



June 3, 2008

In Reply Refer To: HSSD/CC-101

Hayes E. Ross, Jr., P.E., Ph.D.  
Professor Emeritus  
Civil Engineering Department  
Texas Transportation Institute  
3135 TAMU  
College Station, TX 77843-3135

Dear Dr. Ross:

This letter is in response to your request for Federal Highway Administration (FHWA) acceptance of a roadside safety device for use on the National Highway System (NHS).

Name of device: 27-inch high Steel Post Slotted Rail Terminal (SRT-27SP)  
Type of device: W-Beam Guardrail Terminal  
Test Level: TL-3  
Testing conducted by: Texas Transportation Institute  
Date of request: November 29, 2007  
Date of follow-up: March 26, 2008

You requested that we find this device acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

#### **Requirements**

Roadside safety devices should meet the guidelines contained in the NCHRP Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features". FHWA memorandum "Action: Identifying Acceptable Highway Safety Features" of July 25, 1997 provides further guidance on crash testing requirements of longitudinal barriers.

#### **Description**

The Slotted Rail Terminal was first covered by FHWA Acceptance Letter CC-31 dated December 4, 1999 and followed by CC-31A, CC-51, and CC-51A. Variations include the original wood post design at 27 inches, a design substituting two steel Hinged Breakaway Posts for two of the system's wood posts, and an all-steel design without blockouts but with the rail mounted at 31 inches. Your present request is for an all-steel post version with the rail mounted at 27 inches.

The SRT-27SP is:

1. An all steel terminal (except for the offset blocks).
2. Standard 6x8 inch routed wood terminal blockout or other FHWA-Accepted alternative blockouts used at posts 3 through 6.
3. Steel Yielding Terminal Posts (SYTP) are used at posts 2 through 6.
4. A steel Cable Release Post is used at post 1.
5. The rail is detached from the support posts 2 through 5.
6. A shelf angle at post 2 provides rail support.
7. The terminal is 37.5 feet long with a straight flare and a 4 foot end offset.

### **Crash Testing**

No additional testing was conducted on the SRT-27SP. Rather you provided a detailed comparison of test results from tests on earlier versions of the SRT and evaluated the need to conduct a similar test on the SRT-27SP. The following barrier terminal tests were reviewed:

Test 3-30 was conducted on 27-inch and 31-inch tall versions. These were judged equivalent or more critical than a test on the SRT-27SP.

Test 3-31 was conducted on a 27 inch high version which is the critical test for the pickup truck, and was judged more critical than the same test on the SRT-27SP.

Test 3-32 is optional for gating terminals.

Test 3-34. Test 3-31 was conducted on the T-31 guardrail system and proved the performance of the steel yielding posts.

Test 3-35 was conducted on a 27-inch high SRT system that was judged to be more discerning than a similar test on a SRT-27SP.

Test 3-39 was conducted on a 27 inch high SRT but is a non-discerning test and not deemed necessary.

On March 26, 2008, you spoke with Mr. Nicholas Artimovich of my staff and explained the rationale behind each required test and the prior testing that satisfies NCHRP Report 350 requirements.

### **Findings**

We concur with your analysis of prior testing and agree that additional tests are not necessary to qualify the SRT-27SP. Therefore the subject w-beam guardrail terminal is acceptable for use on the National Highway System when permitted by a highway agency.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- This acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is

significantly different from the version that was crash tested, we reserve the right to modify or revoke our acceptance.

