MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities
Design and Engineering Services – Central Region
Highway Design Section

To: Distribution (see below)

From: Carla Smith, P.E.
Project Manager

From: Kristen Keifer, P.E.
Project Engineer

Date: December 21, 2015

Phone/Fax: 269-0597/243-4409
E-mail: kristen.keifer@alaska.gov

Subject: **Takotna Gold Creek & Tatalina Bridge Replacement**
PIH Review

Attached for your review and comment is a Plans-in-Hand assembly of the above referenced project. Please e-mail your comments to me by **Wednesday, January 13, 2016**. A review meeting will be held on **Tuesday January 19, at 10:00 a.m. in the Construction Conference Room**, 4111 Aviation Avenue. When possible, comments should be sent in MS Word format.

FEDERAL PROJECT NO.:	000S783
IRIS PROGRAM NO.:	Z516210000
IRIS ACTIVITY TEMPLATE:	TPJ001
IRIS PHASE:	TC2000
IRIS ACTIVITY CODE:	011P

Attachments: Plans, Specification Memo, and Engineer's Estimate

If you would like a copy of the signed DSR, please e-mail kristen.keifer@alaska.gov for a copy.

Distribution:
Ken Morton, P.E., Preconstruction Engineer
Jim Amundsen, P.E., Chief, Highway Design
Carla Smith, P.E., Project Manager (5)
Chris Post, P.E., Highway Design Peer Review Coordinator
Newt Bingham, P.E., Central Region Materials Engineer (2)
Randy Vanderwood, P.E., Maintenance & Operations
Burrell Nickeson, Maintenance & Operations (2)
Steve Banse, M&O District Mat-Su Superintendent
Steffen Strick, M&O McGrath Station Manager
Al Burton, ROW Project Coordinator, Right-of-Way (3)
Louise Hooyer, PLS, ROW Engineering Supervisor
Bob Keiner, PLS, Survey Manager, Locations
Judi Shapiro, P.E., Regional Utilities Engineer (2 + 1 electronic copy)
Scott Thomas, P.E., Regional Traffic Engineer, Traffic & Safety
Chris Bentz, P.E., Traffic Engineer
Tom Dougherty, P.E., Regional Construction Engineer
Tony Sprague, P.E., Construction Group Chief
Alan Drake, P.E., Construction Project Manager (2)
Ken Thomas, Traffic Control Engineer

Ryan Norkoli, P.E., Review Engineer, Contracts
Fred Park, P.E., Specifications/Estimating Engineer
Eric Miyashiro, P.E., Chief, Preliminary Design & Environmental
Paul Janke, P.E., Regional Hydrologist, Central Region (2)
Brian Elliott, Regional Environmental Manager, Preliminary Design & Environmental
Jennifer Witt, Chief, Planning and Administrations (2)
Joe Gibbons, Highway Data Supervisor, Planning, MS 2530
Richard Pratt, P.E., Chief, Bridge Design, 2500 (2)
Dave Hemstreet, P.E., Statewide Materials, 2538
Jeff Stark, Chief Attorney General, Section Supervisor, Transportation, AGO
Roger Healy, P.E., Chief Engineer, MS 2500
Bob Laurie, Bicycle/Pedestrian Coordinator, Statewide Planning, MS 2500

ENGINEER'S ESTIMATE State of Alaska Department of Transportation & Public Facilities Central Region	Takotna: Gold Cr Bridge & Tatalina Bridge Replacement PIH Estimate AKSAS No.: 51621 Program No.: Z516210000 Federal No.: 000S783 Version ID: 43946 Printed: 12/15/2015 4:45:38 PM

