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**** WARNING ** WARNING ** WARNING ** WARNING ****
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April 25, 2008

04-Ala-880-48.4/50.0
04-1706U4
ACBRIM-ACIM-880-1(057)E

Addendum No. 3

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in ALAMEDA COUNTY IN OAKLAND ON ROUTE 880 FROM 0.8 KM NORTH OF 16TH AVENUE OVERCROSSING TO OAK-MADISON STREET UNDERCROSSING.

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 June 18, 2008, instead of the original date of May 14, 2008.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions, the Proposal and Contract, set a new bid opening date and provide a copy of a portion of the Information Handout.

Project Plan Sheets 11, 12, 13, 112, 113, 126, 136, 238, 321, 323, 328, 329, 331, and 384, are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheet 255A is added. Half-sized copies of the added sheet is attached for addition to the project plans.

Project Plan Sheet 38 is revised as follows:

In the detail "Temporary Sump System," the call out: "Make Class 3 Permeable Material Look Larger to Distinguish Form Geocomposite Drainage Blanket" is deleted.

Project Plan Sheet 39 is revised as follows:

In the table "Temporary Preload Embankment Height – North Abutment," under the H (m) column, the column for Stage 3A is deleted.

Project Plan Sheet 58 is revised as follows:

The call out: "G2 Inlet" for Drainage System 15 Unit a is revised to read: "GD Inlet".

Project Plan Sheet 62 is revised as follows:

The call out: "G2 Inlet w/ SGD" for Drainage System 6 Unit c is revised to read: "GD Inlet w/ SGD".

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In the Special Provisions, Section 5-1.24, "ENVIRONMENTALLY SENSITIVE AREA," the first paragraph is revised as follows:

"An environmentally sensitive area (ESA) shall consist of an area within and near the limits of construction where access is prohibited or limited for the preservation of existing vegetation, or protection of biological habitat as shown on the plans. The Engineer will determine the exact location of the boundaries of the ESA. No work shall be conducted within the ESA following completion of the planting work."

In the Special Provisions, Section 5-1.24, "ENVIRONMENTALLY SENSITIVE AREA," the third paragraph is revised as follows:

"Immediately following completion of the planting work, the boundaries of the ESA shall be clearly delineated by the placement of temporary fence (Type ESA)."

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the fourth, twelfth, and twentieth paragraphs are revised as follows:

"Attention is directed to "Earthwork," "Remove Asbestos-Containing Materials," and "Hazardous and Restricted Material" of these especial provisions regarding disposal of excavated material and removal of asbestos-containing materials.

Attention is directed to "Environmentally Sensitive Area" and "Temporary Fence (Type ESA)" of these special provisions. Immediately following completion of the planting work, the boundaries of the Environmentally Sensitive Areas (ESA) shall be clearly delineated in the field. The boundaries shall be delineated by the installation of temporary fence (Type ESA).

The work shall be performed in conformance with the stages of construction shown on the plans. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction. No work will be allowed for the first 180 calendar days beginning from the first working day in areas between existing edge of traveled way and temporary construction easement from "Y5R" Station 95+00 Lt to Station 101+60 Lt and in the Railroad Impacted Area as shown on the plans."

In the Special Provisions, Section 10-1.14, "TEMPORARY FENCE (TYPE ESA)," subsection "INSTALLATION," Item C is revised as follows:

"C. Temporary fence (Type ESA) shall be constructed immediately following completion of the planting work, shall enclose the foliage (drip line) of protected plants, and shall not encroach upon visible roots of the plants."

In the Special Provisions, Section 10-1.43, "EXISTING HIGHWAY FACILITIES," subsection "BRIDGE REMOVAL," the following paragraph is added after the second paragraph.

"The entire 5th Avenue Overhead (Br No. 33-0027) shall be removed to one meter below the original ground or to the top of the footings, whichever elevation is lower. Collision walls and tie walls shall be completely removed at Stage 3. Partial removal of the walls is allowed for construction of the columns during Stages 1 and 2. Existing footings or concrete interfering with the construction of columns and cast-in-steel-shell piles shall be removed."

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In the Special Provisions, Section 10-1.43, "EXISTING HIGHWAY FACILITIES," subsection "BRIDGE REMOVAL," the fifth paragraph is deleted.

In the Special Provisions, Section 10-1.43, "EXISTING HIGHWAY FACILITIES," subsection "REMOVE ASBESTOS-CONTAINING MATERIALS," is added as attached after subsection "BRIDGE REMOVAL".

In the Special Provisions, Section 10-1.44, "CLEARING AND GRUBBING," is revised as attached.

In the Special Provisions, Section 10-1.63, "RAILROAD SHOOFLY," is revised as attached.

In the Special Provisions, Section 10-1.69, "PILING," subsection "GENERAL," the following paragraphs are added after the seventh paragraph:

"At the option of the Contractor, vibratory hammers or oscillators may be used to install cast-in-steel-shell concrete piles to the elevations listed in the following table:

Bent Number	Elevation (Meter)
2	-14.6
3	-14.6
4	-13.7
5	-13.7
6	-13.0
7	-13.0
8	-5.2
9	-5.2
10	-5.2
11	-7.9
12	-15.2
13	-16.8
14	-17.9
15	-17.7
16	-17.7
17	-16.6

Should obstructions to driving be encountered, the Contractor shall subexcavate below the bottom of footings, provide special driving tips or heavier pile sections, or take other measures to prevent damage to the piles during driving."