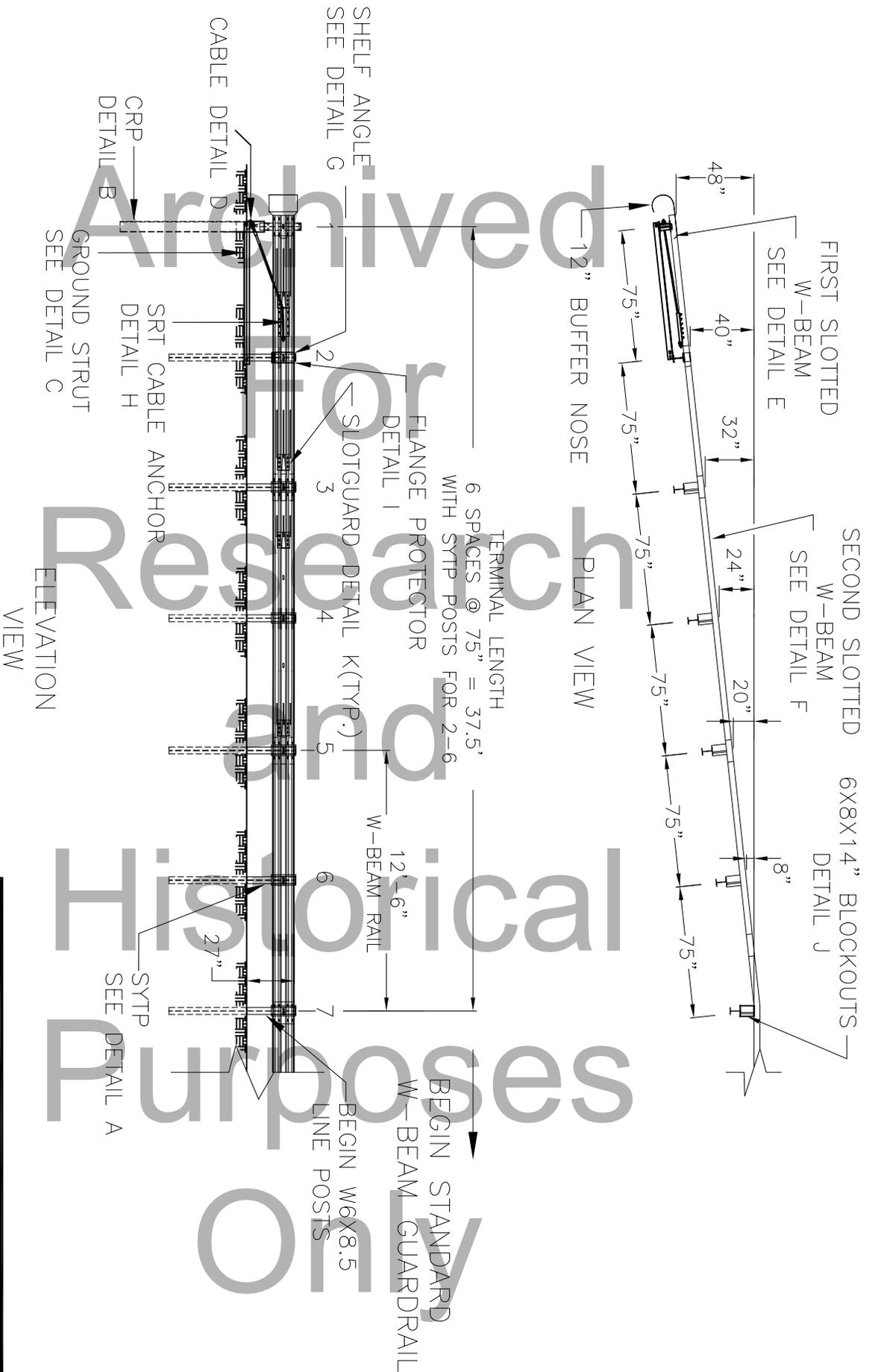
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that it will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance is designated as number CC-101 and shall not be reproduced except in full. This letter and the test documentation upon which it is based are public information. All such letters and documentation may be reviewed at our office upon request.
- Slotted Rail Terminals are patented products and considered proprietary. If proprietary devices are specified by a highway agency for use on Federal-aid projects, except exempt, non-NHS projects, they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with the existing highway facilities or that no equally suitable alternative exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

David A. Nicol, P.E.  
Director, Office of Safety Design  
Office of Safety

Enclosures

Historical  
Purposes  
Only



NOTE: -POSTS 2,3,4,5 NOT BOLTED TO RAIL.  
 -STANDARD 5/8" Ø BUTTON HEAD BOLTS USED TO ATTACH OFFSET BLOCKS TO POSTS 3-6  
 -FLANGE PROTECTOR AND SHELF ANGLE ON POST 2

