

July 21, 2023

**Buck Park Infield Renovations
Orcas Island Park and Recreation District
RFP #20230718**



RWD Landscape Architects
4405 7th Avenue, SE
Lacey, WA 98503
360.456.3813
d2@rwdroll.com

Project Manual

Orcas Island Park and Recreation District
 Buck Park Infield Renovations
 RFP #20230718

BID Due:
 5:00 PM, Wednesday
 August 9, 2023

ELECTRONIC BID DELIVERY LOCATION
 Submit This Bid Form (3 Pages) in PDF format to:
 Terri Rodgers, Director, terri@oiprd.org

**** PLEASE PRINT CLEARLY BELOW ****

TOTAL BASE BID	
(NOT INCLUDING WASHINGTON SALES TAX)	
↓ PRICE WRITTEN-OUT COMPLETELY IN WORDS ↓	↓ PRICE IN NUMBERS ONLY ↓
_____ (U.S.) DOLLARS	\$ _____

Printed Name of Person Signing Bid Proposal ↑	Firm Name (Printed legibly) ↑
Title ↑ (Estimator, Vice-President, Owner, Principal, etc.)	Physical Street Address ↑ (NO PO Boxes Here)
Contractor Registration No. & Expiration Date ↑	City ↑ State Zip + PLUS 4
Taxpayer Identification Number ↑	Area Code Phone Number ↑
Washington UBI Number ↑	Area Code Fax Number ↑
Employment Security Department Number ↑	Area Code Cellular Phone Number ↑
PO Box for US Mail Delivery (if any) ↑	E-Mail Address (Enter N/A if none) ↑

The lowest responsible lump sum bid price shall be used to determine the Bid Award. All costs shall be "in place" costs and complete, **excluding State Sales Tax**. The Owner reserves the right to make mathematical corrections of multiplication or addition errors on the bid form.

Trench Excavation Safety Provisions: If the contract contains any work which requires trenching exceeding a depth of four (4) feet, all costs for adequate trench safety systems shall be identified as a separate bid item in compliance with Chapter 39.04 RCW. The purpose of this provision is to ensure that the bidder agrees to comply with all relevant trench safety requirements of Chapter 49.17 RCW. This bid amount shall be considered part of the total base bid. **Include a lump sum dollar amount (even if the value is \$0.00) to be considered responsive to the bid solicitation.**

Wage Certification: The bidder certifies under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct: within the three-year period immediately preceding the bid solicitation date, the bidder has not been a "willful" violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

BASE BID ITEMS

BE SURE TO INCLUDE UNIT PRICES IF THE BOX IS NOT SHADED

ITEM NO.	DESCRIPTION	EST QTY	UNIT PRICE	TOTAL AMOUNT
1	Trench Safety Excavation Provisions – Per Lump Sum	1 LS		
2	Mobilization per WSDOTSS 1-09.7 – per Lump Sum	1 LS		
3	Infield Renovation – Lump Sum	1 LS		
4	Sportsfield Irrigation – Lump Sum	1 LS		
5	Sportsfield Sod – Lump Sum	1 LS		
TOTAL BASE BID MUST AGREE WITH PAGE 1 BID AMOUNT →				\$

The Bidder declares that they have carefully examined the site of the proposed work, the Drawings, Specifications and all of the conditions affecting the work. Therefore, the Bidder proposes to provide all labor, equipment, materials, and permits and to perform all work as required by, and in strict accordance with the Contract Documents for the bid amounts provided herein.

The Owner reserves the right to accept or reject all bids and to waive informalities. No withdrawal of bids after bid deadline, or before award of contract, unless award is delayed over thirty (30) days.

Notice to Proceed and Access to Project Site:

Notice to Proceed will be provided to the Contractor as soon as all contractual matters have been resolved and Contractor shall have access to the Project Site on Monday, August 21, 2023.

Substantial and Final Completion Dates:

Bidder agrees to achieve Substantial Completion (including accepted alternate bid items) in accordance with drawings and specifications by end of day, Tuesday, October 31, 2023. Final Completion shall be achieved by the end of the working day on Tuesday, November 7, 2023.

Addenda: Receipt of addenda numbered [] through [] is hereby acknowledged.

Signature of Authorized Bidder Representative

Date Signed:

BUCK PARK INFIELD RENOVATION PROJECT
SECTION 00 01 00
TABLE OF CONTENTS

DIVISION 00 -- PROCUREMENT AND CONTRACTING REQUIREMENTS

00 01 00 Table of Contents 1 page
Bid Proposal..... 3 pages

DIVISION 1 - - GENERAL REQUIREMENTS

01 20 00 Measurement and Payment 3 pages

DIVISION 32 -- EXTERIOR IMPROVEMENTS

32 21 00 Infield Renovation..... 5 pages
32 84 00 Sportsfield Irrigation 8 pages
32 92 23 Sportsfield Sod 7 pages

END OF TABLE OF CONTENTS

PART 1 – GENERAL

1.01 SUMMARY

- A. This section further describes Measurement and Payment for this project.

