STAFF REPORT FOR THE HISTORIC RESOURCES COMMISSION MEETING OF NOVEMBER 13, 2014

FILE NO: HRC-14-142 **AGENDA ITEM: F-2**

STAFF AUTHOR: Susan Dorr Pansky, Planning Manager

REQUEST: Approval of a request from property owner Philip Hersey to install roof-mounted solar panels on property zoned Single Family 6,000 (SF6), located at 700 W. Telegraph Street, APN 003-244-02.

OWNER/APPLICANT: Philip Hersey

LOCATION: 700 W. Telegraph Street

APN: 003-244-02

APPROVAL MOTION: **"I move to approve HRC-14-142, a request from property owner Philip Hersey to install roof-mounted solar panels on property zoned Single Family 6,000, APN 003-244-02, based on the findings and conditions of approval outlined in the staff report, the Standards and Guidelines for Rehabilitation, the Carson City Historic District Guidelines and consistent with Historic Resources Commission Policies."**

RECOMMENDED CONDITIONS OF APPROVAL:

1. All development shall be substantially in accordance with the attached site development plans.

2. All on and off-site improvements shall conform to City standards and requirements.

3. The use for which this permit is approved shall commence within 12 months of the date of final approval. An extension of time must be requested in writing to the Planning Division 30 days prior to the one year expiration date. Should this request not be initiated within one year and no extension granted, the request shall become null and void.

4. The applicant must sign and return the Notice of Decision within 10 days of receipt of notification. If the Notice of Decision is not signed and returned within 10 days, then the item may be rescheduled for the next Historic Resources Commission meeting for further consideration.

5. The solar panels shall only be affixed to the west-facing roof of the house as noted on the plan provided.

6. The solar panels shall be black to blend with the existing asphalt shingle roof and shall not be more than six inches higher than the roof height. All solar panel support structures and conduits shall blend into the surrounding features of the historic property.

7. The solar panels shall not extend beyond the peak or the bottom edge of the west-facing roof.

8. The project requires application for a Building Permit, issued through the Carson City Building Division. This will necessitate a complete review of the project to verify compliance with all adopted construction codes and municipal ordinances applicable to the scope of the project. Submit plans, to include specifications, details and possible calculations, for the proposed installation of the photovoltaic array. Plans must be approved and the permit issued prior to start of installation on this project.

9. The plans submitted for review shall comply with the prescriptive requirements found in the Carson City Building Division handout titled: *Photovoltaic (Solar Electrical) Systems.* This handout may also be found online at: www.carson-city.nv.us/Index.aspx?page=1024

10. The applicant shall submit a copy of the signed Notice of Decision and conditions of approval with the Building Permit application.

11. The solar panels and all accessory equipment shall be removed from the site if and when the use is abandoned or non-operational for a period of more than one year.

12. HRC approval is based upon the project complying with the Standards and Guidelines for Rehabilitation, Carson City Historic District Guidelines, the Historic Resources Commission Policies and that the plans as submitted are in general conformance with the Secretary of the Interiors Standards.

LEGAL REQUIREMENTS: CCMC 18.06.015 (Procedure for Proposed Project)

MASTER PLAN DESIGNATION: Medium Density Residential (MDR)

ZONING: Single Family 6,000 (SF6)

PREVIOUS REVIEWS:

- HRC-04-180 – Historic Resources Commission application to replace porch sections.
- H-02/03-17 – Historic Resources Commission application to expand boardwalk and install lattice.
- H-02-03-16 – Historic Resources Commission application for wood picket fencing.
- H-02/03-15 – Historic Resources Commission application to replace porches.

DISCUSSION:

The subject property, also known as the Bicknell House, is a 2,090 square foot one-story vernacular structure with no strong stylistic leanings according to the 1980 Carson City Historic Resources Inventory. The building's form derivation is Greek Revival but also reflects Italianate designs. The inventory dates the home's construction sometime in the 1860s, but the Carson City Assessor's office states that the structure was constructed in 1874.

The applicant is proposing to install a solar electric array on the roof of the southernmost portion of the structure, on the west-facing roof. This roof is closest to West Telegraph Street and faces the rear of the property, which also backs up to Mountain Street. The array will consist of 13 solar panels in a configuration that totals the approximate size of 10.25 feet by 27.3 feet as shown on the site plan provided by the applicant. The solar array is proposed to be black and nearly flush mount with the existing roof, with the installed panels less than six inches above the roof. The panels will be rail-mounted to the asphalt shingle roof.

In a discussion after initial application submittal, the applicant stated that typically solar panels are placed on south-facing roofs due to the amount of sun exposure received from that side, but west-facing roofs are actually better because the panels will generally absorb more energy during peak times of day. He stated that he deliberately selected the west-facing roof because the property only has one south-facing roof and it is on the "signature side" of the house, which would be easily viewed from the front of the house. He did not believe that the Historic Resources Commission would find that location acceptable and decided to propose the solar array on the west-facing roof. This placement, although it faces and will be seen from Mountain Street, is at the rear of the property and will not be seen from the West Telegraph Street or the Elizabeth Street sides. The installation won't be seen from the Elizabeth Street side because the west-facing roof has no surface that is visible from Elizabeth Street. The installation won't be seen from the West Telegraph Street side because of an existing parapet wall that extends above the west-facing roof, which will block the solar installation from that direction.

Additionally, the applicant stated that he plans to construct a detached garage at the rear of the property that will help to shield the view of the solar panels from the Mountain Street side. Staff has included the proposed plans for this detached garage and notes that the applicant intends to submit these for Historic Resources Commission approval at the December meeting, as he was not able to meet the deadline for the November

meeting.

Secretary of Interior Standards for Rehabilitation

The Historic District Design Guidelines do not specifically address solar panel placement on historic structures or historic property. As a result, previous staff has required that applicants requesting solar panels address how the project meets the 10 Secretary of the Interior's Standards for Rehabilitation. However, current staff feels that only two of these standards are specifically applicable to solar projects, Standards 2 and 9 as outlined below. Staff has also identified how the proposed solar panel project addresses each.

Standard 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alterations of features and spaces that characterize a property shall be avoided.

The historic character of the property will be retained and preserved with this solar installation. The panels are proposed at the rear of the house, which is not the signature side of the structure and is shielded from the two sides of the house that could be considered most significant as it relates to the historic character of the property. Removal of historic materials is not proposed and features or spaces that characterize the property will not be altered.

Standards 9: New additions, exterior alternations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale and architectural features to protect the historic integrity of the property and its environment.

