

DEPARTMENT OF TRANSPORTATION

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November 30, 2001

04-Mrn-101-13.6/16.1
04-226124
ACNH-P101(992)E
CML-6204(042)E

Addendum No. 3

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in MARIN COUNTY IN LARKSPUR, CORTE MADERA AND SAN RAFAEL FROM CORTE MADERA CREEK BRIDGE TO ROUTE 580/101 SEPARATION.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on December 12, 2001, instead of December 11, 2001.

This addendum is being issued to change the bid opening date as shown herein and to revise the Project Plans, the Notice to Contractors and Special Provisions, the Proposal and Contract, and the Federal Minimum Wages with Modification Number 15 dated 11-16-01. A copy of the modified wage rates are available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

Project Plan Sheets 11, 29, 31, 32, 33, 35, 41, 43, 44, 45, 46, 84, 89, 107, 119, 131, 132, 135, 139, are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

In the Special Provisions, Section 10-1.17, "MAINTAINING TRAFFIC," the last paragraph is revised as follows:

"Blasting is restricted to between hours of 1:00 a.m. to 4:00 a.m. Monday through Thursday. During blasting, public traffic on northbound and southbound Route 101 shall be detoured using full freeway closure for periods of time not to exceed 20 minutes. The detour of Route 101 traffic shall be implemented as shown in the plans."

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In the Special Provisions, Section 10-1.18, "CLOSURE REQUIREMENTS AND CONDITIONS," under the subsection "LATE REOPENING OF CLOSURES," the second paragraph and the Table are replaced with the following paragraphs:

"For each 10-minute interval, or fraction thereof past the time to reopen the lane closure as shown in the lane closure charts 1 through 4, the Department will deduct \$3500.00 per interval, per direction, from money due or that may become due to the Contractor under the contract.

For each 10-minute interval, or fraction thereof when the full freeway closure is in place and the detour is in operation beyond 20 minutes, the Department will deduct \$2600.00 per interval, per direction, from money due or that may become due to the Contractor under the contract.

After 4:00 a.m. deductions for failure to reopen full freeway closures will be \$6,100.00 per 10-minute interval or fraction thereof, per interval, from money due or that may become due the Contractor under the contract."

In the Special Provisions, Section 10-1.32, "BLASTING," the first paragraph is revised as follows:

"Project blasting at Cal Park Retaining Wall shall conform to all applicable Federal, State, and local regulations, Sections 7-1.10, "Use of Explosives," and 19-2.03, "Blasting," of the Standard Specifications, "Maintaining Traffic" and "Presplitting Rock Excavation Slopes" of these Special Provisions and to the following:"

In the Special Provisions, Section 10-1.33, "MATERIAL CONTAINING AERIALY DEPOSITED LEAD," the third paragraph is revised as follows:

"Type Z-2 material contains aerially deposited lead in average concentrations (1) greater than or equal to 1000 mg/kg Total Lead, or (2) greater than or equal to 5.0 mg/L Soluble Lead, as tested using the California Waste Extraction Test, and the material is surplus, or (3) greater than or equal to 5.0 mg/L Soluble Lead and greater than 350 mg/kg Total Lead, as tested using the California Waste Extraction Test. Type Z-2 material exists in three separate sections, first section is between 0.0 m and 3.0 m, measured horizontally from the edges of existing pavement, from Station 30+50 to Station 31+50 in the southbound direction, and from a depth of 0.0 m to 0.6 m below existing grade. The second section is between 0.0 m and 3.0 m in the median area, measured horizontally from the edges of existing pavement, from Station 40+00 to Station 41+00, and from a depth of 0.0 m to 0.3 m below existing grade. The third section is the proposed bent area with a diameter of 1.8 m at Station 42+46.753, and from a depth of 0.0 m to 0.75 m below existing grade, or as shown on the plans. These materials are hazardous waste regulated by the State of California and shall be transported to and disposed of at a Class 1 Disposal Site. Materials excavated from these areas shall be transported by a hazardous waste transporter registered with the Department of Toxic Substances Control using the required procedures for creating a manifest of materials. The vehicles used to transport the hazardous materials shall conform to the current certifications of compliance of the Department of Toxic Substances Control."

In the Special Provisions, Section 10-1.44, "ASPHALT CONCRETE," the fourth paragraph is revised as follows:

"The aggregate for Type A asphalt concrete shall conform to the 12.5 mm maximum coarse grading specified in Section 39-2.02, "Aggregate," in Section 11-1, "Quality Control / Quality Assurance," of these special provisions."

