**FORMULARIO 1**

**FORMULARIO DE PRESUPUESTO OFICIAL**

Señores

**EICE FARO DEL CATATUMBO S.A.S.**

Avenida 5 N° 13-82. Centro de Negocios 5ta avenida, oficina 208

Cúcuta, Colombia

**REFERENCIA: IP-FC-04-2021 MEJORAMIENTO DE LA VÍA CHINACOTA - RAGONVALIA K0+000 - K1+000 NORTE DE SANTANDER.**

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| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **MEJORAMIENTO DE LA VÍA CHINACOTA - RAGONVALIA K0+000 - K1+000 NORTE DE SANTANDER.** | | | | | | | | | | **ITEMS** | **DESCRIPCIÓN** | | | | **UND** | **CANTIDAD** | **PRECIO UNIT.** | **VALOR PARCIAL** | | **1** | **PRELIMINARES** | | | | | | | | | 1.1 | Nivelación, replanteo y control topográfico | | | | m2 | 10.000,00 | $ 2.462,00 | $ 24.620.000,00 | | 1.2 | Rocería y Limpieza | | | | m2 | 4.000,00 | $ 1.177,00 | $ 4.708.000,00 | | 1.3 | Transporte sobre camabaja de maquinaria o equipo pesado, capacidad max. 40ton | | | | Viaje | 18,00 | $ 833.523,00 | $ 15.003.414,00 | | **SUBTOTAL PRELIMINARES** | | | | | | | | **$ 44.331.414,00** | |  | | | | | | | | | | **2** | **OBRAS DE DRENAJE Y MANEJO DE AGUAS SUPERFICIALES** | | | | | | | | | **2.1** | **ALCANTARILLAS** | | | | | | | | | 2.1.1 | Demoliciones en concreto reforzado | | | | m3 | 76,54 | $ 124.380,00 | $ 9.520.045,20 | | 2.1.2 | Demolición de alcantarillas existentes, no incluye excavación. | | | | m | 36,55 | $ 46.969,00 | $ 1.716.716,95 | | 2.1.3 | Localización, replanteo y control topográfico | | | | m2 | 1.091,77 | $ 593,00 | $ 647.419,61 | | 2.1.4 | Excavación y corte en tierra con maquina, incluye cargue | | | | m3 | 1.328,43 | $ 10.454,00 | $ 13.887.407,22 | | 2.1.5 | Tubería de PVC Ø36" incluye colchón de arena o atraque | | | | m | 156,00 | $ 918.586,00 | $ 143.299.416,00 | | 2.1.6 | Tubería de PVC Ø20" para drenaje, incluye colchón de arena | | | | m | 73,00 | $ 300.190,00 | $ 21.913.870,00 | | 2.1.7 | Solado en concreto 17,5 Mpa | | | | m3 | 17,98 | $ 494.611,00 | $ 8.893.105,78 | | 2.1.8 | Concreto 28 MPa para muros, estribos, parapetos, losetas, zapatas (Para alcantarillas y omas) | | | | m3 | 181,81 | $ 734.293,00 | $ 133.501.810,33 | | 2.1.9 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 12.926,31 | $ 5.160,00 | $ 66.699.759,60 | | 2.1.10 | Relleno compactado por medio mecánico (vibrocompactador) , mat. selec de excavación | | | | m3 | 348,75 | $ 29.941,00 | $ 10.441.923,75 | | 2.1.11 | Subbase en material, extendida y compactada, incluye transporte | | | | m3 | 42,44 | $ 109.872,00 | $ 4.662.967,68 | | 2.1.12 | Descole en gaviones, paredes y piso revestidas (Incluye excavacion y relleno) | | | | m | 59,00 | $ 1.121.665,00 | $ 66.178.235,00 | | 2.1.13 | Gaviones en malla galvanizada triple torsión, 8x12 C.12 suministro y construcción | | | | m3 | 32,00 | $ 212.101,00 | $ 6.787.232,00 | | 2.1.14 | Gradas disipadoras sección 1,20x0,60 con sacos (1,20x2,40) rellenos con suelo/arena/cemento 3:1:1 | | | | m | 235,00 | $ 237.929,00 | $ 55.913.315,00 | | 2.1.15 | Canal rampa en concreto de 24,5MPa sección 1,00x0,60 +pantalla deflectoras incluye acero | | | | m | 35,00 | $ 518.103,00 | $ 18.133.605,00 | | 2.1.16 | Dentellones en concreto 21MPa disipadores de energía en gradas (20X20)cm + refuerzo de 3/8" | | | | m | 94,00 | $ 56.556,00 | $ 5.316.264,00 | | 2.1.17 | Cargue de material sobrante de excavaciones, derrumbes y demoliciones, en volqueta | | | | m3 | 95,80 | $ 5.548,00 | $ 531.498,40 | | 2.1.18 | Transporte en volqueta, material de excavación, derrumbes y demoliciones | | | | m3/km | 1.369,38 | $ 1.429,00 | $ 1.956.844,02 | | 2.1.19 | Extendido Humedecimiento y compact de relleno en botaderos | | | | m3 | 1.095,50 | $ 5.861,00 | $ 6.420.725,50 | | **SUBTOTAL ALCANTARILLAS** | | | | | | | | **$ 