

COLORADO DEPARTMENT OF TRANSPORTATION STAFF BRIDGE BRIDGE DETAIL MANUAL	Chapter: 5 Effective: November 19, 2021 Supersedes: July 29, 2011
GENERAL INFORMATION – SUMMARY OF QUANTITIES	

5.1 PURPOSE

The purpose of this drawing is to present complete and accurate general information and summary of quantities.

5.2 RESPONSIBILITY

This drawing shall be prepared and checked in the design unit. The graphic presentation of information on this drawing shall be the responsibility of the individual preparing the drawing.

5.3 GENERAL NOTES AND DESIGN DATA

The Designer and Detailer shall prepare this data for each project. Structural Worksheet B-100-1 shall be used as a guide. If design criteria varies over the bridge, areas shall be designated in plans. Only those notes and data which are applicable to the project shall be used. The section cut symbol as described in Chapter 2 should be shown on this drawing.

Notes that are sheet or item specific shall be included on the appropriate sheet, e.g. notes specific to abutments shall be on the abutment sheets.

5.4 SUMMARY OF QUANTITIES

A complete summary of quantities with appropriate sub-notes shall be placed on the drawing. The item numbers, descriptions, units, quantities, and totals shall be verified from the summary sheet and shall be given in the order shown in the Colorado Department of Transportation Item Book. These quantities shall be prepared as outlined in the Colorado Department of Transportation Bridge Design Manual Subsection 18.2 Computation of Quantities and Subsection 18.3 Bid Items and Quantities. In the past only 3 digit item codes were used, but for all current projects the full eight digit cost item code shall be used. Each bridge shall have its own total column. When this table becomes too big to fit on a sheet with the notes and index of drawings it may be placed on a sheet by itself.

Spreadsheet versions of this table that are embedded, linked or pasted as a picture into the sheet are acceptable. Arial Font is preferred. In this case, the guidelines below may not be applicable. See Appendix B – Microstation Configuration Details for additional information.

The following guidelines as shown in Fig. 5.4-1 are suggested starting points when constructing the Summary of Quantities table:

The diagram shows a table with 9 columns and 10 rows. The columns are labeled: Item No, Description, Unit, Super-structure, Abutment 1, Pier 2, Wall, and Total. The dimensions for the columns are: 3/4", 3 1/2", 1/2", 3/4", 3/4", 3/4", 3/4" (Typ), and 1". The rows are: Row 1: Item No, Description, Unit, Super-structure, Abutment 1, Pier 2, Wall, Total; Row 2: Blank; Row 3: Blank; Row 4: Blank; Row 5: Blank; Row 6: Blank; Row 7: Blank; Row 8: Blank; Row 9: Blank; Row 10: Blank. The table is shown with a perspective view, with a vertical dimension of 3/4" and a horizontal dimension of 3/4" on the left side. The table is broken into sections by diagonal lines.

Item No	Description	Unit	Super-structure	Abutment 1	Pier 2	Wall	Total

Fig. 5.4-1

The sample column headings pertain to a new bridge project. For repair work, walls, etc. the column headings would be changed to fit the specific job. Substructure elements are to be numbered as follows: Abutment 1, Pier 2, Pier 3, ..., Pier n-1, Abutment n.

Historically, the practice was to have blank lines between each cost item, two blank lines left after the last 403 and 502 cost items, and a minimum of 6 blank lines left at the bottom of the table. These extra lines were left for the Region to use as needed for as-builts. Except for the blanks between each cost item, the other blank lines are generally not necessary.

5.5 INDEX OF DRAWINGS

A complete index of drawings, in sequence, shall appear on the drawing with the appropriate reference drawing number. The title in the index shall be the same as the title given in the title block of each drawing.

Drawings for new bridges or structures should be generally arranged in the following sequence as applicable. This sequence provides the information to approximate the construction sequence. See specific chapters for additional drawing details.

