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MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN


# Salem Common Fence Restoration
# Salem, Massachusetts
# March 30, 2012

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CRAIG E. BARNES
MICHAEL S. TELLER
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ROBERT G. WILKIN

March 30, 2012

Natalie Lovett
Community Development Planner
Department of Planning and Community Development
City of Salem
120 Washington Street, 3rd Floor
Salem, MA 01970

Tel.: (978) 619-5685
Email: nlovett@salem.com

Proj.: Salem Common Fence
Re: Condition Assessment Report, Executive Summary
CBI Job No.: 11195

Dear Natalie:

CBI Consulting Inc. (CBI) is pleased to present the following Condition Assessment Report which describes the condition of the fence surrounding the Salem Common and makes recommendations for repair and renovation. All repair work specified conforms to the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*.

The report also includes cost estimates based on:

1. The total cost of restoration performed all at once.
2. An analysis of the cost per fence section.
3. A list of costs broken down per repair level.

During our investigation, we reviewed every one of the 253 individual fence sections and noted the deficiencies on site. The fence suffers from deterioration over long-term exposure and little maintenance. However, the biggest problem for the fence has to do with vehicular impact. The worst fence sections and those missing are due to the problems relating to snowplow operations around the fence during the winter and the carelessness of automobile and truck operators.

During the last major renovation, there were some individual repairs that were inappropriate. Those are noted in the report. Additionally, we have made recommendations for repairs using traditional and modern methods and materials which would be appropriate at this time. We have also recommended that expansion details be installed at the end of each fence section and that each section of fence receive the same treatment which includes removal to the shop for all repairs. Those repairs would include a sandblasting to remove the existing paint, replacement of missing and broken parts, adjustment of the assembly to be straight, repainting, and reinstallation.

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Based on the City's budget, we propose two phases of construction (of which the plans and specifications for bidding are included in this package). Phase I would include the restoration of the two fences flanking each side of entrances number 1 and 11, with Add Alternate pricing for these additional fences at entrance number 2. Phase II, with a budget of $200,000 (some of which is requested from the MHC Grant) would encompass the restoration of the two fences flanking gates 3 through 8, with Add Alternates for those fences flanking entrances 9 and 10.

We suggest that strong qualification language be included in the Specification as the number of Contractors who have the ability to do this work is limited. Locally, we have experience with DeAngelis Iron Work, Inc., Cassidy Brothers Forge, Inc., and Ryan Iron Works, Inc. who are qualified and large enough to handle a project of this scope and size.

The Salem Fence is an important part of the historic fabric of the City of Salem and deserves to be restored. The City's commitment to the future of the fence is seen in their commitment of funding which at this time will address over 10% of the work.

We look forward to working with the City and the MHC in the weeks and months ahead on this interesting and important project.

Please call with any questions.

Very Truly Yours,
**CBI Consulting Inc.**

Michael S. Teller, A.I.A., NCARB, LEED AP
Principal
mteller@cbiconsultinginc.com

Enc. Existing Conditions Report

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11195 Executive Summary FINAL 03-30-12.docx

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# Table of Contents

## Salem Common Fence Restoration
## March 30, 2012



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# Condition Assessment

## Salem Common Fence Restoration

## March 30, 2012

## Existing Conditions

CBI Consulting Inc. (CBI) has visited the site of the Salem Common Fence, in Salem, Massachusetts, to review the existing conditions of the existing cast-iron fence structure that surrounds the park. The perimeter of the common is approximately 1/2 mile long and the majority of it is enclosed with an approximately five (5) foot tall cast-iron fence. (See Photo #1). There are 253 fence sections, approximately 8'-0" long.

While in its current condition, several of the fence panels are missing, the majority are intact but exhibit deterioration either from exposure to the elements, impact from vehicles, vandalism, or improper repair techniques.

The fence is uniform, meaning that each of the fence sections (posts and eight foot long infill fence panel) is the same. Each was created from the same pattern and therefore are very uniform throughout the assembly. However, there are entrance ways that are different from the standard fence panel facing Washington Square Streets, and at the corner of Williams Street and Washington Square. (See Photo #2).

Various entrances throughout the fence structure have been closed off by bollards. Some are historic (see Photo #3) and some are modern/removable (see Photo #4). The City of Salem has installed modern steel pipes with screw tops at these locations, likely because they were easier and cheaper to procure at the time and possibly after the existing historic bollards were either stolen or damaged by vehicles.

The typical fence panel consists of a post with a decorative capital, an octagonal shaft, and a mildly decorative base. (See Photos #5 & #6). It appears as if these were cast in two (2) separate pieces. A small "pineapple" exists as a finial at the top of post and is connected to a steel rod which is threaded at the top and bottom. (See Photo #7). At the top, the pineapple is connected to the rod and, at the bottom, the threads connect to a steel plate which is cast in or fastened to the granite base. Tightening the rod attached to the pineapple, secures the post and creates the structural strength to hold the post in place and keep it from tipping.

Except for the top rail (which is mild steel and bends) (see Photo #8) the fence is comprised of cast iron elements (which does not bend). The fence panel, located between posts, consists of a decorative bottom rail which is fairly ornate (see Photo #9) and accepts the cast-iron vertical balusters that penetrate the top rail and are capped by two (2) different spearhead designs (see Photo #10). The balustrades are also two (2) different designs corresponding to the spearheads.

There are only a few non-uniform fence sections. They contain swinging gates. The support posts are granite and the gates match the fence. The steel is set into recesses created in the granite. Unfortunately, the steel has rusted and when it rusts, it expands. The pressure of the rusted steel caused the edge of the granite recess to chip or "spall". (See Photo #17).

Cast-iron is an alloy with a high carbon content (at least 1.7% and usually 3.0 to 3.7%) that makes it more resistant to corrosion. While it is extremely easy to cast and can take almost

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any shape in which a mold can be created, it does not lend itself to fine detail and it has structural strength issues. It is extremely strong in compression and has been used since the 1800's to create columns and entire building façades that were also structural. It is, however, not good in tension and is extremely brittle.

Until recently, you could not weld to cast-iron. In the modern era, new welding rods (Certanium) have been developed that take advantage of the cast-iron metallurgical properties and, if used carefully, can weld pieces of cast-iron together or pieces of mild steel to the cast-iron. It is important to note, that like welding with mild steel, the weld is always stronger than the parent material. Unfortunately, with cast-iron this is even more true, as any force applied to the cast material, adjacent to a weld, will snap the cast-iron on the other side of the weld location. In some cases the top rail was not long enough to connect to the post and an extension was attached in mild steel. (See Photo #11).

Typically, the top rail is welded directly to the support post. (See Photo #12). A sealant, which appears to be black silicone, was applied over the welds in an effort to smooth out the surface and not trap any moisture. Unfortunately, the sealant is, in fact, trapping moisture and rust has formed around the welds. (See Photo #13).

Traditionally, cast-iron material is bolted together using blind or countersunk fasteners. Cast-iron can be drilled and tapped and threaded fasteners used to connect pieces together. In modern times, the process of drilling and tapping is costly and with the advent of welding techniques, this process is not often employed. However, it would be more historically correct and in some cases would take advantage of the materials properties.

The existing fence has been created in different eras and it appears as if different molds were used at different times to create the entire fence and or replacement pieces. Either that or the quality of the casting varies. New molds can be created from existing piece of cast-iron. However, cast-iron shrinks approximately 1/8 inch per foot. So if new cast-iron is to be cast from molds of existing pieces, the designer and contractor must take this shrinkage into consideration and adjust accordingly.

The finish of the existing fence is black paint. We have not tested the paint so we are unclear as to whether not lead paint exists throughout. However it is likely. Nevertheless, because the various fence elements are deteriorated and rust exists the finish must be replaced.

Paint cannot be applied to the cast-iron until it has been properly prepared. As per Preservation Brief-27 from the U.S. Department of the Interior, see attached, we recommend low pressure grit blasting the existing material with an abrasive material such as iron slag or sand which will remove the existing coatings down to the bare metal and create a “tooth” to help the paint adhere.

It is most important to remove any loose material and, especially, all the existing rust and corrosion on the base metal before painting. Soon after, the clean cast-iron must be painted in order to avoid the potential of “blush rust” which could occur in humid conditions creating rust on the surface the material before the paint is applied. There is a time constraint and urgency to getting paint onto the metal immediately after blasting with any abrasive.

The cast-iron can be finished in two ways. The first option is to paint the material with a high tech, durable coating system. We recommend a zinc rich primer, followed by an epoxy

intermediate coat, finished with a urethane top coat which gives it its UV protection and color. We suggest that each coat of paint be a different color so that if the paint is ever damaged the contractor can tell which coats are still intact and which need to be replaced. Also, by using different color coats, it is easy for the contractor, and the architect, to visually inspect the coverage of the paint before the next coat or type of paint is applied.

Another option is to galvanize the metal using a either a hot dip system or an electro galvanic system. Hot dip is more durable. The drawback is that of the hot dip galvanizing process sometimes deforms the metal material and this is problematic with cast-iron as it could break. The electrostatic galvanizing process involves introduction of electric charge and when this paint is sprayed into the air, around the material, it is attracted to the electrified metal. This often creates a very uniform finish, however, touching up this finish in the field if damaged, is very difficult in the future. It also makes temporary protection of the new paint extremely important during transport to the site and, again, if it is damaged, it is very difficult to touch-up.

We did not observe any accommodation for expansion throughout the entire fence except where sections of fencing were missing. Assuming they are replaced, there still is no way for the fence structure to accommodate movement from heat or cold. The top rail of the most fence sections is welded solidly to post. There exists a small bracket on each side of most posts which helps to support the top rail. In some cases the top rail is bolted into this tab (see Photo #14), however, most conditions are welded. It would be possible to physically cut the top rail from the post, create a slotted hole in the top rail and drill and tap into the bracket creating a detail for expansion on each side of the post throughout the fence.

Each post bears on a granite base. Most bases are in good condition. (See Photo #15). The major deficiency is a cracked or broken corner which, in most cases, should not be repaired. There are a few concrete bases (see Photo #16) which are deteriorated and should be replaced with granite to match.

There is always a debate as to whether or not this type of project and this type of fence material should be repaired on site, in the field, or removed to the shop. Because each fence panel is welded to the post, removal of the fence would involve a tremendous amount of destructive removals at each post. Therefore, new connections would have to be made, either by welding or drilling and tapping. Removing the fence in its entirety to the shop would provide uniform conditions where workers are in a controlled environment. This creates a more comfortable, clean, wind free, efficient work environment where various shop tools can be employed including overhead cranes, infills, clamps, etc.

Not surprisingly, there are several unusual conditions: A tree is growing around one of the posts. (See Photo #18). Branches and roots also affect other posts of the fence. At a missing section of the fence, a support has been installed. It is unclear if the section was missing or if it was removed for this purpose. (See Photo #19).

## Improper Repair Techniques

During the last renovation project, the Fence had several repairs performed that have not stood the test of time and are resulting in aesthetically unpleasing results and accelerated deterioration. The first example is the connection of the steel top rail to the cast-iron end post. In each case the rail is welded. However, it appears as if the connection was field welded and there was no effort to grind down or smooth out the weld. With only 6 inches available between the end post and the first picket, there is not enough room to get a grinder in that space in order to smooth out the welds. As a result, caulking was smeared over the top of the weld in order to fill in the valleys and gaps and create a canted surface that would shed water. While this may have worked for the first 10 years, or so, it is no longer the case. Water has gotten under the sealant and caused deterioration (by rusting) of the weld and the parent material. Compounding the difficulty is the shape of the end post which is fluted which would, again, make it hard to grind the weld smooth in the field with the first picket in place.

Another example is where the existing pickets attach to the top of the continuous bottom rail. Each picket sits in a depression on top of the rail that is cast in. It is likely that the original detail included molten lead which would fill the space and create a sort of adhesive that would keep the bottom of the picket in place, fill the gap, and shed water. All of those lead plugs are missing, have deteriorated away, or been removed. The last renovation added sealant at this location in order to fill a gap, hold the picket place, and shed water. However, the sealant does not appear to be silicone and has once again only lasted about 10 years and as it delaminates it catches water behind the sealant causing accelerated deterioration of the cast-iron.

## Causes of Breakage/Loss

The major culprit in the deterioration of the Salem Common Fence is impact by vehicles. Whatever deterioration is resulting from improper details is minor compared to the wholesale loss of entire fence sections because snowplows routinely push snow up to the fence in the winter and even impact the fence during that process. Or if vehicles jump the curb, swing wide, or directly impact the fence, the major reason why large sections of fencing are damaged or missing has to do with impact from vehicles adjacent to the Common Fence. Loose fence elements are then removed by Pedestrians as souvenirs.

Certainly restoring the fence and providing details that do not accelerate deterioration are important. But the number one environmental factor causing widespread damage to the fence has nothing to do with the fence restoration and repair technology but the administrative control of the streets and environment around the fence.

## Recommendations

In general, all work must comply with the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*.

Our recommendations for individual components are as follows:

1. Most granite bases should remain. Minor chips look "historic". Granite bases with severe breaks that look "damaged" should be replaced.
2. All concrete bases should be replaced with granite to match the existing.
3. We have proven that broken cast iron can be welded back together, but the cost is usually greater than replacement in kind as the number of broken pieces is low, we recommend replacement.
4. There are few broken support posts of which the broken part is still on site, is attached or is available. We recommend that instead of trying to repair the post that the broken portion be replaced.
5. Broken bottom rails, where all the pieces are still on site should be welded back together, as this is an expensive item to replace.
6. Broken balustrades should be replaced, again because they are too costly to repair.
7. The soil around the fence should be cut back, away from the fence, so it can breathe.
8. Expansion connections should be installed at each connection to a support post.
9. We recommend that the repair of the granite spalls at the entrance swinging gates be a low priority. However, when that work occurs, the granite should be repaired with granite Dutchmen in material to match the existing and the steel should be removed from the granite and new stainless steel inserts installed to remove this hazard.
10. The fence should be repainted on a regular basis. If the entire system is sandblasted and recoated with a high tech paint system, then repainting should only be needed periodically. We would recommend that touch-up occur on a yearly basis, major touch-up occur every five (5) years, and recoating occur every ten (10) years. The recoating would normally involve the urethane top coat unless any of the undercoat layers were damaged. In that case, they would have to be repaired and restored layer by layer.

Regarding improper repair details, the new expansion joint detail at the top rail connection to the end support post will be performed in the shop, under controlled conditions, after the top rail had been removed. Therefore, there will be adequate access to reach the new expansion bracket, to be welded to the end post, for careful welding and grinding smooth to shed water.

At the connection of each picket to the bottom rail, we propose a high performance silicone sealant with a lifespan of between 20 and 40 years in gloss black color. The parent surface

must be clean and the shape of the sealant shall be canted to severely shed water from the joint area.

We discussed how to reduce vehicle impact to the fence at the public meeting. Strategies included a neighborhood watch, surveillance cameras, increased police presence, and notifications to each snow plow operator with severe fines. These should be implemented by the City in any event. Physical barriers around the fence would be expensive (because of the vast scope) and would have an aesthetic impact on the fence, as well. They include bollards and large stone blocks. We prefer stone as they can be low profile and require no permanent foundation or attachment. They can be loose laid on the ground outside the fence at the curb across from all streets and driveways. Please note, the cost for this recommendation is not in the Construction Estimate.

## Modern Repair Materials

In order to complete the renovation of the fence, modern repair materials and techniques will be used along with the traditional. In the past, cast-iron was not considered repairable. Cast-iron is extremely brittle and if it breaks there was never a way to "weld" it back together. Modern welding techniques now allow cast-iron material to be reattached using Certanium welding rods. Modern welding equipment which allows different levels of electrical power to enter the welding rod and effect the parent material, adjusting the heat level up and down, allow the welder to adjust the equipment to fit the chemistry and temperament of the broken cast-iron. Usually, the pieces requiring work should be cleaned, preheated, and back cut so that there is a groove available to be filled with welding material and ground smooth to match the original finish. Welders are currently using Certanium welding rods which appear to be the most compatible with the cast-iron material. While the welding technique has proven to work on this fence during our field testing, each Contractor will evaluate the cost and effort associated with welding versus recasting. It is possible that the Contractor may elect to simply replace the material instead of attempting a repair. Because the number of broken pieces is fewer than the number of missing pieces, this is not a major concern for this project.

When this fence was originally constructed and assembled, the vertical pickets were seated in notches in the bottom rail and filled with molten lead. Lead is no longer being used because of various health and safety reasons. Now, in order to seat the material and create a bond, high-quality silicone sealants are being used. The important aspect of this process is to be sure that the substrate is completely clean prior to application, that the shapes are "canted" in order to shed water, and that the color matches the paint finish. Modern silicones can perform these tasks and if installed properly will give the fence a minimum of 20 years of service. Lead, while strong, is not extremely flexible. Eventually the lead deforms and openings occur between the cast-iron and the lead due to movement and expansion. Then water, through the “freeze/thaw process”, moves the pliable lead outward and the gaps increase, allowing even more water into the system. Therefore, the lead is not a viable solution either. The sealants as well as the paint become a future maintenance item.

The paint system to be used on the project is a modern combination of paint that is so robust that it is designed to be submerged under seawater and is often used on oil rigs located in the North Sea. The system, while very durable, is not much more expensive than any industrial paint system but the thought and care given to using this system makes it a very long lasting and durable assembly that will protect the fence for a very long time with very little maintenance.

The primer should be a zinc-rich material which will act as the sacrificial layer. This means that any rust or corrosion that begins to occur under the paint, because of a break in the system, would actually chemically dissolve due to the electrolytic action. This is a similar process as what occurs in marine applications where lead anodes are attached to the bottom of boat hulls to retard the corrosion of the metal on the boat. The anode wears away before the metal begins to rust.

The second or intermediate coat is epoxy which provides the strength to protect the primer and form a base for the finish coat. It is extremely durable.

The topcoat is a polyurethane finish which provides the color and the ultraviolet protection that the epoxy needs and the water shedding properties necessary keep the product dry.

Each of these paint layers should be a different color. The advantage to this concept is that if the paint finish is ever damaged, and one or more layers are removed, only those topcoats that are damaged need to be reapplied. If the polyurethane coat is damaged and the primer and epoxy are still intact then, for example, only the topcoat needs to be touched up. This saves time and money and helps the maintenance staff appreciate and work with the three coat system to keep it intact.

## Preventative Maintenance Plan

While we have determined that the majority of deterioration and damage on the existing fence has to do with vehicular impact, left unmaintained, the fence will deteriorate due to the elements. Therefore, preventive maintenance is required to be performed on the fence on a regular basis. While this is a long-term process, work should be done every year to maintain the integrity of the material as follows:

1. Inspect the fence yearly and touch up at severe scrapes, chips or damage to the fence. This is intended to be a one-day process and the intent is to use the black polyurethane topcoat at locations that are exposed.

2. Every 5 years a similar process should be performed where the entire fence is walked and inspected. This is intended to take approximately a week. Therefore, additional time and effort is spent in an effort to find all the scrapes and chips. All three paints should be on hand in order to repair the material that is exposed in a more thorough fashion.

3. Every 10 years the entire fence should be completely repainted. The process that takes place every five years should be implemented to be sure that the primer and epoxy coatings are intact and then the entire fence should be recoated with the black polyurethane finish topcoat. This process could take as much as a month and we recommend that it be performed by hand with brushes rather than by spray. Using brushes allows the painter to "jam" the material into the various cracks and crevices of the system providing protection to those hard to reach areas that might not be covered using a spray gun.

Additionally, we suggest that the city initiate a relationship with one of the local (qualified) iron work Contractors to be on-call for repairs needed on a daily/weekly/monthly basis. Damage occurs quite often. If it can be addressed immediately, the party responsible can pay for the repairs and the historic fabric is less likely to be lost.

This preventative maintenance program will ensure that the historic fabric of the fence will last as long as possible on site.

## Long-Term Maintenance Funding Alternatives

The Salem Common Fence project is owned by the City of Salem. Therefore, the majority of funding will likely come from the City either through their capital fund, maintenance budget, or through a bond of some sort. We believe that the repair project described above, will promote awareness of the fence and create enthusiasm amongst the City's residents, especially those living in adjacent neighborhoods to the Common. This will, in turn, generate donations and funding enthusiasm.

Private donations to cover the cost of renovation and repair, as well as ongoing maintenance, can be linked to dedications and recognition of donors at each fence location. For example, donors could sponsor a particular section with their name listed on a plaque adjacent to a particular fence section. Additionally, a master list could be created and kept on the web as well is at City Hall to commemorate the support of the various citizens/neighbors.

We suggest that civic and private groups that use the Common should pay a fee that, in part, will go to maintaining and repairing the fence.

The Salem Common Neighborhood Association could sponsor fundraisers which would help fund the cost of ongoing maintenance and repair. Sponsoring events on the Common that range from fun family events to educational preservation conference/seminar activities would also raise awareness and bring in experts from all over the country who could use this extremely historic and important fence as a catalyst for ornamental ironwork and cast-iron product awareness and industry buzz. All activities would help to bring money into the economy of the City of Salem which would use their City Administrative and Public Works resources to promote the fund-raising effort.

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# Conditions Assessment Photo Index
# Salem Common Fence Restoration
# March 30, 2012

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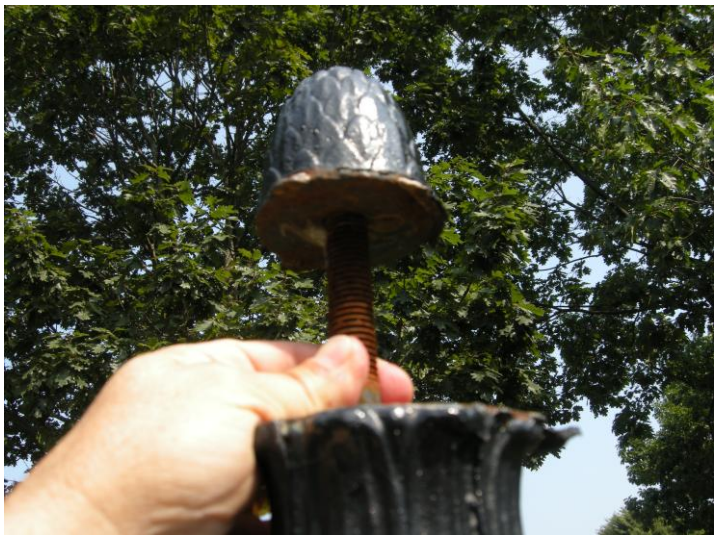
| 7. |  |
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# Repair Level Narrative

## Salem Common Fence Restoration

## March 30, 2012

During our field investigation, we photographed each fence section in the roughly the same format in order to understand the overall composition and condition as well as the condition of the support end posts and the individual elements needing care. All of the photographs and all of the Field Notes are included in Appendix A.

We have attached examples of photographs and Field Notes for five different sections in order to help understand the repair levels that were determined on site. The five fence sections represent the five repair levels so that photographically we can see how the repair efforts increase for each level.

Typical examples for each level are as follows:

| | | |
|---|---|---|
| • Repair Level I | Fence section 234 | $ 3,938.55 |
| • Repair Level II | Fence section 70 | $ 4,256.78 |
| • Repair Level III | Fence section 168 | $ 5,764.44 |
| • Repair Level IV | Fence section 140 | $ 8,473.63 |
| • Repair Level V | Fence section 210 | $12,826.00 |

Repair Level I requires the least amount of attention and includes the "standard" repair techniques being applied to all the fences. Those include removal of the fence from the site to the shop for repair, sandblasting to remove all the existing paint, rust, and scale, straightening of various fence elements to create a level, plumb, and true assembly, creation of expansion connections at each end of the top rail, painting with a high-tech, three coat paint system, transporting back to the site and reinstallation in place. Level I requires virtually no other repair. Estimated costs: $3,000-$4,000.

Repair Level II includes all the techniques from Level I and includes very few cast-iron elements to be replaced that might be cracked or missing. Estimated costs: $4,000-$5,000.

Level III includes all the repair techniques from Level II and includes additional repairs to replace more items that are cracked or missing, or that are deformed or displaced. Estimated costs: $5,000-$6,000.

Level IV repairs include all the repairs from Level III. Level IV, however, is likely missing up to half of the existing pieces so that wholesale replacement begins to be very expensive. Estimated costs: $6,000-$9,000.

Level V includes all the repairs from Level IV. Level V repair indicates a fence that is completely missing and must be replaced in its entirety. Estimated costs: $9,000-$14,000.

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CRAIG E. BARNES
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# Repair Level Photo Index

## Salem Common Fence Restoration

## March 30, 2012

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| REPAIR LEVEL V | |
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PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Cost Estimate Narrative

## Salem Common Fence Restoration

## March 30, 2012

The following cost estimates are the result of our field survey in which we noted various deficiencies in the existing fence system, allotted unit prices for each, and tallied each type of repair and each fence section itself. The costs are presented in three formats:

1. Overall renovation with summary of deficit items.
2. Overall costs per fence section.
3. Overall costs per repair level.

The first spreadsheet is a tally of the entire project if performed all at once. This provides an overview of what it would take on a global basis. The total cost to restore the fence in one phase is $1,223,812.

However, because funds are limited and phasing must occur it is important to determine how to break down the costs per fence element. This is how the second spreadsheet is arranged. The same field observations and unit costs are used but are tallied per line so that we understand the cost to renovate each section. Each section is defined as a structural end post and the body of the fence. There are 253 fence sections. Of that amount, 11 are entrances and contain bollards instead of fences. (There is one exception where a fence section is not at an entrance but contains bollards instead of a fence.) The per fence costs range from $2,000 to $14,000.

Finally, in order to understand the levels of deterioration and how to group the repairs by severity, each fence section is grouped by repair level in the third spreadsheet. Level I is the least amount of work and Level V is the most severe, usually indicating that the fence is missing. The total costs for each level are as follows:

| | |
|---|---|
| Repair Level I | $ 345,756 |
| Repair Level II | $ 520,883 |
| Repair Level III | $ 121,980 |
| Repair Level IV | $ 56,152 |
| Repair Level V | $ 179,040 |
| TOTAL | $1,223,812 |

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# Cost Estimate
# Full Restoration

## Salem Common Fence Restoration
## Salem, Massachusetts

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# 11195 Salem Fence Restoration Survey

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Exist Historical Bollards | | 8 | Necking | | 14a | Missing From Top Up | | 19 | Old Repair | | 25 | New Historical Bollards | | | | | | | | | | | | |
| 2 | Any part broken/ cracked | | 9 | Dirt is high | | 14b | Missing From Middle Up | | 20 | End post loose from base | | | | | | | | | | | | | | | |
| 3 | Welds broken | | 10 | Bolt | | 15 | Missing End Post | | 21 | Replace Pipe Bollards with Historical | | | | | | | | | | | | | | | |
| 4 | Welds rusted | | 11 | Leaning | | 16 | Missing Pineapple | | 22 | Missing top horiz. Bar | | | | | | | | | | | | | | | |
| 5 | Spliced in bars | | 12 | Entire Section Missing | | 17 | Concrete Base | | 23 | Conn piece between bottom config and end post | | | | | | | | | | | | | | | |
| 6 | Out of alignment | | 13 | Missing Vert. Post | | 18 | Deter. Concrete Base | | 24 | Weld needs to be reattached. | | | | | | | | | | | | | | | |
| 7 | Sagging | | | | | | | | | | | | | | | | | | | | | | | | |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Section # | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | 10 | 10 | 1 | | 1 | 1 | 1 | | 1 | | 1 | 1 | | | | | | | | | | | | | |
| 2 | | | 12 | 8 | | 1 | 1 | | 1 | | 1 | | | | 1 | 1 | | | | | | | | | | | |
| 3 | | | 3 | 3 | 1 | 1 | | | 1 | 1 | 1 | | 1 | | | | | | | | | | | | | | |
| 4 | | | 5 | 6 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | | | | |
| 5 | | | 1 | | 1 | | | 7 | 1 | | | | | 1 | | | | | | | | | | | | | |
| 6 | | | 2 | 1 | | | 1 | 2 | 1 | | | | | | | | | 1 | 1 | | | | | 1 | | | |
| 7 | | | 5 | 4 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | The old repair is on the end post |
| 8 | | | 2 | 4 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 9 | | | 1 | 2 | | | | | | | | | | | | | | | | 1 | | | | | | | The old repair is on the end post |
| 10 | | | 1 | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | 2 | 4 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 12 | | | | 6 | | | | | | | 1 | | | | | | | | | | | | | | | | |
| 13 | | | | 6 | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | 1 | 3 | | 1 | | | | | | | | | 1 | | | | | | | | | 1 | | | Rust spot on end post |
| 15 | | | | 3 | 2 | 1 | 1 | 3 | | | | | | | | | | | | | | | | | | | |
| 16 | | | 1 | 3 | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | 1 | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | |
| 18 | | | 1 | 2 | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 20 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | Gap in the top horizontal bar where it meets the end post |
| 22 | | | 1 | 4 | | | | | | | | | | | | | | | | | | | | | | | The 2nd end post is installed closer to the street than the previous ones and, therefore, appears slightly out of alignment. |
| 23 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | | | 4 | 6 | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 3 | 12 | 1 | | | | 8 | | | | 1 | 1 | | | | | | | | | | | 1 | | | The bottom configuration has (2) cracks in it. |
| 28 | | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | | |
| 29 | | 1 | 1 | 1 | | 1 | | 7 | | | | | | | 1 | | | | | 1 | | | | | | | Old repair (sealant) vertically along bottom configuration |
| 30 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | End post still there |
| 31 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | End post missing also |
| 32 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | End post missing also |
| 33 | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | End post missing also |
| 34 | | | 4 | 4 | 4 | | 1 | | | | | | | | | | | | | 1 | | | | 1 | | | |
| 35 | | | 3 | 2 | 2 | 1 | 1 | 2 | | | | | | | | | | | | | | | | | | | |
| 36 | | | 4 | 3 | | | | 3 | | | | | | | | | | | | 1 | | | | | | | |
| 37 | | | 3 | 4 | | 1 | | 1 | 1 | | | | | | | | | | | 1 | | | | 1 | | | |
| 38 | | | 2 | 1 | | | | 3 | | | | | | 1 | | | | | | | | | | | | | |
| 39 | | | 1 | 13 | 1 | | | 1 | | | | | | | | | | | | 1 | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | This is an opening with 1 bollard. The bollard is not secure |
| 41 | | 1 | 5 | 3 | | | 1 | | | | | | | | | | | | | 1 | | | | | | | Large, sealant-filled crack around end post cap. |
| 42 | | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | 1 | | Around pineapple. |
| 43 | | | 2 | 4 | | | | | | | | | | | | | | | | | | | | | 1 | | Around pineapple. |
| 44 | | | 5 | 3 | | | | | | | | | | | | | | | | 1 | | | | | | | |

# 11195 Salem Fence Restoration Survey

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| 1 | Exist Historical Bollards | | | | 8 | Necking | | | 14a | Missing From Top Up | | | | 19 | Old Repair | | | | | 25 | New Historical Bollards | | | | |
| 2 | Any part broken/ cracked | | | | 9 | Dirt is high | | | 14b | Missing From Middle Up | | | | 20 | End post loose from base | | | | | | | | | | |
| 3 | Welds broken | | | | 10 | Bolt | | | 15 | Missing End Post | | | | 21 | Replace Pipe Bollards with Historical | | | | | | | | | | |
| 4 | Welds rusted | | | | 11 | Leaning | | | 16 | Missing Pineapple | | | | 22 | Missing top horiz. Bar | | | | | | | | | | |
| 5 | Spliced in bars | | | | 12 | Entire Section Missing | | | 17 | Concrete Base | | | | 23 | Conn piece between bottom config and end post | | | | | | | | | | |
| 6 | Out of alignment | | | | 13 | Missing Vert. Post | | | 18 | Deter. Concrete Base | | | | 24 | Weld needs to be reattached. | | | | | | | | | | |
| 7 | Sagging | | | | | | | | | | | | | | | | | | | | | | | | |

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | | | 7 | 7 | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | | | 4 | 4 | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 47 | | | 23 | 20 | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 48 | | 1 | 3 | | | | | | | | | | | | | | | | | 1 | | | | | | | Old, sealant filled crack at (14B) |
| 49 | | | 2 | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | |
| 50 | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | |
| 51 | | | 4 | 2 | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 52 | | | 4 | 1 | | | | | | | | | | | | | | | | 1 | | | | | | | |
| 53 | | | 3 | 8 | | | | | | | | | | | | | | | | | | | | | | | |
| 54 | | 1 | 3 | 1 | | | | | | | | | | | | | | | | 1 | | | | | | | Old, sealant-filled crack at (14B) |
| 55 | | | 5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 56 | | | 5 | 3 | | | | | | | | | | | | | | | | | | | | | 1 | | Around the pineapple. |
| 57 | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 58 | | | 9 | 6 | | | | | | | | | | | | | | | | | | | | | | | |
| 59 | | 1 | 2 | | | | | | | | | | | | | | | | | 1 | | | | | | | Old, sealant-filled crack at (14B) |
| 60 | | | 4 | 1 | | | | | | | | | | | | | | | | | | | | | 1 | | Around the pineapple. |
| 61 | | | 1 | | | | | | | | | | 17 | | | | 1 | | | | | | | | | | |
| 62 | | 1 | | | | | | | | | | | | | | | | | | 1 | | | | | | | Old, sealant-filled crack at (14B) |
| 63 | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| 64 | | 5 | 21 | 21 | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | Old, sealant-filled crack at (14B). Both top and bottom horizontal bar connections to end post are broken. |
| 65 | | | | | | | | | | | | | | | | | | | | | | 2 | | | | 1 | Crack around (14A) and pineapple. This is an opening with 2 bollards. |
| 66 | | | 1 | | | | | 4 | | | | | | | | | | | | | | | | | 2 | | There is a hole in the 2nd end post near the base. |
| 67 | | | 2 | 1 | 4 | | | 10 | | 1 | | | | | | | | | | | | | | 1 | | | There is a bracket bolted to the underside of the bottom horizontal bar, securing it to the concrete end post base. |
| 68 | | | 1 | 1 | 3 | | | 13 | | 1 | | | | | | | | | | | | | | | | | |
| 69 | | | 2 | 2 | 4 | | | 1 | | | | | | | | | | | 1 | | | | | | | | |
| 70 | | | 4 | 1 | | | | 3 | | | | | 1 | | | | | | | | | | | | | | Vertical post is broken. |
| 71 | | | | 1 | 3 | | | 2 | | | | | | | | | | | 2 | | 1 | | | 1 | | | |
| 72 | | | | | 3 | | | 5 | | | | | | | | | | | | | 1 | | | | 2 | | Around pineapple and (14A) |
| 73 | | 1 | 1 | 1 | 2 | | | | | | | | | | | | | | 2 | 2 | | | | | | | Bracket bolted to hold lower horizontal bar to concrete end post base. Old, sealant-filled crack around (14A) |
| 74 | | 2 | 2 | 4 | 1 | | | 1 | | 1 | | | | | | | | | 1 | | | | | 1 | | | |
| 75 | | 3 | 6 | 2 | 1 | | | | | 1 | | | 5 | | | | | | | | 1 | | | 2 | | | (5) vertical posts are cracked across. |
| 76 | | | | | | | | | | | | 1 | | | | | | | | | 1 | | | | | | End post still there. |
| 77 | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | |
| 78 | 3 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | This is an opening with 3 bollards. Bol. 1 & 3 are not secured to the ground and bol. 3 is missing top cap. |
| 79 | | | 4 | 5 | 1 | | | | | | | | 1 | | | | 1 | | | | 1 | | | | | | Spot of paint peeling on vertical post #16 |
| 80 | | | 4 | 3 | | | | 6 | | | | | 1 | | | | | | | | 1 | | | | | | Vertical post is broken. |
| 81 | | 2 | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | (2) serious, sealant-filled cracks between (14A) and (14B) and at the very bottom of the end post. |
| 82 | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | |
| 83 | | | 3 | 3 | | | | 3 | 1 | | | | | 1 | | | | | | | 1 | | | | | | |
| 84 | | | 5 | 5 | | | | 5 | | | | | | | | | | | 1 | | | | | 1 | | | |

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|---|---|---|---|---|---|
| 1 | Exist Historical Bollards | 8 | Necking | 14a | Missing From Top Up | 19 | Old Repair | 25 | New Historical Bollards |
| 2 | Any part broken/ cracked | 9 | Dirt is high | 14b | Missing From Middle Up | 20 | End post loose from base | | |
| 3 | Welds broken | 10 | Bolt | 15 | Missing End Post | 21 | Replace Pipe Bollards with Historical | | |
| 4 | Welds rusted | 11 | Leaning | 16 | Missing Pineapple | 22 | Missing top horiz. Bar | | |
| 5 | Spliced in bars | 12 | Entire Section Missing | 17 | Concrete Base | 23 | Conn piece between bottom config and end post | | |
| 6 | Out of alignment | 13 | Missing Vert. Post | 18 | Deter. Concrete Base | 24 | Weld needs to be reattached. | | |
| 7 | Sagging | | | | | | | | |