In the Special Provisions, Section 10-1.69, "PILING," subsection "MEASUREMENT AND PAYMENT (PILING)," the following paragraphs are added after the first paragraph:

"Reinforcement furnished and placed in cast-in-place concrete piles of 600 mm or larger will be measured and paid for as bar reinforcing steel (bridge).

Full compensation for subexcavating, for providing special driving tips or heavier pile sections, and for employing other measures to prevent damage to the piles shall be considered as included in the contract unit price paid for drive pile of the various types and classes listed in the Engineer's Estimate, and no additional compensation will be allowed therefore."

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In the Special Provisions, Section 10-1.71, "CONCRETE STRUCTURES," subsection "GENERAL," the following paragraph is added after the first paragraph:

"Construction joints in column substructure concrete will not be allowed except where shown on the plans. At bent 10 stage 2 column, bent 8 stage 3 right column, and bent 9 stage 3 left column construction joints in column substructure concrete will be allowed at the cut-off elevation."

In the Special Provisions, Section 10-1.77, "REINFORCEMENT," subsection "EPOXY-COATED REINFORCEMENT," is revised as follows:

"The upper No. 19 transverse bar reinforcement in bridge decks and bundled hoops in columns at all bents shall be epoxy coated."

In the Special Provisions, Section 10-1.81, "ISOLATION CASINGS," subsection "MEASUREMENT AND PAYMENT," the second paragraph is revised as follows:

"The contract price paid per kilogram for isolation casing shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the isolation casings, complete in place, including steel casing, neoprene strip, minor concrete base, sand backfill, steel cover plates, steel angles, concrete anchorage devices, and cleaning and painting the steel casing, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer."

In the Special Provisions, Section 10-1.89, "REINFORCED CONCRETE PIPE," the eighth paragraph is revised as follows:

"Timber bulkheads shall be constructed and placed across the ends of unconnected reinforced concrete pipe as shown on the plans. Wood for timber bulkheads shall be pressure treated Douglas Fir No. 2 or better. Full compensation for constructing and placing timber bulkheads shall be considered as included in the contract price paid per meter for the size and type of alternative pipe culvert involved and no separate payment will be made therefore."

In the Special Provisions, Section 10-1.90, "CORRUGATED METAL PIPE," the fourth paragraph is revised as follows:

"Timber bulkheads shall be constructed and placed across the ends of unconnected corrugated metal pipe as shown on the plans. Wood for timber bulkheads shall be pressure treated Douglas Fir No. 2 or better. Full compensation for constructing and placing timber bulkheads shall be considered as included in the contract price paid per meter for the size and type of alternative pipe culvert involved and no separate payment will be made therefore."

In the Special Provisions, Section 10-2.01, "GENERAL," subsection "COST BREAK-DOWN," quantity of Plant (Group M) in the Highway Planting Cost Break-Down table is revised to 7,600.

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In the Special Provisions, Section 10-2.04, "HIGHWAY PLANTING," subsection "ROADSIDE CLEARING," the first paragraph is revised as follows:

"Prior to preparing planting areas and native grass seeding areas (excluding ESAs), or commencing irrigation trenching operations for planting areas, trash and debris shall be removed from these areas and a distance of 3 m beyond the edges of those areas. At locations where proposed planting areas are 3.6 m or more from the edges of dikes, curbs, sidewalks, fences, walls, paved shoulders and existing planting to remain or to be maintained, the clearing limit shall be 2 m beyond the outer limits of the proposed planting area."

In the Special Provisions, Section 13-1.03A, "RAILROAD IMPACTED AREA," is added as attached.

In the Special Provisions, Section 13-1.03B, "RAILROAD SHOOFLY," is added as attached.

In the Proposal and Contract, the Engineer's Estimate Items 210, 211, 212 and 213 are added and Items 166 and 209 are deleted as attached.

To Proposal and Contract book holders:

Attached is a copy of a portion of the Information Handout to provide portions of the report titled "Asbestos and Lead-Containing Paint Survey, Fifth Avenue Bridge (33-0027), Oakland, CA," dated March 2008.

Replace page 11 and 13 of the Engineer's Estimate in the Proposal with the attached revised page 11 and 13 of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

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.

This office is sending this addendum by GSO overnight mail to all book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

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

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
Division of Engineering Services - Office Engineer

Attachments

REMOVE ASBESTOS-CONTAINING MATERIALS

Asbestos-containing materials (ACM), as defined in Section 1529, "Asbestos," of the Construction Safety Orders, Title 8, of the California Code of Regulations are present in the existing 5th Avenue Overhead.

In compliance with Standard Specifications Section 7-1.01F, the Contractor shall notify the Bay Area Air Quality Management District (BAAQMD) as required by the National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 61, Subpart M, California Health and Safety Code section 39658(b)(1), and the California Air Resources Board regulations. A copy of the notification form and attachments shall be provided to the Engineer prior to submittal. Notification shall take place a minimum of 10 working days prior to starting demolition or renovation activities.

ASBESTOS SURVEY

Asbestos was detected at 40 percent chrysotile in non-friable sheet packing used as barrier-rail shims and at 2 percent chrysotile in bedding compound on the bolted connections of the barrier rails on 5th Avenue Overhead (Bridge No. 33-0027). All other suspected structural members have tested negative for asbestos-containing material. Portions of the survey report are included in the Information Handout. The complete report entitled "Asbestos and Lead-Containing Paint Survey, Fifth Avenue Bridge (33-0027), Oakland, California" is available for inspection at the Department of Transportation, Duty Senior's Desk, located at 111 Grand Avenue in Oakland, California, Telephone (510)286-5209.

