

Appendix C

Drainage Structure Design Data

Deadmans Run Watershed Basin Planning Study
 STUDY CRITERIA

| Performance Criteria Summary Table | | |
|---|---|--|
| Culverts | Condition 1 | Condition 2 |
| | 1 ft freeboard measured from the min. top of road | 0.5 ft overtopping measured at the min top of road |
| Code T | 50 Year Peak | 100 Year Peak |
| Code R | 10 Year Peak | 100 Year Peak |
| Code TR | 10 Year Peak | 100 Year Peak |
| Code D | N/A | N/A |
| Code RR | 50 Year Peak | 100 Year Peak |
| Bridges | Condition 1 | Condition 2 |
| | 1 ft freeboard measured from the low cord | 0.5 ft overtopping measured at the min top of road |
| Code T | 100 Year Peak | 100 Year Peak |
| Code R | 100 Year Peak | 100 Year Peak |
| Code TR | 100 Year Peak | 100 Year Peak |
| Code RR | 100 Year Peak | 100 Year Peak |
| Code T is defined as a Thoroughfare, Arterial, Collector, or Interstate trafficway. | | |
| Code R is defined as a Residential or Local trafficway. | | |
| Code TR is defined as a trail/non-automotive path | | |
| Code D is defined as a Dam/Spillway | | |
| Code RR is defined as a Railroad Crossing | | |
| Overtopping occurs if the upstream water surface elevation is greater than the min. top of road. | | |
| Bridge freeboard is measured from WSEL to Low Cord of bridge. Culvert freeboard is measured from WSEL to min. top of road. Positive freeboard means the WSEL is above the low cord (bridges) or min top of road (culverts). | | |
| Sizing Analysis (Undersized Column): | | |
| If first condition is true, structure is labeled "Y". | | |
| If first condition is false, second is true, structure is labeled "Y2". | | |
| If both are false, structure is labeled "N". | | |