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | Hole in the end post near the base. Bracket was installed on the underside of the top horizontal bar between 3 vertical posts. |
| 86 | | | | | 1 | | | 3 | | | | | | | | | | | | | 1 | | | | | | |
| 87 | | | 9 | 7 | 1 | 1 | 1 | | 1 | | 1 | | 2 | 1 | | | | | | | | | | 1 | | | |
| 88 | | | 2 | 2 | 1 | | | 6 | | | | | | 1 | | | | | | | 1 | | | 2 | | | 2 of the vertical posts are shorter than the others (#3 and #6) |
| 89 | | | | | 2 | | | 2 | | 1 | | | | | | | | | | | | | | | | | |
| 90 | | | 1 | | | | | 4 | 1 | 2 | | | | | | | | | | | 1 | | | | | | |
| 91 | | | 5 | 4 | 1 | | | 1 | | 1 | | | | | | | | | | | | | | 1 | | | |
| 92 | | 1 | | | 1 | | | 5 | | | | | | | | | | | 1 | 1 | 1 | | | | | | Sealant-filled, vertical crack down the length of the end post. Vertical posts are all different heights. |
| 93 | | | 1 | 1 | 1 | | | 6 | 1 | | | | | | 1 | | | | 1 | | | | | | | | |
| 94 | | | 3 | 1 | 2 | | | 11 | 1 | | | | | | | | | | | | 1 | | | | | | |
| 95 | | | 2 | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | |
| 96 | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant around repaired weld is pulling awa around lower horizontal connection to end post. |
| 97 | | | | | | | | | | | | | 17 | | | | | | | | 1 | | | | | | Bottom configuration still in tact. |
| 98 | | | 1 | | | | | | | | | | 17 | | 1 | | | | | | | | | | | | Bottom configuration still in tact. |
| 99 | | | 1 | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | Sealant around repaired weld is pulling awa around lower horizontal connection to end post. |
| 100 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 101 | | | | | | | | | 1 | | | | | | | | | | | 1 | 1 | | | | | | End post cap was previously reattached, still shows crack |
| 102 | | | | | | | | | 1 | | | | | | | | | | 1 | | 1 | | | | | | The base is 1/2 broken and appears to have been replaced with 2 pieces of concrete to keep balanced. |
| 103 | | | | 1 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Crack around the end post was previously repaired. |
| 104 | | 1 | 1 | 2 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | There is a crack around the end post at (14B), filled with sealant. |
| 105 | | | | | 2 | | | | 1 | | | | | | | | 1 | | | | | | | | | | |
| 106 | | | 5 | | 4 | | 1 | 4 | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack around pineapple. |
| 107 | | 1 | | 1 | 2 | | | 3 | 1 | | | | | | 1 | | | | | | 1 | | | | | | "Hairline" crack near bottom of end post. |
| 108 | | 1 | | | 5 | | | 7 | 1 | | | | | | | | | | | | | | | | 1 | | Crack to be welded is at 14A |
| 109 | | 3 | 2 | 2 | 2 | | | | 1 | | | | | | | | | | | 1 | | | | | 2 | | Around pineapple and at (14A) |
| 110 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | This is an opening. The old repair is a vertical crack down the front of the end post that has been filled with sealant. |
| 111 | | | | | | | | | | | | | | | | | | | | | | | | | | | This is a gate. No problems. |
| 112 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | This is an opening with 2 bollards. One of the bollards is not secured. The 2 bollards are different styles |
| 113 | | | | | | | | | 1 | | | | 17 | | | 1 | | | | | | | | | | | |
| 114 | | | | | 1 | | | 3 | 1 | | | | 1 | | | | | | | | | | | | | | Top of one vertical post is missing. |
| 115 | | | 1 | 2 | 1 | | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | |
| 116 | | | 1 | | 2 | | | | 1 | 1 | | | | | | | | | | | 1 | | | 1 | | | |
| 117 | | 1 | 4 | 5 | 2 | | | 3 | 1 | 1 | | | | | | | | | | | 1 | | | | | | Old, sealant-filled crack near bottom of end post. |
| 118 | | | | | | | | 2 | 1 | | | | 1 | | | | | | | | | | | | | | The missing top piece of a vertical post. |
| 119 | | | 4 | 2 | | | | 2 | 1 | | | | | | | | | | | | 1 | | | | | | |
| 120 | | | | | 1 | | | 2 | 1 | | | | | | | | | | | | | | | | | | |
| 121 | | | | | | | | 1 | 1 | | | | | | 1 | | | | | | | | | 1 | | | |

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| 1 | Exist Historical Bollards | | | | 8 | Necking | | | 14a | Missing From Top Up | | | | 19 | Old Repair | | | | | 25 | New Historical Bollards | | | | |
| 2 | Any part broken/ cracked | | | | 9 | Dirt is high | | | 14b | Missing From Middle Up | | | | 20 | End post loose from base | | | | | | | | | | |
| 3 | Welds broken | | | | 10 | Bolt | | | 15 | Missing End Post | | | | 21 | Replace Pipe Bollards with Historical | | | | | | | | | | |
| 4 | Welds rusted | | | | 11 | Leaning | | | 16 | Missing Pineapple | | | | 22 | Missing top horiz. Bar | | | | | | | | | | |
| 5 | Spliced in bars | | | | 12 | Entire Section Missing | | | 17 | Concrete Base | | | | 23 | Conn piece between bottom config and end post | | | | | | | | | | |
| 6 | Out of alignment | | | | 13 | Missing Vert. Post | | | 18 | Deter. Concrete Base | | | | 24 | Weld needs to be reattached. | | | | | | | | | | |
| 7 | Sagging | | | | | | | | | | | | | | | | | | | | | | | | |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Section # | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 122 | | | 1 | | | | | | 1 | | | | | | | | | | | | 1 | | | | | | |
| 123 | | 1 | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack at (14B) |
| 124 | | | 2 | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 125 | | 2 | 1 | | | | | | 1 | | | | | | | | | | | 1 | | | | | 1 | | Spot of rusted paint . Sealant-filled crack at (14B) |
| 126 | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | This is an open section with 3 bollards. All 3 bollards are loose. Pineapple needs to be reattached. Sealant-filled crack at (14B) |
| 127 | | | 2 | 2 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | Sealant around bottom connection to 2nd base is pulling away |
| 129 | | | 1 | 4 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 130 | | | | 2 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 131 | | 1 | 1 | 3 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack around (14B) |
| 132 | | 1 | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack around (14B) |
| 133 | | 1 | | 3 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack around (14B) |
| 134 | | | 2 | 2 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 135 | | 1 | 3 | 3 | | | | | 1 | | | | | | | | | | | | 1 | | | | 1 | | Sealant-filled crack around (14B) and weld broken at pineapple. |
| 136 | | 1 | | 1 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack around (14B). |
| 137 | | 1 | | 2 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack around (14B). |
| 138 | | | 1 | 4 | | | | | 1 | | | | | | | | | | | | | | | | | | Rusted "seam" on end post |
| 139 | | | 2 | 8 | | | | | 1 | | | | | 1 | | | | | | | | | | | 1 | | |
| 140 | | | 1 | 1 | | | | | 1 | | | | 17 | | | | | | | | 1 | | 1 | | | | |
| 141 | | | 22 | 18 | | 1 | | | 1 | | 1 | | | | 1 | | | | | | | | | | | | End post is missing from below the top vertical bar |
| 142 | | | 3 | 5 | 2 | | | 2 | 1 | 1 | | | | | | | | | | | | | | | | | |
| 143 | | | 8 | 4 | 2 | | | | 1 | 1 | | | 1 | | | | | | | | | | | | 2 | | |
| 144 | | | | 1 | 1 | 1 | | 4 | 1 | | 1 | | | | | | | | 1 | | | | | | | | |
| 145 | | | 3 | 4 | 1 | 1 | | 2 | 1 | | 1 | | | | | | | | | | 1 | | | | 1 | | Bottom configuration piece has 3 cracks. |
| 146 | | | 15 | 20 | | 1 | | | 1 | | 1 | | 2 | | | | | | | | 1 | | 1 | | | | 2 missing pieces are tops of vertical posts and the top horizontal bar is cracked. |
| 147 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 2 | This is an opening with 1 bollard. The bollard is leaning and not secure to the ground. |
| 148 | | | 13 | 11 | | | | 1 | 1 | | | | | | | | | | | | | | | | 1 | | |
| 149 | | 2 | 9 | 8 | 1 | | | | | | | | 1 | | | | | | | | | | | | | | There are (2) cracks in the bottom configuration. |
| 150 | | | 13 | 13 | 1 | | | | | | | | 1 | | | | | | | | | | | | 1 | | |
| 151 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| 152 | | | 19 | 20 | | | | | | | | | | | | | | | | | 1 | | | | 1 | | |
| 153 | | | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | |
| 154 | | 2 | | 7 | | | | 6 | | | | | 1 | | | | | | 1 | | | | | | 2 | | Around pineapple and (14A) |
| 155 | | | 3 | 1 | | | | 1 | | | | | | | | | | | | | | | | | | | |
| 156 | | | 2 | 2 | | | | | | | | | | | | | | | 1 | | | | | | | | |
| 157 | | 1 | | | | | | | | | | | | | | | | | 1 | | | | | | 1 | | Around (14A) |
| 158 | | | 4 | 4 | | | | 2 | | | | | | 1 | | | | | | | 1 | | | | | | |
| 159 | | | 8 | 5 | | | | 2 | | | | | | | | | | | | | | | | | 1 | | |
| 160 | | | 3 | 7 | | | 1 | 3 | | | | | | 1 | | | | | | | | | | | 2 | | Small piece of lower horizontal bar that connects lower piece to end post is missing. |
| 161 | | 1 | 7 | 6 | | | 1 | 2 | | | | | | | | | | | | | | | | | 2 | | Big crack near the bottom of the end post. |

# 11195 Salem Fence Restoration Survey

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Exist Historical Bollards | 8 | Necking | 14a | Missing From Top Up | 19 | Old Repair | 25 | New Historical Bollards | | | | | | | | | | | | | | | | |
| 2 | Any part broken/ cracked | 9 | Dirt is high | 14b | Missing From Middle Up | 20 | End post loose from base | | | | | | | | | | | | | | | | | | |
| 3 | Welds broken | 10 | Bolt | 15 | Missing End Post | 21 | Replace Pipe Bollards with Historical | | | | | | | | | | | | | | | | | | |
| 4 | Welds rusted | 11 | Leaning | 16 | Missing Pineapple | 22 | Missing top horiz. Bar | | | | | | | | | | | | | | | | | | |
| 5 | Spliced in bars | 12 | Entire Section Missing | 17 | Concrete Base | 23 | Conn piece between bottom config and end post | | | | | | | | | | | | | | | | | | |
| 6 | Out of alignment | 13 | Missing Vert. Post | 18 | Deter. Concrete Base | 24 | Weld needs to be reattached. | | | | | | | | | | | | | | | | | | |
| 7 | Sagging | | | | | | | | | | | | | | | | | | | | | | | | |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Section # | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 162 | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | |
| 163 | | | 2 | 1 | 2 | | 1 | 2 | | | | | | | | | | | | | 1 | | | 1 | | | |
| 164 | | | 4 | 4 | | | 1 | 2 | | | | | | | | | | | 1 | | | | | 1 | | | |
| 165 | | | 2 | 2 | 1 | | 1 | 2 | | | | | | | 1 | | | | | | | | | | | | Connection to the end post is held on with an exterior bracket but is not aligned with the opening in the concrete base (see photo). |
| 166 | | | 5 | 4 | 1 | | | | | | | | | | 1 | | | | | | 1 | | | 1 | | | |
| 167 | | | 6 | 7 | 2 | | | | 1 | | | | | 1 | | | | | | | 1 | | | 1 | | | |
| 168 | | | 25 | 23 | 1 | | 1 | | 1 | | | | 1 | | 1 | | | | | | 1 | | | 2 | | | |
| 169 | | | 3 | 5 | 1 | | | 1 | | | | | | | | | | | | | 1 | | | | | | |
| 170 | | 4 | 11 | 9 | 1 | | 1 | | | | | | | | | | | | | | 1 | | | | | | The bottom configuration is cracked in half (in (4) places) |
| 171 | | | 1 | 2 | | | | | | | | | 13 | | | 1 | | | | | | | 1 | 1 | | | missing small piece of horizontal bar on the bottom where it connects to the end post base |
| 172 | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 2 | This is an opening with 1 bollard. The bollard is not secure to the ground |
| 173 | | | 14 | 13 | 3 | | | | | | | | | | | | | | | | | | | 1 | | | |
| 174 | | | 3 | | 1 | | | 1 | 1 | | | | | | | | 1 | | | | 1 | | | 1 | | | |
| 175 | | | 1 | | 1 | | 1 | | 1 | | | | | | | | | | | | 1 | | 1 | 1 | | | |
| 176 | | | | | 3 | | | 1 | 1 | | | | | | | | | | | | | | | | | | |
| 177 | | | | | | 2 | | 1 | 1 | 1 | | | | | 1 | | | | | | | | | | | | |
| 178 | | | | | 1 | | | | 1 | 1 | | | | | | | | | | | | | | | | | The end post cap has a different, matte black paint on it than the rest of the fence. |
| 179 | | 1 | 2 | | 1 | | | | 1 | | | | | | 1 | | | | | | | | | | | | |
| 180 | | | 9 | 8 | 3 | | | 15 | 1 | | | | | | | | | | | | 1 | | | | | | |
| 181 | | | 5 | 3 | 2 | | | | 1 | | | | | | | | | | | | | | | 2 | | | |
| 182 | | | | 1 | 2 | | | 2 | 1 | | | | | | | | | | | | | | | | | | The end post cap has a different, matte black paint on it than the rest of the fence. |
| 183 | | | | | 1 | | | | | | | | 2 | | | | | | | | | | | | | | |
| 184 | | | 16 | 13 | | | | | | | | | | | | | | | | | | | | 1 | | | |
| 185 | | | | | 2 | | | 5 | 1 | | | | | | | | | | | | 1 | | | | | | |
| 186 | | | 1 | 17 | | | | | | | | | | | | | | | | | | | | | | | |
| 187 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 188 | | | 1 | 4 | | | | | 1 | | | | | | | | | | | | 1 | | | | | | |
| 189 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 190 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 191 | | | 8 | 24 | | | | | | | | | | | | | | | | | | | | | | | |
| 192 | | | 18 | 22 | | | | | 1 | | | | | 1 | | 1 | | | | | | | | | | | Part of the end post is there but has large crack down the entire front. |
| 193 | | | 13 | 17 | 1 | | | | 1 | | | | | 1 | | | | | | | | | | | | | |
| 194 | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | |
| 195 | | | | | | | | | 1 | 2 | | | | | | | | | | | | | | | | | |
| 196 | | | 1 | | | | | | 1 | 2 | | | | | | | | | | | | | | | | | |
| 197 | | | | 2 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 198 | | 1 | | 2 | | | | | 1 | | | | | | | | | | | 1 | | | | | | | Sealant-filled crack at 14B |
| 199 | | 1 | | | | | | | 1 | | | | 17 | | | 1 | | | | 1 | | | 1 | | | | Sealant-filled crack at 14B |
| 200 | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | The end post is missing the cap and part of the pole. This is an opening with no bollards. |

# 11195 Salem Fence Restoration Survey

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Exist Historical Bollards | | 8 | Necking | | 14a | Missing From Top Up | | 19 | Old Repair | | 25 | New Historical Bollards | | | | | | | | | | | | |
| 2 | Any part broken/ cracked | | 9 | Dirt is high | | 14b | Missing From Middle Up | | 20 | End post loose from base | | | | | | | | | | | | | | | |
| 3 | Welds broken | | 10 | Bolt | | 15 | Missing End Post | | 21 | Replace Pipe Bollards with Historical | | | | | | | | | | | | | | | |
| 4 | Welds rusted | | 11 | Leaning | | 16 | Missing Pineapple | | 22 | Missing top horiz. Bar | | | | | | | | | | | | | | | |
| 5 | Spliced in bars | | 12 | Entire Section Missing | | 17 | Concrete Base | | 23 | Conn piece between bottom config and end post | | | | | | | | | | | | | | | |
| 6 | Out of alignment | | 13 | Missing Vert. Post | | 18 | Deter. Concrete Base | | 24 | Weld needs to be reattached. | | | | | | | | | | | | | | | |
| 7 | Sagging | | | | | | | | | | | | | | | | | | | | | | | | |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Section # | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 201 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| 202 | | | | 17 | 2 | | | 4 | 1 | | | | | | | | | | | | | | | | | | There is excesive bright white sealant on the top and bottom connections of the vertical posts. |
| 203 | | | | 35 | 1 | | | | | | | | | | | | | | | | | | | 1 | | | There is excessive bright white sealant on the top and bottom connections of the vertical posts. |
| 204 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | The end post cap is very loose and will likely come off soon. Tops and bottoms of vertical posts are filled with sealant. |
| 205 | | | 1 | 5 | 3 | | | 10 | | | | | | 1 | | 1 | | | | | 1 | | | | | | All of the top connections of the vertical posts are filled with white sealant. End post is there (below 14A), but has a vertical crack. |
| 206 | | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | All top and bottom connections of the vertical posts are filled with white sealant. |
| 207 | | | 3 | 6 | 1 | | | 1 | | | | | | | | | | | | | | | | | 2 | | All top and bottom connections of the vertical posts are filled with white sealant. Welds to be repaired at pineapple at (14A). |
| 208 | | | 4 | 7 | 2 | | | 2 | | | | | 1 | | | | | | | | | | | 2 | | | All top and bottom connections of the vertical posts are filled with white sealant. |
| 209 | | | 5 | 6 | | | | | | | | | 2 | | | | | | | | | | | 1 | | | All top and bottom connections of the vertical posts are filled with white sealant. |
| 210 | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | |
| 211 | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | 2 | | | Small horizontal connector piece between the bottom section and the end post is missing. There is white sealant on all of the top and bottom connections. |
| 212 | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | | There is a horizontal crack across the end post cap, but it is still attached. |
| 213 | | | 2 | | 2 | | | | | | | | | | | | | | | | | | | | | | |
| 214 | | | 1 | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | The connection between the lower horizontal section and the end post is not a good fit (bar is much smaller than the opening) and it is filled all around with sealant. |
| 215 | | | 3 | 5 | 1 | | | | | | | | 1 | | 1 | | 1 | | | | 1 | | | 1 | | | The missing piece is part of the horizontal bar that connects the lower horizontal section to the end post. |
| 216 | | | 1 | 4 | 1 | | | 2 | | | | | | | 1 | | | | | | | | | | | | The end post cap is still there, but is cracked above (14B). The pineapple is there, but is not attached. |
| 217 | | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | The end post is there, but has many cracks in it. |
| 218 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | Weld is broken around the pineapple. |
| 219 | | | | 1 | | | | | | | | | | | | | | | 1 | 2 | | | | | 1 | | Around the pineapple and across the middle of the end post are cracks that were previously repaired with sealant. Weld needs to be repaired at (14A) |
| 220 | | | 1 | 2 | | | | | | | | | | | | | | | | | | | | | 1 | | Crack at (14A) |
| 221 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 222 | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | The pineapple has been reattached with sealant but is not flush. The bottom connection to the end post is filled in with a huge "glob" of sealant. |
| 223 | | | | 3 | | | | | | | | | | 1 | | | | | | | | | | | | | There is a large crack around the end post cap. |
| 224 | | | 19 | 2 | | | | | | | | | 1 | | 1 | | | | | | | | | | | | This section is very unstable and the bottom connections of the vertical post are all either broken or very, very close to breaking. The whole section wobbles. |

# 11195 Salem Fence Restoration Survey

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| | | | | | |
|---|---|---|---|---|---|
| 1 | Exist Historical Bollards | 8 | Necking | 14a | Missing From Top Up | 19 | Old Repair | 25 | New Historical Bollards |
| 2 | Any part broken/ cracked | 9 | Dirt is high | 14b | Missing From Middle Up | 20 | End post loose from base | | |
| 3 | Welds broken | 10 | Bolt | 15 | Missing End Post | 21 | Replace Pipe Bollards with Historical | | |
| 4 | Welds rusted | 11 | Leaning | 16 | Missing Pineapple | 22 | Missing top horiz. Bar | | |
| 5 | Spliced in bars | 12 | Entire Section Missing | 17 | Concrete Base | 23 | Conn piece between bottom config and end post | | |
| 6 | Out of alignment | 13 | Missing Vert. Post | 18 | Deter. Concrete Base | 24 | Weld needs to be reattached. | | |
| 7 | Sagging | | | | | | | | |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Section # | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 225 | | | 10 | 13 | 3 | | | 5 | | | | | | | 1 | | | | | | | | | 1 | | | |
| 226 | | | 15 | 17 | 3 | | | | | | 1 | | 1 | | 1 | | | | | | | | | | | | |
| 227 | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | This is an opening with 2 bollards. Bollard #2 (closest to Setion 228) is not secure to the ground. |
| 228 | | | | 1 | 2 | | | | | | | | | | | | | | 1 | | 1 | | | | | | The base of the 2nd end post is significantly deteriorated. |
| 229 | | | | | | | | | | | | 1 | | | | | | | 1 | | 1 | | | | | | The end post is still in place, but the rest is missing. |
| 230 | | | 4 | 1 | | | | | 1 | 1 | | | | | 1 | | | | | | 1 | | | | | | There is a crack in the end post, near where the cap would be that runs semi-vertically. |
| 231 | | | | | 1 | | | | | 2 | | | | | | | | | | | 1 | | | | | | |
| 232 | | | | 6 | 2 | | | | | 1 | | | | | | | | | | | | | | 2 | | | The (2) cracks are in the bottom sections. |
| 233 | | | | | 2 | | | | | | | | | | | | | | | | 1 | | | | | | |
| 234 | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | There is (1) crack in the bottom configuratin, near the last vertical post.. Weld to be repaired is at (14B) |
| 235 | 1 | | | | | | | 6 | | | | | | | 1 | | | | | | | | | | | | (1) of the small vertical pieces below the bottom of the bottom rail is missing. |
| 236 | | 1 | | | | | | | | | | | | | | 1 | | | 1 | | | | | | | | The end post is still there, but is cracked at the bottom. |
| 237 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |
| 238 | | 1 | 3 | | 1 | | | 1 | | | | | 1 | | 1 | | | | | | 1 | | | | | | The end post cap is severely crackd and is causing the cap to lean. |
| 239 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | This is an opening with 3 bollards. All are solid an secure. The crack is a vertical crack in the end post, near the base. |
| 240 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | This is a "gate" with granite end posts. The top right (when looking from the street) has a broken weld in the back. The 2nd post from the right has a broken weld at the top. |
| 241 | | | | | | | | | | | | | | | | | | | | | | | | | | | This is a gate. The top right connection (when looking from the street) is precarious. Granite is spalled around the connection. |
| 242 | | | | | | | | | | | | | | | | | | | | | | | | | | | This is a gate. The top right connection (when looking from the street), the granite is spalled on the Commons side. |
| 243 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | This is an opening with 3 bollards. All are solid and secure. |
| 244 | | | 2 | 1 | | | | | 1 | | | | 1 | | | | | | | | | | | | | | The crack is horizontal across the vertical post |
| 245 | | | 8 | 14 | | | | 1 | 1 | | | | | | | | | | | | | | | 2 | | | At the pineapple and the (14A) |
| 246 | | | 7 | 11 | 2 | | | 3 | 1 | | | | | | 1 | | | | | | | | | 1 | | | There is a vertical crack on the bottom section and there is an old repaired crack on the end post cap. |
| 247 | | | 6 | 17 | | | | 4 | 1 | | | | | | | | | | | | 1 | | | | | | |
| 248 | | | 14 | 14 | 3 | | | 1 | 1 | | | | 1 | | | | | | | | | | | | | | |
| 249 | | | 4 | 14 | 1 | | | 1 | 1 | | | | | | | 1 | | | | | | | | | | | The end post is there, but is cracked at the bottom. |
| 250 | | | | 2 | | | | | 1 | | | | | | | | | | | | | | | | 1 | | (14A) needs to be reattached. |
| 251 | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | | | | There is a temporary construction sign in the middle of this fence that may make work trickier. |
| 252 | | | 1 | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | There is a roadway sign in the middle of this section. |
| 253 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | This is a curved opening with (7) bollards on the street corner. All are secure. |

# 11195 Salem Fence Restoration Survey

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| 1 | Exist Historical Bollards | | | | 8 | Necking | | 14a | Missing From Top Up | | | 19 | Old Repair | | | | | 25 | New Historical Bollards | | | | | | |
| 2 | Any part broken/ cracked | | | | 9 | Dirt is high | | 14b | Missing From Middle Up | | | 20 | End post loose from base | | | | | | | | | | | | |
| 3 | Welds broken | | | | 10 | Bolt | | 15 | Missing End Post | | | 21 | Replace Pipe Bollards with Historical | | | | | | | | | | | | |
| 4 | Welds rusted | | | | 11 | Leaning | | 16 | Missing Pineapple | | | 22 | Missing top horiz. Bar | | | | | | | | | | | | |
| 5 | Spliced in bars | | | | 12 | Entire Section Missing | | 17 | Concrete Base | | | 23 | Conn piece between bottom config and end post | | | | | | | | | | | | |
| 6 | Out of alignment | | | | 13 | Missing Vert. Post | | 18 | Deter. Concrete Base | | | 24 | Weld needs to be reattached. | | | | | | | | | | | | |
| 7 | Sagging | | | | | | | | | | | | | | | | | | | | | | | | |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | Misc. Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Section # | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sub-Totals | 17 | 54 | 702 | 828 | 143 | 14 | 18 | 256 | 96 | 24 | 10 | 13 | 150 | 18 | 23 | 13 | 7 | 1 | 23 | 42 | 49 | 9 | 5 | 56 | 25 | 12 | |
| Unit Costs - Dollars | 650 | | 10 | 10 | 75 | | | 50 | 26 | 65 | | 7475 | 193 | 250 | 485 | 848 | 75 | 250 | 250 | 65 | 130 | 1400 | 421 | 125 | 65 | 1050 | |
| Sub-Totals - Dollars | 11050 | 0 | 7020 | 8280 | 10725 | 0 | 0 | 12800 | 2496 | 1560 | 0 | 97175 | 28950 | 4500 | 11155 | 11024 | 525 | 250 | 5750 | 2730 | 6370 | 12600 | 2105 | 7000 | 1625 | 12600 | |

| | | |
|---|---|---|
| Replace Broken Pieces | $ | 258,290.00 |
| Typical Renovation Tasks | $ | 710,950.00 |
| Expansion Connections at Each | $ | 42,350.00 |
| Sub-Total | $ | **1,011,590.00** |
| 10% Design Contingency | $ | 101,159.00 |
| Sub-Total | $ | **1,112,749.00** |
| 10% Construction Contingency | $ | 111,274.90 |
| Project Total | $ | **1,223,812.00** |

CBI CONSULTING INC.

CBI

PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Cost Estimate
# Per Fence Section

