重庆市水利局

关于垫江至丰都至武隆高速公路工程洪水影响评价准予行政许可的决定

重庆成渝垫丰武高速公路有限公司：

根据你单位关于垫江至丰都至武隆高速公路工程洪水影响评价的行政许可申请（项目编码：2020-500000-01-01-134549），我局组织专家对《垫江至丰都至武隆高速公路工程洪水影响评价报告》进行了审查。根据《中华人民共和国防洪法》《中华人民共和国河道管理条例》《行政许可法》第三十八条第一款、《水行政许可实施办法》第三十二条第一项规定和专家评审意见，现就该工程洪水影响评价作出准予行政许可决定。

一、项目涉河段分别位于垫江县、丰都县和武隆区。同意工程所在垫江县境内龙溪河、大沙河、桂溪河、余马河干流段河道防洪标准为20年一遇，其余段河道防洪标准均为10年一遇。工程涉及高速路桥梁、涵洞、路基，改路桥梁、路基，改河等，高速公路特大桥设计洪水标准为300年一遇，其余桥梁、涵洞、路基设计洪水标准为100年一遇；改路桥梁、路基设计标准为10~50年一遇；改河设计洪水标准为10~100年一遇。

二、原则同意采取工程补救措施后，工程建设对河道行洪及河势稳定影响较小的结论。

本次评价范围涉河建筑物包括46座涉河桥梁、6座涵洞工程和8处涉河路基、改移道路等其他工程。

（一）涉河桥梁工程

本次评价的涉河桥梁共46座，其中：垫江县6座（双河口2号桥、左家湾特大桥、高滩河大桥、大沙河大桥、老官咀大桥、余马河改路桥）、丰都县20座（高洞子大桥、田家沟大桥、渠溪河特大桥、红庙子大桥、熊家河中桥、深基湾大桥、碧溪河大桥、回龙湾大桥、茄马石中桥、老屋基大桥、陈家湾大桥、蒋家山1号大桥、方斗山大桥、马家沟大桥、龙河特大桥、堡上中桥、栗都路改路桥、小洞湾大桥、腰店子大桥、小安溪大桥）、武隆区20座（扁担岩大桥、K120+930改移道路桥、土地屋1号大桥、土地屋特大桥、改移道路2号桥、梨子村中桥、A0+152.10改移道路桥、接龙互通D匝道中桥、接龙互通杨家河中桥、接龙互通A匝道大桥、王方咀大桥、延仓河特大桥、斑竹林大桥、半坡1号大桥、半坡2号大桥、新田大桥、大沟大桥、火炉互通A匝道大桥、联合村1号大桥、联合村2号大桥）。

（二）涉河涵洞工程

本工程涉河涵洞工程6处，其中：垫江县2处（LK0+625.70涵洞、Z3K42+575.50涵洞）、丰都县2处（K97+458盖板涵、K107+067盖板涵）、武隆区2处（K139+504涵洞、GL1K0+403改移道路涵洞）。涵洞长分别为123.7m、119.6m、100.9m、82.4m、142.1m、24.9m。

（三）涉河路基、改移道路等其他工程

本工程涉河路基、改移道路等其他工程8段，其中：垫江县2段（高安枢纽、高安服务区路堤挡墙）、丰都县1段（K61+667~K61+738填方路基）、武隆区5段（K120+930改移道路、K121+195改移道路、K125+018~K126+280填方路基、接龙互通A匝道、联合停车区）。

（四）工程补救措施

本工程补救措施主要为河道改道、扩挖、护岸工程，共29处。

三、有关要求

（一）项目法人应妥善处理好占地补偿等第三方合法水事权益，落实权属单位及管理部门要求。

（二）工程补救措施应与主体工程同步设计、同步实施、同步验收。

（三）工程开工前，项目法人要将施工方案报送当地水行政主管部门。由当地水行政主管部门对施工期进行施工管理，并服从防汛指挥部门的统一指挥。项目法人要高度重视河道保护工作，严禁向河道内倾倒弃土弃渣，施工完工后应及时拆除施工设施，清除弃渣等阻碍物，确保行洪安全。

（四）工程开工后，项目法人要及时将施工放样资料报送市河道事务中心，市河道事务中心将对工程控制坐标在内的涉河事项进行核查。

（五）工程竣工后，项目法人应报告市河道事务中心，市河道事务中心将对工程控制坐标在内的涉河事项进行全面复核；市水利局根据复核报告，参加工程项目的综合验收。工程经验收合格后方可启用。

（六）本行政许可决定有效期为3年，自签发之日起计算。期满后，若该工程未开工建设，本行政许可决定自行失效；若要继续建设，应重新履行行政许可手续。工程建设过程中涉河建设方案有较大变更的，也应按规定重新办理许可手续。

（七）项目法人应严格按照批复的内容和要求实施。

附件：垫江至丰都至武隆高速公路工程洪水影响评价报告专家评审意见

重庆市水利局

2024年11月28日

（此件公开发布）

（联系人：张翔宇；联系电话：023—88707092）

附件

垫江至丰都至武隆高速公路工程洪水影响评价报告专家评审意见

2024年10月24日，市水利局组织召开了《垫江至丰都至武隆高速公路工程洪水影响评价报告》（送审稿）专家复审会，垫江县水利局、丰都县水利局、武隆区水利局，重庆成渝垫丰武高速公路有限公司（以下简称项目法人），招商局重庆交通科研设计院有限公司、中国公路工程咨询集团有限公司、中铁第一勘察设计院集团有限公司（三家主体设计单位）、重庆交通大学工程设计研究院有限公司（以下简称报告编制单位）的代表及评审专家参加了会议。会议成立了专家组，会上听取了项目法人关于项目情况的介绍及报告编制单位关于报告主要内容的汇报，对报告进行了认真评审，评定等级为合格，并提出了修改建议。会后报告编制单位根据专家意见进行了修改补充，提交了《垫江至丰都至武隆高速公路工程洪水影响评价报告》（报批稿）（以下简称《报告》）。经专家组复核，形成评审意见如下：

一、评价依据合理

《报告》采用的法律、法规和规程、规范基本合理。

二、评价标准合适

《报告》确定的评价范围和评价标准、涉河工程防洪标准基本合适。

工程涉及垫江县、丰都县和武隆区，《报告》依据《防洪标准》（GB50201-2014）、三个区县防洪规划及《垫江县人民政府关于同意垫江县河道管理范围划定复核及河道岸线保护与利用规划编制成果的批复》（垫江府〔2023〕54号），确定垫江县境内龙溪河、大沙河、桂溪河、余马河干流段河道防洪标准为20年一遇，其余段河道防洪标准均为10年一遇。

工程涉及高速路桥梁、涵洞、路基，改路桥梁、路基，改河等，根据《公路桥涵设计通用规范》（JTGD60-2015）和《防洪标准》（GB50201-2014）确定，高速公路特大桥设计洪水标准为300年一遇，其余桥梁、涵洞、路基设计洪水标准为100年一遇；改路桥梁、路基设计标准为10~50年一遇；改河设计洪水标准为10~100年一遇。

三、项目涉河建设方案介绍基本清楚

本工程涉河建筑物包括46座涉河桥梁、6座涵洞工程和8处涉河路基、改移道路等其他工程。涉河建筑物主要参数见附表1~2，主要控制点坐标见附表4。

涉河建筑物建设方案虽经反复研究调整，部分涉河建筑物仍然占用了行洪断面。

四、补救措施基本恰当

为尽可能消除对河道行洪的影响，《报告》提出了补救措施。补救措施主要为河道改道工程、护岸工程和局部扩挖工程，共29处。涉河工程补救措施主要参数见附表3，主要控制点坐标见附表5。

五、水文、河道演变及洪水影响分析计算

《报告》水文、河道演变及洪水影响分析计算基本合理。

六、防洪综合评价结论

据《报告》，采取补救措施后，工程建设对河道行洪及河势稳定影响较小。评价结论基本恰当。



专家组组长：

2024年11月25日

附表1 涉河桥梁工程主要参数表

| 区县 | 序号 | 桥梁名称 | 地理位置 | 起点桩号（km+m） | 止点桩号（km+m） | 起止点坐标 | | 桥长（m） | 桥梁等级 | 跨河次数 | 涉河类型 | 跨越主槽方式及涉河段孔跨（m） | 最低梁底高程（m） | 涉河桥墩 | | 设计洪水标准 | 工程设计洪水位（m） | 河道洪水标准 | 河道设计洪水位（m） | 占用岸线长度（m） | 桥墩、桥台占用河道平面面积（m2） | 涉河河流 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 起点 | 止点 | 编号 | 尺寸（m） |
| 垫江县 | 1 | 双河口2号桥 | 新民镇双河口村 | K5+461 | K5+997 | X=3364832.271 Y=439275.420 | X=3364301.156 Y=439158.278 | 536 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 511.47～497.80 | 左、右幅8号 | 6.5×4.0 | P=1% | 423.70～423.26 | P=10% | 423.18～422.85 | 25.5 | 52 | 双河 |
| 2 | 左家湾特大桥左幅 | 新民镇城北村 | K6+833 | K9+740 | X=3363480.386 Y=439235.146 | X=3361089.716 Y=440685.449 | 2907 | 特大桥 | 2 | 桥墩涉河 | 上跨，1×40 | 463.43～462.40 | 左幅11号桥墩、右幅8号桥墩 | 6.5×2.6 | P=0.33% | 415.86～414.46 | P=10% | 415.02～414.25 | 47 | 16.9 | 煤矿河沟 |
| 左家湾特大桥右幅 | K6+888.5 | K9+740 | X=3363423.437 Y=439243.094 | X=3361089.716 Y=440685.449 | 2851.5 | 2 | 桥墩涉河 | 上跨，1×40 | 417.61～417.31 | 左幅69、70、右幅67、68号桥墩 | 直径1.8 | P=0.33% | 399.67～399.62 | P=5% | 393.75～393.50 | 30 | 20.35 | 桂溪河 |
| 3 | 高滩河大桥 | 高安镇金桥村 | K23+751 | K23+919 | X=3349061.940 Y=447100.024 | X=3348911.509 Y=447174.775 | 168 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 377.96～379.41 | 左右幅1、2、3、4号桥墩 | 直径1.8 | P=1% | 376.31～376.33 | P=5% | 375.76～375.79 | 31.5 | 47.44 | 龙溪河 |
| 4 | 大沙河大桥 | 杠家镇龙凤场 | K30+875.5 | K31+271.5 | X=3342685.417 Y=450069.295 | X=3342387.076 Y=450326.473 | 394 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 391.60～391.98 | 左右幅8、9、10号桥墩 | 直径1.8 | P=1% | 379.89～380.07 | P=5% | 376.85～377.09 | 38.87 | 17.47 | 大沙河 |
| 5 | 老官咀大桥 | 杠家镇金穗村 | K35+892 | K36+413.5 | X=3339103.197 Y=453534.961 | X=3338749.228 Y=453917.402 | 521.5 | 大桥 | 3 | 一跨过河 | 上跨，两次1×40，一次1×30 | 399.71～405.57 | 2号、6号、7号、13号桥墩 | 直径1.8 | P=1% | 380.46～381.48 | P=5% | 378.02～379.25 | 102 | 55.9 | 余马河 |
| 6 | 余马河改路桥 | 杠家镇金穗村 | K0+005 | K0+038 | X=3339022.895 Y=453594.873 | X=3339043.643 Y=453569.213 | 33 | 中桥 | 1 | 一跨过河 | 上跨，1×25 | 378.64～379.58 | 左岸桥墩 | 5.5×5.2 | P=5% | 377.88 | P=5% | 377.88 | 6.8 | 9.2 | 余马河 |
| 丰都县 | 7 | 高洞子大桥左线 | 三元镇青杠垭村 | Z3K46+660 | Z3K47+034 | X=3331123.020 Y=460156.994 | X=3330786.470 Y=460319.773 | 374 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 320.06 | / | / | P=1% | 271.7～273.09 | P=10% | 271.0～272.38 | 0 | 0 | 罗家桥支沟 |
| 高洞子大桥右线 | K46+620 | K47+028 | X=3331152.436 Y=460139.564 | X=3330786.468 Y=460319.770 | 408 | 大桥 | 1 | 桥墩涉河 | 上跨，1×40 | 320.06 | 7号 | 6.5×2.6 | P=1% | 271.7～273.09 | P=10% | 271.0～272.38 | 18 | 1.3 |
| 8 | 田家沟大桥 | 仁沙镇田家沟村 | K47+972 | K48+946 | X=3330029.695 Y=460878.275 | X=3329413.063 Y=461631.128 | 974 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 274.01 | 15、16号 | 6.5×3.5 | P=1% | 208.96～209.14 | P=10% | 208.58～208.68 | 26 | 0 |
| 9 | 渠溪河特大桥 | 仁沙镇七星寨村 | K49+881 | K51+065 | X=3328755.022 Y=462294.055 | X=3327945.063 Y=463153.145 | 1184 | 特大桥 | 1 | 一跨过河 | 上跨，1×160 | 303.33 | 10、11号 | 7×7 | P=0.33% | 201.84～201.9 | P=10% | 197.83～197.89 | 26 | 0 | 渠溪河 |
| 10 | 红庙子大桥 | 仁沙镇红庙子村 | K55+052.5 | K55+274 | X=3325591.717 Y=466347.642 | X=3325426.043 Y=466494.211 | 221.5 | 大桥 | 1 | 一跨过河 | 上跨，1×30 | 375.86 | 3、4号 | 直径1.8 | P=1% | 368.09～368.14 | P=10% | 367.30～367.34 | 26 | 0 | 熊家河 |
| 11 | 熊家河中桥 | 保合镇盖灵庙村 | LK0+390 | LK0+304 | X=3322224.337 Y=469035.505 | X=3322289.303 Y=469084.079 | 86 | 中桥 | 1 | 桥墩涉河 | 上跨，1×20 | 452.5 | 2、3号 | 直径1.3 | P=1% | 444.84～444.95 | P=10% | 444.21～444.35 | 32.66 | 32.66 | 碧溪河 |
| 12 | 深基湾大桥 | 保合镇竹林冲村 | K60+054.5 | K60+421.5 | X=3322130.735 Y=469730.114 | X=3321875.904 Y=469993.906 | 367 | 大桥 | 1 | 一跨过河 | 上跨，1×30 | 474.67 | 4、5、6号 | 直径1.8 | P=1% | 456.41～456.93 | P=10% | 456.12～456.79 | 120 | 0 | 四叶沟 |
| 13 | 碧溪河大桥左幅 | 保合镇竹林冲村 | K60+892 | K61+304 | X=3321625.269 Y=470391.225 | X=3321423.077 Y=470750.179 | 412 | 大桥 | 1 | 桥墩涉河 | 上跨，1×40 | 495.5 | 7号 | 直径1.8 | P=1% | 476.94～477.63 | P=10% | 476.36～477.01 | 57 | 2.54 | 碧溪河 |
| 碧溪河大桥右幅 | K60+852 | K61+264 | X=3321644.894 Y=470356.365 | X=3321442.702 Y=470715.319 | 412 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 495.5 | / | / | P=1% | 476.94～477.63 | P=10% | 476.36～477.01 | 0 | 0 |
| 14 | 回龙湾大桥 | 树人镇双凤山村 | K64+235 | K64+827 | X=3319077.475 Y=472379.664 | X=3318605.223 Y=472735.781 | 592 | 大桥 | 1 | 一跨过河 | 上跨，1×100 | 449.85 | 4号、5号 | 7.1×7.1 | P=1% | 335.81～338.38 | P=10% | 335.53～337.99 | 26 | 0 | 大沟 |
| 15 | 茄马石中桥 | 树人镇大楼脚村 | K65+424 | K65+526 | X=3318129.436 Y=473096.327 | X=3318050.445 Y=473160.848 | 102 | 中桥 | 1 | 一跨过河 | 上跨，3×30 | 431.25 | 0～3号 | 直径1.5 | P=1% | 430.57～430.61 | P=10% | 430.31～430.33 | 25.6 | 0 | 茄马石水库 |
| 16 | 老屋基大桥 | 名山街道朗溪村 | K68+093 | K68+604.5 | X=3316441.406 Y=475151.731 | X=3316190.158 Y=475592.014 | 511.5 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 359.5 | 6号、7号 | 6.5×3.5 | P=1% | 289.30～289.66 | P=10% | 288.89～289.23 | 37 | 0 | 杨家巷子沟 |
| 17 | 陈家湾大桥 | 兴义镇凡云村 | K77+050 | K77+350 | X=3312690.481 Y=482557.332 | X=3312626.758 Y=482850.543 | 300 | 大桥 | 1 | 桥墩涉河 | 上跨，1×30 | 307.98 | 6号、7号 | 直径1.5 | P=1% | 288.36～288.48 | P=10% | 288.45～288.54 | 26.5 | 6.18 | 泥巴溪 |
| 18 | 蒋家山1号大桥 | 兴义镇向家坝村 | K80+893 | K81+493 | X=3312745.777 Y=486321.3360 | X=3312478.601 Y=486858.741 | 600 | 大桥 | 1 | 桥墩涉河 | 上跨，3×40 | 379.1 | 左线9号、右线7号 | 6.5×3.5 | P=1% | 310.14 | P=10% | 309.64 | 78 | 78 | 玉米溪 |
| ZK80+851 | ZK81+491 | X=3312768.765 Y=486288.319 | X=3312483.497 Y=486861.625 | 2 | 桥墩涉河 | 上跨，3×40 | 379.1 | 左线5号、右线4号 | 6.5×3.5 | P=1% | 305.18 | P=10% | 304.25 | 27.3 | 0 | 木屑溪 |
| 19 | 方斗山大桥 | 兴义镇龙潭口村 | K84+888 | K84+928 | X=3310086.545 Y=489043.427 | X=3310048.443 Y=489057.830 | 40 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 495.15 | 0、1号 | 12.75×6.6 | P=1% | 485.99 | P=10% | 485.25 | 55 | 0 |
| 20 | 马家沟大桥 | 龙河镇柏木园村 | K89+640 | K90+120 | X=3305977.819 Y=491422.494 | X=3305513.553 Y=491533.716 | 480 | 大桥 | 2 | 桥墩涉河 | 上跨，1×40 | 442.76 | 左线4号，右线5、6号 | 2.5×2.2、6.5×2.6 | P=1% | 393.89 | P=10% | 393.2 | 96.8 | 19 | 马家沟 |
| ZK89+628 | ZK90+108 | X=3306008.690 Y=491443.587 | X=3305538.838 Y=491540.592 | 480 | 2 | 桥墩涉河 | 上跨，4×40 | 左线2～4号 | 直径2.2、2.5×2.2 | 396.23～412.36 | P=10% | 395.59～412.11 | 103.3 | 22.3 | 黄泥沟 |
| 21 | 龙河特大桥 | 龙河镇栗子堡村 | K93+018 | K93+962 | X=493143.4538Y=3303141.4438 | X=493548.5494Y= 3302290.5125 | 944 | 特大桥 | 1 | 一跨过河 | 上跨，1×180 | 465.1 | / | / | P=0.33% | 276.25 | P=10% | 272.14 | 0 | 0 | 龙河 |
| 22 | 堡上中桥 | 栗子乡塔湾村 | K97+410 | K97+482 | X=495001.5092Y=3299179.1305 | X=495028.4206Y=3299112.7712 | 72 | 中桥 | 1 | 一跨过河 | 上跨，1×18 | 574.2 | / | / | P=2% | 556.63 | P=10% | 556.35 | 0 | 0 | 砍材沟 |
| 23 | 栗都路改路桥 | 栗子乡塔湾村 | K0+180 | K0+240 | X=495027.9986Y=3299211.3647 | X=495072.5289Y= 3299177.8952 | 60 | 中桥 | 1 | 一跨过河 | 上跨，1×20 | 565.38 | / | / | P=1% | 547.27 | P=10% | 547.01 | 0 | 0 |
| 24 | 小洞湾大桥 | 暨龙镇小洞湾村 | K105+512 | K105+632 | X=498949.8335 Y=3292689.8171 | X=498960.0551Y= 3292570.3941 | 120 | 大桥 | 1 | 一跨过河 | 上跨，1×30 | 773.11 | / | / | P=1% | 738.92 | P=10% | 738.62 | 0 | 0 | 小洞湾 |
| 25 | 腰店子大桥 | 暨龙镇九龙泉村 | K108+931 | K109+101 | X=498619.703 Y=3289626.713 | X=498486.211 Y=3289455.691 | 193.5 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 882.539 | / | / | P=1% | 851.73～870.76 | P=10% | 851.44～870.58 | 0 | 0 | 岩矸沟 |
| 26 | 小安溪大桥 | 南天湖镇小安村 | K115+116 | K115+758 | X=496453.900 Y=3283865.143 | X=496493.318 Y=3283231.215 | 641.5 | 大桥 | 1 | 桥墩涉河 | 上跨，8×30 | 1014.66 | 左幅12~20号，右幅10~17号 | 直径1.5m | P=1% | 998.28～1002.04 | P=10% | 997.93~1001.74 | 300 | 236.7 | 小安溪 |
| 武隆区 | 27 | 扁担岩大桥 | 接龙乡小坪村 | K120+874 | K121+063 | X=492323.684 Y=3280478.509 | X=492203.374 Y=3280273.119 | 188.5 | 大桥 | 1 | 桥墩涉河 | 上跨，7×30 | 1095.50～1098.90 | 左幅2~5号，右幅0~2号 | 直径1.5m | P=1% | 1088.73～1094.71 | P=10% | 1087.60～1094.10 | 172 | 17.7 | 厂沟河 |
| 28 | K120+930改移道路桥（1号桥） | 接龙乡小坪村 | K0+047 | K0+066 | X=492292.437 Y=3280442.932 | X=492274.612 Y=3280450.587 | 19 | 小桥 | 1 | 桥墩涉河 | 上跨，1×13 | 1093.6 | 0、1号桥台 | 宽3.8m | P=4% | 1092.81 | P=10% | 1092.54 | 5.5 | 41.8 |
| 29 | 土地屋1号大桥 | 接龙乡小坪村 | K121+598 | K121+912 | X=3279831.014 Y= 492061.993 | X=3279520.631 Y= 492025.679 | 314 | 大桥 | 1 | 桥墩涉河 | 上跨，2×40 | 1073.06 | 3、4 | 直径2.0m | P=1% | 1048.38 | P=10% | 1047.69 | 57 | 6.3 |
| 30 | 土地屋特大桥 | 接龙乡小坪村 | K121+585 | K123+106 | X=3279831.014 Y=492061.993 | X=3278370.290 Y=491696.927 | 1521.5 | 特大桥 | 3 | 桥墩涉河 | 上跨，6×40、3×30、11×30 | 1040～1073.06 | 左幅23、24、26、27、36；右幅3～6、16、17、30～32、36～38 | 直径2.0m | P=0.33% | 1010.32～1048.59 | P=10% | 1009.46～1047.69 | 559 | 74.4 |
| 31 | 改移道路2号桥 | 接龙乡小坪村 | K0+023 | K0+044 | X=3279569.454 Y= 491999.991 | X=3279563.229 Y=492013.082 | 21 | 小桥 | 1 | 一跨过河 | 上跨，1×13 | 1045.6 | 0、1号桥台 | 宽3.8m | P=4% | 1042.65 | P=10% | 1042.41 | 0 | 0 |
| 32 | 梨子村中桥 | 接龙乡小坪村 | K124+910 | K125+018 | X=491608.834 Y=3276691.057 | X=491628.610 Y=3276584.918 | 108 | 中桥 | 1 | 桥墩涉河 | 上跨，3×30 | 1015.36 | 右幅1号 | 直径1.5m | P=2% | 1006.11～1007.11 | P=10% | 1005.39～1006.54 | 40 | 1.8 | 杨家河 |
| 33 | A0+152.10改移道路桥 | 接龙乡小坪村 | K0+122 | K0+148 | X=491575.247 Y=3276612.405 | X=491601.392 Y=3276610.938 | 26 | 小桥 | 1 | 一跨过河 | 上跨，1×16 | 1005.97 | 左侧桥台 | / | P=4% | 1003.68 | P=10% | 1003.31 | 15.2 | 18.1 |
| 34 | 接龙互通D匝道中桥 | 接龙乡小坪村 | K0+159 | K0+245 | X=491386.153 Y=3275370.501 | X=491312.303 Y=3275329.421 | 86 | 中桥 | 1 | 一跨过河 | 上跨，1×30 | 988.14 | / | / | P=1% | 973.93 | P=10% | 973.14 | 0 | 0 |
| 35 | 接龙互通杨家河中桥 | 接龙乡小坪村 | K0+339 | K0+371 | X=491342.029 Y=3275317.381 | X=491366.300 Y=3275297.057 | 32 | 中桥 | 1 | 桥墩涉河 | 上跨，1×20 | 980.49 | 桥台0号 | 7.2m×6.0m | P=2% | 976.25 | P=10% | 975.65 | 10 | 28.3 |
| 36 | 接龙互通A匝道大桥 | 接龙乡小坪村 | K0+209 | K0+251 | X=491330.518 Y=3275293.303 | X=491370.271 Y=3275280.424 | 41.2 | 中桥 | 1 | 一跨过河 | 上跨，1×40 | 979.25 | / | / | P=1% | 973.9 | P=10% | 973.11 | 0 | 0 |
| 37 | 王方咀大桥 | 接龙乡小坪村 | K126+340 | K126+770 | X=491391.608 Y=3275300.018 | X=491224.619 Y=3274908.739 | 429.5 | 大桥 | 3 | 桥墩涉河 | 上跨，1×30 | 980.23～985.10 | 左幅7、10、11、12号，右幅2、3、7、8、9、10号 | 直径1.5m、1.8m | P=1% | 957.07～971.71 | P=10% | 955.80～970.88 | 234 | 40.1 |
| 38 | 延仓河特大桥 | 土地乡天生村 | K133+771 | K134+326 | X=488717.301 Y=3268785.511 | X=488908.569 Y=3268247.506 | 554.88 | 特大桥 | 1 | 一跨过河 | 上跨，1×210 | 856.5 | / | / | P=0.33% | 610.69～610.94 | P=10% | 609.36～609.63 | 0 | 0 | 小溪河 |
| 39 | 斑竹林大桥 | 土地乡沿河村 | K136+656 | K136+914 | X=489431.013 Y=3265987.647 | X=489513.099 Y=3265741.185 | 258.6 | 大桥 | 1 | 桥墩涉河 | 上跨，1×40 | 800.95 | 左线5号、 右线4号 | 2.3x6.5m | P=1% | 753.57～754.09 | P=10% | 753.22～753.80 | 14 | 69.5 | 上板田沟 |
| 40 | 半坡1号大桥 | 火炉镇新田村 | K146+476 | K146+782 | X=491622.704 Y=3256701.705 | X=491601.078 Y=3256394.669 | 306.5 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 630 | / | / | P=1% | 546.83～552.86 | P=10% | 546.35～552.37 | 0 | 0 | 磨刀溪 |
| 41 | 半坡2号大桥 | 火炉镇新田村 | K146+912 | K147+200 | X=491574.946 Y=3256268.922 | X=491484.028 Y=3255996.046 | 288 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 617.3 | / | / | P=1% | 546.41～551.94 | P=10% | 546.08～551.56 | 0 | 0 | 小沟 |
| 42 | 新田大桥 | 火炉镇新田村 | K148+919 | K149+706 | X=490265.185 Y=3254826.801 | X=489751.742 Y=3254245.138 | 787 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 559.6 | / | / | P=1% | 504.08 | P=10% | 503.65 | 0 | 0 | 龙溪河 |
| 43 | 大沟大桥 | 火炉镇新田村 | K149+259 | K149+676 | X=490003.244 Y=3254611.114 | X=489766.400 Y=3254272.062 | 417 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 559.83 | / | / | P=1% | 508.33 | P=10% | 508.02 | 0 | 0 |
| 44 | 火炉互通A匝道大桥 | 火炉镇新田村 | 0+000 | K0+346 | X=490106.494 Y=3254664.902 | X=489888.765 Y=3254398.226 | 346 | 大桥 | 1 | 一跨过河 | 上跨，1×40 | 556.56 | / | / | P=1% | 501.94 | P=10% | 501.36 | 0 | 0 |
| 45 | 联合村1号大桥 | 芙蓉街道联合村 | K158+355 | K158+656 | X=485374.687 Y=3246873.820 | X=485327.727 Y=3246571.699 | 301.0 | 大桥 | 1 | 桥墩涉河 | 上跨，1×30 | 369.6 | 右线桥3号、4号 | 直径1.5m | P=1% | 347.90～348.75 | P=10% | 347.49～348.34 | 43 | 2.54 | 冲溪沟 |
| K158+302 | K158+673 | 371.5 | 1 | 桥墩涉河 | 上跨，1×30 | 364.5 | 右线桥10号、左线桥7号 | 直径1.5m | P=1% | 341.90～345.79 | P=10% | 341.40～345.29 | 56 | 2.54 | 茶林沟 |
| 46 | 联合村2号大桥 | 芙蓉街道联合村 | K159+222 | K159+763 | X=485349.724 Y=3246018.803 | X=485158.589 Y=3245518.387 | 541.5 | 大桥 | 1 | 桥墩涉河 | 上跨，1×40 | 339.14 | 左幅桥11、12号桥墩，右幅桥11号桥墩 | 直径2.2m | P=1% | 298.48～298.94 | P=10% | 297.63～298.08 | 64 | 26.6 | 冲溪沟 |