REMOVAL

A contractor who is registered pursuant to Section 6501.5 of the Labor Code and certified pursuant to Section 7058.6 of the Business and Professions Code shall perform removal and management of ACM. Asbestos removal shall conform to Cal/OSHA requirements in Title 8 Sections 1529 and 341. All friable material shall be removed in a manner that conforms to OSHA work practice requirements. All non-friable ACM shall be removed and handled to prevent breakage. Non-friable ACM such as asbestos cement pipe shall be disposed of to a landfill facility permitted to take regulated asbestos containing material. The removal of ACM encased in concrete or other similar structural material is not required prior to demolition, but such material shall be adequately wetted whenever exposed during demolition. Packaging, storage, transporting, and disposing of ACM, shall conform to Title 22, Division 4.5, Chapters 11, 12 and 13 of the California Code of Regulations. The handling, removal, transportation, and disposal of ACM shall result in no visible dust.

Asbestos removal procedures shall include, but not be limited to:

- A. Installing asbestos warning signs at perimeters of abatement work areas.
- B. Wetting asbestos materials with sprayers.
- C. Containing large volumes of asbestos materials in disposal bins for temporary storage until removed from the site.
- D. Providing manifests for waste disposal upon completion for the Engineer to sign.

- E. Transporters registered to transport hazardous waste in the State of California in accordance with the provisions of Chapter 6.5, Division 20 of the Health and Safety Code and Title 22 of the California Code of Regulations, Division 4.5.
- F. Disposing of asbestos materials at a permitted disposal facility, which accepts such materials.
- G. Working in accordance with Federal, State, and Local requirements for asbestos work.

All vehicles used to transport ACM shall be marked as specified below, or an equivalent warning:

DANGER
ASBESTOS DUST HAZARD
AUTHORIZED PERSONNEL ONLY

Handling

The Contractor shall comply with CCR Title 22, Division 4.5, Chapter 12, Article 3 requirements for the removal of material containing asbestos prior to and during demolition and alteration, and shall place such removed material in approved plastic containers (double ply, 0.15 mm minimum thickness, plastic bags) with caution labels affixed to bags. Such caution labels shall have conspicuous, legible lettering, which spells out the following, or equivalent warning:

CAUTION
CONTAINS ASBESTOS FIBERS
BREATHING ASBESTOS DUST MAY
CAUSE SERIOUS BODILY HARM

At the option of the Contractor, the removed materials containing asbestos may be placed directly into a covered roll off or drop box, which shall have the same caution label, affixed on all sides.

Transporting

All haulers of friable asbestos-containing material shall be currently registered with the State Department of Toxic Substances Control (DTSC), and shall have a U.S. Environmental Protection Agency Identification Number (U.S. EPA I.D. Number). All vehicles used to transport hazardous waste material shall have a valid registration issued by DTSC.

Disposal

The Engineer will obtain the required EPA generator identification numbers, and will sign the hazardous waste manifests for disposal of friable asbestos-containing material. The Contractor shall dispose of all hazardous waste containing asbestos at a disposal facility permitted to accept such material and that meets all the requirements specified by Federal, State, and Local regulations. The Contractor shall notify the proper authorities at the disposal site in advance of delivery of hazardous waste containing asbestos to the disposal site. The Contractor shall conduct additional sampling deemed necessary by the owner of the disposal facility for acceptance of the material.

Health and Safety

The Contractor shall implement safe work practices to prevent or minimize exposure to asbestos. The safe work practices shall be included in the site health and safety plan under "Site Health and Safety Plan" of these special provisions.

PAYMENT

Full compensation for removal, transportation, and disposal of asbestos-containing material shall be considered as included in the items of work involved and no additional compensation will be allowed therefore.

10-1.44 CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these special provisions.

Attention is directed to "Migratory Bird Treaty Act" of these special provisions regarding clearing and grubbing of bird habitat.

Vegetation shall be cleared and grubbed only within the excavation and embankment slope lines.

At locations where there is no grading adjacent to a bridge or other structure, clearing and grubbing of vegetation shall be limited to 1.5 m outside the physical limits of the bridge or structure.

Existing vegetation outside the areas to be cleared and grubbed shall be protected from injury or damage resulting from the Contractor's operations.

Activities controlled by the Contractor, except cleanup or other required work, shall be confined within the graded areas of the roadway.

Nothing herein shall be construed as relieving the Contractor of the Contractor's responsibility for final cleanup of the highway as provided in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

Clearing and grubbing shall also include debris removal from within environmentally sensitive areas (ESA) as shown on the plan. Debris removal shall include but is not limited to removal of broken asphalt debris, broken concrete, masonry, metals, miscellaneous wood, plastics, glass, styrofoam, rubber materials and trash with a minimum diameter of 25 mm. Debris that is exposed or brought to the surface during removal work shall be removed. Broken concrete, asphalt debris or masonry buried deeper than 300 mm below the ground surface shall be removed as directed by the Engineer, and removal work will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications. Wood poles shall be cut off and removed to a depth of 150 mm below the ground .

