# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-02 | LL-01 | PLUVIAL | 10 | 0,127 | 0,254 | 38,70 | 2549,732 | 0,29 | 0,50 | 0,1 | 0,051 | 5,88 | 0,015 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2549,378 | 2549,478 | 2549,732 | 2550,055 | 0,677 | | | | | |
| **1** | 3 | 2549,387 | 2549,487 | 2549,741 | | | 0,669 | 2,006 | 1,058 | 0,644 | 6 |
| | 5,8 | 2549,395 | 2549,495 | 2549,749 | 2550,055 | 0,660 | | | | | |
| **2** | 8,8 | 2549,404 | 2549,504 | 2549,758 | | | 0,680 | 1,999 | 1,037 | 0,665 | 5,88 |
| | 11,6 | 2549,412 | 2549,512 | 2549,766 | 2550,112 | 0,700 | | | | | |
| **3** | 14,6 | 2549,421 | 2549,521 | 2549,775 | | | 0,708 | 2,082 | 1,037 | 0,747 | 5,88 |
| | 17,4 | 2549,429 | 2549,529 | 2549,783 | 2550,145 | 0,716 | | | | | |
| **4** | 20,4 | 2549,438 | 2549,538 | 2549,792 | | | 0,748 | 2,200 | 1,037 | 0,866 | 5,88 |
| | 23,2 | 2549,446 | 2549,546 | 2549,800 | 2550,227 | 0,781 | | | | | |
| **5** | 26,2 | 2549,455 | 2549,555 | 2549,809 | | | 0,743 | 2,186 | 1,037 | 0,851 | 5,88 |
| | 29 | 2549,463 | 2549,563 | 2549,817 | 2550,169 | 0,706 | | | | | |
| **6** | 32 | 2549,472 | 2549,572 | 2549,826 | | | 0,688 | 2,022 | 1,037 | 0,688 | 5,88 |
| | 34,8 | 2549,480 | 2549,580 | 2549,834 | 2550,150 | 0,670 | | | | | |
| **7** | 37,8 | 2549,490 | 2549,590 | 2549,844 | | | 0,684 | 1,128 | 0,582 | 0,379 | 3,3 |
| | 38,7 | 2549,490 | 2549,590 | 2549,844 | 2550,188 | 0,698 | | | | | |
| | | | | | | | **TOTAL** | 13,62 | 6,82 | 4,84 | 38,70 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-03 | LL-02 | PLUVIAL | 10 | 0,127 | 0,254 | 50,50 | 2549,579 | 0,29 | 0,50 | 0,1 | 0,051 | 5,88 | 0,011 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2549,230 | 2549,330 | 2549,584 | 2550,115 | 0,885 | | | | | |
| 1 | 3 | 2549,239 | 2549,339 | 2549,593 | | | 0,904 | 2,712 | 1,058 | 1,350 | 6 |
| | 5,8 | 2549,247 | 2549,347 | 2549,601 | 2550,170 | 0,923 | | | | | |
| 2 | 8,8 | 2549,256 | 2549,356 | 2549,610 | | | 0,904 | 2,658 | 1,037 | 1,323 | 5,88 |
| | 11,6 | 2549,264 | 2549,364 | 2549,618 | 2550,149 | 0,885 | | | | | |
| 3 | 14,6 | 2549,273 | 2549,373 | 2549,627 | | | 0,830 | 2,439 | 1,037 | 1,104 | 5,88 |
| | 17,4 | 2549,281 | 2549,381 | 2549,635 | 2550,055 | 0,774 | | | | | |
| 4 | 20,4 | 2549,290 | 2549,390 | 2549,644 | | | 0,817 | 2,402 | 1,037 | 1,067 | 5,88 |
| | 23,2 | 2549,298 | 2549,398 | 2549,652 | 2550,158 | 0,860 | | | | | |
| 5 | 26,2 | 2549,307 | 2549,407 | 2549,661 | | | 0,820 | 2,412 | 1,037 | 1,077 | 5,88 |
| | 29 | 2549,315 | 2549,415 | 2549,669 | 2550,096 | 0,781 | | | | | |
| 6 | 32 | 2549,324 | 2549,424 | 2549,678 | | | 0,776 | 2,281 | 1,037 | 0,946 | 5,88 |
