

Appendix G

- Preliminary Grading Plan Review (Paterson Group, June 5, 2019)... **G1-G6**
- Geotechnical Review – Proposed Services (Paterson Group, June 10, 2019)... **G7-G8**

re: Preliminary Grading Plan Review
East Urban Community (EUC) Mixed Use CDP - MSS
Mer Bleue Road - Ottawa

to: Richcraft Group of Companies - **Ms. Fairouz Wahab** - fwahab@richcraft.com

to: DSEL - **Ms. Laura Maxwell** - lm Maxwell@dssel.ca

date: June 5, 2019

file: PG3130-MEMO.02 Rev.1

Further to your request, Paterson Group (Paterson) prepared the current memorandum based on our review of the conceptual grading plan for the East Urban Community (EUC) Mixed Use CDP located on Mer Bleue Road in the City of Ottawa.

The following conceptual grading plan prepared by David Schaeffer Engineering Ltd. (DSEL) was reviewed from a geotechnical perspective:

- East Urban Community Mixed Use Centre Community Design Plan, Grading Plan, Project No. 14-733, Drawing No. 2 dated October, 2018.

The current memorandum should be read in conjunction with our Geotechnical - Existing Conditions Report PG3130-2, Revision 2 dated July 7, 2019.

Background

The site is bordered to the north by commercial development, to the west by vacant agricultural land and the stormwater management facility (SWMF). The neighbouring property to the south and east is bordered by either vacant land or is currently under construction for residential development.

The existing Hydro Corridor bisects the site in an east-west direction and Mer Bleue Road further bisects the site in a north-south direction which segregates the site into three (3) quadrants assigned as the North, South and East Parcel.

Based on our cursory review of the conceptual grading plan, the South Parcel bordered to the north by the existing Hydro Corridor and to the east by Mer Bleue is designed with centerline of road grades of up to 1.8 m above the original ground surface. Grade raises of up to 2.3 m are anticipated at the proposed buildings assuming a conservative grade raise of 0.5 m above the centerline of the roadway.

The largest quadrant identified as the North Parcel is bordered to the north by commercial development to the south by the existing Hydro Corridor and to the east by Mer Bleue. The designed grades at the centerline of road grades of up to 1.9 m and 3.2 m above the original ground surface within the southwest and southeast portion of the North Parcel, respectively. Grade raises of up to 2.4 and 3.7 m are anticipated at the proposed buildings assuming a conservative grade raise of 0.5 m above the centerline of the roadway within the southwest and southeast portion of the North Parcel, respectively.

The East Quadrant bordered to the south by the existing Hydro Corridor and to the west by Mer Bleue is designed with centerline of road grades of up to 0.8 m above original ground surface and grade raises of up to 1.3 m are anticipated at the proposed buildings assuming a conservative grade raise of 0.5 m above the centerline of the roadway.

Geotechnical Review

Based on our geotechnical review, the conceptual grading plan are considered acceptable from a geotechnical perspective. However, where the proposed grade raises exceed the preliminary permissible grade raise recommendations provided in Report PG3130-2, Revision 2 dated July 7, 2019, several options could be considered for the proposed roadways and foundation support of the proposed buildings:

Option 1 - Use of Lightweight Fill

Lightweight fill (LWF) can be used, consisting of EPS (expanded polystyrene) Type 19 or 22 blocks or other light weight materials which allow for raising the grade without adding a significant load to the underlying soils for areas adjacent to the proposed building. It should be noted that the City guidelines do not permit the use of LWF within the right-of-way without approval as a pilot program.

Option 2 - Preloading or Surcharging

It is possible to preload or surcharge the subject roadway alignments and proposed building footprints provided sufficient time is available to achieve the desired settlements. If this option is considered, a monitoring program using settlement plates will have to be implemented. This program will determine the amount of settlement in the preloaded or surcharged areas. Obviously, preloading to proposed finished grades will allow for consolidation of the underlying clays over a longer time period. Surcharging the site with additional fill above the proposed finished grade will add additional load to the underlying clays accelerating the consolidation process and allowing for accelerated settlements. Once the desired settlements are achieved, the site can be unloaded and the fill can be used elsewhere on site.

