

Betreiber: TenneT Lehrte
 Projekt: LH-13-327
 Leitungsvariante: Leitungsvariante: POR - Bundesgrenze_Variante-Ost
 Datenübernahme:
 Bearbeiter: Lohmüller - EQOS Energie
 Norm: DIN EN 50341-2-4:2016
 Norm für Windlasten: DIN EN 50341-2-4:2016 Windzone: W3
 Norm für Eislasten: DIN EN 50341-2-4:2016 Eiszone: E2
 Fallbeschleunigung: 9,81 m/s² QLK: berechnet Windlastansatz für Leiter: höchster Aufhängepunkt



Richfunktabelle

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Mastliste

| Abspann- abschnitt Nr. | Bau- Nr. | Betriebs- Nr. | Gestänge | Masttyp | Abspannabschnitt-Koordinaten | | | Delta H [m] | Höhe unt. Traverse [m] | Feld- länge [m] | Leitungs- winkel [gon] | Mast- winkel [gon] | globale Koordinaten | | |
|------------------------------|-------------|------------------|------------------|-------------------------|------------------------------|-----------------|----------|-------------------|------------------------------|-----------------------|------------------------------|--------------------------|---------------------|------------|----------|
| | | | | | Station [m] | seitlich [m] | z [m] | | | | | | x [m] | y [m] | z [m] |
| | POR H | | Portal | 380-kV UW Handewitt_327 | 0,00 | 0,00 | 30,40 | 0,00 | 20,00 | | | 84,56 | 32520374,42 | 6064649,80 | 30,40 |
| 1 | | | | | | | | | 112,14 | | | | | | |
| | M001 | | D-2-E-2016.2 | WE140-27 | 112,14 | 0,00 | 29,70 | 0,00 | 27,00 | | 189,75 | 94,88 | 32520333,47 | 6064754,19 | 29,70 |
| 2 | | | | | | | | | 293,00 | | | | | | |
| | M002 | | D-2-E-2007.1 | WA120-24+6 | 293,00 | 0,00 | 29,45 | 0,00 | 30,00 | | 228,11 | 100,07 | 32520184,15 | 6065006,29 | 29,45 |
| 3 | | | | | | | | | 355,97 | | | | | | |
| | M003 | | D-2-D-2016.4 2ES | T1-38,00 | 355,97 | 0,00 | 29,60 | 0,00 | 38,00 | | 200,00 | 100,00 | 32520151,04 | 6065360,71 | 29,60 |
| 3 | | | | | | | | | 411,50 | | | | | | |
| | M004 | | D-2-D-2016.4 2ES | T1-38,00 | 767,47 | 0,00 | 29,80 | 0,00 | 38,00 | | 200,00 | 100,00 | 32520112,76 | 6065770,43 | 29,80 |
| 3 | | | | | | | | | 335,50 | | | | | | |
| | M005 | | D-2-D-2016.4 2ES | T1-38,00 | 1102,97 | 0,00 | 29,70 | 0,00 | 38,00 | | 200,00 | 100,00 | 32520081,56 | 6066104,48 | 29,70 |
| 3 | | | | | | | | | 313,00 | | | | | | |
| | M006 | | D-2-D-2016.4 2ES | WA140-36,00 | 1415,97 | 0,00 | 28,80 | 0,00 | 36,00 | | 170,53 | 85,26 | 32520052,44 | 6066416,12 | 28,80 |
| 4 | | | | | | | | | 320,00 | | | | | | |
| | M007 | | D-2-D-2016.4 2ES | WA140-36,00 | 320,00 | 0,00 | 29,40 | 0,00 | 36,00 | | 230,18 | 115,09 | 32519883,52 | 6066687,90 | 29,40 |
| 5 | | | | | | | | | 285,00 | | | | | | |
| | M008 | | D-2-D-2016.4 2ES | T1-38,00 | 285,00 | 0,00 | 29,25 | 0,00 | 38,00 | | 200,00 | 100,00 | 32519860,15 | 6066971,94 | 29,25 |
| 5 | | | | | | | | | 325,00 | | | | | | |
| | M009 | | D-2-D-2016.4 2ES | T1-38,00 | 610,00 | 0,00 | 28,60 | 0,00 | 38,00 | | 200,00 | 100,00 | 32519833,51 | 6067295,85 | 28,60 |
| 5 | | | | | | | | | 350,00 | | | | | | |
| | M010 | | D-2-D-2016.4 2ES | WA140-36,00 | 960,00 | 0,00 | 29,15 | 0,00 | 36,00 | | 168,70 | 84,35 | 32519804,81 | 6067644,67 | 29,15 |
| 6 | | | | | | | | | 464,00 | | | | | | |
| | M011 | | D-2-D-2016.4 2ES | WA140-39,00 | 464,00 | 0,00 | 29,25 | 0,00 | 39,00 | | 238,27 | 119,13 | 32519552,97 | 6068034,38 | 29,25 |
| 7 | | | | | | | | | 460,00 | | | | | | |
| | M012 | | D-2-D-2016.4 2ES | WA140-36,00 | 460,00 | 0,00 | 28,95 | 0,00 | 36,00 | | 223,92 | 111,96 | 32519565,56 | 6068494,21 | 28,95 |
| 8 | | | | | | | | | 300,00 | | | | | | |
| | M013 | | D-2-D-2016.4 2ES | T1-38,00 | 300,00 | 0,00 | 29,20 | 0,00 | 38,00 | | 200,00 | 100,00 | 32519683,24 | 6068770,16 | 29,20 |
| 8 | | | | | | | | | 390,00 | | | | | | |
| | M014 | | D-2-D-2016.4 2ES | T1-38,00 | 690,00 | 0,00 | 29,90 | 0,00 | 38,00 | | 200,00 | 100,00 | 32519836,22 | 6069128,91 | 29,90 |
| 8 | | | | | | | | | 384,00 | | | | | | |
| | M015 | | D-2-D-2016.4 2ES | T1-38,00 | 1074,00 | 0,00 | 30,65 | 0,00 | 38,00 | | 200,00 | 100,00 | 32519986,84 | 6069482,13 | 30,65 |
| 8 | | | | | | | | | 379,00 | | | | | | |
| | M016 | | D-2-D-2016.4 2ES | WA140-39,00 | 1453,00 | 0,00 | 31,25 | 0,00 | 39,00 | | 159,78 | 79,89 | 32520135,51 | 6069830,76 | 31,25 |
| 9 | | | | | | | | | 483,00 | | | | | | |
| | M017 | | D-2-D-2016.4 2ES | WA120-39,00 | 483,00 | 0,00 | 31,35 | 0,00 | 39,00 | | 249,76 | 124,88 | 32520026,02 | 6070301,18 | 31,35 |
| 10 | | | | | | | | | 300,00 | | | | | | |

Mastliste

| Abspann- abschnitt Nr. | Bau- Nr. | Betriebs- Nr. | Gestänge | Masttyp | Abspannabschnitt-Koordinaten | | | Delta H [m] | Höhe unt. Traverse [m] | Feld- länge [m] | Leitungs- winkel [gon] | Mast- winkel [gon] | globale Koordinaten | | |
|------------------------------|-------------|------------------|------------------|-------------|------------------------------|-----------------|----------|-------------------|------------------------------|-----------------------|------------------------------|--------------------------|---------------------|------------|----------|
| | | | | | Station [m] | seitlich [m] | z [m] | | | | | | x [m] | y [m] | z [m] |
| | M018 | | D-2-D-2016.4 2ES | T1-41,00 | 300,00 | 0,00 | 28,60 | 0,00 | 41,00 | | 200,00 | 100,00 | 32520183,57 | 6070556,48 | 28,60 |
| 10 | | | | | | | | | | 310,00 | | | | | |
| | M019 | | D-2-D-2016.4 2ES | T1-41,00 | 610,00 | 0,00 | 28,50 | 0,00 | 41,00 | | 200,00 | 100,00 | 32520346,38 | 6070820,29 | 28,50 |
| 10 | | | | | | | | | | 420,15 | | | | | |
| | M020 | | D-2-D-2016.4 2ES | WA160-39,00 | 1030,15 | 0,00 | 32,30 | 0,00 | 39,00 | | 215,71 | 107,86 | 32520567,04 | 6071177,83 | 32,30 |
| 11 | | | | | | | | | | 349,96 | | | | | |
| | M021 | | D-2-D-2016.4 2ES | WA140-36,00 | 349,96 | 0,00 | 32,90 | 0,00 | 36,00 | | 175,58 | 87,79 | 32520818,02 | 6071421,72 | 32,90 |
| 12 | | | | | | | | | | 300,07 | | | | | |
| | M022 | | D-2-D-2016.4 2ES | WA160-36,00 | 300,07 | 0,00 | 33,60 | 0,00 | 36,00 | | 192,94 | 96,47 | 32520939,31 | 6071696,18 | 33,60 |
| 13 | | | | | | | | | | 346,20 | | | | | |
| | M023 | | D-2-D-2016.4 2ES | WA140-36,00 | 346,20 | 0,00 | 34,20 | 0,00 | 36,00 | | 163,02 | 81,51 | 32521043,37 | 6072026,38 | 34,20 |
| 14 | | | | | | | | | | 404,00 | | | | | |
| | M024 | | D-2-D-2016.4 2ES | T1-38,00 | 404,00 | 0,00 | 34,85 | 0,00 | 38,00 | | 200,00 | 100,00 | 32520933,46 | 6072415,14 | 34,85 |
| 14 | | | | | | | | | | 426,00 | | | | | |
| | M025 | | D-2-D-2016.4 2ES | T1-38,00 | 830,00 | 0,00 | 35,90 | 0,00 | 38,00 | | 200,00 | 100,00 | 32520817,56 | 6072825,07 | 35,90 |
| 14 | | | | | | | | | | 424,55 | | | | | |
| | M026 | | D-2-D-2016.4 2ES | WE140-33,00 | 1254,55 | 0,00 | 35,80 | 0,00 | 33,00 | | 220,00 | 110,00 | 32520702,07 | 6073233,61 | 35,80 |
| 15 | | | | | | | | | | 353,09 | | | | | |
| | M027 | | D-2-D-2016.4 2ES | T1-35,00 | 353,09 | 0,00 | 36,00 | 0,00 | 35,00 | | 200,00 | 100,00 | 32520715,69 | 6073586,43 | 36,00 |
| 15 | | | | | | | | | | 328,00 | | | | | |
| | M028 | | D-2-D-2016.4 2ES | T1-35,00 | 681,09 | 0,00 | 36,00 | 0,00 | 35,00 | | 200,00 | 100,00 | 32520728,34 | 6073914,19 | 36,00 |
| 15 | | | | | | | | | | 327,00 | | | | | |
| | M029 | | D-2-D-2016.4 2ES | WE140-33,00 | 1008,09 | 0,00 | 36,00 | 0,00 | 33,00 | | | 100,00 | 32520740,96 | 6074240,94 | 36,00 |

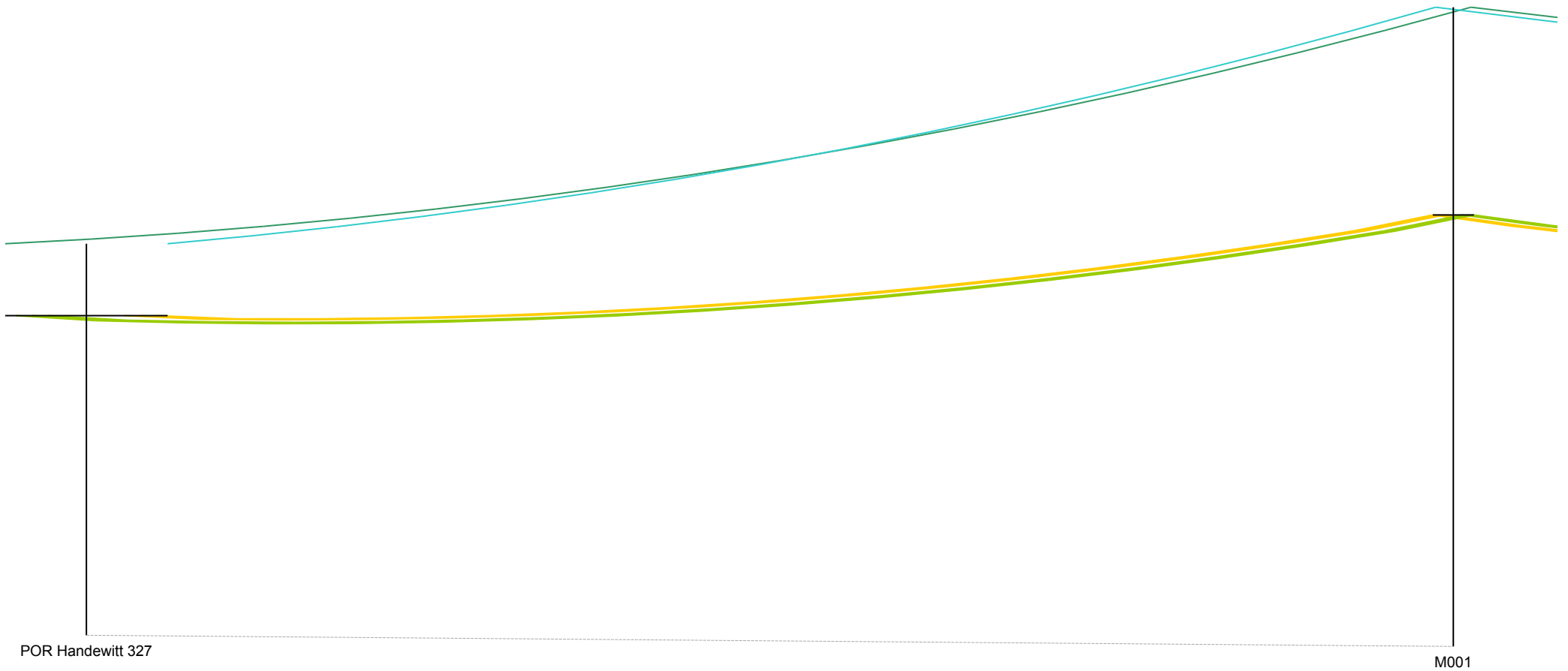
Leiterdaten

| Name | Norm | Werkstoff | Querschnitt | | Durchm. [mm] | Masse [kg] | QLK [N/(m*mm²)] | E-Modul [N/mm²] | Längena. [1/K] | Mittelzugsp. [N/mm²] | Höchstzugsp. [N/mm²] | Dauerzugsp. [N/mm²] | Rechn. Bruchk. [kN] | Gleichstr.-Wid. [Ω/km] | Dauerstrombel. [kA] |
|-------------------------------|--------------|-----------|-------------|--------|-----------------|---------------|--------------------|--------------------|-------------------|-------------------------|-------------------------|------------------------|------------------------|---------------------------|------------------------|
| | | | Name | [mm²] | | | | | | | | | | | |
| 565-AL1/72-ST1A | DIN EN 50182 | AL1/ST1A | 564/72 | 636,60 | 32,90 | 2,123 | 0,000 | 70000 | 1,93e-05 | 52,00 | 0,00 | 189,00 | 174,14 | 0,05 | 1,02 |
| 264-AL1/34-ST1A TenneT 012430 | 50182/12.01 | AL/ST | 265/35 | 297,80 | 22,40 | 1,001 | 0,000 | 74000 | 1,96e-05 | 52,00 | 0,00 | 189,00 | 81,04 | 0,11 | 0,68 |

