

MANTORVILLE RETAINING WALLS

SHPO INV. # DO-MTC-038

Location: The Mantorville Retaining Walls are located on the east and west sides of TH 57 between 6th Street and 7th Street in Dodge County, City of Mantorville, MN.

Introduction: The buff limestone walls were built in 1932 by private contractor Ole Stensted for Dodge County. The 4'-high, 340'-long eastern wall retains the Dodge County Courthouse (1865). Most of the eastern wall is in fair condition, although there are several areas where its condition is poor. The 4'-high, 360'-long western wall retains the yards of several late 19th century residences, a church, and a school (all owned by the Dodge County Historical Society). The western wall is as originally built. No construction plans are available for the walls.

Survey Date: October 7, 2002

Plans/Sketches: Appendix A: Plates (site photographs).
Appendix B: 1998 Gemini Research site plan.
Appendix C: HDR condition assessment notes.

Critical Needs Summary:

- Replace the missing masonry units in east wall with those remaining on site, or provide matching replacements from a new source.
- Repair and repoint the leaning masonry at the north end of the east wall.
- Reroute the existing storm water drainage pipe from the courthouse to avoid saturating the soils behind the east wall.
- Remove loose limestone and concrete debris (including portions of the concrete gutter) from the limestone outcrops on both sides of TH 57.
- Remove herbaceous weeds and eroded soil from all masonry surfaces, including retaining walls and steps.

**MNDOT HISTORIC ROADSIDE DEVELOPMENT
 STRUCTURES INVENTORY**

DO-MTC-038
 CS 2007
 Mantorville Retaining Walls

Historic Name Other Name	Mantorville Retaining Walls	CS # SHPO Inv #	2007 DO-MTC-038
Location	E and W sides of TH 57 between 6th St and 7th St	Hwy District Reference Point	TH 57 6B 3.0
City/Township County Twp Rng Sec USGS Quad UTM	Mantorville, City of Dodge 107N 16W Sec 16 Dodge Center Z15 E519610 N4879260	Acres Rest Area Class	NA
Designer	Unknown	SP #	
Builder	Ole Stensted	SHPO Review #	
Historic Use Present Use	Hwy Retaining Wall/ Sea Wall Hwy Retaining Wall/ Sea Wall	MHS Photo #	013522.03-09
Yr of Landscape Design	1932	MnDot Historic Photo Album	
Overall Site Integrity	Intact/Slightly Altered		
Review Required	Yes		
National Register Status	Not Eligible, see Statement of Significance Also member of listed NR district: Mantorville Historic District		
Historic Context			

Table of Site Structures

Feat #	Type	Year Built
01	Retaining Wall	1932
02	Retaining Wall	1932

NOTE: Landscape features are not listed in this table

Fieldwork Date
05-11-97

Prep by
Gemini Research
Dec. 98 G1. 42

Prep for
Site Development Unit
Cultural Resources Unit
Environmental Studies Unit

Final Report Historic Roadside Development Structures on Minnesota Trunk Highways (1998)

Stabilization/Preservation/Restoration

1. Spatial Organization and Land Patterns

a. Functional Relationships

- **Assessment:** The east and west Mantorville Retaining Walls were both designed to retain the hillsides facing TH 57, which have exposed limestone outcrops. They also nominally serve to prevent erosion of the limestone outcrops onto the sidewalks flanking both walls. Field examination of the eastern retaining wall revealed the fragmented remains of a formed concrete gutter that may be contemporary with the wall (discussed further under *Structures, Furnishings, and Objects*).

There are steps at the north ends of both retaining walls, and at the south end of the west wall. The east wall's north steps and a short section of the wall extending east at this point have been replaced by formed concrete. The west wall's north and south steps (both fashioned from dressed limestone slabs) remain in their original configuration.

- **Recommendations:**
Stabilization/Preservation: Remove portions of the concrete gutter which are in danger of falling onto the sidewalk below (cost estimate listed under *Health and Safety Considerations*). Reroute the existing storm water drainage pipe from the courthouse to avoid saturating the soils behind the east wall (cost estimate listed under *Retaining wall*). **Work Period:** 1 year.
Restoration: A strict restoration would recreate the original formed concrete gutter and install it at the top edge of the east limestone outcrop. Restoration of this original drainage system is not likely to be practical, since municipal code undoubtedly would not allow the unchanneled discharge of storm water at the south end of the wall. **Work Period:** Not applicable.

b. Visual Relationships

- **Assessment:** The visual appearance of this block of Mantorville has changed little since the construction of the retaining walls in 1932. The walls retain their original visual relationship to the adjoining buildings to the east and west, and provide an aesthetic complement to the rustic character of the limestone outcrops and the adjacent 19th century historic buildings. A split-face concrete modular retaining wall abuts the south end of the east wall, and a chain-link fence separates the courthouse property from the east wall.
- **Recommendations:**
Stabilization: None. **Work Period:** Not applicable.
Preservation: Preserve the existing viewshed at the site by preventing the overgrowth of trees and shrubbery on the limestone outcrops flanking both walls. Avoid the addition of inappropriate structural elements and lighting adjacent to the walls. **Work Period:** 1 - 3 years, and ongoing.
Restoration: Work with Dodge County, the City of Mantorville, and the Dodge County Historical Society to preserve the historic visual character of the buildings flanking both walls. Work with Dodge County to replace the split-face concrete modular retaining wall abutting the south end of the east wall and the chain-link fence with treatments more appropriate to the courthouse's period of construction. **Work Period:** 1 - 3 years and ongoing.

2. Topography

- **Assessment:** TH 57 is steeply inclined on this block, but the masonry of both walls has been laid in a level fashion to provide stability. The steep streetscape and rock-faced limestone walls provide a pleasing visual complement to the adjacent courthouse and other historic buildings. The limestone outcrops flanking each wall display a moderate amount of erosion, and there are a large number of limestone fragments which may threaten pedestrian traffic on the sidewalks below. In addition, the configuration of the limestone outcrop above the east wall creates significant challenges for properly draining storm water.
- **Recommendations:**
 - Stabilization:** Remove loose rock from the faces of both limestone outcrops (cost estimate listed under *Health and Safety Considerations*). **Work Period:** Immediately.
 - Preservation:** Delay further erosion of the east limestone outcrop by diverting storm water from the courthouse property away from outcrop face. This may be possible through the diversion of the courthouse's existing drainage pipe system from the face, and the installation of a low-profile surface drain system at the top of the outcrop which drains to the city sewer (as discussed and estimated under 6. *Structures, Furnishings, and Objects/a. Stone Retaining Walls/East Retaining Wall*). **Work Period:** 1 year.
 - Restoration:** Work with Dodge County, the City of Mantorville and the Dodge County Historical Society to preserve the current appearance of the limestone exposures, while working to divert as much storm water as possible from the outcrop face. **Work Period:** 1 year and ongoing.

