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*Improvement*  
*Professionals*

**Roof Survey**

**13-31 Elm Street  
Springfield, MA**



Prepared for: Mr. Dan Dodge & Mr. Brian Connors  
Prepared by: Mr. Chuck Gray  
September 28, 2011

**Inspection Date:** September 27, 2011

**Weather Conditions:** Partly cloudy, 70 degrees

**Existing Roof:** Coal Tar Gravel Surface Built up Roof

**Square Footage:** Approximately 15,340 square feet

**Existing Insulation:** N/A

**Existing Drainage:** The roof drains to (8) roof top drains.

**Building Construction:** Masonry walls.

**Perimeter Construction:** Parapet walls with stone, painted metal and copper copings.

**Deck:** Wood

### **Existing Conditions**

The existing roof as illustrated with the enclosed photos would rate as poor. No records were available at the time of the inspection to determine the age of the roof. The existing main roof is a gravel surfaced coal tar built up roof installed directly over a wood deck. The thickness of the wood deck was not confirmed and pull out tests should be performed before a mechanically attached roof system is installed to ensure that the deck will meet the manufacturers minimum requirements. The perimeter details are failing and have pulled apart, rusted through and in some areas blown off.

The roof has an area of approximately 1100 square feet that has been repaired with a white single ply membrane. There are multiple areas where the roof has split and repairs have been attempted. Almost all of the base flashings and perimeter flashings have had repairs attempted.

All of the roof drains are missing clamp rings and strainers, allowing for any roof top debris to fall into the drain pipes.

## **Recommendations**

The existing roof should be removed to the existing wood deck. The deck can be inspected once the roof is removed and any deficient decking can be addressed at that time.

There is not any roof insulation and currently the wall height on several wall sections are only between 4" to 6". If new isocyanurate insulation is installed on this roof, some of the parapet walls may need to have additional nailers installed to raise the wall height to allow for proper base flashings to be installed. A calculation of the buildings insulation will need to be done and compared to the current Massachusetts energy code requirements for commercial buildings to determine the R-value needed for the roof. (Isocyanurate has an LTTR r-value of 6 per inch)

Pressure treated nailers to be installed on an "as needed basis" only where the existing nailers may have rotted.

The roof substrate should be prepared to accept the new roofing system by mechanically attaching a minimum 1/2" approved recovery board over the existing deck.

Install a 60 mil TPO roof system as manufactured by Genflex, Carlisle or Firestone Building products according to manufacturers specifications.

Install new TPO membrane up and over parapet walls and install new 24 gauge prefinished coping or copper as required to meet existing conditions.

Flash all pipes with TPO flashing membrane according to manufacturers specifications.

Install new drain clamps, bolts and strainers.

Install new prefinished 24 gauge metal counterflashing in reglet for all brick wall flashings.

Install 60" wide walkway pad in front of all doorways.

A decision needs to be made as to whether the chain link fence along some of the parapet walls will need to be replaced with new.

A decision needs to be made whether a new fall protection needs to be installed over the open skylight.

The base flashings for the sided buildings on this roof tie in to the built up roof so coordinating the roofing project with any siding work will need to be done.

Some of the damage to the copper copings and the copper roof may be attributed to the tornado and it is worth investigating whether the insurance company may share some of the cost of replacing these areas. The vacuum that a tornado cause sometimes will cause roof uplift which will separate the roof from the deck and in some cases can pull the decking up from the supports.

An argument could be made that some of the splits in this roof may have been caused by the tornado and the uplift of the roof.

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The photos on the left show the condition of the metal coping and the base flashing for detail A.





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**Detail B:**

The existing coping is a stone cap and metal was installed over the back side of the stone and the top of the cap was sealed with an asphalt base sealant. The back wall has a metal siding that has rusted and will need to be replaced. When using a single ply roofing membrane, the material can be ran completely up the wall thereby eliminating the need to install a similar metal siding product.



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**Detail D:**  
The existing metals are in disrepair. The mortar in the brick wall has deteriorated completely in areas. This wall section may be able to be addressed in a similar fashion to detail B. As opposed to utilizing a base flashing along with the coping detail, a single ply membrane can totally encapsulate the brick wall and seal the top of the wall below the new coping.





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More photos of detail C  
showing the breakdown of  
the mortar.





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Detail D:  
Showing the existing  
condition of the coping,  
holes in mortar beyond,  
chain link fence.



Detail D to E



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Existing siding on roof top buildings. The existing exposure on these panels are approximately 5 1/2"x8 1/2". Berridge makes a matching prefinished panel that has an exposure of 8"x12"



Metal roof edge that blew off. Most likely attributed to the tornado.

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Detail D:  
Showing the condition of  
the coping along with the  
repair that was made to the  
roof. Broken glass and  
debris is scattered all over  
this roof.





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This is an open skylight that goes to a roof section several stories below. The roof section below was not accessible at the time of the survey but the condition of this roof is assumed to be in the same condition as the rest of the roof and will need to be addressed in a similar manner. The drainage of this roof will need to be addressed to make sure that there is not any ponding water.





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Detail G1:  
Showing the distressed  
coping details along with  
debris on the roof.





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Detail G2:  
Showing the distressed  
perimeter detail along with the  
roof drain that is missing  
clamps and strainer.





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View of the exterior portion of the building showing the distressed coping details and the tuck pointing issues.



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Detail H1:  
Photos on the left show  
the interior and exterior  
views of the copper  
coping and exterior  
dental detail.





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The photos on the left show the damage to the copper copings on the south side of the building that were most likely damaged during the tornado.





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Detail H2:  
Copper copings looking  
from the south to the north.  
The copings have had  
repair attempts made by  
smearing asphalt .



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Detail I:  
Showing the stone cap  
and the termination  
attempt of the metal on  
the back side.





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Detail J:  
Showing the chain link fence  
and the coping detail.