Removal of debris shall be performed in a manner to minimize damage to existing wetland vegetation. During removal of partially exposed material within existing wetland vegetation, excavated mud and native marsh plant material shall be placed on geotextile fabric and replaced back flush to the finish grade. Full compensation for placing excavated mud and native marsh plant material on geotextile fabric and replanting shall be considered as included in the contract lump sum price paid for clearing and grubbing and no additional compensation will be allowed therefore.

Once clearing and grubbing has been completed, the Contractor will be allowed to enter the environmentally sensitive areas only for completing the planting work or as directed by the Engineer.

After the initial debris removal work within ESA is complete, any additional debris removal, as directed by the Engineer, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

10-1.63 RAILROAD SHOOFLY

Railroad shoofly shall consist of work as specified and shall conform to the provisions in Section 13-1.03B, "Railroad Shoofly," of these special provisions and these special provisions.

Controlling units for railroad shoofly work shall be U.S. Standard (English) units.

13-1.03A RAILROAD IMPACTED AREA

Attention is directed to "Railroad Impacted Area" as shown on plan sheets L-2, L-3 and L-4. All work that impacts Railroad operations within the Railroad Impacted Area, whether such work is performed inside or outside the Railroad Impacted Area, shall be in accordance with Section 13, "Railroad Relations and Insurance Requirements", plans, and these special provisions.

All work that impacts Railroad operations is subject to review and approval of the Union Pacific Railroad Company. The work in the Railroad Impacted Area includes, but is not limited to, bridge removal; shoring; protective cover and falsework erection and removal; pile, column and bridge construction; railroad track removal; and shoofly roadbed and subballast construction. The Contractor shall comply with all applicable Railroad requirements and regulations and the instructions of its representatives in relation to protecting the tracks and maintaining railroad operations. No hazardous material shall be disposed of on the Railroad Impacted Area. The work shall be performed in accordance with the details as shown on the plans and as specified in the Standard Specifications, these special provisions and as directed by the Engineer.

ORDER OF WORK

Order of work within the Railroad Impacted Area shall conform to the provisions in Section 5-1.05, "Order of Work", of the Standard Specifications, plans and these special provisions.

The order of work within the Railroad Impacted Area shall be in accordance with plan sheets SC-4, SC-12, SC-25 and SC-35 and the Structures General Plan. Prior to beginning construction, the vertical distance from existing top of rail to the existing bridge as shown on plan Sheet No. 328 and Sheet No. 329 shall be verified. All discrepancies shall be brought to the attention of the Engineer and Railroad prior to construction.

PROGRESS SCHEDULE

Attention is directed to Section 10-1.25 "Progress Schedule (Critical Path Method)" in these special provisions. In addition to the requirements of Section 10-1.25 "Progress Schedule (Critical Path Method)", the Contractor shall include a schedule for beginning and ending construction of the stage 1 shoofly and stage 2 shoofly roadbed and subballast.

OBSTRUCTIONS

Upon the written notification by the Engineer of the completion of the stage 1 railroad shoofly roadbed and subballast construction including inspection and acceptance by the Railroad, all work activities within the Railroad Impacted Area which conflict or otherwise interfere with work by Railroad to complete the stage 1 shoofly and related railroad facilities by the Railroad is prohibited for up to six (6) months. This six month work prohibition is to allow the Railroad to complete construction of the stage 1 shoofly and related railroad facilities within the Railroad Impacted Area in order to place stage 1 shoofly in operation. The determination of what does not constitute work which conflicts or interferes with work by Railroad within the Railroad Impacted Area shall be made by the Engineer and the Railroad.

Upon the written notification by the Engineer of the completion of the stage 2 railroad shoofly roadbed and subballast construction including inspection and acceptance by the Railroad, all work activities including the allowable track construction work window within the Railroad Impacted Area which conflict or otherwise interfere with work by Railroad to complete the stage 2 shoofly and related railroad facilities by the Railroad is prohibited for up to six (6) months. This six month work prohibition is to allow the Railroad to complete construction of the stage 2 shoofly and related railroad facilities within the Railroad Impacted Area in order to place stage 2 shoofly in operation. The determination of what does not constitute work which conflicts or interferes with work by Railroad within the Railroad Impacted Area shall be made by the Engineer and the Railroad.

TRACK CONSTRUCTION WORK WINDOW

Except as provided for in "Obstructions" in these special provisions, upon the written notification by the Engineer of the completion of construction of stage 1 shoofly and all related railroad controls, signals and other railroad facilities necessary in place for the Railroad to operate the stage 1 shoofly, an eight-hour working window will be allowed on either main Track No.1 or main Track No. 2 for each contract working day, to be agreed in advance by the Railroad. During the designated eight-hour window, the Contractor may occupy either main Track No.1 or main Track No.2 subject to the window. However, the other main track, the stage 1 shoofly or stage 2 shoofly, and Track No. 3 will continue to be in service and unobstructed during the window period.

PROTECTIVE COVER AND FALSEWORK

Attention is directed to Section 10-1.23 "Temporary Supports" of the special provisions and Section 51-1.06 "False work" of the Standard Specifications. Protective cover and false work within the Railroad Impacted Area shall be in accordance with "False work," of the Standard Specifications and shall be in accordance with plan sheets SC-4, SC-12, SC-25 and SC-35. At the Contractor's option, the protective cover and false work may be separate or combined together. The protective cover erected for use on a construction stage shall be maintained during the construction of subsequent stages of construction. Any deviation from the plans shall require the permission of the Engineer and the Railroad.