In the Special Provisions, Section 10-1.49, "CONCRETE STRUCTURE," the subsection "FALSEWORK," is replaced as attached.

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In the Special Provisions, Section 10-1.49, "CONCRETE STRUCTURE," subsection "DECK CRACK TREATMENT," is added after the subsection "LUBRICANT-ADHESIVE," as attached.

In the Special Provisions, Section 10-1.49, "CONCRETE STRUCTURE," the following paragraph is added after the last paragraph of subsection "MEASUREMENT AND PAYMENT":

"Full compensation for deck crack treatment, including a program for public safety, shall be considered as included in the contract price paid per cubic meter for structural concrete (bridge) and no additional compensation will be allowed therefor."

In the Special Provisions, Section 10-1.54, "REPAIR SPALLED SURFACE AREAS," the last paragraph is revised as follows:

"Full compensation for repair spalled surface area shall be considered as included in the contract price paid per cubic meter for structural concrete, bridge and no separate payment will be allowed therefor."

In the Special Provisions, Section 10-1.62, "ALTERNATIVE PIPE," the following paragraph is added following the last paragraph:

"Full compensation for low-density foam concrete grout shall be considered as included in the contract price paid per meter for 600 mm alternative pipe culvert (Type B) and no additional compensation will be allowed therefor."

In the Special Provisions, Section 10-1.65, "JACKED WELDED STEEL PIPE," is replaced with Section 10-1.65, "JACKED WELDED STEEL PIPE," as attached.

In the Proposal and Contract, the Engineer's Estimate Items 110, and 114 are revised, Items 146 and 147 are added, and Item 145 is deleted as attached.

To Proposal and Contract book holders:

Replace pages 8 and 10 of the Engineer's Estimate in the Proposal with the attached revised pages 8 and 10 of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

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November 30, 2001

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This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

FALSEWORK

Falsework shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

The first and second paragraphs in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications are amended to read:

- The Contractor shall submit to the Engineer working drawings and design calculations for falsework proposed for use at bridges. For bridges where the height of any portion of the falsework, as measured from the ground line to the soffit of the superstructure, exceeds 4.25 m; or where any individual falsework clear span length exceeds 4.85 m; or where provision for vehicular, pedestrian, or railroad traffic through the falsework is made; the drawings shall be signed by an engineer who is registered as a Civil Engineer in the State of California. Six sets of the working drawings and 2 copies of the design calculations shall be furnished. Additional working drawings and design calculations shall be submitted to the Engineer when specified in "Railroad Relations and Insurance" of the special provisions.

- The falsework drawings shall include details of the falsework erection and removal operations showing the methods and sequences of erection and removal and the equipment to be used. The details of the falsework erection and removal operations shall demonstrate the stability of all or any portions of the falsework during all stages of the erection and removal operations.

The seventh paragraph in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications is amended to read:

- In the event that several falsework plans are submitted simultaneously, or an additional plan is submitted for review before the review of a previously submitted plan has been completed, the Contractor shall designate the sequence in which the plans are to be reviewed. In such event, the time to be provided for the review of any plan in the sequence shall be not less than the review time specified above for that plan, plus 2 weeks for each plan of higher priority which is still under review. A falsework plan submittal shall consist of plans for a single bridge or portion thereof. For multi-frame bridges, each frame shall require a separate falsework plan submittal.

Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications is amended by adding the following paragraphs:

- If structural composite lumber is proposed for use, the falsework drawings shall clearly identify the structural composite lumber members by grade (E value), species, and type. The Contractor shall provide technical data from the manufacturer showing the tabulated working stress values of the composite lumber. The Contractor shall furnish a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance," for each delivery of structural composite lumber to the project site.

- For falsework piles with a calculated loading capacity greater than 900 kN, the falsework piles shall be designed by an engineer who is registered as either a Civil Engineer or a Geotechnical Engineer in the State of California, and the calculations shall be submitted to the Engineer.

The first paragraph in Section 51-1.06A(1), "Design Loads," of the Standard Specifications is amended to read:

- The design load for falsework shall consist of the sum of dead and live vertical loads, and an assumed horizontal load. The minimum total design load for any falsework, including members that support walkways, shall be not less than 4800 N/m² for the combined live and dead load regardless of slab thickness.