GENERAL INFORMATION & SUMMARY OF QUANTITIES
 GENERAL LAYOUT
 ENGINEERING GEOLOGY
 BRIDGE HYDRAULIC INFORMATION
 CONSTRUCTION LAYOUT
 CONSTRUCTION PHASING
 FOOTING, PILING AND CAISSON LAYOUT
 ABUTMENT DETAILS
 WINGWALL DETAILS
 PIER DETAILS
 BEARING DETAILS
 GIRDER LAYOUT (if required)
 GIRDER DETAILS (Precast or Steel)
 DECK / SUPERSTRUCTURE DETAILS
 GIRDER DETAILS (Cast-in-Place)
 EXPANSION DEVICE DETAILS (if in the superstructure)

- PRECAST PANEL DECK FORMS
- DRAIN DETAILS (if in the superstructure)
- EXCAVATION AND BACKFILL DETAILS (if different than M-standards)
- STRUCTURE BACKFILL DETAILS (as appropriate)
- BRIDGE RAIL DETAILS
- LIGHTING DETAILS
- FENCE DETAILS
- APPROACH SLAB DETAILS
- EXPANSION DEVICE DETAILS (if in the approach slab)
- DRAIN DETAILS (if in the approach slab)
- SLOPE PAVING DETAILS
- BRIDGE DECK ELEVATIONS

For repair plans, the index should include sheets for General Information, Summary of Quantities, Layouts and details as required.

5.6 BRIDGE DESCRIPTION

The area reserved for the bridge description contains room for approximately six (6) lines of notes using 0.07 inch text height. Lines one (1) through three (3) shall be used for the bridge description which should include the number of spans, span type, span lengths and bridge type. Following is a list of the more commonly used bridge descriptions as they are to appear on the drawing. Often it shall become necessary to describe special designs not listed below; the special descriptions shall be verified from Appendix "C" of the Colorado Department of Transportation Structure Inventory Coding Guide or the Field Log of Structures books. Span is defined as span perpendicular to centerline of box, for concrete box culverts.

SAMPLE DESCRIPTIONS:

3 Span (40'-0", 60'-0", 40'-0") Bridge, Concrete slab and Girder.

1-Simple Span (65'-0") Bridge, Concrete Slab and Girder Prestressed.

3 Span (43'-0", 129'-0", 43'-0") Bridge, Concrete Slab and Prestressed Concrete I Girder.

3 Span (74'-6", 125'-0", 122'-6") Bridge, Concrete Slab and Prestressed Concrete U Girder.

3 Span (42'-6", 50'-0", 42'-6") Bridge, Concrete Slab and Prestressed Concrete Box Girder, side by side.

2-Span (75'-0", 75'-0") Bridge, CIP Concrete Box Girder, Multiple.

4-Span (40'-0", 70'-0", 70'-0", 40'-0") Bridge, Welded Girder, Composite.

2-Cell (18'-0" X 7'-0" X 200'-0") Concrete Box Culvert.

Lines four (4) through six (6) shall complete the bridge description as follows:

- Line (4) Over or Under _____
- Line (5) _____ Roadway Curb to Curb. _____ Bent Angle
- Line (6) _____ Curbs or Walks. Type _____ Bridge Rail.

Line 4

- Show proper notation in regard to structure being “over” or “under” a crossing.
- If the bridge is on the project line and goes over a crossroad, then the word “over” is correct.
- If the project line goes under a bridge or a crossroad, the word “under” shall be used.

Examples:

- 1) If the project line is on I 25 going under 86th Avenue, the correct notation would be “under 86th Avenue”.
- 2) If the project line is on 86th Avenue going over I 25, the correct notation would be “over I 25”.

Line 5

- Give “Roadway curb-to-curb” dimension in feet and inches 40’-6”.
- Give “Bent Angle” as detailed on the plans.

Line 6

- Give “Curb” or “Walk” dimensions in feet and inches 1’-3”, 5’-0”.

5.7 WORK DESCRIPTION (FOR REPAIR PROJECTS)

The work description shall describe what work is being done, e.g. type of rail replacement; joint replacement; etc.

5.8 TITLE BLOCK

This drawing is titled “GENERAL INFORMATION & SUMMARY OF QUANTITIES” and shall be so indicated in the title block.

