

MEMO

DATE	August 26, 2022	PROJECT NO.	903-3780
RE	McCullough Development – Retaining Wall		

TO	Joel Saunders – Project Manager, Municipality of Meaford
FROM	George Cooper, P. Eng. & Rebecca Alexander, P. Eng.
CC	Don McCullough and Miriam Vasni, MCIP, RPP

This memorandum has been prepared at the request of the Municipality of Meaford to provide further commentary regarding the proposed retaining wall located at the entrance to the proposed private laneway, which provides access to the five (5) proposed estate lots.

A 20m wide unopened road allowance was previously located to the east and south of the subject lands but were purchased by the proponent and a neighbouring resident. The reason for the purchase was so the proponent would be able to provide access to their land from Side Road 23, as access was not feasible from the site's frontage on Bayshore Road due to the existing ridge. Since the road allowance was shared with a neighbouring resident, the proponent was only permitted to purchase a 10m wide section of the unopened road allowance but was assured by the Municipality that it would be sufficient for providing access to future lots created from the subject lands.

At the point where the proposed private laneway intersects with Side Road 23 there is an existing steep increase in grade which has an approximate 1:1 slope, refer to the photo enclosed with this memo. Our office consulted with the Municipality regarding the maximum slope that would be acceptable for use within the design of proposed roadway. It was agreed that a maximum slope of 6.9%, alongside the use of vertical curves would be implemented in the design to make up as much grade as possible.

Since the subject lands are only 10m wide, the typical 20m wide Municipal road cross-section would not be feasible. It was also understood that the proposed road was not going to be assumed by the Municipality in the future and would only be for the purpose of accessing the five (5) proposed lots. In order for emergency vehicles to access the lots, a minimum 6m wide road platform would be required, which only left 2m on either side for drainage and grading works. However, because the existing elevation at the property line is approximately 2.5m higher than the Side Road 23 centreline elevation, there were sections of road that would require steeper than 1:1 backslopes between the proposed road platform and limit of 10m road allowance, which are not feasible.

As noted during discussions with Municipal staff, our office considered the hierarchy of controls when determining a solution to the grading constraints within the 10m section of the former unopened road allowance. The following sections will elaborate on each of the controls listed below:

1. Elimination
2. Substitution
3. Engineering Controls
4. Administrative Controls

Elimination

The initial designs included in the first submission, dated July 28, 2020, featured a retaining wall on either side of the 6m wide road at the entrance from Side Road 23. Following the submission our office investigated options to eliminate the retaining wall, which included requesting permission from neighbouring residents to complete grading works on their properties. A meeting was held on site with residents to identify the extent of the grading that would be required and to discuss how the works would be restored / landscaped to enhance privacy. However, the neighbouring residents ultimately rejected the proposal to complete grading works on their properties.

Substitution

Our office briefly considered a possible substitution for the retaining wall, but any other methods for transitioning from the proposed laneway grades to match existing grades would present similar hazards. There are also no other substitution options for re-locating the proposed access, as the remainder of the site's frontage on Bayshore Road is below the existing ridge.

Engineering Controls

To mitigate hazards to the public, our office made the following revisions through the course of the design:

- Terminate the retaining wall along the property line to provide as much separation as possible from Side Road 23.
- Maintain a lower slope at the entrance before transitioning to the 6.9% slope to make turns easier for vehicles turning in or out of the proposed access and provide greater sightlines.
- Add a pedestrian guard at the top of the retaining wall.

Refer to Drawing C103A enclosed with this memo for the plan / profile views of the proposed access.

The addition of roadside barriers were also considered, but barriers such as guide rail present a hazard in and of themselves, so they were not implemented into the design. Per Section 7.6.1 of the Transportation Association of Canada (TAC) Design Guide,

"Traffic barriers do not prevent collisions. They too are obstacles on the roadside and vehicles striking barriers can cause occupant injury and or vehicle damage. A traffic barrier should be installed only if it is likely to reduce the severity of potential collisions."

