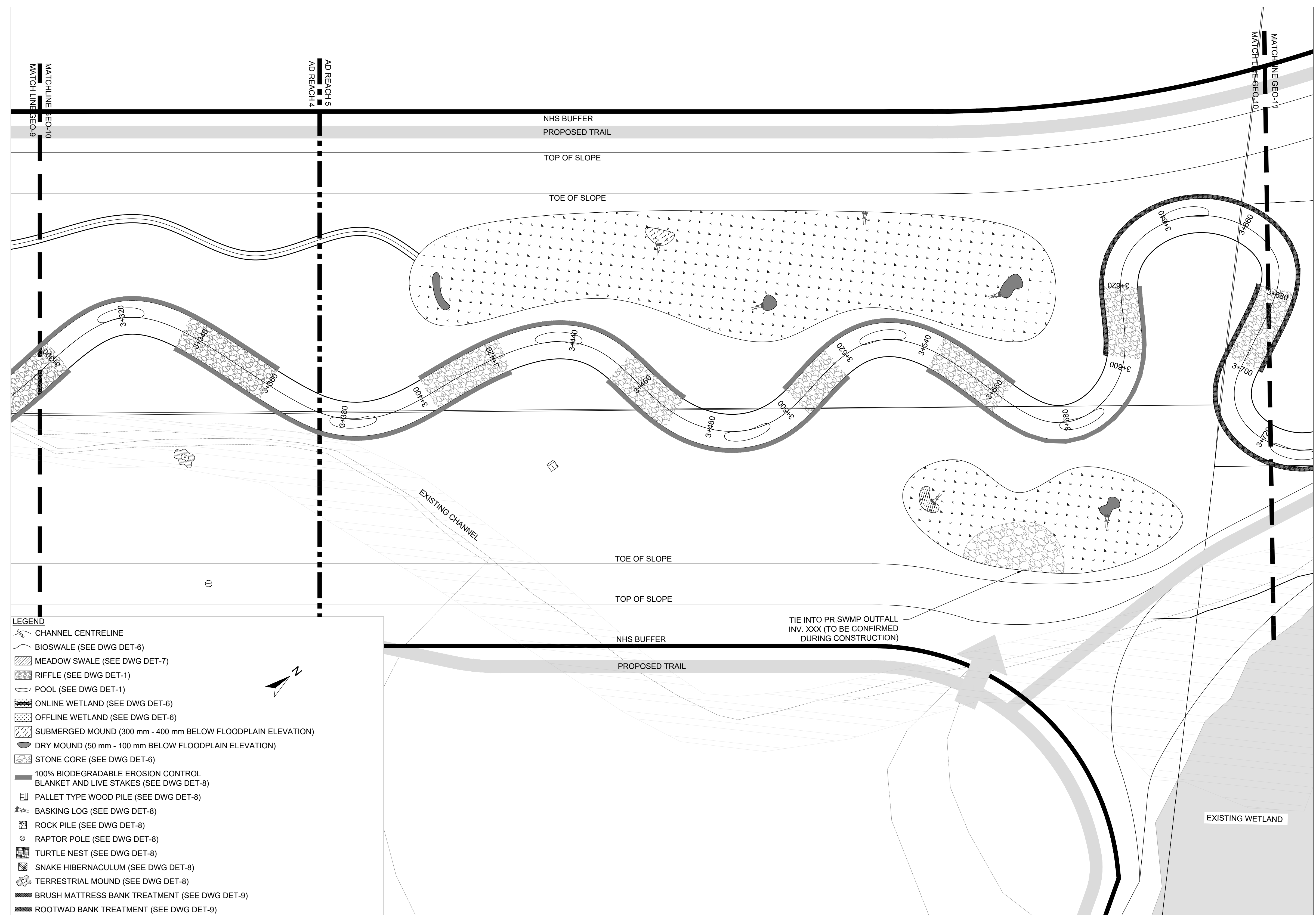
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 CHANNEL PLANFORM

PROJECT No.: PN24009      DRAWING No.: GEO-10  
 SCALE: AS NOTED      SHEET 11 OF 35



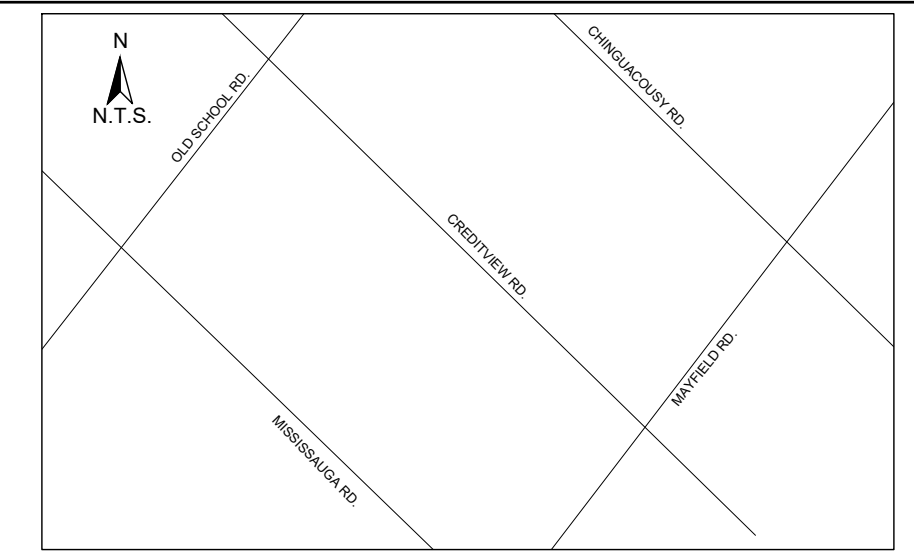
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**PLANFORM**  
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SCALED FOR PLOT ON 'ARCH D'





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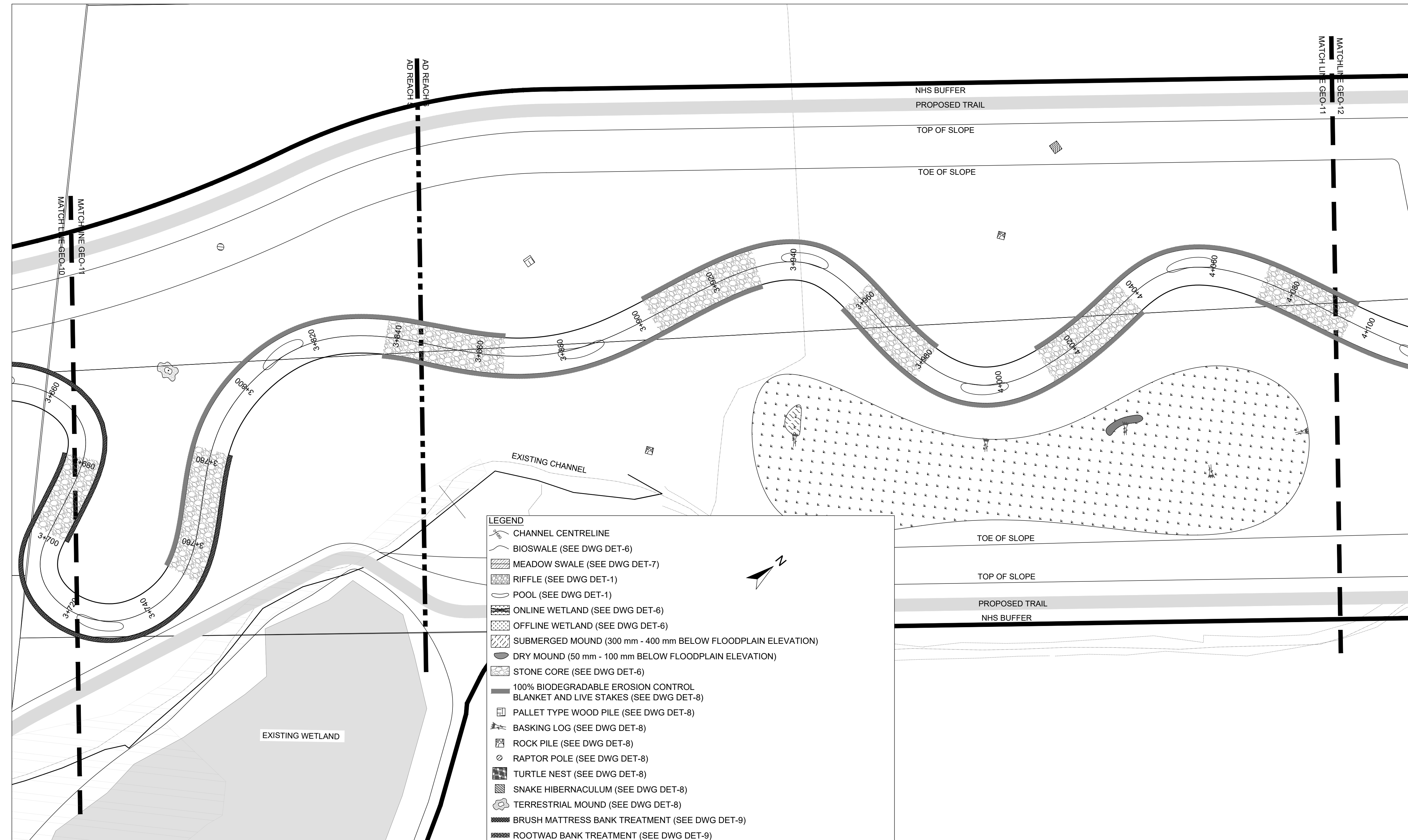
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1:500

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DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

MORPHIX™  
36 Main St N., P.O. Box 205  
Campbellville, Ontario L0P 1B0  
T: 416.920.0926  
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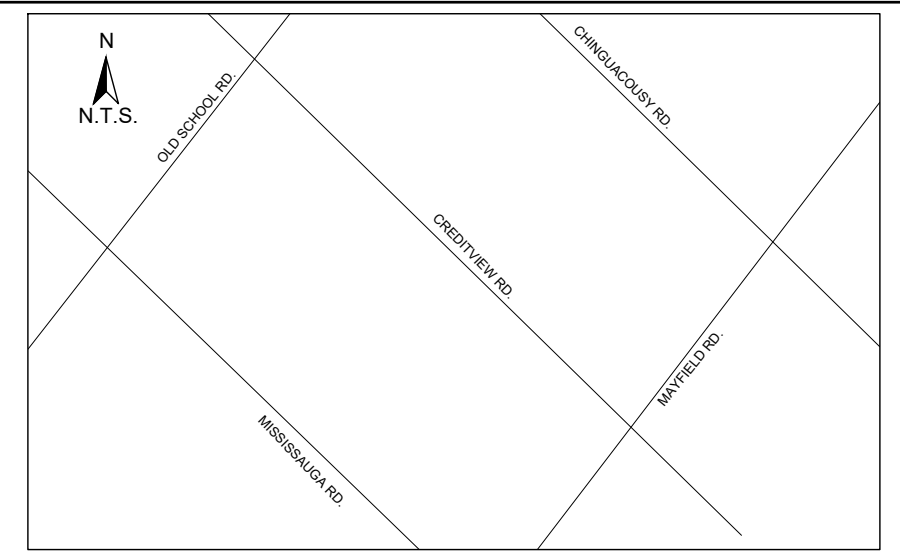
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-11
SCALE: AS NOTED	SHEET 12 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

**GENERAL NOTES**

1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
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3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
7. ON-SITE SUPPORT FROM PROJECT ENGINEER (E.G. GEOTECHNICAL, HYDROLOGICAL, AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

**TIMING OF WORKS**

1. WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW SET OUT BY MNR/FDFO.
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3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
4. COMPLETE THE WORKS WITH MINIMAL AVAILABLE INTERRUPTIONS ONCE THEY COMMENCE.

**SITE AND MATERIAL MANAGEMENT**

1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERCOURSE OR STABLE AREA ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
6. ALL VEGETATION ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
7. ALL GRASSES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

**EROSION AND SEDIMENT CONTROL**

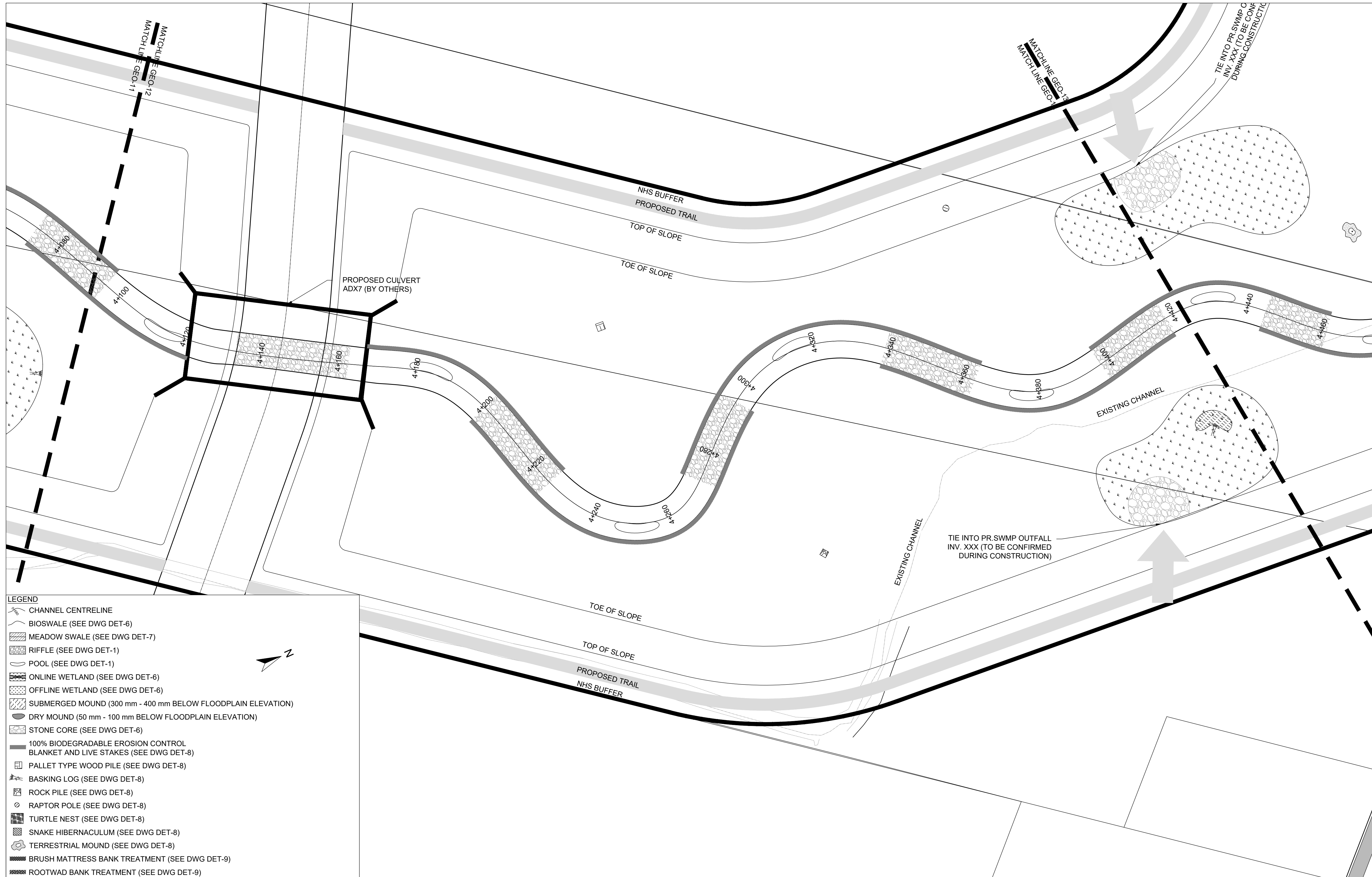
1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS.
2. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-CSECC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN-OR NEAR-WATER WORKS. SHOULD CONCERNS ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
3. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
4. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
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7. ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
8. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
9. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

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2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
3. NO EQUIPMENT REFUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON-SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

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- LEGEND**
- CHANNEL CENTRELINE
  - BIOSWALE (SEE DWG DET-6)
  - MEADOW SWALE (SEE DWG DET-7)
  - RIFFLE (SEE DWG DET-1)
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  - ONLINE WETLAND (SEE DWG DET-6)
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**PLANFORM**  
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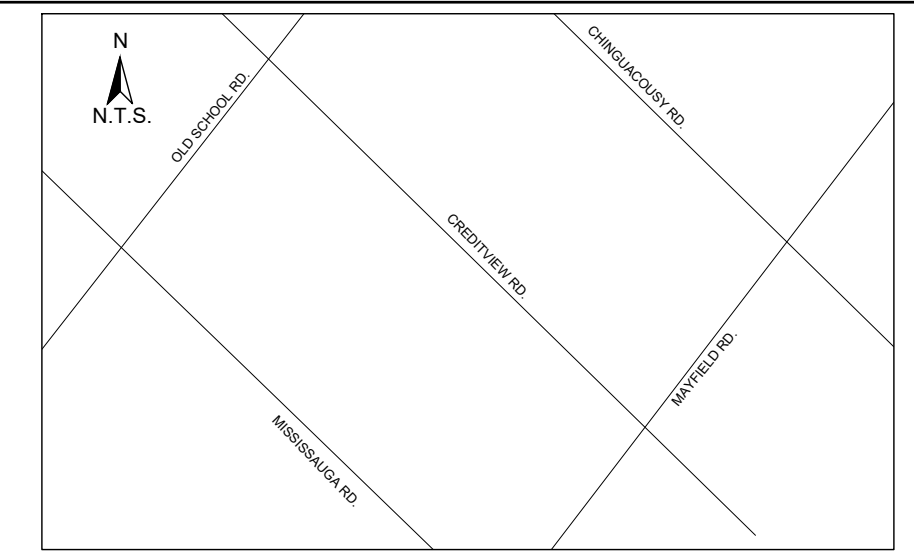
**ALLOA SPA**  
**TOWN OF CALEDON**

**ETOBICOKE CREEK - ALLOA DRAIN**  
**CONCEPTUAL CHANNEL DESIGN**  
**CHANNEL PLANFORM**

PROJECT No.: PN24009	DRAWING No.: GEO-12
SCALE: AS NOTED	SHEET 13 OF 35

SCALED FOR PLOT ON 'ARCH D'





KEY MAP  
N.T.S.

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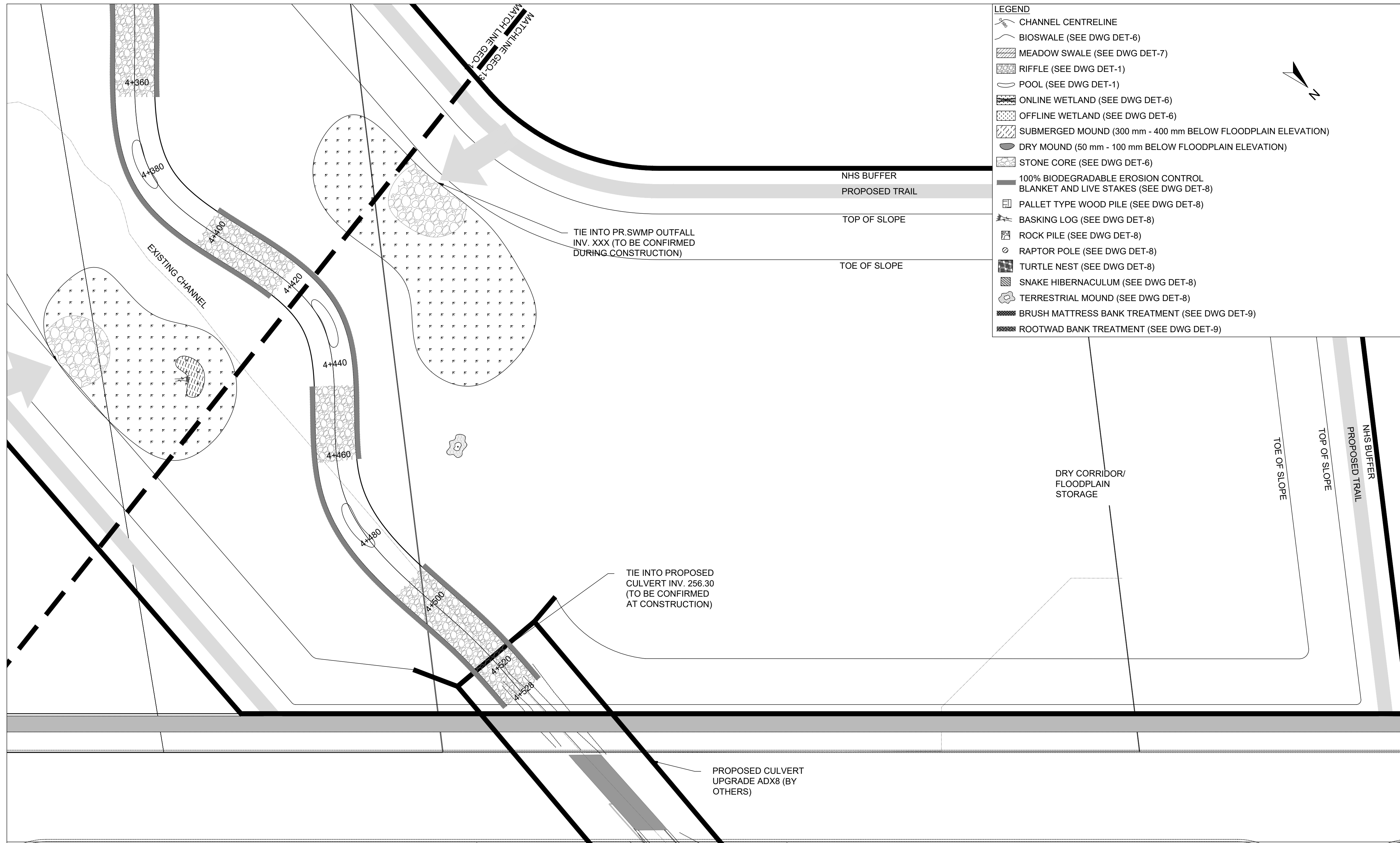
ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-13
SCALE: AS NOTED	SHEET 14 OF 35

SCALED FOR PLOT ON 'ARCH D'

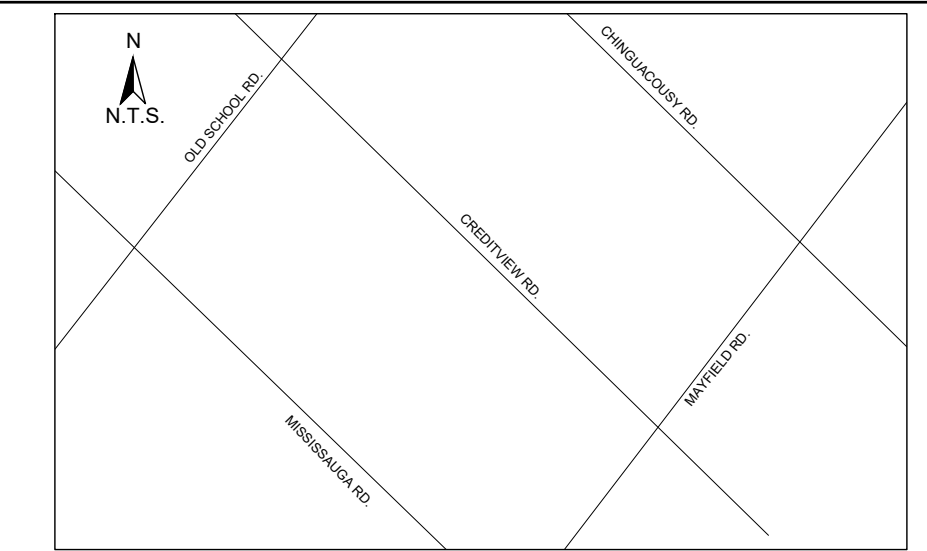
**LEGEND**

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PLANFORM  
1:500





**KEY MAP**  
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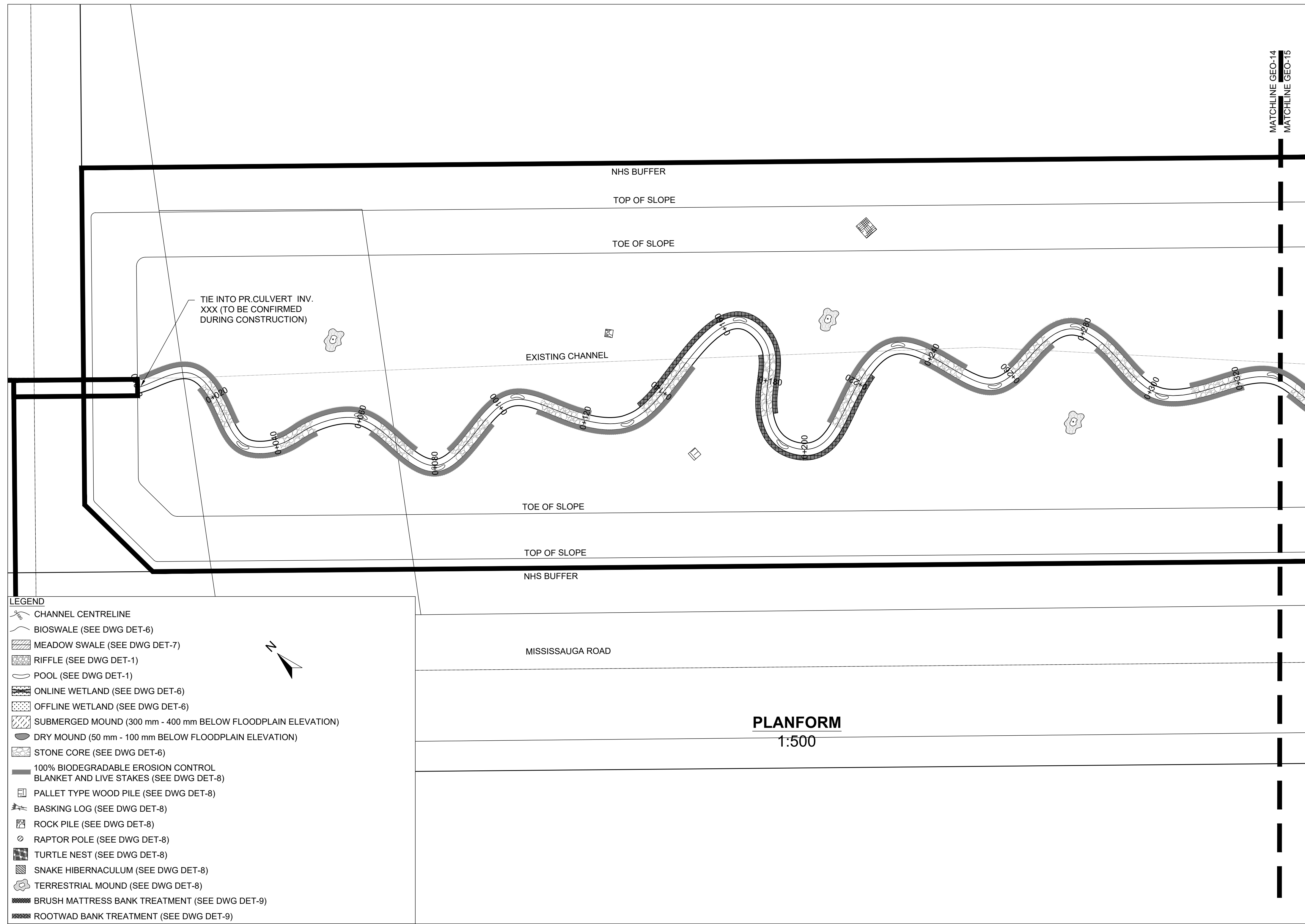
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1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-COSEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN-OR NEAR-WATER WORKS. SHOULD CONCERNS ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
  2. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
  3. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
  4. ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
  5. ADDITIONAL EROSION AND SEDIMENT CONTROL SUPPLIES MUST BE KEPT ON SITE IN ORDER TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
  6. ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
  7. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
  8. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

- DELETERIOUS SUBSTANCE CONTROL/SPILL MANAGEMENT**
1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAINE OR STORM SEWER SYSTEM.
  2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  3. NO EQUIPMENT REBUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
  4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON-SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
  5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

- WORK AREA ISOLATION**
1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
  2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
  3. THE UNWATERING DISCHARGE LOCATION MUST BE LOCATED AT LEAST 30 m FROM ANY WATERCOURSE OR WETLAND IN AN AREA WITH DENSE VEGETATIVE GROUND COVER, AND WHERE THE DISCHARGE CAN RETURN TO THE WATERBODY DOWNSTREAM OF THE WORK AREA OVER THE GROUND COVER.
  4. FISH MUST BE REMOVED FROM THE WORK AREA ONCE ISOLATED. FISH SALVAGE MUST BE COMPLETED BY A QUALIFIED TECHNICIAN WITH A LICENSE FROM THE ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY.



DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
 DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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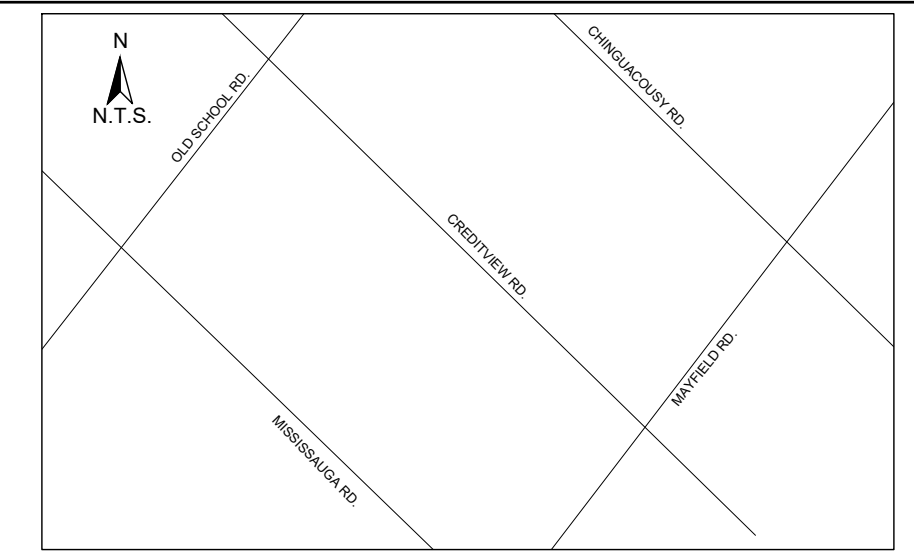
ALLOA SPA  
 TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
 CONCEPTUAL CHANNEL DESIGN  
 CHANNEL PLANFORM

PROJECT No.: PN24009      DRAWING No.: GEO-14  
 SCALE: AS NOTED      SHEET 15 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

- GENERAL NOTES**
1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
  2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
  3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
  5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
  6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
  7. ON-SITE SUPPORT FROM PROJECT ENGINEER (E.G. GEOTECHNICAL, HYDROGEOLOGICAL, AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

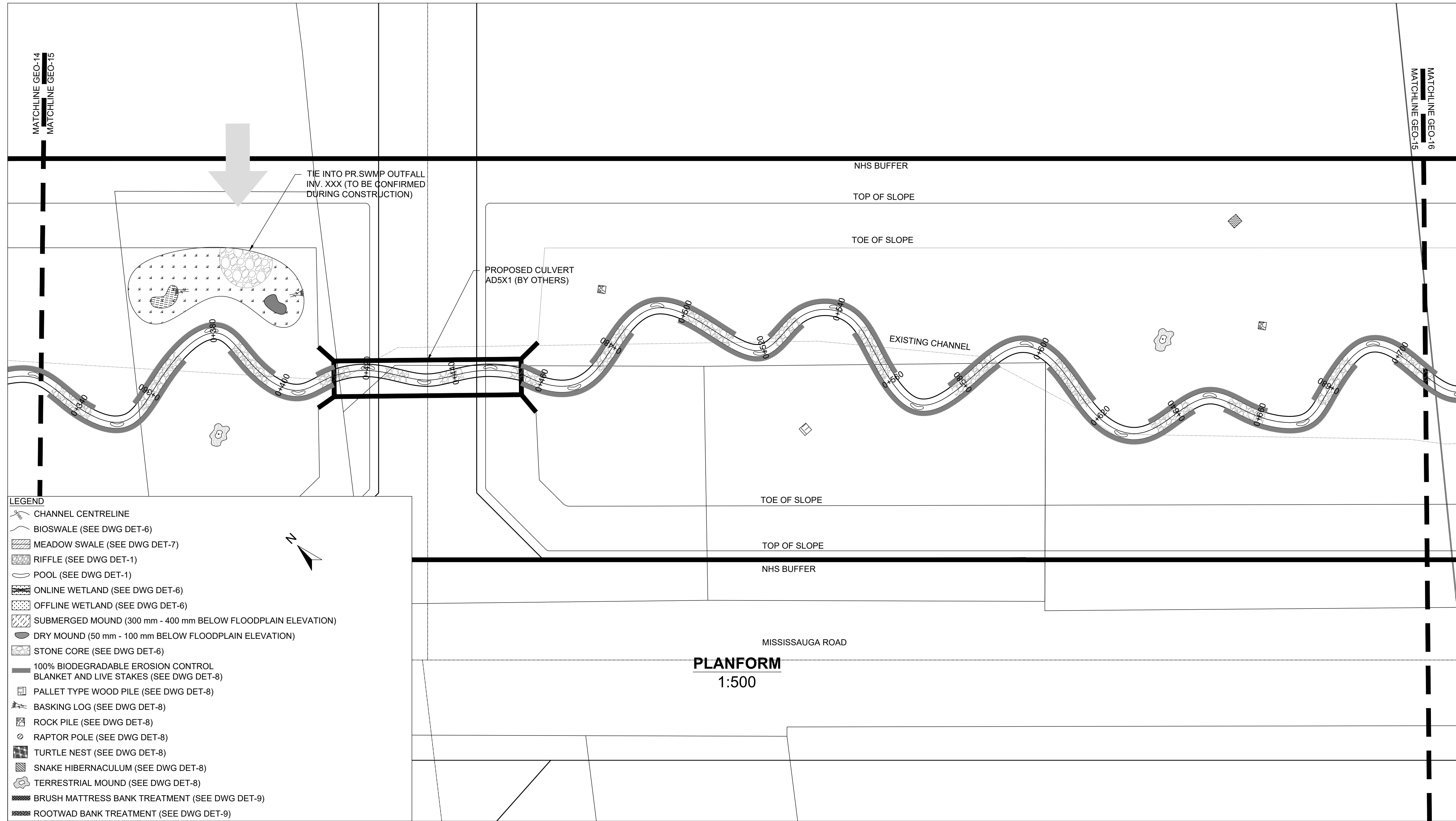
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  3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
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1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERBODY OR A STABLE AREA ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
  2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
  3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
  4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
  5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
  6. ALL VEGETATION, ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRADERS IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
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DESIGNED BY: LD/AS      CHECKED BY: PV  
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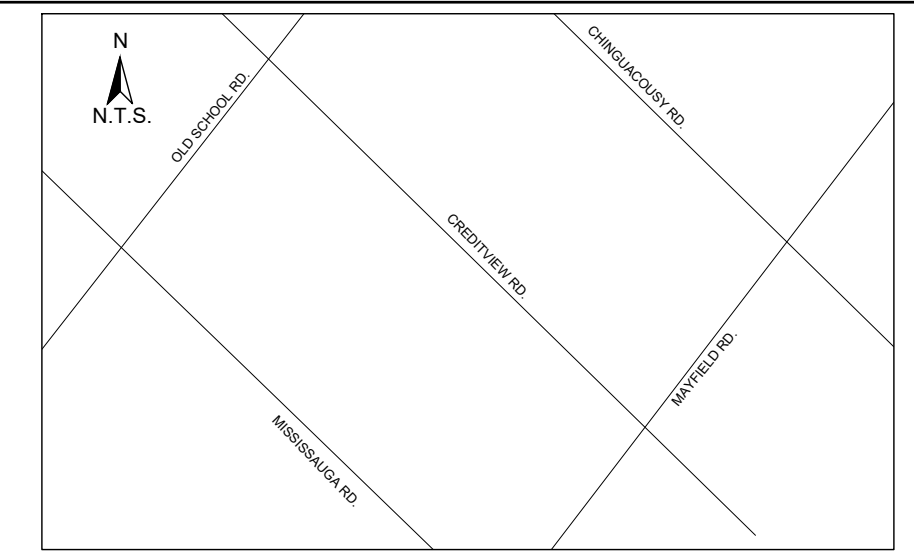
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009      DRAWING No.: GEO-15  
 SCALE: AS NOTED      SHEET 16 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

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**EROSION AND SEDIMENT CONTROL**

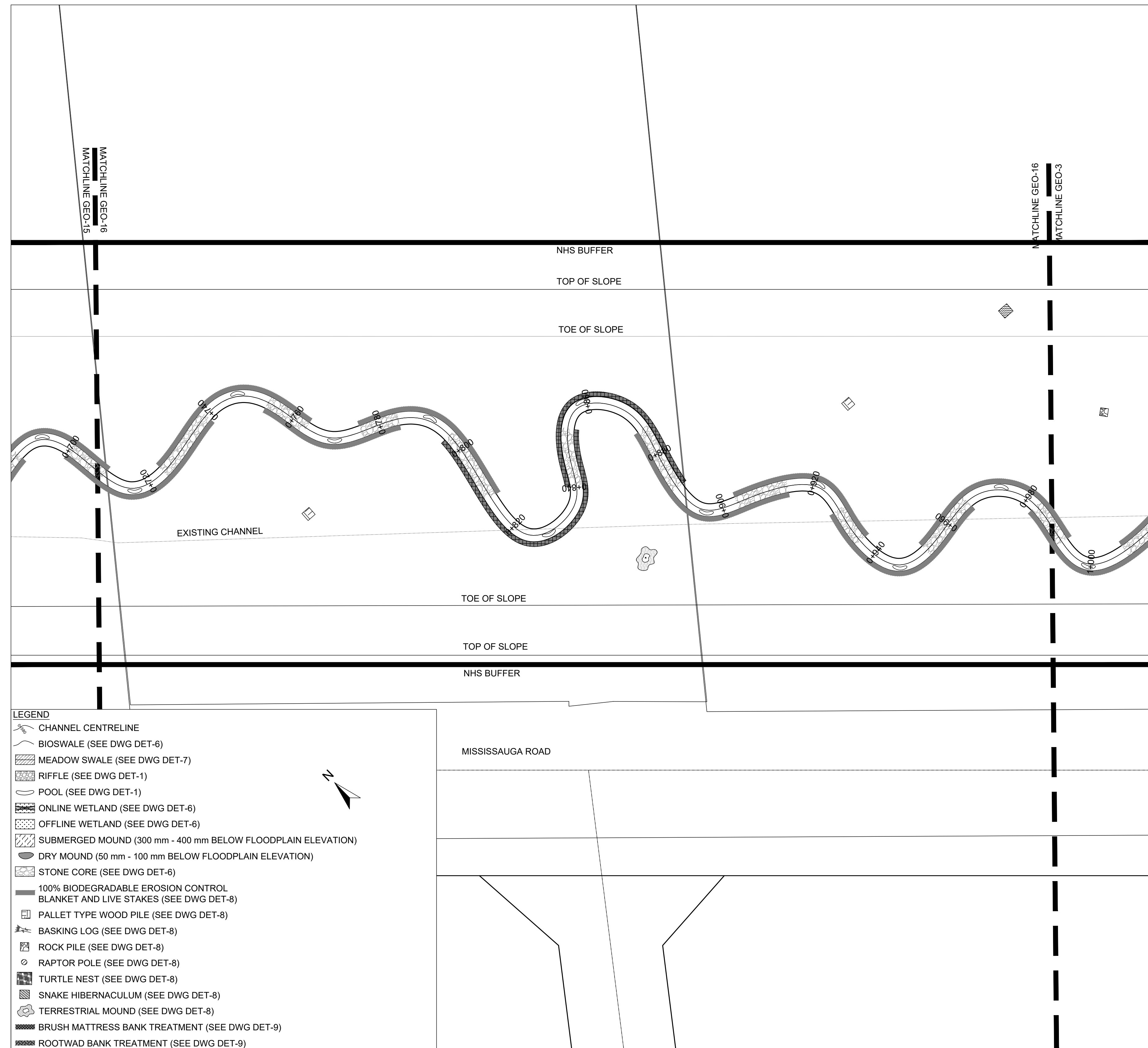
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**PLANFORM**  
1:500

DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

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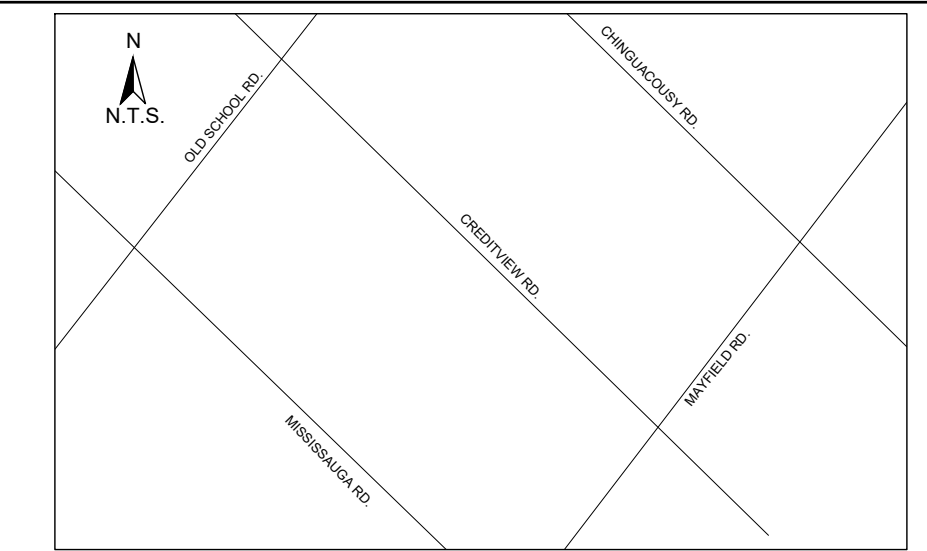
**ALLOA SPA**  
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**ETOBICOKE CREEK - ALLOA DRAIN**  
**CONCEPTUAL CHANNEL DESIGN**  
**CHANNEL PLANFORM**

PROJECT No.: PN24009	DRAWING No.: GEO-16
SCALE: AS NOTED	SHEET 17 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
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DATE	BY	REVISIONS

DESIGNED BY: LD/AS	CHECKED BY: PV
DRAWN BY: AL/CP/SC	DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

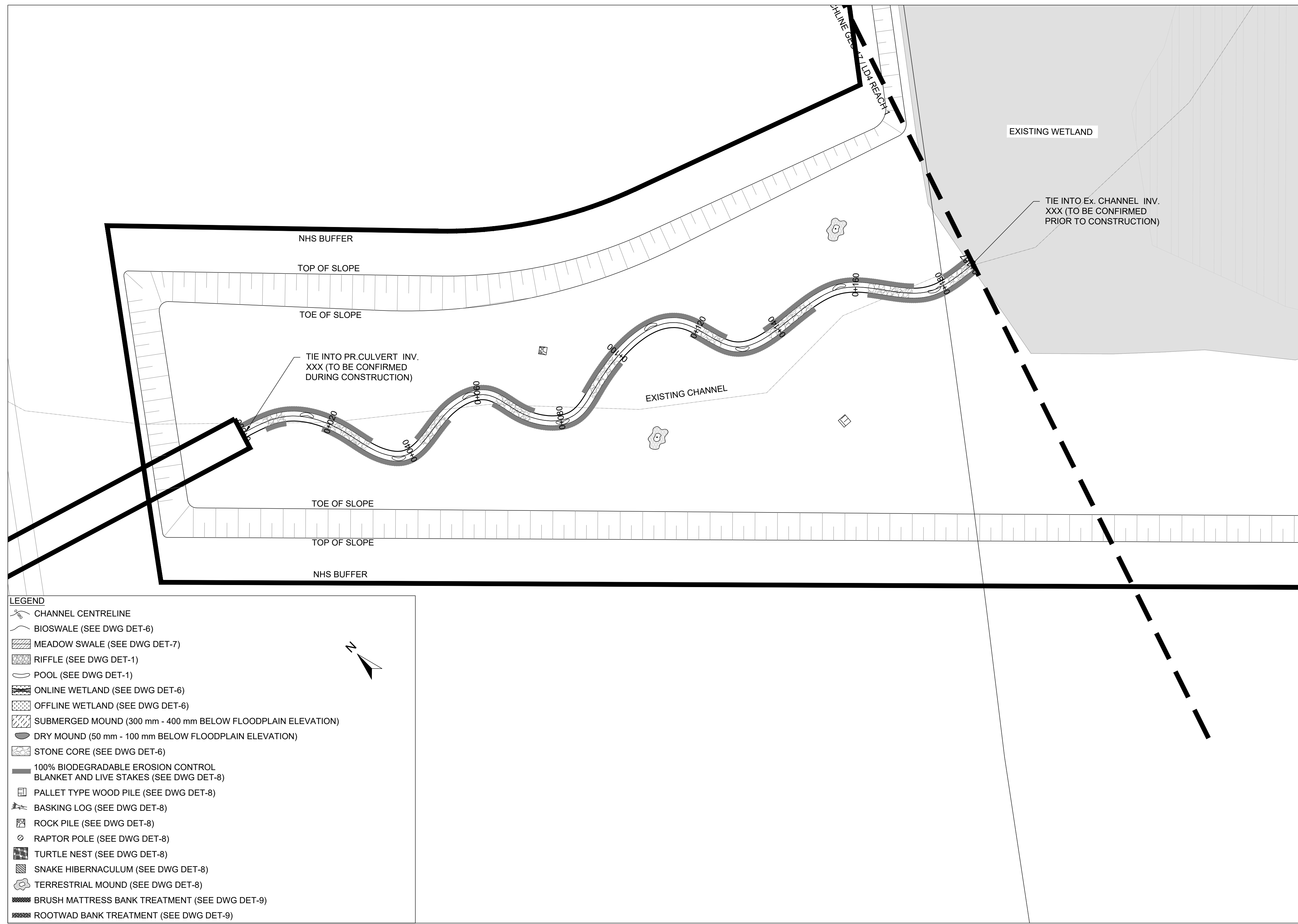
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ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-17
SCALE: AS NOTED	SHEET 18 OF 35

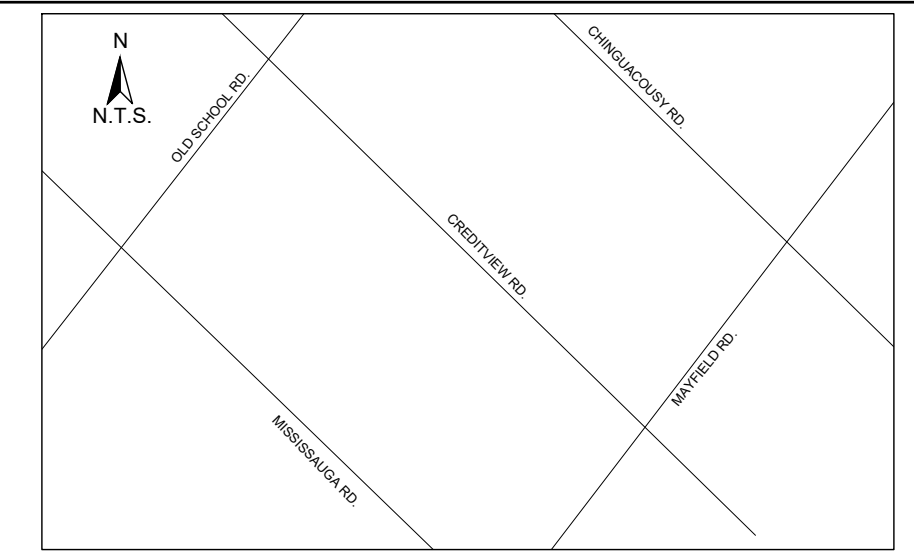


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  - ROOTWAD BANK TREATMENT (SEE DWG DET-9)

**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





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N.T.S.

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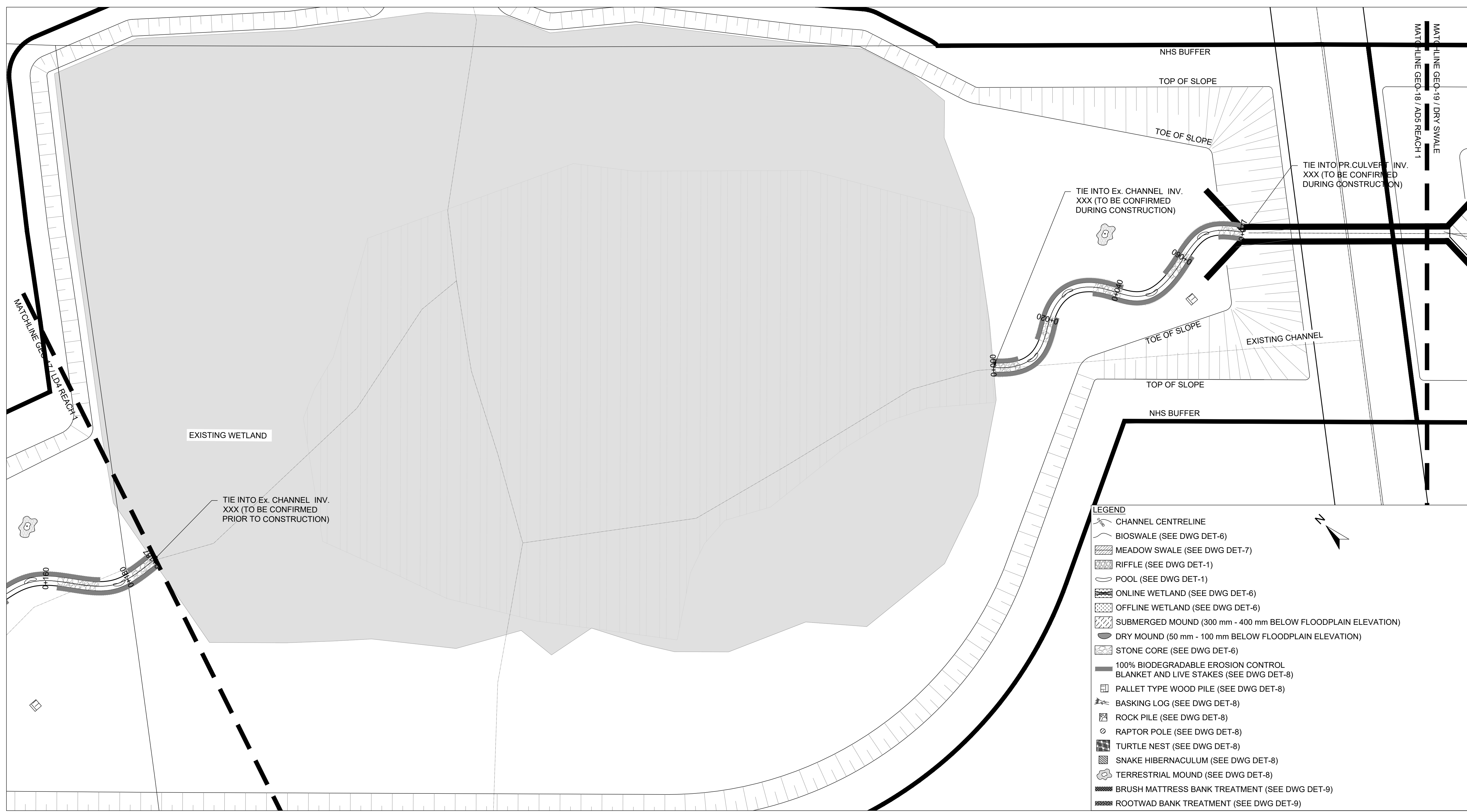
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**PLANFORM**  
1:500

DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

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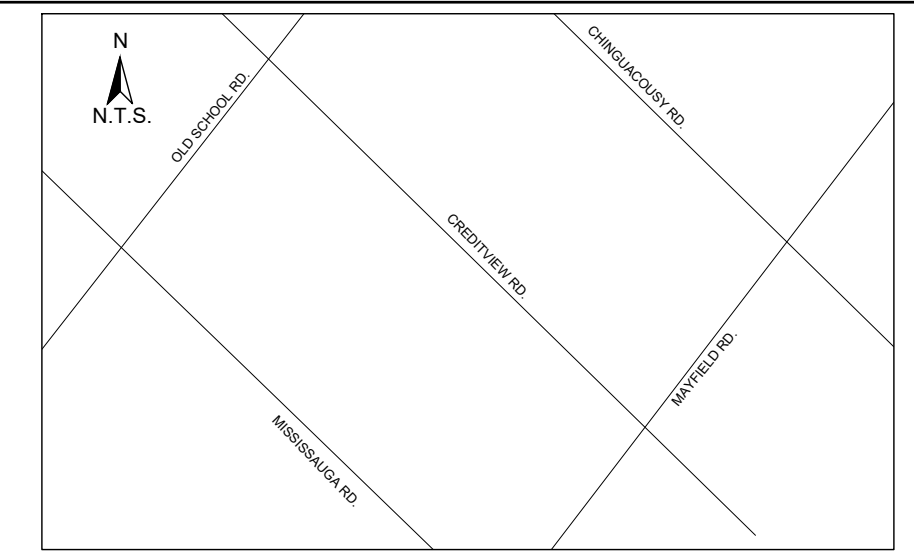
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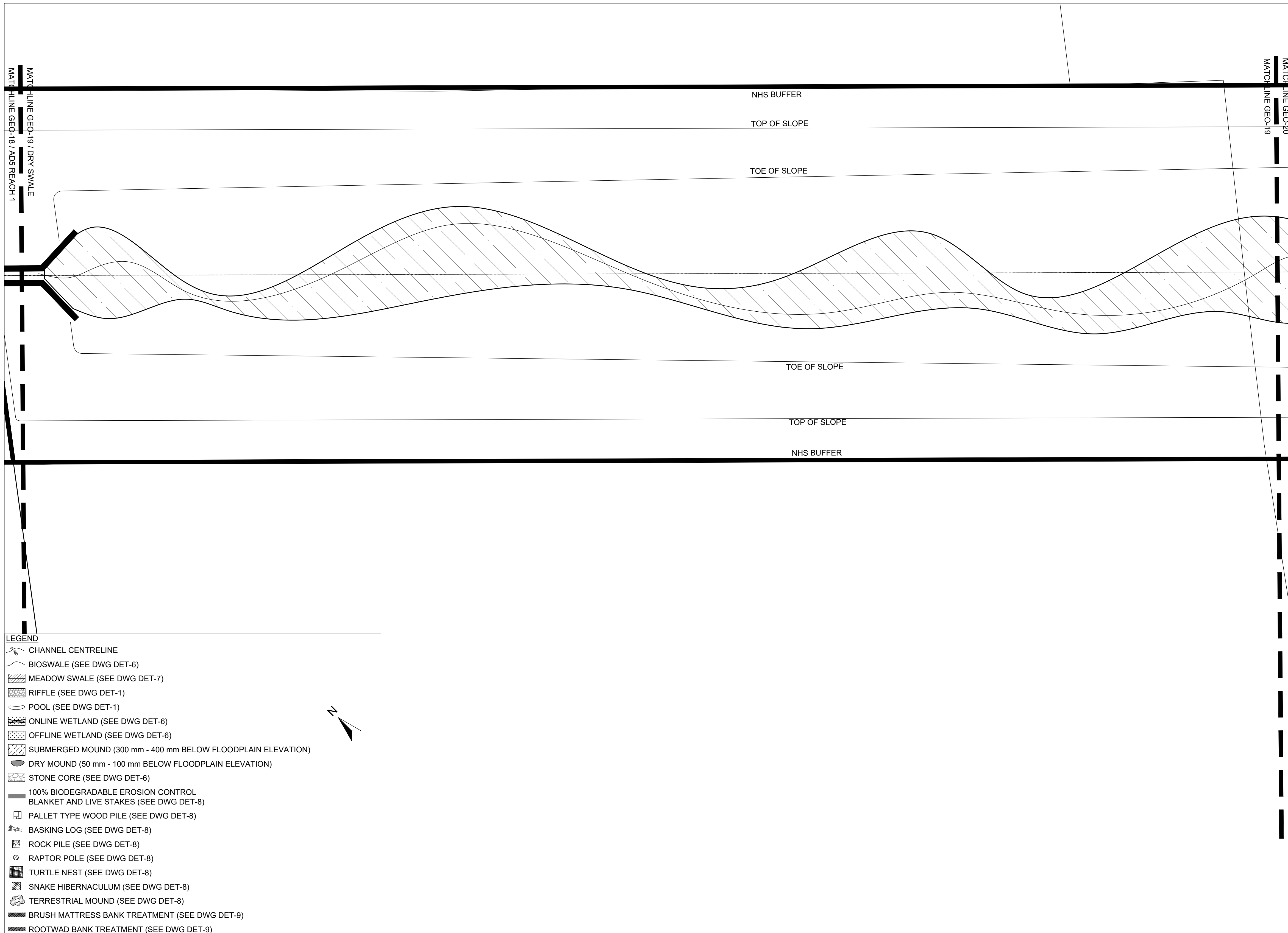
PROJECT No.: PN24009      DRAWING No.: GEO-18  
SCALE: AS NOTED      SHEET 19 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.



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DATE	BY	REVISIONS

DESIGNED BY: LD/AS	CHECKED BY: PV
DRAWN BY: AL/CP/SC	DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

**GEO MORPHIX™**  
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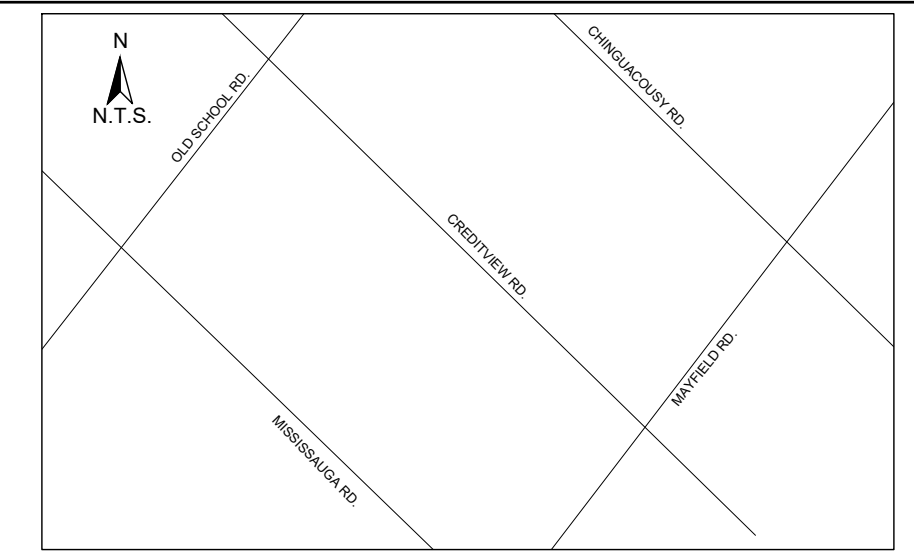
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
DRY SWALE PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-19
SCALE: AS NOTED	SHEET 20 OF 35

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

- GENERAL NOTES**
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  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

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DESIGNED BY: LD/AS      CHECKED BY: PV  
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**DRAFT FOR INTERNAL DISCUSSION**

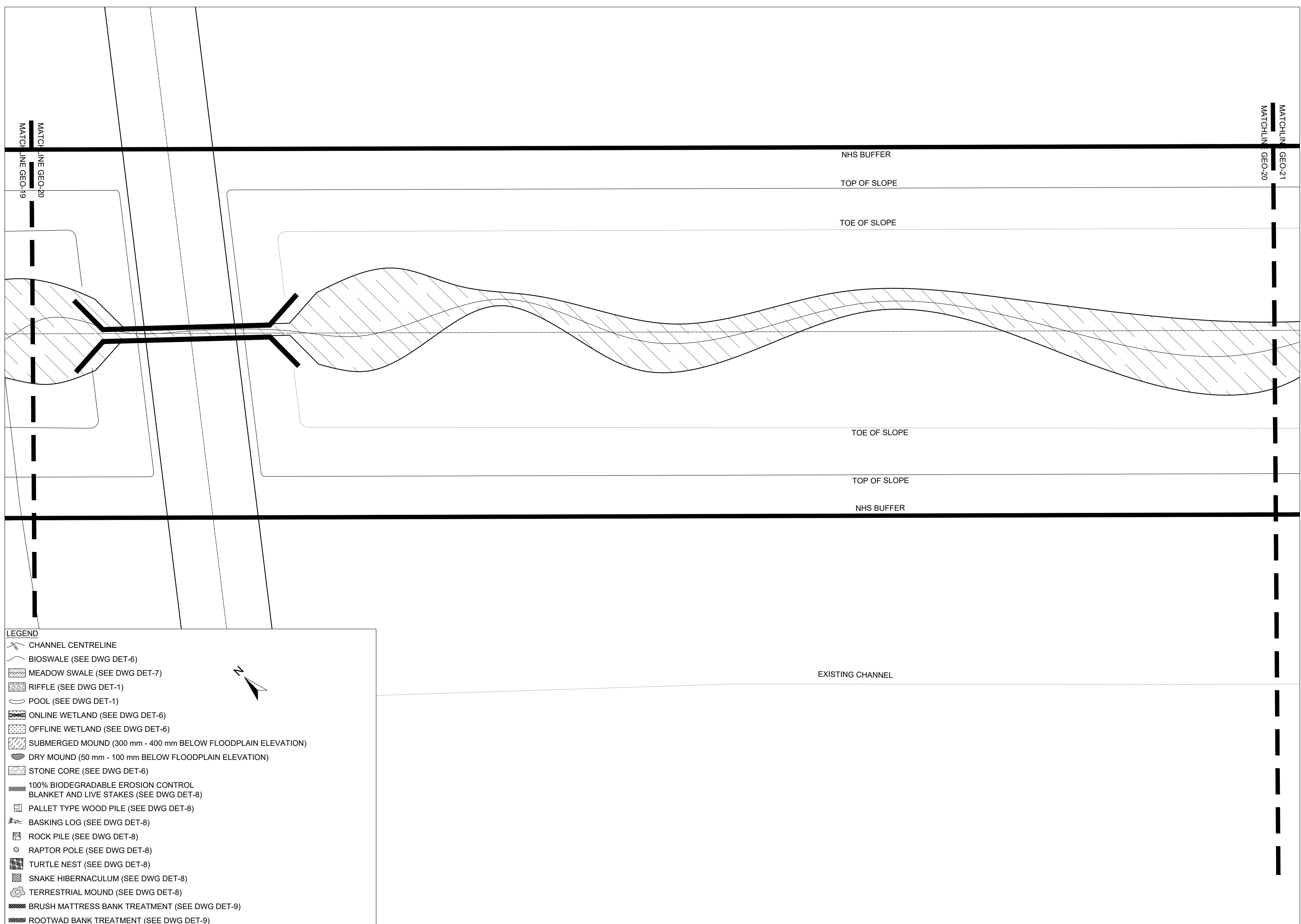
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ALLOA SPA  
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CONCEPTUAL CHANNEL DESIGN  
DRY SWALE PLANFORM

PROJECT No.: PN24009      DRAWING No.: GEO-20  
 SCALE: AS NOTED      SHEET 21 OF 35



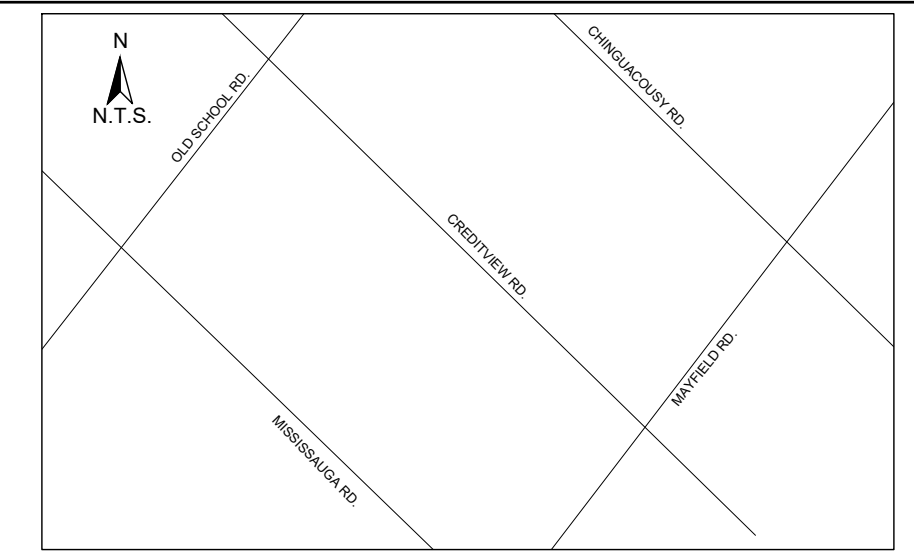
**LEGEND**

- CHANNEL CENTRELINE
- BIOSWALE (SEE DWG DET-6)
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**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





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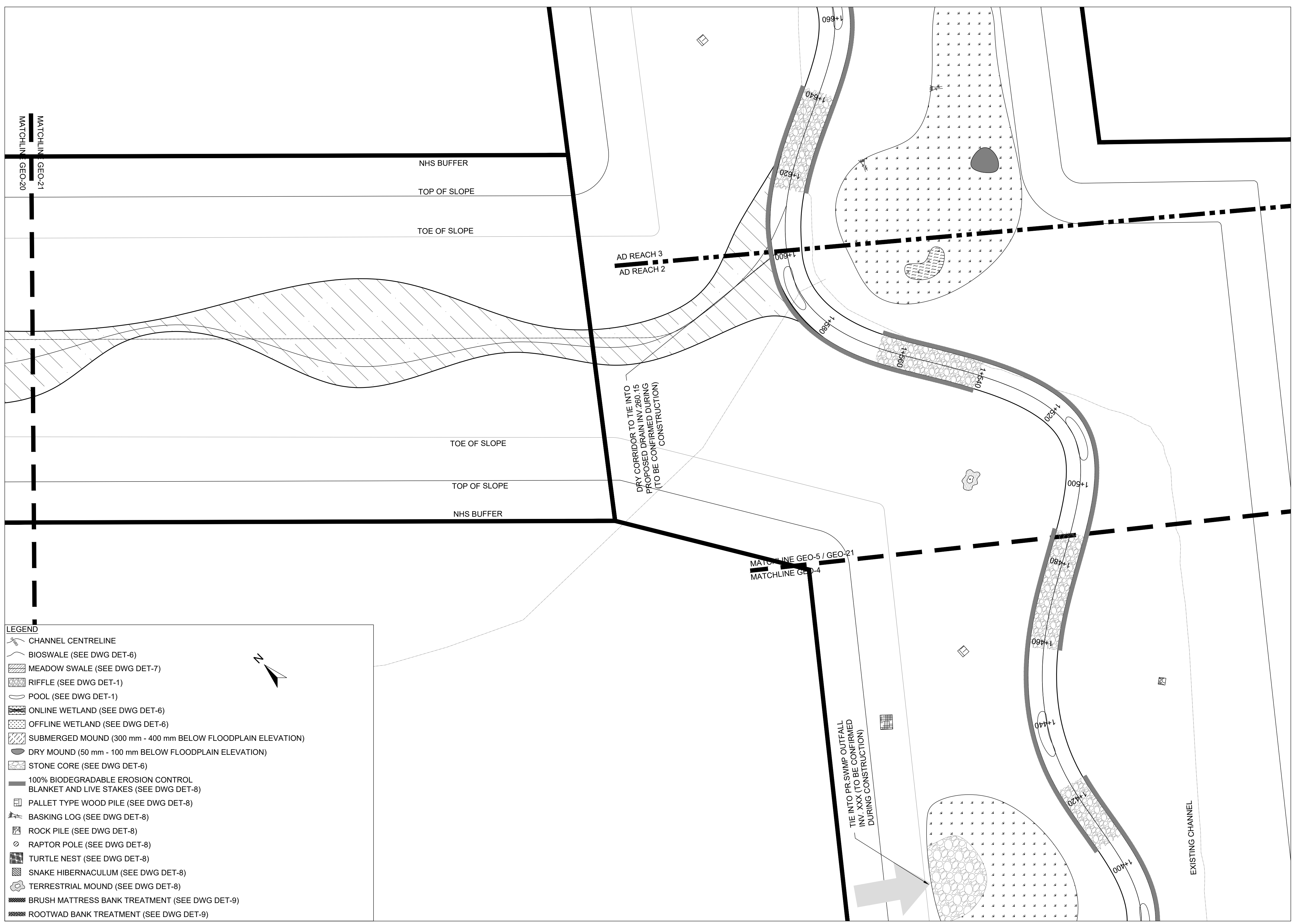
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**ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
DRY SWALE PLANFORM**

PROJECT No.: PN24009	DRAWING No.: GEO-21
SCALE: AS NOTED	SHEET 22 OF 35



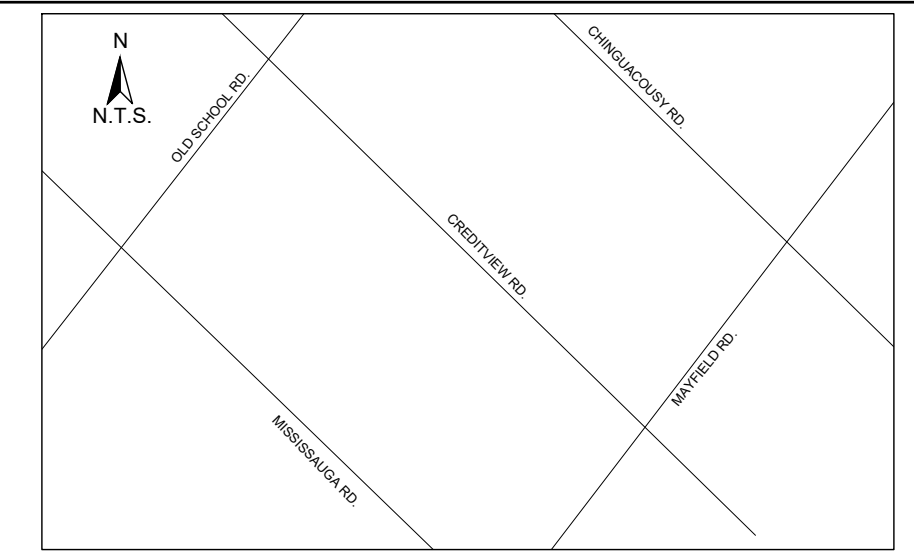
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**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





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DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

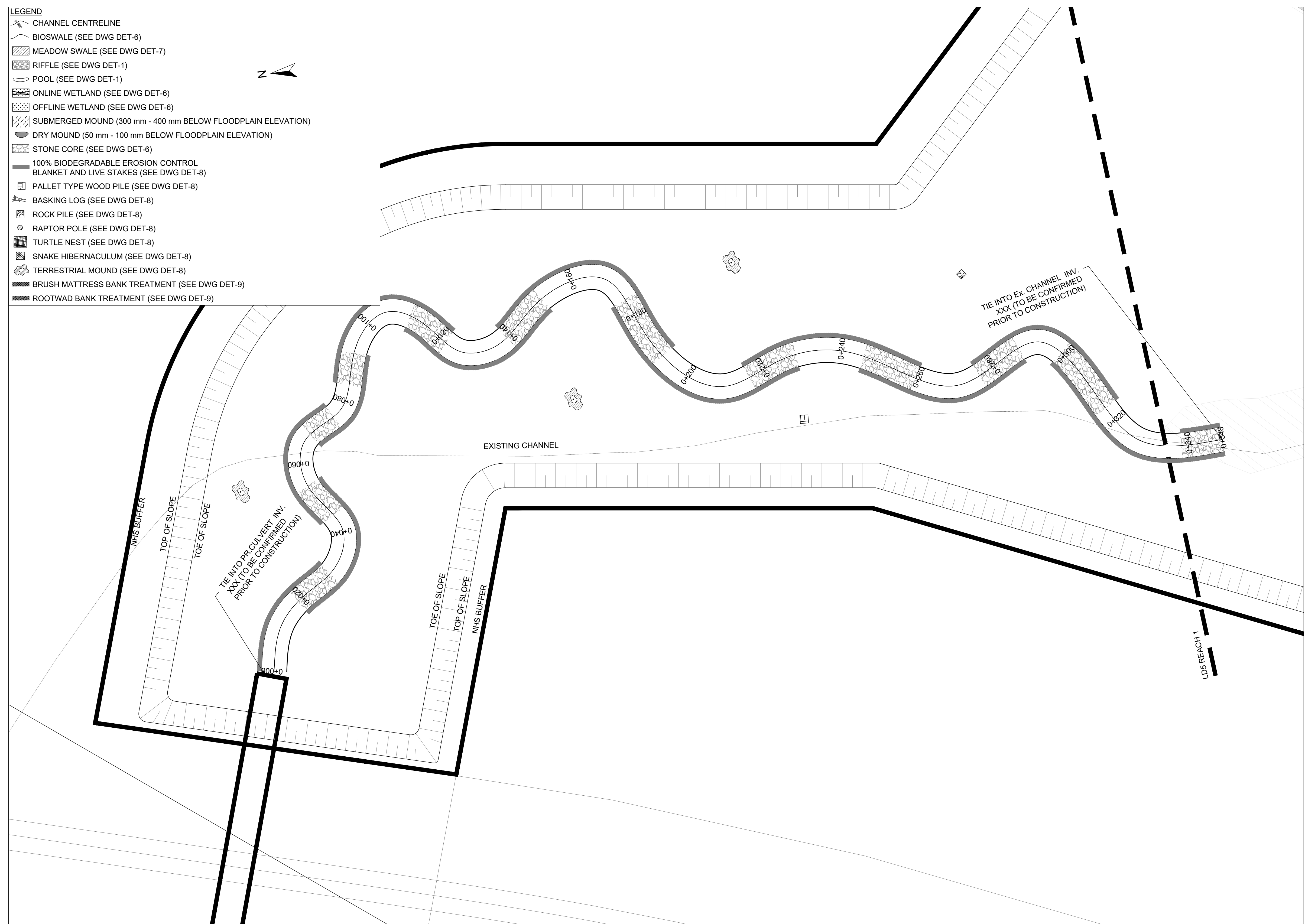
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ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-22
SCALE: AS NOTED	SHEET 23 OF 35

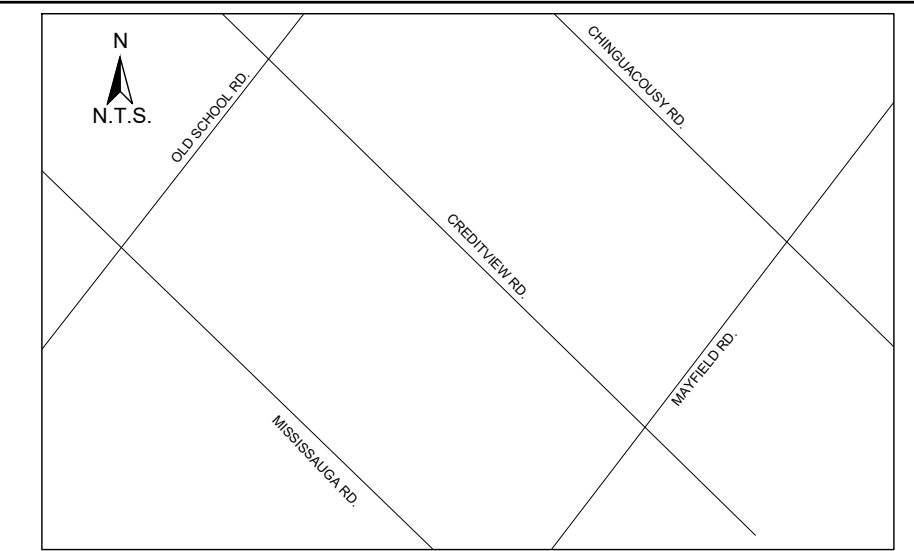
- LEGEND**
- CHANNEL CENTRELINE
  - BIOSWALE (SEE DWG DET-6)
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  - RIFFLE (SEE DWG DET-1)
  - POOL (SEE DWG DET-1)
  - ONLINE WETLAND (SEE DWG DET-6)
  - OFFLINE WETLAND (SEE DWG DET-6)
  - SUBMERGED MOUND (300 mm - 400 mm BELOW FLOODPLAIN ELEVATION)
  - DRY MOUND (50 mm - 100 mm BELOW FLOODPLAIN ELEVATION)
  - STONE CORE (SEE DWG DET-6)
  - 100% BIODEGRADABLE EROSION CONTROL BLANKET AND LIVE STAKES (SEE DWG DET-8)
  - PALLET TYPE WOOD PILE (SEE DWG DET-8)
  - BASKING LOG (SEE DWG DET-8)
  - ROCK PILE (SEE DWG DET-8)
  - RAPTOR POLE (SEE DWG DET-8)
  - TURTLE NEST (SEE DWG DET-8)
  - SNAKE HIBERNACULUM (SEE DWG DET-8)
  - TERRESTRIAL MOUND (SEE DWG DET-8)
  - BRUSH MATTRESS BANK TREATMENT (SEE DWG DET-9)
  - ROOTWAD BANK TREATMENT (SEE DWG DET-9)



**PLANFORM**  
1:500

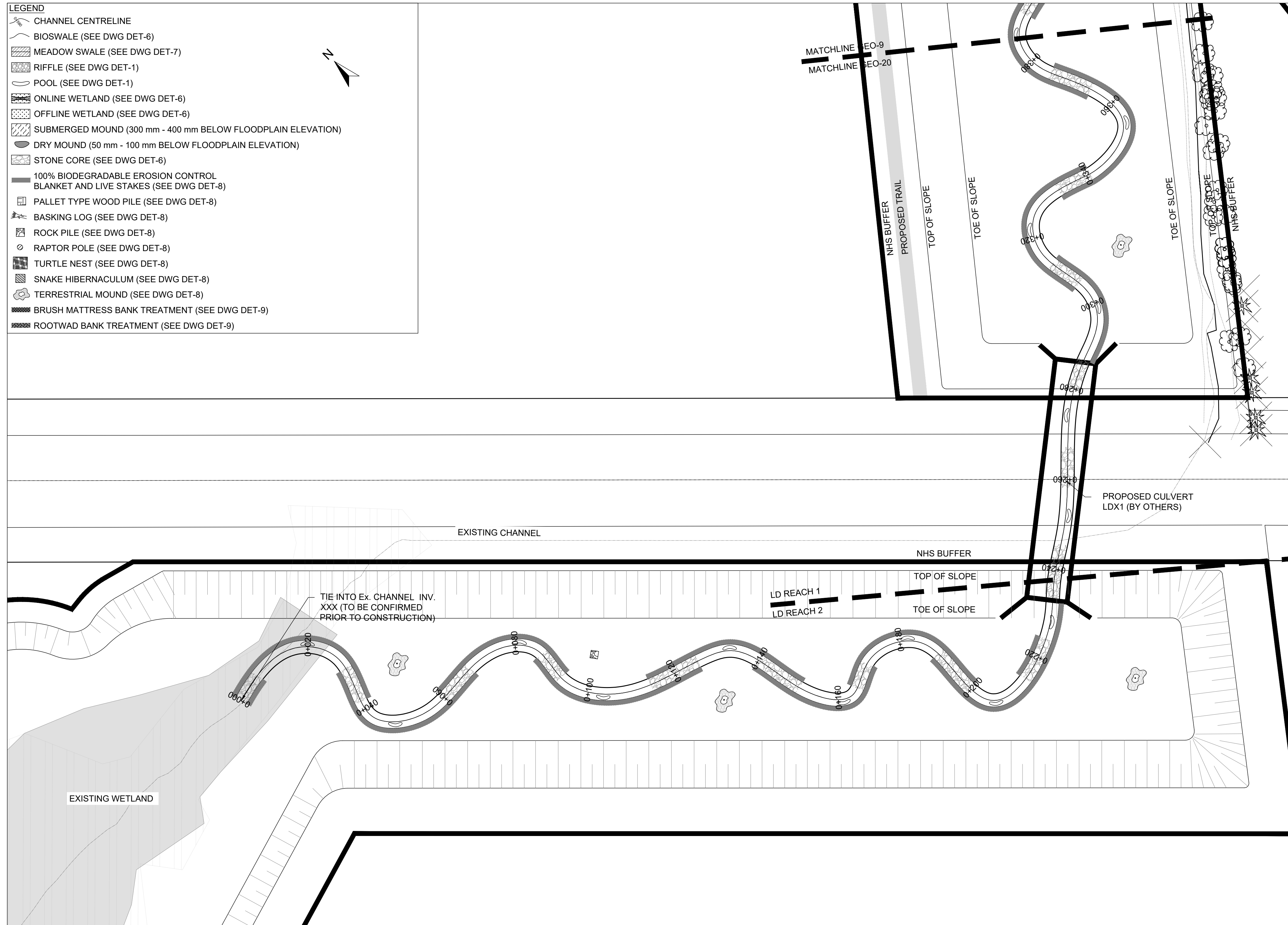
SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.

