

Meeting Date: 09/15/2015

By: Bruce Westby, Engineering/Public
Works

Title:

Consideration of Request to Reconstruct Stormwater Treatment Improvements at Sunfish Lake

Purpose/Background:

Purpose:

The property owner at 14520 Sunfish Lake Drive NW is requesting that the City reconstruct specific stormwater treatment improvements impacting a portion of their back yard. The requested work includes constructing a settling basin at the end of the storm sewer outlet from Sunwood Drive where it intersects 145th Lane NW for the purpose of reducing the frequency and volume of stormwater runoff running through the existing drainage swale along their rear lot line, and removing the existing cattails and other types of vegetation commonly found in wetlands from the swale and restoring the swale to a lawn type condition using sod, though seeding could be acceptable if done correctly. Attached *Figure 1* shows 2014 aerial photography of the property and the surrounding area including parcel lines, property addresses, and street names, and identifies the locations of the swale and various storm sewer outlets in relation to the property. Attached *Figure 2* shows the concept design for the requested improvements.

Background:

The property owner at 14520 Sunfish Lake Drive NW has contacted the City on numerous occasions since the mid-2000's regarding a drainage swale located within a 20-foot wide drainage and utility easement that runs across the back edge of his lot. The lot backs up to Sunfish Lake. The lake border adjacent to the property is predominantly cattails, and the edge of open water is approximately 100 yards northwest of the property.

This property is located in the Sunfish Lake Estates subdivision which was platted in 1996. The plat dedicated the 20-foot drainage and utility easement parallel to the rear lot line to accommodate a drainage swale that connects the storm sewer outlet from Sunwood Drive to an outlet control structure located near the southwest corner of the lot. Attached is a certificate of survey that shows the lot boundaries and locations of the rear lot drainage easement and berm along the back side of the swale.

The drainage swale and outlet control structure are not shown on the final Grading and Utility plans filed for the plat. The structure and the swale are shown on the plans the City prepared for the extension of Sunwood Drive. A copy of this plan is attached.

City files show that the City constructed Sunwood Drive around the time the plat was filed. This provided access to the site. An EAW was required prior to construction of Sunwood Drive. The Minnesota Department of Natural Resources (DNR) provided a response letter noting that the stormwater from the roadway should not be discharged directly to the wetlands adjacent to the roadway. A copy of this letter is attached with this text highlighted in yellow. The as-built plans for Sunwood Drive show that the storm sewer is directed to the swale on the back side of the lot. This swale provides treatment for the stormwater runoff from Sunwood Drive prior to discharging the runoff into Sunfish Lake via the outlet control structure.

According to the property owner, they were able to mow the swale and outer berm for the first several years after moving in around 1999, and standing water first appeared in the swale in the mid to late-2000's with the frequency of standing water increasing over time. The property owner contacted the City about the standing water in the late-2000's, after which Staff visited the site and informed the property owner that the swale was designed for this purpose, and that the drainage and utility easement was sized to accommodate the water.

The property owner contacted the City again in 2014 again noting his concerns that water was constantly standing in the swale, making it difficult to maintain the swale and rendering that part of his yard unusable. Staff met the resident on site and verified that the swale and standing water was being contained within the drainage and utility easement, and that the storm sewer system was functioning properly and was not plugged.

Staff met with the resident again in May of 2015, at which time Staff was asked if the swale could be redirected or removed. The property owner also inquired whether the volume of stormwater runoff being directed through the swale on his lot might have increased due to the new development across the street (Village of Sunfish Lake Subdivision). Staff researched the drainage plans for Village of Sunfish Lake and found that the two stormwater ponds for the Village of Sunfish Lake were constructed as land-locked basins and were sized to contain back to back 100 year storms. One of the ponds is located south of Sunwood Drive and east of 145th Lane, and the second pond is located in the southwest quadrant of Sunwood Drive and Radium Street. Stormwater from the Village of Sunfish Lake will therefore only reach the swale in extreme conditions.

Staff also contacted Anoka County per your property owner's request so see if they might have increased stormwater runoff into Sunfish Lake over the last decade or so due to road construction or maintenance projects along Sunfish Lake Boulevard/CR 57. The County has no records of any such projects that would have resulted in a significant quantity of groundwater or surface water being directed into Sunfish Lake for extended periods of time that may have resulted in increased lake levels.