Deadmans Run Drainage Structure Performance Table

| Reach | Structure ID | County ID | Undersized | Location | Code | Structure | Station | Low Cord (ft) | Min. Top of Rd (ft) | Event | Q exist (cfs) | WS_US (ft) | Freeboard (ft) | Overtop (ft) | Tailwater Elev. (ft) |
|------------------|--------------|-----------|------------|-------------------------------------|------|-----------|-----------|---------------|---------------------|-------|---------------|------------|----------------|--------------|----------------------|
| DMR Main Channel | DMR005 | N/A | N | Cornhusker Highway | T | Bridge | 2709.360 | 1143.880 | 1146.42 | 10yr | 6108 | 1136.78 | -7.10 | -9.64 | 1136.60 |
| | | | | | | | | | | 50yr | 8154 | 1139.56 | -4.32 | -6.86 | 1139.59 |
| | | | | | | | | | | 100yr | 9460 | 1140.65 | -3.23 | -5.77 | 1140.76 |
| DMR Main Channel | DMR010 | N/A | Y | Burlington Northern Railroad | RR | Bridge | 4126.170 | 1146.540 | 1149.45 | 10yr | 5379 | 1142.39 | -4.15 | -7.06 | 1141.80 |
| | | | | | | | | | | 50yr | 6796 | 1144.86 | -1.68 | -4.59 | 1144.23 |
| | | | | | | | | | | 100yr | 7794 | 1147.75 | 1.21 | -1.70 | 1145.38 |
| DMR Main Channel | DMR015 | N/A | Y | Abandoned Railroad | RR | Bridge | 4197.290 | 1148.380 | 1147.93 | 10yr | 5379 | 1142.74 | -5.64 | -5.19 | 1142.37 |
| | | | | | | | | | | 50yr | 6796 | 1145.17 | -3.21 | -2.76 | 1144.80 |
| | | | | | | | | | | 100yr | 7794 | 1147.98 | -0.40 | 0.05 | 1147.68 |
| DMR Main Channel | DMR025 | N/A | Y2 | Huntington Avenue | T | Bridge | 5589.235 | 1151.040 | 1145.63 | 10yr | 4746 | 1146.68 | -4.36 | 1.05 | 1146.22 |
| | | | | | | | | | | 50yr | 6769 | 1148.33 | -2.71 | 2.70 | 1147.87 |
| | | | | | | | | | | 100yr | 7997 | 1149.48 | -1.56 | 3.85 | 1149.28 |
| DMR Main Channel | DMR030 | N/A | Y2 | 38th Street @ UNL East | T | Bridge | 7270.680 | 1155.160 | 1147.88 | 10yr | 4686 | 1150.15 | -5.01 | 2.27 | 1149.62 |
| | | | | | | | | | | 50yr | 6954 | 1152.27 | -2.89 | 4.39 | 1152.25 |
| | | | | | | | | | | 100yr | 8193 | 1152.46 | -2.70 | 4.58 | 1152.44 |
| DMR Main Channel | DMR035 | N/A | Y | 48th Street | T | Bridge | 10837.900 | 1160.430 | 1161.07 | 10yr | 4405 | 1159.22 | -1.21 | -1.85 | 1158.10 |
| | | | | | | | | | | 50yr | 6349 | 1162.32 | 1.89 | 1.25 | 1159.94 |
| | | | | | | | | | | 100yr | 7426 | 1164.34 | 3.91 | 3.27 | 1160.60 |
| DMR Main Channel | DMR040 | N/A | Y | Pedestrian Crossing East of 48th St | TR | Bridge | 11265.400 | 1161.480 | 1162.37 | 10yr | 4454 | 1162.98 | 1.50 | 0.61 | 1160.18 |
| | | | | | | | | | | 50yr | 6370 | 1163.50 | 2.02 | 1.13 | 1163.06 |
| | | | | | | | | | | 100yr | 7422 | 1164.79 | 3.31 | 2.42 | 1164.56 |
| DMR Main Channel | DMR045 | N/A | Y | 52nd and Francis | T | Bridge | 12558.700 | 1164.500 | 1164.23 | 10yr | 4454 | 1165.95 | 1.45 | 1.72 | 1165.46 |
| | | | | | | | | | | 50yr | 6370 | 1166.92 | 2.42 | 2.69 | 1166.78 |
| | | | | | | | | | | 100yr | 7422 | 1168.32 | 3.82 | 4.09 | 1167.25 |
| DMR Main Channel | DMR055 | N/A | N | Pedestrian Crossing 1300ft Northw | TR | Bridge | 16640.700 | 1179.450 | 1180.68 | 10yr | 3993 | 1175.23 | -4.22 | -5.45 | 1175.18 |
| | | | | | | | | | | 50yr | 5541 | 1176.70 | -2.75 | -3.98 | 1176.61 |
| | | | | | | | | | | 100yr | 6350 | 1177.30 | -2.15 | -3.38 | 1177.18 |
| DMR Main Channel | DMR060 | N/A | N | Unknown bridge 700ft Northwest | R | Bridge | 17220.000 | 1180.290 | 1180.09 | 10yr | 3993 | 1175.86 | -4.43 | -4.23 | 1175.81 |
| | | | | | | | | | | 50yr | 5541 | 1177.45 | -2.84 | -2.64 | 1177.41 |
| | | | | | | | | | | 100yr | 6350 | 1178.12 | -2.17 | -1.97 | 1178.07 |
| DMR Main Channel | DMR065 | N/A | N | North Cotner | T | Bridge | 17987.720 | 1184.460 | 1188.01 | 10yr | 3993 | 1181.27 | -3.19 | -6.74 | 1179.84 |
| | | | | | | | | | | 50yr | 5541 | 1182.36 | -2.10 | -5.65 | 1181.53 |
| | | | | | | | | | | 100yr | 6350 | 1183.23 | -1.23 | -4.78 | 1182.23 |
| DMR Main Channel | DMR070 | N/A | Y | Vine Street | T | Bridge | 18233.060 | 1186.000 | 1189.66 | 10yr | 3428 | 1184.41 | -1.59 | -5.25 | 1184.28 |

