Ms. Linnel Nishioka, Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809  

Dear Ms. Nishioka:  

Subject: Well Abandonment Report - Waikele Tunnel  

Transmitted for your review is the Well Abandonment Report for Waikele Tunnel. Construction work on this project was done in-house by the Honolulu Board of Water Supply and a drawing of the sealing details is attached as part of the report. 

If you have any questions, please contact Glenn Oyama at 527-5285. 

Very truly yours,  

BARRY USAGAWA, Principal Executive  
Water Resources Unit  

Attachments 

Pure Water... our greatest need - use it wisely
### WELL ABANDONMENT REPORT

**State of Hawaii**
**COMMISSION ON WATER RESOURCE MANAGEMENT**
**Department of Land and Natural Resources**

**WELL ABANDONMENT REPORT**

Instructions: Please print in ink or type and send completed report (with attachments, if applicable) to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. The Commission may not accept incomplete reports. This form shall be submitted within 60 days of the completion of work. For assistance, please consult the Hawaii Well Construction and Pump Installation Standards or call the Regulation Branch at 587-0225. For further information and updates to this application form, visit http://www.state.hi.us/dlnr/cwrm.

---

<table>
<thead>
<tr>
<th>1. State Well No.</th>
<th>2301-43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Name</td>
<td>Pump 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Location / Address</th>
<th>200 yd NW of Waipahu St. Bridge, Island Oahu</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>TMK 9-04-02-05</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Contractor</th>
<th>Honolulu Board of Water Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of driller who performed work</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Type of Rig / Construction</th>
<th>Date of well sealing completion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>July 16, 2001</td>
</tr>
</tbody>
</table>

**Casing Diameter** in.

**Finished Grade Elevation** ft.

**Check Material Used**
- [ ] Cement
- [ ] Sand/Cement Ratio

**Grout Seal:**
- [ ] Cement
- [ ] Sand/Cement Ratio

**Total Measured Depth** ft.

**Measured Depth of Blank Casing** ft.

**Measured Depth of Perforated Casing** ft.

**Measured Depth of Open Hole** ft.

**Remarks:**
A drawing of the sealing work is attached. Waiekele tunnel is adjacent to Oahu Sugar Company Pump 8 and formerly supplied the pumphouse via an intake sump. Portions of the tunnel sluice gate structure were removed after the sealing and the original grade restored.

---

**Well Abandonment**

**Contractor (print)** Honolulu Board of Water Supply

**C-57 Lic. No.** N/A

**Signature**

**Date** 8-1-01

**Applicant (print)** Honolulu Board of Water Supply

**Signature**

**Date** 8-1-01

WAR Form (2/8/00)
**WAIKELE TUNNEL**

(OSCO PUMP 8)
sealed July 16, 2001

**cross section of tunnel**

not to scale
TO: LENORE NAKAMA
COMPANY: CWRM
FAX NO: 587-0219

FROM: GLENN OYAMA
DIVISION: WATER RESOURCES
FAX NO: 527-5703

SUBJECT: PUMP 8 TUNNEL SEALING PERMIT

LENORE -

REMARKS: THANKS FOR FAXING THE PERMIT! I WOULD ALSO LIKE TO INFORM CWRM VIA THIS FAX THAT WE INTEND TO COMMENCE THE WORK IMMEDIATELY.

THANKS AGAIN FOR YOUR ASSISTANCE. GLEN

IN CASE OF TRANSMISSION PROBLEMS, PLEASE CONTACT SENDER AT (808) 527-5285. THANK YOU.
Mr. Glenn Oyama  
City and County of Honolulu  
Board of Water Supply  
630 South Beretania Street  
Honolulu, HI 96843

Dear Mr. Oyama:

Well Abandonment Permit  
Pump 8 (Well No. 2301-43)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s) which authorizes well abandonment/sealing activities. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 7:

Special Conditions

1. [NONE]

Please validate both permit originals and return one for our files.

IMPORTANT - The well owner is responsible for all conditions of the permit. This includes ensuring that a completed Well Abandonment Report form (enclosed) is submitted within sixty (60) days after the well construction work is completed. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions.

If you have any questions, please call Lenore Nakama of the Commission staff at 587-0218.

