

**HARMONY AND ZIEGLER ROAD IMPROVEMENTS
FRONT RANGE VILLAGE DEVELOPMENT**

The Engineers Joint Contract Documents Committee General Conditions govern the construction of this contract. The following General Requirements supplement these General Conditions.

**PROJECT GENERAL REQUIREMENTS
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**SECTION 01010
SUMMARY OF WORK**

1.1 DESCRIPTION OF WORK

A. The Work shall consist of the construction of the outlined improvements:

BID NO.

1. **Harmony Road:** Improvements for widening Harmony Road from Union Pacific Railroad Tracks on Harmony and going east past the Harmony and Ziegler Intersection to Technology Parkway. The improvements for this project will widen Harmony Road to 6-lane arterial road standards. The work will include widening the existing asphalt, installing landscaped medians, and installing a Portland Cement Concrete intersection at Harmony and Ziegler. Median inlets and storm sewer pipe will also be installed to drain the road surface. Harmony Road paving will consist of full depth pavement sections and leveling courses on the existing wearing surface. Harmony Road will not have an asphalt overlay with this contract.
2. **Ziegler Road:** Improvements for widening Ziegler Road from Harmony Road to Horsetooth. The improvements for this project will widen Ziegler Road to a 4-lane arterial arterial standard. The work will consist of removal of curb and gutter, concrete sidewalk, pipe of various sizes, and installing new vertical curb and gutter, inlets, sidewalk, and landscaped medians. Ziegler Road paving will consist of full-depth paving in the widened areas and a minor asphalt overlay.

B: Protection and Restoration.

1. Replace to equal or better conditions all items removed and replaced or damaged during construction.
2. Restore all areas disturbed to match surrounding surface conditions.
3. The Owners Field Representative must approve the condition of all replaced and/or restored areas prior to final payment

1.2 NOTICES TO PRIVATE OWNERS AND AUTHORITIES

The following items shall be coordinated between the Contractor and the Owners Field Representative.

- A. Notify private owners of adjacent properties, utilities, irrigation canals, and affected governmental agencies when prosecution of the Work may affect them.
- B. Give notification 48 hours in advance to enable affected persons to provide for their needs when it is necessary to temporarily deny access or services.
- C. Contact utilities at least 48 hours prior to excavating near underground utilities.
- D. Contact all agencies at least 72 hours prior to start of construction. Notify all agencies of the proposed scope of work schedule and any items, which would affect their daily operation.
- E. Names and telephone numbers of affected agencies and utilities in the area are listed below for Contractor's convenience.

**SECTION 01040
COORDINATION**

1.1 GENERAL CONTRACTOR RESPONSIBILITIES

- A. Coordinate operations under contract in a manner, which will facilitate progress of the Work. The Contractor shall also coordinate with the Utility Companies and City Traffic Department whose Work is separate from the General Contractor's contract.
- B. Conform to the requirements of public utilities and concerned public agencies in respect to the timing and manner of performance of operations which affect the service of such utilities, agencies, or public safety.
- C. Coordinate operations under contract with utility work to allow for efficient completion of the Work.
- D. Coordinate all operations with the adjoining property owners, business owners, and surrounding neighborhoods to provide satisfactory access at all times and keep them informed at all times.
- E. Keep traffic areas and temporary residential accesses free of excavated material, construction equipment, pipe and other material and equipment.
- F. Keep fire hydrants and utility control valves free from obstruction and available for use at all times.
- G. Conduct operations in a manner to avoid unnecessary interference with public and private roads and drives.
- H. Provide and maintain temporary approaches or crossings at streets and residences.

1.2 SCHEDULE AND MILESTONES

The Contractor shall submit a detailed project schedule showing milestones and the critical path for Harmony and Ziegler Road Improvements – Front Range Development Project. This schedule shall be agreed to by both the Owner and Contractor. It shall be made in writing and signed by both parties.

Significant Milestone: Sunday, August 19, 2007

The following improvements must be completed prior to the beginning of the 2007 Fall school year:

- A. The concrete intersection at Ziegler/Harmony needs to be reopened to all traffic movements. Any remaining work in the intersection will have to utilize lane drops while maintaining through and turning movements at the intersection.
- B. The Corbett/Harmony intersection needs to be reopened to all traffic movements. Any remaining work at the intersection will have to utilize lane drops while maintaining through and turning movements at the intersection.
- C. At a minimum, Harmony Road and Ziegler Road need to be maintained as one lane each direction at all times after August 19, 2007.