576.422.161,04** | |  |  |  |  |  |  |  |  |  | | **2.2** | **CUNETA, GEODREN Y BORDILLO** | | | | | | | | | 2.2.1 | Excavación manual en material sin clasificar | | | | m3 | 1.200,00 | $ 42.051,00 | $ 50.461.200,00 | | 2.2.2 | Suministro y colocacion de geotextil NT 4000 | | | | m2 | 2.300,00 | $ 11.265,00 | $ 25.909.500,00 | | 2.2.3 | Geodren con tubo 4" tipo ADS H=1,50 mt | | | | m | 1.000,00 | $ 56.249,00 | $ 56.249.000,00 | | 2.2.4 | Relleno con material filtrante extendida, humedecida y compactada | | | | m3 | 1.200,00 | $ 91.334,00 | $ 109.600.800,00 | | 2.2.5 | Cunetas concreto 21 Mpa e=0,10 m. Ancho 0,91mt, incluye excavación, replanteo y conformación | | | | m3 | 146,40 | $ 630.505,00 | $ 92.305.932,00 | | 2.2.6 | Bordillo en concreto 21 MPa sección trapezoide 40x30x20, incluye refuerzo | | | | m | 1.000,00 | $ 103.873,00 | $ 103.873.000,00 | | 2.2.7 | Sello elástico para juntas con poliuretano autonivelante | | | | m2 | 166,67 | $ 41.241,00 | $ 6.873.637,47 | | 2.2.8 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 6.869,33 | $ 5.160,00 | $ 35.445.742,80 | | **SUBTOTAL CUNETA, GEODREN Y BORDILLO** | | | | | | | | **$ 480.718.812,27** | |  | | | | | | | | | | **2,3** | **SUBDRENAJES** | | | | | | | | | 2.3.1 | Sub drenes horizontales en tubería PVC Ø2" | | | | m | 600,00 | $ 232.260,00 | $ 139.356.000,00 | | 2.3.2 | Trincho-cuneta en sacos rellenos de suelo/arena/cemento 3:1:1, mas geotextil, mas madera | | | | m | 290,00 | $ 86.836,00 | $ 25.182.440,00 | | 2.3.3 | Cunetas en sacos de 60x50 rellenos de suelo cemento 3:1:1 | | | | m | 47,00 | $ 30.333,00 | $ 1.425.651,00 | | 2.3.4 | Canal rampa en concreto de 24,5MPa sección 1,00x0,60 +pantalla deflectoras incluye acero | | | | m | 45,50 | $ 518.103,00 | $ 23.573.686,50 | | **SUBTOTAL SUBDRENAJES** | | | | | | | | **$ 189.537.777,50** | |  | | | | | | | | | | **3** | **OBRAS DE AMPLIACION DE BANCA** | | | | | | | | | **3,1** | **PRELIMINARES MUROS EN GAVIONES** | | | | | | | | | 3.1.1 | Localización, replanteo y control topográfico | | | | m2 | 489,66 | $ 593,00 | $ 290.368,38 | | 3.1.2 | Rocería y Limpieza | | | | m2 | 489,66 | $ 1.177,00 | $ 576.329,82 | | **3,1** | **MUROS EN GAVIONES** | | | |  |  |  |  | | 3.1.3 | Excavación manual en material sin clasificar | | | | m3 | 254,07 | $ 42.051,00 | $ 10.683.897,57 | | 3.1.4 | Relleno con material seleccionada de excavacion, extendida, humedecida y compactada a maquina | | | | m3 | 86,30 | $ 18.750,00 | $ 1.618.125,00 | | 3.1.5 | Base en material granular, extendida y compactada, incluye transporte | | | | m3 | 13,60 | $ 118.180,00 | $ 1.607.248,00 | | 3.1.6 | Manto Geotextil no tejido 3000 | | | | m2 | 246,00 | $ 9.367,00 | $ 2.304.282,00 | | 3.1.7 | Gaviones en malla galvanizada triple torsión, 8x12 C.12 suministro y construcción | | | | m3 | 151,00 | $ 212.101,00 | $ 32.027.251,00 | | 3.1.8 | Tubería pvc ∅6" incrustado al gavion | | | | m | 81,00 | $ 60.140,00 | $ 4.871.340,00 | | 3.1.9 | Concreto 28MPa para barrera, tipo New Jersey | | | | m3 | 30,61 | $ 638.075,00 | $ 19.531.475,75 | | 3.1.10 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 3.145,26 | $ 5.160,00 | $ 16.229.541,60 | | 3.1.11 | Cargue de material sobrante de excavaciones, derrumbes y demoliciones, en volqueta | | | | m3 | 215,82 | $ 5.548,00 | $ 1.197.369,36 | | 3.1.12 | Transporte en volqueta, material de excavación, derrumbes y demoliciones | | | | m3/km | 713,20 | $ 1.429,00 | $ 1.019.162,80 | | 3.1.13 | Extendido Humedecimiento y compact de relleno en botaderos | | | | m3 | 190,19 | $ 5.861,00 | $ 1.114.703,59 | | **SUBTOTAL MUROS EN GAVIONES** | | | | | | | | **$ 93.071.094,87** | |  | | | | | | | | | | **3,2** | **PRELIMINARES MUROS EN CONCRETO REFORZADO** | | | | | | | | | 3.2.1 | Localización, replanteo y control topográfico | | | | m2 | 795,70 | $ 593,00 | $ 471.850,10 | | 3.2.2 | Rocería y Limpieza | | | | m2 | 795,70 | $ 1.177,00 | $ 936.538,90 | | **3,2** | **MUROS EN CONCRETO REFORZADO** | | | |  |  |  |  | | 3.2.3 | Excavación manual en material sin clasificar | | | | m3 | 142,10 | $ 42.051,00 | $ 5.975.447,10 | | 3.2.4 | Excavación y corte en tierra con maquina, incluye cargue | | | | m3 | 656,71 | $ 10.454,00 | $ 6.865.246,34 | | 3.2.5 | Base en material granular, extendida y compactada, incluye transporte | | | | m3 | 22,36 | $ 118.180,00 | $ 2.642.504,80 | | 3.2.6 | Gaviones en malla galvanizada triple torsión, 8x12 C.12 suministro y construcción | | | | m3 | 105,00 | $ 212.101,00 | $ 22.270.605,00 | | 3.2.7 | Tubería pvc ∅6" incrustado al gavion | | | | m | 10,00 | $ 60.140,00 | $ 601.400,00 | | 3.2.8 | Manto Geotextil no tejido 3000 | | | | m2 | 648,43 | $ 9.367,00 | $ 6.073.843,81 | | 3.2.9 | Concreto 21MPa lanzado sobre taludes, e=10cm húmedo | | | | m3 | 14,42 | $ 916.023,00 | $ 13.209.051,66 | | 3.2.10 | Anclaje pasivo Ø1" con rosca, perforación y colocación, para estabilización temporal | | | | m | 105,00 | $ 115.473,00 | $ 12.124.665,00 | | 3.2.11 | Platina cabezal para anclajes pasivos de Ø1" Fy' 420MPa con rosca | | | | un | 34,00 | $ 43.017,00 | $ 1.462.578,00 | | 3.2.12 | Concreto 24.5 MPa para muros, vástago y pantallas | | | | m3 | 71,67 | $ 812.913,00 | $ 58.261.474,71 | | 3.2.13 | Junta de dilatacion con cordon de espuma elastico Ø3/8" + sellador | | | | m | 31,01 | $ 75.414,00 | $ 2.338.588,14 | | 3.2.14 | Concreto 24,5 MPa para zapatas, vigas y dentellones | | | | m3 | 101,11 | $ 781.280,00 | $ 78.995.220,80 | | 3.2.15 | Concreto 28MPa para barrera, tipo New Jersey | | | | m3 | 11,20 | $ 638.075,00 | $ 7.146.440,00 | | 3.2.16 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 11.072,83 | $ 5.160,00 | $ 57.135.802,80 | | 3.2.17 | Tubo PVC Ø2´´ sanitario, para paso de lloraderos | | | | m | 25,28 | $ 11.387,00 | $ 287.863,36 | | 3.2.18 | Tubería perforada PVC Ø4" corrugada para filtro horizontal, instalado | | | | m | 59,00 | $ 27.257,00 | $ 1.608.163,00 | | 3.2.19 | Relleno con material seleccionada de excavacion, extendida, humedecida y compactada a maquina | | | | m3 | 186,67 | $ 18.750,00 | $ 3.500.062,50 | | 3.2.20 | Rellenos para estructuras, con subbase granular, extendida y compactada, incluye transporte | | | | m3 | 117,67 | $ 98.446,00 | $ 11.584.140,82 | | 3.2.21 | Relleno con material filtrante extendida, humedecida y compactada | | | | m3 | 44,49 | $ 91.334,00 | $ 4.063.449,66 | | 3.2.22 | Cargue de material sobrante de excavaciones, derrumbes y demoliciones, en volqueta | | | | m3 | 142,10 | $ 5.548,00 | $ 788.370,80 | | 3.2.23 | Transporte en volqueta, material de excavación, derrumbes y demoliciones | | | | m3/km | 1.513,52 | $ 1.429,00 | $ 2.162.820,08 | | 3.2.24 | Extendido Humedecimiento y compact de relleno en botaderos | | | | m3 | 814,24 | $ 5.861,00 | $ 4.772.260,64 | | **SUBTOTAL MUROS EN CONCRETO REFORZADO** | | | | | | | | **$ 305.278.388,02** | |  | | | | | | | | | | **3,3** | **PRELIMINARES MUROS EN CONCRETO SOBRE PILAS Y MICROPILOTES** | | | | | | | | | 3.3.1 | Localización, replanteo y control topográfico | | | | m2 | 360,74 | $ 593,00 | $ 213.918,82 | | 3.3.2 | Rocería y Limpieza | | | | m2 | 360,74 | $ 1.177,00 | $ 424.590,98 | | **3,3** | **MUROS EN CONCRETO SOBRE PILAS Y MICROPILOTES** | | | |  |  |  |  | | 3.3.3 | Demoliciones en concreto reforzado | | | | m3 | 0,84 | $ 124.380,00 | $ 104.479,20 | | 3.3.4 | Demolición de alcantarillas existentes, no incluye excavación. | | | | m | 6,40 | $ 46.969,00 | $ 300.601,60 | | 3.3.5 | Excavación manual en material sin clasificar | | | | m3 | 6,93 | $ 42.051,00 | $ 291.413,43 | | 3.3.6 | Excavación y corte en tierra con maquina, incluye cargue | | | | m3 | 235,69 | $ 10.454,00 | $ 2.463.903,26 | | 3.3.7 | Concreto 28 MPa para muros, estribos, parapetos, losetas, zapatas (Para alcantarillas y omas) | | | | m3 | 5,78 | $ 734.293,00 | $ 4.244.213,54 | | 3.3.8 | Tubería de PVC Ø36" incluye colchón de arena o atraque | | | | m | 7,16 | $ 918.586,00 | $ 6.577.075,76 | | 3.3.9 | Descole en gaviones, paredes y piso revestidas (Incluye excavacion y relleno) | | | | m | 6,00 | $ 1.121.665,00 | $ 6.729.990,00 | | 3.3.10 | Canal sección 1,20x0,60 en sacos (1,20x2,40) rellenos con suelo/arena/cemento 3:1:1 | | | | m | 6,00 | $ 180.297,00 | $ 1.081.782,00 | | 3.3.11 | Dentellones en concreto 21MPa disipadores de energía en gradas (20X20)cm + refuerzo de 3/8" | | | | m | 10,40 | $ 56.556,00 | $ 588.182,40 | | 3.3.12 | Micropilotes en concreto 24,5 Mpa Ø40cm + refuerzo + excavación + despuntar | | | | m | 252,00 | $ 435.736,00 | $ 109.805.472,00 | | 3.3.13 | Excavación manual material sin clasificar para pilas pre-excavadas, prof. De 0 - 4mt | | | | m3 | 40,21 | $ 47.472,00 | $ 1.908.849,12 | | 3.3.14 | Excavación manual en roca o coluvión para pilas, prof. 4 - 12mt, sin dinamita | | | | m3 | 60,32 | $ 531.252,00 | $ 32.045.120,64 | | 3.3.15 | Base en material granular, extendida y compactada, incluye transporte | | | | m3 | 1,40 | $ 118.180,00 | $ 165.452,00 | | 3.3.16 | Gaviones en malla galvanizada triple torsión, 8x12 C.12 suministro y construcción | | | | m3 | 7,00 | $ 212.101,00 | $ 1.484.707,00 | | 3.3.17 | Tubería pvc ∅6" incrustado al gavion | | | | m | 5,40 | $ 60.140,00 | $ 324.756,00 | | 3.3.18 | Solado en concreto 17,5 Mpa | | | | m3 | 8,98 | $ 494.611,00 | $ 4.441.606,78 | | 3.3.19 | Anclaje pasivo Ø1" con rosca, perforación y colocación, para estabilización temporal | | | | m | 30,00 | $ 115.473,00 | $ 3.464.190,00 | | 3.3.20 | Platina cabezal para anclajes pasivos de Ø1" Fy' 420MPa con rosca | | | | un | 5,00 | $ 43.017,00 | $ 215.085,00 | | 3.3.21 | Anclaje activo de 30-35 Ton. | | | | m | 375,00 | $ 329.237,00 | $ 123.463.875,00 | | 3.3.22 | Concreto 21MPa lanzado sobre taludes, e=10cm húmedo | | | | m3 | 5,74 | $ 916.023,00 | $ 5.257.972,02 | | 3.3.23 | Anillo para pilas, en concreto 21MPa, hasta una profundidad max de 4mt | | | | m3 | 8,80 | $ 935.934,00 | $ 8.236.219,20 | | 3.3.24 | Anillo para pilas, en concreto 21MPa, hasta una profundidad de 4 - 12mt | | | | m3 | 13,19 | $ 1.293.717,00 | $ 17.064.127,23 | | 3.3.25 | Concreto 21MPa para pilas pre-excavadas, a cualquier profundidad | | | | m3 | 66,37 | $ 656.800,00 | $ 43.591.816,00 | | 3.3.26 | Concreto 24,5 MPa para zapatas, vigas y dentellones | | | | m3 | 31,92 | $ 781.280,00 | $ 24.938.457,60 | | 3.3.27 | Viga cabezal en concreto 24,5 Mpa | | | | m3 | 23,80 | $ 791.430,00 | $ 18.836.034,00 | | 3.3.28 | Concreto 24.5 MPa para muros, vástago y pantallas | | | | m3 | 22,55 | $ 812.913,00 | $ 18.331.188,15 | | 3.3.29 | Junta de dilatacion con cordon de espuma elastico Ø3/8" + sellador | | | | m | 2,55 | $ 75.414,00 | $ 192.305,70 | | 3.3.30 | Zapatas de apoyo para anclajes activos en taludes, en concreto 24,5 MPa | | | | m3 | 5,40 | $ 773.780,00 | $ 4.178.412,00 | | 3.3.31 | Dado cabezal en concreto 40 Mpa para anclaje de muros (30X30X12cm) + platinja perimetral | | | | un | 15,00 | $ 46.765,00 | $ 701.475,00 | | 3.3.32 | Caperuza de protección metálica para el cabezal del anclaje Ø160mm | | | | un | 15,00 | $ 29.648,00 | $ 444.720,00 | | 3.3.33 | Tubo PVC Ø2´´ sanitario, para paso de lloraderos | | | | m | 4,42 | $ 11.387,00 | $ 50.330,54 | | 3.3.34 | Concreto 28MPa para barrera, tipo New Jersey | | | | m3 | 9,67 | $ 638.075,00 | $ 6.170.185,25 | | 