| | 34,8 | 2549,332 | 2549,432 | 2549,686 | 2550,103 | 0,771 | | | | | |
| 7 | 37,8 | 2549,341 | 2549,441 | 2549,695 | | | 0,822 | 2,418 | 1,037 | 1,083 | 5,88 |
| | 40,6 | 2549,349 | 2549,449 | 2549,703 | 2550,223 | 0,874 | | | | | |
| 8 | 43,6 | 2549,358 | 2549,458 | 2549,712 | | | 0,849 | 2,497 | 1,037 | 1,162 | 5,88 |
| | 46,4 | 2549,366 | 2549,466 | 2549,720 | 2550,191 | 0,825 | | | | | |
| 9 | 49,4 | 2549,375 | 2549,475 | 2549,729 | | | 0,822 | 1,372 | 0,589 | 0,614 | 3,34 |
| | 50,5 | 2549,376 | 2549,476 | 2549,730 | 2550,195 | 0,819 | | | | | |
| | | | | | | | TOTAL | 21,19 | 8,90 | 9,73 | 50,50 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-04 | LL-03 | PLUVIAL | 10 | 0,127 | 0,254 | 21,20 | 2549,518 | 0,28 | 0,50 | 0,1 | 0,051 | 5,88 | 0,011 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2549,164 | 2549,264 | 2549,518 | 2550,393 | 1,229 | | | | | |
| 1 | 3 | 2549,172 | 2549,272 | 2549,526 | | | 1,150 | 3,450 | 1,058 | 2,088 | 6 |
| | 5,8 | 2549,180 | 2549,280 | 2549,534 | 2550,251 | 1,071 | | | | | |
| 2 | 8,8 | 2549,189 | 2549,289 | 2549,543 | | | 1,022 | 3,005 | 1,037 | 1,670 | 5,88 |
| | 11,6 | 2549,196 | 2549,296 | 2549,550 | 2550,17 | 0,974 | | | | | |
| 3 | 14,6 | 2549,205 | 2549,305 | 2549,559 | | | 0,912 | 2,681 | 1,037 | 1,346 | 5,88 |
| | 17,4 | 2549,213 | 2549,313 | 2549,567 | 2550,063 | 0,850 | | | | | |
| 4 | 20,4 | 2549,221 | 2549,321 | 2549,575 | | | 0,874 | 1,504 | 0,607 | 0,723 | 3,44 |
| | 21,2 | 2549,223 | 2549,323 | 2549,577 | 2550,122 | 0,899 | | | | | |
| | | | | | | | TOTAL | 10,64 | 3,74 | 5,83 | 21,20 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-05 | LL-04 | PLUVIAL | 12 | 0,1524 | 0,305 | 37,50 | 2549,416 | 0,27 | 0,55 | 0,1 | 0,073 | 5,88 | 0,012 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2549,011 | 2549,111 | 2549,416 | 2550,117 | 1,106 | | | | | |
| 1 | 3 | 2549,019 | 2549,119 | 2549,424 | | | 1,078 | 3,486 | 1,203 | 1,854 | 5,88 |
| | 5,8 | 2549,027 | 2549,127 | 2549,432 | 2550,077 | 1,050 | | | | | |
| 2 | 8,8 | 2549,035 | 2549,135 | 2549,440 | | | 1,029 | 3,327 | 1,203 | 1,695 | 5,88 |
| | 11,6 | 2549,043 | 2549,143 | 2549,447 | 2550,05 | 1,007 | | | | | |
| 3 | 14,6 | 2549,051 | 2549,151 | 2549,455 | | | 0,985 | 3,186 | 1,203 | 1,553 | 5,88 |
| | 17,4 | 2549,058 | 2549,158 | 2549,463 | 2550,021 | 0,963 | | | | | |
| 4 | 20,4 | 2549,066 | 2549,166 | 2549,471 | | | 0,970 | 3,137 | 1,203 | 1,504 | 5,88 |
| | 23,2 | 2549,074 | 2549,174 | 2549,479 | 2550,051 | 0,977 | | | | | |
| 5 | 26,2 | 2549,082 | 2549,182 | 2549,487 | | | 0,931 | 3,012 | 1,203 | 1,379 | 5,88 |