# Salem Common Fence Restoration
# Salem, Massachusetts

OFFICES
BOSTON
MIAMI

T 617 • 268.8977
F 617 • 464.2971
cbiconsultinginc.com

250 DORCHESTER AVENUE • BOSTON, MASSACHUSETTS 02127

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | TOTALS | Replace Broken Pieces | Typical Renovation Tasks | Expansion Connections at Each | SUB-TOTAL | 10% Design Contingency | SUB-TOTAL | 10% Construction Contingency | Total Per Fence Section |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 100 | 100 | 75 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 193 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 794 | 794 | 2950 | 175 | $ 3,919.00 | $ 391.90 | $ 4,310.90 | $ 431.09 | $ 4,741.99 |
| 2 | 0 | 0 | 120 | 80 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 485 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1559 | 1559 | 2950 | 175 | $ 4,684.00 | $ 468.40 | $ 5,152.40 | $ 515.24 | $ 5,667.64 |
| 3 | 0 | 0 | 30 | 30 | 75 | 0 | 0 | 0 | 26 | 65 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 419 | 419 | 2950 | 175 | $ 3,544.00 | $ 354.40 | $ 3,898.40 | $ 389.84 | $ 4,288.24 |
| 4 | 0 | 0 | 50 | 60 | 75 | 0 | 0 | 50 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 300 | 300 | 2950 | 175 | $ 3,425.00 | $ 342.50 | $ 3,767.50 | $ 376.75 | $ 4,144.25 |
| 5 | 0 | 0 | 10 | 0 | 75 | 0 | 0 | 350 | 26 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 711 | 711 | 2950 | 175 | $ 3,836.00 | $ 383.60 | $ 4,219.60 | $ 421.96 | $ 4,641.56 |
| 6 | 0 | 0 | 20 | 10 | 0 | 0 | 0 | 100 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 250 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 781 | 781 | 2950 | 175 | $ 3,906.00 | $ 390.60 | $ 4,296.60 | $ 429.66 | $ 4,726.26 |
| 7 | 0 | 0 | 50 | 40 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 181 | 181 | 2950 | 175 | $ 3,306.00 | $ 330.60 | $ 3,636.60 | $ 363.66 | $ 4,000.26 |
| 8 | 0 | 0 | 20 | 40 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 86 | 2950 | 175 | $ 3,211.00 | $ 321.10 | $ 3,532.10 | $ 353.21 | $ 3,885.31 |
| 9 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 95 | 2950 | 175 | $ 3,220.00 | $ 322.00 | $ 3,542.00 | $ 354.20 | $ 3,896.20 |
| 10 | 0 | 0 | 10 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 | 2950 | 175 | $ 3,165.00 | $ 316.50 | $ 3,481.50 | $ 348.15 | $ 3,829.65 |
| 11 | 0 | 0 | 20 | 40 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 86 | 2950 | 175 | $ 3,211.00 | $ 321.10 | $ 3,532.10 | $ 353.21 | $ 3,885.31 |
| 12 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 60 | 2950 | 175 | $ 3,185.00 | $ 318.50 | $ 3,503.50 | $ 350.35 | $ 3,853.85 |
| 13 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 60 | 2950 | 175 | $ 3,185.00 | $ 318.50 | $ 3,503.50 | $ 350.35 | $ 3,853.85 |
| 14 | 0 | 0 | 10 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 650 | 650 | 2950 | 175 | $ 3,775.00 | $ 377.50 | $ 4,152.50 | $ 415.25 | $ 4,567.75 |
| 15 | 0 | 0 | 0 | 30 | 150 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 2950 | 175 | $ 3,455.00 | $ 345.50 | $ 3,800.50 | $ 380.05 | $ 4,180.55 |
| 16 | 0 | 0 | 10 | 30 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 115 | 2950 | 175 | $ 3,240.00 | $ 324.00 | $ 3,564.00 | $ 356.40 | $ 3,920.40 |
| 17 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 280 | 280 | 2950 | 175 | $ 3,405.00 | $ 340.50 | $ 3,745.50 | $ 374.55 | $ 4,120.05 |
| 18 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105 | 105 | 2950 | 175 | $ 3,230.00 | $ 323.00 | $ 3,553.00 | $ 355.30 | $ 3,908.30 |
| 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 75 | 2950 | 175 | $ 3,200.00 | $ 320.00 | $ 3,520.00 | $ 352.00 | $ 3,872.00 |
| 20 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 2950 | 175 | $ 3,135.00 | $ 313.50 | $ 3,448.50 | $ 344.85 | $ 3,793.35 |
| 21 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 2950 | 175 | $ 3,155.00 | $ 315.50 | $ 3,470.50 | $ 347.05 | $ 3,817.55 |
| 22 | 0 | 0 | 10 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 2950 | 175 | $ 3,175.00 | $ 317.50 | $ 3,492.50 | $ 349.25 | $ 3,841.75 |
| 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2950 | 175 | $ 3,125.00 | $ 312.50 | $ 3,437.50 | $ 343.75 | $ 3,781.25 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 26 | 2950 | 175 | $ 3,151.00 | $ 315.10 | $ 3,466.10 | $ 346.61 | $ 3,812.71 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2950 | 175 | $ 3,125.00 | $ 312.50 | $ 3,437.50 | $ 343.75 | $ 3,781.25 |
| 26 | 0 | 0 | 40 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 100 | 2950 | 175 | $ 3,225.00 | $ 322.50 | $ 3,547.50 | $ 354.75 | $ 3,902.25 |
| 27 | 0 | 0 | 120 | 10 | 0 | 0 | 0 | 400 | 0 | 0 | 0 | 0 | 193 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 1098 | 1098 | 2950 | 175 | $ 4,223.00 | $ 422.30 | $ 4,645.30 | $ 464.53 | $ 5,109.83 |
| 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 7540 | 7540 | 2950 | 175 | $ 10,665.00 | $ 1,066.50 | $ 11,731.50 | $ 1,173.15 | $ 12,904.65 |
| 29 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 350 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 848 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 1283 | 1283 | 2950 | 175 | $ 4,408.00 | $ 440.80 | $ 4,848.80 | $ 484.88 | $ 5,333.68 |
| 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 7475 | 2950 | 175 | $ 10,600.00 | $ 1,060.00 | $ 11,660.00 | $ 1,166.00 | $ 12,826.00 |
| 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 7475 | 2950 | 175 | $ 10,600.00 | $ 1,060.00 | $ 11,660.00 | $ 1,166.00 | $ 12,826.00 |
| 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 7475 | 2950 | 175 | $ 10,600.00 | $ 1,060.00 | $ 11,660.00 | $ 1,166.00 | $ 12,826.00 |
| 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 7475 | 2950 | 175 | $ 10,600.00 | $ 1,060.00 | $ 11,660.00 | $ 1,166.00 | $ 12,826.00 |
| 34 | 0 | 0 | 40 | 40 | 300 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 125 | 0 | 0 | 570 | 570 | 2950 | 175 | $ 3,695.00 | $ 369.50 | $ 4,064.50 | $ 406.45 | $ 4,470.95 |
| 35 | 0 | 0 | 30 | 20 | 150 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 300 | 300 | 2950 | 175 | $ 3,425.00 | $ 342.50 | $ 3,767.50 | $ 376.75 | $ 4,144.25 |
| 36 | 0 | 0 | 40 | 30 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 285 | 285 | 2950 | 175 | $ 3,410.00 | $ 341.00 | $ 3,751.00 | $ 375.10 | $ 4,126.10 |
| 37 | 0 | 0 | 30 | 40 | 0 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 125 | 0 | 0 | 336 | 336 | 2950 | 175 | $ 3,461.00 | $ 346.10 | $ 3,807.10 | $ 380.71 | $ 4,187.81 |
| 38 | 0 | 0 | 20 | 10 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 430 | 430 | 2950 | 175 | $ 3,555.00 | $ 355.50 | $ 3,910.50 | $ 391.05 | $ 4,301.55 |
| 39 | 0 | 0 | 10 | 130 | 75 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 330 | 330 | 2950 | 175 | $ 3,455.00 | $ 345.50 | $ 3,800.50 | $ 380.05 | $ 4,180.55 |
| 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2950 | 175 | $ 3,125.00 | $ 312.50 | $ 3,437.50 | $ 343.75 | $ 3,781.25 |
| 41 | 0 | 0 | 50 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 145 | 145 | 2950 | 175 | $ 3,270.00 | $ 327.00 | $ 3,597.00 | $ 359.70 | $ 3,956.70 |
| 42 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 95 | 95 | 2950 | 175 | $ 3,220.00 | $ 322.00 | $ 3,542.00 | $ 354.20 | $ 3,896.20 |
| 43 | 0 | 0 | 20 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 125 | 125 | 2950 | 175 | $ 3,250.00 | $ 325.00 | $ 3,575.00 | $ 357.50 | $ 3,932.50 |
| 44 | 0 | 0 | 50 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 145 | 145 | 2950 | 175 | $ 3,270.00 | $ 327.00 | $ 3,597.00 | $ 359.70 | $ 3,956.70 |
| 45 | 0 | 0 | 70 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 140 | 140 | 2950 | 175 | $ 3,265.00 | $ 326.50 | $ 3,591.50 | $ 359.15 | $ 3,950.65 |
| 46 | 0 | 0 | 40 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 145 | 145 | 2950 | 175 | $ 3,270.00 | $ 327.00 | $ 3,597.00 | $ 359.70 | $ 3,956.70 |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | TOTALS | Replace Broken Pieces | Typical Renovation Tasks | Expansion Connections at Each | SUB-TOTAL | 10% Design Contingency | SUB-TOTAL | 10% Construction Contingency | Total Per Fence Section |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 0 | 0 | 230 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 495 | 495 | 2950 | 175 | $ 3,620.00 | $ 362.00 | $ 3,982.00 | $ 398.20 | $ 4,380.20 |
| 48 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 95 | 2950 | 175 | $ 3,220.00 | $ 322.00 | $ 3,542.00 | $ 354.20 | $ 3,896.20 |
| 49 | 0 | 0 | 20 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 280 | 280 | 2950 | 175 | $ 3,405.00 | $ 340.50 | $ 3,745.50 | $ 374.55 | $ 4,120.05 |
| 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 276 | 276 | 2950 | 175 | $ 3,401.00 | $ 340.10 | $ 3,741.10 | $ 374.11 | $ 4,115.21 |
| 51 | 0 | 0 | 40 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 125 | 2950 | 175 | $ 3,250.00 | $ 325.00 | $ 3,575.00 | $ 357.50 | $ 3,932.50 |
| 52 | 0 | 0 | 40 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 115 | 2950 | 175 | $ 3,240.00 | $ 324.00 | $ 3,564.00 | $ 356.40 | $ 3,920.40 |
| 53 | 0 | 0 | 30 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 110 | 2950 | 175 | $ 3,235.00 | $ 323.50 | $ 3,558.50 | $ 355.85 | $ 3,914.35 |
| 54 | 0 | 0 | 30 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 105 | 105 | 2950 | 175 | $ 3,230.00 | $ 323.00 | $ 3,553.00 | $ 355.30 | $ 3,908.30 |
| 55 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 2950 | 175 | $ 3,175.00 | $ 317.50 | $ 3,492.50 | $ 349.25 | $ 3,841.75 |
| 56 | 0 | 0 | 50 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 145 | 145 | 2950 | 175 | $ 3,270.00 | $ 327.00 | $ 3,597.00 | $ 359.70 | $ 3,956.70 |
| 57 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 | 2950 | 175 | $ 3,165.00 | $ 316.50 | $ 3,481.50 | $ 348.15 | $ 3,829.65 |
| 58 | 0 | 0 | 90 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 150 | 2950 | 175 | $ 3,275.00 | $ 327.50 | $ 3,602.50 | $ 360.25 | $ 3,962.75 |
| 59 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 85 | 2950 | 175 | $ 3,210.00 | $ 321.00 | $ 3,531.00 | $ 353.10 | $ 3,884.10 |
| 60 | 0 | 0 | 40 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 115 | 115 | 2950 | 175 | $ 3,240.00 | $ 324.00 | $ 3,564.00 | $ 356.40 | $ 3,920.40 |
| 61 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3281 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3366 | 3366 | 2950 | 175 | $ 6,491.00 | $ 649.10 | $ 7,140.10 | $ 714.01 | $ 7,854.11 |
| 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 65 | 2950 | 175 | $ 3,190.00 | $ 319.00 | $ 3,509.00 | $ 350.90 | $ 3,859.90 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 130 | 130 | 2950 | 175 | $ 3,255.00 | $ 325.50 | $ 3,580.50 | $ 358.05 | $ 3,938.55 |
| 64 | 0 | 0 | 210 | 210 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 130 | 0 | 0 | 0 | 130 | 0 | 745 | 745 | 2950 | 175 | $ 3,870.00 | $ 387.00 | $ 4,257.00 | $ 425.70 | $ 4,682.70 |
| 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2800 | 0 | 0 | 0 | 1050 | 3850 | 3850 | | | $ 3,850.00 | $ 385.00 | $ 4,235.00 | $ 423.50 | $ 4,658.50 |
| 66 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 340 | 340 | 2950 | 175 | $ 3,465.00 | $ 346.50 | $ 3,811.50 | $ 381.15 | $ 4,192.65 |
| 67 | 0 | 0 | 20 | 10 | 300 | 0 | 0 | 500 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 1020 | 1020 | 2950 | 175 | $ 4,145.00 | $ 414.50 | $ 4,559.50 | $ 455.95 | $ 5,015.45 |
| 68 | 0 | 0 | 10 | 10 | 225 | 0 | 0 | 650 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 960 | 960 | 2950 | 175 | $ 4,085.00 | $ 408.50 | $ 4,493.50 | $ 449.35 | $ 4,942.85 |
| 69 | 0 | 0 | 20 | 20 | 300 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 640 | 640 | 2950 | 175 | $ 3,765.00 | $ 376.50 | $ 4,141.50 | $ 414.15 | $ 4,555.65 |
| 70 | 0 | 0 | 40 | 10 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 393 | 393 | 2950 | 175 | $ 3,518.00 | $ 351.80 | $ 3,869.80 | $ 386.98 | $ 4,256.78 |
| 71 | 0 | 0 | 0 | 10 | 225 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 500 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 1090 | 1090 | 2950 | 175 | $ 4,215.00 | $ 421.50 | $ 4,636.50 | $ 463.65 | $ 5,100.15 |
| 72 | 0 | 0 | 0 | 0 | 225 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 130 | 0 | 735 | 735 | 2950 | 175 | $ 3,860.00 | $ 386.00 | $ 4,246.00 | $ 424.60 | $ 4,670.60 |
| 73 | 0 | 0 | 10 | 10 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 500 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 800 | 800 | 2950 | 175 | $ 3,925.00 | $ 392.50 | $ 4,317.50 | $ 431.75 | $ 4,749.25 |
| 74 | 0 | 0 | 20 | 40 | 75 | 0 | 0 | 50 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 625 | 625 | 2950 | 175 | $ 3,750.00 | $ 375.00 | $ 4,125.00 | $ 412.50 | $ 4,537.50 |
| 75 | 0 | 0 | 60 | 20 | 75 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 250 | 0 | 0 | 1565 | 1565 | 2950 | 175 | $ 4,690.00 | $ 469.00 | $ 5,159.00 | $ 515.90 | $ 5,674.90 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 7605 | 7605 | 2950 | 175 | $ 10,730.00 | $ 1,073.00 | $ 11,803.00 | $ 1,180.30 | $ 12,983.30 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8323 | 8323 | 2950 | 175 | $ 11,448.00 | $ 1,144.80 | $ 12,592.80 | $ 1,259.28 | $ 13,852.08 |
| 78 | 1950 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2200 | 2200 | | | $ 2,200.00 | $ 220.00 | $ 2,420.00 | $ 242.00 | $ 2,662.00 |
| 79 | 0 | 0 | 40 | 50 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 563 | 563 | 2950 | 175 | $ 3,688.00 | $ 368.80 | $ 4,056.80 | $ 405.68 | $ 4,462.48 |
| 80 | 0 | 0 | 40 | 30 | 0 | 0 | 0 | 300 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 693 | 693 | 2950 | 175 | $ 3,818.00 | $ 381.80 | $ 4,199.80 | $ 419.98 | $ 4,619.78 |
| 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 7605 | 7605 | 2950 | 175 | $ 10,730.00 | $ 1,073.00 | $ 11,803.00 | $ 1,180.30 | $ 12,983.30 |
| 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8323 | 8323 | 2950 | 175 | $ 11,448.00 | $ 1,144.80 | $ 12,592.80 | $ 1,259.28 | $ 13,852.08 |
| 83 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 150 | 26 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 616 | 616 | 2950 | 175 | $ 3,741.00 | $ 374.10 | $ 4,115.10 | $ 411.51 | $ 4,526.61 |
| 84 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 725 | 725 | 2950 | 175 | $ 3,850.00 | $ 385.00 | $ 4,235.00 | $ 423.50 | $ 4,658.50 |
| 85 | 0 | 0 | 10 | 10 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 95 | 2950 | 175 | $ 3,220.00 | $ 322.00 | $ 3,542.00 | $ 354.20 | $ 3,896.20 |
| 86 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 355 | 355 | 2950 | 175 | $ 3,480.00 | $ 348.00 | $ 3,828.00 | $ 382.80 | $ 4,210.80 |
| 87 | 0 | 0 | 90 | 70 | 75 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 386 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 1022 | 1022 | 2950 | 175 | $ 4,147.00 | $ 414.70 | $ 4,561.70 | $ 456.17 | $ 5,017.87 |
| 88 | 0 | 0 | 20 | 20 | 75 | 0 | 0 | 300 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 250 | 0 | 0 | 1045 | 1045 | 2950 | 175 | $ 4,170.00 | $ 417.00 | $ 4,587.00 | $ 458.70 | $ 5,045.70 |
| 89 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 100 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 315 | 315 | 2950 | 175 | $ 3,440.00 | $ 344.00 | $ 3,784.00 | $ 378.40 | $ 4,162.40 |
| 90 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 200 | 26 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 496 | 496 | 2950 | 175 | $ 3,621.00 | $ 362.10 | $ 3,983.10 | $ 398.31 | $ 4,381.41 |
| 91 | 0 | 0 | 50 | 40 | 75 | 0 | 0 | 50 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 405 | 405 | 2950 | 175 | $ 3,530.00 | $ 353.00 | $ 3,883.00 | $ 388.30 | $ 4,271.30 |
| 92 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 65 | 130 | 0 | 0 | 0 | 0 | 0 | 770 | 770 | 2950 | 175 | $ 3,895.00 | $ 389.50 | $ 4,284.50 | $ 428.45 | $ 4,712.95 |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | TOTALS | Replace Broken Pieces | Typical Renovation Tasks | Expansion Connections at Each | SUB-TOTAL | 10% Design Contingency | SUB-TOTAL | 10% Construction Contingency | Total Per Fence Section |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 93 | 0 | 0 | 10 | 10 | 75 | 0 | 0 | 300 | 26 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1156 | 1156 | 2950 | 175 | $ 4,281.00 | $ 428.10 | $ 4,709.10 | $ 470.91 | $ 5,180.01 |
| 94 | 0 | 0 | 30 | 10 | 150 | 0 | 0 | 550 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 896 | 896 | 2950 | 175 | $ 4,021.00 | $ 402.10 | $ 4,423.10 | $ 442.31 | $ 4,865.41 |
| 95 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 176 | 176 | 2950 | 175 | $ 3,301.00 | $ 330.10 | $ 3,631.10 | $ 363.11 | $ 3,994.21 |
| 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 91 | 2950 | 175 | $ 3,216.00 | $ 321.60 | $ 3,537.60 | $ 353.76 | $ 3,891.36 |
| 97 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 3411 | 3411 | 2950 | 175 | $ 6,536.00 | $ 653.60 | $ 7,189.60 | $ 718.96 | $ 7,908.56 |
| 98 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3281 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3776 | 3776 | 2950 | 175 | $ 6,901.00 | $ 690.10 | $ 7,591.10 | $ 759.11 | $ 8,350.21 |
| 99 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 46 | 2950 | 175 | $ 3,171.00 | $ 317.10 | $ 3,488.10 | $ 348.81 | $ 3,836.91 |
| 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 26 | 2950 | 175 | $ 3,151.00 | $ 315.10 | $ 3,466.10 | $ 346.61 | $ 3,812.71 |
| 101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 130 | 0 | 0 | 0 | 0 | 0 | 221 | 221 | 2950 | 175 | $ 3,346.00 | $ 334.60 | $ 3,680.60 | $ 368.06 | $ 4,048.66 |
| 102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 406 | 406 | 2950 | 175 | $ 3,531.00 | $ 353.10 | $ 3,884.10 | $ 388.41 | $ 4,272.51 |
| 103 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 101 | 101 | 2950 | 175 | $ 3,226.00 | $ 322.60 | $ 3,548.60 | $ 354.86 | $ 3,903.46 |
| 104 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 121 | 121 | 2950 | 175 | $ 3,246.00 | $ 324.60 | $ 3,570.60 | $ 357.06 | $ 3,927.66 |
| 105 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 251 | 251 | 2950 | 175 | $ 3,376.00 | $ 337.60 | $ 3,713.60 | $ 371.36 | $ 4,084.96 |
| 106 | 0 | 0 | 50 | 0 | 300 | 0 | 0 | 200 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 641 | 641 | 2950 | 175 | $ 3,766.00 | $ 376.60 | $ 4,142.60 | $ 414.26 | $ 4,556.86 |
| 107 | 0 | 0 | 0 | 10 | 150 | 0 | 0 | 150 | 26 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 951 | 951 | 2950 | 175 | $ 4,076.00 | $ 407.60 | $ 4,483.60 | $ 448.36 | $ 4,931.96 |
| 108 | 0 | 0 | 0 | 0 | 375 | 0 | 0 | 350 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 816 | 816 | 2950 | 175 | $ 3,941.00 | $ 394.10 | $ 4,335.10 | $ 433.51 | $ 4,768.61 |
| 109 | 0 | 0 | 20 | 20 | 150 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 130 | 0 | 411 | 411 | 2950 | 175 | $ 3,536.00 | $ 353.60 | $ 3,889.60 | $ 388.96 | $ 4,278.56 |
| 110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2100 | 2100 | 2100 | | | $ 2,100.00 | $ 210.00 | $ 2,310.00 | $ 231.00 | $ 2,541.00 |
| 111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2950 | 175 | $ 3,125.00 | $ 312.50 | $ 3,437.50 | $ 343.75 | $ 3,781.25 |
| 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2100 | 2100 | 2100 | | | $ 2,100.00 | $ 210.00 | $ 2,310.00 | $ 231.00 | $ 2,541.00 |
| 113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 3281 | 0 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4155 | 4155 | 2950 | 175 | $ 7,280.00 | $ 728.00 | $ 8,008.00 | $ 800.80 | $ 8,808.80 |
| 114 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 150 | 26 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 444 | 444 | 2950 | 175 | $ 3,569.00 | $ 356.90 | $ 3,925.90 | $ 392.59 | $ 4,318.49 |
| 115 | 0 | 0 | 10 | 20 | 75 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 181 | 181 | 2950 | 175 | $ 3,306.00 | $ 330.60 | $ 3,636.60 | $ 363.66 | $ 4,000.26 |
| 116 | 0 | 0 | 10 | 0 | 150 | 0 | 0 | 0 | 26 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 506 | 506 | 2950 | 175 | $ 3,631.00 | $ 363.10 | $ 3,994.10 | $ 399.41 | $ 4,393.51 |
| 117 | 0 | 0 | 40 | 50 | 150 | 0 | 0 | 150 | 26 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 611 | 611 | 2950 | 175 | $ 3,736.00 | $ 373.60 | $ 4,109.60 | $ 410.96 | $ 4,520.56 |
| 118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 26 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 319 | 319 | 2950 | 175 | $ 3,444.00 | $ 344.40 | $ 3,788.40 | $ 378.84 | $ 4,167.24 |
| 119 | 0 | 0 | 40 | 20 | 0 | 0 | 0 | 100 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 316 | 316 | 2950 | 175 | $ 3,441.00 | $ 344.10 | $ 3,785.10 | $ 378.51 | $ 4,163.61 |
| 120 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 100 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 201 | 201 | 2950 | 175 | $ 3,326.00 | $ 332.60 | $ 3,658.60 | $ 365.86 | $ 4,024.46 |
| 121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 686 | 686 | 2950 | 175 | $ 3,811.00 | $ 381.10 | $ 4,192.10 | $ 419.21 | $ 4,611.31 |
| 122 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 166 | 166 | 2950 | 175 | $ 3,291.00 | $ 329.10 | $ 3,620.10 | $ 362.01 | $ 3,982.11 |
| 123 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 91 | 2950 | 175 | $ 3,216.00 | $ 321.60 | $ 3,537.60 | $ 353.76 | $ 3,891.36 |
| 124 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 46 | 2950 | 175 | $ 3,171.00 | $ 317.10 | $ 3,488.10 | $ 348.81 | $ 3,836.91 |
| 125 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 65 | 0 | 166 | 166 | 2950 | 175 | $ 3,291.00 | $ 329.10 | $ 3,620.10 | $ 362.01 | $ 3,982.11 |
| 126 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4200 | 0 | 0 | 0 | 0 | 4200 | 4200 | | | $ 4,200.00 | $ 420.00 | $ 4,620.00 | $ 462.00 | $ 5,082.00 |
| 127 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 66 | 2950 | 175 | $ 3,191.00 | $ 319.10 | $ 3,510.10 | $ 351.01 | $ 3,861.11 |
| 128 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 26 | 2950 | 175 | $ 3,151.00 | $ 315.10 | $ 3,466.10 | $ 346.61 | $ 3,812.71 |
| 129 | 0 | 0 | 10 | 40 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 76 | 2950 | 175 | $ 3,201.00 | $ 320.10 | $ 3,521.10 | $ 352.11 | $ 3,873.21 |
| 130 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 46 | 2950 | 175 | $ 3,171.00 | $ 317.10 | $ 3,488.10 | $ 348.81 | $ 3,836.91 |
| 131 | 0 | 0 | 10 | 30 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 131 | 131 | 2950 | 175 | $ 3,256.00 | $ 325.60 | $ 3,581.60 | $ 358.16 | $ 3,939.76 |
| 132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 91 | 2950 | 175 | $ 3,216.00 | $ 321.60 | $ 3,537.60 | $ 353.76 | $ 3,891.36 |
| 133 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 121 | 121 | 2950 | 175 | $ 3,246.00 | $ 324.60 | $ 3,570.60 | $ 357.06 | $ 3,927.66 |
| 134 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 66 | 2950 | 175 | $ 3,191.00 | $ 319.10 | $ 3,510.10 | $ 351.01 | $ 3,861.11 |
| 135 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 65 | 0 | 281 | 281 | 2950 | 175 | $ 3,406.00 | $ 340.60 | $ 3,746.60 | $ 374.66 | $ 4,121.26 |
| 136 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 101 | 101 | 2950 | 175 | $ 3,226.00 | $ 322.60 | $ 3,548.60 | $ 354.86 | $ 3,903.46 |
| 137 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 111 | 111 | 2950 | 175 | $ 3,236.00 | $ 323.60 | $ 3,559.60 | $ 355.96 | $ 3,915.56 |
| 138 | 0 | 0 | 10 | 40 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 76 | 2950 | 175 | $ 3,201.00 | $ 320.10 | $ 3,521.10 | $ 352.11 | $ 3,873.21 |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | TOTALS | Replace Broken Pieces | Typical Renovation Tasks | Expansion Connections at Each | SUB-TOTAL | 10% Design Contingency | SUB-TOTAL | 10% Construction Contingency | Total Per Fence Section |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 139 | 0 | 0 | 20 | 80 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 501 | 501 | 2950 | 175 | $ 3,626.00 | $ 362.60 | $ 3,988.60 | $ 398.86 | $ 4,387.46 |
| 140 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 3281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 421 | 0 | 0 | 0 | 3878 | 3878 | 2950 | 175 | $ 7,003.00 | $ 700.30 | $ 7,703.30 | $ 770.33 | $ 8,473.63 |
| 141 | 0 | 0 | 220 | 180 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 911 | 911 | 2950 | 175 | $ 4,036.00 | $ 403.60 | $ 4,439.60 | $ 443.96 | $ 4,883.56 |
| 142 | 0 | 0 | 30 | 50 | 150 | 0 | 0 | 100 | 26 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 421 | 421 | 2950 | 175 | $ 3,546.00 | $ 354.60 | $ 3,900.60 | $ 390.06 | $ 4,290.66 |
| 143 | 0 | 0 | 80 | 40 | 150 | 0 | 0 | 0 | 26 | 65 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 804 | 804 | 2950 | 175 | $ 3,929.00 | $ 392.90 | $ 4,321.90 | $ 432.19 | $ 4,754.09 |
| 144 | 0 | 0 | 0 | 10 | 75 | 0 | 0 | 200 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 561 | 561 | 2950 | 175 | $ 3,686.00 | $ 368.60 | $ 4,054.60 | $ 405.46 | $ 4,460.06 |
| 145 | 0 | 0 | 30 | 40 | 75 | 0 | 0 | 100 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 526 | 526 | 2950 | 175 | $ 3,651.00 | $ 365.10 | $ 4,016.10 | $ 401.61 | $ 4,417.71 |
| 146 | 0 | 0 | 150 | 200 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 386 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 421 | 0 | 0 | 0 | 1313 | 1313 | 2950 | 175 | $ 4,438.00 | $ 443.80 | $ 4,881.80 | $ 488.18 | $ 5,369.98 |
| 147 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1400 | 0 | 0 | 0 | 2100 | 3500 | 3500 | | | $ 3,500.00 | $ 350.00 | $ 3,850.00 | $ 385.00 | $ 4,235.00 |
| 148 | 0 | 0 | 130 | 110 | 0 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 441 | 441 | 2950 | 175 | $ 3,566.00 | $ 356.60 | $ 3,922.60 | $ 392.26 | $ 4,314.86 |
| 149 | 0 | 0 | 90 | 80 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 438 | 438 | 2950 | 175 | $ 3,563.00 | $ 356.30 | $ 3,919.30 | $ 391.93 | $ 4,311.23 |
| 150 | 0 | 0 | 130 | 130 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 653 | 653 | 2950 | 175 | $ 3,778.00 | $ 377.80 | $ 4,155.80 | $ 415.58 | $ 4,571.38 |
| 151 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 7475 | 2950 | 175 | $ 10,600.00 | $ 1,060.00 | $ 11,660.00 | $ 1,166.00 | $ 12,826.00 |
| 152 | 0 | 0 | 190 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 645 | 645 | 2950 | 175 | $ 3,770.00 | $ 377.00 | $ 4,147.00 | $ 414.70 | $ 4,561.70 |
| 153 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 40 | 2950 | 175 | $ 3,165.00 | $ 316.50 | $ 3,481.50 | $ 348.15 | $ 3,829.65 |
| 154 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 300 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 943 | 943 | 2950 | 175 | $ 4,068.00 | $ 406.80 | $ 4,474.80 | $ 447.48 | $ 4,922.28 |
| 155 | 0 | 0 | 30 | 10 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 | 90 | 2950 | 175 | $ 3,215.00 | $ 321.50 | $ 3,536.50 | $ 353.65 | $ 3,890.15 |
| 156 | 0 | 0 | 20 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 290 | 290 | 2950 | 175 | $ 3,415.00 | $ 341.50 | $ 3,756.50 | $ 375.65 | $ 4,132.15 |
| 157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 315 | 315 | 2950 | 175 | $ 3,440.00 | $ 344.00 | $ 3,784.00 | $ 378.40 | $ 4,162.40 |
| 158 | 0 | 0 | 40 | 40 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 560 | 560 | 2950 | 175 | $ 3,685.00 | $ 368.50 | $ 4,053.50 | $ 405.35 | $ 4,458.85 |
| 159 | 0 | 0 | 80 | 50 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 355 | 355 | 2950 | 175 | $ 3,480.00 | $ 348.00 | $ 3,828.00 | $ 382.80 | $ 4,210.80 |
| 160 | 0 | 0 | 30 | 70 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 750 | 750 | 2950 | 175 | $ 3,875.00 | $ 387.50 | $ 4,262.50 | $ 426.25 | $ 4,688.75 |
| 161 | 0 | 0 | 70 | 60 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 480 | 480 | 2950 | 175 | $ 3,605.00 | $ 360.50 | $ 3,965.50 | $ 396.55 | $ 4,362.05 |
| 162 | 0 | 0 | 10 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 210 | 210 | 2950 | 175 | $ 3,335.00 | $ 333.50 | $ 3,668.50 | $ 366.85 | $ 4,035.35 |
| 163 | 0 | 0 | 20 | 10 | 150 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 535 | 535 | 2950 | 175 | $ 3,660.00 | $ 366.00 | $ 4,026.00 | $ 402.60 | $ 4,428.60 |
| 164 | 0 | 0 | 40 | 40 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 555 | 555 | 2950 | 175 | $ 3,680.00 | $ 368.00 | $ 4,048.00 | $ 404.80 | $ 4,452.80 |
| 165 | 0 | 0 | 20 | 20 | 75 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 700 | 700 | 2950 | 175 | $ 3,825.00 | $ 382.50 | $ 4,207.50 | $ 420.75 | $ 4,628.25 |
| 166 | 0 | 0 | 50 | 40 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 905 | 905 | 2950 | 175 | $ 4,030.00 | $ 403.00 | $ 4,433.00 | $ 443.30 | $ 4,876.30 |
| 167 | 0 | 0 | 60 | 70 | 150 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 811 | 811 | 2950 | 175 | $ 3,936.00 | $ 393.60 | $ 4,329.60 | $ 432.96 | $ 4,762.56 |
| 168 | 0 | 0 | 250 | 230 | 75 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 193 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 250 | 0 | 0 | 1639 | 1639 | 2950 | 175 | $ 4,764.00 | $ 476.40 | $ 5,240.40 | $ 524.04 | $ 5,764.44 |
| 169 | 0 | 0 | 30 | 50 | 75 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 335 | 335 | 2950 | 175 | $ 3,460.00 | $ 346.00 | $ 3,806.00 | $ 380.60 | $ 4,186.60 |
| 170 | 0 | 0 | 110 | 90 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 405 | 405 | 2950 | 175 | $ 3,530.00 | $ 353.00 | $ 3,883.00 | $ 388.30 | $ 4,271.30 |
| 171 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2509 | 0 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 421 | 125 | 0 | 0 | 3933 | 3933 | 2950 | 175 | $ 7,058.00 | $ 705.80 | $ 7,763.80 | $ 776.38 | $ 8,540.18 |
| 172 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1400 | 0 | 0 | 0 | 2100 | 3500 | 3500 | | | $ 3,500.00 | $ 350.00 | $ 3,850.00 | $ 385.00 | $ 4,235.00 |
| 173 | 0 | 0 | 140 | 130 | 225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 620 | 620 | 2950 | 175 | $ 3,745.00 | $ 374.50 | $ 4,119.50 | $ 411.95 | $ 4,531.45 |
| 174 | 0 | 0 | 30 | 0 | 75 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 511 | 511 | 2950 | 175 | $ 3,636.00 | $ 363.60 | $ 3,999.60 | $ 399.96 | $ 4,399.56 |
| 175 | 0 | 0 | 10 | 0 | 75 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 421 | 125 | 0 | 0 | 787 | 787 | 2950 | 175 | $ 3,912.00 | $ 391.20 | $ 4,303.20 | $ 430.32 | $ 4,733.52 |
| 176 | 0 | 0 | 0 | 0 | 225 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 301 | 301 | 2950 | 175 | $ 3,426.00 | $ 342.60 | $ 3,768.60 | $ 376.86 | $ 4,145.46 |
| 177 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 26 | 65 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 626 | 626 | 2950 | 175 | $ 3,751.00 | $ 375.10 | $ 4,126.10 | $ 412.61 | $ 4,538.71 |
| 178 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 26 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 | 166 | 2950 | 175 | $ 3,291.00 | $ 329.10 | $ 3,620.10 | $ 362.01 | $ 3,982.11 |
| 179 | 0 | 0 | 20 | 0 | 75 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 606 | 606 | 2950 | 175 | $ 3,731.00 | $ 373.10 | $ 4,104.10 | $ 410.41 | $ 4,514.51 |
| 180 | 0 | 0 | 90 | 80 | 225 | 0 | 0 | 750 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 1301 | 1301 | 2950 | 175 | $ 4,426.00 | $ 442.60 | $ 4,868.60 | $ 486.86 | $ 5,355.46 |
| 181 | 0 | 0 | 50 | 30 | 150 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 506 | 506 | 2950 | 175 | $ 3,631.00 | $ 363.10 | $ 3,994.10 | $ 399.41 | $ 4,393.51 |
| 182 | 0 | 0 | 0 | 10 | 150 | 0 | 0 | 100 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 286 | 286 | 2950 | 175 | $ 3,411.00 | $ 341.10 | $ 3,752.10 | $ 375.21 | $ 4,127.31 |
| 183 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 386 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 461 | 461 | 2950 | 175 | $ 3,586.00 | $ 358.60 | $ 3,944.60 | $ 394.46 | $ 4,339.06 |
| 184 | 0 | 0 | 160 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 415 | 415 | 2950 | 175 | $ 3,540.00 | $ 354.00 | $ 3,894.00 | $ 389.40 | $ 4,283.40 |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | TOTALS | Replace Broken Pieces | Typical Renovation Tasks | Expansion Connections at Each | SUB-TOTAL | 10% Design Contingency | SUB-TOTAL | 10% Construction Contingency | Total Per Fence Section |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 185 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 250 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 556 | 556 | 2950 | 175 | $ 3,681.00 | $ 368.10 | $ 4,049.10 | $ 404.91 | $ 4,454.01 |
| 186 | 0 | 0 | 10 | 170 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 180 | 180 | 2950 | 175 | $ 3,305.00 | $ 330.50 | $ 3,635.50 | $ 363.55 | $ 3,999.05 |
| 187 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 20 | 2950 | 175 | $ 3,145.00 | $ 314.50 | $ 3,459.50 | $ 345.95 | $ 3,805.45 |
| 188 | 0 | 0 | 10 | 40 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 206 | 206 | 2950 | 175 | $ 3,331.00 | $ 333.10 | $ 3,664.10 | $ 366.41 | $ 4,030.51 |
| 189 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 26 | 2950 | 175 | $ 3,151.00 | $ 315.10 | $ 3,466.10 | $ 346.61 | $ 3,812.71 |
| 190 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2950 | 175 | $ 3,125.00 | $ 312.50 | $ 3,437.50 | $ 343.75 | $ 3,781.25 |
| 191 | 0 | 0 | 80 | 240 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 320 | 320 | 2950 | 175 | $ 3,445.00 | $ 344.50 | $ 3,789.50 | $ 378.95 | $ 4,168.45 |
| 192 | 0 | 0 | 180 | 220 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 250 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1524 | 1524 | 2950 | 175 | $ 4,649.00 | $ 464.90 | $ 5,113.90 | $ 511.39 | $ 5,625.29 |
| 193 | 0 | 0 | 130 | 170 | 75 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 651 | 651 | 2950 | 175 | $ 3,776.00 | $ 377.60 | $ 4,153.60 | $ 415.36 | $ 4,568.96 |
| 194 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 260 | 260 | 2950 | 175 | $ 3,385.00 | $ 338.50 | $ 3,723.50 | $ 372.35 | $ 4,095.85 |
| 195 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 156 | 156 | 2950 | 175 | $ 3,281.00 | $ 328.10 | $ 3,609.10 | $ 360.91 | $ 3,970.01 |
| 196 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 26 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 | 166 | 2950 | 175 | $ 3,291.00 | $ 329.10 | $ 3,620.10 | $ 362.01 | $ 3,982.11 |
| 197 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 46 | 2950 | 175 | $ 3,171.00 | $ 317.10 | $ 3,488.10 | $ 348.81 | $ 3,836.91 |
| 198 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 111 | 111 | 2950 | 175 | $ 3,236.00 | $ 323.60 | $ 3,559.60 | $ 355.96 | $ 3,915.56 |
| 199 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 3281 | 0 | 0 | 848 | 0 | 0 | 0 | 65 | 0 | 0 | 421 | 0 | 0 | 0 | 4641 | 4641 | 2950 | 175 | $ 7,766.00 | $ 776.60 | $ 8,542.60 | $ 854.26 | $ 9,396.86 |
| 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3150 | 3150 | 3150 | | | $ 3,150.00 | $ 315.00 | $ 3,465.00 | $ 346.50 | $ 3,811.50 |
| 201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 7475 | 2950 | 175 | $ 10,600.00 | $ 1,060.00 | $ 11,660.00 | $ 1,166.00 | $ 12,826.00 |
| 202 | 0 | 0 | 0 | 170 | 150 | 0 | 0 | 200 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 546 | 546 | 2950 | 175 | $ 3,671.00 | $ 367.10 | $ 4,038.10 | $ 403.81 | $ 4,441.91 |
| 203 | 0 | 0 | 0 | 350 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 550 | 550 | 2950 | 175 | $ 3,675.00 | $ 367.50 | $ 4,042.50 | $ 404.25 | $ 4,446.75 |
| 204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 678 | 678 | 2950 | 175 | $ 3,803.00 | $ 380.30 | $ 4,183.30 | $ 418.33 | $ 4,601.63 |
| 205 | 0 | 0 | 10 | 50 | 225 | 0 | 0 | 500 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 848 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 2013 | 2013 | 2950 | 175 | $ 5,138.00 | $ 513.80 | $ 5,651.80 | $ 565.18 | $ 6,216.98 |
| 206 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 30 | 2950 | 175 | $ 3,155.00 | $ 315.50 | $ 3,470.50 | $ 347.05 | $ 3,817.55 |
| 207 | 0 | 0 | 30 | 60 | 75 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 345 | 345 | 2950 | 175 | $ 3,470.00 | $ 347.00 | $ 3,817.00 | $ 381.70 | $ 4,198.70 |
| 208 | 0 | 0 | 40 | 70 | 150 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 803 | 803 | 2950 | 175 | $ 3,928.00 | $ 392.80 | $ 4,320.80 | $ 432.08 | $ 4,752.88 |
| 209 | 0 | 0 | 50 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 386 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 621 | 621 | 2950 | 175 | $ 3,746.00 | $ 374.60 | $ 4,120.60 | $ 412.06 | $ 4,532.66 |
| 210 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 7475 | 2950 | 175 | $ 10,600.00 | $ 1,060.00 | $ 11,660.00 | $ 1,166.00 | $ 12,826.00 |
| 211 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 1291 | 1291 | 2950 | 175 | $ 4,416.00 | $ 441.60 | $ 4,857.60 | $ 485.76 | $ 5,343.36 |
| 212 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 495 | 495 | 2950 | 175 | $ 3,620.00 | $ 362.00 | $ 3,982.00 | $ 398.20 | $ 4,380.20 |
| 213 | 0 | 0 | 20 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 170 | 170 | 2950 | 175 | $ 3,295.00 | $ 329.50 | $ 3,624.50 | $ 362.45 | $ 3,986.95 |
| 214 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 46 | 2950 | 175 | $ 3,171.00 | $ 317.10 | $ 3,488.10 | $ 348.81 | $ 3,836.91 |
| 215 | 0 | 0 | 30 | 50 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 485 | 0 | 75 | 0 | 0 | 0 | 130 | 0 | 0 | 125 | 0 | 0 | 1163 | 1163 | 2950 | 175 | $ 4,288.00 | $ 428.80 | $ 4,716.80 | $ 471.68 | $ 5,188.48 |
| 216 | 0 | 0 | 10 | 40 | 75 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 710 | 710 | 2950 | 175 | $ 3,835.00 | $ 383.50 | $ 4,218.50 | $ 421.85 | $ 4,640.35 |
| 217 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 858 | 858 | 2950 | 175 | $ 3,983.00 | $ 398.30 | $ 4,381.30 | $ 438.13 | $ 4,819.43 |
| 218 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 65 | 65 | 2950 | 175 | $ 3,190.00 | $ 319.00 | $ 3,509.00 | $ 350.90 | $ 3,859.90 |
| 219 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 130 | 0 | 0 | 0 | 0 | 65 | 0 | 455 | 455 | 2950 | 175 | $ 3,580.00 | $ 358.00 | $ 3,938.00 | $ 393.80 | $ 4,331.80 |
| 220 | 0 | 0 | 10 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 95 | 95 | 2950 | 175 | $ 3,220.00 | $ 322.00 | $ 3,542.00 | $ 354.20 | $ 3,896.20 |
| 221 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 2950 | 175 | $ 3,135.00 | $ 313.50 | $ 3,448.50 | $ 344.85 | $ 3,793.35 |
| 222 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 150 | 2950 | 175 | $ 3,275.00 | $ 327.50 | $ 3,602.50 | $ 360.25 | $ 3,962.75 |
| 223 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 280 | 280 | 2950 | 175 | $ 3,405.00 | $ 340.50 | $ 3,745.50 | $ 374.55 | $ 4,120.05 |
| 224 | 0 | 0 | 190 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 888 | 888 | 2950 | 175 | $ 4,013.00 | $ 401.30 | $ 4,414.30 | $ 441.43 | $ 4,855.73 |
| 225 | 0 | 0 | 100 | 130 | 225 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 1315 | 1315 | 2950 | 175 | $ 4,440.00 | $ 444.00 | $ 4,884.00 | $ 488.40 | $ 5,372.40 |
| 226 | 0 | 0 | 150 | 170 | 225 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 193 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1223 | 1223 | 2950 | 175 | $ 4,348.00 | $ 434.80 | $ 4,782.80 | $ 478.28 | $ 5,261.08 |
| 227 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2800 | 0 | 0 | 0 | 0 | 2800 | 2800 | | | $ 2,800.00 | $ 280.00 | $ 3,080.00 | $ 308.00 | $ 3,388.00 |
| 228 | 0 | 0 | 0 | 10 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 540 | 540 | 2950 | 175 | $ 3,665.00 | $ 366.50 | $ 4,031.50 | $ 403.15 | $ 4,434.65 |
| 229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7475 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 7855 | 7855 | 2950 | 175 | $ 10,980.00 | $ 1,098.00 | $ 12,078.00 | $ 1,207.80 | $ 13,285.80 |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14a | 14b | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | TOTALS | Replace Broken Pieces | Typical Renovation Tasks | Expansion Connections at Each | SUB-TOTAL | 10% Design Contingency | SUB-TOTAL | 10% Construction Contingency | Total Per Fence Section |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 230 | 0 | 0 | 40 | 10 | 0 | 0 | 0 | 0 | 26 | 65 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 756 | 756 | 2950 | 175 | $ 3,881.00 | $ 388.10 | $ 4,269.10 | $ 426.91 | $ 4,696.01 |
| 231 | 0 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 335 | 335 | 2950 | 175 | $ 3,460.00 | $ 346.00 | $ 3,806.00 | $ 380.60 | $ 4,186.60 |
| 232 | 0 | 0 | 0 | 60 | 150 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 525 | 525 | 2950 | 175 | $ 3,650.00 | $ 365.00 | $ 4,015.00 | $ 401.50 | $ 4,416.50 |
| 233 | 0 | 0 | 0 | 0 | 150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 280 | 280 | 2950 | 175 | $ 3,405.00 | $ 340.50 | $ 3,745.50 | $ 374.55 | $ 4,120.05 |
| 234 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 0 | 0 | 0 | 65 | 0 | 130 | 130 | 2950 | 175 | $ 3,255.00 | $ 325.50 | $ 3,580.50 | $ 358.05 | $ 3,938.55 |
| 235 | 650 | 0 | 0 | 0 | 0 | 0 | 0 | 300 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1435 | 1435 | 2950 | 175 | $ 4,560.00 | $ 456.00 | $ 5,016.00 | $ 501.60 | $ 5,517.60 |
| 236 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 848 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1098 | 1098 | 2950 | 175 | $ 4,223.00 | $ 422.30 | $ 4,645.30 | $ 464.53 | $ 5,109.83 |
| 237 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 250 | 2950 | 175 | $ 3,375.00 | $ 337.50 | $ 3,712.50 | $ 371.25 | $ 4,083.75 |
| 238 | 0 | 0 | 30 | 0 | 75 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 193 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 963 | 963 | 2950 | 175 | $ 4,088.00 | $ 408.80 | $ 4,496.80 | $ 449.68 | $ 4,946.48 |
| 239 | 1950 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1950 | 1950 | | | $ 1,950.00 | $ 195.00 | $ 2,145.00 | $ 214.50 | $ 2,359.50 |
| 240 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 10 | 2950 | 175 | $ 3,135.00 | $ 313.50 | $ 3,448.50 | $ 344.85 | $ 3,793.35 |
| 241 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2950 | 175 | $ 3,125.00 | $ 312.50 | $ 3,437.50 | $ 343.75 | $ 3,781.25 |
| 242 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2950 | 175 | $ 3,125.00 | $ 312.50 | $ 3,437.50 | $ 343.75 | $ 3,781.25 |
| 243 | 1950 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1950 | 1950 | | | $ 1,950.00 | $ 195.00 | $ 2,145.00 | $ 214.50 | $ 2,359.50 |
| 244 | 0 | 0 | 20 | 10 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 249 | 249 | 2950 | 175 | $ 3,374.00 | $ 337.40 | $ 3,711.40 | $ 371.14 | $ 4,082.54 |
| 245 | 0 | 0 | 80 | 140 | 0 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250 | 0 | 0 | 546 | 546 | 2950 | 175 | $ 3,671.00 | $ 367.10 | $ 4,038.10 | $ 403.81 | $ 4,441.91 |
| 246 | 0 | 0 | 70 | 110 | 150 | 0 | 0 | 150 | 26 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 0 | 1116 | 1116 | 2950 | 175 | $ 4,241.00 | $ 424.10 | $ 4,665.10 | $ 466.51 | $ 5,131.61 |
| 247 | 0 | 0 | 60 | 170 | 0 | 0 | 0 | 200 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 586 | 586 | 2950 | 175 | $ 3,711.00 | $ 371.10 | $ 4,082.10 | $ 408.21 | $ 4,490.31 |
| 248 | 0 | 0 | 140 | 140 | 225 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 774 | 774 | 2950 | 175 | $ 3,899.00 | $ 389.90 | $ 4,288.90 | $ 428.89 | $ 4,717.79 |
| 249 | 0 | 0 | 40 | 140 | 75 | 0 | 0 | 50 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 848 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1179 | 1179 | 2950 | 175 | $ 4,304.00 | $ 430.40 | $ 4,734.40 | $ 473.44 | $ 5,207.84 |
| 250 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 | 0 | 111 | 111 | 2950 | 175 | $ 3,236.00 | $ 323.60 | $ 3,559.60 | $ 355.96 | $ 3,915.56 |
| 251 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 | 2950 | 175 | $ 3,161.00 | $ 316.10 | $ 3,477.10 | $ 347.71 | $ 3,824.81 |
| 252 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 46 | 2950 | 175 | $ 3,171.00 | $ 317.10 | $ 3,488.10 | $ 348.81 | $ 3,836.91 |
| 253 | 4550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4550 | 4550 | | | $ 4,550.00 | $ 455.00 | $ 5,005.00 | $ 500.50 | $ 5,505.50 |

**Project Total $ 1,223,812.15**

CBI CONSULTING INC.

PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Cost Estimate
# Per Repair Level

## Salem Common Fence Restoration
## Salem, Massachusetts

OFFICES
BOSTON
MIAMI

T 617 • 268.8977
F 617 • 464.2971
cbiconsultinginc.com

250 DORCHESTER AVENUE • BOSTON, MASSACHUSETTS 02127

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | LEVEL 1 $2,000 - $4,000 | LEVEL 2 $4,000 - $5,000 | LEVEL 3 $5,000 - $6,000 | LEVEL 4 $6,000 - $9,000 | LEVEL 5 $9,000 - $14,000 |
|---|---|---|---|---|---|
| 1 | | $ 4,741.99 | | | |
| 2 | | | 5,667.64 | | |
| 3 | | $ 4,288.24 | | | |
| 4 | | $ 4,144.25 | | | |
| 5 | | $ 4,641.56 | | | |
| 6 | | $ 4,726.26 | | | |
| 7 | | $ 4,000.26 | | | |
| 8 | $ 3,885.31 | | | | |
| 9 | $ 3,896.20 | | | | |
| 10 | $ 3,829.65 | | | | |
| 11 | $ 3,885.31 | | | | |
| 12 | $ 3,853.85 | | | | |
| 13 | $ 3,853.85 | | | | |
| 14 | | $ 4,567.75 | | | |
| 15 | | $ 4,180.55 | | | |
| 16 | $ 3,920.40 | | | | |
| 17 | | $ 4,120.05 | | | |
| 18 | $ 3,908.30 | | | | |
| 19 | $ 3,872.00 | | | | |
| 20 | $ 3,793.35 | | | | |
| 21 | $ 3,817.55 | | | | |
| 22 | $ 3,841.75 | | | | |
| 23 | $ 3,781.25 | | | | |
| 24 | $ 3,812.71 | | | | |
| 25 | $ 3,781.25 | | | | |
| 26 | $ 3,902.25 | | | | |
| 27 | | | $ 5,109.83 | | |
| 28 | | | | | $ 12,904.65 |
| 29 | | | $ 5,333.68 | | |
| 30 | | | | | $ 12,826.00 |
| 31 | | | | | $ 12,826.00 |
| 32 | | | | | $ 12,826.00 |
| 33 | | | | | $ 12,826.00 |
| 34 | | $ 4,470.95 | | | |
| 35 | | $ 4,144.25 | | | |
| 36 | | $ 4,126.10 | | | |
| 37 | | $ 4,187.81 | | | |
| 38 | | $ 4,301.55 | | | |
| 39 | | $ 4,180.55 | | | |
| 40 | $ 3,781.25 | | | | |
| 41 | $ 3,956.70 | | | | |
| 42 | $ 3,896.20 | | | | |
| 43 | $ 3,932.50 | | | | |
| 44 | $ 3,956.70 | | | | |
| 45 | $ 3,950.65 | | | | |

# 11195 Salem Fence Restoration Survey

CBI
CONSULTING INC.

| Section # | LEVEL 1 $2,000 - $4,000 | LEVEL 2 $4,000 - $5,000 | LEVEL 3 $5,000 - $6,000 | LEVEL 4 $6,000 - $9,000 | LEVEL 5 $9,000 - $14,000 |
|---|---|---|---|---|---|
| 46 | $ 3,956.70 | | | | |
| 47 | | $ 4,380.20 | | | |
| 48 | $ 3,896.20 | | | | |
| 49 | | $ 4,120.05 | | | |
| 50 | | $ 4,115.21 | | | |
| 51 | $ 3,932.50 | | | | |
| 52 | $ 3,920.40 | | | | |
| 53 | $ 3,914.35 | | | | |
| 54 | $ 3,908.30 | | | | |
| 55 | $ 3,841.75 | | | | |
| 56 | $ 3,956.70 | | | | |
| 57 | $ 3,829.65 | | | | |
| 58 | $ 3,962.75 | | | | |
| 59 | $ 3,884.10 | | | | |
| 60 | $ 3,920.40 | | | | |
| 61 | | | | $ 7,854.11 | |
| 62 | $ 3,859.90 | | | | |
| 63 | $ 3,938.55 | | | | |
| 64 | | $ 4,682.70 | | | |
| 65 | | $ 4,658.50 | | | |
| 66 | | $ 4,192.65 | | | |
| 67 | | | $ 5,015.45 | | |
| 68 | | $ 4,942.85 | | | |
| 69 | | $ 4,555.65 | | | |
| 70 | | $ 4,256.78 | | | |
| 71 | | | $ 5,100.15 | | |
| 72 | | $ 4,670.60 | | | |
| 73 | | $ 4,749.25 | | | |
| 74 | | $ 4,537.50 | | | |
| 75 | | | $ 5,674.90 | | |
| 76 | | | | | $ 12,983.30 |
| 77 | | | | | $ 13,852.08 |
| 78 | $ 2,662.00 | | | | |
| 79 | | $ 4,462.48 | | | |
| 80 | | $ 4,619.78 | | | |
| 81 | | | | | $ 12,983.30 |
| 82 | | | | | $ 13,852.08 |
| 83 | | $ 4,526.61 | | | |
| 84 | | $ 4,658.50 | | | |
| 85 | $ 3,896.20 | | | | |
| 86 | | $ 4,210.80 | | | |
| 87 | | | $ 5,017.87 | | |
| 88 | | | $ 5,045.70 | | |
| 89 | | $ 4,162.40 | | | |
| 90 | | $ 4,381.41 | | | |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | LEVEL 1 $2,000 - $4,000 | LEVEL 2 $4,000 - $5,000 | LEVEL 3 $5,000 - $6,000 | LEVEL 4 $6,000 - $9,000 | LEVEL 5 $9,000 - $14,000 |
|---|---|---|---|---|---|
| 91 | | $ 4,271.30 | | | |
| 92 | | $ 4,712.95 | | | |
| 93 | | | $ 5,180.01 | | |
| 94 | | $ 4,865.41 | | | |
| 95 | $ 3,994.21 | | | | |
| 96 | $ 3,891.36 | | | | |
| 97 | | | | $ 7,908.56 | |
| 98 | | | | $ 8,350.21 | |
| 99 | $ 3,836.91 | | | | |
| 100 | $ 3,812.71 | | | | |
| 101 | | $ 4,048.66 | | | |
| 102 | | $ 4,272.51 | | | |
| 103 | $ 3,903.46 | | | | |
| 104 | $ 3,927.66 | | | | |
| 105 | | $ 4,084.96 | | | |
| 106 | | $ 4,556.86 | | | |
| 107 | | $ 4,931.96 | | | |
| 108 | | $ 4,768.61 | | | |
| 109 | | $ 4,278.56 | | | |
| 110 | $ 2,541.00 | | | | |
| 111 | $ 3,781.25 | | | | |
| 112 | $ 2,541.00 | | | | |
| 113 | | | | $ 8,808.80 | |
| 114 | | $ 4,318.49 | | | |
| 115 | | $ 4,000.26 | | | |
| 116 | | $ 4,393.51 | | | |
| 117 | | $ 4,520.56 | | | |
| 118 | | $ 4,167.24 | | | |
| 119 | | $ 4,163.61 | | | |
| 120 | | $ 4,024.46 | | | |
| 121 | | $ 4,611.31 | | | |
| 122 | $ 3,982.11 | | | | |
| 123 | $ 3,891.36 | | | | |
| 124 | $ 3,836.91 | | | | |
| 125 | $ 3,982.11 | | | | |
| 126 | | | $ 5,082.00 | | |
| 127 | $ 3,861.11 | | | | |
| 128 | $ 3,812.71 | | | | |
| 129 | $ 3,873.21 | | | | |
| 130 | $ 3,836.91 | | | | |
| 131 | $ 3,939.76 | | | | |
| 132 | $ 3,891.36 | | | | |
| 133 | $ 3,927.66 | | | | |
| 134 | $ 3,861.11 | | | | |
| 135 | | $ 4,121.26 | | | |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | LEVEL 1 $2,000 - $4,000 | LEVEL 2 $4,000 - $5,000 | LEVEL 3 $5,000 - $6,000 | LEVEL 4 $6,000 - $9,000 | LEVEL 5 $9,000 - $14,000 |
|---|---|---|---|---|---|
| 136 | $ 3,903.46 | | | | |
| 137 | $ 3,915.56 | | | | |
| 138 | $ 3,873.21 | | | | |
| 139 | | $ 4,387.46 | | | |
| 140 | | | | $ 8,473.63 | |
| 141 | | $ 4,883.56 | | | |
| 142 | | $ 4,290.66 | | | |
| 143 | | $ 4,754.09 | | | |
| 144 | | $ 4,460.06 | | | |
| 145 | | $ 4,417.71 | | | |
| 146 | | | $ 5,369.98 | | |
| 147 | | $ 4,235.00 | | | |
| 148 | | $ 4,314.86 | | | |
| 149 | | $ 4,311.23 | | | |
| 150 | | $ 4,571.38 | | | |
| 151 | | | | | $ 12,826.00 |
| 152 | | $ 4,561.70 | | | |
| 153 | $ 3,829.65 | | | | |
| 154 | | $ 4,922.28 | | | |
| 155 | $ 3,890.15 | | | | |
| 156 | | $ 4,132.15 | | | |
| 157 | | $ 4,162.40 | | | |
| 158 | | $ 4,458.85 | | | |
| 159 | | $ 4,210.80 | | | |
| 160 | | $ 4,688.75 | | | |
| 161 | | $ 4,362.05 | | | |
| 162 | | $ 4,035.35 | | | |
| 163 | | $ 4,428.60 | | | |
| 164 | | $ 4,452.80 | | | |
| 165 | | $ 4,628.25 | | | |
| 166 | | $ 4,876.30 | | | |
| 167 | | $ 4,762.56 | | | |
| 168 | | | $ 5,764.44 | | |
| 169 | | $ 4,186.60 | | | |
| 170 | | $ 4,271.30 | | | |
| 171 | | | | $ 8,540.18 | |
| 172 | | $ 4,235.00 | | | |
| 173 | | $ 4,531.45 | | | |
| 174 | | $ 4,399.56 | | | |
| 175 | | $ 4,733.52 | | | |
| 176 | | $ 4,145.46 | | | |
| 177 | | $ 4,538.71 | | | |
| 178 | $ 3,982.11 | | | | |
| 179 | | $ 4,514.51 | | | |
| 180 | | | $ 5,355.46 | | |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | LEVEL 1 $2,000 - $4,000 | LEVEL 2 $4,000 - $5,000 | LEVEL 3 $5,000 - $6,000 | LEVEL 4 $6,000 - $9,000 | LEVEL 5 $9,000 - $14,000 |
|---|---|---|---|---|---|
| 181 | | $ 4,393.51 | | | |
| 182 | | $ 4,127.31 | | | |
| 183 | | $ 4,339.06 | | | |
| 184 | | $ 4,283.40 | | | |
| 185 | | $ 4,454.01 | | | |
| 186 | $ 3,999.05 | | | | |
| 187 | $ 3,805.45 | | | | |
| 188 | | $ 4,030.51 | | | |
| 189 | $ 3,812.71 | | | | |
| 190 | $ 3,781.25 | | | | |
| 191 | | $ 4,168.45 | | | |
| 192 | | | $ 5,625.29 | | |
| 193 | | $ 4,568.96 | | | |
| 194 | | $ 4,095.85 | | | |
| 195 | $ 3,970.01 | | | | |
| 196 | $ 3,982.11 | | | | |
| 197 | $ 3,836.91 | | | | |
| 198 | $ 3,915.56 | | | | |
| 199 | | | | $ 9,396.86 | |
| 200 | $ 3,811.50 | | | | |
| 201 | | | | | $ 12,826.00 |
| 202 | | $ 4,441.91 | | | |
| 203 | | $ 4,446.75 | | | |
| 204 | | $ 4,601.63 | | | |
| 205 | | | | $ 6,216.98 | |
| 206 | $ 3,817.55 | | | | |
| 207 | | $ 4,198.70 | | | |
| 208 | | $ 4,752.88 | | | |
| 209 | | $ 4,532.66 | | | |
| 210 | | | | | $ 12,826.00 |
| 211 | | | $ 5,343.36 | | |
| 212 | | $ 4,380.20 | | | |
| 213 | $ 3,986.95 | | | | |
| 214 | $ 3,836.91 | | | | |
| 215 | | | $ 5,188.48 | | |
| 216 | | $ 4,640.35 | | | |
| 217 | | $ 4,819.43 | | | |
| 218 | $ 3,859.90 | | | | |
| 219 | | $ 4,331.80 | | | |
| 220 | $ 3,896.20 | | | | |
| 221 | $ 3,793.35 | | | | |
| 222 | $ 3,962.75 | | | | |
| 223 | | $ 4,120.05 | | | |
| 224 | | $ 4,855.73 | | | |

# 11195 Salem Fence Restoration Survey

CBI CONSULTING INC.

| Section # | LEVEL 1 $2,000 - $4,000 | LEVEL 2 $4,000 - $5,000 | LEVEL 3 $5,000 - $6,000 | LEVEL 4 $6,000 - $9,000 | LEVEL 5 $9,000 - $14,000 |
|---|---|---|---|---|---|
| 225 | | | $ 5,372.40 | | |
| 226 | | | $ 5,261.08 | | |
| 227 | $ 3,388.00 | | | | |
| 228 | | $ 4,434.65 | | | |
| 229 | | | | | $ 13,285.80 |
| 230 | | $ 4,696.01 | | | |
| 231 | | $ 4,186.60 | | | |
| 232 | | $ 4,416.50 | | | |
| 233 | | $ 4,120.05 | | | |
| 234 | $ 3,938.55 | | | | |
| 235 | | | $ 5,517.60 | | |
| 236 | | | $ 5,109.83 | | |
| 237 | | $ 4,083.75 | | | |
| 238 | | $ 4,946.48 | | | |
| 239 | $ 2,359.50 | | | | |
| 240 | $ 3,793.35 | | | | |
| 241 | $ 3,781.25 | | | | |
| 242 | $ 3,781.25 | | | | |
| 243 | $ 2,359.50 | | | | |
| 244 | | $ 4,082.54 | | | |
| 245 | | $ 4,441.91 | | | |
| 246 | | | $ 5,131.61 | | |
| 247 | | $ 4,490.31 | | | |
| 248 | | $ 4,717.79 | | | |
| 249 | | | $ 5,207.84 | | |
| 250 | $ 3,915.56 | | | | |
| 251 | $ 3,824.81 | | | | |
| 252 | $ 3,836.91 | | | | |
| 253 | | | $ 5,505.50 | | |
| TOTALS | $ 345,756.29 | $ 520,883.22 | $ 121,980.10 | $ 65,549.33 | $ 169,643.21 |

**Project Total $ 1,223,812.15**

CBI CONSULTING INC.

PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
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ASSOCIATE
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MIAMI

T 617 • 268.8977
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# Phasing Narrative

## Salem Common Fence Restoration

## March 30, 2012

The City of Salem has determined that, based on available funding, two phases will be performed in this first round of repairs. Phase 1, which is based on a $50,000 budget, will include the restoration and repair of the fences and bollards that flank Entrances #1 and #11. Add Alternate pricing will be provided for additional individual fence sections at Entrance #2, if the budget allows.

Phase 2, which is based on a $200,000 budget (a portion of which is requested from a MHC Grant), includes the restoration of the fences flanking entrances number 3 through 8, with the fences remaining to complete Entrance #2 included. Add Alternate prices are being provided for those fences flanking entrances 9 and 10, as well.

See attached tally of costs.

# Salem Common Fence Restoration
## Phases I & II

### PHASE I

| | Section # | | Total | |
|---|---|---|---|---|
| | 251 | $ | 3,824.81 | |
| | 252 | $ | 3,836.91 | |
| FENCE | 253 | $ | 5,505.50 | * 3 Bollards |
| SECTION 1 | 1 | $ | 4,741.99 | * Tops of Posts |
| | 2 | $ | 5,667.64 | * Tops of Posts |
| | **Subtotal** | **$** | **23,576.85** | |
| | 63 | $ | 3,938.55 | |
| | 64 | $ | 4,682.70 | |
| FENCE SECTION 2 | | | | |
| | **Subtotal** | **$** | **8,621.25** | |
| | 241 | $ | 3,781.25 | |
| | 242 | $ | 3,781.25 | |
| FENCE | 243 | $ | 2,359.50 | * 3 Bollards |
| SECTION 11 | 244 | $ | 4,082.54 | |
| | 245 | $ | 4,441.91 | |
| | **Subtotal** | **$** | **18,446.45** | |
| **TOTAL** | | **$** | **50,644.55** | |

Add Alternates

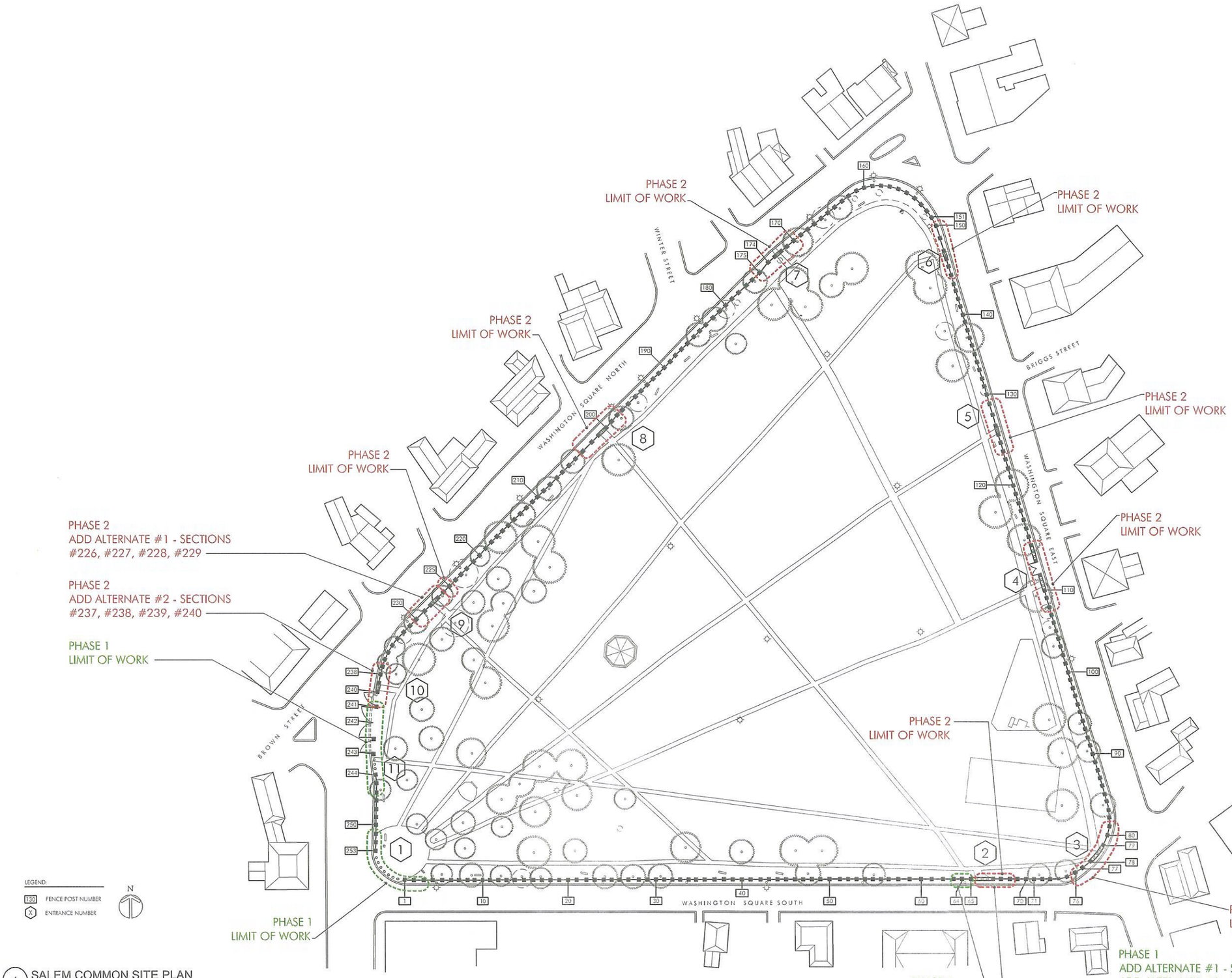
| | | | | |
|---|---|---|---|---|
| 1 | 65 | $ | 4,658.50 | * 2 Pipe Bollards |
| 2 | 66 | $ | 4,192.65 | |
| 3 | 67 | $ | 5,015.45 | |

### PHASE II

| | Section # | | Total | |
|---|---|---|---|---|
| | 76 | $ | 12,983.30 | * Missing |
| | 77 | $ | 13,852.08 | * Missing |
| FENCE | 78 | $ | 2,662.00 | * 3 Bollards (1 Broken) |
| SECTION 3 | 79 | $ | 4,462.48 | |
| | 80 | $ | 4,619.78 | |
| | **Subtotal** | **$** | **38,579.64** | |
| | 108 | $ | 4,768.61 | |
| | 109 | $ | 4,278.56 | |
| FENCE | 110 | $ | 2,541.00 | * Bollards Missing |
| SECTION 4 | 111 | $ | 3,781.25 | |
| | 112 | $ | 2,541.00 | |
| | **Subtotal** | **$** | **17,910.42** | |
| | 124 | $ | 3,836.91 | |
| | 125 | $ | 3,982.11 | |
| FENCE | 126 | $ | 5,082.00 | * 3 Pipe Bollards |
| SECTION 5 | 127 | $ | 3,861.11 | |
| | 128 | $ | 3,812.71 | |
| | **Subtotal** | **$** | **20,574.84** | |
| | 145 | $ | 4,417.71 | |
| | 146 | $ | 5,369.98 | * Spear Head |
| FENCE | 147 | $ | 4,235.00 | * 1 Pipe; Missing |
| SECTION 6 | 148 | $ | 4,314.86 | |
| | 149 | $ | 4,311.23 | * Missing Picket |
| | **Subtotal** | **$** | **22,648.78** | |
| | 170 | $ | 4,271.30 | * Broken Bottom Rail |
| | 171 | $ | 8,540.18 | * Most Missing |
| FENCE | 172 | $ | 4,235.00 | * 1 Pipe; Missing |
| SECTION 7 | 173 | $ | 4,531.45 | |
| | 174 | $ | 4,399.56 | |
| | **Subtotal** | **$** | **25,977.49** | |
| | 198 | $ | 3,915.56 | |
| | 199 | $ | 9,396.86 | * Missing |
| FENCE | 200 | $ | 3,811.50 | * Bollards Missing |
| SECTION 8 | 201 | $ | 12,826.00 | * Missing |
| | 202 | $ | 4,441.91 | |
| | **Subtotal** | **$** | **34,391.83** | |
| | 65 | $ | 4,658.50 | * 2 Pipe Bollards |
| FENCE | 66 | $ | 4,192.65 | |
| SECTION 2 | 67 | $ | 5,015.45 | |
| | **Subtotal** | **$** | **13,866.60** | |
| From 9 | 225 | $ | 5,372.40 | |
| Molds | | | **$20,000** | |
| **TOTAL** | | **$** | **199,322.00** | |

Phase II Add Alternates

| | | | | | |
|---|---|---|---|---|---|
| 1 | | 226 | $ | 5,261.08 | * Missing |
| | FENCE | 227 | $ | 3,388.00 | * Bollards Missing |
| | SECTION 9 | 228 | $ | 4,434.65 | * Missing |
| | | 229 | $ | 13,285.80 | |
| | | **Subtotal** | **$** | **26,369.53** | |
| 2 | | 237 | $ | 4,083.75 | |
| | FENCE | 238 | $ | 4,946.48 | * Missing |
| | SECTION 10 | 239 | $ | 2,359.50 | * Bollards Missing |
| | | 240 | $ | 3,793.35 | * Missing |
| | | 241 | $ | 3,781.25 | |
| | | **Subtotal** | **$** | **18,964.33** | |




1 SALEM COMMON SITE PLAN
SCALE: 1"=50'-0"


25 YEARS
CBI CONSULTING INC.

250 DORCHESTER AVENUE
BOSTON, MA 02127

P: (617) 268-8977
F: (617) 464-2971

cbi@cbiconsultinginc.com
www.cbiconsultinginc.com


# SALEM COMMON FENCE RESTORATION

CITY OF SALEM

Drawing Title:

## SALEM COMMON PHASING PLAN

Revisions:

Submission:

| | |
|---|---|
| Date: | 03/30/12 |
| Project Number: | 11195 |
| Project Manager: | MST |
| Drawn By: | MJP |
| Scale: | 1"=50'-0" |

LI-01

P:\2011\11195\PHASE 2\SHEETS\11195 LI-01 PHASING PLAN.dwg Mar 29, 2012 - 5:17 pm MJPRICHARDSON

CBI CONSULTING INC.

CBI

PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Form C

# Salem Common Fence Restoration
# Salem, Massachusetts

OFFICES
BOSTON
MIAMI

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F 617 • 464.2971
cbiconsultinginc.com

250 DORCHESTER AVENUE • BOSTON, MASSACHUSETTS 02127

# FORM C – OBJECT

MASSACHUSETTS HISTORICAL COMMISSION
MASSACHUSETTS ARCHIVES BUILDING
220 MORRISSEY BOULEVARD
BOSTON, MASSACHUSETTS 02125

| Assessor's Number | USGS Quad | Area(s) | Form Number |
|---|---|---|---|
| 35-0079 | Salem | | 947 |

## Photograph

## Locus Map


**Town/City**: Salem, MA

**Place** *(neighborhood or village)*:
Salem Common National Register District/ Washington Square Local Historic District
**Address or Location**: 00 Washington Square

**Name**: Salem Common Fence

**Ownership:** ☒ *Public* ☐ *Private*

**Type of Object *(check one):***

___ statue
___ bust
___ group composition
___ religious shrine
___other *(specify)*
___ monument
___ milestone
___ marker
_X_ boundary marker

**Date of Construction:** 1850

**Source**:
Adams, George. *The Salem Directory: The City Record*. Salem: Henry Whipple, 1851.

**Designer/Sculptor:** Denio, Cheney & Co., Boston, MA

**Materials:** Cast-Iron and Granite

**Alterations** *(with dates):*
Rehabilitation of Existing Fence Sections, Replacement/Restoration of Select Portions of Missing Fence Sections, 1980-86
Fence Restoration and Painting, 1999-2000
Installation of Decorative Bollards Entrances, 2001-02

**Condition**: Poor/ Widespread Deterioration

**Moved:** ☒ **no** ☐ **yes** **Date:**

**Acreage:** Approximately 9 Acres

**Setting**: Situated between Washington Square North, South and East in the Washington Square Historic District, Salem, MA

**Recorded by:** CBI Consulting Inc.

**Organization:** Salem Department of Planning and Community Development, City of Salem, Massachusetts

**Date** (*month / year):* March, 2012



*Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.*

☐ Recommended for listing in the National Register of Historic Places.
*If checked, you must attach a completed National Register Criteria Statement form.*

*Use as much space as necessary to complete the following entries, allowing text to flow onto additional continuation sheets.*

## DESIGN ASSESSMENT

*Describe the design features of the object and evaluate in terms of other similar types of objects within the community.*

The cast-iron Salem Common Fence, installed in 1850 in Salem, Massachusetts, encloses the 9-acre tract of public land historically known as Washington Square. At approximately five (5) feet tall, the fence runs along the majority of the 1/2 mile long perimeter of the park and features three large entrance ways facing two of the Washington Square intersections and the corner of Williams Street and North Washington Square. The fence is divided into 253 sections, each comprised of a post and an eight-foot long infill fence panel and each created from the same pattern. At the various entrances throughout the fence structure there are also a number of bollards, some of which are historic and others which are temporary and modern. In many instances, the City of Salem has installed modern steel pipes with screw tops at these locations, likely because they were easier and cheaper to procure at the time and possibly after the existing historic bollards were either stolen or damaged by vehicles.

The Salem Common Fence, with the exception of the top rail (which is a malleable, mild steel), is a structure comprised entirely of cast-iron elements. Cast-iron is an alloy with a high carbon content (at least 1.7% and usually 3.0 to 3.7%) that makes it more resistant to corrosion. While it is extremely easy to cast and can take almost any shape in which a mold can be created, it does not lend itself to fine detail and it has structural strength issues. These material characteristics are evident in the construction and current condition of the fence.

The typical fence panel consists of a post with a decorative capital, an octagonal shaft, and a mildly decorative granite base. It appears as if these posts were cast in two (2) separate pieces. A small "pineapple" exists as a finial at the top of each and is connected to a steel rod which is threaded at the top and bottom. At the top, the pineapple is connected to the rod and, at the bottom, the threads connect to a steel plate which is cast in or fastened to the granite base. Tightening the rod attached to the pineapple secures the post and creates the structural strength to hold the post in place and keep it from tipping. The fence infill panel, located between the posts, consists of a considerably ornate decorative bottom rail, featuring a series of eight crossed sections, each bearing a rosette at its center. This bottom rail accepts the cast-iron vertical balusters that penetrate the top rail and are capped by two (2) different, alternating spearhead designs. The details of the balustrades are also two (2) different designs corresponding to the spearheads. Thus, when taken as a whole, the fence presents an understated decorative effect with clean lines and a traditional, neoclassical design that is very much in keeping with its age and its surrounding neighborhood. To quote one contemporary chronicler of the City of Salem, George Adams: “the pattern of the iron railine is neat, and not elaborate… the effect of the whole is very fine.” (Adams, 1851) As it exists today, the fence retains much of this original appeal and only bears a few non-uniform sections which have been modified to contain swinging gates. The support posts are granite and the gates match the fence with the steel set into recesses created in the granite.

Not surprisingly, there are also several unusual conditions which have developed over the past 162 years. As can be expected, the fence has suffered from general deterioration over time, both natural and as the result of outside forces, such as vehicular, animal and human interference. In an effort to contain this, through various restoration and repair projects, it has become clear that the fence has been created in different eras. It appears as if different molds were used at different times to create entire fence sections and/or smaller replacement pieces. Either that or the quality of the casting has varied from project to project. There has also been the inevitable encroachment of the surrounding environment including a tree which is growing around one of the posts, and various branches and root systems which have come to affect other sections of the fence.

In terms of the design of the fence in relation to the surrounding “lived” environment, the Salem Common Fence is an integral part of the Washington Square and McIntire Historic neighborhoods. The city boasts a number of nationally recognized historic districts and monuments and, as a whole, is considered one of the most important and cohesive resources for early American

architecture in the country. The Salem Common and its adjoining neighborhood, a focal point for the local community since it was first established in 1714, remains one of the city's most well known and visible examples of this unique heritage. In 1802, when the Common was graded and landscaped for enhanced public access, the Washington Square District became a desirable area for residential development. "A number of the city's leading merchants built imposing neo-classical mansions facing the Common… A number of houses in various revival styles were later built on remaining lots, resulting in an impressive concentration of early to mid-19th century dwellings." (*Salem's Historic Districts*) As such, the park is surrounded by a number of well-preserved Federalist, Neoclassical and Revivalist structures, including the Essex Institute, the Gothic Revival-style East Church, which now houses the Witch Museum, and a number of historic homes, such as the Gardner-Pingree House (1804-5), the Forrester-Peabody House (1818-19), and the Joseph Story House (1811). The Salem Common Fence, with its traditional, neoclassical design, is a reflection of the overarching aesthetic of Salem and is a unifying element for the neighborhood.

The fence also acts as a bridge to one of the city's most famous residents, Samuel McIntire, whose name has become synonymous with neoclassical architecture in America and who "will ever be inseparably associated with the Common." (Cousins, 1916). McIntire was responsible for the design of many of the most prominent homes and municipal buildings in Salem, including a number of structures which are situated within the Salem Common neighborhood, and his influence is one of the most unifying aesthetic elements of the city. In 1805, 45 years prior to the installation of the current fence, McIntire was contracted by the citizens of Salem to decorate the Common entrances with large, ornate wooden arches. These entranceways were celebrated in their day and his carvings are considered to be indicative of the neoclassical style of his work and the Federalist era. While the cast-iron fence was designed and installed after McIntire's death, the style was very much in keeping with the great architect's legacy. This is clearly evident when we compare the details of the fence, especially the decorative capitals and "pineapple" and rosette detailing, to the surviving residential and municipal wood-carvings of McIntire. In effect, the people of Salem were aware of their architectural history and had set out to create a coherent stylistic language for their city. The Salem Common Fence is a living part of this history and is a testament to the pride the people of Salem feel for their civic and cultural heritage.

## HISTORICAL NARRATIVE

*Explain the history of the object and how it relates to the development of the community.*

The Salem Common, an approximately 9-acre plot of land in downtown historic Salem, has been referred to as one of the great early examples of community-based planning in the country and both the park and its fence have a deeply-rooted connection to the history and heritage of Salem.

Located between the three intersecting Washington Square streets (named cardinally), and established less than 100 years after the city was founded in 1626, this parcel of land was marked out by the people of Salem as an area that would always remain at the disposal of the community. "The commoners, on 16th of November, 1714, voted, that the spot "where the trainings are generally kept, before Nathaniel Higginson's house shall be forever as a training field for the use of Salem." (Felt, 1845) At this time, the landscape bore a markedly different character than it does today and was described as "much diversified, having several ponds and hillocks" (Adams, 1851). During this time, and considering the topography, the land was used for military drills, communal grazing ground for livestock, and as leased land for a number of different temporary structures, including an alms-house and a school. It was not until the turn of the next century that the people of Salem began to reconsider the needs of the community and the most advantageous use of the land.

In 1801, in an initiative spearheaded by Elias Haskett Derby, a member of one of the most prominent families in the city and a colonel in the local militia, a committee of Salem residents elected to undertake an aggressive urban landscaping project that would completely change the nature of the park. Utilizing privately contributed funds, totaling about $2,500, the common was leveled and about one hundred elms and poplars were planted. A year later, upon the completion of this initial project, the City voted to officially rename the park Washington Square, in honor of the famous statesman who had often visited the city. Shortly afterwards, in 1805, in an effort to further integrate the public green into the fabric of the community, "contributions were made by individuals and the town, for the erection of its eastern and western gates. Being designed, arched, and ornamented by Mr.

*Continuation sheet 2*

Samuel McIntire, a noted architect, they do much to honor his taste." (Felt, 1845) This contribution by McIntire is of great historic importance to the City of Salem. Regarded as one of the leading architects of his day, his work is perhaps the most unifying stylistic feature of Salem and is commonly referred to as a quintessential example of Federalist-era architecture. Examples of his work are seen in municipal, commercial and prominent residential properties throughout the city, including many homes within the Salem Common neighborhood itself. His involvement with the Washington Square project solidifies the importance and visibility of the park to the citizens of the city at that time.

Throughout the early 19th century, there were continued efforts to improve the Common, including the upgrade to a more "substantial railing" around the perimeter of the park in 1817. This new fence, constructed out of wood, was lauded as adding "much to the worth and beauty of its environs." (Felt, 1845). Within twenty years, however, the integrity of the fence and the McIntire gates had been compromised, as is inevitable given their material and exposure to the elements, and in 1850 the current cast-iron fence was installed as a permanent replacement. In many ways this decision was the culmination of the ongoing Common beautification efforts and was considered a success by the people of Salem:

> "The new fence, including the gateways, was erected under the direction of Messrs. Denio, Cheney & Co., of Boston, the contractors; the length is 2584 feet and 6 inches, and cost $7,050. The work is done in a most excellent and perfect manner; the pattern of the iron railine is neat, and not elaborate: the gateway on the westerly side presents a beautiful appearance, and the effect of the whole is very fine." (Adams, 1851)

The design of this new fence stayed true to the celebrated McIntire carvings which had, until that time, adorned the entranceway arches. (These were removed and given to the Essex Institute, who have preserved and displayed them in various ways as a commemoration of Salem's history since that time.) In fact, the fence was much in keeping with the Federalist/Neoclassical style that had been championed by McIntire and which has come to define the historic areas of Salem. In this way, the Salem Common Fence has been instrumental in creating a sense of aesthetic harmony within the neighborhood directly surrounding the Common as well as creating a sense of cohesion throughout the city as a whole.

In the century following the installation of the fence there was little alteration made to the Salem Common, apart from a limited amount of general maintenance work that went into its upkeep and when the Common was recognized by the National Historic Register as a Historic Property, in 1976, the neglect and wear of those past hundred years had become undeniably apparent. (NPS, 1979) The official classification of the property, which includes the historic fence, seems to have revitalized the community's commitment to the preservation of the park and it has undergone a series of restoration and rehabilitation projects since that time. Two of the biggest projects that have been undertaken, to date, occurred in the 1980's and again in the early 2000's.

In the early 1980's, shortly after the park's reclassification as a Historic Property, the city officially recognized the widespread deterioration of the Common and its fence and began planning for its rehabilitation. According to the Salem Common Neighborhood Association, who have made it their mission to preserve and restore the Common fence, there were at least 80 sections of fence missing in 1980. The city began applying to various grant programs and making small repairs with what money they were able to procure until, in 1986, they received a substantial grant from the Department of Environmental Management for a major overhaul of the Common; an amount totaling $604,434. The City contributed an additional $247,384.80 to the project, bringing the project budget to nearly $850,000. According to the legal agreement between the city and the DEM, the Scope of Work focused heavily on the perimeter of the park: "The design completes the site's perimeter definition and restores the interior lawn area and pathways to create an aesthetically pleasing and functional space. Restoration of the cast iron fence and perimeter tree planting scheme enhance the historic quality of the Common." The firm Cassidy Brothers Forge, Inc. was hired to complete the fence restoration portion of this program and, according to the company's promotional material, they were able to restore the entirety of the ½ mile long fence, including 900 feet of new cast-iron sections.

In 1999, the City bid out and awarded $32,000 to DeAngelis Iron Work, Inc. for further fence restoration work. This project included the installation of 21 temporary pipe bollards (in place of the more costly cast-iron), the repair and re-anchoring of the

fence posts, replacement of missing pickets and painting of all repair work. (Connelly, 1999). These bollards, as indicated in the Salem Historical Commission's Certificate of Non-Applicability, dated 10 February 2000, were intended to be a short term solution and were not considered to be in accordance with the historic standards of the City. In 2000, the Salem Common Restoration project received a Historic Landscape Preservation grant for $20,000 of the requested $67,000. The city was required to contribute a 36% of this amount, bringing the total funds to $31,250. The Scope of Work for this project intended to: "restore sections of the cast metal fence, repair several period lighting fixtures in the site, repair and refinish the McIntire Arch, and install additional landscaping." The fence work included the replacement of missing sections, various spot repairs and replacing a number of the temporary bollards with permanent decorative bollards. Given the shortage of funding, the City of Salem also organized an event, in accordance with Historic Commission guidelines, to celebrate the 150th Anniversary of the fence by enlisting the community to paint the entirety of the structure in an hour. The firm Waters and Brown prepped the fence, according to the Technical Specifications, and provided free paint and brushes for the entire corps of volunteers. This show of support from the local community is indicative of the continued importance the people of Salem place on the preservation of the fence and their cultural heritage. The most recent restoration work on record for the fence is two separate efforts, in 2001 and 2002, to replace at least 14 of the pipe bollards with more historically appropriate cast-iron bollards.

Given this history of intermittent and under-funded preservation efforts, it is not surprising that the current level of deterioration for the fence, as a whole, remains poor. It has gotten to such a point that, in 2007, it was placed on Historic Salem Inc's "Most Endangered" list. The organization's stance on this issue is well defined in the Managing Director's grant recommendation letter to the DEM in 2000: "The 'Common' is a high profile property and as such, sets the tone for the historic and architecturally significant adjacent areas… In short, Salem Common is integral to the City's quality of life, and to our economic health as well as our cultural and historic heritage." (Busteed, 2000). Its rehabilitation has also become one of the major priorities for the Salem Common Neighborhood Association and has historically garnered widespread popular support.

In March 2012, the City of Salem, in collaboration with the Massachusetts Historical Commission, applied for a Massachusetts Preservation Projects Fund (MPPF) grant in the amount of $100,000. The intended scope of this project includes the restoration of the fences and bollards flanking entrances # 1 through #8, and #11, with entrances #9 and #10 included as potential Add Alternates. The project has been broken down into two phases. Phase I, totaling $50,000, will be paid by the City and all work is based on the parameters of the Grant. Phase II, with a total budget of $200,000 is intended to utilize the Grant funds with matching amounts by the City.