Reference should be made to the attached plan outlining the anticipated LWF/Surcharge areas using the presented grades. Also, a second plan is attached outlining the LWF/Surcharge areas assuming an additional 0.5 m above the currently proposed grades. It should be further noted that only the surcharge option is available for areas where roadways exceed our permissible grade raise recommendations.

Once the site grading plan has been established, the above options should be further discussed along with specific area recommendations.

We trust that this information satisfies your immediate requirements.

Paterson Group Inc.



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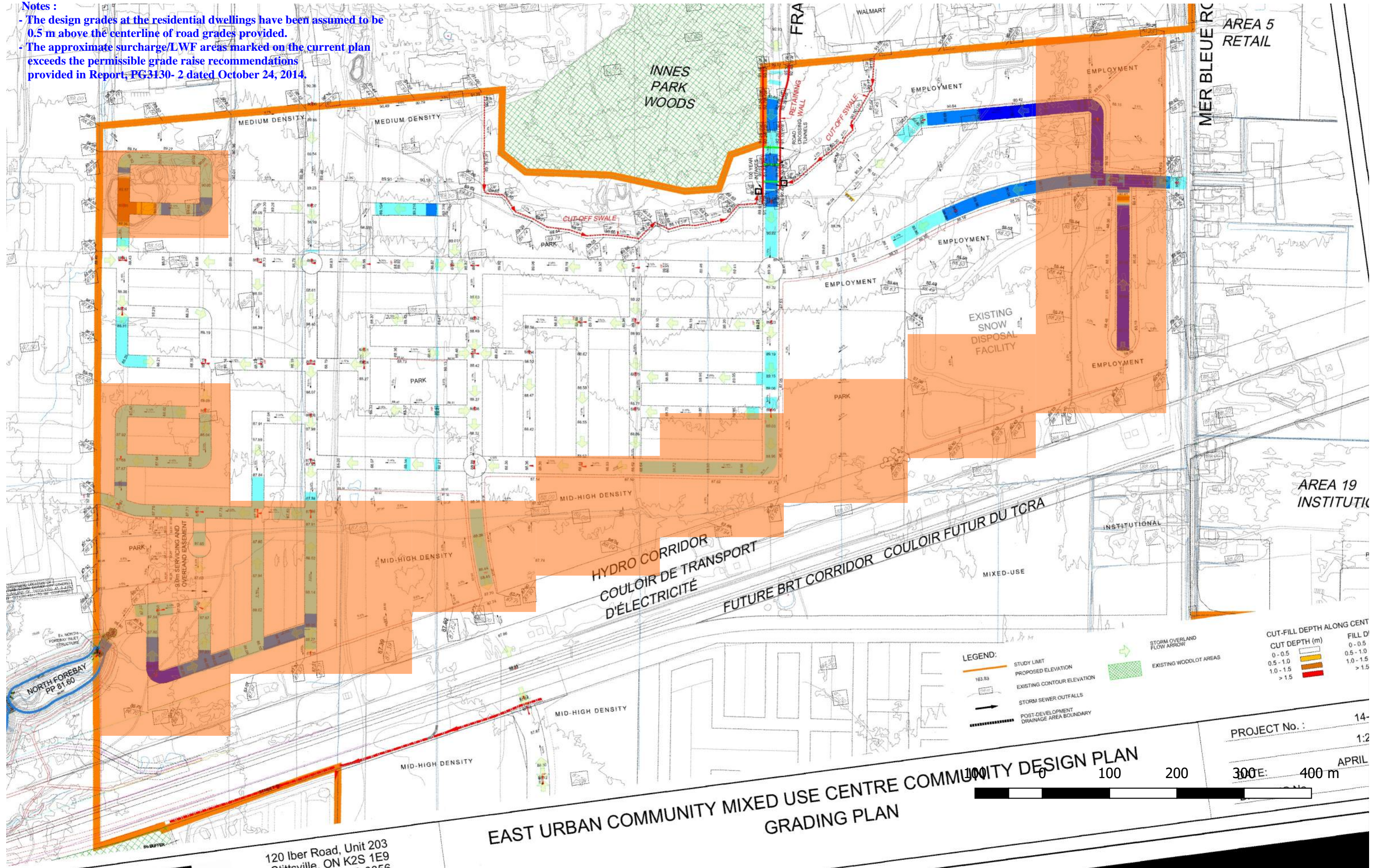
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Approximate Surcharge/LWF Areas Based on Existing Subsoil Information