Aloha,

GILBERT S. COLOMA-AGARAN  
Chairperson

Enclosures

c. Jerry Iwata
WELL CONSTRUCTION PERMIT TO ABANDON/SEAL

Pump 8, Well No. 2301-43

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the abandonment/sealing of Pump 8 (Well No. 2301-43) at ~200 yd NW of Waipahu St. Bridge, Oahu, TMK 9-4-02.05, subject to the Hawaii Well Construction & Pump Installation Standards (12/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, shall be notified in writing before any work covered by this permit commences.

2. The owner or operator of any well which has been determined by the department or voluntarily declared by the owner or operator to be abandoned as defined in §13-168-2, after written notification, shall be required, at owner's or operator's expense, to re-cover, cement, plug back, cap, or otherwise repair the well or fill and seal the well with cement in a manner approved by the commission.

3. The well construction permit application is incorporated into the permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (January 23, 1997: HWCPIS). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

4. The Well Abandonment Report form (attached) shall be submitted to the Commission on Water Resource Management within sixty (90) days after completion of the work.

5. The permittee shall comply with all applicable laws, rules, and ordinances.

6. The sealing shall be completed within two (2) years.

7. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: June 14, 2001
Expiration Date: None

GILBERT S. COLOMA-AGARAN, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day.

Permittee's Signature: Barry Usagawa Date: 7-9-01
Printed Name: Barry Usagawa Firm or Title: BWS - Water Resources

Contractor's Signature: ____________________________ License #: ____________________________ Date: ____________________________
Printed Name: ____________________________ Firm or Title: ____________________________

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachment
c: USGS
Department of Health Safe Drinking Water, Wastewater, and Clean Water Branches
Jerry Kasta
Mr. Glenn Oyama  
City and County of Honolulu  
Board of Water Supply  
630 South Beretania Street  
Honolulu, HI 96843  

Dear Mr. Oyama:  

Well Abandonment Permit  
Pump 8 (Well No. 2301-43)  

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s) which authorizes well abandonment/sealing activities. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 7:  

Special Conditions  

1. [NONE]  

Please validate both permit originals and return one for our files.  

IMPORTANT - The well owner is responsible for all conditions of the permit. This includes ensuring that a completed Well Abandonment Report form (enclosed) is submitted within sixty (60) days after the well construction work is completed. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions.  

If you have any questions, please call Lenore Nakama of the Commission staff at 587-0218.  

Aloha,  

GILBERT S. COLOMA-AGARAN  
Chairperson  

Enclosures  
c. Jerry Iwata
WELL CONSTRUCTION PERMIT TO ABANDON/SEAL

Pump 8, Well No. 2301-43

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the abandonment/sealing of Pump 8 (Well No. 2301-43) at ~200 yd NW of Waipahu St. Bridge, Oahu, TMK 9-4-02:05, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, shall be notified in writing before any work covered by this permit commences.

2. The owner or operator of any well which has been determined by the department or voluntarily declared by the owner or operator to be abandoned as defined in §13-168-2, after written notification, shall be required, at owner's or operator's expense, to re-case, cement, plug back, cap, or otherwise repair the well or fill and seal the well with cement in a manner approved by the commission.

3. The well construction permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (January 23, 1997; HWCPIS). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

4. The Well Abandonment Report form (attached) shall be submitted to the Commission on Water Resource Management within sixty (60) days after completion of the work.

5. The permittee shall comply with all applicable laws, rules, and ordinances.

6. The sealing shall be completed within two (2) years

7. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: June 14, 2001
Expiration Date: None

GILBERT S. COLOMA-AGARAN, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day.

Permittee's Signature: _______________________________ Date: __________________
Printed Name: _______________________________ Firm or Title: _______________________________

Contractor's Signature: __________________ Date: __________________
Printed Name: __________________ License #: __________________ Firm or Title: __________________

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachment
C: USGS
Department of Health' Safe Drinking Water, Wastewater, and Clean Water Branches
Jerry Iwata
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tbody>
<tr>
<td>Lessor</td>
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<td>Exemption</td>
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<td>Tenure: Govt Owned</td>
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<td>Semi-Annual Tax: $0.00</td>
</tr>
<tr>
<td>Assessed Value Land</td>
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<tr>
<td>Exemption</td>
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<tr>
<td>Size</td>
<td>18.29 ac</td>
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<td>Land: $719,400</td>
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<tr>
<td>DEPARTMENT OF LAND UTILIZATION</td>
<td></td>
</tr>
</tbody>
</table>

This data from the Department of Land Utilization is unofficial and is subject to change without notice. It is the user's responsibility to verify the accuracy of information from official documents which are available for inspection at the City department responsible for the data.