Basic Bid

Item Number	*Description*	*Quantity*	*Unit*	*Unit Price*	*Amount*
201(3B)	Clearing And Grubbing	All required	Lump Sum	60,000.00	60,000.00
202(17-0462)	Removal of Bridge No. 0462	All required	Lump Sum	50,000.00	50,000.00
202(17-0473)	Removal of Bridge No. 0473	All required	Lump Sum	25,000.00	25,000.00
203(3)	Unclassified Excavation	2,660	Cubic Yard	20.00	53,200.00
203(5)	Borrow, Type C	2,800	Cubic Yard	10.00	28,000.00
203(6)	Borrow, Type A	3,850	Ton	25.00	96,250.00
203(9)	Obliteration of Roadway	515	Square Yard	10.00	5,150.00
203(9E)	Obliteration of Detour	All required	Lump Sum	13,500.00	13,500.00
205(3)	Foundation Fill	350	Cubic Yard	50.00	17,500.00
301(3)	Aggregate Surface Course, Grading E-1	960	Ton	40.00	38,400.00
501(1)	Class A Concrete	All required	Lump Sum	145,600.00	145,600.00
501(7A)	Precast Concrete Member (Headwall)	2	Each	15,000.00	30,000.00
501(7B)	Precast Concrete Member (Deck Panel)	14	Each	8,000.00	112,000.00
503(1)	Reinforcing Steel	All required	Lump Sum	22,400.00	22,400.00
504(1)	Structural Steel	All required	Lump Sum	203,000.00	203,000.00
505(5)	Furnish Structural Steel Piles (HP14X117)	600	Linear Foot	150.00	90,000.00
505(6)	Drive Structural Steel Piles (HP14X117)	8	Each	15,000.00	120,000.00
507(1)	Steel Bridge Railing	160	Linear Foot	350.00	56,000.00
520(1)	Temporary Crossing	All required	Lump Sum	100,000.00	100,000.00
599(1)	Bridge Contingency	All required	Lump Sum	220,800.00	220,800.00
602(1)	Structural Plate Pipe 186" Diameter, 0.140" Gage	82	Linear Foot	2,250.00	184,500.00
603(17-12)	12 Inch Pipe	50	Linear Foot	100.00	5,000.00

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Basic Bid

Item Number	*Description*	*Quantity*	*Unit*	*Unit Price*	*Amount*
603(20-12)	End Section for 12 Inch Pipe	2	Each	550.00	1,100.00
606(1)	W-Beam Guardrail	150	Linear Foot	100.00	15,000.00
606(13)	Parallel Guardrail Terminal	4	Each	3,600.00	14,400.00
606(16)	Transition Rail	4	Each	3,500.00	14,000.00
606(19)	Downstream End Anchor	4	Each	2,500.00	10,000.00
611(1)	Riprap, Class II	1,175	Cubic Yard	175.00	205,625.00
615(1)	Standard Sign	39	Square Foot	120.00	4,680.00
616(4)	Thaw Wire Installation	2	Each	17,000.00	34,000.00
618(2)	Seeding	50	Pound	150.00	7,500.00
618(3)	Water For Seeding	50	M Gal.	75.00	3,750.00
620(1)	Topsoil	4,915	Square Yard	3.50	17,202.50
631(2)	Geotextile, Erosion Control, Class I	650	Square Yard	3.00	1,950.00
633(1)	Silt Fence	3,350	Linear Foot	6.50	21,775.00
639(6)	Approach	1	Each	2,000.00	2,000.00
640(1)	Mobilization And Demobilization	All required	Lump Sum	450,000.00	450,000.00
640(4)	Worker Meals and Lodging, or Per Diem	All required	Lump Sum	150,000.00	150,000.00
641(1)	Erosion, Sediment, and Pollution Control Administration	All required	Lump Sum	15,000.00	15,000.00
641(2)	Temporary Erosion , Sediment and Pollution Control	All required	Contingent Sum	85,000.00	85,000.00
641(6)	Withholding	All required	Contingent Sum	0.00	0.00
641(7)	SWPPP Manager	All required	Lump Sum	15,000.00	15,000.00
642(1)	Construction Surveying	All required	Lump Sum	75,000.00	75,000.00
642(3)	Three Person Survey Party	100	Hour	400.00	40,000.00
643(2)	Traffic Maintenance	All required	Lump Sum	45,000.00	45,000.00
643(3)	Permanent Construction Signs	All required	Lump Sum	20,000.00	20,000.00
643(15A)	Flagging	All required	Contingent Sum	40,000.00	40,000.00
643(23)	Traffic Price Adjustment	All required	Contingent Sum	0.00	0.00

ENGINEER'S ESTIMATE State of Alaska Department of Transportation & Public Facilities Central Region	Takotna: Gold Cr Bridge & Tatalina Bridge Replacement PIH Estimate AKSAS No.: 51621 Program No.: Z516210000 Federal No.: 000S783 Version ID: 43946 Printed: 12/15/2015 4:45:38 PM