GENERAL NOTES

Except as shown on the plans, structure excavation and backfill shall be in accordance with M-206-2.

Expansion joint material shall meet AASHTO Specification M213.

All exposed concrete bridge surfaces shall receive a Class 1 surface finish, to one foot below the ground line.

The following structural steel shall be AASHTO M270 Grade 36 (ASTM A-36):
diaphragms, expansion devices and miscellaneous steels noted.

The following structural steel shall be AASHTO M270 Grade 50 (ASTM A-572):
piling and bridge railing posts and base plates.

All bolts shall be 7/8" diameter, high strength, unless otherwise noted.

Leaving ends are ungalvanized bearings. They shall be cut or milled from AASHTO elastomer grade 3, 4, or 5 as described in Tables 705-1 and 705-2 with a durometer (shore "A") hardness of 60.

Grade 60 reinforcing steel is required.

Reinforcing steel at superstructure deck, approach slabs, abutments and wingwalls above bearing seat elevation shall be galvanized coated.

Reinforcing steel at substructure (abutments and wingwalls below bearing seat elevation) shall be uncoated.

All the provisions for bridge deck concrete shall also apply to approach slab concrete.

The Contractor shall be responsible for the stability of the structure during construction.

Precast deck forms are required.

Mechanically Stabilized Backfill shall be used at abutments.

For structure number installation, see Standard S-614-12.

All longitudinal and transverse dimensions are measured horizontally and include no correction for grade.

The information shown on these plans concerning the type and location of underground utilities is for information only. The Contractor shall be responsible for making his own determination as to the type and location of underground utilities as may be necessary to avoid damage thereto. The Contractor shall contact the Utility Notification Service at 811 (toll free) at least 7 days (2 days not including the day of notification) prior to any excavation or other earthwork.

Existing Bridge Rail type 10R recently installed to be removed and salvaged and delivered to CDDT-R2, Maintenance.



DESIGN DATA

AASHTO LRFD Bridge Design Specifications, 8th Edition (2017)

Design Method: Load and Resistance Factor Design

Live Load: HL-93 (design truck or tandem and design lane load)

Dead Load: 30 lbs per sq. ft. for permanent steel deck forms

Assumes 2 lbs. per sq. ft. for permanent steel deck forms

Reinforced Concrete: Class D Concrete: f_c = 4,500 psi

Precast Prestressed Concrete Girders: f_c = (see details)

Reinforcing Steel: f_s = 270,000 psi

Reinforcing Steel: f_y = 60,000 psi

Structural Steel: f_y = 36,000 psi

AASHTO M270 (ASTM A709) Grade 36 f_y = 50,000 psi

AASHTO M270 (ASTM A709) Grade 50

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- B02 SUMMARY OF QUANTITIES
- B03 GENERAL LAYOUT
- B04 BRIDGE GENERAL LAYOUT
- B05 BRIDGE HYDRAULIC INFORMATION
- B06 RIPRAP SITE PLAN AND DETAILS
- B07 CONSTRUCTION LAYOUT AND DETAILS
- B08 ABUTMENT DETAILS (1 OF 2)
- B09 ABUTMENT DETAILS (2 OF 2)
- B10 PRESTRESSED CONCRETE CBT
- B11 PRESTRESSED CONCRETE CBT
- B12 INTERMEDIATE DIAPHRAGM
- B13 DECK DETAILS - SECTION
- B14 PRECAST PANEL DECK FORM (1 OF 2)
- B15 PRECAST PANEL DECK FORM (2 OF 2)
- B16 BRIDGE RAIL TYPE 10MASH
- B17 BRIDGE RAIL TYPE 10MASH
- B18 TRANSITION DETAILS (1 OF 2)
- B19 TRANSITION DETAILS (2 OF 2)
- B20 MECHANICALLY STABILIZED BACKFILL
- B21 BRIDGE DECK ELEVATIONS
- B22 ROADWAY APPROACHES
- B23 BRIDGE DECK ELEVATIONS
- B24-B26 BRIDGE DECK ELEVATIONS
- B27 ROADWAY APPROACHES

SEISMIC DESIGN CRITERIA

Earthquake Design method: Force based (General)