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Building #2: Before and after the tornado

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Building #3:  
The siding on this building  
has severe rust and the  
edge metal has partially  
blown off on the east side.



4404 West 166th Street, Westfield, IN 46074 (317)709-4430 fax(317)867-6324



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Building #4:  
Appears to have a concrete  
roof deck. The roof on this  
building was not accessed at  
the time of the inspection.  
The concrete walls have  
several cracks and repairs  
have been attempted



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Building #5:  
Has a metal hip roof and  
siding similar to building #3





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Building #6:  
This building has a sloped  
roof and is partially brick  
and has an addition that has  
broken windows and  
appears to have asbestos  
siding.



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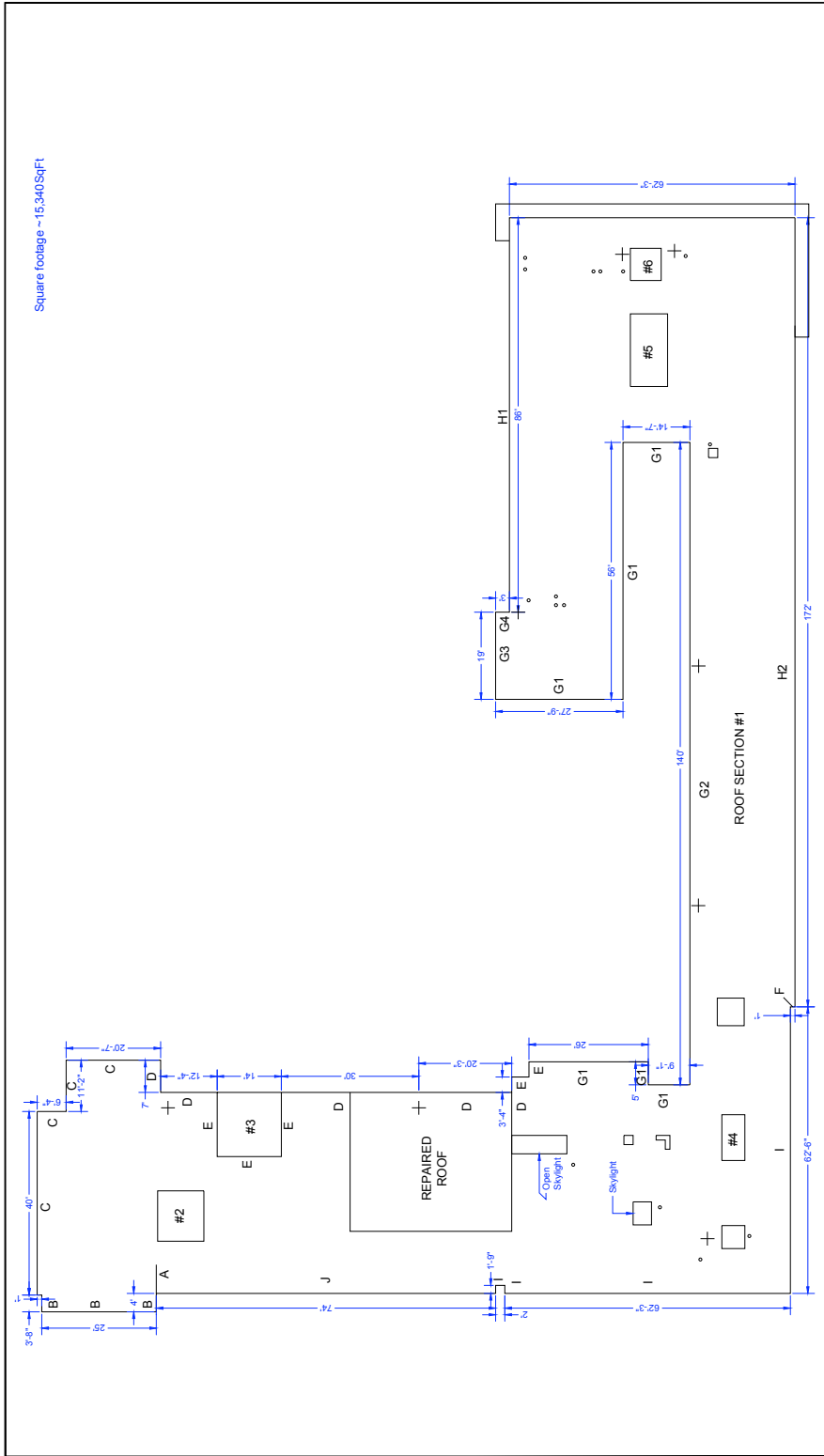


The photos on the left show more of the damage caused by the tornado. A window was blown out, shingles laying on the roof and fascia metal has been blown off.

