



W I L L S

PARTNERS IN
ENGINEERING

City of Kawartha Lakes

Drainage Board Meeting



W I L L S

MacEachern Brown Municipal Drain

Engineers Report Presentation

January 20, 2022



Project Team

The City of Kawartha Lakes (CKL) Team Included:

- Mike Farquhar Supervisor, Technical Services
- Richard Monaghan Drainage Superintendent

The D.M. Wills Associates Ltd. (Wills) Team Included:

- Ken Smith, P.Eng., Project Manager and Engineer
- Mark Hoar, P.Eng., Project Engineer

Project Location

County Road 46 and Palestine Road – Approx. 35 km N-W of Lindsay



Project Location

County Road 46 and Palestine Road – 2019 Aerial Imagery



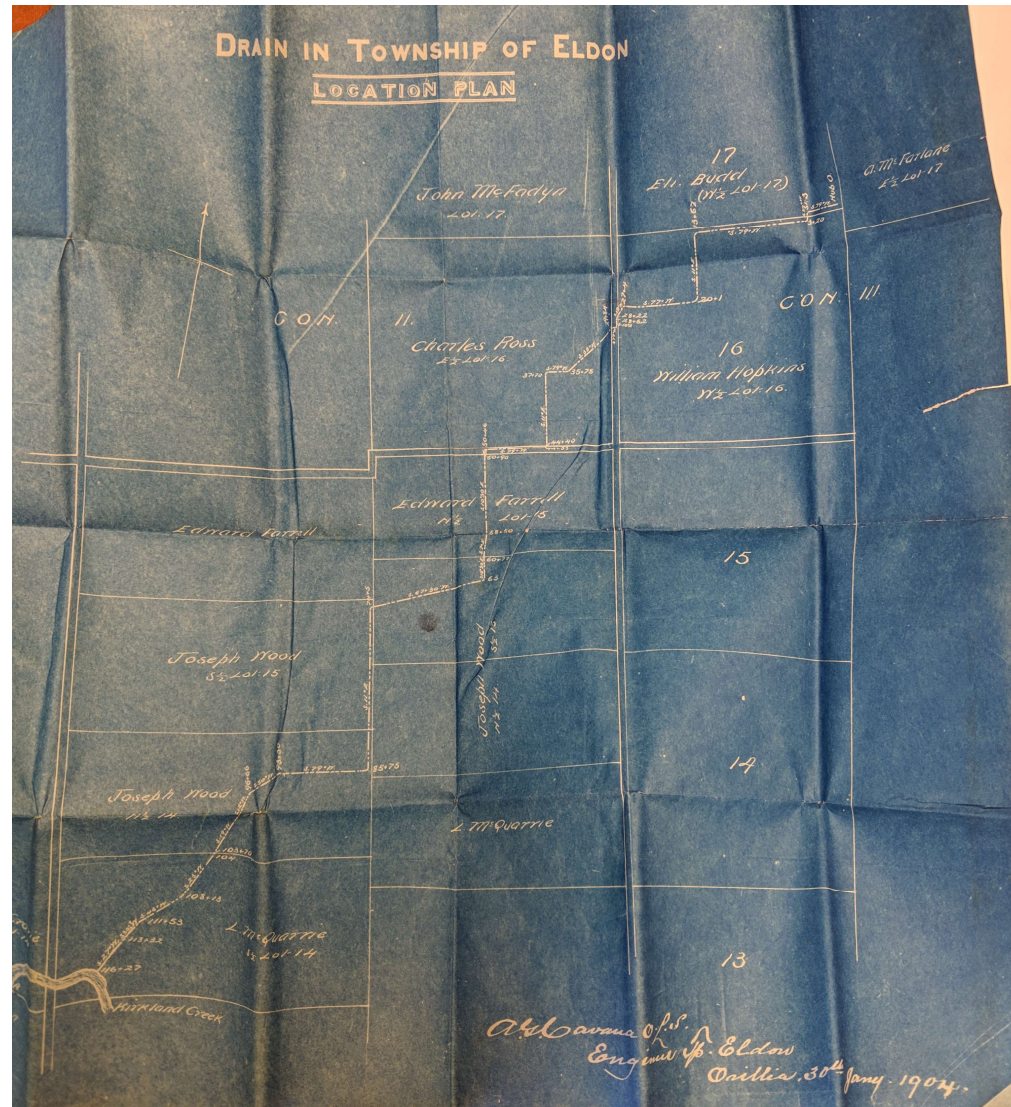
N.T.S.

Project Background

Site History

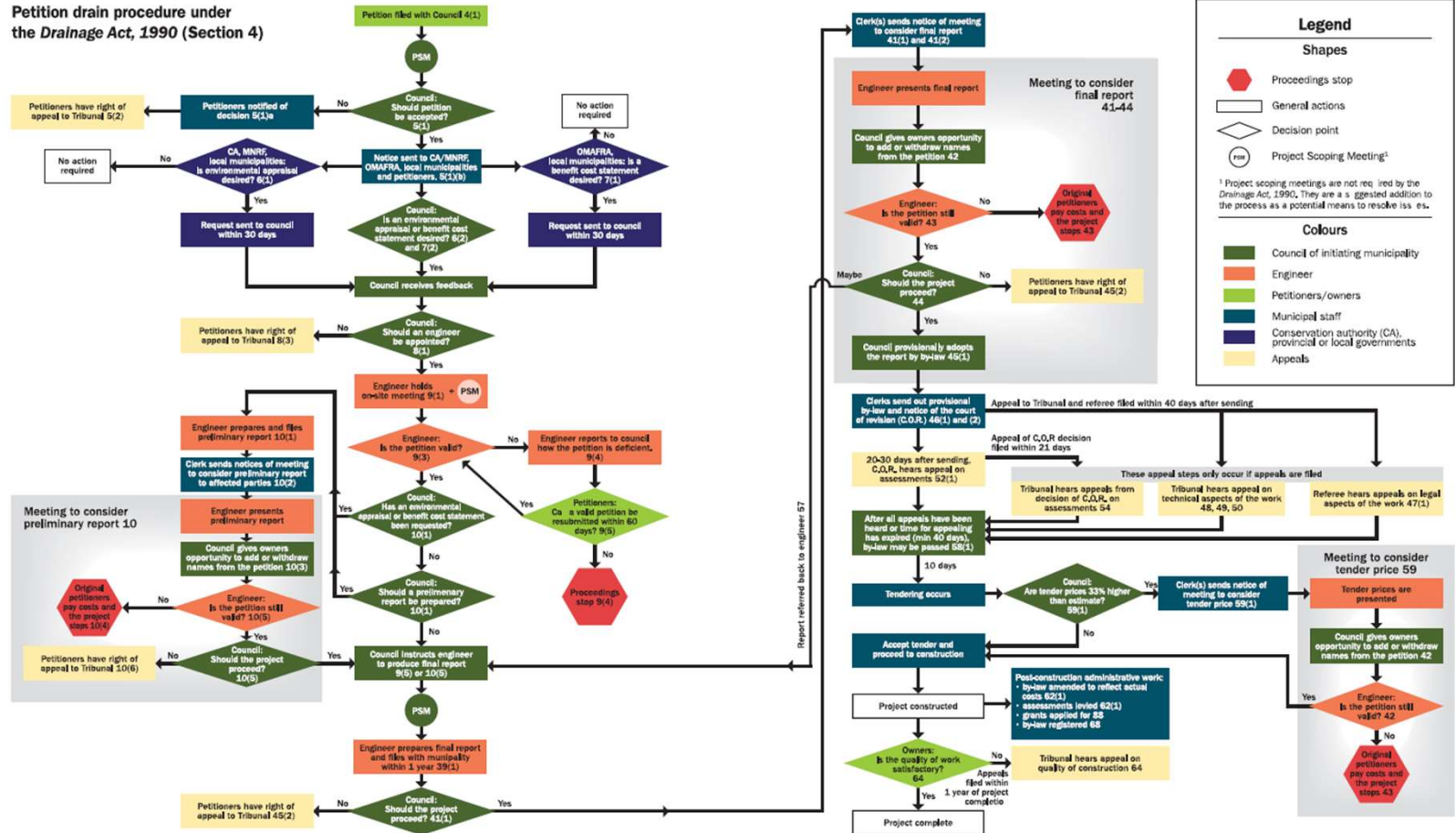
- This existing drainage path is identified as the Eli Budd Award Drain, awarded for construction in 1904. An 'Award of Engineer' Report is available and includes a plan of the drain.
- In 2019, the CKL Drainage Superintendent was called to the site to discuss concerns regarding the current quality of drainage; and various potential solutions were discussed. The reported drainage issues included both a modification to the drain from open channel flow to piped conveyance, and reduced drainage due to sedimentation.
- A key consideration during these discussion was the lack of vertical profile for the Eli Budd Award Drain within the reference documents.
- Following the discussions a petition was received by City of Kawartha Clerks department on September 3, 2019; as per Section 4(1) of the Ontario Drainage Act.