附表2 其他涉河工程主要参数表

| 区县 | 序号 | 涉河工程名称 | 地理位置 | 起点桩号（km+m） | 止点桩号（km+m） | 起止点坐标 | | 道路等级 | 基本参数 | 设计洪水标准 | 工程设计洪水位（m） | 河道洪水标准 | 设计洪水位（m） | 占用岸线长度（m） | 占用河道平面面积（m2） | 涉河河流 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 起点 | 止点 |
| 垫江县 | 1 | 高安枢纽 | 高安镇金桥村、长龙乡龙田村 | K20+600 | K22+100 | X=3351863.091 Y=445740.988 | X=3350445.380 Y=446200.014 | 高速路 | 主线设计长1500m，匝道设计全长6408m。 | P=1% | 377.47～376.24 | P=10% | 376.54～375.31 | 615 | 1240 | 吴家桥河 |
| 2 | 高安服务区路堤挡墙 | 高安服务区 | K26+000 | | X=3346615.928 Y=447752.823 | X=3346604.394 Y=447763.465 | 高速路 | 临河侧设置衡重式路堤挡墙。 | P=1% | 381.68～381.92 | P=10% | 381.49～381.77 | 13.95 | 16.07 | 肖家河沟 |
| 3 | LK0+625.70涵洞 | 裴兴镇桂花村 | LK0+625.70 | | X=3335829.229 Y=454808.092 | X=3335797.301 Y=454689.727 | 高速路 | 单孔，孔宽6.0m，高4.5m，涵洞长123.7m。 | P=1% | 389.19～388.83 | P=10% | 387.54～388.00 | 123.7 | / | 双叉河 |
| 4 | Z3K42+575.50、K42+567.87涵洞 | 裴兴镇双柏村 | Z3K42+575.50、K42+567.87 | | X=3333716.146 Y=457044.094 | X=3333610.266 Y=456996.671 | 高速路 | 单孔，孔宽6.0m，高4.5m，涵洞长119.6m。 | P=1% | 430.92～430.68 | P=10% | 429.81～430.05 | 119.6 | / | 裴兴河 |
| 丰都县 | 5 | K61+667~K61+738填方路基 | 保合镇竹林冲村 | K61+667 | K61+738 | X=3321253.697 Y=471128.202 | X=3321269.046 Y=471105.933 | 高速路 | 公路左幅为填方路基，填方采用路堤墙+阶梯式放坡形式，一级填方边坡坡比1：1.5，高8m，二级填方边坡坡比1:1.75，高10m，两级边坡之间设2.0m宽马道，坡脚设衡重式挡墙，墙高14.83m。 | P=1% | 489.22 | P=10% | 488.15~489.35 | 76 | 79.1 | 碧溪河 |
| 6 | K97+458盖板涵 | 栗子乡塔湾村 | K97+458 | | X=3299219.936 Y=494982.731 | X=3299307.568 Y=495029.745 | 高速路 | 双孔，孔宽6.0m，高4.5m，涵洞长100.85m。 | P=1% | 867.65～876.65 | P=10% | 867.51～876.51 | 186 | 200 | 砍材沟 |
| 7 | K107+067盖板涵 | 暨龙镇凤来村 | K107+067 | | X=3291275.904 Y=499536.766 | X=3291277.914 Y=499619.164 | 高速路 | 单孔，孔宽6.0m，高4.5m，涵洞长82.4m。 | P=1% | 814.68～816.48 | P=10% | 814.81～816.61 | 164 | 183 | 欠家沟 |
| 武隆区 | 8 | K120+930改移道路 | 接龙乡小坪村 | GK0+000 | GK0+500 | X=3280518.949 Y=492206.639 | X=3280370.844 Y=492255.868 | 等外路 | 路基宽4.5m，临河侧设衡重式挡土墙。 | P=10% | 1092.87~1090.58 | P=10% | 1092.87~1090.58 | 96.39 | 597.63 | 厂沟河 |
| 9 | K121+195改移道路 | 接龙乡小坪村 | GK0+000 | GK0+116 | X=3280247.413 Y=492214.169 | X=3280131.408 Y=492178.160 | 等外路 | 路基宽4.5m，临河侧设衡重式挡土墙。 | P=10% | 1076.53～1082.4 | P=10% | 1076.53～1082.4 | 113 | 413.5 | 厂沟河 |
| 10 | K125+018~K126+280填方路基 | 接龙乡小坪村 | K125+018 | K126+280 | X=3276584.914 Y=491628.580 | X=3275356.887 Y=491409.983 | 高速路 | 公路两侧均为填方路基，填方采用路堤墙+阶梯式放坡形式，一级填方边坡坡比1：1.5，高8m，二级填方边坡坡比1:1.75，两级边坡之间设2.0m宽马道，二级边坡坡脚设重力式挡墙。 | P=1% | 972.43～1002.91 | P=10% | 974.61～1002.4 | 1397 | 18161 | 杨家河 |
| 11 | 接龙互通A匝道 | 接龙乡梨子村 | AK0+000 | AK0+200 | X=3275301.836 Y=491550.730 | X=3275277.476 Y=491378.879 | 高速路 | 填方路基，填方采用路堤墙+放坡形式，填方边坡坡比1：1.6，坡脚设重力式挡墙。 | P=1% | 977.78～980.30 | P=10% | 976.98～979.74 | 92 | 3880 | 苎麻沟 |
| 12 | K139+504涵洞 | 土地乡石屋村 | K139+504 | | X=3263362.141 Y=489649.67 | X=3263332.997 Y=489788.737 | 高速路 | 涵洞总长142.1m，其中进口段43m，洞身段66.3m，出口渐变段25.55m，消力池段22.25m；进口底板高程731.36m，出口底板高程710.16m，纵坡为1:6.06；涵洞净宽6.0m，净高5.1m。 | P=1% | 734.41 | P=10% | 734.02 | / | / | 大沟 |
| 13 | 联合停车区 | 芙蓉街道联合村 | ZK158+582.872 | K159+226.391 | X=3246643.060 Y=485348.476 | X=3246010.389 Y=485348.319 | 高速路 | 面积11亩，场平高程360m，三级放坡，坡比1:1.5～1:2。 | P=1% | 323.76～333.22 | P=10% | 323.76～333.22 | 397 | 6466 | 冲溪沟 |
| 14 | GL1K0+403改移道路涵洞 | 芙蓉街道联合村 | GL1K0+403 | | X=3247230.507 Y=485401.307 | X=3247216.467 Y=485421.886 | 等外路 | 涵洞总长24.91m，其中进口段长6.46m，洞身段长11.02m，出口段7.44m；洞身进口底板高程为371.93m，出口底板高程为371.38m，纵坡为1:20；孔净宽6.0m，净高4m。 | P=4% | 374.12～372.88 | P=10% | 373.80～372.66 | / | / | 冲溪沟 |