| | 29 | 2549,090 | 2549,190 | 2549,494 | 2549,975 | 0,885 | | | | | |
| 6 | 32 | 2549,098 | 2549,198 | 2549,502 | | | 0,945 | 3,055 | 1,203 | 1,423 | 5,88 |
| | 34,8 | 2549,105 | 2549,205 | 2549,510 | 2550,109 | 1,004 | | | | | |
| 7 | 37,4 | 2549,112 | 2549,212 | 2549,517 | 2550,141 | 1,029 | 1,016 | 1,241 | 0,454 | 0,625 | 2,22 |
| | | | | | | | TOTAL | 20,44 | 7,68 | 10,03 | 37,50 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-17 | LL 18 | PLUVIAL | 8 | 0,1016 | 0,203 | 40,10 | 2549,599 | 0,36 | 0,50 | 0,1 | 0,032 | 5,88 | 0,009 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2549,296 | 2549,396 | 2549,599 | 2550,073 | 0,777 | | | | | |
| 1 | 3 | 2549,285 | 2549,385 | 2549,588 | | | 0,837 | 2,512 | 1,015 | 1,302 | 6 |
| | 5,8 | 2549,275 | 2549,375 | 2549,578 | 2550,172 | 0,897 | | | | | |
| 2 | 8,8 | 2549,264 | 2549,364 | 2549,567 | | | 0,927 | 2,724 | 0,995 | 1,539 | 5,88 |
| | 11,6 | 2549,253 | 2549,353 | 2549,557 | 2550,209 | 0,956 | | | | | |
| 3 | 14,6 | 2549,243 | 2549,343 | 2549,546 | | | 0,958 | 2,817 | 0,995 | 1,632 | 5,88 |
| | 17,4 | 2549,232 | 2549,332 | 2549,535 | 2550,193 | 0,961 | | | | | |
| 4 | 20,4 | 2549,221 | 2549,321 | 2549,525 | | | 1,036 | 3,045 | 0,995 | 1,860 | 5,88 |
| | 23,2 | 2549,211 | 2549,311 | 2549,514 | 2550,322 | 1,111 | | | | | |
| 5 | 26,2 | 2549,200 | 2549,300 | 2549,503 | | | 1,056 | 3,105 | 0,995 | 1,919 | 5,88 |
| | 29 | 2549,190 | 2549,290 | 2549,493 | 2550,191 | 1,001 | | | | | |
| 6 | 32 | 2549,179 | 2549,279 | 2549,482 | | | 1,013 | 2,979 | 0,995 | 1,793 | 5,88 |
| | 34,8 | 2549,169 | 2549,269 | 2549,472 | 2550,194 | 1,025 | | | | | |
| 7 | 37,8 | 2549,158 | 2549,258 | 2549,461 | | | 1,076 | 2,530 | 0,795 | 1,582 | 4,7 |
| | 40,1 | 2549,151 | 2549,251 | 2549,455 | 2550,279 | 1,128 | | | | | |
| | | | | | | | TOTAL | 19,71 | 6,78 | 11,63 | 40,10 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL 18 | LL 19 | PLUVIAL | 8 | 0,1016 | 0,203 | 39,00 | 2549,452 | 0,36 | 0,50 | 0,1 | 0,032 | 5,88 | 0,009 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2549,149 | 2549,249 | 2549,452 | 2550,295 | 1,146 | | | | | |
| 1 | 3 | 2549,138 | 2549,238 | 2549,441 | | | 1,172 | 3,516 | 1,015 | 2,306 | 6 |
| | 5,8 | 2549,128 | 2549,228 | 2549,431 | 2550,325 | 1,197 | | | | | |
| 2 | 8,8 | 2549,117 | 2549,217 | 2549,420 | | | 1,195 | 3,512 | 0,995 | 2,327 | 5,88 |
| | 11,6 | 2549,106 | 2549,206 | 2549,410 | 2550,298 | 1,192 | | | | | |
| 3 | 14,6 | 2549,096 | 2549,196 | 2549,399 | | | 1,158 | 3,404 | 0,995 | 2,218 | 5,88 |
| | 17,4 | 2549,085 | 2549,185 | 2549,388 | 2550,209 | 1,124 | | | | | |