Project Background – Eli Budd Award Drain



The Drainage Act Process Overview

Petition drain procedure under the Drainage Act, 1990 (Section 4)

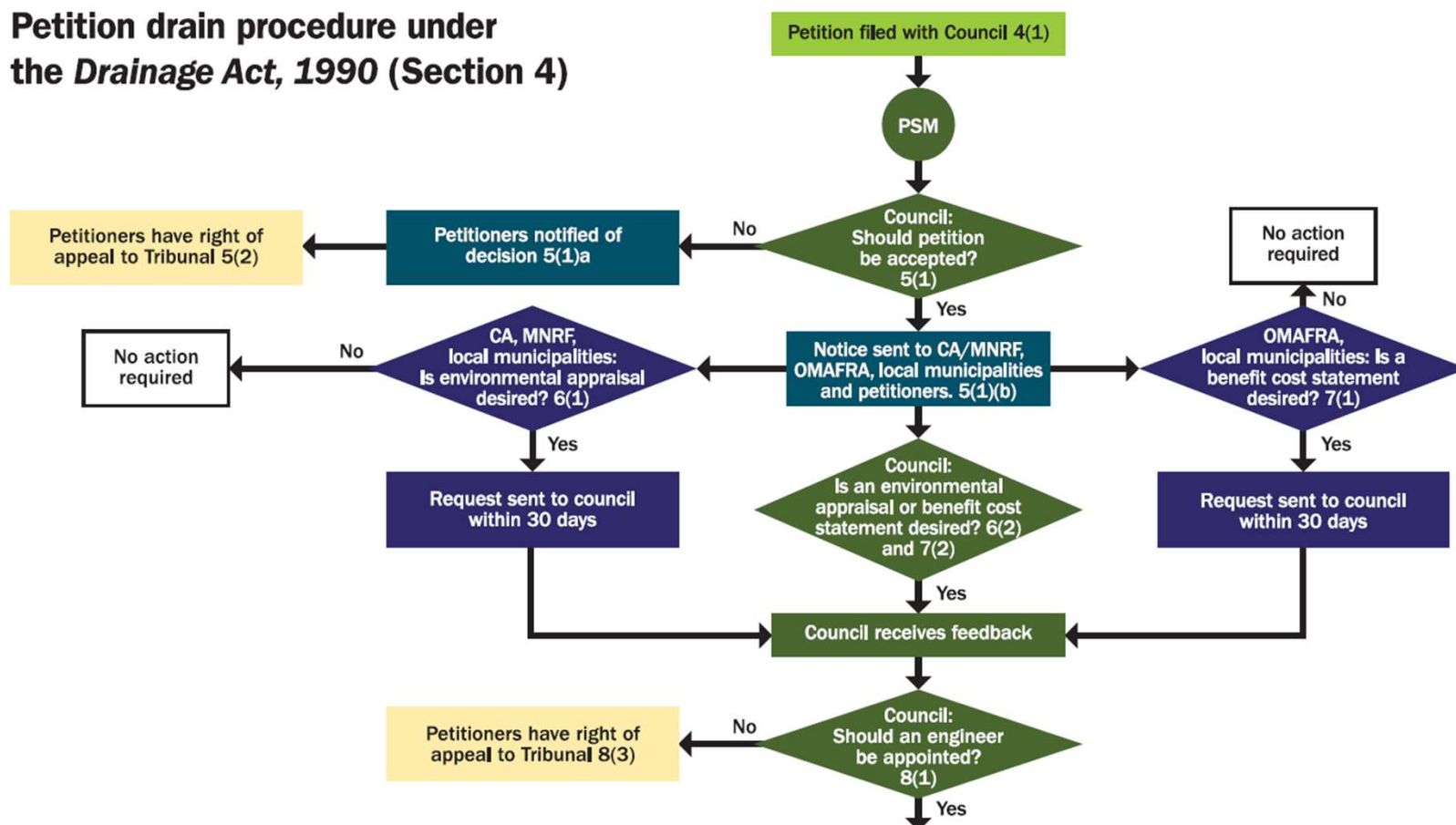


Source: Ministry of Agriculture, Food and Rural Affairs. (2018) *Drain Improvement Procedure Under Drainage Act (Section 4)*. Queen's Printer for Ontario

The Drainage Act Process

Part 1 of 4 – Receipt of Petition

Petition drain procedure under the *Drainage Act, 1990* (Section 4)



The Drainage Act Process

Part 1 of 4 – Receipt of Petition

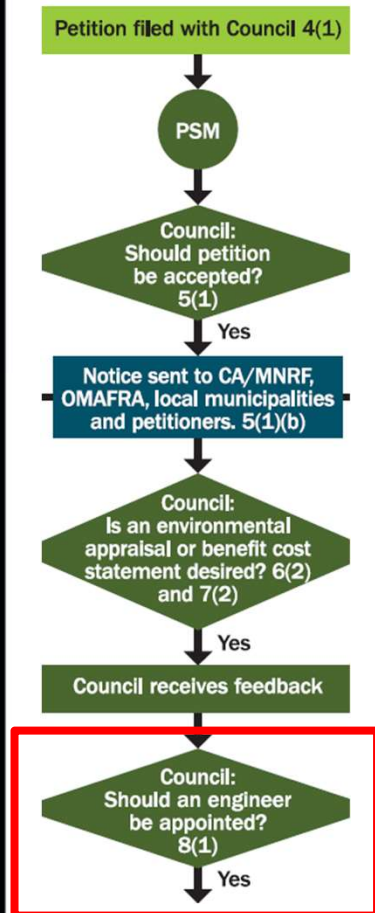


The petition was received on September 3rd, 2019 from the following landowners:

- D. S. & B. Farms Inc.
Lot 16, Con. 2
- Robert & Lynda MacEachern
Lot 16, Con. 3

The Drainage Act Process

Part 1 of 4 – Receipt of Petition

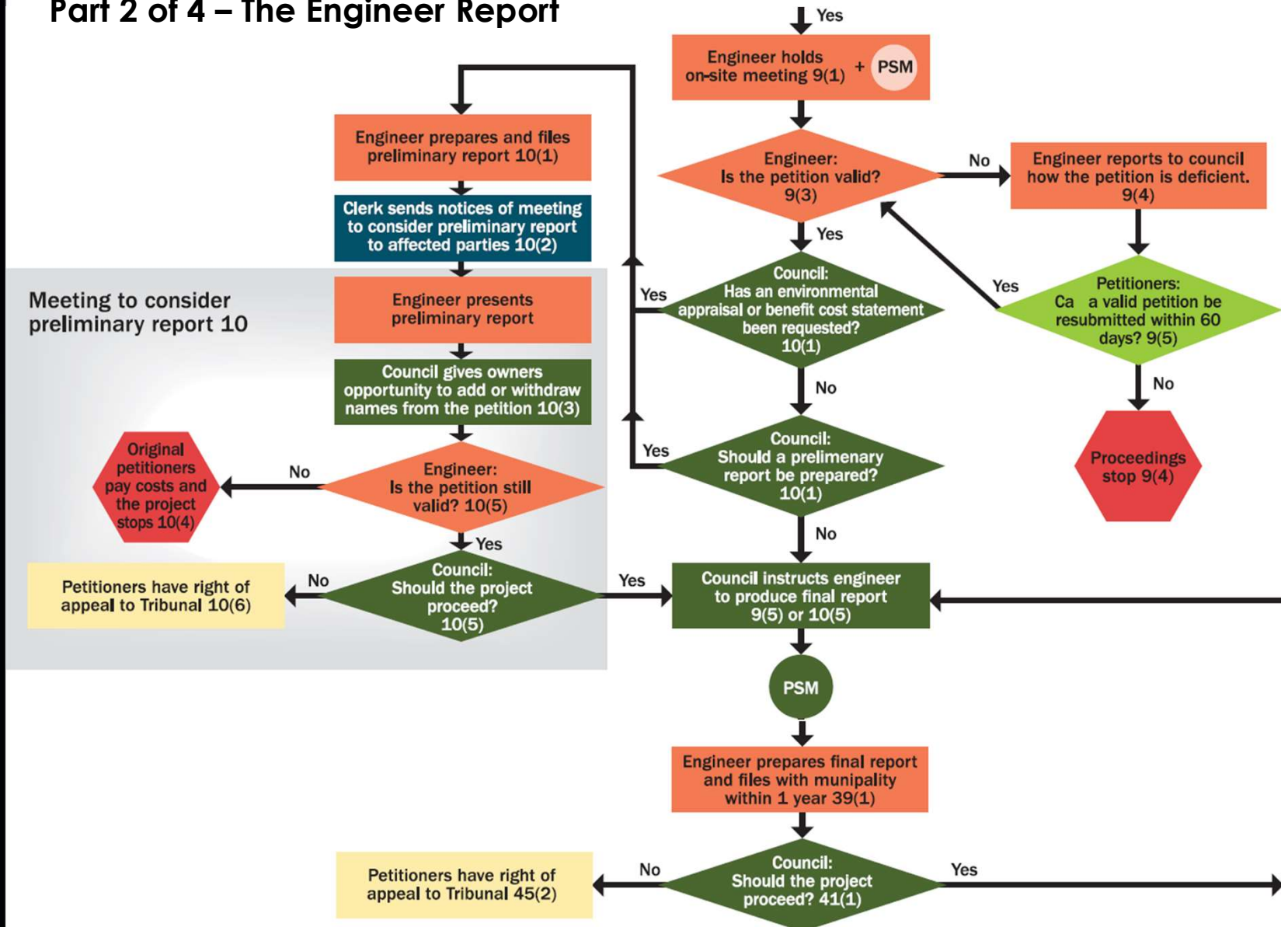


D.M. Wills and Associates Limited (Wills) was appointed as the Engineer in accordance with the Section 8 (1) of the Drainage Act

- During Regular Council Meeting CC2019-24 on October 24th, 2019, and
- In keeping with the recommendation from staff within the Council Report ENG2019-023 on October 22nd, 2019.

