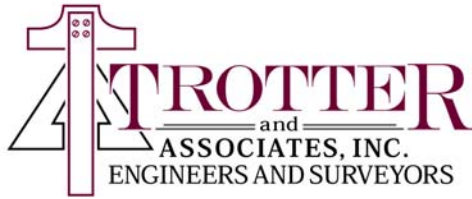


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Technical Memorandum and Inspection Report

Date:	February 24, 2009
To:	Village of Sugar Grove – Public Works Department
From:	Trotter and Associates Inc.
Subject:	Mallard Point Stormwater Management

This correspondence is intended to serve as a technical memorandum and inspection report for the stormwater improvements located adjacent to the stormwater management facilities within the Mallard Point Development.

Per the direction of the Village of Sugar Grove the following plans were used as reference:

1. Mallard Point Unit I Final Engineering Plans
Dated: Latest Revision 7-27-92
Prepared By: Spies and Associates
Notes: Signed Approved by BOT on 8/24/92
2. Mallard Point Units II and IV Final Engineering Plans
Dated: Latest Revision 10/5/95
Prepared By: P & D Consultants
3. Mallard Point Units II and IV Record Drawings
Dated: Latest Revision 4/1/98
Prepared By: P & D Consultants
Notes: Signed approved by Joe Wyrot on 10/12/95
4. Rolling Oaks aka Unit III As-Built Plans
Dated: Signed 9/17/07
Prepared By: Craig R. Knoche and Associates
Notes:

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Technical Memorandum

The following portion of this correspondence is a technical memorandum identifying the stormwater management improvements for Mallard Point Units I, II, and IV and Rolling Oaks as indicated within previously identified plans.

Unit I Stormwater Management

A stormwater management facility is identified within Sheet 4 and Sheet 17 of the Mallard Point Subdivision Unit One plans. These plans indicate a facility adjacent to the proposed Brookhaven Circle with the following characteristics;

Highwater Elevation	(6)70.5
Bottom	(6)67.7
Top of Berm	671.0

Sheet 17 details the outflow structure which includes the use of a 4” diameter pipe at an elevation of (6)67.7 and a 10” pipe with an invert elevation of (6)69.40. The final engineering plans do not include pond storage information or indication of release rates. Within the final engineering plans for Units II and IV, these improvements were shown as removed and the discharge to the pond is shown to the proposed pond.

Northern Basin

The final engineering plans for Units II and IV indicate the use the stormwater basin along the north side of the wetlands. These basins intercept stormwater flows from all Units of Mallard Point. Discharge locations to the ponds are identified on Master Utility Plan of the record drawings for Mallard Points Units II and IV and Sheet C3.4 of the As-built drawings for Rolling Oaks.

These facilities, which are identified as detention basins discharge stormwater flows through two outlet control structures and one overflow location. The outlet structures have a minimum discharge elevation of 668.00 while the bottom of the pond is shown at 664.50. Isolated pockets labeled as siltation basins extend downward to a depth of 662.00.

Page 18 of the final engineering plans indicates the following data for these detention facilities.

Normal Water Line	668.00
High Water Line (2 – Year Event)	669.85
High Water Line (100 – Year Event)	671.50
Surface Area	2.05 Acres
Storage Volume (2 Year)	4.53 Ac-Ft
Storage Volume (100 Year)	9.21 Ac-Ft

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Outlet structures are storm manholes #32A and #34B, both of which were designed with an 8” diameter orifice at an elevation of 668.00. In addition to the orifice each structure was designed to include an internal dividing wall with top of wall elevation of 669.85, equivalent to the proposed water surface elevation during a 2-year event. An overflow elevation of 671.50 was proposed at the northwest corner of the pond. Neither existing nor proposed discharge rates are included within the Final Engineering or As-Built Plans.

Wetland Area

After stormwater is discharged from these detention facilities it enters to the existing wetland. At the south end of the Mallard Point Development an embankment is designed through the existing wetland. This appears on Sheet 19 of the Final Engineering plans for Units II and IV. Stormwater in the entering the wetland area is then released through a 21” diameter storm sewer outlet and an overflow location.