| 4 | 20,4 | 2549,074 | 2549,174 | 2549,378 | | | 1,106 | 3,251 | 0,995 | 2,066 | 5,88 |
| | 23,2 | 2549,064 | 2549,164 | 2549,367 | 2550,152 | 1,088 | | | | | |
| 5 | 26,2 | 2549,053 | 2549,153 | 2549,356 | | | 1,129 | 3,319 | 0,995 | 2,134 | 5,88 |
| | 29 | 2549,043 | 2549,143 | 2549,346 | 2550,213 | 1,170 | | | | | |
| 6 | 32 | 2549,032 | 2549,132 | 2549,335 | | | 1,223 | 3,595 | 0,995 | 2,409 | 5,88 |
| | 34,8 | 2549,022 | 2549,122 | 2549,325 | 2550,297 | 1,275 | | | | | |
| 7 | 37,8 | 2549,011 | 2549,111 | 2549,314 | | | 1,262 | 2,272 | 0,609 | 1,546 | 3,6 |
| | 39 | 2549,008 | 2549,108 | 2549,312 | 2550,257 | 1,249 | | | | | |
| | | | | | | | TOTAL | 22,87 | 6,60 | 15,01 | 39,00 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-19 | LL 19A | PLUVIAL | 8 | 0,1016 | 0,203 | 4,85 | 2549,309 | 0,36 | 0,50 | 0,1 | 0,032 | 5,88 | 0,009 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,988 | 2549,106 | 2549,309 | 2550,191 | 1,203 | | | | | |
| 1 | 3 | 2548,995 | 2549,095 | 2549,298 | | | 1,205 | 2,923 | 0,820 | 1,945 | 4,85 |
| | 4,95 | 2549,006 | 2549,088 | 2549,291 | 2550,213 | 1,207 | | | | | |
| | | | | | | | TOTAL | 2,92 | 0,82 | 1,94 | 4,85 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL 19A | LL-19B | PLUVIAL | 8 | 0,1016 | 0,203 | 17,80 | 2549,289 | 0,36 | 0,55 | 0,1 | 0,032 | 5,88 | 0,009 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,986 | 2549,085 | 2549,289 | 2550,318 | 1,332 | | | | | 0,00 |
| **1** | 3 | 2548,975 | 2549,075 | 2549,278 | | | 1,414 | 0,000 | 0,000 | 0,000 | |
| | 5,8 | 2548,965 | 2549,064 | 2549,267 | 2550,460 | 1,495 | | | | | 5,88 |
| **2** | 8,8 | 2548,954 | 2549,053 | 2549,257 | | | 1,530 | 4,948 | 1,113 | 3,644 | |
| | 11,6 | 2548,943 | 2549,043 | 2549,246 | 2550,508 | 1,565 | | | | | 5,88 |
| **3** | 14,6 | 2548,933 | 2549,032 | 2549,235 | | | 1,590 | 5,141 | 1,113 | 3,837 | |
| | 17,4 | 2548,922 | 2549,022 | 2549,225 | 2550,537 | 1,615 | | | | | 5,88 |
| **4** | 18 | 2548,921 | 2549,021 | 2549,224 | 2550,558 | 1,637 | 1,626 | 5,258 | 1,113 | 3,954 | 0,16 |
| | | | | | | | **TOTAL** | 15,35 | 3,34 | 11,44 | **17,80** |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL 19B | LL-20 | PLUVIAL | 8 | 0,1016 | 0,203 | 18,40 | 2549,222 | 0,36 | 0,50 | 0,1 | 0,032 | 5,88 | 0,009 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,918 | 2549,018 | 2549,222 | 2550,461 | 1,543 | | | | | |
| 1 | 3 | 2548,908 | 2549,008 | 2549,211 | | | 1,580 | 4,644 | 0,995 | 3,459 | 5,88 |
| | 5,8 | 2548,897 | 2548,997 | 2549,200 | 2550,514 | 1,617 | | | | | |
| 2 | 8,8 | 2548,886 | 2548,986 | 2549,190 | | | 1,639 | 4,820 | 0,995 | 3,634 | 5,88 |