The protective cover shall prevent demolition debris, dust and fine material from falling onto the railroad tracks, access roads or trains. The protective cover shall be designed by the Contractor to support the anticipated demolition loads and in accordance with Railroad guidelines for design of false work for structures over the railroad. The protective cover shall include debris protection near the base of the track side slopes adjacent to areas used by demolition equipment to prevent debris from rolling onto the track. Use timbers as required to stop large pieces of rolling debris.

13-1.03B RAILROAD SHOOFLY

This work consist of removing and disposing of existing track facilities, preparing the roadbed and constructing the subballast for stage 1 shoofly and stage 2 shoofly as shown on the plans and as specified in the Standard Specifications, these special provisions and as directed by the Engineer. The alignment and grade for stage 1 shoofly and stage 2 shoofly shall be provided by the Railroad prior the construction of stage 1 shoofly and stage 2 shoofly. Prior to beginning construction of stage 1 shoofly and stage 2 shoofly, Contractor shall verify the horizontal clearance from the centerline of stage 1 shoofly and stage 2 shoofly to the existing or new bridge columns as shown on plan sheets SC-25 and SC-35. All discrepancies shall be brought to the attention of the Engineer and Railroad prior to construction.

For the purposes of this section, the roadbed shall mean the graded area beneath and on both sides of the shoofly sub grade and the sub grade shall mean the top surface of the roadbed upon which the subballast will be placed.

CONSTRUCTION, GENERAL

Roadbed – Roadbed section shall conform to the dimensions and details as shown on the plans or as directed by the Engineer. Contractor shall construct sub grade to the design grade (neat line) of proposed cross-sections.

Subballast – Subballast shall be placed to the depth as shown on the plans or as directed by the Engineer. Subballast shall be thoroughly compacted. A Cat 815 B static roller or equivalent is recommended.

ROADBED CONSTRUCTION

Earthwork required to prepare the Roadbed up to finished sub grade for stage 1 shoofly and stage 2 shoofly construction, at the level of the sub grade plane, shall be as specified in these special provisions and as directed by the Engineer.

The roadbed shall be shaped in conformity with the typical section and shown on the plans and to the alignment and grades provided by the Railroad. All unstable or otherwise objectionable material shall be removed from the roadbed and replaced with approved material. All holes, ruts and depressions shall be filled with approved material and if required, the roadbed shall be properly wetted with water and reshaped and rolled to the extent directed in order to place the sub grade in an acceptable condition to receive the subballast material.

Relative compaction for a minimum depth of 3 ft below the top of finished sub grade shall be not less than 95 percent. Roadbed grade shall be approved by the Engineer prior to placing subballast material.

EARTHWORK

SURFACE CONDITIONS – Contractor shall examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

UTILITIES - Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to Railroad.

If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.

If service is interrupted as a result of work under this section, immediately restore service by repairing the damaged utility at no additional cost to the Railroad.

If existing utilities are found to interfere with the permanent facilities being constructed under this section, immediately notify the Engineer and secure his instructions.

Do not proceed with permanent relocation of utilities until written instructions are received from the Engineer.

ROADWAY EXCAVATION - Excavation of every type of material encountered within the limits of the work to the lines, grades, and elevations as shown on the plans and as specified in the Standard Specifications, these special provisions and as directed by the Engineer.

EXCAVATION AND DISPOSAL - Before excavation begins, the area shall be cleared and grubbed. The Contractor shall perform all excavation of the elevation and grade shown on the Drawings, as specified herein, or as otherwise staked in the field. This Work shall consist of excavating the material from roadbed areas or the Borrow Areas, and placing the material as embankment, shaping and sloping necessary for the construction, preparation and completion of Roadbeds and other earthwork.

DISPOSITION OF EXCAVATED MATERIALS - The Contractor shall utilize all satisfactory excavated materials in the formation of embankment. Where excess excavation materials or unsatisfactory material exists, such materials will be disposed of in areas on the right of way approved by the Engineer or off the right of way in a legal and proper manner.

EXCAVATION AS EMBANKMENT - The Contractor shall excavate all materials including rock and common materials which must be removed to accomplish the excavation as shown on the Drawings. All excavated materials will be used in the formation of Embankments, Roadbeds, and other earthwork so long as such excavation material is satisfactory for such use.

SCARIFYING SUBGRADE - In cut sections the Contractor shall scarify the six (6) inches of material below the Sub grade, adjust the moisture content, and re-compact such scarified material to not less than ninety five (95) percent of maximum density.

DRAINAGE - Excavate in a manner and sequence that will provide proper drainage at all times.

DITCHES AND SLOPES - The Contractor shall construct intercepting "V" ditches on the uphill side of cut slopes as directed by the Engineer. The ditches are to be 2 feet deep with 3:1 side slope.

OVER EXCAVATION - If the Contractor excavates below the established grade without the Engineer's prior approval and authorization, the Contractor will at his own expense be required to reconstruct the grade with materials designated by the Engineer.

EMBANKMENTS - Embankments shall be constructed and compacted to the lines and grades as shown on the plans and as specified in the Standard Specifications, these special provisions and as directed by the Engineer.