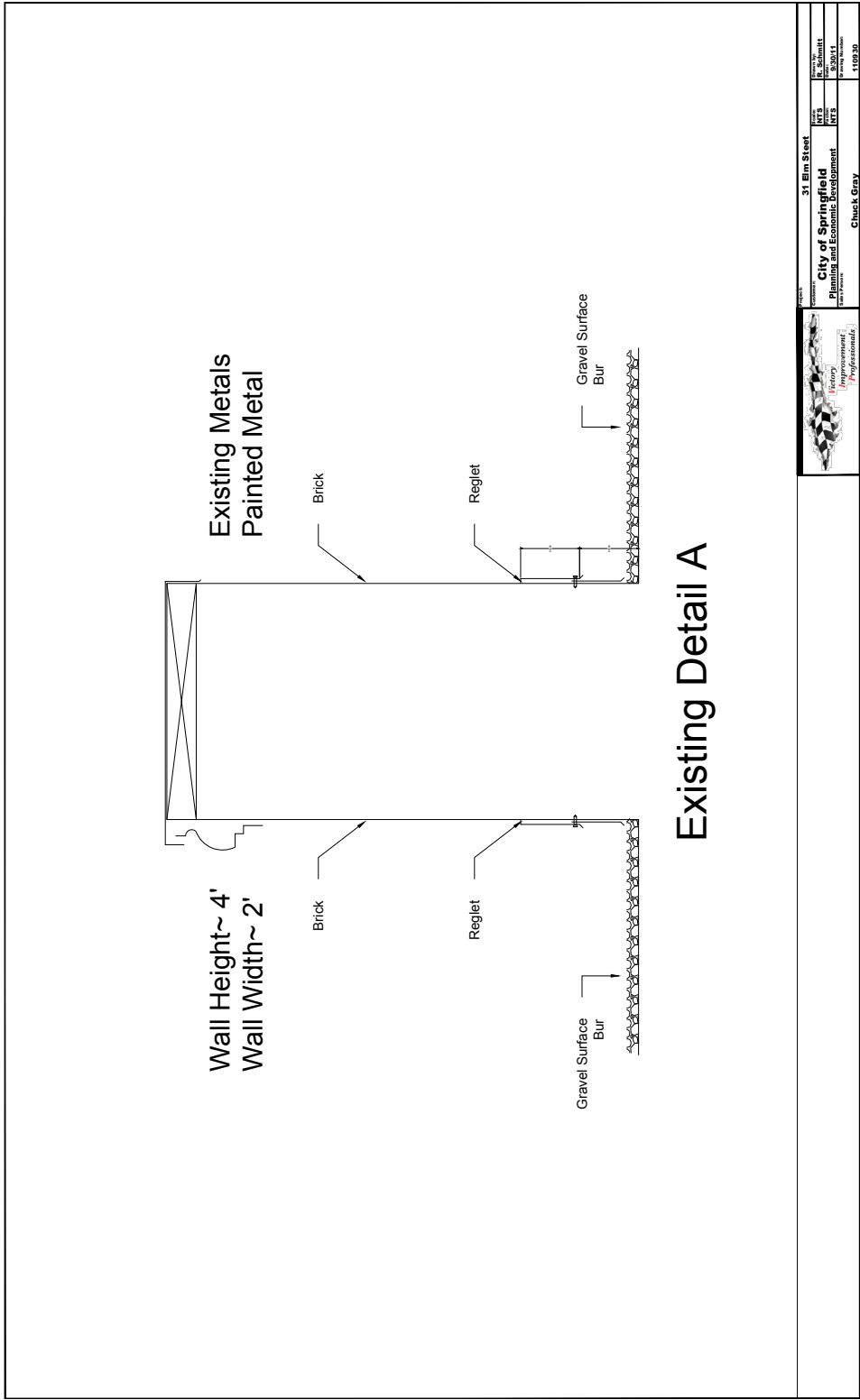




Square footage ~15,340 SqFt

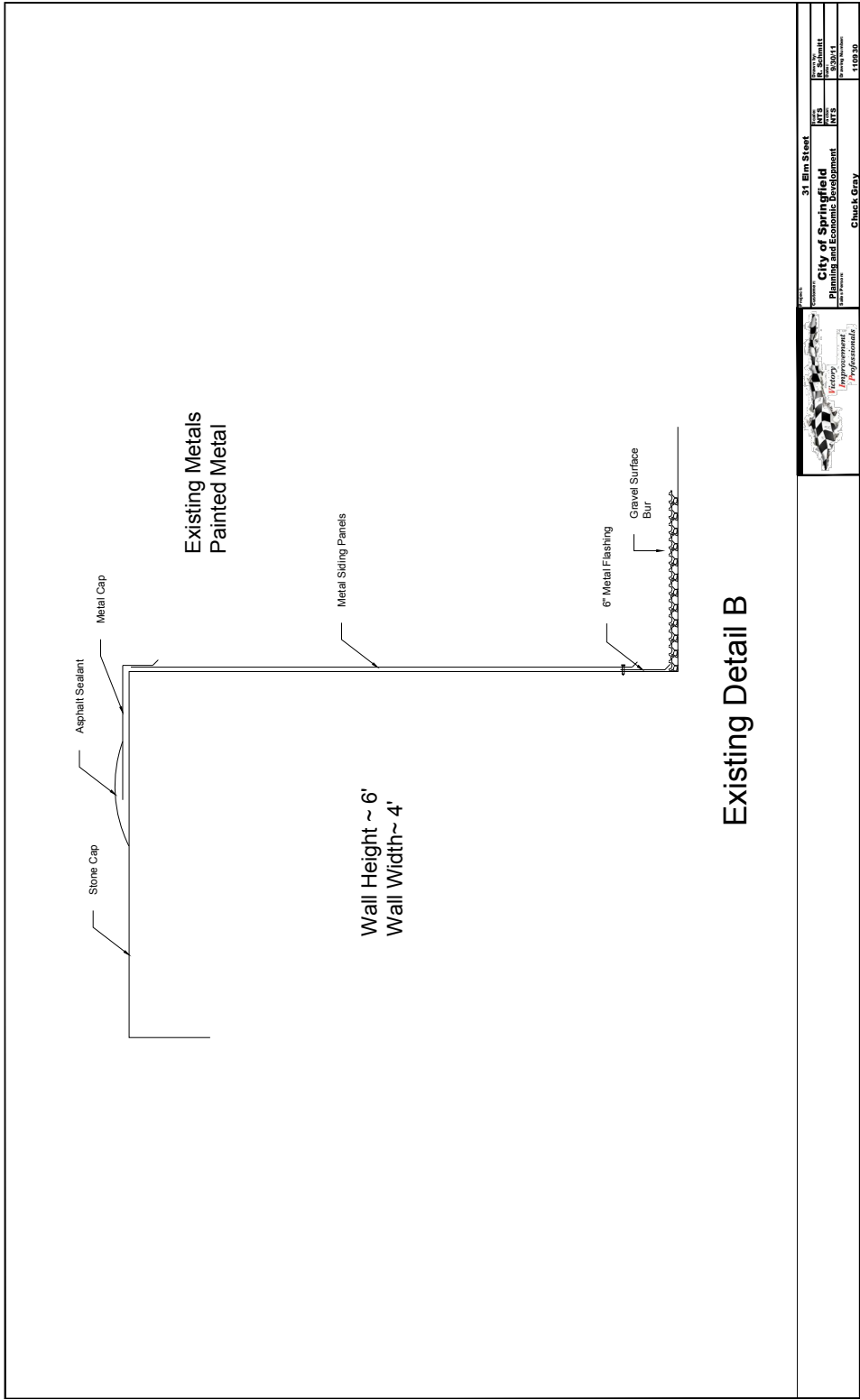


		<b>31 Elm Street</b> City of Springfield Planning and Economic Development 1000 Walnut Springfield, MA 01101 410939
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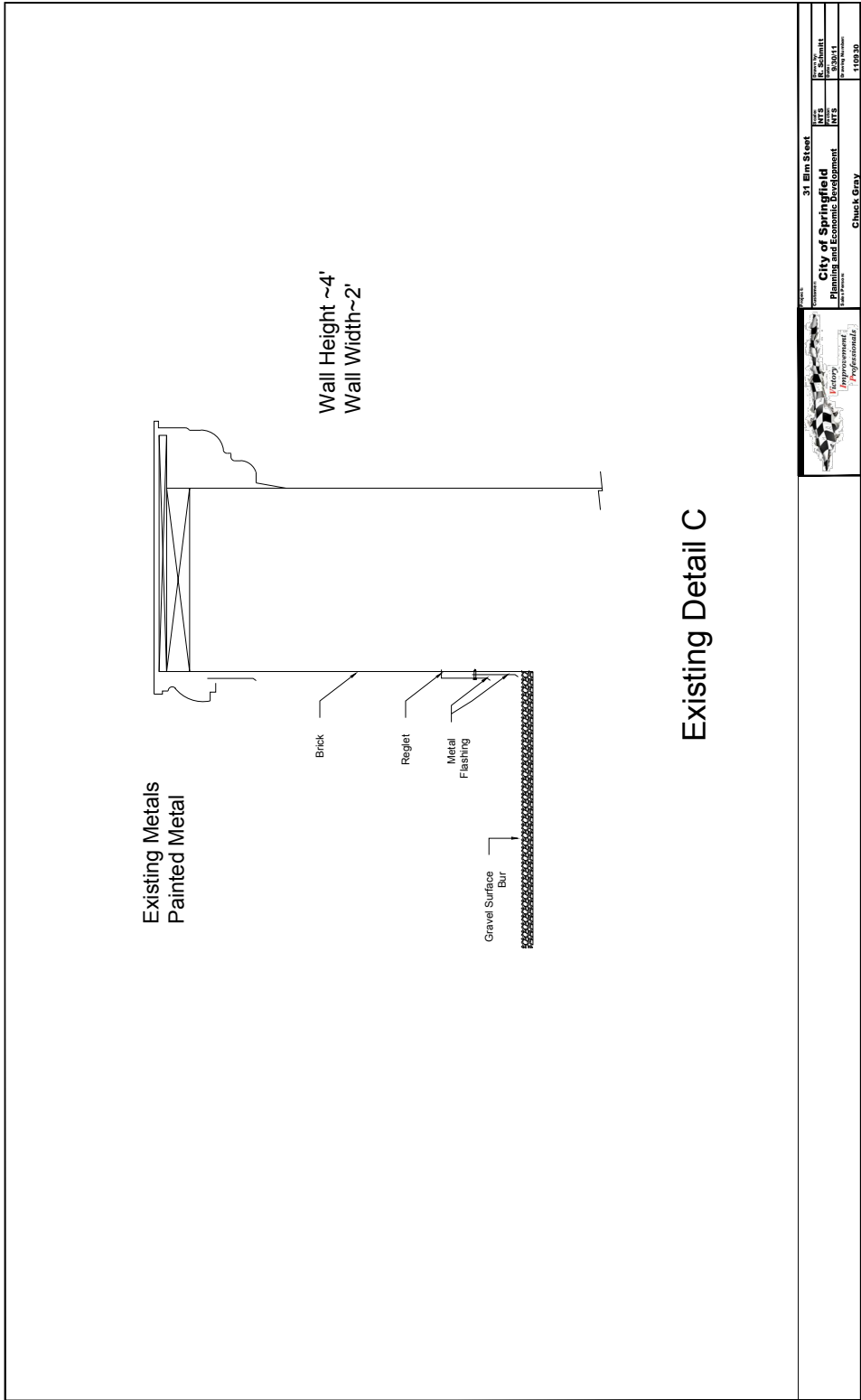
	<b>31" Bin Street</b> City of Springfield Planning and Economic Development	Rev. Sheet 10/20/11 Drawing Number 110939
	Project Name <b>Chuck Gray</b>	Date 11/09/10





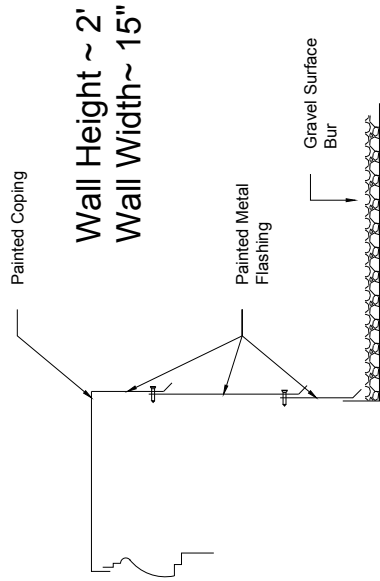
31" Bin Steel	10/20/2011
City of Springfield	10/20/2011
Planning and Economic Development	10/20/2011
Chuck Gray	10/20/2011