The progress schedule shall be monitored closely during construction and may be updated by written agreement of the parties as changes occur in the project progress. If the milestones are not met, the Owner may utilize the remedies provided in paragraph 15.6 of the Supplementary Conditions as well as any other remedy provided by the Contract Documents or provided by law or equity. The Owner may also assess liquidated damages as outlined in Article 3, Section 3.2 of the Agreement.

1.3 CONFERENCES

- A. A Pre-construction Conference will be held prior to the start of construction.
 - 1. Contractor shall participate in the conference accompanied by all major Subcontractors.
 - 2. Contractor shall designate/introduce Superintendent, and major Subcontractors supervisors assigned to project.
 - 3. Contractor shall submit in writing proposed daily construction hours to Engineer for approval.
 - 4. Contractor shall designate all access roads and parking areas in writing to the Engineer for approval.
 - 5. The Engineer shall invite all utility and irrigation companies involved.
 - 6. The Utilities will be asked to designate their coordination person, provide utility plans, and their anticipated schedules.
 - 7. The Engineer shall introduce the Project Representatives.
- B. Additional project coordination conferences will be held prior to start of construction for coordination of the Work, refining project schedules, and utility coordination.
- C. The Engineer may hold coordination conferences, to be attended by all parties involved, when the Contractor's operations affect, or are affected by, the work of others.
 - 1. Contractor shall participate in such conferences accompanied by Subcontractors as required by the Engineer.

1.4 PROGRESS MEETINGS

- A. Contractor and Project Manager shall schedule and hold regular progress meetings at least weekly and at other times as requested by the Engineer or required by the progress of the Work.
- B. Attendance shall include:
 - 1. Contractor and Superintendent.
 - 2. Owner's Representatives.
 - 3. Engineer and Project Manager.
 - 4. Others as may be requested by Contractor, Engineer or Owner.
- C. Minimum agenda shall include:
 - 1. Review of work progress since last meeting.
 - 2. Identification and discussion of problems affecting progress.
 - 3. Review of any pending change orders.
 - 4. Revision of Construction Schedule as appropriate.
 - 5. Review Milestone Schedule.
 - 6. Discuss the work scheduled for the next two weeks.
 - 7. Discuss the surveying needed for the next week.
- D. The Engineer or a Project Representative shall preside at meetings and record and distribute minutes to the participants.
- E. The Engineer or Engineer's Field Representative and Contractor shall agree to weekly quantities at the progress meetings. The weekly quantity sheets shall be signed by both parties. These quantity sheets, when signed, shall be **final** and shall be the basis for the monthly progress estimates. This process ensures accurate monthly project pay estimates.

END OF SECTION

General Reqs. - 5

**SECTION 01310
CONSTRUCTION SCHEDULES**

1.1 GENERAL

- A.** The contractor shall prepare a detailed schedule of all construction operations and procurement after review of tentative schedule by parties attending the pre-construction conference. This schedule will show how the contractor intends to meet the milestones set forth.
 - 1. No work is to begin at the site until Owner's acceptance of the Construction Progress Schedule and Report of delivery of equipment and materials.

1.2 FORMAT AND SUBMISSIONS

- A.** Prepare construction and procure schedules in a graphic format suitable for displaying scheduled and actual progress.
- B.** Submit two copies of each schedule to Owner for review.
 - 1. Owner will return one copy to Contractor with revisions suggested or necessary for coordination of the Work with the needs of Owner or others.
- C.** The schedule must show how the street, water line, concrete and paving work will be coordinated.

1.3 CONTENT

- A.** Construction Progress Schedule.
 - 1. Show the complete work sequence of construction by activity and location.
 - 2. Show changes to traffic control.
 - 3. Show project milestones.
- B.** Equipment, Materials and Submittals schedule.
 - 1. Show delivery status of critical and major items of equipment and materials.
 - 2. Include a critical path schedule for Shop Drawings, tests, and other submittal requirements for equipment and materials, reference Section 01340.

1.4 PROGRESS REVISIONS

- A.** Submit revised schedules and reports at weekly project coordination meetings when changes are foreseen, when requested by Owner or Engineer, and with each application for progress payment.
- B.** Show changes occurring since previous submission.
 - 1. Actual progress of each item to date.
 - 2. Revised projections of progress and completion.
- C.** Provide a narrative report as needed to define:
 - 1. Anticipated problems, recommended actions, and their effects on the schedule.
 - 2. The effect of changes on schedules of others.

1.5 OWNER'S RESPONSIBILITY

- A.** Owner's review is only for the purpose of checking conformity with the Contract Documents and assisting the Contractor in coordinating the Work with the needs of the Project.
- B.** It is not to be construed as relieving Contractor from any responsibility to determine the means, methods, techniques, sequences and procedures of construction as provided in the General Conditions.

