SUBJECT DESC.: SR 18 OVER CENTER CREEK

Project ID Number: 88876 JOB NUMBER: MED-18-0242

DESIGNED BY: BSM DATE: 10/7/22 CHECKED BY: JBD DATE: 10/7/22

202E11002 STRUCTURE REMOVED, OVER 20 FOOT SPAN

FROM ODOT PROCEDURES FOR ESTIMATING MAY 2013

REMOVAL DECK = $20/SF, REMOVAL SUBSTRUCTURE CONCRETE = $200/CY

EXISTING DECK AREA = 24FT(44FT) = 1056SF($20/SF) = $21120

R.A. FOOTING = 7.79ft*2.5ft*79.6ft = 57 CY

R.A. ABOVE FOOTING = 51FT*4.04FT*9.09FT = 69 CY

R.A. NORTH WINGWALL ABOVE FOOTING = 1.5FT*10.48FT*4.04FT+4.04FT*12.75FT*8.78FT = 19 CY

R.A. NORTH TURNBACK WINGWALL ABOVE FOOTING = 7.1FT*2.25FT*7FT = 4 CY

R.A. SOUTH WINGWALL ABOVE FOOTING = =2.5FT*10.48FT*4.04FT+6.8FT*8.78FT*4.04FT = 13 CY

R.A. SOUTH TURNBACK WINGWALL ABOVE FOOTING = 0

F.A. FOOTING = 7.79FT*2.5FT*84FT = 61 CY

F.A. ABOVE FOOTING = 4.04FT*51FT*9.14FT = 70 CY

F.A. NORTH WINGWALL ABOVE FOOTING = 13.32FT*8.3FT*4.04FT = 17 CY

F.A. NORTH TURNBACK WINGWALL ABOVE FOOTING = 7.1FT*2.25FT*7FT = 4 CY

F.A. SOUTH WINGWALL ABOVE FOOTING = 4.04FT*13.76FT*8.3FT = 17 CY

F.A. SOUTH TURNBACK WINGWALL ABOVE FOOTING = 7.1FT*2.25FT*7FT = 4 CY

TOTAL CONCRETE REMOVED = 335 CY($200/CY) =$67000

TOTAL REMOVAL COST = $88120

Note: Per existing plans, approach slab only 24 feet wide. wearing course paved on top is 44 feet, matching bridge width

202E22900 APPROACH SLAB REMOVED

EXISTING APPROACH SLAB AREA = 2*15FT(24FT) = 720 SF

TOTAL APPROACH SLAB AREA REMOVED = 80 SY

202E32500 WEARING COURSE REMOVED

EXISTING DECK/APP SLAB AREA = (15FT*2+22.88FT)(44FT) = 2327 SF

TOTAL WEARING COURSE REMOVED = 259 SY

503E21100 COFFERDAMS AND EXCAVATION BRACING (LS)

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503E21100 UNCLASSIFIED EXCAVATION

R.A. LENGTH = 85.75FT

R.A. WIDTH ABOVE FOOTING = 2.25 FT + 1 FT BEHIND = 3.25 FT

R.A. HEIGHT FROM T/R TO GRADE = 9.5 FT

R.A. VOLUME = (85.75FT) (3.25FT * 9.5FT) = 98 CY

F.A. LENGTH = 89.75FT

F.A. WIDTH T/R TO TOP OF GRADE = 2.25 FT + 1 FT BEHIND = 3.25 FT

F.A. HEIGHT FROM T/R TO GRADE = 8 FT

F.A. VOLUME = (89.75FT) (3.25FT * 8FT) = 86 CY

TOTAL UNCLASSIFIED EXCAVATION = 184 CY

503E31120 SHALE EXCAVATION

R.A. LENGTH = 85.75FT

R.A. WIDTH OF FOOTING = 4 FT + 1FT BEHIND = 5 FT

DEPTH OF FOOTING = 3 FT

R.A. WIDTH ABOVE FOOTING = 2.25FT + 1FT BEHIND = 3.25FT

R.A. DEPTH TOP OF FOOTING TO T/R = 1 FT

R.A. VOLUME = 85.75 FT (5 FT) (3FT) + 85.75FT (3.25FT) (1FT) = 58 CY

F.A. LENGTH = 89.75FT

F.A. WIDTH OF FOOTING = 4 FT + 1FT BEHIND = 5 FT

DEPTH OF FOOTING = 3 FT

F.A. WIDTH ABOVE FOOTING = 2.25FT + 1FT BEHIND = 3.25FT

F.A. DEPTH TOP OF FOOTING TO T/R = 2.5 FT

F.A. VOLUME = 89.75 FT (5 FT) (3 FT) + 89.75FT (3.25FT) (2.5FT) = 77 CY

TOTAL SHALE EXCAVATION = 135 CY

509E10000 EPOXY COATED REINFORCING STEEL

FROM ABUTMENT REBAR LIST, TOTAL = 10993 LBS

FROM SUPERSTRUCTURE REBAR LIST, TOTAL = 15848 LBS

TOTAL WEIGHT OF REBAR = 26841 LBS

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511E34410 CLASS QC2 CONCRETE, SUPERSTRUCTURE

