# STRUCTURAL GENERAL NOTES

**SEQUENCE OF CONSTRUCTION/PROPOSED WORK**

STAGE 1 CONSTRUCTION

1. INSTALL STAGE 1 M.O.T. PER PLANS.
2. INSTALL STAGE 1 TEMPORARY SHORING.
3. REMOVE STAGE 1 PORTIONS OF EXISTING ABUTMENTS, WINGWALLS, PIERS, AND FOUNDATIONS FOR S.R. 2 BRIDGES (LAK-2-0530L&R).
4. CONSTRUCT DRILLED SHAFTS FOR RAMP D BRIDGE (LAK-2-0530 P) ABUTMENTS AND PIERS, AND DRILLED SHAFTS FOR STAGE 1 PORTIONS OF ABUTMENTS AND PIERS FOR S.R. 2 BRIDGES (LAK-2-0530 L&R).
5. CONSTRUCT ABUTMENTS AND PIERS FOR RAMP D BRIDGE (LAK-2-0530 P), AND STAGE 1 PORTIONS OF ABUTMENTS AND PIERS FOR S.R. 2 BRIDGES (LAK-2-0530 L&R).
6. CONSTRUCT SUPERSTRUCTURE AND APPROACH SLABS FOR RAMP D BRIDGE (LAK-2-0530 P).
7. REMOVE STAGE 1 TEMPORARY SHORING AND M.O.T.

STAGE 2 CONSTRUCTION

PHASE B
8. INSTALL PHASE B M.O.T. PER PLANS.
9. INSTALL PHASE B TEMPORARY SHORING.
10. REMOVE PORTIONS OF EXISTING BRIDGE DECK ADJACENT TO EXISTING ABUTMENTS AND CONSTRUCT 1'-6" DIAMETER DRILLED SHAFTS AND FOOTING EXTENSION FOR PHASE B PORTIONS OF EXISTING ABUTMENTS.
11. REMOVE CROSS FRAMES IN BAYS BETWEEN PHASE CONSTRUCTION JOINTS.
12. REMOVE PHASE B PORTIONS OF EXISTING BRIDGE DECK, PARAPETS, APPROACH SLABS, SCUPPERS, ETC.
13. JACK AND INSTALL TEMPORARY SUPPORTS FOR PHASE B PORTIONS OF EXISITNG SUPERSTRUCTURE.
14. CONSTRUCT PHASE B PORTIONS OF ABUTMENTS.
15. INSTALL NEW BEARINGS AT ABUTMENTS AND PIERS AND REMOVE TEMPORARY SUPPORTS.
16. RETROFIT EXISTING BEAMS AND ERECT NEW BEAMS FOR PHASE B INCLUDING CROSSFRAMES.
17. CONSTRUCT PHASE B PORTIONS OF ABUTMENT DIAPHRAGM, BRIDGE DECK, AND PARAPETS.
18. INSTALL DRAINAGE SYSTEM AND BACKFILL BEHIND PHASE B PORTIONS OF ABUTMENTS AND INSTALL NEW APPROACH SLABS.
19. REMOVE PHASE B TEMPORARY SHORING AND M.O.T.

PHASE C
20. INSTALL PHASE C M.O.T. PER PLANS.
21. INSTALL PHASE C TEMPORARY SHORING.
22. REPEAT STEPS 10 THROUGH 18 FOR PHASE C.
23. REMOVE PHASE C TEMPORARY SHORING AND M.O.T.

PHASE D
24. INSTALL PHASE D M.O.T. PER PLANS.
25. INSTALL PHASE D TEMPORARY SHORING.
26. REPEAT STEPS 10 THROUGH 18 FOR PHASE D.
27. REMOVE PHASE D TEMPORARY SHORING AND M.O.T.

OTHER WORK TO BE COORDINATED WITH THE OVERALL SEQUENCE

1. INSTALL ROCK CHANNEL PROTECTION (GROUTED).
2. REPAIR PATCH SUBSTRUCTURE UNITS AS MARKED IN THE FIELD.
3. SEAL ALL EXPOSED FACES OF PIERS, WINGWALLS AND ABUTMENTS WITH EPOXY-URETHANE SEALER.