3.3.35 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 29.377,00 | $ 5.160,00 | $ 151.585.320,00 | | 3.3.36 | Tubería perforada PVC Ø4" corrugada para filtro horizontal, instalado | | | | m | 26,40 | $ 27.257,00 | $ 719.584,80 | | 3.3.37 | Trincho en madera vertical H=1,60 D= 3-4" | | | | m | 20,00 | $ 32.844,00 | $ 656.880,00 | | 3.3.38 | Relleno con material seleccionada de excavacion, extendida, humedecida y compactada a maquina | | | | m3 | 76,29 | $ 18.750,00 | $ 1.430.437,50 | | 3.3.39 | Manto Geotextil no tejido 3000 | | | | m2 | 110,50 | $ 9.367,00 | $ 1.035.053,50 | | 3.3.40 | Rellenos para estructuras, con subbase granular, extendida y compactada, incluye transporte | | | | m3 | 15,12 | $ 98.446,00 | $ 1.488.503,52 | | 3.3.41 | Relleno con material filtrante extendida, humedecida y compactada | | | | m3 | 17,48 | $ 91.334,00 | $ 1.596.518,32 | | 3.3.42 | Cargue de material sobrante de excavaciones, derrumbes y demoliciones, en volqueta | | | | m3 | 130,78 | $ 5.548,00 | $ 725.567,44 | | 3.3.43 | Transporte en volqueta, material de excavación, derrumbes y demoliciones | | | | m3/km | 899,14 | $ 1.429,00 | $ 1.284.871,06 | | 3.3.44 | Extendido Humedecimiento y compact de relleno en botaderos | | | | m3 | 343,11 | $ 5.861,00 | $ 2.010.967,71 | | **SUBTOTAL MUROS EN CONCRETO SOBRE PILAS Y MICROPILOTES** | | | | | | | | **$ 610.866.211,07** | |  | | | | | | | | | | **3,4** | **PRELIMINARES MURO MECANICAMENTE REFORZADO, MURO EN CONCRETO REFORZADO** | | | | | | | | | 3.4.1 | Localización, replanteo y control topográfico | | | | m2 | 911,30 | $ 593,00 | $ 540.400,90 | | 3.4.2 | Rocería y Limpieza | | | | m2 | 911,30 | $ 1.177,00 | $ 1.072.600,10 | | **3,4** | **MURO MECANICAMENTE REFORZADO, MURO EN CONCRETO REFORZADO** | | | | |  |  |  | | 3.4.3 | Excavación y corte en tierra con maquina, incluye cargue | | | | m3 | 2.993,52 | $ 10.454,00 | $ 31.294.258,08 | | 3.4.4 | Excavación manual material sin clasificar para pilas pre-excavadas, prof. De 0 - 4mt | | | | m3 | 197,59 | $ 47.472,00 | $ 9.379.992,48 | | 3.4.5 | Excavación manual en roca o coluvión para pilas, prof. 4 - 12mt, sin dinamita | | | | m3 | 358,87 | $ 531.252,00 | $ 190.650.405,24 | | 3.4.6 | Excavación manual en roca o coluvión para pilas, prof. 12 - 20mt sin dinamita | | | | m3 | 31,24 | $ 633.884,00 | $ 19.802.536,16 | | 3.4.7 | Concreto 21MPa lanzado sobre taludes, e=10cm húmedo + malla electrosoldada | | | | m3 | 22,67 | $ 1.088.435,00 | $ 24.674.821,45 | | 3.4.8 | Anclaje pasivo Ø1" con rosca, perforación y colocación, para estabilización temporal | | | | m | 27,00 | $ 115.473,00 | $ 3.117.771,00 | | 3.4.9 | Platina cabezal para anclajes pasivos de Ø1" Fy' 420MPa con rosca | | | | un | 9,00 | $ 43.017,00 | $ 387.153,00 | | 3.4.10 | Solado en concreto 17,5 MPa | | | | m3 | 19,41 | $ 494.611,00 | $ 9.600.399,51 | | 3.4.11 | Anillo para pilas, en concreto 21MPa, hasta una profundidad max de 4mt | | | | m3 | 38,84 | $ 935.934,00 | $ 36.351.676,56 | | 3.4.12 | Anillo para pilas, en concreto 21MPa, hasta una profundidad de 4 - 12mt | | | | m3 | 70,14 | $ 1.293.717,00 | $ 90.741.310,38 | | 3.4.13 | Anillo para pilas, en concreto 21MPa, hasta una profundidad de 12 - 20mt | | | | m3 | 5,94 | $ 1.370.404,00 | $ 8.140.199,76 | | 3.4.14 | Concreto 21MPa para pilas pre-excavadas, a cualquier profundidad | | | | m3 | 428,80 | $ 656.800,00 | $ 281.635.840,00 | | 3.4.15 | Viga cabezal en concreto 24,5 Mpa | | | | m3 | 185,00 | $ 791.430,00 | $ 146.414.550,00 | | 3.4.16 | Concreto 24.5 MPa para muros, vástago y pantallas | | | | m3 | 146,48 | $ 812.913,00 | $ 119.075.496,24 | | 3.4.17 | Junta de dilatacion con cordon de espuma elastico Ø3/8" + sellador | | | | m | 2,75 | $ 75.414,00 | $ 207.388,50 | | 3.4.18 