Sechelt

FOR INFORMATION – COUNCIL MEETING

TO:	Mayor and Council
REPORT DATE:	November 10, 2017
TARGET DECISION DATE:	November 15, 2017
FROM:	Chief Administrative Officer
RE:	September 20, 2017 Committee of the Whole
FILE NO:	1470-01

RECOMMENDATION(S)

1. **That the report from the Chief Administrative Officer dated November 10, 2017 regarding September 20, 2017 Committee of the Whole be received.**

PURPOSE

To provide answers to the September 20, 2017 Committee of the Whole meeting questions.

OPTIONS/ALTERNATIVES

1. None.

DISCUSSION

On September 20, 2017 there was a Committee of the Whole meeting where the residents of the Seawatch neighbourhood were invited to present their concerns to the Committee. Several residents made presentations at the meeting and asked a number of questions. Staff have compiled answers to those questions which are detailed below.

Answers to the September 20, 2017 Committee of the Whole Seawatch Questions

1. **Have all of the geotechnical and engineering reports regarding the Seawatch development been made available to the public? If so when?**

   It has generally been the policy of the District to release material engineering reports to Seawatch residents promptly following receipt. Based on District records, we have determined that the following specific reports were released. This list may not be complete.

   The following geotechnical and engineering reports have been made available to the public:

- June 4, 1992 – Terra Engineering Ltd. – Geotechnical Assessment Proposed Residential Subdivision Block A, D.L. 1473, Ex. PLAN 9589 Porpoise Bay, Sechelt, B.C.

- May 1993 – Golder Associates – Geotechnical and Environmental Reconnaissance Study of the District of Sechelt Official Community Plan Area

- December 15, 2008 – Thurber Engineering Ltd. – The Shores Subdivision – Phase 1 Geotechnical Engineering Review of Rock Stack Retaining Walls

- July 20, 2012 – Thurber Engineering Ltd. – The Shores Subdivision – Phase 1 Geotechnical Assessment

- October 9, 2012 – Thurber Engineering Ltd. – The Shores Subdivision – Phase 1 Geotechnical Investigation – Terms of Reference

- October 3, 2012 – Thurber Engineering Ltd. – The Shores Subdivision

- March 18, 2015 – ABC Pipe Cleaning Services Ltd. – Inspection Report

- July 27, 2015 – Urban Systems – The Shores Phase 1 Subdivision – Civil Site Review and Conceptual Costs

- August 11, 2015 – Web Engineering Ltd. – The Shores Phase 1

- November 10, 2015 – Braun Geotechnical Ltd. – Geotechnical Peer Review The Shores – Phase 1 Subdivision Sinkhole Investigation and Geotechnical Assessment Report

- October 18, 2016 – Thurber Engineering Ltd. – Review of August 22, 2016 Pipe Inspection Reports The Shores – Phase 1 Development, Sechelt, B. C.

- July 11, 2017 – Thurber Engineering Ltd. – Groundwater Management Issues – The Shores – Phase 1 Development, Sechelt, B.C.

- 2012 Golder Report regarding the first sinkhole on Seawatch Lane

- November 15, 2012 Golder Report regarding geotechnical review and Assessment – Lots 13-15 Seawatch

- April 5, 2013 Thurber Report
- November 13, 2013 Golder Report
- June 23, 2015 Golder Report
- July 16, 2015 Thurber Report
- June 30, 2017 Thurber Report
- August 2nd Pilot Well Dewatering Work Plan from Thurber Engineering

2. Since the sinkholes appeared what fixes have been proposed? What fixes have been done? What fixes have not been done?

- 2012 Golder Report regarding the first sinkhole on Seawatch Lane:
  - All of the recommendations in the above noted report were completed by the developer under Golder's direction and inspection.