- LEGEND**
- CHANNEL CENTRELINE
  - BIOSWALE (SEE DWG DET-6)
  - MEADOW SWALE (SEE DWG DET-7)
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  - POOL (SEE DWG DET-1)
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  3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
  5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
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  7. ON-SITE SUPPORT FROM PROJECT ENGINEER (E.G. GEOTECHNICAL, HYDROLOGICAL, AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
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**DRAFT FOR INTERNAL DISCUSSION**

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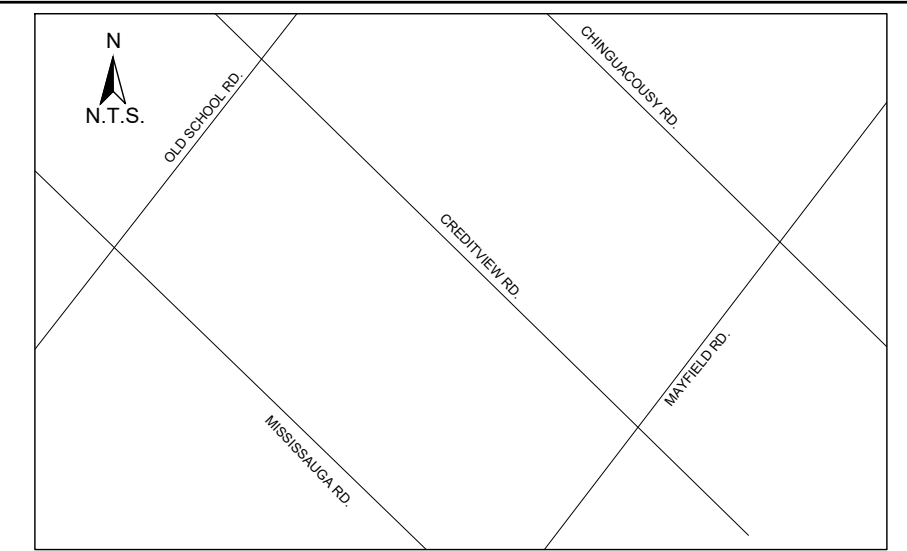
ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

PROJECT No.: PN24009	DRAWING No.: GEO-23
SCALE: AS NOTED	SHEET 24 OF 35

**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





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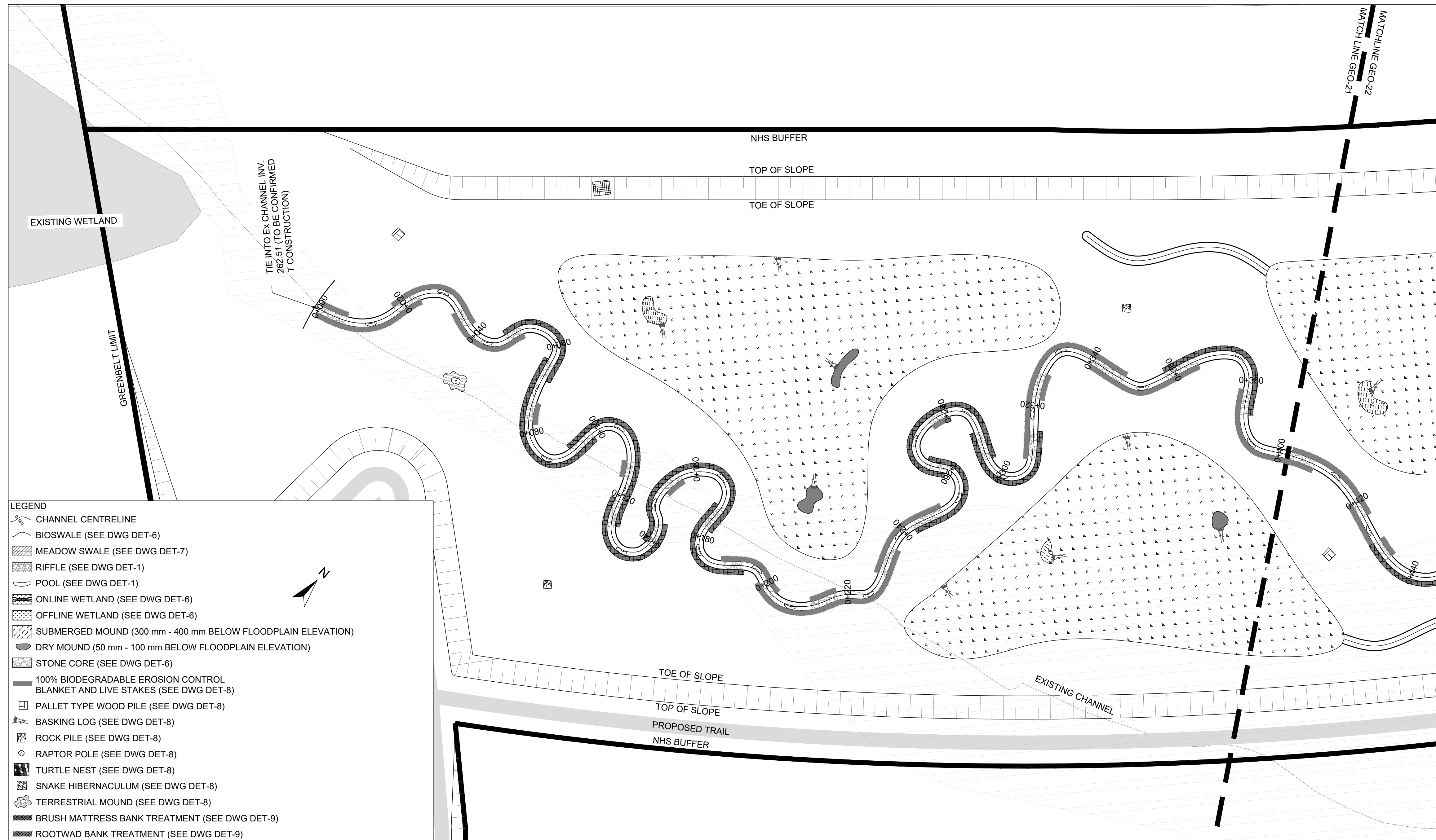
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PROJECT No.: PN24009	DRAWING No.: GEO-24
SCALE: AS NOTED	SHEET 25 OF 35



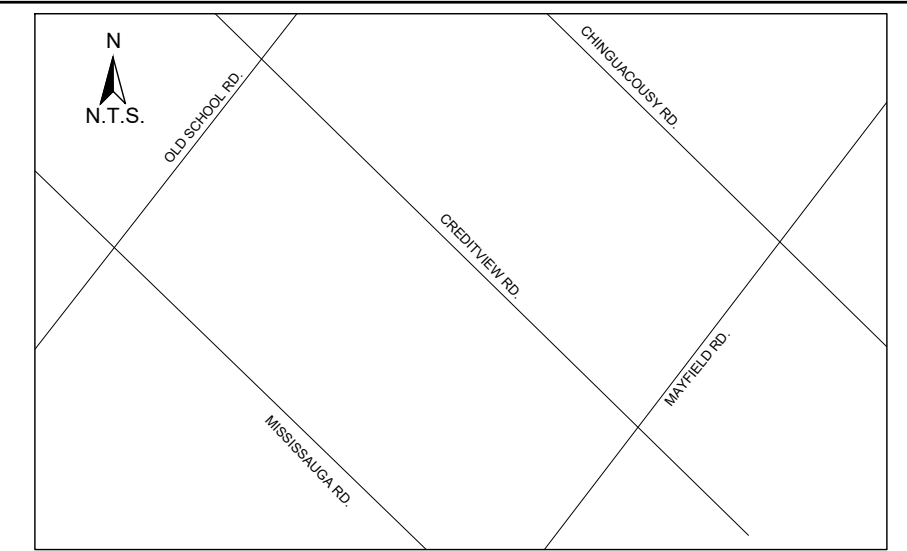
**LEGEND**

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- POOL (SEE DWG DET-1)
- ONLINE WETLAND (SEE DWG DET-6)
- OFFLINE WETLAND (SEE DWG DET-6)
- SUBMERGED MOUND (300 mm - 400 mm BELOW FLOODPLAIN ELEVATION)
- DRY MOUND (50 mm - 100 mm BELOW FLOODPLAIN ELEVATION)
- STONE CORE (SEE DWG DET-6)
- 100% BIODEGRADABLE EROSION CONTROL BLANKET AND LIVE STAKES (SEE DWG DET-8)
- PALLET TYPE WOOD PILE (SEE DWG DET-8)
- BASKING LOG (SEE DWG DET-8)
- ROCK PILE (SEE DWG DET-8)
- RAPTOR POLE (SEE DWG DET-8)
- TURTLE NEST (SEE DWG DET-8)
- SNAKE HIBERNACULUM (SEE DWG DET-8)
- TERRESTRIAL MOUND (SEE DWG DET-8)
- BRUSH MATTRESS BANK TREATMENT (SEE DWG DET-9)
- ROOTWAD BANK TREATMENT (SEE DWG DET-9)

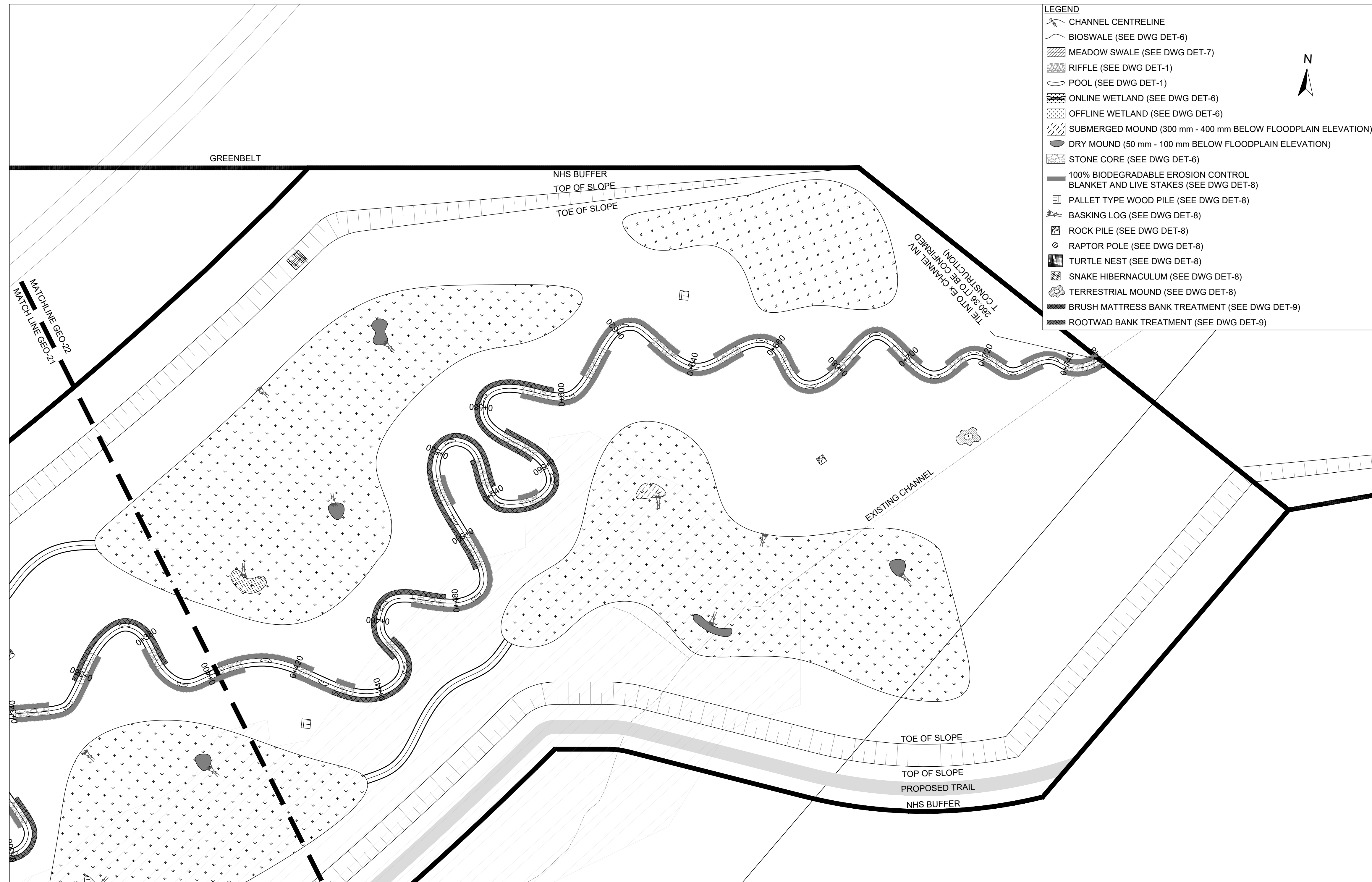
**PLANFORM**  
1:500

SCALED FOR PLOT ON 'ARCH D'





**KEY MAP**  
N.T.S.



- LEGEND**
- CHANNEL CENTRELINE
  - BIOSWALE (SEE DWG DET-6)
  - MEADOW SWALE (SEE DWG DET-7)
  - RIFFLE (SEE DWG DET-1)
  - POOL (SEE DWG DET-1)
  - ONLINE WETLAND (SEE DWG DET-6)
  - OFFLINE WETLAND (SEE DWG DET-6)
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  - ROOTWAD BANK TREATMENT (SEE DWG DET-9)

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1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
  2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
  3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
  5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER, AND THE CONTRACT ADMINISTRATOR.
  6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
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  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

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- SITE AND MATERIAL MANAGEMENT**
1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY UNEXPECTED STABLE AREA ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
  2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
  3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
  4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
  5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
  6. ALL VEGETATION ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRADES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
  8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

- EROSION AND SEDIMENT CONTROL**
1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-COSEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN-OR NEAR-WATER WORKS. SHOULD CONCERNS ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
  2. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
  3. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
  4. ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
  5. ADDITIONAL EROSION AND SEDIMENT CONTROL SUPPLIES MUST BE KEPT ON SITE IN ORDER TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
  6. ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
  7. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
  8. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

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1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAINE OR STORM SEWER SYSTEM.
  2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  3. NO EQUIPMENT RE-FUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
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  5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

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DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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Campbellville, Ontario L0P 1B0  
T: 416.920.0926  
www.geomorphix.com

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TOWN OF CALEDON

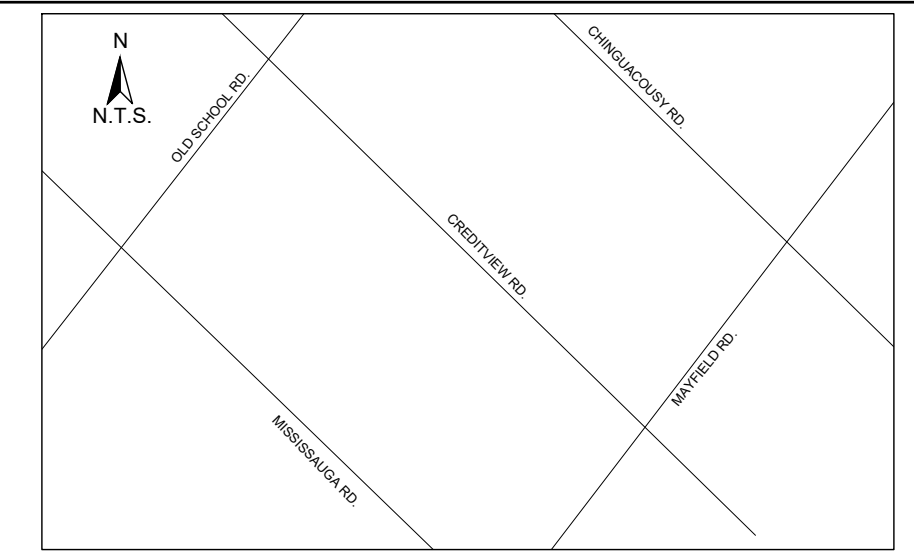
ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL PLANFORM

**PLANFORM**  
1:500

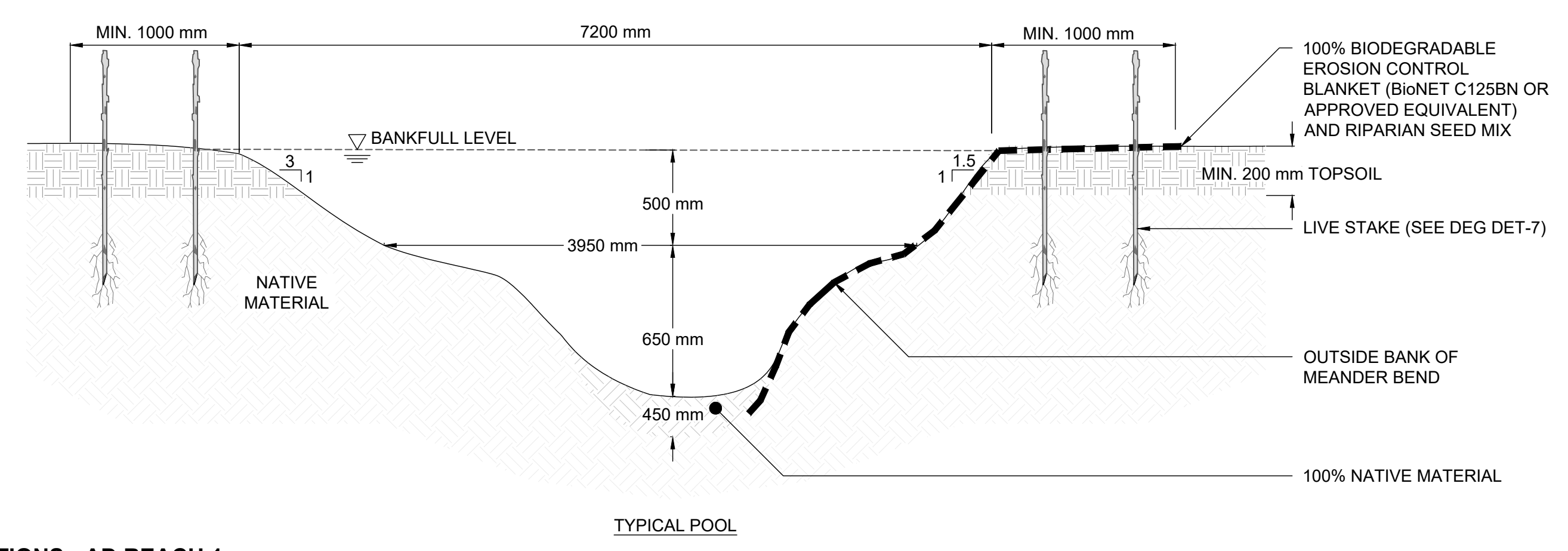
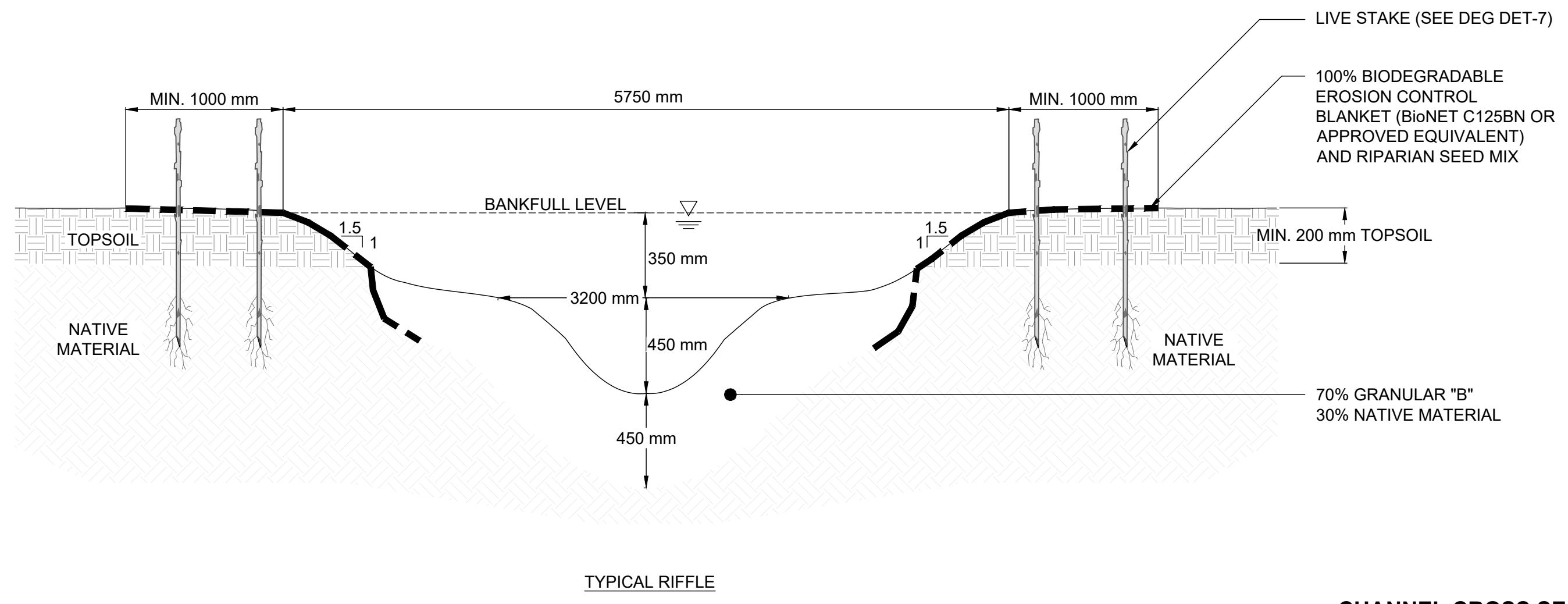
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PROJECT No.: PN24009	DRAWING No.: GEO-25
SCALE: AS NOTED	SHEET 26 OF 35

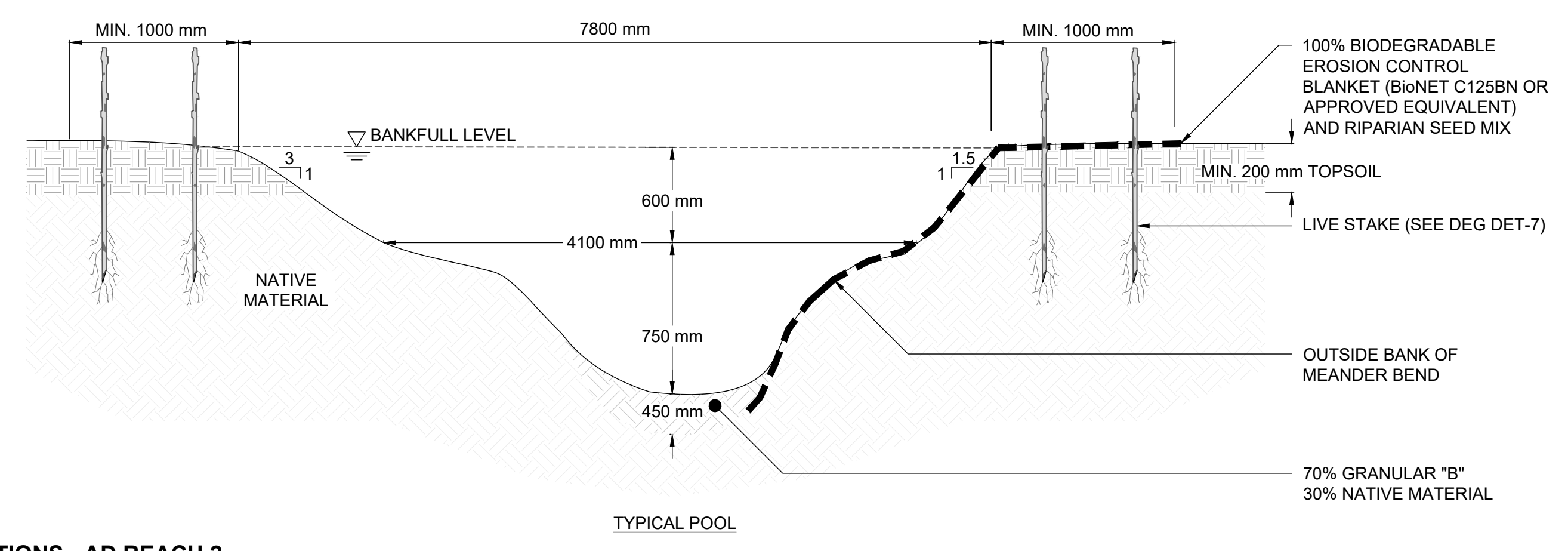
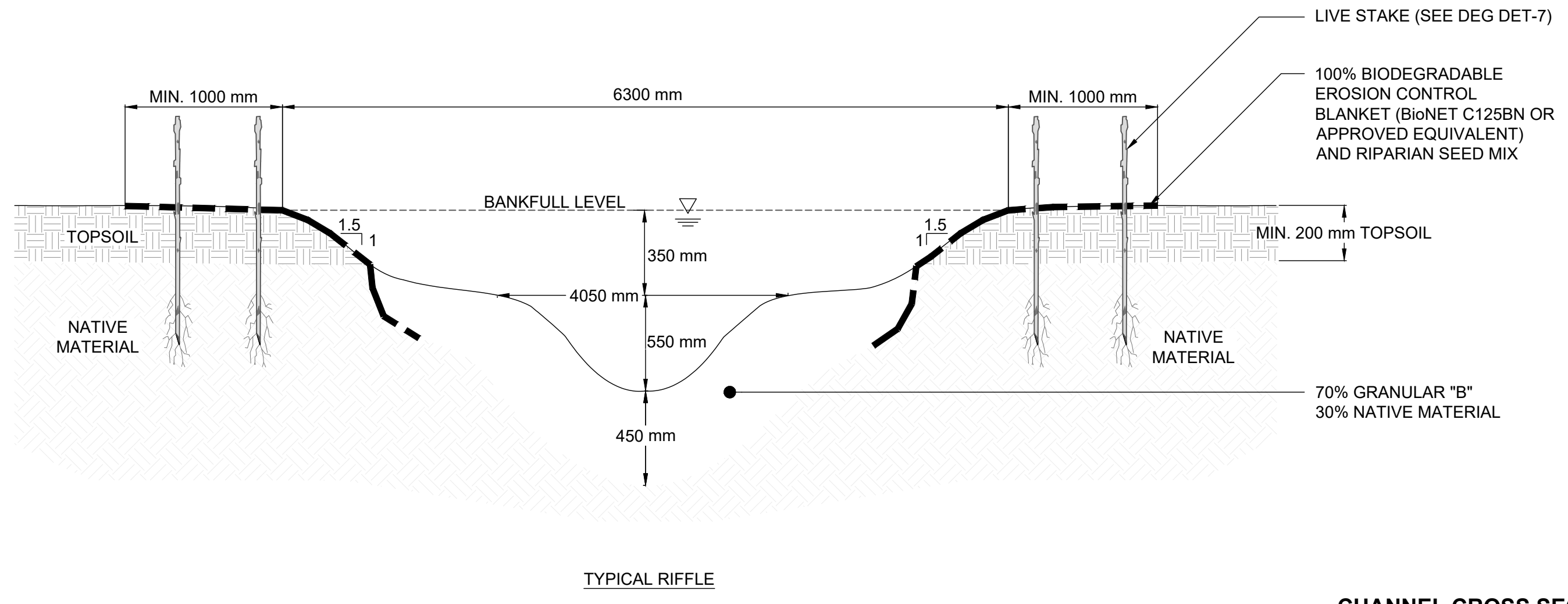




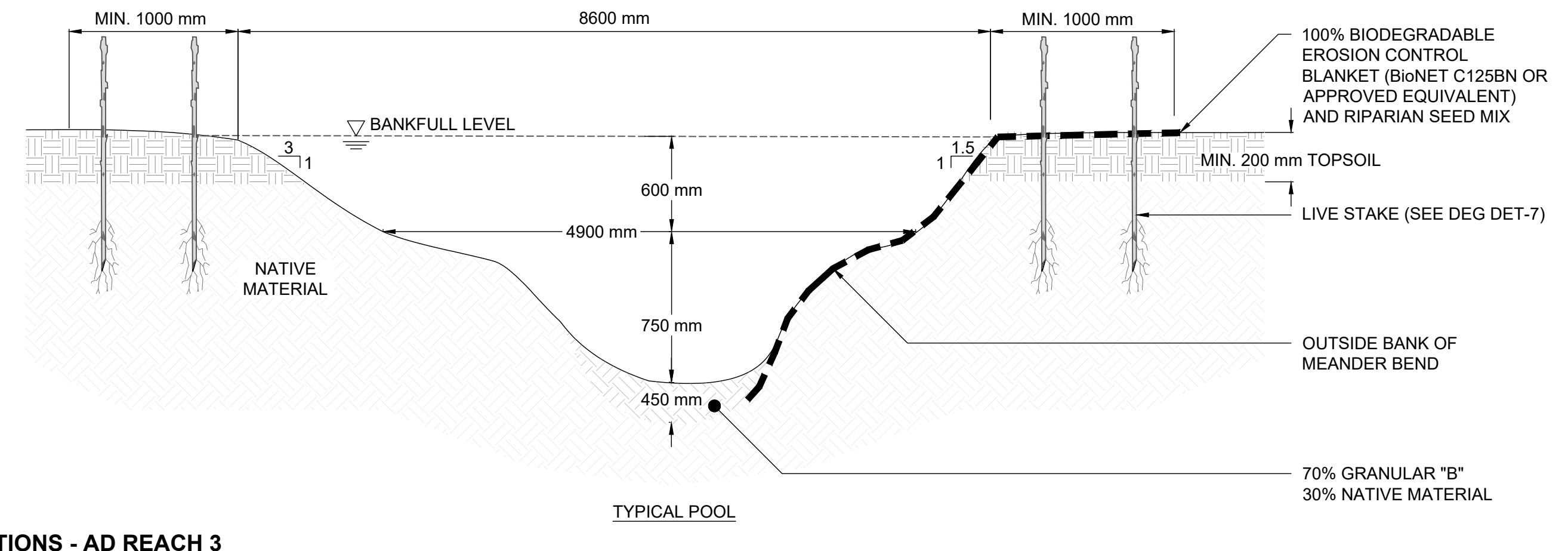
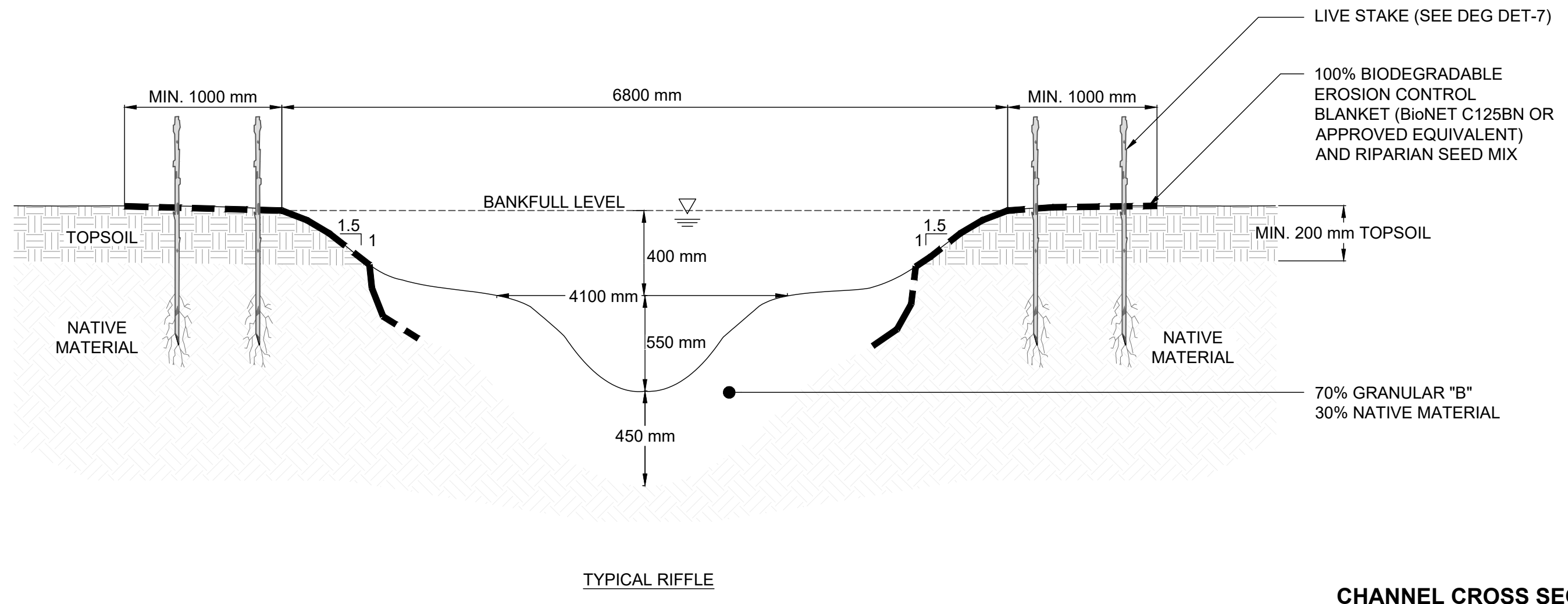
KEY MAP  
N.T.S.



CHANNEL CROSS SECTIONS - AD REACH 1  
N.T.S.



CHANNEL CROSS SECTIONS - AD REACH 2  
N.T.S.



CHANNEL CROSS SECTIONS - AD REACH 3  
N.T.S.