In this instance, it is our opinion that a roadside barrier such as a guide rail is not likely to reduce the severity of a potential collision.

Administrative Controls

During the meeting with the Municipality on May 19, 2022, our office recommended administrative controls related to the proposed retaining wall within the Side Road 23 ROW. Specifically, we suggested that an agreement be put in place between the Municipality and the Condominium Corporation which would place the obligation to assume all maintenance, risk, and liability for the retaining wall with the Condominium Corporation. Therefore, the Municipality would not be responsible for any cost or liability associated with the retaining wall.

In addition, our office has had discussions with the Municipality about the potential for other administrative controls (i.e. signs and speed limits) to alert drivers on Side Road 23 of the proposed entrance. However, it is our understanding that these methods are not preferred.

Conclusion

In conclusion, the existing grading constraints within the 10m wide access require a retaining wall in order to make the transition from proposed road grades to the existing grades along the shared property line with neighbouring residents. Although other options were explored by our office during the design process, there were no feasible alternatives that could eliminate the need for the retaining wall. It should also be noted that, although the proposed retaining wall does extend into the Side Road 23 ROW, it does not represent more of a hazard than the existing 1:1 slope located within the ROW. Any proposed roadside barriers would be unlikely to reduce the severity of any potential collisions; therefore, they have not been implemented into the design.

Based on the information above, it is our professional opinion that the proposed retaining wall is the most appropriate method for providing access to the subject lands. Should you have any questions regarding this memorandum, please do not hesitate to contact the undersigned. Thank you.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.



George Cooper, P. Eng.
Project Engineer

C.F. CROZIER & ASSOCIATES INC.



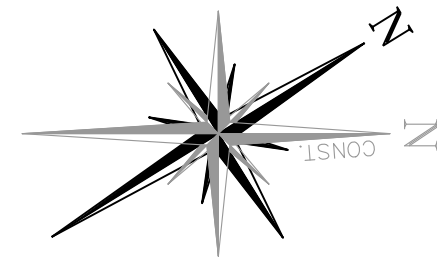
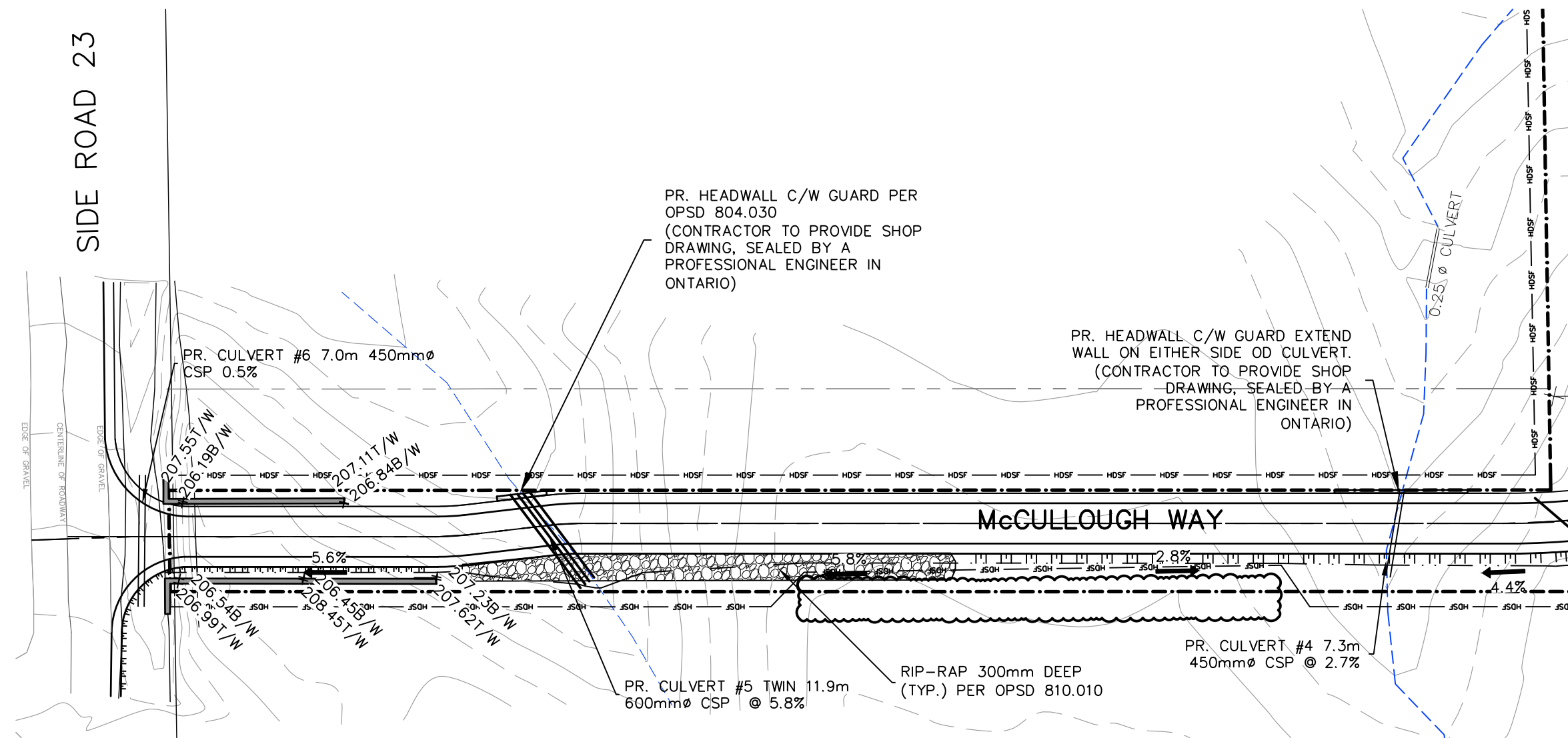
Rebecca Alexander, P. Eng.
Project Manager