## ENTIRE INSCRIPTION *(if applicable):*

N/A

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CBI CONSULTING INC.

CBI

PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Project Plans and Specifications

# Salem Common Fence Restoration
# Salem, Massachusetts

OFFICES
BOSTON
MIAMI

T 617 • 268.8977
F 617 • 464.2971
cbiconsultinginc.com

250 DORCHESTER AVENUE • BOSTON, MASSACHUSETTS 02127

PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Table of Contents

## Project Plans and Specifications
## March 30, 2012



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PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Project Manual
# Phase I

# Salem Common Fence Restoration
# Salem, Massachusetts

OFFICES
BOSTON
MIAMI

T 617 • 268.8977
F 617 • 464.2971
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# DOCUMENTS AND SPECIFICATIONS

**FOR**

# PHASE I
# HISTORIC REPAIRS TO SALEM COMMON CAST-IRON FENCE
# SALEM, MA

**CITY OF SALEM**

**Bid Documents**

March 30, 2012


## CBI Consulting Inc.

**250 Dorchester Avenue**
**Boston, Massachusetts 02127**
**(617) 268-8977**
**Fax (617) 464-2971**
**cbi@cbiconsultinginc.com**


**CBI FILE NUMBER 11195 SPEC, PHASE I**

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**HISTORIC REPAIRS TO SALEM COMMON**
**CAST-IRON FENCE** **# OF PAGES**

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

# BIDDING DOCUMENTS

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**LEGAL NOTICE**
**CITY OF SALEM**
**BID # X-XX**

Sealed Bids will be received at the Office of the City Purchasing Agent, 120 Washington Street, 3rd floor, Salem, MA 01970, on or before **10:00 A.M., XX,XXX 2012** at which time and place they will be publicly opened and read for the following:

**HISTORIC REPAIRS TO SALEM COMMON CASTE-IRON FENCE**

The **Bid** award is made by the Purchasing Agent and is subject to **Mayoral** approval. The City of Salem reserves the right to reject any and all bids or to waive any informalities in the Bid process, if deemed in the City's best interest.

A pre-bid conference will be held on **XX,XXX, 2012 at 10 am** at 120 Washington Street 3rd floor, Salem. Contact Natalie Lovett, Department of Planning and Community Development, for directions at (978) 619-5685.

Bid Documents containing Specifications, Requirements, and Conditions will be/are available to view after **10:00 AM, XXX XX, 2012**, at the Office of the City Purchasing Agent, 120 Washington Street 3rd Floor, Salem, MA and may be viewed and printed from www.comm-pass.com, search solicitations X-XX, or www.salem.com within the Purchasing Department, under Bids and RFP's, X-XX.

Office Hours**:**
Mon., Tues., Wed., 8:00AM – 4:00PM
Thurs. 8:00AM – 7:00PM
Fri. 8:00AM – 12:00PM (noon)

Thomas Watkins
Purchasing Agent

XXXX
XXXX

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

# INVITATION FOR BID

The City of Salem invites sealed bids for **Historic Repairs to Salem Common Cast-Iron Fence**. Bid Documents will be available for pick up during normal business hours **after 10:00AM on Monday, XX XX, 2011** at the Office of the City Purchasing Agent, Salem City Hall Annex, 120 Washington St, 3rd Floor, Salem. City Hall Annex Office hours are as follows: Mondays - Wednesdays 8AM—4PM, Thursdays 8AM—7PM, and Fridays 8AM—12PM (noon).

A pre-bid conference will be held on **Tuesday, XX,XXX, 2012 at 10:00AM** at Salem City Hall Annex, 120 Washington St., 3rd floor Conference Room. Contact Natalie Lovett, at the City of Salem Department of Planning & Community Development for directions at 978-619-5685.

Each bidder shall fully acquaint him/herself with and examine the Contract and Bidding Documents. Failure of any bidder to acquaint him/herself with these documents shall in no way relieve bidder from any obligation with respect to his/her bid.

Sealed bids shall be received **on or before 10:00 AM, Wednesday, August 10, 2011** at the Office of the City Purchasing Agent, Salem City Hall Annex, 120 Washington Street, 3rd floor, Salem, Massachusetts 01970.

Bids will be valid only when accompanied by a bid deposit in the form of a certified check, issued by a responsible bank or trust company, or a bid bond duly executed by the bidder as principal and having as surety thereon a surety company approved by the City, all in the amount of 5% of the total bid, payable to the "City of Salem".

Prior to the contract execution, the successful bidder will be required to furnish**:**

1. Labor and Materials Payment Bond and a Performance Bond being 100% of the amount of the Contract Price, issued by a company Licensed by the Division of Insurance of the Commonwealth of Massachusetts and in accordance with the requirements of the contract documents.
2. Certificate of Insurance with Workers Compensation Coverage in the amounts required by the contract documents.

This bid is solicited to the public pursuant to the rules set forth in M.G.L. 30,39M. The Awarding Authority reserves the right to waive any informalities and to reject any or all bids if it is in the public interest to do so

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

# INSTRUCTIONS TO BIDDERS

**All bidders must adhere to the following instruction. Bids that do not meet all the requirements of these instruction will not be considered.**

1. **Formal Cover Sheet and Bid Form**
   All information must be typewritten or printed in ink, including the price(s) that the successful contractor proposes in the space(s) provided on the official Cover Sheet and Bid Form. These forms must be signed by the contractor.

2. **Other Required Forms**
   All contractors must sign and submit with their price quote the **Attestation Clause** regarding Massachusetts State tax returns and **Certificate of Non-Collusion.**

3. **Bid Security Deposit**
   Bids will be valid only when accompanied by a bid deposit in the amount of 5% of the total bid, payable to the "City of Salem". The Bid Deposit shall not be enclosed in the sealed envelope containing the Bid, but shall be contained in a separate envelope attached to the bid

4. **Payment Bond**
   If the Quote Total is greater than $2,000, at the time of contract award the successful contractor shall present to the City of Salem a 100% Payment Bond issued by a company licensed by the Massachusetts Division of Insurance.

5. **Bidder Qualifications**
   The bid will be awarded to the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work (applicable to M.G.L. c. 30, section 39M). Bidders are directed to complete to the Bidder Qualifications Form to provide information regarding the contractor's satisfaction of these requirements.

6. **Insurance**
   a. General - The Successful contractor shall before commencing performance of the Contract shall be responsible for providing and maintaining insurance coverage in force for the life of the Contract of the kind and in adequate amounts to secure all of the obligations under the Contract and with insurance companies licensed to write insurance in the Commonwealth of Massachusetts. All such insurance carried shall not be less than the kinds and amounts designated herein, and the Successful contractor agrees that the stipulation herein of the kinds and limits of coverage shall in no way limit the liability of the Successful contractor to any such kinds and amounts of insurance coverage. All policies issued shall indemnify and save harmless the City of Salem, its agents and employees from any and all claims for damages to persons or property as may arise out of the performance of this Contract.
   Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of this Contract, and may constitute sufficient grounds for immediate termination of the same. All insurance maintained as provided for in the above shall be

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taken out and maintained at the sole expense of the Successful contractor. Proof of such insurance shall be delivered to the Purchasing Agent within Five (5) days from the date of the Notice of Award.

No cancellations of such insurance, whether by the insurer or by the insured party shall be valid unless written notice thereof is given by the parties proposing cancellation to the other party and to the City of Salem at least fifteen- (15) days prior to the intended effective date thereof, which date shall be expressed in said notice, which shall be sent by registered mail, return receipt requested. These provisions shall apply to the legal representatives, trustee in bankruptcy, receiver, assignee, trustee, and the successor in interest of the Successful contractor.

b. Successful contractor's Comprehensive General Public Liability and Property Damage Liability Insurance - The Successful contractor shall carry Comprehensive General Liability Insurance providing for a limit of not less than Five Hundred Thousand Dollars ($500,000.00) for all damages arising out of bodily injury to or death of one person, and subject to that limit for each person, a total limit of not less than One Million Dollars ($1,000,000.00) for all damages arising out of bodily injuries or death of two or more persons in any one accident; and Successful contractor's Comprehensive Property Damage Liability Insurance providing for a limit of not less than Five Hundred Thousand Dollars ( $500,000.00 ) for all damages arising out of injury to or destruction of property in any one accident, and subject to that limit per accident, a total ( or aggregate ) limit or not less than One Million Dollars ( $1,000,000.00 ) for all damages arising out of injury to or destruction of property during the policy period.

c. Workman's Compensation Insurance - The Successful contractor shall carry Workman's Compensation Insurance as prescribed under Massachusetts Law.

d. Automobile Liability Insurance - The Successful contractor shall carry comprehensive Automobile Liability Insurance covering all owned vehicles, hired vehicles or non-owned vehicles under the control of the Successful contractor while performing work under this Contract in the amount of not less than Five Hundred Thousand Dollars ($500,000.00) for all damages arising out of bodily injuries to or death of one person and subject to that limit for each person, a total of not less than One Million Dollars ($1,000,000.00) for all damages arising out of bodily injuries to or death of two or more persons in any one accident; and Property Damage coverage in the amount of not less than Five Hundred Thousand Dollars ( $500,000.00 ) for all damages arising out of injury to or destruction of property.

e. All insurance coverage shall be placed with such company as may be acceptable to the City of Salem and shall constitute a material part of the Contract documents.

f. The City of Salem and CBI Consulting Inc. shall both be named as an additional insured on the General Contractor's liability insurance policy with a waiver of subjugation.

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7. **Prices**

These shall encompass everything necessary to furnish and deliver all items, materials, supplies or services as specified. Prices quoted must include delivery FOB to the City of Salem. The City of Salem is exempt from sales tax.

8. **Unit Price**

In the event of a discrepancy between the Unit Price and the Extension, the Unit Price shall govern.

9. **Explanation, Exceptions**

Other information pertinent to the specifications may be made in the form of a letter included in the same envelope with the Bid Proposal.

10. **Corrections**

Bids that are submitted containing crossouts, whiteouts, or erasures **will be rejected.** All corrections or modifications to an original proposal are to be submitted in a separate envelope, properly marked, **prior to the bid opening only. All documents will be incorporated into the contract documents.**

11. **Withdrawal of Quote**

A quote may be withdrawn by written request prior to the schedule submission deadline.

12. **Evaluation**

Bids will be evaluated on price, quality, experience, and references.

13. **Examination**

By submitting a bid, the bidder warrants that he/she has thoroughly examined the specifications and is fully acquainted with all conditions and restrictions pertaining to the quote items. No claims for any extra work or extension of time will be allowed for failure to observe this requirement.

14. **Payroll and Payment**

In accordance with Massachusetts General Law c.149, s.27B, every Contractor and Subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. The City reserves the right to hold payment of any monies outstanding under this contract until the Contractor of subcontractor complies with the requirements of this law. **The work is subject to MA Prevailing Wage Rates.**

15. **Minority Procurement Goals**

Under Massachusetts Executive Order 237, it is the policy of the Commonwealth to promote to the fullest participation of all citizens in resources provided by municipal government. Therefore, the City of Salem invites the participation of minority and women owned businesses in any and all parts of the contract.

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16. **Non-Discrimination In Employment**

A contract for work under this proposal shall obligate the Contractors or Sub-Contractors not to discriminate in employment practices. Bidders must, if requested, submit compliance reports concerning their employment practices and policies in order to maintain their ability to receive an award of Contract. Bidders must, if requested, submit a list of all Sub-Contractors who will perform work on this Contract together with a "Certification of Bidder Regarding Equal Employment Opportunity" signed by the Contractor and/or his/her Sub-Contractors as requested.

17. **Addenda and Interpretations**

All questions by the prospective bidders as to any information contained within this bid **must be submitted in writing at least five (5) business days prior to the bid deadline.** Please send all questions via email to **twatkins@salem.com**. Copies of Addenda, if any, will be faxed or e-mailed to bidders of record without charge.

18. **Rejection**

THE CITY OF SALEM RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS OR WHICH IN THE OPINION OF THE AWARDING AUTHORITY SERVES THE BEST INTEREST OF THE CITY OF SALEM.

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# CHECKLIST
# SUBMISSION REQUIREMENTS

This page is to be completed by the City of Salem and is also supplied to assist bidders in fulfilling the Bid Submission Requirements:

[ ] **YES** [ ] **NO** **COMPLETE BID COVER SHEET**

[ ] **YES** [ ] **NO** **COMPLETE BID FORM**

[ ] **YES** [ ] **NO** **CERTIFICATE OF NON-COLLUSION & ATTESTATION STATEMENT FORM**

[ ] **YES** [ ] **NO** **STATEMENT OF CORPORATE AUTHORITY FORM**

[ ] **YES** [ ] **NO** **OSHA CERTIFICATION FORM**

If all "YES" continue; if one "NO" may be cause for rejection.

[ ] **YES** [ ] **NO** **5% BID DEPOSIT**
The bid deposit must be sealed in a separate envelope from the bid and attached to the bid containing envelope.

If all "YES" continue; if "NO" may be cause for rejection.

[ ] **YES** [ ] **NO** **MEETS ALL MINIMUM EVALUATION CRITERIA**

If "YES", continue; if "NO" then may be cause for rejection.

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# BID COVER SHEET
# BID #X-XX
# Repairs of Salem Common Cast-Iron Fence

The City of Salem reserves the right to reject any or all Bids, to omit any item or items called for, or to accept the Bid deemed in the best interest of the City. One (1) original and two (2) copies of the Bid Proposal must be submitted **on or before 10:00 AM on Wednesday, XX,XXX, 2012** to**:**

Thomas Watkins
Purchasing Department
Salem City Hall Annex
120 Washington Street, 3rd Floor
Salem, Massachusetts 01970

The envelope containing the bid and required information must be sealed and marked with the Bidder's Name, Title of BID, BID Number, and Date of Opening. The Bidder must sign all required signature pages in order for the proposal to be considered.

The City of Salem reserves the right to reject any and all bids, or to waive any informalities in the bidding process, if deemed in the City's best interest.

The Bidder acknowledges receipt of the following **ADDENDA #**_____

**BUSINESS NAME** _____

**BUSINESS ADDRESS** _____

**CITY, STATE, & ZIP CODE** _____

**TELEPHONE & FAX NUMBERS** _____

**AUTHORIZED OFFICER SIGNATURE** _____

**AUTHORIZED OFFICERS NAME (PRINT)** _____

**DATE** _____

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# FORM FOR GENERAL BID
# BID #X-XX
# Repairs of Salem Common Cast-Iron Fence

To be prepared by**:**

Thomas Watkins
Purchasing Department
Salem City Hall Annex
120 Washington Street, 3rd Floor
Salem, Massachusetts 01970

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

# CERTIFICATE OF NON-COLLUSION
## (mandatory)

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

*Date:* _____ _____
*Company or Corporation*

_____
*Authorized Official's Signature*

---

# ATTESTATION STATEMENT
## (mandatory)

Pursuant to M.G.L. Ch. 62C, Sec. 49A, I certify under the penalties of perjury that I, to the best of my knowledge and belief, am in compliance with all the laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

State tax paid to _____ using Federal Identification Number or

Social Security Number _____

*Date:*_____ _____
*Company of Corporation*

_____
*Authorized Official's Signature*

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# STATEMENT OF CORPORATE AUTHORITY
## (mandatory)

At a duly authorized meeting of the Board of Directors of _____

held on _____ at which time all voted that

_____ be and hereby is authorized to execute contracts and bonds in the name and behalf of said Company, and affix its Corporate seal thereto, and such execution of any contract of obligation in this Company's name on its behalf by such person _____ under seal of the Company, shall be valid and binding upon this Company.

A TRUE COPY,

ATTEST**:**_____

PLACE OF BUSINESS:

_____

_____

_____

DATE OF THIS CONTRACT**:**

_____

I hereby certify that I am Clerk of _____ and that

_____ is duly elected _____

of said Company, and that the above vote has not been amended or rescinded and remains in full force and effect as of the date of this contract.

_____
*Clerk's Signature*

(CORPORATE SEAL)

Contract Number:_____

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# OSHA CERTIFICATION
## (mandatory)

City of Salem
Historic Repairs of Salem Common Cast-Iron Fence

The undersigned agrees that if he is selected as the contractor, he will comply with the provisions of M.G.L. Chapter 30, Section 39M.

The undersigned certifies, under penalties of perjury, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

*Date:* _____ _____
*Name of General Bidder*

By:_____
*Signature*

_____
*Name of person signing bid and title*

_____
*Business Address*

_____
*City and State*

_____
*Telephone Number*

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# GENERAL TERMS AND CONDITIONS

**1.** The right is reserved to reject any and all bids or parts of bids and to make an award, in part or in whole, or by item, as may be determined to be in the best interest of the City of Salem.

**2.** Price quoted must include delivery Freight on Board (FOB) Destination.

**3.** An award to a bidder may be canceled if the bidder shall fail to prosecute the work with promptness and diligence.

**4.** The Contractor shall be responsible for all permits, fees and licenses necessary for the proper execution of the required work. The City of Salem will waive all permit fees under its jurisdiction. Bidders must not include those fees in their pricing.

**5.** The successful bidder shall repair, replace, or make good, without cost to the City, any defects or faults arising within one (1) year after the date of acceptance of articles furnished hereunder resulting from imperfect or defective work done or materials furnished by the seller.

**6.** The seller shall indemnify and save harmless the City and all persons acting for or on behalf of it from all suits and claims against them or any of them, arising from or occasioned by the use of any material, equipment, or apparatus, or any part thereof, which infringes or is alleged to infringe on any patent rights. In case such material, equipment, or apparatus, or any part thereof, in any such suit is held to constitute an infringement, the seller within a reasonable time, will, at its expense and as the City may elect, replace such material, equipment, or apparatus, or remove the material, equipment, or apparatus and refund the suns paid thereof.

**7.** The successful bidder shall comply with all applicable Federal, State, or City of Salem statutes, rules, regulations and ordinances

**8.** All work shall be performed in accordance with OSHA standards and it shall be the contractor's responsibility to ensure that all required safety equipment is present and being utilized properly at the work site. All equipment utilized under this contract shall be tested in accordance with OSHA standards. The contractor shall notify the City in writing of items and procedures not in compliance with OSHA standards and shall immediately make correction thereof to comply.

**9.** Purchases made by the City are **EXEMPT** from Massachusetts sales tax and Federal excise taxes and bid prices must exclude any such taxes. Tax exemption certificates will be furnished.

**10.** The successful bidder is required to furnish Performance and Payment bonds from a Company, in the contract amount Licensed by the Division of Insurance of the Commonwealth of Massachusetts. Bidder must pay all costs. The Performance Bond shall be in the sum of one hundred percent (100%) of the Contract Price, the Payment Bond shall be in the sum of one hundred percent (100%) of the Contract Price. The bonds

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shall be provided by the Contractor to the City within ten (10) days of the contract award.

**11.** Bids must be accompanied by a certified check, issued by a responsible bank or trust company, or a bid bond duly executed by the bidder as principal and having as surety hereon a surety company approved by the City, all in the amount of 5% of the bid, payable to the "City of Salem" and must be filed with the original bid. The bid surety will be returned to the successful bidder within seven (7) days after the execution of the awarded contract and approval by the City of the Performance Bond. In the case of a default, the bid surety shall be forfeited to the City.

**12.** Verbal orders are not binding on the City and deliveries made or work performed without formal order or written contract are at the risk of the seller or Contractor and may result in an unenforceable claim.

**13. EQUALITY -** An item equal to that named or described in the specifications may be furnished by the vendor and the naming of any commercial name, trademark, or other identification shall not be construed to exclude any item or manufacturer not mentioned by name or as limiting competition, but shall establish a standard of equality only. An item shall be considered equal in quality, durability, appearance, strength, and design when: (a) it will perform at least equally the function imposed by the general design for the purpose being contracted for or the material being purchased; and (b) it conforms in a substantial way, even with deviations, to the detailed requirements for the item in the specifications. The name and identification of all materials other than the one named, shall be submitted to the City in writing for approval, prior purchase, use, or fabrication of such items. Subject to the provisions of M.G.L., Chapter 30, Section 39J, or other applicable statute, approval shall be in writing to be effective, and the decision of the City shall be final. The City may require tests of all materials so submitted to establish quality standards at the vendor's expense. All directions, specifications, and advice by the manufacturer for the proper installation, handling, storage, adjustment, or operation of their equipment shall be complied with and the responsibility for the proper performance shall continue to rest with the vendor.

**14. MINORITY BUSINESS PARTICIPATION -** The City of Salem invites all qualified women and minority business firms to respond to bid invitations.

**15. RIGHT TO KNOW LEGISLATION, M.G.L**., Chapter lll F and 454 CMR 21.06. All vendors furnish substances or mixtures that may be classified as toxic or hazardous, pursuant to M.G.L. Chapter lll F, are cautioned to obtain and read the Law and the Regulations referred to above. Copies may be obtained from the State House Bookstore, State House, Room 117, Boston, Massachusetts 02133 for a fee.

**16. NON-COLLUSION AFFIDAVIT** - any person submitting a bid for the sale, lease, or provision of equipment, supplies or materials, or services to any government unit shall certify that the bid is made without collusion or fraud with any other person. Failure to submit such statement will result in the bid being disqualified.

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17. **PAYMENT OF TAXES TO THE COMMONWEALTH OF MASSACHUSETTS PURSUANT TO M.G.L.** Chapter 62C, Section 49A - no contract may be entered into with any party that has not filed and paid all taxes required under Law.

18. **WEEKLY PAYROLL RECORDS REPORT** - In accordance with Massachusetts General Law, Chapter 149, Section 27B, a true and accurate record must be kept of all persons employed on a public works construction project for which the Prevailing Wage Rates have been provided. Every Contractor and Sub-Contractor must submit a copy of their weekly payroll records to the Awarding Authority. This is required to be done on a weekly basis. Failure to submit payrolls may result in delayed payment of monies outstanding, until contractor or subcontractor is in compliance with this law. Once collected, the Awarding Authority is required to preserve those records for a period of three years.

19. **WARRANTIES/GUARANTEES** - All prospective bidders on items that carry warranties and/or guarantees must include with their sealed proposal a copy of the warranties and/or guarantees of major components as well as a copy of the warranties and/or guarantees on the items being bid, if applicable. The bidder must make arrangements to assure the owner that the warranties or guarantees can be assigned to the owner. The owner's intent is to use the extent of the coverage in the warranties and/or guarantees as part of the awarding procedure.

20. **AIA GENERAL CONDITIONS –** The attached AIA General Conditions of the Contract shall also apply. Please note that in any conflict between the General Terms and Conditions, above, and the AIA document, the more stringent requirement shall apply at the sole discretion of the Architect.

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# CONTRACT DOCUMENTS

CBI Consulting Inc.
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Fax: (617) 464-2971

## SECTION 00 66 00 - GENERAL RELEASE AND WAIVER OF LIEN

NAME: _____
(Contractor)

ADDRESS: _____

_____

_____

To: City of Salem
City Hall Annex
Office of the City Purchasing Agent
Thomas Watkins, City Purchasing Agent
120 Washington Street, 3rd Floor
Salem, Massachusetts 01970

Date: _____

Project: Historic Repairs to Salem Common
Cast-Iron Fence
Salem, Massachusetts

We, the undersigned, in consideration of payments made to us, hereby waive and release all actions, debts, claims, and demands against _____ (General Contractor) and the City of Salem, on account of all work, services, equipment, and materials performed or furnished by us in connection with the construction of a building, improvements, and facilities on real property owned by The City of Salem at the Historic Salem Fence and in connection with the historic repairs to the cast-iron fence, or pursuant to our contract, dated _____ made with the City of Salem, and amendments and change orders thereto; and

We hereby waive and release any mechanics', materialman's, or like lien, and all rights to file any such lien in the future, against said real property on account of said work, services, equipment and materials performed or furnished by us.

Date: _____

By: _____

Title: _____

(Seal)

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## SECTION 00 66 10 - GENERAL RELEASE AND WAIVER OF LIEN

NAME: _____
(Sub-Contractor/Material Supplier)

ADDRESS: _____

_____

_____

To: City of Salem
City Hall Annex
Office of the City Purchasing Agent
Thomas Watkins, City Purchasing Agent
120 Washington Street, 3rd Floor
Salem, Massachusetts 01970

Date: _____

Project: Historic Repairs to Salem Common
Cast-Iron Fence
Salem, Massachusetts

We, the undersigned, in consideration of payments made to us, hereby waive and release all actions, debts, claims, and demands against _____ (General Contractor) and the City of Salem, on account of all work, services, equipment, and materials performed or furnished by us in connection with the construction of a building, improvements, and facilities on real property owned by The City of Salem at the Historic Salem Fence and in connection with the historic repairs to the cast-iron fence, or pursuant to our contract, dated _____ made with the City of Salem, and amendments and change orders thereto; and

We hereby waive and release any mechanics', materialman's, or like lien, and all rights to file any such lien in the future, against said real property on account of said work, services, equipment and materials performed or furnished by us.

Date: _____

By: _____

Title: _____
(Seal)

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## SECTION 00851 –DRAWING LIST

1.01 Drawings ( All drawings are 24” x 36” ).

G0-01 COVER SHEET

ARCHITECTURAL

G0-01 COVER SHEET
L1-01 SITE PLAN
A1-01 FENCE ELEVATIONS
A1-02 FENCE ELEVATIONS
A1-03 FENCE ELEVATIONS
A1-04 FENCE ELEVATIONS
A1-05 TYPICAL FENCE DETAILS
A1-06 TYPICAL FENCE DETAILS

END OF SECTION

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# TECHNICAL SPECIFICATIONS

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**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 01 00 SUMMARY OF WORK**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 DESCRIPTION OF WORK - GENERAL

A. In general, the Contractor shall supply all material, labor, equipment, insurance, temporary protection, tools and appliances necessary for the proper completion of the work as described in the Plans and Specifications, in accordance with good construction practice, and as required by the materials manufacturers.

B. Supply all shoring and protection necessary to protect the occupants, building area, building systems, and landscape areas. All means and methods are the responsibility of the contractor. The Contractor is solely responsible for safety on the job site.

C. In general, the work includes, but is not limited to:

1. Carefully disconnect and transport selected fence sections to the shop for renovation and repair. Pad all sections to avoid breakage and scratching.

2. Sandblast all parts of each fence section to remove all paint, rust and scale.

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3. Properly dispose of paint and sand blast debris as lead paint. Provide disposal manifest.

4. Replace missing or damaged pieces of the fence. Cast all new cast-iron to match existing to replace missing parts. Create patterns for each of the existing pieces of the fence, sized to match the existing in dimension and scale. (Exception: The bottom rail pattern exists and does not need to be produced).

5. Straighten the fence so that it stands plumb, level, and true.

6. Replace missing or damaged pieces of top rail from mild steel.

7. Install new expansion joints at the ends of each top rail as the connection.

8. Assemble all the parts into a unified assembly.

9. Brush blast the entire assembly to remove any "blush rust".

10. Paint the entire fence assembly with a 3-coat high tech paint system including a zinc rich primer (Gray), an epoxy intermediate coat (Red), and a polyurethane top coat (Black). Do not proceed with subsequent coats until the previous coat has been completely covered. Provide minimum mil thickness as recommended by the manufacturer. However, coverage is the measure of completeness of the paint.

11. Apply continuous black silicone sealant over the clean, cured painting at the locations noted on the details.

12. Carefully pad and protect the finish and transport to the site.

13. Carefully install on site to be level, plumb, and true.

14. Touch-up the paint finish to the complete satisfaction of the Architect. Excessive damage to the factory finish will be cause for rejection of the work and the fence will be required to be returned and repainted in the shop at no additional cost to the Owner.

15. Fence sections to include in Phase I are #1, 2, 241, 242, 243, 244, 245, 251, 252, 253.

16. Add Alternate #1 work shall include fence section #63.

17. Add Alternate #2 work shall include fence section #64.

18. Add Alternate #3 work shall include fence section #65.

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1.03 INTENT OF THE PROJECT MANUAL

A. Whenever “Furnish”, “Install”, or “Provide” is used in the Contract Documents, it shall mean to erect, install, connect, make operative, and supply all labor and materials, including miscellaneous fittings, hardware, and accessories necessary to complete the installation of the specified item.

B. The scope of work is indicated in the Project Manual. Areas of required work indicated on the drawings are for illustration and are not to be interpreted as representing quantities, exact locations, and/or the extent of work required. The Owner makes no representation of the exact quantities of work required. It shall be the responsibility of the Contractor to do all work to the complete fulfillment of the requirements of the Project Manual.

1.04 ERRORS, OMISSIONS, AND CONFLICTS IN THE PROJECT MANUAL

A. In the case of conflicts in the Drawings and the Specifications noticed by the Contractor, the Architect shall be notified immediately in writing of such errors and/or omissions. In no case shall the Contractor proceed without written authorization from the Architect.

1.05 UNFORESEEN FIELD CONDITIONS

A. In the case of unforeseen field conditions, the Contractor shall notify the Owner and Architect immediately in writing of such conditions. In no case shall the Contractor proceed without written authorization from the Architect. If such unforeseen conditions result in additional expense, the Contractor shall not proceed without the written approval of the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 02 00 UNIT PRICES**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The Unit Prices for items set forth in the Schedule of Unit Prices shall be used to determine adjustments to the Contract Sum when changes in the Work involving said items are made in accordance with Article 8 of the General Conditions and other sections of the Contract Documents.

B. Unit Prices listed under ADDITIONS have been computed to include net cost plus overhead, profit, and bond and all other charges required to complete the work item.

C. Unit Prices net cost includes the cost of all labor, materials, equipment, disposal, and all other costs required to complete the work item.

D. Materials, methods of installation, and definitions of terms set forth under the various Unit Price items in the Schedule of Unit Prices shall be as indicated in the Contract Documents.

E. Unit costs will not be adjusted if the quantities approved in the field by the Architect vary from the base contract quantities listed in the Project Manual.

1.02. APPLICABILITY OF UNIT PRICES

A. The payment lines shall be determined in the field by the Architect.

B. Unit Prices are for more work or less work than is included in the base contract for the various tasks included. Quantities to be included in the base contract are listed in the Unit Price Schedule.

C. Prior to commencing removal or placement of materials set forth in the Schedule of Unit Prices, the Contractor shall notify the Architect in sufficient time to permit proper measurements to be taken on behalf of the Owner. Only quantities which have been approved in writing by the Architect will be considered in the determination of adjustments to the Contract Sum. Unit costs shall include the pro rata share of all costs associated with doing the work, including staging, insurance, overhead, and profit, as well.

D. Performance of Work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such Work item is set forth hereunder as a Unit Price item, shall not be considered cause for extra

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

payment. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Architect.

E. See attached Unit Price Schedule.

**UNIT PRICE SCHEDULE**

| # | DESCRIPTION OF WORK | UNIT | BASE BID QUANTITY | ADD PRICE |
|---|---|---|---|---|
| 1 | Complete Fence Assembly | EA | See Plans | |
| 2 | Entire End Support Post | EA | See Plans | |
| 3 | Top of End Support Post | EA | See Plans | |
| 4 | Single Picket | EA | See Plans | |
| 5 | Top Rail | EA | See Plans | |
| 6 | Bottom Rail | EA | See Plans | |
| 7 | Entire Fence Panel (Excluding End Support Posts) | EA | See Plans | |

F. *Indicates that the quantity listed is in addition to all the scope areas noted on the plans.

G. All repair locations will be determined and marked in the field by the Engineer. Repairs will be located at small individual locations throughout the entire scope area. Unit Price work performed without the approval of the Engineer will not be paid for.

H. The Owner reserves that right to increase or decrease the unit cost quantities without any adjustment in the unit costs.

I. Unit costs include pro-rata share of Contractor's, general conditions, staging, insurance, bond, overhead, and profit, etc.

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 03 00 SPECIAL PROJECT PROCEDURES**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 BIDDERS EXAMINATION AND INSPECTION OF EXISTING BUILDING AND SITE

A. All bidders must inspect the existing site and make their own assessment of the work required to achieve the complete, finished conditions specified in the Contract Documents.

B. Failure to adequately inspect the site and/or correctly assess existing conditions shall not be cause for additional payment.

C. Every contractor will be bound by the scope of work of the Contract Documents and shall make the inspections necessary to assure that the bid price includes the complete scope.

1.03 HOURS OF WORK

A. Work may commence at 7:00 A.M. and continue until 5:00 P.M., Monday through Saturday.

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Tel: (617) 268-8977
Fax: (617) 464-2971

B. The contractor shall be completely and fully responsible for the security and safety of the job site at all times.

1.04 CONTRACTOR USE OF THE BUILDINGS, ACCESSIBILITY AND SCHEDULES FOR WORK

A. The work of the Contractor and all Subcontractors shall be performed during the hours of operation as specified herein and in and around areas of the site used while occupied by the Owner and the public. The Contractor shall execute the Work with the least possible disturbance to the use and continuous functioning of the site. The Contractor and each Subcontractor take all necessary measures to assure the safety of the staff, visitors, and the general public. The General Contractor is solely responsible for safety on the job site including securing and making safe all construction areas during construction hours as well as during non-construction hours.

B. Schedule of Work and Site Use

1. The Contractor shall schedule the work of this Contract so as to perform and complete the Work of the Contract according to the following schedule. The Contractor shall within seven (7) days of the Notice of Contract Award, submit a schedule to the Owner and Architect for review.

2. Between the time period of the general bid due date and Construction Commencement, the Contractor shall take all necessary measures to complete the Work of this Contract. It is expected that the Contractor utilize the time period between the bid date and construction start date to schedule and coordinate the work and work sequence, prepare shop drawings and submittals for approval and order materials. The Owner shall issue a Notice to Proceed. If the work is not complete by the completion date, the Contractor will be subject to liquidated damages.

3. The Contractor shall be responsible for providing any and all measures and/or temporary construction required to control the transmission of dust, particles, and fumes from construction activities.

4. The Contractor shall be responsible on a daily basis for informing the designated Owner’s representative of all persons on-site that day associated with the Work. The Contractor shall establish a daily reporting system of all activities which is acceptable to the Owner.

5. The Construction schedule shall indicate the dates for start and completion of each work item or task required with all milestones using a Bar Chart subject to approval by the Architect.

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6. The Awarding Authority's review of the project construction schedule shall not extend to the accuracy or other matters dealt with in the schedule, including but not limited to whether work is omitted, whether duration of activity is reasonable, the level of labor, materials or equipment, the Contractor's means, methods, techniques, procedures or sequence of construction, or whether the sequence and timing for work remaining are practical. The accuracy, correctness of all work, sequencing, and schedules shall remain the sole responsibility of the Contractor. Neither the Awarding Authority's review of a schedule nor a statement of resubmittal not required shall relieve the Contractor for the responsibility for complying with the contract schedule, adhering to sequences of work, or from completing any omitted work with the Contract Time.

7. The Contractor shall provide, erect and maintain barricades with any required egress, access doors, lighting, ventilation, guard rails and all other appurtenances required to protect the general public, visitors, staff, and workers while construction is in progress. Safety is the sole responsibility of the Contractor on the job site.

1.05 HOUSEKEEPING AND PROTECTION OF EXISTING CONDITIONS

A. Maintain the premises in a safe, orderly condition at all times. Protect construction, furnishings, equipment and other items.

B. Property Protection: The General Contractor shall take all measures necessary to protect the Owner's property.

C. Security: The General Contractor shall take every possible precaution to maintain the security of the buildings and site. The Contractor shall cooperate with the Owner fully and follow the Owner's directions as issued. The Contractor shall control and restrict access to areas of work to prevent injury to persons and property.

D. The Contractor shall properly cover, protect and maintain floor and finished surfaces to prevent damage. Replace protective coverings which become wet, torn or ineffective.

E. Roof and Finished Surfaces Protection:

1. The Contractor shall restrict traffic on roofs and finished surfaces to that required to perform the work of this Contract and permit traffic only required to properly complete the Work.

2. Effectively protect surfaces to prevent damages to existing substrates, new finishes, and to finished roofing work. Provide temporary walkways and work platforms as needed.

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

3. Load distribution: The Contractor and any Subcontractor shall not load or permit any part of the structure to be loaded in any manner that will damage the existing structure or endanger the safety of persons or property. Such loads shall include live and dead loads and all moving, vibratory, temporary and impact loads.

F. Correction by the Contractor

1. At no additional cost to the Owner, the General Contractor shall immediately correct all deficiencies, including damages to the building, site and site surfaces, damages to furnishings, damages to equipment or systems, damage to adjacent properties, and all other damage caused by the General Contractor or its Subcontractors during the execution of the Work of this Contract. Any and all damages resulting from inadequate, insufficient or defective temporary protections installed by the Contractor during the work of this Contract, shall be corrected by the General Contractor at no additional cost to the Owner.

1.06 REQUIREMENTS RELATED TO BUILDING USERS' FURNISHINGS, EQUIPMENT AND OTHER ITEMS

A. The General Contractor is responsible for protecting all furnishings, equipment and items from damage (including construction generated dust) during the entire construction period.

B. The General Contractor shall be responsible for moving and re-setting up all furniture, fixed and movable equipment, file and storage cabinets, recreation equipment, boxes, and all other items to accomplish the work of both the General Contractor and the Subcontractors in its entirety.

1.07 DUST, DIRT, AND FUME CONTROL

A. The Contractor shall take all necessary precautions and provide all necessary temporary construction to effectively contain dust, dirt and fumes within the areas of work and within the work limits. Temporary construction shall be provided to effectively prevent dust and dirt from entering areas of the buildings or adjacent buildings, satisfying all City, State and Federal laws, codes, and requirements.

1.08 RUBBISH REMOVAL

A. The Contractor shall remove all rubbish, waste, tools, equipment and appurtenances caused by and used in the execution of the Work; but this shall in no way be construed to relieve the Contractor of his primary responsibility for maintaining the building and Project site clean and free of debris, leaving all work in a clean condition and satisfactory to the Official.

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Fax: (617) 464-2971

B. Immediately after unpacking, the Contractor shall collect and remove from the building and Project site all packing materials, case lumber, excelsior, wrapping and other rubbish.

C. Rubbish removal shall occur so that trash and debris are contained in closed and secured waste containers.

1.09 SITE DRAINAGE AND PUMPING

A. The Contractor shall be responsible at all times for proper and sufficient site drainage and shall maintain such drainage during the life of the Contract in a manner acceptable to the Owner and so as not to adversely affect the adjacent areas or adjacent properties.

B. The Contractor shall provide and maintain all pumps, suction and discharge lines, and power in sufficient number and capacity to keep all excavations, pits, trenches, foundations and the entire property area free from accumulation of water from any source whatsoever at all times and under way and all circumstances and contingencies that may arise.