附表3 工程补救措施方案主要参数表

| 区县 | 序号 | 涉河工程名称 | 地理位置 | 补救措施类型 | 起点桩号（km+m） | 终点桩号（km+m） | 起止点坐标 | | 工程等级 | 补救方案 | 涉河河流 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 起点 | 止点 |
| 垫江县 | 1 | 双河口2号桥 | 新民镇双河口村 | 扩挖、护岸 | SSL0+000.00 | SSL0+085.50 | X=3364573.966 Y=467987.920 | X=3364561.859 Y=468070.012 | 5 | 护岸型式为C20砼挡墙，护岸至现状工程，挡墙高1.5～4.0m，挡墙埋深不小于1.0m。 | 双河 |
| 2 | 左家湾特大桥 | 新民镇南印寺村 | 扩挖、新建堤防 | 左岸：MZL0+000.00 右岸：MZR0+000.00 | 左岸：MZL0+083.93； 右岸：MZR0+080.13 | 左岸：X=3363202.714 Y=468090.673 右岸:X=3363190.732 Y=468082.777 | 左岸：X=3363147.099 Y=468150.688 右岸:X=3363145.074 Y=468147.593 | 5 | 堤防型式为C20砼仰斜式挡墙，堤防顶高程为10一遇设计洪水位+超高0.5m；C20砼仰斜式挡墙高2.45m，临水面坡比为1：0.3，挡墙埋深不小于1.0m。 | 煤矿河沟 |
| 3 | 新民镇城北村 | 扩挖、护岸 | 左岸：GZL0+000.00 右岸：GZR0+000.00 | 左岸：GZL0+068.00； 右岸：GZR0+065.00 | 左岸：X=3361469.117 Y=469125.093 右岸:X=3361473.201 Y=469149.737 | 左岸：X=3361534.319 Y=469140.955 右岸:X=3361530.943 Y=469147.652 | 4 | 新建护岸长度133.0m，其中左岸长68.0m，右岸长65.0m，护岸型式为C20砼挡墙+斜坡式护岸至现状地面；C20砼挡墙高2.5m，临水面垂直，挡墙埋深不小于1.5m，挡墙以上采用C25钢筋混凝土框格植草护坡，设计坡比1:2.0，框格尺寸为2.0m×2.0m。 | 桂溪河 |
| 4 | 高安枢纽 | 高安镇金桥村、长龙乡龙田村 | 改河、护岸、扩挖 | WG0+000.00 | WG0+615.00 | X=3351610.164 Y=474794.377 | X=3351144.789 Y=474507.504 | 1、5 | 改道长度共615.00m，由5段明渠以及4处涵洞组成，改道起点进口底板高程为374.30m，终点出口底板高程为373.07m，改道河底比降i=0.002；其中明渠段采用梯形断面型式，底宽6.0m，顶宽10.0m，边坡为1:0.5，临高速路路基侧衬砌高度为3.2m，护岸至100年一遇计洪水位，其余侧衬砌高度为2.5m，护岸至10年一遇设计洪水位；涵洞采用盖板涵型式，采用矩形断面，宽6.0m，高4.5m。 | 吴家桥河 |
| 5 | 高滩河大桥 | 高安镇新溪村 | 扩挖、护岸 | 左岸：L0+000.00 | 左岸：L0+149.60 | 左岸：X=3349031.871 Y=447186.203 | 左岸：X=3348905.671 Y=447106.742 | 5 | 治理措施采用挡墙+斜坡式护岸。挡墙采用C20埋石砼镇脚，挡墙顶宽0.8m，背坡1:0.3，临水面垂直，挡墙底部设置10cm厚C15砼垫层，镇脚埋深不小于1.5m。镇脚以上采用C25钢筋混凝土框格植草护坡，设计坡比1:2.5，C25砼框格梁骨30cm×30cm（宽×高），嵌入坡面深度10cm。框格骨架采用菱形，与边坡水平线成60°夹角，菱形框格尺寸为3m×3m，框格内铺20cm厚种植土植草。 | 龙溪河 |
| 6 | 肖家河沟路堤挡墙 | 高安镇新溪村 | 改河、护岸、扩挖 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+029.40 右岸：R0+026.47 | 左岸：X=3346617.571 Y=447745.831 右岸:X=3346615.163 Y=447744.885 | 左岸：X=3346596.113 Y=447762.982 右岸:X=3346595.765 Y=447760.411 | 5 | 改道河沟全长28.00m,两侧采用C20砼挡墙，底部采用C20砼硬化，改道河沟宽2.6m，起点底部高程379.40m，终点底部高程379.02m，改道纵坡0.014。 | 肖家河沟 |
| 7 | 大沙河大桥 | 杠家镇龙凤场 | 扩挖、护岸 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+200.52 右岸：R0+193.77 | 左岸：X=3342498.446 Y=450276.286 右岸:X=3342530.821 Y=450238.378 | 左岸：X=3342342.966 Y=450181.988 右岸:X=3342358.547 Y=450175.076 | 5 | 治理措施采用挡墙+斜坡式护岸。挡墙采用C20埋石砼镇脚，挡墙顶宽0.8m，背坡1:0.3，临水面垂直，挡墙底部设置10cm厚C15砼垫层，镇脚埋深不小于1.5m。镇脚以上采用C25钢筋混凝土框格植草护坡，设计坡比1:2.5，C25砼框格梁骨30cm×30cm（宽×高），嵌入坡面深度10cm。框格骨架采用菱形，与边坡水平线成60°夹角，菱形框格尺寸为3m×3m，框格内铺20cm厚种植土植草。 | 大沙河 |
| 8 | 老官咀大桥 | 杠家镇罗家坪 | 扩挖 | / | / | 左岸：X=3339053.242 Y=453599.846 右岸:3339060.619 Y=453582.289 | 左岸：X=3339045.254 Y=453598.322 右岸:X=3339054.336 Y=453577.563 | / | 原余马河老桥拆除。 | 余马河 |
| 丰都县 | 9 | 高洞子大桥 | 三元镇青杠垭村 | 扩挖、护岸 | 左岸：DGL0+000.00 右岸：DGR0+000.00 | 左岸：DGL0+050.95 右岸：DGR0+054.15 | 左岸：X=3330897.636 Y=460236.279 右岸:X=3330892.327 Y=460234.232 | 左岸：X=3330883.516 Y=460284.607 右岸:X=3330875.528 Y=460285.427 | 5 | 扩挖河道中心线长52m，新建护岸105.10m，其中左岸50.95m，右岸54.15m，均采用C20砼镇脚+砼框格植草护坡，护至现状地面高程，防洪达标。 | 罗家桥支沟 |
| 10 | 熊家河中桥 | 保合镇盖灵庙村 | 扩挖、护岸 | BXR0+000.00 | BXR0+077.51 | 右岸:X=3322255.453 Y=469121.540 | 右岸:X=3322275.155 Y=469046.926 | 5 | 对河道右岸进行扩挖，扩挖后新建护岸77.51m,采用C20砼仰斜式挡土墙，护至现状地面高程。 | 熊家河 |
| 11 | 碧溪河大桥 | 保合镇竹林冲村 | 改河 | 左岸：BBL0+000.00 右岸：BBR0+000.00 | 左岸：BBL0+139.83 右岸：BBR0+141.12 | 左岸：X=3321483.452 Y=470717.038 右岸:X=3321487.842 Y=470719.122 | 左岸：X=3321491.050 Y=470580.209 右岸:X=3321495.833 Y=470581.074 | 5 | 改河中心线长140m，起点河底高程为477.40m，终点河底高程为474.50m，坡度20.7‰，底宽4.75m，新建护岸280.95m,其中左岸139.83m，右岸141.12m，均采用C20砼仰斜式挡土墙，护至现状地面高程，且防洪达标。 | 碧溪河 |
| 12 | K61+667~K61+738填方路基 | 保合镇竹林冲村 | 扩挖、护岸 | 左岸：BSL0+000.00 右岸：BSR0+000.00 | 左岸：BSL0+079.81 右岸：BSR0+071.90 | 左岸：X=3321239.373 Y=471158.015 右岸:X=3321245.429 Y=471156.762 | 左岸：X=3321283.947 Y=471094.383 右岸:X=3321286.258 Y=471099.572 | 5 | 扩挖河道中心线长75m，新建护岸111.36m,其中左岸39.46m，右岸71.90m，均采用C20砼仰斜式挡土墙，护至防洪达标。 | 碧溪河 |
| 13 | 陈家湾大桥 | 兴义镇凡云村 | 扩挖、护岸 | 左岸：NL0+000.00 右岸：NR0+000.00 | 左岸：NL0+041.87 右岸：NR0+048.35 | 左岸：X=3312636.954 Y=482729.914 右岸:X=3312626.742 Y=482739.747 | 左岸：X=3312662.669 Y=482744.238 右岸:X=3312671.475 Y=482756.916 | 5 | 本次补偿方案将护岸至现状高程，护岸采用C20砼挡墙，本次在泥巴溪共计护岸中心线总长48.03m，护岸总长90.22，其中左岸长41.87m，右岸长48.35m。 | 泥巴溪 |
| 14 | 蒋家山1号大桥 | 兴义镇向家坝村 | 改河 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+111.11 右岸：R0+088.28 | 左岸：X=3312645.758 Y=486641.011 右岸:X=3312647.777 Y=486633.064 | 左岸：X=3312653.867 Y=486556.121 右岸:X=3312655.056 Y=486564.203 | 5 | 工程起点桩号K0+000，终点桩号K0+99.63，原河道长135.88m，改道后河道长99.63m，河道采用挡墙护岸型式，起点河底高程为309.52m，终点河底高程为304.40m，坡度51.4‰，深3.0m，底宽8.17m～8.2m，采用C20砼挡墙。 | 玉米溪 |
| 15 | 马家沟大桥 | 龙河镇柏木园村 | 扩挖、护岸 | 左岸：HL0+000.00 | 左岸：HL0+135.70 | 左岸：X=3305952.471 Y=491486.185 | 左岸：X=3305853.567 Y=491537.395 | 5 | 治理中心线长228.92m，黄泥沟河段采用扩挖的方式，扩挖岸线长度135.70m，马家沟河段采用扩挖、护岸的方式，护岸采用C20砼挡墙，护岸长度共计183.19m，其中左岸长112.74m，右岸长70.45m。 | 黄泥沟 |
| 左岸：ML0+000.00 右岸：MR0+000.00 | 左岸：ML0+112.74 右岸：MR0+070.45 | 左岸：X=3305840.058 Y=491517.083 右岸:X=3305811.020 Y=491488.180 | 左岸：X=3305736.469 Y=491490.203 右岸:X=3305742.084 Y=491476.916 | 5 | 马家沟 |
| 武隆区 | 16 | 扁担岩大桥、K120+930改移道路、K120+930改移道路桥（厂沟河1号桥）3处 | 接龙乡小坪村 | 扩挖、护岸 | 左岸：CBL0+000.00 右岸：CBR0+000.00 | 左岸：CBL0+267.47 右岸：CBR0+141.58 | 左岸：X=3280478.594 Y=492307.886 右岸:X=3280482.322 Y=492301.963 | 左岸：X=3280302.237 Y=492244.300 右岸:X=3280356.395 Y=492247.498 | 5 | 扩挖河道中心线长229m，新建护岸169.49m,其中左岸124.30m，右岸45.19m，采用C20砼衡重式/重力式挡土墙，护至防洪达标。K120+930改移道路位于补救措施后10年一遇洪水淹没线外，不再涉河；K120+930改移道路桥（厂沟河1号桥）原涉河桥台则位于补救措施后10年一遇洪水淹没线外，梁底高程满足补救措施后25年一遇洪水位+0.5m超高，桥台不再涉河。 | 厂沟河 |
| 17 | K121+195改移道路 | 接龙乡小坪村 | 扩挖、护岸 | 左岸：CLL0+000.00 右岸：CLR0+000.00 | 左岸：CLL0+110.22 右岸：CLR0+113.24 | 左岸：X=3280233.913 Y=492224.848 右岸:X=3280238.799 Y=492218.516 | 左岸：X=3280136.241 Y=492194.910 右岸:X=3280138.249 Y=492188.062 | 5 | 扩挖河道中心线长111m，左岸新建护岸110.22m,采用C20砼仰斜式挡土墙，护至防洪达标；右岸改移道路路肩墙兼做护岸长113.24m，采用衡重式挡土墙，防洪达标。 |
| 18 | 土地屋1号大桥、土地屋特大桥 | 接龙乡小坪村 | 护岸、扩挖 | 左岸：CL0+000.00 右岸：CR0+000.00 | 左岸：CL0+206.46 右岸：CR0+210.81 | 左岸：X=3279754.049 Y=492070.813 右岸：X=3279765 856,Y=492061.250 | 左岸：X=3279566.556 Y=492012.519 右岸：X=3279571.181 Y=492002.933 | 5 | 共治理河道长度208.56m，起点河底高程1047.10m，终点河底高程1040.90m，河段纵坡29.73‰，护岸设计堤线宽9m，护岸挡墙高度4.2-4.5m，护岸至达标，挡墙采用C20砼现浇，迎水侧坡比1:0.1，基础埋深1.5m。左岸护岸长度206.46m，右岸护岸长度210.81m，设计护岸总长417.27m，同时对原河道进行适当疏浚。 |
| 19 | 接龙乡小坪村 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+104.30 右岸：R0+082.00 | 左岸：X=3279313.979 Y=491998.324 右岸：X=3279309.071 Y=491985.752 | 左岸：X=3279239.618 Y=491984.589 右岸：X=3279244.262 Y=491963.785 | 5 | 共治理河道长度92.41m，起点河底高程1027.80m，终点河底高程1026.50m，河段纵坡14.07‰，护岸设计堤线宽9m，护岸挡墙高度4.25m，护岸至达标，挡墙采用C20砼现浇，迎水侧坡比1:0.1，基础埋深1.5m。左岸护岸长度104.30m，右岸护岸长度82.00m，设计护岸总长186.30m，同时对原河道进行适当疏浚。 |
| 20 | 接龙乡小坪村 | 左岸：KL0+000.00 右岸：KR0+000.00 | 左岸：KL0+372.48 右岸：KR0+309.79 | 左岸：X=3278895.209 Y=491899.1099 右岸：X=3278884.043 Y=491891.024 | 左岸：X=3278613.728 Y=491784.178 右岸：X=3278622.282 Y=491772.967 | 5 | 共治理河道长度319.54m，起点河底高程1017.20m，终点河底高程1006.94m，河段平均纵坡32.11‰。由于涉河段桥墩主要位于河道左岸，且左岸岸坡较陡，补救措施主要采取拓宽右岸，左岸局部进行拓宽和护岸，并对土质开挖岸坡采取C20砼挡墙护岸，护岸防洪标准10年一遇，主要建筑物级别为5级。两岸护岸总长312.86m，其中左岸护岸长度83.04m，右岸护岸长度229.82m。护岸挡墙采用重力式挡墙，墙高3.1-3.9m，墙顶宽1.0m采用C20砼浇筑。同时对原河道进行适当疏浚。 |
| 21 | 梨子村中桥及下游改道段 | 接龙乡小坪村 | 改河、护岸、扩挖 | 左岸：AL0+000.00 右岸：AR0+000.00 | 左岸：AL0+395.23 右岸：AR0+395.87 | 左岸：X=3276659.334 Y=491701.297 右岸：X=3276668.022 Y=491700.781 | 左岸：X=3276387.359 Y=491559.613 右岸：X=3276397.471 Y=491555.926 | 1、5 | 共治理河道长395.10m，原河道治理河道长144.43m，改道河段河长250.67m。改河段上游起点桩号为A0+144.43，河底高程1002.52m，下游终点桩号为A0+395.10，河底高程996.70m，改河段河道纵坡23.21‰。治理河段设计河底设计宽度10~14m，两岸采用C20砼挡墙护岸，高速公路路基挡墙护岸防洪标准100年一遇，主要建筑物级别为1级；其他挡墙护岸防洪标准10年一遇，主要建筑物级别为5级。两岸护岸工程长791.20m，其中左岸护岸长度395.28m，右岸护岸长度395.92m。护岸挡墙采用重力式挡墙，墙高4.5~5.6m，墙顶宽1.2m，采用C20砼浇筑。治理河段河床采用1.0m厚格宾石笼护底，下铺设0.3m厚级配碎石垫层。 | 杨家河 |
| 22 | 王方咀大桥上游改道段 | 接龙乡小坪村 | 改河、护岸、扩挖 | 左岸：BL0+000.00 右岸：BR0+000.00 | 左岸：BL0+732.09 右岸：BR0+786.52 | 左岸：X=3275890.808 Y=491530.966 右岸：X=3275903.647 Y=491519.101 | 左岸：X=3275196.583 Y=491382.163 右岸：X=3275166.456 Y=491391.609 | 1、5 | 共治理河道长783.96m，上游改道河段长558.43m，下游原河道治理长225.53m。 改道河段河道中心线桩号为B0+000.00～B0+558.43,河床比降结合现状河道布置，其中：桩号B0+000.00～B0+312.25设计比降12.38‰，桩号B0+312.25～B0+471.64设计比降31.55‰，桩号B0+471.64～B0+558.43设计比降32.62‰。改道河段河底设计宽度10m，两岸采用C20砼挡墙护岸，高速公路路基挡墙护岸防洪标准100年一遇，主要建筑物级别为1级；其他挡墙护岸防洪标准10年一遇，主要建筑物级别为5级。改道河段两岸护岸工程长1101.5m，其中左岸护岸长度544.66m，右岸护岸长度556.79m。护岸挡墙采用重力式挡墙，墙高4.5~4.75m，墙顶宽1.2m，采用C20砼浇筑。改道河段河床采用1.0m厚格宾石笼护底，下铺设0.3m厚级配碎石垫层。 原河道治理河道中心线桩号为B0+558.43～B783.96，河底设计宽度为10~17.6m，两岸新建C20砼挡墙护岸，护岸防洪标准10年一遇，主要建筑物级别为5级。护岸挡墙采用重力式挡墙，墙高4.1~5.3m，采用C20砼浇筑。同时，改道后右岸小支沟改渠汇入杨家河，改渠段长72m，底宽2m，渠深1.5m，设计比降1%。 | 杨家河 |
| 23 | 王方咀大桥 | 接龙乡小坪村 | 改河、护岸、扩挖 | 左岸：CL0+000.00 右岸：CR0+000.00 | 左岸：CL0+214.55 右岸：CR0+245.28 | 左岸：X=3275089.625 Y=491360.971 右岸：X=3275103.402 Y=491355.068 | 左岸：X=3274945.086 Y=491284.672 右岸：X=3274931.365 Y=491465.813 | 1、5 | 共治理河道长235.35m，上游原河道治理河道长100.12m，下游改道河段河长135.23m。 上游原河道治理河道中心线桩号为C0+000.00～C0+100.12，河底设计宽度为12~14.5m，两岸土质岸坡段新建C20砼挡墙护岸，护岸防洪标准10年一遇，主要建筑物级别为5级。两岸护岸工程长180.53m，其中左岸护岸长度95.57m，右岸护岸长度84.96m。护岸挡墙采用重力式挡墙，墙高3.2~4.5m，墙顶宽1.0~1.2m，采用C20砼浇筑。 下游改道河段河长135.23m，改河段上游起点桩号为C0+100.12，河底高程957.72m，下游终点桩号为C0+235.35，河底高程952.30m，改河段河道纵坡21.62‰。该河段设计河底设计宽度12~13.2m，两岸土质岸坡段采用C20砼挡墙护岸，护岸防洪标准10年一遇，主要建筑物级别为5级。两岸护岸工程长157.33m，其中左岸护岸长度119.00m，右岸护岸长度38.33m。护岸挡墙采用重力式挡墙，墙高3.2~4.0m，墙顶宽1.0m，采用C20砼浇筑。改道后9号~12号桥墩不涉河。 | 杨家河 |
| 24 | 接龙互通A匝道改河 | 接龙乡小坪村 | 改河、护岸 | 左岸：DL0+000.00 右岸：DR0+000.00 | 左岸：DL0+144.08 右岸：DR0+152.14 | 左岸：X=3275267.790 Y=491593.809 右岸：X=3275275.906 Y=491594.880 | 左岸：X=3275203.977 Y=491471.224 右岸：X=3275210.061 Y=491465.813 | 1、5 | 改道河段长148.19m，改道河段河床上游起点高程978.10m，下游终点河底高程975.45，设计比降17.88‰。改道河段河底设计宽度8.0m，两岸采用C20砼挡墙护岸，高速公路路基挡墙护岸防洪标准100年一遇，主要建筑物级别为1级；其他挡墙护岸防洪标准10年一遇，主要建筑物级别为5级。改道河段两岸护岸工程长296.22m，其中左岸护岸长度144.08m，右岸护岸长度152.14m。护岸挡墙采用重力式挡墙，墙高4.2m，墙顶宽1.2m，采用C20砼浇筑。改道河段河床采用1.0m厚格宾石笼护底，下铺设0.3m厚级配碎石垫层。 | 杨家河 |
| 25 | 斑竹林大桥 | 土地乡冉家沟 | 扩挖、护岸 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+150.080 右岸：R0+130.423 | 左岸：X=3265828.916 Y=489424.193 右岸：X=3265825.433 Y=489429.078 | 左岸：X=3265884.688 Y=489548.349 右岸：X=3265863.741 Y=489542.435 | 5 | 护岸河段长140.23m，起点河底高程752.8m，终点河底高程750.8m，河段纵坡1.43%，护岸设计堤线宽6m，护岸挡墙高度1.8-3.5m，护岸至现状地面高程，挡墙采用C20砼现浇，迎水侧坡比1:0.1-1:0.2，基础埋深1m。左岸护岸长度150.08m，右岸护岸长度130.42m，设计护岸总长280.5m，同时对原河道进行适当扩挖。 | 上板田沟 |
| 26 | 联合村1号大桥 | 芙蓉街道联合村 | 改河 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+103.448 右岸：R0+069.008 | 左岸：X=3246875.973 Y=485354.951 右岸：X=3246863.419 Y=485331.608 | 左岸：X=3246778.809 Y=485328.105 右岸：X=3246797.534 Y=485333.471 | 5 | 设计改道河段长100.48m，控制堤距8m，左岸堤防长度103.45m，右岸堤防长度69.01m，设计堤防总长172.46m，改道完成后将改道段原河道回填。新建堤防采用C20砼挡墙，挡墙高度3.5-4m，堤顶高程不小于建后10年一遇洪水位+0.5m，并与现状地面相协调，迎水侧坡比1:0.3，基础埋深1.5m。 | 冲溪沟 |
| 27 | 芙蓉街道联合村 | 改河 | 左岸：Z0+000.00 右岸：R0+000.00 | 左岸：Z0+113.004 右岸：R0+116.569 | 左岸：X=3246679.742 Y=485392.549 右岸：X=3246697.114 Y=485390.287 | 左岸：X=3246619.558 Y=485303.342 右岸：X=3246624.032 Y=485309.062 | 5 | 设计改道河段长117.08m，控制堤距5m，左岸堤防长度113.0m，右岸堤防长度100.64m，设计堤防总长213.64m，改道完成后将改道段原河道回填。 新建堤防采用C20砼挡墙，挡墙高度3-5m，堤顶高程不小于建后10年一遇洪水位+0.5m，并与现状地面相协调，迎水侧坡比1:0.3，基础埋深1.5m。 | 茶林沟 |
| 28 | 联合停车区 | 芙蓉街道联合村 | 改河 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+371.423 右岸：R0+384.577 | 左岸：X=3246557.767 Y=485249.149 右岸：X=3246553.669 Y=485240.028 | 左岸：X=3246213.077 Y=485243.047 右岸：X=3246199.518 Y=485242.946 | 1 | 联合停车区施工图右场坪原框架结构方案，在河道内设置了较为密集的墩柱，降低了河道行洪能力。考虑河道行洪的安全及桩基础后期运行风险，经分析论证，停车区右场坪采用常规路基填方方案，对引起的河道占压段落按河道设计标准进行改移设计。设计改河河道中心线长度378m，改河起点高程333.45m，终点高程319.5m，落差13.95m，设计纵坡3.69%，设计改河宽10m，按照不低于100年一遇洪水标准设计，设计水深约2.3m，河道左岸设计为8.5m高挡墙，河道右岸设计6.5m高贴坡式挡墙。 | 冲溪沟 |
| 29 | 联合村2号大桥 | 芙蓉街道联合村 | 护岸、扩挖 | 左岸：L0+000.00 右岸：R0+000.00 | 左岸：L0+120.78z 右岸：R0+106.914 | 左岸：X=3245665.907 Y=485229.863 右岸：X=3245663.174 Y=485207.027 | 左岸：X=3245545.428 Y=485233.851 右岸：X=3245558.017 Y=485220.875 | 5 | 护岸河段长160.33m，控制堤距12m，护岸挡墙高度4-6.5m，护岸至现状地面高程，挡墙采用C20砼现浇，迎水侧坡比1:0.3，基础埋深1.5m。左岸护岸长度120.78m，右岸护岸长度106.91m，设计护岸总长227.69m，同时对原河道进行扩挖，10年一遇洪水位下，共补增行洪过水面积25m2。 | 冲溪沟 |