1.02 SCHEDULE OF VALUES

- A. The Contractor shall submit a preliminary Schedule of Values to the Owner. After receiving comments by the Owner, the Contractor shall submit a final Schedule of Values prior to submitting first Application for Payment.
- B. The Schedule of Values shall assign a fair, reasonable, and equitable dollar value for major activities on the Contractor's construction schedule submitted pursuant to the requirements of the Contract Documents. In addition, a detailed breakdown of lump sum prices shall be included in the Schedule of Values.
- C. The Schedule of Values shall specifically indicate furnished and installed cost for every major activity of Work.
- D. Each activity's assigned value shall consist of labor, equipment and materials cost, and a pro rata contribution to overhead and profit. Breakdown shall be so organized as to facilitate assessment of work and payment of subcontractors.
- G. The sum of the assigned values shall equal the lump sum price of the activity.

1.03 MEASUREMENT

- A. Measurement for all items shall be as indicated in these Specifications for unit price and lump sum price bid items. Bid items listed in the Bid Proposal are described in detail in this Section.

1.04 PAYMENT

- A. Payment for all work will be made at the contract unit price or lump sum price as indicated in the Bid Proposal, payment of which shall constitute full compensation, for a complete installation.

1.05 DESCRIPTION OF BID ITEMS

- A. The following is a list of bid items for the project. The contract price for each item constitutes full compensation for furnishing all equipment, labor, materials, appurtenances, and incidentals and performing all operations necessary to construct and complete the various bid items in accordance with the Contract Documents. Payment for each item shall be considered as full compensation, notwithstanding that minor features may not be mentioned herein. Work paid for under one item will not be paid for under any other item. If a particular item of work shown on the Drawings or described in Specifications is not described in a specific bid item, this item of work shall be considered as incidental to the work and the costs for this work shall be merged into the various respective unit price and lump sum bid items.

B. ITEM 1 - TRENCH EXCAVATION SAFETY SYSTEMS

1. Measurement: Will be measured by lump sum.
2. Payment: The lump sum contract price for TRENCH EXCAVATION SAFETY SYSTEMS shall include all costs for the labor, materials, and equipment required to provide sheeting, shoring, and bracing of trenches and open excavations as required to meet the Washington Industrial Safety and Health Act, Chapter 49.17 RCW if the Contractor determines Trench Excavation Safety Systems are required in the completion of this Contract. These costs shall not be considered incidental to any other bid item.

C. ITEM 2 - MOBILIZATION

1. Measurement: Will be measured by lump sum.
2. Payment: The lump sum contract price for MOBILIZATION shall include all costs for the labor, materials, and equipment required for mobilization and demobilization on the project. The lump sum price shall include the costs for administrative requirements for the project such as bonds and insurance, temporary facilities, photographs, removal of equipment and materials from the site, and final clean-up.

Payment for MOBILIZATION shall be as follows:

70% Payment: When Contractor has mobilized on-site and temporary facilities are in place. If mobilization is delayed, a partial payment of this amount may be made for bonds and insurance.

100% Payment: When Project is Physically Complete.

D. ITEM 3 - INFIELD RENOVATION

1. Measurement for the INFIELD RENOVATION shall include but not be limited to staking and layout, stripping, demolition, grubbing, excavation, earthwork, screening existing infield material, incorporating Owner supplied infield clay amendment, rough and finish grading, setting new base, plate, and pitching rubber anchors, pitcher's mound construction, home plate area reinforcement, all materials not supplied by the Owner, cleanup, legal disposal of all waste materials, and all work described in the Bid Documents that is not included in any other Bid Item and shall be measured on a lump sum basis.
2. Payment: The lump sum contract price for INFIELD RENOVATION shall include all costs for the labor, materials, and equipment required to complete all of the work defined in the Bid Documents and not included in any other Bid Item.

BUCK PARK INFIELD RENOVATIONS
SECTION 01 20 00
MEASUREMENT AND PAYMENT

E. ITEM 3 – SPORTSFIELD IRRIGATION

1. Measurement for the SPORTSFIELD IRRIGATION shall include but not be limited to all irrigation work described in the Bid Documents that is not included in any other Bid Item and shall be measured on a lump sum basis.
2. Payment: The lump sum contract price for SPORTSFIELD IRRIGATION shall include all costs for the labor, materials, and equipment required to complete all of the work defined in the Bid Documents and not included in any other Bid Item.

F. ITEM 4 – SPORTSFIELD SOD

1. Measurement for the SPORTSFIELD IRRIGATION shall include but not be limited to all irrigation work described in the Bid Documents that is not included in any other Bid Item and shall be measured on a lump sum basis.
2. Payment: The lump sum contract price for SPORTSFIELD IRRIGATION shall include all costs for the labor, materials, and equipment required to complete all of the work defined in the Bid Documents and not included in any other Bid Item.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

1 PART 1 - GENERAL

2 1.01 DESCRIPTION

3 Work under this Special Provision includes but is not necessarily limited to amending the softball
4 and baseball infields with an Owner-purchased infield clay amendment as shown on the
5 Drawings.

6 1.02 QUALITY ASSURANCE

7 A. Protection:

8 Provide adequate protection from damage for all areas, structures, and surfaces, including
9 settlement and erosion, until final project acceptance. Replace all damaged work at no additional
10 cost to Owner.