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DATE	BY	REVISIONS

DESIGNED BY: LD/AS  
DRAWN BY: AL/CP/SC

CHECKED BY: PV  
DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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ALLOA SPA  
TOWN OF CALEDON

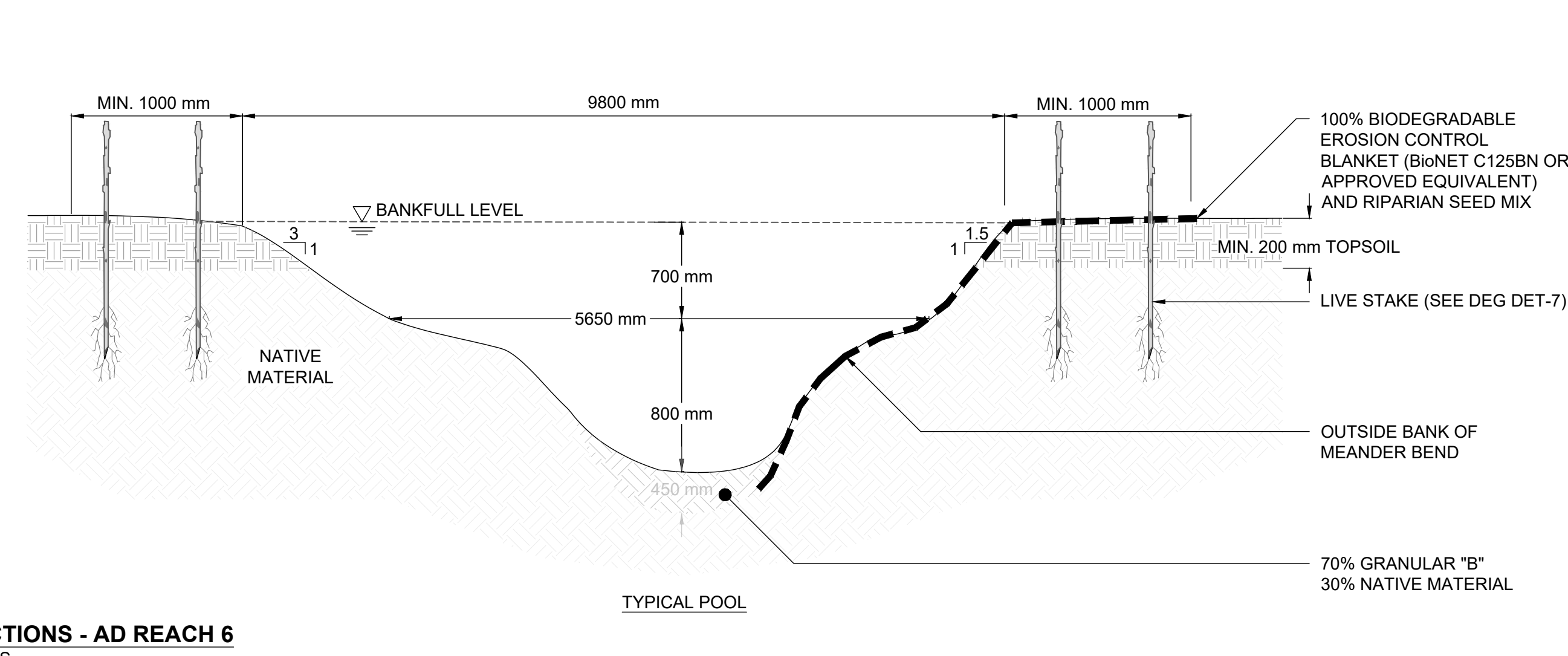
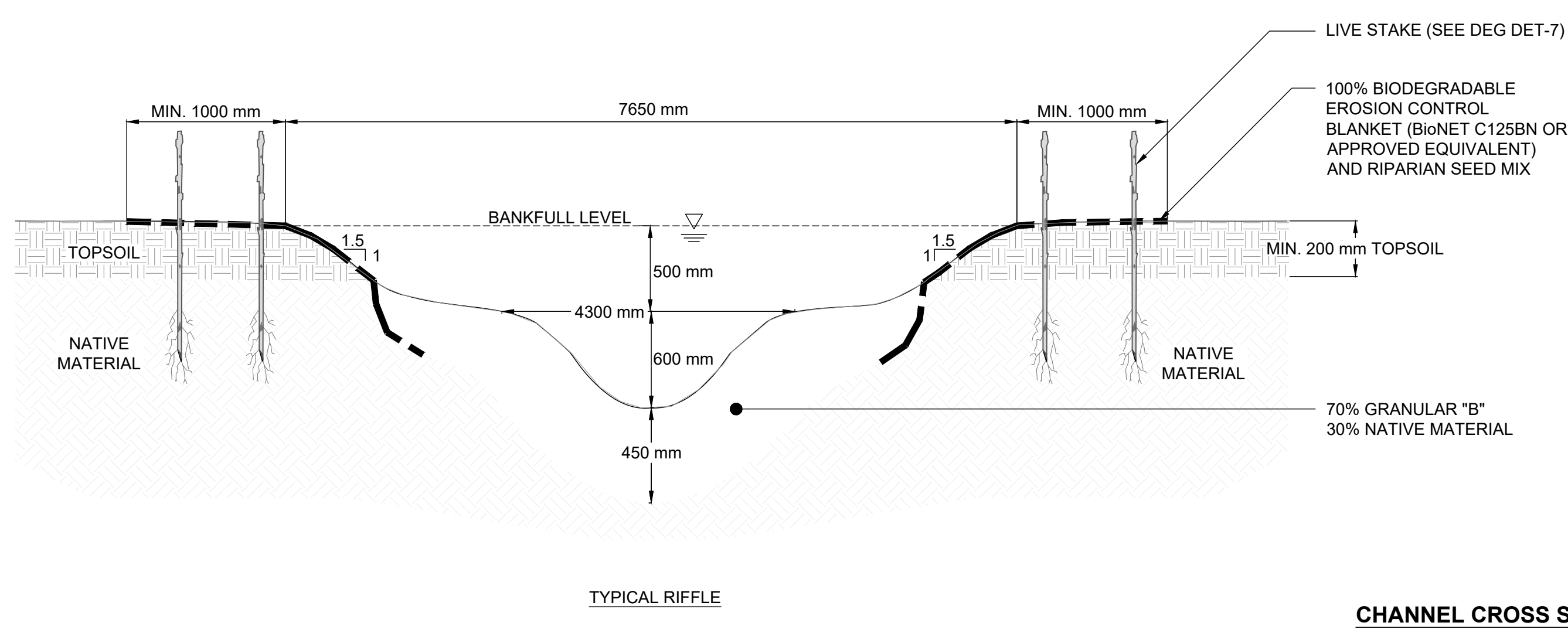
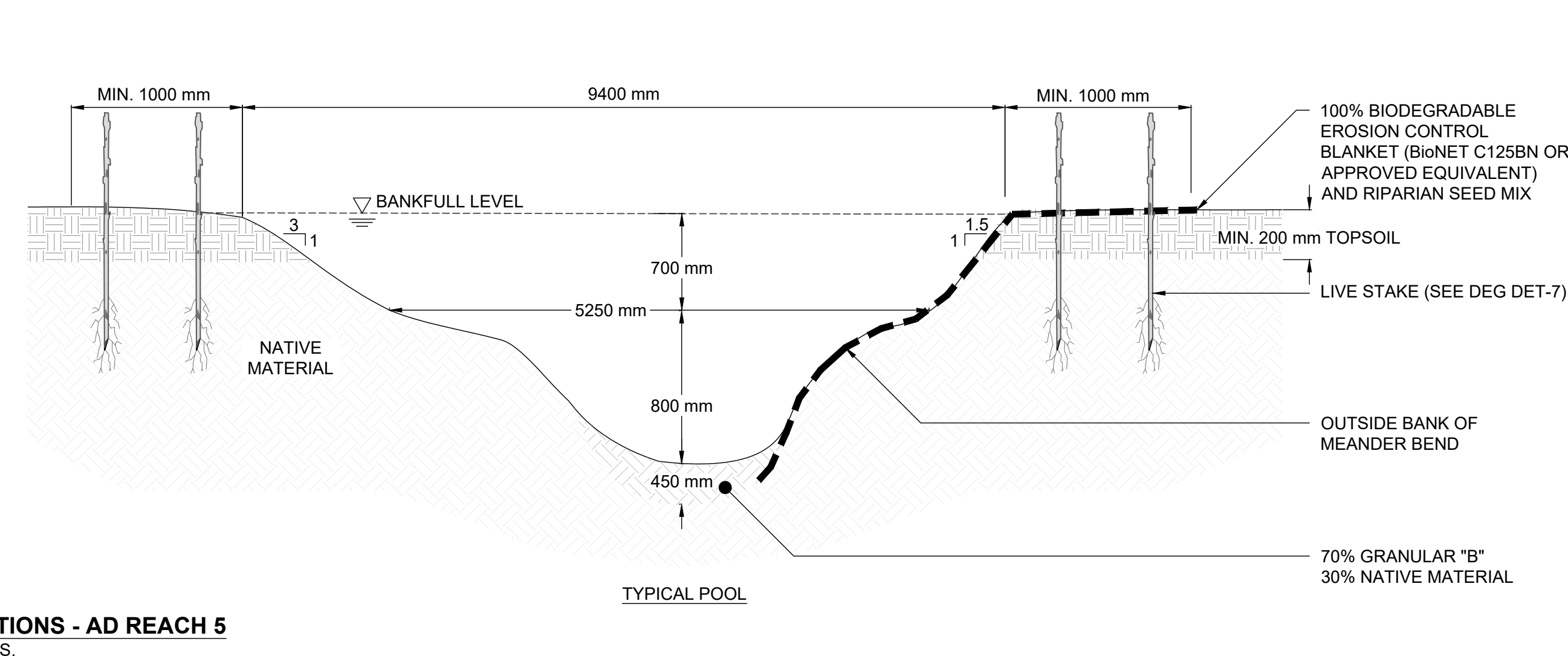
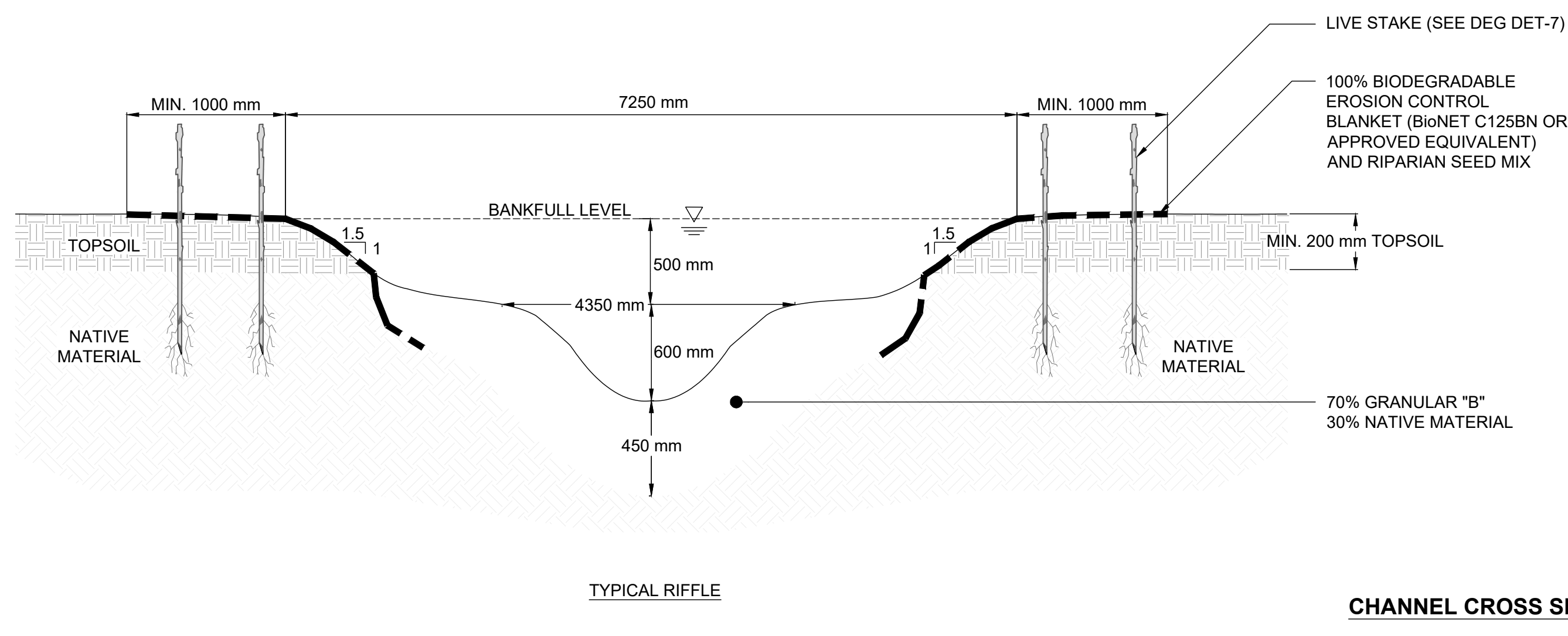
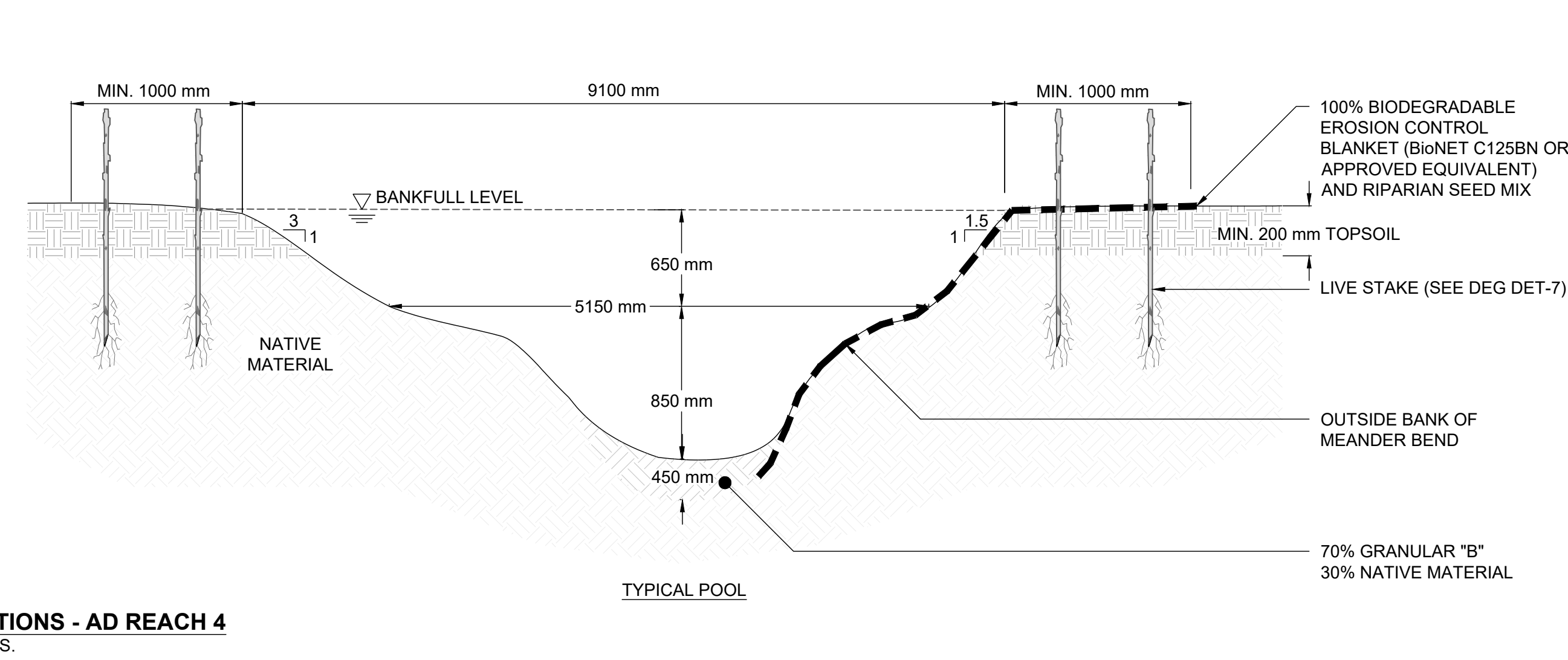
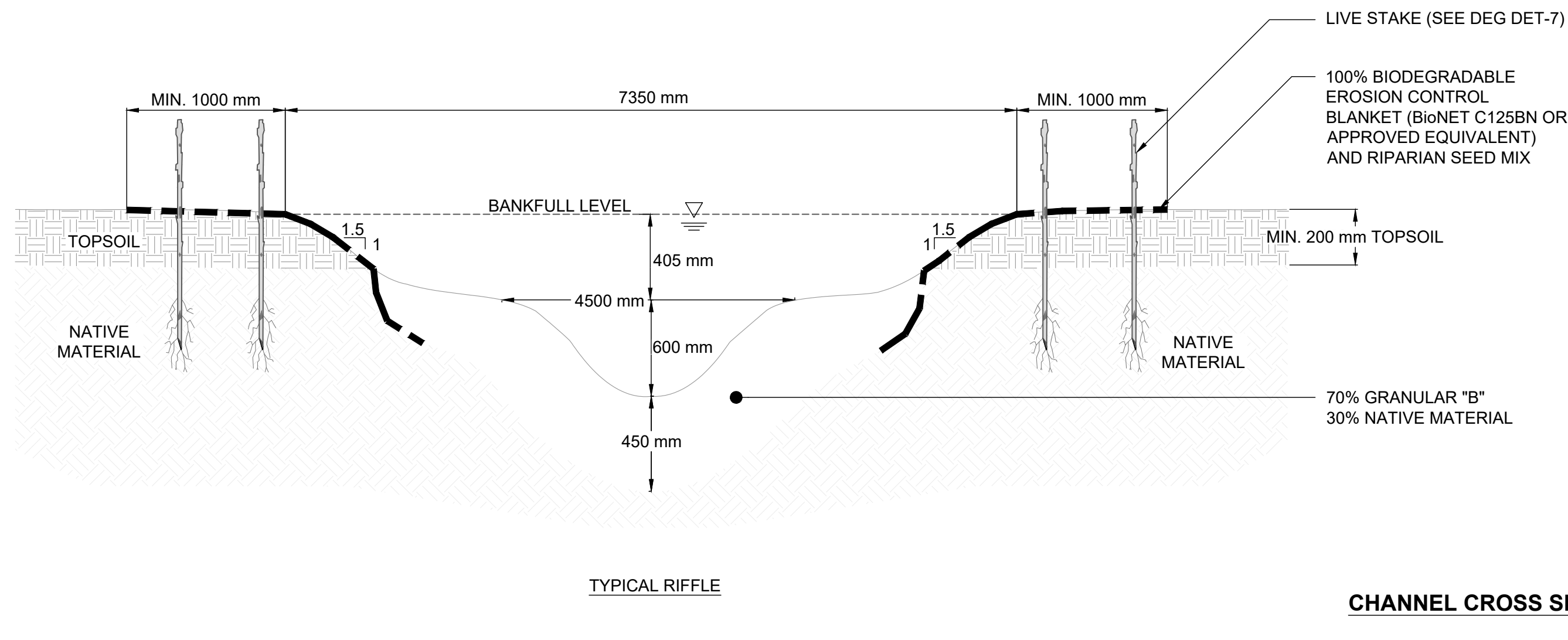
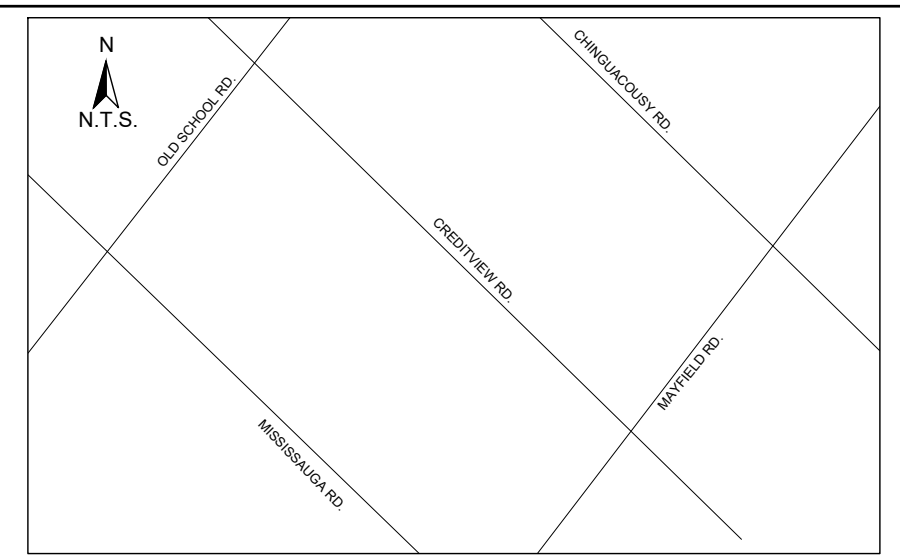
ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL CROSS SECTION DETAILS

PROJECT No.: PN24009  
SCALE: AS NOTED

DRAWING No.: DET-1  
SHEET 27 OF 35

SCALED FOR PLOT ON 'ARCH D'





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  - ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  - NO EQUIPMENT RE-FUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
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  - THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

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  - FISH MUST BE REMOVED FROM THE WORK AREA ONCE ISOLATED. FISH SALVAGE MUST BE COMPLETED BY A QUALIFIED TECHNICIAN WITH A LICENSE FROM THE ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY.

DATE	BY	REVISIONS

DESIGNED BY: LD/AS  
DRAWN BY: AL/CP/SC

CHECKED BY: PV  
DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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ALLOA SPA  
TOWN OF CALEDON

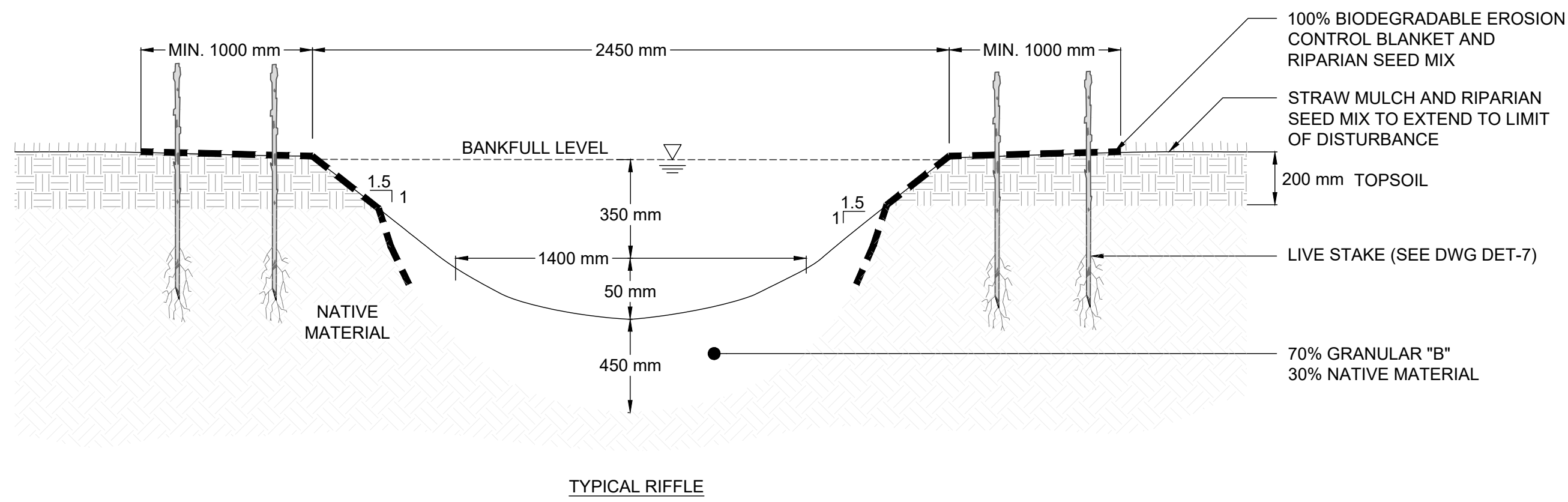
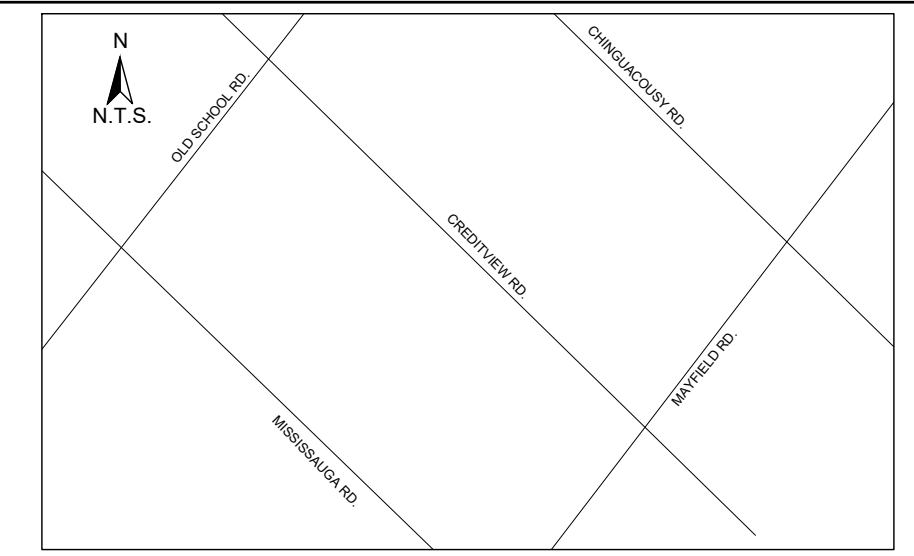
ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL CROSS SECTION DETAILS

PROJECT No.: PN24009  
SCALE: AS NOTED

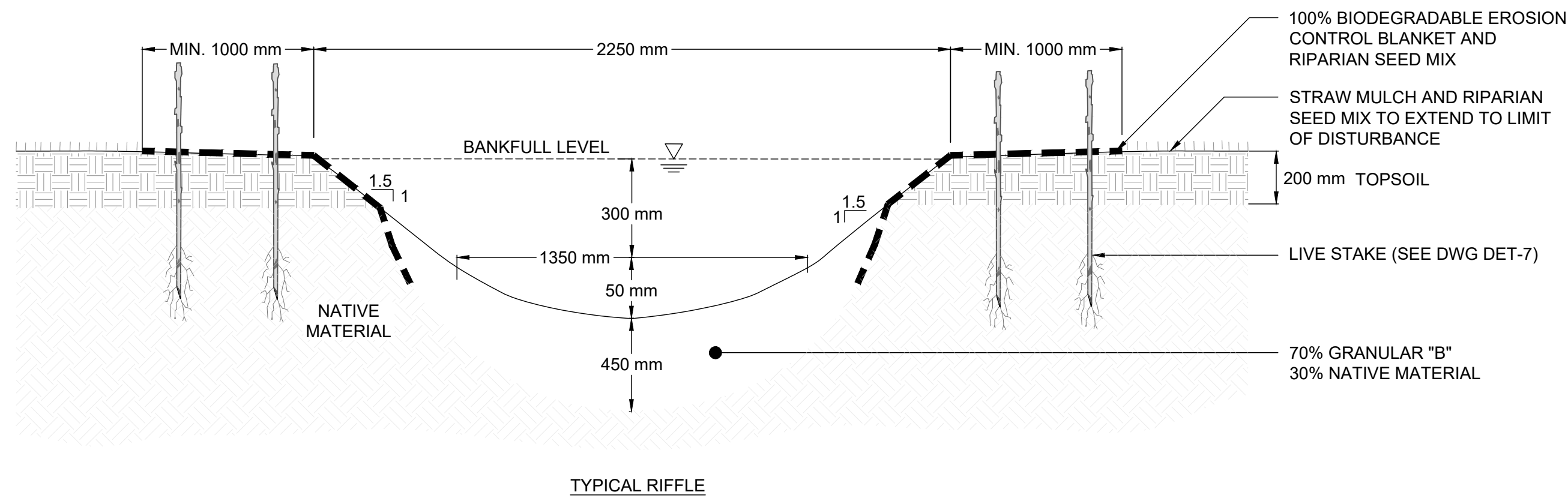
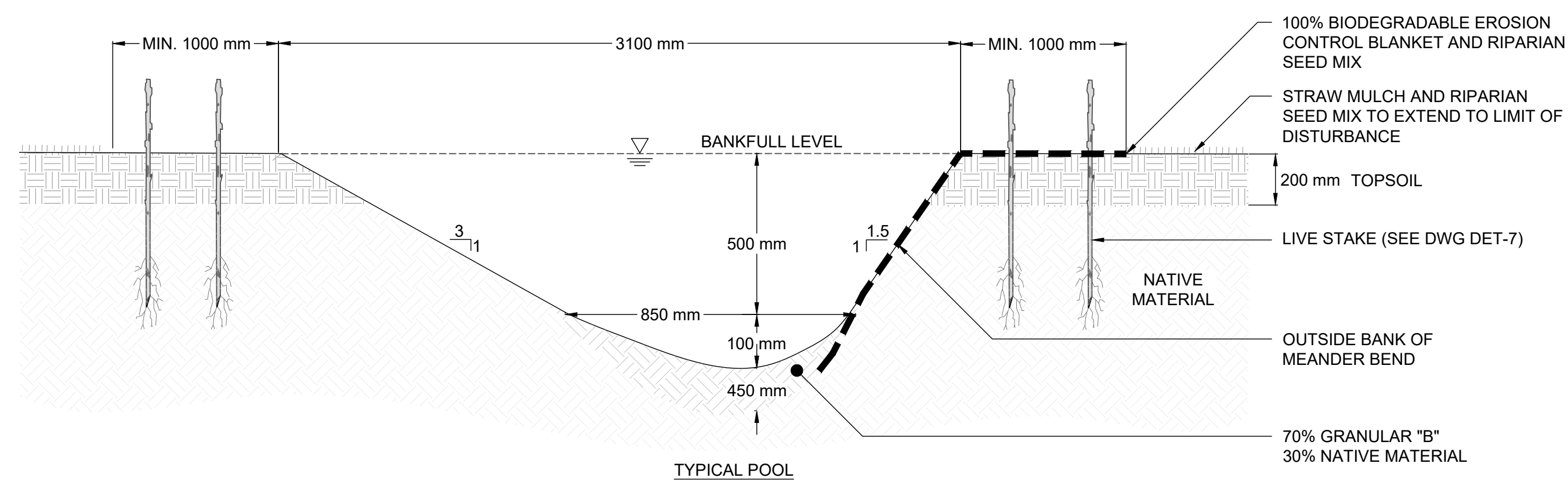
DRAWING No.: DET-2  
SHEET 28 OF 35

SCALED FOR PLOT ON 'ARCH D'

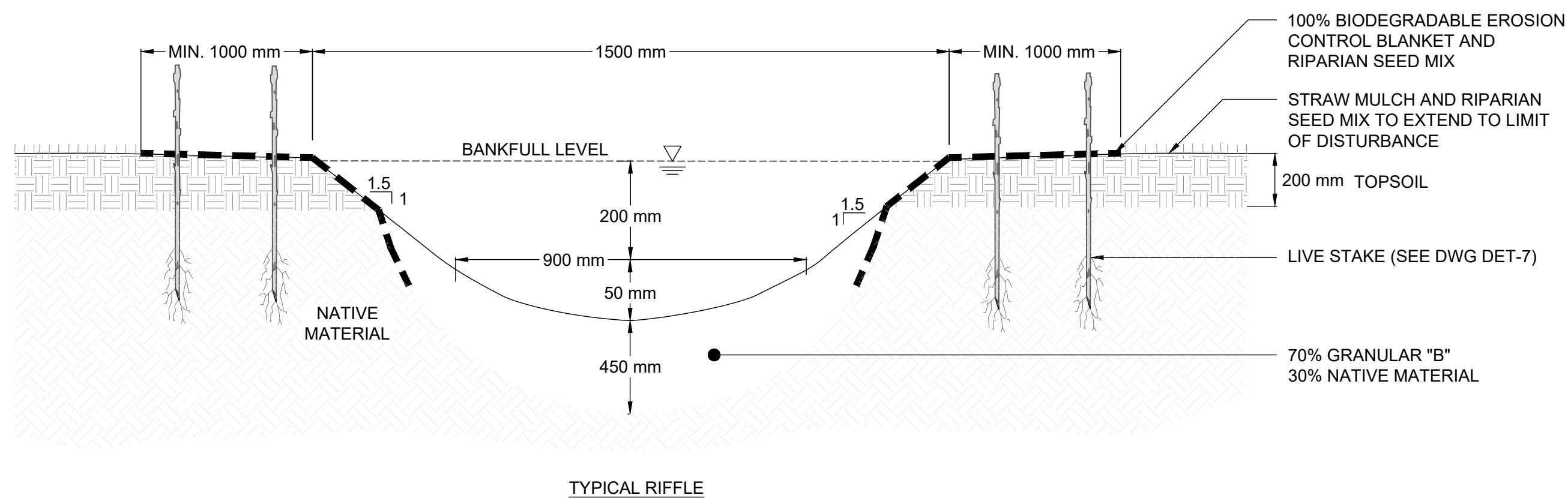
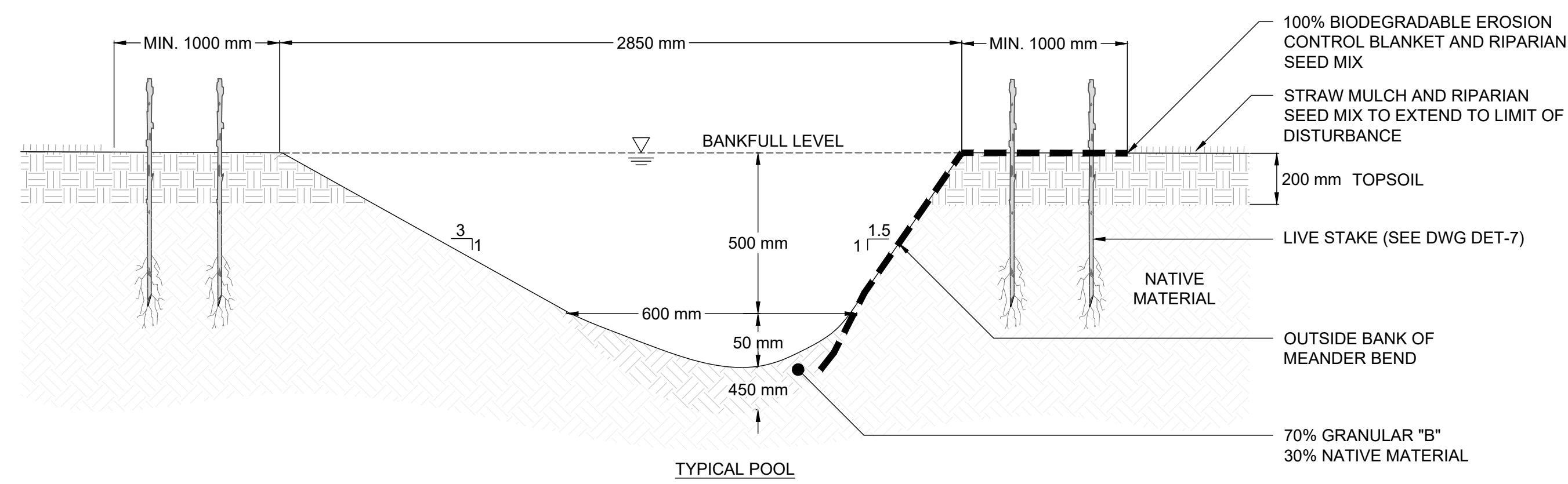




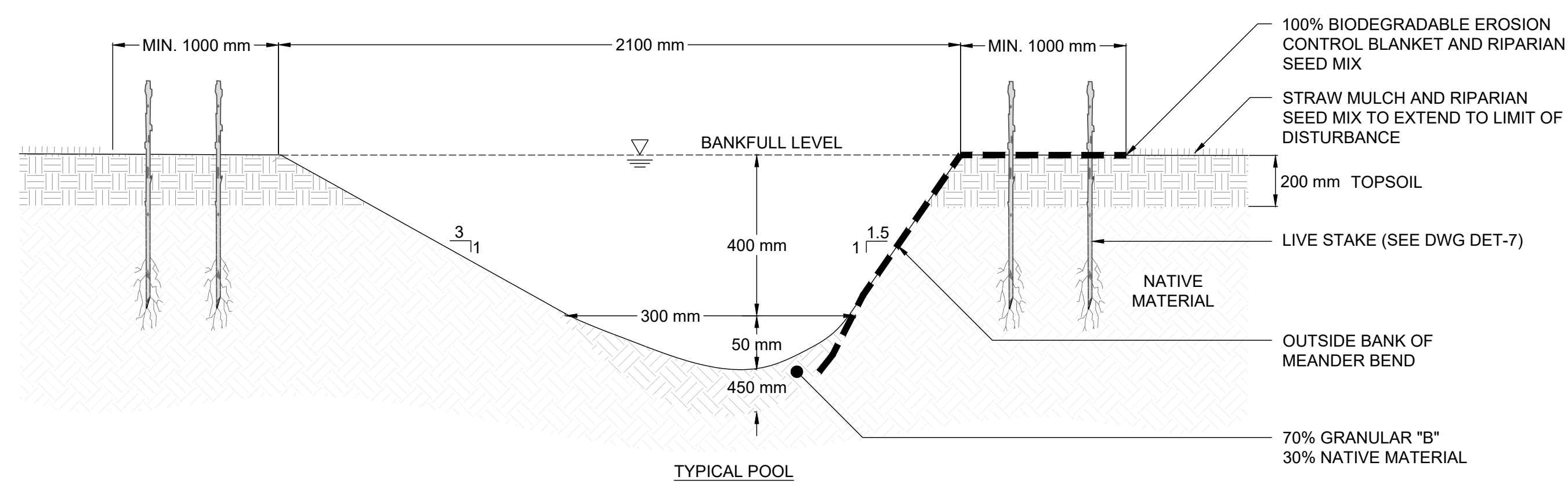
**CHANNEL CROSS SECTIONS - AD5**  
N.T.S.