END OF SECTION

**SECTION 01330
SURVEY DATA**

1.1 SURVEY REQUIREMENTS

- A. The Owner **will not** provide the construction surveying for the Project. The Contractor will be responsible to provide the surveying required on this project.
- B. The Owner **will** make the projects CAD drawings available to the Contractor upon request.
- C. The Contractor must submit a survey request to the Surveyors a minimum of 48 hours prior to needing surveying work done.
- D. If the requested surveying cannot be accomplished in the time frame requested by the Contractor, the survey personnel shall notify the contractor with the date on which the requested work will be completed.
- E. Should a sudden change in the Contractor's operations or schedule require the survey personnel to work overtime, the Contractor shall pay the additional overtime expense.
- F. The Contractor shall protect all survey monuments and construction stakes. If it is unavoidable to remove a survey monument or construction stakes, the Contractor is responsible for notifying the Surveyor and allowing enough time for the monuments or stakes to be relocated. The Contractor will be responsible for the cost of restaking construction stakes and for the cost of re-establishing a destroyed monument.
- G. The Contractor shall be responsible for transferring the information from the construction stakes to any necessary forms and for constructing all pipelines, drainage ways, pavements, inlets, walls, and other structures and items in accordance with the information on the stakes and grade sheets supplied by the Owner.

END OF SECTION

**SECTION 01340
SHOP DRAWINGS**

1.1 GENERAL

- A. Submit Shop Drawings, Samples, and other submittals as required by individual specification sections.
 - 1. The Engineer will not accept Shop Drawings or other submittals from anyone but the Contractor.
- B. Schedule: Reference Section 01310, Construction Schedules. Submittals received by the Engineer prior to the time set forth in the approved schedule will be reviewed at any time convenient to the Engineer before the time required by the schedule.
- C. Any need for more than one resubmission, or any other delay in obtaining the Engineer's review of submittals, will not entitle the Contractor to an extension of the Contract Time, unless delay of the Work is directly caused by failure of the Engineer to return any scheduled submittal within 10 days after receipt in his office of all information required for review of the submittals or for any other reason which prevents the Engineer's timely review. Failure of Contractor to coordinate submittals that must be reviewed together will not entitle the Contractor to an extension of Contract Time or an increase in Contract Price.
- D. Resubmit a corrected submittal if errors are discovered during manufacture or fabrication.
- E. Do not use materials or equipment for which Shop Drawings or samples are required until such submittals, stamped by the Contractor and properly marked by the Engineer, are at the site and available to workmen.
- F. Only use Shop Drawings which bear Engineer's mark "**NO EXCEPTION TAKEN**" in the performance of the Work.

Review status designations listed on Engineer's submittal review stamp are defined as follows:

1. NO EXCEPTION TAKEN

Signifies material or equipment represented by the submittal conforms to the design concept, complies with the information given in the Contract Documents and is acceptable for incorporation in the Work. Contractor is to proceed with fabrication or procurement of the items and with related work. Copies of the submittal are to be transmitted for final distribution.

2. REVISE AS NOTED

Signifies material or equipment represented by the submittal conforms to the design concept, complies with the information given in the Contract Documents and is acceptable for incorporation in the Work in accordance with Engineer's notations. Contractor is to proceed with the Work in accordance with Engineer's notations and is to submit a revised submittal responsive to notations marked on the returned submittal or written in the letter of transmittal.

3. REJECTED

Signifies material or equipment represented by the submittal does not conform to the design concept or comply with the information given in the Contract Documents and is not acceptable for use in the Work. Contractor is to submit submittals responsive to the Contract Documents.

4. FOR REFERENCE ONLY

Signifies submittals which are for supplementary information only; pamphlets, general information sheets, catalog cuts, standard sheets, bulletins and similar data, all of which are useful to Engineer or Owner in design, operation, or maintenance. But these submittals do not constitute a basis for determining that items represented thereby conform to the design concept or comply with the information given in the Contract Document. The Engineer reviews such submittals for general information, but not for substance.

1.2 SUBMITTAL REGISTER

- A.** The Contractor shall complete the Submittal Register and submit with the Final Construction Schedule submittal. The Contractor must resubmit an updated Submittal Register with each application for progress payment. A format of the Submittal Register is provided below, Contractor should reproduce this format, (or an approved alternate) for this register.