Basic Bid

Item Number	*Description*	*Quantity*	*Unit*	*Unit Price*	*Amount*
643(25)	Traffic Control	All required	Contingent Sum	35,000.00	35,000.00
644(1)	Field Office	All required	Lump Sum	20,000.00	20,000.00 (CF-CENG)
644(2)	Field Laboratory	All required	Lump Sum	14,000.00	14,000.00 (CF-CENG)
644(8)	Vehicle (LT/SUV)	1	Each	20,000.00	20,000.00 (CF-CENG)
644(10)	Engineering Communications	All required	Contingent Sum	4,500.00	4,500.00 (CF-CENG)
644(15)	Nuclear Testing Equipment Storage Shed	1	Each	6,000.00	6,000.00 (CF-CENG)
644(16)	Storage Container	1	Each	5,500.00	5,500.00 (CF-CENG)
645(1)	Training Program, 1 Trainee/Apprentice	500	Labor Hour	25.00	12,500.00
646(1)	CPM Scheduling	All required	Lump Sum	4,000.00	4,000.00
647(1)	Wide Pad Dozer, 65 hp Min	All required	Contingent Sum	10,000.00	10,000.00
PROJECT Summary	Pay Items:	58 Items		Subtotal:	3,095,782.50
	Minus Contractor Furnished CENG Items				-70,000.00
				Exc Subtotal	3,025,782.50
	Construction Engineering (Percentage)	15%		CENG	453,867.38
				Subtotal	3,479,649.88
	Indirect Cost Allocation Plan (ICAP)	4.65%			161,803.72
	TOTAL PARTICIPATING				3,641,453.60
	ADDED COSTS (Not part of the Contract)				
	PROJECT TOTAL				3,641,453.60

MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities
Design and Engineering Services – Central Region
Highway Design

TO: PIH Distribution

DATE: December 16, 2015

TELEPHONE NO: 907-269-0597
E-MAIL: kristen.keifer@alaska.gov

FROM: Kristen E. Keifer, P.E.
Project Engineer

SUBJECT: PIH Specifications
Takotna: Gold Cr Bridge & Tatalina Bridge Replacement
000S783/Z516210000

This memo has been prepared to summarize the proposed project changes to the 2015 Standard Specifications for Highway Construction, the Standard Modifications, Central Region Specials, and Project Provision for the above listed project.

Please provide your comments with the PIH review comments.

To see the Standard Specifications for Highway Construction 2015 edition please see the DOT&PF website:

http://www.dot.state.ak.us/stwddes/dcsspecs/pop_hwyspecs_english.shtml

To see the Standard Modifications, Statewide Specials, and CR Specials please see our ftp site for the latest edition.

http://www.dot.state.ak.us/creg/design/highways/specs/

Project Provisions

DIVISION 100 GENERAL PROVISIONS		
102	Bidding Requirements and Conditions	ES08 not required.
103	Award and Execution of Contract	ES11 not applicable.
105	Control of Work	* Will update with utility information when available. Anticipate conflicts. No other project anticipated in the area at this time. Don't anticipate interim completion date.
106	Control of Material	*
107	Legal Relations and Responsibility to Public	* Anticipated permits: • 2 USACE Section 404 permits. One for work below ordinary high water in Gold Creek as the water shares a significant nexus to the Takotna River which is jurisdictional by the Corps, and one for fill of wetlands at Tatalina • Title 16 Fish Habitat Permit (ADF&G will likely give us two permits- one for each bridge) CR107.2 applicable. Will remove MOA ROW permit requirement. E67 applicable. CR107.1 applicable. S80 applicable.
108	Prosecution and Progress	* CR108.2 applicable. CR108.1 not applicable. Don't anticipate interim completion date.
109	Measurement and Payment	* CR109.3 applicable. CR109.2 applicable.
120	Disadvantaged Business Enterprise (DBE) Program	* ES20 applicable.

DIVISION 200 EARTHWORK		
201	Clearing and Grubbing	* CR201.2 applicable. CR201.3 applicable. CR201.1 applicable. Migratory bird window of May 1 to July 15.
202	Removal of Structures and Obstructions	* See attached.

