

to: Lloyd Phillips & Associates Ltd. - **Jessica D'Aoust** - jessica@lloydphillips.com
re: Geotechnical Design Summary Details
Proposed Residential Development
2710 Draper Avenue - Phase 3-2 - Ottawa
date: February 27, 2019
file: PG1630-MEMO.18
from: Faisal Abou-Seido

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide a grading plan review for the proposed commercial buildings at the aforementioned development. The following memorandum should be read in conjunction with Paterson Report PG1630-4 Revision 1 dated February 21, 2019.

Grading Plan Review

Paterson reviewed the following grading plan prepared by David Schaeffer Engineering Ltd. for the aforementioned development:

- ❑ Grading Plan Fresh Towns - 2710 Draper Avenue Phase 3-2 - Project No. 17-927 - Sheet 2 of 6 - Drawing No. GP-1 - Revision 1 dated December 7, 2018.

Based on our review of the above noted grading plan, no exceedances were noted above the permissible grade raise. The proposed grades are considered acceptable from a geotechnical perspective. Therefore, no lightweight fill is required at the subject site. Refer to the attached Table 1 - Summary of Lot Grading for further details.

Outdoor Structures

The following is recommended for setbacks regarding outdoor structures:

Swimming Pools

The in-situ soils are considered to be acceptable for swimming pools. Above ground swimming pools must be placed a minimum of 5 m away from the residence and neighbouring foundations. Otherwise, pool construction is considered routine, and should be constructed in accordance with the manufacturer's requirements.

Aboveground Hot Tubs

Additional grading around the hot tub should not exceed permissible grade raises. Otherwise, hot tub construction is considered routine, and can be constructed in accordance with the manufacturer's specifications.

Installation of Decks or Additions

Additional grading around proposed deck or addition should not exceed permissible grade raises. Otherwise, standard construction practices are considered acceptable.

Tree Planting Restrictions

The proposed development is located in an area of low to medium sensitive silty clay deposits for tree planting. Based on our knowledge of the general site area, the plasticity index is expected to be lower than 40%. It should be further be noted that stiff to hard silty clay crust extending to 5 to 7 m below existing grade was present where silty clay was encountered. As such, the brown silty clay crust extends 2-3 m below design footing level should be considered low to medium sensitivity clay and should not be considered a sensitive marine clay.

Based on the above discussion, it is recommended that trees placed within 5 m of the foundation wall consist of street trees with shallow roots systems that extend less than 1.5 m below ground surface. Trees placed greater than 5 m from the foundation wall may consist of moderate water demanding trees with roots extending to a maximum 2 m depth. It should be noted that shrubs and other small plantings are permitted within the 5 m setback area.

It is well documented in the literature, and is our experience, that fast-growing trees located near buildings founded on cohesive soils that shrink on drying can result in long-term differential settlements of the structures. Tree varieties that have the most pronounced effect on foundations are seen to consist of poplars, willows and some maples (i.e. Manitoba Maples) and, as such, they should not be considered in the landscaping design.

It is well documented in the literature, and is our experience, that fast-growing trees located near buildings founded on cohesive soils could result in long-term differential settlements of the structures. Tree varieties with most pronounced effect on foundations are seen to consist of poplars, willows and some maples (i.e. Manitoba Maples) and are not recommended for the landscape design.

We trust that this information satisfies your immediate requirements.

Paterson Group Inc.