| | 11,6 | 2548,876 | 2548,976 | 2549,179 | 2550,538 | 1,662 | | | | | |
| 3 | 14,6 | 2548,865 | 2548,965 | 2549,168 | | | 1,575 | 4,629 | 0,995 | 3,444 | 5,88 |
| | 17,4 | 2548,855 | 2548,955 | 2549,158 | 2550,342 | 1,487 | | | | | |
| 4 | 18,5 | 2548,852 | 2548,952 | 2549,155 | 2550,349 | 1,497 | 1,492 | 0,567 | 0,129 | 0,414 | 0,76 |
| | | | | | | | TOTAL | 14,66 | 3,11 | 10,95 | 18,40 |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-20 | LL-21 | PLUVIAL | 10 | 0,127 | 0,254 | 50,85 | 2549,155 | 0,35 | 0,55 | 0,1 | 0,051 | 5,88 | 0,011 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,804 | 2548,904 | 2549,158 | 2550,131 | 1,327 | | | | | |
| **1** | 3 | 2548,793 | 2548,893 | 2549,147 | | | 1,341 | 4,336 | 1,170 | 2,868 | 5,88 |
| | 5,88 | 2548,783 | 2548,883 | 2549,137 | 2550,137 | 1,354 | | | | | |
| **2** | 8,88 | 2548,772 | 2548,872 | 2549,126 | | | 1,372 | 4,438 | 1,170 | 2,970 | 5,88 |
| | 11,76 | 2548,762 | 2548,862 | 2549,116 | 2550,153 | 1,391 | | | | | |
| **3** | 14,76 | 2548,752 | 2548,852 | 2549,106 | | | 1,396 | 4,514 | 1,170 | 3,046 | 5,88 |
| | 17,56 | 2548,742 | 2548,842 | 2549,096 | 2550,143 | 1,401 | | | | | |
| **4** | 20,56 | 2548,731 | 2548,831 | 2549,085 | | | 1,412 | 4,565 | 1,170 | 3,097 | 5,88 |
| | 23,36 | 2548,721 | 2548,821 | 2549,075 | 2550,143 | 1,422 | | | | | |
| 5 | 26,36 | 2548,711 | 2548,811 | 2549,065 | | | 1,434 | 4,638 | 1,170 | 3,170 | 5,88 |
| | 29,16 | 2548,701 | 2548,801 | 2549,055 | 2550,147 | 1,446 | | | | | |
| 6 | 32,16 | 2548,690 | 2548,790 | 2549,044 | | | 1,430 | 4,625 | 1,170 | 3,157 | 5,88 |
| | 34,96 | 2548,680 | 2548,780 | 2549,034 | 2550,094 | 1,414 | | | | | |
| **7** | 37,96 | 2548,670 | 2548,770 | 2549,024 | | | 1,415 | 4,575 | 1,170 | 3,107 | 5,88 |
| | 40,76 | 2548,644 | 2548,744 | 2548,998 | 2550,060 | 1,416 | | | | | |
| **8** | 43,76 | 2548,634 | 2548,734 | 2548,988 | | | 1,405 | 4,543 | 1,170 | 3,075 | 5,88 |
| | 46,56 | 2548,639 | 2548,739 | 2548,993 | 2550,033 | 1,394 | | | | | |
| **9** | 49,56 | 2548,626 | 2548,726 | 2548,980 | | | 1,388 | 2,909 | 0,758 | 1,958 | 3,81 |
| | 50,36 | 2548,626 | 2548,726 | 2548,980 | 2550,008 | 1,382 | | | | | |
| | | | | | | | **TOTAL** | 39,14 | 10,12 | 26,45 | **50,85** |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **tramo** | LL 21 | LL 22 | PLUVIAL | 10 | 0,127 | 0,254 | 61,20 | 2549,155 | 0,35 | 0,55 | 0,1 | 0,051 | 5,88 | 0,011 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONGITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,660 | 2548,760 | 2549,014 | 2550,518 | 1,858 | | | | | |