The eighth paragraph in Section 51-1.06A(1), "Design Loads," of the Standard Specifications is amended to read:

- In addition to the minimum requirements specified in this Section 51-1.06A, falsework for box girder structures with internal falsework bracing systems using flexible members capable of withstanding tensile forces only, shall be designed to include the vertical effects caused by the elongation of the flexible member and the design horizontal load combined with the dead and live loads imposed by concrete placement for the girder stems and connected bottom slabs. Falsework comprised of individual steel towers with bracing systems using flexible members capable of withstanding tensile forces only to resist overturning, shall be exempt from these additional requirements.

The third paragraph in Section 51-1.06B, "Falsework Construction," of the Standard Specifications is amended to read:

- When falsework is supported on piles, the piles shall be driven and the actual bearing value assessed in conformance with the provisions in Section 49, "Piling."

Section 51-1.06B, "Falsework Construction," of the Standard Specifications is amended by adding the following paragraphs:

- For falsework piles with a calculated loading capacity greater than 900 kN, the Contractor shall conduct dynamic monitoring of pile driving and conduct penetration and bearing analyses based on a wave equation analysis. These analyses shall be signed by an engineer who is registered as a Civil Engineer in the State of California and submitted to the Engineer prior to completion of falsework erection.
- Prior to the placement of falsework members above the stringers, the final bracing system for the falsework shall be installed.

Section 51-1.06C, "Removing Falsework," of the Standard Specifications is amended by adding the following paragraph:

- The falsework removal operation shall be conducted in such a manner that any portion of the falsework not yet removed remains in a stable condition at all times.

In addition to the provisions in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications, the time to be provided for the Engineer's review of the working drawings for specific structures, or portions thereof, shall be as follows:

Structure	Total Review Time - Weeks
California Park O.H. (Median Widen) (Br. No. 27-0007 R/L)	5

Temporary crash cushion modules, as shown on the plans and conforming to the provisions in "Temporary Crash Cushion Module" of these special provisions, shall be installed at the approach end of temporary railings which are located less than 4.6 m from the edge of a traffic lane. For 2-way traffic openings, temporary crash cushion modules shall be installed at the departing end of temporary railings which are located less than 1.8 m from the edge of a traffic lane.

Welding and Nondestructive Testing

Welding of steel members, except for previously welded splices and except for when fillet welds are used where load demands are less than or equal to 175 N/mm for each 3 mm of fillet weld, shall conform to AWS D1.1 or other recognized welding standard. The welding standard to be utilized shall be specified by the Contractor on the working drawings. Previously welded splices for falsework members are defined as splices made prior to the member being shipped to the project site.

Splices made by field welding of steel beams at the project site shall undergo nondestructive testing (NDT). At the option of the Contractor, either ultrasonic testing (UT) or radiographic testing (RT) shall be used as the method of NDT for each field weld and any repair made to a previously welded splice in a steel beam. Testing shall be performed at locations selected by the Contractor. The length of a splice weld where NDT is to be performed, shall be a cumulative weld length equal to 25 percent of the original splice weld length. The cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. If repairs are required in a portion of the weld, additional NDT shall be performed on the repaired sections. The NDT method chosen shall be used for an entire splice evaluation including any required repairs.

For all field welded splices, the Contractor shall furnish to the Engineer a letter of certification which certifies that all welding and NDT, including visual inspection, are in conformance with the specifications and the welding standard shown on the approved working drawings. This letter of certification shall be signed by an engineer who is registered as a Civil Engineer in the State of California and shall be provided prior to placing any concrete for which the falsework is being erected to support.

For previously welded splices, the Contractor shall determine and perform all necessary testing and inspection required to certify the ability of the falsework members to sustain the stresses required by the falsework design. This welding certification shall be in writing, shall be signed by an engineer who is registered as a Civil Engineer in the State of California, and shall be provided prior to placing any concrete for which the falsework is being erected to support.

The Contractor's engineer who signs the falsework drawings shall also certify in writing that the falsework is constructed in conformance with the approved drawings and the contract specifications prior to placing concrete. This certification shall include performing any testing necessary to verify the ability of the falsework members to sustain the stresses required by the falsework design. The engineer who signs the drawings may designate a representative to perform this certification. Where falsework contains openings for railroads, vehicular traffic, or pedestrians, the designated representative shall be qualified to perform this work, shall have at least three years of combined experience in falsework design or supervising falsework construction, and shall be registered as a Civil Engineer in the State of California. For other falsework, the designated representative shall be qualified to perform this work and shall have at least three years of combined experience in falsework design or supervising falsework construction. The Contractor shall certify the experience of the designated representative in writing and provide supporting documentation demonstrating the required experience if requested by the Engineer.