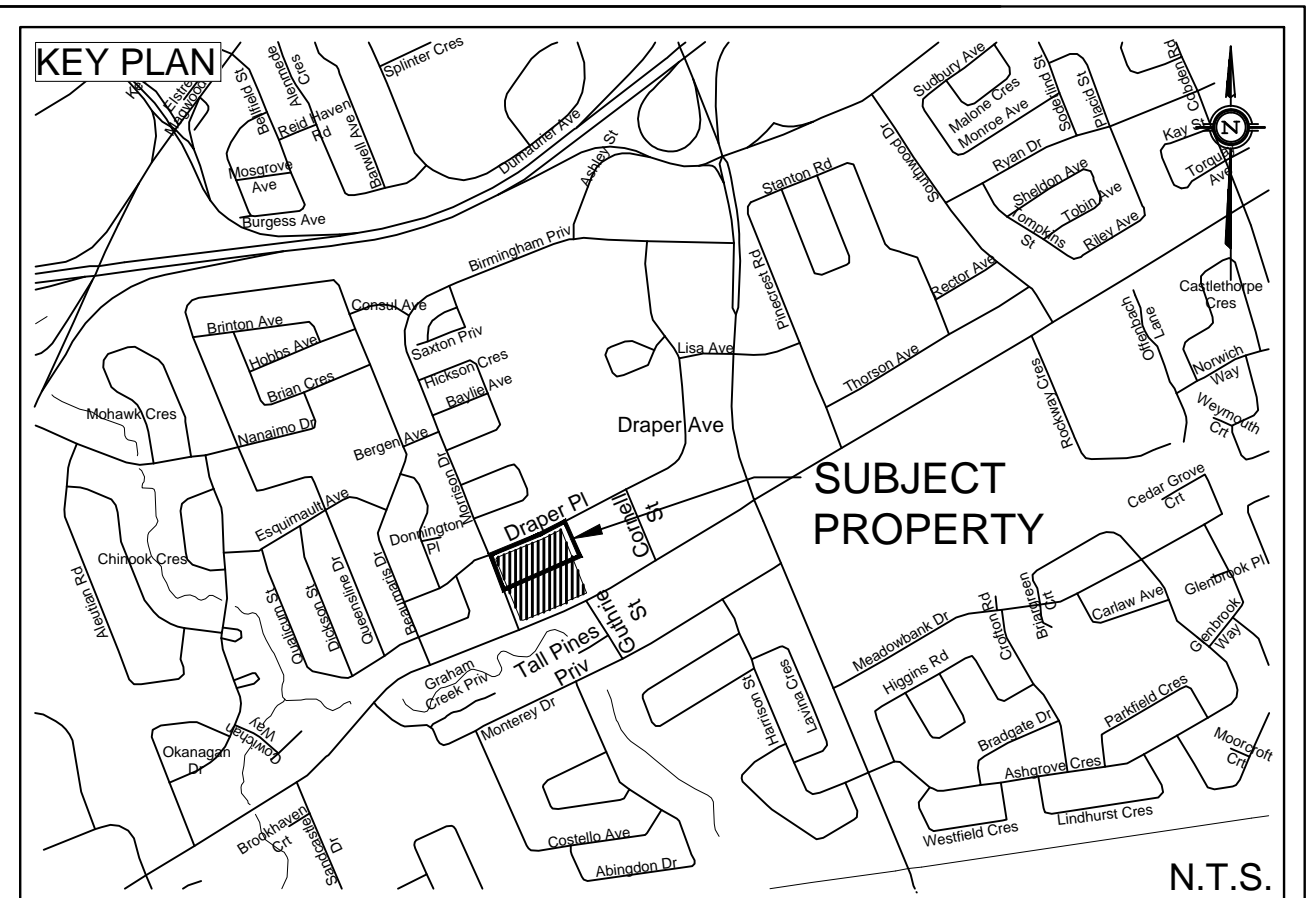