Abspannabschnitt: POR Handewitt 327 - M001 Profilplan

| | |
|-------------------------|-------------|
| POR Handewitt 327 | |
| 380-kV UW Handewitt 327 | |
| X [m] | 32520374,42 |
| Y [m] | 6064649,80 |
| Z [m] | 30,40 |

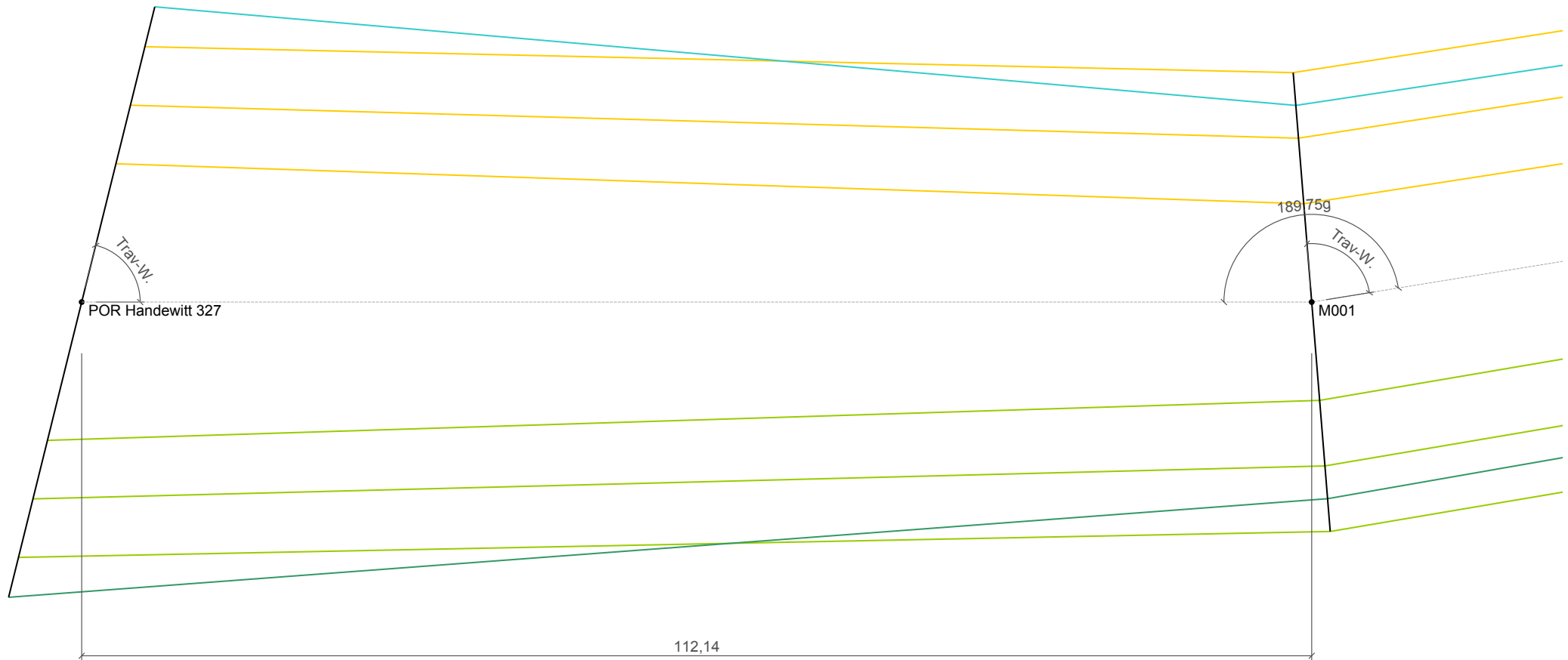
| | |
|----------|-------------|
| M001 | |
| WE140-27 | |
| X [m] | 32520333,47 |
| Y [m] | 6064754,19 |
| Z [m] | 29,70 |



Abspannabschnitt: POR Handewitt 327 - M001 Lageplan

| | |
|-------------------------|-------------|
| POR Handewitt 327 | |
| 380-kV UW Handewitt 327 | |
| X [m] | 32520374,42 |
| Y [m] | 6064649,80 |
| Z [m] | 30,40 |
| Trav: I/2 | -84,56gon |
| Trav: I/1 | 115,44gon |

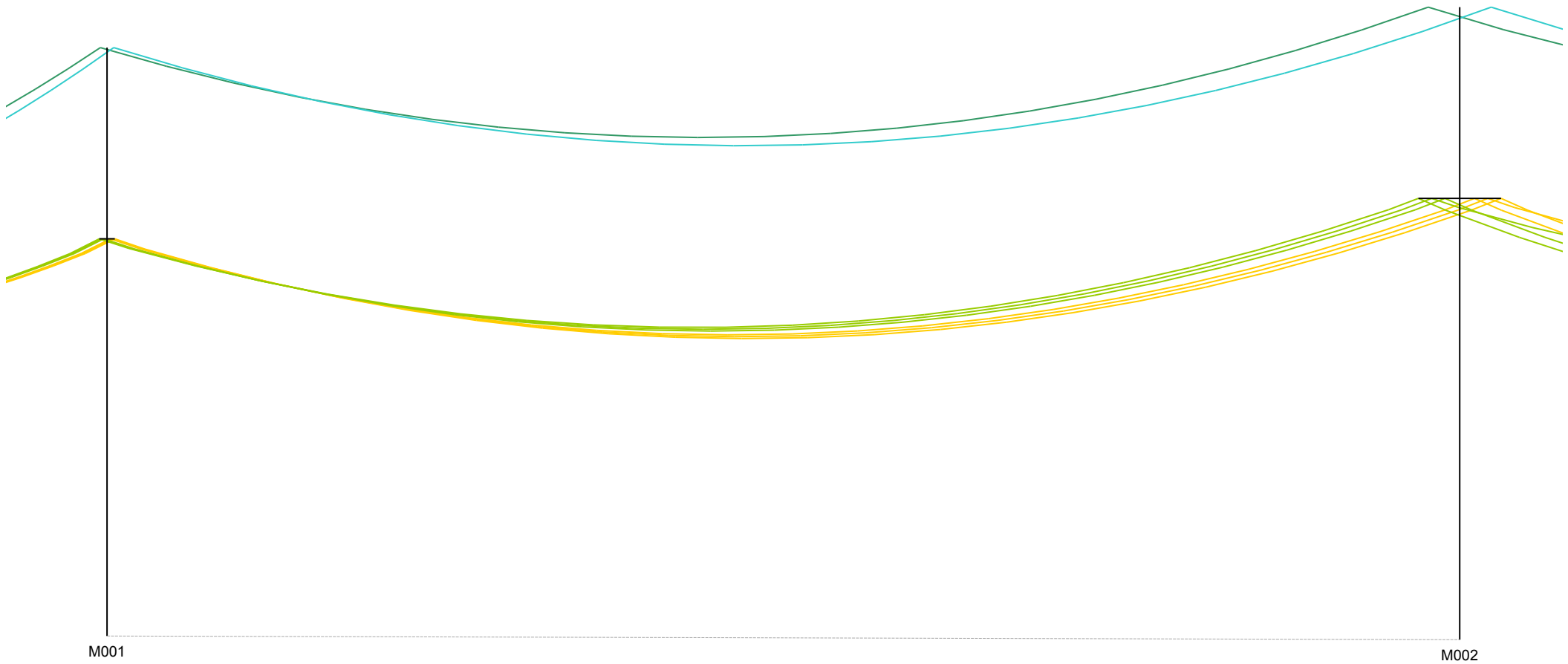
| | |
|-----------|-------------|
| M001 | |
| WE140-27 | |
| X [m] | 32520333,47 |
| Y [m] | 6064754,19 |
| Z [m] | 29,70 |
| Ltg-W. | 189,75gon |
| Trav: I/2 | -94,88gon |
| Trav: I/1 | 105,12gon |



Abspannabschnitt: M001 - M002 Profilplan

| | |
|----------|-------------|
| M001 | |
| WE140-27 | |
| X [m] | 32520333,47 |
| Y [m] | 6064754,19 |
| Z [m] | 29,70 |

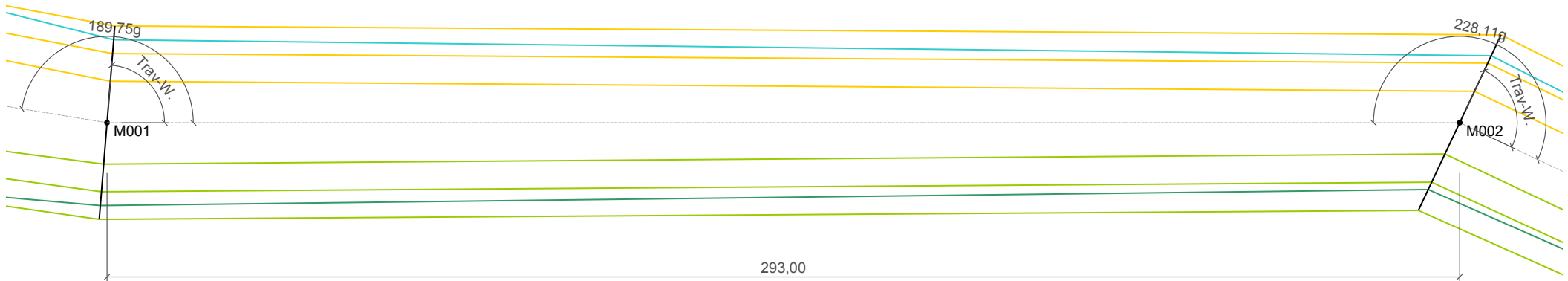
| | |
|------------|-------------|
| M002 | |
| WA120-24+6 | |
| X [m] | 32520184,15 |
| Y [m] | 6065006,29 |
| Z [m] | 29,45 |



Abspannabschnitt: M001 - M002 Lageplan

| M001 | |
|-----------|-------------|
| WE140-27 | |
| X [m] | 32520333,47 |
| Y [m] | 6064754,19 |
| Z [m] | 29,70 |
| Ltg-W. | 189,75gon |
| Trav: I/2 | -94,88gon |
| Trav: I/1 | 105,12gon |

| M002 | |
|------------|-------------|
| WA120-24+6 | |
| X [m] | 32520184,15 |
| Y [m] | 6065006,29 |
| Z [m] | 29,45 |
| Ltg-W. | 228,11gon |
| Trav: I/2 | -100,07gon |
| Trav: I/1 | 99,93gon |