附表4 涉河建筑物主要控制点坐标表

| 序号 | 位置 | 河道名称 | 涉河建筑物 | 控制点编号 | 控制坐标（独立坐标系） | | 控制坐标（2000坐标系） | | 对应桥墩号 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | Y | X | Y |
| 1 | 双河口2号桥 | 双河 | 桥墩 | 8-1 | 3364566.494 | 468016.435 | 3364514.770 | 439188.191 | 左幅8 |
| 3364565.306 | 468022.841 | 3364513.564 | 439194.594 |
| 8-3 | 3364569.254 | 468023.574 | 3364517.510 | 439195.337 |
| 3364570.442 | 468017.168 | 3364518.716 | 439188.934 |
| 8-1 | 3364568.866 | 468003.653 | 3364517.175 | 439175.416 | 右幅8 |
| 3364567.677 | 468010.059 | 3364515.970 | 439181.819 |
| 8-3 | 3364571.625 | 468010.792 | 3364519.916 | 439182.562 |
| 3364572.814 | 468004.386 | 3364521.121 | 439176.159 |
| 2 | 左家湾特大桥 | 煤矿河沟/桂溪河 | 煤矿河沟桥墩 | 11-1 | 3363151.712 | 468123.543 | 3363099.735 | 439291.549 | 左幅11 |
| 3363153.286 | 468134.417 | 3363100.634 | 439297.986 |
| 11-3 | 3363155.201 | 468129.612 | 3363103.209 | 439297.627 |
| 3363154.286 | 468123.177 | 3363102.310 | 439291.189 |
| 8-1 | 3363189.482 | 468105.039 | 3363137.554 | 439273.145 | 右幅8 |
| 3363190.398 | 468111.475 | 3363138.452 | 439279.583 |
| 8-3 | 3363192.972 | 468111.108 | 3363141.027 | 439279.223 |
| 3363192.056 | 468104.673 | 3363140.129 | 439272.786 |
| 桂溪河桥墩 | 69-1 | 3361538.860 | 469119.322 | 3361484.284 | 440283.033 | 左幅69 |
| 3361533.580 | 469114.354 | 3361479.017 | 440278.051 |
| 70-1 | 3361511.532 | 469148.366 | 3361456.879 | 440312.005 | 左幅70 |
| 3361506.252 | 469143.398 | 3361451.613 | 440307.023 |
| 67-1 | 3361522.539 | 469117.696 | 3361467.968 | 440281.365 | 右幅67 |
| 3361517.259 | 469112.728 | 3361462.701 | 440276.383 |
| 68-1 | 3361495.129 | 469146.828 | 3361440.481 | 440310.424 | 右幅68 |
| 3361489.849 | 469141.860 | 3361435.214 | 440305.442 |
| 3 | 高滩河大桥 | 龙溪河 | 桥墩 | 1-1 | 3349105.268 | 475996.047 | 3349032.705 | 447126.652 | 1 |
| 3349098.241 | 475991.498 | 3349025.678 | 447122.102 |
| 1-3 | 3349092.668 | 475987.889 | 3349020.105 | 447118.494 |
| 3349085.641 | 475983.339 | 3349013.078 | 447113.944 |
| 2-1 | 3349069.477 | 476014.163 | 3348996.914 | 447144.767 | 2 |
| 3349062.503 | 476009.533 | 3348989.940 | 447140.138 |
| 2-3 | 3349056.971 | 476005.861 | 3348984.408 | 447136.466 |
| 3349049.996 | 476001.231 | 3348977.433 | 447131.836 |
| 3-1 | 3349033.481 | 476031.868 | 3348960.881 | 447162.448 | 3 |
| 3349026.560 | 476027.159 | 3348953.997 | 447157.764 |
| 3-3 | 3349021.071 | 476023.424 | 3348948.508 | 447154.029 |
| 3349014.150 | 476018.715 | 3348941.587 | 447149.320 |
| 4-1 | 3349000.377 | 476045.343 | 3348927.814 | 447175.948 | 4 |
| 3348993.510 | 476040.555 | 3348920.947 | 447171.160 |
| 4-3 | 3348988.054 | 476036.751 | 3348915.491 | 447167.356 |
| 3348981.187 | 476031.963 | 3348908.624 | 447162.568 |
| 4 | 高安服务区路堤挡墙 | 肖家河沟 | 起点 | - | 3346687.506 | 476630.748 | 3346613.234 | 447755.350 | 1 |
| 终点 | 3346680.794 | 476636.936 | 3346607.010 | 447761.063 | 2 |
| 5 | 大沙河大桥 | 大沙河 | 桥墩（左幅） | 8-1 | 3342590.525 | 479118.119 | 3342509.918 | 450231.707 | 8 |
| 3342585.522 | 479116.440 | 3342504.915 | 450230.028 |
| 8-3 | 3342580.520 | 479114.762 | 3342499.912 | 450228.350 |
| 3342574.183 | 479112.636 | 3342493.575 | 450226.223 |
| 8-5 | 3342568.135 | 479110.606 | 3342487.527 | 450224.194 |
| 3342562.086 | 479108.577 | 3342481.479 | 450222.165 |
| 9-1 | 3342562.254 | 479145.125 | 3342481.646 | 450258.713 | 9 |
| 3342556.453 | 479143.230 | 3342475.845 | 450256.818 |
| 9-3 | 3342550.802 | 479141.343 | 3342470.044 | 450254.923 |
| 3342544.302 | 479139.261 | 3342463.694 | 450252.848 |
| 9-5 | 3342537.359 | 479136.993 | 3342456.751 | 450250.581 |
| 3342530.417 | 479134.725 | 3342449.809 | 450248.313 |
| 10-1 | 3342533.568 | 479172.141 | 3342452.960 | 450285.729 | 10 |
| 3342527.284 | 479170.144 | 3342446.677 | 450283.732 |
| 10-3 | 3342521.001 | 479168.147 | 3342440.393 | 450281.735 |
| 3342514.635 | 479166.124 | 3342434.027 | 450279.712 |
| 10-5 | 3342506.789 | 479163.630 | 3342426.181 | 450277.218 |
| 3342498.942 | 479161.137 | 3342418.335 | 450274.724 |
| 6 | 老官咀大桥 | 余马河 | 桥墩 | 2-0 | 3339144.994 | 482505.545 | 3339055.713 | 453609.773 | 2 |
| 3339139.359 | 482500.983 | 3339050.091 | 453605.196 |
| 2-2 | 3339134.891 | 482497.365 | 3339045.632 | 453601.566 |
| 3339129.256 | 482492.803 | 3339040.009 | 453596.990 |
| 6-0 | 3339057.290 | 482608.552 | 3338967.741 | 453712.545 | 6 |
| 3339050.177 | 482607.150 | 3338960.632 | 453711.125 |
| 6-2 | 3339044.535 | 482606.039 | 3338954.993 | 453709.999 |
| 3339037.422 | 482604.637 | 3338947.884 | 453708.579 |
| 7-0 | 3339030.675 | 482638.620 | 3338941.047 | 453742.543 | 7 |
| 3339023.587 | 482637.092 | 3338933.965 | 453740.996 |
| 7-2 | 3339017.967 | 482635.880 | 3338928.347 | 453739.770 |
| 3339010.880 | 482634.352 | 3338921.264 | 453738.223 |
| 13-0 | 3338893.897 | 482778.800 | 3338803.905 | 453882.358 | 13 |
| 3338888.985 | 482773.467 | 3338799.007 | 453877.013 |
| 13-2 | 3338885.089 | 482769.238 | 3338795.123 | 453872.773 |
| 3338880.177 | 482763.906 | 3338790.225 | 453867.428 |
| 7 | 余马河改路桥 | 桥墩 | - | 3339118.360 | 482487.781 | 3339029.127 | 453591.940 | 0 |
| 3339113.099 | 482483.550 | 3339023.876 | 453587.695 | 1 |
| 8 | LK0+625.70涵洞 | 双叉河 | 起点 | - | 3335911.944 | 483698.723 | 3335818.671 | 454809.493 | 1 |
| 3335920.949 | 483694.214 | 3335837.418 | 454807.008 | 2 |
| 终点 | - | 3335880.504 | 483612.169 | 3335794.585 | 454689.147 | 1 |
| 3335889.390 | 483611.383 | 3335800.454 | 454690.399 | 2 |
| 9 | Z3K42+575.50、K42+567.87涵洞 | 裴兴河 | 起点 | - | 3333801.710 | 485957.740 | 3333715.933 | 457047.173 | 1 |
| 3333803.357 | 485937.321 | 3333716.514 | 457037.542 | 2 |
| 终点 | - | 3333724.069 | 485950.928 | 3333607.733 | 456998.278 | 1 |
| 3333725.933 | 485930.528 | 3333612.800 | 456995.064 | 2 |
| 10 | 高洞子大桥 | 罗家桥支沟 | 桥墩（右幅） | 7-1 | 3330997.962 | 489172.546 | 3330997.962 | 489172.546 | 7 |
| 3331000.789 | 489178.204 | 3331000.789 | 489178.204 |
| 7-3 | 3331002.973 | 489177.025 | 3331002.973 | 489177.025 |
| 3331000.131 | 489171.463 | 3331000.131 | 489171.463 |
| 11 | 田家沟大桥 | 桥墩（左幅） | 15-1 | 3329748.919 | 490266.448 | 3329639.578 | 461345.748 | 15 |
| 3329753.990 | 490270.286 | 3329644.636 | 461349.557 |
| 15-3 | 3329755.986 | 490267.627 | 3329646.639 | 461346.904 |
| 3329750.928 | 490263.830 | 3329641.590 | 461343.084 |
| 桥墩（右幅） | 15-1 | 3329738.526 | 490258.685 | 3329629.203 | 461337.916 | 15 |
| 3329743.594 | 490262.481 | 3329634.261 | 461341.725 |
| 15-3 | 3329745.590 | 490259.822 | 3329636.264 | 461339.072 |
| 3329740.531 | 490256.015 | 3329631.215 | 461335.252 |
| 桥墩（左幅） | 16-1 | 3329724.910 | 490298.474 | 3329615.473 | 461377.669 | 16 |
| 3329729.968 | 490302.283 | 3329620.530 | 461381.477 |
| 16-3 | 3329731.973 | 490299.615 | 3329622.533 | 461378.824 |
| 3329726.906 | 490295.807 | 3329617.484 | 461375.004 |
| 桥墩（右幅） | 16-1 | 3329714.515 | 490290.622 | 3329605.101 | 461369.831 | 16 |
| 3329719.574 | 490294.463 | 3329610.159 | 461373.640 |
| 16-3 | 3329721.584 | 490291.847 | 3329612.162 | 461370.987 |
| 3329716.514 | 490287.996 | 3329607.113 | 461367.167 |
| 12 | 渠溪河特大桥 | 渠溪河 | 桥墩（左幅） | 10-1 | 3328535.098 | 491531.465 | 3328422.481 | 462607.489 | 10 |
| 3328539.221 | 491535.824 | 3328426.593 | 462611.858 |
| 10-3 | 3328543.580 | 491531.701 | 3328430.962 | 462607.747 |
| 3328539.457 | 491527.342 | 3328426.851 | 462603.377 |
| 桥墩（右幅） | 10-1 | 3328526.168 | 491522.024 | 3328413.576 | 462598.025 | 10 |
| 3328530.291 | 491526.383 | 3328417.688 | 462602.394 |
| 10-3 | 3328534.650 | 491522.260 | 3328422.057 | 462598.283 |
| 3328530.526 | 491517.901 | 3328417.946 | 462593.913 |
| 桥墩（左幅） | 11-1 | 3328424.807 | 491638.772 | 3328312.116 | 462714.308 | 11 |
| 3328429.070 | 491642.994 | 3328316.165 | 462718.735 |
| 11-3 | 3328424.848 | 491647.257 | 3328311.737 | 462722.784 |
| 3328420.585 | 491643.035 | 3328307.688 | 462718.356 |
| 桥墩（右幅） | 11-1 | 3328415.573 | 491629.627 | 3328303.347 | 462704.718 | 11 |
| 3328419.836 | 491633.849 | 3328307.395 | 462709.145 |
| 11-3 | 3328415.614 | 491638.113 | 3328302.968 | 462713.194 |
| 3328411.351 | 491633.891 | 3328298.919 | 462708.767 |
| 13 | 红庙子大桥 | 熊家河 | 桥墩（左幅） | 3-1 | 3325655.359 | 495353.412 | 3325532.835 | 466421.728 | 3 |
| 3325649.407 | 495346.903 | 3325526.900 | 466415.204 |
| 桥墩（右幅） | 3-1 | 3325644.956 | 495342.298 | 3325522.461 | 466410.587 | 3 |
| 3325638.002 | 495334.430 | 3325515.528 | 466402.701 |
| 桥墩（左幅） | 4-1 | 3325631.891 | 495372.568 | 3325509.311 | 466440.839 | 4 |
| 3325626.977 | 495366.928 | 3325504.419 | 466435.169 |
| 桥墩（右幅） | 4-1 | 3325623.203 | 495362.597 | 3325500.656 | 466430.828 | 4 |
| 3325616.858 | 495355.313 | 3325494.330 | 466423.528 |
| 14 | 熊家河中桥 | 桥墩 | 2-1 | 3322380.300 | 498012.079 | 3322250.948 | 469071.699 | 2 |
| 3322387.127 | 497994.738 | 3322257.821 | 469054.376 |
| 3-1 | 3322397.818 | 498023.447 | 3322268.435 | 469083.112 | 3 |
| 3322402.897 | 498005.516 | 3322273.562 | 469065.195 |
| 15 | 深基湾大桥 | 四叶沟 | 桥墩 | 3-1 | 3322202.341 | 498743.728 | 3322071.081 | 469802.800 | 3 |
| 3322188.157 | 498729.275 | 3322056.936 | 469788.400 |
| 4-1 | 3322180.942 | 498764.739 | 3322049.628 | 469823.800 | 4 |
| 3322166.744 | 498750.301 | 3322035.468 | 469809.300 |
| 5-1 | 3322159.616 | 498785.782 | 3322028.247 | 469844.800 | 5 |
| 3322145.361 | 498771.399 | 3322014.031 | 469830.400 |
| 6-1 | 3322138.426 | 498806.919 | 3322007.003 | 469865.900 | 6 |
| 3322124.072 | 498792.635 | 3321992.687 | 469851.500 |
| 16 | 碧溪河大桥 | 碧溪河 | 桥墩（左幅） | 7 | 3321621.019 | 499583.955 | 3321487.584 | 470641.516 | 7 |
| 17 | K61+667~K61+738填方路基 | 路堤墙 | / | 3321388.397 | 500071.272 | 3321253.697 | 471128.202 | / |
| / | 3321395.509 | 500061.044 | 3321260.835 | 471117.993 | / |
| 3321403.689 | 500048.961 | 3321269.046 | 471105.933 | / |
| 18 | 回龙湾大桥 | 大沟 | 桥墩（左幅） | 4-1 | 3319110.295 | 501423.358 | 3318972.159 | 472474.263 | 4 |
| 3319103.498 | 501414.394 | 3318965.386 | 472465.281 |
| 4-3 | 3319091.625 | 501423.396 | 3318953.489 | 472474.251 |
| 3319098.422 | 501432.360 | 3318960.263 | 472483.233 |
| 5-1 | 3319030.609 | 501483.774 | 3318892.318 | 472534.467 | 5 |
| 3319023.812 | 501474.809 | 3318885.545 | 472525.485 |
| 5-3 | 3319011.939 | 501483.811 | 3318873.649 | 472534.456 |
| 3319018.735 | 501492.776 | 3318880.422 | 472543.438 |
| 桥墩（右幅） | 4-1 | 3319102.441 | 501412.999 | 3318964.332 | 472463.883 | 4 |
| 3319095.644 | 501404.034 | 3318957.559 | 472454.901 |
| 4-3 | 3319083.771 | 501413.036 | 3318945.663 | 472463.872 |
| 3319090.568 | 501422.001 | 3318952.436 | 472472.854 |
| 5-1 | 3319022.755 | 501473.415 | 3318884.491 | 472524.088 | 5 |
| 3319015.958 | 501464.450 | 3318877.718 | 472515.106 |
| 5-3 | 3319004.084 | 501473.452 | 3318865.822 | 472524.076 |
| 3319010.881 | 501482.417 | 3318872.595 | 472533.058 |
| 19 | 茄马石中桥 | 茄马石水库 | 桥墩（左幅） | 0-1 | 3318271.341 | 502063.857 | 3318131.567 | 473112.536 | 0 |
| 3318262.582 | 502052.948 | 3318122.837 | 473101.605 |
| 1-1 | 3318247.560 | 502078.123 | 3318107.750 | 473126.739 | 1 |
| 3318242.979 | 502072.503 | 3318103.185 | 473121.108 |
| 2-1 | 3318224.433 | 502097.115 | 3318084.574 | 473145.670 | 2 |
| 3318219.811 | 502091.529 | 3318079.968 | 473140.072 |
| 3-1 | 3318205.814 | 502117.667 | 3318065.903 | 473166.172 | 3 |
| 3318196.817 | 502106.953 | 3318056.934 | 473155.436 |
| 桥墩（右幅） | 0-1 | 3318262.569 | 502052.932 | 3318122.822 | 473101.588 | 0 |
| 3318253.810 | 502042.024 | 3318114.094 | 473090.658 |
| 1-1 | 3318239.346 | 502068.046 | 3318099.564 | 473116.642 | 1 |
| 3318234.766 | 502062.426 | 3318094.998 | 473111.010 |
| 2-1 | 3318216.146 | 502087.098 | 3318076.314 | 473135.632 | 2 |
| 3318211.524 | 502081.512 | 3318071.707 | 473130.034 |
| 3-1 | 3318196.804 | 502106.938 | 3318056.922 | 473155.420 | 3 |
| 3318187.808 | 502096.224 | 3318047.953 | 473144.684 |
| 20 | 老屋基大桥 | 杨家巷子沟 | 桥墩（左幅） | 6-1 | 3316474.777 | 504305.606 | 3316329.224 | 475349.480 | 6 |
| 3316490.284 | 504314.567 | 3316344.708 | 475358.480 |
| 6-3 | 3316494.136 | 504307.900 | 3316348.577 | 475351.824 |
| 3316478.629 | 504298.939 | 3316333.094 | 475342.823 |
| 7-1 | 3316454.763 | 504340.239 | 3316309.121 | 475384.059 | 7 |
| 3316468.573 | 504348.219 | 3316322.910 | 475392.075 |
| 7-3 | 3316472.426 | 504341.552 | 3316326.780 | 475385.418 |
| 3316458.615 | 504333.572 | 3316312.991 | 475377.402 |
| 桥墩（右幅） | 6-1 | 3316459.539 | 504296.801 | 3316314.010 | 475340.635 | 6 |
| 3316470.968 | 504303.405 | 3316325.421 | 475347.269 |
| 6-3 | 3316474.820 | 504296.738 | 3316329.291 | 475340.612 |
| 3316463.391 | 504290.134 | 3316317.880 | 475333.979 |
| 7-1 | 3316441.409 | 504332.523 | 3316295.788 | 475376.308 | 7 |
| 3316450.241 | 504337.626 | 3316304.606 | 475381.434 |
| 7-3 | 3316454.093 | 504330.959 | 3316308.475 | 475374.777 |
| 3316445.261 | 504325.856 | 3316299.658 | 475369.651 |
| 21 | 陈家湾大桥 | 泥巴溪 | 桥墩（左幅） | 6-1 | 3312879.522 | 492389.903 | 3312661.060 | 482735.279 | 6 |
| 3312872.676 | 492388.446 | 3312654.215 | 482733.816 |
| 桥墩（右幅） | 6-1 | 3312867.052 | 492387.249 | 3312648.592 | 482732.614 | 6 |
| 3312860.205 | 492385.791 | 3312641.747 | 482731.151 |
| 22 | 蒋家山1号大桥 | 木屑溪 | 桥墩（左幅） | 5-1 | 3312903.370 | 496125.508 | 3312681.658 | 486470.651 | 5 |
| 3312904.920 | 496122.370 | 3312683.211 | 486467.514 |
| 5-3 | 3312899.092 | 496119.491 | 3312677.386 | 486464.630 |
| 3312897.542 | 496122.629 | 3312675.833 | 486467.767 |
| 桥墩（右幅） | 4-1 | 3312889.977 | 496118.705 | 3312668.272 | 486463.837 | 4 |
| 3312891.512 | 496115.559 | 3312669.810 | 486460.693 |
| 4-3 | 3312885.670 | 496112.709 | 3312663.971 | 486457.837 |
| 3312884.136 | 496115.854 | 3312662.434 | 486460.981 |
| 玉米溪 | 桥墩（左幅） | 9-1 | 3312832.222 | 496271.440 | 3312610.388 | 486616.511 | 9 |
| 3312835.854 | 496264.088 | 3312614.026 | 486609.163 |
| 9-3 | 3312828.502 | 496260.456 | 3312606.678 | 486605.525 |
| 3312824.870 | 496267.808 | 3312603.040 | 486612.873 |
| 桥墩（右幅） | 7-1 | 3312837.091 | 496229.037 | 3312615.294 | 486574.116 | 7 |
| 3312840.687 | 496221.668 | 3312618.896 | 486566.750 |
| 7-3 | 3312833.317 | 496218.072 | 3312611.530 | 486563.148 |
| 3312829.721 | 496225.442 | 3312607.928 | 486570.514 |
| 23 | 方斗山大桥 | 木屑溪 | 桥墩（左幅） | 0-1 | 3310310.009 | 498732.348 | 3310086.205 | 489075.055 | 0 |
| 3310314.662 | 498744.214 | 3310090.858 | 489086.949 |
| 1-1 | 3310272.870 | 498747.269 | 3310049.081 | 489089.939 | 1 |
| 3310277.704 | 498759.063 | 3310053.881 | 489101.745 |
| 桥墩（右幅） | 0-1 | 3310306.820 | 498692.910 | 3310083.058 | 489035.620 | 0 |
| 3310311.448 | 498704.790 | 3310087.671 | 489047.505 |
| 1-1 | 3310269.478 | 498707.740 | 3310045.704 | 489050.407 | 1 |
| 3310274.270 | 498719.545 | 3310050.488 | 489062.225 |
| 24 | 马家沟大桥 | 黄泥沟 | 桥墩（左幅） | 2-1 | 3306160.029 | 501136.112 | 3305934.420 | 491475.052 | 2 |
| 3306157.375 | 501126.933 | 3305931.774 | 491465.872 |
| 3-1 | 3306121.402 | 501147.713 | 3305895.786 | 491486.620 | 3 |
| 3306120.753 | 501145.299 | 3305895.138 | 491484.205 |
| 3-3 | 3306119.515 | 501140.517 | 3305893.905 | 491479.422 |
| 3306118.881 | 501138.098 | 3305893.273 | 491477.003 |
| 4-1 | 3306082.264 | 501157.456 | 3305856.642 | 491496.327 | 4 |
| 3306081.691 | 501155.023 | 3305856.070 | 491493.894 |
| 4-3 | 3306080.557 | 501150.214 | 3305854.941 | 491489.085 |
| 3306079.984 | 501147.781 | 3305854.370 | 491486.651 |
| 马家沟 | 桥墩（左幅） | 5-1 | 3306042.895 | 501166.217 | 3305817.267 | 491505.054 | 5 |
| 3306042.382 | 501163.770 | 3305816.757 | 491502.607 |
| 5-3 | 3306041.369 | 501158.935 | 3305815.748 | 491497.771 |
| 3306040.857 | 501156.488 | 3305815.238 | 491495.324 |
| 桥墩（右幅） | 5-1 | 3306014.688 | 501146.680 | 3305789.082 | 491485.506 | 5 |
| 3306013.127 | 501140.384 | 3305787.524 | 491479.196 |
| 6-1 | 3305975.830 | 501155.870 | 3305750.216 | 491494.649 | 6 |
| 3305974.407 | 501149.528 | 3305748.798 | 491488.306 |
| 25 | 龙河特大桥 | 龙河 | 桥墩（左幅） | 9-1 | 3302978.575 | 503033.993 | 3302751.533 | 493370.040 | 9 |
| 3302987.289 | 503053.101 | 3302760.229 | 493389.153 |
| 9-3 | 3302968.181 | 503061.814 | 3302741.115 | 493397.849 |
| 3302959.468 | 503042.707 | 3302732.419 | 493378.735 |
| 10-1 | 3302814.800 | 503108.678 | 3302587.704 | 493444.576 | 10 |
| 3302823.514 | 503127.785 | 3302596.400 | 493463.690 |
| 10-3 | 3302804.406 | 503136.498 | 3302577.286 | 493472.386 |
| 3302795.693 | 503117.391 | 3302568.590 | 493453.272 |
| 桥墩（右幅） | 9-1 | 3302961.495 | 503000.056 | 3302734.482 | 493336.089 | 9 |
| 3302970.238 | 503019.149 | 3302743.209 | 493355.189 |
| 9-3 | 3302951.145 | 503027.892 | 3302724.110 | 493363.915 |
| 3302942.401 | 503008.799 | 3302715.383 | 493344.816 |
| 10-1 | 3302797.816 | 503074.936 | 3302570.750 | 493410.822 | 10 |
| 3302806.530 | 503094.043 | 3302579.446 | 493429.935 |
| 10-3 | 3302787.423 | 503102.756 | 3302560.333 | 493438.631 |
| 3302778.709 | 503083.649 | 3302551.637 | 493419.518 |
| 26 | K97+458盖板涵 | 砍材沟 | 涉河拐点 | 1 | 3302751.533 | 493370.040 | 3299229.428 | 494977.816 | 1 |
| 3302760.229 | 493389.153 | 3299208.295 | 494988.759 | 2 |