**CHANNEL CROSS SECTIONS - LD4**  
N.T.S.



**CHANNEL CROSS SECTIONS - AD1**  
N.T.S.



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  2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
  3. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
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  6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
  7. ON-SITE SUPPORT FROM PROJECT ENGINEER (E.G. GEOTECHNICAL, HYDROLOGICAL, AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

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DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

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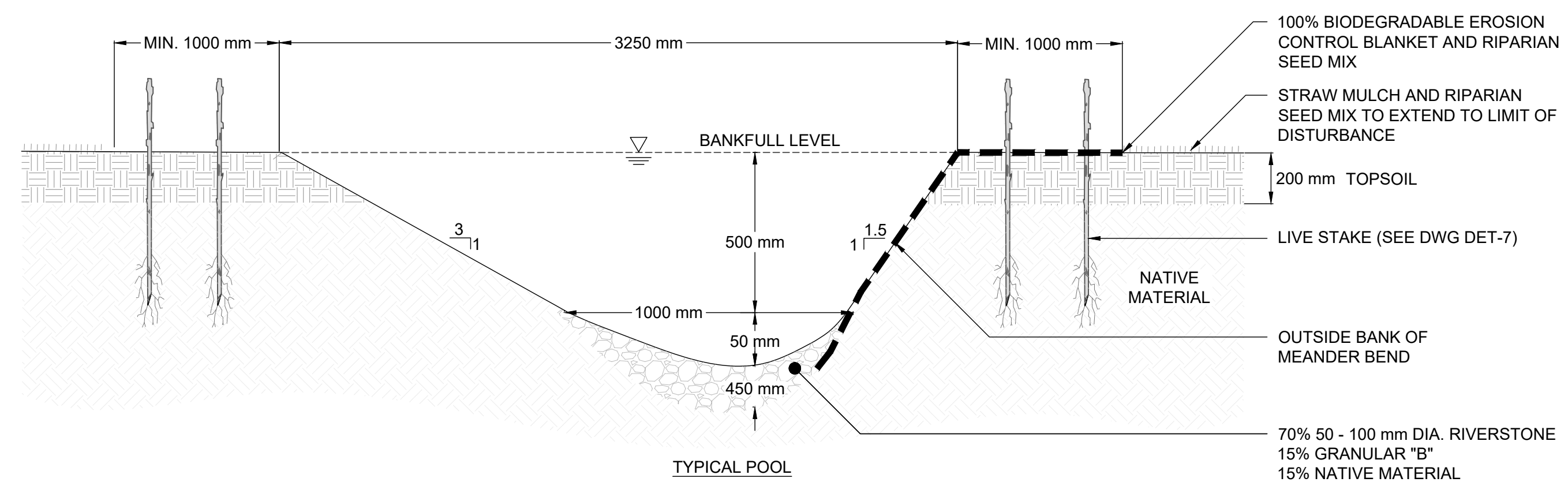
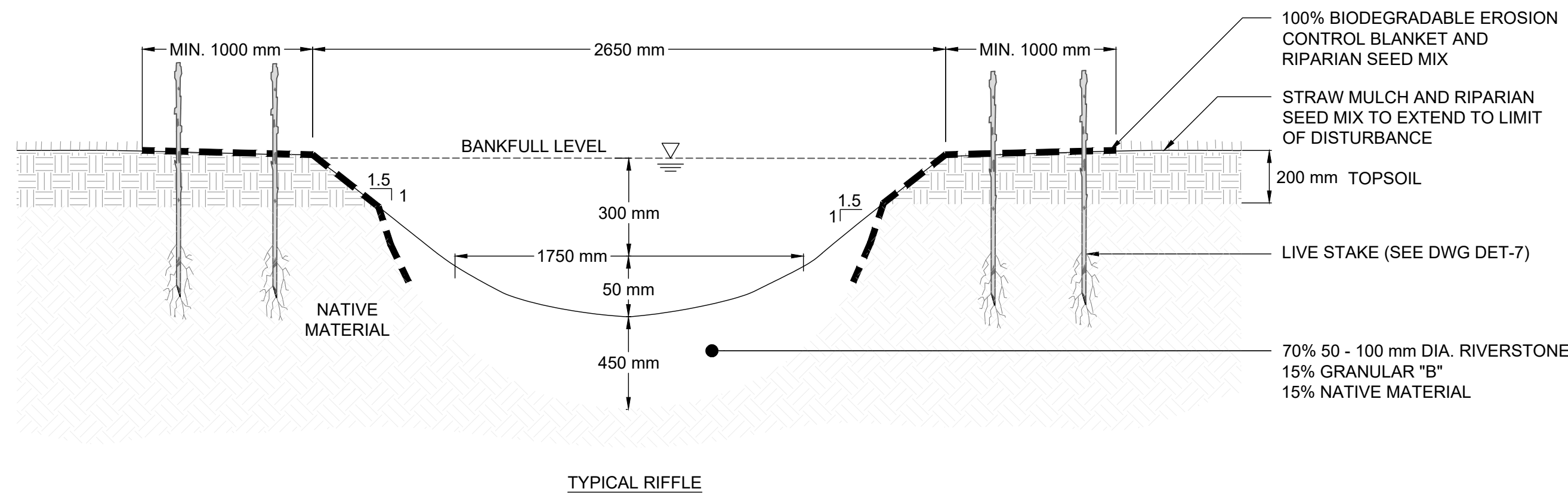
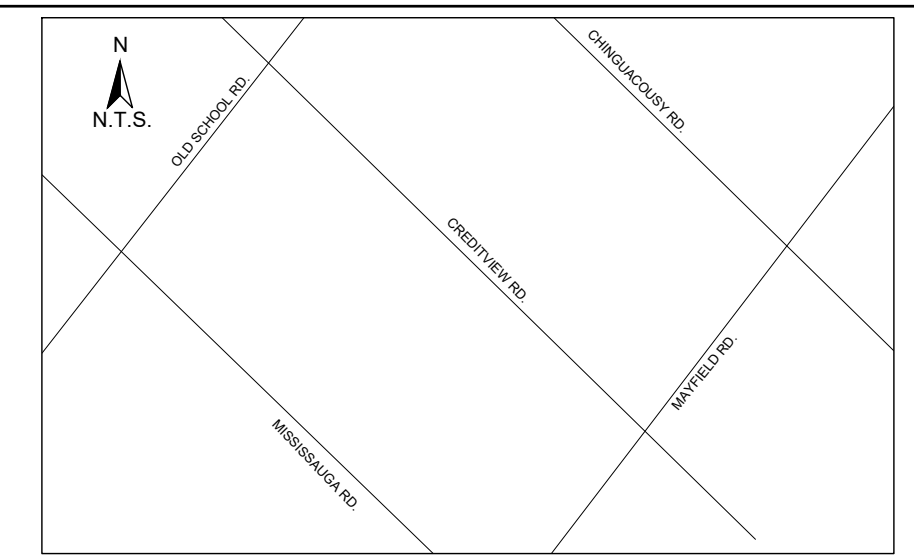
ALLOA SPA  
TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
CONCEPTUAL CHANNEL DESIGN  
CHANNEL CROSS SECTION DETAILS

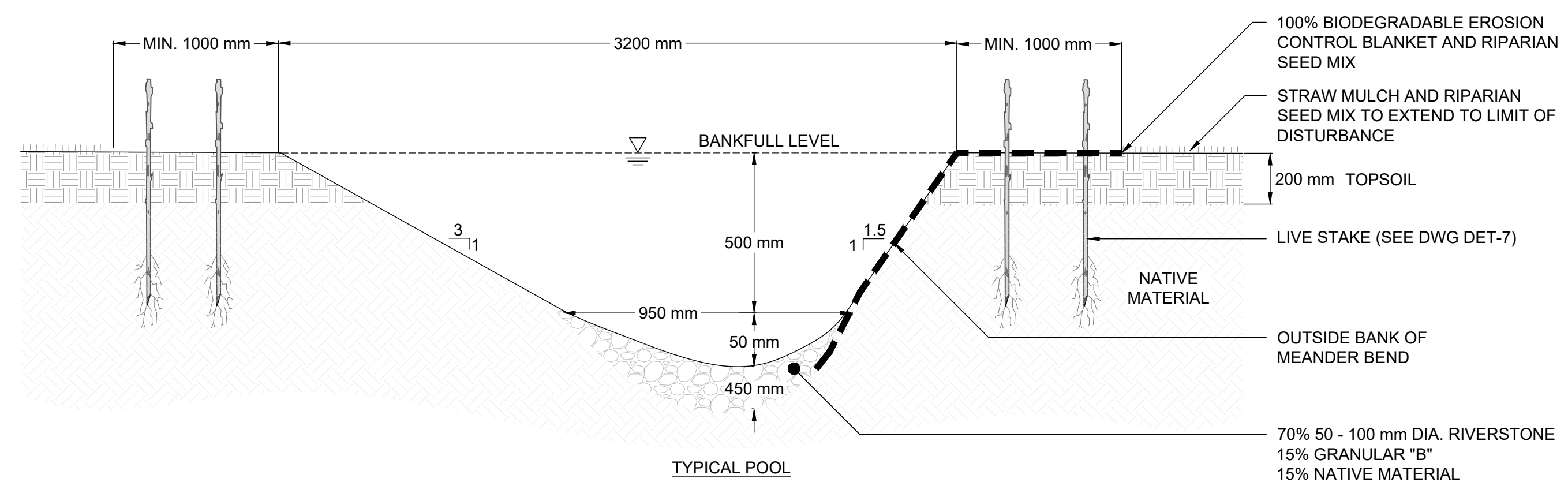
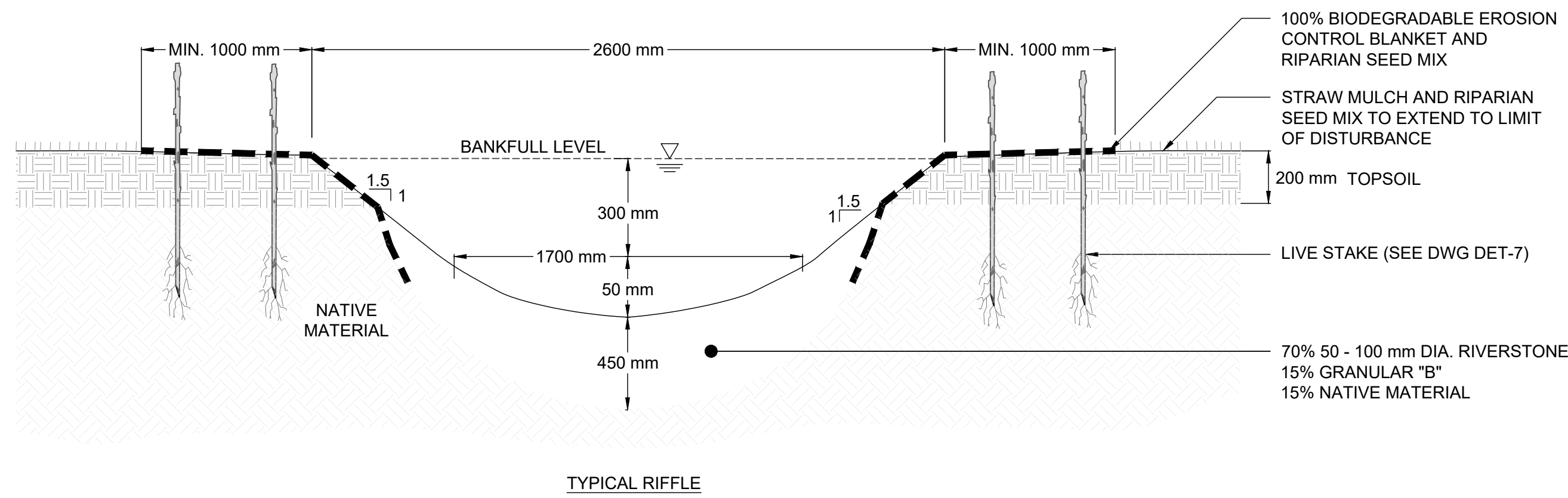
PROJECT No.: PN24009	DRAWING No.: DET-3
SCALE: AS NOTED	SHEET 29 OF 35

SCALED FOR PLOT ON 'ARCH D'

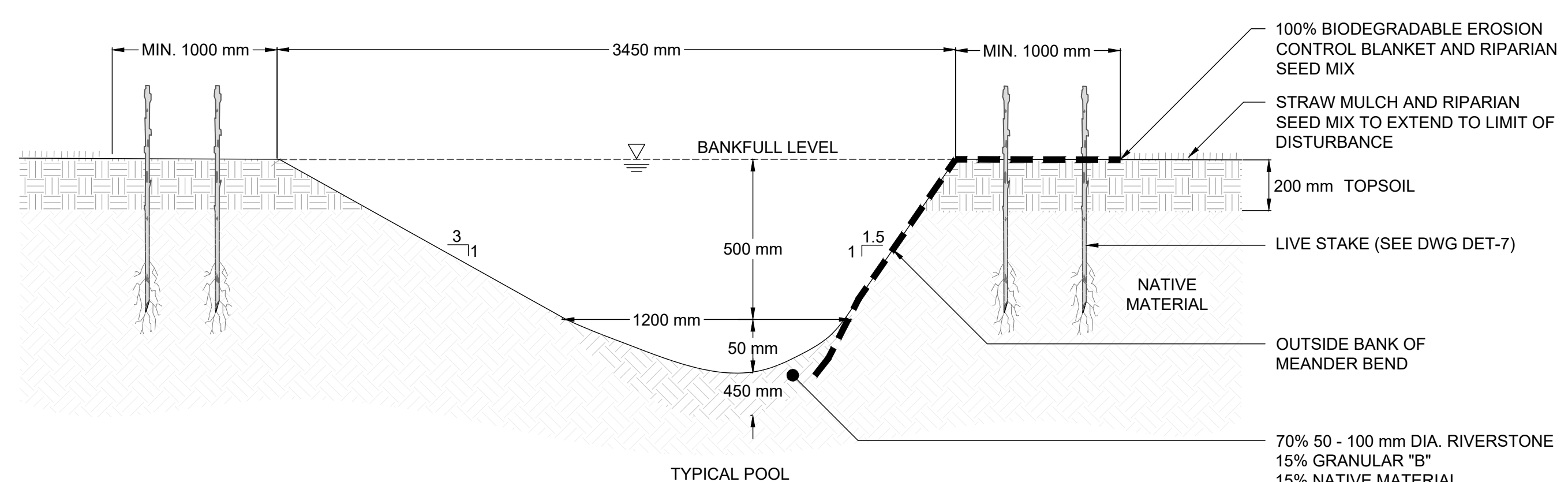
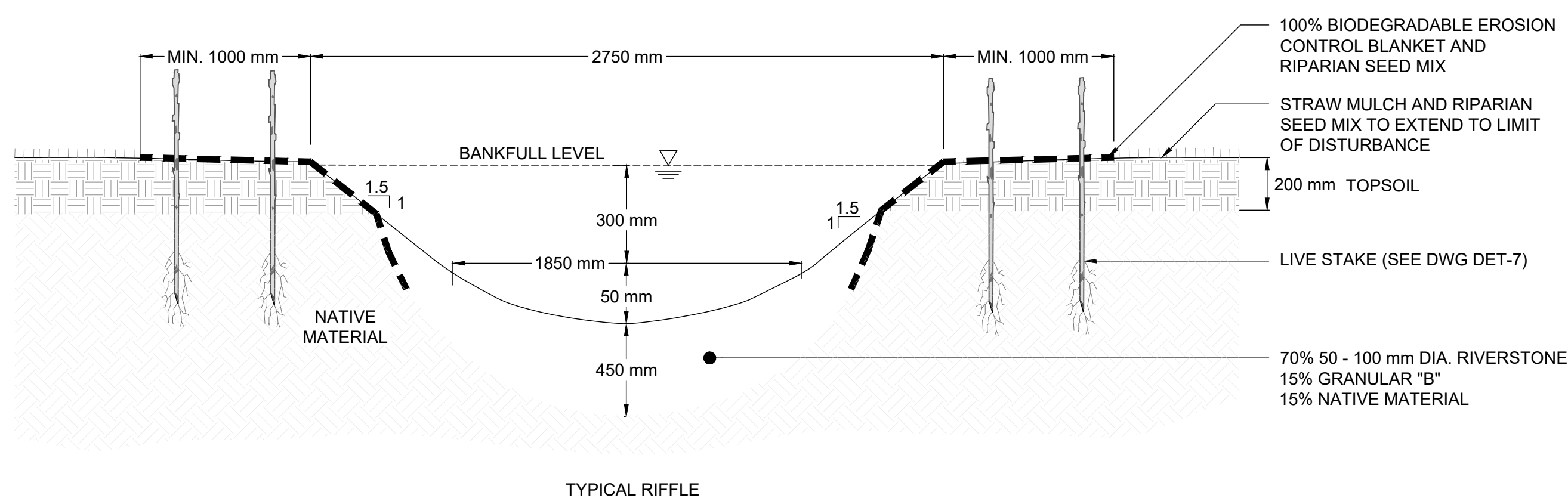




**CHANNEL CROSS SECTIONS - LD REACH 1**  
N.T.S.



**CHANNEL CROSS SECTIONS - LD REACH 2**  
N.T.S.



**CHANNEL CROSS SECTIONS - LD5**  
N.T.S.

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1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
  2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
  3. THE UNWATERING DISCHARGE LOCATION MUST BE LOCATED AT LEAST 30 m FROM ANY WATERCOURSE OR WETLAND IN AN AREA WITH DENSE VEGETATIVE GROUND COVER, AND WHERE THE DISCHARGE CAN RETURN TO THE WATERBODY DOWNSTREAM OF THE WORK AREA OVER THE GROUND COVER.
  4. FISH MUST BE REMOVED FROM THE WORK AREA ONCE ISOLATED. FISH SALVAGE MUST BE COMPLETED BY A QUALIFIED TECHNICIAN WITH A LICENSE FROM THE ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY.


DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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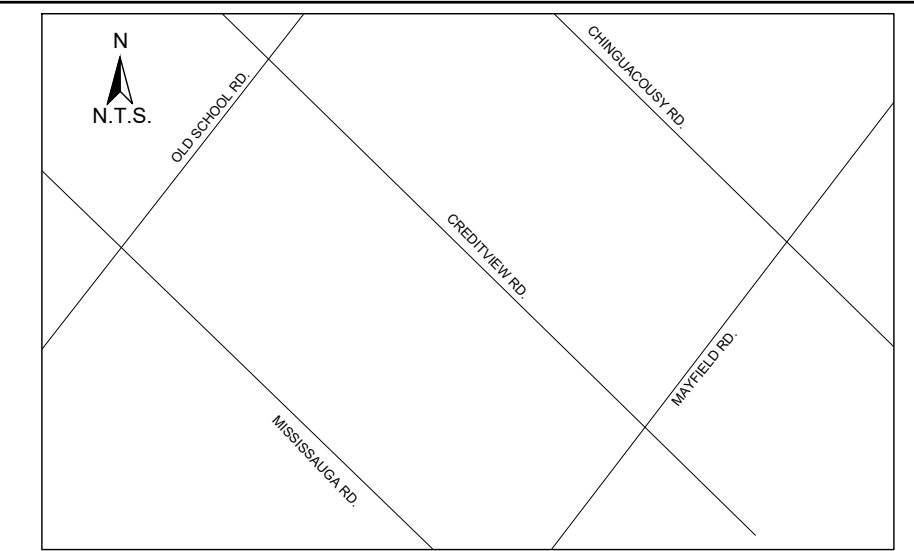
**ALLOA SPA**  
**TOWN OF CALEDON**

**ETOBICOKE CREEK - ALLOA DRAIN**  
**CONCEPTUAL CHANNEL DESIGN**  
**CHANNEL CROSS SECTION DETAILS**

PROJECT No.: PN24009	DRAWING No.: DET-4
SCALE: AS NOTED	SHEET 30 OF 35

SCALED FOR PLOT ON 'ARCH D'





KEY MAP  
N.T.S.

- GENERAL NOTES**
1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
  2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
  3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
  5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER/DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
  6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
  7. ON-SITE SUPPORT PERSONNEL (E.G. GEOTECHNICAL, HYDROGEOLOGICAL, AND/OR WATER RESOURCES ENGINEERS) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

- TIMING OF WORKS**
1. WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW SET OUT BY MNR/DFPO.
  2. TREE CLEARING IS TO BE COMPLETED OUTSIDE THE BIRD NESTING SEASON (APRIL 1ST TO AUGUST 1ST) TO COMPLY WITH THE FEDERAL MIGRATORY BIRDS CONVENTION ACT. ANY TREES THAT REQUIRE REMOVAL OUTSIDE OF THIS TIMING WINDOW MUST FIRST BE INSPECTED BY A QUALIFIED BIOLOGIST TO DETERMINE THE PRESENCE OF NESTING BIRDS.
  3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
  4. COMPLETE THE WORKS WITH MINIMAL AVOIDABLE INTERRUPTIONS ONCE THEY COMMENCE.

- SITE AND MATERIAL MANAGEMENT**
1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERBODY AT A STABLE AREA ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
  2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED TO A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
  3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
  4. STABILIZE TEMPORARILY OR PERMANENTLY ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
  5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
  6. ALL VEGETATION ADJACENT TO THE WORK AREA MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRUBBING IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
  8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

- EROSION AND SEDIMENT CONTROL**
1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS.
  2. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-COSEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN-OR NEAR-WATER WORKS. SHOULD CONCERNS ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
  3. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
  4. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
  5. ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
  6. ADDITIONAL EROSION AND SEDIMENT CONTROL SUPPLIES MUST BE KEPT ON SITE IN ORDER TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
  7. ALL TEMPORARY SEDIMENT CONTROL MEASURES MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
  8. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
  9. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

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1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAINE OR STORM SEWER SYSTEM.
  2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  3. NO EQUIPMENT REFUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
  4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON-SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
  5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

- WORK AREA ISOLATION**
1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
  2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
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DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
 DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

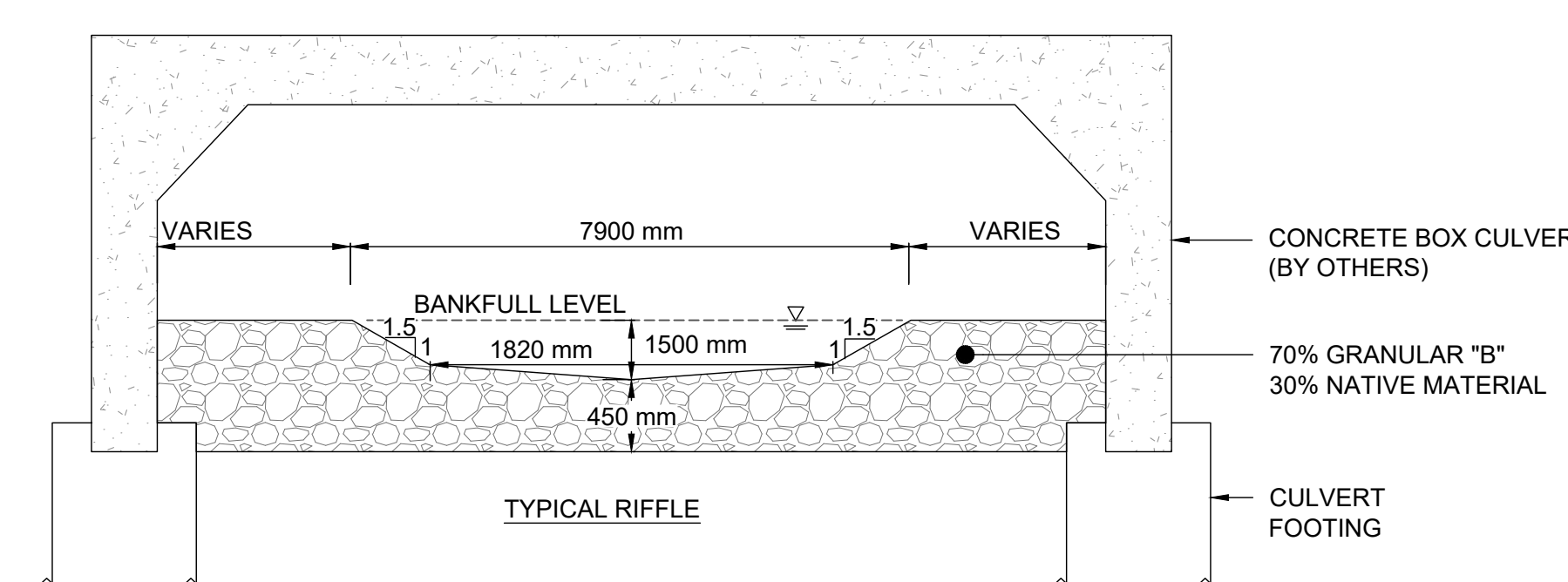
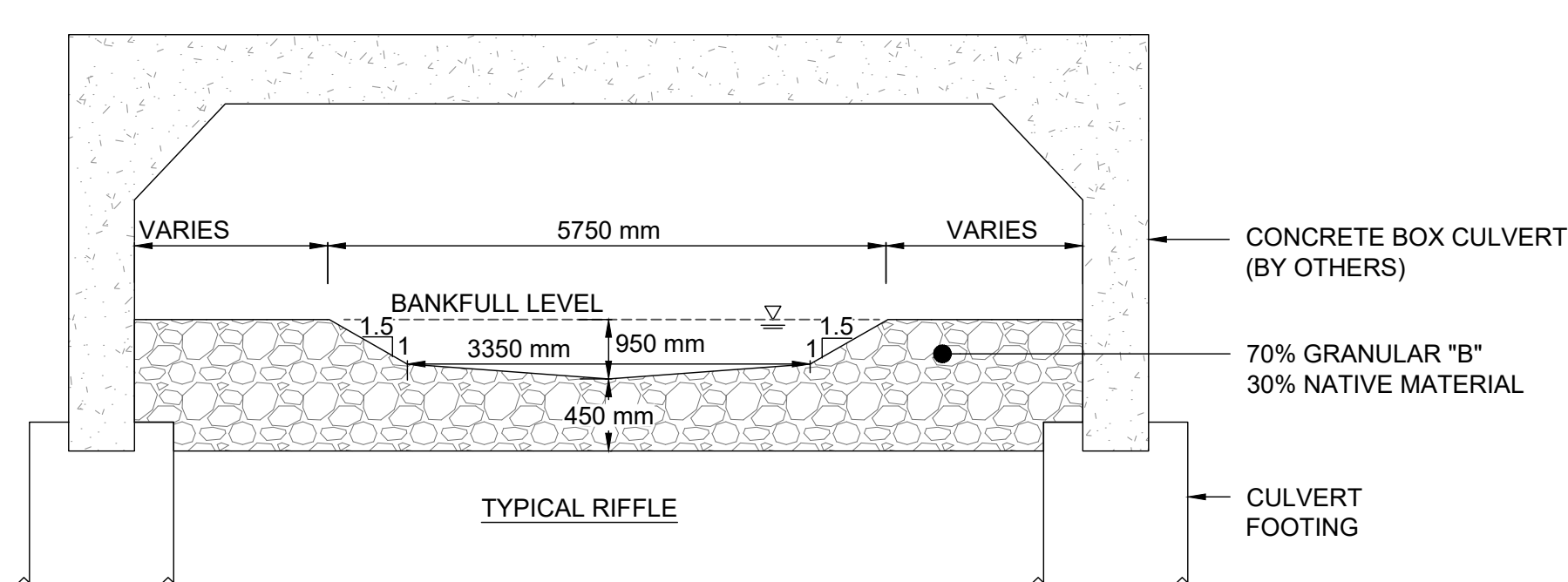
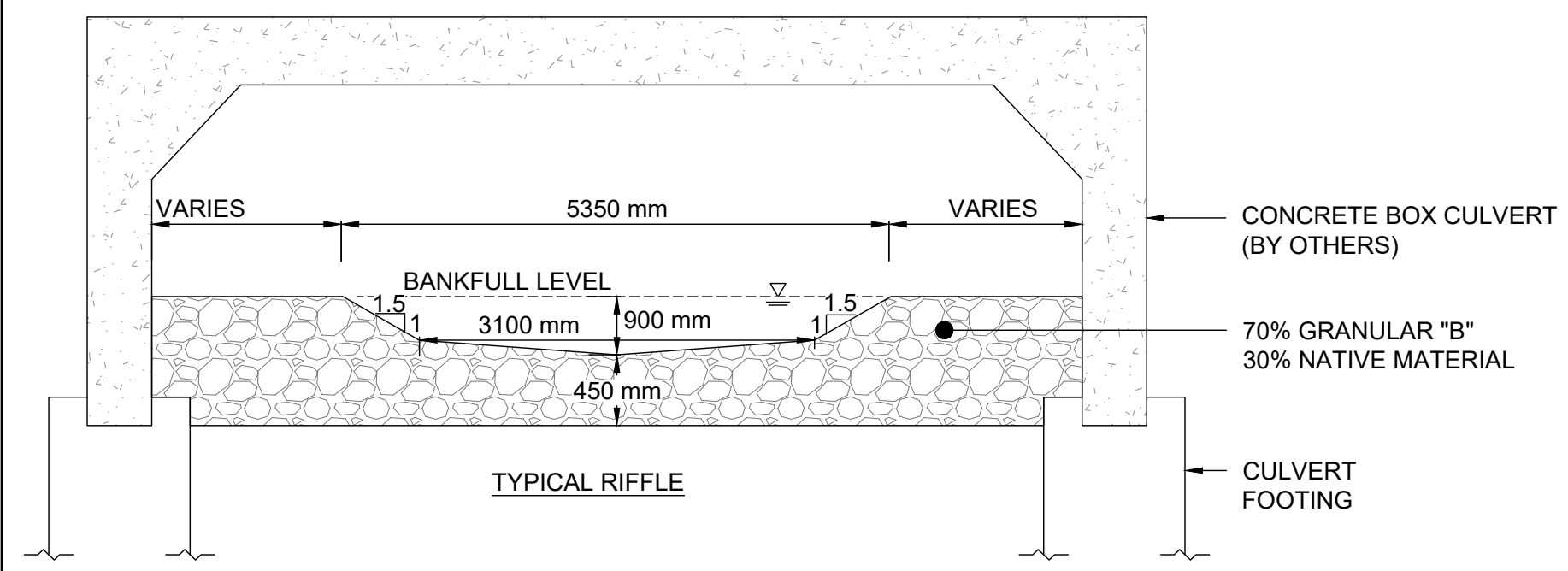
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 CULVERT CROSS SECTION DETAILS

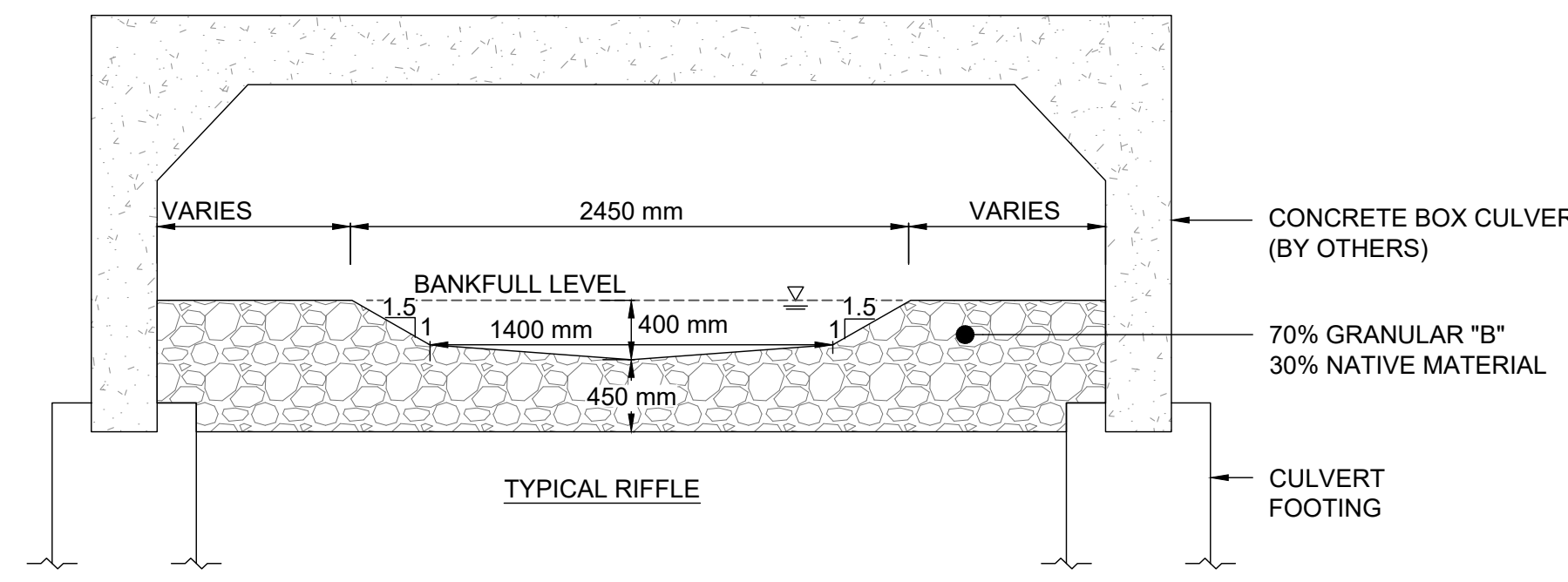
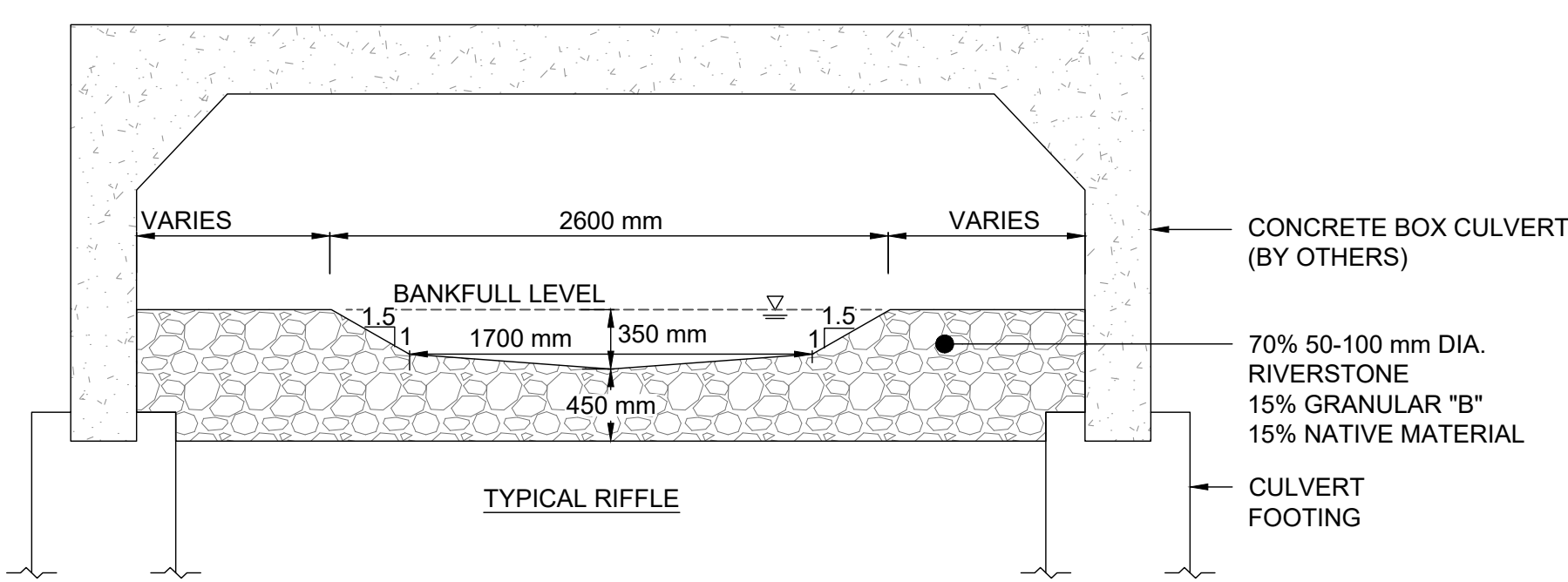
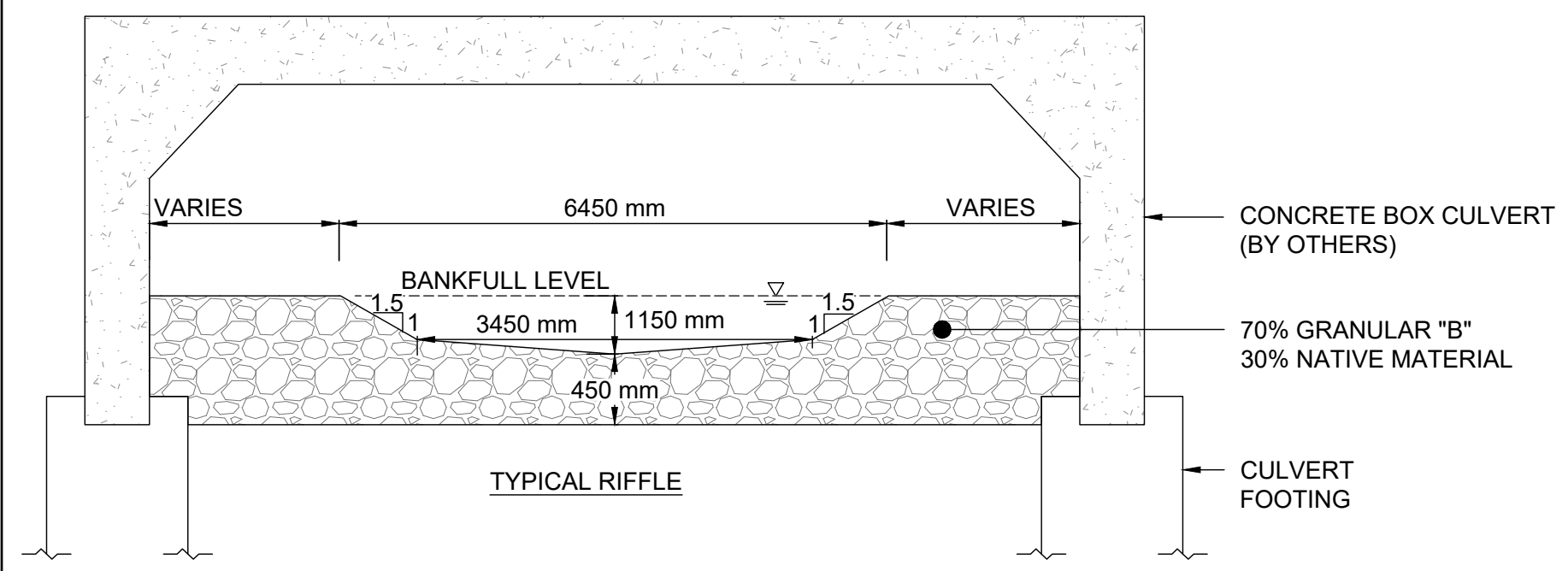
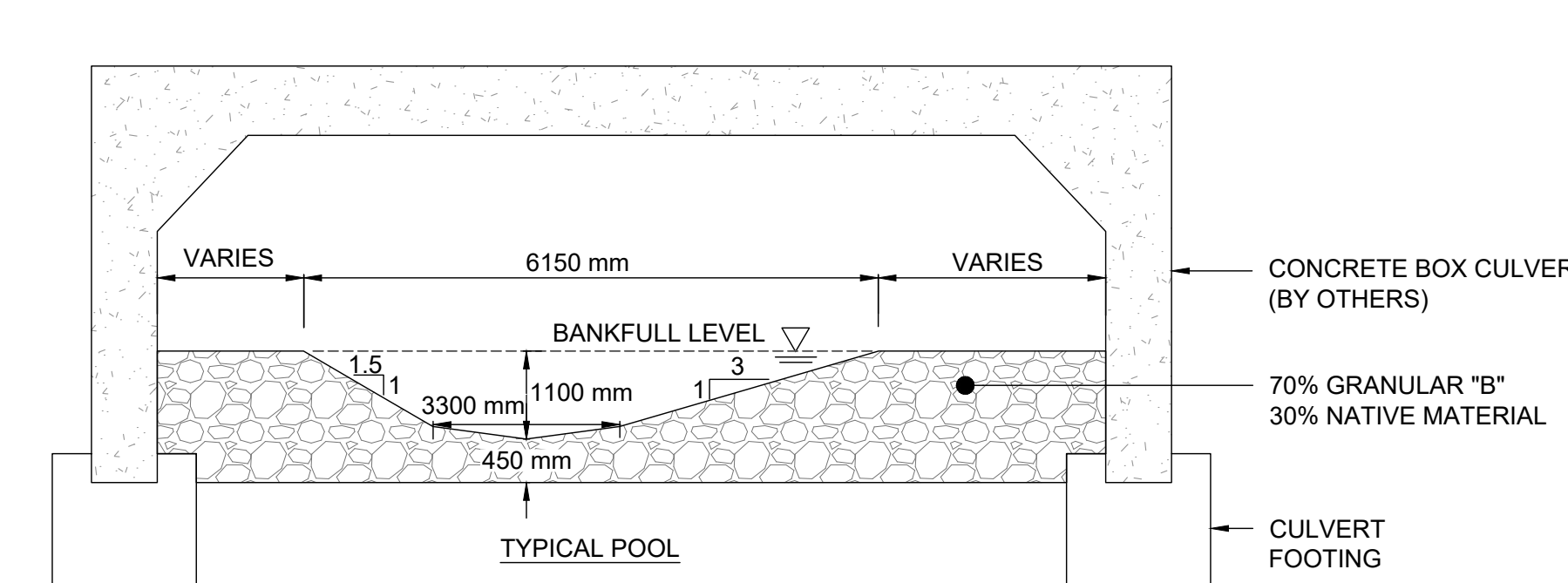
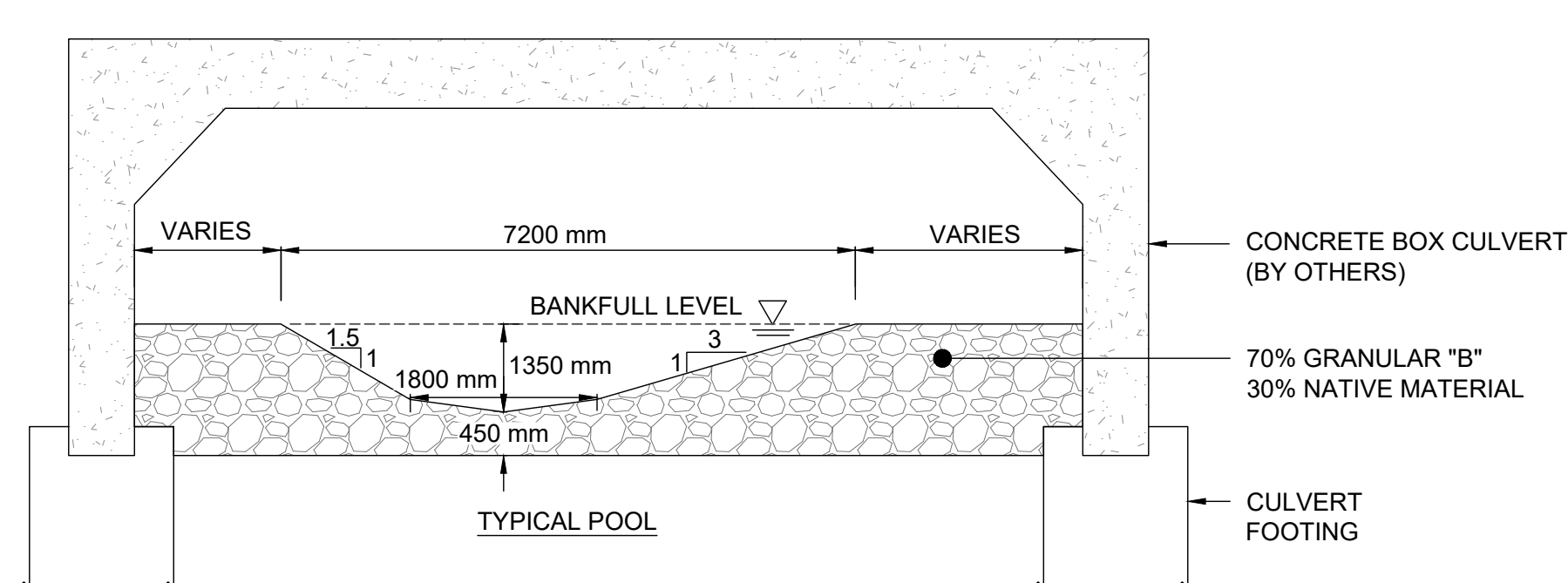
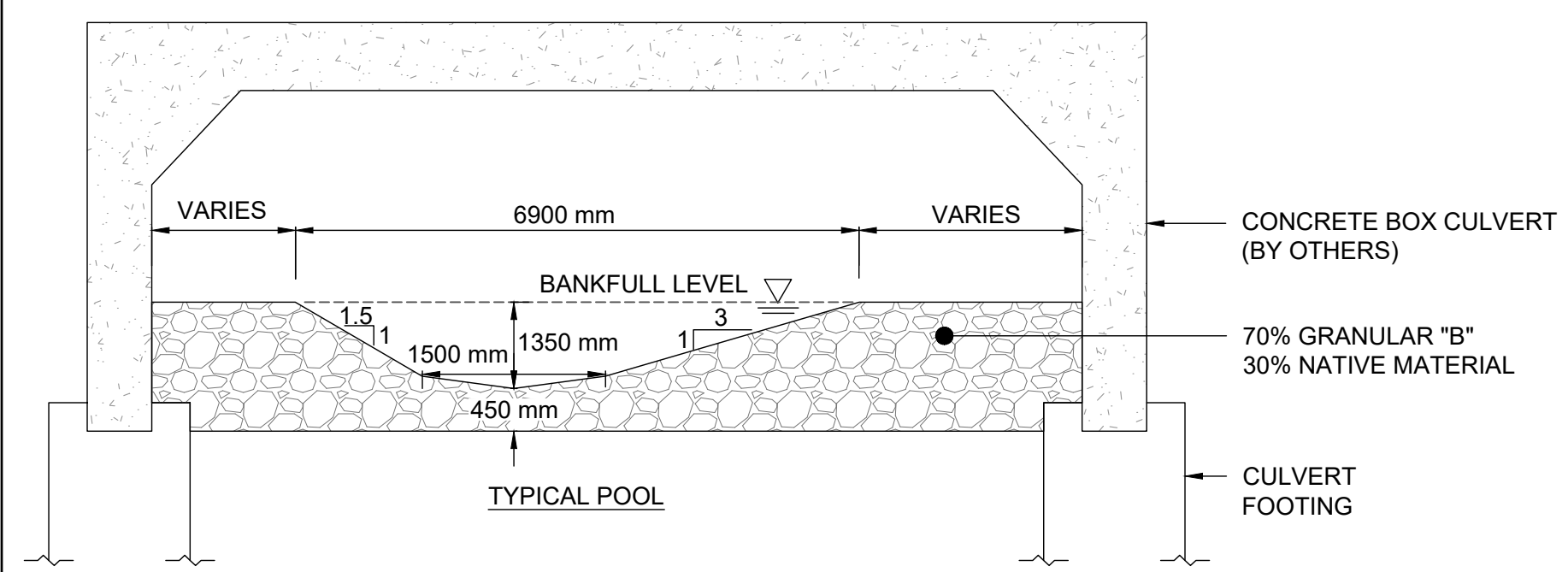
PROJECT No.: PN24009      DRAWING No.: DET-5  
 SCALE: AS NOTED      SHEET 31 OF 35



CROSS SECTIONS WITHIN CULVERTS AD REACH 2  
N.T.S.