1.10 SNOW AND ICE REMOVAL

A. The Contractor shall promptly remove all snow and ice which may impede the work, damage the finishes or materials, be detrimental to all/any crafts or trade, or impede trucking, delivery or moving of materials at the site, or prevent adequate drainage of the site or adjoining areas.

1.11 WINTER CONSTRUCTION

A. The Contractor shall provide protection against damage to materials and work installed in freezing weather, including special heat and coverings to prevent damage by the elements. Therefore, the Contractor is completely responsible for any and all winter conditions protection, including but not limited to: The ground surface, under footings, under pipe lines, under masonry, under concrete, and other work subject to damage shall be protected against freezing or ice formations.

B. Refer to SECTION 01500--TEMPORARY FACILITIES, for additional requirements applicable to winter construction.

1.12 BROKEN GLASS

A. The Contractor shall be held responsible at all times prior to Substantial Completion of the Work, or occupancy by the City, whichever occurs first, for all broken or scratched glass, or glass which had been damaged as a result of the Work, or otherwise. And, when so directed by the Official, the Contractor shall

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

replace at no increase in Contract Price or Contract Time, all such glass broken, missing, or damaged prior to Substantial Completion.

1.13 CLEANING AND POLISHING

A. The Contractor shall at all times keep the building and Project site free from accumulation of waste materials or rubbish.

B. Immediately prior to final inspection, the entire building and surrounding Project areas shall be thoroughly cleaned by the Contractor including, without limitation:

1. All construction facilities, tools, equipment, surplus materials, debris and rubbish shall be removed from the Project site and the entire Work shall be left broom clean.

2. All finished surfaces shall be left in perfect condition, free of stains, spots, marks, dirt, and other defects. The Contractor shall be responsible for the cleaning and polishing of the Work of all trades, whether or not cleaning by such trades is included in their respective Selection of the Specifications.

3. All glass in the building shall be washed and polished on both sides.

4. All metals, hardware, fixtures, and equipment shall be left in undamaged, bright, polished condition.

5. Plenums, duct spaces and furred spaces shall be protected at all times from fumes, particles and other air-borne construction effects. These building spaces shall be left clean of debris and decayable materials.

6. Equipment and building systems located in areas of construction shall be cleaned and tested and made perfectly operational to the satisfaction of the Owner prior to Substantial Completion or partial Substantial Completion of that area of work.

C. In cleaning items having manufacturer's finish, or items previously finished by a Subcontractor, care shall be taken not to damage such finish. In cleaning glass and finish surfaces, care shall be taken not to use cleaning agents which may stain or damage any finish materials. Any damage to finishes caused by cleaning operations shall be corrected and repaired by the Contractor at no increase in Contract Price.

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

1.14 OR-EQUAL

A. Where materials, equipment, apparatus, or other products are specified by Manufacturer, brand name, type or catalog number, such designation is to establish standards or performance, quality, type and style.

B. If the General or Subcontractor wishes to use materials or equipment other than these specifically designated herein, as being equal to those so specifically designated, he shall submit the proposed substitution before purchasing and/or fabrication in accordance with the requirement of the General Conditions for approval.

C. It is the responsibility of the Contractor to submit all back-up material and data needed to prove that the proposed product is an "or-equal". The Architect will not review an alternative product without proper documentation. Alternative products and assemblies will be rejected immediately without proper documentation.

D. The schedule of the project is not subject to the availability of products submitted as "or approved equal" or the review needed to certify an "or approved equal" product.

1.15 PERMITS AND POLICE DETAILS

A. The contractor is responsible for procuring and paying for all applicable permits and police details throughout the entire project.

1.16 COORDINATION

A. The Contractor shall coordinate locations of all items to be installed with the Architect. If an item is not dimensioned, for height or location, contact the Architect for the installation information. Installation of items without the proper dimensional information may result in reinstallation at no additional charge by the contractor.

1.17 GENERAL NOTES

A. CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND COORDINATING ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS. IN CASE OF CONFLICT, THE ARCHITECT SHALL BE NOTIFIED AND SHALL RESOLVE THE CONFLICT.

B. IN ANY CASE OF CONFLICT BETWEEN THE DRAWINGS AND THE PROJECT SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

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Fax: (617) 464-2971

C. THE CONTRACTOR SHALL MAKE NO DEVIATION FROM DESIGN DRAWINGS WITHOUT PRIOR REVIEW BY THE ARCHITECT.

D. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE REPEATED.

E. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND LOCAL LAWS AND REGULATIONS.

F. GENERAL CONTRACTOR SHALL COORDINATE LOCATIONS OF OPENINGS, PITS, BOXES, SUMPS, TRENCHES, SLEEVES, DEPRESSIONS, GROOVES, AND CHAMFERS, WITH MECHANICAL, ELECTRICAL AND PLUMBING TRADES.

G. THE STRUCTURAL DESIGN OF THE BUILDING IS BASED ON THE FULL INTERACTION OF ALL ITS COMPONENT PARTS. NO PROVISIONS HAVE BEEN MADE FOR CONDITIONS OCCURRING DURING CONSTRUCTION. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO MAKE PROPER AND ADEQUATE PROVISIONS FOR STABILITY OF, AND ALL STRESSES TO THE STRUCTURE DUE TO ANY CAUSE DURING CONSTRUCTION.

H. CONTRACTOR SHALL NOT SCALE DRAWINGS. CONTRACTOR SHALL REQUEST ALL DIMENSIONS OR INFORMATION REQUIRED TO PERFORM THE WORK FROM THE ARCHITECT. WORK COMPLETED BY THE CONTRACTOR WITHOUT DIMENSIONS OR INFORMATION SHALL BE DONE AT THEIR OWN RISK AND, IF DEEMED INCORRECT BY THE ARCHITECT, SHALL BE REMOVED AND REINSTALLED TO THE SPECIFICATIONS OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

I. CODES: THE PROJECT IS BASED ON THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE - EIGHTH EDITION.

J. THE PLANS WERE COMPILED FROM VARIOUS SOURCES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS AND DIMENSIONS.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 04 00 CONDUCT OF THE WORK**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 PROJECT MANAGEMENT

A. The Contractor's attention is directed to the General Conditions.

B. The fence is located on historic Salem Common which is an area of high public use. The Contractor is solely responsible for safety and security on the job site. The Contractor shall take all necessary precautions to ensure the public safety and convenience of the visitors during construction.

C. The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient personnel and adequate equipment to complete all the necessary work requirements within a minimum period of time.

D. Unless specifically authorized by the Owner, in writing, the work must be conducted between the hours of 7:00 a.m. and 5:00 p.m. on Monday through Saturday. No work is to be done on holidays or Sundays unless approved by the Owner in advance.

E. The Contractor is responsible for the security and stability of partially completed work until the project is accepted by the Owner.

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

1.03 SHUTDOWN OF SERVICES

A. If site utility services to the neighborhood are cut by the contractor, he shall supply all labor, materials or whatever may be required to supply said temporary utility services at no extra cost to the neighborhood and in accordance with the state and local regulations on health and safety, working around the clock, until they are reinstated. The contractor shall also repair the damaged utility immediately at no cost to the owner.

1.04 COORDINATION

A. The Contractor shall submit for approval to the Owner a detailed operational plan showing the sequence of operations prior to commencement of any work at the site. Any changes to this operational plan must be approved by the Owner.

B. The Contractor must retain on the Work during its progress a competent full time representative, satisfactory to the Owner. This representative shall not be changed, except with the consent of the Owner. The representative shall be in full charge of the work and all instructions given to this person by the Architect shall be binding.

C. The Contractor must supply to the Owner the home telephone number of a responsible person who may be contacted during non-work-hours for emergencies on the Project.

1.05 OWNER'S COOPERATION

A. The Owner shall assist the Contractor to perform the Work in accordance with the approved operational plan.

B. The Contractor shall provide:

1. Notification to the Owner two (2) weeks before any work is scheduled at the site/building.

2. Notification to the Owner in writing forty-eight (48) hours before work is scheduled in any particular area.

3. An updated schedule monthly with the application for payment. Payments will not be authorized until the updated schedule is received and approved.

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 05 00 COORDINATION**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 COORDINATION WITH OWNER AND PROCEDURES

A. Safety is the sole responsibility of the Contractor on the jobsite. Extraordinary care must be taken throughout the project to coordinate work activities with the adjacent public way, and Common activities.

B. Pre-construction meetings shall be held with the Owner, the Contractor and Architect, to coordinate locations for dumpsters and chutes, deliveries, worker parking, material storage, as well as to discuss safety, scheduling, and procedures.

C. Contractor shall restrict hazardous items and activities to locations that will have the least impact on the daily operations of the public. All material storage, locations of cranes, dumpsters, workers access, etc. will be only in areas approved by the Owner.

D. Contractor shall provide signage and other safety barriers at the site adequate to support their safety program.

E. Contractor shall update the Construction schedule monthly. Requisitions for payment must be accompanied by an updated schedule. The on-site

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

superintendent shall meet with the City representative regularly to inform them of the daily progress and review the schedule for the next week.

1.03 SCHEDULING

A. Time is of the essence in this project.

B. Temperature is a critical factor in the construction work. Adhere to manufacturer's specifications.

C. Within five (5) days after the Contractor has received the Owner's Notice to Proceed, and before the commencement of any work, the Contractor shall transmit the proposed construction schedule to the Owner and Architect for review. If any change in the work will alter agreed upon schedules, the Contractor shall immediately notify the Owner and Architect in writing.

D. The Contractor shall confine his/her apparatus, storage of materials, and operation of his/her workmen to limits as required by the Owner, and shall not unreasonably encumber the site with these materials. He/she shall keep all access roads and walks clear of construction equipment, materials, and debris of any kind. He shall repair any and all damage to access roads, walks, the building facade and roof caused by construction operations, and leave them in at least as good condition as originally found. All operations shall be confined within the property. All delivery and construction operations shall be conducted so as to avoid all possible obstruction of the work and building operations. The Contractor shall meet regularly with the Owner to coordinate the use of the Site.

1.04 SUBCONTRACTORS

A. Subcontractors are subject to approval by the Owner.

1.05 CONSTRUCTION REVIEW

A. All materials and workmanship shall be subject to review by the Architect and all designated representatives of the Owner. Such review may take place at any time during the construction, and wherever work relating to this project is underway. The Contractor shall notify the Architect of any approaching stage of the work likely to require his/her attention, and the Architect shall have the right to reject all defective or non-conforming workmanship and material, and to require its replacement.

B. If any unreviewed work is covered up without approval, the Contractor shall bear the costs of uncovering it upon request.

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Boston, Massachusetts
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1.06 CODES

A. Codes, standards, and publications of private and public bodies mentioned in these specifications, and other such standards and specifications, refer to the latest edition thereof at the time of taking bids unless a specific edition is designated, and shall be considered and integral part of the Contract Documents.

1.07 COORDINATION OF WORK

A. Contractor shall coordinate all construction work with the City of Salem Department of Public Works and Planning Department.

B. Contractor is responsible for all building and sidewalk permits, police details as required as well as any other requirements that may be imposed by the City of Salem D.P.W. and Planning Department.

1.08 SPECIFICATION DISTRIBUTION TO WORKMEN

A. A complete copy of the project manual, including plans and specifications shall be kept at the construction site at all times.

B. At the direction of the Architect, the Contractor shall photocopy various parts of pertinent Sections of the Project Manual to be handed out to each tradesman.

1.09 FIELD MEASUREMENTS

A. Before ordering any materials or performing any work, the Contractor or his/her subcontractors shall inspect all existing conditions and perform all measurements at the building. No extra charge or compensation will be allowed because of differences between the drawings and the actual dimensions. Any differences between the Project Manual and the actual conditions found shall be submitted to the Architect for his/her decision before proceeding with the work.

1.10 CUTTING AND PATCHING

A. The work to be performed under this Contract shall include all cutting and patching necessary to accommodate new work.

1.11 PERMITS

A. All fees and procurement of building permits shall be the responsibility of the Contractor. Requests for inspections by the Building Inspector and the obtaining of required signatures by Inspection on permits is the responsibility of the Contractor.

1.12 DUMPING

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

A. The contractor shall submit an affidavit certifying legal and proper dumping and disposal (including locations) of all materials from the project.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 09 00 DEFINITIONS & STANDARDS**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 DELIVERY AND STORAGE

A. Materials shall be delivered dry, in their original, unopened containers, clearly labeled with manufacturer's name, brand name, and such identifying numbers as are appropriate. Materials shall be stored as required by the Manufacturer's specifications.

1. All materials shall be stored flat, or in the case of rolls, standing on end, elevated from the ground or deck, and protected with approved waterproof covers to keep the materials dry and protected from sunlight and moisture, and ventilated to prevent excessive temperature.

2. Flammable materials shall be stored in a cool, dry area away from sparks and open flames.

3. Damaged or deteriorated materials shall not be used and shall be removed from the job site.

4. All cardboard containers shall be stored in dry areas or on pallets. Packing materials shall be collected so as not to blow around the site.

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5. All materials shall be stored in temperatures specified by the manufacturer. Submit proposed storage arrangements regarding temperature to the Architect and the materials manufacturer for review.

6. All firestopping shall be performed by each respective trade. All File Sub-Bidders shall firestop their own work.

1.03 JOB CONDITIONS

A. Do not deliver to site or install any material or system that has not been approved. Materials installed without approval may be required to be removed and replaced at no additional cost to the owner.

B. Materials which have a temperature other than the application temperature of the manufacturer shall not be applied.

C. All materials shall be installed according to manufacturer's specifications and shall be compatible with the existing materials used on site.

D. Remove only as much existing roofing as can be replaced and made weathertight each day, including all flashing work.

E. All surfaces to receive the new materials shall be thoroughly dry. Should surface moisture such as dew exist, the Contractor shall provide the necessary equipment to dry the surface prior to application.

1.04 CONDITIONS, DIMENSIONS AND QUANTITIES

A. All conditions, dimensions and quantities shall be determined or verified by the Contractor. The Plans and details have been compiled from various sources and may not reflect the actual condition at the moment of construction. The Contractor is cautioned to take all precautions and make all investigations necessary to install the proposed work. The Owner will not consider unfamiliarity with the job conditions as a basis for additional compensation.

1.05 DEFINITION OF "CONSULTANT"

A. Any reference to "Designer", "Engineer" or "Architect" in this Project Manual, Specification or on the drawings shall refer to CBI Consulting Inc., 250 Dorchester Avenue., Boston, Massachusetts 02127, (617) 268-8977, Michael Teller, Project Architect.

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Boston, Massachusetts
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Fax: (617) 464-2971

1.06 DEFINITION OF "OWNER"

A. Any reference to the Owner shall be City of Salem, Department of Planning and Community Development, Natalie Lovett, Community Development Planner, (978) 619-5685.

1.07 MINIMUM REQUIREMENTS

A. It is the intent of these contract documents to, in some cases, exceed the minimum requirements of the manufacturer. The new work shall be bid and installed as detailed.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 30 00 SUBMITTALS**

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1- GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be provided complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually provided in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated into the work shall be new and of the best grade of their respective kinds.

E. Consult the individual sections of the specifications for the specific submittals required under those sections and for further details and descriptions of the requirements.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

A. Timeliness - The Contractor shall transmit each submittal to the Designer sufficiently in advance of performing related Work or other applicable activities so that the installation is not delayed by processing times, including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect in advance of the Work.

B. Sequence - The Contractor shall transmit each submittal in a sequence which will not result in the Architect’s approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.

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C. The Contractor's Review - Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Architect. Submittals shall be accompanied by a transmittal notice stating name of Project, date of submittal, "To", "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section, or Drawing No. to which the submittal refers, purpose (first submittal, resubmittal), description, remarks, distribution record, and signature of transmitter.

D. Architect's Action - The Architect will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:

1. Final Unrestricted Release: Where marked "Approved" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.

2. Final-But-Restricted Release: When marked "Approved as Noted" the Work may proceed provided it complies with the Architect's notations or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend on these compliances.

3. Returned for Resubmittal: When marked "Revise and Resubmit" or "Disapproved" the Work covered by the submittal (such as purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay (no limit to number of resubmissions), in accordance with the Designer's notations stating the reasons for returning the submittal.

E. Processing - All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this contract shall be included in the Contract Sum.

1.03 OR EQUALS

A. Definition - Whenever a specification section names one or more brands for a given item, and the Contractor wishes to submit, for consideration, another brand, the submission shall be considered an "or-equal" or a "material substitution". For the purposes of this Contract, the terms "or-equal" and "material substitution" shall be considered synonymous.

B. In no case may an item be provided on the Work other than the item named or described, unless the Architect, with the Owner's written concurrence, shall consider the item equal to the item so named or described, as provided by M.G.L. c.30 § 39M.

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C. The equality of items offered as "equal" to items named or described shall be proved to the satisfaction of the Architect, including all research and full documentation, at the expense of the Contractor submitting the substitution.

D. The Designer and/or the Owner may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor shall bear full cost for providing, delivering, and disposal of all such samples.

E. The Contractor shall assume full responsibility for the performance of any item submitted as an "Or-Equal" and assume the costs of any changes in any Work which may be caused by such substitution.

F. Or Equal Approval Process - On the transmittal, or on a separate sheet attached to the submission, the Contractor shall direct attention to any deviations, including minor limitations and variations, from the Contract Documents.

1. The Contractor shall submit to the Architect for consideration of any or-equal substitution a written point-by-point comparison containing the name and full particulars of the proposed product and the product named or described in the Contract Documents.

2. Such submittal shall in no event be made later than ten (10) calendar days prior to the incorporation of the item into the Work. In any case in which the time period specified in the Contract Documents from the Notice to Proceed to Substantial Completion is less than 30 days, this requirement can be waived by the Architect.

3. Upon receipt of a written request for approval of an or-equal substitution, the Architect shall investigate whether the proposed item shall be considered equal to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Architect shall promptly advise the Contractor that the item is, or is not, considered acceptable as on Or-Equal substitution. Such written notice must have the concurrence of the Owner.

1.04 SUBMISSION OF SHOP DRAWINGS

A. Shop Drawings shall be complete, giving all information necessary or requested in the individual section of the specifications. They shall also show all adjoining Work, other work affected, and details of connection thereto, including hardware, flashing, waterproofing, and all utilities.

B. Shop Drawings shall be for whole systems. Partial submissions will not be accepted.

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C. The Architect reserves the right to review and approve shop drawings only after approval of related product data and samples.

D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Architect's stamp.

E. The Contractor shall submit to the Architect seven (7) black line prints of each shop drawing. Transparency and prints shall be mailed or delivered in roll form. Each submittal shall be accompanied by a transmittal notice.

F. When the transparency is returned by the Architect with the stamp "Revise and Resubmit" or "Disapproved", the Contractor shall correct the original drawing or prepare a new drawing and resubmit seven (7) prints thereof to the Architect for approval. This procedure shall be repeated until the Architect's approval is obtained. No limit.

G. The Contractor shall maintain one full set of approved shop drawings at the site.

H. Photo copies of the bid documents are not acceptable as shop drawings.

I. Provide shop drawings for every item to be installed or repaired in the entire project, whether or not indicated in the spec section.

1.05 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES (SUBMITTALS AND DISTRIBUTION)

A. The General Contractor, within ten (10) working days after the commencement of work shall prepare and submit for the Architect's approval a schedule of Shop Drawings, Product Data and Samples required to be submitted for the work. The schedule shall indicate by trade the date by which final approval of each item must be obtained, and shall be revised as required by conditions of the work, subject to Architect's approval. The schedule of Shop Drawings shall correspond to the Construction Schedule so that the submissions relate to the time when the products and/or systems will be required on the site. The Architect will not approve a Schedule which calls for out of sequence submittals.

B. General Contractor shall submit Shop Drawing, product data and samples accompanied by the General Contractor's Shop Drawing, Product Data and Sample Transmittals form.

C. Preparation of Submittal Form: Fill out transmittal form in the following manner using a typewriter or word processor, and retain one copy – General Contractor's first file:

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| | | |
|---|---|---|
| 1. | General Contr. Job No. | General Contractor's name and job number. |
| 2. | Spec. Section | The Specification Section number where item is specified – do not submit items from more than one Specification Section on the same form. |
| 3. | Submitted by | Name of General Contractor's employee responsible for the General Contractor's review. |
| 4. | Project/No. | Project name and Architect's project number. |
| 5. | Transmittal No. | Transmittal numbers shall be consecutive for the project. |
| 6. | Date Submitted | Date leaving General Contractor's office. |
| 7. | Subcontractor | Name of firm preparing original documents (shop drawings or sample). |
| 8. | Submission No. | 1st, 2nd, 3rd, etc. depending on previous submission for same item (see Resubmittal procedure). |
| 9. | Spec. Sec. Para. | Specific paragraph number which item as Specified. |
| 10. | Copies & Type | Number of copies submitted and type of material submitted (sepia, print, brochure or sample, etc.). |
| 11. | Contr.'s Remarks | Note exceptions or deviations from the Contract Documents and reasons for them. |

D. Resubmissions: Resubmittal shall follow the same procedures as the initial submittal with the following exceptions:

1. Transmittal shall contain the same information as the first transmittal except that transmittal numbers shall run consecutively and the submission number shall indicate 2nd, 3rd, etc. submission. The drawing number/description shall be identical to the initial submission and the date shall be the revised date for that submission.

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2. Unless otherwise approved by the A, no new material shall be included on the same transmittal for a resubmission.

3. Where Resubmittal has not been required by the Architect, but corrections have been noted on a shop drawing, seven (7) prints of the drawings after the noted corrections have been made shall be submitted to the Architect for record purposes but not for action. Shop Drawings reviewed by the Designer's Architects will have three prints returned.

E. Submittal Procedures by General Contractor for Approval

1. General: All submittals shall be made to Architect's office.

2. Shop Drawings: Seven (7) black line prints (maximum sheet size shall be 30 x 42.

F. Architect's Review Procedures:

1. The Architect's review, including Architect's review period will not exceed fourteen (14) calendar days from the established date of each submission indicated on the Schedule of Shop Drawings, Product Data, and Samples plus the additional time, if any, for distribution by the General Contractor and receipt of submissions by the Architect. The General Contractor is required to strictly adhere to the established Schedule dates.

2. The Architect will process the submission and indicate the appropriate action on the submission and the transmittal. Incomplete or erroneous transmittals will be returned without action.

3. The Architect will fill out transmittal in the following sequence:

| | | |
|---|---|---|
| a. | Date Received | Date arriving in the Architect's office. |
| b. | Date Return | Date leaving the Architect's office to the General Contractor. |
| c. | To/Date | Name of architect to whom submission is sent for review and date leaving the Architect's office. |
| d. | From/Date | Name of architect reviewing submission and date arriving in the Architect's office. |
| e. | Action | Indicate action taken on submission. |

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| | | |
|---|---|---|
| f. | Distribution | Number of copies distributed and type of material distributed (sepia, print, brochure or samples, etc.). |
| g. | Architect's Remarks | Note major deviations from the Contract Documents. |

4. The Architect will return two (2) of Shop Drawings, one Sample or two brochures with copies of transmittal forms to the General Contractor.

5. The Architect will keep a copy and send one copy to the Owner.

1.06 SUBMISSION OF PRODUCT DATA

A. The Contractor shall submit seven (7) copies of Product Data to the Architect. All such data shall be specific and identification of material or equipment submitted shall be clearly marked in ink. Data of general nature will not be accepted.

B. Product Data shall be accompanied by a transmittal notice. The Contractor's stamp of approval shall appear on the printed information itself, in a location which will not impair legibility.

C. Product Data returned by the Designer as "Disapproved" shall be resubmitted in seven (7) days until the Architect's approval is obtained.

D. When the Product Data are acceptable, the Architect will stamp them "Approved" or "Approved as Corrected", distribute copies to the team 3 copies, and return two (2) copies to the Contractor. The Contractor shall provide and distribute additional copies as may be required to complete the Work.

E. The Contractor shall maintain one full set of approved, original, Product Data at the site.

F. Provide product data for all items to be installed whether or not noted in the specification section.

1.07 SUBMISSION OF SAMPLES

A. Unless otherwise specified in the individual section, the Contractor shall submit three specimens of each sample.

B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.

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C. Samples of items of interior finishes shall be submitted all at once to permit a coordinated selection of colors and finishes.

D. Samples which can be conveniently mailed shall be sent directly to the Designer, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.

E. All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of samples so delivered with the Contractor's stamp of approval shall be mailed to the Architect.

F. If a sample is rejected by the Architect, a new sample shall be resubmitted in the manner specified hereinabove. This procedure shall be repeated until the sample is approved by the Architect.

G. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications, at no additional cost to DCAM.

H Samples shall not be installed as part of the work.

I. Provide color and finish samples of every item to be installed.

1.08 CONSTRUCTION SCHEDULE

A. The Proposed Construction Schedule shall be based on an orderly progression of the work, allowing adequate time for each operation, and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The Proposed Construction Schedule will be reviewed by the Owner/Architect for compliance with the requirements of this Article and will be accepted or returned to the Contractor for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the Proposed Construction Schedule has been approved by the Owner/Architect.

B. The Proposed Construction Schedule in **critical path method form** which shall include the following with such other details as Owner/Architect may require:

1. Indicate complete sequence of construction by activity, with dates for beginning and completion of each element and stage of construction.

2. Identify each item by major Specification Section number.

3. Submittal and Approval Dates for all Shop Drawings and Samples.

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4. A chart showing Critical Delivery Dates for Material and Equipment to be incorporated into the Work.

5. Provide sub-schedules to define critical portions of entire Schedule.

6. Coordinate content with Schedule of Values and provide the cost of each activity as identified in the Construction Schedule.

C. During the progress of the Work, any changes in the original schedule desired by the General Contractor which affect Contract completion dates shall be approved by the Owner before being put into effect.

D. When changes in the Work are required, the original Proposed Construction Schedule shall be revised without delay to incorporate such changes or new work and indicate the effect hereof on the Project as a whole.

E. Provide updated critical path method (CPM) chart each month. Submit chart for review with Contractor's Application for Payment.

1.09 SCHEDULE OF VALUES

A. Prior to the first request for payment, the General Contractor shall submit to the Architect and Owner, a Schedule of Values of the various portions of the work in sufficient detail to reflect various major components of each trade, including quantities when requested, aggregating the total contract sum, and divided so as to facilitate payments for work under each Section in accordance with Article VII of the Contract Form. The Schedule shall be prepared in such form as specified or as the Architect or Owner may approve, and it shall include data to substantial its accuracy. Each item in the Schedule of Values shall include its proper share of overhead and profit in this schedule, including breakdown of values, requires the approval of the Architect and Owner and shall be used only as a basis for the Contractor's request for payment.

1.10 MANUFACTURER'S INSTRUCTIONS

A. Submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for all products.

1.11 CERTIFICATES OF COMPLIANCE

A. Submit certificates of compliance together with the associated Shop Drawings, Product Data and Samples required for the Product.

B. Submit on 8-1/2 in. x 11 in. white paper.

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C. Submit one copy.

D. The Architect will retain the certificates of compliance; no approval reply is intended.

1.12 PATTERNS AND COLORS

A. Submit accurate color charts and pattern charts to the Architect for his/her review and selection whenever a choice of color or pattern is available in a specified product, unless the exact color and pattern of a product are indicated in the Contract Documents. Submit actual cured samples of all materials for color approval.

1.13 RECORD DRAWINGS

A. At the completion of the project, the Contractor shall prepare a complete set of reproducible record drawings and AutoCAD Files, latest version on compact discs showing all systems as actually installed.

1.14 SUBMITTAL TRANSMITTAL FORM

A. All submittals shall be presented with the submittal transmittal form attached, completely filled out. Submittals without the attached form will be returned without review.

END OF SECTION

From:

(Contractor's Company Information)

# SUBMITTAL TRANSMITTAL

Project: _____

To:

CBI Consulting Inc.
250 Dorchester Ave.
Boston, MA 02127

Contractor's Project #: _____

Architect's Project #: _____

C.C. _____

Date: _____

Submittal Number: _____

We are sending for ☐ Approval ☐ Review the following items: your

Specification Number: 00 - 00 - 00.00 Specification Title: _____

Subcontractor/Supplier: _____

| | Copies: | Date: | Description | Size: |
|---|---|---|---|---|
| Product Data Sheet | | | | |
| MSDS Sheets | | | | |
| Shop Drawings | | | | |
| Warranties | | | | |
| Qualifications | | | | |
| Samples | | | | |
| | | | | |

Deviations from Contract Documents: _____

Notes: _____

Designer's Stamp

Contractor's Stamp

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**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 40 00 QUALITY CONTROL**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 PULL-OUT TESTS

A. The Contractor shall perform pull-out tests to determine the length and type of fastener required to provide adequate withdrawal resistance from every substrate.

B. A minimum of two pull out tests shall be performed per section to be fastened. More tests shall be performed if required by the structural engineer or the material manufacturer.

C. Submit a report from the fastener supplier and the product manufacturer describing the pull out tests, the recommend fasteners, and that they are covered under the warranty.

1.03 INSPECTION AND TESTING

A. An independent inspector and/or testing laboratory may be engaged and paid for by the Owner to perform the inspection and testing of the new work.

B. The Contractor shall cooperate with the inspector and/or testing laboratory, furnish materials and labor as may be required and provide for convenient access to all parts of the work for purposes of inspection and testing.

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C. The Contractor shall accept as final the results of all such inspection and testing.

D. The inspector shall have the authority to delay the commencement of work, or to stop the work at any time, for any reason which he deems necessary.

E. The inspector and/or testing laboratory reserves the right to require the Contractor to perform removal of materials installed by the Contractor. Make all cuts in accordance with the recognized standard practices. Remove materials only in the presence of the inspector.

1. Immediately after removing each material sample identify each by number and exact location by gummed label attached to a smooth surface of the cut sample.

2. Submit the cut samples directly to the inspector after applying identification.

3. Replace the cut with new materials, matching those removed, immediately after each removal, and insure that the replacement is completely watertight.

F. The removal cuts shall be subjected to various tests, including moisture content, density, thickness, compressive strength, composition, conformance with ASTM specifications where applicable, conformance with the recommendations of the manufacturers whose materials were used.

G. Bear all costs for tests where materials or systems have been found unacceptable and all costs for replacement required due to such unacceptability.

H. If any replacement work is required, such work will also be subject to the terms of this SPECIFICATION.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 50 00 TEMPORARY FACILITIES**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 GENERAL

A. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such prior to Substantial Completion must be with the concurrence of the Architect. The Contractor bears full responsibility for reproviding any facility removed prior to Substantial Completion

B. Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Architect or specifically noted in the specifications.

C. The Contractor must comply with all safety laws and regulations of the Commonwealth of Massachusetts, the United States Government, and local government agencies applicable to Work under this contract. The Contractor's attention is directed to the Commonwealth of Massachusetts, Department of Labor and Industries Regulation 454 CMR.

D. Safety is the sole responsibility of the contractor on the job site. Contractor is notified that the building will be occupied during construction. The Architect does

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not have control of the job site in any way.

1.03 TEMPORARY TELEPHONES

A. No telephone service will be provided by the Owner.

B. All telephone numbers shall be available to the project team. Provide cell phone number for the project superintendent at the job site.

C. Provide 24-hour emergency phone numbers for the Contractor's Project Manager and Superintendent.

1.04 TEMPORARY TOILETS

A. Portable, temporary toilets shall be provided by the contractor and shall be located as directed by the owner.

B. The Contractor:

1. Assumes full responsibility for the use of the temporary toilets

2. Pays all costs for operation, maintenance and cleaning.

C. Under no circumstances will the Contractor's personnel be allowed to use the newly installed toilets and sinks in the building.

D. The Contractor shall not have use of sanitary toilet facilities within the building and must provide portable sanitary toilets for the use of their forces for the entire duration of the work. Toilets shall be cleaned and emptied twice weekly (minimum) and as directed by the Owner.

1.05 TEMPORARY STRUCTURES AND MATERIAL HANDLING

A. The Contractor shall provide such secure storage sheds, temporary buildings, or trailers as required for the performance of the Contract.

B. Materials shall be handled, stored, installed, cleaned, and protected in accordance with the best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.

C. The Contractor must obtain the permission of the Owner for the placement of any storage facilities on site, and the Owner assumes no responsibility for articles stored.

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1.06 TEMPORARY STAGING, STAIRS, CHUTES

A. Except as otherwise specified, the Contractor shall furnish, install, maintain in safe condition, and remove all scaffolds, staging, and planking over 8 ft. in height, required for the use of all trades for proper execution of the Work, except as noted.

B. The Contractor shall furnish, install, maintain in safe condition, and remove all temporary ramps, stairs, ladders, and similar items as required for the use of all trades for the proper execution of the Work.

C. If the project is new construction permanent stairs shall be erected as soon as possible, for which the Contractor shall provide temporary protective treads, risers, handrails, and shaft protection.

D. The Contractor shall furnish, install, maintain, and remove covered chutes from the work area. Such shall be in convenient locations and permit disposal of rubbish directly into trucks or disposal units.

1.07 HOISTING FACILITIES

A. Except as otherwise specified, the Contractor shall provide, operate, and remove material hoists, cranes, and other hoisting as required for the performance of the Work by all trades.

1.08 UTILITIES

A. The contractor shall provide their own power and water. No utilities are available on site.

1.09 WEATHER PROTECTION

A. The Contractor shall provide temporary enclosures and heat to permit work to be carried on during the months of November through March in compliance with MGL c.149 §44G (d). Without limitation this includes such items as excavation, pile driving, steel erection, erection of certain exterior wall panels, masonry, sealants, waterproofing, sheet metal work, roofing, and similar operations.

B. "Weather Protection" means the temporary protection of that Work adversely affected by moisture, wind, and cold by covering, enclosing, and/or heating. This protection shall provide adequate working areas during the months of November through March as determined by the Owner and consistent with the construction schedule to permit the continuous progress of all Work necessary to maintain an orderly and efficient sequence of construction operations. The Contractor shall furnish and install "Weather Protection" material and be responsible for all costs, including heating required to maintain a minimum of 40 degrees F. at the working surface. This provision does not supersede any specific requirements for methods

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of construction, curing of materials, or the applicable conditions set forth in the Contract Documents with added regard to performance obligations of the Contractor.

C. Within 30 calendar days after award of the Contract, the Contractor shall submit in writing, to the Architect for approval, three (3) copies of the proposed methods for "Weather Protection".

D. The Contractor shall assume the entire responsibility for weather protection during construction (until Substantial Completion), and shall be liable for any damage to any Work caused by failure to supply proper weather protection and proper ventilation.

E. Work damaged by frost shall be removed and replaced by and at the Contractor's expense and as directed by the Architect.

F. It is to be specifically understood that the Contractor shall do no work under any conditions deemed unsuitable by the Contractor to the execution of the Work. This provision shall not constitute any waiver, release, or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Contract Documents.

1.10 PROTECTION

A. Weather protection shall be provided for; weather conditions occurring or anticipated, the extent of the existing structure exposed, or any other possible hazard. Remove only as much roofing and sealant as can be completely replaced and made watertight in one day.

B. Dust control, pedestrian protection, and traffic control measures shall be provided during the course of the work.

C. Schedule and execute all work without exposing the sensitive building areas to the affects of inclement weather. Protect the existing structure and its contents against all risks, and repair or replace all damage to the Owner's satisfaction. Protect all exterior building surfaces, roofing, lighting, landscape areas, and pavement from damage.

D. All new and temporary construction, including equipment and accessories, shall be secured from wind damage or blow-off.

E. The Contractor shall provide all necessary temporary protection and barriers to segregate the work area and to prevent damage to adjacent areas. Also provide plywood protection for roofing adjacent to construction. Areas damaged because of inadequate protection will be repaired at no additional cost to the owner, as per these specifications and the recommendations of the Architect.

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F. Provide temporary barricades and other forms of protection as required to protect Owner's personnel, students, and general public from injury due to the work.

G. Any deteriorated substrate which is discovered shall be promptly reported to the Architect.

H. Safety on the job site is the sole responsibility of the contractor. The Contractor shall ensure that all Local, State, Federal, OSHA or other applicable safety requirements are strictly accorded to. All OSHA safety requirements regarding items such as scaffolding, temporary protections, lift trucks, cranes, removal of debris, dust control, cleaning solvents, and high pressure water washing, sandblasting and equipment shall be ensured by the Contractor.

1.11 DEBRIS

A. The Contractor will be responsible for the removal of all construction debris from the job site.

B. Upon completion of each day and each phase of the work the Contractor shall leave the premises free of all debris and waste, in broom-clean condition. Overnight storage of material on site will be as approved by the Owner. The Contractor shall be responsible for keeping the site free of rubbish and debris, and in a neat and orderly condition at all times. The Contractor shall clean up and remove all accumulated rubbish and debris daily.

C. The Owner's representative shall inspect the site daily. If it is determined that the site has not been cleaned of construction debris on a particular day the Contractor may be assessed $100.00 for that day to be used to have the site cleaned by in house personnel. This shall be prepared by the Architect as a deduct change order to the contract.

D. Debris resulting from the new work shall be placed in covered containers provided by the Contractor and legally disposed of. Burning will not be permitted on site. Dumpster locations shall be approved by the Owner.

1.12 TEMPORARY NOISE AND POLLUTION CONTROL

A. All work performed under the Contract shall conform to the requirements of Chapter 111, Sections 31C and 142D of the General Laws, Commonwealth of Massachusetts, Department of Public Health, and Metropolitan Boston Air Pollution Control District regulations.

1.13 CONSTRUCTION PARKING CONTROL

A. The Contractor shall control trucks and worker's vehicles to prevent unnecessary congestion in the neighborhood of the project. See Site Plan for allowable on site

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

parking area.

B. The schedule and location of all deliveries of materials must be coordinated and approved by the Owner.

C. There is sufficient parking on site for the contractor's vehicles. All parking will be at the direction of the Owner.

1.14 TEMPORARY SITE STORAGE

A. The Owner shall designate an area for temporary site storage on the site. All materials shall be stored in locked storage trailers or container boxes.

B. Storage of materials will not be permitted within any building in the scope of work.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 51 00 PROTECTION**

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 PROTECTION OF PERSONS & PROPERTIES

A. The site will not be occupied during construction. The contractor shall have complete control of the job site. The Contractor shall take all necessary precautions to ensure the public safety and convenience of visitors during construction. Safety is the sole responsibility of the contractor, regardless of what is set forth in this document. The architect does not have control of the job site, or means and methods, in any way.

B. Any damage to buildings, roads, (public and private), concrete walks, bituminous concrete areas, fences, rails, lawn areas, trees, shrubbery, poles, underground utilities, etc. shall be made good by and at the Contractor's own expense, all to the satisfaction of the Owner.

C. The Contractor shall patch, repair and/or replace all adjacent materials and surfaces damaged after the installation of new work to the complete satisfaction and at no expense to the Owner. All repair and replacement work shall match the existing in kind and appearance.