Existing Metals  
Painted Metal



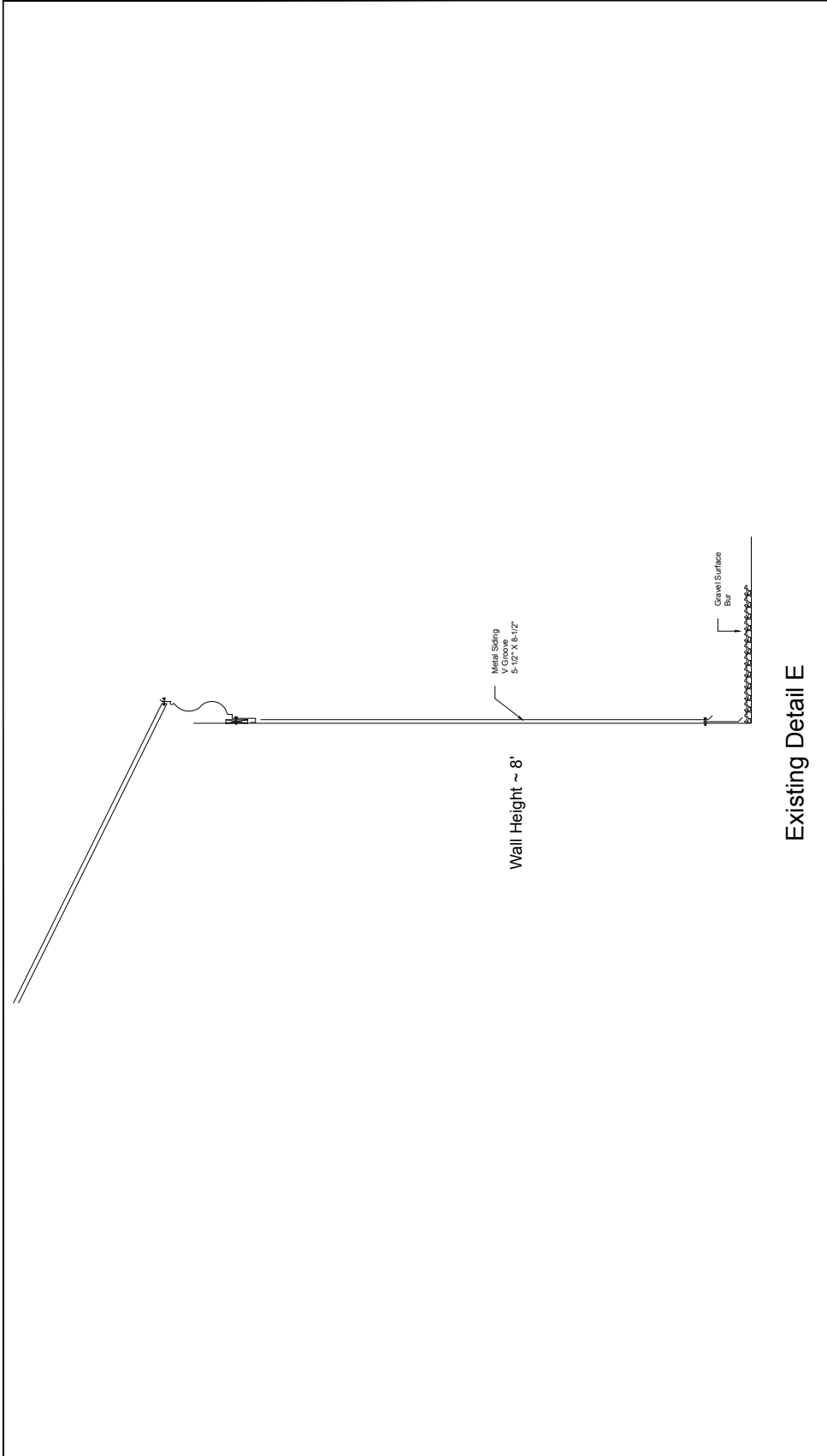
Wall Height ~ 2'  
Wall Width ~ 15"

## Existing Detail D

\*\*Note: These Wall Sections have a Chain Link Fence Installed to the Painted Wall.