| 3 | 3302741.115 | 493397.849 | 3299308.951 | 495025.188 | 3 |
| 3302732.419 | 493378.735 | 3299287.731 | 495036.177 | 4 |
| 27 | 堡上中桥 | 桥墩 | 1-1 | 3302587.704 | 493444.576 | 3299282.859 | 495014.654 | 1 |
| 3302596.400 | 493463.690 | 3299288.544 | 495018.219 |
| 2-1 | 3302577.286 | 493472.386 | 3299266.973 | 495023.040 | 2 |
| 3302568.590 | 493453.272 | 3299272.573 | 495026.607 |
| 28 | 栗都路改路桥 | 桥墩 | 1-1 | 3302734.482 | 493336.089 | 3299331.461 | 495036.098 | 1 |
| 3302743.209 | 493355.189 | 3299334.394 | 495039.511 |
| 2-1 | 3302724.110 | 493363.915 | 3299318.764 | 495051.826 | 2 |
| 3302715.383 | 493344.816 | 3299322.718 | 495053.973 |
| 29 | 小洞湾大桥 | 小洞湾河 | 桥墩（左幅） | 1-1 | 3293041.364 | 508650.628 | 3292670.294 | 498977.175 | 1 |
| 3293042.037 | 508657.596 | 3292670.961 | 498984.142 |
| 2-1 | 3293011.571 | 508653.741 | 3292640.502 | 498980.261 | 2 |
| 3293012.353 | 508660.697 | 3292641.278 | 498987.217 |
| 桥墩（右幅） | 1-1 | 3293030.547 | 508621.040 | 3292659.504 | 498947.580 | 1 |
| 3293031.077 | 508628.020 | 3292660.028 | 498954.560 |
| 2-1 | 3293000.491 | 508623.701 | 3292629.439 | 498950.106 | 2 |
| 3293001.134 | 508630.561 | 3292630.087 | 498957.075 |
| 30 | K107+067盖板涵 | 欠家沟 | 涉河拐点 | 1 | 3291651.318 | 509209.909 | 3291278.729 | 499535.656 | 1 |
| 3291643.174 | 509213.118 | 3291272.213 | 499538.216 | 2 |
| 3 | 3291653.954 | 509292.096 | 3291282.323 | 499617.432 | 3 |
| 3291646.549 | 509295.012 | 3291275.079 | 499620.278 | 4 |
| 31 | 腰店子大桥 | 岩矸沟 | 桥墩（左幅） | 2-1 | 3290018.955 | 498567.072 | 3289541.728 | 498567.377 | 2 |
| 3290014.802 | 498572.864 | 3289537.649 | 498573.066 |
| 3-1 | 3289986.093 | 498544.422 | 3289508.939 | 498544.623 | 3 |
| 3289982.191 | 498550.234 | 3289505.037 | 498550.435 |
| 桥墩（右幅） | 4-1 | 3290015.092 | 498532.538 | 3289537.985 | 498532.678 | 4 |
| 3290010.891 | 498538.040 | 3289533.737 | 498538.241 |
| 5-1 | 3289990.932 | 498514.400 | 3289513.779 | 498514.602 | 5 |
| 3290018.955 | 498567.072 | 3289509.651 | 498520.255 |
| 32 | 小安溪大桥 | 小安溪 | 桥墩（左幅） | 12-1 | 3284091.587 | 496516.109 | 3283563.532 | 496516.659 | 12 |
| 3284092.454 | 496523.055 | 3283564.399 | 496523.605 |
| 13-1 | 3284061.719 | 496519.520 | 3283533.665 | 496520.070 | 13 |
| 3284062.434 | 496526.483 | 3283534.380 | 496527.034 |
| 14-1 | 3284031.763 | 496522.202 | 3283503.709 | 496522.752 | 14 |
| 3284032.293 | 496529.182 | 3283504.239 | 496529.732 |
| 15-1 | 3284001.744 | 496524.070 | 3283473.689 | 496524.620 | 15 |
| 3284002.083 | 496531.061 | 3283474.029 | 496531.612 |
| 16-1 | 3283971.685 | 496525.118 | 3283443.632 | 496525.769 | 16 |
| 3283971.833 | 496532.117 | 3283443.779 | 496532.667 |
| 17-1 | 3283941.608 | 496525.347 | 3283413.554 | 496525.897 | 17 |
| 3283941.566 | 496532.346 | 3283413.511 | 496532.897 |
| 18-1 | 3283911.536 | 496524.755 | 3283383.482 | 496525.305 | 18 |
| 3283911.303 | 496531.751 | 3283383.249 | 496532.301 |
| 19-1 | 3283881.492 | 496523.343 | 3283353.438 | 496523.893 | 19 |
| 3283881.068 | 496530.330 | 3283353.014 | 496530.881 |
| 20-1 | 3283851.498 | 496521.104 | 3283323.443 | 496521.663 | 20 |
| 3283850.883 | 496528.086 | 3283322.829 | 496528.636 |
| 桥墩（右幅） | 10-1 | 3284089.873 | 496501.008 | 3283561.818 | 496501.558 | 10 |
| 3284090.564 | 496507.974 | 3283562.502 | 496508.454 |
| 11-1 | 3284060.251 | 496503.538 | 3283532.196 | 496504.088 | 11 |
| 3284060.751 | 496510.520 | 3283532.697 | 496511.070 |
| 12-1 | 3284030.571 | 496505.259 | 3283502.517 | 496505.809 | 12 |
| 3284030.881 | 496512.252 | 3283502.826 | 496512.802 |
| 13-1 | 3284000.855 | 496506.170 | 3283472.801 | 496506.720 | 13 |
| 3284000.974 | 496513.169 | 3283472.920 | 496513.719 |
| 14-1 | 3283971.126 | 496506.270 | 3283443.071 | 496506.820 | 14 |
| 3283971.054 | 496513.269 | 3283442.999 | 496513.820 |
| 15-1 | 3283941.404 | 496505.559 | 3283413.350 | 496506.110 | 15 |
| 3283941.142 | 496512.554 | 3283413.087 | 496513.105 |
| 16-1 | 3283911.713 | 496504.039 | 3283383.659 | 496504.589 | 16 |
| 3283911.260 | 496511.024 | 3283383.214 | 496511.440 |
| 17-1 | 3283882.075 | 496501.709 | 3283354.021 | 496502.259 | 17 |
| 3283881.425 | 496508.744 | 3283353.377 | 496509.230 |
| 33 | 扁担岩大桥 | 厂沟河 | 桥墩 | BDY01 | 3280980.997 | 492292.084 | 3280453.446 | 492293.314 | 右线1号桥墩 |
| BDY02 | 3280976.961 | 492297.803 | 3280449.409 | 492299.032 |
| BDY03 | 3280956.155 | 492274.917 | 3280428.607 | 492276.15 | 右线2号桥墩 |
| BDY04 | 3280952.233 | 492280.716 | 3280424.686 | 492281.948 |
| BDY05 | 3280932.537 | 492285.877 | 3280404.992 | 492287.11 | 左线2号桥墩 |
| BDY06 | 3280928.543 | 492291.626 | 3280400.999 | 492292.856 |
| BDY07 | 3280907.771 | 492269.053 | 3280380.231 | 492270.286 | 左线3号桥墩 |
| BDY08 | 3280882.661 | 492252.748 | 3280355.125 | 492253.983 | 左线4号桥墩 |
| BDY09 | 3280857.217 | 492236.967 | 3280329.686 | 492238.206 | 左线5号桥墩 |
| BDY10 | 3280853.59 | 492242.954 | 3280326.058 | 492244.193 |
| 34 | K120+930改移道路 | 路基 | L01 | 3280984.757 | 492284.921 | 3280457.133 | 492286.107 | 道路路基 |
| L02 | 3280981.441 | 492282.833 | 3280453.889 | 492284.065 |
| L03 | 3280961.037 | 492276.058 | 3280433.488 | 492277.291 |
| L04 | 3280925.122 | 492273.201 | 3280397.579 | 492274.435 |
| L05 | 3280904.786 | 492264.596 | 3280377.246 | 492265.831 |
| L06 | 3280895.513 | 492256.443 | 3280367.975 | 492257.679 |
| 35 | K120+930改移道路桥 | 桥台 | Q01 | 3280946.892 | 492274.2 | 3280419.346 | 492275.432 | 右岸桥台 |
| Q02 | 3280941.409 | 492273.762 | 3280413.864 | 492274.995 |
| Q03 | 3280940.566 | 492284.329 | 3280413.02 | 492285.561 | 左岸桥台 |
| Q04 | 3280946.048 | 492284.766 | 3280418.503 | 492285.999 |
| 36 | K121+195改移道路 | 路基 | 1 | 3280766.317 | 492217.273 | 3280238.799 | 492218.516 | 道路路基 |
| 2 | 3280728.314 | 492187.946 | 3280200.803 | 492189.193 |
| 3 | 3280693.519 | 492183.326 | 3280166.013 | 492184.574 |
| 4 | 3280691.037 | 492184.356 | 3280163.531 | 492185.604 |
| 5 | 3280665.75 | 492186.815 | 3280138.249 | 492188.062 |
| 37 | 土地屋特大桥、土地屋1号大桥 | 桥墩 | K1 | 3280254.778 | 492042.752 | 3279727.343 | 492044.023 | 左幅3#桥墩 |
| K2 | 3280256.702 | 492022.841 | 3279729.266 | 492024.115 | 右幅3#桥墩 |
| K3 | 3280215.711 | 492032.331 | 3279688.282 | 492033.603 | 左幅4#桥墩 |
| K4 | 3280216.581 | 492019.471 | 3279689.152 | 492020.745 | 右幅4#桥墩 |
| K5 | 3280176.418 | 492017.131 | 3279648.995 | 492018.405 | 右幅5#桥墩 |
| K6 | 3280136.068 | 492022.616 | 3279608.651 | 492023.889 | 右幅6#桥墩 |
| K7 | 3280136.273 | 492015.619 | 3279608.857 | 492016.893 |
| K8 | 3279806.788 | 492009.853 | 3279279.353 | 492011.127 | 右幅16#桥墩 |
| K9 | 3279807.525 | 492002.899 | 3279280.161 | 492004.175 |
| K10 | 3279777.974 | 491999.145 | 3279250.615 | 492000.422 | 右幅17#桥墩 |
| K11 | 3279405.929 | 491894.77 | 3278878.63 | 491896.064 | 右幅30#桥墩 |
| K12 | 3279378.217 | 491883.402 | 3278850.922 | 491884.698 | 右幅31#桥墩 |
| K13 | 3279345.667 | 491883.738 | 3278818.377 | 491885.034 | 左幅23#桥墩 |
| K14 | 3279350.504 | 491871.941 | 3278823.214 | 491873.239 | 右幅32#桥墩 |
| K15 | 3279315.27 | 491878.734 | 3278787.985 | 491880.03 | 左幅24#桥墩 |
| K15.5 | 3279259.704 | 491855.845 | 3278732.429 | 491857.145 | 左幅26#桥墩 |
| K16 | 3279222.871 | 491840.493 | 3278695.601 | 491841.795 | 左幅27#桥墩 |
| K17 | 3279230.385 | 491822.228 | 3278703.108 | 491823.548 | 右幅36#桥墩 |
| K18 | 3279190.748 | 491813.4 | 3278663.484 | 491814.707 | 右幅37#桥墩 |
| K19 | 3279193.425 | 491806.932 | 3278666.16 | 491808.24 |
| K20 | 3279156.558 | 491791.674 | 3278629.299 | 491792.984 | 右幅38#桥墩 |
| K21 | 3278955.816 | 491730.026 | 3278428.609 | 491731.297 | 左幅36#桥墩 |
| K22 | 3278958.513 | 491723.509 | 3278431.286 | 491724.83 |
| 38 | 改建路2号桥 | 桥墩 | 1 | 3280091.662 | 492009.689 | 3279564.079 | 492011.324 | 左岸墩 |
| 2 | 3280096.616 | 491999.421 | 3279569.206 | 492000.699 | 右岸墩 |
| 39 | 梨子村中桥、A0+152.10改移道路桥 | 杨家河 | 桥墩 | K1 | 3277121.53 | 491623.132 | 3276682.408 | 491624.247 | 梨子村中桥 |
| K2 | 3277115.957 | 491597.235 | 3276676.836 | 491598.353 |
| K3 | 3277092.916 | 491625.553 | 3276653.805 | 491626.662 |
| K4 | 3277089.124 | 491606.17 | 3276650 | 491607.292 |
| K5 | 3277054.172 | 491593.756 | 3276615.059 | 491594.874 | A0+152.10改移道路桥 |
| K6 | 3277046.684 | 491593.335 | 3276607.572 | 491594.454 |
| K7 | 3277054.889 | 491580.976 | 3276615.776 | 491582.096 |
| K8 | 3277047.401 | 491580.555 | 3276608.289 | 491581.676 |
| 40 | 接龙互通 | 桥墩 | K1 | 3275789.619 | 491365.074 | 3275350.675 | 491366.223 | 接龙互通D匝道中桥 |
| K2 | 3275793.29 | 491362.471 | 3275354.345 | 491363.62 |
| K3 | 3275775.43 | 491338.382 | 3275336.488 | 491339.534 |
| K4 | 3275779.625 | 491336.754 | 3275340.682 | 491337.907 |
| K5 | 3275744.406 | 491360.561 | 3275305.468 | 491361.711 | 杨家河中桥 |
| K6 | 3275736.283 | 491355.831 | 3275297.346 | 491356.981 |
| K7 | 3275747.142 | 491342.779 | 3275308.203 | 491343.931 |
| K8 | 3275753.271 | 491349.907 | 3275314.331 | 491351.057 |
| K9 | 3275725.521 | 491369.647 | 3275286.585 | 491370.795 | 接龙互通A匝道大桥 |
| K10 | 3275714.168 | 491365.76 | 3275275.234 | 491366.909 |
| K11 | 3275737.768 | 491332.451 | 3275298.83 | 491333.603 |
| K12 | 3275725.914 | 491329.171 | 3275286.977 | 491330.324 |
| 41 | 王方咀大桥 | 桥墩 | K1 | 3275679.261 | 491360.607 | 3275240.332 | 491361.756 | 右幅2#桥墩 |
| K2 | 3275677.055 | 491367.25 | 3275238.125 | 491368.398 |  |
| K3 | 3275650.916 | 491351.057 | 3275211.991 | 491352.208 | 右幅3#桥墩 |
| K4 | 3275648.65 | 491357.68 | 3275209.724 | 491358.83 |
| K5 | 3275536.276 | 491316.124 | 3275095.513 | 491321.701 | 右幅7#桥墩 |
| K6 | 3275530.055 | 491330.968 | 3275091.145 | 491332.122 | 左幅7#桥墩 |
| K7 | 3275513.506 | 491293.567 | 3275074.599 | 491294.725 | 右幅8#桥墩 |
| K8 | 3275511.218 | 491298.733 | 3275072.311 | 491299.89 |
| K9 | 3275486.452 | 491281.261 | 3275047.548 | 491282.421 | 右幅9#桥墩 |
| K10 | 3275484.061 | 491286.38 | 3275045.158 | 491287.539 |
| K11 | 3275454.664 | 491278.557 | 3275015.764 | 491279.717 | 右幅10#桥墩 |
| K12 | 3275452.37 | 491283.224 | 3275013.471 | 491284.383 | 左幅10#桥墩 |
| K13 | 3275425.535 | 491269.697 | 3274986.639 | 491270.859 | 左幅11#桥墩 |
| K14 | 3275422.941 | 491274.717 | 3274984.046 | 491275.878 |
| K15 | 3275396.33 | 491260.516 | 3274957.39 | 491261.766 | 左幅12#桥墩 |
| K16 | 3275393.589 | 491265.57 | 3274954.697 | 491266.732 |
| 42 | 延仓河特大桥 | 小溪河 | 桥墩 | K1 | 3268940.723 | 488856.667 | 3268502.694 | 488858.15 | 左线2#桥墩 |
| K2 | 3268932.876 | 488834.622 | 3268494.849 | 488836.107 |
| K3 | 3268915.165 | 488840.926 | 3268477.14 | 488842.41 |
| K4 | 3268923.011 | 488862.971 | 3268484.985 | 488864.453 |
| K5 | 3268919.42 | 488829.486 | 3268481.395 | 488830.972 | 右线2#桥墩 |
| K6 | 3268911.574 | 488807.442 | 3268473.55 | 488808.931 |
| K7 | 3268893.862 | 488813.745 | 3268455.84 | 488815.233 |
| K8 | 3268901.709 | 488835.79 | 3268463.686 | 488837.276 |
| k9 | 3269120.568 | 488789.366 | 3268682.515 | 488790.857 | 左线1#桥墩 |
| k10 | 3269114.8 | 488773.162 | 3268676.748 | 488774.655 |
| k11 | 3269131.004 | 488767.394 | 3268692.95 | 488768.889 |
| k12 | 3269136.772 | 488783.599 | 3268698.717 | 488785.091 |
| k13 | 3269099.265 | 488762.185 | 3268661.216 | 488763.68 | 右线1#桥墩 |
| k14 | 3269093.498 | 488745.981 | 3268655.449 | 488747.478 |
| k15 | 3269109.702 | 488740.214 | 3268671.651 | 488741.712 |
| k16 | 3269115.469 | 488756.418 | 3268677.418 | 488757.914 |
| 43 | 斑竹林大桥 | 上板田沟 | 桥墩 | K1 | 3266327.244 | 489492.89 | 3265889.565 | 489494.288 | 左线4#桥墩 |
| K2 | 3266324.891 | 489485.769 | 3265887.212 | 489487.167 |
| K3 | 3266318.244 | 489487.965 | 3265880.566 | 489489.363 |
| K4 | 3266320.597 | 489495.086 | 3265882.919 | 489496.484 |
| K5 | 3266289.39 | 489505.568 | 3265851.716 | 489506.964 | 左线5#桥墩 |
| K6 | 3266286.981 | 489498.466 | 3265849.308 | 489499.863 |
| K7 | 3266280.352 | 489500.714 | 3265842.679 | 489502.11 |
| K8 | 3266282.761 | 489507.816 | 3265845.088 | 489509.212 |
| K9 | 3266331.005 | 489456.825 | 3265893.325 | 489458.227 | 右线3#桥墩 |
| K10 | 3266328.838 | 489450.169 | 3265891.133 | 489451.576 |
| K11 | 3266296.517 | 489468.492 | 3265858.842 | 489469.893 | 右线4#桥墩 |
| K12 | 3266294.123 | 489461.384 | 3265856.449 | 489462.786 |
| K13 | 3266287.489 | 489463.618 | 3265849.816 | 489465.019 |
| K14 | 3266289.883 | 489470.725 | 3265852.209 | 489472.126 |
| 44 | K139+504涵洞 | 大沟 | 涵洞 | K1 | 3263691.434 | 489648.633 | 3263362.141 | 489649.67 |  |
| K2 | 3263662.286 | 489787.714 | 3263332.997 | 489788.737 |  |
| 45 | 半坡1号大桥 | 磨刀溪 | 桥墩 | K1 | 3256925.392 | 491647.136 | 3256596.782 | 491647.973 | 左线3#桥墩 |
| K2 | 3256925.92 | 491638.953 | 3256597.309 | 491639.791 |
| K3 | 3256917.708 | 491646.64 | 3256589.098 | 491647.477 |
| K4 | 3256918.236 | 491638.457 | 3256589.626 | 491639.295 |
| K5 | 3256885.365 | 491644.185 | 3256556.758 | 491645.022 | 左线4#桥墩 |
| K6 | 3256886.078 | 491636.016 | 3256557.471 | 491636.854 |
| K7 | 3256877.694 | 491643.516 | 3256549.088 | 491644.353 |
| K8 | 3256878.407 | 491635.347 | 3256549.801 | 491636.185 |
| K9 | 3256933.702 | 491618.428 | 3256605.091 | 491619.268 | 右线3#桥墩 |
| K10 | 3256934.016 | 491610.133 | 3256605.405 | 491610.974 |
| K11 | 3256926.356 | 491609.91 | 3256597.745 | 491610.751 |
| K12 | 3256926.009 | 491618.103 | 3256597.398 | 491618.943 |
| K13 | 3256893.809 | 491616.368 | 3256565.201 | 491617.208 | 右线4#桥墩 |
| K14 | 3256894.345 | 491608.185 | 3256565.737 | 491609.026 |
| K15 | 3256886.661 | 491607.682 | 3256558.054 | 491608.523 |
| K16 | 3256886.125 | 491615.865 | 3256557.518 | 491616.705 |
| 46 | 半坡2号大桥 | 小沟 | 桥墩 | K17 | 3256439.283 | 491547.524 | 3256110.721 | 491548.37 | 左线5#桥墩 |
| K18 | 3256442.049 | 491539.804 | 3256113.487 | 491540.652 |
| K19 | 3256434.801 | 491537.207 | 3256106.239 | 491538.054 |
| K20 | 3256432.034 | 491544.926 | 3256103.473 | 491545.773 |
| K21 | 3256444.327 | 491526.671 | 3256115.765 | 491527.519 | 右线4#桥墩 |
| K22 | 3256446.75 | 491519.455 | 3256118.187 | 491520.305 |
| K23 | 3256440.147 | 491517.302 | 3256111.585 | 491518.151 |
| K24 | 3256437.708 | 491524.394 | 3256109.146 | 491525.243 |
| K25 | 3256409.289 | 491506.287 | 3256080.73 | 491507.138 | 右线5#桥墩 |
| K26 | 3256406.686 | 491513.321 | 3256078.127 | 491514.171 |
| K27 | 3256400.121 | 491510.892 | 3256071.563 | 491511.742 |
| K28 | 3256402.724 | 491503.858 | 3256074.166 | 491504.709 |
| K29 | 3256404.471 | 491525.95 | 3256075.913 | 491526.799 | 左线6#桥墩 |
| K30 | 3256401.531 | 491533.605 | 3256072.973 | 491534.453 |
| K31 | 3256394.343 | 491530.844 | 3256065.786 | 491531.693 |
| K32 | 3256397.283 | 491523.19 | 3256068.725 | 491524.039 |
| 47 | 火炉互通A匝道大桥、新田大桥、大沟大桥 | 龙溪河 | 桥墩 | K1 | 3254816.749 | 489947.045 | 3254488.35 | 489948.052 | A匝道大桥9#桥墩 |
| K2 | 3254823.282 | 489936.73 | 3254494.883 | 489937.738 |
| K3 | 3254786.016 | 489920.851 | 3254457.62 | 489921.861 |
| K4 | 3254827.038 | 489919.376 | 3254498.638 | 489920.386 | 新田大桥15#桥墩 |
| K5 | 3254831.602 | 489913.425 | 3254503.202 | 489914.436 |
| K6 | 3254826.048 | 489909.165 | 3254497.649 | 489910.176 |
| K7 | 3254821.484 | 489915.116 | 3254493.084 | 489916.126 |
| K8 | 3254795.246 | 489895.6 | 3254466.85 | 489896.612 | 新田大桥16#桥墩 |
| K9 | 3254799.633 | 489889.516 | 3254471.236 | 489890.529 |
| K10 | 3254793.998 | 489885.358 | 3254465.602 | 489886.371 |
| K11 | 3254789.569 | 489891.506 | 3254461.173 | 489892.518 |
| K12 | 3254834.999 | 489909.408 | 3254506.599 | 489910.419 | 大沟大桥4#桥墩 |
| K13 | 3254839.558 | 489903.465 | 3254511.157 | 489904.476 |
| K14 | 3254833.607 | 489898.9 | 3254505.207 | 489899.912 |
| K15 | 3254829.048 | 489904.843 | 3254500.645 | 489905.859 |
| K16 | 3254802.909 | 489885.4 | 3254474.512 | 489886.414 | 大沟大桥5#桥墩 |
| K17 | 3254807.29 | 489879.325 | 3254478.893 | 489880.338 |
| K18 | 3254801.207 | 489874.938 | 3254472.81 | 489875.952 |
| K19 | 3254796.826 | 489881.014 | 3254468.429 | 489882.028 |
| 48 | 联合停车区 | 冲溪沟 | 桥墩 | k1 | 3247057.396 | 485353.658 | 3246842.389 | 485354.621 | 1号桥右线3#桥墩 |
| k2 | 3247027.475 | 485349.833 | 3246812.471 | 485350.796 | 1号桥右线4#桥墩 |
| k3 | 3246876.354 | 485362.043 | 3246661.36 | 485363.005 | 1号桥左线7#桥墩 |
| k4 | 3246876.603 | 485356.749 | 3246661.608 | 485357.711 | 1号桥左线7#桥墩 |
| k5 | 3246847.085 | 485331.668 | 3246632.113 | 485332.644 | 1号桥右线10#桥墩 |
| k6 | 3246666.084 | 485324.491 | 3246451.103 | 485325.456 | 停车区外轮廓 |
| k7 | 3246616.574 | 485282.159 | 3246401.597 | 485283.127 |
| k8 | 3246498.296 | 485277.792 | 3246283.327 | 485278.759 |
| k9 | 3245880.835 | 485228.892 | 3245665.907 | 485229.863 | 2号桥右线10#桥墩 |
| k10 | 3245843.226 | 485215.381 | 3245628.3 | 485216.353 | 2号桥右线11#桥墩 |
| k11 | 3245840.658 | 485220.103 | 3245625.732 | 485221.074 | 2号桥右线11#桥墩 |
| k12 | 3245837.422 | 485227.949 | 3245622.496 | 485228.92 | 2号桥左线11#桥墩 |
| k13 | 3245834.881 | 485232.685 | 3245619.955 | 485233.656 | 2号桥左线11#桥墩 |
| k14 | 3245799.723 | 485212.992 | 3245584.8 | 485213.964 | 2号桥左线12#桥墩 |
| k15 | 3245797.012 | 485217.633 | 3245582.089 | 485218.604 | 2号桥左线12#桥墩 |
| 49 | GL1K0+403改移道路涵 | 冲溪沟 | 涵洞 | K1 | 3247444.926 | 485399.993 | 3247230.507 | 485401.307 |  |
| K2 | 3247428.7 | 485418.899 | 3247216.467 | 485421.886 |  |