Notes :

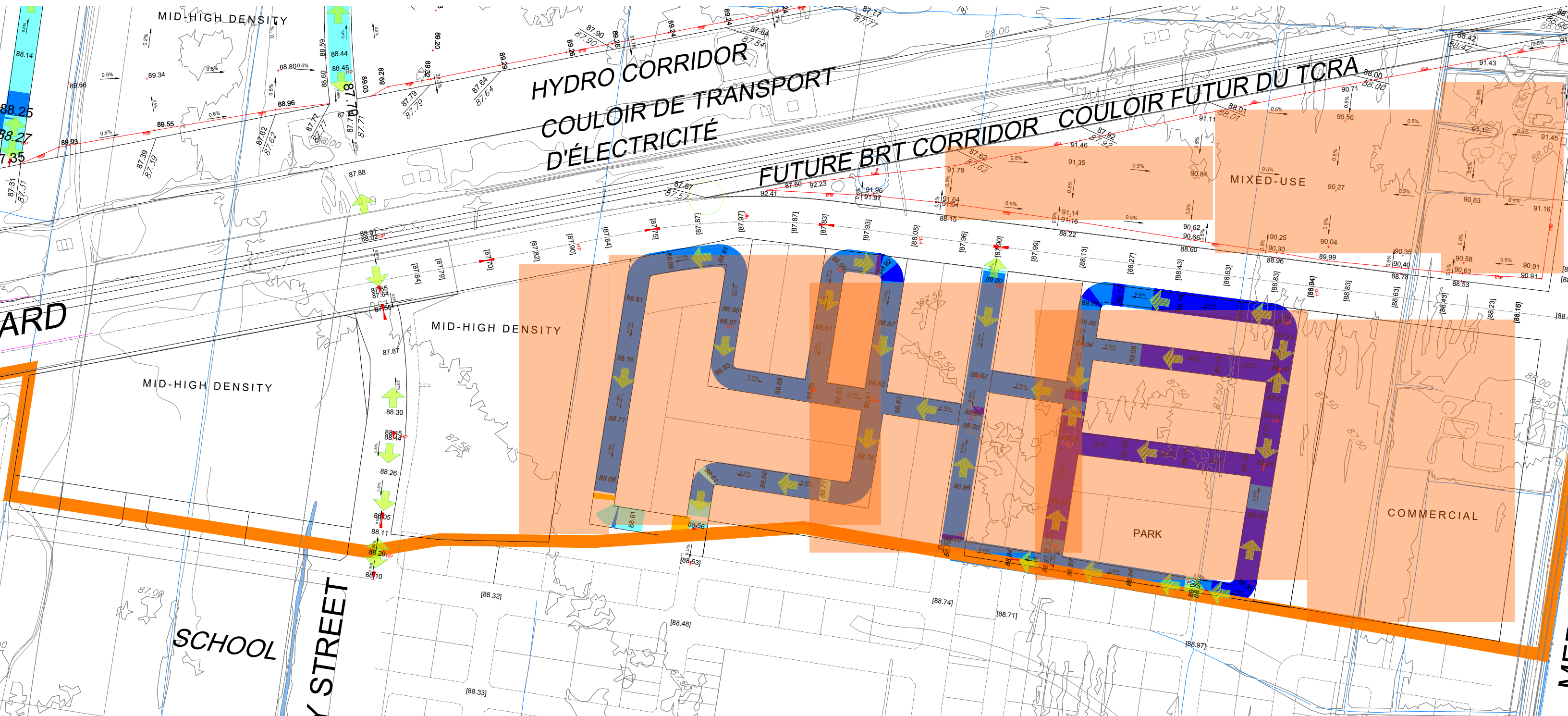
- The design grades at the residential dwellings have been assumed to be 0.5 m above the centerline of road grades provided.
- The approximate surcharge/LWF areas marked on the current plan exceeds the permissible grade raise recommendations provided in Report, PG3130- 2 dated October 24, 2014.