		Added 202(17-0462) & 202(17-0473 Removal of Bridge for No. 0462 and No. 0473 (L.S.) Special provisions provided by bridge will be added.
203	Excavation and Embankment	* See attached. Added 203(9E) Obliteration of Detour.
204	Structure Excavation for Conduits & Minor Structures	* CR204.1 applicable.
205	Excavation, Backfill, and Foundation Fill for Major Structures	*

DIVISION 300 BASES		
301	Aggregate Base and Surface Course	* CR301.3 applicable. CR301.4 applicable.

DIVISION 500 STRUCTURES		
501	Structural Concrete	* Will consult with Bridge if changes are needed.
503	Reinforcing Steel	* Will consult with Bridge if changes are needed.
504	Steel Structures	* Will consult with Bridge, and the Construction PM before changes to 504 are incorporated
505	Piling	* Will consult with Bridge if changes are needed.
507	Bridge Railing	* Will consult with Bridge, and the Construction PM.
512	Forms and Falsework	* Will consult with Bridge if changes are needed.
520	Temporary Crossings	* Planning on needing a temporary bridge at Gold Creek. Planning on using the existing bridge at Tatalina while the new bridge is constructed.

DIVISION 600 MISCELLANEOUS CONSTRUCTION

603	Culverts and Storm Drains	* CR603.1 applicable. CR603.2 applicable.
606	Guardrail	* See attached.
611	Riprap	* CR611.1 applicable. Will add special for angular Riprap on slopes steeper than 2:1
615	Standard Signs	* CR615.1 applicable. CR615.2 applicable. Salvaged signed are subsidiary. CR615.3 applicable.
616	Thaw Pipe and Thaw Wires	* Draft recommendations ask for thaw wire.
618	Seeding	* CR618.1 applicable. CR618.2 applicable. CR618.3 applicable. Will consult with DNR and Environmental for seed and fertilizer mix and application rate.
619	Soil Stabilization	* CR619 applicable.
620	Topsoil	*
631	Geotextile For Subsurface Drainage and Erosion Control	* CR631 applicable.
633	Silt Fence	* CR633 applicable.
639	Driveways	* CR639 applicable.
640	Mobilization & Demobilization	* More than 65 miles from AIA.
641	Erosion, Sediment, and Pollution Control	* CR641.1 applicable.
642	Construction Surveying and Monuments	* CR642.1 applicable.
643	Traffic Maintenance	* CR643.1 applicable. CR643.2 applicable. CR643.5 applicable. Gravel surface. CR643.6 applicable. Will work with Ken Thomas for timing. And restrictions. May have restrictions for subsistence hunting and fishing.
644	Services to be Furnished by the Contractor	* Construction please advise. CR644 FOCOM applicable

		CR644 LAB applicable CR644 LTSUV applicable.
645	Training Program	* Will obtain hours prior to advertisement.
646	CPM Scheduling	* CR646.1 applicable.
647	Equipment Rental	* CR647 applicable. 647(1) $200.00/hour.
661	Electrical Load Centers	* Will need for thaw wire installation.

DIVISION 700 MATERIALS		
701	Hydraulic Cement	*
703	Aggregates	* CR703.1 applicable.
705	Joint Materials	*
707	Metal Pipe	*
709	Reinforcing Steel and Wire Rope	*
710	Fence and Guardrail	*
711	Concrete Curing Materials and Admixtures	*
712	Miscellaneous	*
715	Steel For Piles	*
716	Structural Steel	*
718	Steel Forgings	*
720	Elastomeric Pads	*
722	Bridge Railing	*
724	Seed	* CR724.1 applicable.
725	Fertilizer	*
726	Topsoil	*
727	Soil Stabilization Material	* CR727 applicable.
729	Geosynthetics	* CR729 applicable.
730	Sign Materials	* CR730.1 applicable.

* No anticipated changes to the applicable. 2015 Standard Specifications for Highway Construction, Standard Modifications, Statewide Specials, or the CR Specials.

SECTION 202
REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Special Provisions

202-1.01 DESCRIPTION. Add the following:

This work includes removing the existing Gold Creek Bridge No. 0462 and the Tatalina River Bridge No. 0473.

The existing Gold Creek Bridge No. 0462, on Takotna Road, is a single span, steel stringer bridge approximately 30 ft. long and 16 ft. wide with a timber plank deck, and a 12-ton weight restriction.