Deadmans Run Drainage Structure Performance Table

| Reach | Structure ID | County ID | Undersized | Location | Code | Structure | Station | Low Cord (ft) | Min. Top of Rd (ft) | Event | Q exist (cfs) | WS_US (ft) | Freeboard (ft) | Overtop (ft) | Tailwater Elev. (ft) |
|------------------|--------------|-----------|------------|------------------------------------|------|-----------|-----------|---------------|---------------------|-------|---------------|------------|----------------|--------------|----------------------|
| DMR Main Channel | DMR075 | N/A | Y | Bike Trail upstream of Vine Street | TR | Bridge | 18350.800 | 1187.750 | 1187.44 | 50yr | 4764 | 1188.28 | 2.28 | -1.38 | 1186.31 |
| | | | | | | | | | | 100yr | 5486 | 1189.63 | 3.63 | -0.03 | 1187.60 |
| | | | | | | | | | | 10yr | 3684 | 1185.57 | -2.18 | -1.87 | 1185.16 |
| | | | | | | | | | | 50yr | 5053 | 1189.63 | 1.88 | 2.19 | 1189.23 |
| DMR Main Channel | DMR080 | N/A | Y | 66th Street | T | Bridge | 20033.400 | 1192.670 | 1194.48 | 100yr | 5764 | 1190.87 | 3.12 | 3.43 | 1190.79 |
| | | | | | | | | | | 10yr | 3503 | 1192.65 | -0.02 | -1.83 | 1191.46 |
| | | | | | | | | | | 50yr | 4825 | 1195.90 | 3.23 | 1.42 | 1193.35 |
| | | | | | | | | | | 100yr | 5534 | 1196.68 | 4.01 | 2.20 | 1193.96 |
| DMR Main Channel | DMR105 | N/A | N | Bike Trail downstream of Wedgew | TR | Bridge | 25322.800 | 1234.370 | 1232.64 | 10yr | 1114 | 1224.85 | -9.52 | -7.79 | 1224.83 |
| | | | | | | | | | | 50yr | 1519 | 1225.59 | -8.78 | -7.05 | 1225.59 |
| | | | | | | | | | | 100yr | 1772 | 1225.97 | -8.40 | -6.67 | 1225.97 |
| DMR Main Channel | DMR068 | N/A | Y | Bike Trail downstream of Vine Stre | TR | Bridge | 18139.000 | 1185.920 | 1187.10 | 10yr | 3993 | 1184.38 | -1.54 | -2.72 | 1183.31 |
| | | | | | | | | | | 50yr | 5541 | 1186.43 | 0.51 | -0.67 | 1185.70 |
| | | | | | | | | | | 100yr | 6350 | 1187.75 | 1.83 | 0.65 | 1187.08 |
| DMR Tributary | DMRT_200 | N/A | Y | RR spur entering Cargill | RR | Bridge | 1812.705 | 1143.830 | 1146.74 | 10yr | 800 | 1146.98 | 3.15 | 0.24 | 1146.76 |
| | | | | | | | | | | 50yr | 900 | 1147.06 | 3.23 | 0.32 | 1146.84 |
| | | | | | | | | | | 100yr | 1200 | 1147.25 | 3.42 | 0.51 | 1146.95 |
| DMR Tributary | DMRT_205 | N/A | Y | Burlington Northern Railroad | RR | Bridge | 1953.561 | 1145.650 | 1148.39 | 10yr | 800 | 1147.20 | 1.55 | -1.19 | 1146.99 |
| | | | | | | | | | | 50yr | 900 | 1147.33 | 1.68 | -1.06 | 1147.07 |
| | | | | | | | | | | 100yr | 1200 | 1147.76 | 2.11 | -0.63 | 1147.26 |
| DMR Tributary | DMRT_210 | N/A | Y | Abandoned Railroad | RR | Bridge | 2022.994 | 1146.230 | 1148.49 | 10yr | 800 | 1147.72 | 1.49 | -0.77 | 1147.19 |
| | | | | | | | | | | 50yr | 900 | 1148.16 | 1.93 | -0.33 | 1147.33 |
| | | | | | | | | | | 100yr | 1200 | 1148.86 | 2.63 | 0.37 | 1147.87 |