3. Vegetation

- **Assessment:** There do not appear to have been any formal plantings associated with either retaining wall. The limestone outcrops above the walls are covered by opportunistic herbaceous vegetation, but generally appear to have been at least partially cleared within the previous six months. The result is a partially visible limestone rock face that complements the rustic character of the wall masonry. Creeping plants have begun to cover the steps and capstones of the walls in some places, which may lead to splitting of the limestone blocks and cause water retention against the masonry surface. There is a large elm tree approximately 25' south of the north end of the west wall, but its roots do not appear to be affecting the wall.
- **Recommendations:**
 - Stabilization:** Remove all vegetation covering the retaining wall, capstones, and steps. (Cost estimate listed under *Vegetation*.) **Work Period:** Immediately.
 - Preservation/Restoration:** Remove all vegetation covering the retaining wall, capstones, and steps. (Cost estimate listed under *Vegetation*.) Prevent the growth of trees and shrubbery and the overgrowth of low herbaceous vegetation on the limestone outcrops that obscures the rustic character of the hillside and may lead to increased erosion through splitting of the fractured bedrock face. Provide a visual correlate with the retaining walls by cutting back herbaceous ground cover on the outcrops to partially expose the limestone. Leave enough vegetation in place to soften the appearance of the outcrops. Establish schedule to periodically remove weeds and invasive vegetation from the walls and steps. **Work Period:** 1 year and ongoing.

4. Circulation

a. Roads

- Assessment: As it did in 1932, TH 57 runs north-south between the retaining walls. Vehicle traffic was moderate at the time of survey and not intrusive for this type of property.
- Recommendations:
Stabilization: None. Work Period: Not applicable.
Preservation: None. Work Period: Not applicable.
Restoration: None. Work Period: Not applicable.

b. Pedestrian Walks

- Assessment: Both walls are flanked by a concrete sidewalk, which post-dates the 1997 Gemini Research site evaluation. Pedestrians on the east side of TH 57 are moderately threatened by loose limestone and concrete debris on the slope of the limestone outcrop. (For recommendations regarding concrete and stone steps, see *Structures, Furnishings and Objects: Steps*.) Steps at the ends of each wall allow pedestrian movement from the sidewalk to the areas above the walls. (See *Structures* section for recommendations and costs regarding steps).
- Recommendations:
Stabilization: Remove loose limestone and concrete debris from the limestone outcrops on both sides of TH 57. Work Period: Immediately.
Preservation: Keep the limestone exposure free of loose rock and debris. Work Period: 1 year and ongoing.
Restoration: None. Work Period: Not applicable.

5. Water Features: Not applicable.

6. Structures, Furnishings, and Objects

a. Stone Retaining Walls

- Assessment: As discussed in *Topography* and *Spatial Organization*, there is loose limestone and concrete on the outcrops above both walls. Both walls have many deteriorated mortar joints due to age and the previous use of a relatively inflexible low-lime mortar, and both have encroaching vegetation on top.

West Retaining Wall: The wall is in good structural condition, although the limestone slab steps at the south end are slightly out-of-plumb and there is some deteriorated masonry. The pyramidal finial at southern pier is of likely original gray limestone construction.

East Retaining Wall: Overall structural condition is good, although there is leaning masonry at the north end near the concrete steps and subsiding masonry at the south end wall return. The landscaping at the south end of the wall has eroded and begun to expose the base course of masonry. There are several missing masonry units across the length of the wall. The structural integrity of approximately 200' of the wall's central section has been compromised by the infiltration of storm water from the Dodge County courthouse and the limestone outcrop, causing it to lean toward TH 57 by as much as 4". The pyramidal finial at southern pier, originally of gray limestone construction, has been replaced with a poured concrete example.

- Recommendations:

Stabilization:

West Retaining Wall: Remove loose limestone and concrete debris from the limestone outcrops above the wall. Remove the encroaching vegetation from the top of the wall (cost estimate listed under *Vegetation*). **Work Period:** 1 year.

East Retaining Wall: Remove loose and missing limestone and concrete debris from the limestone outcrops above the wall. Replace missing masonry units with those remaining on site, or provide matching replacements from a new source. Repair and repoint the leaning masonry at the north end of the wall with a Type N (750 PSI) mortar and match the original mortar color. Remove the encroaching vegetation from the top of the wall (cost estimate listed under *Vegetation*). Reroute the existing storm water drainage pipe from the courthouse to avoid saturating the soils behind the wall (possibly by connecting PVC pipe to the west courthouse drainpipe and routing it above-ground to city sewer) (cost estimates listed under *Retaining wall*). **Work Period:** 1 year.

Preservation:

West Retaining Wall: Replace all deteriorated masonry units (approximately 10) with locally quarried stone to match color and appearance. Where necessary, remove all deteriorating mortar to a depth of at least 2" and repoint joints (especially capstone joints) with Type N mortar¹ tinted to match original mortar. Rake joints to 1"-1.5" in depth and match original joint width. **Work Period:** 1 - 3 years.

East Retaining Wall: Install discreet weeps at the wall base. Replace all deteriorated masonry units (approximately 10) with locally quarried stone to match color and appearance. Where necessary, remove all deteriorating mortar to a depth of at least 2" and repoint joints (especially capstone joints) with Type N mortar tinted to match original mortar. Rake joints to 1"-1.5" in depth and match original joint width. Add clean soil at the south end of the wall to cover and protect the base course of masonry and lay sod (cost estimate listed under *Retaining Wall*). Reroute the courthouse storm drainage through the base of the wall to the city sewer system (cost estimates listed under *Retaining Wall*). **Work Period:** 1 - 3 years.

Restoration:

West Retaining Wall: Replace all deteriorated masonry units (approximately 10) with locally quarried stone to match color and appearance. Remove all deteriorating mortar to a depth of at least 2" and repoint with Type N mortar. Re-level the steps at the south end of the wall (cost estimate listed under *Steps-stone*).