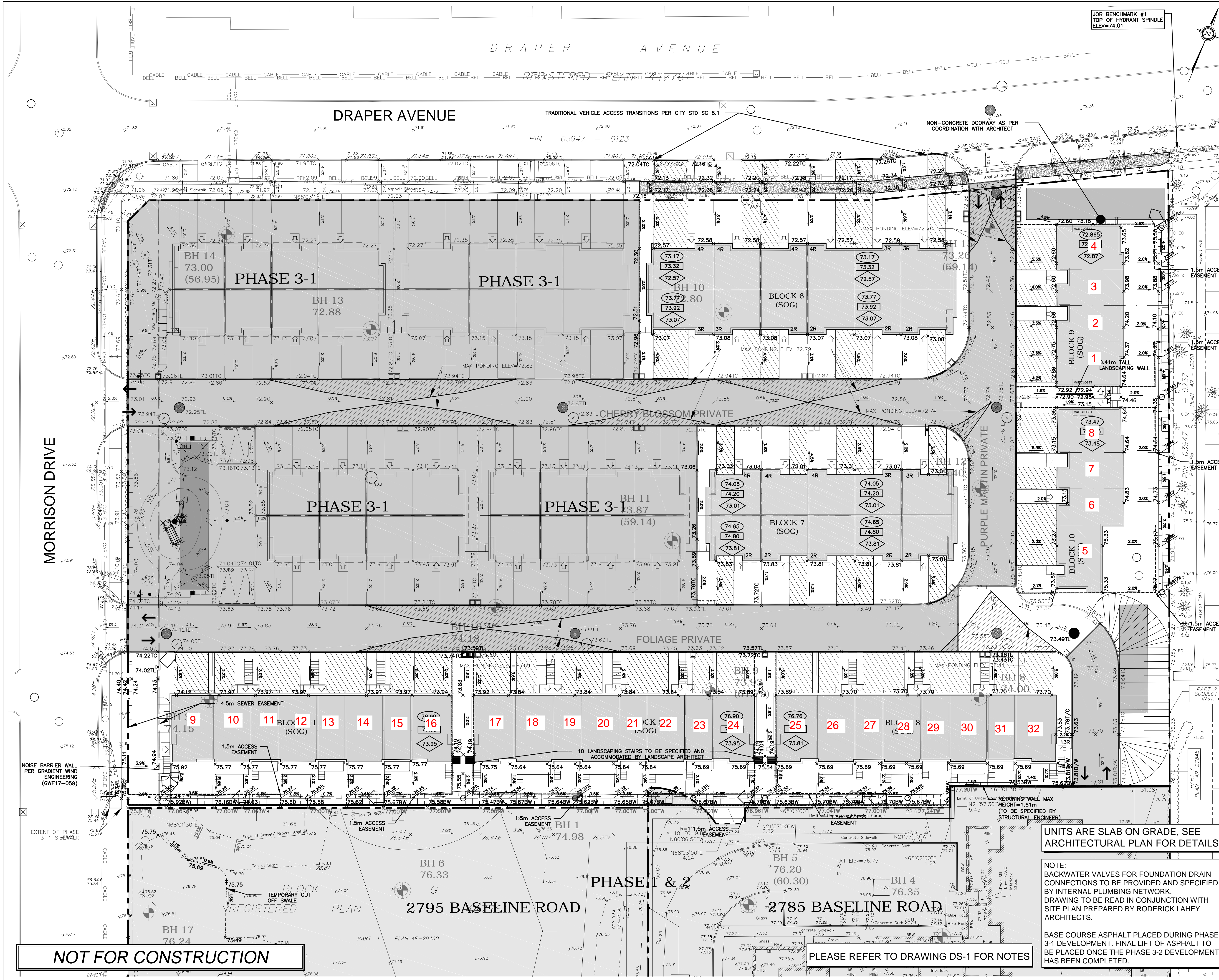