The Minnesota Department of Natural Resources (DNR) maintains a database of lake levels, including Sunfish Lake. The records cover the period from 1985 to 2015, a span of 30 years. The Ordinary High Water level (OHW) determined by the DNR is 861.5. The record shows that from 1985 – 1988 the water level was up to 1.5 feet above the OHW. The water level dropped to 857.2 in 1989 before rebounding to 861.6 in 1991. The lake level dropped below 860 from 1994 to 2005, reaching a low of 856.7 in 2000. The lake level has generally been above 860 since 2011. The outlet structure for the swale is an inverted siphon, the inlet and outlet pipes are lower than the invert of the manhole connecting the pipes. The outside pipe ends are at 860.0 while the common connection between the pipes is at 861.3. Water must therefore build up to 861.3 in the swale before it is discharged into Sunfish Lake through the outlet control structure. Staff also obtained rainfall records for the same time period. The lake elevation generally corresponds with the annual rainfall totals, with the lake level rising when precipitation is above the 30 year average for several years in a row.

Staff then investigated whether a structural water quality treatment structure could be used in place of the swale. These devices function by circulating the stormwater inside a large diameter manhole. There are baffles inside which direct the stormwater around the edge of the device. The soil particles settle out of the water as it flows around the structure. The rate at which particles settle out is related to the distance the water travels and speed at which the water is flowing. The devices are designed to treat a certain quantity of flow. If the inflow exceeds the designed flow then water flows over a weir and passes out of the structure without treatment (bypass flow). The storm sewer outlet from the street is at elevation 859.6, two (2) feet below the OHW. Staff contacted a supplier of these devices and asked if the device would function properly when the outlet is submerged. The supplier said the device would function in bypass mode and would not provide any treatment. Staff also contacted the St. Anthony Falls Laboratory and asked staff there if there had been research on the effectiveness of structural stormwater treatment devices when the outlet is submerged. They have not done a research project like this; however, they generally agreed with the manufacturer's representative that the device would function in bypass mode when the outlet is submerged. Bypass mode does not provide any treatment of the storm water passing through the device so this would not be a viable option.

City staff also discussed the option of converting the swale to a raingarden feature to enhance aesthetics but the property owner was not interested in this option as it would not result in more useable space in their back yard.

The only option that the property owner is therefore interested in pursuing is to construct a settling basin at the storm sewer outlet north of Sunwood Drive to treat the roadway runoff before it is discharged into the wetland.

Timeframe:

Approximately 20 minutes for presentation and discussion.

Observations/Alternatives:

Staff believes that the water observed in the bottom of the trench in recent years is most likely not from storm water runoff but rather groundwater rising in conjunction with the lake level rising.

Permits from both the DNR and the Lower Rum River Watershed Management Organization would be required to complete the requested improvements as the settling basin and overflow would be located within wetland 114P (see attached *Figure 3*) which requires a WMO permit, and the work would be occurring below the Ordinary High Water Level which requires a permit from the DNR. In addition, wetland mitigation credits would need to be purchased at a 2:1 ratio to replace the impacted wetland due to construction of the settling basin.

Staff estimates that construction of the proposed settling basin and restoration of the swale would cost between \$15,000 to \$45,000, depending on the volume of stormwater to be treated, required dewatering, the cost of wetland mitigation credits, and the method of turf restoration to be used for the swale.

At this time, the property owner is not requesting to fill the swale or vacate the easement so these costs have not been considered.

Funding Source:

Funding for the City’s share of any ordered improvements would be taken from the Stormwater Fund.

Recommendation:

Staff recommends that the property owner be required to pay for the requested work since it benefits the use of his property. However, the City could consider contributing an amount commensurate with the estimated long-term savings associated with maintaining a settling basin next to a public street versus maintaining a linear drainage swale along the rear of the private property. Based on a 50 year maintenance schedule this cost would be approximately \$500 assuming the City would dredge and restore the turf in the swale twice, once every 25 years.