- April 5th, 2013 Thurber Report:
  - This investigation and report was related to the development of a spring on Lot 3 (May 26, 2012) and a sinkhole collapse on Seawatch Lane adjacent to lot 28
  - Ground water monitoring program to be completed on a regular basis. Previously the ground water monitoring program was completed by Thurber Engineering, but was taken over by District of Sechelt in May 2015, and continues on a regular basis.
  - An additional investigatory borehole to be established around lot 11 (piezometers) along Gale Ave N. This was completed in 2015 by Thurber. An additional piezometer was requested in the Thurber report along the lower SROW, but not completed.
  - Monitoring Ground Surface Deformation near the Lot 3 Spring, north of Gale Ave North. (Not completed – private property). Further conversation with Thurber on November 10, 2017 showed that the recommended ground water monitoring area includes Lot 1, 2, Lot 25 (on private property), Gale Ave northeast on Lot 3, Crowston Road, and Seawatch lane east of sinkhole #1. From this, we have conducted visual observations over these road areas, and

surveyed the sinkhole #1 section of Seawatch Lane. Lot 1, 2 and 25 are not monitored or surveyed due to them being private property.

- More investigation suggested to determine the extent of the filter zone, and monitoring of filter performance of the existing filter system below lots 1 – 12. (Not completed – private property)
- Further investigation recommended to determine subsurface voids. This was completed in 2015 and 2017 by Thurber Engineering.

- November 13th, 2013 Golder Report
  - This report summarizes the works completed by Concordia repairing the first Sinkhole on Seawatch Lane, and associated inspection certificate by Golder.

- June 23, 2015 Golder Report
  - Relating to the ground depression found in November 2014, on the south side of Seawatch Lane, Golder completed their observations and recommendations. The District of Sechelt requested that the Concordia Developer complete monitoring and maintenance on Lot 3, Seepage Mitigation Measures. The Developer continuously refused to do this work.
  - Regarding the undermining on Gale Ave North, between Lot 21 and Lot 9, no short term repair measures were recommended.
  - On Seawatch Lane, the District had Strait Land Surveying survey and place multiple iron pins throughout the sinkhole area at the Districts expense to allow this surface to be accurately monitored for continuing subsidence.
  - It was recommended that the installation of settlement monitoring points and periodic surveys, similar to the sinkhole treatment area on Seawatch Lane, be implemented. (See note below)
  - Repair or replacement of outfall situated between Lot 9/Lot 10. (See note below)

- July 16th, 2015 Thurber Report
  - In conjunction with the lot 21 sinkhole issue, Thurber completed its site investigation, and completed an additional bore hole and piezometer installation. Additionally, they completed a Dynamic Cone Penetration Test (DCPT), Ground Penetrating Radar (GPR), and overall site inspection along the District Right of Way. The following recommendations were made:

        - Road Closure in affected area along Gale Ave N (Completed)
        - Site wide major Dewatering Program (See note below)
        - Horizontal Drains or Vertical Pumps (See note below)
        - Excavation and replacement of soils and infrastructure in affected area (See note below)
        - Grout Injection in void area (See note below)
        - Long Term Monitoring Program (Underway)

- June 30, 2017 Thurber Report
    - In conjunction with the new sinkhole observed on the Gale Ave North Catch Basin, at the fronting of Lots 7 & 8, Thurber completed additional DCPT testing, and made the following recommendations:
        - Temporary Partial Lane Closure (Completed)
        - Additional Targeted Investigation on the North side of roadway, where utilities made DCPT impractical (See note below)
        - Mitigate Sinkhole Development, Completion of recommendation from 2015 Thurber Report (See note below)
        - Comprehensive Site Investigation, as noted in 2015 report (See note below)
        - Repair of [New Gale Ave North] Sinkhole (See note below)
        - Continued Site Monitoring (Ongoing)
        - Release report to owners of Lots 7, 8, 22 & 23, and encourage them to retain their own Geotech for their investigation (Completed)
        - The District obtained cost estimates from three engineering firms for the remediation of this sinkhole. These ranged from $500,000 to $600,000

- August 2nd Pilot Well Dewatering Work Plan from Thurber Engineering
    - Recommends ~$110,000 Pilot Well Program on Seawatch Lane to determine the efficacy of a dewatering program. (See note below)

Note: On July 28, 2015, Urban Systems provided cost estimates relating to three possible courses of action, each of which included some or all of the items listed above. The option identified as the most comprehensive set out costs totaling close to $10,000,000. The cost estimates provided by Urban Systems were reviewed at a meeting with residents in July 2015.