B. Instructions for Completing the Submittal Register:

- Column 1:** References, specification section, and paragraph in which submittal is requested. This will be done for each item of equipment or material.
- Column 2:** Describe types of submittal required, i.e., shop drawing, certificate, etc.
- Column 3:** List the material or item for which submittal is required.
- Column 4:** Contractor shall provide the date that he intends to make each submittal.
- Column 5:** Contractor shall provide that date by which each submittal must be approved to accomplish timely incorporation into the project.
- Column 6:** Contractor shall provide the mailing date of the initial submittal made to the Owner.
- Column 7:** Contractor shall record the review action of the Owner to the last submittal for the item, equipment, or material.
- Column 8:** Contractor shall record the mailing date of subsequent submittal for each item, equipment, and material until submittal is accepted by Owner.
- Column 9:** Contractor may record remarks as necessary to coordinate with other submittal or provide necessary information.

1.3 SHOP DRAWINGS

- A.** Include the following information as required to define each item proposed to be furnished.
1. Detailed installation drawings showing foundation details and clearances required for construction.
 2. Relation to adjacent or critical features of the Work or materials.
 3. Field dimensions, clearly identified as such.
 4. Applicable standards, such as ASTM or Federal Specification numbers.
 5. Drawings, catalogs or parts thereof, manufacturer's specifications and data, instructions, performance characteristics and capacities, and other information specified or necessary:
 - a. For Engineer to determine that the materials and equipment conform to the design concept and comply with the intent of the Contract Documents.
 - b. For the proper erection, installation, and maintenance of the materials and equipment which Engineer will review for general information but not for substance.
 - c. For Engineer to determine what supports, anchorages, structural details, connections and services are required for materials and equipment, and the effect on contiguous or related structures, materials and equipment.
 6. Complete dimensions, clearances required, design criteria, materials of construction and the like to enable Engineer to review the information effectively.

- B.** Manufacturer's standard drawings, schematics and diagrams:
 - 1. Delete information not applicable to the Work.
 - 2. Supplement standard information to provide information specifically applicable to the Work.
- C.** Format.
 - 1. Present in a clear and thorough manner.
 - 2. Minimum sheet size: 8 1/2" x 11".
 - 3. Clearly mark each copy to identify pertinent products and models.
 - 4. Individually annotate standard drawings, which are furnished, cross out items that do not apply, describe exactly which parts of the drawing apply to the equipment being furnished.
 - 5. Individually annotate catalog sheets to identify applicable items.
 - 6. Reproduction or copies of portions of Contract Documents:
 - a. Not acceptable as complete fabrication or erection drawings.
 - b. Acceptable when used as a drawing upon which to indicate information on erection or to identify detail drawings.
 - 7. Clearly identify the following:
 - a. Date of submission.
 - b. Project title and number.
 - c. Names of Contractor, Supplier and Manufacturer.
 - d. Specification section number, specification article number for which items apply, intended use of item in the work, and equipment designation.
 - e. Identify details by reference to sheet, detail, schedule or room numbers shown in the Contract Documents.
 - f. Deviations from Contract Documents.
 - g. Revisions on resubmittals.
 - h. Contractor's stamp, initialed or signed, certifying the review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and the Contract Documents.

1.4 SUBMISSION REQUIREMENTS

- A.** Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other contractor.
- B.** Minimum number required:
 - 1. Shop Drawings.
 - a. Three (3) copies minimum, two (2) copies which will be retained by Engineer.

1.5 RESUBMISSION REQUIREMENTS

- A.** Make corrections or changes required by Engineer and resubmit until accepted.
- B.** In writing, call Engineer's attention to deviations that the submittal may have from the Contract Documents.
- C.** In writing, call specific attention to revisions other than those called for by Engineer on previous submissions.
- D.** Shop Drawings
 - 1. Include additional drawings that may be required to show essential details of any changes proposed by Contractor along with required wiring and piping layouts.

END OF SECTION

**SECTION 01410
TESTING**

1.1 GENERAL

- A. Provide such equipment and facilities as the Engineer may require for conducting field tests and for collecting and forwarding samples. Do not use any materials or equipment represented by samples until tests, if required, have been made and the materials or equipment are found to be acceptable. Any product, which becomes unfit for use after approval hereof, shall not be incorporated into the work.
- B. All materials or equipment proposed to be used may be tested at any time during their preparation or use. Furnish the required samples without charge and give sufficient notice of the placing of orders to permit the testing. Products may be sampled either prior to shipment or after being received at the site of the work.
- C. Tests shall be made by an accredited testing laboratory selected by the Owner. Except as otherwise provided, sampling and testing of all materials and the laboratory methods and testing equipment shall be in accordance with the latest standards and tentative methods of the American Society for Testing Materials (ASTM).
- D. Where additional or specified information concerning testing methods, sample sizes, etc., is required, such information is included under the applicable sections of the Specifications. Any modification of, or elaboration on these test procedures (which may be included for specific materials under their respective sections in the Specifications) shall take precedence over these procedures.