Nathan F. S. Christie, P.Eng.



Faisal I. Abou-Seido, P.Eng.

Table 1 - Summary of Lot Grading - Fresh Towns Phase 3-2 - 2710 Draper Avenue																				
Block Number	Civic Address	TH/SOG End Units	Bearing Resistance Value at SLS	Original Front Grade	Proposed GS Front	Original Side Grade	Proposed GS Side	Original Back Grade	Proposed GS Back	USF	Finished Floor Elevation	Permissible Grade Raise Elevation Front	Permissible Grade Raise Elevation Side	Permissible Grade Raise Elevation Back	Above Permissible Grade Raise Front	Above Permissible Grade Raise Side	Above Permissible Grade Raise Back	Seismic Site Class	Miniumum Thickness LWF at Front of Lot	Miniumum Thickness LWF at Side of Lot
		(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)			
Block 5	17*	End	150	74.92	73.92	75.10	74.20	75.31	75.75	73.95	77.43	75.92	76.10	76.31	n/a	n/a	n/a	Class D	n/a	n/a
	18*	-	150	74.92	73.84	n/a	n/a	75.31	75.64	73.95	77.43	75.92	n/a	76.31	n/a	n/a	n/a	Class D	n/a	n/a
	19*	-	150	74.07	73.84	n/a	n/a	75.38	75.64	73.95	77.43	75.07	n/a	76.38	n/a	n/a	n/a	Class D	n/a	n/a
	20*	-	150	74.07	73.84	n/a	n/a	75.38	75.64	73.95	77.43	75.07	n/a	76.38	n/a	n/a	n/a	Class D	n/a	n/a
	21*	-	150	75.08	73.84	n/a	n/a	75.53	75.64	73.95	77.43	76.08	n/a	76.53	n/a	n/a	n/a	Class D	n/a	n/a
	22*	-	150	75.10	73.84	n/a	n/a	75.86	75.64	73.95	77.43	76.10	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	23*	-	150	74.52	73.84	n/a	n/a	75.86	75.69	73.95	77.43	75.52	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	24*	End	150	74.42	73.89	74.38	74.05	76.85	75.69	73.95	77.43	75.42	75.38	77.85	n/a	n/a	n/a	Class D	n/a	n/a
Block 6	2712 Draper Avenue	End	150	73.67	72.57	73.18	72.30	n/a	n/a	72.57	73.32	74.67	74.18	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	67 Cherry Blossom Private	End	150	73.83	73.07	73.25	72.96	n/a	n/a	73.07	73.92	74.83	74.25	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	2710 Draper Avenue	-	150	73.80	72.58	n/a	n/a	n/a	n/a	72.57	73.32	74.80	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	69 Cherry Blossom Private	-	150	73.83	73.08	n/a	n/a	n/a	n/a	73.07	73.92	74.83	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	2708 Draper Avenue	-	150	73.80	72.58	n/a	n/a	n/a	n/a	72.57	73.32	74.80	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	71 Cherry Blossom Private	-	150	73.90	73.08	n/a	n/a	n/a	n/a	73.07	73.92	74.90	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	2706 Draper Avenue	-	150	73.93	72.57	n/a	n/a	n/a	n/a	72.57	73.32	74.93	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	73 Cherry Blossom Private	-	150	73.92	73.07	n/a	n/a	n/a	n/a	73.07	73.92	74.92	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	2704 Draper Avenue	-	150	73.77	72.57	n/a	n/a	n/a	n/a	72.57	73.32	74.77	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	75 Cherry Blossom Private	-	150	73.92	73.07	n/a	n/a	n/a	n/a	73.07	73.92	74.92	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
Block 7	2702 Draper Avenue	End	150	73.76	72.58	73.90	72.51	n/a	n/a	72.57	73.32	74.76	74.90	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	77 Cherry Blossom Private	End	150	73.90	73.08	73.84	72.64	n/a	n/a	73.07	73.92	74.90	74.84	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	74 Cherry Blossom Private	End	150	73.70	73.03	74.29	73.06	n/a	n/a	73.01	74.20	74.70	75.29	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	325 Foliage Private	End	150	74.47	73.83	74.43	73.89	n/a	n/a	73.81	74.80	75.47	75.43	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	76 Cherry Blossom Private	-	150	73.74	73.01	n/a	n/a	n/a	n/a	73.01	74.20	74.74	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	327 Foliage Private	-	150	74.47	73.83	n/a	n/a	n/a	n/a	73.81	74.80	75.47	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	78 Cherry Blossom Private	-	150	73.74	73.01	n/a	n/a	n/a	n/a	73.01	74.20	74.74	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	329 Foliage Private	-	150	74.49	73.81	n/a	n/a	n/a	n/a	73.81	74.80	75.49	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	80 Cherry Blossom Private	-	150	73.80	73.07	n/a	n/a	n/a	n/a	73.01	74.20	74.80	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