CROSS SECTIONS WITHIN CULVERTS AD REACH 3  
N.T.S.

CROSS SECTIONS WITHIN CULVERTS AD REACH 4  
N.T.S.



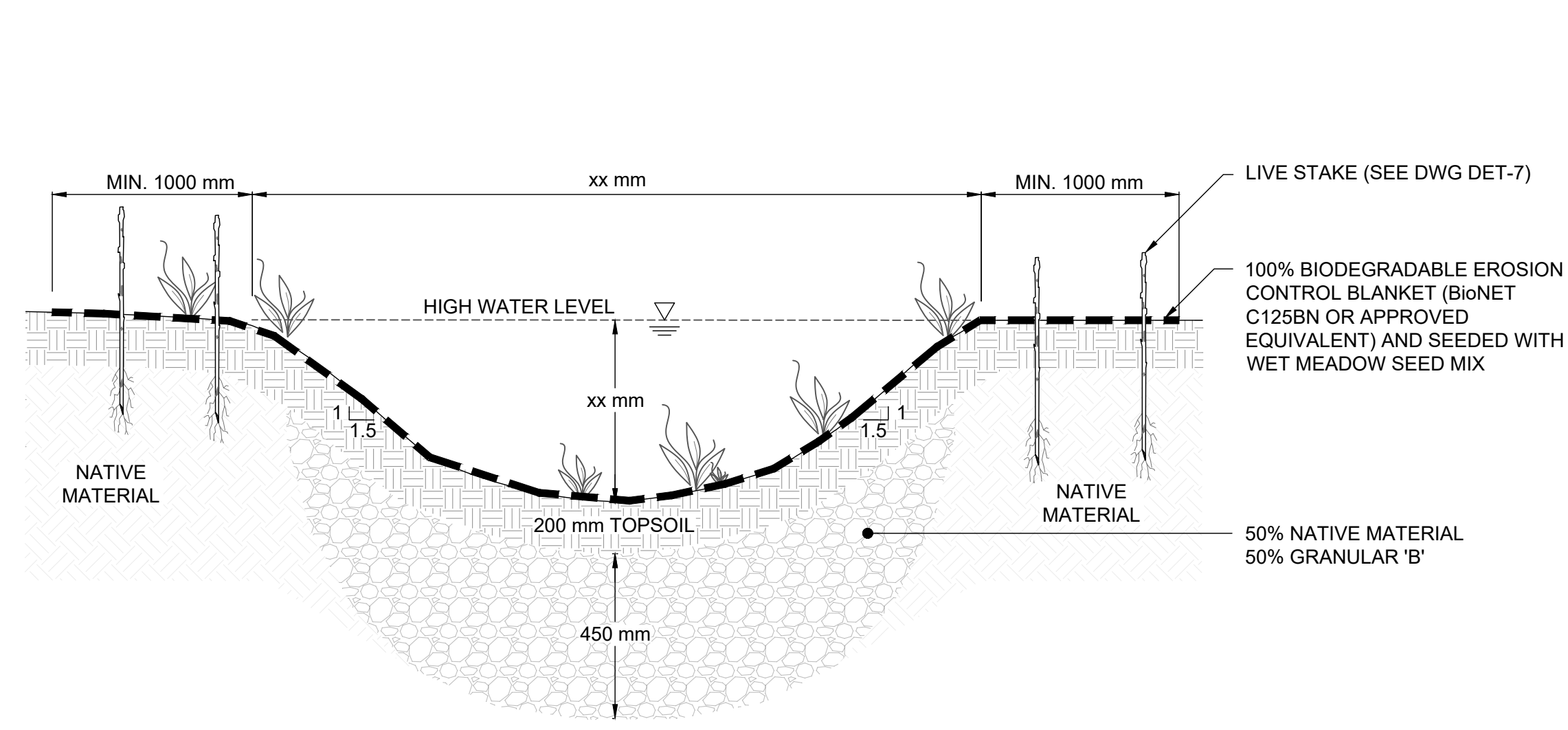
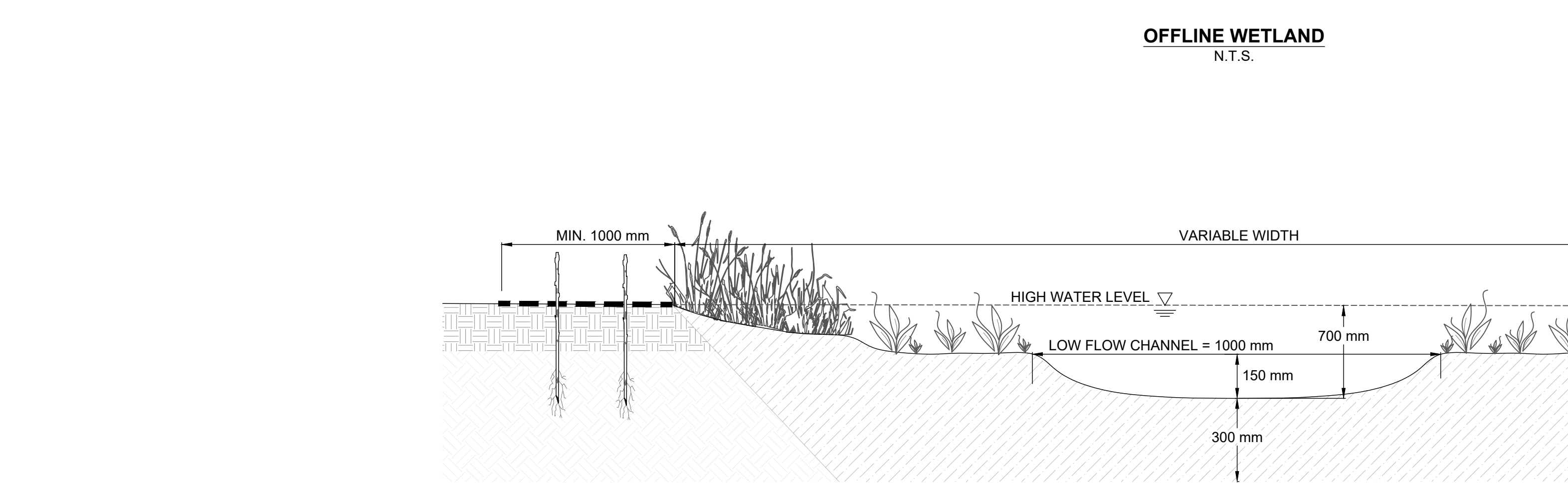
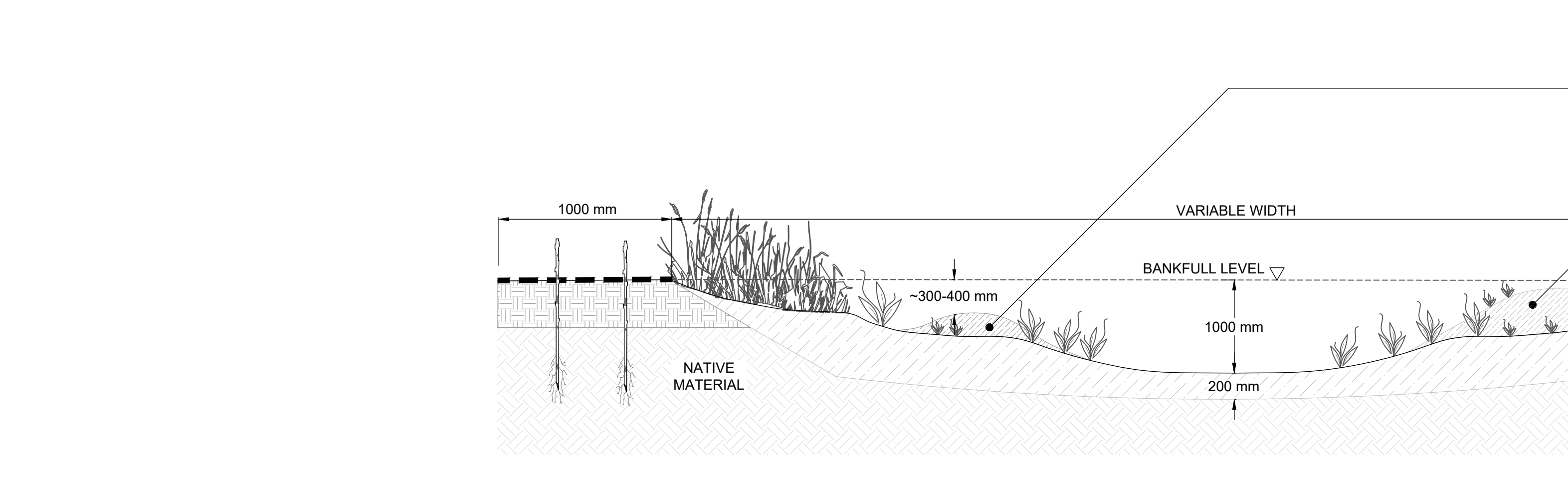
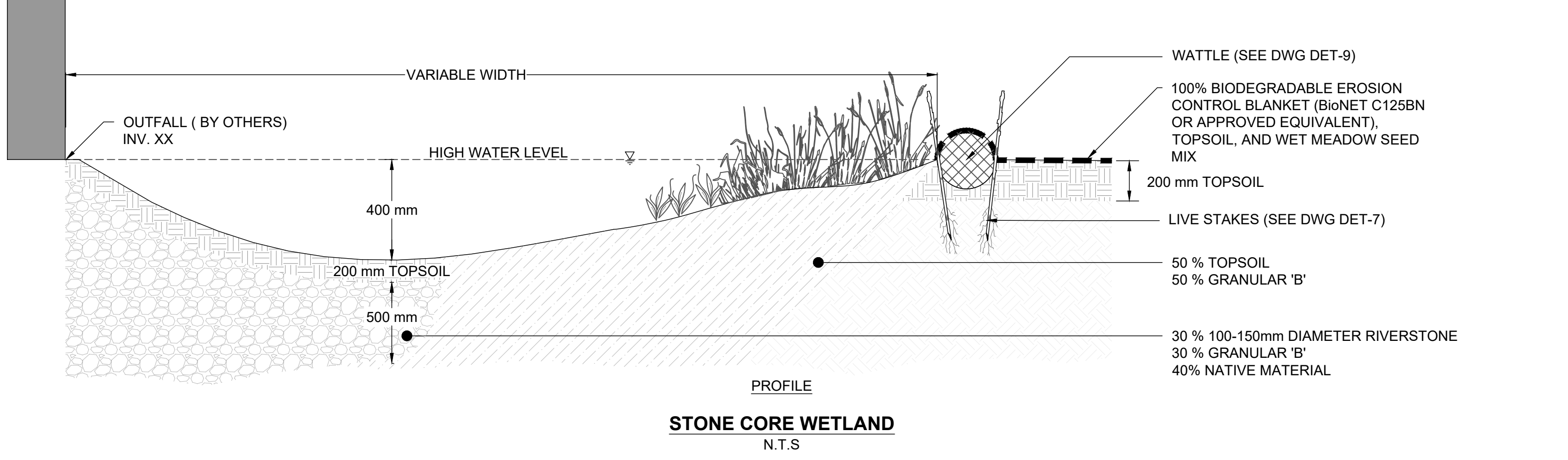
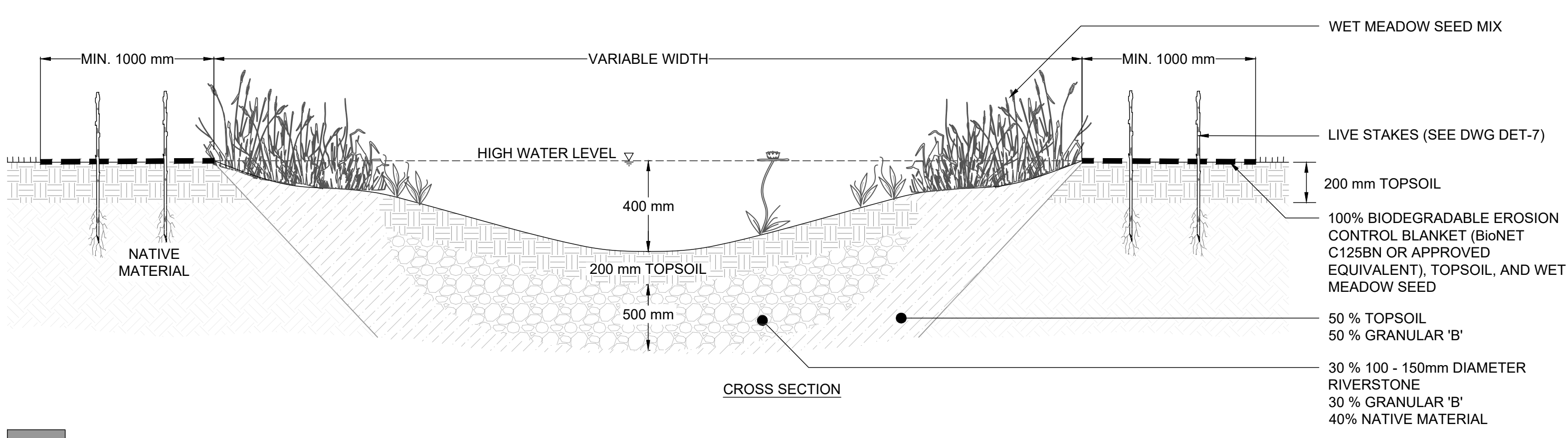
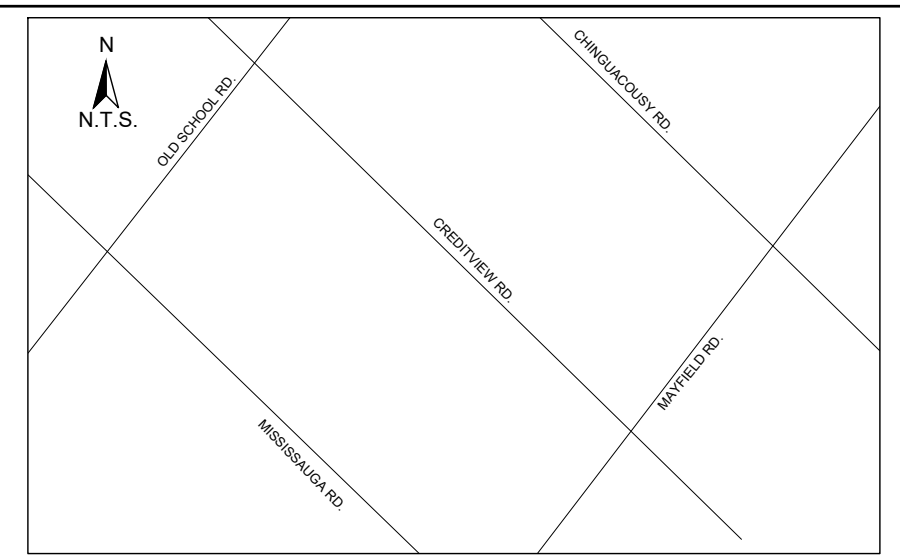
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CROSS SECTIONS WITHIN CULVERTS LD REACH 2  
N.T.S.

CROSS SECTIONS WITHIN CULVERTS AD5  
N.T.S.

SCALED FOR PLOT ON 'ARCH D'





- NOTES**
1. SUBSTRATES TO BE COMPACTED TO 90% SPD TO PREVENT PIPING/FLOW-THROUGH.
  2. FINE NATIVE MATERIAL TO BE ADDED TO SUBSTRATE MIX TO FILL INTERSTITIAL VOIDS, AS REQUIRED.
  3. GRANULAR 'B' TO BE SOURCED FROM PIT-RUN MATERIAL AND ROUNDED IN NATURE. NO CRUSHED ROCK, LIMESTONE OR POST-CONSTRUCTION MATERIALS ARE TO BE USED WITHIN THE CHANNEL.
  4. HYDRAULIC SIZING TO BE CONFIRMED AT DETAILED DESIGN.
  5. SEED IS TO BE PLACED PRIOR TO INSTALLATION OF EROSION CONTROL BLANKET. SEE DWG DET-1 FOR SEED MIX SPECIFICATION.

**TYPICAL BIOSWALE CROSS SECTION**  
N.T.S.

- GENERAL NOTES**
1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
  2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
  3. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
  5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER/DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
  6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
  7. ON-SITE SUPPORT FROM PROJECT ENGINEER (E.G. GEOLOGICAL, HYDROLOGICAL AND/OR WATER RESOURCES ENGINEER) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

- TIMING OF WORKS**
1. WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW SET OUT BY MNR/DFO.
  2. TREE CLEARING IS TO BE COMPLETED OUTSIDE THE BIRD NESTING SEASON (APRIL 1ST TO AUGUST 1ST) TO COMPLY WITH THE FEDERAL MIGRATORY BIRDS CONVENTION ACT. ANY TREES THAT REQUIRE REMOVAL OUTSIDE OF THIS TIMING WINDOW MUST FIRST BE INSPECTED BY A QUALIFIED BIOLOGIST TO DETERMINE THE PRESENCE OF NESTING BIRDS.
  3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
  4. COMPLETE THE WORKS WITH MINIMAL AVAILABLE INTERRUPTIONS ONCE THEY COMMENCE.

- SITE AND MATERIAL MANAGEMENT**
1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WETLAND ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
  2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED TO A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
  3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
  4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
  5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
  6. ALL VEGETATION, ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRADES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
  8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

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1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-CSECC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES. DEWATERING AND IN-OR NEAR-WATER WORKS SHOULD CONCERN ARISE. THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
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  6. ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
  7. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
  8. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

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1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAINE OR STORM SEWER SYSTEM.
  2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  3. NO EQUIPMENT RE-FUELLING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
  4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
  5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

- WORK AREA ISOLATION**
1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
  2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
  3. THE UNWATERING DISCHARGE LOCATION MUST BE LOCATED AT LEAST 30 m FROM ANY WATERCOURSE OR WETLAND IN AN AREA WITH DENSE VEGETATIVE GROUND COVER, AND WHERE THE DISCHARGE CAN RETURN TO THE WATERBODY DOWNSTREAM OF THE WORK AREA OVER THE GROUND COVER.
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DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

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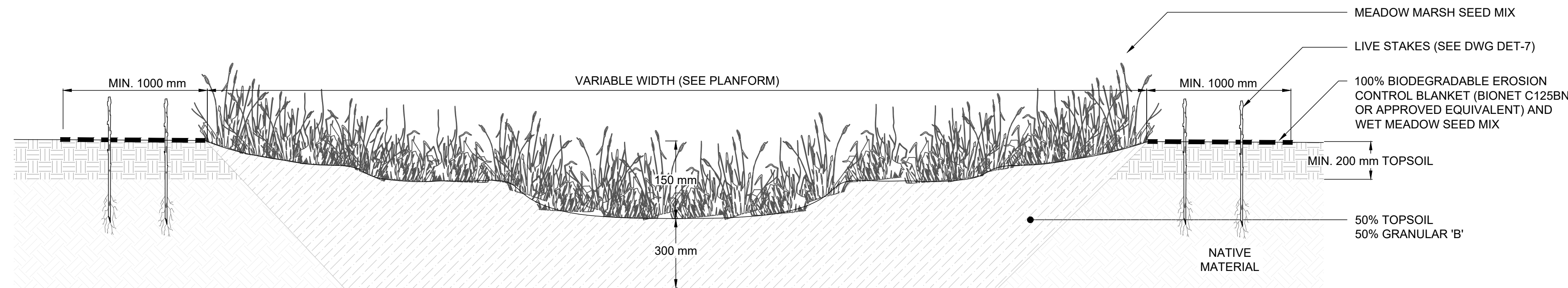
**ALLOA SPA**  
**TOWN OF CALEDON**

**ETOBICOKE CREEK - ALLOA DRAIN**  
**CONCEPTUAL CHANNEL DESIGN**  
**WETLAND CROSS SECTION DETAILS**

PROJECT No.: PN24009	DRAWING No.: DET-6
SCALE: AS NOTED	SHEET 32 OF 35

SCALED FOR PLOT ON 'ARCH D'

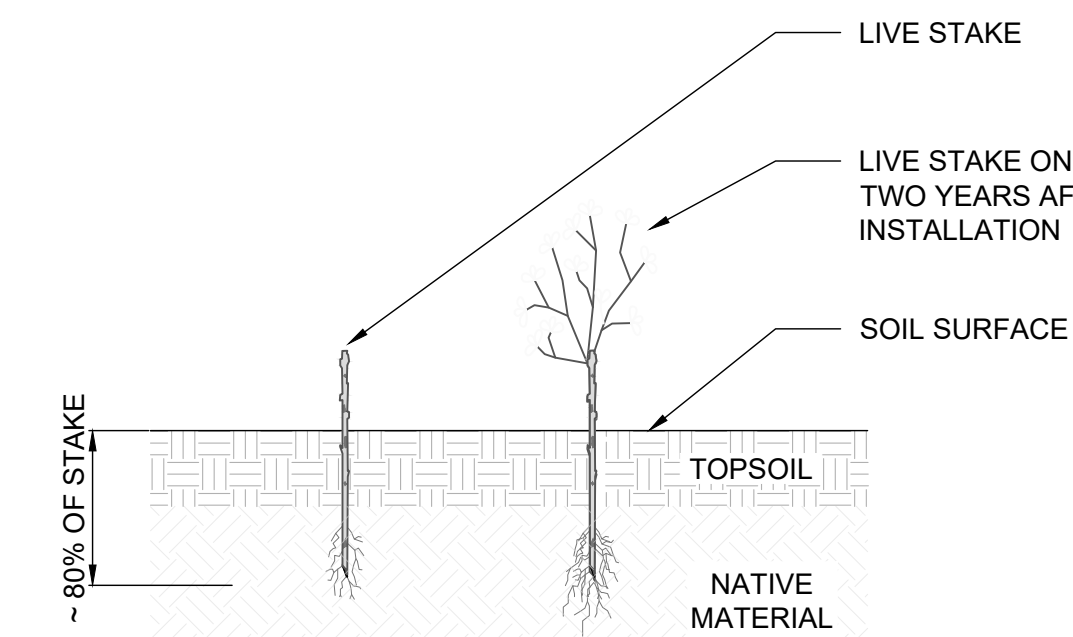




**NOTES**

1. SUBSTRATES TO BE COMPACTED TO 90% SPD TO PREVENT PIPING/FLOW-THROUGH.
2. FINE NATIVE MATERIAL TO BE ADDED TO SUBSTRATE MIX TO FILL INTERSTITIAL VOIDS, AS REQUIRED.
3. GRANULAR 'B' TO BE SOURCED FROM PIT-RUN MATERIAL AND ROUNDED IN NATURE. NO CRUSHED ROCK, LIMESTONE OR POST-CONSTRUCTION MATERIALS ARE TO BE USED WITHIN THE CHANNEL. MATERIAL TO BE REVIEWED BY THE DESIGNER OR REPRESENTATIVE PRIOR TO INSTALLATION.
4. SEED IS TO BE PLACED PRIOR TO THE INSTALLATION OF EROSION CONTROL BLANKET. SEED DWG DET-1 FOR SEED MIX SPECIFICATIONS.

**MEADOW SWALE CROSS SECTION**  
N.T.S.



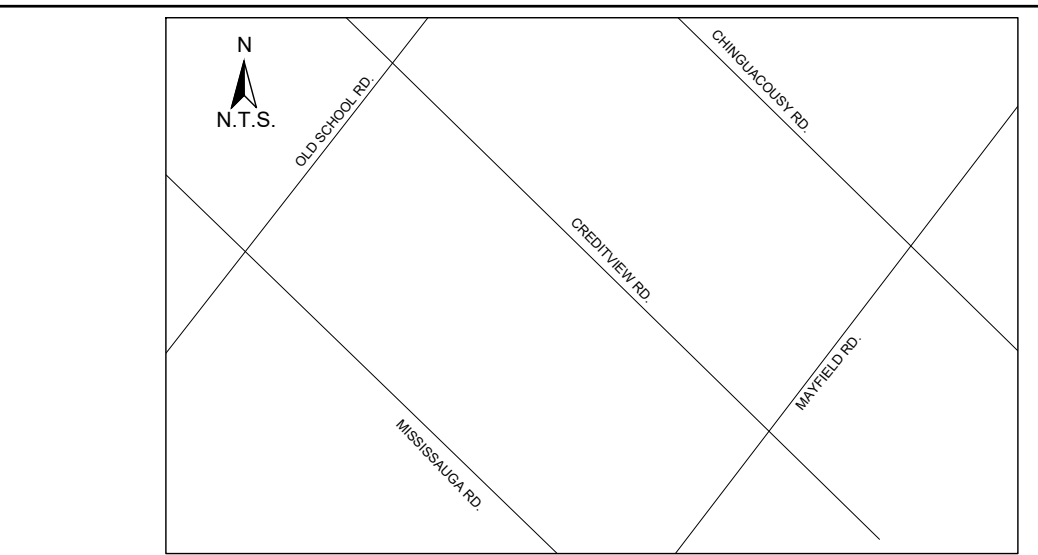
**DIVERSE STREAM BANK PLANTING**

SCIENTIFIC NAME	COMMON NAME	CONDITION
<i>CORNUS SERICEA</i>	RED OSIER DOGWOOD	1 m, LIVE STAKE
<i>PHYSOCARPUS OPULIFOLIUS</i>	COMMON NINEBARK	1 m, LIVE STAKE
<i>SALIX BEBBIANA</i>	BEBB'S WILLOW	1 m, LIVE STAKE
<i>SALIX DISCOLOR</i>	PUSSY WILLOW	1 m, LIVE STAKE
<i>SALIX EXIGUA</i>	SANDBAR WILLOW	1 m, LIVE STAKE
<i>SALIX LUCIDA</i>	SHINING WILLOW	1 m, LIVE STAKE
<i>SAMBUCUS CANADENSIS</i>	COMMON ELDERBERRY	1 m, LIVE STAKE

**NOTES**

1. QUANTITY TO BE DETERMINED BASED ON AREA OF DISTURBANCE TO BE RESTORED
2. LIVE STAKES SHOULD BE FROM AT MINIMUM 2-YEAR OLD STOCK.
3. LIVE STAKES ARE TO BE INSTALLED AT A DENSITY OF 3 STAKES PER SQUARE METRE.
4. LIVE STAKES SHOULD BE PRE-SOAKED (SUBMERGED IN WATER) FOR AT LEAST 24 HOURS AFTER HARVESTING AND IMMEDIATELY BEFORE INSTALLATION.
5. LIVE STAKES SHOULD NOT BE STORED FOR A PERIOD LONGER THAN 2 DAYS, UNLESS THEY ARE BEING SOAKED.
6. THE CONTRACTOR SHALL PROTECT PLANT MATERIALS FROM DRYING FROM THE TIME OF HARVEST UNTIL INSTALLED.
7. LIVE STAKES ARE TO BE A MINIMUM OF 25 mm IN DIAMETER AND CUT TO A LENGTH OF 1000 mm.
8. CUT ANGLE AT THE BOTTOM OF THE STAKE AND FLAT ON THE TOP.
9. TRIM ALL SIDE BRANCHES WHILE TAKING CARE NOT TO DAMAGE THE BARK.
10. INSTALL STAKES WITH BUDS POINTING UPWARDS AND THICKER STEM IN THE BED.
11. LIVE STAKES SHOULD BE INSTALLED USING A LARGE RUBBER Mallet.
12. 80% OF THE STAKE IS TO BE BELOW SURFACE.
13. TAMP THE LIVE STAKE INTO THE GROUND AT RIGHT ANGLE TO THE SURFACE.
14. IN COMPACT SOIL A PILOT HOLE SHOULD BE USED TO LIMIT DAMAGE TO THE STAKES.
15. IF USING A PILOT HOLE REPACK SOIL AROUND THE LIVE STAKE.
16. LIVE STAKES SHOULD STAND FIRM FROM THE SOIL FOLLOWING INSTALLATION.
17. ALL STAKES NOT PLANTED TO THE SPECIFICATIONS ABOVE WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