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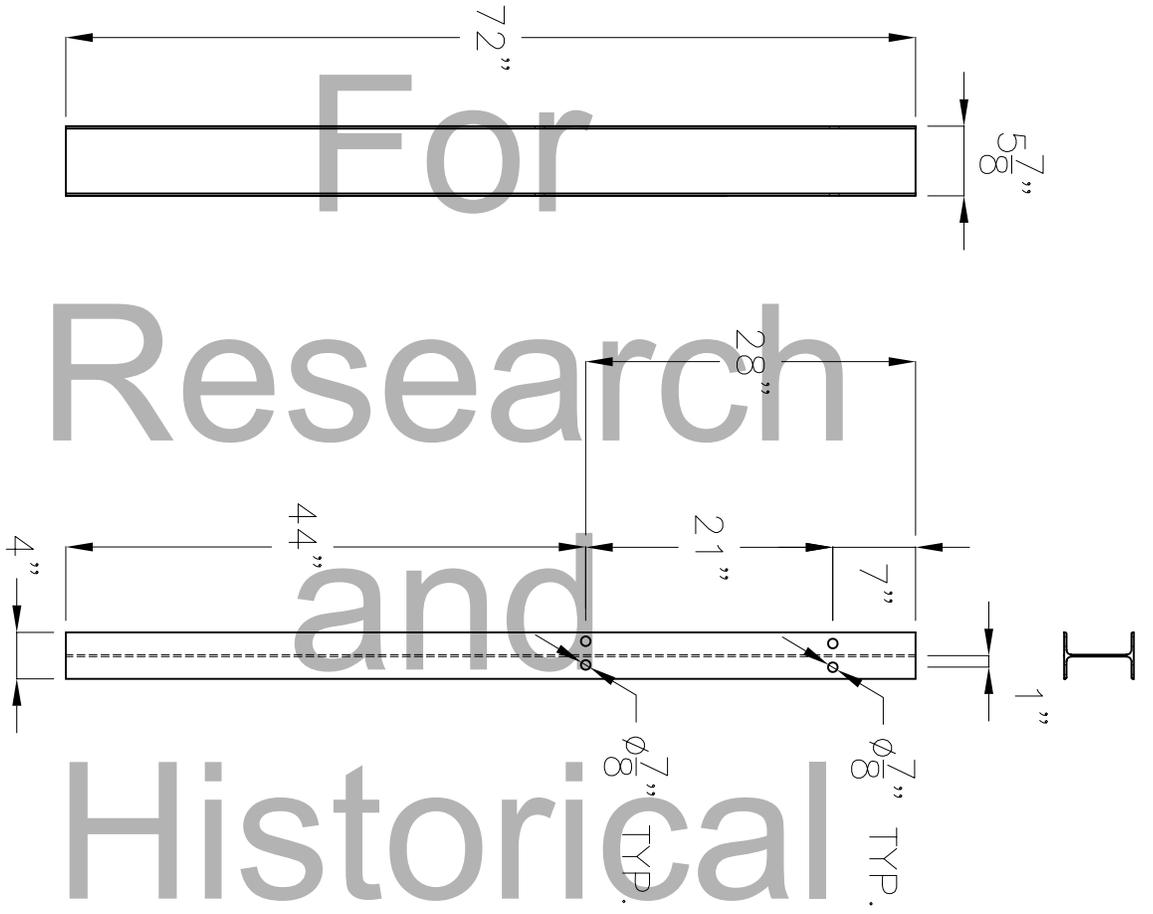
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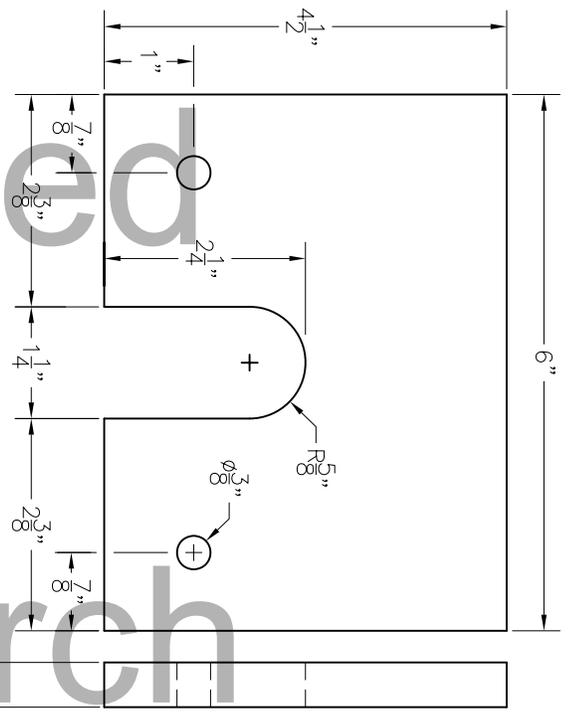