The proposed addition of solar panels on the west-facing roof will not destroy historic materials that characterize the property. The installation will occur on an existing asphalt shingle roof, which is not considered historic material, and is very common in the Historic District. The new work will be compatible with the existing building features as it has been scaled and designed to occupy only one roof surface of the many that exist on this structure, and will be placed in a location at the rear of the house that will not damage the historic integrity of the property and its environment.

Additional Resources and Guidelines

Additionally, staff refers to Historic Preservation Brief #3 entitled *Improving Energy Efficiency in Historic Buildings* and the National Trust for Historic Preservation's Design Guidelines for Solar Installations for further guidance on solar panel installations. The specifics of these publications are outlined below along with staff's determination of how the proposed project addresses each:

Historic Preservation Brief #3: Improving Energy Efficiency in Historic Buildings:

Solar installations can be done on historic buildings but must:

1. **Have minimal impact on historic roofing materials.**

   The solar installation is proposed on asphalt shingle roofing that is not considered historic.

2. **Preserve building character through limited visibility placement.**

   The building character will be preserved by limiting visibility of the solar installation to the west, or rear, side of the property only.

National Trust for Historic Preservation, Design Guidelines for Solar Installations:

Key considerations (whenever possible):

1. **Locate solar panels on the site of the historic resource.**

   Location on the site could possibly be considered in lieu of on the building, although staff has not discussed this option with the applicant in detail. Given staff's knowledge of the applicant's future proposal to place a detached garage at the rear of the property, also placing a ground-mounted solar array would render much of the rear yard unusable.

2. **Locate solar panels on new construction.**

   While there is no new construction proposed with the current solar installation, staff did discuss the possibility of placing the solar panels on the detached garage that the applicant intends to propose. The applicant stated that he felt this would not be as desirable for the Historic Resources Commission because the garage will have a south facing roof and the panels placed on it would be highly visible from the West Telegraph Street side of the building, which is a character-defining side of the house.

3. **Locate solar panels on non-historic buildings and additions.**

   There are no non-historic buildings or additions to consider for the solar installation at this time. Consideration to place solar panels on the new detached garage to be proposed by the applicant would result in a less desirable placement on the West Telegraph Street side, which is a visible, character-defining side.

4. **Place solar panels in areas that minimize their visibility from a public thoroughfare.**

   The subject property has street frontages on three sides including Mountain Street, West Telegraph Street and Elizabeth Street. Minimizing the visibility from all three streets is not feasible because the solar panels would be on the north facing roof and would not be effective for energy generation. Selecting the Mountain Street side, or rear side, of the property is the most appropriate option in this case.

5. **Avoid installations that would result in the permanent loss of significant, character-defining features of historic resources.**

   Installing the solar panels on the west-facing roof at the rear of the property will not result in the permanent loss of significant, character-defining features of the house.

6. **Avoid solutions that require or result in removal or permanent alternation of historic fabrics.**

   The solar installation will occur on existing non-historic asphalt shingles and will not result in the removal or permanent alteration of historic fabrics.

7. **Require low profiles.**

   The applicant is proposing a low-profile, black panel system that will blend with the existing roof and will not be more than six inches above the existing height of the roof.

8. **On flat roofs, set solar panels back from the edge.**

   This is not applicable to the proposed project as the roof is not flat.

9. **Avoid disjointed and multi-roof solutions.**

   A disjointed or multi-roof solution is not proposed. Staff notes that there are a few solar panels on the south side of the installation that will be left out as shown on the revised solar installation drawing that is included on the detached garage site plan. The existing parapet wall casts shadows onto the west-facing roof in the locations where the panels will be left out, making those panels less effective and not necessary.

10. **Ensure that solar panels, support structures and conduits blend into the surrounding features of the historic resource.**

    The proposed solar panels are black and nearly flush with the existing roof and will blend with surrounding features. Staff has recommended a condition of approval that any support structures and conduits also blend into the surrounding features of the historic property.

PUBLIC COMMENTS:

Public notices were mailed to eight adjacent property owners to the subject parcel in accordance with the provisions of NRS and CCMC 18.02.045 on October 30, 2014. As of the completion of this staff report, no comments have been received in response to the proposed improvements. Any comments that are received after this report is completed will be submitted prior to or at the Historic Resources Commission meeting, depending on their submittal date to the Planning Division.

Building Division Comments:

Submit plans, to include specifications, details and possible calculations, for the proposed installation of the photovoltaic array. Plans must be approved and the permit issued prior to start of installation on this project.

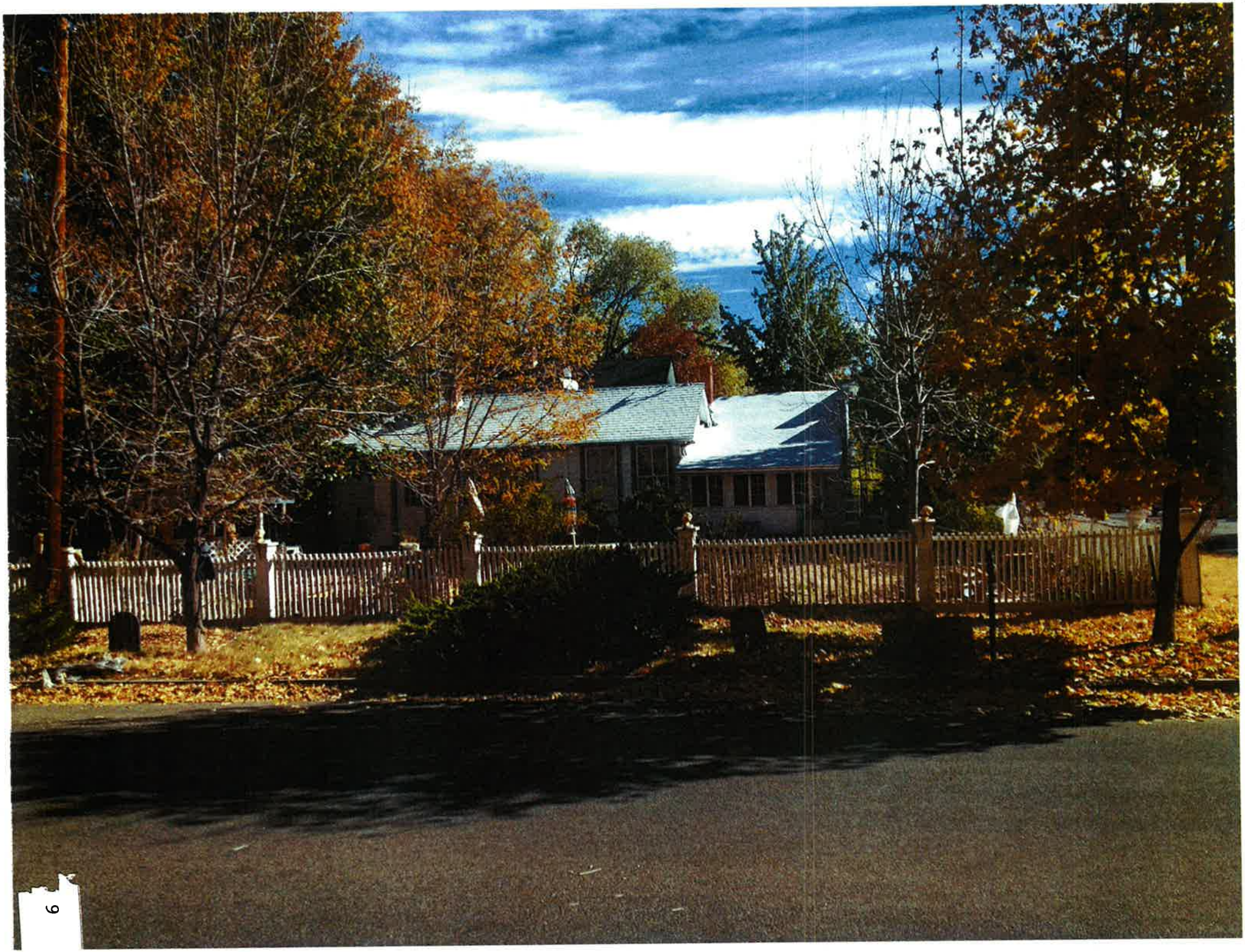
Engineering Division Comments:

Development Engineering has no preference or objection to the request.

Based upon the project complying with the Carson City Historic District Guidelines, the Historic Resources Commission Policies, the Standards and Guidelines for Rehabilitation, and that the plans as submitted are in general conformance with the Secretary of the Interior's Standards, it is recommended that the Historic Resources Commission approve the application submitted for HRC-14-142 subject to the recommended conditions of approval within this staff report.

Attachments:

Site Photos
Building Division Comments
Engineering Division Comments
1980 Carson City Historic Resources Inventory
1988 Carson City Historic Resources Inventory (update to 1980 Inventory)
Future Proposed Detached Garage Plans (also showing revised solar panel placement on site plan)
Application (HRC-14-142)



9

10

November 3, 2014

November 3, 2014

HRC-14-142

1. Submit plans, to include specifications, details and possible calculations, for the proposed installation of a photovoltaic array. Plans must be approved and the permit issued prior to start of installation on this project.

Ray Proffitt, CBO
Chief Building Official
Building Division
Carson City, NV
775-887-2310 – Main
775-283-7502 - Direct

Carson City Engineering Division

Historic Resources Commission Report

700 W Telegraph St

File Number HRC 14-142

To: Historic Resources Commission

From: Rory Hogen, E.I.

Date: October 29, 2014

Subject Title:

Review of a Historic Resources Commission application place solar panels on the roof of the house at 700 W Telegraph St, apn 03-244-02.

Recommendation:

Development Engineering has no preference or objection to the request.

Discussion:

The Engineering Division has reviewed the request within our areas of purview relative to adopted standards and practices. Construction must meet all requirements of the State of Nevada and Carson City.

CARSON CITY RESOURCES INVENTORY

IDENTIFICATION:

1. Address: 700 West Telegraph APN 3-244-02
2. Common Name:
3. Historic Name: C. Bicknell House
4. Present Owner: Albert Ripepi, et al
5. Address (if not occupant): P.O. Box 796; Carson City, Nevada
6. Present Use: vacant Original Use: residence

DESCRIPTION, ALTERATIONS, AND RELATED FEATURES:

The one story structure is a vernacular structure with no strong stylistic leanings. Its form derivation is Greek Revival and the paneled square bay reflects Italianate designs. Intersecting gables form the roof, the foundation is stone and concrete block, and the siding material is shiplap. The porch occurs in the building angle and is supported by chamfered posts. The entry door has a transom and sidelights and windows are two lights over two with projecting cornice moldings. A parapet wall screens the shed roof of the rear wing. The wing to the rear/south may be an early extension of the building as may the addition at the west/rear. The concrete block foundations are newer.

A A corrugated metal outbuilding stands at the back of the property.

RELATIONSHIP TO SURROUNDINGS:

The building is environmentally and architecturally compatible to the neighborhood.

Street Furniture: ---

Landscaping: garden once very form large Lombardy Poplars and other mature trees, large grounds

Architectural Evaluation: PS X NR ___

District Designation: PD 2 NR ___

HISTORIC ENVIRONMENT CONSULTANTS
2306 J Street, Penthouse
Sacramento, CA 95816
(916) 446-2447

Date March 1980

THREATS TO SITE:

None Known ____ Private Development ____

Zoning SE6000 Public Works Project ____

Vandalism ____ Neglect X Other ____

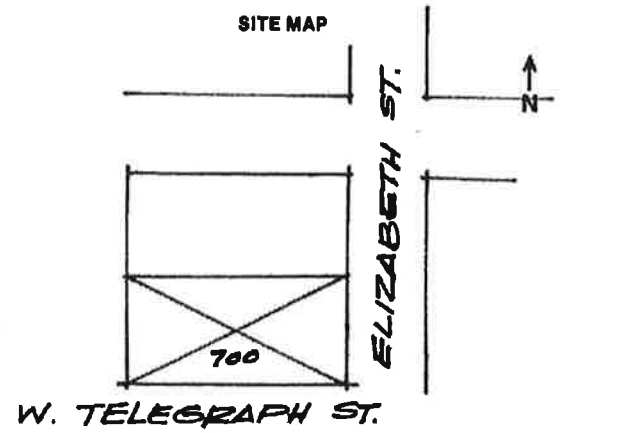
ADJACENT LAND USES:
residential/school

PHYSICAL CONDITION:

Excellent ____ Good ____ Fair X Deteriorated ____

APPROXIMATE SETBACK: 50 feet

SITE MAP



HISTORICAL BACKGROUND:

Architect (if known) ____

Builder (if known) ____

Date of Construction 1860's Estimated X Factual ____ Source: ____

Is Structure on Original Site? ____ Moved? ____ Unknown X

SIGNIFICANCE:

The structure is an interesting compositional example of its style and type, and still retains some good original detailing.

The building is similar to the adjacent building and both were said to have been originally owned by two brothers at which time the buildings were more alike. Governor Callcord was said to have lived in this structure.