11 PART 2 - MATERIALS

12 2.01 INFIELD CLAY AMENDMENT

13 A. Infield Clay Amendment shall be Owner Purchased and Contractor Installed (OPCI).

14 B. Material:

- 15 1. Shall be Profile Products "Turface 5-Star Clay".
16 2. Equal or substitute materials are not allowed. This product is Owner purchased,

17 C. Delivery:

- 18 1. Material shall be drop-shipped to the Buck Park parking lot by Orcas Island Freight on pallets
19 holding one (1) ton of material in 50 lb. bags.
20 2. A total of 30 tons of material (30 pallets total) will be delivered in two, 15 pallet shipments
21 and off-loaded in the parking lot.
22 3. Contractor is responsible for transporting the 30 tons of material from the parking lot down
23 to the work areas.

24 2.02 HOME PLATE AREA CLAY REINFORCEMENT

25 A. Home Plate Area Clay Amendment shall be Owner Purchased and Contractor Installed (OPCI).

26 B. Material:

- 27 1. Shall be Profile Products "Moundmaster Clay".
28 2. Equal or substitute materials are not allowed. This product is Owner purchased,

1 PART 3 - EXECUTION

2 3.01 STAKING, LAYOUT, AND PREPARATION

- 3 A. Remove all existing bases, home plates, and pitching rubbers and their anchors.
- 4 B. Stake all improvements per the Drawings as follows:
- 5 1. Revised base, home plate, and pitching rubber locations for both infields.
- 6 2. Infield perimeter edges.
- 7 C. Obtain Landscape Architect's inspection and approval of the infield layout. Make adjustments as
- 8 directed by the Landscape Architect.

9 3.02 EXISTING INFIELD MATERIAL SCREENING AND GRADING

- 10 A. As indicated on the Drawings.
- 11 B. Water settle entire infield surface.
- 12 C. Fine grade to attain an accurate, uniform and true grade complying with tolerances.
- 13 D. Grading tolerances to laser level accuracy shall comply with the following.
- 14 1. Plus or minus 0.05 foot of elevation shown on the plans. No deviation greater than 0.05'
- 15 in twenty (20') feet in any direction will be accepted as measured by a taught string test.

16 3.03 INFIELD CLAY AMENDMENT PREPARATION AND PLACEMENT

- 17 A. Apply clay amendment to the area of the infield designated on the Drawings.
- 18 B. Incorporate the infield clay amendment as indicated on the Drawings.
- 19 C. After incorporation, water settle entire infield surface.
- 20 D. Fine grade to attain an accurate, uniform and true grade complying with tolerances.
- 21 E. Grading tolerances to laser level accuracy shall comply with the following.
- 22 1. Plus or minus 0.05 foot of elevation shown on the plans. No deviation greater than 0.05'
- 23 in twenty (20') feet in any direction will be accepted as measured by a taught string test.

24 3.04 HOME PLATE AREA CLAY REINFORCEMENT

- 25
- 26 1. Home Plate Area Clay Reinforcing: Excavate to 4 inch depth, install and compact the
- 27 Moundmaster Clay material according to Profile Products directions. Install in 2"
- 28 compacted lifts to 90% MDD. Cover reinforced area with Infield Mix to a compacted
- 29 depth of ¾". Fine grade uniform and smooth.
- 30
- 31

1 3.05 BASE, HOME PLATE, AND PITCHING RUBBER ANCHOR INSTALLATION
2

- 3 A. Install new anchors in the locations indicated on the Drawings.
4 B. Install rubber plugs or other stopper devices to keep anchors clear of infield material.

5 3.06 FINAL GRADING OF INFIELDS

- 6 A. After installing new anchors and plugs, thoroughly and uniformly wet the infield to a depth of 4
7 inches. Do not allow infield to become soaked to where water is standing or muddy condition
8 exists.
9 B. Allow infield to dry to a point where the surface can be fine graded by a machine without creating
10 ruts or deforming the infield surface.
11 C. Smooth grade the infields and then roll and compact to a smooth, firm surface.

12 3.07 CLEANUP

- 13 A. Dispose pallets, plastic bags containing the clay materials, and all other trash and debris legally
14 off site.
15 B. Clean up entire area of all excess material, debris, etc., and leave project in a neat, orderly
16 condition.

17 END OF SECTION

1 PART 1 - GENERAL

2 1.01 SCOPE OF WORK

- 3 A. The work of this Section shall be to provide a complete and operable, underground, automatic
4 irrigation system with complete and uniform water coverage as described in the Drawings and
5 this Section.
- 6 B. The items of work to be performed include, but are not limited to:
- 7 1. Provide trenching and backfilling for piping/wiring.
 - 8 2. Provide and install pipe, sprinkler heads, fittings, valves and valve boxes.
 - 9 3. Provide and install valve control wire.
 - 10 4. Guarantee, maintenance, protection and system testing.
 - 11 5. All other related items required to complete the work in the best-accepted trade practices.

12 1.02 SYSTEM COVERAGE CRITERIA

- 13 A. Coverage: The irrigation system shall provide minimum 100% minimum overlap coverage of all
14 areas. Irrigation heads shall be located and adjusted to avoid over-spray on paved surfaces.
- 15 B. Contractor shall inform the Owner of any and all problems with pressure and/or flow to the point
16 of connection.

17 1.03 PROTECTION OF WORK, PROPERTY, UTILITIES AND PERSONS

- 18 A. Provide protection of all property, persons, work in progress, structures, utilities, walls, walks,
19 curbs and paved surfaces from damages incurred arising from this Contract. The Contractor
20 shall pay for any repair of such damage at no additional cost to the Owner. Verify locations of
21 all underground utilities prior to commencement of work.