DETAIL A  
SYTP-W6x8.5

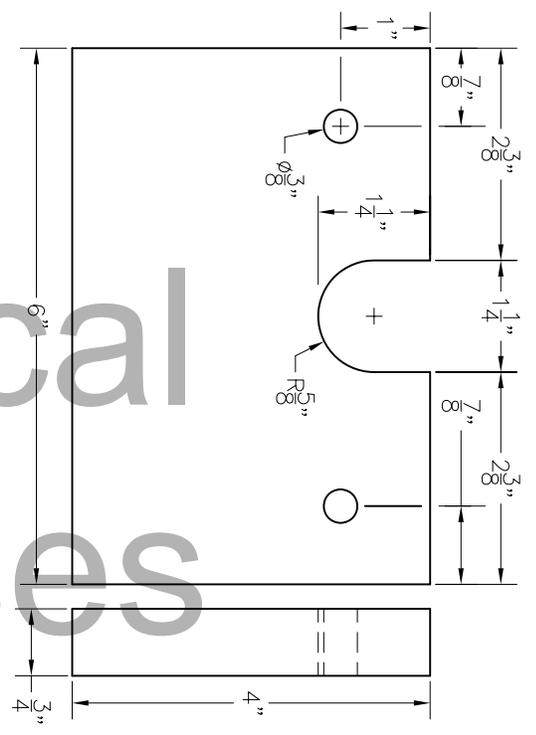
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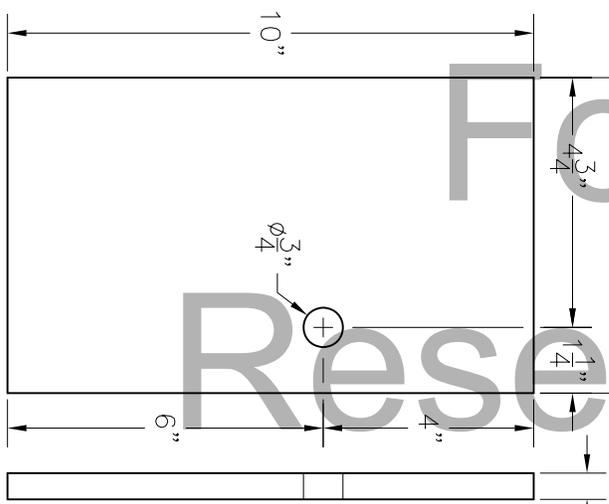
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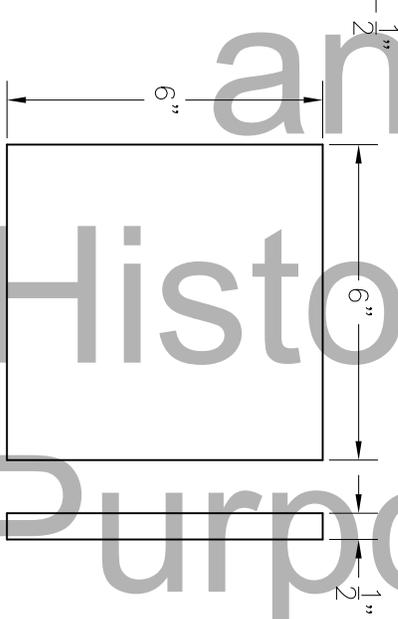
DETAIL B1