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EAST URBAN COMMUNITY MIXED USE CENTRE COMMUNITY DESIGN PLAN
 GRADING PLAN

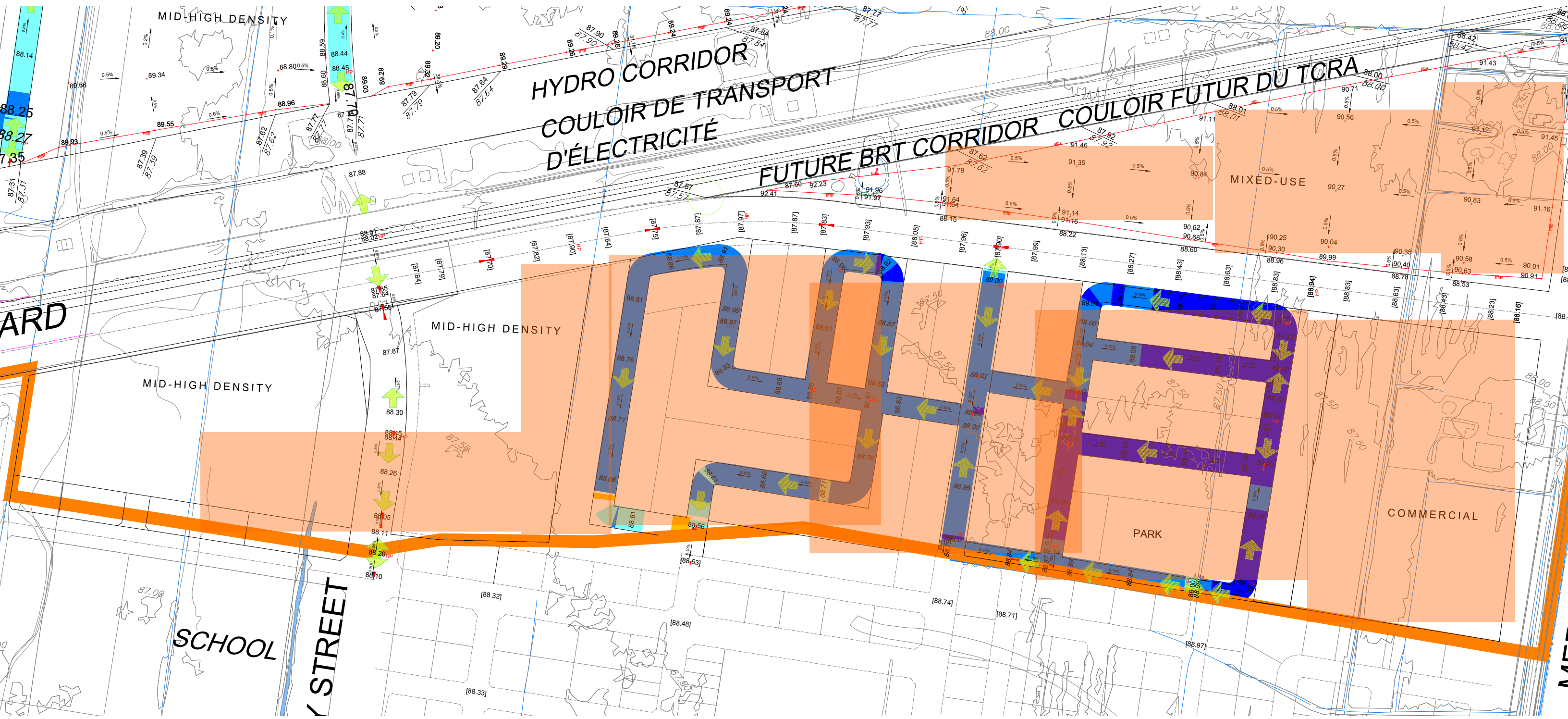
PG3130 - Preliminary LWF/Surcharge Areas For EUC - Paterson Recommendations



Approximate Surcharge/LWF Areas Based on Existing Subsoil Information

- Notes:
- The design grades at the proposed buildings were assumed to be 0.5 m above the centerline of road grades provided.
 - The marked areas on the plan exceed the preliminary grade raise restrictions for the subject site.