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| Reach | Structure ID | County ID | Undersized | Location | Code | Structure | Station | Min. Top of Rd (ft) | Event | Q exist (cfs) | WS_US (ft) | Overtop (ft) | Tailwater Elev. (ft) |
|------------------|--------------|-----------|------------|--|------|-----------|-----------|---------------------|-------|---------------|------------|--------------|----------------------|
| DMR Main Channel | DMR020 | N/A | Y | 33rd and Baldwin | T | Culvert | 4952.940 | 1145.20 | 10yr | 5027 | 1145.35 | 0.15 | 1143.78 |
| | | | | | | | | | 50yr | 7003 | 1146.6 | 1.40 | 1146.17 |
| | | | | | | | | | 100yr | 8236 | 1148.88 | 3.68 | 1148.92 |
| DMR Main Channel | DMR050 | N/A | Y | 56th and Holdrege | T | Culvert | 14241.100 | 1171.77 | 10yr | 4712 | 1173.56 | 1.79 | 1172 |
| | | | | | | | | | 50yr | 6628 | 1174.58 | 2.81 | 1173.88 |
| | | | | | | | | | 100yr | 7652 | 1174.88 | 3.11 | 1174.34 |
| DMR Main Channel | DMR085 | N/A | N | 70th Street | T | Culvert | 21766.300 | 1205.93 | 10yr | 2528 | 1199.28 | -6.65 | 1198.17 |
| | | | | | | | | | 50yr | 3497 | 1202.58 | -3.35 | 1200.46 |
| | | | | | | | | | 100yr | 4014 | 1204.08 | -1.85 | 1201.26 |
| DMR Main Channel | DMR090 | N/A | Y | Bike Trail upstream of 70th parallel to O Street | TR | Culvert | 23300.600 | 1207.18 | 10yr | 1940 | 1209.23 | 2.05 | 1201.7 |
| | | | | | | | | | 50yr | 2671 | 1210.01 | 2.83 | 1204.03 |
| | | | | | | | | | 100yr | 3066 | 1210.32 | 3.14 | 1205.19 |
| DMR Main Channel | DMR095 | N/A | Y | O Street | T | Culvert | 24232.900 | 1220.73 | 10yr | 1202 | 1221.77 | 1.04 | 1216.55 |
| | | | | | | | | | 50yr | 1619 | 1222.29 | 1.56 | 1217.5 |
| | | | | | | | | | 100yr | 1876 | 1222.51 | 1.78 | 1218.07 |
| DMR Main Channel | DMR100 | N/A | Y | Corporate Drive | R | Culvert | 24530.000 | 1222.27 | 10yr | 1167 | 1222.85 | 0.58 | 1221.91 |
| | | | | | | | | | 50yr | 1570 | 1223.37 | 1.10 | 1222.39 |
| | | | | | | | | | 100yr | 1818 | 1223.64 | 1.37 | 1222.7 |
| DMR Main Channel | DMR110 | N/A | N | Englewood Drive | R | Culvert | 27591.500 | 1242.53 | 10yr | 1072 | 1240.1 | -2.43 | 1239.37 |
| | | | | | | | | | 50yr | 1488 | 1241.6 | -0.93 | 1240.47 |
| | | | | | | | | | 100yr | 1717 | 1242.65 | 0.12 | 1241.01 |
| DMR Main Channel | DMR115 | N/A | Y | Bike Trail updstream of Englewood Drive | TR | Culvert | 27815.300 | 1242.28 | 10yr | 1072 | 1244.49 | 2.21 | 1244.35 |
| | | | | | | | | | 50yr | 1488 | 1244.84 | 2.56 | 1244.67 |
| | | | | | | | | | 100yr | 1717 | 1244.98 | 2.70 | 1244.82 |
| DMR Main Channel | DMR120 | N/A | Y | Bike Trail extended off Hickory Lane | TR | Culvert | 28733.400 | 1249.29 | 10yr | 675 | 1251.84 | 2.55 | 1251.44 |
| | | | | | | | | | 50yr | 933 | 1251.98 | 2.69 | 1251.77 |
| | | | | | | | | | 100yr | 1096 | 1252.1 | 2.81 | 1251.88 |
| DMR Tributary | DMRT_200 | N/A | Y | DMR West Trib Culvert into DMR Main Channel | T | Culvert | 100.548 | 1146.26 | 10yr | 800 | 1146.6 | 0.34 | 1136.77 |
| | | | | | | | | | 50yr | 700 | 1146.67 | 0.41 | 1139.56 |
| | | | | | | | | | 100yr | 650 | 1146.71 | 0.45 | 1140.65 |
| DMR Tributary | DMRT_215 | N/A | Y | Lincoln Elevator and Feed Old Road | R | Culvert | 2613.568 | 1141.55 | 10yr | 1090 | 1147.89 | 6.34 | 1147.89 |
| | | | | | | | | | 50yr | 1200 | 1148.17 | 6.62 | 1148.17 |
| | | | | | | | | | 100yr | 2200 | 1148.86 | 7.31 | 1148.86 |