Action:

Staff is requesting Committee direction on whether this request should be considered for approval, and if so, whether the City should contribute anything towards the project. If the Committee is in agreement with the request, Staff would request that the Committee provide a formal recommendation for the City Council since this item would require Council approval as it is not a budgeted work task.

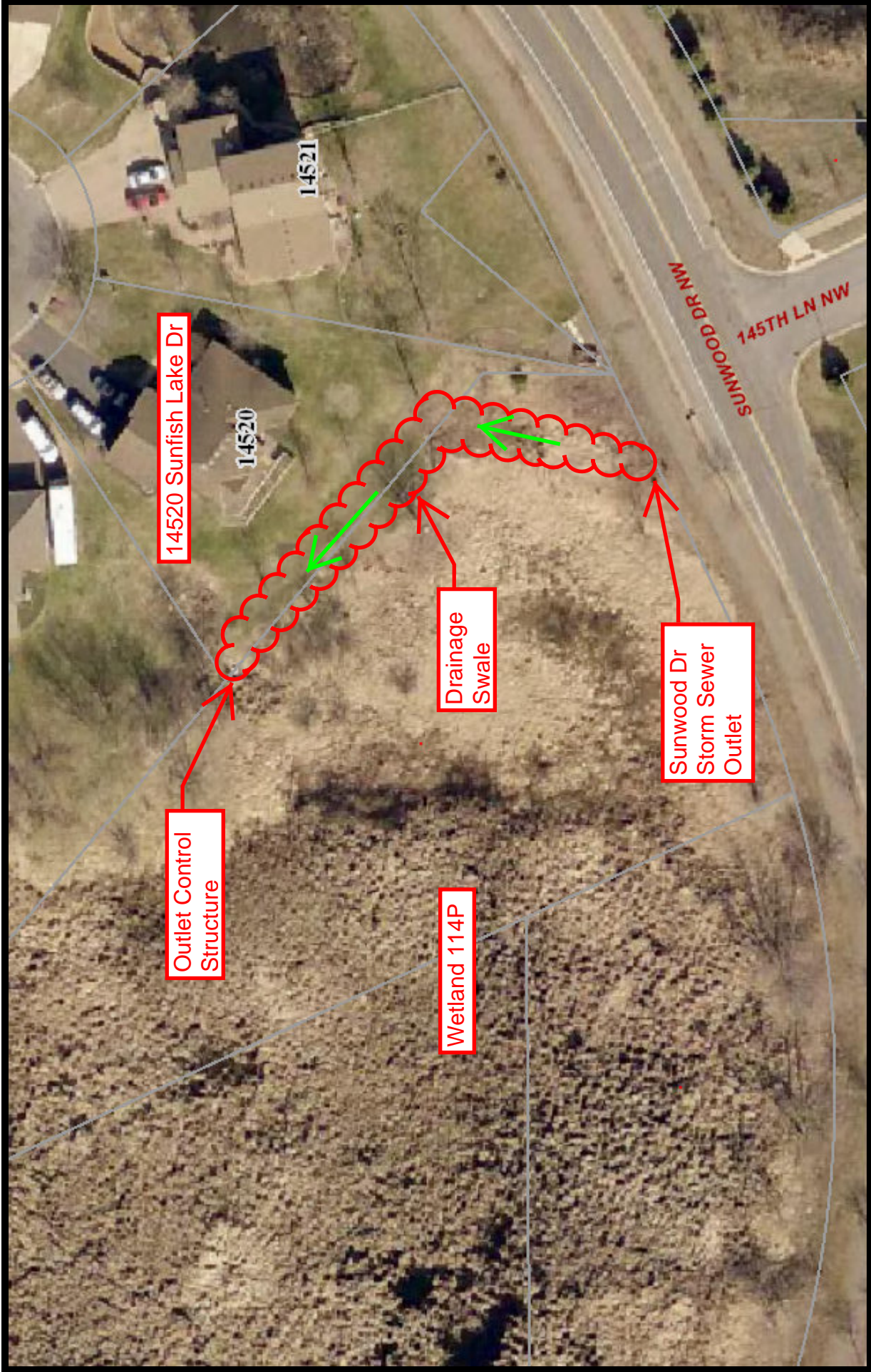
Attachments

- [Figure 1](#)
- [Figure 2](#)
- [Sunwood Dr Plan](#)
- [DNR EAW Rvw Ltr](#)
- [Certificate of Survey](#)
- [Figure 3](#)