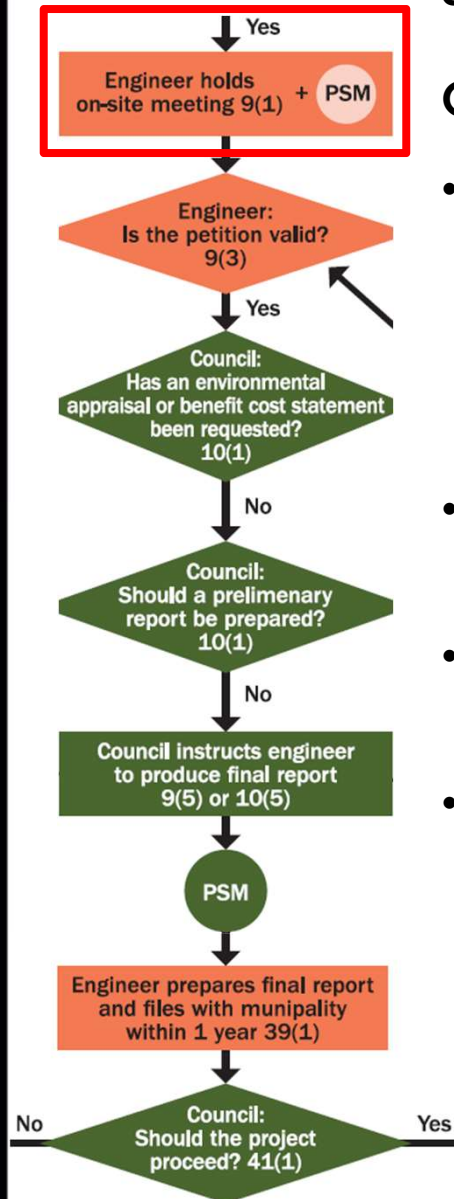
The Drainage Act Process

Part 2 of 4 – The Engineer Report



The Drainage Act Process

Part 2 of 4 – The Engineer Report

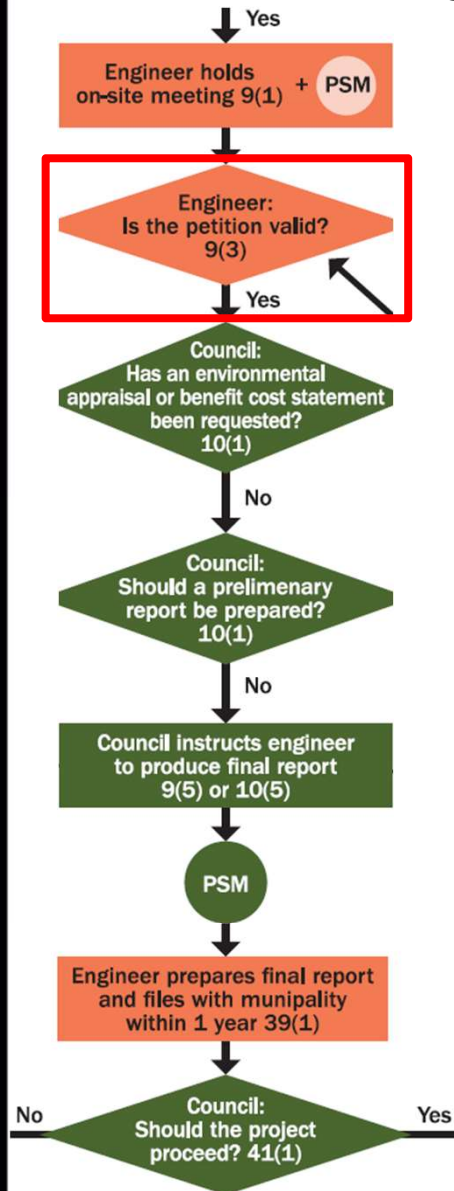


On-Site Meeting

- The On-Site meeting was conducted in keeping with Section 9 (1) of the Drainage Act; which includes “each owner of lands within the area requiring drainage as described in the petition and to each public utility that may be affected”
- A list of attendees is provided on Page 4 of the Engineer’s Report
- An On-site meeting was held on July 7, 2020 at 11:00 am.
- A second land owner information meeting was held on July 20th, 2020 at 11:00 am.
 - The second meeting was to accommodate land owners who were unable to attend the first meeting and to accommodate limits due to Covid-19

The Drainage Act Process

Part 2 of 4 – The Engineer Report

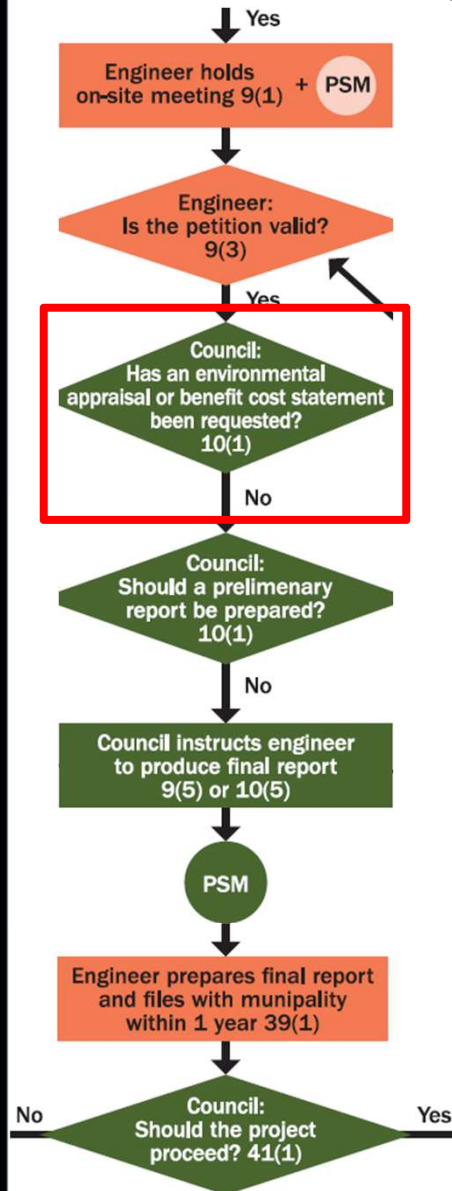


Validity of the Petition

- The Engineer provided a letter to the City of Kawartha Lakes on July 13th, 2020, confirming that the petition was valid.
- The validity of the petition was determined based on the percentage of the 'Area Requiring Drainage' that are represented, in hectarage, by the owners listed on the Petition.
- The petitioners represent greater than 60% of the area requiring drainage.

The Drainage Act Process

Part 2 of 4 – The Engineer Report

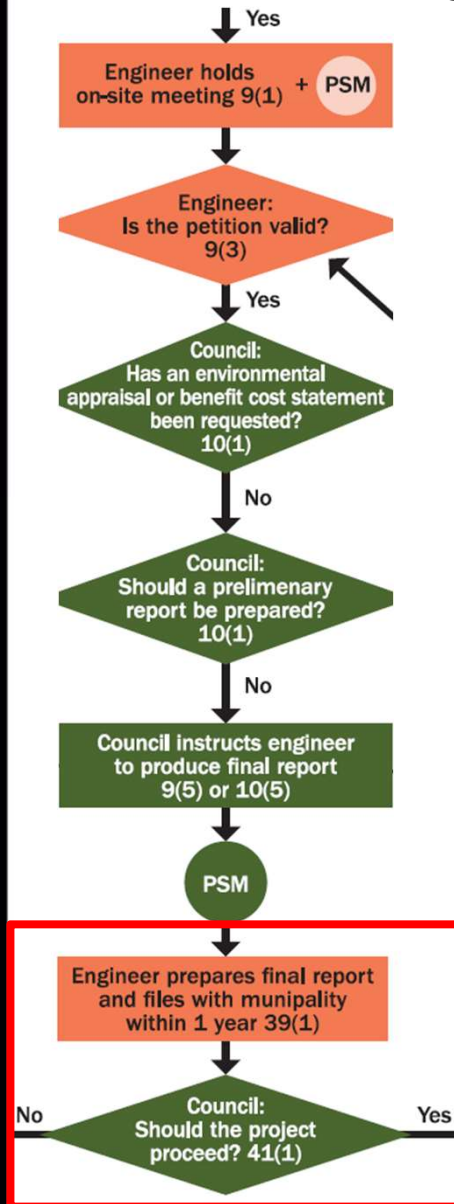


Floodplain Assessment

- A meeting was held with Lake Simcoe Region Conservation Authority on September 4, 2020 at 10:30 am.
- The Conservation Authority confirmed that the existing drainage feature is a Regulated Waterbody in keeping with 179/06.
- Special consideration of a Floodplain Impact report was commissioned and assessed to DS&B Farms.
- This work was undertaken to demonstrate there would be no hydraulic impact due to the re-channelization of the Drain on DS&B Farm lands.

The Drainage Act Process

Part 2 of 4 – The Engineer Report

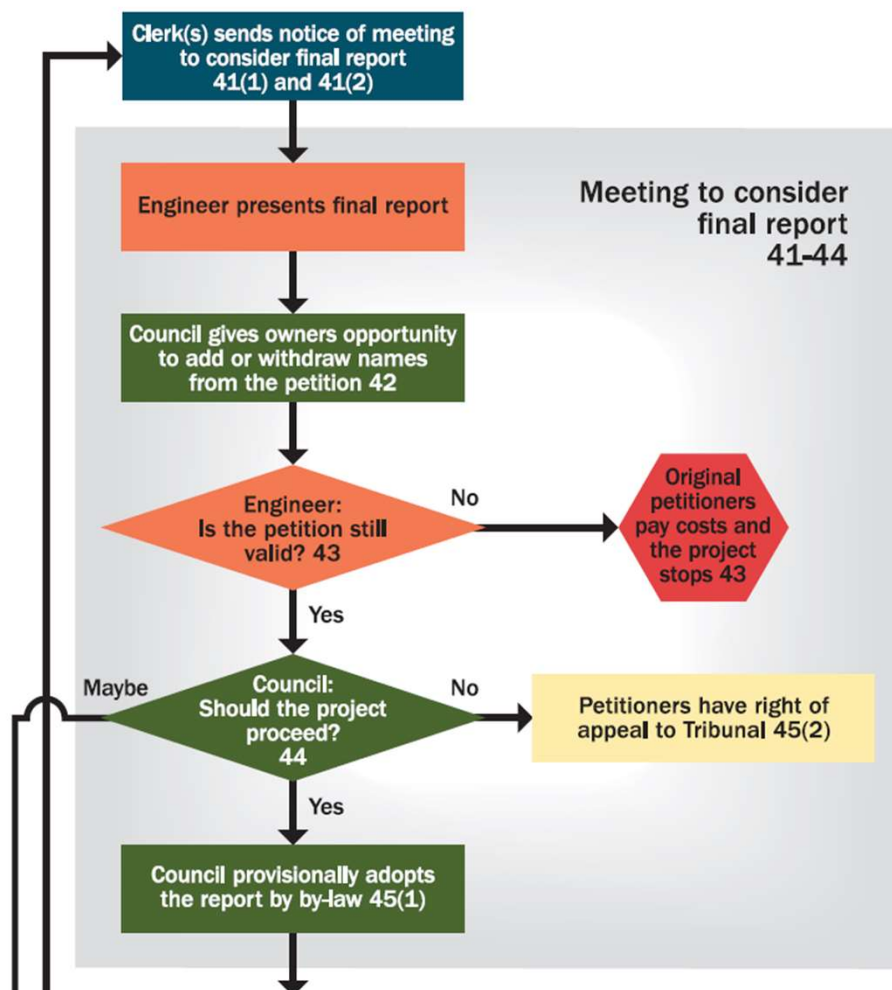


The Engineers Report was completed and Council¹ decided to move forward with the Meeting to Consider