East Retaining Wall: Install discreet weeps at the wall base. Replace all deteriorated masonry units (approximately 10) with locally quarried stone to match color and appearance. Remove all deteriorating mortar to

¹ Unlike the mortar originally used at the Mantorville Retaining Walls (which appears to be predominately sand and cement), Type N mortar has a higher lime content (1-1-6). Although the Type N mixture provides a lower compressive strength (~750 psi), it prevents damage to adjacent masonry units during freeze-thaw cycles and provides greater permeability for moisture escaping the masonry. The high solubility of the lime also provides a "self-healing" quality that can repair small cracks in the mortar joints (Robert C. Mack, FAIA, and John P. Speweik, *Repointing Mortar Joints in Historic Masonry Buildings*, National Park Service, Preservation Briefs No. 2, 1999).

a depth of at least 2" and repoint with Type N mortar to match original mortar color. Remove the existing concrete steps at the north end of the east wall and replace with limestone masonry slab steps, dressed to match those at the north end of the west wall (across TH 57)(cost estimates listed under *Steps: East Wall Restoration*). Structurally secure the leaning central portion of the wall by trenching behind the wall, replumbing the masonry, and installing anchors to the limestone bedrock. If dismantling and rebuilding a portion of the wall is required to replumb the structure, ensure that the masonry pattern and mortar joints match the original configuration. Add clean soil at the south end of the wall to cover and protect the base course of masonry and lay sod (cost estimate listed under *Retaining Wall*). Reroute the courthouse storm drainage through the base of the wall to the city sewer system. Backfill the trench with a rapid-draining granular matrix. Remove concrete pyramidal finial at southern pier and replace with gray example similar to the finial at the pier on the west retaining wall. **Work Period:** 3 - 5 years.

b. Stone Steps on West Wall (2 sets) and East Wall (1 set)

- **Assessment:**

West Retaining Wall: The dressed masonry steps at the north and south ends serve two of the properties owned by the Dodge County Historical Society. The north steps are in good condition, with a few surficial cracks. The south steps are in fair to poor condition: the top step has fractured in the center, there is general settling of the other steps, and eroded soil and herbaceous weeds on the edges of the steps.

East Retaining Wall: The original steps at the north end of the wall lead to the rear parking lot of the courthouse, and have been replaced by concrete. The adjacent section of stone wall is leaning slightly toward the street. An 8'-long formed concrete east extension of this wall retains the hillside on the south side of the steps and is leaning over the steps approximately 3" out of plumb.

- **Recommendations:**

Stabilization:

West Retaining Wall: Remove herbaceous weeds from the north steps. Remove eroded soil and herbaceous weeds from the south steps (cost estimates listed in *Vegetation*). **Work Period:** Immediately.

East Retaining Wall: None. **Work Period:** Not applicable.

Preservation: None. **Work Period:** Not applicable.

Restoration:

West Retaining Wall: Repair the broken top step of south steps, remove and reinstall other steps level. Work with the Dodge County Historical Society to maintain the limestone steps leading to their properties at the north and south ends of the wall. Conduct further research to determine the style of the original railings. If no information is available, install simple galvanized pipe railing (all cost estimates listed under *Steps: West Wall Restoration*). **Work Period:** 3 - 5 years.

East Retaining Wall: Remove leaning formed concrete retaining wall extension at north steps of east wall and install new concrete wall. Anchor new wall back to hillside and install rough-faced limestone veneer visually sympathetic to existing wall. Remove the existing concrete steps and replace with limestone masonry slab steps, dressed to match those at the north end of the west wall (across TH 57)(all cost estimates listed under *Steps: East Wall Restoration*).

c. Concrete Gutter

- Assessment: Field examination of the eastern retaining wall revealed the fragmented remains of a formed concrete gutter that may be contemporary with the wall. Its location suggests that it was not meant to be visible from the sidewalk. Designed to prevent storm water from the courthouse property from flowing down behind the retaining wall masonry, the gutter ran along nearly the entire length of the top edge of the limestone outcrop. This water was then presumably drained into the street at the south end of the east wall. Since this gutter no longer functions, storm water from the courthouse property is diverted through an underground pipe, exiting at a point several feet down the face of the limestone outcrop. The pipe and the general slope of the outcrop currently channel water into the soil behind the east wall.
- Recommendations:
Stabilization: Remove portions of the concrete gutter which are in danger of falling onto the sidewalk below (cost estimate listed under *Health and Safety Considerations*). Work Period: Immediately.
Preservation: None. Work Period: Not applicable.
Restoration: A strict restoration would recreate the original formed concrete gutter and install it at the top edge of the east limestone outcrop. Restoration of this original drainage system is not likely to be practical, since municipal code undoubtedly would not allow the unchanneled discharge of storm water at the south end of the wall. *Rerouting the water is discussed and estimated under Retaining wall.* Work Period: Not applicable.

d. Chain-link Fence

- Assessment: A chain-link fence runs along the top of the east limestone outcrop. It is not aesthetically compatible with the walls or the adjacent courthouse building.
- Recommendations:
Stabilization: None. Work Period: Not applicable.
Preservation: None. Work Period: Not applicable.
Restoration: Remove chain-link fence and replace with discreet and aesthetically compatible wood or metal fence. Ensure that the new fence does not significantly obstruct the view of the courthouse from the sidewalk level. Work Period: 3 - 5 years.

7. Accessibility Considerations:

- Assessment: The steps at the north ends of the east and west walls and the south end of the west wall do not meet ADA requirements for accessibility. However, alternate access is provided by parking lot entrances adjacent to the courthouse and the buildings owned by the Dodge County Historical Society.

- Recommendations:
Stabilization: None. Work Period: Not applicable.
Preservation: None. Work Period: Not applicable.
Restoration: None. Work Period: Not applicable.

8. Health and Safety Considerations

- Assessment: There are a large number of natural limestone fragments on the limestone outcrops above both walls which may threaten pedestrian traffic on the sidewalks flanking TH 57. In addition, the remains of a formed concrete gutter at the top of the east limestone outcrop may pose a hazard.
- Recommendations:
Stabilization: Remove loose limestone and concrete debris from the limestone outcrops on both sides of TH 57 (cost estimate listed under *Health and Safety Considerations*). Monitor the outcrops for loose rock and debris.
Work Period: Immediately and ongoing.
Preservation: None. Work Period: Not applicable.
Restoration: None. Work Period: Not applicable.