Abspannabschnitt: M002 - M006 Profilplan

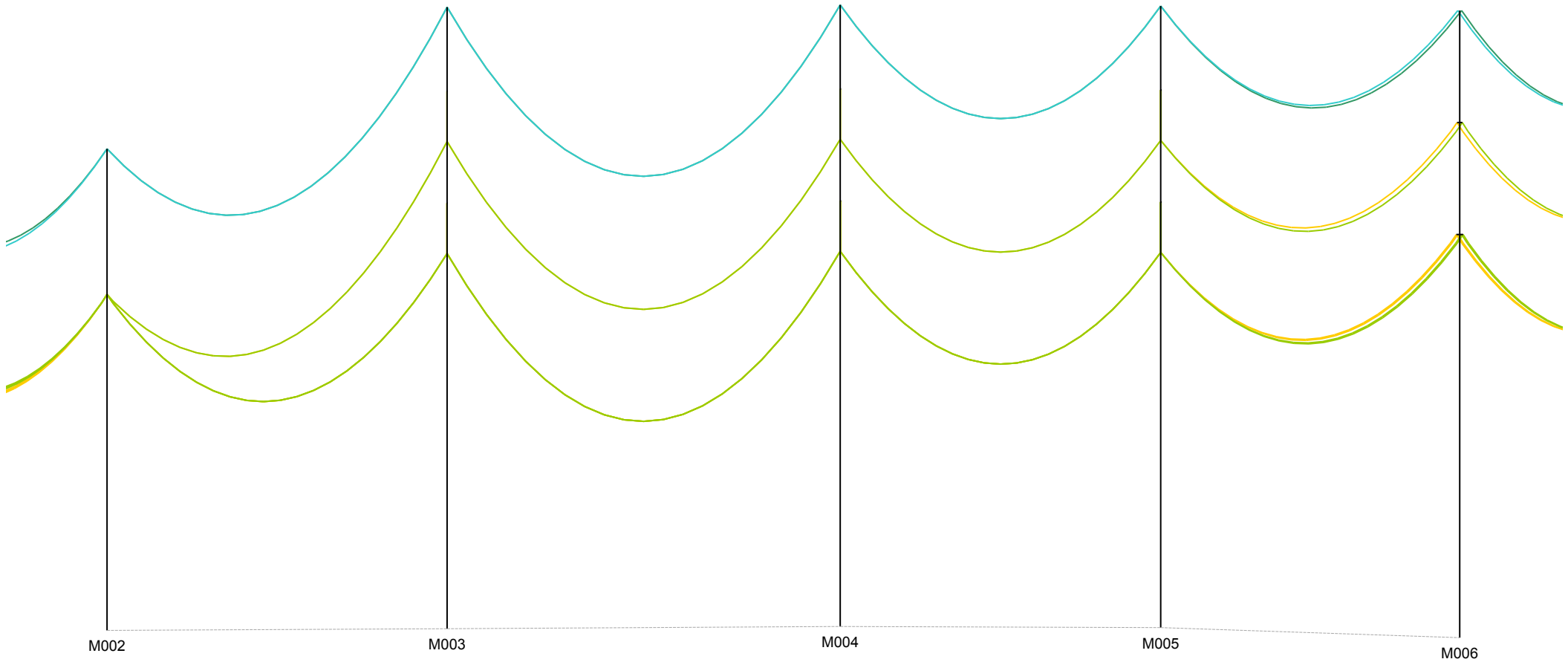
| M002 | |
|------------|-------------|
| WA120-24+6 | |
| X [m] | 32520184,15 |
| Y [m] | 6065006,29 |
| Z [m] | 29,45 |

| M003 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32520151,04 |
| Y [m] | 6065360,71 |
| Z [m] | 29,60 |

| M004 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32520112,76 |
| Y [m] | 6065770,43 |
| Z [m] | 29,80 |

| M005 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32520081,56 |
| Y [m] | 6066104,48 |
| Z [m] | 29,70 |

| M006 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32520052,44 |
| Y [m] | 6066416,12 |
| Z [m] | 28,80 |



Abspannabschnitt: M002 - M006 Lageplan

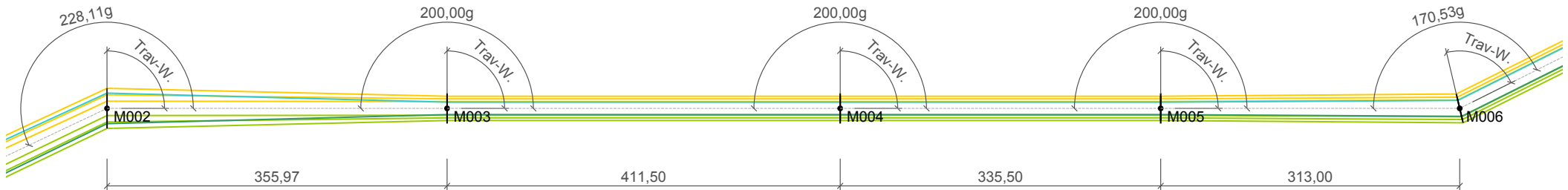
| M002 | |
|------------|-------------|
| WA120-24+6 | |
| X [m] | 32520184,15 |
| Y [m] | 6065006,29 |
| Z [m] | 29,45 |
| Ltg-W. | 228,11gon |
| Trav: I/2 | -100,07gon |
| Trav: I/1 | 99,93gon |

| M003 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32520151,04 |
| Y [m] | 6065360,71 |
| Z [m] | 29,60 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M004 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32520112,76 |
| Y [m] | 6065770,43 |
| Z [m] | 29,80 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M005 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32520081,56 |
| Y [m] | 6066104,48 |
| Z [m] | 29,70 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

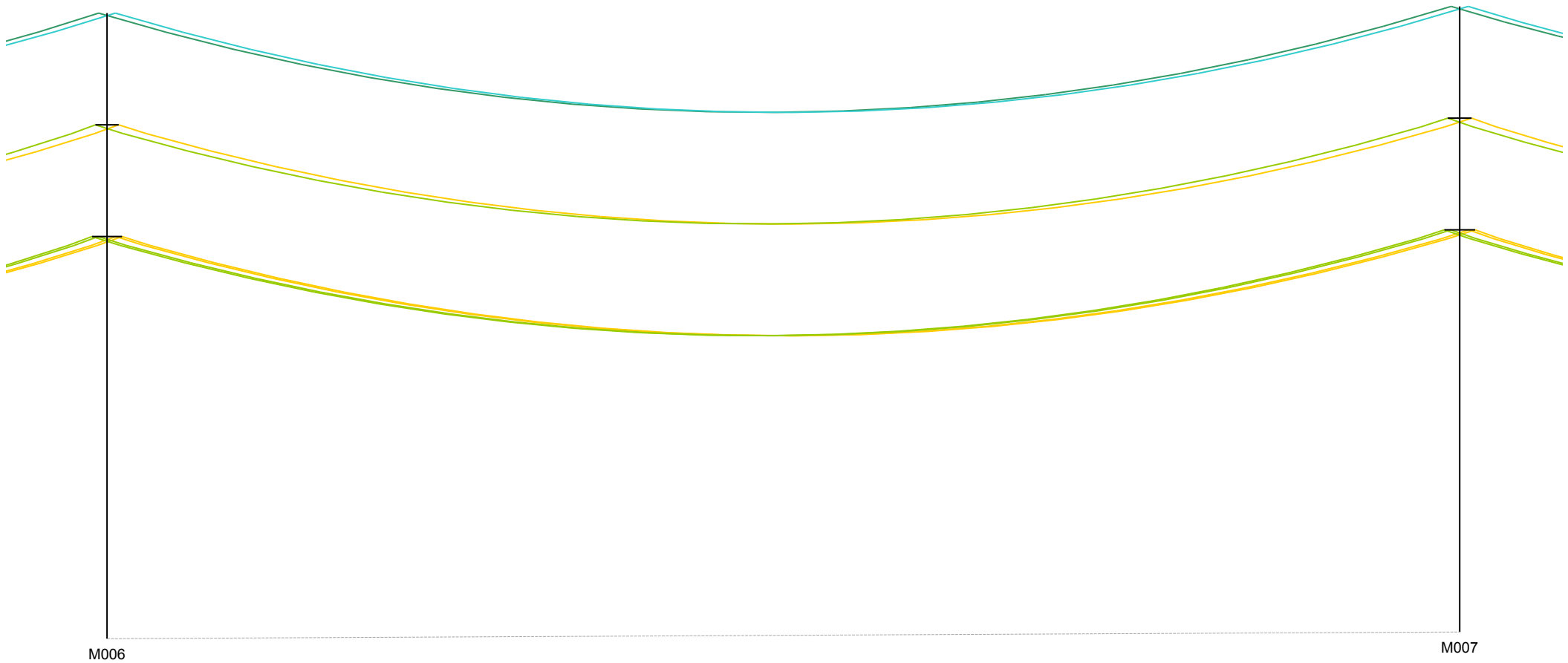
| M006 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32520052,44 |
| Y [m] | 6066416,12 |
| Z [m] | 28,80 |
| Ltg-W. | 170,53gon |
| Trav: I/2 | -85,26gon |
| Trav: I/1 | 114,74gon |
| Trav: II/2 | -85,26gon |
| Trav: II/1 | 114,74gon |



Abspannabschnitt: M006 - M007 Profilplan

| | |
|-------------|-------------|
| M006 | |
| WA140-36,00 | |
| X [m] | 32520052,44 |
| Y [m] | 6066416,12 |
| Z [m] | 28,80 |

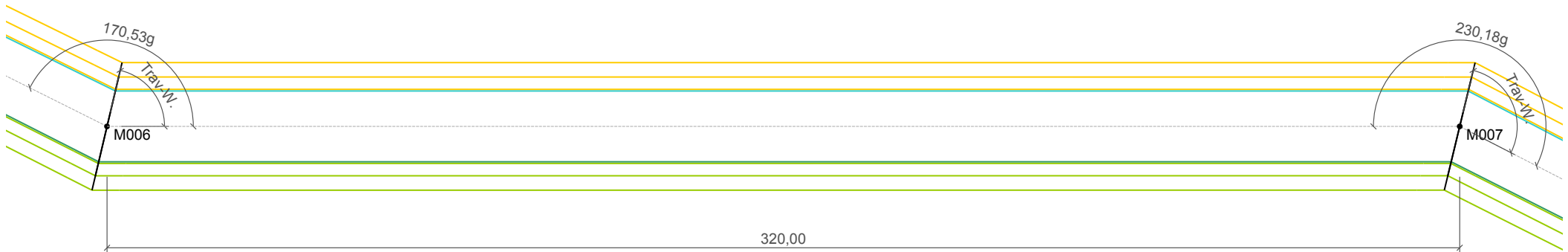
| | |
|-------------|-------------|
| M007 | |
| WA140-36,00 | |
| X [m] | 32519883,52 |
| Y [m] | 6066687,90 |
| Z [m] | 29,40 |



Abspannabschnitt: M006 - M007 Lageplan

| M006 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32520052,44 |
| Y [m] | 6066416,12 |
| Z [m] | 28,80 |
| Ltg-W. | 170,53gon |
| Trav: I/2 | -85,26gon |
| Trav: I/1 | 114,74gon |
| Trav: II/2 | -85,26gon |
| Trav: II/1 | 114,74gon |

| M007 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519883,52 |
| Y [m] | 6066687,90 |
| Z [m] | 29,40 |
| Ltg-W. | 230,18gon |
| Trav: I/2 | -115,09gon |
| Trav: I/1 | 84,91gon |
| Trav: II/2 | -115,09gon |
| Trav: II/1 | 84,91gon |



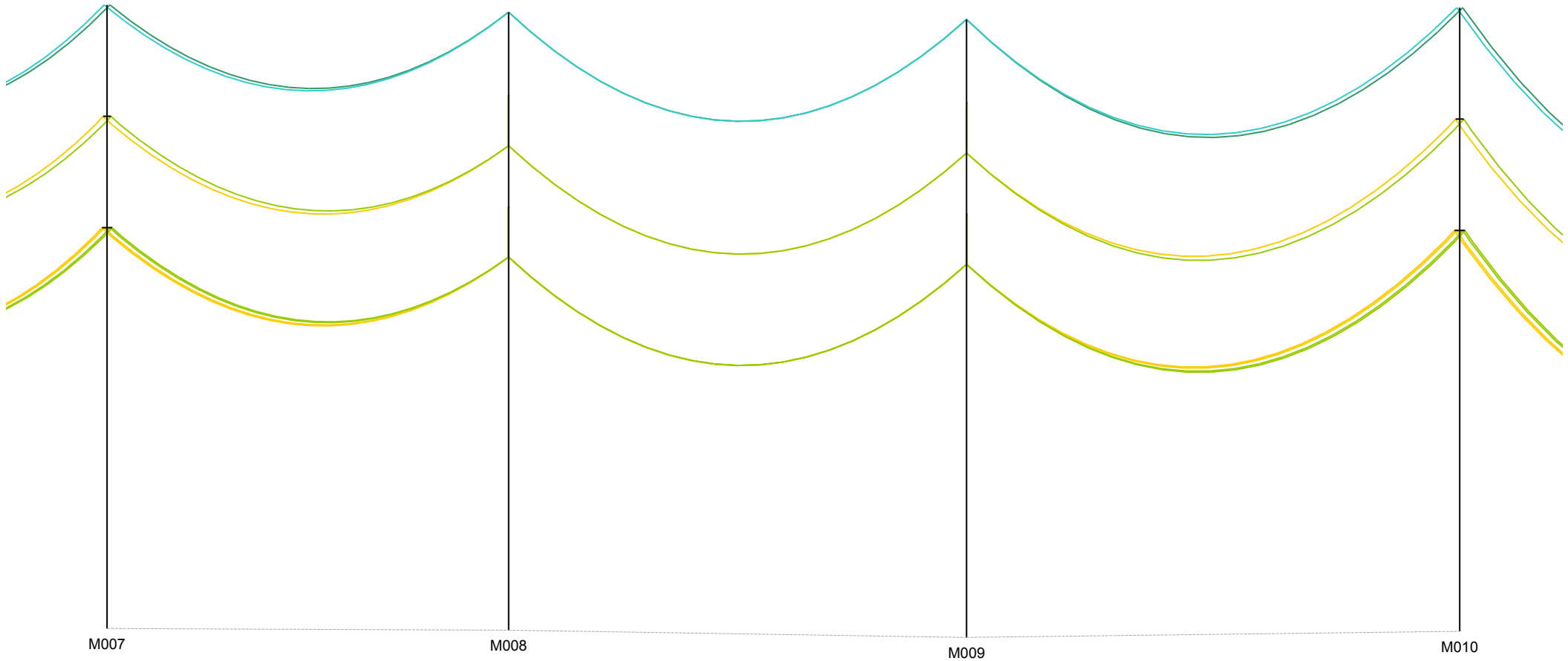
Abspannabschnitt: M007 - M010 Profilplan

| M007 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519883,52 |
| Y [m] | 6066687,90 |
| Z [m] | 29,40 |

| M008 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32519860,15 |
| Y [m] | 6066971,94 |
| Z [m] | 29,25 |

| M009 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32519833,51 |
| Y [m] | 6067295,85 |
| Z [m] | 28,60 |

| M010 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519804,81 |
| Y [m] | 6067644,67 |
| Z [m] | 29,15 |