22 1.04 SUBMITTALS

- 23 A. At least 10 days prior to beginning work described in this section submit the following data for
24 products submitted for review.
- 25 1. Manufacturer's descriptive data including operating materials used in products, test
26 certificates, special features, guarantees and other data required to completely describe the
27 product.
 - 28 2. Samples of the proposed substitution when requested. Samples will be returned to
29 Contractor whether or not approval is given.
- 30 B. Product Data: Material and equipment composite data sheets shall be submitted for the
31 following:
- 32 1. All pipe materials
 - 33 2. Quick coupling valves (Inc. key and hose swivel)
 - 34 3. Control valves
 - 35 4. Control wire
 - 36 5. Wire splices (all types)
 - 37 6. Swing joints

- 1 7. Sprinkler heads/nozzles
- 2 8. Valve boxes
- 3 9. Battery Powered Automatic Controller as indicated on Drawings.

4 1.05 VERIFICATION OF SITE CONDITIONS

- 5 A. Before proceeding with any work, the Contractor shall verify all dimensions pertaining to the
6 location of irrigation equipment. Contractor shall verify location and depth of service lines,
7 existing irrigation mainline, and available static water pressure provided by the existing irrigation
8 well and pump. Should any error or conflicts in the Drawings and/or Specification be found, the
9 Contractor shall immediately notify the Owner.
- 10 B. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by
11 Owner or others unless permitted under the following conditions and then only after arranging to
12 provide temporary water service according to requirements indicated:
 - 13 1. Notify Owner no fewer than (2) working days in advance of any proposed interruption of
14 water service. Do not proceed with interruption of water service without Owner's written
15 permission.
- 16 C. Finish Grades: Verify the correctness of all finish grades within the work area to insure the
17 proper soil-coverage depth over pipe lines.

18 1.06 GUARANTEE AND REPLACEMENT

- 19 A. All materials and workmanship shall be guaranteed for a period of one year. Guarantee period
20 shall commence when written Final Acceptance is granted. This guarantee does not apply to work
21 or damage done to the system by others after Final Acceptance. Guarantee shall also cover repair
22 of damage to any part of the premises (including planting) resulting from leaks, settlement or
23 other defects in materials, equipment and workmanship to the satisfaction of the Owner.

24 1.07 SYSTEM PROTECTION

- 25 A. Fill and repair depressions and replace construction materials damaged from settlement or repair
26 of irrigation trenches, throughout the warranty period.
- 27 B. Replace defective parts throughout the warranty period.

28 1.08 PERMITS, CODES AND ORDINANCES

- 29 A. Obtain and pay for all necessary permits and fees as required by applicable codes and ordinances
30 for this work.
- 31 B. Comply with all applicable codes, regulations and ordinances.

32 1.09 REVIEWS

- 33 A. Contractor shall coordinate all review processes and dates with the Owner. Contractor shall give
34 the Owner 48 hours' notice prior to any inspection. Contractor is responsible for
35 uncovering/unearthing any sections of installation upon request from the Owner. Contractor is

- 1
- 2 B. responsible for providing inspections of trench depths, head layout, pressure tests and
3 performance tests.
- 4 C. Mainline trench depth, component placement and pressure tests may be accomplished
5 concurrently. Mainline may be installed and tested in sequences, three (3) sequences maximum.
6 Each section shall remain uncovered at all connections and valve assemblies. Each subsequent
7 section shall be tested in conjunction with preceding section (not isolate

8 **PART 2 - PRODUCTS**

9 **2.01 OWNER STANDARD PRODUCTS**

- 10 A. This Sub-Section and also the Drawings specify the standard accepted irrigation products used
11 by the Owner for all irrigation work.
- 12 B. All Owner Standard Products listed and also called out on the Drawings must be provided. No
13 alternative equipment or substitutions are allowed.

14 **2.02 PLASTIC PIPE**

- 15 A. Polyvinyl Chloride Pipe (PVC):
16 1. Pressure Mains, Laterals and Sleeving - All Sizes: Polyvinyl chloride (PVC) 1120, 1220,
17 Schedule 40, solvent weld and shall conform to ASTM D1785.
18 2. Threaded Pipe, Adapters and Nipples: PVC 1120 or 1220, Schedule 80, conforming to
19 ASTM D1785.
20 3. Sleeved fittings shall be PVC Schedule 40, full size unless otherwise noted. Fittings shall
21 be of brand(s) recommended by manufacturer of pipe.
- 22 B. Pipe shall be marked with manufacturer's name, class of pipe, NSF seal and date and shift of
23 manufacturing run. Pipe shall bear no evidence of interior or exterior extrusion marks.
- 24 C. Pipe walls shall be uniform, smooth and glossy. Pipe may be pre-belled or with individual
25 solvent-weld couplings.

26 **2.03 SOLVENT WELD COMPOUND**

- 27 A. Two-step application using Weld-on P-70 purple primer and Weld-on 727 Clear, fast setting PVC
28 glue, or approved equal, as recommended by pipe manufacturer to meet site conditions
29 encountered.

30 **2.04 REMOTE CONTROL VALVES**

- 31 A. Provide Owner Standard Product as described on Drawings.
- 32 B. Each Remote-Control Valve shall be supplied with a identification tag. Each valve shall be
33 numbered as shown on Plan.

1 2.05 IRRIGATION HEADS

- 2 A. Provide Owner Standard Product as described on Drawings.