| **1** | 3 | 2548,649 | 2548,749 | 2549,003 | | | 1,870 | 6,047 | 1,170 | 4,579 | 5,88 |
| | 5,88 | 2548,639 | 2548,739 | 2548,993 | 2550,520 | 1,881 | | | | | |
| **2** | 8,88 | 2548,628 | 2548,728 | 2548,982 | | | 1,864 | 6,030 | 1,170 | 4,561 | 5,88 |
| | 11,76 | 2548,618 | 2548,718 | 2548,972 | 2550,465 | 1,847 | | | | | |
| **3** | 14,76 | 2548,607 | 2548,707 | 2548,961 | | | 1,869 | 6,045 | 1,170 | 4,576 | 5,88 |
| | 17,56 | 2548,596 | 2548,696 | 2548,950 | 2550,487 | 1,891 | | | | | |
| **4** | 20,56 | 2548,586 | 2548,686 | 2548,940 | | | 1,968 | 6,365 | 1,170 | 4,897 | 5,88 |
| | 23,36 | 2548,575 | 2548,675 | 2548,929 | 2550,621 | 2,046 | | | | | |
| 5 | 26,36 | 2548,564 | 2548,664 | 2548,918 | | | 1,984 | 6,416 | 1,170 | 4,948 | 5,88 |
| | 29,16 | 2548,554 | 2548,654 | 2548,908 | 2550,476 | 1,922 | | | | | |
| 6 | 32,16 | 2548,543 | 2548,643 | 2548,897 | | | 1,916 | 6,195 | 1,170 | 4,727 | 5,88 |
| | 34,96 | 2548,533 | 2548,633 | 2548,887 | 2550,442 | 1,909 | | | | | |
| **7** | 37,96 | 2548,522 | 2548,622 | 2548,876 | | | 1,934 | 6,255 | 1,170 | 4,787 | 5,88 |
| | 40,76 | 2548,512 | 2548,612 | 2548,866 | 2550,471 | 1,959 | | | | | |
| **8** | 43,76 | 2548,501 | 2548,601 | 2548,855 | | | 1,976 | 6,392 | 1,170 | 4,924 | 5,88 |
| | 46,56 | 2548,490 | 2548,590 | 2548,844 | 2550,484 | 1,994 | | | | | |
| **9** | 49,56 | 2548,480 | 2548,580 | 2548,834 | | | 2,006 | 6,486 | 1,170 | 5,018 | 5,88 |
| | 52,56 | 2548,469 | 2548,569 | 2548,823 | 2550,487 | 2,018 | | | | | |
| 10 | 55,56 | 2548,459 | 2548,559 | 2548,813 | | | 1,985 | 6,420 | 1,170 | 4,952 | 5,88 |
| | 58,56 | 2548,448 | 2548,548 | 2548,802 | 2550,401 | 1,953 | 0,964 | | | | |
| **11** | 61,2 | 2548,440 | 2548,540 | 2548,794 | 2550,368 | 1,928 | 0,976 | 1,289 | 0,478 | 0,690 | 2,4 |
| | | | | | | | **TOTAL** | 56,23 | 10,53 | 43,02 | **61,20** |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **tramo** | LL 22 | LL 23 | PLUVIAL | 10 | 0,127 | 0,254 | 68,80 | 2548,506 | 0,41 | 0,55 | 0,1 | 0,051 | 5,88 | 0,011 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONGITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,435 | 2548,535 | 2548,789 | 2550,518 | 2,083 | | | | | |
| **1** | 3 | 2548,422 | 2548,522 | 2548,776 | | | 2,097 | 6,780 | 1,170 | 5,312 | |
| | 5,88 | 2548,410 | 2548,510 | 2548,764 | 2550,520 | 2,110 | | | | | **5,88** |
| **2** | 8,88 | 2548,398 | 2548,498 | 2548,752 | | | 2,094 | 6,772 | 1,170 | 5,304 | |
| | 11,76 | 2548,386 | 2548,486 | 2548,740 | 2550,465 | 2,079 | | | | | **5,88** |
| **3** | 14,76 | 2548,374 | 2548,474 | 2548,728 | | | 2,102 | 6,797 | 1,170 | 5,329 | |
| | 17,64 | 2548,362 | 2548,462 | 2548,716 | 2550,487 | 2,125 | | | | | **5,88** |