SOURCES OF EMBANKMENT - If the quantity of materials required for construction of Embankments exceeds the quantity of materials removed from excavation necessary to complete the project, additional Embankment material will first be obtained by:

a. **WIDENING CUTS** in the Grading Area or by widening cuts in the vicinity of the project. The Contractor shall consult with the Engineer to determine the location of cuts in the vicinity of Grading Area and to determine the volume of such cuts which are to be widened. Cuts shall be widened in such a manner as to:

- (1) be at least as stable as the original cut
- (2) provide adequate drainage for the Roadbed
- (3) retain the same slope lines as original cut

b. **BORROW AREAS.** If additional Embankment material cannot be obtained by widening cuts in the Grading Area or by widening cuts in the vicinity of the Grading area. Borrow Areas within the Right-of-Way, if available, or from Borrow Areas outside of the Right-of-Way, provided by the Contractor, shall be required to complete the embankment. All borrow areas shall be cleared and grubbed. Materials must be tested by an independent testing laboratory and/or approved by the Engineer prior to placement.

BORROW AREA SLOPES AND SEEDING - Except as otherwise permitted, borrow pits and other excavation areas shall be excavated in such a manner as will afford adequate drainage. After borrowing operations are completed, areas shall be left in a neat, orderly condition with uniformly shaped slopes not steeper than two (2) foot horizontal on one (1) foot vertical. Borrow areas of fine grained material subject to blowing shall be stabilized or seeded, as required. The Contractor shall ensure that the excavation of material from any source results in minimum detrimental effects on natural environmental conditions.

PREPARATION OF FOUNDATIONS FOR EMBANKMENTS - Prior to the start of embankment construction, the foundation for Embankments and the sub grade of excavations shall be cleared by removing and disposing of all trees, brush, vegetation, fences, posts and other similar debris.

PLACEMENT AND COMPACTION OF EMBANKMENT

- A. **LIFT THICKNESS.** The Contractor shall provide sufficient compaction equipment to properly place and compact the material being used to construct the Embankment. Equipment used for towing shall not be considered as compaction equipment. The material used to construct the Embankment shall be placed in successive horizontal lifts, in a depth or lift thickness specified in Table "A", and each lift shall extend the full width of the Embankment before another lift is started. Each layer shall be adjusted for moisture content and shall be thoroughly mixed by disking or other means approved by the Engineer. Each lift shall be leveled before compacting and shall be compacted by distributing the travel of the compaction equipment uniformly over the entire length and width of the Embankment.
- B. **COMPACTION EQUIPMENT.** Only equipment approved by the Engineer and/or listed in Table "A" shall be used for compaction. During Embankment construction, continuous use of approved compaction equipment is mandatory. Tractors pulling compaction equipment may be used for minor spreading and patrolling, provided such spreading does not interfere with the continuous forward progress of the compaction equipment. Crawler-type tractors which are being used for compacting rock, gravel, or granular fill material and which are not pulling compaction equipment may also be used for spreading.
- C. **RATE OF COMPACTION EQUIPMENT.** If at any time, the Contractor has not furnished sufficient compaction equipment to compact the materials being used to construct the Embankment, then placement of such Embankment materials shall be reduced accordingly. The number of pieces of equipment required for compaction shall be determined by the type of embankment material, as set forth in Table "A", being placed and by the rate at which such embankment material is placed. Table "A" shall be used to determine the number of pieces of equipment required for compaction. Since the number of pieces of equipment required for compaction depends on the type and quantity of embankment material being placed, the Contractor shall carefully estimate the rate at which embankment material is placed in order to ensure that all compaction equipment required by Table "A" is available when needed.
- D. **FROZEN MATERIALS.** Embankment material requiring water for density control shall be placed only when temperature is above freezing. No frozen material shall be placed in Embankments. Sustained periods of freezing that induce frost into the previously placed embankment material or embankment material being placed shall be cause for the suspension of construction of the Embankment.
- E. **OPERATING HEAVY EQUIPMENT OVER EMBANKMENT.** When moving over previously compacted Embankments, the Contractor's heavy earth moving equipment shall be operated over the entire area of such Embankment in order to avoid uneven compaction of such Embankment.

F. DEFINITIONS AND TERMS.

1. Compaction - The process of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percent of maximum density obtained by the test procedure described in ASTM D 1557 (10 lb. hammer and an 18 inch drop) for general soil types.
2. Density, in place. Field test in accordance with ASTM D-1556.

DENSITY REQUIREMENTS.

A. EXCAVATION

1. SCARIFYING SUBGRADE. In cut sections, the Contractor shall scarify the top six (6) inches of material below the top of existing ground, after cut has been completed, adjust moisture content, and compact such scarified material to not less than ninety-five (95) percent of maximum density.

B. EMBANKMENT

1. SCARIFYING, ADJUSTING MOISTURE CONTENT AND COMPACTION.

- a. After the required clearing, foundations for Embankments shall be prepared by scarifying the top six (6) inch layer of existing ground, adjusting the moisture content of the scarified material as specified and compacting this top six (6) inches of existing ground to not less than ninety-five (95) percent of maximum density.
- b. LESS THAN THREE FOOT OF FILL. The embankments which are to be three (3) feet or less in height shall be compacted to not less than ninety-five (95) percent of maximum density.
- c. MORE THAN THREE FEET OF FILL. In embankments of more than three foot of fill and backfills, the compacted materials within three (3) feet of the established Sub grade (top of fill) elevation shall have a density in place of not less than ninety-five (95) percent, and below said three (3) foot from sub grade (top of fill) limit shall have a density in place of not less than ninety (90) percent, of maximum density.
- d. All compaction shall be determined using ASTM D 1556 for field test and ASTM D 1557 for Moisture and density.