Force based (General) per LRFD 3.10.2.1)

Latitude = 39.0720° N

Longitude = 105.9742° W

AASHTO Spectrum for 7% PE in 75 years (1000yr Return Period)

Period (sec) (g) 0.07 pCa - Site Class D

0.2 0.160 Ss - Site Class D

1.0 0.042 S1 - Site Class D

Spectral Response Accelerations: As = Fpa/FCa, Sds = Fps/Ss, and SD1 = Fv*SI

Fpa = 1.600, Fca = 1.600, Fv = 2.400

0.0 0.123 As - Site Class D

0.2 0.236 Sds - Site Class D

1.0 0.101 SD1 - Site Class D

Operational Class: Seismic Zone or Seismic Design Category: Zone-1 or Category-A

Response Modification Factors: R-Factor: 1.5 (Substructure type), R-Factor: 1.0 (Connections)

Example 5-1

BRIDGE DESCRIPTION

Simple span (90'-0") along with (BCH) bridge, concrete prestressed I girder (CPG) (US-85) with 10' wide plate girder

44'-0" Roadway curb to curb, Bent angle 90°.

1'-6" curbs, Type 10MASH bridge rail with BRDM-GR3 transition.

GENERAL INFORMATION

SUMMARY OF QUANTITIES

Item No	Description	Unit	Superstructure		H-13-H		Approach Slabs	Total
			Abut 1	Abut 2	Abut 1	Abut 2		
202-00400	Removal of Bridge	EA	1					1
206-00000	Structure Excavation	CY		210	210			420
206-00065	Structure Backfill (Flow-Fill)	CY		6.5	6.5			13
206-00100	Structure Backfill (Class 1)	CY		330	330			660
206-00200	Structure Backfill (Class 2)	CY		80	80			160
403-34721	Hot Mx Asphalt (Grading SX) (75) (PG 58-28)	TON	75				33	108
408-01100	Joint Sealant	LF					176	176
502-00460	Pile Tip	EA		7	7			14
502-00500	Complete Joint Penetration (CJP) Splice	EA		7	7			14
502-02010	Dynamic Pile Test	EA		1	1			2
502-11274	Steel Piling (HP 12x74)	LF		276	295			571
515-00124	Waterproofing (Membrane)(Spray Applied)	SY	453				196	649
601-03040	Concrete Class D (Bridge)	CY	168	24	24		81.9	298
602-00000	Reinforcing Steel	LB		5440	5440			10,880
602-00010	Reinforcing Steel (Galvanized)	LB	38495				11965	50,460
605-01400	Transition Type BR10M-GR3	EA	4					4
606-11035	Bridge Rail Type 10 MASH	LF	265					265
613-01200	2 Inch Electrical Conduit (Plastic)	LF	600					600
618-01145	Prestressed Concrete I (CBT 45)	LF	364					364

NOTES:

- See Roadway plans for additional quantities related to embankment protection at abutments.
- The 4 pullboxes (24"x36"x24") shown in the general layout shall not be paid separately, but shall be included in the work for pay item 613 - Electrical Conduit.

Example 5-2

GENERAL NOTES

- Structure excavation and backfill shall be in accordance with M-206-1 for concrete box culvert and cast-in-place retaining walls.
- All exposed concrete surfaces shall receive a Class 1 final finish to one foot below the ground line.
- Expansion joint material shall meet AASHTO Specification M213.
- Grade 60 reinforcing steel is required.
- All construction joints not shown on the plans shall be approved by the Engineer.
- All construction joints shall be thoroughly cleaned before fresh concrete is placed.
- Backfill shall not begin until top slab has reached the design strength f_c .
- Wingwalls shall be constructed in accordance with standard M-601-20.
- All exposed concrete corners shall be chamfered $\frac{3}{4}$ inch.
- All dimensions are perpendicular to the centerline of the box.
- All transverse reinforcing shall be normal to the centerline of the structure during construction.
- The Contractor shall be responsible for the stability of the structure during construction.
- For structure number installation, see Standard S-614-12.
- Stations, Elevations, and Dimensions contained in these plans are calculated from a datum. Verify all dependent dimensions in the field before ordering or fabricating any material.
- All physical and transverse dimensions are measured horizontally and include no correction for grade.
- The information herein on these plans concerning the type and location of construction joints is for informational purposes only. The Contractor is responsible for making his own determination as to the type and location of underground utilities as may be necessary to avoid damage thereto. The Contractor shall be responsible for obtaining all necessary permits and approvals (1-800-922-1997) at least 3 days (3 days not including the day of notification) prior to any excavation or other earthwork.