PG3130 - Preliminary LWF/Surcharge Areas For EUC - Paterson Recommendations with Additional 0.5 m Above Proposed Grades



Approximate Surcharge/LWF Areas Based on Existing Subsoil Information

- Notes:**
- The design grades at the proposed buildings were assumed to be 0.5 m above the centerline of road grades provided.
 - The marked areas on the plan exceed the preliminary grade raise restrictions for the subject site.

re: **Geotechnical Review - Proposed Services**
East Urban Community (EUC) Mixed Use CDP - MSS
Mer Bleue Road - Ottawa

to: Richcraft Group of Companies - **Ms. Fairouz Wahab** - fwahab@richcraft.com

to: DSEL - **Ms. Laura Maxwell** - lmaxwell@dssel.ca

date: June 10, 2019

file: PG3130-MEMO.04

Further to your request, Paterson Group (Paterson) prepared the current memorandum to provide a geotechnical review of the proposed services as requested by DSEL for the East Urban Community (EUC) Mixed Use CDP located on Mer Bleue Road in the City of Ottawa.

The following conceptual Figure prepared by David Schaeffer Engineering Ltd. (DSEL) was reviewed from a geotechnical perspective:

- East Urban Community Phase 3 Area Community Design Plan - Figure 5 - Project No. 14-733 dated December, 2018.

The current memorandum should be read in conjunction with our Geotechnical - Existing Conditions Report, PG3130-3 dated November 8, 2018.

Background

Based on our review of the above noted drawing and additional information provided by DSEL, it is understood that a 3000 mm diameter storm sewer will be located up to 5 m below the proposed roadway (obvert elevation) in proximity to adjacent services including a sanitary sewer. The following section provides geotechnical recommendations for the repair/replacement of the storm sewer to avoid disturbance of the adjacent sanitary sewer pipe.

Geotechnical Review

The subsurface profile anticipated within the right of way will likely consist of a stiff to firm silty clay layer. Based on the soils anticipated, standard construction practices can be used if repairs or replacements of the sanitary or storm sewers are to take place. Provided a minimum clearance of 1.5 m is present between the centreline of the existing service pipe and the sidewall of the proposed excavation, these construction practices will not have any major impact on other existing service infrastructure.

It is assumed that the excavations will be carried out within the confines of a fully-braced steel trench box or other acceptable shoring system designed by a qualified structural engineer to resist the design lateral earth pressures. If a trench box is used, the trench box should be installed such that the subsurface soil is tight to the trench box wall and use steel plates to prevent basal heave (if required). The proposed excavation plan for replacing the storm sewer should be reviewed by the geotechnical consultant prior to construction.

Connections to Main Sewer Line

It is understood that DSEL has proposed to use settlement control joints in accordance with Note 3 on City of Ottawa Standard S11 for the lateral connections to the main sewer line. The proposed product consists of the following:

- ❑ Royal Pipe Systems - SDR35 Gasketed Sewer Fittings - Controlled Settlement Joint - Technical Specification

Based on the depth of the proposed services (i.e. greater than 5 m) in localized areas across the subject site, the use of controlled settlement joints is recommended in City of Ottawa Standard S11 (modified OPSD-1006.010). The proposed product is acceptable from a geotechnical perspective and should be installed in accordance with the manufacturers specifications. Area specific reviews should be completed to determine if settlement sensitive silty clay deposits are present below the subject service alignment. If a competent subgrade is encountered a controlled settlement joint is not required from a geotechnical perspective.

We trust that this information satisfies your immediate requirements.

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