## ESTIMATED QUANTITIES

CALC. BY: CAF DATE: 10/07
CHK'D BY: CMD DATE: 10/07

| LT. STRUCT. PARTICIPATION | | RT. STRUCT. PARTICIPATION | | | | | | | | LEFT STRUCTURE | | | | RIGHT STRUCTURE | | | | AS PER PLAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I REHAB | II TRAC | I REHAB | II TRAC | ITEM | ITEM EXT. | LEFT STRUCT. TOTAL | RIGHT STRUCT. TOTAL | UNIT | DESCRIPTION | SUPER | ABUT'S | PIER'S | GEN. | SUPER | ABUT'S | PIER'S | GEN. | STRUCTURE SHEET NO. |
| LUMP | | LUMP | | 202 | 11203 | LUMP | LUMP | | PORTIONS OF STRUCTURE REMOVED, OVER 20 | LUMP | LUMP | LUMP | | LUMP | LUMP | LUMP | | 4, 11, 12, |
| | | | | | | | | | FOOT SPAN, AS PER PLAN | | | | | | | | | 13, 14, 29 |
| 294 | | 227 | | 202 | 22901 | 294 | 227 | SQ. YD. | APPROACH SLAB REMOVED, AS PER PLAN | | | | 294 | | | | 227 | 4 |
| LUMP | LUMP | LUMP | LUMP | 503 | 11101 | LUMP | LUMP | | COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN | | | | LUMP | | | | LUMP | 4, 9, 10 |
| | 391 | | 600 | 503 | 21100 | 391 | 600 | CU. YD. | UNCLASSIFIED EXCAVATION | | 366 | 25 | | | 564 | 36 | | |
| | 147 | | 153 | 503 | 31120 | 147 | 153 | CU. YD. | SHALE EXCAVATION | | 83 | 64 | | | 106 | 47 | | |
| 115215 | 213972 | 137194 | 254790 | 509 | 10001 | 329,187 | 391,984 | LB | EPOXY COATED REINFORCING STEEL, AS PER PLAN | 258,134 | 32,119 | 38,934 | | 263,340 | 48,016 | 80,628 | | 3 |
| 250 | | 250 | | 509 | 20001 | 250 | 250 | LB | REINFORCING STEEL, REPLACEMENT OF EXISTING | | | | 250 | | | | 250 | 3 |
| | | | | | | | | | REINFORCING STEEL, AS PER PLAN | | | | | | | | | |
| 1126 | | 909 | | 510 | 10000 | 1,126 | 909 | EACH | DOWEL HOLES WITH NON-SHRINK, NON-METALIC GROUT | | 724 | 402 | | | 565 | 344 | | |
| 250 | 465 | 256 | 475 | 511 | 50001 | 715 | 731 | CU. YD. | CLASS HP CONCRETE, BRIDGE DECK, AS PER PLAN | 715 | | | | 731 | | | | 4 |
| 44 | 81 | 44 | 82 | 511 | 50101 | 125 | 126 | CU. YD. | CLASS HP CONCRETE, BRIDGE DECK (PARAPET), AS PER PLAN | 125 | | | | 126 | | | | 4 |
| | 523 | | 692 | 511 | 50201 | 523 | 692 | CU. YD. | CLASS HP CONCRETE, SUBSTRUCTURE, AS PER PLAN | | 283 | 240 | | | 428 | 264 | | 4,22,25,40,41 |
| LUMP | LUMP | LUMP | LUMP | 511 | 52000 | LUMP | LUMP | | CLASS HP CONCRETE, TEST SLAB | LUMP | | | | LUMP | | | | |
| 759 | 1410 | 725 | 1347 | 512 | 10100 | 2,169 | 2,072 | SQ. YD. | SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) | 807 | 473 | 889 | | 814 | 490 | 768 | | |
| 14 | | | | 512 | 10600 | 14 | | FEET | CONCRETE REPAIR BY EPOXY INJECTION | | 14 | | | | | | | |
| 24 | 46 | 21 | 38 | 512 | 33000 | 70 | 59 | SQ. YD. | TYPE 2 WATERPROOFING | | 70 | | | | 70 | | | |
| | 27500 | | 23770 | 513 | 10201 | 27,500 | 23,770 | POUND | STRUCTURAL STEEL MEMBERS, LEVEL UF, AS PER PLAN | 67,300 | | | | 67,300 | | | | 4 |
| | 286800 | | 393230 | 513 | 10240 | 286,800 | 393,230 | POUND | STRUCTURAL STEEL MEMBERS, LEVEL 2 | 663,000 | | | | 663,000 | | | | |
| 2781 | 5166 | 3017 | 5602 | 513 | 20000 | 7,947 | 8,619 | EACH | WELDED STUD SHEAR CONNECTORS | 16,566 | | | | 16,566 | | | | |