SOURCES:
1875 Bird's Eye Map

SUGGESTED LAND USE AND FACADE MODIFICATIONS, WHERE APPROPRIATE:

Adaptive Use:

Facade Changes:

Zoning:

CARSON CITY RESOURCES INVENTORY

1988 CC Resources Inventory N-6th
(1980 updated)

IDENTIFICATION:

1. Address: 700 West Telegraph
2. Common Name:
3. Historic Name: C. Bicknell House
4. Present Owner: Albert Ripepi, et al
5. Address (if not occupant): P.O. Box 796; Carson City, Nevada
6. Present Use: residence Original Use: residence

08 3-244-02
RIPEPI, ALBERT G ET AL
% KENDERLAND / MCFADDEN
1002 N CURRY ST
CARSON CITY NV 89703

DESCRIPTION, ALTERATIONS, AND RELATED FEATURES:

The one story structure is a vernacular structure with no strong stylistic leanings. Its form derivation is Greek Revival and the paneled square bay reflects Italianate designs. Intersecting gables form the roof, the foundation is stone and concrete block, and the siding material is shiplap. The porch occurs in the building angle and is supported by chamfered posts. The entry door has a transom and sidelights and windows are two lights over two with projecting cornice moldings. A parapet wall screens the shed roof of the rear wing. The wing to the rear/south may be an early extension of the building as may the addition at the west/rear. The concrete block foundations are newer.

A corrugated metal outbuilding stands at the back of the property.

RELATIONSHIP TO SURROUNDINGS:

The building is environmentally and architecturally compatible to the neighborhood.

Street Furniture: ---

Landscaping: garden once very formal large Lombardy Poplars and other mature trees, large grounds

Architectural Evaluation: PS X NR ____
District Designation: PD 2 NR ____

HISTORIC ENVIRONMENT CONSULTANTS
2306 J Street, Penthouse
Sacramento, CA 95816
(916) 446-2447

Date March 1980

12

THREATS TO SITE:

None Known ____ Private Development ____

Zoning SF6000 Public Works Project ____

Vandalism ____ Neglect X Other ____

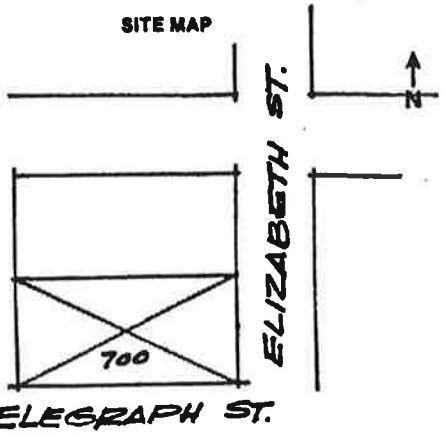
ADJACENT LAND USES:
residential/school

PHYSICAL CONDITION:

Excellent ____ Good ____ Fair X Deteriorated ____

APPROXIMATE SETBACK: 50 feet

SITE MAP



HISTORICAL BACKGROUND:

Architect (if known) ____

Builder (if known) ____

Date of Construction 1860's Estimated X Factual ____ Source: ____

Is Structure on Original Site? ____ Moved? ____ Unknown X

SIGNIFICANCE:

The structure is an interesting compositional example of its style and type, and still retains some good original detailing.

The building is similar to the adjacent building and both were said to have been originally owned by two brothers at which time the buildings were more alike. Governor Callcord was said to have lived in this structure.

SOURCES:
1875 Bird's Eye Map

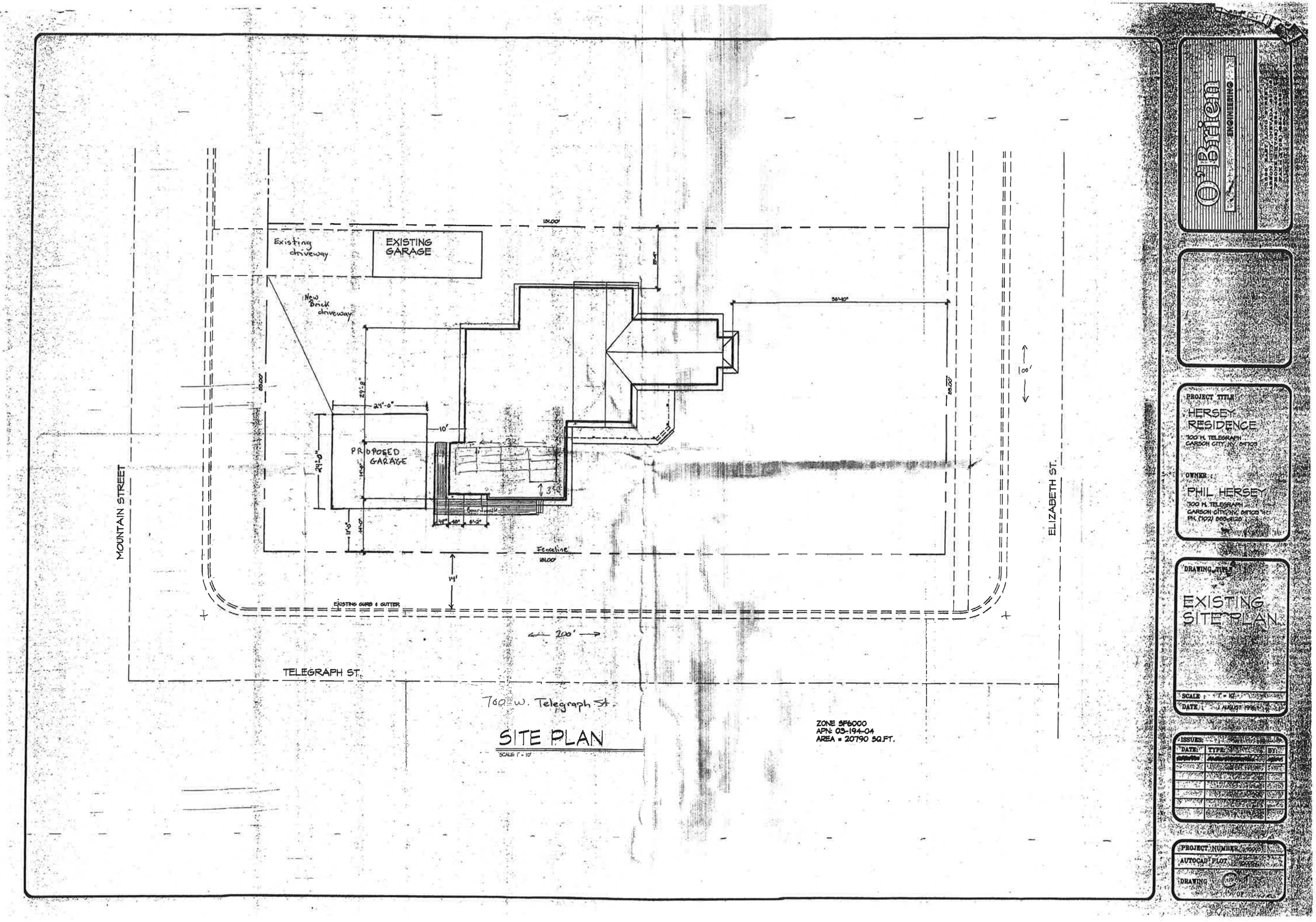
SUGGESTED LAND USE AND FACADE MODIFICATIONS, WHERE APPROPRIATE:

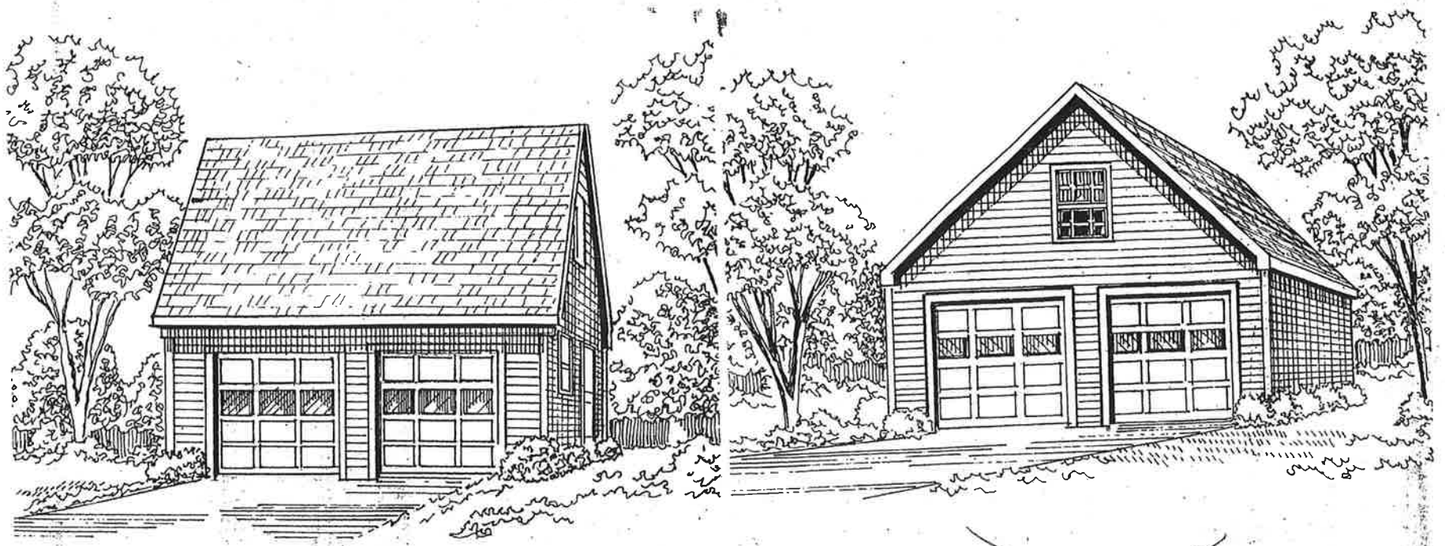
Adaptive Use:

Facade Changes:

Zoning:

1988 Update by: Ana Koval
Rainshadow Associates
P.O. Box 352
Carson City, NV 89702
(702) 849-1438


Existing driveway
EXISTING GARAGE
New brick driveway
PROPOSED GARAGE
24'-0"
29'-8"
10'
100.00'
56'-10"
89.20'
100'
Fenceline
100.00'
14'
EXISTING CURB & GUTTER
200'
MOUNTAIN STREET
ELIZABETH ST.
TELEGRAPH ST.
700 W. Telegraph St.
SITE PLAN
SCALE 1" = 10'
ZONE SF6000
APN: 03-194-04
AREA = 20790 SQ.FT.
O'Brien ENGINEERING
PROJECT TITLE:
HERSEY RESIDENCE
700 W. TELEGRAPH
CARSON CITY, NV. 89703
OWNER:
PHIL HERSEY
700 W. TELEGRAPH
CARSON CITY, NV. 89703
PH. (702) 883-8128
DRAWING TITLE:
EXISTING SITE PLAN
SCALE: 1" = 10'
DATE: AUGUST 1996
ISSUES:
DATE
TYPE
BY
PROJECT NUMBER
AUTOCAD FILE
DRAWING
C-1
OF

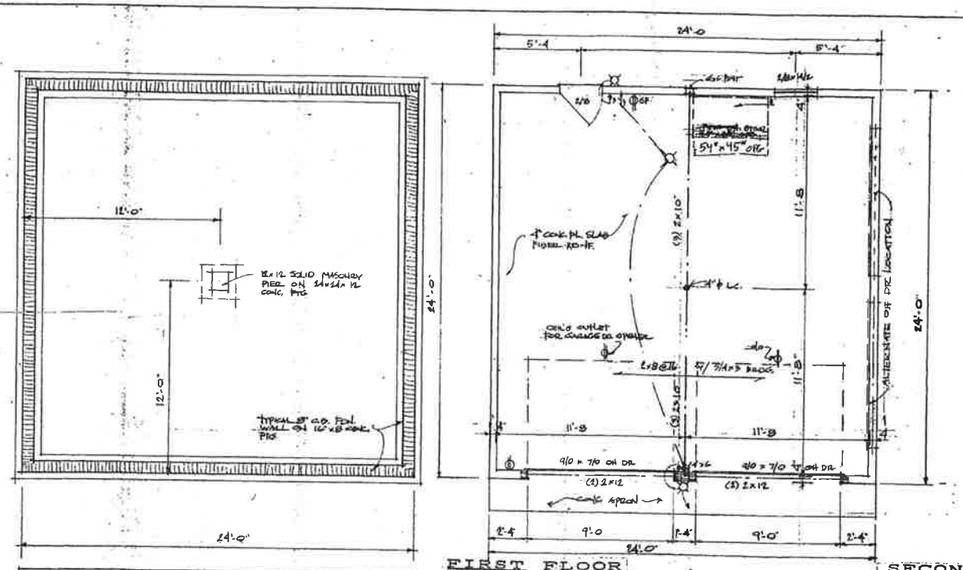


SIDE-FACING GABLE

faces Telegraph Street

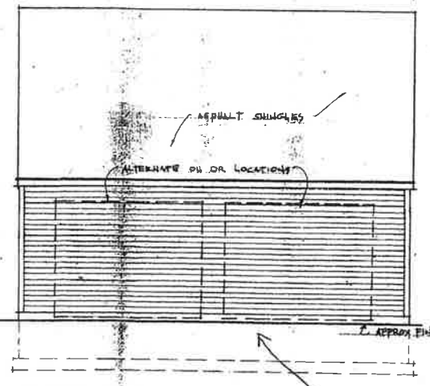
~~**FRONT-FACING GABLE**~~

Proposed: 700 W. Telegraph St.