Block 8	331 Foliage Private	-	150	74.50	73.81	n/a	n/a	n/a	n/a	73.81	74.80	75.50	n/a	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	82 Cherry Blossom Private	End	150	73.80	73.01	73.89	73.15	n/a	n/a	73.01	74.20	74.80	74.89	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	333 Foliage Private	End	150	74.47	73.81	74.47	73.30	n/a	n/a	73.81	74.80	75.47	75.47	n/a	n/a	n/a	n/a	Class D	n/a	n/a
	25*	End	150	74.44	73.89	74.38	74.19	75.86	75.59	73.81	76.91	75.44	75.38	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	26*	-	150	74.46	73.70	n/a	n/a	75.86	75.69	73.81	76.91	75.46	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	27*	-	150	74.46	73.70	n/a	n/a	75.86	75.69	73.81	76.91	75.46	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	28*	-	150	74.42	73.70	n/a	n/a	75.86	75.69	73.81	76.91	75.42	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	29*	-	150	74.41	73.70	n/a	n/a	75.86	75.69	73.81	76.91	75.41	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
Block 9	30*	-	150	74.41	73.70	n/a	n/a	75.86	75.69	73.81	76.91	75.41	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	31*	-	150	74.48	73.70	n/a	n/a	75.86	75.69	73.81	76.91	75.48	n/a	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	32*	End	150	94.95	73.70	76.37	73.83	75.86	75.69	73.81	76.91	95.95	77.37	76.86	n/a	n/a	n/a	Class D	n/a	n/a
	1*	End	150	73.84	72.60	73.91	72.94	74.10	74.37	72.87	72.87	74.84	74.91	75.10	n/a	n/a	n/a	Class D	n/a	n/a
Block 10	2*	-	150	73.63	72.60	n/a	n/a	73.80	74.20	72.87	72.87	74.63	n/a	74.80	n/a	n/a	n/a	Class D	n/a	n/a
	3*	-	150	73.43	72.60	n/a	n/a	73.61	73.98	72.87	72.87	74.43	n/a	74.61	n/a	n/a	n/a	Class D	n/a	n/a
	4*	End	150	73.23	72.60	73.11	73.18	73.37	73.82	72.87	72.87	74.23	74.11	74.37	n/a	n/a	n/a	Class D	n/a	n/a
	5*	End	150	74.56	73.27	75.04	73.60	74.94	75.33	73.48	73.48	75.56	76.04	75.94	n/a	n/a	n/a	Class D	n/a	n/a
Block 11	6*	-	150	74.30	73.15	n/a	n/a	74.65	75.33	73.48	73.48	75.30	n/a	75.65	n/a	n/a	n/a	Class D	n/a	n/a
	7*	-	150	74.17	73.15	n/a	n/a	74.47	74.83	73.48	43.48	75.17	n/a	75.47	n/a	n/a	n/a	Class D	n/a	n/a
	8*	End	150	74.00	73.05	74.11	73.15	74.27	74.64	73.48	43.48	75.00	75.11	75.27	n/a	n/a	n/a	Class D	n/a	n/a
	9*	End	150	74.71	74.12	74.98	74.94	75.08	75.92	73.95	77.05	75.71	75.98	76.08	n/a	n/a	n/a	Class D	n/a	n/a
	10*	-	150	74.88	73.97	n/a	n/a	75.08	75.77	73.95	77.05	75.88	n/a	76.08	n/a	n/a	n/a	Class D	n/a	n/a
	11*	-	150	74.88	73.97	n/a	n/a	75.08	75.77	73.95	77.05	75.88	n/a	76.08	n/a	n/a	n/a	Class D	n/a	n/a
	12*	-	150	74.80	73.97	n/a	n/a	75.06	75.77	73.95	77.05	75.80	n/a	76.06	n/a	n/a	n/a	Class D	n/a	n/a
	13*	-	150	74.80	73.97	n/a	n/a	75.08	75.77	73.95	77.05	75.80	n/a	76.08	n/a	n/a	n/a	Class D	n/a	n/a
	14*	-	150	74.82	73.97	n/a	n/a	75.10	75.77	73.95	77.05	75.82	n/a	76.10	n/a	n/a	n/a	Class D	n/a	n/a
	15*	-	150	74.85	73.97	n/a	n/a	75.11	75.77	73.95	77.05	75.85	n/a	76.11	n/a	n/a	n/a	Class D	n/a	n/a
	16*	End	150	74.97	73.94	74.96	74.19	75.11	75.77	73.95	77.05	75.97	75.96	76.11	n/a	n/a	n/a	Class D	n/a	n/a
The grading calculations were based on Grading Plan Fresh Towns - 2710 Draper Avenue Phase 3-2 - Project No. 17-927 - Sheet 2 of 6 - Drawing No. GP-1 - Revision 1 dated December 7, 2018.																				
*Address unavailable at the time of writing, refer to attached plan for assigned lot number																				