9. Environmental Considerations: Not applicable.

10. Other Considerations/Recommendations: None

11. Conclusion: The Mantorville Retaining Walls are in good to poor condition, and require immediate and ongoing maintenance to preserve their visual and functional relationship with their surroundings. Loose limestone and concrete debris should be removed immediately from the limestone outcrops above both walls to protect public safety. The existing courthouse property drainage system must be modified to prevent the further deterioration of the central portion of the east wall. Installation of limestone slab steps at the east wall's north steps would restore the historic character of the property, and the use of Type N mortar to completely repoint both structures will provide a more flexible and durable alternative to the existing portland cement-based mortar.

MANTORVILLE WALLS	Stabilization	Preservation	Restoration
Spatial Organization and Land Patterns			
Off-site impacts			
Functional relationships			
Visual relationships			
Cultural landscape limits (land acquisition)			
Topography			
Character-defining feature			
Non-contributing corrective work			
Vegetation (Remove judiciously from limestone exposure above both walls and steps)	5625	8125	8125
Circulation			
Access road and internal roadways			
Parking areas			
Pedestrian walks (remove loose limestone and concrete debris from outcrops)	1500		
Paths and trails (signage path)			
Water Features			
Structures, Furnishings and Objects			
Bath house			
Bench(es), other			
Bench(es), stone			
Bridge/culvert			
Cave			
Council ring			
Curb, stone			
Curb, concrete			
Dam			
Dock			
Drinking fountain(s)			
Entrance Wall			
Fireplace(s), other			
Fireplace(s), stone			
Flagpole(s), other			
Flagpole(s), stone			
Flagstone pad			
Footbridge			
Foundation of building			
Gravestone			
Guardrail, stone--Other			
Info board			
Info booth			
Marker			
Other feature (chain-link fence) (Remove existing and replace with aesthetically compatible fence)			25000
Overlook wall			
Picnic shelter(s)			
Picnic table(s), other			
Picnic table(s), stone			
Privies			
Refuse container(s), stone			
Restroom building			
Retaining walls (West wall: Stabilization: Remove loose stones and debris \$3750; Preservation: Replace deteriorated masonry units \$6250, remove deteriorating mortar as needed and replace masonry \$12500; Restoration: replace deteriorated masonry units \$6250, remove all deteriorating mortar and replace \$84000) (East wall: Stabilization: Remove loose stones and debris & replace missing \$6250, repair/repoint leaning north end \$6250, reroute courthouse drainage pipe through wall \$7500; Preservation: Add weepholes \$8750, replace deteriorated masonry units \$6250, remove deteriorating mortar as needed and replace \$12500, add clean soil and lay sod \$1250, reroute courthouse drainage pipe through wall \$7500; Restoration: Add weepholes \$8750, replace deteriorated masonry units \$6250, remove all deteriorating mortar and replace \$84000, reroute courthouse drainage pipe through wall \$7500, structurally secure leaning central portion -by trenching, installing anchors, rebuilding, adding granular backfill and soil, laying new sod \$294000, remove concrete finial and replace with limestone example similar to finial on west wall \$5000)	23750	55000	495750
Rock garden			
Sea wall			
Sidewalk			
Signpost, other			
Signpost, stone			
Spring water outlet			
Statue			
Steps - stone (West Wall: Stabilization: Remove invasive vegetation from north steps (seeVegetation above); Restoration: Minor crack fill at north steps \$1875, Level south steps \$9375 and replace broken top step \$950, add railing \$950) (East Wall: Restoration: Demo concrete NE steps and rebuild stone \$11250, remove formed concrete retaining wall and install new anchored concrete wall with sympathetic limestone veneer \$12500)			36900
Storage building			
Trail steps			
Wall			
Well/pump			
Accessibility Considerations			
Health and Safety Considerations (Demolish and dispose of concrete gutter)	3750	3750	
Environmental Considerations			
Other Considerations (Interp. & highway signage)			
ESTIMATED COSTS	34625	66875	565775

**Appendix A
Plates
Mantorville Retaining Walls**

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Plate 1. East retaining wall and Dodge County courthouse, facing northeast



Plate 2. West retaining wall and adjacent historic properties, facing northwest



Plate 3. East retaining wall, showing typical orientation to limestone exposure, facing southeast



Plate 4. East retaining wall, drainage pipe from Dodge County courthouse downspouts, facing north



Plate 5. East retaining wall, deteriorated concrete gutter system, facing north

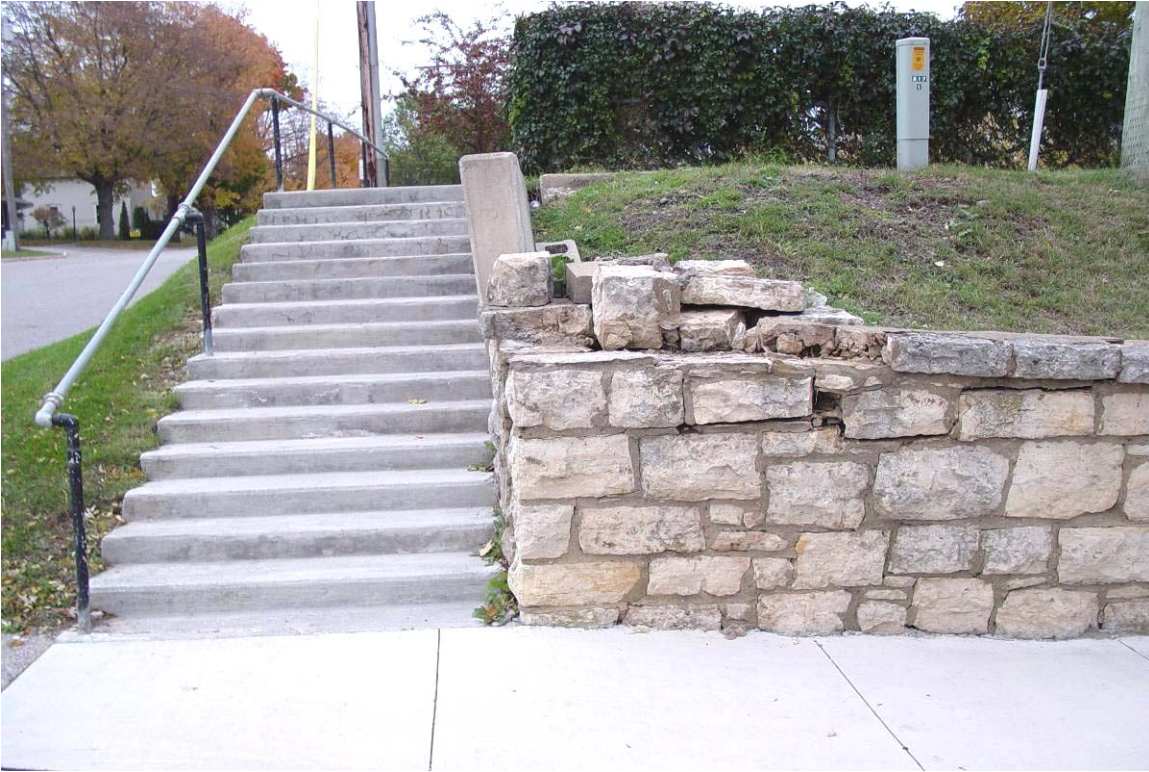


Plate 6. Northeast concrete steps, with leaning stone and concrete retaining walls, facing east