ABUTMENT WIDTH ABOVE CONST. JOINT = 2.25 FT, LENGTH = 50.81 FT

R.A. HEIGHT FROM TOP OF BEARING TO BOTTOM OF SLAB = 2.4 FT

R.A. VOLUME = 2.4FT(2.25FT)(50.81 FT) = 10 CY

F.A. HEIGHT FROM TOP OF BEARING TO BOTTOM OF SLAB = 2.4 FT

F.A. VOLUME = 2.4FT(2.25FT)(50.81 FT) = 10 CY

SLAB AREA = 25.74 FT (44FT) = 1133 SF

SLAB DEPTH = 18.25 IN

SLAB VOLUME = 1133 SF (18.25 IN) = 64 CY

TOTAL QC2 CONCRETE, SUPERSTRUCTURE = 84 CY

511E43512 CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING

R.A. LENGTH = 85.75FT

R.A. AREA OF FOOTING = 4 FT (3FT) = 12 SF

R.A. FOOTING VOLUME = 85.75 FT (12 SF) = 38 CY

R.A. STEM AREA = 2.25 FT (6.4 FT) = 14.4 SF

R.A. STEM VOLUME = 85.75 FT (14.4 SF) = 46 CY

R.A. WINGWALL AREA = 92 SF

R.A. WINGWALL VOLUME = 92 SF(2.25 FT) = 8 CY

F.A. LENGTH = 89.75FT

F.A. AREA OF FOOTING = 4 FT (3FT) = 12 SF

F.A. FOOTING VOLUME = 89.75 FT (12 SF) = 40 CY

F.A. STEM AREA = 2.25 FT (6.5 FT) = 14.6 SF

F.A. STEM VOLUME = 89.75 FT (14.6 SF) = 49 CY

F.A. WINGWALL AREA = 101 SF

F.A. WINGWALL VOLUME = 101 SF(2.25 FT) = 8 CY

TOTAL QC2 CONCRETE, ABUTMENT = 189 CY

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512E10100 SEALING OF CONCRETE SURFACES

R.A. NORTH WINGWALL TOP = 2.25FT(14.8FT) = 4 SY

R.A. NORTH WINGWALL SIDE = 2.5FT (14.8FT) = 4 SY

R.A. SOUTH WINGWALL TOP = 2.25FT(20.2FT) = 5 SY

R.A. SOUTH WINGWALL SIDE = 2.5FT (20.2FT) = 5 SY

F.A. SOUTH WINGWALL TOP = 2.25FT(19.8FT) = 5 SY

F.A. SOUTH WINGWALL SIDE = 2.5FT (19.8FT) = 5 SY

F.A. NORTH WINGWALL TOP = 2.25FT(19.2FT) = 5 SY

F.A. NORTH WINGWALL SIDE = 2.5FT (19.2FT) = 5 SY

TOTAL FOR WINGWALLS = 38 SY

ABUTMENT LENGTH(EXCLUDING WINGWALLS = 50.81 FT

HEIGHT ABOVE GRADE VARIES (APPROXIMATELY 8 FT)

TOTAL FOR ABUTMENTS = 2*50.81FT(8FT) = 90 SY

AREA ALONG DECK = (18.25 IN DECK + 6 IN)*2 SIDES = 4.04 FT

LENGTH OF DECK = 21.7 FT

TOTAL FOR DECK = 4.04FT(21.7FT) = 10 SY

TOTAL AREA FOR SEALING = 138 SY

516E13600 1" PREFORMED EXPANSION JOINT FILLER

WIDTH = 2.6 FT

R.A. HEIGHT = 3.9 FT

R.A. AREA = 2*2.6FT(3.9FT) = 20.3 SF

F.A. HEIGHT = 3.9 FT

F.A. AREA = 2*2.6FT(3.9FT) = 20.3 SF

TOTAL AREA FOR 1" PEJF = 41 SF

516E14020 SEMI-INTEGRAL EXPANSION JOINT SEAL

LENGTH OF R.A. = LENGTH OF F.A. = 50.81 FT

TOTAL LENGTH OF JOINT SEAL = 102 FT

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516E43200 ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE)

BEARINGS 11 3/4" X 11 3/4" X 2" THICK

NUMBER OF R.A. DRILLED SHAFTS = 7

NUMBER OF F.A. DRILLED SHAFTS = 7

TOTAL ELASTOMERIC BEARINGS = 10

517E70100 RAILING (THREE STEEL TUBE)