TABLE "A"

COMPACTION EQUIPMENT TABLE AND LIFT THICKNESS.

- (1) EQUIPMENT
- (2) MAX. UNCOMPACTED LIFT THICKNESS IN INCHES
- (3) MAX. HOURLY RATE IN CUBIC YARDS WHICH MAY BE COMPACTED BY SPECIFIED EQUIPMENT

ROCKFILL

(1)	(2)	(3)
Crawler-Type Tractor	18	500
Vibratory Compactor 20-Ton	18	1200

GRANULAR MATERIAL

(1)	(2)	(3)
Rubber-Tired Roller 50-Ton	12	400
Crawler-Type Tractor	12	350
Vibratory Compactor 20-Ton	12	750
Vibratory Compactor 9-Ton	12	350
Self-Propelled Rubber-Tired Roller	12	350

RANDOM FILL (*4)

(1)	(2)	(3)
Rubber-Tired Roller 50-Ton	8	400
Tamping roller (*5)	8	350
Self-Propelled Rubber-Tired Roller	8	350
Vibratory Compactor 20-Ton Equipped with Tamping Feet	8	750
Vibratory Compactor 9-Ton Equipped with Tamping Feet	8	350

SILT OR CLAY

(1)	(2)	(3)
Rubber-Tired Roller 50-Ton	6	400
Tamping Roller	6	350
Self-Propelled Rubber-Tired Roller	6	350

(*4) Requirements apply only to material other than rock or gravel fill. Random fill conforming to rock or gravel fill gradation shall be placed and compacted as specified for those materials.

(*5) Permitted only when material is predominantly fine grained.

MOISTURE AND DENSITY CONTROL

A. Unless otherwise shown on the Drawings, or designated by the Engineer, embankment and those portions of cut sections which are in rock or solid rock shall be constructed with moisture and density control. Unless otherwise directed by the Engineer, the moisture content of the soil at the time of compaction shall be at the optimum moisture content or within minus four (4) percentage points of the optimum moisture content as stated in ASTM D-1557 Modified and as determined by tests taken by an independent testing laboratory, in accordance with ASTM Standards, and Where the materials in the Embankment or rock cut permits. Locations and the frequency of tests will be determined by the Engineer. Moisture control will not be required on gravel.

B. The application of water to Embankments or rock cut sections shall be done with sprinkling equipment consisting of tank trucks, pressure distributors, or other equipment designed to apply water uniformly and in controlled quantities and at variable widths. Mobile sprinkling equipment shall have adequate tractive power and shall be equipped with controls operated from the driver's seat to control the rate of water flow. The Contractor shall be required to furnish sufficient water equipment to ensure proper moisture content of all materials. Watering of Embankments shall be done in such a manner that pools of water will not develop. Watering must be sufficient to provide adequate moisture for optimum compaction. The Contractor shall provide and maintain suitable drainage facilities at all locations to prevent overflow or damage to the Embankment from excess water.

FINISH GRADING

The Roadbed shall be finished to the lines and grades as shown on the plans and as directed by the Engineer.

Finished Roadbeds shall be protected from damage from all causes by the Contractor until accepted by the Railroad.

The finished Grading and Borrow Areas shall conform with the alignment and grade as shown on the plans and as directed by the Engineer.

The Engineer shall furnish control for line and grade and sufficient information for the Contractor to set the required construction stakes.

Slope stakes will be set by the Contractor in accordance with the typical section on the plans. The Engineer shall use his judgment or soil tests to determine the stability of the materials encountered, and if the character of the materials encountered necessitates changing the slopes after an excavation has been completed, the Engineer may require the Contractor to reset the slope stakes and to steepen, flatten, or bench the slopes. The reasonable costs of re-setting stakes in this case shall be borne by the Railroad. The Contractor shall maintain and preserve all stakes and other marks established until authorized by the Engineer to remove them. If the Contractor removes or destroys such stakes or marks before receiving authorization from the Engineer the replacing of such stakes or marks shall be the Contractor's responsibility.

SUBBALLAST

Subballast shall consist of a foundation course for asphalt surface course or railroad ballast and shall be composed of crushed stone from an approved source, materials and shall be constructed as herein specified in one or more courses in conformity with the typical sections shown on plans and to the lines provided by the Engineer.

Subballast shall be 100% crushed stone produced from oversize quarried aggregate, sized by crushing and produced from a naturally occurring single source. Aggregate shall have a percentage of wear, by the Log Angeles abrasion test, of not more than 50. A higher or lower percentage of wear may be specified by the Engineer, depending on the material available. 10% max loss freeze/thaw test.

Subballast shall consist of gradations as set forth in the following table:

SIEVE SIZE	2"	1"	3/8"	No. 10	No. 40	No. 200
% passing (opt.)	100	95	67	38	21	3
% passing (perm.)	100	90-100	50-84	26-50	12-30	0-6

Subballast will be used as indicated by the following charts or as directed by the Engineer:

6" OF SUBBALLAST SHALL BE REQUIRED WHEN SUB-GRADE MATERIAL SIZES ARE SMALLER THAN LISTED ABOVE, BUT NOT FINER THAN THE GRADATIONS LISTED BELOW:

PERCENT PASSING By Weight	SIEVE SIZE No. Mesh per in.	GRAIN SIZE mm
19	200	0.08
74	100	0.16
92	60	0.26
100	40	0.42

12" OF SUBBALLAST SHALL BE REQUIRED WHEN SUB-GRADE MATERIALS HAVE GRADATION SMALLER THAN LISTED ABOVE.