Sheet 19 indicates the proposed outfall structure as a 21” flared end section (#35) with an elevation of 666.75. Stormwater discharges through a proposed 21” diameter concrete pipe at 0.56% to another flared end section at the south side of the berm (#36) with an elevation of 666.50. A twenty-foot wide emergency overflow with an elevation of 669.25 is located to the east and is noted to include “Rip Rap on the Downstream Slope”. A design memorandum approved on 12/4/95 included the relocation of the flared end sections and pipe 37’ to the east, with the overflow remaining unchanged.

Page 19 of the final engineering plans indicates the following data for these detention facilities.

Detention Site Data

High Water Line (100 – Year Event) 669.05

Storage Volume (100 Year) 14.19Ac-Ft

As with the northern detention facility there isn’t any information regarding the existing or proposed release rates indicated on the final engineering plans.


Draintiles

Sheets 2 and 19 of the Unit II and IV Final Engineering Plans indicate intercepting and rerouting of a 15” diameter draintile around the proposed northern detention facility. The proposed rerouting is completed through five segments of storm sewer and six storm manholes. The engineering plans indicate the tile being intercepted to the west of the proposed northern basin and reconnection completed within the limits of the wetland. These improvements are indicated as proposed, however record drawing information is not included.


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Inspection Report

On February 11th through the 13th Trotter and Associates Inc. completed a field inspection of the stormwater management structures located within or immediately adjacent to the ponds within the Mallard Point Subdivision. The following information details the findings of this inspection.

1. Flared End Section #31


Structure Number	FES 31 TAI # 1	Source Information Mallard Point Units II & IV As-built Drawings Sheet 2 Mallard Point Units II & IV As-Built Drawing Sheet 7
Type of Structure	Flared End Section w/ Grate	
Size	36" Diameter	
Proposed Elevation	Flow Line 668.00	
Recorded Elevation	Flow Line 668.23	
Condition:	<ul style="list-style-type: none"> • Concrete and Grate are in good condition and there is less than 3" of Silt • Surrounded by vegetation • Rip rap that is commonly installed was not found. 	

2. Flared End Section #26B


Structure Number	FES 26B TAI #2	Source Information Mallard Point Units II & IV As-built Drawings Sheet 2 Mallard Point Units II & IV As-built Drawings Sheet 7 (labeled as 26A on sheet 7)
Type of Structure	Flared End Section w/ Grate	
Size	18" Diameter	
Proposed Elevation	Flow Line 668.00	
Recorded Elevation	Flow Line 669.60	
Condition:	<ul style="list-style-type: none"> • Concrete and Grate are in good condition and there is less than 2" of Silt w/in FES • Surrounded by vegetation including encroachment into structure • Rip rap that is commonly installed was not found. 	

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3. Flared End Section 34A


Structure Number	FES 34A TAI #4	Source Information Mallard Point Units II & IV Final Engineering Sheet 18 Mallard Point Units II & IV As-Built Drawing Sheet 2
Type of Structure	Flared End Section w/ Grate	
Size	30" Diameter	
Proposed Elevation	Flow Line 668.00	
Recorded Elevation	Flow Line 667.81	
Condition:	<ul style="list-style-type: none">• Measured as 27" Diameter• Structure was buried and difficult to find• Surrounded by vegetation including encroachment into structure• Rip rap that is commonly installed was not found	

4. Manhole #34


Structure Number	MH 34 TAI #4A	Source Information Mallard Point Units II & IV Final Engineering Sheet 18 Mallard Point Units II & IV As-Built Drawing Sheet 2
Type of Structure	Type C Manhole with Type 1 Frame and Closed Lid	
Size	48" Dia	
Proposed Elevation	Rim-NA Inv- 668.00 8" Restrictor Inv- 668.00 Interior Dividing wall – 669.85	
Recorded Elevation	Rim-672.83 Inv- 8" Restrictor Inv-	
Condition:	<ul style="list-style-type: none">• Structure is filled with debris and vegetation. Probing rod could only measure down 4.1' (668.73)• TAI could not verify the size of restrictor and elevation of restrictor or the installation and elevation of interior dividing wall	