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 178.463,00 | $ 5.160,00 | $ 920.869.080,00 | | 3.4.19 | Sello elástico para juntas con poliuretano autonivelante | | | | m2 | 12,10 | $ 41.241,00 | $ 499.016,10 | | 3.4.20 | Anclaje activo de 40-45 Ton. | | | | m | 2.760,00 | $ 342.642,00 | $ 945.691.920,00 | | 3.4.21 | Anclaje activo de 50-55 Ton. | | | | m | 390,00 | $ 354.432,00 | $ 138.228.480,00 | | 3.4.22 | Caperuza de protección metálica para el cabezal del anclaje Ø160mm | | | | un | 92,00 | $ 29.648,00 | $ 2.727.616,00 | | 3.4.23 | Zapatas de apoyo para anclajes activos en taludes, en concreto 24,5 Mpa | | | | m3 | 11,70 | $ 773.780,00 | $ 9.053.226,00 | | 3.4.24 | Dado cabezal en concreto 40 Mpa para anclaje de muros (30X30X12cm) + platinja perimetral | | | | un | 92,00 | $ 46.765,00 | $ 4.302.380,00 | | 3.4.25 | Tubo PVC Ø2´´ sanitario, para paso de lloraderos | | | | m | 42,45 | $ 11.387,00 | $ 483.378,15 | | 3.4.26 | Tubería perforada PVC Ø4" corrugada para filtro horizontal, instalado | | | | m | 98,00 | $ 27.257,00 | $ 2.671.186,00 | | 3.4.27 | Manto Geotextil no tejido 3000, para separar capas granulares | | | | m2 | 2.885,32 | $ 9.367,00 | $ 27.026.792,44 | | 3.4.28 | Manto Geotextil no tejido 3000 | | | | m2 | 968,00 | $ 9.367,00 | $ 9.067.256,00 | | 3.4.29 | Relleno con material filtrante extendida, humedecida y compactada | | | | m3 | 125,00 | $ 91.334,00 | $ 11.416.750,00 | | 3.4.30 | Gaviones en malla galvanizada triple torsión, 8x12 C.12 suministro y construcción | | | | m3 | 1.108,50 | $ 212.101,00 | $ 235.113.958,50 | | 3.4.31 | Malla galvanizada triple torsión, 8x12 C.12 suministro e instalación para capas granulares | | | | m2 | 5.134,40 | $ 56.019,00 | $ 287.623.953,60 | | 3.4.32 | Base en material granular, extendida y compactada, incluye transporte | | | | m3 | 49,25 | $ 118.180,00 | $ 5.820.365,00 | | 3.4.33 | Rellenos para estructuras, con subbase granular, extendida y compactada, incluye transporte | | | | m3 | 763,60 | $ 98.446,00 | $ 75.173.365,60 | | 3.4.34 | Relleno para terraplen de acceso, suministro y compactado | | | | m3 | 2.104,51 | $ 97.572,00 | $ 205.341.249,72 | | 3.4.35 | Relleno con material seleccionada de excavacion, extendida, humedecida y compactada a maquina | | | | m3 | 1.217,01 | $ 18.750,00 | $ 22.818.937,50 | | 3.4.36 | Cargue de material sobrante de excavaciones, derrumbes y demoliciones, en volqueta | | | | m3 | 1.060,65 | $ 5.548,00 | $ 5.884.486,20 | | 3.4.37 | Transporte en volqueta, material de excavación, derrumbes y demoliciones | | | | m3/km | 3.864,47 | $ 1.429,00 | $ 5.522.327,63 | | 3.4.38 | Extendido Humedecimiento y compact de relleno en botaderos | | | | m3 | 3.091,58 | $ 5.861,00 | $ 18.119.750,38 | | **SUBTOTAL MURO MECANICAMENTE REFORZADO, MURO EN CONCRETO REFORZADO** | | | | | | | | **$ 3.906.542.274,18** | |  | | | | | | | | | | **3,5** | **PRELIMINARES ESTRUCTURA DE VOLADIZO** | | | | | | | | | 3.5.1 | Localización, replanteo y control topográfico | | | | m2 | 184,11 | $ 593,00 | $ 109.177,23 | | 3.5.2 | Rocería y Limpieza | | | | m2 | 184,11 | $ 1.177,00 | $ 216.697,47 | | **3,5** | **ESTRUCTURA VOLADIZO** | | | |  |  |  |  | | 3.5.3 | Excavación y corte en tierra con maquina, incluye cargue | | | | m3 | 158,34 | $ 10.454,00 | $ 1.655.286,36 | | 3.5.4 | Concreto 21MPa lanzado sobre taludes, e=10cm húmedo | | | | m3 | 5,96 | $ 916.023,00 | $ 5.459.497,08 | | 3.5.5 | Excavación manual material sin clasificar para pilas pre-excavadas, prof. De 0 - 4mt | | | | m3 | 55,42 | $ 47.472,00 | $ 2.630.898,24 | | 3.5.6 | Excavación manual en roca o coluvión para pilas, prof. 4 - 12mt, sin dinamita | | | | m3 | 101,14 | $ 531.252,00 | $ 53.730.827,28 | | 3.5.7 | Anillo para pilas, en concreto 21MPa, hasta una