Encl. Photo of Existing Conditions
Drawing C103A (Crozier, July 2022)

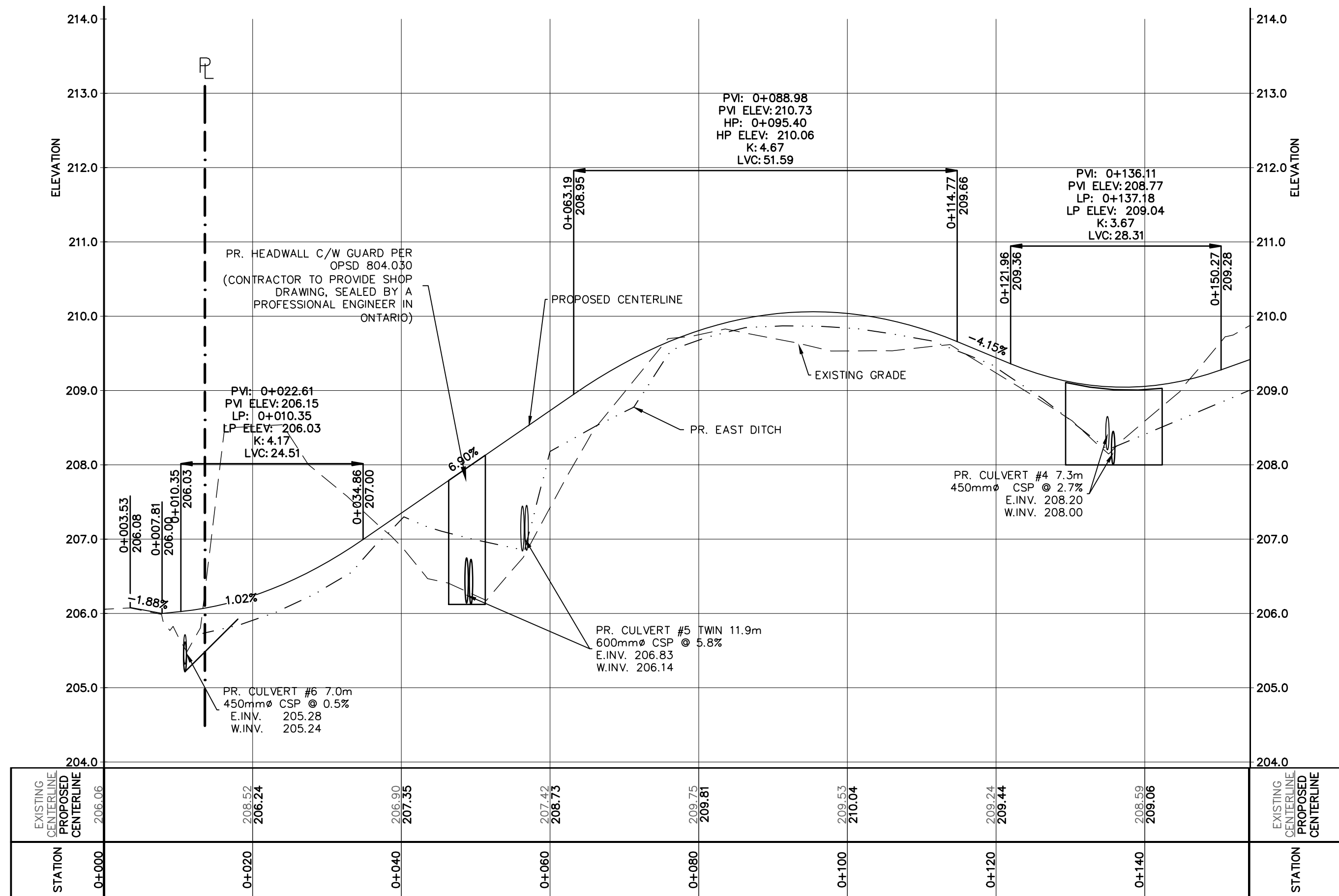
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Side Road 23 – Facing North towards Subject Lands





LEGEND	
	PROPOSED WEST DITCH
	PROPOSED EAST DITCH
	PROPOSED CENTER LINE
	TOP SLOPE
	EXISTING GRADE
	PROPOSED DRIPLINE
	PROPERTY BOUNDARY
	PR. HEAVY DUTY SILT FENCE
	PR. SLOPE & DIRECTION
	PR. RIP-RAP

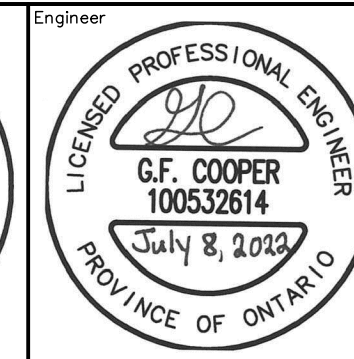
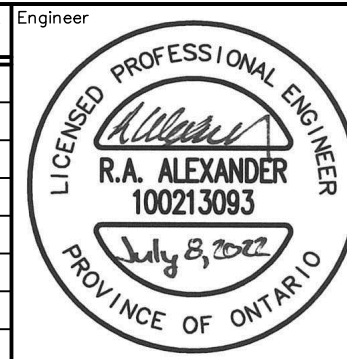


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TEMPORARY BENCHMARKS
TBM#1 - SQUARE IRON BAR (SIB), ELEVATION = 210.299
SURVEY COMPLETED BY VAN HARTEN ON JANUARY 29TH 2019

Town

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR CLIENT REVIEW	07/28/2020
1	RE-ISSUED FOR CLIENT REVIEW	08/18/2021
2	ISSUED FOR SECOND SUBMISSION	11/18/2021
3	ISSUED FOR THIRD SUBMISSION	07/08/2022



Project: LEITH-BAYSHORE ROAD
MUNICIPALITY OF MEAFORD

Drawing: PLAN & PROFILE (STA. 0+000 TO 0+154)

CROZIER
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				Drawing	C103 A