DECK CRACK TREATMENT

The Contractor shall use all means necessary to minimize the development of shrinkage cracks.

The Contractor shall remove all equipment and materials from the deck and clean the surface as necessary for the Engineer to measure the surface crack intensity. Surface crack intensity will be determined by the Engineer after completion of concrete cure, prior to prestressing, and prior to the release of falsework. In any 50-m² portion of deck within the limits of the new concrete deck, should the intensity of cracking be such that there are more than 5 m of cracks whose width at any location exceeds 0.5-mm, the deck shall be treated with methacrylate resin. The area of deck to be treated shall have a width that extends for the entire width of new deck inside the concrete barriers and a length that extends at least 1.5 m beyond the furthest single continuous crack outside the 50-m² portion, measured from where that crack exceeds 0.5-mm in width, as determined by the Engineer.

Deck crack treatment shall consist of test sealing, and furnishing and applying methacrylate resin in conformance with the requirements of these special provisions. If grinding operation is required, deck treatment shall take place after grinding.

Prior to the start of deck treatment work, the Contractor shall submit for approval by the Engineer, a program for public safety associated with the use of methacrylate resin. The program shall identify materials, equipment, and methods to be used. The Contractor shall not perform deck treatment work, other than that specifically authorized in writing by the Engineer, until the program has been approved.

If the measures being taken by the Contractor are inadequate to provide for public safety associated with use of methacrylate resin, the Engineer will direct the Contractor to revise the operations and the public safety program. Directions for revisions will be in writing and will specify the items in which the Contractor's program is inadequate. No further deck treatment shall be performed until public safety measures are adequate, and a revised program for public safety has been approved.

The Engineer will notify the Contractor of the approval or rejection of any submitted or revised program for public safety associated with the use of methacrylate resin within 10 working days of receipt of the final submitted program.

The State will not be liable to the Contractor for failure to approve all or any portion of an originally submitted or revised program for public safety associated with the use of methacrylate resin, nor for any delays to the work due to the Contractor's failure to submit an acceptable program for public safety associated with the use of methacrylate resin. If the Engineer does not review or approve the program submitted by the Contractor within the time specified and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the program for public safety, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Materials

The material used for treating the deck shall be a low odor, high molecular weight methacrylate resin. Prior to adding initiator, the resin shall have a maximum volatile content of 30 percent when tested in conformance with the requirements in ASTM Designation: D 2369, and shall conform to the following:

PROPERTY	TEST METHOD	REQUIREMENT
Viscosity mPa·s, maximum, (Brookfield RVT with UL adaptor, 50 RPM at 25°C)	ASTM D 2196	0.025
Specific Gravity minimum, at 25°C	ASTM D 1475	0.90
Flash Point °C, minimum	ASTM D 3278	82
Vapor Pressure mm Hg, maximum, at 25°C	ASTM D 323	1.0
Tack-free time minutes, maximum at 25°C	California Test 551	400
PCC Saturated Surface-Dry Bond Strength MPa, minimum at 24 hours and 21±1°C	California Test 551	3.5
* Test shall be performed prior to adding initiator.		

A Material Safety Data Sheet shall be furnished prior to use for each shipment of high molecular weight methacrylate resin.

The promoter and initiator, if supplied separately from the resin, shall not be mixed directly with each other. Containers of promoters and initiators shall not be stored together in a manner that will allow leakage or spillage from one to contact the containers or material of the other.

Testing

The Contractor shall allow 14 days for sampling and testing by the Engineer of the high molecular weight methacrylate resin prior to proposed use.

The Contractor shall treat a test area within the project limits of approximately 50 m² at a location approved by the Engineer. Conditions during the test treatment shall be similar to those expected on the deck. Equipment used in the test shall be similar to those used for the deck treating operations. If the test area is on the traveled way, traffic shall not be allowed on the treated test area until (1) the treated surface is tack free (non-oily), (2) the sand cover adheres sufficiently to resist brushing by hand, and (3) the coefficient of friction of the deck is at least 0.35 when tested in conformance with the requirements in California Test 342.

Should the above requirements for traffic use not be met, the Contractor shall suspend treating of bridge decks until another test area is treated and complies with the requirements.

Construction

Prior to deck treatment with methacrylate resin, the bridge deck surface shall be cleaned by abrasive blasting and all loose material shall be blown from visible cracks using high-pressure air. Concrete curing seals shall be cleaned from the deck surface to be treated, and the deck shall be dry when blast cleaning is performed. If the deck surface becomes contaminated at any time prior to placing the penetrating sealer, the deck surface shall be cleaned by abrasive blasting.

