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Consultant File: WA-304

The City of Arlington
Snohomish County, WA

RE: Pre-Fill and Post-Fill Storm Drainage Report at 2127 State Route, Arlington, WA

The purpose of this report is to evaluate Impact of illegal fill on Storm Drainage pattern of the Development and the neighbourhood and also to identify any potential issues or areas for improvement.

To conduct this report, an assessment of the Storm Drainage flows from Development Site has been carried out. Here, we have compared the Storm water flows before and after the Illegal fill brought at the Site.

Comparison of pre-fill & post-fill conditions: -

In the Pre-fill condition, as per the available data of the area, it is our understanding that the storm water flows naturally from South East towards North West of our Development (See the attached Contours in the Pre-fill condition in the Appendix A). There is a depression point in the Neighbouring Lot (Parcel Number 31050800201200), on the North West Side of our Development, where all these storm water flows directed naturally. There is also, a Stillaguamish River approximately half a mile North from our development, but the contours are higher, so it appears like no Storm water flows are entering into this River from our Development directly towards North direction. However, when the flows are above 46 feet level, then the flows will go towards the River in the North West direction.

In the Pre-fill condition, the storm water flows from our Neighbouring lot (Parcel Number 31050800200200), which is on the East side of our Site, are also towards that depression point passing through our Site. The grades are approximately 48 feet at the South East corner of the property line and approximately 43.5 feet at the North West corner of the property.

However, in the post-fill condition, with the new illegal fill at the Site, the contours and the Storm water flows of our development gets slightly changed as compared to the pre-fill condition.

In the post-fill condition, the new maximum elevation is 46.62 feet which was approximately 46 feet in the pre-fill condition. The flow direction is still similar as pre-developed condition, and the storm water is again flowing from South East side towards the North West side into the depression point in the Neighbouring Lot (Parcel Number 31050800201200),

The flows from the Neighbouring lot (Parcel Number 31050800200200), which is on the East side of our Site, are also changed in the post-fill condition. Earlier, the Grades along the East property line varies approximately from 48 feet to 46 feet in the pre-fill condition, and now in the post-fill condition the grades vary from 48 feet to 45.82 feet approximately. Also, the maximum elevation of our site is now 46.62, therefore, any storm flows coming from the South direction will now get diverted slightly and move towards North West direction and ultimately moving towards the same depression point (See the attached Contours in the Post-fill condition in the Appendix A).

The flow path in the Pre-fill and post-fill conditions are also attached in the Appendix A.

Proposed Measures to Reinstate the Development Site into its Original State (Pre-fill Condition): -

In our case, we have compared the elevations before and after the proposed fill at site 2127 State Route 530, Arlington, WA. With the changes in the elevations due to the illegal fill that was brought into our Development, the Storm water flow patterns also gets slightly changed. The flow patterns are already discussed in the above section. However, the illegal fill is about 5,265 Cubic yard and if, 1 acre of drainage catchment area is considered, then approximately 1 feet of elevation difference is there. But, as we are considering hundreds of acres of drainage catchment area, the elevation difference is negligible.

In order to reinstate the Development Site back to its Original State (similar to the Pre-fill condition), removal of unwanted illegal fill is ordered by the City. The Grading Plan is proposed, to match the elevations of the development similar to the pre-fill condition (See the attached Grading Plan in the Appendix A). Proper Sediment and Control measures are also proposed in the ESC plan, that needs to be installed and placed prior to start removal of the illegal fill from the Site.

Sediment and Control measures, like Silt fence all along the property line is proposed to prevent and reduce the flow of sediment water in the event of rainfall.

Access pad at the entrance is proposed as per the City of Arlington Standards, along with the wheel wash station, so that no truck or vehicle leaves the Site with the dirt on the wheels and prevents from contaminating the city System with the dirt.

The number of trucks entering the site are going to be high to remove the illegal fill, so chances of oil or vehicle fluid spill are possible. In order to the prevent the spill, spill prevention measures are also provided on the ESC plan.

The Contractor/Developer will make sure before starting of any removal of the illegal fill, to get the required permits from the City and properly install and place these Sediment and Control Measures at the site as mentioned above and proposed on the ESC plan. The construction hours permitted to be confirmed by the city.

Since, the removal of the illegal fill is proposed, hence, there will be no significant effect on the drainage pattern of the area downstream or upstream of the property due to this fill.

Yours truly,

Avnash Banwait, P. Eng
(SEAL)

Appendix 1: -

- Pre-fill Site condition and Stormwater flow pattern
- Post-fill Site condition and Altered Stormwater flow pattern after the illegal fill.
- Proposed Grading Plan, to Reinstate the Site back to its original State.