| 11 | | 10 | | 513 | 95000 | 11 | 10 | FEET | STRUCTURAL STEEL MISC.: CRACK REPAIR | 11 | | | | 10 | | | | |
| 7 | | 6 | | 513 | 95030 | 7 | 6 | EACH | STRUCTURAL STEEL MISC.: NON-DESTRUCTIVE TESTING | 7 | | | | 6 | | | | |
| | 11150 | | 15650 | 514 | 00060 | 11,150 | 15,650 | SQ. FT. | FIELD PAINTING STRUCTURAL STEEL, INTERMEDIATE COAT | 12,265 | | | | 17,215 | | | | |
| | 11150 | | 15650 | 514 | 00066 | 11,150 | 15,650 | SQ. FT. | FIELD PAINTING STRUCTURAL STEEL, FINISH COAT | 12,265 | | | | 17,215 | | | | |
| 54 | 100 | 34 | 63 | 516 | 13600 | 154 | 97 | SQ. FT. | 1" PREFORMED EXPANSION JOINT FILLER | 154 | | | | 97 | | | | |
| 79 | 148 | 79 | 148 | 516 | 13900 | 227 | 227 | SQ. FT. | 2" PREFORMED EXPANSION JOINT FILLER | | 227 | | | | 227 | | | |
| 15 | 27 | 43 | 81 | 516 | 14000 | 42 | 124 | SQ. FT. | PREFORMED EXPANSION JOINT FILLER, MISC. (3" THICK) | | 42 | | | | 124 | | | |
| 108 | 201 | 79 | 148 | 516 | 14021 | 309 | 227 | FEET | SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN | | 309 | | | | 227 | | | 3 |
| 8 | 16 | 9 | 17 | 516 | 44201 | 24 | 26 | EACH | ELASTOMERIC BEARING WITH INTERNAL LAMINATES (15"x15"x3.82") | | 24 | | | | 26 | | | 28 |
| | | | | | | | | | AND LOAD PLATE (16"x16"x1.50") (NEOPRENE), AS PER PLAN | | | | | | | | | |
| 8 | 16 | 9 | 17 | 516 | 44301 | 24 | 26 | EACH | ELASTOMERIC BEARING WITH INTERNAL LAMINATES (17"x17"x5.05") | | | 24 | | | | 26 | | 28 |
| | | | | | | | | | AND LOAD PLATE (25"x18"x2") (NEOPRENE), AS PER PLAN | | | | | | | | | |
| LUMP | LUMP | LUMP | LUMP | 516 | 47001 | LUMP | LUMP | | JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER | | | | LUMP | | | | LUMP | 3 |
| | | | | | | | | | PLAN | | | | | | | | | 18, 19, 22, 23 |
| 96 | 178 | 97 | 179 | 518 | 21201 | 274 | 276 | CU. YD. | POROUS BACKFILL WITH FILTER FABRIC, | | 274 | | | | 276 | | | |
| | | | | | | | | | AS PER PLAN | | | | | | | | | |
| 568 | 1055 | 660 | 1227 | 519 | 11101 | 1,623 | 1,887 | SQ. FT. | PATCHING CONCRETE STRUCTURE, AS PER PLAN | | 1,269 | 354 | | | 1,725 | 162 | | 3 |
| | 314 | | 227 | 524 | 94404 | 314 | 227 | FEET | DRILLED SHAFTS, 18" DIAMETER, INTO BEDROCK | | 314 | | | | 227 | | | |
| | 142 | | 369 | 524 | 94704 | 142 | 369 | FEET | DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK | | 142 | | | | 369 | | | |
| | 92 | | 137 | 524 | 94804 | 92 | 137 | FEET | DRILLED SHAFTS, 42" DIAMETER, INTO BEDROCK | | | 92 | | | | 137 | | |
| 215 | 400 | 217 | 402 | 526 | 30001 | 615 | 619 | SQ. YD. | REINFORCED CONCRETE APPROACH | | | | 615 | | | | 619 | 4, 50 |
| | | | | | | | | | SLABS (T=17"), AS PER PLAN | | | | | | | | | |
| 167 | 309 | 368 | 683 | 601 | 32005 | 476 | 1,051 | CU. YD. | ROCK CHANNEL PROTECTION, TYPE A WITH | | | | 476 | | | | 1,057 | 4 |
| | | | | | | | | | FABRIC FILTER, AS PER PLAN | | | | | | | | | |

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DESIGNED FJG | DRAWN CAF | CHECKED MVD | REVIEWED RBB | DATE 12/07 | REVISED | STRUCTURE FILE NUMBER 4308785 (R)

STRUCTURAL GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO. LAK-2-0530 L&R
STATE ROUTE 2 OVER CHAGRIN RIVER

LAK-2-3.32
PID 13486