3 2.06 CONTROL WIRE

- 4 A. All wiring is to be UL labeled type "UF" for direct bury.
- 5 B. Multi-strand control wire, minimum 4 strands, is acceptable.
- 6 C. Wire shall be minimum size #14, up to 1,500 ft and #12 above 1,500 ft.
- 7 D. Wiring is to be supplied in minimum 1,000' continuous lengths.
- 8 E. Underground splices shall be made in a new splice box with vinyl insulated connectors and sealed
9 in Epoxy Resin (3M DBY/DBR or approved equal)
- 10 F. A separate color must be used for common circuit other than that of current transmission to the
11 valve solenoids.
- 12 G. Separate spare wires shall be installed to the splice box as designated in the plans. Spare wires
13 shall be marked "spare."
- 14 H. A separate color must be used for common circuit other than that of current transmission to the
15 valve solenoids.
- 16 I. Electrical Tape: Black plastic, 3/4" wide, spec. grade, minimum .007" thick, all weather type.
- 17 J. Plastic Ties: Clear plastic locking ties. Size to allow for pipe diameters.
- 18 K. Locator wires for below-grade piping shall be #14 bare copper, U.L. approved as UF, ASTM B-
19 3 rated.

20 2.07 VALVE BOXES AND VAULTS

- 21 A. Valve Boxes shall be a combination of polyolefin and fibrous material. Extensions may be
22 required to bring the valve box to the proper level. Boxes shall be as follows:
- 23 1. Quick Coupler Valve, Automatic Control Valve: Carson 12 inch Rectangular Valve Box,
24 Model with 12 inch green plastic, bolt-down, meter box lid with Hex Bolt, or approved
25 equal.
- 26 2. Brick or concrete pavers for valve box support shall be Contractor's choice; confirm with
27 Owner.

28 2.08 BATTERY-POWERED AUTOMATIC CONTROLLER

- 29 A. As indicated on Drawings.

1 PART 3 - EXECUTION

2 3.01 LAYOUT

- 3 A. Layout work as accurately as possible to Drawings. Drawings are diagrammatic to the extent
4 that swing joints, offsets and all fittings are not shown.
- 5 B. Adjust layout as necessary to install around existing work. Where piping is shown to be under
6 paved areas, but running parallel and adjacent to planted areas, intention is to install piping in
7 planted areas. Do not install piping directly over another line in common trench. Offset piping
8 to opposite sides of the trench, min. 1 inch physical separation.

9 3.02 TRENCHING

- 10 A. Provide all excavations as required for installation of work included in this Section, including
11 shoring of earth banks, if necessary. Restore all surfaces, existing underground installations,
12 etc., damaged or cut as a result of the excavation, to their original condition.
- 13 B. Dig trenches wide enough to allow a minimum of 1" separation between parallel pipe lines.
14 Trenches shall be of sufficient depth to provide minimum cover from finish grades as follows:
15 1. Over PVC mainline pipe and control wires: 24" minimum cover.
16 2. Over pipe on non-pressure side of irrigation control valve (lateral lines): 18" minimum
17 cover.
18 3. Excavate to depth required in any material encountered with no extra compensation.
19 Backfill all irrigation trenches with Common Borrow as specified.
20 4. Install pipe with manufacturer's markings facing up (12 o'clock).
- 21 C. Dispose of all surplus suitable excavation from trenches on site if possible by spreading the
22 material in disturbed areas and blending it for a smooth, even surface. Material which cannot be
23 blended into disturbed areas shall be disposed off site.

24 3.03 CONTROL WIRING

- 25 A. Wiring between automatic controller and automatic control valve shall comply with National
26 Electric Code, latest edition.
- 27 B. Splices will be permitted only at junction boxes, valve boxes, or at control equipment. A
28 minimum of 2' of excess conductor is to be left at all splices, terminal and control valves.
29 Encapsulate all splices with approved connectors.
- 30 C. All control wire that is not installed within mainline trench shall be buried at 24" depth minimum
31 and sleeved with appropriately sized Schedule 40 PVC conduit (or better). Sleeve shall be
32 continuous from mainline trench to mainline trench and from mainline trench to controller.
- 33 D. All control wire installed above ground shall be encased (sleeved) within intermediate metal
34 conduit and fittings (or better), anchored securely with sheet metal bands, with concrete anchors
35 where attachment to concrete is required, and hex-head wood screws where attached to wood.

1 3.04 REMOTE CONTROL VALVES

- 2 A. Install in locations shown on plan. Stake locations for approval by the Owner before
3 commencing construction.
- 4 B. Where valves occur adjacent to paved areas, install so that the valve box will be no closer than
5 12" to paving and perpendicular or parallel to it. Grouped valves shall be spaced evenly to
6 present a neat appearance. Valve boxes shall be installed 1/2 inch above finish grade.
- 7 C. Enclose all valves in individual valve boxes. Use valve box extensions as required. Install as
8 per detail and locate precisely by dimensions from two (2) fixed objects on Record Drawings.
- 9 D. Valve bonnet packing, and bolts shall be checked and tightened.
- 10 E. Provide sufficient room within valve box to service or replace all equipment. Place Valve Boxes
11 on concrete pavers on all four corners. Valve Boxes shall be level and exhibit zero movement.
12 Backfill around boxes and compact to 95%.