Plate 7. North end of east retaining wall, damaged stone, facing southeast



Plate 8. East retaining wall, south end, facing east



Plate 9. East retaining wall, south end, facing north



Plate 10. East retaining wall, south end juncture with adjacent retaining walls, facing northeast



Plate 11. West retaining wall, north stone steps, facing southwest



Plate 12. West retaining wall, north steps, facing south



Plate 13. West retaining wall, south end, facing west



Plate 14. Masonry steps adjacent to west retaining wall, south end, facing north

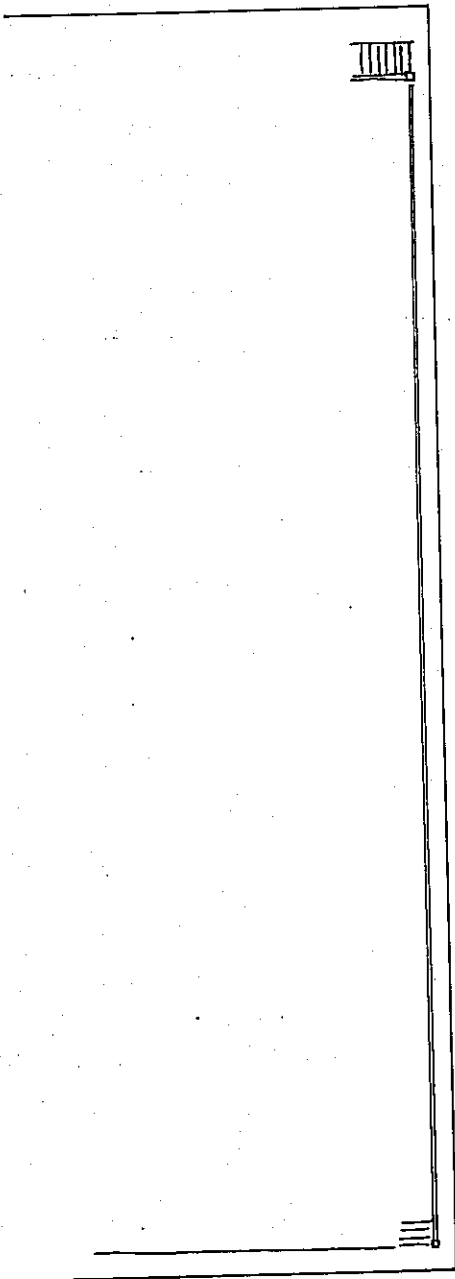


Plate 15. Masonry steps adjacent to west retaining wall, south end, facing west

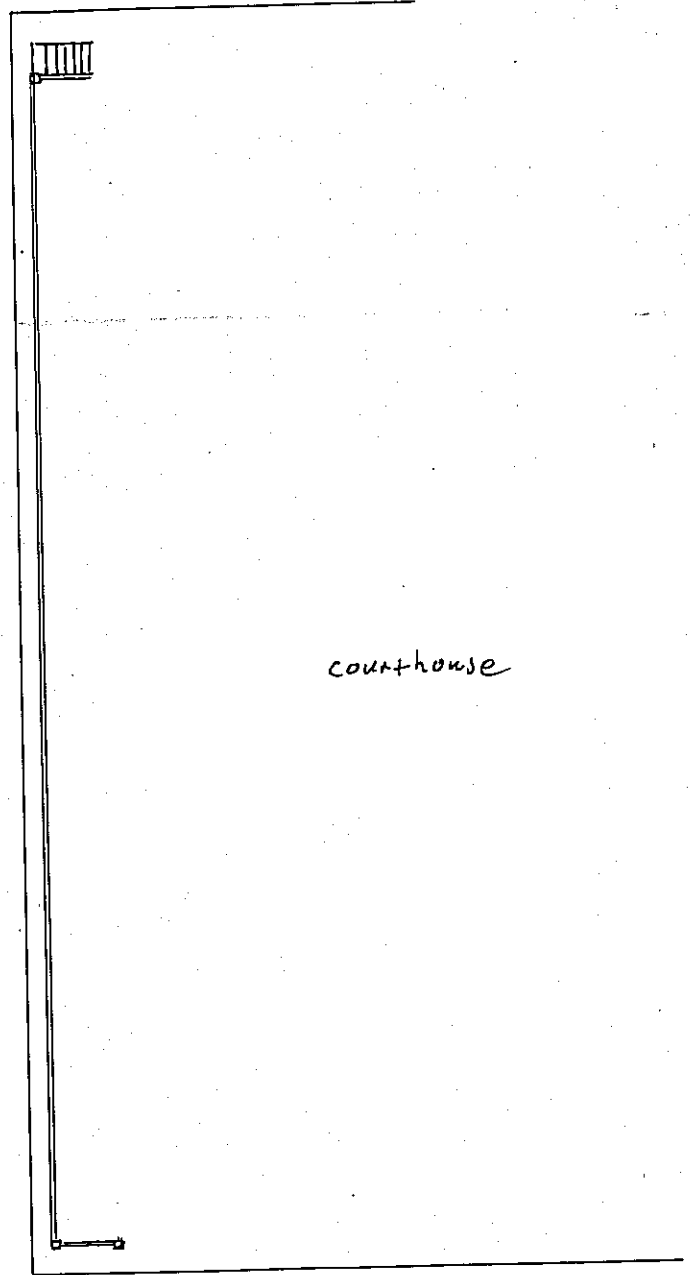
**Appendix B
Site Plan
Mantorville Retaining Walls**



6th St.



Main St.



courthouse

7th St.