- The Engineers Report was submitted in December 2020, noting extensions due to the Floodplain Assessment Report completed and assessed to DS&B Farms.
- Note: 'Council' is referred to in the Drainage Act process; within the City of Kawartha Lakes, drainage matters are considered by the Drainage Board first and subsequent recommendations are taken to Council.

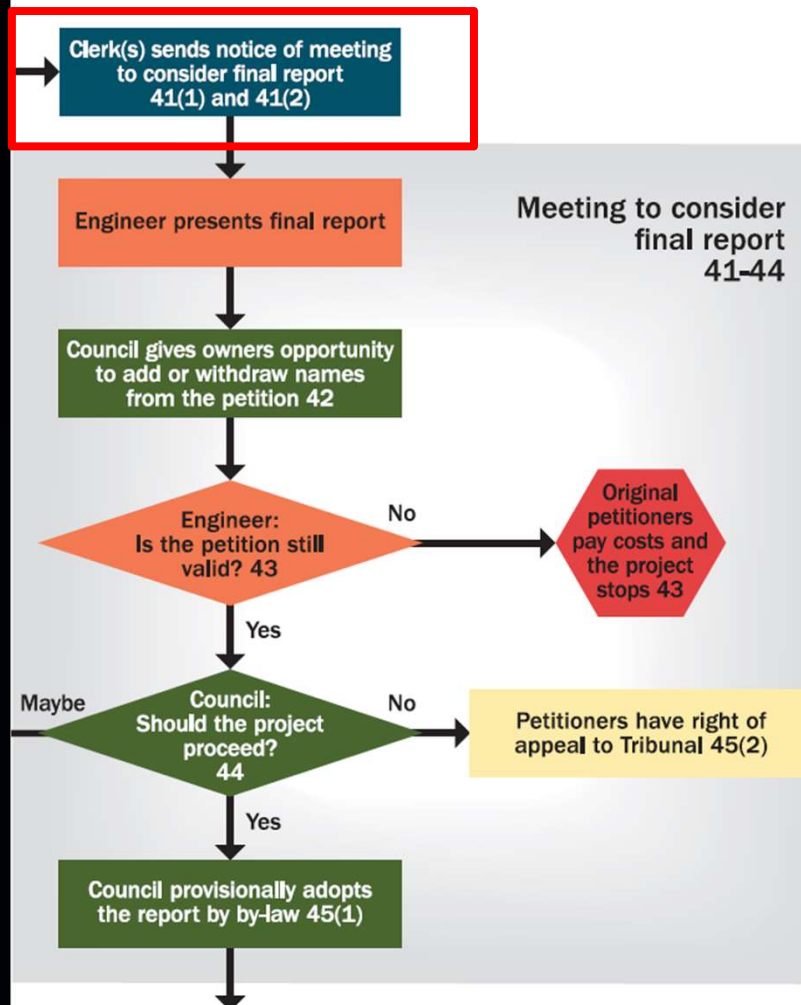
The Drainage Act Process

Part 3 of 4 – The Meeting to Consider (Current Stage)



The Drainage Act Process

Part 3 of 4 – The Meeting to Consider (Current Stage)



Section 41 (1) directs the Clerk to send the Report and Notice of the Meeting to Consider to those persons that are prescribed in the report; in this case, all landowners within the watershed.

- It is expected that this would be the first point of engagement for some individuals within the watershed.

The Drainage Act Process

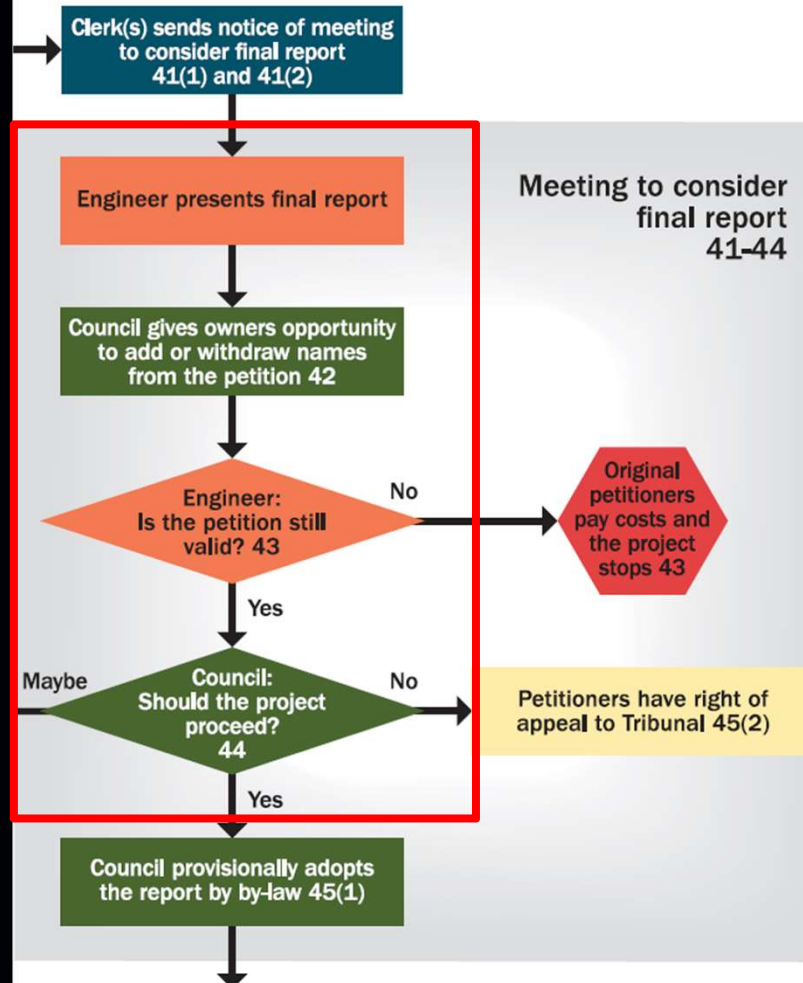
Part 3 of 4 – The Meeting to Consider (Current Stage)

Wills staff received a number of calls and emails from residents and landowners since the distribution of the Engineers Report in early January. Mr. Ken Smith discussed the following by phone:

- Mr. P Lokoff, January 18th – discussed the location of the proposed works and clarified that there is no intent to relocate the drain within Mr. Lokoff's property
- Mr. R MacEachern, January 11th and 17th – received a request for larger drawings and discussed the location of the fill disposal pile within Mr. MacEachern's property
- Mr. J Macintosh, January 13th – provided confirmation that a secondary construction access had been removed from the plans within Mr. Macintosh's property
- C&M Thorn, January 5th – provided a response to question on the nature of the assessment, including the nature of the outlet liability; and received input on the drainage characteristics of the property

The Drainage Act Process

Part 3 of 4 – The Meeting to Consider (Current Stage)