LEGEND

- PROPERTY LINE
- PROPOSED SWALE
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED BOTTOM OF WALL ELEVATION
- PROPOSED TOP OF WALL ELEVATION
- PROPOSED TOP OF LID ELEVATION
- EXISTING GRADE AND DIRECTION
- PROPOSED GRADE AND DIRECTION
- PROPOSED 3:1 TERRACING
- PROPOSED/EXISTING SPOT ELEVATION
- RISERS
- NOISE BARRIER WALL PER TRAFFIC NOISE ASSESSMENT REPORT, PREPARED BY GRADIENT WIND ENGINEERING, GWE17-059
- SLAB ON GRADE
- WALL
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED CONCRETE SIDEWALK
- MAXIMUM PONDING LEVEL
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED CB 'T' OR CB 'L'
- PROPOSED FIRE HYDRANT
- EMERGENCY FLOW ROUTE
- DEPRESSED CURB
- FINISHED FLOOR ELEVATION
- TOP OF FOUNDATION
- SLAB ELEVATION
- 2785 BASELINE SPOT ELEVATION
- EXISTING PH3-1 SPOT ELEVATION

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
PROJ. NO. 19336-17
DATED MAY 16, 2017

SITE PLAN INFORMATION
SITE PLAN PROVIDED BY RODERICK LAHEY ARCHITECTS
PROJ. NO. 1020
ISSUED NOVEMBER 30, 2018

GEOTECHNICAL STUDY
GEOTECHNICAL RECOMMENDATIONS PROVIDED BY PATERSON GROUP INC.
PROJ. NO. PG1630-3
DATED SEPTEMBER 20, 2018 REVISION 6

SITE SERVICING AND STORMWATER MANAGEMENT STUDY
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY DSEL
DATED DECEMBER 2018

BENCH MARK
TOP OF FIRE SPINDLE LOCATED NORTH EAST OF THE SUBJECT SITE
ELEV=74.01m

1	A.J.G.	18.12.07	ISSUED FOR MUNICIPAL REVIEW
No.	BY	YY.MM.DD	DESCRIPTION

PROJECT No. 17-927

GRADING PLAN
FRESH TOWNS - 2710 DRAPER AVENUE PHASE 3-2 © DSEL

GREATWISE DEVELOPMENTS

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DRAWN BY: R.D.F. CHECKED BY: R.D.F. DRAWING NO. SHEET NO.
DESIGNED BY: R.D.F. CHECKED BY: R.D.F.
SCALE: 1:250 DATE: DECEMBER 2018 GP-1 2 of 6

UNITS ARE SLAB ON GRADE, SEE ARCHITECTURAL PLAN FOR DETAILS

NOTE:
BACKWATER VALVES FOR FOUNDATION DRAIN CONNECTIONS TO BE PROVIDED AND SPECIFIED BY INTERNAL PLUMBING NETWORK.
DRAWING TO BE READ IN CONJUNCTION WITH SITE PLAN PREPARED BY RODERICK LAHEY ARCHITECTS.

BASE COURSE ASPHALT PLACED DURING PHASE 3-1 DEVELOPMENT. FINAL LIFT OF ASPHALT TO BE PLACED ONCE THE PHASE 3-2 DEVELOPMENT HAS BEEN COMPLETED.

PLEASE REFER TO DRAWING DS-1 FOR NOTES