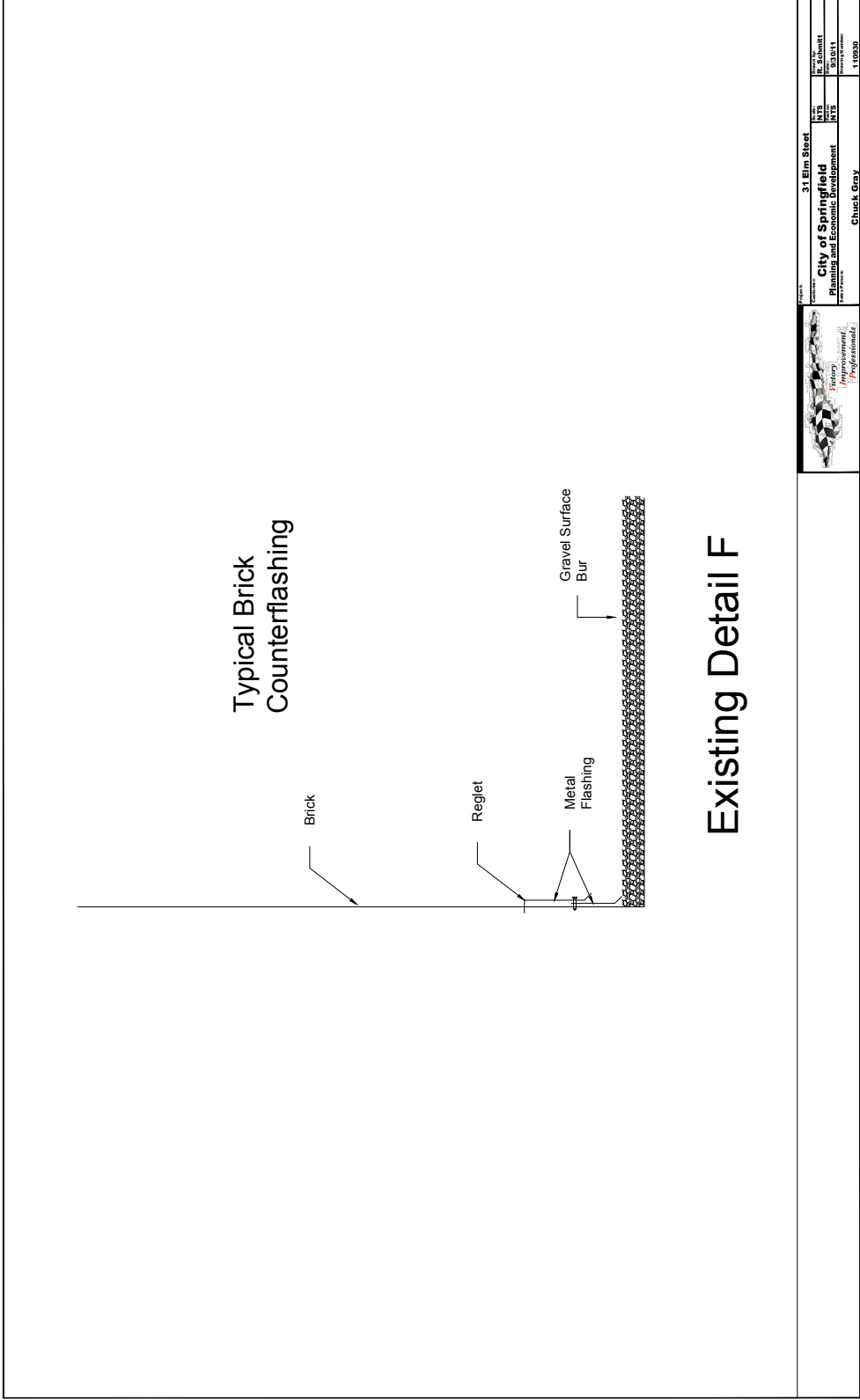
31" Blk Steel	11/20/11
City of Springfield	11/20/11
Planning and Economic Development	11/20/11
City Manager	11/20/11
Chuck Gray	11/20/11



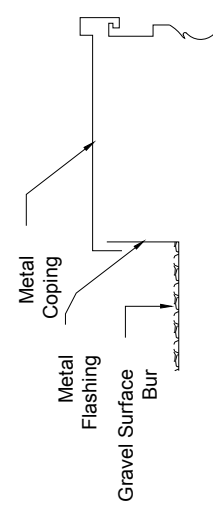
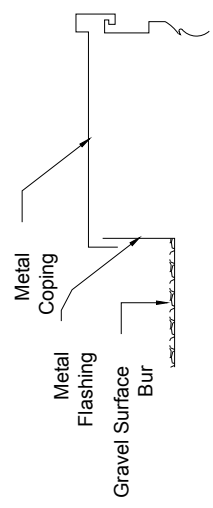
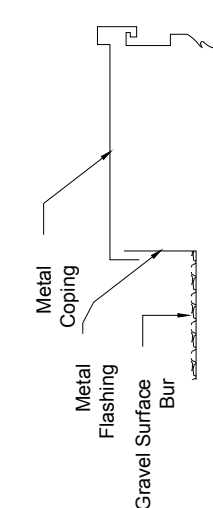
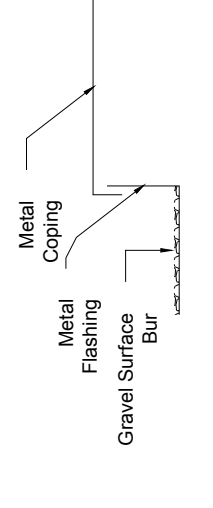
Existing Detail E


		<b>31 Elm Street</b> <b>City of Springfield</b> Planning and Economic Development <small>Issue Permitted</small>		SCALE <b>R - Schmitt</b> DATE <b>03/01/11</b> DRAWING NUMBER <b>110900</b>
		<b>31 Elm Street</b> <b>City of Springfield</b> Planning and Economic Development <small>Issue Permitted</small>		SCALE <b>R - Schmitt</b> DATE <b>03/01/11</b> DRAWING NUMBER <b>110900</b>





	Project: 31 Elm Street City of Springfield Planning and Economic Development	NTS NTS NTS	NTS NTS NTS
	Designer: Chuck Gray	Designer: Chuck Gray	Date: 8/20/11 Version: 1.0030