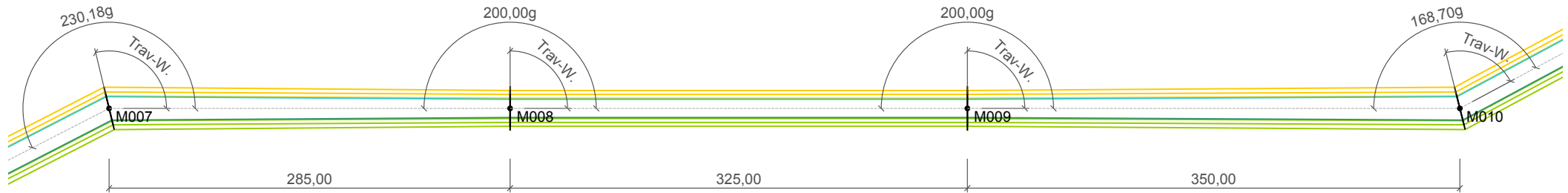
Abspannabschnitt: M007 - M010 Lageplan

| M007 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519883,52 |
| Y [m] | 6066687,90 |
| Z [m] | 29,40 |
| Ltg-W. | 230,18gon |
| Trav: I/2 | -115,09gon |
| Trav: I/1 | 84,91gon |
| Trav: II/2 | -115,09gon |
| Trav: II/1 | 84,91gon |

| M008 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32519860,15 |
| Y [m] | 6066971,94 |
| Z [m] | 29,25 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M009 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32519833,51 |
| Y [m] | 6067295,85 |
| Z [m] | 28,60 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

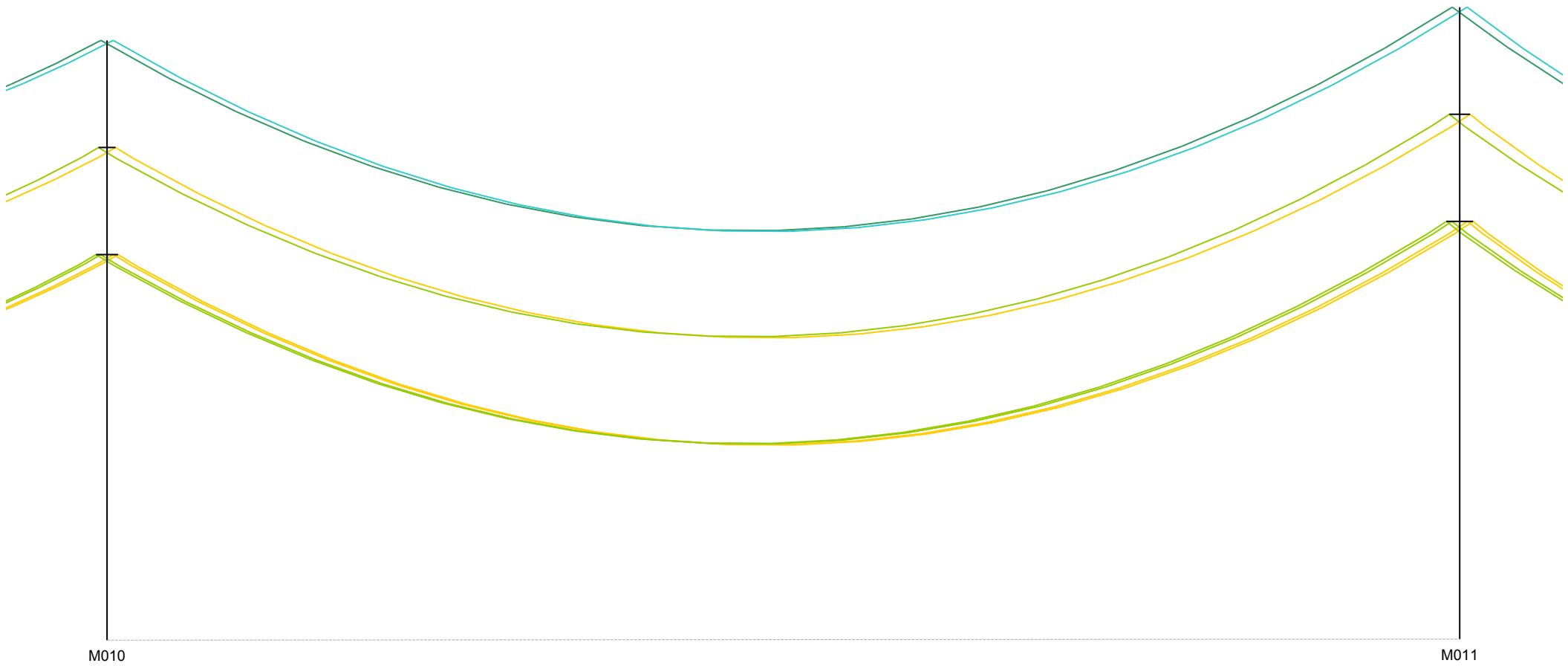
| M010 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519804,81 |
| Y [m] | 6067644,67 |
| Z [m] | 29,15 |
| Ltg-W. | 168,70gon |
| Trav: I/2 | -84,35gon |
| Trav: I/1 | 115,65gon |
| Trav: II/2 | -84,35gon |
| Trav: II/1 | 115,65gon |



Abspannabschnitt: M010 - M011 Profilplan

| | |
|-------------|-------------|
| M010 | |
| WA140-36,00 | |
| X [m] | 32519804,81 |
| Y [m] | 6067644,67 |
| Z [m] | 29,15 |

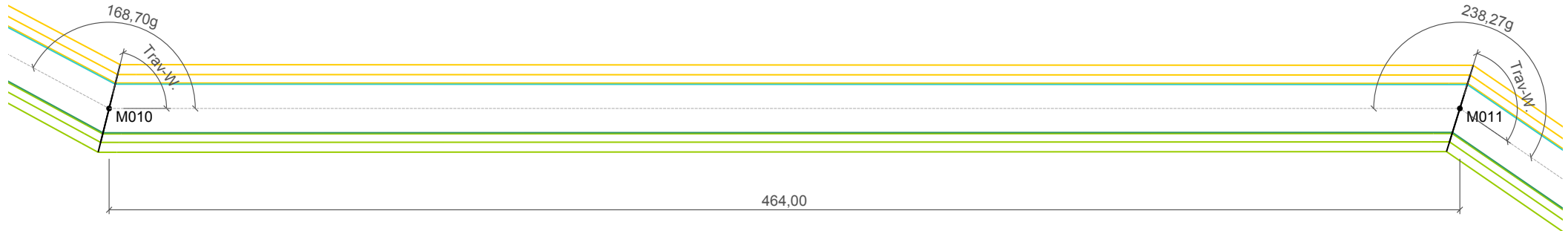
| | |
|-------------|-------------|
| M011 | |
| WA140-39,00 | |
| X [m] | 32519552,97 |
| Y [m] | 6068034,38 |
| Z [m] | 29,25 |



Abspannabschnitt: M010 - M011 Lageplan

| M010 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519804,81 |
| Y [m] | 6067644,67 |
| Z [m] | 29,15 |
| Ltg-W. | 168,70gon |
| Trav: I/2 | -84,35gon |
| Trav: I/1 | 115,65gon |
| Trav: II/2 | -84,35gon |
| Trav: II/1 | 115,65gon |

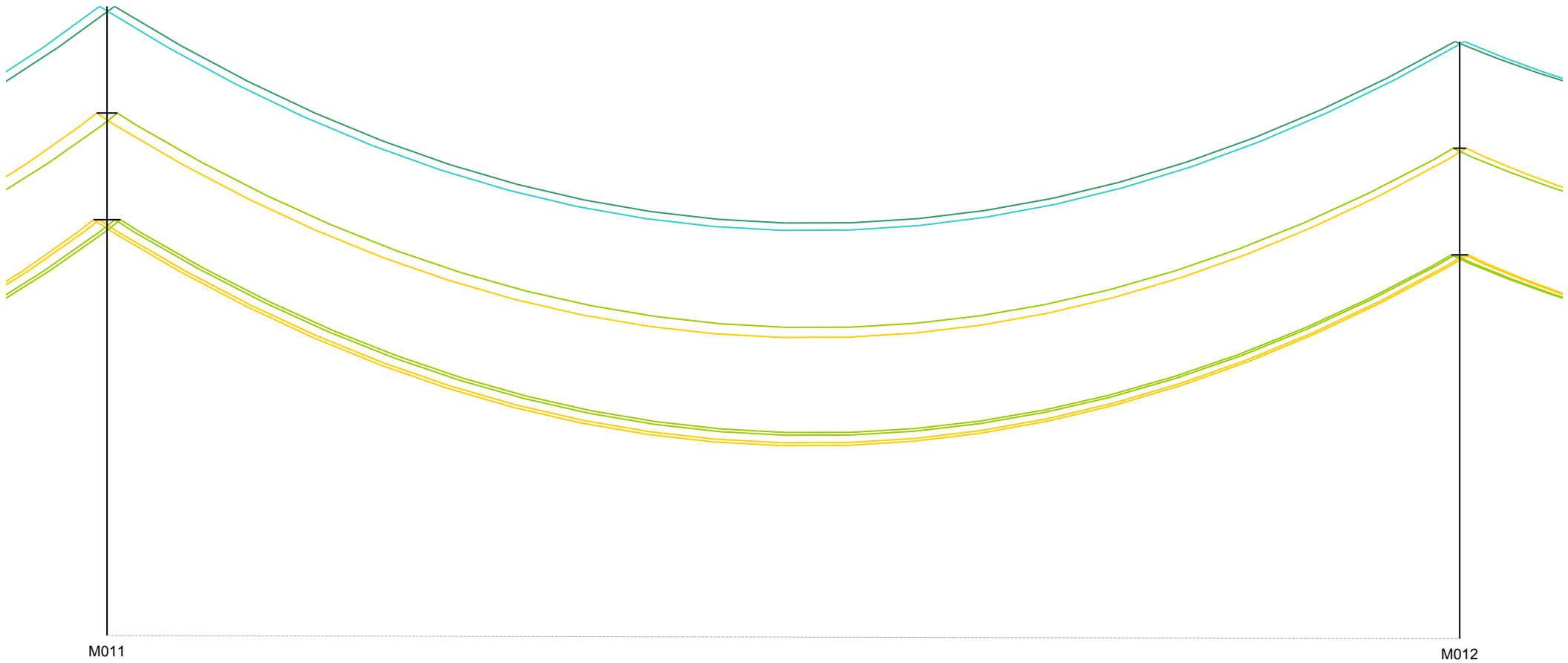
| M011 | |
|-------------|-------------|
| WA140-39,00 | |
| X [m] | 32519552,97 |
| Y [m] | 6068034,38 |
| Z [m] | 29,25 |
| Ltg-W. | 238,27gon |
| Trav: I/2 | -119,13gon |
| Trav: I/1 | 80,87gon |
| Trav: II/2 | -119,13gon |
| Trav: II/1 | 80,87gon |



Abspannabschnitt: M011 - M012 Profilplan

| | |
|-------------|-------------|
| M011 | |
| WA140-39,00 | |
| X [m] | 32519552,97 |
| Y [m] | 6068034,38 |
| Z [m] | 29,25 |

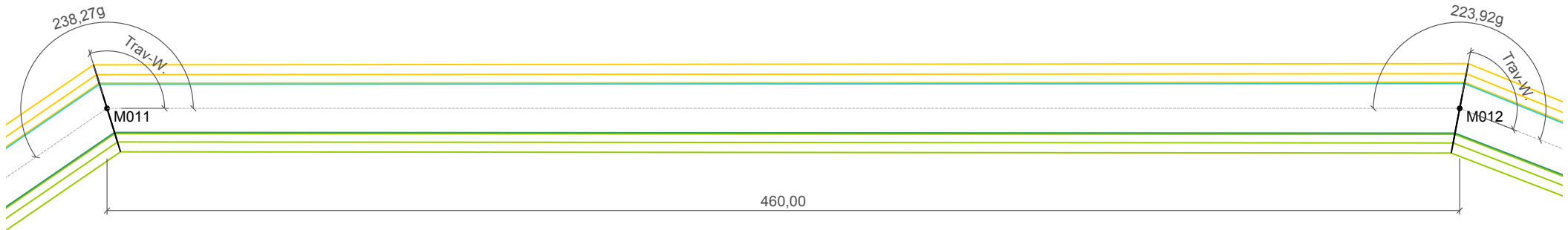
| | |
|-------------|-------------|
| M012 | |
| WA140-36,00 | |
| X [m] | 32519565,56 |
| Y [m] | 6068494,21 |
| Z [m] | 28,95 |



Abspannabschnitt: M011 - M012 Lageplan

| M011 | |
|-------------|-------------|
| WA140-39,00 | |
| X [m] | 32519552,97 |
| Y [m] | 6068034,38 |
| Z [m] | 29,25 |
| Ltg-W. | 238,27gon |
| Trav: I/2 | -119,13gon |
| Trav: I/1 | 80,87gon |
| Trav: II/2 | -119,13gon |
| Trav: II/1 | 80,87gon |

| M012 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519565,56 |
| Y [m] | 6068494,21 |
| Z [m] | 28,95 |
| Ltg-W. | 223,92gon |
| Trav: I/2 | -111,96gon |
| Trav: I/1 | 88,04gon |
| Trav: II/2 | -111,96gon |
| Trav: II/1 | 88,04gon |