DETAIL B2



DETAIL B3



DETAIL B4

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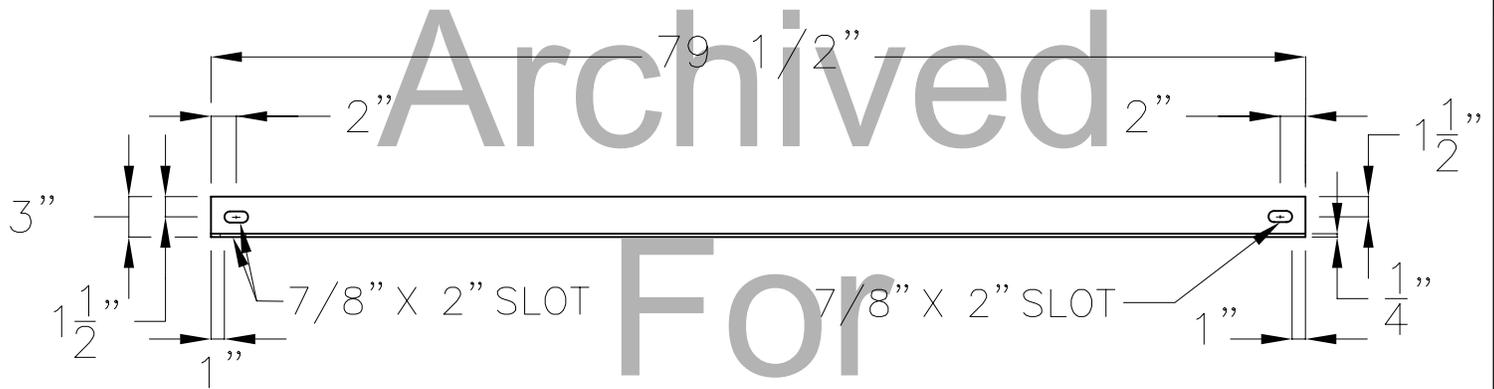
  

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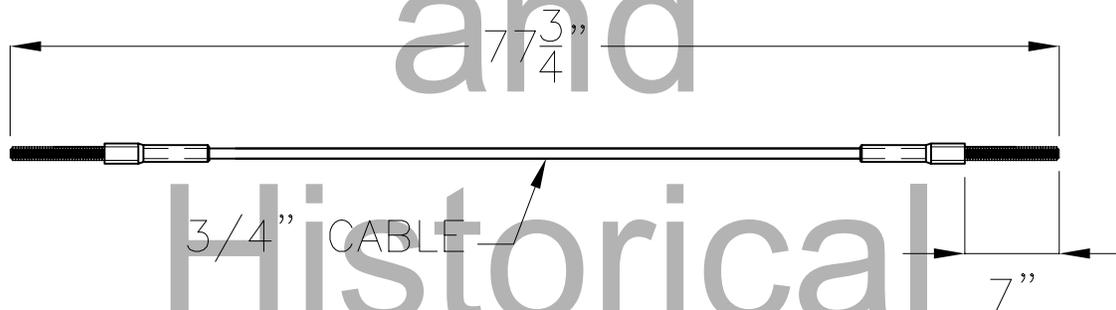
  

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3" X 3" X 1/4" STRUT  
DETAIL C



3/4" CABLE  
SRT CABLE  
DETAIL D

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SECOND SLOTTED W-BEAM GUARDRAIL  
DETAIL F