1.2 OWNER'S RESPONSIBILITIES

- A. Owner shall be responsible for and shall pay all costs in connection with testing for the following:
 - 1. Soil tests, except those called for under Submittals thereof.
 - 2. Tests not called for by the Specifications of materials delivered to the site but deemed necessary by Owner.
 - 3. Concrete tests, except those called for under Submittals thereof.
 - 4. Asphalt tests, except those called for under Submittals thereof.

1.3 CONTRACTOR'S RESPONSIBILITIES

- A. In addition to those inspections and tests called for in the General Conditions, the Contractor shall also be responsible for and shall pay all costs in connection with testing required for the following:
 - 1. All performance and field testing specifically called for by the specifications.
 - 2. All re-testing for Work or materials found defective or unsatisfactory, including tests covered under section 1.2 above.
 - 3. All minimum call out charges or stand by time charges from the tester due to the Contractor's failure to pave, pour, or fill on schedule for any reason except by action of the Engineer.
- B. Contractor shall notify the Project Engineer 48 hours prior to performing an operation that would require testing.

1.4 CONTRACTOR'S QUALITY CONTROL SYSTEM

- A. General:** The Contractor shall establish a quality control system to perform sufficient inspection and tests of all items of Work, including that of his subcontractors, to ensure conformance to the functional performance of this project. This control shall be established for all construction except where the Contract Documents provide for specific compliance tests by testing laboratories or engineers employed by the Owner. The Contractor's control system shall specifically include all testing required by the various sections of these Specifications.
- B. Superintendence:** The Contractor **SHALL** employ a full time Superintendent to monitor and coordinate all facets of the Work. Superintendent shall be on site when work is in progress (i.e. weekend work). The Superintendent shall have adequate experience to perform the duties of Superintendent.
- C. Quality Control:** Contractor's quality control system is the means by which he assures himself that his construction complies with the requirements of the Contract Documents. Controls shall be adequate to cover all construction operations and should be keyed to the proposed construction schedule.
- D. Records:** Maintain correct records on an appropriate form for all inspections and tests performed, instructions received from the Engineer and actions taken as a result of those instructions. These records shall include evidence that the required inspections or tests have been performed (including type and number of inspections or test, nature of defects, causes for rejection, etc.) proposed or directed remedial action, and corrective action taken. Document inspections and tests as required by each section of the Specifications. Provide copies to the Engineer weekly.

END OF SECTION

**SECTION 01510
TEMPORARY UTILITIES**

1.1 UTILITIES

- A. Furnish all utilities necessary for construction.
- B. **The Contractor will be responsible for furnishing water in reasonable amounts for execution of the work.** The Contractor shall coordinate and schedule with the Owners' Field Representative for the Elco Water District to select the appropriate fire hydrant and set the hydrant meter.
- C. Make arrangements with Owner as to the amount of water required and time when water will be needed.
 - 1. Owner will fix the place, time, rate and duration of each withdrawal from the distribution system.
 - 2. Unnecessary waste of water will not be tolerated.
- D. Furnish necessary water trucks, pipes, hoses, nozzles, and tools and perform all necessary labor.
 - 1. Only Owner shall operate existing valves and hydrants.

1.2 SANITARY FACILITIES

- A. Contractor shall furnish temporary sanitary facilities at each site for the needs of construction workers and others performing work or furnishing services on the Project. Furnish a minimum of two portable toilets at the trailers (if office trailers are required) and a minimum of one at each project work site or as required to accommodate the number of personnel working on site.
- B. Contractor shall properly maintain sanitary facilities of reasonable capacity throughout construction periods.
- C. Contractor to enforce the use of such sanitary facilities by all personnel at the site.
- D. Place facilities out of public view using the greatest practical extent.

END OF SECTION

**SECTION 01560
TEMPORARY CONTROLS**

1.1 NOISE CONTROL

- A. Take reasonable measures to avoid unnecessary noise when construction activities are being performed in populated areas.
- B. Construction machinery and vehicles shall be equipped with practical sound muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work.
- C. Cease operation of all machinery and vehicles between the hours of 7:00 p.m. and 7:00 a.m. Due to the aggressive schedule that this project entails, exceptions will be made. The City of Fort Collins will require written requests for exception to be submitted to the Project Engineer 3 days prior to work.