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	09/10/2015 12:51 PM
Kurt Ulrich	Kathy Schmitz	09/10/2015 04:12 PM
Kurt Ulrich	Kurt Ulrich	09/10/2015 04:28 PM
Form Started By: Bruce Westby		Started On: 09/09/2015 09:39 AM
Final Approval Date: 09/10/2015		

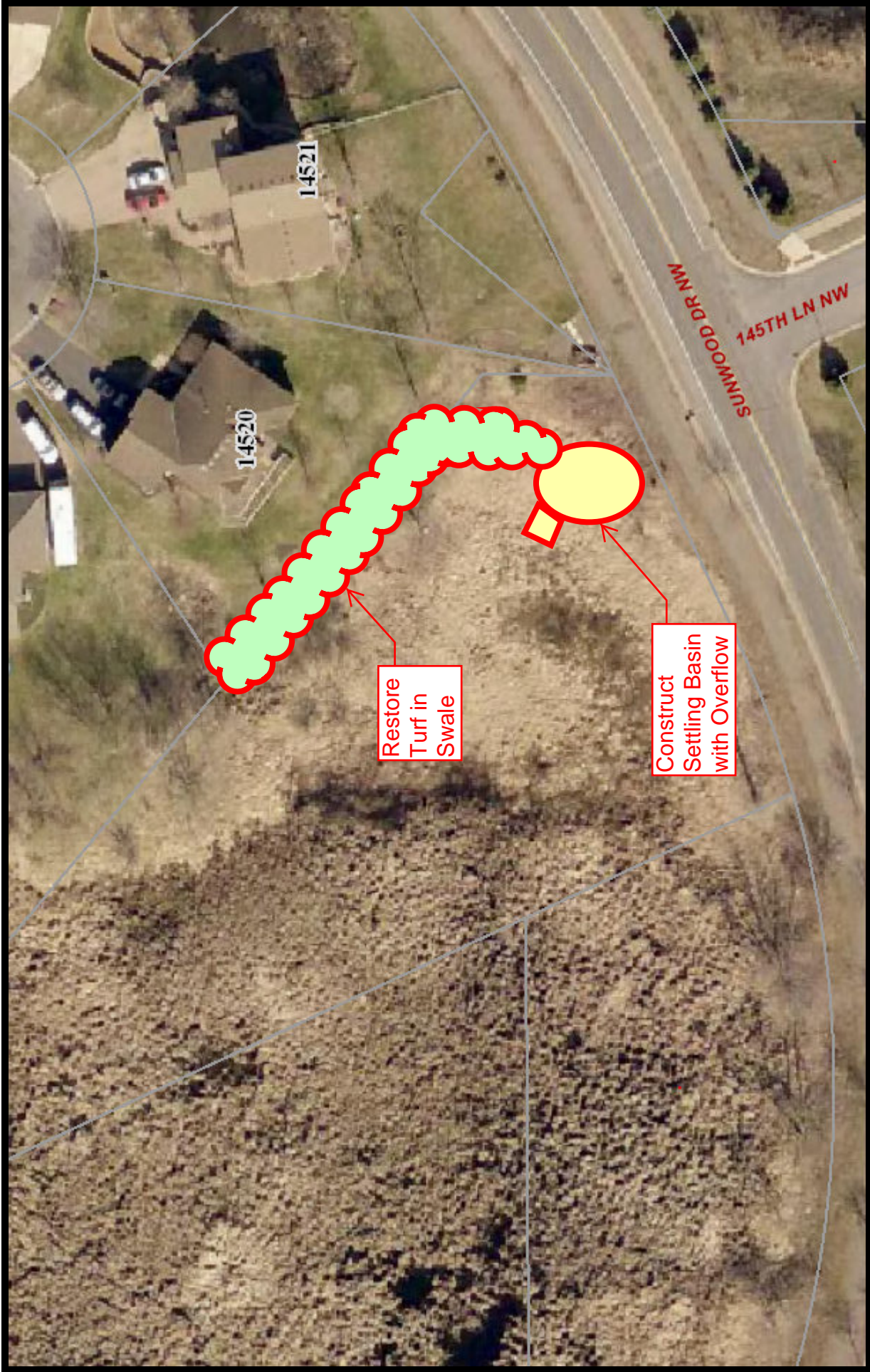
FIGURE 1

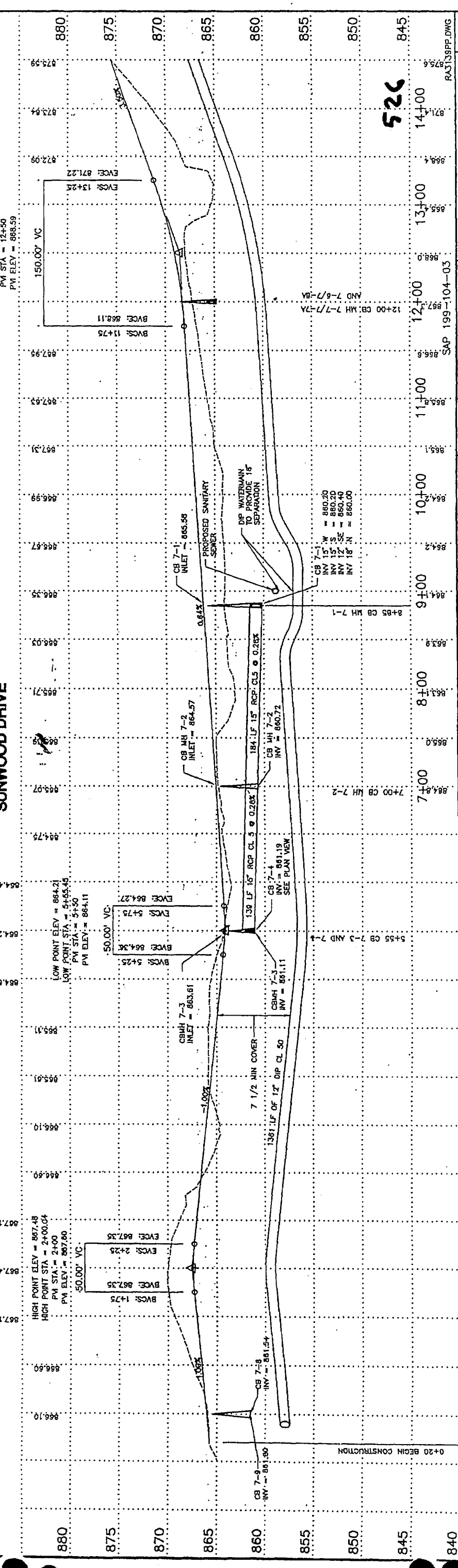
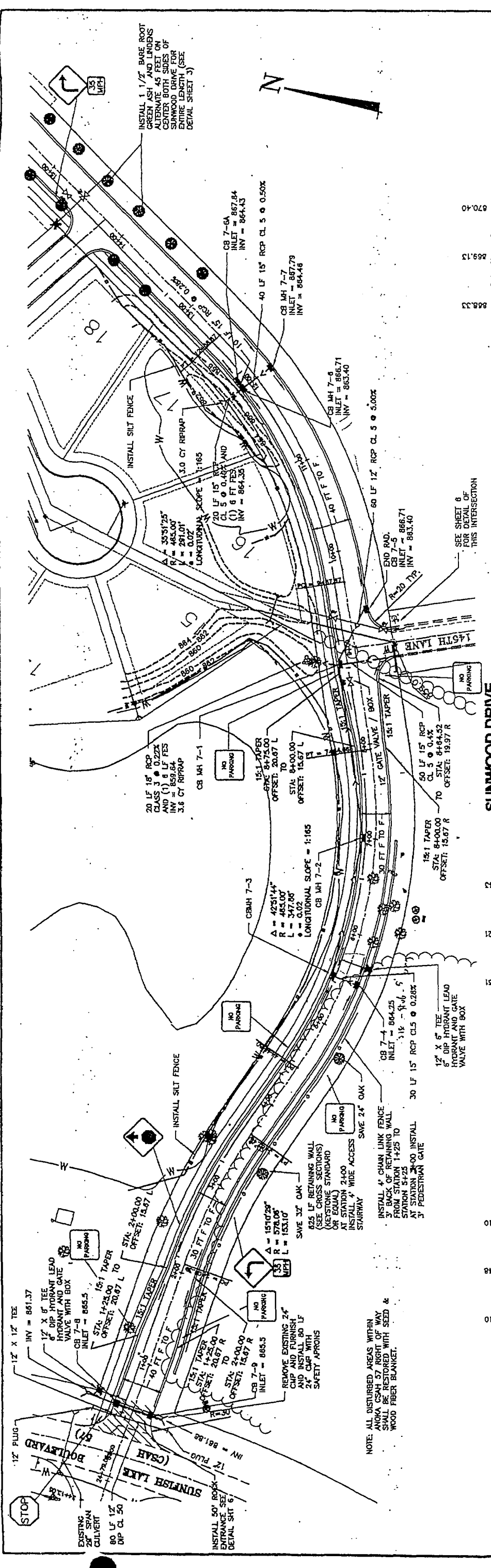