LENGTH OF NORTH RAILING = LENGTH OF SOUTH RAILING = 36 FT

TOTAL LENGTH OF TST RAILING = 72 FT

518E21200 POROUS BACKFILL WTH GEOTEXTILE FABRIC

WIDTH BEHIND ABUTMENT AND WINGWALL = 2 FT

LENGTH OF R.A. NORTH WW = 14.8 FT

DEPTH FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, ASSUME 12 FT

R.A. NORTH WW VOLUME = 2FT(15.4FT)(12FT) = 14 CY

LENGTH OF R.A. SOUTH WW = 19.4 FT

DEPTH FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, ASSUME 12 FT

R.A. NORTH WW VOLUME = 2FT(19.4FT)(12FT) = 17 CY

LENGTH OF F.A. NORTH WW = 18.4 FT

DEPTH FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, ASSUME 12 FT

F.A. NORTH WW VOLUME = 2FT(18.4FT)(12FT) = 16 CY

LENGTH OF F.A. SOUTH WW = 20.4 FT

DEPTH FROM BOTTOM OF FOOTING TO TOP OF GRADE VARIES, ASSUME 12 FT

F.A. NORTH WW VOLUME = 2FT(20.4FT)(12FT) = 18 CY

TOTAL FOR WINGWALLS = 65 CY

LENGTH OF R.A. = LENGTH OF F.A. = 50.81 FT

R.A. DEPTH VARIES, ASSUME 12 FT

F.A. DEPTH VARIES, ASSUME 12 FT

R.A. VOLUME = 50.81 FT (12FT)(2FT) = 45 CY

F.A. VOLUME = 50.81 FT (12FT)(2FT) = 45 CY

TOTAL FOR POROUS BACKFILL = 142 CY

518E22300 STEEL DRIP STRIP

LENGTH OF DECK = 21.7 FT

TOTAL LENGTH OF STEEL DRIP STRIP = 44 FT

518E40000 6" PERFORATED CORRUGATED PLASTIC PIPE

R.A. 2 PIPES, LENGTHS 41 FT, 42 FT

F.A. 2 PIPES, LENGTHS 44 FT, 45 FT

TOTAL LENGTH, 6" PCPP = 172 FT

518E40012 6" NON-PERFORATED CORRUGATED PLASTIC PIPE

R.A. NORTH PIPE

PIPE OUTLET ELEVATION = 981.10

GROUND ELEVATION AT OUTLET = 983.50

APPROX LENGTH = 10

R.A. SOUTH PIPE

PIPE OUTLET ELEVATION = 981.10

GROUND ELEVATION AT OUTLET = 983.50

APPROX LENGTH = 10

F.A. NORTH PIPE

PIPE OUTLET ELEVATION = 981.10

GROUND ELEVATION AT OUTLET = 983.50

APPROX LENGTH = 10

F.A. SOUTH PIPE

PIPE OUTLET ELEVATION = 981.10

GROUND ELEVATION AT OUTLET = 983.50

APPROX LENGTH = 10

APPROXIMATE LENGTH OF NPCPP = 40 FT

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524E94704 DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK

NUMBER OF R.A. DRILLED SHAFTS = 7

DEPTH OF R.A. DRILLED SHAFTS = 7 FT

TOTAL FOR R.A. = 42 FT

NUMBER OF F.A. DRILLED SHAFTS = 7

DEPTH OF F.A. DRILLED SHAFTS = 7 FT

TOTAL FOR F.A. = 42 FT

TOTAL LENGTH OF DRILLED SHAFTS = 84 FT

526E30000 REINFORCED CONCRETE APPROACH SLABS (T=17")

LENGTH = 30 FT (2) = 60 FT

WIDTH = 44 FT

TOTAL APPROACH SLAB AREA = 293 SY

613E41200 LOW STRENGTH MORTAR BACKFILL

STA. 5+95	3.33 SF
STA. 6+05 BACK	3.39 SF
STA, 6+05 FORWARD	3.07 SF
STA. 6+70 BACK	5.11 SF
STA. 6+70 FORWARD	3.95 SF
STA. 6+80	2.98 SF
STA. 6+90	2.51 SF

VOLUME STA. 5+95 TO STA. 6+05 BACK = 10FT*(3.33SF+3.39SF)/2 = 1.24 CY

VOLUME STA. 6.05 BACK TO STA. 6+70 BACK = 65FT*(3.39SF+5.11SF)/2 = 10.23 CY

VOLUME STA. 6+05 FORWARD TO STA. 6+70 FORWARD = 65FT*(3.07SF+3.95SF)/2 = 8.45 CY

VOLUME STA. 6+70 FORWARD TO STA. 6+80 = 10FT*(3.95SF+2.98SF)/2 = 1.29 CY

VOLUME STA. 6+80 TO STA. 6+90 = 10FT*(2.98SF+2.51SF)/2 = 1.02 CY

TOTAL VOLUME LOW STRENGTH MORTAR BACKFILL = 30 CY