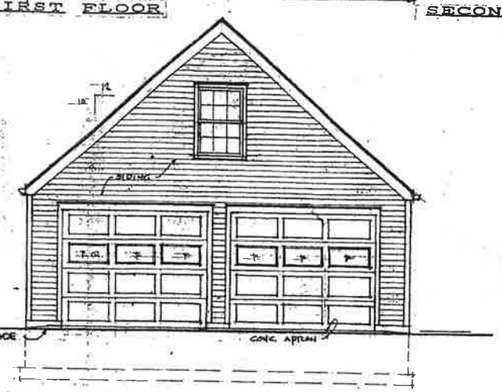


FIRST FLOOR

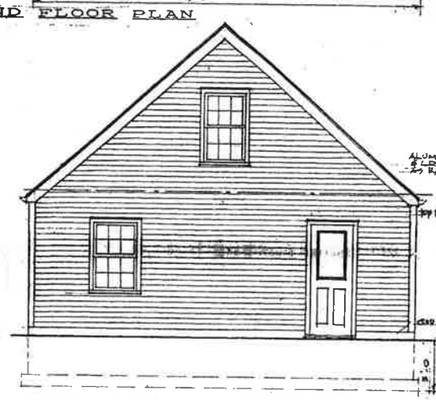
SECOND FLOOR PLAN



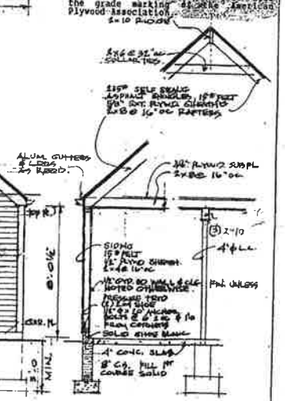
SIDE ELEVATION



FRONT ELEVATION



REAR ELEVATION



Proposed: 700 W. Telegraph St.

GENERAL NOTES:

- CODES: All Federal, State, and Local Codes, Ordinances, Regulations, etc., shall be considered as part of the specifications for this building and shall take precedence over anything shown, described, or implied where same are at variance.
- Each contractor shall visit the site, base estimate on present conditions, and shall be required to complete all work shown, implied or required to complete the work.
- Each contractor shall verify all required dimensions and conditions pertaining to their respective work at the site, prior to and during construction, and be responsible for same.
- Elevations of garages, porches, terraces, stoops, grade lines shown on plans, etc., are subject to change to meet topographical conditions.
- Carry all footings to firm, undisturbed bearing a minimum of 3'-0" below finish grade. Remove all organic and other unsuited material, from the area of the building. Fill, if required, shall be approved material, placed in maximum layers, each layer thoroughly tamped, packed, and rolled with mechanical equipment to produce an approved sub-base for concrete floors and pads.
- All concrete shall develop a minimum compressive strength of 3000 psi within 28 days.
- Concrete materials, formwork, reinforcing steel, mix, placing, curing, testing, and all work pertaining to concrete shall conform to applicable rules, standards, and recommendations of the American Concrete Institute, latest edition.
- Double all joists around openings and below parallel partitions. Triple joists below parallel bearing partitions.
- Unless noted otherwise, structural lumber shall equal or surpass #2 D. fb= 1,400,000 psi. Lumber shall conform to span and size tables of the National Forest Products Association. All lumber to have grade mark stamp.
- All plywood to conform to latest Commercial Product Standards and to bear the grade marking of the American Plywood Association.

PLAN # 9669	DATE 6-11-94	INIT	CK	SHEET # 1
REVISIONS				OF 1

G2419

Carson City Planning Division
108 E. Proctor Street· Carson City NV 89701
Phone: (775) 887-2180 • E-mail: planning@carson.org

FILE # HRC - 14 - HRC 14-142

FOR OFFICE USE ONLY:

HISTORIC RESOURCES COMMISSION

FEE: None

RECEIVED
OCT 16 2014
CARSON CITY
PLANNING DIVISION

SUBMITTAL PACKET

- ☐ Application Form with signatures
- ☐ Written Project Description
- ☐ 16 Completed Application Packets-Application form, maps, supporting documentation (1 Original + 15 Copies)
- ☐ CD containing application data (pdf format)
- ☐ Documentation of Taxes Paid-to-Date

Application Reviewed and Received By:

Submittal Deadline: See attached HRC application submittal schedule.

APPLICANT	PHONE #
Philip Hersey	775-225-1793

MAILING ADDRESS, CITY, STATE, ZIP: 700 W. Telegraph St Carson City NV 89703

EMAIL ADDRESS: phil.hersey@yahoo.com

PROPERTY OWNER	PHONE #
same as above	"

MAILING ADDRESS, CITY, STATE, ZIP: "

EMAIL ADDRESS: "

APPLICANT AGENT/REPRESENTATIVE	PHONE #
none	

MAILING ADDRESS, CITY, STATE ZIP:

EMAIL ADDRESS:

Project's Assessor Parcel Number(s):	Street Address	ZIP Code
003-244-02	700 W. Telegraph St, Carson City NV	89703

Project's Master Plan Designation	Project's Current Zoning	Nearest Major Cross Street(s)
Solar array	SF6000	Mountain / Telegraph

Briefly describe the work to be performed requiring HRC review and approval. In addition to the brief description of your project and proposed use, provide additional page(s) to show a more detailed summary of your project and proposal. NOTE: The Historic District Ordinance and Historic District Design Guidelines, as well as Policy Statements, are available in the Planning Division to aid applicants in preparing their plans. If necessary, attach additional sheets.

Solar electric array 10.25'x27.3' installed on shallow slope (est 4:12) west facing roof closest to telegraph st.- facing mountain street, 10.25' wide by 27.3' top to bottom. Appx. 3300 DC watts utilizing solar panels "Suniva 270w OPT270-60-4-1BO OPT270-60-4-1BO rail mounted to existing asphalt shingle roof. Each panel (black) has exposed area appx. 3.25' wide x 5.4' tall; 2" thick appx Installed, less than 6" total height above roof.

Does the project require action by the Planning Commission or the Board of Supervisors? ☐ Yes ☒ No If Yes, please explain

Will the project involve demolition or relocation of any structure within or into the Historic District? ☐ Yes ☒ No If Yes, please describe:

Reason for project:
To obtain free electricity

SUPPORTING DOCUMENTATION

Each application requires 16 copies, folded to 8 ½ x 11 inches, of quality site plan and drawings showing work to be performed on the subject project which requires HRC approval. Basically, this is any work which will affect the exterior of any structure and any modifications to the site, i.e., fences, walls, or major landscaping. The name of the person responsible for preparation of the plans and drawings shall appear on each sheet.