Preparation of Sub grade. The road bed shall be shaped in conformity with the typical sections shown on plans and to the line and grades provided by the Engineer. All unstable or otherwise objectionable material shall be removed from the sub grade and replaced with approved material. All holes, ruts and depressions shall be filled with approved material and if required, the sub grade shall be properly wetted with water and reshaped and rolled to the extent directed in order to place the sub grade in an acceptable condition to receive the subballast material. Sufficient sub grade shall be prepared in advance to insure satisfactory progression of the work.

If the required compacted depth of the subballast exceeds 6 inches, the subballast shall be constructed in two or more layers of approximate equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches and shall be compacted to a density of not less than 95% modified proctor compaction.

If the material is laid and compacted in more than one layer, the Contractor shall plan and coordinate this work in such a manner that the previously placed and compacted layers be allowed ample time for curing and development of sufficient stability before vehicles hauling materials for the succeeding layers, or other heavy equipment are permitted on the subballast. Prior to placing the succeeding layers of material, the top of the under layer shall be sufficiently moist to insure a strong bond between the layers. The edges and/or edge slopes of the subballast shall be bladed or otherwise dressed to conform to the lines and dimensions shown on the plans and present straight, neat, and workmanlike lines and/or slopes as free of loose material as practicable.

WORK BY RAILROAD

Railroad shall furnish or cause to be furnished as necessary due to construction, all labor, materials, tools and equipment to perform certain works including construction of the completion of stage 1 shoofly and construction of the completion stage 2 shoofly including ballast, cross ties and steel rail to complete the shooflies and other related Railroad facilities including modification of railroad crossing controls, signals and switches in order to provide for the operation of the shooflies.

PAYMENT

The lump sum price paid for railroad shoofly shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing stage 1 shoofly and stage 2 shoofly complete in place, removing shooflies, removing and disposing of existing track, ballast and cross ties, preparing roadbed, furnishing and placing subballast for shooflies and all appurtenant track materials needed to complete the shoofly subballast as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

ENGINEER'S ESTIMATE
04-1706U4

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161	620919	750 MM ALTERNATIVE PIPE CULVERT	M	290		
162	620924	900 MM ALTERNATIVE PIPE CULVERT	M	180		
163	665732	450 MM SLOTTED CORRUGATED STEEL PIPE (1.63 MM THICK)	M	290		
164	012436	WICK DRAIN	M	120 000		
165	012437	GEOCOMPOSITE DRAINAGE BLANKET	M2	6520		
166	BLANK					
167	700617	DRAINAGE INLET MARKER	EA	2		
168	721009	ROCK SLOPE PROTECTION (FACING, METHOD B)	M3	1.6		
169	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	M3	140		
170 (S)	731509	MINOR CONCRETE (CONCRETE MOW STRIP)	M3	8		
171 (S-F)	750001	MISCELLANEOUS IRON AND STEEL	KG	17 458		
172 (S-F)	750041	ISOLATION CASING	KG	53 000		
173 (S-F)	750496	MISCELLANEOUS METAL (RESTRAINER - PIPE TYPE)	KG	14 500		
174 (S-F)	750498	MISCELLANEOUS METAL (RESTRAINER - CABLE TYPE)	KG	3600		
175 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	320		
176 (S-F)	750505	BRIDGE DECK DRAINAGE SYSTEM	KG	18 200		
177 (S)	800386	CHAIN LINK FENCE (TYPE CL-1.2, VINYL-CLAD)	M	740		
178 (S)	800391	CHAIN LINK FENCE (TYPE CL-1.8)	M	2660		
179 (S)	802596	3.7 M CHAIN LINK GATE (TYPE CL-1.8)	EA	7		
180	012438	SURVEY MONUMENT AND SURVEY HUB	LS	LUMP SUM	LUMP SUM	

**ENGINEER'S ESTIMATE
04-1706U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
201 (S)	840666	PAINT PAVEMENT MARKING (2-COAT)	M2	87		
202 (S)	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	14 300		
203 (S)	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	4740		
204 (S)	860402	LIGHTING (CITY STREET)	LS	LUMP SUM	LUMP SUM	
205 (S)	860407	LIGHTING (PARKING LOT)	LS	LUMP SUM	LUMP SUM	
206 (S)	860460	LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM	LUMP SUM	
207 (S)	012442	STAGE CONSTRUCTION - RAMP METERING	LS	LUMP SUM	LUMP SUM	
208 (S)	012443	TRAFFIC OPERATIONS SYSTEM	LS	LUMP SUM	LUMP SUM	
209	BLANK					
210	014164	MINOR CONCRETE (SIGN FOUNDATION)	M3	28		
211	014165	REMOVE RAILROAD TRACK	LS	LUMP SUM	LUMP SUM	
212	200001	HIGHWAY PLANTING	LS	LUMP SUM	LUMP SUM	
213	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID (A): = _____

TOTAL BID (B):
\$15000.00 X _____ = _____

(Cost Per Day)

(Enter Working Days Bid)

(Not To Exceed 1,370 Days)

TOTAL BASIS FOR COMPARISON OF BIDS (A + B): = _____