The existing Tatalina River Bridge No. 0473is a single-span, steel pony truss structure, with a timber deck and timber running planks, about 61 feet long and 12 feet wide, and originally constructed in about 1939. Each abutment is comprised of a four H-pile bent joined together by two channel sections bolted to the pile tops. These bents also resist a timber wall supporting the approach roadway fill.

202-3.03 REMOVAL OF BRIDGES, CULVERTS AND OTHER DRAINAGE STRUCTURES. Remove this Subsection in its entirety and replace with the following:

Bridges

Submittals. No less than 60 days prior to commencing bridge removal, submit a Bridge Demolition Plan. Include the following items in the Bridge Demolition Plan:

(1) Proposed bridge removal date
(2) Contact names and phone numbers for individuals responsible for the demolition
(3) Schematic and detailed drawings identifying the method and sequence of removal
(4) Schematic and detailed drawings identifying and detailing means of access to the bridge during demolition
(5) Methods to prevent debris or equipment from entering the waterway
(6) A list of the type, number and size of all proposed equipment to be used
(7) Details of temporary support shoring and bracing, if required
(8) Schematic drawings specifying crane locations and lifting locations
(9) A listing of the size and weight of bridge subassemblies to be transported from the site
(10) A schematic drawing identifying the proposed waste site location
(11) Details of lead paint containment and disposal

Demolition. Remove and dispose of all bridge steel, concrete and timber bridge elements. Do not damage new construction during demolition operations.

Remove piling down to the bottom elevation of proposed riprap.

Do not allow debris or equipment from bridge removal operations to enter the waterway.

Maintain the integrity of undemolished portions of the bridge structure during demolition operations.

Disposal. Follow all applicable OSHA, EPA, DEC, Federal, State, Local and Section 513 requirements for containing, handling and disposing of lead-based paint waste and debris when handling, transporting, delivering and recycling structural steel from the existing bridge. Submit to the Engineer certification from the mill or foundry attesting that all of the existing structural steel has been recycled and that the lead byproduct has been recycled or disposed of in accordance with applicable regulatory requirements. In the certification, provide the weight of steel recycled and the mill or foundry's EPA regulated waste activity identification number.

Dispose of all non-salvageable and non-recyclable materials in a Contractor-furnished waste disposal site or in a manner approved by the Engineer.

Cleanup. In addition to the requirements of Subsection 104-1.05, dress all bridge slopes or embankments according to the Contract documents. Dress slopes not designated in the Contract documents to conform to the natural ground surface or blend as directed. Fill all excavations and depressions.

Z516210000

Add the following Subsection 3.09.

202-3.09 DISPOSAL OF PAVEMENT, SIDEWALKS, AND CURBS.

Pavement, sidewalk and curb materials not being used in the project, stored at a Contractor DEC approved site, provided to the local DOT Maintenance and Operations Yard, or disposed of at a previously approved DEC disposal site require a DEC Solid Waste Disposal Permit.

Disposal sites shall be outside the project limits unless directed otherwise, in writing, by the Engineer. Obtain written consent from the property owner. Dispose of solid waste materials, pavement, sidewalk, and curb (including handling, transporting, storing and disposing) according to the Alaska Department of Environmental Conservation (DEC) Regulations.

A DEC Permitting Officer in Anchorage may be contacted at (907) 269-7590.

202-5.01 BASIS OF PAYMENT. Add the following:

Acquiring a solid waste disposal permit from DEC is subsidiary to 202 Pay Items.

CR202.1-010114

Add the following:

Item 202(17). Payment includes removing, handling, transporting, and disposing of the existing Gold Creek Bridge No. 0462 and the Tatalina River Bridge No. 0473, in their entirety in accordance with this Contract. This work includes the removal of any utilities or other facilities mounted to the bridge.

Payment will be made under.

Pay Item No.	Pay Item	Pay Unit
202(17-0462)	Removal of Bridge No. 0462	Lump Sum
202(17-0473)	Removal of Bridge No. 0473	Lump Sum

Z516210000

SECTION 203
EXCAVATION AND EMBANKMENT

Special Provisions

203-3.01 GENERAL. Add No. 5 after the 11th paragraph:

5. within 50 feet of detection loops.