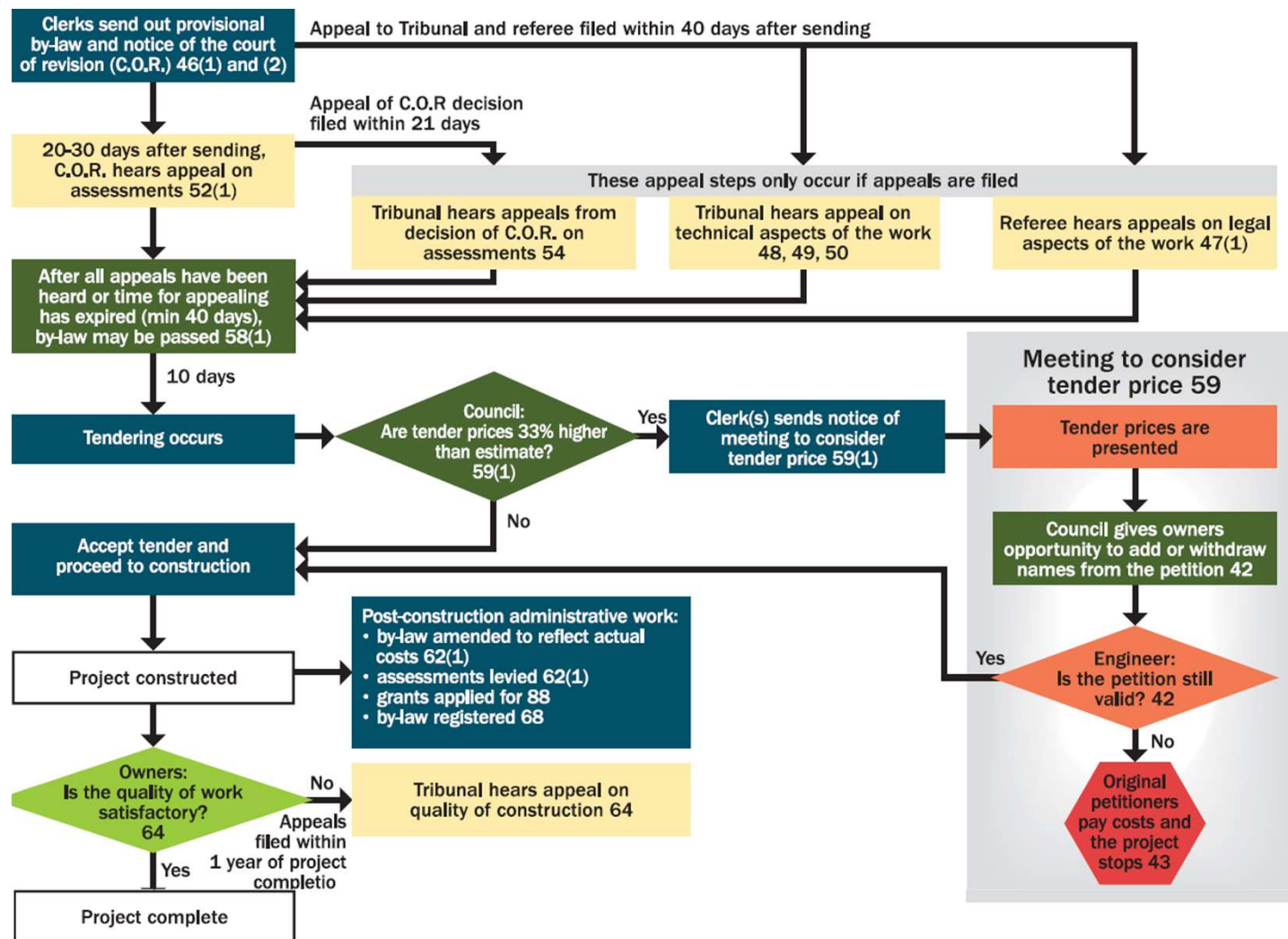


This is the intention of the meeting today

- Wills shall provide an overview of the proposed works and respond to questions from the Board; and those directed through the Board from the community.

The Drainage Act Process

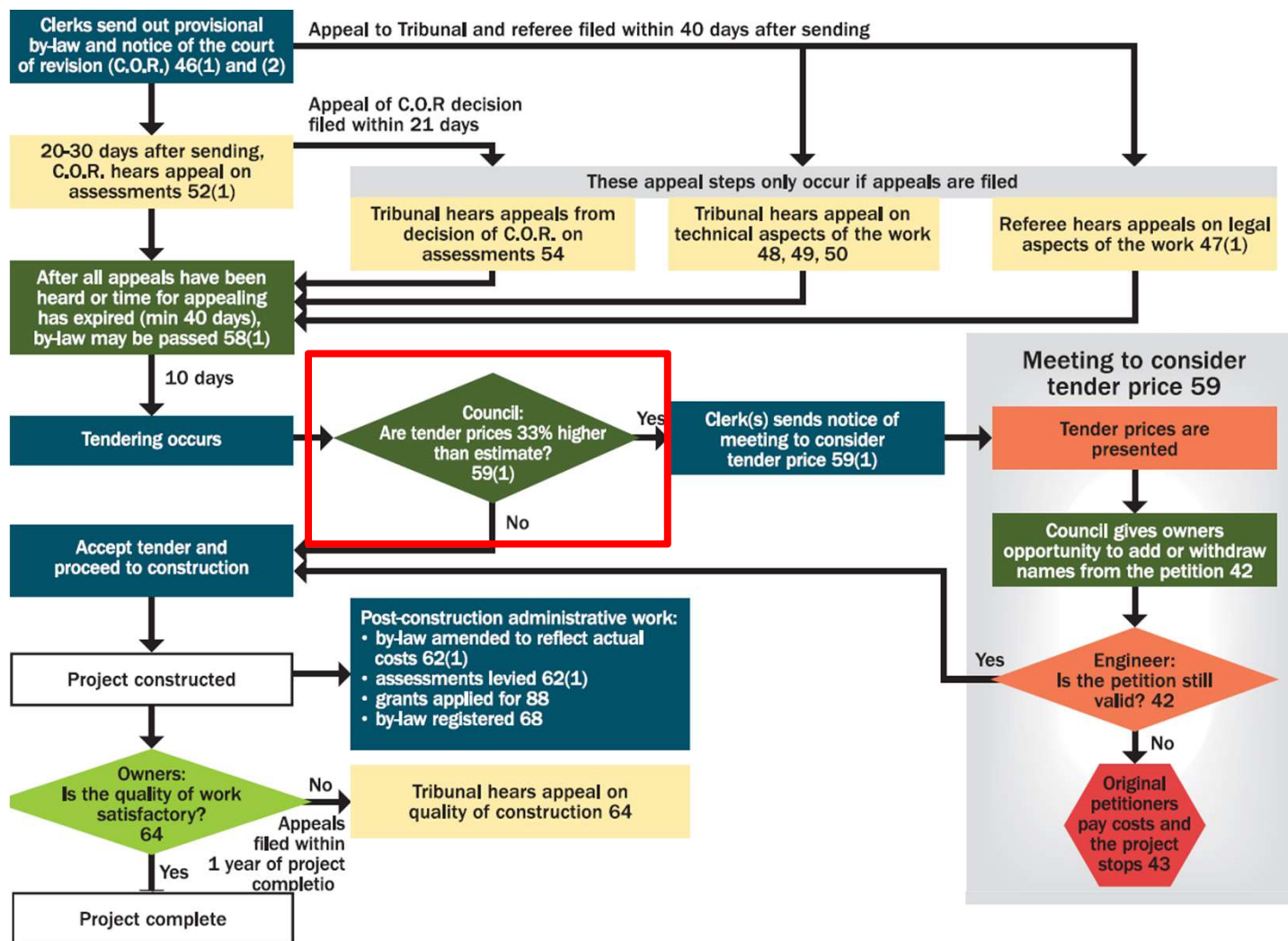
Part 4 of 4 – Tender, Construction and/or Appeals



Source: Ministry of Agriculture, Food and Rural Affairs. (2018) *Drain Improvement Procedure Under Drainage Act (Section 4)*: Queen's Printer for Ontario

The Drainage Act Process

Part 4 of 4 – Tender, Construction and/or Appeals



Source: Ministry of Agriculture, Food and Rural Affairs. (2018) *Drain Improvement Procedure Under Drainage Act (Section 4)*: Queen's Printer for Ontario



Proposed Watershed Plan



OPSS/OPSD LIST

OPSS LIST

No.	DESCRIPTION	REVISION DATE
180	MANAGEMENT OF EXCESS MATERIALS.....	NOVEMBER 2018
208	CONSTRUCTION SPECIFICATION FOR GRADING.....	APRIL 2018
314	UNTREATED SUBBASE, BASE, SURFACE, SHOULDER, STOCKPILING.....	NOVEMBER 2019
401	CONSTRUCTION SPECIFICATION FOR TRENCHING, BACKFILLING, AND COMPACTING.....	NOVEMBER 2015
410	CONSTRUCTION SPECIFICATION FOR PIPE SEWER INSTALLATION IN OPEN CUT.....	NOVEMBER 2015
421	PIPE CULVERT INSTALLATION IN OPEN CUT.....	NOVEMBER 2018
506	DUST SUPPRESSANTS.....	NOVEMBER 2017
510	CONSTRUCTION SPECIFICATION FOR REMOVAL.....	NOVEMBER 2014
511	RIP-RAP, ROCK PROTECTION, AND GRANULAR SHEETING.....	NOVEMBER 2019
708	TEMPORARY TRAFFIC CONTROL DEVICES.....	APRIL 2018
802	CONSTRUCTION SPECIFICATION FOR TOPSOIL.....	NOVEMBER 2019
803	SODDING.....	APRIL 2018
804	SEED AND COVER.....	NOVEMBER 2014
805	CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.....	NOVEMBER 2018
1010	AGGREGATES, BASE, SUBBASE, SELECT SUBGRADE, BACKFILL.....	NOVEMBER 2013

OPSD LIST

No.	REV.	DESCRIPTION	REVISION DATE
802.010 (MODIFIED)	3	FLEXIBLE PIPE EMBEDMENT MODIFICATION AND BACKFILL, EARTH EXCAVATION.....	APRIL 2015