Print Date: September 1, 2015



FIGURE 2





DATE	REVISION	ADDED NOTES, MOVE H/O	DESIGNER	SCALE	SHEET
7/19/88				1" = 30'	7
				1" = 5'	19

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer under the laws of the State of Minnesota.

Date: 7/22/88 Rev. No. 15/88

Hakanson Anderson Assoc., Inc.
 Engineers, Surveyors & Landscape Architects
 222 Moore Street, Andover, Minnesota 55003
 512-471-1840 FAX 512-471-1401

STREET AND WATERMAIN
 SUNWOOD DRIVE
 RAMSEY, MN
 IMPROVEMENT PROJECT 94-16
 FOR THE
 CITY OF RAMSEY, MN

DATE 02/08/96 FILE NO. RA3139PP.DWG

0+20 BEGIN CONSTRUCTION

880 875 870 865 860 855 850 845 840

880 875 870 865 860 855 850 845 840



STATE OF MINNESOTA DEPARTMENT OF NATURAL RESOURCES

500 LAFAYETTE ROAD • ST. PAUL, MINNESOTA • 55155-40

RECEIVED MAY 31 1994

DNR INFORMATION (612) 296-6157 May 23, 1994

10

Steve FOR your files R

Ryan Schroeder Ramsey City Administrator 15153 Nowthen Boulevard Ramsey, MN 55303

RE: Sunwood Drive NW between Krypton Street & County Road 116 Environmental Assessment Worksheet (EAW)

Dear Mr. Schroeder:

The Department of Natural Resources (DNR) has reviewed the EAW for the above-mentioned project. We offer the following comments for your consideration.

We appreciate efforts taken by the City to coordinate with DNR personnel the project's design and potential alignment during the planning process. We are concerned that the project will lead to unnecessary impacts to DNR protected water resources, particularly protected waters 2-673W and 2-114P. The EAW correctly indicates that a DNR protected waters permit is required for the project as proposed. The associated permit process requires demonstration of both public need and that no other practical alternatives to protected waters impacts exist. Although safety, cost, and future development potentials are important components of the roadway planning process, only alignment designs which most limit protected waters impacts would likely be permitted.

The alternatives analysis provided in the EAW minimally considers the environmental costs associated with the various alignments and provides little detail regarding potential mitigation of wetland impacts. The preferred alignments, (1A & 2B), will result in the disruption and partial loss of two protected wetlands. Although the EAW indicates that the proposed roadway will fill approximately 0.8 acres of Type III wetland, uncertainty exists because a formal wetland delineation was not completed at the time of EAW preparation. It is very likely that this 0.8 acre estimate is low. Furthermore, regardless of the amount, the EAW should detail proposed mitigation for all expected project-related wetland impacts.

We also note that the preferred alignment results in the permanent conversion of 11.1 acres of wildlife habitat rather than the 6.3 acres indicated in the EAW.