profundidad max de 4mt | | | | m3 | 14,70 | $ 935.934,00 | $ 13.758.229,80 | | 3.5.8 | Anillo para pilas, en concreto 21MPa, hasta una profundidad de 4 - 12mt | | | | m3 | 25,73 | $ 1.293.717,00 | $ 33.287.338,41 | | 3.5.9 | Solado en concreto 17,5 MPa | | | | m3 | 7,84 | $ 494.611,00 | $ 3.877.750,24 | | 3.5.10 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 27.716,78 | $ 5.160,00 | $ 143.018.584,80 | | 3.5.11 | Malla electrosoldada 15x15 6mm (6x2,35mt) | | | | m2 | 52,80 | $ 18.516,00 | $ 977.644,80 | | 3.5.12 | Concreto 21MPa para pilas pre-excavadas, a cualquier profundidad | | | | m3 | 131,40 | $ 656.800,00 | $ 86.303.520,00 | | 3.5.13 | Anclaje activo de 30-35 Ton. | | | | m | 400,00 | $ 329.237,00 | $ 131.694.800,00 | | 3.5.14 | Zapatas de apoyo para anclajes activos en taludes, en concreto 24,5 Mpa | | | | m3 | 5,40 | $ 773.780,00 | $ 4.178.412,00 | | 3.5.15 | Concreto 28 Mpa para viga cabezal | | | | m3 | 62,01 | $ 806.808,00 | $ 50.030.164,08 | | 3.5.16 | Dado cabezal en concreto 40 Mpa para anclaje de muros (30X30X12cm) + platinja perimetral | | | | un | 20,00 | $ 46.765,00 | $ 935.300,00 | | 3.5.17 | Caperuza de protección metálica para el cabezal del anclaje Ø160mm | | | | un | 20,00 | $ 29.648,00 | $ 592.960,00 | | 3.5.18 | Viga acartelada en concreto 28Mpa | | | | m3 | 20,43 | $ 828.950,00 | $ 16.935.448,50 | | 3.5.19 | Concreto 28 Mpa para vigas y losa | | | | m3 | 13,20 | $ 842.012,00 | $ 11.114.558,40 | | 3.5.20 | Concreto 28Mpa Columnas, Viga corona y Vástago | | | | m3 | 6,24 | $ 839.740,00 | $ 5.239.977,60 | | 3.5.21 | Columnas en concreto 28 Mpa, seccion 50x50cm, confinamiento en voladizo | | | | m3 | 2,25 | $ 790.869,00 | $ 1.779.455,25 | | 3.5.22 | Concreto 28MPa para barrera, tipo New Jersey | | | | m3 | 4,64 | $ 638.075,00 | $ 2.960.668,00 | | 3.5.23 | Cargue de material sobrante de excavaciones, derrumbes y demoliciones, en volqueta | | | | m3 | 377,87 | $ 5.548,00 | $ 2.096.422,76 | | 3.5.24 | Transporte en volqueta, material de excavación, derrumbes y demoliciones | | | | m3/km | 377,87 | $ 1.429,00 | $ 539.976,23 | | 3.5.25 | Extendido Humedecimiento y compact de relleno en botaderos | | | | m3 | 302,30 | $ 5.861,00 | $ 1.771.780,30 | | **SUBTOTAL ESTRUCTURA DE VOLADIZO** | | | | | | | | **$ 574.895.374,83** | |  | | | | | | | | | | **4** | **MOVIMIENTO DE TIERRAS** | | | | | | | | | 4,1 | Excavación y corte en tierra con maquina, incluye cargue | | | | m3 | 14.731,26 | $ 10.454,00 | $ 154.000.592,04 | | 4,2 | Relleno compactado por medio mecánico (vibrocompactador) , mat. selec de excavación | | | | m3 | 976,74 | $ 29.941,00 | $ 29.244.572,34 | | 4,3 | Transporte en volqueta, material de excavación, derrumbes y demoliciones | | | | m3/km | 16.505,42 | $ 1.429,00 | $ 23.586.245,18 | | 4,4 | Gaviones en malla galvanizada triple torsión, 8x12 C.12 suministro y construcción | | | | m3 | 510,00 | $ 212.101,00 | $ 108.171.510,00 | | 4,5 | Extendido Humedecimiento y compact de relleno en botaderos | | | | m3 | 13.204,33 | $ 5.861,00 | $ 77.390.578,13 | | **SUBTOTAL MOVIMIENTO DE TIERRAS** | | | | | | | | **$ 392.393.497,69** | |  | | | | | | | | | | **5** | **PAVIMENTO** | | | | | | | | | 5,1 | Manto Geotextil no tejido 3000, para separar capas granulares | | | | m2 | 7.800,00 | $ 9.367,00 | $ 73.062.600,00 | | 5,2 | Mejoramiento sub rasante con piedra rajon extendida, con transporte | | | | m3 | 3.874,60 | $ 80.789,00 | $ 313.025.059,40 | | 5,3 | Subbase en material, extendida y compactada, incluye transporte | | | | m3 | 1.937,90 | $ 109.872,00 | $ 212.920.948,80 | | 5,4 | Base en material granular, extendida y compactada, incluye transporte | | | | m3 | 1.162,60 | $ 118.180,00 | $ 137.396.068,00 | | 5,5 | Riego de Imprimacion | | | | m2 | 