Abspannabschnitt: M012 - M016 Profilplan

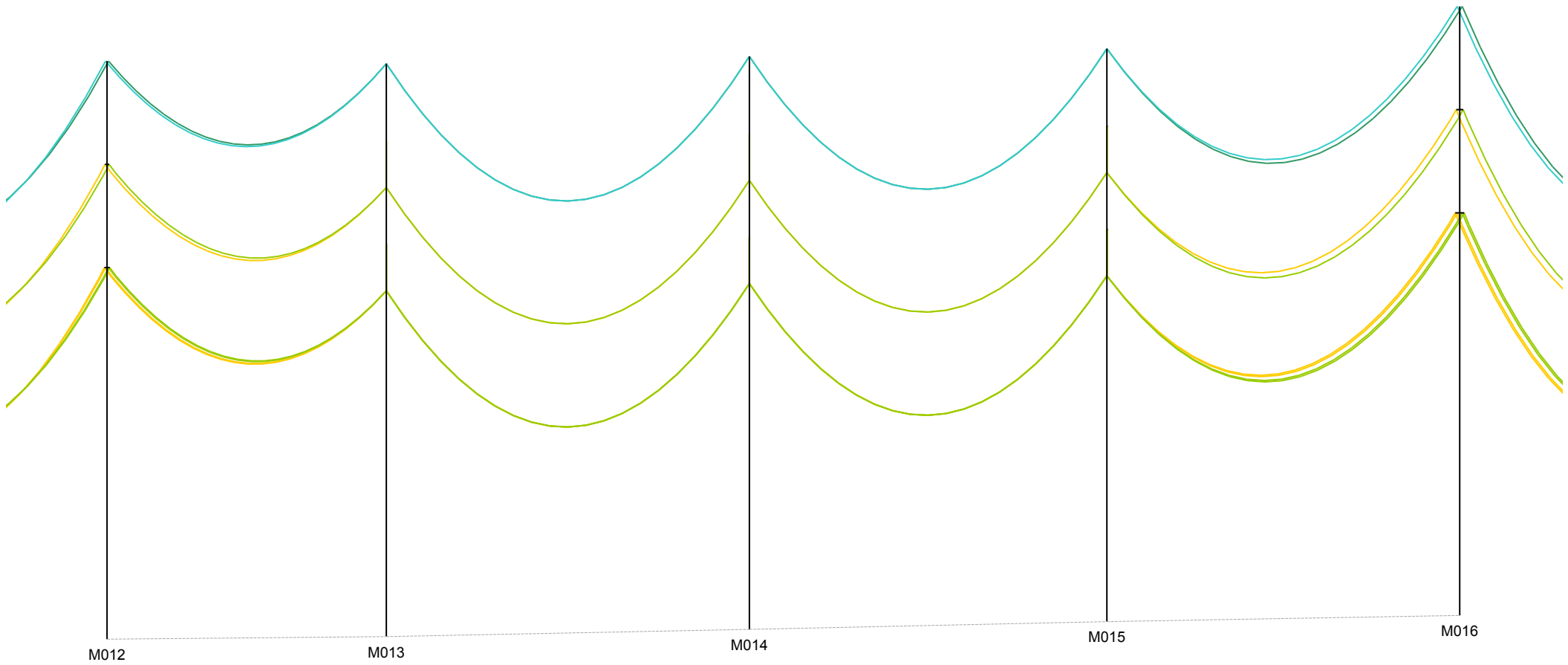
| M012 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519565,56 |
| Y [m] | 6068494,21 |
| Z [m] | 28,95 |

| M013 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32519683,24 |
| Y [m] | 6068770,16 |
| Z [m] | 29,20 |

| M014 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32519836,22 |
| Y [m] | 6069128,91 |
| Z [m] | 29,90 |

| M015 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32519986,84 |
| Y [m] | 6069482,13 |
| Z [m] | 30,65 |

| M016 | |
|-------------|-------------|
| WA140-39,00 | |
| X [m] | 32520135,51 |
| Y [m] | 6069830,76 |
| Z [m] | 31,25 |



Abspannabschnitt: M012 - M016 Lageplan

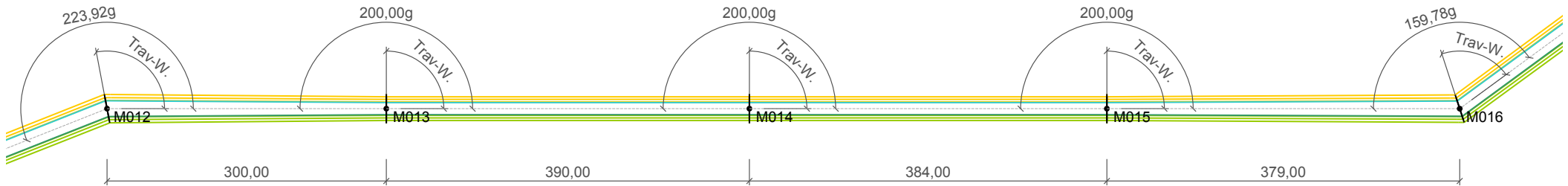
| M012 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32519565,56 |
| Y [m] | 6068494,21 |
| Z [m] | 28,95 |
| Ltg-W. | 223,92gon |
| Trav: I/2 | -111,96gon |
| Trav: I/1 | 88,04gon |
| Trav: II/2 | -111,96gon |
| Trav: II/1 | 88,04gon |

| M013 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32519683,24 |
| Y [m] | 6068770,16 |
| Z [m] | 29,20 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M014 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32519836,22 |
| Y [m] | 6069128,91 |
| Z [m] | 29,90 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M015 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32519986,84 |
| Y [m] | 6069482,13 |
| Z [m] | 30,65 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

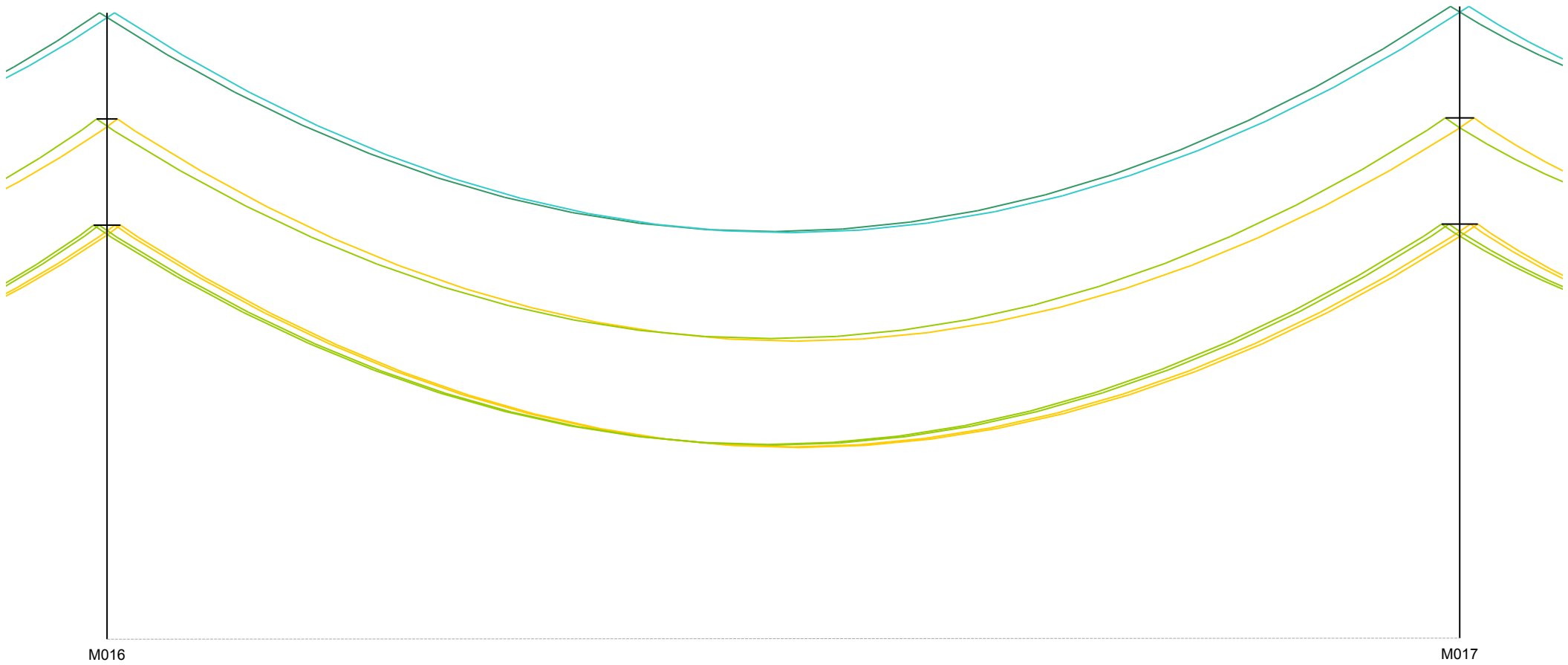
| M016 | |
|-------------|-------------|
| WA140-39,00 | |
| X [m] | 32520135,51 |
| Y [m] | 6069830,76 |
| Z [m] | 31,25 |
| Ltg-W. | 159,78gon |
| Trav: I/2 | -79,89gon |
| Trav: I/1 | 120,11gon |
| Trav: II/2 | -79,89gon |
| Trav: II/1 | 120,11gon |



Abspannabschnitt: M016 - M017 Profilplan

| | |
|-------------|-------------|
| M016 | |
| WA140-39,00 | |
| X [m] | 32520135,51 |
| Y [m] | 6069830,76 |
| Z [m] | 31,25 |

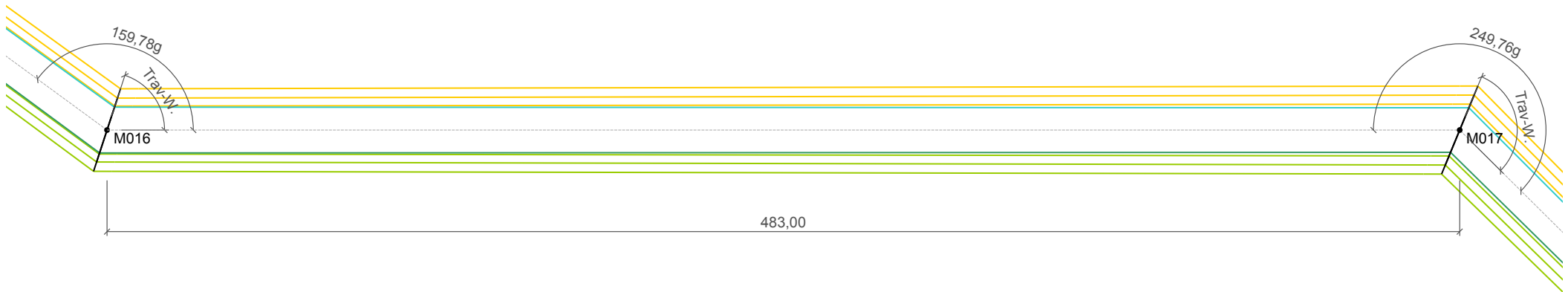
| | |
|-------------|-------------|
| M017 | |
| WA120-39,00 | |
| X [m] | 32520026,02 |
| Y [m] | 6070301,18 |
| Z [m] | 31,35 |



Abspannabschnitt: M016 - M017 Lageplan

| M016 | |
|-------------|-------------|
| WA140-39,00 | |
| X [m] | 32520135,51 |
| Y [m] | 6069830,76 |
| Z [m] | 31,25 |
| Ltg-W. | 159,78gon |
| Trav: I/2 | -79,89gon |
| Trav: I/1 | 120,11gon |
| Trav: II/2 | -79,89gon |
| Trav: II/1 | 120,11gon |

| M017 | |
|-------------|-------------|
| WA120-39,00 | |
| X [m] | 32520026,02 |
| Y [m] | 6070301,18 |
| Z [m] | 31,35 |
| Ltg-W. | 249,76gon |
| Trav: I/2 | -124,88gon |
| Trav: I/1 | 75,12gon |
| Trav: II/2 | -124,88gon |
| Trav: II/1 | 75,12gon |