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

## 1.03 TEMPORARY PROTECTION

A. The Contractor shall:

1. Protect excavations, trenches, buildings, and materials at all times from rain water, ground water, backing-up, or leakage of sewers, drains, or other piping, or from water damage of any origin. Provide all pumps, piping, coverings, and other materials and equipment as required by job conditions to accomplish this requirement.

2. In addition to the weather protection during the months of November to March specified elsewhere, provide temporary watertight enclosures for openings in exterior walls and in roof decks when and as required to protect the Work from damage by inclement weather. Temporary enclosures shall be provided with adequate means of ventilation to prevent accumulation of moisture in the buildings.

3. Provide temporary wood doors for exterior entrances and elsewhere when required. Permanent door enclosures shall not be used as temporary enclosures.

4. Protect sills, jambs, and heads of openings through which materials are handled.

5. Protect decks and slabs to receive work by other trades from any soiling which will prevent proper adhesion of subsequent Work. Decks and slabs shall be left clean and free of blemishes at the time other trades begin the application of their work.

6. Protect concrete slabs to remain exposed and finished floors against mechanical damage, plaster droppings, oil, grease, paint, or other material which will stain the floor finish. Install and maintain adequate strips of building paper or other protection on finished floors in rooms where future Work will be done by other trades.

7. Protect all surfaces to receive work by other trades from any soiling which will prevent proper execution of subsequent work

8. Protect other areas, furniture, and private property of the resident and the Owner. Any areas damaged by the Contractor shall be restored to the original condition or compensated at the Contractor's expense.

B. Roof surfaces and waterproofed surfaces shall not be subjected to traffic nor shall they be used for storage of materials. Where some activity must take place in order to carry out the Work, adequate protection must be provided.

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C. After the installation of the Work by any Subcontractor is completed, the Contractor shall be responsible for its protection and for repairing, replacing, or cleaning any such Work which has been damaged by other trades or by any other cause, so that all Work is in first class condition at the time of Substantial Completion.

1.04 ACCESS

A. The Contractor shall, at all times, leave an unobstructed way along walks and roadways, and shall maintain barriers and lights for the protection of all persons and property in all locations where materials are stored or work is in progress.

1.05 SECURITY

A. The Contractor shall be responsible for providing all security precautions necessary to protect the Contractor's and Owner's interests.

B. Where excavation is involved, the Contractor shall be responsible for providing continuous watchmen service as necessary, to insure adequate protection of the general public.

1.06 NOISE AND DUST CONTROL

A. The Contractor shall take special measures to protect the residents, neighbors, and general public from noise, dust, and other disturbances by:

l. Keeping common pedestrian and vehicular circulation areas clean and unobstructed;

2. Insulating work area from occupied portions as far as possible; and

3. Sealing dust and fumes from contaminating occupied spaces.

1.07 FIRE PROTECTION

A. The Contractor shall take necessary precautions to insure against fire during construction. The Contractor shall be responsible to insure that the area within contract limits is kept orderly and clean and that combustible rubbish and construction debris is promptly removed from the site.

B. Installation of equipment suitable for fire protection shall be done as soon as possible after commencement of the Work. The Contractor's attention is directed to the requirements of the Commonwealth of Massachusetts, Department of Labor and Workforce Development Regulation 454 CMR.

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Fax: (617) 464-2971

1.08 WIND PROTECTION

A. Should high wind warnings be issued by the U.S. Weather Bureau, the Contractor shall take every precaution to minimize danger to persons, to the Work, and to the adjacent property.

1.09 WEATHER PROTECTION

A. The Contractor shall provide Weather Protection as required by Specification Section 01500 Temporary Facilities and any other specific requirements of the Contract Documents.

**END OF SECTION**

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 70 00 PROJECT CLOSEOUT**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished be complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 COMPLETION OF WORK

A. The site shall be cleaned of all debris resulting from the work and areas damaged during the course of the work restored to the satisfaction of the architect and the Owner.

B. The Contractor shall notify the Architect and Owner that the work is completed and Project Manual requirements have been met. The Architect shall review the completed work with the Contractor within seven (7) calendar days of notification. Any deficiencies observed at the time will be conveyed directly to the Contractor with a written confirmation, after which the Contractor shall correct the stated deficiencies to the satisfaction of the Architect within fourteen (14) calendar days prior to demobilization from the site.

C. After satisfactory completion of the above, the work shall be considered complete with notification by the Architect to the Owner.

D. The Contractor shall submit all lien waivers and warranties at this time of final payment.

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E. All guarantees, as required in any Section of the Project Manual shall be submitted for approval prior to final payment.

F. Contractor shall maintain and record all changes to the plans throughout the entire project and shall submit as-built drawings of the entire project prior to final payment. As-built drawings must be in electronic form on Auto-CAD 2000 or later, submitted on CD. Electronic copies of the Architect's plans can be purchased from the Architect for a fee of $50 per sheet.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 72 00 SURVEYS AND RECORD DRAWINGS**

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.01 RECORD DRAWINGS

A. Record Drawings shall consist of all the Contract Drawings.

B. From the sets of drawings furnished by the Owner, the Contractor shall reserve one set for record purposes. From this set, the Contractor shall detach and furnish, at no charge to the Subcontractors the drawings of their portion of the Work for the same purpose.

C. The Contractor and the above Subcontractors shall keep their marked up As Built set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work, and any architectural, mechanical, or electrical variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order, or instructions by the Architect shall be recorded. Marked up As Built drawings shall be prepared for the entire project and include all Work, including but not limited to:

1. The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically at ten (10) foot intervals and at all changes of direction.

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2. The location of all internal utilities and appurtunces, concealed by finish materials, including but not limited to valves, coils, dampers, vents, cleanouts, strainers, pipes, junction boxes, turning vanes, variable and constant volume boxes, ducts, traps, and maintenance devices.

   a. The location of these, items shall be shown by offsets to structure and drawing grid lines.

   b. The tolerance for the actual location of these items on the marked up As Built Drawings shall be plus or minus two (2) inches.

   c. Each item shall be referenced by showing a tag number, areas served, and function on the marked up As Built drawing

D. The Architect may periodically inspect the marked up As Built drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly applications for payment.

E. At Substantial Completion the Contractor shall submit the complete set of marked up As Built drawings to the Architect. The Contractor shall check all marked up As-Builts prepared by subcontractors and certify in writing on the title sheet of the drawings that they are complete and correct, prior to submission to the Architect.

F. The Architect shall review the marked up As Built drawings and verify by letter to the Owner that the Work is complete. The Architect shall incorporate all changes onto original drawings.

G. The Contractor may make a written request for copies of the completed Record Drawings. The Contractor shall reimburse the Owner directly for the cost of printing of any requested Record Drawings.

H. Contractor shall maintain and record all changes to the plans throughout the entire project and shall submit as-built drawings of the entire project prior to final payment. As-built drawings must be in electronic form on Auto-CAD 2000 or later, submitted on CD. Electronic copies of the Architect's plans can be purchased from the Architect for a fee of $50 per sheet.

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

# DIVISION 02 SUBSURFACE INVESTIGATION & DEMOLITION

## SECTION 02 20 00 EXCAVATION AND BACKFILL

### PART 1 – GENERAL

#### 1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

#### 1.02 WORK TO BE PERFORMED

A. Provide all the Excavation and Backfill Work required to complete the work of the contract including all the Excavation and Backfill Work shown on the plans, listed in the specification, and needed to install a complete assembly in every way, with all reinforcing, pinning, and finishes. Coordinate the Excavation and Backfill Work with all the other trades for the project. Provide all demolition and disposal work to complete the Excavation and Backfill Work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All work of the contract is related. It is the General Contractor's responsibility to review all the work of each section, each sub-contractor, and each file sub-bidder for the entire project so that all the work can be properly and completely performed.

B. Excavation and Backfill Work includes, but is not limited to, the removal of asphalt paving and soil to access the work areas for waterproofing work including:

1. Protection of all roads, sidewalks and existing utilities to remain.

2. Excavation to indicated stone foundation depths, saving soil for backfill, replacing after placing the new granite foundation block, and compacting.

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3. Off-site disposal of all unsuitable materials.

4. Supply and placement of all backfill materials required to complete and work of this Section.

5. Dewatering as needed for site conditions

1.03 DEFINITIONS AND REFERENCE STANDARDS

A. ASTM: Specifications of the American Society for Testing and Materials.

B. Code: Massachusetts State Building Code.

1.04 QUALITY ASSURANCE

A. Comply with all rules, regulations, laws and ordinances of the Commonwealth of Massachusetts, and of all other authorities having jurisdiction. All labor, materials, equipment, and services necessary to make work comply with such requirements shall be provided without additional cost to Owner.

B. Field Monitoring and Testing

1. The Owner may retain the services of a Geotechnical Engineer or testing agency to test, observe and document the Contractor's earthwork activities to determine the work is completed in accordance with the Project Specifications and perform such other duties as are herein described throughout these Specifications.

2. All fill materials and their placement will be subject to quality control testing. The Contractor will bear the cost of any tests which are needed to correct previously unacceptable work. Test results and lab recommendations will be available to the Contractor.

3. Approvals given by the Architect or by the testing agencies shall not relieve the Contractor of his/her responsibility for performing the work in accordance with the Contract Documents.

1.05 SUBMITTALS

A. The Contractor shall submit the information specified herein to the Architect for review. Unless otherwise specified, submittals shall be made not less than one week before the start of work.

1.06 JOB CONDITIONS

A. The Contractor shall protect adjacent property, public utilities and structures, and completed work from damage associated with the pile driving operation.

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Boston, Massachusetts
Tel: (617) 268-8977
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PART 2 - PRODUCTS

2.01 MATERIALS

Earth materials used as fill shall be as designated below:

A. Crushed Stone: Shall consist of clean, hard, durable natural rock or granite, free of organic matter, rock dust, and other contaminants and conforming to ASTM specification C-33, Table 2, Size 57, 2 in. to #4 sieve size or conforming to Massachusetts DPW specification of M2.01.3.

B. General Fill: Fill Type LF. Graded, free of lumps larger than 3 inches, rocks larger than 2 inches, and debris. Conforming to Massachusetts Highway Department M1.01.0.

C. Structural Fill: Fill Type SF: conforming to Massachusetts Highway Department standard.

PART 3 - EXECUTION

3.01 CLEARING AND PROTECTION

A. Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protecting during excavation operations.

B. Protect adjacent areas from soil erosion and damage.

3.02 EXCAVATION

A. General

1. Excavation consists of the removal and stockpiling of topsoil and substrate materials in separate locations.

2. Conform to the elevations and dimensions shown on the drawings.

3. All surplus excavated material not used to fulfill requirements of the Contract shall become the property of the Contractor and shall be removed from the site and legally disposed of.

4. When excavations have reached the prescribed depths, the Architect shall be notified to observe the conditions.

3.03 PLACEMENT AND COMPACTION OF MATERIALS

A. General

1. All fill materials shall be placed "in-the-dry" on subgrades acceptable to the Architect.

2. Placement of all specified fill materials shall be systematically conducted in the specified uniform layer thickness. Thickness in all cases is measured prior to compaction.

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3. Compaction of fill materials shall be conducted by a minimum of four (4) complete coverages with acceptable compaction equipment.

4. Place in layers not to exceed twelve (12) inches.

B. Compaction Equipment

1. In all cases, the character, efficiency and acceptability of the Contractor's compaction equipment shall be subject to the approval of the Architect based on observed or documented field performance.

2. Compaction in confined areas (against walls, piers, and in trenches) shall be conducted with acceptable equipment such as hand-guided vibratory compactors or mechanical tampers.

C. Moisture Control

1. The amount of moisture in any one layer of fill material shall be as uniform as practicable throughout. The upper limit of water content in materials shall be that which will permit handling, spreading and will permit proper compaction.

2. Each layer of material which is too dry shall be sprinkled with water, and the water worked into the material by mechanical methods until a uniform distribution of moisture shall be accurately controlled in amount so that free water will not appear on the surface during, or subsequent to, compaction.

D. Stone Base Course

1. Place in layers not to exceed six (6) inch layers when utilizing light, hand-operated compaction equipment.

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
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**DIVISION 02 EXISTING CONDITIONS**

**SECTION 02 41 20 SELECTIVE DEMOLITION**

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect Work of this Section whether or not such Work is specifically mentioned in this Section.

C. Coordinate Work with that of all other trades affecting or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the Work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

A. Provide all the Demolition Work required to complete the Work of the Contract including all the Demolition Work shown on the plans, listed in the specification, and needed to install a complete assembly in every way. Coordinate the Demolition Work with all the other trades for the project. Provide all demolition and disposal Work to complete the Demolition Work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All Work of the Contract is related. It is the General Contractor's responsibility to review all the Work of each section, each Subcontractor, and each file sub-bidder for the entire project so that all the Work can be properly and completely performed.

B. Selective Demolition Work includes, but is not limited to:

1. In general, the Contractor shall supply all material, equipment, temporary protection, tools and appliances necessary for the proper removal of selected construction materials for the completion of the Work as required in the Specifications, in accordance with good construction, and as required by the materials manufacturer.

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2. Supply all shoring and protection necessary to protect the occupants, building area, building systems, and landscape areas. All means and methods are the responsibility of the Contractor. The Contractor is solely responsible for safety on the job site.

3. Extent of selective demolition as described on the drawings and in conjunction with all the new Work shown on the drawings. The Contractor is responsible for all demolition, disposal, and cleanup associated with the Work, whether or not shown on the plans or described herein required to complete the Work.

1.03 RELATED WORK

A. The following items of related Work are specified and included in other Sections of the Specifications:

1. Section 02 20 10, Excavation and Fill

1.04 QUALITY ASSURANCE

A. Supervision:

1. Engage and assign supervision of shoring and bracing Work to qualified personnel.

B. Regulations:

1. Comply with local codes and ordinances of governing authorities having jurisdiction.

1.05 SUBMITTALS

A. Schedule:

1. Submit schedule indicating proposed methods and sequence of operations for Selective Demolition.

2. Include coordination for shut-off, capping, and continuation of utility services in scope area.

1.06 JOB CONDITIONS

A. Condition of Structures:

1. Owner assumes no responsibility for actual condition of items or structures to be demolished.

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2. Conditions existing at time of commencement of Contract will be maintained by Owner insofar as practicable.

B. Protections:

1. Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition Work. Safety is the sole responsibility of the Contractor.

2. Provide protective measures to provide free and safe passage of Owner's personnel and general public to and from area of selective demolition.

3. Erect temporary covered passageways as required by authorities having jurisdiction.

4. Take measures to protect against windblown dust, obtain Owner's approval of means used for dust control.

5. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or Work to remain.

6. Protect from damage existing finish Work that is to remain in place and becomes exposed during demolition operations.

7. Protect adjacent materials and finishes with suitable coverings when necessary including, but not limited to, automobiles in parking lot adjacent to building which will remain in use during Work to be performed.

8. Remove protections at completion of Work.

C. Damages: Promptly repair damages caused to building or property, including cars, by demolition Work at no cost to Owner.

D. Traffic:

1. Conduct Selective Demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

2. Do not close, block, or otherwise obstruct streets, walks, parking lot, or other occupied or used facilities without written permission from the authorities having jurisdiction.

3. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

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E. Utility services:

1. Maintain existing utilities, keep in service, and protect against damage during demolition operations.

2. Do not interrupt existing utilities service occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide 48 hours notice if service must be interrupted.

3. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

F. Environmental Controls:

1. Comply with governing regulations pertaining to environmental protection.

2. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 INSPECTION

A. Before start of Selective Demolition Work, inspect areas in which Work will be performed.

3.02 PREPARATION

A. Structure Safety:

1. Provide exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structures to be demolished and adjacent facilities to remain.

2. Cease operations and notify the Owner's Representative immediately if safety of structure appears to be endangered.

3. Take precautions to support structure until determination is made for continuing operations.

B. Shoring and Bracing

1. If shoring and bracing is required, locate the system to clear permanent construction and to permit the completion of the Work.

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2. Provide shoring and bracing system adequately anchored and braced to resist natural forces.

3. No shoring and bracing system shall remain at the completion of the Work.

3.03 DEMOLITION

A. General:

1. Perform Demolition Work in a systematic manner.

2. Use such methods as required to complete Work indicated on Drawings in accordance with Demolition Schedule and governing regulations.

3. If unanticipated mechanical, electrical, or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict with Consultant.

B. Disposal of Demolished Materials:

1. Remove debris, rubbish, and other materials resulting from demolition operations from site.

2. Transport and legally dispose of materials off site.

3. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Present receipts from certified waste disposal firms confirming hazardous waste disposal.

4. Burning of removed materials is not permitted on project site.

3.04 CLEANING AND REPAIR

A. On completion of demolition Work, remove tools, equipment, and demolished materials from site. Remove debris on a daily basis.

B. Remove protection and leave areas broom clean.

C. Repair demolition performed in excess of that required.

D. Repair adjacent construction or surfaces soiled or damaged by selective demolition Work.

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 02 SUBSURFACE INVESTIGATION & DEMOLITION**

**SECTION 02 83 00 LEAD PAINT CONSIDERATIONS**

PART 1 – GENERAL

1.01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

B. Examine all Drawings and all other Sections of the Specifications for requirements of related sections affecting the Work of this Section.

C. The General Contractor is responsible for the coordination of the Work of this Section with related Work. No delays in completion of the Work shall be claimed for lack of coordination.

D. The Contractor shall comply with all applicable local, state, and federal guidelines and regulations regarding all Work involving the presence of lead paint. All Contractors shall be made aware that lead paint exists on painted surfaces throughout the building.

1.02 DESCRIPTION OF WORK

A. The Work of this Section specifies minimum requirements for the disturbance, removal, containment, and disposal of lead paint and associated waste generated as a result of construction activities at the Salem, Massachusetts, as outlined in the Project Specifications.

B. The procedures described herein shall apply to all construction including but not limited to window replacement and painting Work where a Worker may be occupationally exposed to lead, as well as the disposal requirements of the debris. The Contractor shall assume that any painted surface contains lead paint and it shall be the Contractor's responsibility to protect Workers performing under this Contract.

C. The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State and Local regulations pertaining to Work practices, hauling and disposal of waste, protection of Workers and visitors to the site, and persons occupying areas adjacent to the site. The Contractor shall hold the Architect and Owner harmless for failure to comply with any applicable Work, hauling, disposal, safety, health or regulation on the part of himself, his Workers or his subcontractors.

D. The Contractor is required to ensure the protection of Workers performing any related Work that will affect surfaces coated with lead paint as well as protecting the public and the environment from exposure to lead dust.

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E. Codes and Standards

1. All Work shall conform to the standards set by applicable Federal, State and Local laws, regulations, ordinances, and guidelines in such form in which they exist at the time of the Work on the contract and as may be required by subsequent regulations.

2. In addition to any detailed requirements of the Specification, the Contractor shall at his own cost and expense comply with all laws, ordinances, rules and regulations of Federal, State, Regional and Local Authorities regarding handling and storing of lead waste material.

3. The following references are cited as applicable standard and regulations as amended:

a. Code of Federal Regulations (CFR) Publications:

| | |
|---|---|
| 29 CFR 1910 – | General Industry |
| 29 CFR 1926.55 – | Gases, Vapors, Fumes, Dusts and Mists |
| 29 CFR 1926.57 – | Ventilation |
| 29 CFR 1926.62 – | Lead in Construction |
| 29 CFR 1926.200 – | Signs, Signals and Barricades |
| 29 CFR 1926.354 – | Welding, Cutting and Heating in Way of Preservative Coatings |
| 29 CFR Subpart T – | Demolition |
| 40 CFR 50 - | National Primary and Secondary Ambient Air Quality Standards for Lead |
| 40 CFR 61 - | Subpart A General Provisions |
| 40 CFR 61.152 – | Standard for Waste Manufacturing, Demolition, Renovation, Spraying, and Fabricating Operations. |
| 40 CFR 241 - | Guidelines for the Land Disposal of Solid Wastes |
| 40 CFR 257 - | Criteria for Classification of Solid Waste |
| 40 CFR 261 and 262 - | Waste Disposal Facilities and Practices |

b. Massachusetts Regulations:

| | |
|---|---|
| 454 CMR 22.11 | Safety Procedures for Renovation |
| 454 CMR 23.00 | Occupational Lead Exposure |

4. All regulations by the above and other governing agencies in their most current version are applicable throughout this project. Where there is a

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conflict between this Specification and the cited State, Federal, or local regulations, the more restrictive or stringent requirements shall prevail.

5. THIS SECTION REFERS TO MANY REQUIREMENTS FOUND IN THESE REFERENCES, BUT IN NO WAY IS IT INTENDED TO CITE OR REITERATE ALL PROVISIONS THEREIN OR ELSEWHERE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO KNOW, UNDERSTAND, AND ABIDE BY ALL SUCH REGULATIONS AND COMMON PRACTICES.

1.03 DEFINITIONS

A. The following definitions apply to the performance of the Work of this project.

1. Action Level: Employee exposure, without regard to the use of respirators to an airborne concentration of lead of 30 micrograms/cubic meter ($\mu/m^3$) calculated as an 8-hour time-weighted average (TWA).

2. Area Monitoring: Sampling of lead concentrations within the Work area and outside the Work area, which is representative of the airborne concentrations of lead.

3. Consultant: Authorized representatives who are under contract with the Owner, or the Architect, to perform Lead Paint Consulting services.

4. HEPA Filter Equipment: High efficiency particulate air (HEPA) filtered vacuuming or exhaust ventilation equipment with a UL 586 filter system. Filters shall be of 99.97 percent efficiency for retaining 0.3-micrometer diameter particles.

5. Lead Containing Paint: Paint, varnish, or stain that contains lead in excess of 0.0% lead by weight.

6. Permissible Exposure Limit (PEL): The employer shall assure that no employee is exposed to lead at concentrations greater than 50 $\mu g/m^3$ of air averaged over an 8-hour period. If an employee is exposed to lead for more than 8 hours in any Work day, the employee's allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula: Allowable employee exposure in $\mu g/m^3$ of air = 400 divided by hours Worked in the day.

7. Sample Location: Area or place where an air or dust sample is collected.

8. Time Weighted Average (TWA): The TWA is an 8-hour time weighted average for the test of the concentration of lead for Worker exposure.

9. Wet Cleaning: The process of removing lead contamination from building surfaces, equipment and other objects by using cloths, mops, or other cleaning tools, which have been dampened with water, and by afterwards disposing of these cleaning tools as, lead contaminated wastes.

10. Work Area: A controlled-access Work area, which has plastic sheeting or

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other containment barriers erected to separate the trades and the occupants of the building.

1.04 SUBMITTALS

A. Provide the following Submittals at the Pre-Construction Conference for the review of the Architect and Owner:

1. Copies of all permits, applications, licenses, and like documents required by Federal, State, or local regulations and this specification obtained or submitted in proper fashion.

2. Employer's Lead Compliance Program as required by 29 CFR 1926.62, including proposed Worker training, respiratory protection program and medical monitoring for all employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used; Worker orientation plan; written description of all proposed procedures, methods, or equipment to be utilized, including those that may differ from the Contract Specifications. In all instances, Contractor must comply with all applicable federal, state and local regulations.

3. Material Safety Data Sheets on potentially hazardous materials to be used on the project.

4. Waste Disposal Plan which describes the waste stream and the disposal means (i.e. landfill, recycle, etc.) and includes the name, address, and ID number of the proposed hazardous waste hauler, waste transfer route, and proposed disposal reclamation or treatment facility,

**NOTE:** No Work of the project will be allowed to begin until Architect and Owner accept the Pre-Construction Submittals. Any delay caused by the Contractor's inability to submit this documentation in a timely fashion does not constitute a claim for extra compensation or a time extension.

1.05 GENERAL WORK PROCEDURES

A. Work shall be carried out in sequential phases and shall be approved by the Architect. This shall include window removal requirements for Work area clearance and Work area release prior to general construction Work.

B. At no time will the Owner permit storage of debris generated from renovation activities to be stored inside buildings at the site, and any storage of materials shall be subject to the Owner's approval. Assure security of debris at all times.

1.06 SPECIAL CONSIDERATIONS

A. In general, the following activities are minimum requirements of this Section and affect the renovation performed on the painted components:

1. No torch cutting, mechanical sanding or stripping, or abrasive methods of paint removal shall occur until the employer performs an employee

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exposure assessment as required under 29 CFR 1926.62 and determines actual employee exposure.

2. Workers shall be informed of the components to be impacted during renovation that have been identified as containing lead.

3. Separation of Trades: Unprotected, untrained Workers or trades shall not perform any related Work within the same vicinity as Work involving components identified with lead.

1.07 FEES, PERMITS & LICENSES

A. The Contractor shall pay all licensing fees, royalties, and other costs necessary for the use of any copyrighted or patented product, design, invention, or process in the performance of the Work specified in this section. The Contractor shall be solely responsible for costs, damages, or losses resulting from any infringement of these patent rights or copyrights. The Contractor shall hold the Architect and Owner harmless from any costs, damages, and losses resulting from any infringement of these patent rights or copyrights. If the Specification requests the use of any product, design, invention, or process that requires a licensing, patent or royalty fee for use in the performance of the job, the Contractor shall be responsible for the fee or royalty fee and shall disclose the existence of such rights.

B. Contractor shall be responsible for costs for all licensing requirements, where applicable and notification requirements and all other fees related to the Contractor's ability to perform the Work in this Section.

C. Secure all necessary permits for Work under this Section.

1.08 COORDINATION

A. Coordinate the Work of this Section with that of all other trades. The Work of this Section shall be scheduled and performed so as not to impede the progress of the project as a whole. Work shall not proceed in any area without the express consent of the Architect. As a Contract requirement, any reasonable delay caused by this requirement will not constitute a basis for claim against the Architect and Owner. Contractor must coordinate the Work of this section with the Work of the General Contractor and all other trades.

1.09 EMERGENCY PRECAUTIONS

A. The Contractor shall establish emergency and fire exits from the Work area.

B. When an injury occurs, the Contractor shall stop Work until the injured person has been removed from the Work area.

1.10 DISPOSAL OF WASTE MATERIAL

A. The Contractor shall comply with the Resource Conservation and Recovery ACT (RCRA) and with all applicable state and local regulations.

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B. Contractor shall be responsible for disposing of all waste determined by Toxicity Characteristic Leachate Procedure (TCLP) to be hazardous. If TCLP testing has not been performed, the Contractor shall be responsible for testing the waste.

C. Contractor shall comply with all EPA regulations.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

A. All materials and equipment proposed to be used on this project shall be subject to the acceptance of the Architect. The required materials shall include, but not necessarily be limited to the following:

1. Fire retardant polyethylene sheeting, minimum thickness of six (6)-mil.
2. Plastic bags, minimum thickness of six (6)-mil.
3. Duct Tape, up to 3 inch width
4. Lead Warning Signs, as required in OSHA
5. Flexible duct for ventilation units (if required)
6. Spray adhesive, fire retardant
7. Personal Protective Equipment, NIOSH approved respirators
8. HEPA vacuums
9. Tri-sodium Phosphate (TSP) and product data
10. Cloth tarpaulin
11. Chemical stripper, where applicable, not containing methylene chloride and/or flammable materials.

## PART 3 – EXECUTION

### 3.01 SCHEDULING

A. The Contractor shall coordinate all scheduling with the Architect. A schedule of Work shall be submitted to the Architect prior to contract performance.

### 3.02 UTILITIES

A. Provide all necessary connections for temporary utilities in the Workplace during Work. Shut down and disconnect all electrical power to the Work area so that there is no possibility of reactivation and electrical shock during the Work. The temporary electrical power shall be in accordance with all OSHA requirements.

### 3.03 IDENTIFICATION OF HAZARDS

A. Prior to any Work involving lead components, the contractor shall identify all Work activities in which a worker may be occupationally exposed to lead and shall

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initially determine if any Worker may be exposed to lead at or above the action level according to 29 CFR 1926.62.

3.04 BARRIERS AND ISOLATION AREAS

A. The degree of containment shall be appropriate for the anticipated levels of airborne lead dust. The lower the level of airborne lead, the lesser the requirements necessary to control lead emissions at the job site.

B. Work Area Isolation (unless exempted according to Paragraph A)

1. The Contractor shall isolate Work areas for the duration of Work by completely sealing off all openings in the Work area. Isolation shall be accomplished by constructing critical barriers where necessary around the Work area perimeter. The Work area shall be sealed airtight to the greatest extent possible.

2. Provide temporary power and lighting (with ground fault circuit interrupt protection) to the Work areas, and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements, and OSHA requirements for temporary lighting in the environment normal to renovation areas.

C. All Work areas involving lead shall remain isolated from all other trades on the project and remain inaccessible to the public. Contractor shall monitor the access to the renovation Work areas. The below listed items are required to control the generation of lead dust during renovation activities. The Contractor is ultimately responsible for cleaning all generated dust and paint debris from renovation operations and must maintain Work areas free from lead dust generated from renovation activities.

1. Signs shall be posted at all approaches to the Work area warning that Work involving lead is being conducted. Signs shall be in bold lettering not smaller than two inches tall.

2. Barriers shall not be removed until the Work areas are thoroughly cleaned.

3.05 PERSONNEL SAMPLING – CONTRACTOR

A. Perform personnel air sampling during all window Work to determine Worker exposure limits according to 29 CFR 1926.62. The results of such sampling shall be provided to individual Workers in writing within 5 Working days after completion of the exposure assessment. The Contractor shall be responsible for paying for the collection and analysis of personnel air sampling.

3.06 WORK PROCEDURES

A. The Contractor shall initiate, and continue, sufficient Work practice controls, as described in the Contractor's Lead Compliance Program, to reduce and maintain Worker exposures to lead at or below the Action Level.

B. The following Work practices are specifically required by these specifications:

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1. All persons except those directly involved in the Work shall be excluded from the Work area. Physical barriers shall be used, where necessary, to limit access to the Work area for the duration of the demolition operations. (Warning signs may need to be posted in accordance with applicable regulations.)

2. Provide hand-washing facilities and assure that all Workers thoroughly wash their hands and face upon exiting the Work area. Workers shall pay careful attention to cleanse the hands and face when decontaminating. Provide hygiene facilities, including shower, as required based on initial assessment and continued monitoring.

3. All equipment used by the Workers inside the Work area shall be either left in the Work area or thoroughly decontaminated before being removed from the area. Extra Work clothing (in addition to the disposable suits supplied by the Contractor) shall be left in the clean area until the completion of Work in that area. The clean area shall be cleaned of all visible debris and disposable materials daily.

4. Under no circumstances shall workers or supervisory personnel eat, drink, smoke, chew gum, or chew tobacco in the Work area; to do so shall be grounds for the Owner or Architect to stop all demolition operations. Only in the case of life threatening emergency shall workers or supervisory personnel be allowed to remove their protective respirators, if applicable, while in the Work area. In this situation, respirators are to be removed for as short a duration as possible.

3.07 STORAGE OF WASTE

A. Use of waste containers on site shall be controlled under the following requirements:

1. Location of waste containers on site shall be coordinated with the Owner.

2. Waste containers shall be lined with two layers of six-mil polyethylene sheeting, be solid, enclosed containers, locked and sealed at all times. This requirement applies to waste classified as hazardous based on TCLP testing.

3. Contractor shall comply with all federal, state, and local regulations and ordinances regarding lead waste and recyclable storage.

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 02 SUBSURFACE INVESTIGATION & DEMOLITION**

**SECTION 02 90 10 LANDSCAPING REPAIR**

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

A. Provide all the Landscaping Repair Work required to complete the work of the contract including all the Landscaping Repair Work shown on the plans, listed in the specification, and needed to install a complete assembly in every way, with all reinforcing, pinning, and finishes. Coordinate the Landscaping Repair Work with all the other trades for the project. Provide all demolition and disposal work to complete the Landscaping Repair Work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All work of the contract is related. It is the General Contractor's responsibility to review all the work of each section, each Subcontractor, and each file sub-bidder for the entire project so that all the work can be properly and completely performed.

B. Landscaping Repair Work includes, but is not limited to, replacing and planting of trees, shrubs and grass, including mulching, staking and related planting procedures of landscaping items only if damaged during construction.

1. Preparation of final sub-grades in planted areas.

2. Furnishing topsoil at areas to be planted.

3. Planting mixes

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4. Protection, maintenance and guarantee of plant materials.

5. Existing tree protection and care

6. Samples of materials.

1.03 RELATED WORK UNDER OTHER SECTIONS

A. The following items of related work are specified and included in other Sections of the Specifications:

1. Section 02070, Selective Demolition

1.04 QUALITY ASSURANCE

A. Comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.

B. Comply with sizing and grading standards of the latest edition of "American Standard for Nursery Stock". A plant shall be dimensioned as it stands in its natural position.

C. All plants shall be nursery grown under climatic conditions similar to those in the locality of the project for a minimum of 2 years.

1.05 SAMPLES

A. Submit the following samples in accordance with the requirements of GENERAL CONDITIONS and SUPPLEMENTAL GENERAL CONDITIONS.

1. Mulch

2. Anchors

3. Wire

4. Hose

5. Turnbuckles and cable clamps

6. Wrapping

7. Topsoil

B. Provide samples for testing as required by Architect.

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## PART 2 – PRODUCTS

### 2.01 TOPSOIL

A. Topsoil shall be a fertile, friable natural topsoil not excessively acid or alkaline and tree of toxic substances harmful to plant growth. Topsoil shall be without admixture of subsoil and free from clay lumps, stumps, roots, debris, stones, or other similar substances 2" or more in diameter.

It shall be obtained from a well-drained arable site with a history of good plant growth. Submit sample for approval by the Landscape Architect.

### 2.02 SLUDGE FERTILIZER

A. Sludge fertilizer shall be an organic activated, granular, heat dried sludge and shall contain the following minimum percentages by weight: 6% Nitrogen, 4% Phosphoric Acid, and other nutritious basic elements. The sludge fertilizer shall be delivered as specified in standard size bags, showing weight analysis and name of processor and shall be stored in a weatherproof storage place.

### 2.03 COMPOSTED COW MANURE

A. Manure shall be a derivative of cattle manure which has undergone a period of composting rendering it into a crumbly, odor free, weed free material containing beneficial natural soil bacteria. It shall be free of harmful chemicals and other injurious substances. Manure shall be free of refuse of any kind and shall not contain more than 25% of straw, shavings, leaves, or other material. Manure shall not be more than 2 years nor less than 9 months old.

B. A composition of peat moss or peat humus to which has been added dehydrated manure such as bovine in the proportion of 100 pounds of dehydrated manure per cubic yard of peat, may be substituted for manure as specified above.

### 2.04 BONE MEAL

A. Bone meal shall be commercial raw bone meal, finely ground, having a minimum analysis of 4% nitrogen and 20% phosphoric acid.

### 2.05 WATER

A. Water will be furnished by Owner on the site. Hose and other watering equipment shall be furnished by Contractor.

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## 2.06 PLANT MATERIALS

A. Contractor shall replace in kind and plant all plants or lawn damaged or killed during construction. No substitutions will be permitted. All plants shall be nursery grown unless specifically authorized to be collected.

B. Plant shall be in accordance with the USA Standard for Nursery Stock of the American Association of Nurserymen.

C. All plants shall be typical of their species or variety and shall have a normal habit of growth and be legibly tagged with the proper name. All plants shall have been grown under climatic conditions similar to those in the locality of the site of the project under construction, or have been acclimated to such conditions for at least 2 years. Trees shall have straight trunks and all abrasions and cuts shall be completely culled over.

D. The root system of each shall be well provided with fibrous roots. All parts shall be sound, healthy, and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs or larvae.

E. All plants must be moved with the root systems as solid units with balls of earth firmly wrapped with burlap. The diameter and depth of the balls of earth must be sufficient to encompass the fibrous root feeding system necessary for the healthy development of the plant. No plant shall be accepted when the ball of earth surrounding its roots has been badly cracked or broken preparatory to or during the process of planting or after the burlap, staves, ropes or platform required in connection with its transplanting have been removed. The plants and balls shall remain intact during all operations. All plants shall be freshly dug. No plants from cold storage or previously heeled-in will be accepted. All plants that cannot be planted at once must be heeled-in by setting in the ground and covering the balls with soil and then watering.

F. The height of the trees (measure from the crown of the roots to the tip of the top branch) shall be not less than that of the tree being replaced. The branching height for shade trees next to walks shall be 7'. This may be obtained by pruning after delivery if this does not ruin the shape or form of the trees or cause unsightly scares. All cuts shall be shellacked. The trunk of each tree shall be a single trunk growing from a single unmutilated crown of roots. No part of the trunk shall be conspicuously crooked as compared with normal trees of the same variety. The trunk shall be free from sunscald, frost cracks, or wounds resulting from abrasions, fire or other causes. No pruning wounds shall be present having a diameter exceeding 2" and such wounds must show vigorous bark on all edges. No trees which have had their headers cut will be accepted.

G. Shrubs shall meet the requirements for spread of height of the shrub being replaced. The measurements for height are to be taken from the ground level to

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the average height of the shrub and not to the longest branch. The thickness of each shrub shall correspond to the trade classification No. 1.

Single stemmed or thin plants will not be accepted. The side branches must be generous, well-twigged, and the plant as a whole well branched to the ground. The plants must be in a moist vigorous condition, free from dead wood, bruises or other root or branch injuries.

2.07 MULCH

A. Mulch material shall be softwood hemlock bark shredded into fibrous pliable slices generally not exceeding 1/2" in width.

Mulch shall be 98% organic matter with the pH range 3.5 to 4.5. Moisture content of packaged material shall not exceed 35%. Submit sample.

2.08 STAKING MATERIALS

A. Stakes for supporting trees shall be of sound wood, uniform in size, free of knots and holes. They shall be nominal 2" x 4" and 10' long for support staking, 3' long for guy wire anchor stakes. Stakes shall be stained dark brown.

B. Wire for tree bracing and guying shall be pliable No. 12 gauge galvanized steel.

C. Hose for covering wire shall be new or used 2 ply reinforced rubber garden hose not less than 1/2" inside diameter.

D. Wrapping material shall be first quality, heavy waterproof crepe paper manufactured for this purpose, or first quality burlap not less than 4" nor more than 6" wide of suitable strength and manufactured for this purpose.

2.09 SEED

A. Seed mixture shall be fresh, clean, new crop seed. Grass shall be of the previous year's crop and in no case shall the weed seed content exceed 0.25% by weight. The seed shall be furnished and delivered in the proportion specified below in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturer's Certificates of Compliance. Seed that has become wet, moldy or otherwise damaged shall not be acceptable. Chewings fescue, hard fescue, tall fescue and rygrass shall contain *Acromonium* endophytes. Seed containing endophyte must be kept cool and dry at all times; do not stockpile in the sun.