13 3.05 AUTOMATIC CONTROLLER

- 14 A. Install the new controller per manufacturer's recommendations and where indicated on Drawings.
15 B. Perform zone activation tests on all new zones twice for two minutes per cycle.

16 3.06 PIPE AND FITTINGS

- 17 A. Transport and store pipe on a flat and even surface.
- 18 B. Seal all threaded joints with 3 wraps minimum of Teflon tape. No PVC pipe shall be threaded
19 or connected to a threaded fitting without an adapter.
- 20 C. All solvent-weld plastic pipe shall be installed in accordance with manufacturer's installation
21 instructions. Keep the inside of the pipe clean and free of dirt, debris, and excess glue. Protect
22 pipe ends not being worked on from damage. Cleaning of cutting burrs is mandatory.
- 23 D. For solvent weld pipe, PVC pipe ends shall be cut at a 90-degree angle to the pipe length and
24 shall be cleaned (use approved reaming tool) of all burrs prior to cementing. Pipe ends shall be
25 wiped clean with a rag that has been lightly wetted with PVC thinner. Joints shall be completely
26 free of moisture or condensation.
- 27 E. Cement shall be applied with a light coat on the inside of the fitting and a heavier coat on the
28 outside of the pipe (no further back from the end of pipe than the fitting would slip). Application
29 of cement on the interior of the fittings shall be quantified to ensure no cement shall be pushed
30 into the flow stream of the pipe. Pipe shall be inserted into the fitting and given a quarter turn to
31 seat the cement. Excess cement shall be wiped from the outside of the pipe. Cement that
32 becomes unduly thick or heavy shall not be thinned and re-used. CONTRACTOR SHALL
33 DISPOSE OF SAME. Pipe shall be tested as indicated elsewhere in these specifications.
- 34 F. Allow 15 minutes (minimum) set-up time for solvent weld joints before moving or handling.
35 Pipe shall be partially center-loaded to prevent arching or slipping. No water shall be permitted
36 in the pipe for at least 10 hours to permit solvent weld set and cure. Backfilling shall be done
37 when the pipe is not in an expanded condition due to heat or pressure. Cooling of the pipe can

BUCK PARK INFIELD RENOVATIONS
SECTION 32 84 00
SPORTSFIELD IRRIGATION

1 be accomplished by operating the system for a short period of time before backfilling, or by
2 backfilling in the early part of the morning before the heat of the day. Before pressure testing,
3 allow 24 hours cure time for solvent weld joints.

- 4 G. Lateral line pipe may be longitudinally bent at a ratio of 200 times the outside diameter (O.D.) of
5 the pipe over the length of one (1) full stick of pipe [i.e.: 1-1/2" pipe (1.9" O.D.) can be bent to a
6 minimum radius of 1.9×200 or 380 inches (31.7') over 20'].

7 **3.07 FLUSHING**

- 8 A. Flush all mainlines once prior to the installation of valves, and again after the installation of valves
9 and prior to pressure testing.
10 B. Flush all lateral lines prior to the installation of sprinkler nozzles.

11 **3.08 PRESSURE TEST**

- 12 A. All joints and connections shall be left exposed until after completion and acceptance of pressure
13 test.
14 B. Entire mainline shall be capped and pressurized to 100 PSI for a period of 10 minutes without
15 introduction of additional service or pumping pressure. Lines that show loss of pressure
16 exceeding 5 PSI at the end of specified test period shall be rejected.

17 **3.09 SPRINKLER HEAD INSTALLATION**

- 18 A. All piping shall be thoroughly flushed through extended risers before sprinklers are attached.
19 B. Sprinkler heads shall be installed as indicated on the Drawings.
20 C. Provide an 18 in. x 16 in. sod collar, as indicated on the Drawings, around every sprinkler head
21 installed, except in the following areas:
22 1. Sprinkler heads installed inside the skinned material area of the infield.
23 2. Sprinkler heads installed in areas that are to receive sod, as indicated on the Drawings.

24 **3.010 SPRINKLER SWING JOINTS (RISERS)**

- 25 A. On spray head flexible swing joints, apply two wraps of Teflon tape around threaded outlet
26 connection (to sprinkler or quick coupling valve). Threaded connections shall be watertight.
27 Do not over tighten.

28 **3.011 VALVE BOXES**

- 29 A. Install valve boxes plumb and flush with finish grade, so that a reel type mover may pass over
30 without interference. Box shall be supported on continuous brick foundation per detail. Valve box
31 archway shall not rest on piping – provide a minimum of one-inch (1") clearance around any
32 piping.

BUCK PARK INFIELD RENOVATIONS
SECTION 32 84 00
SPORTSFIELD IRRIGATION

- 1 B. If construction debris washes into the automatic valve or quick coupling valve boxes prior to
2 project completion, remove existing gravel and replace with new gravel.

3 3.012 BACKFILLING

4 A. Backfill:

- 5 1. After system is operating and the required tests and review have been made, backfill
6 excavations and trenches with clean, rock-free common borrow.
7 2. Backfill when PVC pipe is not in an expanded condition due to heat or pressure. Cooling
8 the pipe can be accomplished by operating the system a short time or by backfilling in the
9 early part of the morning.
10 3.

11 B. Compaction:

- 12 1. Backfill all trenches and compact to minimum 95% MDD under pavements, 85% MDD
13 under lawn areas.
14 2. Dress all areas to surrounding finish grades.