**CIVIL FINES**: None

**DEVELOPMENT PLAN AREA**: Central Oahu

**DEVELOPMENT PLAN DESIGN**: Residential

**FLOOD ZONE**: Firm Zone D, Firm Zone X, Firm Zone X (Shaded)

**HEIGHT LIMIT**: 25 Feet

**HISTORIC SITE REGISTER**: None

**LOT RESTRICTIONS**: None

**SMA/SHORELINE**: Not in SMA

**SPECIAL DISTRICT**: Not in Special District

**STATE LAND USE**: Urban District

**STREET SETBACK**: None

**ZONING (CZC)**: R-6 Residential District

**ZONING (LUO)**: R-5 Residential District

This information has been supplied by third parties and has not been independently verified by Hawaii Information Service and is therefore, not guaranteed.
The method seems fine. I'm not sure whether a licensed contractor is necessary, although we are bound by our rules and regs. Perhaps they can hire a licensed contractor in an advisory capacity.

---Original Message---
From: Lenore Nakama
Sent: Monday, June 25, 2001 9:50 AM
To: Glenn Bauer
Cc: Roy Hardy; Mitchell Ohye
Subject: sealing of pump 8

Hi Glenn, welcome back! (is this the 150th email that you're reading?) Thanks for all your emails and postcard, sounds like you had a great time. We missed you.

I have a question about the sealing of Pump 8, which is an enhanced spring/tunnel source. BWS is proposing to seal by backfilling the interior portion with fine fill and then pumping concrete between the fill and the tunnel portal to prevent future access and to provide support for future construction over the tunnel. A hole will be drilled into the tip of the tunnel for the fill. Concrete will be poured into another hole in the roof of the tunnel. QUESTION: can BWS do this work or are we going to require a licensed contractor to do it (BWS signed the application as the licensed driller). Also, is the proposed sealing method OK with you? thanks

1-2 per day, OK for BWS to sign as licensed contractor.
They should be familiar w/sealing methods & issues.
Will hold BWS liable for sealing work.
APPLICATION FOR PERMIT

APPLICANT INFORMATION: (Fill out all three, if applicable, and place a check next to the primary contact)

1. (a) WELL OWNER: C&G of Honolulu
   Contact Person: Jerry Iwata
   Mailing Address: 650 S. King Street, 12th Floor
   Fax: 527-5054
   E-mail: JIWATA@CO.HON.HI.US
   Phone: 523-4579

    (b) LAND OWNER: C&G of Honolulu
   Contact Person: Jerry Iwata
   Mailing Address: 650 S. King Street, 12th Floor
   Fax: 527-5054
   E-mail: JIWATA@CO.HON.HI.US
   Phone: 523-4579

2. (c) CONTRACTOR: Board of Water Supply
   Contact Person: Glenn Oyama
   Mailing Address: 630 S. Beretania Street
   Fax: 527-5703
   E-mail: NOKULUA@HBWS.ORG
   Lic#: N/A
   Phone: 527-5285

WELL & PUMP INFORMATION: (Please fill in the diagram on the back of this form.)

2. WELL NAME: Waikiki Tunnel 8 Tunnel
   Address: Approximately 200 yards NW of Waipahu St. Bridge (Waikiki Stream)
   Tax Map Key: 9 04 02 05
   Island: Oahu

   Attach the relevant portion of (a) a 7.5-Minute Series USGS topographic map (scale 1:24,000) and include the name of the quad map, and (b) a property tax map, showing well location referenced to established property boundaries.