Equipment shall be fitted with suitable traps, filters, drip pans, or other devices as necessary to prevent oil or other deleterious material from being deposited on the deck.

Where abrasive blasting is being performed within 3 m of a lane occupied by public traffic, the residue including dust shall be removed immediately after contact between the abrasive and the surface being treated. The removal shall be by a vacuum attachment operating concurrently with the abrasive blasting operation.

The relative humidity shall be less than 90 percent at time of treatment.

A compatible promoter/initiator system shall be capable of providing a resin gel time of not less than 40 minutes nor more than 1.5 hours at the temperature of application. Gel time shall be adjusted to compensate for the changes in temperature throughout treatment application.

The quantity of resin mixed with promoter and initiator shall be limited to 20 L at a time for manual application.

Machine application of the resin shall be performed by using a two-part resin system using a promoted resin for one part and an initiated resin for the other part. This two-part resin system shall be combined at equal volumes to the spray bars through separate positive displacement pumps. Combining of the 2 components shall be by either static in-line mixers or by external intersecting spray fans. The pump pressure at the spray bars shall not be great enough to cause appreciable atomization of the resin. Compressed air shall not be used to produce the spray. A shroud shall be used to enclose the spray bar apparatus. Hand held spray apparatus shall not be used.

The Contractor shall allow methacrylate resin to be applied only to the specified area. Barrier rails, joints, and drainage facilities shall be adequately protected to prevent contamination by the treatment material. Contaminated items shall be repaired at the Contractor's expense.

The prepared area shall be dry and the surface temperature shall be less than or equal to 38°C when the resin is applied. The rate of application of promoted/initiated resin shall be approximately 2.5 square meters per liter, ± 0.1 square meter per liter.

The deck surfaces to be treated shall be flooded with resin, allowing penetration into the concrete and filling of all cracks. The treatment shall be applied within 5 minutes after complete mixing. A significant increase in viscosity shall be cause for rejection. Excess material shall be redistributed by squeegees or brooms within 10 minutes after application.

After the resin has been applied, at least 20 minutes shall elapse before applying sand. The sand shall be commercial quality dry blast sand. Ninety-five percent of the sand shall pass the 2.36-mm sieve, and 95 percent shall be retained on the 850- μ m sieve. The sand shall be applied at a rate of one kilogram per square meter, ± 0.1 kilogram per square meter.

Excess sand shall be removed from the deck surface by vacuuming or sweeping prior to opening to traffic.

Traffic shall not be allowed on the treated area until (1) the treated surface is tack free (non-oily), (2) the sand cover adheres sufficiently to resist brushing by hand, and (3) the coefficient of friction of the deck is at least 0.35 when tested in conformance with the requirements in California Test 342.

10-1.65 JACKED WELDED STEEL PIPE

This work shall consist of furnishing and installing jacked welded steel pipe as shown on the plans or directed by the Engineer in conformance with these special provisions.

Welded steel pipe shall conform to the provisions in Section 70-1.02B, "Welded Steel Pipe," of the Standard Specifications except:

- A. Coating and wrapping will not be required.
- B. Testing for leaks will not be required.

At the locations shown on the plans, welded steel pipe shall be jacked into place between the limits shown.

The thickness of pipe designated in the contract item will be the minimum thickness permitted. Any heavier thickness of pipe or other facilities required to withstand jacking pressure shall be determined and furnished by the Contractor at the Contractor's expense.

The diameter of the excavated hole shall not be more than 30 mm greater than the outside diameter of the pipe. Sluicing or jetting with water will not be permitted.

Variation from theoretical alignment and grade at the time of completion of jacking shall not exceed one percent of the distances from the jacking point.

Difficult ground conditions are expected at the site, and conditions include the presence of boulders.

Heave and settlement of the road surface above the pipe shall not exceed 6 mm. If heave or settlement exceeds 6 mm, the Contractor shall revise the operations to reduce such induced movement. If heave or settlement exceeds 12 mm, the Contractor shall cease operations and submit to the Engineer a Working Plan to repair damage and limit such movement. The Contractor shall make repairs as directed by the Engineer to the roadway surface as required to correct damage from the jacking operation. Repairs to the roadway surface or subsurface grouting of voids created by pipe jacking shall be at the expense of the Contractor.