1.2 DUST CONTROL

- A. Dusty materials in piles or in transit shall be covered when necessary to prevent blowing.
- B. Earth and road surfaces subject to dusting due to construction activities and detouring of traffic shall be kept moist with water or by application of a chemical dust suppressant. Chemical dust suppressant shall not be injurious to existing or future vegetation.
- C. Dust control within the lime deposit area shall conform to the project's health and safety plan. At a minimum, the lime area shall be covered as soon as possible after compaction has been obtained to minimize surface drying and dust. Dust control for this area may involve multiple watering and/or continuous watering to maintain a moist surface.

1.3 POLLUTION CONTROL

- A. Prevent the pollution of drains and watercourses by sanitary wastes, concrete, sediment, debris and other substances resulting from construction activities.
 - 1. Retain all spent oils, hydraulic fluids and other petroleum fluids in containers for disposal off the site.
 - 2. Prevent sediment, debris or other substances from entering sanitary sewers, storm drains and culverts.

1.4 EROSION CONTROL

- A. Take such measures as are necessary to prevent erosion of soil that might result from construction activities.
Measures in general will include:
 - 1. Control of runoff
 - 2. Trapping of sediment
 - 3. Minimizing area and duration of soil exposure
 - 4. Temporary materials such as hay bales, sandbags, plastic sheets, riprap or culverts to prevent the erosion of banks and beds of watercourses or drainage swales where runoff will be increased due to construction activities.
- B. Preserve natural vegetation to greatest extent possible.
- C. Locate temporary storage and route construction traffic so as to preserve vegetation and minimize erosion.

- D.** Comply with the **City of Fort Collins' Storm Drainage Erosion Control Manual and Plan.**

1.5 SECURITY

- A.** Contractor is responsible for protection of the site and all Work, materials, equipment and existing facilities thereon, against vandalism.
- B.** No claim will be made against the Owner by reason of any act of an employee or trespasser, and the Contractor shall make good all damage resulting from his failure to provide security measures as specified.
- C.** Security measures will be instituted to protect owners of existing facilities during normal operation, but will also include such additional security fencing, barricades, lighting, watchman services or other measures as Contractor feels is required to protect the site.

END OF SECTION

**SECTION 01570
TREE PROTECTION**

A. Tree Barriers:

All trees which will be preserved, but are within the limits of construction, must be protected from all damage associated with construction. A sturdy, physical barrier (fluorescent orange in color) must be fixed in place around each tree for the duration of construction. This barrier will be placed no closer than six (6) feet from the trunk, or one-half of the drip line, whichever is greater. The barrier itself must be fixed so it cannot be moved easily, but the material can be flexible, such as orange safety fence attached to metal T-posts driven into the ground, but must act as an effective deterrent to deliberate or accidental damage of each tree. The Project Engineer or Manager must approve actual materials and location of barrier.

The movement or storage of equipment, material, debris, or fill within these required protective barriers is completely prohibited.

In situations where the construction will come closer to a tree than six (6) feet, the orange barrier must still be erected. However, additional padding must be placed around the trunk of each tree starting at ground level and proceeding up the trunk to a height of six or seven feet. Padding should be a minimum eight (8) inches thick, and made of a material strong enough to protect the bark from accidental impacts with hand tools or power equipment.

B. Accidental Poisoning:

During the construction, the Contractor shall not cause, or permit the cleaning of equipment or material within the root zone of any tree. The Contractor shall not store or dispose of waste material including, but not limited to; paints, solvents, asphalt, concrete, mortar, or any other material harmful to the life of a tree, within the root zone of each tree, or group of trees.

C. Root Pruning Specifications:

When the cutting of tree roots is necessary, each final cut must be made as cleanly as possible for all roots over three (3) inches in diameter using the following method:

1. The line of excavation will be drawn out and appropriate excavation equipment used to clear the area at least six inches in front of the actual finished excavation line. Roots can then be cut using tools such as axes, stump grinders, or trenchers.
2. Each root over three (3) inches in diameter will then be cut cleanly back to the excavation line using stump grinder operated by an experienced licensed arborist. A sharp hand or bow saw is acceptable for roots under three (3) inches in diameter. Axes and trenchers do not cut roots cleanly and will not be used for final root cuts.

D. Contractor shall coordinate with the Owners' Field Representative prior to and during the tree protection erection and root pruning activities. Owners' Field Representative, at his/her opinion, will contact the City Forester and/or City Arborist for advice and approval of the tree protection measures taken by the Contractor and also the City's advice and approval during the root pruning activities.