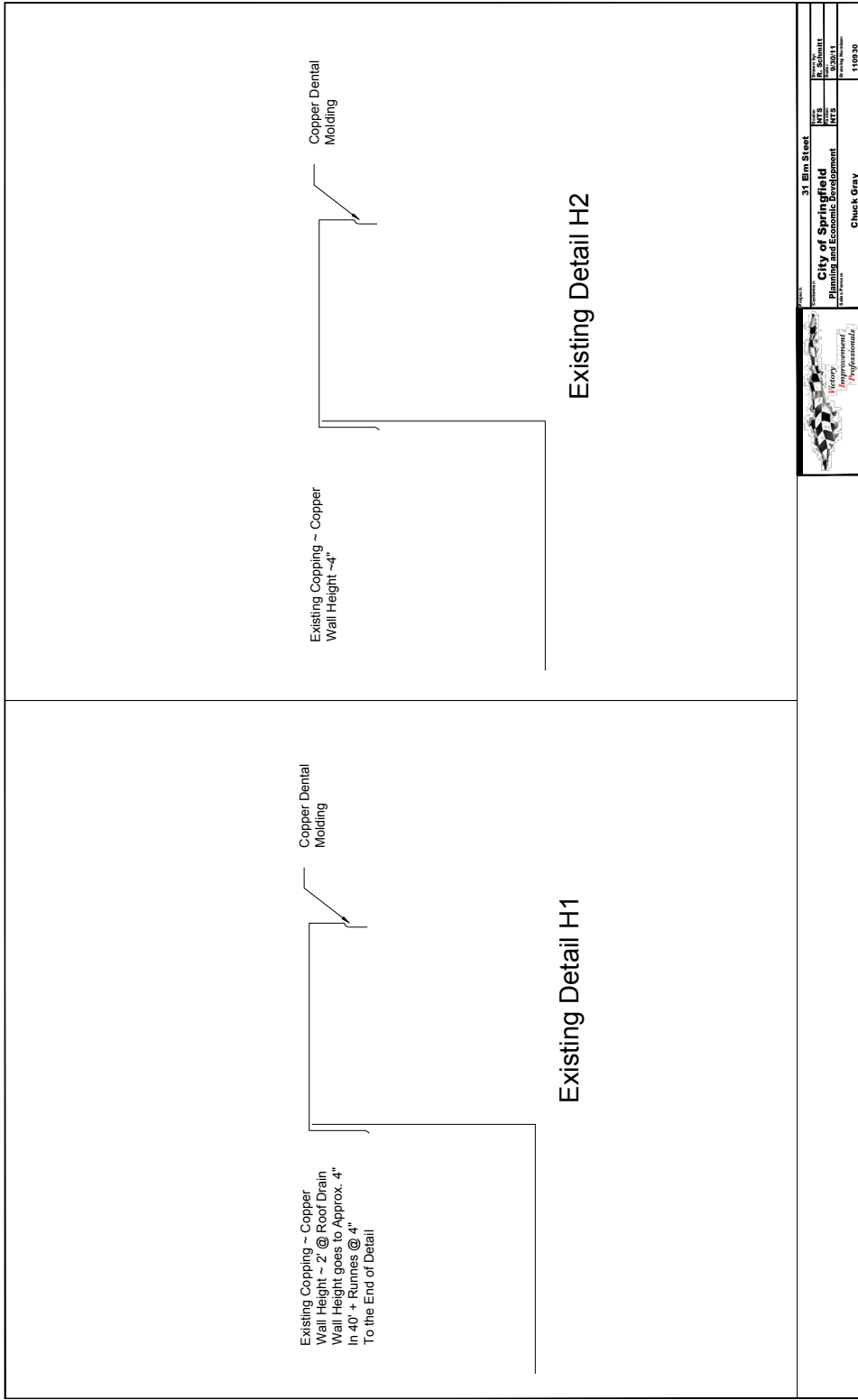
<p>Existing Metals Painted Metal</p> <p>Wall Height~ 6" Wall Width~ 15"</p>  <p>Metal Coping Metal Flashing Gravel Surface Bur</p> <p style="text-align: center;"><b>Existing Detail G1</b></p>	<p>Existing Metals Painted Metal</p> <p>Wall Height~ Varies 6" to 24" @ roof Drains Wall Width~ 15"</p>  <p>Metal Coping Metal Flashing Gravel Surface Bur</p> <p style="text-align: center;"><b>Existing Detail G2</b></p>
<p>Existing Metals Painted Metal</p> <p>Wall Height~ 6" to 24" Wall Width~ 15"</p>  <p>Metal Coping Metal Flashing Gravel Surface Bur</p> <p style="text-align: center;"><b>Existing Detail G3</b></p>	<p>Existing Metals Painted Metal</p> <p>Wall Height~ 24" Wall Width~ 15"</p>  <p>Metal Coping Metal Flashing Gravel Surface Bur</p> <p style="text-align: center;"><b>Existing Detail G4</b></p>