| **4** | 20,64 | 2548,350 | 2548,450 | 2548,704 | | | 2,204 | 7,127 | 1,170 | 5,659 | |
| | 23,52 | 2548,338 | 2548,438 | 2548,692 | 2550,621 | 2,283 | | | | | **5,88** |
| 5 | 26,52 | 2548,326 | 2548,426 | 2548,680 | | | 2,222 | 7,187 | 1,170 | 5,719 | |
| | 29,4 | 2548,314 | 2548,414 | 2548,668 | 2550,476 | 2,162 | | | | | **5,88** |
| 6 | 32,4 | 2548,302 | 2548,402 | 2548,656 | | | 2,157 | 6,976 | 1,170 | 5,508 | |
| | 35,28 | 2548,290 | 2548,390 | 2548,644 | 2550,442 | 2,152 | | | | | **5,88** |
| **7** | 38,28 | 2548,278 | 2548,378 | 2548,632 | | | 2,179 | 7,046 | 1,170 | 5,578 | |
| | 41,16 | 2548,266 | 2548,366 | 2548,620 | 2550,471 | 2,205 | | | | | **5,88** |
| **8** | 44,16 | 2548,253 | 2548,353 | 2548,607 | | | 2,224 | 7,192 | 1,170 | 5,723 | |
| | 47,04 | 2548,242 | 2548,342 | 2548,596 | 2550,484 | 2,242 | | | | | **5,88** |
| **9** | 50,04 | 2548,229 | 2548,329 | 2548,583 | | | 2,256 | 7,296 | 1,170 | 5,827 | |
| | 52,92 | 2548,218 | 2548,318 | 2548,572 | 2550,487 | 2,269 | | | | | **5,88** |
| 10 | 55,92 | 2548,205 | 2548,305 | 2548,559 | | | 2,238 | 7,239 | 1,170 | 5,771 | |
| | 58,8 | 2548,193 | 2548,293 | 2548,547 | 2550,401 | 2,208 | | | | | **5,88** |
| **11** | 61,8 | 2548,181 | 2548,281 | 2548,535 | | | 2,203 | 7,125 | 1,170 | 5,657 | |
| | 64,68 | 2548,169 | 2548,269 | 2548,523 | 2550,368 | 2,199 | | | | | **5,88** |
| **12** | 67,68 | 2548,157 | 2548,257 | 2548,511 | | | 2,207 | 5,001 | 1,170 | 3,973 | |
| | 68,8 | 2548,152 | 2548,252 | 2548,506 | 2550,368 | 2,216 | 2,216 | 5,020 | 0,820 | 3,992 | **4,12** |
| | | | | | | | | **87,559** | **14,864** | **69,351** | **68,80** |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **tramo** | LL 23 | LL 24 | PLUVIAL | 10 | 0,127 | 0,254 | 24,30 | 2548,404 | 0,4 | 0,55 | 0,1 | 0,051 | 5,88 | 0,015 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONGITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,148 | 2548,248 | 2548,502 | 2550,518 | 2,370 | | | | | |
| **1** | 3 | 2548,136 | 2548,236 | 2548,490 | | | 2,383 | 7,707 | 1,170 | 6,239 | **5,88** |
| | 5,88 | 2548,124 | 2548,224 | 2548,478 | 2550,520 | 2,396 | | | | | |
| **2** | 8,88 | 2548,112 | 2548,212 | 2548,466 | | | 2,380 | 7,698 | 1,170 | 6,229 | **5,88** |
| | 11,76 | 2548,101 | 2548,201 | 2548,455 | 2550,465 | 2,364 | | | | | |
| **3** | 14,76 | 2548,089 | 2548,189 | 2548,443 | | | 2,387 | 7,720 | 1,170 | 6,252 | **5,88** |
| | 17,64 | 2548,077 | 2548,177 | 2548,431 | 2550,487 | 2,410 | | | | | |
| **4** | 20,64 | 2548,065 | 2548,165 | 2548,419 | | | 2,364 | 7,644 | 1,170 | 6,176 | **5,88** |
| | 21,3 | 2548,050 | 2548,150 | 2548,404 | 2550,368 | 2,318 | 2,318 | 0,994 | 0,155 | 0,799 | **0,78** |
| | | | | | | | | **31,764** | **4,836** | **25,696** | **24,30** |

# PLUVIAL

| | pz inicial | pz final | sistema | tuberia (") | radio mts | diemtro en mts | longitud total | COTA LOMO LLEGADA | pendiente (%) | ANCHO DE EXCAVACIÓN | CAMA | AREA TUBO | LONG REAL TUBERIA | ESPESOR DE TUBERIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tramo | LL-42 | LL-44 | PLUVIAL | 8 | 0,1016 | 0,203 | 53,70 | 2548,800 | 0,51 | 0,55 | 0,1 | 0,032 | 5,88 | 0,011 |

RESUMEN INSTALACIÓN

| No. TUBOS | ABSCISA | COTA EXCAVACION | COTA CAMA | COTA LOMO | COTA RASANTE | ALTURA | PROM ALTURA | VOL EXCAVACIÓN | VOL ARENA | VOL RELLENO EXCAVACION | LONITUD DE TUBERÍA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 2548,771 | 2548,871 | 2549,074 | 2550,292 | 1,521 | | | | | |
| **1** | 3 | 2548,755 | 2548,855 | 2549,059 | | | 1,539 | 4,978 | 1,113 | 3,674 | 5,88 |
| | 5,88 | 2548,741 | 2548,841 | 2549,044 | 2550,298 | 1,557 | | | | | |
| **2** | 8,88 | 2548,725 | 2548,825 | 2549,029 | | | 1,580 | 5,110 | 1,113 | 3,806 | 5,88 |
| | 11,76 | 2548,711 | 2548,811 | 2549,014 | 2550,314 | 1,603 | | | | | |
| **3** | 14,76 | 2548,695 | 2548,795 | 2548,999 | | | 1,613 | 5,217 | 1,113 | 3,913 | 5,88 |
| | 17,56 | 2548,681 | 2548,781 | 2548,984 | 2550,304 | 1,623 | | | | | |
| **4** | 20,56 | 2548,665 | 2548,765 | 2548,969 | | | 1,638 | 5,298 | 1,113 | 3,994 | 5,88 |
| | 23,36 | 2548,651 | 2548,751 | 2548,954 | 2550,304 | 1,653 | | | | | |
| 5 | 26,36 | 2548,636 | 2548,736 | 2548,939 | | | 1,670 | 5,401 | 1,113 | 4,097 | 5,88 |
| | 29,16 | 2548,621 | 2548,721 | 2548,924 | 2550,308 | 1,687 | | | | | |
| 6 | 32,16 | 2548,606 | 2548,706 | 2548,909 | | | 1,676 | 5,419 | 1,113 | 4,115 | 5,88 |
| | 34,96 | 2548,591 | 2548,691 | 2548,894 | 2550,255 | 1,664 | | | | | |
| **7** | 37,96 | 2548,576 | 2548,676 | 2548,879 | | | 1,662 | 5,375 | 1,113 | 4,071 | 5,88 |
| | 40,76 | 2548,561 | 2548,661 | 2548,864 | 2550,221 | 1,660 | | | | | |
| **8** | 43,76 | 2548,546 | 2548,646 | 2548,849 | | | 1,662 | 5,374 | 1,113 | 4,070 | 5,88 |
| | 46,56 | 2548,531 | 2548,631 | 2548,834 | 2550,194 | 1,663 | | | | | |
| **9** | 49,56 | 2548,516 | 2548,616 | 2548,819 | | | 1,672 | 5,408 | 1,113 | 4,104 | 5,88 |
| | 52,56 | 2548,501 | 2548,601 | 2548,804 | 2550,182 | 1,681 | | | | | |
| **10** | | 2548,497 | 2548,597 | 2548,800 | | | 0,841 | 0,361 | 0,148 | 0,188 | 0,78 |
| | 53,7 | 2548,497 | 2548,597 | 2548,800 | 2550,183 | 1,686 | | | | | |
| | | | | | | | **TOTAL** | 47,94 | 10,17 | 36,03 | **53,70** |