3. **What is the District's role and responsibility during a subdivision development?**

   The authority of the District in relation to property development is set out in the *Community Charter* and the *Local Government Act.*

4. **Did the District continue to issue building permits and occupancy permits after the sinkholes were discovered? If so why?**

   Further information will be provided.

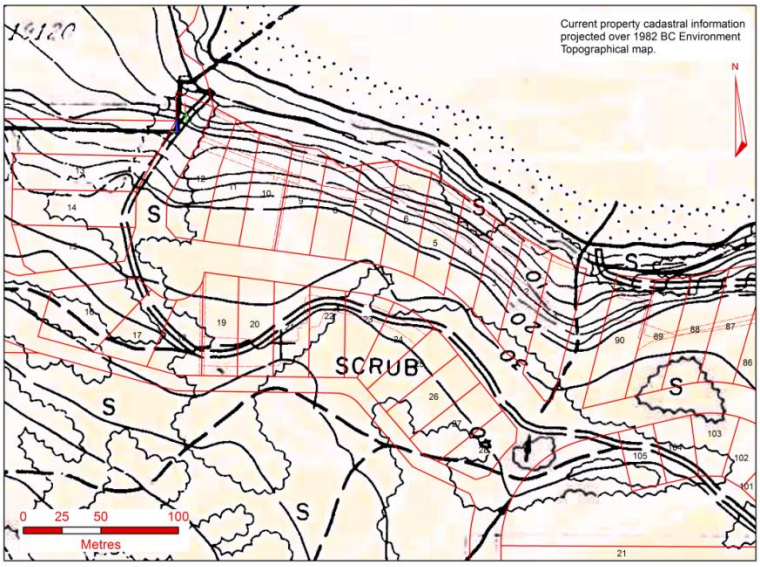
5. **Did the Municipal Insurance Association (MIABC) hire Dr. Norbert Morgenstern to review the Seawatch subdivision? And if so, was the report made publically available?**

   Dr. Morgenstern has been retained by defence counsel as an expert witness and all communications with him are subject to litigation privilege.

6. **Was there a report identifying remedial work Concordia should/could carry out that was then rescinded by Council? If so why?**

   In the letter agreement of March 14, 2013, Concordia agreed to carry out remedial work as specified by Golder Engineering. The remedial action requirement from July 2012 was withdrawn at that time.

7. **Was there previously a creek going along Gale Avenue in the approximate location of Lot 22 and going across Lot 9? If so, what happened to it?**



The diagram above shows the present property lines of the Shores Phase III subdivision overlaid on a BC Ministry of Environment Topographical map showing contours derived from 1982 air photos.

This map shows that there were drainage channels noted as being present in 1982. This area became a part of the District of Sechelt in 1986, as a result of amalgamation.

As the present subdivision was all located on private property and the District does not have a soil removal or placement bylaw, private landowners of the site would have been able to perform earth works, on-site, without District approval; as a result, the District has no record of when or if the possible drainage channels shown above were changed prior to the present subdivision land contours being built.

The present subdivision contours were created as a result of the Developer's instructions to the Design Engineers and Contractor.

8. Was Crowston Road realigned? If so, did this have any impact on the neighbourhood?

The current property lines show no evidence that this road right of way was realigned. The Crowston Road Right of Way property lines, up to the northern boundary of Lot 21 were created in 1912 at the time of the original District Lot subdivision. North of Lot 21, the Crowston Road Right of Way was aligned to connect with North Gale Avenue in 2006 when the current property line configuration was approved by Land Titles in 2006.

9. Was there a sediment pond at the bottom of Crowston Road? If so, what happened to it?

The District has no record of a sediment pond on-site.

10. Was there a ditch on Crowston Road? If so, what happened to it?

Any road structure would have required a ditch to catch and channel road and property runoff. At the North end of the Crowston Road Right of Way any existing drainage ditches would have been filled and replaced with underground storm drainage installed as a requirement of the Development approval process. The District's procedure is to require that the Engineer of record on a development servicing agreement certify all storm sewer designs so that they meet accepted engineering standards.

11. How much has the District paid Thurber for geotechnical reports related to the Seawatch subdivision?

The District has paid Thurber $681,097 (including taxes) for geotechnical reports, assessments, investigations and inspections. The District of Sechelt began conducting its own inspections in 2015 and sends the reports to Thurber for their review.