15 3.013 TESTING

- 16 A. A coverage test of the completed system including checking coverage of all heads, head setting
17 relative to finish grade, nozzle performance, seal leakage, and sprinkler type is required, and shall
18 be scheduled with the Owner.

- 19 B. Test is acceptable if system operates through at least one (1) complete cycle in a satisfactory
20 manner, with uniform coverage of areas to be irrigated, and automatic controls functioning
21 properly.

22 3.014 RESTORATION AND CLEANUP

- 23 A. Roots, rocks, surplus excavated trench material not spread on site, and debris shall be removed
24 from site.

- 25 B. Sweep and wash all walks, pavement and steps.

26 3.015 FINAL INSPECTION

- 27 A. Prior to final inspection of work, Contractor shall have completed all punch list items and shall
28 submit signed and approved sprinkler/plumbing/health/electrical permits as applicable to the
29 work.

- 30 B. Acceptance of work establishes the beginning of one (1) year warranty period for irrigation
31 system.

32 END OF SECTION

1 PART 1 GENERAL

2 1.01 DESCRIPTION

- 3 A. This Section includes the following:
- 4 1. Soil preparation for Sod.
 - 5 2. Installing Sod.
 - 6 3. Watering and maintenance of Sod until Project Acceptance.

7 PART 2 PRODUCTS

8 2.01 SOD

- 9 A. Sod shall be a mix of northwest tolerant turfgrass species equal to a Rye/Bluegrass Blend
10 grown from a seed mix equal to the following. Sod shall be no-net and grown in a sand-
11 based root zone.

<u>Seed Type % by Weight</u>	
Thrive Perennial Ryegrass	28.42%
Wicked Perennial Ryegrass	26.31%
Fiesta 4 Perennial Ryegrass	26.13%
Granite Kentucky Bluegrass	20.14%

- 12
13
14
15 B. Sod shall be well-rooted, minimum two-year old stock. The sod shall be certified sod,
16 free of weeds, undesirable native grasses, insects and diseases and free of thatch and
17 organic-material layering.
- 18 C. Provide sod with soil layer of uniform thickness not to exceed 3/4 inch, with maximum
19 1/8 inch deviation. Broken pieces with uneven ends will not be acceptable. Sod
20 incapable of supporting its own weight when suspended vertically with a firm grasp on
21 upper 10 percent will be rejected. Sod shall be cut at a uniform and even depth/thickness.
- 22 D. Sod shall be harvested and delivered to the site in uniformly cut pieces generally
23 measuring 24 in. x 16 in.
- 24 E. Provide no-net sod only. If netted sod is delivered to the project site, Contractor shall
25 completely remove the net before installation, and shall then legally dispose it off site.

26 2.04 FERTILIZER

- 27 A. Shall be complete commercial brand, 20-20-20 fertilizer with chemical analysis shown on
28 unopened container when delivered.
- 29 B. Fertilizer shall be packaged in new, waterproof, non-overlaid bags clearly labeled as to
30 weight, manufacturer and content.
- 31
32
33
34
35

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine areas to receive sod and/or seeding for compliance with requirements and other conditions affecting performance. Verify finish grade is correct before beginning work. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operation.
- B. Finish Grading:
1. Finish grade is defined as the top surface of areas to receive seed or sod prior to the installation of seed or sod, unless otherwise noted on the Plans.
 2. Grade planting surface to a smooth, uniform surface plane with loose, uniformly fine texture. Grade, roll, rake to remove ridges and fill depressions, and meet finish grades. Re-grade just before sod/seed is installed to remove imperfections.
 3. Finish grade in areas to receive sod shall be held 1 inch low, or the depth required, to account for the thickness of the sod.
 4. Roll finished surface to compact finish grade.
- C. Moisten prepared sod/seed bed to a minimum depth of 4 inches before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil or conditions that create wheel ruts for seed/sod application equipment.
- D. Restore areas if eroded or otherwise disturbed after finish grading and before planting.
- E. Obtain approval of finish grade prior to installing sod or seed.

3.03 INSTALLATION

- A. Sod Installation
1. Sod shall be installed flat, true, and without holes, footprints, or other surface deformities.
 2. Sod seams shall be butt tight and shall not show any sod soil, shall not be installed on top of other sod pieces, and shall exhibit a smooth, uniform surface free of humps, low spots, or holes. Pull tight all sod so no gaps larger than 1/4" is evident. Install Top Sand in all Sod gaps if, and when Sod shrinks and creates a gap. Absolutely no gaps shall be evident at Substantial Completion.
 3. Roll Sod with a Sod Roller; minimum size shall be 1.5' diameter by 4' wide, filled with water and towed by a tractor with floatation tires over the entire sodded area.
 4. Where sod abuts pavement or other hard surface, small strips or cut pieces of sod shall not be installed. Contractor shall use a full piece of sod and trim the abutting piece behind to fit.
 5. Provide Fertilizer for Sod Application within 48 hours of sod installation.