Example 5-3

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- B01 GENERAL INFORMATION, SUMMARY OF QUANTITIES
- B02 GENERAL LAYOUT
- B03 CHANNEL PROTECTION
- B04 BOX CULVERT EXTENSION DETAILS

BRIDGE DESCRIPTION

0246331948BL:
Replace a 2-span steel girder bridge (H-19-C) with a 2 cell 8' x 8' x 107.2' CBC
Carrying US24 ML over a draw at mile marker 331.948
Angle between CL Roadway and CL CBC = 76°

0246332060BR:
18' Extension at outlet of the existing 1 cell 8' x 4' x 56' CBC (built in 1935, 4' extension at inlet in 1969)
18' Extension at inlet of the existing 1 cell 8' x 4' x 56' CBC (built in 1935, 4' extension at inlet in 1969)
Angle between CL Roadway and CL CBC = 0°

SUMMARY OF QUANTITIES

Item No	Description	Units	0246331948BL		0246332060BR		Total Project
			CBC & Headwalls	Wingwalls	Channel Protection	Total	
202-0026	Removal of Slope and Ditch Paving	SY		310			310
202-0050	Removal of Wall (CBC Wingwalls)	EA				2	2
202-0040	Removal of Bridge	EA				1	1
206-0000	Structure Excavation	CY	95	75	10	30	255
206-0050	Structure Backfill (Class 2)	CY	270	130		20	440
206-0178	Shoring (Area 1)	L5	1				1
206-0178	Shoring (Area 2)	L5	0.5			0.5	0.5
515-0020	Waterproofing (Membrane)	SY	252				252
601-0300	Concrete Class D (Box Culvert)	CY	224	40	9	16	23
602-0000	Reinforcing Steel	LB	23405	4115	685	3825	4600
602-0020	Reinforcing Steel (Epoxy Coated)	LB	20355				20355

See Drainage Channel Plan sheet for additional channel protection quantities.

DESIGN DATA

- AASHTO, LRFD 9th Edition, 2020, with current interims
- Design Method: Load and Resistance Factor Design
- Reinforced Concrete: Class D Concrete (Box Culvert):
 $f'_c = 4,500$ psi
 $f_y = 60,000$ psi
- Live Load CBC: HL-93 (design truck or tandem, and design lane load)
- Dead Load CBC: 125 lbs. per cu. ft. for soils
146.07 lbs. per cu. ft. for asphalt

- Wingwall Loading:
 - At-rest earth fluid pressure for concrete stem design = 55 pcf for 2' (min); 1:1 sloped backfill
 - Active earth fluid pressure for concrete footing design = 40 pcf for 2' (min); 1:1 sloped backfill
 - Minimum resistance for soilbearing = 5.5 ksi
 - Soilbearing resistance factor = 0.45



**Know what's below.
Call before you dig.**

Section or Detail Identification



Cross Reference Drawing Number
(If blank or 0000, reference is to same sheet)