附表5 涉河补救措施主要控制点坐标表

| 序号 | 工程河段 | 控制点编号 | 控制坐标（独立坐标系） | | 控制坐标（2000坐标系） | |
| --- | --- | --- | --- | --- | --- | --- |
| X | Y | X | Y |
| 1 | 双河-双河口2号桥-扩挖护岸 | L1 | 3364573.966 | 467987.920 | 3364573.966 | 467987.920 |
| L2 | 3364571.048 | 467990.562 | 3364571.048 | 467990.562 |
| L3 | 3364567.927 | 467996.151 | 3364567.927 | 467996.151 |
| L4 | 3364559.424 | 468041.976 | 3364559.424 | 468041.976 |
| L5 | 3364560.230 | 468063.816 | 3364560.230 | 468063.816 |
| L6 | 3364561.859 | 468070.012 | 3364561.859 | 468070.012 |
| 2 | 煤矿河沟-左家湾特大桥-扩挖新建堤防 | L1 | 3363202.714 | 468090.673 | 3363202.714 | 468090.673 |
| L2 | 3363201.822 | 468090.638 | 3363201.822 | 468090.638 |
| L3 | 3363189.408 | 468096.406 | 3363189.408 | 468096.406 |
| L4 | 3363147.099 | 468150.688 | 3363147.099 | 468150.688 |
| R1 | 3363190.732 | 468082.777 | 3363190.732 | 468082.777 |
| R2 | 3363190.730 | 468083.878 | 3363190.730 | 468083.878 |
| R3 | 3363187.561 | 468093.082 | 3363187.561 | 468093.082 |
| R4 | 3363145.074 | 468147.593 | 3363145.074 | 468147.593 |
| 3 | 桂溪河-左家湾特大桥-扩挖护岸 | L1 | 3361469.117 | 469125.093 | 3361469.117 | 469125.093 |
| L2 | 3361478.535 | 469127.235 | 3361478.535 | 469127.235 |
| L3 | 3361488.115 | 469128.458 | 3361488.115 | 469128.458 |
| L4 | 3361499.810 | 469128.812 | 3361499.810 | 469128.812 |
| L5 | 3361520.806 | 469134.142 | 3361520.806 | 469134.142 |
| L6 | 3361534.319 | 469140.955 | 3361534.319 | 469140.955 |
| R1 | 3361473.201 | 469149.737 | 3361473.201 | 469149.737 |
| R2 | 3361478.235 | 469143.715 | 3361478.235 | 469143.715 |
| R3 | 3361492.628 | 469136.565 | 3361492.628 | 469136.565 |
| R4 | 3361495.713 | 469136.417 | 3361495.713 | 469136.417 |
| R5 | 3361518.114 | 469141.184 | 3361518.114 | 469141.184 |
| R6 | 3361530.943 | 469147.652 | 3361530.943 | 469147.652 |
| 4 | 吴家桥河-高安枢纽-改河护岸扩挖 | 1 | 3351610.164 | 474794.377 | 3351610.164 | 474794.377 |
| 2 | 3351594.153 | 474766.770 | 3351594.153 | 474766.770 |
| 3 | 3351584.641 | 474744.541 | 3351584.641 | 474744.541 |
| 4 | 3351551.562 | 474630.861 | 3351551.562 | 474630.861 |
| 5 | 3351527.971 | 474609.699 | 3351527.971 | 474609.699 |
| 6 | 3351499.031 | 474604.591 | 3351499.031 | 474604.591 |
| 7 | 3351456.080 | 474588.459 | 3351456.080 | 474588.459 |
| 8 | 3351357.409 | 474528.794 | 3351357.409 | 474528.794 |
| 9 | 3351336.067 | 474525.035 | 3351336.067 | 474525.035 |
| 10 | 3351309.206 | 474530.345 | 3351309.206 | 474530.345 |
| 11 | 3351292.694 | 474530.135 | 3351292.694 | 474530.135 |
| 12 | 3351213.680 | 474512.412 | 3351213.680 | 474512.412 |
| 13 | 3351144.789 | 474507.504 | 3351144.789 | 474507.504 |
| 5 | 龙溪河-高滩河大桥-扩挖护坡 | L1 | 3349104.432 | 476055.593 | 3349031.871 | 447186.203 |
| L2 | 3349091.803 | 476050.092 | 3349019.242 | 447180.704 |
| L3 | 3349081.088 | 476044.421 | 3349008.522 | 447175.031 |
| L4 | 3348994.776 | 475990.001 | 3348922.213 | 447120.615 |
| L5 | 3348978.921 | 475976.874 | 3348906.364 | 447107.482 |
| L6 | 3348978.232 | 475976.134 | 3348905.671 | 447106.742 |
| 6 | 肖家河沟-高安服务区路堤挡墙-改河护岸扩挖 | L1 | 3346691.558 | 476621.519 | 3346617.571 | 447745.831 |
| L2 | 3346690.357 | 476624.566 | 3346616.371 | 447748.884 |
| L3 | 3346672.857 | 476638.297 | 3346598.872 | 447762.611 |
| L4 | 3346670.092 | 476638.673 | 3346596.113 | 447762.982 |
| R1 | 3346689.139 | 476620.565 | 3346615.163 | 447744.885 |
| R2 | 3346687.938 | 476623.613 | 3346613.953 | 447747.921 |
| R3 | 3346672.506 | 476635.721 | 3346598.524 | 447760.032 |
| R4 | 3346669.741 | 476636.097 | 3346595.765 | 447760.411 |
| 7 | 大沙河-大沙河大桥-扩挖护岸 | L1 | 3342579.054 | 479162.698 | 3342498.446 | 450276.286 |
| L2 | 3342575.068 | 479153.409 | 3342494.460 | 450266.997 |
| L3 | 3342562.899 | 479142.285 | 3342482.291 | 450255.872 |
| L4 | 3342531.598 | 479132.060 | 3342450.990 | 450245.647 |
| L5 | 3342519.058 | 479130.043 | 3342438.450 | 450243.631 |
| L6 | 3342480.316 | 479129.920 | 3342399.709 | 450243.508 |
| L7 | 3342451.058 | 479116.668 | 3342370.450 | 450230.256 |
| L8 | 3342448.699 | 479113.997 | 3342368.092 | 450227.585 |
| L9 | 3342430.584 | 479084.244 | 3342349.977 | 450197.832 |
| L10 | 3342423.573 | 479068.401 | 3342342.966 | 450181.988 |
| R1 | 3342611.429 | 479124.790 | 3342530.821 | 450238.378 |
| R2 | 3342596.431 | 479122.322 | 3342515.823 | 450235.910 |
| R3 | 3342588.645 | 479120.389 | 3342508.037 | 450233.976 |
| R4 | 3342548.719 | 479106.992 | 3342468.111 | 450220.580 |
| R5 | 3342534.650 | 479104.429 | 3342454.043 | 450218.016 |
| R6 | 3342490.030 | 479102.788 | 3342409.422 | 450216.376 |
| R7 | 3342448.509 | 479078.002 | 3342367.901 | 450191.590 |
| R8 | 3342439.154 | 479061.488 | 3342358.547 | 450175.076 |
| 8 | 余马河-老官咀大桥-拆除老桥 | A | 3339147.990 | 482475.279 | 3339060.619 | 453582.289 |
| B | 3339143.532 | 482473.338 | 3339054.336 | 453577.563 |
| C | 3339134.518 | 482494.037 | 3339045.254 | 453598.322 |
| D | 3339138.971 | 482495.979 | 3339053.242 | 453599.846 |
| 9 | 罗家桥支沟-高洞子大桥-扩挖护岸 | DGL0+000.00 | 3331004.106 | 489153.683 | 3330897.636 | 460236.279 |
| DGL0+035.49 | 3330991.427 | 489186.835 | 3330884.870 | 460269.396 |
| DGL0+048.78 | 3330989.843 | 489199.890 | 3330883.252 | 460282.446 |
| DGL0+050.95 | 3330990.112 | 489202.050 | 3330883.516 | 460284.607 |
| DGR0+000.00 | 3330998.791 | 489151.650 | 3330892.327 | 460234.232 |
| DGR0+039.11 | 3330984.819 | 489188.183 | 3330878.260 | 460270.726 |
| DGR0+052.03 | 3330982.216 | 489200.773 | 3330875.623 | 460283.310 |
| DGR0+054.15 | 3330982.126 | 489202.891 | 3330875.528 | 460285.427 |
| 10 | 熊家河-熊家河中桥-扩挖护岸 | BXR0+000.00 | 3322384.936 | 498061.911 | 3322255.453 | 469121.540 |
|
| BXR0+008.46 | 3322387.923 | 498054.011 | 3322258.461 | 469113.648 |
| BXR0+065.78 | 3322403.546 | 497998.858 | 3322274.228 | 469058.539 |
| BXR0+077.51 | 3322404.442 | 497987.242 | 3322275.155 | 469046.926 |
| 11 | 碧溪河-碧溪河大桥-改河 | BBL0+000.00 | 3321617.084 | 499659.490 | 3321483.452 | 470717.038 |
| BBL0+010.89 | 3321621.728 | 499649.641 | 3321488.121 | 470707.201 |
| BBL0+062.53 | 3321629.121 | 499599.284 | 3321495.646 | 470656.866 |
| BBL0+102.54 | 3321623.178 | 499559.718 | 3321489.807 | 470617.286 |
| BBL0+135.87 | 3321623.630 | 499526.534 | 3321490.346 | 470584.105 |
| BBL0+139.83 | 3321624.325 | 499522.636 | 3321491.050 | 470580.209 |
| BBR0+000.00 | 3321621.480 | 499661.563 | 3321487.842 | 470719.122 |
| BBR0+010.89 | 3321626.124 | 499651.714 | 3321492.512 | 470709.286 |
| BBR0+065.40 | 3321633.927 | 499598.562 | 3321500.454 | 470656.157 |
| BBR0+105.41 | 3321627.984 | 499558.996 | 3321494.615 | 470616.576 |
| BBR0+137.16 | 3321628.415 | 499527.387 | 3321495.128 | 470584.970 |
| BBR0+141.12 | 3321629.110 | 499523.489 | 3321495.833 | 470581.074 |
| 12 | 泥巴溪-陈家湾大桥-扩挖护岸 | NL0+000.00 | 3312855.247 | 492384.501 | 3312636.954 | 482729.914 |
| NL0+003.41 | 3312858.327 | 492385.974 | 3312640.034 | 482731.387 |
| NL0+007.20 | 3312861.679 | 492387.736 | 3312643.386 | 482733.149 |
| NL0+029.45 | 3312880.961 | 492398.825 | 3312674.032 | 482749.225 |
| NL0+037.42 | 3312888.161 | 492402.234 | 3312669.868 | 482747.646 |
| NL0+041.87 | 3312892.325 | 492403.813 | 3312662.669 | 482744.238 |
| NR0+000.00 | 3312845.035 | 492394.334 | 3312626.742 | 482739.747 |
| NR0+005.77 | 3312850.716 | 492395.352 | 3312632.423 | 482740.765 |
| NR0+018.61 | 3312862.664 | 492399.859 | 3312644.372 | 482745.272 |
| NR0+027.56 | 3312870.314 | 492404.488 | 3312652.021 | 482749.901 |
| NR0+043.80 | 3312885.328 | 492410.514 | 3312667.035 | 482755.927 |
| NR0+048.35 | 3312889.768 | 492411.503 | 3312671.475 | 482756.916 |
| 13 | 玉米溪-蒋家山1号大桥-改河 | L0+000.00 | 3312867.620 | 496295.910 | 3312645.758 | 486641.011 |
| L0+004.91 | 3312862.850 | 496294.700 | 3312640.996 | 486639.801 |
| L0+054.80 | 3312844.620 | 496255.160 | 3312622.798 | 486600.243 |
| L0+094.26 | 3312862.100 | 496219.780 | 3312640.305 | 486564.882 |
| L0+107.55 | 3312872.180 | 496211.810 | 3312650.396 | 486556.917 |
| L0+111.11 | 3312875.650 | 496211.010 | 3312653.867 | 486556.121 |
| R0+000.00 | 3312869.630 | 496287.960 | 3312647.777 | 486633.064 |
| R0+004.91 | 3312864.860 | 496286.760 | 3312643.015 | 486631.854 |
| R0+040.19 | 3312851.970 | 496258.790 | 3312630.146 | 486603.881 |
| R0+077.21 | 3312868.370 | 496225.600 | 3312646.571 | 486570.706 |
| R0+087.25 | 3312875.860 | 496219.370 | 3312654.067 | 486564.482 |
| R0+088.28 | 3312876.860 | 496219.090 | 3312655.056 | 486564.203 |
| 14 | 马家沟、黄泥沟-马家沟大桥-扩挖护岸 | HL0+000.00 | 3306178.091 | 501147.230 | 3305952.471 | 491486.185 |
| HL0+007.99 | 3306171.164 | 501143.248 | 3305945.547 | 491482.198 |
| HL0+021.85 | 3306157.819 | 501142.448 | 3305932.205 | 491481.386 |
| HL0+025.43 | 3306154.518 | 501143.851 | 3305928.902 | 491482.787 |
| HL0+036.98 | 3306143.464 | 501147.108 | 3305917.847 | 491486.033 |
| HL0+041.18 | 3306139.330 | 501147.822 | 3305913.712 | 491486.744 |
| HL0+048.70 | 3306132.327 | 501150.451 | 3305906.707 | 491489.367 |
| HL0+057.36 | 3306124.932 | 501154.957 | 3305899.309 | 491493.866 |
| HL0+067.03 | 3306115.802 | 501157.837 | 3305890.177 | 491496.738 |
| HL0+086.01 | 3306096.859 | 501159.048 | 3305871.234 | 491497.933 |
| HL0+117.30 | 3306078.168 | 501180.156 | 3305852.526 | 491519.023 |
| HL0+135.70 | 3306079.225 | 501198.528 | 3305853.567 | 491537.395 |
| ML0+000.00 | 3306065.698 | 501178.227 | 3305840.058 | 491517.083 |
| ML0+002.40 | 3306065.144 | 501175.887 | 3305839.507 | 491514.743 |
| ML0+017.53 | 3306055.411 | 501165.154 | 3305829.783 | 491504.002 |
| ML0+039.90 | 3306034.242 | 501157.899 | 3305808.622 | 491496.729 |
| ML0+044.35 | 3306029.930 | 501156.798 | 3305804.312 | 491495.624 |
| ML0+050.63 | 3306023.677 | 501157.317 | 3305798.059 | 491496.138 |
| ML0+058.87 | 3306015.472 | 501156.869 | 3305789.854 | 491495.682 |
| ML0+085.22 | 3305989.605 | 501151.840 | 3305763.993 | 491490.632 |
| ML0+091.20 | 3305983.662 | 501151.290 | 3305758.052 | 491490.076 |
| ML0+112.74 | 3305962.126 | 501151.446 | 3305736.469 | 491490.203 |
| MR0+000.00 | 3306036.632 | 501149.348 | 3305811.020 | 491488.180 |
| MR0+004.09 | 3306032.696 | 501148.248 | 3305807.085 | 491487.077 |
| MR0+011.38 | 3306025.422 | 501148.782 | 3305799.811 | 491487.605 |
| MR0+031.02 | 3306006.052 | 501146.387 | 3305780.444 | 491485.193 |
| MR0+045.12 | 3305992.665 | 501141.958 | 3305767.062 | 491480.752 |
| MR0+055.75 | 3305982.302 | 501139.713 | 3305756.702 | 491478.499 |
| MR0+070.45 | 3305967.682 | 501138.142 | 3305742.084 | 491476.916 |
| 15 | 碧溪河-K61+667~K61+738填方路基-扩挖护岸 | BSL0+000.00 | 3321374.152 | 500101.123 | 3321239.373 | 471158.015 |
| BSL0+007.71 | 3321375.682 | 500093.570 | 3321240.924 | 471150.466 |
| BSL0+020.31 | 3321380.669 | 500082.096 | 3321245.940 | 471139.005 |
| BSL0+033.61 | 3321388.397 | 500071.272 | 3321253.697 | 471128.202 |
| BSL0+046.07 | 3321395.509 | 500061.044 | 3321260.835 | 471117.993 |
| BSL0+060.66 | 3321403.689 | 500048.961 | 3321269.046 | 471105.933 |
| BSL0+077.28 | 3321416.253 | 500038.408 | 3321281.637 | 471095.412 |
| BSL0+079.81 | 3321418.560 | 500037.373 | 3321283.947 | 471094.383 |
| BSR0+000.00 | 3321380.204 | 500099.855 | 3321245.429 | 471156.762 |
| BSR0+004.63 | 3321381.124 | 500095.316 | 3321246.360 | 471152.226 |
| BSR0+014.42 | 3321384.922 | 500086.363 | 3321250.182 | 471143.283 |
| BSR0+056.19 | 3321408.592 | 500051.953 | 3321273.941 | 471108.937 |
| BSR0+069.48 | 3321418.675 | 500043.547 | 3321284.046 | 471100.557 |
| BSR0+071.90 | 3321420.885 | 500042.555 | 3321286.258 | 471099.572 |
| 16 | 厂沟河-扁担岩大桥-扩挖护岸 | CBR0+000.00 | 3281009.879 | 492300.734 | 3280482.322 | 492301.963 |
| CBR0+033.60 | 3280981.441 | 492282.833 | 3280453.889 | 492284.065 |
| CBR0+055.31 | 3280961.037 | 492276.058 | 3280433.488 | 492277.291 |
| CBR0+091.34 | 3280925.122 | 492273.201 | 3280397.579 | 492274.435 |
| CBR0+113.81 | 3280904.786 | 492264.596 | 3280377.246 | 492265.831 |
| CBR0+141.58 | 3280883.931 | 492246.260 | 3280356.395 | 492247.498 |
| CBL0+000.00 | 3281006.150 | 492306.658 | 3280478.594 | 492307.886 |
| CBL0+027.57 | 3280982.818 | 492291.971 | 3280455.266 | 492293.202 |