NOTES

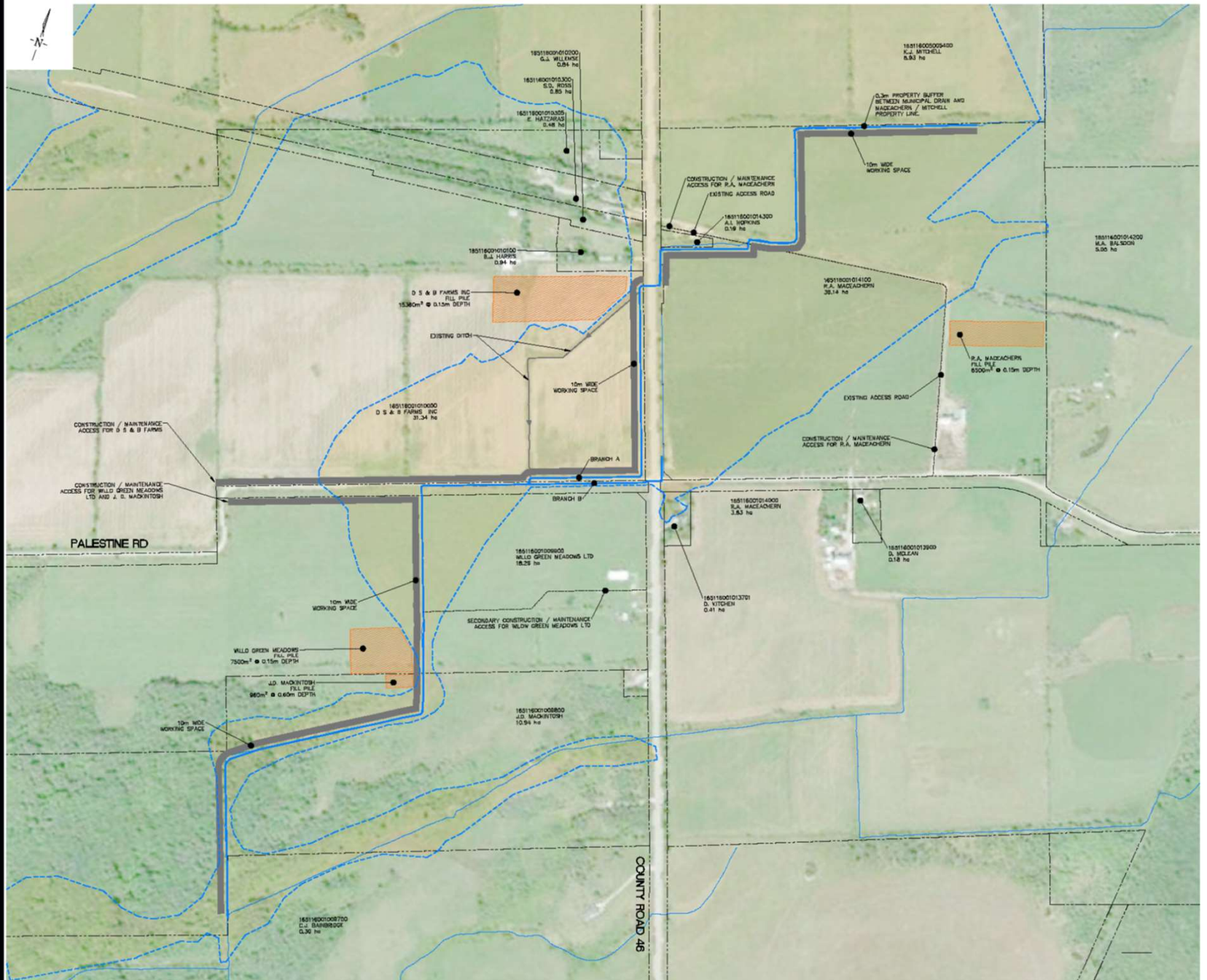
1.0 GENERAL - CONSTRUCTION

1. ALL CONSTRUCTION WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS, AND BARRIERS. ALL SIGNS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS IN THE ONTARIO TRAFFIC MANUAL, BOOK 7, TEMPORARY CONDITIONS. A TCP SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW.
3. THE CONTRACTOR WILL MAINTAIN ACCESS TO PRIVATE PROPERTIES FOR VEHICULAR AND PEDESTRIAN ACCESS.
4. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS).
5. GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND HAVING ON SITE, A COPY OF THE ONTARIO PROVINCIAL SPECIFICATIONS.
6. THE DETAILS IN THESE DRAWINGS SHALL TAKE PRECEDENCE OVER THE LATEST OPSD DETAILS WHERE APPLICABLE.
7. THE CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE PROJECT AND REPORT ANY DISCREPANCY TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORKS.
8. THE APPROVAL OF THE PLANS DOES NOT EXEMPT THE CONTRACTOR FROM OBTAINING, BUT NOT LIMITED TO THE FOLLOWING PERMITS: ROAD CUT, SEWER PERMIT, RELOCATION OF SERVICES, ENCROACHMENT AGREEMENTS, APPROACH PERMITS, ETC.
9. ALL DIMENSIONS ARE PROVIDED IN METRIC UNITS, UNLESS SPECIFIED OTHERWISE.
10. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION, AND ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE CONTRACT ADMINISTRATOR.
11. ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY AN O.L.S. AT THE CONTRACTORS EXPENSE IF REMOVED AND/OR DAMAGED DURING CONSTRUCTION.
12. THE LOCATION OF THE EXISTING UTILITIES SHOWN ON THESE DRAWINGS IS APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR THE FIELD LOCATION OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR IS TO CONFIRM THE LOCATION OF EXISTING UTILITIES AND ANY DISCREPANCIES ARE TO BE REPORTED TO THE CONTRACT ADMINISTRATOR.
13. THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES FOR ALL UTILITY RELOCATIONS ACCORDINGLY. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE THEIR ACTIVITIES SO AS NOT TO CONFLICT WITH THE UTILITY COMPANIES.
14. IF ANY EXCAVATION OR TRENCHING IS WITHIN 1.50m OF UTILITY POLES OR ANCHORS THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING POLES BRACED TO THE SATISFACTION OF THE APPROPRIATE UTILITY. ALL COSTS ASSOCIATED WITH THE BRACING OF POLES SHALL BE CARRIED BY THE CONTRACTOR.
15. ANY EXISTING SIGNAGE THAT IS IN CONFLICT WITH THE PROPOSED CONSTRUCTION IS TO BE REMOVED AND STORED, AS CONSTRUCTION PERMITS. SIGNAGE IS TO BE REINSTATED IN THE APPROPRIATE LOCATION OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
16. IT IS THE LAND OWNER'S RESPONSIBILITY TO IDENTIFY / MARK EXISTING TILE DRAINS ALONG THE PROPOSED DRAIN. MARKED OUTLETS THAT ARE DAMAGED BY THE CONTRACTORS DURING CONSTRUCTION WILL BE REQUIRED TO REPAIR OR REPLACE DAMAGED TILE.
17. ALL DISTURBED AREAS TO BE REINSTATED TO PRE-CONSTRUCTION CONDITION OR BETTER IN ACCORDANCE WITH OPSS 492.