3. PROPOSED WORK:
   (Check all that apply)
   □ Construct New Well
   □ Install New Pump*
   □ Modify Existing Well*
   □ Modify Pump*
   □ Abandon/Seal*

   *State Well No: Not Assigned (if unknown, please call Commission at 587-0225)

4. CONSTRUCTION:
   □ Drilled
   □ Dug
   □ Shaft
   □ Tunnel
   □ Is this well part of a battery of wells? □ Yes  □ No (Please describe)

5. PROPOSED PUMP INFORMATION:
   Rated Pump Capacity: N/A gallons per minute
   Pump Type (Check one):
   □ Deep Well Turbine
   □ Rotary
   □ Propeller
   □ Submersible
   □ Rotary-Displacement
   □ Reciprocating
   □ Centrifugal
   □ Rotary-Gear
   □ Impulse

6. PROPOSED USE:
   (Check all that apply)
   □ Municipal (including hotels, stores, etc.)
   □ Industrial
   □ Domestic (individual, noncommercial water system)
   □ Irrigation (crop)
   □ No. of Acres: __________
   □ Military
   □ Other (explain):

7. (a) PROPOSED AMOUNT OF WITHDRAWAL:
   __________ gallons per day
   (b) METHOD OF FLOW MEASUREMENT:
   □ Flowmeter
   □ Open-pipe
   □ weir
   □ Orifice
   □ Other(explain)

OTHER IMPORTANT INFORMATION:

8. LEGAL REQUIREMENTS:
   □ CDUP
   □ SMAP
   □ EIS
   □ EA
   □ None
   □ Other (explain)

9. REMARKS, EXPLANATIONS:
   The portal segment of the tunnel will be sealed. A location map and known information is attached. A description of the sealing is also provided.

I understand that approval of this application attaches the following standard conditions: 1) the proposed work is to be completed within two (2) years of the approval date; 2) the contractor shall submit to the Commission a well completion/abandonment report within sixty (60) days after the completion date of the permitted work; 3) monthly water use data shall be submitted to the Commission; 4) such approval shall not constitute a determination of correlative water rights and shall not guarantee the pump capacity or future use up to the permitted pump capacity.

Well Owner
C&G of Honolulu
(print legibly)
Signature
Date 6/11/01

Landowner
C&G of Honolulu
(print legibly)
Signature
Date 6/11/01

Contractor
Board of Water Supply
(print legibly)
Signature
Date 6/12/01

For official use only
Aquifer System No.
State Well No. 2301-43

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

For Official Use Only:

State Well No. 2301-43

WCPIPA Form 10/25/00

For Official Use Only:

For Official Use Only:

For Official Use Only:
Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and Hawaii State Survey

Topography by photogrammetric methods from aerial photographs taken 1952 and planetable surveys 1928-1930. Revised from aerial photographs taken 1968. Field checked 1968

Polyconic projection. Old Hawaiian datum

10,000-foot grid based on Hawaii coordinate system, zone 3

1000-meter Universal Transverse Mercator grid ticks, zone 4, shown in blue

Red tint indicates areas in which only landmark buildings are shown
**D-WATER RESOURCES OF OAHU**

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**TUNNELS RECOVERING BASAL GROUND WATER IN THE BASALT MEMBER OF THE KOOLAU VOLCANIC SERIES**

By H. T. Stearns

Four tunnels have been driven to recover basal ground water in Koolau basalt. Two of them are described under dug wells 34 and 36, and the other two are on the east bank of Waik未le Stream at Waipahu (see pl. 2).

Tunnel 4B, at well pumping plant 248, was started in January 1906 and finished in the early autumn of the same year. It is 3 feet above sea level and was driven 1,140 feet into flat-lying Koolau flow lavas. The draft from this tunnel is given on page 292. During construction it was kept dewatered by a pump, but it is reported that no large flow of water was encountered suddenly at the heading that the workmen rarely escaped with their lives. At first the salt content was 64 grains a gallon (665 p.p.m.), but it later decreased to 15 grains a gallon (156 p.p.m.). An analysis of this water is given on page 361.

A similar tunnel was started at pump 9 in the fall of 1906 and completed in the spring of 1907. It is 7 feet above sea level and 2100 feet in length and is reported to have yielded about 10,000,000 gallons a day, but it had to be blocked off because it depleted the supply of tunnel 4B. Doubtless the freshening of the water in tunnel 4B was caused by the damming of this tunnel. An analysis of this water is given on page 361.

These tunnels were driven at and near Waikelo Springs and show conclusively that the spring group is discharging from the basal zone of saturation in the Koolau lavas. They further demonstrate that water can be developed in this basalt by tunnels extending away from shafts, as in the Maui type of well recommended on page 324.