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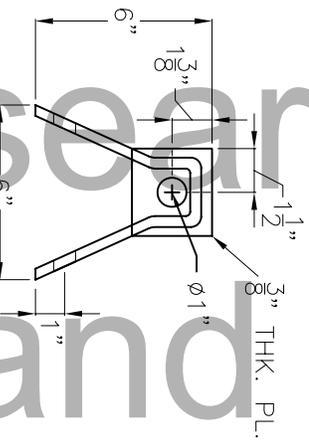
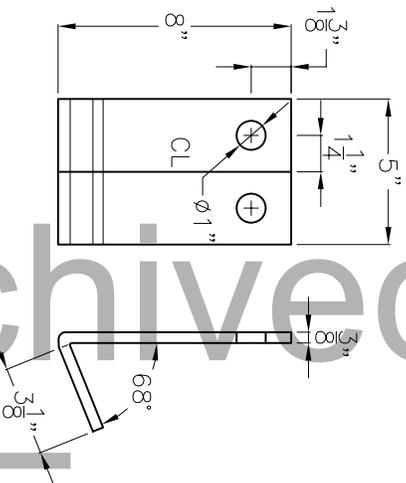
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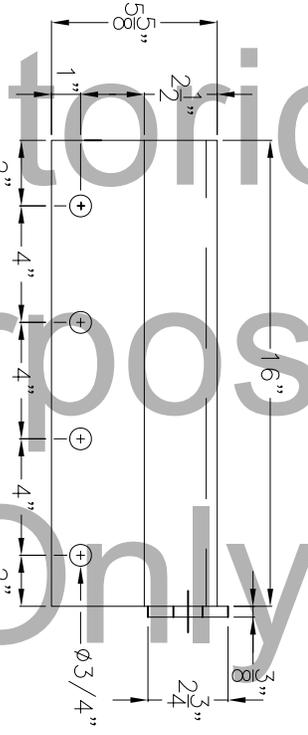
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SHELF ANGLE  
A-36 STEEL  
DETAIL G



SRT CABLE ANCHOR  
DETAIL H



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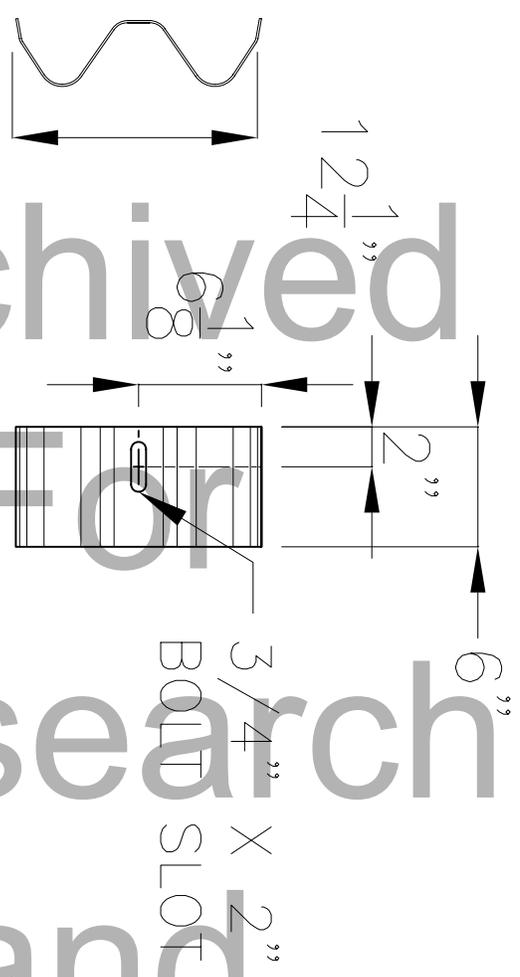
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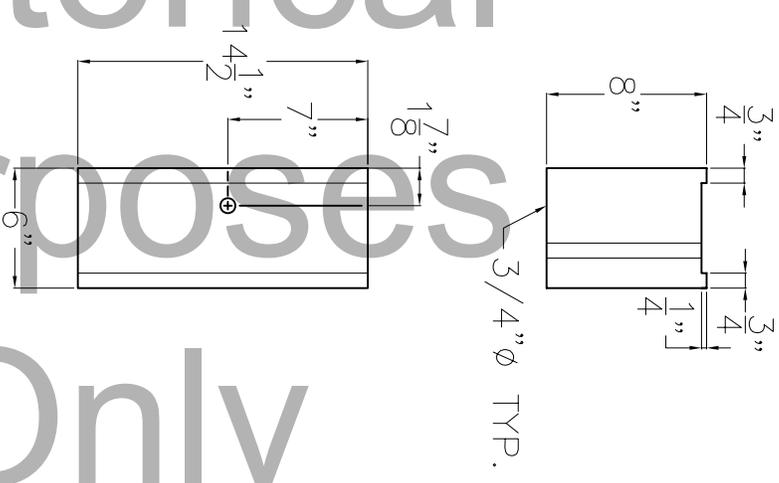
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FLANGE PROTECTOR  
 DETAIL I