Not to scale

Appendix C
HDR Condition Assessment Notes
Mantorville Retaining Walls

HDR Computation

HDR

Project	MNDot Historic Roadside Structures	Computed	SWJ	Date	1/02/03
Subject	Mantorville Walls	Checked		Date	
Task	Prelim. cost est.	Sheet	1	Of	1

Non Contributing Corrective WorkPedestrian Steps

	NE	Demo. conc./bld. stone	\$250/s.F.	6000
Preserv.	NW	Minor 'crack fill'	\$250/s.F.	6000 5000
	SW	Level Rebuild	\$200/s.F.	5000 2000
	SW	Rebuild	\$200/s.F.	5000

Gutter Above

Remove	Demo. conc.	\$50/C.Y. x 20	\$1000
	Dispose "	\$50/C.Y. x 20	\$1000

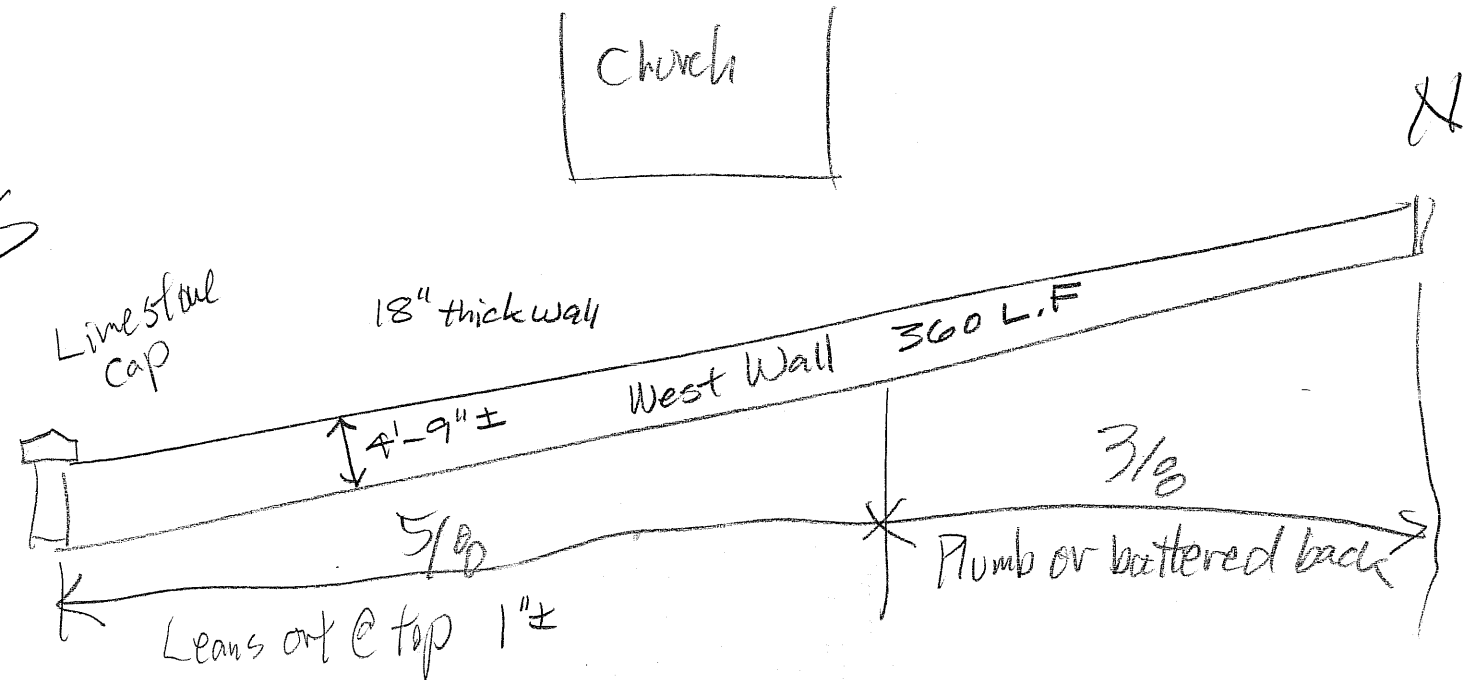
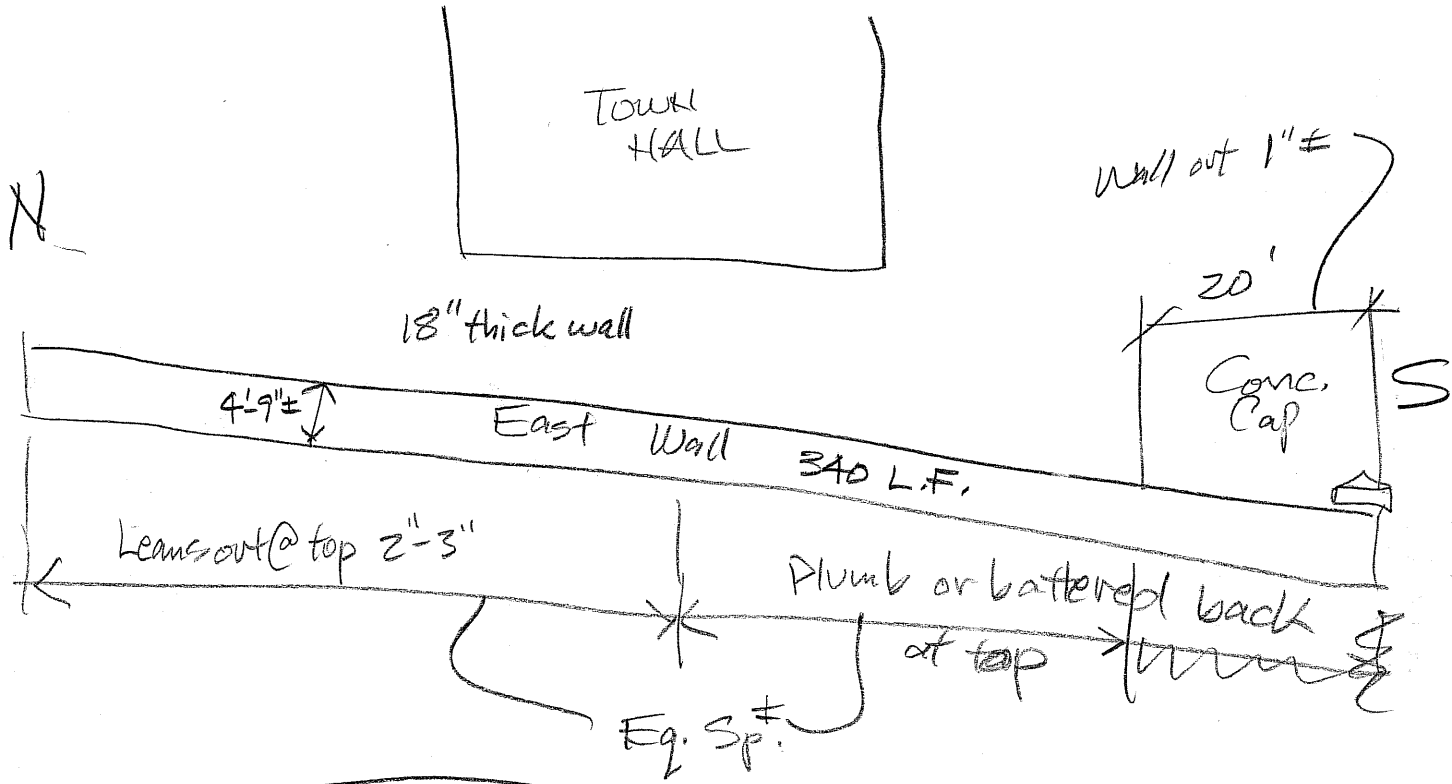
Retaining Walls