E. No damaging attachments, wires, signs, permits or other objects may be fastened by any means to any tree preserved on this project.

F. Violation of Specifications and Penalties for Damaging Trees:

Any violation of these specifications will lead to penalties based on the type of violation and/or the resulting damages, and may be grounds for the termination of this contract.

The penalties will be assessed based on the amount of damage done and the total value of that tree, or group of trees, prior to the damage. The minimum penalty will be \$100.00. Penalties for any damage will be based on the total value of the tree as determined by the City Forestry Division staff and the severity of the damage as a proportion of the total value of that tree. This could include up to the full value of the tree.

As an example, there are two American Elm trees to be preserved on another project. They are valued at \$7,960 and \$6,667 for the south and north trees respectively. The south tree is approximately 100 inches in circumference; therefore each inch is worth one-hundredth of the value, or \$79.60 per inch. Similarly, the north tree is 91 inches in circumference, making each inch worth \$73.26. To extend this to penalties paid, if one inch of the bark on the south tree is scuffed, the penalty would be \$100 (the minimum allowed); if two inches are damaged, the penalty would be \$159.20 and so on up to 50% of the circumference of the trunk. If 50% or more is damaged, the full value of the tree will be assessed as a penalty. (This example serves to illustrate how damages will be assessed).

This method of assessing penalties will be applicable to all trees not marked for removal on the project, accidental poisoning and improper pruning.

END OF SECTION

**SECTION 01580
TRAFFIC REGULATION**

1.1 TRAFFIC CONTROL

- A. The traffic control for this project shall be the responsibility of the Contractor.** Traffic control is defined as the manpower and devices necessary to channelize vehicular and pedestrian traffic through the project. **A full-time Traffic Control Supervisor will be required on the project during all construction operations.**
- B.** The Contractor and/or Traffic Control Contractor must submit traffic control plans and coordinate all traffic control with the City's Traffic Control Coordinator. The traffic control plans must be submitted and approved **72 hours** prior to starting construction and before making each modification.
- C.** Conformance: City of Fort Collins Work Area Traffic Control Handbook, Manual of Uniform Traffic Control Devices (U.S. Dept. of Transportation), or applicable statutory requirements of authority having jurisdiction.
- D.** The traffic access/control plan limitations for handling traffic for these projects are described below.

Harmony Road: The City of Fort Collins will allow the West-Bound Harmony Road traffic to be diverted to the East-Bound travel lanes, thus maintaining one-lane in each direction on the South side of Harmony Road. This closure will only be allowed for 35 calendar days. The limits of this closure are ¼ mile east of Harmony Ziegler to ¼ mile west of Corbett Drive. The closure will need to be approved by the City of Fort Collins Traffic Control Coordinator.

Harmony Road: Single lane closures will be allowed for construction of the new lane additions and median installations. These will be for both Eastbound and West Bound traffic.

Zeigler Road: The City of Fort Collins will allow the North Bound and South Bound through movements and left turn movements to be closed at the Harmony/Ziegler intersection until August 19, 2007. When possible, the City will require right turn movements to be allowed onto Ziegler and/or Harmony. The closure will need to be approved by the City of Fort Collins Traffic Control Coordinator

Zeigler Road: Single lane closures will be allowed for construction of the new lane additions and median installations. These will be for both Northbound and Southbound traffic.

**Local
Residential**

Access: Local access must be maintained at all times. City of Fort Collins will coordinate with the developers so access can be kept open.

Any modifications to the traffic control plan must be approved by the City's Traffic Control Coordinator and the Engineer.

- E.** Vehicle, bike and pedestrian access to all side streets and private drives shall be maintained at all times. The Contractor will develop an access control plan in coordination with adjacent property owners, and submit it in conjunction with the traffic control plan to the Engineer for approval prior to the start of any Work. Pedestrian traffic shall be maintained at all times, utilizing temporary sidewalks when necessary.

- F. The Contractor must work with the adjacent residents to provide and maintain sufficient access for them during the duration of the project. It will be the Contractors responsibility to coordinate and communicate with the residents during construction.
- G. The Contractor must maintain, at their cost, access to all businesses during their business hours. It will be the Contractors responsibility to coordinate and communicate with the businesses during construction.
- H. **The Contractor shall keep traffic areas free of excavated material, construction equipment, pipe, and other materials and equipment.**
- I. The Contractor shall keep fire hydrants and utility control valves free from obstruction and available for use at all times.
- J. The Contractor shall provide and maintain, at their cost, temporary driveway approaches on driveways open to traffic at all times to insure that the approaches are smooth, compacted, and will not prohibit or inhibit the use of the driveway. The driveway approaches must be maintained seven days a week. In the case of bad weather the Contractor must repair the driveways immediately following the storm and must work to maintain access during the storm.