When reviewing other alignment options, use of roadway alignments 1B & 2C would require less wetland fill. This approach avoids one wetland crossing, requires less clearing and grubbing of wooded areas, and provides a good alignment along with the shortest driving distance. The EAW indicates that the disadvantages of this approach consist of more excavation, a more curved and slower route, the purchase and relocation of one residence, and a short sight-distance at one road crossing. The environmental costs of this approach are less than those associated with the preferred alignment.

Other environmentally sound approaches could significantly reduce wetland impacts by either routing the roadway north of Sunfish Lake or by bridging wetlands along the routes already considered.

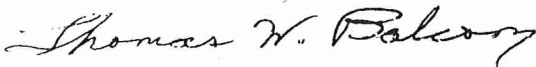
It is uncertain from the information provided whether stormwater runoff will be directly discharged into wetlands from the roadways or street storm sewers. The DNR does not support placement of untreated stormwater runoff into wetlands. Although sedimentation basins and skimmers are mentioned as pretreatment measures, Figures 15 & 16 do not show detention basin placement. These measures require further clarification to better assess proposed protection measures for wetlands.

We appreciate recognition in Item 11b that the Blanding's Turtle, *Emydoidea blandingii*, a state-listed threatened species, is known to frequent the general project area. It does not appear that the DNR Natural Heritage Program was contacted to accurately answer this question. This is an important contact and assists with planning efforts. A search of the Heritage database within a one-mile radius of the proposed project produced a 1989 record for one Blanding's Turtle next to a small pond bordering Sunfish Lake (see attachment). The EAW does not indicate if suitable habitat for the Blanding's Turtle exists in the project area, and if it does, what efforts to avoid impacts to this species are offered. It is possible that such a determination could be made as a component of the needed wetland delineation yet to be done. Please contact Jan Shaw Wolff of the Heritage Program at (612) 296-8279 for further information in this regard.

As previously mentioned, efforts to incorporate DNR staff input into the project design process is appreciated. We request that this consultation continue. The DNR recognizes the City of Ramsey's desire to provide a transportation network designed to meet the current and future needs of its citizenry. However, environmental costs, specifically those involving wetlands, require incorporation into the planning process as well. This issue in particular will be examined further as a component of any required DNR permit associated with this development.

Thank you for the opportunity to review this document. We look forward to receiving your record of decision and responses to comments. Minnesota Rules part 4410.1700, subparts 4 & 5, requires you to send us your Record of Decision within five days of deciding this action. Please contact Don Buckhout of my staff, at (612) 296-8212, if you have questions regarding this letter.

Sincerely,



Thomas W. Balcom, Supervisor
Natural Resources Environmental Review Section
Office of Planning

:attachment

c: Kathleen Wallace
Steve Colvin
Pete Otterson
Jan Shaw Wolff
Lynn M. Lewis, USFWS
Gregg Downing, EQB

Established in 1982
LOT SURVEYS COMPANY, INC.
 LAND SURVEYORS

REGISTERED UNDER THE LAWS OF STATE OF MINNESOTA
 7601 73rd Avenue North

612-560-3093
 Fax No. 560-3522

Minneapolis, Minnesota 55428

Surveyors Certificate

INVOICE NO. 51870
 F.B.NO. Calc. Sheet
 SCALE: 1" = 30'

- Denotes Iron Monument
- Denotes Wood Hub Set for excavation only
- x000.0 Denotes Existing Elevation
- 000.0 Denotes Proposed Elevation
- Denotes Surface Drainage

NOTE: Proposed grades are subject to results of soil tests.
 Proposed building information must be checked with approved building plan and development or grading plan before excavation and construction.