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5. Flared End Section #34 B


Structure Number	FES 34B TAI #34	Source Information Mallard Point Units II & IV Final Engineering Sheet 18 Mallard Point Units II & IV As-Built Drawing Sheet 2
Type of Structure	Flared End Section w/ Grate	
Size	30" Diameter	
Proposed Elevation	Flow Line 668.00	
Recorded Elevation	Flow Line 667.85	
Condition:	<ul style="list-style-type: none">• Measured as 27" Diameter• Flared End had between 3" and 6" of silt.• Surrounded by vegetation including encroachment into structure• Rip rap that is commonly installed was not found	

6. Flared End Section #28A


Structure Number	FES 28A TAI #6	Source Information Mallard Point Units II & IV As-built Drawings Sheet 7 Mallard Point Units II & IV As-Built Drawing Sheet 2
Type of Structure	Flared End Section w/ Grate	
Size	30" Diameter	
Proposed Elevation	Flow Line 668.00 As-Built 668.47	
Recorded Elevation	Top of Pipe 669.78 Flow Line 668.53	
Condition:	<ul style="list-style-type: none">• Could only measure top of pipe• Difficult to locate• Contained between 4" and 6" of silt and could not accurately find the invert• Rip rap that is commonly installed was not found	

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7. Field Tile at Pond- Adjacent to lift station


Structure Number	Field Tile TAI #6A	Source Information	Mallard Point Units II & IV Final Engineering Sheet 18
Type of Structure	Field Tile at Northwest Corner of Basin		
Size	8" Dia		
Proposed Elevation	Flow Line NA		
Recorded Elevation	Flow Line 669.36		
Condition:	<ul style="list-style-type: none">• Measured as 8" Diameter PVC Pipe• 4" of silt at bottom of pipe• Adjacent vegetation and small diameter trees are located at outfall		

8. Flared End Section #16


Structure Number	FES 16 TAI #8	Source Information	Mallard Point Units II & IV Final Engineering Sheet 14 Mallard Point Units II & IV As-Built Drawing Sheet 2
Type of Structure	Flared End Section with Grate		
Size	54" Dia		
Proposed Elevation	Flow Line- 668.00 As-Built 667.97		
Recorded Elevation	Flow Line 668.20		
Condition:	<ul style="list-style-type: none">• Concrete and grate are exposed and in good condition• 6" of silt at bottom of pipe• Adjacent vegetation to the southwest• Rip rap that is commonly installed was not found		

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9. Flared End Section Y2


Structure Number		Source Information
FES Y2 TAI #9		Rolling Oaks As-Built Plans Sheet C.3.4
Type of Structure		
Size		
Proposed Elevation		
Recorded Elevation		
Flow Line- 669.18 As-Built 669.28		
Flow Line 669.37		
Condition:		
<ul style="list-style-type: none">• Concrete and grate are exposed and in good condition• No silt at bottom• Adjacent vegetation to the southwest• Rip rap that is commonly installed was not found		

10. Flared End Section Y1


Structure Number		Source Information
FES Y1 TAI #10		Rolling Oaks As-Built Plans Sheet C.3.4
Type of Structure		
Size		
Proposed Elevation		
Recorded Elevation		
Flow Line- 669.50 As-Built 669.47		
Flow Line 669.59		
Condition:		
<ul style="list-style-type: none">• Concrete and grate are exposed and in good condition• Less than 3" of silt at structure• Vegetation surrounding entire structure• Rip rap that commonly is installed was not found		

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11. Flared End Section #32


Structure Number	FES 32 TAI #11	Source Information Mallard Point Units II & IV Final Engineering Sht. 18 Mallard Point Units II & IV As-Built Drawing Sht. 2
Type of Structure	Flared End Section w/ Grate	
Size	30" Diameter	
Proposed Elevation	Flow Line 668.00	
Recorded Elevation	Flow Line 668.07	
Condition:	<ul style="list-style-type: none"> • Measured as 27" Diameter • Structure was buried even though it protrudes into open water by four feet. • Vegetation and silt are blocking structure and limiting flow • Water surface observed to be 669.93 during inspection • Elevation should be verified when structure is clean • Rip rap that is commonly installed was not found. 	