Remove conc. & other rubble	L.S.	2000	\$1000
Replace dislodged stones @ upper steps	L.S.	2000	\$1000
Pipe Courthouse roof drainage through wall base & sidewalk to street	L.S.	6000	\$3000
Repaint		\$20/s.F. x 3325 S.F.	\$67,000
Regrade @ SE	L.S.		\$1000
Rebuild parts		\$100/s.F. x 200' x 4.75'	\$130,000
Dig out behind, fill w/ granular		\$170/C.Y. x 400 C.Y.	\$68,000
Weep holes		\$100 ea x 70	\$7,000
Anchor back		\$500 x 70	\$35,000
Rebuild NE corner		\$100/s.F. x 50	\$5000

HDR Computation

HDR

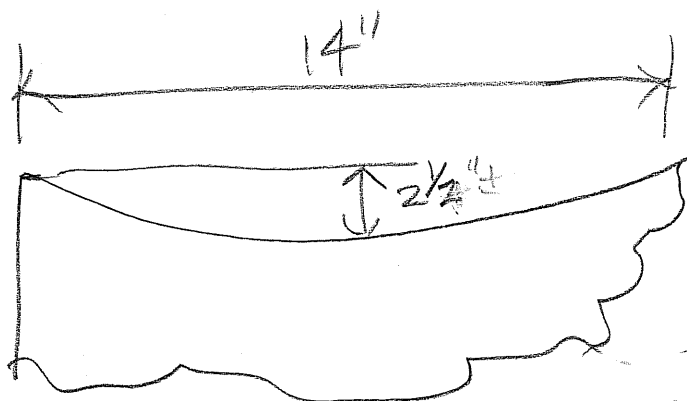
Project	Mantoville Retaining Walls	Computed	SAW	Date	10/7/02
Subject		Checked		Date	
Task		Sheet	1	Of	2



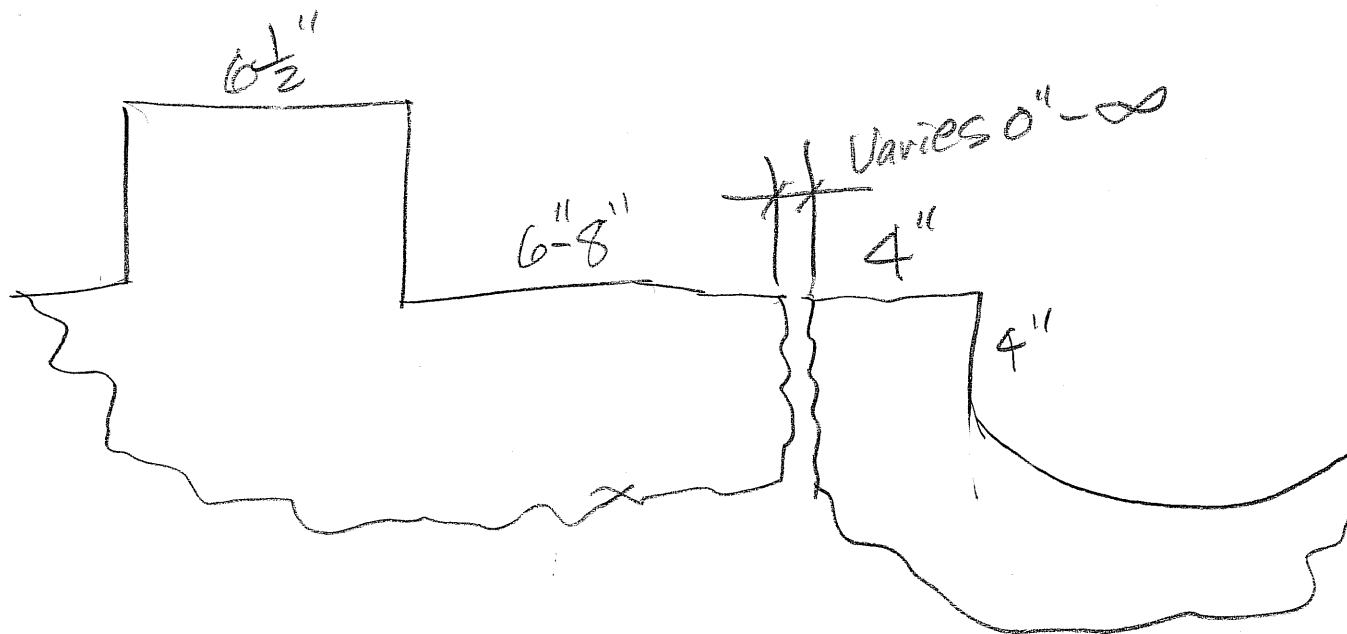
HDR Computation

HDR

Project	Mantorville Retaining Walls	Computed	SWJ	Date	10/2/02
Subject		Checked		Date	
Task		Sheet	2	Of	2



Gutter Dth @ Mantorville



SECTION OF CONCRETE GUTTER

SITE BOUNDARIES

■ BOUNDARY OF PROPERTY

The site boundary of the Mantorville Retaining Walls is shown by the dashed line on the accompanying sheets entitled "Mantorville Retaining Walls Site Boundaries." The base maps for these sheets are a Minnesota Department of Transportation (Mn/DOT) Right-of-way Map and a Mn/DOT aerial photo.

The eastern and western boundary lines are drawn 42' east and 42' west of the T.H. 57 centerline. The northern and southern boundary lines are aligned with the northern and southern curblines of the blocks on which the walls stand.