1.2 WORK AREA SAFETY

- A. The Contractor shall maintain a safe work area and protect area residents, motorists, bicyclists, pedestrians, and children from work area hazards.
- B. The Contractor shall provide all work area safety control devices, such as barricades and safety fence around all excavations and drop-offs.
- C. **Work area safety control devices will not be paid for separately.** Cost for this equipment should be included in the **lump sum** cost for the work items which will require work area safety control devices.

1.3 PARKING

- A. Provide suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the Project so as to avoid interference with public traffic, Owner's operations, or construction activities.

END OF SECTION

**SECTION 01700
CONTRACT CLOSEOUT**

1.1 SUBSTANTIAL COMPLETION

- A.** Substantial Completion for the **Harmony and Ziegler Road Improvements – Front Range Development Project** shall be defined as the completion of all earthwork, pavement, concrete work, striping, signage, landscaping, and any other pertinent items as required for this project. All driving lanes, bicycle lanes and sidewalks must be open to traffic.
- B.** Substantial Completion dates or times are outlined in Section 00520 - Agreement.

1.2 FINAL COMPLETION

- A.** Final Completion shall be defined as the completion of all Work including cleanup, Project Record Documents shall be turned over to the Owner, all punch list items completed, and all processing of all change orders. The Work must be ready for final payment and acceptance.
- B.** Final Completion will be subject to the terms outlined in Section 00520 - Agreement.

END OF SECTION

**SECTION 01711
SITE CLEANUP**

1.1 GENERAL

- A. Execute cleanup, during progress of the Work, and at completion of the Work.
- B. Adequate cleanup will be a condition for recommendation of progress payments.

1.2 DESCRIPTION

- A. Store volatile wastes in covered metal containers and dispose off site.
- B. Provide on-site covered containers for the collection of waste materials, debris and rubbish.
- C. Neatly store construction materials, such as concrete forms, when not in use.
- D. Broom clean adjacent paved surfaces and rake other adjacent surfaces.
- E. The streets adjacent to the construction area shall be cleaned of debris generated by the project by the Contractor at the earliest opportunity, but in no case shall the street be left uncleaned after the completion of the day's work. It shall be the Contractor's responsibility to provide the necessary equipment and materials to satisfactorily clean the roadway at no additional cost to the project. The City's Street Department will sweep the street at an approximate hourly rate of \$70.00 for a minimum of 2 hours. The Contractor must sign a Contract with the City Street Department prior to requesting street sweeping.

If the streets are not cleaned by the Contractor within 24 hours after having been given notice from the Project Engineer, the Project Engineer will have the Streets Department sweep the streets at the rates listed above and will back charge the Contractor for expenses incurred.

1.3 DISPOSAL

- A. Wastes shall not be buried or burned on the site or disposed of into storm drains, sanitary sewers, streams or waterways.
- B. Remove waste materials, clearing materials, demolition materials, unsuitable excavated materials, debris and rubbish from the site at least weekly and dispose of at disposal areas furnished by Contractor away from the site.

END OF SECTION

**SECTION 01720
PROJECT RECORD DOCUMENTS**

1.1 GENERAL

- A.** Maintain at the site one record copy of:
 - 1. Documents and samples called for in General Conditions 6.19.
 - 2. Field Test Records.
 - 3. Certificates of compliance.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A.** File documents and samples in accordance with the specifications section numbers.
- B.** Maintain documents and samples in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

1.3 RECORDING

- A.** Label each document "PROJECT RECORD" in neat large printed letters.
- B.** Record information concurrently with construction progress.
 - 1. Do not cover Work until required information is recorded.
- C.** Marking of Project Records.
 - 1. Legible and with a dark pen or pencil.
 - 2. Ink shall not be water based or subject to easy smearing.
- D.** Mark Drawings to record actual construction.
 - 1. Field dimensions, elevations, and details.
 - 2. Changes made by a Modification.
 - 3. Details not on original Drawings.
 - 4. Horizontal and vertical locations of underground utilities and appurtenances referenced to a minimum of three permanent surface improvements.
 - 5. Depths of various elements in relation to project datum.
 - 6. Location of utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

1.4 SUBMISSION

- A.** Accompany submittal with transmittal letter in duplicate containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's names, address, and telephone number.
 - 4. Index containing title and number of each Record Document.
 - 5. Signature of Contractor or his authorized representative.

END OF SECTION