12. Manhole #32A


Structure Number	MH 32A TAI #11A	Source Information Mallard Point Units II & IV Final Engineering Sheet 18 Mallard Point Units II & IV As-Built Drawing Sheet 2
Type of Structure	Type C Manhole with Type 1 Frame and Closed Lid	
Size	60" Dia	
Proposed Elevation	Rim-673.00 Inv- 668.00 8" Restrictor Inv- 668.00 Interior Dividing wall – 669.85	
Recorded Elevation	Rim-672.99 Bottom of Structure - 667.64 Interior Dividing Wall – 669.84	
Condition:	<ul style="list-style-type: none"> • Structure was buried and found with metal detector. The bottom photo indicates the structure after it was cleared. • Adjacent 4" diameter tree is growing within 6" structure • Structure is filled with water and vegetation. • Water is spilling over interior dividing wall • TAI could not verify size and elevation of restrictor 	

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13. Flared End Section #33


Structure Number		Source Information
FES 33 TAI #12		Mallard Point Units II & IV Final Engineering Sheet 18 Mallard Point Units II & IV As-Built Drawing Sheet 2
Type of Structure	Flared End Section w/ Grate	
Size	30" Diameter	
Proposed Elevation	Flow Line 668.00	
Recorded Elevation	Flow Line 668.17	
Condition:	<ul style="list-style-type: none">• Measured as 27" Diameter• Structure was found with metal detector• No grate is installed• Structure elevation should be verified after it has been cleared• Using elevations during inspection there appears to be backpitch to the north• Rip rap that is commonly installed was not found	

14. Flared End Section S


Structure Number		Source Information
FES S TAI #13		Rolling Oaks As-Built Plans Sheet C.3.4
Type of Structure	Flared End Section with Grate	
Size	12" Dia	
Proposed Elevation	Flow Line- 668.00 (To be installed at NWL) As-Built 668.88	
Recorded Elevation	Flow Line 669.03	
Condition:	<ul style="list-style-type: none">• Structure has 8" of silt• Structure is overgrown with vegetation• Water surface elevation is 10" above the flow line of the structure• Rip rap that is commonly installed was not found	

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15. No Number - TAI Structure # 13A


Structure Number	No Number It is located within Unit III TAI #13A	Source Information	Does not appear on plans. Structure was likely used in an attempt to reroute a field tile
Type of Structure	MH Type A with Type I Frame and Closed Lid		
Size	48" Dia		
Proposed Elevation	NA		
Recorded Elevation	Rim-675.94 Inv-664.84 N- 15" VCP Inv-664.74 SW- 8" Mat-?		
Condition:	<ul style="list-style-type: none">• Structure is located adjacent to the pond within Unit III. It appears to have field tiles tied into the structure• Village crews assisted in pumping out of structure. Water was drawn down but it could not be completely pumped out. Reddish iron sludge material was removed however the material did not contain any noticeable odor		

16. Flared End Section A


Structure Number	FES A TAI #14	Source Information	Rolling Oaks As-Built Plans Sheet C.3.4
Type of Structure	Flared End Section with Grate		
Size	36" Dia		
Proposed Elevation	Flow Line- 668.00 (To be installed at NWL) As-Built 670.37		
Recorded Elevation	Flow Line 669.09		
Condition:	<ul style="list-style-type: none">• Structure is overgrown with vegetation• Rip rap that is commonly installed was not found• Concrete and grate are in good condition• Structure has 1" or less of silt in the bottom		