3.04 14 DAY MAINTENANCE AND ESTABLISHMENT PERIOD

- A. The 14-day Maintenance and Establishment Period will begin when the Owner accepts the sodded areas exhibit a uniform, dense and healthy stand of turf grass as determined by the Owner. Owner will provide Contractor with written documentation stating as such.
- B. It is expressly understood that the Contractor will be responsible during the maintenance and establishment period for normal landscape maintenance of the project. Maintenance of the seed and sod areas shall include, but not be limited to, watering, mowing, weeding, monitoring and treating any disease and/or pest-problems, cultivating and any other maintenance requirements (per standard trade practices) to keep the planting areas in a normal healthy growing condition.
- C. Replace all sod areas when plants are no longer in a satisfactory growing condition as determined by the Owner for the duration of the guarantee period. Make replacements within seven (7) days of notification from the Owner. Remove dead sod and seed areas within two (2) days of notification and mark planting plan showing the exact location of replaced areas.
- D. The fertilization, watering, and maintenance requirements specified for sodding are the minimum requirements, and do not relieve the Contractor of the responsibility to provide acceptable installed sod. Contractor shall provide all additional fertilizer applications, waterings, mowings, and maintenance methods necessary beyond the minimum requirements specified in this Section to provide an acceptable stand of sod at Contractor's cost as part of the unit price.
- E. Sod Establishment:
1. Grow and maintain, including, but not limited to, watering, fertilization, mowing, and clean-up the sod until it has filled into an acceptable condition.
 2. Acceptable condition shall mean a full stand of grass, uniform in appearance, and free of weeds and/or other undesirable plant species as approved by the Owner.
 3. A full stand of sod is defined as a uniform grass cover with no bare spots.
 4. Apply a second full-rate application of fertilizer three days prior to the third mowing.
 5. Request the Owner inspect the sod areas, determine acceptance, and if acceptable transfer responsibility of maintenance to the Owner.
 6. Only after written acceptance of the sod areas by the Owner, shall Contractor be eligible to be paid 100% of the sod payment item.
 7. If the Owner finds any sod area unacceptable, the Contractor shall immediately repair the areas at Contractor's expense until the Owner determines acceptance.
- F. Required Tasks During the 14-Day Maintenance Period
1. Tasks shall include, but not be limited to mowing (three mowings minimum, and as many additional mowings as it takes to maintain seed and sod areas at 1-1/2 inch height without removing more than 1/3 blade height at any one mowing), edging, weed control, and watering.
 2. Application of a second full-rate application of fertilizer prior to third mowing.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51

G. Watering and Moisture Management

1. To encourage deep rooting, each watering shall be thorough enough to provide soil moisture a minimum of four (4) inches below soil surface. Permit soil to dry sufficiently between watering, but not so dry as to damage the sod.
2. During the germination period for seeded areas, the plant bed shall be kept evenly moist at all times to a depth of 4 inches. To achieve this goal, it may be required to water areas more than once daily, depending upon weather conditions, during the germination period. Care shall be given to apply water at such a rate so as to not erode or wash away sod.
3. Application rates and timing to achieve adequate moisture for active growth for seed and sod shall be solely the responsibility of the Contractor.
4. Daily inspections will be conducted by the Owner during the germination period following application to verify the application of adequate amounts of water. Should inspection reveal that an adequate amount of moisture is not being supplied or evenly distributed to all the sodded areas, the Owner will place the Contractor on notice that immediate applications of water be applied.
5. Daily inspections of sodded areas will be conducted by the Owner during the 30-day Sod Maintenance Period. Should inspection reveal that an adequate amount of moisture is not being supplied or evenly distributed to all the seeded and sodded areas, the Owner will place the Contractor on notice that immediate applications of water be applied and failure to do so will result in immediate suspension of the calendar day maintenance period. No additional compensation will be allowed the Contractor for these applications of water.
6. If the Contractor continues to fail to apply adequate moisture during the germination period for five (5) consecutive calendar days, the Owner may declare the seeding and sod unacceptable. Within three (3) working days of notification, the Contractor will be required to reseed and resod areas that have not been kept properly moist to provide healthy, vigorous growth.

H. Owner's Recourse to Lack of, or Inadequate/Improper Maintenance

1. It is agreed that the Owner will suffer damage and be put to additional expense in the event that the Contractor does not perform maintenance duties as specified above, and as it may be difficult to accurately compute the amount of such damage, the Contractor hereby expressly covenants and agrees to the following maintenance performance measures:
 - a) Weeding: The Owner will issue the Contractor up to two written notices during the maintenance period to weed contract planting areas. Whereupon the Contractor shall have seven calendar days, per notice, to complete the weeding. If weeding is not performed after the second notice, the Owner shall terminate the contract with the Contractor and contact the Contractor's Bonding Company to perform the work for the rest of the maintenance period.
 - b) Replacing Dead or Dying Sod: The Owner will issue the Contractor up to two written notices during the maintenance period to replace dead or dying sod. Whereupon the Contractor shall have seven calendar days, per notice, to replace the dead or dying grass. If grass replacement is not performed after the second notice, the Owner shall terminate the contract with the Contractor and contact the Contractor's Bonding Company to perform the work for the rest of the maintenance period.

1
2 3.05 INSPECTION AND SUBSTANTIAL COMPLETION

- 3 A. After completion of all sod installation and the 14-day maintenance period, the Owner
4 will review all areas for compliance.
5
6 B. Grassed areas without an acceptable, uniform stand of sod, or areas damaged through any
7 other cause prior to this inspection shall be re-grassed using the material specified for that
8 area as herein specified at the Contractor's expense, and regrown, including specified
9 maintenance, until an acceptable stand is achieved.

9 3.06 CLEANUP AND PROTECTION

- 10 A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels
11 of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved
12 areas.

13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000