8" BLOCKOUT TYP.  
 DETAIL J



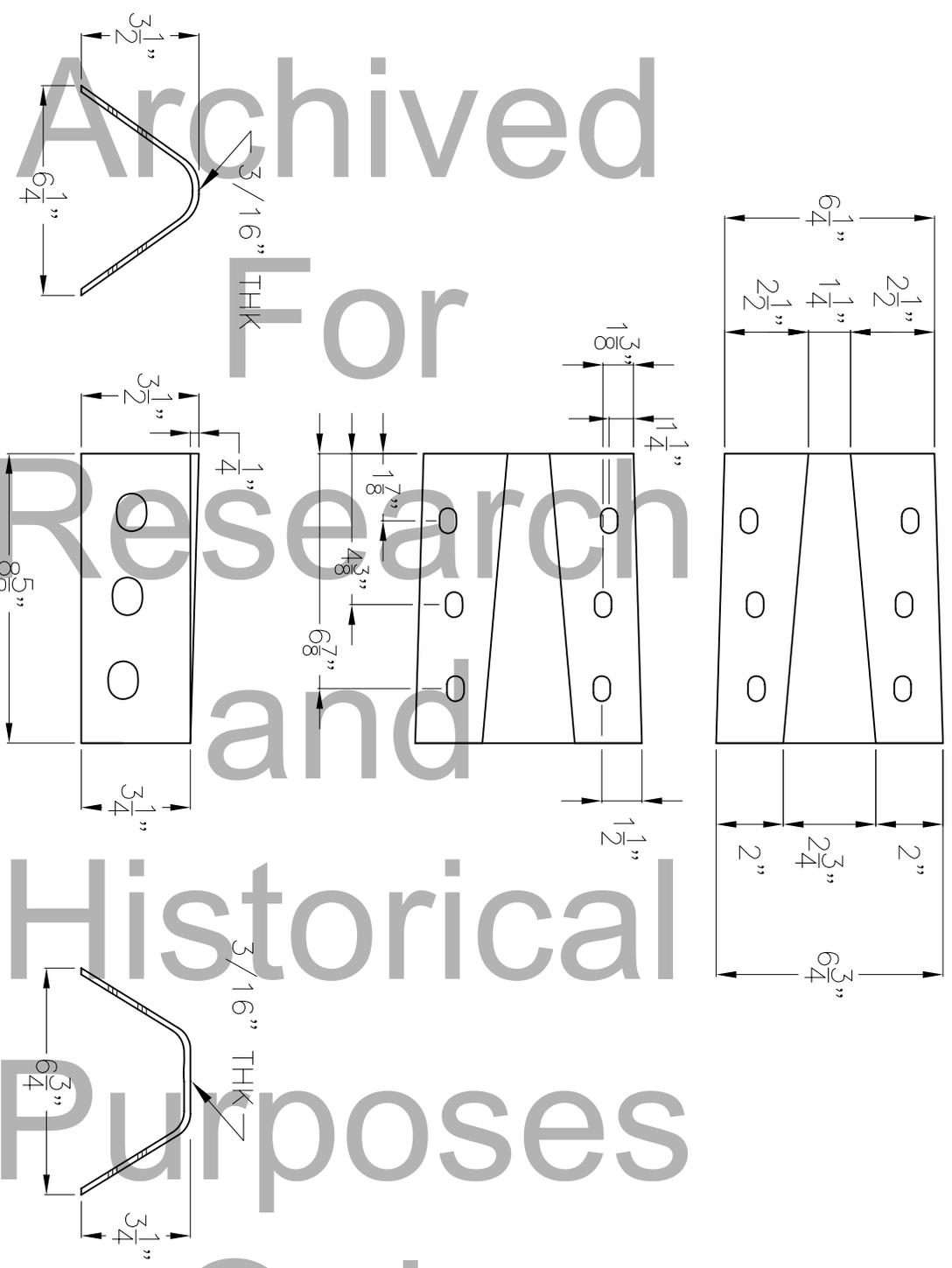
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W-BEAM SLOTGUARD  
DETAIL K

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