

INTISARI

Perkembangan kawasan permukiman yang masif menyebabkan permasalahan lingkungan berupa banjir. Hal ini terjadi karena menyempitnya aliran sungai akibat pertumbuhan penduduk dan berkurangnya daerah resapan di Sungai Belik, sehingga terjadi peningkatan *runoff*. Pada 2012 terjadi banjir besar yang menyebabkan rusaknya tanggul Asrama Putri SMA Stela Duce. Dari kejadian tersebut, UGM bersama instansi terkait berupaya mengurangi resiko banjir dengan membangun kolam detensi di kawasan UGM yang diintegrasikan dengan RTH. Sejak tahun 2013 Sungai Belik mengalami perubahan kondisi geometri namun belum diketahui perubahan tersebut terhadap muka air banjir. Penelitian ini dilakukan untuk mengetahui pengaruh perubahan kondisi geometri di kawasan *Wisdom Park* UGM terhadap muka air banjir Sungai Belik. Analisis hidrologi berupa intensitas hujan menggunakan metode Mononobe dan perhitungan debit rencana menggunakan metode Rasional. Hasil dari analisis hidrologi digunakan untuk mensimulasi kondisi geometri Sungai Belik dengan menggunakan *software* HEC-RAS 5.0.7 dengan membandingkan kondisi sebelum dibangun kolam detensi, ketika dibangun kolam detensi, dan ketika detensi terintegrasi dengan RTH. Dari simulasi tersebut kemudian dilakukan simulasi dari perencanaan kolam detensi di sebelah barat GOR *Indoor* untuk membandingkan kondisi eksisting dengan kondisi rencana pembangunan kolam detensi. Dari hasil analisis yang dilakukan pada lokasi penelitian, didapatkan debit banjir yang masuk Sungai Belik hingga Jalan Samirono sebesar 10,841 m³/s pada kala ulang 5 tahunan dan dapat disimpulkan bahwa perubahan kondisi geometri memberi pengaruh pada muka air banjir terutama pada saat dibangun kolam detensi sehingga tidak terjadi genangan. Upaya peningkatan pengurangan resiko banjir dapat dilakukan dengan pembangunan kolam detensi di barat GOR *Indoor* sehingga dapat menurunkan muka air banjir dan mampu menampung debit banjir sementara.

Kata Kunci : Sungai Belik, Banjir, Kolam Detensi, Muka Air Banjir, Perubahan Geometri

ABSTRACT

The massive development of residential areas causes environmental problems in the form of flooding. This is due to the narrowing of the river flow due to population growth and reduced catchment areas in the Belik River, increasing runoff. In 2012 there was a big flood that caused damage to the embankment of the Stela Duce High School Girls Dormitory. From this incident, UGM and related agencies tried to reduce the risk of flooding by building a detention pond in the UGM area that was integrated with green open space. Since 2013 the Belik River has changed geometric conditions but it is not yet known what the change is to the floodwater level. This study was conducted to determine the effect of changes in geometric conditions in the Wisdom Park UGM area on the flood water level of the Belik River. Hydrological analysis in the form of rain intensity using the Mononobe method and the calculation of the planned discharge using the Rational Method. The results of the hydrological analysis are used to simulate the geometric conditions of the Belik River using the HEC-RAS 5.0.7 software by comparing the conditions before the detention pond was built, when the detention pond was built and when the detention center was integrated with green open space. From this simulation, a simulation of the detention pond planning to the west of the indoor sport centre was carried out to compare the existing conditions with the planned conditions for the detention pond construction. From the results of the analysis conducted at the research location, it was found that the flood discharge that entered the Belik River to Samirono Street was 10,841 m³/s at the 5-year return period and it can be concluded that changes in geometric conditions affect the flood water level, especially when the detention pond is built so that it does not flood occurs. Efforts to increase flood risk reduction can be done by building a detention pond in the west of the Indoor GOR so that it can lower the flood water level and be able to accommodate temporary flood discharges.

Keywords : Belik River, Flood, Detention Pond, Flood Water Level, Changed Geometric