**LIVE STAKING**  
N.T.S.



**KEY MAP**  
N.T.S.

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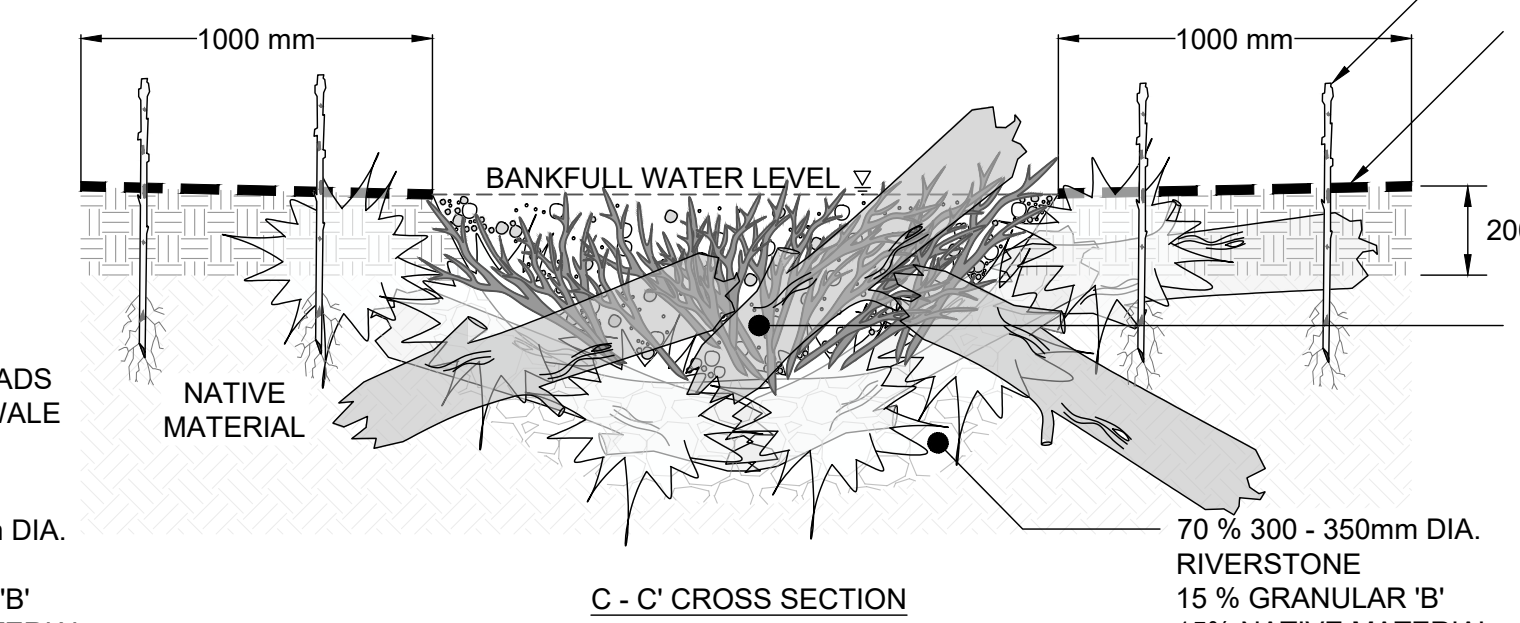
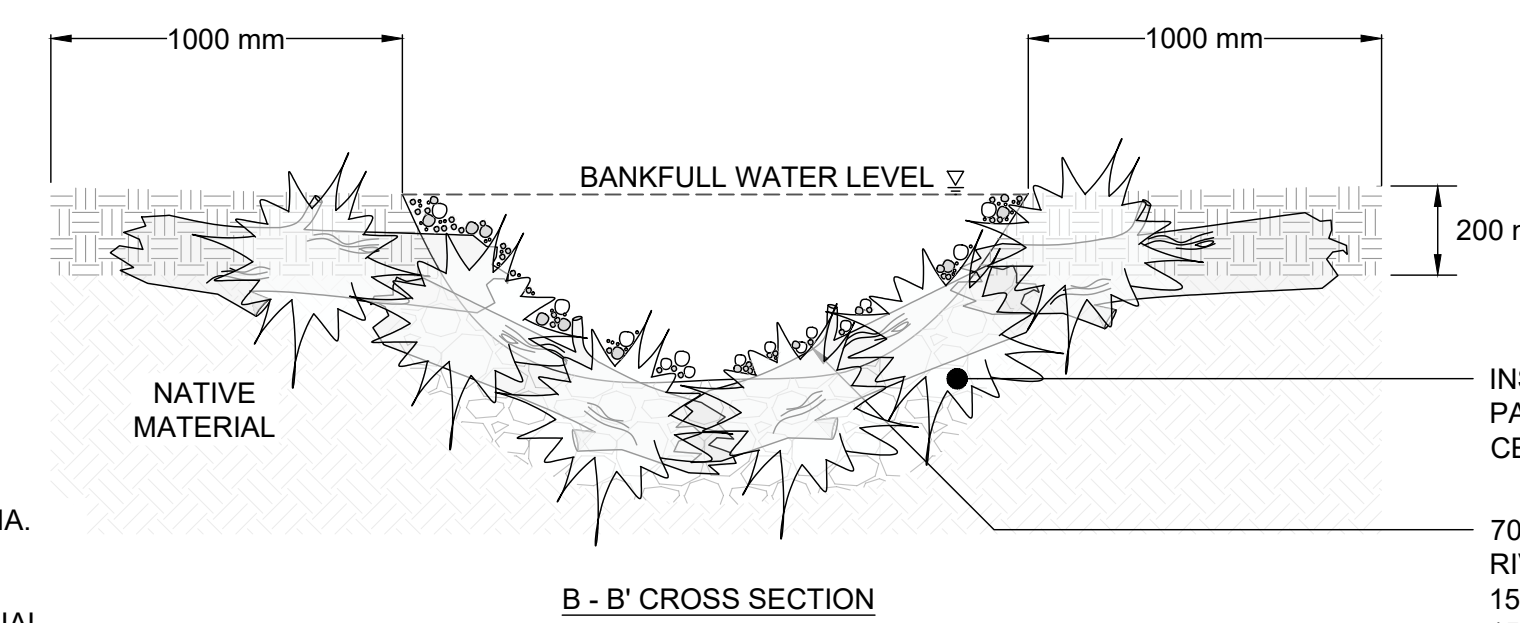
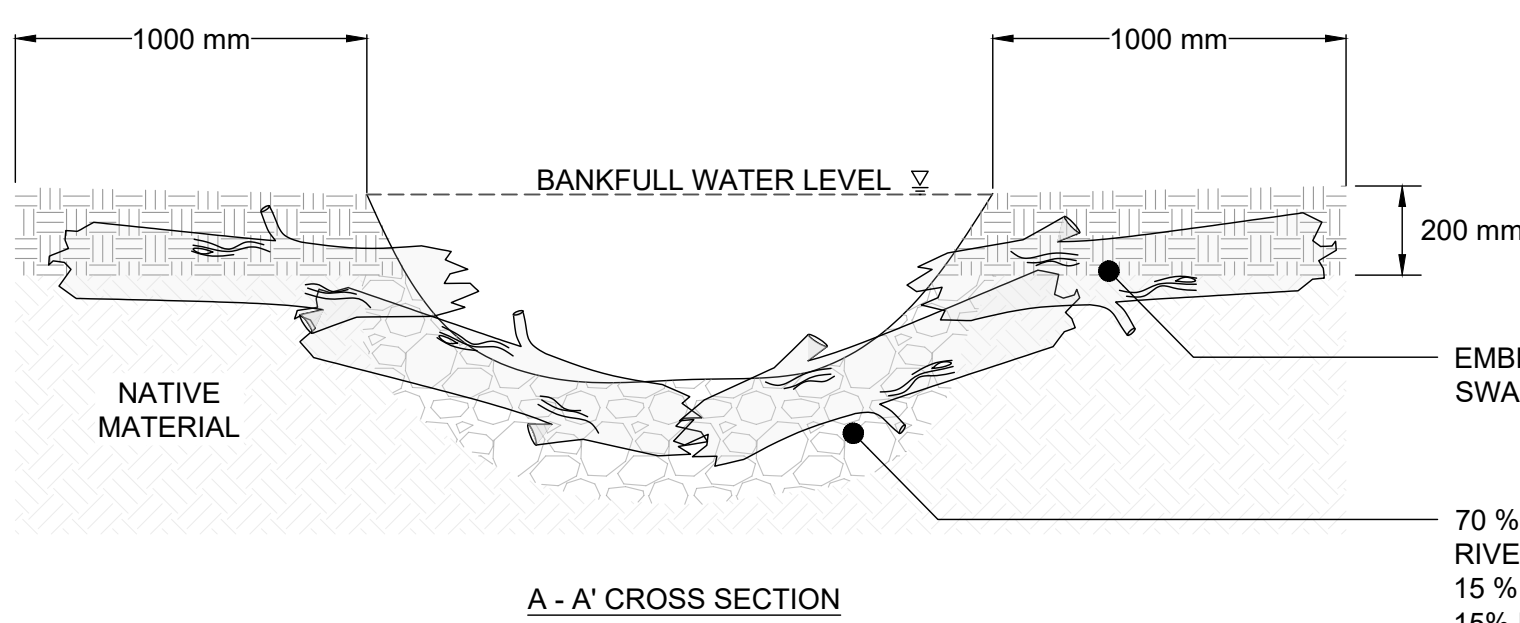
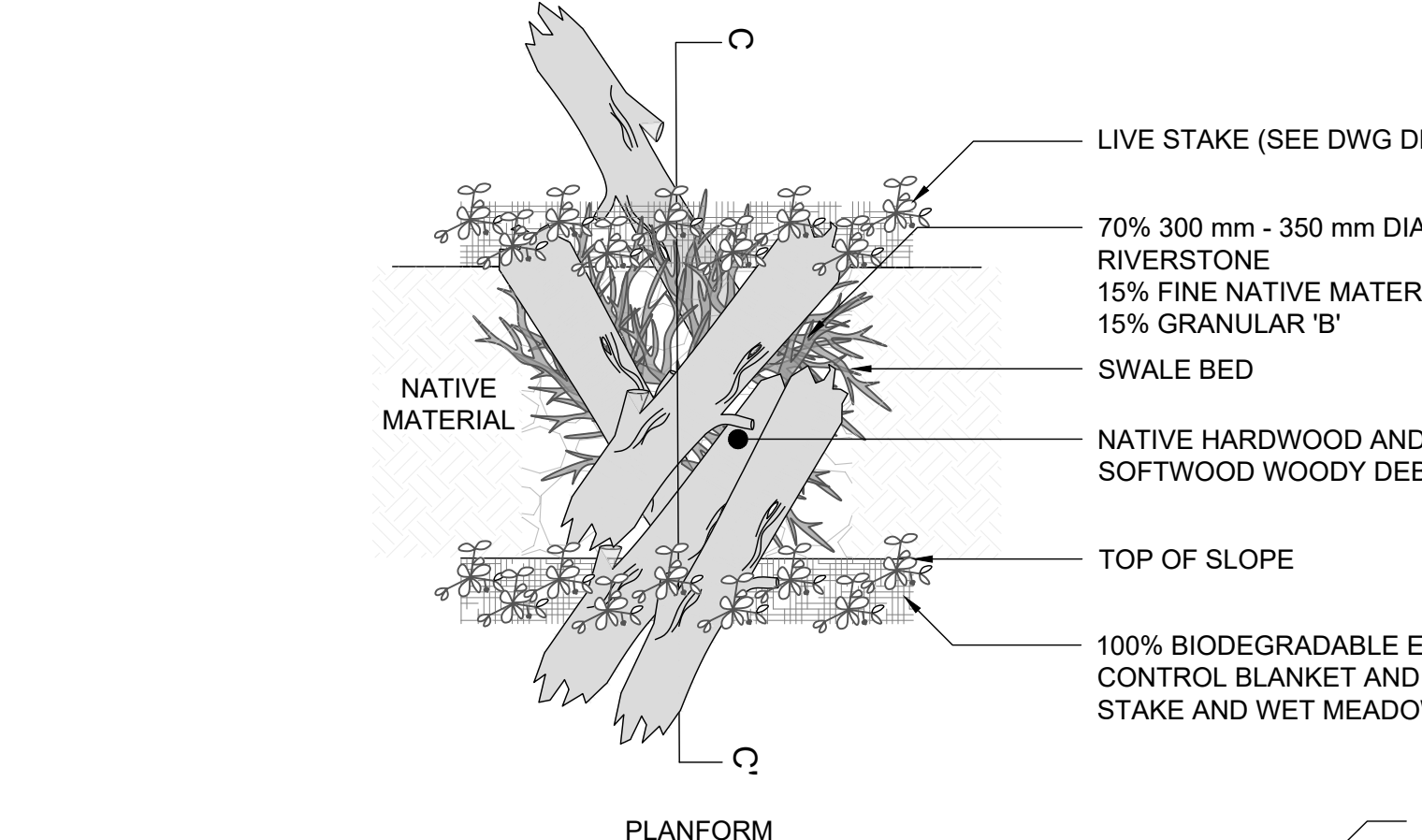
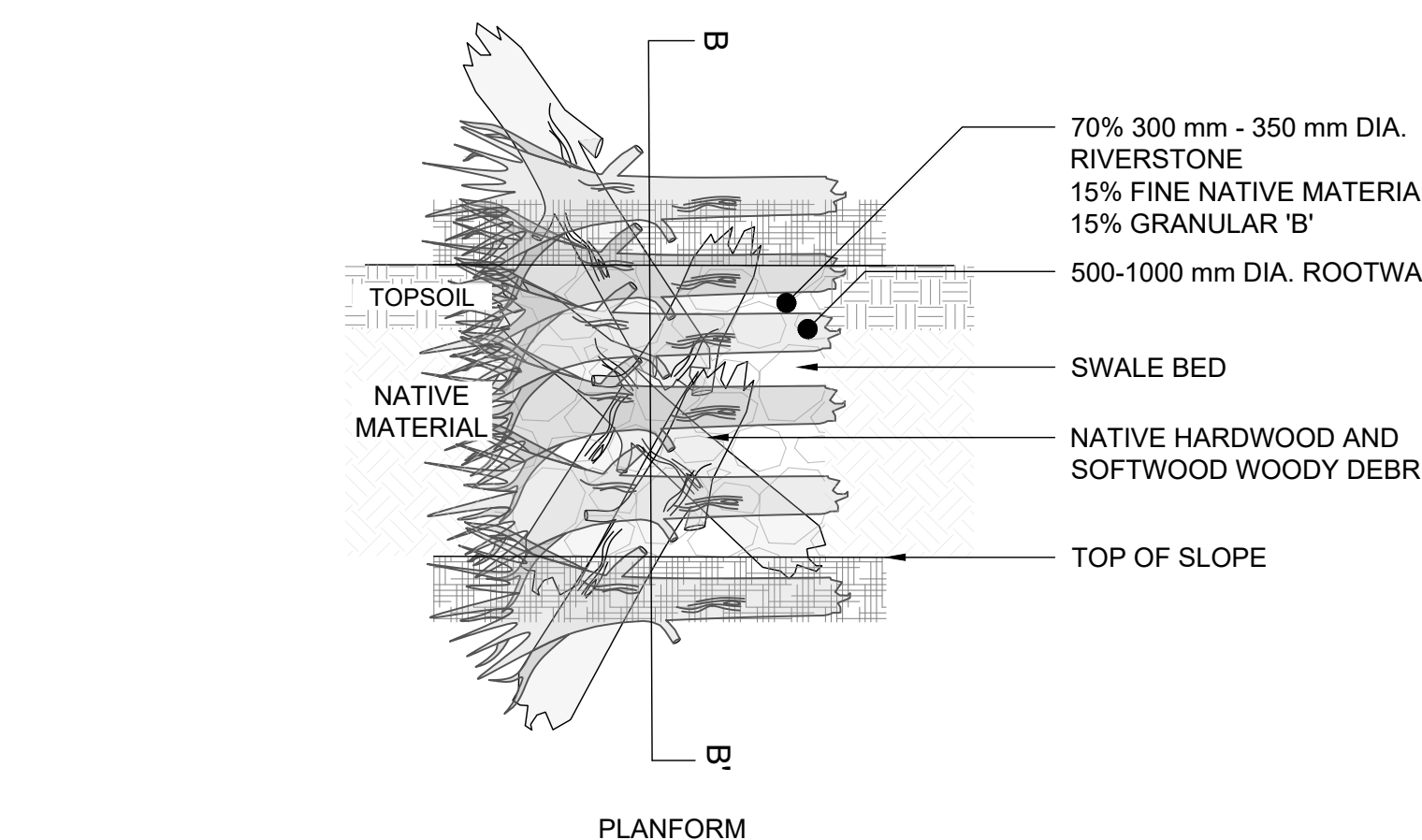
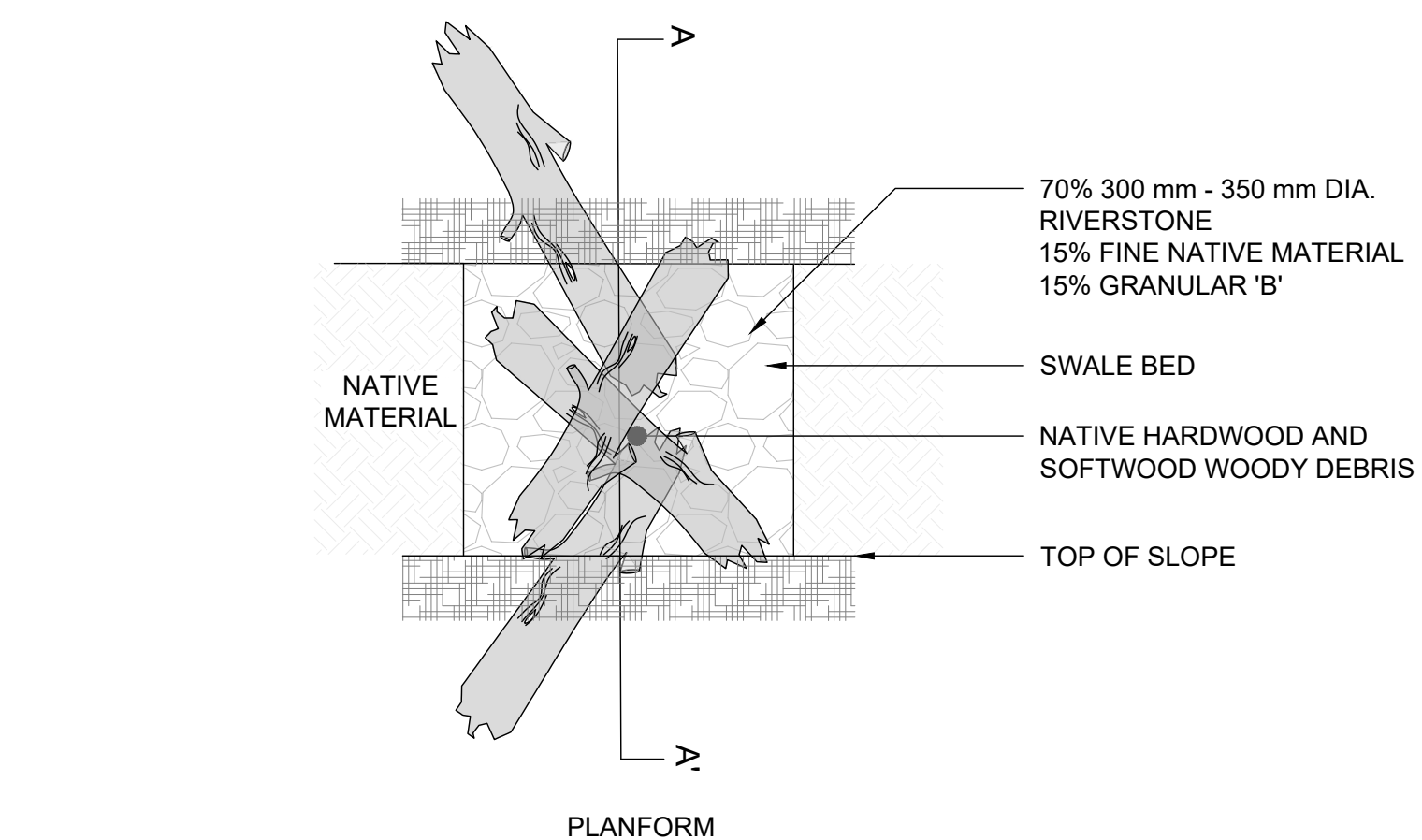
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  3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
  4. COMPLETE THE WORKS WITH MINIMAL AVAILABLE INTERRUPTIONS ONCE THEY COMMENCE.

- SITE AND MATERIAL MANAGEMENT**
1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERCOURSE OR STABLE AREA ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
  2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED TO A STABLE AREA ABOVE FLOODPLAIN.
  3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
  4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
  5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
  6. ALL VEGETATION ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRASSES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED IN THE APPLICABLE PERMIT.
  8. AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.

- EROSION AND SEDIMENT CONTROL**
1. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS.
  2. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-CSEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN-OR NEAR-WATER WORKS. SHOULD CONCERNS ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
  3. EROSION AND SEDIMENT CONTROLS MUST BE MAINTAINED DURING CONSTRUCTION, AND ANY REQUIRED REPAIRS OR REPLACEMENTS MUST BE COMPLETED WITHIN 24 HOURS AFTER THEY HAVE BEEN IDENTIFIED DURING THE MONITORING.
  4. EROSION AND SEDIMENT CONTROLS MAY REQUIRE PERIODIC ADJUSTMENTS TO REFLECT CHANGING SITE CONDITIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THESE ADJUSTMENTS TO ENSURE PROPER FUNCTION.
  5. ANY CHANGES TO THE EROSION AND SEDIMENT CONTROL PLAN BEYOND MINOR ADJUSTMENTS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
  6. ADDITIONAL EROSION AND SEDIMENT CONTROL SUPPLIES MUST BE KEPT ON SITE IN ORDER TO FACILITATE IMMEDIATE REPAIRS AND/OR UPGRADES AS NEEDED.
  7. ALL TEMPORARY SEDIMENT CONTROLS MUST BE REMOVED AFTER THE CONTRACT ADMINISTRATOR DEEMS THE SITE TO BE STABLE.
  8. THE PROJECT PROPONENT OR THEIR REPRESENTATIVE IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION.
  9. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ON-SITE SUPERVISOR/INSPECTOR AND/OR THE LOCAL REGULATORY BODY RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.

- DELETERIOUS SUBSTANCE CONTROL/SPILL MANAGEMENT**
1. PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAINE OR STORM SEWER SYSTEM.
  2. ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  3. NO EQUIPMENT REPAIRING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
  4. A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
  5. THE CONTRACT ADMINISTRATOR MUST BE NOTIFIED IMMEDIATELY IN THE EVENT OF A SPILL OF DELETERIOUS SUBSTANCE. ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTER) AT 1-800-268-6060.

- WORK AREA ISOLATION**
1. ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
  2. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
  3. THE UNWATERING DISCHARGE LOCATION MUST BE LOCATED AT LEAST 30 m FROM ANY WATERCOURSE OR WETLAND IN AN AREA WITH DENSE VEGETATIVE GROUND COVER, AND WHERE THE DISCHARGE CAN RETURN TO THE WATERBODY DOWNSTREAM OF THE WORK AREA OVER THE GROUND COVER.
  4. FISH MUST BE REMOVED FROM THE WORK AREA ONCE ISOLATED. FISH SALVAGE MUST BE COMPLETED BY A QUALIFIED TECHNICIAN WITH A LICENSE FROM THE ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY.



- STEP 1**
1. LOGS AND WOODY DEBRIS TO BE NATIVE HARDWOOD AND SOFTWOOD SPECIES (LOCALLY SOURCED, IF POSSIBLE).
  2. EXCAVATE SWALE AND EMBED LOGS AND STONE MIX INTO CHANNEL BED PERPENDICULAR TO FLOW.

- STEP 2**
1. PLACE 500-1000 mm DIAMETER ROOTWADS PARALLEL TO SWALE CENTERLINE WITH ROOT BALL UPSTREAM. DEBRIS TO BE NATIVE HARDWOOD AND SOFTWOOD SPECIES (LOCALLY SOURCED, IF POSSIBLE).
  2. FILL VOIDS WITH STONE MIX AND COMPACT TO PREVENT FLOW THROUGH.

- STEP 3**
1. PLACE SECOND STACKED LOGS PERPENDICULAR TO FLOW DIRECTION IN A WAY THAT PREVENTS FLOW THROUGH.
  2. FILL VOIDS WITH STONE MIX AND COMPACT TO PREVENT FLOW THROUGH.
  3. SEED WITH WET MEADOW SEED MIX, COVER WITH EROSION CONTROL BLANKET, AND HOLD IN PLACE WITH LIVE STAKES.

**WOODY DEBRIS AND STONE PLUG**  
N.T.S.

DATE	BY	REVISIONS

DESIGNED BY: LD/AS	CHECKED BY: PV
DRAWN BY: AL/CP/SC	DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

**GEO MORPHIX™**  
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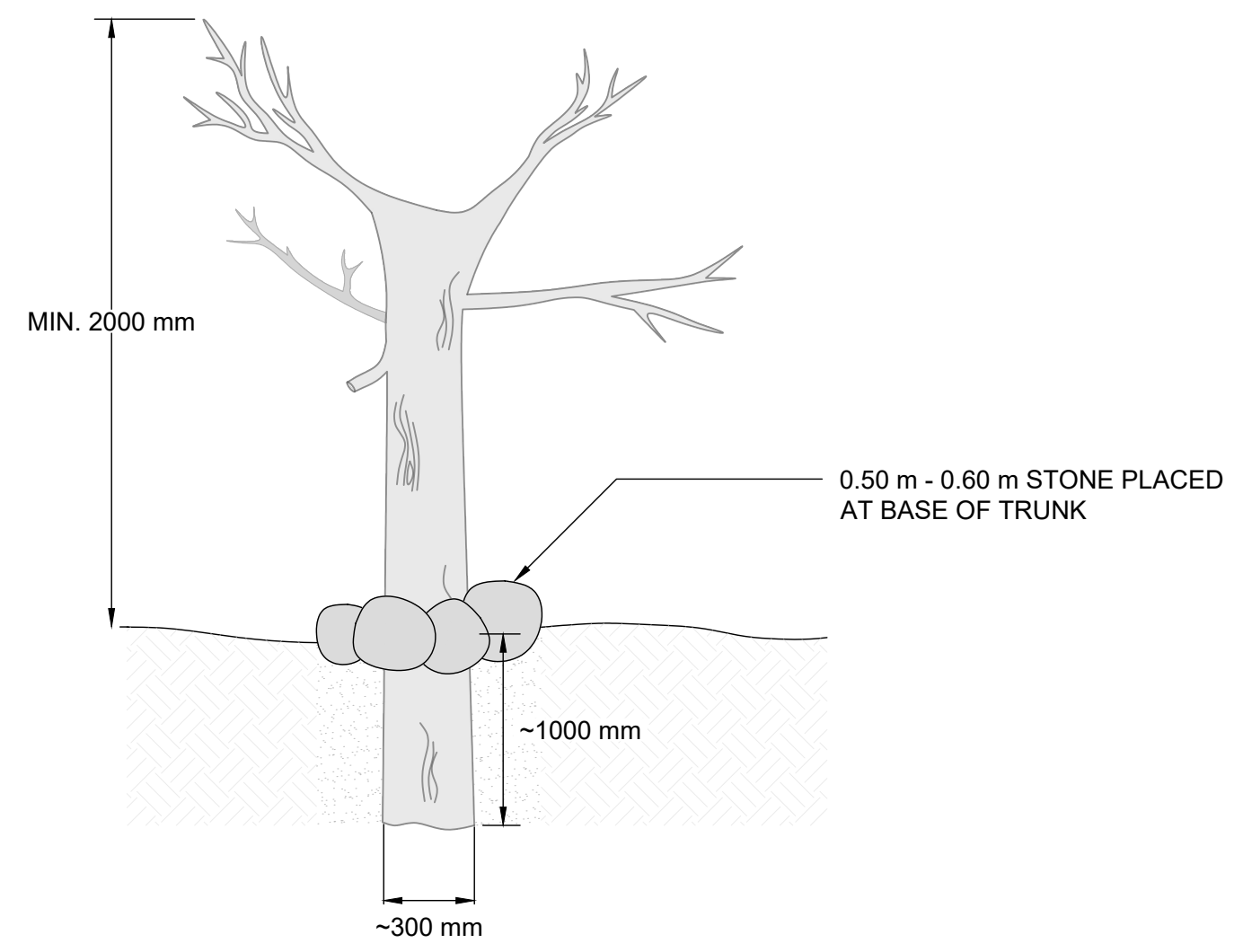
**ALLOA SPA TOWN OF CALEDON**

**ETOBICOKE CREEK - ALLOA DRAIN CONCEPTUAL CHANNEL DESIGN RESTORATION DETAILS**

PROJECT No.: PN24009	DRAWING No.: DET-7
SCALE: AS NOTED	SHEET 33 OF 35

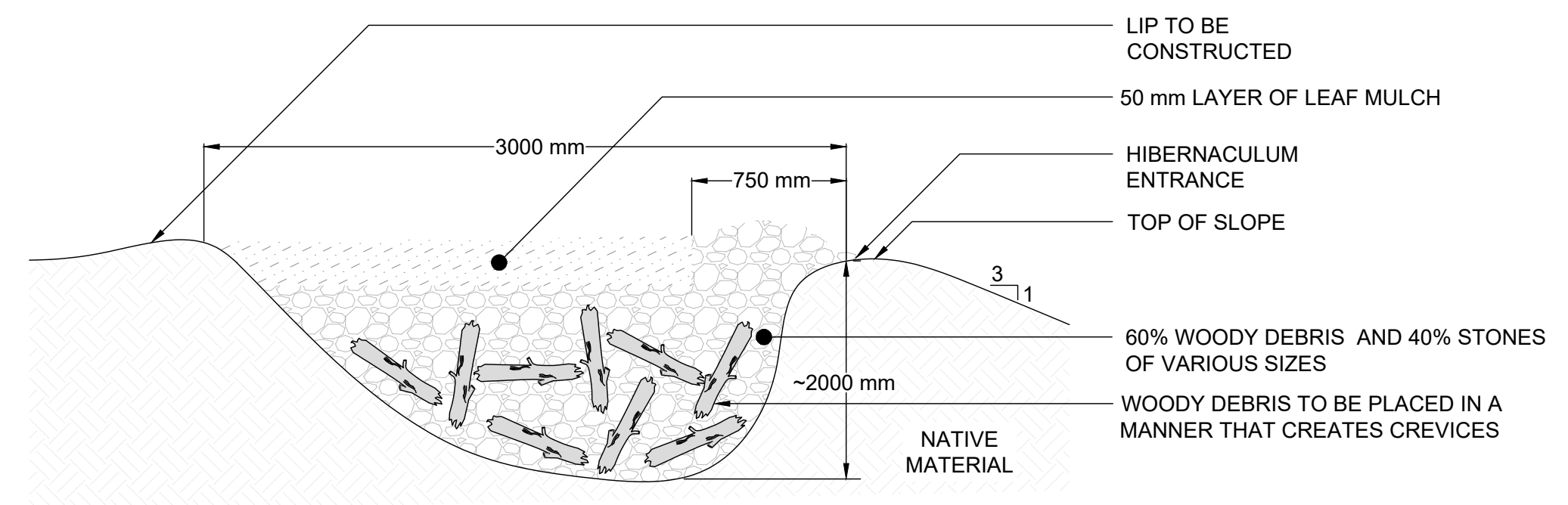
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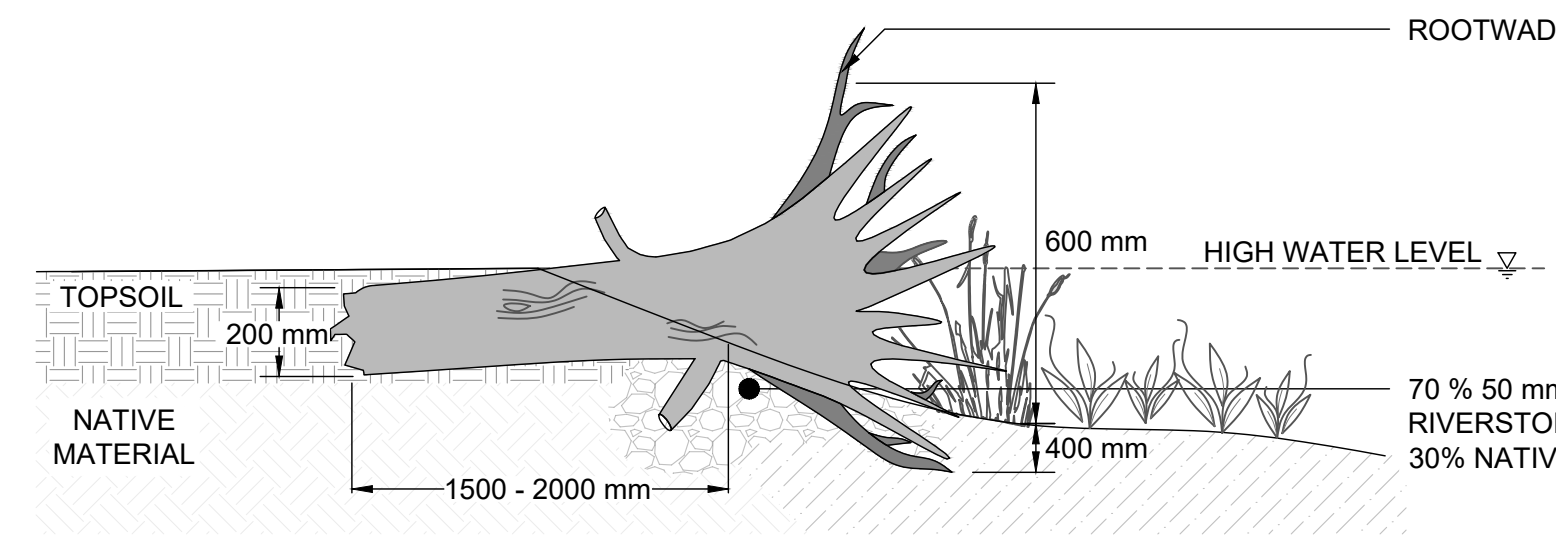
- NOTES**
- CONSTRUCT WITH CONIFER TRUNKS WITH TWO OR MORE NATURAL BRANCHES.
  - AT LEAST 75% OF THE BARK SHOULD BE INTACT.
  - AUGER HOLE TO A DEPTH OF ~1.0 m INSTALL TRUNK AND TAMP IN SAND AROUND BASE.
  - ~1.0 m OF TRUNK IS TO BE BURIED.
  - PLACE 0.50 m - 0.60 m STONE AROUND BASE FOR ADDITIONAL SUPPORT.
  - IF ROOT WAD IS USED PLACE ROOT AT TOP.
  - LOGS SHOULD BE SOURCED ON SITE (WHERE POSSIBLE).

**RAPTOR POLE**  
N.T.S.



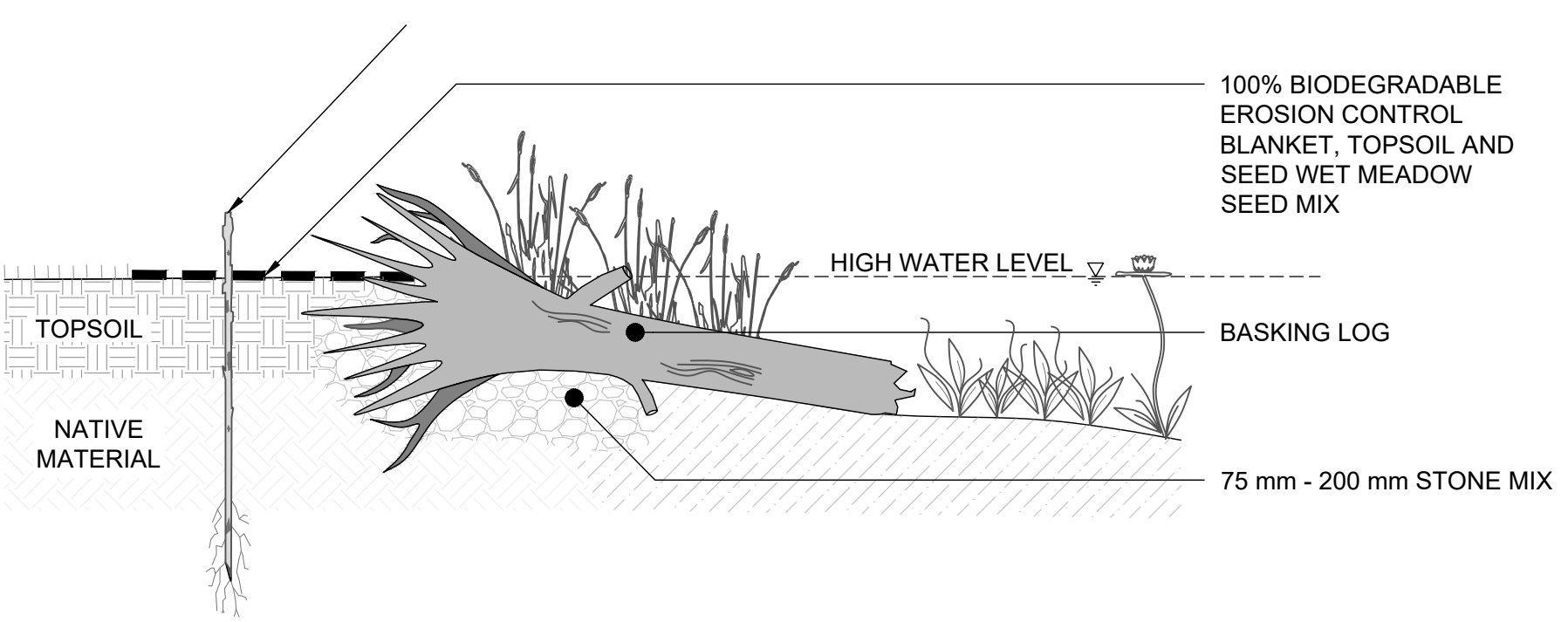
- NOTES**
1. SNAKE HIBERNACULUM PLACEMENT TO BE CONFIRMED BY A QUALIFIED BIOLOGIST.
  2. SNAKE HIBERNACULUM TO BE CONSTRUCTED INTO TOP OF SLOPE (SEE PLAN) ALONG WEST OR SOUTH FACING SLOPES IN A LOCATION FREE OF SHADE.
  3. A LIP IS TO BE CONSTRUCTED ALONG THE TOP OF SLOPE TO PREVENT RUNOFF FROM ENTERING THE HIBERNACULUM.
  4. LARGER STONES WITH BRUSH TO BE INSTALLED AT OPENING. DO NOT FILL VOIDS OR COMPACT MATERIAL AROUND STONES. CREATE CREVICES TO PROMOTE ENTRANCE INTO HIBERNACULUM.
  5. LOOSELY PLACE ANGULAR STONE RANGING IN SIZE FROM 0.10 m - 0.50 m AND WOODY DEBRIS SUCH THAT VOIDS REMAIN.
  6. CONCRETE DEBRIS MAY BE USED IF SOURCED ON SITE.
  7. HARDWOOD OR SOFTWOOD SPECIES ARE ACCEPTABLE FOR WOODY DEBRIS. LOGS SHOULD BE SOURCED ON SITE (WHERE POSSIBLE).

**SNAKE HIBERNACULUM**  
N.T.S.



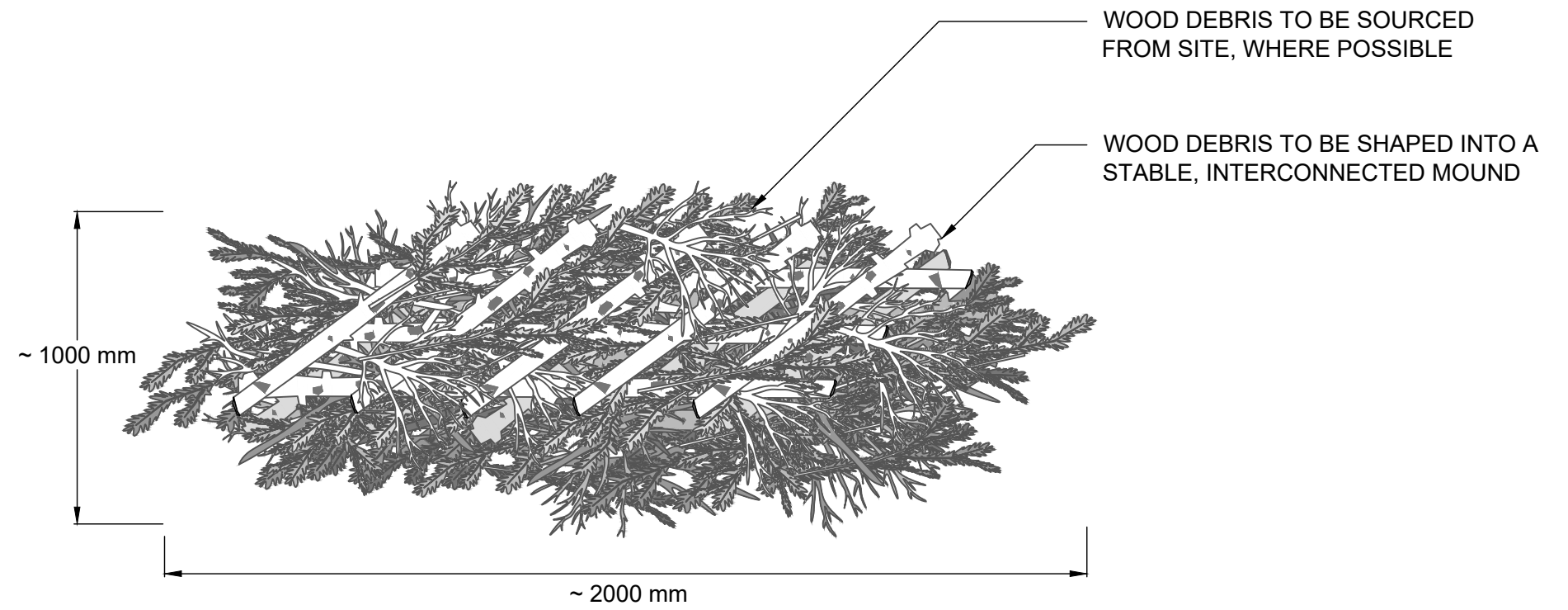
- NOTES**
- SALVAGE NATIVE TREES ON SITE, IF POSSIBLE, AND CUT TO DIMENSIONS SHOWN.
  - ROOT BALL TO BE ~1000 mm IN DIAMETER AND ~2000 mm IN LENGTH.
  - INSTALL BOTTOM 1/3 OF LIVE ROOT WAD INTO WETLAND.

**ROOT WAD**  
N.T.S.



- NOTES**
- ANCHOR AND SUPPORT BASKING LOGS WITH 75 mm - 200 mm STONE MIX.
  - FIRMLY COMPACT STONE MIX TO PREVENT THROUGH FLOW.
  - BURY 1/3 OF LOG INTO SOIL.
  - LENGTH OF BASKING LOGS ARE TO BE INSTALLED 1000 - 1500 mm INTO WET AREA.
  - BASKING LOGS TO BE A MINIMUM 500 mm IN DIAMETER AND 2000 - 2500 mm IN LENGTH.
  - BASKING LOGS SHOULD BE ANGLED TO PROMOTE TURTLE BASKING.
  - BASKING LOGS SHOULD BE A MIXTURE OF SUITABLE HARDWOOD AND SOFTWOOD SPECIES.

**BASKING LOG**  
N.T.S.

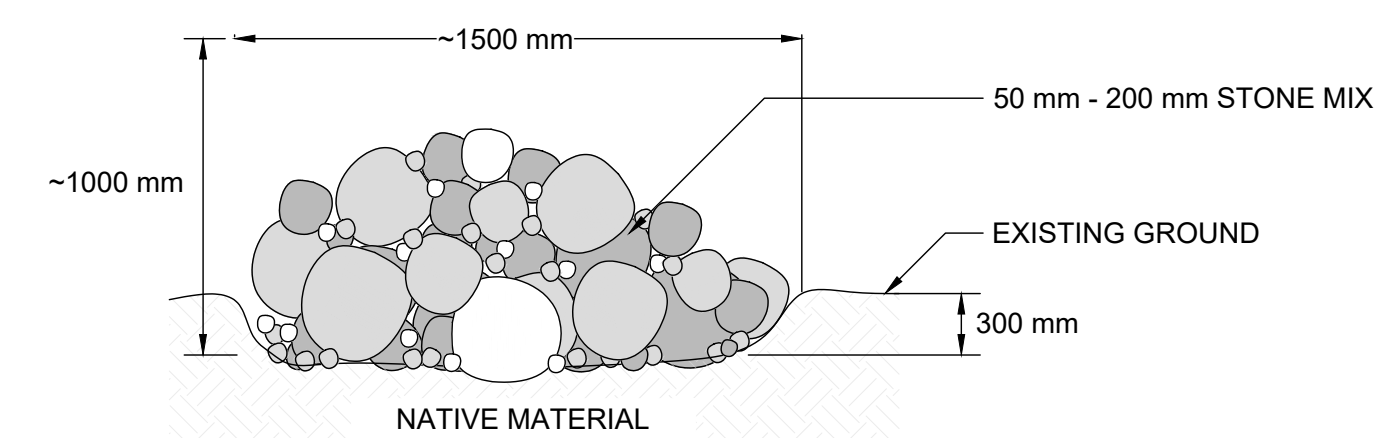


- NOTES**
- LARGEST AND HEAVIEST LOG MATERIAL SHOULD BE PLACED ON THE BASE OF THE BRUSH PILE. THE SMALLEST BRUSH MATERIAL SHOULD BE PLACED AT THE TOP.
  - LOGS SHOULD BE FORMED INTO A PALLET SHAPE.
  - HEIGHT OF BRUSH PILE IS NOT TO EXCEED 1000 mm.
  - A MIX OF HARDWOOD AND SOFTWOOD SHOULD BE USED.
  - PLANT WITH NATIVE FRUIT BEARING VINES.

**PALLET TYPE WOOD PILE**  
N.T.S.

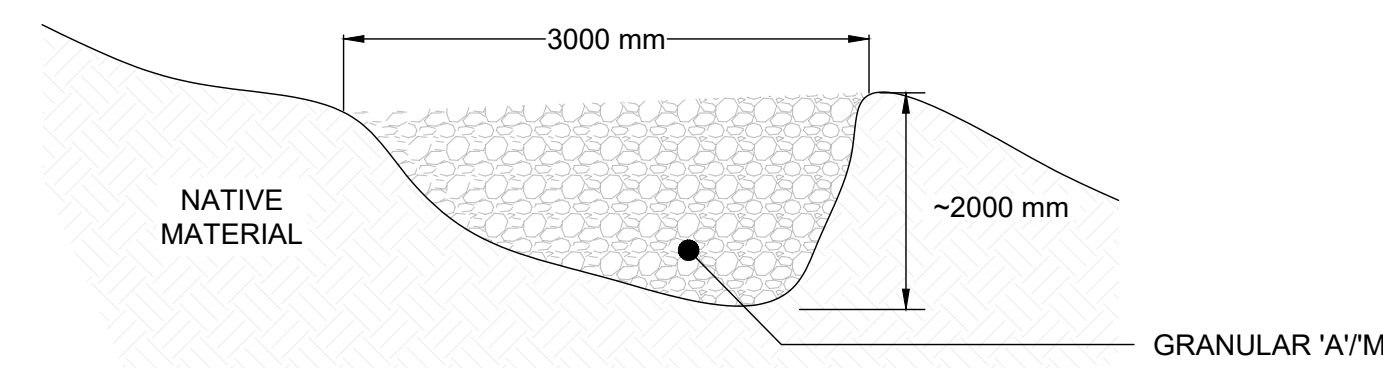
**EROSION CONTROL BLANKET SPECIFICATIONS**

- A BIODEGRADABLE EROSION CONTROL BLANKET (ECB) SHALL BE INSTALLED ON ALL DISTURBED NATURAL SURFACES FOLLOWING THE PLACEMENT OF TOPSOIL AND APPLICATION OF THE NATIVE SEED MIX.
- THE ECB MUST BE CONSTRUCTED OF 100% WOVEN COCONUT FIBRE (E.G., COIR) OR STRAW MAT WITHIN A GEOJUTE NETTING (TOP AND BOTTOM) WITH BIODEGRADABLE THREAD. NON-BIODEGRADABLE MATERIAL INCLUDING POLYPROPYLENE OR PLASTICS WITH A BIODEGRADABLE RATING ARE NOT ACCEPTABLE. THE MINIMUM WEIGHT OF THE ECB MUST BE 400 g/m<sup>2</sup> (12 oz./yd<sup>2</sup>).
- TO INSTALL, THE ECB MUST BE UNROLLED DOWNSLOPE OR IN DIRECTION OF WATER FLOW. ADJACENT ECBs SHOULD OVERLAP A MINIMUM OF 150 mm ALONG THE EDGES. AT THE END OF EACH ROLL, FOLD BACK 100 mm TO 200 mm OF THE ECB. OVERLAP THIS 100 mm TO 200 mm OVER THE START OF THE NEXT ROLL. SECURE THE TWO LAYERS TO THE GROUND SECURELY.
- BIODEGRADABLE OR TAPERED WOODEN STAKES SHALL BE USED TO SECURE THE BLANKET. STAKES SHALL BE INSTALLED AT THE SPACING RECOMMENDED BY THE ECB MANUFACTURER TO PREVENT SURFACE RUNOFF FROM ERODING THE UNDERLYING SOIL.