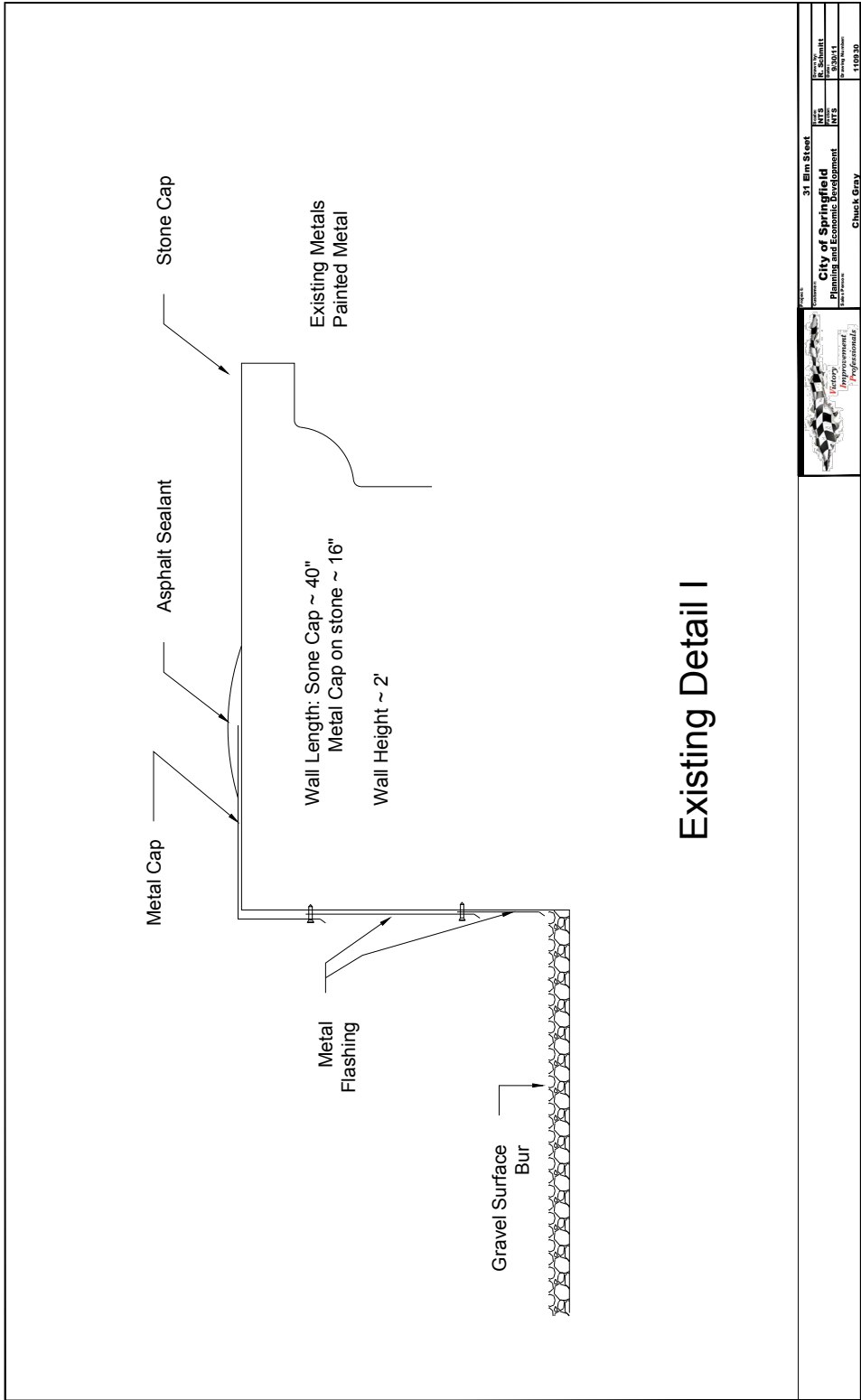


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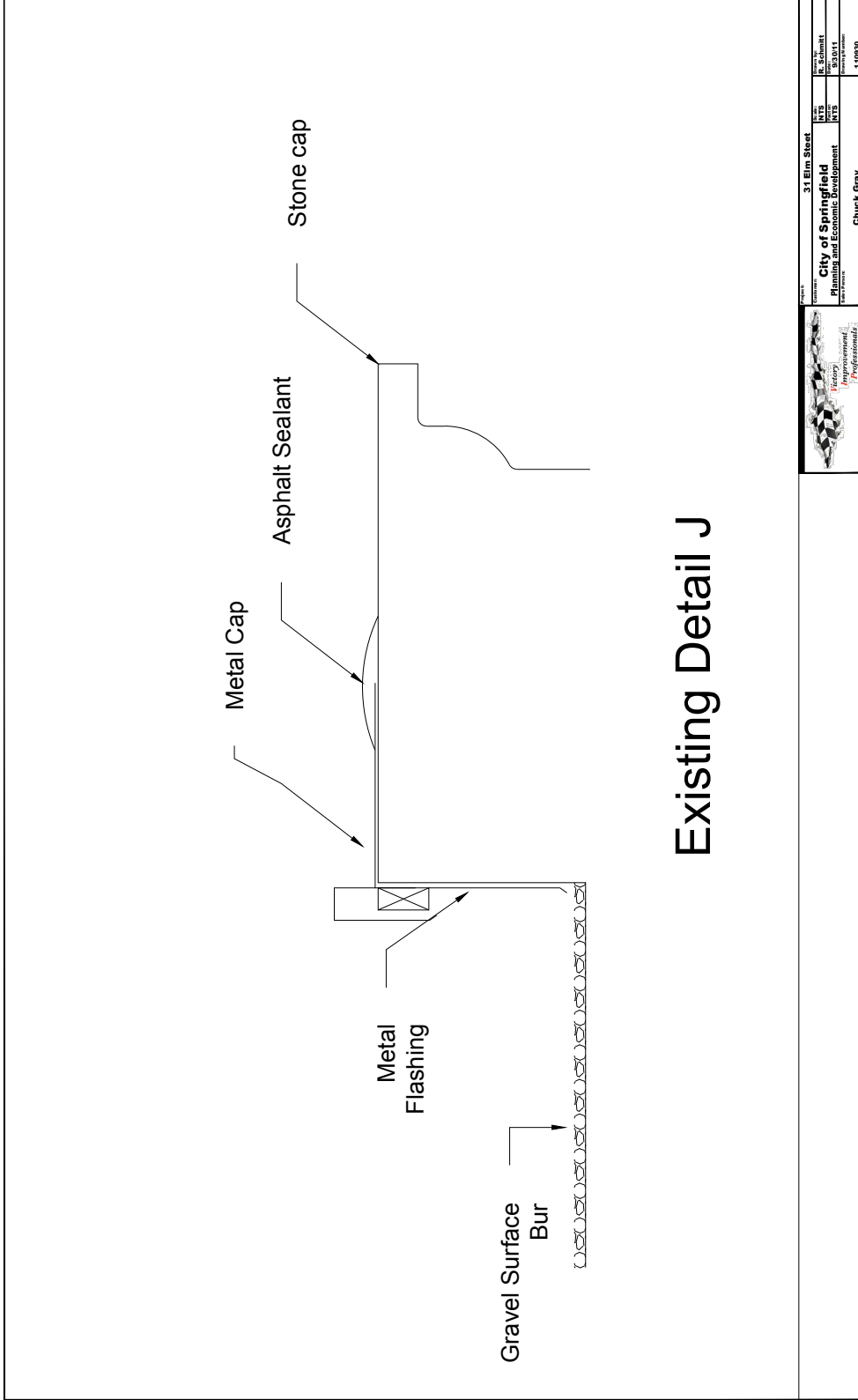
110930











# Existing Detail J

		Project: 31 Elm Street City of Springfield Planning and Economic Development	Date: N/A Scale: N/A Author: N/A Date: 03/01/11 Version: N/A
		Design: Chuck Gray	Date: 1/10/09