8.000,00 | $ 5.977,00 | $ 47.816.000,00 | | 5,6 | Carpeta asfaltica en caliente MDC-19 | | | | m3 | 581,55 | $ 679.087,00 | $ 394.923.044,85 | | **SUBTOTAL PAVIMENTOS** | | | | | | | | **$ 1.179.143.721,05** | |  | | | | | | | | | | **6** | **SEÑALIZACION VIAL** | | | | | | | | | 6,1 | Excavación manual en material sin clasificar | | | | m3 | 1,13 | $ 42.051,00 | $ 47.517,63 | | 6,2 | Señal vial vertical, Suministro e instalación | | | | Un | 18,00 | $ 244.501,00 | $ 4.401.018,00 | | 6,3 | Demarcación Horizontal | | | | km | 1,00 | $ 2.940.939,00 | $ 2.940.939,00 | | 6,4 | Tachas reflectivas bidireccionales, suministro e instalacion | | | | Un | 1.000,00 | $ 10.760,00 | $ 10.760.000,00 | | 6,5 | Delineador de curva y corona horizontal 60x75cm | | | | Un | 7,00 | $ 300.355,00 | $ 2.102.485,00 | | **SUBTOTAL SEÑALIZACION VIAL** | | | | | | | | **$ 20.251.959,63** | |  | | | | | | | | | | **7** | **OBRAS DE MANEJO AMBIENTAL Y MITIGACION DE RIESGOS** | | | | | | | | | 7,1 | Anclaje activo de 40-45 Ton. | | | | m | 1.828,00 | $ 342.642,00 | $ 626.349.576,00 | | 7,2 | Zapatas de apoyo para anclajes activos en taludes, en concreto 24,5 Mpa | | | | m3 | 72,00 | $ 773.780,00 | $ 55.712.160,00 | | 7,3 | Caperuza de protección metálica para el cabezal del anclaje Ø160mm | | | | un | 80,00 | $ 29.648,00 | $ 2.371.840,00 | | 7,4 | Acero de refuerzo 60.000psi (corte, figurado y colocación) | | | | Kg | 5.566,40 | $ 5.160,00 | $ 28.722.624,00 | | 7,5 | Anclaje pasivo de Ø1" Fy'420MPa barra maciza, con rosca, en talud, sin cabezal | | | | m | 564,00 | $ 159.150,00 | $ 89.760.600,00 | | 7,6 | Platina cabezal para anclajes pasivos de Ø1" Fy' 420MPa con rosca | | | | un | 141,00 | $ 43.017,00 | $ 6.065.397,00 | | 7,7 | Revestimiento de talud con malla metálica hexagonal doble torsión 8x10 mas geomembrana tridimensional e=1cm | | | | m2 | 2.493,71 | $ 44.917,00 | $ 112.009.972,07 | | 7,8 | Cubrir talud con geomanto permanente de polypropileno y fajina, con hidrosiembra | | | | m2 | 1.464,24 | $ 58.593,00 | $ 85.794.214,32 | | 7,9 | Revestimiento con hidrosiembra | | | | m2 | 167,00 | $ 16.721,00 | $ 2.792.407,00 | | 7,1 | Cartucho cortaflujo en varas de madera envuelta con agromanto Ø15cm | | | | m | 167,00 | $ 10.285,00 | $ 1.717.595,00 | | 7,11 | Tala de arboles de entre 5 a 10m de altura con extraccion de tocon. | | | | und | 63,00 | $ 104.008,00 | $ 6.552.504,00 | | 7,12 | Arborización con especies nativas | | | | Un | 630,00 | $ 24.409,00 | $ 15.377.670,00 | | **SUBTOTAL OBRAS DE MANEJO AMBIENTAL Y MITIGACION DE RIESGOS** | | | | | | | | **$ 1.033.226.559,39** | |  | | | | | | | | | | **TOTAL COSTO DIRECTO** | | | | | | | | **$ 9.406.679.245,54** | | **A.I.U 30%** | | | | | | | | **$ 2.822.003.773,66** | | **TOTAL VALOR DE OBRAS** | | | | | | | | **$ 12.228.683.019,20** | |  | | | | | | | | | | **INTERVENTORIA** | | | | | | | | **$ 718.009.338,00** | | **EVALUACION Y SEGUIMIENTO DE INSTRUMENTOS DE CONTROL Y MANEJO AMBIENTAL (PERMISOS, CONCESIONES Y AUTORIZACIONES (0,4%))** | | | | | | | | **$ 48.914.732,08** | | **IMPLEMENTACION PLAN DE MANEJO Y CONTROL DE TRANSITO (PMT)** | | | | | | | | **$ 68.830.713,00** | | **IMPLEMENTACIÓN PROGRAMA ADAPTACIÓN GESTIÓN AMBIENTAL (PAGA)** | | | | | | | | **$ 47.700.000,00** | | **AUTORIZACION O PERMISO DE TALA O PODA DE ARBOLES AISLADOS** | | | | | | | | **$ 828.116,00** | | **ADQUISICIÓN DE PREDIOS AFECTADOS POR EL MEJORAMIENTO** | | | | | | | | **$ 52.111.838,45** | | **PLAN DE GESTION SOCIO PREDIAL** | | | | | | | | **$ 28.609.000,00** | | **PAGO DE SERVIDUMBRE TEMPORAL (ZODME)** | | | | | | | | **$ 9.155.819,40** | | **CARACTERIZACION VIAL** | | | | | | | | **$ 31.300.000,00** | | **TOTAL VALOR PROYECTO** | | | | | | | | **$ 13.234.142.576,13** | |