GENERAL NOTES

- All work shall be done in accordance with the Colorado Department of Transportation 2017 Standard Specifications for Road and Bridge Construction and as noted in the drawings.
- Unless otherwise noted, dimensions contained in these plans are calculated from the "As Constructed Plans". These dimensions may be adjusted to meet the existing conditions and may vary slightly from the original dimensions in the field before ordering or fabricating any material.
- The Contractor shall be responsible for the stability of the structure during all phases of construction.
- The Contractor may stockpile repair material at own risk. All unused materials shall remain property of the Contractor. CDDT will not repurchase leftover materials or pay any restocking fees.
- The Contractor shall protect pedestrians and traveling public from any falling debris during the construction. All debris which falls from the structure or is generated shall be removed immediately. This work will not be measured and paid for separately, but shall be included in the cost of the work.
- One inch of pavement shall be removed from the structure as indicated in the plans and replaced with a thickness of hot mix asphalt to the grade and cross slope on the existing concrete deck.
- Vary asphalt thickness or adjust as necessary to eliminate ponding condition at the NE corner of the bridge.
- Before removal, the Contractor shall verify the existing HMA thickness on the bridge deck and approach slabs in accordance with the Special Provision Removal of Asphalt Mat (Planing).
- The transition between final grade of HMA on the bridge to the final grade on the approaches shall be transitioned at 1" per 25 ft.
- Repair quantities are approximate. Final allocation shall be determined by the Engineer. Payment will be for the actual area repaired and material used as approved by the Engineer. Reclamation quantities in addition to plan quantities will be measured and paid for at the unit price for the appropriate bid item.
- All longitudinal and transverse dimensions are measured horizontally and include no correction for grade.

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- B01 GENERAL INFORMATION SUMMARY OF QUANTITIES
- B02 PLAN & GIRDER REPAIR DETAILS
- B03 ABUTMENT, PIER & CURB REPAIR DETAILS
- B04 BRIDGE EXPANSION JOINT (ASPHALTIC PLUG)

DESIGN DATA

- AASHTO LRFD Design Specifications, Eighth Edition.
- Concrete Patching Material: See Special Provision
- Reinforcing Steel: Fy = 60,000 psi

SUMMARY OF QUANTITIES

Item No	Description	Unit	Quantity	As-Built
202-00240	Removal of Asphalt Mat (Planing)	SY	1,150	
202-00505	Removal of Portions of Present Structure	SF	45	
403-34871	Hot Mix Asphalt (Grading SX) (100) (PG 76-28)	TON	125	
518-01001	Bridge Expansion Joint (Asphaltic Plug)	LF	147	
519-01000	Epoxy Resin (Injection)	LF	120	
601-06102	Concrete (Patching)	CF	15	
602-00000	Reinforcing Steel	LB	40	

BRIDGE DESCRIPTION

SH 115 ML over US 50 at MP 13.957.
 2-Span concrete slab and prestressed concrete girder (CPG).
 249'-0" Length BF abut to BF abut.
 4'-0" wide concrete deck with 1'-0" skew.
 New callouts per 10R in 2012.
 Built in 1973.

WORK DESCRIPTION

- Mill 1" asphalt and place 2" new asphalt.
- Place Bridge Expansion Device (Asphalt Plug) at both abutments and pier.
- Remove concrete area located at the right corner of Abutment 3.
- Repair damaged concrete area located at forward right end wall of Pier 2 and at pier cap.
- Epoxy inject the cracks in web of girder 2F.

▲ For information only. See Roadway Plans.

CONCRETE REMOVAL AND PATCHING NOTES

- The Contractor shall sawcut around the removal area to a depth of 1 inch prior to removal and shall be approved by the Engineer. All saw residue material shall be properly contained and not allowed to run off.
- Care shall be taken in removing concrete from reinforcing steel to prevent damage. Any reinforcing steel that is cut, damaged or removed due to Contractor actions, as determined by the Engineer, shall be replaced at the Contractor's expense.
- Clean and prepare existing concrete surfaces and reinforcing for placement of new concrete in accordance with Sections 202 and 601 of the Specifications prior to placement of new concrete.
- After removal of concrete, all exposed rebar shall be cleaned of all loose concrete by chipping and/or sandblasting, and this shall be included in the cost of the work.
- Rebuild all concrete surfaces to the original dimensions as directed by the Engineer.