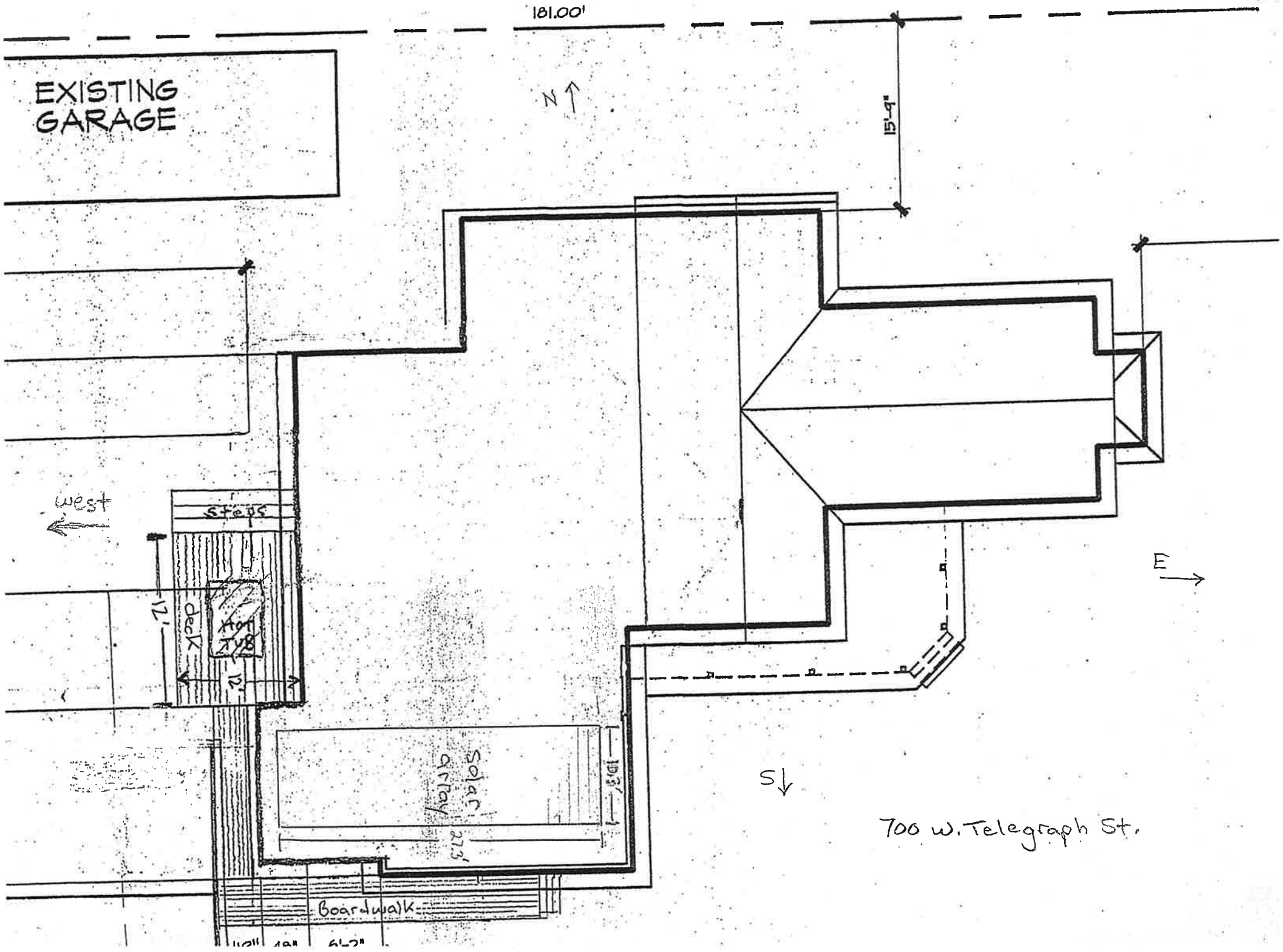
Attached is a Plan Checklist to aid preparation of plans and architectural drawings. It is understood that all checklist items will not be included in all projects. The list is intended to give the applicant an idea of the breadth of review by the Commission on those items which are included in the subject project. Photographs can be used for illustration and discussion, but are not acceptable as substitutes.

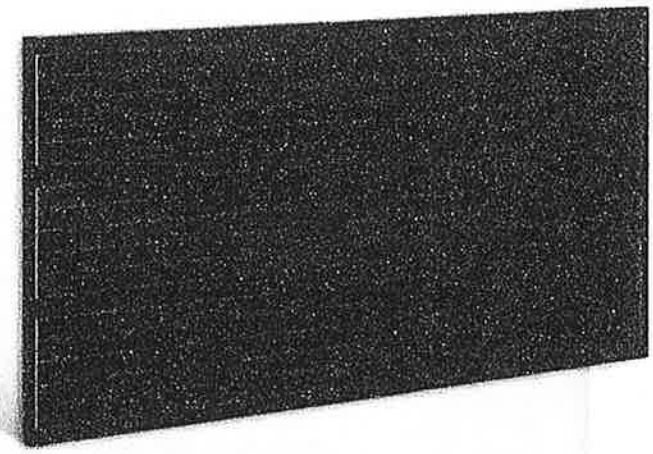
Philip O. Hersey
Owner's Signature

N/A
Applicant's/Agent's Signature

Philip O Hersey
Owner's Printed Name

Applicant's/Agent's Printed Name


181.00'
EXISTING GARAGE
N
15'-9"
west
steps
12'
deck
12'
E
S
Solar array
27.3'
10.3'
Boardwalk
700 W. Telegraph St.



Suniva®
The Brilliance of Solar Made Sensible™

SUNIVA OPTIMUS® SERIES MONOCRYSTALLINE SOLAR MODULES

OPT SERIES: OPT 60 CELL MODULES (BLACK FRAME)

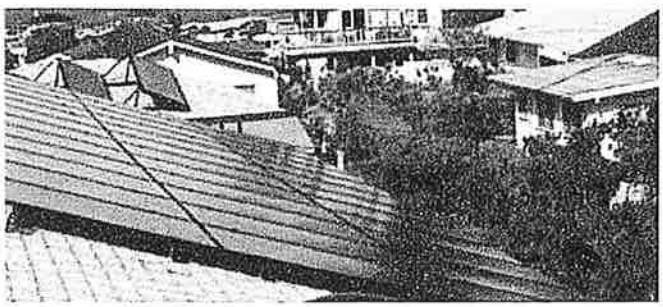
Optimus® modules are known for their superior quality and long-term reliability. These high-powered modules consist of Suniva's premium ARTisun® Select cell technology and are designed and manufactured in the U.S.A. using our pioneering ion implantation technology. Suniva's high power-density Optimus modules provide excellent performance and value.