Project	Billed	Bill Amount
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	08/15/2012	38,962
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	08/15/2012	13,305
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	09/15/2012	14,172
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	10/15/2012	13,889
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	11/15/2012	14,278
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	01/15/2013	9,206
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	02/15/2013	13,602
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	12/15/2012	14,544
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	03/15/2013	6,039
THE SHORES SUBDIVISION - SINKHOLE ASSESSMENT	04/15/2013	3,175
THE SHORES SUBDIVISION - GEOTECHNICAL INVESTIGATION	01/15/2013	8,983
THE SHORES SUBDIVISION - GEOTECHNICAL INVESTIGATION	02/15/2013	57,040
THE SHORES SUBDIVISION - GEOTECHNICAL INVESTIGATION	12/15/2012	34,754
THE SHORES SUBDIVISION - GEOTECHNICAL INVESTIGATION	03/15/2013	19,252
THE SHORES SUBDIVISION - GEOTECHNICAL INVESTIGATION	04/15/2013	23,632
THE SHORES SUBDIVISION - GEOTECHNICAL INVESTIGATION	05/15/2013	15,620
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	03/15/2015	3,109
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	05/15/2015	61,127
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	04/15/2015	

		25,913
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	06/15/2015	77,089
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	07/15/2015	96,727
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	08/15/2015	40,590
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	09/15/2015	3,788
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	10/15/2015	3,103
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	12/16/2015	4,146
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	01/31/2016	308
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	03/21/2016	3,855
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	04/19/2016	395
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	05/19/2016	0
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	08/25/2016	3,928
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	09/20/2016	4,830
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	10/17/2016	429
THE SHORES SUBDIVISION - LOT 9 & 21 - SINKHOLE	11/14/2016	2,676
The Shores, Phase 1 Development	02/10/2017	3,213
The Shores, Phase 1 Development	06/09/2017	513
The Shores, Phase 1 Development	07/19/2017	34,073
The Shores, Phase 1 Development	08/09/2017	8,801
The Shores, Phase 1 Development	09/11/2017	2,025
		681,097

12. Is the District monitoring the wells installed in the Seawatch subdivision? Is this information available to the public?

The District has been continuing the site inspection and piezometer reading since April, 2015. The District used to provide this information to some of the residents automatically, without resident request, continuing the practice from Thurber until May 2016. Since May 2016, the District is continuing the site inspections but no longer emails out the reports to the residents; instead the District sends them directly to Thurber Engineering. These reports are available upon request. The frequency of the monitoring is determined by precipitation (weekly, biweekly, or monthly).

13. Was the District aware of issues during the construction of the subdivision including poor engineering practices, poor construction practices, inadequate materials, etc.? If so, what was done about it?

This is part of the litigation and the District cannot comment.

14. Was the District aware of the recent drilling on property to the south of the Seawatch neighbourhood? What was it for and have the findings been shared with our geotechnical engineers?

The residents of the Concordia subdivision notified the District of the drilling program on private property on May 23rd, 2017. The District contacted Concordia on May 24th, requesting that they provide the reason for the drilling and share any findings. Concordia failed to provide the District with the findings and stated that the reason for the drilling was simply "soils investigation".

15. If this (the 2012) sinkhole was repaired to the District's satisfaction, why is the road still partially closed today?

The 2012 sinkhole was repaired under the direction of Golder and Associates, and they provided record drawings and a certificate of inspection. The District relied on the professional opinion on their design and construction. During 2014 a depression was found beside the southern curb, close to the original sinkhole area. For public safety the travel lane was closed.

16. What is the nature of the indemnity from Concordia? Why does the District not stop Concordia from disposing of its assets? Is there a financial instrument to support the indemnity?

The indemnity is contained in the s. 219 covenant which was registered on title in 2006. There is no financial instrument to support the indemnity. The indemnity is the subject of legal action and the District cannot comment further at this time.

17. Why do we ask our engineering consultants to submit draft reports? Who reviews the reports and what changes are made prior to them being considered final?

All geotechnical and other professional consultants retained by the District submit draft reports for the District's review prior to the submission of a final report. This is a best practice within the industry.

Respectfully submitted,

Andrew Yeates
Chief Administrative Officer
District of Sechelt