| CBL0+049.28 | 3280962.413 | 492285.196 | 3280434.864 | 492286.427 |
| CBL0+086.72 | 3280925.087 | 492282.227 | 3280397.544 | 492283.459 |
| CBL0+094.20 | 3280922.853 | 492287.457 | 3280395.310 | 492288.688 |
| CBL0+096.99 | 3280924.935 | 492289.313 | 3280397.392 | 492290.544 |
| CBL0+122.78 | 3280936.924 | 492311.560 | 3280409.379 | 492312.788 |
| CBL0+124.30 | 3280937.144 | 492313.062 | 3280409.599 | 492314.289 |
| CBL0+132.79 | 3280930.916 | 492318.827 | 3280403.372 | 492320.053 |
| CBL0+139.10 | 3280929.998 | 492312.577 | 3280402.454 | 492313.804 |
| CBL0+160.02 | 3280920.278 | 492294.539 | 3280392.735 | 492295.769 |
| CBL0+213.45 | 3280880.388 | 492258.983 | 3280352.852 | 492260.219 |
| CBL0+242.24 | 3280854.698 | 492246.886 | 3280327.167 | 492248.124 |
| CBL0+267.47 | 3280829.764 | 492243.062 | 3280302.237 | 492244.300 |
| 17 | 厂沟河-K121+195改移道路-扩挖护岸 | CLR0+000.00 | 3280766.317 | 492217.273 | 3280238.799 | 492218.516 |
| CLR0+048.00 | 3280728.314 | 492187.946 | 3280200.803 | 492189.193 |
| CLR0+084.77 | 3280693.519 | 492183.326 | 3280166.013 | 492184.574 |
| CLR0+087.46 | 3280691.037 | 492184.356 | 3280163.531 | 492185.604 |
| CLR0+113.24 | 3280665.750 | 492186.815 | 3280138.249 | 492188.062 |
| CLL0+000.00 | 3280761.429 | 492223.607 | 3280233.913 | 492224.848 |
| CLL0+048.00 | 3280723.427 | 492194.279 | 3280195.916 | 492195.525 |
| CLL0+076.37 | 3280696.585 | 492190.715 | 3280169.078 | 492191.962 |
| CLL0+081.49 | 3280691.850 | 492192.680 | 3280164.344 | 492193.926 |
| CLL0+108.80 | 3280665.107 | 492194.070 | 3280137.606 | 492195.316 |
| CLL0+110.22 | 3280663.742 | 492193.664 | 3280136.241 | 492194.910 |
| **18** | 厂沟河-土地屋特大桥（第一段）-扩挖护岸 | CL0+000.00 | 3280281.489 | 492069.548 | 3279754.049 | 492070.813 |
| CL0+003.19 | 3280280.528 | 492066.502 | 3279753.089 | 492067.768 |
| CL0+011.81 | 3280276.799 | 492058.764 | 3279749.362 | 492060.030 |
| CL0+015.84 | 3280274.546 | 492055.421 | 3279747.108 | 492056.689 |
| CL0+032.58 | 3280261.901 | 492044.790 | 3279734.464 | 492046.060 |
| CL0+061.15 | 3280235.819 | 492033.140 | 3279708.386 | 492034.411 |
| CL0+073.73 | 3280224.176 | 492028.372 | 3279696.745 | 492029.645 |
| CL0+093.96 | 3280205.227 | 492021.301 | 3279677.799 | 492022.574 |
| CL0+112.57 | 3280187.064 | 492017.580 | 3279659.639 | 492018.854 |
| CL0+149.77 | 3280149.902 | 492015.834 | 3279622.483 | 492017.109 |
| CL0+169.66 | 3280130.027 | 492015.889 | 3279602.612 | 492017.164 |
| CL0+179.67 | 3280120.028 | 492016.414 | 3279592.614 | 492017.689 |
| CL0+199.19 | 3280100.828 | 492013.655 | 3279573.418 | 492014.930 |
| CL0+206.46 | 3280093.965 | 492011.244 | 3279566.556 | 492012.519 |
| CR0+000.00 | 3280293.297 | 492059.983 | 3279765.856 | 492061.250 |
| CR0+001.36 | 3280292.133 | 492059.288 | 3279764.692 | 492060.555 |
| CR0+006.36 | 3280288.199 | 492056.211 | 3279760.758 | 492057.479 |
| CR0+024.09 | 3280275.710 | 492043.634 | 3279748.271 | 492044.904 |
| CR0+042.85 | 3280260.464 | 492032.870 | 3279733.028 | 492034.142 |
| CR0+102.40 | 3280205.806 | 492009.232 | 3279678.379 | 492010.507 |
| CR0+123.32 | 3280185.446 | 492005.126 | 3279658.021 | 492006.403 |
| CR0+191.80 | 3280116.976 | 492005.829 | 3279589.563 | 492007.105 |
| CR0+208.26 | 3280100.938 | 492002.652 | 3279573.705 | 492004.003 |
| CR0+210.81 | 3280098.591 | 492001.656 | 3279571.181 | 492002.933 |
| **19** | 厂沟河-土地屋特大桥（第二段）-扩挖护岸 | L0+000.00 | 3279841.348 | 491997.047 | 3279313.979 | 491998.324 |
| L0+006.85 | 3279834.549 | 491997.882 | 3279307.170 | 491999.161 |
| L0+010.00 | 3279831.447 | 491998.430 | 3279304.079 | 491999.707 |
| L0+033.30 | 3279808.744 | 492003.682 | 3279281.380 | 492004.958 |
| L0+053.07 | 3279789.435 | 492001.704 | 3279262.074 | 492002.981 |
| L0+062.47 | 3279780.895 | 491997.772 | 3279253.536 | 491999.049 |
| L0+069.73 | 3279774.541 | 491999.700 | 3279247.183 | 492000.977 |
| L0+080.07 | 3279769.141 | 492008.511 | 3279241.783 | 492009.786 |
| L0+080.07 | 3279765.071 | 492006.600 | 3279237.714 | 492007.876 |
| L0+085.71 | 3279767.493 | 492001.503 | 3279240.136 | 492002.780 |
| L0+095.19 | 3279768.680 | 491992.257 | 3279241.323 | 491993.535 |
| L0+104.30 | 3279766.976 | 491983.309 | 3279239.618 | 491984.589 |
| R0+000.00 | 3279836.439 | 491984.472 | 3279309.071 | 491985.752 |
| R0+008.97 | 3279828.543 | 491988.730 | 3279301.176 | 491990.009 |
| R0+018.42 | 3279819.658 | 491991.843 | 3279292.293 | 491993.121 |
| R0+029.43 | 3279808.829 | 491993.807 | 3279281.465 | 491995.085 |
| R0+064.71 | 3279779.637 | 491977.826 | 3279252.277 | 491979.107 |
| R0+082.00 | 3279771.620 | 491962.502 | 3279244.262 | 491963.785 |
| 20 | 厂沟河-土地屋1号大桥、土地屋特大桥（第三段）-扩挖护岸 | KL0+000.00 | 3279422.511 | 491897.818 | 3278895.209 | 491899.111 |
| KL0+026.91 | 3279395.608 | 491898.265 | 3278868.312 | 491899.559 |
| KL0+036.53 | 3279386.582 | 491895.432 | 3278859.286 | 491896.725 |
| KL0+038.80 | 3279384.745 | 491894.107 | 3278857.450 | 491895.401 |
| KL0+046.20 | 3279379.333 | 491889.080 | 3278852.037 | 491890.375 |
| KL0+050.87 | 3279376.330 | 491885.508 | 3278849.036 | 491886.804 |
| KL0+057.40 | 3279371.620 | 491881.004 | 3278844.326 | 491882.300 |
| KL0+058.92 | 3279370.414 | 491880.080 | 3278843.121 | 491881.376 |
| KL0+067.96 | 3279361.878 | 491879.319 | 3278834.585 | 491880.616 |
| KL0+070.16 | 3279359.922 | 491880.328 | 3278832.630 | 491881.624 |
| KL0+076.84 | 3279353.699 | 491882.707 | 3278826.408 | 491884.003 |
| KL0+087.37 | 3279343.504 | 491885.352 | 3278816.217 | 491886.647 |
| KL0+109.68 | 3279321.512 | 491888.921 | 3278794.225 | 491890.216 |
| KL0+118.40 | 3279312.819 | 491889.513 | 3278785.535 | 491890.807 |
| KL0+126.56 | 3279305.335 | 491886.863 | 3278778.051 | 491888.158 |
| KL0+134.90 | 3279299.225 | 491881.189 | 3278771.943 | 491882.486 |
| KL0+146.13 | 3279289.013 | 491877.180 | 3278761.732 | 491878.477 |
| KL0+148.91 | 3279286.234 | 491877.181 | 3278758.954 | 491878.478 |
| KL0+152.57 | 3279282.654 | 491877.845 | 3278755.374 | 491879.141 |
| KL0+154.17 | 3279281.160 | 491878.418 | 3278753.881 | 491879.714 |
| KL0+159.28 | 3279276.212 | 491878.124 | 3278748.934 | 491879.421 |
| KL0+161.45 | 3279274.296 | 491877.114 | 3278747.018 | 491878.411 |
| KL0+164.98 | 3279271.524 | 491874.955 | 3278744.246 | 491876.252 |
| KL0+174.54 | 3279265.128 | 491867.845 | 3278737.852 | 491869.144 |
| KL0+181.84 | 3279259.371 | 491863.417 | 3278732.095 | 491864.716 |
| KL0+186.71 | 3279255.044 | 491861.203 | 3278727.770 | 491862.502 |
| KL0+206.91 | 3279239.378 | 491848.660 | 3278712.104 | 491849.960 |
| KL0+228.77 | 3279225.401 | 491831.850 | 3278698.131 | 491833.154 |
| KL0+235.93 | 3279220.100 | 491833.583 | 3278692.830 | 491834.888 |
| KL0+241.61 | 3279219.751 | 491839.250 | 3278692.482 | 491840.552 |
| KL0+248.78 | 3279216.886 | 491845.661 | 3278689.617 | 491846.963 |
| KL0+268.72 | 3279202.878 | 491859.850 | 3278675.611 | 491861.150 |
| KL0+268.72 | 3279209.991 | 491842.843 | 3278682.724 | 491844.145 |
| KL0+270.07 | 3279211.208 | 491842.255 | 3278683.939 | 491843.558 |
| KL0+275.71 | 3279214.033 | 491837.715 | 3278686.764 | 491839.018 |
| KL0+284.21 | 3279213.968 | 491829.222 | 3278686.700 | 491830.527 |
| KL0+295.15 | 3279208.487 | 491820.377 | 3278681.219 | 491821.682 |
| KL0+340.85 | 3279167.721 | 491799.729 | 3278640.460 | 491801.039 |
| KL0+352.29 | 3279157.829 | 491793.986 | 3278630.569 | 491795.296 |
| KL0+372.48 | 3279140.980 | 491782.868 | 3278613.723 | 491784.180 |
| KR0+000.00 | 3279411.343 | 491889.730 | 3278884.043 | 491891.024 |
| KR0+009.17 | 3279402.256 | 491890.943 | 3278874.959 | 491892.237 |
| KR0+029.33 | 3279384.254 | 491883.933 | 3278856.957 | 491885.227 |
| KR0+037.76 | 3279378.852 | 491877.459 | 3278851.557 | 491878.756 |
| KR0+048.03 | 3279370.575 | 491871.568 | 3278843.280 | 491872.865 |
| KR0+062.74 | 3279356.817 | 491866.361 | 3278829.527 | 491867.660 |
| KR0+079.97 | 3279340.153 | 491867.513 | 3278812.863 | 491868.812 |
| KR0+096.27 | 3279325.855 | 491875.321 | 3278800.725 | 491875.440 |
| KR0+108.89 | 3279313.497 | 491875.225 | 3278786.119 | 491876.487 |
| KR0+119.04 | 3279303.984 | 491871.680 | 3278776.702 | 491872.978 |
| KR0+130.33 | 3279293.054 | 491868.961 | 3278765.772 | 491870.259 |
| KR0+136.05 | 3279287.382 | 491868.214 | 3278760.110 | 491869.513 |
| KR0+142.66 | 3279281.569 | 491865.323 | 3278754.523 | 491866.843 |
| KR0+147.07 | 3279278.376 | 491862.284 | 3278751.098 | 491863.584 |
| KR0+154.72 | 3279272.458 | 491857.457 | 3278745.180 | 491858.757 |
| KR0+177.25 | 3279253.958 | 491844.589 | 3278726.684 | 491845.892 |
| KR0+191.71 | 3279244.493 | 491833.843 | 3278717.219 | 491835.146 |
| KR0+203.01 | 3279239.264 | 491823.826 | 3278711.992 | 491825.132 |
| KR0+219.16 | 3279228.386 | 491812.155 | 3278701.114 | 491813.461 |
| KR0+250.81 | 3279201.431 | 491795.576 | 3278674.165 | 491796.887 |
| KR0+262.86 | 3279189.930 | 491792.638 | 3278662.664 | 491793.949 |
| KR0+266.91 | 3279185.878 | 491792.846 | 3278658.615 | 491794.156 |
| KR0+280.66 | 3279172.974 | 491788.961 | 3278645.711 | 491790.271 |
| KR0+309.79 | 3279149.540 | 491771.655 | 3278622.282 | 491772.969 |
| 21 | 杨家河-梨子村中桥及下游改道段-扩挖护岸改河 | AL0+000.00 | 3277098.452 | 491700.195 | 3276659.333 | 491701.299 |
| AL0+022.09 | 3277099.894 | 491678.156 | 3276660.774 | 491679.264 |
| AL0+032.56 | 3277100.851 | 491667.726 | 3276661.731 | 491668.834 |
| AL0+074.50 | 3277105.776 | 491626.078 | 3276666.656 | 491627.192 |
| AL0+098.78 | 3277093.893 | 491606.991 | 3276654.774 | 491608.108 |
| AL0+131.48 | 3277063.057 | 491596.105 | 3276623.943 | 491597.223 |
| AL0+187.58 | 3277007.779 | 491590.243 | 3276568.672 | 491591.362 |
| AL0+246.00 | 3276949.837 | 491597.706 | 3276510.737 | 491598.824 |
| AL0+269.31 | 3276926.658 | 491600.154 | 3276487.562 | 491601.272 |
| AL0+324.50 | 3276871.663 | 491604.695 | 3276432.574 | 491605.812 |
| AL0+368.90 | 3276836.339 | 491582.945 | 3276397.255 | 491584.065 |
| AL0+395.29 | 3276826.441 | 491558.490 | 3276387.359 | 491559.613 |
| AL0+000.00 | 3277098.452 | 491700.195 | 3276659.333 | 491701.299 |
| AL0+022.09 | 3277099.894 | 491678.156 | 3276660.774 | 491679.264 |
| AL0+032.56 | 3277100.851 | 491667.726 | 3276661.731 | 491668.834 |
| AL0+074.50 | 3277105.776 | 491626.078 | 3276666.656 | 491627.192 |
| AL0+098.78 | 3277093.893 | 491606.991 | 3276654.774 | 491608.108 |
| AL0+131.48 | 3277063.057 | 491596.105 | 3276623.943 | 491597.223 |
| AL0+187.58 | 3277007.779 | 491590.243 | 3276568.672 | 491591.362 |
| AL0+246.00 | 3276949.837 | 491597.706 | 3276510.737 | 491598.824 |
| AL0+269.31 | 3276926.658 | 491600.154 | 3276487.562 | 491601.272 |
| AL0+324.50 | 3276871.663 | 491604.695 | 3276432.574 | 491605.812 |
| AL0+368.90 | 3276836.339 | 491582.945 | 3276397.255 | 491584.065 |
| AL0+395.29 | 3276826.441 | 491558.490 | 3276387.359 | 491559.613 |
| 22 | 杨家河-梨子村中桥及下游改道段-扩挖护岸改河 | AR0+000.00 | 3277107.140 | 491699.659 | 3276668.020 | 491700.763 |
| AR0+075.10 | 3277116.333 | 491625.121 | 3276677.212 | 491626.236 |
| AR0+108.96 | 3277099.844 | 491598.487 | 3276660.725 | 491599.605 |
| AR0+151.58 | 3277059.651 | 491584.297 | 3276620.537 | 491585.417 |
| AR0+198.33 | 3277013.586 | 491579.412 | 3276574.478 | 491580.533 |
| AR0+263.89 | 3276948.559 | 491587.788 | 3276509.460 | 491588.907 |
| AR0+286.74 | 3276925.835 | 491590.188 | 3276486.739 | 491591.307 |
| AR0+329.94 | 3276882.787 | 491593.743 | 3276443.696 | 491594.861 |
| AR0+380.38 | 3276842.533 | 491569.170 | 3276403.448 | 491570.291 |
| AR0+395.92 | 3276836.590 | 491554.804 | 3276397.506 | 491555.928 |
| BL0+000.00 | 3276329.824 | 491529.839 | 3275890.808 | 491530.966 |
| BL0+012.0 | 3276317.930 | 491531.481 | 3275878.915 | 491532.607 |
| BL0+038.70 | 3276291.558 | 491529.227 | 3275852.546 | 491530.353 |
| BL0+047.64 | 3276283.030 | 491526.517 | 3275844.020 | 491527.644 |
| BL0+069.25 | 3276262.436 | 491519.973 | 3275823.429 | 491521.101 |
| BL0+129.27 | 3276205.288 | 491501.631 | 3275766.288 | 491502.762 |
| BL0+147.15 | 3276188.270 | 491496.136 | 3275749.273 | 491497.267 |