CR203.4-022015

Add the following:

Obliteration of Detour includes all operations necessary to remove the detour to the natural topography shown in the plans for the Gold Creek detour. This work includes grading and unclassified excavation. The final appearance of the obliterated and surrounding area shall be as directed by the Engineer. Topsoil, seeding, removing the existing Gold Creek Bridge shall be measured and paid for under their respective pay items.

Hauling material across the existing bridges will be as approved by the Engineer.

Z516210000

203-3.04 COMPACTION WITH MOISTURE AND DENSITY CONTROL. Add the following:

Compact the embankment within 20 feet of a bridge abutment full width to not less than 100 percent of the maximum density. Material used within this zone shall be graded to pass the 3 inch sieve.

CR203.3-110502

203-5.01 BASIS OF PAYMENT. Add the following:

Grading and placement of material used within 20 feet of bridge abutments will not be paid for directly but will be subsidiary to Pay Item 203(6A) Borrow, Type A.

CR203.3-110502

Add the following:

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
203(9E)	Obliteration of Detour	Lump Sum

Z516210000

SECTION 606
GUARDRAIL

Special Provisions

606-1.01 DESCRIPTION. Add the following:

Construct new end anchors of the kind and type specified. End anchors shall be considered a terminal section and meet all requirements for terminal sections set forth in the contract specifications.

Z516210000

606-2.01 MATERIALS. Replace paragraph beginning with "Terminal Markers." including items 1, 2, 3, and replace with the following:

Terminal Markers - Flexible (marker). The marker includes the pole/post/rod (pole), reflective and retroreflective sheeting and mounting hardware.

The marker materials shall be durable, resistant to impact from (snow and vehicle), vandals, ultraviolet light, moisture, ozone, and hydrocarbons.

When the pole is loaded, the marker shall bend/flex, remain flexible and oriented as installed continuing to function as designed without permanent displacement along the length of the member. The flexibility may be in the primary vertical element, a connecting device between the vertical element and connection to the support member (spring or other) or a combination.

Provide a connection sufficient to transfer the loads from the pole to the supporting member without reducing the strength, flexibility, or durability of either. The connection shall not negatively impact the performance of the guardrail. Provide approval of the connection from the marker manufacturer and support member manufacturer (if proprietary).

- Design Loads:
  - Impact load from snow thrown by snowplows
  - Weight of snow covering the pole as a result of snow thrown from snowplows
  - Wind loads (100 mph, 3 sec gust)

- Service Temperature Range: -40˚ F to +140˚ F.

- Pole:
  1. Material:
     - Steel, or
     - Stainless Steel, or
     - Other Poles:
       (a) Continuous glass fiber and marble reinforced thermosetting composite, or
       (b) Engineered plastic alloy, or
       (c) Fiberglass Reinforced Polyester (FRP)
       (d) High-Impact Polyolefins
  2. Dimensions
     - Top of Pole: 60 inches to 84 inches above top of guardrail
     - Width/Diameter: minimum = 1 1/4 inches, maximum = 2 inches (steel/stainless steel may not be greater than 5/8 inch diameter)
       - Thickness: as required by design
  3. Visibility:
     - Daytime: Pole - color orange
       a. Steel and Stainless Steel Poles: Applied permanent finish.
       b. Other Poles: Color pigment ultraviolet stabilized and solid through the cross section from end to end.
     - Nighttime: Added retroreflective sheeting - color white

a. Approximately 12 square inches visible from the traveled way before and after the marker. Applied to a flag attached to the pole or as banding applied directly to the pole. (A flag is required when using steel/stainless steel poles.)
b. Place top edge of flag/banding 1 inch from top of pole.
   (1) Flag: Single retroreflective sheet each face
   (2) Banding: Two bands completely around marker, 4 inches between bands

- Hardware and Fasteners:
  - Steel, and/or
  - Stainless Steel, or
  - Aluminum alloy (hardware only)

Manufacturers of flexible markers (snowpoles):

Manufacturer	Model	Type	Contact
Nordic Fiberglass, Inc.	FF2	Steel Pole w/ Flag	Ph: (218) 745-5095
PEXCO	Model 3639	High-Impact Polyolefins	Ph: (404) 564-8560
New Century Northwest, LLC	NCN2549	Engineered Plastic Alloy	Ph: (541) 485-5566
Carsonite Composites, LLC	SNFB	Continuous glass fiber and marble reinforced thermosetting composite	Ph: (800) 648-7916

Submit manufacturer's specifications to the Engineer for review and approval before ordering markers.