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17. Catch Basin #10A

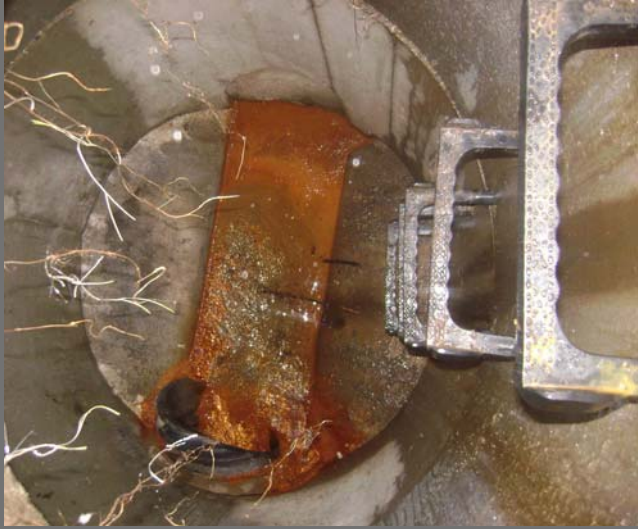
Structure Number	CB 10A TAI #15	Source Information Rolling Oaks As-Built Plans Sheet C.3.4
Type of Structure	Type C Manhole with Neenah 4340-B	
Size	60" Dia	
Proposed Elevation	Rim-678.44 Inv- 670.38 E Inv- 674.10 W Inv- 669.88 S As Built Rim-679.57 Inv- 670.83 E Inv- 674.61 W Inv- 670.77 S	
Recorded Elevation	Rim-679.61 Inv- 671.81 E Inv- 675.11 W Inv- 671.11 S	
Condition:	<ul style="list-style-type: none">• Structure has 3" of silt at bottom	

18. No Number - TAI Structure #16


Structure Number	No Number "Identified as Install Cleanout" TAI #16	Source Information Rolling Oaks As-Built Plans Sheet C.3.4
Type of Structure	Type C Manhole with Neenah 4340-B	
Size	48" Dia	
Proposed Elevation	Rim-677.24 Inv- 669.63 N As Built Rim-677.15 Inv- 670.44 N	
Recorded Elevation	Rim-676.42 Bottom of Structure - 664.22	
Condition:	<ul style="list-style-type: none">• Structure has 4" of silt at bottom	

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19. No Number - TAI Structure # 17


Structure Number	No Number TAI Structure # 17	Source Information Does not appear on plans. Structure was likely used in an attempt to reroute a field tile
Type of Structure	MH Type A with Type I Frame and Closed Lid	
Size	48" Dia	
Proposed Elevation	NA	
Recorded Elevation	Rim-675.86 Inv- 668.46 N- Plugged Inv- 668.46 S- 15" ADS	
Condition:	<ul style="list-style-type: none">• Structure has inflow from the pipe seal grouting at the south pipe.• After discharge location has been determined it may be necessary to seal the manhole to remove inflow	

20. No Number - TAI Structure #18


Structure Number	No Number TAI Structure #18	Source Information Does not appear on plans. Structure was likely used in an attempt to reroute a field tile
Type of Structure	MH Type A with Type I Frame and Closed Lid	
Size	48" Dia	
Proposed Elevation	NA	
Recorded Elevation	Rim-673.71 Inv-663.71 NW- 15" CMP Inv-663.71 S- 15" CMP	
Condition:	<ul style="list-style-type: none">• Structure has inflow at an elevation of 667.41	

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21. No Number - TAI Structure #19


Structure Number	No Number TAI Structure #19	Source Information Does not appear on plans. Structure was likely used in an attempt to reroute a field tile
Type of Structure	MH Type A with Type I Frame and Closed Lid	
Size	48" Dia	
Proposed Elevation	NA	
Recorded Elevation	Rim-671.29 Inv-662.09 SW- 18" Mat-? Inv-662.09 SE- 15" Mat-? Inv-662.29 SE- 24" Mat-?	
Condition:	<ul style="list-style-type: none">• Structure water within the structure to an elevation of 664.79• Village crews assisted in pumping out of structure. It is most likely hydraulically connected to the retention facility or a field tile. Using both a 2" and 3" diameter pump the water level in the structure could not be lowered more than 0.70' or 664.09	