| BL0+196.27 | 3276141.529 | 491481.044 | 3275702.538 | 491482.177 |
| BL0+246.27 | 3276093.949 | 491465.673 | 3275654.964 | 491466.808 |
| BL0+267.13 | 3276074.105 | 491459.261 | 3275635.122 | 491460.397 |
| BL0+274.77 | 3276066.830 | 491456.911 | 3275627.848 | 491458.047 |
| BL0+330.54 | 3276013.951 | 491439.184 | 3275574.977 | 491440.323 |
| BL0+333.69 | 3276010.968 | 491438.173 | 3275571.994 | 491439.312 |
| BL0+355.60 | 3275990.403 | 491430.628 | 3275551.432 | 491431.768 |
| BL0+487.37 | 3275867.723 | 491382.540 | 3275428.768 | 491383.686 |
| BL0+530.20 | 3275827.843 | 491366.908 | 3275388.894 | 491368.056 |
| BL0+544.67 | 3275813.807 | 491363.637 | 3275374.859 | 491364.786 |
| BL0+619.53 | 3275739.210 | 491357.332 | 3275300.273 | 491358.482 |
| BL0+643.80 | 3275715.269 | 491360.170 | 3275276.335 | 491361.319 |
| BL0+649.26 | 3275710.092 | 491361.887 | 3275271.158 | 491363.036 |
| BL0+665.28 | 3275694.395 | 491364.852 | 3275255.464 | 491366.001 |
| BL0+680.12 | 3275679.579 | 491365.642 | 3275240.650 | 491366.790 |
| BL0+710.89 | 3275648.848 | 491367.279 | 3275209.923 | 491368.427 |
| BL0+713.09 | 3275646.654 | 491367.396 | 3275207.729 | 491368.544 |
| BL0+725.14 | 3275637.669 | 491374.311 | 3275198.745 | 491375.459 |
| BL0+732.19 | 3275635.506 | 491381.016 | 3275196.583 | 491382.163 |
| 23 | 杨家河-王方咀大桥上游改道段-扩挖护岸改河 | BR0+000.00 | 3276342.666 | 491517.972 | 3275903.647 | 491519.100 |
| BR0+026.35 | 3276316.563 | 491521.574 | 3275877.548 | 491522.702 |
| BR0+048.59 | 3276294.586 | 491519.696 | 3275855.574 | 491520.824 |
| BR0+057.58 | 3276286.019 | 491516.974 | 3275847.008 | 491518.102 |
| BR0+079.13 | 3276265.478 | 491510.447 | 3275826.471 | 491511.577 |
| BR0+139.13 | 3276208.352 | 491492.112 | 3275769.352 | 491493.244 |
| BR0+157.00 | 3276191.345 | 491486.621 | 3275752.347 | 491487.753 |
| BR0+206.12 | 3276144.602 | 491471.528 | 3275705.610 | 491472.662 |
| BR0+256.12 | 3276097.023 | 491456.157 | 3275658.038 | 491457.294 |
| BR0+284.56 | 3276069.956 | 491447.412 | 3275630.974 | 491448.549 |
| BR0+340.28 | 3276017.130 | 491429.702 | 3275578.155 | 491430.843 |
| BR0+343.37 | 3276014.206 | 491428.712 | 3275575.232 | 491429.852 |
| BR0+364.84 | 3275994.053 | 491421.318 | 3275555.081 | 491422.459 |
| BR0+497.22 | 3275870.803 | 491373.006 | 3275431.848 | 491374.154 |
| BR0+539.44 | 3275831.492 | 491357.597 | 3275392.543 | 491358.747 |
| BR0+556.79 | 3275814.649 | 491353.672 | 3275375.701 | 491354.823 |
| BR0+640.39 | 3275731.349 | 491346.632 | 3275292.413 | 491347.783 |
| BR0+660.01 | 3275711.882 | 491348.176 | 3275272.948 | 491349.327 |
| BR0+663.98 | 3275708.021 | 491349.132 | 3275269.088 | 491350.282 |
| BR0+685.24 | 3275687.002 | 491352.015 | 3275248.071 | 491353.166 |
| BR0+693.51 | 3275678.735 | 491352.264 | 3275239.805 | 491353.414 |
| BR0+724.30 | 3275647.959 | 491353.189 | 3275209.033 | 491354.339 |
| BR0+734.58 | 3275637.683 | 491353.498 | 3275198.759 | 491354.648 |
| BR0+751.38 | 3275624.442 | 491362.365 | 3275185.520 | 491363.514 |
| BR0+772.24 | 3275615.925 | 491381.400 | 3275177.004 | 491382.547 |
| BR0+782.28 | 3275609.167 | 491388.576 | 3275170.247 | 491389.721 |
| BR0+786.52 | 3275605.401 | 491390.539 | 3275166.481 | 491391.684 |
| 24 | 杨家河-王方咀大桥-改河护岸扩挖 | CL0+000.00 | 3275528.534 | 491359.821 | 3275089.625 | 491360.971 |
| CL0+027.97 | 3275522.624 | 491332.479 | 3275083.716 | 491333.632 |
| CL0+050.18 | 3275517.932 | 491310.771 | 3275079.024 | 491311.927 |
| CL0+066.82 | 3275510.755 | 491295.934 | 3275071.848 | 491297.091 |
| CL0+081.17 | 3275499.657 | 491287.003 | 3275060.751 | 491288.162 |
| CL0+095.57 | 3275486.833 | 491280.445 | 3275047.929 | 491281.605 |
| CL0+125.28 | 3275460.384 | 491266.921 | 3275021.484 | 491268.083 |
| CL0+149.35 | 3275438.946 | 491255.959 | 3275000.048 | 491257.122 |
| CL0+155.16 | 3275433.445 | 491254.188 | 3274994.549 | 491255.352 |
| CL0+172.50 | 3275417.678 | 491259.612 | 3274978.783 | 491260.775 |
| CL0+188.94 | 3275406.370 | 491271.559 | 3274967.477 | 491272.720 |
| CL0+196.37 | 3275400.656 | 491276.267 | 3274961.764 | 491277.428 |
| CL0+201.87 | 3275395.769 | 491278.773 | 3274956.877 | 491279.933 |
| CL0+214.58 | 3275383.976 | 491283.512 | 3274945.086 | 491284.672 |
| CR0+000.00 | 3275542.313 | 491353.917 | 3275103.401 | 491355.068 |
| CR0+024.94 | 3275536.585 | 491329.641 | 3275097.674 | 491330.794 |
| CR0+049.95 | 3275530.843 | 491305.306 | 3275091.934 | 491306.462 |
| CR0+070.88 | 3275521.045 | 491287.082 | 3275082.137 | 491288.241 |
| CR0+084.60 | 3275510.123 | 491278.877 | 3275071.216 | 491280.037 |
| CR0+105.06 | 3275491.913 | 491269.566 | 3275053.009 | 491270.727 |
| CR0+134.52 | 3275465.679 | 491256.151 | 3275026.778 | 491257.314 |
| CR0+162.15 | 3275441.075 | 491243.570 | 3275002.178 | 491244.735 |
| CR0+164.10 | 3275439.308 | 491242.752 | 3275000.411 | 491243.917 |
| CR0+194.29 | 3275411.537 | 491248.644 | 3274972.643 | 491249.808 |
| CR0+215.02 | 3275397.288 | 491263.698 | 3274958.396 | 491264.860 |
| CR0+219.20 | 3275394.217 | 491266.521 | 3274955.325 | 491267.683 |
| CR0+229.63 | 3275385.109 | 491271.495 | 3274946.219 | 491272.656 |
| CR0+245.31 | 3275370.253 | 491276.518 | 3274931.365 | 491277.679 |
| 25 | 苎麻沟-接龙互通A匝道-改河 | DL0+000.00 | 3275706.723 | 491592.691 | 3275267.790 | 491593.809 |
| DL0+008.90 | 3275707.609 | 491583.839 | 3275268.676 | 491584.959 |
| DL0+026.19 | 3275702.139 | 491567.999 | 3275263.206 | 491569.121 |
| DL0+047.94 | 3275687.080 | 491552.308 | 3275248.150 | 491553.431 |
| DL0+049.36 | 3275686.094 | 491551.280 | 3275247.163 | 491552.404 |
| DL0+078.20 | 3275670.252 | 491527.346 | 3275231.324 | 491528.473 |
| DL0+081.59 | 3275668.893 | 491524.235 | 3275229.964 | 491525.363 |
| DL0+099.87 | 3275663.388 | 491506.840 | 3275224.461 | 491507.970 |
| DL0+114.77 | 3275660.818 | 491492.163 | 3275221.891 | 491493.295 |
| DL0+133.30 | 3275651.446 | 491476.669 | 3275212.520 | 491477.803 |
| DL0+144.08 | 3275642.902 | 491470.090 | 3275203.977 | 491471.224 |
| DR0+000.00 | 3275714.840 | 491593.762 | 3275275.906 | 491594.880 |
| DR0+011.70 | 3275716.388 | 491582.166 | 3275277.453 | 491583.286 |
| DR0+029.65 | 3275710.994 | 491565.673 | 3275272.060 | 491566.795 |
| DR0+055.83 | 3275692.868 | 491546.785 | 3275253.937 | 491547.909 |
| DR0+057.22 | 3275691.900 | 491545.776 | 3275252.969 | 491546.901 |
| DR0+083.31 | 3275677.575 | 491524.124 | 3275238.646 | 491525.252 |
| DR0+086.67 | 3275676.227 | 491521.040 | 3275237.298 | 491522.168 |
| DR0+103.17 | 3275671.247 | 491505.339 | 3275232.319 | 491506.470 |
| DR0+123.00 | 3275667.826 | 491485.808 | 3275228.898 | 491486.940 |
| DR0+137.83 | 3275660.329 | 491473.412 | 3275221.402 | 491474.547 |
| DR0+152.14 | 3275648.986 | 491464.677 | 3275210.061 | 491465.813 |
| 26 | 上坂田沟-斑竹林大桥-扩挖护岸 | L0+000.000 | 3266266.588 | 489422.787 | 3265828.916 | 489424.193 |
| L0+032.320 | 3266292.924 | 489441.521 | 3265855.249 | 489442.925 |
| L0+059.737 | 3266303.718 | 489465.355 | 3265866.042 | 489466.756 |
| L0+065.947 | 3266303.086 | 489471.532 | 3265865.410 | 489472.933 |
| L0+092.414 | 3266305.834 | 489497.667 | 3265868.158 | 489499.065 |
| L0+094.730 | 3266306.544 | 489499.871 | 3265868.867 | 489501.268 |
| L0+112.519 | 3266309.425 | 489517.360 | 3265871.749 | 489518.754 |
| L0+131.843 | 3266309.717 | 489536.682 | 3265872.040 | 489538.074 |
| L0+146.112 | 3266318.431 | 489546.449 | 3265880.753 | 489547.839 |
| L0+150.080 | 3266322.366 | 489546.959 | 3265884.688 | 489548.349 |
| R0+000.000 | 3266263.104 | 489427.671 | 3265825.433 | 489429.078 |
| R0+032.327 | 3266289.446 | 489446.410 | 3265851.772 | 489447.814 |
| R0+053.417 | 3266297.749 | 489464.744 | 3265860.074 | 489466.145 |
| R0+059.627 | 3266297.117 | 489470.921 | 3265859.442 | 489472.322 |
| R0+088.576 | 3266300.123 | 489499.507 | 3265862.447 | 489500.904 |
| R0+090.898 | 3266300.835 | 489501.717 | 3265863.159 | 489503.114 |
| R0+103.186 | 3266302.492 | 489513.829 | 3265864.817 | 489515.224 |
| R0+130.423 | 3266301.417 | 489541.045 | 3265863.741 | 489542.435 |
| 27 | 冲溪沟-联合村1号大桥-改河 | L0+000.000 | 3247090.986 | 485353.988 | 3246875.973 | 485354.951 |
| L0+005.404 | 3247085.597 | 485353.644 | 3246870.558 | 485354.603 |
| L0+063.305 | 3247028.194 | 485346.065 | 3246813.187 | 485347.030 |
| L0+103.448 | 3246993.826 | 485327.158 | 3246778.809 | 485328.105 |
| R0+000.000 | 3247078.427 | 485330.641 | 3246863.419 | 485331.608 |
| R0+015.667 | 3247064.218 | 485337.243 | 3246849.123 | 485338.247 |
| R0+035.485 | 3247044.889 | 485340.200 | 3246829.879 | 485341.163 |
| R0+051.269 | 3247029.241 | 485338.134 | 3246814.230 | 485339.100 |
| R0+069.008 | 3247012.529 | 485332.520 | 3246797.534 | 485333.471 |
| Z0+000.000 | 3246894.738 | 485391.589 | 3246679.742 | 485392.549 |
| Z0+022.592 | 3246876.346 | 485378.468 | 3246661.352 | 485379.429 |
| Z0+038.456 | 3246866.721 | 485366.134 | 3246651.727 | 485367.096 |
| Z0+065.094 | 3246856.983 | 485341.340 | 3246641.990 | 485342.304 |
| Z0+078.248 | 3246848.965 | 485331.148 | 3246633.973 | 485332.113 |
| Z0+084.830 | 3246843.578 | 485327.367 | 3246628.585 | 485328.332 |
| Z0+108.658 | 3246834.116 | 485306.700 | 3246619.124 | 485307.666 |
| Z0+113.004 | 3246834.550 | 485302.376 | 3246619.558 | 485303.342 |
| R0+000.000 | 3246912.111 | 485389.326 | 3246697.114 | 485390.287 |
| R0+011.845 | 3246900.556 | 485386.720 | 3246685.560 | 485387.681 |
| R0+023.780 | 3246889.734 | 485381.877 | 3246674.739 | 485382.838 |
| R0+036.658 | 3246879.250 | 485374.398 | 3246664.256 | 485375.359 |
| R0+049.638 | 3246871.375 | 485364.307 | 3246656.380 | 485365.269 |
| R0+076.276 | 3246861.637 | 485339.512 | 3246646.644 | 485340.476 |
| R0+092.353 | 3246851.838 | 485327.055 | 3246636.845 | 485328.020 |
| R0+098.935 | 3246846.450 | 485323.274 | 3246631.458 | 485324.239 |
| R0+116.569 | 3246839.024 | 485308.096 | 3246624.032 | 485309.062 |
| 28 | 冲溪沟-联合停车区-改河 | L0+000.000 | 3246772.755 | 485248.179 | 3246557.767 | 485249.149 |
| L0+017.973 | 3246756.360 | 485255.545 | 3246541.373 | 485256.515 |
| L0+046.304 | 3246728.961 | 485262.059 | 3246513.976 | 485263.028 |
| L0+073.521 | 3246701.771 | 485263.270 | 3246486.788 | 485264.239 |
| L0+101.287 | 3246676.249 | 485254.210 | 3246461.267 | 485255.180 |
| L0+137.316 | 3246649.323 | 485230.271 | 3246434.343 | 485231.242 |
| L0+170.528 | 3246619.163 | 485217.950 | 3246404.185 | 485218.922 |
| L0+297.875 | 3246491.968 | 485211.719 | 3246276.999 | 485212.691 |
| L0+361.879 | 3246434.539 | 485235.087 | 3246219.574 | 485236.058 |
| L0+371.423 | 3246428.041 | 485242.077 | 3246213.077 | 485243.047 |
| R0+000.000 | 3246768.656 | 485239.058 | 3246553.669 | 485240.028 |
| R0+017.973 | 3246752.262 | 485246.424 | 3246537.275 | 485247.394 |
| R0+042.527 | 3246728.516 | 485252.069 | 3246513.531 | 485253.038 |
| R0+069.744 | 3246701.326 | 485253.280 | 3246486.343 | 485254.250 |
| R0+089.797 | 3246682.893 | 485246.737 | 3246467.911 | 485247.707 |
| R0+125.826 | 3246655.967 | 485222.798 | 3246440.986 | 485223.771 |
| R0+165.816 | 3246619.652 | 485207.962 | 3246404.675 | 485208.934 |
| R0+293.163 | 3246492.457 | 485201.731 | 3246277.488 | 485202.704 |
| R0+365.875 | 3246427.215 | 485228.279 | 3246212.251 | 485229.250 |
| R0+384.577 | 3246414.482 | 485241.976 | 3246199.518 | 485242.946 |
| 29 | 冲溪沟-联合村2号大桥-扩挖护岸 | L0+000.000 | 3245880.835 | 485228.892 | 3245665.907 | 485229.863 |
| L0+034.088 | 3245846.860 | 485231.660 | 3245631.934 | 485232.631 |
| L0+039.993 | 3245840.959 | 485231.792 | 3245626.033 | 485232.763 |
| L0+089.556 | 3245791.430 | 485229.968 | 3245576.507 | 485230.939 |
| L0+096.941 | 3245784.057 | 485230.241 | 3245569.135 | 485231.212 |
| L0+120.782 | 3245760.363 | 485232.879 | 3245545.428 | 485233.851 |
| R0+000.000 | 3245878.102 | 485206.055 | 3245663.174 | 485207.027 |
| R0+055.491 | 3245822.636 | 485207.692 | 3245607.711 | 485208.664 |
| R0+085.216 | 3245793.489 | 485212.939 | 3245578.566 | 485213.911 |
| R0+106.914 | 3245772.938 | 485219.904 | 3245558.017 | 485220.875 |

备注：坐标系统为独立坐标系及2000国家大地坐标系，高程系统为1985国家高程基准。