1. Seed Mixture Composition (not to be used on terraces)

| Common Name | Proportion By Weight | Germination Minimum | Purity Minimum |
|---|---|---|---|
| Creeping Red Fescue | 50% | 85% | 95% |

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| | | | |
|---|---|---|---|
| Kentucky Bluegrass | 40% | 85% | 90% |
| Perennial Rye | 10% | 90% | 90% |

a. Bluegrass and ryegrass varieties shall be within the top 50 percent and 25 percent respectively, of varieties tested in National Turfgrass Evaluation Program, or currently recommended as low maintenance varieties by University of Massachusetts or the University of Rhode Island.

b. Seeding rate for the General Lawn Seed Mix shall be 6 pounds per 1,000 square feet.

## PART 3 - EXECUTION

### 3.01 METHODS

A. Personnel: The planting and lawn construction shall be performed by personnel familiar with the accepted procedure of planting and under the constant supervision of a qualified planting foreman.

B. Planting Seasons:

1. Deciduous plants shall be planted only when dormant, that is, before leaves appear in the spring and subsequent to their loss in the fall, unless otherwise directed by the Architect.

2. Evergreen plants may be planted in the spring until new growth appears and any time between September 15 and November 30.

3. If the building completion date prohibits in-season planting, the Contractor shall complete his work within the project date and prepare himself for out-of-season planting, including wiltproofing and extra watering.

   Plant guarantee periods remain as stated below. No frozen ground planting.

C. Lawn Replacement

1. Remove all areas of dead lawn including root system. The Architect shall be the sole authority as to the extent of lawn replacement areas.

2. Contractor to provide a minimum of 6" of new loam in all areas of lawn replacement. Peat moss shall be mixed into existing hard and/or clay type soil. Architect shall determine the need for and amounts of peat moss required.

3. New grass shall be sod of rye grass, blue grass or a combination of both.

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4. Apply starter fertilizer to all areas of newly planted grass.

5. Maintain constant moist soil conditions, a minimum of thirty days.

D. Planting of Trees, Shrubs, and Vines:

1. Unless otherwise directed by the Architect, the indication of a plant to be replaced is to be interpreted as including the digging of a hole, furnishing a plant of the specified size, the work of planting and mulching, and guying, staking and wrapping where called for.

2. One or more stockpiles of approved backfill mixture shall be maintained at all times during the planting operations. The backfill mixture shall consist of 50% topsoil and 50% specified composted cow manure by volume, thoroughly mixed together. The following shall be added to each area of tree replacement:

   5 lbs. of sludge fertilizer

   5 lbs. of bone meal

   5 lbs. of cottonseed meal

   The following shall be added to each area of lawn replacement:

   1 lb. sludge fertilizer

   1 lb. bone meal

   1 lb. cottonseed meal

3. Locations for all plants shall be staked on the ground and must be approved by the Architect before any excavation is made. Adjustments in locations and outlines shall be made as directed. In the event that areas for planting are prepared and backfilled with Backfill Mixture to grade prior to commencement of lawn operations, they shall be so marked that when the work of planting proceeds, they can be readily located.

   In case underground obstructions such as ledge or utilities are encountered, locations shall be changed under the direction of the Architect without extra charge.

4. Holes for trees shall be at least 2' greater in diameter than the spread of the root systems and at least 6" deeper than root ball. Holes for shrubs and vines shall be at least 12" greater in diameter than the spread of the root system and at least 18" deep.

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5. Specified backfill mixture shall be spread and incorporated with loam in all areas of tree or lawn replacement and as directed by the Architect.

6. Planting: All plant roots and earthballs must be kept damp and thoroughly protected from sun and/or drying winds at all times from the beginning until the final operation, during transportation, and on the ground until the final operation of planting. The plants shall be planted in the center of the holes and at the same depth as they previously grew. They shall be plumbed and turned as directed. Specified Mixture shall be backfilled in layers of not more than 9" and each layer watered sufficiently to settle before the next layer is put in place. Backfill Mixture shall be tamped under edges of balled plants. Enough Backfill Material shall be used to bring the surfaces to finish grade when settled.

   a. A saucer shall be provided around each plant.

   b. Plants must be flooded with water twice within the first 24 hours of time of planting.

   c. Wrapping: The trunks of all shade trees shall be wrapped spirally from the ground to the height of the second branches or as directed. Wrap brown cord 3" on center spirally to hold paper neatly in place.

   d. Provide a 3" layer (after settlement) of bark mulch over the surface of each saucer and over the entire area of shrub beds.

   e. Stake all trees.

E. PLANTING COORDINATION:

1. Replacement plantings must match existing for type and caliber of trees and size of shrubs.

2. The Contractor shall be responsible for selection and tagging at nurseries stocking the specified materials.

3. Contractor shall inform Architect when planting will commence, anticipated delivery date of material and have made and provided for the staking of all plants and plant bed.

4. Failure to notify the Architect in advance, in order to arrange proper scheduling may result in loss of time or removal of any plant or plants not installed as specified or directed.

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3.02 PRUNING

A. Each tree and shrub shall be pruned in accordance with American Nurserymen Association Standards to preserve the natural character of the plant.

B. All dead wood or suckers and all broken or badly bruised branches shall be removed. In addition, 1/3 of the wood may be removed by thinning out to balance root loss due to transplanting providing the natural character and form of the tree is preserved. Never cut a leader.

C. Pruning shall be done with clean, sharp tools.

D. Cuts over 1" in diameter shall be painted with an approved asphaltic tree paint. Paint shall cover all exposed living tissue.

3.03 MAINTENANCE

A. Maintenance shall begin immediately after each plant is planted. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated and otherwise maintained and protected for a minimum of 30 days until provisional acceptance. Settled plants shall be reset to proper grade and position, planting saucer restored and dead material removed. Stakes and wire shall be tightened and repaired.

Defective work shall be corrected as soon as possible after it becomes apparent and weather and season permit.

B. Upon completion of planting and prior to provisional acceptance, remove from the site excess soil and debris, and repair all damage resulting from planting operations.

C. Protection: Planting areas and plants shall be protected against trespassing and damage of any kind. This shall include the provision and installation of approved temporary fencing if necessary. If any plants become damaged or injured by vandalism or neglect of others prior to provisional acceptance, the Contractor shall treat or replace them at his own expense.

3.04 ACCEPTANCE AND GUARANTEE

A. After the 30-day maintenance period, the Contractor shall request from the Architect an inspection to determine whether the plant material is acceptable. If the plant materials and workmanship are acceptable, written notice shall be given by the Architect to the Contractor stating that the guarantee period begins from the date of inspection.

B. If a substantial number of plants are sickly or dead at the time of inspection, acceptance will not be granted, and the Contractor's responsibility for

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maintenance of all plants shall be extended until replacements are made. Replacements shall conform in all respects to specifications for new plants and shall be planted in the same manner.

C. Materials and Operations: All replacements shall be plants of the same kind and size specified on the plant list. They shall be furnished and planted as specified above. The cost shall be borne by the Contractor. Replacements resulting from the removal, loss or damage, due to occupancy of the project in any part, vandalism, or acts of neglect on the part of others, physical damage by animals, vehicles, etc., and losses due to curtailment of water by local authorities, will be approved and paid for by the Owner.

D. Plants shall be guaranteed for a period of one year after inspection and shall be alive and in satisfactory growth at the end of the guarantee period.

E. At the end of the guarantee period, inspection will be made again. Any plant required under this Contract that is dead or unsatisfactory shall be removed from the site. These shall be replaced during the normal planting season, until the plants live through one year.

END OF SECTION

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Fax: (617) 464-2971

**DIVISION 04 MASONRY**

**SECTION 04 30 00 NATURAL STONE**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

A. Provide all the Natural Stone work required to complete the work of the contract including all the Natural Stone work shown on the plans, listed in the specification, and needed to install a complete assembly in every way, with all reinforcing, pinning, and finishes. Coordinate the Natural Stone work with all the other trades for the project. Provide all demolition and disposal work to complete the Natural Stone work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All work of the contract is related. It is the General Contractor's responsibility to review all the work of each section, each sub-contractor, and each file sub-bidder for the entire project so that all the work can be properly and completely performed.

B. Natural Stone work includes, but is not limited to:

1. Granite foundation blocks under cast-iron fence supports.

2. Provide samples of each material type in a typical shape and dimension, minimum 12" length.

3. Failure to provide complete shop drawings and samples in advance of the construction will result in <u>total rejection of all stonework</u>.

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1.03 REFERENCED STANDARDS

A. ANSI A41.1 - "Building Code Requirements for Masonry".

B. ASTM C-615 Granite Building Stone

C. NBGQA. National Building Granite Quarries Association.

D. NCMA.

1.04 SUBMITTALS

A. Submit the following samples in accordance with the provisions of SECTION 01300 - SUBMITTALS IN GENERAL REQUIREMENTS. Do not proceed with spall repair without approval by CBI.

1. Provide new granite required for completion of the work, typical.

2. Provide complete detailed shop drawings of each piece in each location. Number each piece.

3. Provide samples of each material type in a typical shape and dimension. Provide decorative carving or shaping sample in advance of production.

4. Failure to provide complete shop drawings and samples in advance of the construction will result in total rejection of all stonework.

B. Samples:

1. 12” X 12” X 2” piece of the material to be used with every finish specified..

1.05 QUALITY CONTROL

A. Stone Supplier: Company specializing in quarrying cut stone with 10 years experience.

B. Installer: Company specializing in installing cut stone with 5 years documented experience and approved by stone supplier. Stone installation shall be by qualified journeyman stone masons.

C. Workmen: Employ only journeymen stonesetters for the work of this Contract.

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D. Design anchors and supports under direct supervision of experienced Registered Professional Engineer registered in the State of Massachusetts.

E. Stone and workmanship must meet minimum requirements of the "Specifications for Building Granite", except where those requirements are made stricter under this Section.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Do not install patching material or new stone when temperature may drop below 50 degrees F. within 24 hours and when there is an immediate danger of freezing of the materials to be applied.

B. Adhere to manufacturer's recommendations.

1.07 PROTECTION

A. Protect adjacent surfaces from damage, and immediately remove stains, efflorescence, or other unsightly excess resulting from the work of this Section.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Chelmsford Granite as provided by Fletcher Granite, Chelmsford, Massachusetts, or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Inspection

1. Verify that foundation and site conditions are ready to receive work of this section.

2. Establish lines, levels, and coursing. Protect from disturbance.

3. Beginning of installation means acceptance of existing conditions.

B. Preparation

1. Verify that items built-in under other Sections are properly located and sized.

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2. Clean stone prior to erection. Do not use wire brushes or implements which will mark or damage exposed surfaces.

C. Installation

1. Erect stone in accordance with stone supplier's instructions and erection drawings.

2. Arrange stone in a pattern to provide consistent joint width 1/8 inch at vertical and horizontal joints.

3. Place setting buttons and set stone in full mortar setting bed to support stone over full bearing surface to establish joint dimensions.

4. Shore up units until setting bed will maintain panel in position without movement.

5. Fill dowel, Lewis, and lifting holes with mortar.

6. To accommodate pointing mortar, rake out joints. Brush mortar joints clean. Overhead joints to be keyed.

7. Fill joints with pointing mortar. Pack and work into voids. Neatly tool surface to flush joint.

D. Tolerances

1. Positioning of elements: Maximum 1/8 inch from true position.

2. Maximum variation from plane of wall: ¼ inch in 10 feet.

3. Maximum variation between face plane of adjacent panels: 1/16 inch.

4. Maximum variation from plumb: ¼ inch per story non-cumulative two stories.

5. Maximum variation from level coursing: 1/8 inch in 3 feet; ¼ inch in 6 feet.

6. Maximum variation of joint thickness: 1/8 inch in 3 feet.

E. Cutting and Fitting

1. Obtain approval prior to cutting or fitting any item not so indicated on drawings.

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2. Do not impair appearance or strength on stone work by cutting.

F. Cleaning

1. Remove excess mortar and sealant upon completion of work.

2. Clean soiled surfaces with cleaning solution.

3. Use non-metallic tools in cleaning operations.

END OF SECTION

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**DIVISION 05 METALS**

**SECTION 05 59 90 ORNAMENTAL IRON**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01000 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 – WORK TO BE PERFORMED

A. Provide all the Ornamental Iron work required to complete the work of the contract including all Ornamental Iron work shown on the plans, listed in the specification, and needed to install a complete assembly in every way, with all hardware, finishes, and accessories. Coordinate the Ornamental Iron work with all the other trades for the project. Provide all disposal work to complete the Ornamental Iron work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All work of the contract is related. It is the General Contractor's responsibility to review all the work of each section, each sub-contractor, and each file sub-bidder for the entire project so that all the work can be properly and completely performed.

B. Ornamental Iron work shall include but is not limited to:

1. Carefully disconnect and transport selected fence sections to the shop for renovation and repair. Pad all sections to avoid breakage and scratching.

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2. Sandblast all parts of each fence section to remove all paint, rust and scale.

3. Properly dispose of paint and sand blast debris as lead paint. Provide disposal manifest. See Spec section 02 83 00.

4. Replace missing or damaged pieces of the fence. Cast all new cast-iron to match existing to replace missing parts. Create patterns for each of the existing pieces of the fence, sized to match the existing in dimension and scale. (Exception: The bottom rail pattern exists and does not need to be produced).

5. Straighten the fence so that it stands plumb, level, and true.

6. Replace missing or damaged pieces of top rail from mild steel.

7. Install new expansion joints at the ends of each top rail as the connection.

8. Assemble all the parts into a unified assembly.

9. Brush blast the entire assembly to remove any “blush rust”.

10. Paint the entire fence assembly with a 3-coat high tech paint system including a zinc rich primer (Gray), an epoxy intermediate coat (Red), and a polyurethane top coat (Black). Do not proceed with subsequent coats until the previous coat has been completely covered. Provide minimum mil thickness as recommended by the manufacturer. However, coverage is the measure of completeness of the paint.

11. Apply continuous black silicone sealant over the clean, cured painting at the locations noted on the details.

12. Carefully pad and protect the finish and transport to the site.

13. Carefully install on site to be level, plumb, and true.

14. Touch-up the paint finish to the complete satisfaction of the Architect. Excessive damage to the factory finish will be cause for rejection of the work and the fence will be required to be returned and repainted in the shop at no additional cost to the Owner.

1.03 - SUBMITTALS

A. Submit the following shop drawings in accordance with the provisions of SECTION 01300 - SUBMITTALS in GENERAL REQUIREMENTS.

1. Entire fence assembly within Scope.

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2. All cast pieces of iron and patterns

3. All hardware, fastening, fasteners, welding in complete detail.

4. Address separation of dissimilar materials to avoid galvanic corrosion.

B. Submit the following samples and data in accordance with the provisions of SECTION 01300 - SUBMITTALS in GENERAL REQUIREMENTS.

1. One of each custom fabricated decorative elements required on a repetitive basis.

2. Stainless steel bolts.

3. Sample weld to produce a flush square connection.

4. Faster connection.

5. Sample of expansion connection.

C. Certifications:

1. American Welders Society qualification certificates for all welders involved in the work.

2. Certification of lawful disposal of all lead paint chips removed from fence.

D. Removal, Transportation and Protection Methods and Procedures:

1. Packing/crating to shop.

2. Handling equipment.

3. Packing/crating back to site.

E. Do not order materials or commence fabrication of any work or begin installation until approval has been obtained from the Consultant.

1.04 - QUALITY ASSURANCE

A. Provide at all times during the work of this Section adequate supervisory personnel who shall be thoroughly familiar with the type of construction involved and with the requirements of the Contract Documents pertinent to this Work. Provide adequate numbers of skilled craftsmen and other personnel to ensure the orderly and proper progress of the Work in accordance with the approved Progress Schedule.

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B. Comply with the Codes and Standards of the American Welding Society and the Steel Structures Painting Council.

C. Certify that all welders have passed the American Welding Society qualification test within the past 12 months.

D. All fence fabrication work shall be performed in the shop. Field work will be limited to installation, and touch-up painting.

E. Store all fence sections, gates and parts indoors in a clean, dry environment. Consistent temperature and humidity conditions shall be maintained throughout the fabrication process.

1.05 - PRODUCT HANDLING

A. Contractor shall be responsible for all shoring and hoisting of fence sections as well as protection of adjacent materials and property.

B. All fence sections removed shall be handled separately. Fence sections shall not come in contact with other sections during installation, transport, or delivery. Any damage to the fence as a result of mishandling the material shall be completely repaired to the satisfaction of the Consultant and at no additional cost to the Owner.

C. Load and unload gates in approved locations. Do not dump, drag, drop, or scrape the gates.

D. The gate shall be delivered to the site with adequate protection to prevent damage to the parts or the finish.

E. Use only canvas straps to hoist the gates and pad at each location. Use only canvas straps to hoist the gates in shop during the painting process. If chain is used and breaks the coating, the gates shall be completely re-blasted and repainted.

1.06 - REFERENCE STANDARDS

A. The work shall conform to the codes and standards of the following agencies as further cited herein (these code books shall be kept at the shop at all times):

1. ASTM: American Society for Testing and Materials, 196 Race Street, Philadelphia, PA 19103, USA as published in "Compilation of ASTM Standards in Building Codes".

2. AWS: American Welding Society Inc., 2501 NW 7th Street, Miami, FL 33125 USA as published in "Standard D1.1-72, Structural Welding Code".

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3. AISC: American Institute for Steel Construction, 101 Park Avenue, New York, NY, USA as published in "Code for Standard Practice for Steel Buildings and Bridges"; "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings".

4. ANSI: American National Standard Institute, 1430 Broadway, New York, NY 10018, USA

5. SSPC: Steel Structures Painting Council, 4400 Fifth Avenue, Pittsburgh, PA 15213, USA as published in Volumes 1 and 2 of "SSPC Manual".

6. The following Specifications, Standards and Codes of current issue form a part of this Specification.

7. American Society for Testing and Materials: A36, A48, A53, A123, A143, A149, A153, A246.

8. American Iron and Steel Institute, applicable standards.

9. American Institute for Steel Construction (AISC): Code of Standard Practice for Steel Buildings and Bridges: Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings.

10. Federal Specs: QQ-1-652A, Iron Gray Castings; QQ-S741a, Steel Plates, Shapes and Bars, Carbon, Structural: WW-P521 Malleable Iron.

11. American Welding Society Code: Standard Code for Arc and Gas Welding in Building Construction.

12. National Association of Architectural Metal Manufacturers, applicable publications.

1.07 - JOB CONDITIONS

A. Time delivery and installation of ornamental iron work to avoid delaying other trades whose work is dependent on or affected by the ornamental iron work and to comply with protection and storage requirements. Coordinate all field work with masonry contractor.

B. Installer must examine the substrates and supporting structures and the conditions under which the ornamental iron work is to be installed, and notify the Consultant in writing of conditions until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

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C. Coordinate location of expansion connections and setting locations so that attached work will comply with design requirements.

## PART 2 - PRODUCTS

### 2.01 - MATERIALS

A. Metal Surfaces: For fabrication of new ornamental iron work, all of which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names, and roughness.

B. Provide all materials of the best commercial quality for the purpose intended, free from all defects which would impair the strength or durability of the work.

C. Provide ferrous metals conforming to ASTM Standards.

1. Steel for plates, bars, angles, and structural shapes.
2. Stainless steel machine screws, bolts, and pins at expansion detail and for embedded legs.
3. Cast iron for cast ornamental pieces.

D. All steel ornamental iron shall be painted, as per Section 09900.

### 2.02 - FABRICATION

A. Use materials of size and thickness indicated, or if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on drawings and shop drawings, using approved details of fabrication and support. Use type of materials indicated or specified for various components of work.

B. Form exposed work true to shape and size, and line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise indicated. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing work. Cutting, shearing, and punching shall leave clean, true lines and surfaces. Curved work shall be evenly sprung.

1. All exposed edges and ends of plates, bars, shapes, or tubing shall be square and smooth, free of cutting marks, shear distortion, burrs, and nicks.

2. Provide uniform and consistent joints with all exposed copes, miters, and butt cuts.

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C. Weld corners and seams continuously, and where required for strength on concealed surfaces in accordance with AWS recommendations. Tack welding will be permitted as specifically noted. Where flush butt joints are required, slightly oversize welds, fill with plastic filler, and grind flat. Grind exposed connections smooth and flush to match and blend with adjacent surfaces. All grinding shall be to the satisfaction of the Consultant.

1. Weld material: Electrodes, welding rods, and filler metals are to be compatible in strength and appearance with the parent material joined.

D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners and welds wherever possible. Use exposed fasteners to match original fasteners.

E. No bolted connections will be permitted. Connections not welded shall be machine screwed after being tapped and died to match the original design.

## PART 3 - EXECUTION

### 3.01 - PREPARATION

A. Take field measurements prior to preparation of shop drawings and fabrication where possible. Do not delay any progress.

B. Coordinate and furnish anchorages, and dimensions for items which are to be embedded in masonry construction. Coordinate delivery of such items to project site.

### 3.02 – WELDING

A. Welding shall be continuous. Tack welding will not be permitted. All exposed welds shall be ground smooth to the complete satisfaction of the Architect. All inside corners, bar to bar shall be clean and crisp to appear as if the connection was bolted with concealed fasteners and not welded.

B. Where structural joints are made by welding, the details of all joints, the techniques of welding employed, the appearance and quality of welds made, and the methods used to correct defective work shall conform to AISC and AWS Codes.

C. Welds shall be made only by certified welders who have previously been qualified by tests as prescribed in AWS Standard Qualification Procedure for the type of work required.

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D. The use of a gas cutting torch in the field for correcting fabrication errors will be permitted on structural framing members only when prior written approval of the Engineer has been obtained for each specific condition.

3.03 - WORKMANSHIP

A. All work shall be executed by experienced mechanics and shall conform to details, be clean and straight with sharply defined profiles. Unless otherwise particularly noted, finished surfaces shall have smooth finish.

B. Shearing and punching shall be done cleanly so as not to deform or mar adjacent surface.

C. Shop connections shall be welded and field connections bolted unless otherwise indicated. Bolts shall be turned up tight and threads deformed to prevent loosening.

D. Castings shall be sound and free from warp, holes and other defects that impair strength and appearance. Exposed surfaces shall have a smooth finish with sharp well-defined lines and arises. Machined joints shall be milled to a close fit. Provide all necessary lugs, brackets and similar items so that work can be assembled and installed in a neat substantial manner.

E. Flanges shall be concealed where practicable. Thickness of metal and details of assembly and support shall be such as to provide ample strength and stiffness.

F. Provide holes and connections as required to accommodate work of other trades and for site assembly of metal work. Holes shall be drilled or punched and reamed in the shop. Show sizes and locations of all such holes on the shop drawings.

G. Joints and connections exposed to weather shall be formed to exclude water.

H. All materials and workmanship under this SECTION shall be subject to inspection in the mill, shop or field by the Engineer, or by qualified inspectors retained by the Owner. Inspection shall be without expense to the Owner. However, such inspection, wherever conducted, shall not relieve Contractor of his responsibility to furnish materials and workmanship in accordance with Contract requirements.

3.04 - INSTALLATION

A. Take all measurements required at the site. Check measurements, compare dimensions and other data with various trades installed adjoining work to assure proper coordination.

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B. For all drilling and fitting, cutting, welding, bolting and riveting required to erect, install and fit metal work to adjoining work. Conform to AISC Code. Furnish all screws, bolts, anchors, etc., required to attach metal work securely to adjoining work.

C. Do not cut or alter members in the field without Engineer's approval. Do not enlarge unfair holes by burning and forcing, but correct by reaming.

D. Be responsible for the correct location of miscellaneous metal work, including anchor bolts and base plates, and angles. Take particular care to maintain steel shapes, etc., plumb and level during the construction.

E. All work shall be accurately set to established lines and elevations and rigidly fastened in place with suitable attachments to the construction of the building.

F. Furnish, fabricate, install and anchor all light iron, miscellaneous metal work as indicated on the Drawings and as specified herein. Install all supports and anchors for miscellaneous metal work.

G. Furnish all required anchors, anchor bolts, fastenings, etc., for attachment of work of all trades to concrete and masonry, except where otherwise specified or obviously included under other Sections of the Specifications.

H. Clean up site of all debris, tools and materials daily.

## 3.06 - INSTALLATION

A. General Contractor shall have installed all support brackets or structural elements required to receive the restored fence. Contractor to provide work in advance, coordinate dimensions and procedures. Do not deliver restored fence to site without confirming that supports have been installed.

B. No field welding is permitted. Fence shall be properly cut and fitted as required in the shop. Provide all temporary bracing, guy wires, turnbuckles, and horizontal struts as required during installation.

C. All operating gates shall hang plumb, level, and secure for full opening without interference. Install center and edge stays as required. Adjust hardware for smooth operation and lubricate where necessary. No sag or twist will be allowed in gates.

D. Touch up paint immediately after erection. Clean abraded areas and paint with same material used in the shop. Temperature considerations may delay touch-up. Refer to Manufacturer's recommendation.

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## 3.06 - FINAL INSPECTION

A. Consultant shall review each section in shop before delivery to site. Contractor shall make all corrections or repairs as directed before coating. Consultant will also review each section after coating.

B. Consultant shall review each section in field upon installation and will note any damage as a result of delivery or installation. Contractor will make repairs or touch-up as directed. Fence sections that are severely damaged or which have had the coating system compromised shall be returned to the shop to be completely repaired, sandblasted and refinished to the satisfaction of the Consultant and at no extra cost to the Owner.

C. After approval of each installed section in the field any damage to the metal work by the masonry contractor shall be repaired by the ornamental metal contractor and billed to the mason.

END OF SECTION

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Boston, Massachusetts
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Fax: (617) 464-2971

**DIVISION 07 THERMAL AND MOISTURE PROTECTION**

**SECTION 07 92 13 ELASTOMERIC JOINT SEALANTS**

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

A. Provide all the Sealants and Caulking work required to complete the work of the contract including all the Sealants and Caulking work shown on the plans, listed in the specification, and needed to install a complete assembly in every way, with all hardware, finishes, and accessories. Coordinate the Sealants and Caulking work with all the other trades for the project. Provide all demolition and disposal work to complete the Sealants and Caulking work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All work of the contract is related. It is the General Contractor's responsibility to review all the work of each section, each Subcontractor, and each file sub-bidder for the entire project so that all the work can be properly and completely performed.

B. Sealants and caulking work includes, but is not limited to:

1. Provide black silicone sealant as detailed, to seal joints between cast-iron elements.

2. Sealant shall be shaped in a "cant" to shed water.

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1.03 SUBMITTALS

A. Product Literature: Submit 4 copies of product data sheets and the manufacturer's installation instructions.

B. Color Samples: Copies of manufacturer's standard color charts shall be submitted. Cured samples of each chosen color shall be submitted for verification of actual color to be installed.

1.04 PRODUCT HANDLING

A. Delivery shall be in manufacturer's original unopened container, clearly identifying each product specified, relating it to the product literature submitted.

1.05 GUARANTEES

A. Exterior sealant shall be guaranteed by the manufacturer against cohesive and adhesive failure of the sealant and water penetration through the joints for TWENTY (20) years.

PART 2 – PRODUCTS

2.01 GENERAL

A. Colors: Provide full range of manufacturer's color samples for Architect's review.

2.02 MATERIALS

A. Exterior and Window Sealant: Medium modulus, neutral cure single component, non-sag, Silicone sealant - ASTM C-920-79/Type S/Class 25/Grade NS, such as 795 by Dow Corning, or approved Equal.

B. Color: Black.

C. Primer: A primer shall be used at all locations in accordance with the manufacturer's instructions, with all primers being installed prior to the installation of any backer rod or bond breaker tape. Manufacturer shall be consulted for all surfaces not specifically covered in submittal application instructions.

PART 3 – EXECUTION

3.01 JOINT SURFACE PREPARATION

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Boston, Massachusetts
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Fax: (617) 464-2971

A. Remove all failed sealants and clean joint surfaces immediately before installation of sealant and caulking compounds. Remove dirt, insecure coatings, moisture and other substances which would interfere with the bond of sealant or caulking compounds.

3.02 INSTALLATION

A. Surrounding areas shall be protected to ensure that no sealant contaminates these surfaces.

B. Sealant shall be installed in accordance with manufacturer's recommendations and instructions in order to insure proper width to depth ratio. Take all steps to prevent three (3) sided adhesion. Sealant depth shall be one half of joint width with a minimum depth of 1/4" and a maximum of 1/2" unless otherwise required by the manufacturer.

C. Both temperature and dampness conditions may restrict application of these sealants. Comply with manufacturer's instructions.

END OF SECTION

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Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 09 FINISHES**

**SECTION 09 90 00 PAINTING**

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that all the material, labor, and equipment be furnished complete in every respect, and that this Contractor shall provide all material, labor, and equipment needed and usually furnished in connection with such systems to provide a complete installation including all demolition, disposal, and patching of adjacent surfaces. Materials, equipment, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 WORK TO BE PERFORMED

A. Provide all the Painting work required to complete the work of the contract including all the Painting work shown on the plans, listed in the specification, and needed to install a complete assembly in every way, with all reinforcing, pinning, and finishes. Coordinate the Painting work with all the other trades for the project. Provide all demolition and disposal work to complete the Painting work. Patch to match all adjacent surfaces that are disturbed, left exposed, or unfinished. All work of the contract is related. It is the General Contractor's responsibility to review all the work of each section, each sub-contractor, and each file sub-bidder for the entire project so that all the work can be properly and completely performed.

B. Painting work includes, but is not limited to:

1. Paint the entire fence assembly with a 3-coat high tech paint system including a zinc rich primer (Gray), an epoxy intermediate coat (Red), and a polyurethane top coat (Black). Do not proceed with subsequent coats

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until the previous coat has been completely covered. Provide minimum mil thickness as recommended by the manufacturer. However, coverage is the measure of completeness of the paint.

2. Touch-up the paint finish to the complete satisfaction of the Architect. Excessive damage to the factory finish will be cause for rejection of the work and the fence will be required to be returned and repainted in the shop at no additional cost to the Owner.

1.03 SUBMITTALS

A. Submit the following shop drawings in accordance with the provisions of SECTION 01 31 00 - SUBMITTALS in the general requirements.

1. Manufacturers literature on each product used.

B. Submit the following samples in accordance with the provisions of SECTION 01 31 00 - SUBMITTALS in the general requirements.

1. 12" long section of metal fabrication with complete paint finish.

1.04 QUALITY ASSURANCE

A. Provide at all times during the work of this Section adequate supervisory personnel who shall be thoroughly familiar with the type of construction involved and with the requirements of the Contract Documents pertinent to this Work. Provide adequate numbers of skilled craftsmen and other personnel to ensure the orderly and proper progress of the Work in accordance with the approved Progress Schedule.

B. Comply with the Codes and Standards of the Steel Structures Painting Council.

PART 2 – PRODUCTS

2.01 PAINT

A. All paints to be by Sherwin Williams, Benjamin Moore, Pratt & Lambert brand or approved equal. Specification is based on the Sherwin Williams brand but may be by an approved equal.

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B. Metal:

1. ZINC-RICH PRIMER shall be “SeaGuard Universal Primer” by Sherwin Williams which is a high solids, low V.O.C., heavy-metal free, rust inhibitive, universal metal primer for Marine and offshore applications.

   Provide 5 dry mil thickness, minimum.

2. EPOXY INTERMEDIATE COAT shall be “Dura-Plate 235 Multi-Purpose Epoxy” by Sherwin Williams which is a modified epoxy phenalkamine, formulated specifically for immersion and atmospheric service in marine and industrial environments.

   Provide 8 dry mil thickness, minimum.

3. POLYURETHANE FINISH COAT shall be “ACROLON ULTRA” by Sherwin Williams which is a high performance, high gloss acrylic polyurethane. It is specifically designed to provide long term UV protection for high visibility structures.

   Provide 5 dry mil thickness, minimum.

PART 3 – EXECUTION

3.01 SURFACE PREPARATION

A. Install all paint as per the manufacture's written recommendations.

D. Metal Surfaces.

1. Sandblast all parts of each fence section to remove all paint, rust and scale.

2. After repair and assembly of the fence, brush blast the entire assembly to remove any “blush rust”.

3.02 APPLICATION TO METAL

A. Apply paint as per manufacturer's recommendations and by methods generally accepted by the trade to achieve approved results. Full coverage will be achieved when the color of the coat of paint below in no longer visible.

B. All work shall be performed in the shop by qualified personnel under controlled conditions for dust, temperature and humidity. Provide sufficient lighting.

C. Prime all prepared bare metal surfaces.

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Fax: (617) 464-2971

D. Paint the entire fence assembly with a 3-coat high tech paint system including a zinc rich primer (Gray), an epoxy intermediate coat (Red), and a polyurethane top coat (Black). Do not proceed with subsequent coats until the previous coat has been completely covered. Provide minimum mil thickness as recommended by the manufacturer. However, coverage is the measure of completeness of the paint.

E. Touch-up the paint finish to the complete satisfaction of the Architect. Excessive damage to the factory finish will be cause for rejection of the work and the fence will be required to be returned and repainted in the shop at no additional cost to the Owner.

3.03 PROTECTION

A. The contractor is responsible for protecting the finish of the Railings after coating during storage, delivery and installation.

B. Touch-up scrapes, scratches and any other mar in the finish as required after installation as per this specification.

C. If Consultant determines that the paint finish has been damaged by the contractor, beyond repair by touch-up, the entire rail section shall be taken back to the shop and shall be re-finished as per this specification and at no additional cost to the Owner.

END OF SECTION

CBI CONSULTING INC.

CBI

PRINCIPALS
CRAIG E. BARNES
MICHAEL S. TELLER
WAYNE R. LAWSON
ALBERT F. PEREZ

ASSOCIATE
ROBERT G. WILKIN

# Project Manual
# Phase II
## (Only the pages that differ from Phase I)

# Salem Common Fence Restoration
# Salem, Massachusetts

OFFICES
BOSTON
MIAMI

T 617 • 268.8977
F 617 • 464.2971
cbiconsultinginc.com

250 DORCHESTER AVENUE • BOSTON, MASSACHUSETTS 02127

# DOCUMENTS AND SPECIFICATIONS

**FOR**

# PHASE II
# HISTORIC REPAIRS TO SALEM COMMON CAST-IRON FENCE
# SALEM, MA

**CITY OF SALEM**

**Bid Documents**

March 30, 2012


## CBI Consulting Inc.

**250 Dorchester Avenue**
**Boston, Massachusetts 02127**
**(617) 268-8977**
**Fax (617) 464-2971**
**cbi@cbiconsultinginc.com**


**CBI FILE NUMBER 11195 SPEC, PHASE II**

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**HISTORIC REPAIRS TO SALEM COMMON**
**CAST-IRON FENCE** **# OF PAGES**

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

CBI Consulting Inc.
Boston, Massachusetts
Tel: (617) 268-8977
Fax: (617) 464-2971

**DIVISION 01 GENERAL REQUIREMENTS**

**SECTION 01 01 00 SUMMARY OF WORK**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Include the General Conditions, Modifications to the General Conditions, and applicable parts of Division 01 as part of this Section.

B. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

D. It is the intent of the Specifications and the Drawings to require that the equipment to be furnished complete in every respect, and that this Contractor shall provide all equipment needed and usually furnished in connection with such systems to provide a complete installation. Equipment, materials, and articles incorporated in the work shall be new and of the best grade of their respective kinds.

1.02 DESCRIPTION OF WORK - GENERAL

A. In general, the Contractor shall supply all material, labor, equipment, insurance, temporary protection, tools and appliances necessary for the proper completion of the work as described in the Plans and Specifications, in accordance with good construction practice, and as required by the materials manufacturers.

B. Supply all shoring and protection necessary to protect the occupants, building area, building systems, and landscape areas. All means and methods are the responsibility of the contractor. The Contractor is solely responsible for safety on the job site.

C. In general, the work includes, but is not limited to:

1. Carefully disconnect and transport selected fence sections to the shop for renovation and repair. Pad all sections to avoid breakage and scratching.

2. Sandblast all parts of each fence section to remove all paint, rust and scale.

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3. Properly dispose of paint and sand blast debris as lead paint. Provide disposal manifest.

4. Replace missing or damaged pieces of the fence. Cast all new cast-iron to match existing to replace missing parts. Create patterns for each of the existing pieces of the fence, sized to match the existing in dimension and scale. (Exception: The bottom rail pattern exists and does not need to be produced).

5. Straighten the fence so that it stands plumb, level, and true.

6. Replace missing or damaged pieces of top rail from mild steel.

7. Install new expansion joints at the ends of each top rail as the connection.

8. Assemble all the parts into a unified assembly.

9. Brush blast the entire assembly to remove any "blush rust".

10. Paint the entire fence assembly with a 3-coat high tech paint system including a zinc rich primer (Gray), an epoxy intermediate coat (Red), and a polyurethane top coat (Black). Do not proceed with subsequent coats until the previous coat has been completely covered. Provide minimum mil thickness as recommended by the manufacturer. However, coverage is the measure of completeness of the paint.

11. Apply continuous black silicone sealant over the clean, cured painting at the locations noted on the details.

12. Carefully pad and protect the finish and transport to the site.

13. Carefully install on site to be level, plumb, and true.

14. Touch-up the paint finish to the complete satisfaction of the Architect. Excessive damage to the factory finish will be cause for rejection of the work and the fence will be required to be returned and repainted in the shop at no additional cost to the Owner.

15. Fence sections to include in Phase II are #65, 66, 67, 76, 77, 78, 79, 80, 108, 109, 110, 111, 112, 124, 125, 126, 127, 128, 145, 146, 147, 148, 149, 170, 171, 172, 173, 174, 198, 199, 200, 201, 202, 225.

16. Add Alternate #1 work shall include fence sections #226, 227, 228, 229.

17. Add Alternate #2 work shall include fence sections #237, 238, 239, 240.

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Boston, Massachusetts
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1.03 INTENT OF THE PROJECT MANUAL

A. Whenever “Furnish”, “Install”, or “Provide” is used in the Contract Documents, it shall mean to erect, install, connect, make operative, and supply all labor and materials, including miscellaneous fittings, hardware, and accessories necessary to complete the installation of the specified item.

B. The scope of work is indicated in the Project Manual. Areas of required work indicated on the drawings are for illustration and are not to be interpreted as representing quantities, exact locations, and/or the extent of work required. The Owner makes no representation of the exact quantities of work required. It shall be the responsibility of the Contractor to do all work to the complete fulfillment of the requirements of the Project Manual.

1.04 ERRORS, OMISSIONS, AND CONFLICTS IN THE PROJECT MANUAL

A. In the case of conflicts in the Drawings and the Specifications noticed by the Contractor, the Architect shall be notified immediately in writing of such errors and/or omissions. In no case shall the Contractor proceed without written authorization from the Architect.

1.05 UNFORESEEN FIELD CONDITIONS

A. In the case of unforeseen field conditions, the Contractor shall notify the Owner and Architect immediately in writing of such conditions. In no case shall the Contractor proceed without written authorization from the Architect. If such unforeseen conditions result in additional expense, the Contractor shall not proceed without the written approval of the Owner.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION