

# MONMOUTH COUNTY PARK SYSTEM

James Truncer, Director



## GREEN RENOVATION PROJECT AT: HOWELL PARK GOLF COURSE

Farmingdale, New Jersey

April 29, 2022

### PREPARED BY:

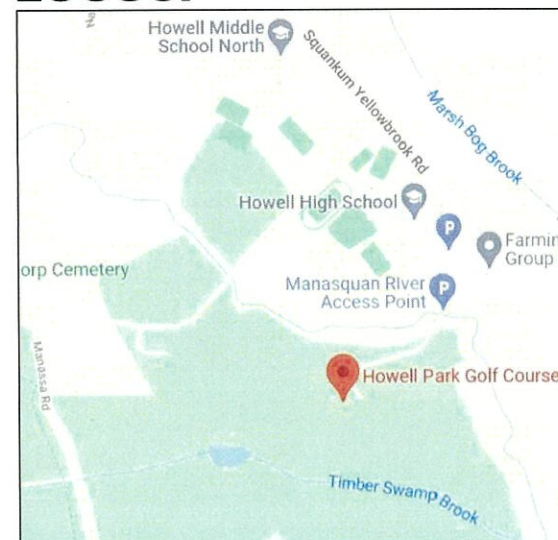


MUNGEAM GOLF DESIGN, Inc  
195 South West Main Street  
Douglas, Massachusetts 01516  
Mark A. Mungeam, ASGCA

Phone:  
(508) 873-0103



### LOCUS:



405 Squamkum Yellowbrook Road  
Howell Township, NJ.

### DRAWING INDEX:

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- 2 PROJECT PLAN
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Sheet No.:

1

Cover Sheet

Sheet Name:

221015

Project No.:

Date:

Scale:

Drawn:

Checked:

Project Name:

221015

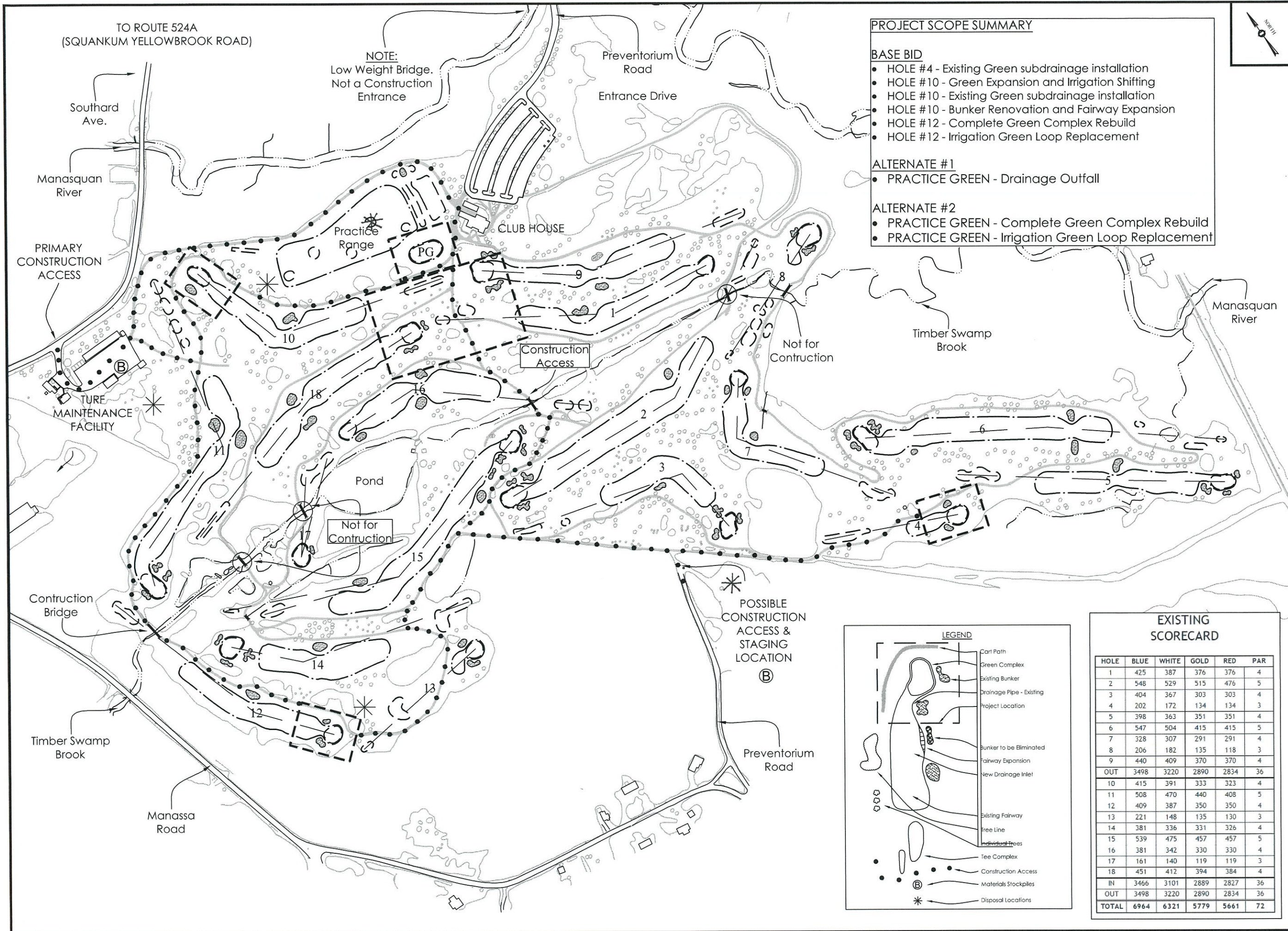
02/17/2021

N/A

GREG ALBANESE

MARK MUNGEAM

Howell Park Golf Course  
Green Renovation Project



TO ROUTE 524A  
(SQUANKUM YELLOWBROOK ROAD)

NOTE:  
Low Weight Bridge.  
Not a Construction  
Entrance

**PROJECT SCOPE SUMMARY**

**BASE BID**

- HOLE #4 - Existing Green subdrainage installation
- HOLE #10 - Green Expansion and Irrigation Shifting
- HOLE #10 - Existing Green subdrainage installation
- HOLE #10 - Bunker Renovation and Fairway Expansion
- HOLE #12 - Complete Green Complex Rebuild
- HOLE #12 - Irrigation Green Loop Replacement

**ALTERNATE #1**

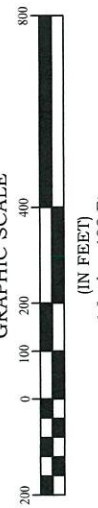
- PRACTICE GREEN - Drainage Outfall

**ALTERNATE #2**

- PRACTICE GREEN - Complete Green Complex Rebuild
- PRACTICE GREEN - Irrigation Green Loop Replacement



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**MUNGEAM**  
GOLF DESIGN  
195 South West Main Street  
Douglas, Massachusetts  
508.873.0103

Sheet Title:  
**PROJECT PLAN**  
Sheet 2

No	Date	Revision
1	02/17/21	Original Draft
2	03/05/21	Added Labels, Labels, Access
3	04/25/22	Scope Summary, Sheet Blocks

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Project Name:  
**Green Renovation Project at:  
HOWELL PARK GOLF COURSE**  
Project No. 221015



Location:  
**Howell Park**

Construction Access

Not for Construction

Not for Construction

POSSIBLE CONSTRUCTION ACCESS & STAGING LOCATION

**LEGEND**

- Cart Path
- Green Complex
- Existing Bunker
- Drainage Pipe - Existing
- Project Location
- Bunker to be Eliminated
- Fairway Expansion
- New Drainage Inlet
- Existing Fairway
- Tree Line
- Individual Trees
- Tee Complex
- Construction Access
- Materials Stockpiles
- Disposal Locations

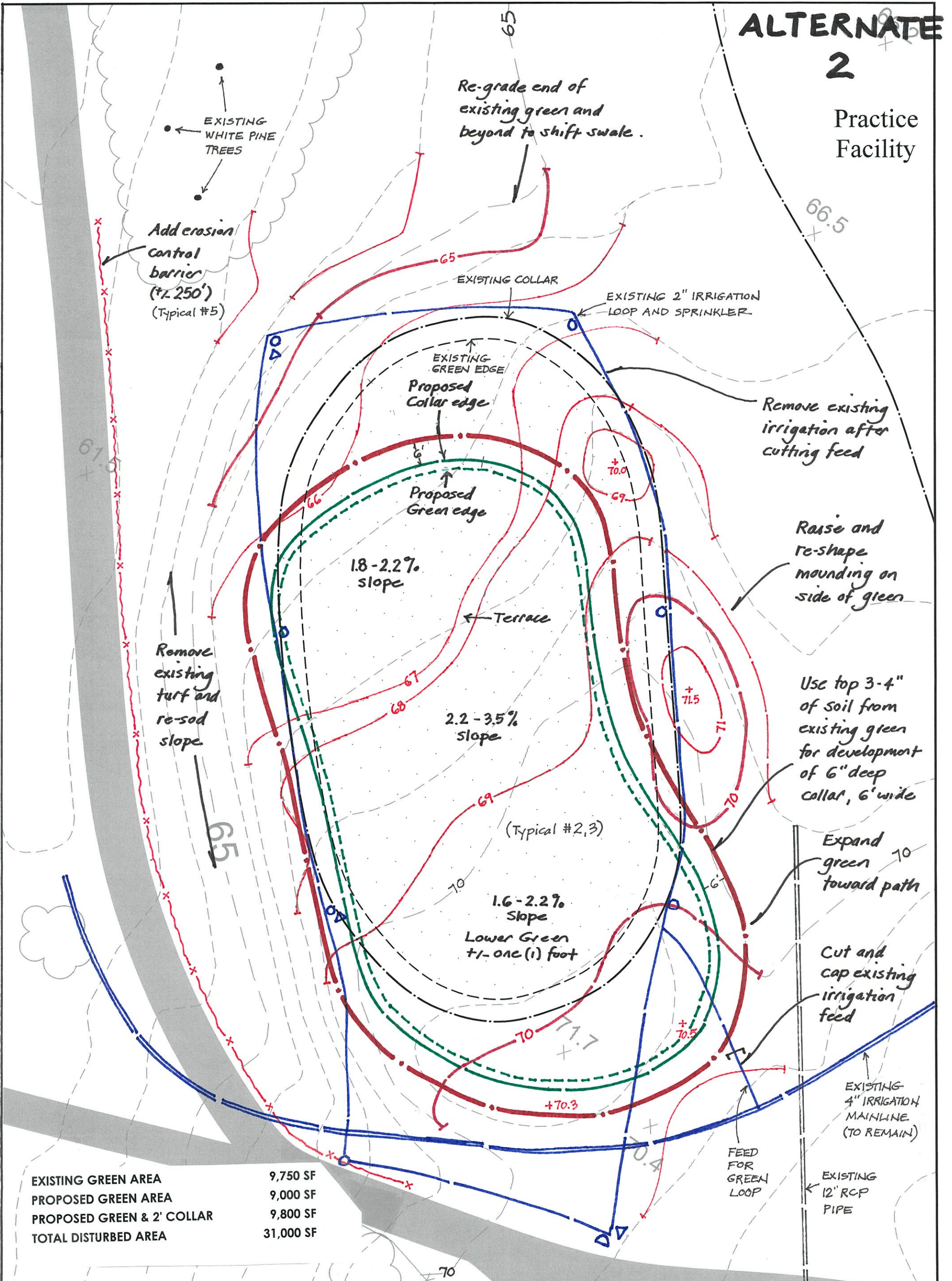
**EXISTING SCORECARD**

HOLE	BLUE	WHITE	GOLD	RED	PAR
1	425	387	376	376	4
2	548	529	515	476	5
3	404	367	303	303	4
4	202	172	134	134	3
5	398	363	351	351	4
6	547	504	415	415	5
7	328	307	291	291	4
8	206	182	135	118	3
9	440	409	370	370	4
OUT	3498	3220	2890	2834	36
10	415	391	333	323	4
11	508	470	440	408	5
12	409	387	350	350	4
13	221	148	135	130	3
14	381	336	331	326	4
15	539	475	457	457	5
16	381	342	330	330	4
17	161	140	119	119	3
18	451	412	394	384	4
IN	3466	3101	2889	2827	36
OUT	3498	3220	2890	2834	36
TOTAL	6964	6321	5779	5661	72

Existing course information from GPS done by Jim Blaukovich Associates in 2002, with updates using orthophotographic images by GPS New England in 2017.

# ALTERNATE 2

## Practice Facility





Existing contour lines are dashed, proposed are solid.

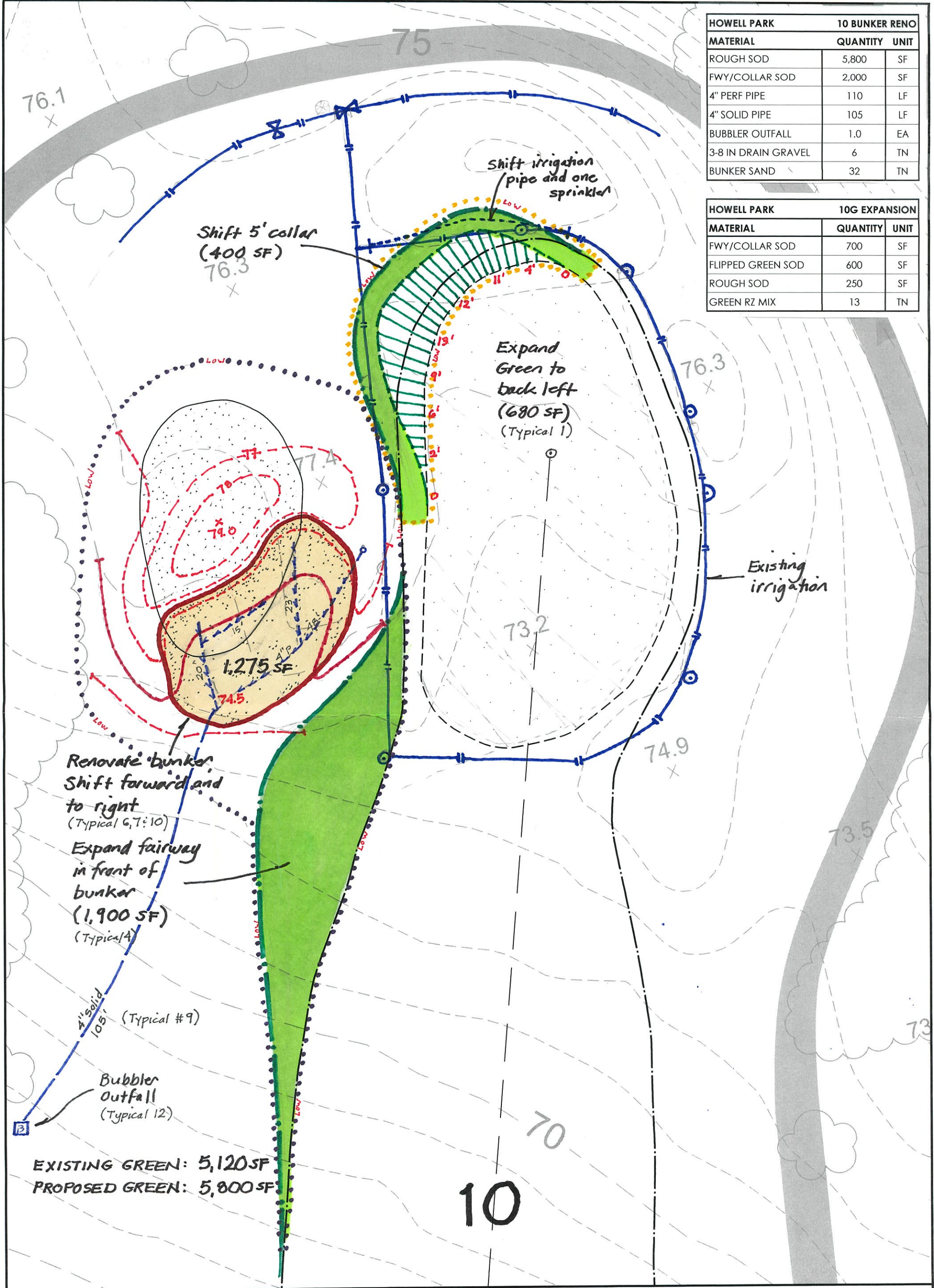
This sketch is intended to outline work in developing rough subgrade of golf features. Final subgrade to be developed on site with architect input.

GRAPHIC SCALE  
 10 0 5 10 20 40  
 (IN FEET)  
 1 Inch = 20 Ft.

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Location: <b>Practice Green</b>		Project Name: <b>Bunker Improvements at HOWELL PARK GOLF COURSE</b>	No	Date	Revision	Sheet Title: <b>DETAILED PLAN Sheet 3</b>	 <b>MUNGEAM GOLF DESIGN</b> 195 South West Main Street Douglas, Massachusetts 508.873.0103
		Project No. <b>221015</b>	1	7/22/20	Preliminary Plan		
			2	3/6/21	Green layout, Drainage, Low		
			3	5/31/22	Label revision. Alternate		
			Approved By: <b>Mark Mungeam</b>		Date:		



HOWELL PARK		10 BUNKER RENO	
MATERIAL	QUANTITY	UNIT	
ROUGH SOD	5,800	SF	
FWY/COLLAR SOD	2,000	SF	
4" PERF PIPE	110	LF	
4" SOLID PIPE	105	LF	
BUBBLER OUTFALL	1.0	EA	
3-8 IN DRAIN GRAVEL	6	TN	
BUNKER SAND	32	TN	

HOWELL PARK		10G EXPANSION	
MATERIAL	QUANTITY	UNIT	
FWY/COLLAR SOD	700	SF	
FLIPPED GREEN SOD	600	SF	
ROUGH SOD	250	SF	
GREEN RZ MIX	13	TN	

Existing contour lines are dashed, proposed are solid.

This sketch is intended to outline work in developing rough subgrade of golf features. Final subgrade to be developed on site with architect input.

GRAPHIC SCALE (IN FEET) 1 Inch = 20 Ft.

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Location: <b>10</b> Green		Project Name: <b>Bunker Improvements at HOWELL PARK GOLF COURSE</b>	<table border="1"> <thead> <tr> <th>No</th> <th>Date</th> <th>Revision</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>7/23/20</td> <td>Preliminary Plan</td> </tr> <tr> <td>2</td> <td>3/7/21</td> <td>Drainage, LOW, Quantities</td> </tr> <tr> <td>3</td> <td>5/31/22</td> <td>Add existing irrigation</td> </tr> </tbody> </table>	No	Date	Revision	1	7/23/20	Preliminary Plan	2	3/7/21	Drainage, LOW, Quantities	3	5/31/22	Add existing irrigation	Sheet Title: <b>DETAILED PLAN</b> Sheet 4	<p>195 South West Main Street          Douglas, Massachusetts          508.873.0103</p>
		No	Date	Revision													
1	7/23/20	Preliminary Plan															
2	3/7/21	Drainage, LOW, Quantities															
3	5/31/22	Add existing irrigation															
Project No. <b>221015</b>	Approved By: Mark Mungeam	Date:															

NOTE: Use top 3-4 inches of soil from existing green for development of 6" deep; 6' wide perimeter cut

Lower back of existing green and back mound. Expand putting surface to back to form a cupping area on back half of green

Expand green to left to create a new left cupping area on slightly elevated shelf

Remove and replace existing irrigation loop

Proposed collar edge

Terrace slope - Not cuppable

Soften Slope

Fill valley

Cut back slope to reduce slope to 2.5-3.5%

Renovate Bunker. Expand +/- 20' to back left. Existing bunker (600 SF) Proposed bunker (1,200 SF)

Remove and replace existing approach fairway turf



Renovate Bunker. Raise back to better divert surface water. (1,050 SF) (Typical # 6, 7 : 10)

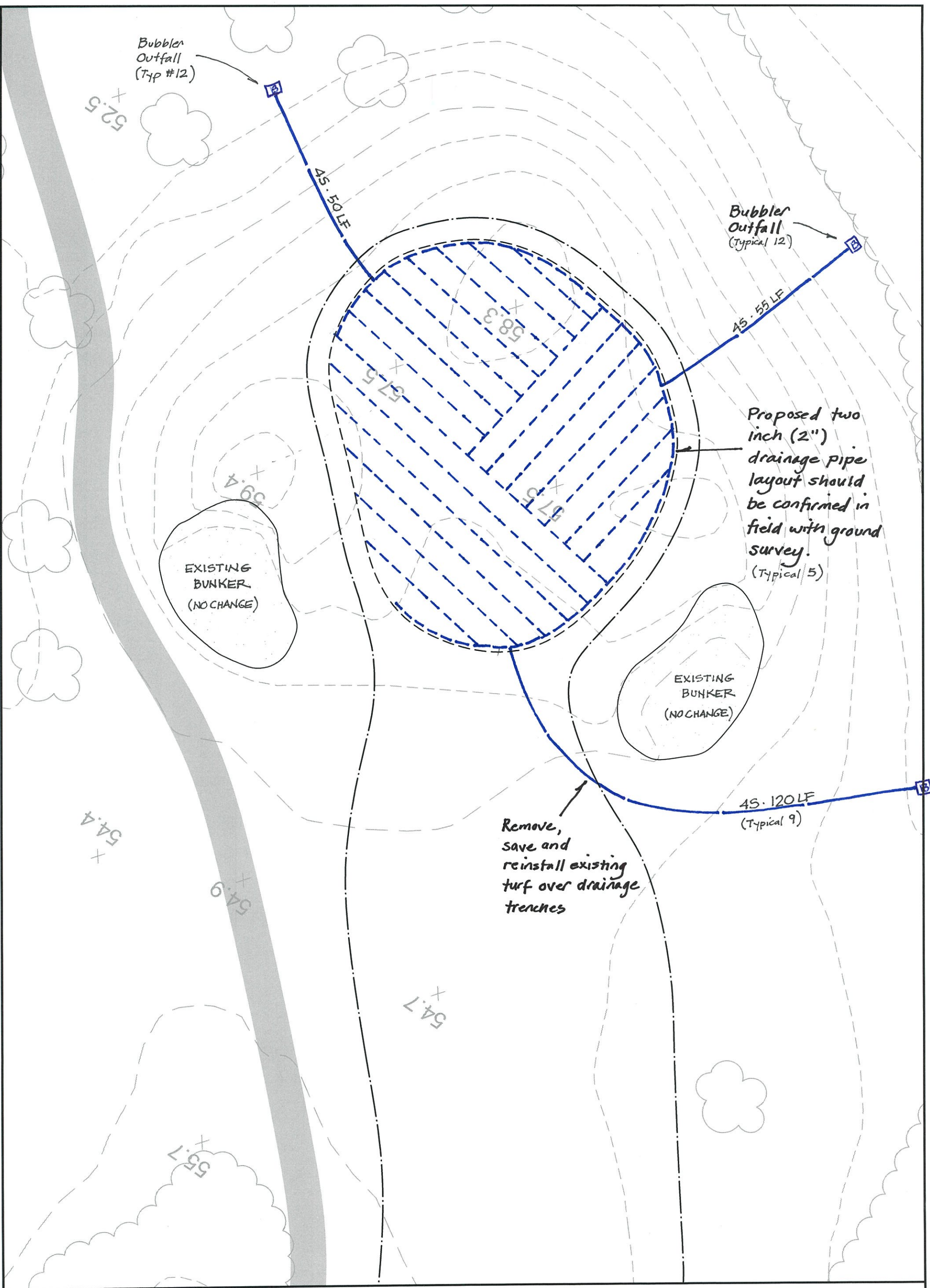
EXISTING GREEN AREA	4,800 SF
PROPOSED GREEN AREA	5,300 SF
PROPOSED GREEN & 2' COLLAR	5,800 SF
TOTAL DISTURBED AREA	21,000 SF

NOTE: Contractor may be asked to remove, save and re-install +/- 700 SF of putting surface turf at green expansion on Hole 10

12

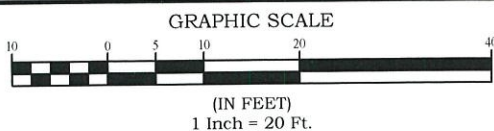
Existing contour lines are dashed, proposed are solid. GRAPHIC SCALE (IN FEET) 1 Inch = 20 Ft. COPYRIGHT (C) by Mungeam Golf Design, Inc. All Rights Reserved. No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of Mungeam Golf Design, Inc. Any modifications to the document without the written permission of Mungeam Golf Design, Inc. shall render in invalid and unusable.

Location: <b>12</b> Green		Project Name: <b>Bunker Improvements at HOWELL PARK GOLF COURSE</b>	No Date Revision 1 7/23/20 Preliminary Plan 2 3/9/21 Notes 3 6/1/22 Sheet # & Project #	Sheet Title: <b>DETAILED PLAN</b> Sheet 5	
		Project No. <b>221015</b>	Approved By: Mark Mungeam	Date:	



Existing contour lines are dashed, proposed are solid.

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Location:  
**4**  
Green



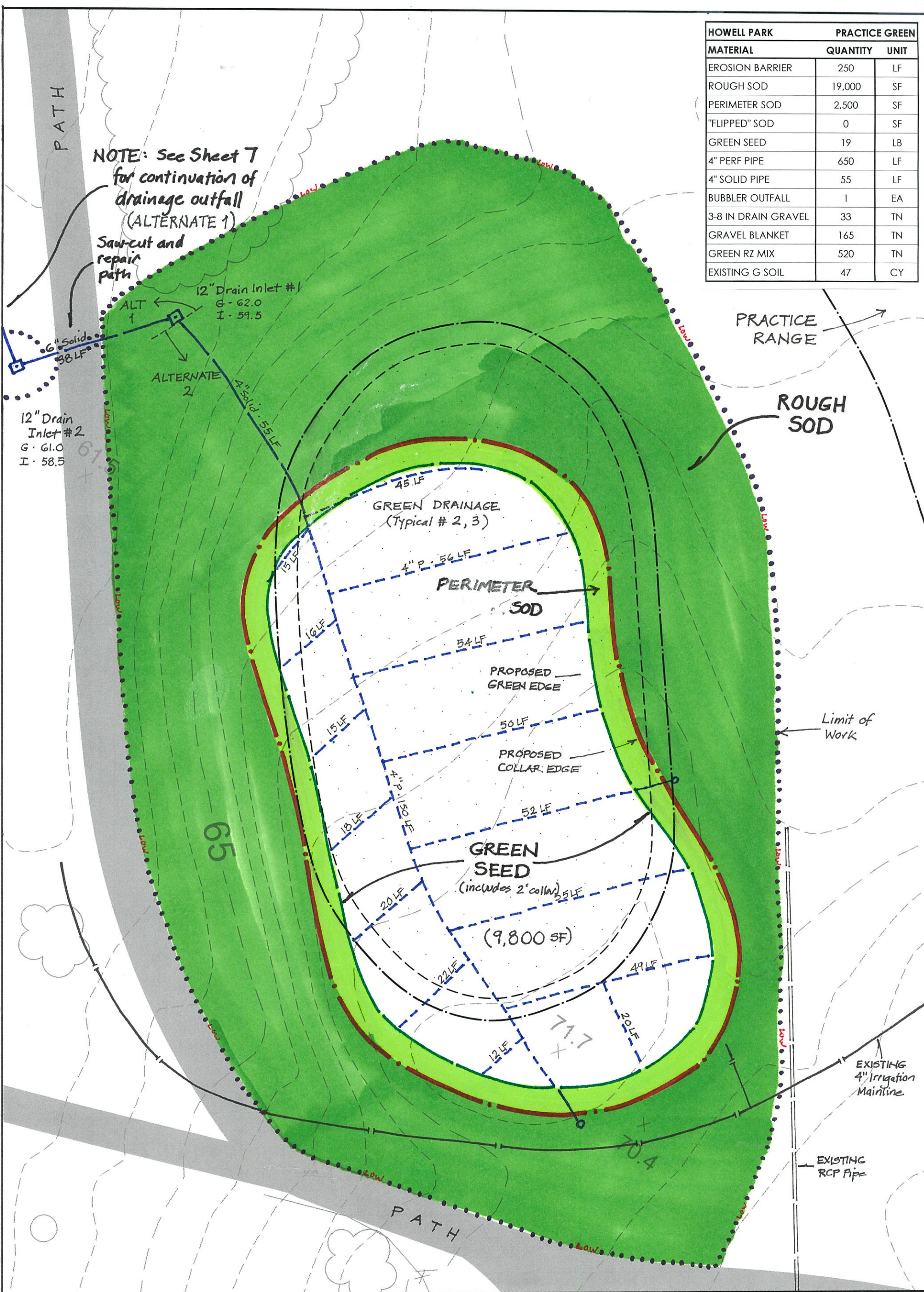
Project Name:  
**Bunker Improvements at  
HOWELL PARK GOLF COURSE**  
Project No. **221015**

No	Date	Revision
1	5/12/22	Preliminary Plan
Approved By:		Date:
Mark Mungeam		

Sheet Title:  
**DETAILED  
PLAN  
Sheet 6**

**MUNGEAM**  
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Douglas, Massachusetts  
508.873.0103

HOWELL PARK	PRACTICE GREEN	
MATERIAL	QUANTITY	UNIT
EROSION BARRIER	250	LF
ROUGH SOD	19,000	SF
PERIMETER SOD	2,500	SF
"FLIPPED" SOD	0	SF
GREEN SEED	19	LB
4" PERF PIPE	650	LF
4" SOLID PIPE	55	LF
BUBBLER OUTFALL	1	EA
3-8 IN DRAIN GRAVEL	33	TN
GRAVEL BLANKET	165	TN
GREEN RZ MIX	520	TN
EXISTING G SOIL	47	CY



NOTE: See Sheet 7 for continuation of drainage outfall (ALTERNATE 1)

Saw-cut and repair path

12" Drain Inlet #1  
G - 62.0  
I - 59.5

ALTERNATE 2  
4" Solid - 55 LF

12" Drain Inlet #2  
G - 61.0  
I - 58.5

GREEN DRAINAGE  
(Typical # 2, 3)

PERIMETER SOD

PROPOSED GREEN EDGE

PROPOSED COLLAR EDGE

GREEN SEED  
(includes 2' collar)

(9,800 SF)

Limit of Work

EXISTING 4" Irrigation Mainline



EXISTING RCP Pipe

Existing contour lines are dashed, proposed are solid.

GRAPHIC SCALE  
10 0 5 10 20 40  
(IN FEET)  
1 Inch = 20 Ft.

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Location: <b>Practice Green</b>		Project Name: <b>Bunker Improvements at HOWELL PARK GOLF COURSE</b>	No	Date	Revision	Sheet Title: <b>DETAILED PLAN Sheet 7</b>	
		Project No. <b>221015</b>	1	3/6/21	Preliminary Plan		
Approved By: <b>Mark Mungeam</b>			Date:				
						195 South West Main Street Douglas, Massachusetts 508.873.0103	

# ALTERNATE #1

HOWELL PARK		PG - DRAINAGE	
MATERIAL	QUANTITY	UNIT	
6" SOLID PIPE	198	LF	
8" SOLID PIPE	440	LF	
12" DRAIN INLETS	4	EA	
PATH CUT/REPAIR	36	SF	

Excess soil disposal location

Club House

Practice Green

10 Tee

1 Tee

18 Green

12" DI #1  
G - 62.0  
I - 59.5

12" DI #2  
G - 61.0  
I - 58.5

12" DI #3  
G - 58.4  
I - 57.0  
(Typical #8, 11)

12" DI #4  
G - 57.5  
I - 56.3  
(Typical #8, 11)

EL. 55.8

Saw-cut and repair path

Saw-cut and repair path

Saw-cut and repair path

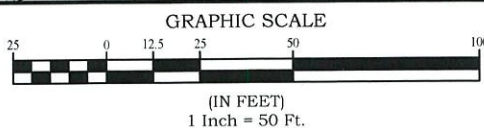
6" S - 160'

8" S - 240'

8" S - 200'



Existing contour lines are dashed, proposed are solid.

This sketch is intended to outline work in developing rough subgrade of golf features. Final subgrade to be developed on site with architect input.

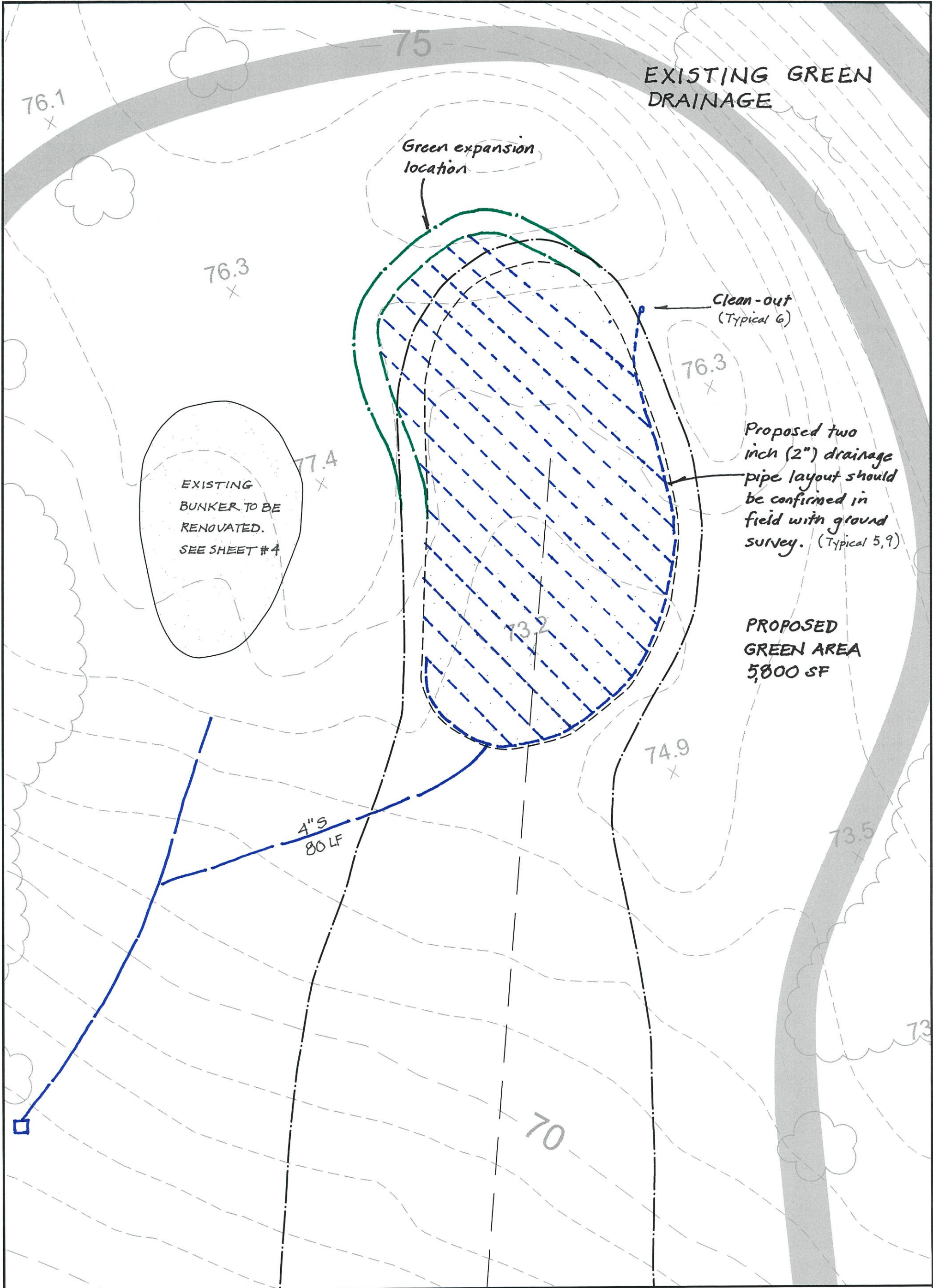


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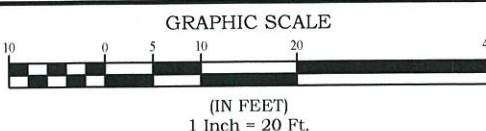
Location: <b>Practice Green</b>		Project Name: <b>Bunker Improvements at HOWELL PARK GOLF COURSE</b>	No		Date		Revision		Sheet Title: <b>DETAILED PLAN Sheet 8</b>		<b>MUNGEAM CORNISH GOLF DESIGN</b>	195 South West Main Street Douglas, Massachusetts 508.873.0103
			1	3/8/21	Preliminary Plan - Drainage							
		Project No. <b>221015</b>	2	5/31/22	Alternate Label		Approved By: <b>Mark Mungeam</b>		Date:			







Existing contour lines are dashed, proposed are solid.

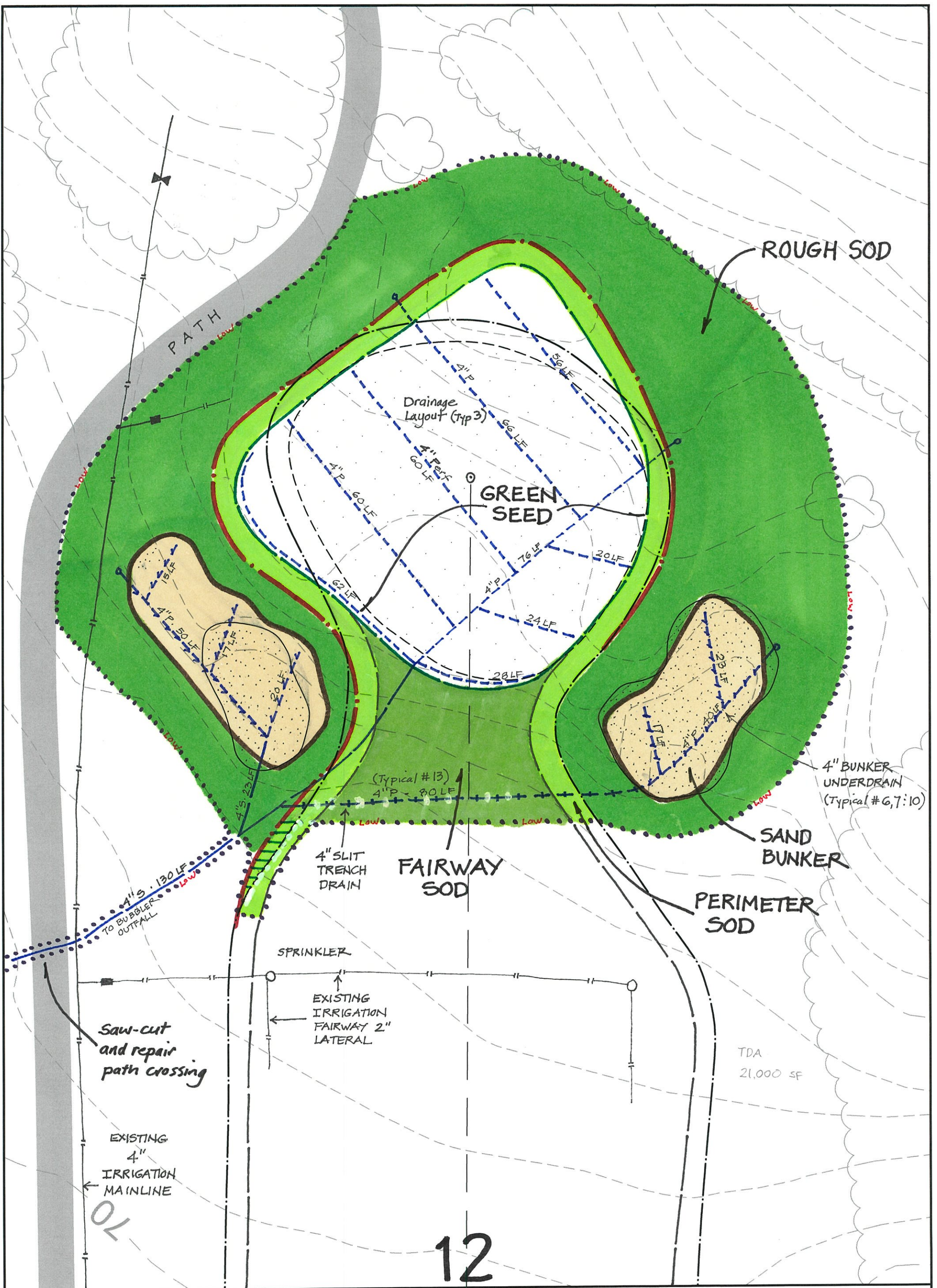
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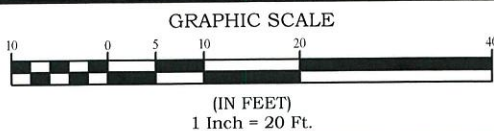
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Location: <b>10</b> Green		Project Name: <b>Bunker Improvements at HOWELL PARK GOLF COURSE</b>	No   Date   Revision 1   6/1/22   Preliminary Plan		Sheet Title: <b>DETAILED PLAN</b> Sheet 9	 195 South West Main Street Douglas, Massachusetts 508.873.0103
			Project No. <b>221015</b>			



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Location:

12  
Green



Project Name:  
Bunker Improvements at  
HOWELL PARK GOLF COURSE

Project No. 221015

No	Date	Revision
1	7/23/20	Preliminary Plan
2	3/8/21	Drainage, Low, Quantities
3	6/1/22	Sheet and Project #

Approved By:  
Mark Mungeam

Date:

Sheet Title:

DETAILED  
PLAN  
Sheet 10

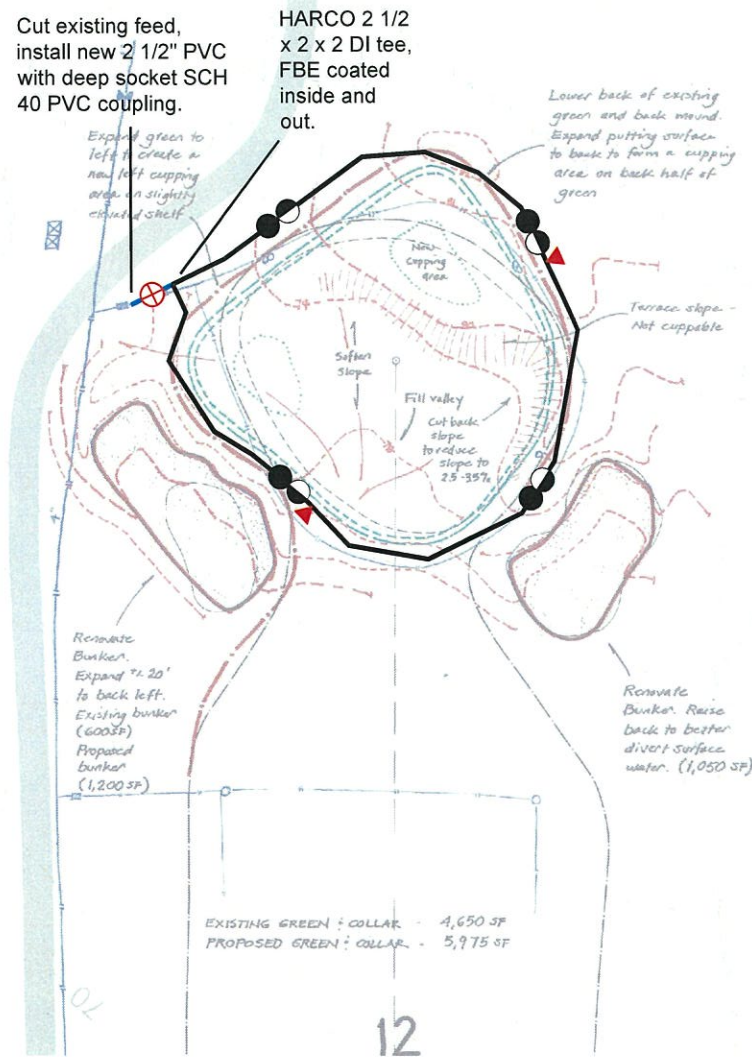
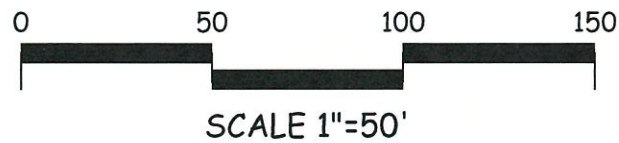


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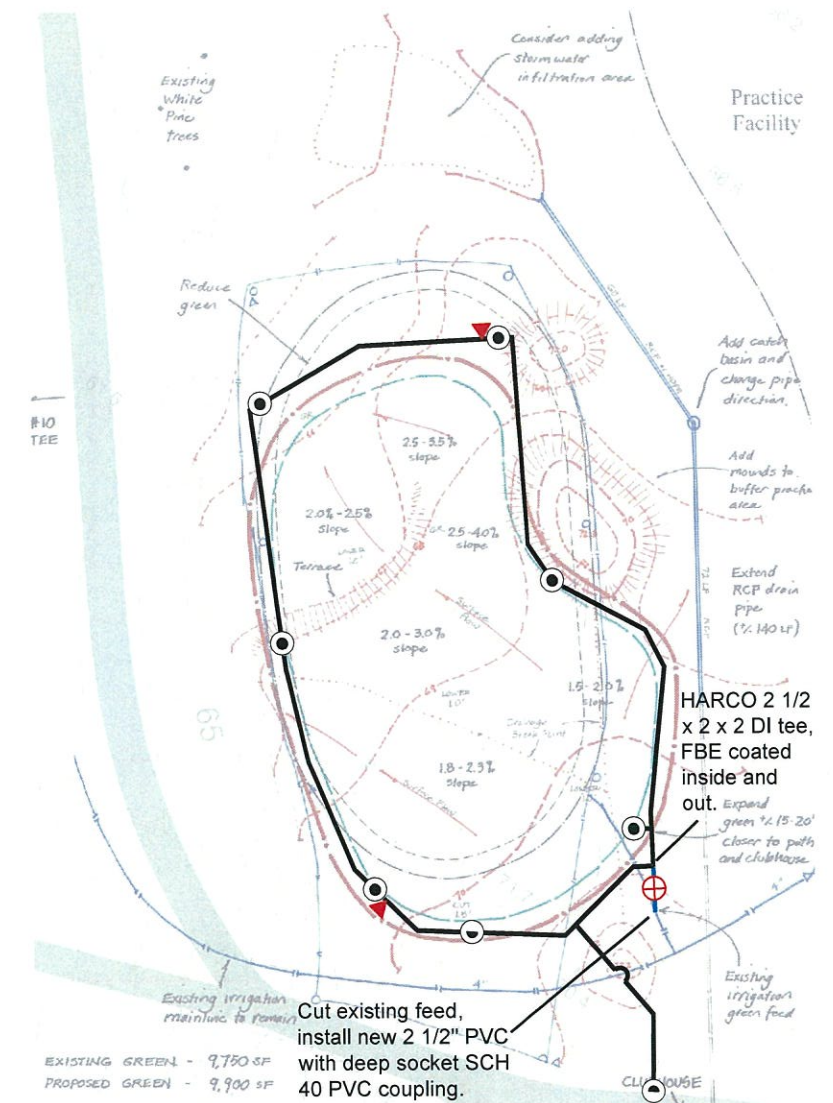
# LEGEND

Symbol	Item	Count
●	INF 54-06-546 - FC Sprinkler	4
⊖	INF 55-06-556 - PC Sprinkler	4
⊙	INF 54-06-536 - FC Sprinkler	6
⊕	INF 55-06-536 - PC Sprinkler	2
▲	Toro 475-01 QCV	4
⊕	2.5" Gate Valve	2
—	2" SDR 21 PVC Pipe	831 lf.
—	2.5" SDR 21 PVC Pipe	24 lf.

Note: Cut existing 24V wires at new gate valve. Splice new 24V wires to existing ones in valve box.



HOLE #12



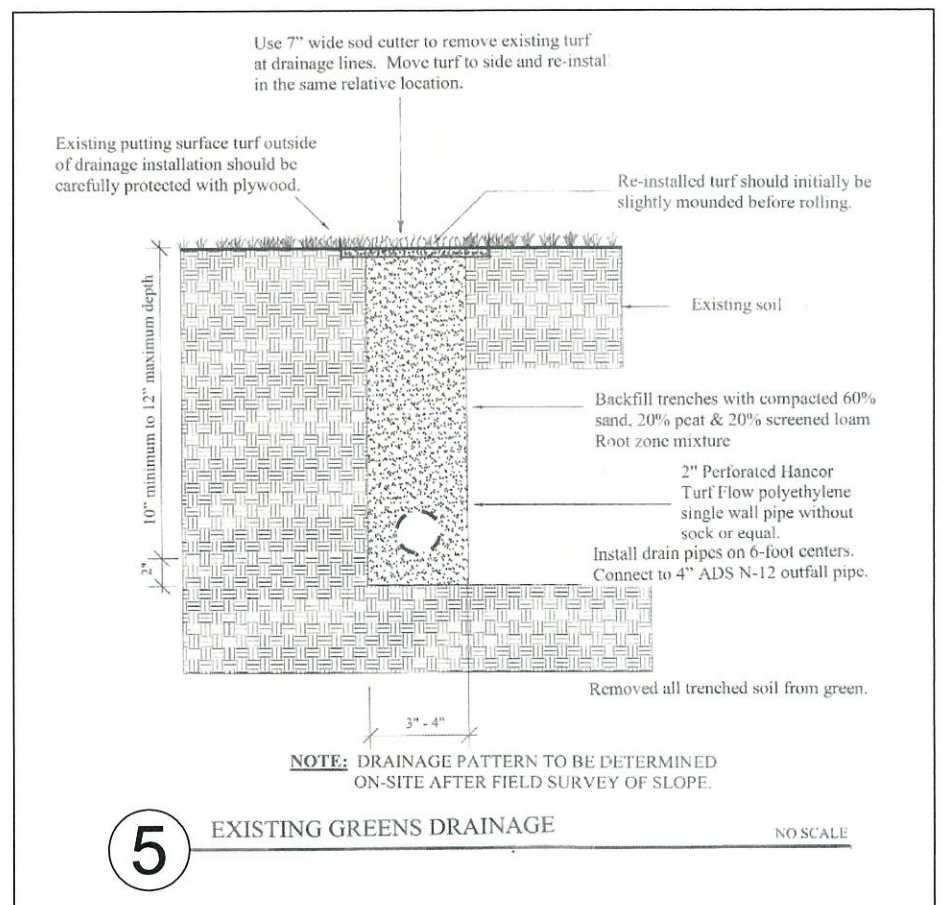
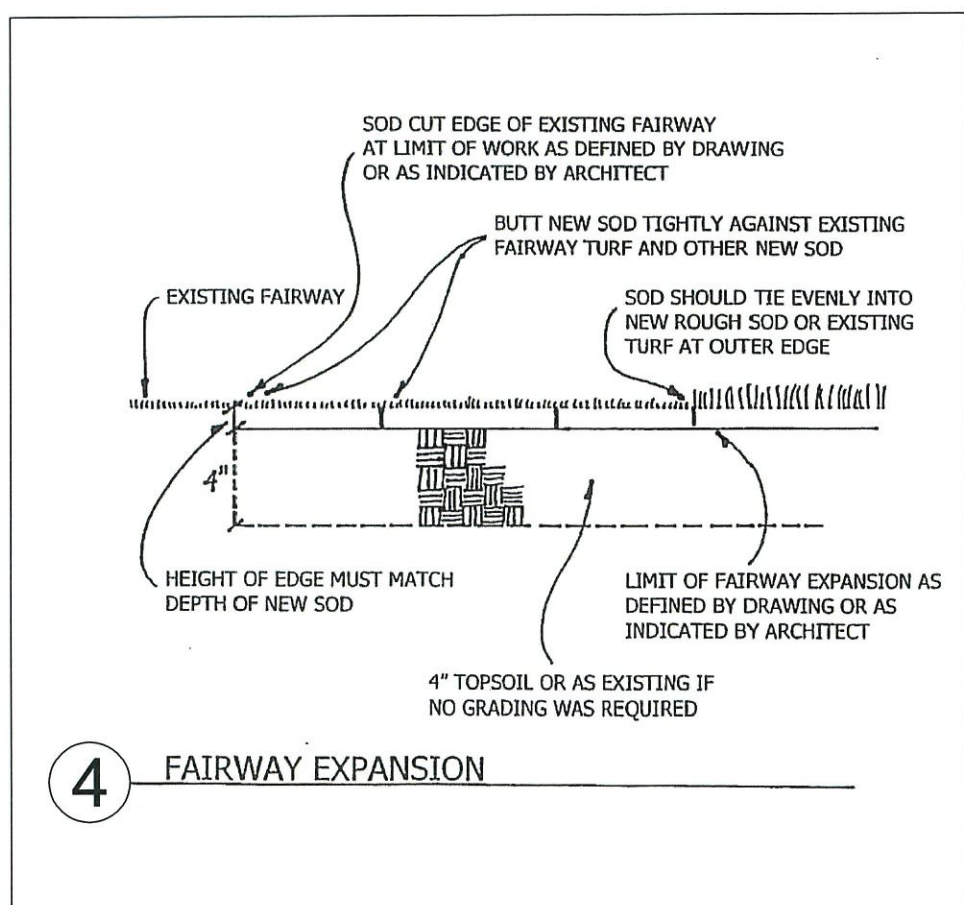
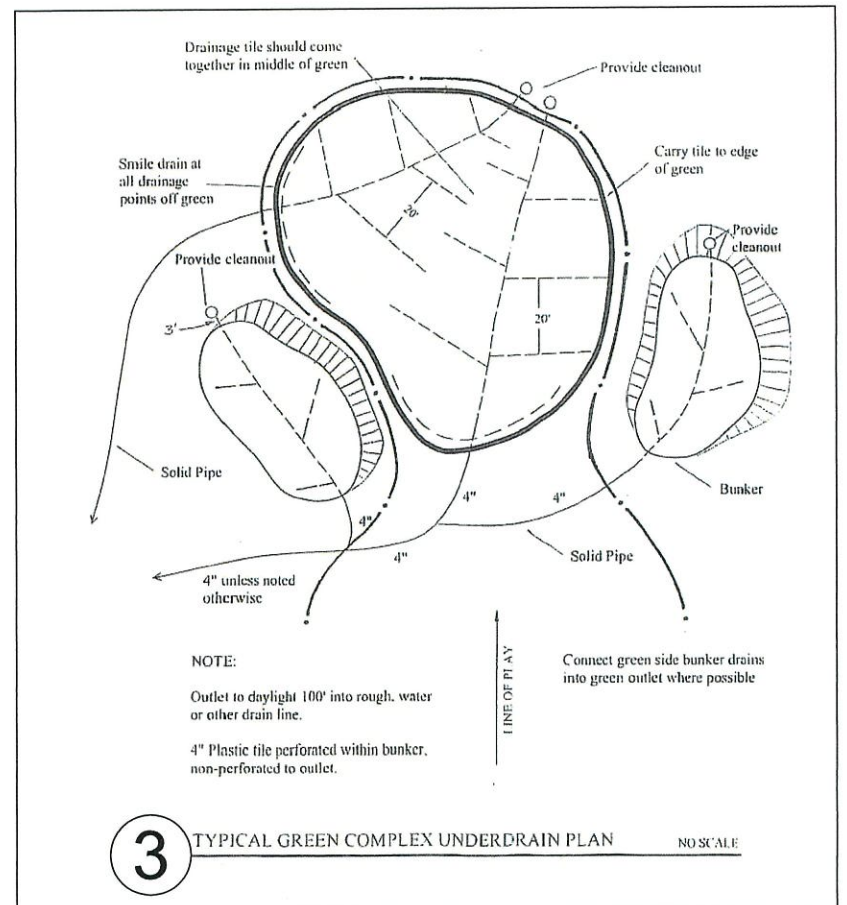
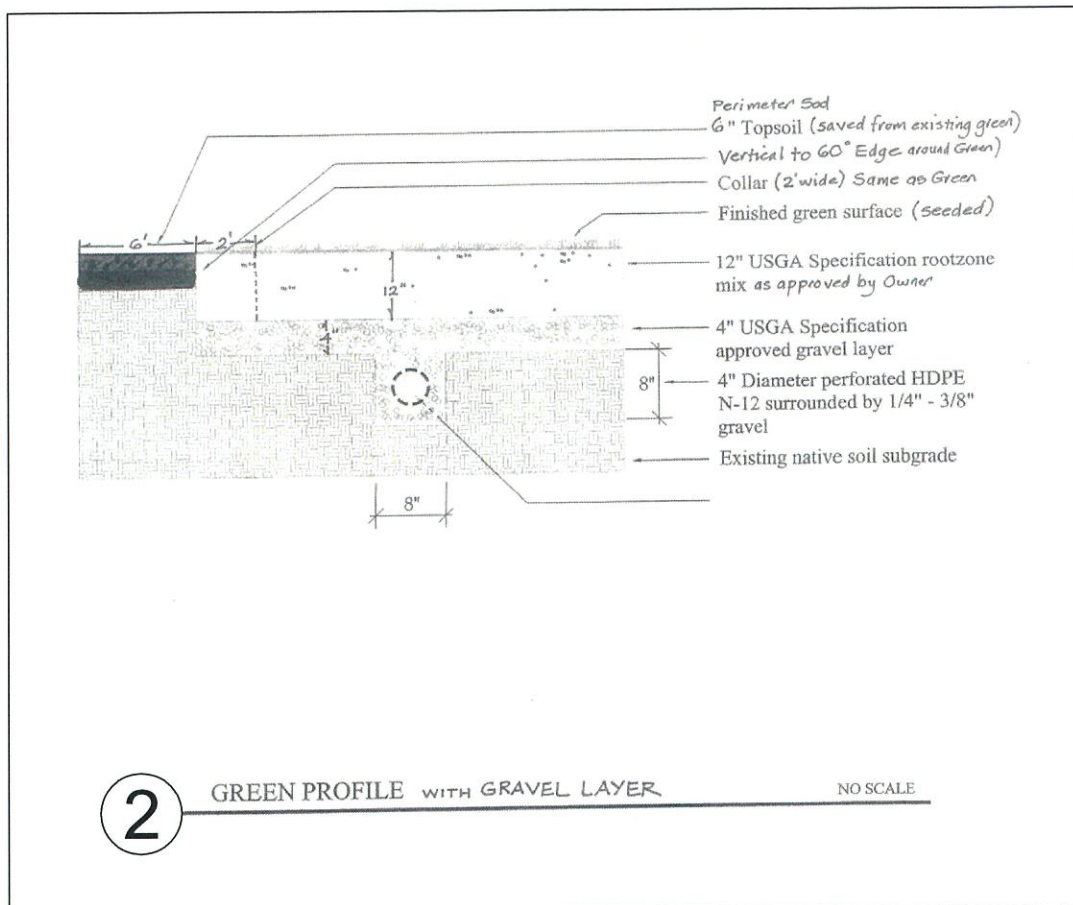
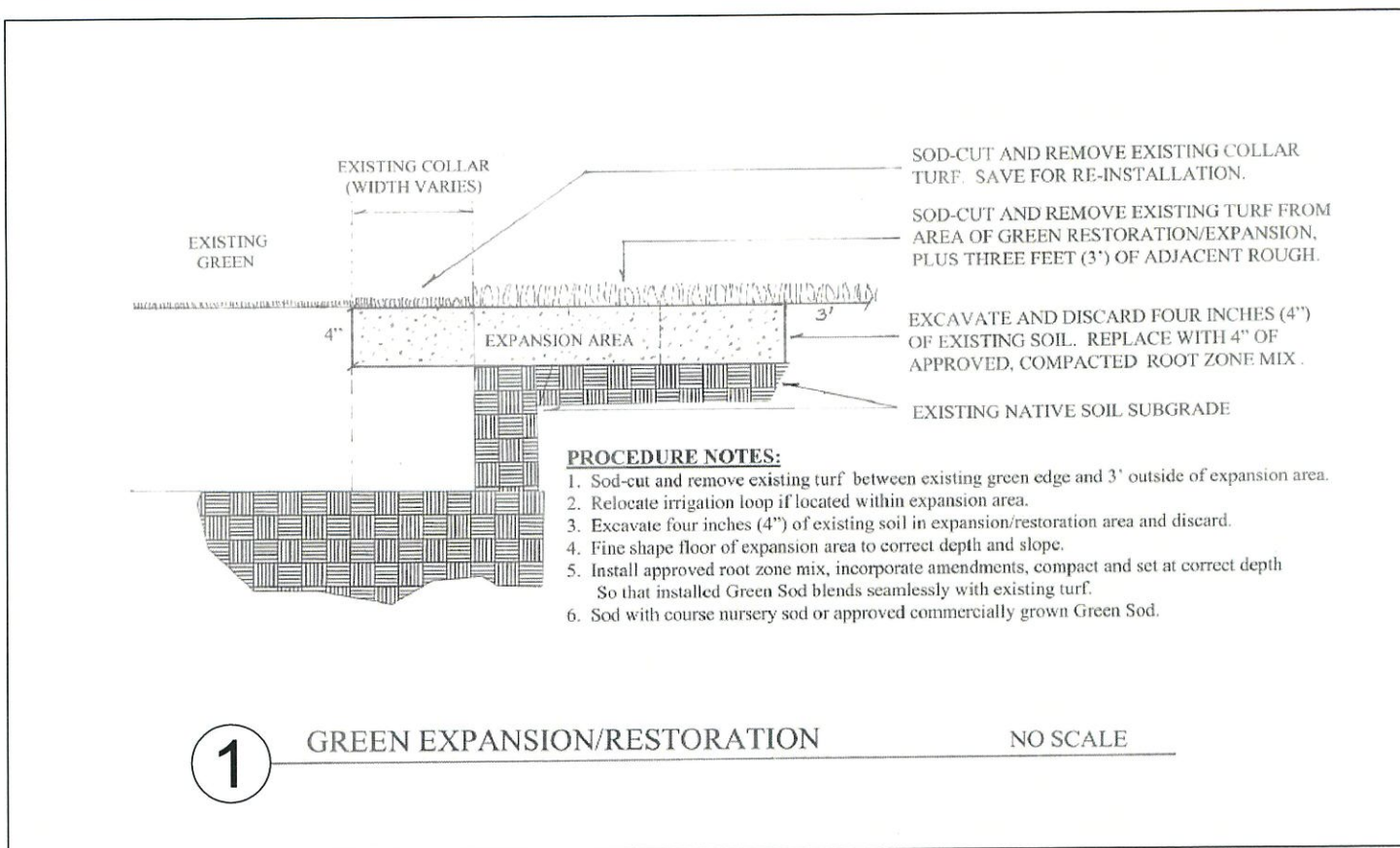
PUTTING GREEN



**JAMES BARRETT ASSOCIATES LLC**  
 GOLF COURSE IRRIGATION DESIGN AND CONSULTING  
 P.O. Box 155 • Roseland, New Jersey 07068  
 (973) 364-9701 • Fax: (973) 364-9702

Howell Park  
 Irrigation Mechanical

Design date  
 01/07/21



NO SCALE

Location:  
**HOWELL PARK**



Project Name:  
**Green Renovation Project at:  
HOWELL PARK GOLF COURSE**

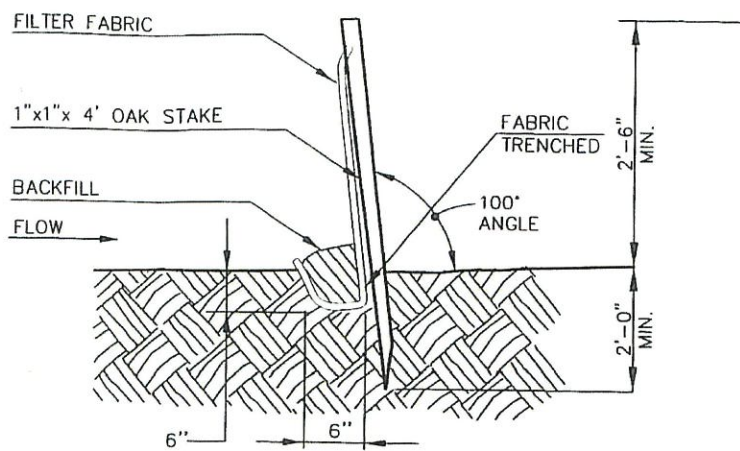
Project No. **221015**

No	Date	Revision
1	2/25/21	Draft
2	4/25/22	Green Reconstruction & Numbers

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Sheet Title:  
**GOLF  
DETAILS  
Sheet 12**





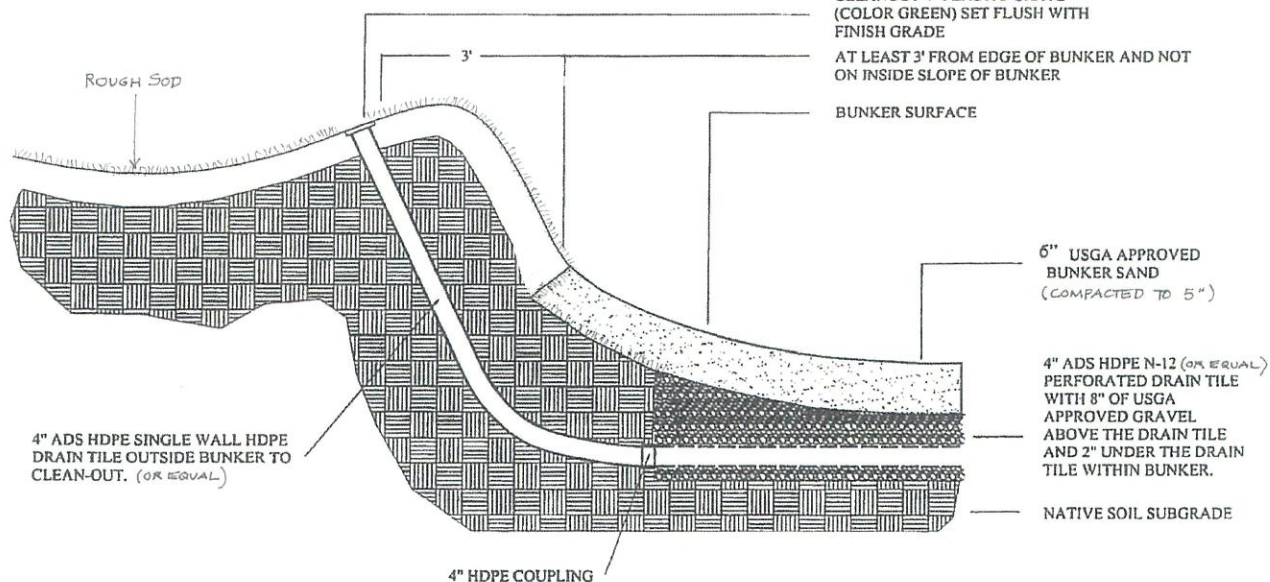
**SILT FENCE EROSION BARRIER NOTES:**

- A. MINIMUM LENGTH OF SILT FENCE IS 15 LF.
- B. MAXIMUM POST SPACING IS 8'-0".
- C. JOINTS ONLY AT SUPPORT POST WITH MINIMUM 2' OVERLAP, SECURELY SEALED.
- D. SEDIMENTATION DEPOSITS SHALL BE REMOVED WHEN THEY REACH 1/2 THE HEIGHT OF THE SILT FENCE.
- E. SILT FENCE SHALL NOT BE USED IN A WATERCOURSE.
- F. UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS, AND WHEN DIRECTED BY THE ENGINEER, FENCE WILL BE REMOVED AND ANY SEDIMENTATION WILL BE THINLY SPREAD UPON EXISTING GROUND COVER.

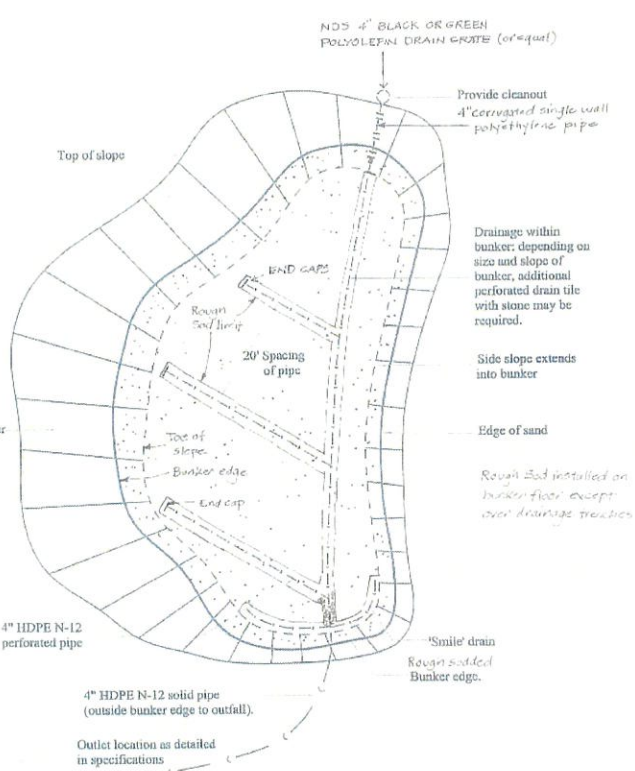
**5<sup>B</sup> SILT FENCE EROSION BARRIER**

**EROSION CONTROL INSTALLATION NOTES:**

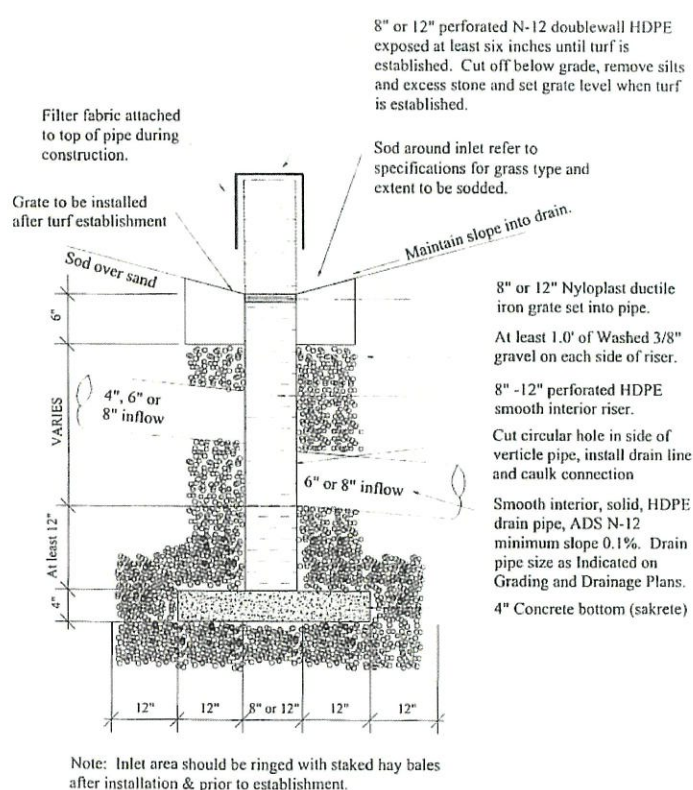
- 1. EROSION CONTROL MEASURES SHALL BE INCORPORATED IN THE SEQUENCE OF CONSTRUCTION TO PREVENT SEDIMENT LADEN WATER FROM LEAVING THE SITE.
- 2. AREAS SUBJECT TO EROSION SHALL BE MINIMIZED IN TERMS OF TIME AND AREA.
- 3. IN GENERAL, WORK REQUIRING EROSION CONTROL INCLUDES EXCAVATIONS, FILLS, DRAINAGE, SWALES AND DITCHES, ROUGH AND FINISH GRADING, AND STOCKPILING OF EARTH.
- 4. DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT OF SILT FENCE ACTIVITIES.
- 5. PERMANENTLY STABILIZE EACH COMPLETED SEGMENT OF CONSTRUCTION.
- 6. THE CONTRACTOR SHALL REMOVE SILT FENCE AND ALL ACCUMULATED SILT AND DEBRIS AFTER COMPLETION OF CONSTRUCTION OPERATIONS. SILT FENCE SHALL BE IN PLACE AT ALL TIMES DURING CONSTRUCTION.
- 7. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL SILT AND DEBRIS FROM EACH DRAINAGE STRUCTURE UPON COMPLETION OF THE PROJECT.
- 8. OBJECTS AND/OR AREAS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
- 9. ALL DISTURBED AREAS SHALL BE RESTORED TO EXISTING GRADE.



**6 BUNKER PROFILE AND CLEANOUT WITH SOD LINER NO SCALE**

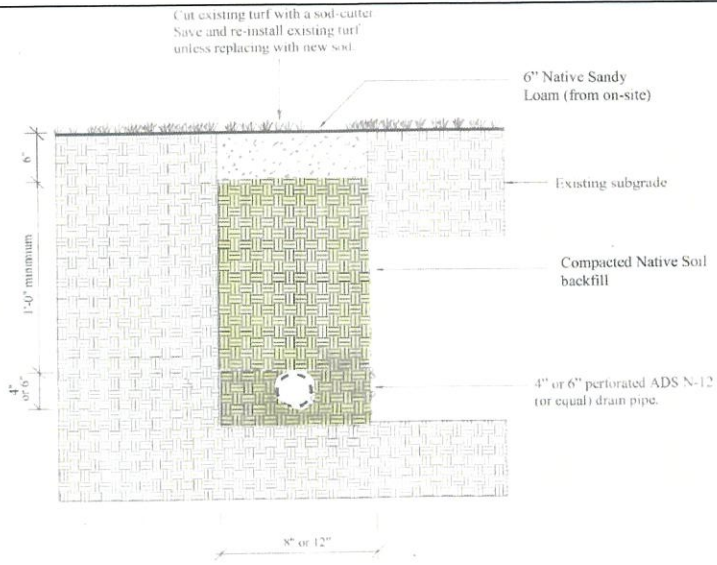


**7 BUNKER UNDERDRAIN PLAN NO SCALE**

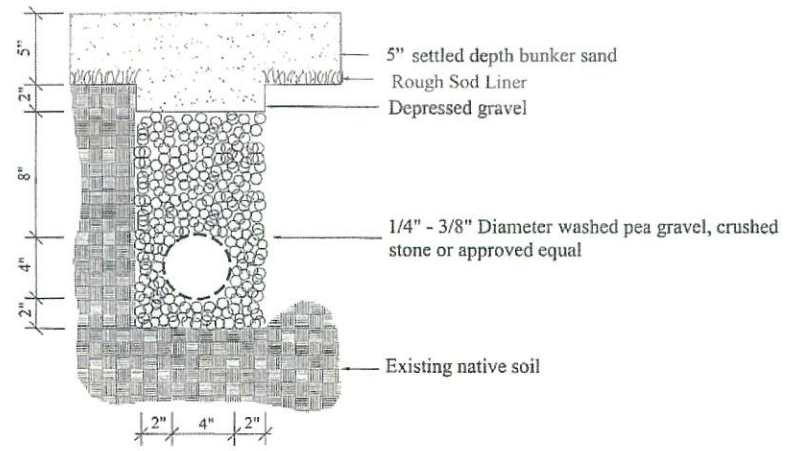


**8 TYPICAL 8" or 12" DRAINAGE INLET NO SCALE**

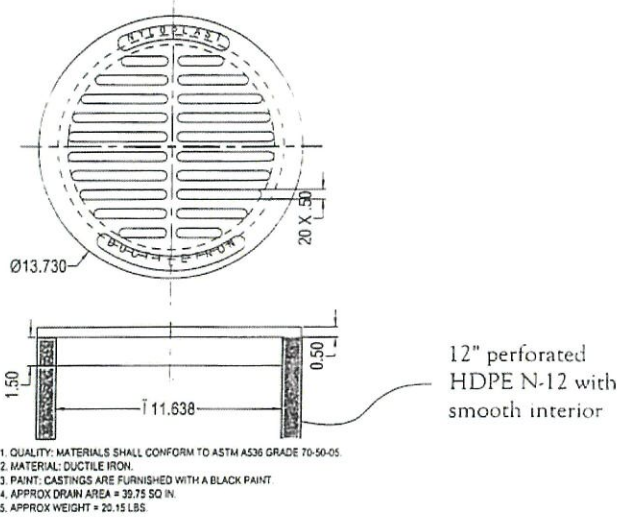
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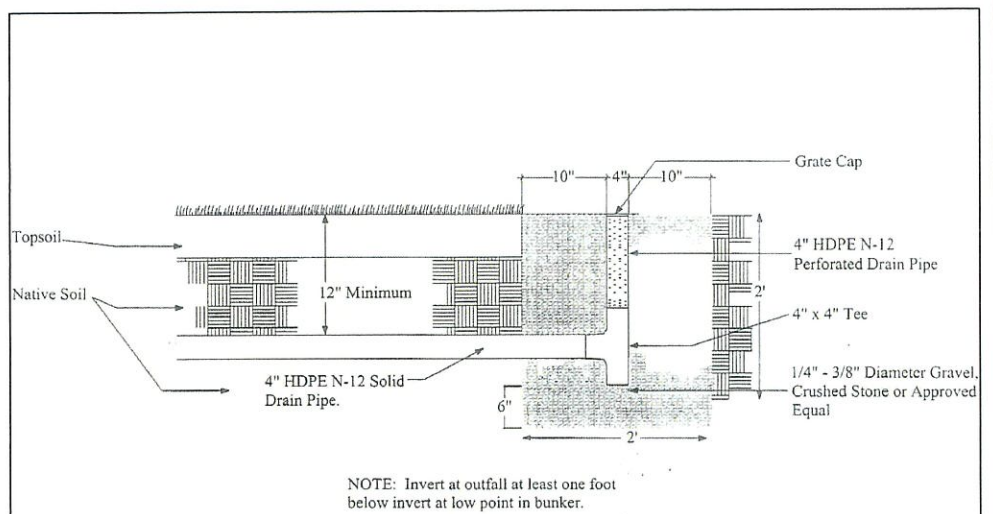
**9** TYPICAL 4" OR 6" SOLID HDPE PIPE NO SCALE



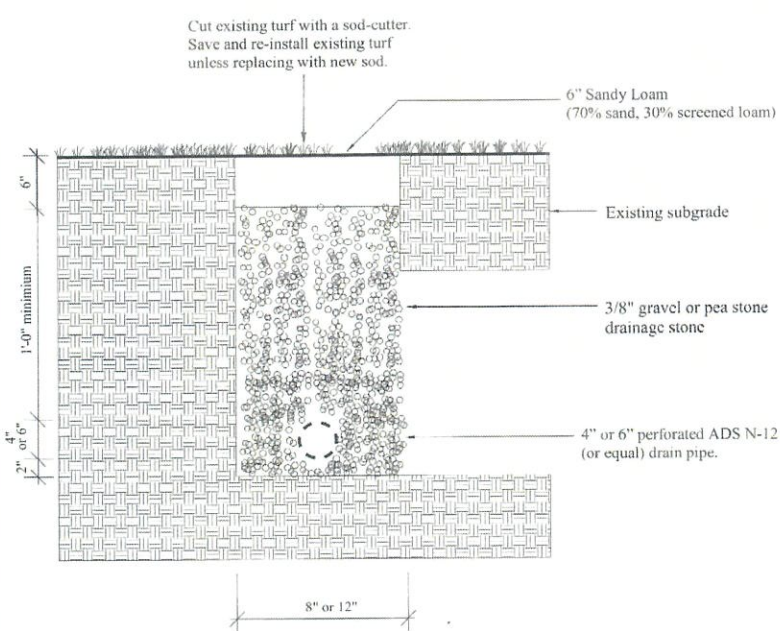
**10** BUNKER UNDERDRAIN SECTION NO SCALE



**11** TYPICAL 12" NYLOPLAST DROP IN GRATE NO SCALE



**12** SUMP WITH BUBBLER OUTFALL NO SCALE





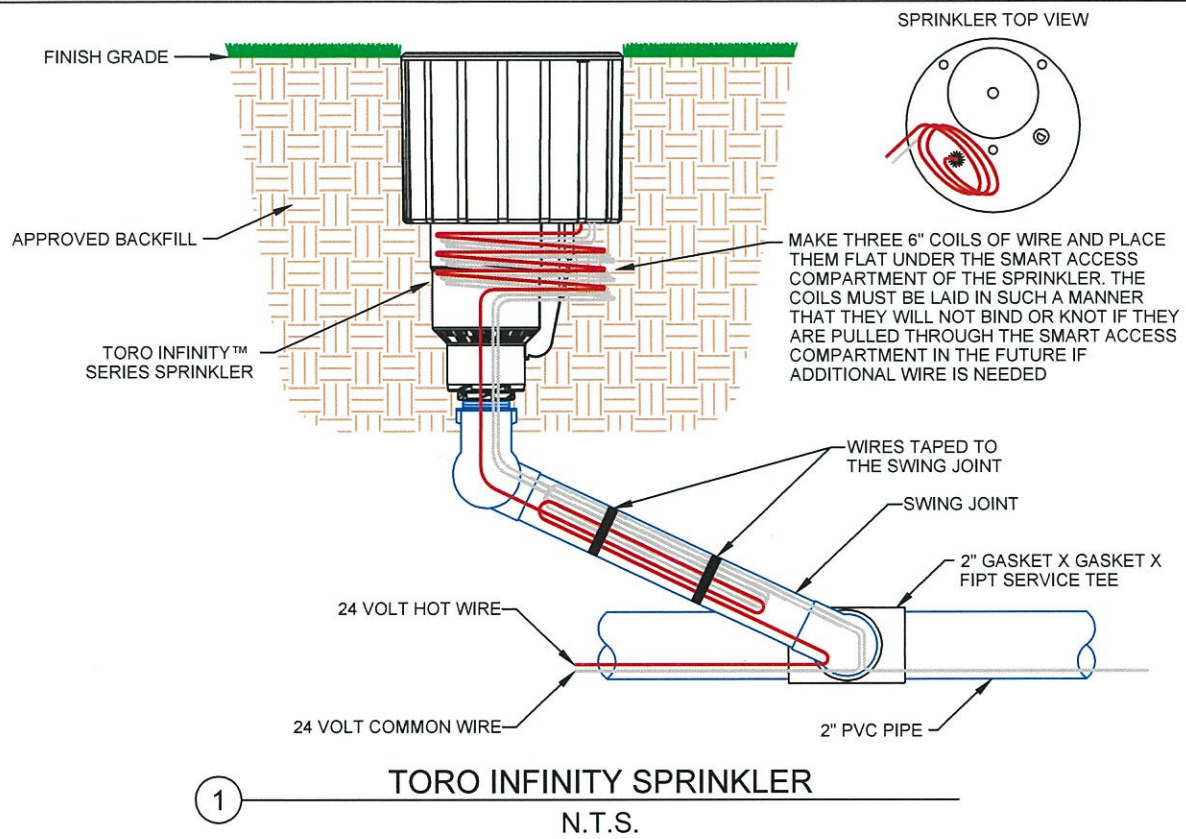
**13** TYPICAL SLIT TRENCH DETAIL NO SCALE

**CONSTRUCTION NOTES:**

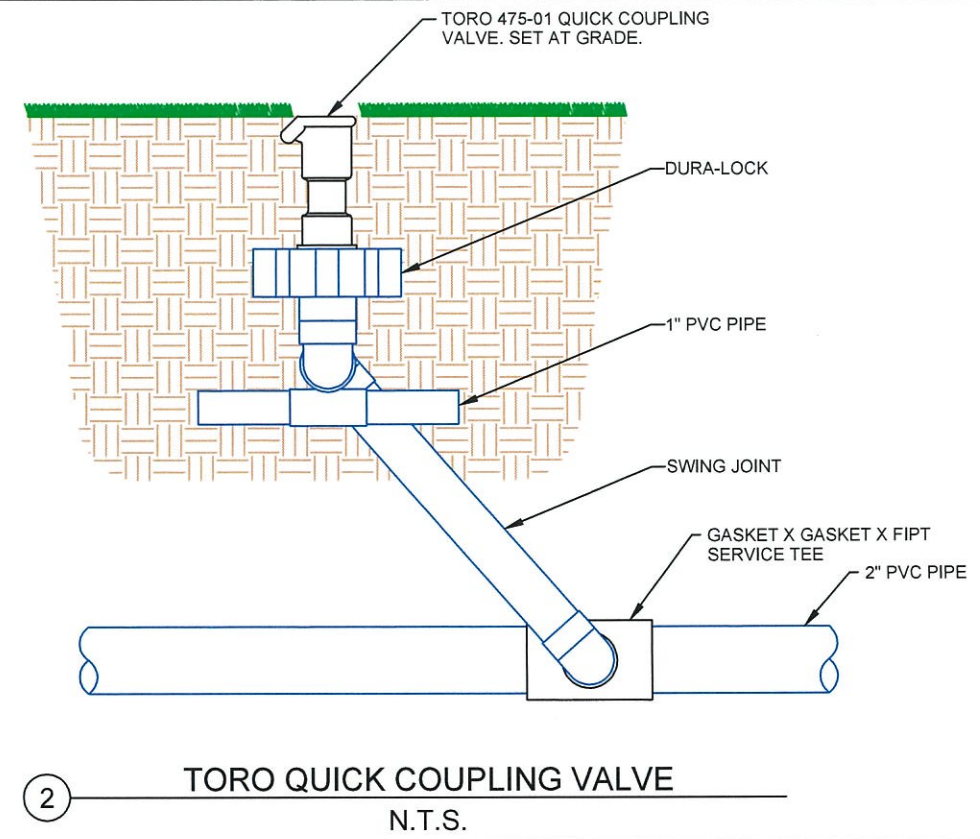
1. IN ACCORDANCE WITH MGL CHAPTER 82, SECTION 40 INCLUDING ALL AMENDMENTS, ALL CONTRACTORS SHOULD NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK, AND CALL DIGSAFE (1-800-322-4844).
2. UNLESS SPECIFICALLY NOTED TO BE SAVED OR REUSED, ALL SITE FEATURES CALLED FOR REMOVAL SHALL BE TRANSPORTED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE.
3. ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST. THE CONTRACTOR IS FURTHER ADVISED THAT WORK OF THIS CONTRACT IS TO BE ACCOMPLISHED WITHIN A WORKING GOLF COURSE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT SENSITIVE TURF AND COURSE FEATURES FROM DAMAGE DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL ALSO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE CONSTRUCTION PERIOD.
4. THE IRRIGATION SYSTEM IS FULLY OPERATIONAL AND MUST BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD.
5. IRRIGATION HEADS LOCATED WITHIN THE CONFINES OF WORK SHALL BE REMOVED AS REQUIRED BY THE OWNER PRIOR TO CONSTRUCTION. COORDINATE ALL IRRIGATION HEAD REMOVAL WITH THE GOLF COURSE SUPERINTENDENT. IRRIGATION LINES SHALL BE MARKED OUT BY THE GOLF COURSE SUPERINTENDENT PRIOR TO CONSTRUCTION. DAMAGE TO IRRIGATION PIPING, VALVES, AND RELATED APPURTENANCES SHALL BE REPAIRED TO THE SATISFACTION OF PROJECT REPRESENTATIVES AT NO COST TO THE CITY.
6. THE LIMITS OF PROPOSED CART PATH INSTALLATIONS ARE APPROXIMATE AND SHALL BE MARKED OUT BY PROJECT REPRESENTATIVES.
7. SURPLUS OR UNSUITABLE SOIL BORROW MATERIALS GENERATED FROM THE EXCAVATION FOR FAIRWAY RENOVATION WORK SHALL BE REMOVED FROM THE PREMISES AND DISPOSED OF IN A PROPER AND LEGAL MANNER

NO SCALE

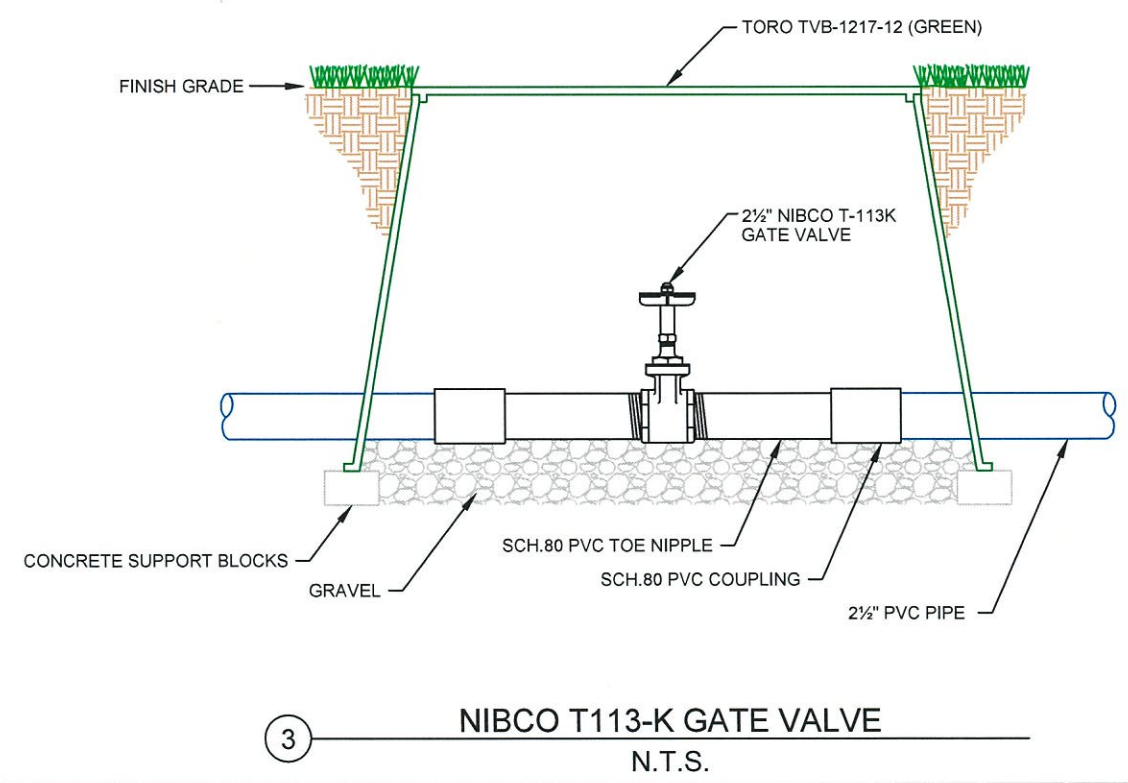
Location: <b>HOWELL PARK</b>		Project Name: <b>Green Renovation Project at: HOWELL PARK GOLF COURSE</b>	No	Date	Revision	Sheet Title: <b>GOLF DETAILS</b>	
		Project No. <b>221015</b>	1	2/25/21	Draft		
			2	4/25/22	Numbers	Sheet 14	
			Approved By:				Date:



① TORO INFINITY SPRINKLER  
N.T.S.



② TORO QUICK COUPLING VALVE  
N.T.S.

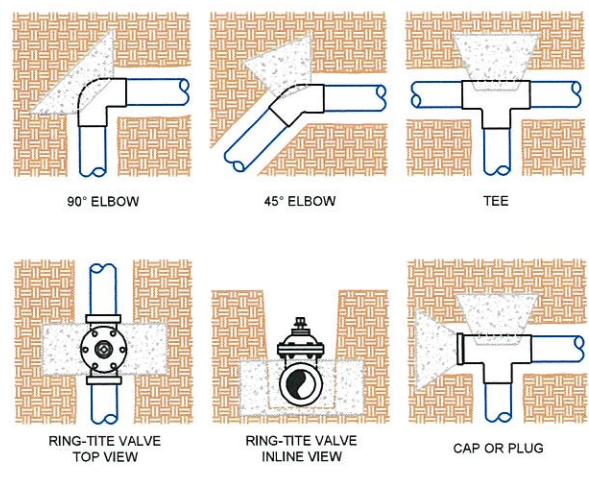


③ NIBCO T113-K GATE VALVE  
N.T.S.

PROVIDE THRUST BLOCKS AT ALL CHANGES IN SIZE OR DIRECTION. ELBOWS, REDUCERS, PLUGS, VALVES AND THE OPPOSITE SIDE OF TEE BRANCHES ALL REQUIRE THRUST BLOCKING.

THE SIZE OF THE BLOCK IS DETERMINED BY THE WORKING PRESSURE, THE SIZE AND TYPE OF FITTING, AND SOIL CONDITIONS AT THE JOB SITE. TO CALCULATE THE AREA OF CONTACT WITH THE SOIL, FOLLOW THESE STEPS:

1. CALCULATE THE THRUST BY SELECTING THE VALUE BY SIZE AND TYPE OF FITTING (TABLE 1) AND MULTIPLY THAT VALUE BY THE MAXIMUM WORKING PRESSURE AT THE FITTING
2. DIVIDE THE TOTAL THRUST BY BEARING CAPACITY OF THE SOIL IN EXCAVATION (TABLE 2)
3. THE RESULT IS THE TOTAL AREA (IN SQUARE FEET) OF THRUST BLOCK REQUIRED TO BE IN CONTACT WITH THE UNDISTURBED SOIL OF THE TRENCH WALL.



**TABLE 1  
FITTING THRUST FACTORS**

SIZE	TEE, CAP OR VALVE	90° ELBOW	45° ELBOW	22.5° ELBOW
1 1/2	2.94	4.16	2.25	1.15
2	4.56	6.45	3.50	1.78
2 1/2	6.85	9.40	5.10	2.60
3	9.80	13.90	7.51	3.82
4	16.20	23.00	12.40	6.31
6	34.80	49.20	26.70	13.60
8	59.00	83.50	45.20	23.00
10	91.50	130.00	70.00	35.80
12	129.00	182.00	98.50	50.30

**TABLE 2  
SOIL BEARING LOADS**

SOIL TYPE	SAFE BEARING LOAD LBS PER SQ FT
MUCK, PEAT, ETC.	0
SOFT CLAY	500
MEDIUM CLAY	1,000
SAND	1,000
SAND & GRAVEL	1,500
COMPACT SAND	3,000
SAND & GRAVEL CEMENTED W/CLAY	4,000
HARD PAN CLAY	5,000
SOUND SHALE	10,000

④ THRUST BLOCK  
N.T.S.



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# Howell Park Irrigation Details

Design date  
01/07/21