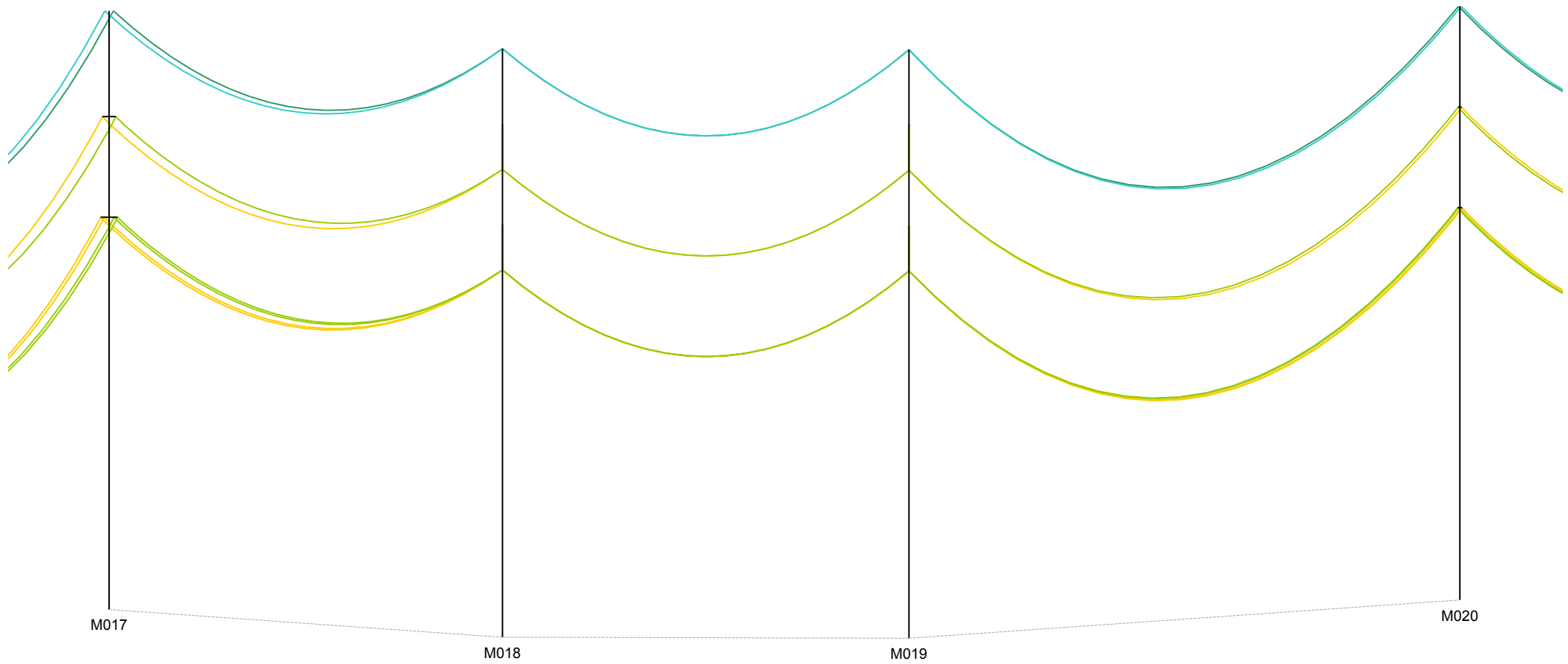
Abspannabschnitt: M017 - M020 Profilplan

| M017 | |
|-------------|-------------|
| WA120-39,00 | |
| X [m] | 32520026,02 |
| Y [m] | 6070301,18 |
| Z [m] | 31,35 |

| M018 | |
|----------|-------------|
| T1-41,00 | |
| X [m] | 32520183,57 |
| Y [m] | 6070556,48 |
| Z [m] | 28,60 |

| M019 | |
|----------|-------------|
| T1-41,00 | |
| X [m] | 32520346,38 |
| Y [m] | 6070820,29 |
| Z [m] | 28,50 |

| M020 | |
|-------------|-------------|
| WA160-39,00 | |
| X [m] | 32520567,04 |
| Y [m] | 6071177,83 |
| Z [m] | 32,30 |



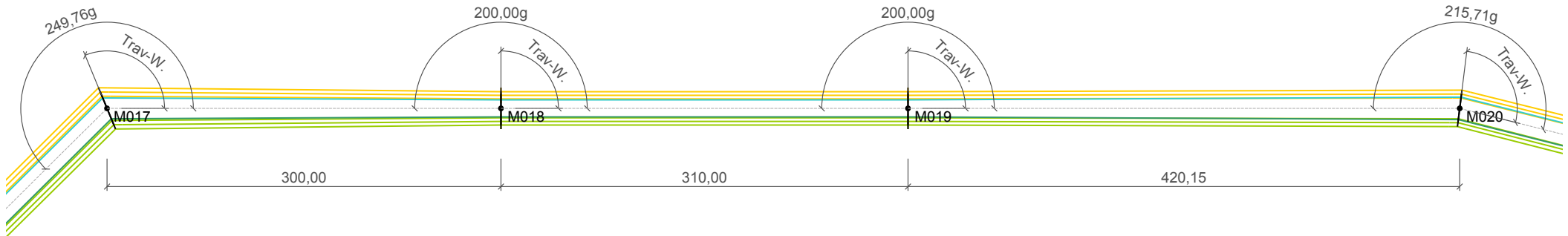
Abspannabschnitt: M017 - M020 Lageplan

| M017 | |
|-------------|-------------|
| WA120-39,00 | |
| X [m] | 32520026,02 |
| Y [m] | 6070301,18 |
| Z [m] | 31,35 |
| Ltg-W. | 249,76gon |
| Trav: I/2 | -124,88gon |
| Trav: I/1 | 75,12gon |
| Trav: II/2 | -124,88gon |
| Trav: II/1 | 75,12gon |

| M018 | |
|------------|-------------|
| T1-41,00 | |
| X [m] | 32520183,57 |
| Y [m] | 6070556,48 |
| Z [m] | 28,60 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M019 | |
|------------|-------------|
| T1-41,00 | |
| X [m] | 32520346,38 |
| Y [m] | 6070820,29 |
| Z [m] | 28,50 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

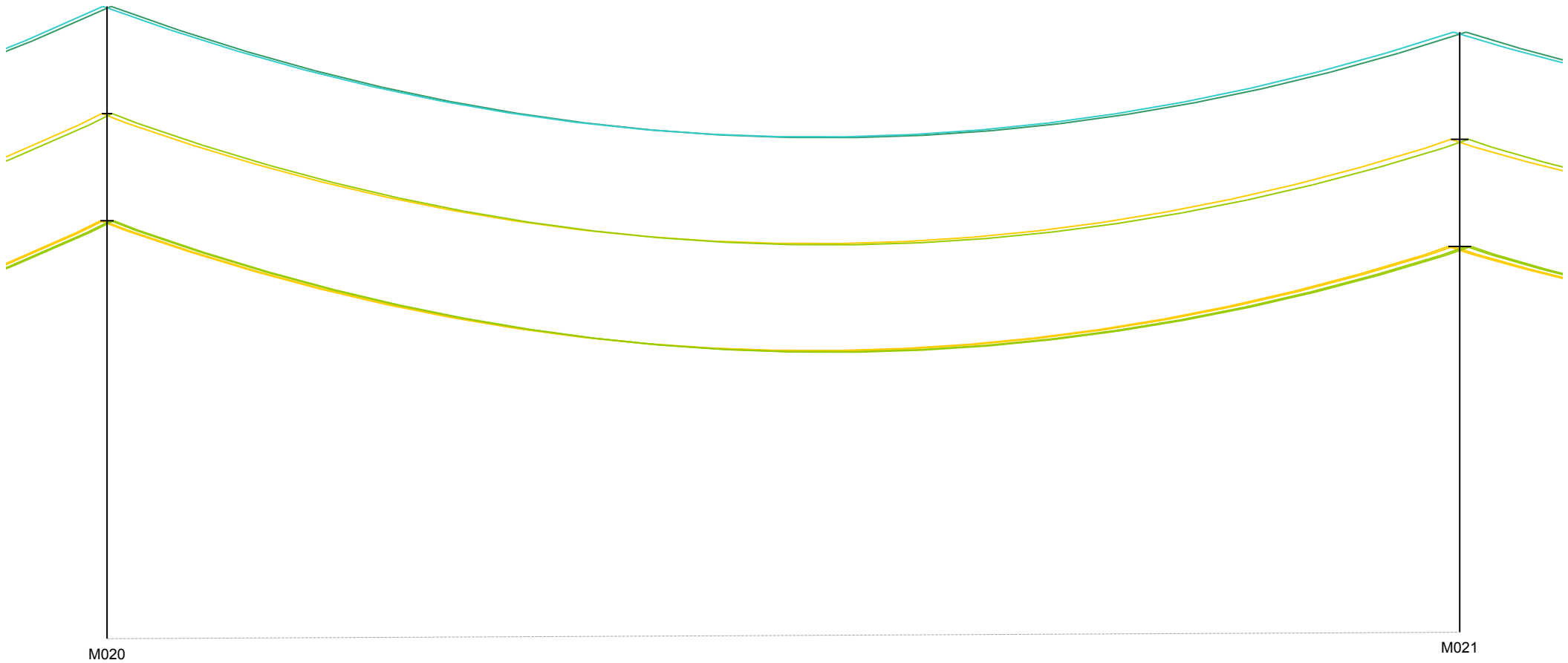
| M020 | |
|-------------|-------------|
| WA160-39,00 | |
| X [m] | 32520567,04 |
| Y [m] | 6071177,83 |
| Z [m] | 32,30 |
| Ltg-W. | 215,71gon |
| Trav: I/2 | -107,86gon |
| Trav: I/1 | 92,14gon |
| Trav: II/2 | -107,86gon |
| Trav: II/1 | 92,14gon |



Abspannabschnitt: M020 - M021 Profilplan

| | |
|-------------|-------------|
| M020 | |
| WA160-39,00 | |
| X [m] | 32520567,04 |
| Y [m] | 6071177,83 |
| Z [m] | 32,30 |

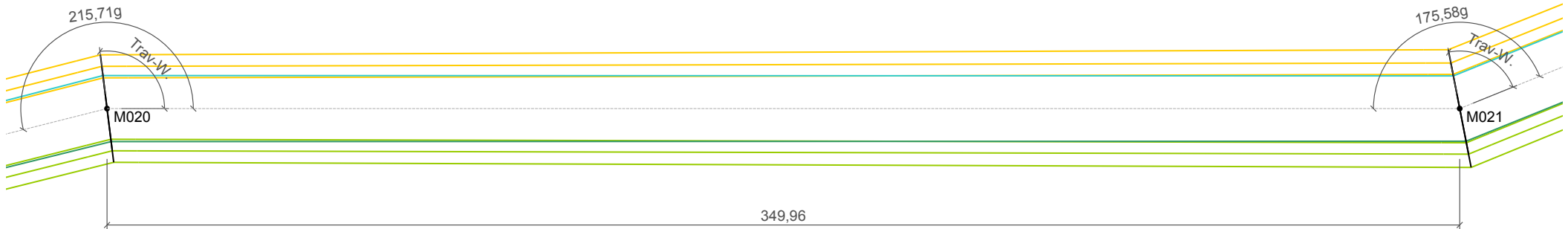
| | |
|-------------|-------------|
| M021 | |
| WA140-36,00 | |
| X [m] | 32520818,02 |
| Y [m] | 6071421,72 |
| Z [m] | 32,90 |



Abspannabschnitt: M020 - M021 Lageplan

| M020 | |
|-------------|-------------|
| WA160-39,00 | |
| X [m] | 32520567,04 |
| Y [m] | 6071177,83 |
| Z [m] | 32,30 |
| Ltg-W. | 215,71gon |
| Trav: I/2 | -107,86gon |
| Trav: I/1 | 92,14gon |
| Trav: II/2 | -107,86gon |
| Trav: II/1 | 92,14gon |

| M021 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32520818,02 |
| Y [m] | 6071421,72 |
| Z [m] | 32,90 |
| Ltg-W. | 175,58gon |
| Trav: I/2 | -87,79gon |
| Trav: I/1 | 112,21gon |
| Trav: II/2 | -87,79gon |
| Trav: II/1 | 112,21gon |



Abspannabschnitt: M021 - M022 Profilplan

| | |
|-------------|-------------|
| M021 | |
| WA140-36,00 | |
| X [m] | 32520818,02 |
| Y [m] | 6071421,72 |
| Z [m] | 32,90 |

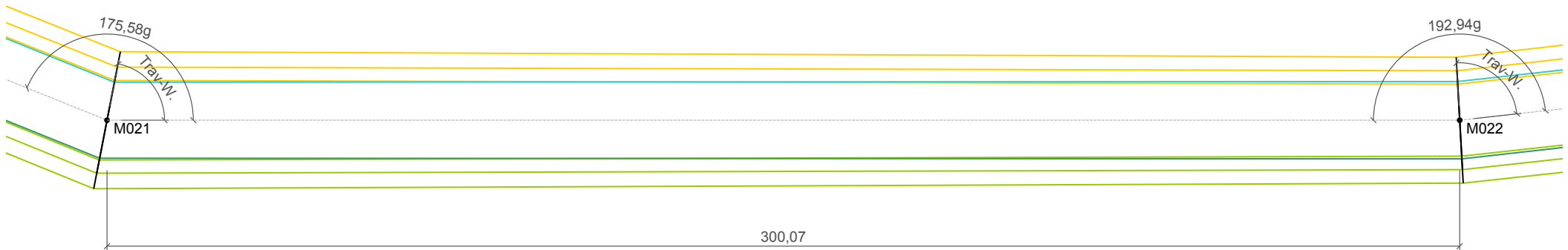
| | |
|-------------|-------------|
| M022 | |
| WA160-36,00 | |
| X [m] | 32520939,31 |
| Y [m] | 6071696,18 |
| Z [m] | 33,60 |



Abspannabschnitt: M021 - M022 Lageplan

| M021 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32520818,02 |
| Y [m] | 6071421,72 |
| Z [m] | 32,90 |
| Ltg-W. | 175,58gon |
| Trav: I/2 | -87,79gon |
| Trav: I/1 | 112,21gon |
| Trav: II/2 | -87,79gon |
| Trav: II/1 | 112,21gon |

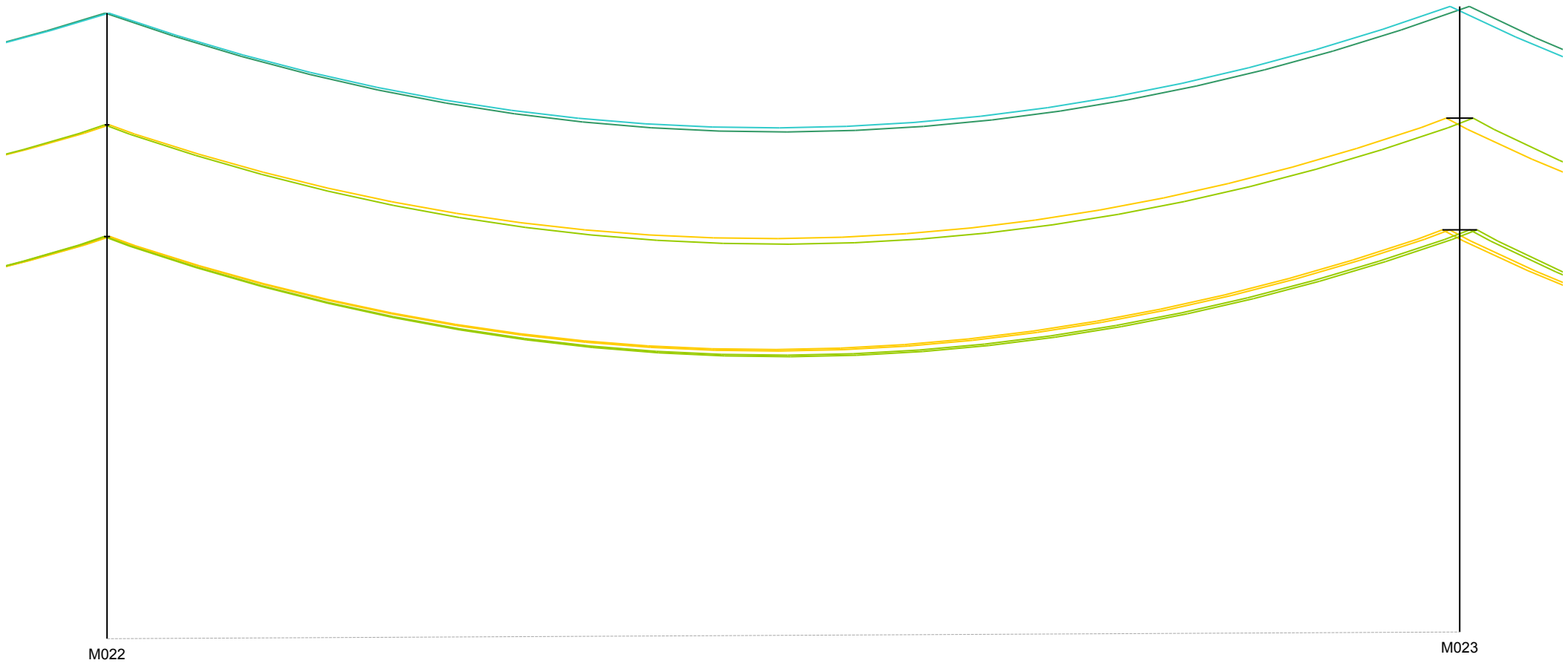
| M022 | |
|-------------|-------------|
| WA160-36,00 | |
| X [m] | 32520939,31 |
| Y [m] | 6071696,18 |
| Z [m] | 33,60 |
| Ltg-W. | 192,94gon |
| Trav: I/2 | -96,47gon |
| Trav: I/1 | 103,53gon |
| Trav: II/2 | -96,47gon |
| Trav: II/1 | 103,53gon |



Abspannabschnitt: M022 - M023 Profilplan

| | |
|-------------|-------------|
| M022 | |
| WA160-36,00 | |
| X [m] | 32520939,31 |
| Y [m] | 6071696,18 |
| Z [m] | 33,60 |

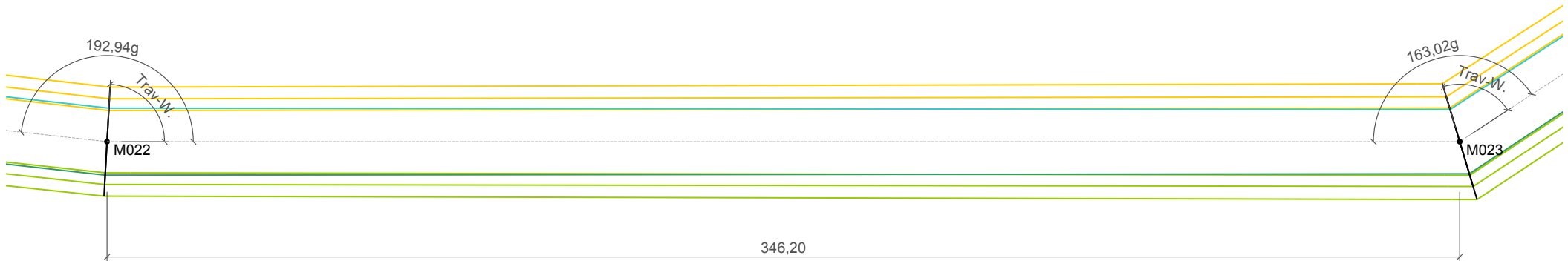
| | |
|-------------|-------------|
| M023 | |
| WA140-36,00 | |
| X [m] | 32521043,37 |
| Y [m] | 6072026,38 |
| Z [m] | 34,20 |



Abspannabschnitt: M022 - M023 Lageplan

| M022 | |
|-------------|-------------|
| WA160-36,00 | |
| X [m] | 32520939,31 |
| Y [m] | 6071696,18 |
| Z [m] | 33,60 |
| Ltg-W. | 192,94gon |
| Trav: I/2 | -96,47gon |
| Trav: I/1 | 103,53gon |
| Trav: II/2 | -96,47gon |
| Trav: II/1 | 103,53gon |

| M023 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32521043,37 |
| Y [m] | 6072026,38 |
| Z [m] | 34,20 |
| Ltg-W. | 163,02gon |
| Trav: I/2 | -81,51gon |
| Trav: I/1 | 118,49gon |
| Trav: II/2 | -81,51gon |
| Trav: II/1 | 118,49gon |



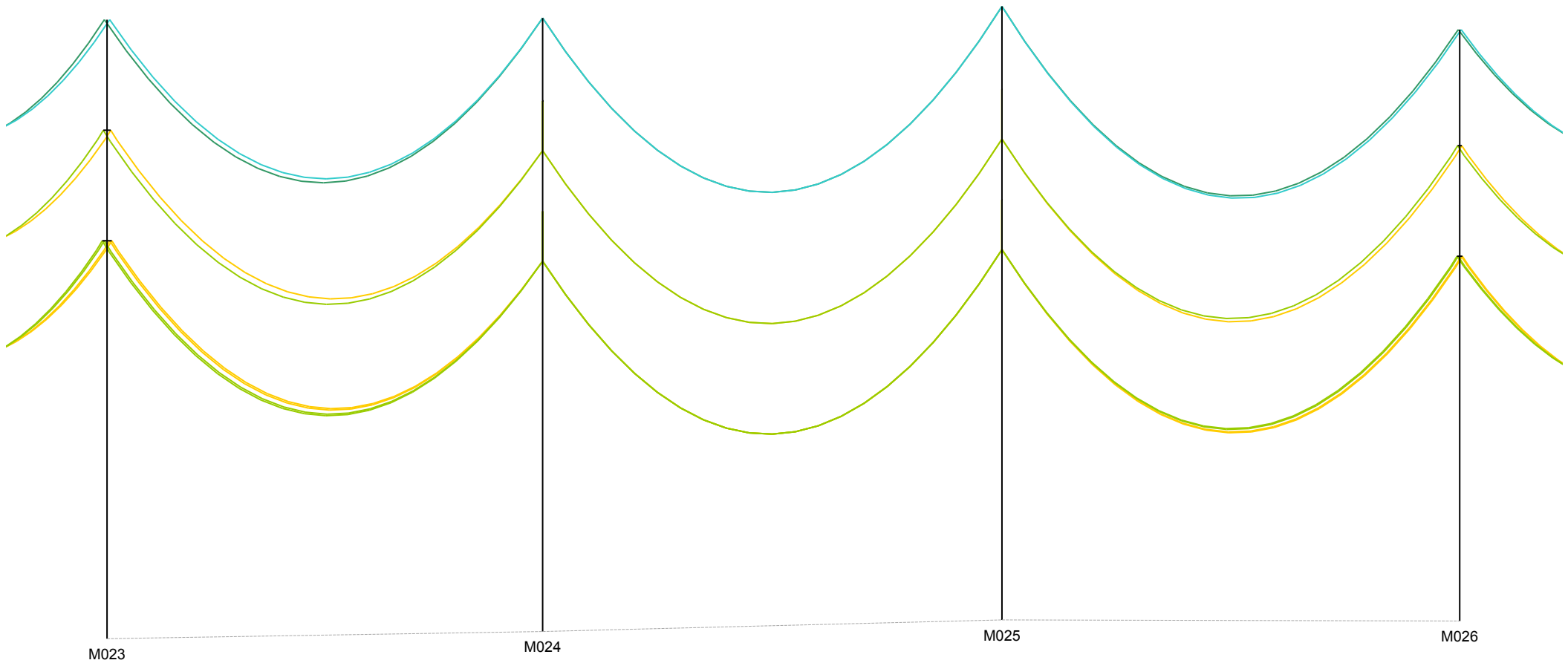
Abspannabschnitt: M023 - M026 Profilplan

| M023 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32521043,37 |
| Y [m] | 6072026,38 |
| Z [m] | 34,20 |

| M024 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32520933,46 |
| Y [m] | 6072415,14 |
| Z [m] | 34,85 |

| M025 | |
|----------|-------------|
| T1-38,00 | |
| X [m] | 32520817,56 |
| Y [m] | 6072825,07 |
| Z [m] | 35,90 |

| M026 | |
|-------------|-------------|
| WE140-33,00 | |
| X [m] | 32520702,07 |
| Y [m] | 6073233,61 |
| Z [m] | 35,80 |



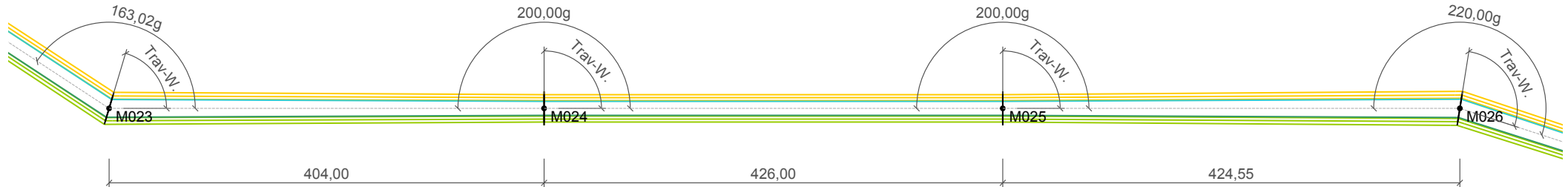
Abspannabschnitt: M023 - M026 Lageplan

| M023 | |
|-------------|-------------|
| WA140-36,00 | |
| X [m] | 32521043,37 |
| Y [m] | 6072026,38 |
| Z [m] | 34,20 |
| Ltg-W. | 163,02gon |
| Trav: I/2 | -81,51gon |
| Trav: I/1 | 118,49gon |
| Trav: II/2 | -81,51gon |
| Trav: II/1 | 118,49gon |

| M024 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32520933,46 |
| Y [m] | 6072415,14 |
| Z [m] | 34,85 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M025 | |
|------------|-------------|
| T1-38,00 | |
| X [m] | 32520817,56 |
| Y [m] | 6072825,07 |
| Z [m] | 35,90 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M026 | |
|-------------|-------------|
| WE140-33,00 | |
| X [m] | 32520702,07 |
| Y [m] | 6073233,61 |
| Z [m] | 35,80 |
| Ltg-W. | 220,00gon |
| Trav: I/2 | -110,00gon |
| Trav: I/1 | 90,00gon |
| Trav: II/2 | -110,00gon |
| Trav: II/1 | 90,00gon |



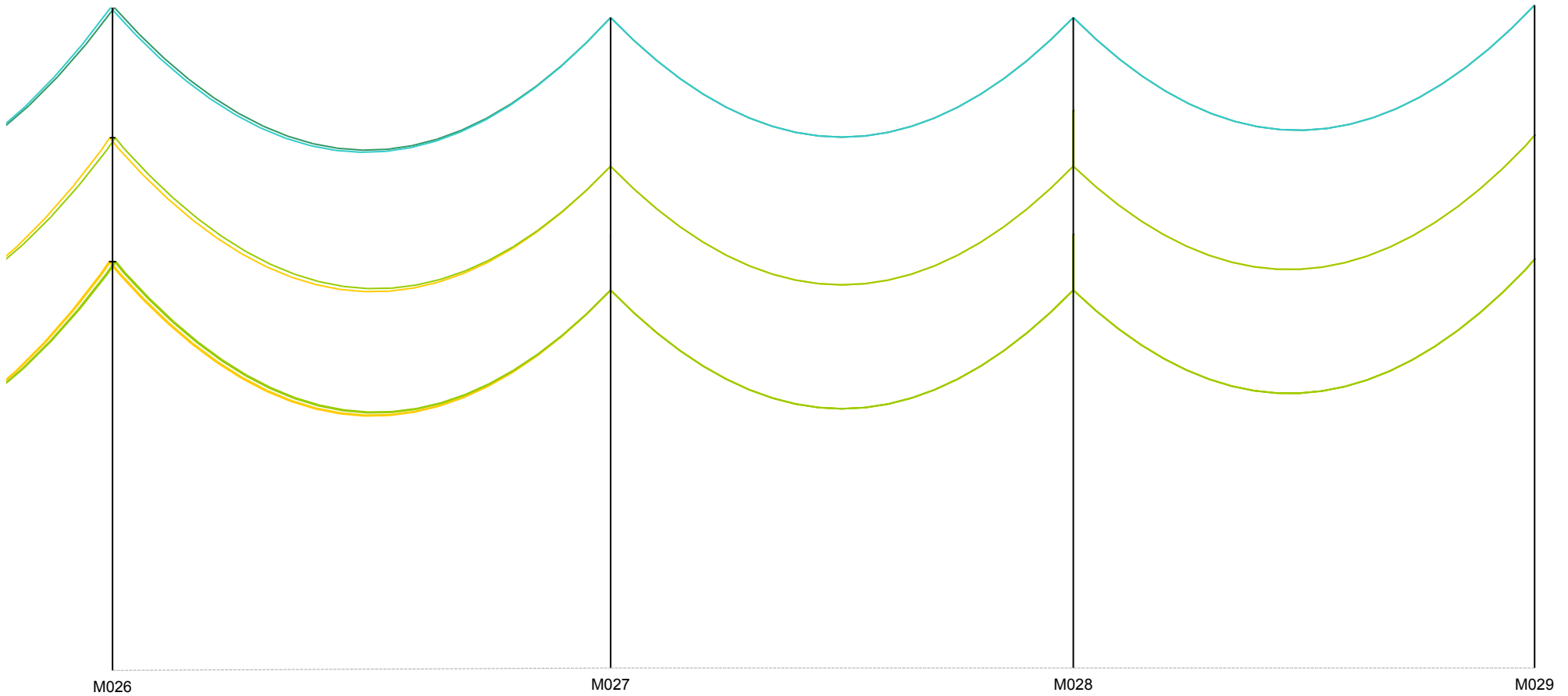
Abspannabschnitt: M026 - M029 Profilplan

| M026 | |
|-------------|-------------|
| WE140-33,00 | |
| X [m] | 32520702,07 |
| Y [m] | 6073233,61 |
| Z [m] | 35,80 |

| M027 | |
|----------|-------------|
| T1-35,00 | |
| X [m] | 32520715,69 |
| Y [m] | 6073586,43 |
| Z [m] | 36,00 |

| M028 | |
|----------|-------------|
| T1-35,00 | |
| X [m] | 32520728,34 |
| Y [m] | 6073914,19 |
| Z [m] | 36,00 |

| M029 | |
|-------------|-------------|
| WE140-33,00 | |
| X [m] | 32520740,96 |
| Y [m] | 6074240,94 |
| Z [m] | 36,00 |



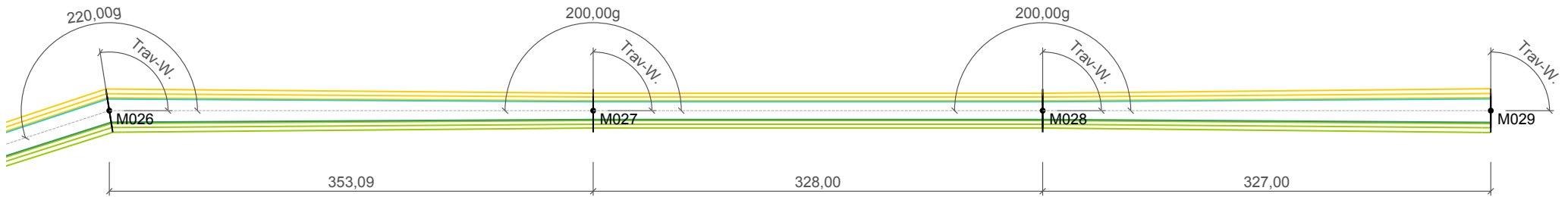
Abspannabschnitt: M026 - M029 Lageplan

| M026 | |
|-------------|-------------|
| WE140-33,00 | |
| X [m] | 32520702,07 |
| Y [m] | 6073233,61 |
| Z [m] | 35,80 |
| Ltg-W. | 220,00gon |
| Trav: I/2 | -110,00gon |
| Trav: I/1 | 90,00gon |
| Trav: II/2 | -110,00gon |
| Trav: II/1 | 90,00gon |

| M027 | |
|------------|-------------|
| T1-35,00 | |
| X [m] | 32520715,69 |
| Y [m] | 6073586,43 |
| Z [m] | 36,00 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M028 | |
|------------|-------------|
| T1-35,00 | |
| X [m] | 32520728,34 |
| Y [m] | 6073914,19 |
| Z [m] | 36,00 |
| Ltg-W. | 200,00gon |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |

| M029 | |
|-------------|-------------|
| WE140-33,00 | |
| X [m] | 32520740,96 |
| Y [m] | 6074240,94 |
| Z [m] | 36,00 |
| Trav: I/2 | -100,00gon |
| Trav: I/1 | 100,00gon |
| Trav: II/2 | -100,00gon |
| Trav: II/1 | 100,00gon |



Richtfunkstrecken

BOS Digitalfunk

Wellenlänge: 0,02m

Frequenz: 15GHz

Koordinaten:

Länge: 14420,06m

Rechts (X): 32514757,91

Rechts (X): 32523748,59

maximaler Radius der Zone 1: 8,491m

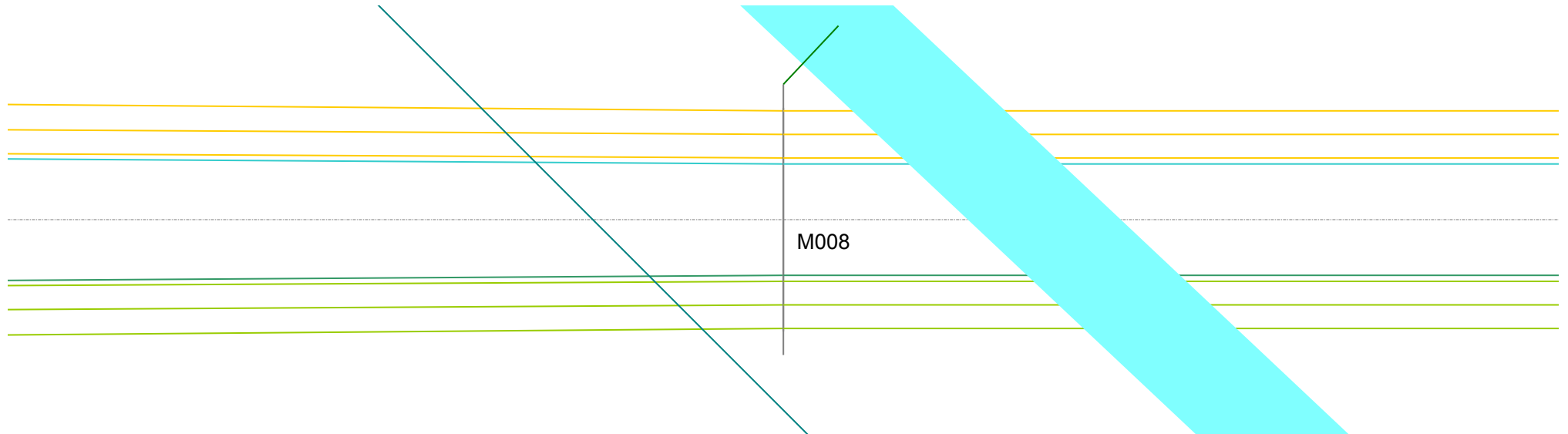
Hoch (Y): 6060607,35

Hoch (Y): 6071881,43

HNN (Z): 52,30

HNN (Z): 82,50

| Abstände zu den Masten | | | |
|--------------------------|----------------------|------------------|------|
| Abstand zur Achse [m] | Radius Zone 1 [m] | Differenz [m] | Mast |
| 9,61 | 8,42 | 1,19 | M008 |



Telefónica Link 101554536

Wellenlänge: 0,02m

Frequenz: 15GHz

Koordinaten:

Länge: 4077,15m

Rechts (X): 32515718,12

Rechts (X): 32519788,91

maximaler Radius der Zone 1: 4,515m

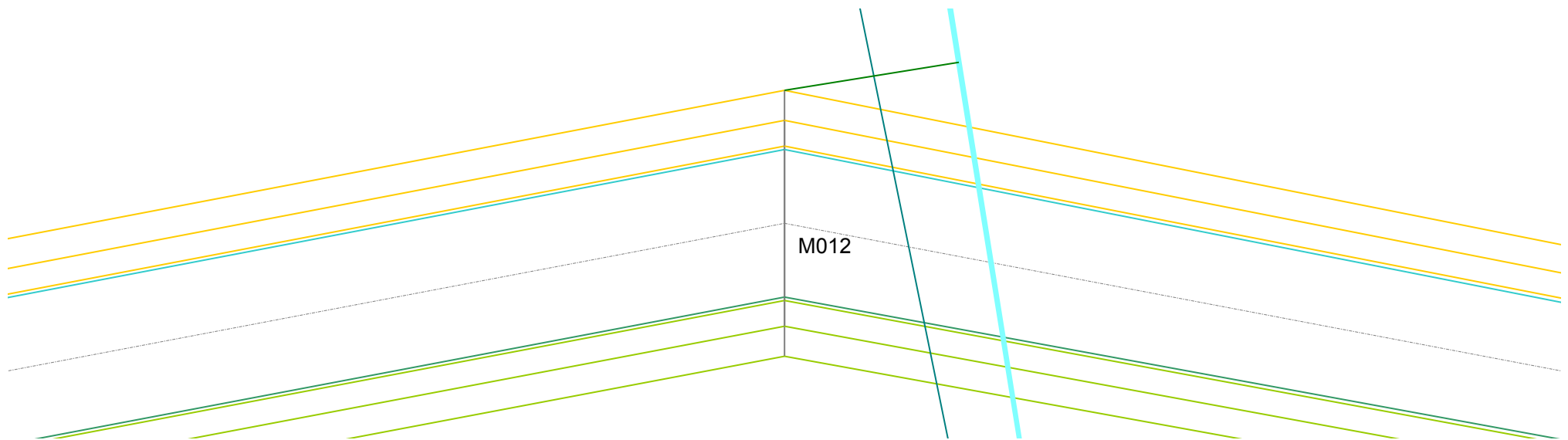
Hoch (Y): 6068732,41

Hoch (Y): 6068504,79

HNN (Z): 61,40

HNN (Z): 66,50

| Abstände zu den Masten | | | |
|--------------------------|----------------------|------------------|------|
| Abstand zur Achse [m] | Radius Zone 1 [m] | Differenz [m] | Mast |
| 20,61 | 2,12 | 18,50 | M012 |



Telefónica Link 101530102, 101530155, 101554534, 101554535

Wellenlänge: 0,02m

Frequenz: 15GHz

Koordinaten:

Länge: 11797,25m

Rechts (X): 32526619,87

Rechts (X): 32515718,12

maximaler Radius der Zone 1: 7,68m

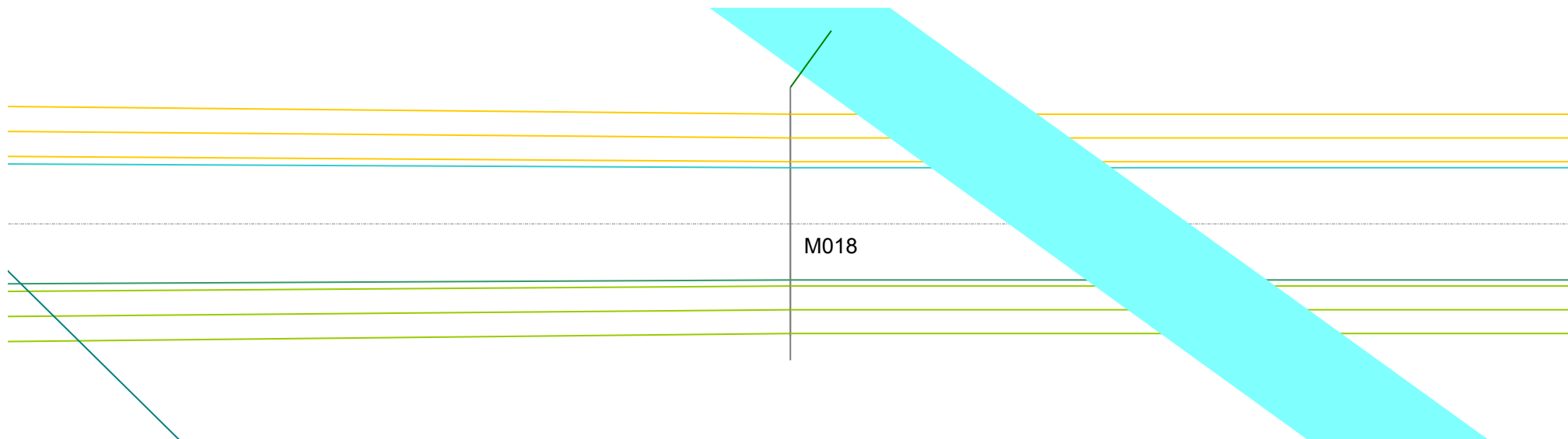
Hoch (Y): 6073240,84

Hoch (Y): 6068732,41

HNN (Z): 92,50

HNN (Z): 60,00

| Abstände zu den Masten | | | |
|--------------------------|----------------------|------------------|------|
| Abstand zur Achse [m] | Radius Zone 1 [m] | Differenz [m] | Mast |
| 8,89 | 7,55 | 1,34 | M018 |



Deutsche Telekom, Harrislee 1 - Wallsbüll 1

Wellenlänge: 0,02m

Frequenz: 15GHz

Koordinaten:

Länge: 9453,60m

Rechts (X): 32524434,13

Rechts (X): 32515718,31

maximaler Radius der Zone 1: 6,875m

Hoch (Y): 6072391,12

Hoch (Y): 6068729,94

HNN (Z): 80,50

HNN (Z): 51,00

Abstände zu den Masten

| Abstand zur Achse [m] | Radius Zone 1 [m] | Differenz [m] | Mast |
|--------------------------|----------------------|------------------|------|
| 32,65 | 6,87 | 25,77 | M018 |