22. Flared End Section #35


Structure Number	FES 35 TAI Structure # 20	Source Information Mallard Point Units II & IV Final Engineering Sheet 19
Type of Structure	Flared End Section with Grate	
Size	21" Dia	
Proposed Elevation	Flow Line- 666.75	
Recorded Elevation	Top of Pipe -669.03 Flow Line - 667.07	
Condition:	<ul style="list-style-type: none">• There is a memo from P and D modifying the location 37.0' East with revised elevation of 668.75. It is unclear as to the location at where this is measured.• Structure was only found through use of metal detector• Flow is limited to very top of pipe and to an opening approximately 6" in diameter• Trees are in close proximity to the surrounding the FES• Rip rap that is commonly installed was not found• Downstream line appears to be clean• Water level during inspection 669.22	

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23. Flared End Section #36

Structure Number	FES 36 TAI Structure #21	Source Information	Mallard Point Units II & IV Final Engineering Sheet 19
Type of Structure	Flared End Section with Grate		
Size	21" Dia		
Proposed Elevation	Flow Line- 666.50		
Recorded Elevation	Flow Line – 666.46		
Condition:	<ul style="list-style-type: none">• Structure is clean and in good condition• Water level of outfall is 665.27 during inspection• Structure is surrounded by trees and vegetation.• Bucket is located within structure• Rip rap that is commonly installed was not found		

24. TAI Structure #22


Structure Number	NA TAI Structure #22	Source Information	Mallard Point Units II & IV Final Engineering Sheet 19
Type of Structure	Overflow for Wetland Retention Area		
Size	20' Width		
Proposed Elevation	Overflow Elevation 669.25 Provide Rip Rap on Downstream slope		
Recorded Elevation	Overflow Elevation 669.22		
Condition:	<ul style="list-style-type: none">• This has been moved to the west side of the pipe outlet. Large diameter rip rap is present but appears to have been moved or washed out by flows. Scouring is present.• Matted vegetation is indicative of surface flows• Areas is not defined and width could not be determined		

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25. TAI Structure #23


Structure Number	NA TAI Structure #23	Source Information	Mallard Point Units II & IV Final Engineering Sheet 18
Type of Structure	Overflow for Northern Basins	Improvement Not Installed No Photograph Available	
Size	Width not indicated		
Proposed Elevation	Overflow Elevation 671.50 – 100 Year Provide Rip Rap on Downstream slope		
Recorded Elevation	Overflow Elevation 672.33+/-		
Condition:	<ul style="list-style-type: none">TAI could not find this improvement. TAI completed survey at the lowest apparent point of the berm and found it to be 672.33. This was observed at the far southeast corner of the basin and at an area that did not include rip rap.		

26. TAI Structure #24

Structure Number	FES EX TAI Structure #24	Source Information	Rolling Oaks As-Built Plans Sheet C.3.4
Type of Structure	Flared End Section		
Size	12" Dia		
Proposed Elevation	Shown as Existing Inv 670.40		
Recorded Elevation	Top of Pipe 671.92 Flow Line 669.75		
Condition:	<ul style="list-style-type: none">Structure is overgrown with vegetationFlared End Section is not presentRip rap that is commonly installed was not foundThere is a large amount of silt at the end of the pipe		

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27. Flared End Section W

Structure Number		Source Information	
Structure Number	FES W TAI Structure #25	Rolling Oaks As-Built Plans Sheet C.3.4	
Type of Structure	Flared End Section w/ grate		
Size	12" Dia		
Proposed Elevation	Inv 671.57		
Recorded Elevation	Top of Pipe 671.74		
Condition:	<ul style="list-style-type: none">• Structure is overgrown with vegetation• Water around pipe is approximately 2" higher due to vegetation impeding flow• Rip rap that is commonly installed was not found		

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Mallard Point Unit I

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Mallard Point Units II and IV

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Rolling Oaks