---

**BASAL SPRINGS SUPPLIED BY THE BASALT MEMBER OF THE KOOLAU VOLCANIC SERIES**

By H. T. Stearns

**HONOLULU AND VICINITY**

The springs issuing from the end of the Koolau range east of Honolulu have been described on page 235. Ah Yin or Kapalama Spring, on the south side of School Street, on the west side of Nuuanu Valley, was discharging at the rate of 550,000 gallons a day when measured on September 15, 1911. Its close proximity to the adjacent outcrop of Koolau basalt (pl. 2) suggests that it is overflow of the basal water in this basalt, but its altitude is slightly higher than that of the water in the adjacent artesian wells, hence it may be supplied by basalt of the Nuuanu volcanics.

**PEARL HARBOR SPRINGS**

**Location.**—The Pearl Harbor Springs comprise five large springs along the north shore of Pearl Harbor between Aiea and Waipahu.

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**WATER RESOURCES OF OAHU**
Tunnel Sealing

This tunnel has not been used since the plantation ceased growing sugar cane. As part of an exchange of the land for Waiola Park, sealing of the tunnel is a condition of acceptance.

Sealing of this tunnel is not expected to materially affect flow in Waikele Stream. Erosion to the present level has exposed the water table in the Koolau lavas. Spring flows sustain the base flow of the stream. The curvature of the water table to the stream is a function of the hydraulic conductivity of the weathered and partially weathered basalts occurring in this area. The slope of the water table steepens towards the stream and flattens out at an undetermined distance from the stream.

The water table presently has a head of 14.3 feet as measured in a well not far from Tunnel No. 4. Water backing up in the tunnel has the same approximate head because the tunnel develops water away from the stream embankment; otherwise, the water table without the tunnel would be the same as the spring line which is about 12 feet.

Spring flow is expected to increase an unknown amount in nearby springs as the result of the tunnel sealing causing groundwater to follow pretunnel paths. The increase inflow is expected to probably be less than the present leakage rate from the tunnel which intersects fresher and more productive lava flows away from the portal.

We propose to stop tunnel flow by backfilling the interior portion with fine fill and then pumping concrete between the fill and the tunnel portal to prevent future access and to provide support for future construction over the tunnel. A hole will be drilled into the top of the tunnel for the fill. Concrete will be poured or pumped into another hole in the roof of the tunnel.
Mr. Chester Lao  
Board of Water Supply  
630 South Beretania Street  
Honolulu, Hawaii 96843

Dear Mr. Lao:

Sealing of Waipahu Pump #8 Spring, Waikele Stream, Oahu

This is regarding your inquiry as to whether the sealing of Pump #8 Spring at Waikele Stream, Waipahu, Oahu, will require an amendment to the interim instream flow standard.

Hawaii Administrative Rules §169-49 requires an amendment to the interim instream flow standard for new or expanded diversions after the date the Commission adopted the interim instream flow standard (October 19, 1988).

Since the sealing of the spring does not constitute a new or expanded diversion, the interim instream flow standard need not be amended. We understand, however, that the Board of Water Supply will be filing an application for a well abandonment permit pursuant to Hawaii Administrative Rule §168-16 to seal the spring.

Thank you for your coordination on this matter. If you have any questions regarding this letter please call Lenore Nakama at 587-0218.

Sincerely,

LINNEL T. NISHIOKA  
Deputy Director

DH:sd
Oahu Sugar Pump 8  June 12, 2001
Mapped, edited, and published by the Geological Survey
Revised in cooperation with Hawaii Dept. of Transportation
Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs
taken 1962. Field checked 1968. Revised from aerial photographs

Projection and 10,000-foot grid ticks: Hawaii coordinate system,
zone 3 Transverse Mercator Clarke spheroid 1966. Old Hawaiian Datum
1000-meter Universal Transverse Mercator grid ticks, zone 4 shown
in blue. International spheroid. To place on the predicted North
American Datum 1983 move the projection lines 355 meters north and
284 meters west as shown by dashed corner ticks

Red tint indicates areas in which only landmark buildings are shown

There may be private inholdings within the boundaries of
the National or State reservations shown on this map.