LEGEND



Example 5-4

GENERAL INFORMATION &
SUMMARY OF QUANTITIES

SUMMARY OF QUANTITIES

ITEM NO	DESCRIPTION	UNIT	SUPERSTRUCTURE	ABUTMENT 1	PIER 2	PIER 3	PIER 4	PIER 5	ABUTMENT 6	APPROACH SLABS	URBAN DESIGN	TOTAL
①	202-00401 REMOVAL OF BRIDGE (SPECIAL)	EA										1
	202-00400 REMOVAL OF BRIDGE	EA										1
	206-00000 STRUCTURE EXCAVATION	CY		1,095	82	80	62	50	909			2,278
	206-00100 STRUCTURE BACKFILL (CLASS 1)	CY		1,286					1,067			2,353
	206-00200 STRUCTURE BACKFILL (CLASS 2)	CY			66	65	50	40				221
	206-01781 SHORING (AREA 1)	LS	1									1
	206-01782 SHORING (AREA 2)	LS	1									1
	206-00360 MECHANICAL REINFORCEMENT OF SOIL	CY		1,214					1,026			2,240
	403-34751 HOT MIX ASPHALT (GRADING SIX) (PG 64-28)	TON	541							56		597
	503-00030 DRILLED CAISSON (30 INCH)	LF		185					145			330
	503-00048 DRILLED CAISSON (48 INCH)	LF			132	132	168	132				564
	504-04420 PRECAST PANEL FACING	SF		428								428
	512-00101 BEARING DEVICE (TYPE 1)	EA		14				14				28
	514-00201 PEDESTRIAN RAILING (STEEL/SPECIAL)	LF									727	727
	515-00120 WATERPROOFING (MEMBRANE)	SY	3,339							346		3,685
	518-01004 BRIDGE EXPANSION DEVICE (0 - 4 INCH)	LF		120					120			240
	601-03040 CONCRETE CLASS D (BRIDGE)	CY	1,563	152	122	119	117	115	149	287	80	2,704
	601-40005 CURB STONE VENEER (ASHLER)	SF									1,777	1,777
	601-40400 STRUCTURAL CONCRETE STAIN	SY	981	116	259	252	256	256	183		1,215	3,518
③	602-00020 REINFORCING STEEL (EPOXY COATED)	LB	357,133	19,419	30,047	30,047	30,047	30,047	19,419	40,716	8,183	585,118
	604-25000 VANE GRADE INLET (SPECIAL)	EA								2		2
	606-11032 BRIDGE RAIL TYPE 10M (SPECIAL)	LF	769									769
②	613-00075 3/4 INCH ELECTRICAL CONDUIT	LF						120				120
⑦	613-01200 2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF									1,378	1,378
⑤	613-01300 3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF									365	365
⑥	613-01400 4 INCH ELECTRICAL CONDUIT (PLASTIC)	LF									441	441
②	613-13000 LUMINAIRE (LED)	EA						6				6
⑨	613-15200 RECESSED LIGHT (SPECIAL)	EA									44	44
	618-01992 PRESTRESSED CONCRETE BOX (DEPTH LESS THAN 32 INCHES)	SF	44,840									44,840
⑪	621-00411 STRUCTURE TEMPORARY ACCESS ROAD (LOCATION 1)	LS										1
⑪	621-00412 STRUCTURE TEMPORARY ACCESS ROAD (LOCATION 2)	LS										1

NOTES:

- Riprap, Loosefill and Geotextile quantities are shown in the Drainage Plans.
- For Lighting at Pier 5.
- Includes 7.36 CY for ceiling terminus columns at abutments and 43.28 CY for columns at piers and 43.28 CY for plinths.
- Includes 345 LB for railing terminus columns at abutments and 5,502 LB for columns at piers and 2,176 LB for plinths.
- Irrigation sleeve (PVC Conduit) in median.
- Irrigation sleeve (PVC Conduit) in right edge of deck.
- Two electrical conduits in left edge of deck, one electrical conduit in right edge of deck, and one electrical conduit in right edge of deck.
- One irrigation sleeve in right edge of deck
- Removal of Pedestrian bridge.
- Includes 16 for stone columns and 28 for plinths.
- See Structures Selection Report for Structure Temporary Access Road (Location 1 and 2) for conceptual details.
- To facilitate phase I bridge and landscaping well construction at the east abutment.
- Quantity includes 22 for splices not shown in the plans.

Example 5-5

SUMMARY OF QUANTITIES