CR606.2-022015

CONSTRUCTION REQUIREMENTS

606-3.01 GENERAL. Replace the third paragraph with the following:

Start guardrail installation at the "upstream" end (the end adjacent traffic will encounter first) by either installing a crashworthy terminal, connecting to an existing barrier or shielding the end with a truck mounted attenuator (TMA) meeting NCHRP 350, Test Level 3. Continue installation in the direction of traffic. Exception: if the guardrail run will connect to existing barrier, buried in the backslope, or guardrail, existing or new bridge railing, or other existing structure at the "downstream" end, guardrail installation may be started at the point of connection. The exception allows for starting at the downstream end, a temporary crash cushion or TMA is required at all incomplete upstream guardrail ends.

CR606.3-022015

606-3.02 POSTS. Delete the first two numbered items and replace with:

1. Exclusive of end treatments, use one type of post in each run of guardrail.

CR606.4-022015

606-3.05 TERMINAL SECTIONS. Delete the second paragraph.

Replace the third paragraph with the following:

Attach flexible markers, in a vertical position, to the terminal end directly to the backside of the rail face, the face away from the traveled way, or the first post of each parallel guardrail terminal. Attach flexible markers to the "P.T." post of the Controlled Release Terminals. Provide an additional marker where the flare begins for guardrail terminal widening. Provide two markers at the end of each run of guardrail; coordinate the locations with the Engineer.

The connection shall not negatively impact the performance of the guardrail as noted in 606-2.01.

CR606.2-022015

606-3.06 REMOVAL AND RECONSTRUCTION OF GUARDRAIL. Add the following:

Guardrail removed and to be replaced with new guardrail shall have the entire new run installed within 14 calendar days after removal.

Guardrail located within 50 feet of bridge ends shall have the new guardrail installed by the end of the shift in which the existing guardrail is removed.

CR606.6-110410

606-3.07 REMOVAL AND DISPOSAL OF EXISTING GUARDRAIL. Delete the last sentence.

Add the following:

Guardrail.

Notify the Engineer a minimum of 5 days before removing guardrail. The Engineer will notify the ADOT & PF, M & O, and have an M & O representative designate portions of guardrail for salvage. Deliver salvaged guardrail and associated hardware to the M & O yard located at _____. Remaining items removed become the Contractor's property.

CR606.10. Fill in the M & O Yard specific to the project.

CR606.7-040113

Add the following Subsection 606-3.10 Flexible Markers:

606-3.10 FLEXIBLE MARKERS. For each parallel rail terminal, a flexible marker shall be attached to the extreme piece of rail. The flexible markers shall be attached using hardware and attachment methods recommended by the manufacturer.

CR606.2-022015

Add the following Subsection 606-3.11 Length of Need Verification.

606-3.11 LENGTH OF NEED VERIFICATION. After shaping the slopes and staking the proposed guardrail locations, notify the Engineer to field verify the beginning and ends. The Engineer will approve the staked location of the guardrail before installation. The Engineer may determine additional guardrail is necessary and the Contractor shall comply without delay.

CR606.8-051513

606-4.01 METHOD OF MEASUREMENT. Add the following:

4. Downstream End Anchor. Per each complete, installed in place, accepted and ready for use.

Z516210000

606-5.01 BASIS OF PAYMENT. Add the following:

Payment for temporary crash cushions or TMA installed to protect motorists from guardrail installations that have not been completed within 10 calendar days of beginning installation is subsidiary to other items.

CR606.1-022015

Add the following after the last paragraph under Terminal Sections:

d. Downstream End Anchor (DEA). The contract price includes all materials including the cable and anchor plate assembly, sleeves, posts, rail elements, object markers, and associated hardware required for a complete installation.

Z516210000

Add the following:

Guardrail salvage is subsidiary to Pay Item 606(6) Removing and Disposing of Guardrail.

CR606.7-040113

Add the Following Pay Item:

Pay Item No.	Pay Item	Pay Unit
606(19)	Downstream End Anchor	Each

Z516210000