ENGINEERING EXCELLENCE

- Built exclusively with **Suniva's premium ARTisun Select cells**, providing one of the highest power outputs per square meter at an affordable price
- **Suniva is a U.S.- based company** spun out from the Georgia Tech University Center of Excellence in Photovoltaics; one of only two such research centers in the U.S.
- Suniva's state-of-the art manufacturing and module lab facilities feature the most advanced equipment and technology

QUALITY & RELIABILITY

- Suniva Optimus modules are manufactured and warranted to our specifications assuring consistent high performance and high quality.
- Rigorous in-house quality management tests beyond standard UL and IEC standards
- Produced in an ISO 9001: 2008 certified facility
- Performance longevity with advanced polymer backsheet
- Passed the most stringent salt spray tests based on IEC 61701
- Passed enhanced stress tests[1] based on IEC 61215 conducted at Fraunhofer ISE[2]
- Certified PID free by PV Evolution Labs (PVEL)
- PAN files are independently validated



FEATURES

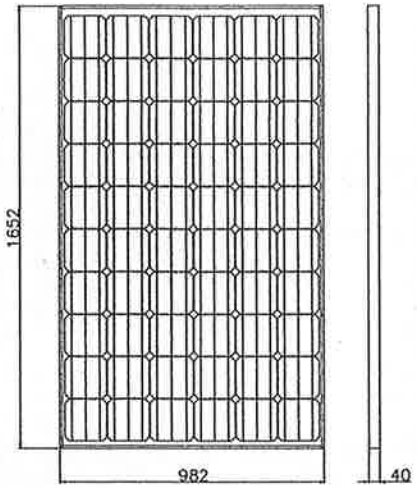
PRODUCTS OF THE USA

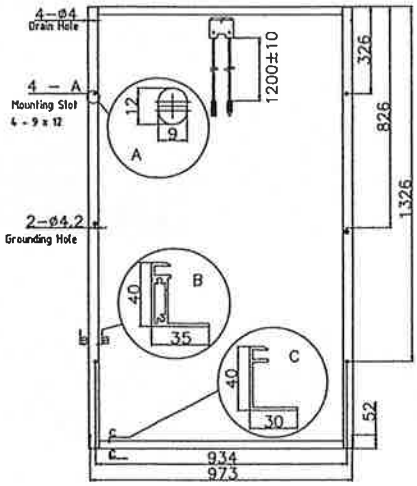
- Contains premium ARTisun Select cell technology - over 19%
- Extensive materials testing and certifications safeguard reliability
- Marine grade aluminum frame with hard anodized coating
- Buy America-compliant upon request
- Qualifies for U.S. EXIM financing
- System and design services available
- Industry leading linear warranty: 10 year warranty on workmanship and materials; 25 year linear performance warranty delivering 80% power at STC

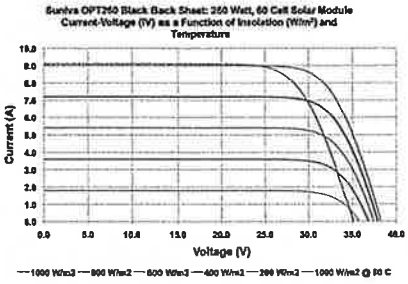
CERTIFICATIONS

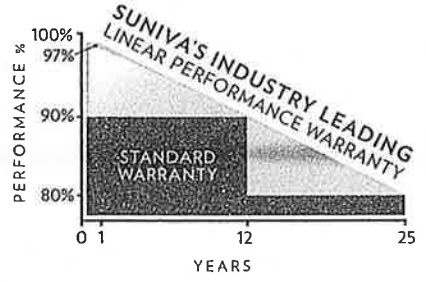
PVEL ADVANCING SOLAR

AS5033 Compliant









PLEASE RECYCLE

JANUARY 17, 2014 (REV. 16) [SAMD_0016]

OPTIMUS SERIES: OPT 60 CELL MODULES

ELECTRICAL DATA (NOMINAL)

The rated power may only vary by + 2.5W and all other electrical parameters by ± 5%

Model Number	OPT 255-60-4-1B0	OPT 260-60-4-1B0	OPT 265-60-4-1B0	OPT 270-60-4-1B0
Power Classification (Pmax)	255 W	260 W	265 W	270 W
Module Efficiency (%)	15.71%	16.02%	16.33%	16.63%
Voltage at Max. Power Point (Vmp)	30.20 V	30.50 V	30.70 V	31.00 V
Current at Max. Power Point (Imp)	8.45 A	8.52 A	8.64 A	8.70 A
Open Circuit Voltage (Voc)	38.10 V	38.30 V	38.30 V	38.40 V
Short Circuit Current (Isc)	8.96 A	9.01 A	9.12 A	9.18 A

The electrical data apply to standard test conditions (STC) of irradiance of 1000 W/m² with AM 1.5 spectra at 25°C.

CHARACTERISTIC DATA

Type of Solar Cell	High-efficiency ARTisun Select cells of 156 x 156 mm (6 in.)
Frame	Black anodized aluminum alloy
Glass	Tempered (low-iron), anti-reflective coating
Junction Box	NEMA IP67 rated; 3 internal bypass diodes
Cable & Connectors	12 AWG (4 mm²) PV Wire cable with multiple connector options available; cable length approx. 1200 mm

MECHANICALS

Cells / Module	60 (6 x 10)
Module Dimensions	1652 x 982 mm (65.04 x 38.66 in.)
Module Thickness (Depth)	40 mm (1.57 in.)
Approximate Weight	17.9 +/- 0.25 kg. (39.5 +/- 0.5 lb.)

TEMPERATURE COEFFICIENTS

Voltage	ß, Voc (%/°C)	-0.335
Current	α, Isc (%/°C)	+0.047
Power	γ, Pmax (%/°C)	-0.420
NOCT Avg	(+/- 2 °C)	46.0

LIMITS

Max. System Voltage	1000 VDC for IEC, 1000 VDC for UL
Max Series Fuse Rating	15 Amps
Operating Module Temperature	-40°C to +85°C (-40°F to +185°F)
Storm Resistance/Static Load	Tested to IEC 61215 for loads of 5400 Pa (113 psf); hail and wind resistant

Suniva® reserves the right to change the data at any time. View manual at suniva.com.
[1]UV 90 kWh, TC 400, DH 2000. [2]Tests were conducted on module type OPT 60 silver frame.

Please read installation manual before installing or working with module.

Product	Modules per pallet	Pallets per Container	Total Modules
OPT - 60 cell (silver and black)	25	28	700

HEADQUARTERS

www.suniva.com

Suniva®