The Mn/DOT right-of-way lines are located 35' west and 35' east of the T.H. 57 centerline. Most, but not all, of the land encompassed by the Mantorville Retaining Walls site boundary is on Mn/DOT right-of-way.

The walls are located within Mantorville Historic District, an historic district that is listed on the National Register of Historic Places. (The walls are located at the northern edge of the historic district, as shown.) The Dodge County Courthouse, which stands immediately east of the walls, is also in the historic district.

Boundary Justification

The boundary lines were drawn to encompass the stone walls and an accompanying drainage system that runs along the eastern edge of the eastern wall.

■ MN/DOT HISTORIC SITE CONSERVATION ZONE

The Mn/DOT Historic Site Conservation Zone is recommended to provide a special management zone that includes both the historic property and often a larger area that encompasses part of the historic property's early physical and visual "context" or setting.

Preserving the property's physical and visual setting will help protect its historic integrity and enhance the public's understanding of, and appreciation for, the historic site design.

It is recommended that the Conservation Zone boundary for the Mantorville Retaining Walls be identical to the site boundary, described above.

It is recommended that Mn/DOT retain all current right-of-way within the Conservation Zone. It is further recommended that Mn/DOT preserve the Conservation Zone by taking such actions as special right-of-way planting and maintenance, acquiring additional property or scenic easements, and/or creating partnership agreements with individuals or groups interested in preserving the historic property and its setting. The Mn/DOT Cultural Resources Unit should be consulted regarding these activities.

In particular it is recommended that Mn/DOT work with the City of Mantorville, Dodge County, and the State Historic Preservation Office (SHPO) to help ensure the preservation of the Mantorville Retaining Walls and their setting.

■ **MORE INFORMATION**

For detailed information on the Mantorville Retaining Walls's structures, landscape, and significance, refer to:

Mn/DOT Historic Roadside Development Structures Inventory form for Mantorville Retaining Walls (Gemini Research, Dec. 1998).

Preservation and Restoration Report for Mantorville Retaining Walls (HDR Inc., March 2003).

Comments on HDR Preservation and Restoration Report (Gemini Research, Jan. 28, 2003, and April 8, 2003).

Prepared by Gemini Research May 1, 2004.

Mantorville Retaining Walls Site Boundaries

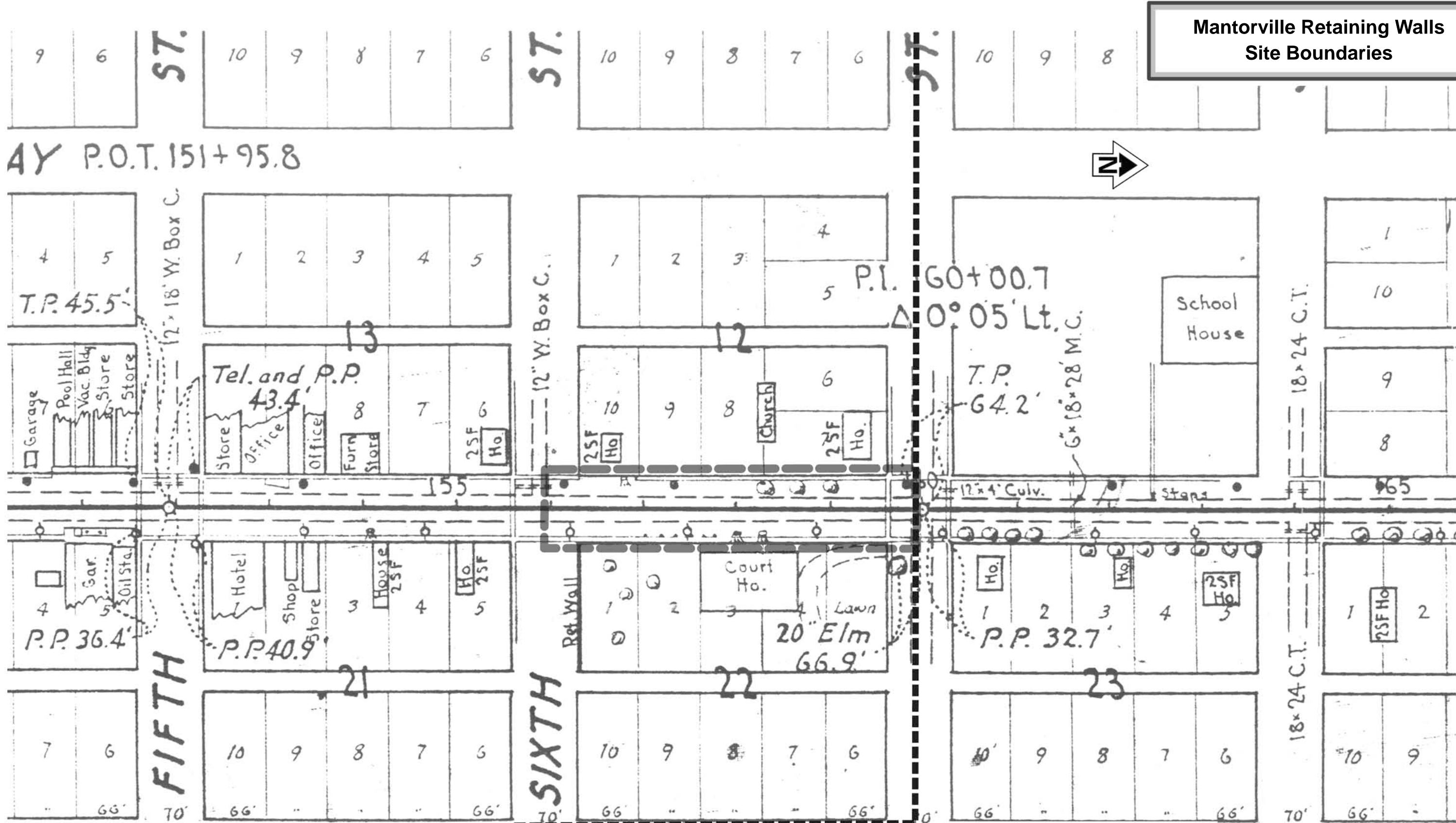


- Site Boundary
Historic site conservation zone is the same as the site boundary
- Northern boundary of NR-listed property:
Mantorville Historic District

0 100'
Scale 1" = 100'

Photo taken Spring 1998

Mantorville Retaining Walls Site Boundaries



- Site Boundary
- Historic site conservation zone is the same as the site boundary
- Northern boundary of NR-listed property: Mantorville Historic District