The Contractor shall pressure grout the area between the ground and the jacked welded steel pipe (casing pipe) for the entire length of the casing pipe with neat cement grout from within the casing in order to fill any voids caused by pipe jacking. The increments for grout holes inside the pipe shall be 2.43-m staggered and located 20 degrees from the top vertical axis of the casing. Pressure shall not exceed 34.47 kPa for duration sufficient to fill all voids.

The Contractor shall develop and submit a grouting plan to the Engineer. The grouting plan shall address all aspects of the grouting procedure. Grouting shall not begin until the Engineer has approved the grouting plan. The Engineer will have 7 days for review of the grouting plan.

A 600 mm "carrier pipe" will be placed inside of the casing pipe, and the space between the casing pipe and the carrier pipe shall be filled with low-density foam concrete grout.

The low-density foam concrete grout shall be composed of water, Portland cement, sand, and a foaming agent. The foaming agent shall conform to the requirements of ASTM Designations: C869 and C 796. Portland cement shall conform to the requirements of Section 90-2.01, "Cement," of the Standard Specifications. Sand shall be clean and free from deleterious coatings, clay balls, roots and other extraneous material and shall be of a size that will pass a 2.36-mm sieve.

The grout shall have a cast density, at the point of placement, of between 675 and 950 kg/m³ and shall have a minimum compressive strength of 1400 kpa at 28 days. Compressive strength will be determined from test cylinders sampled, molded, cured, and tested in conformance with the provisions in Section 90-9, "Compressive Strength," of the Standard Specifications.

The water, cement, and sand shall be mixed prior to adding the foaming agent. The foaming agent shall not be added until the material is at the project site.

Before using either neat cement grout or low density foam concrete grout, the Contractor shall submit the design mix proportions in writing to the Engineer for approval. Certified test data or trial batch reports verifying that the mix design complies with the density and compressive strength requirements of these special provisions, shall be submitted with the mix design.

The length of jacked 900 mm welded steel pipe (9.53 mm thick) to be paid for will be the slope length of the pipe. Pipe placed in excess of the length of pipe as shown on the plans will not be paid for.

The contract price paid per meter for jacked 900 mm welded steel pipe (9.53 mm thick) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in jacked 900 mm welded steel pipe (9.53 mm thick), complete in place, including grouting, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer."

ENGINEER'S ESTIMATE
04-226124

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101 (F)	560218	FURNISH SIGN STRUCTURE (TRUSS)	KG	4400		
102 (S-F)	560219	INSTALL SIGN STRUCTURE (TRUSS)	KG	4400		
103 (S)	561008	760 MM CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION)	M	4		
104 (S)	561009	920 MM CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION)	M	5		
105	566011	ROADSIDE SIGN - ONE POST	EA	1		
106	568001	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	1		
107	620904	300 MM ALTERNATIVE PIPE CULVERT	M	9		
108	620908	375 MM ALTERNATIVE PIPE CULVERT	M	130		
109	620909	450 MM ALTERNATIVE PIPE CULVERT	M	600		
110	620914	600 MM ALTERNATIVE PIPE CULVERT (TYPE A)	M	180		
111	620918	675 MM ALTERNATIVE PIPE CULVERT	M	51		
112	022534	375 MM SLOTTED PLASTIC LINE DRAIN	M	120		
113	022535	350 MM X 575 MM ELLIPTICAL REINFORCED CONCRETE PIPE	M	16		
114	650075	600 MM REINFORCED CONCRETE PIPE	M	6		
115	650076	675 MM REINFORCED CONCRETE PIPE	M	3		
116	664010	300 MM CORRUGATED STEEL PIPE (2.01 MM THICK)	M	21		
117	680933	200 MM PERFORATED PLASTIC PIPE UNDERDRAIN	M	90		
118	703545	300 MM WELDED STEEL PIPE (6.35 MM THICK)	M	42		
119	022536	JACKED 900 MM WELDED STEEL PIPE (9.53 MM THICK)	M	37		
120	727901	MINOR CONCRETE (DITCH LINING)	M3	7		

**ENGINEER'S ESTIMATE
04-226124**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141 (S)	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	6160		
142 (S)	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	3140		
143 (S)	860460	LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM	LUMP SUM	
144 (S)	022540	TRAFFIC OPERATIONS SYSTEM	LS	LUMP SUM	LUMP SUM	
145	BLANK					
146	620915	600 MM ALTERNATIVE PIPE CULVERT (TYPE B)	M	37		
147	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____