873.5 Proposed Top of Block
873.0 Proposed Garage Floor
865.5 Proposed Lowest Floor

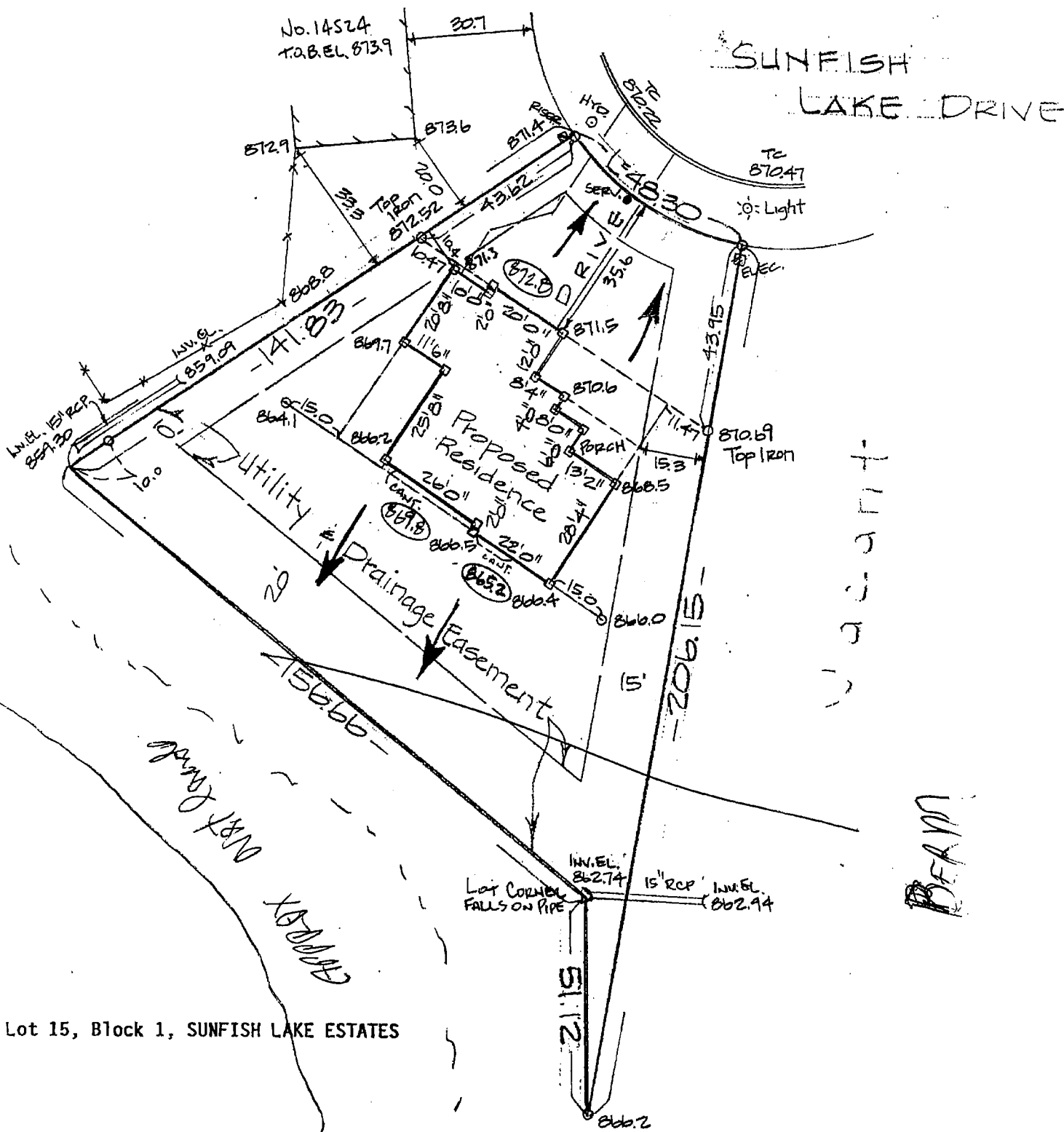
Type of Building

4 LEVEL

3RD LEV. WALKOUT
 4TH LEV. WALKOUT

TRILOGY HOMES

Property Located in Section
 26, Township 32, Range 25,
 Anoka County, Minnesota



Lot 15, Block 1, SUNFISH LAKE ESTATES

The only easements shown are from plats of record or information provided by client.

We hereby certify that this is a true and correct representation of a survey of the boundaries of the above described land and the location of all buildings and visible encroachments, if any, from or on said land.

Surveyed by us this 19th day of January 19 99

Signed

Charles F. Anderson

Charles F. Anderson, Minn. Reg. No. 21753

FIGURE 3