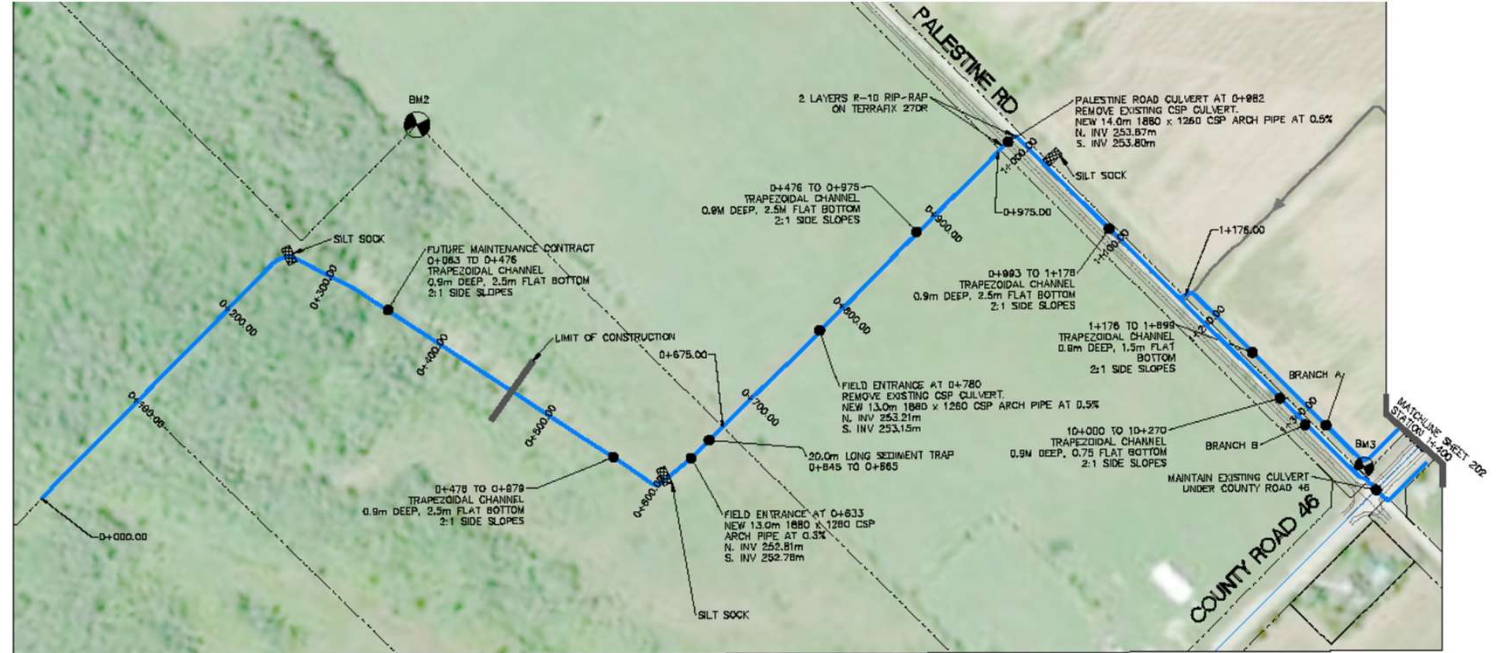
2.0 EROSION AND SEDIMENT CONTROL NOTES

1. ALL SEDIMENT CONTROL MEASURES SUCH AS SEDIMENT CONTROL FENCE, CONSTRUCTION ACCESS MATS, SEDIMENT TRAPS, SWALES AND CHECK DAMS MUST BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE WORKS.
2. SEDIMENT CONTROLS SHOULD BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT. REPAIRS TO ESC MEASURES MUST BE COMPLETED IN A TIMELY MANNER TO PREVENT SEDIMENT MIGRATION.
3. ADDITIONAL MATERIALS SUCH AS CLEAR STONE, FILTER FABRIC, PUMPS, HOSES AND SILTSOXX TO BE KEPT ONSITE AT ALL TIMES FOR CONDUCTING REPAIRS TO SEDIMENT CONTROL MEASURES.
4. ALL DISTURBED AREAS LEFT INACTIVE FOR MORE THAN THIRTY DAYS ARE TO BE STABILIZED.
5. THE STABILIZATION SEED MIXTURE IS TO BE APPLIED AT A MINIMUM RATE OF 25 kg/ha.
6. ENGINEERED CHANGES TO THE ESC MEASURES MAY BE NEEDED AS SITE CONDITIONS CHANGE THROUGHOUT THE CONSTRUCTION PROCESS. THESE UPDATES MUST REFLECT BEST MANAGEMENT PRACTICES TO CONTROL SEDIMENT AND EROSION ONSITE AND SHOULD BE COMPLETED BASED ON DIRECTION FROM THE SITE ENGINEER. ADDITIONAL MEASURES MAY BE REQUIRED AS DIRECTED BY AN ENGINEER THROUGHOUT THE CONSTRUCTION PROCESS.
7. FILTEROXX SILTSOXX OR APPROVED EQUIVALENT TO BE INSTALLED DOWNSTREAM FROM SEDIMENT TRAP TO A MINIMUM HEIGHT OF 300mm.
8. ANY DEWATERING OCCURRING ONSITE MUST BE IN ACCORDANCE WITH AN APPROVED DEWATERING PLAN. ADDITIONAL DEWATERING REQUIREMENTS MAY BE DEEMED NECESSARY AND SHALL BE IMPLEMENTED AS DIRECTED BY THE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.
9. EQUIPMENT AND HYDROCARBON STORAGE IS TO OCCUR AT LEAST 30m FROM WATERCOURSE.
10. REFUELING IS TO TAKE PLACE A MINIMUM OF THIRTY METRES FROM ANY WATERCOURSE OR ENVIRONMENTALLY SENSITIVE AREA.
11. AN APPROVED SPILLS MANAGEMENT PLAN IS TO BE KEPT ON SITE.
12. SPILL CLEANUP EQUIPMENT SUCH AS ABSORPTIVE MEDIA IS TO BE MAINTAINED ONSITE FOR IMMEDIATE USE IN THE EVENT OF A SPILL.
13. SPILLS ARE TO BE REPORTED IMMEDIATELY TO THE MOEC SPILLS ACTION CENTRE AT 1-800-268-6060.
14. THE CONTRACTOR WILL BE RESPONSIBLE FOR CLEAN-UP AND RESTORATION, INCLUDING ALL COSTS, DUE TO THE RELEASE OF SEDIMENT FROM THE SITE.
15. ADDITIONAL SEDIMENT CONTROL DEVICES MAY BE DEEMED NECESSARY AS SITE CONDITIONS CHANGE, AND SHALL BE INSTALLED AS DIRECTED BY THE SITE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.
16. BUILD THE DOWNSTREAM SEDIMENT TRAP FIRST.

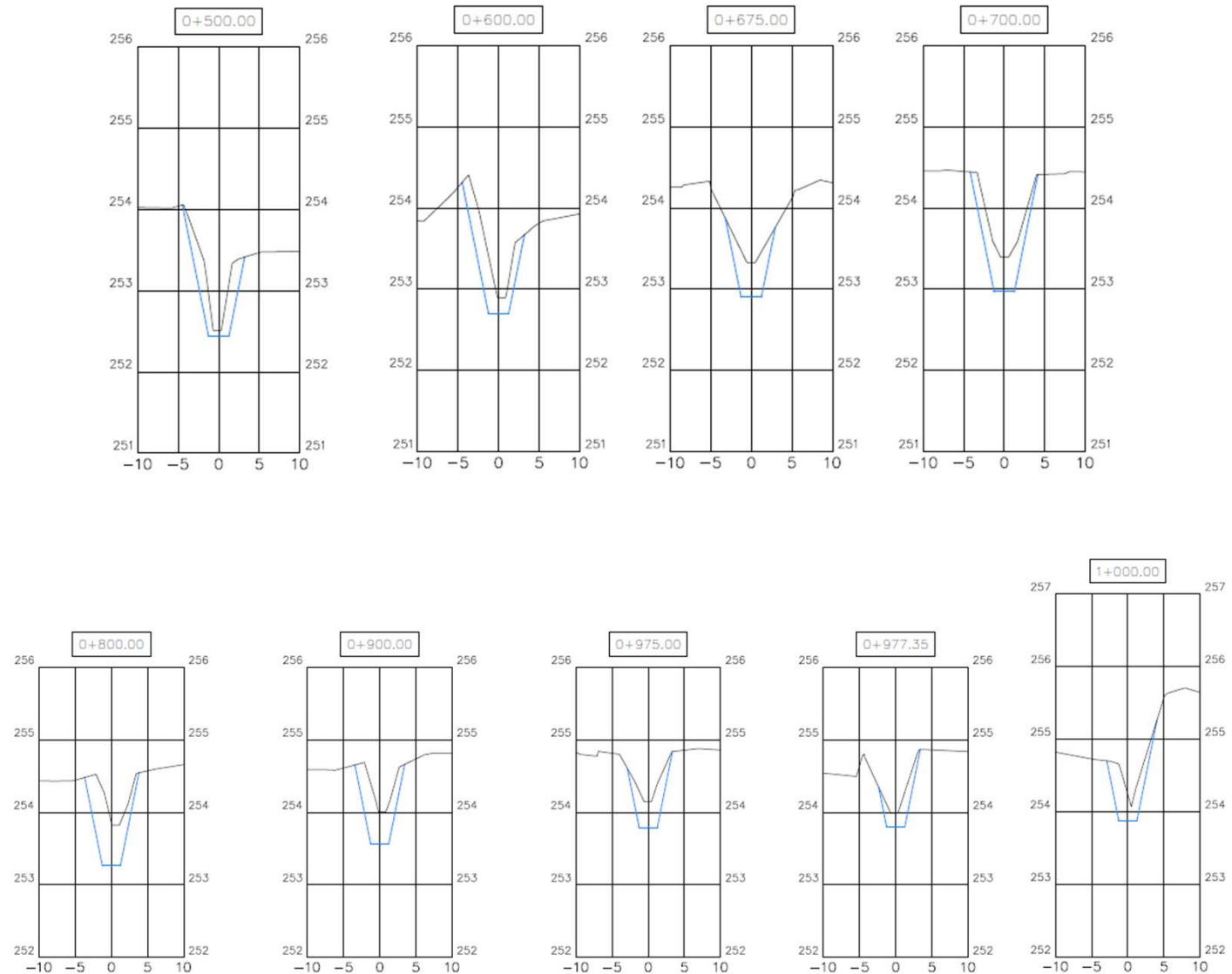
Proposed Construction & Maintenance Access