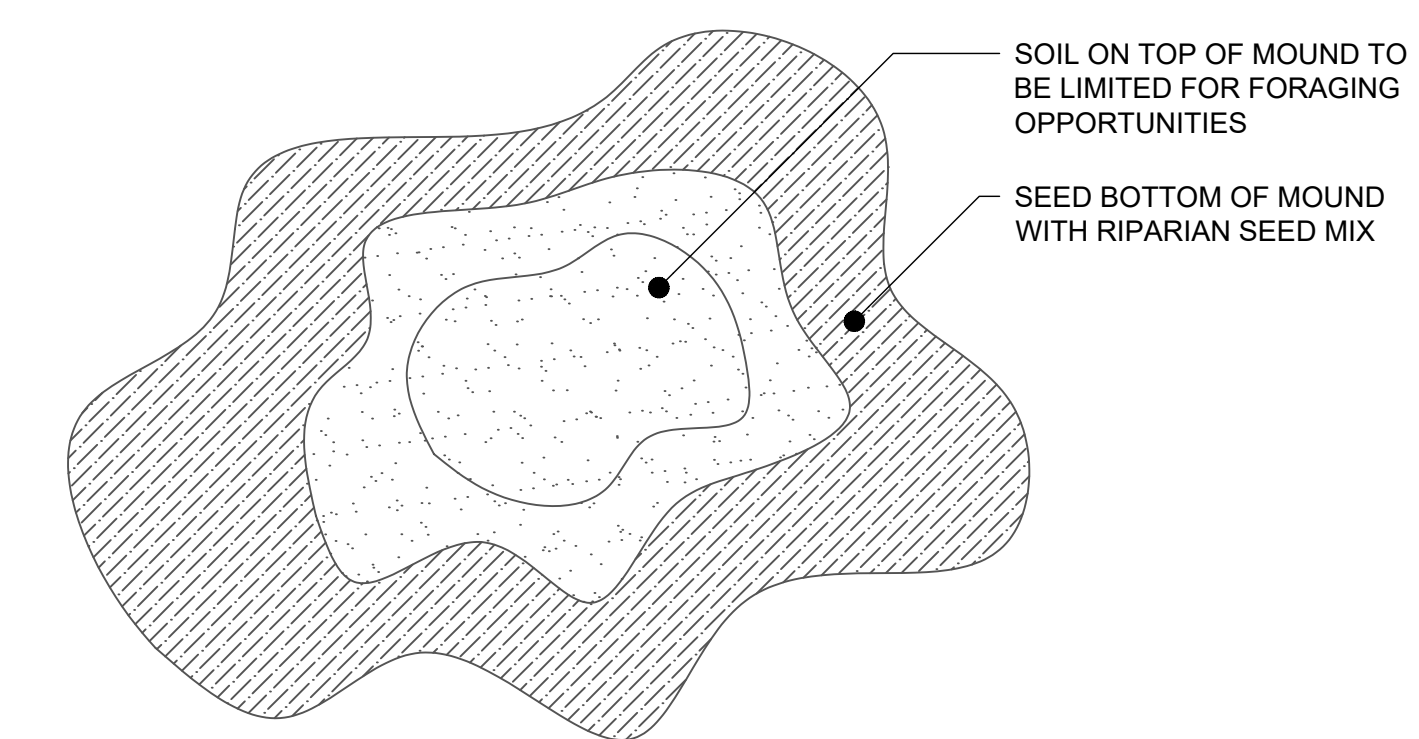
- NOTES**
- 50 mm - 200 mm STONE MIX WITH SOME ANGULAR STONES.
  - THE STONE MIX SHOULD PROVIDE A VARIETY OF INTERSTITIAL SPACES.
  - PILES ARE AT LEAST 1500 mm IN DIAMETER AND ~1000 mm HIGH.
  - EMBED ROCK PILE 300 mm TO AVOID ROCKFALL.

**ROCK PILE**  
N.T.S.



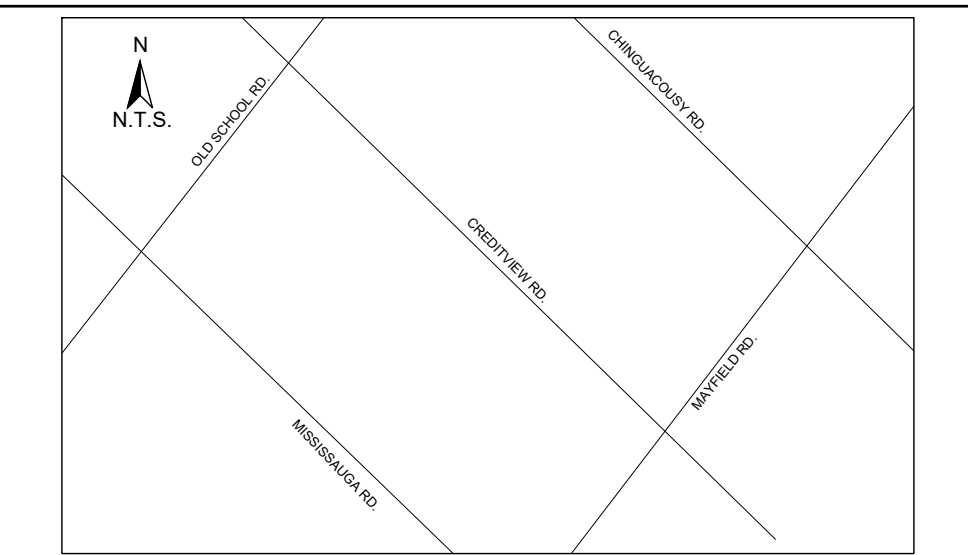
- NOTES**
- TURTLE NESTING SITE TO BE INSTALLED ON SLOPES AWAY FROM THE WATERCOURSE AND ON SOUTH OR WEST FACING SLOPES.
  - FEATURE TO BE CONSTRUCTED USING ROAD SHOULDER GRANULAR 'A/M' TYPE MATERIAL ONLY.
  - NO VEGETATION OR WOODY DEBRIS IS TO BE INCLUDED.

**TURTLE NEST**  
N.T.S.



- NOTES**
- HEIGHT OF TERRESTRIAL MOUND SHALL BE 500 mm TO 1000 mm.
  - LOCATION OF VEGETATED TERRESTRIAL MOUND IS TO BE DETERMINED BY THE DESIGNER IN FIELD, IN DRY AREAS ONLY.
  - CONSTRUCTION OF MOUND TO BE COMPLETED IN CONJUNCTION WITH VERNAL POOL EXCAVATION.
  - TERRESTRIAL MOUNDS TO BE GRADED TO MATCH EXISTING GROUND AND/OR TIE INTO EXISTING SLOPES.
  - TERRESTRIAL MOUND TO BE SLIGHTLY CONCAVE/DIMPLED ON TOP.
  - TERRESTRIAL MOUND TO BE SEEDED AND COVERED WITH 100% BIODEGRADABLE EROSION CONTROL BLANKET (BiNET C125BN OR APPROVED EQUIVALENT) IMMEDIATELY FOLLOWING SHAPING. EROSION CONTROL BLANKET TO BE SECURED WITH WOOD STAKES.
  - SEED MIX TO BE COMPRISED OF WOODLAND SPECIES. SEE DET-1 DRAWINGS FOR SEED MIX SPECIFICATIONS.

**TERRESTRIAL MOUND**  
N.T.S.



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- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO START OF WORKS. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT (E.G. CAN-COSEC CERTIFIED MONITOR) WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES. DEWATERING, AND IN-OR NEAR-WATER WORKS, SHOULD CONCERN ARISE, THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, THE CONSERVATION AUTHORITY, AND ANY OTHER APPROPRIATE PARTIES.
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- DELETERIOUS SUBSTANCE CONTROL/SPILL MANAGEMENT**
- PREVENT THE RELEASE OF SEDIMENT, SEDIMENT-LADEN WATER, RAW CONCRETE, CONCRETE LEACHATE OR ANY OTHER DELETERIOUS SUBSTANCES INTO ANY WATERBODY, RAINE OR STORM SEWER SYSTEM.
  - ENSURE EQUIPMENT AND MACHINERY ARE IN GOOD OPERATING CONDITION (POWER WASHED), FREE OF LEAKS, EXCESS OIL AND GREASE.
  - NO EQUIPMENT REBUILDING OR SERVICING SHOULD BE UNDERTAKEN WITHIN 30 m OF ANY WATERCOURSE OR SURFACE WATER DRAINAGE.
  - A SPILL CONTAINMENT KIT MUST BE READILY ACCESSIBLE ON SITE IN THE EVENT OF A RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT. ON-SITE STAFF MUST BE TRAINED IN ITS USE.
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- WORK AREA ISOLATION**
- ALL WORK IN ISOLATED WORK AREAS MUST BE COMPLETED IN THE DRY. AN ADEQUATE NUMBER OF PUMPS MUST BE USED FOR UNWATERING.
  - CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY THE CONSERVATION AUTHORITY. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDES OF THE WATERCOURSE OR WETLAND.
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DATE	BY	REVISIONS
DESIGNED BY: LD/AS	CHECKED BY: PV	
DRAWN BY: AL/CP/SC	DATE: JUNE 2024	

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

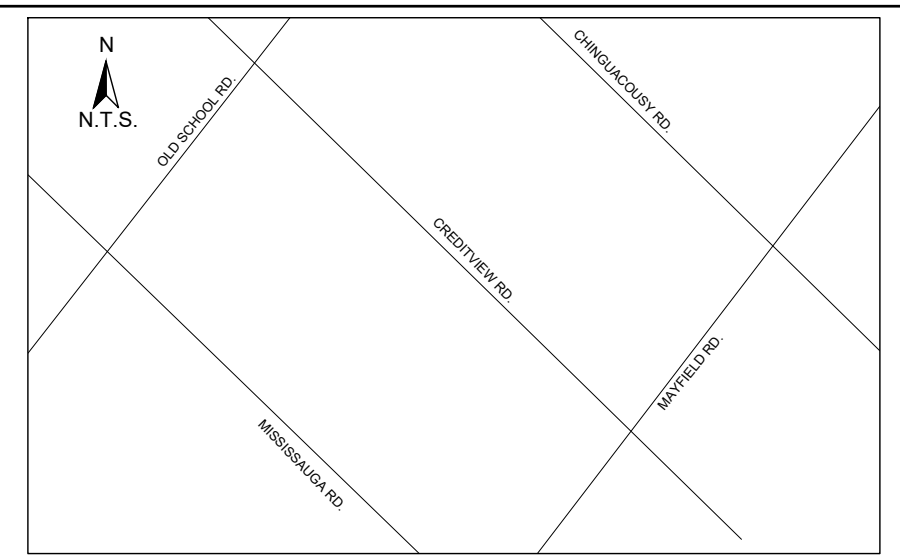
**GEO MORPHIX™**  
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Campbellville, Ontario L0P 1B0  
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www.geomorphix.com

**ALLOA SPA TOWN OF CALEDON**

**ETOBICOKE CREEK - ALLOA DRAIN CONCEPTUAL CHANNEL DESIGN RESTORATION DETAILS**

PROJECT No.: PN24009	DRAWING No.: DET-8
SCALE: AS NOTED	SHEET 34 OF 35





- GENERAL NOTES**
1. THE ACCOMPANYING CHANNEL REALIGNMENT TECHNICAL DESIGN BRIEF PREPARED BY GEO MORPHIX LTD. (2023) PROVIDES ADDITIONAL DESIGN DETAILS AND DIRECTION FOR IMPLEMENTATION AND IS TO BE REVIEWED IN CONJUNCTION WITH THIS DRAWING SET.
  2. ALL CONTRACT DRAWINGS, SPECIFICATIONS AND APPLICABLE PERMITS MUST BE KEPT ON SITE DURING CONSTRUCTION FOR REFERENCE.
  3. THE CONTRACTOR MUST NOTIFY THE DESIGNER AND CONTRACT ADMINISTRATOR OF THE INTENT TO COMMENCE WORK AT LEAST 48 HOURS IN ADVANCE.
  4. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATES.
  5. LAYOUT MUST BE REVIEWED AND APPROVED BY THE DESIGNER / DESIGNER REPRESENTATIVE, DESIGNATED ENGINEER AND THE CONTRACT ADMINISTRATOR.
  6. CONSTRUCTION OBSERVATION IS TO BE PERFORMED BY A CERTIFIED FLUVIAL GEOMORPHOLOGIST OR EXPERIENCED ENVIRONMENTAL INSPECTOR UNDER DIRECTION FROM THE DESIGNER.
  7. ON-SITE SUPPORT FROM PROJECT ENGINEERS (GEOLOGICAL, HYDROLOGICAL, AND/OR WATER RESOURCES ENGINEERS) REQUIRED TO ASSESS AND ENSURE FAVOURABLE SURFICIAL AND SUBSURFACE CONDITIONS TO SUPPORT CHANNEL REALIGNMENT CONSTRUCTION.
  8. BE ADVISED THAT THE LOCAL REGULATORY BODY MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUTES, REGULATIONS OR BY-LAWS, OR ANY RIGHTS UNDER COMMON LAW.

- TIMING OF WORKS**
1. WORKS SHALL BE COMPLETED DURING THE DESIGNATED IN-WATER WORKS WINDOW SET OUT BY MNRF/DFO.
  2. TREE CLEARING IS TO BE COMPLETED OUTSIDE THE BIRD NESTING SEASON (APRIL 1ST TO AUGUST 1ST) TO COMPLY WITH THE FEDERAL MIGRATORY BIRDS CONVENTION ACT. ANY TREES THAT REQUIRE REMOVAL OUTSIDE OF THIS TIMING WINDOW MUST FIRST BE INSPECTED BY A QUALIFIED BIOLOGIST TO DETERMINE THE PRESENCE OF NESTING BIRDS.
  3. THE WEATHER FORECAST SHOULD BE CONTINUALLY MONITORED TO ENSURE THAT WORKS ARE UNDERTAKEN ONLY DURING FAVOURABLE WEATHER CONDITIONS.
  4. COMPLETE THE WORKS WITH MINIMAL AVAILABLE INTERRUPTIONS ONCE THEY COMMENCE.

- SITE AND MATERIAL MANAGEMENT**
1. ALL CONSTRUCTION EQUIPMENT AND MATERIALS (IMPORTED OR EXCAVATED) MUST BE STORED AT LEAST 30 m AWAY FROM ANY WATERBODY OR A STABLE AREA ABOVE THE ACTIVE FLOODPLAIN OR IN A DESIGNATED STAGING/STORAGE AREA.
  2. IN THE EVENT OF AN UNEXPECTED STORM, ALL UNFIXED ITEMS THAT HAVE THE POTENTIAL TO CAUSE A SPILL OR AN OBSTRUCTION TO FLOW MUST BE MOVED A STABLE AREA ABOVE ACTIVE FLOODPLAIN.
  3. STOCKPILES MUST BE LOCATED OUTSIDE THE ISOLATED WORK AREAS.
  4. STABILIZE, TEMPORARILY OR PERMANENTLY, ANY DISTURBED AREAS AS WORK PROGRESSES, OR SOON AS CONDITIONS ALLOW.
  5. MINIMIZE THE AREA OF DISTURBANCE TO THE EXTENT POSSIBLE. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED USING APPROPRIATE EROSION CONTROL MEASURES AND AN APPROPRIATE SEED MIX AS NOTED WITHIN THE FINAL APPROVED RESTORATION PLAN.
  6. ALL VEGETATION, ADJACENT TO THE WORK AREA, MUST BE PROTECTED AND DELIMITED WITH CONSTRUCTION FENCING OR TREE PROTECTION BARRIERS.
  7. ALL GRASSES IN THE AREA REGULATED BY THE CONSERVATION AUTHORITY MUST BE MAINTAINED OR MATCHED, UNLESS OTHERWISE AUTHORIZED BY THE APPLICABLE PERMIT.
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DATE	BY	REVISIONS

DESIGNED BY: LD/AS      CHECKED BY: PV  
 DRAWN BY: AL/CP/SC      DATE: JUNE 2024

**DRAFT FOR INTERNAL DISCUSSION**

**NOT FOR CONSTRUCTION**

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ALLOA SPA  
 TOWN OF CALEDON

ETOBICOKE CREEK - ALLOA DRAIN  
 CONCEPTUAL CHANNEL DESIGN  
 RESTORATION DETAILS

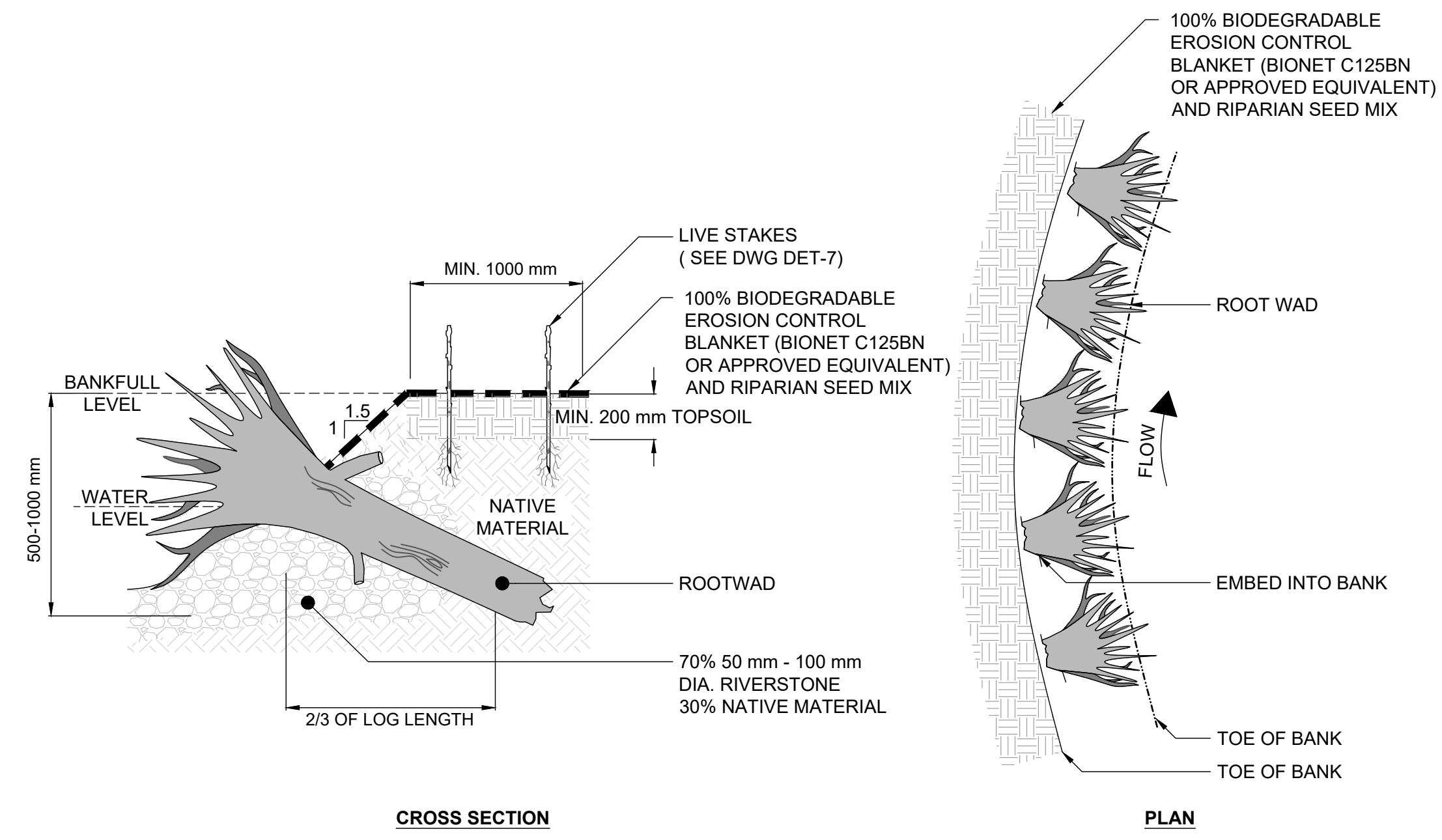
PROJECT No.: PN24009	DRAWING No.: DET-9
SCALE: AS NOTED	SHEET 35 OF 35

TRCA - ONTARIO WET MEADOW		
SCIENTIFIC NAME	COMMON NAME	PERCENTAGE
<i>ASCLEPIAS INCARNATA</i>	SWAMP MILKWEED	2%
<i>BROMUS CILIATUS</i>	FRINGED BROME	2%
<i>CAREX BEBBII</i>	BEBB'S SEDGE*	1%
<i>CAREX STIPATA</i>	AWL-FRUITED SEDGE	1%
<i>CAREX VULPINOIDEA</i>	FOX SEDGE	5%
<i>DOELLINGERIA UMBELLATA</i>	FLAT-TOPPED ASTER	1%
<i>ELYMUS RIPARIUS</i>	RIVERBANK RYE	10%
<i>ELYMUS VIRGINICUS</i>	VIRGINIA WILD RYE	10%
<i>EUPATORIUM MACULATUM</i>	JOE-PYE WEED	3%
<i>EUPATORIUM PERFOLIATUM</i>	BONESET	2%
<i>GLYCERIA STRIATA</i>	FOWL MANNA GRASS	3%
<i>JUNCUS ARTICULATUS</i>	JOINTED RUSH	2%
<i>JUNCUS BALTICUS</i>	BALTIC RUSH	1%
<i>JUNCUS EFFUSUS</i>	SOFT RUSH	1%
<i>JUNCUS TENUIS</i>	PATH RUSH	2%
<i>JUNCUS TORREYI</i>	TORREY'S RUSH*	1%
<i>LIATRIS SPICATA</i>	DENSE BLAZING STAR	1%
<i>LOBELIA CARDINALIS</i>	CARDINAL FLOWER	1%
<i>LOBELIA SIPHILITICA</i>	BLUE LOBELIA	1%
<i>MIMULUS RINGENS</i>	MONKEY FLOWER	1%
<i>MONARDA FISTULOSA</i>	WILD BERGAMONT	3%
<i>OENOTHERA BIENNIS</i>	EVENING PRIMROSE	2%
<i>PANICUM VIRIGATUM</i>	SWITCH GRASS	10%
<i>PENSTEMON DIGITALIS</i>	FOXGLOVE BEARDTONGUE	2%
<i>PHYSOSTEGIA VIRGINIANA SSP. VIRGINIANA</i>	FALSE DRAGONHEAD OR OBEDIENT PLANT	2%
<i>RUDBECKIA HIRTA</i>	BLACK EYED SUSAN	5%
<i>RUDBECKIA LACINIATA</i>	GREEN CONEFLOWER*	1%
<i>SCIRPUS ATROVIRENS</i>	GREEN BULRUSH	3%
<i>SCIRPUS CYPERINUS</i>	WOOLGRASS BULRUSH	3%
<i>SOLIDAGO GRAMINIFOLIA</i>	LANCE-LEAVED GOLDENROD*	1%
<i>SORGHASTRUM NUTANS</i>	INDIAN GRASS	7%
<i>SYMPHYOTRICHUM ERICOIDES</i>	HEATH ASTER	2%
<i>SYMPHYOTRICHUM NOVAE-ANGLIAE</i>	NEW ENGLAND ASTER	1%
<i>SYMPHYOTRICHUM PILOSUM</i>	HAIRY ASTER	2%
<i>SYMPHYOTRICHUM PUNICEUM</i>	SWAMP ASTER	2%
<i>VERBENA HASTATA</i>	BLUE VERVAIN	3%

- NOTES:**
1. APPLY SEED MIX AT A RATE OF 16 kg PER HECTARE.
  2. SEEDING SHALL OVERLAP ADJACENT GROUND COVER BY 300 mm.
  3. SIMULTANEOUSLY APPLY A NURSE CROP AT A RATE OF 30 kg PER HECTARE
  4. WATER SOIL AFTER SEED APPLICATION.

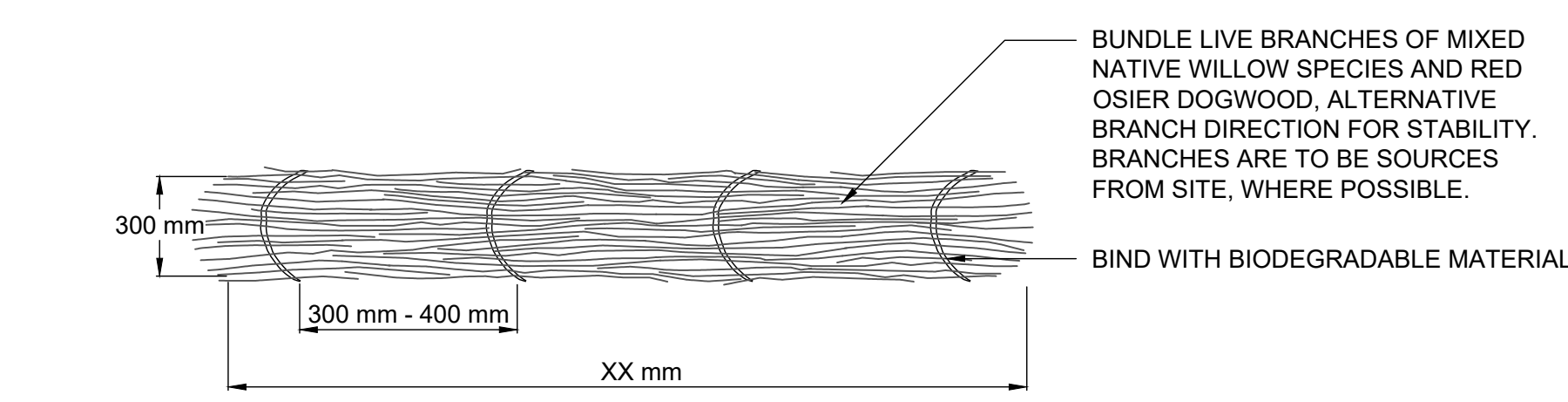
TRCA - RIPARIAN MIX		
SCIENTIFIC NAME	COMMON NAME	PERCENTAGE
<i>ASCLEPIAS INCARNATA</i>	SWAMP MILKWEED	1.0%
<i>BROMUS CILIATUS</i>	FRINGED BROME	5.0%
<i>CAREX BEBBII</i>	BEBB'S SEDGE*	1.0%
<i>CAREX STIPATA</i>	AWL-FRUITED SEDGE	1.0%
<i>CAREX VULPINOIDEA</i>	FOX SEDGE	5.0%
<i>DOELLINGERIA UMBELLATA</i>	FLAT-TOPPED ASTER	1.0%
<i>ELYMUS RIPARIUS</i>	RIVERBANK RYE	15.0%
<i>ELYMUS VIRGINICUS</i>	VIRGINIA WILD RYE	20.0%
<i>EUPATORIUM MACULATUM</i>	JOE-PYE WEED	2.0%
<i>EUPATORIUM PERFOLIATUM</i>	BONESET	2.0%
<i>GLYCERIA STRIATA</i>	FOWL MANNA GRASS	5.0%
<i>JUNCUS ARTICULATUS</i>	JOINTED RUSH	1.0%
<i>JUNCUS BALTICUS</i>	BALTIC RUSH	1.0%
<i>JUNCUS EFFUSUS</i>	SOFT RUSH	1.0%
<i>JUNCUS TENUIS</i>	PATH RUSH	1.0%
<i>JUNCUS TORREYI</i>	TORREY'S RUSH*	1.0%
<i>LIATRIS SPICATA</i>	DENSE BLAZING STAR	1.0%
<i>LOBELIA CARDINALIS</i>	CARDINAL FLOWER	1.0%
<i>LOBELIA SIPHILITICA</i>	BLUE LOBELIA	1.0%
<i>MIMULUS RINGENS</i>	MONKEY FLOWER	1.0%
<i>MONARDA FISTULOSA</i>	WILD BERGAMONT	4.0%
<i>OENOTHERA BIENNIS</i>	EVENING PRIMROSE	1.0%
<i>PANICUM VIRIGATUM</i>	SWITCH GRASS	5.0%
<i>PENSTEMON DIGITALIS</i>	FOXGLOVE BEARDTONGUE	2.0%
<i>PHYSOSTEGIA VIRGINIANA SSP. VIRGINIANA</i>	FALSE DRAGONHEAD OR OBEDIENT PLANT	2.0%
<i>RUDBECKIA HIRTA</i>	BLACK EYED SUSAN	2.0%
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<i>SOLIDAGO GRAMINIFOLIA</i>	LANCE-LEAVED GOLDENROD*	1.0%
<i>SYMPHYOTRICHUM NOVAE-ANGLIAE</i>	NEW ENGLAND ASTER	2.0%
<i>SYMPHYOTRICHUM PILOSUM</i>	HAIRY ASTER	2.0%
<i>SYMPHYOTRICHUM PUNICEUM</i>	SWAMP ASTER	1.0%
<i>VERBENA HASTATA</i>	BLUE VERVAIN	2.0%

- NOTES:**
1. APPLY SEED MIX AT A RATE OF 22 kg PER HECTARE.
  2. SEEDING SHALL OVERLAP ADJACENT GROUND COVER BY 300 mm.
  3. SIMULTANEOUSLY APPLY A NURSE CROP AT A RATE OF 30 kg PER HECTARE
  4. WATER SOIL AFTER SEED APPLICATION.



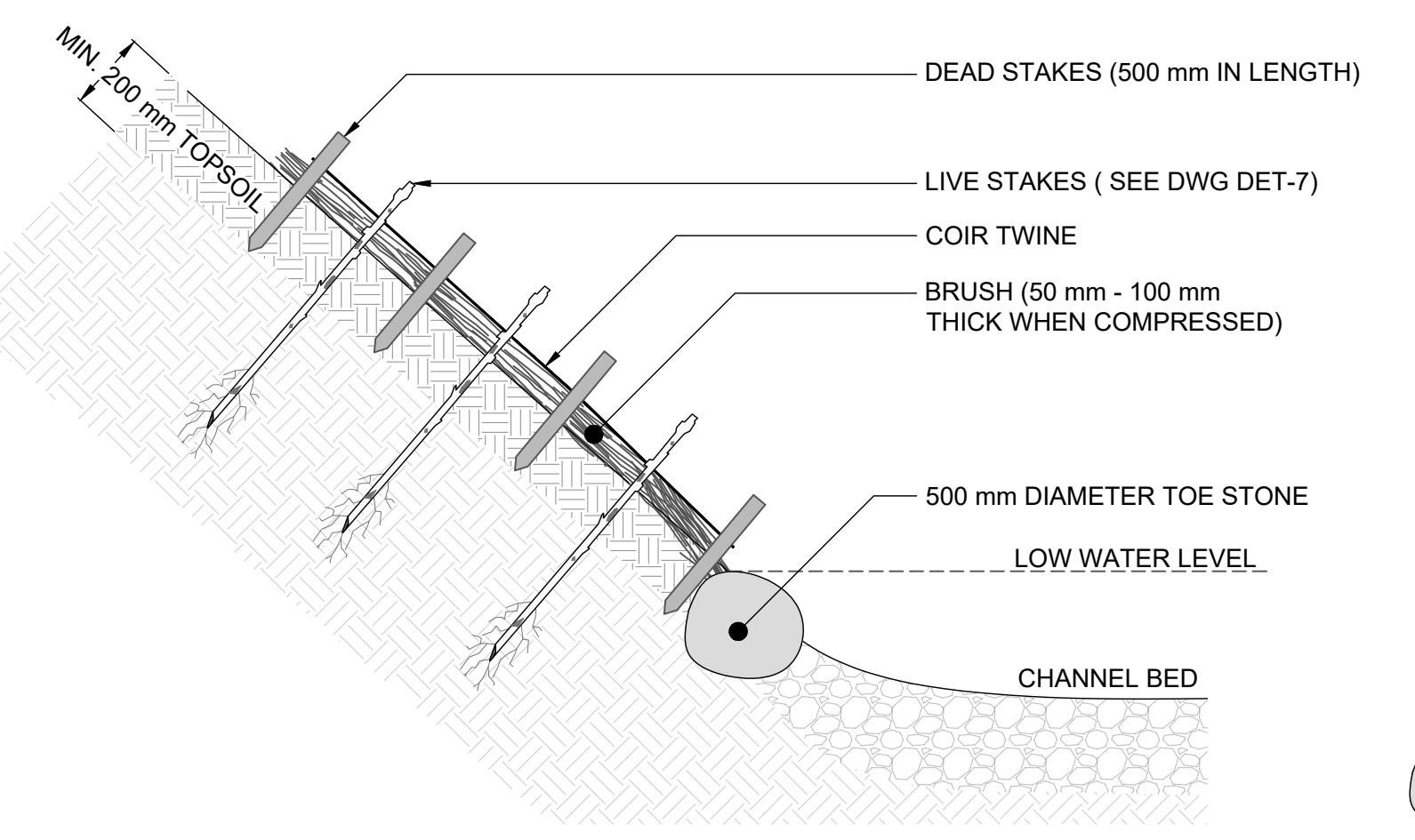
**ROOT WAD BANK ENHANCEMENT**  
 N.T.S.

- NOTES**
1. ROOT WADS TO BE SOURCED ON-SITE.
  2. ANCHOR ROOT WADS INTO BANK AND SUPPORT WITH STONE.
  3. ROOT WAD LOGS TO BE A MINIMUM 500 mm IN DIAMETER AND 2000 mm IN LENGTH WITH A 1000 - 1500 mm ROOT BALL.
  4. BURY 2/3 OF THE ROOT WAD LOG (APPROXIMATELY 1000 mm) INTO THE CHANNEL BANK.
  5. ROOT WADS TO BE SPACED SUCH THAT ROOT STEMS OVERLAP.



**WATTLE/ FASCINE DETAIL**  
 N.T.S.

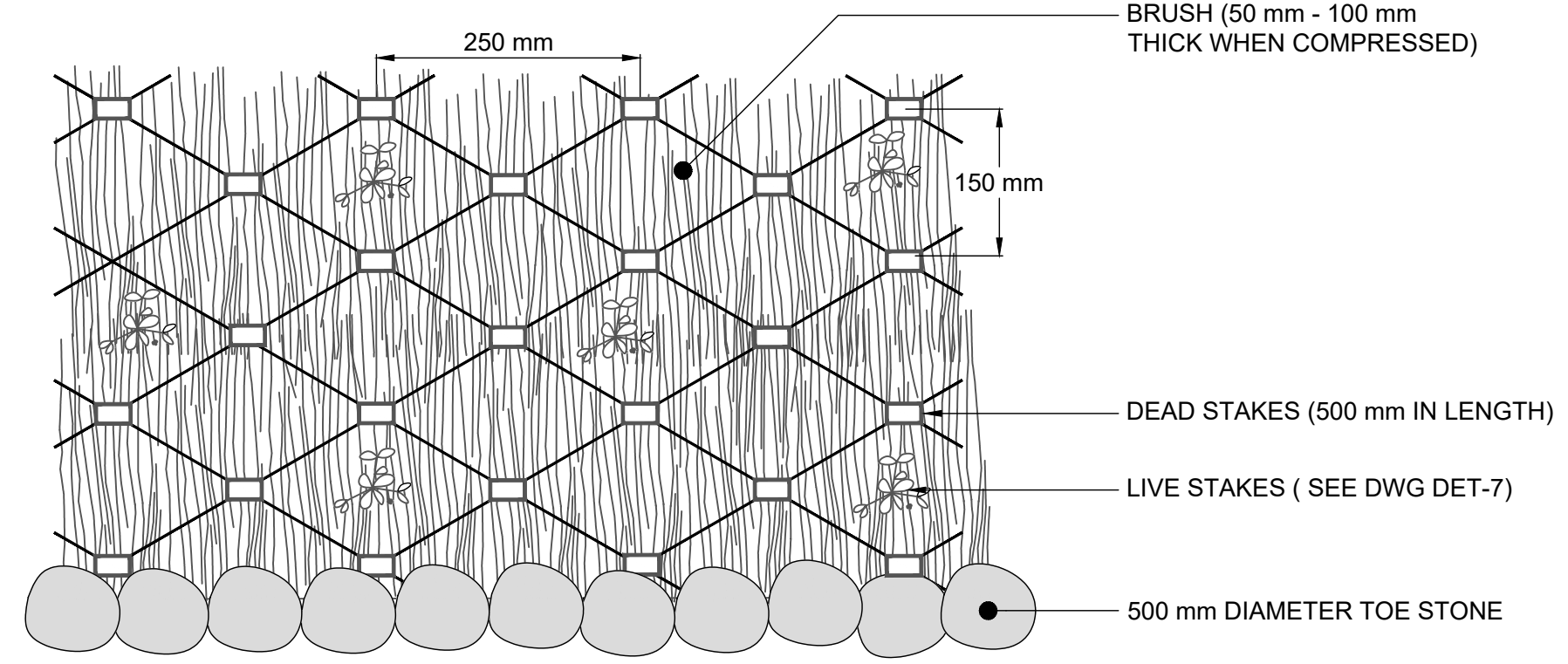
- NOTES**
1. WATTLES TO BE INSTALLED IN A 200 mm WIDE TRENCH AND STAKED EVERY METER.
  2. WATTLE AND GRADING INSTALLATION TO RESULT IN A LEVEL BERM WITHOUT BREAKS.



**CROSS SECTION**

- NOTES**
1. LIVE BRANCHES TO CONSIST OF WILLOW AND DOGWOOD SPECIES, APPROXIMATELY 1 m IN LENGTH AND 50 mm - 100 mm IN WIDTH.
  2. BRANCHES TO BE KEPT IN MOIST AND COLD UNTIL INSTALLATION.
  3. BRUSH MATTRESS TO BE INSTALLED WHILE BRANCHES ARE DORMANT.
  4. BRANCHES TO BE PLACED ON SLOPE WITH BUTT END TOWARDS VALLEY FLOOR AND PUSHED INTO SOIL.
  5. BRANCHES MUST BE FLEXIBLE ENOUGH TO CONFORM TO THE SLOPE SURFACE IRREGULARITIES.
  6. POUND DEAD STAKES TO HALF THEIR LENGTH INTO SOIL BETWEEN BRANCHES. TIE COIR TWINE AROUND DEAD STAKES AND TIGHTLY OVER BRANCHES. USE A CLOVE HITCH TO SECURE STAKES. POUND STAKES INTO SLOPE TO COMPRESS BRANCHES AGAINST GROUND.
  7. TAMP LIVE STAKES BETWEEN DEAD STAKES.
  8. FILL VOIDS BETWEEN BRANCHES OF THE BRUSH MATTRESS WITH SOIL TO PROMOTE ROOTING.

**BRUSH MATTRESS**  
 N.T.S.



**PLAN**



**Appendix J:  
Proposed Crossing Locations**

DRAFT



### Watercourse and Corridor Crossing Locations Alloa Secondary Plan Area Caledon, Ontario

# DRAFT

#### Legend

- Reach Break and ID
- Proposed New Crossing
- Proposed Crossing Upgrade
- Headwater Drainage Feature
- Tile Drain
- Watercourse
- Not Field Assessed
- Proposed Road Network
- OHN Waterbody
- Participating Properties
- Non-Participating Properties, Access
- Non-Participating Property, No Access
- Phase 1 Lands
- Phase 2 Lands
- Alloa Secondary Plan Area and Primary Study Area

# DRAFT