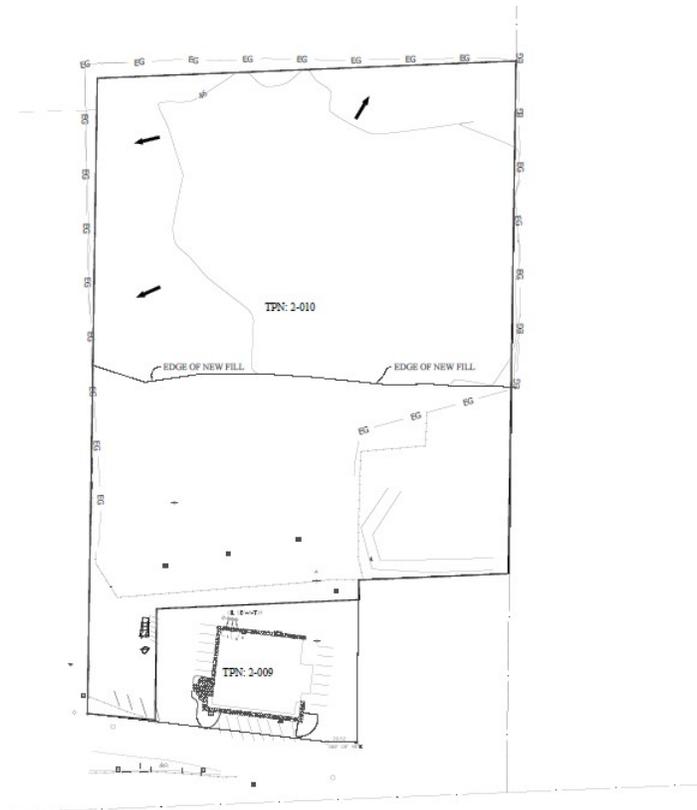
Pre-fill Site condition and Stormwater flow pattern: -

EXISTING GROUND	
EX GROUND ELEVATION	45.00
OVERLAND FLOW DIRECTION (BASED ON PRE-FILL SITE CONDITION)	



Post-fill Site condition and Altered Stormwater flow pattern after the illegal fill: -

EXISTING GROUND	
EX GROUND ELEVATION	46.00
OVERLAND FLOW DIRECTION (BASED ON POST FILL SITE CONDITION)	

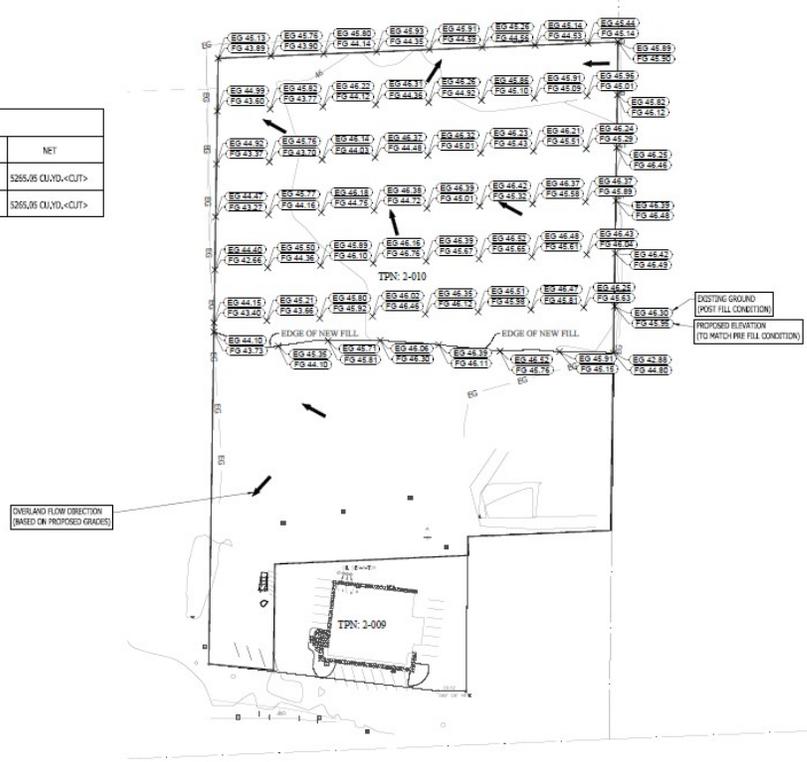


STATE ROUTE 530 NE

Proposed Grading Plan: -

EXISTING ELEVATION	EG 46.00
PROPOSED ELEVATION	PG 46.00
OVERLAND FLOW DIRECTION (BASED ON PROPOSED GRADES)	←

CUT/FILL SUMMARY						
NAME	CUT FACTOR	FILL FACTOR	2D AREA	CUT	FILL	NET
CUT-FILL	1.000	1.000	136304.41 SQ.FT.	5265.05 CU.YD.	0.00 CU.YD.	5265.05 CU.YD.<CUT>
TOTALS			136304.41 SQ.FT.	5265.05 CU.YD.	0.00 CU.YD.	5265.05 CU.YD.<CUT>



STATE ROUTE 530 NE