Proposed Construction

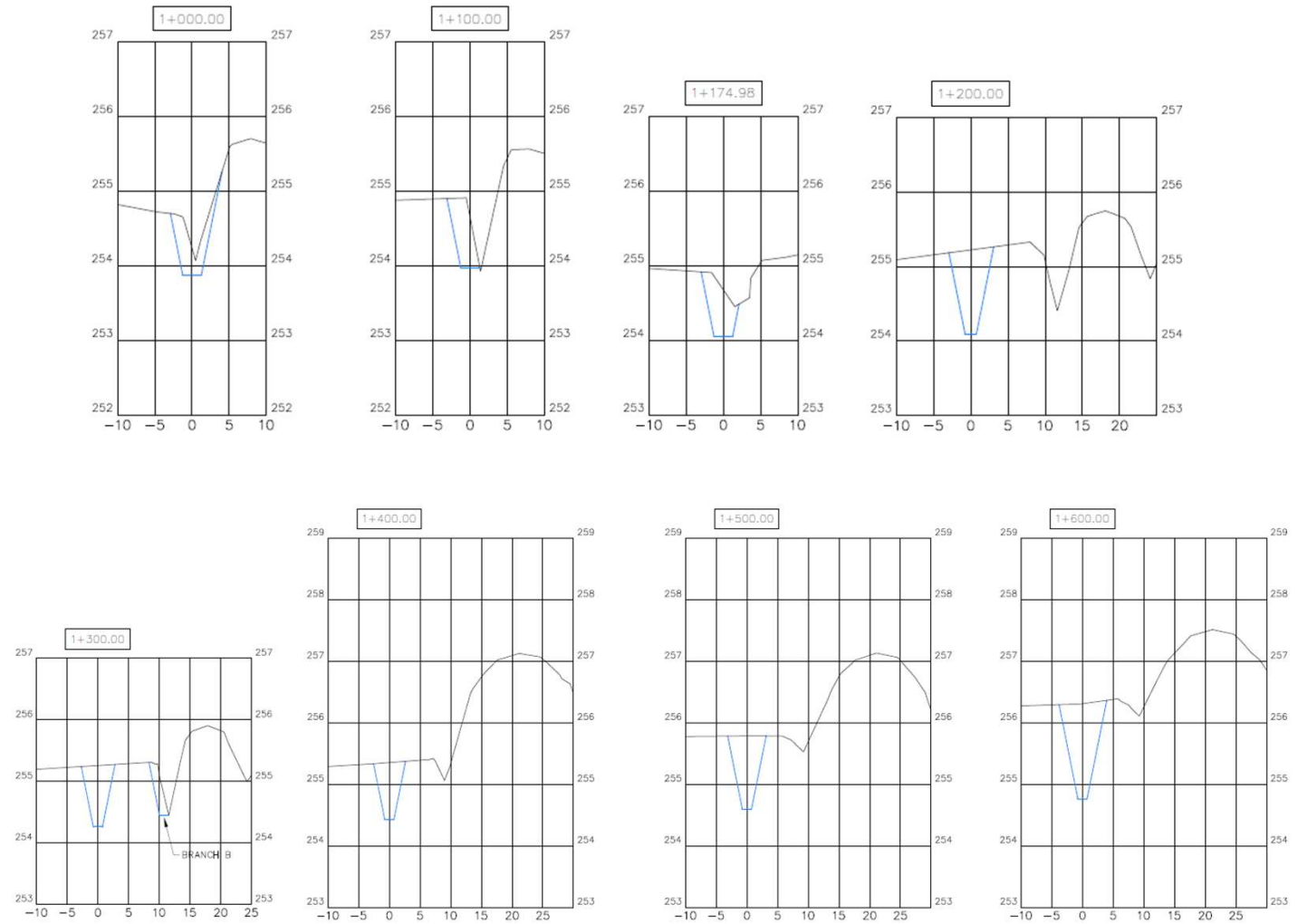


Proposed Cross Sections: Downstream of Palestine Road

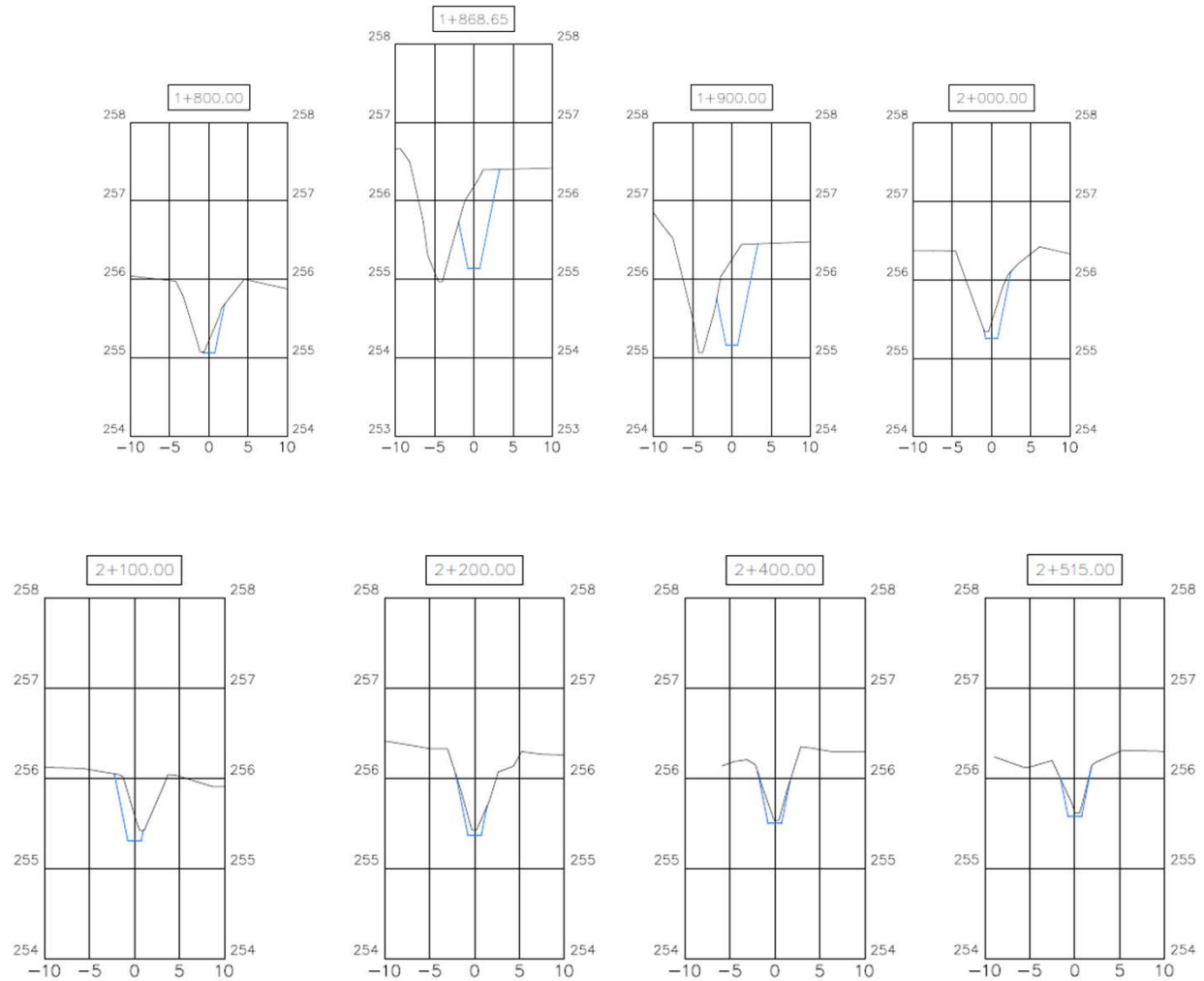




Proposed Cross Sections: DS&B Farms



Proposed Cross Sections: Upstream of CR 46



Schedule of Assessment

SCHEDULE A

CONSTRUCTION ASSESSMENT SCHEDULES

MACEACHERN BROWN MUNICIPAL DRAIN

Approximate Area Affected (ha)	Equivalent Area	Assessment				Allowance	Farm Tax Rate Parcel 2020	Cash Settlements
		Outlet	Benefit	Special	Total			
0.30	0.19	\$ 18.10	\$ -	\$ -	\$ 18.10	\$ 704.89	Yes	\$ (686.79)
18.26	1.42	\$ 8,235.74	\$ 29,755.64	\$ -	\$ 37,991.38	\$ 8,870.18	Yes	\$ 29,121.20
10.94	0.50	\$ 1,736.44	\$ 2,909.60	\$ -	\$ 4,646.04	\$ 8,085.12	Yes	\$ (3,439.08)
0.97	0.84	\$ 258.58	\$ -	\$ -	\$ 258.58	\$ -	No	\$ 258.58
0.85	1.12	\$ 301.46	\$ -	\$ -	\$ 301.46	\$ -	No	\$ 301.46
0.48	1.12	\$ 169.33	\$ -	\$ -	\$ 169.33	\$ -	No	\$ 169.33
0.84	0.69	\$ 184.10	\$ -	\$ -	\$ 184.10	\$ -	No	\$ 184.10
31.33	1.23	\$ 12,237.87	\$ 46,203.46	\$ 23,276.00	\$ 81,717.33	\$ 14,551.33	Yes	\$ 67,166.00
3.83	1.11	\$ 1,351.54	\$ -	\$ -	\$ 1,351.54	\$ -	Yes	\$ 1,351.54
0.18	1.12	\$ 64.88	\$ -	\$ -	\$ 64.88	\$ -	Yes	\$ 64.88
0.41	1.23	\$ 158.32	\$ -	\$ -	\$ 158.32	\$ -	Yes	\$ 158.32
5.05	1.56	\$ 2,502.31	\$ -	\$ -	\$ 2,502.31	\$ -	Yes	\$ 2,502.31
36.14	1.59	\$ 18,250.07	\$ 68,672.43	\$ -	\$ 86,922.49	\$ 13,749.27	Yes	\$ 73,173.23
0.19	1.12	\$ 68.58	\$ -	\$ -	\$ 68.58	\$ -	Yes	\$ 68.58
31.39	0.59	\$ 5,881.60	\$ -	\$ -	\$ 5,881.60	\$ -	Yes	\$ 5,881.60
8.93	1.81	\$ 5,131.32	\$ 3,020.64	\$ -	\$ 8,151.95	\$ -	Yes	\$ 8,151.95
12.42	1.00	\$ 3,944.03	\$ -	\$ -	\$ 3,944.03	\$ -	Yes	\$ 3,944.03
19.83	1.00	\$ 6,297.39	\$ -	\$ -	\$ 6,297.39	\$ -	Yes	\$ 6,297.39
6.53	1.02	\$ 2,114.70	\$ -	\$ -	\$ 2,114.70	\$ -	Yes	\$ 2,114.70
0.20	1.00	\$ 64.29	\$ -	\$ -	\$ 64.29	\$ -	No	\$ 64.29
0.21	0.54	\$ 35.77	\$ -	\$ -	\$ 35.77	\$ -	No	\$ 35.77
80.84	1.00	\$ 25,671.17	\$ -	\$ -	\$ 25,671.17	\$ -	Yes	\$ 25,671.17
4.88	1.00	\$ 1,549.83	\$ -	\$ -	\$ 1,549.83	\$ -	Yes	\$ 1,549.83
0.08	1.12	\$ 27.22	\$ -	\$ -	\$ 27.22	\$ -	Yes	\$ 27.22
275.0		\$ 96,254.62	\$ 150,561.77	\$ 23,276.00	\$ 270,092.38	\$ 45,978.78		\$ 224,131.60
6.4	2.25	\$ 4,603.80	\$ 25,395.00	\$ 35,954.80	\$ 65,953.60	\$ -	No	\$ 65,953.60
6.4		\$ 4,603.80	\$ 25,395.00	\$ 35,954.80	\$ 65,953.60	\$ -		\$ 65,953.60
281.4		\$ 100,858.41	\$ 175,956.77	\$ 59,230.80	\$ 336,045.98	\$ 45,978.78		\$ 290,085.20



Summary of Report Revisions

Please note the summary of minor revisions to the report, based on community input this month:

Version 3 – Issued to the watershed in the Week of Jan 3rd, 2022

Version 4 – Included in the digital package for today's meeting

- Updates to the contact information for four (4) legal property owners; no change to technical details or assessment values
- Removal of one (1) secondary construction access on Mr. Macintosh's property; determined to be infeasible



W I L L S

PARTNERS IN
ENGINEERING

Thank you for your attention
Questions?